ANEJO Nº 6. ESTRUCTURAS

4. Cálculos

Estructura E-6 (PK 304+277,920)

º

ESTRUCTURA E-6. (PK 304+277,920)

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LINEA DE ALTA VELOCIDAD

MADRID-BARCELONA-FRONTERA FRANCESA

TRAMO: LLEIDA-MARTORELL, SUBTRAMO:III-A, PLATAFORMA

ESTRUCTURA E-6

P.K. 304+277.920

Madrid, Octubre1999

CARACTERISTICAS MECANICAS

DE LA SECCION

PUENTE P.K. 304+277 **14+18+14**

HA – 30 / P / 20 / II b -H Acero B500 S

(H-300) (AEH-500)

- CARACTERISTICAS MECANICAS DE LA SECCION
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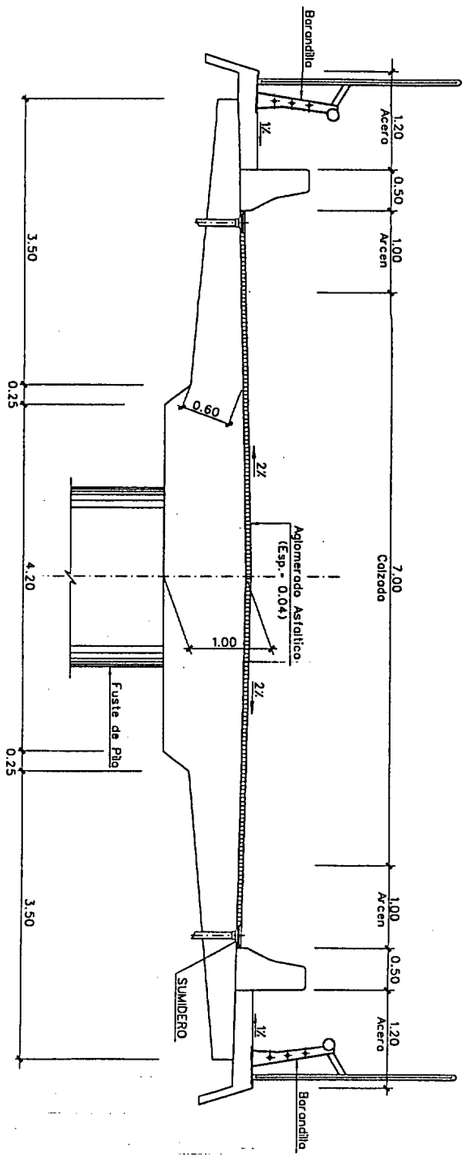
CARACTERÍSTICAS MECÁNICAS DE LA SECCIÓN



SECCION TRANSVERSAL TIPO

COORDENADAS DE LOS NUDOS

- SECCIÓN COMPLETA

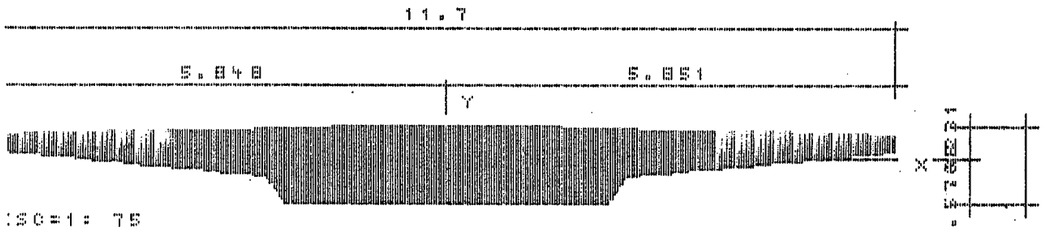
NUDO	X	Y
①	0.00	0,683
②	3,56	0,353
③	3,75	0,0
④	7,95	0,0
⑤	8,20	0,353
⑥	11,70	0,683
⑦	11,70	0,883
⑧	5,85	1,0
③	0,00	0,883

- ALINEACIONES EMPARRILLADO

ALINEACIÓN - NUDO		X	Y
①	A_1	0	0
	B_1	2,3	0
	C_1	2,3	0,98
	D_1	1,15	1,0
	E_1	0	0,98
②	A_2	0	0,45
	B_2	1,1	0,40
	C_2	1,35	0
	D_2	2,3	0
	E_2	2,3	0,98
	F_2	0	0,93
③	A_3	0	0,25
	B_3	2,4	0,0
	C_3	2,4	0,50
	D_3	0	0,45

CARACTERISTICAS MECANICAS

AREA=	7.3028(M2)
XC..=	5.849 (M)
YC..=	0.577 (M)
Ixx =	0.4801(M4)
Iyy =	51.0526(M4)
Izz =	51.5328(M4)
Wxs =	1.1346(M3)
Wxi =	0.8322(M3)

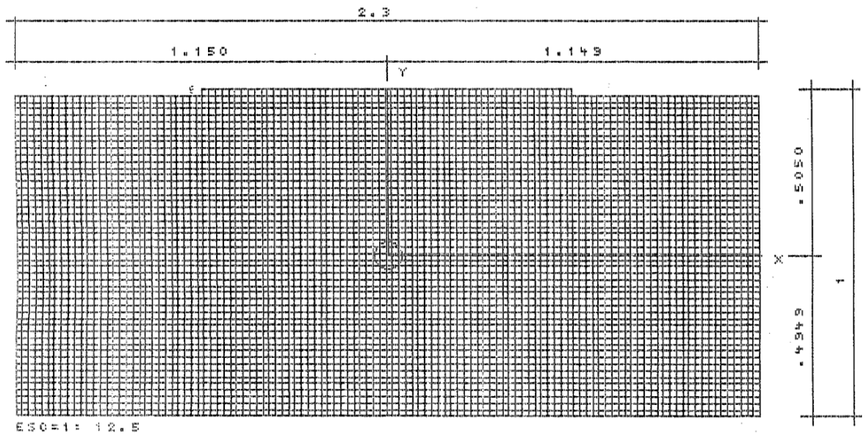


2

CARACTERISTICAS MECANICAS

ALIN. 1

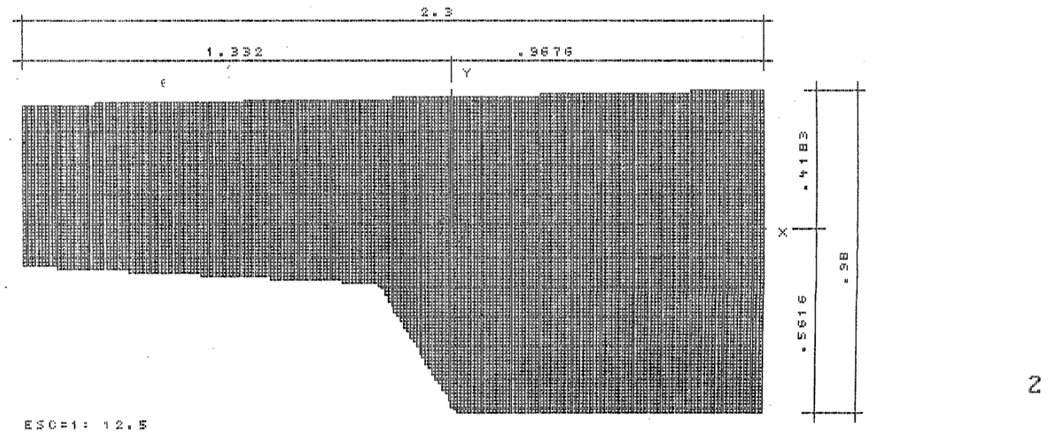
AREA=	2.2767(M2)
XC..=	1.150 (M)
YC..=	0.495 (M)
Ixx =	0.1860(M4)
Iyy =	0.9960(M4)
Izz =	1.1820(M4)
Wxs =	0.3682(M3)
Wxi =	0.3757(M3)



CARACTERISTICAS MECANICAS

ALIN.2

AREA=	1.6792(M2)
XC..=	1.332 (M)
YC..=	0.562 (M)
Ixx =	0.1091(M4)
Iyy =	0.6905(M4)
Izz =	0.7996(M4)
Wxs =	0.2607(M3)
Wxi =	0.1942(M3)

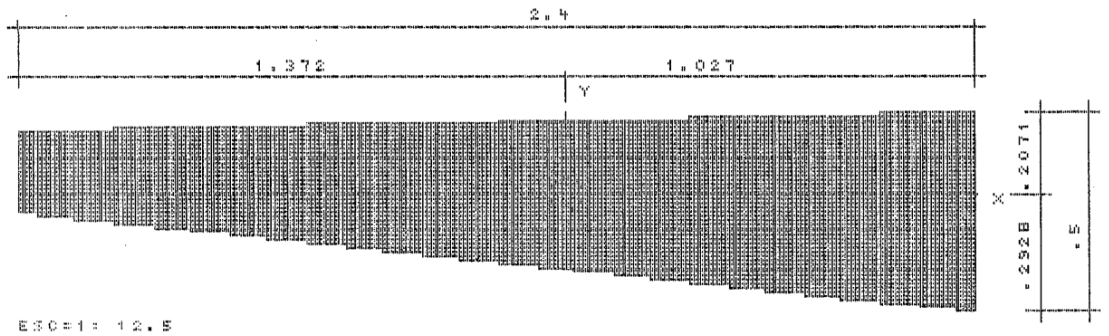


2

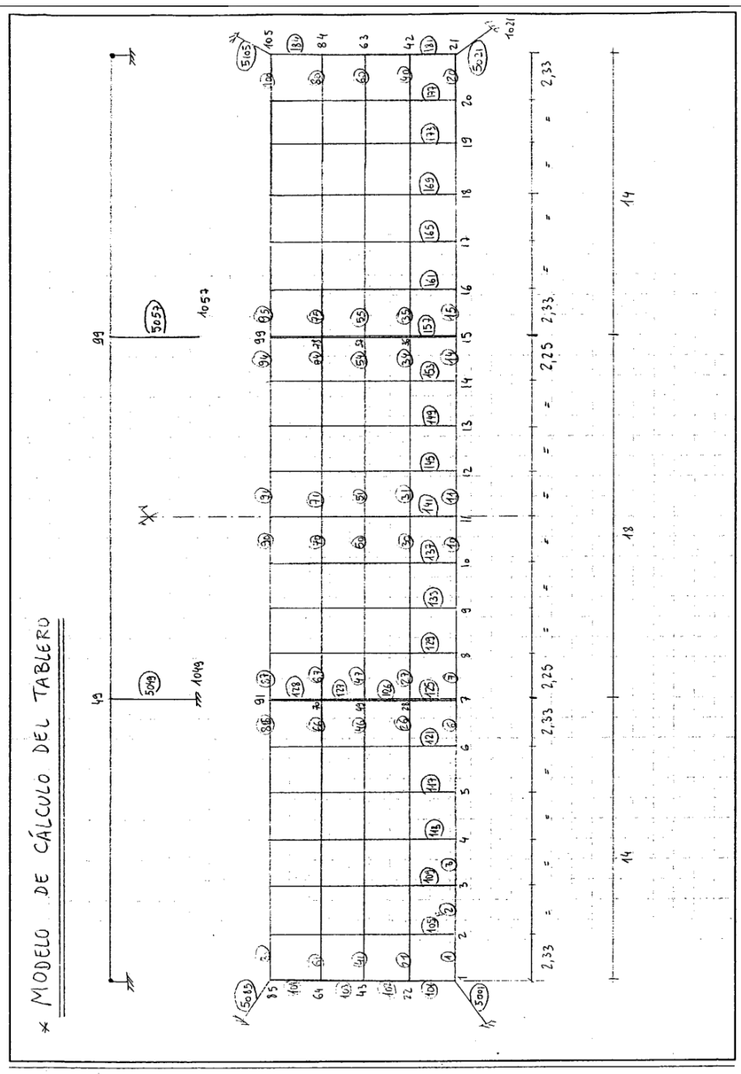
CARACTERISTICAS MECANICAS

ALIN. 3

AREA=	0.8400	(M2)
XC..=	1.372	(M)
YC..=	0.293	(M)
Ixx =	0.0108	(M4)
Iyy =	0.3783	(M4)
Izz =	0.3891	(M4)
Wxs =	0.0522	(M3)
Wxi =	0.0369	(M3)



CARGAS Y MODELO DE CALCULO DE TABLERO



CARACTERÍSTICAS MECÁNICAS DE LAS BARRAS

• LONGITUDINALES

- Barras 1 a 20, 81 a 100 → Características de la situación [1]
- Barras 21 a 40, 61 a 80 → " [2]
- Barras 41 a 60 → " [3]

• TRANSVERSALES

- Barras 101 a 104, 181 a 184 → 1,15 × 0,9 [4]
- Barras 105 a 121, 161 a 177, 108 a 124, 164 a 180 (x = 4) = → 2,33 × 0,25 [5]
- Barras 129 a 153, 132 a 156 = → 2,25 × 0,25 [9]
- Barras 106 a 122, 162 a 178, 107 a 123, 163 a 179 = → 2,33 × 0,5 [6]
- Barras 130 a 154, 131 a 155 = → 2,25 × 0,5 [10]
- Barras 125 123 157 160 → 2,29 × 0,25 [7]
- Barras 126 127 158* 159 → 2,29 × 0,5 [8]

- Barras 5049 y 5057: Pilas, ⌀ 1 / 3,2 [11]
- Barras 5001, 5021, 5085, 5105 → Neoprenos [12]

* CARGAS CONSIDERADAS

• PESO PROPIO

Densidad hormigón armado: $2,5\ t/m^3$

Carga gravitatoria en barras longitudinales

ALINEACIÓN 1	$A_1 = 2,28\ m^2$	$W_1 = 5,7\ t/m$	barras 41 a 60
ALINEACIÓN 2	$A_2 = 1,68\ m^2$	$W_2 = 4,2\ t/m$	barras 21a40, 61a80
ALINEACIÓN 3	$A_3 = 0,84\ m^2$	$W_3 = 2,1\ t/m$	barras 1a20, 81a100

$W_T = 18,3\ t$

• RESTO DE CARGAS PERMANENTES

- Pavimento: $d = 2,5\ t/m^3$ $e = 0,04 \Rightarrow$ $P = 0,1\ t/m$
- Aceras y barandillas $P = 1,4\ t/m + 0,45 \cdot 0,85 \cdot 2,5 = 2,4\ t/m$

ALINEACIÓN 1	$P_1 = 0,1 \cdot 2,3 = 0,23\ t/m$
2	$P_2 = \quad = 0,23\ t/m$
3	$P_3 = 0,1 \cdot 1 + 2,4 = 2,5\ t/m$

• VIENTO TRANSVERSAL Según IAP-96, Apartado 3.2.3.2.1

- VELOCIDAD DE CÁLCULO $V_c = C_t \cdot C_z \cdot C_g \cdot V_{ref}$

$V_{ref} = 28\ m/s$ $C_T = 1,1$ $C_z = 1,04$

Entorno tipo II $\rightarrow$ $k_z = 0,19$ $z_0 = 0,05\ m$ $z_{min} = 4\ m$

En la pila más alta $C_z = k_z \ln(z/z_0) = 1,115$

Factor de ráfaga: $C_g = \sqrt{1 + \frac{7k_z}{C_z \cdot C_T}} = 1,44 \Rightarrow \underline{V_c = 51,6\ m/s}$

- EMPUJE TRANSVERSAL $F = C_D \cdot \frac{1}{2} \rho V_c^2$ $\rho = 1,25\ kg/m^3$

$C_D = 2,5 - 0,3\frac{B}{h}$ $B = 11,7\ m$ $h = 3,65\ m$

$\Rightarrow C_D = 1,54 \in [1,3 ; 2,4]$

$F = 1,54 \cdot 0,5 \cdot 1,25 \cdot 51,6^2 = 256\ kg/m^2$

Altura expuesta $= 3,65\ m \rightarrow$ $\boxed{F_V = 0,934\ t/m}$

• SOBRECARGAS

- Uniforme: $400\ kg/m^2 = 0,4\ t/m^2$
- Paso del carro: $60\ t$

• FRENADO HORIZONTAL

$F_{FR} = \frac{1}{20}(sc \cdot A + c) = \frac{1}{20}(0,4 \cdot 46 \cdot 11,7 + 60) = 13,8\ t$

Mínimo $= 20 \cdot 6 = 23,4\ t$ $\rightarrow$ $\boxed{F_{FR} = 23,4\ t}$

• PRESIÓN - SUCCIÓN POR PASO DEL FERROCARRIL Según el Eurocódigo

$V = 300\ km/h$ Gálibo mínimo tipo: 7m

Vía doble - acciones sumables $\rightarrow$ $q = \pm 65\ kg/m^2$ Barras 125-160

DATOS DE ENTRADA SAP 90

```
C PUENTE CURVO,canto max. 1.00 m.,ancho tablero 11.70 m.
C HIPOTESIS 7 CENTRO VANO INTERMEDIO: 400 kg/m2 + 60 tn

SYSTEM
L=7

JOINTS
1          X=0.000         Y=0.000         Z=17.900
7          X=14.00                                    G=1,7,1
15         X=32.00                                    G=7,15,1
21         X=46.00                                    G=15,21,1
64         X=0.000         Y=6.900                    G=1,64,21
85         X=0.000         Y=9.200                    F=1,20,4,1,21
C
C NUDOS ARRANQUE DE PILAS
1049       X=14.00         Y=4.600         Z=0.000
1057       X=32.00         Y=4.600         Z=0.000
C
C NUDOS ARRANQUE ESTRIBOS
1001       X=0.000         Y=0.000         Z=17.85
1085       X=0.000         Y=9.200         Z=17.85
1021       X=46.00         Y=0.000         Z=17.85
1105       X=46.00         Y=9.200         Z=17.85

RESTRAINTS
C ARRANQUE DE PILAS
1049        R=1,1,1,1,1,1
1057        R=1,1,1,1,1,1
C ESTRIBOS
1001        R=1,1,1,1,1,1
1021        R=1,1,1,1,1,1
1085        R=1,1,1,1,1,1
1105        R=1,1,1,1,1,1
C
C SPRINGS
C 22 42 20          K=100000,1E6,100000,0,0,0
C 64 84 20          K=100000,1E6,100000,0,0,0

FRAME
NM=12      NL=6      Z=-1,0,0,0,0,0,0     NSEC=3
C SECCION BARRAS LONGITUDINALES
1  A=2.2767   J=1.182  I=.1860,0.9960   AS=1.89700,1.89700   E=3500000   W=5.70
2  A=1.6792   J=.7996   I=.1091,.6905   AS=1.400,1.400                   W=4.20
3  A=0.8400   J=.3891   I=.0108,.3783   AS=0.700,0.7000                  W=2.10
C SECCION BARRAS TRANSVERSALES
4  SH=R        T=0.90,1.15
5  SH=R        T=0.25,2.33
6  SH=R        T=0.5,2.33
7  SH=R        T=0.25,2.29
8  SH=R        T=0.50,2.29
9  SH=R        T=0.25,2.25
10 SH=R        T=0.50,2.25
C SECCION PILAS OBLONGAS DE DIMENSIONES 3.2*1 M
11 A=2.9904   J=2.4966   I=2.2636,.233   AS=2.5,2.5
C SECCION NEOPRENOS ESTRIBOS
12 SH=R        T=0.40,0.30      E=63000    G=9000
C
C CARGAS
C PESO DE AGLOMERADO  100 KG/M2
1          WG=0,0,-0.230
C PESO DE BARANDILLAS,ACERAS E IMPOSTAS
2          WG=0,0,-2.4
C ACCION TRANSVERSAL DE VIENTO
3          WG=0,0.934,0
C PRESION SUCCION PASO FERROCARRIL 130 KG/M2 (2 VIAS 7 M. GALIBO V=300KM/H)
```

```
4       WG=0,0,0.36
5       WG=0,0,-0.36
C SOBRECARGA 400kg/m2 EN CADA BARRA LONGITUDINAL
6       WG=0,0,-0.92
C
C PESO PROPIO TABLERO,AGLOMERADO,IMPOSTA,VIENTO,SUCCION,FRENADO
C
C BARRAS LONGITUDINALES
1     1   2   M=3  LP=-2,0   NSL=0,1,2,3,0,0,0        G=5,1,1,1
7     7   8   M=3             NSL=0,1,2,3,0,0,6      G=7,1,1,1
15   15  16   M=3             NSL=0,1,2,3,0,0,0      G=5,1,1,1
21   22  23   M=2             NSL=0,1,0,0,0,0,0      G=5,1,1,1
27   28  29   M=2             NSL=0,1,0,0,0,0,6      G=7,1,1,1
35   36  37   M=2             NSL=0,1,0,0,0,0,0      G=5,1,1,1
41   43  44   M=1             NSL=0,1,0,0,0,0,0      G=5,1,1,1
47   49  50   M=1             NSL=0,1,0,0,0,0,6      G=7,1,1,1
55   57  58   M=1             NSL=0,1,0,0,0,0,0      G=5,1,1,1
61   64  65   M=2             NSL=0,1,0,0,0,0,0      G=5,1,1,1
67   70  71   M=2             NSL=0,1,0,0,0,0,6      G=7,1,1,1
75   78  79   M=2             NSL=0,1,0,0,0,0,0      G=5,1,1,1
81   85  86   M=3             NSL=0,1,2,0,0,0,0      G=5,1,1,1
87   91  92   M=3             NSL=0,1,2,0,0,0,6      G=7,1,1,1
95   99 100   M=3             NSL=0,1,2,0,0,0,0      G=5,1,1,1
C BARRAS TRANSVERSALES
101   1  22   M=4  LP=3,0
105   2  23   M=5                                    G=4,4,1,1
125   7  28   M=7             NSL=0,0,0,0,4,0,0
129   8  29   M=9             NSL=0,0,0,0,4,0,0      G=6,4,1,1
157  15  36   M=7             NSL=0,0,0,0,4,0,0
161  16  37   M=5                                    G=4,4,1,1
181  21  42   M=4
C
102  22  43   M=4  LP=3,0
106  23  44   M=6                                    G=4,4,1,1
126  28  49   M=8             NSL=0,0,0,0,4,0,0
130  29  50   M=10            NSL=0,0,0,0,4,0,0      G=6,4,1,1
158  36  57   M=8             NSL=0,0,0,0,4,0,0
162  37  58   M=6                                    G=4,4,1,1
182  42  63   M=4
C
103  43  64   M=4  LP=3,0
107  44  65   M=6                                    G=4,4,1,1
127  49  70   M=8             NSL=0,0,0,0,5,0,0
131  50  71   M=10            NSL=0,0,0,0,5,0,0      G=6,4,1,1
159  57  78   M=8             NSL=0,0,0,0,5,0,0
163  58  79   M=6                                    G=4,4,1,1
183  63  84   M=4
C
104  64  85   M=4  LP=3,0
108  65  86   M=5                                    G=4,4,1,1
128  70  91   M=7             NSL=0,0,0,0,5,0,0
132  71  92   M=9             NSL=0,0,0,0,5,0,0      G=6,4,1,1
160  78  99   M=7             NSL=0,0,0,0,5,0,0
164  79 100   M=5                                    G=4,4,1,1
184  84 105   M=4
C
C BARRAS DE PILARES
5049 1049 49  M=11
5057 1057 57  M=11
C BARRAS DE ESTRIBOS
5001 1001   1  M=12      LR=0,1,0,0,1,0
5021 1021  21  M=12      LR=0,1,0,0,1,0
5085 1085  85  M=12      LR=0,1,0,0,1,0
5105 1105 105  M=12      LR=0,1,0,0,1,0
```

```
LOAD5
C FRENADO CON CARGA MAXIMA SOBRE TABLERO
53 L=6 F=23.4,0,0,0,0,0
C CARRO 60 TN (Para deformacion centro de vano intermedio)
31 L=7 F=0,0,-3.33,0,0,0
32 L=7 F=0,0,-3.33,0,0,0
33 L=7 F=0,0,-3.33,0,0,0
52 L=7 F=0,0,-13.34,0,0,0
53 L=7 F=0,0,-13.34,0,0,0
54 L=7 F=0,0,-13.34,0,0,0
73 L=7 F=0,0,-3.33,0,0,0
74 L=7 F=0,0,-3.33,0,0,0
75 L=7 F=0,0,-3.33,0,0,0

BRIDGE
NL=6    UP=Z
L=1
        S=1
                F=1,20,1     E=0
L=2
        S=1
                F=21,40,1    E=0
L=3
        S=1
                F=41,60,1    E=0
L=4
        S=1
                F=61,80,1    E=0
L=5
        S=1
                F=81,100,1   E=0
L=6
        S=1
                F=61,80,1    E=0.7

VEHICLE
NV=3    NG=3    UNITS=KN,M      TRUCK=QUICK
C CARRIL 2,30 m. * 400 Kg/m2 = 920 Kg/m = 0.92 T/m
V=1     TYPE=LANE               W=0.92
C CARRIL 2,40 m. * 400 Kg/m2 = 960 Kg/m = 0.96 T/m
V=2     TYPE=LANE               W=0.96
C CARRO DE 60 T.
V=3     TYPE=TRUCK              P=20,20,20   D=1.5,1.5
C
G=1     V=1
G=2     V=2
G=3     V=3

MOVING LOAD
NC=1    MK=2
C=1
K=FIX   L=1,2,3,4,5  DIR=B,B,B          G=2,1,1,1,2
K=MIX   L=3,4,6      DIR=B,B,B          G=3

ENVELOPE
C VIENTO ACCION DETERMINANTE
1       C=1,1,1,1.0,0,0      B=0
C PRESION-SUCCION ACCION DETERMINANTE
2       C=1,1,1,0.6,1,0.6,0      B=0.6
C FRENADO DETERMINANTE
3       C=1,1,1,0.6,0.6,1.0      B=0.6
C SC 400 Kp/m2 + CARRO 60 t. DETERMINANTE
4       C=1,1,1,0.6,0.6,0.6,0      B=1
C TOTAL PESO PROPIO + VANO CENTRAL CON CARRO Y SC DE 400 Kp/m2.
5       C=1,1,1,0,0,0,1      B=0
C TOTAL PESO PROPIO
```

```
8          C=1,1,1,0,0,0,0      B=0

 SELECT
 NT=1  ID=1,11,1      SW=1
 NT=1  ID=22,32,1     SW=1
 NT=1  ID=43,53,1     SW=1
 NT=1  ID=64,74,1     SW=1
 NT=1  ID=85,95,1     SW=1
 NT=5  ID=5001,5021,20   SW=1
 NT=5  ID=5085,5105,20   SW=1
 NT=5  ID=5049        SW=1
 NT=5  ID=1,10,1      SW=1
 NT=5  ID=21,30,1     SW=1
 NT=5  ID=41,50,1     SW=1
 NT=5  ID=61,70,1     SW=1
 NT=5  ID=81,90,1     SW=1
 NT=5  ID=101,141,4   SW=1
 NT=5  ID=102,142,4   SW=1
 NT=5  ID=103,143,4   SW=1
 NT=5  ID=104,144,4   SW=1
 NT=2  ID=1001        SW=1
 NT=2  ID=1049        SW=1
 NT=2  ID=1085        SW=1
```

ARMADO LONGITUDINAL

CORTANTE

TORSION

ARMADO TRANSVERSAL

SECCION TRANSVERSAL

ARMADURA LONGITUDINAL

* ESFUERZOS EN SECCIONES CRÍTICAS

1. CENTRO DEL VANO DE 18 M

BARRA	10	30	50	70	90
M^+	6,89 + 5,11	30,75 + 57,6	159,7 + 101,8		
Q	6,16 + 15,6	12,61 + 6,24	17 + 29,12		

$M_D = 1{,}35\, M_{CP} + 1{,}5\, M_{SC} = 820$ mt

$Q_D = 1{,}35\, Q_{CP} + 1{,}5\, Q_{SC} = 182{,}8$ t

2. PUNTO DE MÁXIMO M^+ EN EL VANO DE 14 M ($x = 5{,}25$m)

BARRA	3	23	43	63	83
M^+	11 + 2,96	83,6 + 31,1	143 + 64,6	83,6 + 31,1	11 + 2,96
Q	6,16 + 15,69	8,78 + 4,62	13 + 28,5	8,78 + 4,62	6,16 + 5,69

$M^+_D = 647{,}55$ mt $\rightarrow$ $U_S = 695$ t

$Q_D = 161{,}6$ t

3. APOYO EN PILA

BARRA	7	27	47	67	87
M^-	9,8 + 2,8	11,1 + 31,1	385,5 + 116,5	111 + 31,1	9,8 + 2,8
Q	6,7 + 15,74	25,78 + 10,22	153,3 + 49	25,78 + 10,22	6,7 + 15,74

$M_D^- = 1123{,}04$ mt

$Q_D = 446$ t

CUANTÍAS GEOMÉTRICAS MÍNIMAS

Acero B500 S

$4‰ \cdot A_c = 0{,}00292\ m^2 = 6\,\phi 25$

ARMADURA BASE SUPERIOR

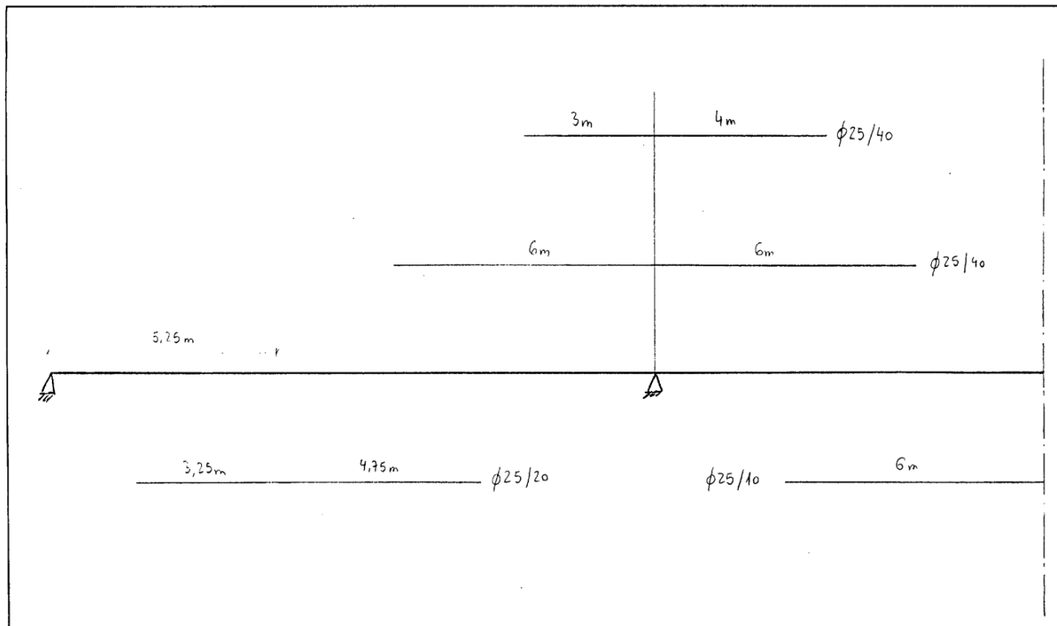
$U_{mín} = 565{,}3$ t → $\phi 20/20$ en todo el ancho del ala

ARMADURA BASE INFERIOR

$U_{mín} = 421{,}7$ t → $\phi 25/15$

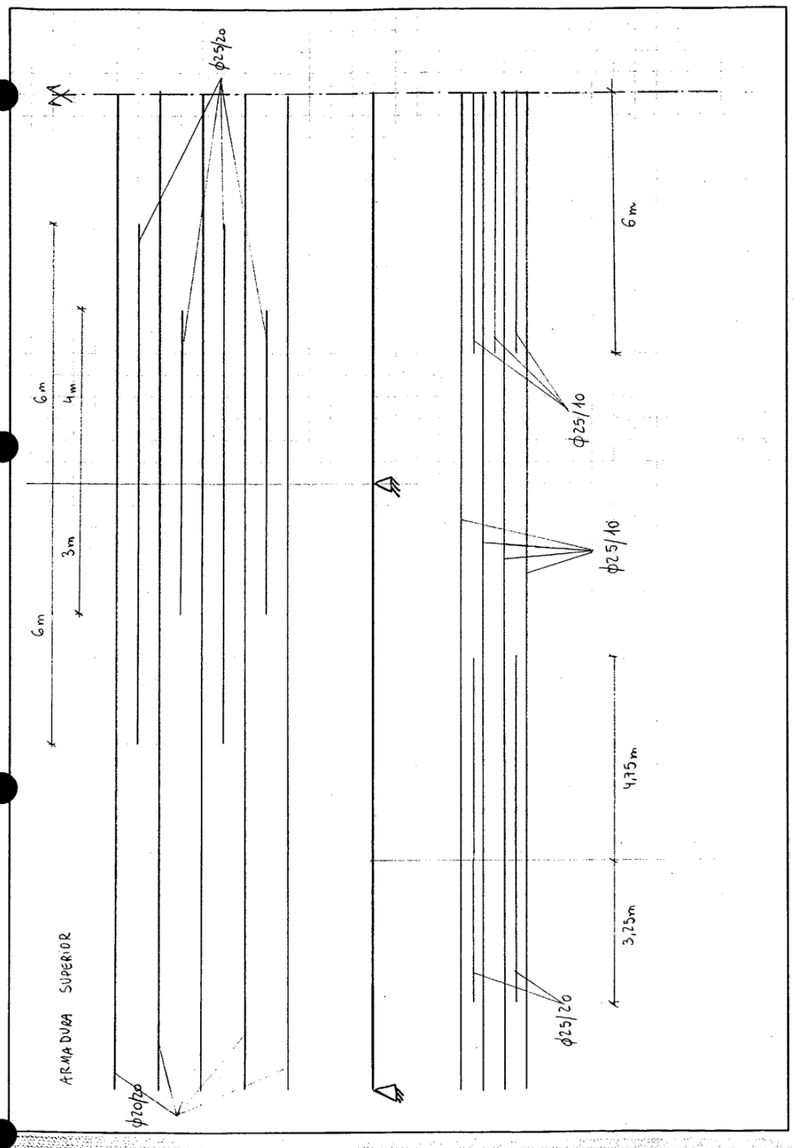
```
**SECCION EN T: H,HF,B,BW =   1.00   0.60   8.20   4.20
Resistencia caracteristica del hormigón:    300
Recubrimiento= 4  cms.
MUMENTO LIMITE(TxM) Secc Rect =  4817.66

                  CABEZA COMPRESION= 8.2                CABEZA COMPRESION= 4.2
                          M+                                    M-
      M          Us1          Us2          Us1          Us2
    0.00       421.75         0.00       565.32         0.00
   50.00       421.75         0.00       565.32         0.00
  100.00       421.75         0.00       565.32         0.00
  150.00       421.75         0.00       565.32         0.00
  200.00       421.75         0.00       565.32         0.00
  250.00       421.75         0.00       565.32         0.00
  300.00       421.75         0.00       565.32         0.00
  350.00       421.75         0.00       565.32         0.00
  400.00       423.36         0.00       565.32         0.00
  450.00       477.26         0.00       565.32         0.00
  500.00       531.38         0.00       565.32         0.00
  550.00       585.74         0.00       599.10         0.00
  600.00       640.32         0.00       656.43         0.00
  650.00       695.14         0.00       714.30         0.00
  700.00       750.19         0.00       772.72         0.00
  750.00       805.49         0.00       831.71         0.00
  800.00       861.03         0.00       891.28         0.00
  850.00       916.82         0.00       951.45         0.00
  900.00       972.86         0.00      1012.24         0.00
  950.00      1029.16         0.00      1073.67         0.00
 1000.00      1085.71         0.00      1135.76         0.00
 1050.00      1142.52         0.00      1198.54         0.00
 1100.00      1199.60         0.00      1262.01         0.00
 1150.00      1256.95         0.00      1326.22         0.00
 1200.00      1314.57         0.00      1391.18         0.00
 1250.00      1372.46         0.00      1456.92         0.00
 1300.00      1430.64         0.00      1523.47         0.00
 1350.00      1489.10         0.00      1590.86         0.00
 1400.00      1547.85         0.00      1659.13         0.00
 1450.00      1606.89         0.00      1728.31         0.00
 1500.00      1666.23         0.00      1798.43         0.00
 1550.00      1725.87         0.00      1869.54         0.00
 1600.00      1785.82         0.00      1941.68         0.00
 1650.00      1846.08         0.00      2014.90         0.00
 1700.00      1906.66         0.00      2089.24         0.00
```

1800.00	2028.78	0.00	2241.54	0.00	0.00	0.00	0.00	0.00	0.00
1850.00	2090.34	0.00	2319.56	0.00	0.00	0.00	0.00	0.00	0.00
1900.00	2152.23	0.00	2398.98	0.00	0.00	0.00	0.00	0.00	0.00
1950.00	2214.47	0.00	2479.84	0.00	0.00	0.00	0.00	0.00	0.00
2000.00	2277.06	0.00	2562.22	0.00	0.00	0.00	0.00	0.00	0.00



Armadura base superior $\phi 20/20 = 41\,\phi 20$ $\quad U_s = 569,1\,t$

Armadura base inferior $\phi 25/10 = 42\,\phi 25$ $\quad U_s = 597,5\,t$



LONGITUDES DE ANCLAJE

- BARRAS INFERIORES

Posición 1 → $l_{bl} = m\phi^2 \geq \frac{f_{yk}}{20} \cdot \phi \Rightarrow l_b = 81{,}25$ cm

$$l_{b,n} = l_b \cdot \beta \frac{A_s}{A_{s\,real}}$$

- BARRAS SUPERIORES

Posición 2 → $l_{bl} = 1{,}4\, m\phi^2 \geq \frac{f_{yk}}{14}\phi \Rightarrow l_b = 113{,}75$ cm

$$l_{b,n} = 113{,}75 \frac{A_s}{A_{s\,real}}$$

SECCIÓN	Centro de vano 18 m	Apoyo en pila	Vano lateral, x = 5,25 m
l_{sup} + d	—	$96 + 113{,}75 \cdot \frac{1294}{41\phi20 + 41\phi25} = 198$ cm	—
l_{inf} + d	$96 + 81{,}25 \cdot \frac{965}{56\phi25} = 162$ cm	—	$96 + 81{,}25 \cdot \frac{695}{(5+28)\phi25} = 176{,}2$ cm

DIMENSIONAMIENTO A CORTANTE - APOYO INTERMEDIO

• CORTANTE DE CÁLCULO $\boxed{V_{Rd} = 446\ t}$

• $V_{U_2} = V_{CU} + V_{SU} \leq V_{Rd}$

$V_{CU} = 0{,}10\ \xi\ (100\ \rho_1\ f_{ck})^{1/3} \cdot b_o\ d$ $\qquad \alpha = 90° \qquad \theta = 45°$

- $\xi = 1 + \sqrt{\frac{200}{d}} = 1{,}46$
- $\rho_1 = \frac{A_s}{b_o\ d} = \frac{41\phi 20 + 41\phi 25}{4{,}2 \cdot 0{,}96} = 0{,}0082$
- $f_{ck} = 30\ N/mm^2$

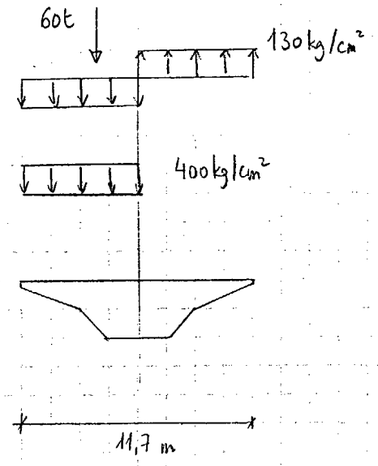
$\Rightarrow \underline{V_{CU} = 171{,}1\ t}$

• Contribución de la armadura: $V_{SU} = V_{Rd} - V_{CU} = 0{,}9d \cdot A_\alpha \cdot f_{yd}$

$\Rightarrow A_\alpha = 62{,}4\ cm^2/m \longrightarrow \boxed{6\ \square\ \phi 12/20}$

COMPROBACIÓN A TORSIÓN

• ESFUERZOS EN SECCIÓN DE APOYO DE ESTRIBO ($T_{MÁX}$)



Carro: 90 tm

Presión-s.: 1,78 tm/m

sobrecarga: 6,84 tm/m

$T_d = 1{,}5 \cdot 1/2 \left[90 + 1{,}78 \cdot 18 + 6{,}84 \cdot 46 \right] = 377{,}5\ mt$

- ESPESOR EFICAZ: $h_e = \frac{A}{U} = \frac{4{,}2 \cdot 1}{(4{,}2+1) \cdot 2} = 0{,}4\ m \Rightarrow A_e = 2{,}26\ m^2$

- TORSOR RESISTIDO POR LAS BIEZAS DE HORMIGÓN

$$T_{U_1} = \alpha \cdot f_{1cd} \cdot A_e \cdot h_e \cdot \frac{\cot g\,\theta}{1 + \cot g^2 \theta} \qquad \theta = 45°$$

$\alpha = 1{,}2$

$f_{1cd} = 0{,}6\ f_{cd} = 0{,}6 \cdot \frac{3000}{1{,}15} = 1200\ t/m^2$

$\boxed{T_{U_1} = 1{,}2 \cdot 1200 \cdot 2{,}26\ 0{,}4 \cdot 0{,}5 = 650{,}88\ tm}$ $\qquad \underline{T_d \leq T_{U_1} \rightarrow ok}$

- TORSOR RESISTIDO POR LAS ARMADURAS TRANSVERSALES

$$T_{u_2} = \frac{2A_e \cdot A_t}{s_t} \cdot f_{yt,d} \cdot \cot g\,\theta$$

$s_t = 0{,}2\ m$

$A_t = 6\,\phi\,12 = 13{,}56\ cm^2$

$f_{yt,d} = \sigma_{sd} = \frac{5100}{1{,}15}\ kg/cm^2$

$$T_{u_2} = \frac{2 \cdot 2{,}26 \cdot 13{,}56}{0{,}2} \cdot \frac{5100}{1{,}15} = 1562{,}9\ t_m$$

$T_d \leq T_{u_2} \rightarrow$ Ok

- TORSOR RESISTIDO POR LAS ARMADURAS LONGITUDINALES

$$T_{u_3} = \frac{2A_e}{u_e} \cdot A_l \cdot f_{yl,d} \cdot \operatorname{tg}\theta$$

$u_e = [(4{,}2 - 0{,}4) + (1 - 0{,}4)] \cdot 2 = 8{,}8\ m$

$A_l = 42\,\phi\,25 + 41\,\phi\,20 = 335\ cm^2$

$f_{yld} = \sigma_{sd} = 5100\ kg/cm^2$

$$T_{u_3} = \frac{2 \cdot 2{,}26}{8{,}8} \cdot 0{,}0335 \cdot \frac{5100}{1{,}15} = 929{,}3\ t_m$$

$T_d \leq T_{u_3} \rightarrow$ ok

- INTERACCIÓN TORSOR - CORTANTE

$$\beta = 2\left(1 - \frac{h_e}{b}\right) = 1{,}93$$

$T_d = 327{,}5\ mt$

$T_{u_1} = 650{,}88\ mt$

$V_{Rd} = 326{,}13\ t$

$$V_{u_1} = k \cdot f_{cd_1} \cdot b_0 \cdot d \cdot \frac{\cot g\,\theta + \cot g\,\alpha}{1 + \cot g^2\,\theta}$$

$k = 1$

$f_{cd_1} = 0{,}6\,f_{cd} = 120\ kg/cm^2$ $\rightarrow V_{u_1} = 1 \cdot 1200 \cdot 4{,}2 \cdot 0{,}96 = 4838\ t$

$$\left[\frac{T_d}{T_{u_1}}\right]^\beta + \left[\frac{V_d}{V_{u_1}}\right]^\beta = \left[\frac{327{,}5}{650{,}88}\right]^{1{,}93} + \left[\frac{326{,}13}{4838}\right]^{1{,}93} = 0{,}275 < 1 \rightarrow ok$$

ARMADURA TRANSVERSAL

Barra más solicitada de la sección de apoyo en pilas: barra 127.

ESFUERZOS: $Q_D = 127,3\ t$

$M_D = 213,9\ tm$

Sección tipo 8

FLEXIÓN — Armadura de base: $\phi 25/20$

Se dispone refuerzo en 2 m.

Cuantía necesaria: $U_{s1} = U_o \cdot \left(1 - \sqrt{1 - \frac{2M}{U_o\ h}}\right)$

$U_o = 0,85\ \frac{3000}{1,5} \cdot b \cdot h = 1751,8\ t \quad \rightarrow \quad U_{s1} = 567,1\ t$

$\Rightarrow$ Refuerzo de $\phi 32/20$.

CORTANTE $\quad V_{cu} = 0,10\ \xi\ (100\ \rho_1\ f_{ck})^{1/3} \cdot b_o \cdot d \qquad V_D = 127,3$

$\xi = 1,66$

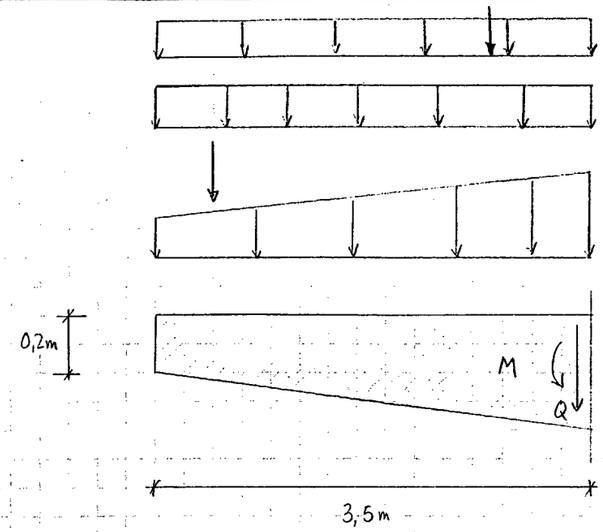
$\rho_1 = \frac{10\phi 32 + 10\phi 25}{2,29 \cdot 0,45} = 0,013$

$f_{ck} = 30\ N/mm^2 \quad \rightarrow V_{cu} = 57,35\ t \qquad V_{su} = 70\ t$

$b_o = 2,29\ m \quad \Rightarrow A_\alpha = \frac{V_{su}}{0,9d \cdot f_{yd}} = 33,9\ cm^2/m$

$d = 0,45\ m$

ARMADURA TRANSVERSAL DE LAS ALAS



- FLEXIÓN

Carga	M_A	M mayorado en A
PP (tablero + aglom.)	5,72 tm/m	7,7 tm/m
PP (aceras + baranda)	6 tm/m	8,1 tm/m
Presión - succión	0,79 tm/m	1,2 tm/m
Sobrecarga	0,92 tm/m	4 tm/m
Carro	6,96 tm/m	10,4 tm/m

$M_A = 28,8\ tm/m$

$U_o = 0,85 \cdot \frac{3000}{1,5} \cdot 1 \cdot 0,55 = 935\ t/m$

$U_{s1} = 935 \left(1 - \sqrt{1 - \frac{2 \cdot 28,8}{935 \cdot 0,55}}\right) = 53,9\ t/m \quad \rightarrow \quad \boxed{\phi 20/20}$

- CORTANTE

Carga	Q_A	Q_A mayorado
PP (tablero + aglom.)	3,85 t/m	5,2
PP (acera + barand.)	2,4 t/m	3,24
Presión - succión	0,455 t/m	0,68
Sobrecarga	0,86 t/m	1,29
Carro	5,35 t/m	8,02

$$Q_A = 18{,}44 \text{ t/m}$$

$$V_{cu} = 0{,}1\,\varphi\,(100\,\rho_1\,f_{ck})^{1/3}\,.\,b_o\,.\,d$$

$\varphi = 1{,}6$

$\rho_1 = \dfrac{15{,}7}{100\,.\,55} = 0{,}0028 \quad \Rightarrow \underline{V_{cu} = 18 \text{ t}}$

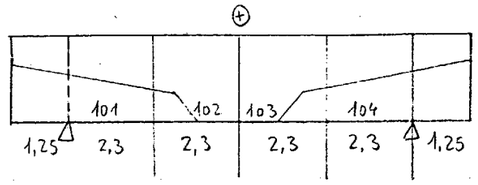
$b_o = 1 \text{ m}$

$d = 0{,}55 \text{ m}$

$V_{su} = V_{Rd} - V_{cu} = 0{,}43 t$

VIGA DE ESTRIBO

VIGA DE ESTRIBO



Viga de 1,165 m de ancho $d = 0,86$ m

- ESFUERZOS DE CÁLCULO

$M_D = 1,35 \cdot 35,6 + 1,5 \cdot 42 = 111$ mt

$Q_D = 1,35 \cdot 47 + 1,5 \cdot 22,4 = 97$ t

$M_{TD} = 1,35 \cdot 16,7 + 1,5 \cdot 15,4 = 45,2$ mt

- FLEXIÓN $U_0 = 0,85 \cdot \frac{3000}{1,5} \cdot 1,165 \cdot 0,86 = 1703$ t

$$V_{s1} = U_0 \left(1 - \sqrt{1 - \frac{2M}{U_0 \, d}} \right) = 134 \text{ t} \rightarrow 8 \phi 25$$

- CORTANTE $V_{cu} = 0,1 \, \xi \, (100 \rho_1 f_{ck})^{1/3} \cdot b_0 \cdot d = 23,8$ t

$V_{su} = V_{Rd} - V_{cu} = 0,9 \cdot 0,86 \cdot 5100 \cdot A_\alpha \Rightarrow A_\alpha = 18,6 \text{ cm}^2/\text{ml} \rightarrow$

$2 \square \phi 12/20$

- TORSIÓN

Espesor eficaz: $h_e = \frac{A}{U} = \frac{1,165 \cdot 0,9}{2(1,165 + 0,9)} = 0,25$ m $\rightarrow A_e = 0,59$ m^2

- $T_{u_1} = \alpha \cdot f_{1cd} \cdot A_e \cdot h_e \cdot \frac{\cot g \theta}{1 + \cot g^2 \theta} = 1,2 \cdot 1200 \cdot 0,59 \cdot 0,25 \cdot \frac{1}{2} = 106,2$ mt

$T_{u_1} > T_d \rightarrow$ ok

- $T_{u_2} = \frac{2 A_e \cdot A_t}{s_t} \cdot f_{yt,d} \cdot \cot g \, \theta = \frac{2 \cdot 0,59 \cdot 4,02}{0,2} \cdot 5100 = 121$ tm

$T_{u_2} > T_d \rightarrow$ ok

- $T_{u_3} = \frac{2 A_e}{U_e} \cdot A_l \cdot f_{yl,d} \cdot tg \, \theta = \frac{2 \cdot 0,59 \cdot 34,36}{3,13} \cdot 5100 = 66,1$ t

$T_{u_3} > T_d \rightarrow$ ok

COMPROBACIÓN TORSIÓN - CORTANTE

$V_{u_1} = 0,6 \cdot \frac{3000}{1,5} \cdot 1,165 \cdot 0,86 \cdot 0,5 = 601,14$ t

$\beta = 2 \left(1 - \frac{h_a}{b} \right) = 1,57$

$\left(\frac{45,2}{106,2} \right)^{1,57} + \left(\frac{97}{601,14} \right)^{1,57} = 0,32 < 1 \rightarrow$ OK

COMPROBACION ANCHURA FISURA

* COMPROBACIÓN - ELU FISURACIÓN Art. 49.2 EHE

• ARMADURA DE LA SECCIÓN DE M^+ MÁXIMO (centro de vano de 18 m)

Coeficientes de mayoración de cargas: control intenso ⇒ $\gamma_{cp} = 1,35$ (Art 12.1 EHE)

$\gamma_{sc} = 1,5$

BARRA	$M^+_{MÁX,CP}$	$M^+_{MÁX,TOT}$	$M^+_{MÁX,SC}$	M_D
10	6,89	12	5,11	16,97
30	90,75	148,35	57,6	208,31
50	159,72	261,5	101,78	362,29
70				208,31
90				16,97

M_D = 820 m·t

$U_s = 883\,t \rightarrow 84\ \phi\ 25$ → separación: 5 cm → 2,5 cm dist libre ≥ 2,5 cm (2 cm, 2,5 cm)

• COMPROBACIÓN

Ambiente IIb H → Abertura de fisura máxima: $W_{MÁX} = 0,3$ mm

ABERTURA DE FISURA DE CÁLCULO: $W_k = \beta \cdot S_m \cdot \varepsilon_{sm}$

- $S_m = 2c + 0,2s + 0,4\, k_1 \dfrac{\phi \cdot A_{cef}}{A_s}$

$A_{cef} = b \cdot 7,5 \cdot \phi = 4200 \cdot 7,5 \cdot 25 = 787500\ mm^2$

$A_s = 84\,\phi\,25 = 0,0412\ m^2$

$\Rightarrow S_m = 2 \cdot 40 + 10 + 0,4 \cdot 0,125 \cdot \dfrac{25 \cdot 787500}{41233,4} = 113,8$ mm

- $\varepsilon_{sm} = \frac{\sigma_s}{E_s}\left[1 - k_2\left(\frac{\sigma_{sr}}{\sigma_s}\right)^2\right] \not< 0{,}4\,\frac{\sigma_s}{E_s}$

$E_s = 2100000\ kg/cm^2$

$k_2 = 1$

$$\sigma_s = \frac{M_k}{0{,}8\ d\ A_s} = \frac{583{,}2}{0{,}8 \cdot 0{,}96 \cdot 0{,}0412} = 18399{,}8\ t/m^2$$

$$\sigma_{sr} = \frac{M_{fis}}{0{,}8 \cdot d \cdot A_s} \qquad M_{fis} = \frac{f_{ctm} \cdot I}{y_G} = \frac{1{,}5 \cdot f_{ct,k} \cdot I}{y_G} \Rightarrow \sigma_{sr} = 657{,}8\ t/m^2$$

$\Rightarrow \varepsilon_{sm} = 0{,}0008 \qquad \left(\text{mín } \varepsilon_{sm} = 0{,}4\,\frac{\sigma_s}{E_s} = 0{,}00072\right)$

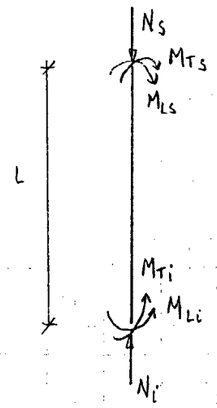
- $\beta = 1{,}7$

ABERTURA DE FISURA: $\boxed{w_k = 1{,}7 \cdot 113{,}8 \cdot 0{,}0008 = 0{,}17\ mm}$

$w_k < w_{máx} \rightarrow$ ok

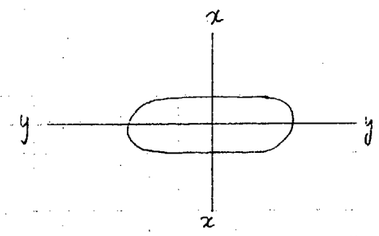
CÁLCULO DE PILAS

$i = \sqrt{\frac{I}{A}}$ $\quad A = 2,9904\ m^2$



Pila más alta : L = 18,1 m

Longitud de pandeo: $l_p = \alpha\, l = 1 \cdot 18,1 = 18,1 m$



ESBELTECES $\quad \lambda = \frac{l_p}{i}$

$I_x = 2,4966\ m^4 \Rightarrow \quad i_x = 0,913\ m \qquad \lambda_x \simeq 65$

$I_y = 0,233\ m^4 \Rightarrow \quad i_y = 0,279\ m \qquad \lambda_y \simeq 20$

Se aplica el método aproximado propuesto en el Art 43.5.2 EHE

→ Armadura ϕ 25/15

A) AXIL MÁXIMO. MOMENTO MAXIMO Mxi

	C.P.	total	S.C.	TOTAL	ex	ey
Nds	431,00	552,6	121,60	764,25		
Mdxs	0,00	-8,2	-8,20	-12,30	-0,06	
Mdys	12,40	-28,7	-41,10	-44,91		-0,02
Ndi	565,60	687,2	121,60	945,96		
Mdxi	0,00	-97,7	-97,70	-146,55	-0,02	
Mdyi	0,90	-13,5	-14,40	-20,39		-0,15

B) AXIL MÍNIMO.

	C.P.		S.C.	TOTAL	ex	ey
Nds	431,00	425,8	-5,20	574,05		
Mdxs	0,00	-8,2	-8,20	-12,30	0,02	
Mdys	12,40	7,9	-4,50	9,99		-0,02
Ndi	565,60	560,4	-5,20	755,76		
Mdxi	0,00	58	58,00	87,00	0,12	
Mdyi	0,90	61	60,10	91,37		0,12

C) MOMENTO MAXIMO Mys. MOMENTO MÁXIMO Myi.

	C.P.		S.C.	TOTAL	ex	ey
Nds	431,00	510,6	79,60	701,25		
Mdxs	0,00	0	0,00	0,00	-0,10	
Mdys	12,40	-46,6	-59,00	-71,76		0,00
	0,00					
Ndi	565,60	645,2	79,60	882,96		
Mdxi	0,00	0	0,00	0,00	0,16	
Mdyi	0,90	93,8	92,90	140,57		0,00

D) MOMENTO MAXIMO Mxs

	C.P.		S.C.	TOTAL	ex	ey
Nds	431,00	431	0,00	581,85		
Mdxs	0,00	-62,4	-62,40	-93,60	-0,04	
Mdys	12,40	-12,4	-24,80	-20,46		-0,16
Ndi	565,60	565,6	0,00	763,56		
Mdxi	0,00	11,1	11,10	16,65	0,05	
Mdyi	0,90	25,1	24,20	37,52		0,02

CÁLCULO DE EXCENTRICIDADES.

A) AXIL MÁXIMO. MOMENTO MAXIMO Mxi

direccion longitudinal My		direccion longitudinal Mx	
i=	0,279	i=	0,913
e2=	0,06	e2=	0,15
e1=	0,02	e1=	0,02
ee=	0,044	ee=	0,098
0,4*e2=	0,024	0,4*e2=	0,06
h=	1	h=	2,2
ea=	0,2211	ea=	0,0677
etot=	0,2651	etot=	0,1657

B) AXIL MÍNIMO.

direccion longitudinal My		direccion longitudinal Mx	
i=	0,279	i=	0,913
e2=	0,12	e2=	0,12
e1=	0,02	e1=	-0,02
ee=	0,08	ee=	0,064
0,4*e2=	0,05	0,4*e2=	0,048
h=	1	h=	2,2
ea=	0,2446	ea=	0,0634
etot=	0,3246	etot=	0,1274

C) MOMENTO MAXIMO Mys. MOMENTO MÁXIMO Myi.

direccion longitudinal My		direccion longitudinal Mx	
i=	0,279	i=	0,279
e2=	0,16	e2=	0
e1=	-0,1	e1=	0
ee=	0,056	ee=	0
0,4*e2=	0,064	0,4*e2=	0
h=	1	h=	2,2
ea=	0,2354	ea=	0,1693
etot=	0,2914	etot=	0,1693

D) MOMENTO MAXIMO Mxs **Nd=**

direccion longitudinal My		direccion longitudinal Mx	
i=	0,279	i=	0,279
e2=	0,05	e2=	0,16
e1=	-0,04	e1=	-0,02
ee=	0,014	ee=	0,088
0,4*e2=	0,02	0,4*e2=	0,064
h=	1	h=	1
ea=	0,1975	ea=	0,2486
etot=	0,2115	etot=	0,3366

ESFUERZOS DE CÁLCULO

A) AXIL MÁXIMO. MOMENTO MAXIMO Mxi

Sección superior	
Nds	764,25
Mdy	202,57
Mdx	126,63
Sección inferior	
Nds	945,96
Mdy	250,73
Mdx	156,73

B) AXIL MÍNIMO.

Sección superior	
Nds	574,05
Mdy	186,32
Mdx	73,13
Sección inferior	
Nds	755,76
Mdy	245,30
Mdx	96,29

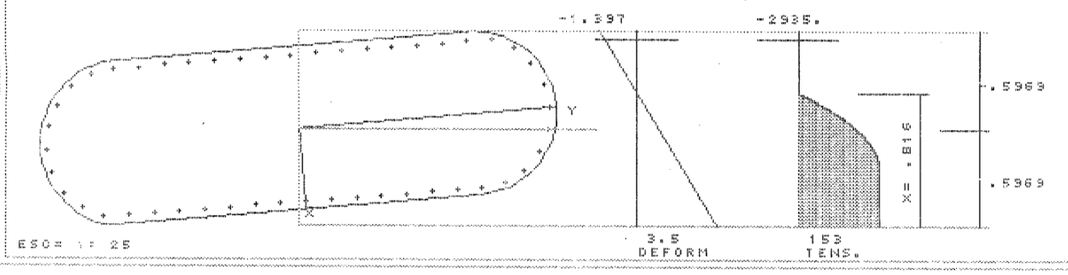
C) MOMENTO MAXIMO Mys. MOMENTO MÁXIMO Myi.

Sección superior	
Nds	701,25
Mdy	204,34
Sección inferior	
Nds	882,96
Mdy	257,29

ESFUERZOS DE AGOTAMIENTO (304277)

Nd= 764.3(TN) : Mxd= 126.6(Tnxm) : Myd= 202.6(Tnxm)
FCK= 300(KG/CM2) : FYK= 5100(KG/CM2)
SECCION= 2.990(M2) : CUANTIA= 0.00788

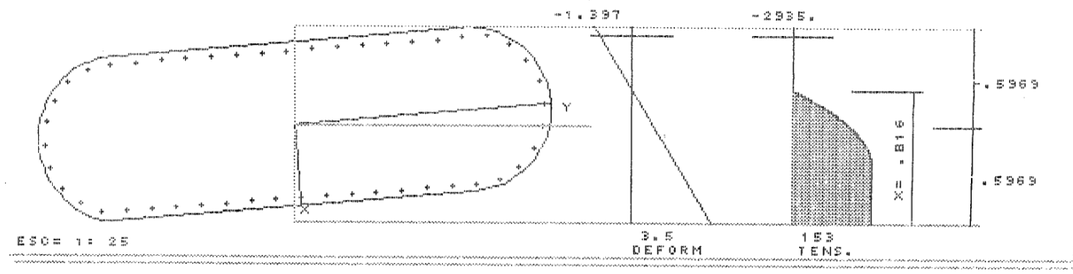
NU =	2916.0(TN)
MxU=	484.4(TNxM)
MyU=	772.9(TMxM)
C.S=	3.816
BETA=	-5.056



ESFUERZOS DE AGOTAMIENTO (304277)

Nd= 946.0(TN) : Mxd= 156.7(Tnxm) : Myd= 250.7(Tnxm)
FCK= 300(KG/CM2) : FYK= 5100(KG/CM2)
SECCION= 2.990(M2) : CUANTIA= 0.00788

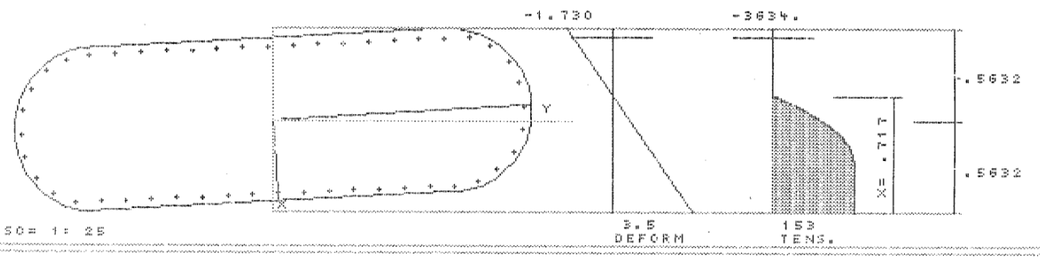
NU =	2916.1(TN)
MxU=	484.4(TNxM)
MyU=	772.9(TMxM)
C.S=	3.083
BETA=	-5.055



ESFUERZOS DE AGOTAMIENTO (304277)

Nd= 574.0(TN) : Mxd= 73.1(Tnxm) : Myd= 186.3(Tnxm)
FCK= 300(KG/CM2) : FYK= 5100(KG/CM2)
SECCION= 2.990(M2) : CUANTIA= 0.00788

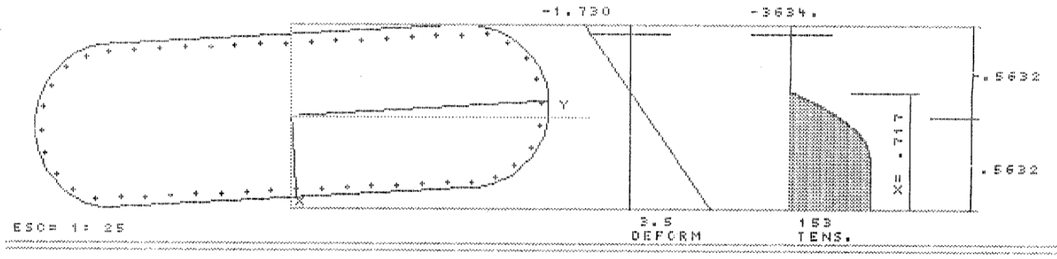
NU =	2586.4(TN)
MxU=	330.2(TNxM)
MyU=	839.5(TMxM)
C.S=	4.506
BETA=	-3.306



ESFUERZOS DE AGOTAMIENTO (304277)

Nd= 755.8(TN) : Mxd= 96.3(Tnxm) : Myd= 245.3(Tnxm)
FCK= 300(KG/CM2) : FYK= 5100(KG/CM2)
SECCION= 2.990(M2) : CUANTIA= 0.00788

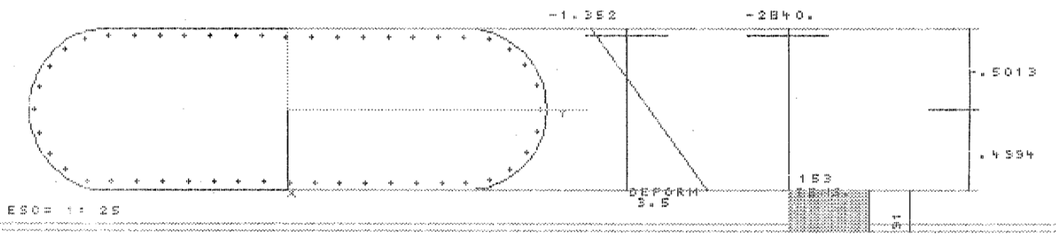
NU =	2586.4(TN)
MxU=	330.2(TNxM)
MyU=	839.5(TMxM)
C.S=	3.422
BETA=	-3.307



ESFUERZOS DE AGOTAMIENTO (304277)

Nd= 701.3(TN) : Mxd= 0.0(Tnxm) : Myd= 204.3(Tnxm)
FCK= 300(KG/CM2) : FYK= 5100(KG/CM2)
SECCION= 2.990(M2) : CUANTIA= 0.00788

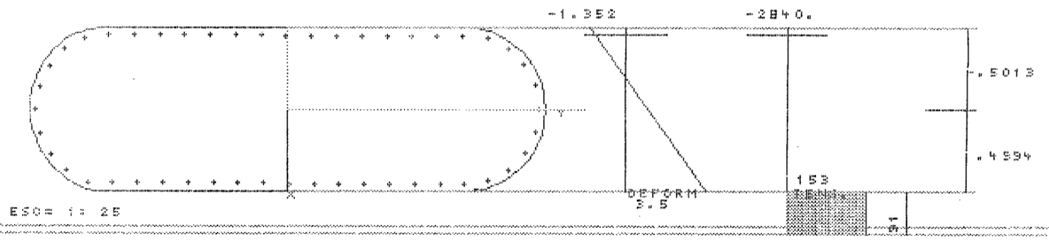
NU =	2842.6(TN)
MxU=	0.1(TNxM)
MyU=	828.9(TMxM)
C.S=	4.054
BETA=	-0.069



ESFUERZOS DE AGOTAMIENTO (304277)

Nd= 883.0(TN) : Mxd= 0.0(Tnxm) : Myd= 257.3(Tnxm)
FCK= 300(KG/CM2) : FYK= 5100(KG/CM2)
SECCION= 2.990(M2) : CUANTIA= 0.00788

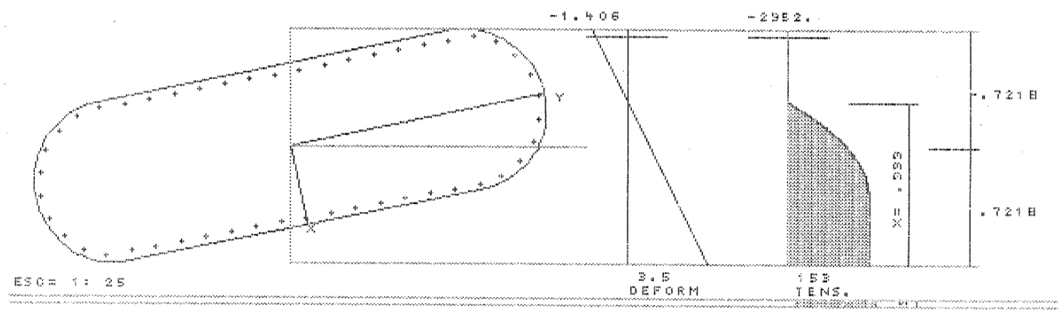
NU =	2842.5(TN)
MxU=	0.1(TNxM)
MyU=	828.9(TMxM)
C.S=	3.219
BETA=	-0.069



ESFUERZOS DE AGOTAMIENTO (304277)

Nd= 581.8(TN) : Mxd= 195.8(Tnxm) : Myd= 123.1(Tnxm)
FCK= 300(KG/CM2) : FYK= 5100(KG/CM2)
SECCION= 2.990(M2) : CUANTIA= 0.00788

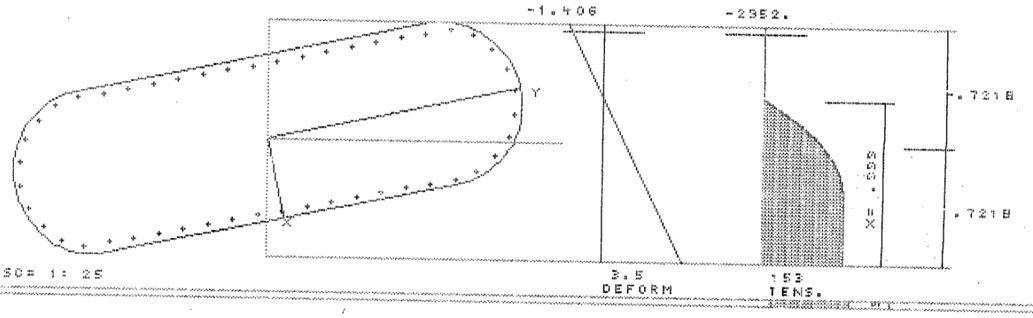
NU =	3064.3(TN)
MxU=	1033.5(TNxM)
MyU=	647.1(TMxM)
C.S=	5.266
BETA=	-11.644



ESFUERZOS DE AGOTAMIENTO (304277)

Nd= 763.6(TN) : Mxd= 257.0(Tnxm) : Myd= 161.5(Tnxm)
FCK= 300(KG/CM2) : FYK= 5100(KG/CM2)
SECCION= 2.990(M2) : CUANTIA= 0.00788

NU =	3064.2(TN)
MxU=	1033.4(TNxM)
MyU=	647.1(TMxM)
C.S=	4.013
BETA=	-11.644



PUNZONAMIENTO

$N_d = 764,25\ t$

Área crítica: $4,2 \times 4\ m$ $\qquad U_1 = 16,4\ m$

- ZONA CON ARMADURA DE PUNZONAMIENTO

$$V_{Rd} = V_{cu} + V_{su}$$

$$V_{cu} = 0,1\ \eta\ (100\ \rho_1\ f_{ck})^{1/3} \cdot b_o \cdot d$$

$d = 960\ mm \Rightarrow \eta = 1,456$

$b_o = U_1 = 16,4\ m$ $\qquad \Rightarrow \boxed{V_{cu} = 423,13\ t}$

$f_{ck} = 30\ N/mm^2$

$$\rho_1 = \frac{41\phi 20 + 41\phi 25}{1640 \cdot 96} = 0,0021$$

$V_{su} = 341,1\ t \rightarrow \boxed{A_\alpha = 77,4\ cm^2/ml}$

RESERVA DE ARMADURA EN DIRECCIÓN LONGITUDINAL:

$A_{nec,\ cortante} = 62,4\ cm^2/m$

$A_{real} = 6 \cdot 2 \cdot 1,13 \cdot 5 = 67,86\ cm^2/m$

$\Rightarrow$ Reserva $= 5,46\ cm^2/m$ $\Rightarrow$ se disponen $\boxed{8\ \square\ \phi\ 12/20}$

$A_{nec,p} = 77,4 - 5,46 = 72$

RESERVA DE ARMADURA EN DIRECCIÓN TRANSVERSAL:

$A_{nec,\ cortante} = 33,9\ cm^2/ml$

$A_{real} = (1+4) \cdot 1,13 \cdot 5 \cdot 2 = 56,5\ cm^2/ml$

$\Rightarrow$ Reserva $= 23\ cm^2/ml$

$A_{nec,p} = 77,4 - 23 = 54,4\ cm^2/m \rightarrow$ se disponen $\boxed{5\ \square\ \phi\ 12/20}$

- ZONA FUERA DEL PERÍMETRO ARMADO A PUNZONAMIENTO

Se debe cumplir $F_{sd,ef} \leq 0,12\ \eta\ (100\ \rho_1 \cdot f_{ck})^{1/3} \cdot U_{m,ef} \cdot d$

$U_{m,ef} = 2 \cdot (4,2 + 6,2) = 20,8\ m$

$d = 0,96\ m$

$f_{ck} = 30\ N/mm^2$

$\eta = 1,456$

$$\rho_1 = \frac{21\phi 20 + 21\phi 25 + 42\phi 25}{4,2 \cdot 0,96} = 0,009$$

$F_{sd,ef} = \beta \cdot N = 1,15 \cdot 764,25 = 878,9$

$\boxed{878,9 \leq 1058,4 \rightarrow ok}$

- RESISTENCIA MÁXIMA

$$\frac{F_{sd,ef}}{U_o \cdot d} = \frac{878,9}{(\pi \cdot 1 + 2,2 \cdot 2) \cdot 0,96} = 121,4\ t/m^2$$

$$f_{1cd} = 0,3 \cdot \frac{3000}{1,5} = 600\ t/m^2$$

$\boxed{121,4 < 600 \rightarrow ok}$

CÁLCULO DE LA ZAPATA

$f_{ck} = 250\ kg/cm^2$

Tensión admisible del terreno: $5\ kg/cm^2$

- ESFUERZOS DE CÁLCULO

- $N_{MÁX} = 687,2\ t$ $\quad M_{x_{MÁX}} = 97,7\ mt$ $\quad M_y = 13,5\ mt$

- $N = 645,2\ t$ $\quad M_x = 0$ $\quad M_y = 93,8\ mt$

→ ZAPATA DE $6,9 \times 2,8 \times 1,1\ m$ (rígida)

TENSIONES EN LAS ESQUINAS DE LA ZAPATA (VALORES MAYORADOS)

$N = 1057,3\ t$ $\quad A = 19,32\ m^2$

$M_x = 146,6\ t$ $\quad I_x = 188,89\ m^4$ $\quad y_x = 3,45\ m$

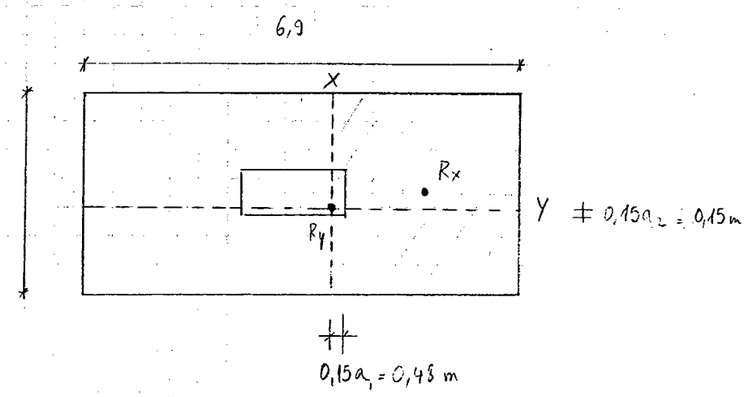
$M_y = 20,4\ t$ $\quad I_y = 5,12\ m^4$ $\quad y_y = 1,4\ m$

$$\sigma = \frac{N}{A} \pm \frac{M_x \cdot y_x}{I_x} \pm \frac{M_y \cdot y_y}{I_y}$$

$\sigma_1 = 5,76$ $\quad \sigma_2 = 6,3$ $\quad \sigma_3 = 4,65$ $\quad \sigma_4 = 5,18\ kg/cm^2$

ARMADURAS LONGITUDINALES

Se dimensiona suponiendo que toda la zapata está sometida a $\sigma = 50\ t/m^2$



$$M_x = 50 \cdot \left(\frac{6,9}{2} - \frac{a}{2} + 0,15a\right)^2/2 = 135,7\ mt \rightarrow U_s = 157,5\ t \rightarrow 8\phi 25$$

$$M_y = 50 \left(\frac{2,8}{2} - \frac{a}{2} + 0,15a\right)^2/2 = 27,6\ mt \rightarrow U_s = 26,3\ t \rightarrow 1\phi 25$$

Cuantías mínimas: - geométrica: $0,004 \cdot b \cdot d = 292\ cm^2 \rightarrow \phi 25/10$ en dirección y

$118\ cm^2 \rightarrow \phi 25/10$ " x

- de cálculo: es inferior a la geométrica

COMPROBACIÓN DE LA BIELA $N = 1057,3\,t$

$$A_c = \frac{1.3,2}{2} \cdot \cos 45° = 1,13\ m^2$$

$$f_{1cd} = 0,85\ f_{cd} = 1417\ t/m^2$$

$$R_B = A_c \cdot f_{1cd} = 1600,8\ t$$

$$C_B = \frac{N}{2} \cdot \cos 45° = 0,353 \cdot N = 373,1\ t \qquad C_B < R_B \rightarrow Ok$$

COMPROBACIÓN DEL NUDO

$$\sigma_{c1} = \frac{N/2}{\frac{6,9 \cdot 2,3}{2}} = 306,4\ t/m^2$$

$$f_{2cd} = 0,7\ f_{cd} = 1167\ t/m^2$$

$\sigma_{c1} < f_{2cd} \rightarrow Ok$

REACCIONES PARA CALCULO DE ESTRIBOS

* REACCIONES EN LOS ESTRIBOS

• REACCIONES VERTICALES

Peso propio del tablero	94,8 t
Peso superestructura (resto c.p.)	31,9 t
Reacción hip. pretensado	—
Reacción máxima s.c.	77,9 t
Reacción mínima s.c.	8,2 t
Gradiente térmico	—
Otros	—

• REACCIONES HORIZONTALES LONGITUDINALES

Reacción debida al frenado	11,24 t
Deformaciones impuestas	—
Rozamiento, sismo, etc	—

• REACCIONES HORIZONTALES TRANSVERSALES

Reacción viento transversal	2,2 t
Fuerza centrífuga	—
Rozamiento, sismo, otros	—

CALCULO DE ESTRIBOS

PROGRAMA ESTRIBOS

CALCULO Y ARMADO DE ESTRIBOS DE PUENTE

VERSION Nº 1 FECHA : 12/10/1995

Copyright : J.Diaz del Valle, 1995

E.T.S. de I.C.C. y P. de Santander

DATOS DEL PROYECTO DEL ESTRIBO

PROYECTO : AVE LLEIDA-MARTORELL

REFERENCIA : P.K.304+277

FECHA DEL CALCULO : 4/10/99

DATOS DEL ESTRIBO

ESTRIBO 1.

-Datos geometricos:

H1= 6.85	H2= 0.00	H3= 0.00	H4= 1.00	H5= 0.00 m.
H6= 0.00	H7= 1.00	H8= 0.00	H9= 2.00	H10= 0.00 m.
B1= 1.35	B2= 0.00	B3= 2.75	B4= 0.00	B5= 0.00 m.
B6= 0.50	B7= 0.00	B8= 0.00	B9= 0.00	HY= 0.00 m.
C1= 0.35	C2= 0.45	C3= 0.00	C4= 0.25	C5= 0.25 m.
D1= 0.00	D2= 0.00	D3= 1.20	D4= 1.20	D5= 0.25 m.
D6= 0.25				
A1= 2.55	A2= 0.20	A3= 1.20	A4= 0.60	A5= 2.04 m.
E1= 12.50	E2= 12.30	E3= 0.30	E4= 0.00	E5= 0.30 m.
E6= 0.30	E7= 0.00	E8= 0.00	E9= 0.95	E10= 10.60 m.

-Caracteristicas de los materiales:

Peso especifico del hormigón (t/m3) ..... Yh = 2.50
Resistencia del hormigón del alzado (Kp/cm²) ..... fck = 250
Resistencia del hormigón de la zapata (Kp/cm²) ..... fck'= 250
Limite elástico del acero (Kp/cm²) ..... fyk = 5100
Recubrimiento de las armaduras (m) ..... r = 0.05
Se incluyen las cuantias geométricas minimas
Coeficiente de minoración resistencia hormigón ..... Yc = 1.50
Coeficiente de minoración resistencia acero ..... Ys = 1.15
Coeficiente de mayoración de las acciones ..... Yf = 1.50

-Caracteristicas del terreno:

Terreno sobre talón:
Peso especifico de las tierras (t/m3) ..... Yt = 1.80
Angulo de rozamiento interno de las tierras (°) ..... ϕ = 30.00
Angulo de rozamiento entre las tierras y el muro (°) .... δ = 0.00
Coeficiente de empuje activo calculado segun Coulomb ... Ka = 0.333
Cohesión de las tierras (t/m²) ..... c = 0.00
Terreno sobre puntera :
Peso especifico de las tierras (t/m3) ..... Yt = 1.80
Angulo de rozamiento interno de las tierras (°) ..... ϕ = 30.00
Angulo de rozamiento entre las tierras y el muro (°) .... δ = 0.00
Coeficiente de empuje pasivo de las tierras ..... Kp = 3.000

Terreno de cimentación :
Coeficiente de rozamiento entre el cimiento y el suelo .. μ = 0,577
Adherencia entre el cimiento y el suelo (t/m²) ..... a = 0.00

Angulo de la superficie del terreno con la horizontal ... β = 0.00°

-Sobrecargas:

Carga por unidad de longitud de talud (t/m²) ..... q = 1.00
No se considera la acción sísmica .....

-Acciones del tablero sobre el estribo :

Reacciones verticales (t) y excentricidades transversales (m) :

Reacción del peso propio del tablero ... Rpp = 94.80 , Exc.= 0.00
Reacción del peso de la superestructura. Rse = 31.90 , Exc.= 0.00
Reacción hiperestática de pretensado ... Rhp = 0.00 , Exc.= 0.00
Reacción máxima de la sobrecarga ..... Rma = 77.90 , Exc.= 0.00
Reacción mínima de la sobrecarga ..... Rmi = 0.20 , Exc.= 0.00
Reacción debida al gradiente térmico ... Rgt = 0.00 , Exc.= 0.00
Reacción debidas a otras acciones ..... Rot = 0.00 , Exc.= 0.00

Reacciones horizontales longitudinales (t) :

Reacción debida al frenado (+ -) ..... Rfx = 11.24
Reacción debida a las deformaciones impuestas ..... Rdx = 0.00
Reacciones debidas a otras causas (Rozam.,sismo,etc) . Rox = 0.00

Reacciones horizontales transversales (t) :

Reacción debida al viento ..... Rvy = 2.20
Reacción debida a la fuerza centrífuga ..... Rcy = 0.00
Reacciones debidas a otras causas (Rozam.,sismo,etc) . Roy = 0.00

ACCIONES SOBRE EL ESTRIBO

Las acciones actuantes sobre el estribo tienen el siguiente origen:

a) Peso propio del estribo.
b) Acciones del tablero.
c) Empuje y peso de las tierras.

Estas acciones pueden ser verticales Fz ,horizontales longitudinales Fx ,y horizontales transversales Fy. En las tablas que siguen, se recogen las citadas acciones junto con los momentos Ma ,Mx, y My :

Ma : Momento respecto a la puntera del estribo.Se utiliza para la comprobación de seguridad al vuelco.

Mx, My: Momentos respecto al c.d.g de la zapata. Se utilizan para el calculo de las tensiones sobre el terreno.

a) PESO PROPIO DEL ESTRIBO

Zona	Volumen (m3)	Peso Fz (t)	Ma (tnm)	My (tnm)
Muro frontal	85.25	213.12	-220.20	238.02
Muro de guarda	3.51	8.78	-12.50	6.36
Muros en vuelta	17.39	43.47	-99.90	-6.52
Aletas en voladizo	1.17	2.92	-13.34	-7.67
Contrafuertes aleta	0.00	0.00	0.00	0.00
Impostas	0.00	0.00	0.00	0.00
Macizos caquejeado	0.00	0.00	0.00	0.00
Zapata	53.75	134.38	-288.91	0.00
TOTAL	161.06	402.66	-634.92	230.79

b) ACCIONES DEL TABLERO

b1) Reacciones verticales:

Se consideran las reacciones del tablero en los siguientes casos:

-Caso permanente: Incluye las reacciones del peso propio del tablero y de la superestructura, las reacciones hiperestáticas de pretensado y otras acciones permanentes.

-Caso máximo: Incluye la suma de las reacciones de las acciones permanentes y las reacciones máximas de las sobrecargas variables.

-Caso mínimo: Incluye la suma de las reacciones de las acciones permanentes y las reacciones mínimas de las sobrecargas variables.

Reacción	Axil Fz (t)	Mx (txm)	My (txm)
Permanente	126.70	-107.70	164.71
Máxima	204.60	-173.91	265.98
Mínima	134.90	-114.67	175.37

b2) Reacciones horizontales longitudinales:

Las reacciones horizontales que ejerce el tablero provienen de movimientos impuestos, frenado,sismo , rozamiento de apoyos y de otras acciones.

El valor máximo considerado para estas acciones es:

Reacción Longitudinal	Fx (t)	Mx (txm)	My (txm)
Máxima	11.24	88.23	88.23

b3) Reacciones horizontales transversales:

Estas reacciones provienen de dos tipos de fuerzas:

-Fuerzas transversales:

Son debidas a las acciones de viento y sismo, y a la fuerza centrifuga de los vehiculos que circulan por el tablero :

Fy =	2.20 t.	Mx =	17.23 txm.

-Fuerzas verticales:

Debido a la excentricidad transversal de las reacciones verticales, se produce un momento transversal Mx :

. Para reaccion vertical permanente .. Mx =	0.00 txm.
. Para reacción vertical máxima ..... Mx =	0.00 txm.
. Para reacción vertical mínima ..... Mx =	0.00 txm.

c) EMPUJE Y PESO DE TIERRAS

c1) Acciones horizontales:

Acción	Fuerza Fx (t)	Mx (txm)	My (txm)
Empuje de tierras.	71.22	407.16	407.16
Empuje de sobrecarga.	20.50	134.27	134.27
Empuje del agua.	0.00	0.00	0.00
Empuje total sobre trasdós.	91.72	541.44	541.44
Empuje pasivo frente puntera.	132.84	88.56	88.56

c2) Acciones verticales:

Acción	Fuerza Fz (t)	Mx (txm)	My (txm)
Peso tierras sobre talón.	464.90	-1370.44	-370.90
Peso tierras sobre puntera.	10.53	-2.63	20.01
Sobrecarga sobre terraplen.	32.17	-94.11	-24.94
Rozamiento vertical tierras.	0.00	0.00	0.00
Resultante total vertical.	507.60	-1467.18	-375.83

COMPROBACION DE ESTABILIDAD

Se consideran las siguientes hipótesis para las comprobaciones al vuelco y deslizamiento :

Hipótesis 1 : Construcción. Situación de estribo con relleno antes de construir el tablero.

Hipótesis 2 : Construcción. Situación de tablero construido antes del relleno del estribo.

Hipótesis 3 : Servicio. Se considera la hipótesis más desfavorable que corresponde al mínimo valor de la reacción vertical del tablero.

Hipótesis Nº	Coeficientes de seguridad Vuelco	Deslizamiento
1	4,642	12.774
2	8.416	26.868
3	4,097	20.131

El coeficiente de seguridad al vuelco se obtiene a partir de los momentos Ma respecto de la puntera de la zapata.Se distinguen momentos volcadores y estabilizadores.El coeficiente de seguridad se obtiene como cociente entre estos momentos.

El mínimo coeficiente de seguridad al vuelco es mayor que 2, y por tanto se cumple la seguridad al vuelco.

El coeficiente de seguridad al deslizamiento se obtiene como cociente entre la fuerza estabilizadora y la desestabilizadora. La primera es la fuerza de rozamiento obtenida como producto de las fuerzas verticales por un coeficiente de rozamiento igual a

$$\mu = Tg\ \phi = 0,577$$

en donde ϕ es el ángulo de rozamiento entre la zapata y terreno. Tambien se consideran como fuerzas estabilizadoras,la fuerza de adherencia suelo-zapata, el empuje pasivo frente a puntera, la existencia de talón y la inclinación de la base de la zapata.

La fuerza desestabilizadora es la resultante de las fuerzas horizontales tanto longitudinales como transversales.

El mínimo coeficiente de seguridad al deslizamiento es mayor que 1,5 ,cumpliéndose por tanto la seguridad al deslizamiento.

ESTADO TENSIONAL EN EL TERRENO

Se consideran las siguientes hipotesis para el calculo de las tensiones en el terreno :

Hipótesis 1 : Construcción. Se supone que el relleno se ejecuta antes que el tablero.

Hipótesis 2 : Construcción. Se supone que el tablero se ejecuta antes que el relleno.

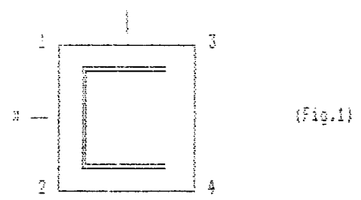
Hipótesis 3 : Servicio, con reacción de tablero mínima y acciones horizontales máximas.

Hipótesis 4 : Servicio, con reacción de tablero mínima y acciones longitudinales nulas.

Hipótesis 5 : Servicio, con reacción de tablero máxima y acciones longitudinales nulas.

Hipótesis 6 : Servicio, con reacción de tablero máxima y acciones horizontales máximas.

Las tensiones σ1,σ2,σ3,σ4 del terreno en las 4 esquinas de la base de la zapata (figura 1),



(Fig.1)

se obtienen a partir de la fórmula de flexocompresión:

$$\sigma = \frac{N}{A} \pm \frac{Mx}{Wx} \pm \frac{My}{Wy}$$

donde N , Mx , My , son los esfuerzos en la base de la zapata , y

A = 53.73 m2 , Wx= 111.98 m3 , Wy = 38.52 m3

son las características mecánicas de la base de la zapata.

La expresión anterior solamente es válida en el caso de que toda la planta resulte comprimida. En otro caso, y dado que el terreno no puede soportar tracción alguna, el programa calcula las tensiones del terreno de manera iterativa.

El proceso iterativo anterior, se detiene cuando la resultante de las tensiones obtenidas, sea sensiblemente igual a los esfuerzos que solicitan a la base de la zapata.

La tensión media, se obtiene según la expresión : $\sigma med = \frac{N}{A}$

Siguiendo esta formulación,resulta la siguiente tabla que resume el estado tensional correspondiente a las 6 hipotesis anteriores :

ESFUERZOS DE ZAPATA Y TENSIONES DEL TERRENO

Hip	N (t)	Mx (txm)	My (txm)	σ1 (t/m²)	σ2 (t/m²)	σ3 (t/m²)	σ4 (t/m²)	σmed (t/m²)
1	952.26	0.00	484.96	30.31	30.31	5.13	5.13	17.72
2	571.36	17.27	493.74	23.34	23.03	0.00	0.00	10.63
3	1087.16	17.27	748.56	39.81	39.50	0.95	0.64	20.23
4	1087.16	17.27	30.33	21.17	20.86	19.59	19.28	20.23
5	1156.86	17.27	120.94	24.82	24.51	18.54	18.23	21.52
6	1156.86	17.27	839.17	43.46	43.15	0.00	0.00	21.52

ANALISIS ESTRUCTURAL DEL ESTRIBO COMO EMPARRILLADO ESPACIAL

DIMENSIONES Y CARACTERISTICAS MECANICAS DE LAS BARRAS

Barra Nº	i Nº	j Nº	Long. (m.)	Canto (m.)	Ancho (m.)	Area (m²)	Iner.1 (m4)	Iner.2 (m4)
1	1	2	1.15	1.05	0.60	0.630	0.019	0.058
2	2	3	1.15	1.05	0.60	0.630	0.019	0.058
3	3	4	1.15	1.05	0.60	0.630	0.019	0.058
4	4	5	1.15	1.05	0.60	0.630	0.019	0.058
5	5	6	1.15	1.05	0.60	0.630	0.019	0.058
6	6	7	1.15	1.05	0.60	0.630	0.019	0.058
7	7	8	1.15	0.25	0.60	0.150	0.005	0.001
8	9	10	1.15	1.05	1.20	1.260	0.151	0.116
9	10	11	1.15	1.05	1.20	1.260	0.151	0.116
10	11	12	1.15	1.05	1.20	1.260	0.151	0.116
11	12	13	1.15	1.05	1.20	1.260	0.151	0.116
12	13	14	1.15	1.05	1.20	1.260	0.151	0.116
13	14	15	1.15	1.05	1.20	1.260	0.151	0.116
14	15	16	1.15	0.25	1.20	0.300	0.036	0.002
15	17	18	1.15	1.05	1.20	1.260	0.151	0.116
16	18	19	1.15	1.05	1.20	1.260	0.151	0.116
17	19	20	1.15	1.05	1.20	1.260	0.151	0.116
18	20	21	1.15	1.05	1.20	1.260	0.151	0.116
19	21	22	1.15	1.05	1.20	1.260	0.151	0.116
20	22	23	1.15	1.05	1.20	1.260	0.151	0.116
21	23	24	1.15	0.25	1.20	0.300	0.036	0.002
22	25	26	1.15	1.05	1.20	1.260	0.151	0.116
23	26	27	1.15	1.05	1.20	1.260	0.151	0.116
24	27	28	1.15	1.05	1.20	1.260	0.151	0.116
25	28	29	1.15	1.05	1.20	1.260	0.151	0.116
26	29	30	1.15	1.05	1.20	1.260	0.151	0.116
27	30	31	1.15	1.05	1.20	1.260	0.151	0.116
28	31	32	1.15	0.25	1.20	0.300	0.036	0.002
29	33	34	1.15	1.05	1.20	1.260	0.151	0.116
30	34	35	1.15	1.05	1.20	1.260	0.151	0.116
31	35	36	1.15	1.05	1.20	1.260	0.151	0.116
32	36	37	1.15	1.05	1.20	1.260	0.151	0.116
33	37	38	1.15	1.05	1.20	1.260	0.151	0.116
34	38	39	1.15	1.05	1.20	1.260	0.151	0.116
35	39	40	1.15	0.25	1.20	0.300	0.036	0.002
36	41	42	1.15	1.05	0.60	0.630	0.019	0.058
37	42	43	1.15	1.05	0.60	0.630	0.019	0.058
38	43	44	1.15	1.05	0.60	0.630	0.019	0.058
39	44	45	1.15	1.05	0.60	0.630	0.019	0.058
40	45	46	1.15	1.05	0.60	0.630	0.019	0.058
41	46	47	1.15	1.05	0.60	0.630	0.019	0.058
42	47	48	1.15	1.05	0.60	0.630	0.019	0.058
43	49	50	1.15	0.30	1.72	0.517	0.128	0.004
44	50	51	1.15	0.30	1.72	0.517	0.128	0.004

45	51	52	1.15	0.30	1.72	0.517	0.120	0.004
46	52	53	1.15	0.30	1.72	0.517	0.120	0.004
47	53	54	1.15	0.30	2.03	0.610	0.210	0.005
48	54	55	1.15	0.30	2.03	0.610	0.210	0.005
49	55	56	1.15	0.30	2.03	0.610	0.210	0.005
50	1	9	1.20	1.05	0.57	0.604	0.017	0.055
51	9	17	1.20	1.05	0.57	0.604	0.017	0.055
52	17	25	1.20	1.05	0.57	0.604	0.017	0.055
53	25	33	1.20	1.05	0.57	0.604	0.017	0.055
54	33	41	1.20	1.05	0.57	0.604	0.017	0.055
55	41	49	1.20	0.30	0.57	0.172	0.005	0.001
56	2	10	1.20	1.05	1.15	1.207	0.133	0.111
57	10	18	1.20	1.05	1.15	1.207	0.133	0.111
58	18	26	1.20	1.05	1.15	1.207	0.133	0.111
59	26	34	1.20	1.05	1.15	1.207	0.133	0.111
60	34	42	1.20	1.05	1.15	1.207	0.133	0.111
61	42	50	1.80	0.30	1.15	0.345	0.038	0.003
62	3	11	1.20	1.05	1.15	1.207	0.133	0.111
63	11	19	1.20	1.05	1.15	1.207	0.133	0.111
64	19	27	1.20	1.05	1.15	1.207	0.133	0.111
65	27	35	1.20	1.05	1.15	1.207	0.133	0.111
66	35	43	1.20	1.05	1.15	1.207	0.133	0.111
67	43	51	1.80	0.30	1.15	0.345	0.038	0.003
68	4	12	1.20	1.05	1.15	1.207	0.133	0.111
69	12	20	1.20	1.05	1.15	1.207	0.133	0.111
70	20	28	1.20	1.05	1.15	1.207	0.133	0.111
71	28	36	1.20	1.05	1.15	1.207	0.133	0.111
72	36	44	1.20	1.05	1.15	1.207	0.133	0.111
73	44	52	1.80	0.30	1.15	0.345	0.038	0.003
74	5	13	1.20	1.05	1.15	1.207	0.133	0.111
75	13	21	1.20	1.05	1.15	1.207	0.133	0.111
76	21	29	1.20	1.05	1.15	1.207	0.133	0.111
77	29	37	1.20	1.05	1.15	1.207	0.133	0.111
78	37	45	1.20	1.05	1.15	1.207	0.133	0.111
79	45	53	1.80	0.30	1.15	0.345	0.038	0.003
80	6	14	1.20	1.05	1.15	1.207	0.133	0.111
81	14	22	1.20	1.05	1.15	1.207	0.133	0.111
82	22	30	1.20	1.05	1.15	1.207	0.133	0.111
83	30	38	1.20	1.05	1.15	1.207	0.133	0.111
84	38	46	1.20	1.05	1.15	1.207	0.133	0.111
85	46	54	1.80	0.30	1.15	0.345	0.038	0.003
86	7	15	1.20	0.25	1.15	0.287	0.032	0.001
87	15	23	1.20	0.25	1.15	0.287	0.032	0.001
88	23	31	1.20	0.25	1.15	0.287	0.032	0.001
89	31	39	1.20	0.25	1.15	0.287	0.032	0.001
90	39	47	1.20	0.25	1.15	0.287	0.032	0.001
91	47	55	1.80	0.30	1.15	0.345	0.038	0.003
92	8	16	1.20	0.30	0.57	0.172	0.005	0.001
93	16	24	1.20	0.30	0.57	0.172	0.005	0.001
94	24	32	1.20	0.30	0.57	0.172	0.005	0.001
95	32	40	1.20	0.30	0.57	0.172	0.005	0.001
96	40	48	1.20	0.30	0.57	0.172	0.005	0.001
97	48	56	1.80	0.30	0.57	0.172	0.005	0.001
98	57	58	1.15	0.30	1.24	0.371	0.047	0.003
99	58	59	1.15	0.30	1.24	0.371	0.047	0.003

100	60	61	1.15	0.30	1.24	0.371	0.047	0.003
101	54	57	1.24	0.30	1.15	0.345	0.038	0.003
102	55	58	1.24	0.30	1.15	0.345	0.038	0.003
103	59	60	1.24	0.30	1.15	0.345	0.038	0.003
104	56	59	1.24	0.30	0.57	0.172	0.005	0.001
105	59	61	1.24	0.30	0.57	0.172	0.005	0.001
106	61	62	1.24	0.30	0.57	0.172	0.005	0.001
107	53	57	1.69	0.30	1.15	0.345	0.038	0.003
108	57	60	1.69	0.30	1.15	0.345	0.038	0.003
109	60	62	1.69	0.30	1.15	0.345	0.038	0.003

46	0.000	-0.034	0.021	-0.012	0.000	-0.002
47	0.000	-0.049	0.022	-0.013	-0.000	-0.003
48	0.000	-0.065	0.022	-0.014	-0.000	-0.004
49	-0.000	0.000	0.000	-0.000	0.000	-0.000
50	-0.000	-0.001	0.011	-0.003	0.000	-0.000
51	-0.000	-0.005	0.021	-0.005	0.000	-0.000
52	-0.001	-0.011	0.030	-0.007	0.000	-0.000
53	-0.001	-0.020	0.037	-0.013	0.000	-0.000
54	-0.001	-0.035	0.041	-0.014	0.000	-0.000
55	-0.002	-0.051	0.044	-0.014	0.000	-0.000
56	-0.002	-0.056	0.044	-0.014	0.000	-0.000
57	-0.001	-0.035	0.061	-0.017	0.000	-0.000
58	-0.002	-0.051	0.062	-0.016	0.000	-0.000
59	-0.002	-0.067	0.063	-0.015	0.000	-0.000
60	-0.002	-0.052	0.082	-0.015	0.000	-0.000
61	-0.002	-0.068	0.082	-0.014	0.000	-0.000
62	-0.002	-0.068	0.099	-0.014	0.000	-0.000

ESFUERZOS EN LAS BARRAS

Barra Nº	i Nº	j Nº	Axil (t.)	Cort.1 (t.)	Cort.2 (t.)	Flec.1i (txm)	Flec.1j (txm)	Flec.2i (txm)	Flec.2j (txm)
1	1	2	10.40	-0.00	0.01	0.00	0.00	0.33	-0.32
2	2	3	8.59	-0.00	0.02	0.00	0.00	0.31	-0.29
3	3	4	6.77	0.00	0.03	-0.00	-0.00	0.28	-0.25
4	4	5	4.96	0.00	0.04	-0.00	-0.00	0.22	-0.18
5	5	6	3.15	0.00	0.04	-0.00	-0.00	0.14	-0.09
6	6	7	1.34	-0.00	0.01	0.00	0.00	0.04	-0.02
7	7	8	0.22	0.00	0.01	-0.00	-0.00	0.01	-0.00
8	9	10	20.81	-0.01	0.03	0.00	0.00	0.67	-0.64
9	10	11	17.18	-0.01	0.04	0.00	0.00	0.63	-0.59
10	11	12	13.55	-0.01	0.05	0.00	0.00	0.56	-0.50
11	12	13	9.92	-0.01	0.07	0.00	0.01	0.45	-0.37
12	13	14	6.29	-0.00	0.09	0.00	0.00	0.29	-0.19
13	14	15	2.67	0.00	0.02	-0.00	-0.00	0.07	-0.05
14	15	16	0.43	0.00	0.01	-0.00	-0.00	0.02	-0.00
15	17	18	20.82	-0.01	0.03	0.01	0.01	0.68	-0.64
16	18	19	17.19	-0.01	0.03	0.00	0.01	0.64	-0.60
17	19	20	13.57	-0.01	0.05	0.01	0.01	0.59	-0.53
18	20	21	9.95	-0.02	0.07	0.01	0.01	0.49	-0.41
19	21	22	6.30	-0.01	0.09	0.00	0.01	0.32	-0.22
20	22	23	2.67	0.01	0.03	-0.01	-0.00	0.09	-0.06
21	23	24	0.43	0.01	0.01	-0.00	-0.00	0.02	-0.00
22	25	26	20.84	-0.02	0.02	0.01	0.01	0.69	-0.66
23	26	27	17.21	-0.02	0.03	0.01	0.01	0.66	-0.64
24	27	28	13.58	-0.02	0.04	0.01	0.01	0.64	-0.59
25	28	29	9.96	-0.03	0.07	0.02	0.02	0.56	-0.48
26	29	30	6.32	-0.03	0.07	0.01	0.03	0.38	-0.28
27	30	31	2.67	0.01	0.03	-0.01	0.00	0.11	-0.07
28	31	32	0.43	0.01	0.02	-0.01	-0.00	0.02	-0.00
29	33	34	20.83	-0.03	-0.00	0.02	0.02	0.67	-0.66
30	34	35	17.24	-0.03	-0.00	0.01	0.02	0.68	-0.65
31	35	36	13.64	-0.03	0.01	0.02	0.02	0.69	-0.68

32	36	37	9.94	-0.01	0.07	0.02	-0.00	0.67	-0.69
33	37	38	6.41	-0.01	0.21	-0.01	0.03	0.57	-0.32
34	38	39	2.82	-0.03	0.06	-0.02	0.06	0.18	-0.11
35	39	40	0.45	-0.01	0.02	0.01	0.01	0.02	0.00
36	41	42	10.49	-0.01	-0.07	0.00	0.00	0.30	-0.36
37	42	43	9.85	-0.01	-0.07	0.00	0.01	0.31	-0.40
38	43	44	6.78	-0.00	-0.11	0.00	0.00	0.32	-0.44
39	44	45	4.79	0.01	0.01	-0.00	-0.01	0.39	-0.37
40	46	46	3.35	0.02	0.91	-0.02	-0.01	0.85	0.20
41	46	47	2.02	-0.01	0.94	-0.01	0.01	0.75	0.35
42	47	48	0.82	-0.01	0.31	0.01	0.00	0.29	0.08
43	49	50	14.75	-0.02	-0.02	0.06	-0.03	0.01	-0.04
44	50	51	13.32	-0.02	-0.04	0.04	-0.02	0.00	-0.05
45	51	52	11.94	-0.03	-0.07	0.04	-0.01	-0.02	-0.06
46	52	53	10.67	-0.33	-0.33	0.03	0.01	-0.13	-0.25
47	53	54	6.33	-0.04	0.01	0.01	0.03	0.01	-0.00
48	54	55	3.68	-0.02	0.00	-0.00	0.03	-0.00	0.00
49	55	56	1.02	-0.01	0.01	0.01	0.00	0.01	0.01
50	1	9	0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
51	9	17	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
52	17	25	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
53	25	33	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
54	33	41	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
55	41	49	-0.00	-0.00	-0.00	0.00	0.00	-0.00	0.00
56	2	10	0.00	-0.00	0.01	0.00	0.00	-0.00	0.01
57	10	18	0.00	-0.01	0.01	0.00	0.00	0.01	0.01
58	18	26	0.00	-0.01	0.02	0.01	0.01	0.01	0.01
59	26	34	0.01	-0.02	0.02	0.01	0.01	0.02	0.01
60	34	42	0.00	-0.04	0.03	0.03	0.02	0.03	0.00
61	42	50	0.02	-0.06	-0.00	0.07	0.04	-0.00	-0.00
62	3	11	0.00	-0.00	0.01	0.00	0.00	-0.01	0.02
63	11	19	0.00	-0.01	0.02	0.01	0.00	0.00	0.03
64	19	27	-0.00	-0.01	0.04	0.01	0.01	0.02	0.02
65	27	35	-0.00	-0.02	0.05	0.01	0.01	0.05	0.02
66	35	43	0.00	-0.05	0.07	0.05	0.03	0.07	0.01
67	43	51	0.05	-0.11	-0.00	0.12	0.07	-0.00	-0.00
68	4	12	-0.00	-0.00	0.01	0.00	0.00	-0.03	0.05
69	12	20	-0.00	-0.01	0.03	0.01	0.01	-0.02	0.05
70	20	28	-0.01	-0.02	0.05	0.01	0.01	0.01	0.05
71	28	36	-0.02	-0.02	0.08	0.02	0.01	0.06	0.04
72	36	44	-0.01	-0.04	0.14	0.03	0.02	0.13	0.03
73	44	52	0.26	-0.22	-0.01	0.21	0.19	-0.01	-0.01
74	5	13	-0.02	-0.00	0.01	0.00	-0.00	-0.08	0.09
75	13	21	-0.01	-0.01	0.02	0.01	0.00	-0.06	0.09
76	21	29	-0.00	-0.02	0.04	0.02	0.01	-0.04	0.08
77	29	37	-0.00	-0.03	0.05	0.02	0.04	0.01	0.05
78	37	45	-0.00	0.05	0.20	-0.05	-0.01	0.17	0.07
79	45	53	1.10	0.42	-0.00	-0.14	-0.60	-0.00	-0.01
80	6	14	-0.04	0.00	-0.03	0.00	-0.00	-0.16	0.12
81	14	22	-0.03	0.00	-0.09	0.00	-0.00	-0.19	0.08
82	22	30	-0.02	-0.00	-0.16	0.01	-0.00	-0.22	0.03
83	30	38	0.03	-0.03	-0.22	0.02	0.01	-0.26	-0.00
84	38	46	0.01	0.00	-0.37	-0.01	0.01	-0.36	-0.09
85	46	54	-0.34	0.49	0.01	-0.52	-0.55	0.02	0.00
86	7	15	-0.02	0.00	-0.00	0.00	-0.00	-0.00	-0.00

87	15	23	-0.02	0.00	-0.01	-0.00	-0.00	-0.01	-0.01
88	23	31	-0.02	0.01	-0.02	-0.00	-0.01	-0.02	-0.01
89	31	39	-0.02	0.01	-0.04	0.00	-0.01	-0.02	-0.02
90	39	47	-0.01	-0.12	-0.07	0.08	0.07	-0.05	-0.04
91	47	55	-0.71	0.48	0.02	-0.41	-0.46	0.03	0.00
92	8	16	-0.02	0.00	-0.01	-0.00	-0.00	-0.01	-0.00
93	16	24	-0.02	0.00	-0.02	-0.00	-0.00	-0.01	-0.01
94	24	32	-0.03	0.00	-0.03	-0.00	-0.00	-0.02	-0.02
95	32	40	-0.04	0.00	-0.05	-0.00	-0.00	-0.03	-0.03
96	40	48	-0.02	-0.01	-0.08	0.01	0.01	-0.05	-0.04
97	48	56	-0.38	0.08	0.01	-0.07	-0.07	0.01	-0.00
98	57	58	1.45	-0.00	-0.18	-0.00	0.00	-0.11	-0.09
99	58	59	0.55	0.00	-0.13	-0.00	0.00	-0.08	-0.07
100	60	61	0.43	0.00	-0.09	-0.00	0.00	-0.05	-0.04
101	54	57	-0.34	-0.41	0.00	0.56	-0.05	0.00	-0.00
102	55	58	-0.70	-0.42	0.00	0.45	0.06	0.00	0.00
103	58	60	-0.65	-0.75	0.00	0.11	0.20	0.00	-0.00
104	56	59	-0.40	-0.07	-0.00	0.06	0.02	-0.00	-0.00
105	59	61	-0.27	-0.09	-0.00	0.04	0.06	0.00	-0.00
106	61	62	-0.18	0.01	0.00	-0.02	-0.00	0.00	-0.00
107	52	57	2.62	-0.71	-0.00	0.85	0.36	0.00	-0.00
108	57	60	1.17	0.09	0.00	-0.15	0.05	0.00	-0.00
109	60	62	0.14	0.11	-0.00	-0.19	0.00	0.00	-0.00

Hipótesis (2) : Empuje de tierras + Reacción Fx del tablero

DESPLAZAMIENTOS DE LOS NUDOS

Nudo Nº	Despl.y (mm)	Despl.x (mm)	Despl.z (mm)	Giro y 1000xrad	Giro x 1000xrad	Giro z 1000xrad
1	-0.000	0.000	0.000	0.000	-0.000	0.000
2	-0.000	0.098	0.001	0.139	-0.000	-0.000
3	0.000	0.294	0.001	0.210	-0.000	-0.000
4	0.000	0.556	0.001	0.240	-0.000	-0.000
5	0.000	0.838	0.001	0.247	-0.000	-0.000
6	0.000	1.123	0.001	0.248	-0.000	-0.000
7	0.000	1.410	0.001	0.249	-0.000	-0.000
8	0.000	1.697	0.001	0.237	-0.000	-0.000
9	-0.000	0.000	0.000	0.000	0.000	-0.000
10	-0.000	0.087	0.001	0.127	-0.000	-0.001
11	0.000	0.291	0.002	0.208	-0.001	-0.004
12	0.002	0.551	0.002	0.237	-0.002	-0.008
13	0.003	0.830	0.002	0.245	-0.002	-0.013
14	0.006	1.113	0.002	0.245	-0.002	-0.017
15	0.009	1.396	0.002	0.246	-0.003	-0.018
16	0.012	1.674	0.002	0.233	-0.003	-0.021
17	-0.000	0.000	0.000	0.000	0.000	-0.000
18	-0.000	0.085	0.002	0.134	-0.001	-0.003
19	0.001	0.284	0.004	0.203	-0.002	-0.008
20	0.003	0.526	0.006	0.231	-0.003	-0.016
21	0.007	0.807	0.006	0.238	-0.004	-0.025
22	0.012	1.091	0.007	0.238	-0.005	-0.033
23	0.018	1.376	0.007	0.238	-0.005	-0.036
24	0.024	1.662	0.007	0.221	-0.006	-0.041
25	-0.000	0.000	0.000	0.000	0.000	-0.000
26	-0.001	0.081	0.005	0.129	-0.001	-0.004
27	0.001	0.272	0.009	0.194	-0.003	-0.011
28	0.004	0.513	0.012	0.220	-0.005	-0.022
29	0.010	0.771	0.014	0.226	-0.007	-0.034
30	0.017	1.031	0.015	0.225	-0.008	-0.047
31	0.027	1.290	0.015	0.225	-0.009	-0.050
32	0.036	1.534	0.016	0.201	-0.009	-0.060
33	-0.000	0.000	0.000	0.000	0.000	-0.000
34	-0.001	0.078	0.008	0.122	-0.002	-0.003
35	0.001	0.259	0.016	0.182	-0.005	-0.012
36	0.005	0.483	0.022	0.206	-0.008	-0.024
37	0.012	0.727	0.026	0.210	-0.010	-0.039
38	0.022	0.967	0.029	0.207	-0.012	-0.056
39	0.035	1.205	0.029	0.204	-0.013	-0.062
40	0.048	1.441	0.030	0.176	-0.012	-0.075
41	0.000	0.000	0.000	0.000	0.000	0.000
42	0.000	0.078	0.013	0.111	-0.009	0.001
43	0.002	0.247	0.031	0.163	-0.014	-0.008
44	0.007	0.458	0.041	0.186	-0.017	-0.021
45	0.014	0.682	0.048	0.186	-0.019	-0.035

46	0.021	0.899	0.051	0.181	-0.020	-0.012
47	0.041	1.097	0.054	0.163	-0.020	-0.020
48	0.057	1.283	0.054	0.160	-0.013	-0.016
49	0.000	0.000	-0.000	0.000	-0.000	0.000
50	0.027	0.084	-0.062	0.043	-0.039	0.029
51	0.081	0.248	-0.113	0.079	-0.051	0.057
52	0.141	0.456	-0.152	0.107	-0.050	0.086
53	0.196	0.687	-0.179	0.145	-0.045	0.112
54	0.248	0.890	-0.190	0.140	-0.045	0.123
55	0.300	1.098	-0.193	0.145	-0.044	0.130
56	0.350	1.277	-0.195	0.153	-0.044	0.133
57	0.464	0.893	-0.383	0.171	-0.060	0.188
58	0.530	1.087	-0.385	0.163	-0.055	0.196
59	0.592	1.277	-0.385	0.162	-0.053	0.200
60	0.785	1.084	-0.592	0.170	-0.060	0.202
61	0.854	1.278	-0.592	0.169	-0.060	0.203
62	1.105	1.278	-0.801	0.168	-0.060	0.202

ESFUERZOS EN LAS BARRAS

Barra Nº	i Nº	j Nº	Axil (t.)	Cort.1 (t.)	Cort.2 (t.)	Flec.1i (tnm)	Flec.1j (tnm)	Flec.2i (tnm)	Flec.2j (tnm)
1	1	2	1.17	-0.00	-10.95	0.00	0.00	-27.23	14.66
2	2	3	0.66	0.00	-7.57	-0.00	-0.00	-15.16	6.46
3	3	4	0.20	0.00	-4.79	-0.00	-0.00	-7.24	1.74
4	4	5	-0.10	0.00	-2.62	-0.00	-0.00	-2.68	-0.33
5	5	6	-0.19	0.00	-1.07	-0.00	-0.00	-0.69	-0.55
6	6	7	-0.09	-0.00	-0.68	0.00	0.00	-0.53	-0.25
7	7	8	-0.02	-0.00	-0.06	0.00	0.00	-0.01	-0.06
8	9	10	3.63	-1.25	-21.69	0.58	0.36	-54.02	29.07
9	10	11	2.52	-1.16	-14.97	0.42	0.92	-30.01	12.79
10	11	12	1.41	-0.97	-9.46	0.32	0.80	-14.31	3.42
11	12	13	0.47	-0.61	-5.16	0.16	0.54	-5.25	-0.69
12	13	14	-0.04	-0.16	-2.11	-0.06	0.17	-1.32	-1.11
13	14	15	-0.07	0.19	-1.35	-0.18	-0.64	-1.04	-0.52
14	15	16	-0.02	0.08	-0.11	-0.07	-0.03	-0.01	-0.12
15	17	18	7.66	-2.64	-21.08	1.24	1.81	-52.63	28.38
16	18	19	6.31	-2.58	-14.52	0.97	2.00	-29.13	12.42
17	19	20	4.65	-2.49	-9.15	0.94	1.92	-13.78	3.28
18	20	21	2.77	-2.01	-4.95	0.74	1.57	-4.93	-0.75
19	21	22	1.14	-0.91	-2.00	0.25	0.80	-1.12	-1.18
20	22	23	0.28	0.10	-1.32	-0.18	0.06	-0.94	-0.58
21	23	24	0.06	0.04	-0.08	-0.05	-0.00	0.02	-0.12
22	25	26	14.94	-4.29	-20.32	2.00	2.93	-50.60	27.27
23	26	27	13.29	-4.59	-13.96	1.82	3.46	-27.73	11.68
24	27	28	10.71	-5.20	-8.66	2.24	3.74	-12.95	2.99
25	28	29	7.20	-5.12	-4.16	2.26	3.62	-4.41	-0.93
26	29	30	3.54	-3.43	-1.98	1.43	2.52	-0.79	-1.49
27	30	31	1.04	-0.63	-1.24	0.23	0.49	-0.64	-0.78
28	31	32	0.22	-0.29	0.03	0.17	0.16	0.11	-0.06
29	33	34	27.20	-6.87	-21.87	3.06	4.84	-48.54	24.39
30	34	35	24.72	-9.16	-14.69	4.09	6.45	-26.53	9.84
31	35	36	19.92	-11.42	-9.42	5.67	7.47	-12.72	1.89

32	36	37	14.36	-12.13	-5.70	6.05	7.90	-4.45	-2.11
33	37	38	8.15	-10.09	-2.35	4.81	6.79	-0.39	-2.31
34	38	39	2.65	-3.06	-2.85	1.69	1.83	-0.82	-2.45
35	39	40	0.60	-1.25	0.45	0.80	0.63	0.38	0.14
36	41	42	29.00	-2.32	-19.97	0.88	1.78	-28.22	5.25
37	42	43	22.33	-4.95	-16.10	2.60	3.09	-17.14	-1.35
38	43	44	15.74	-5.93	-13.70	3.29	3.54	-11.40	-4.36
39	44	45	11.27	-6.00	-12.01	3.36	3.34	-7.22	-6.59
40	45	46	6.25	-5.24	-6.06	2.93	3.10	-2.47	-6.50
41	46	47	3.80	-2.71	-0.79	1.55	1.57	2.36	-3.26
42	47	48	0.11	-1.95	-0.41	1.47	0.78	0.21	-0.68
43	49	50	-82.59	12.50	-5.45	-20.38	6.01	-3.57	-2.70
44	50	51	-69.84	7.87	-8.67	-8.41	-0.65	-5.36	-4.61
45	51	52	-52.62	4.51	-9.22	-2.28	-2.91	-5.58	-5.02
46	52	53	-35.99	2.52	-7.95	0.27	-3.17	-4.95	-4.19
47	53	54	-18.83	1.41	-4.32	-0.99	-0.64	-2.43	-2.54
48	54	55	-6.96	0.53	-3.84	0.34	-0.93	-2.26	-2.15
49	55	56	-0.56	-0.12	-1.80	0.29	-0.16	-1.13	-0.94
50	1	9	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
51	9	17	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
52	17	25	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
53	25	33	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
54	33	41	-0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
55	41	49	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
56	2	10	0.44	-0.50	0.30	0.42	0.19	-0.23	0.59
57	10	18	0.53	-1.61	0.84	1.09	0.84	0.14	0.97
58	18	26	0.89	-2.97	1.23	1.93	1.83	0.33	0.95
59	26	34	0.29	-4.61	1.42	3.13	2.41	1.09	0.81
60	34	42	-2.00	-7.08	2.43	6.52	1.93	2.44	0.47
61	42	50	3.22	-13.76	0.00	16.70	8.06	0.12	-0.12
62	3	11	-0.91	-0.46	0.17	0.60	-0.05	-1.13	1.33
63	11	19	-0.72	-1.57	0.46	1.29	0.60	-0.34	1.39
64	19	27	-0.62	-3.23	0.63	2.35	1.53	-0.40	1.16
65	27	35	-1.23	-5.82	0.72	4.16	2.82	0.35	0.51
66	35	43	-3.49	-10.62	0.76	9.30	3.49	1.45	-0.53
67	43	51	0.56	-17.21	0.55	20.79	10.19	0.78	0.22
68	4	12	-4.55	-0.31	0.04	0.71	-0.34	-2.31	2.35
69	12	20	-4.20	-1.23	0.07	1.30	0.18	-2.10	2.18
70	20	28	-3.71	-3.11	-0.02	2.49	1.24	-1.66	1.64
71	28	36	-3.63	-6.61	-0.28	4.76	3.17	-0.82	0.49
72	36	44	-4.34	-12.17	-0.83	10.35	4.25	0.49	-1.48
73	44	52	-1.27	-16.63	1.21	19.98	9.97	1.55	0.63
74	5	13	-10.39	-0.09	-0.11	0.74	-0.63	-3.63	3.50
75	13	21	-9.87	-0.61	-0.38	1.12	-0.38	-3.54	3.09
76	21	29	-8.78	-2.25	-0.75	2.20	0.50	-3.13	2.23
77	29	37	-7.07	-5.91	-1.41	4.55	2.54	-2.16	0.47
78	37	45	-5.05	-12.12	-1.37	10.16	4.38	0.39	-2.03
79	45	53	2.92	-17.14	1.30	18.19	12.67	2.26	0.99
80	6	14	-10.00	0.10	-0.79	0.73	-0.85	-5.25	4.31
81	14	22	-17.72	0.06	-2.40	0.85	-0.92	-5.94	5.05
82	22	30	-16.70	-0.79	-4.08	1.55	-0.50	-6.23	1.33
83	30	38	-13.09	-3.29	-5.70	3.35	0.60	-5.84	-1.00
84	38	46	-6.87	-8.80	-6.70	7.89	2.67	-4.30	-6.14
85	46	54	-4.71	-11.25	2.67	12.73	7.51	3.07	1.85
86	7	15	-6.35	0.07	-0.06	0.16	-0.24	-0.12	0.02

87	15	23	-6.45	0.13	-0.25	0.14	-0.30	-0.22	-0.09
88	23	31	-6.51	-0.09	-0.43	0.31	-0.20	-0.31	-0.20
89	31	39	-6.19	-0.91	-0.57	0.86	0.23	-0.39	-0.30
90	39	47	-4.37	-2.96	-1.83	2.40	1.16	-0.94	-1.26
91	47	55	-6.39	-6.63	2.56	7.15	4.82	2.94	1.66
92	8	16	-5.16	0.02	-0.14	0.02	-0.04	-0.15	-0.01
93	16	24	-5.24	0.03	-0.41	0.01	-0.05	-0.31	-0.18
94	24	32	-5.29	-0.02	-0.72	0.05	-0.02	-0.49	-0.37
95	32	40	-5.00	-0.24	-1.14	0.18	0.11	-0.73	-0.63
96	40	48	-3.75	-0.84	-1.73	0.53	0.48	-0.99	-1.38
97	48	56	-1.76	-0.95	1.50	0.92	0.80	1.67	1.03
98	57	58	-1.86	0.31	-0.62	0.46	-0.82	-0.30	-0.42
99	58	59	-0.57	-0.17	-0.25	0.25	-0.68	-0.13	-0.15
100	60	61	0.14	0.07	0.37	0.00	-0.09	0.06	0.04
101	54	57	-4.23	-0.18	1.15	-2.71	2.94	1.12	0.30
102	55	58	-2.36	-0.25	1.41	-1.54	1.84	1.29	0.45
103	56	60	-1.98	1.04	6.43	-1.29	0.00	0.30	0.23
104	56	59	0.04	-0.39	0.89	0.14	0.35	0.77	0.34
105	59	61	0.28	0.18	0.32	-0.20	-0.03	0.21	0.19
106	61	62	0.19	0.04	-0.01	-0.02	-0.03	-0.01	-0.00
107	53	57	4.24	5.06	0.42	-6.05	-2.50	0.66	0.61
108	57	60	2.08	0.26	0.21	-0.14	-0.29	0.23	0.13
109	60	62	-0.12	-0.16	0.01	0.24	0.03	0.01	0.00

Hipótesis (3) : Reacción vertical máxima del tablero: Fmáx

DESPLAZAMIENTOS DE LOS NUDOS

Nudo Nº	Despl.y (mm)	Despl.x (mm)	Despl.z (mm)	Giro y 1000xrad	Giro x 1000xrad	Giro z 1000xrad
1	-0.000	0.000	0.000	0.000	-0.000	0.000
2	-0.000	0.000	0.002	0.000	-0.000	0.000
3	-0.000	0.001	0.005	0.001	-0.000	0.000
4	-0.000	0.002	0.007	0.001	-0.000	0.000
5	0.000	0.002	0.007	-0.000	-0.000	0.000
6	0.000	0.001	0.007	-0.001	-0.000	0.000
7	0.000	0.000	0.007	-0.001	-0.000	-0.000
8	0.000	-0.000	0.007	0.000	-0.000	-0.000
9	-0.000	0.000	0.000	0.000	0.000	0.000
10	-0.001	0.000	0.003	0.000	-0.000	0.000
11	-0.001	0.001	0.006	0.001	-0.001	0.000
12	-0.001	0.002	0.008	0.001	-0.002	0.000
13	0.001	0.002	0.009	0.000	-0.003	0.001
14	0.004	0.002	0.009	-0.001	-0.003	0.000
15	0.008	0.001	0.009	-0.001	-0.004	0.000
16	0.012	-0.000	0.009	0.001	-0.004	0.000
17	-0.000	0.000	0.000	0.000	0.000	0.000
18	-0.001	0.000	0.005	0.001	0.000	0.000
19	-0.002	0.001	0.009	0.001	-0.001	0.000
20	-0.001	0.002	0.012	0.001	-0.003	0.001
21	0.002	0.003	0.015	0.000	-0.005	0.001
22	0.008	0.003	0.015	-0.001	-0.007	0.001
23	0.016	0.001	0.017	-0.002	-0.008	0.001
24	0.025	-0.000	0.017	0.002	-0.008	0.001
25	-0.000	0.000	0.000	0.000	0.000	0.000
26	-0.002	0.000	0.006	0.001	0.000	0.000
27	-0.003	0.002	0.012	0.001	-0.001	0.000
28	-0.002	0.003	0.019	0.002	-0.004	0.001
29	0.002	0.005	0.024	0.001	-0.007	0.002
30	0.010	0.004	0.029	-0.002	-0.012	0.002
31	0.024	0.000	0.032	-0.006	-0.015	0.002
32	0.036	-0.000	0.033	0.005	-0.012	0.001
33	-0.000	-0.000	0.000	0.000	0.000	-0.000
34	-0.002	0.000	0.008	0.001	0.001	-0.000
35	-0.003	0.002	0.016	0.002	-0.001	0.000
36	-0.002	0.004	0.026	0.002	-0.003	0.000
37	0.002	0.007	0.036	0.003	-0.007	0.002
38	0.011	0.008	0.039	-0.002	-0.013	0.004
39	0.027	-0.004	0.054	-0.020	-0.017	0.005
40	0.047	0.003	0.063	0.011	-0.014	0.006
41	-0.000	-0.000	0.000	0.000	0.000	-0.000
42	-0.002	0.000	0.009	0.001	-0.001	-0.000
43	-0.003	0.002	0.019	0.002	-0.002	-0.000
44	-0.002	0.004	0.032	0.003	-0.005	0.000
45	0.002	0.008	0.047	0.005	-0.009	0.001

46	0.012	0.014	0.066	0.005	-0.013	0.006
47	0.027	0.020	0.086	0.002	-0.015	0.011
48	0.043	0.028	0.085	0.010	-0.015	0.012
49	-0.000	-0.000	0.000	0.000	-0.000	0.000
50	0.000	0.000	0.008	0.001	-0.001	0.001
51	0.002	0.001	0.015	0.002	-0.002	0.001
52	0.006	0.004	0.023	0.005	-0.005	0.002
53	0.014	0.006	0.030	0.008	-0.008	0.002
54	0.024	0.013	0.036	0.016	-0.010	0.002
55	0.035	0.022	0.040	0.023	-0.011	0.002
56	0.048	0.033	0.040	0.015	-0.011	0.002
57	0.028	0.014	0.020	0.009	-0.010	0.004
58	0.039	0.022	0.020	0.011	-0.010	0.004
59	0.051	0.033	0.020	0.012	-0.010	0.004
60	0.044	0.023	0.008	0.009	-0.010	0.004
61	0.055	0.033	0.008	0.009	-0.010	0.004
62	0.060	0.033	-0.003	0.009	-0.010	0.004

ESFUERZOS EN LAS BARRAS

Barra Nº	i Nº	j Nº	Axil (t.)	Cort.1 (t.)	Cort.2 (t.)	Flec.1i (txm)	Flec.1j (txm)	Flec.2i (txm)	Flec.2j (txm)
1	1	2	4.88	-0.00	-0.00	0.00	0.00	-0.06	0.06
2	2	3	3.69	-0.00	-0.01	0.00	0.00	-0.04	0.03
3	3	4	2.30	-0.00	-0.02	-0.00	0.00	0.01	-0.03
4	4	5	0.99	0.00	-0.01	-0.00	-0.00	0.08	-0.09
5	5	6	0.14	0.00	0.02	-0.00	-0.00	0.11	-0.08
6	6	7	-0.04	-0.00	0.01	0.00	0.00	0.03	-0.02
7	7	8	-0.01	-0.00	0.00	0.00	0.00	-0.00	0.00
8	9	10	11.10	-2.48	-0.02	1.42	1.43	-0.15	0.13
9	10	11	8.95	-2.77	-0.04	1.32	1.86	-0.10	0.06
10	11	12	6.23	-3.01	-0.05	1.38	2.07	0.00	-0.06
11	12	13	3.37	-2.65	-0.03	1.13	1.91	0.16	-0.19
12	13	14	1.09	-1.37	0.05	0.46	1.11	0.27	-0.22
13	14	15	0.20	0.02	0.03	-0.14	0.12	0.11	-0.08
14	15	16	0.05	-0.00	0.01	-0.02	0.02	-0.00	0.01
15	17	18	15.16	-4.51	-0.04	2.61	2.58	-0.19	0.15
16	18	19	13.53	-5.12	-0.05	2.46	3.43	-0.15	0.09
17	19	20	11.33	-5.84	-0.08	2.69	4.03	-0.06	-0.04
18	20	21	6.45	-5.87	-0.09	2.50	4.25	0.16	-0.27
19	21	22	4.79	-4.15	0.05	1.48	3.29	0.57	-0.41
20	22	23	1.44	-0.90	0.06	0.21	0.71	0.31	-0.24
21	23	24	0.37	-0.45	0.02	0.25	0.26	-0.00	0.03
22	25	26	20.68	-5.58	-0.04	3.29	3.13	-0.23	0.18
23	26	27	20.40	-6.29	-0.05	3.02	4.21	-0.21	0.16
24	27	28	20.06	-7.45	-0.13	3.39	5.13	-0.18	0.03
25	28	29	19.16	-8.55	-0.20	3.58	6.25	0.03	-0.36
26	29	30	16.42	-8.74	-0.16	3.05	7.01	0.76	-0.94
27	30	31	8.43	-5.24	0.16	2.00	4.03	1.23	-1.02
28	31	32	0.96	-2.28	0.01	1.55	1.05	-0.04	0.05
29	33	34	25.96	-6.27	0.02	3.31	2.36	-0.28	0.22
30	34	35	27.92	-6.56	0.01	2.39	3.80	-0.25	0.26
31	35	36	31.15	-6.52	-0.07	2.76	4.74	-0.32	0.24

32	36	37	35.38	-7.63	-0.41	2.84	5.93	-0.31	-0.16
33	37	38	41.36	-7.91	-1.63	2.22	6.87	0.40	-2.28
34	38	39	49.03	-8.90	-1.11	1.39	4.25	4.78	-6.66
35	39	40	-0.91	-2.29	-0.42	1.55	1.68	-0.37	-0.11
36	41	42	16.51	-1.03	0.07	0.56	0.63	-0.05	0.14
37	42	43	17.39	-1.34	0.10	0.69	0.85	-0.10	0.22
38	43	44	20.52	-1.53	0.20	0.75	1.01	-0.11	0.33
39	44	45	25.16	-1.62	0.38	0.74	1.12	-0.06	0.50
40	45	46	29.98	-1.24	-0.07	0.50	0.93	-0.11	0.03
41	46	47	32.84	-0.40	-1.51	0.12	0.35	-0.38	-1.36
42	47	48	-1.09	-0.46	-1.02	0.30	0.23	-1.80	0.53
43	49	50	10.43	-0.29	0.01	-0.08	0.41	-0.00	0.01
44	50	51	10.42	-0.26	0.04	-0.42	0.72	0.01	0.04
45	51	52	10.27	-0.20	0.15	-0.73	0.96	0.06	0.11
46	52	53	9.79	-0.09	0.44	-0.95	1.05	0.22	0.28
47	53	54	8.76	0.05	0.69	-0.95	0.89	0.30	0.49
48	54	55	6.52	0.12	1.55	-0.59	0.45	0.80	0.99
49	55	56	0.38	0.06	1.25	-0.11	0.03	0.81	0.63
50	1	9	0.00	-0.00	-0.00	0.00	0.00	0.00	-0.00
51	9	17	0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
52	17	25	0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
53	25	33	-0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
54	33	41	-0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00
55	41	49	0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
56	2	10	2.08	-1.19	-0.01	0.72	0.71	0.01	-0.02
57	10	18	1.79	-3.42	-0.03	2.04	2.06	-0.01	-0.03
58	18	26	1.18	-5.05	-0.04	2.97	3.08	-0.04	-0.02
59	26	34	0.47	-5.32	-0.05	3.07	3.32	-0.06	-0.01
60	34	42	0.28	-2.86	-0.06	2.13	1.31	-0.05	-0.03
61	42	50	-0.03	0.01	0.03	-0.01	-0.02	0.03	0.02
62	3	11	3.22	-1.39	-0.00	1.06	0.61	0.05	-0.05
63	11	19	2.98	-4.11	-0.02	2.64	2.30	0.02	-0.04
64	19	27	2.25	-6.30	-0.05	3.82	3.74	-0.04	-0.02
65	27	35	1.69	-6.62	-0.13	3.86	4.68	-0.14	-0.32
66	35	43	0.13	-3.38	-0.21	2.47	1.58	-0.17	-0.08
67	43	51	-0.11	0.14	0.07	-0.16	-0.10	0.07	0.05
68	4	12	1.86	-1.31	0.01	1.31	0.27	0.11	-0.09
69	12	20	2.21	-4.17	0.03	2.94	2.06	0.11	-0.07
70	20	28	2.19	-7.06	0.03	4.47	4.00	0.05	-0.01
71	28	36	1.69	-7.99	-0.13	4.76	4.83	-0.16	0.01
72	36	44	-0.02	-3.76	-0.47	2.75	1.75	-0.40	-0.16
73	44	52	-0.29	0.48	0.11	-0.54	-0.33	0.11	0.09
74	5	13	-3.04	-0.85	0.03	1.36	-0.34	0.16	-0.13
75	13	21	-1.76	-3.13	0.10	2.72	1.05	0.22	-0.10
76	21	29	-0.04	-6.78	0.24	4.70	3.45	0.31	-0.01
77	29	37	-0.23	-9.52	0.37	5.85	5.57	0.24	0.20
78	37	45	-0.51	-3.55	-0.85	2.58	1.68	-0.67	-0.35
79	45	53	-1.31	1.28	0.14	-1.34	-0.95	0.13	0.12
80	6	14	-12.16	-0.18	-0.01	1.23	-1.01	0.13	-0.14
81	14	22	-10.77	-1.07	-0.03	1.98	-0.69	0.15	-0.19
82	22	30	-7.42	-4.43	-0.02	4.19	1.13	0.27	-0.29
83	30	38	-3.92	-12.42	0.32	7.88	7.02	0.70	-0.32
84	38	46	-0.91	-2.14	0.84	1.24	1.33	1.06	-0.04
85	46	54	-0.59	2.56	0.07	-2.96	-1.66	0.05	0.08
86	7	15	-5.82	0.03	-0.01	0.27	-0.31	-0.00	-0.00

87	15	23	-5.84	-0.12	-0.02	0.41	-0.27	-0.01	-0.01
88	23	31	-5.48	-1.19	-0.06	1.23	0.20	-0.04	-0.04
89	31	39	-2.50	-8.66	-0.24	5.38	5.01	-0.13	-0.15
90	39	47	0.11	-1.52	0.45	0.79	1.03	0.30	0.25
91	47	55	0.94	5.33	-0.05	-6.14	-3.45	-0.08	-0.01
92	8	16	-5.38	0.01	-0.00	0.04	-0.05	-0.00	-0.00
93	16	24	-5.38	-0.04	-0.02	0.07	-0.03	-0.01	-0.01
94	24	32	-4.94	-0.41	-0.04	0.29	0.20	-0.02	-0.02
95	32	40	-2.66	-1.37	-0.04	0.85	0.79	-0.01	-0.04
96	40	48	-0.39	-0.47	0.37	0.28	0.27	0.24	0.20
97	48	56	1.40	0.63	-0.07	-0.61	-0.52	-0.09	-0.04
98	57	58	-0.13	0.00	0.20	-0.05	0.05	0.11	0.13
99	58	59	0.32	0.01	0.17	-0.01	0.00	0.09	0.11
100	60	61	-0.07	0.00	-0.01	-0.00	0.00	-0.00	-0.00
101	54	57	0.27	0.32	0.00	0.38	-0.77	0.01	-0.01
102	55	58	0.63	-0.81	0.00	1.65	-0.65	0.01	-0.01
103	58	60	0.60	-0.36	0.00	0.44	0.00	0.00	-0.00
104	56	59	0.15	0.24	-0.01	-0.11	-0.19	-0.00	-0.01
105	59	61	-0.02	-0.07	-0.00	0.09	0.00	0.00	-0.00
106	61	62	-0.01	-0.00	0.00	0.00	0.00	0.00	-0.00
107	53	57	-0.94	-0.54	0.00	0.37	0.55	0.01	-0.01
108	57	60	-0.72	-0.08	-0.00	0.12	0.01	0.00	-0.00
109	60	62	0.01	0.01	-0.00	-0.01	-0.00	0.00	-0.00

Hipótesis (4) : Reacción vertical mínima del tablero: Fzmin

DESPLAZAMIENTOS DE LOS NUDOS

Nudo Nº	Despl.y (mm)	Despl.x (mm)	Despl.z (mm)	Giro y 1000xrad	Giro x 1000xrad	Giro z 1000xrad
1	-0.000	0.000	0.000	0.000	-0.000	0.000
2	-0.000	0.000	0.002	0.000	-0.000	0.000
3	-0.000	0.001	0.003	0.000	-0.000	0.000
4	-0.000	0.001	0.004	0.000	-0.000	0.000
5	0.000	0.001	0.005	-0.000	-0.000	0.000
6	0.000	0.001	0.005	-0.000	-0.000	0.000
7	0.000	0.000	0.005	-0.001	-0.000	-0.000
8	0.000	-0.000	0.005	0.000	-0.000	-0.000
9	-0.000	0.000	0.000	0.000	0.000	0.000
10	-0.000	0.000	0.002	0.000	-0.000	0.000
11	-0.001	0.001	0.004	0.000	-0.000	0.000
12	-0.000	0.001	0.005	0.000	-0.001	0.000
13	0.001	0.001	0.006	0.000	-0.002	0.000
14	0.003	0.001	0.005	-0.001	-0.002	0.000
15	0.005	0.000	0.006	-0.001	-0.002	0.000
16	0.008	-0.000	0.006	0.000	-0.003	0.000
17	-0.000	0.000	0.000	0.000	0.000	0.000
18	-0.001	0.000	0.003	0.000	0.000	0.000
19	-0.001	0.001	0.006	0.001	-0.001	0.000
20	-0.001	0.002	0.008	0.001	-0.002	0.000
21	0.001	0.002	0.010	0.000	-0.003	0.001
22	0.005	0.002	0.011	-0.001	-0.005	0.001
23	0.011	0.000	0.011	-0.001	-0.005	0.001
24	0.016	-0.000	0.011	0.001	-0.005	0.000
25	-0.000	0.000	0.000	0.000	0.000	0.000
26	-0.001	0.000	0.004	0.000	0.000	0.000
27	-0.002	0.001	0.006	0.001	-0.001	0.000
28	-0.001	0.002	0.012	0.001	-0.002	0.001
29	0.001	0.003	0.016	0.001	-0.005	0.001
30	0.007	0.003	0.019	-0.001	-0.008	0.001
31	0.016	0.000	0.021	-0.004	-0.010	0.001
32	0.024	-0.000	0.022	0.003	-0.008	0.001
33	-0.000	-0.000	0.000	0.000	0.000	-0.000
34	-0.001	0.000	0.005	0.000	0.000	-0.000
35	-0.002	0.001	0.011	0.001	-0.001	0.000
36	-0.002	0.003	0.017	0.002	-0.002	0.000
37	0.001	0.005	0.024	0.002	-0.005	0.001
38	0.007	0.005	0.032	-0.001	-0.009	0.003
39	0.018	-0.002	0.042	-0.013	-0.011	0.003
40	0.028	0.002	0.041	0.008	-0.009	0.004
41	-0.000	-0.000	0.000	0.000	0.000	-0.000
42	-0.001	0.000	0.004	0.000	-0.000	-0.000
43	-0.002	0.001	0.013	0.001	-0.002	-0.000
44	-0.012	0.003	0.021	0.002	-0.003	0.000
45	0.001	0.006	0.031	0.003	-0.006	0.001

46	0.008	0.010	0.043	0.004	-0.009	0.004
47	0.015	0.013	0.056	0.001	-0.010	0.007
48	0.029	0.018	0.056	0.007	-0.010	0.008
49	-0.000	-0.000	0.000	0.000	-0.000	0.000
50	0.000	0.000	0.005	0.000	-0.000	0.000
51	0.001	0.001	0.010	0.001	-0.002	0.001
52	0.004	0.002	0.015	0.003	-0.003	0.001
53	0.009	0.004	0.020	0.005	-0.005	0.002
54	0.016	0.009	0.024	0.010	-0.006	0.002
55	0.023	0.014	0.026	0.015	-0.007	0.002
56	0.031	0.022	0.026	0.010	-0.007	0.001
57	0.018	0.009	0.013	0.006	-0.006	0.002
58	0.026	0.015	0.013	0.007	-0.007	0.002
59	0.034	0.022	0.013	0.008	-0.007	0.002
60	0.029	0.015	0.005	0.006	-0.007	0.003
61	0.037	0.022	0.005	0.006	-0.007	0.003
62	0.040	0.022	-0.002	0.006	-0.007	0.003

ESFUERZOS EN LAS BARRAS

Barra Nº	i Nº	j Nº	Axil (t.)	Cort.1 (t.)	Cort.2 (t.)	Flec.1i (txm)	Flec.1j (txm)	Flec.2i (txm)	Flec.2j (txm)
1	1	2	3.22	-0.00	-0.00	0.00	0.00	-0.04	0.04
2	2	3	2.43	-0.00	-0.01	0.00	0.00	-0.03	0.02
3	3	4	1.51	-0.00	-0.01	-0.00	0.00	0.01	-0.02
4	4	5	0.65	0.00	-0.00	-0.00	-0.00	0.05	-0.06
5	5	6	0.09	0.00	0.01	-0.00	-0.00	0.07	-0.06
6	6	7	-0.03	-0.00	0.01	0.00	0.00	0.02	-0.02
7	7	8	-0.01	-0.00	0.00	0.00	0.00	-0.00	0.00
8	9	10	7.37	-1.83	-0.01	0.94	0.94	-0.10	0.08
9	10	11	5.90	-1.82	-0.02	0.87	1.23	-0.07	0.04
10	11	12	4.11	-1.98	-0.03	0.91	1.37	0.00	-0.04
11	12	13	2.22	-1.75	-0.02	0.75	1.26	0.11	-0.13
12	13	14	0.72	-0.90	0.03	0.31	0.73	0.18	-0.14
13	14	15	0.13	0.01	0.02	-0.09	0.08	0.07	-0.05
14	15	16	0.03	-0.00	0.01	-0.01	0.01	-0.00	0.01
15	17	18	10.00	-2.97	-0.02	1.72	1.70	-0.13	0.10
16	18	19	8.92	-3.37	-0.03	1.62	2.26	-0.10	0.06
17	19	20	7.48	-3.85	-0.06	1.78	2.66	-0.04	-0.03
18	20	21	5.57	-3.87	-0.06	1.65	2.80	0.11	-0.18
19	21	22	3.16	-2.74	0.03	0.98	2.17	0.31	-0.27
20	22	23	0.95	-0.53	0.04	0.14	0.47	0.21	-0.16
21	23	24	0.24	-0.29	0.01	0.16	0.17	-0.00	0.02
22	25	26	13.63	-3.66	-0.03	2.17	2.06	-0.15	0.12
23	26	27	13.45	-4.15	-0.03	1.99	2.78	-0.14	0.10
24	27	28	13.24	-4.91	-0.09	2.23	3.42	-0.12	0.02
25	28	29	12.83	-5.64	-0.19	2.36	4.12	0.02	-0.23
26	29	30	10.32	-5.77	-0.11	2.01	4.62	0.50	-0.62
27	30	31	5.36	-3.45	0.12	1.32	2.66	0.91	-0.67
28	31	32	0.64	-1.49	0.00	1.02	0.69	-0.03	0.03
29	33	34	16.79	-3.54	0.01	2.18	1.88	-0.13	0.14
30	34	35	18.41	-3.66	0.00	1.71	2.31	-0.17	0.17
31	35	36	20.54	-3.30	-0.04	1.82	3.13	-0.21	0.16

32	36	37	23.33	-5.03	-0.27	1.87	3.91	-0.21	-0.11
33	37	38	27.27	-5.21	-1.07	1.47	4.53	0.27	-1.50
34	38	39	32.33	-3.23	-0.73	0.92	2.80	3.15	-3.99
35	39	40	-0.60	-1.51	-0.27	1.02	0.71	-0.24	-0.07
36	41	42	9.57	-0.68	0.05	0.37	0.41	-0.03	0.09
37	42	43	11.47	-0.88	0.07	0.45	0.56	-0.06	0.14
38	43	44	13.79	-1.01	0.13	0.49	0.67	-0.07	0.22
39	44	45	16.59	-1.07	0.25	0.49	0.74	-0.04	0.33
40	45	46	19.77	-0.82	-0.05	0.33	0.61	-0.07	0.02
41	46	47	21.65	-0.27	-0.99	0.08	0.23	-0.25	-0.89
42	47	48	-0.72	-0.30	-0.68	0.20	0.15	-1.19	0.41
43	49	50	6.88	-0.19	0.00	-0.05	0.27	-0.00	0.01
44	50	51	6.87	-0.17	0.03	-0.28	0.47	0.00	0.03
45	51	52	6.77	-0.13	0.10	-0.48	0.63	0.04	0.07
46	52	53	6.46	-0.06	0.29	-0.63	0.69	0.14	0.19
47	53	54	5.78	0.03	0.45	-0.63	0.59	0.20	0.32
48	54	55	4.30	0.08	1.02	-0.39	0.30	0.53	0.65
49	55	56	0.25	0.04	0.82	-0.07	0.02	0.53	0.41
50	1	9	0.00	-0.00	-0.00	0.00	0.00	0.00	-0.00
51	9	17	0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
52	17	25	0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
53	25	33	-0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
54	33	41	-0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00
55	41	49	0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
56	2	10	1.37	-0.79	-0.01	0.47	0.47	0.01	-0.01
57	10	18	1.18	-2.25	-0.02	1.34	1.36	-0.01	-0.02
58	18	26	0.78	-3.33	-0.03	1.96	2.03	-0.02	-0.01
59	26	34	0.31	-3.51	-0.03	2.02	2.19	-0.04	-0.00
60	34	42	0.18	-1.89	-0.04	1.40	0.86	-0.03	-0.02
61	42	50	-0.02	0.01	0.02	-0.01	-0.01	0.02	0.01
62	3	11	2.12	-0.92	-0.00	0.70	0.40	0.03	-0.02
63	11	19	1.96	-2.71	-0.01	1.74	1.52	0.01	-0.03
64	19	27	1.68	-4.15	-0.03	2.52	2.47	-0.03	-0.01
65	27	35	0.72	-4.36	-0.09	2.54	2.89	-0.09	-0.01
66	35	43	0.08	-2.23	-0.14	1.63	1.04	-0.11	-0.05
67	43	51	-0.07	0.09	0.04	-0.10	-0.07	0.04	0.03
68	4	12	1.23	-0.87	0.01	0.86	0.18	0.07	-0.06
69	12	20	1.46	-2.75	0.02	1.94	1.36	0.07	-0.04
70	20	28	1.44	-4.66	0.02	2.95	2.64	0.03	-0.01
71	28	36	0.72	-5.27	-0.08	3.14	3.18	-0.10	0.00
72	36	44	-0.01	-2.48	-0.31	1.82	1.16	-0.26	-0.11
73	44	52	-0.19	0.32	0.07	-0.35	-0.22	0.07	0.06
74	5	13	-2.00	-0.56	0.02	0.89	-0.22	0.11	-0.08
75	13	21	-1.16	-2.06	0.07	1.79	0.68	0.15	-0.06
76	21	29	-0.02	-4.47	0.16	3.10	2.27	0.20	-0.01
77	29	37	-0.15	-6.28	0.24	3.86	3.67	0.16	0.13
78	37	45	-0.34	-2.34	-0.56	1.70	1.11	-0.44	-0.23
79	45	53	-0.86	0.84	0.09	-0.88	-0.83	0.09	0.08
80	6	14	-8.02	-0.12	-0.01	0.81	-0.67	0.08	-0.09
81	14	22	-7.10	-0.71	-0.02	1.30	-0.45	0.10	-0.12
82	22	30	-4.89	-2.92	-0.01	2.76	0.74	0.18	-0.19
83	30	38	-2.58	-0.19	0.21	5.20	4.63	0.46	-0.21
84	38	46	-0.80	-1.41	0.56	0.82	0.88	0.70	-0.02
85	46	54	-0.39	1.69	0.05	-1.95	-1.10	0.03	0.05
86	7	15	-3.84	0.02	-0.00	0.18	-0.21	-0.00	-0.00

87	15	23	-3.85	-0.03	-0.01	0.27	-0.18	-0.01	-0.01
88	23	31	-3.62	-0.78	-0.04	0.81	0.13	-0.02	-0.03
89	31	39	-1.65	-5.71	-0.16	3.55	3.30	-0.09	-0.10
90	39	47	0.07	-1.00	0.30	0.52	0.68	0.19	0.17
91	47	55	0.62	3.51	-0.04	-4.05	-2.27	-0.05	-0.01
92	8	16	-3.55	0.01	-0.00	0.03	-0.03	-0.00	-0.00
93	16	24	-3.55	-0.03	-0.01	0.05	-0.02	-0.01	-0.01
94	24	32	-3.26	-0.27	-0.02	0.19	0.13	-0.01	-0.02
95	32	40	-1.77	-0.90	-0.03	0.56	0.52	-0.01	-0.03
96	40	48	-0.26	-0.31	0.25	0.19	0.18	0.16	0.13
97	48	56	0.92	0.41	-0.05	-0.40	-0.34	-0.06	-0.03
98	57	58	-0.09	0.00	0.13	-0.03	0.03	0.07	0.09
99	58	59	0.21	0.00	0.11	-0.01	0.00	0.06	0.07
100	60	61	-0.05	0.00	-0.01	-0.00	0.00	-0.00	-0.00
101	54	57	0.19	0.21	0.00	0.25	-0.51	0.01	-0.00
102	55	58	0.42	-0.53	0.00	1.09	-0.43	0.01	-0.00
103	56	60	0.39	-0.24	0.00	0.29	0.00	0.00	-0.00
104	56	59	0.10	0.16	-0.00	-0.07	-0.13	-0.00	-0.01
105	59	61	-0.01	-0.05	-0.00	0.06	0.00	0.00	-0.00
106	61	62	-0.01	-0.00	0.00	0.00	0.00	0.00	-0.00
107	53	57	-0.62	-0.36	0.00	0.24	0.36	0.01	-0.01
108	57	60	-0.47	-0.05	-0.00	0.08	0.01	0.00	-0.00
109	60	62	0.00	0.01	-0.00	-0.01	-0.00	0.00	-0.00

DIMENSIONAMIENTO DE ARMADURAS

Esfuerzos de cálculo y armadura vertical del muro frontal

				(1)+(2)+(3)		(1)+(2)+(4)			
Nudo Nº	Canto (m)	Ancho (m)	Recu. (m)	Nd (t/m)	Md (txm/m)	Nd (t/m)	Md (txm/m)	Aint. (cm²/m)	Aext. (cm²/m)
8	0.25	1.00	0.05	0.49	-0.08	0.27	-0.15	1.13	1.13
7	0.25	1.00	0.05	0.49	0.01	0.27	-0.01	1.13	1.13
6	1.05	1.00	0.05	3.10	-0.62	1.73	-1.23	4.72	4.72
5	1.05	1.00	0.05	7.92	-0.42	4.37	-1.41	4.72	4.72
4	1.05	1.00	0.05	14.70	-3.27	8.15	-6.28	4.72	4.72
3	1.05	1.00	0.05	23.19	-17.39	12.74	-10.44	5.45	4.72
2	1.05	1.00	0.05	32.35	-37.22	17.52	-22.31	10.34	4.72
1	1.05	1.00	0.05	41.12	-67.45	22.18	-40.44	15.83	4.72
16	0.25	1.00	0.05	0.59	-0.08	0.33	-0.15	1.13	1.13
15	0.25	1.00	0.05	0.59	0.02	0.33	0.00	1.13	1.13
14	1.05	1.00	0.05	3.53	-0.65	2.01	-1.18	4.72	4.72
13	1.05	1.00	0.05	9.21	-0.29	5.22	-1.30	4.72	4.72
12	1.05	1.00	0.05	17.23	-5.79	9.47	-3.52	4.72	4.72
11	1.05	1.00	0.05	26.49	-17.18	14.30	-10.31	5.39	4.72
10	1.05	1.00	0.05	35.82	-36.86	19.20	-22.09	10.26	4.72
9	1.05	1.00	0.05	44.52	-66.87	23.85	-40.09	15.69	4.72
24	0.25	1.00	0.05	1.07	-0.12	0.55	-0.08	1.13	1.13
23	0.25	1.00	0.05	1.07	0.05	0.55	0.03	1.13	1.13
22	1.05	1.00	0.05	5.49	-0.67	2.92	-0.48	4.72	4.72
21	1.05	1.00	0.05	15.28	-0.42	7.94	-0.37	4.72	4.72
20	1.05	1.00	0.05	26.44	-5.35	13.71	-3.25	4.72	4.72
19	1.05	1.00	0.05	36.95	-16.55	19.27	-9.92	5.21	4.72
18	1.05	1.00	0.05	46.29	-35.79	24.32	-21.44	10.03	4.72
17	1.05	1.00	0.05	54.56	-63.17	28.86	-39.06	15.28	4.72
32	0.25	1.00	0.05	2.02	-0.04	0.96	-0.04	1.13	1.13
31	0.25	1.00	0.05	2.02	0.12	0.96	0.08	1.13	1.13
30	1.05	1.00	0.05	15.18	0.87	6.95	0.21	4.72	4.72
29	1.05	1.00	0.05	32.84	0.43	15.51	0.07	4.72	4.72
28	1.05	1.00	0.05	45.40	-4.78	22.34	-2.88	4.72	4.72
27	1.05	1.00	0.05	55.47	-15.62	28.15	-9.33	4.94	4.72
26	1.05	1.00	0.05	63.63	-34.10	32.96	-20.41	9.67	4.72
25	1.05	1.00	0.05	70.56	-62.68	37.06	-37.55	14.69	4.72
40	0.25	1.00	0.05	0.18	0.04	0.34	0.05	1.13	1.13
39	0.25	1.00	0.05	0.18	0.04	0.34	0.12	1.13	1.13
38	1.05	1.00	0.05	68.13	5.18	28.35	1.89	4.72	4.72
37	1.05	1.00	0.05	69.90	0.73	31.37	0.33	4.72	4.72
36	1.05	1.00	0.05	74.61	-5.11	35.72	-2.99	4.72	4.72

35	1.05	1.00	0.05	80.83	-15.44	40.54	-9.19	4.89	4.72
34	1.05	1.00	0.05	87.36	-32.62	45.28	-19.51	9.33	4.72
33	1.05	1.00	0.05	91.92	-61.33	48.65	-36.75	14.36	4.72
48	1.05	1.00	0.05	-0.41	0.05	0.31	-0.27	4.72	4.72
47	1.05	1.00	0.05	-0.41	-3.29	0.31	-1.05	4.72	4.72
46	1.05	1.00	0.05	96.66	6.77	41.21	4.22	4.72	4.72
45	1.05	1.00	0.05	98.96	-4.33	44.05	-2.54	4.72	4.72
44	1.05	1.00	0.05	102.08	-17.25	48.98	-10.22	5.41	4.72
43	1.05	1.00	0.05	108.59	-27.96	54.47	-16.72	8.24	4.72
42	1.05	1.00	0.05	120.93	-42.29	63.67	-25.33	11.35	4.72
41	1.05	1.00	0.05	135.00	-69.92	73.58	-41.93	16.42	4.72

Esfuerzos de cálculo y armadura horizontal del muro frontal

Nudo Nº	Canto (m)	Ancho (m)	Recu. (m)	(2)+Emp.tierras+Fx Nd (t/m)	Md (txm/m)	Aint. (cm²/m)	Aext. (cm²/m)
1	1.05	1.00	0.05	0.00	-0.00	8.40	8.40
9	1.05	1.00	0.05	0.00	-0.00	8.40	8.40
17	1.05	1.00	0.05	0.00	-0.00	8.40	8.40
25	1.05	1.00	0.05	0.00	-0.00	8.40	8.40
33	1.05	1.00	0.05	-0.00	0.00	8.40	8.40
41	1.05	1.00	0.05	-0.00	-0.00	8.40	8.40
2	1.05	1.00	0.05	0.38	0.20	8.40	8.40
10	1.05	1.00	0.05	0.46	-0.12	8.40	8.40
18	1.05	1.00	0.05	0.52	-0.46	8.40	8.40
26	1.05	1.00	0.05	0.25	-0.95	8.40	8.40
34	1.05	1.00	0.05	-1.74	-2.12	8.40	8.40
42	1.05	1.00	0.05	-1.74	0.41	8.40	8.40
3	1.05	1.00	0.05	-0.79	0.98	8.40	8.40
11	1.05	1.00	0.05	-0.63	0.73	8.40	8.40
19	1.05	1.00	0.05	-0.54	0.35	8.40	8.40
27	1.05	1.00	0.05	-1.07	-0.30	8.40	8.40
35	1.05	1.00	0.05	-3.04	-1.26	8.40	8.40
43	1.05	1.00	0.05	-3.04	-0.46	8.40	8.40
4	1.05	1.00	0.05	-3.96	2.01	8.40	8.40
12	1.05	1.00	0.05	-3.65	1.83	8.40	8.40
20	1.05	1.00	0.05	-3.23	1.44	8.40	8.40
28	1.05	1.00	0.05	-3.16	0.71	8.40	8.40
36	1.05	1.00	0.05	-5.77	-0.42	8.40	8.40
44	1.05	1.00	0.05	-3.77	-1.29	8.40	8.40
5	1.05	1.00	0.05	-9.03	3.16	8.40	8.40
13	1.05	1.00	0.05	-8.58	3.08	8.40	8.40
21	1.05	1.00	0.05	-7.63	2.72	8.40	8.40
29	1.05	1.00	0.05	-6.17	1.38	8.40	8.40

37	1.05	1.00	0.05	-4.39	-0.34	8.40	8.40
45	1.05	1.00	0.05	-4.39	-1.77	8.40	8.40
6	1.05	1.00	0.05	-15.65	4.57	8.40	8.40
14	1.05	1.00	0.05	-15.41	5.16	8.40	8.40
22	1.05	1.00	0.05	-14.52	5.42	8.40	8.40
30	1.05	1.00	0.05	-12.06	5.08	8.40	8.40
38	1.05	1.00	0.05	-5.97	3.74	8.40	8.40
46	1.05	1.00	0.05	-5.97	-5.34	8.40	8.40
7	0.25	1.00	0.05	-5.52	0.10	2.00	2.00
15	0.25	1.00	0.05	-5.61	0.19	2.00	2.00
23	0.25	1.00	0.05	-5.66	0.27	2.00	2.00
31	0.25	1.00	0.05	-5.37	0.34	2.00	2.00
39	0.25	1.00	0.05	-3.80	0.82	2.00	2.00
47	0.25	1.00	0.05	-3.80	-1.09	2.00	2.00
8	0.30	1.00	0.05	-8.97	0.26	2.40	2.40
16	0.30	1.00	0.05	-9.12	0.55	2.40	2.40
24	0.30	1.00	0.05	-9.19	0.86	2.40	2.40
32	0.30	1.00	0.05	-8.89	1.27	2.40	2.40
40	0.30	1.00	0.05	-6.52	1.73	2.40	2.40
48	0.30	1.00	0.05	-6.52	-2.40	2.40	2.40

Esfuerzos de cálculo y armadura vertical en la aleta

Nudo Nº	Canto (m)	Ancho (m)	Recu. (m)	(1)+(2)+(3) Nd (t/m)	Md (txm/m)	-(1)+(2)-(4) Nd (t/m)	Md (txm/m)	Aint. (cm²/m)	Aext. (cm²/m)
55	0.30	1.00	0.05	0.79	0.10	0.15	-0.59	1.35	1.35
54	0.30	1.00	0.05	4.43	-0.41	-1.61	-1.43	1.77	1.35
53	0.30	1.00	0.05	3.15	-0.85	-7.94	-1.70	2.06	1.35
52	0.30	1.00	0.05	-0.98	-2.51	-22.36	-4.30	4.04	1.35
51	0.30	1.00	0.05	-8.14	-2.88	-36.00	-4.84	4.56	1.35
50	0.30	1.00	0.05	-15.80	-2.79	-50.19	-4.66	4.38	1.35
49	0.30	1.00	0.05	-21.72	-1.85	-61.41	-3.10	3.31	1.35
58	0.30	1.00	0.05	0.64	-0.08	-0.14	-0.18	1.35	1.35
57	0.30	1.00	0.05	0.24	-0.22	-1.27	-0.39	1.35	1.35
60	0.30	1.00	0.05	0.61	-0.00	0.38	0.00	1.35	1.35

Esfuerzos de cálculo y armadura horizontal en la aleta

Nudo Nº	Canto (m)	Ancho (m)	Recu. (m)	(2)+Emp.tierras+Fx Nd (t/m)	Md (txm/m)	Aint. (cm²/m)	Aext. (cm²/m)

41	0.30	1.00	0.05	-0.00	-0.00	2.40	2.40
49	0.30	1.00	0.05	-0.00	0.00	2.40	2.40
42	0.30	1.00	0.05	2.80	-0.11	2.40	2.40
50	0.30	1.00	0.05	2.80	-0.10	2.40	2.40
43	0.30	1.00	0.05	0.48	-0.69	2.40	2.40
51	0.30	1.00	0.05	0.48	0.19	2.40	2.40
44	0.30	1.00	0.05	-1.10	-1.35	2.40	2.40
52	0.30	1.00	0.05	-1.10	0.55	2.40	2.40
45	0.30	1.00	0.05	2.54	-1.96	2.40	2.40
53	0.30	1.00	0.05	2.54	0.36	2.40	2.40
46	0.30	1.00	0.05	-4.10	-2.67	2.96	2.40
54	0.30	1.00	0.05	-3.68	-0.97	2.40	2.40
57	0.30	1.00	0.05	-3.68	0.27	2.40	2.40
47	0.30	1.00	0.05	-3.82	-2.56	2.87	2.40
55	0.30	1.00	0.05	-2.05	-1.12	2.40	2.40
58	0.30	1.00	0.05	-1.72	-0.26	2.40	2.40
60	0.30	1.00	0.05	-1.72	0.20	2.40	2.40
48	0.30	1.00	0.05	-3.06	-2.91	3.16	2.40
56	0.30	1.00	0.05	0.06	-1.33	2.40	2.40
59	0.30	1.00	0.05	0.49	-0.36	2.40	2.40
61	0.30	1.00	0.05	0.34	0.01	2.40	2.40
62	0.30	1.00	0.05	0.34	-0.00	2.40	2.40

Esfuerzos de cálculo y armadura en zapata

Puntera :

Flexión: Md = 12.52 txm/m ; Asup.= 15.00 cm²/m ; Ainf.= 0.00 cm²/m
Comprobación a cortante ...: Vcu= 64.55 t ; Vd = 0.00 t
Vd < Vcu ..... No es necesaria armadura transversal por cortante

Talón :

Borde empotrado en muro frontal ..... ; Mxd = -1.35 txm/m
Borde empotrado en aleta ..... ; Myd = -0.10 txm/m
Borde libre ..... ; Myd = 0.14 txm/m
Centro del talón ..... ; Mxd = -8.45 txm/m ; Myd = 0.97 txm/m
Armaduras ..... : Asup.= 7.50 cm²/m ; Ainf.= 7.50 cm²/m

PROGRAMA ESTRIBOS

CALCULO Y ARMADO DE ESTRIBOS DE PUENTE

VERSION Nº 1 FECHA : 12/10/1995

Copyright : J.Diaz del Valle, 1995

E.T.S. de I.C.C. y P. de Santander

DATOS DEL PROYECTO DEL ESTRIBO

PROYECTO : AVE LLEIDA-MARTORELL

REFERENCIA : P.K. 304+277

FECHA DEL CALCULO : 4-10-99

DATOS DEL ESTRIBO

ESTRIBO 2

-Datos geométricos:

H1= 8.40	H2= 0.00	H3= 0.00	H4= 1.00	H5= 0.00	m.
H6= 0.00	H7= 1.00	H8= 0.00	H9= 2.00	H10= 0.00	m.
B1= 1.05	B2= 0.00	B3= 3.75	B4= 0.00	B5= 0.00	m.
B6= 0.50	B7= 0.00	B8= 0.00	B9= 0.00	HV= 1.00	m.
C1= 0.45	C2= 0.35	C3= 0.00	C4= 0.25	C5= 0.25	m.
D1= 0.00	D2= 0.00	D3= 1.20	D4= 1.20	D5= 0.25	m.
D6= 0.25					
A1= 3.80	A2= 0.00	A3= 1.40	A4= 0.60	A5= 2.32	m.
E1= 12.50	E2= 12.30	E3= 0.30	E4= 0.00	E5= 0.30	m.
E6= 0.30	E7= 0.00	E8= 0.00	E9= 0.60	E10= 10.60	m.

-Caracteristicas de los materiales:

Peso especifico del hormigón (t/m3) ..... Ψh = 2.50
Resistencia del hormigón del alzado (Kp/cm²) ..... fck = 250
Resistencia del hormigón de la zapata (Kp/cm²) ..... fck'= 250
Limite elástico del acero (Kp/cm²) ..... fyk = 5100
Recubrimiento de las armaduras (m) ..... r = 0.05
Se incluyen las cuantias geométricas minimas
Coeficiente de minoración resistencia hormigón ..... Ψc = 1.50
Coeficiente de minoración resistencia acero ..... Ψs = 1.15
Coeficiente de mayoración de las acciones ..... Ψf = 1.50

-Caracteristicas del terreno:

Terreno sobre talón:
Peso especifico de las tierras (t/m3) ..... Ψt = 1.80
Angulo de rozamiento interno de las tierras (°) ..... φ = 30.00
Angulo de rozamiento entre las tierras y el muro (°) .... δ = 0.00
Coeficiente de empuje activo calculado segun Coulomb ... Kax = 0.333
Cohesión de las tierras (t/m²) ..... c = 0.00
Terreno sobre puntera :
Peso especifico de las tierras (t/m3) ..... Ψt = 1.80
Angulo de rozamiento interno de las tierras (°) ..... φ = 30.00
Angulo de rozamiento entre las tierras y el muro (°) .... δ = 0.00
Coeficiente de empuje pasivo de las tierras ..... Kpx = 3.000

Terreno de cimentación :
Coeficiente de rozamiento entre el cimiento y el suelo .. μ = 0.577
Adherencia entre el cimiento y el suelo (t/m²) ..... a = 0.00

Angulo de la superficie del terreno con la horizontal ... β = 0.00°

-Sobrecargas:

Carga por unidad de longitud de talud (t/m²) ..... q = 0.00
No se considera la acción sísmica .....

-Acciones del tablero sobre el estribo :

Reacciones verticales (t) y excentricidades transversales (m) :

Reacción del peso propio del tablero ... Rpp = 94.80 , Exc.= 0.00
Reacción del peso de la superestructura. Rse = 31.90 , Exc.= 0.00
Reacción hiperestática de pretensado ... Rhp = 0.00 , Exc.= 0.00
Reacción máxima de la sobrecarga ..... Rma = 77.90 , Exc.= 0.00
Reacción mínima de la sobrecarga ..... Rmi = 8.20 , Exc.= 0.00
Reacción debida al gradiente térmico ... Rgt = 0.00 , Exc.= 0.00
Reacción debidas a otras acciones ..... Rot = 0.00 , Exc.= 0.00

Reacciones horizontales longitudinales (t) :

Reacción debida al frenado (+ -) ..... Rfx = 11.24
Reacción debida a las deformaciones impuestas ..... Rdx = 0.00
Reacciones debidas a otras causas (Rozam.,sismo,etc) . Rox = 0.00

Reacciones horizontales transversales (t) :

Reacción debida al viento ..... Rvy = 2.20
Reacción debida a la fuerza centrifuga ..... Rcy = 0.00
Reacciones debidas a otras causas (Rozam.,sismo,etc) . Roy = 0.00

ACCIONES SOBRE EL ESTRIBO

Las acciones actuantes sobre el estribo tienen el siguiente origen:

a) Peso propio del estribo.
b) Acciones del tablero.
c) Empuje y peso de las tierras.

