REPUBLIC OF INDONESIA

MINISTRY OF COMMUNICATIONS
DIRECTORATE GENERAL OF LAND TRANSPORT
AND INLAND WATERWAYS

TENDER DOCUMENTS
FOR
NEW RAILWAY LINE FOR CENGKARENG AIRPORT CONSTRUCTION PROJECT

STRUCTURAL CALCULATION SHEETS

PACKAGE I CIVIL AND ARCHITECTURAL WORK

7 of 11

AUGUST 1984

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)

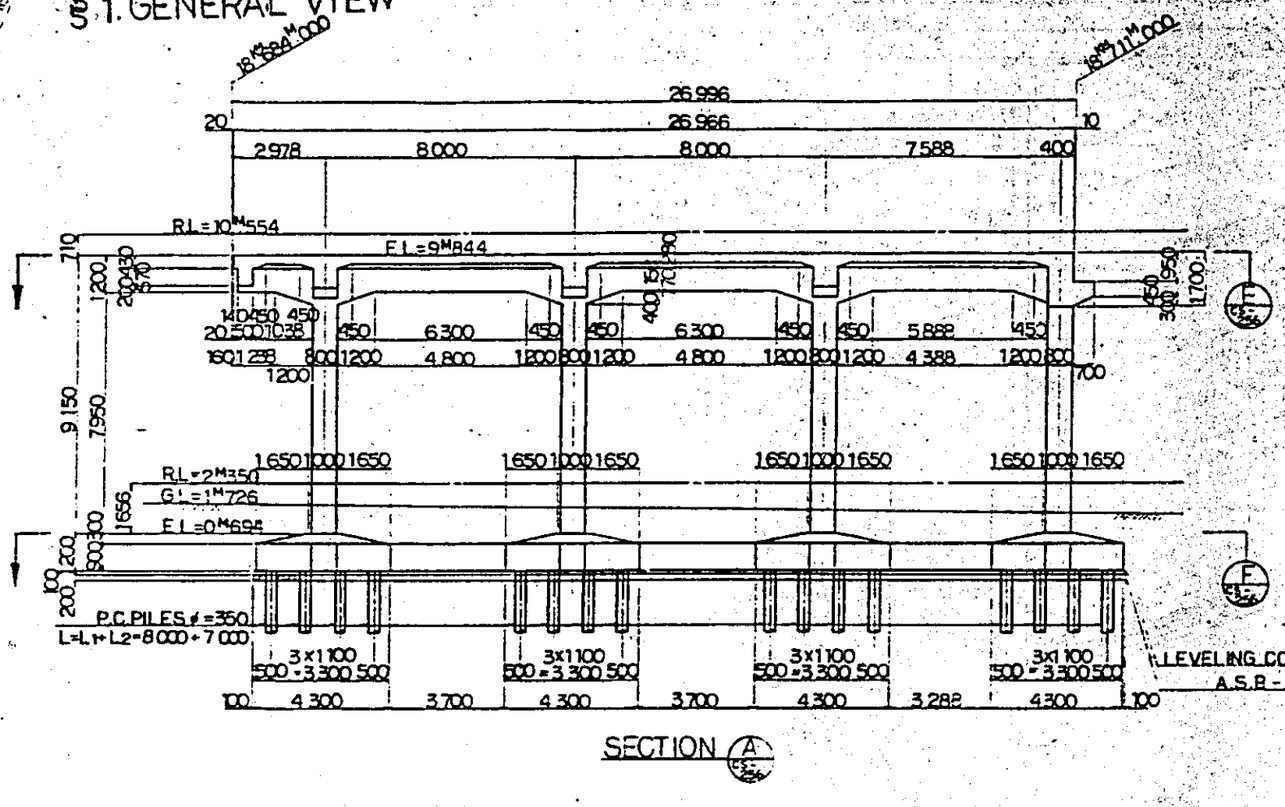
STRUCTURAL CALCULATION SHEETS

CONTENTS

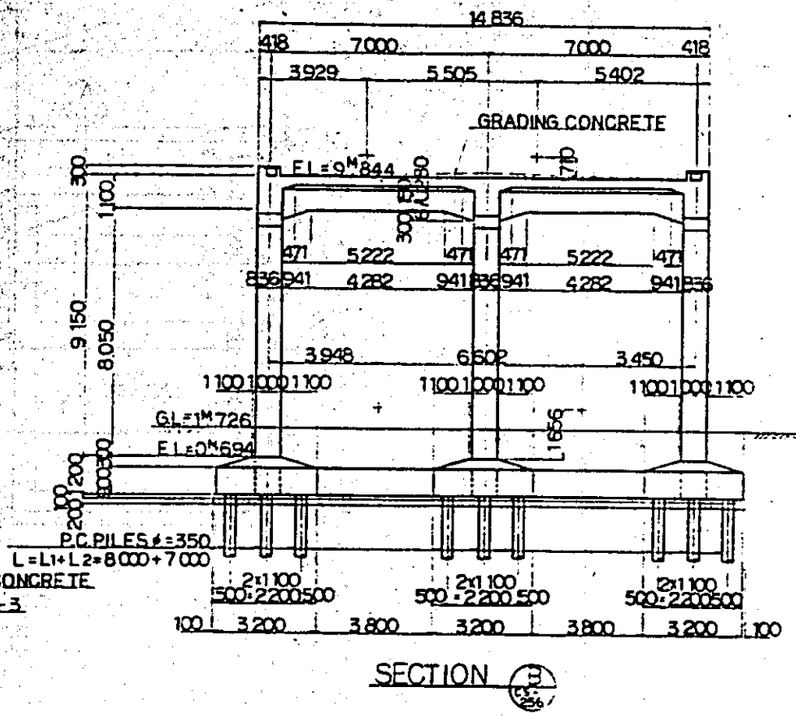
§§ 12. VIADUCT V129

CONTENTS

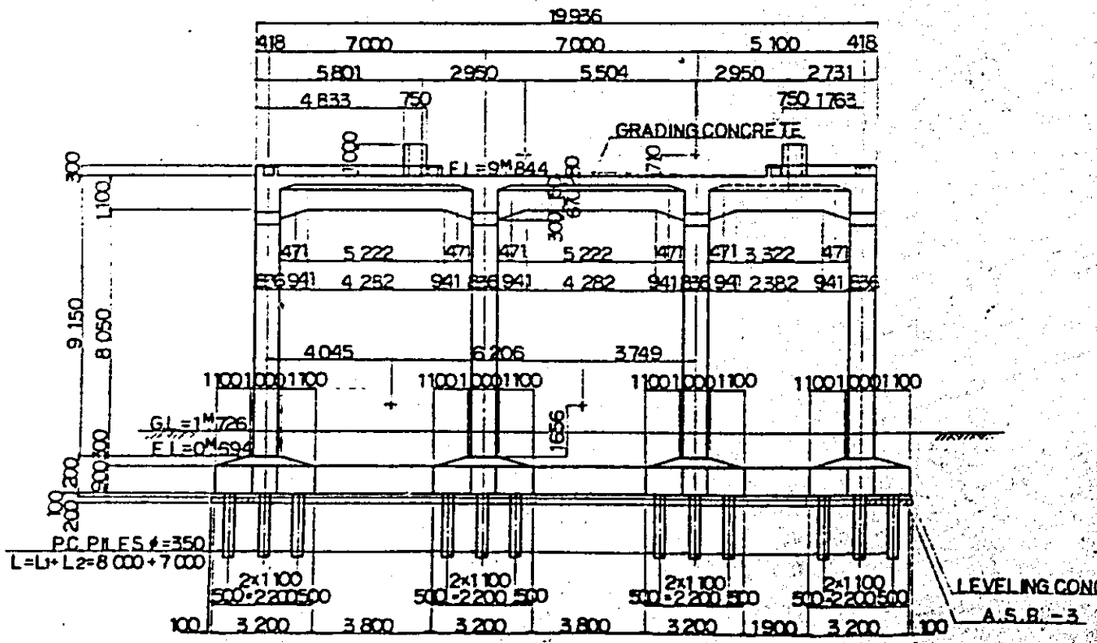
§ 1. GENERAL VIEW



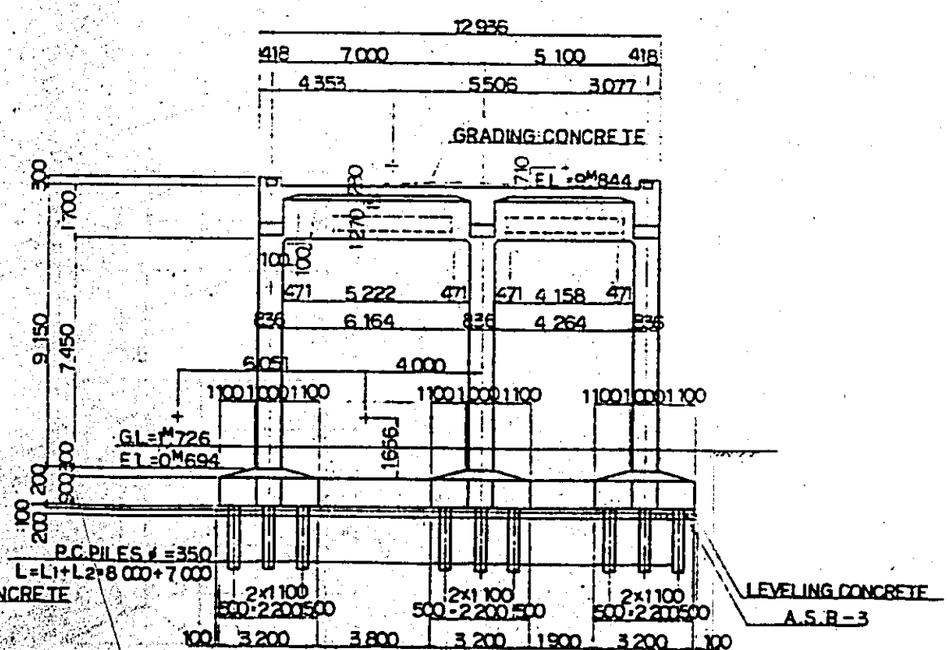
SECTION (A)



SECTION (B)



SECTION (C)



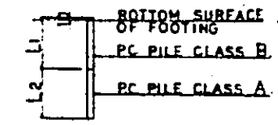
SECTION (D)

NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE INDICATED
2. REFERENCE DRAWING FOR BAR ARRANGEMENT:

CS-258	CS-263	CS-268
CS-259	CS-264	CS-269
CS-260	CS-265	CS-270
CS-261	CS-266	CS-271
CS-262	CS-267	

3. TYPES OF P.C. PILE



4. GRADING CONCRETE SHALL BE SIMULTANEOUSLY PLACED WITH SLAB CONCRETE

REPUBLIC OF INDONESIA
DEPARTMENT OF TRANSPORT
DIRECTORATE GENERAL OF LAND TRANSPORT AND INLAND WATERWAYS

NEW RAILWAY LINE FOR CENGKARENG AIRPORT CONSTRUCTION PROJECT

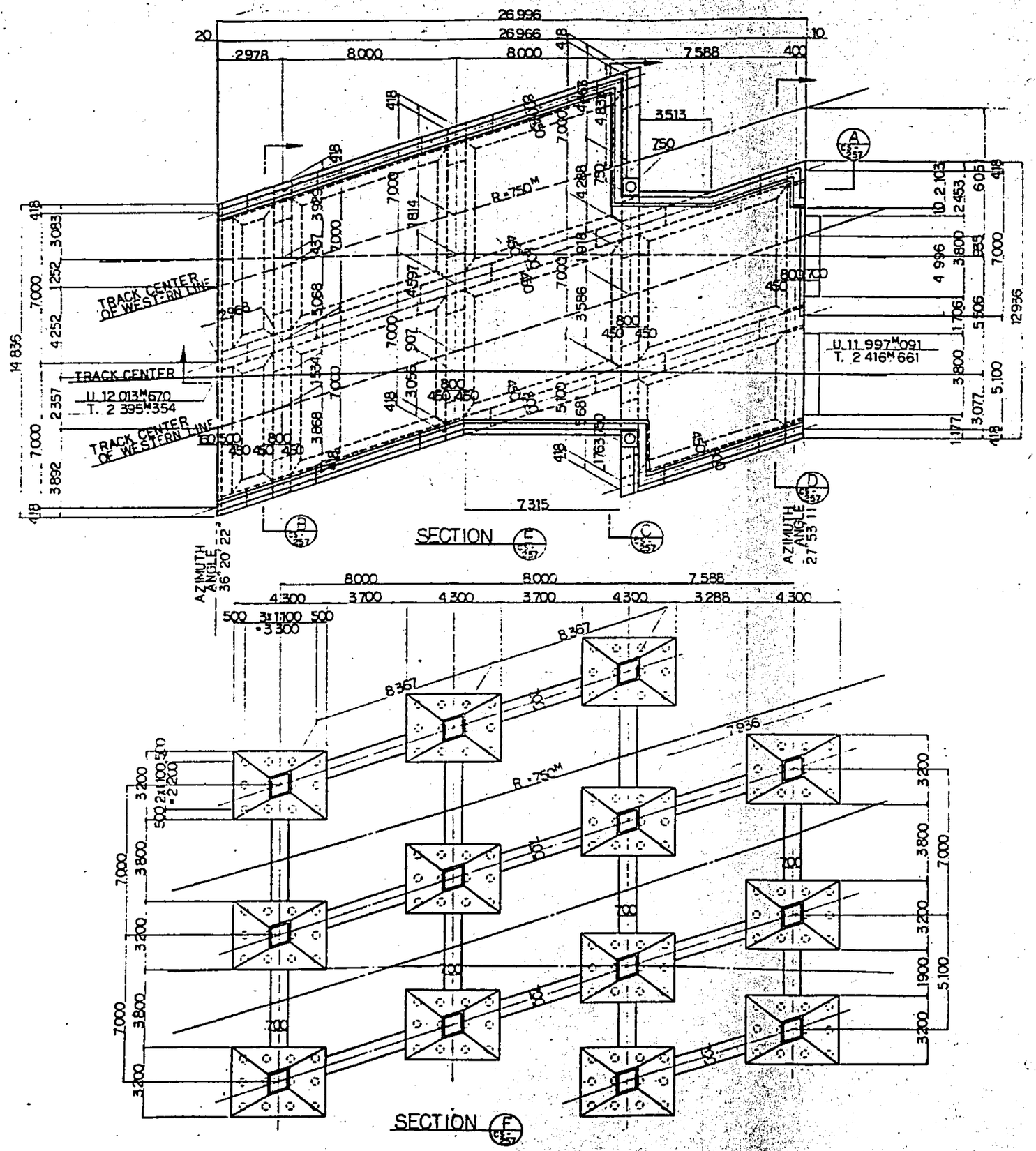
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

REVISIONS	DATE	DESIGNED	DRAWN	CHECKED	APPROVED	SUBMITTED
B	1 AUG '84			K.H		
A	16 FEB '84	T.K	A.O	K.H	K.M	

VIADUCT V129
GENERAL VIEW
(SHEET 2 OF 2)

PACKAGE: I CIVIL AND ARCHITECTURAL WORK

SCALE 1 : 100 | DRAWING NO. CS-257



NOTES:

1. ALL DIMENSIONS ARE SHOWN IN MILLIMETERS UNLESS OTHERWISE INDICATED
2. REFERENCE DRAWING FOR BAR ARRANGEMENT:

CS - 258	CS - 265
CS - 259	CS - 266
CS - 260	CS - 257
CS - 261	CS - 268
CS - 262	CS - 269
CS - 263	CS - 270
CS - 264	CS - 271

REPUBLIC OF INDONESIA
DEPARTMENT OF TRANSPORT
DIRECTORATE GENERAL OF LAND TRANSPORT AND INLAND WATERWAYS

NEW RAILWAY LINE FOR CENGKARENG AIRPORT CONSTRUCTION PROJECT

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

REVISIONS	DATE	DESIGNED	DRAWN	CHECKED	APPROVED	SUBMITTED
B	1 AUG '84					
A	[illegible]	T.K	A.O		K.M	

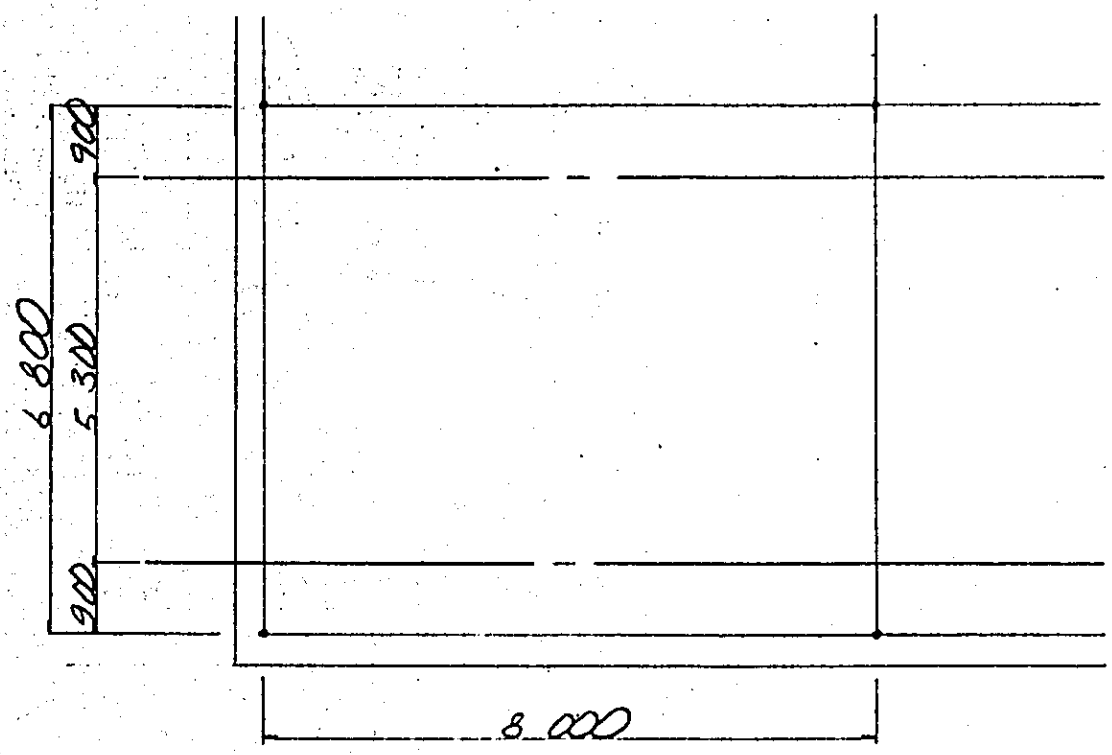
VIADUCT V129
GENERAL VIEW
(SHEET 1 OF 2)

PACKAGE: I CIVIL AND ARCHITECTURAL WORK

SCALE 1 : 100

DRAWING NO. CS-256

§ 2. Calculation of Slab



(1) Slab for calculation

Slab Ⓐ ---------- Two-way Slab

Slab Ⓑ ---------- cantilever Slab

(2) Calculation of slab Ⓐ

Four sides fixed span

$l_{dx} = 8.00 - 0.80 = 7.20^{m}$

$l_{dy} = 6.80 - 0.80 = 6.00\ ''$

Four sides semi — fixed span

$l_{ex} = 8.00 - 0.800 + 0.280 = 7.48^{m}$

$l_{ey} = 6.80 - 0.800 + 0.280 = 6.28\ ''$

Span ratio

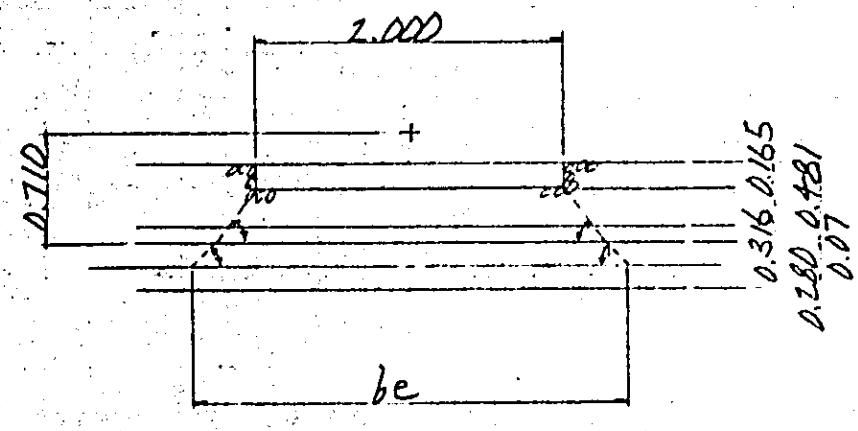
$$md = \frac{ldx}{ldy} = \frac{6.00}{7.20} = 0.83 > 0.40$$

$$\therefore me = \frac{lex}{ley} = \frac{6.28}{7.48} = 0.84 > 0.40$$

From the above, the slab is considered as a two-way slab for calculation

1. Load Calculations

Effective width

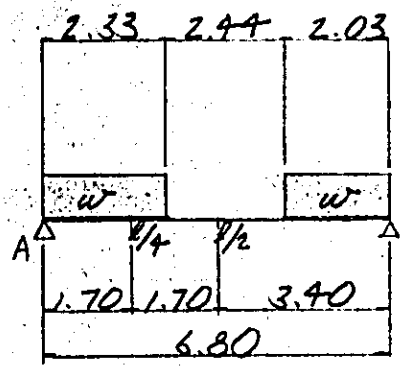


$$be = b + 1.5 \times (d + g) + h$$

$$= 2.000 + 1.5 \times (0.316 + 0.07) + 0.280$$

$$= 2.86 \ ^{m}$$

(a) weight of track assembly



$$w = \frac{0.45}{2.86} = 0.16 \ ^{t}/_{m}$$

$$R_A = \frac{0.16}{6.80} \times (2.33 \times 5.635 + 2.03 \times 1.015)$$

$$= 0.36 \ ^{t}$$

i) At the $\ell/2$ point

$$M_{\ell/2} = 0.36 \times 3.40 - 0.16 \times 2.33 \times 2.235$$

$$= 0.39 \text{ t.m}$$

$$W_{\ell/2} = \frac{8 \cdot M_{\ell/2}}{\ell^2} = \frac{8 \times 0.39}{6.80^2} = 0.07 \text{ t/m}$$

ii) At the $\ell/4$ point

$$M_{\ell/4} = 0.36 \times 1.70 - 0.16 \times 1.70 \times 0.85$$

$$= 0.38 \text{ t.m}$$

$$W_{\ell/4} = \frac{32 \cdot M_{\ell/4}}{3 \cdot \ell^2} = \frac{32 \times 0.38}{3 \times 6.80^2} = 0.09 \text{ t/m}$$

$$M_{\ell/4} = 0.09 \text{ t/m} > M_{\ell/2} = 0.07 \text{ t/m}$$

Dead load

Weight of track assembly			= 0.09	t/m²
Ballast	0.481	× 1.9	= 0.91	"
Sloping concrete	0.07	× 2.35	= 0.16	"
Slab	0.280	× 2.5	= 0.70	"
			W_d = 1.86	t/m²

(2) Train load (single track) + Impact coefficient

$$We = \frac{16}{1.5 \times 2.86} = 3.73\ t/m^2$$

Reduction of impact coefficient

$$l = 6.80\ m \quad — \quad i = 0.462 \times \left(1 - \frac{6.80}{200}\right) = 0.446$$

$$\therefore We+i = 3.73 \times (1 + 0.446) = 5.39\ t/m^2$$

(i) At the l/4 Point

$$R_A = 5.39/6.80 \times (2.33 \times 5.635 + 2.03 \times 1.015) = 12.04^t$$

$$M_{l/4} = 12.04 \times 1.70 - 5.39 \times 1.70 \times 0.85$$

$$= 12.68\ t \cdot m$$

$$\therefore We+i = \frac{32 \times 12.68}{3 \times 6.80^2} = 2.93\ t/m^2$$

2. Bending moment

(1) Dead load

(a) Sharing of load

$ldx = 7.20^{m}$ $ldy = 6.00^{m}$ $Wd = 1.86\ ^{t/m^2}$

coefficient of load sharing in the direction of x or y

$$Cx = \frac{6.00^4}{7.20^4 + 6.00^4} = 0.325$$

$$Cy = \frac{7.20^4}{7.20^4 + 6.00^4} = 0.675$$

(b) Shared load

$wdx = 1.86 \times 0.325 = 0.60\ ^{t/m^2}$

$wdy = 1.86 \times 0.675 = 1.26\ ''$

(C) Torsional coefficient

$$\Psi x = \Psi y = \frac{5}{18} \cdot \frac{lx^2 \cdot ly^2}{lx^4 + ly^4}$$

$$= \frac{5}{18} \times \frac{7.20^2 \times 6.00^2}{7.20^4 \times 6.00^4} = 0.130$$

(d) Bending moment

(i) At the Support point

$Mdx = -1/12 \times 0.60 \times 7.20^2 = -2.59\ ^{t\cdot m}$

$Mdy = -1/12 \times 1.26 \times 6.00^2 = -3.78\ ''$

(ii) At the Span center point

$Mdx = 1/24 \times 0.60 \times 7.20^2 \times (1-0.13) = 1.13$ t·m

$Mdy = 1/24 \times 1.26 \times 6.00^2 \times (1-0.13) = 1.64$ "

(e) Shearing

$Sx = 1/2 \times 0.60 \times 7.20 = 2.16$ t

$Sy = 1/2 \times 1.26 \times 6.00 = 3.78$ "

(2) Train load (Single track) + Impact

1) Four sides fixed span

(a) Sharing of load

$lx = 7.48$ m $\quad ly = 6.28$ m $\quad we+i = 2.93$ t/m²

Coefficient of load sharing in the direction of x or y

$$Cx = \frac{6.28^4}{7.48^4 + 6.28^4} = 0.332$$

$$Cy = \frac{7.48^4}{7.48^4 + 6.28^4} = 0.668$$

(b) Coefficient of load sharing

$wx = 2.93 \times 0.332 = 0.97$ t/m²

$wy = 2.93 \times 0.668 = 1.96$ "

(C) Torsional coefficient

$$\psi_x \cdot \psi_y = \frac{5}{18} \times \frac{7.48^2 \times 6.28^2}{7.48^4 \times 6.28^4} =$$

(d) Bending moment

Train load and Impact

(i) At the support point

$M_x = -1/12 \times 0.97 \times 7.48^2 = -4.52^{t\cdot m}$

$M_y = -1/12 \times 1.96 \times 6.28^2 = -6.44$ "

(ii) At the span center point

$M_x = 1/24 \times 0.97 \times 7.48 \times (1-0.131) = 1.97^{t\cdot m}$

$M_y = 1/24 \times 1.96 \times 6.28 \times (1-0.131) = 2.80$ "

(iii) Sharing

$S_x = 1/2 \times 0.97 \times 7.48 = 3.63^t$

$S_y = 1/2 \times 1.96 \times 6.28 = 6.15$ "

2) Four sides simple beam

(a) Sharing of load

coefficient of load sharing in the direction of x or y

$C_x = 0.332$ (from four side fixed span)

$C_y = 0.668$

(b) coefficient of load shring

$w_x = 0.97\ ^{t/m^2}$ (from four side fixed span)

$w_y = 1.96\ "$

(c) Torsional coefficient

$$\varphi_x = \varphi_y = 5/6 \times \frac{7.48^2 \times 6.28^2}{7.48^4 + 6.28^4} = 0.392$$

(e) Bending moment

(i) At the support point

$M_x = 1/8 \times 0.97 \times 7.48^2 \times (1 - 0.392) = 4.12\ ^{t \cdot m}$

$M_y = 1/8 \times 1.96 \times 6.28^2 \times (1 - 0.392) = 5.87\ "$

3) Four sides semi - fixed span

(a) Bending moment

(i) At the support point

$M_x = -4.52^{t\cdot m}$

$M_y = -6.44$ "

(ii) At the span center point

$M_x = 1/2 \times (1.97 + 4.12) = 3.05^{t\cdot m}$

$M_y = 1/2 \times (2.80 + 5.87) = 4.34$ "

(iii) Sharing

$S_x = 3.63^{t}$

$S_y = 6.15$ "

(3) Combined moment

		Dead load	Train load and Impact	Total load
Direction of railway profile	At the support point	-2.59	-4.52	-7.11
	At the span center point	1.13	3.05	4.18
	Sharing	2.16	3.63	5.79
Direction of railway cross section	At the support point	-3.78	-6.44	-10.22
	At the span center point	1.64	4.34	5.98
	Sharing	3.78	6.15	9.93

Allowable stress of Safe against cracking

(1) Direction of railway profile

$$\frac{Tr + Im}{D + Tr + Im} = \frac{4.52}{7.11} = 0.64 > 0.25$$

$\therefore \sigma sa = 800 \ kg/cm^2$

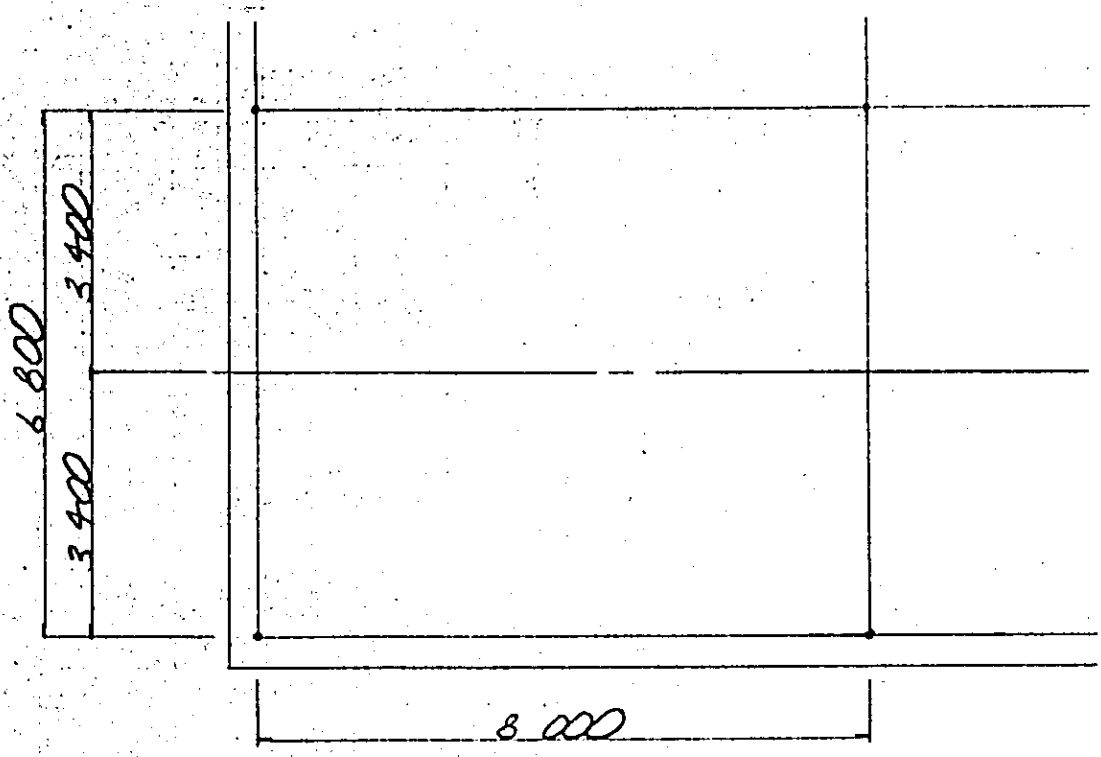
(2) Direction of railway cross section

$$\frac{Tr + Im}{D + Tr + Im} = \frac{6.44}{10.22} = 0.63 > 0.25$$

$\therefore \sigma sa = 800 \ kg/cm^2$

	Direction of railway cross section			Direction of railway profile		
	At support point	At support point	At span, center point	At support point	At support point	At span center point
M (tm)	3.78	10.22	5.98	2.59	7.11	4.18
N (t)						
S (t)		9.93			5.79	
b (cm)	100	100	100	100	100	100
h (cm)	43	43	28	43	43	28
d (cm)	39.5	39.5	24.5	37.6	37.6	22.6
d' (cm)	3.5	3.5	3.5	5.4	5.4	5.4
As (cm²)	D19-6.67 (ctc 150) = 19.11	D19-6.67 (ctc 150) = 19.11	D19-6.67 (ctc 150) = 19.11	D16-3.33 D19-3.33 = 16.15	D16-3.33 D19-3.33 = 16.15	D16-3.33 D19-3.33 = 16.15
p	0.00484	0.00484	0.00780	0.00430	0.00430	0.00715
As' (cm²)						
p'						
e = M/N (cm)						
e = M/N + u (cm)						
e = M/N − u (cm)						
e/h						
d/e						
d'/h						
d'/d						
Ne/bd² (kg/cm²)	2.42	6.55	9.96	1.83	5.03	8.18
k						
c						
j						
1/Lc	7.09	7.09	6.02	7.40	7.40	6.20
1/Ls	2.31	2.31	1.47	2.58	2.58	1.59
β = σs/σc						
σc (kg/cm²)	17.2	46.4	60.0	13.5	37.2	50.7
σs (kg/cm²)	559	1,513	1464	1464	1,298	1,301
τ (kg/cm²)		2.51			1.54	
σsa (kg/cm²)	90	90	90	90	90	90
σca (kg/cm²)	800	1,800	1800	800	1,800	1,800
τa (kg/cm²)		3.9			3.9	
combination	D	D+T+I	D+T+I	D	D+T+I	D+T+I
Nomogram number	M-1	"	"	"	"	"

(3) Calculation of Slab



(4) Slab for calculation

Slab (A) ---------- single-way Slab

Slab (B) ---------- cantilever Slab

(5) Calculation of slab (A)

Four sides fixed span

$l_{dx} = 8.00 - 0.80 = 7.20^{m}$

$l_{dy} = 6.80 - 0.80 = 6.00^{"}$

Four sides semi - fixed span

$l_{ex} = 8.00 - 0.800 + 0.280 = 7.48^{m}$

$l_{ey} = 6.80 - 0.800 + 0.280 = 6.28^{"}$

Span ratio

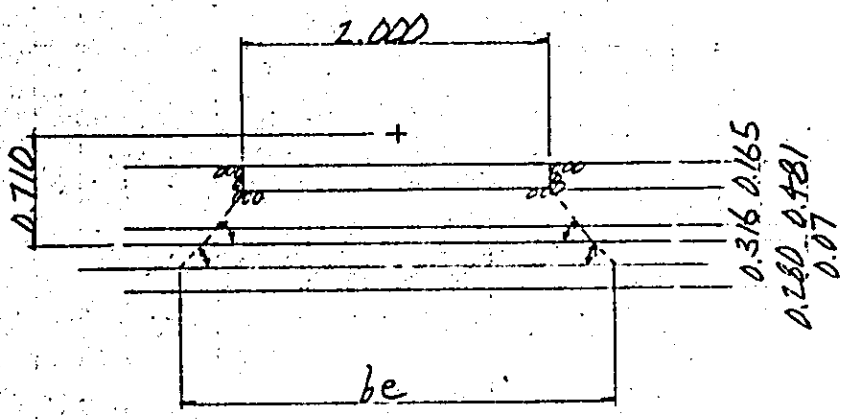
$$md = \frac{ldx}{ldy} = \frac{6.00}{7.20} = 0.83 > 0.40$$

$$me = \frac{lex}{ley} = \frac{6.28}{7.48} = 0.84 > 0.40$$

From the above, the slab is considered as a single-way slab for calculation

1. Load Calculations

Effective width

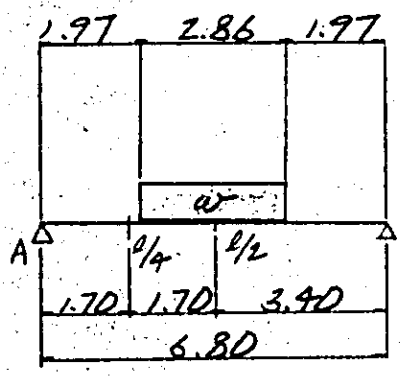


$$be = b + 1.5 \times (d + g) + h$$

$$= 2.000 + 1.5 \times (0.316 + 0.07) + 0.280$$

$$= 2.86 \ m$$

(a) weight of track assembly



$$w = \frac{0.45}{2.86} = 0.16 \ t/m$$

$$R_A = 1/2 \times 0.16 \times 2.86$$

$$= 0.23 \ t$$

i) At the $\ell/2$ point —

$$M_{\ell/2} = 0.23 \times 3.40 - 0.16 \times 1.43 \times 0.715$$

$$= 0.62 \text{ t.m}$$

$$W_{\ell/2} = \frac{8 \cdot M_{\ell/2}}{\ell^2} = \frac{8 \times 0.62}{6.80^2} = 0.11 \text{ t/m}$$

ii) At the $\ell/4$ point

$$M_{\ell/4} = 0.23 \times 1.70$$

$$= 0.39 \text{ t.m}$$

$$W_{\ell/4} = \frac{32 \cdot M_{\ell/4}}{3 \cdot \ell^2} = \frac{32 \times 0.39}{3 \times 6.80^2} = 0.09 \text{ t/m}$$

$$M_{\ell/4} = 0.09 \text{ t/m} < M_{\ell/2} = 0.11 \text{ t/m}$$

Dead load

Weight of track assembly		=	0.11 t/m²
Ballast	0.481 × 1.9	=	0.91 "
Sloping concrete	0.07 × 2.35	=	0.16 "
Slab	0.280 × 2.5	=	0.70 "
		W_d =	1.88 t/m²

(2) Train load (single track) + Impact coefficient

$$We = \frac{16}{1.5 \times 2.86} = 3.73$$

Reduction of impact coefficient

$$l = 6.80^{m} \quad — \quad i = 0.462$$

$$\therefore We+i = 3.73 \times (1 + 0.462) = 5.45^{t/m^2}$$

(i) At the $\ell/2$ Point

$$M_{\ell/2} = 1/2 \times 5.45 \times 2.86 \times 3.40 - 5.45 \times 1.43 \times 0.715$$
$$= 20.92^{t \cdot m}$$

$$\therefore We+i = \frac{8 \times 20.92}{6.80^2} = 3.62^{t/m^2}$$

2. Bending moment

(1) Dead load

(a) Sharing of load

$ldx = 7.20^{m}$ $ldy = 6.00^{m}$ $Wd = 1.88\ ^{t/m^2}$

coefficient of load sharing in the direction of x or y

$$Cx = \frac{6.00^4}{7.20^4 + 6.00^4} = 0.325$$

$$Cy = \frac{7.20^4}{7.20^4 + 6.00^4} = 0.675$$

(b) Shared load

$wdx = 1.88 \times 0.325 = 0.61\ ^{t/m^2}$

$wdy = 1.88 \times 0.675 = 1.27\ ''$

(C) Torsional coefficient

$$\Psi x = \Psi y = \frac{5}{18} \cdot \frac{lx^2 \cdot ly^2}{lx^4 + ly^4}$$

$$= \frac{5}{18} \times \frac{7.20^2 \times 6.00^2}{7.20^4 \times 6.00^4} = 0.130$$

(d) Bending moment

(i) At the Support point

$Mdx = -1/12 \times 0.61 \times 7.20^2 = -2.64\ ^{t\cdot m}$

$Mdy = -1/12 \times 1.27 \times 6.00^2 = -3.81\ ''$

(ii) At the Span center point

$Mdx = 1/24 \times 0.61 \times 7.20^2 \times (1 - 0.130) = 1.15$ t·m

$Mdy = 1/24 \times 1.27 \times 6.00^2 \times (1 - 0.130) = 1.66$ "

(e) Shearing

$Sx = 1/2 \times 0.61 \times 7.20 = 2.20$ t

$Sy = 1/2 \times 1.27 \times 6.00 = 3.81$ "

(2) Train load (Single track) + Impact

1) Four sides fixed span

(a) Sharing of load

$lx = 7.48$ m $\quad ly = 6.28$ m $\quad we+i = 3.62$ t/m²

Coefficient of load sharing in the direction of x or y

$$Cx = \frac{6.28^4}{7.48^4 + 6.28^4} = 0.332$$

$$Cy = \frac{7.48^4}{7.48^4 + 6.28^4} = 0.668$$

(b) Coefficient of load sharing

$wx = 3.62 \times 0.332 = 1.20$ t/m²

$wy = 3.62 \times 0.668 = 2.42$

(c) Torsional coefficient

$$\psi_x \cdot \psi_y = \frac{5}{18} \times \frac{7.48^2 \times 6.28^2}{7.48^4 + 6.28^4} = 0.131$$

(d) Bending moment

Train load and Impact

(i) At the support point

$M_x = -1/12 \times 1.20 \times 7.48 = -5.60$ t·m

$M_y = -1/12 \times 1.20 \times 6.28 = -7.95$ "

(ii) At the span center point

$M_x = 1/24 \times 1.20 \times 7.48^2 \times (1-0.131) = 2.43$ t·m

$M_y = 1/24 \times 2.42 \times 6.28^2 \times (1-0.131) = 3.46$ "

(iii) Sharing

$S_x = 1/2 \times 1.20 \times 7.48 = 4.49$ t

$S_y = 1/2 \times 2.42 \times 6.28 = 7.60$ "

2) Four sides simple beam

(a) Sharing of load

coefficient of load sharing in the direction of x or y

C_x = 0.332 (from four side fixed span)

C_y = 0.668

(b) coefficient of load shring

w_x = 1.20 (from four side fixed span)

w_y = 2.42

(c) Torsional coefficient

$$\varphi_x = \varphi_y = 5/6 \times \frac{7.48^2 \times 6.28^2}{7.48^4 \times 6.28^4} = 0.392$$

(e) Bending moment

(i) At the support point

$M_x = 1/8 \times 1.20 \times 7.48^2 \times (1 - 0.392) = 5.10$ t m

$M_y = 1/8 \times 2.42 \times 6.28^2 \times (1 - 0.392) = 7.25$ "

3) Four sides semi - fixed span

(a) Bending moment

(i) At the support point

$M_x = -5.60$ t·m

$M_y = -7.95$ "

(ii) At the span center point

$M_x = 1/2 \times (2.43 + 5.10) = 3.77$ t·m

$M_y = 1/2 \times (3.46 + 7.25) = 5.36$ "

(iii) Sharing

$S_x = 4.49$ t

$S_y = 7.60$ "

(3) Combined moment

		Dead load	Train load and Impact	Total load
Direction of railway profile	At the support point	-2.64	-5.60	-8.24
	At the span center point	1.15	3.77	4.92
	Sharing	2.20	4.49	6.69
Direction of railway Cross Section	At the support point	-3.81	-7.95	-11.76
	At the span center point	1.66	5.36	7.02
	Sharing	3.81	7.60	11.41

Allowable stress of Safe against Cracking

(1) Direction of railway profile

$$\frac{Tr + Im}{D + Tr + Im} = \frac{5.60}{8.24} = 0.68 > 0.25$$

$\therefore \sigma_{sa} = 800 \ kg/cm^2$

(2) Direction of railway cross section

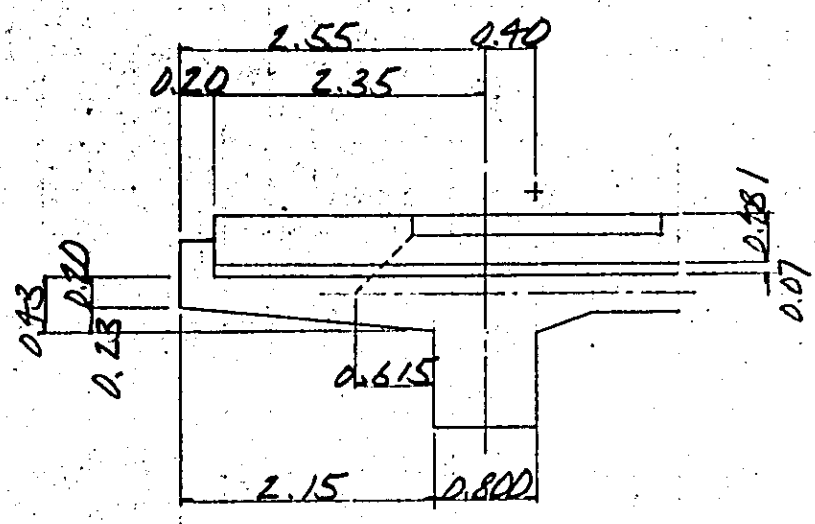
$$\frac{Tr + Im}{D + Tr + Im} = \frac{7.95}{11.76} = 0.68 > 0.25$$

$\therefore \sigma_{sa} = 800 \ kg/cm^2$

	Direction of railway cross section			Direction of railway profile		
	At support point	At support point	At span center point	At support point	At support point	At span center point
M (tm)	3.81	11.76	7.02	2.64	8.24	4.92
N (t)						
S (t)		11.41			6.69	
b (cm)	100	100	100	100	100	100
h (cm)	43	43	28	43	43	28
d (cm)	39.5	39.5	24.5	37.6	37.6	22.6
d' (cm)	3.5	3.5	3.5	5.4	5.4	5.4
As (cm²)	D19-6.67 (dc 150) = 19.11	D19-6.67 =19.11	D19-6.67 =19.11	D16-3.33 D19-3.33 =16.15	D16-3.33 D19-3.33 =16.15	D16-3.33 D19-3.33 =16.15
p	0.00484	0.00484	0.00780	0.00430	0.00430	0.00715
As' (cm²)						
p'						
e=M/N (cm)						
e=M/N+u (cm)						
e=M/N−u (cm)						
e/h						
d/e						
d'/h						
d'/d						
Ne/bd² (kg/cm²)	2.44	7.54	11.70	1.87	5.83	9.63
k						
c						
j						
1/Lc	7.09	7.09	6.02	7.40	7.40	6.20
1/Ls	231	231	147	258	258	159
β=σs/σc						
σc (kg/cm²)	17.3	53.5	70.4	13.8	43.1	59.7
σs (kg/cm²)	564	1,742	1,720	482	1,504	1,531
τ (kg/cm²)		2.89			1.78	
σsa (kg/cm²)	90	90	90	90	90	90
σca (kg/cm²)	800	1,800	1,800	800	1,800	1,800
τa (kg/cm²)		3.9				
combination	D	D+T+I	D+T+I	D	D+T+I	D+T+I
Nomogram number	M-1	"	"	"	"	"

(6) Calculation of slab B

1. Calculation of contilever slab



(1) Dead load

	calculation	S = N t	x m	M = N.x t.m
hand rail	2.0 t/m	2.00	2.45	0.49
curb	0.200 × 0.300 × 2.5	0.15	2.45	0.37
Distributed load by Track weight	0.45 × 1/2.830 × 0.615	0.10	0.308	0.03
Ballast	0.481 × 1.95 × 1.9	1.78	0.975	1.74
Sloping concrete	0.07 × 1.95 × 2.35	0.32	0.975	0.31
Slab	0.20 × 2.15 × 2.5	1.08	1.075	1.16
"	1/2 × 2.15 × 0.23 × 2.5	0.62	0.717	0.44
Total.	—	4.25	—	4.54

Sd = 4.25 t

Md = 4.54 t.m

(2) Train load and Impact

—Impact coefficient

$l = 0.615\ ^{m} \longrightarrow i = 0.585$

$\therefore W_{e+i} = \frac{16}{1.5 \times 2.83} \times (1 + 0.585) = 5.97\ ^{t/m}$

$S_{e+i} = 5.97 \times 0.615 = 3.67\ ^{t}$

$M_{e+i} = 3.67 \times 0.308 = 1.13\ ^{t\cdot m}$

3) Dead load and Train load and Impact

$S_{d+l+i} = 4.25 + 3.67 = 7.92\ ^{t}$

$M_{e+l+i} = 4.54 + 1.13 = 5.67\ ^{t\cdot m}$

4) Allowable stress, safe against Cracking

$\frac{M_{e+i}}{M_{d+l+i}} = \frac{4.54}{5.67} = 0.80 > 0.25$

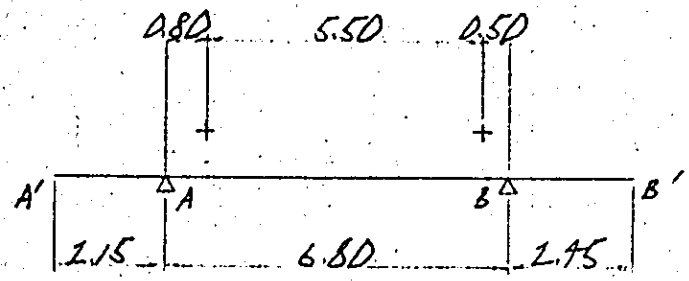
$\therefore \sigma_{sa} = 800\ ^{kg/cm^2}$

	cantilever slab		
	At Support point	At Support point	
M (tm)	4.54	5.67	
N (t)			
S (t)		7.92	
b (cm)	100	100	
h (cm)	43	43	
d (cm)	39.5	39.5	
d' (cm)	3.5	3.5	
As (cm²)	D19-6.67 (ctc 150) =19.11	D19-6.67 (ctc 150) =19.11	
p	0.00484	0.00484	
As' (cm²)			
p'			
e=M/N (cm)			
e=M/N+u (cm)			
e=M/N−u (cm)			
e/h			
d/e			
d'/h			
d'/d			
Ne/bd²(kg/cm²)	2.91	3.63	
k			
c			
j			
1/Lc	7.09	7.09	
1/Ls	231	231	
β=σs/σc			
σc (kg/cm²)	20.6	25.7	
σs (kg/cm²)	672	839	
τ (kg/cm²)		2.01	
σsa (kg/cm²)	90	90	
σca (kg/cm²)	800	1800	
τa (kg/cm²)		3.9	
ノモ番号			

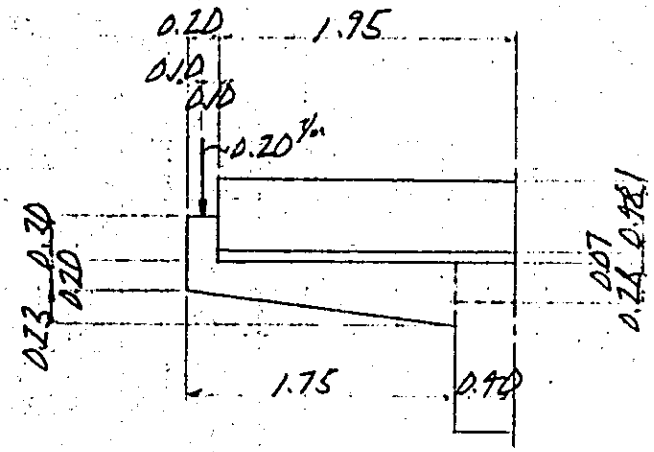
§3. Calculation of torsional moment

(1) Shingl Span

1. Dead load



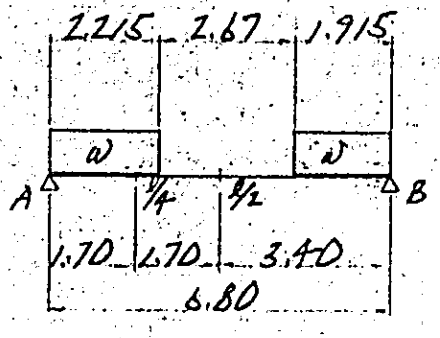
(1) Between A' and A



	Calculation	N t	x m	N·x t·m
Hand rail and curb	0.20+2.5×0.20×0.30	0.35	2.050	0.72
Ballast and Sloping concrete	(1.9×0.48+2.35×0.07)×1.95	2.10	0.775	2.05
Distributed load by track weight	0.45×12.83×0.615	0.10	0.308	0.03
contilever slab	2.5×0.20×1.75	0.88	1.275	1.12
	2.5×½×1.75×0.23	0.50	0.983	0.49
slab	2.5×0.40×0.28	0.28	0.200	0.06
Total		4.21		4.47

$$M_{tAA'} = -4.47 \times 3.80 = -16.99 \text{ t·m}$$

(2) Between A and B



Distributed load by track weight

$$w = \frac{0.45}{2.83} = 0.16 \ t/m^2$$

$$R_A = \frac{0.16}{6.80} \times (2.215 \times 5.693 + 1.915 \times 0.958)$$

$$= 0.34 \ t$$

(i) At the $\ell/4$ point

$$M_{\ell/4} = 0.34 \times 1.70 - 0.16 \times 1.70 \times 0.85 = 0.35 \ t\cdot m$$

$$w_{1/4} = \frac{32 M_{1/4}}{3 \ell^2} = \frac{32 \times 0.35}{3 \times 6.80^2} = 0.08 \ t/m^2$$

(ii) At the $\ell/2$ point

$$M_{1/2} = 0.34 \times 3.40 - 0.16 \times 2.215 \times 2.293 = 0.34 \ t\cdot m$$

$$w_{\ell/2} = \frac{8 \cdot M_{1/2}}{\ell^2} = \frac{8 \times 0.34}{6.80^2} = 0.06 \ t/m^2$$

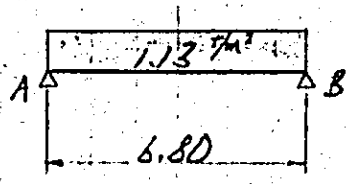
$\therefore w_{1/4} = 0.08 \ t/m^2$

(a) Dead load

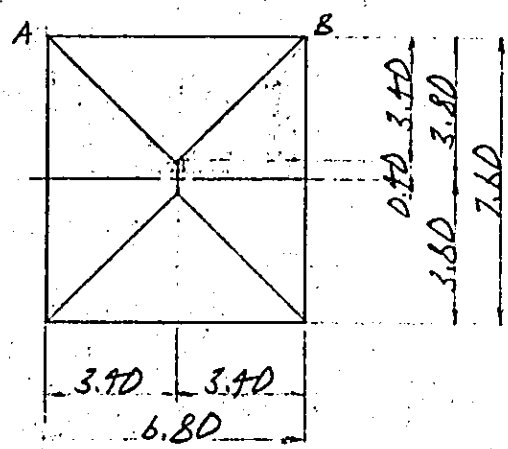
Distributed load by track weight		=	0.08 t/m²
ballast	1.90 × 0.481	=	0.91 "
Sloping concrete	2.35 × 0.07	=	0.16 "
Slab	2.5 × 0.28	=	0.70 "
		w_d =	1.85 t/m²

$$C_x = \frac{7.60^t}{7.60^t + 6.80^t} = 0.609$$

$$\therefore w_d = 1.85 \times 0.609 = 1.13 \ t/m^2$$



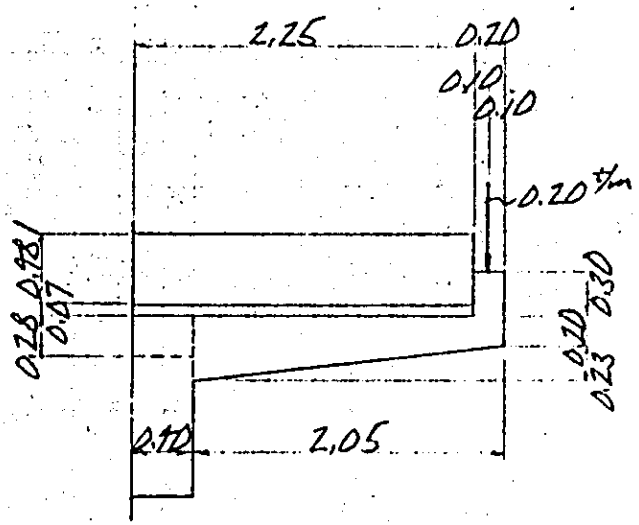
$$M_A = M_B = \frac{1}{12} \times 1.13 \times 6.80^2 = 4.35 \ t\cdot m/m$$



$$\therefore M_{1AB} = 4.35 \times (0.40 + 3.40 \times 1/2) = 9.14 \ t\cdot m$$

$$M_{1BA} = -4.35 \times (0.40 + 3.40 \times 1/2) = -9.14 \ "$$

(3) Between B and B'



	Calculation	N t	x m	N.x t.m
Hand rail and curb	0.45 × 1/2.83 × 0.915	0.15	0.458	0.07
Ballast and Sloping concrete	0.20 + 2.5 × 0.20 × 0.30	0.35	2.350	0.82
Distributed load by track weight	(1.7 × 0.481 + 2.35 × 0.07) × 2.25	2.43	1.125	2.73
contilever slab	2.5 × 0.20 × 2.05	1.03	1.425	1.46
	2.5 × 1/2 × 2.05 × 0.23	0.59	1.083	0.64
slab	2.5 × 0.40 × 0.28	0.28	0.200	0.06
Total	———	4.83	———	5.78

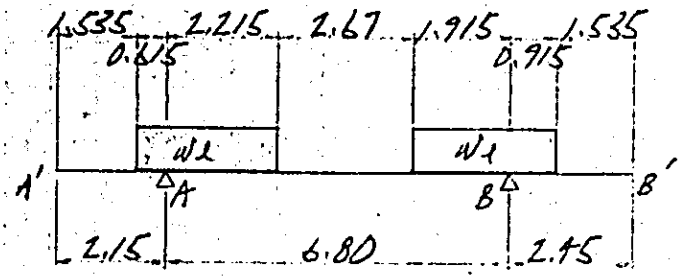
$$\therefore M_{tBB'} = 5.78 \times 3.80 = 21.96 \text{ t.m}$$

(4) torsional moment ($\ell/2$)

$$M_{tA} = -16.99 + 9.14 = -7.85 \text{ t.m}$$

$$M_{tB} = -9.14 + 21.96 = 12.82 \text{ "}$$

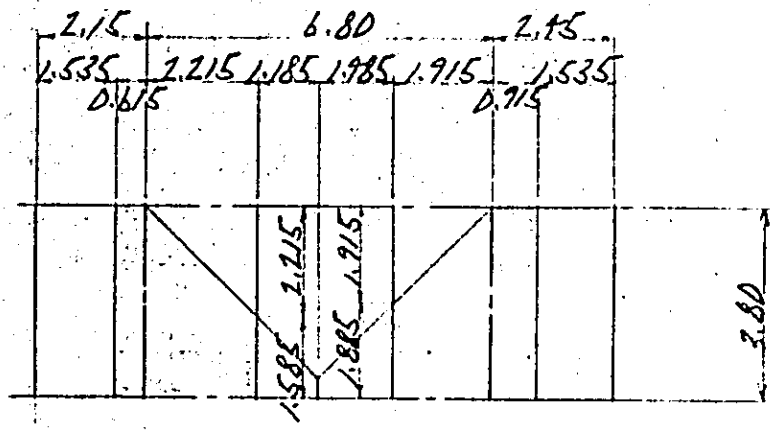
2. Train load and Impact

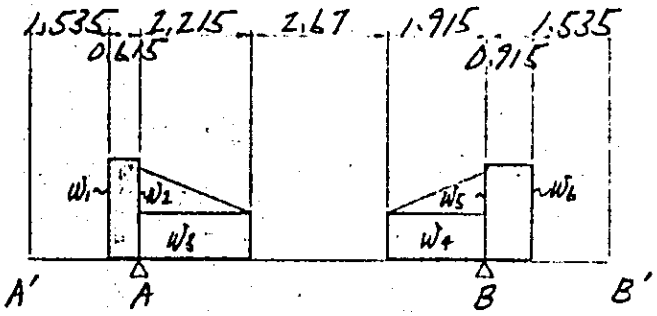


Distributed load W_{M2}

$W_2' = 4.60 \times 2 = 9.20$ t/m (single track)

$W_2 = 9.20 \times 1/2.83 = 3.25$ t/m²





Reduction of impact coefficient

$l = 0.615^{m}$ ——— $i = 0.585 \times (1 - \frac{0.615}{2.00}) = 0.583$

$l = 6.80\ ''$ ——— $i = 0.462 \times (1 - \frac{6.80}{2.00}) = 0.446$

$l = 0.915\ ''$ ——— $i = 0.578 \times (1 - \frac{0.915}{2.00}) = 0.575$

$W_1 = 3.25 \times 3.80 \times (1 + 0.583) = 19.55^{t/m}$

$W_2 = 3.25 \times 2.215 \times (1 + 0.446) = 10.41\ ''$

$W_3 = 3.25 \times 1.585 \times (1 + 0.446) = 7.45\ ''$

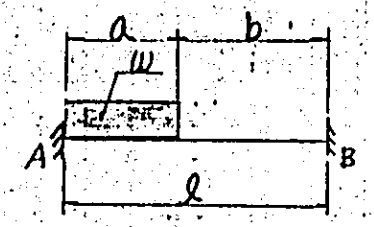
$W_4 = 3.25 \times 1.885 \times (1 + 0.446) = 8.86\ ''$

$W_5 = 3.25 \times 1.915 \times (1 + 0.446) = 9.00\ ''$

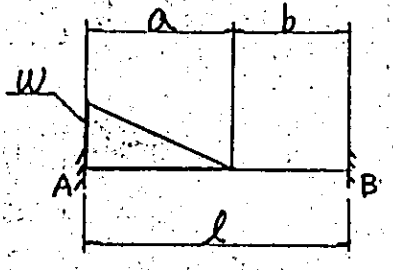
$W_6 = 3.25 \times 3.80 \times (1 + 0.575) = 19.45\ ''$

3. Fixed-end moment of beam

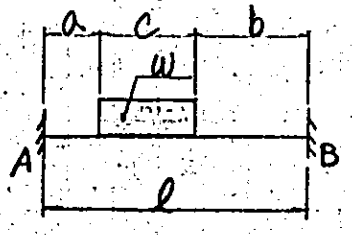
superposed load



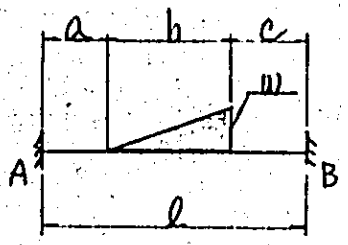
$$\begin{cases} M_A = \dfrac{w \cdot a^2}{12 \cdot \ell^2}(6\ell^2 - 8a\ell + 3a^2) \\ M_B = \dfrac{w \cdot a^3}{12 \cdot \ell^2}(4\ell - 3a) \end{cases}$$



$$\begin{cases} M_A = \dfrac{w \cdot a^2}{60 \cdot \ell^2}(3a^2 - 10a\ell + 10\ell^2) \\ M_B = \dfrac{w \cdot a^3}{60 \cdot \ell^2}(5\ell - 3a) \end{cases}$$



$$\begin{cases} M_A = \dfrac{w \cdot c}{12 \cdot \ell^2}\{12ab(b+c) + 6b^2c \\ \qquad\qquad + 4c^2(a+b) + c^3\} \\ M_B = \dfrac{w \cdot c}{12 \cdot \ell^2}\{12ab(a+c) + 6a^2c \\ \qquad\qquad + 4c^2(a+b) + c^3\} \end{cases}$$



$$\begin{cases} M_A = \dfrac{w \cdot c}{60 \cdot \ell^2}\{20bc(a+b) + 5c^2(a+2b) \\ \qquad\qquad + 30ab^2 + 2c^3\} \\ M_B = \dfrac{w \cdot c}{60 \cdot \ell^2}\{10ac(a+b) + 15b(2a^2+c^2) \\ \qquad\qquad + 40abc + 3c^3\} \end{cases}$$

from an Electronic computer

$M_{AA'} = -\frac{1}{2} \times 19.55 \times 0.615^2 = -3.70$ t.m

$M_{AB} = 6.01 + 11.31 + 2.41 + 0.64 = 20.37$ "

$M_{BA} = -1.12 - 3.00 - 10.79 - 4.08 = -18.99$ "

$M_{BB'} = \frac{1}{2} \times 19.45 \times 0.915^2 = 8.14$ "

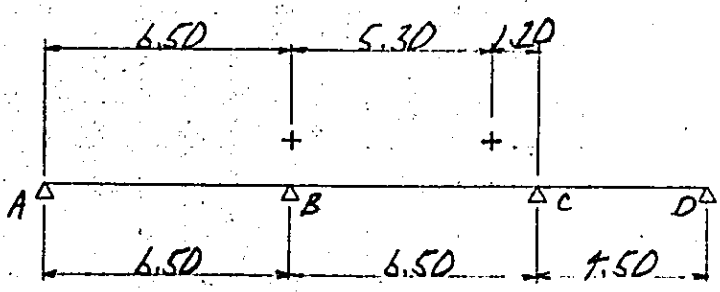
Torsional moment

$M_{tA} = -3.70 + 20.37 = 16.67$ t.m

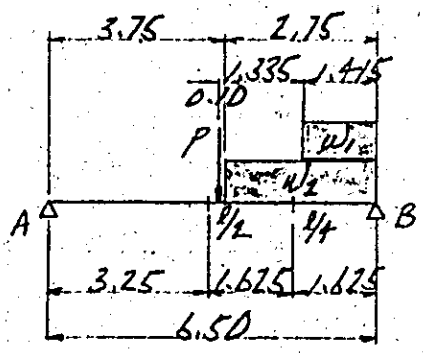
$M_{tB} = -18.99 + 8.14 = -10.85$ "

(2) Three span

1. Dead load



(1) Between A and B



Distributed load by track weight

$$w_1 = \frac{0.45}{2.83} = 0.16 \ t/m^2$$

Ballast and sloping concrete

$$w_2 = 1.7 \times 0.481 + 2.35 \times 0.07$$

$$= 1.08 \ t/m^2$$

Hand rail and curb

$$P = 0.20 + 0.20 \times 0.30 \times 2.5$$

$$= 0.35 \ t/m$$

$$R_B = \frac{1}{6.50} \times (0.35 \times 3.85 + 1.08 \times 2.75 \times 5.125 + 0.16 \times 1.415 \times 5.773)$$

$$= 2.75 \ t$$

(i) At the $\ell/4$ point

$$M_{\ell/4} = 2.75 \times 1.625 - 0.16 \times 1.415 \times 0.718 - 1.08 \times 1.625 \times 0.813$$

$$= 2.83 \ t\cdot m$$

$$w_{\ell/4} = \frac{32 \cdot M_{\ell/4}}{3 \cdot \ell^2} = \frac{32 \times 2.83}{3 \times 6.50^2} = 0.71 \ t/m$$

(ii) At the $\ell/2$ point

$$M_{\ell/2} = 2.75 \times 3.25 - 0.16 \times 1.415 \times 2.543 - 1.08 \times 2.75 \times 1.875 - 0.35 \times 0.40$$

$$= 2.65 \ t\cdot m$$

$$w_{\ell/2} = \frac{8 \cdot M_{\ell/2}}{\ell^2} = \frac{8 \times 2.65}{6.50^2} = 0.50 \ t/m$$

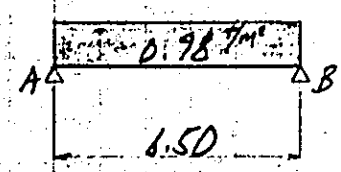
$\therefore w_{\ell/4} = 0.71 \ t/m^2$

(a) Dead load

Distributed load		$= 0.71 \ t/m^2$
Slab	0.28×2.5	$= 0.70$ "
		$w_d = 1.41 \ t/m^2$

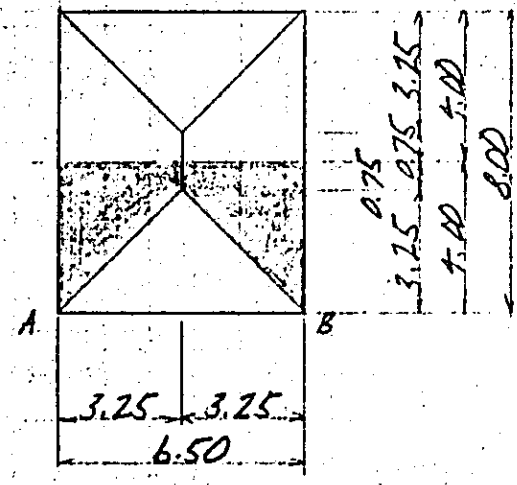
$$C_x = \frac{8.00^t}{8.00^t + 6.50^t} = 0.696$$

$\therefore w_d = 1.41 \times 0.696 = 0.98 \ t/m^2$



$$M_A - M_B = \frac{1}{12} \times 0.98 \times 6.50^2$$

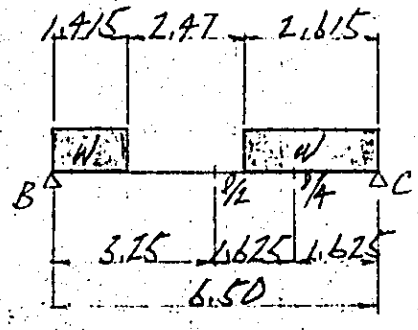
$$= 3.45 \ ^{t\cdot m}/_{m}$$



$$\therefore M_{tAB} = 3.45 \times (0.75 + 3.25 \times 1/2) = 8.19 \ ^{t\cdot m}$$

$$M_{tBA} = -3.45 \times (0.75 + 3.25 \times 1/2) = -8.19 \ "$$

(2) Between B and C



Distributed load by track weight

$$w = 0.16 \ ^{t}/_{m^2}$$

$$R_c = \frac{0.16}{6.50} \times (1.415 \times 0.708 + 2.615 \times 5.193)$$

$$= 0.36 \ ^{t}$$

(i) At the $\ell/4$ point.

$$M_{\ell/4} = 0.36 \times 1.625 - 0.16 \times 1.625 \times 0.813$$
$$= 0.37 \text{ t·m}$$

$$w_{\ell/4} = \frac{32 \cdot M_{\ell/4}}{3 \cdot \ell^2} = \frac{32 \times 0.37}{3 \times 8.50^2} = 0.09 \text{ t/m}^2$$

(ii) At the $\ell/2$ point

$$M_{\ell/2} = 0.36 \times 3.25 - 0.16 \times 2.415 \times 1.943$$
$$= 0.36 \text{ t·m}$$

$$w_{\ell/2} = \frac{8 \cdot M_{\ell/2}}{\ell^2} = \frac{8 \times 0.36}{8.50^2} = 0.07 \text{ t/m}^2$$

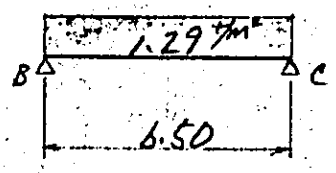
故に $w_{\ell/4} = 0.09 \text{ t/m}^2$ を考慮.

(a) Dead load

Distributed load by track weight		$= 0.09$ t/m²
Ballast	1.9×0.481	$= 0.91$ "
Sloping concrete	2.35×0.07	$= 0.16$ "
Slab	2.5×0.28	$= 0.70$ "
		$w_d = 1.86$ t/m²

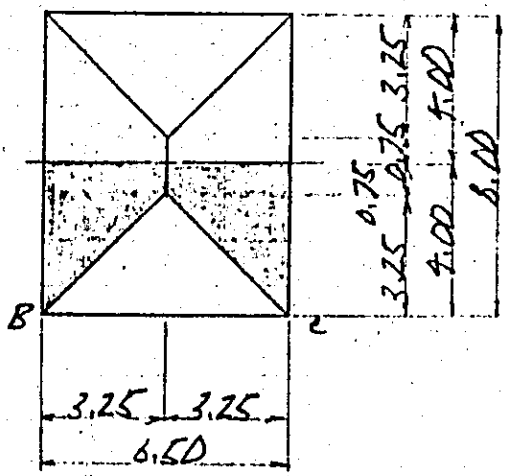
$$C_x = \frac{8.00^4}{8.00^4 + 8.50^4} = 0.696$$

$$\therefore w_d = 1.86 \times 0.696 = 1.29 \text{ t/m}^2$$



$$M_B = M_C = \frac{1}{12} \times 1.29 \times 6.50^2$$

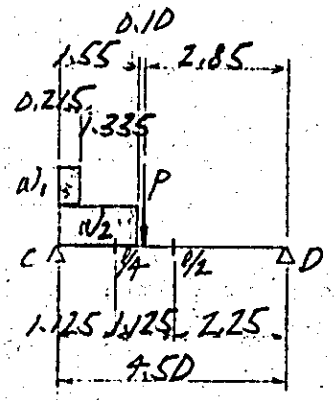
$$= 4.54 \text{ t·m}$$



$$\therefore M_{tBC} = 4.54 \times (0.75 + 3.25 \times 1/2) = 10.78 \text{ t·m}$$

$$M_{tCB} = -4.54 \times (0.75 + 3.25 \times 1/2) = -10.78 \text{ "}$$

(3) between C and D



Distributed load by track weight

$w_1 = 0.16 \text{ t/m}^2$

Ballast and sloping concrete

$w_2 = 1.08 \text{ t/m}^2$

Hand rail and curb

$P = 0.35 \text{ t/m}$

$$Rc = \frac{1}{4.50} \times (0.16 \times 0.5 \times 4.393 + 1.08 \times 1.55 \times 3.725 + 0.35 \times 2.85^{*})$$

$$= 1.64^{t}$$

(i) At the $\ell/4$ point

$$M\ell/4 = 1.64 \times 1.125 - 0.16 \times 0.215 \times 1.018 - 1.08 \times 1.125 \times 0.563$$

$$= 1.13^{t\cdot m}$$

$$w\ell/4 = \frac{32 \cdot M\ell/4}{3 \cdot \ell^2} = \frac{32 \times 1.13}{3 \times 4.50^2} = 0.60^{t/m^2}$$

(ii) At the $\ell/2$ point

$$M\ell/2 = 1.64 \times 2.25 - 0.16 \times 0.215 \times 2.143 - 1.08 \times 1.55 \times 1.975 - 0.35 \times 0.60$$

$$= 0.94^{t\cdot m}$$

$$w\ell/2 = \frac{8 \cdot M\ell/2}{\ell^2} = \frac{8 \times 0.94}{4.50^2} = 0.37^{t/m^2}$$

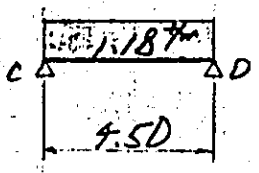
$$w\ell/2 = 0.37^{t/m^2}$$

(a) Dead load

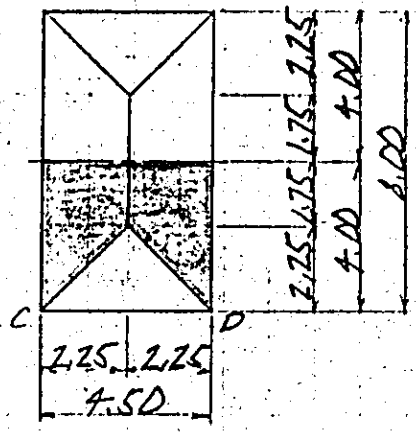
Distributed load		$= 0.60^{t/m^2}$
Slab	2.5×0.28	$= 0.70$ "
		$wd = 1.30^{t/m^2}$

$$Cx = \frac{8.00^4}{8.00^4 + 4.50^4} = 0.909$$

$$\therefore wd = 1.30 \times 0.909 = 1.18 \ t/m^2$$



$$Mc = MD = \frac{1}{12} \times 1.18 \times 4.50^2 = 1.99 \ t{\cdot}m$$



$$\therefore MtCD = 1.99 \times (1.75 + 2.25 \times 1/2) = 5.72 \ t{\cdot}m$$

$$MtDC = -1.99 \times (1.75 + 2.25 \times 1/2) = -5.72 \ "$$

(4) torsional moment (g/2)

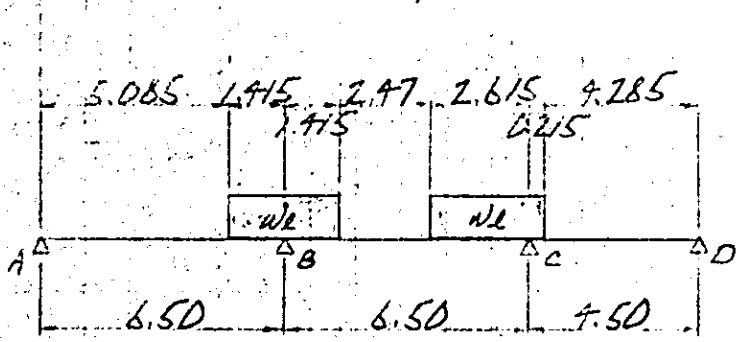
$$MtA = 8.19 \ t{\cdot}m$$

$$MtB = -8.19 + 10.78 = 2.59 \ t{\cdot}m$$

$$MtC = -10.78 + 5.72 = -5.06 \ "$$

$$MtD = -5.72 \ t{\cdot}m$$

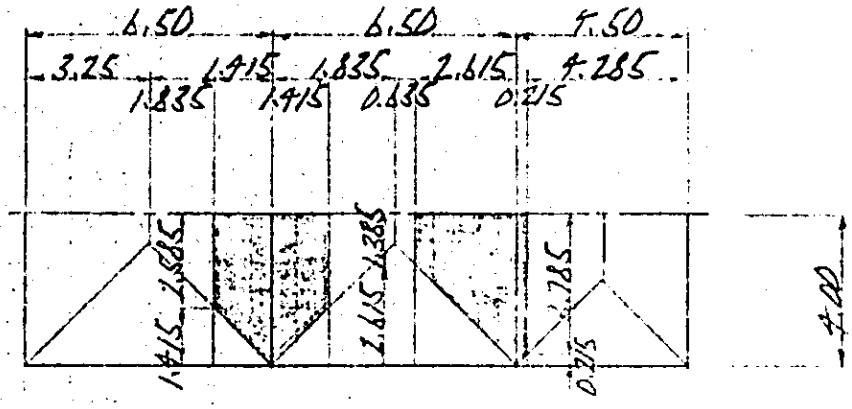
2 Train load and Impact

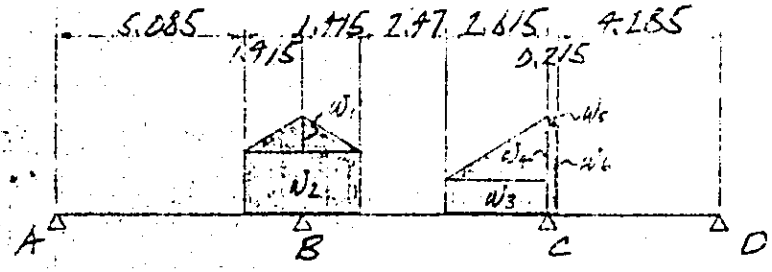


uniform load w_{M2}

$wl = 4.6 \times 2 = 9.20$ t/m (single track)

$wl = 9.20 \times 1/2.83 = 3.25$ t/m²





Reduction of impact coefficient

$l = 6.50^{m} \longrightarrow i' = 0.465 \times \left(1 - \frac{6.50}{200}\right) = 0.450$

$l = 4.50^{m} \longrightarrow i' = 0.492 \times \left(1 - \frac{4.50}{200}\right) = 0.481$

$w_1 = 3.25 \times 1.415 \times (1 + 0.450) = 6.67$ t/m

$w_2 = 3.25 \times 2.585 \times (1 + 0.450) = 12.12$ "

$w_3 = 3.25 \times 1.385 \times (1 + 0.450) = 6.53$ "

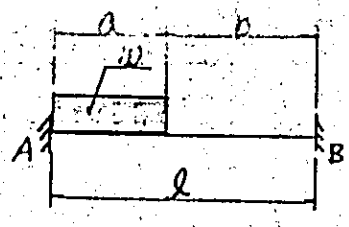
$w_4 = 3.25 \times 2.615 \times (1 + 0.450) = 12.32$ "

$w_5 = 3.25 \times 0.215 \times (1 + 0.481) = 1.03$ "

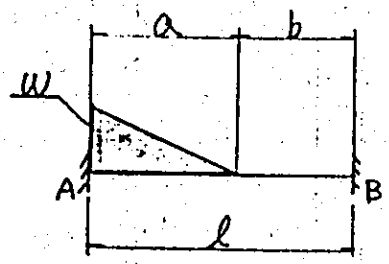
$w_6 = 3.25 \times 3.785 \times (1 + 0.481) = 18.22$ "

3. Fixed-end moment of beam

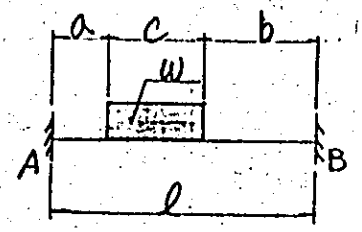
Superimposed load



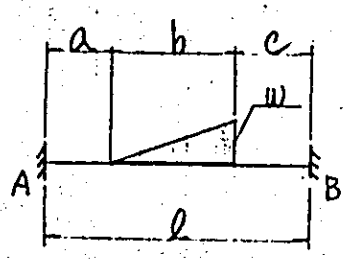
$$\begin{cases} M_A = \dfrac{w \cdot a^2}{12 \cdot l^2}(6l^2 - 8 \cdot a \cdot l + 3a^2) \\ M_B = \dfrac{w \cdot a^3}{12 \cdot l^2}(4 \cdot l - 3a) \end{cases}$$



$$\begin{cases} M_A = \dfrac{w \cdot a^2}{60 \cdot l^2}(3a^2 - 10al + 10l^2) \\ M_B = \dfrac{w \cdot a^3}{60 \cdot l^2}(5l - 3 \cdot a) \end{cases}$$



$$\begin{cases} M_A = \dfrac{w \cdot c}{12 \cdot l^2}\{12 \cdot a \cdot b \cdot (b+c) + 6 \cdot b^2 \cdot c \\ \qquad + 4 \cdot c^2 \cdot (a+b) + c^3\} \\ M_B = \dfrac{w \cdot c}{12 \cdot l^2}\{12 \cdot a \cdot b \cdot (a+c) + 6a^2 \cdot c \\ \qquad + 4 \cdot c^2 \cdot (a+b) + c^3\} \end{cases}$$



$$\begin{cases} M_A = \dfrac{w \cdot c}{60 \cdot l^2}\{20 \cdot b \cdot c(a+b) + 5 \cdot c^2 \cdot (a+2b) \\ \qquad + 30 \cdot a \cdot b^2 + 2 \cdot c^3\} \\ M_B = \dfrac{w \cdot c}{60 \cdot l^2}\{10 \cdot a \cdot c(a+b) + 15 \cdot b \cdot (2a^2 + c^2) \\ \qquad + 40 \cdot a \cdot b \cdot c + 3 \cdot c^3\} \end{cases}$$

from an Electronic computer

$M_{AB} = 0.21 + 1.47 = 1.68$ t.m

$M_{BA} = -1.77 - 8.90 = -10.67$ "

$M_{BC} = 1.77 + 8.90 + 9.07 + 2.14 = 21.88$ "

$M_{CB} = -0.21 - 1.47 - 12.16 - 9.07 = -22.91$ "

$M_{CD} = 0.01 + 0.40 = 0.41$ "

$M_{DC} = -0 - 0.01 = -0.01$ "

Torsional moment

$M_{tA} = 1.68$ t.m

$M_{tB} = -10.67 + 21.88 = 11.21$ t.m

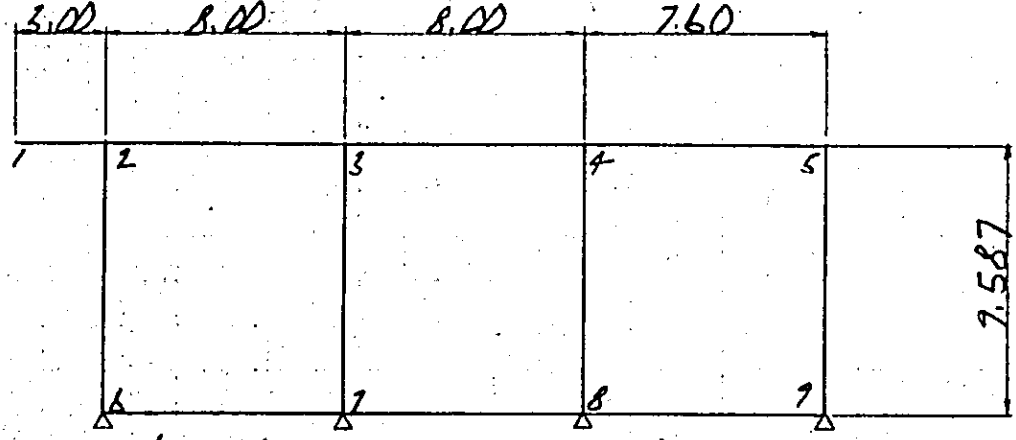
$M_{tC} = -22.91 + 0.41 = -23.32$ "

$M_{tD} = -0.01$ t.m

§ 4. Right frame anglysis on longitudinal direction of elevated structure

(1) Elements for right frome analysis

1. Conligulalation and dimension

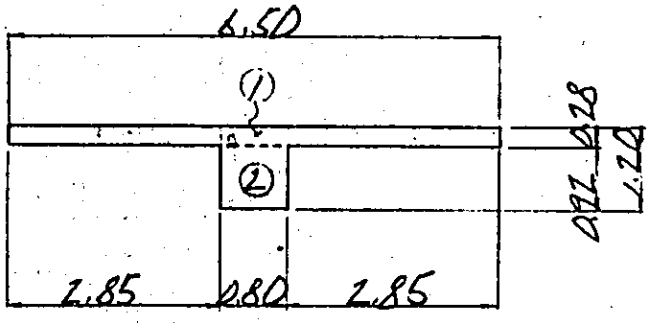


axial height

$h = 9.15 - 0.313 + 0.30 + 0.45 = 9.587^{m}$

2. Cross-sectional anea and moment of Imertia of the member

(1) Member (1~2, 2~3, 3~4)



	b m	h m	A m²	y m	A·y m³
(1)	6.500	0.280	1.820	0.140	0.25480
(2)	0.800	0.920	0.736	0.740	0.54464
Σ	——	——	2.556	——	0.79944

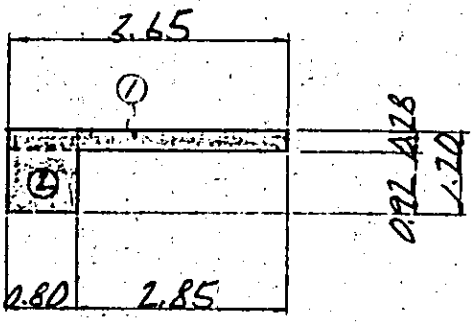
$$y_0 = \frac{0.79944}{2.556} = 0.313^{m}$$

	A m^2	y_o m	$A \cdot y_o^2$ m^4	I_o m^4
①	1.820	0.173	0.05447	0.01189
②	0.736	0.427	0.13419	0.05191
Σ	2.556	——	0.18866	0.06380

$A = 2.556 \ m^2$

$I = 0.18866 + 0.06380 = 0.25246 \ m^4$

(2) Member (4~5)



	b m	h m	A m^2	y m	$A \cdot y$ m^3
①	3.650	0.280	1.022	0.140	0.14308
②	0.800	0.920	0.720	0.940	0.54464
Σ	——	——	1.742	·····	0.68772

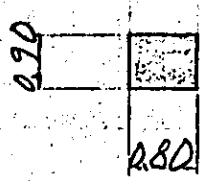
$y_o = \dfrac{0.68772}{1.742} = 0.395 \ m$

	A m^2	y_o m	$A \cdot y_o^2$ m^4	I_o m^4
①	1.022	0.255	0.06646	0.00668
②	0.720	0.345	0.08570	0.05191
Σ	1.742	——	0.15216	0.05859

$A = 1.742 \ m^2$

$I = 0.15216 + 0.05859 = 0.21075 \ m^4$

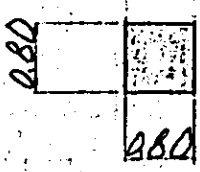
(3) Member (6~7, 8~9)



$A = 0.80 \times 0.90 = 0.720\ m^2$

$I = \frac{1}{12} \times 0.80 \times 0.90^3 = 0.04860\ m^4$

(4) Member (2~6, 3~7, 4~8, 5~9)



$A = 0.80 \times 0.80 = 0.640\ m^2$

$I = \frac{1}{12} \times 0.80 \times 0.80^3 = 0.03413\ m^4$

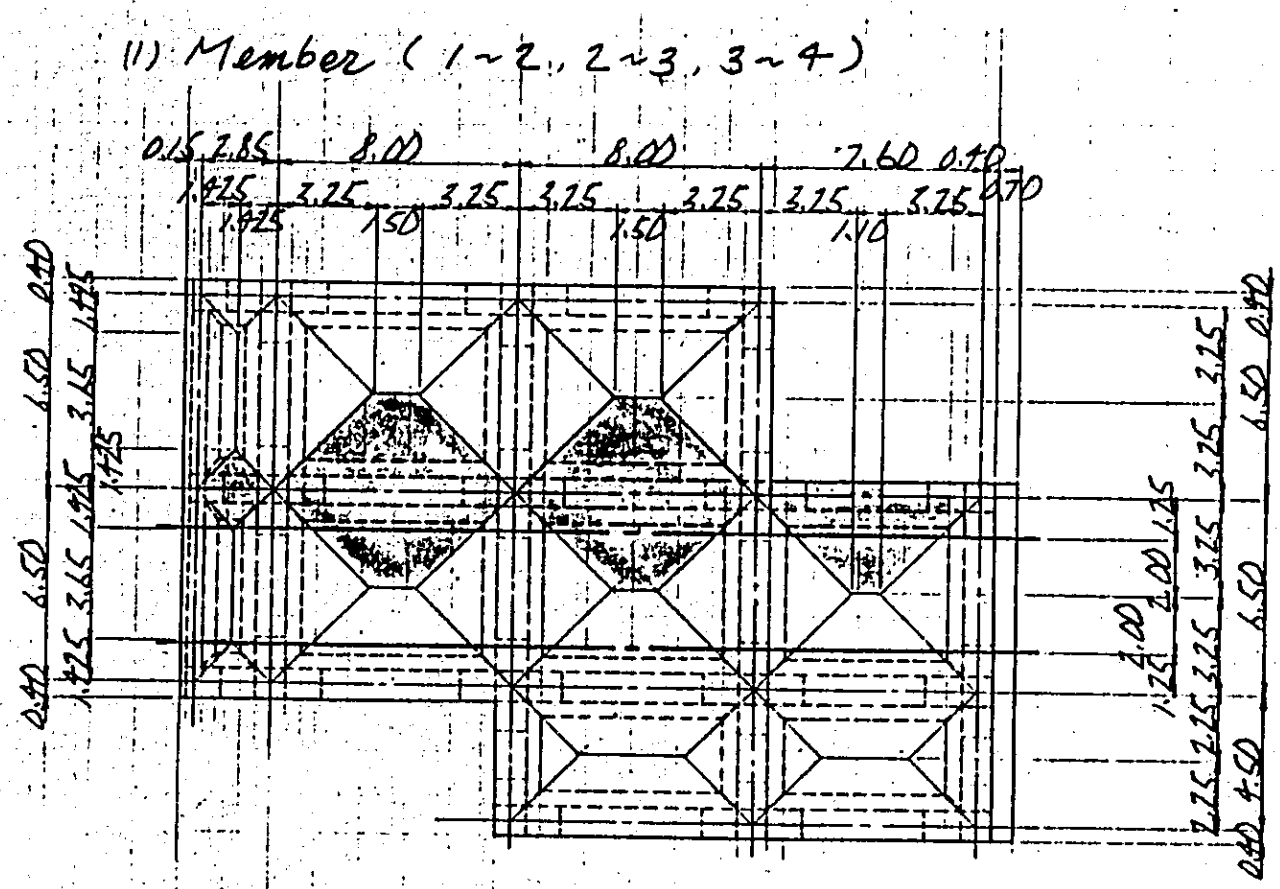
$Ec = 2.7 \times 10^6\ t/m^2$ ($\sigma ck = 240\ kg/cm^2$)

$\alpha = 1.0E-5\ ^\circ C$

(2) Calculation of loads

1. Dead load

(1) Member (1~2, 2~3, 3~4)



(a) Distributed Load

Ballast	1.9 × 0.481	=	0.91 t/m²
Sloping concrete	2.35 × 0.07	=	0.16 "
Slab	2.5 × 0.28	=	0.70 "
		w_d =	1.77 t/m²

$\therefore w_{d1}$ = 1.77 × 0.40 = 0.71 t/m

w_d = 1.77 × 1.425 = 2.52 "

w_d = 1.77 × 3.25 × 2 = 11.51 "

w_d = 1.77 × 3.25 = 5.75 "

(b) Distributed load

(1) Track weight		=	0.45 t/m
(2) Hand rail		=	0.20 "
(3) Curb	2.5 × 0.30 × 0.20	=	0.15 "
(4) Longitudinal beam	2.5 × 0.80 × 0.92	=	1.84 "
(5) Slab haunch	2.5 × 1/2 × 0.45 × 0.15 × 2	=	0.17 "
		W_{d4} =	2.81 t/m

(c) Concentrated load of elements acting at joint, P_1 as shown below

(1) Distributed load	1.77 × 1/2 × (1.825 + 3.25) × 1.425 × 2	=	12.80 t
(2) "	1.77 × 0.15 × 6.50	=	1.73 "
(3) Transverse Beam	2.5 × 0.50 × 0.72 × 5.70	=	5.13 "
(4) Slab haunch	2.5 × 1/2 × 0.45 × 0.15 × 2.70 × 2	=	0.46 "
		P_{d1} =	20.12 t

joint P_2

(1) Distributed load	1.77 × 1/2 × (1.825 + 3.25) × 1.425 × 2	=	12.80 t
(2) "	1.77 × 1/2 × 3.25 × 3.25 × 2	=	18.70 "

(3) Transverse Beam $2.5 \times 0.80 \times 0.82 \times 5.70 = 9.35^{t}$

(4) Transverse Beam haunch $2.5 \times 1/2 \times 0.90 \times 0.30 \times 0.80 \times 2 = 0.54$ "

(5) Longitudinal Beam haunch $2.5 \times 1/2 \times 1.20 \times 0.40 \times 0.80 \times 2 = 0.96$ "

(6) Slab haunch $2.5 \times 1/2 \times 0.45 \times 0.15 \times 5.40 \times 2 = 0.91$ "

(7) Deficit of column weight $-2.5 \times 0.80 \times 0.80 \times (1.20 - 0.313) = -1.42$ "

$P_{d2} = 41.84^{t}$

joint P_3

(1) Distributed load $1.77 \times 1/2 \times 3.25 \times 3.25 \times 4 = 37.39^{t}$

(2) Transverse Beam $2.5 \times 0.80 \times 0.82 \times 5.70 = 9.35$ "

(3) Transverse Beam haunch $2.5 \times 1/2 \times 0.90 \times 0.30 \times 0.80 \times 2 = 0.54$ "

(4) Longitudinal beam haunch $2.5 \times 1/2 \times 1.20 \times 0.40 \times 0.80 \times 2 = 0.96$ "

(5) Slab haunch $2.5 \times 1/2 \times 0.45 \times 0.15 \times 5.40 \times 2 = 0.91$ "

(6) Deficit of column weight $-2.5 \times 0.80 \times 0.80 \times (1.20 - 0.313) = -1.42$ "

$P_{d3} = 47.73^{t}$

joint P_4

(1) Distributed load $1.77 \times 1/2 \times 3.25 \times 3.25 \times 3 = 28.04^{t}$

" $1.77 \times 0.40 \times 2.85 = 2.02$ "

(2) Transverse Beam $2.5 \times 0.80 \times 0.82 \times 5.70 = 9.35$ "

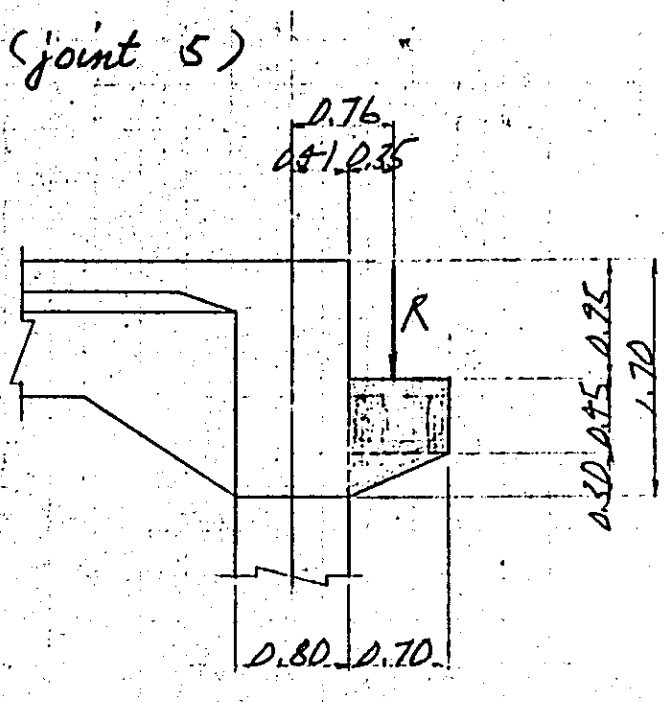
(1) Transverse Beam haunch	2.5 × 1/2 × 0.90 × 0.30 × 0.80 × 2 =	0.54 t
(2) Longitudinal Beam haunch	2.5 × 1/2 × 1.20 × 0.40 × 0.80 × 2 =	0.96 "
(3) Slab haunch	2.5 × 1/2 × 0.45 × 0.15 × 2.70 × 3 =	0.68 "
(4) Deficit of column weight	− 2.5 × 0.80 × 0.80 × (1.20 − 0.313) =	−1.42 "
	Pd4 =	40.17 t

joint P5

(1) Distributed load	1.77 × 1/2 × 3.25 × 3.25 =	9.35 t
(2) "	1.77 × 0.40 × 3.65 =	2.58 "
(3) Longitudinal Beam haunch	2.5 × 1/2 × 1.20 × 0.40 × 0.80 =	0.48 "
(4) Slab haunch	2.5 × 1/2 × 0.45 × 0.15 × 2.70 =	0.23 "
(5) Transverse Beam	2.5 × 0.80 × 1.42 × 3.65 =	10.37 "
(6) Beam for Bridege support	2.5 × 1/2 × (0.45 + 0.75) × 0.70 × 3.65 =	3.83 "
(7) Deficit of column weight	− 2.5 × 0.80 × 0.80 × (1.70 − 0.313) =	− 2.22 "
(8) Deficit of Longitudinal Beam weight	− 2.5 × 0.80 × 0.92 × 0.40 =	− 0.74 "
	Pd5 =	23.88 t

(d) Moment at joint caused by beam of Bridge Support and T-beam bridge

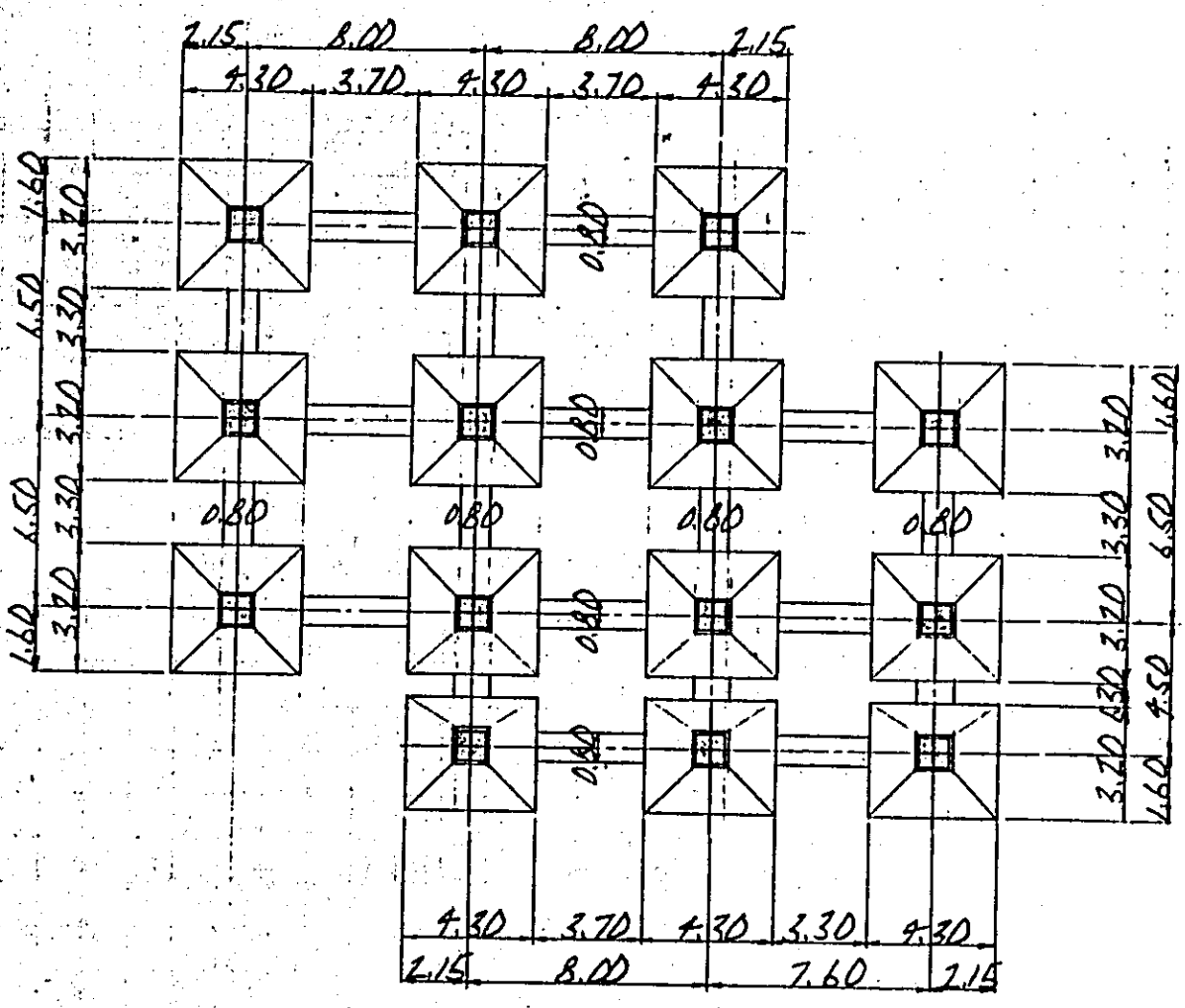
(joint 5)

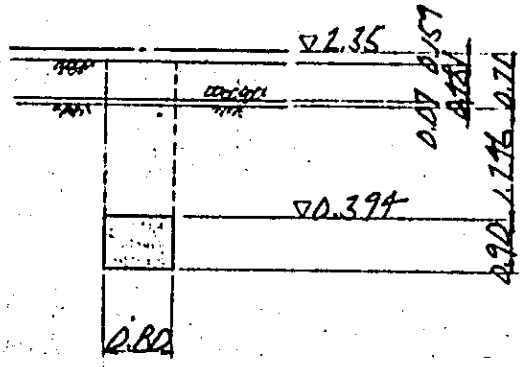


$$R_d = 34.00 \times 2 = 68.00^{t}$$

$$M_d = 68.00 \times 0.76 + 2.5 \times 0.70 \times 0.45 \times 3.65 \times 0.76$$
$$+ 2.5 \times 1/2 \times 0.70 \times 0.30 \times 3.65 \times 0.643$$
$$= 54.48^{t/m}$$

(2) Member (6~7, 7~8, 8~9)





Distributed load (A)

Ballast	1.9 × 0.481	= 0.91	t/m²
Grading Concrete	2.35 × 0.07	= 0.16	"
		1.07	t/m

Earth pressure	1.8 × 0.946	= 1.70	t/m²
"	1.8 × 1.246	= 2.24	"

(a) Distributed load (B).

$$W_1 = (1.07 + 2.24) \times 0.80 + 2.5 \times 0.80 \times 0.90$$
$$= 4.45 \text{ t/m}$$

(b) Concentrated load of elements acting at joint P6 as Shown bellow

(1) Distributed load(B)	4.45 × 1.10 × 2	= 14.69 t
(2) Distributed load(A)	1.07 × (3.20 × 4.30 − 0.80²)	= 14.04 "
(3) Earth pressure	1.7 × (3.20 × 4.30 − 0.80² × 0.946	= 22.30 "
(4) "	1.8 × {3.20 × 4.30 − 1/6 × (1.00² + 3.20 × 4.30 + 4 × 2.10 × 2.65)} × 0.30	= 4.10 "
(5) Bracing beam	2.5 × {3.20 × 4.30 × 0.90 + 1/6 × (1.00² + 3.20 × 4.30 + 4 × 2.10 × 2.65) × 0.30}	= 35.59 "

(6) Deficit of column weight $-2.5 \times 0.80^2 \times (0.30 + 0.45)$ $= -1.20^{t}$

(7) Deficit of Distributed load (B) -4.45×2.15 $= -9.57^{t}$

$P_{d6} = 79.95^{t}$

joint 7,8

(1) Distributed load (B) (from P_{d6}) $= 14.69^{t}$

(2) Distributed load (A) (〃) $= 14.04^{t}$

(3) Earth pressure (〃) $= 22.30^{t}$

〃 (〃) $= 4.10^{t}$

(4) Bracing beam (〃) $= 35.59^{t}$

(5) Deficit of column weight (〃) $= -1.20^{t}$

(6) Deficit of Distributed load (B) -4.45×4.30 $= -19.14^{t}$

$P_{d.7.8} = 70.38^{t}$

joint 9

(1) Distributed load (B) 4.45×1.65 $= 7.34^{t}$

(2) Distributed load (A) (from P_{d6}) $= 14.04^{t}$

(3) Eath pressure (〃) $= 22.30^{t}$

(4) 〃 (〃) $= 4.10^{t}$

(5) Bracing beam (〃) $= 35.59^{t}$

(6) Deficit of column weight (〃) $= -1.20^{t}$

(7) Dificit of Distributed load (from P66) $= -9.57^{t}$

$P_{19} = 72.60^{t}$

13) Column weight

$g = 2.5 \times 0.80 \times 0.80 = 1.60\ ^{t}/_{m}$

2. Train load and Impact

(1) Train load (Single track) KS-16

(a) Distributed load acting on rigid-frame

Span $\ell = 8.00^{m}$

$w_{M1} = 5.40 \times 2 = 10.80^{t/m}$

$w_{M2} = 4.60 \times 2 = 9.20^{t/m}$

$w_{S} = 6.00 \times 2 = 12.00^{t/m}$

(b) Reduction of impact coefficient

$\ell = 8.00^{m} \longrightarrow i = 0.450 \times \left(1 - \frac{8.00}{200}\right) = 0.432$

$\therefore w_{M1} = 10.80 \times (1 + 0.432) = 15.47^{t/m}$

$w_{M2} = 9.20 \times (\quad " \quad) = 13.17\ "$

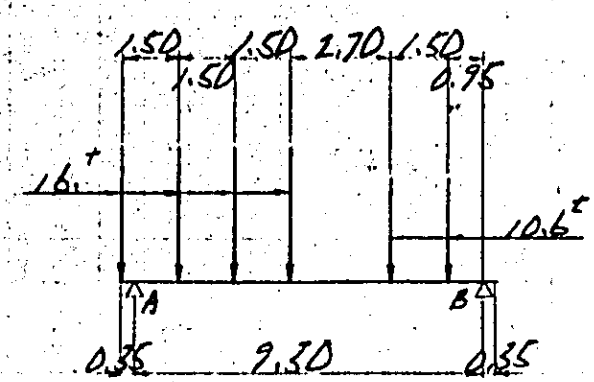
$w_{S} = 12.00 \times (\quad " \quad) = 17.18\ "$

(2) Consentration of cantilever slab

$\ell = 3.00^{m} \longrightarrow i = 0.528 \times \left(1 - \frac{3.00}{200}\right) = 0.520$

$\therefore P = 19.5 \times (1 + 0.520) = 29.64^{t}$

(3) Reaction of T-beam Superstructure



$$R_{AL} = \frac{1}{9.30} \times \{10.6 \times (0.95 + 2.45) + 16 \times (5.15 + 6.65 + 8.15 + 9.65)\}$$

$$= 54.80^{t}$$

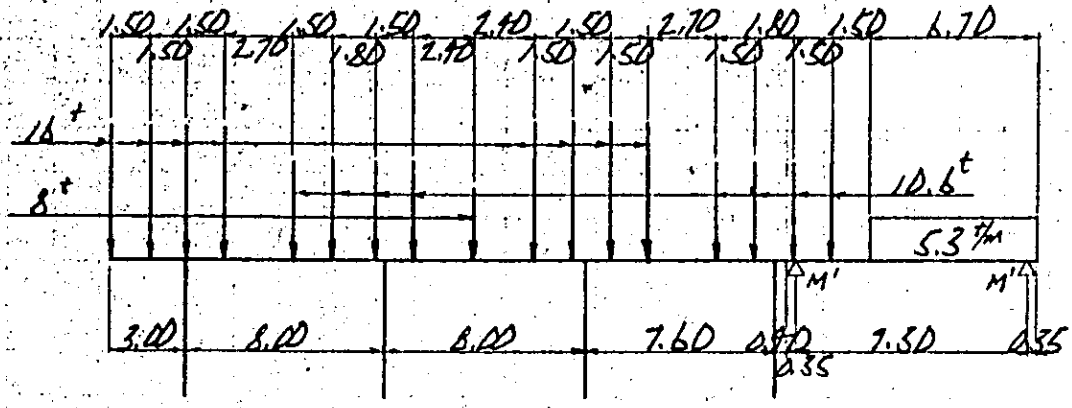
within right frame Section

$l = 9.30^{m}$ ——— $i' = 0.437$

$$\therefore R_{Al+i'} = 54.80 \times (1 + 0.437) = 78.75^{t}$$

$$M_{Al+i'} = 78.75 \times 0.760 = 59.85^{t.m}$$

3. Breaking load and Traction load



(1) Breaking load

15% of the train load.

(a) within elevated structute Section

$H_{B1} = (16 \times 8 + 10.6 \times 6 + 8) \times 0.15$

$= 29.94^{t}$

(b) within T-beam brige section at supporting point A

$H_{B2} = (10.6 \times 2 + 5.3 \times 6.70) \times 0.15 \times \frac{1}{2}$

$= 4.25^{t}$

(c) Total brake load

$\therefore H_B = 1/2 \times (29.94 + 4.25) = 17.10^{T}$

(2) Traction load

25% of the weight of the driveing axle

(a) within elevated structute section

$H_{S1} = 16 \times 8 \times 0.25 = 32.00^{t}$

(b) within T-beam brige section at supporting point A

$H_{S2} = 0^{t}$

(c) Total Traction load

$\therefore H_S = 32.00 \times 1/2 = 16.00^{t}$

compare Brake load with Traction load

$H_B = 17.10^{t} > H_S = 16.00^{t}$

4. Force of temperature change

Temperature rise ± 10°C

Dry shrinkage − 15°C

∴ Temperature rise

+10°C

Temperature drop + Drying contraction

−25°C

5. Dead load + Seismic force (kh=0.1)

(1) Dead load

(A) Member (1~2, 2~3, 3~4)

Distributed load curb	0.45 × 27.00	=	12.15 t
curb	0.20 × 27.00	=	5.40 "
Dust cover	2.5 × 0.20 × 0.30 × 27.00	=	4.05 "
ballast	1.9 × 6.00 × 0.481 × 27.00	=	148.05 "
Sloping concrete	2.35 × 6.00 × 0.07 × 27.00	=	26.65 "
Slab	2.5 × 6.50 × 0.28 × 27.00	=	122.85 "
"	2.5 × 0.15 × 0.40 × 6.50	=	0.98 "
Slab haunch	2.5 × 1/2 × 0.45 × 0.15 × 2.70 × 14	=	3.19 "
Longitudinal beam	2.5 × 0.80 × 0.92 × 27.00	=	49.68 "
Longitudinal beam haunch	2.5 × 1/2 × 1.20 × 0.40 × 0.80 × 6	=	2.88 "
"	2.5 × 1/2 × 1.20 × 0.40 × 0.80	=	0.48 "
Cross beam	2.5 × 0.80 × 0.82 × 2.85 × 6	=	28.04 "
Cross beam haunch	2.5 × 1/2 × 0.90 × 0.30 × 0.80 × 6	=	1.62 "
"	2.5 × 0.90 × 1.42 × 3.65	=	11.66 "
beam seat	2.5 × 1/2 × (0.45+0.75) × 0.70 × 3.65	=	3.83 "
Cross beam	2.5 × 0.50 × 0.72 × 2.85 × 2	=	5.13 "

Deficit of slab	$-2.5 \times 2.85 \times 0.28 \times 7.60$	$= -15.16^{t}$
Deficit of ballast	$-1.9 \times 2.75 \times 0.481 \times 7.60$	$= -19.10^{"}$
Deficit of sloping concrete	$-2.35 \times 2.75 \times 0.07 \times 7.60$	$= -3.44^{"}$
Column	$2.5 \times 0.80 \times 0.80 \times (1/2 \times 9.587 + 0.313 - 1.20) \times 3$	$= 18.75^{"}$
"	$2.5 \times 0.80 \times 0.80 \times (1/2 \times 9.587 + 0.313 - 1.70)$	$= 5.45^{"}$
	W	$= 431.14^{t}$

$\therefore H_{d1} = 431.14 \times 0.1 = 41.31^{t}$

(b) Reaction of superstructure

Single way beam

$\Sigma R = 34.00 \times 2 = 68.00^{t}$

$\therefore H_R = 68.00 \times 0.1 \times \frac{1}{2} = 3.40^{t}$

(c) horizontal load

$\therefore H = 41.31 + 3.40 = 44.71^{t}$

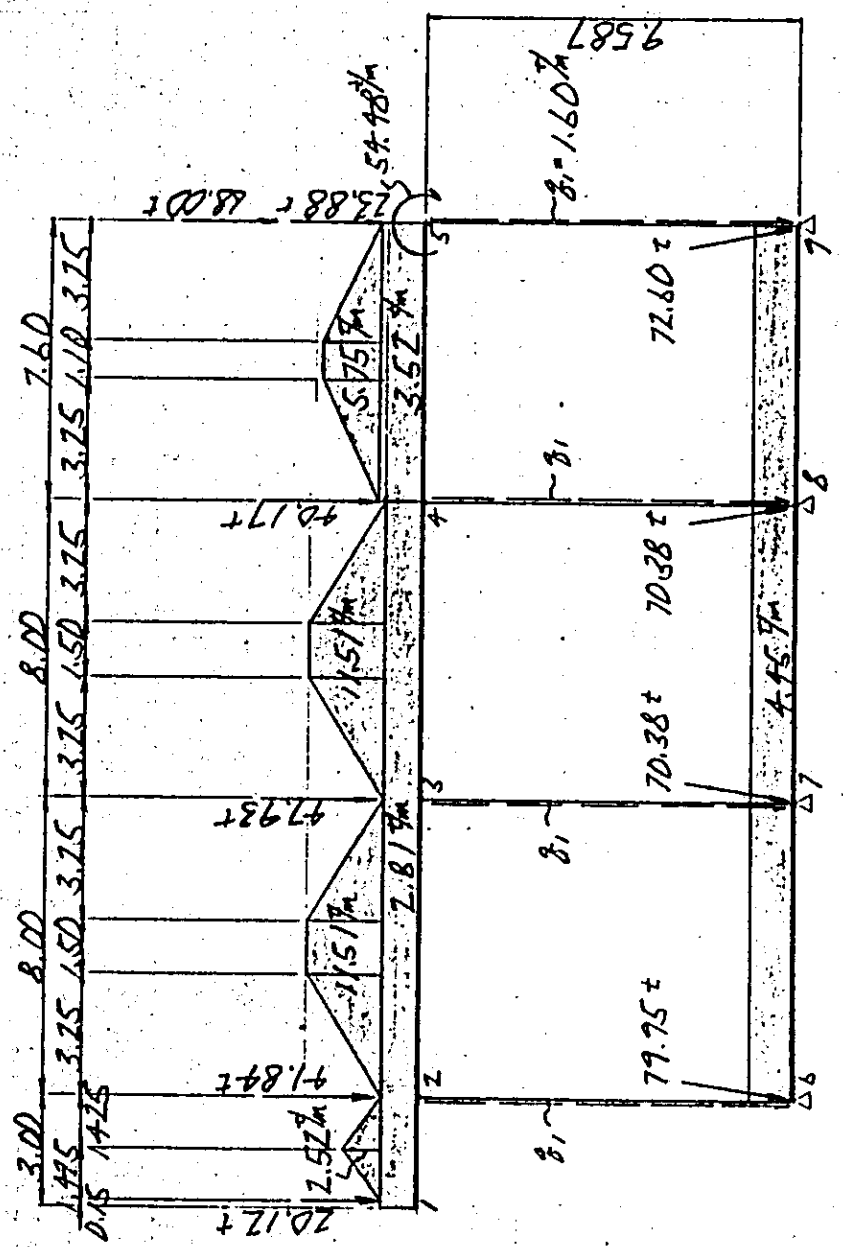
(2) Member (6~7, 7~8, 8~9)

braing beam	2.5 × 0.80 × 0.90 × (1.65 × 7 + 3.70" × 3)	= 40.77 t
footing	2.5 × 3.20 × 4.30 × 0.90 × 4	= 123.84 "
"	2.5 × 1/6 × (1.00² + 3.20 × 4.30 + 4 × 2.10 × 2.65 × 0.30 × 4	= 18.51 "
Column	2.5 × 0.80 × 0.80 × (1/2 × 9.587 - 0.45 - 0.30) × 4	= 25.88 "
		W = 209.00 t

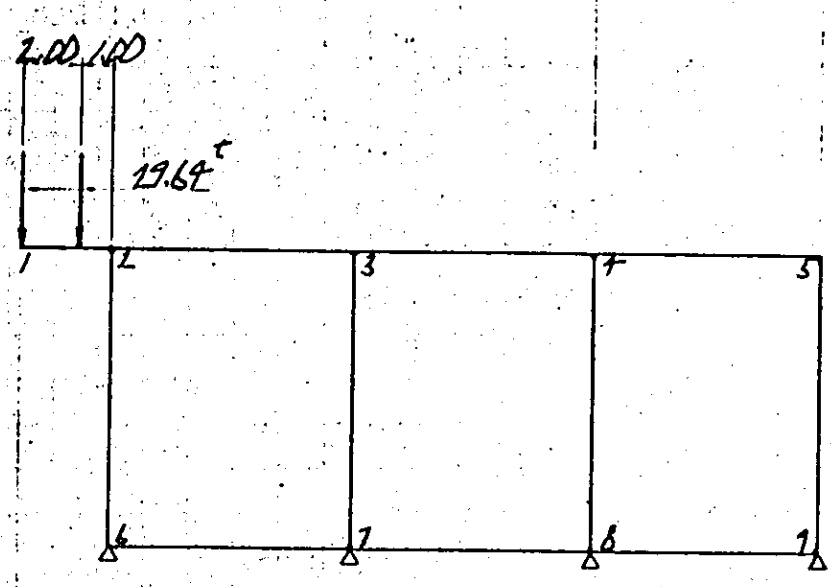
∴ H = 209.00 × 0.1 = 20.90 t

(3) Loading diagram

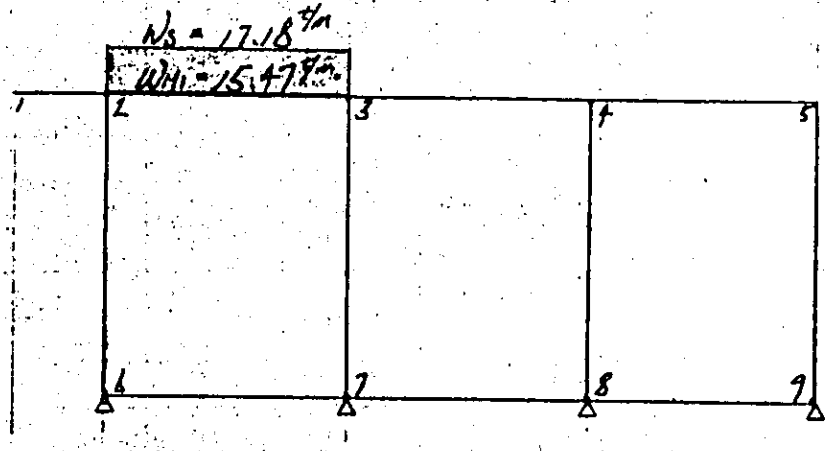
CASE 1 Dead load



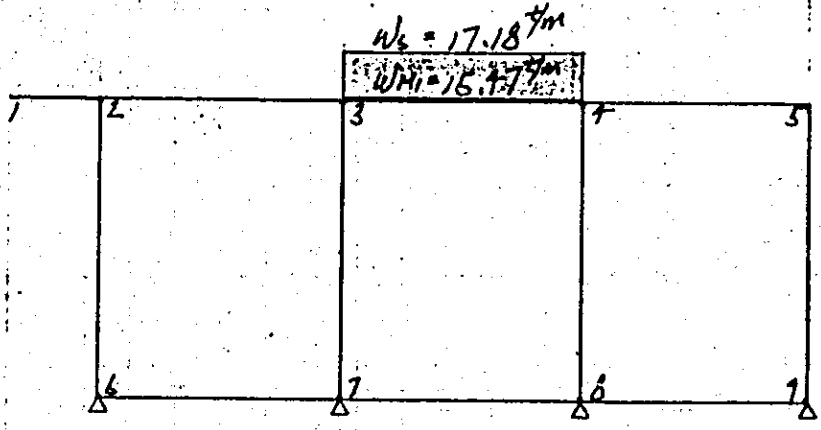
CASE 2. Train load + Impact (1)



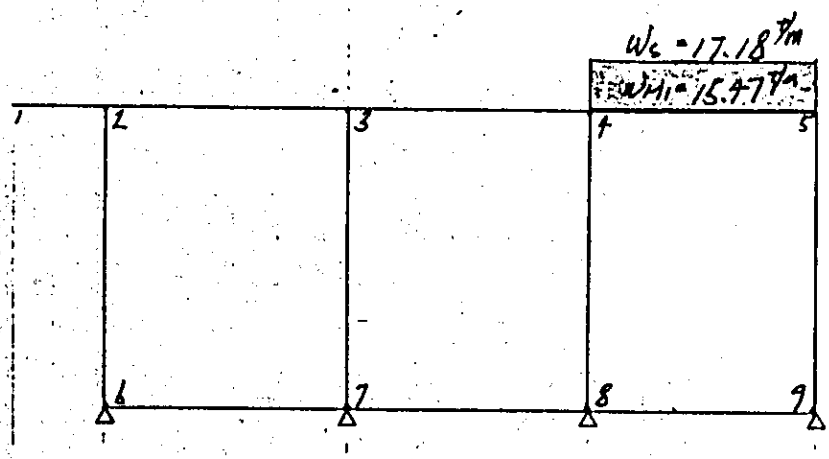
CASE 3. Train load + Impact (2)



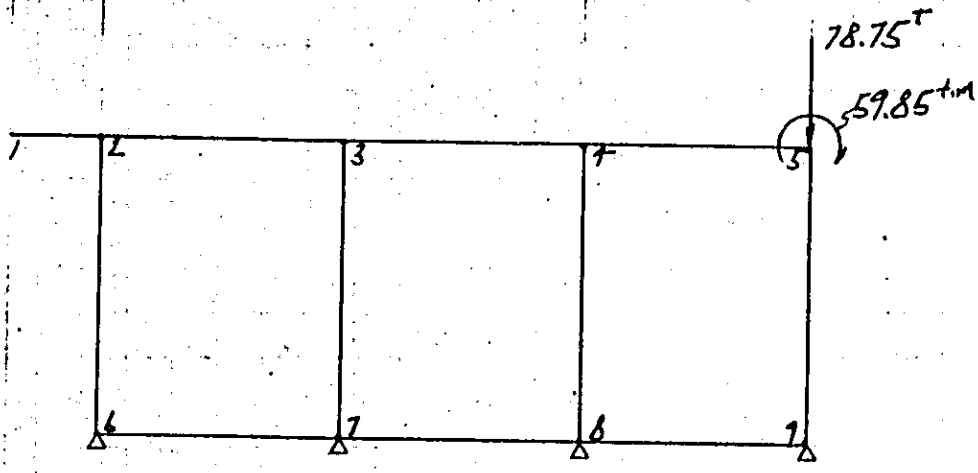
CASE 4. Train load + Impact (3)



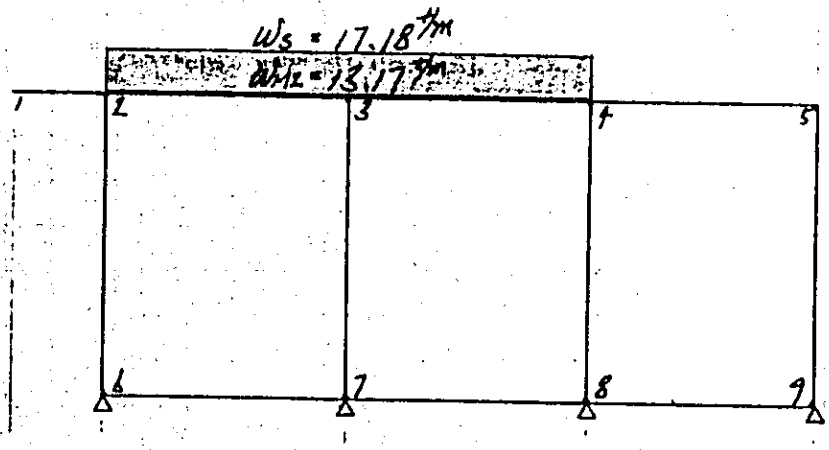
CASE 5. Train load + Impact (4)



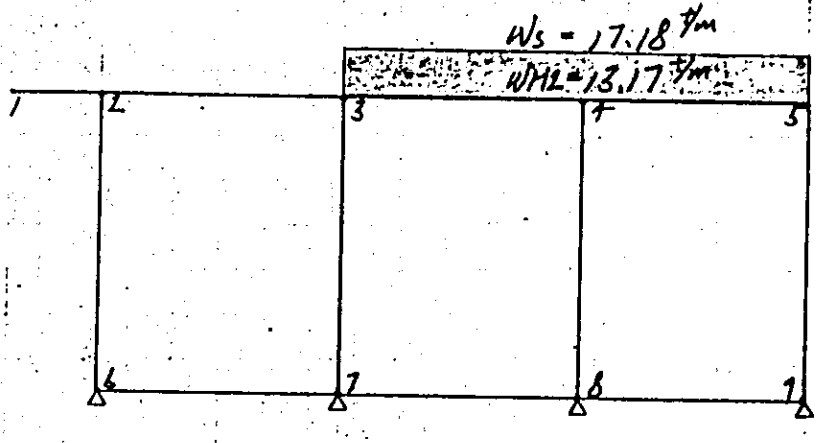
CASE 6. Train load + Impact (5)



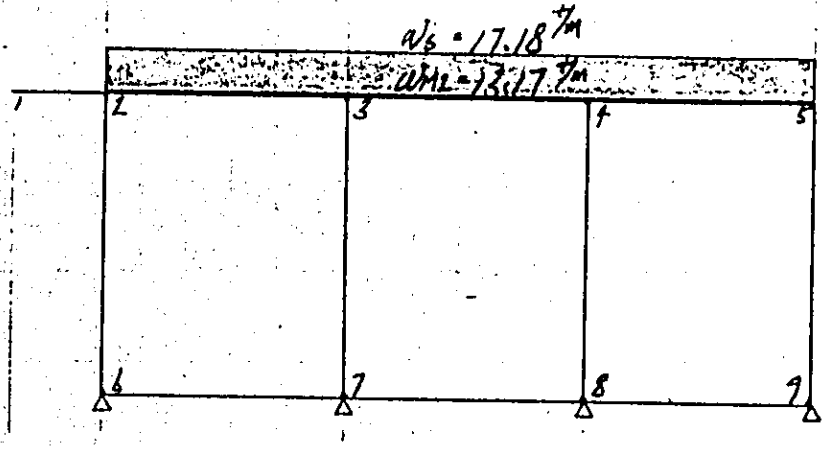
CASE 7. Train load + Impact (6)



CASE 8. Train load + Impact (7)

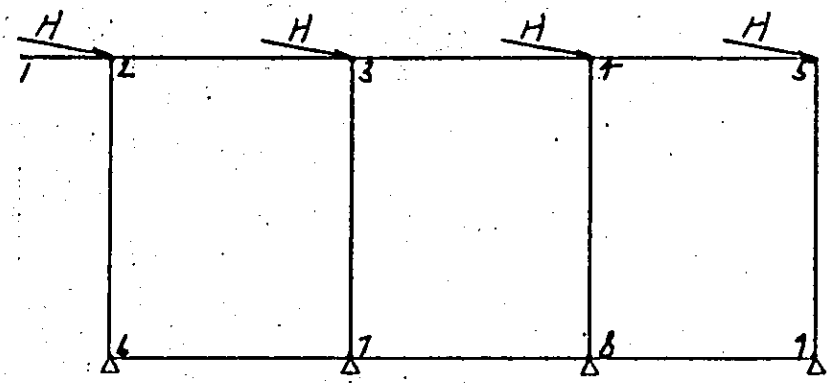


CASE 9. Train load + Impact (8)

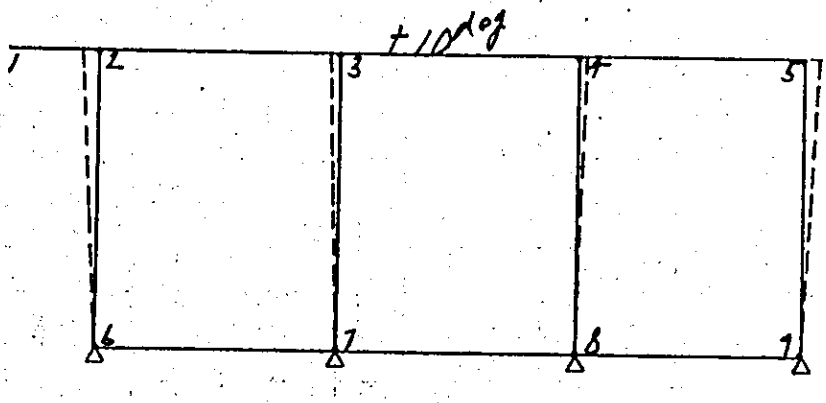


CASE 10. Brake load

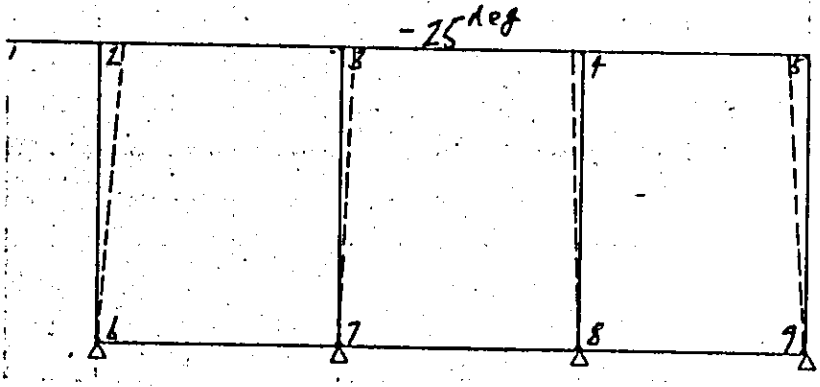
$$H = 1/4 \times 17.10 = 4.28^{t}$$



CASE 11. Temperature rise



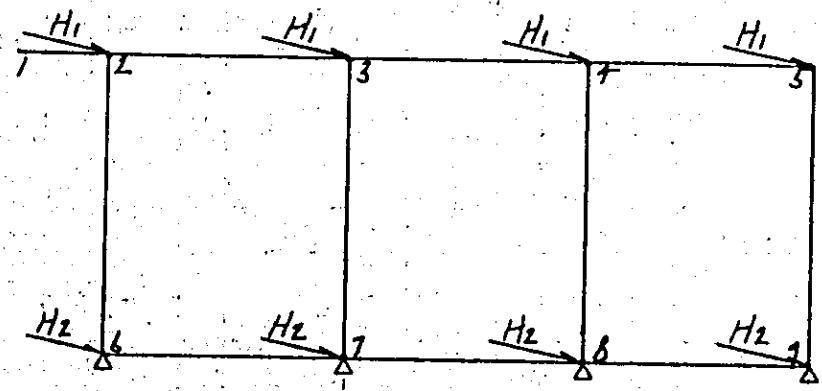
CASE 12. Temperature drop +
drying contraction



CASE 13. Seismic load

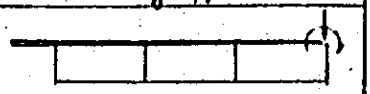
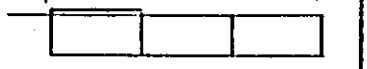
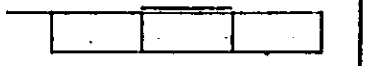
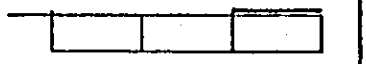
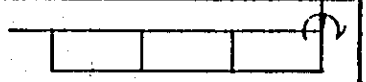
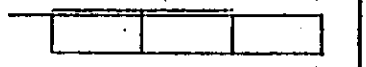
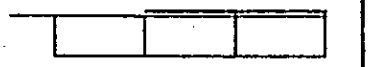
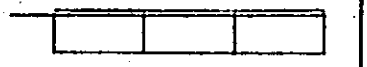
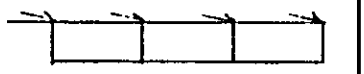
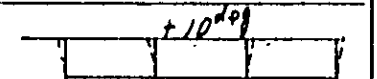
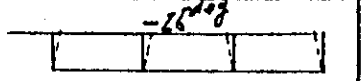
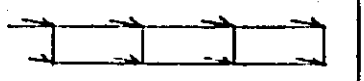
$H_1 = 1/4 \times 44.71 = 11.18$ t

$H_2 = 1/4 \times 20.90 = 5.23$ "



(4) Combination of loads

1. Basic load

case NO.	Kind of load	Loading pattern
1	Dead load	
2	Train load + Impact (1)	
3	〃 (2)	
4	〃 (3)	
5	〃 (4)	
6	〃 (5)	
7	〃 (6)	
8	〃 (7)	
9	〃 (8)	
10	Brake load	
11	Temperature	
12	Temperature + Contration	
13	Seismic load	

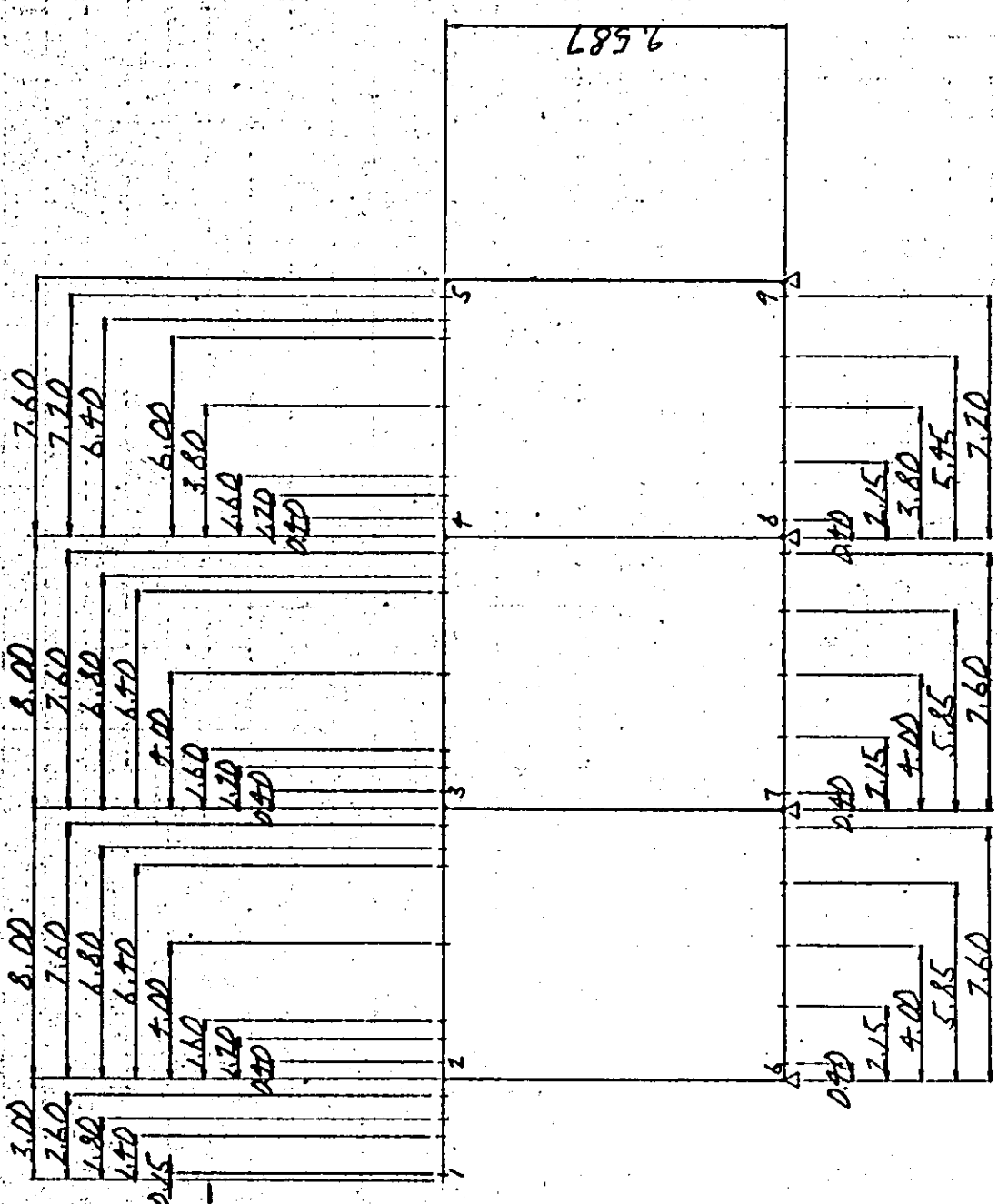
2. Combined loads

case NO.	α	Combination of loads	Summary
14	1.0000	1	Dead load
15	1.0000	1 + 3	D + Tr + I
16	〃	1 + 2 + 4	〃
17	〃	1 + 7	〃
18	〃	1 + 4	〃
19	〃	1 + 3 + 5	〃
20	〃	1 + 8	〃
21	〃	1 + 5	〃
22	〃	1 + 4 + 6	〃
23	〃	1 + 5 + 6	〃
24	0.8696	1 + 11	D + Te
25	〃	1 + 12	〃
26	0.8696	1 + 2 + 6 + 9 + 10	D + Tr + I + Br
27	〃	1 + 2 + 6 + 9 − 10	〃
28	0.6667	1 + 13	D + Se
29	〃	1 − 13	〃
30	1.0000	1 + 2 + 6 + 9 + 10	D + Tr + Br
31	〃	1 + 2 + 6 + 9 − 10	〃
32	1.0000	1 + 11	D + Te
33	〃	1 + 12	〃
34	1.0000	1 + 13	D + Se
35	〃	1 − 13	〃

3. Critical cases

case No.	α	Combination of loads	summary
		NO. 1 case 1	crack
		NO. 2 case 15 ~ 29	Synthetic
		NO. 3 case 30 ~ 31	footing
		NO. 4 case 32 ~ 33	"
		NO. 5 case 34 ~ 35	"

(5) Point of computing stresses

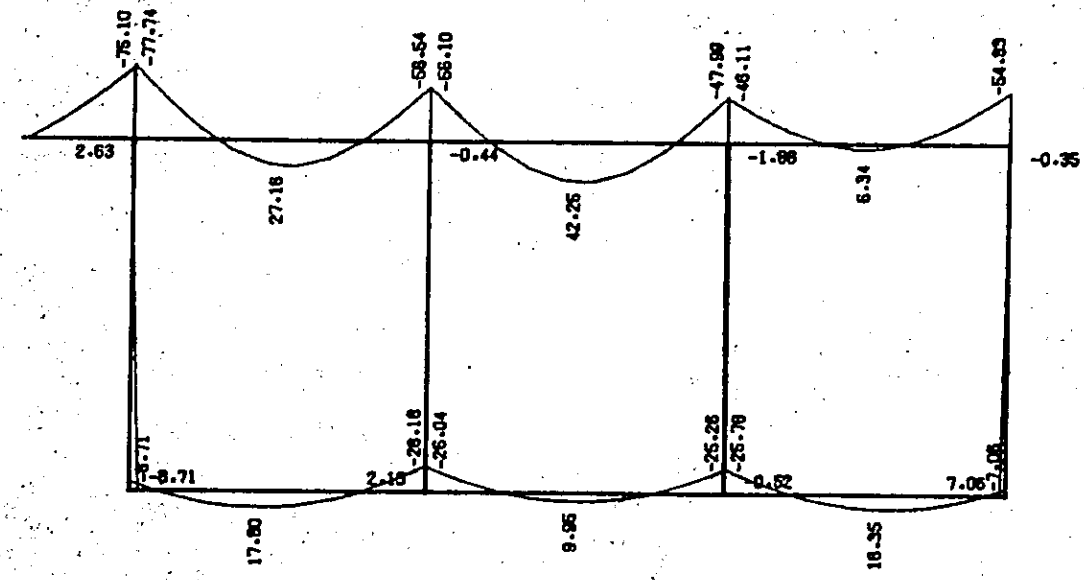


※ Point of concentrated load

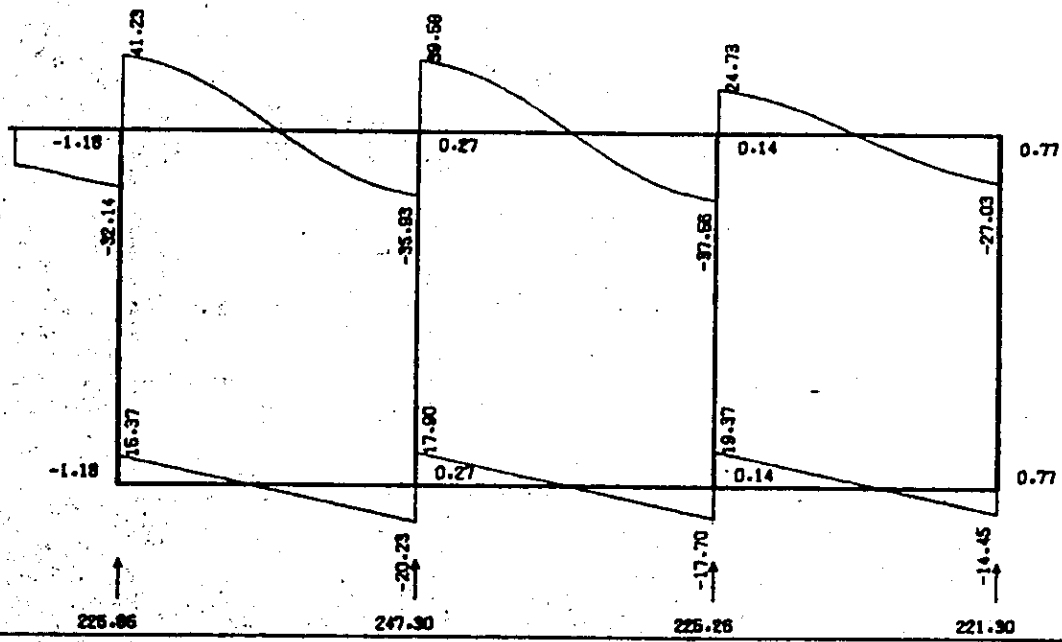
VIADUCT OF DOUBLE TRACK (3+3*8=27) L-1

CASE 1 (DEAD LOAD)

BENDING MOMENT



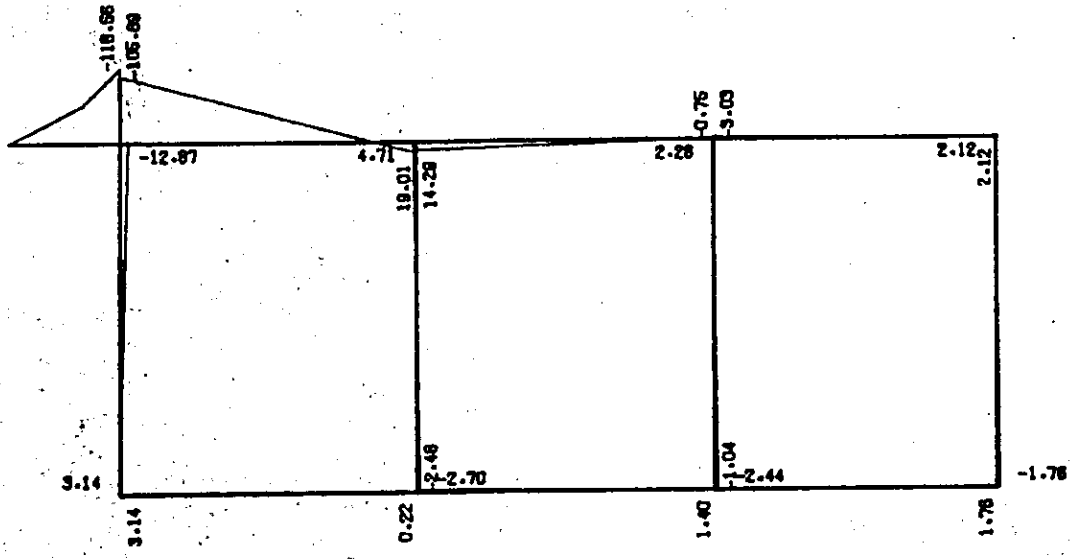
SHEARING FORCE



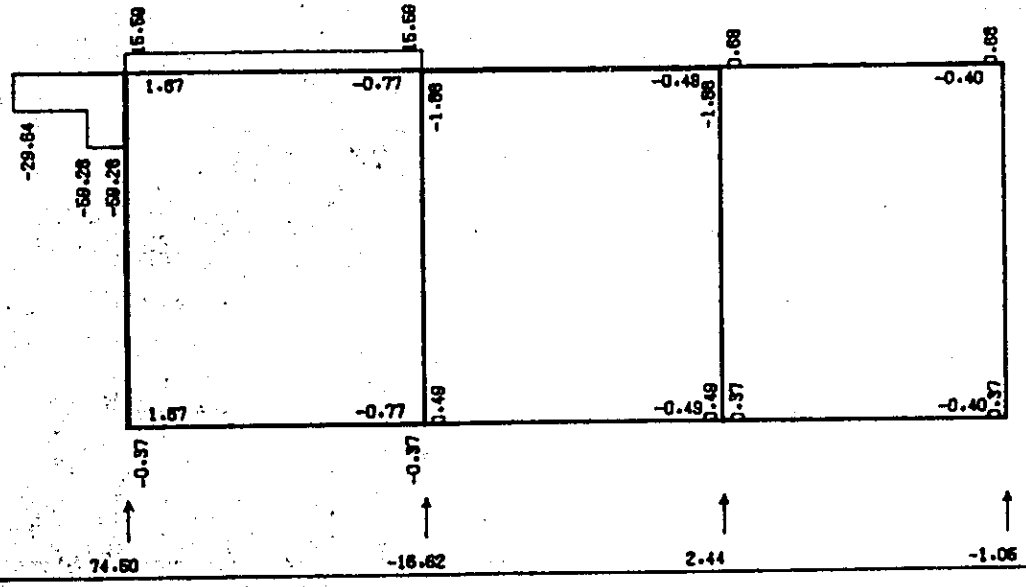
VIADUCT OF DOUBLE TRACK (3+3*8=27) L-1

CASE 2 (TRAIN LOAD + IMPACT LOAD 1)

BENDING MOMENT



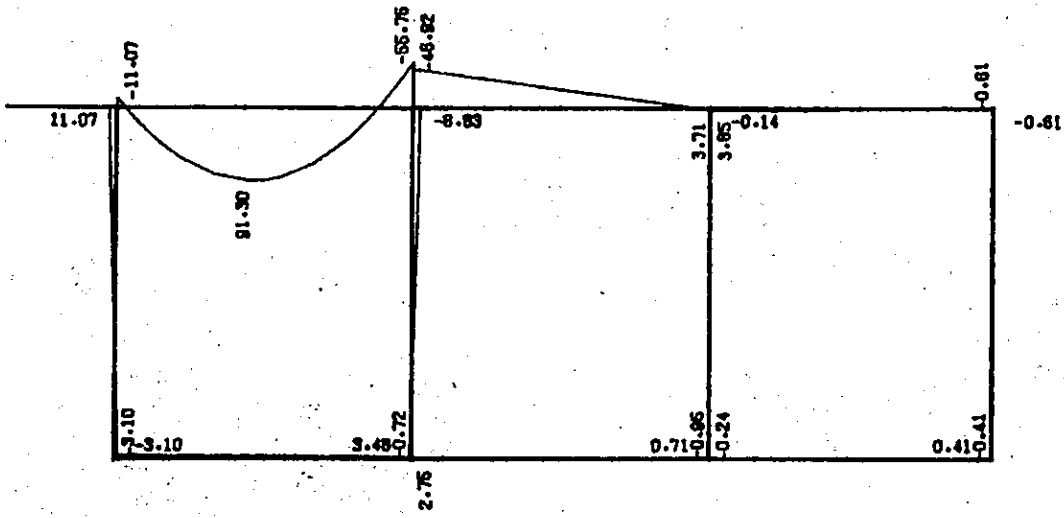
SHEARING FORCE



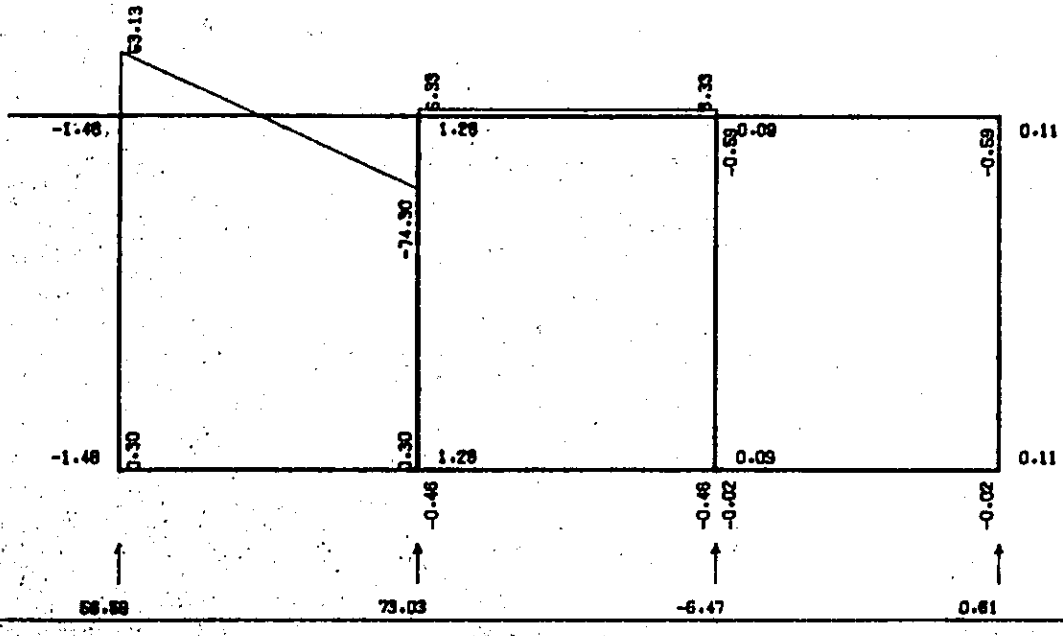
VIADUCT OF DOUBLE TRACK (3+3*8=27) L-1

CASE 3 (TRAIN LOAD + IMPACT LOAD 2)

BENDING MOMENT



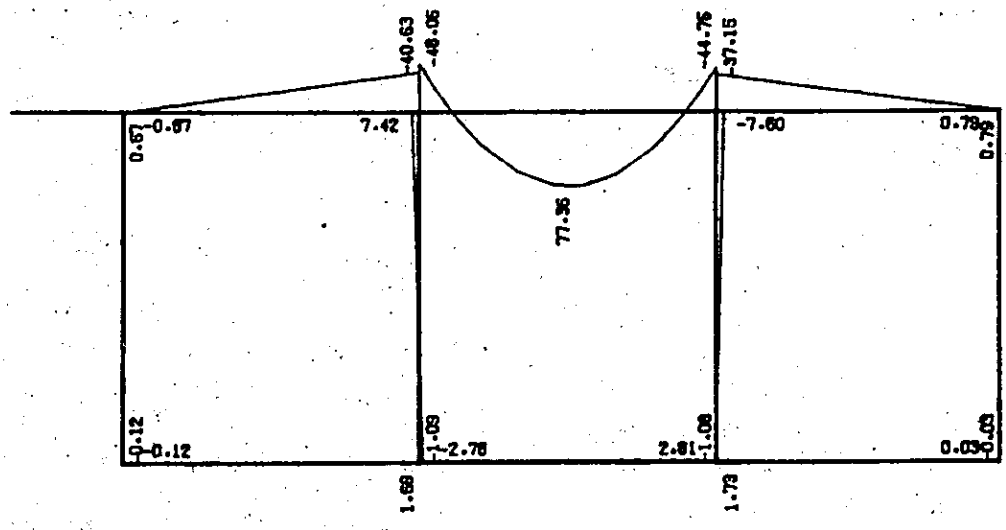
SHEARING FORCE



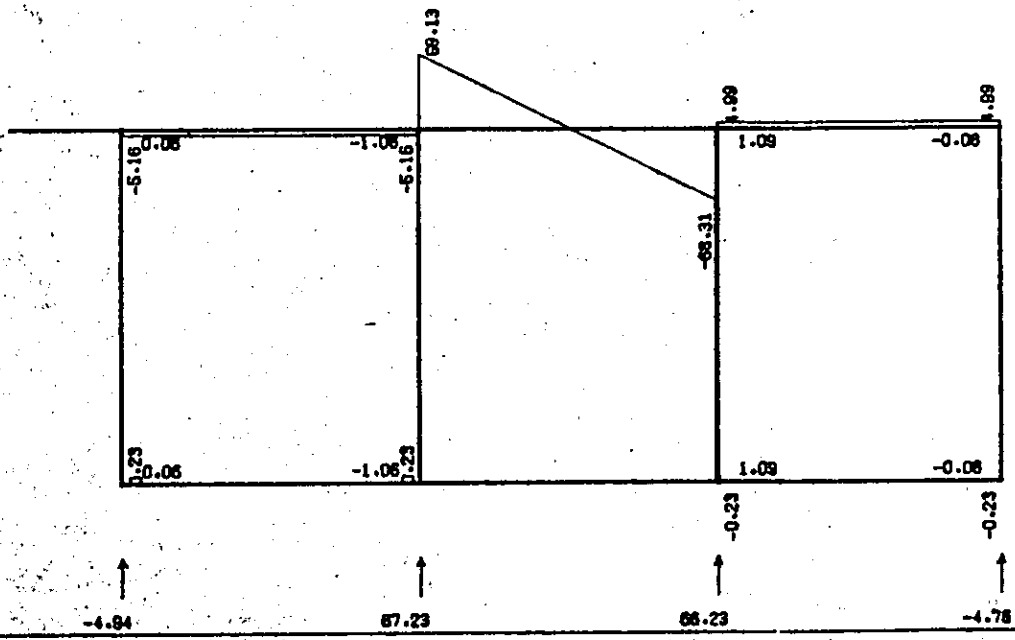
VIADUCT OF DOUBLE TRACK (3+3*8=27) L-1

CASE 4 (TRAIN LOAD +-IMPACT LOAD 3)

BENDING MOMENT



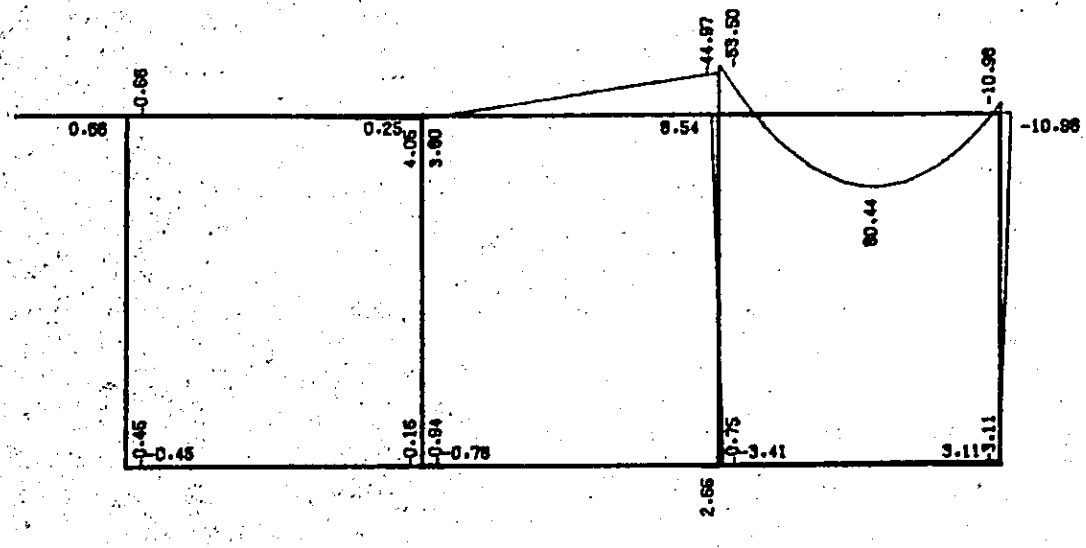
SHEARING FORCE



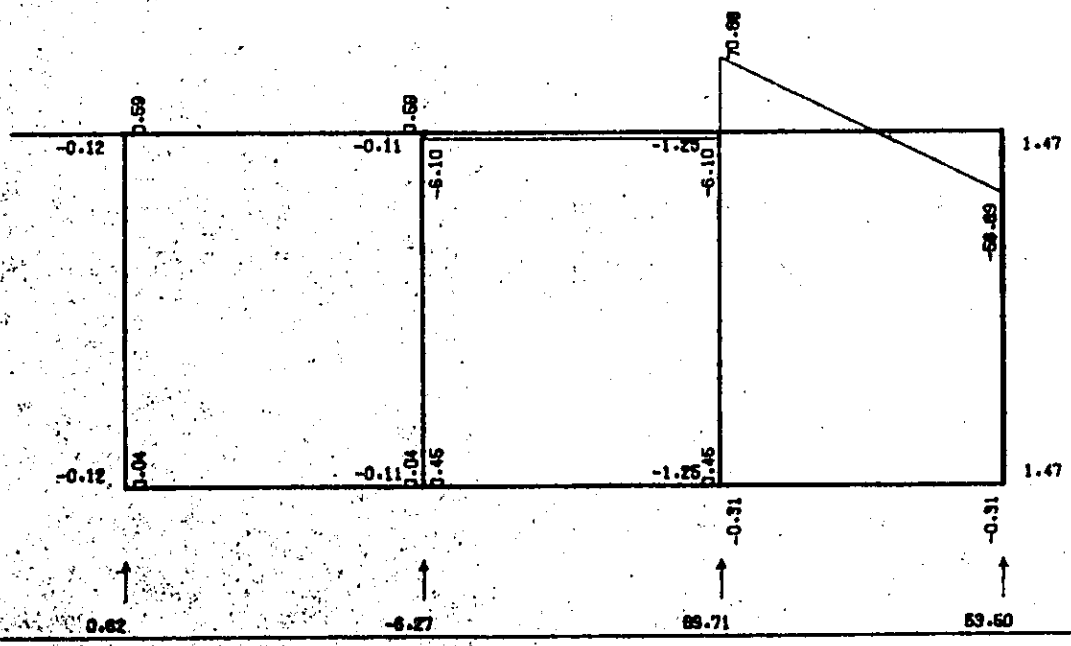
VIADUCT OF DOUBLE TRACK (3+3*8=27) L-1

CASE 5 (TRAIN LOAD + IMPACT LOAD 4)

BENDING MOMENT



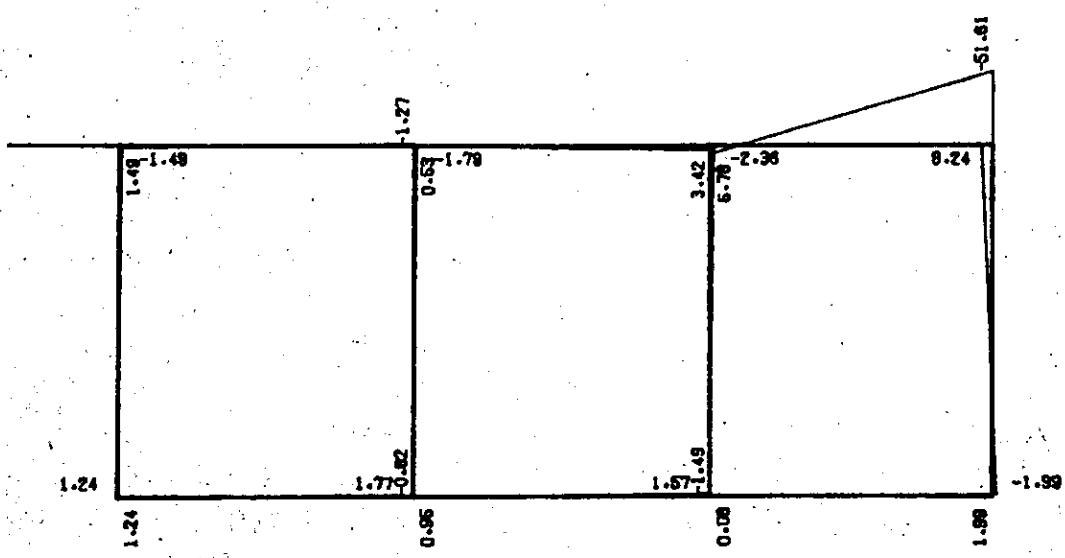
SHEARING FORCE



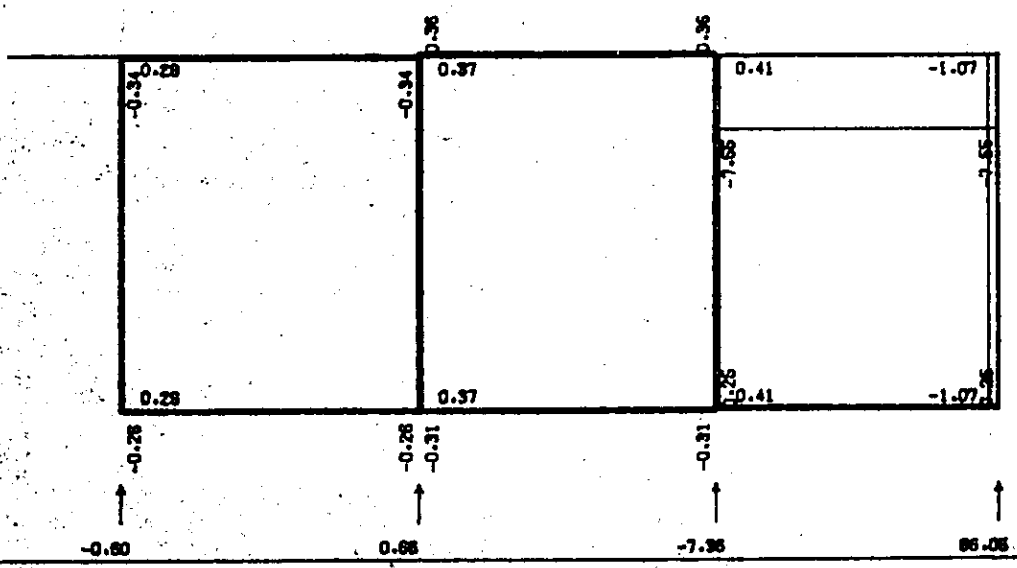
VIADUCT OF DOUBLE TRACK (3+3*8=27) L-1

CASE 6 (TRAIN LOAD + IMPACT LOAD 5)

BENDING MOMENT



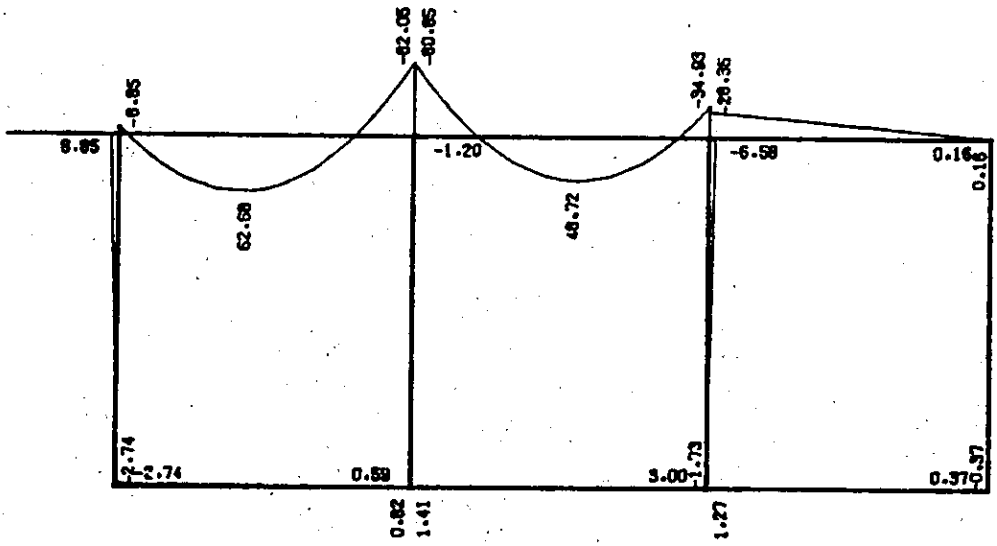
SHEARING FORCE



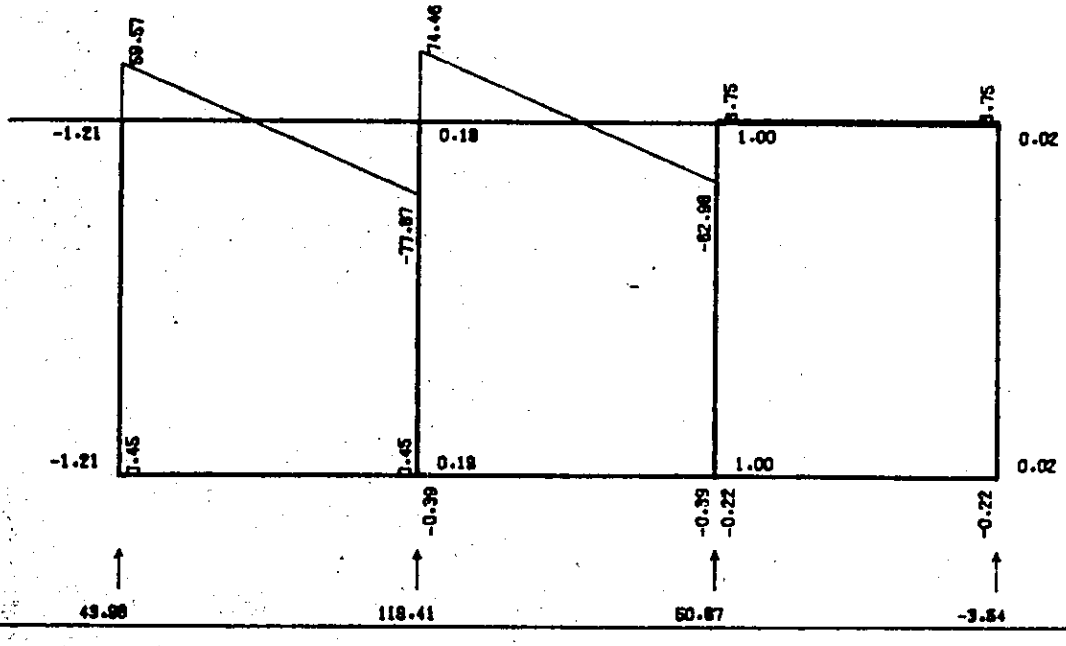
VIADUCT OF DOUBLE TRACK (3+3*8=27) L-1

CASE 7 (TRAIN LOAD + IMPACT LOAD 6)

BENDING MOMENT



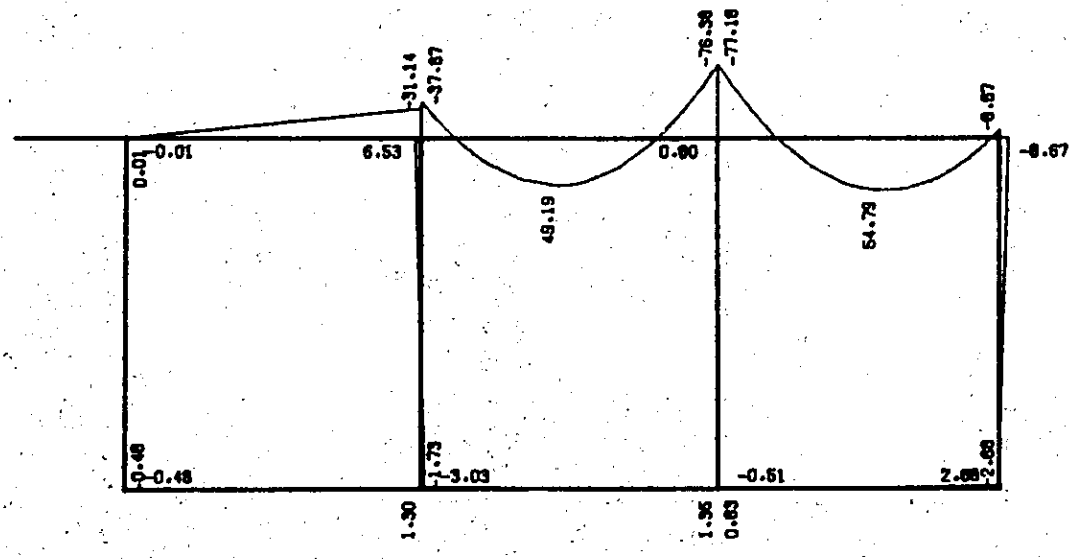
SHEARING FORCE



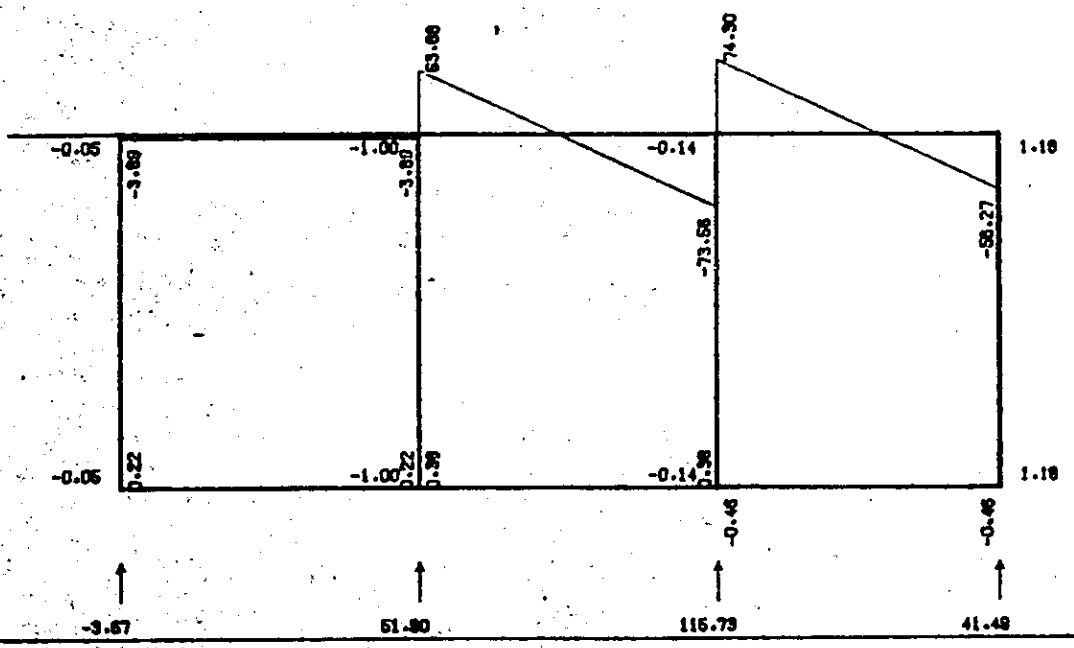
VIADUCT OF DOUBLE TRACK (3+3*8=27) L-1

CASE 8 (TRAIN-LOAD + IMPACT LOAD 7)

BENDING MOMENT



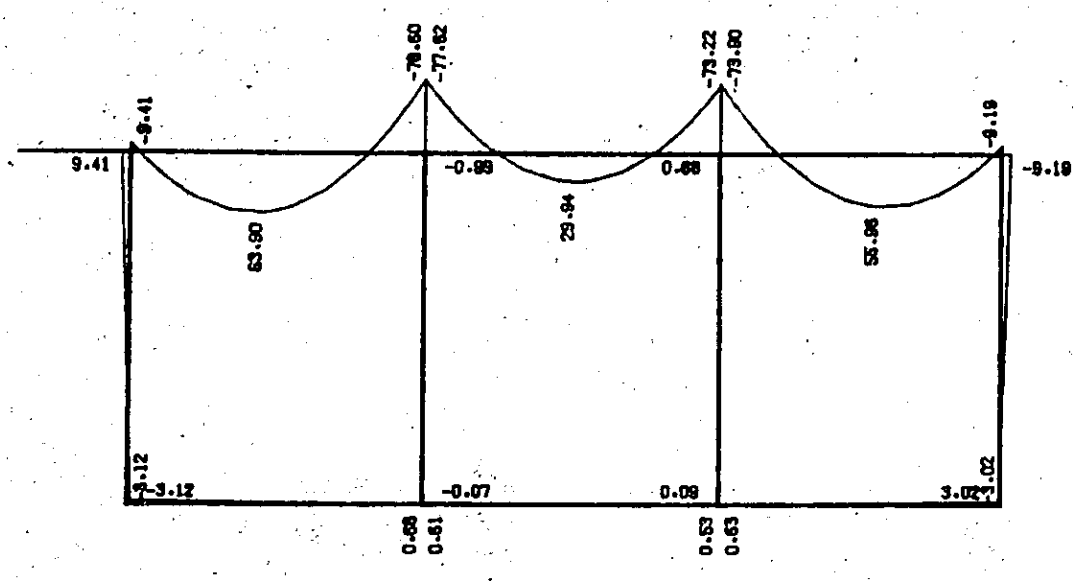
SHEARING FORCE



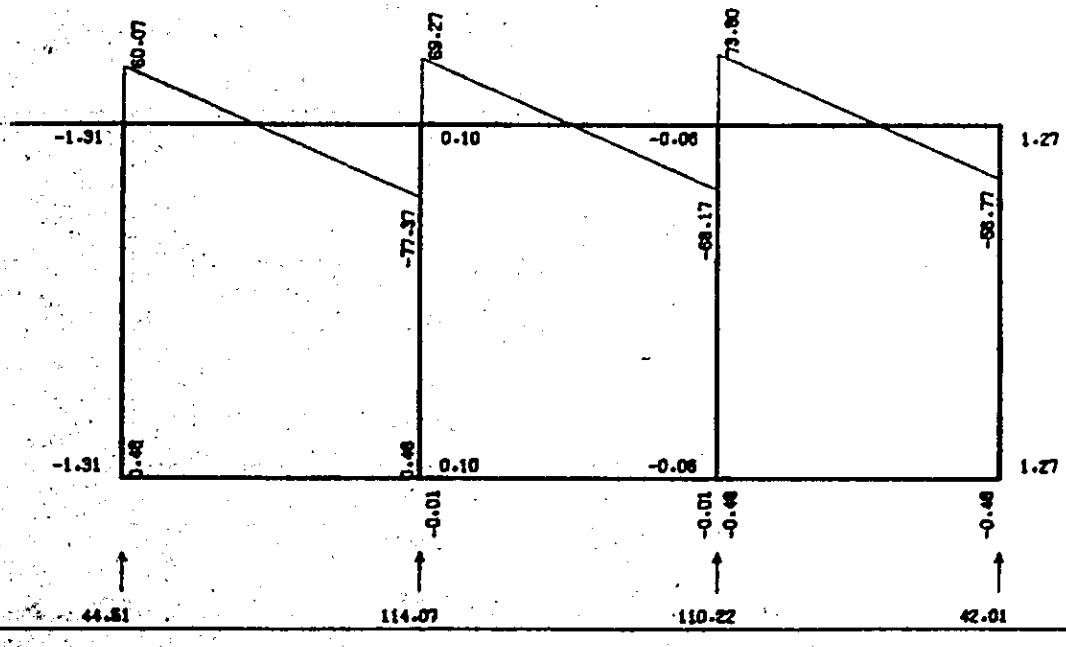
VIADUCT OF DOUBLE TRACK (3+3*8=27) L-1

CASE 9 (TRAIN LOAD + IMPACT LOAD 8)

BENDING MOMENT



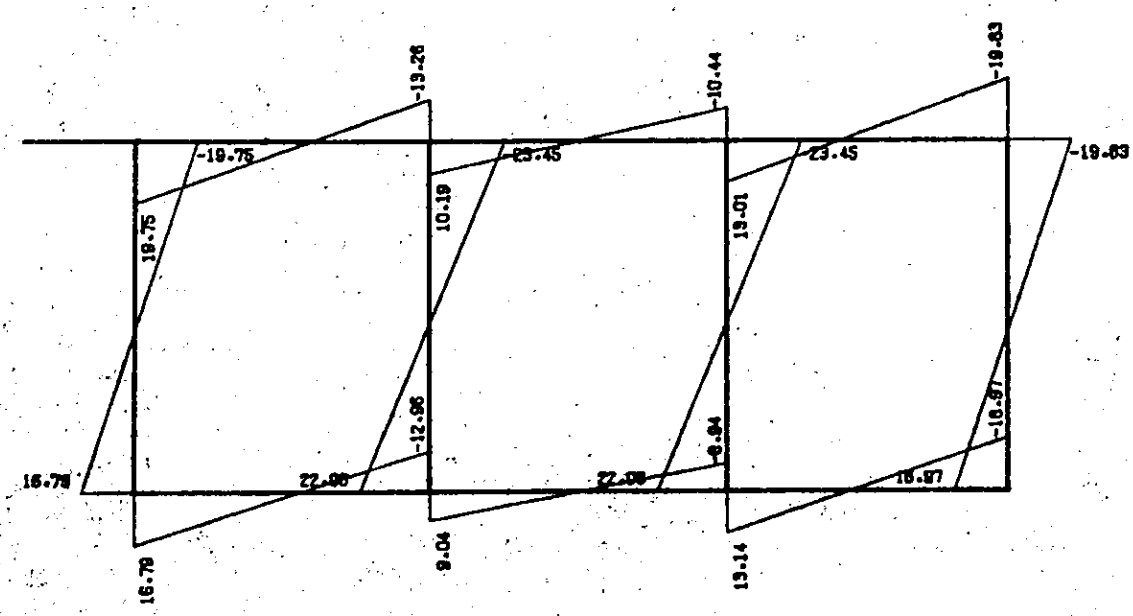
SHEARING FORCE



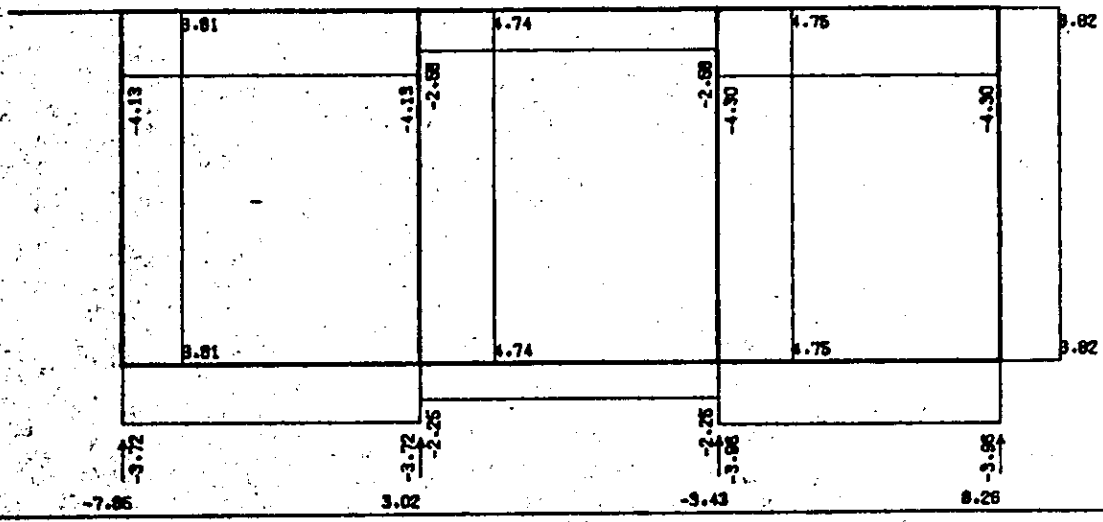
VIADUCT OF DOUBLE TRACK (3+3*8=27) L-1

CASE 10 (BRAKING LOAD)

BENDING MOMENT



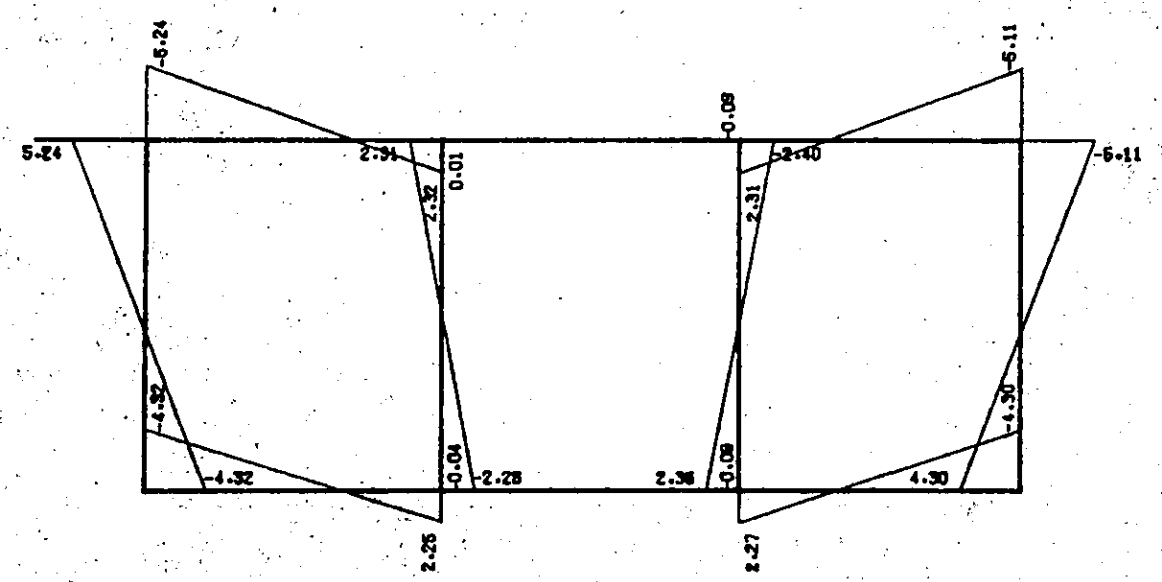
SHEARING FORCE



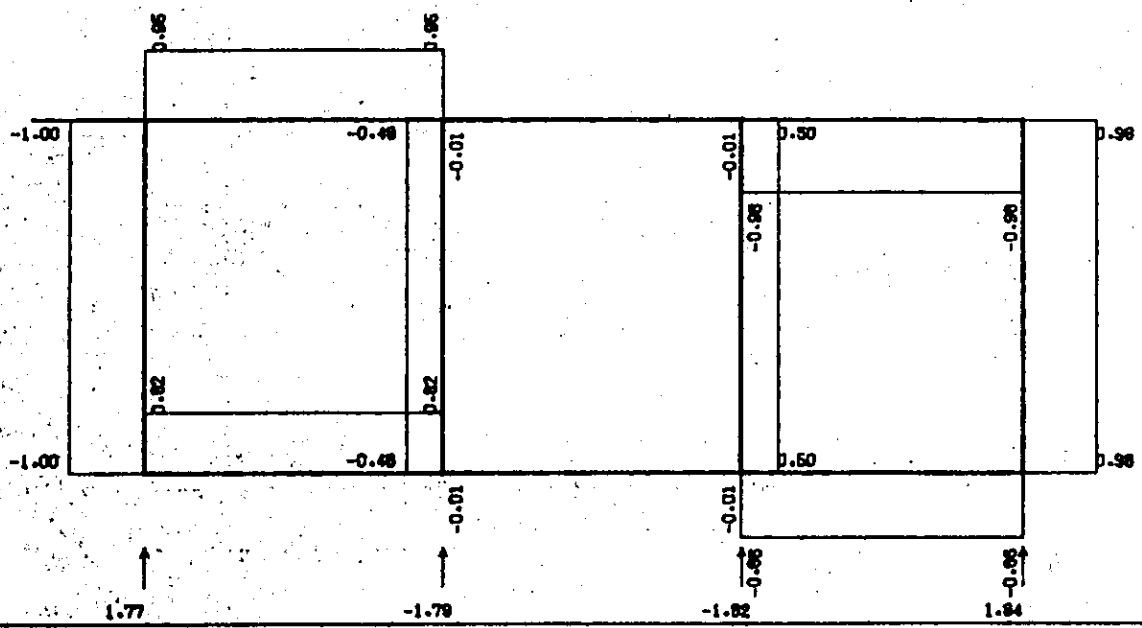
VIADUCT OF DOUBLE TRACK (3+3*8=27) L-1

CASE 11 (TEMPERATURE)

BENDING MOMENT



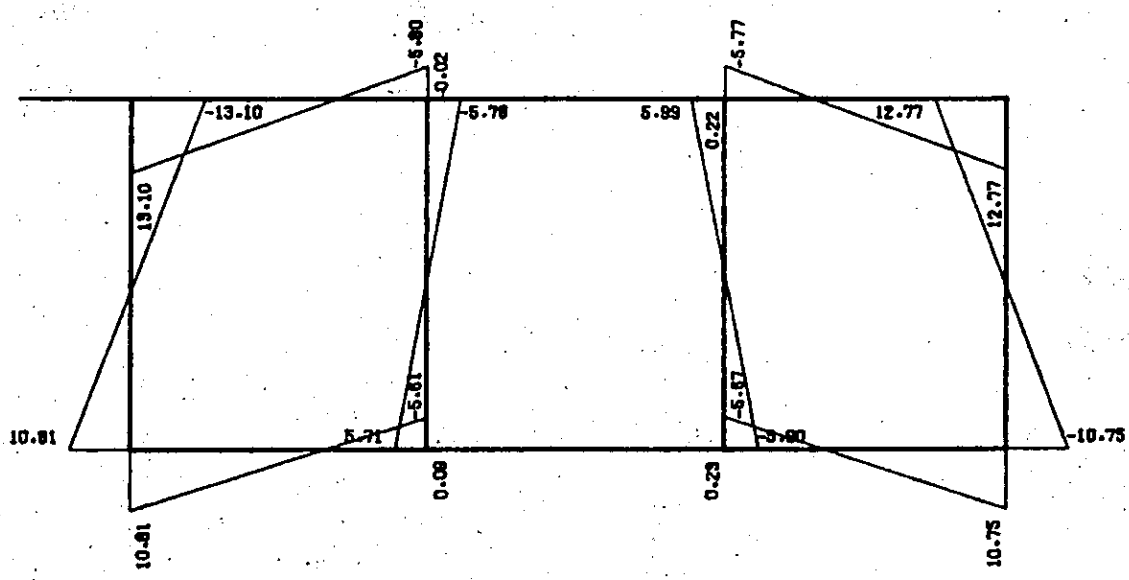
SHEARING FORCE



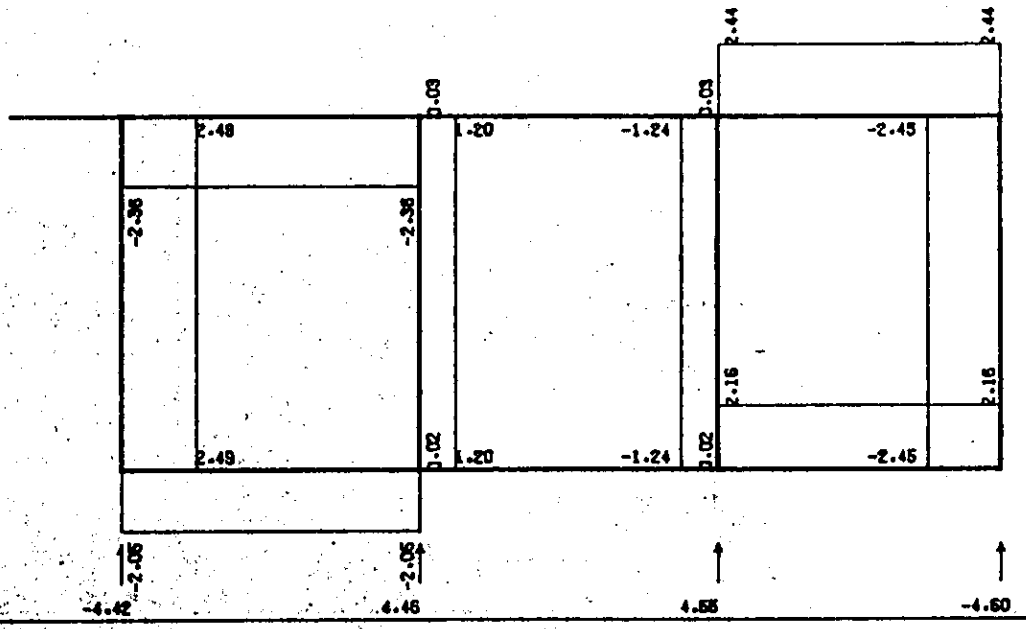
VIADUCT OF DOUBLE TRACK (3+3*8=27) L-1

CASE 12 (TEMPERATURE + SCHRINKAGE)