Estas acciones pueden ser verticales Fz ,horizontales longitudinales Fx ,y horizontales transversales Fy. En las tablas que siguen, se recogen las citadas acciones junto con los momentos Mx ,My, y Mz :

Mx : Momento respecto a la puntera del estribo.Se utiliza para la comprobación de seguridad al vuelco.

My, Mz: Momentos respecto al c.d.g de la zapata. Se utilizan para el cálculo de las tensiones sobre el terreno.

a) PESO PROPIO DEL ESTRIBO

Zona	Volumen (m3)	Peso Fz (t)	Mx (txm)	My (txm)
Muro frontal	104.27	260.73	-268.99	421.94
Muro de guarda	3.51	8.78	-12.50	10.75
Muros en vuelta	27.65	69.12	-200.45	-17.26
Aletas en voladizo	1.48	3.70	-21.61	-11.81
Contrafuertes aleta	0.00	0.00	0.00	0.00
Impostas	0.00	0.00	0.00	0.00
Macizos caquejeado	0.00	0.00	0.00	0.00
Zapata	66.25	165.63	-438.91	0.00
TOTAL	203.18	507.94	-942.46	403.59

b) ACCIONES DEL TABLERO

b1) Reacciones verticales:

Se consideran las reacciones del tablero en los siguientes casos:

-Caso permanente: Incluye las reacciones del peso propio del tablero y de la superestructura, las reacciones hiperestáticas de pretensado y otras acciones permanentes.

-Caso máximo: Incluye la suma de las reacciones de las acciones permanentes y las reacciones máximas de las sobrecargas variables.

-Caso mínimo: Incluye la suma de las reacciones de las acciones permanentes y las reacciones mínimas de las sobrecargas variables.

Reacción	Axil Fz (t)	Mx (txm)	My (txm)
Permanente	126.70	-120.37	215.39
Máxima	204.60	-194.37	347.82
Mínima	134.90	-128.16	229.33

b2) Reacciones horizontales longitudinales:

Las reacciones horizontales que ejerce el tablero provienen de movimientos impuestos, frenado,sismo , rozamiento de apoyos y de otras acciones.

El valor máximo considerado para estas acciones es:

Reacción Longitudinal	Fx (t)	Mx (txm)	My (txm)
Máxima	11.24	105.66	105.66

b3) Reacciones horizontales transversales:

Estas reacciones provienen de dos tipos de fuerzas:

-Fuerzas transversales:

Son debidas a las acciones de viento y sismo, y a la fuerza centrifuga de los vehiculos que circulan por el tablero :

Fy =	2.20 t.	; Mx =	20.68 txm.

-Fuerzas verticales:

Debido a la excentricidad transversal de las reacciones verticales, se produce un momento transversal Mx :

. Para reacción vertical permanente .. Mx =	0.00 txm.
. Para reacción vertical máxima ..... Mx =	0.00 txm.
. Para reacción vertical mínima ..... Mx =	0.00 txm.

c) EMPUJE Y PESO DE TIERRAS

c1) Acciones horizontales:

Acción	Fuerza Fx (t)	Mz (txm)	My (txm)
Empuje de tierras.	320.11	1131.06	1131.06
Empuje de sobrecarga.	0.00	0.00	0.00
Empuje del agua.	0.00	0.00	0.00
Empuje total sobre tresdos.	320.11	1131.06	1131.06
Empuje pasivo frente puntera.	99.63	44.28	44.28

c2) Acciones verticales:

Acción	Fuerza Fz (t)	Mz (txm)	My (txm)
Peso tierras sobre talón.	756.84	-2606.61	-608.98
Peso tierras sobre puntera.	10.53	-2.63	25.27
Sobrecarga sobre terraplen.	0.00	0.00	0.00
Rozamiento vertical tierras.	0.00	0.00	0.00
Resultante total vertical.	767.37	-2609.25	-575.71

COMPROBACION DE ESTABILIDAD

Se consideran las siguientes hipótesis para las comprobaciones al vuelco y deslizamiento :

Hipótesis 1 ; Construcción. Situación de estribo con relleno antes de construir el tablero.

Hipótesis 2 ; Construcción. Situación de tablero construido antes del relleno del estribo.

Hipótesis 3 ; Servicio. Se considera la hipótesis más desfavorable que corresponde al mínimo valor de la reacción vertical del tablero.

Hipótesis Nº	Coeficientes de seguridad Vuelco	Deslizamiento
1	3.268	3.338
2	10.039	31.972
3	3.086	3.511

El coeficiente de seguridad al vuelco se obtiene a partir de los momentos Mz respecto de la puntera de la zapata.Se distinguen momentos volcadores y estabilizadores.El coeficiente de seguridad se obtiene como cociente entre estos momentos.

El mínimo coeficiente de seguridad al vuelco es mayor que 2, y por tanto se cumple la seguridad al vuelco.

El coeficiente de seguridad al deslizamiento se obtiene como cociente entre la fuerza estabilizadora y la desestabilizadora. La primera es la fuerza de rozamiento obtenida como producto de las fuerzas verticales por un coeficiente de rozamiento igual a

$$\mu = Tg\ \phi = 0.577$$

en donde ϕ es el ángulo de rozamiento entre la zapata y terreno. Tambien se consideran como fuerzas estabilizadoras,la fuerza de adherencia suelo-zapata, el empuje pasivo frente a puntera, la existencia de tacón y la inclinación de la base de la zapata.

La fuerza desestabilizadora es la resultante de las fuerzas horizontales tanto longitudinales como transversales.

El mínimo coeficiente de seguridad al deslizamiento es mayor que 1.5 ,cumpliéndose por tanto la seguridad al deslizamiento.

ESTADO TENSIONAL EN EL TERRENO

Se consideran las siguientes hipótesis para el cálculo de las tensiones en el terreno :

Hipótesis 1 : Construcción. Se supone que el relleno se ejecuta antes que el tablero.

Hipótesis 2 : Construcción. Se supone que el tablero se ejecuta antes que el relleno.

Hipótesis 3 : Servicio, con reacción de tablero mínima y acciones horizontales máximas.

Hipótesis 4 : Servicio, con reacción de tablero mínima y acciones longitudinales nulas.

Hipótesis 5 : Servicio, con reacción de tablero máxima y acciones longitudinales nulas.

Hipótesis 6 : Servicio, con reacción de tablero máxima y acciones horizontales máximas.

Las tensiones σ1,σ2,σ3,σ4 del terreno en las 4 esquinas de la base de la zapata (figura 1),

(Fig.1)

se obtienen a partir de la fórmula de flexocompresión:

$$\sigma = \frac{N}{A} \pm \frac{Mx}{Wx} \pm \frac{My}{Wy}$$

donde N , Mx , My , son los esfuerzos en la base de la zapata , y

A = 55.25 m2 , Wx= 130.02 m3 , Wy = 58.22 m3

son las características mecánicas de la base de la zapata.

La expresión anterior solamente es válida en el caso de que toda la planta resulte comprimida. En otro caso, y dado que el terreno no puede soportar tracción alguna, el programa calcula las tensiones del terreno de manera iterativa.

El proceso iterativo anterior, se detiene cuando la resultante de las tensiones obtenidas, sea sensiblemente igual a los esfuerzos que solicitan a la base de la zapata.

La tensión media, se obtiene según la expresión : $\sigma med = \frac{N}{A}$

Siguiendo esta formulación,resulta la siguiente tabla que resume el estado tensional correspondiente a las 6 hipotesis anteriores :

ESFUERZOS DE ZAPATA Y TENSIONES DEL TERRENO

Hip	N (t)	Mx (txm)	My (txm)	σ1 (t/m²)	σ2 (t/m²)	σ3 (t/m²)	σ4 (t/m²)	σmed (t/m²)
1	1317.32	0.00	1003.22	37.03	37.03	2.74	2.74	19.88
2	676.64	20.68	724.64	22.75	22.45	0.00	0.00	10.21
3	1452.22	20.68	1339.21	44.94	44.64	0.00	0.00	21.52
4	1452.22	20.68	57.22	23.05	22.75	21.09	20.79	21.92
5	1521.92	20.68	175.71	26.12	25.82	20.12	19.82	22.97
6	1521.92	20.68	1456.70	48.01	47.71	0.00	0.00	22.97

ANALISIS ESTRUCTURAL DEL ESTRIBO COMO ENPARRILLADO ESPACIAL

DIMENSIONES Y CARACTERISTICAS MECANICAS DE LAS BARRAS

Barra Nº	i Nº	j Nº	Long. (m.)	Canto (m.)	Ancho (m.)	Area (m²)	Iner.1 (m4)	Iner.2 (m4)
1	1	2	1.37	1.05	0.75	0.787	0.037	0.072
2	2	3	1.37	1.05	0.75	0.787	0.037	0.072
3	3	4	1.37	1.05	0.75	0.787	0.037	0.072
4	4	5	1.37	1.05	0.75	0.787	0.037	0.072
5	5	6	1.37	1.05	0.75	0.787	0.037	0.072
6	6	7	1.37	1.05	0.75	0.787	0.037	0.072
7	7	8	1.37	0.25	0.75	0.188	0.009	0.001
8	9	10	1.37	1.05	1.50	1.575	0.295	0.145
9	10	11	1.37	1.05	1.50	1.575	0.295	0.145
10	11	12	1.37	1.05	1.50	1.575	0.295	0.145
11	12	13	1.37	1.05	1.50	1.575	0.295	0.145
12	13	14	1.37	1.05	1.50	1.575	0.295	0.145
13	14	15	1.37	1.05	1.50	1.575	0.295	0.145
14	15	16	1.37	0.25	1.50	0.375	0.070	0.002
15	17	18	1.37	1.05	1.50	1.575	0.295	0.145
16	18	19	1.37	1.05	1.50	1.575	0.295	0.145
17	19	20	1.37	1.05	1.50	1.575	0.295	0.145
18	20	21	1.37	1.05	1.50	1.575	0.295	0.145
19	21	22	1.37	1.05	1.50	1.575	0.295	0.145
20	22	23	1.37	1.05	1.50	1.575	0.295	0.145
21	23	24	1.37	0.25	1.50	0.375	0.070	0.002
22	25	26	1.37	1.05	1.50	1.575	0.295	0.145
23	26	27	1.37	1.05	1.50	1.575	0.295	0.145
24	27	28	1.37	1.05	1.50	1.575	0.295	0.145
25	28	29	1.37	1.05	1.50	1.575	0.295	0.145
26	29	30	1.37	1.05	1.50	1.575	0.295	0.145
27	30	31	1.37	1.05	1.50	1.575	0.295	0.145
28	31	32	1.37	0.25	1.50	0.375	0.070	0.002
29	33	34	1.37	1.05	0.75	0.787	0.037	0.072
30	34	35	1.37	1.05	0.75	0.787	0.037	0.072
31	35	36	1.37	1.05	0.75	0.787	0.037	0.072
32	36	37	1.37	1.05	0.75	0.787	0.037	0.072
33	37	38	1.37	1.05	0.75	0.787	0.037	0.072
34	38	39	1.37	1.05	0.75	0.787	0.037	0.072
35	39	40	1.37	1.05	0.75	0.787	0.037	0.072
36	41	42	1.37	0.30	2.49	0.748	0.388	0.006
37	42	43	1.37	0.30	2.49	0.748	0.388	0.006
38	43	44	1.37	0.30	2.49	0.748	0.388	0.006
39	44	45	1.37	0.30	2.49	0.748	0.388	0.006
40	45	46	1.37	0.30	2.91	0.872	0.614	0.007
41	46	47	1.37	0.30	2.91	0.872	0.614	0.007
42	47	48	1.37	0.30	2.91	0.872	0.614	0.007
43	1	9	1.50	1.05	0.69	0.720	0.028	0.066
44	9	17	1.50	1.05	0.69	0.720	0.028	0.066

45	17	25	1.50	1.05	0.69	0.720	0.028	0.066
46	25	33	1.50	1.05	0.69	0.720	0.028	0.066
47	33	41	2.38	0.30	0.69	0.206	0.008	0.002
48	2	10	1.50	1.05	1.37	1.440	0.226	0.132
49	10	18	1.50	1.05	1.37	1.440	0.226	0.132
50	18	26	1.50	1.05	1.37	1.440	0.226	0.132
51	26	34	1.50	1.05	1.37	1.440	0.226	0.132
52	34	42	2.38	0.30	1.37	0.411	0.064	0.003
53	3	11	1.50	1.05	1.37	1.440	0.226	0.132
54	11	19	1.50	1.05	1.37	1.440	0.226	0.132
55	19	27	1.50	1.05	1.37	1.440	0.226	0.132
56	27	35	1.50	1.05	1.37	1.440	0.226	0.132
57	35	43	2.38	0.30	1.37	0.411	0.064	0.003
58	4	12	1.50	1.05	1.37	1.440	0.226	0.132
59	12	20	1.50	1.05	1.37	1.440	0.226	0.132
60	20	28	1.50	1.05	1.37	1.440	0.226	0.132
61	28	36	1.50	1.05	1.37	1.440	0.226	0.132
62	36	44	2.38	0.30	1.37	0.411	0.064	0.003
63	5	13	1.50	1.05	1.37	1.440	0.226	0.132
64	13	21	1.50	1.05	1.37	1.440	0.226	0.132
65	21	29	1.50	1.05	1.37	1.440	0.226	0.132
66	29	37	1.50	1.05	1.37	1.440	0.226	0.132
67	37	45	2.38	0.30	1.37	0.411	0.064	0.003
68	6	14	1.50	1.05	1.37	1.440	0.226	0.132
69	14	22	1.50	1.05	1.37	1.440	0.226	0.132
70	22	30	1.50	1.05	1.37	1.440	0.226	0.132
71	30	38	1.50	1.05	1.37	1.440	0.226	0.132
72	38	46	2.38	0.30	1.37	0.411	0.064	0.003
73	7	15	1.50	1.05	1.37	1.438	0.225	0.132
74	15	23	1.50	1.05	1.37	1.438	0.225	0.132
75	23	31	1.50	1.05	1.37	1.438	0.225	0.132
76	31	39	1.50	1.05	1.37	1.438	0.225	0.132
77	39	47	2.38	0.30	1.37	0.411	0.064	0.003
78	8	16	1.50	0.30	0.69	0.206	0.008	0.002
79	16	24	1.50	0.30	0.69	0.206	0.008	0.002
80	24	32	1.50	0.30	0.69	0.206	0.008	0.002
81	32	40	1.50	0.30	0.69	0.206	0.008	0.002
82	40	48	2.38	0.30	0.69	0.206	0.008	0.002
83	49	50	1.37	0.30	1.65	0.495	0.112	0.004
84	50	51	1.37	0.30	1.65	0.495	0.112	0.004
85	52	53	1.37	0.30	1.65	0.495	0.112	0.004
86	48	49	1.65	0.30	1.37	0.411	0.064	0.003
87	47	50	1.65	0.30	1.37	0.411	0.064	0.003
88	50	52	1.65	0.30	1.37	0.411	0.064	0.003
89	48	51	1.65	0.30	0.69	0.206	0.008	0.002
90	51	53	1.65	0.30	0.69	0.206	0.008	0.002
91	53	54	1.65	0.30	0.69	0.206	0.008	0.002
92	46	49	2.15	0.30	1.37	0.411	0.064	0.003
93	49	52	2.15	0.30	1.37	0.411	0.064	0.003
94	52	54	2.15	0.30	1.37	0.411	0.064	0.003

Hipótesis (1) : Peso propio del muro y aletas del estribo

DESPLAZAMIENTOS DE LOS NUDOS

Nudo Nº	Despl.y (mm)	Despl.x (mm)	Despl.z (mm)	Giro y 1000xrad	Giro x 1000xrad	Giro z 1000xrad
1	0.000	-0.000	0.000	-0.000	-0.000	-0.000
2	0.000	-0.002	0.009	-0.003	0.000	0.000
3	0.000	-0.003	0.018	-0.006	0.000	0.000
4	0.000	-0.019	0.022	-0.009	0.000	-0.000
5	-0.000	-0.033	0.026	-0.011	0.000	-0.000
6	-0.000	-0.049	0.029	-0.013	0.000	-0.000
7	-0.000	-0.068	0.030	-0.014	0.000	-0.000
8	-0.000	-0.088	0.031	-0.016	0.000	-0.000
9	0.000	-0.000	0.000	-0.000	-0.000	-0.000
10	0.000	-0.002	0.009	-0.003	-0.000	-0.000
11	0.000	-0.008	0.018	-0.006	0.000	-0.000
12	0.000	-0.019	0.022	-0.009	0.000	-0.000
13	-0.000	-0.033	0.026	-0.011	0.000	-0.000
14	-0.000	-0.050	0.029	-0.013	0.000	-0.000
15	-0.000	-0.068	0.030	-0.014	0.000	-0.001
16	-0.000	-0.089	0.031	-0.016	0.000	-0.001
17	0.000	-0.000	0.000	-0.000	-0.000	0.000
18	0.000	-0.002	0.009	-0.003	-0.000	0.000
19	0.000	-0.008	0.018	-0.006	0.000	0.000
20	0.000	-0.019	0.022	-0.009	0.000	-0.000
21	-0.000	-0.033	0.026	-0.012	0.000	-0.000
22	-0.000	-0.050	0.029	-0.014	0.000	-0.001
23	-0.000	-0.070	0.030	-0.014	0.000	-0.001
24	-0.000	-0.091	0.031	-0.016	0.000	-0.001
25	0.000	0.000	0.000	-0.000	-0.000	0.000
26	0.000	-0.002	0.009	-0.003	-0.000	0.000
27	0.000	-0.008	0.018	-0.006	0.000	0.000
28	0.000	-0.019	0.022	-0.009	0.000	0.000
29	-0.000	-0.033	0.026	-0.012	0.000	-0.000
30	-0.000	-0.052	0.029	-0.014	0.000	-0.001
31	-0.000	-0.072	0.030	-0.015	0.000	-0.002
32	-0.000	-0.095	0.031	-0.017	0.000	-0.002
33	0.000	0.000	0.000	-0.000	-0.000	0.000
34	0.000	-0.002	0.009	-0.003	0.000	0.000
35	0.000	-0.008	0.018	-0.006	0.000	0.000
36	0.000	-0.018	0.022	-0.009	0.000	0.000
37	-0.000	-0.033	0.026	-0.012	0.000	0.000
38	-0.000	-0.054	0.028	-0.015	0.000	-0.001
39	-0.000	-0.076	0.030	-0.016	-0.000	-0.003
40	-0.000	-0.100	0.031	-0.018	0.000	-0.003
41	-0.000	0.000	0.000	-0.000	0.000	-0.000
42	-0.000	-0.002	0.018	-0.003	0.000	-0.000
43	-0.000	-0.008	0.030	-0.006	0.000	-0.000
44	-0.000	-0.018	0.043	-0.008	0.000	-0.000
45	-0.001	-0.030	0.054	-0.017	0.000	-0.000

46	-0.001	-0.054	0.060	-0.017	0.000	-0.000
47	-0.002	-0.078	0.064	-0.017	0.000	-0.000
48	-0.002	-0.102	0.065	-0.017	0.000	-0.000
49	-0.001	-0.055	0.095	-0.023	0.000	-0.000
50	-0.002	-0.080	0.097	-0.021	0.000	-0.000
51	-0.002	-0.104	0.098	-0.021	0.000	-0.000
52	-0.002	-0.081	0.133	-0.020	0.000	-0.000
53	-0.002	-0.106	0.133	-0.019	0.000	-0.000
54	-0.002	-0.107	0.164	-0.018	0.000	-0.000

ESFUERZOS EN LAS BARRAS

Barra Nº	i Nº	j Nº	Axil (t.)	Cort.1 (t.)	Cort.2 (t.)	Flec.1i (txm)	Flec.1j (txm)	Flec.2i (txm)	Flec.2j (txm)
1	1	2	15.41	0.00	0.01	-0.00	-0.00	0.50	-0.48
2	2	3	12.73	0.00	0.01	-0.00	-0.00	0.48	-0.46
3	3	4	10.05	0.00	0.02	-0.00	-0.00	0.46	-0.43
4	4	5	7.36	-0.00	0.04	0.00	0.00	0.41	-0.36
5	5	6	4.67	-0.00	0.05	0.00	0.00	0.31	-0.24
6	6	7	1.78	-0.00	0.05	0.00	0.00	0.16	-0.09
7	7	8	0.32	0.00	0.00	-0.00	-0.00	0.01	-0.00
8	9	10	30.80	0.04	0.03	-0.03	-0.03	1.00	-0.96
9	10	11	25.44	0.05	0.03	-0.03	-0.04	0.97	-0.93
10	11	12	20.08	0.04	0.04	-0.02	-0.03	0.93	-0.87
11	12	13	14.71	0.02	0.07	-0.01	-0.02	0.83	-0.74
12	13	14	9.33	0.02	0.10	-0.01	-0.02	0.63	-0.49
13	14	15	3.95	0.03	0.11	-0.02	-0.02	0.32	-0.18
14	15	16	0.64	0.01	0.01	-0.01	-0.00	0.01	-0.00
15	17	18	30.74	0.08	0.03	-0.06	-0.05	0.99	-0.95
16	18	19	25.37	0.09	0.03	-0.05	-0.07	0.98	-0.94
17	19	20	20.01	0.09	0.04	-0.05	-0.08	0.96	-0.91
18	20	21	14.67	0.07	0.08	-0.03	-0.06	0.89	-0.79
19	21	22	9.31	0.04	0.11	-0.03	-0.03	0.68	-0.53
20	22	23	3.93	0.07	0.11	-0.05	-0.05	0.33	-0.18
21	23	24	0.64	0.02	0.01	-0.02	-0.01	0.01	-0.00
22	25	26	30.67	0.09	-0.00	-0.07	-0.06	0.95	-0.95
23	26	27	25.24	0.11	0.01	-0.06	-0.09	0.97	-0.96
24	27	28	19.83	0.15	0.02	-0.08	-0.13	1.00	-0.97
25	28	29	14.47	0.20	0.11	-0.09	-0.19	1.03	-0.87
26	29	30	9.33	0.20	0.39	-0.14	-0.13	0.97	-0.44
27	30	31	4.16	0.12	0.31	-0.15	-0.01	0.45	-0.02
28	31	32	0.65	0.01	0.01	-0.01	-0.01	0.01	-0.00
29	33	34	15.30	0.02	-0.06	-0.01	-0.02	0.42	-0.50
30	34	35	12.53	0.04	-0.06	-0.02	-0.03	0.43	-0.52
31	35	36	9.73	0.06	-0.11	-0.03	-0.04	0.44	-0.50
32	36	37	6.77	0.10	0.08	-0.05	-0.08	0.57	-0.46
33	37	38	4.74	0.12	1.51	-0.08	-0.08	1.47	0.61
34	38	39	2.88	0.05	1.26	-0.06	-0.01	0.98	0.74
35	39	40	1.19	0.00	0.67	0.00	-0.01	0.71	0.29
36	41	42	26.11	-0.00	-0.01	0.06	-0.06	0.05	-0.04
37	42	43	23.56	-0.01	-0.01	0.05	-0.06	0.03	-0.04
38	43	44	21.01	-0.01	-0.01	0.07	-0.05	0.02	-0.04
39	44	45	18.55	-0.02	-0.38	0.05	-0.04	-0.16	-0.36

40	45	46	11.41	-0.03	0.12	0.04	-0.00	0.09	0.08
41	46	47	6.50	-0.02	0.06	0.00	0.03	0.04	0.04
42	47	48	1.79	-0.01	0.04	0.01	0.00	0.03	0.03
43	1	9	-0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
44	9	17	-0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00
45	17	25	-0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00
46	25	33	0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
47	33	41	-0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
48	2	10	-0.04	0.02	0.00	-0.01	-0.02	0.00	0.00
49	10	18	-0.03	0.06	0.00	-0.04	-0.04	0.01	-0.00
50	18	26	-0.02	0.08	-0.00	-0.06	-0.07	0.01	-0.01
51	26	34	-0.01	0.06	0.00	-0.05	-0.03	0.01	-0.00
52	34	42	0.00	-0.01	-0.00	0.02	0.01	-0.00	-0.00
53	3	11	-0.06	0.02	0.01	-0.02	-0.01	0.00	0.01
54	11	19	-0.06	0.06	0.02	-0.05	-0.04	0.02	0.01
55	19	27	-0.06	0.10	0.04	-0.08	-0.08	0.06	0.00
56	27	35	-0.02	0.09	0.05	-0.08	-0.05	0.08	0.01
57	35	43	0.01	-0.02	-0.00	0.02	0.02	-0.01	-0.00
58	4	12	-0.04	0.01	0.01	-0.02	-0.00	-0.00	0.03
59	12	20	-0.06	0.05	0.04	-0.04	-0.03	0.03	0.03
60	20	28	-0.09	0.11	0.08	-0.09	-0.08	0.10	0.02
61	23	36	-0.04	0.15	0.17	-0.14	-0.09	0.21	0.05
62	36	44	0.37	-0.10	-0.01	0.05	0.20	-0.01	-0.01
63	5	13	0.02	0.01	0.02	-0.02	0.00	-0.04	0.06
64	13	21	0.01	0.03	0.05	-0.03	-0.01	0.00	0.07
65	21	29	-0.01	0.06	0.08	-0.09	-0.01	0.09	0.04
66	29	37	-0.01	0.32	0.35	-0.32	-0.17	0.38	0.14
67	37	45	1.78	0.99	-0.01	-0.84	-1.52	-0.01	-0.01
68	6	14	0.11	0.01	0.00	-0.02	0.00	-0.10	0.10
69	14	22	0.12	0.03	0.01	-0.04	-0.01	-0.09	0.10
70	22	30	0.15	0.05	0.01	-0.07	-0.01	-0.09	0.10
71	30	38	0.06	0.28	-0.07	-0.27	-0.14	-0.10	-0.00
72	38	46	-0.32	1.11	0.00	-1.15	-1.48	0.01	-0.00
73	7	15	0.21	0.01	-0.05	-0.02	0.01	-0.19	0.11
74	15	23	0.19	0.04	-0.15	-0.04	-0.02	-0.27	0.04
75	23	31	0.14	0.10	-0.25	-0.05	-0.09	-0.38	0.00
76	31	39	0.03	-0.07	-0.56	0.08	0.03	-0.65	-0.18
77	39	47	-1.15	0.95	0.02	-1.03	-1.23	0.03	0.01
78	8	16	0.04	0.00	-0.00	-0.00	-0.00	-0.00	-0.00
79	16	24	0.03	0.01	-0.01	-0.00	-0.00	-0.01	-0.00
80	24	32	0.01	0.01	-0.02	-0.00	-0.00	-0.01	-0.01
81	32	40	-0.01	0.00	-0.02	-0.00	-0.00	-0.02	-0.02
82	40	48	-0.69	0.16	0.01	-0.19	-0.18	0.01	0.00
83	49	50	2.21	0.00	-0.28	-0.00	0.00	-0.20	-0.18
84	50	51	0.86	0.00	-0.23	-0.00	0.00	-0.17	-0.15
85	52	53	0.69	0.00	-0.15	-0.00	0.00	-0.11	-0.10
86	46	49	-0.39	-0.82	0.00	1.36	-0.01	-0.00	0.00
87	47	50	-1.16	-0.78	0.00	1.16	0.13	-0.00	0.00
88	50	52	-1.11	-0.43	-0.00	0.22	0.49	0.00	-0.00
89	48	51	-0.74	-0.13	-0.00	0.16	0.06	-0.00	0.00
90	51	53	-0.50	-0.14	-0.00	0.10	0.13	-0.00	-0.00
91	53	54	-0.35	0.02	0.00	-0.04	0.01	0.00	-0.00
92	45	49	3.91	-1.13	-0.00	1.79	0.63	-0.00	0.00
93	49	52	1.91	0.17	0.00	-0.42	0.06	0.00	-0.00
94	52	54	0.28	0.21	-0.00	-0.45	-0.01	0.00	-0.00

Hipótesis (2) : Empuje de tierras + Reacción Fx del tablero

DESPLAZAMIENTOS DE LOS NUDOS

Nudo Nº	Despl.y (mm)	Despl.x (mm)	Despl.z (mm)	Giro y 1000xrad	Giro x 1000xrad	Giro z 1000xrad
1	-0.000	0.000	0.000	0.000	-0.000	0.000
2	-0.000	0.157	0.004	0.203	-0.000	-0.000
3	-0.000	0.503	0.007	0.235	-0.000	-0.000
4	0.000	0.911	0.010	0.300	-0.000	-0.000
5	0.000	1.314	0.012	0.283	-0.000	-0.000
6	0.000	1.688	0.012	0.260	-0.000	-0.000
7	0.000	2.035	0.013	0.247	-0.000	-0.000
8	0.000	2.401	0.013	0.263	-0.000	-0.000
9	-0.000	0.000	0.000	0.000	0.000	-0.000
10	-0.000	0.156	0.005	0.200	-0.000	-0.003
11	-0.000	0.497	0.009	0.282	-0.001	-0.009
12	0.001	0.899	0.012	0.296	-0.002	-0.016
13	0.003	1.297	0.014	0.279	-0.003	-0.023
14	0.006	1.665	0.015	0.257	-0.003	-0.030
15	0.011	2.008	0.016	0.244	-0.004	-0.035
16	0.016	2.367	0.016	0.258	-0.004	-0.037
17	-0.000	0.000	0.000	0.000	0.000	-0.000
18	-0.001	0.149	0.007	0.193	-0.001	-0.006
19	0.000	0.479	0.013	0.271	-0.003	-0.016
20	0.003	0.865	0.018	0.284	-0.004	-0.029
21	0.007	1.247	0.022	0.268	-0.005	-0.043
22	0.012	1.600	0.024	0.246	-0.006	-0.055
23	0.021	1.929	0.025	0.234	-0.008	-0.066
24	0.031	2.268	0.025	0.241	-0.008	-0.069
25	-0.000	0.000	0.000	0.000	0.000	-0.000
26	-0.001	0.143	0.012	0.182	-0.002	-0.005
27	0.001	0.453	0.022	0.253	-0.005	-0.019
28	0.004	0.816	0.030	0.255	-0.007	-0.036
29	0.009	1.173	0.036	0.249	-0.008	-0.054
30	0.017	1.502	0.040	0.229	-0.010	-0.071
31	0.029	1.806	0.041	0.216	-0.011	-0.085
32	0.045	2.113	0.042	0.214	-0.012	-0.092
33	0.000	0.000	0.000	0.000	0.000	0.000
34	0.001	0.143	0.026	0.161	-0.011	0.001
35	0.003	0.430	0.045	0.220	-0.016	-0.014
36	0.007	0.763	0.057	0.234	-0.019	-0.033
37	0.012	1.093	0.065	0.220	-0.020	-0.050
38	0.020	1.392	0.069	0.205	-0.020	-0.070
39	0.034	1.670	0.072	0.190	-0.023	-0.086
40	0.057	1.920	0.072	0.176	-0.018	-0.085
41	0.000	0.000	-0.000	0.000	-0.000	0.000
42	0.042	0.153	-0.081	0.040	-0.054	0.026
43	0.135	0.430	-0.148	0.077	-0.077	0.053
44	0.246	0.758	-0.198	0.106	-0.082	0.079
45	0.357	1.102	-0.233	0.152	-0.079	0.103

46	0.467	1.379	-0.249	0.146	-0.080	0.113
47	0.575	1.655	-0.257	0.148	-0.079	0.120
48	0.683	1.907	-0.257	0.165	-0.078	0.123
49	0.861	1.370	-0.530	0.194	-0.109	0.266
50	1.006	1.649	-0.532	0.184	-0.101	0.277
51	1.143	1.907	-0.533	0.191	-0.099	0.281
52	1.309	1.844	-0.849	0.196	-0.112	0.295
53	1.662	1.909	-0.849	0.195	-0.111	0.296
54	2.149	1.909	-1.269	0.193	-0.112	0.295

ESFUERZOS EN LAS BARRAS

Barra Nº	i Nº	j Nº	Axil (t.)	Cort.1 (t.)	Cort.2 (t.)	Flec.1i (txm)	Flec.1j (txm)	Flec.2i (txm)	Flec.2j (txm)
1	1	2	6.89	-0.00	-17.90	0.00	0.00	-44.40	19.65
2	2	3	5.78	-0.00	-11.87	0.00	0.00	-21.26	4.98
3	3	4	4.45	0.00	-7.06	-0.00	-0.00	-7.11	-2.58
4	4	5	2.94	0.00	-3.49	-0.00	-0.00	0.29	-3.68
5	5	6	1.47	0.00	-1.02	-0.00	-0.00	2.89	-4.23
6	6	7	0.44	0.00	0.35	-0.00	-0.00	2.27	-1.79
7	7	8	0.02	-0.00	-0.21	0.00	0.00	-0.18	-0.11
8	9	10	16.26	-2.64	-35.27	1.59	2.03	-87.64	39.27
9	10	11	13.97	-2.83	-23.34	1.42	2.46	-41.84	9.84
10	11	12	11.06	-3.37	-13.91	1.83	2.79	-13.91	-5.03
11	12	13	7.54	-3.78	-6.77	2.16	3.02	0.67	-9.96
12	13	14	3.32	-3.30	-1.94	1.89	2.69	5.75	-8.41
13	14	15	1.18	-1.81	0.74	0.95	1.54	4.54	-3.83
14	15	16	0.05	-0.11	-0.41	0.08	0.07	-0.34	-0.22
15	17	18	24.19	-5.44	-34.15	3.19	4.23	-84.64	37.01
16	18	19	21.59	-6.19	-22.46	3.17	5.33	-40.00	9.19
17	19	20	17.65	-7.83	-13.12	4.48	6.26	-13.18	-4.81
18	20	21	12.53	-9.34	-6.31	5.41	6.99	0.85	-9.30
19	21	22	7.02	-8.41	-1.79	4.92	6.62	5.57	-8.02
20	22	23	2.22	-4.93	0.67	2.56	4.17	4.47	-3.56
21	23	24	0.12	-0.32	-0.38	0.23	0.21	-0.30	-0.23
22	25	26	40.70	-9.66	-36.58	5.19	8.06	-82.80	32.74
23	26	27	36.04	-13.72	-24.09	7.66	11.15	-38.85	5.81
24	27	28	28.16	-17.68	-14.91	11.09	13.16	-14.19	-6.26
25	28	29	20.82	-19.54	-8.28	12.48	14.32	-0.65	-10.71
26	29	30	12.19	-18.55	-2.73	11.55	13.89	4.41	-8.16
27	30	31	5.82	-13.22	-0.94	7.21	10.92	3.52	-4.81
28	31	32	0.44	-0.99	-0.27	0.73	0.83	-0.18	-0.20
29	33	34	44.71	-3.53	-33.07	1.55	3.29	-48.12	2.76
30	34	35	32.56	-8.36	-26.23	5.28	6.18	-27.38	-8.59
31	35	36	20.89	-10.36	-22.06	6.90	7.30	-17.41	-12.85
32	36	37	13.43	-10.85	-18.94	7.35	7.53	-10.72	-15.26
33	37	38	6.86	-10.17	-8.41	6.53	7.03	-3.34	-8.19
34	38	39	4.99	-8.33	-7.22	5.52	5.89	-2.70	-7.20
35	39	40	1.01	-2.18	1.42	1.85	1.14	3.24	-1.29
36	41	42	-132.76	27.01	-9.87	-64.44	27.41	-7.26	-6.27
37	42	43	-109.95	18.50	-15.40	-31.83	6.46	-11.01	-10.10
38	43	44	-82.21	11.97	-15.83	-12.61	-3.80	-11.20	-10.50
39	44	45	-56.45	7.60	-13.17	-2.64	-7.78	-9.60	-8.46

40	45	46	-31.87	4.57	-6.66	-4.29	-2.00	-4.48	-4.15
41	46	47	-14.33	1.67	-6.77	0.33	-2.62	-4.68	-4.60
42	47	48	-1.00	0.09	-3.41	0.25	-0.38	-2.57	-2.10
43	1	9	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
44	9	17	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
45	17	25	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
46	25	33	-0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
47	33	41	-0.00	0.00	-0.00	-0.00	-0.00	0.00	-0.00
48	2	10	1.16	-1.11	0.61	0.99	0.68	-0.39	1.31
49	10	18	0.97	-2.43	1.70	2.77	2.32	0.65	1.90
50	18	26	0.23	-6.00	2.54	5.12	3.89	1.99	1.82
51	26	34	-3.83	-10.66	4.11	11.84	4.15	4.75	1.41
52	34	42	5.53	-22.82	0.07	36.90	17.28	0.19	-0.01
53	3	11	0.19	-1.34	0.23	1.52	0.48	-2.17	2.52
54	11	19	-0.35	-4.25	0.61	3.80	2.57	-1.42	2.34
55	19	27	-1.99	-8.19	0.81	7.23	5.06	-0.11	1.32
56	27	35	-5.96	-16.07	0.94	17.18	6.93	1.94	-0.68
57	35	43	0.43	-27.74	0.71	44.57	21.31	1.11	0.59
58	4	12	-3.47	-1.51	-0.16	1.99	0.28	-4.32	4.08
59	12	20	-3.88	-5.02	-0.57	4.67	2.87	-3.94	3.08
60	20	28	-5.08	-10.15	-1.22	8.80	6.42	-2.76	0.93
61	28	36	-6.94	-18.29	-2.05	19.22	8.21	-0.64	-2.43
62	36	44	-2.66	-25.76	1.53	41.07	20.10	2.25	1.39
63	5	13	-9.63	-1.47	-0.41	2.26	-0.06	-6.40	5.79
64	13	21	-9.19	-5.09	-1.34	4.97	2.67	-6.20	4.19
65	21	29	-8.57	-10.60	-2.58	9.24	6.37	-4.90	1.02
66	29	37	-7.58	-18.43	-2.80	19.20	8.45	-1.08	-3.13
67	37	45	4.85	-25.00	2.34	35.23	24.15	3.38	2.18
68	6	14	-18.64	-1.03	-0.66	2.21	-0.66	-8.35	7.36
69	14	22	-17.11	-3.77	-2.06	4.29	1.36	-8.33	5.25
70	22	30	-13.68	-8.57	-3.67	7.93	4.92	-7.05	1.55
71	30	38	-8.35	-15.13	-5.94	16.18	6.51	-3.98	-4.93
72	38	46	-6.79	-17.00	3.20	26.93	15.39	4.61	3.18
73	7	15	-30.80	-0.42	-1.75	1.95	-1.33	-10.57	7.95
74	15	23	-29.09	-1.55	-5.20	2.95	-0.62	-12.04	4.12
75	23	31	-24.43	-3.65	-8.71	5.01	0.46	-11.93	-1.13
76	31	39	-12.20	-8.83	-12.72	11.19	2.06	-9.55	-9.53
77	39	47	-7.89	-12.82	4.16	18.64	11.81	5.75	4.14
78	8	16	-6.41	-0.82	-0.10	0.07	-0.04	-0.19	0.83
79	16	24	-6.30	-0.07	-0.32	0.11	-0.01	-0.34	-0.14
80	24	32	-5.98	-0.19	-0.56	0.22	0.06	-0.49	-0.35
81	32	40	-4.99	-0.63	-1.24	0.57	0.37	-0.84	-1.01
82	40	48	-3.34	-1.63	2.31	2.05	1.82	3.12	2.38
83	49	50	-2.17	0.50	-1.03	1.69	-2.37	-0.63	-0.78
84	50	51	-0.97	-0.35	-0.40	0.65	-0.17	-0.25	-0.30
85	52	53	0.30	0.15	0.14	0.01	-0.21	0.10	0.09
86	46	49	-6.90	0.54	2.01	-6.06	5.16	2.52	0.80
87	47	50	-4.63	0.52	2.55	-4.63	3.78	2.98	1.25
88	50	52	-3.90	1.71	0.78	-2.74	-0.08	0.74	0.54
89	48	51	0.07	-0.64	1.57	0.28	0.77	1.74	0.85
90	51	53	0.47	0.34	0.53	-0.37	-0.08	0.48	0.40
91	53	54	0.33	0.03	-0.01	-0.01	-0.03	-0.01	-0.00
92	45	49	9.01	6.94	0.79	-11.21	-3.68	1.47	0.22
93	49	52	3.95	0.62	0.57	-6.85	-0.48	0.50	0.30
94	52	54	-0.23	-0.23	0.01	0.45	0.05	0.01	0.01

Hipótesis (3) : Reacción vertical máxima del tablero: Fmáx

DESPLAZAMIENTOS DE LOS NUDOS

Nudo Nº	Despl.y (mm)	Despl.x (mm)	Despl.z (mm)	Giro y 1000xrad	Giro x 1000xrad	Giro z 1000xrad
1	-0.000	0.000	0.000	0.000	-0.000	0.000
2	-0.000	0.002	0.006	0.003	-0.000	-0.000
3	-0.000	0.003	0.010	0.006	-0.000	-0.000
4	-0.000	0.018	0.014	0.009	-0.000	-0.000
5	-0.000	0.032	0.016	0.011	-0.000	0.000
6	0.000	0.049	0.017	0.013	-0.000	0.000
7	0.000	0.067	0.018	0.013	-0.000	0.000
8	0.000	0.083	0.018	0.010	-0.000	0.000
9	-0.000	0.000	0.000	0.000	0.000	-0.000
10	-0.001	0.002	0.006	0.003	0.000	-0.000
11	-0.002	0.008	0.011	0.006	-0.000	0.000
12	-0.002	0.019	0.016	0.009	-0.001	0.000
13	-0.001	0.033	0.019	0.011	-0.002	0.000
14	0.002	0.049	0.021	0.013	-0.004	0.001
15	0.007	0.068	0.021	0.013	-0.005	0.001
16	0.015	0.083	0.022	0.010	-0.005	0.001
17	-0.000	-0.000	0.000	0.000	0.000	-0.000
18	-0.001	0.002	0.007	0.003	0.000	-0.000
19	-0.003	0.006	0.014	0.006	-0.000	-0.000
20	-0.004	0.019	0.020	0.009	-0.002	0.000
21	-0.002	0.033	0.026	0.012	-0.004	0.000
22	0.002	0.051	0.031	0.014	-0.007	0.001
23	0.013	0.069	0.034	0.014	-0.011	0.002
24	0.026	0.085	0.036	0.008	-0.010	0.002
25	-0.000	-0.000	0.000	0.000	0.000	-0.000
26	-0.002	0.002	0.008	0.003	0.001	-0.000
27	-0.004	0.008	0.017	0.006	0.000	-0.000
28	-0.005	0.019	0.026	0.009	-0.001	-0.000
29	-0.003	0.034	0.036	0.013	-0.004	0.000
30	0.003	0.053	0.045	0.015	-0.009	0.001
31	0.017	0.073	0.050	0.014	-0.016	0.003
32	0.035	0.090	0.057	0.005	-0.013	0.003
33	-0.000	0.000	0.000	0.000	0.000	-0.000
34	-0.002	0.002	0.009	0.003	-0.000	-0.000
35	-0.004	0.008	0.019	0.006	-0.001	-0.000
36	-0.005	0.018	0.031	0.009	-0.003	-0.000
37	-0.003	0.034	0.047	0.013	-0.006	0.000
38	0.003	0.055	0.066	0.017	-0.011	0.002
39	0.018	0.079	0.080	0.017	-0.019	0.004
40	0.038	0.104	0.093	0.019	-0.013	0.005
41	-0.000	0.000	0.000	0.000	-0.000	0.000
42	0.000	0.002	0.003	0.002	-0.001	0.000
43	0.002	0.008	0.006	0.005	-0.002	0.001
44	0.005	0.018	0.009	0.009	-0.003	0.001
45	0.010	0.032	0.012	0.016	-0.005	0.001

46	0.018	0.055	0.015	0.021	-0.006	0.001
47	0.029	0.080	0.017	0.023	-0.007	0.001
48	0.038	0.107	0.018	0.025	-0.007	0.001
49	0.022	0.055	-0.019	0.019	-0.007	0.003
50	0.031	0.080	-0.020	0.019	-0.007	0.003
51	0.041	0.107	-0.020	0.020	-0.007	0.003
52	0.036	0.081	-0.051	0.019	-0.007	0.003
53	0.045	0.107	-0.051	0.019	-0.007	0.003
54	0.050	0.107	-0.082	0.019	-0.007	0.003

ESFUERZOS EN LAS BARRAS

Barra Nº	i Nº	j Nº	Axil (t.)	Cort.1 (t.)	Cort.2 (t.)	Flec.1i (txm)	Flec.1j (txm)	Flec.2i (txm)	Flec.2j (txm)
1	1	2	9.68	-0.00	-0.00	0.00	0.00	-0.48	0.47
2	2	3	8.26	-0.00	-0.00	0.00	0.00	-0.48	0.47
3	3	4	6.33	-0.00	-0.02	0.00	0.00	-0.47	0.45
4	4	5	4.01	-0.00	-0.04	0.00	0.00	-0.42	0.36
5	5	6	1.73	0.00	-0.06	-0.00	-0.00	-0.28	0.20
6	6	7	0.29	0.00	-0.05	-0.00	-0.00	-0.10	0.03
7	7	8	0.02	-0.00	0.00	0.00	0.00	0.01	-0.01
8	9	10	20.77	-2.35	-0.03	2.11	1.81	-0.95	0.95
9	10	11	18.42	-3.47	-0.00	2.09	2.67	-0.96	0.95
10	11	12	15.14	-4.47	-0.03	2.58	3.55	-0.96	0.71
11	12	13	10.98	-5.26	-0.03	2.86	4.36	-0.86	0.74
12	13	14	6.22	-4.88	-0.13	2.35	4.34	-0.58	0.40
13	14	15	1.98	-2.38	-0.08	0.87	2.39	-0.15	0.04
14	15	16	0.20	-0.24	-0.00	0.15	0.16	0.02	-0.02
15	17	18	24.36	-4.74	0.01	3.57	2.93	-0.93	0.94
16	18	19	23.43	-5.66	0.01	3.42	4.30	-0.97	0.97
17	19	20	22.23	-7.38	-0.02	4.23	5.89	-1.00	0.97
18	20	21	20.31	-9.28	-0.09	4.98	7.75	-0.96	0.83
19	21	22	16.97	-10.21	-0.18	4.82	9.19	-0.68	0.42
20	22	23	11.29	-8.37	-0.08	2.89	8.62	-0.00	-0.10
21	23	24	0.94	-1.73	-0.02	1.37	1.00	0.01	-0.04
22	25	26	27.68	-5.06	0.03	4.82	2.93	-0.90	0.93
23	26	27	29.60	-5.56	0.03	3.33	4.30	-0.96	0.99
24	27	28	32.24	-7.29	0.01	4.04	5.96	-1.05	1.06
25	28	29	35.60	-9.71	-0.09	4.93	8.39	-1.11	1.01
26	29	30	39.44	-11.97	-0.36	5.13	11.29	-1.01	0.51
27	30	31	43.26	-11.64	-0.79	3.23	12.74	-0.07	-1.02
28	31	32	5.37	-2.42	-0.11	2.08	1.24	-0.04	-0.11
29	33	34	14.98	-1.06	-0.01	0.72	0.74	-0.44	0.44
30	34	35	17.72	-1.50	0.01	0.95	1.11	-0.48	0.49
31	35	36	21.43	-1.97	0.06	1.20	1.51	-0.52	0.61
32	36	37	26.55	-2.59	0.08	1.51	2.04	-0.57	0.68
33	37	38	33.13	-3.10	-0.31	1.72	2.53	-0.82	0.40
34	38	39	41.64	-3.32	-0.19	1.47	2.69	-0.14	-0.13
35	39	40	5.76	-1.16	-0.20	1.25	0.35	-0.71	-0.12
36	41	42	4.81	-0.53	-0.02	-0.20	0.65	-0.04	0.01
37	42	43	4.87	-0.51	-0.03	-0.69	1.11	-0.06	0.01
38	43	44	4.93	-0.27	-0.00	-1.16	1.53	-0.05	0.05
39	44	45	4.85	-0.20	0.22	-1.54	1.81	0.07	0.23

40	45	46	5.64	-0.10	0.26	-1.65	1.78	0.10	0.26
41	46	47	4.81	-0.00	0.30	-1.24	1.24	0.45	0.65
42	47	49	0.50	0.02	0.79	-0.10	0.07	0.59	0.50
43	1	9	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
44	9	17	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
45	17	25	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
46	25	33	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
47	33	41	0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
48	2	10	2.45	-1.42	-0.00	0.96	1.17	-0.00	-0.00
49	10	18	1.83	-3.80	-0.01	2.73	2.96	-0.01	0.00
50	18	26	0.92	-4.75	-0.01	3.39	3.70	-0.01	0.00
51	26	34	0.42	-2.81	-0.01	2.56	1.65	0.00	-0.01
52	34	42	0.01	-0.07	0.02	0.11	0.05	0.02	0.02
53	3	11	4.89	-1.93	-0.01	1.55	1.35	-0.01	-0.01
54	11	19	3.89	-5.20	-0.04	3.90	3.90	-0.04	-0.02
55	19	27	2.17	-6.41	-0.07	4.66	4.95	-0.07	-0.03
56	27	35	0.43	-3.77	-0.09	3.39	2.26	-0.07	-0.06
57	35	43	-0.03	-0.06	0.04	0.10	0.03	0.05	0.04
58	4	12	5.66	-2.32	-0.02	2.17	1.30	-0.00	-0.04
59	12	20	4.06	-6.48	-0.08	5.10	4.62	-0.05	-0.05
60	20	28	2.96	-8.40	-0.15	6.25	6.35	-0.14	-0.08
61	28	36	0.55	-5.03	-0.23	4.54	3.01	-0.22	-0.13
62	36	44	-0.22	0.08	0.07	-0.08	-0.11	0.09	0.08
63	5	13	3.22	-1.28	-0.02	2.67	0.75	0.05	-0.00
64	13	21	3.61	-7.04	-0.06	5.96	4.59	0.00	-0.10
65	21	29	2.67	-10.30	-0.15	7.97	7.59	-0.12	-0.11
66	29	37	0.41	-6.54	-0.44	5.93	3.88	-0.41	-0.25
67	37	45	-0.82	0.05	0.10	-0.26	0.15	0.13	0.12
68	6	14	-4.81	-1.44	0.01	2.73	-0.59	0.15	-0.13
69	14	22	-2.31	-5.68	0.06	5.79	2.74	0.19	-0.10
70	22	30	-0.50	-11.36	0.17	9.34	7.71	0.24	0.01
71	30	38	-0.16	-7.55	-0.26	6.81	4.51	-0.15	-0.29
72	38	46	-0.15	0.76	0.10	-1.47	-0.82	0.12	0.12
73	7	15	-19.93	-0.27	0.05	2.39	-1.98	0.22	-0.15
74	15	23	-17.79	-2.05	0.13	6.52	-1.44	0.31	-0.11
75	23	31	-11.13	-12.40	0.19	11.43	7.17	0.46	-0.18
76	31	39	-1.90	-8.31	0.36	7.64	5.13	1.09	0.21
77	39	47	0.45	3.32	0.03	-4.82	-3.07	0.02	0.04
78	8	16	-5.52	-0.02	-0.00	0.09	-0.07	0.06	-0.00
79	16	24	-5.28	-0.22	-0.00	0.25	0.08	0.00	-0.00
80	24	32	-3.55	-1.16	0.02	0.92	0.82	0.02	0.01
81	32	40	-1.13	-0.56	0.13	0.42	0.42	0.10	0.09
82	40	48	0.74	0.52	-0.03	-0.67	-0.55	-0.04	-0.03
83	49	50	-0.77	0.00	0.07	-0.07	0.06	0.05	0.05
84	50	51	0.07	0.00	0.01	-0.01	0.01	-0.00	0.01
85	52	53	-0.06	0.00	-0.02	-0.00	0.00	-0.01	-0.02
86	46	49	0.39	0.13	0.00	0.11	-0.32	0.01	-0.00
87	47	50	0.44	-0.98	0.00	1.84	-0.22	0.01	-0.01
88	50	52	0.38	-0.15	0.00	0.17	0.07	0.00	-0.00
89	48	51	-0.05	0.01	-0.01	0.06	-0.06	-0.00	-0.01
90	51	53	-0.06	-0.05	-0.00	0.07	0.02	0.00	-0.00
91	53	54	-0.04	0.00	0.00	-0.01	0.00	0.00	-0.00
92	45	47	-1.13	0.15	0.00	-0.48	0.16	0.01	-0.01
93	49	52	-0.37	-0.05	0.00	0.11	-0.01	0.00	-0.00
94	52	54	0.03	0.02	-0.00	-0.05	-0.00	0.00	-0.00

Hipótesis (4) : Reacción vertical mínima del tablero: Fmin

DESPLAZAMIENTOS DE LOS NUDOS

Nudo Nº	Despl.y (mm)	Despl.x (mm)	Despl.z (mm)	Giro y 1000xrad	Giro x 1000xrad	Giro z 1000xrad
1	-0.000	0.000	0.000	0.000	-0.000	0.000
2	-0.000	0.001	0.004	0.002	-0.000	-0.000
3	-0.000	0.005	0.007	0.004	-0.000	-0.000
4	-0.000	0.012	0.009	0.006	-0.000	-0.000
5	-0.000	0.021	0.011	0.007	-0.000	0.000
6	0.000	0.032	0.011	0.008	-0.000	0.000
7	0.000	0.044	0.012	0.009	-0.000	0.000
8	0.000	0.055	0.012	0.006	-0.000	0.000
9	-0.000	0.000	0.000	0.000	0.000	-0.000
10	-0.001	0.001	0.004	0.002	0.000	-0.000
11	-0.001	0.005	0.007	0.004	-0.000	0.000
12	-0.001	0.012	0.010	0.006	-0.001	0.000
13	-0.001	0.021	0.012	0.008	-0.001	0.000
14	0.001	0.033	0.014	0.009	-0.002	0.000
15	0.005	0.045	0.014	0.009	-0.003	0.000
16	0.009	0.055	0.014	0.006	-0.003	0.000
17	-0.000	-0.000	0.000	0.000	0.000	-0.000
18	-0.001	0.001	0.005	0.002	0.000	-0.000
19	-0.002	0.005	0.009	0.004	-0.000	-0.000
20	-0.002	0.012	0.013	0.006	-0.001	0.000
21	-0.002	0.022	0.017	0.008	-0.002	0.000
22	0.002	0.033	0.021	0.009	-0.005	0.001
23	0.009	0.046	0.023	0.005	-0.006	0.001
24	0.017	0.056	0.023	0.005	-0.007	0.001
25	-0.000	-0.000	0.000	0.000	0.000	-0.000
26	-0.001	0.001	0.005	0.002	0.001	-0.000
27	-0.003	0.005	0.011	0.004	0.000	-0.000
28	-0.003	0.012	0.017	0.006	-0.001	-0.000
29	-0.002	0.022	0.024	0.008	-0.003	0.000
30	0.002	0.035	0.031	0.010	-0.006	0.001
31	0.011	0.048	0.040	0.009	-0.011	0.002
32	0.023	0.059	0.044	0.004	-0.009	0.002
33	-0.000	0.000	0.000	0.000	0.000	-0.000
34	-0.001	0.001	0.006	0.002	-0.000	-0.000
35	-0.003	0.005	0.012	0.004	-0.001	-0.000
36	-0.003	0.012	0.021	0.006	-0.002	-0.000
37	-0.002	0.022	0.031	0.009	-0.004	0.000
38	0.002	0.036	0.044	0.011	-0.007	0.001
39	0.012	0.052	0.059	0.011	-0.013	0.003
40	0.025	0.069	0.062	0.013	-0.009	0.003
41	-0.000	0.000	0.000	0.000	-0.000	0.000
42	0.000	0.001	0.002	0.002	-0.000	0.000
43	0.001	0.005	0.004	0.004	-0.001	0.000
44	0.003	0.012	0.006	0.006	-0.002	0.001
45	0.007	0.021	0.008	0.010	-0.003	0.001

46	0.012	0.036	0.010	0.014	-0.004	0.001
47	0.018	0.052	0.011	0.018	-0.005	0.001
48	0.025	0.071	0.012	0.016	-0.005	0.001
49	0.014	0.036	-0.012	0.013	-0.004	0.002
50	0.020	0.053	-0.013	0.013	-0.005	0.002
51	0.027	0.070	-0.013	0.013	-0.005	0.002
52	0.022	0.053	-0.033	0.012	-0.005	0.002
53	0.030	0.070	-0.033	0.012	-0.005	0.002
54	0.033	0.070	-0.054	0.013	-0.005	0.002

ESFUERZOS EN LAS BARRAS

Barra Nº	i Nº	j Nº	Axil (t.)	Cort.1 (t.)	Cort.2 (t.)	Flec.1i (txm)	Flec.1j (txm)	Flec.2i (txm)	Flec.2j (txm)
1	1	2	6.38	-0.00	-0.00	0.00	0.00	-0.31	0.31
2	2	3	5.45	-0.00	-0.00	0.00	0.00	-0.32	0.31
3	3	4	4.17	-0.00	-0.01	0.00	0.00	-0.31	0.30
4	4	5	2.65	-0.00	-0.03	0.00	0.00	-0.27	0.24
5	5	6	1.14	0.00	-0.04	-0.00	-0.00	-0.18	0.13
6	6	7	0.19	0.00	-0.03	-0.00	-0.00	-0.06	0.02
7	7	8	0.01	-0.00	0.00	0.00	0.00	0.01	-0.00
8	9	10	13.71	-1.88	-0.00	1.39	1.19	-0.63	0.62
9	10	11	12.14	-2.29	-0.00	1.38	1.76	-0.63	0.63
10	11	12	9.78	-2.95	-0.02	1.70	2.34	-0.63	0.60
11	12	13	7.24	-3.47	-0.06	1.89	2.87	-0.57	0.49
12	13	14	4.10	-3.22	-0.06	1.55	2.86	-0.38	0.27
13	14	15	1.30	-1.57	-0.06	0.57	1.58	-0.10	0.05
14	15	16	0.13	-0.16	-0.00	0.10	0.12	0.01	-0.01
15	17	18	16.06	-3.12	0.00	2.35	1.93	-0.62	0.62
16	18	19	15.45	-3.73	0.00	2.25	2.86	-0.64	0.64
17	19	20	14.65	-4.86	-0.01	2.79	3.80	-0.66	0.64
18	20	21	13.39	-6.12	-0.06	3.28	5.11	-0.83	0.65
19	21	22	11.19	-6.73	-0.12	3.18	6.06	-0.45	0.28
20	22	23	7.44	-5.53	-0.05	1.91	5.68	-0.00	-0.06
21	23	24	0.62	-1.14	-0.01	0.90	0.66	0.01	-0.02
22	25	26	18.25	-3.34	0.02	2.65	1.93	-0.59	0.62
23	26	27	19.51	-3.87	0.02	2.20	2.83	-0.63	0.66
24	27	28	21.26	-4.81	0.00	2.67	3.93	-0.69	0.70
25	28	29	23.47	-6.40	-0.05	3.25	5.53	-0.73	0.66
26	29	30	26.06	-7.89	-0.24	3.38	7.44	-0.46	0.34
27	30	31	28.52	-7.68	-0.52	2.13	8.40	-0.04	-0.67
28	31	32	3.54	-1.59	-0.08	1.37	0.82	-0.03	-0.07
29	33	34	9.08	-0.70	-0.00	0.47	0.49	-0.29	0.29
30	34	35	11.69	-0.99	0.01	0.62	0.73	-0.31	0.33
31	35	36	14.13	-1.30	0.04	0.79	0.99	-0.34	0.40
32	36	37	17.50	-1.71	0.05	1.00	1.34	-0.38	0.45
33	37	38	21.84	-2.04	-0.20	1.13	1.67	-0.54	0.26
34	38	39	27.46	-2.30	-0.13	0.97	1.78	-0.09	-0.08
35	39	40	3.79	-0.76	-0.40	0.82	0.23	-0.47	-0.09
36	41	42	3.17	-0.22	-0.01	-0.13	0.43	-0.03	0.01
37	42	43	3.21	-0.21	-0.02	-0.45	0.73	-0.04	0.01
38	43	44	3.25	-0.18	-0.00	-0.76	1.01	-0.03	0.03
39	44	45	3.20	-0.13	0.14	-1.01	1.19	0.04	0.15

40	45	46	3.72	-0.06	0.17	-1.09	1.10	0.07	0.17
41	46	47	3.17	-0.00	0.53	-0.81	0.81	0.30	0.43
42	47	48	0.33	0.02	0.52	-0.07	0.05	0.39	0.33
43	1	9	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
44	9	17	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
45	17	25	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
46	25	33	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
47	33	41	0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
48	2	10	1.61	-0.94	-0.00	0.63	0.77	-0.00	-0.00
49	10	18	1.21	-2.50	-0.00	1.60	1.95	-0.01	0.00
50	18	26	0.60	-3.12	-0.00	2.23	2.44	-0.01	0.00
51	26	34	0.28	-1.85	-0.00	1.69	1.09	0.00	-0.01
52	34	42	0.01	-0.04	0.01	0.07	0.03	0.01	0.01
53	3	11	3.22	-1.27	-0.01	1.02	0.89	-0.01	-0.01
54	11	19	2.56	-3.43	-0.05	2.57	2.57	-0.02	-0.01
55	19	27	1.43	-4.22	-0.04	3.07	3.26	-0.05	-0.02
56	27	35	0.29	-2.48	-0.06	2.23	1.49	-0.05	-0.04
57	35	43	-0.02	-0.04	0.03	0.07	0.02	0.03	0.03
58	4	12	3.73	-1.33	-0.02	1.43	0.86	-0.00	-0.02
59	12	20	3.21	-4.27	-0.05	3.37	3.03	-0.04	-0.04
60	20	28	1.95	-5.54	-0.10	4.12	4.19	-0.09	-0.05
61	28	36	0.36	-3.32	-0.15	2.99	1.99	-0.14	-0.09
62	36	44	-0.14	0.05	0.05	-0.05	-0.07	0.06	0.05
63	5	13	2.12	-1.50	-0.01	1.76	0.49	0.03	-0.05
64	13	21	2.38	-4.64	-0.04	3.93	3.03	0.00	-0.06
65	21	29	1.76	-6.84	-0.10	5.26	5.01	-0.08	-0.07
66	29	37	0.27	-4.31	-0.29	3.91	2.56	-0.27	-0.16
67	37	45	-0.54	0.03	0.07	-0.17	0.10	0.08	0.08
68	6	14	-3.17	-0.95	0.01	1.80	-0.38	0.10	-0.08
69	14	22	-1.52	-3.75	0.04	3.81	1.81	0.12	-0.07
70	22	30	-0.33	-7.49	0.11	6.16	5.08	0.16	0.01
71	30	38	-0.11	-4.98	-0.17	4.49	2.97	-0.10	-0.16
72	38	46	-0.10	0.64	0.07	-0.97	-0.54	0.08	0.08
73	7	15	-13.14	-0.18	0.33	1.58	-1.30	0.15	-0.10
74	15	23	-11.73	-1.35	0.09	2.98	-0.95	0.20	-0.08
75	23	31	-7.34	-3.18	0.12	7.54	4.73	0.31	-0.12
76	31	39	-1.25	-5.61	0.57	5.04	3.38	0.72	0.14
77	39	47	0.30	2.19	0.02	-3.18	-2.03	0.01	0.03
78	8	16	-3.64	-0.01	-0.00	0.06	-0.04	0.00	-0.00
79	16	24	-3.48	-0.15	-0.00	0.17	0.05	0.00	-0.00
80	24	32	-2.34	-0.77	0.01	0.61	0.54	0.01	0.01
81	32	40	-0.75	-0.37	0.09	0.28	0.28	0.07	0.06
82	40	48	0.49	0.34	-0.02	-0.44	-0.37	-0.03	-0.02
83	49	50	-0.51	0.00	0.05	-0.05	0.04	0.03	0.03
84	50	51	0.04	0.00	0.01	-0.01	0.00	-0.00	0.01
85	52	53	-0.04	0.00	-0.01	-0.00	0.00	-0.01	-0.01
86	46	49	0.26	0.09	0.00	0.07	-0.21	0.01	-0.00
87	47	50	0.29	-0.65	0.00	1.21	-0.14	0.01	-0.00
88	50	52	0.25	-0.10	0.00	0.11	0.05	0.00	-0.00
89	48	51	-0.04	0.01	-0.00	0.04	-0.05	-0.00	-0.01
90	51	53	-0.04	-0.04	-0.00	0.04	0.02	0.00	-0.00
91	53	54	-0.03	0.00	0.00	-0.01	0.00	0.00	-0.00
92	45	49	-0.79	0.10	0.00	-0.32	0.11	0.01	-0.01
93	49	52	-0.24	-0.03	0.00	0.07	-0.01	0.00	-0.00
94	52	54	0.02	0.01	-0.00	-0.03	-0.00	0.00	-0.00

DIMENSIONAMIENTO DE ARMADURAS

Esfuerzos de cálculo y armadura vertical del muro frontal

Nudo Nº	Canto (z)	Ancho (m)	Recu. (m)	(1)+(2)+(3) Nd (t/m)	(1)+(2)+(3) Md (txm/m)	(1)+(2)+(4) Nd (t/m)	(1)+(2)+(4) Md (txm/m)	Aint. (cm²/m)	Aext. (cm²/m)
9	0.25	1.00	0.05	0.71	-0.24	0.42	-0.14	1.13	1.13
7	0.25	1.00	0.05	0.71	-0.32	0.42	-0.20	1.13	1.13
6	1.05	1.00	0.05	5.42	4.60	3.13	2.85	4.72	4.72
5	1.05	1.00	0.05	15.75	5.84	8.74	3.62	4.72	4.72
4	1.05	1.00	0.05	28.62	0.57	15.53	0.51	4.72	4.72
3	1.05	1.00	0.05	41.65	-14.24	22.40	-8.35	4.72	4.72
2	1.05	1.00	0.05	53.54	-42.51	28.75	-25.31	11.40	4.72
1	1.05	1.00	0.05	63.96	-88.76	34.42	-53.06	20.99	4.72
16	0.25	1.00	0.05	0.89	-0.24	0.49	-0.14	1.13	1.13
15	0.25	1.00	0.05	0.89	-0.31	0.49	-0.19	1.13	1.13
14	1.05	1.00	0.05	7.11	4.71	3.86	2.86	4.72	4.72
13	1.05	1.00	0.05	19.47	5.81	10.41	3.60	4.72	4.72
12	1.05	1.00	0.05	33.23	0.65	17.70	0.57	4.72	4.72
11	1.05	1.00	0.05	46.28	-13.93	24.67	-8.16	4.72	4.72
10	1.05	1.00	0.05	57.82	-41.83	30.93	-24.50	11.27	4.72
9	1.05	1.00	0.05	67.85	-87.60	36.46	-52.36	20.70	4.72
24	0.25	1.00	0.05	1.70	-0.27	0.83	-0.15	1.13	1.13
23	0.25	1.00	0.05	1.70	-0.28	0.83	-0.17	1.13	1.13
22	1.05	1.00	0.05	17.43	4.80	9.15	2.88	4.72	4.72
21	1.05	1.00	0.05	33.30	5.37	16.51	3.48	4.72	4.72
20	1.05	1.00	0.05	47.61	0.79	24.35	0.67	4.72	4.72
19	1.05	1.00	0.05	59.88	-13.22	31.39	-7.73	4.72	4.72
18	1.05	1.00	0.05	70.39	-39.99	37.44	-23.79	10.90	4.72
17	1.05	1.00	0.05	79.29	-84.58	42.80	-50.56	19.97	4.72
32	0.25	1.00	0.05	6.45	-0.31	2.77	-0.17	1.13	1.13
31	0.25	1.00	0.05	6.45	-0.21	2.77	-0.12	1.13	1.13
30	1.05	1.00	0.05	53.03	3.90	22.98	2.36	4.72	4.72
29	1.05	1.00	0.05	60.96	4.38	28.52	2.83	4.72	4.72
28	1.05	1.00	0.05	76.09	-0.73	34.78	-0.21	4.72	4.72
27	1.05	1.00	0.05	80.22	-14.23	41.54	-8.33	4.72	4.72
26	1.05	1.00	0.05	90.88	-38.84	48.46	-23.11	10.67	4.72
25	1.05	1.00	0.05	99.05	-82.74	53.77	-49.46	19.52	4.72
40	1.05	1.00	0.05	13.89	-2.42	7.18	-1.40	4.72	4.72
39	1.05	1.00	0.05	15.97	6.47	7.13	4.17	4.72	4.72
38	1.05	1.00	0.05	99.02	-3.72	42.39	-2.18	4.72	4.72
37	1.05	1.00	0.05	89.46	-5.38	40.13	-2.89	4.72	4.72
36	1.05	1.00	0.05	93.49	-21.65	45.24	-12.63	6.57	4.72

35	1.05	1.00	0.05	104.11	-34.98	53.71	-20.77	9.86	4.72
34	1.05	1.00	0.05	125.63	-54.85	68.13	-32.72	13.44	4.72
33	1.05	1.00	0.05	149.99	-96.28	83.87	-57.59	22.83	4.72

Esfuerzos de cálculo y armadura horizontal del muro frontal

Nudo Nº	Canto (m)	Ancho (m)	Recu. (m)	(2):Emp.tierras+Fx Nd (t/m)	(2):Emp.tierras+Fx Md (txm/m)	Aint. (cm²/m)	Aext. (cm²/m)
1	1.05	1.00	0.05	0.00	-0.00	8.40	8.40
9	1.05	1.00	0.05	0.00	-0.00	8.40	8.40
17	1.05	1.00	0.05	0.00	-0.00	8.40	8.40
25	1.05	1.00	0.05	-0.00	0.00	8.40	8.40
33	1.05	1.00	0.05	-0.00	-0.00	8.40	8.40
2	1.05	1.00	0.05	0.85	0.29	8.40	8.40
10	1.05	1.00	0.05	0.71	-0.47	8.40	8.40
18	1.05	1.00	0.05	0.17	-1.45	8.40	8.40
26	1.05	1.00	0.05	-2.79	-3.47	8.40	8.40
34	1.05	1.00	0.05	-2.79	1.03	8.40	8.40
3	1.05	1.00	0.05	0.14	1.56	8.40	8.40
11	1.05	1.00	0.05	-0.26	1.04	8.40	8.40
19	1.05	1.00	0.05	-1.45	0.08	8.40	8.40
27	1.05	1.00	0.05	-4.34	-1.41	8.40	8.40
35	1.05	1.00	0.05	-4.34	-0.49	8.40	8.40
4	1.05	1.00	0.05	-2.53	3.15	8.40	8.40
12	1.05	1.00	0.05	-2.83	2.87	8.40	8.40
20	1.05	1.00	0.05	-3.71	2.01	8.40	8.40
28	1.05	1.00	0.05	-5.06	0.47	8.40	8.40
36	1.05	1.00	0.05	-5.06	-1.77	8.40	8.40
5	1.05	1.00	0.05	-7.02	4.67	8.40	8.40
13	1.05	1.00	0.05	-6.70	4.52	8.40	8.40
21	1.05	1.00	0.05	-6.25	3.57	8.40	8.40
29	1.05	1.00	0.05	-5.53	0.78	8.40	8.40
37	1.05	1.00	0.05	-5.53	-2.28	8.40	8.40
6	1.05	1.00	0.05	-13.59	6.09	8.40	8.40
14	1.05	1.00	0.05	-12.48	6.08	8.40	8.40
22	1.05	1.00	0.05	-9.97	5.14	8.40	8.40
30	1.05	1.00	0.05	-6.09	2.90	8.40	8.40
38	1.05	1.00	0.05	-6.09	-3.60	8.40	8.40
7	1.05	1.00	0.05	-22.45	7.71	8.39	8.39
15	1.05	1.00	0.05	-21.21	8.78	8.39	8.39
23	1.05	1.00	0.05	-17.81	8.70	8.39	8.39
31	1.05	1.00	0.05	-8.89	6.96	8.39	8.39
39	1.05	1.00	0.05	-8.89	-6.95	8.39	8.39

8	0.30	1.00	0.05	-9.34	0.28	2.40	2.40
16	0.30	1.00	0.05	-9.18	0.49	2.40	2.40
24	0.30	1.00	0.05	-8.72	0.72	2.40	2.40
32	0.30	1.00	0.05	-7.27	1.23	2.40	2.40
40	0.30	1.00	0.05	-7.27	-1.48	2.40	2.40

Esfuerzos de cálculo y armadura vertical en la aleta

				(1)+(2)+(3)		(1)+(2)+(4)			
Nudo Nº	Canto (m)	Ancho (m)	Recu. (m)	Nd (t/m)	Md (txm/m)	Nd (t/m)	Md (txm/m)	Aint. (cm²/m)	Aext. (cm²/m)
47	0.30	1.00	0.05	0.87	-0.48	0.14	-1.20	1.51	1.35
46	0.30	1.00	0.05	1.40	-1.20	-4.40	-2.31	2.65	1.35
45	0.30	1.00	0.05	-1.07	-1.29	-11.76	-2.26	2.61	1.35
44	0.30	1.00	0.05	-6.30	-3.52	-26.11	-5.81	5.51	1.35
43	0.30	1.00	0.05	-14.06	-6.06	-40.69	-6.74	6.42	1.35
42	0.30	1.00	0.05	-22.57	-3.99	-56.47	-6.63	6.31	1.35
41	0.30	1.00	0.05	-29.31	-2.63	-69.29	-4.37	4.10	1.35
50	0.30	1.00	0.05	0.31	-0.29	-0.39	-0.32	1.35	1.35
49	0.30	1.00	0.05	0.13	-0.49	-1.04	-0.67	1.35	1.35
52	0.30	1.00	0.05	0.85	-0.02	0.52	-0.01	1.35	1.35

Esfuerzos de cálculo y armadura horizontal en la aleta

				(2):Emp.tierras+Fx			
Nudo Nº	Canto (m)	Ancho (m)	Recu. (m)	Nd (t/m)	Md (txm/m)	Aint. (cm²/m)	Aext. (cm²/m)
33	0.30	1.00	0.05	-0.00	-0.00	2.40	2.40
41	0.30	1.00	0.05	-0.00	-0.00	2.40	2.40
34	0.30	1.00	0.05	4.03	-0.14	2.40	2.40
42	0.30	1.00	0.05	4.03	-0.01	2.40	2.40
35	0.30	1.00	0.05	0.31	-0.31	2.40	2.40
43	0.30	1.00	0.05	0.31	0.43	2.40	2.40
36	0.30	1.00	0.05	-1.94	-1.64	2.40	2.40
44	0.30	1.00	0.05	-1.94	1.01	2.40	2.40
37	0.30	1.00	0.05	3.54	-2.46	2.79	2.40
45	0.30	1.00	0.05	3.54	1.59	2.79	2.40

38	0.30	1.00	0.05	-4.95	-3.36	3.38	2.40
46	0.30	1.00	0.05	-5.03	-1.84	2.40	2.40
49	0.30	1.00	0.05	-5.03	0.38	2.40	2.40
39	0.30	1.00	0.05	-5.73	-4.19	3.94	2.40
47	0.30	1.00	0.05	-3.31	-2.18	2.53	2.40
50	0.30	1.00	0.05	-2.84	-0.54	2.40	2.40
52	0.30	1.00	0.05	-2.84	0.40	2.40	2.40
40	0.30	1.00	0.05	-6.87	-4.54	4.27	2.40
48	0.30	1.00	0.05	0.10	-2.54	2.86	2.40
51	0.30	1.00	0.05	0.68	-0.70	2.40	2.40
53	0.30	1.00	0.05	0.48	0.01	2.40	2.40
54	0.30	1.00	0.05	0.48	-0.00	2.40	2.40

Esfuerzos de cálculo y armadura en zapata

Puntera :

Flexión: Md = 14.07 txm/m ; Asup.= 15.00 cm²/m ; Ainf.= 0.00 cm²/m
Comprobación a cortante ...: Vcu= 64.53 t ; Vd = 0.00 t
Vd < Vcu ..... No es necesaria armadura transversal por cortante

Talón :

Borde empotrado en muro frontal ..... : Mxd = -11.39 txm/m
Borde empotrado en aleta ..... : Myd = -0.61 txm/m
Borde libre ..... : Myd = 0.76 txm/m
Centro del talón ..... : Mxd = -6.54 txm/m ; Myd = 2.48 txm/m
Armaduras ..... : Asup.= 7.50 cm²/m ; Ainf.= 7.50 cm²/m

SALIDA RESULTADOS SAP 90

STRUCTURAL ANALYSIS PROGRAMS

VERSION 5.40

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REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1								
	MAX & MIN							
	1	.000			-1.042			71.774
		.000	16.338	-16.581		3.295	-2.840	
		1.167	10.819	-.740		2.205	.368	
		2.333	5.301	8.664		1.116	2.305	
		2.333			-1.042			71.774
	MAX							
	2	.000			2.255			89.603
		.000	30.366	-15.993		3.026	-2.302	
		1.167	21.632	-.107		2.373	-.111	
		2.333	12.034	9.986		1.719	2.041	
		2.333			2.255			89.603
	MIN							
	2	.000			1.508			68.234
		.000	15.969	-18.847		2.056	-3.248	
		1.167	7.909	-1.075		1.402	-.226	
		2.333	-1.017	8.386		.748	1.317	
		2.333			1.508			68.234
	MAX							
	3	.000			4.030			90.193
		.000	30.406	-16.080		3.199	-2.727	
		1.167	21.672	-.147		2.545	-.335	
		2.333	12.075	9.994		1.891	2.019	
		2.333			4.030			90.193
	MIN							
	3	.000			3.283			68.825
		.000	16.010	-18.934		2.228	-3.673	
		1.167	7.949	-1.114		1.574	-.449	
		2.333	-.977	8.393		.921	1.295	
		2.333			3.283			68.825
	MAX							
	4	.000			2.503			102.924
		.000	39.812	-15.796		3.279	-1.914	
		1.167	28.935	.231		2.625	-.068	
		2.333	16.617	10.894		1.972	2.222	
		2.333			2.503			102.924
	MIN							
	4	.000			1.258			67.309
		.000	15.818	-20.552		1.661	-3.491	
		1.167	6.063	-1.382		1.007	-.259	
		2.333	-5.135	8.226		.353	1.015	
		2.333			1.258			67.309
	MAX & MIN							
	5	.000			.000			76.015
		.000	16.111	-16.649		.027	-.045	
		1.167	10.593	-1.071		.027	-.014	
		2.333	5.075	8.068		.027	.018	
		2.333			.000			76.015
	MAX & MIN							
	6	.000			.000			72.409

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	16.419	-16.749		.007	-.012	
		1.167	10.901	-.812		.007	-.004	
		2.333	5.383	8.687		.007	.005	
		2.333			.000			72.409
	MAX							
	ALL	.000			4.030			102.924
		.000	39.812	-15.796		3.295	-.012	
		1.167	28.935	.231		2.625	.368	
		2.333	16.617	10.894		1.972	2.305	
		2.333			4.030			102.924
	MIN							
	ALL	.000			-1.042			67.309
		.000	15.818	-20.552		.007	-3.673	
		1.167	6.063	-1.382		.007	-.449	
		2.333	-5.135	8.068		.007	.005	
		2.333			-1.042			67.309
2	----------							
	MAX & MIN							
	1	.000			-3.304			70.355
		.000	7.967	5.179		2.316	-.919	
		1.167	2.449	11.254		1.227	1.148	
		2.333	-3.070	10.892		.137	1.943	
		2.333			-3.304			70.355
	MAX							
	2	.000			.570			87.535
		.000	18.124	6.395		2.172	-.978	
		1.167	9.180	12.803		1.519	.653	
		2.333	.714	12.774		.865	1.945	
		2.333			.570			87.535
	MIN							
	2	.000			-1.058			66.687
		.000	5.010	5.024		1.479	-1.427	
		1.167	-3.262	10.926		.826	.490	
		2.333	-11.991	10.376		.172	1.196	
		2.333			-1.058			66.687
	MAX							
	3	.000			2.041			88.159
		.000	18.137	6.381		2.317	-1.274	
		1.167	9.193	12.804		1.663	.526	
		2.333	.726	12.789		1.009	1.987	
		2.333			2.041			88.159
	MIN							
	3	.000			.414			67.311
		.000	5.022	5.010		1.624	-1.723	
		1.167	-3.250	10.927		.970	.363	
		2.333	-11.979	10.392		.316	1.237	
		2.333			.414			67.311
	MAX							
	4	.000			1.236			100.509
		.000	24.928	7.183		2.353	-.798	
		1.167	13.700	13.850		1.700	.698	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.333	3.268	14.079		1.046	2.136	
		2.333			1.236			100.509
	MIN							
	4	.000			-1.477			65.763
		.000	3.070	4.897		1.198	-1.545	
		1.167	-7.037	10.722		.545	.426	
		2.333	-17.907	10.084		-.109	.886	
		2.333			-1.477			65.763
	MAX & MIN							
	5	.000			-.051			74.950
		.000	7.787	4.546		.032	-.040	
		1.167	2.269	10.412		.032	-.003	
		2.333	-3.250	9.840		.032	.034	
		2.333			-.051			74.950
	MAX & MIN							
	6	.000			-.014			71.013
		.000	7.993	5.162		.008	-.011	
		1.167	2.475	11.268		.008	-.001	
		2.333	-3.043	10.936		.008	.009	
		2.333			-.014			71.013
	MAX							
	ALL	.000			2.041			100.509
		.000	24.928	7.183		2.353	-.011	
		1.167	13.700	13.850		1.700	1.148	
		2.333	3.268	14.079		1.046	2.136	
		2.333			2.041			100.509
	MIN							
	ALL	.000			-3.304			65.763
		.000	3.070	4.546		.008	-1.723	
		1.167	-7.037	10.412		.008	-.003	
		2.333	-17.907	9.840		-.109	.009	
		2.333			-3.304			65.763
3	----------							
	MAX & MIN							
	1	.000			-5.293			63.625
		.000	4.860	8.554		2.137	-.661	
		1.167	-.658	11.006		1.048	1.197	
		2.333	-6.176	7.019		-.042	1.784	
		2.333			-5.293			63.625
	MAX							
	2	.000			-.727			78.991
		.000	14.131	10.347		1.970	-.620	
		1.167	5.349	12.773		1.316	.835	
		2.333	-2.796	8.774		.663	1.898	
		2.333			-.727			78.991
	MIN							
	2	.000			-3.507			59.584
		.000	1.395	8.157		1.273	-.998	
		1.167	-6.770	10.503		.619	.609	
		2.333	-15.588	6.411		-.035	1.075	
		2.333			-3.507			59.584

PROGRAM:SAP90/FILE:304277.F3F

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX							
	3	.000			.539			79.631
		.000	14.131	10.341		2.049	-.778	
		1.167	5.350	12.768		1.395	.769	
		2.333	-2.796	8.769		.742	1.924	
		2.333			.539			79.631
	MIN							
	3	.000			-2.241			60.225
		.000	1.396	8.151		1.351	-1.156	
		1.167	-6.770	10.498		.698	.543	
		2.333	-15.587	6.406		.044	1.101	
		2.333			-2.241			60.225
	MAX							
	4	.000			.413			90.808
		.000	20.315	11.546		2.152	-.465	
		1.167	9.357	13.959		1.498	.894	
		2.333	-.540	9.955		.844	2.108	
		2.333			.413			90.808
	MIN							
	4	.000			-4.220			58.464
		.000	-.911	7.895		.989	-1.095	
		1.167	-10.842	10.175		.335	.517	
		2.333	-21.859	6.016		-.318	.736	
		2.333			-4.220			58.464
	MAX & MIN							
	5	.000			-.113			68.728
		.000	4.653	7.427		.036	-.038	
		1.167	-.865	9.637		.036	.004	
		2.333	-6.383	5.408		.036	.045	
		2.333			-.113			68.728
	MAX & MIN							
	6	.000			-.030			64.248
		.000	4.870	8.563		.010	-.010	
		1.167	-.648	11.026		.010	.001	
		2.333	-6.166	7.051		.010	.012	
		2.333			-.030			64.248
	MAX							
	ALL	.000			.539			90.808
		.000	20.315	11.546		2.152	-.010	
		1.167	9.357	13.959		1.498	1.197	
		2.333	-.540	9.955		.844	2.108	
		2.333			.539			90.808
	MIN							
	ALL	.000			-5.293			58.464
		.000	-.911	7.427		.010	-1.156	
		1.167	-10.842	9.637		.010	.001	
		2.333	-21.859	5.408		-.318	.012	
		2.333			-5.293			58.464
4	--------							
	MAX & MIN							
	1	.000			-6.993			55.381

PROGRAM:SAP90/FILE:304277.F3F

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	3.597	5.448		1.981	-.381	
		1.167	-1.922	6.425		.892	1.295	
		2.333	-7.440	.965		-.198	1.700	
		2.333			-6.993			55.381
	MAX							
	2	.000			-1.719			68.078
		.000	12.801	7.146		1.835	-.362	
		1.167	4.034	7.859		1.181	1.026	
		2.333	-4.114	2.192		.527	1.928	
		2.333			-1.719			68.078
	MIN							
	2	.000			-5.680			50.322
		.000	-.054	4.927		1.109	-.646	
		1.167	-8.256	5.813		.455	.682	
		2.333	-17.077	.261		-.199	.963	
		2.333			-5.680			50.322
	MAX							
	3	.000			-.577			69.525
		.000	12.798	7.120		1.871	-.456	
		1.167	4.031	7.829		1.217	.973	
		2.333	-4.118	2.158		.563	1.917	
		2.333			-.577			69.525
	MIN							
	3	.000			-4.538			50.970
		.000	-.057	4.901		1.144	-.740	
		1.167	-8.259	5.784		.491	.629	
		2.333	-17.080	.228		-.163	.952	
		2.333			-4.538			50.970
	MAX							
	4	.000			-.097			79.486
		.000	18.928	8.241		2.024	-.244	
		1.167	7.995	8.765		1.370	1.116	
		2.333	-1.907	2.949		.716	2.176	
		2.333			-.097			79.486
	MIN							
	4	.000			-6.698			48.560
		.000	-2.498	4.542		.814	-.718	
		1.167	-12.489	5.356		.160	.544	
		2.333	-23.511	-.268		-.494	.568	
		2.333			-6.698			48.560
	MAX & MIN							
	5	.000			-.185			61.069
		.000	3.339	3.710		.043	-.042	
		1.167	-2.179	4.387		.043	.009	
		2.333	-7.697	-1.374		.043	.059	
		2.333			-.185			61.069
	MAX & MIN							
	6	.000			-.049			55.939
		.000	3.608	5.453		.011	-.011	
		1.167	-1.910	6.443		.011	.002	
		2.333	-7.428	.996		.011	.016	

PROGRAM:SAP90/FILE:304277.F3F

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.333			-.049			55.939
	MAX							
	ALL	.000			-.049			79.486
		.000	18.928	8.241		2.024	-.011	
		1.167	7.995	8.765		1.370	1.295	
		2.333	-1.907	2.949		.716	2.176	
		2.333			-.049			79.486
	MIN							
	ALL	.000			-6.993			48.560
		.000	-2.498	3.710		.011	-.740	
		1.167	-12.489	4.387		.011	.002	
		2.333	-23.511	-1.374		-.494	.016	
		2.333			-6.993			48.560
5	--------							
	MAX & MIN							
	1	.000			-8.402			46.433
		.000	3.308	-.538		1.792	-.093	
		1.167	-2.210	.102		.702	1.363	
		2.333	-7.729	-5.695		-.387	1.546	
		2.333			-8.402			46.433
	MAX							
	2	.000			-2.469			58.198
		.000	12.486	.626		1.698	-.175	
		1.167	3.713	.900		1.044	1.249	
		2.333	-4.432	-5.201		.390	1.989	
		2.333			-2.469			58.198
	MIN							
	2	.000			-7.575			40.628
		.000	-.445	-1.199		.960	-.282	
		1.167	-8.638	-.631		.307	.698	
		2.333	-17.454	-6.501		-.347	.809	
		2.333			-7.575			40.628
	MAX							
	3	.000			-1.399			58.833
		.000	12.493	.565		1.711	-.254	
		1.167	3.720	.848		1.057	1.185	
		2.333	-4.425	-5.245		.404	1.941	
		2.333			-1.399			58.833
	MIN							
	3	.000			-6.506			41.264
		.000	-.438	-1.259		.974	-.361	
		1.167	-8.631	-.684		.320	.635	
		2.333	-17.447	-6.546		-.334	.761	
		2.333			-6.506			41.264
	MAX							
	4	.000			-.380			67.648
		.000	18.614	1.275		1.890	-.133	
		1.167	7.671	1.316		1.236	1.398	
		2.333	-2.225	-4.976		.582	2.298	
		2.333			-.380			67.648

PROGRAM:SAP90/FILE:304277.F3F

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN							
	4	.000			-8.892			38.366
		.000	-2.938	-1.766		.661	-.312	
		1.167	-12.913	-1.236		.007	.480	
		2.333	-23.929	-7.144		-.647	.331	
		2.333			-8.892			38.366
	MAX & MIN							
	5	.000			-.268			52.573
		.000	3.138	-3.114		.050	-.047	
		1.167	-2.380	-2.671		.050	.012	
		2.333	-7.898	-8.667		.050	.071	
		2.333			-.268			52.573
	MAX & MIN							
	6	.000			-.071			46.912
		.000	3.323	-.528		.013	-.012	
		1.167	-2.195	.129		.013	.003	
		2.333	-7.714	-5.651		.013	.019	
		2.333			-.071			46.912
	MAX							
	ALL	.000			-.071			67.648
		.000	18.614	1.275		1.890	-.012	
		1.167	7.671	1.316		1.236	1.398	
		2.333	-2.225	-4.976		.582	2.298	
		2.333			-.071			67.648
	MIN							
	ALL	.000			-8.892			38.366
		.000	-2.938	-3.114		.013	-.361	
		1.167	-12.913	-2.671		.007	.003	
		2.333	-23.929	-8.667		-.647	.019	
		2.333			-8.892			38.366
6	--------							
	MAX & MIN							
	1	.000			-9.554			35.891
		.000	4.601	-7.145		1.646	.065	
		1.167	-.918	-4.997		.556	1.349	
		2.333	-6.436	-9.287		-.534	1.362	
		2.333			-9.554			35.891
	MAX							
	2	.000			-3.074			46.047
		.000	13.759	-6.658		1.500	.203	
		1.167	4.949	-4.783		.846	1.471	
		2.333	-3.197	-9.235		.192	1.988	
		2.333			-3.074			46.047
	MIN							
	2	.000			-9.160			29.525
		.000	.892	-7.888		.906	-.132	
		1.167	-7.253	-5.834		.252	.647	
		2.333	-16.072	-10.477		-.402	.663	
		2.333			-9.160			29.525
	MAX							
	3	.000			-2.059			46.617

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			.000	13.820	-6.742		1.514	.102	
			1.167	5.010	-4.795		.861	1.387	
			2.333	-3.136	-9.175		.207	1.922	
			2.333			-2.059			46.617
		MIN							
	3		.000			-8.146			30.095
			.000	.953	-7.972		.920	-.233	
			1.167	-7.192	-5.846		.267	.563	
			2.333	-16.010	-10.417		-.387	.597	
			2.333			-8.146			30.095
		MAX							
	4		.000			-.587			54.278
			.000	20.011	-6.541		1.654	.318	
			1.167	9.007	-4.677		1.000	1.699	
			2.333	-.891	-9.065		.347	2.338	
			2.333			-.587			54.278
		MIN							
	4		.000			-10.731			26.742
			.000	-1.434	-8.591		.664	-.240	
			1.167	-11.330	-6.428		.010	.326	
			2.333	-22.349	-11.135		-.643	.130	
			2.333			-10.731			26.742
		MAX & MIN							
	5		.000			-.355			41.852
			.000	5.070	-10.523		.051	-.052	
			1.167	-.449	-7.827		.051	.007	
			2.333	-5.967	-11.570		.051	.066	
			2.333			-.355			41.852
		MAX & MIN							
	6		.000			-.095			36.291
			.000	4.612	-7.117		.014	-.014	
			1.167	-.906	-4.956		.014	.002	
			2.333	-6.425	-9.232		.014	.018	
			2.333			-.095			36.291
		MAX							
	ALL		.000			-.095			54.278
			.000	20.011	-6.541		1.654	.318	
			1.167	9.007	-4.677		1.000	1.699	
			2.333	-.891	-9.065		.347	2.338	
			2.333			-.095			54.278
		MIN							
	ALL		.000			-10.731			26.742
			.000	-1.434	-10.523		.014	-.240	
			1.167	-11.330	-7.827		.010	.002	
			2.333	-22.349	-11.570		-.643	.018	
			2.333			-10.731			26.742
7	----------								
	MAX & MIN								
	1		.000			-10.534			24.579
			.000	6.694	-9.853		1.666	.114	
			1.125	1.373	-5.316		.616	1.398	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			2.250	-3.949	-6.765		-.435	1.499	
			2.250			-10.534			24.579
		MAX							
	2		.000			-3.698			33.192
			.000	16.121	-9.692		1.212	.693	
			1.125	7.619	-5.231		.581	1.539	
			2.250	-.304	-6.650		-.049	1.689	
			2.250			-3.698			33.192
		MIN							
	2		.000			-10.316			17.826
			.000	3.212	-11.024		1.027	-.192	
			1.125	-4.641	-6.135		.396	.673	
			2.250	-13.084	-7.694		-.234	.829	
			2.250			-10.316			17.826
		MAX							
	3		.000			-2.757			33.674
			.000	16.140	-9.667		1.266	.549	
			1.125	7.639	-5.185		.635	1.456	
			2.250	-.285	-6.583		.005	1.667	
			2.250			-2.757			33.674
		MIN							
	3		.000			-9.374			18.308
			.000	3.232	-11.000		1.081	-.335	
			1.125	-4.622	-6.088		.450	.590	
			2.250	-13.065	-7.626		-.180	.807	
			2.250			-9.374			18.308
		MAX							
	4		.000			-.994			40.176
			.000	22.445	-9.544		1.271	.972	
			1.125	11.823	-5.091		.640	1.775	
			2.250	2.164	-6.446		.010	1.893	
			2.250			-.994			40.176
		MIN							
	4		.000			-12.023			14.566
			.000	.931	-11.765		.962	-.503	
			1.125	-8.611	-6.597		.332	.333	
			2.250	-19.135	-8.186		-.299	.459	
			2.250			-12.023			14.566
		MAX & MIN							
	5		.000			-.431			29.239
			.000	8.767	-12.553		.047	-.066	
			1.125	2.411	-6.266		.047	-.012	
			2.250	-3.945	-7.129		.047	.041	
			2.250			-.431			29.239
		MAX & MIN							
	6		.000			-.115			24.903
			.000	6.695	-9.812		.013	-.017	
			1.125	1.374	-5.274		.013	-.005	
			2.250	-3.948	-6.722		.013	.011	
			2.250			-.115			24.903

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		MAX							
	ALL		.000			-.115			40.176
			.000	22.445	-9.544		1.666	.972	
			1.125	11.823	-5.091		.640	1.775	
			2.250	2.164	-6.446		.047	1.893	
			2.250			-.115			40.176
		MIN							
	ALL		.000			-12.023			14.566
			.000	.931	-12.553		.013	-.503	
			1.125	-8.611	-6.597		.013	-.012	
			2.250	-19.135	-8.186		-.435	.011	
			2.250			-12.023			14.566
8	----------								
	MAX & MIN								
	1		.000			-11.381			15.113
			.000	7.988	-6.481		1.551	.450	
			1.125	2.646	-.510		.501	1.605	
			2.250	-2.675	-.526		-.550	1.577	
			2.250			-11.381			15.113
		MAX							
	2		.000			-4.375			22.569
			.000	17.624	-6.239		1.124	.820	
			1.125	9.119	-.015		.494	1.501	
			2.250	1.165	.302		-.137	1.533	
			2.250			-4.375			22.569
		MIN							
	2		.000			-11.110			8.344
			.000	4.558	-7.361		.913	.024	
			1.125	-3.300	-1.344		.282	.840	
			2.250	-11.712	-1.319		-.348	.947	
			2.250			-11.110			8.344
		MAX							
	3		.000			-3.536			22.924
			.000	17.631	-6.191		1.193	.683	
			1.125	9.125	.040		.563	1.442	
			2.250	1.171	.364		-.067	1.552	
			2.250			-3.536			22.924
		MIN							
	3		.000			-10.270			8.699
			.000	4.565	-7.314		.982	-.113	
			1.125	-3.293	-1.289		.351	.781	
			2.250	-11.705	-1.257		-.279	.966	
			2.250			-10.270			8.699
		MAX							
	4		.000			-1.621			28.452
			.000	24.080	-6.003		1.190	1.068	
			1.125	13.451	.411		.560	1.669	
			2.250	3.743	.969		-.071	1.663	
			2.250			-1.621			28.452
		MIN							
	4		.000			-12.846			4.743

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			.000	2.303	-7.873		.837	-.259	
			1.125	-7.246	-1.805		.207	.568	
			2.250	-17.719	-1.732		-.424	.686	
			2.250			-12.846			4.743
		MAX & MIN							
	5		.000			-.503			17.942
			.000	10.088	-6.937		.041	-.063	
			1.125	3.732	.836		.041	-.017	
			2.250	-2.625	1.459		.041	.029	
			2.250			-.503			17.942
		MAX & MIN							
	6		.000			-.134			15.351
			.000	7.963	-6.450		.011	-.017	
			1.125	2.642	-.484		.011	-.005	
			2.250	-2.679	-.505		.011	.008	
			2.250			-.134			15.351
		MAX							
	ALL		.000			-.134			28.452
			.000	24.080	-6.003		1.551	1.068	
			1.125	13.451	.836		.563	1.669	
			2.250	3.743	1.459		.041	1.663	
			2.250			-.134			28.452
		MIN							
	ALL		.000			-12.846			4.743
			.000	2.303	-7.873		.011	-.259	
			1.125	-7.246	-1.805		.011	-.017	
			2.250	-17.719	-1.732		-.550	.008	
			2.250			-12.846			4.743
9	----------								
	MAX & MIN								
	1		.000			-11.997			8.096
			.000	7.562	-.182		1.357	.812	
			1.125	2.241	5.332		.306	1.748	
			2.250	-3.080	4.861		-.745	1.501	
			2.250			-11.997			8.096
		MAX							
	2		.000			-4.974			14.704
			.000	17.152	.752		1.022	.911	
			1.125	8.645	6.497		.391	1.479	
			2.250	.710	6.310		-.239	1.479	
			2.250			-4.974			14.704
		MIN							
	2		.000			-11.674			1.681
			.000	4.139	-.944		.813	.262	
			1.125	-3.720	4.653		.182	.956	
			2.250	-12.155	4.263		-.448	.941	
			2.250			-11.674			1.681
		MAX							
	3		.000			-4.255			14.919
			.000	17.154	.803		1.098	.783	
			1.125	8.647	6.549		.468	1.437	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.250	.712	6.365		-.163	1.522	
		2.250			-4.255			14.919
	MIN							
	3	.000			-10.955			1.896
		.000	4.141	-.894		.889	.133	
		1.125	-3.718	4.705		.259	.913	
		2.250	-12.153	4.318		-.372	.984	
		2.250			-10.955			1.896
	MAX							
	4	.000			-2.234			19.661
		.000	23.559	1.461		1.089	1.108	
		1.125	12.928	7.374		.458	1.600	
		2.250	3.251	7.394		-.172	1.618	
		2.250			-2.234			19.661
	MIN							
	4	.000			-13.401			-2.044
		.000	1.871	-1.366		.740	.025	
		1.125	-7.681	4.301		.110	.727	
		2.250	-18.191	3.982		-.521	.720	
		2.250			-13.401			-2.044
	MAX & MIN							
	5	.000			-.557			9.423
		.000	9.530	1.894		.026	-.044	
		1.125	3.173	9.039		.026	-.015	
		2.250	-3.183	9.034		.026	.014	
		2.250			-.557			9.423
	MAX & MIN							
	6	.000			-.149			8.241
		.000	7.559	-.167		.007	-.012	
		1.125	2.238	5.343		.007	-.004	
		2.250	-3.083	4.868		.007	.004	
		2.250			-.149			8.241
	MAX							
	ALL	.000			-.149			19.661
		.000	23.559	1.894		1.357	1.108	
		1.125	12.928	9.039		.468	1.748	
		2.250	3.251	9.034		.026	1.618	
		2.250			-.149			19.661
	MIN							
	ALL	.000			-13.401			-2.044
		.000	1.871	-1.366		.007	-.044	
		1.125	-7.681	4.301		.007	-.015	
		2.250	-18.191	3.982		-.745	.004	
		2.250			-13.401			-2.044
10	----------							
	MAX & MIN							
	1	.000			-12.315			2.559
		.000	6.159	5.005		1.152	1.104	
		1.125	.837	8.941		.102	1.809	
		2.250	-4.484	6.890		-.949	1.332	
		2.250			-12.315			2.559

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX							
	2	.000			-5.410			8.490
		.000	15.512	6.506		.905	1.016	
		1.125	7.003	10.516		.274	1.474	
		2.250	-.886	8.591		-.356	1.382	
		2.250			-5.410			8.490
	MIN							
	2	.000			-12.045			-3.336
		.000	2.696	4.412		.701	.441	
		1.125	-5.166	8.434		.071	.994	
		2.250	-13.649	6.451		-.560	.838	
		2.250			-12.045			-3.336
	MAX							
	3	.000			-4.819			8.560
		.000	15.511	6.555		.981	.887	
		1.125	7.001	10.563		.350	1.431	
		2.250	-.888	8.636		-.280	1.424	
		2.250			-4.819			8.560
	MIN							
	3	.000			-11.455			-3.266
		.000	2.694	4.461		.777	.312	
		1.125	-5.167	8.481		.147	.950	
		2.250	-13.651	6.496		-.484	.880	
		2.250			-11.455			-3.266
	MAX							
	4	.000			-2.699			12.630
		.000	21.755	7.610		.972	1.183	
		1.125	11.120	11.678		.341	1.580	
		2.250	1.519	9.844		-.289	1.533	
		2.250			-2.699			12.630
	MIN							
	4	.000			-13.758			-7.080
		.000	.394	4.120		.633	.225	
		1.125	-9.161	8.208		.002	.780	
		2.250	-19.753	6.278		-.628	.626	
		2.250			-13.758			-7.080
	MAX & MIN							
	5	.000			-.586			2.928
		.000	7.560	9.266		.009	-.022	
		1.125	1.204	14.195		.009	-.013	
		2.250	-5.152	11.974		.009	-.003	
		2.250			-.586			2.928
	MAX & MIN							
	6	.000			-.156			2.607
		.000	6.158	5.010		.002	-.006	
		1.125	.836	8.944		.002	-.003	
		2.250	-4.485	6.891		.002	-.001	
		2.250			-.156			2.607
	MAX							
	ALL	.000			-.156			12.630
		.000	21.755	9.266		1.152	1.183	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.125	11.120	14.195		.350	1.809	
		2.250	1.519	11.974		.009	1.533	
		2.250			-.156			12.630
	MIN							
	ALL	.000			-13.758			-7.080
		.000	.394	4.120		.002	-.022	
		1.125	-9.161	8.208		.002	-.013	
		2.250	-19.753	6.278		-.949	-.003	
		2.250			-13.758			-7.080
21	----------							
	MAX & MIN							
	1	.000			-.124			65.839
		.000	28.543	6.776		3.900	-4.763	
		1.167	23.374	37.061		3.900	-.212	
		2.333	18.206	61.316		3.900	4.338	
		2.333			-.124			65.839
	MAX							
	2	.000			.667			88.910
		.000	35.083	9.004		4.050	-3.416	
		1.167	29.270	43.827		4.050	-.485	
		2.333	23.458	74.047		4.050	3.831	
		2.333			.667			88.910
	MIN							
	2	.000			.472			54.657
		.000	27.251	6.254		2.230	-5.145	
		1.167	22.082	36.172		2.230	-.662	
		2.333	16.914	58.994		2.230	2.447	
		2.333			.472			54.657
	MAX							
	3	.000			1.124			89.984
		.000	35.157	8.891		4.204	-3.838	
		1.167	29.345	43.801		4.204	-.727	
		2.333	23.533	74.108		4.204	3.769	
		2.333			1.124			89.984
	MIN							
	3	.000			.929			55.731
		.000	27.325	6.141		2.384	-5.567	
		1.167	22.157	36.146		2.384	-.904	
		2.333	16.989	59.055		2.384	2.384	
		2.333			.929			55.731
	MAX							
	4	.000			.732			106.563
		.000	39.625	10.276		4.522	-2.701	
		1.167	33.384	48.337		4.522	-.415	
		2.333	27.142	82.746		4.522	4.179	
		2.333			.732			106.563
	MIN							
	4	.000			.407			49.476
		.000	26.572	5.692		1.489	-5.584	
		1.167	21.404	35.578		1.489	-.711	
		2.333	16.235	57.658		1.489	1.871	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.333			.407			49.476
	MAX & MIN							
	5	.000			.013			65.499
		.000	26.396	6.708		.048	-.073	
		1.167	21.228	34.489		.048	-.017	
		2.333	16.059	96.240		.048	.039	
		2.333			.013			65.499
	MAX & MIN							
	6	.000			.003			68.285
		.000	28.761	6.442		.013	-.019	
		1.167	23.593	36.982		.013	-.005	
		2.333	18.425	61.493		.013	.010	
		2.333			.003			68.285
	MAX							
	ALL	.000			1.124			106.563
		.000	39.625	10.276		4.522	-.019	
		1.167	33.384	48.337		4.522	-.005	
		2.333	27.142	82.746		4.522	4.338	
		2.333			1.124			106.563
	MIN							
	ALL	.000			-.124			49.476
		.000	26.396	5.692		.013	-5.584	
		1.167	21.228	34.489		.013	-.904	
		2.333	16.059	96.240		.013	.010	
		2.333			-.124			49.476
22	----------							
	MAX & MIN							
	1	.000			-2.433			70.336
		.000	16.013	59.830		3.487	-3.147	
		1.167	10.845	75.497		3.487	.922	
		2.333	5.676	85.134		3.487	4.990	
		2.333			-2.433			70.336
	MAX							
	2	.000			-.023			92.680
		.000	20.437	72.631		3.775	-2.216	
		1.167	14.625	91.250		3.775	.493	
		2.333	9.095	103.905		3.775	4.642	
		2.333			-.023			92.680
	MIN							
	2	.000			-1.338			59.543
		.000	15.057	58.065		1.911	-3.680	
		1.167	9.889	72.654		1.911	.351	
		2.333	4.440	81.177		1.911	2.918	
		2.333			-1.338			59.543
	MAX							
	3	.000			.755			93.916
		.000	20.463	72.595		3.887	-2.477	
		1.167	14.651	91.244		3.887	.363	
		2.333	9.121	103.928		3.887	4.642	
		2.333			.755			93.916

PROGRAM:SAP90/FILE:304277.F3F

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN							
	3	.000			-.560			60.779
		.000	15.083	58.029		2.023	-3.941	
		1.167	9.915	72.648		2.023	.221	
		2.333	4.465	81.200		2.023	2.918	
		2.333			-.560			60.779
	MAX							
	4	.000			.518			110.234
		.000	23.466	81.188		4.259	-1.609	
		1.167	17.225	101.869		4.259	.534	
		2.333	11.454	116.627		4.259	5.078	
		2.333			.518			110.234
	MIN							
	4	.000			-1.675			55.006
		.000	14.500	56.912		1.152	-4.049	
		1.167	9.331	70.875		1.152	.298	
		2.333	3.695	78.747		1.152	2.204	
		2.333			-1.675			55.006
	MAX & MIN							
	5	.000			-.006			72.854
		.000	13.971	54.663		.060	-.069	
		1.167	8.803	67.948		.060	.001	
		2.333	3.634	75.203		.060	.071	
		2.333			-.006			72.854
	MAX & MIN							
	6	.000			-.001			72.878
		.000	16.126	59.733		.016	-.019	
		1.167	10.958	75.533		.016	.000	
		2.333	5.790	85.302		.016	.019	
		2.333			-.001			72.878
	MAX							
	ALL	.000			.755			110.234
		.000	23.466	81.188		4.259	-.019	
		1.167	17.225	101.869		4.259	.922	
		2.333	11.454	116.627		4.259	5.078	
		2.333			.755			110.234
	MIN							
	ALL	.000			-2.433			55.006
		.000	13.971	54.663		.016	-4.049	
		1.167	8.803	67.948		.016	.000	
		2.333	3.634	75.203		.016	.019	
		2.333			-2.433			55.006
23	----------							
	MAX & MIN							
	1	.000			-4.663			70.170
		.000	1.451	83.709		2.948	-1.915	
		1.167	-3.717	82.388		2.948	1.524	
		2.333	-8.885	75.036		2.948	4.962	
		2.333			-4.663			70.170
	MAX							
	2	.000			-.767			89.597

PROGRAM:SAP90/FILE:304277.F3F

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	3.602	102.272		3.337	-1.287	
		1.167	-2.131	100.946		3.337	1.133	
		2.333	-7.299	93.947		3.337	4.779	
		2.333			-.767			89.597
	MIN							
	2	.000			-3.331			60.156
		.000	-.557	80.229		1.478	-2.517	
		1.167	-5.804	77.923		1.478	.775	
		2.333	-11.617	69.582		1.478	2.836	
		2.333			-3.331			60.156
	MAX							
	3	.000			.246			90.962
		.000	3.609	102.207		3.374	-1.412	
		1.167	-2.124	100.889		3.374	1.050	
		2.333	-7.292	93.899		3.374	4.739	
		2.333			.246			90.962
	MIN							
	3	.000			-2.318			61.521
		.000	-.550	80.164		1.514	-2.643	
		1.167	-5.797	77.866		1.514	.692	
		2.333	-11.610	69.534		1.514	2.795	
		2.333			-2.318			61.521
	MAX							
	4	.000			.287			105.553
		.000	5.072	114.689		3.819	-.773	
		1.167	-1.037	113.403		3.819	1.227	
		2.333	-6.205	106.682		3.819	5.271	
		2.333			.287			105.553
	MIN							
	4	.000			-3.987			56.484
		.000	-1.859	77.951		.720	-2.824	
		1.167	-7.160	75.031		.720	.629	
		2.333	-13.402	66.073		.720	2.031	
		2.333			-3.987			56.484
	MAX & MIN							
	5	.000			-.040			75.763
		.000	-.603	73.568		.076	-.074	
		1.167	-5.771	69.850		.076	.015	
		2.333	-10.939	60.102		.076	.104	
		2.333			-.040			75.763
	MAX & MIN							
	6	.000			-.011			72.607
		.000	1.553	83.612		.020	-.020	
		1.167	-3.615	82.409		.020	.004	
		2.333	-8.783	75.177		.020	.028	
		2.333			-.011			72.607
	MAX							
	ALL	.000			.287			105.553
		.000	5.072	114.689		3.819	-.020	
		1.167	-1.037	113.403		3.819	1.524	
		2.333	-6.205	106.682		3.819	5.271	

PROGRAM:SAP90/FILE:304277.F3F

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.333			.287			105.553
	MIN							
	ALL	.000			-4.663			56.484
		.000	-1.859	73.568		.020	-2.824	
		1.167	-7.160	69.850		.020	.004	
		2.333	-13.402	60.102		.020	.028	
		2.333			-4.663			56.484
24	----------							
	MAX & MIN							
	1	.000			-6.579			72.189
		.000	-14.125	72.880		2.428	-.957	
		1.167	-19.293	53.387		2.428	1.876	
		2.333	-24.461	27.863		2.428	4.709	
		2.333			-6.579			72.189
	MAX							
	2	.000			-1.422			89.736
		.000	-13.041	91.631		2.955	-.638	
		1.167	-18.373	68.939		2.955	1.563	
		2.333	-23.542	41.056		2.955	4.764	
		2.333			-1.422			89.736
	MIN							
	2	.000			-5.217			61.788
		.000	-18.635	67.712		1.100	-1.642	
		1.167	-24.284	47.286		1.100	.981	
		2.333	-30.096	20.830		1.100	2.601	
		2.333			-5.217			61.788
	MAX							
	3	.000			-.231			91.260
		.000	-13.048	91.494		2.944	-.706	
		1.167	-18.381	68.794		2.944	1.483	
		2.333	-23.549	40.902		2.944	4.671	
		2.333			-.231			91.260
	MIN							
	3	.000			-4.027			63.313
		.000	-18.643	67.575		1.089	-1.710	
		1.167	-24.291	47.140		1.089	.901	
		2.333	-30.103	20.676		1.089	2.508	
		2.333			-4.027			63.313
	MAX							
	4	.000			.136			104.915
		.000	-12.334	104.101		3.436	-.217	
		1.167	-17.776	79.258		3.436	1.715	
		2.333	-22.945	49.783		3.436	5.314	
		2.333			.136			104.915
	MIN							
	4	.000			-6.190			58.335
		.000	-21.658	64.235		.345	-1.890	
		1.167	-27.627	43.169		.345	.746	
		2.333	-33.868	16.073		.345	1.708	
		2.333			-6.190			58.335

PROGRAM:SAP90/FILE:304277.F3F

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX & MIN							
	5	.000			-.112			81.238
		.000	-16.343	57.578		.108	-.095	
		1.167	-21.511	35.497		.108	.030	
		2.333	-26.679	7.385		.108	.156	
		2.333			-.112			81.238
	MAX & MIN							
	6	.000			-.030			74.393
		.000	-13.993	72.754		.029	-.025	
		1.167	-19.161	53.414		.029	.008	
		2.333	-24.330	28.044		.029	.042	
		2.333			-.030			74.393
	MAX							
	ALL	.000			.136			104.915
		.000	-12.334	104.101		3.436	-.025	
		1.167	-17.776	79.258		3.436	1.876	
		2.333	-22.945	49.783		3.436	5.314	
		2.333			.136			104.915
	MIN							
	ALL	.000			-6.579			58.335
		.000	-21.658	57.578		.029	-1.890	
		1.167	-27.627	35.497		.029	.008	
		2.333	-33.868	7.385		.029	.042	
		2.333			-6.579			58.335
25	----------							
	MAX & MIN							
	1	.000			-8.148			72.910
		.000	-25.623	22.812		1.916	-.170	
		1.167	-30.791	-10.096		1.916	2.064	
		2.333	-35.959	-49.033		1.916	4.299	
		2.333			-8.148			72.910
	MAX							
	2	.000			-1.954			89.714
		.000	-24.950	35.649		2.615	-.175	
		1.167	-30.118	-2.019		2.615	1.965	
		2.333	-35.287	-44.224		2.615	4.772	
		2.333			-1.954			89.714
	MIN							
	2	.000			-6.932			61.572
		.000	-32.114	15.789		.766	-.856	
		1.167	-37.927	-18.001		.766	1.052	
		2.333	-43.739	-57.821		.766	2.279	
		2.333			-6.932			61.572
	MAX							
	3	.000			-.627			91.418
		.000	-24.946	35.393		2.581	-.235	
		1.167	-30.115	-2.271		2.581	1.865	
		2.333	-35.283	-44.472		2.581	4.632	
		2.333			-.627			91.418
	MIN							
	3	.000			-5.604			63.277

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			.000	-32.111	15.534		.732	-.917	
			1.167	-37.923	-18.252		.732	.952	
			2.333	-43.735	-58.068		.732	2.139	
			2.333			-5.604			65.277
		MAX							
		4	.000			.084			105.027
			.000	-24.560	43.961		3.096	.114	
			1.167	-29.729	3.051		3.096	2.210	
			2.333	-34.897	-41.401		3.096	5.416	
			2.333			.084			105.027
		MIN							
		4	.000			-8.211			58.125
			.000	-36.501	10.861		.015	-1.021	
			1.167	-42.743	-23.586		.015	.688	
			2.333	-48.984	-64.062		.015	1.261	
			2.333			-8.211			58.125
		MAX & MIN							
		5	.000			-.264			85.309
			.000	-27.817	1.522		.160	-.131	
			1.167	-32.986	-33.946		.160	.055	
			2.333	-38.154	-75.444		.160	.242	
			2.333			-.264			85.309
		MAX & MIN							
		6	.000			-.071			74.762
			.000	-25.434	22.728		.043	-.035	
			1.167	-30.603	-9.960		.043	.015	
			2.333	-35.771	-48.678		.043	.065	
			2.333			-.071			74.762
		MAX							
		ALL	.000			.084			105.027
			.000	-24.560	43.961		3.096	.114	
			1.167	-29.729	3.051		3.096	2.210	
			2.333	-34.897	-41.401		3.096	5.416	
			2.333			.084			105.027
		MIN							
		ALL	.000			-8.211			58.125
			.000	-36.501	1.522		.015	-1.021	
			1.167	-42.743	-33.946		.015	.015	
			2.333	-48.984	-75.444		.015	.065	
			2.333			-8.211			58.125
26	----------								
		MAX & MIN							
		1	.000			-9.409			52.173
			.000	-16.481	-59.647		1.441	.313	
			1.167	-21.649	-81.890		1.441	1.995	
			2.333	-26.818	-110.162		1.441	3.676	
			2.333			-9.409			52.173
		MAX							
		2	.000			-2.401			65.757
			.000	-15.583	-55.471		2.212	.140	
			1.167	-20.759	-79.593		2.212	2.426	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			2.333	-25.927	-107.816		2.212	4.775	
			2.333			-2.401			65.757
		MIN							
		2	.000			-8.464			38.941
			.000	-21.593	-68.706		.539	-.155	
			1.167	-27.397	-91.034		.539	.919	
			2.333	-33.210	-122.396		.539	1.844	
			2.333			-8.464			38.941
		MAX							
		3	.000			-.972			67.515
			.000	-15.443	-55.847		2.186	.025	
			1.167	-20.620	-79.806		2.186	2.281	
			2.333	-25.788	-107.866		2.186	4.598	
			2.333			-.972			67.515
		MIN							
		3	.000			-7.034			40.700
			.000	-21.454	-69.082		.513	-.270	
			1.167	-27.258	-91.248		.513	.774	
			2.333	-33.070	-122.447		.513	1.668	
			2.333			-7.034			40.700
		MAX							
		4	.000			.072			79.364
			.000	-14.842	-53.346		2.651	.244	
			1.167	-20.023	-78.553		2.651	2.846	
			2.333	-25.192	-106.578		2.651	5.551	
			2.333			.072			79.364
		MIN							
		4	.000			-10.033			34.671
			.000	-24.859	-75.403		-.137	-.247	
			1.167	-31.087	-97.623		-.137	.334	
			2.333	-37.329	-130.879		-.137	.666	
			2.333			-10.033			34.671
		MAX & MIN							
		5	.000			-.576			64.549
			.000	-16.223	-88.058		.223	-.183	
			1.167	-21.391	-109.999		.223	.077	
			2.333	-26.559	-137.970		.223	.338	
			2.333			-.576			64.549
		MAX & MIN							
		6	.000			-.154			53.588
			.000	-16.274	-59.520		.060	-.049	
			1.167	-21.443	-81.522		.060	.021	
			2.333	-26.611	-109.553		.060	.090	
			2.333			-.154			53.588
		MAX							
		ALL	.000			.072			79.364
			.000	-14.842	-53.346		2.651	.313	
			1.167	-20.023	-78.553		2.651	2.846	
			2.333	-25.192	-106.578		2.651	5.551	
			2.333			.072			79.364

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		MIN							
		ALL	.000			-10.033			34.671
			.000	-24.859	-88.058		-.137	-.270	
			1.167	-31.087	-109.999		-.137	.021	
			2.333	-37.329	-137.970		-.137	.090	
			2.333			-10.033			34.671
27	----------								
		MAX & MIN							
		1	.000			-10.497			-4.893
			.000	25.889	-111.506		1.704	.158	
			1.125	20.906	-85.184		1.704	2.075	
			2.250	15.922	-64.468		1.704	3.992	
			2.250			-10.497			-4.893
		MAX							
		2	.000			-3.017			2.415
			.000	31.499	-108.400		1.500	1.331	
			1.125	25.894	-83.124		1.500	2.532	
			2.250	20.289	-61.730		1.500	3.803	
			2.250			-3.017			2.415
		MIN							
		2	.000			-9.595			-21.743
			.000	24.309	-123.436		1.037	-.400	
			1.125	19.325	-94.616		1.037	.957	
			2.250	14.341	-73.487		1.037	2.314	
			2.250			-9.595			-21.743
		MAX							
		3	.000			-1.557			3.894
			.000	31.743	-108.566		1.608	1.073	
			1.125	26.139	-83.015		1.608	2.395	
			2.250	20.534	-61.346		1.608	3.787	
			2.250			-1.557			3.894
		MIN							
		3	.000			-8.135			-20.264
			.000	24.554	-123.603		1.144	-.658	
			1.125	19.570	-94.508		1.144	.820	
			2.250	14.586	-73.103		1.144	2.298	
			2.250			-8.135			-20.264
		MAX							
		4	.000			-.355			11.128
			.000	35.772	-107.150		1.659	1.908	
			1.125	29.753	-81.971		1.659	2.963	
			2.250	23.735	-59.526		1.659	4.135	
			2.250			-.355			11.128
		MIN							
		4	.000			-11.319			-29.135
			.000	23.789	-132.211		.887	-.977	
			1.125	18.805	-101.126		.887	.338	
			2.250	13.822	-79.120		.887	1.653	
			2.250			-11.319			-29.135
		MAX & MIN							
		5	.000			-1.191			-2.706

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			.000	35.992	-142.092		.221	-.334	
			1.125	29.973	-104.987		.221	-.086	
			2.250	23.954	-74.653		.221	.162	
			2.250			-1.191			-2.706
		MAX & MIN							
		6	.000			-.318			-3.743
			.000	25.784	-111.016		.059	-.089	
			1.125	20.801	-84.812		.059	-.023	
			2.250	15.817	-64.214		.059	.043	
			2.250			-.318			-3.743
		MAX							
		ALL	.000			-.318			11.128
			.000	35.992	-107.150		1.704	1.908	
			1.125	29.973	-81.971		1.704	2.963	
			2.250	23.954	-59.526		1.704	4.135	
			2.250			-.318			11.128
		MIN							
		ALL	.000			-11.319			-29.135
			.000	23.789	-142.092		.059	-.977	
			1.125	18.805	-104.987		.059	-.086	
			2.250	13.822	-79.120		.059	.043	
			2.250			-11.319			-29.135
28	----------								
		MAX & MIN							
		1	.000			-11.476			-24.682
			.000	37.254	-55.013		1.296	1.057	
			1.125	32.271	-15.905		1.296	2.515	
			2.250	27.287	17.596		1.296	3.973	
			2.250			-11.476			-24.682
		MAX							
		2	.000			-3.762			-18.709
			.000	44.999	-51.006		1.280	1.563	
			1.125	39.394	-9.223		1.280	2.435	
			2.250	33.789	28.444		1.280	3.603	
			2.250			-3.762			-18.709
		MIN							
		2	.000			-10.407			-42.263
			.000	36.109	-63.169		.758	.175	
			1.125	31.125	-23.591		.758	1.330	
			2.250	26.142	10.304		.758	2.486	
			2.250			-10.407			-42.263
		MAX							
		3	.000			-2.362			-17.493
			.000	45.125	-50.013		1.434	1.312	
			1.125	39.520	-8.889		1.434	2.358	
			2.250	33.916	28.920		1.434	3.698	
			2.250			-2.362			-17.493
		MIN							
		3	.000			-9.008			-41.046
			.000	36.235	-62.977		.913	-.077	
			1.125	31.252	-23.256		.913	1.252	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.250	26.268	10.781		.913	2.581	
		2.250			-9.008			-41.046
	MAX							
	4	.000			-1.085			-11.685
		.000	50.554	-48.448		1.449	2.026	
		1.125	44.536	-4.441		1.449	2.711	
		2.250	38.517	36.445		1.449	3.886	
		2.250			-1.085			-11.685
	MIN							
	4	.000			-12.160			-50.942
		.000	35.738	-68.720		.580	-.288	
		1.125	30.754	-28.386		.580	.869	
		2.250	25.771	6.213		.580	2.025	
		2.250			-12.160			-50.942
	MAX & MIN							
	5	.000			-1.493			-29.311
		.000	51.288	-63.259		.147	-.231	
		1.125	45.270	-8.945		.147	-.066	
		2.250	39.251	38.598		.147	.099	
		2.250			-1.493			-29.311
	MAX & MIN							
	6	.000			-.399			-23.955
		.000	37.161	-54.773		.039	-.062	
		1.125	32.177	-15.770		.039	-.018	
		2.250	27.194	17.626		.039	.026	
		2.250			-.399			-23.955
	MAX							
	ALL	.000			-.399			-11.685
		.000	51.288	-48.448		1.449	2.026	
		1.125	45.270	-4.441		1.449	2.711	
		2.250	39.251	38.598		1.449	3.973	
		2.250			-.399			-11.685
	MIN							
	ALL	.000			-12.160			-50.942
		.000	35.738	-68.720		.039	-.288	
		1.125	30.754	-28.386		.039	-.066	
		2.250	25.771	6.213		.039	.026	
		2.250			-12.160			-50.942
29	----------							
	MAX & MIN							
	1	.000			-12.138			-18.780
		.000	27.521	21.881		.779	1.878	
		1.125	22.537	50.038		.779	2.755	
		2.250	17.553	72.909		.779	3.631	
		2.250			-12.138			-18.780
	MAX							
	2	.000			-4.470			-12.235
		.000	33.741	33.515		1.060	1.835	
		1.125	28.136	64.017		1.060	2.465	
		2.250	22.548	89.907		1.060	3.521	
		2.250			-4.470			-12.235

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN							
	2	.000			-11.110			-33.411
		.000	26.273	15.081		.543	.649	
		1.125	21.290	43.868		.543	1.553	
		2.250	16.290	67.049		.543	2.457	
		2.250			-11.110			-33.411
	MAX							
	3	.000			-3.237			-11.430
		.000	33.779	33.840		1.277	1.558	
		1.125	28.174	64.384		1.277	2.434	
		2.250	22.586	90.398		1.277	3.734	
		2.250			-3.237			-11.430
	MIN							
	3	.000			-9.876			-32.613
		.000	26.312	15.405		.760	.372	
		1.125	21.328	44.236		.760	1.521	
		2.250	16.328	67.460		.760	2.670	
		2.250			-9.876			-32.613
	MAX							
	4	.000			-1.804			-5.912
		.000	38.096	41.660		1.230	2.223	
		1.125	32.077	73.959		1.230	2.671	
		2.250	26.086	102.444		1.230	3.828	
		2.250			-1.804			-5.912
	MIN							
	4	.000			-12.870			-41.217
		.000	25.650	10.936		.369	.247	
		1.125	20.666	40.378		.369	1.150	
		2.250	15.656	64.214		.369	2.054	
		2.250			-12.870			-41.217
	MAX & MIN							
	5	.000			-1.640			-23.799
		.000	39.980	44.215		.079	-.133	
		1.125	33.961	85.807		.079	-.044	
		2.250	27.942	120.627		.079	.045	
		2.250			-1.640			-23.799
	MAX & MIN							
	6	.000			-.438			-18.405
		.000	27.479	21.929		.021	-.035	
		1.125	22.496	50.040		.021	-.012	
		2.250	17.512	72.544		.021	.012	
		2.250			-.438			-18.405
	MAX							
	ALL	.000			-.438			-5.912
		.000	39.980	44.215		1.277	2.223	
		1.125	33.961	85.807		1.277	2.755	
		2.250	27.942	120.627		1.277	3.828	
		2.250			-.438			-5.912
	MIN							
	ALL	.000			-12.870			-41.217
		.000	25.650	10.936		.021	-.133	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.125	20.666	40.378		.021	-.044	
		2.250	15.656	64.214		.021	.012	
		2.250			-12.870			-41.217
30	----------							
	MAX & MIN							
	1	.000			-12.468			-6.413
		.000	12.622	73.622		.259	2.558	
		1.125	7.638	85.019		.259	2.849	
		2.250	2.654	90.808		.259	3.141	
		2.250			-12.468			-6.413
	MAX							
	2	.000			-5.257			1.154
		.000	16.308	91.328		.858	2.091	
		1.125	10.703	103.327		.858	2.525	
		2.250	5.520	110.576		.858	3.408	
		2.250			-5.257			1.154
	MIN							
	2	.000			-11.861			-16.849
		.000	11.061	68.282		.343	.981	
		1.125	6.077	80.360		.343	1.657	
		2.250	.672	86.772		.343	2.333	
		2.250			-11.861			-16.849
	MAX							
	3	.000			-4.379			1.450
		.000	16.297	91.661		1.153	1.757	
		1.125	10.693	103.648		1.153	2.523	
		2.250	5.509	110.886		1.153	3.737	
		2.250			-4.379			1.450
	MIN							
	3	.000			-10.982			-16.554
		.000	11.051	68.615		.638	.648	
		1.125	6.067	80.682		.638	1.656	
		2.250	.662	87.082		.638	2.663	
		2.250			-10.982			-16.554
	MAX							
	4	.000			-2.617			6.860
		.000	18.845	103.791		1.029	2.444	
		1.125	12.826	116.281		1.029	2.716	
		2.250	7.510	124.593		1.029	3.737	
		2.250			-2.617			6.860
	MIN							
	4	.000			-13.622			-23.146
		.000	10.100	65.379		.171	.595	
		1.125	5.116	78.003		.171	1.271	
		2.250	-.570	84.919		.171	1.947	
		2.250			-13.622			-23.146
	MAX & MIN							
	5	.000			-1.699			-8.368
		.000	17.645	122.193		.025	-.062	
		1.125	11.626	138.658		.025	-.035	
		2.250	5.608	148.352		.025	-.007	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.250			-1.699			-8.368
	MAX & MIN							
	6	.000			-.453			-6.299
		.000	12.612	73.592		.007	-.017	
		1.125	7.628	84.977		.007	-.009	
		2.250	2.644	90.755		.007	-.002	
		2.250			-.453			-6.299
	MAX							
	ALL	.000			-.453			6.860
		.000	18.845	122.193		1.153	2.558	
		1.125	12.826	138.658		1.153	2.849	
		2.250	7.510	148.352		1.153	3.737	
		2.250			-.453			6.860
	MIN							
	ALL	.000			-13.622			-23.146
		.000	10.100	65.379		.007	-.062	
		1.125	5.116	78.003		.007	-.035	
		2.250	-.570	84.919		.007	-.007	
		2.250			-13.622			-23.146
41	----------							
	MAX & MIN							
	1	.000			.039			-3.315
		.000	36.384	20.614		4.509	-5.195	
		1.167	29.465	59.025		4.509	.056	
		2.333	22.547	89.366		4.509	5.327	
		2.333			.039			-3.315
	MAX							
	2	.000			.207			11.359
		.000	57.351	25.938		4.175	-2.728	
		1.167	44.510	76.931		4.175	.056	
		2.333	33.000	113.953		4.175	4.568	
		2.333			.207			11.359
	MIN							
	2	.000			.157			-20.297
		.000	34.368	20.297		2.048	-4.608	
		1.167	24.931	57.515		2.048	-.020	
		2.333	11.800	86.727		2.048	2.840	
		2.333			.157			-20.297
	MAX							
	3	.000			.311			12.346
		.000	57.336	25.933		4.012	-2.530	
		1.167	44.495	76.909		4.012	.065	
		2.333	32.985	113.914		4.012	4.387	
		2.333			.311			12.346
	MIN							
	3	.000			.261			-19.310
		.000	34.353	20.292		1.886	-4.410	
		1.167	24.916	57.493		1.886	-.012	
		2.333	11.785	86.688		1.886	2.660	
		2.333			.261			-19.310

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
MAX & MIN							
1 .000	.000	.000	.000	.389	.000	.000	.000
MAX 2							
.000	.000	-2.765	126.971	.389	.000	.000	.000
1.167	-9.683	119.709	.000		.000	.000	
2.333	-16.602	104.377	.000		.000	.000	
MIN 5							
.000	.000			.389			.000
MAX & MIN							
1 .000	.000	.731	143.071	.156	.000	.000	-4.548
1.167	-6.187	139.888	.000		4.158	2.077	
2.333	-13.106	128.634	.000		4.158	6.927	
MAX 2							
.000	16.813	179.611	4.285	-1.307			-4.548
1.167	4.642	180.462	4.285	1.635			
2.333	-6.420	165.982	4.285	6.282			
MIN 2							
.000	-6.572	137.261	1.695	-3.013			-16.006
1.167	-17.869	132.702	1.695	1.148			
2.333	-30.143	120.070	1.695	3.604			
MAX 3							
.000	16.798	179.530	4.087	-1.124			-16.006
1.167	4.626	180.363	4.087	1.585			
2.333	-6.435	165.865	4.087	6.001			
MIN 3							
.000	-6.588	137.180	1.497	-2.891			-14.991
1.167	-17.884	132.603	1.497	1.099			
2.333	-30.158	119.953	1.497	3.923			
MAX 4							
.000	27.550	204.053	4.951	-.585			13.252
1.167	11.876	207.610	4.951	1.761			
2.333	-1.947	190.997	4.951	6.950			
MIN 4							
.000	-11.425	133.469	.634	-3.427			-22.151
1.167	-25.641	128.010	.634	.951			
2.333	-41.486	114.479	.634	2.487			
MAX & MIN							
1 .000	.731	143.071	4.158	-2.774			-4.548
1.167	-6.187	139.888	4.158	2.077			
2.333	-13.106	128.634	4.158	6.927			
43 ----------							
.053							-28.897

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
MAX & MIN							
1 .000	.000	.000	.000	.104	.000	.000	.000
MAX 2							
.000	.000	-2.765	126.971	.104	.000	.000	.000
1.167	-9.683	119.709	.000		.000	.000	
2.333	-16.602	104.377	.000		.000	.000	
MIN 5							
.000	.000			.104			.000
MAX & MIN							
1 .000	.000	.731	143.071	.104	.000	.000	.000
1.167	-6.187	139.888	.000		.000	.000	
2.333	-13.106	128.634	.000		.000	.000	
MAX 2							
.000	16.813	179.611	4.285	-1.307			-4.548
1.167	4.642	180.462	4.285	1.635			
2.333	-6.420	165.982	4.285	6.282			
MIN 2							
.000	-6.572	137.261	1.050	-3.013			-16.006
1.167	-17.869	132.702	1.050	1.148			
2.333	-30.143	120.070	1.050	3.604			
MAX 3							
.000	16.798	179.530	4.087	-1.124			-16.006
1.167	4.626	180.363	4.087	1.585			
2.333	-6.435	165.865	4.087	6.001			
MIN 3							
.000	-6.588	137.180	1.497	-2.891			-14.991
1.167	-17.884	132.603	1.497	1.099			
2.333	-30.158	119.953	1.497	3.923			
MAX 4							
.000	27.550	204.053	4.951	-.585			13.252
1.167	11.876	207.610	4.951	1.761			
2.333	-1.947	190.997	4.951	6.950			
MIN 4							
.000	-11.425	133.469	.634	-3.427			-22.151
1.167	-25.641	128.010	.634	.951			
2.333	-41.486	114.479	.634	2.487			
MAX & MIN							
1 .000	.731	143.071	4.723	-2.372			-4.067
1.167	-6.187	139.888	4.723	.712			
2.333	-13.106	128.634	4.723	5.872			
42 ----------							
.015							-29.871

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
MAX & MIN							
1 .000	.000	.000	.000	.104	.000	.000	.000
MAX 2							
.000	.000	-2.765	126.971	.104	.000	.000	.000
1.167	-9.683	119.709	.000		.000	.000	
2.333	-16.602	104.377	.000		.000	.000	
MIN 5							
.000	.000			.104			.000
MAX & MIN							
1 .000	.000	.731	143.071	.104	.000	.000	.000
1.167	-6.187	139.888	.000		.000	.000	
2.333	-13.106	128.634	.000		.000	.000	
MAX 2							
.000	16.813	179.611	4.285	-1.307			-4.548
1.167	4.642	180.462	4.285	1.635			
2.333	-6.420	165.982	4.285	6.282			
MIN 2							
.000	-6.572	137.261	1.050	-3.013			-16.006
1.167	-17.869	132.702	1.050	1.148			
2.333	-30.143	120.070	1.050	3.604			
MAX 3							
.000	16.798	179.530	4.087	-1.124			-16.006
1.167	4.626	180.363	4.087	1.585			
2.333	-6.435	165.865	4.087	6.001			
MIN 3							
.000	-6.588	137.180	1.497	-2.891			-14.991
1.167	-17.884	132.603	1.497	1.099			
2.333	-30.158	119.953	1.497	3.923			
MAX 4							
.000	27.550	204.053	4.951	-.585			13.252
1.167	11.876	207.610	4.951	1.761			
2.333	-1.947	190.997	4.951	6.950			
MIN 4							
.000	-11.425	133.469	.634	-3.427			-22.151
1.167	-25.641	128.010	.634	.951			
2.333	-41.486	114.479	.634	2.487			
MAX & MIN							
1 .000	.731	143.071	4.883	-4.674			-4.067
1.167	-6.187	139.888	4.883	1.023			
2.333	-13.106	128.634	4.883	6.721			
MAX 2							
.000	16.813	179.611	4.723	-2.372			-4.067
1.167	4.642	180.462	4.723	.712			
2.333	-6.420	165.982	4.723	5.872			
MIN 2							
.000	-6.572	137.261	1.311	-3.154			-16.085
1.167	-17.869	132.702	1.311	.990			
2.333	-30.143	120.070	1.311	3.814			
MAX 3							
.000	16.798	179.530	4.321	-1.315			-16.085
1.167	4.626	180.363	4.321	1.474			
2.333	-6.435	165.865	4.321	5.763			
MIN 3							
.000	-6.588	137.180	1.496	-2.981			-14.991
1.167	-17.884	132.603	1.496	1.099			
2.333	-30.158	119.953	1.496	3.923			
MAX 4							
.000	27.550	204.053	4.951	-.585			13.252
1.167	11.876	207.610	4.951	1.761			
2.333	-1.947	190.997	4.951	6.950			
MIN 4							
.000	-11.425	133.469	.917	-3.427			-22.151
1.167	-25.641	128.010	.917	.951			
2.333	-41.486	114.479	.917	2.487			
MAX & MIN							
1 .000	.731	143.071	4.883	-4.674			-4.067
1.167	-6.187	139.888	4.883	1.023			
2.333	-13.106	128.634	4.883	6.721			
41 ----------							
.015							-29.871

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
MAX & MIN							
1 .000	.000	.000	.000	.619	.000	.000	.000
MIN 2							
.000	.000	-2.765	126.971	.619	.000	.000	.000
1.167	-9.683	119.709	.000		.000	.000	
2.333	-16.602	104.377	.000		.000	.000	
MAX 5							
.000	.000			.619			.000
MAX & MIN							
1 .000	.000	.731	143.071	.619	.000	.000	.000
1.167	-6.187	139.888	.000		.000	.000	
2.333	-13.106	128.634	.000		.000	.000	
MIN 2							
.000	16.813	179.611	4.285	-1.307			-4.548
1.167	4.642	180.462	4.285	1.635			
2.333	-6.420	165.982	4.285	6.282			
MAX 3							
.000	16.798	179.530	4.087	-1.124			-16.006
1.167	4.626	180.363	4.087	1.585			
2.333	-6.435	165.865	4.087	6.001			
MIN 3							
.000	-6.588	137.180	1.497	-2.891			-14.991
1.167	-17.884	132.603	1.497	1.099			
2.333	-30.158	119.953	1.497	3.923			
MAX 4							
.000	27.550	204.053	4.951	-.585			13.252
1.167	11.876	207.610	4.951	1.761			
2.333	-1.947	190.997	4.951	6.950			
MIN 4							
.000	-11.425	133.469	.634	-3.427			-22.151
1.167	-25.641	128.010	.634	.951			
2.333	-41.486	114.479	.634	2.487			
MAX & MIN							
1 .000	.731	143.071	4.723	-2.372			-4.067
1.167	-6.187	139.888	4.723	.712			
2.333	-13.106	128.634	4.723	5.872			
40 ----------							
.053							-28.897

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
MAX & MIN							
1 .000	.000	.000	.000	2.106	.000	.000	16.781
MAX 2							
.000	.000	-2.765	126.971	2.106	.000	.000	-11.288
1.167	-9.683	119.709	.000		.000	.000	
2.333	-16.602	104.377	.000		.000	.000	
MIN 5							
.000	.000			2.423			-11.288
MAX & MIN							
1 .000	.000	.731	143.071	2.423	.000	.000	-11.288
1.167	-6.187	139.888	.000		1.051	1.364	
2.333	-13.106	128.634	.000		1.051	3.060	
MAX 2							
.000	16.813	179.611	4.285	-1.307			-4.548
1.167	4.642	180.462	4.285	1.635			
2.333	-6.420	165.982	4.285	6.282			
MIN 2							
.000	-6.572	137.261	1.050	-3.013			-16.006
1.167	-17.869	132.702	1.050	1.148			
2.333	-30.143	120.070	1.050	3.604			
MAX 3							
.000	16.798	179.530	4.087	-1.124			-16.006
1.167	4.626	180.363	4.087	1.585			
2.333	-6.435	165.865	4.087	6.001			
MIN 3							
.000	-6.588	137.180	1.497	-2.891			-14.991
1.167	-17.884	132.603	1.497	1.099			
2.333	-30.158	119.953	1.497	3.923			
MAX 4							
.000	27.550	204.053	4.951	-.585			13.252
1.167	11.876	207.610	4.951	1.761			
2.333	-1.947	190.997	4.951	6.950			
MIN 4							
.000	-11.425	133.469	.634	-3.427			-22.151
1.167	-25.641	128.010	.634	.951			
2.333	-41.486	114.479	.634	2.487			
MAX & MIN							
1 .000	.731	143.071	4.723	-2.372			-4.067
1.167	-6.187	139.888	4.723	.712			
2.333	-13.106	128.634	4.723	5.872			
39 ----------							
.053							-28.897

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
MAX & MIN							
1 .000	.000	.000	.000	.808	.000	.000	9.705
MAX 2							
.000	.000	-2.765	126.971	.808	.000	.000	-11.288
1.167	-9.683	119.709	.000		.000	.000	
2.333	-16.602	104.377	.000		.000	.000	
MIN 5							
.000	.000			.808			-11.288
MAX & MIN							
1 .000	.000	.731	143.071	.808	.000	.000	-11.288
1.167	-6.187	139.888	.000		1.051	1.364	
2.333	-13.106	128.634	.000		1.051	3.060	
MAX 2							
.000	16.813	179.611	4.285	-1.307			-4.548
1.167	4.642	180.462	4.285	1.635			
2.333	-6.420	165.982	4.285	6.282			
MIN 2							
.000	-6.572	137.261	1.050	-3.013			-16.006
1.167	-17.869	132.702	1.050	1.148			
2.333	-30.143	120.070	1.050	3.604			
MAX 3							
.000	16.798	179.530	4.087	-1.124			-16.006
1.167	4.626	180.363	4.087	1.585			
2.333	-6.435	165.865	4.087	6.001			
MIN 3							
.000	-6.588	137.180	1.497	-2.891			-14.991
1.167	-17.884	132.603	1.497	1.099			
2.333	-30.158	119.953	1.497	3.923			
MAX 4							
.000	27.550	204.053	4.951	-.585			13.252
1.167	11.876	207.610	4.951	1.761			
2.333	-1.947	190.997	4.951	6.950			
MIN 4							
.000	-11.425	133.469	.634	-3.427			-22.151
1.167	-25.641	128.010	.634	.951			
2.333	-41.486	114.479	.634	2.487			
MAX & MIN							
1 .000	.731	143.071	4.883	-4.674			-4.067
1.167	-6.187	139.888	4.883	1.023			
2.333	-13.106	128.634	4.883	6.721			
38 ----------							
.015							-29.871

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
MAX & MIN							
1 .000	.000	.000	.000	.497	.000	.000	9.705
MAX 2							
.000	.000	-2.765	126.971	.497	.000	.000	-11.288
1.167	-9.683	119.709	.000		.000	.000	
2.333	-16.602	104.377	.000		.000	.000	
MIN 5							
.000	.000			.497			-11.288
MAX & MIN							
1 .000	.000	.731	143.071	.497	.000	.000	-11.288
1.167	-6.187	139.888	.000		1.051	1.364	
2.333	-13.106	128.634	.000		1.051	3.060	
MAX 2							
.000	16.813	179.611	4.285	-1.307			-4.548
1.167	4.642	180.462	4.285	1.635			
2.333	-6.420	165.982	4.285	6.282			
MIN 2							
.000	-6.572	137.261	1.050	-3.013			-16.006
1.167	-17.869	132.702	1.050	1.148			
2.333	-30.143	120.070	1.050	3.604			
MAX 3							
.000	16.798	179.530	4.087	-1.124			-16.006
1.167	4.626	180.363	4.087	1.585			
2.333	-6.435	165.865	4.087	6.001			
MIN 3							
.000	-6.588	137.180	1.497	-2.891			-14.991
1.167	-17.884	132.603	1.497	1.099			
2.333	-30.158	119.953	1.497	3.923			
MAX 4							
.000	27.550	204.053	4.951	-.585			13.252
1.167	11.876	207.610	4.951	1.761			
2.333	-1.947	190.997	4.951	6.950			
MIN 4							
.000	-11.425	133.469	.634	-3.427			-22.151
1.167	-25.641	128.010	.634	.951			
2.333	-41.486	114.479	.634	2.487			
MAX & MIN							
1 .000	.731	143.071	4.723	-2.372			-4.067
1.167	-6.187	139.888	4.723	.712			
2.333	-13.106	128.634	4.723	5.872			
37 ----------							
.053							-28.897

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
MAX & MIN							
1 .000	.000	.000	.000	.311	.000	.000	22.889
MAX 2							
.000	.000	-2.765	126.971	.311	.000	.000	-11.288
1.167	-9.683	119.709	.000		.000	.000	
2.333	-16.602	104.377	.000		.000	.000	
MIN 5							
.000	.000			.311			-11.288
MAX & MIN							
1 .000	.000	.731	143.071	.311	.000	.000	-11.288
1.167	-6.187	139.888	.000		1.051	1.364	
2.333	-13.106	128.634	.000		1.051	3.060	
MAX 2							
.000	16.813	179.611	4.721	-1.941			-4.548
1.167	4.642	180.462	4.721	.090			
2.333	-6.420	165.982	4.721	5.000			
MIN 2							
.000	-6.572	137.261	1.177	-5.074			-29.871
1.167	-17.869	132.702	1.177	-.037			
2.333	-30.143	120.070	1.177	2.121			
MAX 3							
.000	16.798	179.530	4.723	-1.315			-16.085
1.167	4.626	180.363	4.723	1.474			
2.333	-6.435	165.865	4.723	5.763			
MIN 3							
.000	-6.588	137.180	1.496	-2.981			-14.991
1.167	-17.884	132.603	1.496	1.099			
2.333	-30.158	119.953	1.496	3.923			
MAX 4							
.000	27.550	204.053	4.951	-.585			13.252
1.167	11.876	207.610	4.951	1.761			
2.333	-1.947	190.997	4.951	6.950			
MIN 4							
.000	-11.425	133.469	.917	-3.427			-22.151
1.167	-25.641	128.010	.917	.951			
2.333	-41.486	114.479	.917	2.487			
MAX & MIN							
1 .000	.731	143.071	4.883	-4.674			-4.067
1.167	-6.187	139.888	4.883	1.023			
2.333	-13.106	128.634	4.883	6.721			
36 ----------							
.015							-29.871

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
MAX & MIN							
1 .000	.000	.000	.000	.311	.000	.000	22.889
MAX 2							
.000	.000	-2.765	126.971	.311	.000	.000	-11.288
1.167	-9.683	119.709	.000		.000	.000	
2.333	-16.602	104.377	.000		.000	.000	
MIN 5							
.000	.000			.311			-11.288
MAX & MIN							
1 .000	.000	.731	143.071	.311	.000	.000	-11.288
1.167	-6.187	139.888	.000		1.051	1.364	
2.333	-13.106	128.634	.000		1.051	3.060	
MAX 2							
.000	16.813	179.611	4.721	-1.941			-4.548
1.167	4.642	180.462	4.721	.090			
2.333	-6.420	165.982	4.721	5.000			
MIN 2							
.000	-6.572	137.261	1.177	-5.074			-29.871
1.167	-17.869	132.702	1.177	-.037			
2.333	-30.143	120.070	1.177	2.121			
MAX 3							
.000	16.798	179.530	4.723	-1.315			-16.085
1.167	4.626	180.363	4.723	1.474			
2.333	-6.435	165.865	4.723	5.763			
MIN 3							
.000	-6.588	137.180	1.496	-2.981			-14.991
1.167	-17.884	132.603	1.496	1.099			
2.333	-30.158	119.953	1.496	3.923			
MAX 4							
.000	27.550	204.053	4.951	-.585			13.252
1.167	11.876	207.610	4.951	1.761			
2.333	-1.947	190.997	4.951	6.950			
MIN 4							
.000	-11.425	133.469	.917	-3.427			-22.151
1.167	-25.641	128.010	.917	.951			
2.333	-41.486	114.479	.917	2.487			
MAX & MIN							
1 .000	.731	143.071	4.883	-4.674			-4.067
1.167	-6.187	139.888	4.883	1.023			
2.333	-13.106	128.634	4.883	6.721			
35 ----------							
.053							-28.897

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

REPOSITION 304+27.7, 3 VANOS 14+18+14 FILE:304277

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
46 MAX & MIN							
1	.000	-132.847	-38.380	.543			-6.545
	1.167	-139.765	-197.404		1.767	3.053	
	2.333	-146.684	-364.499		1.767	5.114	
MAX 1	.000	-125.988	-13.334	4.753			42.795
	1.167	-139.311	-192.946		4.070	4.499	
	2.333	-146.454	-361.006		4.070	8.548	
MIN 1	.000	-132.847	-38.380	.543			-6.545
	1.167	-139.765	-197.404		1.767	3.053	
	2.333	-146.684	-364.499		1.767	5.114	
2	.000	-170.866	-58.499	1.656			-36.063
	1.167	-184.858	-235.953		-1.227	.385	
	2.333	-196.180	-435.346		-1.227	-.049	
MAX 2	.000	-142.107	-70.647	1.947			.000
	1.167	-149.026	-240.475		.000	.000	
	2.333	-155.944	-418.374		.000	.000	
MIN 2	.000	-159.345	-50.615	.520			-22.232
	1.167	-166.908	-220.798		.073	1.353	
	2.333	-176.469	-407.374		.073	2.037	
3	.000	-128.963	-23.789	4.753			24.472
	1.167	-139.225	-195.436		3.010	3.554	
	2.333	-146.778	-363.381		3.010	6.671	
MAX 3	.000	-159.490	-50.888	-.168	.339		-22.843
	1.167	-167.052	-221.240		-.168	1.110	
	2.333	-176.613	-407.984		-.168	1.513	
MIN 3	.000	-125.988	-13.334	4.070	.819		42.795
	1.167	-139.311	-192.946		4.070	4.499	
	2.333	-146.454	-361.006		4.070	8.548	
4	.000	-176.866	-58.499	1.656			-36.063
	1.167	-184.858	-235.953		-1.227	.385	
	2.333	-196.180	-435.346		-1.227	-.049	
MAX 4	.000	-142.107	-70.647	1.947			.000
	1.167	-149.026	-240.475		.000	.000	
	2.333	-155.944	-418.374		.000	.000	
MIN 4	.000	-159.345	-50.615	.520			-22.232
	1.167	-166.908	-220.798		.073	1.353	
	2.333	-176.469	-407.374		.073	2.037	
5	.000	-128.963	-23.789	4.753			24.472
	1.167	-139.225	-195.436		3.010	3.554	
	2.333	-146.778	-363.381		3.010	6.671	
MAX 5	.000	-159.490	-50.888	-.168	.339		-22.843
	1.167	-167.052	-221.240		-.168	1.110	
	2.333	-176.613	-407.984		-.168	1.513	
MIN 5	.000	-125.988	-13.334	4.070	.819		42.795
	1.167	-139.311	-192.946		4.070	4.499	
	2.333	-146.454	-361.006		4.070	8.548	
6	.000	-176.866	-58.499	1.656			-36.063
	1.167	-184.858	-235.953		-1.227	.385	
	2.333	-196.180	-435.346		-1.227	-.049	
MAX 6	.000	-142.107	-70.647	1.947			.000
	1.167	-149.026	-240.475		.000	.000	
	2.333	-155.944	-418.374		.000	.000	
MIN 6	.000	-159.345	-50.615	.520			-22.232
	1.167	-166.908	-220.798		.073	1.353	
	2.333	-176.469	-407.374		.073	2.037	
7	.000	-128.963	-23.789	4.753			24.472
	1.167	-139.225	-195.436		3.010	3.554	
	2.333	-146.778	-363.381		3.010	6.671	
MAX 7	.000	-159.490	-50.888	-.168	.339		-22.843
	1.167	-167.052	-221.240		-.168	1.110	
	2.333	-176.613	-407.984		-.168	1.513	
MIN 7	.000	-125.988	-13.334	4.070	.819		42.795
	1.167	-139.311	-192.946		4.070	4.499	
	2.333	-146.454	-361.006		4.070	8.548	

REPOSITION 304+27.7, 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
45 MAX & MIN							
1	.000	-55.366	82.331	.338			-5.566
	1.167	-62.284	13.702		2.660	3.054	
	2.333	-69.202	-62.998		2.660	6.156	
MAX 1	.000	-39.168	112.822	.181			-16.013
	1.167	-53.205	79.340		.000	.000	
	2.333	-68.813	37.786		.000	-2.144	
MIN 1	.000	-132.847	-38.380	.543			-6.545
	1.167	-139.765	-197.404		1.767	3.053	
	2.333	-146.684	-364.499		1.767	5.114	
2	.000	-170.866	-58.499	1.656			-36.063
	1.167	-184.858	-235.953		-1.227	.385	
	2.333	-196.180	-435.346		-1.227	-.049	
MAX 2	.000	-142.107	-70.647	1.947			.000
	1.167	-149.026	-240.475		.000	.000	
	2.333	-155.944	-418.374		.000	.000	
MIN 2	.000	-159.345	-50.615	.520			-22.232
	1.167	-166.908	-220.798		.073	1.353	
	2.333	-176.469	-407.374		.073	2.037	
3	.000	-128.963	-23.789	4.753			24.472
	1.167	-139.225	-195.436		3.010	3.554	
	2.333	-146.778	-363.381		3.010	6.671	
MAX 3	.000	-159.490	-50.888	-.168	.339		-22.843
	1.167	-167.052	-221.240		-.168	1.110	
	2.333	-176.613	-407.984		-.168	1.513	
MIN 3	.000	-125.988	-13.334	4.070	.819		42.795
	1.167	-139.311	-192.946		4.070	4.499	
	2.333	-146.454	-361.006		4.070	8.548	
4	.000	-176.866	-58.499	1.656			-36.063
	1.167	-184.858	-235.953		-1.227	.385	
	2.333	-196.180	-435.346		-1.227	-.049	
MAX 4	.000	-142.107	-70.647	1.947			.000
	1.167	-149.026	-240.475		.000	.000	
	2.333	-155.944	-418.374		.000	.000	
MIN 4	.000	-159.345	-50.615	.520			-22.232
	1.167	-166.908	-220.798		.073	1.353	
	2.333	-176.469	-407.374		.073	2.037	
5	.000	-128.963	-23.789	4.753			24.472
	1.167	-139.225	-195.436		3.010	3.554	
	2.333	-146.778	-363.381		3.010	6.671	
MAX 5	.000	-159.490	-50.888	-.168	.339		-22.843
	1.167	-167.052	-221.240		-.168	1.110	
	2.333	-176.613	-407.984		-.168	1.513	
MIN 5	.000	-125.988	-13.334	4.070	.819		42.795
	1.167	-139.311	-192.946		4.070	4.499	
	2.333	-146.454	-361.006		4.070	8.548	
6	.000	-176.866	-58.499	1.656			-36.063
	1.167	-184.858	-235.953		-1.227	.385	
	2.333	-196.180	-435.346		-1.227	-.049	
MAX 6	.000	-142.107	-70.647	1.947			.000
	1.167	-149.026	-240.475		.000	.000	
	2.333	-155.944	-418.374		.000	.000	
MIN 6	.000	-159.345	-50.615	.520			-22.232
	1.167	-166.908	-220.798		.073	1.353	
	2.333	-176.469	-407.374		.073	2.037	
7	.000	-128.963	-23.789	4.753			24.472
	1.167	-139.225	-195.436		3.010	3.554	
	2.333	-146.778	-363.381		3.010	6.671	
MAX 7	.000	-159.490	-50.888	-.168	.339		-22.843
	1.167	-167.052	-221.240		-.168	1.110	
	2.333	-176.613	-407.984		-.168	1.513	
MIN 7	.000	-125.988	-13.334	4.070	.819		42.795
	1.167	-139.311	-192.946		4.070	4.499	
	2.333	-146.454	-361.006		4.070	8.548	

REPOSITION 304+27.7, 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
47 MAX & MIN							
1	.000	157.292	-385.461	-1.188			2.474
	.000	146.621	-216.760		2.853	2.584	
	2.250	139.949	-55.564		2.853	5.793	
MAX 1	.000	182.581	-377.704	-1.188			2.474
	1.125	174.616	-211.688		2.132	3.472	
	2.250	167.323	-40.975		2.132	4.791	
MIN 1	.000	151.047	-428.805	.616			-44.573
	1.125	144.436	-240.966		1.032	1.106	
	2.250	135.707	-65.935		1.032	3.105	
2	.000	182.391	-376.910	4.394			24.177
	1.125	174.425	-211.108		2.165	3.246	
	2.250	167.133	-40.610		2.165	4.603	
MAX 2	.000	150.854	-428.011	2.520			-39.053
	1.125	144.246	-240.386		1.065	.800	
	2.250	135.516	-65.570		1.065	2.916	
MIN 2	.000	202.298	-373.327	3.041			44.825
	1.125	193.470	-208.886		2.500	3.999	
	.000				2.500	4.150	
MAX 4	.000						
	2.250						
MIN 4	.000	-78.564	52.993	.307			-22.054
	1.167	-92.370	-19.261		-.223	-1.003	
	2.333	-107.627	-99.585		-.223	.000	
MAX 5	.000	-58.472	52.993	1.148			.000
	1.167	-65.390	-19.261		.000	.000	
	2.333	-72.309	-99.585		.000	.000	
MIN 5	.000	-95.366	82.331	.307			.000
	1.167	-62.284	13.702		.000	.000	
	2.333	-69.202	-62.998		.000	.000	
MAX 6	.000	-38.168	133.028	3.777			27.648
	1.167	-52.920	94.354		3.997	3.075	
	2.333	-65.616	-41.033		3.997	7.151	
MIN 6	.000	-69.372	71.489	2.981			-14.794
	1.167	-80.423	1.500		.621	1.475	
	2.333	-92.345	-76.561		.621	2.665	
MAX 3	.000	-45.133	112.514	3.777			15.027
	1.167	-56.753	37.755		3.153	2.650	
	2.333	-67.138	-50.260		3.153	5.977	
MIN 3	.000	-92.290	-76.285	1.743			-15.170
	2.333				.815	3.012	
MAX 7	.000						
	2.333						
MIN 7	.000	-78.564	52.993	.307			-22.054
	1.167	-92.370	-19.261		-.223	-1.003	
	2.333	-107.627	-99.585		-.223	.000	

REPOSITION 304+27.7, 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
48 MAX & MIN							
1	.000	-69.317	71.696	-.784			-15.170
	1.167	-80.369	1.711		.815	1.596	
	2.333						
MAX 1	.000	-45.078	112.661	.179			14.652
	1.167	-56.699	37.967		3.347	2.771	
	2.333	-67.083	-49.984		3.347	6.324	
MIN 1	.000	-92.290	-76.285	1.743			-15.170
	1.167	-80.369	1.711		.815	1.596	
	2.333						
2	.000	-95.366	82.331	.338			-5.566
	1.167	-62.284	13.702		2.660	3.054	
	2.333	-69.202	-62.998		2.660	6.156	
MAX 2	.000	-39.168	112.822	.181			-16.013
	1.167	-53.205	79.340		.000	.000	
	2.333	-68.813	37.786		.000	-2.144	
MIN 2	.000	-125.988	-13.334	4.070	.819		42.795
	1.167	-139.311	-192.946		4.070	4.499	
	2.333	-146.454	-361.006		4.070	8.548	
3	.000	-176.866	-58.499	1.656			-36.063
	1.167	-184.858	-235.953		-1.227	.385	
	2.333	-196.180	-435.346		-1.227	-.049	
MAX 3	.000	-142.107	-70.647	1.947			.000
	1.167	-149.026	-240.475		.000	.000	
	2.333	-155.944	-418.374		.000	.000	
MIN 3	.000	-159.345	-50.615	.520			-22.232
	1.167	-166.908	-220.798		.073	1.353	
	2.333	-176.469	-407.374		.073	2.037	
4	.000	-128.963	-23.789	4.753			24.472
	1.167	-139.225	-195.436		3.010	3.554	
	2.333	-146.778	-363.381		3.010	6.671	
MAX 4	.000	-159.490	-50.888	-.168	.339		-22.843
	1.167	-167.052	-221.240		-.168	1.110	
	2.333	-176.613	-407.984		-.168	1.513	
MIN 4	.000	-125.988	-13.334	4.070	.819		42.795
	1.167	-139.311	-192.946		4.070	4.499	
	2.333	-146.454	-361.006		4.070	8.548	
5	.000	-176.866	-58.499	1.656			-36.063
	1.167	-184.858	-235.953		-1.227	.385	
	2.333	-196.180	-435.346		-1.227	-.049	
MAX 5	.000	-142.107	-70.647	1.947			.000
	1.167	-149.026	-240.475		.000	.000	
	2.333	-155.944	-418.374		.000	.000	
MIN 5	.000	-159.345	-50.615	.520			-22.232
	1.167	-166.908	-220.798		.073	1.353	
	2.333	-176.469	-407.374		.073	2.037	
6	.000	-128.963	-23.789	4.753			24.472
	1.167	-139.225	-195.436		3.010	3.554	
	2.333	-146.778	-363.381		3.010	6.671	
MAX 6	.000	-159.490	-50.888	-.168	.339		-22.843
	1.167	-167.052	-221.240		-.168	1.110	
	2.333	-176.613	-407.984		-.168	1.513	
MIN 6	.000	-125.988	-13.334	4.070	.819		42.795
	1.167	-139.311	-192.946		4.070	4.499	
	2.333	-146.454	-361.006		4.070	8.548	
7	.000	-176.866	-58.499	1.656			-36.063
	1.167	-184.858	-235.953		-1.227	.385	
	2.333	-196.180	-435.346		-1.227	-.049	
MAX 7	.000	-142.107	-70.647	1.947			.000
	1.167	-149.026	-240.475		.000	.000	
	2.333	-155.944	-418.374		.000	.000	
MIN 7	.000	-159.345	-50.615	.520			-22.232
	1.167	-166.908	-220.798		.073	1.353	
	2.333	-176.469	-407.374		.073	2.037	

REPOSITION 304+27.7, 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
49 MAX & MIN							
1	.000	.384	200.264	.105			16.781
	1.167	-14.959	168.285		4.440	2.682	
	2.333	-28.391	117.450		4.440	7.051	
MAX 1	.000	-39.168	112.822	.181			-16.013
	1.167	-53.205	79.340		.000	.000	
	2.333	-68.813	37.786		.000	-2.144	
MIN 1	.000	-125.988	-13.334	4.070	.819		42.795
	1.167	-139.311	-192.946		4.070	4.499	
	2.333	-146.454	-361.006		4.070	8.548	
2	.000	-176.866	-58.499	1.656			-36.063
	1.167	-184.858	-235.953		-1.227	.385	
	2.333	-196.180	-435.346		-1.227	-.049	
MAX 2	.000	-142.107	-70.647	1.947			.000
	1.167	-149.026	-240.475		.000	.000	
	2.333	-155.944	-418.374		.000	.000	
MIN 2	.000	-159.345	-50.615	.520			-22.232
	1.167	-166.908	-220.798		.073	1.353	
	2.333	-176.469	-407.374		.073	2.037	
3	.000	-128.963	-23.789	4.753			24.472
	1.167	-139.225	-195.436		3.010	3.554	
	2.333	-146.778	-363.381		3.010	6.671	
MAX 3	.000	-159.490	-50.888	-.168	.339		-22.843
	1.167	-167.052	-221.240		-.168	1.110	
	2.333	-176.613	-407.984		-.168	1.513	
MIN 3	.000	-125.988	-13.334	4.070	.819		42.795
	1.167	-139.311	-192.946		4.070	4.499	
	2.333	-146.454	-361.006		4.070	8.548	
4	.000	-176.866	-58.499	1.656			-36.063
	1.167	-184.858	-235.953		-1.227	.385	
	2.333	-196.180	-435.346		-1.227	-.049	
MAX 4	.000	-142.107	-70.647	1.947			.000
	1.167	-149.026	-240.475		.000	.000	
	2.333	-155.944	-418.374		.000	.000	
MIN 4	.000	-159.345	-50.615	.520			-22.232
	1.167	-166.908	-220.798		.073	1.353	
	2.333	-176.469	-407.374		.073	2.037	
5	.000	-128.963	-23.789	4.753			24.472
	1.167	-139.225	-195.436		3.010	3.554	
	2.333	-146.778	-363.381		3.010	6.671	
MAX 5	.000	-159.490	-50.888	-.168	.339		-22.843
	1.167	-167.052	-221.240		-.168	1.110	
	2.333	-176.613	-407.984		-.168	1.513	
MIN 5	.000	-125.988	-13.334	4.070	.819		42.795
	1.167	-139.311	-192.946		4.070	4.499	
	2.333	-146.454	-361.006		4.070	8.548	
6	.000	-176.866	-58.499	1.656			-36.063
	1.167	-184.858	-235.953		-1.227	.385	
	2.333	-196.180	-435.346		-1.227	-.049	
MAX 6	.000	-142.107	-70.647	1.947			.000
	1.167	-149.026	-240.475		.000	.000	
	2.333	-155.944	-418.374		.000	.000	
MIN 6	.000	-159.345	-50.615	.520			-22.232
	1.167	-166.908	-220.798		.073	1.353	
	2.333	-176.469	-407.374		.073	2.037	
7	.000	-128.963	-23.789	4.753			24.472
	1.167	-139.225	-195.436		3.010	3.554	
	2.333	-146.778	-363.381		3.010	6.671	
MAX 7	.000	-159.490	-50.888	-.168	.339		-22.843
	1.167	-167.052	-221.240		-.168	1.110	
	2.333	-176.613	-407.984		-.168	1.513	
MIN 7	.000	-125.988	-13.334	4.070	.819		42.795
	1.167	-139.311	-192.946		4.070	4.499	
	2.333	-146.454	-361.006		4.070	8.548	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.250	185.764	-31.615		2.500	5.165	
		2.250			3.041			44.825
	MIN							
	4	.000			-.082			-60.558
		.000	149.740	-458.495		.667	-1.941	
		1.125	143.171	-257.683		.667	.207	
		2.250	133.069	-73.215		.667	2.354	
		2.250			-.082			-60.558
	MAX & MIN							
	5	.000			-4.514			.000
		.000	200.132	-501.986		.000	.000	
		1.125	192.426	-281.172		.000	.000	
		2.250	184.720	-69.028		.000	.000	
		2.250			-4.514			.000
	MAX & MIN							
	6	.000			-1.205			.000
		.000	153.292	-385.460		.000	.000	
		1.125	146.621	-216.760		.000	.000	
		2.250	139.949	-55.564		.000	.000	
		2.250			-1.205			.000
	MAX							
	ALL	.000			4.394			44.825
		.000	202.298	-373.327		2.853	3.399	
		1.125	193.470	-208.886		2.853	4.150	
		2.250	185.764	-31.615		2.853	5.793	
		2.250			4.394			44.825
	MIN							
	ALL	.000			-4.514			-60.558
		.000	149.740	-501.986		.000	-1.941	
		1.125	143.171	-281.172		.000	.000	
		2.250	133.069	-73.215		.000	.000	
		2.250			-4.514			-60.558
48	----------							
	MAX & MIN							
	1	.000			-.992			1.466
		.000	73.438	-74.991		1.756	1.738	
		1.125	66.767	3.875		1.756	3.713	
		2.250	60.096	75.235		1.756	5.689	
		2.250			-.992			1.466
	MAX							
	2	.000			3.060			12.901
		.000	96.385	-62.126		1.423	2.523	
		1.125	84.966	27.215		1.423	3.370	
		2.250	74.380	104.438		1.423	4.640	
		2.250			3.060			12.901
	MIN							
	2	.000			1.558			-32.894
		.000	71.151	-86.208		.739	.753	
		1.125	61.155	-6.458		.739	1.929	
		2.250	50.010	65.802		.739	3.105	
		2.250			1.558			-32.894

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX							
	3	.000			5.339			16.687
		.000	96.297	-61.754		1.419	2.376	
		1.125	84.878	27.489		1.419	3.218	
		2.250	74.292	104.612		1.419	4.483	
		2.250			5.339			16.687
	MIN							
	3	.000			3.838			-29.108
		.000	71.064	-85.835		.735	.606	
		1.125	61.067	-6.184		.735	1.777	
		2.250	49.923	65.977		.735	2.947	
		2.250			3.838			-29.108
	MAX							
	4	.000			3.485			31.011
		.000	111.770	-53.922		1.658	3.118	
		1.125	97.186	42.502		1.658	3.725	
		2.250	83.991	123.731		1.658	5.038	
		2.250			3.485			31.011
	MIN							
	4	.000			.983			-45.314
		.000	69.714	-94.058		.518	.167	
		1.125	57.501	-13.620		.518	1.323	
		2.250	43.374	59.339		.518	2.479	
		2.250			.983			-45.314
	MAX & MIN							
	5	.000			-3.767			.000
		.000	101.985	-92.199		.000	.000	
		1.125	94.279	18.199		.000	.000	
		2.250	86.573	119.928		.000	.000	
		2.250			-3.767			.000
	MAX & MIN							
	6	.000			-1.006			.000
		.000	73.438	-74.991		.000	.000	
		1.125	66.767	3.875		.000	.000	
		2.250	60.096	75.235		.000	.000	
		2.250			-1.006			.000
	MAX							
	ALL	.000			5.339			31.011
		.000	111.770	-53.922		1.756	3.118	
		1.125	97.186	42.502		1.756	3.725	
		2.250	86.573	123.731		1.756	5.689	
		2.250			5.339			31.011
	MIN							
	ALL	.000			-3.767			-45.314
		.000	69.714	-94.058		.000	.000	
		1.125	57.501	-13.620		.000	.000	
		2.250	43.374	59.339		.000	.000	
		2.250			-3.767			-45.314
49	----------							
	MAX & MIN							
	1	.000			-.887			.819