BENDING MOMENT



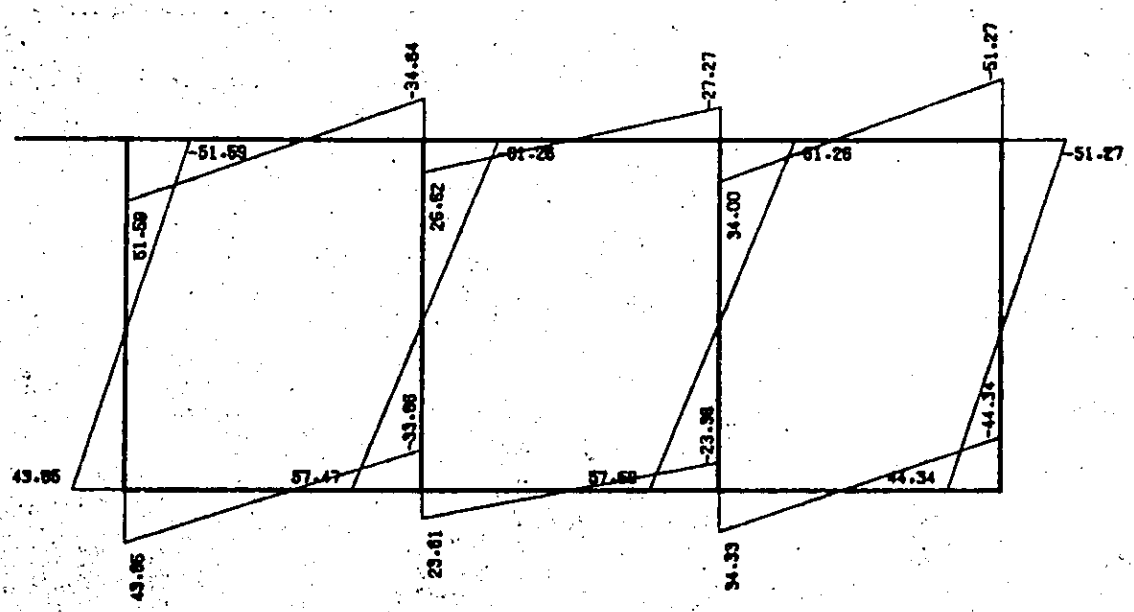
SHEARING FORCE



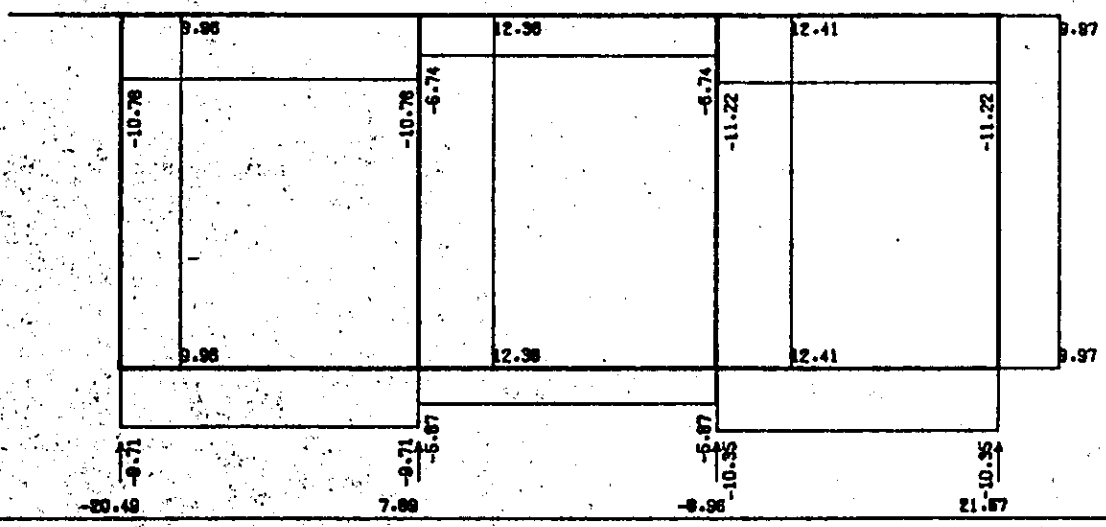
VIADUCT OF DOUBLE TRACK (3+3*8=27) L-1

CASE 13 (SEISMIC LOAD)

BENDING MOMENT



SHEARING FORCE



```
     5   10   20   30   40   50   60   70   80  CARD NUMBER
*****************************************************************************
TITLE    VIADUCT OF DOUBLE TRACK (3+3+8=27) L-1                              1
CONTROL    11                                                                2
SHEAR       1   3   2   3   4                                                3
PLOT        1   2                                                           4
TYPE6-3-1      L=3.0,8.0,8.0,7.6        M=9.587                             5
               M1-3=2.556,0.25246       M4=1.742,0.21075                    6
               M5-7=0.72,0.0486         M8-11=0.64,0.03413                  7
               P=2.7E+6,1.0E-5          S=1                                 8
POINT   1*0.15      1.4      1.8      2.6      *2.0                          9
        2 0.4       1.2      1.6      4.0      6.4      6.8      7.6         10
        =           3                                                       11
        4 0.4       1.2      1.6      3.8      6.0      6.4      7.2         12
        5 0.4       2.15     4.0      5.85     7.6      =        6           13
        7 0.4       2.15     3.8      5.45     7.2                           14
PICKUP      1   1   1                                                       15
            2   1  15  29                                                   16
            3   1  30  31                                                   17
            4   1  32  33                                                   18
            5   1  34  35                                                   19
LOAD        1    CASE  1 (DEAD LOAD)                                        20
J           2             -41.84                                           21
            3             -47.93                                           22
            4             -40.17                                           23
            5             -68.0                                            24
            5             -23.88.   -54.48                                  25
            6             -79.95                                           26
            7             -70.38                    8                      27
            9             -72.6                                            28
SC          1   2-20.12     0.15                                           29
D           1  3 2                    0.15          -2.52      1.425        30
              -2.52                   1.425                                31
DL          2   2-11.51     3.25      3.25          3                      32
            4   2-5.75      3.25      3.25                                 33
            1   2-2.81                              2   3                  34
            4   2-3.52                                                     35
            5   2-4.45                              6   7                  36
            8   2-1.6                               9  10  11              37
END                                                                        38
LOAD        2    CASE  2 (TRAIN LOAD + IMPACT LOAD 1)                       39
J           1             -29.64                                           40
SC          1   2-29.64     2.0                                            41
END                                                                        42
LOAD        3    CASE  3 (TRAIN LOAD + IMPACT LOAD 2)          1.1105       43
DL          2   2-15.47                                                    44
END                                                                        45
LOAD        4    CASE  4 (TRAIN LOAD + IMPACT LOAD 3)          1.1105       46
DL          3   2-15.47                                                    47
END                                                                        48
LOAD        5    CASE  5 (TRAIN LOAD + IMPACT LOAD 4)          1.1105       49
DL          4   2-15.47                                                    50
END                                                                        51
LOAD        6    CASE  6 (TRAIN LOAD + IMPACT LOAD 5)                       52
J           5             -78.75    -59.85                                 53
END                                                                        54
LOAD        7    CASE  7 (TRAIN LOAD + IMPACT LOAD 6)          1.3045       55
DL          2   2-13.17                    3                              56
END                                                                        57
```

```
    5   10        20        30        40        50        60        70        80   CARD NUMBER
..............................................................................................
LOAD          8    CASE  8 (TRAIN LOAD + IMPACT LOAD 7)                1.3045               58
DL            3   2-13.17                                     4                             59
END                                                                                         60
LOAD          9    CASE  9 (TRAIN LOAD + IMPACT LOAD 8)                1.3045               61
DL            2   2-13.17                                     3    4                        62
END                                                                                         63
LOAD         10    CASE  10 (BRAKING LOAD)                                                  64
J             2     4.28                                      3    4    5                   65
END                                                                                         66
LOAD         11    CASE  11 (TEMPERATURE)                                                   67
T             1   4 10.0                                                                    68
END                                                                                         69
LOAD         12    CASE  12 (TEMPERATURE + SCHRINKAGE)                                      70
T             1   4-25.0                                                                    71
END                                                                                         72
LOAD         13    CASE  13 (SEISMIC LOAD)                                                  73
J             2     11.18                                     3    4    5                   74
              6     5.23                                      7    8    9                   75
END                                                                                         76
MT2     14              1                                                                   77
        15              1    3                                                              78
        16              1    2    4                                                         79
        17              1    7                                                              80
        18              1    4                                                              81
        19              1    3    5                                                         82
        20              1    8                                                              83
        21              1    5                                                              84
        22              1    4    6                                                         85
        23              1    5    6                                                         86
        240.8696        1   11                                                              87
        250.8696        1   12                                                              88
        260.8696        1    2    6    9   10                                               89
        270.3696        1    2    6    9  -10                                               90
        280.6667        1   13                                                              91
        290.6667        1  -13                                                              92
        30              1    2    6    9   10                                               93
        31              1    2    6    9  -10                                               94
        32              1   11                                                              95
        33              1   12                                                              96
        34              1   13                                                              97
        35              1  -13                                                              98
FINISH                                                                                      99
```

CONTROL DATA

METHOD	STRUCTURE	J.RENUMBER	M.RENUMBER	S.F. DIS.	UNI.SPRING	STAN.STIF.	BARA	SKEW MEM.
DIS	*RAHMEN*	*OFF*	*OFF*	*OFF*	*OFF*	*OFF*	*OFF*	*OFF*

LOAD TITLE

LOAD 1 CASE 1 (DEAD LOAD)
LOAD 2 CASE 2 (TRAIN LOAD + IMPACT LOAD 1)
LOAD 3 CASE 3 (TRAIN LOAD + IMPACT LOAD 2)
LOAD 4 CASE 4 (TRAIN LOAD + IMPACT LOAD 3)
LOAD 5 CASE 5 (TRAIN LOAD + IMPACT LOAD 4)
LOAD 6 CASE 6 (TRAIN LOAD + IMPACT LOAD 5)
LOAD 7 CASE 7 (TRAIN LOAD + IMPACT LOAD 6)
LOAD 8 CASE 8 (TRAIN LOAD + IMPACT LOAD 7)
LOAD 9 CASE 9 (TRAIN LOAD + IMPACT LOAD 8)
LOAD 10 CASE 10 (BRAKING LOAD)
LOAD 11 CASE 11 (TEMPERATURE)
LOAD 12 CASE 12 (TEMPERATURE + SCHRINKAGE)
LOAD 13 CASE 13 (SEISMIC LOAD)

MIX 14 CASE 14 (1.0000 * 1)
MIX 15 CASE 15 (1+3)
MIX 16 CASE 16 (1+2+4)
MIX 17 CASE 17 (1+7)
MIX 18 CASE 18 (1+4)
MIX 19 CASE 19 (1+3+5)
MIX 20 CASE 20 (1+8)
MIX 21 CASE 21 (1+5)
MIX 22 CASE 22 (1+4+6)
MIX 23 CASE 23 (1+5+6)
MIX 24 CASE 24 (1+11)
MIX 25 CASE 25 (1+12)
MIX 26 CASE 26 (1+2+6+9+10)
MIX 27 CASE 27 (1+2+6+9-10)
MIX 28 CASE 28 (1+13)
MIX 29 CASE 29 (1-13)
MIX 30 CASE 30 (1+2+6+9+10)
MIX 31 CASE 31 (1+2+6+9-10)
MIX 32 CASE 32 (1+11)
MIX 33 CASE 33 (1+12)
MIX 34 CASE 34 (1+13)
MIX 35 CASE 35 (1-13)

PICK UP LOAD CASE

PICK 1 1
PICK 2 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
PICK 3 30 31
PICK 4 32 33
PICK 5 34 35

JOINT DATA

JOINT NUMBER 9

ZAHYO(M) JOINT	X	Y
1	0.3000	9.5870
2	3.0000	9.5870
3	11.0000	9.5870
4	19.0000	9.5870
5	26.6000	9.5870
6	3.0000	0.0000
7	11.0000	0.0000
8	19.0000	0.0000
9	26.6000	0.0000

MEMBER DATA

MEMBER NUMBER 11

MEMBER	ITAN	JTAN	CONNECT. ITAN	JTAN	LENGTH	A	I	AES	KD(BANE)	PRO.NUM
1	1	2	FIX	FIX	3.0000	2.55600	.2524600			1
2	2	3	FIX	FIX	8.0000	2.55600	.2524600			1
3	3	4	FIX	FIX	8.0000	2.55600	.2524600			1
4	4	5	FIX	FIX	7.6000	1.74200	.2107500			1
5	6	7	FIX	FIX	8.0000	.72000	.0486000			1
6	7	8	FIX	FIX	8.0000	.72000	.0486000			1
7	8	9	FIX	FIX	7.6000	.72000	.0486000			1
8	2	6	FIX	FIX	9.5870	.64000	.0341300			1
9	3	7	FIX	FIX	9.5870	.64000	.0341300			1
10	4	8	FIX	FIX	9.5870	.64000	.0341300			1
11	5	9	FIX	FIX	9.5870	.64000	.0341300			1

PROPERTY DATA

PROPERTY NUMBER 1

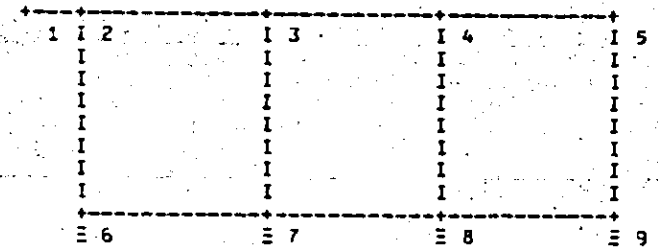
PROPERTY	E	G	EPS
1	2.700E+06	0.	1.000E-05

SUPPORT DATA

SUPPORT NUMBER 4

SUPPORT	SUPPORT-JYOKEN X	Y	THET Z	X(BANE)	Y(BANE)	THET Z(BANE)
6	FIX	FIX	FREE	0.0	0.0	0.0
7	FIX	FIX	FREE	0.0	0.0	0.0
8	FIX	FIX	FREE	0.0	0.0	0.0
9	FIX	FIX	FREE	0.0	0.0	0.0

STRUCTURAL FIGURE



MOVE DATA

MEMBER	GOIKI ITAN	GOIKI JTAN	POINT 1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	.....	.....	.150	.150	1.400	1.800	2.000	2.000	2.600							
2	.....	.....	.400	1.200	1.600	4.000	6.400	6.800	7.600							
3	.....	.....	.400	1.200	1.600	4.000	6.400	6.800	7.600							
4	.....	.....	.400	1.200	1.600	3.800	6.000	6.400	7.200							
5	.....	.....	.400	2.150	4.000	5.850	7.600									
6	.....	.....	.400	2.150	4.000	5.850	7.600									
7	.....	.....	.400	2.150	3.800	5.450	7.200									
8	.....	.....														
9	.....	.....														
10	.....	.....														
11	.....	.....														

LOAD DATA

M/J		NAME	D	W1	W2	L1	L2
LOAD - 1		CASE 1 (DEAD LOAD)					
MEMBER	1	LINEAR	Y	0.000	-2.520	.150	1.425
		LINEAR	Y	-2.520	0.000	1.575	0.000
		LINEAR	Y	-2.810	-2.810	0.000	0.000
		CONCENT	Y	-20.120		.150	
	2	LINEAR	Y	0.000	-11.510	0.000	4.750
		LINEAR	Y	-11.510	-11.510	3.250	3.250
		LINEAR	Y	-11.510	0.000	4.750	0.000
		LINEAR	Y	-2.810	-2.810	0.000	0.000
	3	LINEAR	Y	0.000	-11.510	0.000	4.750
		LINEAR	Y	-11.510	-11.510	3.250	3.250
		LINEAR	Y	-11.510	0.000	4.750	0.000
		LINEAR	Y	-2.810	-2.810	0.000	0.000
	4	LINEAR	Y	0.000	-5.750	0.000	4.350
		LINEAR	Y	-5.750	-5.750	3.250	3.250
		LINEAR	Y	-5.750	0.000	4.350	0.000
		LINEAR	Y	-3.520	-3.520	0.000	0.000
	5	LINEAR	Y	-4.450	-4.450	0.000	0.000
	6	LINEAR	Y	-4.450	-4.450	0.000	0.000
	7	LINEAR	Y	-4.450	-4.450	0.000	0.000
	8	LINEAR	Y	-1.600	-1.600	0.000	0.000
	9	LINEAR	Y	-1.600	-1.600	0.000	0.000
	10	LINEAR	Y	-1.600	-1.600	0.000	0.000
	11	LINEAR	Y	-1.600	-1.600	0.000	0.000
JOINT	2	JOINTLOAD	Y	-41.840			
	3	JOINTLOAD	Y	-47.930			
	4	JOINTLOAD	Y	-40.170			
	5	JOINTLOAD	Y	-68.000			
		JOINTLOAD	Y	-23.880			
		JOINTLOAD	Z	-54.480			
	6	JOINTLOAD	Y	-73.950			
	7	JOINTLOAD	Y	-70.380			
	8	JOINTLOAD	Y	-70.380			
	9	JOINTLOAD	Y	-72.600			
LOAD - 2		CASE 2 (TRAIN LOAD + IMPACT LOAD 1)					
MEMBER	1	CONCENT	Y	-29.640		2.000	
JOINT	1	JOINTLOAD	Y	-29.640			
LOAD - 3		CASE 3 (TRAIN LOAD + IMPACT LOAD 2)					
MEMBER	2	SHEAR		1.11050(S/M)			
	3	SHEAR		1.11050(S/M)			
	4	SHEAR		1.11050(S/M)			
MEMBER	2	LINEAR	Y	-15.470	-15.470	0.000	0.000
LOAD - 4		CASE 4 (TRAIN LOAD + IMPACT LOAD 3)					
MEMBER	2	SHEAR		1.11050(S/M)			
	3	SHEAR		1.11050(S/M)			
	4	SHEAR		1.11050(S/M)			

LOAD DATA

	M/J	NAME	D	W1	W2	L1	L2
MEMBER	3	LINEAR	Y	-15.470	-15.470	0.000	0.000
LOAD - 5		CASE 5 (TRAIN LOAD + IMPACT LOAD 4)					
MEMBER	2	SHEAR		1.11050(S/M)			
	3	SHEAR		1.11050(S/M)			
	4	SHEAR		1.11050(S/M)			
MEMBER	4	LINEAR	Y	-15.470	-15.470	0.000	0.000
LOAD - 6		CASE 6 (TRAIN LOAD + IMPACT LOAD 5)					
JOINT	5	JOINTLOAD	Y	-78.750			
		JOINTLOAD	Z	-59.850			
LOAD - 7		CASE 7 (TRAIN LOAD + IMPACT LOAD 6)					
MEMBER	2	SHEAR		1.30450(S/M)			
	3	SHEAR		1.30450(S/M)			
	4	SHEAR		1.30450(S/M)			
MEMBER	2	LINEAR	Y	-13.170	-13.170	0.000	0.000
	3	LINEAR	Y	-13.170	-13.170	0.000	0.000
LOAD - 8		CASE 8 (TRAIN LOAD + IMPACT LOAD 7)					
MEMBER	2	SHEAR		1.30450(S/M)			
	3	SHEAR		1.30450(S/M)			
	4	SHEAR		1.30450(S/M)			
MEMBER	3	LINEAR	Y	-13.170	-13.170	0.000	0.000
	4	LINEAR	Y	-13.170	-13.170	0.000	0.000
LOAD - 9		CASE 9 (TRAIN LOAD + IMPACT LOAD 8)					
MEMBER	2	SHEAR		1.30450(S/M)			
	3	SHEAR		1.30450(S/M)			
	4	SHEAR		1.30450(S/M)			
MEMBER	2	LINEAR	Y	-13.170	-13.170	0.000	0.000
	3	LINEAR	Y	-13.170	-13.170	0.000	0.000
	4	LINEAR	Y	-13.170	-13.170	0.000	0.000
LOAD - 10		CASE 10 (BRAKING LOAD)					
JOINT	2	JOINTLOAD	X	4.280			
	3	JOINTLOAD	X	4.280			
	4	JOINTLOAD	X	4.280			
	5	JOINTLOAD	X	4.280			
LOAD - 11		CASE 11 (TEMPERATURE)					
MEMBER	1	TEMP		10.0(DO)			
	2	TEMP		10.0(DO)			
	3	TEMP		10.0(DO)			
	4	TEMP		10.0(DO)			
LOAD - 12		CASE 12 (TEMPERATURE + SCHRINKAGE)					

LOAD DATA

	M/J	NAME	D	W1	W2	L1	L2
MEMBER	1	TEMP		-25.0(CC)			
	2	TEMP		-25.0(CC)			
	3	TEMP		-25.0(CC)			
	4	TEMP		-25.0(CC)			
LOAD - 13		CASE 13 (SEISMIC LOAD)					
JOINT	2	JOINTLOAD	X	11.180			
	3	JOINTLOAD	X	11.180			
	4	JOINTLOAD	X	11.180			
	5	JOINTLOAD	X	11.180			
	6	JOINTLOAD	X	5.230			
	7	JOINTLOAD	X	5.230			
	8	JOINTLOAD	X	5.230			
	9	JOINTLOAD	X	5.230			

MIX DATA

MIX NUMBER 22

LOAD	SS	N	S1	K1	S2	K2	S3	K3	S4	K4	S5	K5	S6	K6	S7	K7	S8	K8
14	1.0000	1	1.0000	1														
15	1.0000	2	1.0000	1	1.0000	3												
16	1.0000	3	1.0000	1	1.0000	2	1.0000	4										
17	1.0000	2	1.0000	1	1.0000	7												
18	1.0000	2	1.0000	1	1.0000	4												
19	1.0000	3	1.0000	1	1.0000	3	1.0000	5										
20	1.0000	2	1.0000	1	1.0000	8												
21	1.0000	2	1.0000	1	1.0000	5												
22	1.0000	3	1.0000	1	1.0000	4	1.0000	6										
23	1.0000	3	1.0000	1	1.0000	5	1.0000	6										
24	.8696	2	1.0000	1	1.0000	11												
25	.8696	2	1.0000	1	1.0000	12												
26	.8696	5	1.0000	1	1.0000	2	1.0000	6	1.0000	9	1.0000	10						
27	.8696	5	1.0000	1	1.0000	2	1.0000	6	1.0000	9	-1.0000	10						
28	.6667	2	1.0000	1	1.0000	13												
29	.6667	2	1.0000	1	-1.0000	13												
30	1.0000	5	1.0000	1	1.0000	2	1.0000	6	1.0000	9	1.0000	10						
31	1.0000	5	1.0000	1	1.0000	2	1.0000	5	1.0000	9	-1.0000	10						
32	1.0000	2	1.0000	1	1.0000	11												
33	1.0000	2	1.0000	1	1.0000	12												
34	1.0000	2	1.0000	1	1.0000	13												
35	1.0000	2	1.0000	1	-1.0000	13												

REACTION

SUPPORT	X (TON)	Y (TON)	Z (TON.M)
LOAD - 1 CASE 1 (DEAD LOAD)			
6	1.183	225.863	0.000
7	-.268	247.297	0.000
8	-.142	225.262	0.000
9	-.773	221.296	0.000
LOAD - 2 CASE 2 (TRAIN LOAD + IMPACT LOAD 1)			
6	-1.670	74.502	0.000
7	.773	-16.617	0.000
8	.493	2.441	0.000
9	.404	-1.046	0.000
LOAD - 3 CASE 3 (TRAIN LOAD + IMPACT LOAD 2)			
6	1.478	56.592	0.000
7	-1.284	73.034	0.000
8	-.088	-6.474	0.000
9	-.106	.608	0.000
LOAD - 4 CASE 4 (TRAIN LOAD + IMPACT LOAD 3)			
6	-.058	-4.936	0.000
7	1.064	67.230	0.000
8	-1.085	66.228	0.000
9	.079	-4.761	0.000
LOAD - 5 CASE 5 (TRAIN LOAD + IMPACT LOAD 4)			
6	.115	.624	0.000
7	.108	-6.269	0.000
8	1.247	69.715	0.000
9	-1.470	53.502	0.000
LOAD - 6 CASE 6 (TRAIN LOAD + IMPACT LOAD 5)			
6	-.285	-.603	0.000
7	-.371	.659	0.000
8	-.411	-7.356	0.000
9	1.067	86.050	0.000
LOAD - 7 CASE 7 (TRAIN LOAD + IMPACT LOAD 6)			
6	1.209	43.975	0.000
7	-.187	119.410	0.000
8	-.999	50.870	0.000
9	-.022	-3.536	0.000
LOAD - 8 CASE 8 (TRAIN LOAD + IMPACT LOAD 7)			
6	.049	-3.671	0.000
7	.998	51.898	0.000
8	.137	115.732	0.000
9	-1.184	41.494	0.000
LOAD - 9 CASE 9 (TRAIN LOAD + IMPACT LOAD 8)			
6	1.307	44.507	0.000
7	-.095	114.074	0.000
8	.062	110.220	0.000
9	-1.274	42.012	0.000
LOAD - 10 CASE 10 (BRAKING LOAD)			
6	-3.811	-7.845	0.000
7	-4.741	3.019	0.000
8	-4.750	-3.431	0.000
9	-3.818	8.258	0.000
LOAD - 11 CASE 11 (TEMPERATURE)			
6	.998	1.766	0.000
7	.479	-1.785	0.000
8	-.496	-1.821	0.000
9	-.981	1.840	0.000
LOAD - 12 CASE 12 (TEMPERATURE + SCHRINKAGE)			
6	-2.494	-4.416	0.000
7	-1.198	4.463	0.000
8	1.240	4.552	0.000
9	2.453	-4.599	0.000
LOAD - 13 CASE 13 (SEISMIC LOAD)			
6	-15.185	-20.492	0.000
7	-17.614	7.885	0.000
8	-17.638	-8.963	0.000
9	-15.203	21.570	0.000
MIX - 14 CASE 14 (1.0000 * 1)			
6	1.183	225.863	0.000
7	-.268	247.297	0.000
8	-.142	225.262	0.000
9	-.773	221.296	0.000
MIX - 15 CASE 15 (1+3)			
6	2.661	282.495	0.000
7	-1.552	320.331	0.000
8	-.230	218.787	0.000
9	-.879	221.904	0.000
MIX - 16 CASE 16 (1+2+4)			
6	-.545	295.428	0.000
7	1.569	297.909	0.000
8	-.735	293.931	0.000
9	-.289	215.489	0.000
MIX - 17 CASE 17 (1+7)			
6	2.392	269.838	0.000
7	-.456	366.707	0.000
8	-1.141	276.132	0.000
9	-.795	217.760	0.000
MIX - 18 CASE 18 (1+4)			
6	1.125	220.926	0.000
7	.796	314.527	0.000
8	-1.227	291.490	0.000
9	-.693	216.534	0.000

REACTION

SUPPORT	X (TON)	Y (TON)	Z (TON.M)
MIX - 19 CASE 19 (1+3+5)			
6	2.777	283.079	0.000
7	-1.444	314.063	0.000
8	1.016	288.502	0.000
9	-2.348	275.406	0.000
MIX - 20 CASE 20 (1+8)			
6	1.232	222.192	0.000
7	.729	299.195	0.000
8	-.005	340.993	0.000
9	-1.957	262.790	0.000
MIX - 21 CASE 21 (1+5)			
6	1.298	226.487	0.000
7	-.160	241.028	0.000
8	1.105	294.976	0.000
9	-2.243	274.797	0.000
MIX - 22 CASE 22 (1+4+6)			
6	.840	220.324	0.000
7	.424	315.186	0.000
8	-1.638	284.134	0.000
9	.374	302.584	0.000
MIX - 23 CASE 23 (1+5+6)			
6	1.013	225.884	0.000
7	-.532	241.687	0.000
8	.694	287.620	0.000
9	-1.175	360.847	0.000
MIX - 24 CASE 24 (1+11)			
6	1.896	197.946	0.000
7	.183	213.497	0.000
8	-.554	194.304	0.000
9	-1.525	194.039	0.000
MIX - 25 CASE 25 (1+12)			
6	-1.140	192.570	0.000
7	-1.275	218.930	0.000
8	.955	199.846	0.000
9	1.461	188.440	0.000
MIX - 26 CASE 26 (1+2+6+9+10)			
6	-2.849	292.554	0.000
7	-4.090	302.996	0.000
8	-4.129	284.477	0.000
9	-3.820	310.072	0.000
MIX - 27 CASE 27 (1+2+6+9-10)			
6	3.780	306.198	0.000
7	4.156	297.745	0.000
8	4.132	290.445	0.000
9	2.820	295.711	0.000
MIX - 28 CASE 28 (1+13)			
6	-9.335	136.920	0.000
7	-11.922	170.130	0.000
8	-11.854	144.206	0.000
9	-10.651	161.919	0.000
MIX - 29 CASE 29 (1-13)			
6	10.913	164.245	0.000
7	11.565	159.616	0.000
8	11.665	156.158	0.000
9	9.620	133.157	0.000
MIX - 30 CASE 30 (1+2+6+9+10)			
6	-3.276	336.424	0.000
7	-4.703	348.431	0.000
8	-4.748	327.135	0.000
9	-4.393	356.569	0.000
MIX - 31 CASE 31 (1+2+6+9-10)			
6	4.347	352.114	0.000
7	4.779	342.394	0.000
8	4.752	333.998	0.000
9	3.243	340.054	0.000
MIX - 32 CASE 32 (1+11)			
6	2.181	227.629	0.000
7	.211	245.512	0.000
8	-.638	223.441	0.000
9	-1.754	223.135	0.000
MIX - 33 CASE 33 (1+12)			
6	-1.311	221.447	0.000
7	-1.467	251.760	0.000
8	1.098	229.813	0.000
9	1.680	216.697	0.000
MIX - 34 CASE 34 (1+13)			
6	-14.002	205.370	0.000
7	-17.883	255.182	0.000
8	-17.779	216.298	0.000
9	-15.976	242.866	0.000
MIX - 35 CASE 35 (1-13)			
6	16.368	246.355	0.000
7	17.346	239.412	0.000
8	17.496	234.225	0.000
9	14.430	199.725	0.000

D E F L E C T I O N

	JOINT	X (MM)	Y (MM)	Z (MMRAD)
LOAD - 1	CASE 1 (DEAD LOAD)			
	1	.038	-1.151	.200
	2	.038	-.682	.056
	3	.037	-.727	-.026
	4	.036	-.611	.070
	5	.035	-.702	-.114
	6	0.000	0.000	-.260
	7	0.000	0.000	.062
	8	0.000	0.000	-.054
	9	0.000	0.000	.235
LOAD - 2	CASE 2 (TRAIN LOAD + IMPACT LOAD 1)			
	1	-.464	-2.186	.658
	2	-.464	-.415	.440
	3	-.462	.097	-.068
	4	-.461	-.014	.011
	5	-.460	.004	-.005
	6	0.000	0.000	-.066
	7	0.000	0.000	.036
	8	0.000	0.000	.003
	9	0.000	0.000	.024
LOAD - 3	CASE 3 (TRAIN LOAD + IMPACT LOAD 2)			
	1	.133	.720	-.344
	2	.133	-.312	-.344
	3	.132	-.409	.232
	4	.131	.038	-.021
	5	.131	-.003	.000
	6	0.000	0.000	.070
	7	0.000	0.000	-.046
	8	0.000	0.000	.009
	9	0.000	0.000	-.010
LOAD - 4	CASE 4 (TRAIN LOAD + IMPACT LOAD 3)			
	1	-.010	-.051	.026
	2	-.010	.029	.026
	3	-.010	-.374	-.208
	4	-.011	-.369	.216
	5	-.011	.028	-.027
	6	0.000	0.000	-.015
	7	0.000	0.000	.033
	8	0.000	0.000	-.033
	9	0.000	0.000	.016
LOAD - 5	CASE 5 (TRAIN LOAD + IMPACT LOAD 4)			
	1	-.142	-.002	-.000
	2	-.142	-.003	-.000
	3	-.142	.037	.020
	4	-.143	-.391	-.222
	5	-.145	-.295	.342
	6	0.000	0.000	.011
	7	0.000	0.000	-.008
	8	0.000	0.000	.045
	9	0.000	0.000	-.067
LOAD - 6	CASE 6 (TRAIN LOAD + IMPACT LOAD 5)			
	1	.328	.014	-.004
	2	.328	.002	-.004
	3	.328	-.004	-.003
	4	.329	.044	.020
	5	.331	-.479	-.286
	6	0.000	0.000	-.017
	7	0.000	0.000	-.004
	8	0.000	0.000	-.021
	9	0.000	0.000	.039
LOAD - 7	CASE 7 (TRAIN LOAD + IMPACT LOAD 6)			
	1	.105	.569	-.270
	2	.105	-.242	-.270
	3	.104	-.667	.021
	4	.102	-.281	.166
	5	.102	.021	-.023
	6	0.000	0.000	.047
	7	0.000	0.000	-.011
	8	0.000	0.000	-.021
	9	0.000	0.000	.005
LOAD - 8	CASE 8 (TRAIN LOAD + IMPACT LOAD 7)			
	1	-.129	-.045	.022
	2	-.129	.022	.022
	3	-.129	-.287	-.160
	4	-.131	-.647	-.005
	5	-.133	-.228	.268
	6	0.000	0.000	-.003
	7	0.000	0.000	.022
	8	0.000	0.000	.010
	9	0.000	0.000	-.044
LOAD - 9	CASE 9 (TRAIN LOAD + IMPACT LOAD 8)			
	1	-.016	.567	-.271
	2	-.016	-.244	-.271
	3	-.018	-.636	.037
	4	-.019	-.614	-.023
	5	-.021	-.230	.268
	6	0.000	0.000	.057
	7	0.000	0.000	-.018
	8	0.000	0.000	.017
	9	0.000	0.000	-.052
LOAD - 10	CASE 10 (BRAKING LOAD)			
	1	4.306	.189	-.055
	2	4.306	.023	-.055
	3	4.305	-.009	-.017
	4	4.305	.010	-.019
	5	4.306	-.024	-.063
	6	0.000	0.000	-.209
	7	0.000	0.000	-.093
	8	0.000	0.000	-.090
	9	0.000	0.000	-.201

DEFLECTION

	JOINT	X (MM)	Y (MM)	Z (MMRAD)
LOAD - 11	CASE 11 (TEMPERATURE)			
	1	-1.490	-.057	.017
	2	-1.190	-.005	.017
	3	-.391	.005	.000
	4	.407	.005	-.000
	5	1.166	-.005	-.019
	6	0.000	0.000	.065
	7	0.000	0.000	.002
	8	0.000	0.000	-.002
	9	0.000	0.000	-.061
LOAD - 13	CASE 13 (SEISMIC LOAD)			
	1	11.247	.493	-.144
	2	11.247	.060	-.144
	3	11.246	-.022	-.045
	4	11.246	.025	-.049
	5	11.248	-.062	-.164
	6	0.000	0.000	-.547
	7	0.000	0.000	-.242
	8	0.000	0.000	-.235
	9	0.000	0.000	-.525
MIX - 15	CASE 15 (1+3)			
	1	.172	-.431	-.144
	2	.172	-.994	-.288
	3	.169	-1.137	.207
	4	.167	-.573	.049
	5	.166	-.706	-.114
	6	0.000	0.000	-.190
	7	0.000	0.000	.016
	8	0.000	0.000	-.046
	9	0.000	0.000	.225
MIX - 17	CASE 17 (1+7)			
	1	.143	-.582	-.070
	2	.143	-.923	-.215
	3	.141	-1.395	-.005
	4	.138	-.892	.236
	5	.137	-.681	-.137
	6	0.000	0.000	-.213
	7	0.000	0.000	.051
	8	0.000	0.000	-.075
	9	0.000	0.000	.240
MIX - 19	CASE 19 (1+3+5)			
	1	.030	-.434	-.144
	2	.030	-.997	-.289
	3	.026	-1.100	.226
	4	.025	-.964	-.173
	5	.021	-1.001	.228
	6	0.000	0.000	-.179
	7	0.000	0.000	.008
	8	0.000	0.000	-.001
	9	0.000	0.000	.158

	JOINT	X (MM)	Y (MM)	Z (MMRAD)
LOAD - 12	CASE 12 (TEMPERATURE + SCHRINKAGE)			
	1	3.724	.143	-.043
	2	2.974	.013	-.043
	3	.977	-.013	-.000
	4	-1.019	-.013	.001
	5	-2.919	.014	.048
	6	0.000	0.000	-.163
	7	0.000	0.000	-.004
	8	0.000	0.000	.006
	9	0.000	0.000	.153
MIX - 14	CASE 14 (1.0000 * 1)			
	1	.038	-1.151	.200
	2	.038	-.682	.056
	3	.037	-.727	-.026
	4	.036	-.611	.070
	5	.035	-.702	-.114
	6	0.000	0.000	-.260
	7	0.000	0.000	.062
	8	0.000	0.000	-.054
	9	0.000	0.000	.235
MIX - 16	CASE 16 (1+2+4)			
	1	-.436	-3.387	.884
	2	-.436	-1.068	.522
	3	-.435	-1.005	-.302
	4	-.436	-.994	.297
	5	-.437	-.671	-.136
	6	0.000	0.000	-.341
	7	0.000	0.000	.132
	8	0.000	0.000	-.084
	9	0.000	0.000	.275
MIX - 18	CASE 18 (1+4)			
	1	.029	-1.202	.227
	2	.029	-.653	.082
	3	.027	-1.102	.234
	4	.025	-.980	.286
	5	.024	-.675	-.141
	6	0.000	0.000	-.275
	7	0.000	0.000	.095
	8	0.000	0.000	-.088
	9	0.000	0.000	.251
MIX - 20	CASE 20 (1+8)			
	1	-.091	-1.196	.223
	2	-.091	-.660	.078
	3	-.092	-1.014	-.186
	4	-.095	-1.258	.065
	5	-.098	-.930	.154
	6	0.000	0.000	-.264
	7	0.000	0.000	.084
	8	0.000	0.000	-.045
	9	0.000	0.000	.191

DEFLECTION

JOINT	X (MM)	Y (MM)	Z (MMRAD)
MIX - 21 CASE 21 (1+5)			
1	-.104	-1.153	.200
2	-.104	-.685	.055
3	-.105	-.690	-.006
4	-.107	-1.002	-.152
5	-.110	-.997	.228
6	0.000	0.000	-.249
7	0.000	0.000	.055
8	0.000	0.000	-.010
9	0.000	0.000	.168
MIX - 22 CASE 22 (1+4+6)			
1	.357	-1.187	.223
2	.357	-.651	.078
3	.356	-1.106	-.236
4	.354	-.936	.307
5	.355	-1.153	-.427
6	0.000	0.000	-.292
7	0.000	0.000	.092
8	0.000	0.000	-.108
9	0.000	0.000	.290
MIX - 23 CASE 23 (1+5+6)			
1	.224	-1.139	.196
2	.224	-.683	.051
3	.223	-.694	-.009
4	.223	-.958	-.131
5	.221	-1.476	-.058
6	0.000	0.000	-.266
7	0.000	0.000	.051
8	0.000	0.000	-.031
9	0.000	0.000	.207
MIX - 24 CASE 24 (1+11)			
1	-1.262	-1.050	.189
2	-1.001	-.597	.063
3	-.308	-.628	-.022
4	.386	-.527	.061
5	1.044	-.615	-.116
6	0.000	0.000	-.170
7	0.000	0.000	.056
8	0.000	0.000	-.049
9	0.000	0.000	.151
MIX - 25 CASE 25 (1+12)			
1	3.272	-.877	.137
2	2.620	-.581	.011
3	.882	-.644	-.023
4	-.855	-.543	.062
5	-2.504	-.599	-.058
6	0.000	0.000	-.368
7	0.000	0.000	.051
8	0.000	0.000	-.042
9	0.000	0.000	.337
MIX - 26 CASE 26 (1+2+6+9+10)			
1	3.645	-2.232	.459
2	3.645	-1.145	.144
3	3.644	-1.112	-.067
4	3.644	-1.031	.052
5	3.644	-1.245	-.164
6	0.000	0.000	-.431
7	0.000	0.000	-.014
8	0.000	0.000	-.125
9	0.000	0.000	.039
MIX - 27 CASE 27 (1+2+6+9-10)			
1	-3.843	-2.560	.555
2	-3.843	-1.185	.240
3	-3.843	-1.097	-.037
4	-3.844	-1.048	.085
5	-3.845	-1.203	-.055
6	0.000	0.000	-.067
7	0.000	0.000	.148
8	0.000	0.000	.030
9	0.000	0.000	.389
MIX - 28 CASE 28 (1+13)			
1	7.524	-.439	.037
2	7.524	-.415	-.059
3	7.522	-.500	-.047
4	7.521	-.391	.015
5	7.522	-.510	-.185
6	0.000	0.000	-.538
7	0.000	0.000	-.120
8	0.000	0.000	-.193
9	0.000	0.000	-.193
MIX - 29 CASE 29 (1-13)			
1	-7.473	-1.096	.230
2	-7.473	-.494	.133
3	-7.473	-.470	.013
4	-7.473	-.424	.079
5	-7.476	-.427	.033
6	0.000	0.000	.191
7	0.000	0.000	.203
8	0.000	0.000	.120
9	0.000	0.000	.507
MIX - 30 CASE 30 (1+2+6+9+10)			
1	4.192	-2.566	.529
2	4.192	-1.317	.166
3	4.191	-1.279	-.075
4	4.190	-1.186	.360
5	4.190	-1.432	-.139
6	0.000	0.000	-.490
7	0.000	0.000	-.015
8	0.000	0.000	-.145
9	0.000	0.000	.045

D E F L E C T I O N

	JOINT	X (MM)	Y (MM)	Z (MMRAD)
MIX - 31	CASE 31 (1+2+6+9-10)			
	1	-4.419	-2.944	.639
	2	-4.419	-1.362	.277
	3	-4.419	-1.261	-.042
	4	-4.420	-1.205	.097
	5	-4.422	-1.384	-.063
	6	0.000	0.000	-.077
	7	0.000	0.000	.170
	8	0.000	0.000	.035
	9	0.000	0.000	.447
MIX - 32	CASE 32 (1+11)			
	1	-1.451	-1.208	.218
	2	-1.151	-.687	.073
	3	-.354	-.722	-.025
	4	.443	-.606	.070
	5	1.201	-.706	-.133
	6	0.000	0.000	-.195
	7	0.000	0.000	.064
	8	0.000	0.000	-.057
	9	0.000	0.000	.174
MIX - 33	CASE 33 (1+12)			
	1	3.763	-1.008	.157
	2	3.013	-.669	.012
	3	1.014	-.741	-.026
	4	-.983	-.624	.071
	5	-2.880	-.689	-.066
	6	0.000	0.000	-.423
	7	0.000	0.000	.058
	8	0.000	0.000	-.049
	9	0.000	0.000	.388
MIX - 34	CASE 34 (1+13)			
	1	11.286	-.658	.056
	2	11.286	-.622	-.089
	3	11.283	-.750	-.070
	4	11.282	-.586	.022
	5	11.282	-.765	-.278
	6	0.000	0.000	-.807
	7	0.000	0.000	-.180
	8	0.000	0.000	-.289
	9	0.000	0.000	-.289
MIX - 35	CASE 35 (1-13)			
	1	-11.209	-1.644	.345
	2	-11.209	-.742	.200
	3	-11.209	-.705	.019
	4	-11.210	-.636	.119
	5	-11.213	-.640	.050
	6	0.000	0.000	.287
	7	0.000	0.000	.305
	8	0.000	0.000	.180
	9	0.000	0.000	.760

PICK UP 1

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(1)	-.000	.000	.000
1	.150	(1)	-.032	-.421	.000
2	.150	(1)	-.032	-20.542	.000
3	1.400	(1)	-28.479	-25.436	.000
4	1.800	(1)	-39.067	-27.496	.000
5	2.000	(1)	-44.663	-28.447	.000
6	2.000	(1)	-44.663	-28.447	.000
7	2.600	(1)	-62.491	-30.876	.000
JTAN	3.000	(1)	-75.104	-32.141	.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(1)	-77.739	41.226	-1.183
1	.400	(1)	-61.511	39.819	-1.183
2	1.200	(1)	-31.311	35.304	-1.183
3	1.600	(1)	-17.791	32.197	-1.183
4	4.000	(1)	27.159	2.650	-1.183
5	6.400	(1)	-5.071	-26.897	-1.183
6	6.800	(1)	-16.471	-30.004	-1.183
7	7.600	(1)	-42.431	-34.519	-1.183
JTAN	8.000	(1)	-56.539	-35.926	-1.183
MAX	4.000	(1)	27.159	2.650	-1.183
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(1)	-56.098	39.590	-.915
1	.400	(1)	-40.525	38.182	-.915
2	1.200	(1)	-11.633	33.668	-.915
3	1.600	(1)	1.231	30.561	-.915
4	4.000	(1)	42.254	1.014	-.915
5	6.400	(1)	6.097	-28.534	-.915
6	6.800	(1)	-5.957	-31.641	-.915
7	7.600	(1)	-33.227	-36.155	-.915
JTAN	8.000	(1)	-47.989	-37.563	-.915
MAX	4.000	(1)	42.254	1.014	-.915

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(1)	-.000	.000	.000
1	.150	(1)	-.032	-.421	.000
2	.150	(1)	-.032	-20.542	.000
3	1.400	(1)	-28.479	-25.436	.000
4	1.800	(1)	-39.067	-27.496	.000
5	2.000	(1)	-44.663	-28.447	.000
6	2.000	(1)	-44.663	-28.447	.000
7	2.600	(1)	-62.491	-30.876	.000
JTAN	3.000	(1)	-75.104	-32.141	.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(1)	-77.739	41.226	-1.183
1	.400	(1)	-61.511	39.819	-1.183
2	1.200	(1)	-31.311	35.304	-1.183
3	1.600	(1)	-17.791	32.197	-1.183
4	4.000	(1)	27.159	2.650	-1.183
5	6.400	(1)	-5.071	-26.897	-1.183
6	6.800	(1)	-16.471	-30.004	-1.183
7	7.600	(1)	-42.431	-34.519	-1.183
JTAN	8.000	(1)	-56.539	-35.926	-1.183
MAX	4.000	(1)	27.159	2.650	-1.183
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(1)	-56.098	39.590	-.915
1	.400	(1)	-40.525	38.182	-.915
2	1.200	(1)	-11.633	33.668	-.915
3	1.600	(1)	1.231	30.561	-.915
4	4.000	(1)	42.254	1.014	-.915
5	6.400	(1)	6.097	-28.534	-.915
6	6.800	(1)	-5.957	-31.641	-.915
7	7.600	(1)	-33.227	-36.155	-.915
JTAN	8.000	(1)	-47.989	-37.563	-.915
MAX	4.000	(1)	42.254	1.014	-.915

PICK UP 1

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(1)	-46.109	24.735	-.773
1	.400	(1)	-36.515	23.185	-.773
2	1.200	(1)	-19.471	19.237	-.773
3	1.600	(1)	-12.247	16.838	-.773
4	3.800	(1)	6.338	-1.147	-.773
5	6.000	(1)	-17.295	-19.133	-.773
6	6.400	(1)	-25.438	-21.532	-.773
7	7.200	(1)	-44.318	-25.480	-.773
JTAN	7.600	(1)	-54.829	-27.030	-.773
MAX	3.800	(1)	6.338	-1.147	-.773
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(1)	-8.706	15.366	0.000
1	.400	(1)	-2.916	13.586	0.000
2	2.150	(1)	14.046	5.799	0.000
3	4.000	(1)	17.159	-2.434	0.000
4	5.850	(1)	5.042	-10.666	0.000
5	7.600	(1)	-20.438	-18.454	0.000
JTAN	8.000	(1)	-28.175	-20.234	0.000
MAX	3.556	(1)	17.801	-.456	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(1)	-26.043	17.898	0.000
1	.400	(1)	-19.240	16.118	0.000
2	2.150	(1)	2.153	8.331	0.000
3	4.000	(1)	9.950	.098	0.000
4	5.850	(1)	2.516	-8.134	0.000
5	7.600	(1)	-18.533	-15.922	0.000
JTAN	8.000	(1)	-25.258	-17.702	0.000
MAX	4.000	(1)	9.950	.098	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(1)	-25.779	19.373	0.000
1	.400	(1)	-18.386	17.593	0.000
2	2.150	(1)	5.588	9.806	0.000
3	3.300	(1)	15.710	2.463	0.000
4	5.450	(1)	13.716	-4.879	0.000
5	7.200	(1)	-1.637	-12.667	0.000
JTAN	7.600	(1)	-7.060	-14.447	0.000
MAX	4.222	(1)	16.353	.584	0.000

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(1)	-46.109	24.735	-.773
1	.400	(1)	-36.515	23.185	-.773
2	1.200	(1)	-19.471	19.237	-.773
3	1.600	(1)	-12.247	16.838	-.773
4	3.800	(1)	6.338	-1.147	-.773
5	6.000	(1)	-17.295	-19.133	-.773
6	6.400	(1)	-25.438	-21.532	-.773
7	7.200	(1)	-44.318	-25.480	-.773
JTAN	7.600	(1)	-54.829	-27.030	-.773
MAX	3.800	(1)	6.338	-1.147	-.773
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(1)	-8.706	15.366	0.000
1	.400	(1)	-2.916	13.586	0.000
2	2.150	(1)	14.046	5.799	0.000
3	4.000	(1)	17.159	-2.434	0.000
4	5.850	(1)	5.042	-10.666	0.000
5	7.600	(1)	-20.438	-18.454	0.000
JTAN	8.000	(1)	-28.175	-20.234	0.000
MAX	3.556	(1)	17.801	-.456	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(1)	-26.043	17.898	0.000
1	.400	(1)	-19.240	16.118	0.000
2	2.150	(1)	2.153	8.331	0.000
3	4.000	(1)	9.950	.098	0.000
4	5.850	(1)	2.516	-8.134	0.000
5	7.600	(1)	-18.533	-15.922	0.000
JTAN	8.000	(1)	-25.258	-17.702	0.000
MAX	4.000	(1)	9.950	.098	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(1)	-25.779	19.373	0.000
1	.400	(1)	-18.386	17.593	0.000
2	2.150	(1)	5.588	9.806	0.000
3	3.800	(1)	15.710	2.463	0.000
4	5.450	(1)	13.716	-4.879	0.000
5	7.200	(1)	-1.637	-12.667	0.000
JTAN	7.600	(1)	-7.060	-14.447	0.000
MAX	4.222	(1)	16.353	.584	0.000

PICK UP 1

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 8		2 - 6	C = =		
ITAN	0.000	(1)	2.635	-1.183	-115.207
JTAN	9.587	(1)	-8.706	-1.183	-130.546
= = MEMBER 9		3 - 7	C = =		
ITAN	0.000	(1)	-.441	.268	-123.446
JTAN	9.587	(1)	2.132	.268	-138.785
= = MEMBER 10		4 - 8	C = =		
ITAN	0.000	(1)	-1.880	.142	-102.467
JTAN	9.587	(1)	-.521	.142	-117.807
= = MEMBER 11		5 - 9	C = =		
ITAN	0.000	(1)	-.349	.773	-118.910
JTAN	9.587	(1)	7.060	.773	-134.249

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 8		2 - 6	C = =		
ITAN	0.000	(1)	2.635	-1.183	-115.207
JTAN	9.587	(1)	-8.706	-1.183	-130.546
= = MEMBER 9		3 - 7	C = =		
ITAN	0.000	(1)	-.441	.268	-123.446
JTAN	9.587	(1)	2.132	.268	-138.785
= = MEMBER 10		4 - 8	C = =		
ITAN	0.000	(1)	-1.880	.142	-102.467
JTAN	9.587	(1)	-.521	.142	-117.807
= = MEMBER 11		5 - 9	C = =		
ITAN	0.000	(1)	-.349	.773	-118.910
JTAN	9.587	(1)	7.060	.773	-134.249

PICK UP 1

SHEAR MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(1)	-.000	.000	.000
1	.150	(1)	-.032	-.421	.000
2	.150	(1)	-.032	-20.542	.000
3	1.400	(1)	-28.479	-25.436	.000
4	1.800	(1)	-39.067	-27.496	.000
5	2.000	(1)	-44.663	-28.447	.000
6	2.000	(1)	-44.663	-28.447	.000
7	2.600	(1)	-62.491	-30.876	.000
JTAN	3.000	(1)	-75.104	-32.141	.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(1)	-77.739	41.226	-1.183
1	.400	(1)	-61.511	39.819	-1.183
2	1.200	(1)	-31.311	35.304	-1.183
3	1.600	(1)	-17.791	32.197	-1.183
4	4.000	(1)	27.159	2.650	-1.183
5	6.400	(1)	-5.071	-26.897	-1.183
6	6.800	(1)	-16.471	-30.304	-1.183
7	7.600	(1)	-42.431	-34.519	-1.183
JTAN	8.000	(1)	-56.539	-35.926	-1.183
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(1)	-56.098	39.590	-.915
1	.400	(1)	-40.525	38.182	-.915
2	1.200	(1)	-11.633	33.668	-.915
3	1.600	(1)	1.231	30.561	-.915
4	4.000	(1)	42.254	1.014	-.915
5	6.400	(1)	6.097	-28.534	-.915
6	6.800	(1)	-5.957	-31.641	-.915
7	7.600	(1)	-33.227	-36.155	-.915
JTAN	8.000	(1)	-47.989	-37.563	-.915
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(1)	-46.109	24.735	-.773
1	.400	(1)	-36.515	23.185	-.773
2	1.200	(1)	-19.471	19.237	-.773
3	1.600	(1)	-12.247	16.838	-.773
4	3.800	(1)	6.338	-1.147	-.773
5	6.000	(1)	-17.295	-19.133	-.773
6	6.400	(1)	-25.438	-21.532	-.773
7	7.200	(1)	-44.318	-25.480	-.773
JTAN	7.600	(1)	-54.829	-27.030	-.773

SHEAR MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(1)	-.000	.000	.000
1	.150	(1)	-.032	-.421	.000
2	.150	(1)	-.032	-20.542	.000
3	1.400	(1)	-28.479	-25.436	.000
4	1.800	(1)	-39.067	-27.496	.000
5	2.000	(1)	-44.663	-28.447	.000
6	2.000	(1)	-44.663	-28.447	.000
7	2.600	(1)	-62.491	-30.876	.000
JTAN	3.000	(1)	-75.104	-32.141	.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(1)	-77.739	41.226	-1.183
1	.400	(1)	-61.511	39.819	-1.183
2	1.200	(1)	-31.311	35.304	-1.183
3	1.600	(1)	-17.791	32.197	-1.183
4	4.000	(1)	27.159	2.650	-1.183
5	6.400	(1)	-5.071	-26.897	-1.183
6	6.800	(1)	-16.471	-30.304	-1.183
7	7.600	(1)	-42.431	-34.519	-1.183
JTAN	8.000	(1)	-56.539	-35.926	-1.183
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(1)	-56.098	39.590	-.915
1	.400	(1)	-40.525	38.182	-.915
2	1.200	(1)	-11.633	33.668	-.915
3	1.600	(1)	1.231	30.561	-.915
4	4.000	(1)	42.254	1.014	-.915
5	6.400	(1)	6.097	-28.534	-.915
6	6.800	(1)	-5.957	-31.641	-.915
7	7.600	(1)	-33.227	-36.155	-.915
JTAN	8.000	(1)	-47.989	-37.563	-.915
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(1)	-46.109	24.735	-.773
1	.400	(1)	-36.515	23.185	-.773
2	1.200	(1)	-19.471	19.237	-.773
3	1.600	(1)	-12.247	16.838	-.773
4	3.800	(1)	6.338	-1.147	-.773
5	6.000	(1)	-17.295	-19.133	-.773
6	6.400	(1)	-25.438	-21.532	-.773
7	7.200	(1)	-44.318	-25.480	-.773
JTAN	7.600	(1)	-54.829	-27.030	-.773

PICK UP 1

SHEAR MAXIMUM

	L	CASE	M	J	N
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(1)	-8.706	15.366	0.000
1	.400	(1)	-2.916	13.586	0.000
2	2.150	(1)	14.046	5.799	0.000
3	4.000	(1)	17.159	-2.434	0.000
4	5.850	(1)	5.042	-10.666	0.000
5	7.600	(1)	-20.438	-18.454	0.000
JTAN	8.000	(1)	-28.175	-20.234	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(1)	-26.043	17.898	0.000
1	.400	(1)	-19.240	16.118	0.000
2	2.150	(1)	2.153	8.331	0.000
3	4.000	(1)	9.950	.098	0.000
4	5.850	(1)	2.516	-8.134	0.000
5	7.600	(1)	-18.533	-15.922	0.000
JTAN	8.000	(1)	-25.258	-17.702	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(1)	-25.779	19.373	0.000
1	.400	(1)	-18.386	17.593	0.000
2	2.150	(1)	5.588	9.806	0.000
3	3.800	(1)	15.710	2.463	0.000
4	5.450	(1)	13.716	-4.879	0.000
5	7.200	(1)	-1.637	-12.667	0.000
JTAN	7.600	(1)	-7.060	-14.447	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(1)	2.635	-1.183	-115.207
JTAN	9.587	(1)	-8.706	-1.183	-130.546
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(1)	-.441	.268	-123.446
JTAN	9.587	(1)	2.132	.268	-138.785
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(1)	-1.880	.142	-102.467
JTAN	9.587	(1)	-.521	.142	-117.807
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(1)	-.349	.773	-118.910
JTAN	9.587	(1)	7.060	.773	-134.249

SHEAR MINIMUM

	L	CASE	M	J	N
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(1)	-8.706	15.366	0.000
1	.400	(1)	-2.916	13.586	0.000
2	2.150	(1)	14.046	5.799	0.000
3	4.000	(1)	17.159	-2.434	0.000
4	5.850	(1)	5.042	-10.666	0.000
5	7.600	(1)	-20.438	-18.454	0.000
JTAN	8.000	(1)	-28.175	-20.234	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(1)	-26.043	17.898	0.000
1	.400	(1)	-19.240	16.118	0.000
2	2.150	(1)	2.153	8.331	0.000
3	4.000	(1)	9.950	.098	0.000
4	5.850	(1)	2.516	-8.134	0.000
5	7.600	(1)	-18.533	-15.922	0.000
JTAN	8.000	(1)	-25.258	-17.702	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(1)	-25.779	19.373	0.000
1	.400	(1)	-18.386	17.593	0.000
2	2.150	(1)	5.588	9.806	0.000
3	3.800	(1)	15.710	2.463	0.000
4	5.450	(1)	13.716	-4.879	0.000
5	7.200	(1)	-1.637	-12.667	0.000
JTAN	7.600	(1)	-7.060	-14.447	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(1)	2.635	-1.183	-115.207
JTAN	9.587	(1)	-8.706	-1.183	-130.546
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(1)	-.441	.268	-123.446
JTAN	9.587	(1)	2.132	.268	-138.785
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(1)	-1.880	.142	-102.467
JTAN	9.587	(1)	-.521	.142	-117.807
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(1)	-.349	.773	-118.910
JTAN	9.587	(1)	7.060	.773	-134.249

PICK UP 1

AXIAL MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(1)	-.000	.000	.000
1	.150	(1)	-.032	-.421	.000
2	.150	(1)	-.032	-20.542	.000
3	1.400	(1)	-28.479	-25.436	.000
4	1.800	(1)	-39.067	-27.496	.000
5	2.000	(1)	-44.663	-28.447	.000
6	2.000	(1)	-44.663	-28.447	.000
7	2.600	(1)	-62.491	-30.876	.000
JTAN	3.000	(1)	-75.104	-32.141	.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(1)	-77.739	41.226	-1.183
1	.400	(1)	-61.511	39.819	-1.183
2	1.200	(1)	-31.311	35.304	-1.183
3	1.600	(1)	-17.791	32.197	-1.183
4	4.000	(1)	27.159	2.650	-1.183
5	6.400	(1)	-5.071	-26.897	-1.183
6	6.800	(1)	-16.471	-30.004	-1.183
7	7.600	(1)	-42.431	-34.519	-1.183
JTAN	8.000	(1)	-56.539	-35.926	-1.183
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(1)	-56.098	39.590	-.915
1	.400	(1)	-40.525	38.182	-.915
2	1.200	(1)	-11.633	33.668	-.915
3	1.600	(1)	1.231	30.561	-.915
4	4.000	(1)	42.254	1.014	-.915
5	6.400	(1)	6.097	-28.534	-.915
6	6.800	(1)	-5.957	-31.641	-.915
7	7.600	(1)	-33.227	-36.155	-.915
JTAN	8.000	(1)	-47.989	-37.563	-.915
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(1)	-46.109	24.735	-.773
1	.400	(1)	-36.515	23.185	-.773
2	1.200	(1)	-19.471	19.237	-.773
3	1.600	(1)	-12.247	16.838	-.773
4	3.800	(1)	6.338	-1.147	-.773
5	6.000	(1)	-17.295	-19.133	-.773
6	6.400	(1)	-25.438	-21.532	-.773
7	7.200	(1)	-44.318	-25.480	-.773
JTAN	7.600	(1)	-54.829	-27.030	-.773

AXIAL MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(1)	-.000	.000	.000
1	.150	(1)	-.032	-.421	.000
2	.150	(1)	-.032	-20.542	.000
3	1.400	(1)	-28.479	-25.436	.000
4	1.800	(1)	-39.067	-27.496	.000
5	2.000	(1)	-44.663	-28.447	.000
6	2.000	(1)	-44.663	-28.447	.000
7	2.600	(1)	-62.491	-30.876	.000
JTAN	3.000	(1)	-75.104	-32.141	.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(1)	-77.739	41.226	-1.183
1	.400	(1)	-61.511	39.819	-1.183
2	1.200	(1)	-31.311	35.304	-1.183
3	1.600	(1)	-17.791	32.197	-1.183
4	4.000	(1)	27.159	2.650	-1.183
5	6.400	(1)	-5.071	-26.897	-1.183
6	6.800	(1)	-16.471	-30.004	-1.183
7	7.600	(1)	-42.431	-34.519	-1.183
JTAN	8.000	(1)	-56.539	-35.926	-1.183
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(1)	-56.098	39.590	-.915
1	.400	(1)	-40.525	38.182	-.915
2	1.200	(1)	-11.633	33.668	-.915
3	1.600	(1)	1.231	30.561	-.915
4	4.000	(1)	42.254	1.014	-.915
5	6.400	(1)	6.097	-28.534	-.915
6	6.800	(1)	-5.957	-31.641	-.915
7	7.600	(1)	-33.227	-36.155	-.915
JTAN	8.000	(1)	-47.989	-37.563	-.915
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(1)	-46.109	24.735	-.773
1	.400	(1)	-36.515	23.185	-.773
2	1.200	(1)	-19.471	19.237	-.773
3	1.600	(1)	-12.247	16.838	-.773
4	3.800	(1)	6.338	-1.147	-.773
5	6.000	(1)	-17.295	-19.133	-.773
6	6.400	(1)	-25.438	-21.532	-.773
7	7.200	(1)	-44.318	-25.480	-.773
JTAN	7.600	(1)	-54.829	-27.030	-.773

PICK UP 1

AXIAL MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(1)	-8.706	15.366	0.000
1	.400	(1)	-2.916	13.586	0.000
2	2.150	(1)	14.046	5.799	0.000
3	4.000	(1)	17.159	-2.434	0.000
4	5.850	(1)	5.042	-10.666	0.000
5	7.600	(1)	-20.438	-18.454	0.000
JTAN	8.000	(1)	-28.175	-20.234	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(1)	-26.043	17.898	0.000
1	.400	(1)	-19.240	16.118	0.000
2	2.150	(1)	2.153	8.331	0.000
3	4.000	(1)	9.950	.098	0.000
4	5.850	(1)	2.516	-8.134	0.000
5	7.600	(1)	-18.533	-15.922	0.000
JTAN	8.000	(1)	-25.258	-17.702	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(1)	-25.779	19.373	0.000
1	.400	(1)	-18.386	17.593	0.000
2	2.150	(1)	5.588	9.806	0.000
3	3.800	(1)	15.710	2.463	0.000
4	5.450	(1)	13.716	-4.879	0.000
5	7.200	(1)	-1.637	-12.667	0.000
JTAN	7.600	(1)	-7.060	-14.447	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(1)	2.635	-1.183	-115.207
JTAN	9.587	(1)	-8.706	-1.183	-130.546
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(1)	-.441	.268	-123.446
JTAN	9.587	(1)	2.132	.268	-138.785
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(1)	-1.880	.142	-102.467
JTAN	9.587	(1)	-.521	.142	-117.807
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(1)	-.349	.773	-118.910
JTAN	9.587	(1)	7.060	.773	-134.249

AXIAL MINIMUM

	L	CASE	M	Q	N
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(1)	-8.706	15.366	0.000
1	.400	(1)	-2.916	13.586	0.000
2	2.150	(1)	14.046	5.799	0.000
3	4.000	(1)	17.159	-2.434	0.000
4	5.850	(1)	5.042	-10.666	0.000
5	7.600	(1)	-20.438	-18.454	0.000
JTAN	8.000	(1)	-28.175	-20.234	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(1)	-26.043	17.898	0.000
1	.400	(1)	-19.240	16.118	0.000
2	2.150	(1)	2.153	8.331	0.000
3	4.000	(1)	9.950	.098	0.000
4	5.850	(1)	2.516	-8.134	0.000
5	7.600	(1)	-18.533	-15.922	0.000
JTAN	8.000	(1)	-25.258	-17.702	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(1)	-25.779	19.373	0.000
1	.400	(1)	-18.386	17.593	0.000
2	2.150	(1)	5.588	9.806	0.000
3	3.800	(1)	15.710	2.463	0.000
4	5.450	(1)	13.716	-4.879	0.000
5	7.200	(1)	-1.637	-12.667	0.000
JTAN	7.600	(1)	-7.060	-14.447	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(1)	2.635	-1.183	-115.207
JTAN	9.587	(1)	-8.706	-1.183	-130.546
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(1)	-.441	.268	-123.446
JTAN	9.587	(1)	2.132	.268	-138.785
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(1)	-1.880	.142	-102.467
JTAN	9.587	(1)	-.521	.142	-117.807
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(1)	-.349	.773	-118.910
JTAN	9.587	(1)	7.060	.773	-134.249

PICK UP 2

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(28)	-.000	.000	.000
1	.150	(28)	-.021	-.281	.000
2	.150	(28)	-.021	-13.695	.000
3	1.400	(29)	-18.987	-16.958	-.000
4	1.800	(29)	-26.046	-18.331	-.000
5	2.000	(29)	-29.777	-18.965	-.000
6	2.000	(29)	-29.777	-18.965	-.000
7	2.600	(29)	-41.663	-20.585	-.000
JTAN	3.000	(29)	-50.072	-21.428	-.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(28)	-17.432	20.299	-1.605
1	.400	(28)	-9.488	19.361	-1.605
2	1.200	(19)	14.082	78.410	-2.777
3	1.600	(19)	41.692	68.431	-2.777
4	4.000	(19)	119.203	-2.347	-2.777
5	6.400	(19)	30.427	-73.125	-2.777
6	6.800	(29)	3.492	-12.817	.028
7	7.600	(29)	-8.067	-15.827	.028
JTAN	8.000	(29)	-14.598	-16.765	.028
MAX	4.000	(19)	119.203	-2.347	-2.777
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(28)	-19.653	21.904	-.623
1	.400	(28)	-11.066	20.965	-.623
2	1.200	(16)	15.972	80.302	-1.024
3	1.600	(16)	44.338	70.323	-1.024
4	4.000	(16)	126.390	-.455	-1.024
5	6.400	(22)	42.732	-68.991	-1.264
6	6.800	(22)	14.899	-78.970	-1.264
7	7.600	(29)	-5.769	-19.614	-.596
JTAN	8.000	(29)	-13.815	-20.552	-.596
MAX	4.000	(16)	126.390	-.455	-1.024

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(16)	-.000	-29.640	-.000
1	.150	(16)	-4.478	-30.061	-.000
2	.150	(16)	-4.478	-50.182	-.000
3	1.400	(16)	-69.975	-55.076	-.000
4	1.800	(16)	-92.419	-57.136	-.000
5	2.000	(16)	-103.943	-58.087	-.000
6	2.000	(16)	-103.943	-87.727	-.000
7	2.600	(16)	-157.339	-90.156	-.000
JTAN	3.000	(16)	-193.664	-91.421	-.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(27)	-183.572	104.932	-.058
1	.400	(16)	-162.357	50.243	.545
2	1.200	(16)	-123.817	45.729	.545
3	1.600	(16)	-106.128	42.621	.545
4	4.000	(16)	-36.160	13.074	.545
5	6.400	(16)	-43.372	-16.473	.545
6	6.800	(22)	-51.755	-35.512	-.840
7	7.600	(17)	-100.803	-105.518	-2.392
JTAN	8.000	(17)	-138.590	-113.798	-2.392
MAX	5.333	(16)	-31.339	-5.417	.545
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(17)	-136.945	114.050	-1.936
1	.400	(17)	-99.058	105.771	-1.936
2	1.200	(19)	-54.477	33.902	-1.332
3	1.600	(19)	-41.519	30.795	-1.332
4	4.000	(19)	.066	1.248	-1.332
5	6.400	(19)	-35.530	-28.299	-1.332
6	6.800	(19)	-47.490	-31.407	-1.332
7	7.600	(20)	-87.651	-102.843	-1.961
JTAN	8.000	(20)	-124.368	-111.122	-1.961
MAX	4.000	(19)	.066	1.248	-1.332

PICK UP 2

MOMENT MAXIMUM

	-----L---	-CASE-	-----M---	-----Q---	-----N---
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(28)	-8.075	9.011	.290
1	.400	(28)	-4.671	7.978	.290
2	1.200	(28)	.709	5.345	.290
3	1.600	(19)	20.371	59.641	-2.348
4	3.800	(19)	87.411	3.861	-2.348
5	6.000	(19)	37.359	-51.919	-2.348
6	6.400	(19)	16.369	-61.190	-2.348
7	7.200	(29)	1.643	-9.508	-1.320
JTAN	7.600	(29)	-2.373	-10.541	-1.320
MAX	3.800	(19)	87.411	3.861	-2.348
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(28)	23.430	3.769	0.000
1	.400	(28)	24.700	2.582	0.000
2	2.150	(28)	24.676	-2.610	0.000
3	4.000	(16)	19.622	-2.572	0.000
4	5.850	(29)	12.010	-.635	0.000
5	7.600	(29)	6.355	-5.827	0.000
JTAN	8.000	(29)	3.787	-7.014	0.000
MAX	.889	(28)	25.608	1.132	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(28)	-1.622	8.019	0.000
1	.400	(28)	1.348	6.832	0.000
2	2.150	(28)	8.761	1.640	0.000
3	4.000	(19)	11.709	.086	0.000
4	5.850	(29)	8.835	-1.509	0.000
5	7.600	(29)	1.651	-6.701	0.000
JTAN	8.000	(29)	-1.267	-7.888	0.000
MAX	4.000	(19)	11.709	.086	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(28)	5.701	6.015	0.000
1	.400	(28)	7.870	4.828	0.000
2	2.150	(28)	11.776	-.364	0.000
3	3.800	(22)	17.594	2.483	0.000
4	5.450	(29)	23.868	3.648	0.000
5	7.200	(29)	25.709	-1.544	0.000
JTAN	7.600	(29)	24.854	-2.731	0.000
MAX	6.756	(29)	26.102	-.225	0.000

MOMENT MINIMUM

	-----L---	-CASE-	-----M---	-----Q---	-----N---
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(20)	-123.289	99.034	-1.957
1	.400	(20)	-91.125	90.613	-1.957
2	1.200	(22)	-53.914	16.679	.374
3	1.600	(22)	-47.713	14.280	.374
4	3.800	(22)	-34.757	-3.706	.374
5	6.000	(22)	-64.018	-21.691	.374
6	6.400	(22)	-73.184	-24.090	.374
7	7.200	(22)	-94.111	-28.038	.374
JTAN	7.600	(23)	-117.420	-94.268	-1.175
MAX	3.378	(22)	-34.018	.208	.374
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(29)	-35.039	16.721	0.000
1	.400	(29)	-28.588	15.534	0.000
2	2.150	(29)	-5.947	10.342	0.000
3	4.000	(29)	8.109	4.853	0.000
4	5.850	(28)	-5.287	-13.587	0.000
5	7.600	(28)	-33.607	-18.779	0.000
JTAN	8.000	(28)	-41.356	-19.965	0.000
MAX	4.444	(29)	9.973	3.535	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(29)	-33.104	15.847	0.000
1	.400	(29)	-27.002	14.660	0.000
2	2.150	(29)	-5.890	9.468	0.000
3	4.000	(29)	6.549	3.980	0.000
4	5.850	(28)	-5.480	-9.337	0.000
5	7.600	(28)	-26.363	-14.529	0.000
JTAN	8.000	(28)	-32.412	-15.716	0.000
MAX	4.000	(29)	6.549	3.980	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(29)	-40.075	19.817	0.000
1	.400	(29)	-32.385	18.630	0.000
2	2.150	(29)	-4.325	13.438	0.000
3	3.800	(28)	7.137	-5.259	0.000
4	5.450	(28)	-5.579	-10.154	0.000
5	7.200	(28)	-27.891	-15.346	0.000
JTAN	7.600	(28)	-34.257	-16.533	0.000
MAX	3.378	(28)	9.093	-4.006	0.000

PICK UP 2

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 8		2 - 6) C = =			
ITAN	0.000	(29)	36.153	-7.426	-83.995
JTAN	9.587	(28)	23.430	5.848	-79.849
= = MEMBER 9		3 - 7) C = =			
ITAN	0.000	(29)	40.550	-8.078	-79.606
JTAN	9.587	(28)	39.734	8.436	-95.224
= = MEMBER 10		4 - 8) C = =			
ITAN	0.000	(29)	39.592	-8.178	-71.304
JTAN	9.587	(28)	38.113	8.367	-75.553
= = MEMBER 11		5 - 9) C = =			
ITAN	0.000	(29)	33.949	-6.134	-71.797
JTAN	9.587	(28)	34.267	7.164	-96.584

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 8		2 - 6) C = =			
ITAN	0.000	(28)	-32.540	5.848	-69.622
JTAN	9.587	(29)	-35.039	-7.426	-94.222
= = MEMBER 9		3 - 7) C = =			
ITAN	0.000	(28)	-41.138	8.436	-84.997
JTAN	9.587	(29)	-36.891	-8.078	-89.832
= = MEMBER 10		4 - 8) C = =			
ITAN	0.000	(28)	-42.099	8.367	-65.326
JTAN	9.587	(29)	-38.808	-8.178	-81.531
= = MEMBER 11		5 - 9) C = =			
ITAN	0.000	(28)	-34.415	7.164	-86.757
JTAN	9.587	(29)	-24.854	-6.134	-82.024

PICK UP 2

SHEAR MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(29)	-.000	.000	-.000
1	.150	(29)	-.021	-.281	-.000
2	.150	(29)	-.021	-13.695	-.000
3	1.400	(29)	-18.987	-16.958	-.000
4	1.800	(29)	-26.046	-18.331	-.000
5	2.000	(29)	-29.777	-18.965	-.000
6	2.000	(29)	-29.777	-18.965	-.000
7	2.600	(29)	-41.663	-20.585	-.000
JTAN	3.000	(29)	-50.072	-21.428	-.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(19)	-89.467	104.947	-2.777
1	.400	(27)	-148.323	97.732	-.058
2	1.200	(27)	-85.285	81.855	-.058
3	1.600	(27)	-57.889	73.177	-.058
4	4.000	(16)	-36.160	13.074	.545
5	6.400	(29)	8.217	-10.746	.028
6	6.800	(29)	3.492	-12.817	.028
7	7.600	(29)	-8.067	-15.827	.028
JTAN	8.000	(29)	-14.598	-16.765	.028
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(17)	-136.945	114.050	-1.936
1	.400	(17)	-99.058	105.771	-1.936
2	1.200	(17)	-31.860	87.512	-1.936
3	1.600	(17)	-3.003	77.532	-1.936
4	4.000	(15)	20.651	7.343	-1.109
5	6.400	(29)	15.059	-14.532	-.596
6	6.800	(29)	8.819	-16.604	-.596
7	7.600	(29)	-5.769	-19.614	-.596
JTAN	8.000	(29)	-13.815	-20.552	-.596
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(20)	-123.289	99.034	-1.957
1	.400	(20)	-91.125	90.613	-1.957
2	1.200	(20)	-35.261	72.920	-1.957
3	1.600	(20)	-11.787	63.649	-1.957
4	3.800	(20)	58.500	7.867	-1.957
5	6.000	(29)	10.683	-5.276	-1.320
6	6.400	(29)	8.246	-6.875	-1.320
7	7.200	(29)	1.643	-9.508	-1.320
JTAN	7.600	(29)	-2.373	-10.541	-1.320

SHEAR MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(16)	-.000	-29.640	-.000
1	.150	(16)	-4.478	-30.061	-.000
2	.150	(16)	-4.478	-50.182	-.000
3	1.400	(16)	-69.975	-55.076	-.000
4	1.800	(16)	-92.419	-57.136	-.000
5	2.000	(16)	-103.343	-58.087	-.000
6	2.000	(16)	-103.943	-87.727	-.000
7	2.600	(16)	-157.339	-90.156	-.000
JTAN	3.000	(16)	-193.664	-91.421	-.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(28)	-17.432	20.299	-1.605
1	.400	(28)	-9.488	19.361	-1.605
2	1.200	(28)	4.897	16.351	-1.605
3	1.600	(28)	11.036	14.279	-1.605
4	4.000	(17)	87.069	-6.500	-2.392
5	6.400	(17)	-5.051	-77.280	-2.392
6	6.800	(17)	-33.807	-87.259	-2.392
7	7.600	(17)	-100.803	-105.518	-2.392
JTAN	8.000	(17)	-138.590	-113.798	-2.392
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(28)	-19.653	21.904	-.623
1	.400	(28)	-11.066	20.965	-.623
2	1.200	(28)	4.603	17.955	-.623
3	1.600	(28)	11.383	15.884	-.623
4	4.000	(21)	21.669	-5.082	-1.138
5	6.400	(20)	4.890	-74.605	-1.961
6	6.800	(20)	-22.796	-84.584	-1.961
7	7.600	(20)	-87.651	-102.843	-1.961
JTAN	8.000	(20)	-124.368	-111.122	-1.961
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(28)	-8.075	9.011	.290
1	.400	(28)	-4.671	7.978	.290
2	1.200	(28)	.709	5.345	.290
3	1.600	(28)	2.533	3.746	.290
4	3.800	(28)	-1.532	-8.245	.290
5	6.000	(23)	-2.500	-58.884	-1.175
6	6.400	(23)	-26.276	-68.155	-1.175
7	7.200	(23)	-83.849	-85.846	-1.175
JTAN	7.600	(23)	-117.420	-94.268	-1.175

PICK UP 2

SHEAR MAXIMUM

	L	CASE	M	Q	N
== MEMBER 5 (6 - 7) G ==					
ITAN	0.000	(29)	-35.039	16.721	0.000
1	.400	(29)	-28.588	15.534	0.000
2	2.150	(29)	-5.947	10.342	0.000
3	4.000	(29)	8.109	4.853	0.000
4	5.850	(29)	12.010	-.635	0.000
5	7.600	(29)	6.355	-5.827	0.000
JTAN	8.000	(29)	3.787	-7.014	0.000
== MEMBER 6 (7 - 8) G ==					
ITAN	0.000	(16)	-29.617	18.384	0.000
1	.400	(16)	-22.620	16.604	0.000
2	2.150	(29)	-5.890	9.468	0.000
3	4.000	(29)	6.549	3.980	0.000
4	5.850	(29)	8.835	-1.509	0.000
5	7.600	(29)	1.651	-6.701	0.000
JTAN	8.000	(29)	-1.267	-7.888	0.000
== MEMBER 7 (8 - 9) G ==					
ITAN	0.000	(27)	-34.138	20.414	0.000
1	.400	(27)	-26.281	18.866	0.000
2	2.150	(29)	-4.325	13.438	0.000
3	3.800	(29)	13.810	8.543	0.000
4	5.450	(29)	23.868	3.648	0.000
5	7.200	(29)	25.709	-1.544	0.000
JTAN	7.600	(29)	24.854	-2.731	0.000
== MEMBER 8 (2 - 6) C ==					
ITAN	0.000	(28)	-32.640	5.848	-69.622
JTAN	9.587	(28)	23.430	5.848	-79.849
== MEMBER 9 (3 - 7) C ==					
ITAN	0.000	(28)	-41.138	8.436	-84.997
JTAN	9.587	(28)	39.734	8.436	-95.224
== MEMBER 10 (4 - 8) C ==					
ITAN	0.000	(28)	-42.099	8.367	-55.326
JTAN	9.587	(28)	38.113	8.367	-75.553
== MEMBER 11 (5 - 9) C ==					
ITAN	0.000	(28)	-34.415	7.164	-86.757
JTAN	9.587	(28)	34.267	7.164	-96.984

SHEAR MINIMUM

	L	CASE	M	Q	N
== MEMBER 5 (6 - 7) G ==					
ITAN	0.000	(28)	23.430	3.769	0.000
1	.400	(28)	24.700	2.582	0.000
2	2.150	(28)	24.676	-2.610	0.000
3	4.000	(28)	14.771	-8.098	0.000
4	5.850	(28)	-5.287	-13.987	0.000
5	7.600	(26)	-27.630	-19.409	0.000
JTAN	8.000	(26)	-35.703	-20.957	0.000
== MEMBER 6 (7 - 8) G ==					
ITAN	0.000	(28)	-1.622	8.019	0.000
1	.400	(28)	1.348	6.832	0.000
2	2.150	(28)	8.761	1.640	0.000
3	4.000	(28)	6.718	-3.849	0.000
4	5.850	(28)	-5.480	-9.337	0.000
5	7.600	(15)	-19.301	-16.385	0.000
JTAN	8.000	(15)	-26.211	-18.165	0.000
== MEMBER 7 (8 - 9) G ==					
ITAN	0.000	(28)	5.701	6.015	0.000
1	.400	(28)	7.870	4.828	0.000
2	2.150	(28)	11.776	-.364	0.000
3	3.800	(28)	7.137	-5.259	0.000
4	5.450	(28)	-5.579	-10.154	0.000
5	7.200	(28)	-27.891	-15.346	0.000
JTAN	7.600	(28)	-34.267	-16.533	0.000
== MEMBER 8 (2 - 6) C ==					
ITAN	0.000	(29)	36.153	-7.426	-83.995
JTAN	9.587	(29)	-35.039	-7.426	-94.222
== MEMBER 9 (3 - 7) C ==					
ITAN	0.000	(29)	40.550	-8.078	-79.606
JTAN	9.587	(29)	-36.891	-8.078	-89.832
== MEMBER 10 (4 - 8) C ==					
ITAN	0.000	(29)	39.592	-8.178	-71.304
JTAN	9.587	(29)	-38.808	-8.178	-81.531
== MEMBER 11 (5 - 9) C ==					
ITAN	0.000	(29)	33.949	-6.134	-71.797
JTAN	9.587	(29)	-24.854	-6.134	-82.024

PICK UP 2

AXIAL MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(28)	-.000	.000	.000
1	.150	(28)	-.021	-.281	.000
2	.150	(28)	-.021	-13.695	.000
3	1.400	(28)	-18.987	-16.958	.000
4	1.800	(28)	-26.046	-18.331	.000
5	2.000	(28)	-29.777	-18.965	.000
6	2.000	(28)	-29.777	-18.965	.000
7	2.600	(28)	-41.663	-20.585	.000
JTAN	3.000	(28)	-50.072	-21.428	.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(25)	-56.207	33.795	1.140
1	.400	(25)	-42.917	32.572	1.140
2	1.200	(25)	-18.299	28.646	1.140
3	1.600	(25)	-7.364	25.944	1.140
4	4.000	(25)	26.792	.249	1.140
5	6.400	(25)	-6.167	-25.445	1.140
6	6.800	(25)	-16.902	-29.147	1.140
7	7.600	(25)	-41.121	-32.073	1.140
JTAN	8.000	(25)	-54.211	-33.296	1.140
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(25)	-48.800	34.453	2.416
1	.400	(25)	-35.247	33.229	2.416
2	1.200	(25)	-10.102	29.304	2.416
3	1.600	(25)	1.095	26.601	2.416
4	4.000	(25)	36.831	.907	2.416
5	6.400	(25)	5.450	-24.787	2.416
6	6.800	(25)	-5.021	-27.489	2.416
7	7.600	(25)	-28.714	-31.415	2.416
JTAN	8.000	(25)	-41.541	-32.639	2.416
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(25)	-45.114	23.631	1.461
1	.400	(25)	-35.923	22.283	1.461
2	1.200	(25)	-19.404	18.850	1.461
3	1.600	(25)	-12.273	16.764	1.461
4	3.800	(25)	8.595	1.124	1.461
5	6.000	(25)	-7.330	-14.517	1.461
6	6.400	(25)	-13.562	-16.603	1.461
7	7.200	(25)	-28.283	-20.036	1.461
JTAN	7.600	(25)	-36.576	-21.384	1.461

AXIAL MINIMUM

	L	CASE	M	J	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(29)	-.000	.000	-.000
1	.150	(29)	-.021	-.281	-.000
2	.150	(29)	-.021	-13.695	-.000
3	1.400	(29)	-18.987	-16.958	-.000
4	1.800	(29)	-26.046	-18.331	-.000
5	2.000	(29)	-29.777	-18.965	-.000
6	2.000	(29)	-29.777	-18.965	-.000
7	2.600	(29)	-41.663	-20.585	-.000
JTAN	3.000	(29)	-50.072	-21.428	-.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(19)	-89.467	104.947	-2.777
1	.400	(19)	-51.724	96.668	-2.777
2	1.200	(19)	14.082	78.410	-2.777
3	1.600	(19)	41.692	68.431	-2.777
4	4.000	(19)	119.203	-2.347	-2.777
5	6.400	(19)	30.427	-73.125	-2.777
6	6.800	(19)	.940	-83.104	-2.777
7	7.600	(19)	-68.621	-101.362	-2.777
JTAN	8.000	(19)	-108.242	-109.641	-2.777
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(24)	-48.776	34.417	-2.080
1	.400	(24)	-35.237	33.193	-2.080
2	1.200	(24)	-10.122	29.267	-2.080
3	1.600	(24)	1.061	26.565	-2.080
4	4.000	(24)	36.710	.871	-2.080
5	6.400	(24)	5.242	-24.823	-2.080
6	6.800	(24)	-5.244	-27.525	-2.080
7	7.600	(24)	-28.966	-31.451	-2.080
JTAN	8.000	(24)	-41.808	-32.675	-2.080
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(19)	-95.761	95.025	-2.348
1	.400	(19)	-61.887	86.604	-2.348
2	1.200	(19)	-3.708	68.912	-2.348
3	1.600	(19)	20.371	59.641	-2.348
4	3.800	(19)	87.411	3.861	-2.348
5	6.000	(19)	37.359	-51.919	-2.348
6	6.400	(19)	16.359	-61.190	-2.348
7	7.200	(19)	-35.632	-78.882	-2.348
JTAN	7.600	(19)	-66.417	-87.303	-2.348

PICK UP 2

AXIAL MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(15)	-11.809	15.664	0.000
1	.400	(15)	-5.900	13.884	0.000
2	2.150	(15)	11.583	6.096	0.000
3	4.000	(15)	15.245	-2.136	0.000
4	5.850	(15)	3.678	-10.369	0.000
5	7.600	(15)	-21.281	-18.156	0.000
JTAN	8.000	(15)	-28.900	-19.936	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(15)	-23.290	17.435	0.000
1	.400	(15)	-16.672	15.655	0.000
2	2.150	(15)	3.910	7.867	0.000
3	4.000	(15)	10.849	-.365	0.000
4	5.850	(15)	2.559	-8.598	0.000
5	7.600	(15)	-19.301	-16.385	0.000
JTAN	8.000	(15)	-26.211	-18.165	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(15)	-26.021	19.352	0.000
1	.400	(15)	-18.637	17.572	0.000
2	2.150	(15)	5.299	9.784	0.000
3	3.800	(15)	15.386	2.442	0.000
4	5.450	(15)	13.357	-4.901	0.000
5	7.200	(15)	-2.034	-12.688	0.000
JTAN	7.600	(15)	-7.465	-14.468	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(28)	-32.640	5.848	-69.622
JTAN	9.587	(28)	23.430	5.848	-79.849
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(29)	40.550	-8.078	-79.606
JTAN	9.587	(29)	-36.891	-8.078	-89.832
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(28)	-42.099	8.367	-65.326
JTAN	9.587	(28)	38.113	8.367	-75.553
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(29)	33.949	-6.134	-71.797
JTAN	9.587	(29)	-24.854	-6.134	-82.024

AXIAL MINIMUM

	L	CASE	M	Q	N
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(15)	-11.809	15.664	0.000
1	.400	(15)	-5.900	13.884	0.000
2	2.150	(15)	11.583	6.096	0.000
3	4.000	(15)	15.245	-2.136	0.000
4	5.850	(15)	3.678	-10.369	0.000
5	7.600	(15)	-21.281	-18.156	0.000
JTAN	8.000	(15)	-28.900	-19.936	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(15)	-23.290	17.435	0.000
1	.400	(15)	-16.672	15.655	0.000
2	2.150	(15)	3.910	7.867	0.000
3	4.000	(15)	10.849	-.365	0.000
4	5.850	(15)	2.559	-8.598	0.000
5	7.600	(15)	-19.301	-16.385	0.000
JTAN	8.000	(15)	-26.211	-18.165	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(15)	-26.021	19.352	0.000
1	.400	(15)	-18.637	17.572	0.000
2	2.150	(15)	5.299	9.784	0.000
3	3.800	(15)	15.386	2.442	0.000
4	5.450	(15)	13.357	-4.901	0.000
5	7.200	(15)	-2.034	-12.688	0.000
JTAN	7.600	(15)	-7.465	-14.468	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(27)	15.162	-3.780	-206.867
JTAN	9.587	(27)	-21.075	-3.780	-220.206
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(17)	-1.645	.456	-243.695
JTAN	9.587	(17)	2.724	.456	-259.035
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(20)	-1.079	.005	-219.046
JTAN	9.587	(20)	-1.034	.005	-234.386
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(23)	-3.090	1.175	-258.402
JTAN	9.587	(23)	8.179	1.175	-273.741

PICK UP 3

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(30)	-.000	-29.640	.000
1	.150	(30)	-4.478	-30.061	.000
2	.150	(30)	-4.478	-50.182	.000
3	1.400	(31)	-69.975	-55.076	-.000
4	1.800	(31)	-92.419	-57.136	-.000
5	2.000	(31)	-103.943	-58.087	-.000
6	2.000	(31)	-103.943	-87.727	-.000
7	2.600	(31)	-157.339	-90.156	-.000
JTAN	3.000	(31)	-193.664	-91.421	-.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(30)	-171.598	112.414	-1.004
1	.400	(30)	-134.365	104.135	-1.004
2	1.200	(30)	-68.476	85.876	-1.004
3	1.600	(30)	-40.273	75.896	-1.004
4	4.000	(30)	48.526	5.117	-1.004
5	6.400	(31)	-2.394	-57.410	-.067
6	6.800	(31)	-23.202	-67.389	-.067
7	7.600	(31)	-74.301	-85.648	-.067
JTAN	8.000	(31)	-104.140	-93.927	-.067
MAX	4.000	(30)	48.526	5.117	-1.004
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(30)	-108.701	104.763	-.581
1	.400	(30)	-74.529	96.484	-.581
2	1.200	(30)	-14.760	78.225	-.581
3	1.600	(30)	10.382	68.245	-.581
4	4.000	(31)	81.067	2.623	-.566
5	6.400	(31)	10.843	-68.156	-.566
6	6.800	(31)	-14.263	-78.136	-.566
7	7.600	(31)	-73.950	-96.395	-.566
JTAN	8.000	(31)	-108.097	-104.674	-.566
MAX	4.000	(31)	81.067	2.623	-.566

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(31)	-.000	-29.640	-.000
1	.150	(31)	-4.478	-30.061	-.000
2	.150	(31)	-4.478	-50.182	-.000
3	1.400	(30)	-69.975	-55.076	.000
4	1.800	(30)	-92.419	-57.136	.000
5	2.000	(30)	-103.943	-58.087	.000
6	2.000	(30)	-103.943	-87.727	.000
7	2.600	(30)	-157.339	-90.156	.000
JTAN	3.000	(30)	-193.664	-91.421	.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(31)	-211.099	120.667	-.067
1	.400	(31)	-170.565	112.388	-.067
2	1.200	(31)	-98.073	94.129	-.067
3	1.600	(31)	-66.569	84.150	-.067
4	4.000	(31)	42.038	13.370	-.067
5	6.400	(30)	-15.713	-65.603	-1.004
6	6.800	(30)	-39.822	-75.642	-1.004
7	7.600	(30)	-97.525	-93.901	-1.004
JTAN	8.000	(30)	-130.664	-102.181	-1.004
MAX	4.444	(31)	45.265	-.630	-.067
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(31)	-129.083	109.921	-.566
1	.400	(31)	-92.848	101.641	-.566
2	1.200	(31)	-28.953	83.382	-.566
3	1.600	(31)	-1.748	73.403	-.566
4	4.000	(30)	80.819	-2.534	-.581
5	6.400	(30)	-1.782	-73.314	-.581
6	6.800	(30)	-28.952	-83.293	-.581
7	7.600	(30)	-92.775	-101.552	-.581
JTAN	8.000	(30)	-128.975	-109.832	-.581
MAX	4.000	(30)	80.819	-2.534	-.581

PICK UP 3

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(30)	-104.246	87.366	-.113
1	.400	(30)	-76.749	78.944	-.113
2	1.200	(30)	-30.220	61.251	-.113
3	1.600	(30)	-11.414	51.981	-.113
4	3.800	(31)	39.815	4.788	-1.037
5	6.000	(31)	-2.631	-50.994	-1.037
6	6.400	(31)	-21.042	-60.265	-1.037
7	7.200	(31)	-66.782	-77.957	-1.037
JTAN	7.600	(31)	-93.883	-86.379	-1.037
MAX	4.222	(31)	39.836	-6.379	-1.037
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(30)	9.338	11.501	0.000
1	.400	(30)	13.582	9.721	0.000
2	2.150	(30)	23.779	1.933	0.000
3	4.000	(30)	19.741	-5.299	0.000
4	5.950	(31)	10.404	-7.095	0.000
5	7.600	(31)	-8.826	-14.882	0.000
JTAN	8.000	(31)	-15.135	-16.662	0.000
MAX	2.667	(30)	24.184	-.366	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(30)	-17.931	15.821	0.000
1	.400	(30)	-11.959	14.041	0.000
2	2.150	(30)	5.799	6.254	0.000
3	4.000	(30)	9.753	-1.979	0.000
4	5.850	(31)	5.696	-5.716	0.000
5	7.600	(31)	-10.121	-13.504	0.000
JTAN	8.000	(31)	-15.879	-15.284	0.000
MAX	4.444	(31)	10.335	.538	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(30)	-12.972	15.550	0.000
1	.400	(30)	-7.108	13.770	0.000
2	2.150	(30)	10.176	5.983	0.000
3	3.800	(31)	17.821	6.565	0.000
4	5.450	(31)	22.596	-.777	0.000
5	7.200	(31)	14.422	-8.565	0.000
JTAN	7.600	(31)	10.640	-10.345	0.000
MAX	5.450	(31)	22.596	-.777	0.000

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(31)	-130.276	95.956	-1.037
1	.400	(31)	-99.343	87.534	-1.037
2	1.200	(31)	-45.942	69.842	-1.037
3	1.600	(31)	-23.700	60.571	-1.037
4	3.800	(30)	33.202	-3.802	-.113
5	6.000	(30)	-28.141	-59.584	-.113
6	6.400	(30)	-49.989	-68.855	-.113
7	7.200	(30)	-102.600	-86.547	-.113
JTAN	7.600	(30)	-133.138	-94.969	-.113
MAX	3.800	(30)	33.202	-3.802	-.113
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(31)	-24.235	18.938	0.000
1	.400	(31)	-17.016	17.158	0.000
2	2.150	(31)	6.195	9.370	0.000
3	4.000	(31)	15.915	1.138	0.000
4	5.850	(30)	.472	-14.532	0.000
5	7.600	(30)	-31.773	-22.319	0.000
JTAN	8.000	(30)	-41.057	-24.099	0.000
MAX	4.444	(31)	15.981	-.840	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(31)	-36.008	20.316	0.000
1	.400	(31)	-28.237	18.536	0.000
2	2.150	(31)	-2.613	10.749	0.000
3	4.000	(31)	9.657	2.516	0.000
4	5.850	(30)	-1.523	-10.211	0.000
5	7.600	(30)	-26.207	-17.999	0.000
JTAN	8.000	(30)	-33.763	-19.779	0.000
MAX	4.000	(31)	9.657	2.516	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(31)	-39.257	23.475	0.000
1	.400	(31)	-30.222	21.695	0.000
2	2.150	(31)	.930	13.908	0.000
3	3.800	(30)	13.989	-1.360	0.000
4	5.450	(30)	5.688	-8.702	0.000
5	7.200	(30)	-15.356	-16.490	0.000
JTAN	7.600	(30)	-23.308	-18.270	0.000
MAX	3.378	(30)	14.167	.519	0.000

PICK UP 13

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(31)	17.435	-4.347	-237.887
JTAN	9.587	(30)	9.338	3.276	-244.973
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(31)	24.943	-4.779	-219.696
JTAN	9.587	(30)	23.126	4.703	-238.131
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(31)	22.178	-4.752	-209.520
JTAN	9.587	(30)	20.791	4.748	-221.426
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(31)	20.447	-3.243	-241.770
JTAN	9.587	(30)	23.308	4.393	-265.699

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(30)	-22.066	3.276	-229.634
JTAN	9.587	(31)	-24.235	-4.347	-253.226
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(30)	-21.963	4.703	-222.792
JTAN	9.587	(31)	-20.873	-4.779	-235.035
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(30)	-24.729	4.748	-206.087
JTAN	9.587	(31)	-23.378	-4.752	-224.859
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(30)	-18.808	4.393	-250.360
JTAN	9.587	(31)	-10.640	-3.243	-257.109

PICK UP 3

SHEAR MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(31)	-.000	-29.640	-.000
1	.150	(31)	-4.478	-30.061	-.000
2	.150	(31)	-4.478	-50.182	-.000
3	1.400	(31)	-69.975	-55.076	-.000
4	1.800	(31)	-92.419	-57.136	-.000
5	2.000	(31)	-103.943	-58.087	-.000
6	2.000	(31)	-103.943	-87.727	-.000
7	2.600	(31)	-157.339	-90.156	-.000
JTAN	3.000	(31)	-193.664	-91.421	-.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(31)	-211.099	120.667	-.067
1	.400	(31)	-170.565	112.388	-.067
2	1.200	(31)	-98.073	94.129	-.067
3	1.600	(31)	-66.569	84.150	-.067
4	4.000	(31)	42.038	13.370	-.067
5	6.400	(31)	-2.394	-57.410	-.067
6	6.800	(31)	-23.202	-67.389	-.067
7	7.600	(31)	-74.301	-85.648	-.067
JTAN	8.000	(31)	-104.140	-93.927	-.067
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(31)	-129.083	109.921	-.566
1	.400	(31)	-92.848	101.641	-.566
2	1.200	(31)	-28.953	83.382	-.566
3	1.600	(31)	-1.748	73.403	-.566
4	4.000	(31)	91.067	2.623	-.566
5	6.400	(31)	10.843	-68.156	-.566
6	6.800	(31)	-14.263	-78.136	-.566
7	7.600	(31)	-73.960	-96.395	-.566
JTAN	8.000	(31)	-108.097	-104.674	-.566
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(31)	-130.276	95.956	-1.037
1	.400	(31)	-99.343	87.534	-1.037
2	1.200	(31)	-45.942	69.842	-1.037
3	1.600	(31)	-23.700	60.571	-1.037
4	3.300	(31)	39.815	4.788	-1.037
5	6.000	(31)	-2.631	-50.994	-1.037
6	6.400	(31)	-21.042	-60.265	-1.037
7	7.200	(31)	-66.782	-77.957	-1.037
JTAN	7.600	(31)	-93.883	-86.379	-1.037

SHEAR MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(30)	-.000	-29.640	.000
1	.150	(30)	-4.478	-30.061	.000
2	.150	(30)	-4.478	-50.182	.000
3	1.400	(30)	-69.975	-55.076	.000
4	1.800	(30)	-92.419	-57.136	.000
5	2.000	(30)	-103.943	-58.087	.000
6	2.000	(30)	-103.943	-87.727	.000
7	2.600	(30)	-157.339	-90.156	.000
JTAN	3.000	(30)	-193.664	-91.421	.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(30)	-171.598	112.414	-1.004
1	.400	(30)	-134.365	104.135	-1.004
2	1.200	(30)	-68.476	85.876	-1.004
3	1.600	(30)	-40.273	75.896	-1.004
4	4.000	(30)	48.526	5.117	-1.004
5	6.400	(30)	-15.713	-65.663	-1.004
6	6.800	(30)	-39.822	-75.642	-1.004
7	7.600	(30)	-97.525	-93.901	-1.004
JTAN	8.000	(30)	-130.664	-102.181	-1.004
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(30)	-108.701	104.763	-.581
1	.400	(30)	-74.529	96.484	-.581
2	1.200	(30)	-14.760	78.225	-.581
3	1.600	(30)	10.382	68.245	-.581
4	4.000	(30)	80.819	-2.534	-.581
5	6.400	(30)	-1.782	-73.314	-.581
6	6.800	(30)	-28.952	-83.293	-.581
7	7.600	(30)	-92.775	-101.552	-.581
JTAN	8.000	(30)	-128.975	-109.832	-.581
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(30)	-104.246	87.366	-.113
1	.400	(30)	-76.749	78.944	-.113
2	1.200	(30)	-30.220	61.251	-.113
3	1.600	(30)	-11.414	51.981	-.113
4	3.800	(30)	33.202	-3.802	-.113
5	6.000	(30)	-28.141	-59.584	-.113
6	6.400	(30)	-49.989	-68.855	-.113
7	7.200	(30)	-102.600	-86.547	-.113
JTAN	7.600	(30)	-133.138	-94.969	-.113

PICK UP 3

SHEAR MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(31)	-24.235	18.938	0.000
1	.400	(31)	-17.016	17.158	0.000
2	2.150	(31)	6.195	9.370	0.000
3	4.000	(31)	15.915	1.138	0.000
4	5.850	(31)	10.404	-7.095	0.000
5	7.600	(31)	-8.826	-14.882	0.000
JTAN	8.000	(31)	-15.135	-16.662	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(31)	-36.008	20.316	0.000
1	.400	(31)	-28.237	18.536	0.000
2	2.150	(31)	-2.613	10.749	0.000
3	4.000	(31)	9.657	2.516	0.000
4	5.850	(31)	6.696	-5.716	0.000
5	7.600	(31)	-10.121	-13.504	0.000
JTAN	8.000	(31)	-15.879	-15.284	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(31)	-39.257	23.475	0.000
1	.400	(31)	-30.222	21.695	0.000
2	2.150	(31)	.930	13.908	0.000
3	3.800	(31)	17.821	6.565	0.000
4	5.450	(31)	22.596	-.777	0.000
5	7.200	(31)	14.422	-8.565	0.000
JTAN	7.600	(31)	10.640	-10.345	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(30)	-22.066	3.275	-229.634
JTAN	9.587	(30)	9.338	3.276	-244.973
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(30)	-21.953	4.703	-222.792
JTAN	9.587	(30)	23.126	4.703	-238.131
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(30)	-24.729	4.748	-206.087
JTAN	9.587	(30)	20.791	4.748	-221.426
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(30)	-18.808	4.393	-250.360
JTAN	9.587	(30)	23.308	4.393	-265.699

SHEAR MINIMUM

	L	CASE	M	Q	N
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(30)	9.338	11.501	0.000
1	.400	(30)	13.582	9.721	0.000
2	2.150	(30)	23.779	1.933	0.000
3	4.000	(30)	19.741	-6.299	0.000
4	5.850	(30)	.472	-14.532	0.000
5	7.600	(30)	-31.773	-22.319	0.000
JTAN	8.000	(30)	-41.057	-24.099	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(30)	-17.931	15.821	0.000
1	.400	(30)	-11.959	14.041	0.000
2	2.150	(30)	5.799	6.254	0.000
3	4.000	(30)	9.753	-1.979	0.000
4	5.850	(30)	-1.523	-10.211	0.000
5	7.600	(30)	-26.207	-17.999	0.000
JTAN	8.000	(30)	-33.763	-19.779	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(30)	-12.972	15.550	0.000
1	.400	(30)	-7.108	13.770	0.000
2	2.150	(30)	10.176	5.983	0.000
3	3.800	(30)	13.989	-1.360	0.000
4	5.450	(30)	5.688	-8.702	0.000
5	7.200	(30)	-16.356	-16.490	0.000
JTAN	7.600	(30)	-23.308	-18.270	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(31)	17.435	-4.347	-237.887
JTAN	9.587	(31)	-24.235	-4.347	-253.226
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(31)	24.943	-4.779	-219.696
JTAN	9.587	(31)	-20.873	-4.779	-235.035
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(31)	22.178	-4.752	-209.520
JTAN	9.587	(31)	-23.378	-4.752	-224.859
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(31)	20.447	-3.243	-241.770
JTAN	9.587	(31)	-10.640	-3.243	-257.109

PICK UP 3

AXIAL MAXIMUM

L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =				
ITAN 0.000	(30)	-.000	-29.640	.000
1 .150	(30)	-4.478	-30.061	.000
2 .150	(30)	-4.478	-50.182	.000
3 1.400	(30)	-69.975	-55.076	.000
4 1.800	(30)	-92.419	-57.136	.000
5 2.000	(30)	-103.943	-58.087	.000
6 2.000	(30)	-103.943	-87.727	.000
7 2.600	(30)	-157.339	-90.156	.000
JTAN 3.000	(30)	-193.664	-91.421	.000
= = MEMBER 2 (2 - 3) G = =				
ITAN 0.000	(31)	-211.099	120.667	-.067
1 .400	(31)	-170.565	112.388	-.067
2 1.200	(31)	-98.073	94.129	-.067
3 1.600	(31)	-66.569	84.150	-.067
4 4.000	(31)	42.038	13.370	-.067
5 6.400	(31)	-2.394	-57.410	-.067
6 6.900	(31)	-23.202	-67.389	-.067
7 7.600	(31)	-74.301	-85.648	-.067
JTAN 8.000	(31)	-104.140	-93.927	-.067
= = MEMBER 3 (3 - 4) G = =				
ITAN 0.000	(31)	-129.083	109.921	-.566
1 .400	(31)	-92.848	101.641	-.566
2 1.200	(31)	-28.953	83.382	-.566
3 1.600	(31)	-1.748	73.403	-.566
4 4.000	(31)	81.067	2.623	-.566
5 6.400	(31)	10.843	-68.156	-.566
6 6.800	(31)	-14.263	-78.136	-.566
7 7.600	(31)	-73.960	-96.395	-.566
JTAN 8.000	(31)	-108.097	-104.674	-.566
= = MEMBER 4 (4 - 5) G = =				
ITAN 0.000	(30)	-104.246	87.366	-.113
1 .400	(30)	-76.749	78.344	-.113
2 1.200	(30)	-30.220	61.251	-.113
3 1.600	(30)	-11.414	51.981	-.113
4 3.800	(30)	33.202	-3.802	-.113
5 6.000	(30)	-28.141	-59.584	-.113
6 6.400	(30)	-49.989	-68.855	-.113
7 7.200	(30)	-102.600	-86.547	-.113
JTAN 7.600	(30)	-133.138	-94.969	-.113

AXIAL MINIMUM

L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =				
ITAN 0.000	(31)	-.000	-29.640	-.000
1 .150	(31)	-4.478	-30.061	-.000
2 .150	(31)	-4.478	-50.182	-.000
3 1.400	(31)	-69.975	-55.076	-.000
4 1.800	(31)	-92.419	-57.136	-.000
5 2.000	(31)	-103.943	-58.087	-.000
6 2.000	(31)	-103.943	-87.727	-.000
7 2.600	(31)	-157.339	-90.156	-.000
JTAN 3.000	(31)	-193.664	-91.421	-.000
= = MEMBER 2 (2 - 3) G = =				
ITAN 0.000	(30)	-171.598	112.414	-1.004
1 .400	(30)	-134.365	104.135	-1.004
2 1.200	(30)	-68.476	85.876	-1.004
3 1.600	(30)	-40.273	75.896	-1.004
4 4.000	(30)	48.526	5.117	-1.004
5 6.400	(30)	-15.713	-65.663	-1.004
6 6.800	(30)	-39.822	-75.642	-1.004
7 7.600	(30)	-97.525	-93.901	-1.004
JTAN 8.000	(30)	-130.664	-102.181	-1.004
= = MEMBER 3 (3 - 4) G = =				
ITAN 0.000	(30)	-108.701	104.763	-.581
1 .400	(30)	-74.529	96.484	-.581
2 1.200	(30)	-14.760	78.225	-.581
3 1.600	(30)	10.382	68.245	-.581
4 4.000	(30)	80.819	-2.534	-.581
5 6.400	(30)	-1.782	-73.314	-.581
6 6.800	(30)	-28.952	-83.293	-.581
7 7.600	(30)	-92.775	-101.552	-.581
JTAN 8.000	(30)	-128.975	-109.832	-.581
= = MEMBER 4 (4 - 5) G = =				
ITAN 0.000	(31)	-130.276	95.956	-1.037
1 .400	(31)	-99.343	87.534	-1.037
2 1.200	(31)	-45.942	69.842	-1.037
3 1.600	(31)	-23.700	60.571	-1.037
4 3.800	(31)	39.815	4.788	-1.037
5 6.000	(31)	-2.631	-50.994	-1.037
6 6.400	(31)	-21.042	-60.265	-1.037
7 7.200	(31)	-66.732	-77.957	-1.037
JTAN 7.600	(31)	-93.883	-86.379	-1.037

PICK UP 3

AXIAL MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(30)	9.338	11.501	0.000
1	.400	(30)	13.582	9.721	0.000
2	2.150	(30)	23.779	1.933	0.000
3	4.000	(30)	19.741	-6.299	0.000
4	5.850	(30)	.472	-14.532	0.000
5	7.600	(30)	-31.773	-22.319	0.000
JTAN	8.000	(30)	-41.057	-24.099	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(30)	-17.931	15.821	0.000
1	.400	(30)	-11.959	14.041	0.000
2	2.150	(30)	5.799	6.254	0.000
3	4.000	(30)	9.753	-1.979	0.000
4	5.850	(30)	-1.523	-10.211	0.000
5	7.600	(30)	-26.207	-17.999	0.000
JTAN	8.000	(30)	-33.763	-19.779	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(30)	-12.972	15.550	0.000
1	.400	(30)	-7.108	13.770	0.000
2	2.150	(30)	10.176	5.983	0.000
3	3.800	(30)	13.989	-1.360	0.000
4	5.450	(30)	5.688	-8.702	0.000
5	7.200	(30)	-16.356	-16.490	0.000
JTAN	7.600	(30)	-23.308	-18.270	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(30)	-22.066	3.276	-229.634
JTAN	9.587	(30)	9.338	3.276	-244.973
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(31)	24.943	-4.779	-219.696
JTAN	9.587	(31)	-20.873	-4.779	-235.035
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(30)	-24.729	4.748	-206.087
JTAN	9.587	(30)	20.791	4.748	-221.426
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(31)	20.447	-3.243	-241.770
JTAN	9.587	(31)	-10.640	-3.243	-257.109

AXIAL MINIMUM

	L	CASE	M	Q	N
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(30)	9.338	11.501	0.000
1	.400	(30)	13.582	9.721	0.000
2	2.150	(30)	23.779	1.933	0.000
3	4.000	(30)	19.741	-6.299	0.000
4	5.850	(30)	.472	-14.532	0.000
5	7.600	(30)	-31.773	-22.319	0.000
JTAN	8.000	(30)	-41.057	-24.099	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(30)	-17.931	15.821	0.000
1	.400	(30)	-11.959	14.041	0.000
2	2.150	(30)	5.799	6.254	0.000
3	4.000	(30)	9.753	-1.979	0.000
4	5.850	(30)	-1.523	-10.211	0.000
5	7.600	(30)	-26.207	-17.999	0.000
JTAN	8.000	(30)	-33.763	-19.779	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(30)	-12.972	15.550	0.000
1	.400	(30)	-7.108	13.770	0.000
2	2.150	(30)	10.176	5.983	0.000
3	3.800	(30)	13.989	-1.360	0.000
4	5.450	(30)	5.688	-8.702	0.000
5	7.200	(30)	-16.356	-16.490	0.000
JTAN	7.600	(30)	-23.308	-18.270	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(31)	17.435	-4.347	-237.887
JTAN	9.587	(31)	-24.235	-4.347	-253.226
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(30)	-21.963	4.703	-222.792
JTAN	9.587	(30)	23.126	4.703	-238.131
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(31)	22.178	-4.752	-209.520
JTAN	9.587	(31)	-23.378	-4.752	-224.859
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(30)	-18.808	4.393	-250.360
JTAN	9.587	(30)	23.308	4.393	-265.699

PICK UP 4

MOMENT MAXIMUM

	L	CASE	M	Q	N
== MEMBER 1 (1 - 2) G ==					
ITAN	0.000	(33)	-.000	.000	.000
1	.150	(33)	-.032	-.421	.000
2	.150	(33)	-.032	-20.542	.000
3	1.400	(32)	-28.479	-25.436	-.000
4	1.800	(32)	-39.067	-27.496	-.000
5	2.000	(32)	-44.663	-28.447	-.000
6	2.000	(32)	-44.663	-28.447	-.000
7	2.600	(32)	-62.491	-30.876	-.000
JTAN	3.000	(32)	-75.104	-32.141	-.000
== MEMBER 2 (2 - 3) G ==					
ITAN	0.000	(33)	-64.635	38.963	1.311
1	.400	(33)	-49.353	37.456	1.311
2	1.200	(33)	-21.043	32.941	1.311
3	1.600	(33)	-5.469	29.834	1.311
4	4.000	(33)	30.810	.287	1.311
5	6.400	(32)	-4.263	-25.952	-2.181
6	6.800	(32)	-15.284	-29.059	-2.181
7	7.600	(32)	-40.488	-33.574	-2.181
JTAN	8.000	(32)	-54.218	-34.981	-2.181
MAX	4.000	(33)	30.810	.287	1.311
== MEMBER 3 (3 - 4) G ==					
ITAN	0.000	(32)	-56.090	39.578	-2.392
1	.400	(32)	-40.521	38.171	-2.392
2	1.200	(33)	-11.617	33.698	2.778
3	1.600	(33)	1.259	30.590	2.778
4	4.000	(33)	42.353	1.043	2.778
5	6.400	(33)	6.267	-28.504	2.778
6	6.800	(33)	-5.774	-31.611	2.778
7	7.600	(33)	-33.020	-36.126	2.778
JTAN	8.000	(33)	-47.771	-37.533	2.778
MAX	4.000	(33)	42.353	1.043	2.778

MOMENT MINIMUM

	L	CASE	M	Q	N
== MEMBER 1 (1 - 2) G ==					
ITAN	0.000	(32)	-.000	.000	-.000
1	.150	(32)	-.032	-.421	-.000
2	.150	(32)	-.032	-20.542	-.000
3	1.400	(33)	-28.479	-25.436	.000
4	1.800	(33)	-39.067	-27.496	.000
5	2.000	(33)	-44.663	-28.447	.000
6	2.000	(33)	-44.663	-28.447	.000
7	2.600	(33)	-62.491	-30.876	.000
JTAN	3.000	(33)	-75.104	-32.141	.000
== MEMBER 2 (2 - 3) G ==					
ITAN	0.000	(32)	-82.980	42.172	-2.181
1	.400	(32)	-66.374	40.764	-2.181
2	1.200	(32)	-35.418	36.250	-2.181
3	1.600	(32)	-21.521	33.142	-2.181
4	4.000	(32)	25.698	3.595	-2.181
5	6.400	(33)	-7.092	-29.260	1.311
6	6.800	(33)	-19.436	-32.367	1.311
7	7.600	(33)	-47.287	-36.882	1.311
JTAN	8.000	(33)	-62.340	-38.289	1.311
MAX	4.444	(32)	25.882	-2.769	-2.181
== MEMBER 3 (3 - 4) G ==					
ITAN	0.000	(33)	-56.118	39.620	2.778
1	.400	(33)	-40.532	38.212	2.778
2	1.200	(32)	-11.640	33.656	-2.392
3	1.600	(32)	1.220	30.549	-2.392
4	4.000	(32)	42.214	1.002	-2.392
5	6.400	(32)	6.029	-28.545	-2.392
6	6.800	(32)	-6.030	-31.653	-2.392
7	7.600	(32)	-33.309	-36.167	-2.392
JTAN	8.000	(32)	-48.077	-37.575	-2.392
MAX	4.000	(32)	42.214	1.002	-2.392

PICK UP 4

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(32)	-43.801	23.759	-1.754
1	.400	(32)	-34.598	22.209	-1.754
2	1.200	(32)	-18.334	18.261	-1.754
3	1.600	(32)	-11.500	15.862	-1.754
4	3.900	(33)	9.837	1.292	1.680
5	6.000	(33)	-8.429	-16.694	1.680
6	6.400	(33)	-15.596	-19.092	1.680
7	7.200	(33)	-32.525	-23.041	1.680
JTAN	7.600	(33)	-42.060	-24.590	1.680
MAX	3.900	(33)	9.837	1.292	1.680
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(33)	2.102	13.314	0.000
1	.400	(33)	7.071	11.534	0.000
2	2.150	(33)	20.441	3.746	0.000
3	4.000	(33)	19.757	-4.486	0.000
4	5.950	(32)	5.522	-9.845	0.000
5	7.600	(32)	-18.521	-17.633	0.000
JTAN	8.000	(32)	-25.930	-19.413	0.000
MAX	2.667	(33)	21.783	1.447	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(33)	-25.949	17.915	0.000
1	.400	(33)	-19.139	16.135	0.000
2	2.150	(33)	2.294	8.348	0.000
3	4.000	(33)	10.112	.115	0.000
4	5.850	(33)	2.710	-8.117	0.000
5	7.600	(33)	-18.309	-15.905	0.000
JTAN	8.000	(33)	-25.027	-17.685	0.000
MAX	4.000	(33)	10.112	.115	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(32)	-23.513	18.509	0.000
1	.400	(32)	-16.465	16.729	0.000
2	2.150	(32)	5.997	8.942	0.000
3	3.800	(33)	18.250	4.622	0.000
4	5.450	(33)	19.820	-2.720	0.000
5	7.200	(33)	8.245	-10.508	0.000
JTAN	7.600	(33)	3.686	-12.288	0.000
MAX	5.067	(33)	20.535	-1.314	0.000

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(33)	-51.879	27.174	1.680
1	.400	(33)	-41.310	25.625	1.680
2	1.200	(33)	-22.314	21.676	1.680
3	1.600	(33)	-14.114	19.278	1.680
4	3.800	(32)	4.938	-2.123	-1.754
5	6.000	(32)	-20.842	-20.109	-1.754
6	6.400	(32)	-29.375	-22.508	-1.754
7	7.200	(32)	-49.035	-26.456	-1.754
JTAN	7.600	(32)	-59.937	-28.005	-1.754
MAX	3.378	(32)	5.008	1.791	-1.754
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(32)	-13.030	16.187	0.000
1	.400	(32)	-6.911	14.407	0.000
2	2.150	(32)	11.488	6.620	0.000
3	4.000	(32)	16.120	-1.613	0.000
4	5.850	(33)	3.842	-12.719	0.000
5	7.600	(33)	-25.230	-20.506	0.000
JTAN	8.000	(33)	-33.788	-22.286	0.000
MAX	3.556	(32)	16.397	.365	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(32)	-25.080	17.891	0.000
1	.400	(32)	-19.280	16.111	0.000
2	2.150	(32)	2.101	8.324	0.000
3	4.000	(32)	9.885	.091	0.000
4	5.850	(32)	2.439	-8.141	0.000
5	7.600	(32)	-18.622	-15.929	0.000
JTAN	8.000	(32)	-25.350	-17.709	0.000
MAX	4.000	(32)	9.885	.091	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(33)	-31.444	21.532	0.000
1	.400	(33)	-23.187	19.752	0.000
2	2.150	(33)	4.565	11.965	0.000
3	3.800	(32)	14.693	1.599	0.000
4	5.450	(32)	11.275	-5.743	0.000
5	7.200	(32)	-5.590	-13.531	0.000
JTAN	7.600	(32)	-11.358	-15.311	0.000
MAX	4.222	(32)	14.972	-.280	0.000

PICK UP 4

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(32)	7.876	-2.181	-116.153
JTAN	9.587	(33)	2.102	1.311	-128.183
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(32)	1.872	-.211	-122.489
JTAN	9.587	(33)	7.839	1.467	-141.178
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(33)	4.109	-1.098	-104.877
JTAN	9.587	(32)	1.837	.638	-116.843
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(33)	12.420	-1.680	-116.470
JTAN	9.587	(32)	11.358	1.754	-135.225

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(33)	-10.469	1.311	-112.844
JTAN	9.587	(32)	-13.030	-2.181	-131.492
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(33)	-6.223	1.467	-125.839
JTAN	9.587	(32)	-.151	-.211	-137.828
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(32)	-4.276	.638	-101.504
JTAN	9.587	(33)	-6.418	-1.098	-120.216
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(32)	-5.457	1.754	-119.885
JTAN	9.587	(33)	-3.686	-1.680	-131.809

PICK UP 4

SHEAR MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(32)	-.000	.000	-.000
1	.150	(32)	-.032	-.421	-.000
2	.150	(32)	-.032	-20.542	-.000
3	1.400	(32)	-28.479	-25.436	-.000
4	1.800	(32)	-39.067	-27.496	-.000
5	2.000	(32)	-44.663	-28.447	-.000
6	2.000	(32)	-44.663	-28.447	-.000
7	2.600	(32)	-62.491	-30.876	-.000
JTAN	3.000	(32)	-75.104	-32.141	-.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(32)	-82.980	42.172	-2.181
1	.400	(32)	-66.374	40.764	-2.181
2	1.200	(32)	-35.418	36.250	-2.181
3	1.600	(32)	-21.521	33.142	-2.181
4	4.000	(32)	25.698	3.595	-2.181
5	6.400	(32)	-4.263	-25.952	-2.181
6	6.800	(32)	-15.284	-29.059	-2.181
7	7.600	(32)	-40.488	-33.574	-2.181
JTAN	8.000	(32)	-54.218	-34.981	-2.181
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(33)	-56.118	39.620	2.778
1	.400	(33)	-40.532	38.212	2.778
2	1.200	(33)	-11.617	33.698	2.778
3	1.600	(33)	1.259	30.590	2.778
4	4.000	(33)	42.353	1.043	2.778
5	6.400	(33)	6.257	-28.504	2.778
6	6.800	(33)	-5.774	-31.611	2.778
7	7.600	(33)	-33.020	-36.126	2.778
JTAN	8.000	(33)	-47.771	-37.533	2.778
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(33)	-51.879	27.174	1.680
1	.400	(33)	-41.310	25.625	1.680
2	1.200	(33)	-22.314	21.676	1.680
3	1.600	(33)	-14.114	19.278	1.680
4	3.800	(33)	9.337	1.292	1.680
5	6.000	(33)	-8.429	-16.694	1.680
6	6.400	(33)	-15.596	-19.392	1.680
7	7.200	(33)	-32.525	-23.041	1.680
JTAN	7.600	(33)	-42.060	-24.590	1.680

SHEAR MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(33)	-.000	.000	.000
1	.150	(33)	-.032	-.421	.000
2	.150	(33)	-.032	-20.542	.000
3	1.400	(33)	-28.479	-25.436	.000
4	1.800	(33)	-39.067	-27.496	.000
5	2.000	(33)	-44.663	-28.447	.000
6	2.000	(33)	-44.663	-28.447	.000
7	2.600	(33)	-62.491	-30.876	.000
JTAN	3.000	(33)	-75.104	-32.141	.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(33)	-64.635	38.863	1.311
1	.400	(33)	-49.353	37.456	1.311
2	1.200	(33)	-21.043	32.941	1.311
3	1.600	(33)	-8.469	29.834	1.311
4	4.000	(33)	30.810	.287	1.311
5	6.400	(33)	-7.092	-29.260	1.311
6	6.800	(33)	-19.436	-32.367	1.311
7	7.600	(33)	-47.287	-36.882	1.311
JTAN	8.000	(33)	-62.340	-38.289	1.311
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(32)	-56.090	39.578	-2.392
1	.400	(32)	-40.521	38.171	-2.392
2	1.200	(32)	-11.640	33.656	-2.392
3	1.600	(32)	1.220	30.549	-2.392
4	4.000	(32)	42.214	1.002	-2.392
5	6.400	(32)	6.028	-28.545	-2.392
6	6.800	(32)	-6.030	-31.653	-2.392
7	7.600	(32)	-33.309	-36.167	-2.392
JTAN	8.000	(32)	-48.077	-37.575	-2.392
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(32)	-43.801	23.759	-1.754
1	.400	(32)	-34.598	22.209	-1.754
2	1.200	(32)	-18.334	18.261	-1.754
3	1.600	(32)	-11.500	15.862	-1.754
4	3.800	(32)	4.938	-2.123	-1.754
5	6.000	(32)	-20.842	-20.109	-1.754
6	6.400	(32)	-29.375	-22.508	-1.754
7	7.200	(32)	-49.035	-26.456	-1.754
JTAN	7.600	(32)	-59.937	-28.035	-1.754

PICK UP 4

SHEAR MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(32)	-13.030	16.187	0.000
1	.400	(32)	-6.911	14.407	0.000
2	2.150	(32)	11.488	6.620	0.000
3	4.000	(32)	16.120	-1.613	0.000
4	5.350	(32)	5.522	-9.345	0.000
5	7.500	(32)	-18.521	-17.633	0.000
JTAN	8.000	(32)	-25.930	-19.413	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(33)	-25.949	17.915	0.000
1	.400	(33)	-19.139	16.135	0.000
2	2.150	(33)	2.284	8.348	0.000
3	4.300	(33)	10.112	.115	0.000
4	5.350	(33)	2.710	-8.117	0.000
5	7.600	(33)	-18.309	-19.905	0.000
JTAN	8.000	(33)	-25.027	-17.685	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(33)	-31.444	21.532	0.000
1	.400	(33)	-23.187	19.752	0.000
2	2.150	(33)	4.565	11.965	0.000
3	3.800	(33)	18.250	4.622	0.000
4	5.450	(33)	19.820	-2.720	0.000
5	7.200	(33)	8.245	-10.508	0.000
JTAN	7.600	(33)	3.686	-12.288	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(33)	-10.469	1.311	-112.844
JTAN	9.587	(33)	2.102	1.311	-128.183
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(33)	-6.223	1.467	-125.939
JTAN	9.587	(33)	7.839	1.467	-141.178
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(32)	-4.276	.638	-101.504
JTAN	9.587	(32)	1.837	.638	-116.843
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(32)	-5.457	1.754	-119.885
JTAN	9.587	(32)	11.358	1.754	-135.225

SHEAR MINIMUM

	L	CASE	M	Q	N
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(33)	2.102	13.314	0.000
1	.400	(33)	7.071	11.534	0.000
2	2.150	(33)	20.441	3.746	0.000
3	4.000	(33)	19.757	-4.486	0.000
4	5.850	(33)	3.842	-12.719	0.000
5	7.600	(33)	-25.230	-20.506	0.000
JTAN	8.000	(33)	-33.788	-22.286	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(32)	-26.080	17.891	0.000
1	.400	(32)	-19.280	16.111	0.000
2	2.150	(32)	2.101	8.324	0.000
3	4.000	(32)	9.885	.091	0.000
4	5.850	(32)	2.439	-8.141	0.000
5	7.600	(32)	-18.622	-15.929	0.000
JTAN	8.000	(32)	-25.350	-17.709	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(32)	-23.513	18.509	0.000
1	.400	(32)	-16.465	16.729	0.000
2	2.150	(32)	5.997	8.942	0.000
3	3.800	(32)	14.693	1.599	0.000
4	5.450	(32)	11.275	-5.743	0.000
5	7.200	(32)	-5.590	-13.531	0.000
JTAN	7.600	(32)	-11.358	-15.311	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(32)	7.876	-2.181	-116.153
JTAN	9.587	(32)	-13.030	-2.181	-131.492
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(32)	1.872	-.211	-122.489
JTAN	9.587	(32)	-.151	-.211	-137.628
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(33)	4.109	-1.098	-104.877
JTAN	9.587	(33)	-6.418	-1.098	-120.216
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(33)	12.420	-1.680	-116.470
JTAN	9.587	(33)	-3.586	-1.680	-131.809

PICK UP 4

AXIAL MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(33)	-.000	.000	.000
1	.150	(33)	-.032	-.421	.000
2	.150	(33)	-.032	-20.542	.000
3	1.400	(33)	-28.479	-25.436	.000
4	1.800	(33)	-39.067	-27.496	.000
5	2.000	(33)	-44.663	-28.447	.000
6	2.000	(33)	-44.663	-28.447	.000
7	2.600	(33)	-62.491	-30.876	.000
JTAN	3.000	(33)	-75.104	-32.141	.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(33)	-64.635	38.863	1.311
1	.400	(33)	-49.353	37.456	1.311
2	1.200	(33)	-21.043	32.941	1.311
3	1.600	(33)	-8.469	29.834	1.311
4	4.000	(33)	30.810	.287	1.311
5	6.400	(33)	-7.092	-29.260	1.311
6	6.900	(33)	-19.436	-32.367	1.311
7	7.600	(33)	-47.287	-36.882	1.311
JTAN	8.000	(33)	-62.340	-38.289	1.311
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(33)	-56.118	39.620	2.778
1	.400	(33)	-40.532	38.212	2.778
2	1.200	(33)	-11.617	33.698	2.778
3	1.600	(33)	1.259	30.590	2.778
4	4.000	(33)	42.353	1.043	2.778
5	6.400	(33)	6.267	-28.504	2.778
6	6.900	(33)	-5.774	-31.611	2.778
7	7.600	(33)	-33.020	-36.126	2.778
JTAN	8.000	(33)	-47.771	-37.533	2.778
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(33)	-51.879	27.174	1.680
1	.400	(33)	-41.310	25.625	1.680
2	1.200	(33)	-22.314	21.676	1.680
3	1.600	(33)	-14.114	19.278	1.680
4	3.900	(33)	9.837	1.292	1.680
5	6.000	(33)	-8.429	-16.694	1.680
6	6.400	(33)	-15.596	-19.092	1.680
7	7.200	(33)	-32.525	-23.041	1.680
JTAN	7.600	(33)	-42.060	-24.590	1.680

AXIAL MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(32)	-.000	.000	-.000
1	.150	(32)	-.032	-.421	-.000
2	.150	(32)	-.032	-20.542	-.000
3	1.400	(32)	-28.479	-25.436	-.000
4	1.800	(32)	-39.067	-27.496	-.000
5	2.000	(32)	-44.663	-28.447	-.000
6	2.000	(32)	-44.663	-28.447	-.000
7	2.600	(32)	-62.491	-30.876	-.000
JTAN	3.000	(32)	-75.104	-32.141	-.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(32)	-82.980	42.172	-2.181
1	.400	(32)	-66.374	40.764	-2.181
2	1.200	(32)	-35.418	36.250	-2.181
3	1.600	(32)	-21.521	33.142	-2.181
4	4.000	(32)	25.698	3.595	-2.181
5	6.400	(32)	-4.253	-25.952	-2.181
6	6.800	(32)	-15.284	-29.059	-2.181
7	7.600	(32)	-40.488	-33.574	-2.181
JTAN	8.000	(32)	-54.218	-34.981	-2.181
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(32)	-56.090	39.578	-2.392
1	.400	(32)	-40.521	38.171	-2.392
2	1.200	(32)	-11.640	33.656	-2.392
3	1.600	(32)	1.220	30.549	-2.392
4	4.000	(32)	42.214	1.302	-2.392
5	6.400	(32)	6.028	-28.945	-2.392
6	6.800	(32)	-6.030	-31.653	-2.392
7	7.600	(32)	-33.309	-36.167	-2.392
JTAN	8.000	(32)	-48.077	-37.575	-2.392
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(32)	-43.801	23.759	-1.754
1	.400	(32)	-34.598	22.209	-1.754
2	1.200	(32)	-18.334	18.251	-1.754
3	1.600	(32)	-11.500	15.862	-1.754
4	3.800	(32)	4.938	-2.123	-1.754
5	6.000	(32)	-20.842	-20.109	-1.754
6	6.400	(32)	-29.375	-22.508	-1.754
7	7.200	(32)	-49.035	-26.456	-1.754
JTAN	7.600	(32)	-59.937	-28.005	-1.754

PICK UP 4

AXIAL MAXIMUM

	-----L---	-CASE-	-----M---	-----Q---	-----N---
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(32)	-13.030	16.187	0.000
1	.400	(32)	-6.911	14.407	0.000
2	2.150	(32)	11.488	6.620	0.000
3	4.000	(32)	16.120	-1.613	0.000
4	5.850	(32)	5.522	-9.845	0.000
5	7.600	(32)	-18.521	-17.633	0.000
JTAN	8.000	(32)	-25.930	-19.413	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(32)	-26.080	17.891	0.000
1	.400	(32)	-19.280	16.111	0.000
2	2.150	(32)	2.101	8.324	0.000
3	4.000	(32)	9.885	.091	0.000
4	5.850	(32)	2.439	-8.141	0.000
5	7.600	(32)	-18.622	-15.929	0.000
JTAN	8.000	(32)	-25.350	-17.709	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(32)	-23.513	18.509	0.000
1	.400	(32)	-16.465	16.729	0.000
2	2.150	(32)	5.997	8.942	0.000
3	3.800	(32)	14.693	1.599	0.000
4	5.450	(32)	11.275	-5.743	0.000
5	7.200	(32)	-5.590	-13.531	0.000
JTAN	7.600	(32)	-11.358	-15.311	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(33)	-10.469	1.311	-112.844
JTAN	9.587	(33)	2.102	1.311	-128.183
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(32)	1.872	-.211	-122.489
JTAN	9.587	(32)	-.151	-.211	-137.828
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(32)	-4.276	.638	-101.504
JTAN	9.587	(32)	1.837	.638	-116.843
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(33)	12.420	-1.680	-116.470
JTAN	9.587	(33)	-3.626	-1.680	-131.809

AXIAL MINIMUM

	-----L---	-CASE-	-----M---	-----Q---	-----N---
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(32)	-13.030	16.187	0.000
1	.400	(32)	-6.911	14.407	0.000
2	2.150	(32)	11.488	6.620	0.000
3	4.000	(32)	16.120	-1.613	0.000
4	5.850	(32)	5.522	-9.845	0.000
5	7.600	(32)	-18.521	-17.633	0.000
JTAN	8.000	(32)	-25.930	-19.413	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(32)	-26.080	17.891	0.000
1	.400	(32)	-19.280	16.111	0.000
2	2.150	(32)	2.101	8.324	0.000
3	4.000	(32)	9.885	.091	0.000
4	5.850	(32)	2.439	-8.141	0.000
5	7.600	(32)	-18.622	-15.929	0.000
JTAN	8.000	(32)	-25.350	-17.709	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(32)	-23.513	18.509	0.000
1	.400	(32)	-16.465	16.729	0.000
2	2.150	(32)	5.997	8.942	0.000
3	3.800	(32)	14.693	1.599	0.000
4	5.450	(32)	11.275	-5.743	0.000
5	7.200	(32)	-5.590	-13.531	0.000
JTAN	7.600	(32)	-11.358	-15.311	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(32)	7.876	-2.181	-116.153
JTAN	9.587	(32)	-13.030	-2.181	-131.492
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(33)	-6.223	1.467	-125.839
JTAN	9.587	(33)	7.839	1.467	-141.178
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(33)	4.109	-1.098	-104.877
JTAN	9.587	(33)	-6.418	-1.098	-120.216
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(32)	-5.457	1.754	-119.885
JTAN	9.587	(32)	11.358	1.754	-135.225

PICK UP 5

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(34)	-.000	.000	.000
1	.150	(34)	-.032	-.421	.000
2	.150	(34)	-.032	-20.542	.000
3	1.400	(35)	-28.479	-25.436	-.000
4	1.800	(35)	-39.067	-27.496	-.000
5	2.000	(35)	-44.663	-28.447	-.000
6	2.000	(35)	-44.663	-28.447	-.000
7	2.600	(35)	-62.491	-30.876	-.000
JTAN	3.000	(35)	-75.104	-32.141	-.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(34)	-26.147	30.447	-2.408
1	.400	(34)	-14.231	29.040	-2.408
2	1.200	(34)	7.346	24.525	-2.408
3	1.600	(34)	16.553	21.418	-2.408
4	4.000	(34)	35.633	-8.129	-2.408
5	6.400	(35)	12.325	-16.118	.042
6	6.800	(35)	5.237	-19.225	.042
7	7.600	(35)	-12.100	-23.740	.042
JTAN	8.000	(35)	-21.896	-25.147	.042
MAX	3.556	(34)	37.832	-1.765	-2.408
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(34)	-29.477	32.854	-.935
1	.400	(34)	-16.599	31.446	-.935
2	1.200	(34)	6.904	26.932	-.935
3	1.600	(34)	17.074	23.825	-.935
4	4.000	(35)	42.578	7.750	-.894
5	6.400	(35)	22.587	-21.797	-.894
6	6.800	(35)	13.227	-24.905	-.894
7	7.600	(35)	-8.653	-29.419	-.894
JTAN	8.000	(35)	-20.721	-30.827	-.894
MAX	4.444	(35)	44.608	1.385	-.894

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(35)	-.000	.000	-.000
1	.150	(35)	-.032	-.421	-.000
2	.150	(35)	-.032	-20.542	-.000
3	1.400	(34)	-28.479	-25.436	.000
4	1.800	(34)	-39.067	-27.496	.000
5	2.000	(34)	-44.663	-28.447	.000
6	2.000	(34)	-44.663	-28.447	.000
7	2.600	(34)	-62.491	-30.876	.000
JTAN	3.000	(34)	-75.104	-32.141	.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(35)	-129.331	52.006	.042
1	.400	(35)	-108.791	50.598	.042
2	1.200	(35)	-59.967	46.084	.042
3	1.600	(35)	-52.136	42.976	.042
4	4.000	(35)	18.684	13.429	.042
5	6.400	(34)	-22.467	-37.676	-2.408
6	6.800	(34)	-38.178	-40.784	-2.408
7	7.600	(34)	-72.762	-45.298	-2.408
JTAN	8.000	(34)	-91.182	-46.706	-2.408
MAX	4.444	(35)	23.239	7.065	.042
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(35)	-82.718	46.326	-.894
1	.400	(35)	-64.450	44.919	-.894
2	1.200	(35)	-30.170	40.404	-.894
3	1.600	(35)	-14.611	37.297	-.894
4	4.000	(34)	41.930	-5.722	-.935
5	6.400	(34)	-10.394	-35.270	-.935
6	6.800	(34)	-25.142	-38.377	-.935
7	7.600	(34)	-57.800	-42.891	-.935
JTAN	8.000	(34)	-75.257	-44.299	-.935
MAX	4.000	(34)	41.930	-5.722	-.935

PICK UP 5

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(34)	-12.112	13.515	.434
1	.400	(34)	-7.006	11.966	.434
2	1.200	(34)	1.063	8.018	.434
3	1.600	(34)	3.800	5.619	.434
4	3.800	(35)	14.974	10.072	-1.980
5	6.000	(35)	16.024	-7.914	-1.980
6	6.400	(35)	12.369	-10.313	-1.980
7	7.200	(35)	2.464	-14.261	-1.980
JTAN	7.600	(35)	-3.560	-15.810	-1.980
MAX	5.067	(35)	20.404	-1.216	-1.980
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(34)	35.143	5.653	0.000
1	.400	(34)	37.048	3.873	0.000
2	2.150	(34)	37.012	-3.914	0.000
3	4.000	(34)	22.156	-12.147	0.000
4	5.850	(35)	18.015	-.953	0.000
5	7.600	(35)	9.533	-8.740	0.000
JTAN	8.000	(35)	5.681	-10.520	0.000
MAX	.889	(34)	38.410	1.698	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(34)	-2.433	12.027	0.000
1	.400	(34)	2.022	10.247	0.000
2	2.150	(34)	13.140	2.460	0.000
3	4.000	(34)	10.076	-5.773	0.000
4	5.850	(35)	13.291	-2.263	0.000
5	7.600	(35)	2.476	-10.051	0.000
JTAN	8.000	(35)	-1.900	-11.831	0.000
MAX	5.333	(35)	13.827	.036	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(34)	8.551	9.022	0.000
1	.400	(34)	11.804	7.242	0.000
2	2.150	(34)	17.663	-.546	0.000
3	3.800	(35)	20.714	12.814	0.000
4	5.450	(35)	35.800	5.472	0.000
5	7.200	(35)	38.561	-2.316	0.000
JTAN	7.600	(35)	37.279	-4.096	0.000
MAX	6.756	(35)	39.151	-.338	0.000

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(35)	-80.106	35.954	-1.980
1	.400	(35)	-66.025	34.405	-1.980
2	1.200	(35)	-40.005	30.456	-1.980
3	1.600	(35)	-28.293	28.058	-1.980
4	3.800	(34)	-2.299	-12.367	.434
5	6.000	(34)	-50.614	-30.352	.434
6	6.400	(34)	-63.244	-32.751	.434
7	7.200	(34)	-91.100	-36.699	.434
JTAN	7.600	(34)	-106.099	-38.249	.434
MAX	3.378	(34)	2.097	-8.453	.434
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(35)	-52.556	25.080	0.000
1	.400	(35)	-42.880	23.300	0.000
2	2.150	(35)	-8.920	15.512	0.000
3	4.000	(35)	12.162	7.280	0.000
4	5.850	(34)	-7.930	-20.379	0.000
5	7.600	(34)	-50.408	-28.167	0.000
JTAN	8.000	(34)	-62.031	-29.947	0.000
MAX	4.444	(35)	14.958	5.302	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(35)	-49.653	23.769	0.000
1	.400	(35)	-40.501	21.989	0.000
2	2.150	(35)	-8.834	14.202	0.000
3	4.000	(35)	9.824	5.969	0.000
4	5.850	(34)	-8.219	-14.005	0.000
5	7.600	(34)	-39.542	-21.793	0.000
JTAN	8.000	(34)	-46.615	-23.573	0.000
MAX	4.000	(35)	9.824	5.969	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(35)	-60.109	29.724	0.000
1	.400	(35)	-48.575	27.944	0.000
2	2.150	(35)	-6.487	20.157	0.000
3	3.800	(34)	10.705	-7.888	0.000
4	5.450	(34)	-8.367	-15.231	0.000
5	7.200	(34)	-41.835	-23.018	0.000
JTAN	7.600	(34)	-51.398	-24.798	0.000
MAX	3.378	(34)	13.639	-6.009	0.000

PICK UP 5

MOMENT MAXIMUM

L	CASE	M	Q	N
= = MEMBER 8 (2 - 6) C = =				
ITAN 0.000	(35)	54.227	-11.138	-125.987
JTAN 9.587	(34)	35.143	8.772	-119.767
= = MEMBER 9 (3 - 7) C = =				
ITAN 0.000	(35)	60.823	-12.116	-119.403
JTAN 9.587	(34)	59.597	12.653	-142.829
= = MEMBER 10 (4 - 8) C = =				
ITAN 0.000	(35)	59.385	-12.266	-106.951
JTAN 9.587	(34)	57.166	12.549	-113.323
= = MEMBER 11 (5 - 9) C = =				
ITAN 0.000	(35)	50.920	-9.200	-107.690
JTAN 9.587	(34)	51.398	10.746	-145.468

MOMENT MINIMUM

L	CASE	M	Q	N
= = MEMBER 8 (2 - 6) C = =				
ITAN 0.000	(34)	-48.957	8.772	-104.428
JTAN 9.587	(35)	-52.556	-11.138	-141.326
= = MEMBER 9 (3 - 7) C = =				
ITAN 0.000	(34)	-51.704	12.653	-127.489
JTAN 9.587	(35)	-55.333	-12.116	-134.742
= = MEMBER 10 (4 - 8) C = =				
ITAN 0.000	(34)	-63.145	12.549	-97.984
JTAN 9.587	(35)	-58.209	-12.266	-122.290
= = MEMBER 11 (5 - 9) C = =				
ITAN 0.000	(34)	-51.619	10.746	-130.129
JTAN 9.587	(35)	-37.279	-9.200	-123.030

PICK UP 5

SHEAR MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(35)	-.000	.000	-.000
1	.150	(35)	-.032	-.421	-.000
2	.150	(35)	-.032	-20.542	-.000
3	1.400	(35)	-28.479	-25.436	-.000
4	1.800	(35)	-39.067	-27.496	-.000
5	2.000	(35)	-44.663	-28.447	-.000
6	2.000	(35)	-44.663	-28.447	-.000
7	2.600	(35)	-62.491	-30.876	-.000
JTAN	3.000	(35)	-75.104	-32.141	-.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(35)	-129.331	52.006	.042
1	.400	(35)	-108.791	50.598	.042
2	1.200	(35)	-69.967	46.084	.042
3	1.600	(35)	-52.136	42.976	.042
4	4.000	(35)	18.684	13.429	.042
5	6.400	(35)	12.325	-16.118	.042
6	6.800	(35)	5.237	-19.225	.042
7	7.600	(35)	-12.100	-23.740	.042
JTAN	8.000	(35)	-21.896	-25.147	.042
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(35)	-82.718	46.326	-.894
1	.400	(35)	-64.450	44.319	-.894
2	1.200	(35)	-30.170	40.404	-.894
3	1.600	(35)	-14.611	37.297	-.894
4	4.000	(35)	42.578	7.750	-.894
5	6.400	(35)	22.587	-21.797	-.894
6	6.800	(35)	13.227	-24.905	-.894
7	7.600	(35)	-8.653	-29.419	-.894
JTAN	8.000	(35)	-20.721	-30.827	-.894
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(35)	-80.106	35.954	-1.980
1	.400	(35)	-66.025	34.405	-1.980
2	1.200	(35)	-40.005	30.456	-1.980
3	1.600	(35)	-28.293	28.058	-1.980
4	3.800	(35)	14.974	10.072	-1.980
5	6.000	(35)	16.024	-7.914	-1.980
6	6.400	(35)	12.369	-10.313	-1.980
7	7.200	(35)	2.464	-14.261	-1.980
JTAN	7.600	(35)	-3.560	-15.810	-1.980

SHEAR MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(34)	-.000	.000	.000
1	.150	(34)	-.032	-.421	.000
2	.150	(34)	-.032	-20.542	.000
3	1.400	(34)	-28.479	-25.436	.000
4	1.800	(34)	-39.067	-27.496	.000
5	2.000	(34)	-44.663	-28.447	.000
6	2.000	(34)	-44.663	-28.447	.000
7	2.600	(34)	-62.491	-30.876	.000
JTAN	3.000	(34)	-75.104	-32.141	.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(34)	-26.147	30.447	-2.408
1	.400	(34)	-14.231	29.040	-2.408
2	1.200	(34)	7.346	24.525	-2.408
3	1.600	(34)	16.593	21.418	-2.408
4	4.000	(34)	35.633	-8.129	-2.408
5	6.400	(34)	-22.467	-37.676	-2.408
6	6.800	(34)	-38.178	-40.784	-2.408
7	7.600	(34)	-72.762	-45.298	-2.408
JTAN	8.000	(34)	-91.182	-46.706	-2.408
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(34)	-29.477	32.854	-.935
1	.400	(34)	-16.599	31.446	-.935
2	1.200	(34)	6.904	26.932	-.935
3	1.600	(34)	17.074	23.825	-.935
4	4.000	(34)	41.930	-5.722	-.935
5	6.400	(34)	-10.394	-35.270	-.935
6	6.800	(34)	-25.142	-38.377	-.935
7	7.600	(34)	-57.800	-42.891	-.935
JTAN	8.000	(34)	-75.257	-44.299	-.935
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(34)	-12.112	13.515	.434
1	.400	(34)	-7.036	11.966	.434
2	1.200	(34)	1.063	8.018	.434
3	1.600	(34)	3.300	5.619	.434
4	3.800	(34)	-2.299	-12.367	.434
5	6.000	(34)	-50.614	-30.352	.434
6	6.400	(34)	-63.244	-32.751	.434
7	7.200	(34)	-91.100	-36.699	.434
JTAN	7.600	(34)	-106.039	-38.249	.434

PICK UP 5

SHEAR MAXIMUM

	-----L---	-CASE-	-----M---	-----Q---	-----N---
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(35)	-52.556	25.080	0.000
1	.400	(35)	-42.880	23.300	0.000
2	2.150	(35)	-8.920	15.512	0.000
3	4.000	(35)	12.162	7.280	0.000
4	5.850	(35)	18.015	-.953	0.000
5	7.600	(35)	9.533	-8.740	0.000
JTAN	8.000	(35)	5.681	-10.520	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(35)	-49.653	23.769	0.000
1	.400	(35)	-40.501	21.989	0.000
2	2.150	(35)	-8.834	14.202	0.000
3	4.000	(35)	9.824	5.969	0.000
4	5.850	(35)	13.251	-2.263	0.000
5	7.600	(35)	2.476	-10.051	0.000
JTAN	8.000	(35)	-1.900	-11.831	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(35)	-60.109	29.724	0.000
1	.400	(35)	-48.575	27.944	0.000
2	2.150	(35)	-6.487	20.157	0.000
3	3.800	(35)	20.714	12.814	0.000
4	5.450	(35)	35.800	5.472	0.000
5	7.200	(35)	38.561	-2.316	0.000
JTAN	7.600	(35)	37.279	-4.096	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(34)	-48.957	8.772	-104.428
JTAN	9.587	(34)	35.143	8.772	-119.767
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(34)	-61.704	12.653	-127.489
JTAN	9.587	(34)	59.597	12.653	-142.829
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(34)	-53.145	12.549	-97.984
JTAN	9.587	(34)	57.166	12.549	-113.323
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(34)	-51.619	10.746	-130.129
JTAN	9.587	(34)	51.398	10.746	-145.468

SHEAR MINIMUM

	-----L---	-CASE-	-----M---	-----Q---	-----N---
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(34)	35.143	5.653	0.000
1	.400	(34)	37.048	3.873	0.000
2	2.150	(34)	37.012	-3.914	0.000
3	4.000	(34)	22.156	-12.147	0.000
4	5.850	(34)	-7.930	-20.379	0.000
5	7.600	(34)	-50.408	-28.167	0.000
JTAN	8.000	(34)	-62.031	-29.947	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(34)	-2.433	12.027	0.000
1	.400	(34)	2.022	10.247	0.000
2	2.150	(34)	13.140	2.460	0.000
3	4.000	(34)	10.076	-5.773	0.000
4	5.850	(34)	-8.219	-14.005	0.000
5	7.600	(34)	-39.542	-21.793	0.000
JTAN	8.000	(34)	-48.615	-23.573	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(34)	8.551	9.022	0.000
1	.400	(34)	11.804	7.242	0.000
2	2.150	(34)	17.663	-.546	0.000
3	3.800	(34)	10.705	-7.888	0.000
4	5.450	(34)	-8.367	-15.231	0.000
5	7.200	(34)	-41.835	-23.018	0.000
JTAN	7.600	(34)	-51.398	-24.798	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(35)	54.227	-11.138	-125.987
JTAN	9.587	(35)	-52.556	-11.138	-141.326
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(35)	60.823	-12.116	-119.403
JTAN	9.587	(35)	-55.333	-12.116	-134.742
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(35)	59.385	-12.266	-106.951
JTAN	9.587	(35)	-58.209	-12.266	-122.290
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(35)	50.920	-9.200	-107.690
JTAN	9.587	(35)	-37.279	-9.200	-123.030

PICK UP 5

AXIAL MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(34)	-.000	.000	.000
1	.150	(34)	-.032	-.421	.000
2	.150	(34)	-.032	-20.542	.000
3	1.400	(34)	-28.479	-25.436	.000
4	1.800	(34)	-39.067	-27.496	.000
5	2.000	(34)	-44.663	-28.447	.000
6	2.000	(34)	-44.663	-28.447	.000
7	2.600	(34)	-62.491	-30.876	.000
JTAN	3.000	(34)	-75.104	-32.141	.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(35)	-129.331	52.006	.042
1	.400	(35)	-108.791	50.598	.042
2	1.200	(35)	-69.967	46.084	.042
3	1.600	(35)	-52.136	42.976	.042
4	4.000	(35)	18.684	13.429	.042
5	6.400	(35)	12.325	-16.118	.042
6	6.800	(35)	5.237	-19.225	.042
7	7.600	(35)	-12.100	-23.740	.042
JTAN	8.000	(35)	-21.896	-25.147	.042
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(35)	-82.718	46.326	-.894
1	.400	(35)	-64.450	44.919	-.894
2	1.200	(35)	-30.170	40.404	-.894
3	1.600	(35)	-14.611	37.297	-.894
4	4.000	(35)	42.578	7.750	-.894
5	6.400	(35)	22.587	-21.797	-.894
6	6.800	(35)	13.227	-24.905	-.894
7	7.600	(35)	-8.653	-29.419	-.894
JTAN	8.000	(35)	-20.721	-30.827	-.894
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(34)	-12.112	13.515	.434
1	.400	(34)	-7.006	11.966	.434
2	1.200	(34)	1.063	8.018	.434
3	1.600	(34)	3.800	5.619	.434
4	3.800	(34)	-2.299	-12.367	.434
5	6.000	(34)	-50.614	-30.352	.434
6	6.400	(34)	-63.244	-32.751	.434
7	7.200	(34)	-91.100	-36.699	.434
JTAN	7.600	(34)	-106.099	-38.249	.434

AXIAL MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(35)	-.000	.000	-.000
1	.150	(35)	-.032	-.421	-.000
2	.150	(35)	-.032	-20.542	-.000
3	1.400	(35)	-28.479	-25.436	-.000
4	1.800	(35)	-39.067	-27.496	-.000
5	2.000	(35)	-44.663	-28.447	-.000
6	2.000	(35)	-44.663	-28.447	-.000
7	2.600	(35)	-62.491	-30.876	-.000
JTAN	3.000	(35)	-75.104	-32.141	-.000
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(34)	-26.147	30.447	-2.408
1	.400	(34)	-14.231	29.040	-2.408
2	1.200	(34)	7.346	24.525	-2.408
3	1.600	(34)	16.553	21.418	-2.408
4	4.000	(34)	35.633	-8.129	-2.408
5	6.400	(34)	-22.467	-37.676	-2.408
6	6.800	(34)	-38.178	-40.784	-2.408
7	7.600	(34)	-72.762	-45.298	-2.408
JTAN	8.000	(34)	-91.182	-46.706	-2.408
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(34)	-29.477	32.854	-.935
1	.400	(34)	-16.599	31.446	-.935
2	1.200	(34)	6.904	26.932	-.935
3	1.600	(34)	17.074	23.825	-.935
4	4.000	(34)	41.930	-5.722	-.935
5	6.400	(34)	-10.394	-35.270	-.935
6	6.800	(34)	-25.142	-38.377	-.935
7	7.600	(34)	-57.800	-42.891	-.935
JTAN	8.000	(34)	-75.257	-44.299	-.935
= = MEMBER 4 (4 - 5) G = =					
ITAN	0.000	(35)	-80.106	35.954	-1.980
1	.400	(35)	-66.025	34.405	-1.980
2	1.200	(35)	-40.005	30.456	-1.980
3	1.600	(35)	-28.293	28.058	-1.980
4	3.800	(35)	14.974	10.072	-1.980
5	6.000	(35)	16.024	-7.914	-1.980
6	6.400	(35)	12.369	-10.313	-1.980
7	7.200	(35)	2.464	-14.261	-1.980
JTAN	7.600	(35)	-3.560	-15.810	-1.980

PICK UP 5

AXIAL MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(34)	35.143	5.653	0.000
1	.400	(34)	37.048	3.873	0.000
2	2.150	(34)	37.012	-3.914	0.000
3	4.000	(34)	22.156	-12.147	0.000
4	5.850	(34)	-7.930	-20.379	0.000
5	7.600	(34)	-50.408	-28.167	0.000
JTAN	8.000	(34)	-62.031	-29.947	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(34)	-2.433	12.027	0.000
1	.400	(34)	2.022	10.247	0.000
2	2.150	(34)	13.140	2.460	0.000
3	4.000	(34)	10.076	-5.773	0.000
4	5.850	(34)	-8.219	-14.005	0.000
5	7.600	(34)	-39.542	-21.793	0.000
JTAN	8.000	(34)	-48.615	-23.573	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(34)	8.551	9.022	0.000
1	.400	(34)	11.804	7.242	0.000
2	2.150	(34)	17.663	-.546	0.000
3	3.800	(34)	10.705	-7.888	0.000
4	5.450	(34)	-8.367	-15.231	0.000
5	7.200	(34)	-41.835	-23.018	0.000
JTAN	7.600	(34)	-51.398	-24.798	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(34)	-48.957	8.772	-104.428
JTAN	9.587	(34)	35.143	8.772	-119.767
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(35)	60.823	-12.116	-119.403
JTAN	9.587	(35)	-55.333	-12.116	-134.742
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(34)	-63.145	12.549	-97.984
JTAN	9.587	(34)	57.166	12.549	-113.323
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(35)	50.920	-9.200	-107.690
JTAN	9.587	(35)	-37.279	-9.200	-123.030

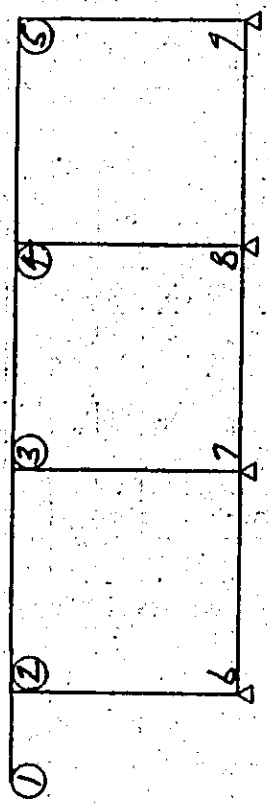
AXIAL MINIMUM

	L	CASE	M	Q	N
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(34)	35.143	5.653	0.000
1	.400	(34)	37.048	3.873	0.000
2	2.150	(34)	37.012	-3.914	0.000
3	4.000	(34)	22.156	-12.147	0.000
4	5.850	(34)	-7.930	-20.379	0.000
5	7.600	(34)	-50.408	-28.167	0.000
JTAN	8.000	(34)	-62.031	-29.947	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(34)	-2.433	12.027	0.000
1	.400	(34)	2.022	10.247	0.000
2	2.150	(34)	13.140	2.460	0.000
3	4.000	(34)	10.076	-5.773	0.000
4	5.850	(34)	-8.219	-14.005	0.000
5	7.600	(34)	-39.542	-21.793	0.000
JTAN	8.000	(34)	-48.615	-23.573	0.000
= = MEMBER 7 (8 - 9) G = =					
ITAN	0.000	(34)	8.551	9.022	0.000
1	.400	(34)	11.804	7.242	0.000
2	2.150	(34)	17.663	-.546	0.000
3	3.800	(34)	10.705	-7.888	0.000
4	5.450	(34)	-8.367	-15.231	0.000
5	7.200	(34)	-41.835	-23.018	0.000
JTAN	7.600	(34)	-51.398	-24.798	0.000
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(35)	54.227	-11.138	-125.987
JTAN	9.587	(35)	-52.556	-11.138	-141.326
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(34)	-61.704	12.653	-127.489
JTAN	9.587	(34)	59.597	12.653	-142.829
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(35)	59.385	-12.266	-106.951
JTAN	9.587	(35)	-58.209	-12.266	-122.290
= = MEMBER 11 (5 - 9) C = =					
ITAN	0.000	(34)	-51.619	10.746	-130.129
JTAN	9.587	(34)	51.398	10.746	-145.468

[7] Calculation of upper beam

(1) Calculation of compressive stress caused by bending

(a) Summary of stressed



a) Bending moment

		①~②		② ~ ③			③~④		
		② Point		② Point	span	③ Point	③ Point	span	④ Point
Pick up 1	TOP	-62.49	1	-77.74	1	-56.54	-56.10	1	-47.98
Pick up 2	TOP	-157.34	16	-183.57	27	-138.59	-136.95	17	-124.37
	Both ont	—		—	—	—	—	—	—
					119.20	19	126.39	16	

		④ ~ ⑤			
		④ Point	span		⑤ Point
Pick up 1	TOP	-46.11	1		-54.83
Pick up 2	TOP	-123.29	20		-117.42
	Both ont	—	—	87.41	—

(b) Allowable stress of upper beam, safe against cracking

(i) At the support point 1

Dead load $M_d = -77.74^{t\cdot m}$ (case 1)

Train load + Impact $M_L = -105.69$ " (case 2)

$$\Sigma M = -183.43^{t\cdot m}$$

$$\alpha = \frac{105.69}{183.43} = 0.58 > 0.25$$

Therefore $\sigma_{sa} = 1{,}000^{kg/cm^2}$

(ii) At the support point 2

Dead load $M_d = -56.54^{t\cdot m}$ (case 1)

Train load + Impact $M_L = -82.05$ " (case 7)

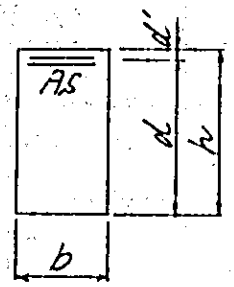
$$\Sigma M = -138.59^{t\cdot m}$$

$$\alpha = \frac{82.05}{138.59} = 0.59 > 0.25$$

Therefore $\sigma_{sa} = 1{,}000^{kg/cm^2}$

(C) Cross Section

(i) Cross section at the support point



$b = 80$ cm

$h = 160$ "

$d' = 2.5 + 1.9 + 1.6 + 3.2 = 9.2$ cm
$(2.5 + 1.9 + 1.6 = 6.0$ cm$)$

$d = 160 - 9.2 = 150.8$ cm
$(160 - 6.0 = 154.0$ cm$)$

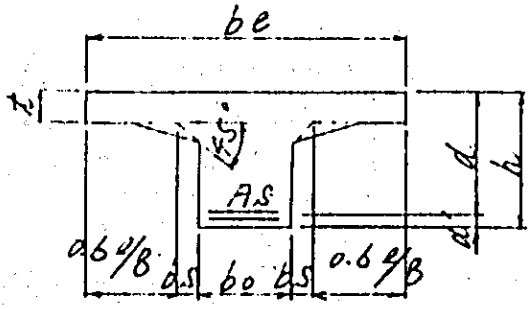
(effective height used for shearing stress calculation)

(ii) Effective width of T-beam compression fibre

$$be = bo + 2\left(bs + \frac{0.6}{\beta} \cdot \ell\right)$$

$$be1 = 0.80 + 2 \times \left(0.15 + \frac{0.60}{8} \times 8.00\right) = 2.30 \text{ m}$$

$$be2 = 0.80 + 2 \times \left(0.15 + \frac{0.60}{8} \times 7.588\right) = 2.24 \text{ m}$$



$bo = 80$ cm

$h = 120$ "

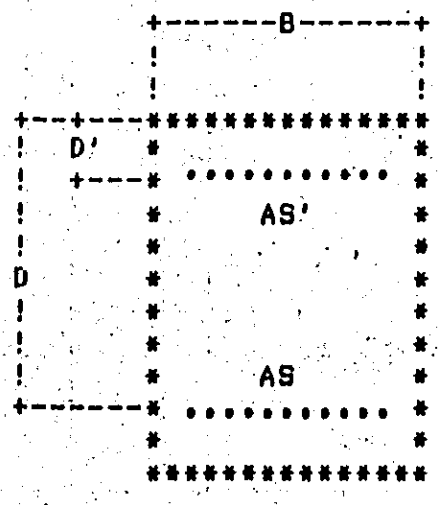
$d' = 3.0 + 1.3 + 1.6 + 3.2 = 9.1$ cm

$d = 120 - 9.1 = 110.9$ cm

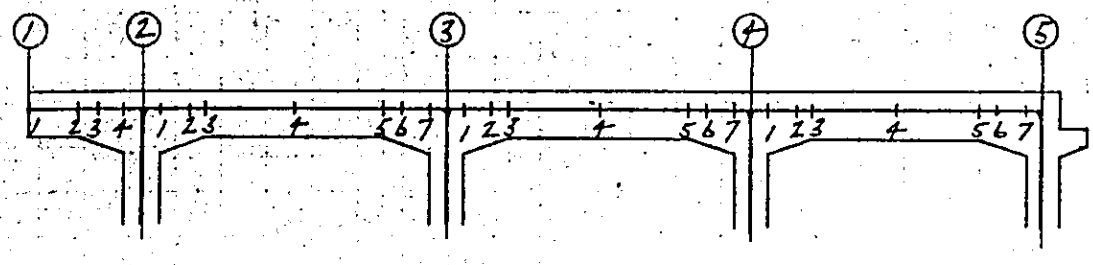
$t = 28$ cm

(d) Bending stress Calculation

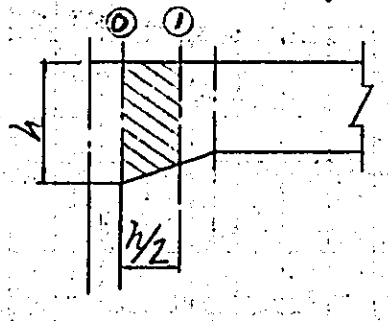
Calculation NO.	1	2	3	4
CASE	( )	( )	( )	( )
M [T*M]	77.74	183.57	138.59	126.39
S [T]				
B [CM]	80.00	80.00	80.00	80.00
H [CM]	160.00	160.00	160.00	120.00
D [CM]	150.80	150.80	150.80	110.90
D' [CM]	9.20	9.20	6.20	9.10
AS (DIA-HON)	D32-11.0	D32-11.0	D32- 9.0	D32-11.0
[CM**2]	87.36	87.36	71.48	87.36
AS' (DIA-HON)				
[CM**2]				
P	0.007242	0.007242	0.005925	0.009847
P'				
K	0.3700	0.3700	0.3420	0.4155
LC	0.1622	0.1622	0.1515	0.1790
SIG-C [KG/CM**2]	26.35	62.22	50.28	71.77
SIG-S [KG/CM**2]	673.10	1589.41	1451.19	1514.28
TAU [KG/CM**2]				
SIG-CA[KG/CM**2]	90.00	90.00	90.00	90.00
SIG-SA[KG/CM**2]	1000.00	1800.00	1800.00	1800.00
TAU-A [KG/CM**2]				



(2) Calculaton of shearing stress



(a) Summary of shearing stresses



For examining secton 0, shearing stress at section 1, is used.

Correction for shearing stress.

$$S = S_o - \frac{M}{d} \cdot (\tan\alpha)$$

Where

S_o shearing stress caused by bending (t)

M : bending moment (t·m)

d : effective height (m)

α : an angle of elevation of the member

(i) shearing stress

$$\tau_b = \frac{S}{b \cdot d}$$

τ_b: shearing stress (kg/cm²)

b: width of member (cm)

d: effective height of member (cm)

S: shearing force.

member	case	No.	S_o (t)	M (t·m)	tanα	S (t)	b (cm)	d (cm)	τ_b (kg/cm²)
①～②	16	2	55.08	—	—	55.08	80	110.8	6.21
		2'	55.08	-69.98	0.40/1.20	34.03	〃	〃	3.84
		3	57.14	-92.42	〃	32.32	〃	124.1	3.26
		4	90.16	-157.34	〃	55.38	〃	150.8	4.59
②～③	27	1	97.73	-148.32	0.40/1.20	64.94	〃	150.8	5.38
		2	81.86	-85.29	〃	58.95	〃	124.1	5.94
		3	73.18	-57.89	〃	55.76	〃	110.8	6.29
		3'	73.18	—	—	73.18	〃	〃	8.26
		4	11.63	—	—	11.63	〃	〃	1.31
	17		6.50	—	—	6.50	〃	〃	0.73
		5	77.28	—	—	77.28	〃	〃	8.72
		5'	77.28	-5.05	0.40/1.20	75.76	〃	〃	8.55
		6	87.26	-33.81	〃	78.18	〃	124.1	7.87
		7	105.52	-100.80	〃	83.24	〃	150.8	6.90

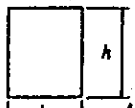
member	case	NO	So t	M t·m	tanα	S t	b cm	d cm	τb kg/cm²
③ ~ ④	17	1	105.77	-99.06	0.40/1.20	83.87	80	150.8	8.95
		2	87.51	-31.86	〃	78.95	〃	124.1	7.95
		3	77.53	-3.00	〃	76.63	〃	110.8	8.64
		3'	77.53	—	—	77.53	〃	〃	8.75
		4	6.75	—	—	6.75	〃	〃	0.76
	20		3.83	—	—	3.83	〃	〃	0.43
		5	74.61	—	—	74.61	〃	〃	8.42
		5'	74.61	4.89	0.40/1.20	73.14	〃	〃	8.25
		6	84.58	-22.80	〃	78.46	〃	124.1	7.90
		7	102.84	-87.65	〃	83.47	〃	150.8	6.92
④ ~ ⑤	20	1	90.61	-91.13	0.40/1.20	70.47	〃	150.8	5.84
		2	72.92	-35.26	〃	63.45	〃	124.1	6.39
		3	63.65	-11.79	〃	60.10	〃	110.8	6.78
		3'	63.65	—	—	63.65	〃	〃	7.18
		4	7.87	—	—	7.87	〃	〃	0.89
	23		3.10	—	—	3.10	〃	〃	0.35
		5	58.88	—	—	58.88	〃	〃	6.64
		5'	58.88	-2.50	0.40/1.20	58.13	〃	〃	6.56
		6	68.16	-26.28	〃	61.10	〃	124.1	6.15
		7	85.85	-83.84	〃	67.32	〃	150.8	5.58

(ii) Shearing stress Caused by torsional moment.

member	No.	M_t t·m	h cm	b cm	h/b	K_2	τ_{t1} kg/cm²	K_3	τ_{t2} kg/cm²
①~②	2	11.50	120	80	1.500	0.231	6.48	0.858	5.56
	3	13.41	133.3	〃	1.666	0.236	6.66	0.837	5.57
	4	17.24	160	〃	2.000	0.246	6.84	0.796	5.45
②~③ ③~④ ④~⑤	1	22.99	160	〃	2.000	0.246	9.13	0.796	7.26
	2	17.88	133.3	〃	1.666	0.236	8.88	0.837	7.43
	3	15.33	120	〃	1.500	0.231	8.64	0.858	7.41
	5	15.33	120	〃	1.500	0.231	8.64	0.858	7.41
	6	17.88	133.3	〃	1.666	0.236	8.88	0.837	7.43
	7	22.99	160	〃	2.000	0.246	9.13	0.796	7.26

$$\tau_{t1} = \tau_{max} = \frac{M_t}{k_2\, b^2 h} \quad \cdots\cdots\cdots\cdots\cdots\cdots \quad (40.2)$$

$$\tau_{t2} = k_3\, \tau_{t1}$$



illusation -1

τ_{t1} : shearing stress of longlong side. (kg/cm²)

τ_{t2} : shearing stress of shortlong side (kg/cm²)

b : short long side (cm)

h : longth long side. (cm)

M_t : torsional moment. (kg·cm)

k_2, k_3 : from list-1.

list-1, coefficient K_2. K_3

h/b	1.0	1.2	1.5	2.0	2.5	3	4	5	7	10	20	∞
k_2	0.208	0.219	0.231	0.246	0.258	0.267	0.282	0.292	0.303	0.313	0.323	0.333
k_3	1.000	0.930	0.859	0.795	0.766	0.753	0.745	0.743	0.742	0.742	0.742	0.742

(iii) Combined shearing stress.

member	No.	τ_b kg/cm²	τ_{t1} kg/cm²	$\tau_b + \tau_{t1}$ kg/cm²
①–②	2	6.21	6.48	12.69
	2'	3.84	6.48	10.32
	3	3.26	6.66	9.92
	4	4.59	6.84	11.43
③–④	1	6.95	9.13	16.08
	2	7.95	8.88	16.83
	3	8.64	8.64	17.28
	3'	8.75	8.64	17.39
	4	0.76	0	0.76
○–○				

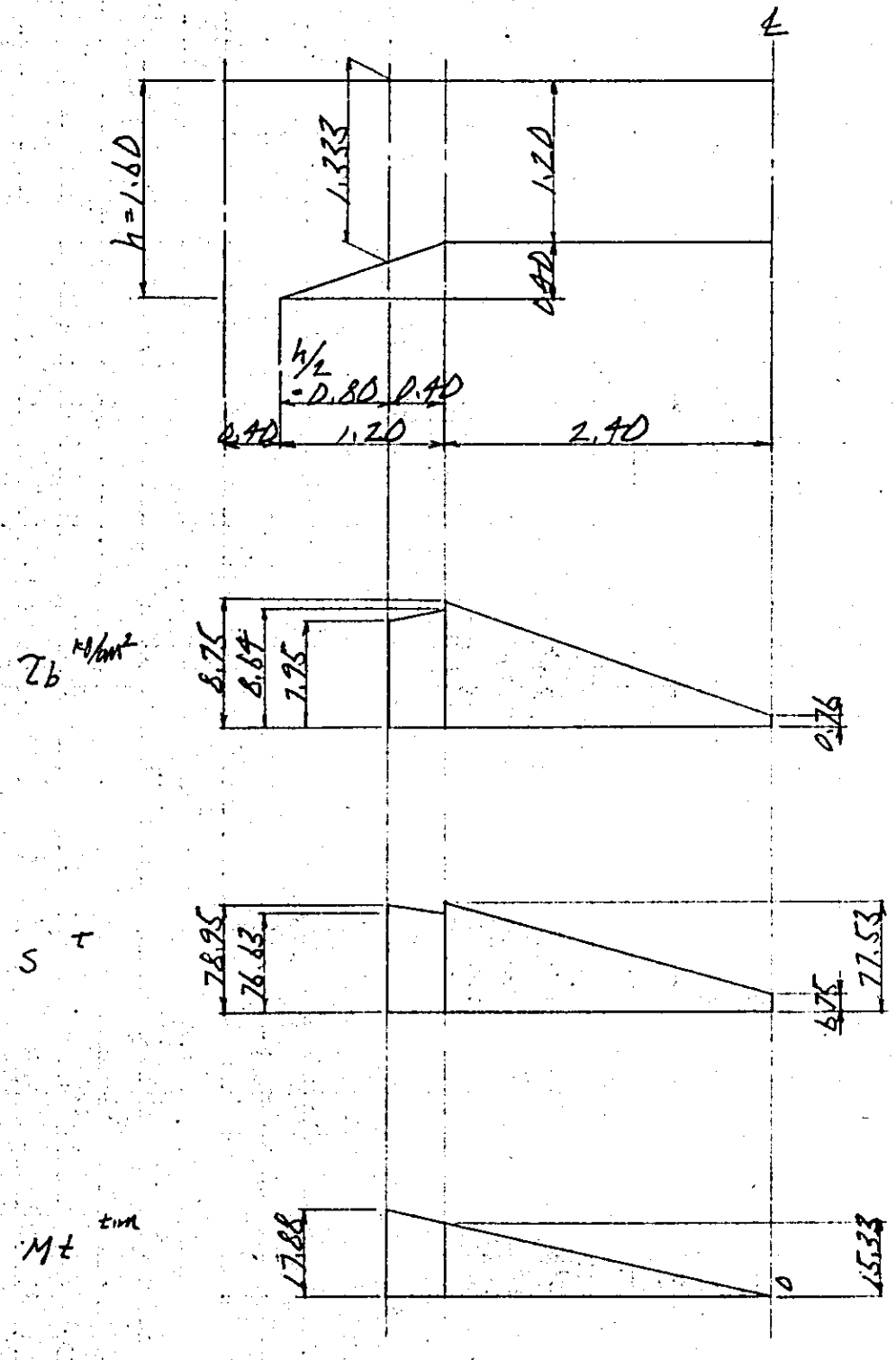
$\tau_b < 3.9$ kg/cm² ---- diagonal tension re-bears not are not required.

$\tau_b < 17$ " ---- diagonal tension re-bars are calulaion.

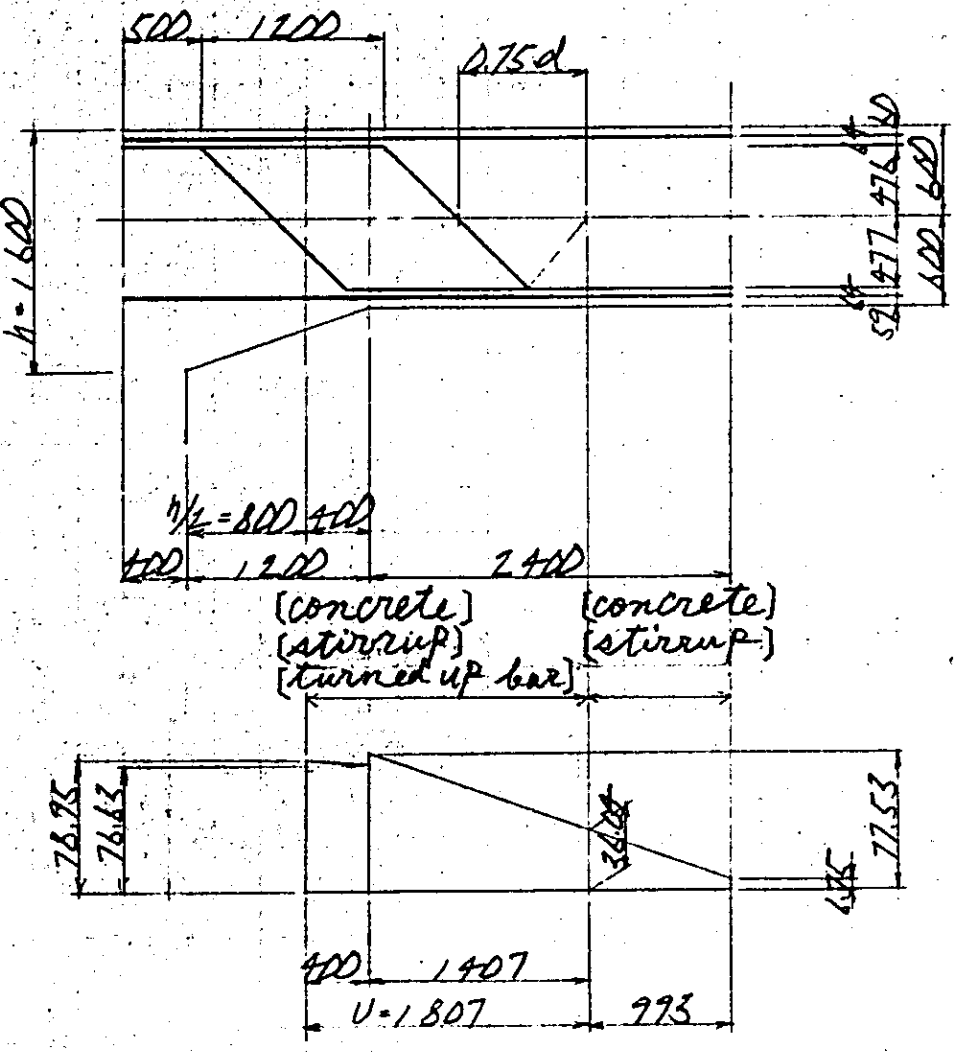
$\tau_b + \tau_t < 17 \times 1.3 = 22.1$ kg/cm² ----- torsion is considered.

(3) Calculation of diagonal tension re-bars.

(a) shearing stress caused by bending.



(b) Share of shearing force



d: Effective height.

V: Distance from the neutral point of turned up ber to the point of 0.75d.

$$V = (0.50 + 1.20 + 0.476 + 0.75 \times 1.108) - 0.40 - 0.80 = 1.807\ ^{m}$$

(i) Shearing force beared by concrete

(1) Area F subjected total shear within the range of V.

$$F = 1/2 \times (78.95 + 76.63) \times 0.40 + 1/2 \times (77.53 + 36.04) \times 1.407$$

$$= 111.01^{t}$$

(ii) Area Fc subjected shear beared by concrete.

$$Sc = \frac{1}{2} \cdot \tau c \cdot b \cdot d$$

Where (t)

Sc: Shearing force beared by concrete

τc: $bck = 240\ kg/cm^2$, $\tau c = 3.9\ kg/cm^2$

b: Width of cross section of member.

d: Effective height of member.

$$Sc_1 = 1/2 \times 3.9 \times 80 \times 110.8 \times 10^{-3} = 17.28^{t}$$

$$Sc_2 = 1/2 \times 3.9 \times 80 \times 124.1 \times 10^{-3} = 19.36^{"}$$

$$\therefore Fc = 17.28 \times 1.407 + (17.28 + 19.36) \times 1/2 \times 0.40$$

$$= 31.64^{t}$$

(d) Shearing force beared by strup

Arrange stirrups D13-2 setin 15.0 cm c.t.c

(1) Torsional sheasing stress.

$$\tau_{st} = \frac{Mt \cdot s}{0.8 \cdot Av \cdot b_1 \cdot h_1} \cdot \frac{a_1}{b_1}$$

where

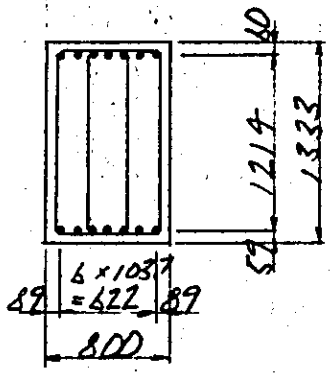
Mt : Torsional moment. (t·m)

s : ctc distance of stirrup. (cm)

Av : Gross Cross section of coup led stirrups. (cm²)

b.h : Length of short long side of stirrup (cm)

(i) At 1/2 point



$Mt = 17.88$ t·m

$s = 15$ cm

$Av = 1.267 \times 4 = 5.068$ cm²

$h_1 = 121.4 + 3.2 + 1.3 = 125.9$ cm

$$b_1 = \frac{25.2^2 + 66.7^2}{25.2 + 66.7} = 55.3 \text{ cm}$$

$$\tau_{st_1} = \frac{17.88 \times 10^5 \times 15.0}{0.8 \times 5.068 \times 55.3 \times 125.9} \times \frac{66.7}{55.3}$$

$= 1746$ kg/cm² < 1800 kg/cm²

(ii) At the transit point to haunch.

$M_t = 15.33^{t\cdot m}$

$d = 15.0^{cm}$

$A_v = 5.068^{cm^2}$

$b_1 = 55.3^{cm}$

$h_1 = 120.0 - 6.0 - 5.9 + 3.2 + 1.3 = 112.6^{cm}$

$$\sigma_{st2} = \frac{15.33 \times 10^5 \times 15.0}{0.8 \times 5.068 \times 55.3 \times 112.6} \times \frac{66.7}{55.3}$$

$= 1099^{kg/cm^2} < 1800^{kg/cm^2}$

(iii) At U point.

$M_t = 6.34^{t\cdot m}$

$h_1 = 112.6^{cm}$

$$\sigma_{st3} = \frac{6.34 \times 10^5 \times 15.0}{0.8 \times 5.068 \times 55.3 \times 112.6} \times \frac{66.7}{55.3}$$

$= 454^{kg/cm^2} < 1800^{kg/cm^2}$

(2) Bending shear beared - by stirrup.

In the case when combined with torsional moment, allowable shearing stress is as 20 percent increased.

$$\sigma_{sa} = 1800 \times 1.2 = 2160 \ kg/cm^2$$

$$S_V = \frac{(\sigma_{sa} - \sigma_{st}) \cdot A_V \cdot d}{1.15 \cdot s}$$

(i) At 1/2 point.

$$2160 - 1146 = 1014 \ kg/cm^2$$

$$d = 124.1 \ cm$$

$$\therefore S_{V1} = \frac{1014 \times 5.07 \times 124.1}{1.15 \times 15.0} \times 10^{-3} = 36.99 \ t$$

(ii) At the point transit to haunch.

$$2160 - 1099 = 1061 \ kg/cm^2$$

$$d = 110.8 \ cm$$

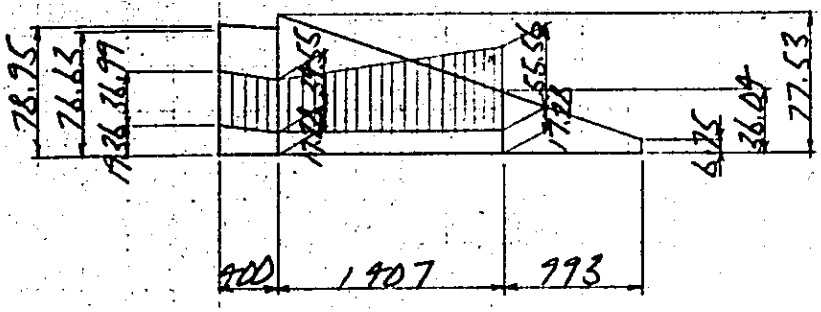
$$\therefore S_{V2} = \frac{1061 \times 5.07 \times 110.8}{1.15 \times 15.0} \times 10^{-3} = 34.55 \ t$$

(iii) At U point.

$$2160 - 454 = 1706 \ kg/cm^2$$

$$d = 110.8 \ cm$$

$$\therefore S_V = \frac{1706 \times 5.07 \times 110.8}{1.15 \times 15.0} \times 10^{-3} = 55.56 \ t$$



Area fv for the shear beared by stirrup.

$$Fv = (36.99 + 34.55) \times 0.40 \times 1/2 + (34.55 + 55.56) \times 1.407 \times 1/2$$

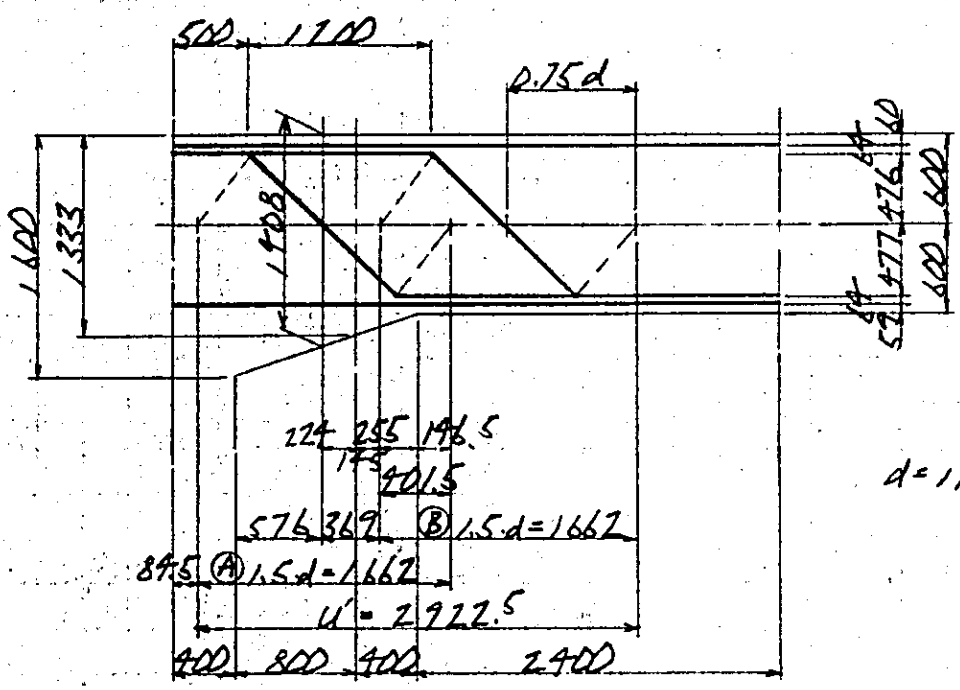
$$= 46.00\ ^{t}$$

$$1/2 \cdot (F - Fc) = 1/2 \times (111.01 - 31.64)$$

$$= 39.69\ ^{t} < Fv = 46.00\ ^{t}$$

(e) Shear beared by turned up bar.