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	39.048	65.954		1.035	2.848	
		1.125	32.377	106.130		1.035	4.013	
		2.250	25.705	138.801		1.035	5.177	
		2.250			-.887			.819
	MAX							
	2	.000			3.942			9.434
		.000	58.748	94.209		.979	3.057	
		1.125	47.184	142.013		.979	3.413	
		2.250	36.534	176.738		.979	4.333	
		2.250			3.942			9.434
	MIN							
	2	.000			2.652			-23.459
		.000	34.398	56.344		.298	1.435	
		1.125	23.982	97.420		.298	2.127	
		2.250	12.523	130.991		.298	2.820	
		2.250			2.652			-23.459
	MAX							
	3	.000			6.814			11.671
		.000	58.700	94.400		.976	2.917	
		1.125	47.136	142.151		.976	3.270	
		2.250	36.486	176.822		.976	4.187	
		2.250			6.814			11.671
	MIN							
	3	.000			5.524			-21.223
		.000	34.350	56.535		.295	1.295	
		1.125	23.934	97.557		.295	1.985	
		2.250	12.475	131.074		.295	2.674	
		2.250			5.524			-21.223
	MAX							
	4	.000			4.293			21.360
		.000	71.929	112.854		1.210	3.584	
		1.125	57.103	165.798		1.210	3.703	
		2.250	43.800	201.946		1.210	4.762	
		2.250			4.293			21.360
	MIN							
	4	.000			2.143			-33.463
		.000	31.346	49.746		.074	.880	
		1.125	18.433	91.475		.074	1.560	
		2.250	3.782	125.700		.074	2.240	
		2.250			2.143			-33.463
	MAX & MIN							
	5	.000			-3.365			.000
		.000	60.806	107.824		.000	.000	
		1.125	53.100	171.896		.000	.000	
		2.250	45.394	227.299		.000	.000	
		2.250			-3.365			.000
	MAX & MIN							
	6	.000			-.898			.000
		.000	39.048	65.954		.000	.000	
		1.125	32.377	106.130		.000	.000	
		2.250	25.705	138.801		.000	.000	

PROGRAM:SAP90/FILE:304277.F3F

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.250			-.898			.000
	MAX							
	ALL	.000			6.814			21.360
		.000	71.929	112.854		1.210	3.584	
		1.125	57.103	171.896		1.210	4.013	
		2.250	45.394	227.299		1.210	5.177	
		2.250			6.814			21.360
	MIN							
	ALL	.000			-3.365			-33.463
		.000	31.346	49.746		.000	.000	
		1.125	18.433	91.475		.000	.000	
		2.250	3.782	125.700		.000	.000	
		2.250			-3.365			-33.463
50	----------							
	MAX & MIN							
	1	.000			-.841			.267
		.000	17.024	136.423		.346	3.736	
		1.125	10.352	151.822		.346	4.125	
		2.250	3.681	159.716		.346	4.514	
		2.250			-.841			.267
	MAX							
	2	.000			5.382			7.734
		.000	34.459	174.077		.557	3.537	
		1.125	22.846	194.079		.557	3.448	
		2.250	12.189	200.634		.557	3.961	
		2.250			5.382			7.734
	MIN							
	2	.000			4.198			-14.526
		.000	10.458	128.652		-.134	1.969	
		1.125	-.128	145.147		-.134	2.201	
		2.250	-11.709	154.137		-.134	2.433	
		2.250			4.198			-14.526
	MAX							
	3	.000			9.227			8.475
		.000	34.418	174.167		.556	3.398	
		1.125	22.805	194.123		.556	3.308	
		2.250	12.148	200.633		.556	3.821	
		2.250			9.227			8.475
	MIN							
	3	.000			8.043			-13.785
		.000	10.418	128.743		-.135	1.830	
		1.125	-.169	145.191		-.135	2.061	
		2.250	-11.750	154.135		-.135	2.292	
		2.250			8.043			-13.785
	MAX							
	4	.000			5.688			14.759
		.000	46.124	199.089		.788	4.029	
		1.125	31.215	222.205		.788	3.724	
		2.250	17.902	227.915		.788	4.422	
		2.250			5.688			14.759

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277 PROGRAM:SAP90/FILE:304277.F3F

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN							
	4	.000			3.715			-22.341
		.000	6.123	123.381		-.363	1.416	
		1.125	-7.073	140.652		-.363	1.645	
		2.250	-21.928	150.419		-.363	1.874	
		2.250			3.715			-22.341
	MAX & MIN							
	5	.000			-3.190			.000
		.000	24.502	223.704		.000	.000	
		1.125	16.796	246.934		.000	.000	
		2.250	9.089	261.494		.000	.000	
		2.250			-3.190			.000
	MAX & MIN							
	6	.000			-.851			.000
		.000	17.024	136.423		.000	.000	
		1.125	10.352	151.822		.000	.000	
		2.250	3.681	159.716		.000	.000	
		2.250			-.851			.000
	MAX							
	ALL	.000			9.227			14.759
		.000	46.124	223.704		.788	4.029	
		1.125	31.215	246.934		.788	4.125	
		2.250	17.902	261.494		.788	4.514	
		2.250			9.227			14.759
	MIN							
	ALL	.000			-3.190			-22.341
		.000	6.123	123.381		-.363	.000	
		1.125	-7.073	140.652		-.363	.000	
		2.250	-21.928	150.419		-.363	.000	
		2.250			-3.190			-22.341
61	----------							
	MAX & MIN							
	1	.000			.228			-70.730
		.000	28.980	6.109		3.822	-4.675	
		1.167	23.812	36.904		3.822	-.216	
		2.333	18.643	61.669		3.822	4.242	
		2.333			.228			-70.730
	MAX							
	2	.000			.916			-63.046
		.000	53.324	7.398		3.099	-1.540	
		1.167	41.505	51.978		3.099	.296	
		2.333	31.010	85.023		3.099	3.507	
		2.333			.916			-63.046
	MIN							
	2	.000			.751			-108.176
		.000	28.317	.606		1.279	-3.228	
		1.167	20.431	35.937		1.279	.121	
		2.333	9.817	60.005		1.279	2.132	
		2.333			.751			-107.416
	MAX							
	3	.000			1.358			-61.938

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277 PROGRAM:SAP90/FILE:304277.F3F

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	53.226	7.512		2.666	-.758	
		1.167	41.408	51.978		2.666	.573	
		2.333	30.913	84.909		2.666	3.280	
		2.333			1.358			-61.938
	MIN							
	3	.000			1.192			-107.069
		.000	28.219	.720		.847	-2.446	
		1.167	20.333	35.937		.847	.398	
		2.333	9.719	59.891		.847	1.905	
		2.333			1.192			-106.309
	MAX							
	4	.000			.966			-55.683
		.000	69.393	8.470		3.562	-.824	
		1.167	53.142	62.055		3.562	.366	
		2.333	39.095	100.432		3.562	3.847	
		2.333			.966			-55.683
	MIN							
	4	.000			.691			-130.900
		.000	27.715	-2.849		.529	-3.637	
		1.167	18.017	35.319		.529	.073	
		2.333	3.772	58.735		.529	1.556	
		2.333			.691			-129.633
	MAX & MIN							
	5	.000			.013			-65.499
		.000	26.396	6.708		-.048	.073	
		1.167	21.228	34.489		-.048	.017	
		2.333	16.059	56.240		-.048	-.039	
		2.333			.013			-65.499
	MAX & MIN							
	6	.000			.003			-68.285
		.000	28.761	6.442		-.013	.019	
		1.167	23.593	36.982		-.013	.005	
		2.333	18.425	61.493		-.013	-.010	
		2.333			.003			-68.285
	MAX							
	ALL	.000			1.358			-55.683
		.000	69.393	8.470		3.822	.073	
		1.167	53.142	62.055		3.822	.573	
		2.333	39.095	100.432		3.822	4.242	
		2.333			1.358			-55.683
	MIN							
	ALL	.000			.003			-130.900
		.000	26.396	-2.849		-.048	-4.675	
		1.167	18.017	34.489		-.048	-.216	
		2.333	3.772	56.240		-.048	-.039	
		2.333			.003			-129.633
62	----------							
	MAX & MIN							
	1	.000			2.523			-75.420
		.000	16.240	59.637		3.467	-3.175	
		1.167	11.072	75.569		3.467	.870	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277 PROGRAM:SAP90/FILE:304277.F3F

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.333	5.903	85.471		3.467	4.914	
		2.333			2.523			-75.420
	MAX							
	2	.000			3.441			-68.829
		.000	34.804	79.881		2.974	-.976	
		1.167	24.151	104.349		2.974	.813	
		2.333	14.582	115.197		2.974	4.022	
		2.333			3.441			-68.829
	MIN							
	2	.000			2.125			-108.053
		.000	12.146	57.802		1.110	-2.407	
		1.167	2.516	73.008		1.110	.671	
		2.333	-8.510	82.089		1.110	2.317	
		2.333			2.125			-107.100
	MAX							
	3	.000			4.023			-67.571
		.000	34.756	79.866		2.577	-.410	
		1.167	24.102	104.277		2.577	.917	
		2.333	14.534	115.069		2.577	3.663	
		2.333			4.023			-67.571
	MIN							
	3	.000			2.707			-106.795
		.000	12.098	57.787		.713	-1.841	
		1.167	2.467	72.937		.713	.774	
		2.333	-8.558	81.961		.713	1.958	
		2.333			2.707			-105.842
	MAX							
	4	.000			3.785			-61.798
		.000	47.124	93.404		3.448	-.367	
		1.167	32.813	123.497		3.448	.855	
		2.333	20.311	134.910		3.448	4.442	
		2.333			3.785			-61.798
	MIN							
	4	.000			1.593			-127.171
		.000	9.360	56.606		.341	-2.753	
		1.167	-3.245	71.262		.341	.617	
		2.333	-18.175	79.729		.341	1.602	
		2.333			1.593			-125.583
	MAX & MIN							
	5	.000			-.006			-72.854
		.000	13.971	54.663		-.060	.069	
		1.167	8.803	67.948		-.060	-.001	
		2.333	3.634	75.203		-.060	-.071	
		2.333			-.006			-72.854
	MAX & MIN							
	6	.000			-.001			-72.878
		.000	16.126	59.733		-.016	.019	
		1.167	10.958	75.533		-.016	-.000	
		2.333	5.790	85.302		-.016	-.019	
		2.333			-.001			-72.878

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277 PROGRAM:SAP90/FILE:304277.F3F

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX							
	ALL	.000			4.023			-61.798
		.000	47.124	93.404		3.467	.069	
		1.167	32.813	123.497		3.467	.917	
		2.333	20.311	134.910		3.467	4.914	
		2.333			4.023			-61.798
	MIN							
	ALL	.000			-.006			-127.171
		.000	9.360	54.663		-.060	-3.175	
		1.167	-3.245	67.948		-.060	-.001	
		2.333	-18.175	75.203		-.060	-.071	
		2.333			-.006			-125.583
63	----------							
	MAX & MIN							
	1	.000			4.703			-75.044
		.000	1.655	83.515		2.938	-1.940	
		1.167	-3.513	82.431		2.938	1.488	
		2.333	-8.681	75.318		2.938	4.916	
		2.333			4.703			-75.044
	MAX							
	2	.000			5.821			-69.924
		.000	17.995	112.309		2.765	-.518	
		1.167	7.531	114.713		2.765	1.248	
		2.333	-1.891	104.487		2.765	4.217	
		2.333			5.821			-69.924
	MIN							
	2	.000			3.257			-102.256
		.000	-5.219	80.010		.906	-1.724	
		1.167	-14.822	78.080		.906	.888	
		2.333	-25.371	70.078		.906	2.295	
		2.333			3.257			-101.041
	MAX							
	3	.000			6.447			-68.551
		.000	17.963	112.270		2.444	-.134	
		1.167	7.499	114.638		2.444	1.258	
		2.333	-1.922	104.375		2.444	3.852	
		2.333			6.447			-68.551
	MIN							
	3	.000			3.882			-100.883
		.000	-5.250	79.971		.584	-1.340	
		1.167	-14.853	78.005		.584	.898	
		2.333	-25.403	69.966		.584	1.930	
		2.333			3.882			-99.669
	MAX							
	4	.000			6.488			-63.514
		.000	28.876	131.566		3.238	-.003	
		1.167	14.881	136.282		3.238	1.343	
		2.333	2.625	123.967		3.238	4.691	
		2.333			6.488			-63.514
	MIN							
	4	.000			2.213			-117.401

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			.000	-9.813	77.734		.139	-2.013	
			1.167	-22.373	75.227		.139	.742	
			2.333	-36.510	66.618		.139	1.488	
			2.333			2.213			-115.377
		MAX & MIN							
	5		.000			-.040			-75.763
			.000	-.603	73.568		-.076	.074	
			1.167	-5.771	69.850		-.076	-.015	
			2.333	-10.939	60.102		-.076	-.104	
			2.333			-.040			-75.763
		MAX & MIN							
	6		.000			-.011			-72.607
			.000	1.553	83.612		-.020	.020	
			1.167	-3.615	82.409		-.020	-.004	
			2.333	-8.783	75.177		-.020	-.028	
			2.333			-.011			-72.607
		MAX							
		ALL	.000			6.488			-63.514
			.000	28.876	131.566		3.238	.074	
			1.167	14.881	136.282		3.238	1.488	
			2.333	2.625	123.967		3.238	4.916	
			2.333			6.488			-63.514
		MIN							
		ALL	.000			-.040			-117.401
			.000	-9.813	73.568		-.076	-2.013	
			1.167	-22.373	69.850		-.076	-.015	
			2.333	-36.510	60.102		-.076	-.104	
			2.333			-.040			-115.377
64	----------								
		MAX & MIN							
	1		.000			6.557			-76.598
			.000	-13.862	72.628		2.392	-.939	
			1.167	-19.030	53.442		2.392	1.852	
			2.333	-24.198	28.225		2.392	4.643	
			2.333			6.557			-76.598
		MAX							
	2		.000			7.901			-72.061
			.000	.642	101.347		2.501	-.082	
			1.167	-9.714	82.237		2.501	1.602	
			2.333	-19.005	50.960		2.501	4.264	
			2.333			7.901			-72.061
		MIN							
	2		.000			4.105			-101.342
			.000	-22.774	67.168		.647	-1.063	
			1.167	-32.305	47.012		.647	1.022	
			2.333	-42.767	20.791		.647	2.126	
			2.333			4.105			-100.818
		MAX							
	3		.000			8.515			-70.535
			.000	.628	101.320		2.228	.198	
			1.167	-9.728	82.193		2.228	1.564	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIA TORQ
			2.333	-19.019	50.901		2.228	3.967	
			2.333			8.515			-70.535
		MIN							
	3		.000			4.719			-99.014
			.000	-22.788	67.141		.374	-.783	
			1.167	-32.318	46.969		.374	.984	
			2.333	-42.781	20.732		.374	1.770	
			2.333			4.719			-99.297
		MAX							
	4		.000			8.883			-65.557
			.000	10.348	120.687		2.973	.341	
			1.167	-3.467	101.671		2.973	1.752	
			2.333	-15.506	66.398		2.973	4.794	
			2.333			8.883			-65.557
		MIN							
	4		.000			2.556			-114.359
			.000	-28.678	63.723		-.118	-1.293	
			1.167	-41.117	42.964		-.118	.786	
			2.333	-55.109	16.116		-.118	1.231	
			2.333			2.556			-113.485
		MAX & MIN							
	5		.000			-.112			-81.238
			.000	-16.343	57.578		-.108	.095	
			1.167	-21.511	35.497		-.108	-.030	
			2.333	-26.679	7.385		-.108	-.156	
			2.333			-.112			-81.238
		MAX & MIN							
	6		.000			-.030			-74.393
			.000	-13.993	72.754		-.029	.025	
			1.167	-19.161	53.414		-.029	-.008	
			2.333	-24.330	28.044		-.029	-.042	
			2.333			-.030			-74.393
		MAX							
		ALL	.000			8.883			-65.557
			.000	10.348	120.687		2.973	.341	
			1.167	-3.467	101.671		2.973	1.852	
			2.333	-15.506	66.398		2.973	4.794	
			2.333			8.883			-65.557
		MIN							
		ALL	.000			-.112			-114.359
			.000	-28.678	57.578		-.118	-1.293	
			1.167	-41.117	35.497		-.118	-.030	
			2.333	-55.109	7.385		-.118	-.156	
			2.333			-.112			-113.485
65	----------								
		MAX & MIN							
	1		.000			8.031			-76.614
			.000	-25.246	22.645		1.843	-.118	
			1.167	-30.414	-9.824		1.843	2.032	
			2.333	-35.583	-48.322		1.843	4.182	
			2.333			8.031			-76.614

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			1.167	-16.687	24.749		2.664	2.193	
			2.333	-28.526	-26.099		2.664	4.882	
			2.333			10.930			-63.252
		MIN							
		ALL	.000			-.264			-113.069
			.000	-42.579	1.522		-.418	-.507	
			1.167	-54.839	-33.946		-.418	-.055	
			2.333	-68.642	-75.444		-.418	-.242	
			2.333			-.264			-113.069
66	----------								
		MAX & MIN							
	1		.000			9.118			-55.004
			.000	-16.067	-59.394		1.330	.399	
			1.167	-21.236	-81.154		1.330	1.951	
			2.333	-26.404	-108.944		1.330	3.503	
			2.333			9.118			-55.004
		MAX							
	2		.000			11.031			-46.672
			.000	-1.574	-47.210		1.765	.558	
			1.167	-11.909	-69.196		1.765	2.371	
			2.333	-21.105	-102.502		1.765	4.193	
			2.333			11.031			-46.672
		MIN							
	2		.000			4.968			-79.044
			.000	-25.521	-71.866		.092	.294	
			1.167	-34.839	-93.488		.092	.069	
			2.333	-45.138	-122.250		.092	1.296	
			2.333			4.968			-79.044
		MAX							
	3		.000			11.534			-44.782
			.000	-1.619	-47.040		1.535	.677	
			1.167	-11.953	-69.078		1.535	2.222	
			2.333	-21.150	-102.436		1.535	3.776	
			2.333			11.534			-44.782
		MIN							
	3		.000			5.472			-77.154
			.000	-25.566	-71.696		-.138	.413	
			1.167	-34.883	-93.370		-.138	.720	
			2.333	-45.182	-122.183		-.138	.878	
			2.333			5.472			-77.154
		MAX							
	4		.000			12.577			-36.696
			.000	7.850	-38.223		2.185	.646	
			1.167	-5.929	-60.637		2.185	2.285	
			2.333	-17.810	-97.897		2.185	4.940	
			2.333			12.577			-36.696
		MIN							
	4		.000			2.473			-90.649
			.000	-32.061	-79.316		-.603	.206	
			1.167	-44.145	-101.123		-.603	.202	
			2.333	-57.864	-130.810		-.603	.110	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.333			2.473			-90.649
	MAX & MIN							
	5	.000			-.576			-64.549
		.000	-16.223	-88.058		-.223	.183	
		1.167	-21.391	-109.999		-.223	-.077	
		2.333	-26.559	-137.970		-.223	-.338	
		2.333			-.576			-64.549
	MAX & MIN							
	6	.000			-.154			-53.588
		.000	-16.274	-59.520		-.060	.049	
		1.167	-21.443	-81.522		-.060	-.021	
		2.333	-26.611	-109.553		-.060	-.090	
		2.333			-.154			-53.588
	MAX							
	ALL	.000			12.577			-36.696
		.000	7.850	-38.223		2.185	.677	
		1.167	-5.929	-60.637		2.185	2.785	
		2.333	-17.810	-97.897		2.185	4.940	
		2.333			12.577			-36.696
	MIN							
	ALL	.000			-.576			-90.649
		.000	-32.061	-88.058		-.603	.049	
		1.167	-44.145	-109.999		-.603	-.077	
		2.333	-57.864	-137.970		-.603	-.338	
		2.333			-.576			-90.649
67	----------							
	MAX & MIN							
	1	.000			9.871			2.592
		.000	25.679	-110.525		1.592	.329	
		1.125	20.695	-84.439		1.592	2.120	
		2.250	15.712	-63.960		1.592	3.911	
		2.250			9.871			2.592
	MAX							
	2	.000			11.726			16.699
		.000	45.098	-104.478		1.030	1.853	
		1.125	35.204	-72.438		1.030	2.531	
		2.250	26.220	-50.899		1.030	3.261	
		2.250			11.726			16.699
	MIN							
	2	.000			5.148			-16.931
		.000	21.059	-125.607		.572	.125	
		1.125	12.191	-95.094		.572	.949	
		2.250	2.273	-74.026		.572	1.774	
		2.250			5.148			-16.931
	MAX							
	3	.000			12.177			18.289
		.000	44.933	-104.177		.903	1.822	
		1.125	35.040	-72.323		.903	2.357	
		2.250	26.055	-50.968		.903	2.944	
		2.250			12.177			18.289

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN				5.599			-15.341
	3	.000						
		.000	20.894	-125.306		.445	.094	
		1.125	12.026	-94.978		.445	.776	
		2.250	2.108	-74.095		.445	1.457	
		2.250			5.599			-15.341
	MAX							
	4	.000			13.379			29.833
		.000	57.430	-99.760		1.187	2.434	
		1.125	44.263	-64.441		1.187	2.968	
		2.250	32.611	-42.885		1.187	3.589	
		2.250			13.379			29.833
	MIN							
	4	.000			2.416			-26.217
		.000	17.365	-134.974		.423	-.445	
		1.125	5.907	-102.200		.423	.332	
		2.250	-7.301	-81.431		.423	1.110	
		2.250			2.416			-26.217
	MAX & MIN							
	5	.000			-1.191			2.706
		.000	35.992	-142.092		-.221	.334	
		1.125	29.973	-104.987		-.221	.086	
		2.250	23.954	-74.653		-.221	-.162	
		2.250			-1.191			2.706
	MAX & MIN							
	6	.000			-.318			3.743
		.000	25.784	-111.016		-.059	.089	
		1.125	20.801	-84.812		-.059	.023	
		2.250	15.817	-64.214		-.059	-.043	
		2.250			-.318			3.743
	MAX							
	ALL	.000			13.379			29.833
		.000	57.430	-99.760		1.592	2.434	
		1.125	44.263	-64.441		1.592	2.968	
		2.250	32.611	-42.885		1.592	3.911	
		2.250			13.379			29.833
	MIN							
	ALL	.000			-1.191			-26.217
		.000	17.365	-142.092		-.221	-.445	
		1.125	5.907	-104.987		-.221	.023	
		2.250	-7.301	-81.431		-.221	-.162	
		2.250			-1.191			-26.217
68	----------							
	MAX & MIN							
	1	.000			10.687			23.227
		.000	37.068	-54.533		1.221	1.177	
		1.125	32.084	-15.635		1.221	2.550	
		2.250	27.100	17.656		1.221	3.923	
		2.250			10.687			23.227
	MAX							
	2	.000			12.111			38.765

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	57.215	-41.603		.736	2.097	
		1.125	47.315	4.636		.736	2.367	
		2.250	38.291	40.264		.736	2.912	
		2.250			12.111			38.765
	MIN							
	2	.000			5.466			5.213
		.000	33.120	-63.696		.238	.711	
		1.125	24.293	-23.243		.238	1.253	
		2.250	14.413	11.578		.238	1.796	
		2.250			5.466			5.213
	MAX							
	3	.000			12.481			39.976
		.000	57.072	-41.489		.581	2.117	
		1.125	47.170	4.590		.581	2.213	
		2.250	38.148	40.056		.581	2.583	
		2.250			12.481			39.976
	MIN							
	3	.000			5.836			6.425
		.000	32.977	-63.581		.083	.731	
		1.125	24.150	-23.290		.083	1.099	
		2.250	14.270	11.371		.083	1.468	
		2.250			5.836			6.425
	MAX							
	4	.000			13.758			52.168
		.000	70.271	-33.176		.903	2.563	
		1.125	57.091	17.535		.903	2.649	
		2.250	45.376	54.297		.903	3.192	
		2.250			13.758			52.168
	MIN							
	4	.000			2.683			-3.751
		.000	30.113	-69.997		.073	.253	
		1.125	18.723	-28.931		.073	.793	
		2.250	5.580	6.489		.073	1.333	
		2.250			2.683			-3.751
	MAX & MIN							
	5	.000			-1.493			29.311
		.000	51.288	-63.259		-.147	.231	
		1.125	45.270	-8.945		-.147	.066	
		2.250	39.251	38.598		-.147	-.099	
		2.250			-1.493			29.311
	MAX & MIN							
	6	.000			-.399			23.955
		.000	37.161	-54.773		-.039	.062	
		1.125	32.177	-15.770		-.039	.018	
		2.250	27.194	17.626		-.039	-.026	
		2.250			-.399			23.955
	MAX							
	ALL	.000			13.758			52.168
		.000	70.271	-33.176		1.221	2.563	
		1.125	57.091	17.535		1.221	2.649	
		2.250	45.376	54.297		1.221	3.923	

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F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.250			13.758			52.168
	MIN							
	ALL	.000			-1.493			-3.751
		.000	30.113	-69.997		-.147	.062	
		1.125	18.723	-28.931		-.147	.018	
		2.250	5.580	6.489		-.147	-.099	
		2.250			-1.493			-3.751
69	----------							
	MAX & MIN							
	1	.000			11.270			18.029
		.000	27.438	21.977		.739	1.946	
		1.125	22.454	50.042		.739	2.777	
		2.250	17.471	72.499		.739	3.608	
		2.250			11.270			18.029
	MAX							
	2	.000			12.176			33.858
		.000	46.315	44.182		.360	2.435	
		1.125	36.354	78.441		.360	2.290	
		2.250	27.284	101.725		.360	2.551	
		2.250			12.176			33.858
	MIN							
	2	.000			5.537			.300
		.000	22.435	15.993		-.139	1.249	
		1.125	13.515	45.128		-.139	1.369	
		2.250	3.614	68.652		-.139	1.488	
		2.250			5.537			.300
	MAX							
	3	.000			12.369			34.615
		.000	46.224	44.110		.142	2.510	
		1.125	36.264	78.267		.142	2.119	
		2.250	27.194	101.450		.142	2.135	
		2.250			12.369			34.615
	MIN							
	3	.000			5.730			1.058
		.000	22.345	15.922		-.357	1.324	
		1.125	13.425	44.955		-.357	1.198	
		2.250	3.524	68.377		-.357	1.072	
		2.250			5.730			1.058
	MAX							
	4	.000			13.801			46.416
		.000	58.743	58.343		.527	2.826	
		1.125	45.464	96.555		.527	2.502	
		2.250	33.671	120.215		.527	2.856	
		2.250			13.801			46.416
	MIN							
	4	.000			2.736			-9.513
		.000	18.943	11.362		-.305	.850	
		1.125	7.400	41.034		-.305	.967	
		2.250	-5.779	65.093		-.305	1.085	
		2.250			2.736			-9.513

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F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	MOMENT	AXIAL TORQ
MIN ALL	.000						-105.481
	.000	16.047	-21.020		-.027	-2.542	
	1.167	6.289	-1.586		-.027	-.110	
	2.333	-4.908	8.068		-.027	-.018	
	2.333			.000			-105.481
MAX 1	.000	8.020	5.145	3.140	1.278	-.720	-71.670
	1.167	2.501	11.282	1.278	1.278	.772	
	2.333	-3.017	10.981	3.140	1.278	2.263	-71.670
	2.333						
MAX 2	.000	18.226	7.197	5.025	.942	.175	-70.641
	1.167	9.282	13.841		.942	.764	
	2.333	.816	14.342		.942	1.761	-70.641
	2.333			5.025			
MIN 2	.000	5.112	4.878	3.398	.249	-.260	-91.489
	.000	-3.160	11.005		.249	.590	
	1.167	-11.889	10.626		.249	1.022	-91.489
	2.333			3.398			
MAX 3	.000	18.210	7.206	6.261	.692	.562	-70.000
	1.167	9.266	13.832		.692	.859	
	2.333	.800	14.314		.692	1.564	-70.000
	2.333			6.261			
MIN 3	.000	5.096	4.887	4.634	-.001	.127	-90.848
	1.167	-3.176	10.996		-.001	.693	
	2.333	-11.905	10.599		-.001	.825	-90.848
	2.333			4.634			
MAX 4	.000	25.001	8.594	5.456	1.117	.356	-68.451
	.000				1.117	.810	
	1.167	13.772	19.542		1.117	1.943	
	2.333	3.342	16.543		1.117		-68.451
	2.333			5.456			
MIN 4	.000	3.144	4.729	2.743	-.038	-.348	-103.198
	1.167	-6.944	10.816		-.038	.534	
	2.333	-17.833	10.350		-.038	.711	
	2.333			2.743			-103.198
MAX & MIN 5	.000			-.051			-74.950

REPOSITION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	MOMENT	AXIAL TORQ
MIN ALL	.000						-105.481
	.000	16.047	-21.020		-.027	-2.542	
	1.167	6.289	-1.586		-.027	-.110	
	2.333	-4.908	8.068		-.027	-.018	
	2.333			.000			-105.481
MAX 1	.000	8.020	5.145	3.140	1.278	-.720	-71.670
	1.167	2.501	11.282		1.278	.772	
	2.333	-3.017	10.981	3.140	1.278	2.263	-71.670
	2.333						
MAX 2	.000	18.226	7.197	5.025	.942	.175	-70.641
	1.167	9.282	13.841		.942	.764	
	2.333	.816	14.342		.942	1.761	-70.641
	2.333			5.025			
MIN 2	.000	5.112	4.878	3.398	.249	-.260	-91.489
	.000	-3.160	11.005		.249	.590	
	1.167	-11.889	10.626		.249	1.022	-91.489
	2.333			3.398			
MAX 3	.000	18.210	7.206	6.261	.692	.562	-70.000
	1.167	9.266	13.832		.692	.859	
	2.333	.800	14.314		.692	1.564	-70.000
	2.333			6.261			
MIN 3	.000	5.096	4.887	4.634	-.001	.127	-90.848
	1.167	-3.176	10.996		-.001	.693	
	2.333	-11.905	10.599		-.001	.825	-90.848
	2.333			4.634			
MAX 4	.000	25.001	8.594	5.456	1.117	.356	-68.451
	.000				1.117	.810	
	1.167	13.772	19.542		1.117	1.943	
	2.333	3.342	16.543		1.117		-68.451
	2.333			5.456			
MIN 4	.000	3.144	4.729	2.743	-.038	-.348	-103.198
	1.167	-6.944	10.816		-.038	.534	
	2.333	-17.833	10.350		-.038	.711	
	2.333			2.743			-103.198
MAX & MIN 5	.000			-.051			-74.950

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	MOMENT	AXIAL TORQ
MIN ALL	.000						-69.866
	.000	40.039	-16.300		2.085	.076	
	1.167	29.161	-.252		2.085	.594	
	2.333	16.844	12.757		2.085	2.323	
	2.333			5.297			-69.866
MAX 1	.000	40.039	-16.300		2.085	.076	
	1.167	29.161	-.252		2.085	.594	
	2.333	16.844	12.757		2.085	2.323	
	2.333			5.297			-69.866
MAX 2	.000	16.419	-16.249	.000	-.007	.012	-72.409
	1.167	10.901	-.812		-.007	.004	
	2.333	5.383	8.687		-.007	-.005	-72.409
	2.333			.000			
MAX & MIN 6	.000			.000			-76.015
	.000	16.111	-16.449		-.027	.045	
	1.167	10.593	-1.071		-.027	.014	
	2.333	5.075	8.068		-.027	-.018	-76.015
	2.333			.000			
MAX & MIN 5	.000			2.724			-105.481
	.000	16.047	-21.020		.172	-1.684	
	1.167	6.289	-1.586		.172	.157	
	2.333	-4.908	8.377		.172	.860	-105.481
	2.333			2.724			
MIN 4	.000			3.770			-69.866
	.000	40.039	-16.300		1.790	-.154	
	1.167	29.161	-.252		1.790	.352	
	2.333	16.844	12.757		1.790	2.057	-69.866
	2.333			3.770			
MAX 4	.000			4.670			-92.751
	.000	16.237	-19.402		.252	-.841	
	1.167	8.175	-1.318		.252	.497	
	2.333	-.750	8.508		.252	1.032	-92.751
	2.333			4.670			
MIN 3	.000			5.297			-71.382
	.000	30.633	-16.570		1.223	.076	
	1.167	21.899	-.518		1.223	.594	
	2.333	12.301	11.136		1.223	1.751	-71.382
	2.333			5.297			
MAX 3	.000			2.951			-93.357
	.000	16.282	-19.493		.573	-1.461	
	1.167	8.221	-1.357		.573	.192	
	2.333	-.705	8.522		.573	1.162	-93.357
	2.333			2.951			
MIN 2	.000			3.578			-71.998
	.000	39.980	-16.699		1.544	.133	
	1.167	30.961	-.518		1.544	.594	
	2.333	21.942	10.627		1.544	1.880	-71.998
	2.333			3.578			
MAX & MIN 1	.000			-1.640			23.799
	.000	39.980	44.215		-.079	.133	
	1.125	33.961	85.807		-.079	.044	
	2.250	27.942	120.627		-.079	-.945	23.799
	2.250			-1.640			
MAX & MIN 6	.000	27.479	21.929	.438	-.021	.035	18.405
	.000				-.021	.012	
	1.125	22.496	50.040		-.021	.012	
	2.250	17.512	72.544		-.021	-.012	18.405
	2.250			.438			
MAX 4	.000	58.743	58.343	13.801	.739	2.826	46.416
	.000				.739	2.777	
	1.125	45.444	96.595		.739	3.608	46.416
	2.250	33.671	120.627		.739		
	2.250			13.801			
MIN ALL	.000	18.943	11.362	4.670	-.357	.035	-9.513
	.000				-.357	.012	
	1.125	7.400	41.034		-.357	-.012	-9.513
	2.250	-5.729	65.093		-.357	-.045	
	2.250			-1.640			
MAX & MIN 5	.000	12.602	73.561	11.568	.247	2.590	6.185
	.000				.247	2.867	
	1.125	7.618	84.935		.247	3.145	6.185
	2.250	2.634	90.701		.247		
	2.250			11.568			
MAX 2	.000	29.765	102.463	11.777	-.048	2.833	22.544
	.000				-.048	2.258	
	1.125	19.283	117.834		-.048	2.128	22.544
	2.250	10.718	122.010		-.048		
	2.250			11.777			
MAX & MIN 1	.000	16.111	-16.449	.000	-.027	.045	-76.015
	.000				-.027	.014	
	1.167	10.593	-1.071		-.027	-.018	-76.015
	2.333	5.075	8.068		-.027		
	2.333			.000			
MAX & MIN 6	.000	16.419	-16.249	.000	-.007	.012	-72.409
	.000				-.007	.004	
	1.167	10.901	-.812		-.007	-.005	-72.409
	2.333	5.383	8.687		-.007		
	2.333			.000			
MAX ALL	.000	40.039	-16.300	5.297	2.085	.076	-69.866
	.000				2.085	.594	
	1.167	29.161	-.252		2.085	2.323	
	2.333	16.844	12.757		2.085		-69.866
	2.333			5.297			

REPOSITION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	MOMENT	AXIAL TORQ
MIN 3	.000						-10.776
	.000	30.678	-16.661		-.343	1.544	-.544
	1.167	21.944	-.556		-.343	1.604	
	2.333	10.983	-.885		-.343	2.066	-.544
	2.333			3.578			-71.988
MAX 2	.000	16.501	-16.917	.929	-.079	.133	-2.542
	.000				-.079	.044	
	1.167	10.983	-.885		-.079	-.110	
	2.333	5.464	8.709		-.079	-.945	-73.044
	2.333			.929			
MAX & MIN 1	.000			-1.640			-73.044
	.000	16.501	-16.917		-.079	.133	-2.542
	1.125	-2.985	81.497		-.079	.044	
	2.250	-12.944	87.974		-.079	-.945	-73.044
	2.250			-1.640			
MAX 4	.000	41.184	120.943	13.372	.117	3.186	34.163
	.000				.117	2.450	
	1.125	27.870	138.956		.117	2.456	34.163
	2.250	16.084	142.042		.117		
	2.250			13.372			
MIN 4	.000	1.700	66.147	2.367	-.711	1.341	-21.775
	.000				-.711	1.005	
	1.125	-9.999	78.818		-.711	.669	-21.775
	2.250	-23.274	85.830		-.711		
	2.250			2.367			
MIN ALL	.000	17.445	122.193	-1.699	-.025	.062	8.368
	.000				-.025	.035	
	1.125	11.426	138.658		-.025	.007	8.368
	2.250	5.608	148.352		-.025		
	2.250			-1.699			
MAX & MIN 6	.000	12.612	73.592	-.453	-.007	.017	6.299
	.000				-.007	.009	
	1.125	7.628	84.977		-.007	.002	6.299
	2.250	2.644	90.755		-.007		
	2.250			-.453			
MAX ALL	.000	41.184	122.193	13.372	.247	3.186	34.163
	.000				.247	2.867	
	1.125	27.870	138.956		.247	3.145	34.163
	2.250	16.084	148.352		.247		
	2.250			13.372			
MIN ALL	.000	1.700	66.147	-1.699	-.840	.017	-21.775
	.000				-.840	.009	
	1.125	-9.999	78.818		-.840	.002	-21.775
	2.250	-23.274	85.830		-.840		
	2.250			-1.699			
MAX & MIN 1	.000	16.501	-16.917	.929	-.840	-2.542	-73.044
	.000				-.840	-.110	
	1.167	10.983	-.885		-.840	1.197	
	2.333	5.464	8.709		-.840	1.943	-73.044
	2.333			.929			
MAX 2	.000	30.678	-16.661	3.578	1.544	-.544	-71.988
	.000				1.544	-.309	
	1.167	21.944	-.556		1.544		
	2.333	10.983	-.885		1.544		
	2.333			3.578			

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	7.787	4.546		-.032	.040	
		1.167	2.269	10.412		-.032	.003	
		2.333	-3.250	9.840		-.032	-.034	
		2.333			-.051			-74.950
	MAX & MIN							
	6	.000			-.014			-71.013
		.000	7.993	5.162		-.008	.011	
		1.167	2.475	11.268		-.008	.001	
		2.333	-3.043	10.936		-.008	-.009	
		2.333			-.014			-71.013
	MAX							
	ALL	.000			6.261			-68.451
		.000	25.001	8.594		1.278	.562	
		1.167	13.773	15.542		1.278	.859	
		2.333	3.342	16.543		1.278	2.263	
		2.333			6.261			-68.451
	MIN							
	ALL	.000			-.051			-103.198
		.000	3.144	4.546		-.038	-.720	
		1.167	-6.964	10.412		-.038	.001	
		2.333	-17.833	9.840		-.038	-.034	
		2.333			-.051			-103.198
83	----------							
	MAX & MIN							
	1	.000			5.127			-64.872
		.000	4.880	8.572		1.072	-.313	
		1.167	-.638	11.047		1.072	.937	
		2.333	-6.156	7.083		1.072	2.187	
		2.333			5.127			-64.872
	MAX							
	2	.000			6.569			-63.579
		.000	14.152	11.610		.919	.189	
		1.167	5.370	13.942		.919	.809	
		2.333	-2.775	10.078		.919	1.784	
		2.333			6.569			-63.579
	MIN							
	2	.000			3.789			-82.985
		.000	1.416	8.189		.222	-.175	
		1.167	-6.749	10.573		.222	.581	
		2.333	-15.567	6.511		.222	.972	
		2.333			3.789			-82.985
	MAX							
	3	.000			7.418			-62.921
		.000	14.149	11.604		.734	.426	
		1.167	5.367	13.933		.734	.829	
		2.333	-2.778	10.065		.734	1.588	
		2.333			7.418			-62.921
	MIN							
	3	.000			4.637			-82.328
		.000	1.413	8.183		.036	.061	
		1.167	-6.752	10.564		.036	.601	

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F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.333	-15.570	6.498		.036	.776	
		2.333			4.637			-82.328
	MAX							
	4	.000			7.292			-61.160
		.000	20.332	13.644		1.096	.345	
		1.167	9.375	15.879		1.096	.869	
		2.333	-.522	12.080		1.096	1.986	
		2.333			7.292			-61.160
	MIN							
	4	.000			2.658			-93.504
		.000	-.894	7.942		-.067	-.262	
		1.167	-10.824	10.265		-.067	.489	
		2.333	-21.841	6.136		-.067	.633	
		2.333			2.658			-93.504
	MAX & MIN							
	5	.000			-.113			-68.728
		.000	4.653	7.427		-.036	.038	
		1.167	-.865	9.637		-.036	-.004	
		2.333	-6.383	5.408		-.036	-.045	
		2.333			-.113			-68.728
	MAX & MIN							
	6	.000			-.030			-64.248
		.000	4.870	8.563		-.010	.010	
		1.167	-.648	11.026		-.010	-.001	
		2.333	-6.166	7.051		-.010	-.012	
		2.333			-.030			-64.248
	MAX							
	ALL	.000			7.418			-61.160
		.000	20.332	13.644		1.096	.426	
		1.167	9.375	15.879		1.096	.937	
		2.333	-.522	12.080		1.096	2.187	
		2.333			7.418			-61.160
	MIN							
	ALL	.000			-.113			-93.504
		.000	-.894	7.427		-.067	-.313	
		1.167	-10.824	9.637		-.067	-.004	
		2.333	-21.841	5.408		-.067	-.045	
		2.333			-.113			-93.504
84	----------							
	MAX & MIN							
	1	.000			6.822			-56.497
		.000	3.620	5.457		.888	.034	
		1.167	-1.899	6.461		.888	1.070	
		2.333	-7.417	1.027		.888	2.106	
		2.333			6.822			-56.497
	MAX							
	2	.000			8.070			-54.272
		.000	12.801	8.260		.890	.270	
		1.167	4.035	8.789		.890	.943	
		2.333	-4.114	3.184		.890	1.883	
		2.333			8.070			-54.272

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F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN							
	2	.000			4.109			-72.828
		.000	-.054	4.790		.164	-.002	
		1.167	-8.256	5.685		.164	.600	
		2.333	-17.077	.142		.164	.929	
		2.333			4.109			-72.828
	MAX							
	3	.000			8.612			-53.608
		.000	12.804	8.269		.744	.424	
		1.167	4.037	8.800		.744	.927	
		2.333	-4.112	3.198		.744	1.696	
		2.333			8.612			-53.608
	MIN							
	3	.000			4.651			-72.163
		.000	-.052	4.798		.017	.182	
		1.167	-8.254	5.696		.017	.583	
		2.333	-17.074	.155		.017	.741	
		2.333			4.651			-72.163
	MAX							
	4	.000			9.092			-51.198
		.000	18.933	10.185		1.074	.389	
		1.167	8.001	10.409		1.074	1.034	
		2.333	-1.902	4.704		1.074	2.123	
		2.333			9.092			-51.198
	MIN							
	4	.000			2.490			-82.123
		.000	-2.492	4.401		-.136	-.064	
		1.167	-12.483	5.236		-.136	.461	
		2.333	-23.506	-.368		-.136	.532	
		2.333			2.490			-82.123
	MAX & MIN							
	5	.000			-.185			-61.069
		.000	3.339	3.710		-.043	.042	
		1.167	-2.179	4.387		-.043	-.009	
		2.333	-7.697	-1.374		-.043	-.059	
		2.333			-.185			-61.069
	MAX & MIN							
	6	.000			-.049			-55.939
		.000	3.608	5.453		-.011	.011	
		1.167	-1.910	6.443		-.011	-.002	
		2.333	-7.428	.996		-.011	-.016	
		2.333			-.049			-55.939
	MAX							
	ALL	.000			9.092			-51.198
		.000	18.933	10.185		1.074	.424	
		1.167	8.001	10.409		1.074	1.070	
		2.333	-1.902	4.704		1.074	2.123	
		2.333			9.092			-51.198
	MIN							
	ALL	.000			-.185			-82.123
		.000	-2.492	3.710		-.136	-.064	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.167	-12.483	4.387		-.136	-.009	
		2.333	-23.506	-1.374		-.136	-.059	
		2.333			-.185			-82.123
85	----------							
	MAX & MIN							
	1	.000			8.211			-47.391
		.000	3.338	-.519		.684	.343	
		1.167	-2.181	.156		.684	1.141	
		2.333	-7.699	-5.607		.684	1.940	
		2.333			8.211			-47.391
	MAX							
	2	.000			9.441			-44.436
		.000	12.532	1.470		.806	.367	
		1.167	3.758	1.603		.806	1.137	
		2.333	-4.387	-4.344		.806	1.981	
		2.333			9.441			-44.436
	MIN							
	2	.000			4.334			-62.006
		.000	-.400	-1.617		.069	.260	
		1.167	-8.592	-.978		.069	.589	
		2.333	-17.409	-6.797		.069	.810	
		2.333			4.334			-62.006
	MAX							
	3	.000			9.734			-43.779
		.000	12.528	1.510		.680	.468	
		1.167	3.754	1.639		.680	1.091	
		2.333	-4.391	-4.313		.680	1.788	
		2.333			9.734			-43.779
	MIN							
	3	.000			4.627			-61.348
		.000	-.404	-1.577		-.057	.361	
		1.167	-8.596	-.942		-.057	.542	
		2.333	-17.413	-6.767		-.057	.617	
		2.333			4.627			-61.348
	MAX							
	4	.000			10.753			-40.881
		.000	18.649	2.943		.994	.411	
		1.167	7.705	2.701		.994	1.285	
		2.333	-2.190	-3.383		.994	2.282	
		2.333			10.753			-40.881
	MIN							
	4	.000			2.241			-70.163
		.000	-2.904	-2.202		-.235	.231	
		1.167	-12.879	-1.600		-.235	.370	
		2.333	-23.894	-7.472		-.235	.330	
		2.333			2.241			-70.163
	MAX & MIN							
	5	.000			-.268			-52.573
		.000	3.138	-3.114		-.050	.047	
		1.167	-2.380	-2.671		-.050	-.012	
		2.333	-7.898	-8.667		-.050	-.071	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			2.333			-.268			-52.573
	MAX & MIN								
	6		.000			-.071			-46.912
			.000	3.323	-.528		-.013	.012	
			1.167	-2.195	.129		-.013	-.003	
			2.333	-7.714	-5.651		-.013	-.019	
			2.333			-.071			-46.912
	MAX								
	ALL		.000			10.753			-40.881
			.000	18.649	2.943		.994	.468	
			1.167	7.705	2.701		.994	1.285	
			2.333	-2.190	-3.383		.994	2.282	
			2.333			10.753			-40.881
	MIN								
	ALL		.000			-.268			-70.163
			.000	-2.904	-3.114		-.235	.012	
			1.167	-12.879	-2.671		-.235	-.012	
			2.333	-23.894	-8.667		-.235	-.071	
			2.333			-.268			-70.163
86	----------								
	MAX & MIN								
	1		.000			9.332			-36.691
			.000	4.623	-7.089		.531	.506	
			1.167	-.895	-4.914		.531	1.125	
			2.333	-6.413	-9.178		.531	1.745	
			2.333			9.332			-36.691
	MAX								
	2		.000			10.581			-32.919
			.000	14.060	-6.010		.630	.701	
			1.167	5.250	-4.042		.630	1.344	
			2.333	-2.896	-8.123		.630	1.989	
			2.333			10.581			-32.919
	MIN								
	2		.000			4.494			-49.441
			.000	1.193	-8.553		.036	.367	
			1.167	-6.952	-6.078		.036	.520	
			2.333	-15.770	-10.127		.036	.673	
			2.333			4.494			-49.441
	MAX								
	3		.000			10.666			-32.323
			.000	14.006	-5.939		.523	.747	
			1.167	5.197	-4.034		.523	1.266	
			2.333	-2.950	-8.177		.523	1.787	
			2.333			10.666			-32.323
	MIN								
	3		.000			4.580			-48.845
			.000	1.140	-8.482		-.071	.414	
			1.167	-7.006	-6.070		-.071	.442	
			2.333	-15.824	-10.181		-.071	.471	
			2.333			4.580			-48.845

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX								
	4		.000			12.138			-28.970
			.000	20.197	-5.071		.780	.816	
			1.167	9.193	-3.420		.780	1.572	
			2.333	-.705	-7.559		.780	2.332	
			2.333			12.138			-28.970
	MIN								
	4		.000			1.994			-56.506
			.000	-1.247	-9.308		-.211	.260	
			1.167	-11.144	-6.814		-.211	.199	
			2.333	-22.162	-10.099		-.211	.138	
			2.333			1.994			-56.506
	MAX & MIN								
	5		.000			-.355			-41.852
			.000	5.070	-10.523		-.051	.052	
			1.167	-.449	-7.827		-.051	-.007	
			2.333	-5.967	-11.570		-.051	-.066	
			2.333			-.355			-41.852
	MAX & MIN								
	6		.000			-.095			-36.291
			.000	4.612	-7.117		-.014	.014	
			1.167	-.906	-4.956		-.014	-.002	
			2.333	-6.425	-9.232		-.014	-.018	
			2.333			-.095			-36.291
	MAX								
	ALL		.000			12.138			-28.970
			.000	20.197	-5.071		.780	.816	
			1.167	9.193	-3.420		.780	1.572	
			2.333	-.705	-7.559		.780	2.332	
			2.333			12.138			-28.970
	MIN								
	ALL		.000			-.355			-56.506
			.000	-1.247	-10.523		-.211	.014	
			1.167	-11.144	-7.827		-.211	-.007	
			2.333	-22.162	-11.570		-.211	-.066	
			2.333			-.355			-56.506
87	----------								
	MAX & MIN								
	1		.000			10.284			-25.227
			.000	6.696	-9.772		.591	.549	
			1.125	1.374	-5.232		.591	1.213	
			2.250	-3.947	-6.679		.591	1.878	
			2.250			10.284			-25.227
	MAX								
	2		.000			11.338			-20.683
			.000	16.202	-8.820		.371	1.167	
			1.125	7.700	-4.262		.371	1.425	
			2.250	-.224	-5.325		.371	1.683	
			2.250			11.338			-20.683
	MIN								
	2		.000			4.721			-36.049

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			.000	3.293	-10.925		.190	.282	
			1.125	-4.560	-6.107		.190	.557	
			2.250	-13.003	-7.645		.190	.832	
			2.250			4.721			-36.049
	MAX								
	3		.000			11.261			-20.177
			.000	16.189	-8.836		.304	1.155	
			1.125	7.687	-4.293		.304	1.336	
			2.250	-.236	-5.370		.304	1.518	
			2.250			11.261			-20.177
	MIN								
	3		.000			4.644			-35.543
			.000	3.280	-10.941		.122	.270	
			1.125	-4.573	-6.138		.122	.469	
			2.250	-13.016	-7.690		.122	.668	
			2.250			4.644			-35.543
	MAX								
	4		.000			13.024			-16.436
			.000	22.494	-8.234		.429	1.447	
			1.125	11.872	-3.714		.429	1.663	
			2.250	2.213	-4.573		.429	1.879	
			2.250			13.024			-16.436
	MIN								
	4		.000			1.995			-42.046
			.000	.979	-11.742		.127	-.027	
			1.125	-8.562	-6.790		.127	.217	
			2.250	-19.086	-8.439		.127	.461	
			2.250			1.995			-42.046
	MAX & MIN								
	5		.000			-.431			-29.239
			.000	8.767	-12.553		-.047	.066	
			1.125	2.411	-6.266		-.047	.012	
			2.250	-3.945	-7.129		-.047	-.041	
			2.250			-.431			-29.239
	MAX & MIN								
	6		.000			-.115			-24.903
			.000	6.695	-9.812		-.013	.017	
			1.125	1.374	-5.274		-.013	.003	
			2.250	-3.948	-6.722		-.013	-.011	
			2.250			-.115			-24.903
	MAX								
	ALL		.000			13.024			-16.436
			.000	22.494	-8.234		.591	1.447	
			1.125	11.872	-3.714		.591	1.663	
			2.250	2.213	-4.573		.591	1.879	
			2.250			13.024			-16.436
	MIN								
	ALL		.000			-.431			-42.046
			.000	.979	-12.553		-.047	-.027	
			1.125	-8.562	-6.790		-.047	.003	
			2.250	-19.086	-8.439		-.047	-.041	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			2.250			-.431			-42.046
88	----------								
	MAX & MIN								
	1		.000			11.099			-15.590
			.000	7.959	-6.419		.480	.877	
			1.125	2.638	-.458		.480	1.417	
			2.250	-2.683	-.483		.480	1.957	
			2.250			11.099			-15.590
	MAX								
	2		.000			11.734			-10.445
			.000	17.652	-5.065		.270	1.290	
			1.125	9.146	1.099		.270	1.367	
			2.250	1.192	1.622		.270	1.501	
			2.250			11.734			-10.445
	MIN								
	2		.000			4.999			-24.670
			.000	4.585	-7.294		.067	.493	
			1.125	-3.273	-1.259		.067	.704	
			2.250	-11.685	-1.223		.067	.915	
			2.250			4.999			-24.670
	MAX								
	3		.000			11.525			-10.074
			.000	17.646	-5.088		.206	1.285	
			1.125	9.140	1.068		.206	1.289	
			2.250	1.186	1.584		.206	1.351	
			2.250			11.525			-10.074
	MIN								
	3		.000			4.790			-24.299
			.000	4.579	-7.318		.003	.488	
			1.125	-3.279	-1.290		.003	.627	
			2.250	-11.691	-1.261		.003	.765	
			2.250			4.790			-24.299
	MAX								
	4		.000			13.439			-6.118
			.000	24.095	-4.260		.334	1.539	
			1.125	13.466	2.017		.334	1.537	
			2.250	3.757	2.886		.334	1.631	
			2.250			13.439			-6.118
	MIN								
	4		.000			2.215			-29.827
			.000	2.317	-7.976		-.004	.211	
			1.125	-7.232	-1.913		-.004	.433	
			2.250	-17.704	-1.856		-.004	.654	
			2.250			2.215			-29.827
	MAX & MIN								
	5		.000			-.503			-17.942
			.000	10.088	-6.937		-.041	.063	
			1.125	3.732	.836		-.041	.017	
			2.250	-2.625	1.459		-.041	-.029	
			2.250			-.503			-17.942

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX & MIN							
	6	.000			-.134			-15.351
		.000	7.963	-6.450		-.011	.017	
		1.125	2.642	-.484		-.011	.009	
		2.250	-2.679	-.505		-.011	-.008	
		2.250			-.134			-15.351
	MAX							
	ALL	.000			13.439			-6.118
		.000	24.095	-4.260		.480	1.539	
		1.125	13.466	2.017		.480	1.537	
		2.250	3.757	2.886		.480	1.957	
		2.250			13.439			-6.118
	MIN							
	ALL	.000			-.503			-29.827
		.000	2.317	-7.976		-.041	.017	
		1.125	-7.232	-1.913		-.041	.005	
		2.250	-17.704	-1.856		-.041	-.029	
		2.250			-.503			-29.827
89	----------							
	MAX & MIN							
	1	.000			11.689			-8.386
		.000	7.556	-.153		.293	1.228	
		1.125	2.235	5.354		.293	1.558	
		2.250	-3.087	4.875		.293	1.888	
		2.250			11.689			-8.386
	MAX							
	2	.000			11.878			-2.952
		.000	17.169	1.966		.152	1.379	
		1.125	8.661	7.649		.152	1.328	
		2.250	.727	7.655		.152	1.414	
		2.250			11.878			-2.952
	MIN							
	2	.000			5.178			-15.976
		.000	4.155	-.808		-.050	.729	
		1.125	-3.704	4.809		-.050	.801	
		2.250	-12.139	4.429		-.050	.874	
		2.250			5.178			-15.976
	MAX							
	3	.000			11.541			-2.728
		.000	17.163	1.940		.079	1.389	
		1.125	8.655	7.615		.079	1.255	
		2.250	.721	7.615		.079	1.260	
		2.250			11.541			-2.728
	MIN							
	3	.000			4.841			-15.751
		.000	4.149	-.834		-.122	.739	
		1.125	-3.710	4.776		-.122	.729	
		2.250	-12.145	4.389		-.122	.720	
		2.250			4.841			-15.751
	MAX							
	4	.000			13.562			1.212

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	23.568	3.268		.217	1.578	
		1.125	12.936	9.057		.217	1.450	
		2.250	3.259	9.377		.217	1.553	
		2.250			13.562			1.212
	MIN							
	4	.000			2.395			-20.493
		.000	1.879	-1.355		-.119	.493	
		1.125	-7.673	4.325		-.119	.573	
		2.250	-18.183	4.000		-.119	.653	
		2.250			2.395			-20.493
	MAX & MIN							
	5	.000			-.557			-9.423
		.000	9.530	1.894		-.026	.044	
		1.125	3.173	9.039		-.026	.015	
		2.250	-3.183	9.034		-.026	-.014	
		2.250			-.557			-9.423
	MAX & MIN							
	6	.000			-.149			-8.241
		.000	7.559	-.167		-.007	.012	
		1.125	2.238	5.343		-.007	.004	
		2.250	-3.083	4.868		-.007	-.004	
		2.250			-.149			-8.241
	MAX							
	ALL	.000			13.562			1.212
		.000	23.568	3.268		.293	1.578	
		1.125	12.936	9.057		.293	1.558	
		2.250	3.259	9.377		.293	1.888	
		2.250			13.562			1.212
	MIN							
	ALL	.000			-.557			-20.493
		.000	1.879	-1.355		-.122	.012	
		1.125	-7.673	4.325		-.122	.004	
		2.250	-18.183	4.000		-.122	-.014	
		2.250			-.557			-20.493
90	----------							
	MAX & MIN							
	1	.000			11.993			-2.655
		.000	6.157	5.014		.097	1.509	
		1.125	.835	8.947		.097	1.618	
		2.250	-4.486	6.893		.097	1.728	
		2.250			11.993			-2.655
	MAX							
	2	.000			11.820			2.911
		.000	15.518	7.796		.039	1.490	
		1.125	7.009	11.709		.039	1.331	
		2.250	-.880	9.922		.039	1.335	
		2.250			11.820			2.911
	MIN							
	2	.000			5.185			-8.915
		.000	2.702	4.621		-.157	.913	
		1.125	-5.160	8.635		-.157	.851	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.250	-13.643	6.660		-.157	.789	
		2.250			5.185			-8.915
	MAX							
	3	.000			11.353			2.988
		.000	15.514	7.761		-.036	1.510	
		1.125	7.004	11.669		-.036	1.267	
		2.250	-.885	9.877		-.036	1.186	
		2.250			11.353			2.988
	MIN							
	3	.000			4.717			-8.838
		.000	2.697	4.586		-.232	.934	
		1.125	-5.164	8.595		-.232	.787	
		2.250	-13.648	6.615		-.232	.640	
		2.250			4.717			-8.838
	MAX							
	4	.000			13.473			6.802
		.000	21.758	9.534		.103	1.659	
		1.125	11.123	13.432		.103	1.438	
		2.250	1.523	11.821		.103	1.487	
		2.250			13.473			6.802
	MIN							
	4	.000			2.414			-12.909
		.000	.398	4.242		-.223	.698	
		1.125	-9.158	8.309		-.223	.637	
		2.250	-19.749	6.385		-.223	.577	
		2.250			2.414			-12.909
	MAX & MIN							
	5	.000			-.586			-2.928
		.000	7.560	9.266		-.009	.022	
		1.125	1.204	14.195		-.009	.013	
		2.250	-5.152	11.974		-.009	.003	
		2.250			-.586			-2.928
	MAX & MIN							
	6	.000			-.156			-2.607
		.000	6.158	5.010		-.002	.006	
		1.125	.836	8.944		-.002	.003	
		2.250	-4.485	6.891		-.002	.001	
		2.250			-.156			-2.607
	MAX							
	ALL	.000			13.473			6.802
		.000	21.758	9.534		.103	1.659	
		1.125	11.123	14.195		.103	1.618	
		2.250	1.523	11.974		.103	1.728	
		2.250			13.473			6.802
	MIN							
	ALL	.000			-.586			-12.909
		.000	.398	4.242		-.232	.006	
		1.125	-9.158	8.309		-.232	.003	
		2.250	-19.749	6.385		-.232	.001	
		2.250			-.586			-12.909

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
101	----------							
	MAX & MIN							
	1	.000			5.525			-16.581
		.000	45.814	-71.774		-2.158	2.834	
		1.150	45.814	-19.088		-2.158	.352	
		2.300	45.814	33.598		-2.158	-2.129	
		2.300			5.525			-16.581
	MAX							
	2	.000			4.941			-15.722
		.000	59.294	-68.899		-1.743	3.242	
		1.150	59.294	-8.608		-1.743	.192	
		2.300	59.294	59.362		-1.743	-2.066	
		2.300			4.941			-15.722
	MIN							
	2	.000			2.059			-25.595
		.000	40.156	-80.449		-2.764	2.299	
		1.150	40.156	-24.407		-2.764	.116	
		2.300	40.156	28.364		-2.764	-2.071	
		2.300			2.059			-25.595
	MAX							
	3	.000			4.483			-15.809
		.000	59.793	-69.489		-2.166	3.668	
		1.150	59.793	-8.624		-2.166	.131	
		2.300	59.793	59.918		-2.166	-2.613	
		2.300			4.483			-15.809
	MIN							
	3	.000			1.601			-25.682
		.000	40.655	-81.039		-3.186	2.724	
		1.150	40.655	-24.424		-3.186	.056	
		2.300	40.655	26.921		-3.186	-3.418	
		2.300			1.601			-25.682
	MAX							
	4	.000			5.678			-15.344
		.000	69.376	-68.416		-1.330	3.485	
		1.150	69.376	-1.796		-1.330	.212	
		2.300	69.376	77.621		-1.330	-1.740	
		2.300			5.678			-15.344
	MIN							
	4	.000			.875			-31.799
		.000	37.479	-87.667		-3.031	1.912	
		1.150	37.479	-28.128		-3.031	.006	
		2.300	37.479	22.626		-3.031	-3.083	
		2.300			.875			-31.799
	MAX & MIN							
	5	.000			-.026			-16.649
		.000	43.140	-76.015		-.041	.046	
		1.150	43.140	-26.403		-.041	-.002	
		2.300	43.140	23.208		-.041	-.050	
		2.300			-.026			-16.649
	MAX & MIN							
	6	.000			-.007			-16.749

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	46.953	-72.409		-.011	.012	
		1.150	46.953	-18.413		-.011	-.001	
		2.300	46.953	35.583		-.011	-.013	
		2.300			-.007			-16.749
	MAX							
	ALL	.000			5.678			-15.344
		.000	69.376	-68.416		-.011	3.668	
		1.150	69.376	-1.796		-.011	.352	
		2.300	69.376	77.621		-.011	-.013	
		2.300			5.678			-15.344
	MIN							
	ALL	.000			-.026			-31.799
		.000	37.479	-87.667		-3.186	.012	
		1.150	37.479	-28.128		-3.186	-.002	
		2.300	37.479	22.626		-3.186	-3.418	
		2.300			-.026			-31.799
102	----------							
	MAX & MIN							
	1	.000			1.624			-9.805
		.000	17.271	-32.242		-2.281	2.634	
		1.150	17.271	-12.380		-2.281	.010	
		2.300	17.271	7.482		-2.281	-2.613	
		2.300			1.624			-9.805
	MAX							
	2	.000			.903			-6.659
		.000	27.044	-20.810		-1.106	2.283	
		1.150	27.044	9.706		-1.106	-.111	
		2.300	27.044	40.807		-1.106	-1.599	
		2.300			.903			-6.659
	MIN							
	2	.000			-.175			-15.511
		.000	11.587	-37.690		-2.227	1.350	
		1.150	11.587	-17.881		-2.227	-.142	
		2.300	11.587	.186		-2.227	-2.549	
		2.300			-.175			-15.511
	MAX							
	3	.000			.290			-6.859
		.000	27.469	-21.327		-1.072	2.158	
		1.150	27.469	9.676		-1.072	-.198	
		2.300	27.469	41.265		-1.072	-1.647	
		2.300			.290			-6.859
	MIN							
	3	.000			-.788			-15.711
		.000	12.011	-38.208		-2.193	1.225	
		1.150	12.011	-17.910		-2.193	-.228	
		2.300	12.011	.644		-2.193	-2.597	
		2.300			-.788			-15.711
	MAX							
	4	.000			1.175			-4.969
		.000	34.472	-14.378		-.648	2.517	
		1.150	34.472	24.290		-.648	-.100	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300	34.472	63.933		-.648	-1.206	
		2.300			1.175			-4.969
	MIN							
	4	.000			-.622			-19.723
		.000	8.710	-42.512		-2.516	.961	
		1.150	8.710	-21.688		-2.516	-.151	
		2.300	8.710	-3.768		-2.516	-2.789	
		2.300			-.622			-19.723
	MAX & MIN							
	5	.000			-.074			-9.941
		.000	16.744	-42.291		-.029	.023	
		1.150	16.744	-23.035		-.029	-.010	
		2.300	16.744	-3.779		-.029	-.043	
		2.300			-.074			-9.941
	MAX & MIN							
	6	.000			-.020			-10.307
		.000	18.192	-32.702		-.008	.006	
		1.150	18.192	-11.781		-.008	-.003	
		2.300	18.192	9.139		-.008	-.012	
		2.300			-.020			-10.307
	MAX							
	ALL	.000			1.624			-4.969
		.000	34.472	-14.378		-.008	2.634	
		1.150	34.472	24.290		-.008	.010	
		2.300	34.472	63.933		-.008	-.012	
		2.300			1.624			-4.969
	MIN							
	ALL	.000			-.788			-19.723
		.000	8.710	-42.512		-2.516	.006	
		1.150	8.710	-23.035		-2.516	-.228	
		2.300	8.710	-3.779		-2.516	-2.789	
		2.300			-.788			-19.723
103	----------							
	MAX & MIN							
	1	.000			-2.885			10.808
		.000	-19.112	10.797		-2.243	2.582	
		1.150	-19.112	-11.182		-2.243	.003	
		2.300	-19.112	-33.162		-2.243	-2.577	
		2.300			-2.885			10.808
	MAX							
	2	.000			-2.209			18.224
		.000	-14.849	45.263		-.916	2.065	
		1.150	-14.849	10.410		-.916	-.113	
		2.300	-14.849	-12.893		-.916	-1.392	
		2.300			-2.209			18.224
	MIN							
	2	.000			-3.287			8.271
		.000	-30.306	5.779		-2.036	1.129	
		1.150	-30.306	-17.176		-2.036	-.142	
		2.300	-30.306	-40.737		-2.036	-2.324	
		2.300			-3.287			8.271

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX							
	3	.000			-2.659			18.020
		.000	-14.410	44.734		-.778	1.819	
		1.150	-14.410	10.386		-.778	-.201	
		2.300	-14.410	-12.413		-.778	-1.321	
		2.300			-2.659			18.020
	MIN							
	3	.000			-3.737			8.067
		.000	-29.868	5.250		-1.899	.883	
		1.150	-29.868	-17.200		-1.899	-.230	
		2.300	-29.868	-40.257		-1.899	-2.254	
		2.300			-3.737			8.067
	MAX							
	4	.000			-1.774			22.766
		.000	-11.109	67.402		-.455	2.295	
		1.150	-11.109	25.000		-.455	-.103	
		2.300	-11.109	1.846		-.455	-1.002	
		2.300			-1.774			22.766
	MIN							
	4	.000			-3.571			6.177
		.000	-36.871	1.595		-2.323	.735	
		1.150	-36.871	-20.978		-2.323	-.151	
		2.300	-36.871	-44.561		-2.323	-2.557	
		2.300			-3.571			6.177
	MAX & MIN							
	5	.000			-.074			9.941
		.000	-16.744	-3.779		.029	-.043	
		1.150	-16.744	-23.035		.029	-.010	
		2.300	-16.744	-42.291		.029	.023	
		2.300			-.074			9.941
	MAX & MIN							
	6	.000			-.020			10.307
		.000	-18.192	9.139		.008	-.012	
		1.150	-18.192	-11.781		.008	-.003	
		2.300	-18.192	-32.702		.008	.006	
		2.300			-.020			10.307
	MAX							
	ALL	.000			-.020			22.766
		.000	-11.109	67.402		.029	2.582	
		1.150	-11.109	25.000		.029	.003	
		2.300	-11.109	1.846		.029	.023	
		2.300			-.020			22.766
	MIN							
	ALL	.000			-3.737			6.177
		.000	-36.871	-3.779		-2.323	-.043	
		1.150	-36.871	-23.035		-2.323	-.230	
		2.300	-36.871	-44.561		-2.323	-2.577	
		2.300			-3.737			6.177
104	----------							
	MAX & MIN							
	1	.000			-6.707			16.917

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	-48.092	37.568		-2.015	2.098	
		1.150	-48.092	-17.738		-2.015	-.219	
		2.300	-48.092	-73.044		-2.015	-2.536	
		2.300			-6.707			16.917
	MAX							
	2	.000			-3.499			26.241
		.000	-44.111	86.563		-.130	.929	
		1.150	-44.111	3.009		-.130	-.196	
		2.300	-44.111	-73.052		-.130	-.540	
		2.300			-3.499			26.241
	MIN							
	2	.000			-6.381			16.368
		.000	-72.655	33.560		-1.150	.148	
		1.150	-72.655	-23.613		-1.150	-.273	
		2.300	-72.655	-84.203		-1.150	-1.455	
		2.300			-6.381			16.368
	MAX							
	3	.000			-3.517			26.150
		.000	-43.574	85.936		.449	.218	
		1.150	-43.574	2.999		.449	-.242	
		2.300	-43.574	-72.445		.449	.080	
		2.300			-3.517			26.150
	MIN							
	3	.000			-6.399			16.277
		.000	-72.119	32.933		-.572	-.563	
		1.150	-72.119	-23.623		-.572	-.319	
		2.300	-72.119	-83.596		-.572	-.835	
		2.300			-6.399			16.277
	MAX							
	4	.000			-2.322			32.267
		.000	-40.399	118.212		.294	1.124	
		1.150	-40.399	17.043		.294	-.166	
		2.300	-40.399	-71.639		.294	-.153	
		2.300			-2.322			32.267
	MIN							
	4	.000			-7.125			15.812
		.000	-87.973	29.874		-1.407	-.179	
		1.150	-87.973	-27.327		-1.407	-.294	
		2.300	-87.973	-90.224		-1.407	-1.678	
		2.300			-7.125			15.812
	MAX & MIN							
	5	.000			-.026			16.649
		.000	-43.140	23.208		.041	-.050	
		1.150	-43.140	-26.403		.041	-.002	
		2.300	-43.140	-76.015		.041	.046	
		2.300			-.026			16.649
	MAX & MIN							
	6	.000			-.007			16.749
		.000	-46.953	35.583		.011	-.013	
		1.150	-46.953	-18.413		.011	-.001	
		2.300	-46.953	-72.409		.011	.012	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300			-.007			16.749
	MAX							
	ALL	.000			-.007			32.267
		.000	-40.399	118.212		.449	2.098	
		1.150	-40.399	17.043		.449	-.001	
		2.300	-40.399	-71.639		.449	.080	
		2.300			-.007			32.267
	MIN							
	ALL	.000			-7.125			15.812
		.000	-87.973	23.208		-2.015	-.563	
		1.150	-87.973	-27.327		-2.015	-.319	
		2.300	-87.973	-90.224		-2.015	-2.536	
		2.300			-7.125			15.812
105	----------							
	MAX & MIN							
	1	.000			-1.201			-3.485
		.000	-2.666	1.419		-2.263	3.224	
		1.150	-2.666	-1.646		-2.263	.622	
		2.300	-2.666	-4.712		-2.263	-1.981	
		2.300			-1.201			-3.485
	MAX							
	2	.000			-.453			-3.290
		.000	-2.004	1.784		-1.600	3.464	
		1.150	-2.004	-1.140		-1.600	.427	
		2.300	-2.004	-3.445		-1.600	-1.796	
		2.300			-.453			-3.290
	MIN							
	2	.000			-.732			-5.211
		.000	-6.498	1.139		-2.771	2.295	
		1.150	-6.498	-1.997		-2.771	.250	
		2.300	-6.498	-5.770		-2.771	-2.621	
		2.300			-.732			-5.211
	MAX							
	3	.000			-.425			-3.312
		.000	-1.976	1.749		-1.904	3.737	
		1.150	-1.976	-1.143		-1.904	.351	
		2.300	-1.976	-3.415		-1.904	-2.222	
		2.300			-.425			-3.312
	MIN							
	3	.000			-.704			-5.233
		.000	-6.470	1.104		-3.075	2.569	
		1.150	-6.470	-2.000		-3.075	.174	
		2.300	-6.470	-5.739		-3.075	-3.047	
		2.300			-.704			-5.233
	MAX							
	4	.000			-.382			-3.209
		.000	-1.500	1.940		-1.126	3.760	
		1.150	-1.500	-.818		-1.126	.472	
		2.300	-1.500	-2.543		-1.126	-1.461	
		2.300			-.382			-3.209

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN							
	4	.000			-.845			-6.411
		.000	-8.989	.865		-3.077	1.813	
		1.150	-8.989	-2.246		-3.077	.176	
		2.300	-8.989	-6.417		-3.077	-2.837	
		2.300			-.845			-6.411
	MAX & MIN							
	5	.000			-.004			-3.522
		.000	-2.712	1.065		-.052	.058	
		1.150	-2.712	-2.054		-.052	-.002	
		2.300	-2.712	-5.174		-.052	-.061	
		2.300			-.004			-3.522
	MAX & MIN							
	6	.000			-.001			-3.525
		.000	-2.611	1.397		-.014	.015	
		1.150	-2.611	-1.605		-.014	-.000	
		2.300	-2.611	-4.608		-.014	-.016	
		2.300			-.001			-3.525
	MAX							
	ALL	.000			-.001			-3.209
		.000	-1.500	1.940		-.014	3.760	
		1.150	-1.500	-.818		-.014	.622	
		2.300	-1.500	-2.543		-.014	-.016	
		2.300			-.001			-3.209
	MIN							
	ALL	.000			-1.201			-6.411
		.000	-8.989	.865		-3.077	.015	
		1.150	-8.989	-2.246		-3.077	-.002	
		2.300	-8.989	-6.417		-3.077	-3.047	
		2.300			-1.201			-6.411
106	----------							
	MAX & MIN							
	1	.000			-.788			-4.972
		.000	-.473	-9.208		-4.572	5.504	
		1.150	-.473	-9.752		-4.572	.247	
		2.300	-.473	-10.295		-4.572	-5.010	
		2.300			-.788			-4.972
	MAX							
	2	.000			-.179			-3.314
		.000	3.970	-7.192		-2.273	4.899	
		1.150	3.970	-3.335		-2.273	-.081	
		2.300	3.970	.774		-2.273	-3.209	
		2.300			-.179			-3.314
	MIN							
	2	.000			-.413			-7.664
		.000	-3.010	-10.900		-4.629	2.867	
		1.150	-3.010	-11.798		-4.629	-.171	
		2.300	-3.010	-13.032		-4.629	-5.139	
		2.300			-.413			-7.664
	MAX							
	3	.000			-.108			-3.433

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	4.047	-7.324		-2.255	4.671	
		1.150	4.047	-3.378		-2.255	-.289	
		2.300	4.047	.820		-2.255	-3.398	
		2.300			-.108			-3.433
	MIN							
	3	.000			-.342			-7.782
		.000	-2.933	-11.032		-4.612	2.639	
		1.150	-2.933	-11.841		-4.612	-.379	
		2.300	-2.933	-12.986		-4.612	-5.328	
		2.300			-.342			-7.782
	MAX							
	4	.000			-.118			-2.448
		.000	7.098	-6.176		-1.311	5.406	
		1.150	7.098	.807		-1.311	-.046	
		2.300	7.098	8.209		-1.311	-2.413	
		2.300			-.118			-2.448
	MIN							
	4	.000			-.508			-9.696
		.000	-4.536	-12.355		-5.238	2.019	
		1.150	-4.536	-13.298		-5.238	-.198	
		2.300	-4.536	-14.800		-5.238	-5.630	
		2.300			-.508			-9.696
	MAX & MIN							
	5	.000			-.017			-5.098
		.000	-.624	-12.529		-.070	.047	
		1.150	-.624	-13.247		-.070	-.034	
		2.300	-.624	-13.964		-.070	-.114	
		2.300			-.017			-5.098
	MAX & MIN							
	6	.000			-.005			-5.284
		.000	-.312	-9.201		-.019	.012	
		1.150	-.312	-9.560		-.019	-.009	
		2.300	-.312	-9.919		-.019	-.030	
		2.300			-.005			-5.284
	MAX							
	ALL	.000			-.005			-2.448
		.000	7.098	-6.176		-.019	5.504	
		1.150	7.098	.807		-.019	.247	
		2.300	7.098	8.209		-.019	-.030	
		2.300			-.005			-2.448
	MIN							
	ALL	.000			-.788			-9.696
		.000	-4.536	-12.529		-5.238	.012	
		1.150	-4.536	-13.298		-5.238	-.379	
		2.300	-4.536	-14.800		-5.238	-5.630	
		2.300			-.788			-9.696
107	----------							
	MAX & MIN							
	1	.000			-1.162			5.596
		.000	.152	-9.543		-4.506	4.991	
		1.150	.152	-9.368		-4.506	-.191	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300	.152	-9.194		-4.506	-5.373	
		2.300			-1.162			5.596
	MAX							
	2	.000			-.493			9.653
		.000	6.132	1.500		-1.718	3.898	
		1.150	6.132	-3.279		-1.718	-.398	
		2.300	6.132	1.862		-1.718	-2.820	
		2.300			-.493			9.653
	MIN							
	2	.000			-.727			4.289
		.000	-4.553	-14.061		-4.074	2.003	
		1.150	-4.553	-11.742		-4.074	-.491	
		2.300	-4.553	-11.514		-4.074	-4.048	
		2.300			-.727			4.289
	MAX							
	3	.000			-.386			9.532
		.000	6.211	1.436		-1.375	3.309	
		1.150	6.211	-3.253		-1.375	-.593	
		2.300	6.211	1.980		-1.375	-2.621	
		2.300			-.386			9.532
	MIN							
	3	.000			-.620			4.168
		.000	-4.474	-14.125		-3.731	1.414	
		1.150	-4.474	-11.716		-3.731	-.606	
		2.300	-4.474	-11.397		-3.731	-4.649	
		2.300			-.620			4.168
	MAX							
	4	.000			-.397			12.122
		.000	10.283	8.825		-.748	4.363	
		1.150	10.283	.932		-.748	-.365	
		2.300	10.283	9.574		-.748	-1.971	
		2.300			-.397			12.122
	MIN							
	4	.000			-.787			3.182
		.000	-7.524	-17.110		-4.675	1.205	
		1.150	-7.524	-13.173		-4.675	-.521	
		2.300	-7.524	-12.720		-4.675	-5.351	
		2.300			-.787			3.182
	MAX & MIN							
	5	.000			-.017			5.098
		.000	.624	-13.964		.070	-.114	
		1.150	.624	-13.247		.070	-.034	
		2.300	.624	-12.529		.070	.047	
		2.300			-.017			5.098
	MAX & MIN							
	6	.000			-.005			5.284
		.000	.312	-9.919		.019	-.030	
		1.150	.312	-9.560		.019	-.009	
		2.300	.312	-9.201		.019	.012	
		2.300			-.005			5.284

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX							
	ALL	.000			-.005			12.122
		.000	10.283	8.825		.070	4.991	
		1.150	10.283	.932		.070	-.009	
		2.300	10.283	9.574		.070	.047	
		2.300			-.005			12.122
	MIN							
	ALL	.000			-1.162			3.182
		.000	-7.524	-17.110		-4.675	-.114	
		1.150	-7.524	-13.247		-4.675	-.686	
		2.300	-7.524	-12.720		-4.675	-5.373	
		2.300			-1.162			3.182
108	----------							
	MAX & MIN							
	1	.000			-.807			3.564
		.000	2.555	-4.503		-2.212	2.044	
		1.150	2.555	-1.565		-2.212	-.499	
		2.300	2.555	1.374		-2.212	-3.043	
		2.300			-.807			3.564
	MAX							
	2	.000			-.324			5.370
		.000	6.287	-1.781		-.361	1.087	
		1.150	6.287	-.564		-.361	-.350	
		2.300	6.287	1.583		-.361	-.987	
		2.300			-.324			5.370
	MIN							
	2	.000			-.602			3.449
		.000	1.058	-5.486		-1.532	.288	
		1.150	1.058	-1.956		-1.532	-.530	
		2.300	1.058	.653		-1.532	-2.127	
		2.300			-.602			3.449
	MAX							
	3	.000			-.253			5.347
		.000	6.317	-1.814		.122	.493	
		1.150	6.317	-.563		.122	-.389	
		2.300	6.317	1.618		.122	-.471	
		2.300			-.253			5.347
	MIN							
	3	.000			-.531			3.426
		.000	1.088	-5.519		-1.049	-.307	
		1.150	1.088	-1.955		-1.049	-.569	
		2.300	1.088	.688		-1.049	-1.611	
		2.300			-.531			3.426
	MAX							
	4	.000			-.209			6.525
		.000	8.837	-.021		.124	1.285	
		1.150	8.837	.119		.124	-.276	
		2.300	8.837	1.809		.124	-.503	
		2.300			-.209			6.525
	MIN							
	4	.000			-.673			3.323

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	.122	-6.197		-1.827	-.048	
		1.150	.122	-2.202		-1.827	-.577	
		2.300	.122	.259		-1.827	-2.404	
		2.300			-.673			3.323
	MAX & MIN							
	5	.000			-.004			3.522
		.000	2.712	-5.174		.052	-.061	
		1.150	2.712	-2.054		.052	-.002	
		2.300	2.712	1.065		.052	.058	
		2.300			-.004			3.522
	MAX & MIN							
	6	.000			-.001			3.525
		.000	2.611	-4.608		.014	-.016	
		1.150	2.611	-1.605		.014	-.000	
		2.300	2.611	1.397		.014	.015	
		2.300			-.001			3.525
	MAX							
	ALL	.000			-.001			6.525
		.000	8.837	-.021		.124	2.044	
		1.150	8.837	.119		.124	-.000	
		2.300	8.837	1.809		.124	.058	
		2.300			-.001			6.525
	MIN							
	ALL	.000			-.807			3.323
		.000	.122	-6.197		-2.212	-.307	
		1.150	.122	-2.202		-2.212	-.577	
		2.300	.122	.259		-2.212	-3.043	
		2.300			-.807			3.323
109	----------							
	MAX & MIN							
	1	.000			-2.001			-2.338
		.000	-7.930	6.730		-1.989	2.604	
		1.150	-7.930	-2.389		-1.989	.317	
		2.300	-7.930	-11.509		-1.989	-1.971	
		2.300			-2.001			-2.338
	MAX							
	2	.000			-1.093			-1.634
		.000	-7.572	7.744		-1.284	2.941	
		1.150	-7.572	-1.844		-1.284	.247	
		2.300	-7.572	-10.653		-1.284	-1.558	
		2.300			-1.093			-1.634
	MIN							
	2	.000			-1.115			-3.695
		.000	-14.066	6.510		-2.474	1.816	
		1.150	-14.066	-2.847		-2.474	.129	
		2.300	-14.066	-13.273		-2.474	-2.450	
		2.300			-1.115			-3.695
	MAX							
	3	.000			-1.027			-1.655
		.000	-7.560	7.728		-1.490	3.141	
		1.150	-7.560	-1.847		-1.490	.210	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300	-7.560	-10.642		-1.490	-1.831	
		2.300			-1.027			-1.655
	MIN							
	3	.000			-1.050			-3.717
		.000	-14.054	6.493		-2.680	2.015	
		1.150	-14.054	-2.850		-2.680	.092	
		2.300	-14.054	-13.262		-2.680	-2.723	
		2.300			-1.050			-3.717
	MAX							
	4	.000			-1.085			-1.213
		.000	-7.304	8.368		-.802	3.227	
		1.150	-7.304	-1.500		-.802	.276	
		2.300	-7.304	-10.069		-.802	-1.192	
		2.300			-1.085			-1.213
	MIN							
	4	.000			-1.123			-4.649
		.000	-18.128	6.311		-2.785	1.352	
		1.150	-18.128	-3.172		-2.785	.080	
		2.300	-18.128	-14.436		-2.785	-2.679	
		2.300			-1.123			-4.649
	MAX & MIN							
	5	.000			-.004			-2.413
		.000	-7.903	6.222		-.061	.071	
		1.150	-7.903	-2.867		-.061	.001	
		2.300	-7.903	-11.955		-.061	-.070	
		2.300			-.004			-2.413
	MAX & MIN							
	6	.000			-.001			-2.373
		.000	-7.914	6.764		-.016	.019	
		1.150	-7.914	-2.337		-.016	.000	
		2.300	-7.914	-11.437		-.016	-.019	
		2.300			-.001			-2.373
	MAX							
	ALL	.000			-.001			-1.213
		.000	-7.304	8.368		-.016	3.227	
		1.150	-7.304	-1.500		-.016	.317	
		2.300	-7.304	-10.069		-.016	-.019	
		2.300			-.001			-1.213
	MIN							
	ALL	.000			-2.001			-4.649
		.000	-18.128	6.222		-2.785	.019	
		1.150	-18.128	-3.172		-2.785	.000	
		2.300	-18.128	-14.436		-2.785	-2.723	
		2.300			-2.001			-4.649
110	----------							
	MAX & MIN							
	1	.000			-1.461			-3.762
		.000	-3.705	-11.343		-4.219	4.935	
		1.150	-3.705	-15.603		-4.219	.083	
		2.300	-3.705	-19.864		-4.219	-4.769	
		2.300			-1.461			-3.762

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX							
	2	.000			-.644			-2.430
		.000	.476	-8.129		-2.030	4.709	
		1.150	.476	-10.394		-2.030	-.084	
		2.300	.476	-11.050		-2.030	-2.899	
		2.300			-.644			-2.430
	MIN							
	2	.000			-.687			-5.751
		.000	-7.636	-14.218		-4.470	2.648	
		1.150	-7.636	-17.901		-4.470	-.132	
		2.300	-7.636	-23.605		-4.470	-4.936	
		2.300			-.687			-5.751
	MAX							
	3	.000			-.504			-2.540
		.000	.506	-8.246		-2.001	4.561	
		1.150	.506	-10.476		-2.001	-.197	
		2.300	.506	-11.097		-2.001	-2.978	
		2.300			-.504			-2.540
	MIN							
	3	.000			-.546			-5.861
		.000	-7.605	-14.335		-4.441	2.500	
		1.150	-7.605	-17.984		-4.441	-.245	
		2.300	-7.605	-23.652		-4.441	-5.015	
		2.300			-.546			-5.861
	MAX							
	4	.000			-.628			-1.757
		.000	3.334	-6.318		-1.036	5.222	
		1.150	3.334	-7.170		-1.036	-.065	
		2.300	3.334	-5.340		-1.036	-2.056	
		2.300			-.628			-1.757
	MIN							
	4	.000			-.699			-7.291
		.000	-10.184	-16.466		-5.102	1.786	
		1.150	-10.184	-19.682		-5.102	-.146	
		2.300	-10.184	-26.265		-5.102	-5.451	
		2.300			-.699			-7.291
	MAX & MIN							
	5	.000			-.020			-4.048
		.000	-3.666	-14.864		-.096	.075	
		1.150	-3.666	-19.080		-.096	-.034	
		2.300	-3.666	-23.295		-.096	-.144	
		2.300			-.020			-4.048
	MAX & MIN							
	6	.000			-.005			-4.064
		.000	-3.677	-11.166		-.026	.020	
		1.150	-3.677	-15.395		-.026	-.009	
		2.300	-3.677	-19.624		-.026	-.039	
		2.300			-.005			-4.064
	MAX							
	ALL	.000			-.005			-1.757
		.000	3.334	-6.318		-.026	5.222	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.150	3.334	-7.170		-.026	.083	
		2.300	3.334	-5.340		-.026	-.039	
		2.300			-.005			-1.757
	MIN							
	ALL	.000			-1.461			-7.291
		.000	-10.184	-16.466		-5.102	.020	
		1.150	-10.184	-19.682		-5.102	-.245	
		2.300	-10.184	-26.265		-5.102	-5.451	
		2.300			-1.461			-7.291
111	------------------							
	MAX & MIN							
	1	.000			-.735			4.365
		.000	3.649	-19.383		-4.168	4.726	
		1.150	3.649	-15.186		-4.168	-.067	
		2.300	3.649	-10.990		-4.168	-4.860	
		2.300			-.735			4.365
	MAX							
	2	.000			-.209			7.488
		.000	12.203	-10.966		-1.494	3.966	
		1.150	12.203	-10.520		-1.494	-.191	
		2.300	12.203	.520		-1.494	-2.377	
		2.300			-.209			7.488
	MIN							
	2	.000			-.251			3.343
		.000	-.658	-29.294		-3.934	1.963	
		1.150	-.658	-18.027		-3.934	-.243	
		2.300	-.658	-13.652		-3.934	-4.427	
		2.300			-.251			3.343
	MAX							
	3	.000			-.068			7.377
		.000	12.233	-10.932		-1.151	3.463	
		1.150	12.233	-10.452		-1.151	-.300	
		2.300	12.233	.621		-1.151	-2.091	
		2.300			-.068			7.377
	MIN							
	3	.000			-.111			3.233
		.000	-.629	-29.260		-3.591	1.460	
		1.150	-.629	-17.959		-3.591	-.351	
		2.300	-.629	-13.550		-3.591	-4.141	
		2.300			-.111			3.233
	MAX							
	4	.000			-.193			9.356
		.000	17.978	-5.175		-.489	4.456	
		1.150	17.978	-7.145		-.489	-.173	
		2.300	17.978	8.539		-.489	-1.514	
		2.300			-.193			9.356
	MIN							
	4	.000			-.263			2.449
		.000	-3.457	-35.721		-4.556	1.118	
		1.150	-3.457	-19.658		-4.556	-.258	
		2.300	-3.457	-15.080		-4.556	-4.930	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300			-.263			2.449
	MAX & MIN							
	5	.000			-.020			4.048
		.000	3.666	-23.295		.096	-.144	
		1.150	3.666	-19.080		.096	-.034	
		2.300	3.666	-14.864		.096	.075	
		2.300			-.020			4.048
	MAX & MIN							
	6	.000			-.005			4.064
		.000	3.677	-19.624		.026	-.039	
		1.150	3.677	-15.395		.026	-.009	
		2.300	3.677	-11.166		.026	.020	
		2.300			-.005			4.064
	MAX							
	ALL	.000			-.005			9.356
		.000	17.978	-5.175		.096	4.726	
		1.150	17.978	-7.145		.096	-.009	
		2.300	17.978	8.539		.096	.075	
		2.300			-.005			9.356
	MIN							
	ALL	.000			-.735			2.449
		.000	-3.457	-35.721		-4.556	-.144	
		1.150	-3.457	-19.658		-4.556	-.351	
		2.300	-3.457	-15.080		-4.556	-4.930	
		2.300			-.735			2.449
112	------------------							
	MAX & MIN							
	1	.000			-.207			2.409
		.000	7.897	-11.366		-1.987	1.994	
		1.150	7.897	-2.284		-1.987	-.291	
		2.300	7.897	6.798		-1.987	-2.576	
		2.300			-.207			2.409
	MAX							
	2	.000			-.015			3.845
		.000	13.985	-9.276		-.366	1.328	
		1.150	13.985	-1.282		-.366	-.187	
		2.300	13.985	7.704		-.366	-.832	
		2.300			-.015			3.845
	MIN							
	2	.000			-.035			1.784
		.000	6.941	-13.128		-1.556	.459	
		1.150	6.941	-2.794		-1.556	-.306	
		2.300	6.941	6.585		-1.556	-1.931	
		2.300			-.035			1.784
	MAX							
	3	.000			.050			3.824
		.000	13.998	-9.289		.021	.871	
		1.150	13.998	-1.281		.021	-.199	
		2.300	13.998	7.720		.021	-.399	
		2.300			.050			3.824

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277 PROGRAM:SAP90/FILE:304277.F3F

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN							
	3	.000			.029			1.763
		.000	6.954	-13.140		-1.169	.001	
		1.150	6.954	-2.793		-1.169	-.318	
		2.300	6.954	6.601		-1.169	-1.498	
		2.300			.029			1.763
	MAX							
	4	.000			-.008			4.756
		.000	18.072	-7.895		.126	1.540	
		1.150	18.072	-.595		.126	-.137	
		2.300	18.072	8.360		.126	-.366	
		2.300			-.008			4.756
	MIN							
	4	.000			-.042			1.320
		.000	6.332	-14.314		-1.857	.091	
		1.150	6.332	-3.115		-1.857	-.336	
		2.300	6.332	6.496		-1.857	-2.198	
		2.300			-.042			1.320
	MAX & MIN							
	5	.000			-.004			2.413
		.000	7.903	-11.955		.061	-.070	
		1.150	7.903	-2.867		.061	.001	
		2.300	7.903	6.222		.061	.071	
		2.300			-.004			2.413
	MAX & MIN							
	6	.000			-.001			2.373
		.000	7.914	-11.437		.016	-.019	
		1.150	7.914	-2.337		.016	.000	
		2.300	7.914	6.764		.016	.019	
		2.300			-.001			2.373
	MAX							
	ALL	.000			.050			4.756
		.000	18.072	-7.895		.126	1.994	
		1.150	18.072	-.595		.126	.001	
		2.300	18.072	8.360		.126	.071	
		2.300			.050			4.756
	MIN							
	ALL	.000			-.207			1.320
		.000	6.332	-14.314		-1.987	-.070	
		1.150	6.332	-3.115		-1.987	-.336	
		2.300	6.332	6.222		-1.987	-2.576	
		2.300			-.207			1.320
113	------------------							
	MAX & MIN							
	1	.000			-2.023			-1.571
		.000	-9.773	8.244		-1.699	2.165	
		1.150	-9.773	-2.995		-1.699	.211	
		2.300	-9.773	-14.235		-1.699	-1.744	
		2.300			-2.023			-1.571
	MAX							
	2	.000			-1.142			-.645

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277 PROGRAM:SAP90/FILE:304277.F3F

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	-9.478	9.408		-.989	2.541	
		1.150	-9.478	-2.430		-.989	.185	
		2.300	-9.478	-13.621		-.989	-1.259	
		2.300			-1.142			-.645
	MIN							
	2	.000			-1.174			-2.747
		.000	-16.313	7.951		-2.181	1.436	
		1.150	-16.313	-3.541		-2.181	.089	
		2.300	-16.313	-16.271		-2.181	-2.171	
		2.300			-1.174			-2.747
	MAX							
	3	.000			-1.099			-.667
		.000	-9.474	9.481		-1.113	2.662	
		1.150	-9.474	-2.432		-1.113	.163	
		2.300	-9.474	-13.618		-1.113	-1.424	
		2.300			-1.099			-.667
	MIN							
	3	.000			-1.130			-2.768
		.000	-16.310	7.944		-2.305	1.557	
		1.150	-16.310	-3.543		-2.305	.067	
		2.300	-16.310	-16.268		-2.305	-2.336	
		2.300			-1.130			-2.768
	MAX							
	4	.000			-1.129			-.077
		.000	-9.267	10.280		-.505	2.821	
		1.150	-9.267	-2.074		-.505	.209	
		2.300	-9.267	-13.217		-.505	-.803	
		2.300			-1.129			-.077
	MIN							
	4	.000			-1.182			-3.580
		.000	-20.660	7.719		-2.492	.980	
		1.150	-20.660	-3.926		-2.492	.048	
		2.300	-20.660	-17.634		-2.492	-2.404	
		2.300			-1.182			-3.580
	MAX & MIN							
	5	.000			-.007			-1.699
		.000	-9.723	7.659		-.072	.087	
		1.150	-9.723	-3.522		-.072	.004	
		2.300	-9.723	-14.703		-.072	-.079	
		2.300			-.007			-1.699
	MAX & MIN							
	6	.000			-.002			-1.598
		.000	-9.775	8.310		-.019	.023	
		1.150	-9.775	-2.931		-.019	.001	
		2.300	-9.775	-14.172		-.019	-.021	
		2.300			-.002			-1.598
	MAX							
	ALL	.000			-.002			-.077
		.000	-9.267	10.280		-.019	2.821	
		1.150	-9.267	-2.074		-.019	.211	
		2.300	-9.267	-13.217		-.019	-.021	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300			-.002			-.077
	MIN							
	ALL	.000			-2.023			-3.580
		.000	-20.660	7.659		-2.492	.023	
		1.150	-20.660	-3.926		-2.492	.001	
		2.300	-20.660	-17.634		-2.492	-2.404	
		2.300			-2.023			-3.580
114	----------							
	MAX & MIN							
	1	.000			-1.504			-3.727
		.000	-4.534	-16.254		-3.616	4.176	
		1.150	-4.534	-21.468		-3.616	.018	
		2.300	-4.534	-26.682		-3.616	-4.140	
		2.300			-1.504			-3.727
	MAX							
	2	.000			-.760			-2.560
		.000	-.525	-12.320		-1.644	4.250	
		1.150	-.525	-17.254		-1.644	-.084	
		2.300	-.525	-19.385		-1.644	-2.432	
		2.300			-.760			-2.560
	MIN							
	2	.000			-.795			-5.366
		.000	-8.840	-19.700		-4.070	2.215	
		1.150	-8.840	-24.187		-4.070	-.122	
		2.300	-8.840	-30.971		-4.070	-4.476	
		2.300			-.795			-5.366
	MAX							
	3	.000			-.670			-2.669
		.000	-.507	-12.478		-1.591	4.113	
		1.150	-.507	-17.391		-1.591	-.160	
		2.300	-.507	-19.501		-1.591	-2.447	
		2.300			-.670			-2.669
	MIN							
	3	.000			-.704			-5.475
		.000	-8.821	-19.858		-4.017	2.078	
		1.150	-8.821	-24.324		-4.017	-.198	
		2.300	-8.821	-31.087		-4.017	-4.490	
		2.300			-.704			-5.475
	MAX							
	4	.000			-.747			-1.988
		.000	2.212	-10.181		-.656	4.757	
		1.150	2.212	-14.854		-.656	-.070	
		2.300	2.212	-14.855		-.656	-1.587	
		2.300			-.747			-1.988
	MIN							
	4	.000			-.805			-6.665
		.000	-11.645	-22.481		-4.700	1.365	
		1.150	-11.645	-26.408		-4.700	-.134	
		2.300	-11.645	-34.165		-4.700	-4.993	
		2.300			-.805			-6.665

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX & MIN							
	5	.000			-.039			-4.223
		.000	-4.319	-20.178		-.145	.120	
		1.150	-4.319	-25.145		-.145	-.046	
		2.300	-4.319	-30.113		-.145	-.212	
		2.300			-.039			-4.223
	MAX & MIN							
	6	.000			-.010			-4.021
		.000	-4.565	-15.958		-.039	.032	
		1.150	-4.565	-21.208		-.039	-.012	
		2.300	-4.565	-26.458		-.039	-.057	
		2.300			-.010			-4.021
	MAX							
	ALL	.000			-.010			-1.988
		.000	2.212	-10.181		-.039	4.757	
		1.150	2.212	-14.854		-.039	.018	
		2.300	2.212	-14.855		-.039	-.057	
		2.300			-.010			-1.988
	MIN							
	ALL	.000			-1.504			-6.665
		.000	-11.645	-22.481		-4.700	.032	
		1.150	-11.645	-26.408		-4.700	-.198	
		2.300	-11.645	-34.165		-4.700	-4.993	
		2.300			-1.504			-6.665
115	----------							
	MAX & MIN							
	1	.000			-.729			4.316
		.000	4.596	-26.234		-3.549	4.052	
		1.150	4.596	-20.948		-3.549	-.030	
		2.300	4.596	-15.663		-3.549	-4.111	
		2.300			-.729			4.316
	MAX							
	2	.000			-.287			6.954
		.000	13.466	-19.648		-1.157	3.650	
		1.150	13.466	-17.593		-1.157	-.115	
		2.300	13.466	-5.777		-1.157	-1.915	
		2.300			-.287			6.954
	MIN							
	2	.000			-.321			2.980
		.000	.460	-38.645		-3.583	1.645	
		1.150	.460	-24.525		-3.583	-.154	
		2.300	.460	-19.124		-3.583	-3.928	
		2.300			-.321			2.980
	MAX							
	3	.000			-.200			6.849
		.000	13.489	-19.551		-.839	3.210	
		1.150	13.489	-17.469		-.839	-.190	
		2.300	13.489	-5.628		-.839	-1.624	
		2.300			-.200			6.849
	MIN							
	3	.000			-.234			2.875

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300			-.234			2.875
	MAX							
	4	.000			-.277			8.503
		.000	19.440	-14.905		-.156	4.137	
		1.150	19.440	-14.933		-.156	-.101	
		2.300	19.440	1.306		-.156	-1.063	
		2.300			-.277			8.503
	MIN							
	4	.000			-.334			1.879
		.000	-2.237	-46.567		-4.199	.795	
		1.150	-2.237	-26.487		-4.199	-.165	
		2.300	-2.237	-20.939		-4.199	-4.418	
		2.300			-.334			1.879
	MAX & MIN							
	5	.000			-.039			4.223
		.000	4.319	-30.113		.145	-.212	
		1.150	4.319	-25.145		.145	-.046	
		2.300	4.319	-20.178		.145	.120	
		2.300			-.039			4.223
	MAX & MIN							
	6	.000			-.010			4.021
		.000	4.565	-26.458		.039	-.057	
		1.150	4.565	-21.208		.039	-.012	
		2.300	4.565	-15.958		.039	.032	
		2.300			-.010			4.021
	MAX							
	ALL	.000			-.010			8.503
		.000	19.440	-14.905		.145	4.137	
		1.150	19.440	-14.933		.145	-.012	
		2.300	19.440	1.306		.145	.120	
		2.300			-.010			8.503
	MIN							
	ALL	.000			-.729			1.879
		.000	-2.237	-46.567		-4.199	-.212	
		1.150	-2.237	-26.487		-4.199	-.229	
		2.300	-2.237	-20.939		-4.199	-4.418	
		2.300			-.729			1.879
116	----------							
	MAX & MIN							
	1	.000			-.183			1.626
		.000	9.776	-14.110		-1.695	1.745	
		1.150	9.776	-2.867		-1.695	-.205	
		2.300	9.776	8.376		-1.695	-2.154	
		2.300			-.183			1.626
	MAX							
	2	.000			-.027			2.886
		.000	16.292	-12.367		-.312	1.351	
		1.150	16.292	-1.919		-.312	-.120	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300	16.292	9.532		-.312	-.702	
		2.300			-.027			2.886
	MIN							
	2	.000			-.059			.784
		.000	9.066	-16.178		-1.504	.462	
		1.150	9.066	-3.472		-1.504	-.217	
		2.300	9.066	8.141		-1.504	-1.784	
		2.300			-.059			.784
	MAX							
	3	.000			.012			2.865
		.000	16.298	-12.371		-.005	.997	
		1.150	16.298	-1.918		-.005	-.122	
		2.300	16.298	9.539		-.005	-.352	
		2.300			.012			2.865
	MIN							
	3	.000			-.020			.763
		.000	9.071	-16.183		-1.197	.108	
		1.150	9.071	-3.471		-1.197	-.219	
		2.300	9.071	8.148		-1.197	-1.433	
		2.300			-.020			.763
	MAX							
	4	.000			-.019			3.676
		.000	20.648	-11.196		.182	1.567	
		1.150	20.648	-1.265		.182	-.079	
		2.300	20.648	10.338		.182	-.243	
		2.300			-.019			3.676
	MIN							
	4	.000			-.071			.174
		.000	8.604	-17.549		-1.805	.085	
		1.150	8.604	-3.854		-1.805	-.241	
		2.300	8.604	8.019		-1.805	-2.046	
		2.300			-.071			.174
	MAX & MIN							
	5	.000			-.007			1.699
		.000	9.723	-14.703		.072	-.079	
		1.150	9.723	-3.522		.072	.004	
		2.300	9.723	7.659		.072	.087	
		2.300			-.007			1.699
	MAX & MIN							
	6	.000			-.002			1.598
		.000	9.775	-14.172		.019	-.021	
		1.150	9.775	-2.931		.019	.001	
		2.300	9.775	8.310		.019	.023	
		2.300			-.002			1.598
	MAX							
	ALL	.000			.012			3.676
		.000	20.648	-11.196		.182	1.745	
		1.150	20.648	-1.265		.182	.004	
		2.300	20.648	10.338		.182	.087	
		2.300			.012			3.676

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	ALL	.000			-.183			.174
		.000	8.604	-17.549		-1.805	-.079	
		1.150	8.604	-3.854		-1.805	-.241	
		2.300	8.604	7.659		-1.805	-2.154	
		2.300			-.183			.174
117								
	MAX & MIN							
	1	.000			-1.990			-1.502
		.000	-10.748	8.948		-1.409	1.792	
		1.150	-10.748	-3.412		-1.409	.172	
		2.300	-10.748	-15.772		-1.409	-1.449	
		2.300			-1.990			-1.502
	MAX							
	2	.000			-1.158			-.543
		.000	-10.545	10.207		-.748	2.190	
		1.150	-10.545	-2.849		-.748	.156	
		2.300	-10.545	-15.232		-.748	-.986	
		2.300			-1.158			-.543
	MIN							
	2	.000			-1.171			-2.629
		.000	-17.340	8.673		-1.900	1.138	
		1.150	-17.340	-4.024		-1.900	.076	
		2.300	-17.340	-17.899		-1.900	-1.878	
		2.300			-1.171			-2.629
	MAX							
	3	.000			-1.136			-.571
		.000	-10.555	10.219		-.820	2.257	
		1.150	-10.555	-2.849		-.820	.140	
		2.300	-10.555	-15.244		-.820	-1.085	
		2.300			-1.136			-.571
	MIN							
	3	.000			-1.149			-2.657
		.000	-17.350	8.684		-1.972	1.206	
		1.150	-17.350	-4.025		-1.972	.061	
		2.300	-17.350	-17.911		-1.972	-1.977	
		2.300			-1.149			-2.657
	MAX							
	4	.000			-1.152			.029
		.000	-10.428	11.049		-.280	2.453	
		1.150	-10.428	-2.493		-.280	.175	
		2.300	-10.428	-14.914		-.280	-.616	
		2.300			-1.152			.029
	MIN							
	4	.000			-1.175			-3.447
		.000	-21.753	8.492		-2.200	.701	
		1.150	-21.753	-4.452		-2.200	.042	
		2.300	-21.753	-19.359		-2.200	-2.103	
		2.300			-1.175			-3.447
	MAX & MIN							
	5	.000			-.008			-1.740

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	-10.835	8.496		-.083	.105	
		1.150	-10.835	-3.965		-.083	.010	
		2.300	-10.835	-16.426		-.083	-.086	
		2.300			-.008			-1.740
	MAX & MIN							
	6	.000			-.002			-1.524
		.000	-10.751	9.027		-.022	.028	
		1.150	-10.751	-3.337		-.022	.003	
		2.300	-10.751	-15.701		-.022	-.023	
		2.300			-.002			-1.524
	MAX							
	ALL	.000			-.002			.029
		.000	-10.428	11.049		-.022	2.453	
		1.150	-10.428	-2.493		-.022	.175	
		2.300	-10.428	-14.914		-.022	-.023	
		2.300			-.002			.029
	MIN							
	ALL	.000			-1.990			-3.447
		.000	-21.753	8.492		-2.200	.028	
		1.150	-21.753	-4.452		-2.200	.003	
		2.300	-21.753	-19.359		-2.200	-2.103	
		2.300			-1.990			-3.447
118								
	MAX & MIN							
	1	.000			-1.477			-6.554
		.000	-9.587	-16.493		-2.979	3.430	
		1.150	-9.587	-27.518		-2.979	.005	
		2.300	-9.587	-38.543		-2.979	-3.421	
		2.300			-1.477			-6.554
	MAX							
	2	.000			-.813			-5.619
		.000	-6.131	-12.672		-1.279	3.734	
		1.150	-6.131	-23.997		-1.279	-.073	
		2.300	-6.131	-32.740		-1.279	-1.973	
		2.300			-.813			-5.619
	MIN							
	2	.000			-.840			-8.428
		.000	-14.247	-19.338		-3.618	1.790	
		1.150	-14.247	-30.586		-3.618	-.124	
		2.300	-14.247	-43.526		-3.618	-3.970	
		2.300			-.840			-8.428
	MAX							
	3	.000			-.767			-5.748
		.000	-6.152	-12.863		-1.214	3.603	
		1.150	-6.152	-24.212		-1.214	-.130	
		2.300	-6.152	-32.980		-1.214	-1.956	
		2.300			-.767			-5.748
	MIN							
	3	.000			-.794			-8.558
		.000	-14.268	-19.529		-3.553	1.659	
		1.150	-14.268	-30.802		-3.553	-.181	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300	-14.268	-43.766		-3.553	-3.953	
		2.300			-.794			-8.558
	MAX							
	4	.000			-.804			-5.240
		.000	-3.804	-10.795		-.329	4.218	
		1.150	-3.804	-22.294		-.329	-.056	
		2.300	-3.804	-29.488		-.329	-1.150	
		2.300			-.804			-5.240
	MIN							
	4	.000			-.849			-9.923
		.000	-17.330	-21.906		-4.228	.978	
		1.150	-17.330	-33.276		-4.228	-.141	
		2.300	-17.330	-47.466		-4.228	-4.478	
		2.300			-.849			-9.923
	MAX & MIN							
	5	.000			-.060			-7.603
		.000	-9.698	-20.497		-.235	.201	
		1.150	-9.698	-31.650		-.235	-.070	
		2.300	-9.698	-42.802		-.235	-.340	
		2.300			-.060			-7.603
	MAX & MIN							
	6	.000			-.016			-6.840
		.000	-9.647	-16.070		-.063	.054	
		1.150	-9.647	-27.164		-.063	-.019	
		2.300	-9.647	-38.258		-.063	-.091	
		2.300			-.016			-6.840
	MAX							
	ALL	.000			-.016			-5.240
		.000	-3.804	-10.795		-.063	4.218	
		1.150	-3.804	-22.294		-.063	.005	
		2.300	-3.804	-29.488		-.063	-.091	
		2.300			-.016			-5.240
	MIN							
	ALL	.000			-1.477			-9.923
		.000	-17.330	-21.906		-4.228	.054	
		1.150	-17.330	-33.276		-4.228	-.181	
		2.300	-17.330	-47.466		-4.228	-4.478	
		2.300			-1.477			-9.923
119								
	MAX & MIN							
	1	.000			-.754			7.126
		.000	9.707	-37.974		-2.864	3.258	
		1.150	9.707	-26.810		-2.864	-.036	
		2.300	9.707	-15.647		-2.864	-3.329	
		2.300			-.754			7.126
	MAX							
	2	.000			-.378			9.779
		.000	19.114	-33.463		-.785	3.164	
		1.150	19.114	-24.616		-.785	-.085	
		2.300	19.114	-6.959		-.785	-1.460	
		2.300			-.378			9.779

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN							
	2	.000			-.404			5.610
		.000	6.222	-52.891		-3.124	1.217	
		1.150	6.222	-31.864		-3.124	-.134	
		2.300	6.222	-19.791		-3.124	-3.372	
		2.300			-.404			5.610
	MAX							
	3	.000			-.333			9.662
		.000	19.127	-33.277		-.490	2.765	
		1.150	19.127	-24.414		-.490	-.145	
		2.300	19.127	-6.741		-.490	-1.182	
		2.300			-.333			9.662
	MIN							
	3	.000			-.359			5.494
		.000	6.236	-52.705		-2.829	.818	
		1.150	6.236	-31.662		-2.829	-.194	
		2.300	6.236	-19.574		-2.829	-3.094	
		2.300			-.359			5.494
	MAX							
	4	.000			-.370			11.290
		.000	25.373	-29.785		.185	3.631	
		1.150	25.373	-22.495		.185	-.067	
		2.300	25.373	-.522		.185	-.643	
		2.300			-.370			11.290
	MIN							
	4	.000			-.413			4.342
		.000	3.888	-62.166		-3.714	.387	
		1.150	3.888	-34.575		-3.714	-.149	
		2.300	3.888	-21.909		-3.714	-3.830	
		2.300			-.413			4.342
	MAX & MIN							
	5	.000			-.060			7.603
		.000	9.698	-42.802		.235	-.340	
		1.150	9.698	-31.650		.235	-.070	
		2.300	9.698	-20.497		.235	.201	
		2.300			-.060			7.603
	MAX & MIN							
	6	.000			-.016			6.840
		.000	9.647	-38.258		.063	-.091	
		1.150	9.647	-27.164		.063	-.019	
		2.300	9.647	-16.070		.063	.054	
		2.300			-.016			6.840
	MAX							
	ALL	.000			-.016			11.290
		.000	25.373	-29.785		.235	3.631	
		1.150	25.373	-22.495		.235	-.019	
		2.300	25.373	-.522		.235	.201	
		2.300			-.016			11.290
	MIN							
	ALL	.000			-.754			4.342
		.000	3.888	-62.166		-3.714	-.340	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.150	3.888	-34.575		-3.714	-.194	
		2.300	3.888	-21.909		-3.714	-3.830	
		2.300			-.754			4.342
120	----------							
	MAX & MIN							
	1	.000			-.204			1.546
		.000	10.755	-15.630		-1.389	1.432	
		1.150	10.755	-3.262		-1.389	-.165	
		2.300	10.755	9.106		-1.389	-1.763	
		2.300			-.204			1.546
	MAX							
	2	.000			-.082			2.792
		.000	17.385	-14.122		-.221	1.249	
		1.150	17.385	-2.395		-.221	-.092	
		2.300	17.385	10.349		-.221	-.561	
		2.300			-.082			2.792
	MIN							
	2	.000			-.096			.706
		.000	10.177	-17.861		-1.373	.377	
		1.150	10.177	-3.934		-1.373	-.171	
		2.300	10.177	8.939		-1.373	-1.589	
		2.300			-.096			.706
	MAX							
	3	.000			-.062			2.765
		.000	17.379	-14.115		.028	.963	
		1.150	17.379	-2.395		.028	-.091	
		2.300	17.379	10.342		.028	-.273	
		2.300			-.062			2.765
	MIN							
	3	.000			-.075			.679
		.000	10.171	-17.854		-1.124	.092	
		1.150	10.171	-3.935		-1.124	-.169	
		2.300	10.171	8.932		-1.124	-1.501	
		2.300			-.075			.679
	MAX							
	4	.000			-.079			3.555
		.000	21.782	-13.070		.256	1.459	
		1.150	21.782	-1.797		.256	-.058	
		2.300	21.782	11.172		.256	-.122	
		2.300			-.079			3.555
	MIN							
	4	.000			-.101			.078
		.000	9.769	-19.302		-1.664	.006	
		1.150	9.769	-4.362		-1.664	-.189	
		2.300	9.769	8.822		-1.664	-1.835	
		2.300			-.101			.078
	MAX & MIN							
	5	.000			-.008			1.740
		.000	10.835	-16.426		.083	-.086	
		1.150	10.835	-3.965		.083	.010	
		2.300	10.835	8.496		.083	.105	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300			-.008			1.740
	MAX & MIN							
	6	.000			-.002			1.524
		.000	10.751	-15.701		.022	-.023	
		1.150	10.751	-3.337		.022	.003	
		2.300	10.751	9.027		.022	.028	
		2.300			-.002			1.524
	MAX							
	ALL	.000			-.002			3.555
		.000	21.782	-13.070		.256	1.459	
		1.150	21.782	-1.797		.256	.010	
		2.300	21.782	11.172		.256	.105	
		2.300			-.002			3.555
	MIN							
	ALL	.000			-.204			.078
		.000	9.769	-19.302		-1.664	-.086	
		1.150	9.769	-4.362		-1.664	-.189	
		2.300	9.769	8.496		-1.664	-1.835	
		2.300			-.204			.078
121	----------							
	MAX & MIN							
	1	.000			-2.033			-1.450
		.000	-12.329	10.541		-1.152	1.482	
		1.150	-12.329	-3.637		-1.152	.158	
		2.300	-12.329	-17.816		-1.152	-1.167	
		2.300			-2.033			-1.450
	MAX							
	2	.000			-1.109			-.453
		.000	-12.132	11.787		-.604	1.812	
		1.150	-12.132	-3.097		-.604	.131	
		2.300	-12.132	-17.209		-.604	-.701	
		2.300			-1.109			-.453
	MIN							
	2	.000			-1.253			-2.526
		.000	-19.029	10.253		-1.587	.941	
		1.150	-19.029	-4.302		-1.587	.080	
		2.300	-19.029	-19.977		-1.587	-1.556	
		2.300			-1.253			-2.526
	MAX							
	3	.000			-1.110			-.492
		.000	-12.186	11.853		-.659	1.865	
		1.150	-12.186	-3.093		-.659	.121	
		2.300	-12.186	-17.268		-.659	-.854	
		2.300			-1.110			-.492
	MIN							
	3	.000			-1.254			-2.564
		.000	-19.084	10.319		-1.642	.994	
		1.150	-19.084	-4.298		-1.642	.070	
		2.300	-19.084	-20.036		-1.642	-1.629	
		2.300			-1.254			-2.564

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX							
	4	.000			-1.071			.110
		.000	-12.138	12.764		-.205	2.023	
		1.150	-12.138	-2.748		-.205	.144	
		2.300	-12.138	-16.975		-.205	-.453	
		2.300			-1.071			.110
	MIN							
	4	.000			-1.311			-3.344
		.000	-23.633	10.207		-1.844	.571	
		1.150	-23.633	-4.756		-1.844	.059	
		2.300	-23.633	-21.587		-1.844	-1.746	
		2.300			-1.311			-3.344
	MAX & MIN							
	5	.000			-.000			-1.856
		.000	-12.968	10.721		-.088	.123	
		1.150	-12.968	-4.192		-.088	.023	
		2.300	-12.968	-19.106		-.088	-.078	
		2.300			-.000			-1.856
	MAX & MIN							
	6	.000			.000			-1.466
		.000	-12.326	10.621		-.023	.033	
		1.150	-12.326	-3.554		-.023	.006	
		2.300	-12.326	-17.728		-.023	-.021	
		2.300			.000			-1.466
	MAX							
	ALL	.000			.000			.110
		.000	-12.132	12.764		-.023	2.023	
		1.150	-12.132	-2.748		-.023	.150	
		2.300	-12.132	-16.975		-.023	-.021	
		2.300			.000			.110
	MIN							
	ALL	.000			-2.033			-3.344
		.000	-23.633	10.207		-1.844	.033	
		1.150	-23.633	-4.756		-1.844	.006	
		2.300	-23.633	-21.587		-1.844	-1.746	
		2.300			-2.033			-3.344
122	----------							
	MAX & MIN							
	1	.000			-1.559			-12.063
		.000	-31.807	2.921		-2.412	2.819	
		1.150	-31.807	-33.657		-2.412	.045	
		2.300	-31.807	-70.235		-2.412	-2.728	
		2.300			-1.559			-12.063
	MAX							
	2	.000			-.702			-11.095
		.000	-30.051	6.928		-1.044	3.166	
		1.150	-30.051	-30.495		-1.044	-.049	
		2.300	-30.051	-66.820		-1.044	-1.603	
		2.300			-.702			-11.095
	MIN							
	2	.000			-1.027			-14.760

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	-39.082	2.285		-3.126	1.504	
		1.150	-39.082	-36.948		-3.126	-.157	
		2.300	-39.082	-77.419		-3.126	-3.479	
		2.300			-1.027			-14.760
	MAX							
	3	.000			-.712			-11.263
		.000	-30.241	6.815		-.996	3.067	
		1.150	-30.241	-30.827		-.996	-.094	
		2.300	-30.241	-67.371		-.996	-1.593	
		2.300			-.712			-11.263
	MIN							
	3	.000			-1.037			-14.927
		.000	-39.272	2.172		-3.079	1.405	
		1.150	-39.272	-37.280		-3.079	-.201	
		2.300	-39.272	-77.969		-3.079	-3.469	
		2.300			-1.037			-14.927
	MAX							
	4	.000			-.619			-10.827
		.000	-29.218	8.989		-.206	3.576	
		1.150	-29.218	-29.387		-.206	-.019	
		2.300	-29.218	-65.932		-.206	-.844	
		2.300			-.619			-10.827
	MIN							
	4	.000			-1.160			-16.934
		.000	-44.270	1.251		-3.677	.806	
		1.150	-44.270	-40.141		-3.677	-.199	
		2.300	-44.270	-83.596		-3.677	-3.971	
		2.300			-1.160			-16.934
	MAX & MIN							
	5	.000			-.064			-14.469
		.000	-34.899	1.654		-.400	.347	
		1.150	-34.899	-38.480		-.400	-.113	
		2.300	-34.899	-78.614		-.400	-.572	
		2.300			-.064			-14.469
	MAX & MIN							
	6	.000			-.017			-12.309
		.000	-31.822	3.446		-.107	.093	
		1.150	-31.822	-33.150		-.107	-.030	
		2.300	-31.822	-69.746		-.107	-.153	
		2.300			-.017			-12.309
	MAX							
	ALL	.000			-.017			-10.827
		.000	-29.218	8.989		-.107	3.576	
		1.150	-29.218	-29.387		-.107	.045	
		2.300	-29.218	-65.932		-.107	-.153	
		2.300			-.017			-10.827
	MIN							
	ALL	.000			-1.559			-16.934
		.000	-44.270	1.251		-3.677	.093	
		1.150	-44.270	-40.141		-3.677	-.201	
		2.300	-44.270	-83.596		-3.677	-3.971	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300			-1.559			-16.934
123								
	MAX & MIN							
	1	.000			-.666			12.555
		.000	31.837	-69.256		-2.207	2.436	
		1.150	31.837	-32.643		-2.207	-.101	
		2.300	31.837	3.970		-2.207	-2.639	
		2.300			-.666			12.555
	MAX							
	2	.000			-.283			15.886
		.000	43.745	-68.698		-.447	2.538	
		1.150	43.745	-31.517		-.447	-.059	
		2.300	43.745	13.642		-.447	-1.077	
		2.300			-.283			15.886
	MIN							
	2	.000			-.608			11.278
		.000	30.795	-89.101		-2.529	.740	
		1.150	30.795	-39.581		-2.529	-.169	
		2.300	30.795	.628		-2.529	-2.677	
		2.300			-.608			11.278
	MAX							
	3	.000			-.246			15.721
		.000	43.645	-68.262		-.173	2.163	
		1.150	43.645	-31.197		-.173	-.120	
		2.300	43.645	13.847		-.173	-.823	
		2.300			-.246			15.721
	MIN							
	3	.000			-.571			11.113
		.000	30.695	-88.665		-2.256	.365	
		1.150	30.695	-39.261		-2.256	-.229	
		2.300	30.695	.833		-2.256	-2.423	
		2.300			-.571			11.113
	MAX							
	4	.000			-.153			17.727
		.000	51.255	-66.823		.424	2.965	
		1.150	51.255	-29.757		.424	-.019	
		2.300	51.255	20.607		.424	-.371	
		2.300			-.153			17.727
	MIN							
	4	.000			-.695			10.048
		.000	29.672	-100.828		-3.047	-.032	
		1.150	29.672	-43.196		-3.047	-.201	
		2.300	29.672	-1.082		-3.047	-3.039	
		2.300			-.695			10.048
	MAX & MIN							
	5	.000			-.064			14.469
		.000	34.899	-78.614		.400	-.572	
		1.150	34.899	-38.480		.400	-.113	
		2.300	34.899	1.654		.400	.347	
		2.300			-.064			14.469

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX & MIN							
	6	.000			-.017			12.309
		.000	31.822	-69.746		.107	-.153	
		1.150	31.822	-33.150		.107	-.030	
		2.300	31.822	3.446		.107	.093	
		2.300			-.017			12.309
	MAX							
	ALL	.000			-.017			17.727
		.000	51.255	-66.823		.424	2.965	
		1.150	51.255	-29.757		.424	-.019	
		2.300	51.255	20.607		.424	.347	
		2.300			-.017			17.727
	MIN							
	ALL	.000			-.695			10.048
		.000	29.672	-100.828		-3.047	-.572	
		1.150	29.672	-43.196		-3.047	-.229	
		2.300	29.672	-1.082		-3.047	-3.039	
		2.300			-.695			10.048
124								
	MAX & MIN							
	1	.000			-.153			1.482
		.000	12.322	-17.641		-1.120	1.143	
		1.150	12.322	-3.470		-1.120	-.146	
		2.300	12.322	10.700		-1.120	-1.434	
		2.300			-.153			1.482
	MAX							
	2	.000			-.032			2.743
		.000	19.285	-16.502		-.158	1.037	
		1.150	19.285	-2.675		-.158	-.081	
		2.300	19.285	12.202		-.158	-.442	
		2.300			-.032			2.743
	MIN							
	2	.000			-.176			.670
		.000	12.010	-20.151		-1.141	.281	
		1.150	12.010	-4.182		-1.141	-.129	
		2.300	12.010	10.729		-1.141	-1.283	
		2.300			-.176			.670
	MAX							
	3	.000			-.013			2.702
		.000	19.236	-16.449		.050	.799	
		1.150	19.236	-2.679		.050	-.080	
		2.300	19.236	12.140		.050	-.203	
		2.300			-.013			2.702
	MIN							
	3	.000			-.157			.630
		.000	11.960	-20.098		-.934	.043	
		1.150	11.960	-4.186		-.934	-.128	
		2.300	11.960	10.668		-.934	-1.043	
		2.300			-.157			.630
	MAX							
	4	.000			.026			3.482

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	23.785	-15.568		.251	1.212	
		1.150	23.785	-2.134		.251	-.059	
		2.300	23.785	13.051		.251	-.070	
		2.300			.026			3.482
	MIN							
	4	.000			-.214			.028
		.000	11.660	-21.650		-1.388	-.048	
		1.150	11.660	-4.644		-1.388	-.139	
		2.300	11.660	10.597		-1.388	-1.471	
		2.300			-.214			.028
	MAX & MIN							
	5	.000			-.000			1.856
		.000	12.968	-19.106		.088	-.078	
		1.150	12.968	-4.192		.088	.023	
		2.300	12.968	10.721		.088	.123	
		2.300			-.000			1.856
	MAX & MIN							
	6	.000			.000			1.466
		.000	12.326	-17.728		.023	-.021	
		1.150	12.326	-3.554		.023	.006	
		2.300	12.326	10.621		.023	.033	
		2.300			.000			1.466
	MAX							
	ALL	.000			.026			3.482
		.000	23.785	-15.568		.251	1.212	
		1.150	23.785	-2.134		.251	.023	
		2.300	23.785	13.051		.251	.123	
		2.300			.026			3.482
	MIN							
	ALL	.000			-.214			.028
		.000	11.660	-21.650		-1.388	-.078	
		1.150	11.660	-4.644		-1.388	-.146	
		2.300	11.660	10.597		-1.388	-1.471	
		2.300			-.214			.028
125								
	MAX & MIN							
	1	.000			-2.200			-.566
		.000	-13.130	11.312		-.981	1.248	
		1.150	-13.130	-3.787		-.981	.120	
		2.300	-13.130	-18.887		-.981	-1.007	
		2.300			-2.200			-.566
	MAX							
	2	.000			-.941			.464
		.000	-13.170	12.554		-.601	1.368	
		1.150	-12.756	-3.379		-.601	.118	
		2.300	-12.342	-17.948		-.601	-.725	
		2.300			-.941			.464
	MIN							
	2	.000			-1.502			-1.502
		.000	-20.099	11.000		-1.170	.855	
		1.150	-19.685	-4.572		-1.170	.065	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300	-19.271	-20.757		-1.170	-1.141	
		2.300			-1.502			-1.502
	MAX							
	3	.000			-.981			.430
		.000	-13.128	12.642		-.675	1.446	
		1.150	-12.880	-3.338		-.675	.112	
		2.300	-12.631	-18.144		-.675	-.816	
		2.300			-.981			.430
	MIN							
	3	.000			-1.541			-1.536
		.000	-20.057	11.088		-1.243	.932	
		1.150	-19.808	-4.530		-1.243	.058	
		2.300	-19.560	-20.953		-1.243	-1.232	
		2.300			-1.541			-1.536
	MAX							
	4	.000			-.794			1.056
		.000	-13.089	13.600		-.368	1.489	
		1.150	-12.841	-3.018		-.368	.134	
		2.300	-12.592	-17.872		-.368	-.542	
		2.300			-.794			1.056
	MIN							
	4	.000			-1.728			-2.220
		.000	-24.637	11.010		-1.317	.633	
		1.150	-24.389	-5.006		-1.317	.045	
		2.300	-24.140	-22.553		-1.317	-1.236	
		2.300			-1.728			-2.220
	MAX & MIN							
	5	.000			.004			-.984
		.000	-14.734	12.613		-.076	.132	
		1.150	-14.734	-4.331		-.076	.045	
		2.300	-14.734	-21.276		-.076	-.042	
		2.300			.004			-.984
	MAX & MIN							
	6	.000			.001			-.580
		.000	-13.120	11.388		-.020	.035	
		1.150	-13.120	-3.699		-.020	.012	
		2.300	-13.120	-18.787		-.020	-.011	
		2.300			.001			-.580
	MAX							
	ALL	.000			.004			1.056
		.000	-13.089	13.600		-.020	1.489	
		1.150	-12.756	-3.018		-.020	.134	
		2.300	-12.342	-17.872		-.020	-.011	
		2.300			.004			1.056
	MIN							
	ALL	.000			-2.200			-2.220
		.000	-24.637	11.000		-1.317	.035	
		1.150	-24.389	-5.006		-1.317	.012	
		2.300	-24.140	-22.553		-1.317	-1.236	
		2.300			-2.200			-2.220

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
126								
	MAX & MIN							
	1	.000			-2.463			-1.910
		.000	-65.837	38.180		-2.068	2.511	
		1.150	-65.837	-37.533		-2.068	.133	
		2.300	-65.837	-113.246		-2.068	-2.246	
		2.300			-2.463			-1.910
	MAX							
	2	.000			.020			-.065
		.000	-64.105	42.624		-1.197	2.569	
		1.150	-63.691	-34.460		-1.197	.054	
		2.300	-63.277	-109.009		-1.197	-1.585	
		2.300			.020			-.065
	MIN							
	2	.000			-2.232			-2.948
		.000	-77.762	37.752		-2.324	1.519	
		1.150	-77.348	-40.901		-2.324	-.035	
		2.300	-76.934	-123.192		-2.324	-2.570	
		2.300			-2.232			-2.948
	MAX							
	3	.000			-.153			-.216
		.000	-64.500	42.708		-1.240	2.559	
		1.150	-64.251	-34.925		-1.240	-.005	
		2.300	-64.003	-110.213		-1.240	-1.693	
		2.300			-.153			-.216
	MIN							
	3	.000			-2.405			-3.098
		.000	-78.156	37.836		-2.366	1.509	
		1.150	-77.907	-41.366		-2.366	-.094	
		2.300	-77.659	-124.396		-2.366	-2.678	
		2.300			-2.405			-3.098
	MAX							
	4	.000			.613			.575
		.000	-64.118	45.748		-.762	2.851	
		1.150	-63.869	-33.846		-.762	.078	
		2.300	-63.621	-109.724		-.762	-1.236	
		2.300			.613			.575
	MIN							
	4	.000			-3.141			-4.230
		.000	-86.878	37.628		-2.639	1.101	
		1.150	-86.630	-44.581		-2.639	-.071	
		2.300	-86.382	-133.361		-2.639	-2.876	
		2.300			-3.141			-4.230
	MAX & MIN							
	5	.000			.006			-5.106
		.000	-77.285	45.980		-.690	.630	
		1.150	-77.285	-42.898		-.690	-.164	
		2.300	-77.285	-131.776		-.690	-.958	
		2.300			.006			-5.106
	MAX & MIN							
	6	.000			.002			-2.043

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMLNT	AXIAL TORQ
		.000	-65.515	38.544		-.184	.168	
		1.150	-65.515	-36.798		-.184	-.044	
		2.300	-65.515	-112.140		-.184	-.256	
		2.300			.002			-2.043
	MAX							
	ALL	.000			.613			.575
		.000	-64.105	45.980		-.184	2.851	
		1.150	-63.691	-33.846		-.184	.133	
		2.300	-63.277	-109.009		-.184	-.256	
		2.300			.613			.575
	MIN							
	ALL	.000			-3.141			-5.106
		.000	-86.878	37.628		-2.639	.168	
		1.150	-86.630	-44.581		-2.639	-.164	
		2.300	-86.382	-133.361		-2.639	-2.876	
		2.300			-3.141			-5.106
127								
	MAX & MIN							
	1	.000			.321			2.175
		.000	65.192	-111.033		-1.705	1.744	
		1.150	65.192	-36.062		-1.705	-.218	
		2.300	65.192	38.909		-1.705	-2.179	
		2.300			.321			2.175
	MAX							
	2	.000			.903			5.621
		.000	82.160	-113.748		-.370	1.305	
		1.150	81.746	-35.901		-.370	-.203	
		2.300	81.332	51.841		-.370	-.874	
		2.300			.903			5.621
	MIN							
	2	.000			-1.350			-.216
		.000	66.712	-138.809		-1.496	.453	
		1.150	66.298	-44.891		-1.496	-.316	
		2.300	65.884	38.069		-1.496	-1.837	
		2.300			-1.350			-.216
	MAX							
	3	.000			1.045			5.348
		.000	81.418	-112.525		-.155	1.017	
		1.150	81.169	-35.437		-.155	-.245	
		2.300	80.921	51.738		-.155	-.671	
		2.300			1.045			5.348
	MIN							
	3	.000			-1.208			-.489
		.000	65.970	-137.587		-1.282	.164	
		1.150	65.722	-44.426		-1.282	-.358	
		2.300	65.474	37.966		-1.282	-1.633	
		2.300			-1.208			-.489
	MAX							
	4	.000			1.811			7.450
		.000	91.437	-112.036		.118	1.504	
		1.150	91.188	-34.358		.118	-.166	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300	90.940	60.320		.118	-.443	
		2.300			1.811			7.450
	MIN							
	4	.000			-1.943			-2.279
		.000	65.691	-153.805		-1.760	.082	
		1.150	65.443	-49.341		-1.760	-.355	
		2.300	65.194	37.368		-1.760	-2.047	
		2.300			-1.943			-2.279
	MAX & MIN							
	5	.000			.006			5.106
		.000	77.285	-131.776		.690	-.958	
		1.150	77.285	-42.898		.690	-.164	
		2.300	77.285	45.980		.690	.630	
		2.300			.006			5.106
	MAX & MIN							
	6	.000			.002			2.043
		.000	65.515	-112.140		.184	-.256	
		1.150	65.515	-36.798		.184	-.044	
		2.300	65.515	38.544		.184	.168	
		2.300			.002			2.043
	MAX							
	ALL	.000			1.811			7.450
		.000	91.437	-111.033		.690	1.744	
		1.150	91.188	-34.358		.690	-.044	
		2.300	90.940	60.320		.690	.630	
		2.300			1.811			7.450
	MIN							
	ALL	.000			-1.943			-2.279
		.000	65.192	-153.805		-1.760	-.958	
		1.150	65.192	-49.341		-1.760	-.358	
		2.300	65.192	37.368		-1.760	-2.179	
		2.300			-1.943			-2.279
128								
	MAX & MIN							
	1	.000			.060			.594
		.000	13.109	-18.687		-.953	.995	
		1.150	13.109	-3.611		-.953	-.100	
		2.300	13.109	11.464		-.953	-1.196	
		2.300			.060			.594
	MAX							
	2	.000			.218			1.700
		.000	20.706	-18.085		-.212	.717	
		1.150	20.292	-2.798		-.212	-.047	
		2.300	19.878	13.091		-.212	-.390	
		2.300			.218			1.700
	MIN							
	2	.000			-.342			-.266
		.000	13.500	-21.617		-.781	.296	
		1.150	13.086	-4.257		-.781	-.094	
		2.300	12.672	11.572		-.781	-.900	
		2.300			-.342			-.266

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX							
	3	.000			.258			1.662
		.000	20.416	-17.889		-.050	.534	
		1.150	20.168	-2.840		-.050	-.044	
		2.300	19.919	13.000		-.050	-.201	
		2.300			.258			1.662
	MIN							
	3	.000			-.303			-.304
		.000	13.210	-21.421		-.618	.113	
		1.150	12.962	-4.299		-.618	-.090	
		2.300	12.713	11.482		-.618	-.711	
		2.300			-.303			-.304
	MAX							
	4	.000			.445			2.346
		.000	24.996	-17.135		.023	.814	
		1.150	24.748	-2.343		.023	-.026	
		2.300	24.500	13.959		.023	-.165	
		2.300			.445			2.346
	MIN							
	4	.000			-.490			-.930
		.000	12.986	-23.021		-.925	.113	
		1.150	12.738	-4.775		-.925	-.104	
		2.300	12.490	11.427		-.925	-1.016	
		2.300			-.490			-.930
	MAX & MIN							
	5	.000			.004			.984
		.000	14.734	-21.276		.076	-.042	
		1.150	14.734	-4.331		.076	.045	
		2.300	14.734	12.613		.076	.132	
		2.300			.004			.984
	MAX & MIN							
	6	.000			.001			.580
		.000	13.120	-18.787		.020	-.011	
		1.150	13.120	-3.699		.020	.012	
		2.300	13.120	11.388		.020	.035	
		2.300			.001			.580
	MAX							
	ALL	.000			.445			2.346
		.000	24.996	-17.135		.076	.995	
		1.150	24.748	-2.343		.076	.045	
		2.300	24.500	13.959		.076	.132	
		2.300			.445			2.346
	MIN							
	ALL	.000			-.490			-.930
		.000	12.986	-23.021		-.953	-.042	
		1.150	12.738	-4.775		-.953	-.104	
		2.300	12.490	11.388		-.953	-1.196	
		2.300			-.490			-.930
129								
	MAX & MIN							
	1	.000			-1.986			.284

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	-11.916	9.466		-.847	1.049	
		1.150	-11.916	-4.237		-.847	.075	
		2.300	-11.916	-17.941		-.847	-.899	
		2.300			-1.986			.284
	MAX							
	2	.000			-1.111			1.336
		.000	-11.860	10.405		-.572	1.120	
		1.150	-11.446	-3.888		-.572	.087	
		2.300	-11.032	-16.923		-.572	-.679	
		2.300			-1.111			1.336
	MIN							
	2	.000			-1.243			-.592
		.000	-18.520	8.966		-.900	.805	
		1.150	-18.106	-5.072		-.900	.043	
		2.300	-17.692	-19.669		-.900	-.953	
		2.300			-1.243			-.592
	MAX							
	3	.000			-1.126			1.315
		.000	-11.848	10.531		-.673	1.235	
		1.150	-11.599	-3.842		-.673	.085	
		2.300	-11.351	-17.149		-.673	-.798	
		2.300			-1.126			1.315
	MIN							
	3	.000			-1.258			-.612
		.000	-18.508	9.093		-1.002	.920	
		1.150	-18.260	-5.027		-1.002	.041	
		2.300	-18.011	-19.894		-1.002	-1.071	
		2.300			-1.258			-.612
	MAX							
	4	.000			-1.075			1.984
		.000	-11.802	11.361		-.452	1.244	
		1.150	-11.553	-3.555		-.452	.098	
		2.300	-11.305	-16.882		-.452	-.603	
		2.300			-1.075			1.984
	MIN							
	4	.000			-1.297			-1.228
		.000	-22.902	8.963		-1.000	.718	
		1.150	-22.654	-5.529		-1.000	.025	
		2.300	-22.406	-21.458		-1.000	-1.059	
		2.300			-1.297			-1.228
	MAX & MIN							
	5	.000			.007			.192
		.000	-14.033	11.297		-.072	.104	
		1.150	-14.033	-4.841		-.072	.021	
		2.300	-14.033	-20.979		-.072	-.061	
		2.300			.007			.192
	MAX & MIN							
	6	.000			.002			.272
		.000	-11.911	9.551		-.019	.028	
		1.150	-11.911	-4.146		-.019	.006	
		2.300	-11.911	-17.844		-.019	-.016	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300			.002			.272
	MAX							
	ALL	.000			.007			1.984
		.000	-11.802	11.361		-.019	1.244	
		1.150	-11.446	-3.555		-.019	.098	
		2.300	-11.032	-16.882		-.019	-.016	
		2.300			.007			1.984
	MIN							
	ALL	.000			-1.986			-1.228
		.000	-22.902	8.963		-1.002	.028	
		1.150	-22.654	-5.529		-1.002	.006	
		2.300	-22.406	-21.458		-1.002	-1.071	
		2.300			-1.986			-1.228
130	----------							
	MAX & MIN							
	1	.000			-1.578			9.740
		.000	-33.249	1.848		-1.827	2.036	
		1.150	-33.249	-36.388		-1.827	-.065	
		2.300	-33.249	-74.624		-1.827	-2.166	
		2.300			-1.578			9.740
	MAX							
	2	.000			-.813			13.040
		.000	-31.238	3.699		-1.173	1.989	
		1.150	-30.824	-34.154		-1.173	-.051	
		2.300	-30.410	-70.625		-1.173	-1.512	
		2.300			-.813			13.040
	MIN							
	2	.000			-1.094			9.419
		.000	-40.375	.270		-1.824	1.408	
		1.150	-39.961	-39.994		-1.824	-.159	
		2.300	-39.547	-81.195		-1.824	-2.207	
		2.300			-1.094			9.419
	MAX							
	3	.000			-.875			12.828
		.000	-31.438	3.736		-1.335	2.106	
		1.150	-31.190	-34.443		-1.335	-.120	
		2.300	-30.941	-71.429		-1.335	-1.767	
		2.300			-.875			12.828
	MIN							
	3	.000			-1.156			9.207
		.000	-40.575	.307		-1.986	1.525	
		1.150	-40.327	-40.282		-1.986	-.228	
		2.300	-40.078	-82.000		-1.986	-2.462	
		2.300			-1.156			9.207
	MAX							
	4	.000			-.736			14.695
		.000	-30.618	5.096		-.942	2.220	
		1.150	-30.369	-33.585		-.942	-.015	
		2.300	-30.121	-70.469		-.942	-1.204	
		2.300			-.736			14.695

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN							
	4	.000			-1.205			8.660
		.000	-45.846	-.619		-2.027	1.253	
		1.150	-45.598	-43.317		-2.027	-.195	
		2.300	-45.349	-88.086		-2.027	-2.442	
		2.300			-1.205			8.660
	MAX & MIN							
	5	.000			.081			11.586
		.000	-41.367	5.625		-.374	.333	
		1.150	-41.367	-41.947		-.374	-.097	
		2.300	-41.367	-89.520		-.374	-.527	
		2.300			.081			11.586
	MAX & MIN							
	6	.000			.022			9.713
		.000	-33.255	2.368		-.100	.089	
		1.150	-33.255	-35.876		-.100	-.026	
		2.300	-33.255	-74.120		-.100	-.141	
		2.300			.022			9.713
	MAX							
	ALL	.000			.081			14.695
		.000	-30.618	5.625		-.100	2.220	
		1.150	-30.369	-33.585		-.100	-.015	
		2.300	-30.121	-70.469		-.100	-.141	
		2.300			.081			14.695
	MIN							
	ALL	.000			-1.578			8.660
		.000	-45.846	-.619		-2.027	.089	
		1.150	-45.598	-43.317		-2.027	-.228	
		2.300	-45.349	-89.520		-2.027	-2.462	
		2.300			-1.578			8.660
131	----------							
	MAX & MIN							
	1	.000			-.482			-9.687
		.000	33.262	-73.615		-1.631	1.890	
		1.150	33.262	-35.364		-1.631	.015	
		2.300	33.262	2.888		-1.631	-1.861	
		2.300			-.482			-9.687
	MAX							
	2	.000			-.250			-7.258
		.000	45.812	-74.356		-.417	1.090	
		1.150	45.398	-35.001		-.417	-.077	
		2.300	44.984	12.310		-.417	-.768	
		2.300			-.250			-7.258
	MIN							
	2	.000			-.534			-11.966
		.000	33.332	-94.214		-1.056	.474	
		1.150	32.918	-42.393		-1.056	-.186	
		2.300	32.504	1.119		-1.056	-1.340	
		2.300			-.534			-11.966
	MAX							
	3	.000			-.274			-7.463

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	45.178	-73.425		-.204	.795	
		1.150	44.930	-34.705		-.204	-.129	
		2.300	44.681	12.162		-.204	-.575	
		2.300			-.274			-7.463
	MIN							
	3	.000			-.558			-12.171
		.000	32.698	-93.284		-.843	.177	
		1.150	32.449	-42.097		-.843	-.238	
		2.300	32.201	.971		-.843	-1.146	
		2.300			-.558			-12.171
	MAX							
	4	.000			-.136			-6.190
		.000	52.678	-72.465		-.188	1.319	
		1.150	52.429	-33.847		-.188	-.044	
		2.300	52.181	18.538		-.188	-.613	
		2.300			-.136			-6.190
	MIN							
	4	.000			-.609			-14.038
		.000	31.878	-105.563		-1.254	.293	
		1.150	31.629	-46.167		-1.254	-.225	
		2.300	31.381	-.114		-1.254	-1.565	
		2.300			-.609			-14.038
	MAX & MIN							
	5	.000			.081			-11.586
		.000	41.367	-89.520		.374	-.527	
		1.150	41.367	-41.947		.374	-.097	
		2.300	41.367	5.625		.374	.333	
		2.300			.081			-11.586
	MAX & MIN							
	6	.000			.022			-9.713
		.000	33.255	-74.120		.100	-.141	
		1.150	33.255	-35.876		.100	-.026	
		2.300	33.255	2.368		.100	.089	
		2.300			.022			-9.713
	MAX							
	ALL	.000			.081			-6.190
		.000	52.678	-72.465		.374	1.890	
		1.150	52.429	-33.847		.374	.015	
		2.300	52.181	18.538		.374	.333	
		2.300			.081			-6.190
	MIN							
	ALL	.000			-.609			-14.038
		.000	31.878	-105.563		-1.631	-.527	
		1.150	31.629	-46.167		-1.631	-.238	
		2.300	31.381	-.114		-1.631	-1.861	
		2.300			-.609			-14.038
132	----------							
	MAX & MIN							
	1	.000			-.111			-.260
		.000	11.906	-17.747		-.815	.874	
		1.150	11.906	-4.055		-.815	-.064	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			2.300	11.906	9.637		-.815	-1.001	
			2.300			-.111			-.260
	MAX								
	2		.000			-.031			.710
			.000	19.295	-17.176		-.191	.526	
			1.150	18.881	-3.285		-.191	-.022	
			2.300	18.467	11.161		-.191	-.339	
			2.300			-.031			.710
	MIN								
	2		.000			-.163			-1.217
			.000	12.286	-20.694		-.513	.277	
			1.150	11.872	-4.731		-.513	-.064	
			2.300	11.458	9.824		-.513	-.653	
			2.300			-.163			-1.217
	MAX								
	3		.000			-.027			.689
			.000	18.970	-16.945		-.060	.382	
			1.150	18.722	-3.332		-.060	-.015	
			2.300	18.474	11.026		-.060	-.180	
			2.300			-.027			.689
	MIN								
	3		.000			-.160			-1.238
			.000	11.961	-20.463		-.381	.133	
			1.150	11.713	-4.778		-.381	-.056	
			2.300	11.464	9.689		-.381	-.494	
			2.300			-.160			-1.238
	MAX								
	4		.000			.023			1.305
			.000	23.365	-16.163		-.075	.629	
			1.150	23.116	-2.870		-.075	-.004	
			2.300	22.868	11.855		-.075	-.250	
			2.300			.023			1.305
	MIN								
	4		.000			-.198			-1.907
			.000	11.683	-22.027		-.610	.214	
			1.150	11.434	-5.280		-.610	-.073	
			2.300	11.186	9.626		-.610	-.774	
			2.300			-.198			-1.907
	MAX & MIN								
	5		.000			.007			-.192
			.000	14.033	-20.979		.072	-.061	
			1.150	14.033	-4.841		.072	.021	
			2.300	14.033	11.297		.072	.104	
			2.300			.007			-.192
	MAX & MIN								
	6		.000			.002			-.272
			.000	11.911	-17.844		.019	-.016	
			1.150	11.911	-4.146		.019	.006	
			2.300	11.911	9.551		.019	.028	
			2.300			.002			-.272

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX								
	ALL		.000			.023			1.305
			.000	23.365	-16.163		.072	.874	
			1.150	23.116	-2.870		.072	.021	
			2.300	22.868	11.855		.072	.104	
			2.300			.023			1.305
	MIN								
	ALL		.000			-.198			-1.907
			.000	11.683	-22.027		-.815	-.061	
			1.150	11.434	-5.280		-.815	-.073	
			2.300	11.186	9.551		-.815	-1.001	
			2.300			-.198			-1.907
133	----------								
	MAX & MIN								
	1		.000			-1.907			.344
			.000	-10.237	7.016		-.616	.765	
			1.150	-10.237	-4.757		-.616	.057	
			2.300	-10.237	-16.530		-.616	-.651	
			2.300			-1.907			.344
	MAX								
	2		.000			-1.150			1.367
			.000	-10.066	7.716		-.429	.920	
			1.150	-9.652	-4.458		-.429	.072	
			2.300	-9.238	-15.918		-.429	-.446	
			2.300			-1.150			1.367
	MIN								
	2		.000			-1.162			-.540
			.000	-16.594	6.312		-.738	.541	
			1.150	-16.180	-5.651		-.738	.047	
			2.300	-15.766	-18.174		-.738	-.778	
			2.300			-1.162			-.540
	MAX								
	3		.000			-1.157			1.355
			.000	-10.061	7.856		-.550	1.067	
			1.150	-9.813	-4.407		-.550	.080	
			2.300	-9.564	-15.748		-.550	-.576	
			2.300			-1.157			1.355
	MIN								
	3		.000			-1.169			-.553
			.000	-16.589	6.452		-.859	.689	
			1.150	-16.341	-5.601		-.859	.055	
			2.300	-16.092	-18.404		-.859	-.908	
			2.300			-1.169			-.553
	MAX								
	4		.000			-1.145			2.020
			.000	-9.947	8.543		-.330	1.053	
			1.150	-9.699	-4.147		-.330	.082	
			2.300	-9.450	-15.489		-.330	-.338	
			2.300			-1.145			2.020
	MIN								
	4		.000			-1.164			-1.159

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			2.300	-6.278	-41.119		-1.258	-1.661	
			2.300			-.984			6.880
	MIN								
	3		.000			-1.022			3.832
			.000	-14.554	-26.263		-1.871	1.233	
			1.150	-14.305	-38.414		-1.871	-.248	
			2.300	-14.057	-51.396		-1.871	-2.385	
			2.300			-1.022			3.832
	MAX								
	4		.000			-.900			8.243
			.000	-4.608	-20.917		-.773	1.916	
			1.150	-4.359	-32.242		-.773	-.108	
			2.300	-4.111	-38.453		-.773	-1.003	
			2.300			-.900			8.243
	MIN								
	4		.000			-.963			3.163
			.000	-17.573	-28.683		-1.793	.774	
			1.150	-17.324	-41.345		-1.793	-.172	
			2.300	-17.076	-55.581		-1.793	-2.210	
			2.300			-.963			3.163
	MAX & MIN								
	5		.000			.083			6.052
			.000	-12.883	-24.946		-.201	.178	
			1.150	-12.883	-39.762		-.201	-.053	
			2.300	-12.883	-54.578		-.201	-.284	
			2.300			.083			6.052
	MAX & MIN								
	6		.000			.022			4.641
			.000	-10.524	-21.987		-.054	.048	
			1.150	-10.524	-34.090		-.054	-.014	
			2.300	-10.524	-46.193		-.054	-.076	
			2.300			.022			4.641
	MAX								
	ALL		.000			.083			8.243
			.000	-4.608	-20.917		-.054	1.918	
			1.150	-4.359	-32.242		-.054	-.014	
			2.300	-4.111	-38.453		-.054	-.076	
			2.300			.083			8.243
	MIN								
	ALL		.000			-1.390			3.163
			.000	-17.573	-28.683		-1.871	.048	
			1.150	-17.324	-41.345		-1.871	-.248	
			2.300	-17.076	-55.581		-1.871	-2.385	
			2.300			-1.390			3.163
135	----------								
	MAX & MIN								
	1		.000			-.669			-4.652
			.000	10.577	-45.869		-1.173	1.347	
			1.150	10.577	-33.706		-1.173	-.002	
			2.300	10.577	-21.543		-1.173	-1.350	
			2.300			-.669			-4.652

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		MAX							
	2		.000			-.474			-2.052
			.000	21.115	-43.856		.002	.532	
			1.150	20.701	-33.262		.002	-.124	
			2.300	20.287	-13.267		.002	-.160	
			2.300			-.474			-2.052
		MIN							
	2		.000			-.515			-6.400
			.000	8.720	-62.828		-.587	-.147	
			1.150	8.306	-39.447		-.587	-.164	
			2.300	7.892	-24.753		-.587	-.817	
			2.300			-.515			-6.400
		MAX							
	3		.000			-.546			-2.199
			.000	20.505	-43.055		.307	.096	
			1.150	20.257	-33.067		.307	-.209	
			2.300	20.008	-13.487		.307	.106	
			2.300			-.546			-2.199
		MIN							
	3		.000			-.587			-6.547
			.000	8.110	-62.027		-.281	-.583	
			1.150	7.862	-39.251		-.281	-.248	
			2.300	7.613	-24.973		-.281	-.550	
			2.300			-.587			-6.547
		MAX							
	4		.000			-.460			-.744
			.000	26.602	-40.389		.187	.772	
			1.150	26.353	-32.356		.187	-.112	
			2.300	26.105	-8.148		.187	.039	
			2.300			-.460			-.744
		MIN							
	4		.000			-.527			-7.991
			.000	5.943	-72.009		-.794	-.360	
			1.150	5.695	-42.664		-.794	-.178	
			2.300	5.446	-27.291		-.794	-1.056	
			2.300			-.527			-7.991
		MAX & MIN							
	5		.000			.083			-6.052
			.000	12.883	-54.578		.201	-.284	
			1.150	12.883	-39.762		.201	-.053	
			2.300	12.883	-24.946		.201	.178	
			2.300			.083			-6.052
		MAX & MIN							
	6		.000			.022			-4.641
			.000	10.524	-46.193		.054	-.076	
			1.150	10.524	-34.090		.054	-.014	
			2.300	10.524	-21.987		.054	.048	
			2.300			.022			-4.641
		MAX							
	ALL		.000			.083			-.744
			.000	26.602	-40.389		.307	1.347	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			1.150	26.353	-32.356		.307	-.002	
			2.300	26.105	-8.148		.307	.178	
			2.300			.083			-.742
		MIN							
	ALL		.000			-.669			-7.991
			.000	5.943	-72.009		-1.173	-.583	
			1.150	5.695	-42.664		-1.173	-.248	
			2.300	5.446	-27.291		-1.173	-1.350	
			2.300			-.669			-7.991
136	----------								
		MAX & MIN							
	1		.000			-.187			-.331
			.000	10.239	-16.345		-.590	.627	
			1.150	10.239	-4.570		-.590	-.051	
			2.300	10.239	7.204		-.590	-.729	
			2.300			-.187			-.331
		MAX							
	2		.000			-.113			.608
			.000	17.411	-15.621		-.041	.345	
			1.150	16.997	-3.811		-.041	-.011	
			2.300	16.583	8.545		-.041	-.061	
			2.300			-.113			.608
		MIN							
	2		.000			-.125			-1.300
			.000	10.476	-19.224		-.332	.033	
			1.150	10.062	-5.285		-.332	-.036	
			2.300	9.648	7.241		-.332	-.417	
			2.300			-.125			-1.300
		MAX							
	3		.000			-.122			.596
			.000	17.080	-15.386		.088	.209	
			1.150	16.831	-3.863		.088	.000	
			2.300	16.583	8.399		.088	.099	
			2.300			-.122			.596
		MIN							
	3		.000			-.134			-1.312
			.000	10.145	-18.990		-.203	-.103	
			1.150	9.897	-5.336		-.203	-.024	
			2.300	9.648	7.094		-.203	-.258	
			2.300			-.134			-1.312
		MAX							
	4		.000			-.110			1.203
			.000	21.318	-14.496		.050	.454	
			1.150	21.069	-3.415		.050	-.005	
			2.300	20.821	9.085		.050	.048	
			2.300			-.110			1.203
		MIN							
	4		.000			-.130			-1.977
			.000	9.760	-20.502		-.434	-.067	
			1.150	9.512	-5.871		-.434	-.046	
			2.300	9.263	6.911		-.434	-.545	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			2.300			-.130			-1.977
		MAX & MIN							
	5		.000			.015			-.435
			.000	12.154	-19.435		.055	-.053	
			1.150	12.154	-5.458		.055	.010	
			2.300	12.154	8.520		.055	.072	
			2.300			.015			-.435
		MAX & MIN							
	6		.000			.004			-.337
			.000	10.238	-16.437		.015	-.014	
			1.150	10.238	-4.664		.015	.003	
			2.300	10.238	7.110		.015	.019	
			2.300			.004			-.337
		MAX							
	ALL		.000			.015			1.203
			.000	21.318	-14.496		.088	.627	
			1.150	21.069	-3.415		.088	.010	
			2.300	20.821	9.085		.088	.099	
			2.300			.015			1.203
		MIN							
	ALL		.000			-.187			-1.977
			.000	9.760	-20.502		-.590	-.103	
			1.150	9.512	-5.071		-.590	-.051	
			2.300	9.263	6.911		-.590	-.729	
			2.300			-.187			-1.977
137	----------								
		MAX & MIN							
	1		.000			-1.897			.145
			.000	-9.239	5.538		-.318	.397	
			1.150	-9.239	-5.087		-.318	.031	
			2.300	-9.239	-15.711		-.318	-.335	
			2.300			-1.897			.145
		MAX							
	2		.000			-1.132			1.107
			.000	-8.955	6.126		-.229	.712	
			1.150	-8.541	-4.833		-.229	.073	
			2.300	-8.127	-14.742		-.229	-.220	
			2.300			-1.132			1.107
		MIN							
	2		.000			-1.150			-.752
			.000	-15.532	4.695		-.556	.306	
			1.150	-15.118	-6.019		-.556	.043	
			2.300	-14.704	-17.320		-.556	-.567	
			2.300			-1.150			-.752
		MAX							
	3		.000			-1.132			1.101
			.000	-8.951	6.271		-.357	.884	
			1.150	-8.703	-4.780		-.357	.097	
			2.300	-8.454	-14.970		-.357	-.344	
			2.300			-1.132			1.101

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		MIN							
	3		.000			-1.150			-.758
			.000	-15.528	4.840		-.685	.478	
			1.150	-15.280	-5.966		-.685	.067	
			2.300	-15.032	-17.548		-.685	-.691	
			2.300			-1.150			-.758
		MAX							
	4		.000			-1.124			1.735
			.000	-8.759	6.884		-.120	.848	
			1.150	-8.510	-4.545		-.120	.083	
			2.300	-8.262	-14.732		-.120	-.105	
			2.300			-1.124			1.735
		MIN							
	4		.000			-1.154			-1.363
			.000	-19.721	4.499		-.665	.171	
			1.150	-19.473	-6.522		-.665	.033	
			2.300	-19.224	-19.027		-.665	-.682	
			2.300			-1.154			-1.363
		MAX & MIN							
	5		.000			.017			.232
			.000	-10.743	6.494		-.029	.037	
			1.150	-10.743	-5.860		-.029	.004	
			2.300	-10.743	-18.215		-.029	-.029	
			2.300			.017			.232
		MAX & MIN							
	6		.000			.005			.142
			.000	-9.241	5.634		-.008	.010	
			1.150	-9.241	-4.993		-.008	.001	
			2.300	-9.241	-15.620		-.008	-.008	
			2.300			.005			.142
		MAX							
	ALL		.000			.017			1.735
			.000	-8.759	6.884		-.008	.884	
			1.150	-8.510	-4.545		-.008	.097	
			2.300	-8.127	-14.732		-.008	-.008	
			2.300			.017			1.735
		MIN							
	ALL		.000			-1.897			-1.363
			.000	-19.721	4.499		-.685	.010	
			1.150	-19.473	-6.522		-.685	.001	
			2.300	-19.224	-19.027		-.685	-.691	
			2.300			-1.897			-1.363
138	----------								
		MAX & MIN							
	1		.000			-1.377			1.178
			.000	-4.307	-28.079		-.648	.738	
			1.150	-4.307	-33.032		-.648	-.007	
			2.300	-4.307	-37.986		-.648	-.753	
			2.300			-1.377			1.178
		MAX							
	2		.000			-.921			2.769

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	.306	-27.800		-.826	1.474	
		1.150	.720	-31.666		-.826	-.195	
		2.300	1.134	-31.026		-.826	-1.148	
		2.300			-.921			2.769
	MIN							
	2	.000			-.955			.290
		.000	-7.634	-33.352		-1.462	.751	
		1.150	-7.220	-36.829		-1.462	-.214	
		2.300	-6.806	-41.529		-1.462	-1.888	
		2.300			-.955			.290
	MAX							
	3	.000			-.999			2.685
		.000	.027	-27.519		-1.309	1.897	
		1.150	.275	-31.801		-1.309	-.328	
		2.300	.524	-31.768		-1.309	-1.838	
		2.300			-.999			2.685
	MIN							
	3	.000			-1.033			.207
		.000	-7.913	-33.071		-1.945	1.174	
		1.150	-7.665	-36.964		-1.945	-.347	
		2.300	-7.416	-42.271		-1.945	-2.577	
		2.300			-1.033			.207
	MAX							
	4	.000			-.909			3.616
		.000	2.634	-26.952		-.616	1.719	
		1.150	2.882	-31.206		-.616	-.188	
		2.300	3.131	-28.460		-.616	-.902	
		2.300			-.909			3.616
	MIN							
	4	.000			-.965			-.515
		.000	-10.600	-36.205		-1.676	.514	
		1.150	-10.352	-39.812		-1.676	-.219	
		2.300	-10.103	-45.964		-1.676	-2.135	
		2.300			-.965			-.515
	MAX & MIN							
	5	.000			.071			1.797
		.000	-3.776	-33.645		-.088	.078	
		1.150	-3.776	-37.988		-.088	-.023	
		2.300	-3.776	-42.330		-.088	-.124	
		2.300			.071			1.797
	MAX & MIN							
	6	.000			.019			1.189
		.000	-4.341	-27.726		-.023	.021	
		1.150	-4.341	-32.718		-.023	-.006	
		2.300	-4.341	-37.710		-.023	-.033	
		2.300			.019			1.189
	MAX							
	ALL	.000			.071			3.616
		.000	2.634	-26.952		-.023	1.897	
		1.150	2.882	-31.206		-.023	-.006	
		2.300	3.131	-28.460		-.023	-.033	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300			.071			3.616
	MIN							
	ALL	.000			-1.377			-.515
		.000	-10.600	-36.205		-1.945	.021	
		1.150	-10.352	-39.812		-1.945	-.347	
		2.300	-10.103	-45.964		-1.945	-2.577	
		2.300			-1.377			-.515
139	----------							
	MAX & MIN							
	1	.000			-.688			-1.201
		.000	4.374	-37.434		-.602	.688	
		1.150	4.374	-32.403		-.602	-.005	
		2.300	4.374	-27.373		-.602	-.698	
		2.300			-.688			-1.201
	MAX							
	2	.000			-.499			1.282
		.000	14.472	-34.434		.664	-.267	
		1.150	14.058	-31.974		.664	-.195	
		2.300	13.644	-18.893		.664	.557	
		2.300			-.499			1.282
	MIN							
	2	.000			-.533			-3.017
		.000	1.975	-53.129		.053	-.970	
		1.150	1.561	-37.363		.053	-.214	
		2.300	1.147	-30.843		.053	-.147	
		2.300			-.533			-3.017
	MAX							
	3	.000			-.578			1.205
		.000	13.855	-33.680		1.154	-.963	
		1.150	13.607	-31.835		1.154	-.328	
		2.300	13.358	-19.178		1.154	.987	
		2.300			-.578			1.205
	MIN							
	3	.000			-.613			-3.094
		.000	1.358	-52.375		.543	-1.666	
		1.150	1.109	-37.224		.543	-.347	
		2.300	.861	-31.128		.543	.283	
		2.300			-.613			-3.094
	MAX							
	4	.000			-.486			2.716
		.000	19.580	-30.372		.863	-.028	
		1.150	19.331	-31.240		.863	-.188	
		2.300	19.083	-13.898		.863	.785	
		2.300			-.486			2.716
	MIN							
	4	.000			-.543			-4.449
		.000	-1.249	-61.531		-.156	-1.200	
		1.150	-1.497	-40.222		-.156	-.219	
		2.300	-1.746	-33.816		-.156	-.389	
		2.300			-.543			-4.449

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX & MIN							
	5	.000			.071			-1.797
		.000	3.776	-42.330		.088	-.124	
		1.150	3.776	-37.988		.088	-.023	
		2.300	3.776	-33.645		.088	.078	
		2.300			.071			-1.797
	MAX & MIN							
	6	.000			.019			-1.189
		.000	4.341	-37.710		.023	-.033	
		1.150	4.341	-32.718		.023	-.006	
		2.300	4.341	-27.726		.023	.021	
		2.300			.019			-1.189
	MAX							
	ALL	.000			.071			2.716
		.000	19.580	-30.372		1.154	.688	
		1.150	19.331	-31.240		1.154	-.005	
		2.300	19.083	-13.898		1.154	.987	
		2.300			.071			2.716
	MIN							
	ALL	.000			-.688			-4.449
		.000	-1.249	-61.531		-.602	-1.666	
		1.150	-1.497	-40.222		-.602	-.347	
		2.300	-1.746	-33.816		-.602	-.698	
		2.300			-.688			-4.449
140	----------							
	MAX & MIN							
	1	.000			-.196			-.139
		.000	9.243	-15.529		-.305	.321	
		1.150	9.243	-4.899		-.305	-.029	
		2.300	9.243	5.731		-.305	-.379	
		2.300			-.196			-.139
	MAX							
	2	.000			-.105			.783
		.000	16.350	-14.702		.165	.171	
		1.150	15.936	-4.139		.165	.032	
		2.300	15.522	6.973		.165	.222	
		2.300			-.105			.783
	MIN							
	2	.000			-.123			-1.075
		.000	9.392	-18.354		-.146	-.158	
		1.150	8.978	-5.637		-.146	.002	
		2.300	8.564	5.647		-.146	-.166	
		2.300			-.123			-1.075
	MAX							
	3	.000			-.107			.778
		.000	16.020	-14.472		.296	.046	
		1.150	15.772	-4.193		.296	.057	
		2.300	15.524	6.825		.296	.397	
		2.300			-.107			.778
	MIN							
	3	.000			-.126			-1.081

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	9.062	-18.125		-.016	-.283	
		1.150	8.814	-5.691		-.016	.027	
		2.300	8.566	5.500		-.016	.009	
		2.300			-.126			-1.081
	MAX							
	4	.000			-.099			1.383
		.000	20.213	-13.517		.268	.282	
		1.150	19.964	-3.751		.268	.041	
		2.300	19.716	7.438		.268	.350	
		2.300			-.099			1.383
	MIN							
	4	.000			-.130			-1.714
		.000	8.616	-19.604		-.252	-.247	
		1.150	8.368	-6.248		-.252	-.008	
		2.300	8.119	5.229		-.252	-.297	
		2.300			-.130			-1.714
	MAX & MIN							
	5	.000			.017			-.232
		.000	10.743	-18.215		.029	-.029	
		1.150	10.743	-5.860		.029	.004	
		2.300	10.743	6.494		.029	.037	
		2.300			.017			-.232
	MAX & MIN							
	6	.000			.005			-.142
		.000	9.241	-15.620		.008	-.008	
		1.150	9.241	-4.993		.008	.001	
		2.300	9.241	5.634		.008	.010	
		2.300			.005			-.142
	MAX							
	ALL	.000			.017			1.383
		.000	20.213	-13.517		.296	.321	
		1.150	19.964	-3.751		.296	.057	
		2.300	19.716	7.438		.296	.397	
		2.300			.017			1.383
	MIN							
	ALL	.000			-.196			-1.714
		.000	8.616	-19.604		-.305	-.283	
		1.150	8.368	-6.248		-.305	-.029	
		2.300	8.119	5.229		-.305	-.379	
		2.300			-.196			-1.714
141	----------							
	MAX & MIN							
	1	.000			-1.898			.000
		.000	-8.968	5.117		.000	.000	
		1.150	-8.968	-5.196		.000	.000	
		2.300	-8.968	-15.508		.000	.000	
		2.300			-1.898			.000
	MAX							
	2	.000			-1.132			.907
		.000	-8.650	5.678		-.019	.492	
		1.150	-8.236	-4.981		-.019	.091	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			2.300	-7.822	-14.583		-.019	.038	
			2.300			-1.132			.907
	MIN								
	2		.000			-1.144			-.908
			.000	-15.246	4.230		-.349	.081	
			1.150	-14.832	-6.141		-.349	.059	
			2.300	-14.418	-17.113		-.349	-.311	
			2.300			-1.144			-.908
	MAX								
	3		.000			-1.131			.907
			.000	-8.647	5.825		-.142	.683	
			1.150	-8.399	-4.926		-.142	.141	
			2.300	-8.150	-14.810		-.142	-.054	
			2.300			-1.131			.907
	MIN								
	3		.000			-1.144			-.908
			.000	-15.243	4.377		-.472	.272	
			1.150	-14.995	-6.086		-.472	.109	
			2.300	-14.746	-17.340		-.472	-.402	
			2.300			-1.144			-.908
	MAX								
	4		.000			-1.127			1.512
			.000	-8.430	6.418		.091	.629	
			1.150	-8.182	-4.716		.091	.101	
			2.300	-7.933	-14.597		.091	.154	
			2.300			-1.127			1.512
	MIN								
	4		.000			-1.147			-1.513
			.000	-19.423	4.004		-.459	-.056	
			1.150	-19.175	-6.649		-.459	.049	
			2.300	-18.926	-18.813		-.459	-.427	
			2.300			-1.147			-1.513
	MAX & MIN								
	5		.000			.017			.000
			.000	-10.305	5.856		.000	.000	
			1.150	-10.305	-5.994		.000	.000	
			2.300	-10.305	-17.845		.000	.000	
			2.300			.017			.000
	MAX & MIN								
	6		.000			.005			.000
			.000	-8.970	5.214		.000	.000	
			1.150	-8.970	-5.102		.000	.000	
			2.300	-8.970	-15.417		.000	.000	
			2.300			.005			.000
	MAX								
	ALL		.000			.017			1.512
			.000	-8.430	6.418		.091	.683	
			1.150	-8.182	-4.716		.091	.141	
			2.300	-7.822	-14.583		.091	.154	
			2.300			.017			1.512