(i) Shear beared - by Ⓐ



d = 110.8 cm

Effective renge of turned up bars is assumed as the distance of 0.75d of each arrangement.

A_s = D32 - 2 = 15.88 cm^2

d = 140.8 - 9.2 = 131.6 cm

$\sin\theta + \cos\theta = 1.414$

$$F_{ba} = \frac{\sigma_{sa} \cdot A_s \cdot d \cdot (\sin\theta + \cos\theta)}{1.15}$$

Where

σ_{sa} : Allowable tensile stress of bar. (kg/cm^2)

A_s : Cross section of turned up bar. (cm^2)

θ : Elevation angle of turned up bar with the axis of member. $(^\circ)$

$\theta = 45^\circ \quad \sin 45^\circ + \cos 45^\circ = 1.414$

d : arial direction of member. (m)

$$F_{bA} = \frac{1800 \times 15.88 \times 131.6 \times 1.414}{1.15 \times 10^5}$$

$$= 46.25 \ t \cdot m$$

Therefore, the average resisting shear within 1.5d distance will be.

$$S_{b\cdot A} = \frac{F_{b\cdot A}}{1.5 \cdot d} = \frac{46.25}{1.662} = 27.83 \ t$$

(ii) Shear beared by ⑧

$$A_s = D32 - 2 = 15.88 \ cm^2$$

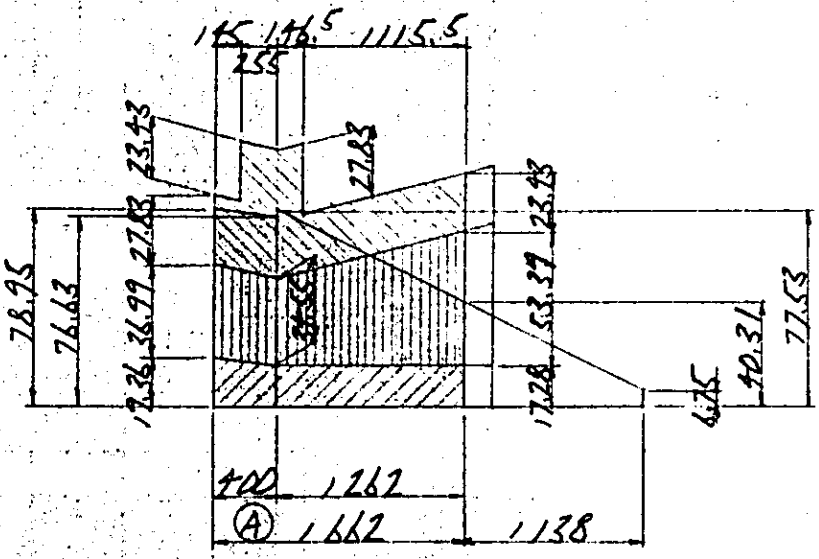
$$d = 110.8 \ cm$$

$$F_{b\cdot B} = \frac{1800 \times 15.88 \times 110.8 \times 1.414}{1.15 \times 10^5} = 38.94 \ t$$

$$S_{b\cdot B} = \frac{38.94}{1.662} = 23.43 \ t$$

(f) Resultant resisting shear.

(i) Section Ⓐ



Area of acting shear.

$F = (78.95 + 76.63) \times 0.40 \times 1/2 + (77.53 + 40.31) \times 1.262 \times 1/2 = 105.47$ t/m

Area of resisting shear.

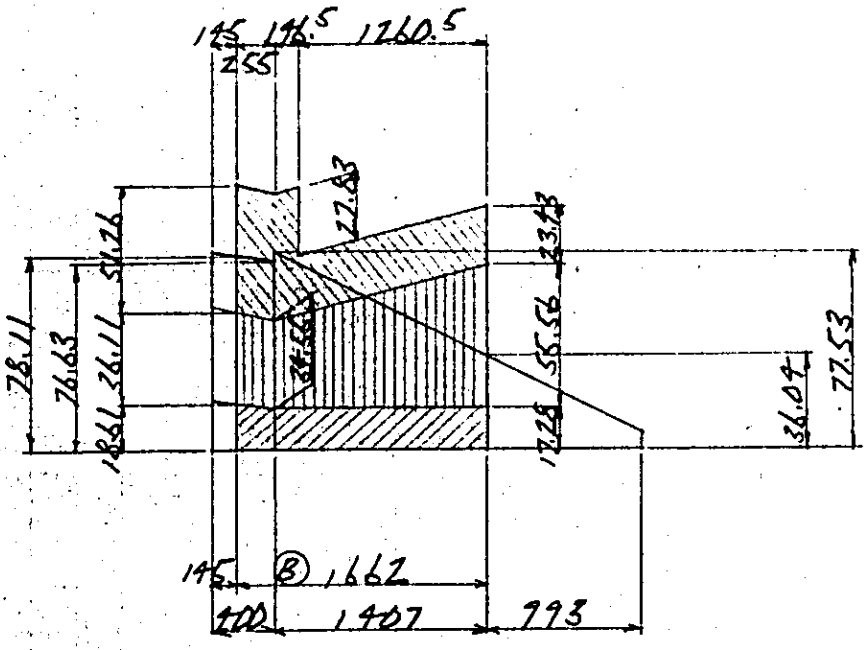
$$Fc = (19.36 + 17.28) \times 0.40 \times 1/2 + 17.28 \times 1.262$$
$$= 29.13 \ t \cdot m$$

$$Fv = (36.99 + 34.55) \times 0.40 \times 1/2 + (34.55 + 53.39) \times 1.262 \times 1/2$$
$$= 69.80 \ t \cdot m$$

$$Fb = 27.83 \times (0.40 + 0.145) + 23.43 \times (1.262 + 0.255)$$
$$= 50.75 \ t \cdot m$$

$$Fc + Fv + Fb = 29.13 + 69.80 + 50.75$$
$$= 149.68 \ t \cdot m > F = 105.47 \ t \cdot m$$

(ii) Ⓑ Section



Area of acting shear.

$F = (78.11 + 76.63) \times 0.255 \times 1/2 + (77.53 + 36.04) \times 1.407 \times 1/2$

$= 99.63^{t.m}$

Area of resisting shear.

$Fc = (18.16 + 17.28) \times 0.255 \times 1/2 + 17.28 \times 1.407$

$= 28.83^{t.m}$

$Fv = (36.11 + 34.55) \times 0.255 \times 1/2 + (34.55 + 55.56) \times 1.407 \times 1/2$

$= 72.40^{t.m}$

$Fb = 51.26 + (0.255 + 0.146^5) + 23.43 \times 1.260^5$

$= 50.11^{t.m}$

$Fc + Fv + Fb = 28.83 + 72.40 + 50.11$

$= 151.34^{t.m} > F = 99.63^{t.m}$

(4) Calculation of bars in axial direction

Required bars are calculated followed the equation.

$$As = \frac{Mt \cdot (b_1 + h_1)}{0.8 \cdot \sigma sa \cdot b_1 \cdot h_1}$$

Where

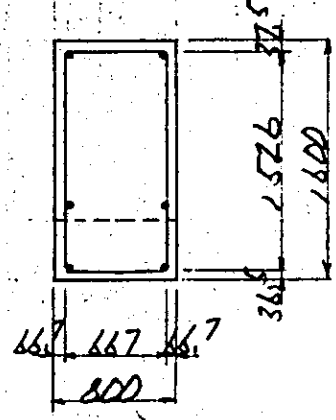
As : Bars in axial direction.

Mt : Torsional moment.

σsa : Allowable stress of bar.

$b_1 \cdot h_1$: Length of short / Long side of stirrup.

(a) At column front.



$Mt = 22.99$ t·m

$\sigma sa = 1800$ kg/cm²

$b_1 = 66.7$ cm

$h_1 = 152.6$ "

$$As = \frac{22.99 \times 10^5 \times (66.7 + 152.6)}{0.8 \times 1800 \times 66.7 \times 152.6}$$

$$= 34.40 \text{ cm}^2$$

Required bar arrangement for shorter side.

$$Asb_1 = 34.40 \times \frac{66.7}{2 \times (66.7 + 152.6)} = 5.23\ cm^2$$

Required bar arrangement for longer side.

$$Ash_1 = 34.40 \times \frac{152.6}{2 \times (66.7 + 152.6)} = 11.97\ cm^2$$

(i) Top side (refer the calculation of bending stress.) ----- Use main bars for this Purpose as well.

$$As' = D32 - 7 = 55.59\ cm^2$$

$$As = \frac{1800 \times 1.2 - 1800}{1800} \times 55.59$$

$$= 11.12\ cm^2 > Asb_1 = 5.23\ cm^2$$

(ii) Bottom side (refer the same) ----
Use haunch bar for this purpose as well.

$$As = D32 - 4 = 31.77\ cm^2 > Asb_1 = 5.23\ cm^2$$

(iii) side (One side)

$$As = D32 - 1 = 7.942\ cm^2$$

$$D19 - 2 = 5.730\ "$$

$$13.672\ cm^2 > Ash_1 = 11.97\ cm^2$$

hunch

$M_t = 15.33$ t·m

$b_1 = 66.7$ cm

$h_2 = 112.6$ "

$$A_s = \frac{15.33 \times 10^5 \times (66.7 + 112.6)}{0.8 \times 1800 \times 66.7 \times 112.6} = 25.42 \text{ cm}^2$$

Required bar arrangement for shorter side.

$$A_{sb_1} = 25.42 \times \frac{66.7}{2 \times (66.7 + 112.6)}$$

$$= 4.73 \text{ cm}^2 < A_s = 11.12 \text{ cm}^2$$

Required bar arrangement for longer side.

$$A_{sh_1} = 25.42 \times \frac{112.6}{2 \times (66.7 + 112.6)}$$

$$= 7.98 \text{ cm}^2 < D32-1 = 7.942 \text{ cm}^2$$

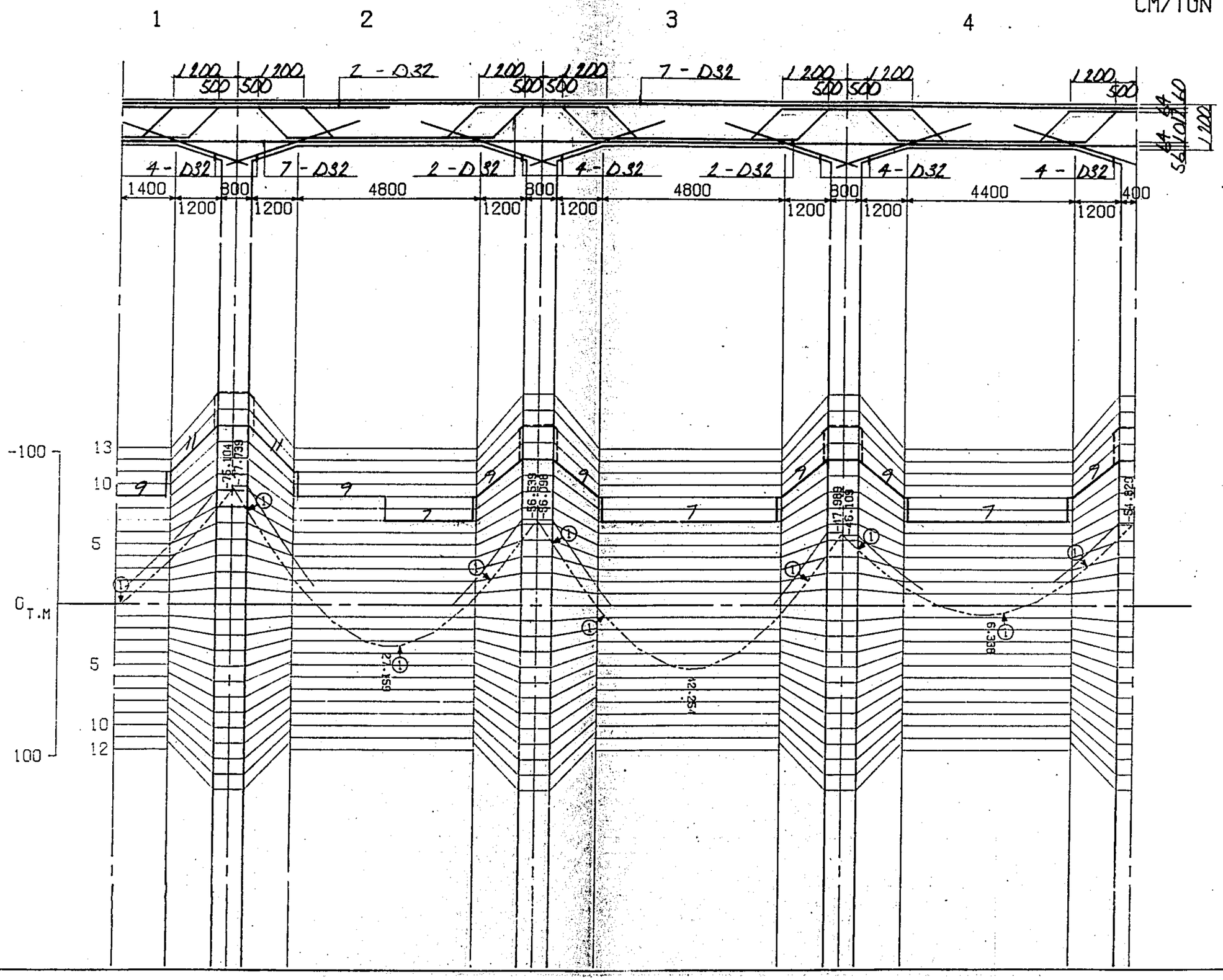
$$D19-2 = 5.730 \text{ "}$$

$$13.672 \text{ cm}^2$$

VIADUCT OF DOUBLE TRACK L-1

PICK UP 1

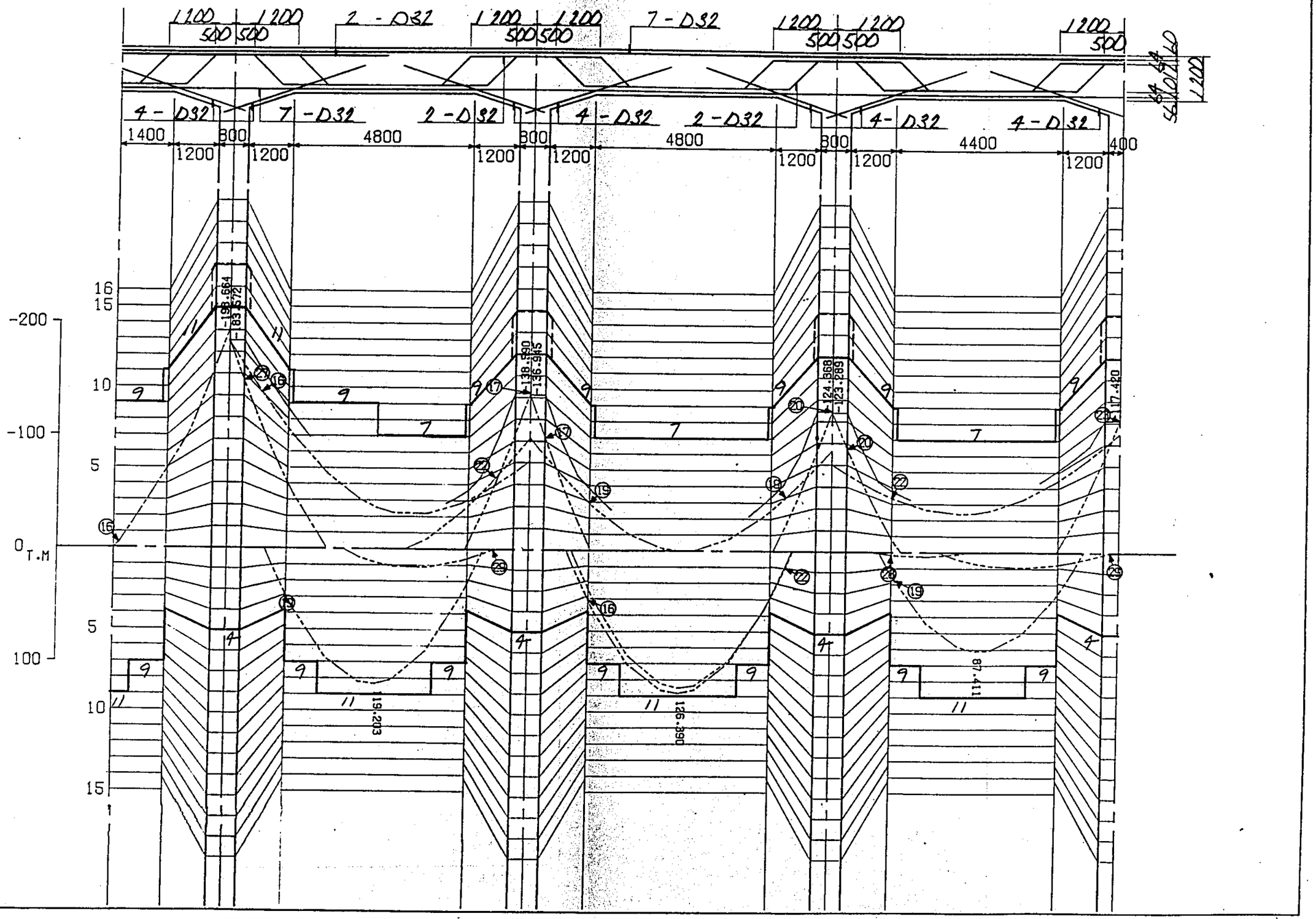
1/100
CM/TON 4.0/100



VIADUCT OF DOUBLE TRACK L-1

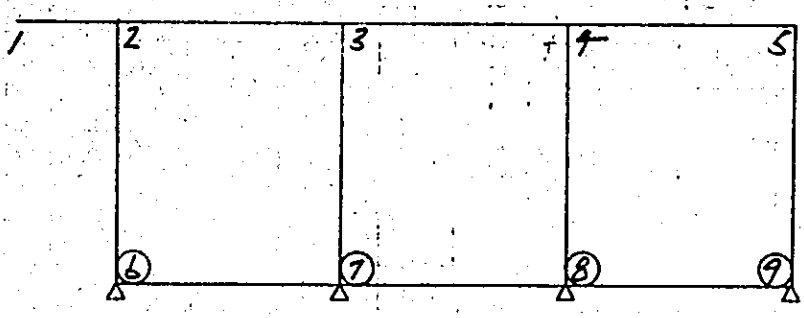
PICK UP 2

1/100
CM/TON 3.0/100



[8] Calculation of buried beam (L-1)

(1) Summary of stresses.



(a) Bending moment and shearing force.

		⑥~⑦ member				⑦~⑧ member	
		⑥		⑦		⑦	
Dead load (pick up 1)	Top	-8.71	1	-28.18	1	-26.04	1
	Bottom	—	—	span 17.80	1	—	—
(pick up 2)	Top	-35.04	29	-41.36	28	-33.10	29
	Bottom	24.70	28	6.36	29	1.35	28
shearing force (Pick up 2)		10.34	29	13.59	28	9.47	29

		⑦~⑧ member		⑧~⑨ member			
		⑧		⑧		⑨	
Dead load (pick up 1)	Top	-25.26	1	-25.78	1	-7.06	1
	Bottom	—	—	span 16.36	1	—	—
(pick up 2.)	Top	-32.41	28	-40.08	29	-34.27	28
	Bottom	1.65	29	7.87	28	25.71	29
shearing force (Pick up 2)		9.34	28	13.44	29	10.15	28

(b) Shrss Calculation.

(i) L-1 Top

$$As = \frac{4136 \times 10^5}{1800 \times 0.875 \times 82.2} \times \frac{4}{3} = 31.95 \times \frac{4}{3} = 42.60^{cm^2}$$

$$As = 15 \times 70 \times 82.2 \times 1/3000 = 28.77^{cm^2}$$

$\therefore$ D29-5 = $32.12^{cm^2} > 28.77^{cm^2}$

(ii) L-1 Bottom.

$$As = \frac{2571 \times 10^5}{1800 \times 0.875 \times 75} \times \frac{4}{3} = 21.77 \times \frac{4}{3} = 29.02^{cm^2}$$

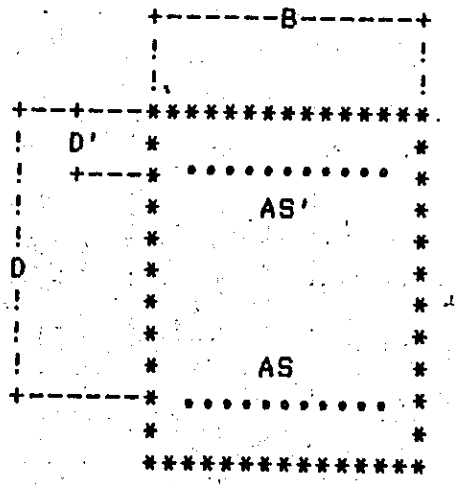
$$As = 15 \times 70 \times 75 \times 1/3000 = 26.25^{cm^2}$$

$\therefore$ D29-5 = $32.12^{cm^2} > 26.25^{cm^2}$

(C) Bending stress calculation

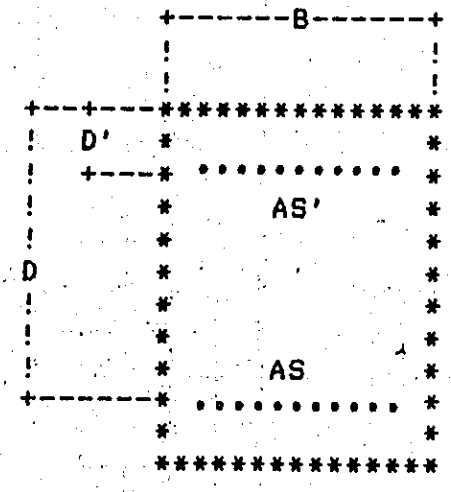
(i) TOP

calculation NO.		1	2	3
CABE		(28)	(28)	(/)
M	[T*M]	41.36	41.36	28.18
S	[T]			
B	[CM]	70.00	70.00	70.00
H	[CM]	90.00	90.00	90.00
D	[CM]	82.20	82.20	82.20
D'	[CM]	7.80	7.80	7.80
AS	(DIA-HON)	D29- 6.0	D29- 6.0	D29- 6.0
	[CM**2]	38.54	38.54	38.54
AS'	(DIA-HON)			
	[CM**2]			
P		0.006699	0.006699	0.006699
P'				
K		0.3589	0.3589	0.3589
LC		0.1580	0.1580	0.1580
SIG-C	[KG/CM**2]	55.35	55.35	37.71
SIG-S	[KG/CM**2]	1482.84	1482.84	1010.31
TAU	[KG/CM**2]			
SIG-CA	[KG/CM**2]	90.00	90.00	90.00
SIG-SA	[KG/CM**2]	1800.00	1800.00	1400.00
TAU-A	[KG/CM**2]			



(ii) Bottom

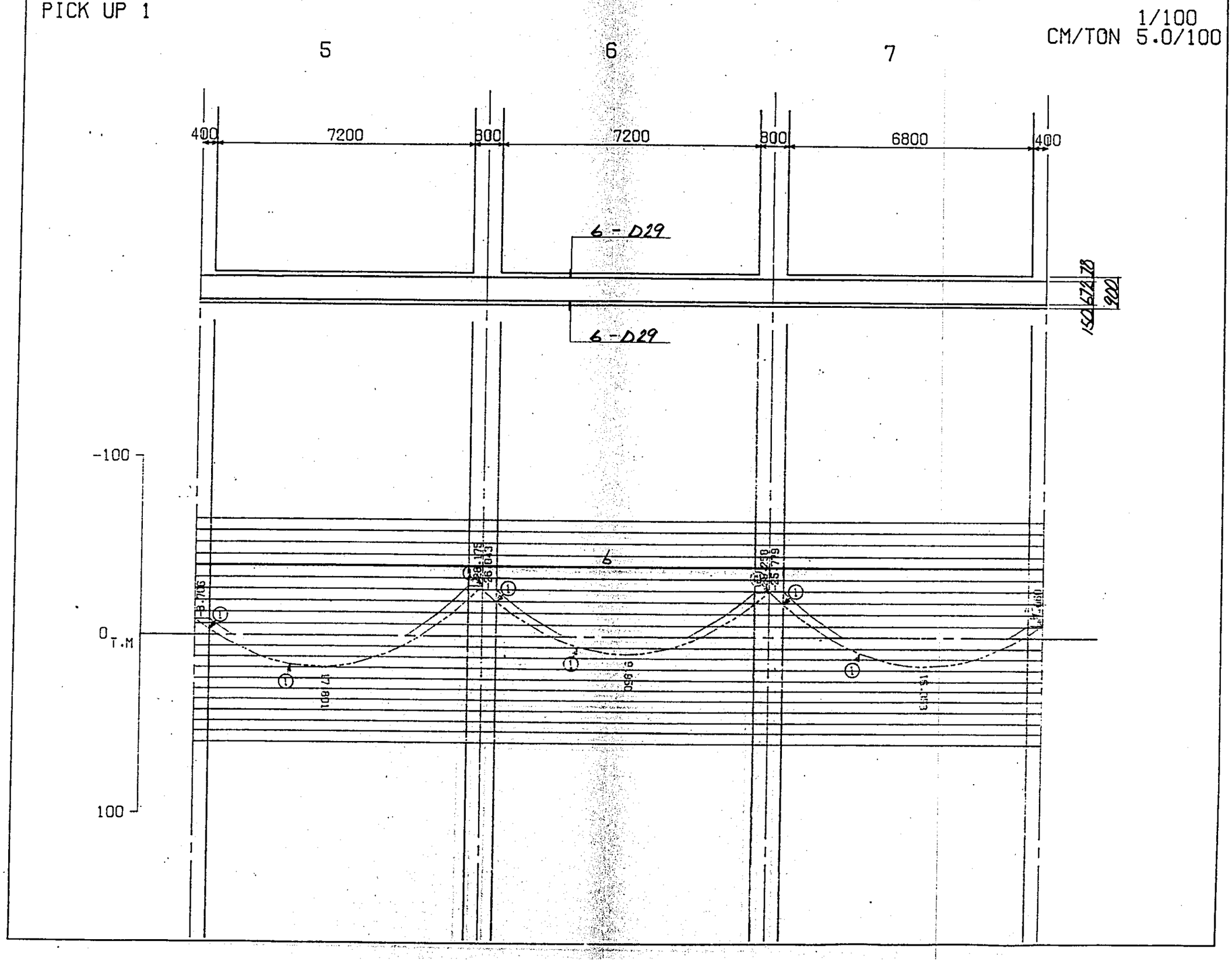
Calculation NO.	4	5
CASE	(29)	(/)
M [T*M]	25.71	17.80
S [T]		
B [CM]	70.00	70.00
H [CM]	90.00	90.00
D [CM]	75.00	75.00
D' [CM]	15.00	15.00
AS (DIA-HON)	D29- 6.0	D29- 6.0
[CM**2]	38.54	38.54
AS' (DIA-HON)		
[CM**2]		
P	0.007342	0.007342
P'		
K	0.3719	0.3719
LC	0.1629	0.1629
SIG-C [KG/CM**2]	40.08	27.75
SIG-S [KG/CM**2]	1015.24	702.89
TAU [KG/CM**2]		
SIG-CA[KG/CM**2]	90.00	90.00
SIG-SA[KG/CM**2]	1800.00	1400.00
TAU-A [KG/CM**2]		



VIADUCT OF DOUBLE TRACK L-1

PICK UP 1

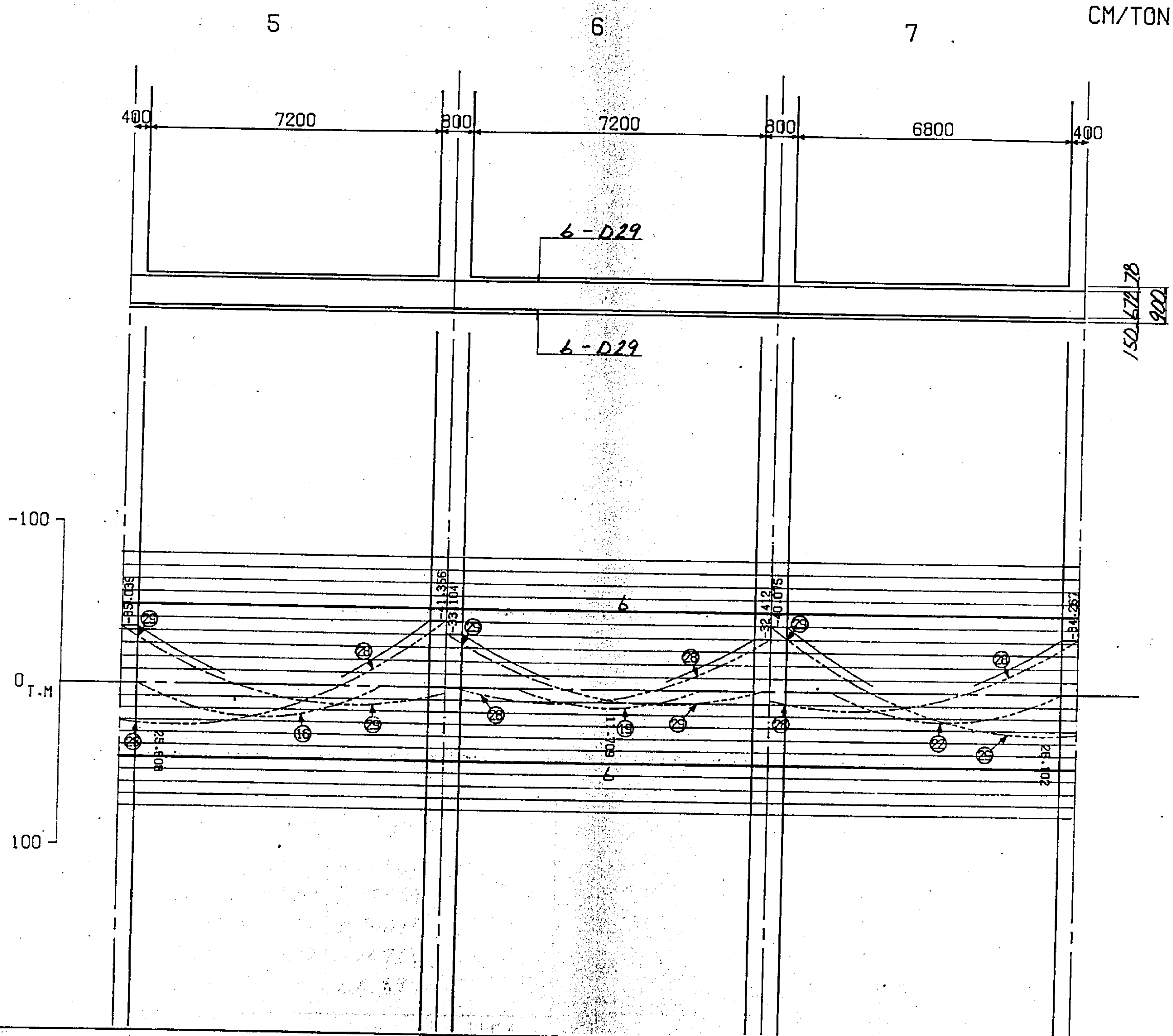
1/100
CM/TON 5.0/100



VIADUCT OF DOUBLE TRACK L-1

PICK UP 2

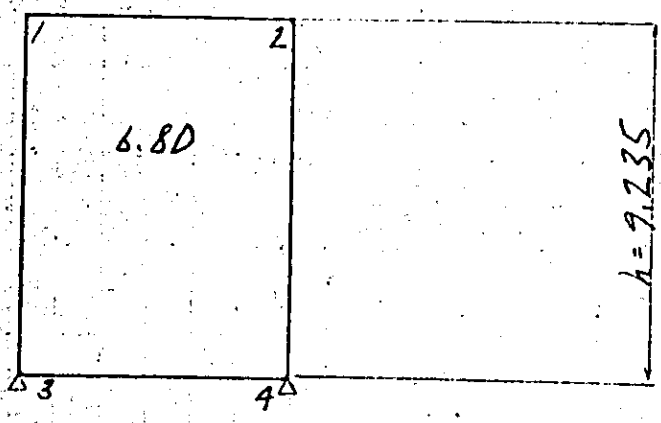
1/100
CM/TON 4.0/100



§5. Rigid frame analysis on transversed section (①-①) of elevated structure.

(1) Elements for rigid frame analysis

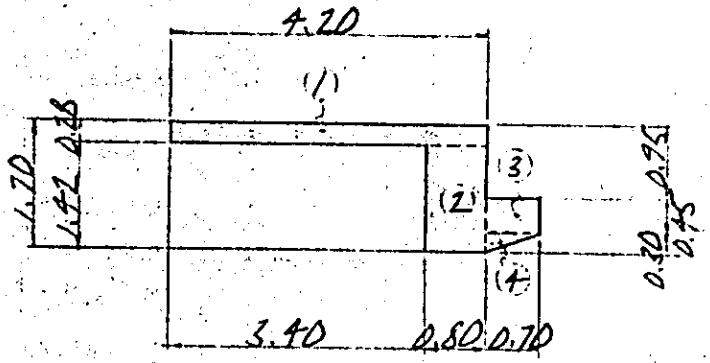
1. Configulation and dimension



$$h = 9.15 - 0.665 + 0.30 + 0.45 = 9.235 \text{ m}$$

2. Cross-sectional area and moment of inertia of the member.

(1) Member (1 ~ 2)



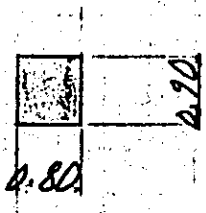
	b m	h m	A m²	y m	A·y m³
(1)	4.200	0.280	1.176	0.140	0.16464
(2)	0.800	1.420	1.136	0.990	1.12464
(3)	0.700	0.450	0.315	1.175	0.37013
(4)	0.700	0.300	0.105	1.500	0.15750
Σ	—	—	2.732	—	1.81691

$$y_o = \frac{1.81691}{2.732} = 0.665\ m$$

	$A\ m^2$	$y_o\ m$	$A \cdot y_o^2\ m^4$	$I_o\ m^4$	$A \cdot y^2 + I_o\ m^4$
①	1.176	0.525	0.32414	0.00768	0.33182
②	1.136	0.325	0.11999	0.19089	0.31088
③	0.315	0.510	0.08193	0.00512	0.08705
④	0.105	0.825	0.07321	0.00053	0.07374
Σ	2.732	——	0.59927	0.20422	0.80349

Cross-sectional area $A = 2.732\ m^2$ Moment of inertia $I = 0.80349\ m^4$

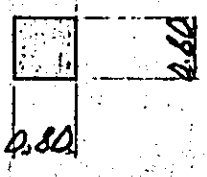
(2) Member (3 ~ 4)



$$A = 0.80 \times 0.90 = 0.720\ m^2$$

$$I = \frac{1}{12} \times 0.80 \times 0.90^3 = 0.04860\ m^4$$

(3) Member (1~3, 2~4)



$$A = 0.80 \times 0.80 = 0.640\ m^2$$

$$I = \frac{1}{12} \times 0.80 \times 0.80^3 = 0.03413\ m^4$$

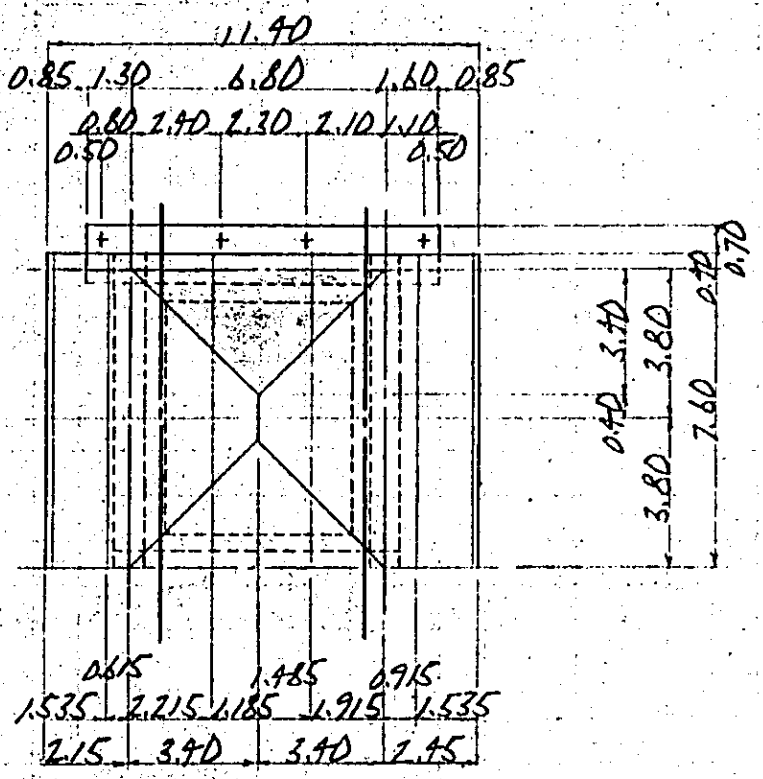
$$E_c = 2.7 \times 10^6\ t/m^2 \quad (\sigma_{ck} = 240\ kg/cm^2)$$

$$\alpha = 1.0E-5\ ^\circ C$$

(2) Calculation of loads.

1. Dead Load

ii) Member (1~2)



(a) Distributed load (A)

Ballast 1.9 × 0.481 = 0.91 t/m²

grading concrete 2.35 × 0.07 = 0.16 "

slab 2.5 × 0.28 = 0.70 "

wd = 1.77 t/m²

∴ wd1 = 1.77 × 3.40 = 6.02 t/m

(b) Distributed load (B)

Track weight $0.45 \times 1/2.83 = 0.16$ t/m²

$wd_2 = 0.16 \times 0.40 = 0.06$ t/m

$wd_3 = 0.16 \times (0.40 + 2.215) = 0.42$ "

$wd_4 = 0.16 \times (0.40 + 1.915) = 0.37$ "

(c) Distributed load (C)

Distributed load	1.77×0.40	$= 0.71$ t/m
Cross beam	$2.5 \times 0.80 \times 1.42$	$= 2.84$ "
Beam seat	$2.5 \times (0.70 \times 0.40 + 1/2 \times 0.70 \times 0.30)$	$= 0.96$ "
Slab haunch	$2.5 \times 1/2 \times 0.45 \times 0.15$	$= 0.08$ "
		$wd_5 = 4.59$ t/m

(d) Concentrated load of elements acting at joint P1, P2 as shown beam

(i) joint P_1

Hand rail	0.20×4.20	$= 0.84$ t
curb	$2.5 \times 0.20 \times 0.30 \times 4.20$	$= 0.63$ "
Distributed load	$1.77 \times 1/2 \times (0.40 + 3.80) \times 3.40$	$= 12.64$ "
"	$1.77 \times 0.40 \times 4.20$	$= 2.97$ "
Track weight	$0.16 \times 1/2 \times (1.585 + 3.80) \times 2.215$	$= 0.95$ "
"	$0.16 \times 0.615 \times 4.20$	$= 0.41$ "

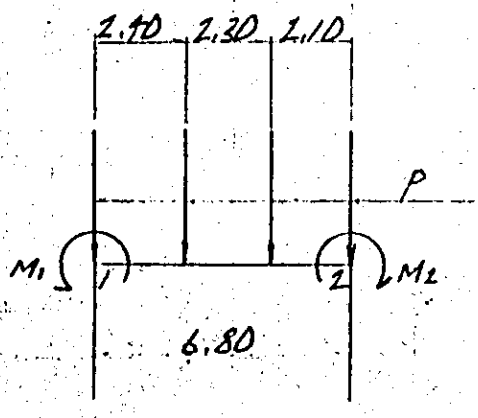
Balast	$0.91 \times 1.95 \times 4.20$	=	7.45^{t}
Sloping concrete	$0.16 \times 1.95 \times 4.20$	=	$1.31^{"}$
Slab	$2.5 \times 1/2 \times (0.20 + 0.43) \times 1.75$		
	$\times 4.20$	=	$5.79^{"}$
Cross beam	$2.5 \times 0.80 \times 1.42 \times 1.30$	=	$3.69^{"}$
Beam seat	$2.5 \times 1/2 \times (0.45 + 0.75) \times 0.70 \times 1.30$	=	$1.37^{"}$
Slab haunch	$2.5 \times 1/2 \times 0.45 \times 0.15 \times 3.25$	=	$0.27^{"}$
Cross beam haunch	$2.5 \times 1/2 \times 0.10 \times 0.10 \times 0.80 \times 2$	=	$0.02^{"}$
Longitudinal beam	$2.5 \times 0.80 \times 0.92 \times 3.40$	=	$6.26^{"}$
Longitudinal beam haunch	$2.5 \times 1/2 \times 1.20 \times 0.40 \times 0.80$	=	$0.48^{"}$
Deficat of column weight	$-2.5 \times 0.80 \times 0.80 \times (1.70 - 0.665)$	=	$-1.66^{"}$
		P_1 =	43.42^{t}

(ii) joint P_2

Hand rail	0.20×4.20	=	0.84^{t}
curb	$2.5 \times 0.20 \times 0.30 \times 4.20$	=	$0.63^{"}$
Distributed load	$1.77 \times 1/2 \times (0.40 + 3.80) \times 3.40$	=	$12.64^{"}$
"	$1.77 \times 0.40 \times 4.20$	=	$2.97^{"}$
Track weight	$0.16 \times 1/2 \times (1.885 + 3.80) \times 1.915$	=	$0.87^{"}$
"	$0.16 \times 0.915 \times 4.20$	=	$0.61^{"}$

Ballast	$0.91 \times 2.25 \times 4.20$	$= 8.60^{t}$
sloping concrete	$0.16 \times 2.25 \times 4.20$	$= 1.51$ "
Slab	$2.5 \times 1/2 \times (0.20+0.43) \times 2.05 \times 4.20$	$= 6.78$ "
Cross beam	$2.5 \times 0.80 \times 1.42 \times 1.60$	$= 4.54$ "
Beam seat	$2.5 \times 1/2 \times (0.45+0.75) \times 0.70 \times 1.60$	$= 1.68$ "
Slab haunch	$2.5 \times 1/2 \times 0.45 \times 0.15 \times 3.25$	$= 0.27$ "
Cross beam haunch	$2.5 \times 1/2 \times 0.10 \times 0.10 \times 0.80 \times 2$	$= 0.02$ "
Longitudinal beam haunch	$2.5 \times 1/2 \times 1.20 \times 0.40 \times 0.80$	$= 0.48$ "
Longitudinal beam	$2.5 \times 0.80 \times 0.92 \times 3.40$	$= 6.26$ "
	$-2.5 \times 0.80 \times 0.80 \times (1.70 - 0.665)$	$= -1.66$ "
		$P_2 = 47.04^{t}$

(d) Moment at joint caused by beam of bridge support and T-beam brige

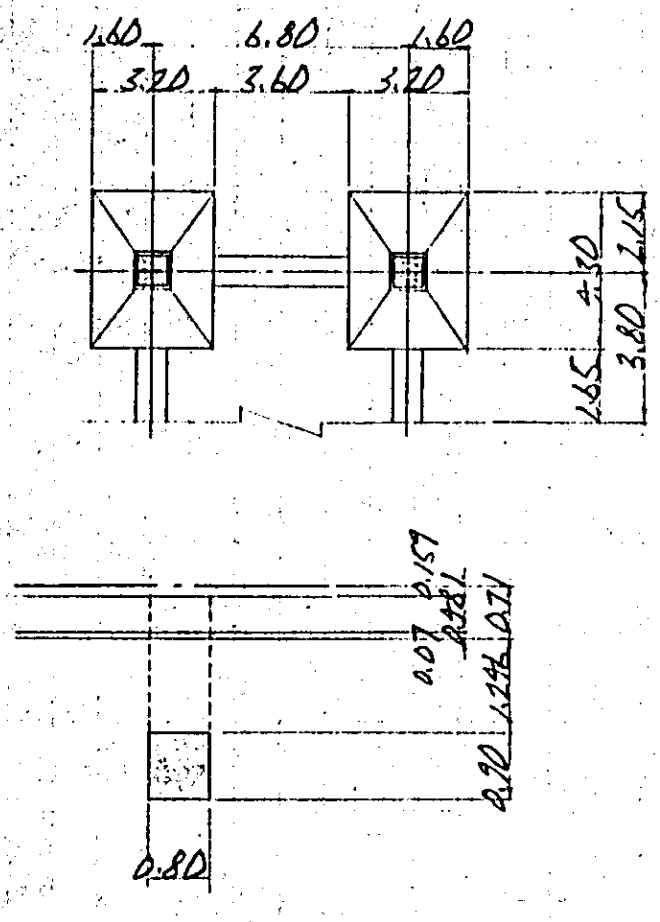


$P = 34.00^{t}$

$M_1 = 34.00 \times 0.80 = 27.20^{t\cdot m}$

$M_2 = 34.00 \times 1.10 = 37.40$ "

(2) Member (3~4)



(a) Distributed load (A)

Ballast	1.9 × 0.481	= 0.91	t/m²
Grading concrete	2.35 × 0.07	= 0.16	"
		1.07	t/m²
Earth weight	1.8 × 0.946	= 1.70	t/m²
"	1.8 × 1.246	= 2.24	"

(b) Distributed load (B)

$$Wd = (1.07 + 2.24) \times 0.80 + 2.5 \times 0.80 \times 0.90$$
$$= 4.45 \ t/m$$

(C) Concentrated load of elements acting at joint P_3, P_4 as shown bellow

(i) joint P_3, P_4

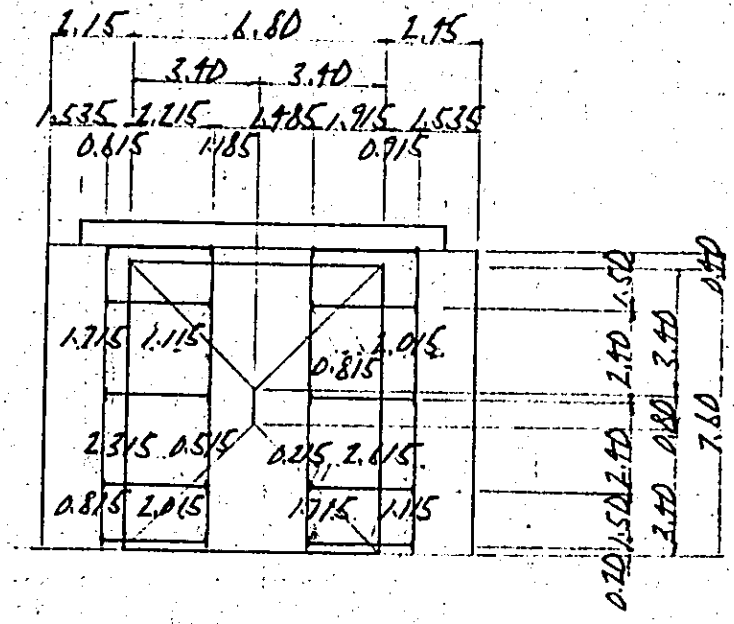
Distributed load (B)	4.45×1.65	$= 7.34^t$
Distributed load (A)	$1.07 \times (3.20 \times 4.30 - 0.80^2)$	$= 14.04''$
Earth weight	$1.7 \times (3.20 \times 4.30 - 0.80^2)$	$= 22.30''$
"	$1.8 \times \{3.20 \times 4.30 - 1/6 \times (1.00^2 + 3.20 \times 4.30 + 4 \times 2.10 \times 2.65)\} \times 0.30$	$= 4.10''$
Footing	$2.5 \times \{3.20 \times 4.30 \times 0.90 + 1/6 \times (1.00^2 + 3.20 \times 4.30 + 4 \times 2.10 \times 2.65) \times 0.30\}$	$= 35.59''$
Dificit of column weight	$-2.5 \times 0.80^2 \times (0.30 + 0.45)$	$= -1.20''$
Dificit of distributed load	-4.45×1.60	$= -7.12''$
		$P_{3.4} = 75.05^t$

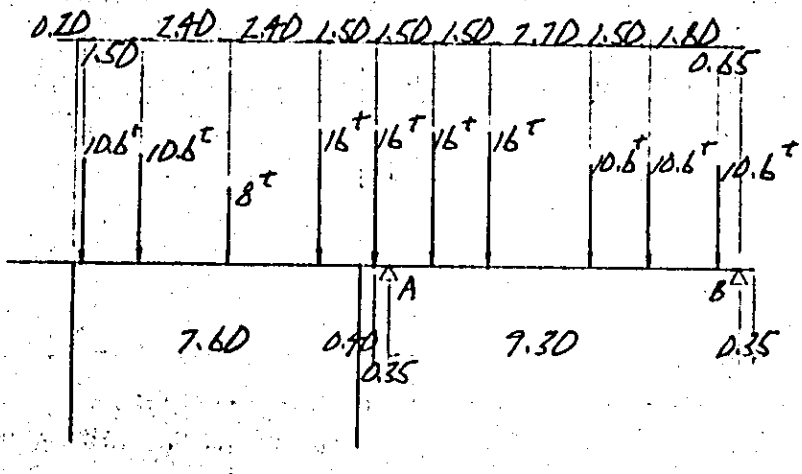
(3) Column weight

$$g = 2.5 \times 0.80 \times 0.80 = 1.60 \ t/m$$

2. Train load + Impact (ks-16)

(1) Train load





$$w_{l1} = \frac{16}{2.83} = 5.65\ t/m$$

$$w_{l2} = \frac{10.6}{2.83} = 3.75\ "$$

$$w_{l3} = \frac{8}{2.83} = 2.83\ "$$

(2) Reduction of impact coefficient

$l_1 = 6.80$ m ——— $i' = 0.462 \times (1 - \frac{6.80}{200}) = 0.446$

$l_2 = 7.60$ " ——— $i' = 0.454 \times (1 - \frac{7.60}{200}) = 0.437$

$l_3 = 9.30$ " ——— $i' = 0.437$

(3) Train load + Impact

(A) Train load

(i) Distributed load

$w_{l+i1} = 5.65 \times (1 + 0.446) = 8.17$ t/m

$w_{l+i2} = 5.65 \times (1 + 0.446) \times 2 = 16.34$ "

(iii) Distributed load of longitudinal beam

1) joint P_1

$$P_{l+i1} = \frac{1}{7.60} \times \{3.75 \times (0.815 \times 7.40 + 2.315 \times 5.90) + 8 \times 3.50 + 5.65 \times 1.715 \times 6.50\} \times (1 + 0.437) + 5.65 \times 0.615 \times (1 + 0.437)$$

$$= 36.16 \text{ t}$$

2) joint P_2

$$P_{l+i2} = \frac{1}{7.60} \times \{3.75 \times (1.115 \times 7.40 + 2.615 \times 5.90) + 8 \times 3.50 + 5.65 \times 2.015 \times 6.50\} \times (1 + 0.437) + 5.65 \times 0.915 \times (1 + 0.437)$$

$$= 43.51 \text{ t}$$

(b) Reaction of T-beam superstructure

$$R_{A1} = \frac{1}{9.80} \times \{10.6 \times (0.65 + 2.45 + 3.95) + 16 \times (6.65 + 8.15)\}$$

$$= 33.50^{t}$$

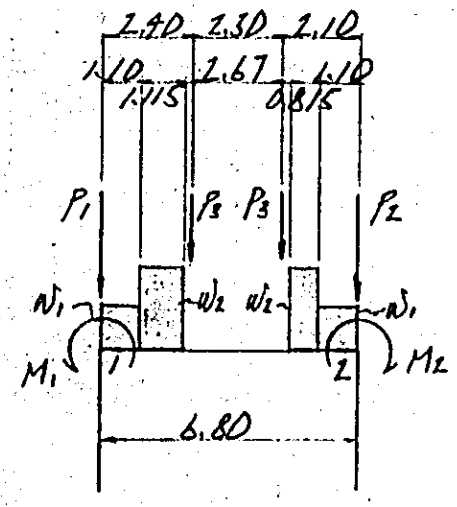
where

$$R_{1+i} = 33.50 \times (1 + 0.437) \times 1/2 = 24.07^{t}$$

$$M_{1+i1} = 24.07 \times 0.80 = 19.26^{t\cdot m}$$

$$M_{1+i2} = 24.07 \times 1.10 = 26.48\ ''$$

(4) Composition of rigid frame and T-Beam



$w_1 = 8.17^{t/m}$

$w_2 = 16.34\ ''$

$P_1 = 36.16 + 24.07 = 60.23^{t}$

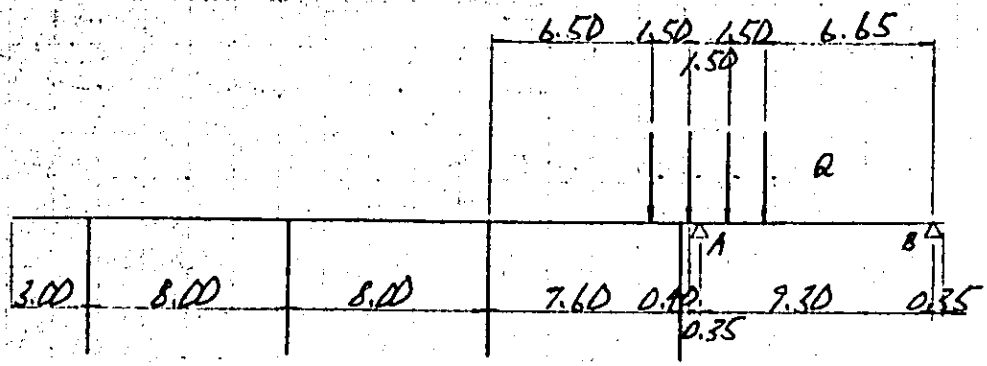
$P_2 = 43.51 + 24.07 = 67.58\ ''$

$P_3 = 24.07^{t}$

$M_1 = 19.26^{t\cdot m}$

$M_2 = 26.48\ ''$

3. Train lateral Load



$$Q = 1.6 \times 0.15 = 2.40\ ^{t}$$

$$H = -\frac{2.40}{7.60} \times 6.50 + \frac{2.40}{9.30} \times (6.65 + 8.15) + 2.40$$

$$= 8.27\ ^{t}$$

4. Force of temperature change and/or Drying contraction

Temperature rise + 10 deg

Temperature drop + Drying contraction − 25 deg

5. Dead load + Seismic force

(1) W_1

Track weight	$0.45 \times 4.20 \times 2$	$= 3.78$ t
Curb	$2.5 \times 0.20 \times 0.30 \times 4.20 \times 2$	$= 1.26$ "
Hand rail	$0.20 \times 4.20 \times 2$	$= 1.68$ "
Ballast	$1.9 \times 11.00 \times 0.781 \times 4.20$	$= 42.22$ "
Sloping concrete	$2.35 \times 11.00 \times 0.07 \times 4.20$	$= 7.60$ "
Slab	$2.5 \times 7.60 \times 0.28 \times 4.20$	$= 22.34$ "
"	$2.5 \times 1/2 \times (0.20 + 0.43) \times 1.75 \times 4.20$	$= 5.79$ "
"	$2.5 \times 1/2 \times (0.20 + 0.43) \times 2.05 \times 4.20$	$= 6.78$ "
Slab haunch	$2.5 \times 1/2 \times 0.45 \times 0.15 \times (3.25 \times 2 + 5.70)$	$= 1.03$ "
Longitudinal beam	$2.5 \times 0.80 \times 0.92 \times 3.40 \times 2$	$= 12.51$ "
Longitudinal beam haunch	$2.5 \times 1/2 \times 1.20 \times 0.40 \times 0.80 \times 2$	$= 0.96$ "
Beam seat	$2.5 \times 1/2 \times (0.45 + 0.75) \times 0.70 \times 9.70$	$= 10.19$ "
Cross beam	$2.5 \times 0.80 \times 1.42 \times 9.70$	$= 27.55$ "
Cross beam haunch	$2.5 \times 1/2 \times 0.10 \times 0.10 \times 0.80 \times 4$	$= 0.04$ "
Column	$2.5 \times 0.80 \times 0.80 \times (1/2 \times 9.235 + 0.665 - 1.70) \times 2$	$= 11.46$ "
T-beam	$34.00 \times 2 \times 2$	$= 136.00$ "
		$W_1 = 291.19$ t

$\therefore Hd_1 = 291.19 \times 0.1 = 29.19$ t

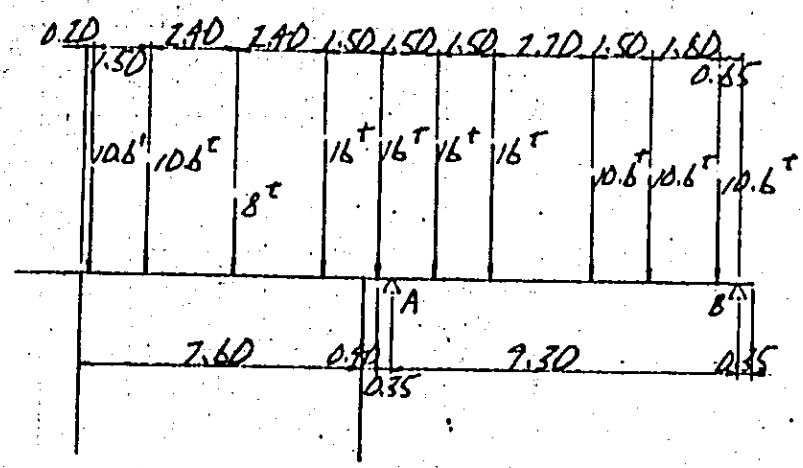
(2) W_2

Bracing beam	$2.5 \times 0.80 \times 0.90 \times (1.85 \times 2 + 3.60)$	$= 13.14^{t}$
footing	$2.5 \times 3.20 \times 4.30 \times 0.90 \times 2$	$= 61.92^{"}$
"	$2.5 \times 1/6 \times (1.00 \times 1.00 + 3.20 \times 4.30$	
	$+4 \times 2.10 \times 2.65) \times 0.30 \times 2$	$= 9.26^{"}$
column	$2.5 \times 0.80 \times 0.80 \times (1/2 \times 9.235$	
	$- 0.30 - 0.45) \times 2$	$= 12.38^{"}$
		$W_2 = 96.70^{t}$

$\therefore H_{d2} = 96.70 \times 0.1 = 9.67^{t}$

b. Centrifugal load

Train load



$$P_A = \frac{1}{7.60} \times \{10.6 \times (0.20 + 1.70) + 8 \times 4.10 + 16 \times (6.50 + 8.00)\}$$

$$+ \frac{1}{9.30} \times \{10.6 \times (0.65 + 2.45 + 3.95) + 16 \times (6.65 + 8.15)\}$$

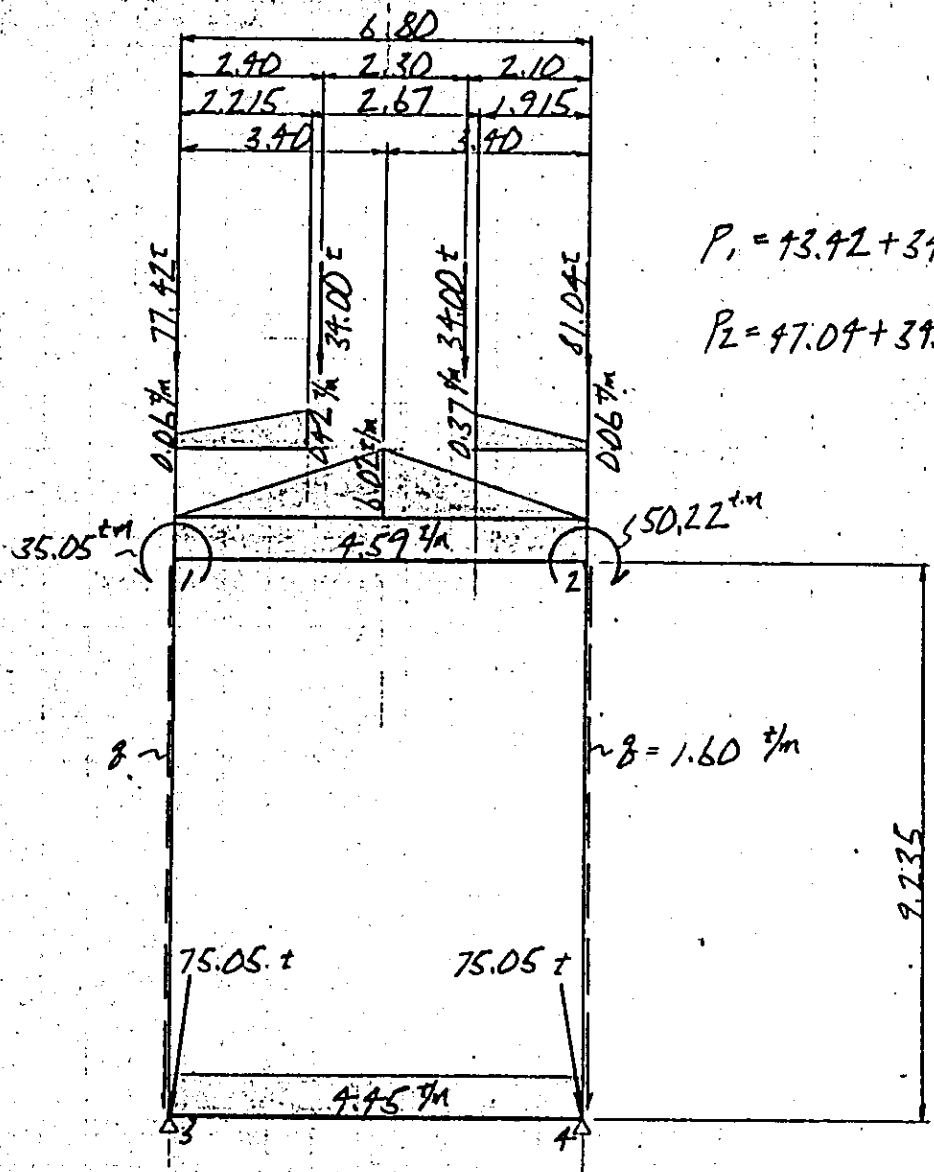
$$= 37.49 + 33.50 = 70.99^{t}$$

$$R = 500^{m} \longrightarrow \alpha = 0.12$$

$$\therefore H = 70.99 \times 0.12 \times 2 = 17.04^{t}$$

(3) Loading diagram

case 1 Dead load



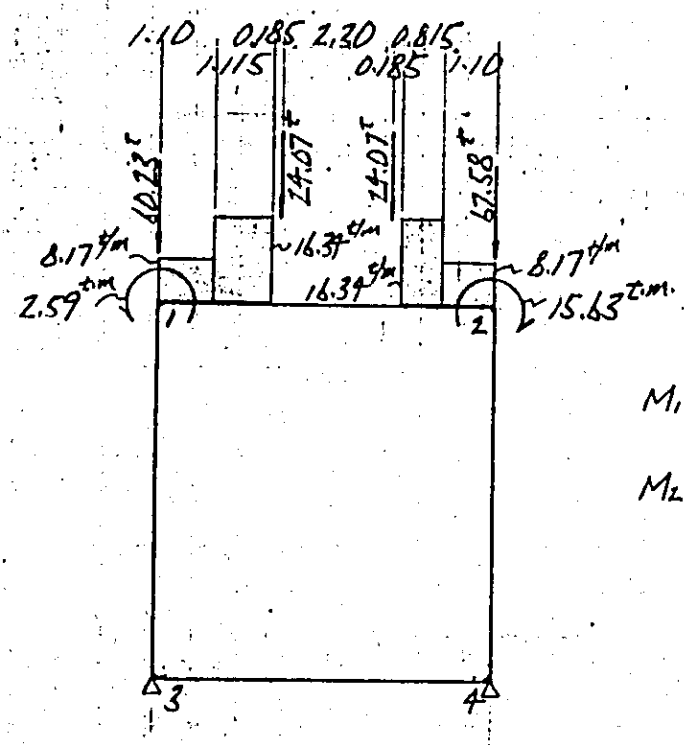
$P_1 = 43.42 + 34.00 = 77.42^{t}$

$P_2 = 47.04 + 34.00 = 81.04^{"}$

$M_1 = -27.20 - 7.85 = -35.05^{t\cdot m}$

$M_2 = 37.40 + 12.82 = 50.22^{"}$

case 2. Train load + Impact

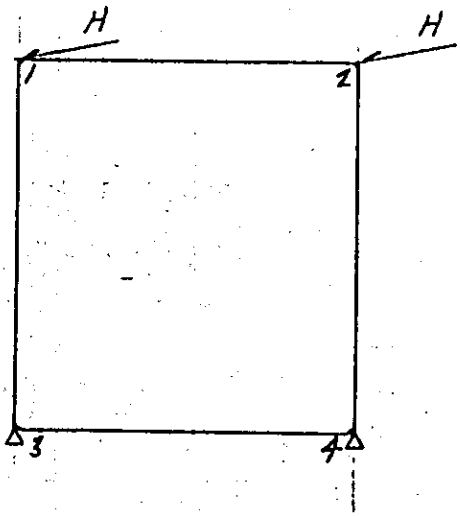


$M_1 = -19.26 + 16.67 = -2.59$ t·m

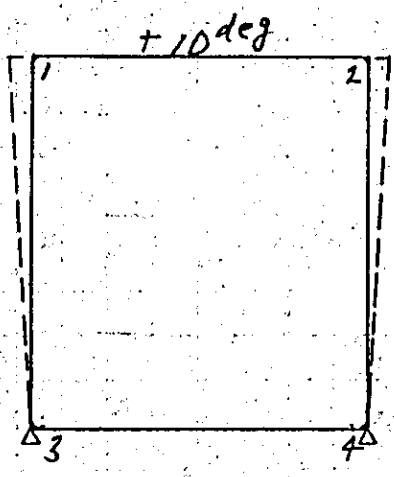
$M_2 = 26.48 - 10.85 = 15.63$ "

case 3: Train lateral load

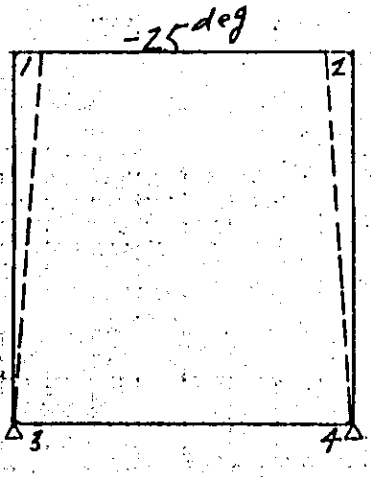
$$H = 1/2 \times 8.27 = 4.14\ t$$



case 4. Temperature rise



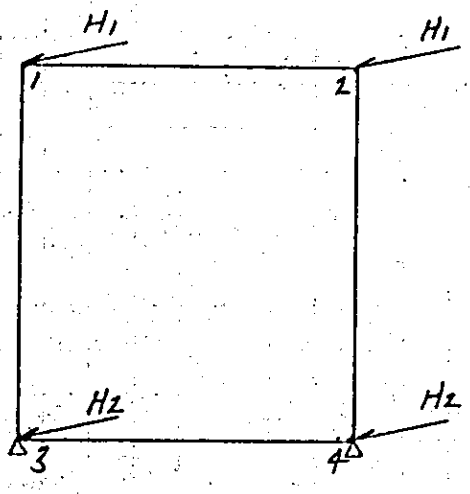
case 5. Temperature drop + drying contraction



case 6. Seismic load

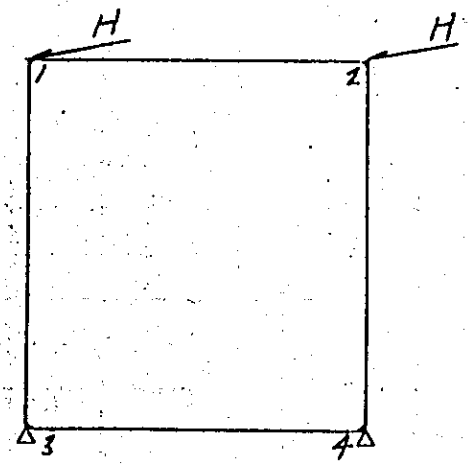
$H_1 = 1/2 \times 29.12 = 14.56^{t}$

$H_2 = 1/2 \times 9.67 = 4.84^{"}$



case 7. Centrifugal load

$H = 1/2 \times 17.04 = 8.52^{t}$



(4) Combination of loads

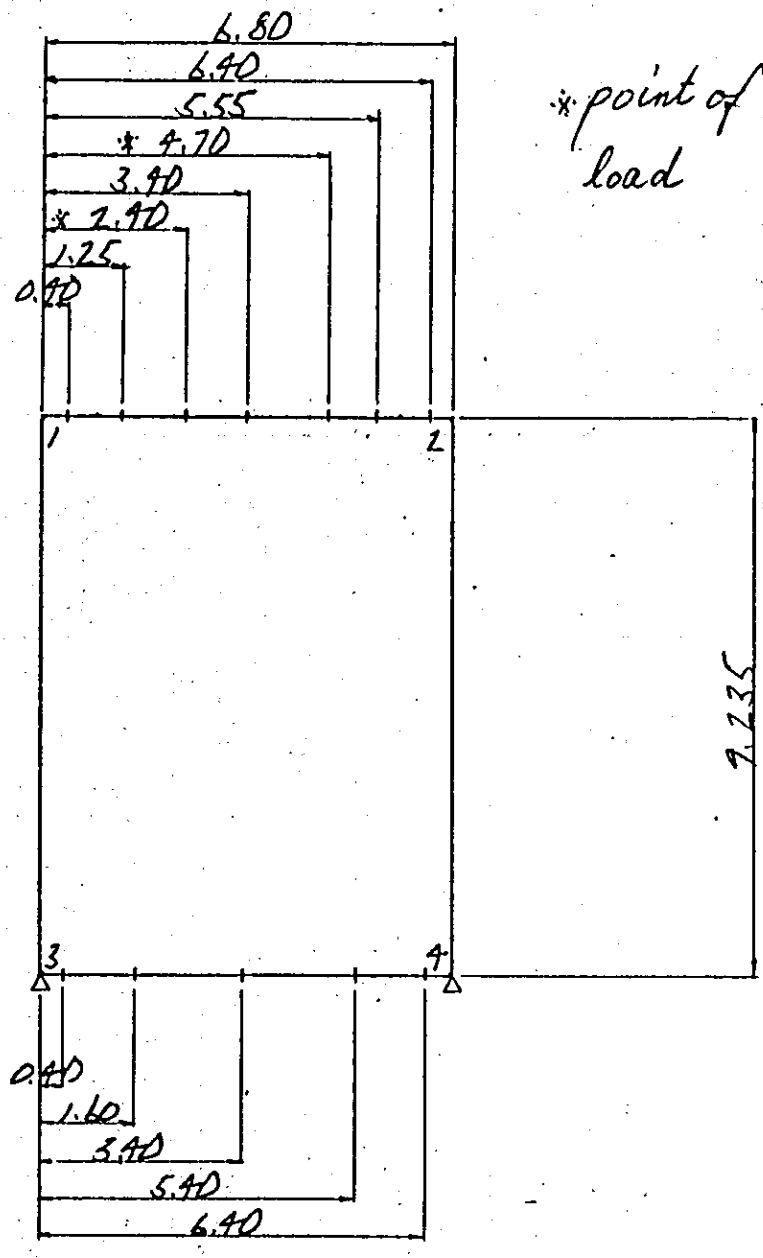
1. Basic load

Case No.	Kind of load	Loading patterm
1	Dead load	
2	Train load + Impact	
3	Train lateral load	
4	Temperature rise	
5	Temperature drop + drying contraction	
6	Seismic load	
7	Centrifugal load	

2. Critical cases

case no.	α	combination of loads	Summary
8	1.0000	1	D
9	1.0000	1 + 2 + 7	D + T + I + C
10	0.8696	1 + 2 + 3 + 7	D + T + I + C + Te
11	〃	1 + 2 − 3 + 7	〃
12	0.8696	1 + 4	D + Te
13	〃	1 + 5	〃
14	0.6667	1 + 6	D + Se
15	〃	1 − 6	〃
16	1.0000	1 + 2 + 3 + 7	D + Tr + I + C + Te
17	〃	1 + 2 − 3 + 7	〃
18	1.0000	1 + 4	D + Te
19	〃	1 + 5	〃
20	1.0000	1 + 6	D + Se
21	〃	1 − 6	〃
		NO.1 case 1	Crack
		NO.2 case 9 ~ 15	Synthetic
		NO.3 case 16 ~ 17	footing
		NO.4 case 18 ~ 19	〃
		NO.5 case 20 ~ 21	〃

(5) Point of computing stresses



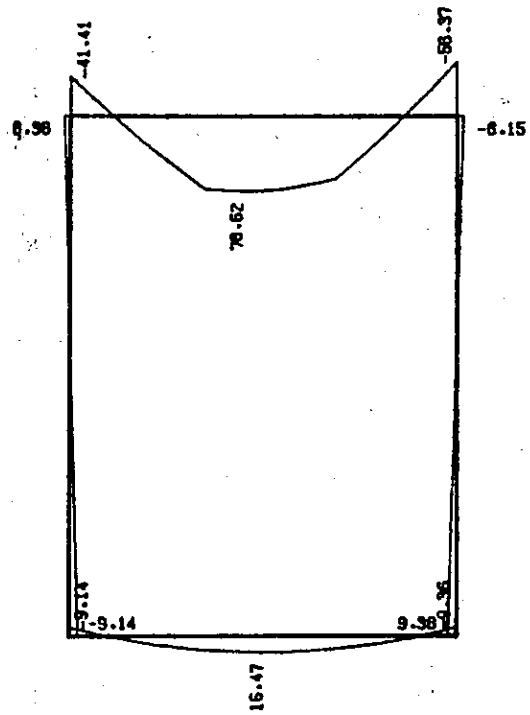
* point of concentrated load

[6] stress diagram

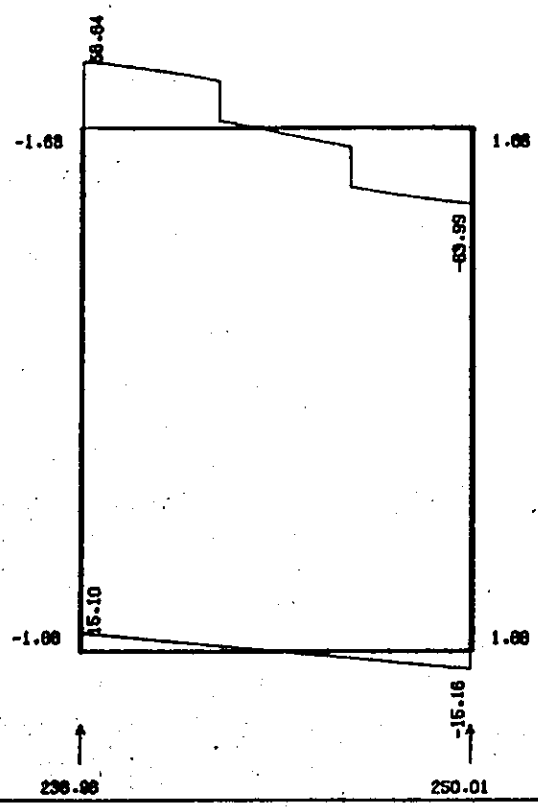
VIADUCT OF DOUBLE TRACK (3+3*8=27) C-1

CASE 1 (DEAD LOAD)

BENDING MOMENT



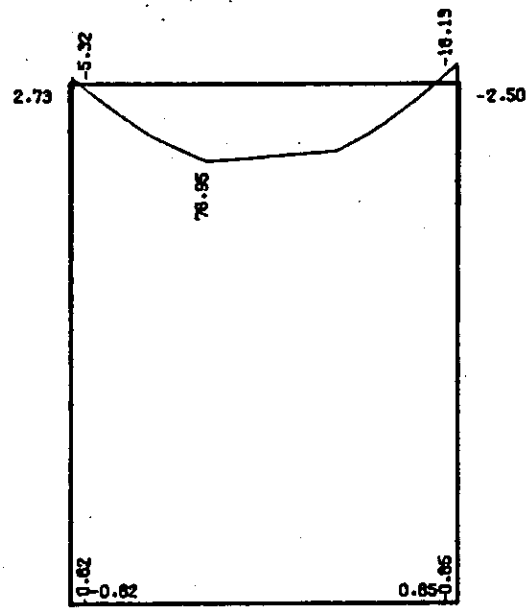
SHEARING FORCE



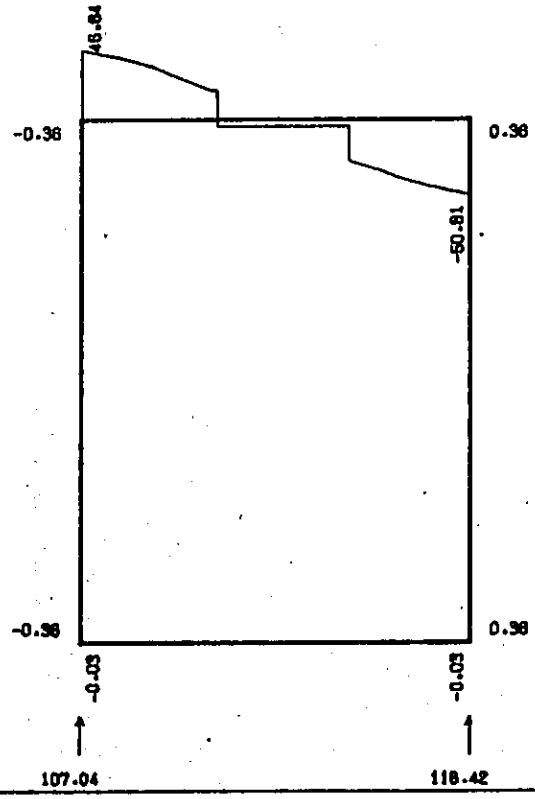
VIADUCT OF DOUBLE TRACK (3+3*8=27) C-1

CASE 2 (TRAIN LOAD + IMPACT LOAD)

BENDING MOMENT



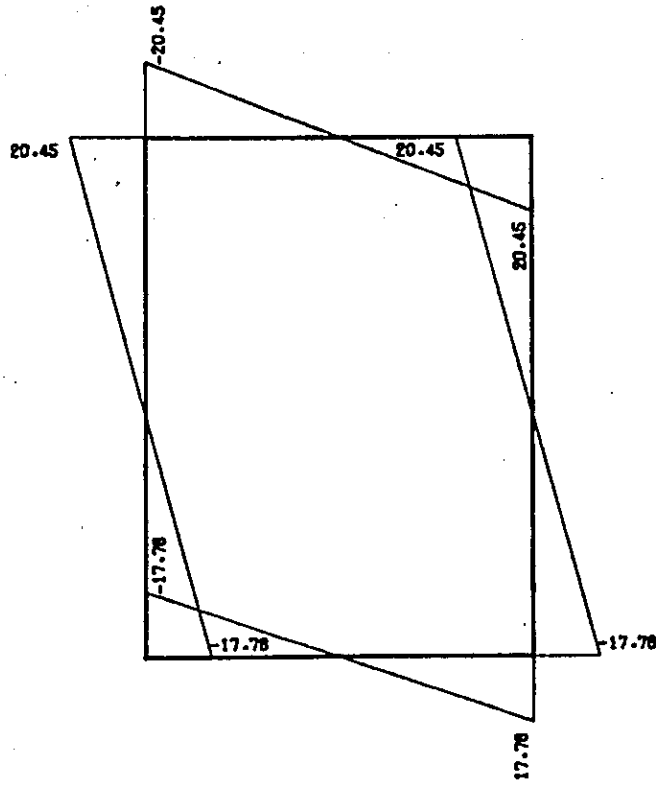
SHEARING FORCE



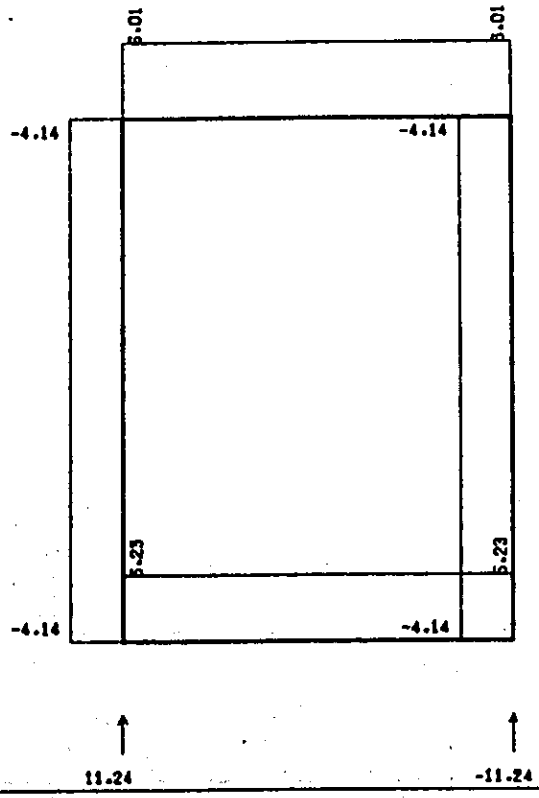
VIADUCT OF DOUBLE TRACK (3+3*8=27) C-1

CASE 3 (TRAIN LATERAL LOAD)

BENDING MOMENT



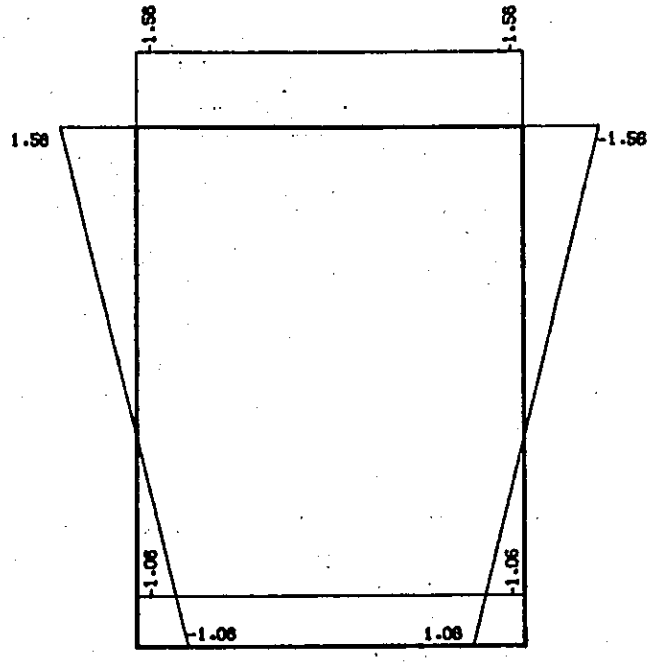
SHEARING FORCE



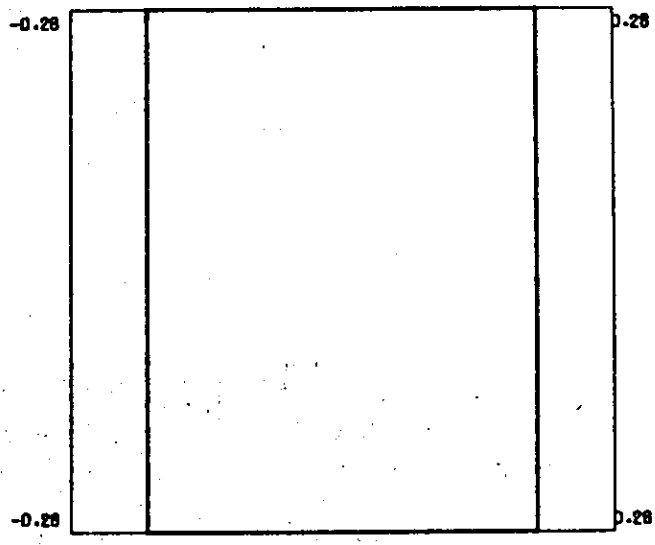
VIADUCT OF DOUBLE TRACK (3+3*8=27) C-1

CASE 4 (TEMPERATURE)

BENDING MOMENT



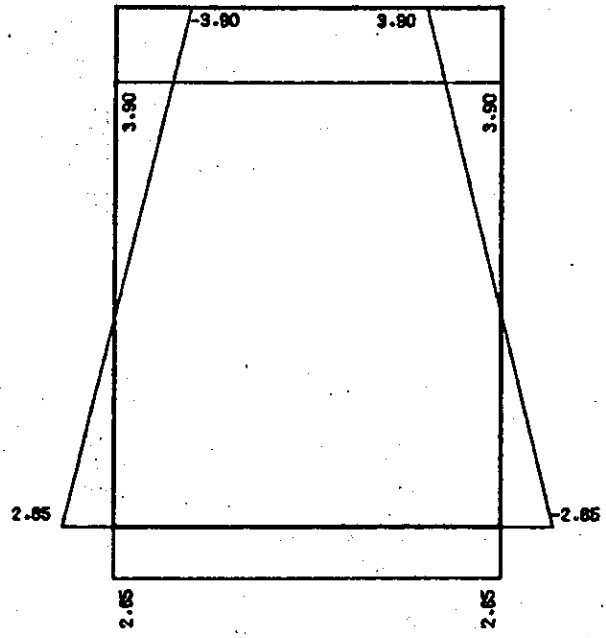
SHEARING FORCE



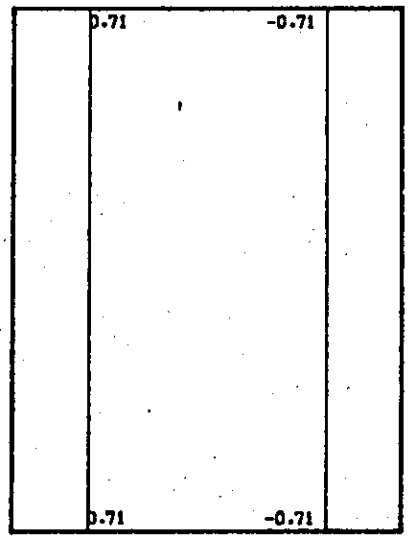
VIADUCT OF DOUBLE TRACK (3+3*8=27) C-1

CASE 5 (TEMPERATURE + SCHRINKAGE)

BENDING MOMENT



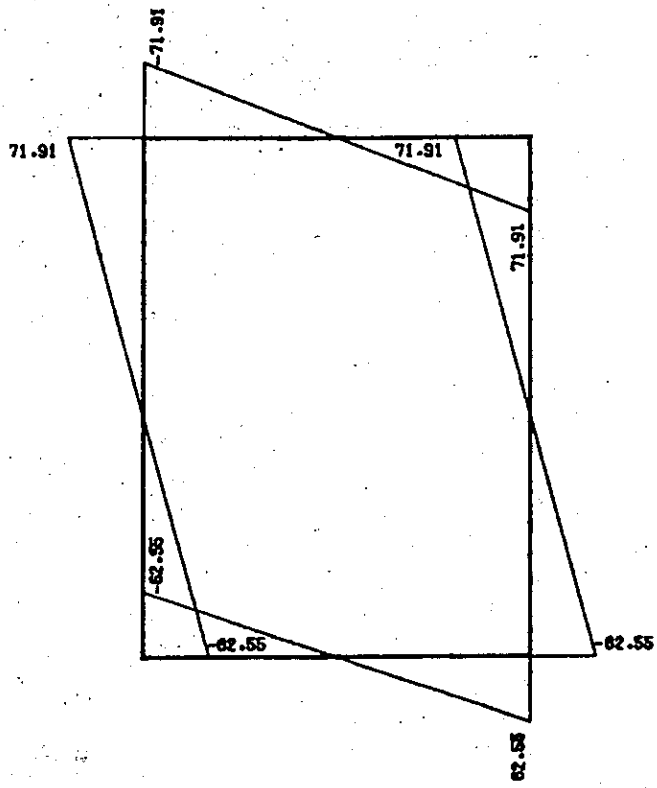
SHEARING FORCE



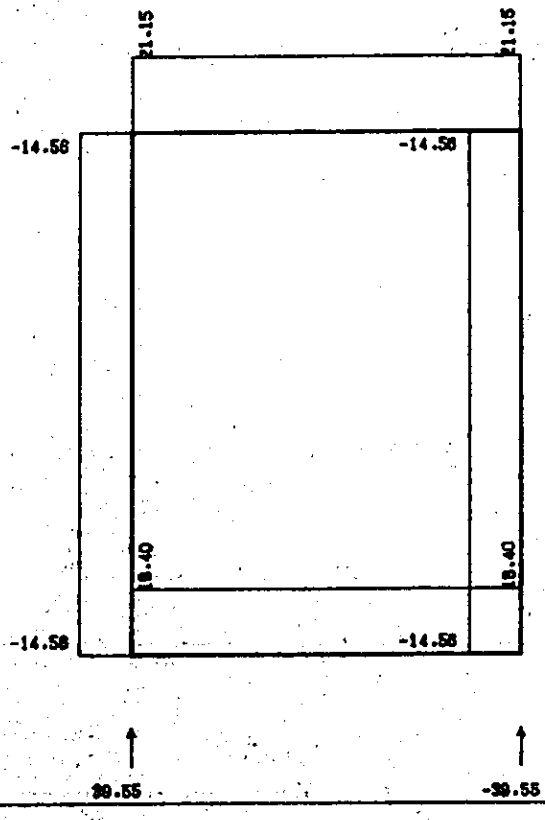
VIADUCT OF DOUBLE TRACK (3+3*8=27) C-1

CASE 6 (SEISMIC LOAD)

BENDING MOMENT



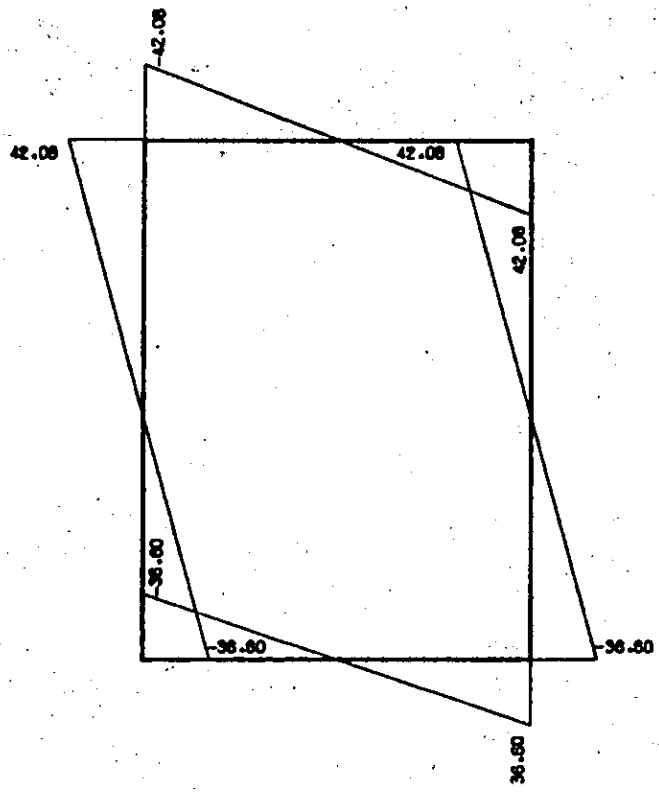
SHEARING FORCE



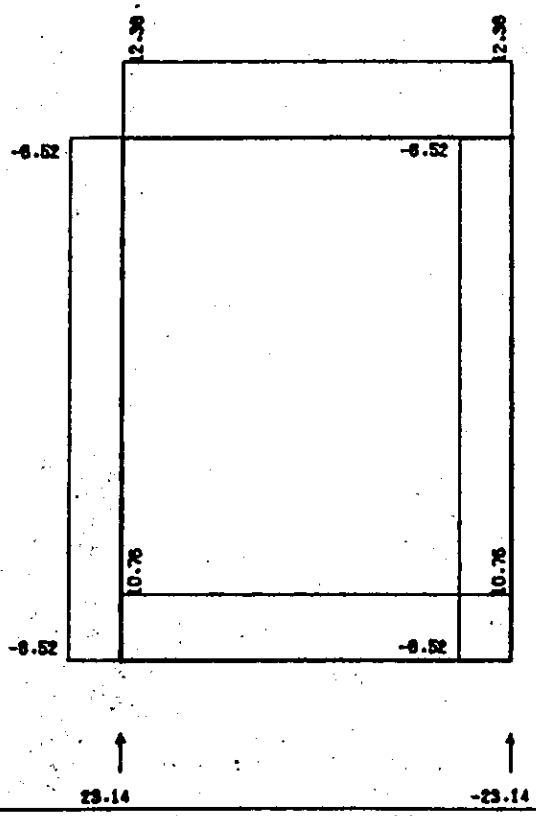
VIADUCT OF DOUBLE TRACK (3+3*8=27) C-1

CASE 7 (CENTRIFUGAL LOAD)

BENDING MOMENT



SHEARING FORCE



Input Data


```
=== INPUT DATA ===                                                              CRC-FANSY   V6.3    PAGE -   1

          5   10        20        30        40        50        60        70        80      CARD NUMBER
          ................................................................................

TITLE     VIADUCT OF DOUBLE TRACK (3+3*8=27) C-1                                                  1
PLOT          1      2                         5.0                                                2
TYPE5-1-1 L=6.8  H=9.235  M1=2.732,0.80349  M2=0.72,0.0486                                        3
          M3-4=0.64,0.03413  P=2.7E+6,1.0E-5  S=1                                                 4
POINT     1 0.4       1.25      *2.4      3.4       *4.7      5.55      6.4                       5
          2 0.4       1.6       3.4       5.4       5.4                                           6
PICKUP          1   1    1                                                                        7
                2   1    9    15                                                                  8
                3   1    16   17                                                                  9
                4   1    18   19                                                                  10
                5   1    20   21                                                                  11
LOAD            1     CASE  1 (DEAD LOAD)                                                         12
J               1             -77.42    35.05                                                     13
                2             -81.04    -50.22                                                    14
                3             -75.35                                  4                           15
SC              1   2-34.0    2.4       -34.0     2.3                                             16
D               1  3 2-0.06   -0.42     2.215                                   2.67              17
                    -0.37     -0.06     1.915                                                     18
DL              1   2-6.02    3.4       3.4                                                       19
                1   2-4.59                                                                        20
                2   2-4.45                                                                        21
                3   2-1.6                                             4                           22
END                                                                                               23
LOAD            2     CASE  2 (TRAIN LOAD + IMPACT LOAD)                                          24
J               1             -50.23    2.59                                                      25
                2             -67.58    -15.63                                                    26
SC              1   2-24.07   2.4       -24.07    2.3                                             27
D               1  5 2-8.17   -8.17     1.1       -16.34    -16.34    1.115                       28
                                        2.67      -16.34    -16.34    0.815                       29
                      -8.17   -8.17     1.1                                                       30
END                                                                                               31
LOAD            3     CASE  3 (TRAIN LATERAL LOAD)                                                32
J               1     -4.14                                   2                                   33
END                                                                                               34
LOAD            4     CASE  4 (TEMPERATURE)                                                       35
T               1      10.0                                                                       36
END                                                                                               37
LOAD            5     CASE  5 (TEMPERATURE + SCHRINKAGE)                                          38
T               1     -25.0                                                                       39
END                                                                                               40
LOAD            6     CASE  6 (SEISMIC LOAD)                                                      41
J               1     -14.56                                  2                                   42
                3     -4.84                                   4                                   43
END                                                                                               44
LOAD            7     CASE  7 (CENTRIFUGAL LOAD)                                                  45
J               1     -8.52                                   2                                   46
END                                                                                               47
MT2        8               1                                                                      48
           9               1    2    7                                                            49
           100.8696        1    2    3    7                                                       50
           110.8696        1    2    -3   7                                                       51
           120.8696        1    4                                                                 52
           130.8696        1    5                                                                 53
           140.6667        1    6                                                                 54
           150.6667        1    -6                                                                55
           16              1    2    3    7                                                       56
           17              1    2    -3   7                                                       57
```

```
       5   10        20        30        40        50        60        70        80    CARD NUMBER
     ........................................................................................
           18              1    4                                                      58
           19              1    5                                                      59
           20              1    6                                                      60
           21              1   -6                                                      61
     FINISH                                                                            62
```

CONTROL DATA

METHOD	STRUCTURE	J.RENUMBER	M.RENUMBER	S.F. DIS.	UNI.SPRING	STAN.STIF.	BARA	SKEW MEM.
DIS	*RAHMEN*	*OFF*	*OFF*	*OFF*	*OFF*	*OFF*	*OFF*	*OFF*

LOAD TITLE

LOAD 1	CASE 1 (DEAD LOAD)	LOAD 2	CASE 2 (TRAIN LOAD + IMPACT LOAD)
LOAD 3	CASE 3 (TRAIN LATERAL LOAD)	LOAD 4	CASE 4 (TEMPERATURE)
LOAD 5	CASE 5 (TEMPERATURE + SCHRINKAGE)	LOAD 6	CASE 6 (SEISMIC LOAD)
LOAD 7	CASE 7 (CENTRIFUGAL LOAD)		
MIX 8	CASE 8 (1.0000 * 1)	MIX 9	CASE 9 (1+2+7)
MIX 10	CASE 10 (1+2+3+7)	MIX 11	CASE 11 (1+2-3+7)
MIX 12	CASE 12 (1+4)	MIX 13	CASE 13 (1+5)
MIX 14	CASE 14 (1+6)	MIX 15	CASE 15 (1-6)
MIX 16	CASE 16 (1+2+3+7)	MIX 17	CASE 17 (1+2-3+7)
MIX 18	CASE 18 (1+4)	MIX 19	CASE 19 (1+5)
MIX 20	CASE 20 (1+6)	MIX 21	CASE 21 (1-6)

PICK UP LOAD CASE

PICK 1	1							
PICK 2	9	10	11	12	13	14	15	
PICK 3	16	17						
PICK 4	18	19						
PICK 5	21	21						

JOINT DATA

JOINT NUMBER 4

ZAHYO(M) JOINT	X	Y
1	0.0000	9.2350
2	6.8000	9.2350
3	0.0000	0.0000
4	6.8000	0.0000

MEMBER DATA

MEMBER NUMBER 4

MEMBER	ITAN	JTAN	CONNECT. ITAN	JTAN	LENGTH	A	I	AE3	KD(BANE)	PRO.NUM
1	1	2	FIX	FIX	6.8000	2.73200	.8034900			1
2	3	4	FIX	FIX	6.8000	.72000	.0486000			1
3	1	3	FIX	FIX	9.2350	.84000	.0341300			1
4	2	4	FIX	FIX	9.2350	.54000	.0341300			1

PROPERTY DATA

PROPERTY NUMBER 1

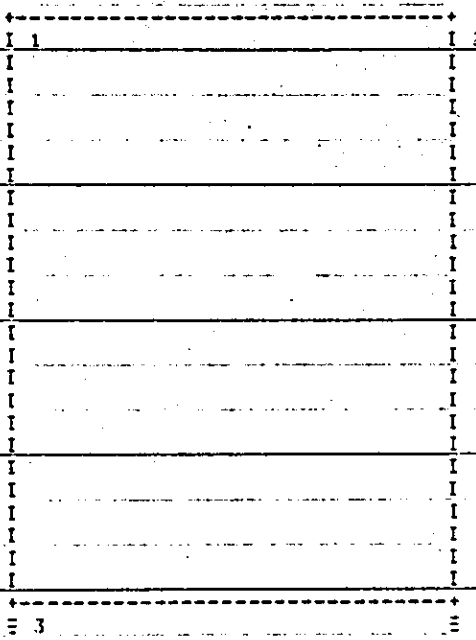
PROPERTY	E	G	EPS
1	2.700E+06	0.	1.000E-05

SUPPORT DATA

SUPPORT NUMBER 2

SUPPORT	SUPPORT-JYOKEN	X	Y	THET Z	X(BANE)	Y(BANE)	THET Z(BANE)
3		FIX	FIX	FREE	0.0	0.0	0.0
4		FIX	FIX	FREE	0.0	0.0	0.0

STRUCTURAL FIGURE



MOVE DATA

MEMBER	GOIKI ITAN	GOIKI JTAN	POINT 1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	.....	.....	.400	1.250	2.400	2.400	3.400	4.700	4.700	5.550	6.400					
2	.....	.....	.400	1.600	3.400	5.400	6.400									
3	.....	.....														
4	.....	.....														

LOAD DATA

	M/J	NAME	D	W1	W2	L1	L2
LOAD - 1		CASE 1 (DEAD LOAD)					
MEMBER	1	LINEAR	Y	-.060	-.420	0.000	4.585
		LINEAR	Y	-.370	-.060	4.885	0.000
		LINEAR	Y	0.000	-6.020	3.400	3.400
		LINEAR	Y	-6.020	0.000	3.400	0.000
		LINEAR	Y	-4.590	-4.590	0.000	0.000
		CONCENT	Y	-34.000		2.400	
		CONCENT	Y	-34.000		4.700	
	2	LINEAR	Y	-4.450	-4.450	0.000	0.000
	3	LINEAR	Y	-1.600	-1.600	0.000	0.000
	4	LINEAR	Y	-1.600	-1.600	0.000	0.000
JOINT	1	JOINTLOAD	Y	-77.420			
		JOINTLOAD	Z	35.050			
	2	JOINTLOAD	Y	-61.040			
		JOINTLOAD	Z	-50.220			
	3	JOINTLOAD	Y	-75.050			
	4	JOINTLOAD	Y	-75.050			
LOAD - 2		CASE 2 (TRAIN LOAD + IMPACT LOAD)					
MEMBER	1	LINEAR	Y	-8.170	-8.170	0.000	5.700
		LINEAR	Y	-16.340	-16.340	1.100	4.585
		LINEAR	Y	-16.340	-16.340	4.885	1.100
		LINEAR	Y	-8.170	-8.170	5.700	0.000
		CONCENT	Y	-24.070		2.400	
		CONCENT	Y	-24.070		4.700	
JOINT	1	JOINTLOAD	Y	-60.230			
		JOINTLOAD	Z	2.590			
	2	JOINTLOAD	Y	-67.580			
		JOINTLOAD	Z	-15.630			
LOAD - 3		CASE 3 (TRAIN LATERAL LOAD)					
JOINT	1	JOINTLOAD	X	-4.140			
	2	JOINTLOAD	X	-4.140			
LOAD - 4		CASE 4 (TEMPERATURE)					
MEMBER	1	TEMP		10.0(00)			
LOAD - 5		CASE 5 (TEMPERATURE + SCHRINKAGE)					
MEMBER	1	TEMP		-25.0(00)			
LOAD - 6		CASE 6 (SEISMIC LOAD)					
JOINT	1	JOINTLOAD	X	-14.560			
	2	JOINTLOAD	X	-14.560			
	3	JOINTLOAD	X	-4.840			
	4	JOINTLOAD	X	-4.840			
LOAD - 7		CASE 7 (CENTRIFUGAL LOAD)					

LOAD DATA

	M/J	NAME	O	W1	W2	L1	L2
JOINT	1	JOINTLOAD	X	-8.520			
	2	JOINTLOAD	X	-8.520			

MIX DATA

MIX NUMBER 14

LOAD	SS	N	S1	K1	S2	K2	S3	K3	S4	K4	S5	K5	S6	K6	S7	K7	S8	K8
8	1.0000	1	1.0000	1														
9	1.0000	3	1.0000	1	1.0000	2	1.0000	7										
10	.8696	4	1.0000	1	1.0000	2	1.0000	3	1.0000	7								
11	.8696	4	1.0000	1	1.0000	2	-1.0000	3	1.0000	7								
12	.8696	2	1.0000	1	1.0000	4												
13	.8696	2	1.0000	1	1.0000	5												
14	.6667	2	1.0000	1	1.0000	6												
15	.6667	2	1.0000	1	-1.0000	6												
16	1.0000	4	1.0000	1	1.0000	2	1.0000	3	1.0000	7								
17	1.0000	4	1.0000	1	1.0000	2	-1.0000	3	1.0000	7								
18	1.0000	2	1.0000	1	1.0000	4												
19	1.0000	2	1.0000	1	1.0000	5												
20	1.0000	2	1.0000	1	1.0000	6												
21	1.0000	2	1.0000	1	-1.0000	6												

REACTION

SUPPORT	X (TON)	Y (TON)	Z (TON.M)
LOAD - 1 CASE 1 (DEAD LOAD)			
3	1.679	238.980	0.000
4	-1.679	250.015	0.000
LOAD - 2 CASE 2 (TRAIN LOAD + IMPACT LOAD)			
3	.363	107.03[illegible]	0.000
4	-.363	116.422	0.000
LOAD - 3 CASE 3 (TRAIN LATERAL LOAD)			
3	4.140	11.245	0.000
4	4.140	-11.245	0.000
LOAD - 4 CASE 4 (TEMPERATURE)			
3	.293	.000	0.000
4	-.293	-.000	0.000
LOAD - 5 CASE 5 (TEMPERATURE + SCHRINKAGE)			
3	-.709	-.000	0.000
4	.709	.000	0.000
LOAD - 6 CASE 6 (SEISMIC LOAD)			
3	19.4[illegible]	39.546	[illegible]
4	19.400	-39.546	0.000
LOAD - 7 CASE 7 (CENTRIFUGAL LOAD)			
3	8.520	23.142	0.000
4	8.520	-23.142	0.000
MIX - 8 CASE 8 (1.0000 * 1)			
3	1.679	238.980	0.000
4	-1.679	250.015	0.000
MIX - 9 CASE 9 (1+2+7)			
3	10.562	369.150	0.000
4	6.478	345.295	0.000
MIX - 10 CASE 10 (1+2+3+7)			
3	12.785	330.800	0.000
4	9.333	306.49[illegible]	[illegible]
MIX - 11 CASE 11 (1+2-3+7)			
3	5.585	311.243	0.000
4	2.033	310.047	0.000
MIX - 12 CASE 12 (1+4)			
3	1.707	207.[illegible]47	0.000
4	-1.707	217.413	0.000
MIX - 13 CASE 13 (1+5)			
3	.844	207.817	0.000
4	-.844	217.413	0.000
MIX - 14 CASE 14 (1+6)			
3	14.054	155.[illegible]35	0.000
4	11.[illegible]14	140.319	0.000
MIX - 15 CASE 15 (1-6)			
3	-11.814	132.962	0.000
4	-14.054	193.051	0.000
MIX - 16 CASE 16 (1+2+3+7)			
3	14.702	380.405	0.000
4	10.[illegible]15	334.050	0.000
MIX - 17 CASE 17 (1+2-3+7)			
3	6.422	357.915	0.000
4	2.338	356.540	0.000
MIX - 18 CASE 18 (1+4)			
3	1.963	238.980	0.000
4	-1.963	250.015	0.000
MIX - 19 CASE 19 (1+5)			
3	.971	238.980	0.000
4	-.971	250.015	0.000
MIX - 20 CASE 20 (1+6)			
3	21.079	278.525	0.000
4	17.721	210.467	0.000
MIX - 21 CASE 21 (1-6)			
3	-17.721	199.433	0.000
4	-21.079	289.562	0.000

D E F L E C T I O N

	JOINT	X (MM)	Y (MM)	Z (MMRAD)
LOAD - 1	CASE 1 (DEAD LOAD)			
	1	.059	-.756	-.066
	2	.057	-.815	.043
	3	0.000	0.000	-.206
	4	0.000	0.000	.204
LOAD - 2	CASE 2 (TRAIN LOAD + IMPACT LOAD)			
	1	.062	-.572	-.087
	2	.061	-.633	.063
	3	0.000	0.000	.018
	4	0.000	0.000	-.020
LOAD - 3	CASE 3 (TRAIN LATERAL LOAD)			
	1	-3.751	-.032	.020
	2	-3.751	.032	.020
	3	0.000	0.000	.154
	4	0.000	0.000	.154
LOAD - 4	CASE 4 (TEMPERATURE)			
	1	-.340	-.000	.002
	2	.340	.000	-.002
	3	0.000	0.000	.027
	4	0.000	0.000	-.027
LOAD - 5	CASE 5 (TEMPERATURE + SCHRINKAGE)			
	1	.850	.000	-.006
	2	-.850	-.000	.006
	3	0.000	0.000	-.069
	4	0.000	0.000	.069
LOAD - 6	CASE 6 (SEISMIC LOAD)			
	1	-13.192	-.113	.071
	2	-13.192	.113	.071
	3	0.000	0.000	.540
	4	0.000	0.000	.540
LOAD - 7	CASE 7 (CENTRIFUGAL LOAD)			
	1	-7.719	-.066	.041
	2	-7.719	.066	.041
	3	0.000	0.000	.316
	4	0.000	0.000	.316
MIX - 8	CASE 8 (1.0000 * 1)			
	1	.059	-.756	-.066
	2	.057	-.815	.043
	3	0.000	0.000	-.206
	4	0.000	0.000	.204
MIX - 9	CASE 9 (1+2+7)			
	1	-7.599	-1.394	-.112
	2	-7.601	-1.381	.147
	3	0.000	0.000	.129
	4	0.000	0.000	.500
MIX - 10	CASE 10 (1+2+3+7)			
	1	-9.870	-1.240	-.080
	2	-9.871	-1.173	.145
	3	0.000	0.000	.245
	4	0.000	0.000	.568
MIX - 11	CASE 11 (1+2-3+7)			
	1	-3.346	-1.185	-.115
	2	-3.348	-1.229	.110
	3	0.000	0.000	-.022
	4	0.000	0.000	.361
MIX - 12	CASE 12 (1+4)			
	1	-.244	-.657	-.056
	2	.345	-.708	.035
	3	0.000	0.000	-.155
	4	0.000	0.000	.153
MIX - 13	CASE 13 (1+5)			
	1	.790	-.657	-.063
	2	-.689	-.708	.043
	3	0.000	0.000	-.238
	4	0.000	0.000	.237
MIX - 14	CASE 14 (1+6)			
	1	-8.756	-.579	.003
	2	-8.757	-.468	.178
	3	0.000	0.000	.223
	4	0.000	0.000	.496
MIX - 15	CASE 15 (1-6)			
	1	8.834	-.429	-.091
	2	8.833	-.618	-.019
	3	0.000	0.000	-.497
	4	0.000	0.000	-.224
MIX - 16	CASE 16 (1+2+3+7)			
	1	-11.350	-1.426	-.092
	2	-11.351	-1.349	.167
	3	0.000	0.000	.282
	4	0.000	0.000	.653
MIX - 17	CASE 17 (1+2-3+7)			
	1	-3.848	-1.362	-.132
	2	-3.850	-1.413	.127
	3	0.000	0.000	-.025
	4	0.000	0.000	.346
MIX - 18	CASE 18 (1+4)			
	1	-.281	-.756	-.064
	2	.397	-.815	.040
	3	0.000	0.000	-.179
	4	0.000	0.000	.176

D E F L E C T I O N

JOINT	X (MM)	Y (MM)	Z (MMRAD)
MIX - 19 CASE 19 (1+5)			
1	.909	-.756	-.072
2	-.792	-.815	.049
3	0.000	0.000	-.274
4	0.000	0.000	.272
MIX - 21 CASE 21 (1-6)			
1	13.251	-.643	-.137
2	13.249	-.928	-.028
3	0.000	0.000	-.746
4	0.000	0.000	-.337

JOINT	X (MM)	Y (MM)	Z (MMRAD)
MIX - 20 CASE 20 (1+6)			
1	-13.133	-.669	.005
2	-13.134	-.702	.114
3	0.000	0.000	.335
4	0.000	0.000	.744

PICK UP 1

PICK UP

MOMENT MAXIMUM

	-----L---	-CASE-	-----M---	-----Q---	-----N---
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(1)	-41.415	56.636	-1.679
1	.400	(1)	-19.153	54.621	-1.679
2	1.250	(1)	25.118	49.313	-1.679
3	2.400	(1)	76.673	39.989	-1.679
4	2.400	(1)	76.673	5.989	-1.679
5	3.400	(1)	77.947	-3.736	-1.679
6	4.700	(1)	64.774	-16.033	-1.679
7	4.700	(1)	64.774	-50.033	-1.679
8	5.550	(1)	19.352	-56.665	-1.679
9	6.400	(1)	-31.168	-61.973	-1.679
JTAN	6.800	(1)	-56.370	-63.987	-1.679
MAX	3.022	(1)	78.617	.146	-1.679
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(1)	-9.144	15.098	0.000
1	.400	(1)	-3.460	13.318	0.000
2	1.600	(1)	9.318	7.978	0.000
3	3.400	(1)	16.470	-.032	0.000
4	5.400	(1)	7.507	-8.932	0.000
5	6.400	(1)	-3.650	-13.382	0.000
JTAN	6.800	(1)	-9.358	-15.162	0.000
MAX	3.400	(1)	16.470	-.032	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(1)	6.365	-1.679	-134.056
JTAN	9.235	(1)	-9.144	-1.679	-148.832
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(1)	-6.150	1.679	-145.027
JTAN	9.235	(1)	9.358	1.679	-159.803

MOMENT MINIMUM

	-----L---	-CASE-	-----M---	-----Q---	-----N---
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(1)	-41.415	56.636	-1.679
1	.400	(1)	-19.153	54.621	-1.679
2	1.250	(1)	25.118	49.313	-1.679
3	2.400	(1)	76.673	39.989	-1.679
4	2.400	(1)	76.673	5.989	-1.679
5	3.400	(1)	77.947	-3.736	-1.679
6	4.700	(1)	64.774	-16.033	-1.679
7	4.700	(1)	64.774	-50.033	-1.679
8	5.550	(1)	19.352	-56.665	-1.679
9	6.400	(1)	-31.168	-61.973	-1.679
JTAN	6.800	(1)	-56.370	-63.987	-1.679
MAX	3.022	(1)	78.617	.146	-1.679
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(1)	-9.144	15.098	0.000
1	.400	(1)	-3.460	13.318	0.000
2	1.600	(1)	9.318	7.978	0.000
3	3.400	(1)	16.470	-.032	0.000
4	5.400	(1)	7.507	-8.932	0.000
5	6.400	(1)	-3.650	-13.382	0.000
JTAN	6.800	(1)	-9.358	-15.162	0.000
MAX	3.400	(1)	16.470	-.032	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(1)	6.365	-1.679	-134.056
JTAN	9.235	(1)	-9.144	-1.679	-148.832
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(1)	-6.150	1.679	-145.027
JTAN	9.235	(1)	9.358	1.679	-159.803

PICK UP 1

SHEAR MAXIMUM

	L	CASE	M	Q	N
== MEMBER 1 (1 - 2) G ==					
ITAN	0.000	(1)	-41.415	56.636	-1.679
1	.400	(1)	-19.153	54.621	-1.679
2	1.250	(1)	25.118	49.313	-1.679
3	2.400	(1)	76.673	39.989	-1.679
4	2.400	(1)	76.673	5.989	-1.679
5	3.400	(1)	77.947	-3.736	-1.679
6	4.700	(1)	64.774	-16.033	-1.679
7	4.700	(1)	64.774	-50.033	-1.679
8	5.550	(1)	19.352	-56.665	-1.679
9	6.400	(1)	-31.168	-61.973	-1.679
JTAN	6.800	(1)	-56.370	-63.987	-1.679
== MEMBER 2 (3 - 4) G ==					
ITAN	0.000	(1)	-9.144	15.098	0.000
1	.400	(1)	-3.460	13.318	0.000
2	1.600	(1)	9.318	7.978	0.000
3	3.400	(1)	16.470	-.032	0.000
4	5.400	(1)	7.507	-8.932	0.000
5	6.400	(1)	-3.650	-13.382	0.000
JTAN	6.800	(1)	-9.358	-15.162	0.000
== MEMBER 3 (1 - 3) C ==					
ITAN	0.000	(1)	6.365	-1.679	-134.056
JTAN	9.235	(1)	-9.144	-1.679	-148.832
== MEMBER 4 (2 - 4) C ==					
ITAN	0.000	(1)	-6.158	1.679	-145.027
JTAN	9.235	(1)	9.358	1.679	-159.803

SHEAR MINIMUM

	L	CASE	M	Q	N
== MEMBER 1 (1 - 2) G ==					
ITAN	0.000	(1)	-41.415	56.636	-1.679
1	.400	(1)	-19.153	54.621	-1.679
2	1.250	(1)	25.118	49.313	-1.679
3	2.400	(1)	76.673	39.989	-1.679
4	2.400	(1)	76.673	5.989	-1.679
5	3.400	(1)	77.947	-3.736	-1.679
6	4.700	(1)	64.774	-16.033	-1.679
7	4.700	(1)	64.774	-50.033	-1.679
8	5.550	(1)	19.352	-56.665	-1.679
9	6.400	(1)	-31.168	-61.973	-1.679
JTAN	6.800	(1)	-56.370	-63.987	-1.679
== MEMBER 2 (3 - 4) G ==					
ITAN	0.000	(1)	-9.144	15.098	0.000
1	.400	(1)	-3.460	13.318	0.000
2	1.600	(1)	9.318	7.978	0.000
3	3.400	(1)	16.470	-.032	0.000
4	5.400	(1)	7.507	-8.932	0.000
5	6.400	(1)	-3.650	-13.382	0.000
JTAN	6.800	(1)	-9.358	-15.162	0.000
== MEMBER 3 (1 - 3) C ==					
ITAN	0.000	(1)	6.365	-1.679	-134.056
JTAN	9.235	(1)	-9.144	-1.679	-148.832
== MEMBER 4 (2 - 4) C ==					
ITAN	0.000	(1)	-6.158	1.679	-145.027
JTAN	9.235	(1)	9.358	1.679	-159.803

PICK UP 1

AXIAL MAXIMUM

	L	CASE	M	Q	N
== MEMBER 1 (1 - 2) G ==					
ITAN	0.000	(1)	-41.415	56.636	-1.679
1	.400	(1)	-19.153	54.621	-1.679
2	1.250	(1)	25.118	49.313	-1.679
3	2.400	(1)	76.673	39.989	-1.679
4	2.400	(1)	76.673	5.989	-1.679
5	3.400	(1)	77.947	-3.736	-1.679
6	4.700	(1)	64.774	-16.033	-1.679
7	4.700	(1)	64.774	-50.033	-1.679
8	5.550	(1)	19.352	-56.665	-1.679
9	6.400	(1)	-31.168	-61.973	-1.679
JTAN	6.800	(1)	-56.370	-63.987	-1.679
== MEMBER 2 (3 - 4) G ==					
ITAN	0.000	(1)	-9.144	15.098	0.000
1	.400	(1)	-3.460	13.318	0.000
2	1.600	(1)	9.318	7.978	0.000
3	3.400	(1)	16.470	-.032	0.000
4	5.400	(1)	7.507	-8.932	0.000
5	6.400	(1)	-3.650	-13.382	0.000
JTAN	6.800	(1)	-9.358	-15.162	0.000
== MEMBER 3 (1 - 3) C ==					
ITAN	0.000	(1)	6.365	-1.679	-134.056
JTAN	9.235	(1)	-9.144	-1.679	-148.832
== MEMBER 4 (2 - 4) C ==					
ITAN	0.000	(1)	-6.150	1.679	-145.027
JTAN	9.235	(1)	9.358	1.679	-159.803

AXIAL MINIMUM

	L	CASE	M	Q	N
== MEMBER 1 (1 - 2) G ==					
ITAN	0.000	(1)	-41.415	56.636	-1.679
1	.400	(1)	-19.153	54.621	-1.679
2	1.250	(1)	25.118	49.313	-1.679
3	2.400	(1)	76.673	39.989	-1.679
4	2.400	(1)	76.673	5.989	-1.679
5	3.400	(1)	77.947	-3.736	-1.679
6	4.700	(1)	64.774	-16.033	-1.679
7	4.700	(1)	64.774	-50.033	-1.679
8	5.550	(1)	19.352	-56.665	-1.679
9	6.400	(1)	-31.168	-61.973	-1.679
JTAN	6.800	(1)	-56.370	-63.987	-1.679
== MEMBER 2 (3 - 4) G ==					
ITAN	0.000	(1)	-9.144	15.098	0.000
1	.400	(1)	-3.460	13.318	0.000
2	1.600	(1)	9.318	7.978	0.000
3	3.400	(1)	16.470	-.032	0.000
4	5.400	(1)	7.507	-8.932	0.000
5	6.400	(1)	-3.650	-13.382	0.000
JTAN	6.800	(1)	-9.358	-15.162	0.000
== MEMBER 3 (1 - 3) C ==					
ITAN	0.000	(1)	6.365	-1.679	-134.056
JTAN	9.235	(1)	-9.144	-1.679	-148.832
== MEMBER 4 (2 - 4) C ==					
ITAN	0.000	(1)	-6.150	1.679	-145.027
JTAN	9.235	(1)	9.358	1.679	-159.803

PICK UP 2

MOMENT MAXIMUM

	-----L---	-CASE-	-----M---	-----Q---	-----N---
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(15)	20.334	23.656	-1.120
1	.400	(15)	29.535	22.314	-1.120
2	1.250	(11)	50.609	79.203	-1.776
3	2.400	(9)	141.244	72.001	-2.042
4	2.400	(9)	141.244	13.931	-2.042
5	3.400	(9)	150.461	4.207	-2.042
6	4.700	(9)	147.612	-8.090	-2.042
7	4.700	(9)	147.612	-66.160	-2.042
8	5.550	(10)	85.046	-67.520	-1.776
9	6.400	(10)	22.214	-79.240	-1.776
JTAN	6.800	(14)	10.363	-28.599	-1.120
MAX	3.778	(9)	151.308	.325	-2.042
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(15)	35.604	-2.199	0.000
1	.400	(15)	34.487	-3.385	0.000
2	1.600	(15)	28.289	-6.945	0.000
3	3.400	(13)	16.625	-.027	0.000
4	5.400	(10)	33.650	6.114	0.000
5	6.400	(10)	37.829	2.244	0.000
JTAN	6.800	(10)	38.417	.696	0.000
MAX	3.022	(13)	16.359	1.434	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(10)	62.283	-12.785	-225.677
JTAN	9.235	(15)	35.604	8.588	-85.125
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(10)	46.854	-9.233	-213.074
JTAN	9.235	(15)	47.939	10.827	-120.643

MOMENT MINIMUM

	-----L---	-CASE-	-----M---	-----Q---	-----N---
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(10)	-95.014	105.977	-1.776
1	.400	(14)	-55.074	53.518	-1.120
2	1.250	(14)	-13.572	46.373	-1.120
3	2.400	(14)	37.016	40.762	-1.120
4	2.400	(14)	37.016	18.095	-1.120
5	3.400	(14)	51.967	11.611	-1.120
6	4.700	(15)	24.852	-24.790	-1.120
7	4.700	(15)	24.852	-47.458	-1.120
8	5.550	(15)	-17.417	-51.280	-1.120
9	6.400	(15)	-63.435	-55.419	-1.120
JTAN	6.800	(15)	-65.529	-56.762	-1.120
MAX	3.400	(14)	51.967	11.611	-1.120
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(10)	-55.786	27.010	0.000
1	.400	(10)	-46.291	25.462	0.000
2	1.600	(14)	-27.922	22.819	0.000
3	3.400	(14)	10.981	12.244	0.000
4	5.400	(15)	-19.925	-18.219	0.000
5	6.400	(15)	-39.237	-21.186	0.000
JTAN	6.800	(15)	-47.939	-22.373	0.000
MAX	3.400	(14)	10.981	12.244	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(15)	-43.702	8.588	-75.273
JTAN	9.235	(10)	-55.736	-12.785	-238.524
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(15)	-52.046	10.827	-110.731
JTAN	9.235	(10)	-36.417	-9.233	-215.923

PICK UP 2

SHEAR MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(9)	-88.814	115.854	-2.042
1	.400	(9)	-43.518	110.572	-2.042
2	1.250	(9)	45.267	97.094	-2.042
3	2.400	(9)	141.244	72.001	-2.042
4	2.400	(14)	37.016	18.095	-1.120
5	3.400	(14)	51.967	11.611	-1.120
6	4.700	(14)	51.517	3.413	-1.120
7	4.700	(14)	51.517	-19.255	-1.120
8	5.550	(14)	43.220	-23.677	-1.120
9	6.400	(14)	21.525	-27.216	-1.120
JTAN	6.800	(14)	10.363	-28.559	-1.120
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(10)	-55.786	27.010	0.000
1	.400	(10)	-45.291	25.462	0.000
2	1.600	(10)	-17.522	20.819	0.000
3	3.400	(10)	13.683	13.853	0.000
4	5.400	(14)	29.534	6.310	0.000
5	6.400	(14)	34.361	3.343	0.000
JTAN	6.800	(14)	35.461	2.157	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(15)	-43.702	8.588	-75.273
JTAN	9.235	(15)	35.604	8.588	-85.125
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(15)	-52.046	10.827	-110.791
JTAN	9.235	(15)	47.939	10.827	-120.643

SHEAR MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(15)	20.334	23.65[illegible]	-1.120
1	.400	(15)	29.535	22.314	-1.12[illegible]
2	1.250	(15)	47.065	18.775	-1.120
3	2.400	(15)	65.219	12.55[illegible]	-1.120
4	2.400	(15)	65.219	-10.109	-1.120
5	3.400	(15)	51.967	-16.592	-1.12[illegible]
6	4.700	(15)	24.652	-24.790	-1.120
7	4.700	(9)	147.612	-66.160	-2.042
8	5.550	(9)	84.[illegible]	-83.65[illegible]	-2.042
9	6.400	(9)	7.503	-97.137	-2.042
JTAN	6.800	(9)	-32.419	-102.41[illegible]	-2.042
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(15)	35.6[illegible]	-2.199	[illegible]
1	.400	(15)	34.487	-3.385	0.000
2	1.600	(15)	28.289	-6.945	0.000
3	3.400	(15)	16.[illegible]31	-12.2[illegible]6	0.000
4	5.400	(15)	-19.525	-18.2[illegible]	[illegible]
5	6.400	(15)	-35.227	-21.186	0.000
JTAN	6.800	(15)	-47.[illegible]39	-22.373	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(10)	62.283	-12.785	-225.677
JTAN	9.235	(10)	-[illegible]5.786	-12.785	-238.526
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(10)	46.[illegible]54	-9.233	-213.074
JTAN	9.235	(10)	-3[illegible].417	-9.233	-225.923

PICK UP 2

AXIAL MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(13)	-32.627	49.251	-.844
1	.400	(13)	-13.268	47.499	-.844
2	1.250	(13)	25.230	42.883	-.844
3	2.400	(13)	70.062	34.774	-.844
4	2.400	(13)	70.062	5.208	-.844
5	3.400	(13)	71.170	-3.249	-.844
6	4.700	(13)	59.715	-13.942	-.844
7	4.700	(13)	59.715	-43.508	-.844
8	5.550	(13)	20.216	-49.276	-.844
9	6.400	(13)	-23.716	-53.892	-.844
JTAN	6.800	(13)	-45.632	-55.643	-.844
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(9)	-46.366	25.830	0.000
1	.400	(9)	-36.390	24.050	0.000
2	1.600	(9)	-10.735	18.710	0.000
3	3.400	(9)	15.734	10.700	0.000
4	5.400	(9)	28.234	1.800	0.000
5	6.400	(9)	27.809	-2.650	0.000
JTAN	6.800	(9)	26.393	-4.430	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(15)	-43.702	8.588	-75.273
JTAN	9.235	(15)	35.604	8.588	-85.125
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(14)	43.845	-8.588	-82.588
JTAN	9.235	(14)	-35.461	-8.588	-92.439

AXIAL MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(9)	-66.814	115.854	-2.042
1	.400	(9)	-43.528	110.572	-2.042
2	1.250	(9)	45.267	97.044	-2.042
3	2.400	(9)	141.244	72.001	-2.042
4	2.400	(9)	141.244	13.331	-2.042
5	3.400	(9)	15.461	4.217	-2.042
6	4.700	(9)	147.612	-6.090	-2.042
7	4.700	(9)	147.612	-66.166	-2.042
8	5.550	(9)	84.869	-83.659	-2.042
9	6.400	(9)	7.513	-97.137	-2.042
JTAN	6.800	(9)	-32.419	-102.419	-2.042
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(9)	-46.366	25.830	0.000
1	.400	(9)	-36.390	24.050	0.000
2	1.600	(9)	-10.735	18.710	0.000
3	3.400	(9)	15.734	10.700	0.000
4	5.400	(9)	28.234	1.800	0.000
5	6.400	(9)	27.809	-2.650	0.000
JTAN	6.800	(9)	26.393	-4.430	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(9)	51.174	-10.562	-253.504
JTAN	9.235	(9)	-46.366	-10.562	-268.250
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(9)	33.431	-8.478	-251.039
JTAN	9.235	(9)	-26.393	-8.478	-265.815

PICK UP 1

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(17)	-68.366	109.840	-2.042
1	.400	(17)	-25.476	104.557	-2.042
2	1.250	(17)	58.198	91.079	-2.042
3	2.400	(17)	147.258	65.987	-2.042
4	2.400	(17)	147.258	7.917	-2.042
5	3.400	(17)	150.461	-1.808	-2.042
6	4.700	(16)	155.430	-2.076	-2.042
7	4.700	(16)	155.430	-60.146	-2.042
8	5.550	(16)	97.799	-77.645	-2.042
9	6.400	(16)	25.545	-91.122	-2.042
JTAN	6.800	(16)	-11.971	-96.405	-2.042
MAX	4.533	(16)	155.660	-.667	-2.042
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(17)	-28.582	20.599	0.000
1	.400	(17)	-20.698	18.819	0.000
2	1.600	(17)	-1.319	13.479	0.000
3	3.400	(16)	15.734	15.931	0.000
4	5.400	(16)	38.696	7.031	0.000
5	6.400	(16)	43.501	2.581	0.000
JTAN	6.800	(16)	44.178	.801	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(16)	71.622	-14.702	-259.518
JTAN	9.235	(17)	-28.582	-6.422	-262.266
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(16)	53.879	-10.618	-245.025
JTAN	9.235	(17)	-8.608	-2.336	-271.829

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(16)	-109.262	121.868	-2.042
1	.400	(16)	-61.561	116.586	-2.042
2	1.250	(16)	32.337	103.104	-2.042
3	2.400	(16)	135.230	78.015	-2.042
4	2.400	(16)	135.230	19.945	-2.042
5	3.400	(16)	150.461	10.221	-2.042
6	4.700	(17)	139.793	-14.104	-2.042
7	4.700	(17)	139.793	-72.174	-2.042
8	5.550	(17)	71.936	-89.673	-2.042
9	6.400	(17)	-14.540	-103.151	-2.042
JTAN	6.800	(17)	-52.867	-108.433	-2.042
MAX	3.400	(16)	150.461	10.221	-2.042
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(16)	-54.151	31.061	0.000
1	.400	(16)	-52.063	29.281	0.000
2	1.600	(16)	-46.256	23.941	0.000
3	3.400	(16)	15.734	15.931	0.000
4	5.400	(17)	17.772	-3.431	0.000
5	6.400	(17)	12.117	-7.881	0.000
JTAN	6.800	(17)	8.628	-9.661	0.000
MAX	4.533	(17)	19.075	.426	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(17)	30.726	-6.422	-247.490
JTAN	9.235	(16)	-64.151	-14.702	-274.194
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(17)	12.963	-2.336	-257.053
JTAN	9.235	(16)	-44.178	-10.618	-259.901

PICK UP 3

SHEAR MAXIMUM

	L	CASE	M	O	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(16)	-109.262	121.868	-2.042
1	.400	(16)	-81.561	116.586	-2.042
2	1.250	(16)	32.337	103.108	-2.042
3	2.400	(16)	135.230	78.015	-2.042
4	2.400	(16)	135.230	19.945	-2.042
5	3.400	(16)	150.461	10.221	-2.042
6	4.700	(16)	155.430	-2.876	-2.042
7	4.700	(16)	155.430	-60.146	-2.042
8	5.550	(16)	97.799	-77.645	-2.042
9	6.400	(16)	25.545	-91.122	-2.042
JTAN	6.800	(16)	-11.971	-96.405	-2.042
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(16)	-64.151	31.961	0.000
1	.400	(16)	-52.083	29.281	0.000
2	1.600	(16)	-20.150	23.941	0.000
3	3.400	(16)	15.734	15.931	0.000
4	5.400	(16)	38.696	7.031	0.000
5	6.400	(16)	43.501	2.581	0.000
JTAN	6.800	(16)	44.178	.801	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(17)	30.725	-6.422	-247.490
JTAN	9.235	(17)	-28.582	-6.422	-262.266
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(17)	12.983	-2.338	-257.053
JTAN	9.235	(17)	-8.606	-2.338	-271.829

SHEAR MINIMUM

	L	CASE	M	O	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(17)	-66.366	109.840	-2.042
1	.400	(17)	-25.476	104.557	-2.042
2	1.250	(17)	56.196	91.079	-2.042
3	2.400	(17)	147.258	65.987	-2.042
4	2.400	(17)	147.258	7.917	-2.042
5	3.400	(17)	150.461	-1.808	-2.042
6	4.700	(17)	139.793	-14.104	-2.042
7	4.700	(17)	139.793	-72.174	-2.042
8	5.550	(17)	71.938	-89.673	-2.042
9	6.400	(17)	-11.546	-103.151	-2.042
JTAN	6.800	(17)	-52.667	-108.433	-2.042
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(17)	-26.542	20.999	0.000
1	.400	(17)	-20.698	18.819	0.000
2	1.600	(17)	-1.319	13.479	0.000
3	3.400	(17)	15.734	5.469	0.000
4	5.400	(17)	17.772	-3.431	0.000
5	6.400	(17)	12.117	-7.881	0.000
JTAN	6.800	(17)	8.608	-9.661	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(16)	71.622	-14.702	-259.518
JTAN	9.235	(16)	-64.151	-14.702	-274.294
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(16)	53.373	-10.619	-249.025
JTAN	9.235	(16)	-44.178	-10.619	-259.801

PICK UP 3

AXIAL MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(17)	-58.366	109.840	-2.042
1	.400	(17)	-25.476	104.557	-2.042
2	1.250	(17)	58.198	91.079	-2.042
3	2.400	(17)	147.258	65.987	-2.042
4	2.400	(17)	147.258	7.317	-2.042
5	3.400	(17)	150.461	-1.808	-2.042
6	4.700	(17)	139.793	-14.104	-2.042
7	4.700	(17)	139.793	-72.174	-2.042
8	5.550	(17)	71.936	-89.673	-2.042
9	6.400	(17)	-10.540	-103.151	-2.042
JTAN	6.800	(17)	-52.867	-108.433	-2.042
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(16)	-64.151	31.061	0.000
1	.400	(16)	-52.083	29.281	0.000
2	1.600	(16)	-20.150	23.941	0.000
3	3.400	(16)	15.734	15.931	0.000
4	5.400	(16)	38.696	7.031	0.000
5	6.400	(16)	43.501	2.581	0.000
JTAN	6.800	(16)	44.178	.801	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(17)	30.726	-6.422	-247.490
JTAN	9.235	(17)	-28.582	-6.422	-262.266
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(16)	53.879	-10.618	-245.025
JTAN	9.235	(16)	-44.178	-10.618	-259.801

AXIAL MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(16)	-109.262	121.864	-2.042
1	.400	(16)	-81.561	116.586	-2.042
2	1.250	(16)	32.337	103.105	-2.042
3	2.400	(16)	135.230	76.015	-2.042
4	2.400	(16)	135.230	19.945	-2.042
5	3.400	(16)	150.461	10.221	-2.042
6	4.700	(16)	155.430	-2.076	-2.042
7	4.700	(16)	155.430	-60.146	-2.042
8	5.550	(16)	97.799	-77.645	-2.042
9	6.400	(16)	25.545	-91.122	-2.042
JTAN	6.800	(16)	-11.971	-96.405	-2.042
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(16)	-64.151	31.061	0.000
1	.400	(16)	-52.083	29.281	0.000
2	1.600	(16)	-20.150	23.941	0.000
3	3.400	(16)	15.734	15.931	0.000
4	5.400	(16)	38.696	7.031	0.000
5	6.400	(16)	43.501	2.581	0.000
JTAN	6.800	(16)	44.178	.801	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(16)	71.622	-14.702	-259.515
JTAN	9.235	(16)	-64.151	-14.702	-274.294
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(17)	12.963	-2.338	-257.053
JTAN	9.235	(17)	-8.608	-2.338	-271.829

PICK UP 4

MOMENT MAXIMUM

	-----L---	-CASE-	-----M---	-----Q---	-----N---
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(19)	-37.519	56.636	-.971
1	.400	(19)	-15.258	54.621	-.971
2	1.250	(19)	29.013	49.313	-.971
3	2.400	(19)	80.568	39.989	-.971
4	2.400	(19)	80.568	5.989	-.971
5	3.400	(19)	81.843	-3.736	-.971
6	4.700	(19)	68.669	-16.033	-.971
7	4.700	(19)	68.669	-50.033	-.971
8	5.550	(19)	23.247	-56.665	-.971
9	6.400	(19)	-27.273	-61.973	-.971
JTAN	6.800	(19)	-52.475	-63.987	-.971
MAX	3.022	(19)	82.513	.146	-.971
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(19)	-6.496	15.098	0.000
1	.400	(19)	-.812	13.318	0.000
2	1.600	(19)	11.966	7.978	0.000
3	3.400	(19)	19.116	-.032	0.000
4	5.400	(19)	10.155	-8.932	0.000
5	6.400	(19)	-1.002	-13.382	0.000
JTAN	6.800	(19)	-6.710	-15.162	0.000
MAX	3.400	(19)	19.118	-.032	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(18)	7.923	-1.963	-134.056
JTAN	9.235	(19)	-6.496	-.971	-148.832
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(19)	-2.255	.971	-145.027
JTAN	9.235	(18)	10.417	1.963	-159.803

MOMENT MINIMUM

	-----L---	-CASE-	-----M---	-----Q---	-----N---
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(18)	-42.973	56.636	-1.963
1	.400	(18)	-20.711	54.621	-1.963
2	1.250	(18)	23.560	49.313	-1.963
3	2.400	(18)	75.115	39.989	-1.963
4	2.400	(18)	75.115	5.989	-1.963
5	3.400	(18)	76.389	-3.736	-1.963
6	4.700	(18)	63.215	-16.033	-1.963
7	4.700	(18)	63.215	-50.033	-1.963
8	5.550	(18)	17.794	-56.665	-1.963
9	6.400	(18)	-32.726	-61.973	-1.963
JTAN	6.800	(18)	-57.929	-63.987	-1.963
MAX	3.022	(18)	77.059	.146	-1.963
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(18)	-10.203	15.098	0.000
1	.400	(18)	-4.522	13.318	0.000
2	1.600	(18)	8.259	7.978	0.000
3	3.400	(18)	15.411	-.032	0.000
4	5.400	(18)	6.448	-8.932	0.000
5	6.400	(18)	-4.709	-13.382	0.000
JTAN	6.800	(18)	-10.417	-15.162	0.000
MAX	3.400	(18)	15.411	-.032	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(19)	2.469	-.971	-134.056
JTAN	9.235	(18)	-10.203	-1.963	-148.832
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(18)	-7.709	1.963	-145.027
JTAN	9.235	(19)	6.711	.971	-159.803

PICK UP 4

SHEAR MAXIMUM

	L	CASE	M	Q	N
== MEMBER 1 (1 - 2) G ==					
ITAN	0.000	(18)	-42.973	56.636	-1.963
1	.400	(18)	-20.711	54.621	-1.963
2	1.250	(18)	23.560	49.313	-1.963
3	2.400	(18)	75.115	39.989	-1.963
4	2.400	(18)	75.115	5.989	-1.963
5	3.400	(18)	76.389	-3.736	-1.963
6	4.700	(18)	63.215	-16.033	-1.963
7	4.700	(18)	63.215	-50.033	-1.963
8	5.550	(18)	17.794	-56.665	-1.963
9	6.400	(18)	-32.726	-61.973	-1.963
JTAN	6.800	(18)	-57.929	-63.987	-1.963
== MEMBER 2 (3 - 4) G ==					
ITAN	0.000	(18)	-10.283	15.098	0.000
1	.400	(18)	-4.520	13.318	0.000
2	1.600	(18)	8.259	7.978	0.000
3	3.400	(18)	15.411	-.032	0.000
4	5.400	(18)	6.448	-8.932	0.000
5	6.400	(18)	-4.709	-13.382	0.000
JTAN	6.800	(18)	-10.417	-15.162	0.000
== MEMBER 3 (1 - 3) C ==					
ITAN	0.000	(19)	2.469	-.971	-134.056
JTAN	9.235	(19)	-6.496	-.971	-148.832
== MEMBER 4 (2 - 4) C ==					
ITAN	0.000	(18)	-7.709	1.963	-145.027
JTAN	9.235	(19)	10.417	1.963	-159.803

SHEAR MINIMUM

	L	CASE	M	Q	N
== MEMBER 1 (1 - 2) G ==					
ITAN	0.000	(19)	-37.519	56.636	-.971
1	.400	(19)	-15.258	54.621	-.971
2	1.250	(19)	29.013	49.313	-.971
3	2.400	(19)	80.568	39.989	-.971
4	2.400	(19)	80.568	5.989	-.971
5	3.400	(19)	81.843	-3.736	-.971
6	4.700	(19)	68.669	-16.033	-.971
7	4.700	(19)	68.669	-50.033	-.971
8	5.550	(19)	23.247	-56.665	-.971
9	6.400	(19)	-27.273	-61.973	-.971
JTAN	6.800	(19)	-52.475	-63.987	-.971
== MEMBER 2 (3 - 4) G ==					
ITAN	0.000	(19)	-6.496	15.098	0.000
1	.400	(19)	-.612	13.318	0.000
2	1.600	(19)	11.966	7.978	0.000
3	3.400	(19)	19.118	-.032	0.000
4	5.400	(19)	10.155	-8.932	0.000
5	6.400	(19)	-1.002	-13.382	0.000
JTAN	6.800	(19)	-6.710	-15.162	0.000
== MEMBER 3 (1 - 3) C ==					
ITAN	0.000	(18)	7.923	-1.963	-134.056
JTAN	9.235	(18)	-10.203	-1.963	-148.832
== MEMBER 4 (2 - 4) C ==					
ITAN	0.000	(19)	-2.255	.971	-145.027
JTAN	9.235	(19)	6.710	.971	-159.803

PICK UP 4

AXIAL MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(19)	-37.519	56.636	-.971
1	.400	(19)	-15.258	54.621	-.971
2	1.250	(19)	29.013	49.313	-.971
3	2.400	(19)	80.568	39.989	-.971
4	2.400	(19)	80.568	5.989	-.971
5	3.400	(19)	81.843	-3.736	-.971
6	4.700	(19)	68.669	-16.033	-.971
7	4.700	(19)	68.669	-50.033	-.971
8	5.550	(19)	23.247	-56.665	-.971
9	6.400	(19)	-27.273	-61.973	-.971
JTAN	6.800	(19)	-52.475	-63.987	-.971
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(18)	-10.203	15.098	0.000
1	.400	(18)	-4.520	13.318	0.000
2	1.600	(18)	8.259	7.978	0.000
3	3.400	(18)	15.411	-.032	0.000
4	5.400	(18)	6.448	-8.932	0.000
5	6.400	(18)	-4.709	-13.382	0.000
JTAN	6.800	(18)	-10.417	-15.162	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(19)	2.469	-.971	-134.056
JTAN	9.235	(19)	-6.496	-.971	-148.832
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(18)	-7.709	1.963	-145.027
JTAN	9.235	(18)	10.417	1.963	-159.803

AXIAL MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(18)	-42.973	56.636	-1.963
1	.400	(18)	-21.711	54.621	-1.963
2	1.250	(18)	23.560	49.313	-1.963
3	2.400	(18)	75.115	39.989	-1.963
4	2.400	(18)	75.115	5.989	-1.963
5	3.400	(18)	76.389	-3.736	-1.963
6	4.700	(18)	63.215	-16.033	-1.963
7	4.700	(18)	63.215	-50.033	-1.963
8	5.550	(18)	17.794	-56.665	-1.963
9	6.400	(18)	-32.726	-61.973	-1.963
JTAN	6.800	(18)	-57.929	-63.987	-1.963
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(18)	-10.203	15.098	0.000
1	.400	(18)	-4.520	13.318	0.000
2	1.600	(18)	8.259	7.978	0.000
3	3.400	(18)	15.411	-.032	0.000
4	5.400	(18)	6.448	-8.932	0.000
5	6.400	(18)	-4.709	-13.382	0.000
JTAN	6.800	(18)	-10.417	-15.162	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(18)	7.923	-1.963	-134.056
JTAN	9.235	(18)	-10.203	-1.963	-148.832
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(19)	-2.255	.971	-145.027
JTAN	9.235	(19)	6.710	.971	-159.803

PICK UP 5

MOMENT MAXIMUM

	L	CASE	M	Q	N
== MEMBER 1 (1 - 2) G ==					
ITAN	0.000	(21)	30.500	35.485	-1.679
1	.400	(21)	44.301	33.470	-1.679
2	1.250	(21)	70.593	28.152	-1.679
3	2.400	(21)	97.824	18.838	-1.679
4	2.400	(21)	97.824	-15.162	-1.679
5	3.400	(21)	77.947	-24.887	-1.679
6	4.700	(20)	92.270	5.119	-1.679
7	4.700	(20)	92.270	-28.881	-1.679
8	5.550	(20)	64.827	-35.514	-1.679
9	6.400	(20)	32.286	-40.821	-1.679
JTAN	6.800	(20)	15.544	-42.836	-1.679
MAX	2.400	(21)	97.824	-15.162	-1.679
== MEMBER 2 (3 - 4) G ==					
ITAN	0.000	(21)	53.403	-3.298	0.000
1	.400	(21)	51.728	-5.078	0.000
2	1.600	(21)	42.431	-10.418	0.000
3	3.400	(21)	16.470	-18.428	0.000
4	5.400	(20)	44.299	9.465	0.000
5	6.400	(20)	51.539	5.015	0.000
JTAN	6.800	(20)	53.189	3.235	0.000
MAX	3.400	(21)	16.470	-18.428	0.000
== MEMBER 3 (1 - 3) C ==					
ITAN	0.000	(20)	78.280	-16.239	-155.207
JTAN	9.235	(21)	53.403	12.881	-127.681
== MEMBER 4 (2 - 4) C ==					
ITAN	0.000	(20)	65.764	-12.881	-123.676
JTAN	9.235	(21)	71.905	16.239	-180.955

MOMENT MINIMUM

	L	CASE	M	Q	N
== MEMBER 1 (1 - 2) G ==					
ITAN	0.000	(20)	-113.330	77.737	-1.679
1	.400	(2_)	-82.6.7	75.773	-1.679
2	1.250	(20)	-20.357	70.465	-1.679
3	2.400	(20)	55.521	61.140	-1.679
4	2.400	(20)	55.521	27.140	-1.679
5	3.400	(2_)	77.947	17.416	-1.679
6	4.700	(21)	37.277	-37.184	-1.679
7	4.700	(21)	37.277	-71.184	-1.679
8	5.550	(21)	-26.123	-77.817	-1.679
9	6.400	(21)	-94.622	-83.124	-1.679
JTAN	6.800	(21)	-128.255	-85.139	-1.679
MAX	3.400	(20)	77.947	17.416	-1.679
== MEMBER 2 (3 - 4) G ==					
ITAN	0.000	(20)	-71.691	33.495	0.000
1	.400	(20)	-58.649	31.715	0.000
2	1.600	(2_)	-23.795	26.375	[illegible]
3	3.400	(20)	16.470	18.365	0.000
4	5.400	(21)	-29.285	-27.325	0.000
5	6.400	(21)	-56.83[illegible]	-31.77[illegible]	0.000
JTAN	6.800	(21)	-71.9.5	-33.55[illegible]	[illegible]
MAX	3.400	(20)	16.470	18.365	0.000
== MEMBER 3 (1 - 3) C ==					
ITAN	0.000	(21)	-65.550	12.881	-112.305
JTAN	9.235	(20)	-71.691	-16.239	-169.983
== MEMBER 4 (2 - 4) C ==					
ITAN	0.000	(21)	-76.065	16.23[illegible]	-165.179
JTAN	9.235	(20)	-53.189	-12.881	-138.852

PICK UP 5

SHEAR MAXIMUM

= = MEMBER 1 (1 - 2) G = =		-CASE-	-----L---	-----M---	-----Q---	-----N---
ITAN	0.000	(20)	-113.330	77.787		-1.679
1	.400	(20)	-82.607	75.773		-1.679
2	1.250	(20)	-20.357	70.465		-1.679
3	2.400	(20)	55.521	61.140		-1.679
4	2.400	(20)	55.521	27.140		-1.679
5	3.400	(20)	77.947	17.416		-1.679
6	4.700	(20)	92.270	5.119		-1.679
7	4.700	(20)	92.270	-28.881		-1.679
8	5.550	(20)	64.827	-35.514		-1.679
9	6.400	(20)	32.286	-40.821		-1.679
JTAN	6.800	(20)	15.544	-42.836		-1.679

= = MEMBER 2 (3 - 4) G = =		-CASE-	-----L---	-----M---	-----Q---	-----N---
ITAN	0.000	(20)	-71.691	33.495		0.000
1	.400	(20)	-58.649	31.715		0.000
2	1.600	(20)	-23.795	26.375		0.000
3	3.400	(20)	16.470	18.365		0.000
4	5.400	(20)	44.299	9.465		0.000
5	6.400	(20)	51.539	5.015		0.000
JTAN	6.800	(20)	53.189	3.235		0.000

= = MEMBER 3 (1 - 3) C = =		-CASE-	-----L---	-----M---	-----Q---	-----N---
ITAN	0.000	(21)	-66.550	12.881		-112.905
JTAN	9.235	(21)	53.403	12.881		-127.681

= = MEMBER 4 (2 - 4) C = =		-CASE-	-----L---	-----M---	-----Q---	-----N---
ITAN	0.000	(21)	-78.065	16.239		-166.179
JTAN	9.235	(21)	71.985	16.239		-180.955

SHEAR MINIMUM

= = MEMBER 1 (1 - 2) G = =		-CASE-	-----L---	-----M---	-----Q---	-----N---
ITAN	0.000	(21)	30.508	35.485		-1.679
1	.400	(21)	44.301	33.470		-1.679
2	1.250	(21)	70.593	28.162		-1.679
3	2.400	(21)	97.824	18.338		-1.679
4	2.400	(21)	97.824	-15.162		-1.679
5	3.400	(21)	77.947	-24.887		-1.679
6	4.700	(21)	37.277	-37.164		-1.679
7	4.700	(21)	37.277	-71.184		-1.679
8	5.550	(21)	-26.123	-77.817		-1.679
9	6.400	(21)	-94.622	-83.124		-1.679
JTAN	6.800	(21)	-126.285	-85.139		-1.679

= = MEMBER 2 (3 - 4) G = =		-CASE-	-----L---	-----M---	-----Q---	-----N---
ITAN	0.000	(21)	53.443	-3.298		0.000
1	.400	(21)	51.728	-5.078		0.000
2	1.600	(21)	42.431	-10.419		0.000
3	3.400	(21)	16.470	-16.425		0.000
4	5.400	(21)	-29.235	-27.326		0.000
5	6.400	(21)	-58.838	-31.775		0.000
JTAN	6.800	(21)	-71.905	-33.556		0.000

= = MEMBER 3 (1 - 3) C = =		-CASE-	-----L---	-----M---	-----Q---	-----N---
ITAN	0.000	(20)	78.290	-16.239		-155.207
JTAN	9.235	(20)	-71.691	-16.239		-169.983

= = MEMBER 4 (2 - 4) C = =		-CASE-	-----L---	-----M---	-----Q---	-----N---
ITAN	0.000	(20)	65.764	-12.881		-123.676
JTAN	9.235	(20)	-53.189	-12.881		-138.652

PICK UP 5

AXIAL MAXIMUM

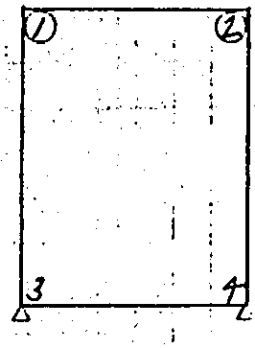
	-----L---	-CASE-	-----M---	-----Q---	-----N---
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(20)	-113.330	77.787	-1.679
1	.400	(20)	-82.607	75.773	-1.679
2	1.250	(20)	-20.357	70.465	-1.679
3	2.400	(20)	55.521	61.140	-1.679
4	2.400	(20)	55.521	27.140	-1.679
5	3.400	(20)	77.947	17.416	-1.679
6	4.700	(20)	92.270	5.119	-1.679
7	4.700	(20)	92.270	-28.881	-1.679
8	5.550	(20)	64.827	-35.514	-1.679
9	6.400	(20)	32.286	-40.821	-1.679
JTAN	6.800	(20)	15.544	-42.836	-1.679
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(20)	-71.691	33.495	0.000
1	.400	(20)	-58.649	31.715	0.000
2	1.600	(20)	-23.795	26.375	0.000
3	3.400	(20)	16.470	18.365	0.000
4	5.400	(20)	44.299	9.465	0.000
5	6.400	(20)	51.539	5.015	0.000
JTAN	6.800	(20)	53.189	3.235	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(21)	-65.550	12.881	-112.305
JTAN	9.235	(21)	53.403	12.881	-127.681
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(20)	65.764	-12.881	-123.876
JTAN	9.235	(20)	-53.189	-12.881	-138.652

AXIAL MINIMUM

	-----L---	-CASE-	-----M---	-----Q---	-----N---
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(20)	-113.330	77.787	-1.679
1	.400	(20)	-82.607	75.773	-1.679
2	1.250	(20)	-20.357	70.465	-1.679
3	2.400	(20)	55.521	61.140	-1.679
4	2.400	(20)	55.521	27.140	-1.679
5	3.400	(20)	77.947	17.416	-1.679
6	4.700	(20)	92.270	5.119	-1.679
7	4.700	(20)	92.270	-28.881	-1.679
8	5.550	(20)	64.827	-35.514	-1.679
9	6.400	(20)	32.286	-40.821	-1.679
JTAN	6.800	(20)	15.544	-42.836	-1.679
= = MEMBER 2 (3 - 4) G = =					
ITAN	0.000	(20)	-71.691	33.495	0.000
1	.400	(20)	-58.649	31.715	0.000
2	1.600	(20)	-23.795	26.375	0.000
3	3.400	(20)	16.470	18.365	0.000
4	5.400	(20)	44.299	9.465	0.000
5	6.400	(20)	51.539	5.015	0.000
JTAN	6.800	(20)	53.189	3.235	0.000
= = MEMBER 3 (1 - 3) C = =					
ITAN	0.000	(20)	76.230	-16.239	-155.207
JTAN	9.235	(20)	-71.691	-16.239	-169.983
= = MEMBER 4 (2 - 4) C = =					
ITAN	0.000	(21)	-76.065	16.239	-156.179
JTAN	9.235	(21)	71.905	16.239	-180.955

[7] Calculation of upper beam

(1) stress calculation of upper beam



(a) Bending moment

		① point		② point	
		M t·m	case	M t·m	case
pick up 2	Top	-95.01	10	-85.53	15
	Bottom	—	—	span 151.31	9
pick up 1	Top	-41.42	1	-56.37	1

(b) Shearing stress

	①		②	
	S t	case	S t	case
pick up 2	97.09	9	83.66	9

2) Allowable stress for upper beam, safe against cracking

(a) At the support point

Dead load $M_d = -56.37$ t·m (case 1)

Train load + Impact $M_L = -18.13$ " (case 1)

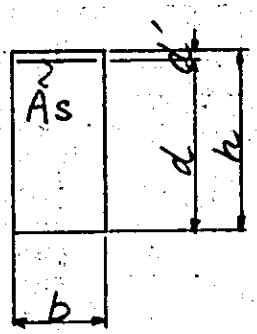
$$\Sigma M = -74.50 \text{ t·m}$$

$$\alpha = \frac{-18.13}{-74.50} = 0.24 < 0.25$$

Hence $\sigma_{sa} = 1200$ kg/cm²

3) Cross section used for stress calculation

(a) Cross section at the support point



$b = 80^{cm}$

$h = 170^{cm}$

$d_1 = 2.5 + 1.9 + 3.2 + 2.9 + 1.4 = 12.00^{cm}$

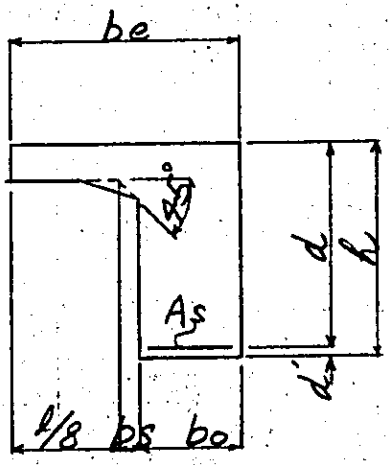
$d = 170 - 12.00 = 158.00^{cm}$

(b) Cross section at the span center point effective width of T-beam

$$be = bo + bs + \frac{0.6}{8}\ell$$

$$be_1 = 080 + 0.15 + \frac{0.6}{8} \times 7.00$$

$$= 1.475^{m} \qquad < \frac{7.60}{2} = 3.80^{m}$$



$b_o = 146^{cm}$

$h = 170\ ''$

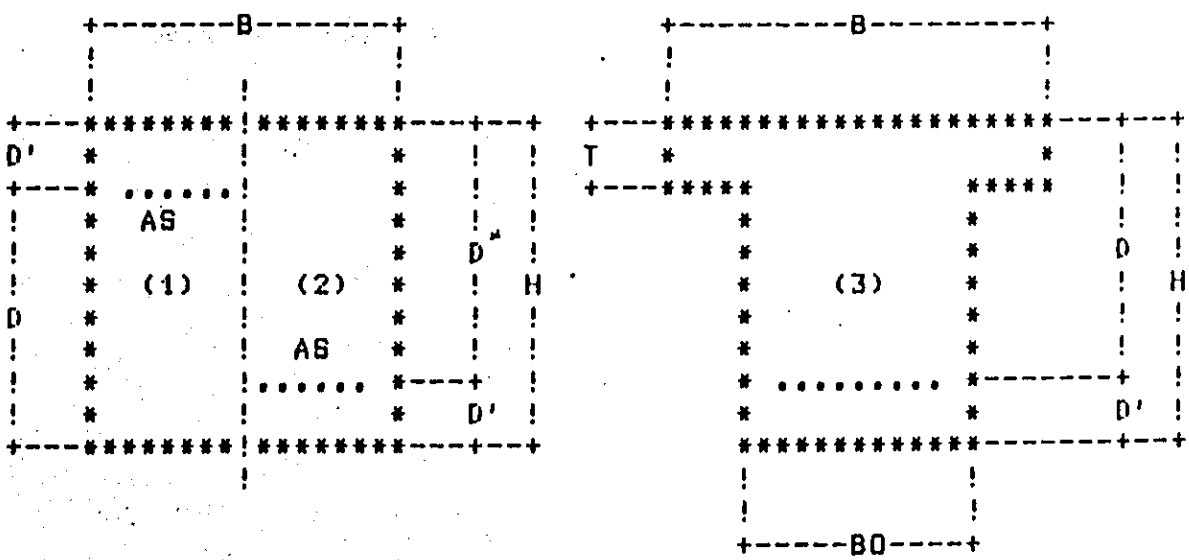
$d' = 3.0 + 1.3 + 2.9 + 1.45 = 8.65^{cm}$

$d = 170 - 8.65 = 161.35^{cm}$

$t = 28^{cm}$

4) Calculation of bending stress

NO.		1 point (Top) 1	1 span (Bottom) 2	2 point (Top) 3	2 point (Top) 4
		case 10	case 9	case 15	case 1
M	[T*M]	95.01	151.31	85.53	56.37
S	[T]				
B	[CM]	80.00	147.50	80.00	80.00
H	[CM]	170.00	170.00	170.00	170.00
D'	[CM]	12.00	8.70	12.00	12.00
D	[CM]	158.00	161.30	158.00	158.00
T	[CM]		28.00		
BO	[CM]		80.00		
		8.00-029	10.00-029	8.00-029	8.00-029
AS	[CM**2]	51.39	64.24	51.39	51.39
P		0.004066	0.002700	0.004066	0.004066
K		0.294	0.260	0.294	0.294
J		0.902	0.928	0.902	0.902
1/LC		7.55		7.55	7.55
1/LS		272.63		272.63	272.63
SIG-C	[KG/CM**2]	35.93	36.78	32.34	21.32
SIG-S	[KG/CM**2]	1296.99	1573.99	1167.58	769.51
TAU	[KG/CM**2]				
SIG-CA	[KG/CM**2]	90.00	90.00	90.00	90.00
SIG-SA	[KG/CM**2]	1800.00	1800.00	1800.00	1200.00
TAU-A	[KG/CM**2]				
		(2)	(3)	(2)	(2)



(5) Required minimum cross section of re-bars

$$As = \frac{15 \cdot b \cdot d}{\sigma_{sy}}$$

$$As = \frac{15 \times 80 \times \overset{(161.30)}{158.00}}{3000} = 63.20^{cm^2} \quad (64.15)$$

(i) At the top of support point

$$As = \frac{M}{\sigma_{sa} \cdot j \cdot d} \times \frac{4}{3} = \frac{95.01 \times 10^5}{1800 \times 0.875 \times 158.0} \times \frac{4}{3}$$

$$= 50.89^{cm^2}$$

$$\therefore D29-8 = 51.39^{cm^2} > 50.89^{cm^2}$$

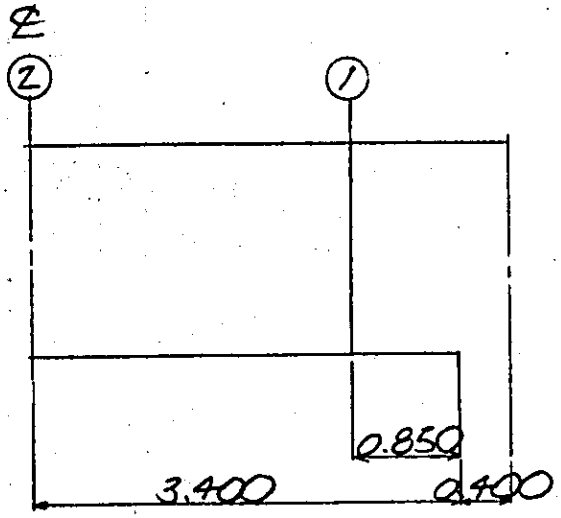
(ii) At the span center point

$$As = \frac{151.31 \times 10^5}{1800 \times 0.875 \times 161.30} \times \frac{4}{3} = 79.39^{cm^2}$$

Hence $D29-10 = 64.24^{cm^2} > 64.15^{cm^2}$

6) Shearing stress of upper beam

a) Shearing stress caused by bending



(i) Shearing stress of the member of uniform height

$$\tau = \frac{S}{b \cdot d}$$

$$\tau_1 = \frac{97.09 \times 10^3}{80 \times 158.05} = 7.68 \ ^{kg/cm^2} > 3.9 \ ^{kg/cm^2}$$

$$\tau_2 = \frac{4.21 \times 10^3}{80 \times 158.05} = 0.33 \ " \quad < \ "$$

b) Torsional moment

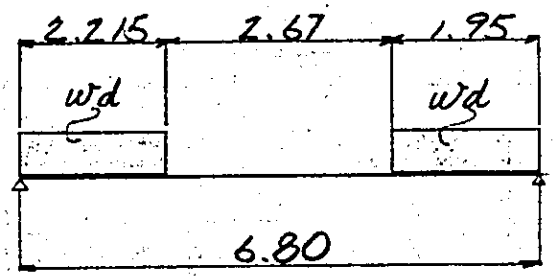
Torsional moment caused by the loads on Rahmen (rigid frame)

(1) Due to dead load

(1) Derived from slab calculation (uniformly distributed load)

Equivalent uniform load of track weight

$$wd = 0.45^{t/m} \times 1/2.83 = 0.16^{t/m^2}$$



width of distribution
$B = 2.83^{m}$

$$RA = 0.16 \times 2.215 = 0.35^{t}$$

At the $\ell/4$ point

$$M\ell/4 = 0.35 \times 1.70 - 0.16 \times 1.70^2 \times 1/2 = 0.36^{t\cdot m}$$

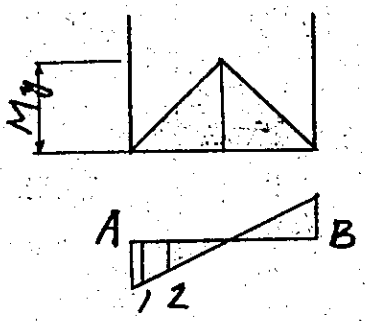
$$w\ell/4 = \frac{32 \cdot M\ell/4}{3 \cdot \ell^2} = \frac{32 \times 0.36}{3 \times 6.80^2} = 0.08^{t/m^2}$$

Total uniform load

$$\Sigma wd = 1.85 + 0.08 = 1.93^{t/m^2}$$

Fixed end moment at negative side

$$M_y = -\frac{1}{24} \times 1.85 \times 6.80^2 = -3.56 \text{ t·m}$$



$$M_{TA} = 3.56 \times 3.40 \times 1/2 = 6.05 \text{ t·m}$$

$$M_{T1} = 6.05 \times \frac{3.00}{3.40} = 5.34 \text{ "}$$

$$M_{T2} = 6.05 \times \frac{2.15}{3.40} = 3.83 \text{ "}$$

(ii) Caused by train load

From the slab calculation

Equivalent uniform load

$$w_l = \frac{16}{1.5 \times 2.83} = 3.77 \text{ t/m}^2$$

Refer the dead load diagram

$$R_A = 3.77 \times 2.215 = 8.35 \text{ t}$$

$$M_{l/4} = 8.35 \times 1.70 - 3.77 \times 1.70^2 \times 1/2 = 8.75 \text{ t·m}$$

$$w_{l/4} = \frac{32 \times 8.75}{3 \times 6.80^2} = 2.02 \text{ t/m}^2$$

Hence $w_l = 2.02 \text{ t/m}^2$

Fixed end, moment, at negative site

$$My = -\frac{1}{24} \times 2.02 \times 6.80^2 = 3.89^{t.m}$$

$$M_{TA} = 3.89 \times 3.40 \times 1/2 = 6.613^{t.m}$$

$$M_{T1} = 6.613 \times \frac{3.00}{3.40} = 5.83\ ''$$

$$M_{T2} = 6.613 \times \frac{2.15}{3.40} = 4.18\ ''$$

Train load + Impact $l = 6.80^m$ $i = 0.446$

$$M_{TA} = 6.613 \times 1.446 = 9.56^{t.m}$$

$$M_{T1} = 5.83 \times\ '' = 8.43\ ''$$

$$M_{T2} = 4.18 \times\ '' = 6.04\ ''$$

(iii) Dead load + Train load + Impact

$$\Sigma M_A = 6.05 + 9.56 = 15.61^{t.m}$$

$$\Sigma M_{T1} = 5.34 + 8.43 = 13.77\ ''$$

$$\Sigma M_{T2} = 3.83 + 6.04 = 9.87\ ''$$

(3) Torsional moment beared by cross beam

Effective width

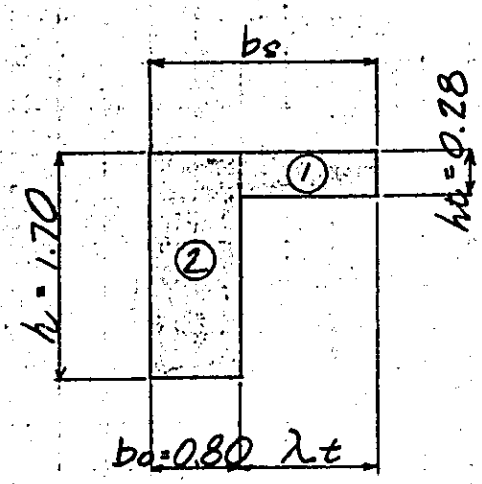
$$bs = bo + \lambda t$$

$$\lambda t = 3 \cdot ht$$

$$= 3 \times 0.28 = 0.84^{m}$$

$$bs = 0.80 + 0.84 = 1.64^{m}$$

$$h = 1.70^{m}$$



(i) Calculation of distribution ratio

	a	b	a/b	k	$I_t = k \cdot a \cdot b^3$ (m^4)
①	0.840	0.280	3.000	0.264	$0.264 \times 0.840 \times 0.280^3 = 0.00487$
②	1.700	0.800	2.125	0.234	$0.234 \times 1.700 \times 0.800^3 = 0.20367$
TOTAL					$\Sigma I_t = 0.20854$

(ii) Torsional moment beared by the beam

(for re-bar arrangement in axial direction)

Dead load + Train load + Impact

Front face of column $Mt1 = 13.77 \times \frac{0.20367}{0.20854} = 13.45^{t \cdot m}$

At the 1/2 point $Mt2 = 9.87 \times$ 〃 $= 9.640$〃

(4) Shearing stress caused by torsion

Shearing stress caused by torsion is calculated followed the equation

$$\tau_t = \frac{Mt}{It} \cdot b \cdot k$$

(i) front face of column

$M_{t1} = 13.45^{t\cdot m}$

$b = 80^{cm}$, $a = 170^{cm}$

$$\frac{a}{b} = \frac{170}{80} = 2.125$$

$\eta = 0.940$

$$\tau_{t1} = \frac{13.45 \times 10^5}{20.85 \times 10^6} \times 80 \times 0.940 = 4.85\ ^{kg/cm^2}$$

(ii) At the h/2 point

$M_{t2} = 9.64^{t\cdot m}$

$b = 80^{cm}$ $a = 170^{cm}$

$$\frac{a}{b} = \frac{170}{80} = 2.125$$

$k = 0.940$

$$\tau_{t2} = \frac{9.64 \times 10^5}{20.85 \times 10^6} \times 80 \times 0.940 = 3.477\ ^{kg/cm^2}$$

(5) Combined shearing stress

Combined allowable shearing stress

$$\tau_a = 17 \times 1.3 = 22.10 \text{ kg/cm}^2$$

Combined shearing stress

$\tau_1 = 7.68 + 3.48 = 11.16$ kg/cm² < 22.10 kg/cm²

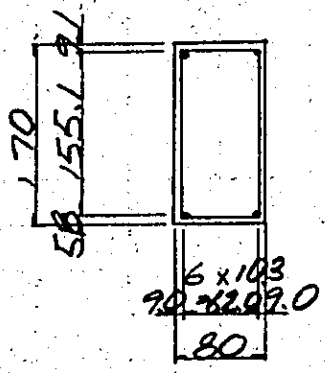
$\tau_2 = 0.33 + 0 = 0.33$ " $<$ "

(b) calculation of axial re-bar arrangement resisting torsional moment

Required re-bar arrangement is calculated followed the equation

$$As = \frac{Mt\,(b_1 + h_1)}{0.8 \cdot \sigma sa \cdot b_1 \cdot h_1}$$

(a) Front face of column



$Mt = 13.45^{t\cdot m}$

$\sigma sa = 1800^{kg/cm^2}$

$b = 62.0 + 2.9 + 1.3 = 66.2^{m}$

$h_1 = 155.1 + 2.9 + 1.3 = 159.3^{m}$

$$As = \frac{13.45 \times 10^5 \times (66.2 + 159.3)}{0.8 \times 1800 \times 66.2 \times 159.3} = 19.97^{cm^2}$$

Required cross section of re-bars arranged at shorter side

$$Asb_1 = 19.97 \times \frac{66.2}{2 \times (66.2 + 159.3)} = 2.93^{cm^2}$$

Required cross section of re-bars arranged at longer side

$$Ash_1 = 19.97 \times \frac{159.3}{2 \times (66.2 + 159.3)} = 7.05^{cm^2}$$

(i) Minimum section of re-bars

Top $As = D29-8 = 51.39\ cm^2 > 2.93\ cm^2$

Bottom $As = D29-11 = 70.66\ cm^2 > 2.93\ cm^2$

(ii) Side (one side)

$As = D16-4^{*} = 7.94\ cm^2 > 7.05\ cm^2$

8% of main bars section (both sides)

D29-11 $= 70.66\ cm^2$

$As = 70.66 \times 0.08 \times 1/2 = 2.82\ cm^2 < 7.94\ cm^2$

(7) Calculation of diagonal tension bar

i) Calculation of total shear

Refer R. C. standard 39, (2). (a)

$$\Sigma S_R = S_c + S_u + S_b.$$

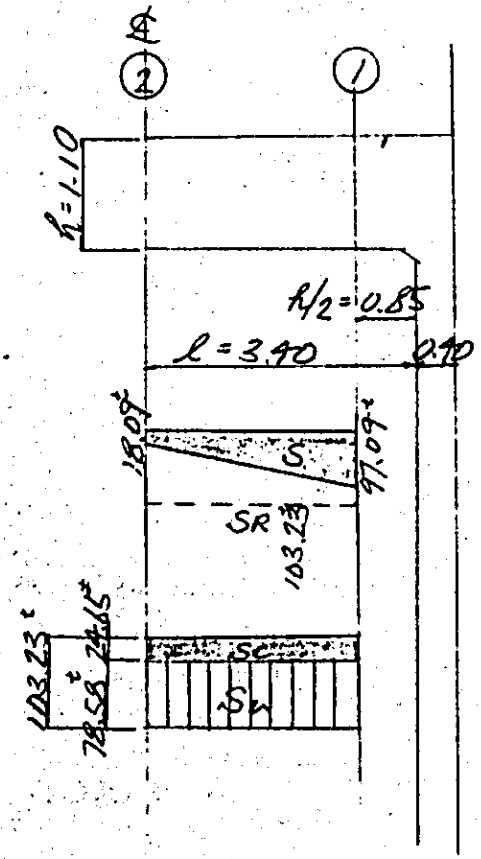
where

S_c : Shearing stress beared by concrete (=)

S_u : Shearing stress beared by stirrup (t)

S_b : Shearing stress beared by turned up bars (t)

Assumed $S_u \geqq S_b$



Shearing force diagram

Resisting shearing force diagram

(i) Shearing stress beared by concrete

$$Sc = 1/2 \cdot \tau c \cdot b \cdot d$$

where, τc : 3.9 kg/cm²

b : Width of member (cm)

d : Effective height of member at the examining section.

$$Sc_1 = 1/2 \times 3.9 \times 80 \times 158.0 \times 10^{-3} = 24.65\ t$$

(ii) Shearing force beared by stirrup

$$Sv = \frac{Av \cdot \sigma sa \cdot d}{1.15 \cdot s}$$

where, Av : Total cross section (cm²) of stirrup with the section S.