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		MIN							
	ALL		.000			-1.898			-1.513
			.000	-19.423	4.004		-.472	-.056	
			1.150	-19.175	-6.649		-.472	.000	
			2.300	-18.926	-18.813		-.472	-.427	
			2.300			-1.898			-1.513
142	----------								
	MAX & MIN								
	1		.000			-1.380			.000
			.000	-3.659	-28.333		.000	.000	
			1.150	-3.659	-32.541		.000	.000	
			2.300	-3.659	-36.748		.000	.000	
			2.300			-1.380			.000
	MAX								
	2		.000			-.807			.991
			.000	1.058	-28.242		-.932	1.511	
			1.150	1.472	-31.369		-.932	-.289	
			2.300	1.886	-29.652		-.932	-1.365	
			2.300			-.807			.991
	MIN								
	2		.000			-.832			-.996
			.000	-6.949	-33.895		-1.573	.778	
			1.150	-6.535	-36.351		-1.573	-.302	
			2.300	-6.121	-40.222		-1.573	-2.107	
			2.300			-.832			-.996
	MAX								
	3		.000			-.807			.989
			.000	.766	-27.931		-1.767	2.274	
			1.150	1.014	-31.488		-1.767	-.486	
			2.300	1.263	-30.393		-1.767	-2.522	
			2.300			-.807			.989
	MIN								
	3		.000			-.832			-.997
			.000	-7.240	-33.584		-2.408	1.542	
			1.150	-6.992	-36.470		-2.408	-.499	
			2.300	-6.744	-40.963		-2.408	-3.264	
			2.300			-.832			-.997
	MAX								
	4		.000			-.796			1.653
			.000	3.430	-27.436		-.718	1.755	
			1.150	3.678	-30.985		-.718	-.285	
			2.300	3.927	-26.968		-.718	-1.118	
			2.300			-.796			1.653
	MIN								
	4		.000			-.838			-1.658
			.000	-9.914	-36.858		-1.787	.534	
			1.150	-9.666	-39.288		-1.787	-.306	
			2.300	-9.417	-44.585		-1.787	-2.354	
			2.300			-.838			-1.658
	MAX & MIN								
	5		.000			.067			.000

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			.000			.000			
			.000	-3.681	-28.015		.000	.000	
			1.150	-3.681	-32.248		.000	.000	
			2.300	-3.681	-36.482		.000	.000	
			2.300			.018			.000
	MAX								
	ALL		.000			.067			1.653
			.000	3.430	-27.436		.000	2.274	
			1.150	3.678	-30.985		.000	.000	
			2.300	3.927	-26.968		.000	.000	
			2.300			.067			1.653
	MIN								
	ALL		.000			-1.380			-1.658
			.000	-9.914	-36.858		-2.408	.000	
			1.150	-9.666	-39.288		-2.408	-.499	
			2.300	-9.417	-44.585		-2.408	-3.264	
			2.300			-1.380			-1.658
143	----------								
	MAX & MIN								
	1		.000			-.688			.000
			.000	3.704	-36.215		.000	.000	
			1.150	3.704	-31.956		.000	.000	
			2.300	3.704	-27.696		.000	.000	
			2.300			-.688			.000
	MAX								
	2		.000			-.386			2.141
			.000	13.795	-33.036		1.562	-1.380	
			1.150	13.381	-31.616		1.562	-.289	
			2.300	12.967	-18.992		1.562	1.500	
			2.300			-.386			2.141
	MIN								
	2		.000			-.413			-2.136
			.000	1.256	-51.659		.943	-2.091	
			1.150	.842	-36.661		.943	-.302	
			2.300	.428	-31.100		.943	.789	
			2.300			-.413			-2.136
	MAX								
	3		.000			-.387			2.142
			.000	13.172	-32.295		2.396	-2.538	
			1.150	12.924	-31.497		2.396	-.486	
			2.300	12.675	-19.303		2.396	2.263	
			2.300			-.387			2.142
	MIN								
	3		.000			-.414			-2.134
			.000	.633	-50.918		1.778	-3.248	
			1.150	.385	-36.541		1.778	-.499	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			2.300	.136	-31.411		1.778	1.553	
			2.300			-.414			-2.134
	MAX								
	4		.000			-.375			3.566
			.000	18.867	-28.870		1.768	-1.143	
			1.150	18.619	-30.993		1.768	-.285	
			2.300	18.371	-13.933		1.768	1.737	
			2.300			-.375			3.566
	MIN								
	4		.000			-.420			-3.561
			.000	-2.031	-59.909		.737	-2.328	
			1.150	-2.279	-39.400		.737	-.306	
			2.300	-2.528	-34.113		.737	.552	
			2.300			-.420			-3.561
	MAX & MIN								
	5		.000			.067			.000
			.000	2.419	-40.146		.000	.000	
			1.150	2.419	-37.364		.000	.000	
			2.300	2.419	-34.582		.000	.000	
			2.300			.067			.000
	MAX & MIN								
	6		.000			.018			.000
			.000	3.681	-36.482		.000	.000	
			1.150	3.681	-32.248		.000	.000	
			2.300	3.681	-28.015		.000	.000	
			2.300			.018			.000
	MAX								
	ALL		.000			.067			3.566
			.000	18.867	-28.870		2.396	.000	
			1.150	18.619	-30.993		2.396	.000	
			2.300	18.371	-13.933		2.396	2.263	
			2.300			.067			3.566
	MIN								
	ALL		.000			-.688			-3.561
			.000	-2.031	-59.909		.000	-3.248	
			1.150	-2.279	-39.400		.000	-.499	
			2.300	-2.528	-34.582		.000	.000	
			2.300			-.688			-3.561
144	----------								
	MAX & MIN								
	1		.000			-.195			.000
			.000	8.972	-15.325		.000	.000	
			1.150	8.972	-5.008		.000	.000	
			2.300	8.972	5.310		.000	.000	
			2.300			-.195			.000
	MAX								
	2		.000			-.105			.908
			.000	16.062	-14.471		.342	.030	
			1.150	15.648	-4.246		.342	.091	
			2.300	15.234	6.528		.342	.404	
			2.300			-.105			.908

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN							
2		.000			-.118			-.907
		.000	9.099	-18.139		.026	-.303	
		1.150	8.685	-5.753		.026	.059	
		2.300	8.271	5.193		.026	.090	
		2.300			-.118			-.907
	MAX							
3		.000			-.106			.908
		.000	15.734	-14.244		.465	-.062	
		1.150	15.485	-4.301		.465	.141	
		2.300	15.237	6.381		.465	.675	
		2.300			-.106			.908
	MIN							
3		.000			-.119			-.907
		.000	8.770	-17.912		.149	-.394	
		1.150	8.522	-5.808		.149	.109	
		2.300	8.274	5.047		.149	.281	
		2.300			-.119			-.907
	MAX							
4		.000			-.101			1.513
		.000	19.914	-13.272		.448	.141	
		1.150	19.665	-3.860		.448	.101	
		2.300	19.417	6.974		.448	.615	
		2.300			-.101			1.513
	MIN							
4		.000			-.122			-1.512
		.000	8.308	-19.385		-.079	-.414	
		1.150	8.060	-6.372		-.079	.049	
		2.300	7.812	4.750		-.079	-.042	
		2.300			-.122			-1.512
	MAX & MIN							
5		.000			.017			.000
		.000	10.305	-17.845		.000	.000	
		1.150	10.305	-5.994		.000	.000	
		2.300	10.305	5.856		.000	.000	
		2.300			.017			.000
	MAX & MIN							
6		.000			.005			.000
		.000	8.970	-15.417		.000	.000	
		1.150	8.970	-5.102		.000	.000	
		2.300	8.970	5.214		.000	.000	
		2.300			.005			.000
	MAX							
ALL		.000			.017			1.513
		.000	19.914	-13.272		.465	.141	
		1.150	19.665	-3.860		.465	.141	
		2.300	19.417	6.974		.465	.675	
		2.300			.017			1.513
	MIN							
ALL		.000			-.195			-1.512
		.000	8.308	-19.385		-.079	-.414	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.150	8.060	-6.372		-.079	.000	
		2.300	7.812	4.750		-.079	-.042	
		2.300			-.195			-1.512
5001	----------							
	MAX & MIN							
1		.000			-62.152			.007
		.000	8.820	-.441		-1.116	.056	
		.025	8.820	-.220		-1.116	.028	
		.050	8.820	.000		-1.116	.000	
		.050			-62.152			.007
	MAX							
2		.000			-56.364			.006
		.000	7.966	-.236		-3.730	.233	
		.025	7.966	-.118		-3.730	.117	
		.050	7.966	.000		-3.730	.000	
		.050			-56.364			.006
	MIN							
2		.000			-83.190			.003
		.000	4.118	-.376		-4.660	.190	
		.025	4.118	-.188		-4.660	.095	
		.050	4.118	.000		-4.660	.000	
		.050			-83.190			.003
	MAX							
3		.000			-56.903			.006
		.000	7.680	-.222		-5.929	.343	
		.025	7.680	-.111		-5.929	.171	
		.050	7.680	.000		-5.929	.000	
		.050			-56.903			.006
	MIN							
3		.000			-83.730			.002
		.000	3.832	-.361		-6.858	.300	
		.025	3.832	-.181		-6.858	.150	
		.050	3.832	.000		-6.858	.000	
		.050			-83.730			.002
	MAX							
4		.000			-53.695			.007
		.000	8.954	-.178		-3.387	.247	
		.025	8.954	-.089		-3.387	.123	
		.050	8.954	.000		-3.387	.000	
		.050			-53.695			.007
	MIN							
4		.000			-98.406			.001
		.000	2.541	-.410		-4.937	.175	
		.025	2.541	-.205		-4.937	.088	
		.050	2.541	.000		-4.937	.000	
		.050			-98.406			.001
	MAX & MIN							
5		.000			-59.252			.000
		.000	.001	.000		-.042	.002	
		.025	.001	.000		-.042	.001	
		.050	.001	.000		-.042	.000	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.050			-59.252			.000
	MAX & MIN							
6		.000			-63.373			.000
		.000	.000	.000		-.011	.001	
		.025	.000	.000		-.011	.000	
		.050	.000	.000		-.011	.000	
		.050			-63.373			.000
	MAX							
ALL		.000			-53.695			.007
		.000	8.954	.000		-.011	.343	
		.025	8.954	.000		-.011	.171	
		.050	8.954	.000		-.011	.000	
		.050			-53.695			.007
	MIN							
ALL		.000			-98.406			.000
		.000	.000	-.441		-6.858	.001	
		.025	.000	-.220		-6.858	.000	
		.050	.000	.000		-6.858	.000	
		.050			-98.406			.000
5021	----------							
	MAX & MIN							
1		.000			-62.152			-.007
		.000	8.820	-.441		1.116	-.056	
		.025	8.820	-.220		1.116	-.028	
		.050	8.820	.000		1.116	.000	
		.050			-62.152			-.007
	MAX							
2		.000			-56.427			-.003
		.000	7.939	-.235		-2.084	.147	
		.025	7.939	-.117		-2.084	.074	
		.050	7.939	.000		-2.084	.000	
		.050			-56.427			-.003
	MIN							
2		.000			-83.254			-.007
		.000	4.092	-.374		-3.013	.104	
		.025	4.092	-.187		-3.013	.052	
		.050	4.092	.000		-3.013	.000	
		.050			-83.254			-.007
	MAX							
3		.000			-57.008			-.003
		.000	7.636	-.220		-4.381	.262	
		.025	7.636	-.110		-4.381	.131	
		.050	7.636	.000		-4.381	.000	
		.050			-57.008			-.003
	MIN							
3		.000			-83.835			-.007
		.000	3.788	-.359		-5.311	.219	
		.025	3.788	-.180		-5.311	.110	
		.050	3.788	.000		-5.311	.000	
		.050			-83.835			-.007

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX							
4		.000			-53.758			-.002
		.000	8.928	-.176		-1.807	.162	
		.025	8.928	-.088		-1.807	.081	
		.050	8.928	.000		-1.807	.000	
		.050			-53.758			-.002
	MIN							
4		.000			-98.469			-.008
		.000	2.515	-.409		-3.356	.090	
		.025	2.515	-.204		-3.356	.045	
		.050	2.515	.000		-3.356	.000	
		.050			-98.469			-.008
	MAX & MIN							
5		.000			-59.252			.000
		.000	.001	.000		.042	-.002	
		.025	.001	.000		.042	-.001	
		.050	.001	.000		.042	.000	
		.050			-59.252			.000
	MAX & MIN							
6		.000			-63.373			.000
		.000	.000	.000		.011	-.001	
		.025	.000	.000		.011	-.000	
		.050	.000	.000		.011	.000	
		.050			-63.373			.000
	MAX							
ALL		.000			-53.758			.000
		.000	8.928	.000		1.116	.262	
		.025	8.928	.000		1.116	.131	
		.050	8.928	.000		1.116	.000	
		.050			-53.758			.000
	MIN							
ALL		.000			-98.469			-.008
		.000	.000	-.441		-5.311	-.056	
		.025	.000	-.220		-5.311	-.028	
		.050	.000	.000		-5.311	.000	
		.050			-98.469			-.008
5049	----------							
	MAX & MIN							
1		.000			-431.005			1.749
		.000	3.871	-58.054		2.094	-12.430	
		8.950	3.871	-23.411		2.094	6.308	
		17.900	3.871	11.231		2.094	25.047	
		17.900			-431.005			1.749
	MAX							
2		.000			-427.823			1.800
		.000	5.060	-13.280		3.739	.849	
		8.950	5.060	-7.593		3.739	12.317	
		17.900	5.060	23.561		3.739	45.786	
		17.900			-427.823			1.800
	MIN							
2		.000			-503.910			.700

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	-3.361	-38.747		.010	-21.151	
		8.950	-3.361	-41.018		.010	.935	
		17.900	-3.361	-68.757		.010	1.020	
		17.900			-503.910			.700
	MAX							
	3	.000			-427.761			1.720
		.000	5.649	-15.271		3.555	2.617	
		8.950	5.649	-4.311		3.555	12.438	
		17.900	5.649	32.117		3.555	44.259	
		17.900			-427.761			1.720
	MIN							
	3	.000			-503.848			.620
		.000	-2.772	-40.739		-.175	-19.383	
		8.950	-2.772	-37.736		-.175	1.055	
		17.900	-2.772	-60.200		-.175	-.507	
		17.900			-503.848			.620
	MAX							
	4	.000			-425.763			2.086
		.000	8.456	-4.222		5.021	7.933	
		8.950	8.456	5.463		5.021	16.203	
		17.900	8.456	57.593		5.021	61.139	
		17.900			-425.763			2.086
	MIN							
	4	.000			-552.575			.253
		.000	-5.579	-46.667		-1.196	-28.734	
		8.950	-5.579	-50.246		-1.196	-2.769	
		17.900	-5.579	-96.269		-1.196	-13.470	
		17.900			-552.575			.253
	MAX & MIN							
	5	.000			-510.647			.000
		.000	.000	.000		7.843	-46.562	
		8.950	.000	.000		7.843	23.631	
		17.900	.000	.000		7.843	93.824	
		17.900			-510.647			.000
	MAX & MIN							
	6	.000			-431.005			.000
		.000	.000	.000		2.094	-12.430	
		8.950	.000	.000		2.094	6.308	
		17.900	.000	.000		2.094	25.047	
		17.900			-431.005			.000
	MAX							
	ALL	.000			-425.763			2.086
		.000	8.456	.000		7.843	7.933	
		8.950	8.456	5.463		7.843	23.631	
		17.900	8.456	57.593		7.843	93.824	
		17.900			-425.763			2.086
	MIN							
	ALL	.000			-552.575			.000
		.000	-5.579	-58.054		-1.196	-46.562	
		8.950	-5.579	-50.246		-1.196	-2.769	
		17.900	-5.579	-96.269		-1.196	-13.470	

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		17.900			-552.575			.600
5085	----------	----------	----------	----------	----------	----------	----------	----------
	MAX & MIN							
	1	.000			-64.593			.006
		.000	8.792	-.440		1.086	-.054	
		.025	8.792	-.220		1.086	-.027	
		.050	8.792	.000		1.086	.000	
		.050			-64.593			.006
	MAX							
	2	.000			-60.630			.007
		.000	7.922	-.234		-2.161	.148	
		.025	7.922	-.117		-2.161	.074	
		.050	7.922	.000		-2.161	.000	
		.050			-60.630			.007
	MIN							
	2	.000			-90.672			.003
		.000	4.074	-.374		-3.038	.108	
		.025	4.074	-.187		-3.038	.054	
		.050	4.074	.000		-3.038	.000	
		.050			-90.672			.003
	MAX							
	3	.000			-60.049			.007
		.000	7.619	-.219		-4.458	.263	
		.025	7.619	-.109		-4.458	.131	
		.050	7.619	.000		-4.458	.000	
		.050			-60.049			.007
	MIN							
	3	.000			-90.090			.003
		.000	3.771	-.358		-5.336	.223	
		.025	3.771	-.179		-5.336	.112	
		.050	3.771	.000		-5.336	.000	
		.050			-90.090			.003
	MAX							
	4	.000			-56.841			.008
		.000	8.910	-.176		-1.917	.162	
		.025	8.910	-.088		-1.917	.081	
		.050	8.910	.000		-1.917	.000	
		.050			-56.841			.008
	MIN							
	4	.000			-106.909			.002
		.000	2.497	-.408		-3.379	.096	
		.025	2.497	-.204		-3.379	.048	
		.050	2.497	.000		-3.379	.000	
		.050			-106.909			.002
	MAX & MIN							
	5	.000			-59.252			.000
		.000	-.001	.000		-.042	.002	
		.025	-.001	.000		-.042	.001	
		.050	-.001	.000		-.042	.000	
		.050			-59.252			.000

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

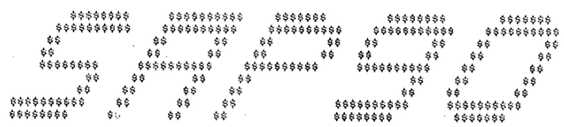
FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX & MIN							
	6	.000			-63.373			.000
		.000	-.000	.000		-.011	.001	
		.025	-.000	.000		-.011	.000	
		.050	-.000	.000		-.011	.000	
		.050			-63.373			.000
	MAX							
	ALL	.000			-56.841			.008
		.000	8.910	.000		1.086	.263	
		.025	8.910	.000		1.086	.131	
		.050	8.910	.000		1.086	.000	
		.050			-56.841			.008
	MIN							
	ALL	.000			-106.909			.000
		.000	-.001	-.440		-5.336	-.054	
		.025	-.001	-.220		-5.336	-.027	
		.050	-.001	.000		-5.336	.000	
		.050			-106.909			.000
5105	----------	----------	----------	----------	----------	----------	----------	----------
	MAX & MIN							
	1	.000			-64.593			-.006
		.000	8.792	-.440		-1.086	.054	
		.025	8.792	-.220		-1.086	.027	
		.050	8.792	.000		-1.086	.000	
		.050			-64.593			-.006
	MAX							
	2	.000			-60.693			-.002
		.000	7.948	-.235		-3.706	.229	
		.025	7.948	-.118		-3.706	.114	
		.050	7.948	.000		-3.706	.000	
		.050			-60.693			-.002
	MIN							
	2	.000			-90.735			-.006
		.000	4.101	-.375		-4.583	.189	
		.025	4.101	-.187		-4.583	.095	
		.050	4.101	.000		-4.583	.000	
		.050			-90.735			-.006
	MAX							
	3	.000			-60.154			-.002
		.000	7.662	-.221		-5.904	.339	
		.025	7.662	-.111		-5.904	.169	
		.050	7.662	.000		-5.904	.000	
		.050			-60.154			-.002
	MIN							
	3	.000			-90.195			-.005
		.000	3.815	-.361		-6.781	.299	
		.025	3.815	-.180		-6.781	.150	
		.050	3.815	.000		-6.781	.000	
		.050			-90.195			-.005
	MAX							
	4	.000			-56.904			-.001

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	8.936	-.177		-3.365	.241	
		.025	8.936	-.088		-3.365	.121	
		.050	8.936	.000		-3.365	.000	
		.050			-56.904			-.001
	MIN							
	4	.000			-106.973			-.007
		.000	2.523	-.409		-4.827	.175	
		.025	2.523	-.205		-4.827	.087	
		.050	2.523	.000		-4.827	.000	
		.050			-106.973			-.007
	MAX & MIN							
	5	.000			-59.252			.000
		.000	-.001	.000		.042	-.002	
		.025	-.001	.000		.042	-.001	
		.050	-.001	.000		.042	.000	
		.050			-59.252			.000
	MAX & MIN							
	6	.000			-63.373			.000
		.000	-.000	.000		.011	-.001	
		.025	-.000	.000		.011	-.000	
		.050	-.000	.000		.011	.000	
		.050			-63.373			.000
	MAX							
	ALL	.000			-56.904			.000
		.000	8.936	.000		.042	.339	
		.025	8.936	.000		.042	.169	
		.050	8.936	.000		.042	.000	
		.050			-56.904			.000
	MIN							
	ALL	.000			-106.973			-.007
		.000	-.001	-.440		-6.781	-.002	
		.025	-.001	-.220		-6.781	-.001	
		.050	-.001	.000		-6.781	.000	
		.050			-106.973			-.007



STRUCTURAL ANALYSIS PROGRAMS

VERSION 5.41

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REPOSITION 304+277. 3 VARUS 14+18+14 FILE:304277

JOINT DISPLACEMENTS

LOAD CONDITION 1 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	.3355E-06	.8999E-08	-.3136E-03	-.1724E-03	.8480E-03	-.1011E-07
2	.000000	.000000	-.002523	.000000	.000879	.000000
3	.000000	.000000	-.004126	.000173	.000453	.000000
4	.000000	.000000	-.004671	.000331	.000026	.000000
5	.000000	.000000	-.004421	.000472	-.000203	.000000
6	.000000	.000000	-.003966	.000592	-.000143	.000000
7	.000000	.000000	-.003958	.000684	.000155	.000000
8	.000000	.000000	-.004666	.000743	.000450	.000000
9	.000000	.000000	-.005821	.000777	.000529	.000000
10	.000000	.000000	-.006850	.000795	.000345	.000000
11	.000000	.000000	-.007256	.000800	.000000	.000000
22	.3834E-06	.6658E-08	-.8861E-03	-.1199E-03	.7437E-03	-.8331E-08
23	.000000	.000000	-.002513	-.000003	.000585	.000000
24	.000000	.000000	-.003513	.000116	.000243	.000000
25	.000000	.000000	-.003637	.000232	-.000126	.000000
26	.000000	.000000	-.003014	.000352	-.000358	.000000
27	.000000	.000000	-.002161	.000472	-.000294	.000000
28	.000000	.000000	-.001870	.000558	.000100	.000000
29	.000000	.000000	-.002595	.000550	.000492	.000000
30	.000000	.000000	-.003886	.000511	.000575	.000000
31	.000000	.000000	-.005006	.000481	.000365	.000000
32	.000000	.000000	-.005438	.000471	.000000	.000000
43	.000000	.000000	-.001113	.000000	.000660	.000000
44	.000000	.000000	-.002530	.000000	.000505	.000000
45	.000000	.000000	-.003360	.000000	.000183	.000000
46	.000000	.000000	-.003342	.000000	-.000187	.000000
47	.000000	.000000	-.002528	.000000	-.000462	.000000
48	.000001	.000000	-.001305	.000000	-.000483	.000000
49	.5954E-06	.0000E+00	-.5576E-03	.0000E+00	.7372E-04	.0000E+00
50	.000000	.000000	-.001628	.000000	.000648	.000000
51	.000000	.000000	-.003205	.000000	.000649	.000000
52	.000000	.000000	-.004426	.000000	.000384	.000000
53	.000000	.000000	-.004876	.000000	.000000	.000000
64	.3834E-06	-.6658E-08	-.8861E-03	.1199E-03	.7437E-03	.8331E-08
65	.000000	.000000	-.002513	.000003	.000585	.000000
66	.000000	.000000	-.003513	-.000116	.000243	.000000
67	.000000	.000000	-.003637	-.000232	-.000126	.000000
68	.000000	.000000	-.003014	-.000352	-.000358	.000000
69	.000000	.000000	-.002161	-.000472	-.000294	.000000
70	.000000	.000000	-.001870	-.000558	.000100	.000000
71	.000000	.000000	-.002595	-.000550	.000492	.000000
72	.000000	.000000	-.003886	-.000511	.000575	.000000
73	.000000	.000000	-.005006	-.000481	.000365	.000000
74	.000000	.000000	-.005438	-.000471	.000000	.000000
85	.3355E-06	-.8999E-08	-.3136E-03	.1724E-03	.8480E-03	.1011E-07
86	.000000	.000000	-.002523	-.000000	.000879	.000000
87	.000000	.000000	-.004126	-.000173	.000453	.000000
88	.000000	.000000	-.004671	-.000331	.000026	.000000
89	.000000	.000000	-.004421	-.000472	-.000203	.000000
90	.000000	.000000	-.003966	-.000592	-.000143	.000000

PROGRAM:SHP90/FILE:304277.SOL

REPOSITION 304+277. 3 VARUS 14+18+14 FILE:304277

JOINT DISPLACEMENTS

LOAD CONDITION 1 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
91	.000000	.000000	-.003958	-.000684	.000155	.000000
92	.000000	.000000	-.004666	-.000743	.000450	.000000
93	.000000	.000000	-.005821	-.000777	.000529	.000000
94	.000000	.000000	-.006850	-.000795	.000345	.000000
95	.000000	.000000	-.007256	-.000800	.000000	.000000

REPOSITION 304+277. 3 VARUS 14+18+14 FILE:304277

JOINT DISPLACEMENTS

LOAD CONDITION 2 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	.3106E-07	.8329E-09	-.1990E-04	.1606E-04	.6261E-04	-.9358E-09
2	.3106E-07	.1922E-09	-.1887E-03	.3166E-04	.6838E-04	-.6132E-09
3	.3053E-07	.2100E-09	-.3168E-03	.4696E-04	.3828E-04	-.5372E-09
4	.2935E-07	.3935E-09	-.3709E-03	.6078E-04	.8927E-05	-.6240E-09
5	.2742E-07	.5555E-09	-.3705E-03	.7282E-04	-.6945E-05	-.8225E-09
6	.2462E-07	.4813E-09	-.3542E-03	.8290E-04	-.4317E-05	-.1107E-08
7	.2091E-07	-.1021E-09	-.3632E-03	.9071E-04	.1320E-04	-.1271E-08
8	.1657E-07	-.7199E-09	-.4145E-03	.9588E-04	.3079E-04	-.9942E-09
9	.1151E-07	-.8633E-09	-.4917E-03	.9908E-04	.3488E-04	-.6112E-09
10	.5901E-08	-.8132E-09	-.5593E-03	.1008E-03	.2252E-04	-.2838E-09
11	.0000E+00	-.7781E-09	-.5898E-03	.1013E-03	.0000E+00	.0000E+00
22	.3549E-07	.6163E-09	-.6871E-05	.7073E-05	.5312E-04	-.7712E-09
23	.3555E-07	.1256E-09	-.1231E-03	.1421E-04	.4263E-04	-.5538E-09
24	.3552E-07	.1487E-09	-.1994E-03	.2182E-04	.2097E-04	-.5657E-09
25	.3532E-07	.2863E-09	-.2200E-03	.2938E-04	-.2693E-05	-.7562E-09
26	.3473E-07	.4429E-09	-.1923E-03	.3710E-04	-.1797E-04	-.1142E-08
27	.3335E-07	.4764E-09	-.1481E-03	.4484E-04	-.1491E-04	-.1847E-08
28	.3034E-07	-.4836E-10	-.1370E-03	.5039E-04	.8888E-05	-.2828E-08
29	.2434E-07	-.6191E-09	-.1875E-03	.5006E-04	.3276E-04	-.1774E-08
30	.1682E-07	-.6354E-09	-.2720E-03	.4770E-04	.3735E-04	-.9620E-09
31	.8556E-08	-.5488E-09	-.3444E-03	.4589E-04	.2356E-04	-.4232E-09
32	.0000E+00	-.5114E-09	-.3722E-03	.4527E-04	.0000E+00	.0000E+00
43	.3809E-07	.0000E+00	-.3781E-05	.0000E+00	.4715E-04	.0000E+00
44	.3832E-07	.0000E+00	-.1059E-03	.0000E+00	.3736E-04	.0000E+00
45	.3908E-07	.0000E+00	-.1711E-03	.0000E+00	.1697E-04	.0000E+00
46	.4058E-07	.0000E+00	-.1824E-03	.0000E+00	-.6612E-05	.0000E+00
47	.4319E-07	.0000E+00	-.1425E-03	.0000E+00	-.2459E-04	.0000E+00
48	.4761E-07	.0000E+00	-.7507E-04	.0000E+00	-.2680E-04	.0000E+00
49	.5512E-07	.0000E+00	-.3494E-04	.0000E+00	.6825E-05	.0000E+00
50	.3834E-07	.0000E+00	-.1067E-03	.0000E+00	.4251E-04	.0000E+00
51	.2435E-07	.0000E+00	-.2092E-03	.0000E+00	.4201E-04	.0000E+00
52	.1185E-07	.0000E+00	-.2879E-03	.0000E+00	.2475E-04	.0000E+00
53	.0000E+00	.0000E+00	-.3169E-03	.0000E+00	.0000E+00	.0000E+00
64	.3549E-07	-.6163E-09	-.6871E-05	-.7073E-05	.5312E-04	.7712E-09
65	.3555E-07	-.1256E-09	-.1231E-03	-.1421E-04	.4263E-04	.5538E-09
66	.3552E-07	-.1487E-09	-.1994E-03	-.2182E-04	.2097E-04	.5657E-09
67	.3532E-07	-.2863E-09	-.2200E-03	-.2938E-04	-.2693E-05	.7562E-09
68	.3473E-07	-.4429E-09	-.1923E-03	-.3710E-04	-.1797E-04	.1142E-08
69	.3335E-07	-.4764E-09	-.1481E-03	-.4484E-04	-.1491E-04	.1847E-08
70	.3034E-07	.4836E-10	-.1370E-03	-.5039E-04	.8888E-05	.2828E-08
71	.2434E-07	.6191E-09	-.1875E-03	-.5006E-04	.3276E-04	.1774E-08
72	.1682E-07	.6354E-09	-.2720E-03	-.4770E-04	.3735E-04	.9620E-09
73	.8556E-08	.5488E-09	-.3444E-03	-.4589E-04	.2356E-04	.4232E-09
74	.0000E+00	.5114E-09	-.3722E-03	-.4527E-04	.0000E+00	.0000E+00
85	.3106E-07	-.8329E-09	-.1990E-04	-.1606E-04	.6261E-04	.9358E-09
86	.3106E-07	-.1922E-09	-.1887E-03	-.3166E-04	.6838E-04	.6132E-09
87	.3053E-07	-.2100E-09	-.3168E-03	-.4696E-04	.3828E-04	.5372E-09
88	.2935E-07	-.3935E-09	-.3709E-03	-.6078E-04	.8927E-05	.6240E-09
89	.2742E-07	-.5555E-09	-.3705E-03	-.7282E-04	-.6945E-05	.8225E-09
90	.2462E-07	-.4813E-09	-.3542E-03	-.8290E-04	-.4317E-05	.1107E-08

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 2 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
91	.2091E-07	.1021E-09	-.3632E-03	-.9071E-04	.1320E-04	.1271E-08
92	.1657E-07	.7199E-09	-.4145E-03	-.9588E-04	.3079E-04	.9942E-09
93	.1151E-07	.8633E-09	-.4919E-03	-.9908E-04	.3488E-04	.6112E-09
94	.5901E-08	.8132E-09	-.5593E-03	-.1008E-03	.2252E-04	.2838E-09
95	.0000E+00	.7781E-09	-.5858E-03	-.1013E-03	.0000E+00	.0000E+00

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 3 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	.2636E-06	.7068E-08	-.8560E-04	.4403E-03	.3880E-03	-.7942E-08
2	.000000	.000000	-.001205	.000574	.000468	.000000
3	.000000	.000000	-.002117	.000703	.000295	.000000
4	.000000	.000000	-.002614	.000817	.000136	.000000
5	.000000	.000000	-.002819	.000913	.000050	.000000
6	.000000	.000000	-.002918	.000992	.000045	.000000
7	.000000	.000000	-.003085	.001054	.000102	.000000
8	.000000	.000000	-.003392	.001097	.000163	.000000
9	.000000	.000000	-.003779	.001126	.000168	.000000
10	.000000	.000000	-.004099	.001142	.000105	.000000
11	.000000	.000000	-.004222	.001147	.000000	.000000
22	.3012E-06	.5230E-08	.6402E-03	.2237E-03	.3057E-03	-.6545E-08
23	.3017E-06	.1065E-08	-.2732E-04	.2476E-03	.2550E-03	-.4700E-08
24	.3015E-06	.1262E-08	-.5238E-03	.2793E-03	.1630E-03	-.4801E-08
25	.2997E-06	.2430E-08	-.7805E-03	.3124E-03	.5865E-04	-.6418E-08
26	.2948E-06	.3759E-08	-.8173E-03	.3463E-03	-.1478E-04	-.9694E-08
27	.2830E-06	.4043E-08	-.7593E-03	.3802E-03	-.1452E-04	-.1567E-07
28	.2575E-06	-.4104E-09	-.8085E-03	.4053E-03	.7163E-04	-.2400E-07
29	.000000	.000000	-.001085	.000406	.000161	.000000
30	.000000	.000000	-.001483	.000397	.000172	.000000
31	.000000	.000000	-.001813	.000390	.000106	.000000
32	.000000	.000000	-.001938	.000388	.000000	.000000
43	.3233E-06	.0000E+00	.8802E-03	.0000E+00	.2749E-03	.0000E+00
44	.3252E-06	.0000E+00	.2739E-03	.0000E+00	.2325E-03	.0000E+00
45	.3317E-06	.0000E+00	-.1748E-03	.0000E+00	.1451E-03	.0000E+00
46	.3444E-06	.0000E+00	-.3901E-03	.0000E+00	.4128E-04	.0000E+00
47	.3666E-06	.0000E+00	-.3748E-03	.0000E+00	-.4263E-04	.0000E+00
48	.4041E-06	.0000E+00	-.2199E-03	.0000E+00	-.6431E-04	.0000E+00
49	.4678E-06	.0000E+00	-.1445E-03	.0000E+00	.5792E-04	.0000E+00
50	.3254E-06	.0000E+00	-.5047E-03	.0000E+00	.2012E-03	.0000E+00
51	.2067E-06	.0000E+00	-.9776E-03	.0000E+00	.1915E-03	.0000E+00
52	.000000	.000000	-.001333	.000000	.000111	.000000
53	.000000	.000000	-.001463	.000000	.000000	.000000
64	.3012E-06	-.5230E-08	.6402E-03	-.2237E-03	.3057E-03	.6545E-08
65	.3017E-06	-.1065E-08	-.2732E-04	-.2476E-03	.2550E-03	.4700E-08
66	.3015E-06	-.1262E-08	-.5238E-03	-.2793E-03	.1630E-03	.4801E-08
67	.2997E-06	-.2430E-08	-.7805E-03	-.3124E-03	.5865E-04	.6418E-08
68	.2948E-06	-.3759E-08	-.8173E-03	-.3463E-03	-.1478E-04	.9694E-08
69	.2830E-06	-.4043E-08	-.7593E-03	-.3802E-03	-.1452E-04	.1567E-07
70	.2575E-06	.4104E-09	-.8085E-03	-.4053E-03	.7163E-04	.2400E-07
71	.000000	.000000	-.001085	-.000406	.000161	.000000
72	.000000	.000000	-.001483	-.000397	.000172	.000000
73	.000000	.000000	-.001813	-.000390	.000106	.000000
74	.000000	.000000	-.001938	-.000388	.000000	.000000
85	.2636E-06	-.7068E-08	-.8560E-04	-.4403E-03	.3880E-03	.7942E-08
86	.000000	.000000	-.001205	-.000574	.000468	.000000
87	.000000	.000000	-.002117	-.000703	.000295	.000000
88	.000000	.000000	-.002614	-.000817	.000136	.000000
89	.000000	.000000	-.002819	-.000913	.000050	.000000
90	.000000	.000000	-.002918	-.000992	.000045	.000000

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 3 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
91	.000000	.000000	-.003085	-.001054	.000102	.000000
92	.000000	.000000	-.003392	-.001097	.000163	.000000
93	.000000	.000000	-.003779	-.001126	.000168	.000000
94	.000000	.000000	-.004099	-.001142	.000105	.000000
95	.000000	.000000	-.004222	-.001147	.000000	.000000

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 4 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	.6220E-04	.4936E-03	.8074E-05	.1673E-05	-.7833E-05	.1943E-04
2	.6137E-04	.5458E-03	.3407E-04	-.1156E-05	-.1232E-04	.1914E-04
3	.5876E-04	.5925E-03	.6263E-04	-.4085E-05	-.1147E-04	.1749E-04
4	.5458E-04	.6347E-03	.8823E-04	-.6864E-05	-.1020E-04	.1576E-04
5	.4907E-04	.6722E-03	.1111E-03	-.9349E-05	-.9103E-05	.1385E-04
6	.4246E-04	.7044E-03	.1309E-03	-.1148E-04	-.7444E-05	.1183E-04
7	.3495E-04	.7314E-03	.1456E-03	-.1326E-04	-.4892E-05	.9832E-05
8	.2698E-04	.7531E-03	.1538E-03	-.1465E-04	-.2407E-05	.7786E-05
9	.1897E-04	.7695E-03	.1574E-03	-.1568E-04	-.8425E-06	.5807E-05
10	.9305E-05	.7796E-03	.1584E-03	-.1630E-04	-.1099E-06	.3745E-05
11	.0000E+00	.7829E-03	.1586E-03	-.1651E-04	.0000E+00	.0000E+00
22	.2956E-04	.4971E-03	.1160E-04	-.4679E-05	-.5869E-05	.1739E-04
23	.2951E-04	.5444E-03	.2673E-04	-.9980E-05	-.6350E-05	.1759E-04
24	.2854E-04	.5903E-03	.4174E-04	-.1549E-04	-.6128E-05	.1670E-04
25	.2670E-04	.6324E-03	.5629E-04	-.2077E-04	-.5995E-05	.1524E-04
26	.2410E-04	.6699E-03	.7062E-04	-.2555E-04	-.5828E-05	.1343E-04
27	.2089E-04	.7021E-03	.8400E-04	-.2957E-04	-.4997E-05	.1145E-04
28	.1722E-04	.7289E-03	.9387E-04	-.3264E-04	-.2750E-05	.9549E-05
29	.1332E-04	.7508E-03	.9720E-04	-.3504E-04	-.5563E-06	.7595E-05
30	.9079E-05	.7672E-03	.9722E-04	-.3656E-04	.2383E-06	.5237E-05
31	.4600E-05	.7773E-03	.9652E-04	-.3735E-04	.2476E-06	.2661E-05
32	.0000E+00	.7807E-03	.9620E-04	-.3758E-04	.0000E+00	.0000E+00
43	-.7980E-07	.4982E-03	-.2383E-09	-.1031E-04	.1333E-09	.1732E-04
44	-.7303E-07	.5440E-03	-.5402E-09	-.1517E-04	.1202E-09	.1727E-04
45	-.5800E-07	.5895E-03	-.7849E-09	-.2114E-04	.8350E-10	.1659E-04
46	-.4285E-07	.6316E-03	-.9162E-09	-.2781E-04	.2311E-10	.1520E-04
47	-.3071E-07	.6691E-03	-.8808E-09	-.3513E-04	-.6021E-10	.1340E-04
48	-.2159E-07	.7012E-03	-.6181E-09	-.4330E-04	-.1799E-09	.1136E-04
49	-.1481E-07	.7275E-03	.1200E-10	-.5289E-04	-.3983E-09	.9317E-05
50	-.9949E-08	.7499E-03	.7059E-09	-.4940E-04	-.2446E-09	.7449E-05
51	-.6133E-08	.7664E-03	.1146E-08	-.4732E-04	-.1551E-09	.5252E-05
52	-.2925E-08	.7765E-03	.1408E-08	-.4617E-04	-.7802E-10	.2663E-05
53	.0000E+00	.7799E-03	.1496E-08	-.4579E-04	.0000E+00	.0000E+00
64	-.2970E-04	.4963E-03	-.1160E-04	-.4679E-05	.5869E-05	.1729E-04
65	-.2961E-04	.5434E-03	-.2673E-04	-.9980E-05	.6350E-05	.1750E-04
66	-.2861E-04	.5890E-03	-.4174E-04	-.1549E-04	.6128E-05	.1666E-04
67	-.2674E-04	.6312E-03	-.5630E-04	-.2077E-04	.5995E-05	.1522E-04
68	-.2413E-04	.6687E-03	-.7062E-04	-.2555E-04	.5827E-05	.1343E-04
69	-.2091E-04	.7009E-03	-.8400E-04	-.2957E-04	.4997E-05	.1145E-04
70	-.1723E-04	.7277E-03	-.9387E-04	-.3264E-04	.2750E-05	.9549E-05
71	-.1333E-04	.7496E-03	-.9720E-04	-.3504E-04	.5588E-06	.7593E-05
72	-.9084E-05	.7660E-03	-.9721E-04	-.3656E-04	-.2387E-06	.5235E-05
73	-.4602E-05	.7761E-03	-.9651E-04	-.3735E-04	-.2478E-06	.2661E-05
74	.0000E+00	.7795E-03	-.9620E-04	-.3758E-04	.0000E+00	.0000E+00
85	-.6176E-04	.4921E-03	-.8074E-05	.1673E-05	.7833E-05	.1855E-04
86	-.6102E-04	.5424E-03	-.3407E-04	-.1155E-05	.1232E-04	.1875E-04
87	-.5852E-04	.5888E-03	-.6263E-04	-.4085E-05	.1148E-04	.1739E-04
88	-.5442E-04	.6310E-03	-.8823E-04	-.6864E-05	.1020E-04	.1573E-04
89	-.4897E-04	.6685E-03	-.1111E-03	-.9349E-05	.9103E-05	.1384E-04
90	-.4239E-04	.7007E-03	-.1309E-03	-.1148E-04	.7444E-05	.1183E-04

REPOSICION 304+277. 3 VANOS 14+18+14 FILE=304277

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 4 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
91	-.3491E-04	.7278E-03	-.1456E-03	-.1326E-04	.4891E-05	.9841E-05
92	-.2695E-04	.7495E-03	-.1538E-03	-.1465E-04	.2407E-05	.7785E-05
93	-.1836E-04	.7658E-03	-.1574E-03	-.1568E-04	.8421E-06	.5385E-05
94	-.9298E-05	.7759E-03	-.1584E-03	-.1630E-04	.1897E-06	.2744E-05
95	.0000E+00	.7793E-03	-.1586E-03	-.1651E-04	.0000E+00	.0000E+00

REPOSICION 304+277. 3 VANOS 14+18+14 FILE=304277

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 5 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	.6990E-05	.4123E-04	.9265E-05	-.5249E-05	-.8517E-05	.2002E-05
2	.6934E-05	.4656E-04	.3941E-04	-.1191E-04	-.1453E-04	.2050E-05
3	.6701E-05	.5170E-04	.7347E-04	-.1896E-04	-.1375E-04	.1979E-05
4	.6287E-05	.5663E-04	.1053E-03	-.2619E-04	-.1344E-04	.1877E-05
5	.5692E-05	.6128E-04	.1401E-03	-.3350E-04	-.1655E-04	.1723E-05
6	.4921E-05	.6548E-04	.1871E-03	-.4070E-04	-.2338E-04	.1482E-05
7	.3999E-05	.6890E-04	.2479E-03	-.4719E-04	-.1922E-04	.1126E-05
8	.3026E-05	.7108E-04	.2987E-03	-.5250E-04	-.1922E-04	.7629E-06
9	.2023E-05	.7245E-04	.3352E-03	-.5639E-04	-.1285E-04	.4725E-06
10	.1012E-05	.7322E-04	.3572E-03	-.5875E-04	-.6466E-05	.2284E-06
11	.0000E+00	.7348E-04	.3646E-03	-.5954E-04	.0000E+00	.0000E+00
22	.3393E-05	.4158E-04	.5209E-05	-.5171E-05	-.5915E-05	.1892E-05
23	.3386E-05	.4662E-04	.2010E-04	-.1108E-04	-.6112E-05	.1934E-05
24	.3288E-05	.5169E-04	.3415E-04	-.1784E-04	-.5613E-05	.1902E-05
25	.3096E-05	.5662E-04	.4728E-04	-.2526E-04	-.5473E-05	.1813E-05
26	.2810E-05	.6128E-04	.6099E-04	-.3353E-04	-.6254E-05	.1670E-05
27	.2434E-05	.6551E-04	.7814E-04	-.4285E-04	-.8460E-05	.1448E-05
28	.1974E-05	.6901E-04	.1018E-03	-.5274E-04	-.1099E-04	.1093E-05
29	.1491E-05	.7110E-04	.1284E-03	-.6076E-04	-.1104E-04	.7310E-06
30	.9981E-06	.7245E-04	.1514E-03	-.6710E-04	-.8237E-05	.4613E-06
31	.5001E-06	.7322E-04	.1660E-03	-.7118E-04	-.4253E-05	.2260E-06
32	.0000E+00	.7348E-04	.1709E-03	-.7259E-04	.0000E+00	.0000E+00
43	.0000E+00	.4170E-04	.0000E+00	-.5105E-05	.0000E+00	.1900E-05
44	.0000E+00	.4665E-04	.0000E+00	-.8723E-05	.0000E+00	.1914E-05
45	.0000E+00	.5169E-04	.0000E+00	-.1274E-04	.0000E+00	.1895E-05
46	.0000E+00	.5662E-04	.0000E+00	-.1644E-04	.0000E+00	.1812E-05
47	.0000E+00	.6128E-04	.0000E+00	-.1940E-04	.0000E+00	.1674E-05
48	.0000E+00	.6554E-04	.0000E+00	-.2078E-04	.0000E+00	.1473E-05
49	.0000E+00	.6924E-04	.0000E+00	-.1854E-04	.0000E+00	.1066E-05
50	.0000E+00	.7113E-04	.0000E+00	-.3806E-04	.0000E+00	.7010E-06
51	.0000E+00	.7245E-04	.0000E+00	-.5144E-04	.0000E+00	.4654E-06
52	.0000E+00	.7322E-04	.0000E+00	-.5935E-04	.0000E+00	.2253E-06
53	.0000E+00	.7347E-04	.0000E+00	-.6196E-04	.0000E+00	.0000E+00
64	-.3393E-05	.4158E-04	-.5209E-05	-.5171E-05	.5915E-05	.1892E-05
65	-.3386E-05	.4662E-04	-.2010E-04	-.1108E-04	.6112E-05	.1934E-05
66	-.3288E-05	.5169E-04	-.3415E-04	-.1784E-04	.5613E-05	.1902E-05
67	-.3096E-05	.5662E-04	-.4728E-04	-.2526E-04	.5473E-05	.1813E-05
68	-.2810E-05	.6128E-04	-.6099E-04	-.3353E-04	.6254E-05	.1670E-05
69	-.2434E-05	.6551E-04	-.7814E-04	-.4285E-04	.8460E-05	.1448E-05
70	-.1974E-05	.6901E-04	-.1018E-03	-.5274E-04	.1099E-04	.1093E-05
71	-.1491E-05	.7110E-04	-.1284E-03	-.6076E-04	.1104E-04	.7310E-06
72	-.9981E-06	.7245E-04	-.1514E-03	-.6710E-04	.8237E-05	.4613E-06
73	-.5001E-06	.7322E-04	-.1660E-03	-.7118E-04	.4253E-05	.2260E-06
74	.0000E+00	.7348E-04	-.1709E-03	-.7259E-04	.0000E+00	.0000E+00
85	-.6990E-05	.4123E-04	-.9265E-05	-.5249E-05	.8517E-05	.2002E-05
86	-.6934E-05	.4656E-04	-.3941E-04	-.1191E-04	.1453E-04	.2050E-05
87	-.6701E-05	.5170E-04	-.7347E-04	-.1896E-04	.1375E-04	.1979E-05
88	-.6287E-05	.5663E-04	-.1053E-03	-.2619E-04	.1344E-04	.1877E-05
89	-.5692E-05	.6128E-04	-.1401E-03	-.3350E-04	.1655E-04	.1723E-05
90	-.4921E-05	.6548E-04	-.1871E-03	-.4070E-04	.2338E-04	.1482E-05

REPOSICION 304+277. 3 VANOS 14+18+14 FILE=304277

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 5 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
91	-.3999E-05	.6890E-04	-.2479E-03	-.4719E-04	.2495E-04	.1126E-05
92	-.3026E-05	.7108E-04	-.2987E-03	-.5250E-04	.1922E-04	.7629E-06
93	-.2023E-05	.7245E-04	-.3352E-03	-.5639E-04	.1285E-04	.4725E-06
94	-.1012E-05	.7322E-04	-.3572E-03	-.5875E-04	.6466E-05	.2284E-06
95	.0000E+00	.7348E-04	-.3646E-03	-.5954E-04	.0000E+00	.0000E+00

REPOSICION 304+277. 3 VANOS 14+18+14 FILE=304277

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 6 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	.3163E-03	.1222E-05	.3484E-06	.9510E-06	-.2212E-05	-.2020E-05
2	.3198E-03	-.2650E-06	.5574E-05	.8585E-06	-.2124E-05	-.9876E-06
3	.3225E-03	-.3820E-06	.9848E-05	.7631E-06	-.1443E-05	-.4983E-06
4	.3246E-03	-.2416E-06	.1199E-04	.6701E-06	-.3095E-06	-.3089E-06
5	.3263E-03	-.1243E-06	.1104E-04	.5723E-06	.1153E-05	-.2291E-06
6	.3276E-03	-.4465E-07	.6695E-05	.4518E-06	.2478E-05	-.1911E-06
7	.3287E-03	.2229E-07	.2834E-06	.3037E-06	.2776E-05	-.1782E-06
8	.3295E-03	.8022E-07	-.4886E-05	.1728E-06	.1624E-05	-.1900E-06
9	.3301E-03	.1264E-06	-.6539E-05	.8668E-07	-.1702E-06	-.2292E-06
10	.3305E-03	.1182E-06	-.4402E-05	.3594E-07	-.1403E-05	-.2917E-06
11	.3306E-03	.0000E+00	.0000E+00	.0000E+00	-.2127E-05	-.3358E-06
22	.3258E-03	.8436E-06	.2462E-05	.6360E-06	-.2153E-05	-.1255E-05
23	.3262E-03	-.1252E-06	.7370E-05	.5467E-06	-.1954E-05	-.6285E-06
24	.3269E-03	-.1979E-06	.1135E-04	.4880E-06	-.1360E-05	-.3461E-06
25	.3277E-03	-.1255E-06	.1347E-04	.4670E-06	-.3510E-06	-.2343E-06
26	.3286E-03	-.6402E-07	.1271E-04	.4628E-06	.1090E-05	-.1838E-06
27	.3295E-03	-.1981E-07	.8210E-05	.3740E-06	.2725E-05	-.1628E-06
28	.3305E-03	.2216E-07	.5244E-06	.1980E-07	.3453E-05	-.1669E-06
29	.3314E-03	.6306E-07	-.5751E-05	-.2711E-06	.1798E-05	-.2101E-06
30	.3323E-03	.1038E-06	-.7334E-05	-.2598E-06	-.3218E-06	-.2986E-06
31	.3329E-03	.1145E-06	-.4757E-05	-.1370E-06	-.1756E-05	-.4602E-06
32	.3333E-03	.0000E+00	.0000E+00	.0000E+00	-.2239E-05	-.6819E-06
43	.3278E-03	.0000E+00	.3306E-05	.0000E+00	-.2082E-05	.0000E+00
44	.3279E-03	.0000E+00	.8028E-05	.0000E+00	-.1885E-05	.0000E+00
45	.3282E-03	.0000E+00	.1189E-04	.0000E+00	-.1339E-05	.0000E+00
46	.3287E-03	.0000E+00	.1408E-04	.0000E+00	-.4521E-06	.0000E+00
47	.3295E-03	.0000E+00	.1384E-04	.0000E+00	.7708E-06	.0000E+00
48	.3304E-03	.0000E+00	.1018E-04	.0000E+00	.2664E-05	.0000E+00
49	.3315E-03	.0000E+00	.2449E-06	.0000E+00	.6622E-05	.0000E+00
50	.3328E-03	.0000E+00	-.7885E-05	.0000E+00	.1613E-05	.0000E+00
51	.3344E-03	.0000E+00	-.8341E-05	.0000E+00	-.7516E-06	.0000E+00
52	.3364E-03	.0000E+00	-.5035E-05	.0000E+00	-.1939E-05	.0000E+00
53	.3391E-03	.0000E+00	.0000E+00	.0000E+00	-.2324E-05	.0000E+00
64	.3258E-03	-.8436E-06	.2462E-05	-.6360E-06	-.2153E-05	.1255E-05
65	.3262E-03	.1252E-06	.7370E-05	-.5467E-06	-.1954E-05	.6285E-06
66	.3269E-03	.1979E-06	.1135E-04	-.4880E-06	-.1360E-05	.3461E-06
67	.3277E-03	.1255E-06	.1347E-04	-.4670E-06	-.3510E-06	.2343E-06
68	.3286E-03	.6402E-07	.1271E-04	-.4628E-06	.1090E-05	.1838E-06
69	.3295E-03	.1981E-07	.8210E-05	-.3740E-06	.2725E-05	.1628E-06
70	.3305E-03	-.2216E-07	.5244E-06	-.1980E-07	.3453E-05	.1669E-06
71	.3314E-03	-.6306E-07	-.5751E-05	.2711E-06	.1798E-05	.2101E-06
72	.3323E-03	-.1038E-06	-.7334E-05	.2598E-06	-.3218E-06	.2986E-06
73	.3329E-03	-.1145E-06	-.4757E-05	.1370E-06	-.1756E-05	.4602E-06
74	.3333E-03	.0000E+00	.0000E+00	.0000E+00	-.2239E-05	.6819E-06
85	.3163E-03	-.1222E-05	.3484E-06	-.9510E-06	-.2212E-05	.2020E-05
86	.3198E-03	.2650E-06	.5574E-05	-.8585E-06	-.2124E-05	.9876E-06
87	.3225E-03	.3820E-06	.9848E-05	-.7631E-06	-.1443E-05	.4983E-06
88	.3246E-03	.2416E-06	.1199E-04	-.6701E-06	-.3095E-06	.3089E-06
89	.3263E-03	.1243E-06	.1104E-04	-.5723E-06	.1153E-05	.2291E-06
90	.3276E-03	.4465E-07	.6695E-05	-.4518E-06	.2478E-05	.1911E-06

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 6 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
91	.3287E-03	-.2229E-07	.2834E-06	-.3037E-06	.2776E-05	.1782E-06
92	.3295E-03	-.8022E-07	-.4886E-05	-.1728E-06	.1624E-05	.1900E-06
93	.3301E-03	-.1264E-06	-.6539E-05	-.8668E-07	-.1702E-06	.2292E-06
94	.3305E-03	-.1182E-06	-.4402E-05	-.3594E-07	-.1603E-05	-.2917E-06
95	.3306E-03	.0000E+00	.0000E+00	.0000E+00	-.2127E-05	.3358E-06

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 7 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	.1730E-05	.4641E-07	.2725E-04	.1810E-03	-.1257E-03	-.5214E-07
2	.1731E-05	.1071E-07	.3114E-03	.1971E-03	-.1098E-03	-.3417E-07
3	.1701E-05	.1170E-07	.5121E-03	.2146E-03	-.5692E-04	-.2993E-07
4	.1635E-05	.2193E-07	.5515E-03	.2346E-03	.2886E-04	-.3476E-07
5	.1528E-05	.3095E-07	.3443E-03	.2574E-03	.1558E-03	-.4582E-07
6	.1372E-05	.2681E-07	-.2153E-03	.2826E-03	.3287E-03	-.6165E-07
7	.000001	.000000	-.001203	.000307	.000506	.000000
8	.000001	.000000	-.002449	.000326	.000576	.000000
9	.000001	.000000	-.003701	.000337	.000509	.000000
10	.000000	.000000	-.004638	.000342	.000301	.000000
11	.000000	.000000	-.004987	.000344	.000000	.000000
22	.1977E-05	.3434E-07	.3805E-03	.1059E-03	-.1246E-03	-.4297E-07
23	.1981E-05	.6995E-08	.6629E-03	.9982E-04	-.1093E-03	-.3086E-07
24	.1979E-05	.8283E-08	.8726E-03	.9976E-04	-.6299E-04	-.3152E-07
25	.1968E-05	.1595E-07	.9387E-03	.1066E-03	.1375E-04	-.4213E-07
26	.1935E-05	.2468E-07	.7883E-03	.1214E-03	.1232E-03	-.6364E-07
27	.1858E-05	.2694E-07	.3393E-03	.1443E-03	.2698E-03	-.1029E-06
28	.1690E-05	-.2694E-08	-.4935E-03	.1681E-03	.4438E-03	-.1575E-06
29	.000001	.000000	-.001661	.000170	.000564	.000000
30	.000001	.000000	-.002934	.000159	.000525	.000000
31	.000000	.000000	-.003921	.000148	.000315	.000000
32	.000000	.000000	-.004290	.000143	.000000	.000000
43	.2122E-05	.0000E+00	.5111E-03	.0000E+00	-.1203E-03	.0000E+00
44	.2135E-05	.0000E+00	.7820E-03	.0000E+00	-.1056E-03	.0000E+00
45	.2177E-05	.0000E+00	.9872E-03	.0000E+00	-.6268E-04	.0000E+00
46	.000002	.000000	.001058	.000000	.000010	.000000
47	.2406E-05	.0000E+00	.9286E-03	.0000E+00	.1077E-03	.0000E+00
48	.2653E-05	.0000E+00	.5474E-03	.0000E+00	.2259E-03	.0000E+00
49	.3071E-05	.0000E+00	-.1362E-03	.0000E+00	.3802E-03	.0000E+00
50	.000002	.000000	-.001350	.000000	.000604	.000000
51	.000001	.000000	-.002717	.000000	.000555	.000000
52	.000001	.000000	-.003759	.000000	.000328	.000000
53	.000000	.000000	-.004143	.000000	.000000	.000000
64	.1977E-05	-.3434E-07	.3805E-03	-.1059E-03	-.1246E-03	.4297E-07
65	.1981E-05	-.6995E-08	.6629E-03	-.9982E-04	-.1093E-03	.3086E-07
66	.1979E-05	-.8283E-08	.8726E-03	-.9976E-04	-.6299E-04	.3152E-07
67	.1968E-05	-.1595E-07	.9387E-03	-.1066E-03	.1375E-04	.4213E-07
68	.1935E-05	-.2468E-07	.7883E-03	-.1214E-03	.1232E-03	.6364E-07
69	.1858E-05	-.2694E-07	.3393E-03	-.1443E-03	.2698E-03	.1029E-06
70	.1690E-05	.2694E-08	-.4935E-03	-.1681E-03	.4438E-03	.1575E-06
71	.000001	.000000	-.001661	-.000170	.000564	.000000
72	.000001	.000000	-.002934	-.000159	.000525	.000000
73	.000000	.000000	-.003921	-.000148	.000315	.000000
74	.000000	.000000	-.004290	-.000143	.000000	.000000
85	.1730E-05	-.4641E-07	.2725E-04	-.1810E-03	-.1257E-03	.5214E-07
86	.1731E-05	-.1071E-07	.3114E-03	-.1971E-03	-.1098E-03	.3417E-07
87	.1701E-05	-.1170E-07	.5121E-03	-.2146E-03	-.5692E-04	.2993E-07
88	.1635E-05	-.2193E-07	.5515E-03	-.2346E-03	.2886E-04	.3476E-07
89	.1528E-05	-.3095E-07	.3443E-03	-.2574E-03	.1558E-03	.4582E-07
90	.1372E-05	-.2681E-07	-.2153E-03	-.2826E-03	.3287E-03	.6165E-07

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 7 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
91	.000001	.000000	-.001203	-.000307	.000506	.000000
92	.000001	.000000	-.002449	-.000326	.000576	.000000
93	.000001	.000000	-.003701	-.000337	.000509	.000000
94	.000000	.000000	-.004638	-.000342	.000301	.000000
95	.000000	.000000	-.004987	-.000344	.000000	.000000

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

R E A C T I O N S A N D A P P L I E D F O R C E S

LOAD CONDITION 1 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	-.0060	-.0002	47.4209	.0000	-.0003	.0000
1049	1.1147	.0000	326.0503	.0000	6.6178	.0000
1085	-.0060	.0002	47.4209	.0000	-.0003	.0000
TOTAL	.1103E+01	.4164E-14	.4209E+03	-.2302E-12	.6617E+01	-.5080E-14

REPOSITION 304+277. 3 VANOS 14+18+14 FILE:30427?

R E A C T I O N S A N D A P P L I E D F O R C E S

LOAD CONDITION 4 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	-1.1050	-8.8192	-1.2208	.4410	-.0552	-.0068
1049	.0000	-3.8707	.0000	58.0540	.0002	-1.7493
1085	1.0971	-8.7921	1.2208	.4396	.0549	-.0065
TOTAL	-.7840E-02	-.2148E+02	.2287E-13	.5893E+02	-.2045E-03	-.1763E+01

REPOSITION 304+277. 3 VANOS 14+18+14 FILE:30427?

R E A C T I O N S A N D A P P L I E D F O R C E S

LOAD CONDITION 5 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	-.1242	-.7344	-1.4008	.0368	-.0062	-.0007
1049	.0000	1.4732	.0000	-4.9783	.0000	-.2001
1085	.1242	-.7344	1.4008	.0368	.0062	-.0007
TOTAL	-.1221E-14	.1337E-12	.4885E-13	-.4905E+01	.2466E-13	-.2015E+00

REPOSITION 304+277. 3 VANOS 14+18+14 FILE:30427?

R E A C T I O N S A N D A P P L I E D F O R C E S

LOAD CONDITION 2 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	.1021E+00	.1699E-14	.2645E+02	-.2698E-13	.6126E+00	-.3855E-15
1049	.1032	.0000	20.4326	.0000	.6126	.0000
1085	-.0006	.0000	3.0087	.0000	-.0000	.0000
TOTAL	.1021E+00	.1699E-14	.2645E+02	-.2698E-13	.6126E+00	-.3855E-15

REPOSITION 304+277. 3 VANOS 14+18+14 FILE:30427?

R E A C T I O N S A N D A P P L I E D F O R C E S

LOAD CONDITION 3 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	-.0004	-.0001	12.9430	.0000	-.0002	.0000
1049	.0001	-.0047	12.9430	.0000	-.0002	.0000
1085	.0000	.0001	12.9430	.0000	-.0002	.0000
TOTAL	.8664E+00	.1094E-13	.1104E+03	-.1279E-12	.5199E+01	-.2880E-14

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

REACTIONS AND APPLIED FORCES

LOAD CONDITION 6 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	-5.6199	-.0218	-.0527	.0011	-.2810	.0007
1049	-.4602	.0000	-.1549	.0000	-4.4208	.0000
1085	-5.6199	.0218	-.0527	-.0011	-.2810	-.0007
TOTAL	-.1170E+02	.6974E-13	-.2603E+00	-.1920E-14	-.4983E+01	-.2690E-13

REPOSICION 304+277. 3 VANOS 14+18+14 FILE:304277

REACTIONS AND APPLIED FORCES

LOAD CONDITION 7 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	-.0307	-.0008	-4.1208	.0000	-.0015	.0000
1049	5.7491	.0000	79.6417	.0000	34.1318	.0000
1085	-.0307	.0008	-4.1208	-.0000	-.0015	-.0000
TOTAL	.5688E+01	.1343E-13	.7140E+02	-.4670E-12	.3413E+02	-.1524E-13

LINEA DE ALTA VELOCIDAD

MADRID – BARCELONA – FRONTERA FRANCESA

TRAMO: LLEIDA – MARTORELL, SUBTRAMO III-A

PLATAFORMA

ESTRUCTURA E-6. PASO SUPERIOR P.K. 304+277,920

ANEJO DE PRUEBA DE CARGA

LINEA DE ALTA VELOCIDAD
MADRID – BARCELONA – FRONTERA FRANCESA
TRAMO: LLEIDA – MARTORELL, SUBTRAMO III A,
PLATAFORMA

ESTRUCTURA E-6. PASO SUPERIOR P.K. 304+277,920

ANEJO DE PRUEBA DE CARGA

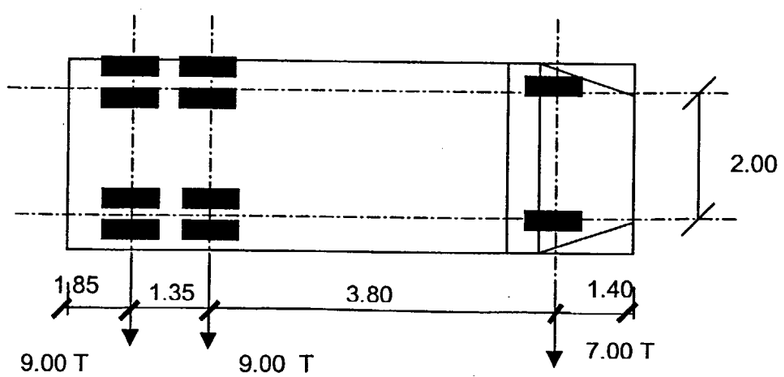
1.- GENERALIDADES

Se calculan en este Anejo los esfuerzos producidos por la acción de un tren de cargas de prueba formado por camiones tipo, que se disponen en una serie de posiciones estudiadas de modo que dan lugar a unos esfuerzos próximos al 80% de los teóricos correspondientes a la envolvente de sobrecarga de uso (sobrecarga uniforme + vehículo pesado) obtenida en el cálculo del tablero.

La estructura analizada es una losa de hormigón armado con luces de 14.00 + 18.00 +14.00 y un ancho de 11.70 m.

2.- TREN DE CARGAS

Se formará mediante camiones tipo de 25 toneladas. La distribución de ejes y pesos se refleja en el siguiente esquema:



En todas las posiciones del tren de cargas, los camiones se dispondrán en 2 hileras en pararelo, ocupando todo el ancho del tablero.

La prueba de carga consistirá en la disposición de los camiones en las situaciones siguientes:

- Posición 1: 4 camiones en vano 1
- Posición 2: 4 camiones en vano 2.

Los resultados del cálculo y los croquis de disposición de camiones se incluyen en el apartado 4 del presente Anejo.

3.- REALIZACION DE LA PRUEBA DE CARGA

En primer lugar se efectuará una detallada inspección de la obra que incluirá no sólo la estructura sino también los aparatos de apoyos y juntas.

Antes de comenzar el ensayo se anotarán las características de los vehículos a utilizar (matrícula, dimensiones y pesos por eje).

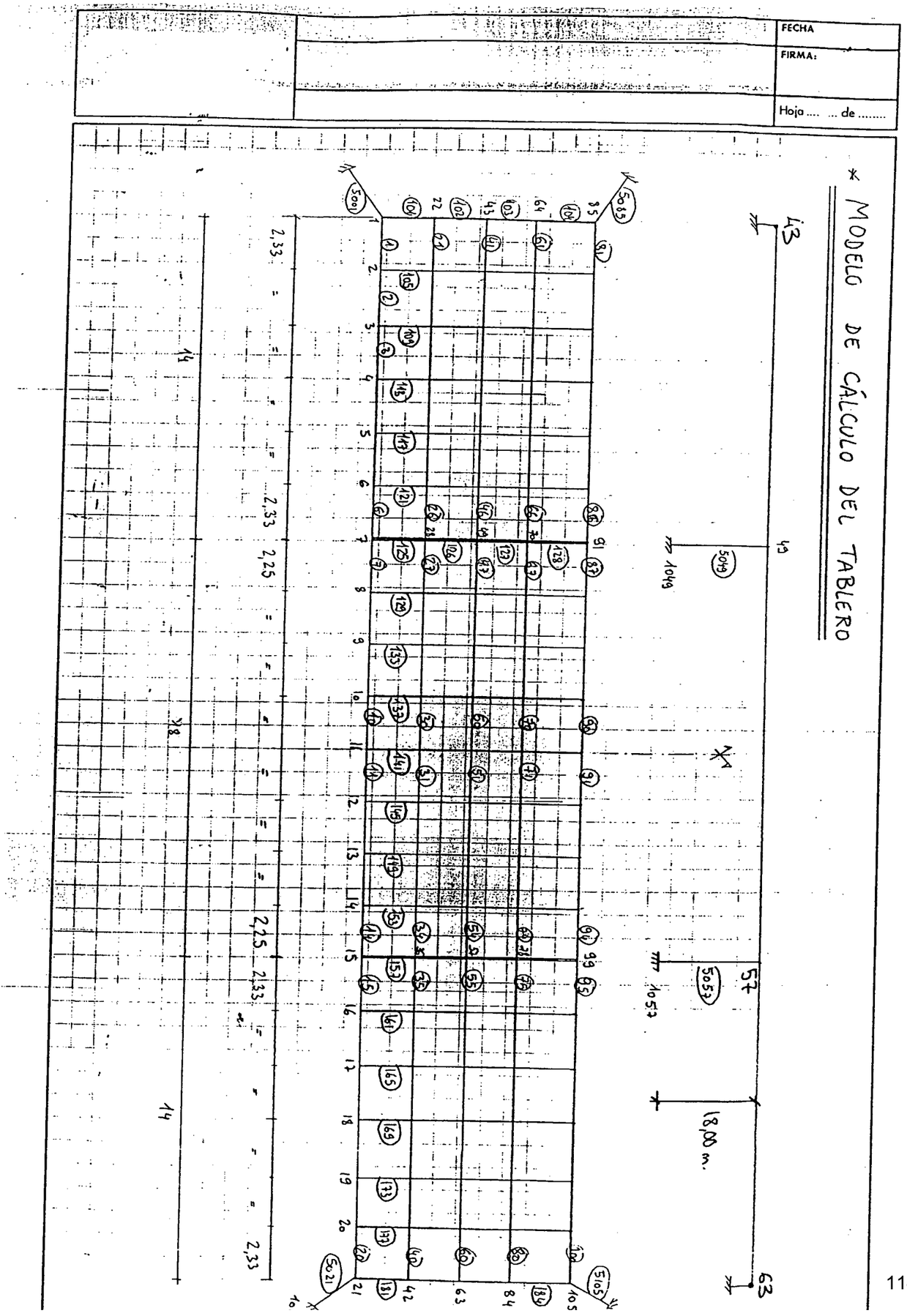
La medición de las deformaciones se efectuará en el centro de la luz del vano (con una precisión de ± 0.5 mm) y para su lectura se utilizarán flexímetros.

Las lecturas se realizarán en cada situación de carga de la forma siguiente:

1ª lectura:	En vacío.
2ª lectura:	A los 20 minutos de posicionar la carga.
3ª lectura:	A los 35 minutos de posicionar la carga.
	Se comprobará que las flechas obtenidas en estas dos últimas lecturas estén estabilizadas, admitiéndose una variación de +5%.
4ª lectura:	A los 15 minutos de retirar la carga.

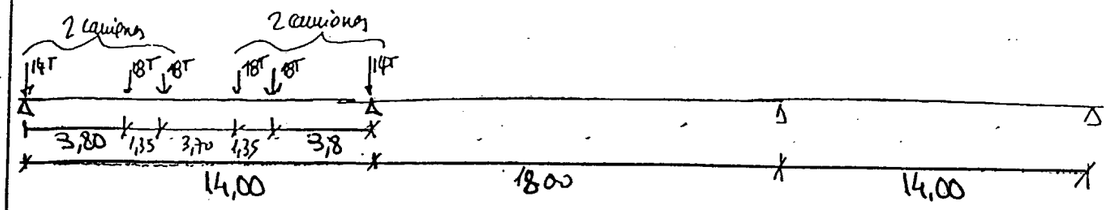
4.- CALCULO DE ESFUERZOS Y DEFORMACIONES

Se utiliza el mismo modelo de cálculo y programa que el empleado para el dimensionamiento de la estructura. Los correspondientes listados, esfuerzos y deformaciones obtenidos se acompañan a continuación.



FECHA
FIRMA:
Hoja ..... de .....

PRUEBA DE CARGA

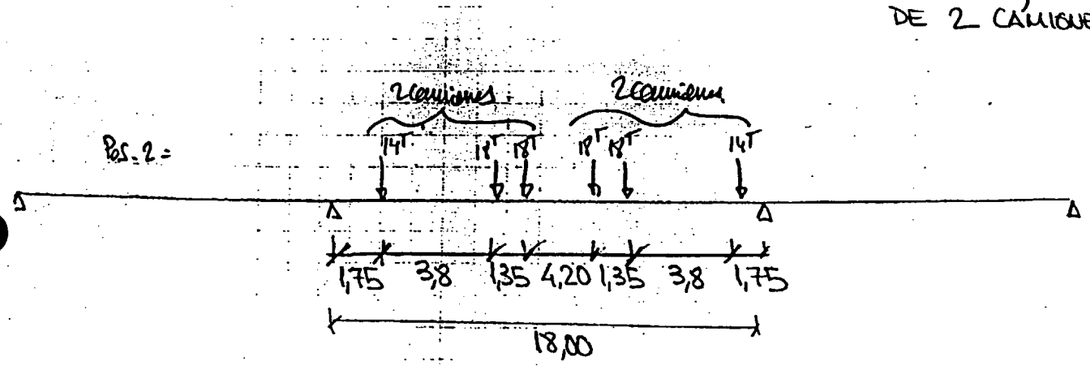


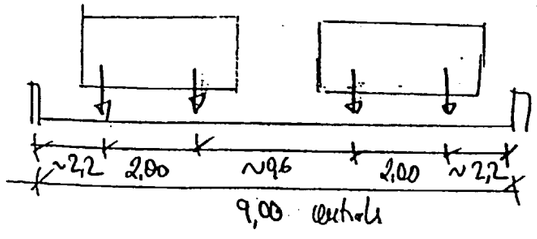
Posición 1: Centro Vano 1:

Máxima sobrecarga: $0,4 \times 14 \times 11,7 + 60 = 125\ T \Rightarrow$ 4 camiones. (6 5) (2 HILERAS) DE 2 CAMIONES

Posición 2: Centro de vano 2

Máxima sobrecarga: $0,4 \times 18 \times 11,7 + 60 = 144^T \Rightarrow$ 4 camiones. (6 5) (2 HILERAS) DE 2 CAMIONES

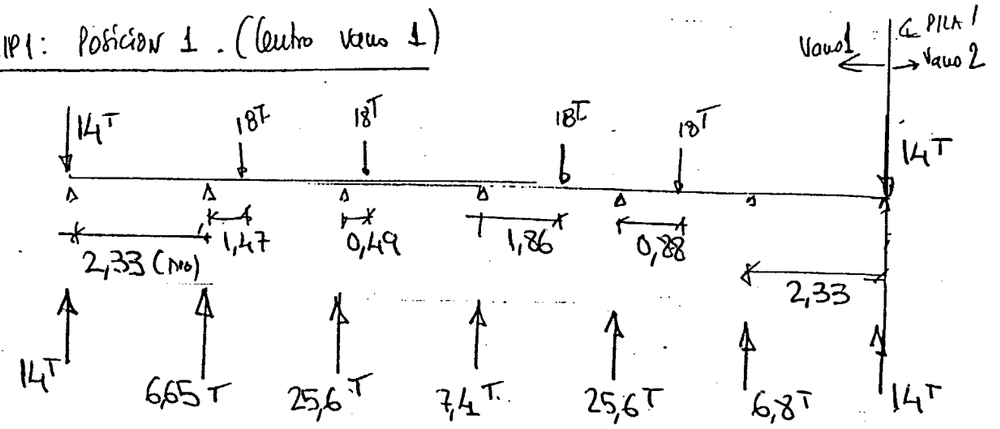




FECHA
FIRMA:
Hoja ..... de .....

Cargas en nudos

HIP 1: Posición 1. (Centro vano 1)



Nudos	Carga (mín)
22	3,5
23	1,66
24	6,4
25	1,86
26	6,4
27	1,7
28	3,5

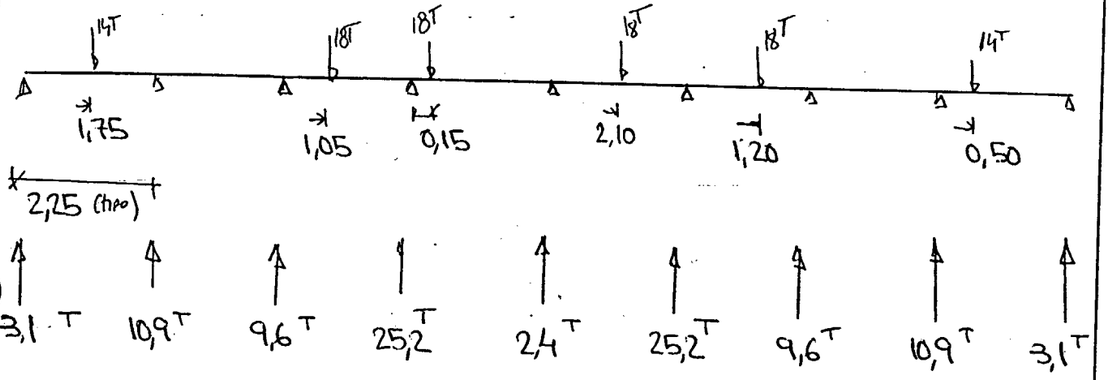
Nudo	Carga (mín)
43	7
44	3,3
45	12,8
46	3,71
47	12,8
48	3,4
49	7

Nudo	Carga (mín)
64	3,5
65	1,66
66	6,4
67	1,86
68	6,4
69	1,7
70	3,5

Σ Cargas: 100 TON

FECHA
FIRMA:
Hoja ..... de .....

HIP 2: Posición 2 (Centro vano 2)



Carga en nudos.

Nudo	25% Carga (TON)
28	0,75
29	2,75
30	2,4
31	6,3
32	0,6
33	6,3
34	2,4
35	2,75
36	0,75

Nudo	50% Carga (TON)
49	1,5
50	5,5
51	4,8
52	12,6
53	1,2
54	12,6
55	4,8
56	5,5
57	1,5

Nudo	25% Carga (TON)
70	0,75
71	2,75
72	2,4
73	6,3
74	0,6
75	6,3
76	2,4
77	2,75
78	0,75

Σ Cargas = 100 TON

FECHA
FIRMA:
Hoja . de

A continuación se detallan los momentos flectores producidos por la sobrecarga circulando más el carro de la Instrucción, tenidos en cuenta en el Proyecto Original.

Estos esfuerzos corresponden a la hipótesis "B", módulo Bridge del Programa "SAP-90"

Centro vano 1

Barra 4	4,25	TXM
24	48,53	
44	82,76	
64	48,53	
84	4,25	
	188,3	TXM

Centro vano 2

Barra 10	4,95	TXM
30	52,93	
50	89,34	
70	52,93	
90	4,95	
	205,1	TXM.

FECHA

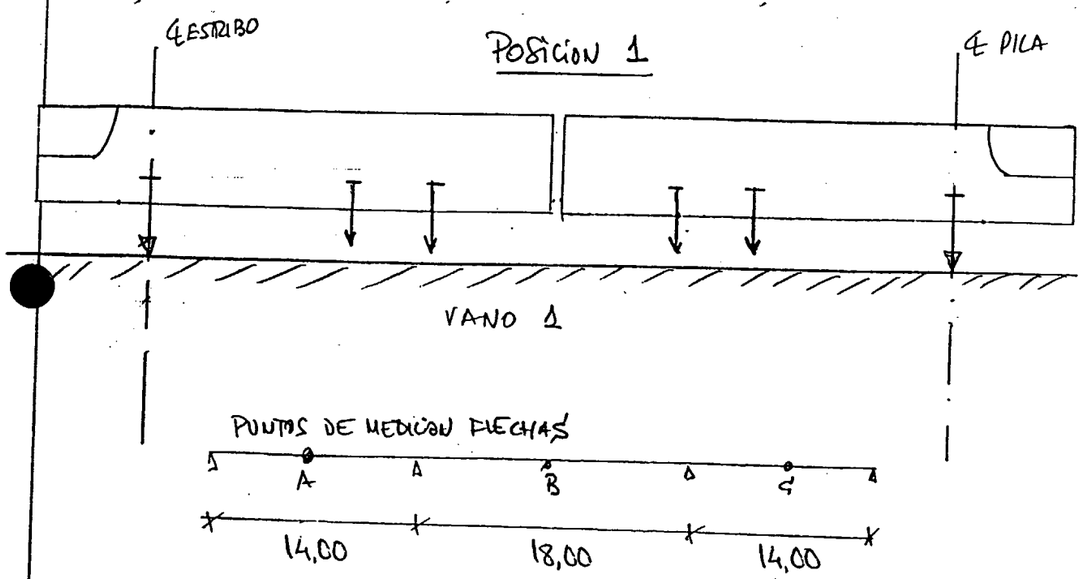
FIRMA:

Hoja ... de ...

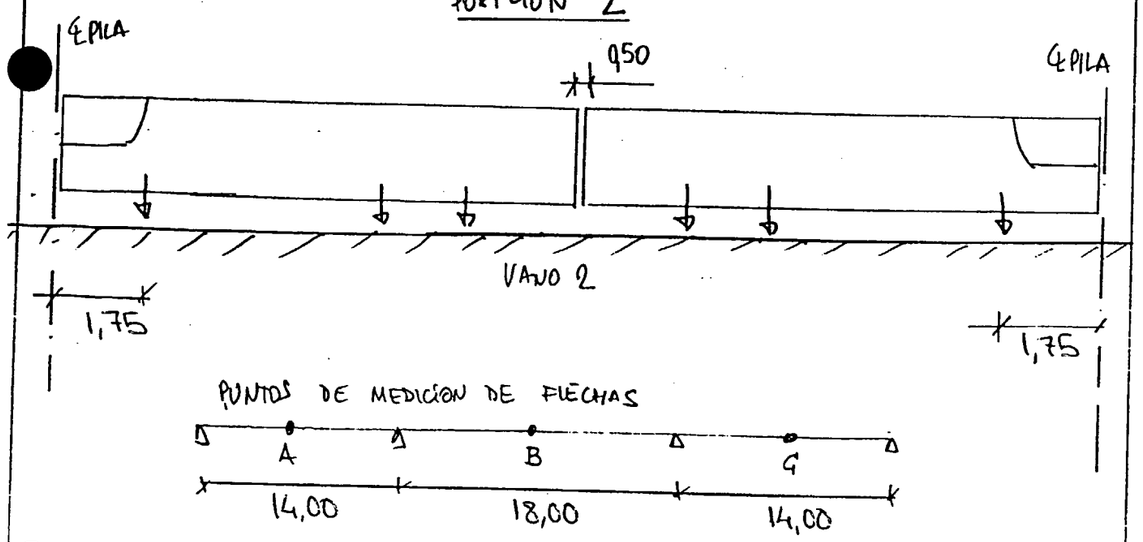
PRUEBA DE CARGA

CROQUIS DE DISPOSICIÓN DE CAMIONES

POSICIÓN 1



POSICIÓN 2



En las dos posiciones del tren de cargas, los 4 camiones se disponían en dos hileras en paralelo, ocupando todo el ancho del tablero.

C S I / S A P 9 0 - - FINITE ELEMENT ANALYSIS OF STRUCTURES PAGE 1
PROGRAM:SAP90/FILE:PCARGA.SAP

REPOSICION 304+277,900. 3 VANOS 14+18+14 FILE:PCARGA. PRUEBA DE CARGA.

S Y S T E M D A T A

EXECUTION CODE	0
NUMBER OF LOAD CONDITIONS	2
STEADY STATE LOAD FREQUENCY	.0000E+00
NUMBER OF EIGENVALUES	0
EIGEN CONVERGENCE TOLERANCE	.1000E-03
EIGEN CUTOFF TIME PERIOD	.0000E+00

ENTRADA DE DATOS

G E N E R A T E D J O I N T C O O R D I N A T E S

JOINT	X	Y	Z
1	.000	.000	17.900
2	2.333	.000	17.900
3	4.667	.000	17.900
4	7.000	.000	17.900
5	9.333	.000	17.900
6	11.667	.000	17.900
7	14.000	.000	17.900
8	16.250	.000	17.900
9	18.500	.000	17.900
10	20.750	.000	17.900
11	23.000	.000	17.900
12	25.250	.000	17.900
13	27.500	.000	17.900
14	29.750	.000	17.900
15	32.000	.000	17.900
16	34.333	.000	17.900
17	36.667	.000	17.900
18	39.000	.000	17.900
19	41.333	.000	17.900
20	43.667	.000	17.900
21	46.000	.000	17.900
22	.000	2.300	17.900
23	2.333	2.300	17.900
24	4.667	2.300	17.900
25	7.000	2.300	17.900
26	9.333	2.300	17.900
27	11.667	2.300	17.900
28	14.000	2.300	17.900
29	16.250	2.300	17.900
30	18.500	2.300	17.900
31	20.750	2.300	17.900
32	23.000	2.300	17.900
33	25.250	2.300	17.900
34	27.500	2.300	17.900
35	29.750	2.300	17.900
36	32.000	2.300	17.900
37	34.333	2.300	17.900
38	36.667	2.300	17.900
39	39.000	2.300	17.900
40	41.333	2.300	17.900
41	43.667	2.300	17.900
42	46.000	2.300	17.900
43	.000	4.600	17.900
44	2.333	4.600	17.900
45	4.667	4.600	17.900
46	7.000	4.600	17.900
47	9.333	4.600	17.900
48	11.667	4.600	17.900
49	14.000	4.600	17.900
50	16.250	4.600	17.900
51	18.500	4.600	17.900
52	20.750	4.600	17.900

G E N E R A T E D J O I N T C O O R D I N A T E S

JOINT	X	Y	Z
53	23.000	4.600	17.900
54	25.250	4.600	17.900
55	27.500	4.600	17.900
56	29.750	4.600	17.900
57	32.000	4.600	17.900
58	34.333	4.600	17.900
59	36.667	4.600	17.900
60	39.000	4.600	17.900
61	41.333	4.600	17.900
62	43.667	4.600	17.900
63	46.000	4.600	17.900
64	.000	6.900	17.900
65	2.333	6.900	17.900
66	4.667	6.900	17.900
67	7.000	6.900	17.900
68	9.333	6.900	17.900
69	11.667	6.900	17.900
70	14.000	6.900	17.900
71	16.250	6.900	17.900
72	18.500	6.900	17.900
73	20.750	6.900	17.900
74	23.000	6.900	17.900
75	25.250	6.900	17.900
76	27.500	6.900	17.900
77	29.750	6.900	17.900
78	32.000	6.900	17.900
79	34.333	6.900	17.900
80	36.667	6.900	17.900
81	39.000	6.900	17.900
82	41.333	6.900	17.900
83	43.667	6.900	17.900
84	46.000	6.900	17.900
85	.000	9.200	17.900
86	2.333	9.200	17.900
87	4.667	9.200	17.900
88	7.000	9.200	17.900
89	9.333	9.200	17.900
90	11.667	9.200	17.900
91	14.000	9.200	17.900
92	16.250	9.200	17.900
93	18.500	9.200	17.900
94	20.750	9.200	17.900
95	23.000	9.200	17.900
96	25.250	9.200	17.900
97	27.500	9.200	17.900
98	29.750	9.200	17.900
99	32.000	9.200	17.900
100	34.333	9.200	17.900
101	36.667	9.200	17.900
102	39.000	9.200	17.900
103	41.333	9.200	17.900
104	43.667	9.200	17.900

G E N E R A T E D J O I N T C O O R D I N A T E S

JOINT	X	Y	Z
105	46.000	9.200	17.900
1001	.000	.000	17.850
1021	46.000	.000	17.850
1049	14.000	4.600	.000
1057	32.000	4.600	.000
1085	.000	9.200	17.850
1105	46.000	9.200	17.850

R E S T R A I N T D A T A

JOINT	RX	RY	RZ	RXX	RYY	RZZ
1001	1	1	1	1	1	1
1021	1	1	1	1	1	1
1049	1	1	1	1	1	1
1057	1	1	1	1	1	1
1085	1	1	1	1	1	1
1105	1	1	1	1	1	1

F R A M E C O N T R O L D A T A

NUMBER OF MEMBER SECTION PROPERTIES	12
NUMBER OF SPAN LOADING PATTERNS	0
NUMBER OF MEMBER FORCE OUTPUT STATIONS	3

LOAD COND	GRAVITATIONAL MULTIPLIERS X	Y	Z	TEMPERATURE MULTIPLIERS	PRESTRESS MULTIPLIERS
1	.000	.000	.000	.000	.000
2	.000	.000	.000	.000	.000

S E C T I O N P R O P E R T Y D A T A

PROP ID	AREA	TORSIONAL INERTIA	MOMENTS OF INERTIA I33	I22	SHEAR AREAS A2	A3
1	.228E+01	.11820E+01	.18600E+00	.99600E+00	.190E+01	.190E+01
2	.168E+01	.79960E+00	.10910E+00	.69050E+00	.140E+01	.140E+01
3	.840E+00	.38910E+00	.10800E-01	.37830E+00	.700E+00	.700E+00
4	.111E+01	.16876E+00	.85318E-01	.12192E+00	.922E+00	.922E+00
5	.128E+01	.11001E+00	.32304E-01	.57976E+00	.107E+01	.107E+01
6	.228E+01	.53490E+00	.18163E+00	.10309E+01	.190E+01	.190E+01
7	.126E+01	.10779E+00	.31750E-01	.55041E+00	.105E+01	.105E+01
8	.224E+01	.52247E+00	.17851E+00	.97873E+00	.187E+01	.187E+01
9	.124E+01	.10557E+00	.31195E-01	.52207E+00	.103E+01	.103E+01
10	.220E+01	.51003E+00	.17540E+00	.92834E+00	.183E+01	.183E+01
11	.299E+01	.24966E+01	.22636E+01	.23300E+00	.250E+01	.250E+01
12	.800E-01	.73242E-03	.10667E-02	.26667E-03	.667E-01	.667E-01

M A T E R I A L P R O P E R T Y D A T A

PROP ID	MODULUS OF ELASTICITY	SHEAR MODULUS	WEIGHT PER UNIT LEN	MASS PER UNIT LEN	THERMAL EXPANSION
1	.3500E+07	.1346E+07	.5700E+01	.0000E+00	.0000E+00
2	.3500E+07	.1346E+07	.4200E+01	.0000E+00	.0000E+00
3	.3500E+07	.1346E+07	.2100E+01	.0000E+00	.0000E+00
4	.3500E+07	.1346E+07	.0000E+00	.0000E+00	.0000E+00
5	.3500E+07	.1346E+07	.0000E+00	.0000E+00	.0000E+00
6	.3500E+07	.1346E+07	.0000E+00	.0000E+00	.0000E+00
7	.3500E+07	.1346E+07	.0000E+00	.0000E+00	.0000E+00
8	.3500E+07	.1346E+07	.0000E+00	.0000E+00	.0000E+00
9	.3500E+07	.1346E+07	.0000E+00	.0000E+00	.0000E+00
10	.3500E+07	.1346E+07	.0000E+00	.0000E+00	.0000E+00
11	.3500E+07	.1346E+07	.7476E+01	.0000E+00	.0000E+00
12	.4300E+05	.9000E+02	.0000E+00	.0000E+00	.0000E+00

F R A M E E L E M E N T D A T A

ELT ID	JOINT END-I	JOINT END-J	LOCAL-AXIS N1	LOCAL-AXIS N2	PROPERTY-ID END-I	PROPERTY-ID END-J	VAR	REL CODES	REF TEMP	ELEMENT LENGTH
1	1	2	-2	0	3	3	0	000000	.00	2.33
2	2	3	-2	0	3	3	0	000000	.00	2.33
3	3	4	-2	0	3	3	0	000000	.00	2.33
4	4	5	-2	0	3	3	0	000000	.00	2.33
5	5	6	-2	0	3	3	0	000000	.00	2.33
6	6	7	-2	0	3	3	0	000000	.00	2.33
7	7	8	-2	0	3	3	0	000000	.00	2.25
8	8	9	-2	0	3	3	0	000000	.00	2.25
9	9	10	-2	0	3	3	0	000000	.00	2.25
10	10	11	-2	0	3	3	0	000000	.00	2.25
11	11	12	-2	0	3	3	0	000000	.00	2.25
12	12	13	-2	0	3	3	0	000000	.00	2.25
13	13	14	-2	0	3	3	0	000000	.00	2.25
14	14	15	-2	0	3	3	0	000000	.00	2.25
15	15	16	-2	0	3	3	0	000000	.00	2.33
16	16	17	-2	0	3	3	0	000000	.00	2.33
17	17	18	-2	0	3	3	0	000000	.00	2.33
18	18	19	-2	0	3	3	0	000000	.00	2.33
19	19	20	-2	0	3	3	0	000000	.00	2.33
20	20	21	-2	0	3	3	0	000000	.00	2.33
21	22	23	-2	0	2	2	0	000000	.00	2.33
22	23	24	-2	0	2	2	0	000000	.00	2.33
23	24	25	-2	0	2	2	0	000000	.00	2.33
24	25	26	-2	0	2	2	0	000000	.00	2.33
25	26	27	-2	0	2	2	0	000000	.00	2.33
26	27	28	-2	0	2	2	0	000000	.00	2.33
27	28	29	-2	0	2	2	0	000000	.00	2.25
28	29	30	-2	0	2	2	0	000000	.00	2.25
29	30	31	-2	0	2	2	0	000000	.00	2.25
30	31	32	-2	0	2	2	0	000000	.00	2.25
31	32	33	-2	0	2	2	0	000000	.00	2.25
32	33	34	-2	0	2	2	0	000000	.00	2.25
33	34	35	-2	0	2	2	0	000000	.00	2.25
34	35	36	-2	0	2	2	0	000000	.00	2.25
35	36	37	-2	0	2	2	0	000000	.00	2.33
36	37	38	-2	0	2	2	0	000000	.00	2.33
37	38	39	-2	0	2	2	0	000000	.00	2.33
38	39	40	-2	0	2	2	0	000000	.00	2.33
39	40	41	-2	0	2	2	0	000000	.00	2.33
40	41	42	-2	0	2	2	0	000000	.00	2.33
41	43	44	-2	0	1	1	0	000000	.00	2.33
42	44	45	-2	0	1	1	0	000000	.00	2.33
43	45	46	-2	0	1	1	0	000000	.00	2.33
44	46	47	-2	0	1	1	0	000000	.00	2.33
45	47	48	-2	0	1	1	0	000000	.00	2.33
46	48	49	-2	0	1	1	0	000000	.00	2.33
47	49	50	-2	0	1	1	0	000000	.00	2.25
48	50	51	-2	0	1	1	0	000000	.00	2.25
49	51	52	-2	0	1	1	0	000000	.00	2.25
50	52	53	-2	0	1	1	0	000000	.00	2.25
51	53	54	-2	0	1	1	0	000000	.00	2.25

F R A M E E L E M E N T D A T A

ELT ID	JOINT END-I	JOINT END-J	LOCAL-AXIS N1	LOCAL-AXIS N2	PROPERTY-ID END-I	PROPERTY-ID END-J	VAR	REL CODES	REF TEMP	ELEMENT LENGTH
52	54	55	-2	0	1	1	0	000000	.00	2.25
53	55	56	-2	0	1	1	0	000000	.00	2.25
54	56	57	-2	0	1	1	0	000000	.00	2.25
55	57	58	-2	0	1	1	0	000000	.00	2.33
56	58	59	-2	0	1	1	0	000000	.00	2.33
57	59	60	-2	0	1	1	0	000000	.00	2.33
58	60	61	-2	0	1	1	0	000000	.00	2.33
59	61	62	-2	0	1	1	0	000000	.00	2.33
60	62	63	-2	0	1	1	0	000000	.00	2.33
61	64	65	-2	0	2	2	0	000000	.00	2.33
62	65	66	-2	0	2	2	0	000000	.00	2.33
63	66	67	-2	0	2	2	0	000000	.00	2.33
64	67	68	-2	0	2	2	0	000000	.00	2.33
65	68	69	-2	0	2	2	0	000000	.00	2.33
66	69	70	-2	0	2	2	0	000000	.00	2.33
67	70	71	-2	0	2	2	0	000000	.00	2.25
68	71	72	-2	0	2	2	0	000000	.00	2.25
69	72	73	-2	0	2	2	0	000000	.00	2.25
70	73	74	-2	0	2	2	0	000000	.00	2.25
71	74	75	-2	0	2	2	0	000000	.00	2.25
72	75	76	-2	0	2	2	0	000000	.00	2.25
73	76	77	-2	0	2	2	0	000000	.00	2.25
74	77	78	-2	0	2	2	0	000000	.00	2.25
75	78	79	-2	0	2	2	0	000000	.00	2.33
76	79	80	-2	0	2	2	0	000000	.00	2.33
77	80	81	-2	0	2	2	0	000000	.00	2.33
78	81	82	-2	0	2	2	0	000000	.00	2.33
79	82	83	-2	0	2	2	0	000000	.00	2.33
80	83	84	-2	0	2	2	0	000000	.00	2.33
81	85	86	-2	0	3	3	0	000000	.00	2.33
82	86	87	-2	0	3	3	0	000000	.00	2.33
83	87	88	-2	0	3	3	0	000000	.00	2.33
84	88	89	-2	0	3	3	0	000000	.00	2.33
85	89	90	-2	0	3	3	0	000000	.00	2.33
86	90	91	-2	0	3	3	0	000000	.00	2.33
87	91	92	-2	0	3	3	0	000000	.00	2.25
88	92	93	-2	0	3	3	0	000000	.00	2.25
89	93	94	-2	0	3	3	0	000000	.00	2.25
90	94	95	-2	0	3	3	0	000000	.00	2.25
91	95	96	-2	0	3	3	0	000000	.00	2.25
92	96	97	-2	0	3	3	0	000000	.00	2.25
93	97	98	-2	0	3	3	0	000000	.00	2.25
94	98	99	-2	0	3	3	0	000000	.00	2.25
95	99	100	-2	0	3	3	0	000000	.00	2.33
96	100	101	-2	0	3	3	0	000000	.00	2.33
97	101	102	-2	0	3	3	0	000000	.00	2.33
98	102	103	-2	0	3	3	0	000000	.00	2.33
99	103	104	-2	0	3	3	0	000000	.00	2.33
100	104	105	-2	0	3	3	0	000000	.00	2.33
101	1	22	3	0	4	4	0	000000	.00	2.30
102	2	23	3	0	5	5	0	000000	.00	2.30

F R A M E E L E M E N T D A T A

ELT ID	JOINT END-I	JOINT END-J	LOCAL-AXIS N1	LOCAL-AXIS N2	PROPERTY-ID END-I	PROPERTY-ID END-J	VAR	REL CODES	REF TEMP	ELEMENT LENGTH
103	3	24	3	0	5	5	0	000000	.00	2.30
104	4	25	3	0	5	5	0	000000	.00	2.30
105	5	26	3	0	5	5	0	000000	.00	2.30
106	6	27	3	0	5	5	0	000000	.00	2.30
107	7	28	3	0	7	7	0	000000	.00	2.30
108	8	29	3	0	9	9	0	000000	.00	2.30
109	9	30	3	0	9	9	0	000000	.00	2.30
110	10	31	3	0	9	9	0	000000	.00	2.30
111	11	32	3	0	9	9	0	000000	.00	2.30
112	12	33	3	0	9	9	0	000000	.00	2.30
113	13	34	3	0	9	9	0	000000	.00	2.30
114	14	35	3	0	9	9	0	000000	.00	2.30
115	15	36	3	0	7	7	0	000000	.00	2.30
116	16	37	3	0	5	5	0	000000	.00	2.30
117	17	38	3	0	5	5	0	000000	.00	2.30
118	18	39	3	0	5	5	0	000000	.00	2.30
119	19	40	3	0	5	5	0	000000	.00	2.30
120	20	41	3	0	5	5	0	000000	.00	2.30
121	21	42	3	0	4	4	0	000000	.00	2.30
122	22	43	3	0	4	4	0	000000	.00	2.30
123	23	44	3	0	6	6	0	000000	.00	2.30
124	24	45	3	0	6	6	0	000000	.00	2.30
125	25	46	3	0	6	6	0	000000	.00	2.30
126	26	47	3	0	6	6	0	000000	.00	2.30
127	27	48	3	0	6	6	0	000000	.00	2.30
128	28	49	3	0	8	8	0	000000	.00	2.30
129	29	50	3	0	10	10	0	000000	.00	2.30
130	30	51	3	0	10	10	0	000000	.00	2.30
131	31	52	3	0	10	10	0	000000	.00	2.30
132	32	53	3	0	10	10	0	000000	.00	2.30
133	33	54	3	0	10	10	0	000000	.00	2.30
134	34	55	3	0	10	10	0	000000	.00	2.30
135	35	56	3	0	10	10	0	000000	.00	2.30
136	36	57	3	0	8	8	0	000000	.00	2.30
137	37	58	3	0	6	6	0	000000	.00	2.30
138	38	59	3	0	6	6	0	000000	.00	2.30
139	39	60	3	0	6	6	0	000000	.00	2.30
140	40	61	3	0	6	6	0	000000	.00	2.30
141	41	62	3	0	6	6	0	000000	.00	2.30
142	42	63	3	0	4	4	0	000000	.00	2.30
143	43	64	3	0	4	4	0	000000	.00	2.30
144	44	65	3	0	6	6	0	000000	.00	2.30
145	45	66	3	0	6	6	0	000000	.00	2.30
146	46	67	3	0	6	6	0	000000	.00	2.30
147	47	68	3	0	6	6	0	000000	.00	2.30
148	48	69	3	0	6	6	0	000000	.00	2.30
149	49	70	3	0	8	8	0	000000	.00	2.30
150	50	71	3	0	10	10	0	000000	.00	2.30
151	51	72	3	0	10	10	0	000000	.00	2.30
152	52	73	3	0	10	10	0	000000	.00	2.30
153	53	74	3	0	10	10	0	000000	.00	2.30

F R A M E E L E M E N T D A T A

ELT ID	JOINT END-I	JOINT END-J	LOCAL-AXIS N1	LOCAL-AXIS N2	PROPERTY-ID END-I	PROPERTY-ID END-J	VAR	REL CODES	REF TEMP	ELEMENT LENGTH
154	54	75	3	0	10	10	0	000000	.00	2.30
155	55	76	3	0	10	10	0	000000	.00	2.30
156	56	77	3	0	10	10	0	000000	.00	2.30
157	57	78	3	0	8	8	0	000000	.00	2.30
158	58	79	3	0	6	6	0	000000	.00	2.30
159	59	80	3	0	6	6	0	000000	.00	2.30
160	60	81	3	0	6	6	0	000000	.00	2.30
161	61	82	3	0	6	6	0	000000	.00	2.30
162	62	83	3	0	6	6	0	000000	.00	2.30
163	63	84	3	0	4	4	0	000000	.00	2.30
164	64	85	3	0	4	4	0	000000	.00	2.30
165	65	86	3	0	5	5	0	000000	.00	2.30
166	66	87	3	0	5	5	0	000000	.00	2.30
167	67	88	3	0	5	5	0	000000	.00	2.30
168	68	89	3	0	5	5	0	000000	.00	2.30
169	69	90	3	0	5	5	0	000000	.00	2.30
170	70	91	3	0	7	7	0	000000	.00	2.30
171	71	92	3	0	9	9	0	000000	.00	2.30
172	72	93	3	0	9	9	0	000000	.00	2.30
173	73	94	3	0	9	9	0	000000	.00	2.30
174	74	95	3	0	9	9	0	000000	.00	2.30
175	75	96	3	0	9	9	0	000000	.00	2.30
176	76	97	3	0	9	9	0	000000	.00	2.30
177	77	98	3	0	9	9	0	000000	.00	2.30
178	78	99	3	0	7	7	0	000000	.00	2.30
179	79	100	3	0	5	5	0	000000	.00	2.30
180	80	101	3	0	5	5	0	000000	.00	2.30
181	81	102	3	0	5	5	0	000000	.00	2.30
182	82	103	3	0	5	5	0	000000	.00	2.30
183	83	104	3	0	5	5	0	000000	.00	2.30
184	84	105	3	0	4	4	0	000000	.00	2.30
5001	1001	1	3	0	12	12	0	010010	.00	.05
5021	1021	21	3	0	12	12	0	010010	.00	.05
5049	1049	49	3	0	11	11	0	000000	.00	17.90
5057	1057	57	3	0	11	11	0	000000	.00	17.90
5085	1085	85	3	0	12	12	0	010010	.00	.05
5105	1105	105	3	0	12	12	0	010010	.00	.05

T O T A L W E I G H T S A N D M A S S E S

PROP	WEIGHT	MASS
1	262.2000	.0000
2	386.4000	.0000
3	193.2000	.0000
4	.0000	.0000
5	.0000	.0000
6	.0000	.0000
7	.0000	.0000
8	.0000	.0000
9	.0000	.0000
10	.0000	.0000
11	267.6408	.0000
12	.0000	.0000
TOTAL	1109.4408	.0000

J O I N T L O A D S

JOINT	LOAD	FX	FY	FZ	MX	MY	MZ
23	1	.000E+00	.000E+00	-.166E+01	.000E+00	.000E+00	.000E+00
24	1	.000E+00	.000E+00	-.640E+01	.000E+00	.000E+00	.000E+00
25	1	.000E+00	.000E+00	-.186E+01	.000E+00	.000E+00	.000E+00
26	1	.000E+00	.000E+00	-.640E+01	.000E+00	.000E+00	.000E+00
27	1	.000E+00	.000E+00	-.170E+01	.000E+00	.000E+00	.000E+00
28	1	.000E+00	.000E+00	-.350E+01	.000E+00	.000E+00	.000E+00
22	1	.000E+00	.000E+00	-.350E+01	.000E+00	.000E+00	.000E+00
44	1	.000E+00	.000E+00	-.330E+01	.000E+00	.000E+00	.000E+00
45	1	.000E+00	.000E+00	-.128E+02	.000E+00	.000E+00	.000E+00
46	1	.000E+00	.000E+00	-.371E+01	.000E+00	.000E+00	.000E+00
47	1	.000E+00	.000E+00	-.128E+02	.000E+00	.000E+00	.000E+00
48	1	.000E+00	.000E+00	-.340E+01	.000E+00	.000E+00	.000E+00
49	1	.000E+00	.000E+00	-.700E+01	.000E+00	.000E+00	.000E+00
43	1	.000E+00	.000E+00	-.700E+01	.000E+00	.000E+00	.000E+00
65	1	.000E+00	.000E+00	-.166E+01	.000E+00	.000E+00	.000E+00
66	1	.000E+00	.000E+00	-.640E+01	.000E+00	.000E+00	.000E+00
67	1	.000E+00	.000E+00	-.186E+01	.000E+00	.000E+00	.000E+00
68	1	.000E+00	.000E+00	-.640E+01	.000E+00	.000E+00	.000E+00
69	1	.000E+00	.000E+00	-.170E+01	.000E+00	.000E+00	.000E+00
70	1	.000E+00	.000E+00	-.350E+01	.000E+00	.000E+00	.000E+00
64	1	.000E+00	.000E+00	-.350E+01	.000E+00	.000E+00	.000E+00
28	2	.000E+00	.000E+00	-.750E+00	.000E+00	.000E+00	.000E+00
29	2	.000E+00	.000E+00	-.275E+01	.000E+00	.000E+00	.000E+00
30	2	.000E+00	.000E+00	-.240E+01	.000E+00	.000E+00	.000E+00
31	2	.000E+00	.000E+00	-.630E+01	.000E+00	.000E+00	.000E+00
32	2	.000E+00	.000E+00	-.600E+00	.000E+00	.000E+00	.000E+00
33	2	.000E+00	.000E+00	-.630E+01	.000E+00	.000E+00	.000E+00
34	2	.000E+00	.000E+00	-.240E+01	.000E+00	.000E+00	.000E+00
35	2	.000E+00	.000E+00	-.275E+01	.000E+00	.000E+00	.000E+00
36	2	.000E+00	.000E+00	-.750E+00	.000E+00	.000E+00	.000E+00
49	2	.000E+00	.000E+00	-.150E+01	.000E+00	.000E+00	.000E+00
50	2	.000E+00	.000E+00	-.550E+01	.000E+00	.000E+00	.000E+00
51	2	.000E+00	.000E+00	-.480E+01	.000E+00	.000E+00	.000E+00
52	2	.000E+00	.000E+00	-.126E+02	.000E+00	.000E+00	.000E+00
53	2	.000E+00	.000E+00	-.120E+01	.000E+00	.000E+00	.000E+00
54	2	.000E+00	.000E+00	-.126E+02	.000E+00	.000E+00	.000E+00
55	2	.000E+00	.000E+00	-.480E+01	.000E+00	.000E+00	.000E+00
56	2	.000E+00	.000E+00	-.550E+01	.000E+00	.000E+00	.000E+00
57	2	.000E+00	.000E+00	-.150E+01	.000E+00	.000E+00	.000E+00
70	2	.000E+00	.000E+00	-.750E+00	.000E+00	.000E+00	.000E+00
71	2	.000E+00	.000E+00	-.275E+01	.000E+00	.000E+00	.000E+00
72	2	.000E+00	.000E+00	-.240E+01	.000E+00	.000E+00	.000E+00
73	2	.000E+00	.000E+00	-.630E+01	.000E+00	.000E+00	.000E+00
74	2	.000E+00	.000E+00	-.600E+00	.000E+00	.000E+00	.000E+00
75	2	.000E+00	.000E+00	-.630E+01	.000E+00	.000E+00	.000E+00
76	2	.000E+00	.000E+00	-.240E+01	.000E+00	.000E+00	.000E+00
77	2	.000E+00	.000E+00	-.275E+01	.000E+00	.000E+00	.000E+00
78	2	.000E+00	.000E+00	-.750E+00	.000E+00	.000E+00	.000E+00

J O I N T A N D E L E M E N T O U T P U T S E L E C T I O N

TYPE		FIRST ID	LAST ID	ID INC	CODE
1	(JOINT DISPL)	1	105	1	1
2	(JOINT REACT)	1001	1021	20	1
2	(JOINT REACT)	1085	1105	20	1
2	(JOINT REACT)	1049	1057	8	1
5	(FRAME ELEMT)	5049	5049	1	1
5	(FRAME ELEMT)	5001	5001	1	1
5	(FRAME ELEMT)	5021	5021	1	1
5	(FRAME ELEMT)	1	10	1	1
5	(FRAME ELEMT)	21	30	1	1
5	(FRAME ELEMT)	41	50	1	1
5	(FRAME ELEMT)	61	70	1	1
5	(FRAME ELEMT)	81	90	1	1

DEFORMACIONES

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 1 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	-.8033E-03	-.2699E-07	-.3121E-03	-.1925E-03	.3435E-03	.3699E-07
2	-.000803	.000000	-.001173	-.000145	.000300	.000000
3	-.000803	.000000	-.001702	-.000102	.000123	.000000
4	-.000803	.000000	-.001779	-.000069	-.000069	.000000
5	-.000803	.000000	-.001432	-.000044	-.000228	.000000
6	-.8033E-03	-.8285E-08	-.8037E-03	-.2360E-04	-.2955E-03	.2911E-07
7	-.8033E-03	.7035E-09	-.1644E-03	-.1008E-04	-.2400E-03	.3577E-07
8	-.8032E-03	.1062E-07	.2716E-03	-.4351E-05	-.1458E-03	.2691E-07
9	-.8031E-03	.1065E-07	.5049E-03	-.2232E-05	-.6459E-04	.1647E-07
10	-.8030E-03	.8554E-08	.5780E-03	-.1431E-05	-.3776E-05	.8313E-08
11	-.8028E-03	.7427E-08	.5353E-03	-.1226E-05	.3837E-04	.1653E-08
12	-.8027E-03	.7715E-08	.4180E-03	-.1361E-05	.6250E-04	-.4666E-08
13	-.8026E-03	.8944E-08	.2670E-03	-.1709E-05	.6850E-04	-.1175E-07
14	-.8025E-03	.8489E-08	.1230E-03	-.2092E-05	.5665E-04	-.2028E-07
15	-.8024E-03	-.9768E-10	.2105E-04	-.2045E-05	.3325E-04	-.2711E-07
16	-.8023E-03	-.8171E-08	-.3605E-04	-.1598E-05	.1675E-04	-.2063E-07
17	-.8022E-03	-.8313E-08	-.6214E-04	-.1422E-05	.6218E-05	-.1210E-07
18	-.8022E-03	-.6972E-08	-.6695E-04	-.1481E-05	-.1642E-05	-.5105E-08
19	-.8021E-03	-.6374E-08	-.5580E-04	-.1749E-05	-.7389E-05	.1678E-08
20	-.8020E-03	-.3930E-08	-.3339E-04	-.2243E-05	-.1119E-04	.1107E-07
21	-.8020E-03	.1272E-07	-.4431E-05	-.2846E-05	-.1218E-04	.2351E-07
22	-.8034E-03	-.1875E-07	-.7611E-03	-.1163E-03	.3081E-03	.2427E-07
23	-.000803	.000000	-.001443	-.000068	.000248	.000000
24	-.000803	.000000	-.001872	-.000039	.000099	.000000
25	-.000803	.000000	-.001887	-.000021	-.000084	.000000
26	-.000803	.000000	-.001499	-.000009	-.000240	.000000
27	-.8035E-03	-.7187E-08	-.8246E-03	.4379E-05	-.3073E-03	.3654E-07
28	-.8034E-03	.2631E-09	-.1538E-03	.1548E-04	-.2408E-03	.6234E-07
29	-.8033E-03	.8595E-08	.2787E-03	.8699E-05	-.1433E-03	.3579E-07
30	-.8032E-03	.7429E-08	.5069E-03	.3824E-05	-.6382E-04	.1868E-07
31	-.8030E-03	.5538E-08	.5781E-03	.1555E-05	-.3734E-05	.8602E-08
32	-.8028E-03	.4687E-08	.5344E-03	.4461E-06	.3829E-04	.1468E-08
33	-.8027E-03	.4975E-08	.4161E-03	-.2784E-06	.6248E-04	-.5248E-08
34	-.8025E-03	.6227E-08	.2636E-03	-.1059E-05	.6879E-04	-.1389E-07
35	-.8024E-03	.6924E-08	.1172E-03	-.2104E-05	.5717E-04	-.2793E-07
36	-.8022E-03	-.1664E-09	.1538E-04	-.2241E-05	.3149E-04	-.4936E-07
37	-.8022E-03	-.6672E-08	-.3860E-04	-.7784E-06	.1640E-04	-.2753E-07
38	-.8021E-03	-.5710E-08	-.6426E-04	-.4698E-06	.6278E-05	-.1392E-07
39	-.8021E-03	-.4339E-08	-.6922E-04	-.4707E-06	-.1495E-05	-.6028E-08
40	-.8021E-03	-.3709E-08	-.5858E-04	-.6264E-06	-.7080E-05	-.3169E-09
41	-.8021E-03	-.2166E-08	-.3745E-04	-.1003E-05	-.1046E-04	.5761E-08
42	-.8021E-03	.8421E-08	-.1094E-04	-.1681E-05	-.1168E-04	.1329E-07
43	-.8035E-03	.0000E+00	-.9268E-03	.0000E+00	.2747E-03	.0000E+00
44	-.000803	.000000	-.001528	.000000	.000229	.000000
45	-.000804	.000000	-.001920	.000000	.000090	.000000
46	-.000804	.000000	-.001913	.000000	-.000089	.000000
47	-.000804	.000000	-.001511	.000000	-.000244	.000000
48	-.8037E-03	.0000E+00	-.8119E-03	.0000E+00	-.3172E-03	.0000E+00
49	-.8038E-03	.0000E+00	-.1066E-03	.0000E+00	-.2295E-03	.0000E+00
50	-.8035E-03	.0000E+00	.2927E-03	.0000E+00	-.1370E-03	.0000E+00

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 1 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
51	-.8033E-03	.0000E+00	.5114E-03	.0000E+00	-.6240E-04	.0000E+00
52	-.8031E-03	.0000E+00	.5799E-03	.0000E+00	-.3331E-05	.0000E+00
53	-.8029E-03	.0000E+00	.5349E-03	.0000E+00	.3846E-04	.0000E+00
54	-.8027E-03	.0000E+00	.4158E-03	.0000E+00	.6263E-04	.0000E+00
55	-.8024E-03	.0000E+00	.2621E-03	.0000E+00	.6926E-04	.0000E+00
56	-.8022E-03	.0000E+00	.1128E-03	.0000E+00	.5835E-04	.0000E+00
57	-.8019E-03	.0000E+00	.9979E-05	.0000E+00	.2465E-04	.0000E+00
58	-.8020E-03	.0000E+00	-.3876E-04	.0000E+00	.1622E-04	.0000E+00
59	-.8021E-03	.0000E+00	-.6469E-04	.0000E+00	.6374E-05	.0000E+00
60	-.8021E-03	.0000E+00	-.6977E-04	.0000E+00	-.1440E-05	.0000E+00
61	-.8021E-03	.0000E+00	-.5932E-04	.0000E+00	-.6967E-05	.0000E+00
62	-.8021E-03	.0000E+00	-.3870E-04	.0000E+00	-.1020E-04	.0000E+00
63	-.8021E-03	.0000E+00	-.1330E-04	.0000E+00	-.1121E-04	.0000E+00
64	-.8034E-03	.1875E-07	-.7611E-03	.1163E-03	.3081E-03	-.2427E-07
65	-.000803	.000000	-.001443	.000068	.000248	.000000
66	-.000803	.000000	-.001872	.000039	.000099	.000000
67	-.000803	.000000	-.001887	.000021	-.000084	.000000
68	-.000803	.000000	-.001499	.000009	-.000240	.000000
69	-.8035E-03	.7187E-08	-.8246E-03	-.4379E-05	-.3073E-03	-.3654E-07
70	-.8034E-03	-.2631E-09	-.1538E-03	-.1548E-04	-.2408E-03	-.6234E-07
71	-.8033E-03	-.8595E-08	.2787E-03	-.8699E-05	-.1433E-03	-.3579E-07
72	-.8032E-03	-.7429E-08	.5069E-03	-.3824E-05	-.6382E-04	-.1868E-07
73	-.8030E-03	-.5538E-08	.5781E-03	-.1555E-05	-.3734E-05	-.8602E-08
74	-.8028E-03	-.4687E-08	.5344E-03	-.4461E-06	.3829E-04	-.1468E-08
75	-.8027E-03	-.4975E-08	.4161E-03	.2784E-06	.6248E-04	.5248E-08
76	-.8025E-03	-.6227E-08	.2636E-03	.1059E-05	.6879E-04	.1389E-07
77	-.8024E-03	-.6924E-08	.1172E-03	.2104E-05	.5717E-04	.2793E-07
78	-.8022E-03	.1664E-09	.1538E-04	.2241E-05	.3149E-04	.4936E-07
79	-.8022E-03	.6672E-08	-.3860E-04	.7784E-06	.1640E-04	.2753E-07
80	-.8021E-03	.5710E-08	-.6426E-04	.4698E-06	.6278E-05	.1392E-07
81	-.8021E-03	.4339E-08	-.6922E-04	.4707E-06	-.1495E-05	.6028E-08
82	-.8021E-03	.3709E-08	-.5858E-04	.6264E-06	-.7080E-05	.3169E-09
83	-.8021E-03	.2166E-08	-.3745E-04	.1003E-05	-.1046E-04	-.5761E-08
84	-.8021E-03	-.8421E-08	-.1094E-04	.1681E-05	-.1168E-04	-.1329E-07
85	-.8033E-03	.2699E-07	-.3121E-03	.1925E-03	.3435E-03	-.3699E-07
86	-.000803	.000000	-.001173	.000145	.000300	.000000
87	-.000803	.000000	-.001702	.000102	.000123	.000000
88	-.000803	.000000	-.001779	.000069	-.000069	.000000
89	-.000803	.000000	-.001432	.000044	-.000228	.000000
90	-.8033E-03	.8285E-08	-.8037E-03	.2360E-04	-.2955E-03	-.2911E-07
91	-.8033E-03	-.7035E-09	-.1644E-03	.1008E-04	-.2400E-03	-.3577E-07
92	-.8032E-03	-.1062E-07	.2716E-03	.4351E-05	-.1458E-03	-.2691E-07
93	-.8031E-03	-.1065E-07	.5049E-03	.2232E-05	-.6459E-04	-.1647E-07
94	-.8030E-03	-.8554E-08	.5780E-03	.1431E-05	-.3776E-05	-.8313E-08
95	-.8028E-03	-.7427E-08	.5353E-03	.1226E-05	.3837E-04	-.1653E-08
96	-.8027E-03	-.7715E-08	.4180E-03	.1361E-05	.6250E-04	.4666E-08
97	-.8026E-03	-.8944E-08	.2670E-03	.1709E-05	.6850E-04	.1175E-07
98	-.8025E-03	-.8489E-08	.1230E-03	.2092E-05	.5665E-04	.2028E-07
99	-.8024E-03	.9768E-10	.2105E-04	.2045E-05	.3325E-04	.2711E-07
100	-.8023E-03	.8171E-08	-.3605E-04	.1598E-05	.1675E-04	.2063E-07

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 1 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
101	-.8022E-03	.8313E-08	-.6214E-04	.1422E-05	.6218E-05	.1210E-07
102	-.8022E-03	.6972E-08	-.6695E-04	.1481E-05	-.1642E-05	.5105E-08
103	-.8021E-03	.6374E-08	-.5580E-04	.1749E-05	-.7389E-05	-.1678E-08
104	-.8020E-03	.3930E-08	-.3339E-04	.2243E-05	-.1119E-04	-.1107E-07
105	-.8020E-03	-.1272E-07	-.4431E-05	.2846E-05	-.1218E-04	-.2351E-07

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 2 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	.1271E-05	.1402E-07	.4025E-04	.2629E-04	-.1101E-03	-.1323E-07
2	.1266E-05	.4810E-08	.3021E-03	.2088E-04	-.1012E-03	-.1297E-07
3	.1246E-05	.5611E-08	.5042E-03	.1649E-04	-.6646E-04	-.1510E-07
4	.1207E-05	.9810E-08	.6034E-03	.1414E-04	-.1388E-04	-.2143E-07
5	.1141E-05	.1509E-07	.5554E-03	.1356E-04	.5898E-04	-.3250E-07
6	.1039E-05	.1616E-07	.3095E-03	.1432E-04	.1550E-03	-.4884E-07
7	.8919E-06	-.5949E-09	-.1907E-03	.1483E-04	.2724E-03	-.6175E-07
8	.7147E-06	-.1876E-07	-.9156E-03	.1149E-04	.3571E-03	-.4634E-07
9	.000000	.000000	-.001707	.000007	.000326	.000000
10	.000000	.000000	-.002302	.000003	.000188	.000000
11	.000000	.000000	-.002516	.000002	.000000	.000000
12	-.000000	.000000	-.002302	.000003	-.000188	.000000
13	-.000000	.000000	-.001707	.000007	-.000326	.000000
14	-.7147E-06	-.1876E-07	-.9156E-03	.1149E-04	-.3571E-03	.4634E-07
15	-.8919E-06	-.5949E-09	-.1907E-03	.1483E-04	-.2724E-03	.6175E-07
16	-.1039E-05	.1616E-07	.3095E-03	.1432E-04	-.1550E-03	.4884E-07
17	-.1141E-05	.1509E-07	.5554E-03	.1356E-04	-.5898E-04	.3250E-07
18	-.1207E-05	.9810E-08	.6034E-03	.1414E-04	.1388E-04	.2143E-07
19	-.1246E-05	.5611E-08	.5042E-03	.1649E-04	.6646E-04	.1510E-07
20	-.1266E-05	.4810E-08	.3021E-03	.2088E-04	.1012E-03	.1297E-07
21	-.1271E-05	.1402E-07	.4025E-04	.2629E-04	.1101E-03	.1323E-07
22	.1329E-05	.1014E-07	.1003E-03	.1558E-04	-.1057E-03	-.1079E-07
23	.1330E-05	.2903E-08	.3400E-03	.9478E-05	-.9458E-04	-.1059E-07
24	.1330E-05	.3535E-08	.5308E-03	.6285E-05	-.6383E-04	-.1316E-07
25	.1327E-05	.6463E-08	.6262E-03	.5448E-05	-.1299E-04	-.2041E-07
26	.1316E-05	.1074E-07	.5791E-03	.6760E-05	.5817E-04	-.3483E-07
27	.1283E-05	.1361E-07	.3409E-03	.1135E-04	.1509E-03	-.6292E-07
28	.1190E-05	-.9496E-10	-.1446E-03	.1994E-04	.2680E-03	-.1097E-06
29	.9486E-06	-.1524E-07	-.8847E-03	.1341E-04	.3623E-03	-.6258E-07
30	.000001	.000000	-.001695	.000006	.000329	.000000
31	.000000	.000000	-.002302	.000002	.000188	.000000
32	.000000	.000000	-.002515	.000001	.000000	.000000
33	-.000000	.000000	-.002302	.000002	-.000188	.000000
34	-.000001	.000000	-.001695	.000006	-.000329	.000000
35	-.9486E-06	-.1524E-07	-.8847E-03	.1341E-04	-.3623E-03	.6258E-07
36	-.1190E-05	-.9496E-10	-.1446E-03	.1994E-04	-.2680E-03	.1097E-06
37	-.1283E-05	.1361E-07	.3409E-03	.1135E-04	-.1509E-03	.6292E-07
38	-.1316E-05	.1074E-07	.5791E-03	.6760E-05	-.5817E-04	.3483E-07
39	-.1327E-05	.6463E-08	.6262E-03	.5448E-05	.1299E-04	.2041E-07
40	-.1330E-05	.3535E-08	.5308E-03	.6285E-05	.6383E-04	.1316E-07
41	-.1330E-05	.2903E-08	.3400E-03	.9478E-05	.9458E-04	.1059E-07
42	-.1329E-05	.1014E-07	.1003E-03	.1558E-04	.1057E-03	.1079E-07
43	.1363E-05	.0000E+00	.1221E-03	.0000E+00	-.1014E-03	.0000E+00
44	.1366E-05	.0000E+00	.3518E-03	.0000E+00	-.9228E-04	.0000E+00
45	.1381E-05	.0000E+00	.5383E-03	.0000E+00	-.6291E-04	.0000E+00
46	.1414E-05	.0000E+00	.6326E-03	.0000E+00	-.1286E-04	.0000E+00
47	.1478E-05	.0000E+00	.5868E-03	.0000E+00	.5732E-04	.0000E+00
48	.1602E-05	.0000E+00	.3560E-03	.0000E+00	.1458E-03	.0000E+00
49	.1849E-05	.0000E+00	-.9498E-04	.0000E+00	.2496E-03	.0000E+00
50	.1270E-05	.0000E+00	-.8602E-03	.0000E+00	.3705E-03	.0000E+00

REPOSICION 304+277,900. 3 VANOS 14+18+14 FILE:PCARGA. PRUEBA DE CARGA.

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 2 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
51	.000001	.000000	-.001689	.000000	.000332	.000000
52	.000000	.000000	-.002302	.000000	.000189	.000000
53	.000000	.000000	-.002515	.000000	.000000	.000000
54	-.000000	.000000	-.002302	.000000	-.000189	.000000
55	-.000001	.000000	-.001689	.000000	-.000332	.000000
56	-.1270E-05	.0000E+00	-.8602E-03	.0000E+00	-.3705E-03	.0000E+00
57	-.1849E-05	.0000E+00	-.9498E-04	.0000E+00	-.2496E-03	.0000E+00
58	-.1602E-05	.0000E+00	.3560E-03	.0000E+00	-.1458E-03	.0000E+00
59	-.1478E-05	.0000E+00	.5868E-03	.0000E+00	-.5732E-04	.0000E+00
60	-.1414E-05	.0000E+00	.6326E-03	.0000E+00	.1286E-04	.0000E+00
61	-.1381E-05	.0000E+00	.5383E-03	.0000E+00	.6291E-04	.0000E+00
62	-.1366E-05	.0000E+00	.3518E-03	.0000E+00	.9228E-04	.0000E+00
63	-.1363E-05	.0000E+00	.1221E-03	.0000E+00	.1014E-03	.0000E+00
64	.1329E-05	-.1014E-07	.1003E-03	-.1558E-04	-.1057E-03	.1079E-07
65	.1330E-05	-.2903E-08	.3400E-03	-.9478E-05	-.9458E-04	.1059E-07
66	.1330E-05	-.3535E-08	.5308E-03	-.6285E-05	-.6383E-04	.1316E-07
67	.1327E-05	-.6463E-08	.6262E-03	-.5448E-05	-.1299E-04	.2041E-07
68	.1316E-05	-.1074E-07	.5791E-03	-.6760E-05	.5817E-04	.3483E-07
69	.1283E-05	-.1361E-07	.3409E-03	-.1135E-04	.1509E-03	.6292E-07
70	.1190E-05	.9496E-10	-.1446E-03	-.1994E-04	.2680E-03	.1097E-06
71	.9486E-06	.1524E-07	-.8847E-03	-.1341E-04	.3623E-03	.6258E-07
72	.000001	.000000	-.001695	-.000006	.000329	.000000
73	.000000	.000000	-.002302	-.000002	.000188	.000000
74	.000000	.000000	-.002515	-.000001	.000000	.000000
75	-.000000	.000000	-.002302	-.000002	-.000188	.000000
76	-.000001	.000000	-.001695	-.000006	-.000329	.000000
77	-.9486E-06	.1524E-07	-.8847E-03	-.1341E-04	-.3623E-03	-.6258E-07
78	-.1190E-05	.9496E-10	-.1446E-03	-.1994E-04	-.2680E-03	-.1097E-06
79	-.1283E-05	-.1361E-07	.3409E-03	-.1135E-04	-.1509E-03	-.6292E-07
80	-.1316E-05	-.1074E-07	.5791E-03	-.6760E-05	-.5817E-04	-.3483E-07
81	-.1327E-05	-.6463E-08	.6262E-03	-.5448E-05	.1299E-04	-.2041E-07
82	-.1330E-05	-.3535E-08	.5308E-03	-.6285E-05	.6383E-04	-.1316E-07
83	-.1330E-05	-.2903E-08	.3400E-03	-.9478E-05	.9458E-04	-.1059E-07
84	-.1329E-05	-.1014E-07	.1003E-03	-.1558E-04	.1057E-03	-.1079E-07
85	.1271E-05	-.1402E-07	.4025E-04	-.2629E-04	-.1101E-03	.1323E-07
86	.1266E-05	-.4810E-08	.3021E-03	-.2088E-04	-.1012E-03	.1297E-07
87	.1246E-05	-.5611E-08	.5042E-03	-.1649E-04	-.6646E-04	.1510E-07
88	.1207E-05	-.9810E-08	.6034E-03	-.1414E-04	-.1388E-04	.2143E-07
89	.1141E-05	-.1509E-07	.5554E-03	-.1356E-04	.5898E-04	.3250E-07
90	.1039E-05	-.1616E-07	.3095E-03	-.1432E-04	.1550E-03	.4884E-07
91	.8919E-06	.5949E-09	-.1907E-03	-.1483E-04	.2724E-03	.6175E-07
92	.7147E-06	.1876E-07	-.9156E-03	-.1149E-04	.3571E-03	.4634E-07
93	.000000	.000000	-.001707	-.000007	.000326	.000000
94	.000000	.000000	-.002302	-.000003	.000188	.000000
95	.000000	.000000	-.002516	-.000002	.000000	.000000
96	-.000000	.000000	-.002302	-.000003	-.000188	.000000
97	-.000000	.000000	-.001707	-.000007	-.000326	.000000
98	-.7147E-06	.1876E-07	-.9156E-03	-.1149E-04	-.3571E-03	-.4634E-07
99	-.8919E-06	.5949E-09	-.1907E-03	-.1483E-04	-.2724E-03	-.6175E-07
100	-.1039E-05	-.1616E-07	.3095E-03	-.1432E-04	-.1550E-03	-.4884E-07

REPOSICION 304+277,900. 3 VANOS 14+18+14 FILE:PCARGA. PRUEBA DE CARGA.

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 2 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
101	-.1141E-05	-.1509E-07	.5554E-03	-.1356E-04	-.5898E-04	-.3250E-07
102	-.1207E-05	-.9810E-08	.6034E-03	-.1414E-04	.1388E-04	-.2143E-07
103	-.1246E-05	-.5611E-08	.5042E-03	-.1649E-04	.6646E-04	-.1510E-07
104	-.1266E-05	-.4810E-08	.3021E-03	-.2088E-04	.1012E-03	-.1297E-07
105	-.1271E-05	-.1402E-07	.4025E-04	-.2629E-04	.1101E-03	-.1323E-07

REPOSICION 304+277,900. 3 VANOS 14+18+14 FILE:PCARGA. PRUEBA DE CARGA.

R E A C T I O N S A N D A P P L I E D F O R C E S

LOAD CONDITION 1 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	.0964	.0000	21.4718	.0000	.0048	.0000
1021	.0962	.0000	.3048	.0000	.0048	.0000
1049	-2.1142	.0000	62.3315	.0000	-8.4655	.0000
1057	1.7290	.0000	-5.8349	.0000	14.3519	.0000
1085	.0964	.0000	21.4718	.0000	.0048	.0000
1105	.0962	.0000	.3048	.0000	.0048	.0000
TOTAL	.3091E-12	-.5943E-13	.1000E+03	.9022E-12	.5906E+01	-.1738E-11

REPOSICION 304+277,900. 3 VANOS 14+18+14 FILE:PCARGA. PRUEBA DE CARGA.

R E A C T I O N S A N D A P P L I E D F O R C E S

LOAD CONDITION 2 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	-.0002	.0000	-2.7693	.0000	.0000	.0000
1021	.0002	.0000	-2.7693	.0000	.0000	.0000
1049	3.7739	.0000	55.5386	.0000	22.4058	.0000
1057	-3.7739	.0000	55.5386	.0000	-22.4058	.0000
1085	-.0002	.0000	-2.7693	.0000	.0000	.0000
1105	.0002	.0000	-2.7693	.0000	.0000	.0000
TOTAL	-.9149E-14	.7302E-17	.1000E+03	.1246E-11	-.1138E-12	.3259E-13

ESFUERZOS

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1								
	1	.000			-.074			10.671
		.000	3.590	-3.490		-.014	.023	
		1.167	3.590	.699		-.014	.007	
		2.333	3.590	4.888		-.014	-.009	
		2.333			-.074			10.671
	2	.000			-.007			-1.215
		.000	-.504	.442		.007	-.008	
		1.167	-.504	-.145		.007	-.000	
		2.333	-.504	-.733		.007	.007	
		2.333			-.007			-1.215
2								
	1	.000			-.042			9.670
		.000	1.165	1.508		-.014	.021	
		1.167	1.165	2.868		-.014	.004	
		2.333	1.165	4.227		-.014	-.012	
		2.333			-.042			9.670
	2	.000			-.025			-.986
		.000	-.216	-.310		.010	-.011	
		1.167	-.216	-.562		.010	.001	
		2.333	-.216	-.814		.010	.013	
		2.333			-.025			-.986
3								
	1	.000			-.015			7.435
		.000	.409	2.632		-.013	.016	
		1.167	.409	3.110		-.013	.000	
		2.333	.409	3.588		-.013	-.015	
		2.333			-.015			7.435
	2	.000			-.049			-.528
		.000	-.178	-.644		.014	-.013	
		1.167	-.178	-.852		.014	.004	
		2.333	-.178	-1.059		.014	.020	
		2.333			-.049			-.528
4								
	1	.000			.013			5.603
		.000	-.025	2.606		-.015	.015	
		1.167	-.025	2.577		-.015	-.002	
		2.333	-.025	2.548		-.015	-.020	
		2.333			.013			5.603
	2	.000			-.083			-.130
		.000	-.153	-1.002		.021	-.018	
		1.167	-.153	-1.180		.021	.006	
		2.333	-.153	-1.359		.021	.031	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.333			-.083			-.130
5								
	1	.000			.044			4.541
		.000	-.588	1.785		-.018	.017	
		1.167	-.588	1.098		-.018	-.005	
		2.333	-.588	.412		-.018	-.026	
		2.333			.044			4.541
	2	.000			-.129			.171
		.000	-.124	-1.411		.029	-.025	
		1.167	-.124	-1.556		.029	.009	
		2.333	-.124	-1.700		.029	.043	
		2.333			-.129			.171
6								
	1	.000			.078			3.034
		.000	-.474	-.346		-.020	.020	
		1.167	-.474	-.899		-.020	-.004	
		2.333	-.474	-1.453		-.020	-.028	
		2.333			.078			3.034
	2	.000			-.185			.114
		.000	.053	-1.962		.034	-.033	
		1.167	.053	-1.901		.034	.007	
		2.333	.053	-1.840		.034	.047	
		2.333			-.185			.114
7								
	1	.000			.106			1.333
		.000	-.069	-1.505		-.020	.027	
		1.125	-.069	-1.582		-.020	.005	
		2.250	-.069	-1.660		-.020	-.017	
		2.250			.106			1.333
	2	.000			-.232			-.778
		.000	.614	-2.114		.033	-.047	
		1.125	.614	-1.423		.033	-.009	
		2.250	.614	-.732		.033	.028	
		2.250			-.232			-.778
8								
	1	.000			.135			.493
		.000	.123	-1.503		-.016	.024	
		1.125	.123	-1.365		-.016	.006	
		2.250	.123	-1.227		-.016	-.012	
		2.250			.135			.493
	2	.000			-.281			-1.118
		.000	.830	-.412		.027	-.041	
		1.125	.830	.521		.027	-.011	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.250	.830	1.455		.027	.019	
		2.250			-.281			-1.118
9								
	1	.000			.157			.187
		.000	.139	-1.179		-.010	.016	
		1.125	.139	-1.022		-.010	.005	
		2.250	.139	-.865		-.010	-.006	
		2.250			.157			.187
	2	.000			-.317			-.816
		.000	.609	1.637		.016	-.026	
		1.125	.609	2.322		.016	-.009	
		2.250	.609	3.007		.016	.009	
		2.250			-.317			-.816
10								
	1	.000			.170			.048
		.000	.137	-.862		-.004	.008	
		1.125	.137	-.708		-.004	.004	
		2.250	.137	-.554		-.004	-.001	
		2.250			.170			.048
	2	.000			-.336			-.166
		.000	.110	3.032		.005	-.013	
		1.125	.110	3.156		.005	-.007	
		2.250	.110	3.280		.005	-.002	
		2.250			-.336			-.166
21								
	1	.000			-.018			22.352
		.000	8.296	.189		-.018	.029	
		1.167	8.296	9.868		-.018	.008	
		2.333	8.296	19.547		-.018	-.013	
		2.333			-.018			22.352
	2	.000			.002			-2.816
		.000	-1.532	-.024		.011	-.013	
		1.167	-1.532	-1.811		.011	-.000	
		2.333	-1.532	-3.598		.011	.012	
		2.333			.002			-2.816
22								
	1	.000			-.030			13.426
		.000	6.231	17.163		-.020	.027	
		1.167	6.231	24.433		-.020	.004	
		2.333	6.231	31.703		-.020	-.020	
		2.333			-.030			13.426
	2	.000			-.001			-1.473
		.000	-1.485	-3.301		.017	-.017	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.167	-1.485	-5.033		.017	.003	
		2.333	-1.485	-6.766		.017	.022	
		2.333			-.001			-1.473
23								
	1	.000			-.034			8.027
		.000	-.582	30.539		-.021	.023	
		1.167	-.582	29.860		-.021	-.002	
		2.333	-.582	29.181		-.021	-.026	
		2.333			-.034			8.027
	2	.000			-.007			-.386
		.000	-1.431	-6.650		.025	-.022	
		1.167	-1.431	-8.320		.025	.008	
		2.333	-1.431	-9.989		.025	.037	
		2.333			-.007			-.386
24								
	1	.000			-.026			5.698
		.000	-2.658	28.578		-.027	.025	
		1.167	-2.658	25.477		-.027	-.007	
		2.333	-2.658	22.375		-.027	-.039	
		2.333			-.026			5.698
	2	.000			-.026			.605
		.000	-1.405	-10.006		.041	-.033	
		1.167	-1.405	-11.645		.041	.015	
		2.333	-1.405	-13.285		.041	.063	
		2.333			-.026			.605
25								
	1	.000			.004			6.180
		.000	-9.029	21.613		-.042	.033	
		1.167	-9.029	11.079		-.042	-.016	
		2.333	-9.029	.546		-.042	-.064	
		2.333			.004			6.180
	2	.000			-.083			2.116
		.000	-1.443	-13.498		.070	-.052	
		1.167	-1.443	-15.182		.070	.029	
		2.333	-1.443	-16.866		.070	.110	
		2.333			-.083			2.116
26								
	1	.000			.089			5.121
		.000	-7.788	-1.789		-.064	.048	
		1.167	-7.788	-10.876		-.064	-.027	
		2.333	-7.788	-19.962		-.064	-.102	
		2.333			.089			5.121
	2	.000			-.236			3.965

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	-.803	-18.221		.112	-.082	
		1.167	-.803	-19.158		.112	.048	
		2.333	-.803	-20.095		.112	.179	
		2.333			-.236			3.965
27								
	1	.000			.309			-3.244
		.000	-.095	-16.447		-.064	.101	
		1.125	-.095	-16.554		-.064	.029	
		2.250	-.095	-16.661		-.064	-.044	
		2.250			.309			-3.244
	2	.000			-.630			-3.124
		.000	8.414	-25.459		.113	-.177	
		1.125	8.414	-15.994		.113	-.051	
		2.250	8.414	-6.528		.113	.076	
		2.250			-.630			-3.124
28								
	1	.000			.393			-2.332
		.000	1.287	-14.936		-.039	.063	
		1.125	1.287	-13.488		-.039	.018	
		2.250	1.287	-12.041		-.039	-.026	
		2.250			.393			-2.332
	2	.000			-.781			-3.704
		.000	8.930	-4.399		.068	-.110	
		1.125	8.930	5.647		.068	-.033	
		2.250	8.930	15.693		.068	.044	
		2.250			-.781			-3.704
29								
	1	.000			.426			-1.085
		.000	1.307	-11.667		-.021	.034	
		1.125	1.307	-10.197		-.021	.011	
		2.250	1.307	-8.727		-.021	-.012	
		2.250			.426			-1.085
	2	.000			-.839			-1.962
		.000	6.731	16.311		.034	-.058	
		1.125	6.731	23.883		.034	-.020	
		2.250	6.731	31.455		.034	.019	
		2.250			-.839			-1.962
30								
	1	.000			.437			-.531
		.000	1.313	-8.609		-.008	.016	
		1.125	1.313	-7.132		-.008	.008	
		2.250	1.313	-5.655		-.008	-.001	
		2.250			.437			-.531

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	2	.000			-.858			-.360
		.000	.332	31.574		.010	-.026	
		1.125	.332	31.948		.010	-.015	
		2.250	.332	32.322		.010	-.003	
		2.250			-.858			-.360
41								
	1	.000			-.009			.000
		.000	5.171	6.602		.000	.000	
		1.167	5.171	12.634		.000	.000	
		2.333	5.171	18.667		.000	.000	
		2.333			-.009			.000
	2	.000			.010			.000
		.000	-1.468	-.836		.000	.000	
		1.167	-1.468	-2.549		.000	.000	
		2.333	-1.468	-4.261		.000	.000	
		2.333			.010			.000
42								
	1	.000			-.047			.000
		.000	7.531	30.192		.000	.000	
		1.167	7.531	38.978		.000	.000	
		2.333	7.531	47.764		.000	.000	
		2.333			-.047			.000
	2	.000			.051			.000
		.000	-2.137	-5.701		.000	.000	
		1.167	-2.137	-8.194		.000	.000	
		2.333	-2.137	-10.687		.000	.000	
		2.333			.051			.000
43								
	1	.000			-.096			.000
		.000	-2.932	53.282		.000	.000	
		1.167	-2.932	49.861		.000	.000	
		2.333	-2.932	46.441		.000	.000	
		2.333			-.096			.000
	2	.000			.112			.000
		.000	-2.320	-11.259		.000	.000	
		1.167	-2.320	-13.965		.000	.000	
		2.333	-2.320	-16.672		.000	.000	
		2.333			.112			.000
44								
	1	.000			-.166			.000
		.000	-5.340	49.611		.000	.000	
		1.167	-5.340	43.381		.000	.000	
		2.333	-5.340	37.151		.000	.000	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.333			-.166			.000
	2	.000			.219			.000
		.000	-2.423	-16.754		.000	.000	
		1.167	-2.423	-19.580		.000	.000	
		2.333	-2.423	-22.406		.000	.000	
		2.333			.219			.000
45								
	1	.000			-.288			.000
		.000	-17.072	40.202		.000	.000	
		1.167	-17.072	20.285		.000	.000	
		2.333	-17.072	.368		.000	.000	
		2.333			-.288			.000
	2	.000			.425			.000
		.000	-2.404	-21.874		.000	.000	
		1.167	-2.404	-24.679		.000	.000	
		2.333	-2.404	-27.484		.000	.000	
		2.333			.425			.000
46								
	1	.000			-.527			.000
		.000	-26.581	6.553		.000	.000	
		1.167	-26.581	-24.458		.000	.000	
		2.333	-26.581	-55.468		.000	.000	
		2.333			-.527			.000
	2	.000			.842			.000
		.000	-4.037	-24.249		.000	.000	
		1.167	-4.037	-28.959		.000	.000	
		2.333	-4.037	-33.670		.000	.000	
		2.333			.842			.000
47								
	1	.000			1.091			.000
		.000	5.553	-33.017		.000	.000	
		1.125	5.553	-26.770		.000	.000	
		2.250	5.553	-20.523		.000	.000	
		2.250			1.091			.000
	2	.000			-2.051			.000
		.000	28.945	-67.540		.000	.000	
		1.125	28.945	-34.977		.000	.000	
		2.250	28.945	-2.414		.000	.000	
		2.250			-2.051			.000
48								
	1	.000			.864			.000
		.000	2.406	-24.287		.000	.000	
		1.125	2.406	-21.580		.000	.000	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.250	2.406	-18.873		.000	.000	
		2.250			.864			.000
	2	.000			-1.650			.000
		.000	16.482	-7.315		.000	.000	
		1.125	16.482	11.227		.000	.000	
		2.250	16.482	29.769		.000	.000	
		2.250			-1.650			.000
49								
	1	.000			.755			.000
		.000	2.333	-19.717		.000	.000	
		1.125	2.333	-17.092		.000	.000	
		2.250	2.333	-14.467		.000	.000	
		2.250			.755			.000
	2	.000			-1.461			.000
		.000	11.721	28.168		.000	.000	
		1.125	11.721	41.354		.000	.000	
		2.250	11.721	54.540		.000	.000	
		2.250			-1.461			.000
50								
	1	.000			.709			.000
		.000	2.325	-14.708		.000	.000	
		1.125	2.325	-12.092		.000	.000	
		2.250	2.325	-9.477		.000	.000	
		2.250			.709			.000
	2	.000			-1.386			.000
		.000	.315	54.252		.000	.000	
		1.125	.315	54.606		.000	.000	
		2.250	.315	54.961		.000	.000	
		2.250			-1.386			.000
61								
	1	.000			-.018			-22.352
		.000	8.296	.189		.018	-.029	
		1.167	8.296	9.868		.018	-.008	
		2.333	8.296	19.547		.018	.013	
		2.333			-.018			-22.352
	2	.000			.002			2.816
		.000	-1.532	-.024		-.011	.013	
		1.167	-1.532	-1.811		-.011	.000	
		2.333	-1.532	-3.598		-.011	-.012	
		2.333			.002			2.816
62								
	1	.000			-.030			-13.426
		.000	6.231	17.163		.020	-.027	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.167	6.231	24.433		.020	-.004	
		2.333	6.231	31.703		.020	.020	
		2.333			-.030			-13.426
	2	.000			-.001			1.473
		.000	-1.485	-3.301		-.017	.017	
		1.167	-1.485	-5.033		-.017	-.003	
		2.333	-1.485	-6.766		-.017	-.022	
		2.333			-.001			1.473
63								
	1	.000			-.034			-8.027
		.000	-.582	30.539		.021	-.023	
		1.167	-.582	29.860		.021	.002	
		2.333	-.582	29.181		.021	.026	
		2.333			-.034			-8.027
	2	.000			-.007			.386
		.000	-1.431	-6.650		-.025	.022	
		1.167	-1.431	-8.320		-.025	-.008	
		2.333	-1.431	-9.989		-.025	-.037	
		2.333			-.007			.386
64								
	1	.000			-.026			-5.698
		.000	-2.658	28.578		.027	-.025	
		1.167	-2.658	25.477		.027	.007	
		2.333	-2.658	22.375		.027	.039	
		2.333			-.026			-5.698
	2	.000			-.026			-.605
		.000	-1.405	-10.006		-.041	.033	
		1.167	-1.405	-11.645		-.041	-.015	
		2.333	-1.405	-13.285		-.041	-.063	
		2.333			-.026			-.605
65								
	1	.000			.004			-6.180
		.000	-9.029	21.613		.042	-.033	
		1.167	-9.029	11.079		.042	.016	
		2.333	-9.029	.546		.042	.064	
		2.333			.004			-6.180
	2	.000			-.083			-2.116
		.000	-1.443	-13.498		-.070	.052	
		1.167	-1.443	-15.182		-.070	-.029	
		2.333	-1.443	-16.866		-.070	-.110	
		2.333			-.083			-2.116
66								
	1	.000			.089			-5.121

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	-7.788	-1.789		.064	-.048	
		1.167	-7.788	-10.876		.064	.027	
		2.333	-7.788	-19.962		.064	.102	
		2.333			.089			-5.121
	2	.000			-.236			-3.965
		.000	-.803	-18.221		-.112	.082	
		1.167	-.803	-19.158		-.112	-.048	
		2.333	-.803	-20.095		-.112	-.179	
		2.333			-.236			-3.965
67								
	1	.000			.309			3.244
		.000	-.095	-16.447		.064	-.101	
		1.125	-.095	-16.554		.064	-.029	
		2.250	-.095	-16.661		.064	.044	
		2.250			.309			3.244
	2	.000			-.630			3.124
		.000	8.414	-25.459		-.113	.177	
		1.125	8.414	-15.994		-.113	.051	
		2.250	8.414	-6.528		-.113	-.076	
		2.250			-.630			3.124
68								
	1	.000			.393			2.332
		.000	1.287	-14.936		.039	-.063	
		1.125	1.287	-13.488		.039	-.018	
		2.250	1.287	-12.041		.039	.026	
		2.250			.393			2.332
	2	.000			-.781			3.704
		.000	8.930	-4.399		-.068	.110	
		1.125	8.930	5.647		-.068	.033	
		2.250	8.930	15.693		-.068	-.044	
		2.250			-.781			3.704
69								
	1	.000			.426			1.085
		.000	1.307	-11.667		.021	-.034	
		1.125	1.307	-10.197		.021	-.011	
		2.250	1.307	-8.727		.021	.012	
		2.250			.426			1.085
	2	.000			-.839			1.962
		.000	6.731	16.311		-.034	.058	
		1.125	6.731	23.883		-.034	.020	
		2.250	6.731	31.455		-.034	-.019	
		2.250			-.839			1.962

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
70								
	1	.000			.437			.531
		.000	1.313	-8.609		.008	-.016	
		1.125	1.313	-7.132		.008	-.008	
		2.250	1.313	-5.655		.008	.001	
		2.250			.437			.531
	2	.000			-.858			.360
		.000	.332	31.574		-.010	.026	
		1.125	.332	31.948		-.010	.015	
		2.250	.332	32.322		-.010	.003	
		2.250			-.858			.360
81								
	1	.000			-.074			-10.671
		.000	3.590	-3.490		.014	-.023	
		1.167	3.590	.699		.014	-.007	
		2.333	3.590	4.888		.014	.009	
		2.333			-.074			-10.671
	2	.000			-.007			1.215
		.000	-.504	.442		-.007	.008	
		1.167	-.504	-.145		-.007	.000	
		2.333	-.504	-.733		-.007	-.007	
		2.333			-.007			1.215
82								
	1	.000			-.042			-9.670
		.000	1.165	1.508		.014	-.021	
		1.167	1.165	2.868		.014	-.004	
		2.333	1.165	4.227		.014	.012	
		2.333			-.042			-9.670
	2	.000			-.025			.986
		.000	-.216	-.310		-.010	.011	
		1.167	-.216	-.562		-.010	-.001	
		2.333	-.216	-.814		-.010	-.013	
		2.333			-.025			.986
83								
	1	.000			-.015			-7.435
		.000	.409	2.632		.013	-.016	
		1.167	.409	3.110		.013	-.000	
		2.333	.409	3.588		.013	.015	
		2.333			-.015			-7.435
	2	.000			-.049			.528
		.000	-.178	-.644		-.014	.013	
		1.167	-.178	-.852		-.014	-.004	
		2.333	-.178	-1.059		-.014	-.020	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.333			-.049			.528
84								
	1	.000			.013			-5.603
		.000	-.025	2.606		.015	-.015	
		1.167	-.025	2.577		.015	.002	
		2.333	-.025	2.548		.015	.020	
		2.333			.013			-5.603
	2	.000			-.083			.130
		.000	-.153	-1.002		-.021	.018	
		1.167	-.153	-1.180		-.021	-.006	
		2.333	-.153	-1.359		-.021	-.031	
		2.333			-.083			.130
85								
	1	.000			.044			-4.541
		.000	-.588	1.785		.018	-.017	
		1.167	-.588	1.098		.018	.005	
		2.333	-.588	.412		.018	.026	
		2.333			.044			-4.541
	2	.000			-.129			-.171
		.000	-.124	-1.411		-.029	.025	
		1.167	-.124	-1.556		-.029	-.009	
		2.333	-.124	-1.700		-.029	-.043	
		2.333			-.129			-.171
86								
	1	.000			.078			-3.034
		.000	-.474	-.346		.020	-.020	
		1.167	-.474	-.899		.020	.004	
		2.333	-.474	-1.453		.020	.028	
		2.333			.078			-3.034
	2	.000			-.185			-.114
		.000	.053	-1.962		-.034	.033	
		1.167	.053	-1.901		-.034	-.007	
		2.333	.053	-1.840		-.034	-.047	
		2.333			-.185			-.114
87								
	1	.000			.106			-1.333
		.000	-.069	-1.505		.020	-.027	
		1.125	-.069	-1.582		.020	-.005	
		2.250	-.069	-1.660		.020	.017	
		2.250			.106			-1.333
	2	.000			-.232			.778
		.000	.614	-2.114		-.033	.047	
		1.125	.614	-1.423		-.033	.009	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.250	.614	-.732		-.033	-.028	
		2.250			-.232			.778
88								
	1	.000			.135			-.493
		.000	.123	-1.503		.016	-.024	
		1.125	.123	-1.365		.016	-.006	
		2.250	.123	-1.227		.016	.012	
		2.250			.135			-.493
	2	.000			-.281			1.118
		.000	.830	-.412		-.027	.041	
		1.125	.830	.521		-.027	.011	
		2.250	.830	1.455		-.027	-.019	
		2.250			-.281			1.118
89								
	1	.000			.157			-.187
		.000	.139	-1.179		.010	-.016	
		1.125	.139	-1.022		.010	-.005	
		2.250	.139	-.865		.010	.006	
		2.250			.157			-.187
	2	.000			-.317			.816
		.000	.609	1.637		-.016	.026	
		1.125	.609	2.322		-.016	.009	
		2.250	.609	3.007		-.016	-.009	
		2.250			-.317			.816
90								
	1	.000			.170			-.048
		.000	.137	-.862		.004	-.008	
		1.125	.137	-.708		.004	-.004	
		2.250	.137	-.554		.004	.001	
		2.250			.170			-.048
	2	.000			-.336			.166
		.000	.110	3.032		-.005	.013	
		1.125	.110	3.156		-.005	.007	
		2.250	.110	3.280		-.005	.002	
		2.250			-.336			.166
5001								
	1	.000			-21.472			.000
		.000	.000	.000		.096	-.005	
		.025	.000	.000		.096	-.002	
		.050	.000	.000		.096	.000	
		.050			-21.472			.000
	2	.000			2.769			.000
		.000	.000	.000		-.000	.000	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.025	.000	.000		-.000	.000	
		.050	.000	.000		-.000	.000	
		.050			2.769			.000
5021								
	1	.000			-.305			.000
		.000	.000	.000		.096	-.005	
		.025	.000	.000		.096	-.002	
		.050	.000	.000		.096	.000	
		.050			-.305			.000
	2	.000			2.769			.000
		.000	.000	.000		.000	.000	
		.025	.000	.000		.000	.000	
		.050	.000	.000		.000	.000	
		.050			2.769			.000
5049								
	1	.000			-62.332			.000
		.000	.000	.000		-2.114	8.466	
		8.950	.000	.000		-2.114	-10.456	
		17.900	.000	.000		-2.114	-29.378	
		17.900			-62.332			.000
	2	.000			-55.539			.000
		.000	.000	.000		3.774	-22.406	
		8.950	.000	.000		3.774	11.370	
		17.900	.000	.000		3.774	45.146	
		17.900			-55.539			.000

5.- CONCLUSIONES

Los esfuerzos y deformaciones que se producen en las distintas posiciones del tren de cargas resultan como sigue:

Momentos flectores

Posición	Punto	M_{prueba}	$M_{cálculo}$	Relación
1	A	112.0	188.32	59.5 %
2	B	126.12	205.10	61.5 %

Debido a las dimensiones de los camiones empleados en la prueba de carga se consideran aceptables los anteriores porcentajes, comprobándose que en ningún caso se supera el 90% del valor del momento de cálculo.

Deformaciones (en mm, + gravitatorias)

POSICION	PUNTO	DEFORMACION (mm)
1	A	2
1	B	-1
1	C	0
2	A	-1
2	B	3
2	C	-1

El punto A corresponde al centro de del primer vano, el B al centro del segundo vano y el C al centro del tercer vano.

Madrid, 15 de Noviembre de 1999

Estructura E-7 (PK 304+615)

ESTRUCTURA E-7 (PK 304+615)

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ESTRUCTURA E-7. (PK 304+615)

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LINEA DE ALTA VELOCIDAD

MADRID-BARCELONA-FRONTERA FRANCESA

TRAMO: LLEIDA-MARTORELL, SUBTRAMO:III-A, PLATAFORMA

ESTRUCTURA E-7

P.K. 304+615

Madrid, Octubre1999

PUENTE P.K. 304+615 **13+17+13**

HA – 30 / P / 20 / II b -H Acero B500 S

(H-300) (AEH-500)

- CARACTERISTICAS MECANICAS DE LA SECCION
- CARGAS Y MODELO DE CALCULO DE TABLERO
- DATOS DE ENTRADA SAP 90
- SECCION TRANSVERSAL

  ARMADO LONGITUDINAL

  CORTANTE

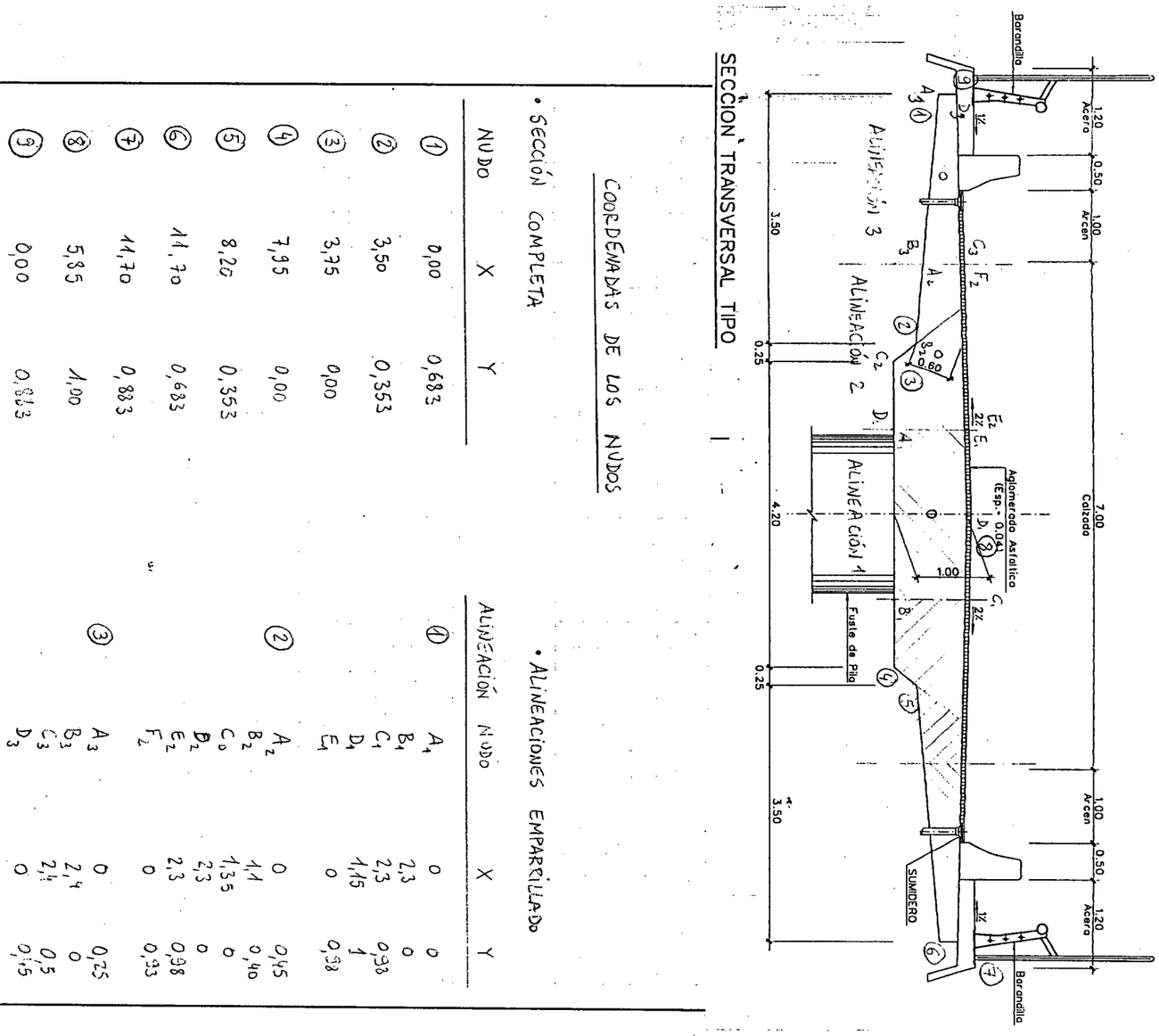
  TORSION

  ARMADO TRANSVERSAL
- VIGA DE ESTRIBO
- COMPROBACION ANCHURA FISURA
- CALCULO DE PILAS. CIMENTACION
- REACCIONES PARA CALCULO DE ESTRIBOS
- CALCULO DE ESTRIBOS
- SALIDA RESULTADOS SAP 90

CARACTERISTICAS MECANICAS

DE LA SECCION

CARACTERÍSTICAS MECÁNICAS DE LA SECCIÓN



SECCIÓN TRANSVERSAL TIPO

COORDENADAS DE LOS NUDOS

- SECCIÓN COMPLETA

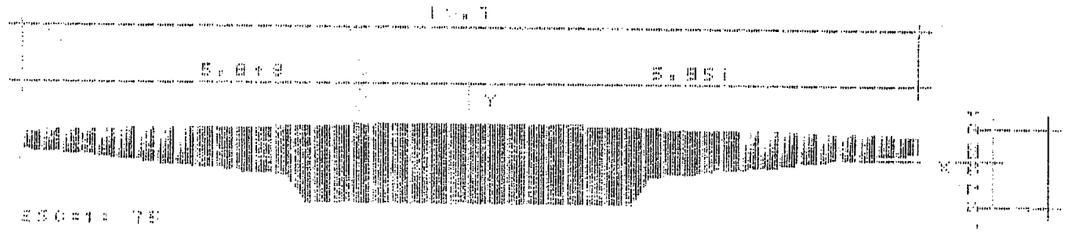
NUDO	X	Y
①	0,00	0,683
②	3,50	0,353
③	3,75	0,00
④	7,95	0,00
⑤	8,20	0,353
⑥	11,70	0,683
⑦	11,70	0,883
⑧	5,85	1,00
⑨	0,00	0,883

- ALINEACIONES EMPARRILLADO

ALINEACIÓN	NUDO	X	Y
①	A_1	0	0
	B_1	2,3	0
	C_1	2,3	0,33
	D_1	1,15	1
	E_1	0	0,33
②	A_2	0	0,45
	B_2	1,1	0,40
	C_2	1,35	0
	D_2	2,3	0
	E_2	2,3	0,98
	F_2	0	0,93
③	A_3	0	0,25
	B_3	2,4	0
	C_3	2,4	0,5
	D_3	0	0,45

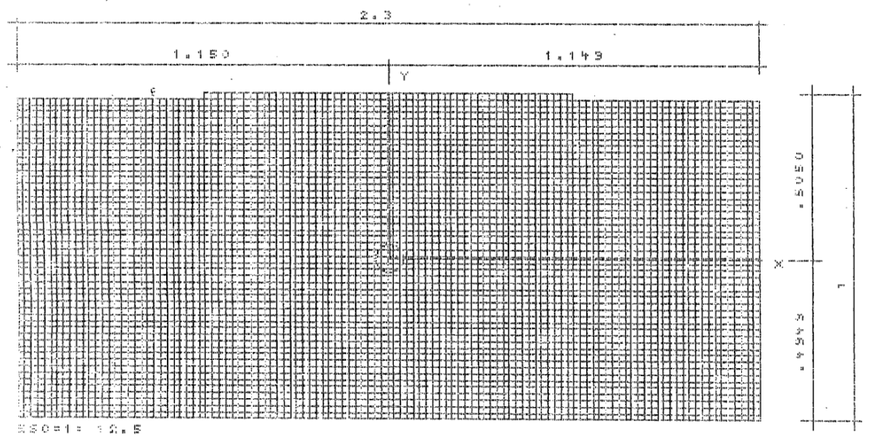
CARACTERISTICAS MECANICAS

```
AREA=   7.3028(M2)
XC..=   5.849  (M)
YC..=   0.577  (M)
Ixx =   0.4801(M4)
Iyy =  51.0526(M4)
Izz =  51.5328(M4)
Wxs =   1.1946(M3)
Wxi =   0.8322(M3)
```



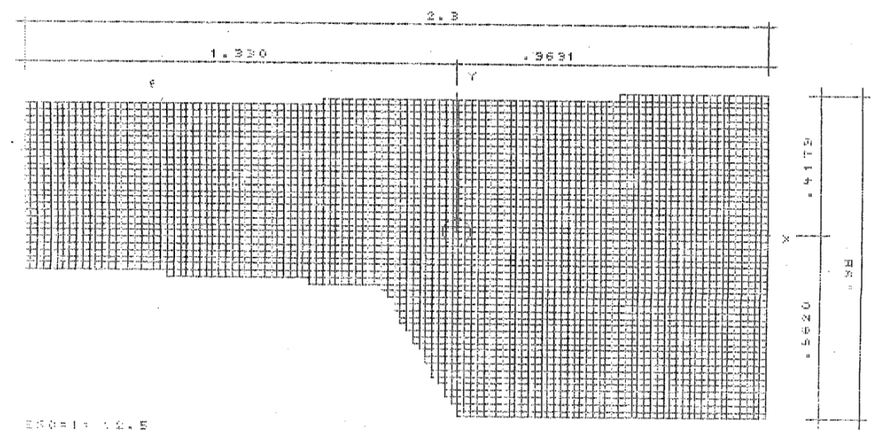
CARACTERISTICAS MECANICAS

AREA= 2.2767(M2)
XC..= 1.150 (M)
YC..= 0.495 (M)
Ixx = 0.1860(M4)
Iyy = 0.9960(M4)
Izz = 1.1820(M4)
Wxs = 0.3682(M3)
Wxi = 0.3757(M3)



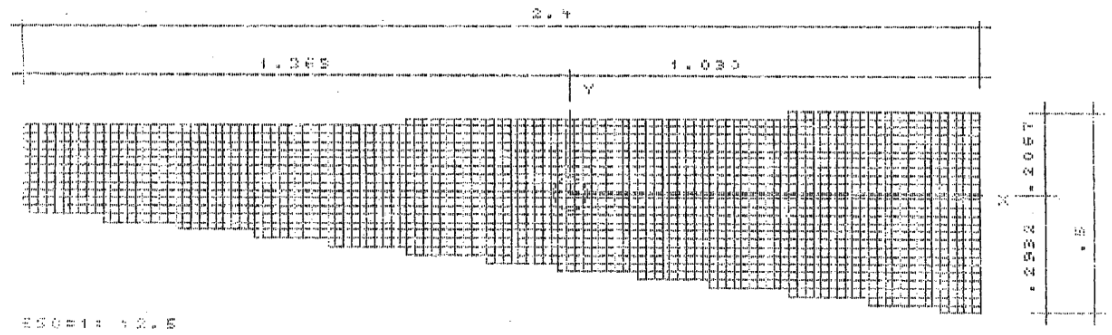
CARACTERISTICAS MECANICAS

AREA= 1.5823(M2)
XC..= 1.331 (M)
YC..= 0.562 (M)
Ixx = 0.1094(M4)
Iyy = 0.6954(M4)
Izz = 0.8048(M4)
Wxs = 0.2618(M3)
Wxi = 0.1946(M3)



CARACTERISTICAS MECANICAS

AREA=	0.8423	(M2)
XC..=	1.370	(M)
YC..=	0.293	(M)
Ixx =	0.0109	(M4)
Iyy =	0.3829	(M4)
Izz =	0.3938	(M4)
Wxs =	0.0527	(M3)
Wxi =	0.0371	(M3)



CARGAS Y MODELO DE CALCULO DE TABLERO

* CARGAS CONSIDERADAS

• PESO PROPIO — Densidad hormigón armado : $2,5\ t/m^3$

Carga gravitatoria en barras longitudinales

ALINEACIÓN 1 :	$A_1 = 2,28\ m^2$	$W_1 = 5,7\ t/m$	barras 41 a 60
ALINEACIÓN 2 :	$A_2 = 1,68\ m^2$	$W_2 = 4,2\ t/m$	barras 21 a 40, 61 a 80
ALINEACIÓN 3 :	$A_3 = 0,84\ m^2$	$W_3 = 2,1\ t/m$	barras 1 a 20, 81 a 100

$W_T = 18,3\ t/m$

• RESTO DE CARGAS PERMANENTES

- Pavimento : $d = 2,5\ t/m^3$ $e = 0,04 m \Rightarrow P = 0,1\ t/m$

- Aceras y barandillas : $P = 1,4 + 0,45 \cdot 0,85 \cdot 2,5 = 2,4\ t/m$

ALINEACIÓN 1	$P_1 = 0,1 \cdot 2,3 = 0,23\ t/m$
" 2	$P_2 = \quad = 0,23\ t/m$
" 3	$P_3 = 0,1 + 2,4 = 2,5\ t/m$

• VIENTO TRANSVERSAL — Según IAP-96, Apartado 3.2.3.2.1

- VELOCIDAD DE CÁLCULO $V_c = C_t \cdot C_z \cdot C_g \cdot V_{Ref}$

$V_{Ref} = 28\ m/s$ $C_T = 1,1$ $C_r = 1,04$

Entorno tipo II $\rightarrow$ $k_z = 0,19$ $z_0 = 0,05\ m$ $z_{min} = 4\ m$

En las pilas $z = 10,7 m$ $C_z = k_z \cdot \ln\left(\frac{z}{z_0}\right) = 1,019$

Factor de ráfaga : $C_g = \sqrt{1 + \frac{7 k_z}{C_z \cdot C_T}} = 1,13 \Rightarrow \underline{V_c = 46,4\ m/s}$

- EMPUJE TRANSVERSAL $F = C_D \cdot \frac{1}{2} \cdot \rho \cdot V_c^2$ $\rho = 1,25\ kg/m^3$

$C_D = 2,5 - 0,3 \frac{B}{h}$ $B = 11,7 m$ $h = 3,65 m$

$\Rightarrow C_D = 1,54 \in [1,3 ; 2,4]$

$F = 1,54 \cdot 0,5 \cdot 1,25 \cdot 46,4^2 = 208\ kg/m^2$

Altura expuesta : $3,65 m \Rightarrow$ **$F_V = 0,75\ t/m$**

• SOBRECARGAS

- Uniforme : $400\ kg/m^2 = 0,4\ t/m^2$
- Paso del carro : $60\ t$

• FRENADO HORIZONTAL

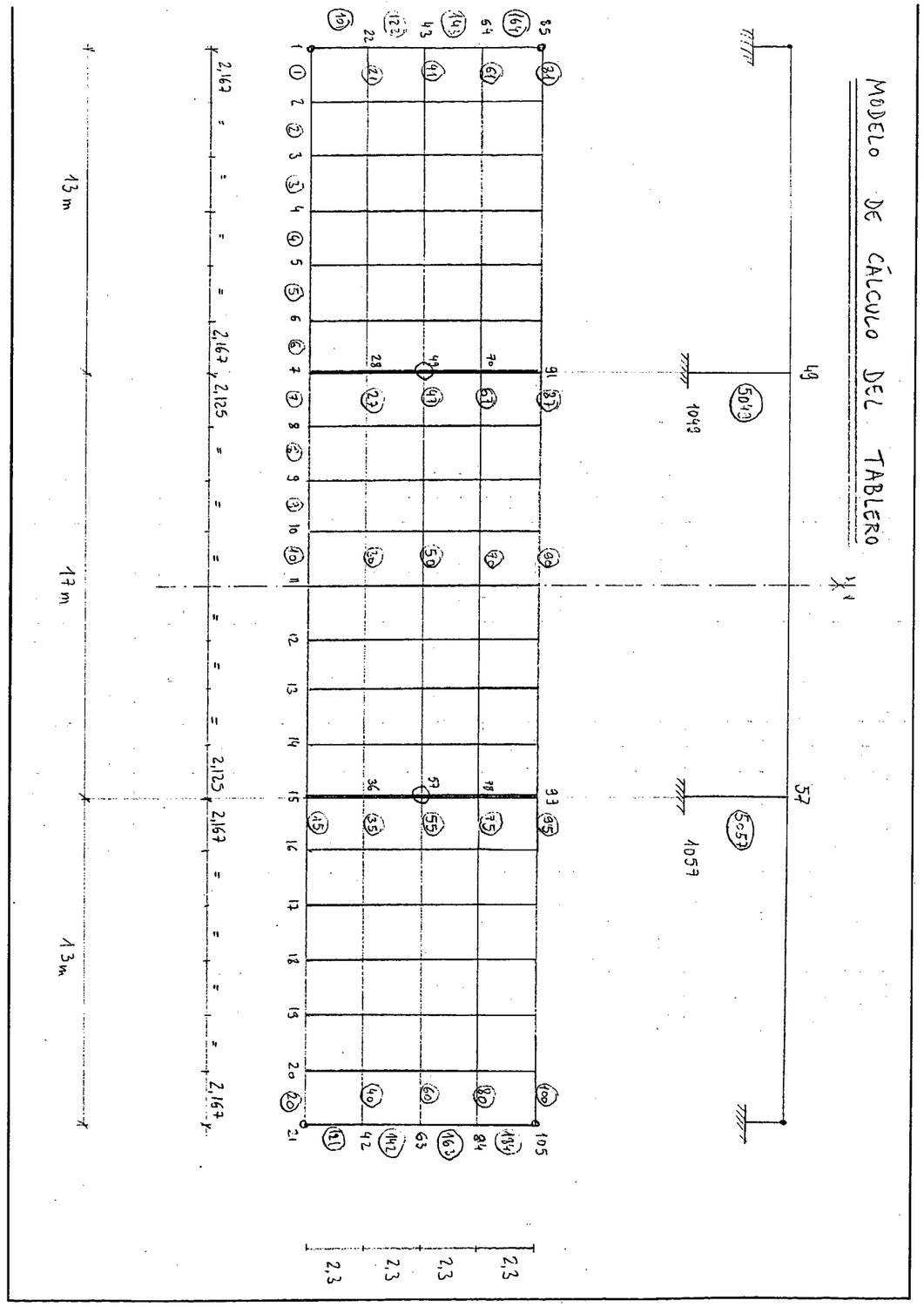
$F_{FR} = \frac{1}{20}(sc \cdot A + c) = \frac{1}{20}(0,4 \cdot 43 \cdot 11,7 + 60) = 13,1\ t$

Mínimo : $20 \cdot 6 = 23,4\ t \Rightarrow$ **$F_{FR} = 23,4\ t$**

• PRESIÓN - SUCCIÓN POR PASO DEL FERROCARRIL — Según Eurocódigo

$V = 300\ km/h$ Gálibo mínimo tipo : $7 m$

Vía doble - accesos cerrables $\rightarrow$ $q = \pm 65\ kg/m^2$ Barras 107-115, 128-136, 149-157, 170-178



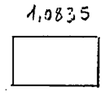
CARACTERÍSTICAS MECÁNICAS DE LAS BARRAS

• LONGITUDINALES

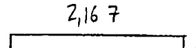
- Barras 1 a 20, 81 a 100 → Características de la sección [1]
- Barras 21 a 40, 61 a 80 → " [2]
- Barras 41 a 60 → " [3]

• TRANSVERSALES

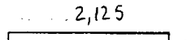
- Barras 101 a 164, $x = 21$ / 121 a 184, $x = 21$ [4]



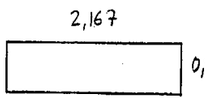
- Barras 102 a 106, 116 a 120, 165 a 169, 179 a 183 [5]



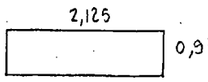
- Barras 108 a 114, 171 a 177 [9]



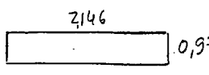
- Barras 123 a 127, 137 a 141, 144 a 148, 158 a 162 [6]



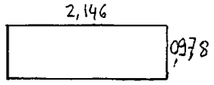
- Barras 129 a 135, 150 a 156 [10]



- Barras 107 - 170 - 115 - 178 [7]



- Barras 128 - 149 - 136 - 157 [8]



- Barras 5049 y 5057: Pilas ○ $\phi = 1$ m [11]

- Barras 5001 5085 5021 5105 → Neoprenos [12]

DATOS DE ENTRADA SAP 90

```
C PUENTE RECTO.carto max. 1.00 m.,ancho tablero 11.40 m.
C HIPOTESIS 7 CENTRO VIGA INTERMEDIA 400 kg/m2 + 60 t.

SYSTEM
KN

JOINTS
1          X=0.000          Y=0.000          Z=11.000
2          X=15.00                                    G=1,2,1
3          X=30.00                                    G=2,15,1
21         X=45.00                                    G=15,21,1
44         X=0.000          Y=6.900                   G=1,44,21
65         X=0.000          Y=9.200                   F=1,20,4,1,21
C
C NUDOS ARRANQUE DE PILAS
1049       X=15.00          Y=4.600          Z=0.000
1057       X=30.00          Y=4.600          Z=0.000
C
C NUDOS ARRANQUE ESTRIBOS
1001       X=0.000          Y=0.000          Z=10.95
1065       X=0.000          Y=9.200          Z=10.95
1021       X=45.00          Y=0.000          Z=10.95
1105       X=45.00          Y=9.200          Z=10.95

RESTRAINTS
C ARRANQUE DE PILAS
1049       R=1,1,1,1,1,1
1057       R=1,1,1,1,1,1
C ESTRIBOS
1001       R=1,1,1,1,1,1
1021       R=1,1,1,1,1,1
1065       R=1,1,1,1,1,1
1105       R=1,1,1,1,1,1
C
C SPRINGS
C 22 42 20        K=100000,1E6,100000,0,0,0

FRAME
NM=12      NL=6      Z=-1,0,0,0,0,0,0     NSEC=5
C SECCION BARRAS LONGITUDINALES
1  A=2.2767  J=1.182  I=.1860,.9960  AS=1.897,1.897     E=3500000  W=5.70
2  A=1.6792  J= 7996  I=.1091,.6905  AS=1.400,1.400                W=4.20
3  A=0.8400  J=.3891  I=.0108,.3783  AS=0.700,3.700                W=2.10
C SECCION BARRAS TRANSVERSALES
4  SH=R      T=0.962,1.0835
5  SH=R      T=0.550,2.167
6  SH=R      T=0.978,2.167
7  SH=R      T=0.550,2.146
8  SH=R      T=0.978,2.146
9  SH=R      T=0.550,2.125
10 SH=R      T=0.978,2.125
C SECCION PILAS CIRCULARES
11 SH=P      T=1.00,0.5
C SECCION NEOPRENOS ESTRIBOS
12 SH=R      T=0.40,0.30      E=63000    G=9000
C
C CARGAS
C PESO DE AGLOMERADO  100 KG/M2
1         WG=0.0,-0.230
C PESO DE BARANDILLAS,ACERAS E IMPOSTAS
2         WG=0.0,-2.5
C ACCION TRANSVERSAL DE VIENTO
3         WG=0.0,200.0
C PRESION SOBRE PASO PEATONAL/CARRIL 150 KG/M2 (2 VIAS Z M. SALIDO V=30KM/H)
```

```
C SOBRE CARGA
4       MU=0,0,0 29
5       WU=-.3,-.3,-0.26
C SOBRE CARGA 400Kg/m2 EN CADA BARRA LONGITUDINAL
6       WU=0.3,-0.92
C
C PESO PROPIO TABLERO,MOLDURAS,IMPOS.A.VIENTO,SECCION,PARAPETO
C
C BARRAS LONGITUDINALES
1     1    2    M=3   LP=-2,0   NSL=0,1,2,3,0,0,0      G=5,1,1,1
7     7    8    M=3             NSL=0,1,2,3,0,0,0      G=7,1,1,1
15    15   16   M=3             NSL=0,1,2,3,0,0,0      G=5,1,1,1
21    22   23   M=2             NSL=0,1,0,0,0,0,0      G=5,1,1,1
27    28   29   M=2             NSL=0,1,0,0,0,0,0      G=7,1,1,1
35    36   37   M=2             NSL=0,1,0,0,0,0,0      G=5,1,1,1
41    43   44   M=1             NSL=0,1,0,0,0,0,0      G=5,1,1,1
47    49   50   M=1             NSL=0,1,0,0,0,0,0      G=7,1,1,1
55    57   58   M=1             NSL=0,1,0,0,0,0,0      G=5,1,1,1
61    64   65   M=2             NSL=0,1,0,0,0,0,0      G=5,1,1,1
67    70   71   M=2             NSL=0,1,0,0,0,0,0      G=7,1,1,1
75    78   79   M=2             NSL=0,1,0,0,0,0,0      G=5,1,1,1
81    83   86   M=3             NSL=0,1,2,0,0,0,0      G=5,1,1,1
87    91   92   M=3             NSL=0,1,2,0,0,0,0      G=7,1,1,1
95    99  100   M=3             NSL=0,1,2,0,0,0,0      G=5,1,1,1
C BARRAS TRANSVERSALES
101    1   22   M=4  LP=3,0
102    2   23   M=5                                    G=4,1,1,1
107    7   28   M=7             NSL=0,0,0,0,4,0,0
108    8   29   M=9             NSL=0,0,0,0,4,0,0      G=6,1,1,1
115   15   36   M=7             NSL=0,0,0,0,4,0,0
116   16   37   M=5                                    G=4,1,1,1
121   21   42   M=4
C
122   22   43   M=4  LP=3,0
123   23   44   M=5                                    G=4,1,1,1
128   28   49   M=8             NSL=0,0,0,0,4,0,0
129   29   50   M=10            NSL=0,0,0,0,4,0,0      G=6,1,1,1
136   36   57   M=8             NSL=0,0,0,0,4,0,0
137   37   58   M=6                                    G=4,1,1,1
142   42   63   M=4
C
143   43   64   M=4  LP=3,0
144   44   65   M=6                                    G=4,1,1,1
149   49   70   M=8             NSL=0,0,0,0,5,0,0
150   50   71   M=10            NSL=0,0,0,0,5,0,0      G=6,1,1,1
157   57   78   M=8             NSL=0,0,0,0,5,0,0
158   58   79   M=6                                    G=4,1,1,1
163   63   84   M=4
C
164   64   85   M=4  LP=3,0
165   65   86   M=5                                    G=4,1,1,1
170   70   91   M=7             NSL=0,0,0,0,5,0,0
171   71   92   M=9             NSL=0,0,0,0,5,0,0      G=6,1,1,1
178   78   99   M=7             NSL=0,0,0,0,5,0,0
179   79  100   M=5                                    G=4,1,1,1
184   84  105   M=4
C
C BARRAS DE PILARES
5049 1049 49   M=11
5057 1057 57   M=11
C BARRAS DE ESTRIBOS
5001 1001   1  M=12      LR=0,1,0,0,1,0
5021 1021  21  M=12      LR=0,1,0,0,1,0
5085 1085  85  M=12      LR=0,1,0,0,1,0
5105 1105 105  M=12      LR=0,1,0,0,1,0
```

```
C
C PESO PROPIO TABLERO
55 L=6 F=0,0,0,0,0,0
C CARGA 60 TN (para deformacion centro de vano intermedio)
71 L=7 F=0,0,-5.983,0,0,0
72 L=7 F=0,0,-7.685,0,0,0
39 L=7 F=0,0,-3.983,0,0,0
54 L=7 F=0,0,-8.132,0,0,0
53 L=7 F=0,0,-16.452,0,0,0
54 L=7 F=0,0,-8.132,0,0,0
75 L=7 F=0,0,-3.983,0,0,0
74 L=7 F=0,0,-7.685,0,0,0
75 L=7 F=0,0,-3.983,0,0,0

BRIDGE
NL=6    UF=2
L=1
        S=1
                F=1,20,1    E=0
L=2
        S=1
                F=21,40,1   E=0
L=3
        S=1
                F=41,60,1   E=0
L=4
        S=1
                F=61,80,1   E=0
L=5
        S=1
                F=81,100,1  E=0
L=6
        S=1
                F=61,80,1   E=0.7

VEHICLE
NU=3    NG=3    UNITS=KN,M      TRUCK=QUICK
C CARRIL 2,30 m. * 400 Kg/m2 = 920 Kg/m = 0.920 T/m
U=1     TYPE=LANE               W=0.920
C CARRIL 2,40 m. * 400 Kg/m2 = 960 Kg/m = 0.960 T/m
U=2     TYPE=LANE               W=0.960
C CARRO DE 60 T.
U=3     TYPE=TRUCK              P=20,20,20   D=1.5,1.5
C
G=1     U=1
G=2     U=2
G=3     U=3

MOVING LOAD
NC=1    MK=2
C=1
K=FIX   L=1,2,3,4,5  DIR=B,B,B          G=2,1,1,1,2
K=MIX   L=3,4,6      DIR=B,B,B          G=3,3,3

ENVELOPE
C VIENTO ACCION DETERMINANTE
1       C=1,1,1,1.0,0,0     B=0
C PRESION-SUCCION ACCION DETERMINANTE
2       C=1,1,1,0.6,1,0.6,0     B=0.6
C PENDULO DETERMINANTE
3       C=1,1,1,0.6,0.6,1,0     B=0.6
C SC 400 Kp/m2 + CARRO 60 t. DETERMINANTE
4       C=1,1,1,0.6,0.6,0.6,0   B=1
C TOTAL PESO PROPIO + CARGA NOMINAL CON CARRO Y SC DE 400 Kp/m2.
5       C=1,1,1,0,0,0,1     B=0
C TOTAL PESO PROPIO
```

```
                L=1,1,1,1,1,1,1      D=1

CELLS:
NT=1 ID=1,11,1    SW=1
NT=1 ID=22,32,1   SW=1
NT=1 ID=43,53,1   SW=1
NT=1 ID=64,74,1   SW=1
NT=1 ID=85,95,1   SW=1
NT=7 ID=5001,5021,20 SW=1
NT=5 ID=5085,5105,20 SW=1
NT=5 ID=5049      SW=1
NT=5 ID=1,10,1    SW=1
NT=5 ID=21,30,1   SW=1
NT=5 ID=41,50,1   SW=1
NT=5 ID=61,70,1   SW=1
NT=5 ID=81,90,1   SW=1
NT=5 ID=101,111,1 SW=1
NT=5 ID=122,132,1 SW=1
NT=5 ID=143,153,1 SW=1
NT=5 ID=164,174,1 SW=1
NT=2 ID=1001      SW=1
NT=2 ID=1049      SW=1
NT=2 ID=1065      SW=1
```

SECCION TRANSVERSAL

ARMADO LONGITUDINAL

CORTANTE

TORSION

ARMADO TRANSVERSAL

ARMADURA LONGITUDINAL

* ESFUERZOS EN SECCIONES CRÍTICAS

1. CENTRO DE VANO DE 17 M

BARRA	10	30	50	70	90
M^+	8,57 + 8,43	83,2+95,4	143,3+182,3	83,2+95,4	8,57+8,43
Q	-4,5+4,4	1,9+9,0	5,1+27,8	1,9+9,0	-4,5+4,4

$M_D^+ = 1026{,}98$ mt

$Q_D = 81{,}77$ t

2. PUNTO DE MÁXIMO M^+ DEL VANO DE 13 M ($x = 4{,}87$)

BARRA	3	23	43	63	83
M^+	8,3+8,3	70+86,8	116,5+167	70+26,8	8,3+8,3
Q	-1,1+11,1	3,4-11,2	11,1+30	3,4+11,2	-11,1+11,1

$M_D^+ = 904{,}5$ mt

$Q_D = 66{,}5$ t

3. APOYO EN PILA

BARRA	7	27	47	67	87
M^-	11,8 + 4,3	119,7 + 50,6	296,8 + 139,5	119,7 + 50,6	11,8 + 4,3
Q	7,1 + 17,7	33,7 + 17,9	126,3 + 93,8	33,7 + 17,9	7,1 + 17,7

$M_D^- = 1129,7$ mt

$Q = 528,17$ t

CUANTÍAS GEOMÉTRICAS MÍNIMAS Acero B500S

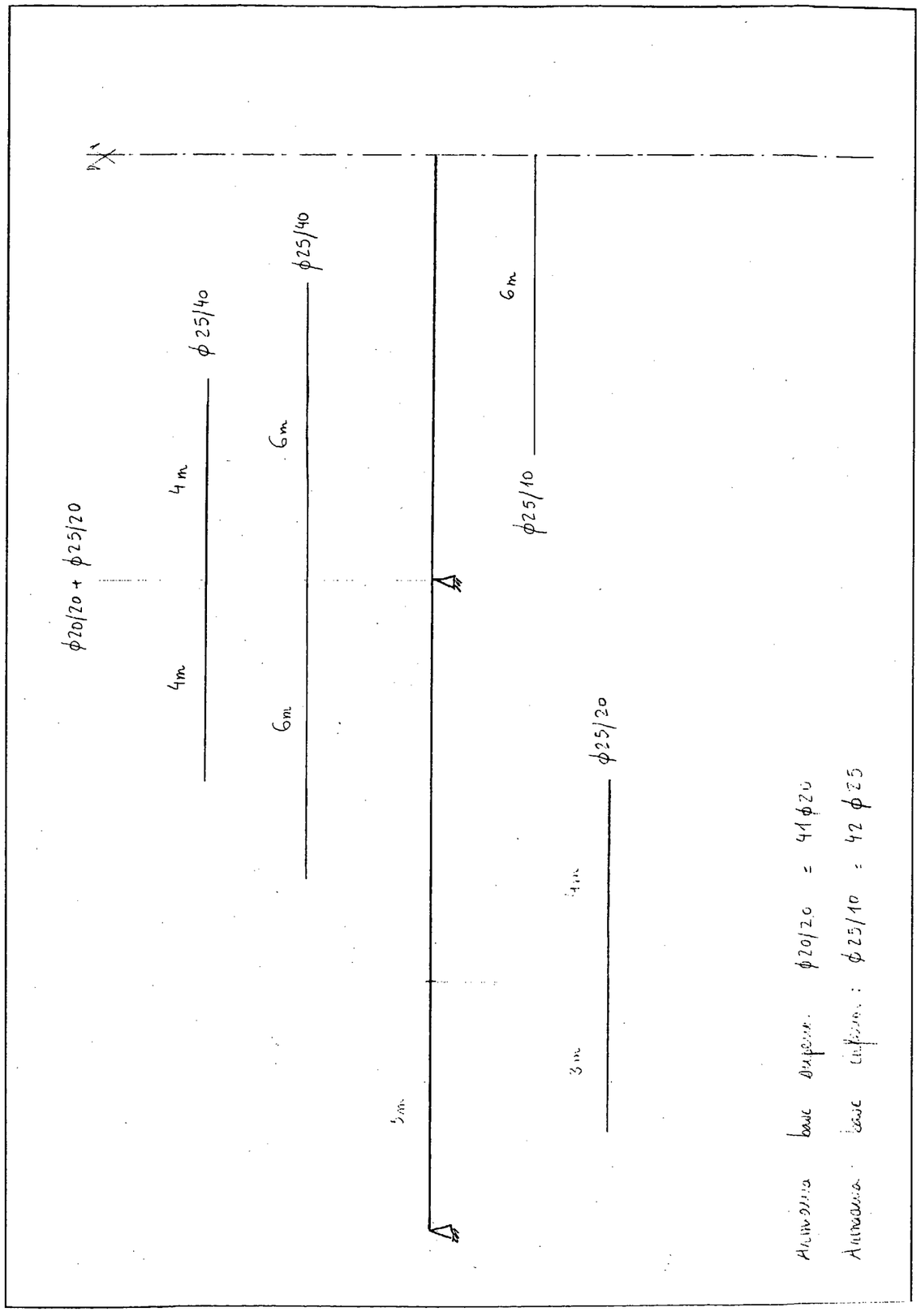
$4‰\ A_c = 0,0023\ m^2 = 6\phi 25$

ARMADURA BASE SUPERIOR

$U_{S\,mín} = 565,32$ t → $\phi 20/20$ en todo el ancho del vía

ARMADURA BASE INFERIOR

$U_{S\,mín} = 421,75$ t → $\phi 25/10$



LONGITUDES DE ANCLAJE

- BARRAS INFERIORES

Posición 1 → $l_{b1} = m\phi^2 \; k \; \frac{f_{yk}}{20} \cdot \phi \Rightarrow l_{b1} = 81{,}25$ cm

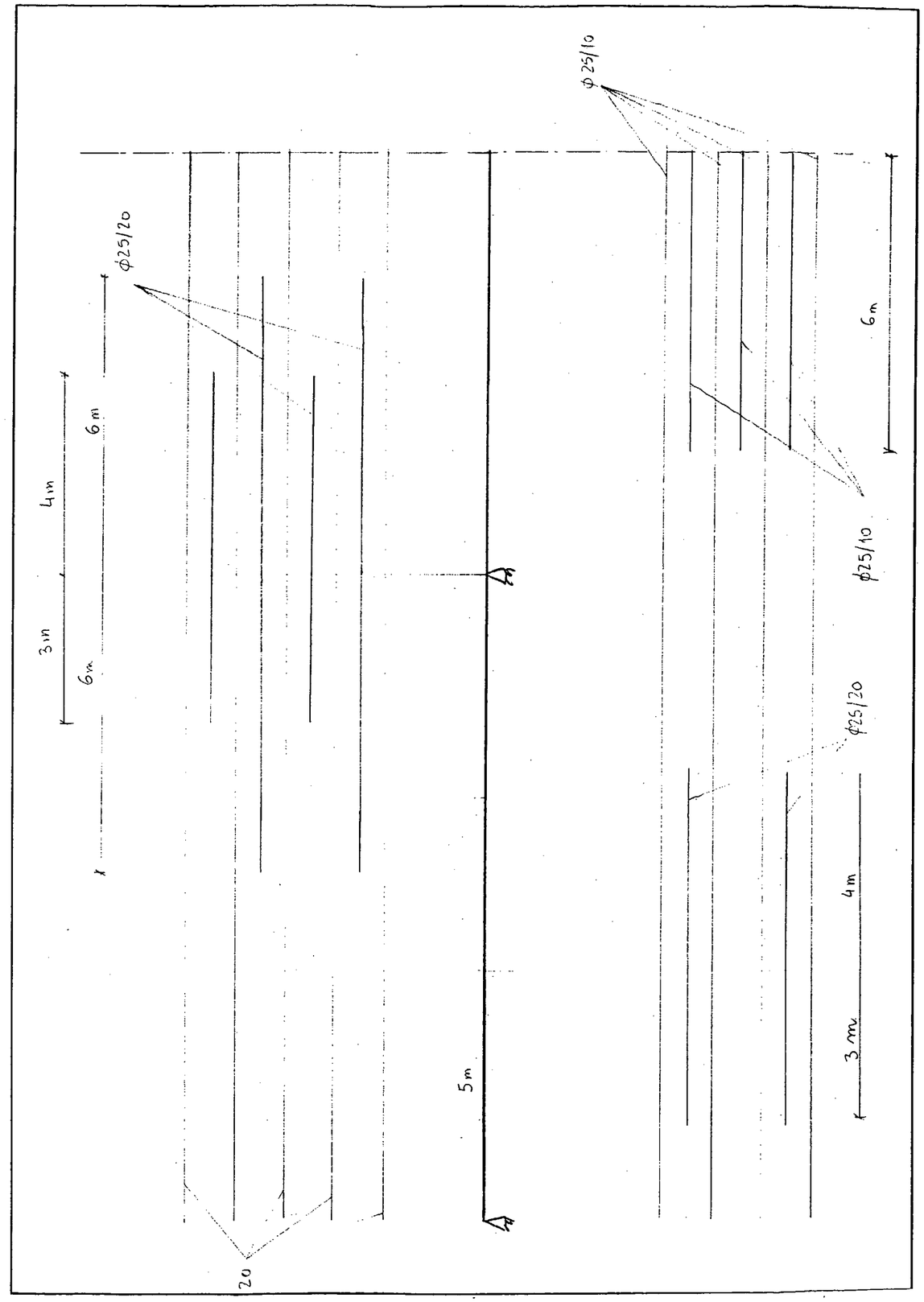
$$l_{bn} = l_b \cdot \beta \cdot \frac{A_s}{A_{s\,real}}$$

- BARRAS SUPERIORES

Posición 2 → $l_{b1} = 1{,}4\, m\phi^2 \; k \; \frac{f_{yk}}{14} \phi \Rightarrow l_b = 113{,}75$ cm

$$l_{bn} = 113{,}75 \; \frac{A_s}{A_{s\,real}}$$

SECCIÓN	Centro de vano de 17 m	Apoyo en pila	Vano lateral, x = 5
$l_{sup} + d$	—	$96 + 113{,}75 \cdot \frac{299}{41\phi 20 + 41\phi 25} = 196$ cm	—
$l_{inf} + d$	$96 + 81{,}25 \cdot \frac{\quad}{0{,}75} = 146$ cm	—	$96 + 81{,}25 \; \frac{324{,}6}{16\phi 25} = 177$ cm



DIMENSIONAMIENTO A CORTANTE - APOYO INTERMEDIO

• CORTANTE DE CÁLCULO

$$V_{Rd} = 528,2\ t$$

• $V_{U2} = V_{cu} + V_{su} \leq V_{Rd}$

$$V_{cu} = 0,10\ \xi\ (100\ \rho_1\ f_{ck})^{1/3} \cdot b_o \cdot d \qquad \alpha = 90° \qquad \theta = 45°$$

$$\xi = 1 + \sqrt{\frac{200}{d}} = 1,46$$

$$\rho_1 = \frac{A_s}{b_o \cdot d} = \frac{41\phi 20 + 41\phi 25}{4,2 \cdot 0,96} = 0,0082$$

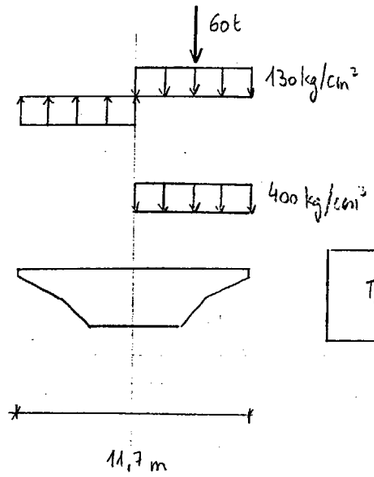
$$f_{ck} = 30\ N/mm^2 \Rightarrow \boxed{V_{cu} = 171,1\ t}$$

• Contribución de la armadura : $V_{su} = V_{cd} - V_{cu} = 0,9\ d\ A_\alpha \cdot f_{yd}$

$\Rightarrow A_\alpha = 93,3\ cm^2/m \rightarrow 9\ \square\ \phi 12/20$

COMPROBACIÓN A TORSIÓN

• ESFUERZOS EN SECCIÓN DE APOYO DE ESTRIBO ($T_{MÁX}$)



Carro : 90 tm

Presión - a : 1,78 tm/m

Sobrecarga : 6,84 tm/m

$$T_d = 1,5 \cdot \frac{1}{2}\left[90 + 1,78 \cdot 17 + 6,84 \cdot 43\right] = 310,8\ mt$$

- ESPESOR EFICAZ $\quad h_e = \frac{A}{U} = \frac{4,2 \cdot 1}{(4,2+1) \cdot 2} = 0,4\ m \Rightarrow A_e = 2,26\ m^2$

- TORSOR RESISTIDO POR LAS BIELAS DE HORMIGÓN

$$T_{u1} = \alpha\ f_{1cd} \cdot A_e \cdot h_e \cdot \frac{\cot g\,\theta}{1 + \cot g^2 \theta} \qquad \theta = 45°$$

$\alpha = 1,2 \qquad f_{1cd} = 0,6\ f_{cd} = 0,6\ \frac{3000}{1,15} = 1200\ t/m^2$

$$\boxed{T_{u1} = 1,2 \cdot 1200\ 2,26 \cdot 0,4 \cdot 0,5 = 650,88\ tm}$$

$T_d \leq T_{u1} \rightarrow$ ok

- TORSOR RESISTIDO POR LAS ARMADURAS TRANSVERSALES

$$T_{u_2} = \frac{2A_e \cdot A_t}{s_t} \cdot f_{yt,d} \cdot \cot g\,\theta$$

$s_t = 0,2\ m$

$A_t = 9\,\phi\,12 = 23,94\ cm^2/m$

$f_{yt,d} = \sigma_{sd} = \frac{5100}{1,15}\ kg/cm^2$

$$T_{u_2} = \frac{2 \cdot 2,26 \cdot 23,94}{0,2} \cdot \frac{5100}{1,15} = 2400\ tm$$

$T_d \leq T_{u_2} \rightarrow OK$

- TORSOR RESISTIDO POR LAS ARMADURAS LONGITUDINALES

$$T_{u_3} = \frac{2A_e}{u_e} \cdot A_l \cdot f_{yl,d} \cdot \operatorname{tg}\theta$$

$u_e = 8,8\ m$

$A_l = 42\,\phi\,25 + 41\,\phi\,20 = 335\ cm^2$

$f_{yld} = \sigma_{sd} = \frac{5100}{1,15}\ kg/cm^2$

$$T_{u_3} = \frac{2 \cdot 2,26}{8,8} \cdot 0,0335 \cdot \frac{5100}{1,15} = 929\ tm$$

$T_d \leq T_{u_3} \rightarrow ok$

- INTERACCIÓN TORSOR - CORTANTE

$T_d = 310,8\ tm$ $\qquad \beta = 2\left(1 - \frac{h_e}{b}\right) = 1,93$

$T_{u_1} = 650,88\ tm$

$V_{Rd} = 353,3\ t$

$$V_{u_1} = k \cdot f_{cd_1} \cdot b_o \cdot d \cdot \frac{\cot g\,\theta + \cot g\,\alpha}{1 + \cot g^2\,\theta}$$

$k = 1$

$f_{cd_1} = 0,6\,f_{cd} = 120\ kg/cm^2$

$\rightarrow V_{u_1} = 1 \cdot 1200 \cdot 4,2 \cdot 0,96 = 4838\ t$

$$\left[\frac{T_d}{T_{u_1}}\right]^\beta + \left[\frac{V_d}{V_{u_1}}\right]^\beta = \left[\frac{310,8}{650,88}\right]^{1,93} + \left[\frac{353,3}{4838}\right]^{1,93} = 0,25 < 1 \rightarrow OK$$

ARMADURA TRANSVERSAL

Barra más solicitada de la sección de apoyo en pilas: barra 149

ESFUERZOS: $Q_D = 199\ t$

$M_D = 350,3\ mt$

Sección tipo 8

FLEXIÓN Armadura de base: $\phi 25/20$

Se dispone refuerzo en 2m

Cuantía necesaria: $U_{S1} = U_o \left(1 - \sqrt{1 - \frac{2M}{U_o\, h}} \right)$

$U_o = 0,85 \cdot \frac{3000}{1,5} \cdot b \cdot h = 3567,9\ t \rightarrow U_{S1} = 378,2\ t$

$\Rightarrow$ Refuerzo de $\phi 32/20$

CORTANTE $V_{cu} = 0,10\, \xi\, (100\, \rho_1\, f_{ck})^{1/3}\, b_o\, d$

$\xi = 1,66$

$\rho_1 = \frac{10\phi 32 + 10\phi 25}{2,146 \cdot 0,938} = 0,036$

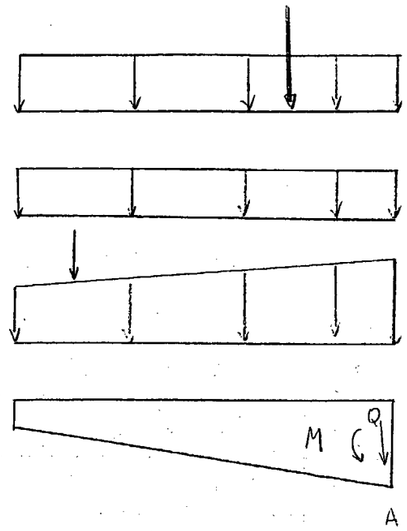
$f_{ck} = 30\ N/mm^2$

$b_o = 2,146\ m$

$\rightarrow V_{cu} = 30,4\ t \qquad V_{sd} = 108,6\ t$

$\Rightarrow A_\alpha = 29\ cm^2/m$

ARMADURA TRANSVERSAL DE LAS ALAS



Sobrecarga - Carro

Presión - Succión Viento

Aceras + barandilla
P.P. Tablero

- FLEXIÓN

Carga	M_A	M MAYORADO EN A
PP(tablero + agl)	5,72 tm/m	7,7 tm/m
PP(aceras + barand)	6 tm/m	8,1 tm/m
Presión - Succión	0,79 tm/m	1,2 tm/m
Sobrecarga	0,92 tm/m	1 tm/m
Carro	6,96 tm/m	10,4 tm/m

$\therefore M_A = 28,8\ tm/m$

$$V_0 = 0{,}85 \cdot \frac{3000}{1{,}5} \cdot 1 \cdot 0{,}55 = 935 \text{ t/m}$$

$$V_{Sd} = 935 \left(1 - \sqrt{1 - \frac{2M}{V_0 \cdot h}} \right) = 53{,}9 \text{ t/m} \rightarrow \phi\ 20/20$$

- CORTANTE

Carga	Q_A	$Q_{A\ MAYORADO}$
PP(tablero + aglomerado)	3,85 t/m	5,2
PP(acero + barandillas)	2,4 t/m	3,24
Presión - succión	0,455 t/m	0,68
Sobrecarga	0,86 t/m	1,29
Cano	5,35 t/m	8,02
		$Q_A = 18{,}44$ t/m

$$V_{cu} = 0{,}1\,\xi \left(100\, \rho_1\, f_{ck}\right)^{1/3} \cdot b_0 \cdot d$$

$\xi = 1{,}6$

$\rho_1 = \frac{15{,}7}{100 \cdot 55} = 0{,}0028$

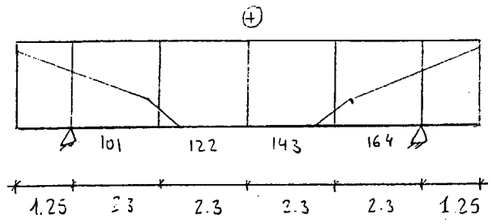
$b_0 = 1$ m

$d = 0{,}55$ m

$\Rightarrow V_{cu} = 1$t $\qquad V_{su} = 0{,}43$ t

VIGA DE ESTRIBO

VIGA DE ESTRIBO



Viga de 1,08 m de ancho $d = 0,91$ m

- ESFUERZOS DE CÁLCULO

$M_D = 177,4$ mt

$Q_D = 70,7$ t

$M_{T_D} = 44,5$ t

- FLEXIÓN $U_0 = 0,85 \frac{3000}{1,5} \cdot 1,08 \cdot 0,91 = 1802,25$ t

$$U_{S1} = U_0 \left(1 - \sqrt{1 - \frac{2M}{U_0 d}} \right) = 206\,t \rightarrow 8\ \phi 32$$

- CORTANTE $V_{cu} = 0,1\ \xi\ (100\ \rho_1 \cdot f_{ck})^{1/3} \cdot b_o \cdot d = 32,5$ t

$V_{su} = V_{Rd} - V_{cu} = 0,9 \cdot 0,91 \cdot 5100 \cdot A_\alpha \Rightarrow$

$A_\alpha = 9,1\ cm^2/ml \rightarrow 2\ \square \phi 12/20$

- TORSIÓN

Espesor eficaz: $h_e = \frac{A}{U} = \frac{1,03 \cdot 0,96}{2(1,08 + 0,96)} = 0,25$ m $\rightarrow A_e = 0,53\ m^2$

$$\cdot T_{u_1} = \alpha \cdot f_{1cd} \cdot A_e \cdot h_e \cdot \frac{\cot g\,\theta}{1 + \cot g^2 \theta} = 1,2 \cdot 1200 \cdot 0,53 \cdot 0,25 \cdot \frac{1}{2} = 106,2\ mt$$

$T_d < T_{u_1} \rightarrow$ ok

$$\cdot T_{u_2} = \frac{2 A_e \cdot A_t}{s_t} \cdot f_{yt,d} \cdot \cot g\,\theta = \frac{2 \cdot 0,53 \cdot 4,02}{0,2} \cdot 5100 = 121\ tm$$

$T_d < T_{u_2} \rightarrow$ ok

$$\cdot T_{u_3} = \frac{2 A_e}{U_e} \cdot A_l \cdot f_{yl,d} \cdot tg\,\theta = \frac{2 \cdot 0,53}{3,13} \cdot 42,95 \cdot 5100 = 82,62\ t$$

$T_d < T_{u_3} \rightarrow$ ok

COMPROBACIÓN TORSIÓN - CORTANTE

$$V_{u_1} = 0,6 \cdot \frac{3000}{1,5} \cdot 1,08 \cdot 0,91 \cdot 0,5 = 589,68\ t$$

$$\beta = 2 \left(1 - \frac{h_e}{b} \right) = 1,53$$

$$\left[\frac{44,5}{106,2} \right]^{1,53} + \left[\frac{70,7}{589,68} \right]^{1,53} = 0,3 < 1 \rightarrow \text{ok}$$

COMPROBACION ANCHURA FISURA

COMPROBACIÓN - E.L.S. FISURACIÓN

Art 49.2 EHE

• ARMADURA DE LA SECCIÓN DE M^+ MÁXIMO (centro de vano de 17 m)

Se han dispuesto $\phi 25/5 \Rightarrow 84\phi 25$

Separación libre : 2,5 cm $\geq$ 2 cm, 2,5 cm, 2,5 cm

• COMPROBACIÓN

Ambiente IIb H → Abertura de fisura máxima : $w_{máx} = 0,3$ mm

ABERTURA DE FISURA DE CÁLCULO : $w_k = \beta \cdot s_m \cdot \varepsilon_{sm}$

- $s_m = 2c + 0,2s + 0,4\, k_1 \cdot \dfrac{\phi \cdot A_{cef}}{A_s}$

$A_{cef} = b \cdot 7,5 \cdot \phi = 4200 \cdot 7,5 \cdot 25 = 787\,500$ mm²

$A_s = 84\,\phi 25 = 0,0412$ m²

$\Rightarrow s_m = 2 \cdot 40 + 10 + 0,4 \cdot 0,125 \cdot \dfrac{25 \cdot 787500}{41233,4} = 113,8$ mm

- $\beta = 1,7$

$$-\varepsilon_{sm} = \frac{\sigma_s}{E_s}\left[1 - k_2\left(\frac{\sigma_{sR}}{\sigma_s}\right)^2\right] \not< 0{,}4\,\frac{\sigma_s}{E_s}$$

$E_s = 2\,100\,000$ kg/cm²

$k_2 = 1$

$$\sigma_s = \frac{M_k}{0{,}8\,d\,A_s} = 32\,456{,}6\ t/m^2$$

$$\sigma_{sR} = \frac{M_{fis}}{0{,}8\,d\,A_s} \qquad M_{fis} = \frac{f_{ctm}\cdot I}{y_c} = \frac{1{,}5\,f_{ct,k}\cdot I}{y_c} \Rightarrow \sigma_{sR} = 657{,}8\ t/m^2$$

$$\Rightarrow \varepsilon_{sm} = 0{,}0012 \qquad \left(\min \varepsilon_{sm} = 0{,}4\,\frac{\sigma_s}{E_s} = 0{,}0005\right)$$

ABERTURA DE FISURA : $\boxed{W_k = 1{,}7 \cdot 113{,}8 \cdot 0{,}0012 = 0{,}23\ mm}$

$W_k < W_{max}$ → ok

CÁLCULO DE PILAS

$l_o = \alpha \times l = 1{,}00 \times 12{,}00 = 12{,}00$ m.

ESBELTEZ MECÁNICA: $\lambda = \frac{l_o}{i} = \frac{12{,}00}{0{,}25} = 48$

$i = \sqrt{\frac{I}{A}} = \sqrt{\frac{I^2}{16}} = 0{,}25$ m.

A) AXIL MÁXIMO;

$N_D = 813{,}3^T$

$M_{DTS} = 39$ TxM
$M_{DLS} = 45{,}36$ TxM
$\Rightarrow M_{DS} = \sqrt{M_{DTS}^2 + M_{DLS}^2} = 59{,}82$ TxM

$M_{DTI} = 11{,}16$ TxM
$M_{DLI} = 35{,}62$ TxM
$\Rightarrow M_{DI} = 37{,}33$ TxM

$e_2 = 0{,}0736$m $\quad e_1 = 0{,}0459$ m

$e_{TOT} = e_e + e_a$; $\quad e_e = 0{,}6 \times e_2 + 0{,}4 \times e_1$

$e_e = 0{,}06252$

$e_a = (1 + 0{,}12 \times \beta) \times (\varepsilon + \varepsilon_y) \frac{h + 20\, e_e}{h + 10\, e_e} \frac{l_o^2}{50\, i_c}$

$\beta = 1{,}15$

$\varepsilon_y = \frac{f_{yd}}{E_s} = 2{,}11 \times 10^{-3}$; $\quad \varepsilon = 0{,}004$

$e_a = 0{,}1150$

$e_{TOT} = 0{,}1775$ m.

$M_D = 813{,}3 \times 0{,}1775 = 144{,}36$ TxM

B) AXIL MÍNIMO;

$N_D = 384{,}47$ t

$M_{DTS} = 19{,}3$ TxM
$M_{DLS} = 72{,}42$ TxM
$\Rightarrow M_{DS} = 75$ TxM ; $e_2 = 0{,}195$

$M_{DTI} = 16{,}08$ TxM
$M_{DLI} = 24{,}69$ TxM
$\Rightarrow M_{DI} = 29{,}46$ TxM ; $e_1 = 0{,}0766$

$e_e = 0{,}14764$

$e_a = 0{,}1326$

$e_{TOT} = 0{,}2802$

$M_D = 384{,}47 \times 0{,}2802 = 108$ TxM

C) MOMENTO LONGITUDINAL MÁXIMO.

$N_D = 527{,}63$ T

$M_{DTS} = 19{,}293$ TxM
$M_{DLS} = 75{,}852$ TxM
$\Rightarrow M_{DS} = 78{,}27$ TxM
$e_2 = 0{,}148$

$M_{DTI} = 16{,}08$ TxM
$M_{DLI} = 23{,}01$ TxM
$\Rightarrow M_{DI} = 28{,}1$ TxM
$e_1 = 0{,}0533$

$e_e = 0{,}11012$

$e_a = 0{,}1266$

$e_{TOT} = 0{,}2367$

$M_D = 527{,}63 \times 0{,}2367 = 124{,}9$ TxM.

D) ARMADO (PILAS CIRCULARES DE 1,00 m. DE DIÁMETRO)

$$\omega = \frac{N_D}{A_c \times f_{cd}} \qquad \mu = \frac{M_D}{A_c \times h \times f_{cd}}$$

D.1) $N_D = 813,3\ t$ $\quad M_D = 144,36\ t\times m$

$A_c = \pi \times 0,5^2 = 0,785\ m^2$

$f_{cd} = 0,9 \times \frac{3000}{1,5} = 1800\ t/m^2$

$h = 1,00\ m.$

$\omega = 0,58 \quad \mu = 0,102 \quad \omega = 0,15$

D.2) $N_D = 384,47\ t$ $\quad M_D = 108\ t\times m$

$\omega = 0,272 \quad \mu = 0,0764 \quad \omega = 0,05$

D.3) $N_D = 527,63\ t$ $\quad M_D = 124,9\ t\times m$

$\omega = 0,373 \quad \mu = 0,0884 \quad \omega = 0,05$

$$\omega = \frac{A_{TOT} \times f_{yd}}{A_c \times f_{cd}} \Rightarrow A_{TOT} = \frac{0,15 \times 0,785 \times 1800}{51000/1,15}$$

$A_{TOT} = 47,8\ cm^2$

SE DISPONEN $16\ \phi\ 25$

COMPROBACIÓN A PUNZONAMIENTO.

$u_1 = 4 \times 4,2 = 16,8\ m.$ $\quad N_D = 813,3\ t$

1) ARMADURA NECESARIA

$V_{cu} = 423,13\ t$ $\quad V_{su} = N_D - V_{cu} = 390,17\ t$

$$A_\alpha = \frac{390,17}{0,9 \times 0,95 \times 40.000} = 114\ cm^2/m$$

-Dirección longitudinal: $A_{NEC} = 93,3\ cm^2/m$ (CORTANTE)

$A_{REAL} = 271,2\ cm^2/m$

$A_{REAL} - A_{NEC} = 178\ cm^2/m$

-Dirección transversal: $A_{NEC} = 29\ cm^2/m$

$A_{REAL} = 56,5\ cm^2/m$

$A_{REAL} - A_{NEC} = 27,5\ cm^2/m$

2) COMPROBACIÓN FUERA DEL PERÍMETRO ARMADO A PUNZONAMIENTO.

$F_{sd,ef} \le 0,12 \times \xi \times (100 \times \rho_l \times f_{ck})^{1/3} \times u_{n,ef} \times d$

$u_{n,ef} = 2 \times (5,8 + 4,2) = 20\ m.$

$\rho_l = 0,0058$

$813,3 \times 10^4 \le 0,12 \times \left(1 + \sqrt{\frac{200}{950}}\right) \times (100 \times 0,0058 \times 30)^{1/3} \times 20 \times 10^3 \times 950$

$813,3 \times 10^4 \le 861,9 \times 10^4$ O.K ✓

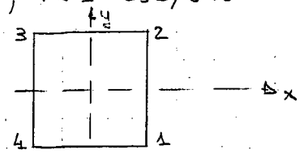
3) RESISTENCIA MÁXIMA.

$$\frac{F_{sd,ef}}{u_0 \times d} = \frac{1,15 \times 813,3}{\pi \times 1 \times 0,95} = 313,4\ t/m^2 \le f_{1cd} = 600\ t/m^2 \quad O.K.$$

CÁLCULO ZAPATA

$\sigma_{adm} = 5\ kp/cm^2$ Zapata de $4{,}00 \times 4{,}00 \times 1{,}00$.

A) $N = 583{,}096\ ^T$ $M_x = 7{,}44\ ^{T\times M}$ $M_y = 24{,}23\ ^{T\times M}$



PESO ZAPATA $= 2{,}5 \times 4 \times 4 \times 1 = 40^T$

PESO TIERRAS $= \left(16 - \pi\, 0{,}5^2\right) \times 1{,}8 = 28^T$

POR TANTO $N = 651{,}096^T$

$\sigma_1 = 4{,}37 \frac{kp}{cm^2}$ $\sigma_2 = 4{,}23 \frac{kp}{cm^2}$ $\sigma_3 = 3{,}77 \frac{kp}{cm^2}$ $\sigma_4 = 3{,}91\ kp/cm^2$

$\sigma_{med} = 4{,}07\ kp/cm^2$

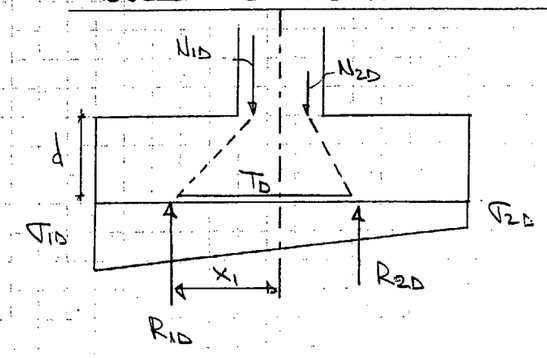
B) $N = 392{,}661^T$ $M_x = 10{,}72^{T\times M}$ $M_y = 14{,}86^{T\times M}$

$N_{TOTAL} = 392{,}661 + 40 + 28 = 460{,}661^T$

$\sigma_1 = 3{,}12 \frac{kp}{cm^2}$ $\sigma_2 = 2{,}92 \frac{kp}{cm^2}$ $\sigma_3 = 2{,}64 \frac{kp}{cm^2}$ $\sigma_4 = 2{,}84 \frac{kp}{cm^2}$

$\sigma_{med} = 2{,}88\ kp/cm^2$

MODELO DE BIELAS Y TIRANTES



$N_{1D} = 525{,}24^T$

$N_{2D} = 379{,}86^T$

$\sigma_{1D} = 6\ kp/cm^2$

$\sigma_{2D} = 5{,}32\ kp/cm^2$

$x_1 = 0{,}70$

$$T_D = \frac{R_{1D}}{0{,}85d}\left(x_1 - 0{,}25a\right) = 293^T \Rightarrow \phi 25/175$$

COMPROBACIÓN DE BIELAS

$A_c = 0{,}50 \times 1{,}00 = 0{,}50\ m^2$

$f_{1cd} = 0{,}85 \times f_{cd} = 0{,}85 \times \frac{2500}{1{,}5} = 1417\ T/m^2$

$A_c \times f_{1cd} = 708{,}5^T \geq \frac{525{,}24}{\cos 41^\circ} = 696^T$ O.K ✓

COMPROBACIÓN DE NUDO

NUDO CON TIRANTE ANCLADO.

$$\sigma_{c1} = \frac{696}{3 \times 0{,}5} = 464\ T/m^2 \quad ; \quad \sigma_{c2} = \frac{525{,}24}{3 \times 0{,}66} = 265$$

$f_{2cd} = 0{,}70 \times f_{cd} = 1167\ t/m^2$ O.K ✓

REACCIONES PARA CALCULO

DE ESTRIBOS

REACCIONES EN LOS ESTRIBOS

REACCIONES VERTICALES	
Peso Propio tablero	87,122 T
Peso Superestructura (Resto C.P.)	29,50 T
Reacción Hip. de Pretensado	———
Reacción Máxima SC.	65,02 T
Reacción Mínima SC.	-10,25 T
Gradiente térmico.	———
Otras	———
REACCIONES HORIZONTALES LONGITUDINALES	
Reacción debida al frenado	11,236 T
Deformaciones impuestas	———
Rozamiento, sismo, otras	———
REACCIONES HORIZONTALES TRANSVERSALES	
Reacción viento transversal	14,32 T
Fuerza centrífuga	———
Rozamiento, sismo, otros	———

CALCULO DE ESTRIBOS

PROGRAMA ESTRIBOS

CALCULO Y ARMADO DE ESTRIBOS DE PUENTE

VERSION Nº 1 FECHA : 12/10/1995

Copyright : J.Diaz del Valle, 1995

E.T.S. de I.C.C. y P. de Santander

DATOS DEL PROYECTO DEL ESTRIBO

PROYECTO : AVE TRAMO LLEIDA-MARTORELL

REFERENCIA : P.K.304+615

FECHA DEL CALCULO : 5/10/95

D A T O S D E L E S T R I B O

ESTRIBO 1.

-Datos geométricos:

H1= 4.05	H2= 0.00	H3= 0.00	H4= 1.00	H5= 0.00	m.
H6= 0.00	H7= 1.00	H8= 0.00	H9= 2.00	H10= 0.00	m.
B1= 1.05	B2= 0.00	B3= 2.95	B4= 0.00	B5= 0.00	m.
B6= 0.50	B7= 0.00	B8= 3.00	E9= 0.00	H9= 0.00	m.
C1= 0.35	C2= 0.45	C3= 0.00	C4= 0.25	C5= 0.30	m.
D1= 6.00	D2= 6.00	D3= 1.25	D4= 1.75	D5= 0.30	m.
D6= 0.30					
A1= 2.75	A2= 0.20	A3= 2.33	A4= 0.20	A5= 1.56	m.
E1= 12.50	E2= 12.30	E3= 0.30	E4= 0.00	E5= 0.30	m.
E6= 0.30	E7= 0.00	E8= 0.00	E9= 1.25	E10= 10.60	m.

-Características de los materiales:

Peso específico del hormigón (t/m3) ..... Yh = 2.50
Resistencia del hormigon del alzado (Kp/cm²) ..... fck = 250
Resistencia del hormigón de la zapata (Kp/cm²) ..... fck'= 250
Límite elástico del acero (Kp/cm²) ..... fyk = 5100
Recubrimiento de las armaduras (m) ..... c = 0.05
Se incluyen las cuantías geométricas mínimas
Coeficiente de minoración resistencia hormigón ..... Yc = 1.50
Coeficiente de minoración resistencia acero ..... Ys = 1.15
Coeficiente de mayoración de las acciones ..... Yf = 1.60

-Características del terreno:

Terreno sobre talón:
Peso especifico de las tierras (t/m3) ..... Yt = 1.80
Angulo de rozamiento interno de las tierras (°) ..... ϕ = 30.00
Angulo de rozamiento entre las tierras y el muro (°) .... δ = 0.00
Coeficiente de empuje activo calculado segun Coulomb ... Ka = 0.333
Cohesión de las tierras (t/m²) ..... c = 0.00
Terreno sobre puntera :
Peso especifico de las tierras (t/m3) ..... Yt = 1.80
Angulo de rozamiento interno de las tierras (°) ..... ϕ = 30.00
Angulo de rozamiento entre las tierras y el muro (°) .... δ = 0.00
Coeficiente de empuje pasivo de las tierras ..... Kp = 3.000

Terreno de cimentación :
Coeficiente de rozamiento entre el cimiento y el suelo .. μ = 0.577
Adherencia entre el cimiento y el suelo (t/m²) ..... a = 0.00

Angulo de la superficie del terreno con la horizontal ... β = 0.00°

-Sobrecargas:

Carga por unidad de longitud de talud (t/m²) ..... q = 1.00
No se considera la acción sísmica .....

-Acciones del tablero sobre el estribo :

Reacciones verticales (t) y excentricidades transversales (m) :

Reacción del peso propio del tablero ... Rpp = 87.12 , Exc.= 0.00
Reacción del peso de la superestructura. Rse = 29.50 , Exc.= 0.00
Reacción hiperestática de pretensado ... Rhp = 0.00 , Exc.= 0.00
Reacción máxima de la sobrecarga ..... Rma = 85.02 , Exc.= 0.00
Reacción mínima de la sobrecarga ..... Rmi = -10.25 , Exc.= 0.00
Reacción debida al gradiente térmico ... Rgt = 0.00 , Exc.= 0.00
Reacciones debidas a otras acciones ..... Rot = 0.00 , Exc.= 0.00

Reacciones horizontales longitudinales (t) :

Reacción debida al frenado (+ -) ..... Rfx = 11.24
Reacción debida a las deformaciones impuestas ..... Rdx = 0.00
Reacciones debidas a otras causas (Retrac.,sismo,etc) . Rox = 0.00

Reacciones horizontales transversales (t) :

Reacción debida al viento ..... Rvy = 14.32
Reacción debida a la fuerza centrífuga ..... Rcy = 0.00
Reacciones debidas a otras causas (Retrac.,sismo,etc) . Roy = 0.00

ACCIONES SOBRE EL ESTRIBO

Las acciones actuantes sobre el estribo tienen el siguiente origen:

a) Peso propio del estribo.
b) Acciones del tablero.
c) Empuje y peso de las tierras.

Estas acciones pueden ser verticales Fz ,horizontales longitudinales Fx ,y horizontales transversales Fy. En las tablas que siguen, se recogen las citadas acciones junto con los momentos Mx ,Mx, y My :

Mx : Momento respecto a la puntera del estribo.Se utiliza para la comprobación de seguridad al vuelco.

Mx, My: Momentos respecto al c.d.g de la zapata. Se utilizan para el cálculo de las tensiones sobre el terreno.

a) PESO PROPIO DEL ESTRIBO

Zona	Volumen (m3)	Peso Fz (t)	Mx (txm)	My (txm)
Muro frontal	51.33	128.33	-434.14	184.61
Muro de guarda	3.66	9.14	-17.03	7.54
Muros en vuelta	12.08	30.21	-72.50	-4.53
Aletas en voladizo	1.95	4.86	-25.36	-14.61
Contrafuertes aleta	0.00	0.00	0.00	0.00
Impostas	0.00	0.00	0.00	0.00
Macizos caquejeado	0.00	0.00	0.00	0.00
Zapata	56.25	140.63	-316.41	0.00
TOTAL	125.27	313.17	-861.83	143.01

b) ACCIONES DEL TABLERO

b1) Reacciones verticales:

Se consideran las reacciones del tablero en los siguientes casos:

-Caso permanente: Incluye las reacciones del peso propio del tablero y de la superestructura, las reacciones hiperestáticas de pretensado y otras acciones permanentes.

-Caso máximo: Incluye la suma de las reacciones de las acciones permanentes y las reacciones máximas de las sobrecargas variables.

-Caso mínimo: Incluye la suma de las reacciones de las acciones permanentes y las reacciones mínimas de las sobrecargas variables.

Reacción	Axil Fz (t)	Mx (txm)	My (txm)
Permanente	116.62	-99.13	182.27
Máxima	181.64	-154.40	254.38
Mínima	102.37	-90.92	148.92

b2) Reacciones horizontales longitudinales:

Las reacciones horizontales que ejerce el tablero provienen de movimientos impuestos, frenado,sismo , rozamiento de apoyos y de otras acciones.

El valor máximo considerado para estas acciones es:

Reacción Longitudinal	Fx (t)	Mx (txm)	My (txm)
Máxima	11.24	36.74	58.74

b3) Reacciones horizontales transversales:

Estas reacciones provienen de dos tipos de fuerzas:

-Fuerzas transversales:

Son debidas a las acciones de viento y sismo, y a la fuerza centrífuga de los vehículos que circulan por el tablero :

Fy = 14.32 t. ; Mx = 72.32 txm.

-Fuerzas verticales:

Debido a la excentricidad transversal de las reacciones verticales, se produce un momento transversal Mx :

. Para reacción vertical permanente .. Mx = 0.00 txm.
. Para reacción vertical máxima ..... Mx = 0.00 txm.
. Para reacción vertical mínima ..... Mx = 0.00 txm.

c) EMPUJE Y PESO DE TIERRAS

c1) Acciones horizontales:

Acción	Fuerza Fx (t)	Mz (txm)	My (txm)
Empuje de tierras.	113.08	257.46	257.46
Empuje de sobrecarga.	25.83	61.36	61.36
Empuje del agua.	0.00	0.00	0.00
Empuje total sobre trasdós.	138.91	318.82	318.82
Empuje pasivo frente puntera.	132.84	88.56	88.56

c2) Acciones verticales:

Acción	Fuerza Fz (t)	Mz (txm)	My (txm)
Peso tierras sobre talón.	327.38	-1004.95	-268.35
Peso tierras sobre puntera.	10.53	-2.63	21.06
Sobrecarga sobre terrapien.	34.51	-104.41	-26.75
Rozamiento vertical tierras.	0.00	0.00	0.00
Resultante total vertical.	372.42	-1111.99	-274.04

COMPROBACION DE ESTABILIDAD

Se consideran las siguientes hipótesis para las comprobaciones al vuelco y deslizamiento :

Hipótesis 1 : Construcción. Situación de estribo con relleno antes de construir el tablero.

Hipótesis 2 : Construcción. Situación de tablero construido antes del relleno del estribo.

Hipótesis 3 : Servicio. Se considera la hipótesis más desfa - vorable que corresponde al mínimo valor de la reacción vertical del tablero.

Hipótesis Nº	Coeficientes de seguridad Vuelco	Deslizamiento
1	7.288	65.219
2	11.645	13.625
3	5.146	10.347

El coeficiente de seguridad al vuelco se obtiene a partir de los momentos Mz respecto de la puntera de la zapata.Se distinguen momentos volcadores y estabilizadores.El coeficiente de seguridad se obtiene como cociente entre estos momentos.

El mínimo coeficiente de seguridad al vuelco es mayor que 2, y por tanto se cumple la seguridad al vuelco.

El coeficiente de seguridad al deslizamiento se obtiene como cociente entre la fuerza estabilizadora y la desestabilizadora. La primera es la fuerza de rozamiento obtenida como producto de las fuerzas verticales por un coeficiente de rozamiento igual a

$$\mu = Tg\ \phi = 0.577$$

en donde ϕ es el ángulo de rozamiento entre la zapata y terreno. Tambien se consideran como fuerzas estabilizadoras,la fuerza de adherencia suelo-zapata, el empuje pasivo frente a puntera, la existencia de talón y la inclinación de la base de la zapata.

La fuerza desestabilizadora es la resultante de las fuerzas horizontales tanto longitudinales como transversales.

El mínimo coeficiente de seguridad al deslizamiento es mayor que 1.5 ,cumpliéndose por tanto la seguridad al deslizamiento.

ESTADO TENSIONAL EN EL TERRENO

Se consideran las siguientes hipótesis para el cálculo de las tensiones en el terreno :

Hipótesis 1 : Construcción. Se supone que el relleno se ejecuta antes que el tablero.

Hipótesis 2 : Construcción. Se supone que el tablero se ejecuta antes que el relleno.

Hipótesis 3 : Servicio, con reacción de tablero mínima y acciones horizontales máximas.

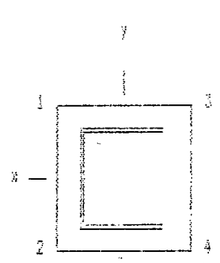
Hipótesis 4 : Servicio, con reacción de tablero mínima y acciones longitudinales nulas.

Hipótesis 5 : Servicio, con reacción de tablero máxima y acciones longitudinales nulas.

Hipótesis 6 : Servicio, con reacción de tablero máxima y acciones horizontales máximas.

Las tensiones σ1,σ2,σ3,σ4 del terreno en las 4 esquinas de la base de la zapata (figura 1),

y



(Fig.1)

se obtienen a partir de la fórmula de flexocompresión:

$$\sigma = \frac{N}{A} \pm \frac{Mx}{Wx} \pm \frac{My}{Wy}$$

donde N , Mx , My , son los esfuerzos en la base de la zapata , y

A = 58.25 m2 , Wx= 117.19 m3 , Wy = 42.19 m3

son las características mecánicas de la base de la zapata.

La expresión anterior solamente se válida en el caso de que toda la planta resulte comprimida. En otro caso, y dado que el terreno no puede soportar tracción alguna, el programa calcula las tensiones del terreno de manera iterativa.

El proceso iterativo anterior, se detiene cuando la resultante de las tensiones obtenidas, sea sensiblemente igual a los esfuerzos que solicitan a la base de la zapata.

La tensión media, se obtiene según la expresión : $\sigma med = \frac{N}{A}$

Siguiendo esta formulación,resulta la siguiente tabla que resume el estado tensional correspondiente a las 6 hipotesis anteriores :

ESFUERZOS DE ZAPATA Y TENSIONES DEL TERRENO

Hip	N (t)	Mx (txm)	My (txm)	σ1 (t/m²)	σ2 (t/m²)	σ3 (t/m²)	σ4 (t/m²)	σmed (t/m²)
1	727.60	0.00	276.35	19.49	19.49	6.38	6.38	12.94
2	471.80	72.32	363.02	17.61	16.38	0.40	0.00	8.39
3	933.97	72.32	492.01	26.87	25.63	4.02	2.78	14.83
4	833.97	72.32	17.89	15.87	14.63	15.02	13.79	14.83
5	909.24	72.32	123.27	19.70	18.47	13.86	12.63	16.16
6	909.24	72.32	587.39	30.70	29.47	2.86	1.62	16.16

ANALISIS ESTRUCTURAL DEL ESTRIBO COMO EMPARRILLADO ESPACIAL

DIMENSIONES Y CARACTERISTICAS MECANICAS DE LAS BARRAS

Barra Nº	i Nº	j Nº	Long. (m.)	Canto (m.)	Ancho (m.)	Area (m²)	Iner.1 (m4)	Iner.2 (m4)
1	1	2	0.88	1.05	0.43	0.450	0.007	0.041
2	2	3	0.83	1.05	0.43	0.450	0.007	0.041
3	3	4	0.80	1.05	0.43	0.450	0.007	0.041
4	4	5	0.80	1.05	0.43	0.450	0.007	0.041
5	5	6	0.89	0.75	0.43	0.321	0.005	0.015
6	6	7	0.80	0.25	0.43	0.107	0.002	0.001
7	8	9	0.68	1.05	0.86	0.900	0.055	0.083
8	9	10	0.88	1.05	0.86	0.900	0.055	0.083
9	10	11	0.80	1.05	0.86	0.900	0.055	0.083
10	11	12	0.89	1.05	0.86	0.900	0.055	0.083
11	12	13	0.98	0.75	0.86	0.643	0.039	0.030
12	13	14	0.83	0.25	0.86	0.214	0.013	0.001
13	15	16	0.88	1.05	0.86	0.900	0.055	0.083
14	16	17	0.88	1.05	0.86	0.900	0.055	0.083
15	17	18	0.88	1.05	0.86	0.900	0.055	0.083
16	18	19	0.88	1.05	0.86	0.900	0.055	0.083
17	19	20	0.88	0.75	0.86	0.643	0.039	0.030
18	20	21	0.88	0.25	0.86	0.214	0.013	0.001
19	22	23	0.88	1.05	0.86	0.900	0.055	0.083
20	23	24	0.88	1.05	0.86	0.900	0.055	0.083
21	24	25	0.88	1.05	0.86	0.900	0.055	0.083
22	25	26	0.83	1.05	0.86	0.900	0.055	0.083
23	26	27	0.80	0.75	0.86	0.643	0.039	0.030
24	27	28	0.98	0.25	0.86	0.214	0.013	0.001
25	29	30	0.88	1.05	0.86	0.900	0.055	0.083
26	30	31	0.88	1.05	0.86	0.900	0.055	0.083
27	31	32	0.88	1.05	0.86	0.900	0.055	0.083
28	32	33	0.88	1.05	0.86	0.900	0.055	0.083
29	33	34	0.89	0.75	0.86	0.643	0.039	0.030
30	34	35	0.88	0.25	0.86	0.214	0.013	0.001
31	36	37	0.88	1.05	0.86	0.900	0.055	0.083
32	37	38	0.88	1.05	0.86	0.900	0.055	0.083
33	38	39	0.88	1.05	0.86	0.900	0.055	0.083
34	39	40	0.86	1.05	0.86	0.900	0.055	0.083
35	40	41	0.80	0.75	0.86	0.643	0.039	0.030
36	41	42	0.80	0.25	0.86	0.214	0.013	0.001
37	43	44	0.88	1.05	0.86	0.900	0.055	0.083
38	44	45	0.88	1.05	0.86	0.900	0.055	0.083
39	45	46	0.98	1.05	0.86	0.900	0.055	0.083
40	46	47	0.86	1.05	0.86	0.900	0.055	0.083
41	47	48	0.89	0.75	0.86	0.643	0.039	0.030
42	48	49	0.88	0.25	0.86	0.214	0.013	0.001
43	50	51	0.80	1.05	0.43	0.450	0.007	0.041
44	51	52	0.86	1.05	0.43	0.450	0.007	0.041

45	52	53	0.88	1.05	0.43	0.450	0.007	0.041
46	53	54	0.89	1.05	0.43	0.450	0.007	0.041
47	54	55	0.98	1.35	0.43	0.579	0.009	0.086
48	55	56	0.89	1.05	0.43	0.450	0.007	0.041
49	57	58	0.80	0.30	0.95	0.285	0.021	0.002
50	58	59	0.88	0.30	0.95	0.285	0.021	0.002
51	59	60	0.80	0.30	0.95	0.285	0.021	0.002
52	60	61	0.98	0.30	0.95	0.285	0.021	0.002
53	61	62	0.88	0.30	0.95	0.285	0.021	0.002
54	62	63	0.80	0.30	0.95	0.285	0.021	0.002
55	64	65	0.89	0.30	1.51	0.484	0.105	0.004
56	65	66	0.80	0.30	1.61	0.484	0.105	0.004
57	66	67	0.88	0.30	1.61	0.484	0.105	0.004
58	67	68	0.80	0.30	2.08	0.623	0.224	0.005
59	68	69	0.86	0.30	2.08	0.623	0.224	0.005
60	69	70	0.88	0.30	2.08	0.623	0.224	0.005
61	1	8	0.86	1.05	0.44	0.464	0.008	0.043
62	8	15	0.86	1.05	0.44	0.464	0.008	0.043
63	15	22	0.86	1.05	0.44	0.464	0.008	0.043
64	22	29	0.86	1.05	0.44	0.464	0.008	0.043
65	29	36	0.86	1.05	0.44	0.464	0.008	0.043
66	36	43	0.86	1.05	0.44	0.464	0.008	0.043
67	43	50	0.86	1.05	0.44	0.464	0.008	0.043
68	50	57	0.95	0.30	0.44	0.133	0.002	0.001
69	57	64	0.95	0.30	0.44	0.133	0.002	0.001
70	2	9	0.86	1.05	0.88	0.928	0.060	0.085
71	9	16	0.86	1.05	0.88	0.928	0.060	0.085
72	16	23	0.86	1.05	0.88	0.928	0.060	0.085
73	23	30	0.86	1.05	0.88	0.928	0.060	0.085
74	30	37	0.86	1.05	0.88	0.928	0.060	0.085
75	37	44	0.86	1.05	0.88	0.928	0.060	0.085
76	44	51	0.86	1.05	0.88	0.928	0.060	0.085
77	51	58	0.95	0.30	0.88	0.265	0.017	0.002
78	58	65	0.95	0.30	0.88	0.265	0.017	0.002
79	3	10	0.86	1.05	0.88	0.928	0.060	0.085
80	10	17	0.86	1.05	0.88	0.928	0.060	0.085
81	17	24	0.86	1.05	0.88	0.928	0.060	0.085
82	24	31	0.86	1.05	0.88	0.928	0.060	0.085
83	31	38	0.86	1.05	0.88	0.928	0.060	0.085
84	38	45	0.86	1.05	0.88	0.928	0.060	0.085
85	45	52	0.86	1.05	0.88	0.928	0.060	0.085
86	52	59	0.95	0.30	0.88	0.265	0.017	0.002
87	59	66	0.95	0.30	0.88	0.265	0.017	0.002
88	4	11	0.86	1.05	0.88	0.928	0.060	0.085
89	11	18	0.86	1.05	0.88	0.928	0.060	0.085
90	18	25	0.86	1.05	0.88	0.928	0.060	0.085
91	25	32	0.86	1.05	0.88	0.928	0.060	0.085
92	32	39	0.86	1.05	0.88	0.928	0.060	0.085
93	39	46	0.86	1.05	0.88	0.928	0.060	0.085
94	46	53	0.86	1.05	0.88	0.928	0.060	0.085
95	53	60	0.95	0.30	0.88	0.265	0.017	0.002
96	60	67	0.95	0.30	0.88	0.265	0.017	0.002
97	5	12	0.86	1.13	0.86	1.001	0.065	0.107
98	12	19	0.86	1.13	0.86	1.001	0.065	0.107
99	19	26	0.86	1.13	0.86	1.001	0.065	0.107

100	26	33	0.86	1.13	0.88	1.001	0.065	0.197
101	33	40	0.86	1.13	0.88	1.001	0.065	0.197
102	40	47	0.86	1.13	0.88	1.001	0.065	0.197
103	47	54	0.86	1.13	0.86	1.001	0.065	0.197
104	54	61	0.93	0.30	0.88	0.265	0.017	0.002
105	61	68	0.93	0.30	0.88	0.265	0.017	0.002
106	6	13	0.86	0.25	0.88	0.221	0.014	0.001
107	13	20	0.86	0.25	0.88	0.221	0.014	0.001
108	20	27	0.86	0.25	0.88	0.221	0.014	0.001
109	27	34	0.86	0.25	0.88	0.221	0.014	0.001
110	34	41	0.86	0.25	0.88	0.221	0.014	0.001
111	41	48	0.86	0.25	0.88	0.221	0.014	0.001
112	48	55	0.86	0.25	0.88	0.221	0.014	0.001
113	55	62	0.93	0.30	0.88	0.265	0.017	0.002
114	62	69	0.93	0.30	0.88	0.265	0.017	0.002
115	7	14	0.86	0.30	0.44	0.133	0.002	0.001
116	14	21	0.86	0.30	0.44	0.133	0.002	0.001
117	21	28	0.86	0.30	0.44	0.133	0.002	0.001
118	28	35	0.86	0.30	0.44	0.133	0.002	0.001
119	35	42	0.86	0.30	0.44	0.133	0.002	0.001
120	42	49	0.86	0.30	0.44	0.133	0.002	0.001
121	49	56	0.86	0.30	0.44	0.133	0.002	0.001
122	56	63	0.93	0.30	0.44	0.133	0.002	0.001
123	63	70	0.93	0.30	0.44	0.133	0.002	0.001
124	71	72	0.88	0.30	1.86	0.559	0.162	0.004
125	72	73	0.88	0.30	1.86	0.559	0.162	0.004
126	74	75	0.88	0.30	1.86	0.559	0.162	0.004
127	68	71	1.86	0.30	0.88	0.265	0.017	0.002
128	69	72	1.86	0.30	0.88	0.265	0.017	0.002
129	72	74	1.86	0.30	0.88	0.265	0.017	0.002
130	70	73	1.86	0.30	0.44	0.133	0.002	0.001
131	73	75	1.86	0.30	0.44	0.133	0.002	0.001
132	75	76	1.86	0.30	0.44	0.133	0.002	0.001
133	67	71	2.06	0.30	0.88	0.265	0.017	0.002
134	71	74	2.06	0.30	0.88	0.265	0.017	0.002
135	74	76	2.06	0.30	0.88	0.265	0.017	0.002

Hipótesis (1) : Peso propio del muro y aletas del estribo

DESPLAZAMIENTOS DE LOS NUDOS

Nudo Nº	Despl.y (mm)	Despl.x (mm)	Despl.z (mm)	Giro y 1000xrad	Giro x 1000xrad	Giro z 1000xrad
1	0.000	-0.000	0.000	-0.000	-0.000	-0.000
2	-0.000	-0.001	0.003	-0.001	0.000	-0.000
3	-0.000	-0.002	0.005	-0.002	0.000	-0.000
4	-0.000	-0.005	0.007	-0.003	0.000	-0.000
5	-0.000	-0.008	0.008	-0.004	0.000	-0.000
6	-0.000	-0.012	0.008	-0.004	-0.000	-0.000
7	-0.000	-0.017	0.009	-0.007	-0.000	-0.000
8	0.000	-0.000	0.000	-0.000	-0.000	-0.000
9	-0.000	-0.001	0.003	-0.001	0.000	-0.000
10	-0.000	-0.002	0.005	-0.003	0.000	-0.000
11	-0.000	-0.005	0.007	-0.004	0.000	-0.000
12	-0.000	-0.008	0.008	-0.004	0.000	-0.001
13	-0.000	-0.012	0.008	-0.004	0.000	-0.001
14	-0.000	-0.018	0.009	-0.007	0.000	-0.001
15	0.000	-0.000	0.000	-0.000	-0.000	-0.000
16	0.000	-0.001	0.003	-0.002	0.000	-0.000
17	-0.000	-0.003	0.005	-0.003	0.000	-0.000
18	-0.000	-0.006	0.007	-0.004	0.000	-0.001
19	-0.000	-0.009	0.008	-0.004	0.000	-0.001
20	-0.000	-0.013	0.008	-0.005	0.000	-0.001
21	-0.000	-0.019	0.009	-0.008	0.000	-0.002
22	0.000	-0.000	0.000	-0.000	-0.000	-0.000
23	0.000	-0.001	0.003	-0.002	0.000	-0.000
24	-0.000	-0.003	0.005	-0.003	0.000	-0.001
25	-0.000	-0.006	0.007	-0.004	0.000	-0.001
26	-0.000	-0.011	0.009	-0.005	0.000	-0.002
27	-0.000	-0.015	0.008	-0.006	0.000	-0.002
28	-0.001	-0.022	0.008	-0.007	0.000	-0.003
29	0.000	-0.000	0.000	-0.000	-0.000	-0.000
30	0.000	-0.001	0.003	-0.002	0.000	-0.000
31	-0.000	-0.003	0.005	-0.004	0.000	-0.001
32	-0.000	-0.007	0.007	-0.005	0.000	-0.001
33	-0.000	-0.012	0.007	-0.006	0.000	-0.002
34	-0.001	-0.016	0.005	-0.007	0.000	-0.003
35	-0.001	-0.025	0.008	-0.010	0.000	-0.004
36	0.000	-0.000	0.000	-0.000	-0.000	-0.000
37	0.000	-0.001	0.003	-0.002	0.000	-0.000
38	0.000	-0.004	0.005	-0.004	0.000	-0.001
39	-0.000	-0.007	0.006	-0.006	0.000	-0.002
40	-0.000	-0.013	0.007	-0.007	0.000	-0.003
41	-0.001	-0.022	0.005	-0.008	0.000	-0.004
42	-0.001	-0.031	0.008	-0.012	0.000	-0.005
43	0.000	0.000	0.000	-0.000	-0.000	-0.000
44	0.000	-0.001	0.003	-0.002	0.000	-0.000
45	0.000	-0.004	0.005	-0.005	0.000	-0.000

46	-0.000	-0.010	0.006	-0.006	0.000	-0.002
47	-0.000	-0.018	0.007	-0.009	0.001	-0.004
48	-0.001	-0.026	0.007	-0.011	0.001	-0.005
49	-0.001	-0.033	0.007	-0.013	0.001	-0.006
50	0.000	0.000	0.000	-0.000	-0.000	0.000
51	0.000	-0.001	0.003	-0.003	0.000	0.000
52	0.000	-0.005	0.004	-0.005	0.000	-0.000
53	-0.000	-0.011	0.005	-0.009	0.001	-0.001
54	-0.000	-0.021	0.006	-0.012	0.001	-0.004
55	-0.001	-0.033	0.005	-0.014	0.001	-0.006
56	-0.002	-0.046	0.006	-0.015	0.001	-0.006
57	0.000	0.000	0.000	-0.000	0.000	-0.000
58	-0.000	-0.001	0.005	-0.003	0.000	-0.000
59	-0.001	-0.004	0.007	-0.006	0.001	-0.000
60	-0.001	-0.009	0.012	-0.008	0.001	-0.001
61	-0.002	-0.021	0.014	-0.009	0.001	-0.001
62	-0.003	-0.034	0.015	-0.010	0.001	-0.001
63	-0.004	-0.048	0.016	-0.012	0.001	-0.001
64	-0.000	0.000	0.000	-0.000	0.000	0.000
65	-0.000	-0.001	0.008	-0.002	0.000	0.000
66	-0.001	-0.003	0.015	-0.004	0.001	0.000
67	-0.002	-0.007	0.022	-0.014	0.001	0.005
68	-0.002	-0.021	0.025	-0.017	0.001	0.000
69	-0.003	-0.036	0.027	-0.017	0.001	0.000
70	-0.004	-0.051	0.028	-0.017	0.001	0.000
71	-0.002	-0.022	0.074	-0.026	0.001	-0.000
72	-0.003	-0.039	0.075	-0.025	0.001	-0.000
73	-0.004	-0.057	0.075	-0.021	0.001	-0.000
74	-0.005	-0.041	0.126	-0.025	0.001	-0.000
75	-0.004	-0.060	0.126	-0.022	0.001	-0.000
76	-0.004	-0.081	0.188	-0.022	0.001	-0.000

ESFUERZOS EN LAS BARRAS

Barra Nº	i Nº	j Nº	Axil (t.)	Cort.1 (t.)	Cort.2 (t.)	Flec.1i (tm)	Flec.1j (tm)	Flec.2i (tm)	Flec.2j (tm)
1	1	2	4.46	-0.00	0.01	0.00	-0.00	0.19	-0.19
2	2	3	3.46	-0.00	0.02	0.00	0.00	0.17	-0.16
3	3	4	2.47	-0.00	0.02	0.00	0.00	0.14	-0.11
4	4	5	1.46	-0.00	0.03	0.00	0.00	0.09	-0.06
5	5	6	0.60	0.00	0.01	-0.00	-0.00	0.03	-0.02
6	6	7	0.12	0.00	0.01	-0.00	-0.00	0.01	-0.00
7	8	9	8.90	0.01	0.02	-0.00	-0.01	0.40	-0.38
8	9	10	6.92	0.00	0.04	0.00	-0.00	0.36	-0.32
9	10	11	4.93	-0.01	0.05	0.01	0.00	0.28	-0.24
10	11	12	2.92	-0.02	0.06	0.01	0.01	0.18	-0.13
11	12	13	1.20	-0.02	0.02	0.01	0.01	0.05	-0.03
12	13	14	0.24	-0.01	0.01	0.00	0.00	0.02	-0.00
13	15	16	9.34	0.03	0.03	-0.01	-0.02	0.44	-0.41
14	16	17	6.88	0.02	0.05	-0.00	-0.01	0.39	-0.35
15	17	18	4.90	-0.01	0.06	0.01	0.00	0.31	-0.25
16	18	19	2.91	-0.04	0.07	0.02	0.02	0.20	-0.14
17	19	20	1.19	-0.03	0.03	0.02	0.01	0.06	-0.04

18	20	21	0.24	-0.01	0.02	0.01	0.01	0.02	-0.00
19	22	23	3.74	0.07	0.05	-0.02	-0.04	0.30	-0.46
20	23	24	6.80	0.05	0.06	-0.01	-0.03	0.45	-0.39
21	24	25	4.25	0.01	0.07	0.01	-0.01	0.36	-0.30
22	25	26	2.09	-0.04	0.03	0.02	0.01	0.23	-0.16
23	26	27	1.17	-0.04	0.03	0.02	0.01	0.07	-0.04
24	27	28	0.24	-0.02	0.02	0.01	0.01	0.02	-0.00
25	29	30	8.57	0.12	0.06	-0.05	-0.06	0.56	-0.53
26	30	31	6.65	0.11	0.07	-0.03	-0.06	0.53	-0.46
27	31	32	4.74	0.06	0.08	-0.01	-0.04	0.44	-0.36
28	32	33	2.82	-0.00	0.09	0.01	-0.01	0.29	-0.21
29	33	34	1.16	-0.05	0.04	0.02	0.01	0.09	-0.05
30	34	35	0.23	-0.01	0.02	0.01	0.00	0.02	-0.00
31	36	37	8.33	0.19	0.05	-0.07	-0.09	0.65	-0.61
32	37	38	6.40	0.16	0.06	-0.06	-0.10	0.63	-0.57
33	38	39	4.52	0.12	0.11	-0.05	-0.10	0.57	-0.49
34	39	40	2.67	0.11	0.12	-0.03	-0.07	0.39	-0.29
35	40	41	1.10	0.02	0.05	-0.00	-0.02	0.11	-0.07
36	41	42	0.22	0.01	0.03	-0.00	-0.00	0.02	-0.00
37	43	44	8.04	0.22	-0.02	-0.09	-0.10	0.67	-0.69
38	44	45	6.00	0.24	-0.02	-0.08	-0.15	0.72	-0.73
39	45	46	4.06	0.34	0.12	-0.11	-0.19	0.79	-0.68
40	46	47	2.30	0.35	0.42	-0.13	-0.21	0.70	-0.33
41	47	48	0.94	0.19	0.09	-0.07	-0.09	0.15	-0.07
42	48	49	0.19	0.08	0.04	-0.04	-0.03	0.03	0.00
43	50	51	3.83	0.05	-0.10	-0.02	-0.02	0.31	-0.40
44	51	52	2.85	0.08	-0.04	-0.03	-0.04	0.48	-0.43
45	52	53	1.83	0.13	0.34	-0.05	-0.07	0.63	-0.33
46	53	54	0.87	0.16	1.44	-0.06	-0.08	1.09	0.19
47	54	55	0.45	0.15	1.96	-0.06	-0.06	1.30	0.44
48	55	56	0.28	0.08	0.73	-0.04	-0.03	0.52	0.16
49	57	58	4.88	0.01	-0.04	0.02	-0.03	0.00	-0.04
50	58	59	4.12	0.00	-0.09	0.03	-0.03	-0.02	-0.06
51	59	60	2.73	-0.02	-0.04	0.04	-0.02	-0.01	-0.03
52	60	61	2.03	-0.05	0.50	0.03	0.01	0.23	0.21
53	61	62	1.24	-0.03	0.55	0.01	0.01	0.25	0.24
54	62	63	0.40	-0.01	0.43	0.00	0.00	0.20	0.17
55	64	65	12.66	-0.04	-0.05	0.17	-0.13	0.01	-0.05
56	65	66	11.75	-0.04	-0.14	0.14	-0.10	-0.04	-0.09
57	66	67	11.21	-0.04	-0.02	0.11	-0.03	-0.24	-0.48
58	67	68	7.23	-0.04	0.10	0.08	-0.04	0.09	0.00
59	68	69	4.16	-0.03	-0.05	0.04	-0.01	-0.01	-0.03
60	69	70	1.03	-0.01	-0.05	0.01	-0.00	-0.03	-0.02
61	1	8	-0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
62	8	15	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
63	15	22	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
64	22	29	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
65	29	36	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
66	36	43	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
67	43	50	0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
68	50	57	-0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
69	57	64	0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
70	1	9	0.00	0.00	0.01	-0.00	0.00	-0.01	0.02
71	9	16	-0.01	0.01	0.03	-0.01	-0.00	-0.00	0.03
72	16	23	-0.02	0.03	0.05	-0.02	-0.01	0.01	0.05

75	33	36	-0.05	0.02	0.06	-0.04	-0.03	0.02	0.03
76	36	37	-0.05	0.14	0.07	-0.06	-0.05	0.04	0.02
77	37	44	-0.06	0.21	0.08	-0.09	-0.09	0.06	0.01
78	44	51	-0.03	0.16	0.09	-0.09	-0.05	0.06	0.01
77	51	58	0.15	-0.02	-0.01	0.02	-0.00	-0.01	-0.00
78	59	65	0.09	-0.16	0.00	0.06	0.09	0.00	-0.00
79	3	10	0.05	-0.00	0.01	-0.00	0.01	-0.05	0.06
80	10	17	0.03	-0.01	0.02	-0.00	0.01	-0.04	0.06
81	17	24	0.00	0.01	0.04	-0.01	0.00	-0.02	0.06
82	24	31	-0.04	0.05	0.05	-0.03	-0.01	-0.01	0.05
83	31	38	-0.08	0.13	0.06	-0.06	-0.04	0.03	0.02
84	38	45	-0.10	0.23	0.11	-0.11	-0.09	0.10	-0.00
85	45	52	-0.02	0.29	0.25	-0.16	-0.08	0.17	0.04
86	52	59	0.62	0.20	-0.02	-0.06	-0.11	-0.01	-0.01
87	59	66	0.67	-0.53	0.00	0.18	0.33	0.00	-0.00
88	4	11	0.14	-0.01	0.00	-0.00	0.01	-0.11	0.11
89	11	18	0.13	-0.03	0.01	0.00	0.02	-0.10	0.11
90	18	25	0.11	-0.03	0.02	0.00	0.02	-0.10	0.11
91	25	32	0.06	-0.00	0.03	-0.01	0.02	-0.08	0.10
92	32	39	0.00	0.07	0.03	-0.05	-0.01	-0.04	0.07
93	39	46	-0.05	0.21	0.05	-0.12	-0.06	0.03	0.00
94	46	53	-0.00	0.46	0.34	-0.26	-0.11	0.23	0.06
95	53	60	1.45	0.71	-0.03	-0.41	-0.27	-0.01	-0.02
96	60	67	1.99	0.62	0.00	0.07	-0.15	0.00	-0.00
97	5	12	0.29	-0.01	-0.02	-0.00	0.01	-0.23	0.22
98	12	19	0.29	-0.03	-0.06	0.00	0.03	-0.25	0.23
99	19	26	0.30	-0.05	-0.10	0.01	0.04	-0.27	0.19
100	26	33	0.30	-0.03	-0.15	-0.00	0.04	-0.29	0.17
101	33	40	0.27	-0.01	-0.20	-0.03	0.04	-0.31	0.14
102	40	47	0.18	0.13	-0.27	-0.11	-0.00	-0.35	0.12
103	47	54	-0.02	0.47	-0.60	-0.28	-0.13	-0.43	-0.08
104	54	61	-0.02	1.19	0.03	-0.73	-0.40	0.04	-0.01
105	61	68	-0.03	1.03	0.01	-0.06	-0.92	0.01	0.00
106	6	13	0.10	-0.01	-0.00	0.00	0.00	-0.00	0.00
107	13	20	0.11	-0.02	-0.01	0.00	0.01	-0.01	-0.00
108	20	27	0.12	-0.03	-0.02	0.01	0.02	-0.01	-0.01
109	27	34	0.14	-0.03	-0.04	0.01	0.02	-0.02	-0.01
110	34	41	0.15	-0.01	-0.05	-0.01	0.01	-0.03	-0.02
111	41	48	0.14	0.05	-0.08	-0.03	-0.01	-0.04	-0.03
112	48	55	0.04	0.24	-0.13	-0.12	-0.07	-0.05	-0.05
113	55	62	-1.32	1.21	0.03	-0.79	-0.38	0.05	-0.01
114	62	69	-1.44	0.99	0.02	-0.07	-0.88	0.01	0.00
115	7	14	0.09	-0.00	-0.01	0.00	0.00	-0.01	0.00
116	14	21	0.09	-0.00	-0.02	0.00	0.00	-0.01	-0.01
117	21	28	0.11	-0.01	-0.04	0.00	0.00	-0.02	-0.01
118	28	35	0.13	-0.01	-0.05	0.00	0.00	-0.03	-0.02
119	35	42	0.14	-0.00	-0.07	0.00	0.00	-0.04	-0.03
120	42	49	0.13	0.01	-0.10	-0.01	-0.00	-0.05	-0.04
121	49	56	0.06	-0.06	-0.14	-0.03	-0.02	-0.06	-0.06
122	56	63	-0.92	0.28	0.02	-0.15	-0.11	0.03	-0.01
123	63	70	-1.34	0.20	0.01	-0.06	-0.13	0.01	0.00
124	71	72	1.46	-0.00	-1.25	0.00	-0.00	-0.60	-0.31
125	72	73	0.61	-0.00	-0.65	0.00	-0.00	-0.34	-0.24
126	74	75	0.51	0.00	-0.44	0.00	-0.00	-0.25	-0.14
127	69	71	-0.18	-0.66	-0.00	0.93	0.50	-0.00	0.00

128	69	72	-1.44	-0.77	-0.00	0.73	0.49	-0.00	0.00
129	72	74	-0.84	-0.38	-0.00	0.58	0.36	-0.00	0.00
130	70	73	-1.29	-0.14	0.00	0.14	0.11	0.00	0.00
131	73	75	-0.84	-0.13	0.00	0.12	0.12	-0.00	0.00
132	75	76	-0.20	-0.02	-0.00	0.02	0.02	-0.00	0.00
133	67	71	5.56	-3.66	-0.00	1.68	0.36	-0.00	0.00
134	71	76	1.65	-0.01	0.00	-0.06	0.09	-0.00	0.00
135	74	76	0.17	0.11	0.00	-0.20	-0.02	0.00	0.00

Hipótesis (2) : Empuje de tierras + Reacción Fx del tablero

DESPLAZAMIENTOS DE LOS NUDOS

Nudo Nº	Despl.y (mm)	Despl.x (mm)	Despl.z (mm)	Giro y 1000xrad	Giro x 1000xrad	Giro z 1000xrad
1	0.000	0.000	-0.003	0.000	0.000	0.000
2	0.000	0.020	-0.001	0.042	0.000	-0.000
3	0.000	0.063	-0.001	0.064	0.000	-0.000
4	0.000	0.130	-0.001	0.074	0.000	-0.000
5	0.000	0.197	-0.002	0.078	0.000	-0.000
6	0.000	0.268	-0.002	0.081	0.000	-0.000
7	0.000	0.341	-0.002	0.080	0.000	-0.000
8	0.000	0.030	-0.000	0.000	-0.000	-0.000
9	0.000	0.020	-0.001	0.041	-0.000	-0.000
10	0.001	0.067	-0.001	0.064	-0.000	-0.001
11	0.001	0.129	-0.001	0.074	-0.000	-0.002
12	0.001	0.196	-0.002	0.077	-0.000	-0.003
13	0.002	0.266	-0.002	0.081	-0.001	-0.004
14	0.003	0.343	-0.002	0.080	-0.001	-0.005
15	0.000	0.000	-0.000	0.000	-0.000	-0.000
16	0.000	0.020	-0.000	0.041	-0.000	-0.001
17	0.001	0.066	-0.001	0.062	-0.001	-0.002
18	0.002	0.126	-0.001	0.072	-0.001	-0.004
19	0.003	0.192	-0.001	0.076	-0.001	-0.006
20	0.004	0.261	-0.001	0.079	-0.001	-0.007
21	0.006	0.335	-0.001	0.080	-0.002	-0.009
22	0.000	0.000	-0.000	0.000	-0.000	-0.000
23	0.000	0.019	-0.000	0.039	-0.001	-0.001
24	0.001	0.064	-0.000	0.060	-0.001	-0.003
25	0.003	0.122	-0.000	0.070	-0.002	-0.006
26	0.005	0.186	-0.000	0.073	-0.002	-0.009
27	0.007	0.252	-0.000	0.076	-0.002	-0.011
28	0.009	0.321	-0.000	0.079	-0.003	-0.014
29	0.000	0.000	0.000	0.000	-0.000	-0.000
30	0.000	0.018	0.001	0.038	-0.001	-0.001
31	0.002	0.061	0.001	0.058	-0.002	-0.004
32	0.004	0.117	0.001	0.066	-0.002	-0.007
33	0.006	0.177	0.001	0.069	-0.003	-0.010
34	0.009	0.239	0.001	0.071	-0.003	-0.014
35	0.013	0.302	0.001	0.069	-0.004	-0.020
36	-0.000	0.000	0.000	0.000	0.000	-0.000
37	0.000	0.017	0.002	0.036	-0.001	-0.001
38	0.002	0.058	0.003	0.054	-0.003	-0.004
39	0.005	0.110	0.004	0.062	-0.004	-0.007
40	0.009	0.165	0.004	0.064	-0.005	-0.014
41	0.013	0.222	0.004	0.065	-0.005	-0.018
42	0.018	0.276	0.004	0.058	-0.006	-0.026
43	-0.000	0.000	0.000	0.000	0.000	-0.000
44	0.000	0.017	0.003	0.034	-0.002	-0.000
45	0.002	0.055	0.006	0.050	-0.004	-0.004

46	0.003	0.102	0.002	0.056	-0.006	-0.009
47	0.010	0.152	0.009	0.056	-0.007	-0.016
48	0.017	0.203	0.016	0.056	-0.008	-0.023
49	0.023	0.258	0.010	0.040	-0.005	-0.034
50	0.000	0.000	0.000	0.000	0.000	0.000
51	0.000	0.017	0.007	0.031	-0.005	0.001
52	0.003	0.053	0.012	0.044	-0.008	-0.002
53	0.006	0.095	0.016	0.048	-0.010	-0.007
54	0.011	0.138	0.018	0.045	-0.012	-0.014
55	0.020	0.176	0.019	0.040	-0.014	0.012
56	0.029	0.213	0.020	0.038	-0.010	0.020
57	0.000	0.000	-0.000	0.000	-0.000	0.000
58	0.008	0.019	-0.006	0.007	-0.016	0.015
59	0.025	0.053	-0.007	0.014	-0.022	0.035
60	0.045	0.095	-0.009	0.019	-0.025	0.058
61	0.069	0.136	-0.009	0.023	-0.030	0.081
62	0.096	0.173	-0.008	0.025	-0.033	0.100
63	0.125	0.206	-0.008	0.030	-0.032	0.109
64	0.000	0.000	-0.000	0.000	-0.000	0.006
65	0.016	0.020	-0.011	0.017	-0.032	0.021
66	0.052	0.054	-0.021	0.026	-0.047	0.048
67	0.097	0.096	-0.027	0.033	-0.052	0.065
68	0.145	0.136	-0.031	0.032	-0.056	0.075
69	0.194	0.171	-0.032	0.032	-0.056	0.079
70	0.244	0.204	-0.033	0.035	-0.056	0.081
71	0.716	0.183	-0.100	0.041	-0.104	0.440
72	0.801	0.170	-0.100	0.040	-0.102	0.442
73	0.891	0.205	-0.100	0.039	-0.102	0.445
74	1.740	0.170	-0.177	0.041	-0.121	0.526
75	1.847	0.205	-0.177	0.040	-0.121	0.526
76	2.826	0.205	-0.252	0.040	-0.121	0.526

ESFUERZOS EN LAS BARRAS

Barra Nº	i Nº	j Nº	Axil (t.)	Cort.1 (t.)	Cort.2 (t.)	Flec.1i (txm)	Flec.1j (txm)	Flec.2i (txm)	Flec.2j (txm)
1	1	2	-0.90	0.00	-3.71	-0.00	-0.00	-7.49	4.20
2	2	3	-0.76	0.00	-2.53	-0.00	-0.00	-4.27	2.03
3	3	4	-0.56	0.00	-1.56	-0.00	-0.00	-2.14	0.76
4	4	5	-0.32	0.00	-0.81	-0.00	-0.00	-0.09	0.17
5	5	6	-0.11	-0.00	-0.37	0.00	0.00	0.33	0.00
6	6	7	-0.02	-0.00	-0.06	0.00	0.00	-0.04	-0.01
7	8	9	-1.66	0.23	-7.41	-0.14	-0.06	-14.99	8.35
8	9	10	-1.42	0.32	-5.04	-0.15	-0.12	-8.48	4.03
9	10	11	-1.06	0.43	-3.11	-0.23	-0.18	-4.24	1.69
10	11	12	-0.62	0.45	-1.62	-0.20	-0.20	-1.76	0.33
11	12	13	-0.22	0.24	-0.74	-0.12	-0.09	-0.85	0.00
12	13	14	-0.05	0.11	-0.19	-0.05	-0.04	-0.08	-0.02
13	15	16	-1.16	0.36	-7.33	-0.24	-0.08	-14.66	8.18
14	16	17	-1.05	0.54	-4.97	-0.29	-0.18	-8.31	3.92
15	17	18	-0.84	0.75	-3.06	-0.37	-0.30	-4.13	1.43
16	18	19	-0.53	0.85	-1.56	-0.37	-0.37	-1.70	0.30
17	19	20	-0.28	0.46	-0.75	-0.24	-0.16	-0.43	-0.01

18	20	21	-0.04	0.22	-0.11	-0.12	-0.08	-0.07	-0.03
19	22	23	-0.14	0.32	-7.16	-0.27	-0.01	-14.21	7.91
20	23	24	-0.27	0.56	-4.85	-0.34	-0.15	-6.03	5.75
21	24	25	-0.34	0.86	-2.97	-0.45	-0.32	-3.95	1.32
22	25	26	-0.30	1.05	-1.53	-0.40	-0.45	-1.59	0.24
23	26	27	-0.13	0.63	-0.71	-0.33	-0.22	-0.59	-0.04
24	27	28	-0.03	0.21	-0.10	-0.16	-0.11	-0.06	-0.03
25	29	30	1.67	0.02	-6.93	-0.19	0.17	-13.69	7.56
26	30	31	1.24	0.25	-4.68	-0.27	0.05	-7.63	3.49
27	31	32	0.70	0.56	-2.67	-0.36	-0.13	-3.63	1.15
28	32	33	0.26	0.91	-1.43	-0.45	-0.35	-1.44	0.13
29	33	34	0.02	0.69	-0.68	-0.33	-0.23	-0.51	-0.09
30	34	35	0.01	0.34	-0.06	-0.18	-0.12	-0.02	-0.04
31	36	37	4.78	-0.57	-6.71	0.01	0.50	-13.86	7.13
32	37	38	3.74	-0.32	-4.53	-0.03	0.48	-7.11	3.11
33	38	39	2.74	-0.46	-2.68	-0.01	0.41	-3.28	0.91
34	39	40	1.24	-0.62	-1.49	-0.13	0.15	-1.23	-0.08
35	40	41	0.34	0.52	-0.66	-0.32	-0.14	-0.41	-0.18
36	41	42	0.08	0.25	0.03	-0.14	-0.08	0.05	-0.02
37	43	44	9.83	-1.69	-7.52	0.37	1.13	-12.90	6.28
38	44	45	8.47	-2.42	-4.69	0.70	1.44	-6.52	2.38
39	45	46	6.19	-3.06	-2.69	1.06	1.64	-2.81	0.43
40	46	47	3.57	-2.98	-1.40	0.95	1.59	-0.84	-0.40
41	47	48	0.80	-0.26	-1.61	0.05	0.19	-0.69	-0.73
42	48	49	0.27	-0.18	0.42	0.03	0.06	0.25	0.12
43	50	51	10.71	-0.67	-7.10	0.17	0.42	-7.52	1.25
44	51	52	8.05	-1.43	-5.21	0.56	0.71	-4.12	-0.49
45	52	53	5.51	-1.75	-4.10	0.73	0.82	-2.29	-1.23
46	53	54	3.61	-1.77	-3.11	0.74	0.82	-0.99	-1.76
47	54	55	2.31	-1.21	0.33	0.47	0.60	1.74	-1.45
48	55	56	0.18	-0.82	0.33	0.46	0.27	0.81	-0.22
49	57	58	-4.35	1.32	-1.77	-1.76	0.60	-0.83	-0.73
50	58	59	-2.87	-0.35	-2.78	-0.27	0.58	-1.29	-1.17
51	59	60	-1.19	-1.05	-3.62	0.21	0.72	-1.37	-1.30
52	60	61	-0.17	-0.89	-2.46	0.03	0.71	-1.11	-1.06
53	61	62	0.38	-0.15	-1.75	-0.16	0.29	-0.79	-0.76
54	62	63	0.21	-0.05	-0.75	0.04	0.01	-0.45	-0.39
55	64	65	-13.70	9.00	-2.28	-15.36	7.42	-1.22	-0.79
56	65	66	-15.35	6.74	-2.04	-8.49	2.36	-1.36	-1.15
57	66	67	-11.15	5.10	-3.06	-4.07	-0.43	-1.45	-1.26
58	67	68	-6.80	3.14	-2.40	-3.89	1.12	-1.05	-1.06
59	68	69	-3.25	1.31	-1.94	-1.17	0.01	-0.80	-0.87
60	69	70	-0.59	0.01	-0.84	-0.01	-0.00	-0.42	-0.32
61	1	8	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
62	8	15	-0.00	-0.00	0.00	0.00	0.00	-0.00	0.00
63	15	22	0.00	-0.00	-0.00	0.00	0.00	-0.00	0.00
64	22	29	0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
65	29	36	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
66	36	43	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
67	43	50	-0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
68	50	57	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
69	57	64	0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
70	2	9	-0.56	0.14	0.05	-0.02	-0.11	-0.06	0.11
71	9	16	-0.47	0.38	0.16	-0.12	-0.21	-0.01	0.16
72	16	23	-0.30	0.49	0.25	-0.16	-0.26	0.02	0.20

73	23	30	-0.07	0.36	0.33	-0.10	-0.21	0.07	0.21
74	30	37	0.16	-0.08	0.32	0.11	-0.04	0.13	0.14
75	37	44	0.21	-0.84	0.24	0.51	0.20	0.30	-0.09
76	44	51	-0.52	-2.13	0.91	1.65	0.24	0.71	-0.01
77	51	58	1.57	-4.83	0.03	3.61	0.98	0.10	-0.08
78	58	65	0.57	-3.56	-0.80	1.04	2.15	-0.35	-0.42
79	3	10	-1.69	0.20	0.04	-0.02	-0.16	-0.27	0.30
80	10	17	-1.58	0.56	0.11	-0.15	-0.32	-0.24	0.34
81	17	24	-1.35	0.77	0.17	-0.23	-0.43	-0.21	0.36
82	24	31	-1.03	0.70	0.19	-0.17	-0.43	-0.17	0.33
83	31	38	-0.70	0.17	0.14	0.11	-0.25	-0.05	0.18
84	38	45	-0.63	-1.03	0.14	0.73	0.16	0.22	-0.11
85	45	52	-1.27	-3.33	0.28	2.35	0.50	0.66	-0.42
86	52	59	0.45	-5.87	0.55	4.40	1.17	0.49	0.03
87	59	66	0.22	-4.18	-0.81	1.38	2.60	-0.34	-0.43
88	4	11	-3.21	0.24	0.02	-0.02	-0.18	-0.56	0.57
89	11	18	-3.19	0.67	0.06	-0.19	-0.39	-0.54	0.59
90	18	25	-3.12	0.99	0.07	-0.28	-0.56	-0.53	0.59
91	25	32	-2.95	1.03	0.06	-0.24	-0.54	-0.50	0.55
92	32	39	-2.62	0.53	-0.01	0.05	-0.50	-0.40	0.40
93	39	46	-2.19	-0.97	-0.27	0.79	0.04	-0.18	-0.05
94	46	53	-2.01	-3.59	-0.44	2.55	0.53	0.53	-0.91
95	53	60	-0.17	-5.50	1.22	4.18	1.04	0.99	0.18
96	60	67	0.33	-4.48	-0.55	1.37	2.88	-0.22	-0.31
97	5	12	-5.22	0.21	-0.08	-0.00	-0.18	-1.14	1.07
98	12	19	-5.44	0.60	-0.25	-0.14	-0.37	-1.23	1.21
99	19	26	-5.81	0.93	-0.45	-0.23	-0.57	-1.31	0.95
100	26	33	-6.23	1.10	-0.69	-0.21	-0.73	-1.38	0.79
101	33	40	-6.44	0.92	-0.94	0.00	-0.79	-1.37	0.67
102	40	47	-5.90	0.02	-1.17	0.62	-0.64	-1.23	0.23
103	47	54	-3.29	-2.78	-4.34	2.23	0.08	-0.92	-2.80
104	54	61	-1.85	-4.05	2.14	3.14	0.71	1.62	0.42
105	61	68	-1.14	-3.50	0.23	1.14	2.19	0.06	0.16
106	6	13	-1.55	0.09	-0.02	-0.01	-0.06	-0.02	0.01
107	13	20	-1.57	0.27	-0.06	-0.03	-0.15	-0.04	-0.01
108	20	27	-1.50	0.42	-0.10	-0.14	-0.22	-0.06	-0.03
109	27	34	-2.23	0.52	-0.14	-0.16	-0.29	-0.07	-0.04
110	34	41	-2.33	0.51	-0.18	-0.12	-0.31	-0.05	-0.06
111	41	48	-2.65	0.24	-0.14	0.03	-0.24	-0.08	-0.04
112	48	55	-2.69	-0.27	-1.44	0.45	-0.21	-0.42	-0.76
113	55	62	-1.57	-2.41	1.94	1.95	0.34	1.48	0.37
114	62	69	-1.58	-2.38	1.13	0.87	1.59	0.40	0.67
115	7	14	-1.26	0.02	-0.04	-0.01	-0.02	-0.03	0.00
116	14	21	-1.33	0.07	-0.11	-0.02	-0.04	-0.05	-0.03
117	21	28	-1.60	0.12	-0.19	-0.04	-0.06	-0.10	-0.06
118	28	35	-1.91	0.14	-0.29	-0.05	-0.07	-0.14	-0.10
119	35	42	-2.24	0.14	-0.41	-0.05	-0.07	-0.20	-0.16
120	42	49	-2.49	0.06	-0.54	-0.01	-0.04	-0.30	-0.25
121	49	56	-2.39	-0.21	-1.25	0.11	0.07	-0.35	-0.73
122	56	63	-1.58	-0.39	1.46	0.24	0.14	0.97	0.41
123	63	70	-0.73	-0.61	1.19	0.25	0.32	0.48	0.66
124	71	72	-0.03	0.31	-0.22	0.94	-1.22	-0.02	-0.11
125	72	73	-0.04	-0.17	0.64	0.27	-0.12	0.04	0.03
126	74	75	0.02	0.12	0.65	-0.02	-0.08	0.03	0.02
127	68	71	-0.68	0.04	0.97	-0.20	0.20	2.06	-0.27

128	69	72	-0.46	0.05	1.76	0.30	0.15	2.43	0.10
129	72	74	-0.22	0.07	0.42	-0.02	-0.05	0.66	0.13
130	70	73	0.11	-0.01	0.89	-0.03	0.03	1.41	0.25
131	73	75	0.07	0.02	0.50	-0.03	-0.02	0.41	0.14
132	75	76	0.02	0.00	-0.00	-0.01	-0.00	-0.00	-0.00
133	67	71	0.09	0.35	0.63	-0.57	-0.13	1.67	-0.42
134	71	74	0.17	-0.02	0.25	0.04	0.00	0.51	0.02
135	74	75	-0.01	-0.01	0.00	0.02	0.00	0.00	0.00

Hipótesis (3) : Reacción vertical máxima del tablero Fomix

DESPLAZAMIENTOS DE LOS NUDOS

Nudo Nº	Despl.y (mm)	Despl.x (mm)	Despl.z (mm)	Giro y 1000xrad	Giro x 1000xrad	Giro z 1000xrad
1	-0.000	-0.000	0.000	-0.000	-0.001	-0.000
2	-0.000	-0.000	0.000	-0.001	-0.000	0.000
3	0.000	-0.001	-0.000	-0.001	-0.000	0.000
4	0.000	-0.003	-0.000	-0.002	-0.000	0.000
5	0.000	-0.004	-0.001	-0.002	-0.000	0.000
6	0.000	-0.006	-0.001	-0.002	-0.000	-0.000
7	0.000	-0.009	-0.001	-0.001	-0.000	-0.000
8	-0.000	-0.000	0.000	-0.000	0.000	0.000
9	-0.000	-0.000	0.000	-0.001	-0.000	0.000
10	0.000	-0.001	0.000	-0.001	-0.001	0.000
11	0.001	-0.002	0.000	-0.002	-0.001	0.000
12	0.002	-0.004	0.000	-0.002	-0.001	0.000
13	0.004	-0.006	-0.000	-0.002	-0.002	0.000
14	0.006	-0.009	-0.000	-0.003	-0.002	0.000
15	-0.000	-0.000	0.000	-0.000	0.000	0.000
16	-0.000	-0.000	0.001	-0.001	-0.001	0.000
17	0.000	-0.001	0.002	-0.001	-0.002	0.000
18	0.002	-0.002	0.002	-0.002	-0.003	0.001
19	0.004	-0.004	0.002	-0.002	-0.003	0.001
20	0.008	-0.006	0.002	-0.003	-0.004	0.000
21	0.012	-0.009	0.002	-0.002	-0.004	0.000
22	-0.000	0.000	0.000	-0.000	0.000	0.000
23	-0.001	-0.000	0.002	-0.000	-0.001	0.000
24	0.000	-0.000	0.004	-0.001	-0.003	0.001
25	0.002	-0.001	0.005	-0.002	-0.004	0.001
26	0.007	-0.003	0.001	-0.003	-0.006	0.001
27	0.012	-0.006	0.006	-0.004	-0.005	0.001
28	0.018	-0.010	0.006	-0.003	-0.007	0.000
29	-0.000	0.000	0.000	0.000	0.000	0.000
30	-0.001	0.000	0.004	0.000	-0.001	0.000
31	-0.000	0.001	0.007	0.000	-0.003	0.001
32	0.003	-0.000	0.010	-0.001	-0.006	0.002
33	0.008	-0.002	0.012	-0.003	-0.007	0.002
34	0.016	-0.007	0.014	-0.006	-0.010	0.001
35	0.024	-0.010	0.014	-0.001	-0.010	0.000
36	-0.000	0.000	0.000	0.000	0.000	0.000
37	-0.001	0.001	0.006	0.001	-0.001	0.000
38	-0.000	0.002	0.012	0.001	-0.004	0.001
39	0.003	0.002	0.018	-0.001	-0.007	0.003
40	0.009	-0.000	0.024	-0.005	-0.014	0.003
41	0.020	-0.008	0.027	-0.013	-0.017	0.002
42	0.029	-0.011	0.028	0.005	-0.011	0.001
43	-0.000	0.000	0.000	0.000	0.000	0.000
44	-0.001	0.001	0.008	0.001	-0.001	0.000
45	-0.000	0.003	0.016	0.002	-0.003	0.001

46	0.003	0.005	0.026	0.012	-0.017	0.007
47	0.010	0.004	0.038	-0.005	-0.012	0.006
48	0.020	-0.011	0.051	-0.031	-0.012	0.008
49	0.028	-0.006	0.048	0.016	-0.010	0.03
50	-0.000	-0.000	0.000	0.000	0.000	-0.000
51	-0.001	0.001	0.009	0.001	-0.002	-0.000
52	-0.000	0.003	0.020	0.003	-0.004	0.000
53	0.005	0.006	0.032	0.005	-0.006	0.001
54	0.011	0.009	0.044	0.008	-0.006	0.007
55	0.018	0.010	0.050	0.005	-0.002	0.015
56	0.025	0.021	0.050	0.010	-0.000	0.019
57	-0.000	-0.000	0.000	-0.001	-0.000	0.000
58	0.001	0.000	0.007	0.003	-0.002	0.001
59	0.005	0.002	0.014	0.007	-0.004	0.002
60	0.008	0.005	0.021	0.013	-0.007	0.002
61	0.014	0.009	0.027	0.020	-0.008	0.000
62	0.021	0.015	0.031	0.023	-0.007	-0.001
63	0.028	0.024	0.031	0.015	-0.008	-0.002
64	0.000	-0.000	0.000	-0.000	-0.000	-0.000
65	0.001	-0.000	0.003	0.001	-0.002	-0.000
66	0.004	0.001	0.006	0.001	-0.004	-0.000
67	0.008	0.004	0.009	0.009	-0.005	-0.000
68	0.014	0.007	0.010	0.012	-0.006	-0.000
69	0.019	0.010	0.011	0.014	-0.007	-0.001
70	0.025	0.025	0.011	0.012	-0.007	-0.001
71	0.013	0.010	-0.009	0.000	-0.005	-0.000
72	0.019	0.017	-0.009	0.008	-0.006	-0.000
73	0.026	0.025	-0.009	0.009	-0.005	-0.000
74	0.019	0.017	-0.023	0.008	-0.006	-0.000
75	0.024	0.025	-0.023	0.008	-0.006	-0.000
76	0.024	0.024	-0.029	0.009	-0.006	-0.000

CONDICIONES EN LAS BARRAS

Barra Nº	i Nº	j Nº	Axil (t.)	Cort.1 (t.)	Cort.2 (t.)	Flec.1i (tnm)	Flec.1j (tnm)	Flec.2i (tnm)	Flec.2j (tnm)
1	1	2	0.09	-0.03	0.05	0.00	0.00	0.13	-0.08
2	2	3	-0.20	0.03	0.04	-0.00	-0.00	0.10	-0.06
3	3	4	-0.37	0.00	0.03	-0.00	-0.00	0.08	-0.05
4	4	5	-0.53	0.00	0.02	-0.00	-0.00	0.05	-0.03
5	5	6	-0.14	-0.00	0.01	0.00	0.00	0.02	-0.01
6	6	7	-0.03	-0.00	0.00	0.00	0.00	0.00	-0.00
7	8	9	6.84	-0.75	0.09	0.22	0.37	0.24	-0.16
8	9	10	6.14	-0.55	0.07	0.17	0.35	0.19	-0.13
9	10	11	-0.37	-0.23	0.06	0.02	0.18	0.17	-0.12
10	11	12	-0.47	0.19	0.05	-0.13	-0.04	0.12	-0.08
11	12	13	-0.22	0.27	0.02	-0.16	-0.03	0.04	-0.03
12	13	14	-0.04	0.13	0.01	-0.07	-0.04	0.01	0.00
13	15	16	2.91	-1.58	0.04	0.61	0.84	0.16	-0.13
14	16	17	1.93	-1.44	0.02	0.43	0.84	0.15	-0.15
15	17	15	0.91	-0.34	0.00	0.19	0.83	0.21	-0.17
16	18	19	0.20	0.03	0.06	-0.13	0.16	0.12	-0.13
17	19	20	0.04	0.40	0.03	-0.25	-0.11	0.07	-0.06

18	20	21	0.02	0.17	0.01	-0.10	-0.03	0.01	0.00
19	22	23	6.57	-2.66	-0.08	1.02	1.34	0.00	-0.07
20	23	24	5.39	-2.67	-0.08	0.85	1.31	0.13	-0.19
21	24	25	3.70	-2.20	0.01	0.64	1.21	0.25	-0.28
22	25	26	1.35	-0.98	0.10	0.18	0.68	0.33	-0.24
23	26	27	0.67	0.11	0.06	-0.15	0.35	0.14	-0.10
24	27	28	0.17	-0.02	0.02	-0.01	0.02	0.00	0.01
25	29	30	11.91	-3.20	-0.25	1.39	1.78	-0.24	0.01
26	30	31	10.97	-3.98	-0.24	1.31	2.20	0.00	-0.23
27	31	32	9.25	-4.27	-0.13	1.35	2.44	0.35	-0.47
28	32	33	6.38	-3.54	0.19	0.98	2.14	0.64	-0.48
29	33	34	2.25	-1.29	0.13	0.46	0.89	0.35	-0.24
30	34	35	0.54	-0.77	0.03	0.37	0.31	-0.01	0.03
31	36	37	18.24	-3.63	-0.35	1.85	1.93	-0.47	0.15
32	37	38	18.43	-4.46	-0.43	1.47	2.47	-0.22	-0.16
33	38	39	19.39	-5.51	-0.67	1.73	3.14	0.20	-0.78
34	39	40	17.43	-7.23	0.11	1.98	4.41	1.19	-1.89
35	40	41	7.99	-5.71	0.32	2.17	2.87	0.98	-0.69
36	41	42	0.67	-2.46	-0.03	1.34	0.83	-0.88	0.05
37	43	44	23.97	-3.45	-0.15	1.39	1.66	-0.49	0.33
38	44	45	26.27	-3.39	-0.30	1.00	1.99	-0.43	0.16
39	45	46	30.01	-3.44	-1.00	0.84	2.20	-0.36	-0.62
40	46	47	37.52	-3.00	-2.54	0.47	2.18	0.89	-3.82
41	47	48	26.71	-1.74	-2.26	0.72	0.82	1.60	-3.60
42	48	49	-2.62	-0.87	-0.76	0.49	0.28	-0.51	-0.16
43	50	51	14.28	-0.50	0.29	0.22	0.29	-0.10	0.35
44	51	52	16.16	-0.62	0.21	0.22	0.33	-0.18	0.36
45	52	53	18.10	-0.33	0.24	0.09	0.20	-0.05	0.26
46	53	54	19.39	0.64	0.45	-0.27	-0.29	0.37	0.03
47	54	55	11.02	1.90	-1.08	-0.73	-0.93	-1.02	0.06
48	55	56	0.11	0.37	-0.78	-0.57	-0.28	-1.03	0.37
49	57	58	6.52	-0.17	0.15	-0.04	0.19	0.04	0.09
50	58	59	6.77	-0.09	0.33	-0.15	0.22	0.12	0.18
51	59	60	6.99	0.09	0.68	-0.22	0.14	0.26	0.34
52	60	61	6.21	0.33	1.15	-0.22	-0.08	0.45	0.56
53	61	62	3.18	0.39	1.49	-0.13	-0.22	0.64	0.68
54	62	63	0.11	0.17	1.00	-0.14	-0.01	0.48	0.40
55	64	65	5.45	0.15	0.23	-0.07	0.73	0.07	0.13
56	65	66	4.97	0.16	0.40	-0.78	0.64	0.14	0.21
57	66	67	4.11	0.17	0.75	-0.65	0.50	0.29	0.37
58	67	68	3.16	0.17	0.91	-0.44	0.28	0.36	0.45
59	68	69	1.88	0.13	1.11	-0.20	0.08	0.46	0.52
60	69	70	0.47	0.06	0.58	-0.06	0.01	0.28	0.23
61	1	8	0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
62	8	15	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
63	15	22	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
64	22	29	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
65	29	36	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
66	36	43	-0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
67	43	50	-0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00
68	50	57	0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
69	57	64	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
70	2	9	0.42	-0.30	-0.01	0.19	0.06	0.02	-0.03
71	9	16	0.52	-1.00	-0.04	0.49	0.37	0.01	-0.05
72	16	23	0.79	-1.98	-0.05	0.91	0.79	0.02	-0.06

72	23	30	0.00	-3.19	-0.05	1.46	1.73	0.01	-0.05
74	30	37	0.42	-4.13	-0.06	1.78	1.77	-0.05	-0.00
75	37	44	-0.11	-3.94	-0.14	1.63	1.75	-0.15	0.04
76	44	51	-0.05	-1.45	-0.29	0.91	0.31	-0.18	-0.06
77	51	58	-0.26	0.22	0.09	-0.20	-0.02	0.05	0.03
78	58	65	-0.17	0.48	0.00	-0.19	-0.27	-0.01	0.01
79	3	10	-0.51	-0.17	-0.01	0.24	-0.10	0.05	-0.06
80	10	17	-0.15	-0.69	-0.02	0.47	0.10	0.07	-0.09
81	17	24	0.45	-1.70	0.00	0.92	0.53	0.12	-0.12
82	24	31	0.91	-3.38	0.09	1.51	1.28	0.16	-0.09
83	31	38	0.62	-5.12	0.21	2.25	2.14	0.11	0.07
84	38	45	-0.43	-4.96	-0.02	2.06	2.19	-0.21	0.19
85	45	52	-0.68	-1.22	-0.72	0.84	0.40	-0.49	-0.13
86	52	59	-0.69	0.72	0.19	-0.56	-0.13	0.10	0.08
87	59	66	-0.35	0.85	0.02	-0.31	-0.50	-0.00	0.02
88	4	11	-3.17	0.04	-0.01	0.24	-0.28	0.07	-0.08
89	11	18	-2.75	-0.06	-0.01	0.33	-0.27	0.10	-0.11
90	18	25	-1.88	-0.77	0.01	0.70	-0.04	0.18	-0.17
91	25	32	-0.66	-2.62	0.10	1.53	0.72	0.29	-0.21
92	32	39	0.07	-5.77	0.41	2.70	2.24	0.44	-0.09
93	39	46	-1.65	-6.93	1.18	2.87	3.07	0.39	0.62
94	46	53	-1.21	0.58	-1.36	-0.40	-0.10	-0.31	-0.25
95	53	60	-1.15	1.88	0.24	-1.34	-0.44	0.12	0.11
96	60	67	-0.68	1.19	0.00	-0.35	-0.77	-0.01	0.01
97	5	12	-7.83	0.19	-0.02	0.25	-0.42	0.07	-0.09
98	12	19	-7.75	0.45	-0.06	0.22	-0.60	0.09	-0.14
99	19	26	-7.38	0.28	-0.09	0.46	-0.69	0.14	-0.22
100	26	33	-6.29	-0.90	-0.13	1.23	-0.45	0.29	-0.36
101	33	40	-4.05	-4.74	-0.19	3.05	1.01	0.45	-0.60
102	40	47	-2.53	-14.27	0.03	5.57	6.66	0.95	-0.92
103	47	54	-1.27	5.71	1.31	-3.75	-1.14	1.19	-0.06
104	54	61	-0.22	4.24	0.01	-2.94	-1.09	-0.04	0.05
105	61	68	0.13	1.22	-0.04	-0.11	-1.05	-0.03	-0.02
106	6	13	-2.93	0.11	-0.00	0.04	-0.14	-0.00	-0.00
107	13	20	-3.07	0.29	-0.01	-0.02	-0.23	-0.00	-0.01
108	20	27	-3.29	0.27	-0.03	0.02	-0.25	-0.01	-0.01
109	27	34	-3.02	-0.23	-0.06	0.29	-0.09	-0.02	-0.03
110	34	41	-2.90	-1.94	-0.16	1.15	0.52	-0.07	-0.07
111	41	48	0.34	-9.16	-0.51	3.69	4.16	-0.19	-0.25
112	48	55	1.22	5.50	0.99	-2.85	-1.86	0.45	0.40
113	55	62	1.33	4.33	-0.29	-3.04	-1.08	-0.24	-0.04
114	62	69	0.83	1.26	-0.07	-0.09	-1.11	-0.03	-0.04
115	7	14	-2.62	0.03	-0.00	0.00	-0.03	-0.00	-0.00
116	14	21	-2.75	0.07	-0.01	-0.02	-0.05	-0.01	-0.01
117	21	28	-2.92	0.06	-0.02	-0.01	-0.04	-0.01	-0.01
118	28	35	-2.93	-0.11	-0.04	0.07	0.03	-0.02	-0.02
119	35	42	-2.13	-0.65	-0.07	0.29	0.27	-0.03	-0.04
120	42	49	0.33	-1.34	-0.04	0.56	0.58	0.02	-0.06
121	49	56	1.20	-0.68	0.71	-0.30	-0.28	0.32	0.29
122	56	63	1.46	0.57	-0.23	-0.32	-0.25	-0.17	-0.04
123	63	70	0.46	0.46	-0.06	-0.18	-0.25	-0.02	-0.03
124	71	72	-0.14	0.03	0.11	-0.01	0.01	0.05	0.05
126	72	73	0.00	0.00	-0.07	-0.00	0.00	-0.05	-0.02
125	74	75	-0.01	0.00	-0.03	-0.00	0.00	-0.02	-0.01
127	68	71	0.32	-0.06	0.00	0.15	-0.05	0.00	-0.00

PROGRAMA ESTRIBOS. AVE TRAMO LLEIDA-MARTORELL . P.K.304+ . 5/10/99. PAG 25

128	69	72	0.30	-0.15	0.00	0.10	-0.01	0.00	-0.00
129	72	74	0.12	-0.01	0.00	0.01	0.01	0.00	-0.00
130	70	73	-0.11	-0.01	-0.00	0.02	-0.00	-0.00	-0.00
131	73	75	-0.04	-0.01	-0.00	0.02	0.01	0.00	-0.00
132	75	76	-0.01	-0.00	0.00	0.00	0.00	0.00	-0.00
133	67	71	-0.56	-0.02	-0.00	0.04	-0.01	0.00	-0.00
134	71	74	-0.02	-0.01	-0.00	0.01	0.01	0.00	-0.00
135	74	76	0.01	0.01	-0.03	-0.01	-0.00	-0.00	-0.00

Hipotesis (4) : Reacción vertical mínima del tablero: Fzmin

DESPLAZAMIENTOS DE LOS NUDOS

Nudo Nº	Despl.y (mm)	Despl.x (mm)	Despl.z (mm)	Giro y 1000xrad	Giro x 1000xrad	Giro z 1000xrad
1	-0.000	-0.000	0.000	-0.000	-0.000	-0.000
2	-0.000	-0.000	0.000	-0.000	-0.000	0.000
3	0.000	-0.001	-0.000	-0.001	-0.000	0.000
4	0.000	-0.002	-0.000	-0.001	-0.000	0.000
5	0.000	-0.002	-0.000	-0.001	-0.000	0.000
6	0.000	-0.004	-0.000	-0.001	-0.000	-0.000
7	0.000	-0.005	-0.000	-0.002	-0.000	-0.000
8	-0.000	-0.000	0.000	-0.000	0.000	0.000
9	-0.000	-0.000	0.000	-0.000	-0.000	0.000
10	0.000	-0.001	0.000	-0.001	-0.000	0.000
11	0.001	-0.002	0.000	-0.001	-0.001	0.000
12	0.001	-0.003	0.000	-0.001	-0.001	0.000
13	0.002	-0.004	-0.000	-0.001	-0.001	0.000
14	0.003	-0.005	-0.000	-0.002	-0.001	0.000
15	-0.000	-0.000	0.000	-0.000	0.000	0.000
16	-0.000	-0.000	0.001	-0.000	-0.000	0.000
17	0.000	-0.001	0.001	-0.001	-0.001	0.000
18	0.001	-0.001	0.001	-0.001	-0.002	0.000
19	0.002	-0.002	0.001	-0.001	-0.002	0.000
20	0.005	-0.004	0.001	-0.002	-0.002	0.000
21	0.007	-0.005	0.001	-0.002	-0.003	0.000
22	-0.000	0.000	0.000	-0.000	0.000	0.000
23	-0.000	-0.000	0.001	-0.000	-0.001	0.000
24	0.000	-0.000	0.002	-0.000	-0.002	0.000
25	0.001	-0.001	0.003	-0.001	-0.003	0.001
26	0.004	-0.002	0.003	-0.002	-0.003	0.001
27	0.007	-0.004	0.004	-0.002	-0.004	0.000
28	0.010	-0.006	0.004	-0.002	-0.004	0.000
29	-0.000	0.000	0.000	0.000	0.000	0.000
30	-0.000	0.000	0.002	0.000	-0.001	0.000
31	-0.000	0.000	0.004	0.000	-0.002	0.001
32	0.002	-0.000	0.006	-0.001	-0.004	0.001
33	0.005	-0.001	0.007	-0.002	-0.006	0.001
34	0.010	-0.004	0.008	-0.004	-0.006	0.001
35	0.014	-0.006	0.008	-0.000	-0.006	0.000
36	-0.000	0.000	0.000	0.000	0.000	0.000
37	-0.001	0.000	0.003	0.001	-0.001	0.000
38	-0.000	0.001	0.007	0.001	-0.002	0.001
39	0.002	0.001	0.011	-0.000	-0.004	0.002
40	0.006	-0.000	0.014	-0.003	-0.008	0.002
41	0.012	-0.005	0.016	-0.007	-0.010	0.001
42	0.017	-0.008	0.017	0.003	-0.006	0.001
43	-0.000	0.000	0.000	0.000	0.000	0.000
44	-0.001	0.000	0.005	0.001	-0.000	0.000
45	-0.000	0.001	0.011	0.001	-0.002	0.000

46	0.002	0.005	0.015	0.001	-0.004	0.001
47	0.006	0.002	0.023	-0.004	-0.007	0.002
48	0.012	-0.007	0.030	-0.013	-0.007	0.005
49	0.016	-0.005	0.029	0.009	-0.006	0.003
50	-0.000	-0.000	0.006	0.000	0.000	-0.000
51	-0.001	0.000	0.005	0.001	-0.001	-0.000
52	-0.000	0.002	0.012	0.002	-0.002	0.000
53	0.002	0.004	0.017	0.003	-0.004	0.001
54	0.006	0.006	0.020	0.002	-0.003	0.004
55	0.011	0.008	0.029	0.003	-0.001	0.009
56	0.013	0.012	0.029	0.006	-0.005	0.011
57	-0.000	-0.000	0.000	-0.000	-0.000	0.000
58	0.000	0.000	0.004	0.002	-0.001	0.001
59	0.002	0.001	0.005	0.004	-0.002	0.001
60	0.005	0.003	0.012	0.008	-0.004	0.001
61	0.008	0.005	0.016	0.012	-0.004	0.000
62	0.012	0.009	0.018	0.014	-0.004	-0.001
63	0.015	0.014	0.018	0.010	-0.005	-0.001
64	0.000	-0.000	0.003	-0.000	-0.000	-0.000
65	0.001	-0.000	0.002	0.001	-0.001	-0.000
66	0.002	0.001	0.004	0.003	-0.002	-0.000
67	0.005	0.002	0.005	0.005	-0.003	-0.000
68	0.008	0.005	0.006	0.007	-0.004	-0.000
69	0.011	0.009	0.007	0.008	-0.004	-0.000
70	0.015	0.015	0.007	0.007	-0.004	-0.000
71	0.008	0.006	-0.004	0.005	-0.004	-0.000
72	0.011	0.010	-0.004	0.005	-0.004	-0.000
73	0.014	0.014	-0.004	0.005	-0.004	-0.000
74	0.011	0.010	-0.013	0.005	-0.004	-0.000
75	0.014	0.014	-0.022	0.005	-0.004	-0.000

ESFUERZOS EN LAS BARRAS

Barra Nº	i Nº	j Nº	Axil (t.)	Cort.1 (t.)	Cort.2 (t.)	Flec.1i (txm)	Flec.1j (txm)	Flec.2i (txm)	Flec.2j (txm)
1	1	2	0.05	-0.00	0.03	0.00	0.00	0.00	-0.05
2	2	3	-0.12	0.00	0.02	-0.00	-0.00	0.06	-0.04
3	3	4	-0.22	0.00	0.02	-0.00	-0.00	0.05	-0.03
4	4	5	-0.17	0.00	0.01	-0.00	-0.00	0.03	-0.02
5	5	6	-0.08	-0.00	0.00	0.00	0.00	0.01	-0.01
6	6	7	-0.02	-0.00	0.00	0.00	0.00	0.00	-0.00
7	8	9	0.49	-0.44	0.05	0.16	0.23	0.14	-0.09
8	9	10	0.08	-0.35	0.04	0.10	0.21	0.11	-0.08
9	10	11	-0.22	-0.13	0.03	0.01	0.11	0.10	-0.07
10	11	12	-0.28	0.11	0.03	-0.08	-0.02	0.08	-0.04
11	12	13	-0.13	0.16	0.01	-0.09	-0.03	0.02	-0.01
12	13	14	-0.03	0.08	0.00	-0.04	-0.02	0.00	0.00
13	15	16	1.71	-0.96	0.02	0.36	0.49	0.10	-0.07
14	16	17	1.13	-0.84	0.01	0.25	0.49	0.10	-0.09
15	17	18	0.53	-0.49	0.03	0.11	0.32	0.12	-0.10
16	18	19	0.12	0.02	0.04	-0.07	0.06	0.11	-0.07
17	19	20	0.02	0.03	0.02	-0.14	-0.06	0.04	-0.03

18	20	21	0.01	0.19	0.01	-0.05	-0.03	0.00	0.00
19	22	23	3.86	-1.57	-0.05	0.60	0.79	0.00	-0.04
20	23	24	3.16	-1.56	-0.06	0.58	0.88	0.07	-0.11
21	24	25	2.17	-1.29	0.01	0.37	0.77	0.17	-0.16
22	25	26	1.09	-0.57	0.06	0.11	0.40	0.19	-0.14
23	26	27	0.39	0.06	0.03	-0.09	0.03	0.08	-0.06
24	27	28	0.10	-0.01	0.01	-0.00	0.01	0.00	0.01
25	29	30	6.97	-2.11	-0.15	0.32	1.04	-0.14	0.01
26	30	31	6.42	-2.33	-0.15	0.77	1.29	0.00	-0.14
27	31	32	5.41	-2.30	-0.08	0.78	1.43	0.21	-0.28
28	32	33	3.56	-2.07	0.11	0.58	1.25	0.37	-0.28
29	33	34	1.32	-0.76	0.08	0.27	0.40	0.21	-0.14
30	34	35	0.32	-0.45	0.02	0.22	0.19	-0.00	0.02
31	36	37	10.68	-2.30	-0.21	0.91	1.15	-0.27	0.09
32	37	38	10.79	-2.61	-0.25	0.86	1.44	-0.13	-0.09
33	38	39	10.89	-3.23	-0.39	1.01	1.84	0.11	-0.46
34	39	40	10.21	-4.23	0.06	1.16	2.58	0.69	-0.64
35	40	41	4.63	-3.34	0.19	1.27	1.88	0.57	-0.41
36	41	42	0.60	-1.44	-0.02	0.78	0.49	-0.05	0.03
37	43	44	14.05	-2.02	-0.05	0.82	0.97	-0.29	0.21
38	44	45	15.39	-1.99	-0.18	0.59	1.17	-0.25	0.10
39	45	46	17.57	-2.01	-0.39	0.49	1.29	-0.15	-0.36
40	46	47	21.97	-1.76	-2.07	0.27	1.28	0.41	-2.24
41	47	48	15.64	-1.02	-1.32	0.42	0.48	0.94	-1.11
42	48	49	-1.18	-0.31	-0.44	0.28	0.16	-0.30	-0.09
43	50	51	8.36	-0.34	0.17	0.13	0.17	-0.06	0.20
44	51	52	9.46	-0.36	0.12	0.13	0.19	-0.10	0.21
45	52	53	10.60	-0.19	0.14	0.05	0.12	-0.03	0.15
46	53	54	11.36	0.38	0.26	-0.16	-0.17	0.21	0.02
47	54	55	6.45	1.11	-0.63	-0.43	-0.36	-0.80	0.03
48	55	56	0.07	0.57	-0.44	-0.34	-0.17	-0.60	0.22
49	57	58	3.82	-0.10	0.09	-0.03	0.11	0.62	0.05
50	58	59	3.97	-0.05	0.19	-0.08	0.13	0.07	0.10
51	59	60	4.04	0.05	0.40	-0.13	0.09	0.15	0.20
52	60	61	3.63	0.20	0.67	-0.13	-0.05	0.26	0.33
53	61	62	1.87	0.23	0.57	-0.07	-0.13	0.37	0.40
54	62	63	0.06	0.10	0.58	-0.08	-0.00	0.28	0.23
55	64	65	3.19	0.05	0.13	-0.31	0.43	0.04	0.08
56	65	66	2.91	0.09	0.23	-0.46	0.37	0.08	0.12
57	66	67	2.41	0.10	0.44	-0.38	0.29	0.17	0.22
58	67	68	1.35	0.10	0.54	-0.25	0.16	0.21	0.26
59	68	69	1.13	0.08	0.65	-0.12	0.05	0.27	0.31
60	69	70	0.27	0.03	0.34	-0.04	0.01	0.16	0.14
61	1	8	0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
62	8	15	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
63	15	22	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
64	22	29	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
65	29	36	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
66	36	43	-0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
67	43	50	-0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00
68	50	57	0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
69	57	64	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
70	2	9	0.24	-0.17	-0.01	0.11	0.04	0.01	-0.02
71	9	16	0.34	-0.59	-0.02	0.29	0.21	0.01	-0.03
72	16	23	0.46	-1.16	-0.03	0.53	0.46	0.0.	-0.04

73	23	30	0.-7	-1.87	-0.03	0.82	0.78	0.01	-0.02
74	30	37	0.24	-2.42	-0.03	1.03	1.04	-0.03	-0.00
75	37	44	-0.06	-2.31	-0.05	0.95	1.03	-0.09	0.02
76	44	51	-0.03	-0.97	-0.17	0.53	0.70	-0.11	-0.04
77	51	58	-0.21	0.13	0.05	-0.12	-0.01	0.03	0.02
78	58	65	-0.19	0.25	0.00	-0.11	-0.16	-0.00	0.00
79	3	10	-0.30	-0.10	-0.00	0.14	-0.06	0.03	-0.04
80	10	17	-0.09	-0.40	-0.01	0.28	0.06	0.04	-0.05
81	17	24	0.26	-0.99	0.00	0.54	0.31	0.07	-0.07
82	24	31	0.53	-1.98	0.05	0.95	0.75	0.10	-0.05
83	31	38	0.36	-3.03	0.15	1.31	1.23	0.06	0.04
84	38	45	-0.25	-2.90	-0.01	1.20	1.22	-0.12	0.11
85	45	52	-0.29	-0.71	-0.42	0.38	0.24	-0.28	-0.08
86	52	59	-0.41	0.42	0.11	-0.33	-0.08	0.06	0.05
87	59	66	-0.21	0.50	0.01	-0.18	-0.29	-0.00	0.01
88	4	11	-1.86	0.02	-0.00	0.14	-0.16	0.04	-0.05
89	11	18	-1.61	-0.04	-0.01	0.19	-0.16	0.06	-0.07
90	18	25	-1.10	-0.45	0.00	0.41	-0.02	0.10	-0.10
91	25	32	-0.38	-1.54	0.06	0.90	0.42	0.17	-0.12
92	32	39	0.04	-3.58	0.24	1.58	1.31	0.26	-0.05
93	39	46	-0.97	-4.06	0.69	1.68	1.80	0.23	0.36
94	46	53	-0.71	0.34	-0.79	-0.24	-0.06	-0.63	-0.15
95	53	60	-0.67	1.10	0.14	-0.79	-0.25	0.07	0.07
96	60	67	-0.40	0.89	0.00	-0.20	-0.45	-0.01	0.01
97	5	12	-4.59	0.11	-0.01	0.15	-0.24	0.04	-0.05
98	12	19	-4.34	0.26	-0.03	0.13	-0.35	0.05	-0.02
99	19	26	-4.32	0.15	-0.05	0.26	-0.40	0.08	-0.13
100	26	33	-3.69	-0.52	-0.06	0.72	-0.27	0.14	-0.21
101	33	40	-2.37	-2.77	-0.11	1.79	0.69	0.26	-0.35
102	40	47	-1.48	-3.85	0.02	3.26	3.90	0.55	-0.54
103	47	54	-0.78	3.36	0.77	-2.20	-0.87	0.70	-0.04
104	54	61	-0.13	2.49	0.01	-1.72	-0.64	-0.02	0.03
105	61	68	0.07	0.72	-0.03	-0.06	-0.62	-0.02	-0.01
106	6	13	-1.71	0.07	-0.06	0.02	-0.08	-0.00	-0.00
107	13	20	-2.00	0.17	-0.01	-0.01	-0.13	-0.00	-0.00
108	20	27	-1.93	0.16	-0.02	0.01	-0.15	-0.01	-0.01
109	27	34	-2.00	-0.14	-0.04	0.17	-0.05	-0.01	-0.02
110	34	41	-1.70	-1.14	-0.09	0.67	0.30	-0.04	-0.04
111	41	48	0.20	-5.56	-0.30	2.15	2.44	-0.11	-0.15
112	48	55	0.71	3.22	0.58	-1.57	-1.09	0.26	0.23
113	55	62	0.78	1.54	-0.17	-1.78	-0.63	-0.14	-0.02
114	62	69	0.47	0.74	-0.04	-0.05	-0.65	-0.02	-0.02
115	7	14	-1.53	0.02	-0.00	0.00	-0.02	-0.00	-0.00
116	14	21	-1.61	0.04	-0.01	-0.01	-0.03	-0.00	-0.00
117	21	28	-1.71	0.03	-0.01	-0.00	-0.03	-0.01	-0.01
118	28	35	-1.70	-0.07	-0.03	0.04	0.02	-0.01	-0.01
119	35	42	-1.25	-0.38	-0.04	0.17	0.16	-0.02	-0.02
120	42	49	0.17	-0.79	-0.02	0.32	0.34	0.04	-0.03
121	49	56	0.70	0.40	0.42	-0.18	-0.16	0.19	0.17
122	56	63	0.06	0.23	-0.13	-0.17	-0.17	-0.10	-0.03
123	63	70	0.27	0.27	-0.03	-0.11	-0.15	-0.01	-0.02
124	71	72	-0.08	0.00	0.06	-0.06	0.00	0.03	0.02
125	72	73	0.00	0.00	-0.04	-0.03	0.00	-0.03	-0.01
126	74	75	-0.01	0.00	-0.02	-0.00	0.00	-0.01	-0.01
127	68	71	0.19	-0.03	0.00	0.07	-0.03	0.00	-0.03

128	69	72	0.18	-0.09	0.00	0.18	-0.01	0.00	-0.00
129	72	74	0.07	-0.01	0.00	0.01	0.01	0.00	-0.00
130	70	73	-0.07	-0.01	-0.00	0.01	-0.00	-0.00	-0.00
131	73	75	-0.03	-0.01	-0.00	0.01	0.01	0.00	-0.00
132	75	76	-0.01	-0.00	0.00	0.00	0.00	0.00	-0.00
133	67	71	-0.33	-0.01	-0.00	0.02	-0.00	0.00	-0.00
134	71	74	-0.05	-0.01	-0.00	0.00	0.01	0.00	-0.00
135	74	76	0.01	0.00	-0.00	-0.01	-0.00	-0.00	-0.00

DIMENSIONAMIENTO DE ARMADURAS

Esfuerzos de cálculo y armadura vertical del muro frontal

Nudo Nº	Canto (m)	Ancho (m)	Recub. (m)	(1)+(2)+(3) Nd (t/m)	(1)+(2)+(3) Md (tnm/m)	(1)+(2)+(4) Nd (t/m)	(1)+(2)+(4) Md (tnm/m)	Aint. (cm²/m)	Aext. (cm²/m)
7	0.25	1.00	0.05	0.28	-0.03	0.12	-0.04	1.13	1.13
6	0.25	1.00	0.05	0.28	-0.05	0.12	-0.14	1.13	1.13
5	0.75	1.00	0.05	1.46	-0.54	0.65	-1.16	3.37	3.37
4	1.35	1.00	0.05	3.55	-1.35	1.46	-3.08	4.72	4.72
3	1.05	1.00	0.05	6.53	-3.69	2.84	-7.60	4.72	4.72
2	1.05	1.00	0.05	10.57	-7.95	4.19	-15.45	4.89	4.72
1	1.05	1.00	0.05	15.08	-14.52	6.10	-27.39	8.09	4.72
14	0.25	1.00	0.05	0.31	-0.03	0.13	-0.05	1.13	1.13
13	0.25	1.00	0.05	0.31	-0.04	0.13	-0.13	1.13	1.13
12	0.75	1.00	0.05	1.59	-0.51	0.71	-1.14	3.37	3.37
11	1.05	1.00	0.05	3.92	-1.29	1.62	-3.03	4.72	4.72
10	1.05	1.00	0.05	7.40	-3.61	2.97	-7.52	4.72	4.72
9	1.05	1.00	0.05	11.68	-7.88	4.70	-15.34	4.86	4.72
8	1.05	1.00	0.05	16.44	-14.45	6.77	-27.24	8.05	4.72
21	0.25	1.00	0.05	0.43	-0.03	0.18	-0.05	1.13	1.13
20	0.25	1.00	0.05	0.43	-0.03	0.18	-0.11	1.13	1.13
19	0.75	1.00	0.05	2.09	-0.43	0.91	-1.08	3.37	3.37
18	1.05	1.00	0.05	5.27	-1.60	2.20	-2.86	4.72	4.72
17	1.05	1.00	0.05	9.97	-3.37	4.14	-7.26	4.72	4.72
16	1.05	1.00	0.05	15.34	-7.67	6.44	-15.30	4.76	4.72
15	1.05	1.00	0.05	20.73	-14.27	8.92	-26.89	7.95	4.72
28	0.25	1.00	0.05	0.73	-0.02	0.36	-0.05	1.13	1.13
27	0.25	1.00	0.05	0.73	-0.01	0.30	-0.08	1.13	1.13
26	0.75	1.00	0.05	3.33	-0.22	1.41	-0.94	3.37	3.37
25	1.05	1.00	0.05	8.52	-0.64	3.61	-2.53	4.72	4.72
24	1.05	1.00	0.05	15.61	-2.95	6.74	-6.32	4.72	4.72
23	1.05	1.00	0.05	22.47	-7.36	9.95	-14.44	4.72	4.72
22	1.05	1.00	0.05	28.48	-14.02	12.97	-26.07	7.77	4.72
35	0.25	1.00	0.05	1.45	-0.01	0.58	-0.02	1.13	1.13
34	0.25	1.00	0.05	1.45	-0.01	0.58	-0.00	1.13	1.13
33	0.75	1.00	0.05	6.41	-0.14	2.83	-0.23	3.37	3.37
32	1.05	1.00	0.05	17.01	-0.65	6.92	-0.81	4.72	4.72
31	1.05	1.00	0.05	27.39	-5.40	11.59	-3.19	4.72	4.72
30	1.05	1.00	0.05	35.19	-13.25	15.02	-7.46	4.72	4.72
29	1.05	1.00	0.05	41.35	-24.90	18.08	-17.90	7.47	4.72
42	0.25	1.00	0.05	1.84	0.04	0.74	0.01	1.13	1.13

41	0.25	1.00	0.05	1.84	-0.01	0.74	0.00	1.13	1.13
46	0.75	1.00	0.05	17.45	1.27	6.38	0.29	3.37	3.37
29	1.05	1.00	0.05	39.84	0.64	14.85	-0.15	4.72	4.72
38	1.05	1.00	0.05	48.26	-4.69	19.05	-2.73	4.72	4.72
37	1.05	1.00	0.05	53.71	-13.52	22.19	-6.95	4.72	4.72
36	1.05	1.00	0.05	56.37	-24.63	24.89	-13.31	7.25	4.72
49	0.25	1.00	0.05	-2.91	-0.05	-0.76	0.04	1.13	1.13
48	0.25	1.00	0.05	-2.91	-0.44	-0.76	-0.03	1.13	1.13
47	0.75	1.00	0.05	53.11	1.97	18.25	0.42	3.37	3.37
45	1.03	1.00	0.05	81.01	1.04	29.24	0.28	4.72	4.72
45	1.05	1.00	0.05	75.16	-4.27	29.22	-2.29	4.72	4.72
44	1.05	1.00	0.05	76.08	-11.63	31.36	-6.36	4.72	4.72
43	1.05	1.00	0.05	78.13	-23.71	33.51	-13.14	7.17	4.72
56	1.05	1.00	0.05	2.15	1.19	1.11	0.35	4.72	4.72
55	1.05	1.00	0.05	2.15	-0.00	1.11	0.00	4.72	4.72
54	1.35	1.00	0.05	31.42	7.53	19.34	5.12	6.08	6.08
53	1.05	1.00	0.05	89.10	1.73	33.24	0.65	4.72	4.72
52	1.05	1.00	0.05	94.07	-6.76	37.16	-3.76	4.72	4.72
51	1.05	1.00	0.05	100.30	-14.55	42.36	-9.02	4.72	4.72
50	1.07	1.00	0.05	107.56	-27.30	48.02	-15.27	8.07	4.72

Esfuerzos de cálculo y armadura horizontal del muro frontal

Nudo Nº	Canto (m)	Ancho (m)	Recu. (m)	(2):Emp.tierras+Fx Md (t/m)	Md (tnm/m)	Aint. (cm²/m)	Aext. (cm²/m)
1	1.05	1.00	0.05	-0.00	-0.00	8.40	8.40
8	1.05	1.00	0.05	-0.00	0.00	8.40	8.40
15	1.05	1.00	0.05	0.00	0.00	8.40	8.40
22	1.05	1.00	0.05	0.00	0.00	8.40	8.40
29	1.05	1.00	0.05	0.00	-0.00	8.40	8.40
36	1.05	1.00	0.05	0.00	-0.00	8.40	8.40
43	1.05	1.00	0.05	-0.00	0.00	8.40	8.40
50	1.05	1.00	0.05	-0.00	-0.00	8.40	8.40
2	1.05	1.00	0.05	-0.63	0.07	8.40	8.40
9	1.05	1.00	0.05	-0.53	0.02	8.40	8.40
16	1.05	1.00	0.05	-0.34	-0.03	8.40	8.40
23	1.05	1.00	0.05	-0.07	-0.08	8.40	8.40
30	1.05	1.00	0.05	0.18	-0.15	8.40	8.40
37	1.05	1.00	0.05	0.24	-0.34	8.40	8.40
44	1.05	1.00	0.05	-0.59	-0.00	8.40	8.40
51	1.05	1.00	0.05	-0.59	-0.01	8.40	8.40
3	1.05	1.00	0.05	-1.91	0.30	8.40	8.40
10	1.05	1.00	0.05	-1.79	0.27	8.40	8.40
17	1.05	1.00	0.05	-1.53	0.24	8.40	8.40
24	1.05	1.00	0.05	-1.16	0.19	8.40	8.40

31	1.05	1.00	0.05	-0.79	0.06	8.40	8.40
38	1.05	1.00	0.05	-0.72	-0.25	8.40	8.40
45	1.05	1.00	0.05	-1.43	-0.73	8.40	8.40
52	1.05	1.00	0.05	-1.43	-0.48	8.40	8.40
4	1.05	1.00	0.05	-3.64	0.65	8.40	8.40
11	1.05	1.00	0.05	-3.61	0.62	8.40	8.40
18	1.05	1.00	0.05	-3.53	0.60	8.40	8.40
25	1.05	1.00	0.05	-3.34	0.56	8.40	8.40
32	1.05	1.00	0.05	-2.97	0.45	8.40	8.40
39	1.05	1.00	0.05	-2.46	0.23	8.40	8.40
46	1.05	1.00	0.05	-2.28	-0.60	8.40	8.40
53	1.05	1.00	0.05	-2.28	-1.83	8.40	8.40
5	1.13	1.00	0.05	-5.91	1.29	9.07	9.07
12	1.13	1.00	0.05	-6.15	1.39	9.07	9.07
19	1.13	1.00	0.05	-6.58	1.49	9.07	9.07
26	1.13	1.00	0.05	-7.06	1.56	9.07	9.07
33	1.13	1.00	0.05	-7.30	1.56	9.07	9.07
40	1.13	1.00	0.05	-6.68	1.45	9.07	9.07
47	1.13	1.00	0.05	-3.72	1.04	9.07	9.07
54	1.13	1.00	0.05	-3.72	-3.17	9.07	9.07
6	0.25	1.00	0.05	-1.75	0.03	2.00	2.00
13	0.25	1.00	0.05	-1.89	0.04	2.00	2.00
20	0.25	1.00	0.05	-2.16	0.06	2.00	2.00
27	0.25	1.00	0.05	-2.52	0.08	2.00	2.00
34	0.25	1.00	0.05	-2.93	0.10	2.00	2.00
41	0.25	1.00	0.05	-3.23	0.05	2.00	2.00
48	0.25	1.00	0.05	-3.05	0.54	2.00	2.00
55	0.25	1.00	0.05	-3.05	-0.36	2.00	2.00
7	0.30	1.00	0.05	-2.86	0.07	2.40	2.40
14	0.30	1.00	0.05	-3.12	0.14	2.40	2.40
21	0.30	1.00	0.05	-3.62	0.22	2.40	2.40
28	0.30	1.00	0.05	-4.31	0.32	2.40	2.40
35	0.30	1.00	0.05	-5.08	0.45	2.40	2.40
42	0.30	1.00	0.05	-5.64	0.68	2.40	2.40
49	0.30	1.00	0.05	-5.41	0.79	2.40	2.40
56	0.30	1.00	0.05	-5.41	-1.64	2.40	2.40

Esfuerzos de cálculo y armadura vertical en la aleta

Nudo Nº	Canto (m)	Ancho (m)	Recu. (m)	(1)+(2)+(3) Nd (t/m)	Md (tnm/m)	(1)+(2)+(4) Nd (t/m)	Md (tnm/m)	Aint. (cm²/m)	Aext. (cm²/m)
62	0.30	1.00	0.05	1.21	0.39	0.64	0.03	1.35	1.35
61	0.30	1.00	0.05	8.10	0.17	3.31	-0.16	1.35	1.35
60	0.30	1.00	0.05	13.70	-0.09	5.08	-1.41	1.35	1.35
59	0.30	1.00	0.05	15.17	-0.97	4.45	-2.17	2.52	1.35

53	0.30	1.00	0.05	15.62	-1.85	2.82	-2.11	2.47	1.35
57	0.30	1.00	0.05	15.07	-0.71	0.92	-1.36	1.71	1.35
49	0.30	1.00	0.05	0.89	0.01	0.11	-0.26	1.35	1.35
48	0.30	1.00	0.05	3.34	-0.02	-0.23	-0.54	1.35	1.35
47	0.30	1.00	0.05	5.06	-0.11	-1.30	-0.68	1.35	1.35
46	0.30	1.00	0.05	6.98	-0.76	-3.46	-1.47	1.81	1.35
45	0.30	1.00	0.05	8.01	-0.66	-7.05	-1.37	1.65	1.35
44	0.30	1.00	0.05	7.52	-0.61	-8.71	-1.16	1.49	1.35
72	0.30	1.00	0.05	0.31	-0.31	0.26	-0.15	1.35	1.35
71	0.30	1.00	0.05	1.12	-0.51	0.64	-0.34	1.35	1.35
74	0.30	1.00	0.05	0.45	-0.20	0.25	-0.11	1.35	1.35

Esfuerzos de cálculo y armadura horizontal en la aleta

(2):Emp.tierras+Fx

Nudo N2	Canto (m)	Ancho (m)	Recu. (m)	Ms (t/m)	Md (txm/m)	Ainf. (cm²/m)	Asup. (cm²/m)
50	0.30	1.00	0.05	-0.00	-0.00	2.40	2.40
57	0.30	1.00	0.05	0.00	-0.00	2.40	2.40
64	0.30	1.00	0.05	0.00	0.00	2.40	2.40
51	0.30	1.00	0.05	1.78	-0.12	2.40	2.40
58	0.30	1.00	0.05	0.64	0.39	2.40	2.40
65	0.30	1.00	0.05	0.64	-0.47	2.40	2.40
52	0.30	1.00	0.05	0.51	-0.56	2.40	2.40
59	0.30	1.00	0.05	0.25	0.38	2.40	2.40
66	0.30	1.00	0.05	0.25	-0.49	2.40	2.40
53	0.30	1.00	0.05	-0.20	-1.12	2.40	2.40
60	0.30	1.00	0.05	0.43	0.24	2.40	2.40
67	0.30	1.00	0.05	0.43	-0.33	2.40	2.40
54	0.30	1.00	0.05	-2.19	-1.83	2.40	2.40
61	0.30	1.00	0.05	-1.29	-0.07	2.40	2.40
68	0.30	1.00	0.05	-0.77	-2.36	2.69	2.40
71	0.30	1.00	0.05	-0.77	-0.31	2.69	2.40
55	0.30	1.00	0.05	-2.62	-1.67	2.40	2.40
62	0.30	1.00	0.05	-1.78	-0.45	2.40	2.40
69	0.30	1.00	0.05	-0.54	-2.75	3.03	2.40
72	0.30	1.00	0.05	-0.24	-0.73	2.46	2.40
74	0.30	1.00	0.05	-0.24	0.14	2.40	2.40
56	0.30	1.00	0.05	-3.01	-2.21	2.86	2.40
63	0.30	1.00	0.05	-1.85	-1.09	2.40	2.40
70	0.30	1.00	0.05	0.26	-3.19	3.87	2.40

73	0.30	1.00	0.05	0.15	-0.97	2.40	2.40
75	0.30	1.00	0.05	0.05	0.00	2.40	2.40
76	0.30	1.00	0.05	0.05	-0.30	2.40	2.40

Esfuerzos de cálculo y armadura en zapata

Puntera :

Flexión: Md = 7.07 txm/m ; Asup.= 15.00 cm²/m ; Ainf.= 0.00 cm²/m
Comprobación a cortante ...: Vcu= 84.65 t ; Vd = 0.00 t
Vd < Vcu ..... No es necesaria armadura transversal por cortante

Talón :

Borde empotrado en muro frontal ..... : Mmd = 0.46 txm/m
Borde empotrado en aleta ..... : Myd = -0.04 txm/m
Borde libre ..... : Myd = 0.09 txm/m
Centro del talón ..... : Myd = -4.40 txm/m ; Myd = 0.52 txm/m
Armaduras ..... : Asup.= 7.50 cm²/m ; Ainf.= 7.50 cm²/m

PROGRAMA ESTRIBOS

CALCULO Y ARMADO DE ESTRIBOS DE PUENTE

VERSION Nº 1 FECHA : 12/12/1995

Copyright : J.Diaz del Valle, 1995

E.T.S. de I.C.C. y P. de Santander

DATOS DEL PROYECTO DEL ESTRIBO

PROYECTO : AVE TRAMO LLEIDA-MARTORELL

REFERENCIA : P.K.304+615

FECHA DEL CALCULO : 5/10/99

DATOS DEL ESTRIBO

ESTRIBO 2.

-Datos geométricos:

H1= 7.00	H2= 0.00	H3= 0.00	H4= 1.00	H5= 0.00 m.
H6= 0.00	H7= 1.00	H8= 0.00	H9= 2.00	H10= 0.00 m.
B1= 1.05	B2= 0.00	B3= 4.95	B4= 0.00	B5= 0.00 m.
B6= 0.50	B7= 0.00	B8= 0.00	B9= 0.00	H7= 0.00 m.
C1= 0.35	C2= 0.45	C3= 0.00	C4= 0.25	C5= 0.30 m.
D1= 0.00	D2= 0.00	D3= 1.25	D4= 1.25	D5= 0.30 m.
D6= 0.30				
A1= 4.75	A2= 0.20	A3= 4.60	A4= 0.60	A5= 3.07 m.
E1= 12.50	E2= 12.30	E3= 0.30	E4= 0.00	E5= 0.30 m.
E6= 0.30	E7= 0.00	E8= 0.50	E9= 1.25	E10= 10.60 m.

-Caracteristicas de los materiales:

Peso especifico del hormigón (t/m3)	γh	= 2.50
Resistencia del hormigón del alzado (Kp/cm²)	fck	= 250
Resistencia del hormigón de la zapata (Kp/cm²)	fck'=	250
Limite elástico del acero (Kp/cm²)	fyk	= 5100
Recubrimiento de las armaduras (m)	r	= 0.05
Se incluyen las cuantias geométricas minimas		
Coeficiente de minoración resistencia hormigón	γc	= 1.50
Coeficiente de minoración resistencia acero	γs	= 1.15
Coeficiente de mayoración de las acciones	γf	= 1.60

-Caracteristicas del terreno:

Terreno sobre talón:

Peso especifico de las tierras (t/m3)	γt	= 1.80
Angulo de rozamiento interno de las tierras (°)	φ	= 30.00
Angulo de rozamiento entre las tierras y el muro (°)	δ	= 0.00
Coeficiente de empuje activo calculado segun Coulomb ...	Kaw	= 0.333
Cohesión de las tierras (t/m²)	c	= 0.00

Terreno sobre puntera :

Peso especifico de las tierras (t/m3)	γt	= 1.80
Angulo de rozamiento interno de las tierras (°)	φ	= 30.00
Angulo de rozamiento entre las tierras y el muro (°)	δ	= 0.00
Coeficiente de empuje pasivo de las tierras	Kpw	= 3.000

Terreno de cimentación :
Coeficiente de rozamiento entre el cimiento y el suelo .. μ = 0.577
Adherencia entre el cimiento y el suelo (t/m²) ..... a = 0.00

Angulo de la superficie del terreno con la horizontal ... θ = 0.00°

-Sobrecargas:

Carga por unidad de longitud de talud (t/m²) ..... q = 1.00
No se considera la acción sísmica .....

-Acciones del tablero sobre el estribo :

Reacciones verticales (t) y excentricidades transversales (m) :

Reacción del peso propio del tablero ... Rpp = 97.12 , Exc.= 0.00
Reacción del peso de la superestructura. Rse = 29.50 , Exc.= 0.00
Reacción hiperestática de pretensado ... Rhp = 0.00 , Exc.= 0.00
Reacción máxima de la sobrecarga ..... Rma = 65.02 , Exc.= 0.00
Reacción mínima de la sobrecarga ..... Rmi = -10.25 , Exc.= 0.00
Reacción debida al gradiente térmico ... Rgt = 0.00 , Exc.= 0.00
Reacción debidas a otras acciones ..... Rot = 0.00 , Exc.= 0.00

Reacciones horizontales longitudinales (t) :

Reacción debida al frenado (+ -) ..... Rfx = 11.24
Reacción debida a las deformaciones impuestas ..... Rdx = 0.00
Reacciones debidas a otras causas (Rozam.,sismo,etc) . Rox = 0.00

Reacciones horizontales transversales (t) :

Reacción debida al viento ..... Rvy = 14.22
Reacción debida a la fuerza centrífuga ..... Rcy = 0.00
Reacciones debidas a otras causas (Rozam.,sismo,etc) . Roy = 0.00

ACCIONES SOBRE EL ESTRIBO

Las acciones actuantes sobre el estribo tienen el siguiente origen:

a) Peso propio del estribo.
b) Acciones del tablero.
c) Empuje y peso de las tierras.

Estas acciones pueden ser verticales Fz ,horizontales longitudinales Fx ,y horizontales transversales Fy. En las tablas que siguen, se recogen las citadas acciones junto con los momentos Mx ,My, y Mz :

Mz : Momento respecto a la puntera del estribo.Se utiliza para la comprobación de seguridad al vuelco.

Mx, My: Momentos respecto al c.d.g de la zapata. Se utilizan para el cálculo de las tensiones sobre el terreno.

a) PESO PROPIO DEL ESTRIBO

Zona	Volumen (m3)	Peso Fz (t)	Mz (txm)	My (txm)
Muro frontal	97.57	248.94	-227.01	464.53
Muro de guarda	3.66	9.14	-13.03	16.68
Muros en vuelta	28.71	71.77	-244.03	-10.77
Aletas en voladizo	5.89	14.73	-118.57	-70.69
Contrafuertes aleta	0.00	0.00	0.00	0.00
Impostas	0.00	0.00	0.00	0.00
Macizos enquejado	0.00	0.00	0.00	0.00
Zapata	81.25	203.13	-660.16	0.00
TOTAL	207.08	517.71	-1262.80	419.76

b) ACCIONES DEL TABLERO

b1) Reacciones verticales:

Se consideran las reacciones del tablero en los siguientes casos:

-Caso permanente: Incluye las reacciones del peso propio del tablero y de la superestructura, las reacciones hiperestáticas de pretensado y otras acciones permanentes.

-Peso máximo: Incluye la suma de las reacciones de las acciones permanentes y las reacciones máximas de las sobrecargas variables.

-Peso mínimo: Incluye la suma de las reacciones de las acciones permanentes y las reacciones mínimas de las sobrecargas variables.

Reacción	Axil Fz (t)	Mx (txm)	My (txm)
Permanente	116.62	-99.13	279.89
Máxima	191.64	-134.40	435.94
Mínima	106.37	-90.42	255.29

b2) Reacciones horizontales longitudinales:

Las reacciones horizontales que ejerce el tablero provienen de movimientos impuestos, frenado,sismo , rozamiento de apoyos y de otras acciones.

El valor máximo considerado para estas acciones es:

Reacción Longitudinal	Fx (t)	Mx (txm)	My (txm)
Máxima	11.24	89.89	89.89

b3) Reacciones horizontales transversales:

Estas reacciones provienen de dos tipos de fuerzas:

-Fuerzas transversales:

Son debidas a las acciones de viento y sismo, y a la fuerza centrifuga de los vehiculos que circulan por el tablero :

Fy =	14.32 t.	Mx =	114.5> txm.

-Fuerzas verticales:

Debido a la excentricidad transversal de las reacciones verticales, se produce un momento transversal Mx :

. Para reaccion vertical permanente .. Mx =	0.00 txm.
. Para reaccion vertical máxima ..... Mx =	0.00 txm.
. Para reaccion vertical mínima ..... Mx =	0.00 txm.

c) EMPUJE Y PESO DE TIERRAS

c1) Acciones horizontales:

Acción	Fuerza Fx (t)	Mx (txm)	My (txm)
Empuje de tierras.	113.38	571.03	571.03
Empuje de sobrecarga.	25.53	157.56	157.56
Empuje del agua.	0.00	0.00	0.00
Empuje total sobre trasdós.	138.91	728.59	728.59
Empuje pasivo frente puntera.	132.94	88.56	88.56

c2) Acciones verticales:

Acción	Fuerza Fz (t)	Mx (txm)	My (txm)
Peso tierras sobre talon.	858.14	-3470.45	-689.49
Peso tierras sobre puntera.	10.53	-2.63	31.59
Sobrecarga sobre terraplen.	57.91	-233.11	-44.89
Rozamiento vertical tierras.	0.00	0.00	0.00
Resultante total vertical.	926.59	-3714.19	-702.79

COMPROBACION DE ESTABILIDAD

Se consideran las siguientes hipótesis para las comprobaciones al vuelco y deslizamiento :

Hipótesis 1 : Construcción. Situación de estribo con relleno antes de construir el tablero.

Hipótesis 2 : Construcción. Situación de tablero construido antes del relleno del estribo.

Hipótesis 3 : Servicio. Se considera la hipótesis más desfavorable que corresponde al mínimo valor de la reacción vertical del tablero.

Hipótesis Nº	Coeficientes de seguridad Vuelco	Deslizamiento
1	7,776	137,393
2	15,151	20,188
3	6,942	39,839

El coeficiente de seguridad al vuelco se obtiene a partir de los momentos Ma respecto de la puntera de la zapata.Se distinguen momentos volcadores y estabilizadores.El coeficiente de seguridad se obtiene como cociente entre estos momentos.

El mínimo coeficiente de seguridad al vuelco es mayor que 2, y por tanto se cumple la seguridad al vuelco.

El coeficiente de seguridad al deslizamiento se obtiene como cociente entre la fuerza estabilizadora y la desestabilizadora. La primera es la fuerza de rozamiento obtenida como producto de las fuerzas verticales por un coeficiente de rozamiento igual a

$$\mu = Tg\ \phi = 0,377$$

en donde ϕ es el ángulo de rozamiento entre la zapata y terreno. Tambien se consideran como fuerzas estabilizadoras,la fuerza de adherencia suelo-zapata, el empuje pasivo frente a puntera, la existencia de taco´n y la inclinación de la base de la zapata.