σsa : Allowable tensile stress of re-bar

$\sigma sa = 1800$ kg/cm²

s : Interval of stirrups measured along the member axis (cm)

Arranged stirrups D16 - 2 sets 25 cm c.t.c,

$$Av = 1.986 \times 4 = 7.944\ cm^2$$

$$Sv_1 = \frac{7.944 \times 1800 \times 158.0}{1.15 \times 25 \times 10^3} = 78.58\ t$$

(iii) Shearing stress beared turned up bars disregarded the turned up bars for calculation

(iv) Total shear

$$\Sigma S_R = S_c + S_v + S_b$$

$$\Sigma S_R = 24.65 + 78.58 + 0$$

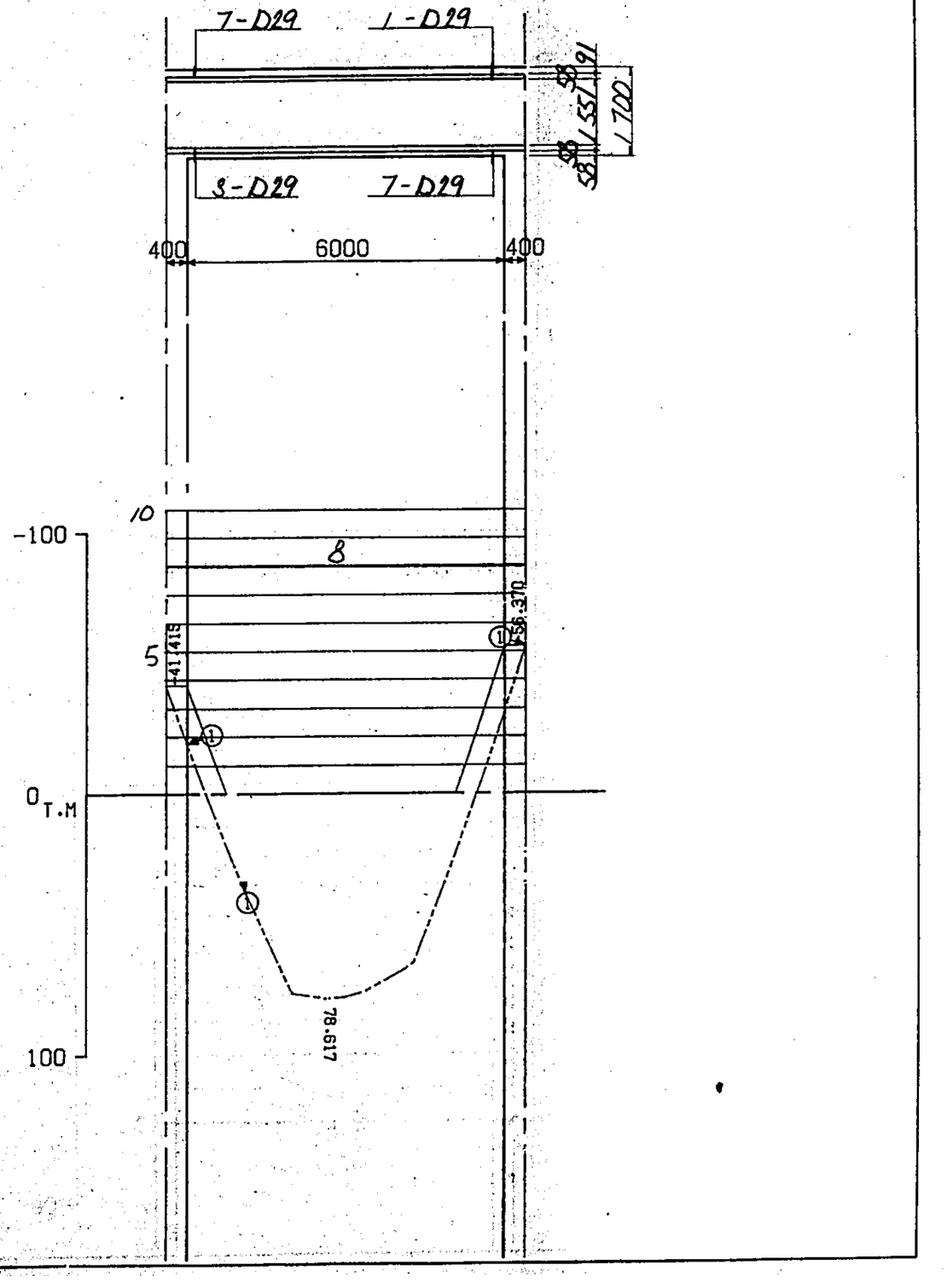
$$= 103.23^t \quad > S_1 = 97.09^t$$

VIADUCT OF DOUBLE TRACK C-1

PICK UP 1

1/100
CM/TON 5.0/100

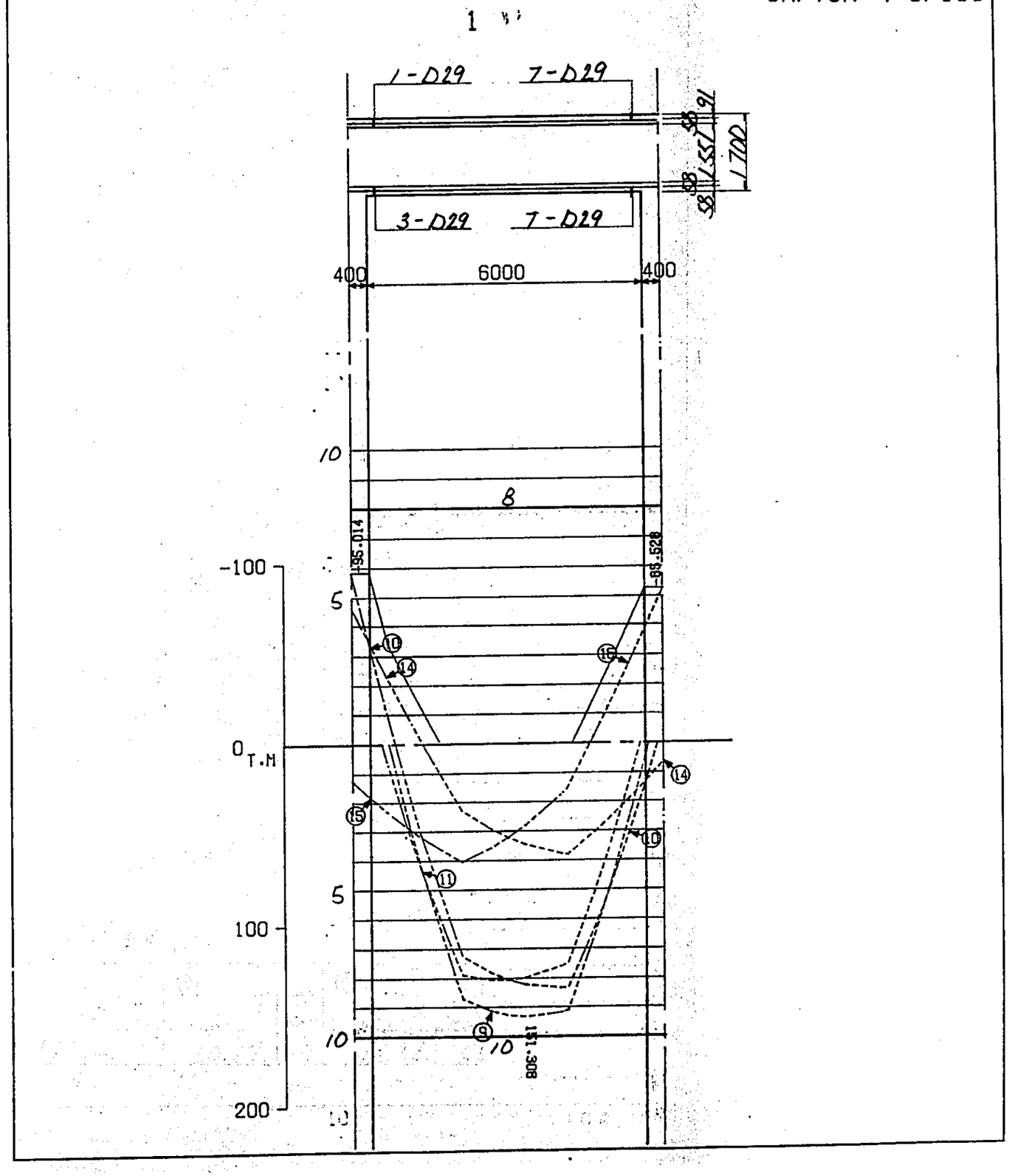
1



VIADUCT OF DOUBLE TRACK C-1

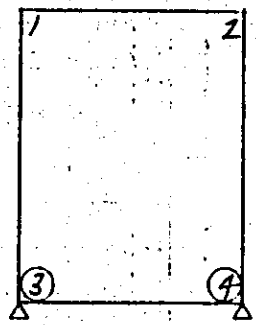
PICK UP 2

1/100
CM/TON 4.0/100



[8] Calculation of buried beam (C-1)

11) Summary of stresses



(a) Bending moment and shearing force

		③ point		④ point	
		M t·m	case	M t·m	case
pick up 2	Top	-55.79	10	-47.94	15
	Bottom	35.60	15	38.42	10
pick up 1	Top	-9.14	1	-9.36	1
	Bottom	—	—	span 16.47	1

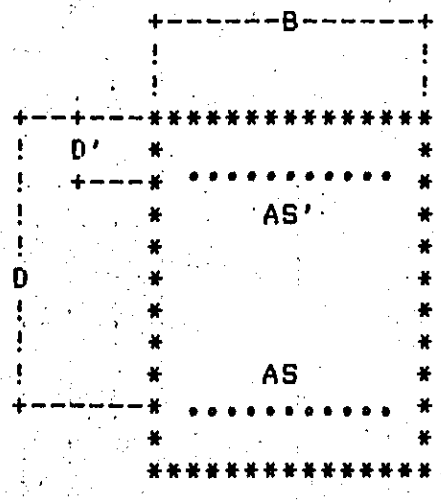
$\sigma_{SA} = 1400$ kg/cm²

(b) Shearing force

	③		④	
	S t	case	S t	case
pick up 2	20.82	10	18.22	15

b) Stress Calculation

KEISANTEN NO.		(Top) 1	(Top) 1	(Bottom) 2	(Bottom) 2
CASE		(10)	(1)	(10)	(1)
M	[T*M]	55.79	9.36	38.42	16.47
S	[T]				
B	[CM]	70.00	70.00	70.00	70.00
H	[CM]	90.00	90.00	90.00	90.00
D	[CM]	76.40	76.40	72.10	72.10
D'	[CM]	13.60	13.60	17.90	17.90
AS	(DIA-HON)	D29- 8.0	D29- 8.0	D29- 6.0	D29- 6.0
	[CM**2]	51.39	51.39	38.54	38.54
AS'	(DIA-HON)				
	[CM**2]				
P		0.009610	0.009610	0.007637	0.007637
P'					
K		0.4118	0.4118	0.3776	0.3776
LC		0.1776	0.1776	0.1650	0.1650
SIG-C	[KG/CM**2]	76.87	12.90	63.97	27.42
SIG-S	[KG/CM**2]	1646.99	276.32	1581.58	677.99
TAU	[KG/CM**2]				
SIG-CA	[KG/CM**2]	90.00	90.00	90.00	90.00
SIG-SA	[KG/CM**2]	1800.00	1400.00	1800.00	1400.00
TAU-A	[KG/CM**2]				



(C) stress Calculation

(i) TOP

$$As = 15 \times 70 \times 76.4 \times 1/3000 = 26.74^{cm^2}$$

Hence D29 - 8 = 51.39^{cm^2} > 26.74^{cm^2}

(ii) Bottom

$$As = 15 \times 70 \times 72.1 \times 1/3000 = 25.24^{cm^2}$$

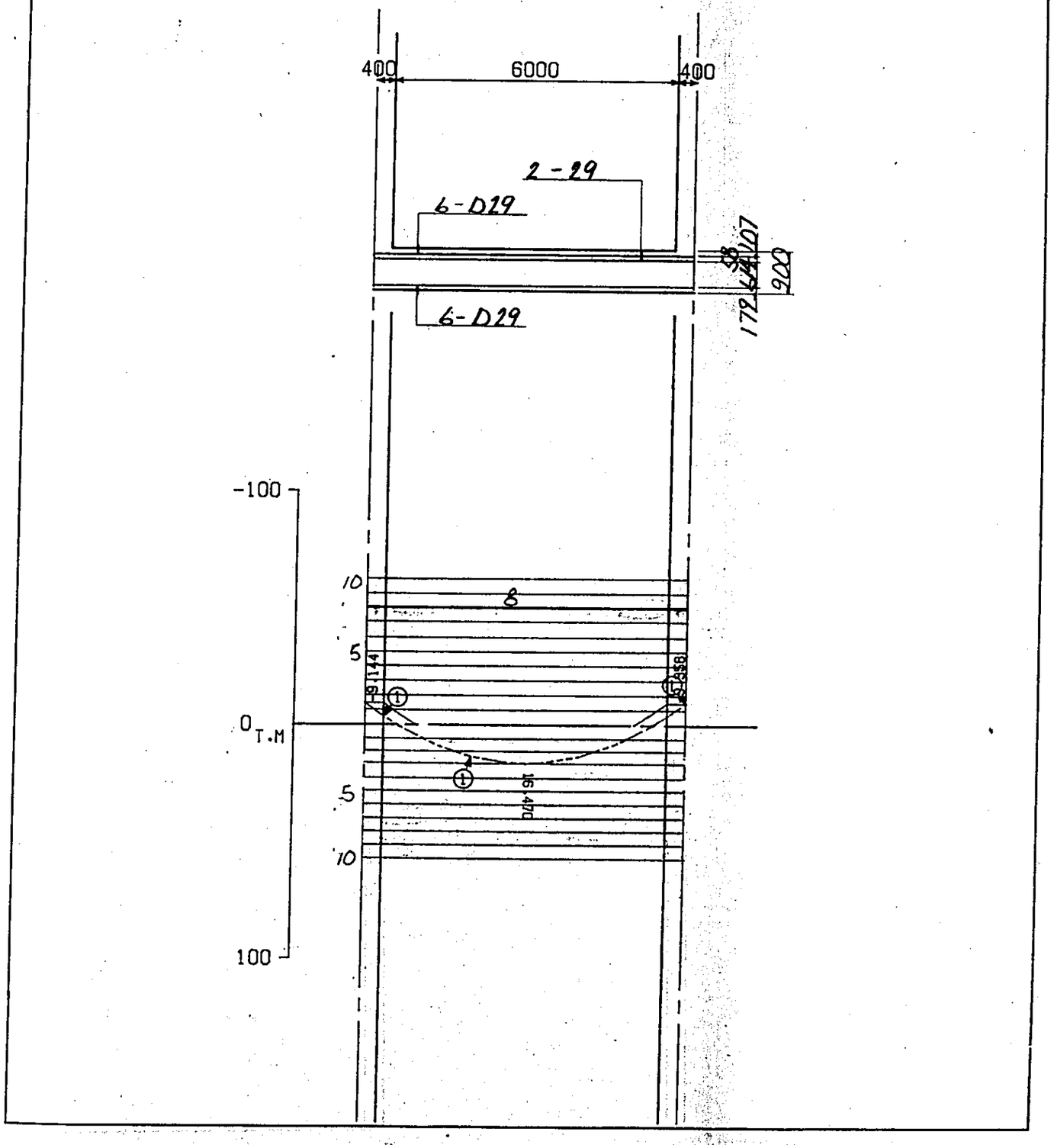
Hence D29 - 6 = 38.54^{cm^2} > 25.24^{cm^2}

VIADUCT OF DOUBLE TRACK C-1

PICK UP 1

1/100
CM/TON 5.0/100

2

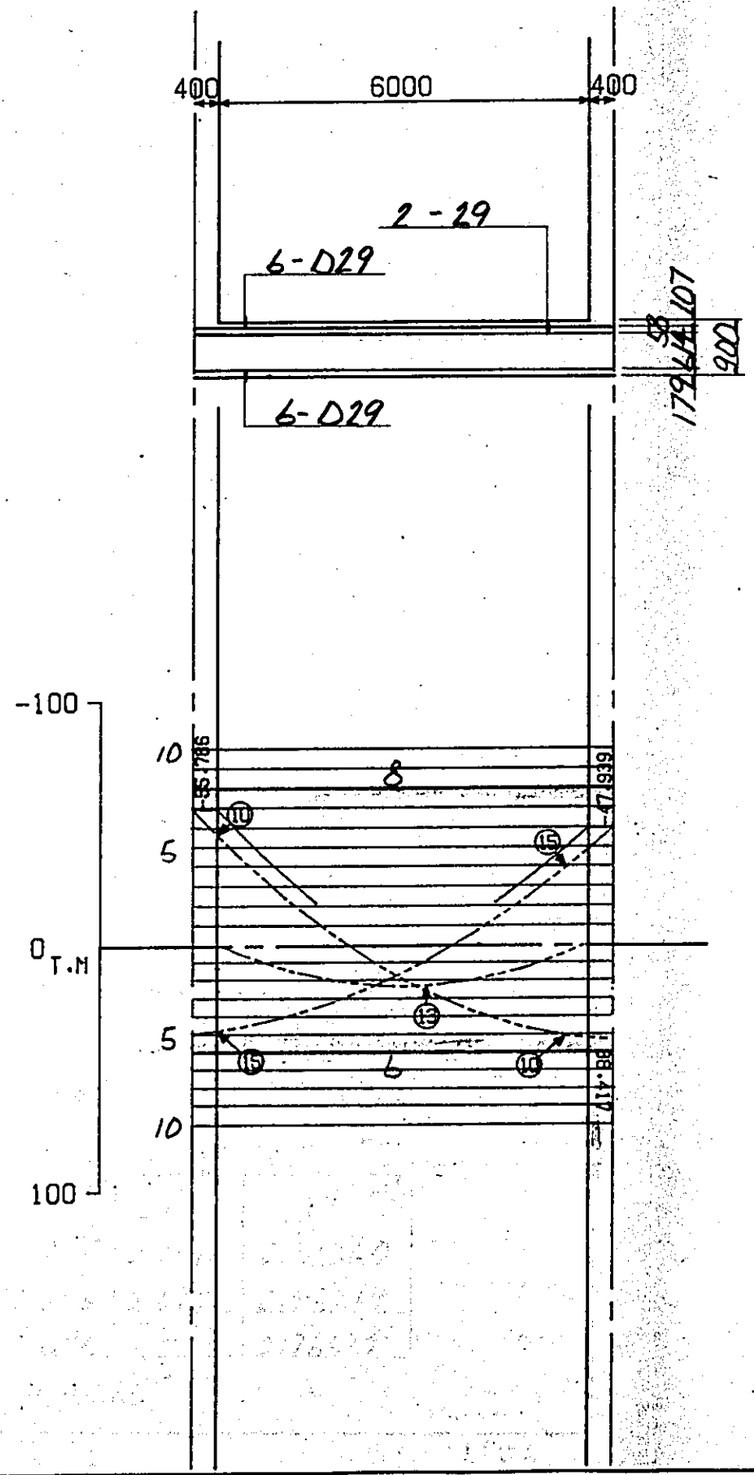


VIADUCT OF DOUBLE TRACK C-1

PICK UP 2

1/100
CM/TON 4.0/100

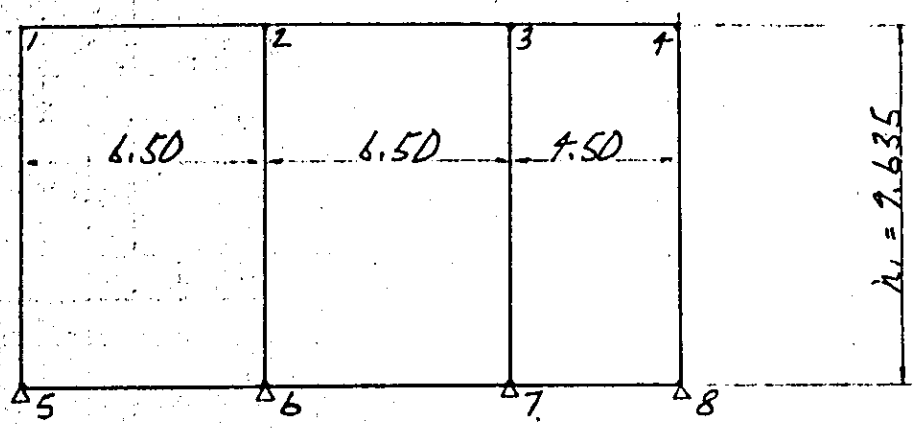
2



§6. Rigid frame analysis on transversal Section (②-②) of elevated structure

(1) Elements for rigid frome analysis

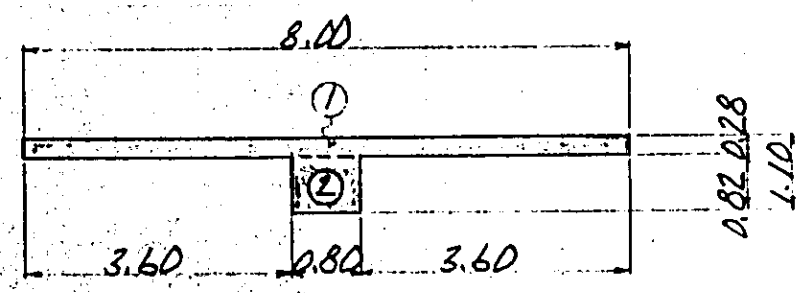
1. Conligulation and dimension



$$h_1 = 9.15 - 0.265 + 0.30 + 0.45 = 9.635 \ ^{m}$$

2. Cross-Setional area and moment of Inertia of the member.

(1) Member (1 ~ 2 ~ 3)



	b m	h m	A m²	y m	$A \cdot y$ m³
①	8.000	0.280	2.240	0.140	0.31360
②	0.800	0.820	0.656	0.690	0.45264
Σ	—	—	2.896	—	0.76624

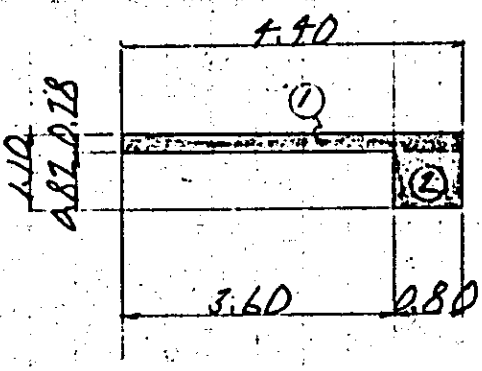
$$y_0 = \frac{0.76624}{2.896} = 0.265^{m}$$

	A m^2	y_o m	$A \cdot y_o^2$ m^4	I_o m^4
①	2.240	0.125	0.03500	0.01463
②	0.656	0.425	0.11849	0.03676
Σ	2.896	———	0.15349	0.05139

$A = 2.896\ m^2$

$I = 0.15349 + 0.05139 = 0.20488\ m^4$

(2) Member (3 ~ 4)



	b m	h m	A m^2	y m	$A \cdot y$ m^3
①	4.400	0.280	1.232	0.140	0.17248
②	0.800	0.820	0.656	0.690	0.45264
Σ	——	——	1.888	——	0.62512

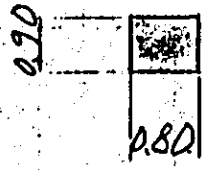
$y_o = \dfrac{0.62512}{1.888} = 0.331\ m$

	A m^2	y_o m	$A \cdot y_o^2$ m^4	I_o m^4
①	1.232	0.191	0.04494	0.00805
②	0.656	0.359	0.08455	0.03676
Σ	1.888	——	0.12949	0.04481

$A = 1.888\ m^2$

$I = 0.12949 + 0.04481 = 0.17430\ m^4$

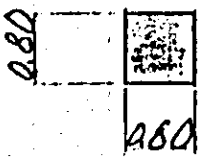
(3) Member (5~6, 6~7, 7~8)



$A = 0.80 \times 0.70 = 0.720\ m^2$

$I = \frac{1}{12} \times 0.80 \times 0.90^3 = 0.04860\ m^4$

(4) Member (1~5, 2~6, 3~7, 4~8)



$A = 0.80 \times 0.80 = 0.640\ m^2$

$I = \frac{1}{12} \times 0.80 \times 0.80^3 = 0.03413\ m^4$

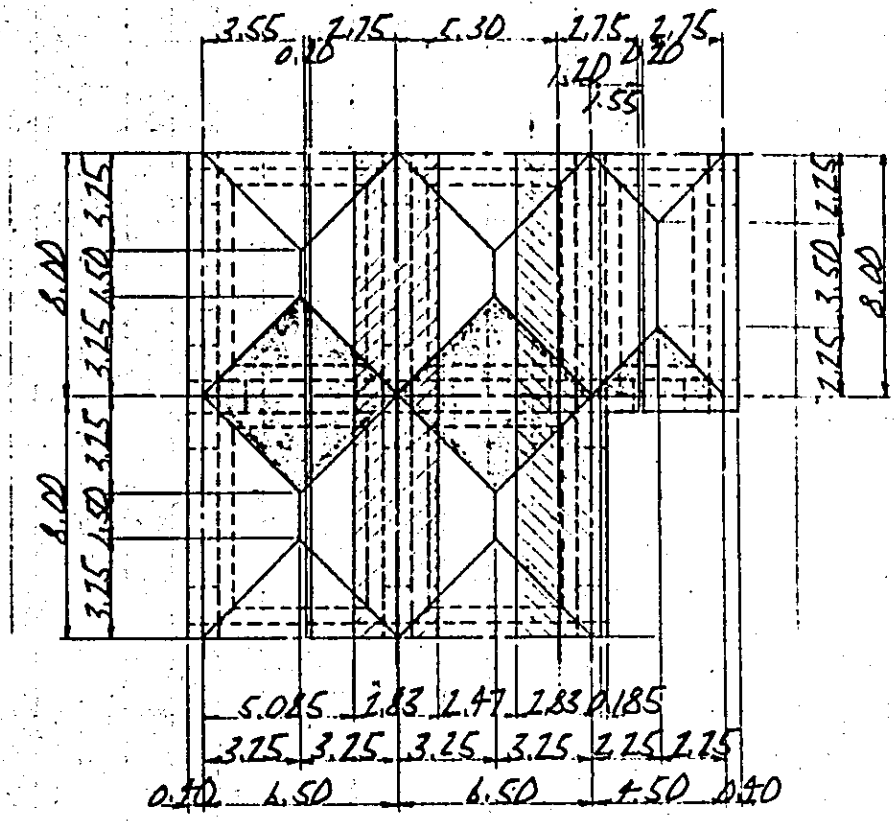
$Ec = 2.7 \times 10^6\ t/m^2$ ($\sigma ck = 240\ kg/cm^2$)

$\alpha = 1.0E-5\ ^\circ C$

(2) Calculation of loads

1. Dead load

(1) Member (1~2, 2~3, 3~4)



(a) Distributed load (A)

Ballast	1.9	× 0.481	= 0.91	t/m²
Sloping concrete	2.35	× 0.07	= 0.16	"
Slab	2.5	× 0.28	= 0.70	"
			w_d = 1.77	t/m²

$\therefore w_{d1}$ = 0.70 × 3.25 × 2 = 4.55 t/m

w_{d2} = 0.70 × 2.75 × 2 = 3.85 "

$w_{d3} = 1.77 \times 2.75 \times 2 = 9.74$ t/m

$w_{d4} = 1.77 \times 3.25 \times 2 = 11.51$ "

$w_{d5} = 1.77 \times 0.40 = 0.71$ "

$w_{d6} = 1.77 \times (0.40 + 1.55) = 3.45$ "

$w_{d7} = 0.70 \times (10.40 + 1.55) = 1.37$ "

$w_{d8} = 0.70 \times (10.40 + 2.25) = 1.86$ "

$w_{d9} = 0.70 \times 0.4 = 0.28$ "

Track weight $0.45 \times 1/2.83 = 0.16$ t/m²

$w_{d10} = 0.16 \times 1.415 \times 2 = 0.45$ t/m

$w_{d11} = 0.16 \times 2.615 \times 2 = 0.84$ "

$w_{d12} = 0.16 \times 0.215 = 0.03$ "

(b) Distributed load (B)

Cross beam $2.5 \times 0.80 \times 0.82 = 1.64$ t/m

Slab haunch $2.5 \times 1/2 \times 0.45 \times 0.15 \times 2 = 0.17$ "

$w_{d13} = 1.81$ t/m

Cross beam $2.5 \times 0.80 \times 0.82 = 1.64$ t/m

Slab haunch $2.5 \times 1/2 \times 0.45 \times 0.15 = 0.08$ "

$w_{d14} = 1.72$ t/m

(c) Distributed load (C)

(i) 1~2 Member

	$2.5 \times 0.20 \times 0.30 \times 2.85 \times 2 =$	0.86^{t}
	$0.20 \times 2.85 \times 2 =$	$1.14^{"}$
	$P_{d1} =$	2.00^{t}

(ii) 3~4 Member

	$2.5 \times 0.20 \times 0.30 \times (1.65+0.40) =$	0.31^{t}
	$0.20 \times (1.65+0.40) =$	$0.41^{"}$
	$P_{d2} =$	0.72^{t}

(d) Concentrated load of elements acting at joint P_1, P_2 P_3 as shown beam

(i) joint P_1

Slab	$2.5 \times 1/2 \times (0.75+4.00) \times 3.25 \times 0.28 \times 2 =$	10.81^{t}
"	$2.5 \times 0.40 \times 0.28 \times 8.00 =$	$2.24^{"}$
Slab haunch	$2.5 \times 1/2 \times 0.45 \times 0.15 \times 3.45 \times 2 =$	$0.58^{"}$
Longitudinal beam	$2.5 \times 0.40 \times 0.80 \times 8.00 =$	$14.72^{"}$
Longitudinal beam haunch	$2.5 \times 1/2 \times 1.20 \times 0.40 \times 0.80 \times 2 =$	$0.96^{"}$
Cross beam haunch	$2.5 \times 1/2 \times 0.90 \times 0.30 \times 0.80 =$	$0.27^{"}$
Deficit of distributed load	$-1.81 \times 0.40 =$	$-0.72^{"}$
Deficit of column weight	$-2.5 \times 0.80 \times 0.80 \times (1.20-0.265) =$	$-1.50^{"}$
	$P_1 =$	27.36^{t}

(ii) joint P2

Slab	2.5 × 1/2 × (0.75 + 1.25) × 0.50 × 0.28 × 2	= 0.70 t
Distributed load	1.77 × 1/2 × (1.25 + 4.00) × 2.75 × 2	= 25.55 "
"	1.77 × 1/2 × (0.75 + 4.00) × 3.25 × 2	= 27.32 "
Track weight	0.16 × 1/2 × (2.585 + 4.00) × 1.415 × 4	= 2.98 "
Longitudinal beam	2.5 × 0.80 × 0.92 × 8.00	= 14.72 "
Slab haunch	2.5 × 1/2 × 0.45 × 0.15 × 3.45 × 4	= 1.16 "
Longitudinal haunch	2.5 × 1/2 × 1.20 × 0.40 × 0.80 × 2	= 0.96 "
Cross beam haunch	2.5 × 1/2 × 0.90 × 0.30 × 0.80 × 2	= 0.54 "
Dificit of distributed load	1.81 × 0.80	= − 1.45 "
Dificit of column weight	2.5 × 0.80 × 0.80 × (1.20 − 0.265)	= − 1.50 "
		P2 = 70.98 t

(iii) joint P3

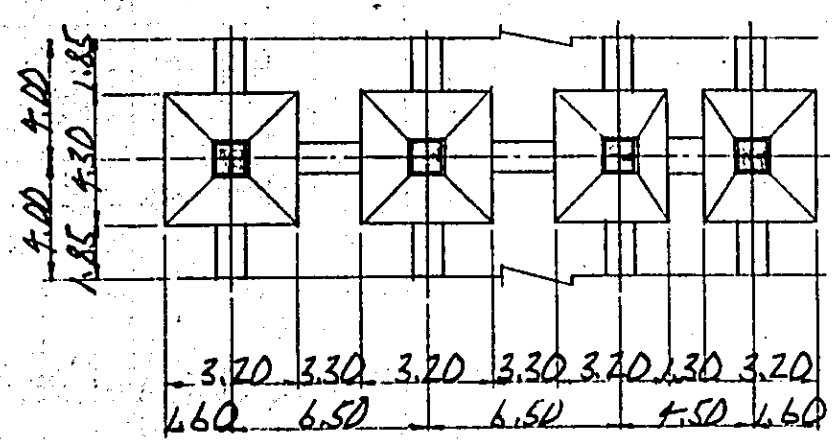
Distributed	1.77 × 1/2 × (0.75 + 4.00) × 3.25 × 2	= 27.32 t
"	1.77 × 1/2 × (2.45 + 4.00) × 1.55	= 8.85 "
"	1.77 × 0.20 × 3.60	= 1.27 "
Slab	2.5 × 1/2 × (1.75 + 2.45) × 0.70 × 0.28	= 1.03 "
"	2.5 × 0.40 × 0.28 × 3.60	= 1.01 "
curb	2.5 × 0.20 × 0.30 × 3.60	= 0.54 "
Hand rail	0.20 × 3.60	= 0.72 "

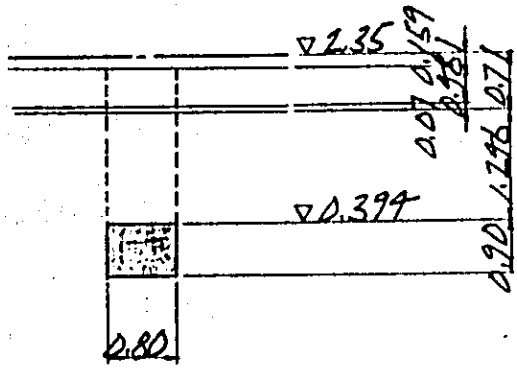
Slab haunch	$2.5 \times 1/2 \times 0.45 \times 0.15 \times 3.47 \times 3$	$= 0.87^{t}$
Track weight	$0.16 \times (2.83 \times 8.00 - 1/2 \times 2.615^{2} \times 2$	
	$- 1/2 \times 0.215^{2})$	$= 2.52^{t}$
Longitudinal beam	$2.5 \times 0.80 \times 0.92 \times 8.00$	$= 14.72$ "
Longitudinal beam haunch	$2.5 \times 1/2 \times 1.20 \times 0.90 \times 0.80 \times 2$	$= 0.96$ "
Cross beam haunch	$2.5 \times 1/2 \times 0.90 \times 0.30 \times 0.80 \times 2$	$= 0.54$ "
Dificit of distributed load	$-1.81 \times 0.40 - 1.72 \times 0.40$	$= -1.41$ "
Dificit of column weight	$-2.5 \times 0.80 \times 0.80 \times (1.20 - 0.265)$	$= -1.50$ "
		$P_3 = 57.44^{t}$

(iv) joint 4

Slab	$2.5 \times 1/2 \times (1.75 + 4.00) \times 1.25 \times 0.28$	$= 4.53^{t}$
"	$2.5 \times 0.40 \times 0.28 \times 4.40$	$= 1.23$ "
Slab haunch	$2.5 \times 1/2 \times 0.45 \times 0.15 \times 3.45$	$= 0.29$ "
Longitudinal beam	$2.5 \times 0.80 \times 0.92 \times 4.40$	$= 8.10$ "
Longitudinal beam haunch	$2.5 \times 1/2 \times 1.20 \times 0.40 \times 0.80$	$= 0.48$ "
Cross beam haunch	$2.5 \times 1/2 \times 0.90 \times 0.30 \times 0.80$	$= 0.27$ "
Dificit of Distributed load	-1.72×0.40	$= -0.69$ "
Dificit of column weight	$-2.5 \times 0.80 \times 0.80 \times (1.20 - 0.265)$	$= -1.50$ "
		$P_4 = 12.71^{t}$

(2) Member (5~6, 6~7, 7~8)





(a) Distributed load (A)

Ballast	1.9 × 0.481	= 0.91	t/m²
Sloping concrete	2.35 × 0.07	= 0.16	"
		1.07	t/m
Earth weight	1.8 × 0.946	= 1.70	t/m²
"	1.8 × 1.246	= 2.24	"

(b) Distributed load (B)

$$W_1 = (1.07 + 2.24) \times 0.80 + 2.5 \times 0.80 \times 0.90$$
$$= 4.45 \text{ t/m}$$

(c) Concentrated load of elements acting at joint P_5, P_6, P_7, P_8 shown bellone

(i) joint P5, P8

Distributed load (B)	4.45 × 1.85 × 2	= 16.47 t
Distributed load (A)	1.07 × (3.20 × 4.30 − 0.80²)	= 14.04 "
Earth weight	1.7 × (3.20 × 4.30 − 0.8²) × 0.946	= 22.30 "
"	1.8 × {3.20 × 4.30 − 1/6 × (1.00² + 3.20 × 4.30 + 4 × 2.10 × 2.65)} × 0.30	= 4.10 "
footing	2.5 × {3.20 × 4.30 × 0.90 + 1/6 × (1.00² + 3.20 × 4.30 + 4 × 2.10 × 2.65) × 0.30}	= 35.59 "

Deficit of column weight	$-2.5 \times 0.80^2 \times (0.30+0.45)$	$= -1.20^t$
Deficit of Distributed load (B)	4.45×-1.60	$= -7.12^{"}$
		$P_{d5,8} = 84.18^t$

(ii) Joint P_6, P_7

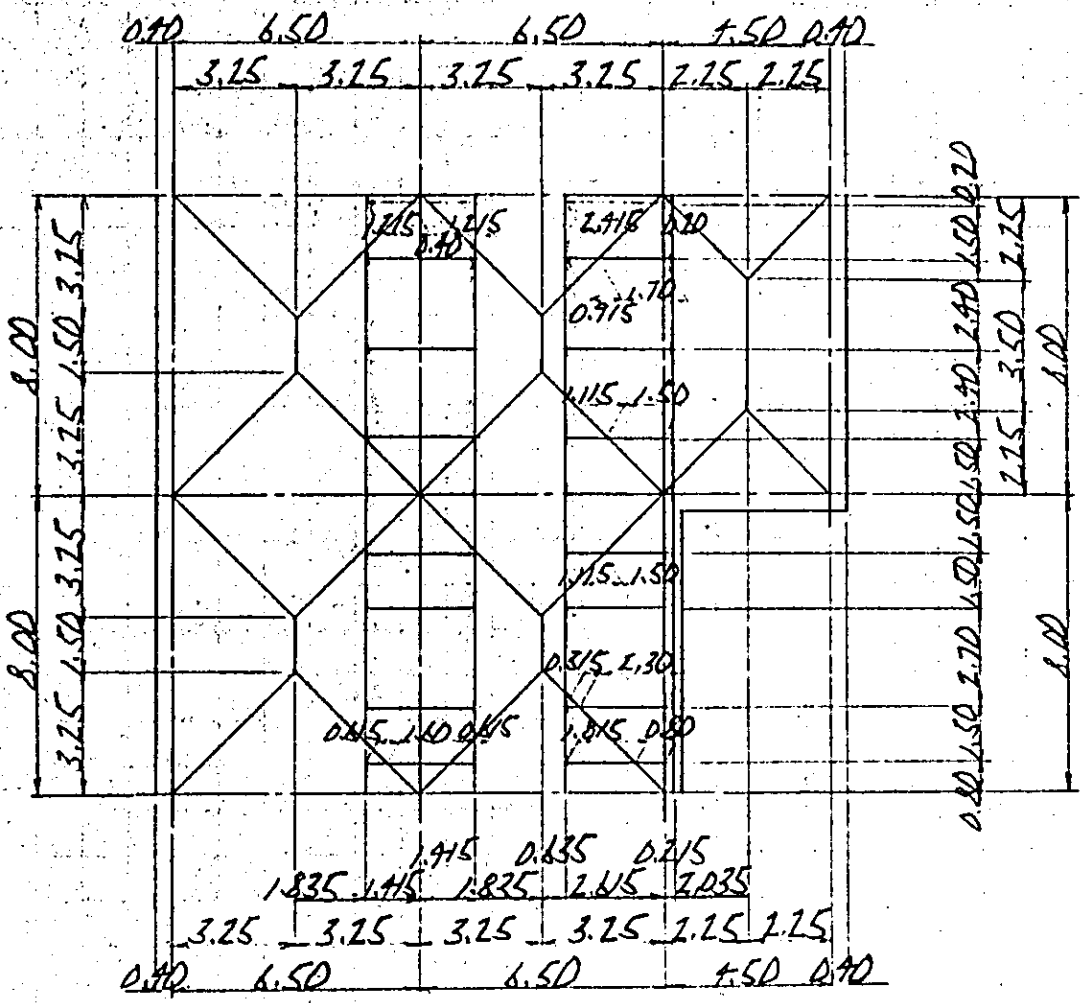
Distributed load (B)	(P_{d5} 〃)	$= 16.47^t$
Distributed load (A)	(〃)	$= 14.04^{"}$
Earth weight	(〃)	$= 22.30^{"}$
〃	(〃)	$= 4.10^{"}$
Footing	(〃)	$= 35.59^{"}$
Deficit of column weight	(〃)	$= -1.20^{"}$
Deficit of distributed load (B)	4.45×3.20	$= -14.24^{"}$
		$P_{d8} = 77.06^t$

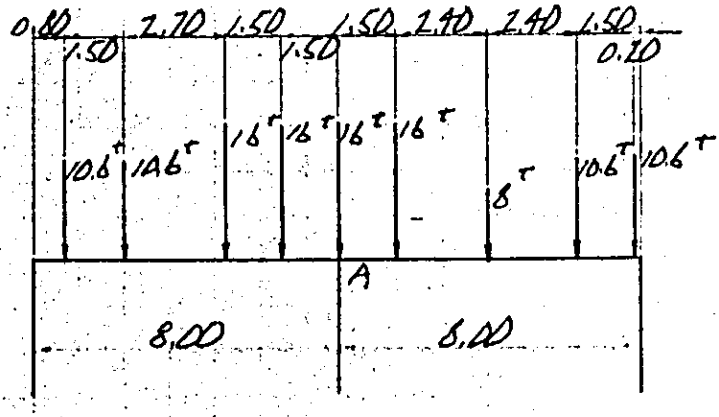
(3) Column weight

$$g = 2.5 \times 0.80 \times 0.80 = 1.60^{t/m}$$

2. Train load + Impact (ks-16)

(1) Train load





$w_{l1} = \frac{16}{2.83} = 5.65$ t/m

$w_{l2} = \frac{10.6}{2.83} = 3.75$ "

$w_{l3} = \frac{8}{2.83} = 2.83$ "

(2) Reduction of impact coefficient

$l_1 = 4.50$ m ——— $i_1 = 0.492 \times (1 - \frac{4.50}{200}) = 0.481$

$l_2 = 6.50$ " ——— $i_2 = 0.485 \times (1 - \frac{6.50}{200}) = 0.450$

$l_3 = 8.00$ " ——— $i_3 = 0.450 \times (1 - \frac{8.00}{200}) = 0.432$

(3) Train load + Impact

(a) Distributed load

$w_{l+i1} = 5.65 \times (1+0.450) = 8.19$ t/m

$w_{l+i2} = 5.65 \times (1+0.450) \times 3 = 24.58$ "

$w_{l+i3} = 5.65 \times (1+0.481) = 8.37$ "

(b) Distributed load of longitudinal beam

(i) joint P_2

$$\text{Peri}A = \frac{1}{8.00} \times \{3.75 \times 1.60 \times 0.80 + 10.6 \times 2.30 + 16 \times (5.00 + 6.50 + 6.50) + 8 \times 4.10 + 10.6 \times 1.70 + 3.75 \times 0.40 \times 0.20\} \times (1+0.432)$$

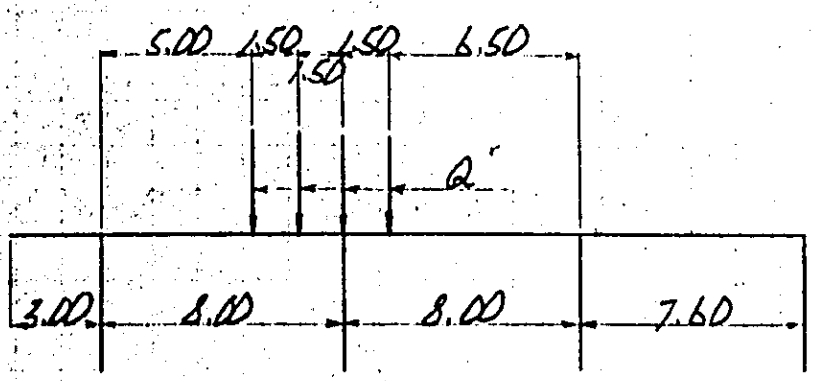
$$= 65.93 \text{ t}$$

(ii) joint P_3

P_{3+1A} = 8.00 × {3.75 × 1.015 × 0.80 + 3.75 × 2.515 × 2.30 + 16 × 5.00 + 5.65 × 1.715 × 6.50 × 2 + 8 × 4.10 + 3.75 × (1.915 × 1.70 + 0.415 × 0.20)} × (1 + 0.432)

= 49.41 t

3. Train lateral load



$$Q = 16.0 \times 0.15 = 2.40^{t}$$

$$\therefore H = \frac{2.40}{8.00} \times (6.50 + 5.00 + 6.50) = 5.40^{t}$$

4. Force of temperature change and/or Drying contraction

Temperature rise $+10^{deg}$

Temperature drop + Drying contraction -25^{deg}

5. Dead load + Seismic force

(1) W_1

Track weight	$0.45 \times 8.00 \times 2$	$= 7.20^t$
Hand rail	$0.20 \times 8.00 \times 2$	$= 3.20$ "
curb	$2.5 \times 0.20 \times 0.30 \times 8.00 \times 2$	$= 2.40$ "
Ballast	$1.9 \times 10.80 \times 0.481 \times 8.00$	$= 78.96$ "
Sloping concrete	$2.35 \times 10.80 \times 0.07 \times 8.00$	$= 14.21$ "
Slab	$2.5 \times 13.80 \times 0.28 \times 8.00$	$= 77.28$"
"	$2.5 \times 4.50 \times 0.28 \times 4.40$	$= 13.86$"
Slab haunch	$2.5 \times 1/2 \times 0.45 \times 0.15 \times (5.40 \times 4 + 3.45 \times 10 + 3.40)$	$= 5.02$"
Longitudinal beam	$2.5 \times 0.80 \times 0.92 \times (8.00 \times 3 + 4.40)$	$= 52.26$"
Cross beam	$2.5 \times 0.80 \times 0.82 \times (5.70 \times 2 + 3.70)$	$= 24.76$"
Longitudinal beam haunch	$2.5 \times 1/2 \times 1.20 \times 0.40 \times 0.80 \times 7$	$= 3.36$"
Cross beam haunch	$2.5 \times 1/2 \times 0.90 \times 0.30 \times 0.80 \times 6$	$= 1.62$"
column	$2.5 \times 0.80 \times 0.80 \times (1/2 \times 9.635 + 0.265 - 1.20) \times 4$	$= 24.85$"
		$W_1 = 308.98^t$

$\therefore Hd_1 = 308.98 \times 0.1 = 30.90^t$

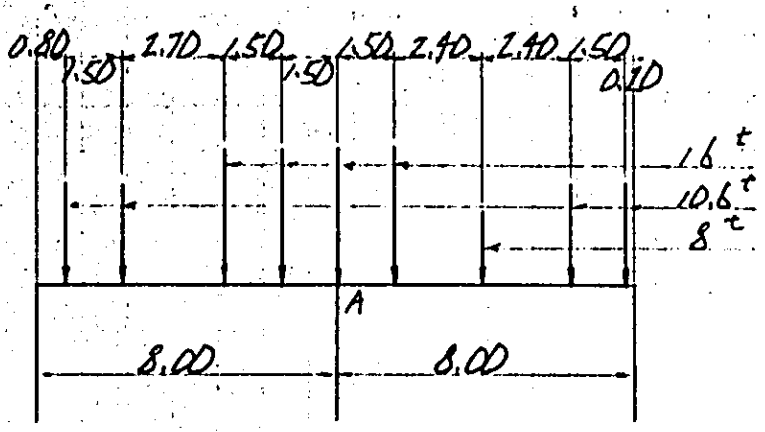
(2) W_2

Bracing beam	$2.5 \times 0.80 \times 0.90 \times (1.85 \times 8 + 3.30 \times 2 + 1.30)$	$= 40.86^{t}$
Footing	$2.5 \times 3.20 \times 4.30 \times 0.90 \times 4$	$= 123.84$ "
"	$2.5 \times 1/6 (1.00^2 + 3.20 \times 4.30 + 4 \times 2.10 \times 2.65) \times 0.30 \times 4$	$= 18.51$ "
Column	$2.5 \times 0.80 \times 0.80 \times (1/2 \times 9.635 - 0.45 - 0.30) \times 4$	$= 26.03$ "
		$W_2 = 209.24^{t}$

$\therefore H = 209.24 \times 0.1 = 20.92^{t}$

b. Centrifugal load

(a) Train load



$$P_A = \frac{1}{8.00} \times \{10.6 \times (0.80 + 2.30 + 0.20 + 1.70) + 16 \times (5.00 + 6.50 + 8.00 + 6.50) + 8 \times 4.10\}$$

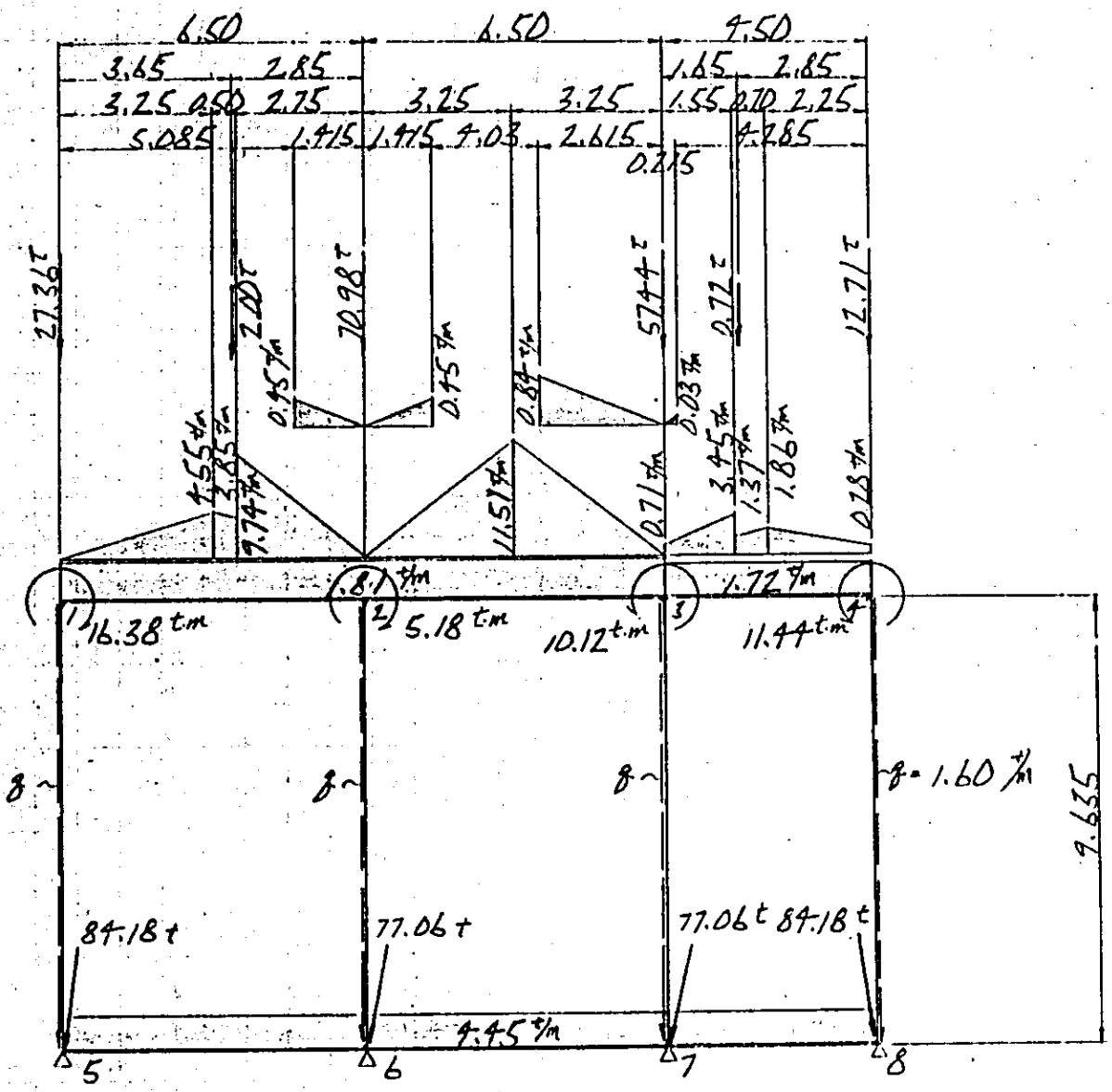
$$= 62.73^{t}$$

$$R = 500^{m} \longrightarrow \alpha = 0.12$$

Hence $H = 62.73 \times 0.12 \times 2 = 15.06^{t}$

(3) Loading diagram

CASE 1 Dead load



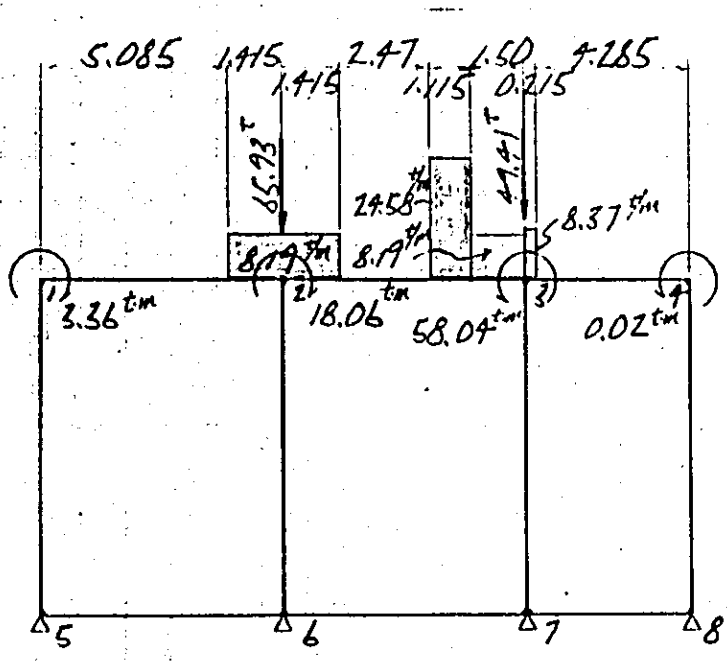
$M_1 = 8.19 \times 2 = 16.38$ t·m

$M_2 = 2.59 \times 2 = 5.18$ "

$M_3 = -5.06 \times 2 = -10.12$ "

$M_4 = -5.72 \times 2 = -11.44$ "

CASE 2. Train load + Impact



$M_1 = 1.68 \times 2 = 3.36$ t·m

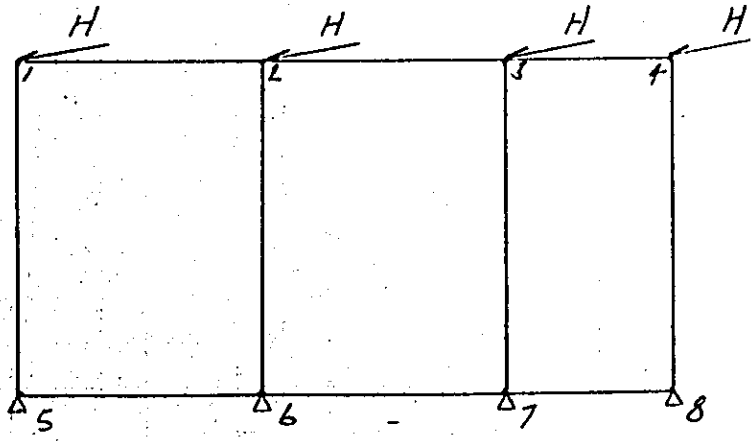
$M_2 = 9.03 \times 2 = 18.06$ "

$M_3 = -29.02 \times 2 = -58.04$ "

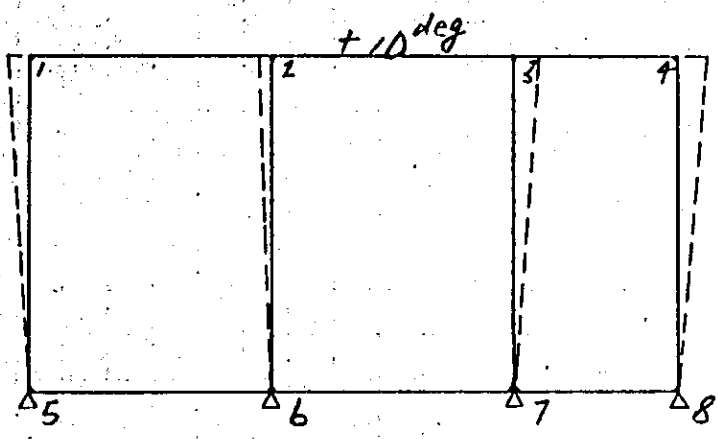
$M_4 = -0.01 \times 2 = -0.02$ "

CASE 3 Train lateral load

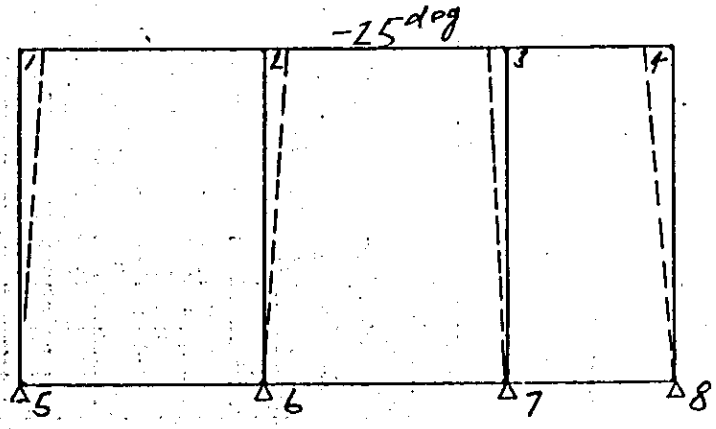
$$H = 1/4 \times 5.40 = 1.35 \text{ T}$$



CASE 4. Temperature rise



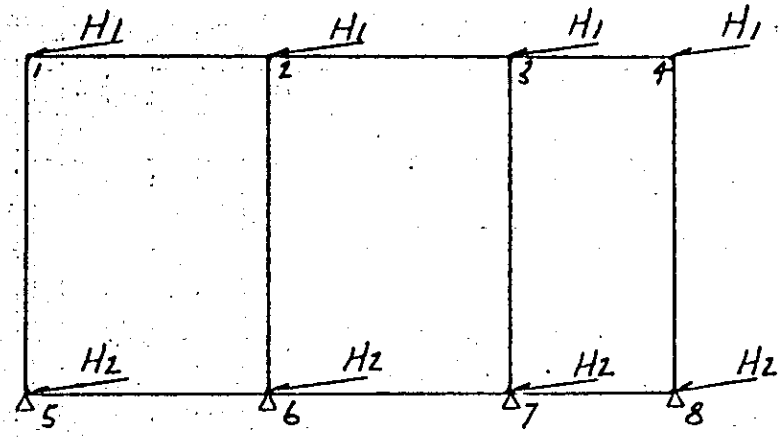
CASE 5 Temperature drop + Drying contraction



CASE 6. Seismic load

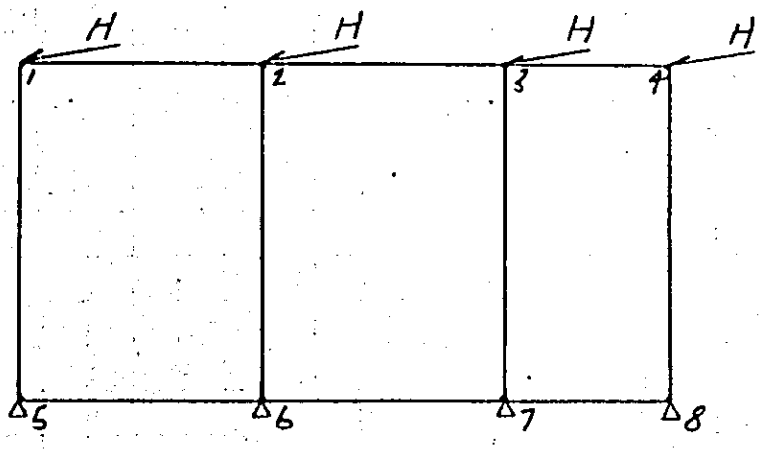
$H_1 = 1/4 \times 30.90 = 7.78^{t}$

$H_2 = 1/4 \times 20.92 = 5.23^{"}$



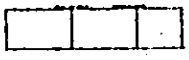
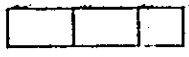
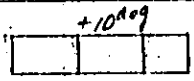
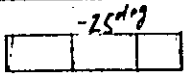
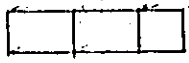
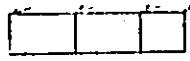
CASE 7 Centrifugal load

$H = 1/4 \times 15.06 = 3.77^{+}$



(4) Combination of loads

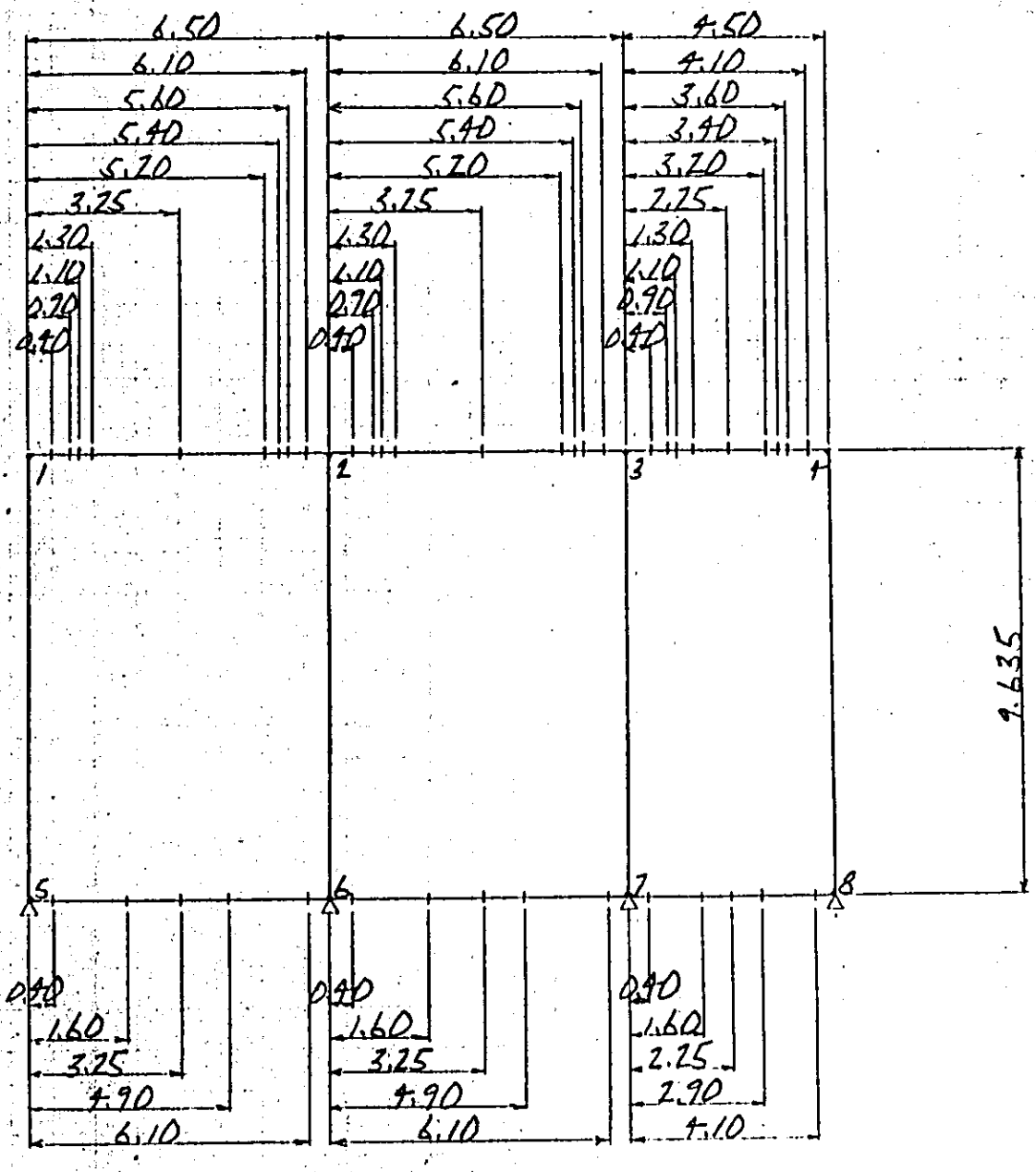
1. Basic load

case No.	King of load	Loading pattern
1	Dead load	
2	Train Impact	
3	Train lateral load	
4	Temperature rise	
5	Temperature drop + drying contraction	
6	Seismic load	
7	Centrifugal load	

2. Critical cases

case no.	α	combination of loads	Summary
8	1.0000	1	D
9	1.0000	1 + 2 + 7	D + T + I + C
10	0.8696	1 + 2 + 3 + 7	D + T + I + C + Te
11	〃	1 + 2 − 3 + 7	〃
12	0.8696	1 + 4	D + Te
13	〃	1 + 5	〃
14	0.6667	1 + 6	D + Se
15	〃	1 − 6	〃
16	1.0000	1 + 2 + 3 + 7	D + Tr + I + C + Te
17	〃	1 + 2 − 3 + 7	〃
18	1.0000	1 + 4	D + Te
19	〃	1 + 5	〃
20	1.0000	1 + 6	D + Se
21	〃	1 − 6	〃
		NO.1 case 1	Crack
		NO.2 case 9 ~ 15	Synthetic
		NO.3 case 16 ~ 17	footing
		NO.4 case 18 ~ 19	〃
		NO.5 case 20 ~ 21	〃

(5) Point of computing Stresses

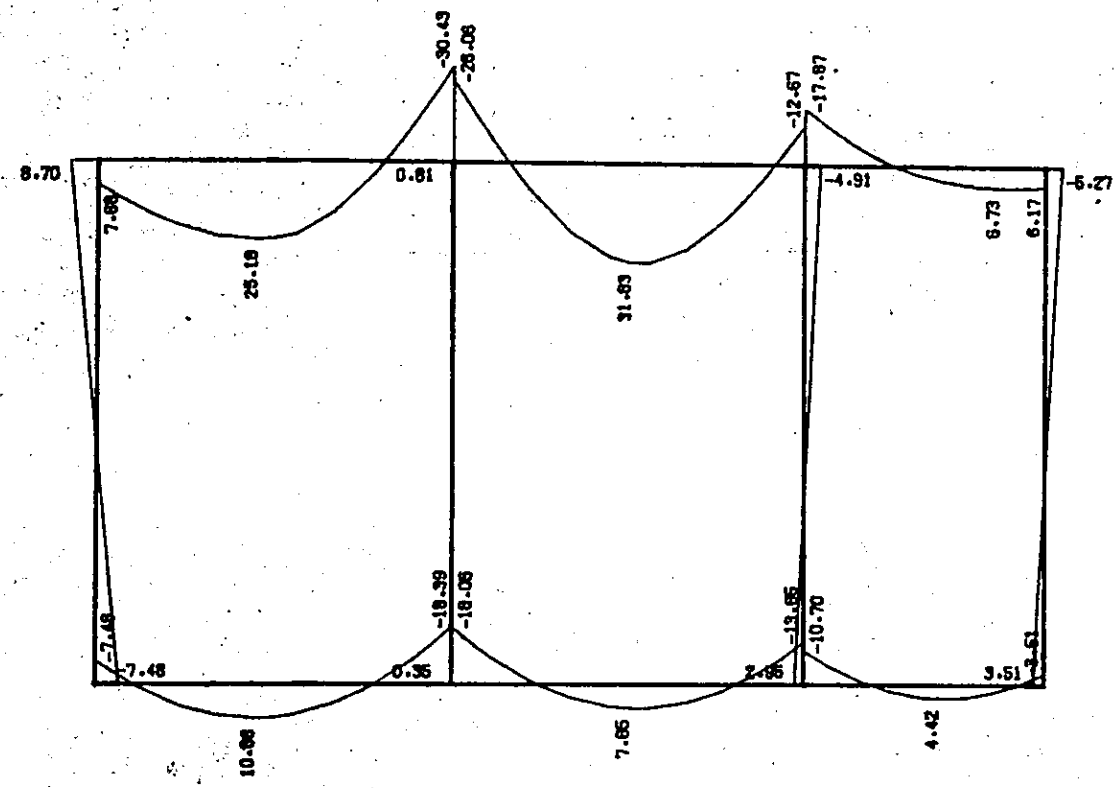


(6) Stress diagram

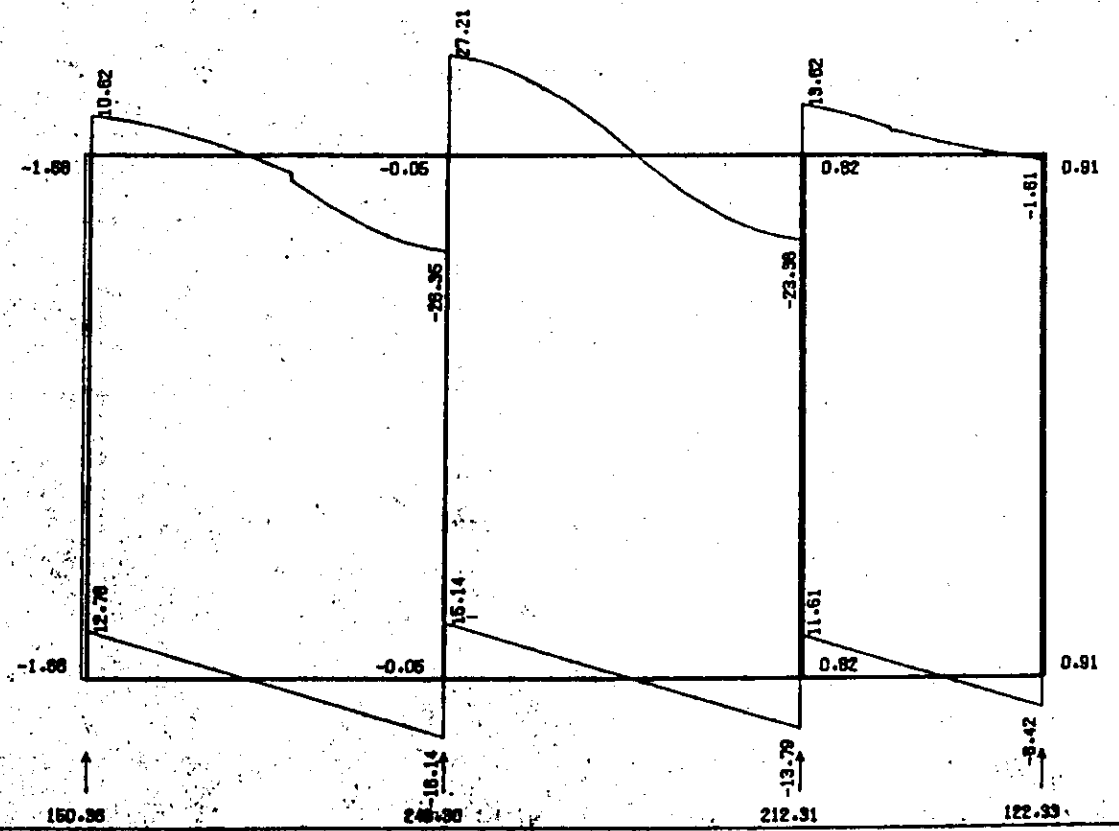
VIADUCT OF DOUBLE TRACK (3+3*8=27) C-2

CASE 1 (DEAD LOAD)

BENDING MOMENT



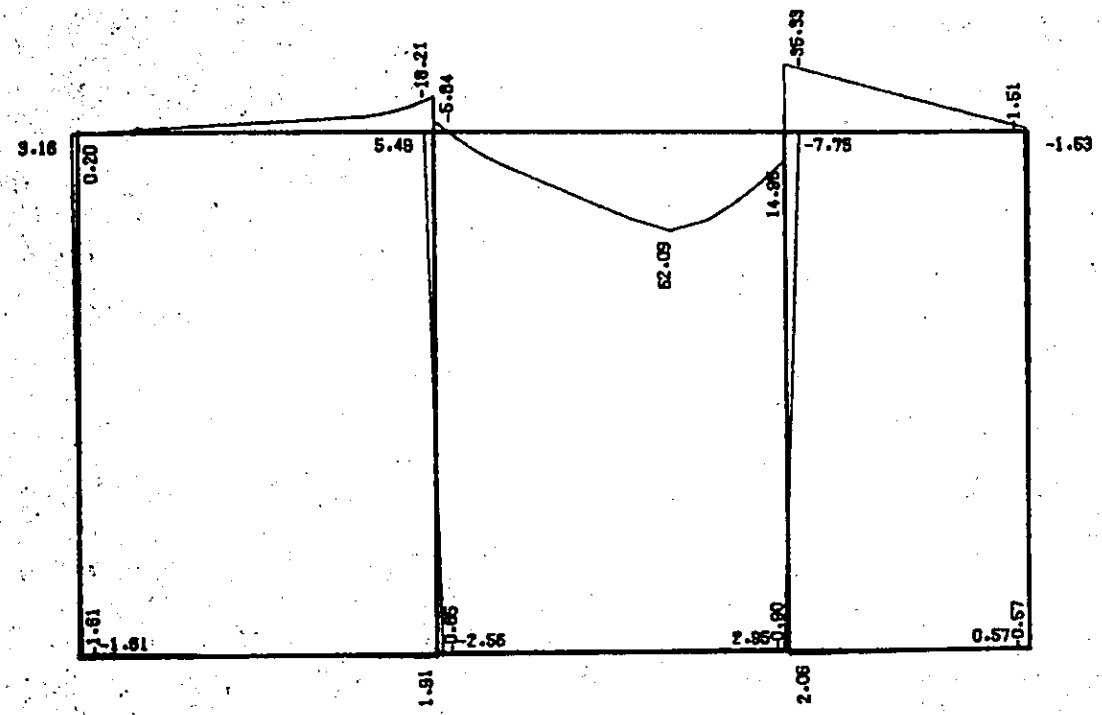
SHEARING FORCE



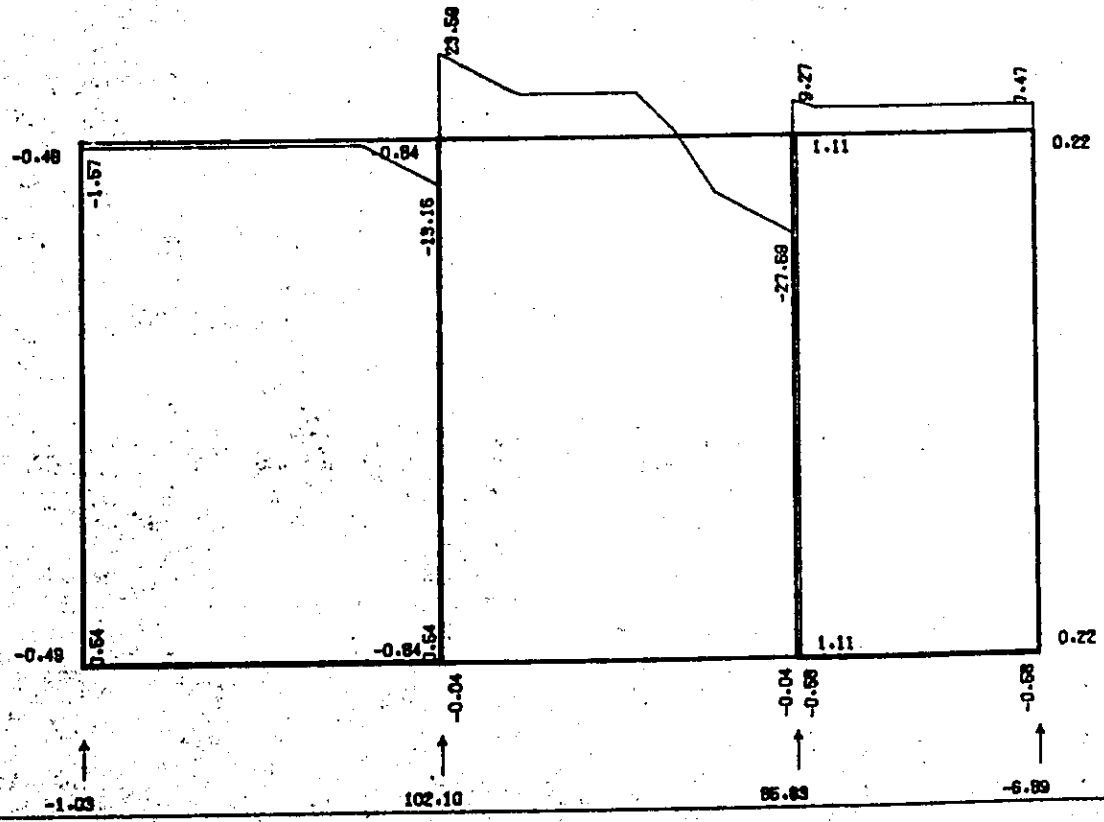
VIADUCT OF DOUBLE TRACK (3+3*8=27) C-2

CASE 2 (TRAIN LOAD + IMPACT LOAD)

BENDING MOMENT



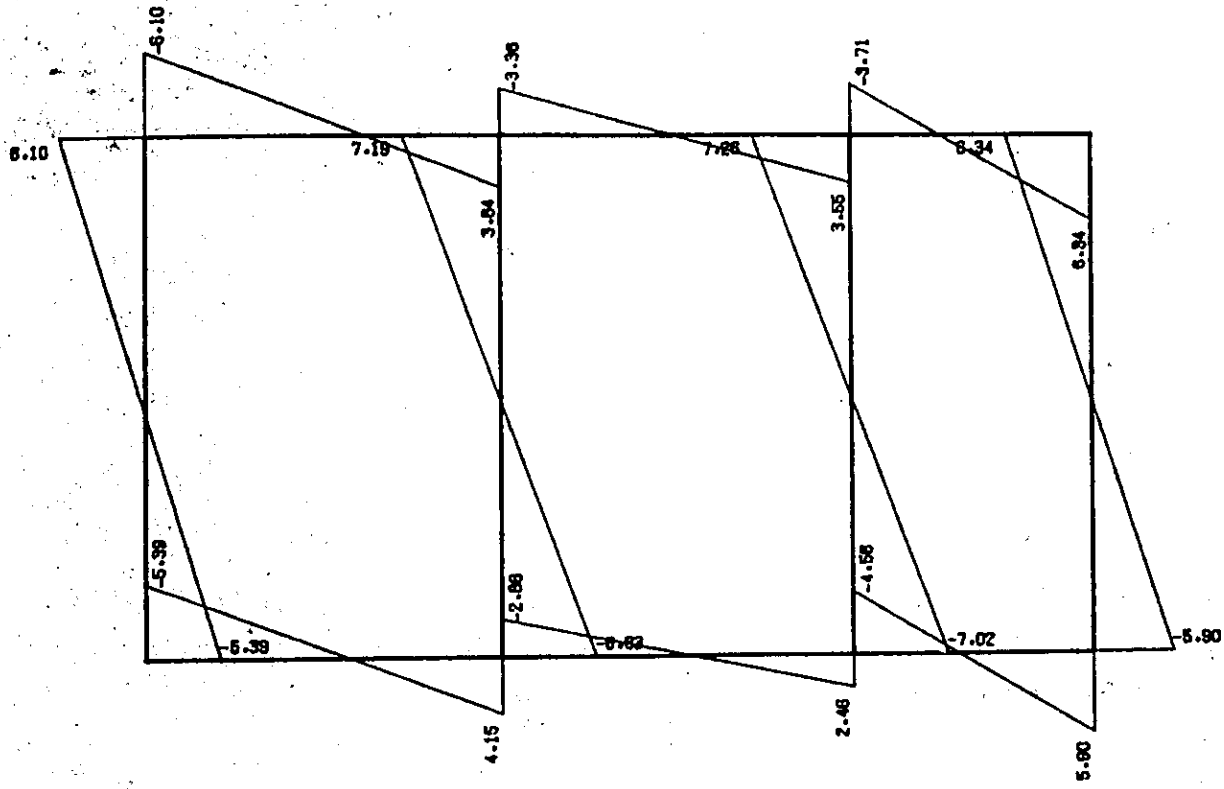
SHEARING FORCE



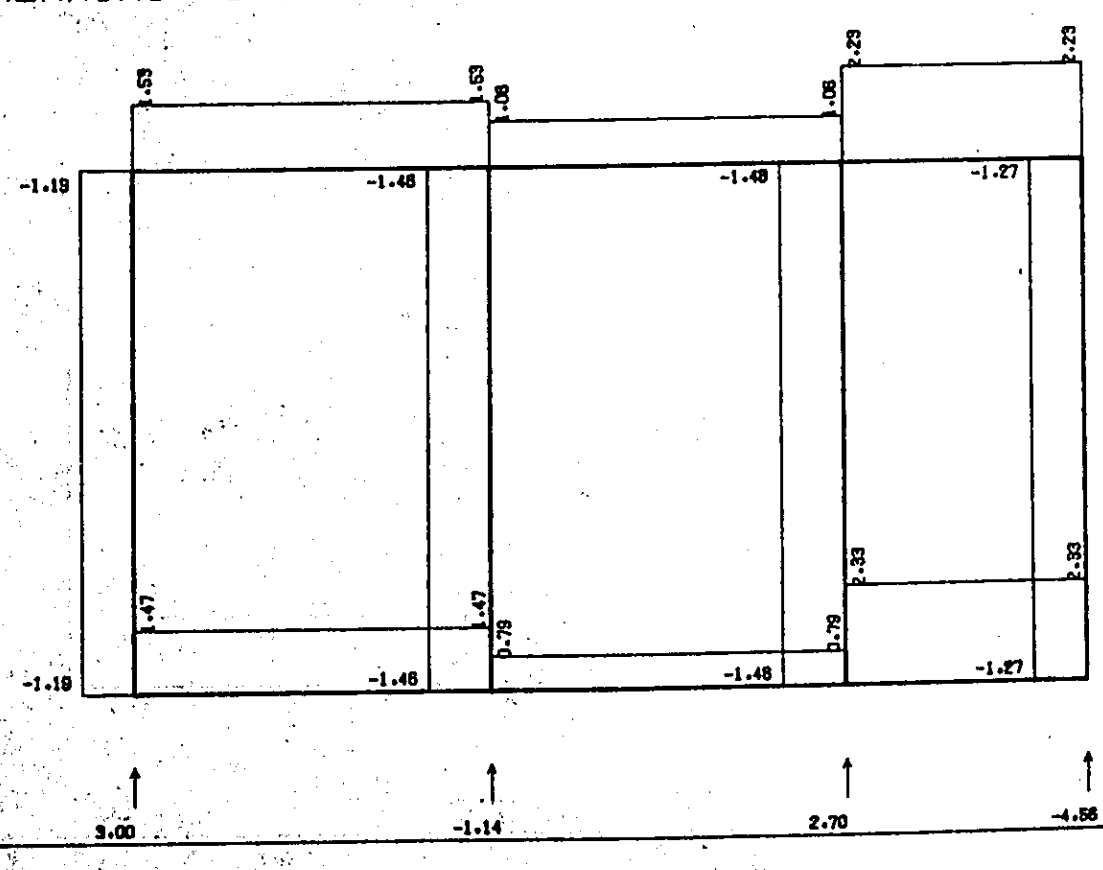
VIADUCT OF DOUBLE TRACK (3+3*8=27) C-2

CASE 3 (TRAIN LATERAL LOAD)

BENDING MOMENT



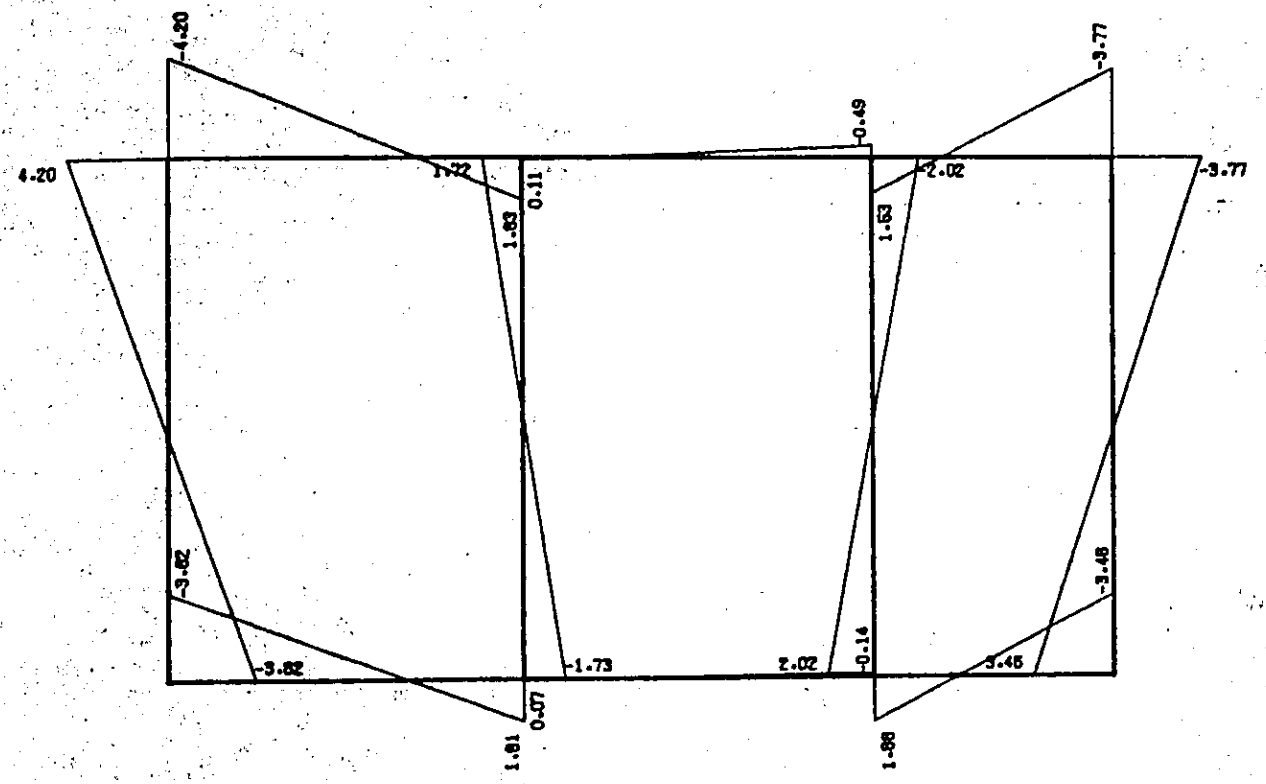
SHEARING FORCE



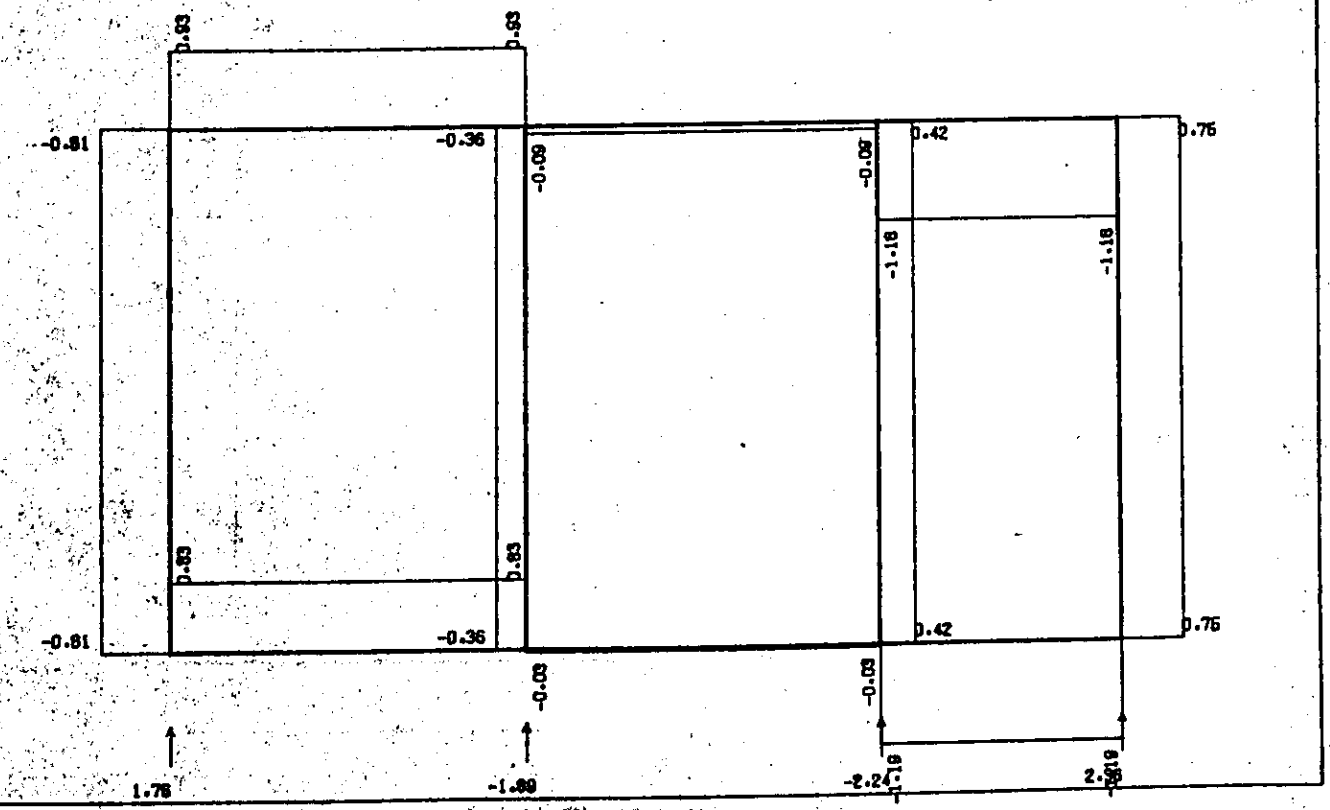
VIADUCT OF DOUBLE TRACK (3+3*8=27) C-2

CASE 4 (TEMPERATURE)

BENDING MOMENT



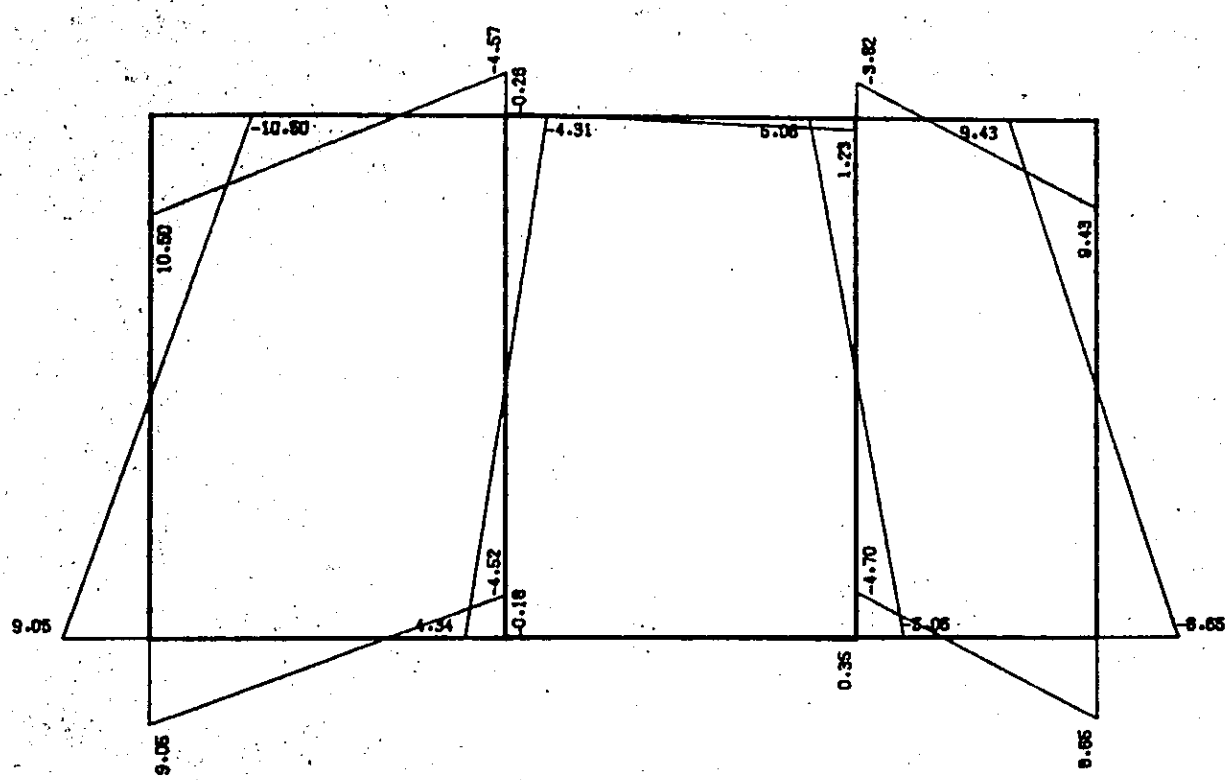
SHEARING FORCE



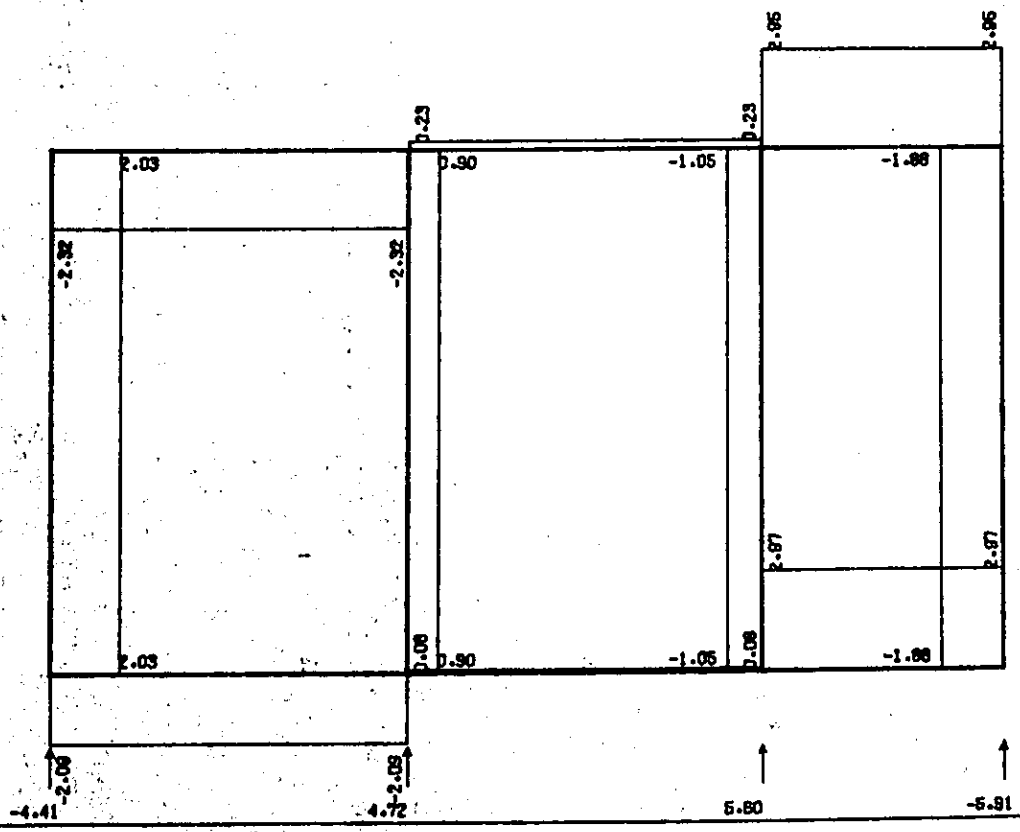
VIADUCT OF DOUBLE TRACK (3+3*8=27) C-2

CASE 5 (TEMPERATURE + SCHRINKAGE)

BENDING MOMENT



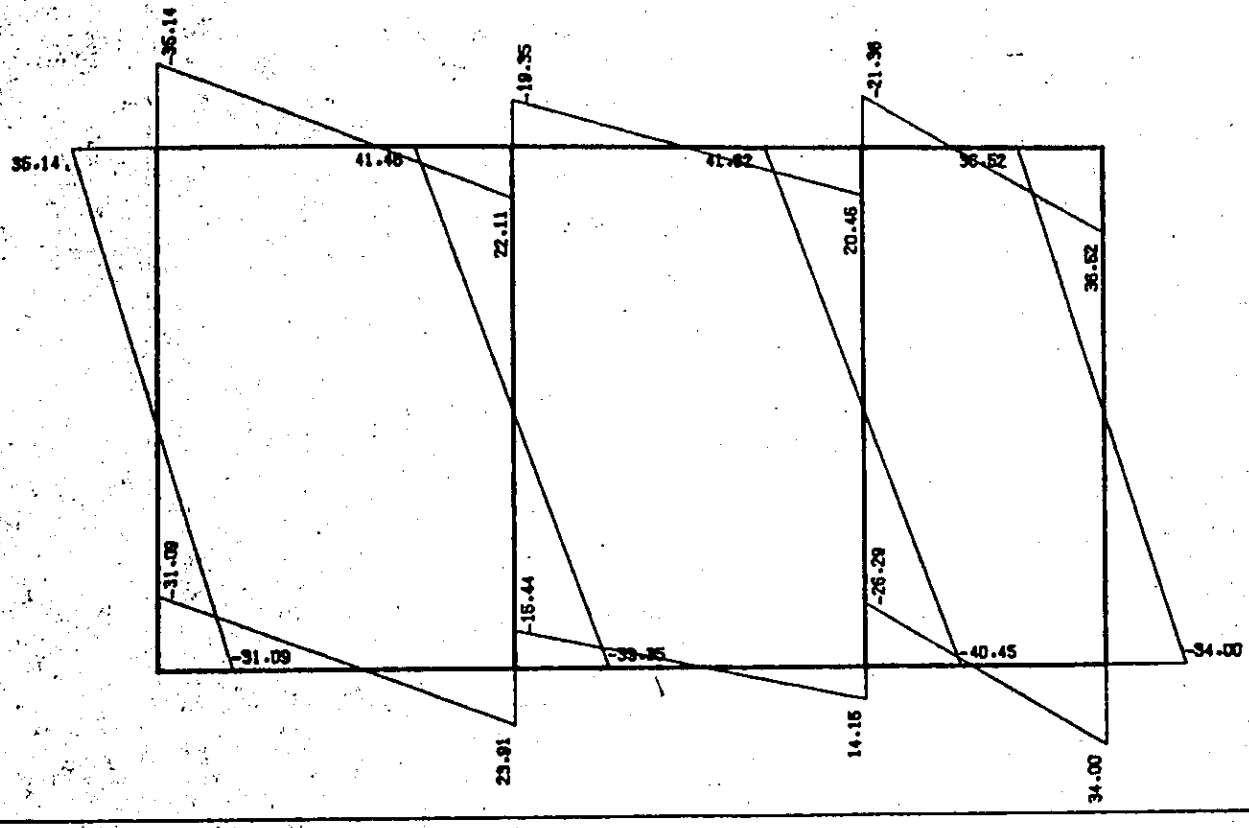
SHEARING FORCE



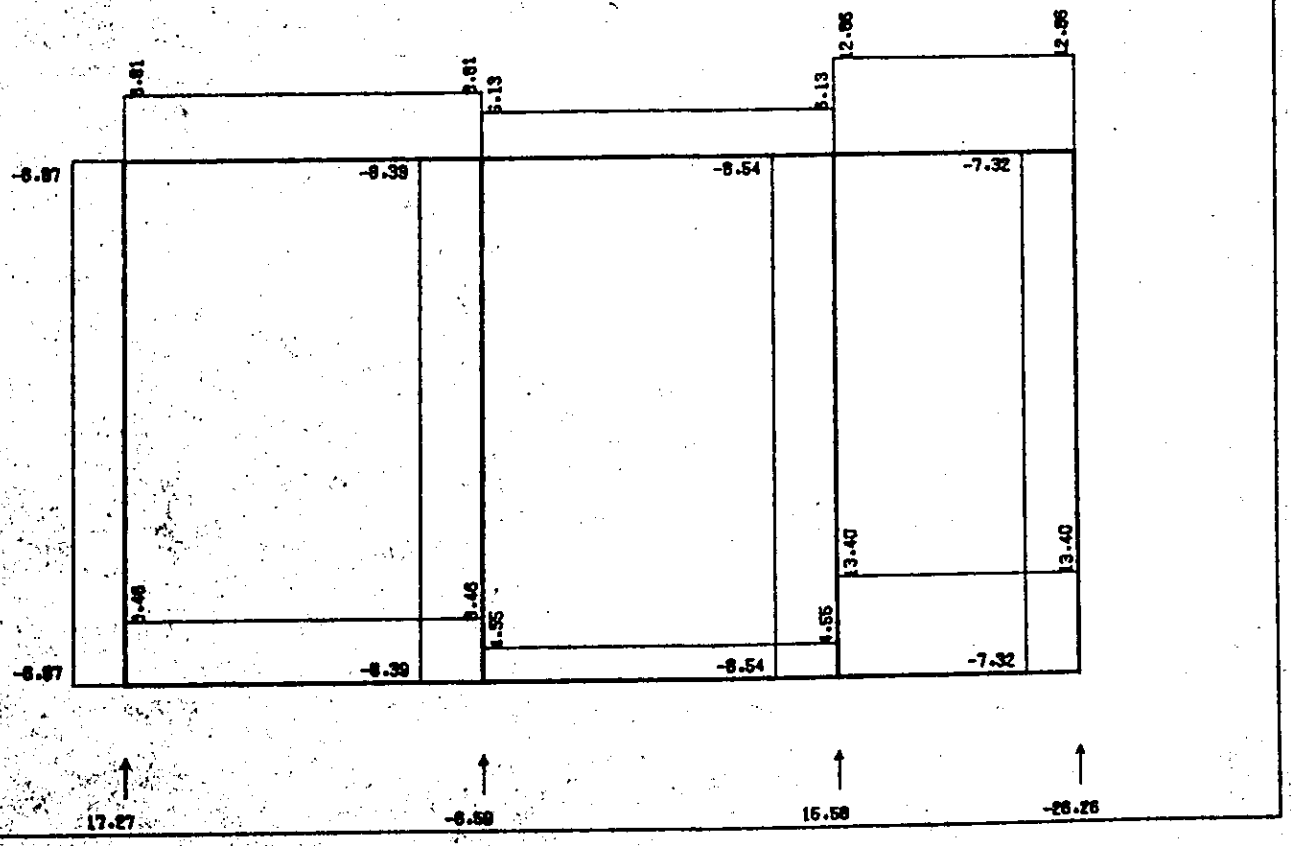
VIADUCT OF DOUBLE TRACK (3+3*8=27) C-2

CASE 6 (SEISMIC LOAD)