La fuerza desestabilizadora es la resultante de las fuerzas horizontales tanto longitudinales como transversales.

El mínimo coeficiente de seguridad al deslizamiento es mayor que 1.5 ,cumpliendose por tanto la seguridad al deslizamiento.

ESTADO TENSIONAL EN EL TERRENO

Se consideran las siguientes hipótesis para el cálculo de las tensiones en el terreno :

Hipótesis 1 : Construcción. Se supone que el relleno se ejecuta antes que el tablero.

Hipótesis 2 : Construcción. Se supone que el tablero se ejecuta antes que el relleno.

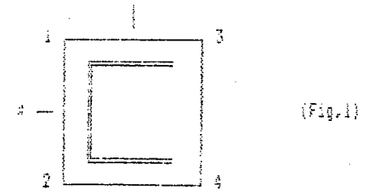
Hipótesis 3 : Servicio, con reacción de tablero mínima y acciones horizontales máximas.

Hipótesis 4 : Servicio, con reacción de tablero mínima y acciones longitudinales nulas.

Hipótesis 5 : Servicio, con reacción de tablero máxima y acciones longitudinales nulas.

Hipótesis 6 : Servicio, con reacción de tablero máxima y acciones horizontales máximas.

Las tensiones σ1,σ2,σ3,σ4 del terreno en las 4 esquinas de la base de la zapata (figura 1),



(Fig.1)

se obtienen a partir de la fórmula de flexocompresión:

$$\sigma = \frac{N}{A} + \frac{Mx}{Wx} + \frac{My}{Wy}$$

donde N , Mx , My , son los esfuerzos en la base de la zapata , y

A = 91,25 m2 , Wx= 159,27 m3 , Wy = 88,02 m3

son las características mecánicas de la base de la zapata.

La expresión anterior solamente es valida en el caso de que toda la planta resulte comprimida. En otro caso, y dado que el terreno no puede soportar traccion alguna, el programa calcula las tensiones del terreno de manera iterativa.

El proceso iterativo anterior, se detiene cuando la resultante de las tensiones obtenidas, sea sensiblemente igual a los esfuerzos que solicitan a la base de la zapata.

La tensión media, se obtiene según la expresión : $\sigma med = \frac{N}{A}$

Siguiendo esta formulación,resulta la siguiente tabla que resume el estado tensional correspondiente a las 6 hipotesis anteriores :

ESFUERZOS DE ZAPATA Y TENSIONES DEL TERRENO

Hip	N (t)	Mx (t×m)	My (t×m)	σ1 (t/m²)	σ2 (t/m²)	σ3 (t/m²)	σ4 (t/m²)	σmed (t/m²)
1	1486.30	0.00	534.13	24.36	24.36	12.22	12.22	18.29
2	676.33	114.56	759.54	17.97	16.62	0.03	0.00	8.32
3	1592.67	114.56	879.31	30.27	28.92	10.29	8.94	19.60
4	1592.67	114.56	27.73	19.96	18.61	20.59	19.24	19.60
5	1667.94	114.56	152.92	22.94	21.59	19.47	18.11	20.53
6	1667.94	114.56	1059.94	33.25	31.89	9.16	7.81	20.53

ANALISIS ESTRUCTURAL DEL ESTRIBO COMO EMPARRILLADO ESPACIAL

DIMENSIONES Y CARACTERISTICAS MECANICAS DE LAS BARRAS

Barra Nº	i Nº	j Nº	Long. (m.)	Canto (m.)	Ancho (m.)	Area (m²)	Iner.1 (m⁴)	Iner.2 (m⁴)
1	1	2	1.15	1.05	0.60	0.630	0.019	0.058
2	2	3	1.19	1.05	0.60	0.630	0.019	0.058
3	3	4	1.19	1.05	0.60	0.630	0.019	0.058
4	4	5	1.18	1.05	0.60	0.630	0.019	0.058
5	5	6	1.18	1.05	0.60	0.630	0.019	0.058
6	6	7	1.18	1.13	0.60	0.679	0.020	0.073
7	7	8	1.18	0.25	0.60	0.150	0.005	0.001
8	9	10	1.13	1.05	1.20	1.260	0.151	0.116
9	10	11	1.18	1.05	1.20	1.260	0.151	0.116
10	11	12	1.18	1.05	1.20	1.260	0.151	0.116
11	12	13	1.19	1.05	1.20	1.260	0.151	0.116
12	13	14	1.18	1.05	1.20	1.260	0.151	0.116
13	14	15	1.18	1.13	1.20	1.359	0.163	0.145
14	15	16	1.18	0.25	1.20	0.300	0.036	0.002
15	17	18	1.18	1.05	1.20	1.260	0.151	0.116
16	18	19	1.18	1.05	1.20	1.260	0.151	0.116
17	19	20	1.18	1.05	1.20	1.260	0.151	0.116
18	20	21	1.18	1.05	1.20	1.260	0.151	0.116
19	21	22	1.18	1.05	1.20	1.260	0.151	0.116
20	22	23	1.18	1.13	1.20	1.359	0.163	0.145
21	23	24	1.18	0.25	1.20	0.300	0.036	0.002
22	25	26	1.18	1.05	1.20	1.260	0.151	0.116
23	26	27	1.18	1.05	1.20	1.260	0.151	0.116
24	27	28	1.18	1.05	1.20	1.260	0.151	0.116
25	28	29	1.18	1.05	1.20	1.260	0.151	0.116
26	29	30	1.18	1.05	1.20	1.260	0.151	0.116
27	30	31	1.18	1.13	1.20	1.359	0.163	0.145
28	31	32	1.18	0.25	1.20	0.300	0.036	0.002
29	33	34	1.13	1.05	1.20	1.260	0.151	0.116
30	34	35	1.18	1.05	1.20	1.260	0.151	0.116
31	35	36	1.18	1.05	1.20	1.260	0.151	0.116
32	36	37	1.18	1.05	1.20	1.260	0.151	0.116
33	37	38	1.18	1.05	1.20	1.260	0.151	0.116
34	38	39	1.18	1.13	1.20	1.359	0.163	0.145
35	39	40	1.18	0.25	1.20	0.300	0.036	0.002
36	41	42	1.19	1.05	0.60	0.630	0.019	0.058
37	42	43	1.18	1.05	0.60	0.630	0.019	0.058
38	43	44	1.18	1.05	0.60	0.630	0.019	0.058
39	44	45	1.18	1.05	0.60	0.630	0.019	0.058
40	45	46	1.18	1.05	0.60	0.630	0.019	0.058
41	46	47	1.18	1.13	0.60	0.679	0.020	0.073
42	47	48	1.18	1.05	0.60	0.630	0.019	0.058
43	49	50	1.10	0.30	1.45	0.435	0.076	0.003
44	50	51	1.18	0.30	1.45	0.435	0.076	0.003

46	51	52	1.18	0.30	1.45	0.435	0.076	0.003
46	52	53	1.18	0.30	1.45	0.435	0.076	0.003
47	53	54	1.18	0.30	1.45	0.435	0.076	0.003
48	54	55	1.18	0.30	1.45	0.435	0.076	0.003
49	55	56	1.18	0.30	1.45	0.435	0.076	0.003
50	57	58	1.18	0.30	2.74	0.821	0.513	0.006
51	58	59	1.18	0.30	2.74	0.821	0.513	0.006
52	59	60	1.18	0.30	2.74	0.821	0.513	0.006
53	60	61	1.18	0.30	3.32	0.996	0.914	0.007
54	61	62	1.18	0.30	3.32	0.996	0.914	0.007
55	62	63	1.18	0.30	3.32	0.996	0.914	0.007
56	63	64	1.18	0.30	3.32	0.996	0.914	0.007
57	1	9	1.20	1.05	0.59	0.619	0.018	0.057
58	9	17	1.20	1.05	0.59	0.619	0.018	0.057
59	17	25	1.20	1.05	0.59	0.619	0.018	0.057
60	25	33	1.20	1.05	0.59	0.619	0.018	0.057
61	33	41	1.20	1.05	0.59	0.619	0.018	0.057
62	41	49	1.45	0.30	0.59	0.177	0.005	0.001
63	49	57	1.45	0.30	0.59	0.177	0.005	0.001
64	2	10	1.20	1.05	1.18	1.237	0.143	0.114
65	10	18	1.20	1.05	1.18	1.237	0.143	0.114
66	18	26	1.20	1.05	1.18	1.237	0.143	0.114
67	26	34	1.20	1.05	1.18	1.237	0.143	0.114
68	34	42	1.20	1.05	1.18	1.237	0.143	0.114
69	42	50	1.45	0.30	1.18	0.354	0.041	0.003
70	50	58	1.45	0.30	1.18	0.354	0.041	0.003
71	3	11	1.20	1.05	1.18	1.237	0.143	0.114
72	11	19	1.20	1.05	1.18	1.237	0.143	0.114
73	19	27	1.20	1.05	1.18	1.237	0.143	0.114
74	27	35	1.20	1.05	1.18	1.237	0.143	0.114
75	35	43	1.20	1.05	1.18	1.237	0.143	0.114
76	43	51	1.45	0.30	1.18	0.354	0.041	0.003
77	51	59	1.45	0.30	1.18	0.354	0.041	0.003
78	4	12	1.20	1.05	1.18	1.237	0.143	0.114
79	12	20	1.20	1.05	1.18	1.237	0.143	0.114
80	20	28	1.20	1.05	1.18	1.237	0.143	0.114
81	28	36	1.20	1.05	1.18	1.237	0.143	0.114
82	36	44	1.20	1.05	1.18	1.237	0.143	0.114
83	44	52	1.45	0.30	1.18	0.354	0.041	0.003
84	52	60	1.45	0.30	1.18	0.354	0.041	0.003
85	5	13	1.20	1.05	1.18	1.237	0.143	0.114
86	13	21	1.20	1.05	1.18	1.237	0.143	0.114
87	21	29	1.20	1.05	1.18	1.237	0.143	0.114
88	29	37	1.20	1.05	1.18	1.237	0.143	0.114
89	37	45	1.20	1.05	1.18	1.237	0.143	0.114
90	45	53	1.45	0.30	1.18	0.354	0.041	0.003
91	53	61	1.45	0.30	1.18	0.354	0.041	0.003
92	6	14	1.20	1.05	1.18	1.237	0.143	0.114
93	14	22	1.20	1.05	1.18	1.237	0.143	0.114
94	22	30	1.20	1.05	1.18	1.237	0.143	0.114
95	30	38	1.20	1.05	1.18	1.237	0.143	0.114
96	38	46	1.20	1.05	1.18	1.237	0.143	0.114
97	46	54	1.45	0.30	1.18	0.354	0.041	0.003
98	54	62	1.45	0.30	1.18	0.354	0.041	0.003
99	7	15	1.20	0.25	1.18	0.295	0.034	0.002

100	15	23	1.20	0.25	1.18	0.295	0.034	0.002
101	23	31	1.20	0.25	1.18	0.295	0.034	0.002
102	31	39	1.20	0.25	1.18	0.295	0.034	0.002
103	39	47	1.20	0.25	1.18	0.295	0.034	0.002
104	47	55	1.45	0.30	1.18	0.354	0.041	0.003
105	55	63	1.45	0.30	1.18	0.354	0.041	0.003
106	8	16	1.20	0.30	0.59	0.177	0.005	0.001
107	16	24	1.20	0.30	0.59	0.177	0.005	0.001
108	24	32	1.20	0.30	0.59	0.177	0.005	0.001
109	32	40	1.20	0.30	0.59	0.177	0.005	0.001
110	40	48	1.20	0.30	0.59	0.177	0.005	0.001
111	48	56	1.45	0.30	0.59	0.177	0.005	0.001
112	56	64	1.45	0.30	0.59	0.177	0.005	0.001
113	65	66	1.18	0.30	2.33	0.698	0.314	0.005
114	66	67	1.18	0.30	2.33	0.698	0.314	0.005
115	67	68	1.18	0.30	2.33	0.698	0.314	0.005
116	69	70	1.18	0.30	2.33	0.698	0.314	0.005
117	70	71	1.18	0.30	2.33	0.698	0.314	0.005
118	72	73	1.18	0.30	2.33	0.698	0.314	0.005
119	61	65	2.33	0.30	1.18	0.354	0.041	0.003
120	62	66	2.33	0.30	1.18	0.354	0.041	0.003
121	66	69	2.33	0.30	1.18	0.354	0.041	0.003
122	63	67	2.33	0.30	1.18	0.354	0.041	0.003
123	67	70	2.33	0.30	1.18	0.354	0.041	0.003
124	70	72	2.32	0.30	1.18	0.354	0.041	0.003
125	64	68	2.33	0.30	0.59	0.177	0.005	0.001
126	68	71	2.33	0.30	0.59	0.177	0.005	0.001
127	71	73	2.32	0.30	0.59	0.177	0.005	0.001
128	73	74	2.32	0.30	0.59	0.177	0.005	0.001
129	60	65	2.61	0.30	1.18	0.354	0.041	0.003
130	65	69	2.61	0.30	1.18	0.354	0.041	0.003
131	69	72	2.61	0.30	1.18	0.354	0.041	0.003
132	72	74	2.61	0.30	1.18	0.354	0.041	0.003

Hipotesis (1) : Peso propio del muro y aletas del estribo

DESPLAZAMIENTOS DE LOS NUDOS

Nudo Nº	Despl.y (mm)	Despl.x (mm)	Despl.z (mm)	Giro y 1000xrad	Giro x 1000xrad	Giro z 1000xrad
1	0.000	-0.000	0.000	-0.000	-0.000	-0.000
2	0.000	-0.004	0.006	-0.006	0.000	-0.000
3	0.000	-0.015	0.012	-0.012	0.000	-0.000
4	0.000	-0.032	0.016	-0.018	0.000	-0.000
5	-0.000	-0.056	0.019	-0.021	0.000	-0.000
6	-0.000	-0.082	0.021	-0.024	0.000	-0.000
7	-0.000	-0.110	0.022	-0.024	0.000	-0.000
8	-0.000	-0.144	0.023	-0.031	0.000	-0.000
9	0.000	-0.000	0.000	-0.000	-0.000	-0.000
10	0.000	-0.004	0.006	-0.006	0.000	-0.000
11	0.000	-0.015	0.012	-0.012	0.000	-0.000
12	0.000	-0.033	0.016	-0.019	0.000	-0.000
13	-0.000	-0.056	0.019	-0.022	0.000	-0.001
14	-0.001	-0.083	0.021	-0.024	0.000	-0.001
15	-0.001	-0.112	0.022	-0.024	0.000	-0.002
16	-0.002	-0.146	0.023	-0.032	0.001	-0.002
17	0.000	-0.000	0.000	-0.000	-0.000	-0.000
18	0.000	-0.004	0.006	-0.006	0.000	-0.000
19	0.000	-0.015	0.011	-0.013	0.000	-0.000
20	0.000	-0.032	0.015	-0.018	0.001	-0.001
21	-0.001	-0.053	0.018	-0.023	0.001	-0.002
22	-0.002	-0.086	0.020	-0.025	0.001	-0.003
23	-0.003	-0.116	0.021	-0.026	0.001	-0.003
24	-0.004	-0.151	0.022	-0.032	0.001	-0.004
25	0.000	-0.000	0.000	-0.000	-0.000	0.000
26	0.000	-0.004	0.006	-0.006	0.000	0.000
27	0.000	-0.015	0.010	-0.013	0.000	-0.000
28	0.000	-0.034	0.014	-0.019	0.001	-0.001
29	-0.001	-0.060	0.017	-0.024	0.001	-0.003
30	-0.002	-0.091	0.019	-0.027	0.002	-0.005
31	-0.004	-0.123	0.019	-0.028	0.002	-0.005
32	-0.006	-0.160	0.020	-0.034	0.002	-0.006
33	0.000	0.000	0.000	-0.000	-0.000	0.000
34	0.000	-0.004	0.005	-0.006	-0.000	0.000
35	0.001	-0.015	0.010	-0.013	0.000	0.000
36	0.000	-0.035	0.013	-0.021	0.001	-0.000
37	-0.001	-0.064	0.015	-0.027	0.002	-0.003
38	-0.003	-0.098	0.016	-0.030	0.002	-0.007
39	-0.005	-0.133	0.016	-0.030	0.002	-0.007
40	-0.007	-0.173	0.017	-0.035	0.002	-0.007
41	0.000	0.000	0.000	-0.000	-0.000	0.000
42	0.000	-0.005	0.005	-0.006	0.000	0.000
43	0.001	-0.014	0.009	-0.012	0.001	0.001
44	0.000	-0.034	0.010	-0.021	0.002	0.001
45	-0.001	-0.067	0.011	-0.023	0.002	-0.002

46	-0.001	-0.107	0.011	-0.023	0.002	-0.002
47	-0.005	-0.149	0.011	-0.023	0.002	-0.002
48	-0.009	-0.191	0.012	-0.026	0.002	-0.010
49	0.000	-0.000	0.000	-0.000	-0.000	-0.000
50	-0.000	-0.003	0.012	-0.005	0.000	-0.000
51	-0.001	-0.012	0.022	-0.010	0.001	-0.001
52	-0.002	-0.028	0.029	-0.012	0.002	-0.001
53	-0.004	-0.046	0.035	-0.017	0.002	-0.001
54	-0.007	-0.110	0.039	-0.017	0.003	-0.003
55	-0.011	-0.154	0.042	-0.019	0.003	-0.003
56	-0.014	-0.196	0.042	-0.024	0.003	-0.006
57	-0.000	0.000	0.000	-0.000	0.000	0.000
58	-0.000	-0.003	0.020	-0.005	0.001	0.000
59	-0.001	-0.010	0.036	-0.009	0.001	0.000
60	-0.003	-0.020	0.056	-0.031	0.002	0.000
61	-0.005	-0.065	0.066	-0.037	0.002	0.000
62	-0.007	-0.112	0.073	-0.038	0.002	0.000
63	-0.009	-0.159	0.077	-0.037	0.002	0.000
64	-0.012	-0.205	0.078	-0.029	0.002	0.000
65	-0.005	-0.084	0.199	-0.064	0.002	-0.000
66	-0.007	-0.116	0.202	-0.059	0.002	-0.000
67	-0.009	-0.167	0.203	-0.059	0.002	-0.000
68	-0.012	-0.220	0.204	-0.052	0.002	-0.000
69	-0.000	-0.120	0.350	-0.057	0.002	-0.000
70	-0.010	-0.173	0.351	-0.058	0.002	-0.000
71	-0.012	-0.229	0.351	-0.054	0.002	-0.000
72	-0.010	-0.172	0.483	-0.053	0.002	-0.000
73	-0.012	-0.233	0.483	-0.049	0.002	-0.000
74	-0.013	-0.235	0.598	-0.048	0.002	-0.000

ESFUERZOS EN LAS BARRAS

Barra Nº	i Nº	j Nº	Axil (t.)	Cort.1 (t.)	Cort.2 (t.)	Flec.1i (txm)	Flec.1j (txm)	Flec.2i (txm)	Flec.2j (txm)
1	1	2	10.27	0.00	0.03	-0.00	-0.00	0.96	-0.92
2	2	3	8.60	0.00	0.05	-0.00	-0.00	0.91	-0.85
3	3	4	6.92	-0.00	0.07	0.00	0.00	0.81	-0.73
4	4	5	5.19	-0.00	0.10	0.00	0.00	0.64	-0.52
5	5	6	3.39	-0.00	0.11	0.00	0.00	0.39	-0.26
6	6	7	1.46	0.00	0.07	-0.00	-0.00	0.10	-0.06
7	7	8	0.22	0.00	0.02	-0.00	-0.00	0.02	-0.00
8	9	10	20.31	0.41	0.07	-0.24	-0.25	1.92	-1.84
9	10	11	18.97	0.40	0.09	-0.19	-0.26	1.83	-1.72
10	11	12	13.64	0.35	0.14	-0.16	-0.25	1.65	-1.49
11	12	13	10.24	0.23	0.20	-0.09	-0.18	1.31	-1.08
12	13	14	6.71	0.07	0.23	-0.01	-0.07	0.89	-0.53
13	14	15	2.97	-0.03	0.06	0.03	0.00	0.20	-0.13
14	15	16	0.44	-0.01	0.03	0.01	0.00	0.05	-0.01
15	17	18	19.83	0.42	0.08	-0.47	-0.49	1.94	-1.85
16	18	19	18.30	0.83	0.08	-0.40	-0.56	1.88	-1.78
17	19	20	13.02	0.77	0.13	-0.35	-0.55	1.75	-1.60
18	20	21	9.76	0.59	0.17	-0.25	-0.44	1.50	-1.18
19	21	22	6.43	0.26	0.23	-0.07	-0.25	0.84	-0.59

20	22	23	2.79	0.01	0.06	0.02	-0.03	0.21	-0.17
21	23	24	0.42	0.01	0.05	-0.01	-0.01	0.05	-0.01
22	25	26	18.53	1.17	0.04	-0.89	-0.70	1.93	-1.66
23	26	27	15.11	1.23	0.06	-0.59	-0.86	1.96	-1.89
24	27	28	11.81	1.27	0.15	-0.58	-0.91	1.97	-1.80
25	28	29	8.78	1.19	0.27	-0.53	-0.87	1.52	-1.33
26	29	30	5.74	0.92	0.25	-0.34	-0.59	0.92	-0.83
27	30	31	2.54	0.14	0.07	-0.12	-0.16	0.22	-0.14
28	31	32	0.37	0.13	0.04	-0.08	-0.07	0.05	-0.00
29	33	34	17.15	1.38	-0.07	-0.85	-0.80	1.79	-1.87
30	34	35	13.31	1.35	-0.04	-0.72	-1.07	2.01	-2.06
31	35	36	9.73	1.92	0.27	-0.89	-1.37	2.42	-2.10
32	36	37	6.62	2.26	1.03	-1.06	-1.61	2.48	-1.21
33	37	38	4.12	2.20	1.13	-1.02	-1.57	1.50	-0.17
34	38	39	1.88	1.07	0.15	-0.64	-0.63	0.25	-0.07
35	39	40	0.77	0.41	0.08	-0.27	-0.21	0.05	0.01
36	41	42	7.74	0.30	-0.15	-0.16	-0.19	0.74	-0.92
37	42	43	5.20	0.46	-0.08	-0.24	-0.31	0.97	-1.04
38	43	44	3.01	0.65	0.80	-0.34	-0.43	1.79	-0.84
39	44	45	1.46	0.83	4.27	-0.44	-0.54	3.65	1.39
40	45	46	0.79	0.87	4.85	-0.43	-0.55	3.54	2.33
41	46	47	0.09	0.63	4.77	-0.38	-0.33	2.74	2.62
42	47	48	0.45	0.33	1.72	-0.24	-0.15	1.36	0.87
43	49	50	13.15	0.11	0.01	-0.02	-0.11	0.04	-0.04
44	50	51	11.36	0.10	-0.00	0.06	-0.13	0.04	-0.05
45	51	52	7.89	0.05	0.22	0.12	-0.13	0.14	0.11
46	52	53	6.52	0.02	1.60	0.14	-0.12	0.96	0.92
47	53	54	4.84	-0.05	1.74	0.10	-0.04	1.03	1.01
48	54	55	2.74	-0.02	1.63	0.00	0.02	0.97	0.95
49	55	56	0.76	0.00	1.26	-0.01	0.01	0.78	0.70
50	57	58	40.93	-0.07	-0.03	0.75	-0.70	0.06	-0.09
51	58	59	38.72	-0.07	-0.17	0.73	-0.64	-0.04	-0.16
52	59	60	37.29	-0.08	-1.73	0.67	-0.57	-0.70	-1.40
53	60	61	25.75	-0.09	0.80	0.55	-0.44	0.58	0.35
54	61	62	17.67	-0.09	0.40	0.38	-0.27	0.29	0.27
55	62	63	9.76	-0.07	0.46	0.19	-0.11	0.23	0.24
56	63	64	2.39	-0.03	0.30	0.04	-0.01	0.20	0.15
57	1	9	-0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
58	9	17	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
59	17	25	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
60	25	33	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
61	33	41	0.00	0.00	-0.00	-0.00	-0.00	-0.00	0.00
62	41	49	-0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
63	49	57	0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
64	2	10	-0.35	0.18	0.01	-0.12	-0.10	0.00	0.02
65	10	18	-0.36	0.56	0.04	-0.34	-0.33	0.02	0.02
66	18	26	-0.35	0.96	0.04	-0.56	-0.57	0.05	0.00
67	26	34	-0.29	1.23	0.04	-0.72	-0.76	0.06	-0.04
68	34	42	-0.14	1.00	0.05	-0.76	-0.43	0.03	-0.00
69	42	50	0.15	0.71	-0.02	-0.29	-0.16	-0.02	-0.01
70	50	58	0.14	-0.20	-0.00	0.16	0.14	0.00	-0.00
71	3	11	-0.45	0.18	0.02	-0.15	-0.06	-0.03	0.05
72	11	19	-0.50	0.56	1.07	-0.38	-0.29	0.02	0.07
73	19	27	-0.56	1.30	0.12	-0.54	-0.54	0.11	0.05
74	27	35	-0.52	1.42	0.21	-0.38	-0.82	0.28	-0.03

75	35	43	-0.13	1.56	0.52	-1.16	-0.57	0.51	0.11
76	43	51	1.09	1.17	-0.06	-1.05	-0.69	-0.05	-0.02
77	51	59	1.61	-1.00	-0.01	0.59	0.55	-0.00	-0.01
78	4	12	-0.04	0.15	0.03	-0.17	0.01	-0.11	0.14
79	12	20	-0.15	0.44	0.03	-0.36	-0.17	-0.05	0.16
80	20	28	-0.36	0.89	0.15	-0.63	-0.44	0.05	0.12
81	28	36	-0.46	1.50	0.27	-1.00	-0.80	0.27	-0.01
82	36	44	-0.10	2.13	1.04	-1.64	-0.92	0.06	0.20
83	44	52	4.50	2.04	-0.00	-2.54	-0.99	-0.07	-0.05
84	52	60	5.68	2.34	-0.01	-0.09	-3.31	-0.00	-0.01
85	5	13	0.98	0.06	0.01	-0.17	0.10	-0.25	0.27
86	13	21	0.73	0.24	0.05	-0.29	0.00	-0.22	0.28
87	21	29	0.41	0.62	0.08	-0.54	-0.21	-0.18	0.28
88	29	37	0.05	1.36	0.10	-1.01	-0.63	-0.11	0.23
89	37	45	-0.01	2.58	0.15	-2.00	-1.09	0.05	0.10
90	45	53	0.71	3.67	-0.03	-3.86	-1.47	-0.01	-0.04
91	53	61	0.86	3.28	-0.00	-0.50	-4.25	0.00	-0.00
92	6	14	2.30	-0.01	-0.09	-0.16	0.16	-0.67	0.57
93	14	22	2.21	0.03	-0.26	-0.20	0.17	-0.58	0.27
94	22	30	1.94	0.24	-0.42	-0.38	0.07	-0.71	0.20
95	30	38	1.34	0.30	-0.60	-0.85	-0.23	-0.95	0.22
96	38	46	0.22	2.52	-1.58	-1.98	-1.05	-1.54	-0.36
97	46	54	-1.54	3.84	0.05	-4.08	-1.50	0.09	-0.01
98	54	62	-1.78	3.02	0.02	-0.43	-3.90	0.02	0.01
99	7	15	0.96	-0.01	-0.01	-0.03	0.05	-0.01	-0.00
100	15	23	0.98	-0.01	-0.04	-0.04	0.06	-0.03	-0.02
101	23	31	0.93	0.06	-0.06	-0.09	0.02	-0.05	-0.03
102	31	39	0.87	0.33	-0.09	-0.27	-0.13	-0.07	-0.05
103	39	47	0.21	1.17	-0.19	-0.77	-0.63	-0.12	-0.11
104	47	55	-3.24	3.45	0.06	-3.73	-1.28	0.10	-0.01
105	55	63	-3.81	2.76	0.04	-3.45	-3.56	0.03	0.03
106	8	16	0.84	-0.00	-0.02	-0.00	0.01	-0.02	-0.00
107	16	24	0.85	-0.00	-0.05	-0.01	0.01	-0.04	-0.02
108	24	32	0.84	0.02	-0.00	-0.02	-0.01	-0.06	-0.04
109	32	40	0.71	0.07	-0.12	-0.06	-0.05	-0.08	-0.06
110	40	48	0.30	0.26	-0.18	-0.16	-0.15	-0.11	-0.10
111	48	56	-1.70	0.74	0.03	-0.66	-0.41	0.05	-0.01
112	56	64	-3.16	0.61	0.03	-0.29	-0.60	0.02	0.02
113	65	66	4.11	-0.00	-2.34	0.01	-0.01	-1.45	-1.31
114	66	67	2.77	-0.00	-2.20	0.01	-0.01	-1.29	-1.30
115	67	68	1.58	-0.00	-1.36	0.00	-0.00	-0.72	-0.71
116	69	70	1.50	-0.00	-1.82	0.00	-0.00	-1.09	-1.06
117	70	71	0.85	-0.00	-1.11	0.00	-0.00	-0.71	-0.60
118	72	73	0.87	0.00	-0.54	0.00	-0.00	-0.36	-0.27
119	61	65	0.54	-1.08	-0.00	2.60	0.76	-0.00	0.00
120	62	66	-1.85	-1.95	-0.00	3.40	1.14	-0.00	0.00
121	66	69	-1.69	-1.24	-0.00	1.46	1.43	-0.00	0.00
122	63	67	-3.71	-1.87	0.00	3.12	0.77	-0.00	0.00
123	67	70	-2.96	-1.31	-0.00	1.44	1.59	-0.00	0.00
124	70	72	-2.18	-0.38	-0.00	0.18	0.71	-0.00	-0.00
125	64	68	-3.45	-0.31	0.00	0.45	0.28	0.00	0.00
126	68	71	-2.07	-0.37	0.00	0.44	0.41	-0.00	0.00
127	71	73	-0.96	-0.16	-0.00	0.19	0.24	-0.00	-0.00
128	73	74	-0.42	-0.03	0.00	0.02	0.04	0.00	0.00
129	60	65	10.49	-1.99	0.00	4.13	1.05	-0.00	0.00

130	68	69	3.41	0.11	0.00	-0.76	0.09	-0.00	0.00
131	69	72	3.47	0.09	-0.00	-0.42	0.19	-0.00	0.00
132	72	74	0.37	0.02	-0.00	-0.52	-0.04	-0.00	0.00

Hipótesis (2) : Empuje de tierras + Reacción Fx del tablero

DESPLAZAMIENTOS DE LOS NUDOS

Nudo Nº	Despl.y (mm)	Despl.x (mm)	Despl.z (mm)	Giro y 1000xrad	Giro x 1000xrad	Giro z 1000xrad
1	-0.006	0.000	0.000	0.000	-0.000	0.000
2	-0.000	0.081	0.000	0.123	-0.000	-0.000
3	0.000	0.283	0.000	0.177	-0.000	-0.000
4	0.000	0.493	-0.000	0.191	-0.000	-0.000
5	0.000	0.709	-0.001	0.188	-0.000	-0.000
6	0.000	0.929	-0.001	0.184	-0.000	-0.000
7	0.000	1.145	-0.001	0.182	-0.000	-0.000
8	0.000	1.345	-0.001	0.183	-0.000	-0.000
9	-0.000	0.000	0.000	0.000	0.000	-0.000
10	-0.000	0.080	0.001	0.121	-0.000	-0.002
11	0.000	0.259	0.001	0.174	-0.001	-0.007
12	0.002	0.476	0.001	0.185	-0.002	-0.012
13	0.004	0.698	0.001	0.185	-0.002	-0.018
14	0.007	0.913	0.000	0.180	-0.003	-0.024
15	0.010	1.126	0.000	0.180	-0.003	-0.026
16	0.014	1.321	0.000	0.148	-0.003	-0.029
17	-0.000	0.000	0.000	0.000	0.000	-0.000
18	-0.000	0.076	0.002	0.116	-0.001	-0.004
19	0.001	0.248	0.003	0.166	-0.002	-0.012
20	0.004	0.455	0.004	0.179	-0.004	-0.023
21	0.008	0.665	0.005	0.175	-0.005	-0.035
22	0.014	0.869	0.005	0.170	-0.005	-0.047
23	0.021	1.070	0.005	0.170	-0.006	-0.059
24	0.029	1.249	0.005	0.134	-0.007	-0.067
25	-0.000	0.000	0.000	0.000	0.000	-0.000
26	-0.001	0.072	0.004	0.109	-0.001	-0.005
27	0.001	0.232	0.008	0.154	-0.004	-0.016
28	0.005	0.422	0.011	0.165	-0.006	-0.031
29	0.012	0.615	0.013	0.160	-0.008	-0.048
30	0.021	0.800	0.013	0.154	-0.009	-0.065
31	0.033	0.981	0.014	0.153	-0.010	-0.069
32	0.046	1.132	0.014	0.112	-0.011	-0.081
33	-0.000	0.000	0.000	0.000	0.000	-0.000
34	-0.001	0.067	0.003	0.100	-0.003	-0.004
35	0.002	0.213	0.016	0.139	-0.006	-0.013
36	0.007	0.384	0.022	0.146	-0.009	-0.032
37	0.015	0.554	0.026	0.140	-0.011	-0.052
38	0.027	0.714	0.026	0.132	-0.014	-0.073
39	0.044	0.867	0.025	0.127	-0.015	-0.080
40	0.063	0.969	0.029	0.085	-0.016	-0.096
41	-0.000	0.000	0.000	0.000	0.000	0.000
42	-0.000	0.067	0.017	0.087	-0.011	0.001
43	0.003	0.179	0.033	0.117	-0.017	-0.009
44	0.008	0.349	0.045	0.122	-0.020	-0.025
45	0.017	0.495	0.050	0.113	-0.023	-0.043

46	0.026	0.651	0.055	0.105	-0.026	-0.057
47	0.015	0.742	0.056	0.024	-0.032	0.019
48	0.079	0.837	0.058	0.078	-0.021	0.042
49	0.000	0.000	-0.000	0.000	-0.000	0.000
50	0.032	0.074	-0.016	0.005	-0.045	0.042
51	0.076	0.201	-0.026	0.017	-0.062	0.090
52	0.173	0.351	-0.030	0.026	-0.070	0.142
53	0.259	0.490	-0.032	0.035	-0.075	0.176
54	0.354	0.621	-0.031	0.042	-0.076	0.244
55	0.459	0.733	-0.029	0.048	-0.072	0.280
56	0.567	0.823	-0.027	0.050	-0.052	0.296
57	0.000	0.000	-0.000	0.000	-0.000	0.000
58	0.047	0.077	-0.030	0.040	-0.074	0.043
59	0.163	0.203	-0.055	0.056	-0.119	0.086
60	0.319	0.355	-0.075	0.074	-0.142	0.131
61	0.499	0.486	-0.087	0.071	-0.161	0.148
62	0.694	0.615	-0.094	0.071	-0.169	0.161
63	0.895	0.727	-0.097	0.067	-0.171	0.170
64	1.098	0.825	-0.098	0.075	-0.172	0.173
65	3.409	0.680	-0.291	0.102	-0.345	1.585
66	3.807	0.808	-0.291	0.098	-0.331	1.998
67	4.192	0.724	-0.292	0.095	-0.323	2.008
68	4.572	0.830	-0.292	0.091	-0.322	2.012
69	9.465	0.604	-0.524	0.100	-0.422	2.644
70	9.959	0.722	-0.524	0.100	-0.417	2.648
71	10.450	0.834	-0.524	0.097	-0.416	2.650
72	16.389	0.721	-0.754	0.098	-0.451	2.770
73	16.920	0.835	-0.754	0.097	-0.450	2.799
74	23.407	0.833	-0.979	0.097	-0.451	2.799

ESFUERZOS EN LAS BARRAS

Barra Nº	i Nº	j Nº	Axil (t.)	Cort.1 (t.)	Cort.2 (t.)	Flec.1i (txm)	Flec.1j (txm)	Flec.2i (txm)	Flec.2j (txm)
1	1	2	0.34	-0.00	-11.05	0.00	0.00	-24.50	11.56
2	2	3	-0.14	0.00	-7.93	-0.00	-0.00	-12.34	3.61
3	3	4	-0.52	0.00	-4.48	-0.00	-0.00	-4.90	-0.47
4	4	5	-0.68	0.00	-2.26	-0.00	-0.00	-0.92	-1.74
5	5	6	-0.57	0.00	-0.75	-0.00	-0.00	0.27	-1.16
6	6	7	-0.24	-0.00	-0.64	0.00	0.00	-0.35	-0.41
7	7	8	-0.06	-0.00	-0.02	0.00	0.00	0.05	-0.07
8	9	10	1.02	-1.21	-21.77	0.55	0.88	-48.47	22.81
9	10	11	0.94	-1.04	-14.58	0.35	0.29	-24.25	7.10
10	11	12	-0.04	-0.74	-8.77	0.19	0.68	-9.36	-0.97
11	12	13	-0.71	-0.25	-4.40	-0.04	0.34	-1.72	-3.46
12	13	14	-0.85	0.35	-1.46	-0.31	-0.10	0.59	-2.31
13	14	15	-0.41	0.51	-1.28	-0.42	-0.13	-1.67	-0.83
14	15	16	-0.10	0.27	-0.04	-0.20	-0.12	0.10	-0.15
15	17	18	6.23	-2.62	-21.79	1.21	1.89	-46.44	21.94
16	18	19	4.32	-2.40	-13.83	0.86	1.97	-23.00	8.70
17	19	20	3.21	-2.09	-6.20	0.71	1.75	-8.61	-1.05
18	20	21	1.46	-1.28	-1.00	0.38	1.22	-1.82	-0.40
19	21	22	0.12	-0.82	-1.26	-0.23	0.57	0.86	-2.29

20	22	23	-0.15	0.84	-1.24	-0.74	-0.25	-0.57	-0.89
21	23	24	-0.04	0.46	0.00	-0.35	-0.20	0.14	-0.14
22	25	26	13.84	-4.46	-19.53	2.08	3.17	-43.55	20.53
23	26	27	12.63	-4.45	-12.38	1.74	3.31	-21.85	5.86
24	27	28	9.39	-4.77	-7.31	2.61	3.61	-7.37	-1.25
25	28	29	5.83	-4.41	-3.32	1.80	3.31	-0.60	-3.31
26	29	30	2.18	-2.19	-0.87	0.74	1.84	1.31	-2.33
27	30	31	0.47	0.72	-1.10	-0.79	-0.06	-0.19	-1.11
28	31	32	0.11	0.42	0.17	-0.35	-0.15	0.26	-0.06
29	33	34	26.91	-7.75	-21.02	3.53	5.51	-41.94	17.17
30	34	35	24.07	-9.64	-13.28	4.24	7.02	-19.25	3.69
31	35	36	18.77	-11.67	-7.46	5.91	7.84	-8.50	-2.29
32	36	37	13.02	-12.07	-3.15	6.15	8.09	-0.10	-3.62
33	37	38	7.22	-9.68	-0.40	4.43	6.97	2.20	-2.68
34	38	39	1.43	-5.08	-1.67	0.29	0.98	0.60	-2.57
35	39	40	0.73	-0.37	-0.31	0.12	0.32	0.64	0.31
36	41	42	30.75	-2.86	-20.22	1.15	2.21	-24.77	0.93
37	42	43	22.53	-5.62	-14.38	3.02	3.60	-13.19	-4.35
38	43	44	15.55	-6.77	-11.60	3.83	4.15	-7.59	-6.08
39	44	45	10.93	-7.07	-6.90	4.03	4.29	-3.30	-4.83
40	45	46	7.90	-6.62	-3.94	3.75	4.06	-1.75	-3.24
41	46	47	4.65	-4.30	0.96	2.23	2.83	1.41	-3.25
42	47	48	0.15	-3.10	0.46	2.38	1.28	1.21	-0.67
43	49	50	-17.72	8.48	-5.11	-13.33	3.83	-3.06	-2.97
44	50	51	-11.37	2.15	-8.17	-4.49	1.95	-4.92	-4.71
45	51	52	-4.69	-1.42	-8.30	0.71	2.39	-5.32	-5.17
46	52	53	-1.59	-2.68	-7.36	0.84	3.12	-4.41	-4.26
47	53	54	1.44	-2.47	-6.17	-0.15	3.05	-3.67	-3.58
48	54	55	2.74	-0.98	-4.23	-0.62	1.77	-2.54	-2.44
49	55	56	0.75	-0.35	-2.33	0.29	0.12	-1.45	-1.29
50	57	58	-62.37	36.88	-7.30	-118.62	74.56	-4.92	-3.68
51	58	59	-53.31	31.50	-9.41	-77.55	40.43	-5.00	-5.29
52	59	60	-41.68	26.27	-10.35	-46.44	15.49	-6.38	-5.62
53	60	61	-29.33	20.05	-7.52	-24.26	30.59	-4.38	-4.48
54	61	62	-18.18	12.91	-7.37	-27.19	11.97	-4.34	-4.35
55	62	63	-9.07	5.87	-5.14	-10.05	3.13	-2.97	-3.10
56	63	64	-1.55	1.19	-2.23	-1.57	0.17	-1.47	-1.18
57	1	9	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
58	9	17	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
59	17	25	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
60	25	33	0.00	-0.00	0.00	0.00	0.00	0.00	0.00
61	33	41	-0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
62	41	49	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
63	49	57	0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00
64	2	10	0.34	-0.42	0.41	0.44	0.13	-0.38	0.87
65	10	18	0.50	-1.54	1.15	1.10	0.78	0.15	1.22
66	18	26	0.72	-2.97	1.13	1.97	1.59	0.71	1.25
67	26	34	0.73	-4.77	1.01	3.02	2.41	1.59	0.87
68	34	42	-1.16	-7.61	3.07	7.55	1.58	3.22	0.47
69	42	50	5.16	-15.41	0.02	18.11	4.23	0.24	-0.21
70	50	58	2.11	-9.06	-1.47	3.65	9.48	-1.06	-1.07
71	3	11	-1.53	-0.38	0.19	0.63	-0.17	-1.74	1.97
72	11	19	-1.03	-1.36	0.50	1.25	0.39	-1.32	1.92
73	19	27	-0.92	-2.07	0.66	2.29	1.23	-0.61	1.41
74	27	35	-1.34	-5.82	0.75	4.25	2.49	0.65	0.29

76	73	43	-8.27	-10.72	1.11	10.44	2.66	2.76	-1.62
77	43	51	1.66	-16.32	1.11	21.72	6.84	1.35	0.22
78	51	59	0.94	-11.53	-1.92	5.19	11.67	-1.41	-1.38
79	4	12	-6.11	-0.16	-0.02	0.73	-0.54	-3.47	3.43
80	12	20	-5.62	-0.83	-0.12	1.16	-0.18	-3.17	3.02
81	20	28	-4.89	-2.58	-0.40	2.32	0.78	-2.42	1.95
82	28	36	-4.53	-6.14	-0.87	4.71	2.66	-0.97	-0.08
83	36	44	-4.72	-11.02	-1.64	11.33	2.93	1.39	-2.63
84	44	52	1.42	-16.50	-2.52	20.08	3.53	2.74	0.91
85	52	60	2.96	-15.42	-1.63	5.73	13.73	-1.24	-1.12
86	5	13	-13.21	0.11	-0.23	0.74	-0.83	-6.37	5.09
87	13	21	-12.61	-0.02	-0.77	0.91	-0.38	-5.22	4.56
88	21	29	-11.26	-1.36	-1.38	1.86	-0.22	-4.48	2.68
89	29	37	-9.85	-5.02	-2.52	4.27	1.75	-2.75	-0.27
90	37	45	-6.86	-10.92	-3.25	10.76	2.23	0.61	-4.20
91	45	53	-4.02	-13.85	4.11	16.95	3.13	4.35	1.67
92	53	61	-2.83	-10.32	-0.29	3.82	10.86	-0.47	0.06
93	6	14	-22.27	0.33	-1.12	0.71	-1.10	-7.68	6.26
94	22	30	-21.24	0.49	-3.85	1.02	-1.61	-8.56	1.54
95	30	38	-18.33	-1.22	-8.56	2.66	-1.20	-7.41	-2.86
96	38	46	-4.75	-7.01	-12.49	8.46	-0.85	-3.22	-11.77
97	46	54	-6.97	-18.25	5.91	12.78	2.08	5.94	2.63
98	54	62	-6.03	-8.95	1.43	4.04	8.93	0.58	1.49
99	7	15	-7.73	0.19	-0.12	0.13	-0.55	-0.17	0.03
100	15	23	-7.97	0.50	-0.35	-0.03	-0.57	-0.30	-0.12
101	23	31	-8.35	0.62	-0.58	-0.03	-0.71	-0.42	-0.27
102	31	39	-8.65	0.25	-0.78	0.31	-0.60	-0.51	-0.42
103	39	47	-7.95	-0.45	-2.85	1.71	-1.16	-1.33	-2.09
104	47	55	-6.29	-4.95	5.86	6.67	0.31	5.68	2.82
105	55	63	-4.39	-6.95	3.45	3.38	6.70	1.90	3.11
106	8	16	-6.38	0.05	-0.18	0.01	-0.07	-0.20	-0.01
107	16	24	-6.65	0.15	-0.54	-0.04	-0.14	-0.42	-0.23
108	24	32	-7.12	0.19	-0.95	-0.06	-0.17	-0.65	-0.49
109	32	40	-7.54	0.09	-1.62	0.02	-0.12	-0.97	-0.86
110	40	48	-7.17	-0.64	-2.73	0.44	0.33	-1.18	-2.10
111	48	56	-3.39	-0.79	3.62	0.79	0.36	3.47	2.07
112	56	64	-1.06	-1.54	2.99	0.93	1.30	1.83	2.50
113	65	66	-0.30	0.88	-1.16	10.64	-11.68	-0.63	-0.74
114	66	67	-0.22	-1.30	-0.21	7.02	-5.49	-0.09	-0.16
115	67	68	-0.15	-1.03	0.40	1.67	-0.46	0.30	0.18
116	69	70	0.64	0.60	0.03	4.15	-4.89	0.02	0.01
117	70	71	0.13	-1.46	0.53	0.96	-0.49	0.35	0.27
118	72	73	0.06	0.23	0.15	0.01	-0.28	0.10	0.08
119	61	65	-2.68	0.33	3.27	-2.05	1.27	10.10	-2.49
120	62	66	-2.81	0.16	4.58	-1.62	1.23	11.62	-0.97
121	66	69	-1.64	0.26	1.99	-0.42	-0.16	4.52	0.10
122	63	67	-1.50	0.67	5.82	-2.13	0.81	13.06	0.47
123	67	73	-0.88	0.60	2.70	-0.95	-0.44	5.32	0.94
124	70	72	-0.39	0.03	0.33	0.08	-0.15	1.45	0.48
125	64	68	1.19	0.01	3.55	-0.12	0.09	7.26	0.98
126	68	71	0.79	0.20	1.74	-0.27	-0.19	3.12	0.93
127	71	73	0.26	0.07	0.56	-0.08	-0.08	0.89	0.41
128	73	74	0.11	0.01	-0.00	-0.00	-0.01	-0.00	-0.00
129	60	65	5.06	1.66	1.85	-3.53	-0.30	7.74	-2.92

130	65	69	2.21	-0.05	1.21	0.16	-0.03	3.47	-0.53
131	69	72	0.16	-0.03	0.51	0.16	-0.08	1.10	0.23
132	72	74	-0.10	-0.05	0.00	0.13	0.01	0.00	0.00

Hipotesis (3; : Reaccion vertical maxima del tablero; Fomin

DESPLAZAMIENTOS DE LOS NUDOS

Nudo Nº	Despl.y (mm)	Despl.x (mm)	Despl.z (mm)	Giro y 1000xrad	Giro x 1000xrad	Giro z 1000xrad
1	-0.000	0.000	0.000	0.000	-0.000	0.000
2	-0.000	0.001	0.003	0.001	-0.000	0.000
3	-0.000	0.003	0.005	0.003	-0.000	0.000
4	-0.000	0.007	0.006	0.003	-0.000	0.000
5	0.000	0.010	0.007	0.003	-0.000	0.000
6	0.000	0.014	0.007	0.003	-0.000	0.000
7	0.000	0.018	0.007	0.003	-0.000	0.000
8	0.000	0.022	0.007	0.005	-0.000	0.000
9	-0.000	0.000	0.000	0.000	0.000	0.000
10	-0.001	0.001	0.003	0.001	-0.000	0.000
11	-0.001	0.003	0.006	0.003	-0.001	0.000
12	-0.001	0.007	0.008	0.003	-0.001	0.000
13	0.001	0.011	0.009	0.003	-0.002	0.001
14	0.002	0.015	0.009	0.003	-0.003	0.001
15	0.007	0.018	0.009	0.003	-0.003	0.001
16	0.011	0.023	0.009	0.006	-0.003	0.001
17	-0.000	0.000	0.000	0.000	0.000	0.000
18	-0.001	0.001	0.004	0.002	-0.000	0.000
19	-0.002	0.004	0.003	0.003	-0.001	0.000
20	-0.001	0.008	0.011	0.004	-0.003	0.001
21	0.001	0.012	0.014	0.004	-0.004	0.001
22	0.006	0.016	0.015	0.003	-0.006	0.001
23	0.014	0.019	0.015	0.002	-0.007	0.001
24	0.022	0.024	0.015	0.007	-0.007	0.001
25	-0.000	0.000	0.000	0.000	0.000	0.000
26	-0.002	0.001	0.006	0.002	0.000	0.000
27	-0.003	0.004	0.011	0.003	-0.001	0.000
28	-0.002	0.009	0.017	0.004	-0.003	0.001
29	0.001	0.014	0.022	0.004	-0.006	0.002
30	0.009	0.018	0.027	0.002	-0.010	0.002
31	0.021	0.019	0.029	-0.000	-0.012	0.002
32	0.031	0.025	0.030	0.010	-0.010	0.002
33	-0.000	0.000	0.000	0.000	0.000	-0.000
34	-0.002	0.001	0.007	0.002	0.000	-0.000
35	-0.003	0.004	0.014	0.004	-0.001	0.000
36	-0.002	0.010	0.023	0.005	-0.003	0.001
37	0.001	0.017	0.032	0.006	-0.006	0.002
38	0.010	0.022	0.044	0.002	-0.011	0.004
39	0.024	0.016	0.056	-0.011	-0.014	0.005
40	0.036	0.030	0.055	0.015	-0.012	0.007
41	-0.000	-0.000	0.000	0.000	0.000	-0.000
42	-0.002	0.001	0.008	0.002	-0.001	-0.000
43	-0.003	0.004	0.017	0.004	-0.002	-0.000
44	-0.002	0.010	0.028	0.001	-0.004	0.001
45	0.001	0.019	0.042	0.008	-0.007	0.002

46	0.010	0.029	0.058	0.009	-0.011	0.006
47	0.023	0.039	0.074	0.007	-0.012	0.008
48	0.037	0.052	0.073	0.014	-0.012	0.010
49	-0.000	-0.000	0.000	-0.000	0.000	0.000
50	-0.000	0.001	0.005	0.002	-0.000	0.001
51	0.001	0.004	0.011	0.005	-0.002	0.001
52	0.004	0.009	0.018	0.008	-0.003	0.002
53	0.009	0.015	0.025	0.012	-0.005	0.001
54	0.016	0.023	0.032	0.020	-0.007	0.001
55	0.025	0.040	0.037	0.027	-0.008	-0.000
56	0.033	0.055	0.037	0.021	-0.008	-0.001
57	0.000	-0.000	0.000	-0.000	-0.000	-0.000
58	0.001	0.001	0.002	0.002	-0.001	-0.000
59	0.002	0.005	0.003	0.005	-0.002	-0.000
60	0.006	0.009	0.004	0.009	-0.004	-0.000
61	0.011	0.015	0.005	0.011	-0.004	-0.000
62	0.016	0.029	0.006	0.013	-0.005	-0.000
63	0.022	0.041	0.006	0.014	-0.006	-0.000
64	0.028	0.056	0.006	0.014	-0.005	-0.000
65	0.012	0.017	-0.020	0.010	-0.004	0.001
66	0.017	0.029	-0.020	0.010	-0.005	0.001
67	0.022	0.041	-0.020	0.010	-0.005	0.001
68	0.028	0.055	-0.020	0.011	-0.005	0.001
69	0.019	0.030	-0.043	0.010	-0.005	0.001
70	0.024	0.042	-0.043	0.010	-0.005	0.001
71	0.029	0.054	-0.043	0.010	-0.005	0.001
72	0.026	0.042	-0.066	0.010	-0.005	0.001
73	0.031	0.054	-0.066	0.010	-0.005	0.001
74	0.033	0.054	-0.090	0.010	-0.005	0.001

ESFUERZOS EN LAS BARRAS

Barra Nº	i Nº	j Nº	Axil (t.)	Cort.1 (t.)	Cort.2 (t.)	Flec.1i (txm)	Flec.1j (txm)	Flec.2i (txm)	Flec.2j (txm)
1	1	2	4.57	-0.00	-0.01	0.00	0.00	-0.22	0.21
2	2	3	3.51	-0.00	-0.02	0.00	0.00	-0.18	0.15
3	3	4	2.25	-0.00	-0.03	0.00	0.00	-0.11	0.09
4	4	5	1.02	0.00	-0.02	-0.00	-0.00	-0.02	-0.01
5	5	6	0.21	0.00	0.00	-0.00	-0.00	0.05	-0.04
6	6	7	-0.00	-0.00	0.00	0.00	0.00	0.01	-0.01
7	7	8	-0.00	-0.00	0.00	0.00	0.00	-0.00	0.01
8	9	10	10.73	-2.12	-0.03	1.24	1.36	-0.46	0.42
9	10	11	8.35	-2.40	-0.06	1.17	1.64	-0.38	0.32
10	11	12	5.91	-2.66	-0.07	1.28	1.86	-0.24	0.16
11	12	13	3.50	-2.42	-0.06	1.09	1.76	-0.03	-0.04
12	13	14	1.15	-1.33	0.01	0.50	1.36	0.19	-0.13
13	14	15	0.25	-0.05	0.01	-0.03	0.14	0.06	-0.04
14	15	16	0.06	-0.05	0.00	0.02	0.04	-0.01	0.01
15	17	18	13.64	-3.84	-0.06	2.26	2.27	-0.51	0.44
16	18	19	12.22	-4.41	-0.07	2.19	3.10	-0.44	0.35
17	19	20	10.32	-5.12	-0.11	2.45	3.58	-0.30	0.18
18	20	21	7.76	-5.26	-0.11	2.36	3.84	-0.03	-0.10
19	21	22	4.47	-5.06	0.02	1.49	3.05	0.32	-0.29

20	22	23	1.56	-0.93	0.04	0.31	0.70	0.22	-0.17
21	23	24	0.35	-0.48	0.01	0.29	0.22	-0.01	0.03
22	25	26	18.19	-4.74	-0.07	2.84	2.75	-0.55	0.47
23	26	27	17.96	-5.39	-0.08	2.83	3.67	-0.51	0.42
24	27	28	17.72	-6.45	-0.16	3.05	4.55	-0.44	0.25
25	28	29	16.99	-7.51	-0.29	3.30	5.55	-0.16	-0.18
26	29	30	14.67	-7.92	-0.16	2.91	6.31	0.57	-0.76
27	30	31	7.46	-4.80	0.13	1.99	3.56	0.98	-0.82
28	31	32	0.84	-2.05	-0.01	1.47	0.98	-0.04	0.04
29	33	34	22.13	-4.59	-0.02	2.88	2.54	-0.54	0.52
30	34	35	24.23	-4.30	-0.04	2.32	3.34	-0.52	0.53
31	35	36	26.92	-5.69	-0.16	2.52	4.13	-0.62	0.43
32	36	37	30.65	-5.70	-0.51	2.66	5.23	-0.52	-0.09
33	37	38	35.94	-6.96	-1.50	2.15	6.65	0.24	-2.02
34	38	39	42.35	-4.35	-0.95	1.39	3.74	4.25	-5.37
35	39	40	-0.84	-2.02	-0.34	1.40	0.07	-0.30	-0.10
36	41	42	12.62	-0.86	0.04	0.48	0.54	-0.22	0.27
37	42	43	15.04	-1.12	-0.02	0.59	0.73	-0.32	0.38
38	43	44	17.94	-1.29	-0.07	0.65	0.87	-0.40	0.31
39	44	45	21.44	-1.35	-0.24	0.65	0.95	-0.44	0.15
40	45	46	25.48	-0.99	-0.02	0.41	0.76	-0.00	0.05
41	46	47	27.65	-0.24	-1.14	0.06	0.22	-0.42	-0.91
42	47	48	-1.03	-0.35	-0.77	0.22	0.19	-1.45	0.84
43	49	50	6.34	-0.29	0.04	0.11	0.22	0.00	0.04
44	50	51	6.49	-0.25	0.08	-0.09	0.39	0.03	0.07
45	51	52	7.18	-0.19	0.17	-0.24	0.47	0.07	0.13
46	52	53	7.63	-0.11	0.27	-0.33	0.46	0.12	0.20
47	53	54	7.63	0.01	0.36	-0.36	0.36	0.14	0.24
48	54	55	5.81	0.06	1.17	-0.22	0.15	0.62	0.73
49	55	56	0.32	0.03	0.97	-0.04	0.01	0.62	0.62
50	57	58	3.31	0.07	0.11	-1.49	1.53	0.03	0.10
51	58	59	3.03	0.07	0.21	-1.62	1.54	0.08	0.16
52	59	60	2.63	0.10	0.42	-1.65	1.51	0.19	0.32
53	60	61	2.46	0.16	0.33	-1.51	1.33	0.18	0.27
54	61	62	1.68	0.20	0.66	-1.19	0.96	0.35	0.43
55	62	63	0.72	0.19	0.72	-0.70	0.48	0.40	0.45
56	63	64	0.34	0.10	0.37	-0.16	0.04	0.22	0.22
57	1	9	0.00	-0.00	0.00	0.00	0.00	0.00	-0.00
58	9	17	0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
59	17	25	0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
60	25	33	-0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
61	33	41	-0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00
62	41	49	0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
63	49	57	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
64	2	10	1.93	-1.06	-0.01	0.65	0.63	0.01	-0.03
65	10	18	1.64	-3.04	-0.04	1.21	1.83	-0.01	-0.05
66	18	26	1.03	-4.45	-0.05	2.13	2.72	-0.04	-0.01
67	26	34	0.43	-4.69	-0.06	2.70	2.73	-0.03	-0.01
68	34	42	0.22	-2.58	-0.09	1.93	1.17	-0.07	-0.04
69	42	50	-0.15	-0.17	0.04	0.09	0.16	0.02	0.02
70	50	58	-0.18	0.28	0.01	-0.23	-0.18	0.00	0.01
71	3	11	5.00	-1.25	-0.01	0.97	0.54	0.05	-0.05
72	11	19	2.74	-3.70	-0.02	2.38	2.06	0.03	-0.05
73	19	27	2.03	-3.60	-0.06	3.40	3.32	-0.04	-0.03
74	27	35	0.97	-3.64	-0.14	3.46	3.80	-0.15	-0.02

75	35	43	0.08	-0.09	-0.25	2.27	1.44	-0.21	-0.10
76	43	51	-0.21	-0.19	0.09	0.04	0.22	0.07	0.06
77	51	59	-0.22	0.50	0.03	-0.38	-0.36	0.02	0.05
78	4	12	1.68	-1.22	0.01	1.22	0.24	0.13	-0.12
79	12	20	2.12	-3.83	0.02	2.71	1.09	0.12	-0.09
80	20	28	1.98	-6.25	0.01	4.04	3.31	0.06	-0.04
81	28	36	0.93	-7.12	-0.11	4.24	4.30	-0.14	0.00
82	36	44	-0.07	-3.47	-0.47	2.84	1.62	-0.39	-0.17
83	44	52	-0.64	0.04	0.14	-0.21	0.16	0.11	0.09
84	52	60	-0.59	0.49	0.05	-0.40	-0.30	0.02	0.05
85	5	13	-2.44	-0.82	0.03	1.29	-0.31	0.20	-0.16
86	13	21	-1.35	-2.97	0.09	2.37	0.99	0.25	-0.13
87	21	29	0.06	-5.27	0.23	4.33	3.19	0.32	-0.05
88	29	37	-0.25	-8.59	0.35	5.27	5.64	0.26	0.16
89	37	45	-0.52	-3.20	-0.64	2.35	1.58	-0.49	-0.27
90	45	53	-0.41	0.76	0.16	-0.58	-0.13	0.11	0.11
91	53	61	-0.02	0.77	0.04	-0.41	-0.71	0.02	0.04
92	6	14	-10.70	-0.21	0.00	1.19	-0.94	0.17	-0.19
93	14	22	-9.42	-1.11	0.00	1.92	-0.59	0.22	-0.22
94	22	30	-6.43	-4.21	0.02	3.95	1.19	0.32	-0.29
95	30	38	-3.41	-11.42	0.32	7.20	6.51	0.69	-0.30
96	38	46	-0.60	-1.80	0.67	0.93	1.22	0.98	0.67
97	46	54	-0.24	2.67	0.05	-2.87	-1.00	0.01	0.06
98	54	62	0.25	0.24	-0.01	-0.07	-1.15	-0.01	-0.00
99	7	15	-5.22	0.00	-0.00	0.27	-0.28	0.00	-0.00
100	15	23	-5.22	-0.19	-0.01	0.43	-0.21	-0.01	-0.01
101	23	31	-4.85	-1.20	-0.05	1.19	0.25	-0.02	-0.03
102	31	39	-2.10	-7.82	-0.19	4.85	4.54	-0.10	-0.12
103	39	47	0.24	-1.25	0.42	0.60	0.90	0.27	0.24
104	47	55	0.78	5.62	-0.12	-5.78	-2.37	-0.14	-0.04
105	55	63	0.59	0.13	-0.09	1.00	-1.19	-0.07	-0.07
106	8	16	-4.82	0.00	-0.00	0.04	-0.04	0.00	-0.00
107	16	24	-4.77	-0.06	-0.00	0.08	-0.01	-0.00	-0.00
108	24	32	-4.29	-0.41	-0.01	0.29	0.21	-0.01	-0.01
109	32	40	-2.24	-1.25	-0.01	0.77	0.72	0.01	-0.02
110	40	48	-0.22	-0.41	0.34	0.25	0.24	0.21	0.19
111	48	56	1.11	0.62	-0.13	-0.53	-0.37	-0.12	-0.06
112	56	64	0.14	0.30	-0.13	-0.14	-0.29	-0.07	-0.07
113	65	66	-0.34	0.00	0.12	-0.04	0.04	0.08	0.07
114	66	67	-0.22	0.00	-0.02	-0.03	0.03	-0.01	-0.01
115	67	68	-0.02	0.00	-0.12	-0.01	0.00	-0.08	-0.06
116	69	70	-0.05	0.00	-0.00	-0.00	0.00	-0.00	0.00
117	70	71	-0.01	0.00	-0.07	-0.00	0.00	-0.05	-0.04
118	72	73	-0.01	-0.00	-0.02	-0.00	0.00	-0.01	-0.01
119	61	65	0.26	-0.01	0.00	0.08	-0.08	0.03	-0.00
120	62	66	0.32	-0.12	0.09	0.32	-0.05	0.06	-0.00
121	66	69	0.18	0.00	0.00	-0.01	-0.03	0.00	-0.00
122	63	67	0.23	-0.24	-0.00	0.55	0.04	0.06	-0.00
123	67	70	0.17	-0.04	0.00	0.05	0.05	0.00	-0.00
124	70	72	0.06	-0.01	0.00	-0.00	0.02	0.00	-0.00
125	64	68	-0.23	-0.04	-0.00	0.07	0.03	-0.00	-0.00
126	68	71	-0.11	-0.03	-0.00	0.03	0.03	0.00	-0.00
127	71	73	-0.04	-0.01	0.00	0.01	0.01	0.00	-0.00
128	73	74	-0.02	-0.00	-0.00	0.00	0.00	-0.00	-0.00
129	66	63	-0.71	0.10	-0.00	-0.19	-0.36	0.00	-0.00

130	68	69	-0.01	-0.04	-0.00	0.04	0.03	0.00	-0.00
131	69	72	-0.03	0.01	0.00	-0.03	0.01	0.00	-0.00
132	72	74	0.01	0.01	0.00	-0.01	-0.00	0.00	-0.00

Hipótesis (4) : Reacción vertical mínima del tablero: Fmin

DESPLAZAMIENTOS DE LOS NUDOS

Nudo Nº	Despl.y (mm)	Despl.x (mm)	Despl.z (mm)	Giro y 1000xrad	Giro x 1000xrad	Giro z 1000xrad
1	-0.000	0.000	0.000	0.000	-0.000	0.000
2	-0.000	0.000	0.002	0.001	-0.000	0.000
3	-0.000	0.002	0.003	0.002	-0.000	0.000
4	-0.000	0.004	0.004	0.002	-0.000	0.000
5	0.000	0.006	0.004	0.002	-0.000	0.000
6	0.000	0.008	0.004	0.002	-0.000	0.000
7	0.000	0.010	0.004	0.002	-0.000	0.000
8	0.000	0.013	0.004	0.003	-0.000	0.000
9	-0.000	0.000	0.000	0.000	0.000	0.000
10	-0.000	0.001	0.002	0.001	-0.000	0.000
11	-0.001	0.002	0.003	0.002	-0.000	0.000
12	-0.000	0.004	0.004	0.002	-0.001	0.000
13	0.000	0.006	0.005	0.002	-0.001	0.000
14	0.002	0.009	0.005	0.002	-0.002	0.000
15	0.004	0.010	0.005	0.002	-0.002	0.000
16	0.006	0.013	0.005	0.003	-0.002	0.000
17	-0.000	0.000	0.000	0.000	0.000	0.000
18	-0.001	0.001	0.002	0.001	-0.000	0.000
19	-0.001	0.002	0.005	0.002	-0.001	0.000
20	-0.001	0.004	0.007	0.002	-0.001	0.000
21	0.001	0.007	0.008	0.002	-0.003	0.001
22	0.004	0.009	0.009	0.002	-0.004	0.001
23	0.008	0.011	0.009	0.001	-0.004	0.001
24	0.013	0.014	0.009	0.004	-0.004	0.001
25	-0.000	0.000	0.000	0.000	0.000	0.000
26	-0.001	0.001	0.003	0.001	0.000	0.000
27	-0.001	0.002	0.007	0.002	-0.001	0.000
28	-0.001	0.005	0.010	0.003	-0.002	0.001
29	0.001	0.008	0.013	0.003	-0.004	0.001
30	0.005	0.011	0.016	0.001	-0.005	0.001
31	0.012	0.011	0.017	-0.000	-0.007	0.001
32	0.018	0.015	0.017	0.006	-0.006	0.001
33	-0.000	0.000	0.000	0.000	0.000	-0.000
34	-0.001	0.001	0.004	0.001	0.000	-0.000
35	-0.002	0.005	0.008	0.002	-0.001	0.000
36	-0.001	0.008	0.013	0.003	-0.002	0.000
37	0.001	0.010	0.019	0.004	-0.004	-0.001
38	0.006	0.013	0.026	0.001	-0.007	0.002
39	0.014	0.010	0.032	-0.006	-0.008	0.007
40	0.021	0.018	0.032	0.009	-0.007	0.004
41	-0.000	-0.000	0.000	0.000	0.000	-0.000
42	-0.001	0.001	0.005	0.001	-0.000	-0.000
43	-0.002	0.002	0.010	0.002	-0.001	-0.000
44	-0.001	0.006	0.017	0.004	-0.003	0.000
45	0.001	0.011	0.024	0.005	-0.004	0.001

46	0.006	0.017	0.014	0.005	-0.005	0.005
47	0.014	0.028	0.043	0.004	-0.007	0.005
48	0.022	0.031	0.043	0.002	-0.007	0.006
49	-0.040	-0.003	0.000	-0.000	0.000	0.000
50	-0.000	0.000	0.003	0.001	-0.000	0.000
51	0.001	0.002	0.007	0.003	-0.001	0.001
52	0.002	0.005	0.010	0.005	-0.002	0.001
53	0.005	0.011	0.014	0.006	-0.003	0.001
54	0.009	0.017	0.019	0.012	-0.004	0.000
55	0.015	0.023	0.022	0.016	-0.005	-0.000
56	0.020	0.032	0.022	0.011	-0.005	-0.001
57	0.000	-0.000	0.000	-0.000	-0.000	-0.000
58	0.000	0.000	0.001	0.001	-0.001	-0.000
59	0.002	0.002	0.002	0.003	-0.001	-0.000
60	0.004	0.005	0.002	0.005	-0.002	-0.000
61	0.006	0.011	0.003	0.007	-0.002	-0.000
62	0.010	0.017	0.005	0.008	-0.003	-0.000
63	0.013	0.024	0.004	0.009	-0.003	-0.000
64	0.016	0.033	0.004	0.008	-0.003	-0.000
65	0.007	0.011	-0.012	0.005	-0.003	0.003
66	0.010	0.017	-0.012	0.006	-0.003	0.000
67	0.013	0.024	-0.012	0.006	-0.003	0.000
68	0.016	0.032	-0.012	0.006	-0.003	0.000
69	0.011	0.017	-0.025	0.006	-0.003	0.000
70	0.014	0.024	-0.025	0.006	-0.003	0.000
71	0.017	0.032	-0.025	0.006	-0.003	0.000
72	0.015	0.024	-0.039	0.006	-0.003	0.000
73	0.018	0.032	-0.039	0.006	-0.003	0.000
74	0.019	0.032	-0.053	0.006	-0.003	0.000

ESFUERZOS EN LAS BARRAS

Barra Nº	i Nº	j Nº	Axil (t.)	Cort.1 (t.)	Cort.2 (t.)	Flec.1i (tm)	Flec.1j (tm)	Flec.2i (tm)	Flec.2j (tm)
1	1	2	2.68	-0.00	-0.01	0.00	0.00	-0.13	0.12
2	2	3	2.05	-0.00	-0.01	0.00	0.00	-0.11	0.09
3	3	4	1.32	-0.00	-0.02	0.00	0.00	-0.07	0.04
4	4	5	0.60	0.00	-0.01	-0.00	-0.00	-0.01	-0.01
5	5	6	0.12	0.00	0.06	-0.00	-0.00	0.03	-0.03
6	6	7	-0.00	-0.00	0.00	0.00	0.00	0.01	-0.01
7	7	8	-0.00	-0.00	0.00	0.00	0.00	-0.00	0.00
8	9	10	6.85	-1.24	-0.02	0.73	0.74	-0.27	0.25
9	10	11	4.89	-1.40	-0.03	0.70	0.96	-0.23	0.19
10	11	12	2.46	-1.56	-0.04	0.75	1.09	-0.14	0.09
11	12	13	1.93	-1.42	-0.03	0.64	1.03	-0.02	-0.02
12	13	14	0.66	-0.78	0.01	0.29	0.62	0.09	-0.08
13	14	15	0.15	-0.03	0.01	-0.04	0.08	0.03	-0.02
14	15	16	0.04	-0.03	0.00	0.01	0.02	-0.01	0.01
15	17	18	7.99	-2.25	-0.03	1.33	1.33	-0.30	0.26
16	18	19	7.15	-2.52	-0.04	1.28	1.76	-0.34	0.21
17	19	20	6.04	-3.00	-0.06	1.44	2.09	-0.19	0.10
18	20	21	4.55	-3.08	-0.07	1.38	2.25	-0.02	-0.06
19	21	22	2.62	-2.25	0.01	0.87	1.79	0.18	-0.17

20	22	23	0.93	-0.50	0.01	0.18	0.41	0.13	-0.10
21	23	24	0.20	-0.23	0.01	0.17	0.16	-0.01	0.02
22	25	26	10.86	-1.79	-0.06	1.67	1.61	-0.32	0.26
23	26	27	10.52	-3.16	-0.05	1.57	2.15	-0.30	0.25
24	27	28	10.38	-3.72	-0.09	1.79	2.67	-0.28	0.15
25	29	29	9.76	-4.40	-0.17	1.93	3.25	-0.10	-0.10
26	29	30	8.59	-4.58	-0.10	1.70	3.69	0.23	-0.44
27	30	31	4.37	-2.81	0.08	1.17	2.14	0.33	-0.48
28	31	32	0.49	-1.29	-0.00	0.84	0.37	-0.03	0.02
29	33	34	12.96	-2.69	-0.01	1.68	1.49	-0.31	0.30
30	34	35	14.19	-2.81	-0.03	1.36	1.96	-0.34	0.31
31	35	36	15.50	-3.33	-0.09	1.48	2.45	-0.36	0.25
32	36	37	17.94	-3.92	-0.30	1.56	3.06	-0.50	-0.05
33	37	38	21.05	-4.07	-0.38	1.26	3.54	0.14	-1.18
34	38	39	23.80	-2.55	-0.56	0.81	2.19	2.49	-3.14
35	39	40	-0.49	-1.18	-0.20	0.82	0.57	-0.13	-0.06
36	41	42	7.35	-0.51	0.03	0.29	0.32	-0.13	0.16
37	42	43	8.80	-0.66	-0.01	0.35	0.43	-0.19	0.16
38	43	44	10.50	-0.76	-0.04	0.38	0.51	-0.23	0.18
39	44	45	12.56	-0.79	-0.14	0.38	0.56	-0.26	0.09
40	46	46	14.92	-0.58	-0.01	0.24	0.44	-0.05	0.03
41	46	47	16.19	-0.16	-0.66	0.04	0.13	-0.25	-0.53
42	47	48	-0.60	-0.21	-0.45	0.13	0.11	-0.85	0.32
43	49	50	3.54	-0.17	0.02	0.07	0.13	0.00	0.02
44	50	51	3.30	-0.15	0.05	-0.05	0.23	0.01	0.04
45	51	52	4.21	-0.11	0.10	-0.14	0.27	0.04	0.07
46	52	53	4.47	-0.06	0.16	-0.20	0.27	0.07	0.12
47	53	54	4.47	0.00	0.39	-0.21	0.21	0.20	0.26
48	54	55	3.40	0.04	0.68	-0.13	0.09	0.36	0.44
49	56	56	0.19	0.02	0.57	-0.02	0.00	0.36	0.39
50	57	58	1.94	0.04	0.06	-0.94	0.89	0.01	0.05
51	58	59	1.78	0.04	0.12	-0.93	0.96	0.05	0.10
52	59	60	1.49	0.06	0.25	-0.96	0.88	0.11	0.18
53	60	61	1.44	0.09	0.22	-0.89	0.78	0.10	0.16
54	61	62	0.98	0.12	0.39	-0.70	0.56	0.21	0.25
55	62	63	0.62	0.11	0.42	-0.41	0.28	0.24	0.26
56	63	64	0.20	0.06	0.22	-0.09	0.02	0.13	0.13
57	1	9	0.00	-0.00	0.00	0.00	0.00	0.00	-0.00
58	9	17	0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
59	17	25	0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
60	25	33	-0.00	-0.00	-0.00	0.00	0.00	-0.00	-0.00
61	33	41	-0.00	0.00	-0.00	-0.00	-0.00	-0.00	-0.00
62	41	49	0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
63	49	57	-0.00	0.00	0.00	-0.00	-0.00	0.00	0.00
64	2	10	1.13	-0.62	-0.01	0.38	0.37	0.01	-0.02
65	10	18	0.76	-1.78	-0.02	1.06	1.07	-0.01	-0.02
66	18	26	0.63	-2.61	-0.03	1.54	1.59	-0.02	-0.01
67	26	34	0.25	-2.75	-0.04	1.58	1.71	-0.04	-0.01
68	34	42	0.13	-1.51	-0.05	1.13	0.68	-0.04	-0.02
69	42	50	-0.05	-0.10	0.02	0.05	0.09	0.02	0.01
70	50	58	-0.06	0.15	0.00	-0.15	-0.11	0.00	0.01
71	3	11	1.76	-0.74	-0.00	0.57	0.31	0.03	-0.04
72	11	19	1.46	-2.17	-0.01	1.39	1.31	0.02	-0.03
73	19	27	1.19	-3.39	-0.03	1.49	1.95	-0.02	-0.02
74	27	35	0.57	-3.42	-0.08	1.99	2.11	-0.09	-0.01

75	35	43	0.04	-1.81	-0.15	1.33	0.84	-0.12	-0.06
76	43	51	-0.19	-0.11	0.05	0.02	0.14	0.04	0.02
77	51	59	-0.13	0.20	0.02	-0.22	-0.21	0.01	0.02
78	4	12	1.10	-0.71	0.00	0.72	0.14	0.07	-0.07
79	12	20	1.24	-2.24	0.01	1.39	1.11	0.07	-0.05
80	20	28	1.15	-3.74	0.01	2.37	2.12	0.04	-0.02
81	28	36	0.64	-4.17	-0.07	2.09	2.52	-0.08	0.00
82	36	46	-0.04	-2.03	-0.27	1.49	0.95	-0.23	-0.10
83	44	52	-0.37	0.02	0.08	-0.12	0.09	0.06	0.06
84	52	60	-0.31	0.28	0.03	-0.24	-0.18	0.02	0.03
85	5	13	-1.43	-0.48	0.02	0.76	-0.18	0.11	-0.10
86	13	21	-0.79	-1.74	0.06	1.51	0.58	0.15	-0.08
87	21	29	0.03	-3.67	0.13	2.54	1.67	0.19	-0.03
88	29	37	-0.15	-5.07	0.21	3.09	2.95	0.15	0.09
89	37	45	-0.30	-1.92	-0.37	1.38	0.93	-0.29	-0.16
90	45	53	-0.24	0.45	0.09	-0.57	-0.58	0.06	0.07
91	53	61	-0.01	0.45	0.01	-0.24	-0.41	0.01	0.02
92	6	14	-6.27	-0.12	0.00	0.70	-0.55	0.11	-0.11
93	14	22	-5.52	-0.65	0.03	1.13	-0.35	0.13	-0.13
94	22	30	-5.76	-2.47	0.01	2.22	0.64	0.19	-0.17
95	30	38	-2.30	-6.69	0.19	4.22	3.81	0.40	-0.13
96	38	46	-0.47	-1.05	0.51	0.55	0.72	0.37	0.04
97	46	54	-0.14	1.56	0.03	-1.68	-0.58	0.00	0.04
98	54	62	0.15	0.49	-0.00	-0.04	-0.67	-0.01	-0.00
99	7	15	-3.06	0.00	-0.00	0.16	-0.16	0.00	-0.00
100	15	23	-3.06	-0.11	-0.01	0.25	-0.12	-0.00	-0.01
101	23	31	-2.84	-0.70	-0.03	0.70	0.15	-0.01	-0.02
102	31	39	-1.23	-4.58	-0.11	2.84	2.66	-0.06	-0.07
103	39	47	0.14	-0.73	0.25	0.35	0.53	0.16	0.14
104	47	55	0.46	3.29	-0.07	-3.38	-1.39	-0.08	-0.05
105	55	63	0.34	0.03	-0.05	0.59	-0.70	-0.04	-0.04
106	8	16	-2.82	0.00	-0.00	0.03	-0.03	0.00	-0.00
107	16	24	-2.79	-0.04	-0.00	0.05	-0.00	-0.00	-0.00
108	24	32	-2.51	-0.24	-0.01	0.17	0.12	-0.00	-0.01
109	32	40	-1.31	-0.73	-0.00	0.45	0.42	0.01	-0.01
110	40	48	-0.13	-0.24	0.20	0.15	0.14	0.12	0.11
111	48	56	0.36	0.36	-0.08	-0.31	-0.22	-0.07	-0.04
112	56	64	0.08	0.18	-0.06	-0.08	-0.17	-0.04	-0.04
113	65	66	-0.26	0.00	0.07	-0.02	0.02	0.04	0.04
114	66	67	-0.13	0.00	-0.01	-0.02	0.02	-0.01	-0.00
115	67	68	-0.01	0.00	-0.07	-0.00	0.00	-0.05	-0.03
116	69	70	-0.05	0.00	-0.00	-0.00	0.00	-0.00	0.00
117	70	71	-0.01	0.00	-0.04	-0.00	0.00	-0.03	-0.02
118	72	73	-0.00	0.00	-0.01	-0.00	0.00	-0.01	-0.01
119	61	65	0.15	-0.00	0.00	0.03	-0.04	0.00	-0.00
120	62	66	0.19	-0.07	0.00	0.19	-0.03	0.00	-0.00
121	66	69	0.11	0.00	0.00	-0.00	-0.00	0.00	-0.00
122	63	67	0.14	-0.14	-0.00	0.01	0.03	0.00	-0.00
123	67	70	0.07	-0.02	0.00	0.03	0.03	0.00	-0.00
124	70	72	0.03	-0.01	0.00	-0.00	0.01	0.00	-0.00
125	64	68	-0.13	-0.02	-0.00	0.04	0.02	-0.00	-0.00
126	68	71	-0.06	-0.02	-0.00	0.02	0.02	0.00	-0.00
127	71	73	-0.02	-0.01	0.00	0.01	0.01	0.00	-0.00
128	73	74	-0.01	-0.00	-0.00	0.00	0.00	0.00	-0.00
129	60	65	-0.41	0.06	-0.00	-0.11	-0.05	0.00	-0.00

130	66	69	-0.12	-0.02	-0.00	0.04	0.02	0.00	-0.00
131	69	72	-0.01	0.00	0.00	-0.02	0.01	0.00	-0.00
132	72	74	0.01	0.00	0.00	-0.01	-0.00	0.00	-0.00

DIMENSIONAMIENTO DE ARMADURAS

Esfuerzos de cálculo y armadura vertical del muro frontal

Nudo Nº	Canto (m)	Ancho (m)	Recu. (m)	(1)*(2)*(3) Nd (t/m)	(1)*(2)*(3) Md (txm/m)	(1)*(2)*(4) Nd (t/m)	(1)*(2)*(4) Md (txm/m)	Aint. (cm²/m)	Aext. (cm²/m)
9	0.25	1.00	0.05	0.51	-0.11	0.19	-0.20	1.13	1.13
7	0.25	1.00	0.05	0.51	0.12	0.19	0.16	1.13	1.13
6	1.13	1.00	0.05	3.51	-0.23	1.34	-0.77	5.09	5.09
5	1.05	1.00	0.05	8.74	1.57	3.75	1.34	4.72	4.72
4	1.05	1.00	0.05	15.56	0.28	6.87	-1.52	4.72	4.72
3	1.05	1.00	0.05	25.66	-5.34	10.96	-11.69	4.72	4.72
2	1.05	1.00	0.05	32.46	-16.58	15.60	-31.70	9.12	4.72
1	1.05	1.00	0.05	40.47	-63.59	19.92	-35.83	14.90	4.72
16	0.25	1.00	0.05	0.60	-0.10	0.23	-0.20	1.13	1.13
15	0.25	1.00	0.05	0.60	0.13	0.23	0.17	1.13	1.13
14	1.13	1.00	0.05	3.98	-0.17	1.73	-0.73	5.09	5.09
13	1.05	1.00	0.05	9.85	1.79	4.41	1.45	4.72	4.72
12	1.05	1.00	0.05	17.53	0.42	8.18	-1.33	4.72	4.72
11	1.05	1.00	0.05	28.04	-5.14	12.77	-11.35	4.72	4.72
10	1.05	1.00	0.05	35.02	-30.40	17.10	-16.98	8.82	4.72
9	1.05	1.00	0.05	43.54	-62.67	21.28	-35.11	14.69	4.72
24	0.25	1.00	0.05	0.99	-0.08	0.41	-0.18	1.13	1.13
23	0.25	1.00	0.05	0.99	0.13	0.41	0.22	1.13	1.13
22	1.13	1.00	0.05	5.42	0.13	2.49	-0.51	5.09	5.09
21	1.05	1.00	0.05	14.29	2.61	6.88	1.37	4.72	4.72
20	1.05	1.00	0.05	25.32	0.07	11.83	0.05	4.72	4.72
19	1.05	1.00	0.05	35.41	-9.55	16.71	-5.28	4.72	4.72
18	1.05	1.00	0.05	44.45	-28.74	21.20	-16.03	8.42	4.72
17	1.05	1.00	0.05	52.66	-60.00	25.38	-33.59	14.05	4.72
32	0.25	1.00	0.05	1.75	-0.04	0.72	-0.03	1.13	1.13
31	0.25	1.00	0.05	1.75	0.35	0.72	0.21	1.13	1.13
30	1.13	1.00	0.05	13.96	1.34	5.54	0.46	5.09	5.09
29	1.05	1.00	0.05	30.11	3.73	12.38	1.92	4.72	4.72
28	1.05	1.00	0.05	42.03	1.14	18.36	0.69	4.72	4.72
27	1.05	1.00	0.05	51.90	-7.78	23.69	-4.24	4.72	4.72
26	1.05	1.00	0.05	60.14	-26.13	28.25	-14.54	7.78	4.72
25	1.05	1.00	0.05	67.42	-56.23	32.27	-31.46	13.53	4.72
40	0.25	1.00	0.05	0.22	0.30	0.38	0.20	1.13	1.13
39	0.25	1.00	0.05	3.22	0.52	0.38	0.27	1.13	1.13
38	1.13	1.00	0.05	60.97	6.80	21.09	2.31	5.09	5.09
37	1.05	1.00	0.05	65.05	5.16	24.27	2.85	4.72	4.72
36	1.05	1.00	0.05	67.48	3.83	28.19	1.54	4.72	4.72

35	1.05	1.00	0.05	73.91	-8.26	33.20	-8.72	4.72	4.72
34	1.05	1.00	0.05	82.15	-27.75	36.59	-15.12	7.17	4.72
33	1.05	1.00	0.05	90.38	-54.25	40.83	-30.55	13.56	4.72
49	1.05	1.00	0.05	-1.13	1.42	0.03	0.45	4.72	4.72
47	1.05	1.00	0.05	-1.13	2.99	0.00	2.59	4.72	4.72
46	1.13	1.00	0.05	32.39	18.48	31.41	10.66	5.09	5.39
45	1.05	1.00	0.05	90.57	4.05	35.22	2.34	4.72	4.72
44	1.05	1.00	0.05	90.21	-0.24	37.42	0.19	4.72	4.72
43	1.05	1.00	0.05	97.31	-16.52	43.59	-9.05	5.20	4.72
42	1.05	1.00	0.05	115.15	-33.44	55.43	-18.61	9.52	4.72
41	1.05	1.00	0.05	136.31	-64.66	80.83	-36.23	15.16	4.72

Esfuerzos de cálculo y armadura horizontal del muro frontal

Nudo Nº	Canto (m)	Ancho (m)	Recu. (m)	(2):Emp.tierras+Fx Nd (t/m)	(2):Emp.tierras+Fx Md (txm/m)	Aint. (cm²/m)	Aext. (cm²/m)
1	1.05	1.00	0.05	0.00	-0.00	8.40	8.40
9	1.05	1.00	0.05	0.00	-0.00	8.40	8.40
17	1.05	1.00	0.05	0.00	-0.00	8.40	8.40
25	1.05	1.00	0.05	0.00	-0.00	8.40	8.40
33	1.05	1.00	0.05	-0.00	0.00	8.40	8.40
41	1.05	1.00	0.05	-0.00	-0.00	8.40	8.40
2	1.05	1.00	0.05	0.29	0.32	8.40	8.40
10	1.05	1.00	0.05	0.42	-0.13	8.40	8.40
18	1.05	1.00	0.05	0.31	-0.69	8.40	8.40
26	1.05	1.00	0.05	0.62	-1.28	8.40	8.40
34	1.05	1.00	0.05	-0.98	-2.73	8.40	8.40
42	1.05	1.00	0.05	-0.98	0.40	8.40	8.40
3	1.05	1.00	0.05	-1.30	1.48	8.40	8.40
11	1.05	1.00	0.05	-1.04	1.12	8.40	8.40
19	1.05	1.00	0.05	-0.73	0.52	8.40	8.40
27	1.05	1.00	0.05	-1.05	-0.53	8.40	8.40
35	1.05	1.00	0.05	-2.77	-2.60	8.40	8.40
43	1.05	1.00	0.05	-2.77	-0.86	8.40	8.40
4	1.05	1.00	0.05	-5.18	2.95	8.40	8.40
12	1.05	1.00	0.05	-4.77	2.69	8.40	8.40
20	1.05	1.00	0.05	-4.15	2.36	8.40	8.40
28	1.05	1.00	0.05	-3.84	0.82	8.40	8.40
36	1.05	1.00	0.05	-4.18	-1.17	8.40	8.40
44	1.05	1.00	0.05	-4.18	-2.23	8.40	8.40
5	1.05	1.00	0.05	-11.21	4.56	8.40	8.40
13	1.05	1.00	0.05	-10.70	4.43	8.40	8.40
21	1.05	1.00	0.05	-9.56	3.80	8.40	8.40
29	1.05	1.00	0.05	-7.69	2.34	8.40	8.40

37	1.05	1.00	0.05	-5.63	-0.52	8.40	8.40
45	1.05	1.00	0.05	-5.63	-3.82	8.40	8.40
6	1.05	1.00	0.05	-18.09	6.45	8.40	8.40
14	1.05	1.00	0.05	-18.75	7.15	8.40	8.40
22	1.05	1.00	0.05	-18.02	7.26	8.40	8.40
30	1.05	1.00	0.05	-15.55	6.29	8.40	8.40
38	1.05	1.00	0.05	-8.25	2.72	8.40	8.40
46	1.05	1.00	0.05	-8.25	-9.99	8.40	8.40
7	0.25	1.00	0.05	-6.56	0.14	2.00	2.00
15	0.25	1.00	0.05	-6.76	0.26	2.00	2.00
23	0.25	1.00	0.05	-7.09	0.36	2.00	2.00
31	0.25	1.00	0.05	-7.34	0.43	2.00	2.00
39	0.25	1.00	0.05	-6.74	1.13	2.00	2.00
47	0.25	1.00	0.05	-6.74	-1.77	2.00	2.00
8	0.30	1.00	0.05	-10.82	0.35	2.40	2.40
16	0.30	1.00	0.05	-11.29	0.71	2.40	2.40
24	0.30	1.00	0.05	-12.08	1.10	2.40	2.40
32	0.30	1.00	0.05	-12.79	1.64	2.40	2.40
40	0.30	1.00	0.05	-12.16	1.99	2.40	2.40
48	0.30	1.00	0.05	-12.16	-3.56	2.40	2.40

Esfuerzos de cálculo y armadura vertical en la aleta

				(1)+(2)+(3)		(1)+(2)+(4)			
Nudo Nº	Canto (m)	Ancho (m)	Recu. (m)	Nd (t/m)	Md (txm/m)	Nd (t/m)	Md (txm/m)	Aint. (cm²/m)	Aext. (cm²/m)
55	0.30	1.00	0.05	2.02	-0.05	1.85	-0.19	1.35	1.35
54	0.30	1.00	0.05	12.46	-1.05	5.51	-0.75	1.35	1.35
53	0.30	1.00	0.05	15.35	-2.54	6.67	-1.52	2.86	1.35
52	0.30	1.00	0.05	14.62	-1.54	5.06	-4.23	3.97	1.35
51	0.30	1.00	0.05	13.73	-3.06	2.35	-5.73	5.45	1.35
50	0.30	1.00	0.05	12.64	-2.98	-3.13	-5.39	5.09	1.35
49	0.30	1.00	0.05	10.13	-1.84	-9.19	-3.34	3.38	1.35
63	0.30	1.00	0.05	0.90	-0.20	-0.05	-0.62	1.35	1.35
62	0.30	1.00	0.05	2.59	-0.50	-1.61	-1.30	1.63	1.35
61	0.30	1.00	0.05	4.40	-0.87	-3.70	-1.96	2.32	1.35
60	0.30	1.00	0.05	5.56	-0.82	-6.77	-1.93	2.29	1.35
59	0.30	1.00	0.05	9.57	-2.39	-11.61	-3.92	3.67	1.35
58	0.30	1.00	0.05	6.80	-1.88	-17.84	-3.39	3.38	1.35
57	0.30	1.00	0.05	5.36	-1.37	-22.36	-2.89	3.12	1.35
67	0.30	1.00	0.05	0.66	-0.57	0.29	-0.17	1.35	1.35
66	0.30	1.00	0.05	1.67	-0.93	0.87	-0.36	1.35	1.35
65	0.30	1.00	0.05	2.48	-1.19	1.31	-0.97	1.49	1.35
70	0.30	1.00	0.05	0.66	-0.28	0.37	-0.15	1.35	1.35

69	0.30	1.00	0.05	1.80	-0.74	1.02	-0.41	1.35	1.35
72	0.30	1.00	0.05	0.64	-0.19	0.36	-0.11	1.35	1.35

Esfuerzos de cálculo y armadura horizontal en la aleta

				(2):Emp.tierras+Fx			
Nudo Nº	Canto (m)	Ancho (m)	Recu. (m)	Mo (t/m)	Md (txm/m)	Aint. (cm²/m)	Aext. (cm²/m)
41	0.30	1.00	0.05	-0.00	-0.00	2.40	2.40
49	0.30	1.00	0.05	0.00	0.00	2.40	2.40
57	0.30	1.00	0.05	0.00	-0.00	2.40	2.40
42	0.30	1.00	0.05	4.39	-0.20	2.40	2.40
50	0.30	1.00	0.05	1.79	0.90	2.40	2.40
58	0.30	1.00	0.05	1.79	-0.91	2.40	2.40
43	0.30	1.00	0.05	1.41	-1.14	2.40	2.40
51	0.30	1.00	0.05	0.79	1.20	2.40	2.40
59	0.30	1.00	0.05	0.79	-1.17	2.40	2.40
44	0.30	1.00	0.05	1.21	-2.23	2.67	2.40
52	0.30	1.00	0.05	2.51	1.05	2.40	2.40
60	0.30	1.00	0.05	2.51	-0.95	2.40	2.40
45	0.30	1.00	0.05	-3.41	-3.64	3.41	2.40
53	0.30	1.00	0.05	-2.40	0.40	2.40	2.40
61	0.30	1.00	0.05	-2.27	-8.57	8.26	2.40
69	0.30	1.00	0.05	-2.27	-2.11	3.26	2.40
46	0.30	1.00	0.05	-5.91	-5.04	4.76	2.40
54	0.30	1.00	0.05	-4.27	-0.49	2.40	2.40
62	0.30	1.00	0.05	-2.38	-9.86	9.50	2.40
66	0.30	1.00	0.05	-1.58	-3.54	3.40	2.40
69	0.30	1.00	0.05	-1.58	0.09	3.40	2.40
47	0.30	1.00	0.05	-5.34	-4.32	4.54	2.40
55	0.30	1.00	0.05	-3.72	-1.61	2.40	2.40
63	0.30	1.00	0.05	-1.27	-11.03	10.87	2.40
67	0.30	1.00	0.05	-0.75	-4.52	4.23	2.40
70	0.30	1.00	0.05	-0.33	-1.23	2.40	2.40
72	0.30	1.00	0.05	-0.33	0.41	2.40	2.40
48	0.30	1.00	0.05	-5.75	-5.28	5.18	2.40
56	0.30	1.00	0.05	-1.80	-2.16	3.31	2.40
64	0.30	1.00	0.05	2.05	-12.35	12.23	2.40
68	0.30	1.00	0.05	1.34	-5.29	5.00	2.40
71	0.30	1.00	0.05	0.45	-1.51	2.40	2.40
73	0.30	1.00	0.05	0.19	0.00	2.40	2.40
74	0.30	1.00	0.05	0.19	-0.00	2.40	2.40

Esfuerzos de cálculo y armadura en zapata

Puntera :

Flexion: Md = 10.12 txm/m ; Asup.= 15.00 cm²/m ; Ainf.= 0.00 cm²/m
Comprobacion a cortante ...: Vcu= 64.55 t ; Vd = 0.00 t
Vd < Vcu ..... No es necesaria armadura transversal por cortante

Talón :

Borde empotrado en muro frontal ..... : Mxd = 0.33 txm/m
Borde empotrado en aleta ..... : Myt = -1.07 txm/m
Borde libre ..... : Myd = 1.29 txm/m
Centro del talón ..... : Mxd = -2.26 txm/m ; Myd = 2.59 txm/m
Armaduras ..... : Asup.= 7.50 cm²/m ; Ainf.= 7.50 cm²/m

SALIDA RESULTADOS SAP 90

STRUCTURAL ANALYSIS PROGRAMS

VERSION 5.40

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REPOSICION 304+615, 3 VANOS 15+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1								
	MAX & MIN							
	1	.000			-.440			37.774
		.000	16.875	-12.122		2.596	-1.691	
		1.083	11.642	3.325		1.858	.711	
		2.167	6.410	13.104		1.060	2.293	
		2.167			-.440			37.774
	MAX							
	2	.000			2.993			52.532
		.000	31.393	-8.545		2.258	-1.575	
		1.083	21.572	4.866		1.803	.279	
		2.167	11.692	18.459		1.348	1.938	
		2.167			2.993			52.532
	MIN							
	2	.000			1.962			25.499
		.000	13.560	-15.978		1.781	-1.979	
		1.083	5.546	3.286		1.326	.127	
		2.167	-3.710	9.484		.871	1.436	
		2.167			1.962			25.499
	MAX							
	3	.000			4.845			53.327
		.000	31.576	-8.760		2.475	-1.972	
		1.083	21.754	4.849		2.020	.118	
		2.167	11.874	18.639		1.565	2.002	
		2.167			4.845			53.327
	MIN							
	3	.000			3.814			26.295
		.000	13.742	-16.192		1.998	-2.376	
		1.083	5.728	3.269		1.543	.015	
		2.167	-3.528	9.665		1.088	1.510	
		2.167			3.814			26.295
	MAX							
	4	.000			5.324			64.432
		.000	41.549	-6.718		2.420	-1.475	
		1.083	28.668	5.852		1.965	.326	
		2.167	15.689	22.504		1.510	2.113	
		2.167			5.324			64.432
	MIN							
	4	.000			1.606			19.378
		.000	11.827	-19.106		1.626	-2.147	
		1.083	1.958	3.218		1.171	.155	
		2.167	-9.981	7.547		.716	1.293	
		2.167			1.606			19.378
	MAX & MIN							
	5	.000			.011			36.189
		.000	15.975	-11.408		.013	-.016	
		1.083	10.743	3.064		.013	-.002	
		2.167	5.510	11.868		.013	.017	
		2.167			.011			36.189
	MAX & MIN							
	6	.000			.005			38.898

PROGRAM:SAP90/FILE:304615.F3F

REPOSICION 304+615, 3 VANOS 15+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	16.952	-12.212		.004	-.004	
		1.083	11.719	3.319		.004	-.001	
		2.167	6.487	13.180		.004	.003	
		2.167			.005			38.898
	MAX							
	ALL	.000			4.845			64.432
		.000	41.549	-6.718		2.596	-.004	
		1.083	28.668	5.852		2.020	.711	
		2.167	15.689	22.504		1.565	2.293	
		2.167			4.845			64.432
	MIN							
	ALL	.000			-.440			19.378
		.000	11.827	-19.106		.004	-2.576	
		1.083	1.958	3.064		.004	-.002	
		2.167	-9.781	7.547		.004	.003	
		2.167			-.440			19.378
2								
	MAX & MIN							
	1	.000			-2.479			34.471
		.000	8.313	2.683		1.823	-.745	
		1.083	3.080	8.854		1.065	.820	
		2.167	-2.152	9.357		.307	1.563	
		2.167			-2.479			34.471
	MAX							
	2	.000			.759			48.581
		.000	19.497	6.148		1.661	-.946	
		1.083	9.994	12.167		1.206	.412	
		2.167	.658	14.519		.751	1.433	
		2.167			.759			48.581
	MIN							
	2	.000			-.154			21.756
		.000	5.589	2.498		1.326	1.181	
		1.083	-3.491	7.574		.871	.292	
		2.167	-12.552	6.545		.416	1.036	
		2.167			-.154			21.756
	MAX							
	3	.000			2.143			49.447
		.000	19.577	6.080		1.862	-1.289	
		1.083	10.074	13.187		1.407	.286	
		2.167	.738	14.625		.952	1.524	
		2.167			2.143			49.447
	MIN							
	3	.000			1.250			22.621
		.000	5.469	2.431		1.527	-1.524	
		1.083	-3.410	7.593		1.072	.166	
		2.167	12.452	6.652		.617	1.128	
		2.167			1.250			22.621
	MAX							
	4	.000			.990			60.229
		.000	27.163	8.290		1.779	-.894	
		1.083	14.812	16.103		1.324	.462	

PROGRAM:SAP90/FILE:304615.F3F

REPOSICION 304+615, 3 VANOS 15+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.167	2.741	18.248		.869	1.584	
		2.167			.990			60.729
	MIN							
	4	.000			-.499			15.520
		.000	3.650	2.208		1.221	-1.285	
		1.083	-7.661	6.780		.766	.261	
		2.167	-19.242	4.958		.311	.923	
		2.167			-.499			15.520
	MAX & MIN							
	5	.000			-.020			33.427
		.000	7.955	2.078		.018	-.020	
		1.083	2.722	7.862		.018	-.000	
		2.167	-2.510	7.976		.018	.020	
		2.167			-.020			33.427
	MAX & MIN							
	6	.000			-.006			34.813
		.000	8.346	2.656		.005	-.006	
		1.083	3.114	8.864		.005	.000	
		2.167	-2.119	9.403		.005	.005	
		2.167			-.006			34.813
	MAX							
	ALL	.000			2.143			60.729
		.000	27.163	8.290		1.862	-.006	
		1.083	14.812	16.103		1.407	.820	
		2.167	2.741	18.248		.952	1.584	
		2.167			2.143			60.729
	MIN							
	ALL	.000			-2.479			15.520
		.000	3.650	2.078		.005	-1.524	
		1.083	-7.661	6.780		.005	-.000	
		2.167	-19.242	4.958		.005	.005	
		2.167			-2.479			15.520
3								
	MAX & MIN							
	1	.000			-4.134			26.781
		.000	6.276	4.328		1.728	-.691	
		1.083	1.044	8.293		.969	.770	
		2.167	-4.189	6.590		.211	1.409	
		2.167			-4.134			26.781
	MAX							
	2	.000			-.594			38.599
		.000	17.097	9.473		1.488	-.599	
		1.083	7.600	13.291		1.033	.465	
		2.167	-1.626	11.459		.578	1.325	
		2.167			-.594			38.599
	MIN							
	2	.000			-1.819			19.936
		.000	5.229	4.008		1.155	-.916	
		1.083	-5.644	6.750		.700	.595	
		2.167	-14.786	3.616		.245	.916	
		2.167			-1.819			19.936

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX							
	3	.000			.484			39.478
		.000	17.176	9.388		1.614	-.899	
		1.083	7.678	13.291		1.159	.401	
		2.167	-1.548	11.525		.704	1.398	
		2.167			.484			39.428
	MIN							
	3	.000			-.740			16.365
		.000	3.308	3.923		1.281	-1.117	
		1.083	-5.566	6.750		.826	.291	
		2.167	-14.708	3.701		.371	.908	
		2.167			-.740			16.365
	MAX							
	4	.000			-.202			48.621
		.000	24.516	12.697		1.602	-.645	
		1.083	12.176	16.638		1.147	.507	
		2.167	.287	14.911		.692	1.482	
		2.167			-.202			48.621
	MIN							
	4	.000			-2.243			10.183
		.000	1.403	3.588		1.047	-1.007	
		1.083	-9.898	5.704		.592	.324	
		2.167	-21.646	1.872		.137	.799	
		2.167			-2.243			10.183
	MAX & MIN							
	5	.000			-.057			26.783
		.000	6.013	3.120		.023	-.021	
		1.083	.781	6.800		.023	.004	
		2.167	-4.452	4.812		.023	.029	
		2.167			-.057			26.783
	MAX & MIN							
	6	.000			-.016			27.094
		.000	6.308	4.295		.006	-.006	
		1.083	1.076	8.295		.006	.001	
		2.167	-4.157	6.627		.006	.008	
		2.167			-.016			27.094
	MAX							
	ALL	.000			.484			48.621
		.000	24.516	12.697		1.728	-.006	
		1.083	12.176	16.638		1.159	.770	
		2.167	.287	14.911		.704	1.482	
		2.167			.484			48.621
	MIN							
	ALL	.000			-4.134			10.183
		.000	1.403	3.120		.006	-1.117	
		1.083	-9.898	5.704		.006	.001	
		2.167	-21.646	1.872		.006	.008	
		2.167			-4.134			10.183
4	----------							
	MAX & MIN							
	1	.000			-5.558			21.361

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	4.657	3.274		1.617	-.482	
		1.083	-.595	5.464		.858	.859	
		2.167	-5.828	1.985		.100	1.378	
		2.167			-5.558			21.361
	MAX							
	2	.000			-1.632			31.399
		.000	15.212	8.446		1.351	-.451	
		1.083	5.719	9.698		.896	.593	
		2.167	-3.426	5.397		.441	1.313	
		2.167			-1.632			31.399
	MIN							
	2	.000			-3.266			11.539
		.000	1.466	2.744		1.010	-.629	
		1.083	-7.403	3.381		.555	.447	
		2.167	-16.615	-1.473		.100	.852	
		2.167			-3.266			11.539
	MAX							
	3	.000			-.746			32.193
		.000	15.292	8.352		1.426	-.568	
		1.083	5.799	9.691		.971	.557	
		2.167	-3.346	5.477		.516	1.358	
		2.167			-.746			32.193
	MIN							
	3	.000			-2.380			12.333
		.000	1.546	2.650		1.085	-.746	
		1.083	-7.323	3.374		.630	.411	
		2.167	-16.535	-1.393		.175	.897	
		2.167			-2.380			12.333
	MAX							
	4	.000			-1.073			40.146
		.000	22.471	11.671		1.466	-.406	
		1.083	10.137	12.525		1.011	.648	
		2.167	-1.616	7.902		.556	1.490	
		2.167			-1.073			40.146
	MIN							
	4	.000			-3.796			7.046
		.000	-.440	2.167		.898	-.702	
		1.083	-11.733	1.996		.443	.404	
		2.167	-23.598	-3.549		-.012	.721	
		2.167			-3.796			7.046
	MAX & MIN							
	5	.000			-.104			22.418
		.000	4.440	1.418		.030	-.025	
		1.083	-.792	3.394		.030	.008	
		2.167	-6.025	-.298		.030	.040	
		2.167			-.104			22.418
	MAX & MIN							
	6	.000			-.029			21.637
		.000	4.670	3.240		.008	-.007	
		1.083	-.565	5.465		.008	.002	
		2.167	-5.795	2.022		.008	.011	

PROGRAM:SAP90/FILE:304615.F3I

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.167			-.029			21.637
	MAX							
	ALL	.000			-.029			40.146
		.000	22.471	11.671		1.617	-.007	
		1.083	10.137	12.525		1.011	.859	
		2.167	-1.616	7.902		.556	1.490	
		2.167			-.029			40.146
	MIN							
	ALL	.000			-5.558			7.046
		.000	-.440	1.418		.008	-.746	
		1.083	-11.733	1.996		.008	.002	
		2.167	-23.598	-3.549		-.012	.011	
		2.167			-5.558			7.046
5	----------							
	MAX & MIN							
	1	.000			-6.776			17.390
		.000	3.378	-1.034		1.482	-.232	
		1.083	-1.854	-.209		.723	.963	
		2.167	-7.087	-5.051		-.035	1.336	
		2.167			-6.776			17.390
	MAX							
	2	.000			-2.445			26.109
		.000	13.743	2.588		1.237	-.249	
		1.083	4.257	2.027		.782	.736	
		2.167	-4.801	-4.100		.327	1.334	
		2.167			-2.445			26.109
	MIN							
	2	.000			-4.548			8.176
		.000	.140	-2.473		.888	-.363	
		1.083	-8.722	-2.900		.433	.518	
		2.167	-18.007	-8.996		-.022	.792	
		2.167			-4.548			8.176
	MAX							
	3	.000			-1.682			26.867
		.000	13.824	2.489		1.285	-.326	
		1.083	4.358	2.015		.830	.711	
		2.167	-4.719	-4.024		.375	1.360	
		2.167			-1.682			26.867
	MIN							
	3	.000			-3.784			8.934
		.000	.222	-2.572		.935	-.440	
		1.083	-8.640	-2.912		.480	.495	
		2.167	-17.926	-8.919		.025	.818	
		2.167			-3.784			8.934
	MAX							
	4	.000			-1.721			33.895
		.000	20.861	4.773		1.356	-.222	
		1.083	8.539	3.513		.901	.819	
		2.167	-3.068	-3.245		.446	1.543	
		2.167			-1.721			33.895

PROGRAM:SAP90/FILE:304615.F3I

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN							
	4	.000			-5.225			4.007
		.000	-1.809	-3.662		.775	-.412	
		1.083	-13.091	-4.699		.318	.455	
		2.167	-25.079	-11.404		-.157	.659	
		2.167			-5.225			4.007
	MAX & MIN							
	5	.000			-.162			19.417
		.000	3.297	-3.669		.039	-.031	
		1.083	-1.936	-2.932		.039	.011	
		2.167	-7.168	-7.863		.039	.053	
		2.167			-.162			19.417
	MAX & MIN							
	6	.000			-.045			17.622
		.000	3.410	-1.064		.011	-.009	
		1.083	-1.822	-.203		.011	.003	
		2.167	-7.055	-5.012		.011	.015	
		2.167			-.045			17.622
	MAX							
	ALL	.000			-.045			33.895
		.000	20.861	4.773		1.482	-.009	
		1.083	8.539	3.513		.901	.963	
		2.167	-3.068	-3.245		.446	1.543	
		2.167			-.045			33.895
	MIN							
	ALL	.000			-6.776			4.007
		.000	-1.809	-3.669		.011	-.440	
		1.083	-13.091	-4.699		.011	.003	
		2.167	-25.079	-11.404		-.157	.015	
		2.167			-6.776			4.007
6	----------							
	MAX & MIN							
	1	.000			-7.793			11.610
		.000	4.170	-8.542		1.349	-.011	
		1.083	-1.063	-6.859		.590	1.040	
		2.167	-6.295	-10.844		-.168	1.269	
		2.167			-7.793			11.610
	MAX							
	2	.000			-3.103			19.092
		.000	14.456	-7.231		1.114	-.021	
		1.083	4.981	-6.384		.659	.884	
		2.167	-4.045	-10.832		.204	1.347	
		2.167			-3.103			19.092
	MIN							
	2	.000			-5.637			2.688
		.000	1.060	-10.758		.807	-.114	
		1.083	-7.792	-9.914		.352	.558	
		2.167	-17.102	-14.783		-.103	.736	
		2.167			-5.637			2.688
	MAX							
	3	.000			-2.430			19.780

PRODUCTION:SHP90/FILE:304615.DAT

REFOSICION 304+615. 3 OHNOS 13+12+13 FILE:304615

F E A T U R E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHECK)

ELT LOAD ID	DIST END1	SHEAR END1	1-2 PLANE MOMENT END1	AXIAL FORCE	1-3 PLANE SHEAR	MOMENT	AXIAL TORQ
1							
MAX & MIN							
MAX	1.000	-.000	-.000	-.000	-.000	-.000	-.000
MIN	1.000	-.000	-.000	-.000	-.000	-.000	-.000
2							
MAX & MIN							
MAX	1.063	17.670	9.502	4.241	8.378	1.063	.382
MIN	1.063	17.670	9.502	4.241	8.378	1.063	.382
3							
MAX & MIN							
MAX	1.063	-18.988	-2.962	-3.940	-10.400	3.861	.009
MIN	1.063	-18.988	-2.962	-3.940	-10.400	3.861	.009
4							
MAX & MIN							
MAX	1.063	25.931	-4.115	2.695	13.838	1.063	.436
MIN	1.063	25.931	-4.115	2.695	13.838	1.063	.436
5							
MAX & MIN							
MAX	1.063	10.383	-7.003	2.079	4.274	1.063	.034
MIN	1.063	-1.836	2.079	.784	-.617	-7.577	.034
6							
MAX & MIN							
MAX	1.063	8.054	-6.117	.092	-2.210	-2.922	.009
MIN	1.063	-4.489	9.330	9.409	8.330	1.063	.302
7							
MAX & MIN							
MAX	1.063	17.642	4.238	-4.719	-9.707	1.063	.748
MIN	1.063	-3.160	4.972	.781	7.104	1.972	.221
8							
MAX & MIN							
MAX	1.063	-18.988	-2.962	-9.266			
MIN	1.063	-7.212	-3.940	-10.400	3.861	.009	.009
9							
MAX & MIN							
MAX	1.063	25.931	-4.115	2.695	13.838	1.063	.436
MIN	1.063	-13.344	3.894	-1.394	4.544	-4.155	3.847
10							
MAX & MIN							
MAX	1.063	17.670	9.502	4.241	8.378	1.063	.382
MIN	1.063	8.378	9.502	4.241	17.670	1.063	.382

ELT LOAD ID	DIST END1	SHEAR END1	1-2 PLANE MOMENT END1	AXIAL FORCE	1-3 PLANE SHEAR	MOMENT	AXIAL TORQ
1							
MAX & MIN							
MAX	1.063	1.950	-6.984	-11.761	7.062	1.063	
MIN	1.063	1.950	-6.984	-11.761	7.062	1.063	
2							
MAX & MIN							
MAX	1.063	-.016	-2.748	-6.822	21.578	1.063	
MIN	1.063	-.016	-2.748	-6.822	21.578	1.063	
3							
MAX & MIN							
MAX	1.063	-.025	-1.349	-6.622	21.579	1.063	
MIN	1.063	-.025	-1.349	-6.622	21.579	1.063	
4							
MAX & MIN							
MAX	1.063	-.034	-1.749	-6.422	21.579	1.063	
MIN	1.063	-.034	-1.749	-6.422	21.579	1.063	
5							
MAX & MIN							
MAX	1.063	-.042	-2.149	-6.222	21.579	1.063	
MIN	1.063	-.042	-2.149	-6.222	21.579	1.063	
6							
MAX & MIN							
MAX	1.063	-.051	-2.549	-6.022	21.579	1.063	
MIN	1.063	-.051	-2.549	-6.022	21.579	1.063	
7							
MAX & MIN							
MAX	1.063	-.059	-2.949	-5.822	21.579	1.063	
MIN	1.063	-.059	-2.949	-5.822	21.579	1.063	
8							
MAX & MIN							
MAX	1.063	-.068	-3.349	-5.622	21.579	1.063	
MIN	1.063	-.068	-3.349	-5.622	21.579	1.063	
9							
MAX & MIN							
MAX	1.063	-.077	-3.749	-5.422	21.579	1.063	
MIN	1.063	-.077	-3.749	-5.422	21.579	1.063	
10							
MAX & MIN							
MAX	1.063	-.086	-4.149	-5.222	21.579	1.063	
MIN	1.063	-.086	-4.149	-5.222	21.579	1.063	

REFOSICION 304+615. 3 OHNOS 13+12+13 FILE:304615

F E A T U R E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHECK)

ELT LOAD ID	DIST END1	SHEAR END1	1-2 PLANE MOMENT END1	AXIAL FORCE	1-3 PLANE SHEAR	MOMENT	AXIAL TORQ
1							
MAX & MIN							
MAX	1.063	1.950	-6.984	-11.761	7.062	1.063	
MIN	1.063	1.950	-6.984	-11.761	7.062	1.063	
2							
MAX & MIN							
MAX	1.063	-.016	-2.748	-6.822	21.578	1.063	
MIN	1.063	-.016	-2.748	-6.822	21.578	1.063	
3							
MAX & MIN							
MAX	1.063	-.025	-1.349	-6.622	21.579	1.063	
MIN	1.063	-.025	-1.349	-6.622	21.579	1.063	
4							
MAX & MIN							
MAX	1.063	-.034	-1.749	-6.422	21.579	1.063	
MIN	1.063	-.034	-1.749	-6.422	21.579	1.063	
5							
MAX & MIN							
MAX	1.063	-.042	-2.149	-6.222	21.579	1.063	
MIN	1.063	-.042	-2.149	-6.222	21.579	1.063	
6							
MAX & MIN							
MAX	1.063	-.051	-2.549	-6.022	21.579	1.063	
MIN	1.063	-.051	-2.549	-6.022	21.579	1.063	
7							
MAX & MIN							
MAX	1.063	-.059	-2.949	-5.822	21.579	1.063	
MIN	1.063	-.059	-2.949	-5.822	21.579	1.063	
8							
MAX & MIN							
MAX	1.063	-.068	-3.349	-5.622	21.579	1.063	
MIN	1.063	-.068	-3.349	-5.622	21.579	1.063	
9							
MAX & MIN							
MAX	1.063	-.077	-3.749	-5.422	21.579	1.063	
MIN	1.063	-.077	-3.749	-5.422	21.579	1.063	
10							
MAX & MIN							
MAX	1.063	-.086	-4.149	-5.222	21.579	1.063	
MIN	1.063	-.086	-4.149	-5.222	21.579	1.063	

REPOSITION 304+615. 3 VANOS 13:17:13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	2.125	-.461	9.392		-.060	1.110	
	2.125			-4.367			4.026
MIN							
3	.000			-7.178			-8.025
	.000	4.574	1.391		.738	.122	
	1.063	-4.125	3.879		.292	.732	
	2.125	-13.318	3.656		-.154	.863	
	2.125			-7.178			-8.025
MAX							
4	.000			-3.765			7.895
	.000	24.748	6.523		.776	.608	
	1.063	12.650	12.112		.330	1.059	
	2.125	1.371	12.386		-.116	1.107	
	2.125			-3.765			7.895
MIN							
4	.000			-8.446			-12.193
	.000	2.921	-2.865		.619	.135	
	1.063	-8.156	2.741		.173	.653	
	2.125	-20.056	2.825		-.273	.697	
	2.125			-8.446			-12.193
MAX & MIN							
5	.000			-.384			-1.875
	.000	9.209	2.851		.021	-.034	
	1.063	5.100	9.370		.021	-.012	
	2.125	-3.009	9.419		.021	.010	
	2.125			-.384			-1.875
MAX & MIN							
6	.000			-.106			-1.361
	.000	7.106	.780		.006	-.009	
	1.063	1.974	5.604		.006	-.003	
	2.125	-3.158	4.974		.006	.003	
	2.125			-.106			-1.361
MAX							
ALL	.000			-.106			7.895
	.000	24.748	6.523		.965	.610	
	1.063	12.650	12.112		.386	1.240	
	2.125	1.371	12.386		.021	1.110	
	2.125			-.106			7.895
MIN							
ALL	.000			-9.707			-12.193
	.000	2.921	-2.865		.006	-.034	
	1.063	-8.156	2.741		.006	-.012	
	2.125	-20.056	2.825		-.522	.003	
	2.125			-9.707			-12.193
10 ----------							
MAX & MIN							
1	.000			-9.929			-.525
	.000	5.792	5.143		.817	.790	
	1.063	.660	8.571		.074	1.264	
	2.125	-4.472	6.545		-.670	.947	
	2.125			-9.929			-.525

REPOSITION 304+615. 3 VANOS 13:17:13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
MAX							
2	.000			-5.079			4.917
	.000	16.162	10.031		.670	.562	
	1.063	6.849	13.589		.224	.952	
	2.125	-1.892	11.739		-.222	.941	
	2.125			-5.079			4.917
MIN							
2	.000			-7.879			-6.141
	.000	3.247	3.348		.584	.502	
	1.063	-5.454	7.267		.138	.734	
	2.125	-14.728	5.118		-.360	.692	
	2.125			-7.879			-6.141
MAX							
3	.000			-4.870			4.606
	.000	16.170	10.051		.762	.465	
	1.063	6.857	13.618		.316	.953	
	2.125	-1.884	11.777		-.130	1.041	
	2.125			-4.870			4.606
MIN							
3	.000			-7.670			-6.052
	.000	3.255	3.368		.677	.206	
	1.063	-5.446	7.296		.230	.736	
	2.125	-14.719	5.155		-.216	.792	
	2.125			-7.670			-6.052
MAX							
4	.000			-4.135			8.104
	.000	23.104	13.329		.697	.664	
	1.063	11.004	17.004		.251	1.026	
	2.125	-.144	15.301		-.195	1.057	
	2.125			-4.135			8.104
MIN							
4	.000			-8.802			-9.660
	.000	1.579	2.190		.554	.231	
	1.063	-9.502	6.468		.108	.664	
	2.125	-21.536	4.266		-.338	.623	
	2.125			-8.802			-9.660
MAX & MIN							
5	.000			-.407			-.798
	.000	7.238	9.647		.007	-.017	
	1.063	1.129	14.092		.007	-.010	
	2.125	-4.980	12.046		.007	-.003	
	2.125			-.407			-.798
MAX & MIN							
6	.000			-.112			-.509
	.000	5.792	5.143		.002	-.005	
	1.063	.660	8.571		.002	-.003	
	2.125	-4.471	6.546		.002	-.001	
	2.125			-.112			-.509
MAX							
ALL	.000			-.112			8.104
	.000	23.104	13.329		.817	.790	

PROGRAM=SAP90.FILE=304615.F5F

REPOSITION 304+615. 3 VANOS 13:17:13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	2.125	-.144	15.301		.007	1.041	
	2.125			-.112			8.104
MIN							
ALL	.000			-9.929			-9.660
	.000	1.579	2.190		.002	-.017	
	1.063	-9.502	6.468		.002	-.010	
	2.125	-21.536	4.266		-.670	-.003	
	2.125			-9.929			-9.660
Z1 ----------							
MAX & MIN							
1	.000			-.049			51.611
	.000	28.007	4.078		3.120	-2.801	
	1.083	23.207	31.819		3.120	.579	
	2.167	18.408	54.560		3.120	3.959	
	2.167			-.049			51.611
MAX							
2	.000			.607			77.092
	.000	39.447	8.362		2.842	-2.272	
	1.083	34.648	48.104		2.842	.200	
	2.167	29.849	83.040		2.842	3.221	
	2.167			.607			77.092
MIN							
2	.000			.402			26.143
	.000	21.735	3.553		2.049	-2.943	
	1.083	16.936	26.807		2.049	.046	
	2.167	12.137	42.575		2.049	2.405	
	2.167			.402			26.143
MAX							
3	.000			.972			78.600
	.000	39.715	8.212		3.078	-2.708	
	1.083	34.916	48.244		3.078	.020	
	2.167	30.117	83.470		3.078	3.297	
	2.167			.972			78.600
MIN							
3	.000			.767			27.692
	.000	22.063	3.403		2.285	-3.379	
	1.083	17.204	26.946		2.285	-.114	
	2.167	12.405	43.005		2.285	2.480	
	2.167			.767			27.692
MAX							
4	.000			.679			98.021
	.000	47.788	10.836		3.105	-2.094	
	1.083	42.989	59.352		3.105	.258	
	2.167	38.190	103.323		3.105	2.526	
	2.167			.679			98.021
MIN							
4	.000			.328			15.173
	.000	18.268	2.821		1.783	-3.212	
	1.083	13.469	23.856		1.783	.036	
	2.167	8.670	35.882		1.783	2.165	

PROGRAM=SAP90.FILE=304615.F5F

REPOSITION 304+615. 3 VANOS 13:17:13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	2.167			.328			15.173
MAX & MIN							
5	.000			.007			46.949
	.000	25.279	3.936		.020	-.024	
	1.083	20.479	28.721		.020	-.002	
	2.167	15.680	48.308		.020	.020	
	2.167			.007			46.949
MAX & MIN							
6	.000			.002			52.229
	.000	28.123	4.013		.006	-.007	
	1.083	23.324	31.880		.006	-.001	
	2.167	18.525	54.549		.006	.005	
	2.167			.002			52.229
MAX							
ALL	.000			.972			98.021
	.000	47.788	10.836		3.120	-.007	
	1.083	42.989	59.352		3.120	.579	
	2.167	38.190	103.323		3.120	3.959	
	2.167			.972			98.021
MIN							
ALL	.000			-.049			15.173
	.000	18.268	2.821		.006	-3.379	
	1.083	13.469	23.856		.006	-.114	
	2.167	8.670	35.882		.006	.005	
	2.167			-.049			15.173
ZZ ----------							
MAX & MIN							
1	.000			-1.915			36.964
	.000	15.390	80.617		2.900	-2.427	
	1.083	10.591	64.690		2.900	.714	
	2.167	5.791	73.563		2.900	3.856	
	2.167			-1.915			36.964
MAX							
2	.000			.057			57.759
	.000	21.188	87.617		2.731	-1.969	
	1.083	16.344	106.896		2.731	.340	
	2.167	11.544	121.356		2.731	3.262	
	2.167			.057			57.759
MIN							
2	.000			-.583			11.658
	.000	9.240	47.668		1.904	-2.659	
	1.083	4.440	59.222		1.904	.218	
	2.167	-.359	67.487		1.904	2.404	
	2.167			-.583			11.658
MAX							
3	.000			.771			59.444
	.000	21.451	87.360		2.962	-2.353	
	1.083	16.607	106.925		2.962	.207	
	2.167	11.808	121.670		2.962	3.380	
	2.167			.771			59.444

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN							
	3	.000			.130			13.345
		.000	9.503	47.412		2.136	-3.043	
		1.083	4.704	55.251		2.136	.084	
		2.167	-.095	57.801		2.136	2.521	
		2.167			.130			13.345
	MAX							
	4	.000			.245			75.957
		.000	25.755	111.690		3.005	-1.782	
		1.083	20.880	135.200		3.005	.391	
		2.167	16.081	154.143		3.005	3.586	
		2.167			.245			75.957
	MIN							
	4	.000			-.822			-.879
		.000	5.841	45.109		1.628	-2.933	
		1.083	1.042	49.076		1.628	.187	
		2.167	-3.757	47.695		1.628	2.156	
		2.167			-.822			-.879
	MAX & MIN							
	5	.000			.005			34.955
		.000	12.744	44.821		.031	-.031	
		1.083	7.945	56.027		.031	.002	
		2.167	3.146	62.035		.031	.035	
		2.167			.005			34.955
	MAX & MIN							
	6	.000			.001			37.680
		.000	15.507	50.511		.008	-.009	
		1.083	10.707	64.710		.008	.001	
		2.167	5.908	73.710		.008	.010	
		2.167			.001			37.680
	MAX							
	ALL	.000			.771			75.957
		.000	25.755	111.690		3.005	-.009	
		1.083	20.880	135.200		3.005	.714	
		2.167	16.081	154.143		3.005	3.856	
		2.167			.771			75.957
	MIN							
	ALL	.000			-1.915			-.879
		.000	5.841	44.821		.008	-3.043	
		1.083	1.042	49.076		.008	.001	
		2.167	-3.757	47.695		.008	.010	
		2.167			-1.915			-.879
23	----------							
	MAX & MIN							
	1	.000			-3.703			25.407
		.000	1.249	71.235		2.521	-1.732	
		1.083	-3.551	69.989		2.521	.998	
		2.167	-8.350	63.543		2.521	3.729	
		2.167			-3.703			25.407
	MAX							
	2	.000			-.607			42.263

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	5.307	125.265		2.364	-1.331	
		1.083	-.090	122.030		2.364	.646	
		2.167	-5.363	113.994		2.364	3.200	
		2.167			-.607			42.263
	MIN							
	2	.000			-1.746			2.358
		.000	-5.846	63.273		1.551	-1.927	
		1.083	-10.645	55.354		1.551	.472	
		2.167	-15.444	42.135		1.551	2.275	
		2.167			-1.746			2.358
	MAX							
	3	.000			.298			43.908
		.000	5.590	124.922		2.510	-1.563	
		1.083	.193	121.995		2.510	.573	
		2.167	-5.080	114.266		2.510	3.285	
		2.167			.298			43.908
	MIN							
	3	.000			-.841			4.003
		.000	-5.562	62.931		1.697	-2.159	
		1.083	-10.362	55.318		1.697	.398	
		2.167	-15.161	42.407		1.697	2.360	
		2.167			-.841			4.003
	MAX							
	4	.000			-.240			57.712
		.000	8.764	160.533		2.631	-1.166	
		1.083	2.968	156.787		2.631	.713	
		2.167	-2.621	148.505		2.631	3.551	
		2.167			-.240			57.712
	MIN							
	4	.000			-2.137			-8.795
		.000	-9.824	57.213		1.277	-2.158	
		1.083	-14.623	45.660		1.277	.423	
		2.167	-19.423	28.740		1.277	2.009	
		2.167			-2.137			-8.795
	MAX & MIN							
	5	.000			-.005			25.675
		.000	-1.282	59.644		.041	-.035	
		1.083	-6.082	55.655		.041	.010	
		2.167	-10.881	46.468		.041	.055	
		2.167			-.005			25.675
	MAX & MIN							
	6	.000			-.001			26.099
		.000	1.377	71.097		.011	-.010	
		1.083	-3.423	69.988		.011	.003	
		2.167	-8.222	63.681		.011	.015	
		2.167			-.001			26.099
	MAX							
	ALL	.000			.298			57.712
		.000	8.764	160.533		2.631	-.010	
		1.083	2.968	156.787		2.631	.998	
		2.167	-2.621	148.505		2.631	3.729	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615 PROGRAM:SAP90/FILE:304615.F3F

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.167			.298			57.712
	MIN							
	ALL	.000			-3.703			-8.795
		.000	-9.824	57.213		.011	-2.159	
		1.083	-14.623	45.660		.011	.003	
		2.167	-19.423	28.740		.011	.015	
		2.167			-3.703			-8.795
24	----------							
	MAX & MIN							
	1	.000			-5.242			23.393
		.000	-12.612	61.900		2.160	-1.092	
		1.083	-17.411	45.638		2.160	1.248	
		2.167	-22.210	24.177		2.160	3.587	
		2.167			-5.242			23.393
	MAX							
	2	.000			-1.250			38.143
		.000	-9.954	116.209		2.062	-.819	
		1.083	-15.351	91.227		2.062	.910	
		2.167	-20.236	62.151		2.062	3.140	
		2.167			-1.250			38.143
	MIN							
	2	.000			-2.855			2.393
		.000	-22.105	48.364		1.247	-1.327	
		1.083	-26.904	25.330		1.247	.654	
		2.167	-31.704	-2.990		1.247	2.127	
		2.167			-2.855			2.393
	MAX							
	3	.000			-.233			39.784
		.000	-9.660	115.822		2.147	-.959	
		1.083	-15.057	91.159		2.147	.862	
		2.167	-19.942	62.401		2.147	3.185	
		2.167			-.233			39.784
	MIN							
	3	.000			-1.838			4.034
		.000	-21.811	47.976		1.332	-1.467	
		1.083	-26.610	25.262		1.332	.606	
		2.167	-31.409	-2.740		1.332	2.172	
		2.167			-1.838			4.034
	MAX							
	4	.000			-.710			52.166
		.000	-7.406	151.614		2.331	-.678	
		1.083	-13.202	121.660		2.331	1.007	
		2.167	-18.144	88.348		2.331	3.527	
		2.167			-.710			52.166
	MIN							
	4	.000			-3.385			-7.418
		.000	-27.658	38.538		.973	-1.523	
		1.083	-32.457	11.851		.973	.580	
		2.167	-37.256	-20.221		.973	1.837	
		2.167			-3.385			-7.418

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615 PROGRAM:SAP90/FILE:304615.F3F

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX & MIN							
	5	.000			-.034			25.869
		.000	-15.081	44.478		.062	-.047	
		1.083	-19.880	25.541		.062	.021	
		2.167	-24.679	1.405		.062	.089	
		2.167			-.034			25.869
	MAX & MIN							
	6	.000			-.009			24.058
		.000	-12.472	61.744		.017	-.013	
		1.083	-17.271	45.633		.017	.006	
		2.167	-22.071	24.323		.017	.024	
		2.167			-.009			24.058
	MAX							
	ALL	.000			-.009			52.166
		.000	-7.406	151.614		2.331	-.013	
		1.083	-13.202	121.660		2.331	1.248	
		2.167	-18.144	88.348		2.331	3.587	
		2.167			-.009			52.166
	MIN							
	ALL	.000			-5.242			-7.418
		.000	-27.658	38.538		.017	-1.523	
		1.083	-32.457	11.831		.017	.006	
		2.167	-37.256	-20.221		.017	.024	
		2.167			-5.242			-7.418
25	----------							
	MAX & MIN							
	1	.000			-6.534			29.779
		.000	-25.316	20.645		1.808	-.502	
		1.083	-30.115	-9.380		1.808	1.457	
		2.167	-34.914	-44.603		1.808	3.417	
		2.167			-6.534			29.779
	MAX							
	2	.000			-1.821			43.866
		.000	-23.974	59.951		1.822	-.411	
		1.083	-29.073	16.212		1.822	1.163	
		2.167	-33.872	-31.242		1.822	3.136	
		2.167			-1.821			43.866
	MIN							
	2	.000			-3.856			11.798
		.000	-38.997	1.071		.992	-.814	
		1.083	-43.796	-35.699		.992	.786	
		2.167	-48.596	-77.667		.992	1.982	
		2.167			-3.856			11.798
	MAX							
	3	.000			-.733			45.524
		.000	-23.664	59.525		1.875	-.504	
		1.083	-28.764	16.121		1.875	1.127	
		2.167	-33.563	-30.998		1.875	3.156	
		2.167			-.733			45.524
	MIN							
	3	.000			-2.768			13.456

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVL	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	-38.608	.645		1.045	-.908	
		1.083	-43.487	-35.789		1.045	.749	
		2.167	-48.286	-77.423		1.045	2.003	
		2.167			-2.768			13.456
	MAX 4	.000			-1.119			57.507
		.000	-22.285	85.330		2.103	-.302	
		1.083	-27.584	33.308		2.103	1.309	
		2.167	-32.383	-21.439		2.103	3.585	
		2.167			-1.119			57.507
	MIN 4	.000			-4.510			4.061
		.000	-47.324	-12.805		.719	-.975	
		1.083	-52.123	-53.209		.719	.680	
		2.167	-56.922	-98.814		.719	1.662	
		2.167			-4.510			4.061
	MAX & MIN 5	.000			-.112			35.159
		.000	-27.623	-3.007		.100	-.068	
		1.083	-32.422	-35.532		.100	.040	
		2.167	-37.221	-73.256		.100	.148	
		2.167			-.112			35.159
	MAX & MIN 6	.000			-.031			30.373
		.000	-25.153	20.484		.028	-.019	
		1.083	-29.952	-9.364		.028	.011	
		2.167	-34.751	-44.412		.028	.041	
		2.167			-.031			30.373
	MAX ALL	.000			-.031			57.507
		.000	-22.285	85.330		2.103	-.019	
		1.083	-27.584	33.308		2.103	1.457	
		2.167	-32.383	-21.439		2.103	3.585	
		2.167			-.031			57.507
	MIN ALL	.000			-6.534			4.061
		.000	-47.324	-12.805		.028	-.975	
		1.083	-52.123	-53.209		.028	.011	
		2.167	-56.922	-98.814		.028	.041	
		2.167			-6.534			4.061
26								
	MAX & MIN 1	.000			-7.618			30.131
		.000	-23.579	-57.461		1.470	.010	
		1.083	-28.378	-85.604		1.470	1.602	
		2.167	-33.177	-118.947		1.470	3.195	
		2.167			-7.618			30.131
	MAX 2	.000			-2.330			43.260
		.000	-22.405	-45.851		1.607	-.103	
		1.083	-27.439	-80.817		1.607	1.457	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVL	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.167	-32.238	-114.933		1.607	3.192	
		2.167			-2.330			43.260
	MIN 2	.000			-4.822			13.150
		.000	-36.978	-84.479		.795	-.304	
		1.083	-41.777	-116.919		.795	.855	
		2.167	-46.576	-154.634		.795	1.830	
		2.167			-4.822			13.150
	MAX 3	.000			-1.195			44.860
		.000	-22.020	-46.300		1.652	-.187	
		1.083	-27.053	-80.848		1.652	1.422	
		2.167	-31.852	-114.546		1.652	3.205	
		2.167			-1.195			44.860
	MIN 3	.000			-3.687			14.750
		.000	-36.592	-84.927		.839	-.387	
		1.083	-41.391	-116.950		.839	.820	
		2.167	-46.190	-154.247		.839	1.842	
		2.167			-3.687			14.750
	MAX 4	.000			-1.481			56.261
		.000	-20.739	-38.961		1.893	-.058	
		1.083	-25.928	-77.518		1.893	1.693	
		2.167	-30.728	-111.191		1.893	3.733	
		2.167			-1.481			56.261
	MIN 4	.000			-5.635			6.078
		.000	-45.026	-103.340		.539	-.392	
		1.083	-49.825	-137.687		.539	.689	
		2.167	-54.624	-177.359		.539	1.462	
		2.167			-5.635			6.078
	MAX & MIN 5	.000			-.308			37.395
		.000	-23.552	-88.836		.151	-.103	
		1.083	-28.352	-116.951		.151	.061	
		2.167	-33.151	-150.265		.151	.224	
		2.167			-.308			37.395
	MAX & MIN 6	.000			-.085			30.548
		.000	-23.387	-57.563		.042	-.028	
		1.083	-28.186	-85.498		.042	.017	
		2.167	-32.985	-118.633		.042	.062	
		2.167			-.085			30.548
	MAX ALL	.000			-.085			56.261
		.000	-20.739	-38.961		1.893	.010	
		1.083	-25.928	-77.518		1.893	1.693	
		2.167	-30.728	-111.191		1.893	3.733	
		2.167			-.085			56.261

PROGRAM:SAP90/FILE:304615.F3F

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVL	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN ALL	.000			-7.618			6.078
		.000	-45.026	-103.340		.042	-.392	
		1.083	-49.825	-137.687		.042	.017	
		2.167	-54.624	-177.359		.042	.062	
		2.167			-7.618			6.078
27								
	MAX & MIN 1	.000			-8.572			-22.126
		.000	33.778	-119.897		1.269	.366	
		1.063	29.071	-86.508		1.269	1.714	
		2.125	24.364	-58.120		1.269	3.063	
		2.125			-8.572			-22.126
	MAX 2	.000			-2.887			-14.972
		.000	43.980	-111.331		1.074	.689	
		1.063	39.273	-82.639		1.074	1.553	
		2.125	34.566	-52.881		1.074	2.557	
		2.125			-2.887			-14.972
	MIN 2	.000			-5.868			-48.057
		.000	30.118	-149.713		.779	-.045	
		1.063	25.411	-111.559		.779	.930	
		2.125	20.704	-83.013		.779	1.903	
		2.125			-5.868			-48.057
	MAX 3	.000			-1.731			-13.636
		.000	44.311	-111.479		1.167	.572	
		1.063	39.604	-82.435		1.167	1.536	
		2.125	34.898	-52.324		1.167	2.639	
		2.125			-1.731			-13.636
	MIN 3	.000			-4.713			-46.721
		.000	30.450	-149.861		.872	-.162	
		1.063	25.743	-111.355		.872	.912	
		2.125	21.036	-82.456		.872	1.985	
		2.125			-4.713			-46.721
	MAX 4	.000			-1.968			-6.635
		.000	51.614	-106.358		1.168	1.009	
		1.063	46.907	-79.912		1.168	1.789	
		2.125	42.200	-48.355		1.168	2.803	
		2.125			-1.968			-6.635
	MIN 4	.000			-6.938			-61.777
		.000	28.511	-170.327		.677	-.214	
		1.063	23.804	-128.112		.677	.750	
		2.125	19.097	-98.574		.677	1.713	
		2.125			-6.938			-61.777
	MAX & MIN 5	.000			-.776			-24.821

PROGRAM:SAP90/FILE:304615.F3F

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVL	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	46.978	-154.281		.150	-.224	
		1.063	41.294	-107.387		.150	-.065	
		2.125	35.609	-66.532		.150	.054	
		2.125			-.776			-24.821
	MAX & MIN 6	.000			-.214			-21.862
		.000	33.715	-119.721		.041	-.062	
		1.063	29.008	-86.400		.041	-.018	
		2.125	24.301	-58.080		.041	.026	
		2.125			-.214			-21.862
	MAX ALL	.000			-.214			-6.635
		.000	51.614	-106.358		1.269	1.009	
		1.063	46.907	-79.912		1.269	1.789	
		2.125	42.200	-48.355		1.269	3.063	
		2.125			-.214			-6.635
	MIN ALL	.000			-8.572			-61.777
		.000	28.511	-170.327		.041	-.224	
		1.063	23.804	-128.112		.041	-.065	
		2.125	19.097	-98.574		.041	.026	
		2.125			-8.572			-61.777
28								
	MAX & MIN 1	.000			-9.265			-20.905
		.000	36.658	-45.119		.912	.904	
		1.063	31.951	-8.670		.912	1.873	
		2.125	27.245	22.778		.912	2.841	
		2.125			-9.265			-20.905
	MAX 2	.000			-3.392			-13.900
		.000	48.085	-31.854		.877	.869	
		1.063	43.379	12.608		.877	1.551	
		2.125	38.672	54.876		.877	2.397	
		2.125			-3.392			-13.900
	MIN 2	.000			-6.535			-44.345
		.000	32.798	-69.387		.624	.276	
		1.063	28.091	-30.207		.624	1.086	
		2.125	23.384	3.832		.624	1.896	
		2.125			-6.535			-44.345
	MAX 3	.000			-2.280			-12.878
		.000	48.283	-31.028		1.013	.738	
		1.063	43.576	12.044		1.013	1.564	
		2.125	38.869	55.322		1.013	2.554	
		2.125			-2.280			-12.878
	MIN 3	.000			-5.422			-45.323
		.000	32.996	-69.362		.760	.145	
		1.063	28.289	-29.972		.760	1.099	

PROGRAM:SHP790/FLE:30461S.FOR
REVISION 304+61S. 3 RUNS 13+17+13 FILE:30461S

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL LOAD
MIN	.000						
3	.000						
	Z.125						-30.591
	Z.167	-2.273	52.268		1.848	2.055	
	1.083	11.887	37.437		1.848	.512	
	.000	21.100	14.922		1.848	-2.270	
	Z.125			.150			-30.591
MAX	.000						
3	.000						
MIN				.197			
	Z.167						17.004
	Z.167	30.376	106.942		Z.726	3.637	
	1.083	40.174	74.790		Z.726	.683	
	.000	51.719	29.816		Z.726	-1.631	
MAX	.000			.197			17.004
2	.000						
MIN				.082			-32.245
	Z.167	-2.266	52.290		1.894	Z.716	
	Z.167	11.894	37.449		1.894	.623	
	1.083				1.894	-2.510	
	.000	21.108	14.927	.082			-32.245
MIN							
	Z.167			.129			15.350
	Z.167	30.384	106.963		Z.723	3.698	
	1.083	40.182	74.803		Z.723	.694	
	.000	51.726	29.821		Z.723	-1.671	
MAX	.000			.129			15.350
1	.000						
MIN				.008			-.703
	Z.167						4.858
	Z.167	13.625	59.837		3.627		
	1.083	20.049	41.597		3.627	.928	
	.000	26.473	16.378	.008	3.627	-3.001	-.703
MAX & MIN							
41				-9.938			-25.585
	Z.125						
	Z.125	-5.266	63.786	.004		-.006	
	1.063	-.559	57.990	.004		-.021	
	.000	4.148	42.784	.004		-.037	-25.585
MIN				-9.938			
	Z.125			-.297			14.457
	Z.125	10.953	178.593	.983		2.010	
	1.063	15.660	169.647	.983		2.008	
	.000	20.367	157.319	.983		1.815	14.457
MAX	.000			-.297			
ALL	.000						
MIN				-.297			-2.617
	Z.125	1.880	83.256	.004		-.002	
	1.063	6.587	78.758	.004		-.006	
	.000	11.294	69.260	.004		-.010	-2.817
MAX & MIN				-.297			
6	.000						
	Z.125						-9.794
ID ENVE	END1	SHEAR	MOMENT	FORCE	SHEAR	MOMENT	LOAD
ELT LOAD	DIST	1-2 PLANE		AXIAL	1-3 PLANE		AXIAL

KEYDSICION 304+61S. 3 VANOS 13+17+13 FILE:30461S

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL LOAD
MIN	.000						
3	.000						
	Z.125						-30.591
	Z.167	-2.273	52.268		1.848	2.055	
	1.083	11.887	37.437		1.848	.512	
	.000	21.100	14.922		1.848	-2.270	
	Z.125			.150			-30.591
MAX	.000						
3	.000						
MIN				.197			
	Z.167						17.004
	Z.167	30.376	106.942		Z.726	3.637	
	1.083	40.174	74.790		Z.726	.683	
	.000	51.719	29.816		Z.726	-1.631	
MAX	.000			.197			17.004
2	.000						
MIN				.082			-32.245
	Z.167	-2.266	52.290		1.894	Z.716	
	Z.167	11.894	37.449		1.894	.623	
	1.083				1.894	-2.510	
	.000	21.108	14.927	.082			-32.245
MIN							
	Z.167			.129			15.350
	Z.167	30.384	106.963		Z.723	3.698	
	1.083	40.182	74.803		Z.723	.694	
	.000	51.726	29.821		Z.723	-1.671	
MAX	.000			.129			15.350
1	.000						
MIN				.008			-.703
	Z.167						4.858
	Z.167	13.625	59.837		3.627		
	1.083	20.049	41.597		3.627	.928	
	.000	26.473	16.378	.008	3.627	-3.001	-.703
MAX & MIN							
41				-9.938			-25.585
	Z.125						
	Z.125	-5.266	63.786	.004		-.006	
	1.063	-.559	57.990	.004		-.021	
	.000	4.148	42.784	.004		-.037	-25.585
MIN				-9.938			
	Z.125			-.297			14.457
	Z.125	10.953	178.593	.983		2.010	
	1.063	15.660	169.647	.983		2.008	
	.000	20.367	157.319	.983		1.815	14.457
MAX	.000			-.297			
ALL	.000						
MIN				-.297			-2.617
	Z.125	1.880	83.256	.004		-.002	
	1.063	6.587	78.758	.004		-.006	
	.000	11.294	69.260	.004		-.010	-2.817
MAX & MIN				-.297			
6	.000						
	Z.125						-9.794
ID ENVE	END1	SHEAR	MOMENT	FORCE	SHEAR	MOMENT	LOAD
ELT LOAD	DIST	1-2 PLANE		AXIAL	1-3 PLANE		AXIAL

KEYDSICION 304+61S. 3 VANOS 13+17+13 FILE:30461S

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL LOAD
MIN	.000						
3	.000						
	Z.125						-30.993
	Z.125	-2.452	118.675		-3.898		
	1.063	23.564	92.402				
	.000	32.978	63.393		-3.898		
MAX	.000						
2	.000						
MIN							
	Z.125						-10.089
	Z.125	-2.452	118.675		-3.898		
	1.063	23.564	92.402				
	.000	32.978	63.393		-3.898		
MAX	.000						
1	.000						
MIN							
	Z.125						-10.089
	Z.125	-2.452	118.675		-3.898		
	1.063	23.564	92.402				
	.000	32.978	63.393		-3.898		
MAX & MIN							
29							-30.993
	Z.125						
ID ENVE	END1	SHEAR	MOMENT	FORCE	SHEAR	MOMENT	LOAD
ELT LOAD	DIST	1-2 PLANE		AXIAL	1-3 PLANE		AXIAL

KEYDSICION 304+61S. 3 VANOS 13+17+13 FILE:30461S

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL LOAD
MIN	.000						
3	.000						
	Z.125						-30.591
	Z.167	-2.273	52.268		1.848	2.055	
	1.083	11.887	37.437		1.848	.512	
	.000	21.100	14.922		1.848	-2.270	
	Z.125			.150			-30.591
MAX	.000						
3	.000						
MIN				.197			
	Z.167						17.004
	Z.167	30.376	106.942		Z.726	3.637	
	1.083	40.174	74.790		Z.726	.683	
	.000	51.719	29.816		Z.726	-1.631	
MAX	.000			.197			17.004
2	.000						
MIN				.082			-32.245
	Z.167	-2.266	52.290		1.894	Z.716	
	Z.167	11.894	37.449		1.894	.623	
	1.083				1.894	-2.510	
	.000	21.108	14.927	.082			-32.245
MIN							
	Z.167			.129			15.350
	Z.167	30.384	106.963		Z.723	3.698	
	1.083	40.182	74.803		Z.723	.694	
	.000	51.726	29.821		Z.723	-1.671	
MAX	.000			.129			15.350
1	.000						
MIN				.008			-.703
	Z.167						4.858
	Z.167	13.625	59.837		3.627		
	1.083	20.049	41.597		3.627	.928	
	.000	26.473	16.378	.008	3.627	-3.001	-.703
MAX & MIN							
41				-9.938			-25.585
	Z.125						
	Z.125	-5.266	63.786	.004		-.006	
	1.063	-.559	57.990	.004		-.021	
	.000	4.148	42.784	.004		-.037	-25.585
MIN				-9.938			
	Z.125			-.297			14.457
	Z.125	10.953	178.593	.983		2.010	
	1.063	15.660	169.647	.983		2.008	
	.000	20.367	157.319	.983		1.815	14.457
MAX	.000			-.297			
ALL	.000						
MIN				-.297			-2.617
	Z.125	1.880	83.256	.004		-.002	
	1.063	6.587	78.758	.004		-.006	
	.000	11.294	69.260	.004		-.010	-2.817
MAX & MIN				-.297			
6	.000						
	Z.125						-9.794
ID ENVE	END1	SHEAR	MOMENT	FORCE	SHEAR	MOMENT	LOAD
ELT LOAD	DIST	1-2 PLANE		AXIAL	1-3 PLANE		AXIAL

KEYDSICION 304+61S. 3 VANOS 13+17+13 FILE:30461S

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL LOAD
MIN	.000						
3	.000						
	Z.125						-30.993
	Z.125	-2.452	118.675		-3.898		
	1.063	23.564	92.402				
	.000	32.978	63.393		-3.898		
MAX	.000						
2	.000						
MIN							
	Z.125						-10.089
	Z.125	-2.452	118.675		-3.898		
	1.063	23.564	92.402				
	.000	32.978	63.393		-3.898		
MAX	.000						
1	.000						
MIN							
	Z.125						-10.089
	Z.125	-2.452	118.675		-3.898		
	1.063	23.564	92.402				
	.000	32.978	63.393		-3.898		
MAX & MIN							
29							-30.993
	Z.125						
ID ENVE	END1	SHEAR	MOMENT	FORCE	SHEAR	MOMENT	LOAD
ELT LOAD	DIST	1-2 PLANE		AXIAL	1-3 PLANE		AXIAL

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD	DIST	1-2 PLANE		AXIAL	1-3 PLANE		AXIAL
ID	ENVE	END1	SHEAR	MOMENT	FORCE	SHEAR	MOMENT	TORQ
	MAX							
	4	.000			.141			30.275
		.000	68.570	38.774		3.046	-1.479	
		1.083	53.612	96.953		3.046	.757	
		2.167	41.565	138.402		3.046	4.057	
		2.167			.141			30.275
	MIN							
	4	.000			.063			-49.050
		.000	17.540	13.950		1.582	-2.543	
		1.083	6.466	34.697		1.582	.471	
		2.167	-12.851	47.279		1.582	2.421	
		2.167			.063			-49.050
	MAX & MIN							
	5	.000			.016			.000
		.000	23.866	14.944		.000	.000	
		1.083	17.442	37.319		.000	.000	
		2.167	11.017	52.735		.000	.000	
		2.167			.016			.000
	MAX & MIN							
	6	.000			.004			.000
		.000	26.473	16.398		.000	.000	
		1.083	20.049	41.597		.000	.000	
		2.167	13.625	59.837		.000	.000	
		2.167			.004			.000
	MAX							
	ALL	.000			.197			30.275
		.000	68.570	38.774		3.627	.000	
		1.083	53.612	96.953		3.627	.920	
		2.167	41.565	138.402		3.627	4.858	
		2.167			.197			30.275
	MIN							
	ALL	.000			.004			-49.050
		.000	17.540	13.950		.000	-3.001	
		1.083	6.466	34.697		.000	.000	
		2.167	-12.851	47.279		.000	.000	
		2.167			.004			-49.050
42	----------							
	MAX & MIN							
	1	.000			.035			-.962
		.000	15.943	88.960		4.091	-3.609	
		1.083	9.519	102.752		4.091	.823	
		2.167	3.095	109.585		4.091	5.254	
		2.167			.035			-.962
	MAX							
	2	.000			.759			18.273
		.000	42.449	155.112		3.200	-1.982	
		1.083	30.500	183.222		3.200	.585	
		2.167	19.949	198.945		3.200	4.051	
		2.167			.759			18.273
	MIN							
	2	.000			.496			-41.288

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD	DIST	1-2 PLANE		AXIAL	1-3 PLANE		AXIAL
ID	ENVE	END1	SHEAR	MOMENT	FORCE	SHEAR	MOMENT	TORQ
		.000	9.927	79.082		2.101	-2.882	
		1.083	-1.296	88.566		2.101	.471	
		2.167	-13.399	94.974		2.101	2.925	
		2.167			.496			-41.288
	MAX							
	3	.000			1.174			20.503
		.000	42.437	155.082		3.141	-1.926	
		1.083	30.488	183.180		3.141	.578	
		2.167	19.937	198.891		3.141	3.981	
		2.167			1.174			20.503
	MIN							
	3	.000			.911			-39.058
		.000	9.915	79.053		2.043	-2.825	
		1.083	-1.307	88.524		2.043	.465	
		2.167	-13.411	94.920		2.043	2.855	
		2.167			.911			-39.058
	MAX							
	4	.000			.830			36.787
		.000	60.131	199.241		3.540	-1.710	
		1.083	44.499	236.909		3.540	.627	
		2.167	31.196	258.572		3.540	4.463	
		2.167			.830			36.787
	MIN							
	4	.000			.391			-62.482
		.000	5.927	72.525		1.710	-3.208	
		1.083	-8.494	79.150		1.710	.438	
		2.167	-24.383	85.287		1.710	2.586	
		2.167			.391			-62.482
	MAX & MIN							
	5	.000			.082			.000
		.000	12.001	79.287		.000	.000	
		1.083	5.577	88.809		.000	.000	
		2.167	-.847	91.371		.000	.000	
		2.167			.082			.000
	MAX & MIN							
	6	.000			.023			.000
		.000	15.943	88.960		.000	.000	
		1.083	9.519	102.752		.000	.000	
		2.167	3.095	109.585		.000	.000	
		2.167			.023			.000
	MAX							
	ALL	.000			1.174			36.787
		.000	60.131	199.241		4.091	.000	
		1.083	44.499	236.909		4.091	.823	
		2.167	31.196	258.572		4.091	5.254	
		2.167			1.174			36.787
	MIN							
	ALL	.000			.023			-62.482
		.000	5.927	72.525		.000	-3.609	
		1.083	-8.494	79.150		.000	.000	
		2.167	-24.383	85.287		.000	.000	

PROGRAM:SAP90/FILE:304615.F3F

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD	DIST	1-2 PLANE		AXIAL	1-3 PLANE		AXIAL
ID	ENVE	END1	SHEAR	MOMENT	FORCE	SHEAR	MOMENT	TORQ
		2.167			.023			-62.482
43	----------							
	MAX & MIN							
	1	.000			.061			-1.030
		.000	-4.696	125.027		3.549	-2.469	
		1.083	-11.120	116.460		3.549	1.376	
		2.167	-17.544	100.933		3.549	5.220	
		2.167			.061			-1.030
	MAX							
	2	.000			1.386			16.382
		.000	15.708	222.419		2.866	-1.324	
		1.083	3.749	216.615		2.866	1.013	
		2.167	-6.779	198.717		2.866	4.118	
		2.167			1.386			16.382
	MIN							
	2	.000			.878			-40.408
		.000	-18.359	105.467		1.780	-2.092	
		1.083	-29.112	92.192		1.780	.779	
		2.167	-41.176	71.958		1.780	2.882	
		2.167			.878			-40.408
	MAX							
	3	.000			2.134			18.706
		.000	15.696	222.362		2.808	-1.276	
		1.083	3.736	216.544		2.808	.999	
		2.167	-6.792	198.632		2.808	4.041	
		2.167			2.134			18.706
	MIN							
	3	.000			1.625			-38.084
		.000	-18.371	105.409		1.722	-2.044	
		1.083	-29.125	92.121		1.722	.764	
		2.167	-41.188	71.873		1.722	2.805	
		2.167			1.625			-38.084
	MAX							
	4	.000			1.526			33.914
		.000	29.324	287.405		3.203	-1.091	
		1.083	13.674	283.456		3.203	1.100	
		2.167	.410	263.990		3.203	4.570	
		2.167			1.526			33.914
	MIN							
	4	.000			.678			-60.737
		.000	-27.455	92.484		1.392	-2.370	
		1.083	-41.094	76.084		1.392	.709	
		2.167	-56.918	52.725		1.392	2.510	
		2.167			.678			-60.737
	MAX & MIN							
	5	.000			.175			.000
		.000	-9.038	105.863		.000	.000	
		1.083	-15.463	92.592		.000	.000	
		2.167	-21.887	72.361		.000	.000	
		2.167			.175			.000

PROGRAM:SAP90/FILE:304615.F3F

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD	DIST	1-2 PLANE		AXIAL	1-3 PLANE		AXIAL
ID	ENVE	END1	SHEAR	MOMENT	FORCE	SHEAR	MOMENT	TORQ
	MAX & MIN							
	6	.000			.048			.000
		.000	-4.696	125.027		.000	.000	
		1.083	-11.120	116.460		.000	.000	
		2.167	-17.544	100.933		.000	.000	
		2.167			.048			.000
	MAX							
	ALL	.000			2.134			33.914
		.000	29.324	287.405		3.549	.000	
		1.083	13.674	283.456		3.549	1.376	
		2.167	.410	263.990		3.549	5.220	
		2.167			2.134			33.914
	MIN							
	ALL	.000			.048			-60.737
		.000	-27.455	92.484		.000	-2.469	
		1.083	-41.094	76.084		.000	.000	
		2.167	-56.918	52.725		.000	.000	
		2.167			.048			-60.737
44	----------							
	MAX & MIN							
	1	.000			.100			-1.100
		.000	-26.697	111.579		3.003	-1.476	
		1.083	-33.121	79.178		3.003	1.777	
		2.167	-39.545	39.817		3.003	5.029	
		2.167			.100			-1.100
	MAX							
	2	.000			1.954			14.452
		.000	-12.256	212.746		2.526	-.755	
		1.083	-24.083	169.726		2.526	1.345	
		2.167	-34.450	116.183		2.526	4.082	
		2.167			1.954			14.452
	MIN							
	2	.000			1.153			-38.189
		.000	-48.093	82.529		1.458	-1.391	
		1.083	-58.794	45.205		1.458	.996	
		2.167	-70.779	.921		1.458	2.747	
		2.167			1.153			-38.189
	MAX							
	3	.000			2.965			16.807
		.000	-12.269	212.661		2.469	-.715	
		1.083	-24.097	169.628		2.469	1.324	
		2.167	-34.463	116.070		2.469	3.999	
		2.167			2.965			16.807
	MIN							
	3	.000			2.164			-35.834
		.000	-48.106	82.445		1.401	-1.351	
		1.083	-58.807	45.107		1.401	.975	
		2.167	-70.792	.809		1.401	2.664	
		2.167			2.164			-35.834
	MAX							
	4	.000			2.183			30.806

REPOSICION 304+615. 3 VANOS 13+17+13 FILE=304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	.000	-2.615	280.274		2.857	-.561	
	1.083	-18.046	230.189		2.857	1.474	
	2.167	-31.041	167.205		2.857	4.570	
	2.167			2.183			30.806
MIN							
4	.000			.848			-56.929
	.000	-62.344	63.247		1.076	-1.621	
	1.083	-75.896	22.655		1.076	.892	
	2.167	-91.588	-24.897		1.076	2.345	
	2.167			.848			-56.929
MAX & MIN							
5	.000			.327			.000
	.000	-31.271	83.127		.000	.000	
	1.083	-37.695	45.771		.000	.000	
	2.167	-44.119	1.454		.000	.000	
	2.167			.327			.000
MAX & MIN							
6	.000			.090			.000
	.000	-26.697	111.579		.000	.000	
	1.083	-33.121	79.178		.000	.000	
	2.167	-39.545	39.817		.000	.000	
	2.167			.090			.000
MAX							
ALL	.000			2.965			30.806
	.000	-2.615	280.274		3.003	.000	
	1.083	-18.046	230.189		3.003	1.777	
	2.167	-31.041	167.205		3.003	5.029	
	2.167			2.965			30.806
MIN							
ALL	.000			.090			-56.929
	.000	-62.344	63.247		.000	-1.621	
	1.083	-75.896	22.655		.000	.000	
	2.167	-91.588	-24.897		.000	.000	
	2.167			.090			-56.929
45 ----------							
MAX & MIN							
1	.000			.173			-1.227
	.000	-51.791	53.664		2.488	-.608	
	1.083	-58.215	-5.923		2.488	2.088	
	2.167	-64.639	-72.469		2.488	4.784	
	2.167			.173			-1.227
MAX							
2	.000			2.549			12.248
	.000	-40.617	132.600		2.209	-.262	
	1.083	-52.225	51.283		2.209	1.637	
	2.167	-62.332	-37.794		2.209	4.031	
	2.167			2.549			12.248
MIN							
2	.000			1.318			-35.661
	.000	-81.556	16.171		1.153	-.757	
	1.083	-92.144	-48.843		1.153	1.157	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE=304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	2.167	-103.978	-120.816		1.153	2.576	
	2.167			1.318			-35.661
MAX							
3	.000			3.764			14.588
	.000	-40.641	132.496		2.153	-.231	
	1.083	-52.248	51.154		2.153	1.608	
	2.167	-62.356	-37.949		2.153	3.940	
	2.167			3.764			14.588
MIN							
3	.000			2.533			-33.321
	.000	-81.580	16.068		1.096	-.725	
	1.083	-92.167	-48.971		1.096	1.127	
	2.167	-104.002	-120.970		1.096	2.485	
	2.167			2.533			-33.321
MAX							
4	.000			2.919			27.144
	.000	-33.145	185.327		2.536	-.110	
	1.083	-48.208	89.550		2.536	1.815	
	2.167	-60.771	-14.524		2.536	4.562	
	2.167			2.919			27.144
MIN							
4	.000			.867			-52.705
	.000	-101.376	-8.720		.775	-.933	
	1.083	-114.740	-77.327		.775	1.014	
	2.167	-130.181	-152.893		.775	2.138	
	2.167			.867			-52.705
MAX & MIN							
5	.000			.600			.000
	.000	-56.874	17.020		.000	.000	
	1.083	-63.298	-48.073		.000	.000	
	2.167	-69.722	-120.126		.000	.000	
	2.167			.600			.000
MAX & MIN							
6	.000			.166			.000
	.000	-51.791	53.664		.000	.000	
	1.083	-58.215	-5.923		.000	.000	
	2.167	-64.639	-72.469		.000	.000	
	2.167			.166			.000
MAX							
ALL	.000			3.764			27.144
	.000	-33.145	185.327		2.536	.000	
	1.083	-48.208	89.550		2.536	2.088	
	2.167	-60.771	-14.524		2.536	4.784	
	2.167			3.764			27.144
MIN							
ALL	.000			.166			-52.705
	.000	-101.376	-8.720		.000	-.933	
	1.083	-114.740	-77.327		.000	.000	
	2.167	-130.181	-152.893		.000	.000	
	2.167			.166			-52.705

REPOSICION 304+615. 3 VANOS 13+17+13 FILE=304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
46 ----------							
MAX & MIN							
1	.000			.315			-1.595
	.000	-109.870	-39.079		1.948	.170	
	1.083	-116.294	-161.585		1.948	2.291	
	2.167	-122.719	-291.050		1.948	4.391	
	2.167			.315			-1.595
MAX							
2	.000			3.341			9.918
	.000	-103.237	2.917		2.015	.161	
	1.083	-114.413	-150.776		2.015	2.078	
	2.167	-121.402	-280.799		2.015	4.262	
	2.167			3.341			9.918
MIN							
2	.000			1.368			-31.993
	.000	-156.161	-82.050		.771	-.110	
	1.083	-166.605	-215.578		.771	1.198	
	2.167	-178.167	-361.828		.771	2.235	
	2.167			1.368			-31.993
MAX							
3	.000			4.736			12.036
	.000	-103.324	2.775		1.950	.179	
	1.083	-114.500	-151.012		1.950	2.026	
	2.167	-121.569	-281.129		1.950	4.138	
	2.167			4.736			12.036
MIN							
3	.000			2.763			-29.875
	.000	-156.248	-82.192		.706	-.092	
	1.083	-166.692	-215.814		.706	1.145	
	2.167	-178.254	-362.158		.706	2.111	
	2.167			2.763			-29.875
MAX							
4	.000			3.966			22.816
	.000	-98.728	31.056		2.405	.249	
	1.083	-113.072	-143.334		2.405	2.411	
	2.167	-120.570	-273.635		2.405	5.017	
	2.167			3.966			22.816
MIN							
4	.000			.678			-47.036
	.000	-186.935	-110.556		.332	-.203	
	1.083	-200.058	-251.338		.332	.944	
	2.167	-215.046	-408.683		.332	1.639	
	2.167			.678			-47.036
MAX & MIN							
5	.000			1.122			.000
	.000	-120.664	-80.372		.000	.000	
	1.083	-127.088	-214.570		.000	.000	
	2.167	-133.512	-355.729		.000	.000	
	2.167			1.122			.000
MAX & MIN							
6	.000			.310			.000

REPOSICION 304+615. 3 VANOS 13+17+13 FILE=304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	.000	-109.870	-39.079		.000	.000	
	1.083	-116.294	-161.585		.000	.000	
	2.167	-122.719	-291.050		.000	.000	
	2.167			.310			.000
MAX							
ALL	.000			4.736			22.816
	.000	-98.728	31.056		2.405	.249	
	1.083	-113.072	-143.334		2.405	2.411	
	2.167	-120.570	-273.635		2.405	5.017	
	2.167			4.736			22.816
MIN							
ALL	.000			.310			-47.036
	.000	-186.935	-110.556		.000	-.203	
	1.083	-200.058	-251.338		.000	.000	
	2.167	-215.046	-408.683		.000	.000	
	2.167			.310			-47.036
47 ----------							
MAX & MIN							
1	.000			-.726			.598
	.000	126.257	-296.787		1.764	.595	
	1.063	119.956	-165.987		1.764	2.469	
	2.125	113.656	-41.880		1.764	4.343	
	2.125			-.726			.598
MAX							
2	.000			3.243			13.132
	.000	182.506	-281.770		1.161	1.353	
	1.063	171.286	-155.267		1.161	2.230	
	2.125	161.153	-4.021		1.161	3.194	
	2.125			3.243			13.132
MIN							
2	.000			.081			-37.091
	.000	121.287	-380.210		.819	.148	
	1.063	115.497	-210.460		.819	1.300	
	2.125	104.650	-75.383		.819	2.452	
	2.125			.081			-37.091
MAX							
3	.000			5.012			15.492
	.000	182.392	-281.338		1.168	1.289	
	1.063	171.172	-154.956		1.168	2.174	
	2.125	161.040	-3.830		1.168	3.147	
	2.125			5.012			15.492
MIN							
3	.000			1.851			-34.732
	.000	121.173	-379.778		.827	.083	
	1.063	115.384	-210.149		.827	1.244	
	2.125	104.537	-75.192		.827	2.404	
	2.125			1.851			-34.732
MAX							
4	.000			4.121			27.959
	.000	220.118	-272.190		1.250	1.846	
	1.063	205.619	-148.432		1.250	2.580	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	2.125	192.932	21.028		1.250	3.460	
	2.125			4.121			27.939
MIN							
4	.000			-1.149			-55.766
	.000	110.086	-436.256		.681	-.163	
	1.063	112.638	-240.421		.681	1.030	
	2.125	98.759	-97.909		.681	2.222	
	2.125			-1.149			-55.766
MAX & MIN							
5	.000			-2.643			.000
	.000	164.477	-379.766		.000	.000	
	1.063	157.199	-208.876		.000	.000	
	2.125	149.921	-48.719		.000	.000	
	2.125			-2.643			.000
MAX & MIN							
6	.000			-.730			.000
	.000	126.257	-296.787		.000	.000	
	1.063	119.956	-165.987		.000	.000	
	2.125	113.656	-41.880		.000	.000	
	2.125			-.730			.000
MAX							
ALL	.000			5.012			27.939
	.000	220.118	-272.190		1.764	1.846	
	1.063	205.619	-148.432		1.764	2.580	
	2.125	192.932	21.028		1.764	4.343	
	2.125			5.012			27.939
MIN							
ALL	.000			-2.643			-55.766
	.000	110.086	-436.256		.000	-.163	
	1.063	112.638	-240.421		.000	.000	
	2.125	98.759	-97.909		.000	.000	
	2.125			-2.643			-55.766
4B ----------							
MAX & MIN							
1	.000			-.588			.230
	.000	66.514	-70.948		1.228	1.419	
	1.063	60.213	-3.624		1.228	2.723	
	2.125	53.912	57.005		1.228	4.028	
	2.125			-.588			.230
MAX							
2	.000			3.511			11.767
	.000	106.938	-40.578		.866	1.452	
	1.063	95.450	48.487		.866	2.127	
	2.125	85.181	130.425		.866	2.962	
	2.125			3.511			11.767
MIN							
2	.000			1.052			-31.813
	.000	62.237	-109.382		.629	.726	
	1.063	52.370	-37.990		.629	1.506	
	2.125	41.074	26.672		.629	2.285	
	2.125			1.052			-31.813

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
MAX							
3	.000			5.591			15.999
	.000	106.895	-40.370		.865	1.413	
	1.063	95.407	48.650		.865	2.087	
	2.125	85.138	130.543		.865	2.921	
	2.125			5.591			15.999
MIN							
3	.000			3.132			-30.181
	.000	62.194	-109.173		.628	.688	
	1.063	52.327	-37.827		.628	1.466	
	2.125	41.031	26.789		.628	2.244	
	2.125			3.132			-30.181
MAX							
4	.000			4.164			23.871
	.000	133.931	-20.540		.950	1.749	
	1.063	118.984	83.064		.950	2.350	
	2.125	106.070	179.255		.950	3.217	
	2.125			4.164			23.871
MIN							
4	.000			.066			-48.762
	.000	59.429	-135.213		.554	.540	
	1.063	47.185	-61.064		.554	1.315	
	2.125	32.558	6.332		.554	2.089	
	2.125			.066			-48.762
MAX & MIN							
5	.000			-2.141			.000
	.000	91.980	-80.007		.000	.000	
	1.063	84.702	15.855		.000	.000	
	2.125	77.424	99.984		.000	.000	
	2.125			-2.141			.000
MAX & MIN							
6	.000			-.591			.000
	.000	66.514	-70.948		.000	.000	
	1.063	60.213	-3.624		.000	.000	
	2.125	53.912	57.005		.000	.000	
	2.125			-.591			.000
MAX							
ALL	.000			5.591			23.871
	.000	133.931	-20.540		1.228	1.749	
	1.063	118.984	83.064		1.228	2.723	
	2.125	106.070	179.255		1.228	4.028	
	2.125			5.591			23.871
MIN							
ALL	.000			-2.141			-48.762
	.000	59.429	-135.213		.000	.000	
	1.063	47.185	-61.064		.000	.000	
	2.125	32.558	6.332		.000	.000	
	2.125			-2.141			-48.762
4Y ----------							
MAX & MIN							
1	.000			-.521			.102

PROGRAM:SHPYO/FILE:304615.F3F

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	2.125	40.635	48.521		.736	2.062	
	1.063	34.334	88.348		.736	2.844	
	2.125	28.033	121.481		.736	3.626	
	2.125			-.521			.102
MAX							
2	.000			4.226			14.913
	.000	73.524	120.202		.568	1.808	
	1.063	61.922	175.075		.568	2.166	
	2.125	51.585	221.230		.568	2.718	
	2.125			4.226			14.913
MIN							
2	.000			2.118			-27.412
	.000	35.005	16.817		.328	1.115	
	1.063	24.886	60.465		.328	1.583	
	2.125	13.587	97.362		.328	2.050	
	2.125			2.118			-27.412
MAX							
3	.000			6.857			15.878
	.000	73.493	120.331		.567	1.771	
	1.063	61.891	175.171		.567	2.128	
	2.125	51.554	221.292		.567	2.679	
	2.125			6.857			15.878
MIN							
3	.000			4.748			-26.447
	.000	34.973	16.947		.327	1.078	
	1.063	24.894	60.560		.327	1.545	
	2.125	13.356	97.424		.327	2.012	
	2.125			4.748			-26.447
MAX							
4	.000			4.762			27.388
	.000	95.482	167.859		.650	2.089	
	1.063	80.546	232.797		.650	2.371	
	2.125	67.318	287.666		.650	2.976	
	2.125			4.762			27.388
MIN							
4	.000			1.247			-43.155
	.000	31.283	-4.448		.251	.934	
	1.063	18.618	41.780		.251	1.399	
	2.125	3.655	81.220		.251	1.863	
	2.125			1.247			-43.155
MAX & MIN							
5	.000			-1.896			.000
	.000	61.074	89.968		.000	.000	
	1.063	53.796	150.992		.000	.000	
	2.125	46.517	204.283		.000	.000	
	2.125			-1.896			.000
MAX & MIN							
6	.000			-.523			.000
	.000	40.635	48.521		.000	.000	
	1.063	34.334	88.348		.000	.000	
	2.125	28.033	121.481		.000	.000	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	2.125			-.523			.000
MAX							
ALL	.000			6.857			27.388
	.000	95.482	167.859		.736	2.089	
	1.063	80.546	232.797		.736	2.844	
	2.125	67.318	287.666		.736	3.626	
	2.125			6.857			27.388
MIN							
ALL	.000			-1.896			-43.155
	.000	31.283	-4.448		.000	.000	
	1.063	18.618	41.780		.000	.000	
	2.125	3.655	81.220		.000	.000	
	2.125			-1.896			-43.155
5D ----------							
MAX & MIN							
1	.000			-.494			.030
	.000	17.785	119.512		.246	2.641	
	1.063	11.484	135.060		.246	2.901	
	2.125	5.183	143.915		.246	3.162	
	2.125			-.494			.030
MAX							
2	.000			5.701			19.071
	.000	43.793	218.708		.270	2.143	
	1.063	32.150	241.138		.270	2.185	
	2.125	21.810	253.262		.270	2.445	
	2.125			5.701			19.071
MIN							
2	.000			3.755			-23.218
	.000	7.475	94.846		.028	1.462	
	1.063	-2.793	114.168		.028	1.618	
	2.125	-14.401	126.506		.028	1.774	
	2.125			3.755			-23.218
MAX							
3	.000			9.358			19.390
	.000	43.762	218.774		.270	2.105	
	1.063	32.119	241.171		.270	2.147	
	2.125	21.779	253.261		.270	2.408	
	2.125			9.358			19.390
MIN							
3	.000			7.412			-22.899
	.000	7.443	94.912		.028	1.425	
	1.063	-2.824	114.201		.028	1.581	
	2.125	-14.433	126.506		.028	1.737	
	2.125			7.412			-22.899
MAX							
4	.000			6.174			32.625
	.000	61.163	284.774		.351	2.415	
	1.063	45.958	311.825		.351	2.380	
	2.125	32.926	326.160		.351	2.710	
	2.125			6.174			32.625

E X A M P L E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

REPOSITION 304+61S, 3 VANOS 13+17+13 FILE:30461S

PROGRAM:SAP90/FILE:30461S.I.SF

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	MOMENT	AXIAL TORQ
MAX							
ALL	.000			3.330			-14.060
	1.083	84.734	118.639		2.090	.031	
	2.167	61.293	166.179		2.890	.040	
	.000	42.592	190.705		2.890	3.039	
MIN							
ALL	.000			3.330			-14.060
	1.083	84.734	118.639		2.090	.031	
	2.167	61.293	166.179		2.890	.040	
	.000	42.592	190.705		2.890	3.039	
MAX							
1	.000			3.197			-26.790
	1.083	1.504	70.958		2.507	-1.727	
	2.167	-3.295	69.988		2.507	.799	
	.000	-8.094	63.819		2.507	3.705	
MIN							
1	.000			3.197			-26.790
	1.083	1.504	70.958		2.507	-1.727	
	2.167	-3.295	69.988		2.507	.799	
	.000	-8.094	63.819		2.507	3.705	
MAX & MIN							
63	----------						
	.001						-130.465
	2.167	-39.111	60.158			-.031	-.035
	1.083	-14.784	51.035			-.031	-.002
	.000	3.914	36.540			-.031	-2.424
ALL	.000			.001			-135.294
MIN							
	2.167	42.592	190.705	3.330	2.890	3.039	-14.060
	1.083	61.293	166.179		2.890	.040	
	.000	84.734	118.639		2.090	.031	
MAX							
ALL	.000			3.330			-14.060
	1.083	84.734	118.639		2.090	.031	
	2.167	61.293	166.179		2.890	.040	
	.000	42.592	190.705		2.890	3.039	

E X A M P L E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

REPOSITION 304+61S, 3 VANOS 13+17+13 FILE:30461S

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	MOMENT	AXIAL TORQ
MAX							
1	.000			1.848			-130.465
	1.083	3.914	36.540		-.782	-1.618	
	2.167	-39.111	60.158		-.782	1.630	
	.000	-14.784	51.035		-.563		
MIN							
1	.000			1.848			-135.294
	1.083	3.914	36.540		-.782	-1.618	
	2.167	-39.111	60.158		-.782	1.630	
	.000	-14.784	51.035		-.563		
MAX & MIN							
5	.000			.005			-34.995
	1.083	12.744	44.821		-.031	.031	
	2.167	3.146	62.035		-.031	-.035	
	.000	7.949	56.027		-.031	-.002	
MAX & MIN							
6	.000			.001			-37.680
	2.167	5.908	73.710		-.008	-.010	
	1.083	10.707	64.710		-.008	-.001	
	.000	15.507	50.511		-.008	.009	
MAX & MIN							
6	.000			.001			-37.680
	2.167	5.908	73.710		-.008	-.010	
	1.083	10.707	64.710		-.008	-.001	
	.000	15.507	50.511		-.008	.009	
MAX							
4	.000			1.848			-130.465
	1.083	3.914	36.540		-.782	-1.618	
	2.167	-39.111	60.158		-.782	1.630	
	.000	-14.784	51.035		-.563		
MIN							
4	.000			1.848			-135.294
	1.083	3.914	36.540		-.782	-1.618	
	2.167	-39.111	60.158		-.782	1.630	
	.000	-14.784	51.035		-.563		
MAX							
3	.000			2.909			-14.060
	1.083	84.734	118.639		2.140	-.503	
	2.167	61.293	166.179		2.140	.772	
	.000	42.592	190.705		2.140	3.092	
MIN							
3	.000			2.909			-14.060
	1.083	84.734	118.639		2.140	-.503	
	2.167	61.293	166.179		2.140	.772	
	.000	42.592	190.705		2.140	3.092	
MAX							
4	.000			2.693			-94.525
	1.083	4.409	56.502		.750	.715	
	2.167	-20.926	65.768		.750	1.658	
	.000	8.730	41.932		.750	-.898	
MAX							
3	.000			2.693			-97.398
	1.083	4.409	56.502		.750	.715	
	2.167	-20.926	65.768		.750	1.658	
	.000	8.730	41.932		.750	-.898	
MIN							
3	.000			3.330			-24.682
	1.083	57.221	91.191		1.565	-.229	
	2.167	41.237	125.587		1.565	.840	
	.000	28.061	144.096		1.565	2.500	
MAX							
3	.000			3.330			-24.682
	1.083	57.221	91.191		1.565	-.229	
	2.167	41.237	125.587		1.565	.840	
	.000	28.061	144.096		1.565	2.500	
MAX & MIN							
6	.000			2.033			-96.227
	2.167	-20.446	66.152		1.064	1.879	
	1.083	-4.130	56.582		1.064	.594	
	.000	9.010	41.709		1.064	-1.359	
MIN							
2	.000			2.033			-99.101
	2.167	28.340	144.480		1.879	2.720	
	1.083	41.517	125.660		1.879	.719	
	.000	57.501	90.969		1.079	-.690	
MAX							
2	.000			2.669			-26.394
	2.167	28.340	144.480		1.879	2.720	
	1.083	41.517	125.660		1.879	.719	
	.000	57.501	90.969		1.079	-.690	
MIN							
2	.000			2.669			-26.394
	2.167	10.707	64.710		-.008	.009	
	1.083	15.507	50.511		-.008	-.001	
	.000					-.010	
MAX & MIN							
6	.000			.001			-37.680
	2.167	5.908	73.710		-.008	-.010	
	1.083	10.707	64.710		-.008	-.001	
	.000	15.507	50.511		-.008	.009	

E X A M P L E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

REPOSITION 304+61S, 3 VANOS 13+17+13 FILE:30461S

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	MOMENT	AXIAL TORQ
MAX							
3	.000			1.067			-39.517
	1.083						
	2.167						
	.000			.519			-12.827
MAX & MIN							
62	----------						
	.002			1.204			-130.594
	2.167	-17.929	45.897		1.204	2.025	
	1.083	6.917	28.721		1.204	-1.488	
	.000	22.201	-2.572		1.204	.594	
MIN							
ALL	.000			.002			-129.772
	1.083	24.750	-.044		.882	.088	-.978
	2.167	-3.167	49.642		.882	.888	1.850
	.000	13.660	30.628			.888	.742
MAX							
4	.000			.767			-129.224
	1.083	82.937	91.479		2.296	.765	
	2.167	64.279	148.488		2.296	3.125	
	.000	107.944	9.291		2.296	-.657	
MIN							
4	.000			.767			-129.224
	1.083	82.937	91.479		2.296	.765	
	2.167	64.279	148.488		2.296	3.125	
	.000	107.944	9.291		2.296	-.657	
MAX & MIN							
5	.000			.460			-178.386
	1.083	6.917	29.644		.933	.564	
	2.167	-17.929	45.897		.933	1.785	
	.000	22.201	-2.572		.933	-1.740	
MIN							
5	.000			.460			-178.386
	1.083	6.917	29.644		.933	.564	
	2.167	-17.929	45.897		.933	1.785	
	.000	22.201	-2.572		.933	-1.740	
MAX & MIN							
6	.000			.460			-173.774
	2.167	-17.929	45.897		.933	1.785	
	1.083	6.917	29.644		.933	.564	
	.000	22.201	-2.572		.933	-1.740	
MAX							
5	.000			.460			-178.386
	1.083	6.917	29.644		.933	.564	
	2.167	-17.929	45.897		.933	1.785	
	.000	22.201	-2.572		.933	-1.740	
MIN							
6	.000			.460			-173.774
	2.167	-17.929	45.897		.933	1.785	
	1.083	6.917	29.644		.933	.564	
	.000	22.201	-2.572		.933	-1.740	
MAX & MIN							
5	.000			.767			-129.224
	1.083	82.937	91.479		2.296	.765	
	2.167	64.279	148.488		2.296	3.125	
	.000	107.944	9.291		2.296	-.657	
MIN							
5	.000			.767			-129.224
	1.083	82.937	91.479		2.296	.765	
	2.167	64.279	148.488		2.296	3.125	
	.000	107.944	9.291		2.296	-.657	
MAX							
6	.000			1.067			-129.224
	1.083	82.937	91.479		3.111	.894	
	2.167	64.279	148.488		3.111	3.960	
	.000	107.944	9.291		3.111	.024	
MIN							
6	.000			1.067			-129.224
	1.083	82.937	91.479		3.111	.894	
	2.167	64.279	148.488		3.111	3.960	
	.000	107.944	9.291		3.111	.024	
MAX & MIN							
1	.000			1.952			-38.395
	1.083	10.824	64.731		2.890	-2.424	
	.000	15.623	50.405		2.890	.700	
MIN							
4	.000			2.821			-99.933
	2.167						
	1.083						
	.000			4.748			-3.785
MAX							
4	.000			4.748			-3.785
	2.167	19.990	180.072		2.019	.899	
	1.083	38.407	189.367		2.019	-.355	
	.000	61.482	175.182		2.019	-.355	
MAX							
3	.000			3.900			-69.453
	2.167	-39.759	49.846		.735	1.631	
	1.083	-23.835	55.487		.735	.705	
	.000	-10.510	55.844		.735	-.798	
MIN							
3	.000			3.980			-71.489
	2.167	8.898	133.660		1.536	2.535	
	1.083	21.868	141.591		1.536	.803	
	.000	37.633	133.275		1.536	-.221	
MAX							
5	.000			5.136			-13.860
	2.167	-39.460	50.220		.964	1.827	
	1.083	-23.539	55.537		.964	.655	
	.000	-10.210	55.570		.964	-1.098	
MIN							
2	.000			3.182			-73.140
	2.167	9.198	134.035		1.765	2.730	
	1.083	22.167	141.601		1.765	.831	
	.000	37.932	133.000		1.765	-.521	
MAX							
2	.000			4.338			-15.511
	2.167	-8.094	63.819		2.507	3.705	
	1.083	-3.295	69.988		2.507	.799	
	.000	1.504	70.958		2.507	-1.727	
MIN							
1	.000			3.197			-26.790
	2.167	-8.094	63.819		2.507	3.705	
	1.083	-3.295	69.988		2.507	.799	
	.000	1.504	70.958		2.507	-1.727	
MAX & MIN							
63	----------						
	.001						-130.465
	2.167	-39.111	60.158			-.031	-.035
	1.083	-14.784	51.035			-.031	-.002
	.000	3.914	36.540			-.031	-2.424
ALL	.000			.001			-135.294
MIN							
	2.167	42.592	190.705	3.330	2.890	3.039	-14.060
	1.083	61.293	166.179		2.890	.040	
	.000	84.734	118.639		2.090	.031	
MAX							
ALL	.000			3.330			-14.060
	1.083	84.734	118.639		2.090	.031	
	2.167	61.293	166.179		2.890	.040	
	.000	42.592	190.705		2.890	3.039	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	-18.756	46.131		.683	-1.317	
		1.083	-37.764	45.926		.683	.602	
		2.167	-61.106	40.381		.683	1.559	
		2.167			2.821			-96.439
	MAX & MIN							
	5	.000			-.005			-25.675
		.000	-1.282	59.644		-.041	.035	
		1.083	-6.082	55.655		-.041	-.010	
		2.167	-10.881	46.468		-.041	-.055	
		2.167			-.005			-25.675
	MAX & MIN							
	6	.000			-.001			-26.099
		.000	1.377	71.097		-.011	.010	
		1.083	-3.423	69.988		-.011	-.003	
		2.167	-8.222	63.681		-.011	-.015	
		2.167			-.001			-26.099
	MAX							
	ALL	.000			5.136			-3.785
		.000	61.482	175.182		2.507	.035	
		1.083	38.407	189.367		2.507	.989	
		2.167	19.990	180.072		2.507	3.705	
		2.167			5.136			-3.785
	MIN							
	ALL	.000			-.005			-99.833
		.000	-18.756	46.131		-.041	-1.727	
		1.083	-37.764	45.926		-.041	-.010	
		2.167	-61.106	40.381		-.041	-.055	
		2.167			-.005			-96.439
64								
	MAX & MIN							
	1	.000			5.233			-24.722
		.000	-12.333	61.589		2.131	-1.073	
		1.083	-17.132	45.628		2.131	1.235	
		2.167	-21.931	24.469		2.131	3.543	
		2.167			5.233			-24.722
	MAX							
	2	.000			5.702			-14.593
		.000	19.412	126.193		1.624	-.289	
		1.083	3.878	110.388		1.624	.989	
		2.167	-8.828	79.736		1.624	2.744	
		2.167			5.702			-14.593
	MIN							
	2	.000			4.063			-64.025
		.000	-29.806	39.994		.827	-.777	
		1.083	-42.940	25.164		.827	.737	
		2.167	-58.674	5.095		.827	1.762	
		2.167			4.063			-62.527
	MAX							
	3	.000			6.561			-12.957
		.000	19.102	126.477		1.456	-.090	
		1.083	3.568	110.336		1.456	1.005	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.167	-9.138	79.348		1.456	2.579	
		2.167			6.561			-12.957
	MIN							
	3	.000			4.921			-62.389
		.000	-30.116	40.278		.659	-.579	
		1.083	-43.250	25.112		.659	.753	
		2.167	-58.984	4.707		.659	1.597	
		2.167			4.921			-60.891
	MAX							
	4	.000			6.263			-3.646
		.000	39.814	170.168		1.876	-.147	
		1.083	17.124	153.642		1.876	1.082	
		2.167	-.854	115.837		1.876	3.108	
		2.167			6.263			-3.646
	MIN							
	4	.000			3.531			-86.032
		.000	-42.216	26.503		.547	-.960	
		1.083	-60.906	11.602		.547	.662	
		2.167	-83.929	-8.564		.547	1.471	
		2.167			3.531			-83.536
	MAX & MIN							
	5	.000			-.034			-25.869
		.000	-15.081	44.478		-.062	.047	
		1.083	-19.880	25.541		-.062	-.021	
		2.167	-24.679	1.405		-.062	-.089	
		2.167			-.034			-25.869
	MAX & MIN							
	6	.000			-.009			-24.058
		.000	-12.472	61.744		-.017	.013	
		1.083	-17.271	45.633		-.017	-.006	
		2.167	-22.071	24.323		-.017	-.024	
		2.167			-.009			-24.058
	MAX							
	ALL	.000			6.561			-3.646
		.000	39.814	170.168		2.131	.047	
		1.083	17.124	153.642		2.131	1.235	
		2.167	-.854	115.837		2.131	3.543	
		2.167			6.561			-3.646
	MIN							
	ALL	.000			-.034			-86.032
		.000	-42.216	26.503		-.062	-1.073	
		1.083	-60.906	11.602		-.062	-.021	
		2.167	-83.929	-8.564		-.062	-.089	
		2.167			-.034			-83.536
65								
	MAX & MIN							
	1	.000			6.478			-30.967
		.000	-24.990	20.324		1.756	-.468	
		1.083	-29.789	-9.348		1.756	1.435	
		2.167	-34.589	-44.220		1.756	3.337	
		2.167			6.478			-30.967

PROGRAM:SAP90/FILE:304615.F3F

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX							
	2	.000			6.811			-22.718
		.000	3.463	71.667		1.449	-.025	
		1.083	-11.793	54.435		1.449	1.171	
		2.167	-24.198	-14.647		1.449	2.739	
		2.167			6.811			-22.718
	MIN							
	2	.000			4.721			-68.991
		.000	-47.308	-7.756		.646	-.403	
		1.083	-60.314	-36.124		.646	.806	
		2.167	-75.815	-69.691		.646	1.637	
		2.167			4.721			-67.787
	MAX							
	3	.000			7.691			-21.067
		.000	3.147	71.947		1.314	.114	
		1.083	-12.109	34.370		1.314	1.164	
		2.167	-24.514	-15.053		1.314	2.586	
		2.167			7.691			-21.067
	MIN							
	3	.000			5.601			-67.339
		.000	-47.705	-7.476		.511	-.265	
		1.083	-60.630	-36.186		.511	.799	
		2.167	-76.131	-70.096		.511	1.484	
		2.167			5.601			-66.136
	MAX							
	4	.000			7.508			-12.961
		.000	21.644	106.866		1.704	.085	
		1.083	-.582	63.739		1.704	1.307	
		2.167	-18.058	4.333		1.704	3.150	
		2.167			7.508			-12.961
	MIN							
	4	.000			4.024			-90.081
		.000	-63.108	-25.504		.364	-.546	
		1.083	-81.451	-53.856		.364	.699	
		2.167	-104.086	-87.406		.364	1.313	
		2.167			4.024			-88.075
	MAX & MIN							
	5	.000			-.112			-35.159
		.000	-27.623	-3.007		-.100	.068	
		1.083	-32.422	-35.532		-.100	-.040	
		2.167	-37.221	-73.256		-.100	-.148	
		2.167			-.112			-35.159
	MAX & MIN							
	6	.000			-.031			-30.373
		.000	-25.153	20.484		-.028	.019	
		1.083	-29.952	-9.364		-.028	-.011	
		2.167	-34.751	-44.412		-.028	-.041	
		2.167			-.031			-30.373
	MAX							
	ALL	.000			7.691			-12.961
		.000	21.644	106.866		1.756	.114	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.083	-.582	63.739		1.756	1.435	
		2.167	-18.058	4.333		1.756	3.337	
		2.167			7.691			-12.961
	MIN							
	ALL	.000			-.112			-90.081
		.000	-63.108	-25.504		-.100	-.546	
		1.083	-81.451	-53.856		-.100	-.040	
		2.167	-104.086	-87.406		-.100	-.148	
		2.167			-.112			-88.075
66								
	MAX & MIN							
	1	.000			7.452			-30.965
		.000	-23.195	-57.665		1.389	.064	
		1.083	-27.994	-85.393		1.389	1.568	
		2.167	-32.793	-118.319		1.389	3.072	
		2.167			7.452			-30.965
	MAX							
	2	.000			7.667			-23.734
		.000	5.943	-33.340		1.219	.212	
		1.083	-9.128	-67.791		1.219	1.407	
		2.167	-21.372	-108.959		1.219	2.722	
		2.167			7.667			-23.734
	MIN							
	2	.000			5.172			-67.945
		.000	-45.930	-94.112		.446	.052	
		1.083	-58.550	-117.880		.446	.822	
		2.167	-73.794	-150.370		.446	1.433	
		2.167			5.172			-66.957
	MAX							
	3	.000			8.547			-22.083
		.000	5.608	-33.065		1.097	.311	
		1.083	-9.463	-67.879		1.097	1.374	
		2.167	-21.707	-109.410		1.097	2.557	
		2.167			8.547			-22.083
	MIN							
	3	.000			6.053			-66.294
		.000	-46.265	-93.837		.324	.151	
		1.083	-58.885	-117.969		.324	.789	
		2.167	-74.129	-150.821		.324	1.267	
		2.167			6.053			-65.307
	MAX							
	4	.000			8.472			-14.715
		.000	24.433	-16.099		1.467	.250	
		1.083	2.514	-56.046		1.467	1.630	
		2.167	-14.692	-103.720		1.467	3.210	
		2.167			8.472			-14.715
	MIN							
	4	.000			4.315			-88.400
		.000	-62.022	-117.386		.178	-.016	
		1.083	-79.856	-139.528		.178	.655	
		2.167	-102.063	-172.738		.178	1.060	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.167			4.315			-86.755
	MAX & MIN							
	5	.000			-.308			-37.395
		.000	-23.552	-88.836		-.151	.103	
		1.083	-28.352	-116.951		-.151	-.061	
		2.167	-33.151	-180.265		-.151	-.224	
		2.167			-.308			-37.395
	MAX & MIN							
	6	.000			-.085			-30.548
		.000	-23.387	-57.563		-.042	.028	
		1.083	-28.186	-85.498		-.042	-.017	
		2.167	-32.985	-118.633		-.042	-.062	
		2.167			-.085			-30.548
	MAX							
	ALL	.000			8.547			-14.715
		.000	24.433	-16.099		1.467	.311	
		1.083	2.514	-56.046		1.467	1.620	
		2.167	-14.692	-103.720		1.467	3.210	
		2.167			8.547			-14.715
	MIN							
	ALL	.000			-.308			-88.400
		.000	-62.022	-117.386		-.151	-.016	
		1.083	-74.856	-139.528		-.151	-.061	
		2.167	-102.063	-172.738		-.151	-.224	
		2.167			-.308			-86.755
67	----------							
	MAX & MIN							
	1	.000			8.145			21.598
		.000	33.651	-119.546		1.188	.488	
		1.063	28.944	-86.292		1.188	1.750	
		2.125	24.237	-58.039		1.188	3.012	
		2.125			8.145			21.598
	MAX							
	2	.000			8.172			40.189
		.000	78.198	-112.784		.692	1.092	
		1.063	63.363	-69.777		.692	1.551	
		2.125	51.048	-33.077		.692	2.098	
		2.125			8.172			41.185
	MIN							
	2	.000			5.434			-2.300
		.000	25.437	-160.521		.429	.332	
		1.063	13.456	-112.005		.429	.908	
		2.125	-1.206	-84.922		.429	1.484	
		2.125			5.434			-1.517
	MAX							
	3	.000			9.048			41.566
		.000	77.904	-112.475		.594	1.140	
		1.063	63.069	-69.781		.594	1.494	
		2.125	50.754	-33.393		.594	1.936	
		2.125			9.048			42.561

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN				6.310			-.923
	3	.000						
		.000	25.143	-160.212		.330	.380	
		1.063	13.162	-112.006		.330	.851	
		2.125	-1.501	-85.238		.330	1.322	
		2.125			6.310			-.140
	MAX							
	4	.000			9.031			56.110
		.000	107.026	-107.700		.780	1.435	
		1.063	85.438	-59.117		.780	1.801	
		2.125	68.052	-17.709		.780	2.314	
		2.125			9.031			57.769
	MIN							
	4	.000			4.466			-14.705
		.000	19.091	-187.261		.340	.168	
		1.063	2.260	-129.492		.340	.730	
		2.125	-19.039	-104.117		.340	1.291	
		2.125			4.466			-15.400
	MAX & MIN							
	5	.000			-.776			24.821
		.000	46.978	-154.281		-.150	.224	
		1.063	41.294	-107.387		-.150	.065	
		2.125	35.609	-66.532		-.150	-.094	
		2.125			-.776			24.821
	MAX & MIN							
	6	.000			-.214			21.862
		.000	33.715	-119.721		-.041	.062	
		1.063	29.008	-86.400		-.041	.018	
		2.125	24.301	-58.080		-.041	-.026	
		2.125			-.214			21.862
	MAX							
	ALL	.000			9.048			56.110
		.000	107.026	-107.700		1.188	1.435	
		1.063	85.438	-59.117		1.188	1.801	
		2.125	68.052	-17.709		1.188	3.012	
		2.125			9.048			57.769
	MIN							
	ALL	.000			-.776			-14.705
		.000	19.091	-187.261		-.150	.062	
		1.063	2.260	-129.492		-.150	.018	
		2.125	-19.039	-104.117		-.150	-.094	
		2.125			-.776			-15.400
68	----------							
	MAX & MIN							
	1	.000			8.791			20.730
		.000	36.589	-45.011		.860	.983	
		1.063	31.882	-8.636		.860	1.027	
		2.125	27.175	22.738		.860	2.011	
		2.125			8.791			20.730
	MAX							
	2	.000			8.453			40.470

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.125			9.317			57.906
	MIN							
	ALL	.000			-.970			-14.082
		.000	22.947	-82.329		-.094	.040	
		1.063	5.942	-44.571		-.094	.012	
		2.125	-15.591	-11.924		-.094	-.054	
		2.125			-.970			-12.776
69	----------							
	MAX & MIN							
	1	.000			9.138			10.051
		.000	24.522	26.319		.519	1.429	
		1.063	19.815	49.873		.519	1.981	
		2.125	15.108	68.425		.519	2.532	
		2.125			9.138			10.051
	MAX							
	2	.000			8.451			29.215
		.000	65.370	75.549		.092	1.527	
		1.063	50.237	112.388		.092	1.411	
		2.125	37.648	136.150		.092	1.452	
		2.125			8.451			30.126
	MIN							
	2	.000			5.662			-12.561
		.000	14.576	8.711		-.112	.995	
		1.063	2.244	33.429		-.112	.986	
		2.125	-12.766	53.000		-.112	.976	
		2.125			5.662			-11.730
	MAX							
	3	.000			9.129			29.023
		.000	65.229	75.615		-.118	1.643	
		1.063	50.097	112.305		-.118	1.305	
		2.125	37.507	135.918		-.118	1.123	
		2.125			9.129			30.735
	MIN							
	3	.000			6.340			-11.953
		.000	14.435	8.777		-.321	1.112	
		1.063	2.103	33.346		-.321	.679	
		2.125	-12.907	52.767		-.321	.647	
		2.125			6.340			-11.122
	MAX							
	4	.000			9.301			43.641
		.000	92.289	108.261		.158	1.753	
		1.063	70.207	153.625		.158	1.566	
		2.125	52.362	180.529		.158	1.640	
		2.125			9.301			45.160
	MIN							
	4	.000			4.653			-25.985
		.000	7.633	-3.135		-.181	.867	
		1.063	-9.783	22.027		-.181	.857	
		2.125	-31.661	41.945		-.181	.846	
		2.125			4.653			-24.600

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX & MIN 5	.000			-1.049			12.478
		.000	36.985	50.091		-.048	.079	
		1.063	31.300	86.368		-.048	.028	
		2.125	25.616	116.604		-.048	-.023	
		2.125			-1.049			12.478
	MAX & MIN 6	.000			-.289			10.070
		.000	24.533	26.312		-.013	.022	
		1.063	19.827	49.878		-.013	.008	
		2.125	15.120	68.443		-.013	-.006	
		2.125			-.289			10.070
	MAX ALL	.000			9.301			43.641
		.000	92.289	108.261		.519	1.753	
		1.063	70.207	153.625		.519	1.981	
		2.125	52.562	180.529		.519	2.532	
		2.125			9.301			45.160
	MIN ALL	.000			-1.049			-25.985
		.000	7.633	-3.135		-.321	.022	
		1.063	-9.783	22.027		-.321	.008	
		2.125	-31.661	41.945		-.321	-.023	
		2.125			-1.049			-24.600
70								
	MAX & MIN 1	.000			9.345			2.815
		.000	11.291	69.256		.173	1.836	
		1.063	6.584	78.751		.173	2.020	
		2.125	1.877	83.246		.173	2.204	
		2.125			9.345			2.815
	MAX 2	.000			7.976			22.639
		.000	47.633	135.912		-.268	1.830	
		1.063	32.453	153.009		-.268	1.354	
		2.125	19.861	156.349		-.268	1.041	
		2.125			7.976			23.538
	MIN 2	.000			5.218			-19.103
		.000	-2.466	56.245		-.456	1.334	
		1.063	-14.973	66.718		-.456	.948	
		2.125	-30.112	72.044		-.456	.563	
		2.125			5.218			-18.226
	MAX 3	.000			8.280			22.840
		.000	47.574	135.853		-.578	2.013	
		1.063	32.395	152.888		-.578	1.207	
		2.125	19.803	156.166		-.578	.564	
		2.125			8.280			23.738
	MIN 3	.000			5.522			-18.903

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	-2.525	56.186		-.766	1.516	
		1.063	-15.032	66.596		-.766	.801	
		2.125	-30.171	71.860		-.766	.086	
		2.125			5.522			-18.025
	MAX 4	.000			8.800			36.412
		.000	71.771	180.049		-.205	2.035	
		1.063	49.609	202.117		-.205	1.478	
		2.125	31.760	204.591		-.205	1.233	
		2.125			8.800			37.910
	MIN 4	.000			4.204			-33.158
		.000	-11.728	47.270		-.517	1.207	
		1.063	-29.435	58.298		-.517	.821	
		2.125	-51.529	64.082		-.517	.436	
		2.125			4.204			-31.697
	MAX & MIN 5	.000			-1.076			3.794
		.000	17.445	117.626		-.015	.037	
		1.063	11.761	133.142		-.015	.021	
		2.125	6.077	142.618		-.015	.006	
		2.125			-1.076			3.794
	MAX & MIN 6	.000			-.297			2.817
		.000	11.294	69.260		-.004	.010	
		1.063	6.587	78.758		-.004	.006	
		2.125	1.880	83.256		-.004	.002	
		2.125			-.297			2.817
	MAX ALL	.000			9.345			36.412
		.000	71.771	180.049		.173	2.035	
		1.063	49.609	202.117		.173	2.020	
		2.125	31.760	204.591		.173	2.204	
		2.125			9.345			37.910
	MIN ALL	.000			-1.076			-33.158
		.000	-11.728	47.270		-.766	.010	
		1.063	-29.435	58.298		-.766	.006	
		2.125	-51.529	64.082		-.766	.002	
		2.125			-1.076			-31.697
81								
	MAX & MIN 1	.000			.402			-38.418
		.000	17.029	-12.302		1.851	-1.579	
		1.083	11.797	3.312		1.851	.427	
		2.167	6.564	13.257		1.851	2.432	
		2.167			.402			-38.418
	MAX 2	.000			3.505			-33.236
		.000	32.412	-11.559		1.071	-.251	
		1.083	22.769	5.180		1.071	.577	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615 PROGRAM:SAP90/FILE:304615.F3F

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.167	17.537	26.775		1.071	1.689	
		2.167			3.505			-33.236
	MIN 2	.000			2.574			-70.375
		.000	15.762	-22.678		.604	-.647	
		1.083	6.565	3.043		.604	.478	
		2.167	-2.692	12.787		.604	1.206	
		2.167			2.574			-70.375
	MAX 3	.000			5.350			-32.426
		.000	32.224	-11.339		.807	.188	
		1.083	22.581	5.195		.807	.730	
		2.167	17.349	26.586		.807	1.556	
		2.167			5.350			-32.426
	MIN 3	.000			4.419			-69.565
		.000	15.574	-22.459		.340	-.209	
		1.083	6.377	3.059		.340	.630	
		2.167	-2.880	12.599		.340	1.073	
		2.167			4.419			-69.565
	MAX 4	.000			3.822			-27.733
		.000	42.197	-10.511		1.225	-.150	
		1.083	29.614	6.467		1.225	.622	
		2.167	24.382	35.319		1.225	1.868	
		2.167			3.822			-27.733
	MIN 4	.000			2.270			-89.631
		.000	14.447	-29.044		.445	-.810	
		1.083	2.607	2.906		.445	.456	
		2.167	-9.332	12.006		.445	1.062	
		2.167			2.270			-89.631
	MAX & MIN 5	.000			.011			-36.185
		.000	15.975	-11.408		-.013	.016	
		1.083	10.743	3.064		-.013	.002	
		2.167	5.510	11.868		-.013	-.012	
		2.167			.011			-36.185
	MAX & MIN 6	.000			.003			-38.096
		.000	16.952	-12.212		-.004	.004	
		1.083	11.719	3.319		-.004	.001	
		2.167	6.487	13.180		-.004	-.003	
		2.167			.003			-38.096
	MAX ALL	.000			5.350			-27.733
		.000	42.197	-10.511		1.851	.188	
		1.083	29.614	6.467		1.851	.730	
		2.167	24.382	35.319		1.851	2.432	
		2.167			5.350			-27.733

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN ALL	.000			.003			-89.631
		.000	14.447	-29.044		-.013	-1.579	
		1.083	2.607	2.906		-.013	.001	
		2.167	-9.332	11.868		-.013	-.012	
		2.167			.003			-89.631
82								
	MAX & MIN 1	.000			2.424			-35.155
		.000	8.380	2.630		1.085	-.533	
		1.083	3.147	8.873		1.085	.642	
		2.167	-2.085	9.448		1.085	1.017	
		2.167			2.424			-35.155
	MAX 2	.000			4.124			-29.758
		.000	19.945	6.713		.557	.249	
		1.083	10.442	15.686		.557	.667	
		2.167	1.634	19.772		.557	1.227	
		2.167			4.124			-29.758
	MIN 2	.000			3.269			-65.199
		.000	5.837	1.364		.224	.007	
		1.083	-3.042	8.133		.224	.544	
		2.167	-12.084	9.179		.224	.840	
		2.167			3.269			-65.199
	MAX 3	.000			5.445			-28.879
		.000	19.862	6.777		.324	.614	
		1.083	10.359	15.661		.324	.781	
		2.167	1.551	19.657		.324	1.089	
		2.167			5.445			-28.879
	MIN 3	.000			4.590			-64.321
		.000	5.754	1.429		-.008	.372	
		1.083	-3.125	8.107		-.008	.658	
		2.167	-12.167	9.064		-.008	.702	
		2.167			4.590			-64.321
	MAX 4	.000			4.469			-23.932
		.000	27.448	9.605		.670	.302	
		1.083	15.097	20.174		.670	.719	
		2.167	3.906	26.375		.670	1.372	
		2.167			4.469			-23.932
	MIN 4	.000			3.044			-83.000
		.000	3.935	.691		.116	-.103	
		1.083	-7.376	7.585		.116	.514	
		2.167	-18.957	8.720		.116	.726	
		2.167			3.044			-83.000
	MAX & MIN 5	.000			-.020			-33.427

REFUSILIUN 304+61S. 3 VANUS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD	DIST	I-2 PLANE		AXIAL	I-3 PLANE		AXIAL	
ID	ENVE	END1	SHEAR	MOMENT	FORCE	SHEAR	MOMENT	LOAD	
1	.000								
		1.083	-1.936	-7.863		-.039	-.053		
		.000	3.442	-1.093	6.676				
		1.083	-1.790	-.190		.704	.056		
		2.167	-7.023	-4.972		.704	.819		
		2.167			6.676				-17.394
						.704	1.501		
									-17.054
MAX & MIN									
2	.000				6.433				
		1.083	14.188	3.876		.553	.180		
		2.167	4.702	5.685		.553	.682		
		2.167	-4.395	-.763		.553	1.278		
		2.167			6.433				-12.265
MIN									
2	.000				4.313				
		1.083	-8.276	-2.990		.213	.465		
		2.167	-17.561	-6.898		.213	.753		
		2.167			4.313				-30.382
MAX									
3	.000				6.981				
		1.083	14.107	3.961		.471	.268		
		2.167	4.621	3.682		.471	.681		
		2.167	-4.456	-.895		.471	1.188		
		2.167			6.981				-11.499
MIN									
3	.000				4.861				
		1.083	-8.357	-2.954		.131	.466		
		2.167	-17.643	-6.990		.131	.663		
		2.167			4.861				-27.617
MAX									
4	.000				7.120				
		1.083	21.144	7.435		.661	.208		
		2.167	8.822	6.294		.661	.763		
		2.167	-2.785	1.835		.661	1.474		
		2.167			7.120				-6.572
MIN									
4	.000				3.587				
		1.083	-12.800	-4.766		.095	.403		
		2.167	-24.796	-8.389		.095	.599		
		2.167			3.587				-36.767
MAX									
5	.000				-.162				
		1.083	-1.527	-6.857		-.039	.026		
		.000	3.797	-3.669		-.039	.031		
		1.083	-1.936	-2.932		-.039	-.011		
		2.167	-7.160	-7.863		-.039	-.053		
		2.167			-.162				-19.417

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MAX & MIN

1	.000				-.104				
		1.083	3.442	-1.093		.704	.056		
		.000	-1.790	-.190	6.676				
		1.083	-1.790	-.190		.704	.819		
		2.167	-7.023	-4.972		.704	1.501		
		2.167			6.676				-17.394
MAX									-46.941
2	.000				-.104				
		1.083	-2.797	-1.093		-.030	-.201		
		.000	-1.157	-1.297					
		1.083	-1.157	-1.297					
		2.167	-1.157	-1.297					
		2.167			-.104				-46.941
MIN									
2	.000				-.029				
		1.083	1.911	.365		-.262	-.070		
		.000	-1.157	-1.297					
		1.083	-1.334	-1.441		.846	1.633		
		2.167			-.029				-10.215
MAX									
3	.000				6.382				
		1.083	22.753	14.008		.846	.239		
		2.167	10.420	15.555		.846	.716		
		2.167	-1.334	13.441		.846	1.633		
		2.167			6.382				-10.215
MIN									
3	.000				-.029				-21.637
		1.083	-5.795	2.022		-.008	-.011		
		.000	-.569	5.465		-.008	-.002		
		1.083	4.670	3.240		-.008	.007		
		2.167			-.029				-21.637
MAX									
4	.000				-.104				
		1.083	4.440	1.418		-.030	.025		
		.000	-.792	3.394		-.030	-.008		
		1.083	-6.025	-.298		-.030	-.040		
		2.167			-.104				-22.418
MIN									
4	.000				3.425				
		1.083	-23.316	-.420		.147	.648		
		.000	-11.450	2.001		.147	.379		
		1.083	-1.334	-1.297		.147	-.140		
		2.167			3.425				-46.941
MAX									
5	.000				-.104				
		1.083	4.440	1.418		-.030	.025		
		.000	-.792	3.394		-.030	-.008		
		1.083	-6.025	-.298		-.030	-.040		
		2.167			-.104				-22.418
MIN									
5	.000				6.225				
		1.083	22.753	14.008		.703	.149		
		.000	10.420	15.555		.703	.643		
		1.083	-1.334	13.441		.703	1.393		
		2.167			6.225				-10.215
MAX									
6	.000				4.702				
		1.083	-7.040	3.376		.153	.460		
		.000	-16.252	.606		.153	.680		
		1.083	1.829	.448		.153	.066		
		2.167			4.702				-37.119
MIN									
6	.000				6.382				
		1.083	15.575	9.631		.487	.239		
		.000	6.082	11.509		.487	.607		
		1.083	-3.063	8.923		.487	1.122		
		2.167			6.382				-15.323
MAX									
7	.000				3.981				
		1.083	1.911	.365		-.262	-.070		
		.000	-6.958	3.382		.262	.441		
		1.083	-16.170	.700		.262	.779		
		2.167			3.981				-37.919
MIN									
7	.000				-.029				-21.637
		1.083	-5.795	2.022		-.008	-.011		
		.000	-.569	5.465		-.008	-.002		
		1.083	4.670	3.240		-.008	.007		
		2.167			-.029				-21.637
MAX									
8	.000				-.104				
		1.083	4.440	1.418		-.030	.025		
		.000	-.792	3.394		-.030	-.008		
		1.083	-6.025	-.298		-.030	-.040		
		2.167			-.104				-22.418
MIN									
8	.000				3.425				
		1.083	-23.316	-.420		.147	.648		
		.000	-11.450	2.001		.147	.379		
		1.083	-1.334	-1.297		.147	-.140		
		2.167			3.425				-46.941

REFUSILIUN 304+61S. 3 VANUS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD	DIST	I-2 PLANE		AXIAL	I-3 PLANE		AXIAL	
ID	ENVE	END1	SHEAR	MOMENT	FORCE	SHEAR	MOMENT	LOAD	
1	.000								
		1.083	3.585	6.840		.104	.490		
		.000	2.201	-5.288	4.582				-48.500
MIN									
3	.000				5.829				
		1.083	7.996	15.492		.433	1.055		
		1.083	17.494	10.452		.433	.324		
		.000	8.346	2.656		-.005	.004		
		1.083	3.114	8.864		-.005	.000		
		2.167	-2.119	9.403		-.005	-.005		
		2.167			-.006				-34.813
MAX									
4	.000				-.006				
		1.083	27.448	9.605		1.085	.614		
		.000	19.097	20.174		1.085	.781		
		1.083	3.906	26.375		1.085	1.817		
		2.167			-.006				-23.932
MIN									
4	.000				5.445				
		1.083	9.935	.691		-.018	-.533		
		.000	-7.376	7.585		-.018	.000		
		1.083	-18.957	7.976		-.018	-.020		
		2.167			-.020				-83.000
MAX									
5	.000				-.020				
		1.083	6.341	4.263		.968	-.426		
		.000	1.108	8.297		.968	.643		
		1.083	-4.124	6.664		.968	1.672		
		2.167			4.073				-27.406
MIN									
5	.000				4.865				
		1.083	17.535	10.374		.592	.101		
		.000	8.037	15.283		.592	.952		
		1.083	-1.189	15.549		.592	1.176		
		2.167			4.865				-21.622
MAX									
6	.000				4.073				
		1.083	7.955	5.829		.968	-.426		
		.000	2.722	7.862		.968	.643		
		1.083	-2.510	7.976		.968	1.672		
		2.167			4.073				-27.406
MIN									
6	.000				5.582				
		1.083	-5.288	6.840		.104	.490		
		.000	3.585	2.201		.104	.109		
		1.083	7.996	-1.157		.104	-.201		
		2.167			5.582				-48.500
MAX									
7	.000				5.829				
		1.083	17.494	10.452		.433	.324		
		.000	7.996	15.492		.433	.604		
		1.083	-1.270	15.955		.433	1.055		
		2.167			5.829				-20.784
MIN									
7	.000				3.618				
		1.083	3.666	2.122		.263	-.114		
		1.083	-5.207	6.849		.263	.497		
		1.083	-14.349	5.863		.263	.777		
		2.167			3.618				-49.339
MAX									
8	.000				4.885				
		1.083	17.535	10.374		.592	.101		
		.000	8.037	15.283		.592	.952		
		1.083	-1.189	15.549		.592	1.176		
		2.167			4.885				-21.622
MIN									
8	.000				4.073				
		1.083	6.341	4.263		.968	-.426		
		.000	1.108	8.297		.968	.643		
		1.083	-4.124	6.664		.968	1.672		
		2.167			4.073				-27.406

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MAX & MIN

1	.000				-.020				
		1.083	-5.288	6.840		.104	.490		
		.000	3.585	2.201		.104	.109		
		1.083	7.996	-1.157		.104	-.201		
		2.167			-.020				-53.427
MIN									
3	.000				5.829				
		1.083	7.996	15.492		.433	1.055		
		1.083	17.494	10.452		.433	.324		
		.000	8.346	2.656		-.005	.004		
		1.083	3.114	8.864		-.005	.000		
		2.167	-2.119	9.403		-.005	-.005		
		2.167			-.006				-34.813
MAX									
4	.000				-.006				
		1.083	27.448	9.605		1.085	.614		
		.000	19.097	20.174		1.085	.781		
		1.083	3.906	26.375		1.085	1.817		
		2.167			-.006				-23.932
MIN									
4	.000				5.445				
		1.083	9.935	.691		-.018	-.533		
		.000	-7.376	7.585		-.018	.000		
		1.083	-18.957	7.976		-.018	-.020		
		2.167			-.020				-83.000
MAX									
5	.000				-.020				
		1.083	6.341	4.263		.968	-.426		
		.000	1.108	8.297		.968	.643		
		1.083	-4.124	6.664		.968	1.672		
		2.167			4.073				-27.406
MIN									
5	.000				4.865				
		1.083	17.535	10.374		.592	.101		
		.000	8.037	15.283		.592	.952		
		1.083	-1.189	15.549		.592	1.176		
		2.167			4.865				-21.622
MAX									
6	.000				4.073				
		1.083	7.955	5.829		.968	-.426		
		.000	2.722	7.862		.968	.643		
		1.083	-2.510	7.976		.968	1.672		
		2.167			4.073				-27.406
MIN									
6	.000				5.582				
		1.083	-5.288	6.840		.104	.490		
		.000	3.585	2.201		.104	.109		
		1.083	7.996	-1.157		.104	-.201		
		2.167			5.582				-48.500
MAX									
7	.000				5.829				
		1.083	17.494	10.452		.433	.324		
		.000	7.996	15.492		.433	.604		
		1.083	-1.270	15.955		.433	1.055		
		2.167			5.829				-20.784
MIN									
7	.000				3.618				
		1.083	3.666	2.122		.263	-.114		
		1.083	-5.207	6.849		.263	.497		
		1.083	-14.349	5.863		.263	.777		
		2.167			3.618				-49.339
MAX									
8	.000				4.885				
		1.083	17.535	10.374		.592	.101		
		.000	8.037	15.283		.592	.952		
		1.083	-1.189	15.549		.592	1.176		
		2.167			4.885				-21.622
MIN									
8	.000				4.073				
		1.083	6.341	4.263		.968	-.426		
		.000	1.108	8.297		.968	.643		
		1.083	-4.124	6.664		.968	1.672		
		2.167			4.073				-27.406

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1	.000	4.655	-15.946				
	1.063	-4.038	-9.348		.508		
	2.125	-13.137	-10.445		.149	.721	
MAX	.000	17.088	-10.204		.719		
	1.063	8.583	-5.526		.199	.836	
	2.125	-.350	-4.547		.199	.976	
MIN	.000						
	2.125						
2	.000	12.939	-4.616		.481	.995	
	1.063	1.502	-2.623		.481	1.493	
	2.125						
MAX	.000	25.022	-9.139		.842		
	1.063	12.939	-4.616		.481	.995	
	2.125	1.502	-2.623		.481	1.493	
MIN	.000						
	2.125						
3	.000	2.856	-18.618		.015		
	1.063	-8.211	-11.045		.003		
	2.125	-19.954	-12.597		-.033		
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
4	.000	2.856	-18.618		-.041		
	1.063	-8.211	-11.045		-.041		
	2.125	-19.954	-12.597		-.041		
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
5	.000	9.246	-15.214		-.041	.054	
	1.063	3.136	-8.637		-.041	.010	
	2.125	-2.973	-8.550		-.041	-.093	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
6	.000	7.069	-11.753		-.011	.015	
	1.063	1.937	-6.948		-.011	.003	
	2.125	-3.194	-7.636		-.011	-.009	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						

REPOSITION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1	.000	2.856	-18.618		-.041	.015	
	1.063	-8.211	-11.045		-.041	.003	
	2.125	-19.954	-12.597		-.041	-.033	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
2	.000	25.022	-9.139		.842		
	1.063	12.939	-4.616		.481	.995	
	2.125	1.502	-2.623		.481	1.493	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
3	.000	2.856	-18.618		.015		
	1.063	-8.211	-11.045		.003		
	2.125	-19.954	-12.597		-.033		
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
4	.000	2.856	-18.618		-.041		
	1.063	-8.211	-11.045		-.041		
	2.125	-19.954	-12.597		-.041		
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
5	.000	9.246	-15.214		-.041	.054	
	1.063	3.136	-8.637		-.041	.010	
	2.125	-2.973	-8.550		-.041	-.093	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
6	.000	7.069	-11.753		-.011	.015	
	1.063	1.937	-6.948		-.011	.003	
	2.125	-3.194	-7.636		-.011	-.009	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						

REPOSITION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1	.000	17.088	-10.204		.719		
	1.063	8.583	-5.526		.199	.836	
	2.125	-.350	-4.547		.199	.976	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
2	.000	12.939	-4.616		.481	.995	
	1.063	1.502	-2.623		.481	1.493	
	2.125						
MAX	.000	25.022	-9.139		.842		
	1.063	12.939	-4.616		.481	.995	
	2.125	1.502	-2.623		.481	1.493	
MIN	.000						
	2.125						
3	.000	2.856	-18.618		-.041	.015	
	1.063	-8.211	-11.045		-.041	.003	
	2.125	-19.954	-12.597		-.041	-.033	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
4	.000	2.856	-18.618		-.041		
	1.063	-8.211	-11.045		-.041		
	2.125	-19.954	-12.597		-.041		
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
5	.000	9.246	-15.214		-.041	.054	
	1.063	3.136	-8.637		-.041	.010	
	2.125	-2.973	-8.550		-.041	-.093	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
6	.000	7.069	-11.753		-.011	.015	
	1.063	1.937	-6.948		-.011	.003	
	2.125	-3.194	-7.636		-.011	-.009	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1	.000	4.655	-15.946				
	1.063	-4.038	-9.348		.508		
	2.125	-13.137	-10.445		.149	.721	
MAX	.000	17.088	-10.204		.719		
	1.063	8.583	-5.526		.199	.836	
	2.125	-.350	-4.547		.199	.976	
MIN	.000						
	2.125						
2	.000	12.939	-4.616		.481	.995	
	1.063	1.502	-2.623		.481	1.493	
	2.125						
MAX	.000	25.022	-9.139		.842		
	1.063	12.939	-4.616		.481	.995	
	2.125	1.502	-2.623		.481	1.493	
MIN	.000						
	2.125						
3	.000	2.856	-18.618		.015		
	1.063	-8.211	-11.045		.003		
	2.125	-19.954	-12.597		-.033		
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
4	.000	2.856	-18.618		-.041		
	1.063	-8.211	-11.045		-.041		
	2.125	-19.954	-12.597		-.041		
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
5	.000	9.246	-15.214		-.041	.054	
	1.063	3.136	-8.637		-.041	.010	
	2.125	-2.973	-8.550		-.041	-.093	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
6	.000	7.069	-11.753		-.011	.015	
	1.063	1.937	-6.948		-.011	.003	
	2.125	-3.194	-7.636		-.011	-.009	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1	.000	17.088	-10.204		.719		
	1.063	8.583	-5.526		.199	.836	
	2.125	-.350	-4.547		.199	.976	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
2	.000	12.939	-4.616		.481	.995	
	1.063	1.502	-2.623		.481	1.493	
	2.125						
MAX	.000	25.022	-9.139		.842		
	1.063	12.939	-4.616		.481	.995	
	2.125	1.502	-2.623		.481	1.493	
MIN	.000						
	2.125						
3	.000	2.856	-18.618		.015		
	1.063	-8.211	-11.045		.003		
	2.125	-19.954	-12.597		-.033		
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
4	.000	2.856	-18.618		-.041		
	1.063	-8.211	-11.045		-.041		
	2.125	-19.954	-12.597		-.041		
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
5	.000	9.246	-15.214		-.041	.054	
	1.063	3.136	-8.637		-.041	.010	
	2.125	-2.973	-8.550		-.041	-.093	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
6	.000	7.069	-11.753		-.011	.015	
	1.063	1.937	-6.948		-.011	.003	
	2.125	-3.194	-7.636		-.011	-.009	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1	.000	4.655	-15.946				
	1.063	-4.038	-9.348		.508		
	2.125	-13.137	-10.445		.149	.721	
MAX	.000	17.088	-10.204		.719		
	1.063	8.583	-5.526		.199	.836	
	2.125	-.350	-4.547		.199	.976	
MIN	.000						
	2.125						
2	.000	12.939	-4.616		.481	.995	
	1.063	1.502	-2.623		.481	1.493	
	2.125						
MAX	.000	25.022	-9.139		.842		
	1.063	12.939	-4.616		.481	.995	
	2.125	1.502	-2.623		.481	1.493	
MIN	.000						
	2.125						
3	.000	2.856	-18.618		.015		
	1.063	-8.211	-11.045		.003		
	2.125	-19.954	-12.597		-.033		
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
4	.000	2.856	-18.618		-.041		
	1.063	-8.211	-11.045		-.041		
	2.125	-19.954	-12.597		-.041		
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
5	.000	9.246	-15.214		-.041	.054	
	1.063	3.136	-8.637		-.041	.010	
	2.125	-2.973	-8.550		-.041	-.093	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
6	.000	7.069	-11.753		-.011	.015	
	1.063	1.937	-6.948		-.011	.003	
	2.125	-3.194	-7.636		-.011	-.009	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1	.000	17.088	-10.204		.719		
	1.063	8.583	-5.526		.199	.836	
	2.125	-.350	-4.547		.199	.976	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
2	.000	12.939	-4.616		.481	.995	
	1.063	1.502	-2.623		.481	1.493	
	2.125						
MAX	.000	25.022	-9.139		.842		
	1.063	12.939	-4.616		.481	.995	
	2.125	1.502	-2.623		.481	1.493	
MIN	.000						
	2.125						
3	.000	2.856	-18.618		.015		
	1.063	-8.211	-11.045		.003		
	2.125	-19.954	-12.597		-.033		
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
4	.000	2.856	-18.618		-.041		
	1.063	-8.211	-11.045		-.041		
	2.125	-19.954	-12.597		-.041		
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
5	.000	9.246	-15.214		-.041	.054	
	1.063	3.136	-8.637		-.041	.010	
	2.125	-2.973	-8.550		-.041	-.093	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						
6	.000	7.069	-11.753		-.011	.015	
	1.063	1.937	-6.948		-.011	.003	
	2.125	-3.194	-7.636		-.011	-.009	
MAX	.000						
	1.063						
	2.125						
MIN	.000						
	2.125						

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1	.000	41.011	-32.774	4.565			-12.122
	1.300	41.011	9.388		-1.278	1.686	
	2.300	41.011	56.950		-1.278	.216	
	END				-1.278	-1.283	
2	.000	61.062	-25.499	3.212			-8.549
	1.300	61.062	19.950		-1.266	1.975	
	2.300	61.062	90.171		-1.266	.102	
	END				-1.266	-1.448	
3	.000	37.211	-36.185	-.012			-11.408
	1.150	37.211	6.608		-.015	.013	
	2.300	37.211	49.401		-.015	-.001	
	END				-.015	-.018	
4	.000	18.724	-60.664	1.577			-23.054
	1.150	18.724	2.112		-1.781	.053	
	2.300	18.724	23.650		-1.781	-1.952	
	END				-1.781	-2.054	
5	.000	76.568	-19.378	3.591			-6.718
	1.150	76.568	27.389		-1.156	1.145	
	2.300	76.568	115.442		-1.156	.119	
	END				-1.156	-1.368	
6	.000	27.175	-51.066	1.707			-18.561
	1.150	27.175	4.932		-2.023	1.970	
	2.300	27.175	36.186		-2.023	.020	
	END				-2.023	-2.201	
7	.000	61.882	-26.295	2.916			-8.760
	1.150	61.882	20.098		-1.648	2.373	
	2.300	61.882	91.262		-1.648	.060	
	END				-1.648	-1.930	
8	.000	26.355	-50.271	2.003			-10.347
	1.150	26.355	4.284		-1.641	1.573	
	2.300	26.355	35.096		-1.641	.063	
	END				-1.641	-1.799	
9	.000	24.839	9.936	.063			-8.735
	1.063	24.839	9.936		.063	.997	
	2.125	24.839	9.936		.063	.931	
	END				.063	.931	
10	.000	12.741	15.161	.210			11.354
	1.063	12.741	15.161		.210	1.115	
	2.125	12.741	15.161		.210	1.338	
	END				.210	.997	
11	.000	1.462	17.219	9.494			1.361
	1.063	1.462	17.219		.780	.009	
	2.125	1.462	17.219		.780	.009	
	END				.780	.009	
12	.000	7.106	.780	-.106			1.075
	1.063	7.106	.780		-.006	.009	
	2.125	7.106	.780		-.006	.009	
	END				-.006	.009	
13	.000	1.974	5.604	9.494			1.361
	1.063	1.974	5.604		-.006	.009	
	2.125	1.974	5.604		-.006	.009	
	END				-.006	.009	
14	.000	-3.159	4.974	-.106			1.075
	1.063	-3.159	4.974		-.021	.034	
	2.125	-3.159	4.974		-.021	.012	
	END				-.021	-.010	
15	.000	-3.009	9.419	-.384			1.075
	1.063	-3.009	9.419		-.021	.034	
	2.125	-3.009	9.419		-.021	.012	
	END				-.021	-.010	
16	.000	-19.965	2.011	4.086			-8.735
	1.063	-8.065	2.817		-.081	.517	
	2.125	-19.965	2.011		-.081	.517	
	END				-.081	-.512	
17	.000	1.462	17.219	8.532			11.354
	1.063	1.462	17.219		.063	.931	
	2.125	1.462	17.219		.063	.931	
	END				.063	.997	
18	.000	-5.404	7.404	4.983			-4.977
	1.063	-5.404	7.404		-.137	.715	
	2.125	-5.404	7.404		-.137	.612	
	END				-.137	.509	
19	.000	3.297	3.935	4.983			-4.977
	1.063	3.297	3.935		-.137	.715	
	2.125	3.297	3.935		-.137	.612	
	END				-.137	.509	
20	.000	24.839	9.936	.063			-8.735
	1.063	24.839	9.936		.063	.997	
	2.125	24.839	9.936		.063	.931	
	END				.063	.931	

MAX & MIN

1	.000	41.011	-32.774	4.565			-12.122
2	.000	61.062	-25.499	3.212			-8.549
3	.000	37.211	-36.185	-.012			-11.408
4	.000	18.724	-60.664	1.577			-23.054
5	.000	76.568	-19.378	3.591			-6.718
6	.000	27.175	-51.066	1.707			-18.561
7	.000	61.882	-26.295	2.916			-8.760
8	.000	26.355	-50.271	2.003			-10.347
9	.000	24.839	9.936	.063			-8.735
10	.000	12.741	15.161	.210			11.354
11	.000	1.462	17.219	9.494			1.361
12	.000	7.106	.780	-.106			1.075
13	.000	1.974	5.604	9.494			1.361
14	.000	-3.159	4.974	-.106			1.075
15	.000	-3.009	9.419	-.384			1.075
16	.000	-19.965	2.011	4.086			-8.735
17	.000	1.462	17.219	8.532			11.354
18	.000	-5.404	7.404	4.983			-4.977
19	.000	3.297	3.935	4.983			-4.977
20	.000	24.839	9.936	.063			-8.735

MIN & MAX

1	.000	41.011	-32.774	4.565			-12.122
2	.000	61.062	-25.499	3.212			-8.549
3	.000	37.211	-36.185	-.012			-11.408
4	.000	18.724	-60.664	1.577			-23.054
5	.000	76.568	-19.378	3.591			-6.718
6	.000	27.175	-51.066	1.707			-18.561
7	.000	61.882	-26.295	2.916			-8.760
8	.000	26.355	-50.271	2.003			-10.347
9	.000	24.839	9.936	.063			-8.735
10	.000	12.741	15.161	.210			11.354
11	.000	1.462	17.219	9.494			1.361
12	.000	7.106	.780	-.106			1.075
13	.000	1.974	5.604	9.494			1.361
14	.000	-3.159	4.974	-.106			1.075
15	.000	-3.009	9.419	-.384			1.075
16	.000	-19.965	2.011	4.086			-8.735
17	.000	1.462	17.219	8.532			11.354
18	.000	-5.404	7.404	4.983			-4.977
19	.000	3.297	3.935	4.983			-4.977
20	.000	24.839	9.936	.063			-8.735

REFOSICION 304+615. 3 VANOS 13+17+13 FILE:304615
F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1	.000	41.011	-32.774	4.565			-12.122
	1.300	41.011	9.388		-1.278	1.686	
	2.300	41.011	56.950		-1.278	.216	
	END				-1.278	-1.283	
2	.000	61.062	-25.499	3.212			-8.549
	1.300	61.062	19.950		-1.266	1.975	
	2.300	61.062	90.171		-1.266	.102	
	END				-1.266	-1.448	
3	.000	37.211	-36.185	-.012			-11.408
	1.150	37.211	6.608		-.015	.013	
	2.300	37.211	49.401		-.015	-.001	
	END				-.015	-.018	
4	.000	18.724	-60.664	1.577			-23.054
	1.150	18.724	2.112		-1.781	.053	
	2.300	18.724	23.650		-1.781	-1.952	
	END				-1.781	-2.054	
5	.000	76.568	-19.378	3.591			-6.718
	1.150	76.568	27.389		-1.156	1.145	
	2.300	76.568	115.442		-1.156	.119	
	END				-1.156	-1.368	
6	.000	27.175	-51.066	1.707			-18.561
	1.150	27.175	4.932		-2.023	1.970	
	2.300	27.175	36.186		-2.023	.020	
	END				-2.023	-2.201	
7	.000	61.882	-26.295	2.916			-8.760
	1.150	61.882	20.098		-1.648	2.373	
	2.300	61.882	91.262		-1.648	.060	
	END				-1.648	-1.930	
8	.000	26.355	-50.271	2.003			-10.347
	1.150	26.355	4.284		-1.641	1.573	
	2.300	26.355	35.096		-1.641	.063	
	END				-1.641	-1.799	
9	.000	24.839	9.936	.063			-8.735
	1.063	24.839	9.936		.063	.997	
	2.125	24.839	9.936		.063	.931	
	END				.063	.931	
10	.000	12.741	15.161	.210			11.354
	1.063	12.741	15.161		.210	1.115	
	2.125	12.741	15.161		.210	1.338	
	END				.210	.997	
11	.000	1.462	17.219	9.494			1.361
	1.063	1.462	17.219		.780	.009	
	2.125	1.462	17.219		.780	.009	
	END				.780	.009	
12	.000	7.106	.780	-.106			1.075
	1.063	7.106	.780		-.006	.009	
	2.125	7.106	.780		-.006	.009	
	END				-.006	.009	
13	.000	1.974	5.604	9.494			1.361
	1.063	1.974	5.604		-.006	.009	
	2.125	1.974	5.604		-.006	.009	
	END				-.006	.009	
14	.000	-3.159	4.974	-.106			1.075
	1.063	-3.159	4.974		-.021	.034	
	2.125	-3.159	4.974		-.021	.012	
	END				-.021	-.010	
15	.000	-3.009	9.419	-.384			1.075
	1.063	-3.009	9.419		-.021	.034	
	2.125	-3.009	9.419		-.021	.012	
	END				-.021	-.010	
16	.000	-19.965	2.011	4.086			-8.735
	1.063	-8.065	2.817		-.081	.517	
	2.125	-19.965	2.011		-.081	.517	
	END				-.081	-.512	
17	.000	1.462	17.219	8.532			11.354
	1.063	1.462	17.219		.063	.931	
	2.125	1.462	17.219		.063	.931	
	END				.063	.997	
18	.000	-5.404	7.404	4.983			-4.977
	1.063	-5.404	7.404		-.137	.715	
	2.125	-5.404	7.404		-.137	.612	
	END				-.137	.509	
19	.000	3.297	3.935	4.983			-4.977
	1.063	3.297	3.935		-.137	.715	
	2.125	3.297	3.935		-.137	.612	
	END				-.137	.509	
20	.000	24.839	9.936	.063			-8.735
	1.063	24.839	9.936		.063	.997	
	2.125	24.839	9.936		.063	.931	
	END				.063	.931	

MAX & MIN

1	.000	41.011	-32.774	4.565			-12.122
2	.000	61.062	-25.499	3.212			-8.549
3	.000	37.211	-36.185	-.012			-11.408
4	.000	18.724	-60.664	1.577			-23.054
5	.000	76.568	-19.378	3.591			-6.718
6	.000	27.175	-51.066	1.707			-18.561
7	.000	61.882	-26.295	2.916			-8.760
8	.000	26.355	-50.271	2.003			-10.347
9	.000	24.839	9.936	.063			-8.735
10	.000	12.741	15.161	.210			11.354
11	.000	1.462	17.219	9.494			1.361
12	.000	7.106	.780	-.106			1.075
13	.000	1.974	5.604	9.494			1.361
14	.000	-3.159	4.974	-.106			1.075
15	.000	-3.009	9.419	-.384			1.075
16	.000	-19.965	2.011	4.086			-8.735
17	.000	1.462	17.219	8.532			11.354
18	.000	-5.404	7.404	4.983			-4.977
19	.000	3.297	3.935	4.983			-4.977
20	.000	24.839	9.936	.063			-8.735

MIN & MAX

1	.000	41.011	-32.774	4.565			-12.122
2	.000	61.062	-25.499	3.212			-8.549
3	.000	37.211	-36.185	-.012			-11.408
4	.000	18.724	-60.664	1.577			-23.054
5	.000	76.568	-19.378	3.591			-6.718
6	.000	27.175	-51.066	1.707			-18.561
7	.000	61.882	-26.295	2.916			-8.760
8	.000	26.355	-50.271	2.003			-10.347
9	.000	24.839	9.936	.063			-8.735
10	.000	12.741	15.161	.210			11.354
11	.000	1.462	17.219	9.494			1.361
12	.000	7.106	.780	-.106			1.075
13	.000	1.974	5.604	9.494			1.361
14	.000	-3.159	4.974	-.106			1.075
15	.000	-3.009	9.419	-.384			1.075
16	.000	-19.965	2.011	4.086			-8.735
17	.000	1.462	17.219	8.532			11.354
18	.000	-5.404	7.404	4.983			-4.977
19	.000	3.297	3.935	4.983			-4.977
20	.000	24.839	9.936	.063			-8.735

REFOSICION 304+615. 3 VANOS 13+17+13 FILE:304615
F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1	.000	41.011	-32.774	4.565			-12.122
	1.063	41.011	9.388		-1.278	1.686	
	2.125	41.011	56.950		-1.278	.216	
	END				-1.278	-1.283	
2	.000	61.062	-25.499	3.212			-8.549
	1.063	61.062	19.950		-1.266	1.975	
	2.125	61.062	90.171		-1.266	.102	
	END				-1.266	-1.448	
3	.000	37.211	-36.185	-.012			-11.408
	1.063	37.211	6.608		-.015	.013	
	2.125	37.211	49.401		-.015	-.001	
	END				-.015	-.018	
4	.000	18.724	-60.664	1.577			-23.054
	1.063	18.724	2.112		-1.781	.053	
	2.125	18.724	23.650		-1.781	-1.952	
	END				-1.781	-2.054	
5	.000	76.568	-19.378	3.591			-6.718
	1.063	76.568	27.389		-1.156	1.145	
	2.125	76.568	115.442		-1.156	.119	
	END				-1.156	-1.368	
6	.000	27.175	-51.066	1.707			-18.561
	1.063	27.175	4.932		-2.023	1.970	
	2.125	27.175	36.186		-2.023	.020	
	END				-2.023	-2.201	
7	.000	61.882	-26.295	2.916			-8.760
	1.063	61.882	20.098		-1.648	2.373	
	2.125	61.882	91.262		-1.648	.060	
	END				-1.648	-1.930	
8	.000	26.355	-50.271	2.003			-10.347
	1.063	26.355	4.284		-1.641	1.573	
	2.125	26.355	35.096		-1.641	.063	
	END				-1.641	-1.799	
9	.000	24.839	9.936	.063			-8.735
	1.063	24.839	9.936		.063	.997	
	2.125	24.839	9.936		.063	.931	
	END				.063	.931	
10	.000	12.741	15.161	.210			11.354
	1.063	12.741	15.161		.210	1.115	
	2.125	12.741	15.161		.210	1.338	
	END				.210	.997	
11	.000	1.462	17.219	9.494			1.361
	1.063	1.462	17.219		.780	.009	
	2.125	1.462	17.219		.780	.009	
	END				.780	.009	
12	.000	7.106	.780	-.106			1.075
	1.063	7.106	.780		-.006	.009	
	2.125	7.106	.780		-.006	.009	
	END				-.006	.009	
13	.000	1.974	5.604	9.494			1.361
	1.063	1.974	5.604		-.006	.009	
	2.125	1.974	5.604		-.006	.009	
	END				-.006	.009	
14	.000	-3.159	4.974	-.106			1.075
	1.063	-3.159	4.974		-.021	.034	
	2.125	-3.159	4.974		-.021	.012	
	END				-.021	-.010	
15	.000	-3.009	9.419	-.384			1.075
	1.063	-3.009	9.419		-.021	.034	
	2.125	-3.009	9.419		-.021	.012	
	END				-.021	-.010	
16	.000	-19.965	2.011	4.086			-8.735
	1.063	-8.065	2.817		-.081	.517	
	2.125	-19.965	2.011		-.081	.517	
	END				-.081	-.512	
17	.000	1.462	17.219	8.532			11.354
	1.063	1.462	17.219		.063	.931	
	2.125	1.462	17.219		.063	.931	
	END				.063	.997	
18	.000	-5.404	7.404	4.983			-4.977
	1.063	-5.404	7.404		-.137	.715	
	2.125	-5.404	7.404		-.137	.612	
	END				-.137	.509	
19	.000	3.297	3.935	4.983			-4.977
	1.063	3.297	3.935		-.137	.715	
	2.125	3.297	3.935		-.137	.612	
	END				-.137	.509	
20	.000	24.839	9.936	.063			-8.735
	1.063	24.839	9.936		.063	.997	
	2.125	24.839	9.936		.063	.931	
	END				.063	.931	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			.000	41.360	-38.096		-.004	.004	
			1.150	41.360	9.468		-.004	-.000	
			2.300	41.360	57.032		-.004	-.005	
			2.300			-.003			-12.212
		MAX							
		ALL	.000			4.565			-6.718
			.000	76.568	-19.378		-.004	2.373	
			1.150	76.568	27.389		-.004	.216	
			2.300	76.568	115.442		-.004	-.005	
			2.300			4.565			-6.718
		MIN							
		ALL	.000			-.012			-23.054
			.000	18.724	-60.664		-2.023	.004	
			1.150	18.724	2.112		-2.023	-.001	
			2.300	18.724	23.650		-2.023	-2.281	
			2.300			-.012			-23.054
102	----------								
		MAX & MIN							
	1		.000			-.744			-10.420
			.000	-1.903	3.303		-2.039	3.036	
			1.150	-1.903	1.115		-2.039	.691	
			2.300	-1.903	-1.074		-2.039	-1.653	
			2.300			-.744			-10.420
		MAX							
	2		.000			-.313			-6.463
			.000	1.348	4.060		-1.802	3.107	
			1.150	1.348	5.015		-1.802	.367	
			2.300	1.348	6.566		-1.802	-1.944	
			2.300			-.313			-6.463
		MIN							
	2		.000			-.456			-16.167
			.000	-9.422	3.029		-2.414	2.381	
			1.150	-9.422	-.612		-2.414	.219	
			2.300	-9.422	-4.968		-2.414	-2.446	
			2.300			-.456			-16.167
		MAX							
	3		.000			-.296			-6.711
			.000	1.450	3.990		-2.270	3.525	
			1.150	1.450	5.063		-2.270	.246	
			2.300	1.450	6.730		-2.270	-2.604	
			2.300			-.296			-6.711
		MIN							
	3		.000			-.439			-16.415
			.000	-9.320	2.959		-2.883	2.799	
			1.150	-9.320	-.565		-2.883	.098	
			2.300	-9.320	-4.803		-2.883	-3.105	
			2.300			-.439			-16.415
		MAX							
	4		.000			-.268			-4.467
			.000	3.782	4.386		-1.615	3.596	
			1.150	3.782	7.743		-1.615	.426	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			2.300	3.782	12.093		-1.615	-1.829	
			2.300			-.268			-4.467
		MIN							
	4		.000			-.506			-20.640
			.000	-14.168	2.667		-2.635	2.186	
			1.150	-14.168	-1.636		-2.635	.178	
			2.300	-14.168	-7.130		-2.635	-2.666	
			2.300			-.506			-20.640
		MAX & MIN							
	5		.000			-.005			-9.789
			.000	-2.444	2.758		-.031	.034	
			1.150	-2.444	-.053		-.031	-.004	
			2.300	-2.444	-2.864		-.031	-.039	
			2.300			-.005			-9.789
		MAX & MIN							
	6		.000			-.001			-10.524
			.000	-1.859	3.283		-.008	.039	
			1.150	-1.859	1.145		-.008	-.001	
			2.300	-1.859	-.993		-.008	-.011	
			2.300			-.001			-10.524
		MAX							
		ALL	.000			-.001			-4.467
			.000	3.782	4.386		-.008	3.525	
			1.150	3.782	7.743		-.008	.691	
			2.300	3.782	12.093		-.008	-.011	
			2.300			-.001			-4.467
		MIN							
		ALL	.000			-.744			-20.640
			.000	-14.168	2.667		-2.883	.009	
			1.150	-14.168	-1.636		-2.883	-.004	
			2.300	-14.168	-7.130		-2.883	-3.105	
			2.300			-.744			-20.640
103	----------								
		MAX & MIN							
	1		.000			-1.421			-5.029
			.000	-8.428	7.690		-1.654	2.255	
			1.150	-8.428	-2.003		-1.654	.352	
			2.300	-8.428	-11.695		-1.654	-1.550	
			2.300			-1.421			-5.029
		MAX							
	2		.000			-.724			-1.273
			.000	-7.541	10.277		-1.339	2.349	
			1.150	-7.541	1.341		-1.339	.201	
			2.300	-7.541	-7.521		-1.339	-1.508	
			2.300			-.724			-1.273
		MIN							
	2		.000			-.764			-9.145
			.000	-16.761	6.144		-1.883	1.735	
			1.150	-16.761	-3.636		-1.883	.114	
			2.300	-16.761	-14.006		-1.883	-1.901	
			2.300			-.764			-9.145

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		MAX							
	3		.000			-.650			-1.465
			.000	-7.539	10.314		-1.644	2.641	
			1.150	-7.539	1.380		-1.644	.142	
			2.300	-7.539	-7.401		-1.644	-1.918	
			2.300			-.650			-1.465
		MIN							
	3		.000			-.689			-9.337
			.000	-16.759	6.181		-2.188	2.027	
			1.150	-16.759	-3.597		-2.188	.054	
			2.300	-16.759	-13.966		-2.188	-2.391	
			2.300			-.689			-9.337
		MAX							
	4		.000			-.711			.737
			.000	-6.944	12.099		-1.167	2.591	
			1.150	-6.944	3.673		-1.167	.235	
			2.300	-6.944	-4.630		-1.167	-1.390	
			2.300			-.711			.737
		MIN							
	4		.000			-.778			-12.383
			.000	-22.311	5.211		-2.074	1.568	
			1.150	-22.311	-4.622		-2.074	.089	
			2.300	-22.311	-15.439		-2.074	-2.178	
			2.300			-.778			-12.383
		MAX & MIN							
	5		.000			-.004			-4.856
			.000	-8.524	6.644		-.037	.040	
			1.150	-8.524	-3.158		-.037	-.002	
			2.300	-8.524	-12.960		-.037	-.045	
			2.300			-.004			-4.856
		MAX & MIN							
	6		.000			-.001			-5.107
			.000	-8.427	7.720		-.010	.011	
			1.150	-8.427	-1.972		-.010	-.001	
			2.300	-8.427	-11.663		-.010	-.012	
			2.300			-.001			-5.107
		MAX							
		ALL	.000			-.001			.737
			.000	-6.944	12.099		-.010	2.641	
			1.150	-6.944	3.673		-.010	.352	
			2.300	-6.944	-4.630		-.010	-.012	
			2.300			-.001			.737
		MIN							
		ALL	.000			-1.421			-12.383
			.000	-22.311	5.211		-2.188	.011	
			1.150	-22.311	-4.622		-2.188	-.002	
			2.300	-22.311	-15.439		-2.188	-2.391	
			2.300			-1.421			-12.383
104	----------								
		MAX & MIN							
	1		.000			-1.405			-5.315

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT	LOAD ID	ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
			.000	-8.826	5.421		-1.424	1.891	
			1.150	-8.826	-4.729		-1.424	.259	
			2.300	-8.826	-14.880		-1.424	-1.389	
			2.300			-1.405			-5.315
		MAX							
	2		.000			-.756			.382
			.000	-8.157	7.875		-1.034	1.954	
			1.150	-8.157	-1.985		-1.034	.167	
			2.300	-8.157	-11.822		-1.034	-1.622	
			2.300			-.756			.382
		MIN							
	2		.000			-.784			-6.866
			.000	-17.198	3.335		-1.560	1.367	
			1.150	-17.198	-6.621		-1.560	.097	
			2.300	-17.198	-17.398		-1.560	-1.633	
			2.300			-.784			-6.866
		MAX							
	3		.000			-.705			.203
			.000	-8.159	7.910		-1.226	2.144	
			1.150	-8.159	-1.951		-1.226	.135	
			2.300	-8.159	-11.791		-1.226	-1.425	
			2.300			-.705			.203
		MIN							
	3		.000			-.732			-7.046
			.000	-17.200	3.370		-1.752	1.556	
			1.150	-17.200	-6.588		-1.752	.066	
			2.300	-17.200	-17.367		-1.752	-1.886	
			2.300			-.732			-7.046
		MAX							
	4		.000			-.747			2.386
			.000	-7.714	9.600		-.865	2.184	
			1.150	-7.714	-.070		-.865	.193	
			2.300	-7.714	-9.703		-.865	-1.052	
			2.300			-.747			2.386
		MIN							
	4		.000			-.793			-9.695
			.000	-22.783	2.033		-1.741	1.205	
			1.150	-22.783	-7.797		-1.741	.027	
			2.300	-22.783	-18.996		-1.741	-1.820	
			2.300			-.793			-9.695
		MAX & MIN							
	5		.000			-.007			-3.394
			.000	-8.892	4.366		-.047	.053	
			1.150	-8.892	-5.860		-.047	-.000	
			2.300	-8.892	-16.086		-.047	-.054	
			2.300			-.007			-3.394
		MAX & MIN							
	6		.000			-.002			-3.386
			.000	-8.827	5.457		-.013	.015	
			1.150	-8.827	-4.694		-.013	.000	
			2.300	-8.827	-14.844		-.013	-.015	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300			-.002			-3.386
	MAX							
	ALL	.000			-.002			2.386
		.000	-7.714	9.600		-.013	2.184	
		1.150	-7.714	-.070		-.013	.253	
		2.300	-7.714	-9.703		-.013	-.015	
		2.300			-.002			2.386
	MIN							
	ALL	.000			-1.405			-9.695
		.000	-22.783	2.033		-1.752	.015	
		1.150	-22.783	-7.797		-1.752	-.000	
		2.300	-22.783	-18.996		-1.752	-1.886	
		2.300			-1.405			-9.695
105	----------							
	MAX & MIN							
	1	.000			-1.382			-3.019
		.000	-9.206	3.970		-1.218	1.610	
		1.150	-9.206	-6.616		-1.218	.209	
		2.300	-9.206	-17.203		-1.218	-1.192	
		2.300			-1.382			-3.019
	MAX							
	2	.000			-.783			.562
		.000	-8.727	5.958		-.810	1.675	
		1.150	-8.727	-4.472		-.810	.150	
		2.300	-8.727	-14.902		-.810	-.921	
		2.300			-.783			.562
	MIN							
	2	.000			-.802			-6.325
		.000	-17.617	1.575		-1.327	1.100	
		1.150	-17.617	-8.798		-1.327	.090	
		2.300	-17.617	-19.096		-1.327	-1.377	
		2.300			-.802			-6.325
	MAX							
	3	.000			-.755			.382
		.000	-8.728	5.994		-.933	1.796	
		1.150	-8.728	-4.438		-.933	.130	
		2.300	-8.728	-14.869		-.933	-1.083	
		2.300			-.755			.382
	MIN							
	3	.000			-.774			-6.505
		.000	-17.618	1.610		-1.450	1.222	
		1.150	-17.618	-8.764		-1.450	.070	
		2.300	-17.618	-19.863		-1.450	-1.538	
		2.300			-.774			-6.505
	MAX							
	4	.000			-.777			2.489
		.000	-8.408	7.365		-.643	1.900	
		1.150	-8.408	-2.960		-.643	.172	
		2.300	-8.408	-13.286		-.643	-.800	
		2.300			-.777			2.489

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN							
	4	.000			-.808			-8.990
		.000	-23.224	.060		-1.504	.943	
		1.150	-23.224	-10.171		-1.504	.071	
		2.300	-23.224	-21.609		-1.504	-1.559	
		2.300			-.808			-8.990
	MAX & MIN							
	5	.000			-.009			-3.371
		.000	-9.321	3.000		-.058	.072	
		1.150	-9.321	-7.219		-.058	.004	
		2.300	-9.321	-18.439		-.058	-.063	
		2.300			-.009			-3.371
	MAX & MIN							
	6	.000			-.002			-3.085
		.000	-9.205	4.014		-.016	.020	
		1.150	-9.205	-6.572		-.016	.001	
		2.300	-9.205	-17.158		-.016	-.017	
		2.300			-.002			-3.085
	MAX							
	ALL	.000			-.002			2.489
		.000	-8.408	7.365		-.016	1.900	
		1.150	-8.408	-2.960		-.016	.209	
		2.300	-8.408	-13.286		-.016	-.017	
		2.300			-.002			2.489
	MIN							
	ALL	.000			-1.382			-8.990
		.000	-23.224	.060		-1.504	.020	
		1.150	-23.224	-10.171		-1.504	.001	
		2.300	-23.224	-21.609		-1.504	-1.559	
		2.300			-1.382			-8.990
106	----------							
	MAX & MIN							
	1	.000			-1.384			-3.490
		.000	-11.257	5.780		-1.017	1.346	
		1.150	-11.257	-7.165		-1.017	.177	
		2.300	-11.257	-20.110		-1.017	-.992	
		2.300			-1.384			-3.490
	MAX							
	2	.000			-.783			-.065
		.000	-11.064	7.415		-.655	1.418	
		1.150	-11.064	-5.509		-.655	.134	
		2.300	-11.064	-18.431		-.655	-.739	
		2.300			-.783			-.065
	MIN							
	2	.000			-.829			-6.668
		.000	-19.883	3.777		-1.118	.906	
		1.150	-19.883	-9.305		-1.118	.085	
		2.300	-19.883	-22.957		-1.118	-1.152	
		2.300			-.829			-6.668
	MAX							
	3	.000			-.775			-.253

PROGRAM:SAP90/FILE:304615.F3F
REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	-11.088	7.486		-.746	1.509	
		1.150	-11.088	-5.466		-.746	.121	
		2.300	-11.088	-18.416		-.746	-.857	
		2.300			-.775			-.253
	MIN							
	3	.000			-.821			-6.856
		.000	-19.907	3.848		-1.208	.996	
		1.150	-19.907	-9.262		-1.208	.070	
		2.300	-19.907	-22.942		-1.208	-1.270	
		2.300			-.821			-6.856
	MAX							
	4	.000			-.767			1.731
		.000	-10.991	8.669		-.506	1.622	
		1.150	-10.991	-4.305		-.506	.155	
		2.300	-10.991	-17.276		-.506	-.627	
		2.300			-.767			1.731
	MIN							
	4	.000			-.844			-9.273
		.000	-25.689	2.605		-1.277	.768	
		1.150	-25.689	-10.632		-1.277	.071	
		2.300	-25.689	-24.821		-1.277	-1.315	
		2.300			-.844			-9.273
	MAX & MIN							
	5	.000			-.004			-4.297
		.000	-11.802	5.416		-.066	.092	
		1.150	-11.802	-8.156		-.066	.017	
		2.300	-11.802	-21.728		-.066	-.059	
		2.300			-.004			-4.297
	MAX & MIN							
	6	.000			-.001			-3.544
		.000	-11.251	5.830		-.018	.025	
		1.150	-11.251	-7.109		-.018	.005	
		2.300	-11.251	-20.048		-.018	-.016	
		2.300			-.001			-3.544
	MAX							
	ALL	.000			-.001			1.731
		.000	-10.991	8.669		-.018	1.622	
		1.150	-10.991	-4.305		-.018	.177	
		2.300	-10.991	-17.276		-.018	-.016	
		2.300			-.001			1.731
	MIN							
	ALL	.000			-1.384			-9.273
		.000	-25.689	2.605		-1.277	.025	
		1.150	-25.689	-10.632		-1.277	.005	
		2.300	-25.689	-24.821		-1.277	-1.315	
		2.300			-1.384			-9.273
107	----------							
	MAX & MIN							
	1	.000			-1.416			-.917
		.000	-13.357	8.837		-.826	1.093	
		1.150	-13.357	-6.524		-.826	.143	

PROGRAM:SAP90/FILE:304615.F3F
REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300	-13.357	-21.884		-.826	-.807	
	MAX				-1.416			-.917
	2	.000			-.651			2.548
		.000	-13.305	10.069		-.582	1.106	
		1.150	-12.983	-5.348		-.582	.135	
		2.300	-12.661	-20.392		-.582	-.635	
		2.300			-.651			2.548
	MIN							
	2	.000			-.941			-3.659
		.000	-22.399	7.283		-.845	.781	
		1.150	-22.077	-8.499		-.845	.067	
		2.300	-21.756	-24.529		-.845	-.846	
		2.300			-.941			-3.659
	MAX							
	3	.000			-.666			2.365
		.000	-13.270	10.187		-.672	1.200	
		1.150	-13.077	-5.264		-.672	.128	
		2.300	-12.884	-20.490		-.672	-.748	
		2.300			-.666			2.365
	MIN							
	3	.000			-.956			-3.801
		.000	-22.365	7.402		-.935	.875	
		1.150	-22.171	-8.415		-.935	.057	
		2.300	-21.978	-24.627		-.935	-.950	
		2.300			-.956			-3.801
	MAX							
	4	.000			-.553			4.411
		.000	-13.184	11.202		-.499	1.244	
		1.150	-12.991	-4.353		-.499	.167	
		2.300	-12.798	-19.679		-.499	-.574	
		2.300			-.553			4.411
	MIN							
	4	.000			-1.036			-5.900
		.000	-28.342	6.558		-.937	.702	
		1.150	-28.149	-9.604		-.937	.053	
		2.300	-27.956	-26.574		-.937	-.911	
		2.300			-1.036			-5.900
	MAX & MIN							
	5	.000			.002			-1.757
		.000	-15.077	10.048		-.055	.109	
		1.150	-15.077	-7.291		-.055	.045	
		2.300	-15.077	-24.630		-.055	-.018	
		2.300			.002			-1.757
	MAX & MIN							
	6	.000			.000			-.953
		.000	-13.338	8.874		-.015	.030	
		1.150	-13.338	-6.465		-.015	.013	
		2.300	-13.338	-21.803		-.015	-.005	
		2.300			.000			-.953

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1	.000	-.888	-1.340				
	1.150	-8.952	-11.182	-.222	.094		
	2.300	-8.952	-21.476	-.222	.290		1.72
MAX & MIN							
1	.000	-.888	-1.340				
	2.300	-8.952	-21.476	-.222	.290		1.72
119 ----------							
MIN							
RLL	.000	-23.174	-5.015	-.699	.015		-3.690
	1.150	-22.981	-14.902	-.699	.002		
	2.300	-8.307	-20.011	-.012	.013		5.614
MAX							
RLL	.000	-8.694	1.021	-.012	.890		5.614
	1.150	-8.500	-9.643	-.012	.074		
	2.300	-8.307	-20.011	-.012	.012		
MIN							
6	.000	-9.315	.211	-.012	.015		.688
	1.150	-9.315	-10.501	-.012	.002		
	2.300	-9.315	-21.215	-.012	.012		.004
MAX & MIN							
6	.000	-9.315	.211	-.012	.015		.688
	1.150	-9.315	-10.501	-.012	.002		
	2.300	-9.315	-21.215	-.012	.012		.004
MAX							
RLL	.000	-11.045	.604	-.044	.056		.752
	1.150	-11.045	-12.098	-.044	.005		
	2.300	-11.045	-24.800	-.044	.045		.013
MAX & MIN							
5	.000	-11.045	.604	-.044	.056		.752
	1.150	-11.045	-12.098	-.044	.005		
	2.300	-11.045	-24.800	-.044	.045		.013
MAX & MIN							
4	.000	-22.744	-6.438	-.578	.423		-3.690
	1.150	-22.951	-15.697	-.578	.045		
	2.300	-22.358	-26.200	-.578	.593		-.844
MIN							
5	.000	-10.248	-1.077	-.329	.738		5.614
	1.150	-10.248	-12.861	-.329	.074		
	2.300	-10.248	-24.646	-.329	.333		-.816
MAX & MIN							
5	.000	-10.248	-1.077	-.329	.738		5.614
	1.150	-10.248	-12.861	-.329	.074		
	2.300	-10.248	-24.646	-.329	.333		-.816
MAX							
2	.000	-17.259	-4.487	-.699	.641		-1.888
	1.150	-16.937	-14.078	-.699	.056		
	2.300	-16.615	-24.178	-.699	.686		-.854
MIN							
2	.000	-17.259	-4.487	-.699	.641		-1.888
	1.150	-16.937	-14.078	-.699	.056		
	2.300	-16.615	-24.178	-.699	.686		-.854
MAX							
3	.000	-8.481	-.520	-.329	.423		-3.690
	1.150	-8.288	-10.908	-.329	.045		
	2.300	-8.095	-20.876	-.329	.593		-.844
MIN							
3	.000	-17.299	-4.515	-.578	.423		-3.690
	1.150	-17.049	-13.958	-.578	.045		
	2.300	-16.852	-24.257	-.578	.593		-.844
MAX & MIN							
3	.000	-8.481	-.520	-.329	.423		-3.690
	1.150	-8.288	-10.908	-.329	.045		
	2.300	-8.095	-20.876	-.329	.593		-.844
MAX							
4	.000	-8.148	-.112	-.012	.890		5.614
	1.150	-7.955	-10.614	-.012	.074		
	2.300	-7.762	-20.565	-.012	.012		-.803
MIN							
4	.000	-22.744	-6.438	-.578	.423		-3.690
	1.150	-22.951	-15.697	-.578	.045		
	2.300	-22.358	-26.200	-.578	.593		-.844
MAX & MIN							
4	.000	-8.148	-.112	-.012	.890		5.614
	1.150	-7.955	-10.614	-.012	.074		
	2.300	-7.762	-20.565	-.012	.012		-.803
MAX							
RLL	.000	-8.148	-.112	-.012	.890		5.614
	1.150	-8.951	-11.145	-.006	.000		
	2.300	-8.951	-21.438	-.006	.007		.168
MAX & MIN							
6	.000	-8.951	-.852	-.006	.008		.168
	1.150	-8.951	-11.145	-.006	.000		
	2.300	-8.951	-21.438	-.006	.007		.168
MAX							
RLL	.000	-8.148	-.112	-.006	.741		4.665

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.150	-7.955	-10.614		-.006	.108	
		2.300	-7.762	-20.565		-.006	-.007	
		2.300			.014			4.665
	MIN							
	ALL	.000			-1.340			-4.116
		.000	-22.744	-6.438		-.551	.008	
		1.150	-22.551	-15.697		-.551	.000	
		2.300	-22.358	-26.200		-.551	-.526	
		2.300			-1.340			-4.116
111	----------							
	MAX & MIN							
	1	.000			-1.340			.000
		.000	-8.944	-1.051		.000	.000	
		1.150	-8.944	-11.336		.000	.000	
		2.300	-8.944	-21.622		.000	.000	
		2.300			-1.340			.000
	MAX							
	2	.000			-.795			2.480
		.000	-8.487	-.864		-.122	.426	
		1.150	-8.165	-11.315		-.122	.135	
		2.300	-7.843	-21.072		-.122	-.020	
		2.300			-.795			2.480
	MIN							
	2	.000			-.809			-2.481
		.000	-17.250	-4.674		-.255	.260	
		1.150	-16.928	-14.248		-.255	.119	
		2.300	-16.606	-24.343		-.255	-.159	
		2.300			-.809			-2.481
	MAX							
	3	.000			-.795			2.480
		.000	-8.467	-.690		-.247	.655	
		1.150	-8.274	-11.193		-.247	.220	
		2.300	-8.081	-21.148		-.247	-.080	
		2.300			-.795			2.480
	MIN							
	3	.000			-.809			-2.481
		.000	-17.230	-4.499		-.380	.489	
		1.150	-17.037	-14.126		-.380	.203	
		2.300	-16.843	-24.419		-.380	-.210	
		2.300			-.809			-2.481
	MAX							
	4	.000			-.790			4.134
		.000	-8.130	-.285		-.077	.482	
		1.150	-7.936	-10.983		-.077	.140	
		2.300	-7.743	-20.919		-.077	.026	
		2.300			-.790			4.134
	MIN							
	4	.000			-.813			-4.135
		.000	-22.734	-6.634		-.299	.205	
		1.150	-22.541	-15.871		-.299	.113	
		2.300	-22.348	-26.371		-.299	-.205	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300			-.813			-4.135
	MAX & MIN							
	5	.000			.013			.000
		.000	-9.961	-1.597		.000	.000	
		1.150	-9.961	-13.052		.000	.000	
		2.300	-9.961	-24.507		.000	.000	
		2.300			.013			.000
	MAX & MIN							
	6	.000			.004			.000
		.000	-8.943	-1.017		.000	.000	
		1.150	-8.943	-11.302		.000	.000	
		2.300	-8.943	-21.586		.000	.000	
		2.300			.004			.000
	MAX							
	ALL	.000			.013			4.134
		.000	-8.130	-.285		.000	.655	
		1.150	-7.936	-10.983		.000	.220	
		2.300	-7.743	-20.919		.000	.026	
		2.300			.013			4.134
	MIN							
	ALL	.000			-1.340			-4.135
		.000	-22.734	-6.634		-.380	.000	
		1.150	-22.541	-15.871		-.380	.000	
		2.300	-22.348	-26.371		-.380	-.218	
		2.300			-1.340			-4.135
122	----------							
	MAX & MIN							
	1	.000			1.445			-8.044
		.000	13.004	4.940		-1.327	1.547	
		1.150	13.004	19.894		-1.327	.021	
		2.300	13.004	34.849		-1.327	-1.506	
		2.300			1.445			-8.044
	MAX							
	2	.000			.491			-2.402
		.000	23.798	20.686		-.743	1.153	
		1.150	23.798	40.383		-.743	-.064	
		2.300	23.798	67.375		-.743	-.997	
		2.300			.491			-2.402
	MIN							
	2	.000			-.050			-13.202
		.000	4.408	2.868		-1.080	.824	
		1.150	4.408	13.928		-1.080	-.101	
		2.300	4.408	19.256		-1.080	-1.335	
		2.300			-.050			-13.202
	MAX							
	3	.000			-.041			-2.767
		.000	24.350	20.228		-.760	1.107	
		1.150	24.350	40.561		-.760	-.130	
		2.300	24.350	68.188		-.760	-1.082	
		2.300			-.041			-2.767

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN							
	3	.000			-.581			-13.567
		.000	4.960	2.411		-1.097	.778	
		1.150	4.960	14.106		-1.097	-.167	
		2.300	4.960	26.069		-1.097	-1.419	
		2.300			-.581			-13.567
	MAX							
	4	.000			.689			.419
		.000	32.419	30.033		-.626	1.274	
		1.150	32.419	54.530		-.626	-.051	
		2.300	32.419	91.186		-.626	-.901	
		2.300			.689			.419
	MIN							
	4	.000			-.213			-17.581
		.000	.102	.336		-1.187	.726	
		1.150	.102	10.439		-1.187	-.112	
		2.300	.102	10.987		-1.187	-1.463	
		2.300			-.213			-17.581
	MAX & MIN							
	5	.000			-.033			-7.472
		.000	11.933	2.451		-.008	.006	
		1.150	11.933	16.174		-.008	-.003	
		2.300	11.933	29.897		-.008	-.013	
		2.300			-.033			-7.472
	MAX & MIN							
	6	.000			-.009			-8.199
		.000	13.236	4.757		-.002	.002	
		1.150	13.236	19.979		-.002	-.001	
		2.300	13.236	35.201		-.002	-.004	
		2.300			-.009			-8.199
	MAX							
	ALL	.000			1.445			.419
		.000	32.419	30.033		-.002	1.547	
		1.150	32.419	54.530		-.002	.021	
		2.300	32.419	91.186		-.002	-.004	
		2.300			1.445			.419
	MIN							
	ALL	.000			-.581			-17.581
		.000	.102	.336		-1.327	.002	
		1.150	.102	10.439		-1.327	-.167	
		2.300	.102	10.987		-1.327	-1.506	
		2.300			-.581			-17.581
133	----------							
	MAX & MIN							
	1	.000			-.524			-14.164
		.000	1.115	13.573		-3.905	4.732	
		1.150	1.115	14.856		-3.905	.242	
		2.300	1.115	16.139		-3.905	-4.249	
		2.300			-.524			-14.164
	MAX							
	2	.000			-.199			.263

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	12.755	27.205		-2.285	3.470	
		1.150	12.755	41.325		-2.285	-.229	
		2.300	12.755	54.842		-2.285	-3.187	
		2.300			-.199			.263
	MIN							
	2	.000			-.312			-25.566
		.000	-1.994	8.912		-3.324	2.429	
		1.150	-1.994	7.902		-3.324	-.424	
		2.300	-1.994	6.892		-3.324	-4.207	
		2.300			-.312			-25.566
	MAX							
	3	.000			-.178			-.671
		.000	12.861	27.233		-2.405	3.270	
		1.150	12.861	41.475		-2.405	-.566	
		2.300	12.861	55.114		-2.405	-3.642	
		2.300			-.178			-.671
	MIN							
	3	.000			-.291			-26.500
		.000	-1.888	8.940		-3.444	2.250	
		1.150	-1.888	8.052		-3.444	-.761	
		2.300	-1.888	7.165		-3.444	-4.682	
		2.300			-.291			-26.500
	MAX							
	4	.000			-.164			7.482
		.000	20.793	36.402		-1.928	3.852	
		1.150	20.793	59.400		-1.928	-.149	
		2.300	20.793	81.393		-1.928	-2.884	
		2.300			-.164			7.482
	MIN							
	4	.000			-.351			-35.566
		.000	-3.788	5.913		-3.660	2.118	
		1.150	-3.788	3.695		-3.660	-.475	
		2.300	-3.788	1.477		-3.660	-4.617	
		2.300			-.351			-35.566
	MAX & MIN							
	5	.000			-.016			-13.276
		.000	.492	9.131		-.033	.012	
		1.150	.492	9.696		-.033	-.026	
		2.300	.492	10.262		-.033	-.063	
		2.300			-.016			-13.276
	MAX & MIN							
	6	.000			-.004			-14.562
		.000	1.159	13.602		-.009	.003	
		1.150	1.159	14.935		-.009	-.007	
		2.300	1.159	16.268		-.009	-.017	
		2.300			-.004			-14.562
	MAX							
	ALL	.000			-.004			7.482
		.000	20.793	36.402		-.009	4.732	
		1.150	20.793	59.400		-.009	.242	
		2.300	20.793	81.393		-.009	-.017	

DEFOSITION 304+61S, 3 VANOS 13+17+13 FILE:30461S

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	MOMENT	AXIAL TORQ
1	.000	-8.5/5	-23.110	-2.768	1.894		
1.150	-8.5/5	-24.115	-2.768	-.322			
2.300	-8.5/5	-27.540	-5.503				
MAX							
1	.000	-8.5/5	-23.110	-2.768	1.894		
1.150	-8.5/5	-24.115	-2.768	-.322			
2.300	-8.5/5	-27.540	-5.503				
MIN							
1	.000	-8.5/5	-23.110	-2.768	1.894		
1.150	-8.5/5	-24.115	-2.768	-.322			
2.300	-8.5/5	-27.540	-5.503				
MAX & MIN							
1	.000	-8.5/5	-23.110	-2.768	1.894		
1.150	-8.5/5	-24.115	-2.768	-.322			
2.300	-8.5/5	-27.540	-5.503				

1Z6 ----------

MAX & MIN							
1	.000	-11.257	-29.894	-1.044			-19.213
1.150	-11.257	-28.077	-.322				
2.300	-11.257	-30.311	-3.696				
MAX							
1	.000	-11.257	-29.894	-1.044			-19.213
1.150	-11.257	-28.077	-.322				
2.300	-11.257	-30.311	-3.696				
MIN							
1	.000	-11.257	-29.894	-1.044			-19.213
1.150	-11.257	-28.077	-.322				
2.300	-11.257	-30.311	-3.696				
MAX & MIN							
1	.000	-11.257	-29.894	-1.044			-19.213
1.150	-11.257	-28.077	-.322				
2.300	-11.257	-30.311	-3.696				

1Z5 ----------

MAX & MIN							
1	.000	-12.844	-12.804	-.008			-5.323
1.150	-4.576	-18.066	-.011				
2.300	-4.576	-23.329	-.035				
MAX							
6	.000	-4.576	-12.804	-.008			-5.323
1.150	-4.576	-18.066	-.011				
2.300	-4.576	-23.329	-.035				
MIN							
6	.000	-4.576	-12.804	-.008			-5.323
1.150	-4.576	-18.066	-.011				
2.300	-4.576	-23.329	-.035				
MAX & MIN							
6	.000	-4.576	-12.804	-.008			-5.323
1.150	-4.576	-18.066	-.011				
2.300	-4.576	-23.329	-.035				

1Z4 ----------

MAX & MIN							
1	.000	-3.886	-1.179	-1.042			-7.357
1.150	-3.886	-4.607	-3.442		4.059		
2.300	-3.886	-9.076	-3.442		-3.880		
MAX							
1	.000	-3.886	-1.179	-1.042			-7.357
1.150	-3.886	-4.607	-3.442		4.059		
2.300	-3.886	-9.076	-3.442		-3.880		
MIN							
1	.000	-3.886	-1.179	-1.042			-7.357
1.150	-3.886	-4.607	-3.442		4.059		
2.300	-3.886	-9.076	-3.442		-3.880		
MAX & MIN							
1	.000	-3.886	-1.179	-1.042			-7.357
1.150	-3.886	-4.607	-3.442		4.059		
2.300	-3.886	-9.076	-3.442		-3.880		

1Z3 ----------

MAX & MIN							
1	.000	-10.578	-10.359	-.447			-23.768
1.150	-10.578	-11.704	-.308		1.932		
2.300	-10.578	-16.108	-3.958		-4.182		
MAX							
4	.000	-10.578	-11.359	-.447			-23.768
1.150	-10.578	-11.704	-3.958		1.932		
2.300	-10.578	-16.108	-3.958		-4.182		
MIN							
4	.000	-10.578	-11.359	-.447			-23.768
1.150	-10.578	-11.704	-3.958		1.932		
2.300	-10.578	-16.108	-3.958		-4.182		
MAX & MIN							
4	.000	-10.578	-11.359	-.447			-23.768
1.150	-10.578	-11.704	-3.958		1.932		
2.300	-10.578	-16.108	-3.958		-4.182		

1Z2 ----------

MAX & MIN							
1	.000	-5.392	-5.512	-.384			-13.066
1.150	-3.788	-3.699	-.761				
2.300	-3.788	-4.460	-3.905		-.003		
MAX							
1	.000	-3.788	-5.512	-.384			-13.066
1.150	-3.788	-3.699	-.761				
2.300	-3.788	-4.460	-3.905		-.003		
MIN							
1	.000	-3.788	-5.512	-.384			-13.066
1.150	-3.788	-3.699	-.761				
2.300	-3.788	-4.460	-3.905		-.003		
MAX & MIN							
1	.000	-3.788	-5.512	-.384			-13.066
1.150	-3.788	-3.699	-.761				
2.300	-3.788	-4.460	-3.905		-.003		

1Z1 ----------

MAX & MIN							
1	.000	-10.578	-10.359	-.447			-23.768
1.150	-10.578	-11.704	-3.958		1.932		
2.300	-10.578	-16.108	-3.958		-4.182		
MAX							
4	.000	-10.578	-11.359	-.447			-23.768
1.150	-10.578	-11.704	-3.958		1.932		
2.300	-10.578	-16.108	-3.958		-4.182		
MIN							
4	.000	-10.578	-11.359	-.447			-23.768
1.150	-10.578	-11.704	-3.958		1.932		
2.300	-10.578	-16.108	-3.958		-4.182		
MAX & MIN							
4	.000	-10.578	-11.359	-.447			-23.768
1.150	-10.578	-11.704	-3.958		1.932		
2.300	-10.578	-16.108	-3.958		-4.182		

1Z0 ----------

MAX & MIN							
1	.000	-5.512	-5.512	-.384			-13.066
1.150	-3.788	-3.699	-.761				
2.300	-3.788	-4.460	-3.905		-.003		
MAX							
4	.000	-3.788	-5.512	-.384			-13.066
1.150	-3.788	-3.699	-.761				
2.300	-3.788	-4.460	-3.905		-.003		
MIN							
4	.000	-3.788	-5.512	-.384			-13.066
1.150	-3.788	-3.699	-.761				
2.300	-3.788	-4.460	-3.905		-.003		
MAX & MIN							
4	.000	-3.788	-5.512	-.384			-13.066
1.150	-3.788	-3.699	-.761				
2.300	-3.788	-4.460	-3.905		-.003		

1Y9 ----------

MAX & MIN							
1	.000	-.038	-.038	-.013			-.061
1.150	-.038	-.038	-.010				
2.300	-.038	-.038	-.061				
MAX							
6	.000	-.038	-.038	-.013			-.061
1.150	-.038	-.038	-.010				
2.300	-.038	-.038	-.061				
MIN							
6	.000	-.038	-.038	-.013			-.061
1.150	-.038	-.038	-.010				
2.300	-.038	-.038	-.061				
MAX & MIN							
6	.000	-.038	-.038	-.013			-.061
1.150	-.038	-.038	-.010				
2.300	-.038	-.038	-.061				

1Y8 ----------

MAX & MIN							
1	.000	-.510	-.510	-.494			-1.042
1.150	-.510	-.510	-.510				
2.300	-.510	-.510	-1.042				
MAX							
4	.000	-.510	-.510	-.494			-1.042
1.150	-.510	-.510	-.510				
2.300	-.510	-.510	-1.042				
MIN							
4	.000	-.510	-.510	-.494			-1.042
1.150	-.510	-.510	-.510				
2.300	-.510	-.510	-1.042				
MAX & MIN							
4	.000	-.510	-.510	-.494			-1.042
1.150	-.510	-.510	-.510				
2.300	-.510	-.510	-1.042				

1Y7 ----------

MAX & MIN							
1	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MAX							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MIN							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MAX & MIN							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				

1Y6 ----------

MAX & MIN							
1	.000	-.511	-.511	-.460			-1.132
1.150	-.511	-.511	-.511				
2.300	-.511	-.511	-1.132				
MAX							
2	.000	-.511	-.511	-.460			-1.132
1.150	-.511	-.511	-.511				
2.300	-.511	-.511	-1.132				
MIN							
2	.000	-.511	-.511	-.460			-1.132
1.150	-.511	-.511	-.511				
2.300	-.511	-.511	-1.132				
MAX & MIN							
2	.000	-.511	-.511	-.460			-1.132
1.150	-.511	-.511	-.511				
2.300	-.511	-.511	-1.132				

1Y5 ----------

MAX & MIN							
1	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MAX							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MIN							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MAX & MIN							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				

1Y4 ----------

MAX & MIN							
1	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MAX							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MIN							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MAX & MIN							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				

1Y3 ----------

MAX & MIN							
1	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MAX							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MIN							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MAX & MIN							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				

1Y2 ----------

MAX & MIN							
1	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MAX							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MIN							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MAX & MIN							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				

1Y1 ----------

MAX & MIN							
1	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MAX							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MIN							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				
MAX & MIN							
3	.000	-.570	-.570	-.515			-1.255
1.150	-.570	-.570	-.570				
2.300	-.570	-.570	-1.255				

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN ALL	.000			-1.031			-19.837
		.000	-12.892	-47.532		-2.736	.026	
		1.150	-12.892	-45.109		-2.736	-.263	
		2.300	-12.892	-47.347		-2.736	-3.359	
		2.300			-1.031			-19.837
127								
	MAX & MIN 1	.000			-1.045			-16.347
		.000	-22.591	-20.462		-2.101	2.415	
		1.150	-22.591	-46.442		-2.101	-.001	
		2.300	-22.591	-72.422		-2.101	-2.417	
		2.300			-1.045			-16.347
	MAX 2	.000			-.524			-6.989
		.000	-18.906	-16.309		-1.155	2.273	
		1.150	-18.906	-43.195		-1.155	-.051	
		2.300	-18.906	-66.785		-1.155	-1.579	
		2.300			-.524			-6.989
	MIN 2	.000			-.634			-23.466
		.000	-28.687	-33.857		-2.166	1.362	
		1.150	-28.687	-58.032		-2.166	-.219	
		2.300	-28.687	-84.549		-2.166	-2.710	
		2.300			-.634			-23.466
	MAX 3	.000			-.508			-7.870
		.000	-19.007	-16.236		-1.199	2.259	
		1.150	-19.007	-43.237		-1.199	-.115	
		2.300	-19.007	-66.944		-1.199	-1.694	
		2.300			-.508			-7.870
	MIN 3	.000			-.617			-24.346
		.000	-28.788	-33.784		-2.210	1.348	
		1.150	-28.788	-58.074		-2.210	-.203	
		2.300	-28.788	-84.708		-2.210	-2.825	
		2.300			-.617			-24.346
	MAX 4	.000			-.484			-2.983
		.000	-16.595	-13.504		-.854	2.637	
		1.150	-16.595	-41.160		-.854	-.005	
		2.300	-16.595	-63.326		-.854	-1.320	
		2.300			-.484			-2.983
	MIN 4	.000			-.667			-30.444
		.000	-32.897	-42.750		-2.540	1.119	
		1.150	-32.897	-65.889		-2.540	-.284	
		2.300	-32.897	-92.932		-2.540	-3.205	
		2.300			-.667			-30.444
	MAX & MIN 5	.000			-.055			-19.877

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	-25.471	-23.963		-.261	.192	
		1.150	-25.471	-53.255		-.261	-.108	
		2.300	-25.471	-82.546		-.261	-.408	
		2.300			-.055			-19.877
	MAX & MIN 6	.000			-.015			-16.695
		.000	-22.615	-20.223		-.072	.053	
		1.150	-22.615	-46.231		-.072	-.030	
		2.300	-22.615	-72.239		-.072	-.113	
		2.300			-.015			-16.695
	MAX ALL	.000			-.015			-2.983
		.000	-16.595	-13.504		-.072	2.637	
		1.150	-16.595	-41.160		-.072	-.001	
		2.300	-16.595	-63.326		-.072	-.113	
		2.300			-.015			-2.983
	MIN ALL	.000			-1.045			-30.444
		.000	-32.897	-42.750		-2.540	.053	
		1.150	-32.897	-65.889		-2.540	-.284	
		2.300	-32.897	-92.932		-2.540	-3.205	
		2.300			-1.045			-30.444
128								
	MAX & MIN 1	.000			-1.215			-1.866
		.000	-80.312	30.374		-1.779	2.022	
		1.150	-80.312	-61.985		-1.779	-.024	
		2.300	-80.312	-154.344		-1.779	-2.070	
		2.300			-1.215			-1.866
	MAX 2	.000			-.014			8.575
		.000	-77.644	39.587		-1.108	1.979	
		1.150	-77.322	-59.897		-1.108	-.009	
		2.300	-77.000	-149.345		-1.108	-1.286	
		2.300			-.014			8.575
	MIN 2	.000			-1.077			-6.355
		.000	-95.574	27.032		-1.940	1.239	
		1.150	-95.252	-74.901		-1.940	-.253	
		2.300	-94.930	-180.801		-1.940	-2.484	
		2.300			-1.077			-6.655
	MAX 3	.000			-.079			7.877
		.000	-77.813	39.753		-1.177	1.995	
		1.150	-77.620	-60.000		-1.177	-.073	
		2.300	-77.427	-149.865		-1.177	-1.429	
		2.300			-.079			7.877
	MIN 3	.000			-1.142			-7.352
		.000	-95.743	27.198		-2.009	1.254	
		1.150	-95.550	-75.004		-2.009	-.317	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615 PROGRAM:SAP90/FILE:304615.F3F

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300	-95.357	-181.321		-2.009	-2.627	
		2.300			-1.142			-7.352
	MAX 4	.000			.345			13.285
		.000	-76.416	46.129		-.934	2.334	
		1.150	-76.223	-58.935		-.934	.070	
		2.300	-76.029	-147.668		-.934	-1.008	
		2.300			.345			13.285
	MIN 4	.000			-1.428			-12.097
		.000	-106.299	25.204		-2.321	1.100	
		1.150	-106.106	-83.941		-2.321	-.336	
		2.300	-105.913	-200.094		-2.321	-3.005	
		2.300			-1.428			-12.097
	MAX & MIN 5	.000			.003			-5.773
		.000	-95.206	37.586		-.523	.430	
		1.150	-95.206	-71.901		-.523	-.172	
		2.300	-95.206	-181.388		-.523	-.774	
		2.300			.003			-5.773
	MAX & MIN 6	.000			.001			-2.042
		.000	-80.038	30.607		-.144	.119	
		1.150	-80.038	-61.436		-.144	-.047	
		2.300	-80.038	-153.480		-.144	-.214	
		2.300			.001			-2.042
	MAX ALL	.000			.345			13.285
		.000	-76.416	46.129		-.144	2.334	
		1.150	-76.223	-58.935		-.144	.070	
		2.300	-76.029	-147.668		-.144	-.214	
		2.300			.345			13.285
	MIN ALL	.000			-1.428			-12.097
		.000	-106.299	25.204		-2.321	.119	
		1.150	-106.106	-83.941		-2.321	-.336	
		2.300	-105.913	-200.094		-2.321	-3.005	
		2.300			-1.428			-12.097
129								
	MAX & MIN 1	.000			-.994			14.541
		.000	-23.548	-23.086		-1.341	1.516	
		1.150	-23.548	-50.166		-1.341	-.026	
		2.300	-23.548	-77.246		-1.341	-1.568	
		2.300			-.994			14.541
	MAX 2	.000			-.562			29.779
		.000	-19.974	-22.160		-.882	1.328	
		1.150	-19.652	-48.909		-.882	-.058	
		2.300	-19.330	-72.009		-.882	-1.072	
		2.300			-.562			29.779

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615 PROGRAM:SAP90/FILE:304615.F3F

FRAME ELEMENT FORCES (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN 2	.000			-.696			11.230
		.000	-29.493	-37.306		-1.313	.957	
		1.150	-29.171	-61.586		-1.313	-.198	
		2.300	-28.849	-88.455		-1.313	-1.703	
		2.300			-.696			11.230
	MAX 3	.000			-.618			29.124
		.000	-20.074	-21.942		-1.032	1.416	
		1.150	-19.881	-48.881		-1.032	-.142	
		2.300	-19.688	-72.320		-1.032	-1.329	
		2.300			-.618			29.124
	MIN 3	.000			-.752			10.575
		.000	-29.594	-37.089		-1.463	1.044	
		1.150	-29.400	-61.559		-1.463	-.202	
		2.300	-29.207	-88.766		-1.463	-1.959	
		2.300			-.752			10.575
	MAX 4	.000			-.504			38.227
		.000	-17.983	-20.924		-.744	1.473	
		1.150	-17.789	-48.100		-.744	-.002	
		2.300	-17.596	-69.590		-.744	-.857	
		2.300			-.504			38.227
	MIN 4	.000			-.728			7.312
		.000	-33.848	-46.167		-1.462	.854	
		1.150	-33.655	-69.229		-1.462	-.235	
		2.300	-33.461	-97.000		-1.462	-1.909	
		2.300			-.728			7.312
	MAX & MIN 5	.000			.064			17.144
		.000	-28.970	-25.529		-.251	.190	
		1.150	-28.970	-58.845		-.251	-.099	
		2.300	-28.970	-92.161		-.251	-.388	
		2.300			.064			17.144
	MAX & MIN 6	.000			.018			14.534
		.000	-23.571	-22.848		-.069	.052	
		1.150	-23.571	-49.955		-.069	-.027	
		2.300	-23.571	-77.062		-.069	-.107	
		2.300			.018			14.534
	MAX ALL	.000			.064			38.227
		.000	-17.983	-20.924		-.069	1.516	
		1.150	-17.789	-48.100		-.069	-.002	
		2.300	-17.596	-69.590		-.069	-.107	
		2.300			.064			38.227
	MIN ALL	.000			-.994			7.312
		.000	-33.848	-46.167		-1.463	.052	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.150	-33.655	-69.229		-1.463	-.282	
		2.300	-33.461	-97.000		-1.463	-1.959	
		2.300			-.994			7.312
130								
	MAX & MIN 1	.000			-.973			4.223
		.000	-6.617	-32.076		-.892	1.015	
		1.150	-6.617	-39.685		-.892	-.010	
		2.300	-6.617	-47.294		-.892	-1.036	
		2.300			-.973			4.223
	MAX 2	.000			-.673			15.788
		.000	1.510	-32.026		-.810	1.072	
		1.150	1.832	-37.711		-.810	-.156	
		2.300	2.154	-39.492		-.810	-1.088	
		2.300			-.673			15.788
	MIN 2	.000			-.750			.100
		.000	-10.243	-49.099		-1.117	.772	
		1.150	-9.921	-49.265		-1.117	-.235	
		2.300	-9.599	-52.737		-1.117	-1.497	
		2.300			-.750			.100
	MAX 3	.000			-.762			15.348
		.000	1.366	-31.718		-1.083	1.260	
		1.150	1.560	-37.642		-1.083	-.283	
		2.300	1.753	-39.812		-1.083	-1.529	
		2.300			-.762			15.348
	MIN 3	.000			-.840			-.340
		.000	-10.387	-48.791		-1.390	.959	
		1.150	-10.194	-49.197		-1.390	-.362	
		2.300	-10.001	-53.056		-1.390	-1.938	
		2.300			-.840			-.340
	MAX 4	.000			-.646			22.342
		.000	6.530	-31.206		-.704	1.178	
		1.150	6.723	-36.264		-.704	-.128	
		2.300	6.916	-35.212		-.704	-.939	
		2.300			-.646			22.342
	MIN 4	.000			-.774			-3.805
		.000	-13.060	-59.661		-1.216	.677	
		1.150	-12.866	-55.521		-1.216	-.260	
		2.300	-12.673	-57.286		-1.216	-1.620	
		2.300			-.774			-3.805
	MAX & MIN 5	.000			.059			5.008
		.000	-8.175	-37.108		-.122	.089	
		1.150	-8.175	-46.510		-.122	-.052	
		2.300	-8.175	-55.911		-.122	-.193	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615 PROGRAM:SAP90/FILE:304615.F3F

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300			.059			5.008
	MAX & MIN 6	.000			.016			4.242
		.000	-6.639	-31.961		-.034	.025	
		1.150	-6.639	-39.595		-.034	-.014	
		2.300	-6.639	-47.230		-.034	-.053	
		2.300			.016			4.242
	MAX ALL	.000			.059			22.342
		.000	6.530	-31.206		-.034	1.260	
		1.150	6.723	-36.264		-.034	-.010	
		2.300	6.916	-35.212		-.034	-.053	
		2.300			.059			22.342
	MIN ALL	.000			-.973			-3.805
		.000	-13.060	-59.661		-1.390	.025	
		1.150	-12.866	-55.521		-1.390	-.362	
		2.300	-12.673	-57.286		-1.390	-1.938	
		2.300			-.973			-3.805
131								
	MAX & MIN 1	.000			-.976			.974
		.000	-5.116	-28.745		-.444	.507	
		1.150	-5.116	-34.630		-.444	-.004	
		2.300	-5.116	-40.513		-.444	-.515	
		2.300			-.976			.974
	MAX 2	.000			-.713			10.410
		.000	3.547	-28.907		-.913	1.020	
		1.150	3.869	-32.281		-.913	-.295	
		2.300	4.191	-32.139		-.913	-1.348	
		2.300			-.713			10.410
	MIN 2	.000			-.770			-5.161
		.000	-8.611	-45.019		-1.170	.750	
		1.150	-8.289	-43.147		-1.170	-.337	
		2.300	-7.967	-45.388		-1.170	-1.672	
		2.300			-.770			-5.161
	MAX 3	.000			-.822			10.193
		.000	3.391	-28.573		-1.425	1.400	
		1.150	3.585	-32.200		-1.425	-.504	
		2.300	3.778	-32.459		-1.425	-2.147	
		2.300			-.822			10.193
	MIN 3	.000			-.879			-5.379
		.000	-8.766	-44.685		-1.683	1.130	
		1.150	-8.573	-43.066		-1.683	-.547	
		2.300	-8.380	-45.708		-1.683	-2.472	
		2.300			-.879			-5.379

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615 PROGRAM:SAP90/FILE:304615.F3F

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX 4	.000			-.692			16.124
		.000	8.909	-28.148		-.825	1.111	
		1.150	9.103	-30.522		-.825	-.279	
		2.300	9.296	-27.430		-.825	-1.233	
		2.300			-.692			16.124
	MIN 4	.000			-.787			-9.829
		.000	-11.353	-55.001		-1.254	.661	
		1.150	-11.160	-48.632		-1.254	-.350	
		2.300	-10.967	-49.512		-1.254	-1.774	
		2.300			-.787			-9.829
	MAX & MIN 5	.000			.047			1.250
		.000	-6.060	-33.330		-.050	.035	
		1.150	-6.060	-40.300		-.050	-.022	
		2.300	-6.060	-47.269		-.050	-.080	
		2.300			.047			1.250
	MAX & MIN 6	.000			.013			.985
		.000	-5.124	-28.691		-.014	.010	
		1.150	-5.124	-34.584		-.014	-.006	
		2.300	-5.124	-40.477		-.014	-.022	
		2.300			.013			.985
	MAX ALL	.000			.047			16.124
		.000	8.909	-28.148		-.014	1.400	
		1.150	9.103	-30.522		-.014	-.004	
		2.300	9.296	-27.430		-.014	-.022	
		2.300			.047			16.124
	MIN ALL	.000			-.976			-9.829
		.000	-11.353	-55.001		-1.683	.010	
		1.150	-11.160	-48.632		-1.683	-.547	
		2.300	-10.967	-49.512		-1.683	-2.472	
		2.300			-.976			-9.829
132								
	MAX & MIN 1	.000			-.978			.000
		.000	-5.179	-27.261		.000	.000	
		1.150	-5.179	-33.217		.000	.000	
		2.300	-5.179	-39.172		.000	.000	
		2.300			-.978			.000
	MAX 2	.000			-.554			7.800
		.000	3.501	-27.452		-1.415	1.391	
		1.150	3.823	-30.789		-1.415	-.491	
		2.300	4.145	-30.720		-1.415	-2.121	
		2.300			-.554			7.800
	MIN 2	.000			-.599			-7.803

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615 PROGRAM:SAP90/FILE:304615.F3F

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	-8.679	-43.149		-1.654	1.131	
		1.150	-8.357	-41.373		-1.654	-.516	
		2.300	-8.035	-43.940		-1.654	-2.414	
		2.300			-.599			-7.803
	MAX 3	.000			-.554			7.800
		.000	3.345	-27.114		-2.437	2.231	
		1.150	3.538	-30.706		-2.437	-.826	
		2.300	3.731	-31.040		-2.437	-3.633	
		2.300			-.554			7.800
	MIN 3	.000			-.599			-7.803
		.000	-8.836	-42.812		-2.676	1.971	
		1.150	-8.643	-41.290		-2.676	-.852	
		2.300	-8.450	-44.260		-2.676	-3.926	
		2.300			-.599			-7.803
	MAX 4	.000			-.535			13.001
		.000	8.871	-26.690		-1.335	1.478	
		1.150	9.064	-28.958		-1.335	-.482	
		2.300	9.258	-25.945		-1.335	-2.023	
		2.300			-.535			13.001
	MIN 4	.000			-.611			-13.004
		.000	-11.430	-52.853		-1.733	1.044	
		1.150	-11.237	-46.599		-1.733	-.525	
		2.300	-11.044	-47.979		-1.733	-2.512	
		2.300			-.611			-13.004
	MAX & MIN 5	.000			.043			.000
		.000	-5.493	-32.095		.000	.000	
		1.150	-5.493	-38.412		.000	.000	
		2.300	-5.493	-44.728		.000	.000	
		2.300			.043			.000
	MAX & MIN 6	.000			.012			.000
		.000	-5.183	-27.221		.000	.000	
		1.150	-5.183	-33.182		.000	.000	
		2.300	-5.183	-39.143		.000	.000	
		2.300			.012			.000
	MAX ALL	.000			.043			13.001
		.000	8.871	-26.690		.000	2.231	
		1.150	9.064	-28.958		.000	.000	
		2.300	9.258	-25.945		.000	.000	
		2.300			.043			13.001
	MIN ALL	.000			-.978			-13.004
		.000	-11.430	-52.853		-2.676	.000	
		1.150	-11.237	-46.599		-2.676	-.852	
		2.300	-11.044	-47.979		-2.676	-3.926	

REFPOSITION 304+61S, 3 VANOS 13+17+13 FILE:30461S

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	MOMENT	AXIAL TORQ
MAX & MIN							
1	.000			-.992			1.416
	1.150	-1.029	-2.108		-2.401	-3.188	
	2.300						
3	.000			.144			50.203
MIN							
	.000	20.839	11.835		-1.255	2.009	
	1.150	20.839	16.492		-1.255	-.429	
	2.300		31.291		-1.255	-2.145	
MAX				.144			50.203
	.000	-13.236	35.201		.002	-.004	
	1.150	-13.236	19.979		.002	-.001	
	2.300	-13.236	4.757		.002	.002	
6	.000			-.009			8.199
MAX & MIN							
1	.000			-.009			8.199
	1.150	-13.236	19.979		.002	-.004	
	2.300	-13.236	4.757		.002	.002	
4	.000			-.009			30.547
MAX							
	.000	-4.828	121.801		.008	1.495	
	1.150	-4.828	73.155		.008	-.001	
	2.300	-4.828	44.190		.008	.006	
ALL	.000			-.009			30.547
MAX							
	.000	-48.473	28.364		-1.320	-.013	
	1.150	-48.473	16.174		-1.320	-.194	
	2.300	-48.473	7.395		-1.320	-1.540	
MIN				-2.952			2.381
ALL	.000						
	.000	-48.473	28.364		-1.320	-.013	
	1.150	-48.473	16.174		-1.320	-.194	
	2.300	-48.473	7.395		-1.320	-1.540	
144				-2.952			2.381

MAX & MIN

1	.000			-.982			14.960
	1.150	-1.203	16.398		-3.828	4.219	
	2.300	-1.203	13.631		-3.828	-.241	
4	.000			-.113			44.199
MIN							
	.000	-4.365	-35.029		-2.798	1.243	
	1.150	-4.365	-8.402		-2.798	-.492	
	2.300	-4.365	-3.709		-2.798	-3.946	
MAX				.015			-5.199
	.000	32.112	25.717		-1.120	2.910	
	1.150	32.112	30.465		-1.120	-.243	
	2.300	32.112	52.885		-1.120	-1.910	
5	.000			.015			44.199
MIN							
	.000	4.096	-13.101		-.047	.564	
	1.150	4.096	-8.391		-.047	-.020	
	2.300	4.096	-3.681		-.047	-.025	
MAX				-.015			7.246
	.000	3.895	-9.041		.013	-.023	
	1.150	3.895	-4.562		.013	-.008	
	2.300	3.895	-.082		.013	.007	
6	.000			-.004			7.721
MAX & MIN							
1	.000			-.015			7.246
	1.150	4.096	-13.101		-.047	-.082	
	2.300	4.096	-8.391		-.047	-.020	
4	.000			-.113			-5.199
MAX & MIN							
1	.000			-.113			-5.199
	1.150	-4.365	-35.029		-2.798	1.243	
	2.300	-4.365	-8.402		-2.798	-.492	
		-4.365	-3.709		-2.798	-3.946	

REFPOSITION 304+61S, 3 VANOS 13+17+13 FILE:30461S

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	MOMENT	AXIAL TORQ
MAX & MIN							
1	.000			-.992			1.416
	1.150	-1.029	-24.556		-2.481	1.531	
	2.300	-1.029	-6.752		-2.481	-.397	
MIN							
2	.000			-.015			31.095
	2.300						
MAX				-.500			8.086
2	.000						
	1.150	20.857	11.891		-1.474	2.530	
	2.300	20.857	16.569		-1.474	-.283	
		20.857	31.849		-1.474	-2.206	
MIN				-.015			31.095
1	.000						
	2.300			-.500			8.086
MAX							
1	.000	3.905	-9.007		-3.416	3.843	
	2.300	3.905	-4.516		-3.416	-.086	
	1.150	3.905	-.025		-3.416	-3.014	
MIN				-.500			8.086
1	.000						
	2.300			-.982			-.192
MAX & MIN							
1	.000			-.982			-.192
	1.150	-15.825	10.262		-3.878	-.063	
	2.300	-15.825	7.486		-3.878	-1.085	
		-15.825	9.696		-3.878	-4.700	
MIN				-.992			63.143
ALL	.000						
	1.150	-15.825	10.262		-3.878	-.063	
	2.300	-15.825	7.486		-3.878	-1.085	
		-15.825	9.696		-3.878	-4.700	
MAX				-.004			63.143
ALL	.000						
	2.300	21.033	85.617		.033	.012	
MIN				-.004			14.562
	.000	21.033	69.838		.033	4.219	
	1.150	21.033	77.037		.033	-.007	
	2.300	21.033	85.617		.033	.012	
MAX				-.004			14.562
	.000	-1.159	16.268		.009	-.017	
	1.150	-1.159	14.935		.009	-.007	
	2.300	-1.159	13.602		.009	.003	
6	.000			-.004			14.562
MAX & MIN							
1	.000			-.004			14.562
	1.150	-1.159	16.268		.009	-.017	
	2.300	-1.159	14.935		.009	-.007	
4	.000			-.016			13.276
MAX							
	.000	-.492	10.262		.033	-.063	
	1.150	-.492	9.696		.033	-.026	
	2.300	-.492	9.131		.033	.012	
5	.000			-.016			13.276
MIN							
	.000	-15.825	11.958		-3.087	1.247	
	1.150	-15.825	9.801		-3.087	-.815	
	2.300	-15.825	7.486		-3.087	-4.250	
MAX				-.672			-.192
	.000	-15.825	11.958		-3.087	1.247	
	1.150	-15.825	9.801		-3.087	-.815	
	2.300	-15.825	7.486		-3.087	-4.250	
4	.000			-.672			-.192
MIN							
	.000	-15.825	11.891		-1.474	2.530	
	1.150	-15.825	9.801		-1.474	-.283	
	2.300	-15.825	7.486		-1.474	-2.206	
MAX				-.480			63.143
	.000	21.033	69.838		-1.373	2.530	
	1.150	21.033	77.037		-1.373	-.513	
	2.300	21.033	85.617		-1.373	-2.501	

REFPOSITION 304+61S, 3 VANOS 13+17+13 FILE:30461S

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CHEC)

ELT LOAD ID	DIST END1	1-2 PLANE SHEAR	MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	MOMENT	AXIAL TORQ
MAX & MIN							
1	.000			-.033			7.472
	1.150	-11.933	29.897		.008	-.013	
	2.300	-11.933	16.174		.008	-.003	
		-11.933	2.451		.008	.006	
MIN				-.033			7.472
1	.000						
	2.300			-2.666			2.381
MAX							
1	.000	-48.473	28.364		-1.070	.577	
	1.150	-48.473	17.267		-1.070	-.140	
	2.300	-48.473	-7.395		-1.070	-1.347	
MIN				-2.666			2.381
4	.000						
	2.300			-1.773			30.547
MAX							
4	.000			-2.952			4.962
	1.150	-4.828	121.801		-.515	1.127	
	2.300	-4.828	73.195		-.515	-.083	
		-4.828	44.190		-.515	-.798	
MIN				-1.773			30.547
4	.000						
	2.300	-34.762	-2.859		-.914	-1.231	
MAX				-2.952			4.962
3	.000						
	2.300	-34.762	31.657		-.914	.549	
	1.150	-34.762	18.468		-.914	-.194	
		-34.762	-2.859		-.914	-1.231	
MIN				-2.952			21.862
3	.000						
	2.300	-8.574	28.092		-.581	-.901	
	1.150	-8.574	52.001		-.581	-.160	
		-8.574	87.718		-.581	.879	
MAX				-2.416			21.862
	.000	-35.322	32.499		-.966	-1.225	
	1.150	-35.322	18.666		-.966	-.129	
	2.300	-35.322	-3.305		-.966	.674	
2	.000			-2.467			5.332
MIN							
	.000	-9.135	88.560		-.633	1.003	
	1.150	-9.135	52.198		-.633	-.095	
	2.300	-9.135	27.646		-.633	-.896	
MAX				-1.931			22.231
2	.000						
	2.300	-13.469	35.552		-1.320	1.495	
	1.150	-13.469	20.063		-1.320	-.022	
		-13.469	4.574		-1.320	-1.540	
MAX & MIN				-2.182			8.394
1	.000			-2.182			8.394
	1.150	-13.469	35.552		-1.320	1.495	
	2.300	-13.469	20.063		-1.320	-.022	
		-13.469	4.574		-1.320	-1.540	
3	.000			-2.182			8.394
MAX & MIN							
1	.000			-2.182			8.394
	1.150	-11.933	29.897		-.008	-.013	
	2.300	-11.933	16.174		-.008	-.003	
		-11.933	2.451		-.008	.006	
5	.000			-.033			7.472
MAX & MIN							
1	.000			-.033			7.472
	1.150	-11.933	29.897		-.008	-.013	
	2.300	-11.933	16.174		-.008	-.003	
		-11.933	2.451		-.008	.006	
2	.000			-.033			7.472
MIN							
	.000	-48.473	28.364		-1.070	.577	
	1.150	-48.473	17.267		-1.070	-.140	
	2.300	-48.473	-7.395		-1.070	-1.347	
MAX				-2.666			2.381
	.000	-48.473	28.364		-1.070	.577	
	1.150	-48.473	17.267		-1.070	-.140	
	2.300	-48.473	-7.395		-1.070	-1.347	
4	.000			-2.666			2.381
MIN							
	.000	-34.762	31.657		-.914	.549	
	1.150	-34.762	18.468		-.914	-.194	
	2.300	-34.762	-2.859		-.914	-1.231	
MAX				-2.952			4.962
4	.000						
	2.300	-4.828	121.801		-.515	1.127	
	1.150	-4.828	73.195		-.515	-.083	
		-4.828	44.190		-.515	-.798	
MIN				-1.773			30.547
4	.000						
	2.300	-15.825	7.486		-3.878	-.063	
	1.150	-15.825	9.696		-3.878	-1.085	
		-15.825	10.262		-3.878	-4.700	
MIN				-.992			63.143
ALL	.000						
	2.300	21.033	85.617		.033	.012	
MAX				-.004			14.562
ALL	.000						
	2.300	21.033	69.838		.033	4.219	
	1.150	21.033	77.037		.033	-.007	
		21.033	85.617		.033	.012	
MAX & MIN							
1	.000			-.004			14.562
	1.150	-1.159	16.268		.009	-.017	
	2.300	-1.159	14.935		.009	-.007	
		-1.159	13.602		.009	.003	
6	.000			-.004			14.562
MAX & MIN							
1	.000			-.004			14.562
	1.150	-1.159	16.268		.009	-.017	
	2.300	-1.159	14.935		.009	-.007	
		-1.159	13.602		.009	.003	
4	.000			-.016			13.276
MAX							
	.000	-.492	10.262		.033	-.063	
	1.150	-.492	9.696		.033	-.026	
	2.300	-.492	9.131		.033	.012	
5	.000			-.016			13.276
MIN							
	.000	-15.825	11.958		-3.087	1.247	
	1.150	-15.825	9.801		-3.087	-.815	
	2.300	-15.825	7.486		-3.087	-4.250	
MAX				-.672			-.192
	.000	-15.825	11.891		-1.474	2.530	
	1.150	-15.825	9.801		-1.474	-.283	
	2.300	-15.825	7.486		-1.474	-2.206	
4	.000			-.480			63.143
MIN							
	.000	21.033	69.838		-1.373	2.530	
	1.150	21.033	77.037		-1.373	-.513	
	2.300	21.033	85.617		-1.373	-2.501	

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELI LOAD ID ENVE	DIST END	1-2 PLANE SHEAR	MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	MOMENT	AXIAL TORQ
146 ----------							
MAX & MIN							
1	.000			-.498			5.688
	Z.300	4.588	-23.294		-2.924	3.317	
	.000						
	I.150	4.588	-18.018		-2.924	-.046	
	Z.300		-12.741	-2.924	-3.408		
2	.000			-.498			5.688
	Z.300	21.645	-7.822		-1.232	2.365	
	.000						
	I.150	21.645	-5.615		-1.232	-.161	
	Z.300	21.645	10.229	-1.232	-1.790		24.900
	.000			-.097			
MIN							
3	.000			-.158			24.900
	Z.300	-.033	-45.608		-2.222	1.378	
	.000						
	I.150	-.033	-23.051		-2.222	-.797	
	Z.300	-.033	-15.550	-2.222	-2.795		-.494
MAX				-.158			
3	.000			.014			24.061
	Z.300	21.633	-7.845		-1.049	2.036	
	.000						
	I.150	21.633	-5.651		-1.049	-.280	
	Z.300	21.633	10.179	-1.049	-1.707		24.061
MIN				.014			
4	.000			-.047			-1.332
	Z.300	-.045	-45.631		-2.039	1.048	
	.000						
	I.150	-.045	-23.087		-2.039	-.376	
	Z.300	-.045	-15.600	-2.039	-2.662		-1.332
MAX				-.047			
4	.000			.073			35.569
	Z.300	32.987	2.469		-.884	2.799	
	.000						
	I.150	32.987	2.597		-.884	-.126	
	Z.300	32.987	25.453	-.884	-1.510		35.569
MIN				-.073			
4	.000			-.174			-6.753
	Z.300	-3.143	-60.508		-2.534	1.093	
	.000						
	I.150	-3.143	-26.465		-2.534	-.206	
	Z.300	-3.143	-17.312	-2.534	-3.102		-6.753
MAX				-.174			
5	.000			-.028			5.383
	Z.300	4.692	-27.072		-.127		
	.000						
	I.150	4.692	-21.676		.076	-.040	
	Z.300	4.692	-16.280	.076	.048		5.383
MIN				-.028			
5	.000			-.008			5.323
	Z.300						
	.000						
	I.150						
	Z.300						
MAX							
5	.000						
	Z.300						
	.000						
	I.150						
	Z.300						
MIN							
6	.000						
	Z.300						
	.000						
	I.150						
	Z.300						

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELI LOAD ID ENVE	DIST END	1-2 PLANE SHEAR	MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	MOMENT	AXIAL TORQ
147 ----------							
MAX & MIN							
1	.000			-.512			7.296
	Z.300	6.146	-37.493		-2.437	2.761	
	.000						
	I.150	6.146	-30.425		-2.437	-.042	
	Z.300	6.146	-23.357	-2.437	-2.845		7.296
MAX				-.512			
2	.000			-.199			25.656
	Z.300	23.442	-26.109		-.982	2.130	
	.000						
	I.150	23.442	-23.293		-.982	-.097	
	Z.300	23.442	-20.477	-.982	-1.457		25.656
MIN				-.199			
2	.000			-.255			2.001
	Z.300	1.791	-64.296		-1.957	1.140	
	.000						
	I.150	1.791	-38.096		-1.957	-.209	
	Z.300	1.791	-28.620	-1.957	-2.382		2.001
MAX				-.255			
3	.000			-.139			24.809
	Z.300	23.436	-26.116		-.829	1.872	
	.000						
	I.150	23.436	-25.307		-.829	-.141	
	Z.300	23.436	-6.433	-.829	-1.365		24.809
MIN				-.139			
3	.000			-.196			1.154
	Z.300	1.785	-64.303		-1.805	.882	
	.000						
	I.150	1.785	-38.111		-1.805	-.292	
	Z.300	1.785	-28.641	-1.805	-2.290		1.154
MAX				-.196			
4	.000			-.182			35.720
	Z.300	34.944	-18.468		-.640	2.510	
	.000						
	I.150	34.944	-18.520		-.640	-.058	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	79.763	-152.615		-1.492	1.646	
		1.150	79.763	-60.888		-1.492	-.070	
		2.300	79.763	30.840		-1.492	-1.785	
		2.300			-.287			2.217
	MAX							
	2	.000			.132			19.044
		.000	116.965	-153.052		-.496	1.379	
		1.150	116.643	-59.936		-.496	-.042	
		2.300	116.321	57.142		-.496	-.852	
		2.300			.132			19.044
	MIN							
	2	.000			-.931			-5.634
		.000	79.427	-211.367		-1.237	.400	
		1.150	79.105	-77.263		-1.237	-.208	
		2.300	78.783	29.814		-1.237	-1.470	
		2.300			-.931			-5.634
	MAX							
	3	.000			.168			18.109
		.000	116.524	-152.511		-.376	1.178	
		1.150	116.330	-59.828		-.376	-.105	
		2.300	116.137	56.965		-.376	-.777	
		2.300			.168			18.109
	MIN							
	3	.000			-.896			-6.569
		.000	78.987	-210.826		-1.117	.199	
		1.150	78.793	-77.155		-1.117	-.351	
		2.300	78.600	29.637		-1.117	-1.395	
		2.300			-.896			-6.569
	MAX							
	4	.000			.484			28.251
		.000	140.542	-151.708		-.295	1.792	
		1.150	140.349	-58.877		-.295	.036	
		2.300	140.156	74.288		-.295	-.704	
		2.300			.484			28.251
	MIN							
	4	.000			-1.289			-12.880
		.000	77.981	-248.900		-1.531	.161	
		1.150	77.787	-87.755		-1.531	-.375	
		2.300	77.594	28.740		-1.531	-1.733	
		2.300			-1.289			-12.880
	MAX & MIN							
	5	.000			.003			5.773
		.000	95.206	-181.388		.523	-.774	
		1.150	95.206	-71.901		.523	-.172	
		2.300	95.206	37.586		.523	.430	
		2.300			.003			5.773
	MAX & MIN							
	6	.000			.001			2.042
		.000	80.038	-153.480		.144	-.214	
		1.150	80.038	-61.436		.144	-.047	
		2.300	80.038	30.607		.144	.119	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300			.001			2.042
	MAX							
	ALL	.000			.484			28.251
		.000	140.542	-151.708		.523	1.792	
		1.150	140.349	-58.877		.523	.036	
		2.300	140.156	74.288		.523	.430	
		2.300			.484			28.251
	MIN							
	ALL	.000			-1.289			-12.880
		.000	77.981	-248.900		-1.531	-.774	
		1.150	77.787	-87.755		-1.531	-.375	
		2.300	77.594	28.740		-1.531	-1.785	
		2.300			-1.289			-12.880
150								
	MAX & MIN							
	1	.000			-.458			-14.527
		.000	23.594	-76.878		-1.203	1.356	
		1.150	23.594	-49.745		-1.203	-.028	
		2.300	23.594	-22.611		-1.203	-1.411	
		2.300			-.458			-14.527
	MAX							
	2	.000			-.311			-2.567
		.000	45.678	-73.598		-.305	.628	
		1.150	45.356	-48.575		-.305	-.103	
		2.300	45.034	-8.992		-.305	-.599	
		2.300			-.311			-2.567
	MIN							
	2	.000			-.438			-25.459
		.000	21.429	-113.313		-.668	.100	
		1.150	21.107	-61.072		-.668	-.252	
		2.300	20.785	-26.222		-.668	-.913	
		2.300			-.438			-25.459
	MAX							
	3	.000			-.357			-3.204
		.000	45.249	-73.181		-.143	.362	
		1.150	45.056	-48.577		-.143	-.183	
		2.300	44.863	-9.265		-.143	-.494	
		2.300			-.357			-3.204
	MIN							
	3	.000			-.485			-26.096
		.000	21.001	-112.896		-.506	-.166	
		1.150	20.807	-61.074		-.506	-.333	
		2.300	20.614	-26.495		-.506	-.807	
		2.300			-.485			-26.096
	MAX							
	4	.000			-.276			3.677
		.000	59.393	-70.446		-.185	.782	
		1.150	59.200	-47.792		-.185	-.065	
		2.300	59.006	-.475		-.185	-.521	
		2.300			-.276			3.677

PROGRAM:SAP90/FILE:304615.F3F
REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN							
	4	.000			-.489			-34.477
		.000	18.978	-136.637		-.790	-.098	
		1.150	18.785	-68.620		-.790	-.314	
		2.300	18.592	-29.192		-.790	-1.044	
		2.300			-.489			-34.477
	MAX & MIN							
	5	.000			.064			-17.144
		.000	28.970	-92.161		.251	-.388	
		1.150	28.970	-58.845		.251	-.099	
		2.300	28.970	-25.529		.251	.190	
		2.300			.064			-17.144
	MAX & MIN							
	6	.000			.018			-14.534
		.000	23.571	-77.062		.069	-.107	
		1.150	23.571	-49.955		.069	-.027	
		2.300	23.571	-22.848		.069	.052	
		2.300			.018			-14.534
	MAX							
	ALL	.000			.064			3.677
		.000	59.393	-70.446		.251	1.356	
		1.150	59.200	-47.792		.251	-.027	
		2.300	59.006	-.475		.251	.190	
		2.300			.064			3.677
	MIN							
	ALL	.000			-.489			-34.477
		.000	18.978	-136.637		-1.203	-.388	
		1.150	18.785	-68.620		-1.203	-.333	
		2.300	18.592	-29.192		-1.203	-1.411	
		2.300			-.489			-34.477
151								
	MAX & MIN							
	1	.000			-.482			-4.261
		.000	6.661	-47.166		-.825	.930	
		1.150	6.661	-39.506		-.825	-.018	
		2.300	6.661	-31.846		-.825	-.966	
		2.300			-.482			-4.261
	MAX							
	2	.000			-.373			8.795
		.000	24.651	-41.035		.063	.053	
		1.150	24.329	-37.250		.063	-.170	
		2.300	24.007	-19.184		.063	-.170	
		2.300			-.373			8.795
	MIN							
	2	.000			-.451			-13.869
		.000	3.412	-75.820		-.218	-.317	
		1.150	3.090	-47.677		-.218	-.252	
		2.300	2.768	-36.788		-.218	-.447	
		2.300			-.451			-13.869
	MAX							
	3	.000			-.463			8.367

PROGRAM:SAP90/FILE:304615.F3F
REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	24.238	-40.688		.339	-.391	
		1.150	24.045	-37.304		.339	-.296	
		2.300	23.852	-19.490		.339	.023	
		2.300			-.463			8.367
	MIN							
	3	.000			-.541			-14.297
		.000	2.999	-75.472		.059	-.761	
		1.150	2.805	-47.730		.059	-.377	
		2.300	2.612	-37.094		.059	-.255	
		2.300			-.541			-14.297
	MAX							
	4	.000			-.343			16.331
		.000	35.570	-36.056		.155	.168	
		1.150	35.377	-35.893		.155	-.145	
		2.300	35.184	-11.532		.155	-.086	
		2.300			-.343			16.331
	MIN							
	4	.000			-.473			-21.443
		.000	.171	-94.031		-.312	-.449	
		1.150	-.022	-53.270		-.312	-.281	
		2.300	-.216	-40.872		-.312	-.549	
		2.300			-.473			-21.443
	MAX & MIN							
	5	.000			.059			-5.008
		.000	8.175	-55.911		.122	-.193	
		1.150	8.175	-46.510		.122	-.052	
		2.300	8.175	-37.108		.122	.089	
		2.300			.059			-5.008
	MAX & MIN							
	6	.000			.016			-4.242
		.000	6.639	-47.230		.034	-.053	
		1.150	6.639	-39.595		.034	-.014	
		2.300	6.639	-31.961		.034	.025	
		2.300			.016			-4.242
	MAX							
	ALL	.000			.059			16.331
		.000	35.570	-36.056		.339	.930	
		1.150	35.377	-35.893		.339	-.014	
		2.300	35.184	-11.532		.339	.089	
		2.300			.059			16.331
	MIN							
	ALL	.000			-.541			-21.443
		.000	.171	-94.031		-.825	-.761	
		1.150	-.022	-53.270		-.825	-.377	
		2.300	-.216	-40.872		-.825	-.966	
		2.300			-.541			-21.443
152								
	MAX & MIN							
	1	.000			-.486			-.995
		.000	5.133	-40.441		-.417	.471	
		1.150	5.133	-34.538		-.417	-.069	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	2.300	5.133	-28.636		-.417	-.488	
	2.300			-.486			-.995
MAX							
2	.000			-.414			11.459
	.000	22.814	-33.663		.641	-.778	
	1.150	22.492	-31.779		.641	-.299	
	2.300	22.170	-14.971		.641	.404	
	2.300			-.414			11.459
MIN							
2	.000			-.472			-11.143
	.000	1.801	-67.226		.402	-1.072	
	1.150	1.479	-41.181		.402	-.343	
	2.300	1.157	-32.365		.402	.145	
	2.300			-.472			-11.143
MAX							
3	.000			-.523			11.244
	.000	22.401	-33.337		1.155	-1.578	
	1.150	22.208	-31.854		1.155	-.509	
	2.300	22.014	-15.300		1.155	.786	
	2.300			-.523			11.244
MIN							
3	.000			-.581			-11.358
	.000	1.388	-66.900		.916	-1.873	
	1.150	1.195	-41.257		.916	-.552	
	2.300	1.001	-32.694		.916	.527	
	2.300			-.581			-11.358
MAX							
4	.000			-.391			19.180
	.000	33.502	-28.278		.720	-.681	
	1.150	33.309	-30.140		.720	-.284	
	2.300	33.116	-6.733		.720	.487	
	2.300			-.391			19.180
MIN							
4	.000			-.487			-18.489
	.000	-1.519	-84.215		.320	-1.171	
	1.150	-1.713	-45.810		.320	-.356	
	2.300	-1.906	-35.723		.320	.056	
	2.300			-.487			-18.489
MAX & MIN							
5	.000			.047			-1.250
	.000	6.060	-47.269		.050	-.080	
	1.150	6.060	-40.300		.050	-.022	
	2.300	6.060	-33.330		.050	.035	
	2.300			.047			-1.250
MAX & MIN							
6	.000			.013			-.985
	.000	5.124	-40.477		.014	-.022	
	1.150	5.124	-34.584		.014	-.006	
	2.300	5.124	-28.691		.014	.010	
	2.300			.013			-.985

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
MAX							
ALL	.000			.047			19.180
	.000	33.502	-28.278		1.155	.471	
	1.150	33.309	-30.140		1.155	-.006	
	2.300	33.116	-6.733		1.155	.706	
	2.300			.047			19.180
MIN							
ALL	.000			-.581			-18.489
	.000	-1.519	-84.215		-.417	-1.873	
	1.150	-1.713	-45.810		-.417	-.552	
	2.300	-1.906	-35.723		-.417	-.488	
	2.300			-.581			-18.489
153 ----------							
MAX & MIN							
1	.000			-.487			.000
	.000	5.188	-39.113		.000	.000	
	1.150	5.188	-33.147		.000	.000	
	2.300	5.188	-27.181		.000	.000	
	2.300			-.487			.000
MAX							
2	.000			-.256			11.294
	.000	22.887	-32.247		1.646	-2.135	
	1.150	22.565	-30.287		1.646	-.490	
	2.300	22.243	-13.090		1.646	1.386	
	2.300			-.256			11.294
MIN							
2	.000			-.303			-11.292
	.000	1.864	-65.452		1.422	-2.400	
	1.150	1.542	-39.316		1.422	-.517	
	2.300	1.220	-30.264		1.422	1.135	
	2.300			-.303			-11.292
MAX							
3	.000			-.256			11.295
	.000	22.473	-31.927		2.669	-3.647	
	1.150	22.279	-30.570		2.669	-.826	
	2.300	22.086	-13.427		2.669	2.227	
	2.300			-.256			11.295
MIN							
3	.000			-.303			-11.291
	.000	1.450	-65.132		2.445	-3.912	
	1.150	1.257	-39.399		2.445	-.852	
	2.300	1.064	-30.601		2.445	1.976	
	2.300			-.303			-11.291
MAX							
4	.000			-.236			18.823
	.000	33.583	-26.809		1.721	-2.047	
	1.150	33.390	-28.592		1.721	-.482	
	2.300	33.196	-4.585		1.721	1.470	
	2.300			-.236			18.823
MIN							
4	.000			-.313			18.821

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	2.300	-1.455	-82.151		1.347	-2.488	
	1.150	-1.648	-43.641		1.347	-.525	
	2.300	-1.841	-33.208		1.347	1.052	
	2.300			-.313			-18.821
MAX & MIN							
5	.000			.043			.000
	.000	5.493	-44.728		.000	.000	
	1.150	5.493	-38.412		.000	.000	
	2.300	5.493	-32.095		.000	.000	
	2.300			.043			.000
MAX & MIN							
6	.000			.012			.000
	.000	5.183	-39.143		.000	.000	
	1.150	5.183	-33.182		.000	.000	
	2.300	5.183	-27.221		.000	.000	
	2.300			.012			.000
MAX							
ALL	.000			.043			18.823
	.000	33.583	-26.809		2.669	.000	
	1.150	33.390	-28.592		2.669	.000	
	2.300	33.196	-4.585		2.669	2.227	
	2.300			.043			18.823
MIN							
ALL	.000			-.487			-18.821
	.000	-1.455	-82.151		.000	-3.912	
	1.150	-1.648	-43.641		.000	-.852	
	2.300	-1.841	-33.208		.000	.000	
	2.300			-.487			-18.821
164 ----------							
MAX & MIN							
1	.000			-5.293			12.302
	.000	-41.709	57.513		-1.224	1.241	
	1.150	-41.709	9.547		-1.224	-.166	
	2.300	-41.709	-38.418		-1.224	-1.574	
	2.300			-5.293			12.302
MAX							
2	.000			-3.146			22.678
	.000	-35.772	155.035		-.030	.297	
	1.150	-35.772	42.330		-.030	-.154	
	2.300	-35.772	-35.986		-.030	-.248	
	2.300			-3.146			22.678
MIN							
2	.000			-4.369			10.760
	.000	-98.004	53.643		-.408	-.060	
	1.150	-98.004	8.817		-.408	-.194	
	2.300	-98.004	-70.375		-.408	-.643	
	2.300			-4.369			10.760
MAX							
3	.000			-3.315			22.459
	.000	-34.927	153.902		.384	-.219	
	1.150	-34.927	42.169		.384	-.192	

PROGRAM=SAP90/FILE=304615.F3F
REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	2.300	-34.927	-35.176		.384	.191	
	2.300			-3.315			22.459
MIN							
3	.000			-4.538			10.540
	.000	-97.159	52.510		.006	-.575	
	1.150	-97.159	8.656		.006	-.232	
	2.300	-97.159	-69.565		.006	.205	
	2.300			-4.538			10.540
MAX							
4	.000			-2.724			29.044
	.000	-29.700	217.234		.083	.453	
	1.150	-29.700	63.801		.083	-.144	
	2.300	-29.700	-32.317		.083	-.147	
	2.300			-2.724			29.044
MIN							
4	.000			-4.763			9.179
	.000	-133.420	48.247		-.547	-.140	
	1.150	-133.420	7.947		-.547	-.211	
	2.300	-133.420	-89.631		-.547	-.806	
	2.300			-4.763			9.179
MAX & MIN							
5	.000			-.012			11.408
	.000	-37.211	49.401		.015	-.018	
	1.150	-37.211	6.608		.015	-.001	
	2.300	-37.211	-36.185		.015	.016	
	2.300			-.012			11.408
MAX & MIN							
6	.000			-.003			12.212
	.000	-41.360	57.032		.004	-.005	
	1.150	-41.360	9.468		.004	-.000	
	2.300	-41.360	-38.096		.004	.004	
	2.300			-.003			12.212
MAX							
ALL	.000			-.003			29.044
	.000	-29.700	217.234		.384	1.241	
	1.150	-29.700	63.801		.384	-.000	
	2.300	-29.700	-32.317		.384	.191	
	2.300			-.003			29.044
MIN							
ALL	.000			-5.293			9.179
	.000	-133.420	48.247		-1.224	-.575	
	1.150	-133.420	6.608		-1.224	-.232	
	2.300	-133.420	-89.631		-1.224	-1.574	
	2.300			-5.293			9.179
165 ----------							
MAX & MIN							
1	.000			-.766			10.628
	.000	1.816	-.913		-2.022	1.684	
	1.150	1.816	1.175		-2.022	-.641	
	2.300	1.816	3.263		-2.022	-2.966	
	2.300			-.766			10.628

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX							
	2	.000			-.379			20.745
		.000	8.851	21.662		-.288	.414	
		1.150	8.851	13.296		-.288	-.527	
		2.300	8.851	5.179		-.288	-.957	
		2.300			-.379			20.745
	MIN							
	2	.000			-.521			8.295
		.000	-7.341	-2.181		-.898	-.097	
		1.150	-7.341	.659		-.898	-.680	
		2.300	-7.341	2.071		-.898	-1.660	
		2.300			-.521			8.295
	MAX							
	3	.000			-.347			20.492
		.000	8.957	21.488		.237	-.293	
		1.150	8.957	13.244		.237	-.631	
		2.300	8.957	5.248		.237	-.458	
		2.300			-.347			20.492
	MIN							
	3	.000			-.490			8.042
		.000	-7.236	-2.355		-.374	-.804	
		1.150	-7.236	.606		-.374	-.784	
		2.300	-7.236	2.139		-.374	-1.161	
		2.300			-.490			8.042
	MAX							
	4	.000			-.329			26.852
		.000	13.805	36.287		-.094	.638	
		1.150	13.805	21.295		-.094	-.487	
		2.300	13.805	6.637		-.094	-.761	
		2.300			-.329			26.852
	MIN							
	4	.000			-.566			6.102
		.000	-13.183	-3.451		-1.112	-.213	
		1.150	-13.183	.193		-1.112	-.742	
		2.300	-13.183	1.457		-1.112	-1.933	
		2.300			-.566			6.102
	MAX & MIN							
	5	.000			-.005			9.789
		.000	2.444	-2.864		.031	-.039	
		1.150	2.444	-.053		.031	-.004	
		2.300	2.444	2.758		.031	.032	
		2.300			-.005			9.789
	MAX & MIN							
	6	.000			-.001			10.524
		.000	1.859	-.993		.008	-.011	
		1.150	1.859	1.145		.008	-.001	
		2.300	1.859	3.283		.008	.009	
		2.300			-.001			10.524
	MAX							
	ALL	.000			-.001			26.852
		.000	13.805	36.287		.237	1.684	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.150	13.805	21.255		.237	-.601	
		2.300	13.805	6.637		.237	.032	
		2.300			-.001			26.852
	MIN							
	ALL	.000			-.766			6.102
		.000	-13.183	-3.451		-2.022	-.804	
		1.150	-13.183	-.053		-2.022	-.784	
		2.300	-13.183	1.457		-2.022	-2.966	
		2.300			-.766			6.102
166	----------							
	MAX & MIN							
	1	.000			-.116			5.186
		.000	8.426	-11.630		-1.650	1.551	
		1.150	8.426	-1.940		-1.650	-.346	
		2.300	8.426	7.749		-1.650	-2.243	
		2.300			-.116			5.186
	MAX							
	2	.000			.065			10.474
		.000	16.750	1.186		-.327	.662	
		1.150	16.750	7.967		-.327	-.273	
		2.300	16.750	15.411		-.327	-.738	
		2.300			.065			10.474
	MIN							
	2	.000			.029			2.331
		.000	5.529	-13.753		-.867	.193	
		1.150	5.529	-2.762		-.867	-.363	
		2.300	5.529	7.295		-.867	-1.334	
		2.300			.029			2.331
	MAX							
	3	.000			.138			10.280
		.000	16.752	1.140		.030	.203	
		1.150	16.752	7.924		.030	-.322	
		2.300	16.752	15.371		.030	-.377	
		2.300			.138			10.280
	MIN							
	3	.000			.102			2.137
		.000	5.531	-13.798		-.510	-.266	
		1.150	5.531	-2.805		-.510	-.412	
		2.300	5.531	7.254		-.510	-.973	
		2.300			.102			2.137
	MAX							
	4	.000			.079			13.508
		.000	22.304	9.626		-.150	.855	
		1.150	22.304	14.473		-.150	-.248	
		2.300	22.304	20.426		-.150	-.571	
		2.300			.079			13.508
	MIN							
	4	.000			.019			-.064
		.000	3.602	-15.271		-1.050	.074	
		1.150	3.602	-3.408		-1.050	-.328	
		2.300	3.602	6.899		-1.050	-1.564	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615 PROGRAM:SHP70/FILE:304615.F3F

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300			.019			-.064
	MAX & MIN							
	5	.000			-.004			4.856
		.000	8.524	-12.960		.037	-.045	
		1.150	8.524	-3.158		.037	-.002	
		2.300	8.524	6.644		.037	.040	
		2.300			-.004			4.856
	MAX & MIN							
	6	.000			-.001			5.107
		.000	8.427	-11.665		.010	-.012	
		1.150	8.427	-1.972		.010	-.001	
		2.300	8.427	7.720		.010	.011	
		2.300			-.001			5.107
	MAX							
	ALL	.000			.138			13.508
		.000	22.304	9.626		.037	1.551	
		1.150	22.304	14.473		.037	-.001	
		2.300	22.304	20.426		.037	.040	
		2.300			.138			13.508
	MIN							
	ALL	.000			-.116			-.064
		.000	3.602	-15.271		-1.650	-.266	
		1.150	3.602	-3.408		-1.650	-.412	
		2.300	3.602	6.644		-1.650	-2.243	
		2.300			-.116			-.064
167	----------							
	MAX & MIN							
	1	.000			-.122			3.457
		.000	8.827	-14.809		-1.410	1.370	
		1.150	8.827	-4.658		-1.410	-.251	
		2.300	8.827	5.493		-1.410	-1.873	
		2.300			-.122			3.457
	MAX							
	2	.000			.021			7.850
		.000	17.206	-4.596		-.354	.767	
		1.150	17.206	3.024		-.354	-.178	
		2.300	17.206	12.396		-.354	-.673	
		2.300			.021			7.850
	MIN							
	2	.000			-.002			.602
		.000	6.271	-17.190		-.872	.317	
		1.150	6.271	-5.712		-.872	-.250	
		2.300	6.271	4.975		-.872	-1.241	
		2.300			-.002			.602
	MAX							
	3	.000			.071			7.670
		.000	17.204	-4.631		-.111	.464	
		1.150	17.204	2.988		-.111	-.201	
		2.300	17.204	12.358		-.111	-.417	
		2.300			.071			7.670

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615 PROGRAM:SHP70/FILE:304615.F3F

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN							
	3	.000			.048			.422
		.000	6.270	-17.225		-.629	.015	
		1.150	6.270	-5.748		-.629	-.275	
		2.300	6.270	4.938		-.629	-.965	
		2.300			.048			.422
	MAX							
	4	.000			.032			10.319
		.000	22.788	2.135		-.179	.944	
		1.150	22.788	8.064		-.179	-.158	
		2.300	22.788	16.912		-.179	-.511	
		2.300			.032			10.319
	MIN							
	4	.000			-.007			-1.762
		.000	4.564	-18.855		-1.043	.195	
		1.150	4.564	-6.496		-1.043	-.277	
		2.300	4.564	4.544		-1.043	-1.457	
		2.300			-.007			-1.762
	MAX & MIN							
	5	.000			-.007			3.394
		.000	8.892	-16.086		.047	-.054	
		1.150	8.892	-5.860		.047	-.000	
		2.300	8.892	4.366		.047	.053	
		2.300			-.007			3.394
	MAX & MIN							
	6	.000			-.002			3.386
		.000	8.827	-14.844		.013	-.015	
		1.150	8.827	-4.694		.013	.000	
		2.300	8.827	5.457		.013	.015	
		2.300			-.002			3.386
	MAX							
	ALL	.000			.071			10.319
		.000	22.788	2.135		.047	1.370	
		1.150	22.788	8.064		.047	.000	
		2.300	22.788	16.912		.047	.053	
		2.300			.071			10.319
	MIN							
	ALL	.000			-.122			-1.762
		.000	4.564	-18.855		-1.410	-.054	
		1.150	4.564	-6.496		-1.410	-.277	
		2.300	4.564	4.366		-1.410	-1.873	
		2.300			-.122			-1.762
168	----------							
	MAX & MIN							
	1	.000			-.142			3.151
		.000	9.205	-17.112		-1.193	1.166	
		1.150	9.205	-6.527		-1.193	-.205	
		2.300	9.205	4.058		-1.193	-1.577	
		2.300			-.142			3.151
	MAX							
	2	.000			-.035			7.301

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	17.618	-8.478		-.328	.767	
		1.150	17.618	-.388		-.328	-.135	
		2.300	17.618	9.216		-.328	-.599	
		2.300			-.035			7.301
	MIN 2	.000			-.051			.414
		.000	6.766	-19.669		-.832	.330	
		1.150	6.766	-7.722		-.832	-.195	
		2.300	6.766	3.569		-.832	-1.148	
		2.300			-.051			.414
	MAX 3	.000			-.008			7.122
		.000	17.619	-8.514		-.155	.555	
		1.150	17.619	-.424		-.155	-.147	
		2.300	17.619	9.181		-.155	-.411	
		2.300			-.008			7.122
	MIN 3	.000			-.024			.235
		.000	6.766	-19.706		-.658	.118	
		1.150	6.766	-7.758		-.658	-.207	
		2.300	6.766	3.534		-.658	-.960	
		2.300			-.024			.235
	MAX 4	.000			-.028			9.607
		.000	23.225	-2.799		-.156	.936	
		1.150	23.225	3.625		-.156	-.116	
		2.300	23.225	12.572		-.156	-.440	
		2.300			-.028			9.607
	MIN 4	.000			-.055			-1.872
		.000	5.138	-21.452		-.995	.207	
		1.150	5.138	-8.599		-.995	-.217	
		2.300	5.138	3.161		-.995	-1.354	
		2.300			-.055			-1.872
	MAX & MIN 5	.000			-.009			3.371
		.000	9.321	-18.439		.058	-.063	
		1.150	9.321	-7.719		.058	.004	
		2.300	9.321	3.000		.058	.072	
		2.300			-.009			3.371
	MAX & MIN 6	.000			-.002			3.085
		.000	9.205	-17.158		.016	-.017	
		1.150	9.205	-6.572		.016	.001	
		2.300	9.205	4.014		.016	.020	
		2.300			-.002			3.085
	MAX ALL	.000			-.002			9.607
		.000	23.225	-2.799		.058	1.166	
		1.150	23.225	3.625		.058	.004	
		2.300	23.225	12.572		.058	.072	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615 PROGRAM:SHP90/FILE:304615.FSF

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.300			-.002			9.607
	MIN ALL	.000			-.142			-1.872
		.000	5.138	-21.452		-1.193	-.063	
		1.150	5.138	-8.599		-1.193	-.217	
		2.300	5.138	3.000		-1.193	-1.577	
		2.300			-.142			-1.872
169								
	MAX & MIN 1	.000			-.137			3.597
		.000	11.246	-19.987		-.984	.965	
		1.150	11.246	-7.054		-.984	-.167	
		2.300	11.246	5.879		-.984	-1.299	
		2.300			-.137			3.597
	MAX 2	.000			-.054			7.672
		.000	19.984	-12.710		-.271	.676	
		1.150	19.984	-1.731		-.271	-.106	
		2.300	19.984	10.532		-.271	-.495	
		2.300			-.054			7.672
	MIN 2	.000			-.099			1.069
		.000	9.435	-22.793		-.717	.284	
		1.150	9.435	-8.269		-.717	-.149	
		2.300	9.435	5.612		-.717	-.973	
		2.300			-.099			1.069
	MAX 3	.000			-.041			7.484
		.000	19.965	-12.731		-.135	.512	
		1.150	19.965	-1.773		-.135	-.114	
		2.300	19.965	10.468		-.135	-.347	
		2.300			-.041			7.484
	MIN 3	.000			-.087			.881
		.000	9.416	-22.814		-.581	.119	
		1.150	9.416	-8.312		-.581	-.157	
		2.300	9.416	5.548		-.581	-.825	
		2.300			-.087			.881
	MAX 4	.000			-.039			9.901
		.000	25.747	-7.888		-.117	.825	
		1.150	25.747	1.718		-.117	-.093	
		2.300	25.747	13.463		-.117	-.356	
		2.300			-.039			9.901
	MIN 4	.000			-.115			-1.102
		.000	8.166	-24.692		-.859	.170	
		1.150	8.166	-9.179		-.859	-.164	
		2.300	8.166	5.263		-.859	-1.152	
		2.300			-.115			-1.102

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615 PROGRAM:SHP90/FILE:304615.FSF

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX & MIN 5	.000			-.004			4.297
		.000	11.802	-21.728		.066	-.059	
		1.150	11.802	-8.156		.066	.017	
		2.300	11.802	5.416		.066	.092	
		2.300			-.004			4.297
	MAX & MIN 6	.000			-.001			3.544
		.000	11.251	-20.048		.018	-.016	
		1.150	11.251	-7.109		.018	.005	
		2.300	11.251	5.830		.018	.025	
		2.300			-.001			3.544
	MAX ALL	.000			-.001			9.901
		.000	25.747	-7.888		.066	.965	
		1.150	25.747	1.718		.066	.017	
		2.300	25.747	13.463		.066	.092	
		2.300			-.001			9.901
	MIN ALL	.000			-.137			-1.102
		.000	8.166	-24.692		-.984	-.059	
		1.150	8.166	-9.179		-.984	-.167	
		2.300	8.166	5.263		-.984	-1.299	
		2.300			-.137			-1.102
170								
	MAX & MIN 1	.000			-.086			.990
		.000	13.319	-21.723		-.799	.799	
		1.150	13.319	-6.406		-.799	-.120	
		2.300	13.319	8.910		-.799	-1.040	
		2.300			-.086			.990
	MAX 2	.000			.035			4.527
		.000	22.850	-15.614		-.240	.455	
		1.150	22.528	-1.298		-.240	-.070	
		2.300	22.206	13.645		-.240	-.390	
		2.300			.035			4.527
	MIN 2	.000			-.255			-1.660
		.000	12.536	-24.921		-.489	.247	
		1.150	12.214	-7.468		-.489	-.122	
		2.300	11.892	8.920		-.489	-.674	
		2.300			-.255			-1.660
	MAX 3	.000			.047			4.352
		.000	22.626	-15.517		-.125	.316	
		1.150	22.433	-1.384		-.125	-.076	
		2.300	22.239	13.523		-.125	-.263	
		2.300			.047			4.352
	MIN 3	.000			-.243			-1.835

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615 PROGRAM:SHP90/FILE:304615.FSF

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	12.312	-24.824		-.374	.109	
		1.150	12.119	-7.554		-.374	-.128	
		2.300	11.925	8.798		-.374	-.547	
		2.300			-.243			-1.835
	MAX 4	.000			.130			6.451
		.000	28.603	-11.259		-.154	.532	
		1.150	28.410	1.896		-.154	-.058	
		2.300	28.217	16.492		-.154	-.309	
		2.300			.130			6.451
	MIN 4	.000			-.353			-3.861
		.000	11.413	-26.771		-.568	.187	
		1.150	11.220	-8.386		-.568	-.146	
		2.300	11.026	8.617		-.568	-.781	
		2.300			-.353			-3.861
	MAX & MIN 5	.000			.002			1.757
		.000	15.077	-24.630		.055	-.018	
		1.150	15.077	-7.291		.055	.045	
		2.300	15.077	10.048		.055	.109	
		2.300			.002			1.757
	MAX & MIN 6	.000			.000			.953
		.000	13.338	-21.803		.015	-.005	
		1.150	13.338	-6.465		.015	.013	
		2.300	13.338	8.874		.015	.030	
		2.300			.000			.953
	MAX ALL	.000			.130			6.451
		.000	28.603	-11.259		.055	.799	
		1.150	28.410	1.896		.055	.045	
		2.300	28.217	16.492		.055	.109	
		2.300			.130			6.451
	MIN ALL	.000			-.353			-3.861
		.000	11.413	-26.771		-.799	-.018	
		1.150	11.220	-8.386		-.799	-.146	
		2.300	11.026	8.617		-.799	-1.040	
		2.300			-.353			-3.861
171								
	MAX & MIN 1	.000			-.131			-1.498
		.000	11.243	-21.742		-.617	.617	
		1.150	11.243	-8.813		-.617	-.092	
		2.300	11.243	4.117		-.617	-.801	
		2.300			-.131			-1.498
	MAX 2	.000			-.080			1.564
		.000	20.391	-15.818		-.163	.255	
		1.150	20.069	-4.313		-.163	-.051	

PRODRMM:SHP90/FILE:304615.F3F

REPOSITION 304+615, 3 YARDS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1	.000	24.800	-24.448	-.165	-.270	.165	-2.262
	1.150	6.087	-24.448			.049	
	2.300	6.694	-12.529				
	MIN						-.108
3	.000						
	MAX						-.091
	2.300						2.506
2	.000	17.564	-15.249	-.291	-.141	.291	
	1.150	17.171	-7.096		.065	.291	
	2.300	17.178	1.706		.399	.291	
	MIN						-.091
	2.300						-2.720
MAX	.000						-.100
	1.150	6.803	-12.408		.017	.025	
	2.300	6.481	-1.110		.046	.025	
MIN	.000						-.140
	2.300						-2.720
2	.000	7.125	-24.527			.025	
	1.150	6.803	-12.408			.025	
	2.300	6.481	-1.110			.025	
MIN	.000						-.100
	2.300						-2.720
MAX	.000						-.140
	1.150	8.950	-11.108		-.053	-.210	
	2.300	8.950	-.816		-.275	-.210	
MAX	.000						-.140
	1.150	8.950	-21.400		.208	-.210	
	2.300	8.950	-11.108		-.053	-.210	
	2.300	8.950	-.816		-.275	-.210	
MAX & MIN							-.140
1	.030						
173 ----------							
	2.300						-5.355
MLL	.000						-.140
	1.150	5.491	-.562		-.345	-.418	
	2.300	5.624	-12.865		-.065	-.418	
MIN	.000						-5.355
	2.300						3.950
MLL	.000	5.817	-26.137		-.178	-.418	
	1.150	5.624	-12.865		-.065	-.418	
	2.300	5.491	-.562		-.345	-.418	
MAX	.000						-.140
	2.300						.013
MLL	.000	23.501	-10.786		.416	.140	
	1.150	23.308	-3.707		.005	.140	
	2.300	23.115	4.637		.144	.140	
MIN	.000						.013
	2.300						3.950
MAX	.000						-.688
	1.150	9.315	-21.213		-.012	.012	
	2.300	9.315	-10.501		.002	.012	
	2.300	9.315	.211		.015	.012	
6	.000						.004
MAX & MIN							-.688
	2.300						-.752
4	.000						.013
MAX	.000						-.075
	1.150	11.045	.604		.056	.044	
	2.300	11.045	-12.098		.095	.044	
	2.300	11.045	-24.800		-.045	.044	
MIN	.000						-.108
	2.300						-2.762

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1	.000	25.857	-11.588	.617	-.089	.058	3.282
	1.150	25.664	-1.563	.017	.083	.058	
	2.300	25.471	9.781			.058	
	MIN						.007
	2.300						3.282
MLL	.000						.007
	1.150	13.356	-10.135		.017	.058	
	2.300	13.356	5.224		.083	.058	
MAX	.000						.007
	1.150	13.356	-25.495		-.049	.058	
	2.300						-1.547
5	.000						.007
MAX & MIN							-1.547
	2.300						-6.529
4	.000						-.145
MIN	.000						-6.529
	2.300						3.282
MLL	.000	8.640	-26.783		.089	-.343	
	1.150	8.447	-11.043		-.091	-.343	
	2.300	8.254	3.571		-.485	-.343	
MAX	.000						-.145
	2.300						-6.529
4	.000						-.145
MIN	.000						-4.445
	2.300						3.282
MLL	.000	25.857	-11.588		.304	-.131	
	1.150	25.664	-1.563		-.044	-.131	
	2.300	25.471	9.781		-.212	-.131	
MAX	.000						-.065
	2.300						3.282
4	.000						-.065
MAX & MIN							-4.445
	2.300						1.441
3	.000						-.137
MIN	.000						-4.445
	2.300						1.441
MLL	.000	9.820	-24.833		-.004	-.178	
	1.150	9.627	-10.102		-.080	-.178	
	2.300	9.433	3.864		-.285	-.178	
MAX	.000						-.137
	2.300						1.441
3	.000						-.089
MAX & MIN							-4.323
	2.300						-.752
2	.000						.013
MAX	.000						-.078
	1.150	10.061	-24.935		.126	-.271	
	2.300	9.739	-10.000		-.000	-.271	
	2.300	9.417	4.021		-.414	-.271	
MIN	.000						-.128
	2.300						-4.323
MLL	.000	20.150	-15.716		.125	-.051	
	1.150	19.957	-4.414		-.052	-.051	
	2.300	19.764	7.590		-.121	-.051	
MAX	.000						-.089
	2.300						1.564
1	.000						-.080
MAX & MIN							1.564
	2.300						-.250

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT LOAD ID	DIST END	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1	.000	17.793	-15.529	.071	-.028	.248	2.481
	1.150	17.471	-7.186		.135	.248	
	2.300	17.149	1.653		.420	.248	
	MIN						-.071
	2.300						2.481
2	.000						
	MAX						-.140
	2.300						.000
	1.150	8.942	-11.267		-.984	.000	
	2.300	8.942	-21.550		.000	.000	
	I .000						-.140
	MAX & MIN						.000
174 ----------							
	2.300						-4.535
MLL	.000	5.274	-26.391		-.270	-.210	
	1.150	5.081	-13.586		-.035	-.210	
	2.300	4.888	-1.755		-.275	-.210	
MIN	.000						-.140
	2.300						-4.535
3	.000						
MAX	.000						-.129
	1.150	7.358	-24.208		.009	.005	
	2.300	7.164	-11.842		-.033	.005	
	2.300	6.971	-.146		-.027	.005	
MIN	.000						-.129
	2.300						-3.435
4	.000						
MAX	.000						-.086
	1.150	23.501	-10.786		.185	.058	
	2.300	23.308	-3.707		-.022	.058	
	2.300	23.115	4.637		.045	.058	
MIN	.000						-.086
	2.300						3.950
4	.000						
MAX & MIN							-.112
	2.300						-5.355
MLL	.000	5.817	-26.137		-.089	-.167	
	1.150	5.624	-12.865		-.048	-.167	
	2.300	5.431	-.562		-.240	-.167	
MAX	.000						-.112
	2.300						.013
5	.000						
MAX & MIN							-.752
	2.300						3.282
4	.000						.007
MAX	.000						-1.519
	1.150	11.249	-8.864		-.014	.016	
	2.300	11.249	4.068		.025	.016	
	2.300	11.249	-21.804		.016	.016	
	MIN .000						.002
	2.300						-1.519
2	.000						
MAX & MIN							-1.547
	2.300						-6.529
3	.000						-.145
MAX	.000						-6.529
	1.150	13.396	-10.135		.017	.058	
	2.300	13.396	-25.495		-.049	.058	
	MIN .000						.007
	2.300						-1.547
2	.000						
MIN	.000						-1.519
	2.300						3.282
MLL	.000	25.857	-11.588		.617	.058	
	1.150	25.664	-1.563		.017	.058	
	2.300	25.471	9.781		.083	.058	
MAX	.000						.007
	2.300						3.282
1	.000						
MAX & MIN							-1.519
	2.300						-6.529
4	.000						-.145
MIN	.000						-6.529
	2.300						3.282
MLL	.000	8.640	-26.783		.089	-.343	
	1.150	8.447	-11.043		-.091	-.343	
	2.300	8.254	3.571		-.485	-.343	
MAX	.000						-.145
	2.300						-6.529
4	.000						-.145
MAX & MIN							-4.445
	2.300						3.282
3	.000						-.065
MIN	.000						-4.445
	2.300						3.282
MLL	.000	25.857	-11.588		.304	-.131	
	1.150	25.664	-1.563		-.044	-.131	
	2.300	25.471	9.781		-.212	-.131	
MAX	.000						-.065
	2.300						3.282
4	.000						-.065
MAX & MIN							-4.445
	2.300						1.441
3	.000						-.137
MIN	.000						-4.445
	2.300						1.441
MLL	.000	9.820	-24.833		-.004	-.178	
	1.150	9.627	-10.102		-.080	-.178	
	2.300	9.433	3.864		-.285	-.178	
MAX	.000						-.137
	2.300						1.441
3	.000						-.089
MAX & MIN							-4.323
	2.300						-.752
2	.000						.013
MAX	.000						-.078
	1.150	10.061	-24.935		.126	-.271	
	2.300	9.739	-10.000		-.000	-.271	
	2.300	9.417	4.021		-.414	-.271	
MIN	.000						-.128
	2.300						-4.323
MLL	.000	20.150	-15.716		.125	-.051	
	1.150	19.957	-4.414		-.052	-.051	
	2.300	19.764	7.590		-.121	-.051	
MAX	.000						-.089
	2.300						1.564
1	.000						-.080
MAX & MIN							1.564
	2.300						-.250

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MIN							
	2	.000			-.086			-2.480
		.000	7.112	-24.683		.128	-.151	
		1.150	6.790	-12.573		.128	.118	
		2.300	6.468	-1.287		.128	.267	
		2.300			-.086			-2.480
	MAX							
	3	.000			-.072			2.481
		.000	17.555	-15.453		.374	-.088	
		1.150	17.362	-7.308		.374	.220	
		2.300	17.169	1.479		.374	.649	
		2.300			-.072			2.481
	MIN							
	3	.000			-.087			-2.480
		.000	6.874	-24.606		.254	-.211	
		1.150	6.681	-12.696		.254	.203	
		2.300	6.488	-1.461		.254	.495	
		2.300			-.087			-2.480
	MAX							
	4	.000			-.064			4.135
		.000	23.060	-11.302		.288	.013	
		1.150	22.866	-4.783		.288	.141	
		2.300	22.673	2.956		.288	.471	
		2.300			-.064			4.135
	MIN							
	4	.000			-.089			-4.134
		.000	5.257	-26.557		.088	-.192	
		1.150	5.064	-13.762		.088	.113	
		2.300	4.871	-1.944		.088	.216	
		2.300			-.089			-4.134
	MAX & MIN							
	5	.000			.013			.000
		.000	9.961	-24.507		.000	.000	
		1.150	9.961	-13.052		.000	.000	
		2.300	9.961	-1.597		.000	.000	
		2.300			.013			.000
	MAX & MIN							
	6	.000			.004			.000
		.000	8.943	-21.586		.000	.000	
		1.150	8.943	-11.302		.000	.000	
		2.300	8.943	-1.017		.000	.000	
		2.300			.004			.000
	MAX							
	ALL	.000			.013			4.135
		.000	23.060	-11.302		.374	.013	
		1.150	22.866	-4.783		.374	.220	
		2.300	22.673	2.956		.374	.649	
		2.300			.013			4.135
	MIN							
	ALL	.000			-.140			-4.134
		.000	5.257	-26.557		.000	-.211	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.150	5.064	-13.762		.000	.000	
		2.300	4.871	-1.944		.000	.000	
		2.300			-.140			-4.134
5001	----------							
	MAX & MIN							
	1	.000			-57.886			.005
		.000	7.161	-.358		-.838	.042	
		.025	7.161	-.179		-.838	.021	
		.050	7.161	.000		-.838	.000	
		.050			-57.886			.005
	MAX							
	2	.000			-39.912			.003
		.000	5.412	-.201		-3.361	.229	
		.025	5.412	-.101		-3.361	.115	
		.050	5.412	.000		-3.361	.000	
		.050			-39.912			.003
	MIN							
	2	.000			-82.245			.002
		.000	3.787	-.271		-4.585	.168	
		.025	3.787	-.135		-4.585	.084	
		.050	3.787	.000		-4.585	.000	
		.050			-82.245			.002
	MAX							
	3	.000			-40.915			.003
		.000	5.334	-.197		-5.596	.341	
		.025	5.334	-.099		-5.596	.170	
		.050	5.334	.000		-5.596	.000	
		.050			-40.915			.003
	MIN							
	3	.000			-83.247			.002
		.000	3.708	-.267		-6.819	.280	
		.025	3.708	-.133		-6.819	.140	
		.050	3.708	.000		-6.819	.000	
		.050			-83.247			.002
	MAX							
	4	.000			-30.546			.004
		.000	5.916	-.180		-2.984	.251	
		.025	5.916	-.090		-2.984	.126	
		.050	5.916	.000		-2.984	.000	
		.050			-30.546			.004
	MIN							
	4	.000			-101.100			.002
		.000	3.207	-.296		-5.023	.149	
		.025	3.207	-.148		-5.023	.075	
		.050	3.207	.000		-5.023	.000	
		.050			-101.100			.002
	MAX & MIN							
	5	.000			-53.187			.000
		.000	.001	.000		-.025	.001	
		.025	.001	.000		-.025	.001	
		.050	.001	.000		-.025	.000	

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615   PROGRAM:SAP90/FILE:304615.F31

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.050			-53.187			.000
	MAX & MIN							
	6	.000			-58.312			.000
		.000	.000	.000		-.007	.000	
		.025	.000	.000		-.007	.000	
		.050	.000	.000		-.007	.000	
		.050			-58.312			.000
	MAX							
	ALL	.000			-30.546			.005
		.000	7.161	.000		-.007	.341	
		.025	7.161	.000		-.007	.170	
		.050	7.161	.000		-.007	.000	
		.050			-30.546			.005
	MIN							
	ALL	.000			-101.100			.000
		.000	.000	-.358		-6.819	.000	
		.025	.000	-.179		-6.819	.000	
		.050	.000	.000		-6.819	.000	
		.050			-101.100			.000
5021	----------							
	MAX & MIN							
	1	.000			-57.886			-.005
		.000	7.161	-.358		.838	-.042	
		.025	7.161	-.179		.838	-.021	
		.050	7.161	.000		.838	.000	
		.050			-57.886			-.005
	MAX							
	2	.000			-39.958			-.003
		.000	5.387	-.200		-2.156	.169	
		.025	5.387	-.100		-2.156	.084	
		.050	5.387	.000		-2.156	.000	
		.050			-39.958			-.003
	MIN							
	2	.000			-82.291			-.004
		.000	3.762	-.269		-3.380	.108	
		.025	3.762	-.135		-3.380	.054	
		.050	3.762	.000		-3.380	.000	
		.050			-82.291			-.004
	MAX							
	3	.000			-40.991			-.003
		.000	5.292	-.195		-4.416	.282	
		.025	5.292	-.098		-4.416	.141	
		.050	5.292	.000		-4.416	.000	
		.050			-40.991			-.003
	MIN							
	3	.000			-83.324			-.004
		.000	3.667	-.265		-5.640	.221	
		.025	3.667	-.132		-5.640	.110	
		.050	3.667	.000		-5.640	.000	
		.050			-83.324			-.004

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E   E L E M E N T   F O R C E S   (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX							
	4	.000			-30.591			-.002
		.000	5.891	-.179		-1.718	.188	
		.025	5.891	-.090		-1.718	.094	
		.050	5.891	.000		-1.718	.000	
		.050			-30.591			-.002
	MIN							
	4	.000			-101.146			-.005
		.000	3.182	-.295		-3.757	.086	
		.025	3.182	-.147		-3.757	.043	
		.050	3.182	.000		-3.757	.000	
		.050			-101.146			-.005
	MAX & MIN							
	5	.000			-53.187			.000
		.000	.001	.000		.025	-.001	
		.025	.001	.000		.025	-.001	
		.050	.001	.000		.025	.000	
		.050			-53.187			.000
	MAX & MIN							
	6	.000			-58.312			.000
		.000	.000	.000		.007	-.000	
		.025	.000	.000		.007	-.000	
		.050	.000	.000		.007	.000	
		.050			-58.312			.000
	MAX							
	ALL	.000			-30.591			.000
		.000	7.161	.000		.838	.282	
		.025	7.161	.000		.838	.141	
		.050	7.161	.000		.838	.000	
		.050			-30.591			.000
	MIN							
	ALL	.000			-101.146			-.005
		.000	.000	-.358		-5.640	-.042	
		.025	.000	-.179		-5.640	-.021	
		.050	.000	.000		-5.640	.000	
		.050			-101.146			-.005
5049	----------							
	MAX & MIN							
	1	.000			-409.051			.080
		.000	.744	-4.265		1.328	-4.790	
		5.500	.744	-.172		1.328	2.515	
		11.000	.744	3.922		1.328	9.820	
		11.000			-409.051			.080
	MAX							
	2	.000			-399.194			.066
		.000	1.577	6.376		4.553	7.627	
		5.500	1.577	1.028		4.553	9.216	
		11.000	1.577	6.575		4.553	34.257	
		11.000			-399.194			.066
	MIN							
	2	.000			-513.454			.040

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	-2.100	-4.518		-1.987	-15.825	
		5.500	-2.100	-5.171		-1.987	-3.299	
		11.000	-2.100	-16.719		-1.987	-14.225	
		11.000			-513.454			.040
	MAX							
	3	.000			-399.154			.065
		.000	1.751	5.772		4.367	8.671	
		5.500	1.751	1.377		4.367	9.238	
		11.000	1.751	7.877		4.367	33.257	
		11.000			-399.154			.065
	MIN							
	3	.000			-513.414			.039
		.000	-1.926	-5.123		-2.172	-14.781	
		5.500	-1.926	-4.822		-2.172	-3.277	
		11.000	-1.926	-15.417		-2.172	-15.225	
		11.000			-513.414			.039
	MAX							
	4	.000			-392.663			.074
		.000	2.793	10.721		6.889	14.860	
		5.500	2.793	2.713		6.889	13.661	
		11.000	2.793	12.862		6.889	51.548	
		11.000			-392.663			.074
	MIN							
	4	.000			-583.096			.031
		.000	-3.335	-7.436		-4.011	-24.226	
		5.500	-3.335	-7.620		-4.011	-7.198	
		11.000	-3.335	-25.961		-4.011	-29.255	
		11.000			-583.096			.031
	MAX & MIN							
	5	.000			-488.401			.000
		.000	.000	.000		4.813	-17.355	
		5.500	.000	.000		4.813	9.114	
		11.000	.000	.000		4.813	35.583	
		11.000			-488.401			.000
	MAX & MIN							
	6	.000			-409.051			.000
		.000	.000	.000		1.328	-4.790	
		5.500	.000	.000		1.328	2.515	
		11.000	.000	.000		1.328	9.820	
		11.000			-409.051			.000
	MAX							
	ALL	.000			-392.663			.080
		.000	2.793	10.721		6.889	14.860	
		5.500	2.793	2.713		6.889	13.661	
		11.000	2.793	12.862		6.889	51.548	
		11.000			-392.663			.080
	MIN							
	ALL	.000			-583.096			.000
		.000	-3.335	-7.436		-4.011	-24.226	
		5.500	-3.335	-7.620		-4.011	-7.198	
		11.000	-3.335	-25.961		-4.011	-29.255	
5085	----------	11.000			-583.096			.000
	MAX & MIN							
	1	.000			-58.738			.005
		.000	7.145	-.357		.821	-.041	
		.025	7.145	-.179		.821	-.021	
		.050	7.145	.000		.821	.000	
		.050			-58.738			.005
	MAX							
	2	.000			-51.706			.004
		.000	5.376	-.200		-2.178	.168	
		.025	5.376	-.100		-2.178	.084	
		.050	5.376	.000		-2.178	.000	
		.050			-51.706			.004
	MIN							
	2	.000			-125.618			.003
		.000	3.751	-.269		-3.355	.109	
		.025	3.751	-.134		-3.355	.054	
		.050	3.751	.000		-3.355	.000	
		.050			-125.618			.003
	MAX							
	3	.000			-50.674			.004
		.000	5.281	-.195		-4.438	.281	
		.025	5.281	-.097		-4.438	.140	
		.050	5.281	.000		-4.438	.000	
		.050			-50.674			.004
	MIN							
	3	.000			-124.585			.003
		.000	3.656	-.264		-5.615	.222	
		.025	3.656	-.132		-5.615	.111	
		.050	3.656	.000		-5.615	.000	
		.050			-124.585			.003
	MAX							
	4	.000			-44.434			.004
		.000	5.880	-.179		-1.743	.185	
		.025	5.880	-.089		-1.743	.093	
		.050	5.880	.000		-1.743	.000	
		.050			-44.434			.004
	MIN							
	4	.000			-167.620			.002
		.000	3.172	-.294		-3.705	.087	
		.025	3.172	-.147		-3.705	.044	
		.050	3.172	.000		-3.705	.000	
		.050			-167.620			.002
	MAX & MIN							
	5	.000			-53.187			.000
		.000	-.001	.000		-.025	.001	
		.025	-.001	.000		-.025	.001	
		.050	-.001	.000		-.025	.000	
		.050			-53.187			.000

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F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	MAX & MIN							
	6	.000			-58.312			.000
		.000	-.000	.000		-.007	.000	
		.025	-.000	.000		-.007	.000	
		.050	-.000	.000		-.007	.000	
		.050			-58.312			.000
	MAX							
	ALL	.000			-44.434			.005
		.000	7.145	.000		.821	.281	
		.025	7.145	.000		.821	.140	
		.050	7.145	.000		.821	.000	
		.050			-44.434			.005
	MIN							
	ALL	.000			-167.620			.000
		.000	-.001	-.357		-5.615	-.041	
		.025	-.001	-.179		-5.615	-.021	
		.050	-.001	.000		-5.615	.000	
		.050			-167.620			.000
5105	----------							
	MAX & MIN							
	1	.000			-58.738			.005
		.000	7.145	-.357		-.821	.041	
		.025	7.145	-.179		-.821	.021	
		.050	7.145	.000		-.821	.000	
		.050			-58.738			.005
	MAX							
	2	.000			-51.752			.002
		.000	5.401	-.201		-3.387	.228	
		.025	5.401	-.100		-3.387	.114	
		.050	5.401	.000		-3.387	.000	
		.050			-51.752			.002
	MIN							
	2	.000			-125.664			.003
		.000	3.776	-.270		-4.564	.169	
		.025	3.776	-.135		-4.564	.085	
		.050	3.776	.000		-4.564	.000	
		.050			-125.664			.003
	MAX							
	3	.000			-50.750			.002
		.000	5.323	-.197		-5.621	.340	
		.025	5.323	-.098		-5.621	.170	
		.050	5.323	.000		-5.621	.000	
		.050			-50.750			.002
	MIN							
	3	.000			-124.661			.003
		.000	3.698	-.266		-6.798	.281	
		.025	3.698	-.133		-6.798	.141	
		.050	3.698	.000		-6.798	.000	
		.050			-124.661			.003
	MAX							
	4	.000			-44.480			.002

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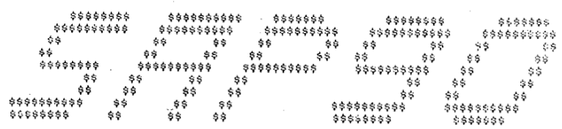
F R A M E E L E M E N T F O R C E S (USING "QUICK" TRUCK RESPONSE CALC)

ELT ID	LOAD ENVE	DIST END1	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	5.905	-.180		-3.036	.250	
		.025	5.905	-.090		-3.036	.125	
		.050	5.905	.000		-3.036	.000	
		.050			-44.480			-.002
	MIN							
	4	.000			-167.666			-.004
		.000	3.197	-.295		-4.998	.152	
		.025	3.197	-.148		-4.998	.076	
		.050	3.197	.000		-4.998	.000	
		.050			-167.666			-.004
	MAX & MIN							
	5	.000			-53.187			.000
		.000	-.001	.000		.025	-.001	
		.025	-.001	.000		.025	-.001	
		.050	-.001	.000		.025	.000	
		.050			-53.187			.000
	MAX & MIN							
	6	.000			-58.312			.000
		.000	-.000	.000		.007	-.000	
		.025	-.000	.000		.007	-.000	
		.050	-.000	.000		.007	.000	
		.050			-58.312			.000
	MAX							
	ALL	.000			-44.480			.000
		.000	7.145	.000		.025	.340	
		.025	7.145	.000		.025	.170	
		.050	7.145	.000		.025	.000	
		.050			-44.480			.000
	MIN							
	ALL	.000			-167.666			-.005
		.000	-.001	-.357		-6.798	-.001	
		.025	-.001	-.179		-6.798	-.001	
		.050	-.001	.000		-6.798	.000	
		.050			-167.666			-.005



STRUCTURAL ANALYSIS PROGRAMS

VERSION 5.40

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REPOSITION 304+615. 3 VANOS 13+17+13 FILE:304615

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 1 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	.2741E-06	.5422E-08	-.2081E-03	-.2628E-03	.6772E-03	-.5475E-08
2	.000000	.000000	-.001857	-.000156	.000579	.000000
3	.000000	.000000	-.002806	-.000057	.000244	.000000
4	.000000	.000000	-.003014	.000022	-.000069	.000000
5	.000000	.000000	-.002646	.000086	-.000261	.000000
6	.000000	.000000	-.002103	.000138	-.000209	.000000
7	.000000	.000000	-.001996	.000173	.000128	.000000
8	.000000	.000000	-.002657	.000181	.000462	.000000
9	.000000	.000000	-.003747	.000177	.000515	.000000
10	.000000	.000000	-.004669	.000172	.000320	.000000
11	.000000	.000000	-.005020	.000171	.000000	.000000
22	.2989E-06	.3929E-08	-.9624E-03	-.1642E-03	.5843E-03	-.4233E-08
23	.000000	.000000	-.002147	-.000080	.000453	.000000
24	.000000	.000000	-.002862	-.000022	.000182	.000000
25	.000000	.000000	-.002931	.000018	-.000110	.000000
26	.000000	.000000	-.002444	.000054	-.000299	.000000
27	.000000	.000000	-.001771	.000100	-.000253	.000000
28	.000000	.000000	-.001552	.000146	.000117	.000000
29	.000000	.000000	-.002259	.000113	.000482	.000000
30	.000000	.000000	-.003405	.000082	.000524	.000000
31	.000000	.000000	-.004352	.000068	.000322	.000000
32	.000000	.000000	-.004711	.000063	.000000	.000000
43	.000000	.000000	-.001209	.000000	.000514	.000000
44	.000000	.000000	-.002245	.000000	.000414	.000000
45	.000000	.000000	-.002883	.000000	.000161	.000000
46	.000000	.000000	-.002905	.000000	-.000124	.000000
47	.000000	.000000	-.002373	.000000	-.000317	.000000
48	.000000	.000000	-.001614	.000000	-.000297	.000000
49	.000000	.000000	-.001226	.000000	.000111	.000000
50	.000000	.000000	-.002084	.000000	.000522	.000000
51	.000000	.000000	-.003300	.000000	.000536	.000000
52	.000000	.000000	-.004268	.000000	.000325	.000000
53	.000000	.000000	-.004631	.000000	.000000	.000000
64	.2989E-06	-.3929E-08	-.9624E-03	.1642E-03	.5843E-03	.4233E-08
65	.000000	.000000	-.002147	.000080	.000453	.000000
66	.000000	.000000	-.002862	.000022	.000182	.000000
67	.000000	.000000	-.002931	-.000018	-.000110	.000000
68	.000000	.000000	-.002444	-.000054	-.000299	.000000
69	.000000	.000000	-.001771	-.000100	-.000253	.000000
70	.000000	.000000	-.001552	-.000146	.000117	.000000
71	.000000	.000000	-.002259	-.000113	.000482	.000000
72	.000000	.000000	-.003405	-.000082	.000524	.000000
73	.000000	.000000	-.004352	-.000068	.000322	.000000
74	.000000	.000000	-.004711	-.000063	.000000	.000000
85	.2741E-06	-.5422E-08	-.2081E-03	.2628E-03	.6772E-03	.5475E-08
86	.000000	.000000	-.001857	.000156	.000579	.000000
87	.000000	.000000	-.002806	.000057	.000244	.000000
88	.000000	.000000	-.003014	-.000022	-.000069	.000000
89	.000000	.000000	-.002646	-.000086	-.000261	.000000
90	.000000	.000000	-.002103	-.000138	-.000209	.000000

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REPOSITION 304+615. 3 VANOS 13+17+13 FILE:304615

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 1 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
91	.000000	.000000	-.001996	-.000173	.000128	.000000
92	.000000	.000000	-.002657	-.000181	.000462	.000000
93	.000000	.000000	-.003747	-.000177	.000515	.000000
94	.000000	.000000	-.004669	-.000172	.000320	.000000
95	.000000	.000000	-.005020	-.000171	.000000	.000000

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J O I N T D I S P L A C E M E N T S

LOAD CONDITION 2 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	.1087E-07	.3712E-09	-.1814E-04	-.1095E-04	.4450E-04	-.3748E-09
2	.1087E-07	.1031E-09	-.1212E-03	-.3511E-05	.3808E-04	-.3304E-09
3	.1068E-07	.9382E-10	-.1042E-03	.3278E-05	.1671E-04	-.3282E-09
4	.1013E-07	.1675E-09	-.2002E-03	.8559E-05	.3114E-05	-.4118E-09
5	.1713E-07	.2529E-09	-.1796E-03	.1278E-04	-.1531E-04	-.5757E-09
6	.1556E-07	.2526E-09	-.1476E-03	.1621E-04	-.1223E-04	-.8100E-09
7	.1337E-07	-.2506E-10	-.1426E-03	.1851E-04	.8745E-05	-.9736E-09
8	.1069E-07	-.3168E-09	-.1855E-03	.1906E-04	.2956E-04	-.7548E-09
9	.7476E-08	-.3421E-09	-.2548E-03	.1885E-04	.3270E-04	-.4638E-09
10	.3845E-08	-.2969E-09	-.3133E-03	.1859E-04	.2027E-04	-.2164E-09
11	.0000E+00	-.2757E-09	-.3356E-03	.1849E-04	.0000E+00	.0000E+00
22	.2046E-07	.2690E-09	-.5004E-04	-.7381E-05	.3798E-04	-.2879E-09
23	.2050E-07	.6496E-10	-.1270E-03	-.2437E-05	.2969E-04	-.2657E-09
24	.2052E-07	.6172E-10	-.1746E-03	.1127E-05	.1264E-04	-.2908E-09
25	.2050E-07	.1150E-09	-.1814E-03	.3596E-05	-.5812E-05	-.4094E-09
26	.2033E-07	.1880E-09	-.1532E-03	.5874E-05	-.1777E-04	-.6547E-09
27	.1979E-07	.2238E-09	-.1128E-03	.8749E-05	-.1506E-04	-.1120E-08
28	.1831E-07	-.1248E-10	-.1007E-03	.1164E-04	.7976E-05	-.1839E-08
29	.1463E-07	-.2627E-09	-.1463E-03	.9612E-05	.3079E-04	-.1090E-08
30	.1005E-07	-.2435E-09	-.2192E-03	.7679E-05	.3326E-04	-.5712E-09
31	.5089E-08	-.1952E-09	-.2792E-03	.6744E-05	.2041E-04	-.2461E-09
32	.0000E+00	-.1769E-09	-.3019E-03	.6483E-05	.0000E+00	.0000E+00
43	.2131E-07	.0000E+00	-.6186E-04	.0000E+00	.3358E-04	.0000E+00
44	.2137E-07	.0000E+00	-.1298E-03	.0000E+00	.2727E-04	.0000E+00
45	.2166E-07	.0000E+00	-.1726E-03	.0000E+00	.1136E-04	.0000E+00
46	.2228E-07	.0000E+00	-.1766E-03	.0000E+00	-.6695E-05	.0000E+00
47	.2344E-07	.0000E+00	-.1455E-03	.0000E+00	-.1892E-04	.0000E+00
48	.2557E-07	.0000E+00	-.9979E-04	.0000E+00	-.1783E-04	.0000E+00
49	.2954E-07	.0000E+00	-.7699E-04	.0000E+00	.7632E-05	.0000E+00
50	.2034E-07	.0000E+00	-.1321E-03	.0000E+00	.3327E-04	.0000E+00
51	.1218E-07	.0000E+00	-.2094E-03	.0000E+00	.3399E-04	.0000E+00
52	.6263E-08	.0000E+00	-.2707E-03	.0000E+00	.2058E-04	.0000E+00
53	.0000E+00	.0000E+00	-.2937E-03	.0000E+00	.0000E+00	.0000E+00
64	.2046E-07	-.2690E-09	-.5004E-04	.7381E-05	.3798E-04	.2879E-09
65	.2050E-07	-.6496E-10	-.1270E-03	.2437E-05	.2969E-04	.2657E-09
66	.2052E-07	-.6172E-10	-.1746E-03	-.1127E-05	.1264E-04	.2908E-09
67	.2050E-07	-.1150E-09	-.1814E-03	-.3596E-05	-.5812E-05	.4094E-09
68	.2033E-07	-.1880E-09	-.1532E-03	-.5874E-05	-.1777E-04	.6547E-09
69	.1979E-07	-.2238E-09	-.1128E-03	-.8749E-05	-.1506E-04	.1120E-08
70	.1831E-07	.1248E-10	-.1007E-03	-.1164E-04	.7976E-05	.1839E-08
71	.1463E-07	.2627E-09	-.1463E-03	-.9612E-05	.3079E-04	.1090E-08
72	.1005E-07	.2435E-09	-.2192E-03	-.7679E-05	.3326E-04	.5712E-09
73	.5089E-08	.1952E-09	-.2792E-03	-.6744E-05	.2041E-04	.2461E-09
74	.0000E+00	.1769E-09	-.3019E-03	-.6483E-05	.0000E+00	.0000E+00
85	.1077E-07	-.3712E-09	-.1814E-04	.1095E-04	.4450E-04	.3748E-09
86	.1087E-07	-.1031E-09	-.1212E-03	.3511E-05	.3808E-04	.3304E-09
87	.1068E-07	-.9382E-10	-.1042E-03	-.3278E-05	.1671E-04	.3282E-09
88	.1013E-07	-.1675E-09	-.2002E-03	-.8559E-05	-.3114E-05	.4118E-09
89	.1713E-07	-.2529E-09	-.1796E-03	-.1278E-04	-.1531E-04	.5757E-09
90	.1556E-07	-.2526E-09	-.1476E-03	-.1621E-04	-.1223E-04	.8100E-09

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 2 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
91	.1337E-07	.2506E-10	-.1426E-03	-.1851E-04	.8745E-05	.9736E-09
92	.1069E-07	.3168E-09	-.1855E-03	-.1906E-04	.2956E-04	.7548E-09
93	.7476E-08	.3421E-09	-.2548E-03	-.1885E-04	.3270E-04	.4638E-09
94	.3845E-08	.2969E-09	-.3133E-03	-.1859E-04	.2027E-04	.2164E-09
95	.0000E+00	.2757E-09	-.3356E-03	-.1849E-04	.0000E+00	.0000E+00

PROGRAM:SAP90/FILE:304615.SOL

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 3 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	.1031E-06	.2039E-08	-.7942E-04	.3304E-04	.2212E-03	-.2059E-08
2	.1037E-06	.5665E-09	-.5928E-03	.7665E-04	.1896E-03	-.1815E-08
3	.1026E-06	.5154E-09	-.9144E-03	.1143E-03	.9181E-04	-.1803E-08
4	.000000	.000000	-.001024	.000142	.000004	.000000
5	.9409E-07	.1389E-08	-.9705E-03	.1641E-03	-.5151E-04	-.3163E-08
6	.8550E-07	.1388E-08	-.8622E-03	.1812E-03	-.4070E-04	-.4450E-08
7	.7344E-07	-.1377E-09	-.8648E-03	.1927E-03	.4750E-04	-.5349E-08
8	.000000	.000000	-.001069	.000196	.000136	.000000
9	.000000	.000000	-.001383	.000196	.000147	.000000
10	.000000	.000000	-.001645	.000195	.000090	.000000
11	.000000	.000000	-.001744	.000195	.000000	.000000
22	.1124E-06	.1478E-08	-.6829E-04	.8286E-05	.1824E-03	-.1592E-08
23	.1126E-06	.3519E-09	-.4385E-03	.2467E-04	.1462E-03	-.1459E-08
24	.1127E-06	.3391E-09	-.6818E-03	.3854E-04	.7177E-04	-.1598E-08
25	.1126E-06	.6320E-09	-.7468E-03	.4877E-04	-.9577E-05	-.2249E-08
26	.1117E-06	.1035E-08	-.6560E-03	.5860E-04	-.6329E-04	-.3597E-08
27	.1087E-06	.1230E-08	-.5086E-03	.7119E-04	-.5375E-04	-.6155E-08
28	.1006E-06	-.6857E-10	-.4783E-03	.8390E-04	.4371E-04	-.1007E-07
29	.8040E-07	-.1443E-08	-.6932E-03	.7524E-04	.1406E-03	-.5986E-08
30	.000000	.000000	-.001022	.000067	.000149	.000000
31	.000000	.000000	-.001290	.000063	.000091	.000000
32	.000000	.000000	-.001391	.000062	.000000	.000000
43	.1171E-06	.0000E+00	-.7154E-04	.0000E+00	.1639E-03	.0000E+00
44	.1174E-06	.0000E+00	-.4049E-03	.0000E+00	.1365E-03	.0000E+00
45	.1190E-06	.0000E+00	-.6316E-03	.0000E+00	.6654E-04	.0000E+00
46	.1224E-06	.0000E+00	-.6846E-03	.0000E+00	-.1235E-04	.0000E+00
47	.1288E-06	.0000E+00	-.5817E-03	.0000E+00	-.6831E-04	.0000E+00
48	.1405E-06	.0000E+00	-.4109E-03	.0000E+00	-.6583E-04	.0000E+00
49	.1624E-06	.0000E+00	-.3341E-03	.0000E+00	.4193E-04	.0000E+00
50	.1118E-06	.0000E+00	-.5900E-03	.0000E+00	.1513E-03	.0000E+00
51	.7075E-07	.0000E+00	-.9378E-03	.0000E+00	.1522E-03	.0000E+00
52	.000000	.000000	-.001211	.000000	.000092	.000000
53	.000000	.000000	-.001314	.000000	.000000	.000000
64	.1124E-06	-.1478E-08	-.6829E-04	-.8286E-05	.1824E-03	.1592E-08
65	.1126E-06	-.3519E-09	-.4385E-03	-.2467E-04	.1462E-03	.1459E-08
66	.1127E-06	-.3391E-09	-.6818E-03	-.3854E-04	.7177E-04	.1598E-08
67	.1126E-06	-.6320E-09	-.7468E-03	-.4877E-04	-.9577E-05	.2249E-08
68	.1117E-06	-.1035E-08	-.6560E-03	-.5860E-04	-.6329E-04	.3597E-08
69	.1087E-06	-.1230E-08	-.5086E-03	-.7119E-04	-.5375E-04	.6155E-08
70	.1006E-06	.6857E-10	-.4783E-03	-.8390E-04	.4371E-04	.1007E-07
71	.8040E-07	.1443E-08	-.6932E-03	-.7524E-04	.1406E-03	.5986E-08
72	.000000	.000000	-.001022	-.000067	.000149	.000000
73	.000000	.000000	-.001290	-.000063	.000091	.000000
74	.000000	.000000	-.001391	-.000062	.000000	.000000
85	.1031E-06	-.2039E-08	-.7942E-04	-.3304E-04	.2212E-03	.2059E-08
86	.1037E-06	-.5665E-09	-.5928E-03	-.7665E-04	.1896E-03	.1815E-08
87	.1026E-06	-.5154E-09	-.9144E-03	-.1143E-03	.9181E-04	.1803E-08
88	.000000	.000000	-.001024	-.000142	.000004	.000000
89	.9409E-07	-.1389E-08	-.9705E-03	-.1641E-03	-.5151E-04	.3163E-08
90	.8550E-07	-.1388E-08	-.8622E-03	-.1812E-03	-.4070E-04	.4450E-08

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REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 3 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
91	.7344E-07	.1377E-09	-.8648E-03	-.1927E-03	.4750E-04	.5349E-08
92	.000000	.000000	-.001069	-.000196	.000136	.000000
93	.000000	.000000	-.001383	-.000196	.000147	.000000
94	.000000	.000000	-.001645	-.000195	.000090	.000000
95	.000000	.000000	-.001744	-.000195	.000000	.000000

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 4 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	.4675E-04	.4008E-03	.2819E-05	-.6564E-06	-.2774E-05	.1397E-04
2	.4643E-04	.4354E-03	.1115E-04	-.1988E-05	-.3156E-05	.1303E-04
3	.4466E-04	.4656E-03	.1822E-04	-.3403E-05	-.2612E-05	.1191E-04
4	.4157E-04	.4931E-03	.2455E-04	-.4695E-05	-.2491E-05	.1087E-04
5	.3749E-04	.5178E-03	.3068E-04	-.5837E-05	-.2427E-05	.9696E-05
6	.3253E-04	.5395E-03	.3640E-04	-.6797E-05	-.2130E-05	.8359E-05
7	.2684E-04	.5577E-03	.4073E-04	-.7552E-05	-.1256E-05	.6876E-05
8	.2066E-04	.5720E-03	.4266E-04	-.8144E-05	-.3845E-06	.5307E-05
9	.1404E-04	.5825E-03	.4320E-04	-.8537E-05	-.2769E-07	.3605E-05
10	.7096E-05	.5889E-03	.4334E-04	-.8750E-05	-.1458E-07	.1821E-05
11	.0000E+00	.5911E-03	.4337E-04	-.8818E-05	.0000E+00	.0000E+00
22	.2236E-04	.4037E-03	.2505E-05	-.1308E-05	-.1754E-05	.1257E-04
23	.2234E-04	.4350E-03	.6320E-05	-.2645E-05	-.1403E-05	.1209E-04
24	.2164E-04	.4648E-03	.9626E-05	-.4085E-05	-.1286E-05	.1141E-04
25	.2027E-04	.4923E-03	.1285E-04	-.5477E-05	-.1288E-05	.1052E-04
26	.1834E-04	.5171E-03	.1614E-04	-.6815E-05	-.1315E-05	.9404E-05
27	.1595E-04	.5387E-03	.1944E-04	-.8011E-05	-.1226E-05	.8108E-05
28	.1317E-04	.5569E-03	.2209E-04	-.8849E-05	-.6263E-06	.6686E-05
29	.1015E-04	.5713E-03	.2250E-04	-.9371E-05	-.2580E-07	.5163E-05
30	.6894E-05	.5810E-03	.2242E-04	-.9544E-05	.6866E-07	.3506E-05
31	.3486E-05	.5882E-03	.2227E-04	-.9581E-05	.3914E-07	.1771E-05
32	.0000E+00	.5903E-03	.2222E-04	-.9585E-05	.0000E+00	.0000E+00
43	-.1592E-07	.4046E-03	-.1615E-10	-.1996E-05	.1512E-10	.1243E-04
44	-.1503E-07	.4349E-03	-.4803E-10	-.2953E-05	.1385E-10	.1185E-04
45	-.1171E-07	.4644E-03	-.7432E-10	-.4263E-05	.9741E-11	.1134E-04
46	-.8324E-08	.4920E-03	-.8862E-10	-.5665E-05	.2729E-11	.1049E-04
47	-.5704E-08	.5168E-03	-.8479E-10	-.7163E-05	-.7030E-11	.9302E-05
48	-.3812E-08	.5384E-03	-.5711E-10	-.8834E-05	-.1969E-10	.8085E-05
49	-.2479E-08	.5565E-03	.3619E-11	-.1101E-04	-.4011E-10	.6667E-05
50	-.1596E-08	.5710E-03	.7173E-10	-.1021E-04	-.2657E-10	.5162E-05
51	-.9579E-09	.5815E-03	.1183E-09	-.9899E-05	-.1764E-10	.3502E-05
52	-.4498E-09	.5879E-03	.1465E-09	-.9762E-05	-.8882E-11	.1769E-05
53	.0000E+00	.5900E-03	.1559E-09	-.9723E-05	.0000E+00	.0000E+00
64	-.2241E-04	.4032E-03	-.2505E-05	-.1308E-05	.1754E-05	.1257E-04
65	-.2237E-04	.4345E-03	-.6320E-05	-.2645E-05	.1403E-05	.1204E-04
66	-.2165E-04	.4643E-03	-.9627E-05	-.4085E-05	.1286E-05	.1140E-04
67	-.2028E-04	.4918E-03	-.1285E-04	-.5477E-05	.1288E-05	.1051E-04
68	-.1835E-04	.5166E-03	-.1614E-04	-.6815E-05	.1315E-05	.9402E-05
69	-.1595E-04	.5383E-03	-.1944E-04	-.8011E-05	.1226E-05	.8106E-05
70	-.1317E-04	.5568E-03	-.2209E-04	-.8849E-05	.6262E-06	.6685E-05
71	-.1015E-04	.5708E-03	-.2258E-04	-.9371E-05	.2575E-07	.5163E-05
72	-.6895E-05	.5813E-03	-.2242E-04	-.9544E-05	-.6870E-07	.3505E-05
73	-.3486E-05	.5877E-03	-.2227E-04	-.9581E-05	-.3916E-07	.1771E-05
74	.0000E+00	.5898E-03	-.2222E-04	-.9585E-05	.0000E+00	.0000E+00
85	-.4664E-04	.3999E-03	-.2819E-05	-.6564E-06	.2774E-05	.1364E-04
86	-.4634E-04	.4341E-03	-.1115E-04	-.1988E-05	.3156E-05	.1294E-04
87	-.4455E-04	.4642E-03	-.1822E-04	-.3403E-05	.2612E-05	.1189E-04
88	-.4154E-04	.4917E-03	-.2455E-04	-.4695E-05	.2491E-05	.1087E-04
89	-.3748E-04	.5165E-03	-.3068E-04	-.5837E-05	.2427E-05	.9693E-05
90	-.3252E-04	.5382E-03	-.3641E-04	-.6797E-05	.2130E-05	.8348E-05

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 4 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
91	-.2683E-04	.5564E-03	-.4073E-04	-.7552E-05	.1256E-05	.6878E-05
92	-.2066E-04	.5707E-03	-.4266E-04	-.8144E-05	.3845E-06	.5307E-05
93	-.1403E-04	.5812E-03	-.4320E-04	-.8537E-05	.2765E-07	.3605E-05
94	-.7095E-05	.5876E-03	-.4334E-04	-.8750E-05	.1456E-07	.1821E-05
95	.0000E+00	.5898E-03	-.4337E-04	-.8818E-05	.0000E+00	.0000E+00

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REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 5 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	.1813E-05	.1213E-04	.1683E-04	-.4537E-05	-.1653E-04	.5083E-06
2	.1807E-05	.1338E-04	.6662E-04	-.1284E-04	-.1887E-04	.4902E-06
3	.1749E-05	.1459E-04	.1091E-03	-.2186E-04	-.1565E-04	.4644E-06
4	.1644E-05	.1563E-04	.1472E-03	-.3048E-04	-.1500E-04	.4380E-06
5	.1492E-05	.1666E-04	.1848E-03	-.3072E-04	-.1510E-04	.4020E-06
6	.1293E-05	.1760E-04	.2232E-03	-.4661E-04	-.1566E-04	.3480E-06
7	.1052E-05	.1838E-04	.2623E-03	-.5379E-04	-.1453E-04	.2694E-06
8	.7937E-06	.1888E-04	.2936E-03	-.5962E-04	-.1119E-04	.1861E-06
9	.5295E-06	.1920E-04	.3164E-03	-.6391E-04	-.7536E-05	.1185E-06
10	.2647E-06	.1930E-04	.3302E-03	-.6653E-04	-.3779E-05	.5827E-07
11	.0000E+00	.1944E-04	.3340E-03	-.6741E-04	.0000E+00	.0000E+00
22	.8783E-06	.1222E-04	.1435E-04	-.7694E-05	-.1039E-04	.4750E-06
23	.8772E-06	.1339E-04	.3690E-04	-.1556E-04	-.8276E-05	.4609E-06
24	.8524E-06	.1453E-04	.5628E-04	-.2409E-04	-.7500E-05	.4466E-06
25	.8031E-06	.1563E-04	.7487E-04	-.3238E-04	-.7396E-05	.4232E-06
26	.7300E-06	.1666E-04	.9357E-04	-.4062E-04	-.7511E-05	.3888E-06
27	.6340E-06	.1760E-04	.1127E-03	-.4895E-04	-.7711E-05	.3394E-06
28	.5168E-06	.1840E-04	.1320E-03	-.5713E-04	-.7302E-05	.2620E-06
29	.3902E-06	.1888E-04	.1485E-03	-.6382E-04	-.5856E-05	.1805E-06
30	.2612E-06	.1920E-04	.1606E-03	-.6882E-04	-.3934E-05	.1167E-06
31	.1309E-06	.1938E-04	.1678E-03	-.7186E-04	-.1960E-05	.5781E-07
32	.0000E+00	.1944E-04	.1703E-03	-.7289E-04	.0000E+00	.0000E+00
43	.0000E+00	.1226E-04	.0000E+00	-.1152E-04	.0000E+00	.4718E-06
44	.0000E+00	.1339E-04	.0000E+00	-.1715E-04	.0000E+00	.4553E-06
45	.0000E+00	.1453E-04	.0000E+00	-.2479E-04	.0000E+00	.4447E-06
46	.0000E+00	.1563E-04	.0000E+00	-.3266E-04	.0000E+00	.4223E-06
47	.0000E+00	.1666E-04	.0000E+00	-.4068E-04	.0000E+00	.3889E-06
48	.0000E+00	.1761E-04	.0000E+00	-.4864E-04	.0000E+00	.3430E-06
49	.0000E+00	.1844E-04	.0000E+00	-.5585E-04	.0000E+00	.2612E-06
50	.0000E+00	.1888E-04	.0000E+00	-.6373E-04	.0000E+00	.1759E-06
51	.0000E+00	.1920E-04	.0000E+00	-.6918E-04	.0000E+00	.1156E-06
52	.0000E+00	.1938E-04	.0000E+00	-.7240E-04	.0000E+00	.5759E-07
53	.0000E+00	.1944E-04	.0000E+00	-.7346E-04	.0000E+00	.0000E+00
64	-.8783E-06	.1222E-04	-.1435E-04	-.7694E-05	.1039E-04	.4750E-06
65	-.8772E-06	.1339E-04	-.3690E-04	-.1556E-04	.8276E-05	.4609E-06
66	-.8524E-06	.1453E-04	-.5628E-04	-.2409E-04	.7500E-05	.4466E-06
67	-.8031E-06	.1563E-04	-.7487E-04	-.3238E-04	.7396E-05	.4232E-06
68	-.7300E-06	.1666E-04	-.9357E-04	-.4062E-04	.7511E-05	.3888E-06
69	-.6340E-06	.1760E-04	-.1127E-03	-.4895E-04	.7711E-05	.3394E-06
70	-.5168E-06	.1840E-04	-.1320E-03	-.5713E-04	.7302E-05	.2620E-06
71	-.3902E-06	.1888E-04	-.1485E-03	-.6382E-04	.5856E-05	.1805E-06
72	-.2612E-06	.1920E-04	-.1606E-03	-.6882E-04	.3934E-05	.1167E-06
73	-.1309E-06	.1938E-04	-.1678E-03	-.7186E-04	.1960E-05	.5781E-07
74	.0000E+00	.1944E-04	-.1703E-03	-.7289E-04	.0000E+00	.0000E+00
85	-.1813E-05	.1213E-04	-.1683E-04	-.4537E-05	.1653E-04	.5083E-06
86	-.1807E-05	.1338E-04	-.6662E-04	-.1284E-04	.1887E-04	.4902E-06
87	-.1749E-05	.1453E-04	-.1091E-03	-.2186E-04	.1565E-04	.4644E-06
88	-.1644E-05	.1563E-04	-.1472E-03	-.3048E-04	.1500E-04	.4380E-06
89	-.1492E-05	.1666E-04	-.1848E-03	-.3072E-04	.1510E-04	.4020E-06
90	-.1293E-05	.1760E-04	-.2232E-03	-.4661E-04	.1566E-04	.3480E-06

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 5 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
91	-.1052E-05	.1838E-04	-.2623E-03	-.5379E-04	.1453E-04	.2694E-06
92	-.7937E-06	.1888E-04	-.2936E-03	-.5962E-04	.1119E-04	.1861E-06
93	-.5295E-06	.1920E-04	-.3164E-03	-.6391E-04	.7536E-05	.1185E-06
94	-.2647E-06	.1938E-04	-.3302E-03	-.6653E-04	.3779E-05	.5827E-07
95	.0000E+00	.1944E-04	-.3340E-03	-.6741E-04	.0000E+00	.0000E+00

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 6 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	.3162E-03	.1167E-05	.2521E-06	.3492E-06	-.1468E-05	-.1701E-05
2	.3196E-03	-.5422E-07	.3505E-05	.2747E-06	-.1365E-05	-.1059E-05
3	.3221E-03	-.2261E-06	.6086E-05	.2075E-06	-.9445E-06	-.5685E-06
4	.3240E-03	-.1564E-06	.7514E-05	.1610E-06	-.3109E-06	-.3326E-06
5	.3255E-03	-.8320E-07	.7285E-05	.1292E-06	.5753E-06	-.2211E-06
6	.3267E-03	-.3053E-07	.4878E-05	.9431E-07	.1645E-05	-.1700E-06
7	.3277E-03	.142/E-07	.4940E-06	.2279E-07	.2234E-05	-.1582E-06
8	.3285E-03	.5623E-07	-.3216E-05	-.3408E-07	.111/E-05	-.1813E-06
9	.3291E-03	.9406E-07	-.4128E-05	-.3618E-07	-.2179E-06	-.2377E-06
10	.3294E-03	.9776E-07	-.2665E-05	-.1956E-07	-.1065E-05	-.3235E-06
11	.3296E-03	.0000E+00	.0000E+00	.0000E+00	-.1344E-05	-.3892E-06
22	.3242E-03	.8011E-06	.1064E-05	.2078E-06	-.1398E-05	-.1052E-05
23	.3245E-03	-.2095E-07	.4018E-05	.1303E-06	-.1264E-05	-.6625E-06
24	.3251E-03	-.1239E-06	.6430E-05	.8647E-07	-.8984E-06	-.3779E-06
25	.3259E-03	-.8640E-07	.7707E-05	.7286E-07	-.2926E-06	-.2366E-06
26	.3268E-03	-.4630E-07	.7560E-05	.8597E-07	.5632E-06	-.1648E-06
27	.3277E-03	-.1629E-07	.5190E-05	.1039E-06	.1652E-05	-.1319E-06
28	.3286E-03	.1168E-07	.4808E-06	-.2445E-07	.2497E-05	-.1296E-06
29	.3296E-03	.4043E-07	-.3493E-05	-.1245E-06	.1101E-05	-.1729E-06
30	.3304E-03	.7105E-07	-.4286E-05	-.7589E-07	-.2551E-06	-.2648E-06
31	.3312E-03	.8607E-07	-.2725E-05	-.3059E-07	-.1078E-05	-.4399E-06
32	.3316E-03	.0000E+00	.0000E+00	.0000E+00	-.1349E-05	-.7051E-06
43	.3258E-03	.0000E+00	.135/E-05	.0000E+00	-.1337E-05	.0000E+00
44	.3258E-03	.0000E+00	.4180E-05	.0000E+00	-.1230E-05	.0000E+00
45	.3261E-03	.0000E+00	.6532E-05	.0000E+00	-.8835E-06	.0000E+00
46	.3266E-03	.0000E+00	.7873E-05	.0000E+00	-.2934E-06	.0000E+00
47	.3273E-03	.0000E+00	.7693E-05	.0000E+00	.5240E-06	.0000E+00
48	.3282E-03	.0000E+00	.5522E-05	.0000E+00	.1596E-05	.0000E+00
49	.3291E-03	.0000E+00	.4048E-06	.0000E+00	.3560E-05	.0000E+00
50	.3303E-03	.0000E+00	-.3878E-05	.0000E+00	.1020E-05	.0000E+00
51	.3317E-03	.0000E+00	-.4412E-05	.0000E+00	-.3094E-06	.0000E+00
52	.3334E-03	.0000E+00	-.2761E-05	.0000E+00	-.1092E-05	.0000E+00
53	.3359E-03	.0000E+00	.0000E+00	.0000E+00	-.1356E-05	.0000E+00
64	.3242E-03	-.8011E-06	.1064E-05	-.2078E-06	-.1398E-05	.1052E-05
65	.3245E-03	.2095E-07	.4018E-05	-.1303E-06	-.1264E-05	.6625E-06
66	.3251E-03	.1239E-06	.6430E-05	-.8647E-07	-.8984E-06	.3779E-06
67	.3259E-03	.8648E-07	.7707E-05	-.7286E-07	-.2926E-06	.2366E-06
68	.3268E-03	.4630E-07	.7560E-05	-.8597E-07	.5632E-06	.1648E-06
69	.3277E-03	.1629E-07	.5190E-05	-.1039E-06	.1652E-05	.1319E-06
70	.3286E-03	-.1168E-07	.4808E-06	.2445E-07	.2497E-05	.1296E-06
71	.3296E-03	-.4043E-07	-.3493E-05	.1245E-06	.1101E-05	.1729E-06
72	.3304E-03	-.7105E-07	-.4286E-05	.7589E-07	-.2551E-06	.2648E-06
73	.3312E-03	-.8607E-07	-.2725E-05	.3059E-07	-.1078E-05	.4399E-06
74	.3316E-03	.0000E+00	.0000E+00	.0000E+00	-.1349E-05	.7051E-06
85	.3162E-03	-.1167E-05	.2521E-06	-.3492E-06	-.1468E-05	.1701E-05
86	.3196E-03	-.5422E-07	.3505E-05	-.2747E-06	-.1365E-05	.1059E-05
87	.3221E-03	.2261E-06	.6086E-05	-.2075E-06	-.9445E-06	.5685E-06
88	.3240E-03	.1564E-06	.7514E-05	-.1610E-06	-.3109E-06	.3326E-06
89	.3255E-03	.8320E-07	.7285E-05	-.1292E-06	.5753E-06	.2211E-06
90	.3267E-03	.3053E-07	.4878E-05	-.9431E-07	.1645E-05	.1700E-06

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 6 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
91	.3277E-03	-.1427E-07	.4940E-06	-.2279E-07	.2234E-05	.1582E-06
92	.3285E-03	-.5623E-07	-.3216E-05	.3408E-07	.111/E-05	.1813E-06
93	.3291E-03	-.9406E-07	-.4128E-05	.3618E-07	-.2179E-06	.2377E-06
94	.3294E-03	-.9776E-07	-.2665E-05	.1956E-07	-.1065E-05	.3235E-06
95	.3296E-03	.0000E+00	.0000E+00	.0000E+00	-.1344E-05	.3892E-06

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REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 7 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	.1039E-05	.2055E-07	.3390E-04	.5448E-04	-.1627E-03	-.2075E-07
2	.1045E-05	.5708E-08	.3948E-03	-.4458E-04	-.1481E-03	.1829E-07
3	.1034E-05	-.5194E-08	.6633E-03	-.4084E-04	-.9070E-04	.1817E-07
4	.1005E-05	-.9273E-08	.7742E-03	-.3956E-04	-.4993E-05	.2280E-07
5	.9481E-06	-.1400E-07	.6621E-03	-.4279E-04	.1137E-03	.910/E-07
6	.8615E-06	-.1399E-07	.2491E-03	-.5021E-04	.2701E-03	.4484E-07
7	.7400E-06	-.1387E-08	-.5414E-03	.5935E-04	.4476E-03	-.5390E-07
8	.000001	.000000	-.001635	.000064	.000553	.000000
9	.000000	.000000	-.002788	.000063	.000503	.000000
10	.000000	.000000	-.003668	.000061	.000301	.000000
11	.000000	.000000	-.003998	.000060	.000000	.000000
22	.1133E-05	.1489E-07	.1554E-03	.3110E-04	-.1536E-03	-.1604E-07
23	.1135E-05	.3546E-08	.4785E-03	.2038E-04	-.1357E-03	-.1471E-07
24	.1136E-05	.3417E-08	.7285E-03	.1490E-04	-.8644E-04	-.1610E-07
25	.1135E-05	.6368E-08	.8366E-03	.1404E-04	-.5118E-05	-.2266E-07
26	.1126E-05	.1041E-07	.7330E-03	.1769E-04	.1089E-03	-.3624E-07
27	.1096E-05	.1239E-07	.3445E-03	.2732E-04	.2574E-03	-.6202E-07
28	.1013E-05	-.6909E-09	-.4059E-03	.4111E-04	.4358E-03	-.1015E-06
29	.000001	.000000	-.001497	.000035	.000554	.000000
30	.000001	.000000	-.002664	.000027	.000504	.000000
31	.000000	.000000	-.003557	.000023	.000302	.000000
32	.000000	.000000	-.003894	.000021	.000000	.000000
43	.1130E-05	.0000E+00	.1985E-03	.0000E+00	-.1454E-03	.0000E+00
44	.1183E-05	.0000E+00	.5037E-03	.0000E+00	-.1312E-03	.0000E+00
45	.1179E-05	.0000E+00	.7461E-03	.0000E+00	-.8477E-04	.0000E+00
46	.1233E-05	.0000E+00	.8531E-03	.0000E+00	-.5331E-05	.0000E+00
47	.1298E-05	.0000E+00	.7540E-03	.0000E+00	.1059E-03	.0000E+00
48	.1416E-05	.0000E+00	.3836E-03	.0000E+00	.2461E-03	.0000E+00
49	.1637E-05	.0000E+00	-.3175E-03	.0000E+00	.4225E-03	.0000E+00
50	.000001	.000000	-.001441	.000000	.000563	.000000
51	.000001	.000000	-.002628	.000000	.000507	.000000
52	.000000	.000000	-.003528	.000000	.000303	.000000
53	.000000	.000000	-.003869	.000000	.000000	.000000
64	.1133E-05	-.1489E-07	.1554E-03	-.3110E-04	-.1536E-03	.1604E-07
65	.1135E-05	-.3546E-08	.4785E-03	-.2038E-04	-.1357E-03	.1471E-07
66	.1136E-05	-.3417E-08	.7285E-03	-.1490E-04	-.8644E-04	.1610E-07
67	.1135E-05	-.6368E-08	.8366E-03	-.1404E-04	-.5118E-05	.2266E-07
68	.1126E-05	-.1041E-07	.7330E-03	-.1769E-04	.1089E-03	.3624E-07
69	.1096E-05	-.1239E-07	.3445E-03	-.2732E-04	.2574E-03	.6202E-07
70	.1013E-05	.6909E-09	-.4059E-03	-.4111E-04	.4358E-03	.1015E-06
71	.000001	.000000	-.001497	-.000035	.000554	.000000
72	.000001	.000000	-.002664	-.000027	.000504	.000000
73	.000000	.000000	-.003557	-.000023	.000302	.000000
74	.000000	.000000	-.003894	-.000021	.000000	.000000
85	.1039E-05	-.2055E-07	.3390E-04	-.5448E-04	-.1627E-03	.2075E-07
86	.1045E-05	-.5708E-08	.3948E-03	-.4458E-04	-.1481E-03	.1829E-07
87	.1034E-05	-.5194E-08	.6633E-03	-.4084E-04	-.9070E-04	.1817E-07
88	.1005E-05	-.9273E-08	.7742E-03	-.3956E-04	-.4993E-05	.2280E-07
89	.9481E-06	-.1400E-07	.6621E-03	-.4279E-04	.1137E-03	.910/E-07
90	.8615E-06	-.1399E-07	.2491E-03	-.5021E-04	.2701E-03	.4484E-07

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REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 7 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
91	.7400E-06	.1387E-08	-.5414E-03	-.5935E-04	.4476E-03	.5390E-07
92	.000001	.000000	-.001635	-.000064	.000553	.000000
93	.000000	.000000	-.002788	-.000063	.000503	.000000
94	.000000	.000000	-.003668	-.000061	.000301	.000000
95	.000000	.000000	-.003998	-.000060	.000000	.000000

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

REACTIONS AND APPLIED FORCES

LOAD CONDITION 1 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	-.0049	-.0001	43.5609	.0000	-.0002	.0000
1049	.9194	.0000	306.3282	.0000	3.3157	.0000
1085	-.0049	.0001	43.5609	.0000	-.0002	.0000
TOTAL	.9097E+00	.4683E-14	.3935E+03	-.2757E-12	.3315E+01	-.5219E-15

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

REACTIONS AND APPLIED FORCES

LOAD CONDITION 2 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	-.0003	.0000	2.7432	.0000	-.0000	.0000
1049	.0629	.0000	19.2386	.0000	.2220	.0000
1085	-.0003	.0000	2.7432	.0000	-.0000	.0000
TOTAL	.6228E-01	.4201E-15	.2473E+02	-.1855E-13	.2220E+00	-.3434E-16

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REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

REACTIONS AND APPLIED FORCES

LOAD CONDITION 3 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	-.0018	-.0000	12.0077	.0000	-.0001	.0000
1049	.3458	.0000	83.4845	.0000	1.2470	.0000
1085	-.0018	.0000	12.0077	.0000	-.0001	.0000
TOTAL	.3421E+00	.1243E-14	.1075E+03	-.8969E-13	.1247E+01	-.1764E-15

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

REACTIONS AND APPLIED FORCES

LOAD CONDITION 4 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	-.8306	-7.1610	-.4263	.3580	-.0415	-.0049
1049	.0000	-.7443	.0000	4.2654	.0000	-.0091
1085	.8285	-7.1447	.4263	.3572	.0414	-.0048
TOTAL	-.2053E-02	-.1505E+02	.1354E-13	.4981E+01	-.8355E-04	-.8976E-01

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

REACTIONS AND APPLIED FORCES

LOAD CONDITION 5 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	-.0322	-.2166	-2.5442	.0108	-.0016	-.0002
1047	.0000	.4333	.0000	-1.5107	.0000	-.0031
1085	.0322	-.2168	2.5442	.0108	.0016	-.0002
TOTAL	.6502E-14	-.1306E-12	.1057E-12	-.1489E+01	.2197E-13	-.3494E-02

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615

REACTIONS AND APPLIED FORCES

LOAD CONDITION 6 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	-5.6178	-.0209	-.0381	.0010	-.2809	.0006
1049	-.4645	.0000	-.1012	.0000	-2.6102	.0030
1085	-5.6178	.0209	-.0381	-.0010	-.2809	-.0006
TOTAL	-.1170E+02	-.1327E-12	-.1774E+00	.1372E-13	-.3172E+01	.2769E-14

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:304615 PROGRAM:SAP90/FILE:304615.SOL

REACTIONS AND APPLIED FORCES

LOAD CONDITION 7 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	-.0185	-.0004	-5.1253	.0000	-.0009	.0000
1049	3.4844	.0000	79.3495	.0000	12.5657	.0000
1085	-.0185	.0004	-5.1253	-.0000	-.0009	.0000
TOTAL	.3448E+01	.1927E-15	.6910E+02	-.2628E-12	.1256E+02	-.5618E-15

LINEA DE ALTA VELOCIDAD

MADRID – BARCELONA – FRONTERA FRANCESA

TRAMO: LLEIDA – MARTORELL, SUBTRAMO III-A

PLATAFORMA

ESTRUCTURA E-7. PASO SUPERIOR P.K. 304+615

ANEJO DE PRUEBA DE CARGA

LINEA DE ALTA VELOCIDAD
MADRID – BARCELONA – FRONTERA FRANCESA
TRAMO: LLEIDA – MARTORELL, SUBTRAMO III A,
PLATAFORMA

ESTRUCTURA E-7. PASO SUPERIOR P.K. 304+615

ANEJO DE PRUEBA DE CARGA

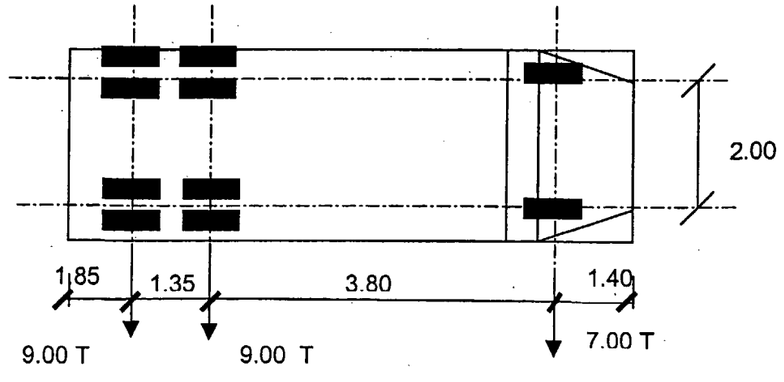
1.- GENERALIDADES

Se calculan en este Anejo los esfuerzos producidos por la acción de un tren de cargas de prueba formado por camiones tipo, que se disponen en una serie de posiciones estudiadas de modo que dan lugar a unos esfuerzos próximos al 80% de los teóricos correspondientes a la envolvente de sobrecarga de uso (sobrecarga uniforme + vehículo pesado) obtenida en el cálculo del tablero.

La estructura analizada es una losa de hormigón armado con luces de 13.00 + 17.00 +13.00 y un ancho de 11.70 m.

2.- TREN DE CARGAS

Se formará mediante camiones tipo de 25 toneladas. La distribución de ejes y pesos se refleja en el siguiente esquema:



En todas las posiciones del tren de cargas, los camiones se dispondrán en 2 hileras en pararelo, ocupando todo el ancho del tablero.

La prueba de carga consistirá en la disposición de los camiones en las situaciones siguientes:

- Posición 1: 4 camiones en vano 1
- Posición 2: 4 camiones en vano 2.

Los resultados del cálculo y los croquis de disposición de camiones se incluyen en el apartado 4 del presente Anejo.

3.- REALIZACION DE LA PRUEBA DE CARGA

En primer lugar se efectuará una detallada inspección de la obra que incluirá no sólo la estructura sino también los aparatos de apoyos y juntas.

Antes de comenzar el ensayo se anotarán las características de los vehículos a utilizar (matrícula, dimensiones y pesos por eje).

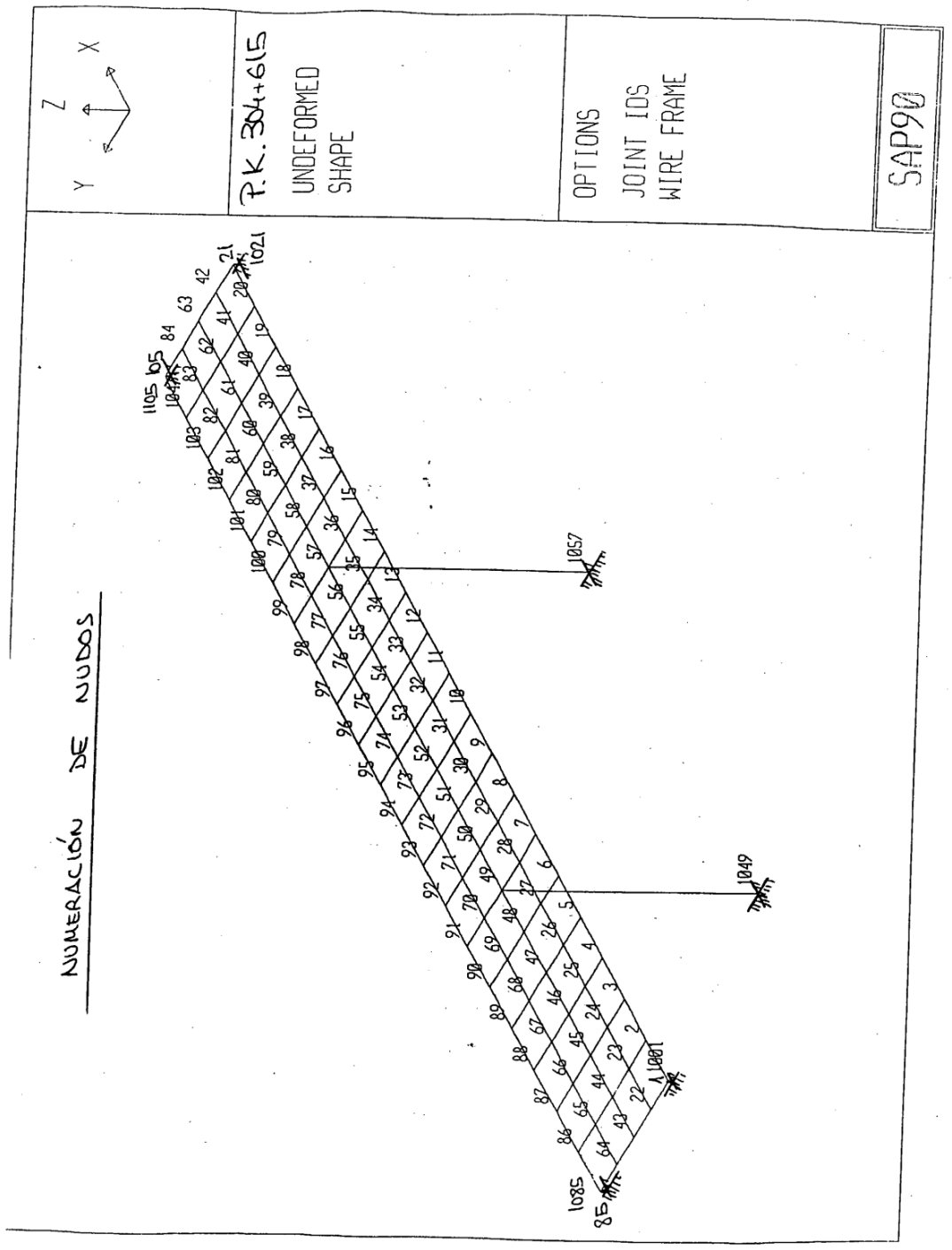
La medición de las deformaciones se efectuará en el centro de la luz del vano (con una precisión de ±0.5 mm) y para su lectura se utilizarán flexímetros.

Las lecturas se realizarán en cada situación de carga de la forma siguiente:

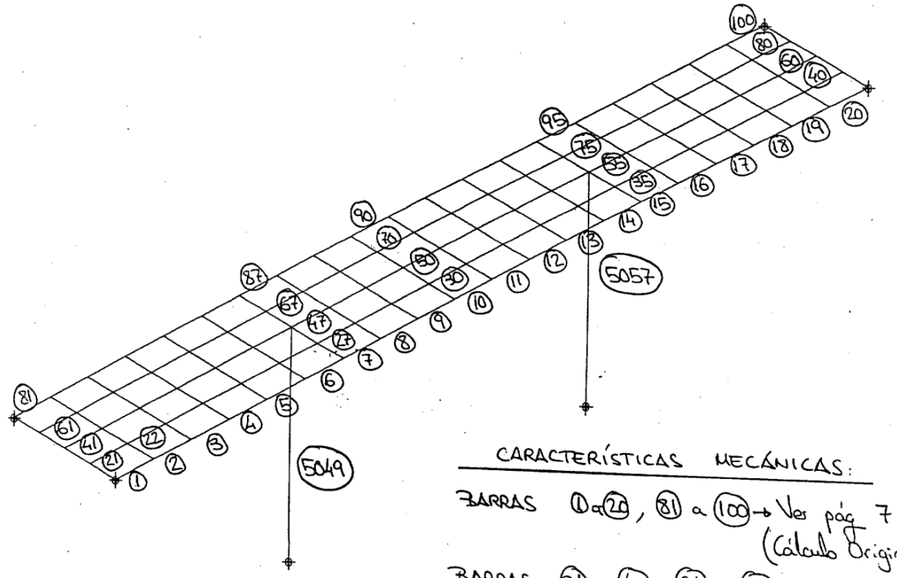
1ª lectura:	En vacío.
2ª lectura:	A los 20 minutos de posicionar la carga.
3ª lectura:	A los 35 minutos de posicionar la carga.
	Se comprobará que las flechas obtenidas en estas dos últimas lecturas estén estabilizadas, admitiéndose una variación de +5%.
4ª lectura:	A los 15 minutos de retirar la carga.

4.- CALCULO DE ESFUERZOS Y DEFORMACIONES

Se utiliza el mismo modelo de cálculo y programa que el empleado para el dimensionamiento de la estructura. Los correspondientes listados, esfuerzos y deformaciones obtenidos se acompañan a continuación.



NUMERACIÓN DE BARRAS (LONGITUDINALES Y PILARES)



Y X

P.K. 304+615
UNDEFORMED SHAPE

OPTIONS
RESTRAINTS
WIRE FRAME

SAP90

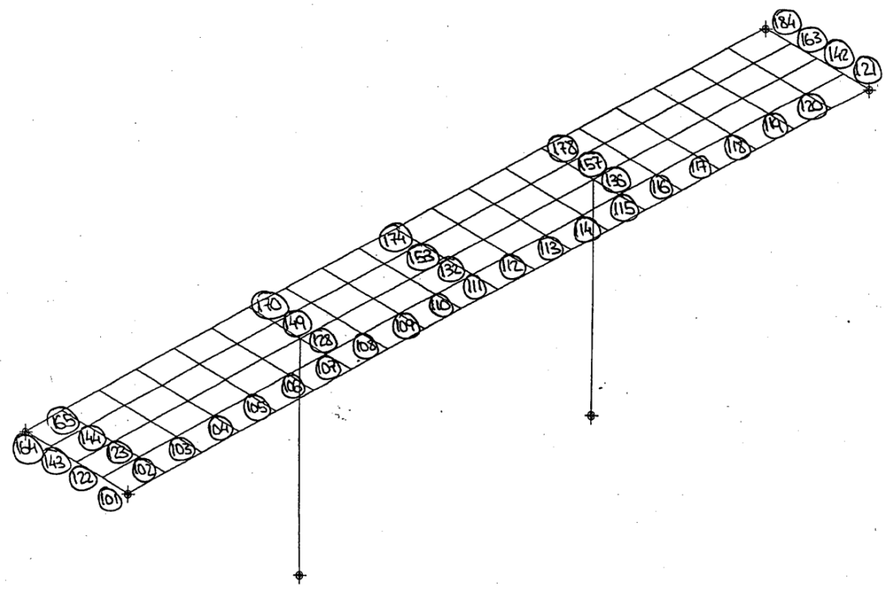
CARACTERÍSTICAS MECÁNICAS:

BARRAS ① a (20), (81) a (100) → Ver pág 7 (Cálculo Original)

BARRAS (21) a (40), (61) a (80) → pág 6

BARRAS (41) a (60) ⟶ pág 5

NUMERACIÓN DE BARRAS (TRANSVERSALES)



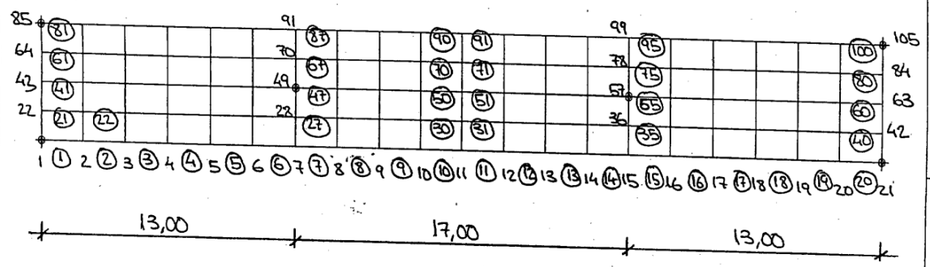
Z
Y X

P.K. 304+615
UNDEFORMED SHAPE

OPTIONS
RESTRAINTS
WIRE FRAME

SAP90

PLANTA



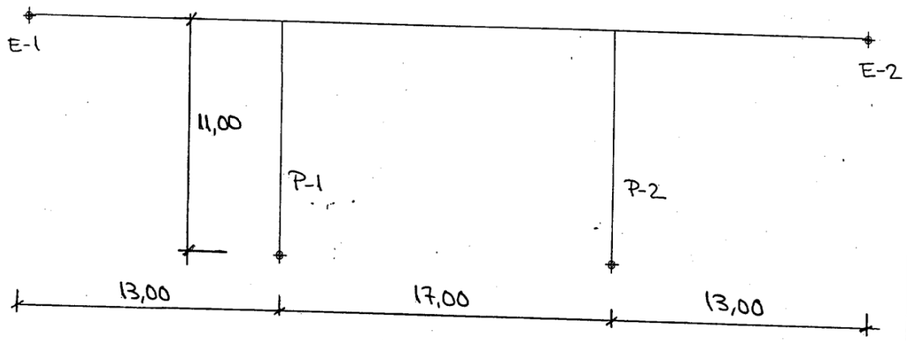
Y
X

P.K. 304+615
UNDEFORMED SHAPE

OPTIONS
RESTRAINTS
WIRE FRAME

SAP90

ALZADO



Z
X

P.K. 304+615
UNDEFORMED SHAPE

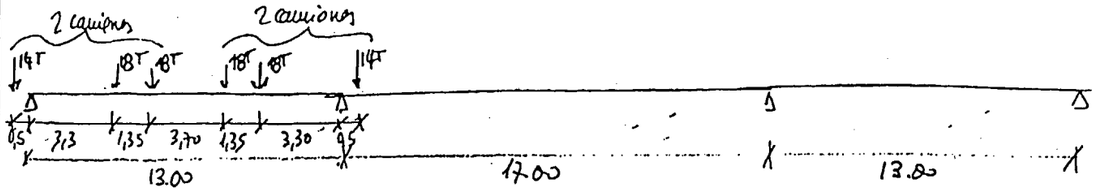
OPTIONS
RESTRAINTS
WIRE FRAME

SAP90

FIRMA:

Hoja ..... de .....

PRUEBA DE CARGA



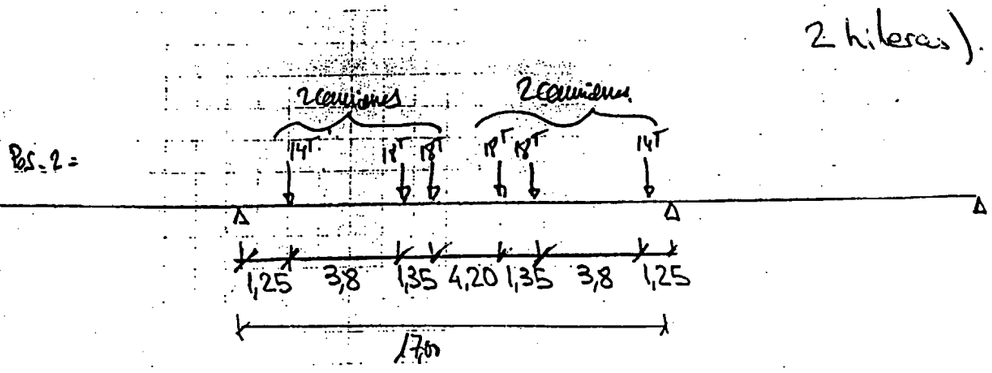
Posición 1: Centro vano 1:

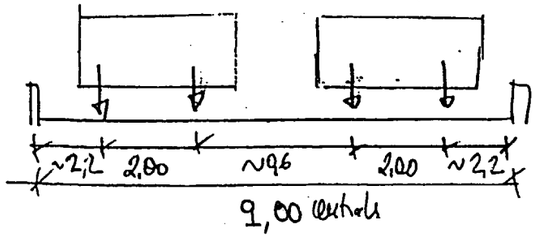
Máxima sobrecarga: $0{,}4 \times 13 \times 11{,}7 + 60 = 120\ T \Rightarrow$ 4 camiones.

Posición 2: Centro de vano 2

Máxima sobrecarga: $0{,}4 \times 17 \times 11{,}7 + 60 = 139^T \Rightarrow$ 5 camiones.

(4 camiones en 2 hileras).





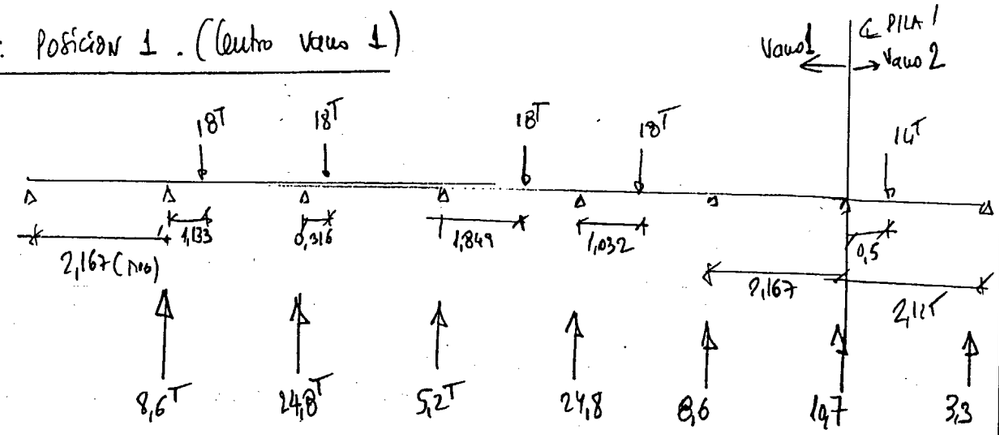
FECHA

FIRMA:

Hoja ..... de .....

Cargas en nudos

HIP1: Posición 1. (Centro vano 1)



Nudos	Carga (TON)
23	2,15
24	6,20
25	1,30
26	6,20
27	2,15
28	2,675
29	0,825

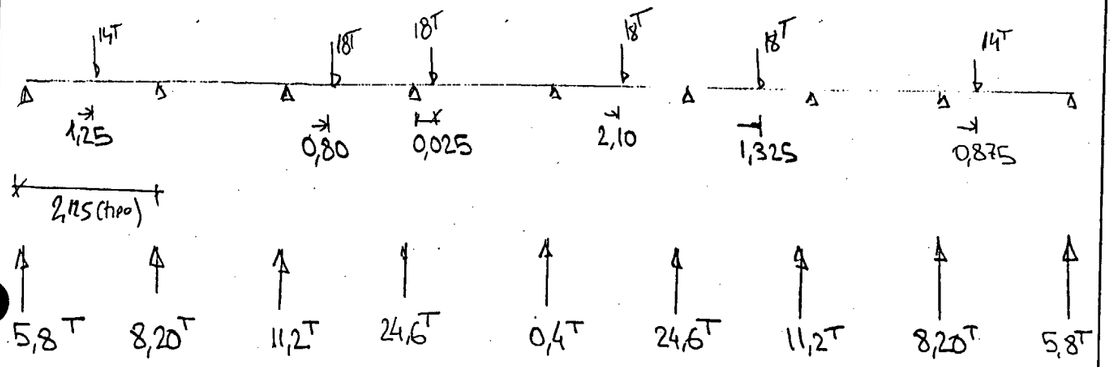
Nudo	Carga (TON)
44	4,30
45	12,40
46	2,60
47	12,40
48	4,30
49	5,35
50	1,65T

Nudo	Carga (TON)
65	2,15
66	6,20
67	1,30
68	6,20
69	2,15
70	2,07T
71	0,82T

Σ Cargas: 86 TON

FECHA
FIRMA:
Hoja ..... de .....

HIP 2: Posición 2 (Centro vano 2)



Carga en nudos.

Nudo	25% Carga (TON)
28	1,45
29	2,05
30	2,8
31	6,15
32	0,1
33	6,15
34	2,8
35	2,05
36	1,45

Nudo	50% Carga (TON)
49	2,9
50	4,1
51	5,6
52	12,3
53	0,2
54	12,3
55	5,6
56	4,1
57	2,9

Nudo	25% Carga (TON)
70	1,45
71	2,05
72	2,8
73	6,15
74	0,1
75	6,15
76	2,8
77	2,05
78	1,45

Σ Cargas = 100 TON

FECHA
FIRMA:
Hoja ... de ...

A continuación se detallan los momentos flectores producidos por la sobrecarga vial sobre el carro de la Dirección, tenidos en cuenta en el Proyecto Original.

Estos esfuerzos corresponden a la hipótesis "B", módulo Bridge del Programa "SAP-90"

Centro vano 1

Barra 4	4,08	TXM
24	46,57	
44	79,27	
64	46,57	
84	4,08	
	180,57	TXM

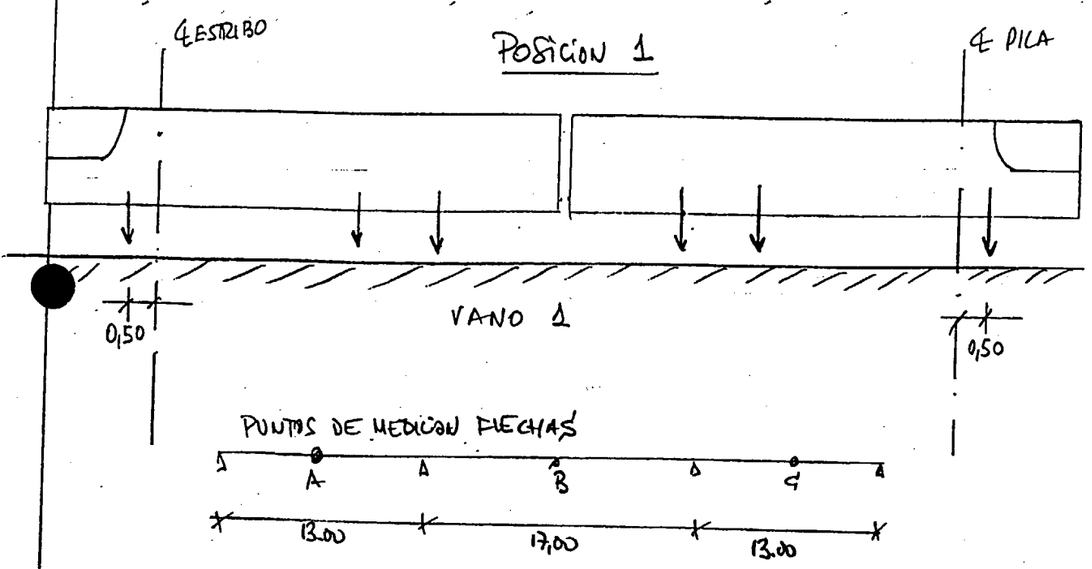
Centro vano 2

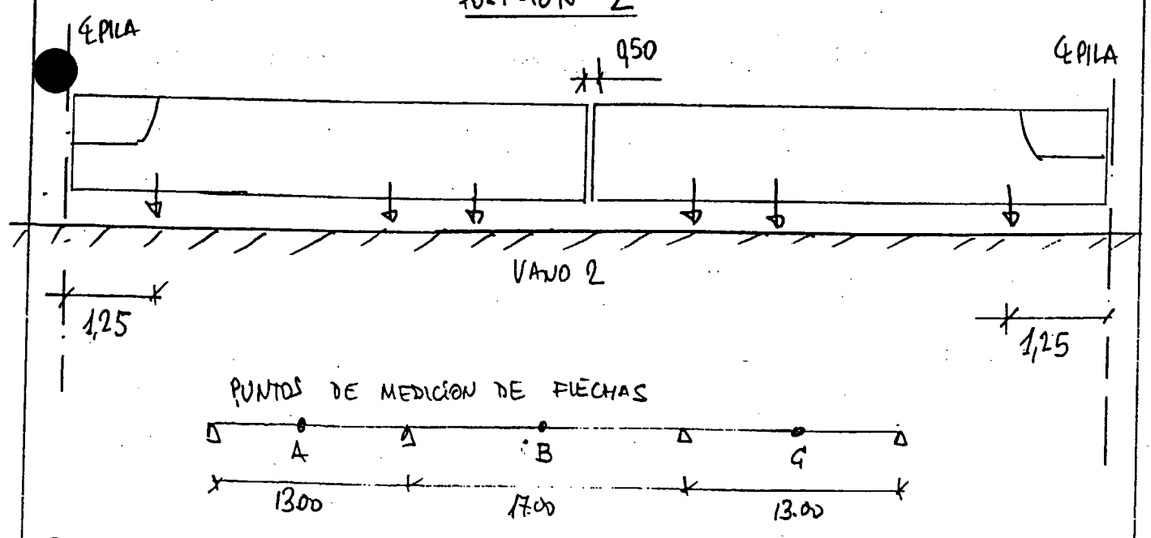
Barra 10	4,86	TXM
30	51,78	
50	87,45	
70	51,78	
90	4,86	
	200,73	TXM

	FECHA
	FIRMA:
	Hoja ..... de ...

PRUEBA DE CARGA

CROQUIS DE DISPOSICIÓN DE CAMIONES





En las dos posiciones del tren de cargas, los 4 camiones se dispondrán en dos hileras en paralelo, ocupando todo el ancho del tablero.

```
C S I  /  S A P 9 0  -  -  FINITE  ELEMENT  ANALYSIS  OF  STRUCTURES  PAGE     1
                                                    PROGRAM:SAP90/FILE:PCARGA.SAP
 REPOSICION 304+615. 3 VANOS 13+17+13 FILE:PCARGA. PRUEBA DE CARGA.

 S Y S T E M   D A T A

 EXECUTION CODE  - - - - - - - - - - - - - - - -          0
 NUMBER OF LOAD CONDITIONS - - - - - - - - - - -          2
 STEADY STATE LOAD FREQUENCY - - - - - - - - - - .0000E+00
 NUMBER OF EIGENVALUES - - - - - - - - - - - - -          0
 EIGEN CONVERGENCE TOLERANCE - - - - - - - - - - .1000E-03
 EIGEN CUTOFF TIME PERIOD  - - - - - - - - - - - .0000E+00
```

G E N E R A T E D J O I N T C O O R D I N A T E S

JOINT	X	Y	Z
1	.000	.000	11.000
2	2.167	.000	11.000
3	4.333	.000	11.000
4	6.500	.000	11.000
5	8.667	.000	11.000
6	10.833	.000	11.000
7	13.000	.000	11.000
8	15.125	.000	11.000
9	17.250	.000	11.000
10	19.375	.000	11.000
11	21.500	.000	11.000
12	23.625	.000	11.000
13	25.750	.000	11.000
14	27.875	.000	11.000
15	30.000	.000	11.000
16	32.167	.000	11.000
17	34.333	.000	11.000
18	36.500	.000	11.000
19	38.667	.000	11.000
20	40.833	.000	11.000
21	43.000	.000	11.000
22	.000	2.300	11.000
23	2.167	2.300	11.000
24	4.333	2.300	11.000
25	6.500	2.300	11.000
26	8.667	2.300	11.000
27	10.833	2.300	11.000
28	13.000	2.300	11.000
29	15.125	2.300	11.000
30	17.250	2.300	11.000
31	19.375	2.300	11.000
32	21.500	2.300	11.000
33	23.625	2.300	11.000
34	25.750	2.300	11.000
35	27.875	2.300	11.000
36	30.000	2.300	11.000
37	32.167	2.300	11.000
38	34.333	2.300	11.000
39	36.500	2.300	11.000
40	38.667	2.300	11.000
41	40.833	2.300	11.000
42	43.000	2.300	11.000
43	.000	4.600	11.000
44	2.167	4.600	11.000
45	4.333	4.600	11.000
46	6.500	4.600	11.000
47	8.667	4.600	11.000
48	10.833	4.600	11.000
49	13.000	4.600	11.000
50	15.125	4.600	11.000
51	17.250	4.600	11.000
52	19.375	4.600	11.000

G E N E R A T E D J O I N T C O O R D I N A T E S

JOINT	X	Y	Z
53	21.500	4.600	11.000
54	23.625	4.600	11.000
55	25.750	4.600	11.000
56	27.875	4.600	11.000
57	30.000	4.600	11.000
58	32.167	4.600	11.000
59	34.333	4.600	11.000
60	36.500	4.600	11.000
61	38.667	4.600	11.000
62	40.833	4.600	11.000
63	43.000	4.600	11.000
64	.000	6.900	11.000
65	2.167	6.900	11.000
66	4.333	6.900	11.000
67	6.500	6.900	11.000
68	8.667	6.900	11.000
69	10.833	6.900	11.000
70	13.000	6.900	11.000
71	15.125	6.900	11.000
72	17.250	6.900	11.000
73	19.375	6.900	11.000
74	21.500	6.900	11.000
75	23.625	6.900	11.000
76	25.750	6.900	11.000
77	27.875	6.900	11.000
78	30.000	6.900	11.000
79	32.167	6.900	11.000
80	34.333	6.900	11.000
81	36.500	6.900	11.000
82	38.667	6.900	11.000
83	40.833	6.900	11.000
84	43.000	6.900	11.000
85	.000	9.200	11.000
86	2.167	9.200	11.000
87	4.333	9.200	11.000
88	6.500	9.200	11.000
89	8.667	9.200	11.000
90	10.833	9.200	11.000
91	13.000	9.200	11.000
92	15.125	9.200	11.000
93	17.250	9.200	11.000
94	19.375	9.200	11.000
95	21.500	9.200	11.000
96	23.625	9.200	11.000
97	25.750	9.200	11.000
98	27.875	9.200	11.000
99	30.000	9.200	11.000
100	32.167	9.200	11.000
101	34.333	9.200	11.000
102	36.500	9.200	11.000
103	38.667	9.200	11.000
104	40.833	9.200	11.000

G E N E R A T E D J O I N T C O O R D I N A T E S

JOINT	X	Y	Z
105	43.000	9.200	11.000
1001	.000	.000	10.950
1021	43.000	.000	10.950
1049	13.000	4.600	.000
1057	30.000	4.600	.000
1085	.000	9.200	10.950
1105	43.000	9.200	10.950

R E S T R A I N T D A T A

JOINT	RX	RY	RZ	RXX	RYY	RZZ
1001	1	1	1	1	1	1
1021	1	1	1	1	1	1
1049	1	1	1	1	1	1
1057	1	1	1	1	1	1
1085	1	1	1	1	1	1
1105	1	1	1	1	1	1

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:PCARGA. PRUEBA DE CARGA.

F R A M E C O N T R O L D A T A

NUMBER OF MEMBER SECTION PROPERTIES	12
NUMBER OF SPAN LOADING PATTERNS	0
NUMBER OF MEMBER FORCE OUTPUT STATIONS	3

LOAD	GRAVITATIONAL MULTIPLIERS			TEMPERATURE	PRESTRESS
COND	X	Y	Z	MULTIPLIERS	MULTIPLIERS
1	.000	.000	.000	.000	.000
2	.000	.000	.000	.000	.000

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:PCARGA. PRUEBA DE CARGA.

S E C T I O N P R O P E R T Y D A T A

PROP	AREA	TORSIONAL	MOMENTS OF INERTIA		SHEAR AREAS	
ID		INERTIA	I33	I22	A2	A3
1	.228E+01	.11820E+01	.18600E+00	.99600E+00	.190E+01	.190E+01
2	.168E+01	.79960E+00	.10910E+00	.69050E+00	.140E+01	.140E+01
3	.840E+00	.38910E+00	.10800E-01	.37830E+00	.700E+00	.700E+00
4	.104E+01	.15100E+00	.80385E-01	.10197E+00	.869E+00	.869E+00
5	.119E+01	.10097E+00	.30045E-01	.46640E+00	.993E+00	.993E+00
6	.212E+01	.48424E+00	.16893E+00	.82934E+00	.177E+01	.177E+01
7	.118E+01	.99804E-01	.29753E-01	.45297E+00	.984E+00	.984E+00
8	.210E+01	.47772E+00	.16729E+00	.80547E+00	.175E+01	.175E+01
9	.117E+01	.98640E-01	.29462E-01	.43980E+00	.974E+00	.974E+00
10	.208E+01	.47120E+00	.16565E+00	.78205E+00	.173E+01	.173E+01
11	.785E+00	.98175E-01	.49087E-01	.49087E-01	.393E+00	.393E+00
12	.800E-01	.73242E-03	.10667E-02	.26667E-03	.667E-01	.667E-01

M A T E R I A L P R O P E R T Y D A T A

PROP ID	MODULUS OF ELASTICITY	SHEAR MODULUS	WEIGHT PER UNIT LEN	MASS PER UNIT LEN	THERMAL EXPANSION
1	.3500E+07	.1346E+07	.5700E+01	.0000E+00	.0000E+00
2	.3500E+07	.1346E+07	.4200E+01	.0000E+00	.0000E+00
3	.3500E+07	.1346E+07	.2100E+01	.0000E+00	.0000E+00
4	.3500E+07	.1346E+07	.0000E+00	.0000E+00	.0000E+00
5	.3500E+07	.1346E+07	.0000E+00	.0000E+00	.0000E+00
6	.3500E+07	.1346E+07	.0000E+00	.0000E+00	.0000E+00
7	.3500E+07	.1346E+07	.0000E+00	.0000E+00	.0000E+00
8	.3500E+07	.1346E+07	.0000E+00	.0000E+00	.0000E+00
9	.3500E+07	.1346E+07	.0000E+00	.0000E+00	.0000E+00
10	.3500E+07	.1346E+07	.0000E+00	.0000E+00	.0000E+00
11	.3500E+07	.1346E+07	.0000E+00	.0000E+00	.0000E+00
12	.4300E+05	.9000E+02	.0000E+00	.0000E+00	.0000E+00

F R A M E E L E M E N T D A T A

ELT ID	JOINT END-I	JOINT END-J	LOCAL-AXIS N1	LOCAL-AXIS N2	PROPERTY-ID END-I	PROPERTY-ID END-J	VAR	REL CODES	REF TEMP	ELEMENT LENGTH
1	1	2	-2	0	3	3	0	000000	.00	2.17
2	2	3	-2	0	3	3	0	000000	.00	2.17
3	3	4	-2	0	3	3	0	000000	.00	2.17
4	4	5	-2	0	3	3	0	000000	.00	2.17
5	5	6	-2	0	3	3	0	000000	.00	2.17
6	6	7	-2	0	3	3	0	000000	.00	2.17
7	7	8	-2	0	3	3	0	000000	.00	2.13
8	8	9	-2	0	3	3	0	000000	.00	2.13
9	9	10	-2	0	3	3	0	000000	.00	2.13
10	10	11	-2	0	3	3	0	000000	.00	2.13
11	11	12	-2	0	3	3	0	000000	.00	2.13
12	12	13	-2	0	3	3	0	000000	.00	2.13
13	13	14	-2	0	3	3	0	000000	.00	2.13
14	14	15	-2	0	3	3	0	000000	.00	2.13
15	15	16	-2	0	3	3	0	000000	.00	2.17
16	16	17	-2	0	3	3	0	000000	.00	2.17
17	17	18	-2	0	3	3	0	000000	.00	2.17
18	18	19	-2	0	3	3	0	000000	.00	2.17
19	19	20	-2	0	3	3	0	000000	.00	2.17
20	20	21	-2	0	3	3	0	000000	.00	2.17
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29	30	31	-2	0	2	2	0	000000	.00	2.13
30	31	32	-2	0	2	2	0	000000	.00	2.13
31	32	33	-2	0	2	2	0	000000	.00	2.13
32	33	34	-2	0	2	2	0	000000	.00	2.13
33	34	35	-2	0	2	2	0	000000	.00	2.13
34	35	36	-2	0	2	2	0	000000	.00	2.13
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36	37	38	-2	0	2	2	0	000000	.00	2.17
37	38	39	-2	0	2	2	0	000000	.00	2.17
38	39	40	-2	0	2	2	0	000000	.00	2.17
39	40	41	-2	0	2	2	0	000000	.00	2.17
40	41	42	-2	0	2	2	0	000000	.00	2.17
41	43	44	-2	0	1	1	0	000000	.00	2.17
42	44	45	-2	0	1	1	0	000000	.00	2.17
43	45	46	-2	0	1	1	0	000000	.00	2.17
44	46	47	-2	0	1	1	0	000000	.00	2.17
45	47	48	-2	0	1	1	0	000000	.00	2.17
46	48	49	-2	0	1	1	0	000000	.00	2.17
47	49	50	-2	0	1	1	0	000000	.00	2.13
48	50	51	-2	0	1	1	0	000000	.00	2.13
49	51	52	-2	0	1	1	0	000000	.00	2.13
50	52	53	-2	0	1	1	0	000000	.00	2.13
51	53	54	-2	0	1	1	0	000000	.00	2.13

F R A M E E L E M E N T D A T A

ELT ID	JOINT END-I	JOINT END-J	LOCAL-AXIS N1	LOCAL-AXIS N2	PROPERTY-ID END-I	PROPERTY-ID END-J	VAR	REL CODES	REF TEMP	ELEMENT LENGTH
52	54	55	-2	0	1	1	0	000000	.00	2.13
53	55	56	-2	0	1	1	0	000000	.00	2.13
54	56	57	-2	0	1	1	0	000000	.00	2.13
55	57	58	-2	0	1	1	0	000000	.00	2.17
56	58	59	-2	0	1	1	0	000000	.00	2.17
57	59	60	-2	0	1	1	0	000000	.00	2.17
58	60	61	-2	0	1	1	0	000000	.00	2.17
59	61	62	-2	0	1	1	0	000000	.00	2.17
60	62	63	-2	0	1	1	0	000000	.00	2.17
61	64	65	-2	0	2	2	0	000000	.00	2.17
62	65	66	-2	0	2	2	0	000000	.00	2.17
63	66	67	-2	0	2	2	0	000000	.00	2.17
64	67	68	-2	0	2	2	0	000000	.00	2.17
65	68	69	-2	0	2	2	0	000000	.00	2.17
66	69	70	-2	0	2	2	0	000000	.00	2.17
67	70	71	-2	0	2	2	0	000000	.00	2.13
68	71	72	-2	0	2	2	0	000000	.00	2.13
69	72	73	-2	0	2	2	0	000000	.00	2.13
70	73	74	-2	0	2	2	0	000000	.00	2.13
71	74	75	-2	0	2	2	0	000000	.00	2.13
72	75	76	-2	0	2	2	0	000000	.00	2.13
73	76	77	-2	0	2	2	0	000000	.00	2.13
74	77	78	-2	0	2	2	0	000000	.00	2.13
75	78	79	-2	0	2	2	0	000000	.00	2.17
76	79	80	-2	0	2	2	0	000000	.00	2.17
77	80	81	-2	0	2	2	0	000000	.00	2.17
78	81	82	-2	0	2	2	0	000000	.00	2.17
79	82	83	-2	0	2	2	0	000000	.00	2.17
80	83	84	-2	0	2	2	0	000000	.00	2.17
81	85	86	-2	0	3	3	0	000000	.00	2.17
82	86	87	-2	0	3	3	0	000000	.00	2.17
83	87	88	-2	0	3	3	0	000000	.00	2.17
84	88	89	-2	0	3	3	0	000000	.00	2.17
85	89	90	-2	0	3	3	0	000000	.00	2.17
86	90	91	-2	0	3	3	0	000000	.00	2.17
87	91	92	-2	0	3	3	0	000000	.00	2.13
88	92	93	-2	0	3	3	0	000000	.00	2.13
89	93	94	-2	0	3	3	0	000000	.00	2.13
90	94	95	-2	0	3	3	0	000000	.00	2.13
91	95	96	-2	0	3	3	0	000000	.00	2.13
92	96	97	-2	0	3	3	0	000000	.00	2.13
93	97	98	-2	0	3	3	0	000000	.00	2.13
94	98	99	-2	0	3	3	0	000000	.00	2.13
95	99	100	-2	0	3	3	0	000000	.00	2.17
96	100	101	-2	0	3	3	0	000000	.00	2.17
97	101	102	-2	0	3	3	0	000000	.00	2.17
98	102	103	-2	0	3	3	0	000000	.00	2.17
99	103	104	-2	0	3	3	0	000000	.00	2.17
100	104	105	-2	0	3	3	0	000000	.00	2.17
101	1	22	3	0	4	4	0	000000	.00	2.30
102	2	23	3	0	5	5	0	000000	.00	2.30

F R A M E E L E M E N T D A T A

ELT ID	JOINT END-I	JOINT END-J	LOCAL-AXIS N1	LOCAL-AXIS N2	PROPERTY-ID END-I	PROPERTY-ID END-J	VAR	REL CODES	REF TEMP	ELEMENT LENGTH
103	3	24	3	0	5	5	0	000000	.00	2.30
104	4	25	3	0	5	5	0	000000	.00	2.30
105	5	26	3	0	5	5	0	000000	.00	2.30
106	6	27	3	0	5	5	0	000000	.00	2.30
107	7	28	3	0	7	7	0	000000	.00	2.30
108	8	29	3	0	9	9	0	000000	.00	2.30
109	9	30	3	0	9	9	0	000000	.00	2.30
110	10	31	3	0	9	9	0	000000	.00	2.30
111	11	32	3	0	9	9	0	000000	.00	2.30
112	12	33	3	0	9	9	0	000000	.00	2.30
113	13	34	3	0	9	9	0	000000	.00	2.30
114	14	35	3	0	9	9	0	000000	.00	2.30
115	15	36	3	0	7	7	0	000000	.00	2.30
116	16	37	3	0	5	5	0	000000	.00	2.30
117	17	38	3	0	5	5	0	000000	.00	2.30
118	18	39	3	0	5	5	0	000000	.00	2.30
119	19	40	3	0	5	5	0	000000	.00	2.30
120	20	41	3	0	5	5	0	000000	.00	2.30
121	21	42	3	0	4	4	0	000000	.00	2.30
122	22	43	3	0	4	4	0	000000	.00	2.30
123	23	44	3	0	6	6	0	000000	.00	2.30
124	24	45	3	0	6	6	0	000000	.00	2.30
125	25	46	3	0	6	6	0	000000	.00	2.30
126	26	47	3	0	6	6	0	000000	.00	2.30
127	27	48	3	0	6	6	0	000000	.00	2.30
128	28	49	3	0	8	8	0	000000	.00	2.30
129	29	50	3	0	10	10	0	000000	.00	2.30
130	30	51	3	0	10	10	0	000000	.00	2.30
131	31	52	3	0	10	10	0	000000	.00	2.30
132	32	53	3	0	10	10	0	000000	.00	2.30
133	33	54	3	0	10	10	0	000000	.00	2.30
134	34	55	3	0	10	10	0	000000	.00	2.30
135	35	56	3	0	10	10	0	000000	.00	2.30
136	36	57	3	0	8	8	0	000000	.00	2.30
137	37	58	3	0	6	6	0	000000	.00	2.30
138	38	59	3	0	6	6	0	000000	.00	2.30
139	39	60	3	0	6	6	0	000000	.00	2.30
140	40	61	3	0	6	6	0	000000	.00	2.30
141	41	62	3	0	6	6	0	000000	.00	2.30
142	42	63	3	0	4	4	0	000000	.00	2.30
143	43	64	3	0	4	4	0	000000	.00	2.30
144	44	65	3	0	6	6	0	000000	.00	2.30
145	45	66	3	0	6	6	0	000000	.00	2.30
146	46	67	3	0	6	6	0	000000	.00	2.30
147	47	68	3	0	6	6	0	000000	.00	2.30
148	48	69	3	0	6	6	0	000000	.00	2.30
149	49	70	3	0	8	8	0	000000	.00	2.30
150	50	71	3	0	10	10	0	000000	.00	2.30
151	51	72	3	0	10	10	0	000000	.00	2.30
152	52	73	3	0	10	10	0	000000	.00	2.30
153	53	74	3	0	10	10	0	000000	.00	2.30

F R A M E E L E M E N T D A T A

ELT ID	JOINT END-I	JOINT END-J	LOCAL-AXIS N1	LOCAL-AXIS N2	PROPERTY-ID END-I	PROPERTY-ID END-J	VAR	REL CODES	REF TEMP	ELEMENT LENGTH
154	54	75	3	0	10	10	0	000000	.00	2.30
155	55	76	3	0	10	10	0	000000	.00	2.30
156	56	77	3	0	10	10	0	000000	.00	2.30
157	57	78	3	0	8	8	0	000000	.00	2.30
158	58	79	3	0	6	6	0	000000	.00	2.30
159	59	80	3	0	6	6	0	000000	.00	2.30
160	60	81	3	0	6	6	0	000000	.00	2.30
161	61	82	3	0	6	6	0	000000	.00	2.30
162	62	83	3	0	6	6	0	000000	.00	2.30
163	63	84	3	0	4	4	0	000000	.00	2.30
164	64	85	3	0	4	4	0	000000	.00	2.30
165	65	86	3	0	5	5	0	000000	.00	2.30
166	66	87	3	0	5	5	0	000000	.00	2.30
167	67	88	3	0	5	5	0	000000	.00	2.30
168	68	89	3	0	5	5	0	000000	.00	2.30
169	69	90	3	0	5	5	0	000000	.00	2.30
170	70	91	3	0	7	7	0	000000	.00	2.30
171	71	92	3	0	9	9	0	000000	.00	2.30
172	72	93	3	0	9	9	0	000000	.00	2.30
173	73	94	3	0	9	9	0	000000	.00	2.30
174	74	95	3	0	9	9	0	000000	.00	2.30
175	75	96	3	0	9	9	0	000000	.00	2.30
176	76	97	3	0	9	9	0	000000	.00	2.30
177	77	98	3	0	9	9	0	000000	.00	2.30
178	78	99	3	0	7	7	0	000000	.00	2.30
179	79	100	3	0	5	5	0	000000	.00	2.30
180	80	101	3	0	5	5	0	000000	.00	2.30
181	81	102	3	0	5	5	0	000000	.00	2.30
182	82	103	3	0	5	5	0	000000	.00	2.30
183	83	104	3	0	5	5	0	000000	.00	2.30
184	84	105	3	0	4	4	0	000000	.00	2.30
5001	1001	1	3	0	12	12	0	010010	.00	.05
5021	1021	21	3	0	12	12	0	010010	.00	.05
5049	1049	49	3	0	11	11	0	000000	.00	11.00
5057	1057	57	3	0	11	11	0	000000	.00	11.00
5085	1085	85	3	0	12	12	0	010010	.00	.05
5105	1105	105	3	0	12	12	0	010010	.00	.05

T O T A L W E I G H T S A N D M A S S E S

PROP	WEIGHT	MASS
1	245.1000	.0000
2	361.2000	.0000
3	180.6000	.0000
4	.0000	.0000
5	.0000	.0000
6	.0000	.0000
7	.0000	.0000
8	.0000	.0000
9	.0000	.0000
10	.0000	.0000
11	.0000	.0000
12	.0000	.0000
TOTAL	786.9000	.0000

J O I N T L O A D S

JOINT	LOAD	FX	FY	FZ	MX	MY	MZ
23	1	.000E+00	.000E+00	-.215E+01	.000E+00	.000E+00	.000E+00
24	1	.000E+00	.000E+00	-.620E+01	.000E+00	.000E+00	.000E+00
25	1	.000E+00	.000E+00	-.130E+01	.000E+00	.000E+00	.000E+00
26	1	.000E+00	.000E+00	-.620E+01	.000E+00	.000E+00	.000E+00
27	1	.000E+00	.000E+00	-.215E+01	.000E+00	.000E+00	.000E+00
28	1	.000E+00	.000E+00	-.268E+01	.000E+00	.000E+00	.000E+00
29	1	.000E+00	.000E+00	-.825E+00	.000E+00	.000E+00	.000E+00
44	1	.000E+00	.000E+00	-.430E+01	.000E+00	.000E+00	.000E+00
45	1	.000E+00	.000E+00	-.124E+02	.000E+00	.000E+00	.000E+00
46	1	.000E+00	.000E+00	-.260E+01	.000E+00	.000E+00	.000E+00
47	1	.000E+00	.000E+00	-.124E+02	.000E+00	.000E+00	.000E+00
48	1	.000E+00	.000E+00	-.430E+01	.000E+00	.000E+00	.000E+00
49	1	.000E+00	.000E+00	-.535E+01	.000E+00	.000E+00	.000E+00
50	1	.000E+00	.000E+00	-.165E+01	.000E+00	.000E+00	.000E+00
65	1	.000E+00	.000E+00	-.215E+01	.000E+00	.000E+00	.000E+00
66	1	.000E+00	.000E+00	-.620E+01	.000E+00	.000E+00	.000E+00
67	1	.000E+00	.000E+00	-.130E+01	.000E+00	.000E+00	.000E+00
68	1	.000E+00	.000E+00	-.620E+01	.000E+00	.000E+00	.000E+00
69	1	.000E+00	.000E+00	-.215E+01	.000E+00	.000E+00	.000E+00
70	1	.000E+00	.000E+00	-.268E+01	.000E+00	.000E+00	.000E+00
71	1	.000E+00	.000E+00	-.825E+00	.000E+00	.000E+00	.000E+00
28	2	.000E+00	.000E+00	-.145E+01	.000E+00	.000E+00	.000E+00
29	2	.000E+00	.000E+00	-.205E+01	.000E+00	.000E+00	.000E+00
30	2	.000E+00	.000E+00	-.280E+01	.000E+00	.000E+00	.000E+00
31	2	.000E+00	.000E+00	-.615E+01	.000E+00	.000E+00	.000E+00
32	2	.000E+00	.000E+00	-.100E+00	.000E+00	.000E+00	.000E+00
33	2	.000E+00	.000E+00	-.615E+01	.000E+00	.000E+00	.000E+00
34	2	.000E+00	.000E+00	-.280E+01	.000E+00	.000E+00	.000E+00
35	2	.000E+00	.000E+00	-.205E+01	.000E+00	.000E+00	.000E+00
36	2	.000E+00	.000E+00	-.145E+01	.000E+00	.000E+00	.000E+00
49	2	.000E+00	.000E+00	-.290E+01	.000E+00	.000E+00	.000E+00
50	2	.000E+00	.000E+00	-.410E+01	.000E+00	.000E+00	.000E+00
51	2	.000E+00	.000E+00	-.560E+01	.000E+00	.000E+00	.000E+00
52	2	.000E+00	.000E+00	-.123E+02	.000E+00	.000E+00	.000E+00
53	2	.000E+00	.000E+00	-.200E+00	.000E+00	.000E+00	.000E+00
54	2	.000E+00	.000E+00	-.123E+02	.000E+00	.000E+00	.000E+00
55	2	.000E+00	.000E+00	-.560E+01	.000E+00	.000E+00	.000E+00
56	2	.000E+00	.000E+00	-.410E+01	.000E+00	.000E+00	.000E+00
57	2	.000E+00	.000E+00	-.290E+01	.000E+00	.000E+00	.000E+00
70	2	.000E+00	.000E+00	-.145E+01	.000E+00	.000E+00	.000E+00
71	2	.000E+00	.000E+00	-.205E+01	.000E+00	.000E+00	.000E+00
72	2	.000E+00	.000E+00	-.280E+01	.000E+00	.000E+00	.000E+00
73	2	.000E+00	.000E+00	-.615E+01	.000E+00	.000E+00	.000E+00
74	2	.000E+00	.000E+00	-.100E+00	.000E+00	.000E+00	.000E+00
75	2	.000E+00	.000E+00	-.615E+01	.000E+00	.000E+00	.000E+00
76	2	.000E+00	.000E+00	-.280E+01	.000E+00	.000E+00	.000E+00
77	2	.000E+00	.000E+00	-.205E+01	.000E+00	.000E+00	.000E+00
78	2	.000E+00	.000E+00	-.145E+01	.000E+00	.000E+00	.000E+00

J O I N T A N D E L E M E N T O U T P U T S E L E C T I O N

TYPE		FIRST ID	LAST ID	ID INC	CODE
1	(JOINT DISPL)	1	105	1	1
2	(JOINT REACT)	1001	1021	20	1
2	(JOINT REACT)	1085	1105	20	1
2	(JOINT REACT)	1049	1057	8	1
5	(FRAME ELEMT)	5049	5049	1	1
5	(FRAME ELEMT)	5001	5001	1	1
5	(FRAME ELEMT)	5021	5021	1	1
5	(FRAME ELEMT)	1	10	1	1
5	(FRAME ELEMT)	21	30	1	1
5	(FRAME ELEMT)	41	50	1	1
5	(FRAME ELEMT)	61	70	1	1
5	(FRAME ELEMT)	81	90	1	1

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J O I N T D I S P L A C E M E N T S

LOAD CONDITION 1 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	-.4357E-03	-.1647E-07	-.2191E-03	-.1346E-03	.3213E-03	.2073E-07
2	-.4357E-03	-.1415E-08	-.9431E-03	-.1043E-03	.2806E-03	.1461E-07
3	-.000436	.000000	-.001413	-.000075	.000130	.000000
4	-.000436	.000000	-.001524	-.000052	-.000036	.000000
5	-.000436	.000000	-.001292	-.000034	-.000177	.000000
6	-.4357E-03	-.4084E-08	-.8182E-03	-.1824E-04	-.2481E-03	.1559E-07
7	-.4357E-03	.6718E-09	-.3016E-03	-.7284E-05	-.2172E-03	.1822E-07
8	-.4357E-03	.5746E-08	.8187E-04	-.2493E-05	-.1411E-03	.1417E-07
9	-.4356E-03	.6051E-08	.3070E-03	-.8840E-06	-.7263E-04	.8954E-08
10	-.4356E-03	.5073E-08	.4029E-03	-.4384E-06	-.2006E-04	.4645E-08
11	-.4355E-03	.4481E-08	.4026E-03	-.4667E-06	.1793E-04	.1037E-08
12	-.4354E-03	.4577E-08	.3361E-03	-.7393E-06	.4211E-04	-.2387E-08
13	-.4354E-03	.5066E-08	.2330E-03	-.1157E-05	.5253E-04	-.6117E-08
14	-.4353E-03	.4532E-08	.1224E-03	-.1616E-05	.4932E-04	-.1035E-07
15	-.4353E-03	.7171E-10	.3108E-04	-.1870E-05	.3544E-04	-.1337E-07
16	-.4352E-03	-.4267E-08	-.2923E-04	-.1825E-05	.2037E-04	-.1060E-07
17	-.4352E-03	-.4701E-08	-.5976E-04	-.1826E-05	.8307E-05	-.6483E-08
18	-.4352E-03	-.4133E-08	-.6718E-04	-.2006E-05	-.8955E-06	-.2847E-08
19	-.4351E-03	-.3723E-08	-.5731E-04	-.2411E-05	-.7584E-05	.8330E-09
20	-.4351E-03	-.2091E-08	-.3519E-04	-.3068E-05	-.1207E-04	.5812E-08
21	-.4351E-03	.6402E-08	-.5903E-05	-.3825E-05	-.1317E-04	.1170E-07
22	-.4358E-03	-.1149E-07	-.5337E-03	-.8003E-04	.2937E-03	.1383E-07
23	-.000436	.000000	-.001141	-.000049	.000241	.000000
24	-.000436	.000000	-.001542	-.000029	.000110	.000000
25	-.000436	.000000	-.001607	-.000016	-.000048	.000000
26	-.000436	.000000	-.001344	-.000006	-.000187	.000000
27	-.4358E-03	-.3762E-08	-.8329E-03	.5093E-05	-.2589E-03	.2090E-07
28	-.4358E-03	.3496E-09	-.2880E-03	.1532E-04	-.2195E-03	.3349E-07
29	-.4357E-03	.4747E-08	.9262E-04	.9809E-05	-.1380E-03	.2005E-07
30	-.4357E-03	.4312E-08	.3118E-03	.4754E-05	-.7129E-04	.1077E-07
31	-.4356E-03	.3343E-08	.4049E-03	.2157E-05	-.1966E-04	.5074E-08
32	-.4355E-03	.2876E-08	.4030E-03	.8548E-06	.1806E-04	.9505E-09
33	-.4354E-03	.3005E-08	.3354E-03	.6292E-07	.4222E-04	-.2932E-08
34	-.4353E-03	.3604E-08	.2308E-03	-.6437E-06	.5281E-04	-.7812E-08
35	-.4353E-03	.3787E-08	.1182E-03	-.1492E-05	.4979E-04	-.1540E-07
36	-.4352E-03	.1506E-10	.2595E-04	-.2004E-05	.3487E-04	-.2616E-07
37	-.4352E-03	-.3600E-08	-.3288E-04	-.1197E-05	.2000E-04	-.1545E-07
38	-.4352E-03	-.3314E-08	-.6281E-04	-.8041E-06	.8309E-05	-.8157E-08
39	-.4351E-03	-.2617E-08	-.7037E-04	-.7413E-06	-.6824E-06	-.3749E-08
40	-.4351E-03	-.2193E-08	-.6122E-04	-.9252E-06	-.7113E-05	-.5282E-09
41	-.4351E-03	-.1170E-08	-.4085E-04	-.1406E-05	-.1101E-04	.2752E-08
42	-.4351E-03	.4155E-08	-.1471E-04	-.2243E-05	-.1243E-04	.6356E-08
43	-.4358E-03	.0000E+00	-.6476E-03	.0000E+00	.2697E-03	.0000E+00
44	-.000436	.000000	-.001203	.000000	.000227	.000000
45	-.000436	.000000	-.001578	.000000	.000103	.000000
46	-.000436	.000000	-.001627	.000000	-.000053	.000000
47	-.000436	.000000	-.001353	.000000	-.000192	.000000
48	-.4359E-03	.0000E+00	-.8202E-03	.0000E+00	-.2685E-03	.0000E+00
49	-.4360E-03	.0000E+00	-.2413E-03	.0000E+00	-.2162E-03	.0000E+00
50	-.4359E-03	.0000E+00	.1100E-03	.0000E+00	-.1307E-03	.0000E+00

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:PCARGA. PRUEBA DE CARGA.

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 1 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
51	-.4357E-03	.0000E+00	.3177E-03	.0000E+00	-.6925E-04	.0000E+00
52	-.4356E-03	.0000E+00	.4074E-03	.0000E+00	-.1906E-04	.0000E+00
53	-.4355E-03	.0000E+00	.4040E-03	.0000E+00	.1833E-04	.0000E+00
54	-.4354E-03	.0000E+00	.3355E-03	.0000E+00	.4240E-04	.0000E+00
55	-.4353E-03	.0000E+00	.2299E-03	.0000E+00	.5316E-04	.0000E+00
56	-.4352E-03	.0000E+00	.1154E-03	.0000E+00	.5065E-04	.0000E+00
57	-.4350E-03	.0000E+00	.2103E-04	.0000E+00	.3251E-04	.0000E+00
58	-.4351E-03	.0000E+00	-.3438E-04	.0000E+00	.1949E-04	.0000E+00
59	-.4351E-03	.0000E+00	-.6372E-04	.0000E+00	.8256E-05	.0000E+00
60	-.4351E-03	.0000E+00	-.7124E-04	.0000E+00	-.6265E-06	.0000E+00
61	-.4351E-03	.0000E+00	-.6232E-04	.0000E+00	-.6948E-05	.0000E+00
62	-.4351E-03	.0000E+00	-.4260E-04	.0000E+00	-.1064E-04	.0000E+00
63	-.4351E-03	.0000E+00	-.1787E-04	.0000E+00	-.1178E-04	.0000E+00
64	-.4358E-03	.1149E-07	-.5337E-03	.8003E-04	.2937E-03	-.1383E-07
65	-.000436	.000000	-.001141	.000049	.000241	.000000
66	-.000436	.000000	-.001542	.000029	.000110	.000000
67	-.000436	.000000	-.001607	.000016	-.000048	.000000
68	-.000436	.000000	-.001344	.000006	-.000187	.000000
69	-.4358E-03	.3762E-08	-.8329E-03	-.5093E-05	-.2589E-03	-.2090E-07
70	-.4358E-03	-.3496E-09	-.2880E-03	-.1532E-04	-.2195E-03	-.3349E-07
71	-.4357E-03	-.4747E-08	.9262E-04	-.9809E-05	-.1380E-03	-.2005E-07
72	-.4357E-03	-.4312E-08	.3118E-03	-.4754E-05	-.7129E-04	-.1077E-07
73	-.4356E-03	-.3343E-08	.4049E-03	-.2157E-05	-.1966E-04	-.5074E-08
74	-.4355E-03	-.2876E-08	.4030E-03	-.8548E-06	.1806E-04	-.9505E-09
75	-.4354E-03	-.3005E-08	.3354E-03	-.6292E-07	.4222E-04	.2932E-08
76	-.4353E-03	-.3604E-08	.2308E-03	.6437E-06	.5281E-04	.7812E-08
77	-.4353E-03	-.3787E-08	.1182E-03	.1492E-05	.4979E-04	.1540E-07
78	-.4352E-03	-.1506E-10	.2595E-04	.2004E-05	.3487E-04	.2616E-07
79	-.4352E-03	.3600E-08	-.3288E-04	.1197E-05	.2000E-04	.1545E-07
80	-.4352E-03	.3314E-08	-.6281E-04	.8041E-06	.8309E-05	.8157E-08
81	-.4351E-03	.2617E-08	-.7037E-04	.7413E-06	-.6824E-06	.3749E-08
82	-.4351E-03	.2193E-08	-.6122E-04	.9252E-06	-.7113E-05	.5282E-09
83	-.4351E-03	.1170E-08	-.4085E-04	.1406E-05	-.1101E-04	-.2752E-08
84	-.4351E-03	-.4155E-08	-.1471E-04	.2243E-05	-.1243E-04	-.6356E-08
85	-.4357E-03	.1647E-07	-.2191E-03	.1346E-03	.3213E-03	-.2073E-07
86	-.4357E-03	.1415E-08	-.9431E-03	.1043E-03	.2806E-03	-.1461E-07
87	-.000436	.000000	-.001413	.000075	.000130	.000000
88	-.000436	.000000	-.001524	.000052	-.000036	.000000
89	-.000436	.000000	-.001292	.000034	-.000177	.000000
90	-.4357E-03	.4084E-08	-.8182E-03	.1824E-04	-.2481E-03	-.1559E-07
91	-.4357E-03	-.6718E-09	-.3016E-03	.7284E-05	-.2172E-03	-.1822E-07
92	-.4357E-03	-.5746E-08	.8187E-04	.2493E-05	-.1411E-03	-.1417E-07
93	-.4356E-03	-.6051E-08	.3070E-03	.8840E-06	-.7263E-04	-.8954E-08
94	-.4356E-03	-.5073E-08	.4029E-03	.4384E-06	-.2006E-04	-.4645E-08
95	-.4355E-03	-.4481E-08	.4026E-03	.4667E-06	.1793E-04	-.1037E-08
96	-.4354E-03	-.4577E-08	.3361E-03	.7393E-06	.4211E-04	.2387E-08
97	-.4354E-03	-.5066E-08	.2330E-03	.1157E-05	.5253E-04	.6117E-08
98	-.4353E-03	-.4532E-08	.1224E-03	.1616E-05	.4932E-04	.1035E-07
99	-.4353E-03	-.7171E-10	.3108E-04	.1870E-05	.3544E-04	.1337E-07
100	-.4352E-03	.4267E-08	-.2923E-04	.1825E-05	.2037E-04	.1060E-07

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:PCARGA. PRUEBA DE CARGA.

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 1 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
101	-.4352E-03	.4701E-08	-.5976E-04	.1826E-05	.8307E-05	.6483E-08
102	-.4352E-03	.4133E-08	-.6718E-04	.2006E-05	-.8955E-06	.2847E-08
103	-.4351E-03	.3723E-08	-.5731E-04	.2411E-05	-.7584E-05	-.8330E-09
104	-.4351E-03	.2091E-08	-.3519E-04	.3068E-05	-.1207E-04	-.5812E-08
105	-.4351E-03	-.6402E-08	-.5903E-05	.3825E-05	-.1317E-04	-.1170E-07

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:PCARGA. PRUEBA DE CARGA.

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 2 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
1	.7043E-06	.1104E-07	.4733E-04	.3148E-04	-.1005E-03	-.9902E-08
2	.7008E-06	.3845E-08	.2709E-03	.2558E-04	-.9152E-04	-.9646E-08
3	.6886E-06	.3842E-08	.4366E-03	.2055E-04	-.5540E-04	-.1058E-07
4	.6649E-06	.6337E-08	.5034E-03	.1762E-04	-.1421E-05	-.1407E-07
5	.6259E-06	.9250E-08	.4301E-03	.1654E-04	.7331E-04	-.2019E-07
6	.5673E-06	.9158E-08	.1686E-03	.1662E-04	.1709E-03	-.2871E-07
7	.4863E-06	-.8154E-09	-.3246E-03	.1596E-04	.2810E-03	-.3465E-07
8	.000000	.000000	-.001005	.000012	.000346	.000000
9	.000000	.000000	-.001717	.000007	.000306	.000000
10	.000000	.000000	-.002240	.000004	.000173	.000000
11	.000000	.000000	-.002426	.000004	.000000	.000000
12	-.000000	.000000	-.002240	.000004	-.000173	.000000
13	-.000000	.000000	-.001717	.000007	-.000306	.000000
14	-.000000	.000000	-.001005	.000012	-.000346	.000000
15	-.4863E-06	-.8154E-09	-.3246E-03	.1596E-04	-.2810E-03	.3465E-07
16	-.5673E-06	.9158E-08	.1686E-03	.1662E-04	-.1709E-03	.2871E-07
17	-.6259E-06	.9250E-08	.4301E-03	.1654E-04	-.7331E-04	.2019E-07
18	-.6649E-06	.6337E-08	.5034E-03	.1762E-04	.1421E-05	.1407E-07
19	-.6886E-06	.3842E-08	.4366E-03	.2055E-04	.5540E-04	.1058E-07
20	-.7008E-06	.3845E-08	.2709E-03	.2558E-04	.9152E-04	.9646E-08
21	-.7043E-06	.1104E-07	.4733E-04	.3148E-04	.1005E-03	.9902E-08
22	.7484E-06	.8043E-08	.1194E-03	.1846E-04	-.9454E-04	-.8192E-08
23	.7489E-06	.2358E-08	.3180E-03	.1178E-04	-.8316E-04	-.8139E-08
24	.7484E-06	.2475E-08	.4701E-03	.8133E-05	-.5188E-04	-.9632E-08
25	.7459E-06	.4306E-08	.5323E-03	.7175E-05	-.2388E-06	-.1417E-07
26	.7382E-06	.6838E-08	.4599E-03	.8769E-05	.7218E-04	-.2311E-07
27	.7169E-06	.8073E-08	.2065E-03	.1370E-04	.1666E-03	-.3986E-07
28	.6619E-06	-.3999E-09	-.2772E-03	.2034E-04	.2797E-03	-.6541E-07
29	.5288E-06	-.9359E-08	-.9742E-03	.1316E-04	.3509E-03	-.3887E-07
30	.000000	.000000	-.001704	.000006	.000309	.000000
31	.000000	.000000	-.002238	.000002	.000174	.000000
32	.000000	.000000	-.002423	.000001	.000000	.000000
33	-.000000	.000000	-.002238	.000002	-.000174	.000000
34	-.000000	.000000	-.001704	.000006	-.000309	.000000
35	-.5288E-06	-.9359E-08	-.9742E-03	.1316E-04	-.3509E-03	.3887E-07
36	-.6619E-06	-.3999E-09	-.2772E-03	.2034E-04	-.2797E-03	.6541E-07
37	-.7169E-06	.8073E-08	.2065E-03	.1370E-04	-.1666E-03	.3986E-07
38	-.7382E-06	.6838E-08	.4599E-03	.8769E-05	-.7218E-04	.2311E-07
39	-.7459E-06	.4306E-08	.5323E-03	.7175E-05	.2388E-06	.1417E-07
40	-.7484E-06	.2475E-08	.4701E-03	.8133E-05	.5188E-04	.9632E-08
41	-.7489E-06	.2358E-08	.3180E-03	.1178E-04	.8316E-04	.8139E-08
42	-.7484E-06	.8043E-08	.1194E-03	.1846E-04	.9454E-04	.8192E-08
43	.7752E-06	.0000E+00	.1453E-03	.0000E+00	-.8934E-04	.0000E+00
44	.7772E-06	.0000E+00	.3326E-03	.0000E+00	-.8025E-04	.0000E+00
45	.7870E-06	.0000E+00	.4798E-03	.0000E+00	-.5069E-04	.0000E+00
46	.8082E-06	.0000E+00	.5407E-03	.0000E+00	-.1306E-06	.0000E+00
47	.8484E-06	.0000E+00	.4704E-03	.0000E+00	.7061E-04	.0000E+00
48	.9231E-06	.0000E+00	.2275E-03	.0000E+00	.1598E-03	.0000E+00
49	.1064E-05	.0000E+00	-.2261E-03	.0000E+00	.2727E-03	.0000E+00
50	.7327E-06	.0000E+00	-.9513E-03	.0000E+00	.3590E-03	.0000E+00

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 2 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
51	.000000	.000000	-.001698	.000000	.000312	.000000
52	.000000	.000000	-.002237	.000000	.000174	.000000
53	.000000	.000000	-.002422	.000000	.000000	.000000
54	-.000000	.000000	-.002237	.000000	-.000174	.000000
55	-.000000	.000000	-.001698	.000000	-.000312	.000000
56	-.7327E-06	.0000E+00	-.9513E-03	.0000E+00	-.3590E-03	.0000E+00
57	-.1064E-05	.0000E+00	-.2261E-03	.0000E+00	-.2727E-03	.0000E+00
58	-.9231E-06	.0000E+00	.2275E-03	.0000E+00	-.1598E-03	.0000E+00
59	-.8484E-06	.0000E+00	.4704E-03	.0000E+00	-.7061E-04	.0000E+00
60	-.8082E-06	.0000E+00	.5407E-03	.0000E+00	.1306E-06	.0000E+00
61	-.7870E-06	.0000E+00	.4798E-03	.0000E+00	.5069E-04	.0000E+00
62	-.7772E-06	.0000E+00	.3326E-03	.0000E+00	.8025E-04	.0000E+00
63	-.7752E-06	.0000E+00	.1453E-03	.0000E+00	.8934E-04	.0000E+00
64	.7484E-06	-.8043E-08	.1194E-03	-.1846E-04	-.9454E-04	.8192E-08
65	.7489E-06	-.2358E-08	.3180E-03	-.1178E-04	-.8316E-04	.8139E-08
66	.7484E-06	-.2475E-08	.4701E-03	-.8133E-05	-.5188E-04	.9632E-08
67	.7459E-06	-.4306E-08	.5323E-03	-.7175E-05	-.2388E-06	.1417E-07
68	.7382E-06	-.6838E-08	.4599E-03	-.8769E-05	.7218E-04	.2311E-07
69	.7169E-06	-.8073E-08	.2065E-03	-.1370E-04	.1666E-03	.3986E-07
70	.6619E-06	.3999E-09	-.2772E-03	-.2034E-04	.2797E-03	.6541E-07
71	.5288E-06	.9359E-08	-.9742E-03	-.1316E-04	.3509E-03	.3887E-07
72	.000000	.000000	-.001704	-.000006	.000309	.000000
73	.000000	.000000	-.002238	-.000002	.000174	.000000
74	.000000	.000000	-.002423	-.000001	.000000	.000000
75	-.000000	.000000	-.002238	-.000002	-.000174	.000000
76	-.000000	.000000	-.001704	-.000006	-.000309	.000000
77	-.5288E-06	.9359E-08	-.9742E-03	-.1316E-04	-.3509E-03	-.3887E-07
78	-.6619E-06	.3999E-09	-.2772E-03	-.2034E-04	-.2797E-03	-.6541E-07
79	-.7169E-06	-.8073E-08	.2065E-03	-.1370E-04	-.1666E-03	-.3986E-07
80	-.7382E-06	-.6838E-08	.4599E-03	-.8769E-05	-.7218E-04	-.2311E-07
81	-.7459E-06	-.4306E-08	.5323E-03	-.7175E-05	.2388E-06	-.1417E-07
82	-.7484E-06	-.2475E-08	.4701E-03	-.8133E-05	.5188E-04	-.9632E-08
83	-.7489E-06	-.2358E-08	.3180E-03	-.1178E-04	.8316E-04	-.8139E-08
84	-.7484E-06	-.8043E-08	.1194E-03	-.1846E-04	.9454E-04	-.8192E-08
85	.7043E-06	-.1104E-07	.4733E-04	-.3148E-04	-.1005E-03	.9902E-08
86	.7008E-06	-.3845E-08	.2709E-03	-.2558E-04	-.9152E-04	.9646E-08
87	.6886E-06	-.3842E-08	.4366E-03	-.2055E-04	-.5540E-04	.1058E-07
88	.6649E-06	-.6337E-08	.5034E-03	-.1762E-04	-.1421E-05	.1407E-07
89	.6259E-06	-.9250E-08	.4301E-03	-.1654E-04	.7331E-04	.2019E-07
90	.5673E-06	-.9158E-08	.1686E-03	-.1662E-04	.1709E-03	.2871E-07
91	.4863E-06	.8154E-09	-.3246E-03	-.1596E-04	.2810E-03	.3465E-07
92	.000000	.000000	-.001005	-.000012	.000346	.000000
93	.000000	.000000	-.001717	-.000007	.000306	.000000
94	.000000	.000000	-.002240	-.000004	.000173	.000000
95	.000000	.000000	-.002426	-.000004	.000000	.000000
96	-.000000	.000000	-.002240	-.000004	-.000173	.000000
97	-.000000	.000000	-.001717	-.000007	-.000306	.000000
98	-.000000	.000000	-.001005	-.000012	-.000346	.000000
99	-.4863E-06	.8154E-09	-.3246E-03	-.1596E-04	-.2810E-03	-.3465E-07
100	-.5673E-06	-.9158E-08	.1686E-03	-.1662E-04	-.1709E-03	-.2871E-07

J O I N T D I S P L A C E M E N T S

LOAD CONDITION 2 - DISPLACEMENTS "U" AND ROTATIONS "R"

JOINT	U(X)	U(Y)	U(Z)	R(X)	R(Y)	R(Z)
101	-.6259E-06	-.9250E-08	.4301E-03	-.1654E-04	-.7331E-04	-.2019E-07
102	-.6649E-06	-.6337E-08	.5034E-03	-.1762E-04	.1421E-05	-.1407E-07
103	-.6886E-06	-.3842E-08	.4366E-03	-.2055E-04	.5540E-04	-.1058E-07
104	-.7008E-06	-.3845E-08	.2709E-03	-.2558E-04	.9152E-04	-.9646E-08
105	-.7043E-06	-.1104E-07	.4733E-04	-.3148E-04	.1005E-03	-.9902E-08

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:PCARGA. PRUEBA DE CARGA.

R E A C T I O N S A N D A P P L I E D F O R C E S

LOAD CONDITION 1 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	.0523	.0000	15.0764	.0000	.0026	.0000
1021	.0522	.0000	.4061	.0000	.0026	.0000
1049	-1.1301	.0000	60.2908	.0000	-2.8386	.0000
1057	.9212	.0000	-5.2558	.0000	4.5585	.0000
1085	.0523	.0000	15.0764	.0000	.0026	.0000
1105	.0522	.0000	.4061	.0000	.0026	.0000
TOTAL	.2017E-11	-.1018E-12	.8600E+02	.4707E-12	.1730E+01	-.3905E-12

REPOSICION 304+615. 3 VANOS 13+17+13 FILE:PCARGA. PRUEBA DE CARGA.

R E A C T I O N S A N D A P P L I E D F O R C E S

LOAD CONDITION 2 - FORCES "F" AND MOMENTS "M"

JOINT	F(X)	F(Y)	F(Z)	M(X)	M(Y)	M(Z)
1001	-.0001	.0000	-3.2564	.0000	.0000	.0000
1021	.0001	.0000	-3.2564	.0000	.0000	.0000
1049	2.2494	.0000	56.5128	.0000	8.1119	.0000
1057	-2.2494	.0000	56.5128	.0000	-8.1119	.0000
1085	-.0001	.0000	-3.2564	.0000	.0000	.0000
1105	.0001	.0000	-3.2564	.0000	.0000	.0000
TOTAL	.3087E-14	.4623E-15	.1000E+03	.2366E-13	.1243E-13	.2102E-14

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
1								
	1	.000			-.041			7.322
		.000	2.906	-2.439		-.008	.012	
		1.083	2.906	.709		-.008	.004	
		2.167	2.906	3.858		-.008	-.005	
		2.167			-.041			7.322
	2	.000			-.005			-1.428
		.000	-.629	.525		.005	-.005	
		1.083	-.629	-.156		.005	-.000	
		2.167	-.629	-.837		.005	.005	
		2.167			-.005			-1.428
2								
	1	.000			-.023			6.972
		.000	1.015	1.523		-.009	.012	
		1.083	1.015	2.623		-.009	.003	
		2.167	1.015	3.723		-.009	-.007	
		2.167			-.023			6.972
	2	.000			-.017			-1.216
		.000	-.265	-.343		.007	-.008	
		1.083	-.265	-.630		.007	.001	
		2.167	-.265	-.917		.007	.009	
		2.167			-.017			-1.216
3								
	1	.000			-.008			5.649
		.000	.327	2.541		-.008	.009	
		1.083	.327	2.896		-.008	.000	
		2.167	.327	3.251		-.008	-.009	
		2.167			-.008			5.649
	2	.000			-.032			-.706
		.000	-.214	-.710		.010	-.009	
		1.083	-.214	-.942		.010	.002	
		2.167	-.214	-1.174		.010	.013	
		2.167			-.032			-.706
4								
	1	.000			.007			4.428
		.000	-.036	2.507		-.009	.008	
		1.083	-.036	2.468		-.009	-.001	
		2.167	-.036	2.429		-.009	-.011	
		2.167			.007			4.428
	2	.000			-.053			-.263
		.000	-.185	-1.104		.014	-.011	
		1.083	-.185	-1.304		.014	.004	
		2.167	-.185	-1.504		.014	.018	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.167			-.053			-.263
5								
	1	.000			.024			3.756
		.000	-.543	1.825		-.010	.009	
		1.083	-.543	1.237		-.010	-.002	
		2.167	-.543	.649		-.010	-.013	
		2.167			.024			3.756
	2	.000			-.080			.020
		.000	-.121	-1.571		.018	-.014	
		1.083	-.121	-1.702		.018	.005	
		2.167	-.121	-1.833		.018	.025	
		2.167			-.080			.020
6								
	1	.000			.041			2.648
		.000	-.506	.009		-.011	.010	
		1.083	-.506	-.539		-.011	-.002	
		2.167	-.506	-1.088		-.011	-.013	
		2.167			.041			2.648
	2	.000			-.110			-.160
		.000	.151	-2.084		.020	-.018	
		1.083	.151	-1.921		.020	.004	
		2.167	.151	-1.757		.020	.025	
		2.167			-.110			-.160
7								
	1	.000			.055			1.181
		.000	-.121	-1.225		-.010	.013	
		1.063	-.121	-1.354		-.010	.003	
		2.125	-.121	-1.482		-.010	-.008	
		2.125			.055			1.181
	2	.000			-.135			-.923
		.000	.642	-1.833		.019	-.025	
		1.063	.642	-1.150		.019	-.005	
		2.125	.642	-.468		.019	.016	
		2.125			-.135			-.923
8								
	1	.000			.069			.397
		.000	.082	-1.304		-.008	.012	
		1.063	.082	-1.218		-.008	.003	
		2.125	.082	-1.131		-.008	-.006	
		2.125			.069			.397
	2	.000			-.162			-1.165
		.000	.816	-.162		.016	-.023	
		1.063	.816	.705		.016	-.006	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.125	.816	1.572		.016	.010	
		2.125			-.162			-1.165
9								
	1	.000			.081			.110
		.000	.111	-1.053		-.005	.008	
		1.063	.111	-.935		-.005	.003	
		2.125	.111	-.817		-.005	-.003	
		2.125			.081			.110
	2	.000			-.182			-.806
		.000	.569	1.753		.010	-.016	
		1.063	.569	2.358		.010	-.005	
		2.125	.569	2.962		.010	.005	
		2.125			-.182			-.806
10								
	1	.000			.087			-.007
		.000	.112	-.794		-.002	.005	
		1.063	.112	-.676		-.002	.002	
		2.125	.112	-.557		-.002	-.000	
		2.125			.087			-.007
	2	.000			-.193			-.163
		.000	.097	2.982		.003	-.008	
		1.063	.097	3.085		.003	-.005	
		2.125	.097	3.189		.003	-.001	
		2.125			-.193			-.163
21								
	1	.000			-.009			15.379
		.000	8.256	.322		-.010	.015	
		1.083	8.256	9.266		-.010	.004	
		2.167	8.256	18.210		-.010	-.007	
		2.167			-.009			15.379
	2	.000			.001			-3.319
		.000	-1.793	-.064		.008	-.009	
		1.083	-1.793	-2.006		.008	.000	
		2.167	-1.793	-3.949		.008	.009	
		2.167			.001			-3.319
22								
	1	.000			-.015			9.876
		.000	5.899	16.664		-.013	.016	
		1.083	5.899	23.055		-.013	.002	
		2.167	5.899	29.446		-.013	-.012	
		2.167			-.015			9.876
	2	.000			-.001			-1.810
		.000	-1.748	-3.619		.013	-.012	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.083	-1.748	-5.512		.013	.002	
		2.167	-1.748	-7.406		.013	.016	
		2.167			-.001			-1.810
23								
	1	.000			-.016			6.428
		.000	-.614	28.613		-.013	.014	
		1.083	-.614	27.948		-.013	-.001	
		2.167	-.614	27.282		-.013	-.016	
		2.167			-.016			6.428
	2	.000			-.007			-.476
		.000	-1.685	-7.276		.018	-.015	
		1.083	-1.685	-9.102		.018	.005	
		2.167	-1.685	-10.927		.018	.025	
		2.167			-.007			-.476
24								
	1	.000			-.011			4.933
		.000	-2.096	26.789		-.017	.014	
		1.083	-2.096	24.518		-.017	-.004	
		2.167	-2.096	22.247		-.017	-.023	
		2.167			-.011			4.933
	2	.000			-.021			.792
		.000	-1.658	-10.967		.029	-.021	
		1.083	-1.658	-12.763		.029	.010	
		2.167	-1.658	-14.559		.029	.041	
		2.167			-.021			.792
25								
	1	.000			.006			5.674
		.000	-8.251	21.547		-.025	.018	
		1.083	-8.251	12.608		-.025	-.009	
		2.167	-8.251	3.670		-.025	-.036	
		2.167			.006			5.674
	2	.000			-.058			2.448
		.000	-1.574	-14.938		.046	-.031	
		1.083	-1.574	-16.643		.046	.019	
		2.167	-1.574	-18.348		.046	.069	
		2.167			-.058			2.448
26								
	1	.000			.052			5.079
		.000	-7.891	1.604		-.037	.026	
		1.083	-7.891	-6.945		-.037	-.014	
		2.167	-7.891	-15.493		-.037	-.054	
		2.167			.052			5.079
	2	.000			-.149			3.302

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	.085	-20.016		.070	-.048	
		1.083	.085	-19.924		.070	.028	
		2.167	.085	-19.832		.070	.105	
		2.167			-.149			3.302
27								
	1	.000			.161			-2.790
		.000	-.213	-14.422		-.036	.054	
		1.063	-.213	-14.649		-.036	.015	
		2.125	-.213	-14.876		-.036	-.023	
		2.125			.161			-2.790
	2	.000			-.368			-3.637
		.000	8.363	-21.693		.070	-.104	
		1.063	8.363	-12.807		.070	-.030	
		2.125	8.363	-3.922		.070	.044	
		2.125			-.368			-3.637
28								
	1	.000			.207			-2.561
		.000	.988	-13.039		-.023	.035	
		1.063	.988	-11.990		-.023	.011	
		2.125	.988	-10.940		-.023	-.014	
		2.125			.207			-2.561
	2	.000			-.459			-3.724
		.000	8.963	-2.011		.044	-.067	
		1.063	8.963	7.512		.044	-.021	
		2.125	8.963	17.035		.044	.025	
		2.125			-.459			-3.724
29								
	1	.000			.225			-1.315
		.000	1.107	-10.454		-.012	.019	
		1.063	1.107	-9.278		-.012	.006	
		2.125	1.107	-8.102		-.012	-.006	
		2.125			.225			-1.315
	2	.000			-.495			-1.949
		.000	6.323	17.598		.022	-.037	
		1.063	6.323	24.316		.022	-.013	
		2.125	6.323	31.034		.022	.011	
		2.125			-.495			-1.949
30								
	1	.000			.232			-.660
		.000	1.110	-7.958		-.005	.010	
		1.063	1.110	-6.778		-.005	.005	
		2.125	1.110	-5.599		-.005	-.000	
		2.125			.232			-.660

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
	2	.000			-.508			-.362
		.000	.079	31.150		.007	-.017	
		1.063	.079	31.234		.007	-.010	
		2.125	.079	31.317		.007	-.003	
		2.125			-.508			-.362
41								
	1	.000			-.005			.000
		.000	7.828	4.235		.000	.000	
		1.083	7.828	12.714		.000	.000	
		2.167	7.828	21.194		.000	.000	
		2.167			-.005			.000
	2	.000			.007			.000
		.000	-1.670	-.920		.000	.000	
		1.083	-1.670	-2.730		.000	.000	
		2.167	-1.670	-4.539		.000	.000	
		2.167			.007			.000
42								
	1	.000			-.027			.000
		.000	7.724	28.958		.000	.000	
		1.083	7.724	37.325		.000	.000	
		2.167	7.724	45.692		.000	.000	
		2.167			-.027			.000
	2	.000			.036			.000
		.000	-2.487	-6.188		.000	.000	
		1.083	-2.487	-8.882		.000	.000	
		2.167	-2.487	-11.576		.000	.000	
		2.167			.036			.000
43								
	1	.000			-.056			.000
		.000	-2.673	49.720		.000	.000	
		1.083	-2.673	46.823		.000	.000	
		2.167	-2.673	43.927		.000	.000	
		2.167			-.056			.000
	2	.000			.078			.000
		.000	-2.713	-12.252		.000	.000	
		1.083	-2.713	-15.191		.000	.000	
		2.167	-2.713	-18.131		.000	.000	
		2.167			.078			.000
44								
	1	.000			-.096			.000
		.000	-4.183	46.401		.000	.000	
		1.083	-4.183	41.870		.000	.000	
		2.167	-4.183	37.339		.000	.000	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.167			-.096			.000
	2	.000			.148			.000
		.000	-2.827	-18.192		.000	.000	
		1.083	-2.827	-21.255		.000	.000	
		2.167	-2.827	-24.318		.000	.000	
		2.167			.148			.000
45								
	1	.000			-.164			.000
		.000	-15.660	39.947		.000	.000	
		1.083	-15.660	22.982		.000	.000	
		2.167	-15.660	6.017		.000	.000	
		2.167			-.164			.000
	2	.000			.275			.000
		.000	-3.123	-23.428		.000	.000	
		1.083	-3.123	-26.811		.000	.000	
		2.167	-3.123	-30.194		.000	.000	
		2.167			.275			.000
46								
	1	.000			-.289			.000
		.000	-25.053	11.429		.000	.000	
		1.083	-25.053	-15.711		.000	.000	
		2.167	-25.053	-42.851		.000	.000	
		2.167			-.289			.000
	2	.000			.518			.000
		.000	-6.984	-26.355		.000	.000	
		1.083	-6.984	-33.922		.000	.000	
		2.167	-6.984	-41.488		.000	.000	
		2.167			.518			.000
47								
	1	.000			.593			.000
		.000	8.412	-35.126		.000	.000	
		1.063	8.412	-26.189		.000	.000	
		2.125	8.412	-17.252		.000	.000	
		2.125			.593			.000
	2	.000			-1.242			.000
		.000	26.191	-54.247		.000	.000	
		1.063	26.191	-26.420		.000	.000	
		2.125	26.191	1.408		.000	.000	
		2.125			-1.242			.000
48								
	1	.000			.473			.000
		.000	2.305	-21.280		.000	.000	
		1.063	2.305	-18.830		.000	.000	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.125	2.305	-16.381		.000	.000	
		2.125			.473			.000
	2	.000			-1.008			.000
		.000	16.443	-3.028		.000	.000	
		1.063	16.443	14.443		.000	.000	
		2.125	16.443	31.913		.000	.000	
		2.125			-1.008			.000
49								
	1	.000			.414			.000
		.000	2.007	-17.509		.000	.000	
		1.063	2.007	-15.376		.000	.000	
		2.125	2.007	-13.244		.000	.000	
		2.125			.414			.000
	2	.000			-.893			.000
		.000	11.018	30.424		.000	.000	
		1.063	11.018	42.130		.000	.000	
		2.125	11.018	53.837		.000	.000	
		2.125			-.893			.000
50								
	1	.000			.388			.000
		.000	2.000	-13.577		.000	.000	
		1.063	2.000	-11.452		.000	.000	
		2.125	2.000	-9.326		.000	.000	
		2.125			.388			.000
	2	.000			-.846			.000
		.000	-.151	53.562		.000	.000	
		1.063	-.151	53.401		.000	.000	
		2.125	-.151	53.240		.000	.000	
		2.125			-.846			.000
61								
	1	.000			-.009			-15.379
		.000	8.256	.322		.010	-.015	
		1.083	8.256	9.266		.010	-.004	
		2.167	8.256	18.210		.010	.007	
		2.167			-.009			-15.379
	2	.000			.001			3.319
		.000	-1.793	-.064		-.008	.009	
		1.083	-1.793	-2.006		-.008	.000	
		2.167	-1.793	-3.949		-.008	-.009	
		2.167			.001			3.319
62								
	1	.000			-.015			-9.876
		.000	5.899	16.664		.013	-.016	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		1.083	5.899	23.055		.013	-.002	
		2.167	5.899	29.446		.013	.012	
		2.167			-.015			-9.876
	2	.000			-.001			1.810
		.000	-1.748	-3.619		-.013	.012	
		1.083	-1.748	-5.512		-.013	-.002	
		2.167	-1.748	-7.406		-.013	-.016	
		2.167			-.001			1.810
63								
	1	.000			-.016			-6.428
		.000	-.614	28.613		.013	-.014	
		1.083	-.614	27.948		.013	.001	
		2.167	-.614	27.282		.013	.016	
		2.167			-.016			-6.428
	2	.000			-.007			.476
		.000	-1.685	-7.276		-.018	.015	
		1.083	-1.685	-9.102		-.018	-.005	
		2.167	-1.685	-10.927		-.018	-.025	
		2.167			-.007			.476
64								
	1	.000			-.011			-4.933
		.000	-2.096	26.789		.017	-.014	
		1.083	-2.096	24.518		.017	.004	
		2.167	-2.096	22.247		.017	.023	
		2.167			-.011			-4.933
	2	.000			-.021			-.792
		.000	-1.658	-10.967		-.029	.021	
		1.083	-1.658	-12.763		-.029	-.010	
		2.167	-1.658	-14.559		-.029	-.041	
		2.167			-.021			-.792
65								
	1	.000			.006			-5.674
		.000	-8.251	21.547		.025	-.018	
		1.083	-8.251	12.608		.025	.009	
		2.167	-8.251	3.670		.025	.036	
		2.167			.006			-5.674
	2	.000			-.058			-2.448
		.000	-1.574	-14.938		-.046	.031	
		1.083	-1.574	-16.643		-.046	-.019	
		2.167	-1.574	-18.348		-.046	-.069	
		2.167			-.058			-2.448
66								
	1	.000			.052			-5.079

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.000	-7.891	1.604		.037	-.026	
		1.083	-7.891	-6.945		.037	.014	
		2.167	-7.891	-15.493		.037	.054	
		2.167			.052			-5.079
	2	.000			-.149			-3.302
		.000	.085	-20.016		-.070	.048	
		1.083	.085	-19.924		-.070	-.028	
		2.167	.085	-19.832		-.070	-.105	
		2.167			-.149			-3.302
67								
	1	.000			.161			2.790
		.000	-.213	-14.422		.036	-.054	
		1.063	-.213	-14.649		.036	-.015	
		2.125	-.213	-14.876		.036	.023	
		2.125			.161			2.790
	2	.000			-.368			3.637
		.000	8.363	-21.693		-.070	.104	
		1.063	8.363	-12.807		-.070	.030	
		2.125	8.363	-3.922		-.070	-.044	
		2.125			-.368			3.637
68								
	1	.000			.207			2.561
		.000	.988	-13.039		.023	-.035	
		1.063	.988	-11.990		.023	-.011	
		2.125	.988	-10.940		.023	.014	
		2.125			.207			2.561
	2	.000			-.459			3.724
		.000	8.963	-2.011		-.044	.067	
		1.063	8.963	7.512		-.044	.021	
		2.125	8.963	17.035		-.044	-.025	
		2.125			-.459			3.724
69								
	1	.000			.225			1.315
		.000	1.107	-10.454		.012	-.019	
		1.063	1.107	-9.278		.012	-.006	
		2.125	1.107	-8.102		.012	.006	
		2.125			.225			1.315
	2	.000			-.495			1.949
		.000	6.323	17.598		-.022	.037	
		1.063	6.323	24.316		-.022	.013	
		2.125	6.323	31.034		-.022	-.011	
		2.125			-.495			1.949

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
70								
	1	.000			.232			.660
		.000	1.110	-7.958		.005	-.010	
		1.063	1.110	-6.778		.005	-.005	
		2.125	1.110	-5.599		.005	.000	
		2.125			.232			.660
	2	.000			-.508			.362
		.000	.079	31.150		-.007	.017	
		1.063	.079	31.234		-.007	.010	
		2.125	.079	31.317		-.007	.003	
		2.125			-.508			.362
81								
	1	.000			-.041			-7.322
		.000	2.906	-2.439		.008	-.012	
		1.083	2.906	.709		.008	-.004	
		2.167	2.906	3.858		.008	.005	
		2.167			-.041			-7.322
	2	.000			-.005			1.428
		.000	-.629	.525		-.005	.005	
		1.083	-.629	-.156		-.005	.000	
		2.167	-.629	-.837		-.005	-.005	
		2.167			-.005			1.428
82								
	1	.000			-.023			-6.972
		.000	1.015	1.523		.009	-.012	
		1.083	1.015	2.623		.009	-.003	
		2.167	1.015	3.723		.009	.007	
		2.167			-.023			-6.972
	2	.000			-.017			1.216
		.000	-.265	-.343		-.007	.008	
		1.083	-.265	-.630		-.007	-.001	
		2.167	-.265	-.917		-.007	-.009	
		2.167			-.017			1.216
83								
	1	.000			-.008			-5.649
		.000	.327	2.541		.008	-.009	
		1.083	.327	2.896		.008	-.000	
		2.167	.327	3.251		.008	.009	
		2.167			-.008			-5.649
	2	.000			-.032			.706
		.000	-.214	-.710		-.010	.009	
		1.083	-.214	-.942		-.010	-.002	
		2.167	-.214	-1.174		-.010	-.013	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.167			-.032			.706
84								
	1	.000			.007			-4.428
		.000	-.036	2.507		.009	-.008	
		1.083	-.036	2.468		.009	.001	
		2.167	-.036	2.429		.009	.011	
		2.167			.007			-4.428
	2	.000			-.053			.263
		.000	-.185	-1.104		-.014	.011	
		1.083	-.185	-1.304		-.014	-.004	
		2.167	-.185	-1.504		-.014	-.018	
		2.167			-.053			.263
85								
	1	.000			.024			-3.756
		.000	-.543	1.825		.010	-.009	
		1.083	-.543	1.237		.010	.002	
		2.167	-.543	.649		.010	.013	
		2.167			.024			-3.756
	2	.000			-.080			-.020
		.000	-.121	-1.571		-.018	.014	
		1.083	-.121	-1.702		-.018	-.005	
		2.167	-.121	-1.833		-.018	-.025	
		2.167			-.080			-.020
86								
	1	.000			.041			-2.648
		.000	-.506	.009		.011	-.010	
		1.083	-.506	-.539		.011	.002	
		2.167	-.506	-1.088		.011	.013	
		2.167			.041			-2.648
	2	.000			-.110			.160
		.000	.151	-2.084		-.020	.018	
		1.083	.151	-1.921		-.020	-.004	
		2.167	.151	-1.757		-.020	-.025	
		2.167			-.110			.160
87								
	1	.000			.055			-1.181
		.000	-.121	-1.225		.010	-.013	
		1.063	-.121	-1.354		.010	-.003	
		2.125	-.121	-1.482		.010	.008	
		2.125			.055			-1.181
	2	.000			-.135			.923
		.000	.642	-1.833		-.019	.025	
		1.063	.642	-1.150		-.019	.005	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		2.125	.642	-.468		-.019	-.016	
		2.125			-.135			.923
88								
	1	.000			.069			-.397
		.000	.082	-1.304		.008	-.012	
		1.063	.082	-1.218		.008	-.003	
		2.125	.082	-1.131		.008	.006	
		2.125			.069			-.397
	2	.000			-.162			1.165
		.000	.816	-.162		-.016	.023	
		1.063	.816	.705		-.016	.006	
		2.125	.816	1.572		-.016	-.010	
		2.125			-.162			1.165
89								
	1	.000			.081			-.110
		.000	.111	-1.053		.005	-.008	
		1.063	.111	-.935		.005	-.003	
		2.125	.111	-.817		.005	.003	
		2.125			.081			-.110
	2	.000			-.182			.806
		.000	.569	1.753		-.010	.016	
		1.063	.569	2.358		-.010	.005	
		2.125	.569	2.962		-.010	-.005	
		2.125			-.182			.806
90								
	1	.000			.087			.007
		.000	.112	-.794		.002	-.005	
		1.063	.112	-.676		.002	-.002	
		2.125	.112	-.557		.002	.000	
		2.125			.087			.007
	2	.000			-.193			.163
		.000	.097	2.982		-.003	.008	
		1.063	.097	3.085		-.003	.005	
		2.125	.097	3.189		-.003	.001	
		2.125			-.193			.163
5001								
	1	.000			-15.076			.000
		.000	.000	.000		.052	-.003	
		.025	.000	.000		.052	-.001	
		.050	.000	.000		.052	.000	
		.050			-15.076			.000
	2	.000			3.256			.000
		.000	.000	.000		.000	.000	

F R A M E E L E M E N T F O R C E S

ELT ID	LOAD COND	DIST ENDI	1-2 PLANE SHEAR	1-2 PLANE MOMENT	AXIAL FORCE	1-3 PLANE SHEAR	1-3 PLANE MOMENT	AXIAL TORQ
		.025	.000	.000		.000	.000	
		.050	.000	.000		.000	.000	
		.050			3.256			.000
5021								
	1	.000			-.406			.000
		.000	.000	.000		.052	-.003	
		.025	.000	.000		.052	-.001	
		.050	.000	.000		.052	.000	
		.050			-.406			.000
	2	.000			3.256			.000
		.000	.000	.000		.000	.000	
		.025	.000	.000		.000	.000	
		.050	.000	.000		.000	.000	
		.050			3.256			.000
5049								
	1	.000			-60.291			.000
		.000	.000	.000		-1.130	2.839	
		5.500	.000	.000		-1.130	-3.377	
		11.000	.000	.000		-1.130	-9.592	
		11.000			-60.291			.000
	2	.000			-56.513			.000
		.000	.000	.000		2.249	-8.112	
		5.500	.000	.000		2.249	4.260	
		11.000	.000	.000		2.249	16.632	
		11.000			-56.513			.000

5.- CONCLUSIONES

Los esfuerzos y deformaciones que se producen en las distintas posiciones del tren de cargas resultan como sigue:

Momentos flectores

Posición	Punto	M_{prueba}	$M_{cálculo}$	Relación
1	A	104.98	180.57	58.0 %
2	B	122.54	200.73	61.0 %

Debido a las dimensiones de los camiones empleados en la prueba de carga se consideran aceptables los anteriores porcentajes, comprobándose que en ningún caso se supera el 90% del valor del momento de cálculo.

Deformaciones (en mm, + gravitatorias)

POSICION	PUNTO	DEFORMACION (mm)
1	A	2
1	B	0
1	C	0
2	A	-1
2	B	2
2	C	-1

El punto A corresponde al centro de del primer vano, el B al centro del segundo vano y el C al centro del tercer vano.

Madrid, 15 de Noviembre de 1999