BENDING MOMENT



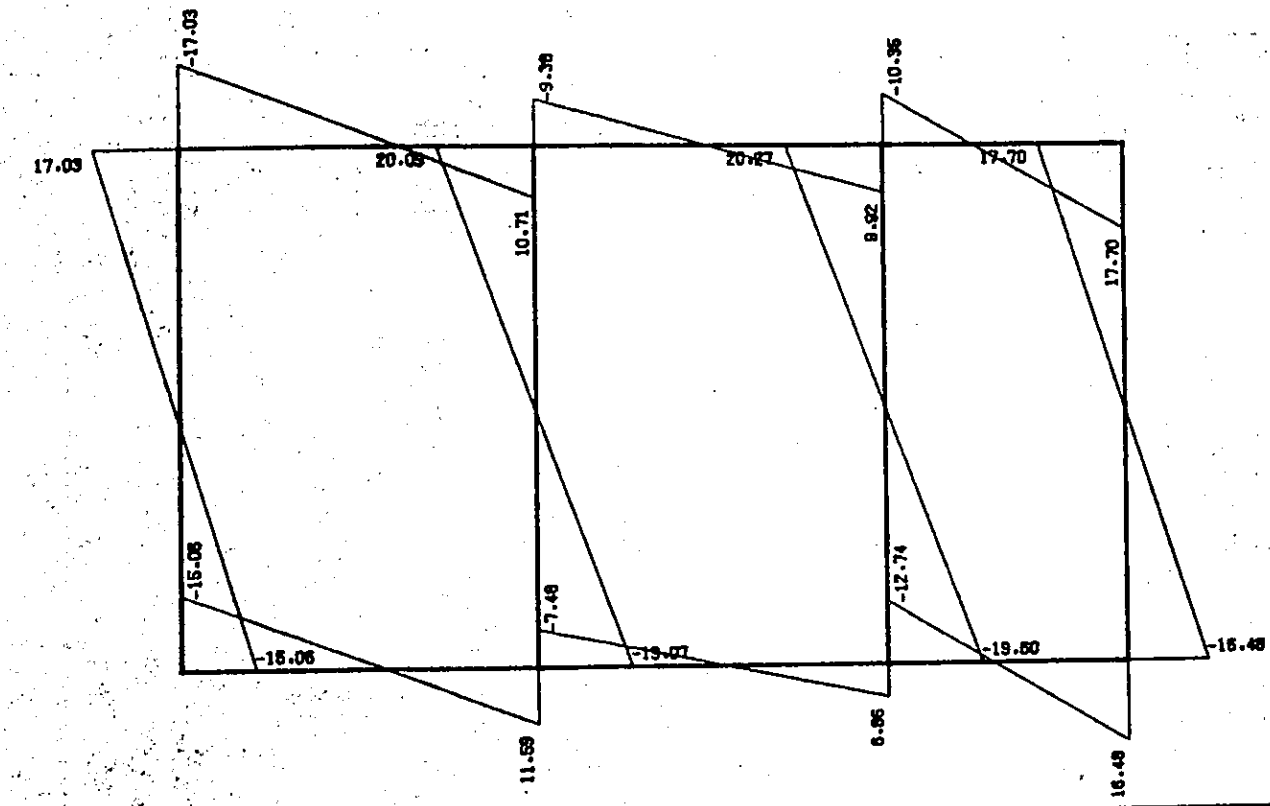
SHEARING FORCE



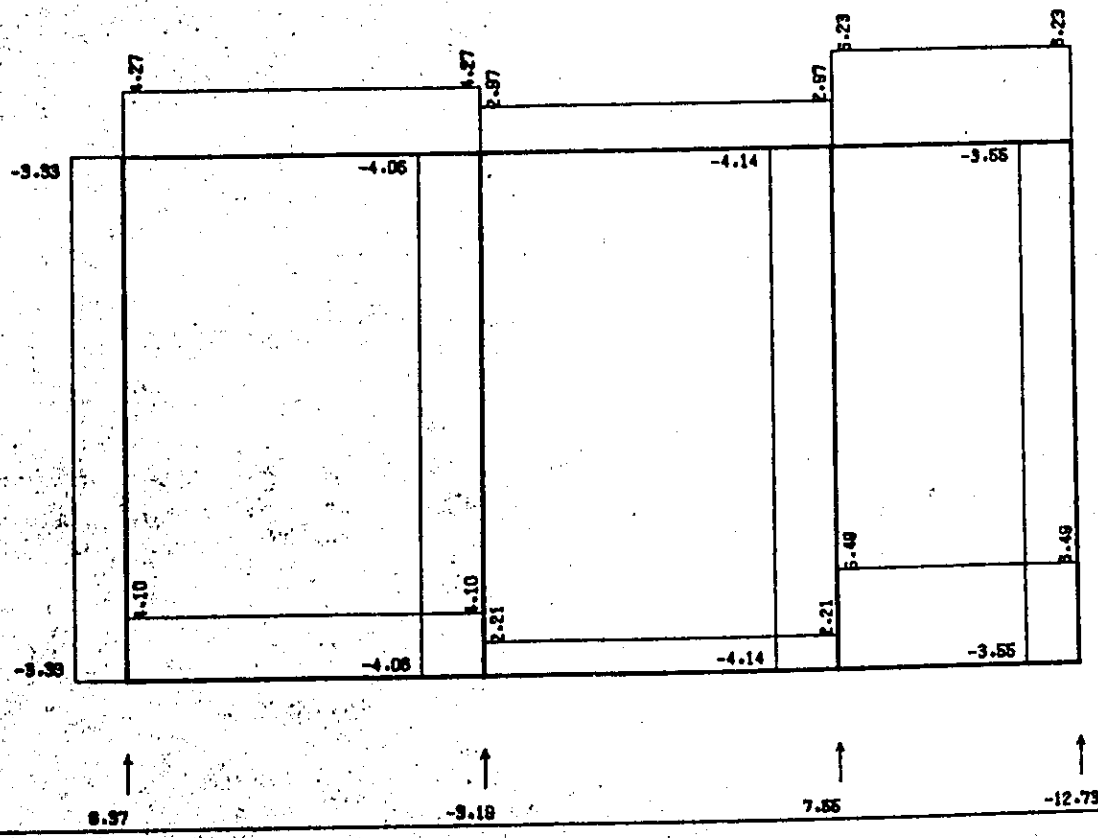
VIADUCT OF DOUBLE TRACK (3+3*8=27) C-2

CASE 7 (CENTRIFUGAL LOAD)

BENDING MOMENT



SHEARING FORCE



Input Data

```
=== INPUT DATA ===                                                                   CRC-FANSY   VE.3   PAGE -   1
    5  10      20      30      40      50      60      70      80   CARD NUMBER
 ...............................................................................
TITLE    VIADUCT OF DOUBLE TRACK (3+3*8=27) C-2                                 1
PLOT           1     2                                                          2
TYPES-3-1      L=6.5,6.5,4.5      H=9.635   M1-2=2.896,0.20488                  3
               M3=1.888,0.1743    M4-6=0.72,0.0486                              4
               M7-10=0.64,0.03413     P=2.7E+6,1.0E-5    S=1                    5
POINT     1 0.4     0.9      1.1      1.3      3.25     5.2      5.4            6
            5.6     6.1     *3.65                                               7
          2 0.4     0.9      1.1      1.3      3.25     5.2      5.4            8
            5.6     6.1                                                         9
          3 0.4     0.9      1.1      1.3      2.25     3.2      3.4           10
            3.6     4.1     *1.65                                              11
          4 0.4     1.6      3.25     4.9      6.1      =        5             12
          6 0.4     1.6      2.25     2.9      4.1                             13
PICKUP        1   1   1                                                        14
              2   1   9   15                                                   15
              3   1  16   17                                                   16
              4   1  18   19                                                   17
              5   1  20   21                                                   18
LOAD          1    CASE  1 (DEAD LOAD)                                         19
J             1              -27.36   -16.38                                   20
              2              -70.98   -5.18                                    21
              3              -57.44    10.12                                   22
              4              -12.71    11.44                                   23
              5              -84.18                       8                    24
              6              -77.06                       7                    25
SC            1   2-2.0       3.65                                             26
              3   2-0.72      1.65                                             27
D             1  2 2                   5.085   -0.45               1.415       28
              2  3 2         -0.45     1.415                       2.47        29
                   -0.84               2.615                                   30
              3  1 2         -0.03     0.215                                   31
              1  3 2         -4.55     3.25    -4.55    -3.85      0.5         32
                   -9.74               2.75                                    33
              2  2 2         -11.51    3.25    -11.51              3.25        34
              3  3 2-0.71    -3.45     1.55    -1.37    -1.86      0.7         35
                   -1.86     -0.28     2.25                                    36
DL            1   2-1.81                                  2                    37
              3   2-1.72                                                       38
              4   2-4.45                                  5    6               39
              7   2-1.6                                   8    9   10          40
END                                                                            41
LOAD          2    CASE  2 (TRAIN LOAD + IMPACT LOAD)                          42
J             1                        -3.36                                   43
              2              -65.93   -18.06                                   44
              3              -49.41    58.04                                   45
              4                         0.02                                   46
LL            1  2 2-8.19    -8.19     5.085    5.085                          47
              2   2-24.58    -24.58    3.885    1.5                            48
              2   2-8.19     -8.19     5.0                                     49
              3   2-8.37     -8.37              4.285                          50
END                                                                            51
LOAD          3    CASE  3 (TRAIN LATERAL LOAD)                                52
J             1    -1.35                                  2    3    4          53
END                                                                            54
LOAD          4    CASE  4 (TEMPERATURE)                                       55
T             1   3 10.0                                                       56
END                                                                            57
```

```
=== INPUT DATA ===                                                         CRC-FANSY   V6.3    PAGE -   2
       5   10        20        30        40        50        60        70        80    CARD NUMBER
     ***************************************************************************************
LOAD          5     CASE  5 (TEMPERATURE + SCHRINKAGE)                                         58
T             1    3-25.0                                                                      59
END                                                                                            60
LOAD          6     CASE  6 (SEISMIC LOAD)                                                     61
J             1     -7.78                                                2    3    4           62
              5     -5.23                                                6    7    8           63
END                                                                                            64
LOAD          7     CASE  7 (CENTRIFUGAL LOAD)                                                 65
J             1     -3.77                                                2    3    4           66
END                                                                                            67
MT2        8                 1                                                                 68
           9                 1    2    7                                                       69
         100.8696            1    2    3    7                                                  70
         110.8696            1    2   -3    7                                                  71
         120.8696            1    4                                                            72
         130.8696            1    5                                                            73
         140.6667            1    6                                                            74
         150.6667            1   -6                                                            75
         16                  1    2    3    7                                                  76
         17                  1    2   -3    7                                                  77
         18                  1    4                                                            78
         19                  1    5                                                            79
         20                  1    6                                                            80
         21                  1   -6                                                            81
 FINISH                                                                                        82
```

CONTROL DATA

METHOD	STRUCTURE	J.RENUMBER	M.RENUMBER	S.F. DIS.	UNI.SPRING	STAN.STIF.	BARA	SKEW MEM.
DIS	*RAHMEN*	*OFF*	*OFF*	*OFF*	*OFF*	*OFF*	*OFF*	*OFF*

LOAD TITLE

LOAD 1 CASE 1 (DEAD LOAD)
LOAD 2 CASE 2 (TRAIN LOAD + IMPACT LOAD)
LOAD 3 CASE 3 (TRAIN LATERAL LOAD)
LOAD 4 CASE 4 (TEMPERATURE)
LOAD 5 CASE 5 (TEMPERATURE + SCHRINKAGE)
LOAD 6 CASE 6 (SEISMIC LOAD)
LOAD 7 CASE 7 (CENTRIFUGAL LOAD)

MIX 8 CASE 8 (1.0000 * 1)
MIX 9 CASE 9 (1+2+7)
MIX 10 CASE 10 (1+2+3+7)
MIX 11 CASE 11 (1+2-3+7)
MIX 12 CASE 12 (1+4)
MIX 13 CASE 13 (1+5)
MIX 14 CASE 14 (1+6)
MIX 15 CASE 15 (1-6)
MIX 16 CASE 16 (1+2+3+7)
MIX 17 CASE 17 (1+2-3+7)
MIX 18 CASE 18 (1+4)
MIX 19 CASE 19 (1+5)
MIX 20 CASE 20 (1+6)
MIX 21 CASE 21 (1-6)

PICK UP LOAD CASE

PICK 1 1
PICK 2 9 10 11 12 13 14 15
PICK 3 16 17
PICK 4 18 19
PICK 5 20 21

JOINT DATA

JOINT NUMBER 8

ZAHYO(M) JOINT	X	Y
1	0.0000	9.6350
2	6.5000	9.6350
3	13.0000	9.6350
4	17.5000	9.6350
5	0.0000	0.0000
6	6.5000	0.0000
7	13.0000	0.0000
8	17.5000	0.0000

MEMBER DATA

MEMBER NUMBER 10

MEMBER	ITAN	JTAN	CONNECT. ITAN	JTAN	LENGTH	A	I	AES	KD(BANE)	PRO.NUM
1	1	2	FIX	FIX	6.5000	2.89600	.2048800			1
2	2	3	FIX	FIX	6.5000	2.89600	.2048800			1
3	3	4	FIX	FIX	4.5000	1.88800	.1743000			1
4	5	6	FIX	FIX	6.5000	.72000	.0486000			1
5	6	7	FIX	FIX	6.5000	.72000	.0486000			1
6	7	8	FIX	FIX	4.5000	.72000	.0486000			1
7	1	5	FIX	FIX	9.6350	.64000	.0341300			1
8	2	6	FIX	FIX	9.6350	.64000	.0341300			1
9	3	7	FIX	FIX	9.6350	.64000	.0341300			1
10	4	8	FIX	FIX	9.6350	.64000	.0341300			1

PROPERTY DATA

PROPERTY NUMBER 1

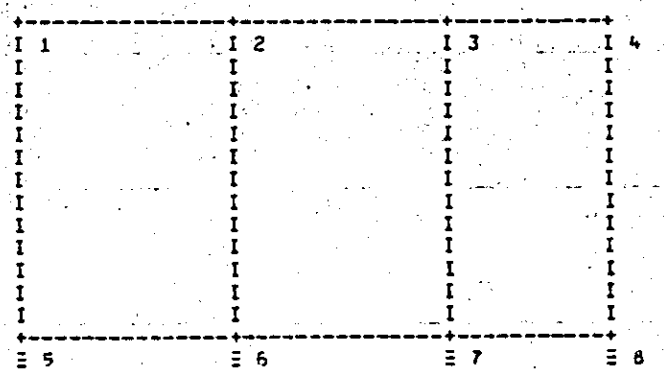
PROPERTY	E	G	EPS
1	2.700E+06	0.	1.000E-05

SUPPORT DATA

SUPPORT NUMBER 4

SUPPORT	SUPPORT-JYOKEN X	Y	THET Z	X(BANE)	Y(BANE)	THET Z(BANE)
5	FIX	FIX	FREE	0.0	0.0	0.0
6	FIX	FIX	FREE	0.0	0.0	0.0
7	FIX	FIX	FREE	0.0	0.0	0.0
8	FIX	FIX	FREE	0.0	0.0	0.0

STRUCTURAL FIGURE



MOVE DATA

MEMBER	GOIKI ITAN	GOIKI JTAN	POINT 1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	******	******	.400	.900	1.100	1.300	3.250	3.650	3.650	5.200	5.400	5.600	6.100			
2	******	******	.400	.900	1.100	1.300	3.250	5.200	5.400	5.600	6.100					
3	******	******	.400	.900	1.100	1.300	1.650	1.650	2.250	3.200	3.400	3.600	4.100			
4	******	******	.400	1.600	3.250	4.900	6.100									
5	******	******	.400	1.600	3.250	4.900	6.100									
6	******	******	.400	1.600	2.250	2.900	4.100									
7	******	******														
8	******	******														
9	******	******														
10	******	******														

LOAD DATA

	M/J	NAME	D	W1	W2	L1	L2
LOAD - 1		CASE 1 (DEAD LOAD)					
MEMBER	1	LINEAR	Y	-.450	0.000	5.085	0.000
		LINEAR	Y	0.000	-4.550	0.000	3.250
		LINEAR	Y	-4.550	-3.850	3.250	2.750
		LINEAR	Y	-9.740	0.000	3.750	0.000
		LINEAR	Y	-1.810	-1.810	0.000	0.000
		CONCENT	Y	-2.000		3.650	
	2	LINEAR	Y	0.000	-.450	0.000	5.085
		LINEAR	Y	-.840	0.000	3.885	0.000
		LINEAR	Y	0.000	-11.510	0.000	3.250
		LINEAR	Y	-11.510	0.000	3.250	0.000
		LINEAR	Y	-1.810	-1.810	0.000	0.000
	3	LINEAR	Y	0.000	-.030	0.000	4.285
		LINEAR	Y	-.710	-3.450	0.000	2.950
		LINEAR	Y	-1.370	-1.860	1.550	2.250
		LINEAR	Y	-1.860	-.280	2.250	0.000
		LINEAR	Y	-1.720	-1.720	0.000	0.000
		CONCENT	Y	-.720		1.650	
	4	LINEAR	Y	-4.450	-4.450	0.000	0.000
	5	LINEAR	Y	-4.450	-4.450	0.000	0.000
	6	LINEAR	Y	-4.450	-4.450	0.000	0.000
	7	LINEAR	Y	-1.600	-1.600	0.000	0.000
	8	LINEAR	Y	-1.600	-1.600	0.000	0.000
	9	LINEAR	Y	-1.600	-1.600	0.000	0.000
	10	LINEAR	Y	-1.600	-1.600	0.000	0.000
JOINT	1	JOINTLOAD	Y	-27.360			
		JOINTLOAD	Z	-16.380			
	2	JOINTLOAD	Y	-70.980			
		JOINTLOAD	Z	-5.180			
	3	JOINTLOAD	Y	-57.440			
		JOINTLOAD	Z	10.120			
	4	JOINTLOAD	Y	-12.710			
		JOINTLOAD	Z	11.440			
	5	JOINTLOAD	Y	-84.180			
	6	JOINTLOAD	Y	-77.060			
	7	JOINTLOAD	Y	-77.060			
	8	JOINTLOAD	Y	-84.180			
LOAD - 2		CASE 2 (TRAIN LOAD + IMPACT LOAD)					
MEMBER	1	LINEAR	Y	-8.190	-8.190	5.085	0.000
	2	LINEAR	Y	-8.190	-8.190	0.000	5.085
		LINEAR	Y	-24.580	-24.580	3.885	1.500
		LINEAR	Y	-8.190	-8.190	5.000	0.000
	3	LINEAR	Y	-8.370	-8.370	0.000	4.285
JOINT	1	JOINTLOAD	Z	-3.360			
	2	JOINTLOAD	Y	-65.930			
		JOINTLOAD	Z	-18.060			
	3	JOINTLOAD	Y	-49.410			
		JOINTLOAD	Z	58.040			
	4	JOINTLOAD	Z	.020			
LOAD - 3		CASE 3 (TRAIN LATERAL LOAD)					

LOAD DATA

	M/J	NAME	D	H1	H2	L1	L2
JOINT	1	JOINTLOAD	X	-1.350			
	2	JOINTLOAD	X	-1.350			
	3	JOINTLOAD	X	-1.350			
	4	JOINTLOAD	X	-1.350			
LOAD - 4		CASE 4 (TEMPERATURE)					
MEMBER	1	TEMP		10.0(00)			
	2	TEMP		10.0(00)			
	3	TEMP		10.0(00)			
LOAD - 5		CASE 5 (TEMPERATURE + SCHRINKAGE)					
MEMBER	1	TEMP		-25.0(00)			
	2	TEMP		-25.0(00)			
	3	TEMP		-25.0(00)			
LOAD - 6		CASE 6 (SEISMIC LOAD)					
JOINT	1	JOINTLOAD	X	-7.780			
	2	JOINTLOAD	X	-7.780			
	3	JOINTLOAD	X	-7.780			
	4	JOINTLOAD	X	-7.780			
	5	JOINTLOAD	X	-5.230			
	6	JOINTLOAD	X	-5.230			
	7	JOINTLOAD	X	-5.230			
	8	JOINTLOAD	X	-5.230			
LOAD - 7		CASE 7 (CENTRIFUGAL LOAD)					
JOINT	1	JOINTLOAD	X	-3.770			
	2	JOINTLOAD	X	-3.770			
	3	JOINTLOAD	X	-3.770			
	4	JOINTLOAD	X	-3.770			

MIX DATA

MIX NUMBER 14

LOAD	SS	N	S1	K1	S2	K2	S3	K3	S4	K4	S5	K5	S6	K6	S7	K7	S8	K8
8	1.0000	1	1.0000	1														
9	1.0000	3	1.0000	1	1.0000	2	1.0000	7										
10	.8696	4	1.0000	1	1.0000	2	1.0000	3	1.0000	7								
11	.8696	4	1.0000	1	1.0000	2	-1.0000	3	1.0000	7								
12	.8696	2	1.0000	1	1.0000	4												
13	.8696	2	1.0000	1	1.0000	5												
14	.6667	2	1.0000	1	1.0000	6												
15	.6667	2	1.0000	1	-1.0000	6												
16	1.0000	4	1.0000	1	1.0000	2	1.0000	3	1.0000	7								
17	1.0000	4	1.0000	1	1.0000	2	-1.0000	3	1.0000	7								
18	1.0000	2	1.0000	1	1.0000	4												
19	1.0000	2	1.0000	1	1.0000	5												
20	1.0000	2	1.0000	1	1.0000	6												
21	1.0000	2	1.0000	1	-1.0000	6												

REACTION

	SUPPORT	X (TON)	Y (TON)	Z (TON.M)
LOAD - 1	CASE 1 (DEAD LOAD)			
	5	1.679	150.360	0.000
	6	.048	248.299	0.000
	7	-.816	212.306	0.000
	8	-.911	122.328	0.000
LOAD - 2	CASE 2 (TRAIN LOAD + IMPACT LOAD)			
	5	.495	-1.030	0.000
	6	.836	102.399	0.000
	7	-1.111	85.828	0.000
	8	-.219	-6.888	0.000
LOAD - 3	CASE 3 (TRAIN LATERAL LOAD)			
	5	1.193	2.997	0.000
	6	1.455	-1.144	0.000
	7	1.482	2.704	0.000
	8	1.270	-4.557	0.000
LOAD - 4	CASE 4 (TEMPERATURE)			
	5	.811	1.762	0.000
	6	.359	-1.887	0.000
	7	-.420	-2.239	0.000
	8	-.750	2.365	0.000
LOAD - 5	CASE 5 (TEMPERATURE + SCHRINKAGE)			
	5	-2.029	-4.405	0.000
	6	-.897	4.718	0.000
	7	1.050	5.599	0.000
	8	1.876	-5.911	0.000
LOAD - 6	CASE 6 (SEISMIC LOAD)			
	5	12.104	17.269	0.000
	6	13.618	-6.591	0.000
	7	13.769	15.584	0.000
	8	12.550	-26.263	0.000
LOAD - 7	CASE 7 (CENTRIFUGAL LOAD)			
	5	3.331	8.368	0.000
	6	4.064	-3.194	0.000
	7	4.138	7.552	0.000
	8	3.547	-12.726	0.000
MIX - 8	CASE 8 (1.0000 * 1)			
	5	1.679	150.360	0.000
	6	.048	248.299	0.000
	7	-.816	212.306	0.000
	8	-.911	122.328	0.000
MIX - 9	CASE 9 (1+2+7)			
	5	5.504	157.698	0.000
	6	4.948	347.205	0.000
	7	2.210	305.686	0.000
	8	2.417	102.713	0.000
MIX - 10	CASE 10 (1+2+3+7)			
	5	5.824	139.740	0.000
	6	5.569	300.935	0.000
	7	3.211	258.176	0.000
	8	3.206	85.357	0.000
MIX - 11	CASE 11 (1+2-3+7)			
	5	3.749	134.528	0.000
	6	3.037	302.924	0.000
	7	.634	263.473	0.000
	8	.997	93.282	0.000
MIX - 12	CASE 12 (1+4)			
	5	2.166	132.285	0.000
	6	.354	214.280	0.000
	7	-1.075	182.674	0.000
	8	-1.445	108.433	0.000
MIX - 13	CASE 13 (1+5)			
	5	-.304	126.922	0.000
	6	-.738	220.024	0.000
	7	.203	189.490	0.000
	8	.839	101.236	0.000
MIX - 14	CASE 14 (1+6)			
	5	9.189	111.758	0.000
	6	9.111	161.147	0.000
	7	8.636	151.934	0.000
	8	7.759	64.047	0.000
MIX - 15	CASE 15 (1-6)			
	5	-6.950	88.732	0.000
	6	-9.047	169.935	0.000
	7	-9.723	131.155	0.000
	8	-8.975	99.065	0.000
MIX - 16	CASE 16 (1+2+3+7)			
	5	6.697	160.694	0.000
	6	6.404	346.061	0.000
	7	3.692	308.390	0.000
	8	3.687	98.156	0.000
MIX - 17	CASE 17 (1+2-3+7)			
	5	4.311	154.701	0.000
	6	3.493	348.349	0.000
	7	.729	302.982	0.000
	8	1.147	107.270	0.000
MIX - 18	CASE 18 (1+4)			
	5	2.490	152.122	0.000
	6	.407	246.412	0.000
	7	-1.236	210.067	0.000
	8	-1.662	124.692	0.000

REACTION

SUPPORT	X (TON)	Y (TON)	Z (TON.M)	SUPPORT	X (TON)	Y (TON)	Z (TON.M)
MIX - 19 CASE 19 (1+5)				MIX - 20 CASE 20 (1+6)			
5	-.350	145.954	0.000	5	13.783	167.629	0.000
6	-.849	253.018	0.000	6	13.666	241.709	0.000
7	.234	217.905	0.000	7	12.953	227.890	0.000
8	.965	116.416	0.000	8	11.639	96.065	0.000
MIX - 21 CASE 21 (1-6)							
5	-10.425	133.091	0.000				
6	-13.569	254.890	0.000				
7	-14.584	196.722	0.000				
8	-13.461	148.590	0.000				

D E F L E C T I O N

	JOINT	X (MM)	Y (MM)	Z (MMRAD)
LOAD - 1	CASE 1 (DEAD LOAD)			
	1	.036	-.255	-.177
	2	.034	-.737	-.038
	3	.033	-.570	.116
	4	.032	-.123	.119
	5	0.000	0.000	-.113
	6	0.000	0.000	.023
	7	0.000	0.000	.014
	8	0.000	0.000	.027
LOAD - 2	CASE 2 (TRAIN LOAD + IMPACT LOAD)			
	1	-.114	.009	-.070
	2	-.114	-.573	-.135
	3	-.115	-.482	.231
	4	-.115	.042	.055
	5	0.000	0.000	.011
	6	0.000	0.000	.019
	7	0.000	0.000	-.020
	8	0.000	0.000	.005
LOAD - 3	CASE 3 (TRAIN LATERAL LOAD)			
	1	-1.316	-.009	.018
	2	-1.316	.003	.005
	3	-1.316	-.007	.006
	4	-1.316	.012	.019
	5	0.000	0.000	.055
	6	0.000	0.000	.024
	7	0.000	0.000	.018
	8	0.000	0.000	.041
LOAD - 4	CASE 4 (TEMPERATURE)			
	1	-.942	-.005	.015
	2	-.293	.006	.001
	3	.356	.006	-.002
	4	.805	-.007	-.012
	5	0.000	0.000	.045
	6	0.000	0.000	-.000
	7	0.000	0.000	-.002
	8	0.000	0.000	-.029
LOAD - 5	CASE 5 (TEMPERATURE + SCHRINKAGE)			
	1	2.356	.013	-.036
	2	.733	-.014	-.002
	3	-.890	-.015	.004
	4	-2.013	.016	.031
	5	0.000	0.000	-.112
	6	0.000	0.000	.000
	7	0.000	0.000	.004
	8	0.000	0.000	.072
LOAD - 6	CASE 6 (SEISMIC LOAD)			
	1	-7.584	-.049	.104
	2	-7.583	.015	.028
	3	-7.583	-.038	.034
	4	-7.583	.072	.107
	5	0.000	0.000	.316
	6	0.000	0.000	.138
	7	0.000	0.000	.106
	8	0.000	0.000	.238
LOAD - 7	CASE 7 (CENTRIFUGAL LOAD)			
	1	-3.675	-.024	.050
	2	-3.675	.007	.013
	3	-3.674	-.018	.017
	4	-3.675	.035	.052
	5	0.000	0.000	.153
	6	0.000	0.000	.067
	7	0.000	0.000	.051
	8	0.000	0.000	.116
MIX - 8	CASE 8 (1.0000 * 1)			
	1	.036	-.255	-.177
	2	.034	-.737	-.038
	3	.033	-.570	.116
	4	.032	-.123	.119
	5	0.000	0.000	-.113
	6	0.000	0.000	.023
	7	0.000	0.000	.014
	8	0.000	0.000	.027
MIX - 9	CASE 9 (1+2+7)			
	1	-3.753	-.270	-.196
	2	-3.754	-1.303	-.159
	3	-3.757	-1.069	.364
	4	-3.758	-.046	.226
	5	0.000	0.000	.051
	6	0.000	0.000	.108
	7	0.000	0.000	.045
	8	0.000	0.000	.148
MIX - 10	CASE 10 (1+2+3+7)			
	1	-4.408	-.242	-.155
	2	-4.409	-1.131	-.134
	3	-4.411	-.936	.321
	4	-4.412	-.030	.213
	5	0.000	0.000	.092
	6	0.000	0.000	.115
	7	0.000	0.000	.055
	8	0.000	0.000	.165

DEFLECTION

	JOINT	X (MM)	Y (MM)	Z (MMRAD)
MIX - 11	CASE 11 (1+2-3+7)			
	1	-2.119	-.227	-.186
	2	-2.120	-1.135	-.143
	3	-2.123	-.924	.311
	4	-2.124	-.051	.181
	5	0.000	0.000	-.003
	6	0.000	0.000	.073
	7	0.000	0.000	.023
	8	0.000	0.000	.093
MIX - 12	CASE 12 (1+4)			
	1	-.788	-.226	-.141
	2	-.225	-.636	-.032
	3	.338	-.490	.100
	4	.728	-.113	.093
	5	0.000	0.000	-.059
	6	0.000	0.000	.020
	7	0.000	0.000	.010
	8	0.000	0.000	-.001
MIX - 13	CASE 13 (1+5)			
	1	2.080	-.210	-.185
	2	.667	-.654	-.034
	3	-.745	-.508	.105
	4	-1.723	-.093	.130
	5	0.000	0.000	-.196
	6	0.000	0.000	.020
	7	0.000	0.000	.016
	8	0.000	0.000	.086
MIX - 14	CASE 14 (1+6)			
	1	-5.032	-.203	-.048
	2	-5.033	-.482	-.007
	3	-5.034	-.405	.100
	4	-5.034	-.034	.150
	5	0.000	0.000	.135
	6	0.000	0.000	.107
	7	0.000	0.000	.080
	8	0.000	0.000	.177
MIX - 15	CASE 15 (1-5)			
	1	5.080	-.137	-.187
	2	5.079	-.502	-.044
	3	5.077	-.355	.055
	4	5.077	-.130	.008
	5	0.000	0.000	-.286
	6	0.000	0.000	-.077
	7	0.000	0.000	-.062
	8	0.000	0.000	-.141
MIX - 16	CASE 16 (1+2+3+7)			
	1	-5.069	-.278	-.178
	2	-5.070	-1.300	-.154
	3	-5.073	-1.076	.370
	4	-5.074	-.034	.245
	5	0.000	0.000	.106
	6	0.000	0.000	.132
	7	0.000	0.000	.063
	8	0.000	0.000	.190
MIX - 17	CASE 17 (1+2-3+7)			
	1	-2.437	-.261	-.214
	2	-2.438	-1.305	-.164
	3	-2.441	-1.063	.358
	4	-2.442	-.059	.208
	5	0.000	0.000	-.004
	6	0.000	0.000	.084
	7	0.000	0.000	.026
	8	0.000	0.000	.107
MIX - 18	CASE 18 (1+4)			
	1	-.907	-.260	-.162
	2	-.259	-.732	-.037
	3	.389	-.563	.115
	4	.837	-.129	.107
	5	0.000	0.000	-.068
	6	0.000	0.000	.023
	7	0.000	0.000	.012
	8	0.000	0.000	-.001
MIX - 19	CASE 19 (1+5)			
	1	2.392	-.242	-.213
	2	.767	-.752	-.039
	3	-.857	-.585	.121
	4	-1.981	-.106	.150
	5	0.000	0.000	-.225
	6	0.000	0.000	.023
	7	0.000	0.000	.018
	8	0.000	0.000	.099
MIX - 20	CASE 20 (1+6)			
	1	-7.548	-.304	-.072
	2	-7.549	-.722	-.010
	3	-7.550	-.607	.151
	4	-7.551	-.051	.226
	5	0.000	0.000	.203
	6	0.000	0.000	.161
	7	0.000	0.000	.120
	8	0.000	0.000	.256

D E F L E C T I O N

	JOINT	X (MM)	Y (MM)	Z (MMRAD)
MIX - 21	CASE 21 (1-6)			
	1	7.620	-.206	-.281
	2	7.617	-.752	-.065
	3	7.616	-.532	.082
	4	7.615	-.195	.012
	5	0.000	0.000	-.429
	6	0.000	0.000	-.115
	7	0.000	0.000	-.093
	8	0.000	0.000	-.211

PICK UP .1

PICK UP

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(1)	7.682	10.621	-1.679
1	.400	(1)	11.770	9.785	-1.679
2	.900	(1)	16.337	8.425	-1.679
3	1.100	(1)	17.959	7.783	-1.679
4	1.300	(1)	19.446	7.085	-1.679
5	3.250	(1)	24.629	-2.656	-1.679
6	3.650	(1)	23.073	-5.088	-1.679
7	3.650	(1)	23.073	-7.088	-1.679
8	5.200	(1)	.882	-20.735	-1.679
9	5.400	(1)	-3.396	-22.023	-1.679
10	5.600	(1)	-7.917	-23.157	-1.679
11	6.100	(1)	-20.075	-25.316	-1.679
JTAN	6.500	(1)	-30.429	-26.349	-1.679
MAX	2.889	(1)	25.195	-.450	-1.679
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(1)	-26.059	27.214	-1.727
1	.400	(1)	-15.360	26.181	-1.727
2	.900	(1)	-2.769	24.021	-1.727
3	1.100	(1)	1.924	22.888	-1.727
4	1.300	(1)	6.376	21.599	-1.727
5	3.250	(1)	31.829	2.309	-1.727
6	5.200	(1)	14.779	-17.759	-1.727
7	5.400	(1)	11.096	-19.048	-1.727
8	5.500	(1)	7.170	-20.182	-1.727
9	6.100	(1)	-3.501	-22.343	-1.727
JTAN	6.500	(1)	-12.666	-23.376	-1.727
MAX	3.250	(1)	31.829	2.309	-1.727
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(1)	-17.873	13.618	-.911
1	.400	(1)	-12.639	12.502	-.911
2	.900	(1)	-6.817	10.712	-.911
3	1.100	(1)	-4.758	9.873	-.911
4	1.300	(1)	-2.873	8.962	-.911
5	1.650	(1)	-.028	7.413	-.911
6	1.650	(1)	-.028	6.693	-.911
7	2.250	(1)	3.394	4.671	-.911
8	3.200	(1)	6.316	1.587	-.911
9	3.400	(1)	6.576	1.018	-.911
10	3.600	(1)	6.725	.478	-.911
11	4.100	(1)	6.650	-.751	-.911
JTAN	4.500	(1)	6.174	-1.607	-.911
MAX	3.600	(1)	6.725	.478	-.911

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(1)	7.682	10.621	-1.679
1	.400	(1)	11.770	9.785	-1.679
2	.900	(1)	16.337	8.425	-1.679
3	1.100	(1)	17.959	7.783	-1.679
4	1.300	(1)	19.446	7.085	-1.679
5	3.250	(1)	24.629	-2.656	-1.679
6	3.650	(1)	23.073	-5.088	-1.679
7	3.650	(1)	23.073	-7.088	-1.679
8	5.200	(1)	.882	-20.735	-1.679
9	5.400	(1)	-3.396	-22.023	-1.679
10	5.600	(1)	-7.917	-23.157	-1.679
11	6.100	(1)	-20.075	-25.316	-1.679
JTAN	6.500	(1)	-30.429	-26.349	-1.679
MAX	2.889	(1)	25.185	-.450	-1.679
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(1)	-26.059	27.214	-1.727
1	.400	(1)	-15.360	26.181	-1.727
2	.900	(1)	-2.769	24.021	-1.727
3	1.100	(1)	1.924	22.888	-1.727
4	1.300	(1)	6.376	21.599	-1.727
5	3.250	(1)	31.829	2.309	-1.727
6	5.200	(1)	14.779	-17.759	-1.727
7	5.400	(1)	11.096	-19.048	-1.727
8	5.600	(1)	7.170	-20.182	-1.727
9	6.100	(1)	-3.501	-22.343	-1.727
JTAN	6.500	(1)	-12.666	-23.376	-1.727
MAX	3.250	(1)	31.829	2.309	-1.727
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(1)	-17.873	13.618	-.911
1	.400	(1)	-12.639	12.502	-.911
2	.900	(1)	-6.817	10.712	-.911
3	1.100	(1)	-4.758	9.873	-.911
4	1.300	(1)	-2.873	8.962	-.911
5	1.650	(1)	-.028	7.413	-.911
6	1.650	(1)	-.028	6.693	-.911
7	2.250	(1)	3.394	4.671	-.911
8	3.200	(1)	6.316	1.587	-.911
9	3.400	(1)	6.576	1.018	-.911
10	3.600	(1)	6.725	.478	-.911
11	4.100	(1)	6.650	-.751	-.911
JTAN	4.500	(1)	6.174	-1.607	-.911
MAX	3.600	(1)	6.725	.478	-.911

PICK UP 1

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(1)	-7.478	12.783	0.000
1	.400	(1)	-2.720	11.003	0.000
2	1.600	(1)	7.280	5.663	0.000
3	3.250	(1)	10.566	-1.679	0.000
4	4.900	(1)	1.738	-9.022	0.000
5	6.100	(1)	-12.292	-14.362	0.000
JTAN	6.500	(1)	-18.393	-16.142	0.000
MAX	2.889	(1)	10.883	-.072	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(1)	-18.047	15.139	0.000
1	.400	(1)	-12.347	13.359	0.000
2	1.600	(1)	.480	8.019	0.000
3	3.250	(1)	7.653	.676	0.000
4	4.900	(1)	2.712	-6.666	0.000
5	6.100	(1)	-8.492	-12.006	0.000
JTAN	6.500	(1)	-13.650	-13.786	0.000
MAX	3.250	(1)	7.653	.676	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(1)	-10.703	11.610	0.000
1	.400	(1)	-6.415	9.830	0.000
2	1.600	(1)	2.177	4.490	0.000
3	2.250	(1)	4.155	1.597	0.000
4	2.900	(1)	4.253	-1.295	0.000
5	4.100	(1)	-.505	-6.635	0.000
JTAN	4.500	(1)	-3.515	-8.415	0.000
MAX	2.500	(1)	4.415	.485	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(1)	8.698	-1.679	-37.981
JTAN	9.635	(1)	-7.478	-1.679	-53.397
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(1)	.810	-.048	-124.543
JTAN	9.635	(1)	.346	-.048	-139.959

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(1)	-7.478	12.783	0.000
1	.400	(1)	-2.720	11.003	0.000
2	1.600	(1)	7.280	5.663	0.000
3	3.250	(1)	10.566	-1.679	0.000
4	4.900	(1)	1.738	-9.022	0.000
5	6.100	(1)	-12.292	-14.362	0.000
JTAN	6.500	(1)	-18.393	-16.142	0.000
MAX	2.889	(1)	10.883	-.072	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(1)	-18.047	15.139	0.000
1	.400	(1)	-12.347	13.359	0.000
2	1.600	(1)	.480	8.019	0.000
3	3.250	(1)	7.653	.676	0.000
4	4.900	(1)	2.712	-6.666	0.000
5	6.100	(1)	-8.492	-12.006	0.000
JTAN	6.500	(1)	-13.650	-13.786	0.000
MAX	3.250	(1)	7.653	.676	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(1)	-10.703	11.610	0.000
1	.400	(1)	-6.415	9.830	0.000
2	1.600	(1)	2.177	4.490	0.000
3	2.250	(1)	4.155	1.597	0.000
4	2.900	(1)	4.253	-1.295	0.000
5	4.100	(1)	-.505	-6.635	0.000
JTAN	4.500	(1)	-3.515	-8.415	0.000
MAX	2.500	(1)	4.415	.485	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(1)	8.698	-1.679	-37.981
JTAN	9.635	(1)	-7.478	-1.679	-53.397
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(1)	.810	-.048	-124.543
JTAN	9.635	(1)	.346	-.048	-139.959

PICK UP 1

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(1)	-4.913	.816	-94.434
JTAN	9.635	(1)	2.947	.816	-109.850
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(1)	-5.266	.911	-14.317
JTAN	9.635	(1)	3.515	.911	-29.733

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(1)	-4.913	.816	-94.434
JTAN	9.635	(1)	2.947	.816	-109.850
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(1)	-5.266	.911	-14.317
JTAN	9.635	(1)	3.515	.911	-29.733

PICK UP 1

SHEAR MAXIMUM

	L	CASE	M	Q	N
== MEMBER 1 (1 - 2) G ==					
ITAN	0.000	(1)	7.682	10.621	-1.679
1	.400	(1)	11.770	9.785	-1.679
2	.900	(1)	16.337	8.425	-1.679
3	1.100	(1)	17.959	7.783	-1.679
4	1.300	(1)	19.446	7.085	-1.679
5	3.250	(1)	24.629	-2.656	-1.679
6	3.650	(1)	23.073	-5.088	-1.679
7	3.650	(1)	23.073	-7.088	-1.679
8	5.200	(1)	.882	-20.735	-1.679
9	5.400	(1)	-3.396	-22.023	-1.679
10	5.600	(1)	-7.917	-23.157	-1.679
11	6.100	(1)	-20.075	-25.316	-1.679
JTAN	6.500	(1)	-30.429	-26.349	-1.679
== MEMBER 2 (2 - 3) G ==					
ITAN	0.000	(1)	-26.059	27.214	-1.727
1	.400	(1)	-15.360	26.181	-1.727
2	.900	(1)	-2.769	24.021	-1.727
3	1.100	(1)	1.924	22.888	-1.727
4	1.300	(1)	6.376	21.599	-1.727
5	3.250	(1)	31.829	2.309	-1.727
6	5.200	(1)	14.779	-17.759	-1.727
7	5.400	(1)	11.096	-19.048	-1.727
8	5.600	(1)	7.170	-20.182	-1.727
9	6.100	(1)	-3.501	-22.343	-1.727
JTAN	6.500	(1)	-12.666	-23.376	-1.727
== MEMBER 3 (3 - 4) G ==					
ITAN	0.000	(1)	-17.873	13.618	-.911
1	.400	(1)	-12.639	12.502	-.911
2	.900	(1)	-6.817	10.712	-.911
3	1.100	(1)	-4.758	9.873	-.911
4	1.300	(1)	-2.873	8.962	-.911
5	1.650	(1)	-.028	7.413	-.911
6	1.650	(1)	-.028	6.693	-.911
7	2.250	(1)	3.394	4.671	-.911
8	3.200	(1)	6.316	1.587	-.911
9	3.400	(1)	6.576	1.018	-.911
10	3.600	(1)	6.725	.478	-.911
11	4.100	(1)	6.650	-.751	-.911
JTAN	4.500	(1)	6.174	-1.607	-.911

SHEAR MINIMUM

	L	CASE	M	Q	N
== MEMBER 1 (1 - 2) G ==					
ITAN	0.000	(1)	7.682	10.621	-1.679
1	.400	(1)	11.770	9.785	-1.679
2	.900	(1)	16.337	8.425	-1.679
3	1.100	(1)	17.959	7.783	-1.679
4	1.300	(1)	19.446	7.085	-1.679
5	3.250	(1)	24.629	-2.656	-1.679
6	3.650	(1)	23.073	-5.088	-1.679
7	3.650	(1)	23.073	-7.088	-1.679
8	5.200	(1)	.882	-20.735	-1.679
9	5.400	(1)	-3.396	-22.023	-1.679
10	5.600	(1)	-7.917	-23.157	-1.679
11	6.100	(1)	-20.075	-25.316	-1.679
JTAN	6.500	(1)	-30.429	-26.349	-1.679
== MEMBER 2 (2 - 3) G ==					
ITAN	0.000	(1)	-26.059	27.214	-1.727
1	.400	(1)	-15.360	26.181	-1.727
2	.900	(1)	-2.759	24.021	-1.727
3	1.100	(1)	1.924	22.888	-1.727
4	1.300	(1)	6.376	21.599	-1.727
5	3.250	(1)	31.829	2.309	-1.727
6	5.200	(1)	14.779	-17.759	-1.727
7	5.400	(1)	11.096	-19.048	-1.727
8	5.600	(1)	7.170	-20.182	-1.727
9	6.100	(1)	-3.501	-22.343	-1.727
JTAN	6.500	(1)	-12.666	-23.376	-1.727
== MEMBER 3 (3 - 4) G ==					
ITAN	0.000	(1)	-17.873	13.618	-.911
1	.400	(1)	-12.639	12.502	-.911
2	.900	(1)	-6.817	10.712	-.911
3	1.100	(1)	-4.758	9.873	-.911
4	1.300	(1)	-2.873	8.962	-.911
5	1.650	(1)	-.028	7.413	-.911
6	1.650	(1)	-.028	6.693	-.911
7	2.250	(1)	3.394	4.671	-.911
8	3.200	(1)	6.316	1.587	-.911
9	3.400	(1)	6.576	1.018	-.911
10	3.600	(1)	6.725	.478	-.911
11	4.100	(1)	6.650	-.751	-.911
JTAN	4.500	(1)	6.174	-1.607	-.911

PICK UP 1

SHEAR MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(1)	-7.478	12.783	0.000
1	.400	(1)	-2.720	11.003	0.000
2	1.600	(1)	7.280	5.663	0.000
3	3.250	(1)	10.566	-1.679	0.000
4	4.900	(1)	1.738	-9.022	0.000
5	6.100	(1)	-12.292	-14.362	0.000
JTAN	6.500	(1)	-18.393	-16.142	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(1)	-18.047	15.139	0.000
1	.400	(1)	-12.347	13.359	0.000
2	1.600	(1)	.480	8.019	0.000
3	3.250	(1)	7.653	.676	0.000
4	4.900	(1)	2.712	-6.666	0.000
5	6.100	(1)	-8.492	-12.006	0.000
JTAN	6.500	(1)	-13.650	-13.786	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(1)	-10.703	11.610	0.000
1	.400	(1)	-5.415	9.830	0.000
2	1.600	(1)	2.177	4.490	0.000
3	2.250	(1)	4.155	1.597	0.000
4	2.900	(1)	4.253	-1.295	0.000
5	4.100	(1)	-.505	-6.635	0.000
JTAN	4.500	(1)	-3.515	-8.415	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(1)	8.698	-1.679	-37.981
JTAN	9.635	(1)	-7.478	-1.679	-53.397
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(1)	.810	-.048	-124.543
JTAN	9.635	(1)	.346	-.048	-139.959
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(1)	-4.913	.816	-94.434
JTAN	9.635	(1)	2.947	.816	-109.850
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(1)	-5.266	.911	-14.317
JTAN	9.635	(1)	3.515	.911	-29.733

SHEAR MINIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(1)	-7.478	12.783	0.000
1	.400	(1)	-2.720	11.003	0.000
2	1.600	(1)	7.280	5.663	0.000
3	3.250	(1)	10.566	-1.679	0.000
4	4.900	(1)	1.738	-9.022	0.000
5	6.100	(1)	-12.292	-14.362	0.000
JTAN	6.500	(1)	-18.393	-16.142	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(1)	-18.047	15.139	0.000
1	.400	(1)	-12.347	13.359	0.000
2	1.600	(1)	.480	8.019	0.000
3	3.250	(1)	7.653	.676	0.000
4	4.900	(1)	2.712	-6.666	0.000
5	6.100	(1)	-8.492	-12.006	0.000
JTAN	6.500	(1)	-13.650	-13.786	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(1)	-10.703	11.610	0.000
1	.400	(1)	-5.415	9.830	0.000
2	1.600	(1)	2.177	4.490	0.000
3	2.250	(1)	4.155	1.597	0.000
4	2.900	(1)	4.253	-1.295	0.000
5	4.100	(1)	-.505	-6.635	0.000
JTAN	4.500	(1)	-3.515	-8.415	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(1)	8.698	-1.679	-37.981
JTAN	9.635	(1)	-7.478	-1.679	-53.397
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(1)	.810	-.048	-124.543
JTAN	9.635	(1)	.346	-.048	-139.959
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(1)	-4.913	.816	-94.434
JTAN	9.635	(1)	2.947	.816	-109.850
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(1)	-5.266	.911	-14.317
JTAN	9.635	(1)	3.515	.911	-29.733

PICK UP 1

AXIAL MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(1)	7.682	10.621	-1.679
1	.400	(1)	11.770	9.785	-1.679
2	.900	(1)	16.337	8.425	-1.679
3	1.100	(1)	17.959	7.783	-1.679
4	1.300	(1)	19.446	7.085	-1.679
5	3.250	(1)	24.629	-2.656	-1.679
6	3.650	(1)	23.073	-5.088	-1.679
7	3.650	(1)	23.073	-7.088	-1.679
8	5.200	(1)	.882	-20.735	-1.679
9	5.400	(1)	-3.396	-22.023	-1.679
10	5.600	(1)	-7.917	-23.157	-1.679
11	6.100	(1)	-20.075	-25.316	-1.679
JTAN	6.500	(1)	-30.429	-26.349	-1.679
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(1)	-26.059	27.214	-1.727
1	.400	(1)	-15.360	25.181	-1.727
2	.900	(1)	-2.769	24.021	-1.727
3	1.100	(1)	1.924	22.888	-1.727
4	1.300	(1)	6.376	21.599	-1.727
5	3.250	(1)	31.829	2.309	-1.727
6	5.200	(1)	14.779	-17.759	-1.727
7	5.400	(1)	11.096	-19.048	-1.727
8	5.600	(1)	7.170	-20.182	-1.727
9	6.100	(1)	-3.501	-22.343	-1.727
JTAN	6.500	(1)	-12.666	-23.376	-1.727
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(1)	-17.873	13.618	-.911
1	.400	(1)	-12.639	12.502	-.911
2	.900	(1)	-6.817	10.712	-.911
3	1.100	(1)	-4.758	9.873	-.911
4	1.300	(1)	-2.873	8.962	-.911
5	1.650	(1)	-.028	7.413	-.911
6	1.650	(1)	-.028	6.693	-.911
7	2.250	(1)	3.394	4.671	-.911
8	3.200	(1)	6.316	1.587	-.911
9	3.400	(1)	6.576	1.018	-.911
10	3.600	(1)	6.725	.478	-.911
11	4.100	(1)	6.650	-.751	-.911
JTAN	4.500	(1)	6.174	-1.607	-.911

AXIAL MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(1)	7.682	10.621	-1.679
1	.400	(1)	11.770	9.785	-1.679
2	.900	(1)	16.337	8.425	-1.679
3	1.100	(1)	17.959	7.783	-1.679
4	1.300	(1)	19.446	7.085	-1.679
5	3.250	(1)	24.629	-2.656	-1.679
6	3.650	(1)	23.073	-5.088	-1.679
7	3.650	(1)	23.073	-7.088	-1.679
8	5.200	(1)	.882	-20.735	-1.679
9	5.400	(1)	-3.396	-22.023	-1.679
10	5.600	(1)	-7.917	-23.157	-1.679
11	6.100	(1)	-20.075	-25.316	-1.679
JTAN	6.500	(1)	-30.429	-26.349	-1.679
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(1)	-26.059	27.214	-1.727
1	.400	(1)	-15.360	25.181	-1.727
2	.900	(1)	-2.769	24.021	-1.727
3	1.100	(1)	1.924	22.888	-1.727
4	1.300	(1)	6.376	21.599	-1.727
5	3.250	(1)	31.829	2.309	-1.727
6	5.200	(1)	14.779	-17.759	-1.727
7	5.400	(1)	11.096	-19.048	-1.727
8	5.600	(1)	7.170	-20.182	-1.727
9	6.100	(1)	-3.501	-22.343	-1.727
JTAN	6.500	(1)	-12.666	-23.376	-1.727
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(1)	-17.873	13.618	-.911
1	.400	(1)	-12.639	12.502	-.911
2	.900	(1)	-6.817	10.712	-.911
3	1.100	(1)	-4.758	9.873	-.911
4	1.300	(1)	-2.873	8.962	-.911
5	1.650	(1)	-.028	7.413	-.911
6	1.650	(1)	-.028	6.693	-.911
7	2.250	(1)	3.394	4.671	-.911
8	3.200	(1)	6.316	1.587	-.911
9	3.400	(1)	6.576	1.018	-.911
10	3.600	(1)	6.725	.478	-.911
11	4.100	(1)	6.650	-.751	-.911
JTAN	4.500	(1)	6.174	-1.607	-.911

PICK UP 1

AXIAL MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(1)	-7.478	12.783	0.000
1	.400	(1)	-2.720	11.003	0.000
2	1.600	(1)	7.280	5.663	0.000
3	3.250	(1)	10.566	-1.679	0.000
4	4.900	(1)	1.738	-9.022	0.000
5	6.100	(1)	-12.292	-14.362	0.000
JTAN	6.500	(1)	-18.393	-16.142	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(1)	-18.047	15.139	0.000
1	.400	(1)	-12.347	13.359	0.000
2	1.600	(1)	.480	8.019	0.000
3	3.250	(1)	7.653	.676	0.000
4	4.900	(1)	2.712	-6.666	0.000
5	6.100	(1)	-8.492	-12.006	0.000
JTAN	6.500	(1)	-13.650	-13.786	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(1)	-10.703	11.610	0.000
1	.400	(1)	-6.415	9.830	0.000
2	1.600	(1)	2.177	4.490	0.000
3	2.250	(1)	4.155	1.597	0.000
4	2.900	(1)	4.253	-1.295	0.000
5	4.100	(1)	-.505	-6.635	0.000
JTAN	4.500	(1)	-3.515	-8.415	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(1)	8.698	-1.679	-37.981
JTAN	9.635	(1)	-7.478	-1.679	-53.397
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(1)	.810	-.048	-124.543
JTAN	9.635	(1)	.346	-.048	-139.959
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(1)	-4.913	.816	-94.434
JTAN	9.635	(1)	2.947	.816	-109.850
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(1)	-5.266	.911	-14.317
JTAN	9.635	(1)	3.515	.911	-29.733

AXIAL MINIMUM

	L	CASE	M	J	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(1)	-7.478	12.783	0.000
1	.400	(1)	-2.720	11.003	0.000
2	1.600	(1)	7.280	5.663	0.000
3	3.250	(1)	10.566	-1.679	0.000
4	4.900	(1)	1.738	-9.022	0.000
5	6.100	(1)	-12.292	-14.362	0.000
JTAN	6.500	(1)	-18.393	-16.142	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(1)	-18.047	15.139	0.000
1	.400	(1)	-12.347	13.359	0.000
2	1.600	(1)	.480	8.019	0.000
3	3.250	(1)	7.653	.676	0.000
4	4.900	(1)	2.712	-6.666	0.000
5	6.100	(1)	-8.492	-12.006	0.000
JTAN	6.500	(1)	-13.650	-13.786	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(1)	-10.703	11.610	0.000
1	.400	(1)	-6.415	9.830	0.000
2	1.600	(1)	2.177	4.490	0.000
3	2.250	(1)	4.155	1.597	0.000
4	2.900	(1)	4.253	-1.295	0.000
5	4.100	(1)	-.505	-6.635	0.000
JTAN	4.500	(1)	-3.515	-8.415	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(1)	8.698	-1.679	-37.981
JTAN	9.635	(1)	-7.478	-1.679	-53.397
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(1)	.810	-.048	-124.543
JTAN	9.635	(1)	.346	-.048	-139.959
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(1)	-4.913	.816	-94.434
JTAN	9.635	(1)	2.947	.816	-109.850
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(1)	-5.266	.911	-14.317
JTAN	9.635	(1)	3.515	.911	-29.733

PICK UP 2

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(15)	28.549	1.209	-1.724
1	.400	(15)	28.926	.651	-1.724
2	.900	(15)	29.034	-.256	-1.724
3	1.100	(15)	28.941	-.684	-1.724
4	1.300	(15)	28.758	-1.149	-1.724
5	3.250	(13)	23.994	-4.325	.304
6	3.650	(13)	21.835	-6.440	.304
7	3.650	(13)	21.835	-8.179	.304
8	5.200	(14)	7.696	-7.952	-.515
9	5.400	(14)	6.018	-8.810	-.515
10	5.600	(14)	4.179	-9.567	-.515
11	6.100	(14)	-.991	-11.006	-.515
JTAN	6.500	(14)	-5.545	-11.695	-.515
MAX	.722	(15)	29.048	.094	-1.724
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(15)	-4.471	14.059	-1.351
1	.400	(15)	1.029	13.371	-1.351
2	.900	(15)	7.381	11.931	-1.351
3	1.100	(11)	11.614	34.237	-2.578
4	1.300	(9)	18.963	37.508	-2.912
5	3.250	(9)	73.656	17.276	-2.912
6	5.200	(9)	64.867	-31.836	-2.912
7	5.400	(9)	58.205	-34.763	-2.912
8	5.600	(9)	50.972	-37.536	-2.912
9	6.100	(9)	30.600	-43.791	-2.912
JTAN	6.500	(10)	13.698	-40.904	-2.488
MAX	4.333	(9)	82.756	-6.440	-2.912
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(15)	2.326	.503	-.301
1	.400	(15)	2.385	-.241	-.301
2	.900	(15)	1.978	-1.434	-.301
3	1.100	(15)	1.636	-1.994	-.301
4	1.300	(15)	1.177	-2.601	-.301
5	1.650	(13)	.877	9.007	.839
6	1.650	(13)	.877	8.381	.839
7	2.250	(14)	7.317	11.690	-.914
8	3.200	(14)	17.413	9.634	-.914
9	3.400	(14)	19.301	9.255	-.914
10	3.600	(14)	21.116	8.894	-.914
11	4.100	(14)	25.353	8.076	-.914
JTAN	4.500	(14)	28.467	7.505	-.914
MAX	1.500	(15)	.593	-3.255	-.301

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(14)	-18.306	12.953	-.515
1	.400	(14)	-13.231	12.396	-.515
2	.900	(14)	-7.251	11.489	-.515
3	1.100	(14)	-4.995	11.061	-.515
4	1.300	(14)	-2.829	10.595	-.515
5	3.250	(14)	12.078	4.102	-.515
6	3.650	(14)	13.389	2.480	-.515
7	3.650	(14)	13.389	1.147	-.515
8	5.200	(15)	-6.520	-19.696	-1.724
9	5.400	(15)	-10.547	-20.555	-1.724
10	5.600	(15)	-14.735	-21.311	-1.724
11	6.100	(15)	-25.777	-22.751	-1.724
JTAN	6.500	(9)	-37.922	-35.241	-1.734
MAX	3.650	(14)	13.389	1.147	-.515
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(9)	-41.074	53.769	-2.912
1	.400	(14)	-21.509	21.539	-.952
2	.900	(14)	-11.073	20.099	-.952
3	1.100	(14)	-7.127	19.343	-.952
4	1.300	(14)	-3.343	18.484	-.952
5	3.250	(15)	20.850	-2.544	-1.351
6	5.200	(15)	1.520	-15.924	-1.351
7	5.400	(15)	-1.753	-16.783	-1.351
8	5.600	(15)	-5.187	-17.539	-1.351
9	6.100	(15)	-14.343	-18.980	-1.351
JTAN	6.500	(15)	-22.087	-19.668	-1.351
MAX	3.250	(15)	20.850	-2.544	-1.351
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(9)	-63.558	29.124	-1.353
1	.400	(9)	-52.649	26.208	-1.353
2	.900	(9)	-39.974	24.418	-1.353
3	1.100	(9)	-35.173	23.579	-1.353
4	1.300	(9)	-30.547	22.668	-1.353
5	1.650	(9)	-22.905	21.119	-1.353
6	1.650	(9)	-22.905	20.399	-1.353
7	2.250	(9)	-11.260	18.377	-1.353
8	3.200	(15)	-8.991	-7.518	-.301
9	3.400	(15)	-10.533	-7.897	-.301
10	3.600	(15)	-12.148	-8.258	-.301
11	4.100	(15)	-16.487	-9.076	-.301
JTAN	4.500	(15)	-20.234	-9.647	-.301
MAX	2.500	(11)	-7.521	13.280	-1.107

PICK UP 2

MOMENT MAXIMUM

	L	CASE	M	Q	N
== MEMBER 4 (5 - 6) G ==					
ITAN	0.000	(15)	15.742	2.881	0.000
1	.400	(15)	16.057	1.695	0.000
2	1.600	(15)	16.554	-1.865	0.000
3	3.250	(13)	11.158	-3.275	0.000
4	4.300	(10)	8.353	-2.533	0.000
5	6.100	(14)	5.489	-3.934	0.000
JTAN	6.500	(14)	3.678	-5.121	0.000
MAX	.722	(15)	17.049	.739	0.000
== MEMBER 5 (6 - 7) G ==					
ITAN	0.000	(15)	-1.737	7.058	0.000
1	.400	(15)	.849	5.871	0.000
2	1.600	(15)	5.758	2.311	0.000
3	3.250	(13)	6.730	.660	0.000
4	4.900	(14)	6.387	-1.409	0.000
5	6.100	(14)	2.560	-4.969	0.000
JTAN	6.500	(14)	.335	-6.156	0.000
MAX	3.611	(9)	7.302	1.238	0.000
== MEMBER 6 (7 - 8) G ==					
ITAN	0.000	(15)	10.394	-1.193	0.000
1	.400	(15)	9.679	-2.380	0.000
2	1.600	(15)	4.687	-5.940	0.000
3	2.250	(9)	6.765	7.506	0.000
4	2.900	(14)	11.213	8.070	0.000
5	4.100	(14)	18.760	4.510	0.000
JTAN	4.500	(14)	20.327	3.323	0.000
MAX	1.600	(15)	4.687	-5.940	0.000
== MEMBER 7 (1 - 5) C ==					
ITAN	0.000	(10)	30.419	-5.824	-36.702
JTAN	9.635	(15)	15.742	3.463	-29.727
== MEMBER 8 (2 - 6) C ==					
ITAN	0.000	(10)	29.208	-5.569	-196.056
JTAN	9.635	(15)	26.466	5.560	-95.099

MOMENT MINIMUM

	L	CASE	M	Q	N
== MEMBER 4 (5 - 6) G ==					
ITAN	0.000	(14)	-25.712	14.164	0.000
1	.400	(14)	-20.284	12.977	0.000
2	1.600	(14)	-6.848	9.417	0.000
3	3.250	(14)	4.651	4.522	0.000
4	4.900	(15)	-5.756	-11.656	0.000
5	6.100	(15)	-21.879	-15.216	0.000
JTAN	6.500	(15)	-28.203	-16.403	0.000
MAX	3.611	(14)	6.091	3.450	0.000
== MEMBER 5 (6 - 7) G ==					
ITAN	0.000	(9)	-26.184	17.308	0.000
1	.400	(9)	-19.617	15.528	0.000
2	1.600	(14)	-5.118	8.382	0.000
3	3.250	(14)	4.673	3.486	0.000
4	4.900	(15)	-2.771	-7.480	0.000
5	6.100	(15)	-13.883	-11.040	0.000
JTAN	6.500	(15)	-18.536	-12.227	0.000
MAX	3.250	(14)	4.673	3.486	0.000
== MEMBER 6 (7 - 8) G ==					
ITAN	0.000	(14)	-24.665	16.674	0.000
1	.400	(14)	-18.233	15.487	0.000
2	1.600	(14)	-1.785	11.927	0.000
3	2.250	(15)	.200	-7.868	0.000
4	2.900	(15)	-5.541	-9.797	0.000
5	4.100	(15)	-19.433	-13.357	0.000
JTAN	4.500	(15)	-25.013	-14.544	0.000
MAX	2.000	(15)	2.074	-7.127	0.000
== MEMBER 7 (1 - 5) C ==					
ITAN	0.000	(15)	-17.628	3.463	-19.449
JTAN	9.635	(14)	-25.712	-5.702	-41.472
== MEMBER 8 (2 - 6) C ==					
ITAN	0.000	(15)	-27.104	5.560	-84.821
JTAN	9.635	(14)	-26.005	-5.624	-91.522

PICK UP 2

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(14)	24.608	-5.149	-57.451
JTAN	9.635	(15)	28.930	6.237	-58.745
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(14)	20.840	-4.273	-.969
JTAN	9.635	(15)	25.013	5.488	-28.399

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(15)	-31.160	6.237	-58.467
JTAN	9.635	(14)	-25.001	-5.149	-77.729
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(15)	-27.861	5.488	-18.121
JTAN	9.635	(14)	-20.327	-4.273	-11.247

PICK UP 2

SHEAR MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(9)	-9.143	13.318	-1.734
1	.400	(9)	-3.976	12.482	-1.734
2	.900	(14)	-7.251	11.489	-.515
3	1.100	(14)	-4.995	11.061	-.515
4	1.300	(14)	-2.829	10.595	-.515
5	3.250	(14)	12.078	4.102	-.515
6	3.650	(14)	13.389	2.480	-.515
7	3.650	(14)	13.389	1.147	-.515
8	5.200	(14)	7.696	-7.952	-.515
9	5.400	(14)	6.018	-8.810	-.515
10	5.600	(14)	4.179	-9.567	-.515
11	6.100	(14)	-.991	-11.006	-.515
JTAN	6.500	(14)	-5.545	-11.695	-.515
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(9)	-41.074	53.769	-2.912
1	.400	(9)	-20.407	49.461	-2.912
2	.900	(9)	2.800	43.206	-2.912
3	1.100	(9)	11.166	40.434	-2.912
4	1.300	(9)	18.963	37.508	-2.912
5	3.250	(9)	73.656	17.276	-2.912
6	5.200	(14)	18.186	-7.756	-.952
7	5.400	(14)	16.548	-8.615	-.952
8	5.600	(14)	14.747	-9.372	-.952
9	6.100	(14)	9.674	-10.812	-.952
JTAN	6.500	(14)	5.198	-11.501	-.952
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(9)	-63.558	29.124	-1.353
1	.400	(9)	-52.649	26.208	-1.353
2	.900	(9)	-39.974	24.418	-1.353
3	1.100	(9)	-35.173	23.579	-1.353
4	1.300	(9)	-30.547	22.668	-1.353
5	1.650	(9)	-22.905	21.119	-1.353
6	1.650	(9)	-22.905	20.399	-1.353
7	2.250	(9)	-11.260	18.377	-1.353
8	3.200	(9)	4.693	15.292	-1.353
9	3.400	(10)	10.058	14.745	-1.246
10	3.600	(10)	12.960	14.275	-1.246
11	4.100	(10)	19.824	13.207	-1.246
JTAN	4.500	(10)	24.955	12.462	-1.246

SHEAR MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(15)	28.549	1.209	-1.724
1	.400	(15)	28.926	.651	-1.724
2	.900	(15)	29.034	-.256	-1.724
3	1.100	(15)	28.941	-.684	-1.724
4	1.300	(15)	28.758	-1.149	-1.724
5	3.250	(15)	20.763	-7.643	-1.724
6	3.650	(15)	17.377	-9.264	-1.724
7	3.650	(15)	17.377	-10.598	-1.724
8	5.200	(13)	-.587	-20.047	.304
9	5.400	(9)	-6.063	-21.906	-1.734
10	5.600	(9)	-10.724	-24.678	-1.734
11	6.100	(9)	-24.666	-30.932	-1.734
JTAN	6.500	(9)	-37.922	-35.241	-1.734
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(15)	-4.471	14.059	-1.351
1	.400	(15)	1.029	13.371	-1.351
2	.900	(15)	7.381	11.931	-1.351
3	1.100	(15)	9.693	11.175	-1.351
4	1.300	(15)	11.844	10.316	-1.351
5	3.250	(15)	20.850	-2.544	-1.351
6	5.200	(9)	64.867	-31.836	-2.912
7	5.400	(9)	58.205	-34.763	-2.912
8	5.600	(9)	50.972	-37.536	-2.912
9	6.100	(9)	30.600	-43.791	-2.912
JTAN	6.500	(9)	12.201	-48.100	-2.912
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(15)	2.326	.503	-.301
1	.400	(15)	2.385	-.241	-.301
2	.900	(15)	1.978	-1.434	-.301
3	1.100	(15)	1.636	-1.994	-.301
4	1.300	(15)	1.177	-2.601	-.301
5	1.650	(15)	.073	-3.634	-.301
6	1.650	(15)	.073	-4.114	-.301
7	2.250	(15)	-2.792	-5.462	-.301
8	3.200	(15)	-8.991	-7.518	-.301
9	3.400	(15)	-10.533	-7.897	-.301
10	3.600	(15)	-12.148	-8.258	-.301
11	4.100	(15)	-16.487	-9.076	-.301
JTAN	4.500	(15)	-20.234	-9.647	-.301

PICK UP 2

SHEAR MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(9)	-24.150	17.424	0.000
1	.400	(9)	-17.536	15.644	0.000
2	1.600	(9)	-1.967	10.304	0.000
3	3.250	(14)	4.651	4.522	0.000
4	4.900	(14)	8.073	-.374	0.000
5	6.100	(14)	5.489	-3.934	0.000
JTAN	6.500	(14)	3.678	-5.121	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(9)	-26.184	17.308	0.000
1	.400	(9)	-19.617	15.528	0.000
2	1.600	(9)	-4.187	10.188	0.000
3	3.250	(14)	4.673	3.486	0.000
4	4.900	(14)	6.387	-1.409	0.000
5	6.100	(14)	2.560	-4.969	0.000
JTAN	6.500	(14)	.335	-6.156	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(9)	-21.388	17.519	0.000
1	.400	(9)	-14.736	15.739	0.000
2	1.600	(14)	-1.785	11.927	0.000
3	2.250	(14)	5.341	9.998	0.000
4	2.900	(14)	11.213	8.070	0.000
5	4.100	(14)	18.760	4.510	0.000
JTAN	4.500	(14)	20.327	3.323	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(15)	-17.628	3.463	-19.449
JTAN	9.635	(15)	15.742	3.463	-29.727
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(15)	-27.104	5.560	-84.821
JTAN	9.635	(15)	26.466	5.560	-95.099
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(15)	-31.160	6.237	-58.467
JTAN	9.635	(15)	28.930	6.237	-68.745
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(15)	-27.861	5.488	-18.121
JTAN	9.635	(15)	25.013	5.488	-28.399

SHEAR MINIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(15)	15.742	2.881	0.000
1	.400	(15)	16.657	1.695	0.000
2	1.600	(15)	16.554	-1.865	0.000
3	3.250	(15)	9.438	-6.761	0.000
4	4.900	(15)	-5.756	-11.656	0.000
5	6.100	(15)	-21.879	-15.216	0.000
JTAN	6.500	(15)	-28.203	-16.403	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(15)	-1.737	7.058	0.000
1	.400	(15)	.849	5.871	0.000
2	1.600	(15)	5.756	2.311	0.000
3	3.250	(15)	5.532	-2.585	0.000
4	4.900	(15)	-2.771	-7.480	0.000
5	6.100	(15)	-13.883	-11.040	0.000
JTAN	6.500	(15)	-18.536	-12.227	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(15)	10.394	-1.193	0.000
1	.400	(15)	9.679	-2.380	0.000
2	1.600	(15)	4.687	-5.940	0.000
3	2.250	(15)	.200	-7.868	0.000
4	2.900	(15)	-5.541	-9.797	0.000
5	4.100	(15)	-19.433	-13.357	0.000
JTAN	4.500	(15)	-25.013	-14.544	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(10)	30.419	-5.824	-36.702
JTAN	9.635	(10)	-25.692	-5.824	-50.108
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(14)	28.185	-5.624	-81.244
JTAN	9.635	(14)	-26.005	-5.624	-91.522
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(14)	24.608	-5.149	-67.451
JTAN	9.635	(14)	-25.001	-5.149	-77.729
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(14)	20.840	-4.273	-.969
JTAN	9.635	(14)	-20.327	-4.273	-11.247

PICK UP 2

AXIAL MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(13)	15.808	7.220	.304
1	.400	(13)	18.557	6.493	.304
2	.900	(13)	21.521	5.310	.304
3	1.100	(13)	22.528	4.752	.304
4	1.300	(13)	23.418	4.145	.304
5	3.250	(13)	23.994	-4.325	.304
6	3.650	(13)	21.835	-6.440	.304
7	3.650	(13)	21.835	-8.179	.304
8	5.200	(13)	-.587	-20.047	.304
9	5.400	(13)	-4.711	-21.167	.304
10	5.600	(13)	-9.045	-22.153	.304
11	6.100	(13)	-20.626	-24.031	.304
JTAN	6.500	(13)	-30.436	-24.929	.304
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(13)	-22.891	23.865	1.042
1	.400	(13)	-13.507	22.967	1.042
2	.900	(13)	-2.458	21.090	1.042
3	1.100	(13)	1.664	20.104	1.042
4	1.300	(13)	5.575	18.983	1.042
5	3.250	(13)	28.100	2.208	1.042
6	5.200	(13)	13.664	-15.242	1.042
7	5.400	(13)	10.501	-16.363	1.042
8	5.600	(13)	7.128	-17.350	1.042
9	6.100	(13)	-2.092	-19.229	1.042
JTAN	6.500	(13)	-9.941	-20.127	1.042
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(13)	-18.867	14.404	.839
1	.400	(13)	-13.292	13.433	.839
2	.900	(13)	-6.949	11.877	.839
3	1.100	(13)	-4.645	11.147	.839
4	1.300	(13)	-2.494	10.355	.839
5	1.650	(13)	.877	9.007	.839
6	1.650	(13)	.877	8.381	.839
7	2.250	(13)	5.389	6.623	.839
8	3.200	(13)	10.363	3.941	.839
9	3.400	(13)	11.101	3.447	.839
10	3.600	(13)	11.743	2.977	.839
11	4.100	(13)	12.958	1.909	.839
JTAN	4.500	(13)	13.569	1.164	.839

AXIAL MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(12)	3.029	10.042	-2.166
1	.400	(12)	6.906	9.315	-2.166
2	.900	(12)	11.281	8.132	-2.166
3	1.100	(12)	12.852	7.574	-2.166
4	1.300	(12)	14.307	6.967	-2.166
5	3.250	(12)	20.387	-1.503	-2.166
6	3.650	(12)	19.356	-3.618	-2.166
7	3.650	(12)	19.356	-5.357	-2.166
8	5.200	(12)	1.309	-17.224	-2.166
9	5.400	(12)	-2.250	-18.345	-2.166
10	5.600	(12)	-6.020	-19.331	-2.166
11	6.100	(12)	-16.190	-21.209	-2.166
JTAN	6.500	(12)	-24.871	-22.107	-2.166
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(9)	-41.074	53.769	-2.912
1	.400	(9)	-20.407	49.461	-2.912
2	.900	(9)	2.800	43.206	-2.912
3	1.100	(9)	11.166	40.434	-2.912
4	1.300	(9)	18.963	37.508	-2.912
5	3.250	(9)	73.656	17.276	-2.912
6	5.200	(9)	64.867	-31.836	-2.912
7	5.400	(9)	58.205	-34.763	-2.912
8	5.600	(9)	50.972	-37.536	-2.912
9	6.100	(9)	30.600	-43.791	-2.912
JTAN	6.500	(9)	12.201	-48.100	-2.912
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(12)	-14.212	10.818	-1.445
1	.400	(12)	-10.071	9.847	-1.445
2	.900	(12)	-5.520	8.291	-1.445
3	1.100	(12)	-3.934	7.561	-1.445
4	1.300	(12)	-2.500	6.769	-1.445
5	1.650	(12)	-.384	5.422	-1.445
6	1.650	(12)	-.384	4.796	-1.445
7	2.250	(12)	1.976	3.037	-1.445
8	3.200	(12)	3.544	.355	-1.445
9	3.400	(12)	3.565	-.139	-1.445
10	3.600	(12)	3.490	-.609	-1.445
11	4.100	(12)	2.912	-1.677	-1.445
JTAN	4.500	(12)	2.089	-2.422	-1.445

PICK UP 2

AXIAL MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(9)	-24.150	17.424	0.000
1	.400	(9)	-17.536	15.644	0.000
2	1.600	(9)	-1.967	10.304	0.000
3	3.250	(9)	8.977	2.962	0.000
4	4.900	(9)	7.806	-4.381	0.000
5	6.100	(9)	-.655	-9.721	0.000
JTAN	6.500	(9)	-4.900	-11.501	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(9)	-26.184	17.308	0.000
1	.400	(9)	-19.617	15.528	0.000
2	1.600	(9)	-4.187	10.188	0.000
3	3.250	(9)	6.565	2.845	0.000
4	4.900	(9)	5.202	-4.497	0.000
5	6.100	(9)	-3.399	-9.837	0.000
JTAN	6.500	(9)	-7.690	-11.617	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(9)	-21.388	17.519	0.000
1	.400	(9)	-14.736	15.739	0.000
2	1.600	(9)	.946	10.399	0.000
3	2.250	(9)	6.765	7.506	0.000
4	2.900	(9)	10.704	4.614	0.000
5	4.100	(9)	13.036	-.726	0.000
JTAN	4.500	(9)	12.390	-2.506	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(15)	-17.628	3.463	-19.449
JTAN	9.635	(15)	15.742	3.463	-29.727
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(14)	28.185	-5.624	-81.244
JTAN	9.635	(14)	-26.005	-5.624	-91.522
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(15)	-31.160	6.237	-58.467
JTAN	9.635	(15)	28.930	6.237	-68.745
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(10)	14.989	-3.206	1.410
JTAN	9.635	(14)	-20.327	-4.273	-11.247

AXIAL MINIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(9)	-24.150	17.424	0.000
1	.400	(9)	-17.536	15.644	0.000
2	1.600	(9)	-1.967	10.304	0.000
3	3.250	(9)	8.977	2.962	0.000
4	4.900	(9)	7.806	-4.381	0.000
5	6.100	(9)	-.655	-9.721	0.000
JTAN	6.500	(9)	-4.900	-11.501	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(9)	-26.184	17.308	0.000
1	.400	(9)	-19.617	15.528	0.000
2	1.600	(9)	-4.187	10.188	0.000
3	3.250	(9)	6.565	2.845	0.000
4	4.900	(9)	5.202	-4.497	0.000
5	6.100	(9)	-3.399	-9.837	0.000
JTAN	6.500	(9)	-7.690	-11.617	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(9)	-21.388	17.519	0.000
1	.400	(9)	-14.736	15.739	0.000
2	1.600	(9)	.946	10.399	0.000
3	2.250	(9)	6.765	7.506	0.000
4	2.900	(9)	10.704	4.614	0.000
5	4.100	(9)	13.036	-.726	0.000
JTAN	4.500	(9)	12.390	-2.506	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(9)	28.883	-5.504	-40.678
JTAN	9.635	(9)	-24.150	-5.504	-56.094
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(9)	26.392	-4.948	-225.920
JTAN	9.635	(9)	-21.284	-4.948	-241.336
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(9)	7.599	-2.210	-184.074
JTAN	9.635	(9)	-13.698	-2.210	-199.490
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(15)	-27.861	5.488	-18.121
JTAN	9.635	(15)	25.013	5.488	-28.399

PICK UP 3

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(17)	-3.046	11.789	-1.891
1	.400	(17)	1.510	10.953	-1.891
2	.900	(17)	6.661	9.593	-1.891
3	1.100	(17)	8.517	8.951	-1.891
4	1.300	(17)	10.238	8.253	-1.891
5	3.250	(17)	17.700	-1.487	-1.891
6	3.650	(17)	16.612	-3.919	-1.891
7	3.650	(17)	16.612	-5.919	-1.891
8	5.200	(16)	-.122	-17.451	-1.577
9	5.400	(16)	-3.907	-20.377	-1.577
10	5.600	(16)	-8.262	-23.149	-1.577
11	6.100	(16)	-21.441	-29.404	-1.577
JTAN	6.500	(16)	-34.085	-33.712	-1.577
MAX	2.889	(17)	17.834	.718	-1.891
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(17)	-37.716	52.707	-2.964
1	.400	(17)	-17.474	48.398	-2.964
2	.900	(17)	5.201	42.143	-2.964
3	1.100	(17)	13.355	39.371	-2.964
4	1.300	(17)	20.939	36.445	-2.964
5	3.250	(16)	73.752	18.339	-2.861
6	5.200	(16)	67.036	-30.773	-2.861
7	5.400	(16)	60.586	-33.700	-2.861
8	5.600	(16)	53.567	-36.473	-2.861
9	6.100	(16)	33.726	-42.728	-2.861
JTAN	6.500	(16)	15.752	-47.037	-2.861
MAX	4.333	(16)	84.004	-5.377	-2.861
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(17)	-59.851	26.892	-1.273
1	.400	(17)	-49.835	23.976	-1.273
2	.900	(17)	-38.276	22.186	-1.273
3	1.100	(17)	-33.922	21.347	-1.273
4	1.300	(17)	-29.742	20.436	-1.273
5	1.650	(17)	-22.881	18.887	-1.273
6	1.650	(17)	-22.881	18.167	-1.273
7	2.250	(16)	-9.944	20.609	-1.433
8	3.200	(16)	8.119	17.525	-1.433
9	3.400	(16)	11.566	16.956	-1.433
10	3.600	(16)	14.903	16.416	-1.433
11	4.100	(16)	22.797	15.187	-1.433
JTAN	4.500	(16)	28.697	14.331	-1.433

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(16)	-15.241	14.846	-1.577
1	.400	(16)	-9.462	14.010	-1.577
2	.900	(16)	-2.783	12.650	-1.577
3	1.100	(16)	-.316	12.008	-1.577
4	1.300	(16)	2.017	11.310	-1.577
5	3.250	(16)	15.440	1.570	-1.577
6	3.650	(16)	15.574	-.862	-1.577
7	3.650	(16)	15.574	-2.862	-1.577
8	5.200	(17)	-3.822	-20.508	-1.891
9	5.400	(17)	-8.219	-23.434	-1.891
10	5.600	(17)	-13.185	-26.206	-1.891
11	6.100	(17)	-27.892	-32.460	-1.891
JTAN	6.500	(17)	-41.758	-36.769	-1.891
MAX	3.611	(16)	15.603	-.636	-1.577
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(16)	-44.432	54.832	-2.861
1	.400	(16)	-23.340	50.524	-2.861
2	.900	(16)	.398	44.269	-2.861
3	1.100	(16)	8.977	41.497	-2.861
4	1.300	(16)	16.987	38.571	-2.861
5	3.250	(17)	73.560	16.213	-2.964
6	5.200	(17)	62.698	-32.899	-2.964
7	5.400	(17)	55.823	-35.826	-2.964
8	5.600	(17)	48.378	-38.599	-2.964
9	6.100	(17)	27.475	-44.854	-2.964
JTAN	6.500	(17)	8.651	-49.163	-2.964
MAX	4.333	(17)	81.508	-7.503	-2.964
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(16)	-67.255	31.356	-1.433
1	.400	(16)	-55.463	28.440	-1.433
2	.900	(16)	-41.672	26.650	-1.433
3	1.100	(16)	-36.424	25.811	-1.433
4	1.300	(16)	-31.352	24.900	-1.433
5	1.650	(16)	-22.929	23.351	-1.433
6	1.650	(16)	-22.929	22.631	-1.433
7	2.250	(17)	-12.575	16.145	-1.273
8	3.200	(17)	1.247	13.060	-1.273
9	3.400	(17)	3.802	12.492	-1.273
10	3.600	(17)	6.246	11.951	-1.273
11	4.100	(17)	11.907	10.723	-1.273
JTAN	4.500	(17)	16.021	9.867	-1.273

PICK UP 3

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(17)	-18.755	15.956	0.000
1	.400	(17)	-12.729	14.176	0.000
2	1.600	(17)	1.078	8.836	0.000
3	3.250	(17)	9.600	1.493	0.000
4	4.900	(16)	9.606	-2.913	0.000
5	6.100	(16)	2.906	-8.253	0.000
JTAN	6.500	(16)	-.751	-10.033	0.000
MAX	4.333	(16)	10.542	-.391	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(17)	-23.504	16.518	0.000
1	.400	(17)	-17.253	14.738	0.000
2	1.600	(17)	-2.772	9.398	0.000
3	3.250	(17)	6.677	2.055	0.000
4	4.900	(16)	6.394	-3.707	0.000
5	6.100	(16)	-1.259	-9.047	0.000
JTAN	6.500	(16)	-5.234	-10.827	0.000
MAX	4.333	(16)	7.790	-1.186	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(17)	-16.825	15.194	0.000
1	.400	(17)	-11.104	13.414	0.000
2	1.600	(17)	1.788	8.074	0.000
3	2.250	(16)	7.434	5.831	0.000
4	2.900	(16)	12.884	6.939	0.000
5	4.100	(16)	18.007	1.599	0.000
JTAN	4.500	(16)	18.290	-.181	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(16)	34.981	-6.697	-42.206
JTAN	9.635	(17)	-18.755	-4.311	-54.565
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(16)	33.587	-6.404	-225.455
JTAN	9.635	(17)	-14.456	-3.493	-241.802

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(16)	-29.544	18.892	0.000
1	.400	(16)	-22.343	17.112	0.000
2	1.600	(16)	-5.013	11.772	0.000
3	3.250	(16)	8.354	4.430	0.000
4	4.900	(17)	6.006	-5.849	0.000
5	6.100	(17)	-4.217	-11.189	0.000
JTAN	6.500	(17)	-9.049	-12.969	0.000
MAX	3.611	(16)	9.663	2.823	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(16)	-28.863	18.098	0.000
1	.400	(16)	-21.980	16.318	0.000
2	1.600	(16)	-5.603	10.978	0.000
3	3.250	(16)	6.453	3.635	0.000
4	4.900	(17)	4.010	-5.287	0.000
5	6.100	(17)	-5.539	-10.627	0.000
JTAN	6.500	(17)	-10.145	-12.407	0.000
MAX	3.611	(17)	7.129	.448	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(16)	-25.950	19.844	0.000
1	.400	(16)	-18.369	18.064	0.000
2	1.600	(16)	.104	12.724	0.000
3	2.250	(17)	6.096	5.181	0.000
4	2.900	(17)	8.524	2.289	0.000
5	4.100	(17)	8.066	-3.051	0.000
JTAN	4.500	(17)	6.489	-4.831	0.000
MAX	3.500	(17)	9.096	-.381	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(17)	22.796	-4.311	-39.149
JTAN	9.635	(16)	-29.544	-6.697	-57.622
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(17)	19.197	-3.493	-225.386
JTAN	9.635	(16)	-28.112	-6.404	-240.871

PICK UP 3

MOMENT MAXIMUM

	L	CASE	M	Q	N
== MEMBER 9 (3 - 7) C ==					
ITAN	0.000	(16)	14.857	-3.692	-185.243
JTAN	9.635	(17)	-6.680	-.729	-198.321
== MEMBER 10 (4 - 8) C ==					
ITAN	0.000	(16)	17.237	-3.687	1.621
JTAN	9.635	(17)	-6.489	-1.147	-18.259

MOMENT MINIMUM

	L	CASE	M	Q	N
== MEMBER 9 (3 - 7) C ==					
ITAN	0.000	(17)	.342	-.729	-182.905
JTAN	9.635	(16)	-20.717	-3.692	-200.659
== MEMBER 10 (4 - 8) C ==					
ITAN	0.000	(17)	4.561	-1.147	-2.843
JTAN	9.635	(16)	-18.290	-3.687	-13.795

PICK UP 3

SHEAR MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(16)	-15.241	14.846	-1.577
1	.400	(16)	-9.462	14.010	-1.577
2	.900	(16)	-2.783	12.650	-1.577
3	1.100	(16)	-.316	12.008	-1.577
4	1.300	(16)	2.017	11.310	-1.577
5	3.250	(16)	15.440	1.570	-1.577
6	3.650	(16)	15.574	-.862	-1.577
7	3.650	(16)	15.574	-2.862	-1.577
8	5.200	(16)	-.122	-17.451	-1.577
9	5.400	(16)	-3.907	-20.377	-1.577
10	5.600	(16)	-8.262	-23.149	-1.577
11	6.100	(16)	-21.441	-29.404	-1.577
JTAN	6.500	(16)	-34.085	-33.712	-1.577
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(16)	-44.432	54.232	-2.861
1	.400	(16)	-23.340	50.524	-2.861
2	.900	(16)	.398	44.269	-2.861
3	1.100	(16)	8.977	41.497	-2.861
4	1.300	(16)	16.987	38.571	-2.861
5	3.250	(16)	73.752	18.339	-2.861
6	5.200	(16)	67.036	-30.773	-2.861
7	5.400	(16)	60.586	-33.700	-2.861
8	5.600	(16)	53.567	-36.473	-2.861
9	6.100	(16)	33.726	-42.728	-2.861
JTAN	6.500	(16)	15.752	-47.037	-2.861
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(16)	-67.265	31.356	-1.433
1	.400	(16)	-55.463	28.440	-1.433
2	.900	(16)	-41.672	26.650	-1.433
3	1.100	(16)	-36.424	25.811	-1.433
4	1.300	(16)	-31.352	24.900	-1.433
5	1.650	(16)	-22.929	23.351	-1.433
6	1.650	(16)	-22.929	22.631	-1.433
7	2.250	(16)	-9.944	20.609	-1.433
8	3.200	(16)	8.119	17.525	-1.433
9	3.400	(16)	11.566	16.956	-1.433
10	3.600	(16)	14.903	16.416	-1.433
11	4.100	(16)	22.797	15.187	-1.433
JTAN	4.500	(16)	28.697	14.331	-1.433

SHEAR MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(17)	-3.046	11.789	-1.891
1	.400	(17)	1.510	10.953	-1.891
2	.900	(17)	6.661	9.593	-1.891
3	1.100	(17)	8.517	8.951	-1.891
4	1.300	(17)	10.238	8.253	-1.891
5	3.250	(17)	17.700	-1.487	-1.891
6	3.650	(17)	16.612	-3.919	-1.891
7	3.650	(17)	16.612	-5.919	-1.891
8	5.200	(17)	-3.822	-20.508	-1.891
9	5.400	(17)	-8.219	-23.434	-1.891
10	5.600	(17)	-13.185	-26.206	-1.891
11	6.100	(17)	-27.892	-32.460	-1.891
JTAN	6.500	(17)	-41.758	-36.769	-1.891
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(17)	-37.716	52.707	-2.964
1	.400	(17)	-17.474	48.398	-2.964
2	.900	(17)	5.201	42.143	-2.964
3	1.100	(17)	13.355	39.371	-2.964
4	1.300	(17)	20.939	36.445	-2.964
5	3.250	(17)	73.960	16.213	-2.964
6	5.200	(17)	62.698	-32.899	-2.964
7	5.400	(17)	55.823	-35.826	-2.964
8	5.600	(17)	48.378	-38.599	-2.964
9	6.100	(17)	27.475	-44.854	-2.964
JTAN	6.500	(17)	8.651	-49.163	-2.964
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(17)	-59.851	26.892	-1.273
1	.400	(17)	-49.835	23.976	-1.273
2	.900	(17)	-38.276	22.186	-1.273
3	1.100	(17)	-33.922	21.347	-1.273
4	1.300	(17)	-29.742	20.436	-1.273
5	1.650	(17)	-22.881	18.887	-1.273
6	1.650	(17)	-22.881	18.167	-1.273
7	2.250	(17)	-12.575	16.145	-1.273
8	3.200	(17)	1.247	13.360	-1.273
9	3.400	(17)	3.802	12.492	-1.273
10	3.600	(17)	6.246	11.951	-1.273
11	4.100	(17)	11.907	10.723	-1.273
JTAN	4.500	(17)	16.021	9.867	-1.273

PICK UP 3

SHEAR MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(16)	-29.544	18.892	0.000
1	.400	(16)	-22.343	17.112	0.000
2	1.600	(16)	-5.013	11.772	0.000
3	3.250	(16)	8.354	4.430	0.000
4	4.900	(16)	9.606	-2.913	0.000
5	6.100	(16)	2.906	-8.253	0.000
JTAN	6.500	(16)	-.751	-10.033	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(16)	-28.863	18.098	0.000
1	.400	(16)	-21.980	16.318	0.000
2	1.600	(16)	-5.603	10.978	0.000
3	3.250	(16)	6.453	3.635	0.000
4	4.900	(16)	6.394	-3.707	0.000
5	6.100	(16)	-1.259	-9.047	0.000
JTAN	6.500	(16)	-5.234	-10.827	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(16)	-25.950	19.844	0.000
1	.400	(16)	-18.369	18.064	0.000
2	1.600	(16)	.104	12.724	0.000
3	2.250	(16)	7.434	9.831	0.000
4	2.900	(16)	12.884	6.939	0.000
5	4.100	(16)	18.007	1.599	0.000
JTAN	4.500	(16)	18.290	-.181	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(17)	22.786	-4.311	-39.149
JTAN	9.635	(17)	-18.755	-4.311	-54.565
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(17)	19.197	-3.493	-226.386
JTAN	9.635	(17)	-14.456	-3.493	-241.802
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(17)	.342	-.729	-182.905
JTAN	9.635	(17)	-6.680	-.729	-198.321
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(17)	4.561	-1.147	-2.843
JTAN	9.635	(17)	-6.489	-1.147	-18.259

SHEAR MINIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(17)	-18.755	15.956	0.000
1	.400	(17)	-12.729	14.176	0.000
2	1.600	(17)	1.078	8.836	0.000
3	3.250	(17)	9.600	1.493	0.000
4	4.900	(17)	6.006	-5.849	0.000
5	6.100	(17)	-4.217	-11.189	0.000
JTAN	6.500	(17)	-9.049	-12.969	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(17)	-23.504	16.518	0.000
1	.400	(17)	-17.253	14.738	0.000
2	1.600	(17)	-2.772	9.398	0.000
3	3.250	(17)	6.677	2.055	0.000
4	4.900	(17)	4.010	-5.287	0.000
5	6.100	(17)	-5.539	-10.627	0.000
JTAN	6.500	(17)	-10.145	-12.407	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(17)	-16.826	15.194	0.000
1	.400	(17)	-11.104	13.414	0.000
2	1.600	(17)	1.788	8.074	0.000
3	2.250	(17)	6.096	5.181	0.000
4	2.900	(17)	8.524	2.289	0.000
5	4.100	(17)	8.066	-3.051	0.000
JTAN	4.500	(17)	6.489	-4.831	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(16)	34.981	-6.697	-42.206
JTAN	9.635	(16)	-29.544	-6.697	-57.622
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(16)	33.587	-6.404	-225.455
JTAN	9.635	(16)	-28.112	-6.404	-240.871
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(16)	14.857	-3.692	-185.243
JTAN	9.635	(16)	-20.717	-3.692	-200.659
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(16)	17.237	-3.687	1.621
JTAN	9.635	(16)	-18.290	-3.687	-13.795

PICK UP 3

AXIAL MAXIMUM

	L	CASE	M	J	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(16)	-15.241	14.846	-1.577
1	.400	(16)	-9.462	14.010	-1.577
2	.900	(16)	-2.783	12.650	-1.577
3	1.100	(16)	-.316	12.008	-1.577
4	1.300	(16)	2.017	11.310	-1.577
5	3.250	(16)	15.440	1.570	-1.577
6	3.650	(16)	15.574	-.862	-1.577
7	3.650	(16)	15.574	-2.862	-1.577
8	5.200	(16)	-.122	-17.451	-1.577
9	5.400	(16)	-3.907	-20.377	-1.577
10	5.600	(16)	-8.262	-23.149	-1.577
11	6.100	(16)	-21.441	-29.404	-1.577
JTAN	6.500	(16)	-34.085	-33.712	-1.577
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(16)	-44.432	54.832	-2.861
1	.400	(16)	-23.340	50.524	-2.861
2	.900	(16)	.398	44.269	-2.861
3	1.100	(16)	8.977	41.497	-2.861
4	1.300	(16)	16.987	38.571	-2.861
5	3.250	(16)	73.752	18.339	-2.861
6	5.200	(16)	67.036	-30.773	-2.861
7	5.400	(16)	60.586	-33.700	-2.861
8	5.600	(16)	53.567	-36.473	-2.861
9	6.100	(16)	33.726	-42.728	-2.861
JTAN	6.500	(16)	15.752	-47.037	-2.861
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(17)	-59.851	26.892	-1.273
1	.400	(17)	-49.835	23.976	-1.273
2	.900	(17)	-38.276	22.186	-1.273
3	1.100	(17)	-33.922	21.347	-1.273
4	1.300	(17)	-29.742	20.436	-1.273
5	1.650	(17)	-22.881	18.887	-1.273
6	1.650	(17)	-22.881	18.167	-1.273
7	2.250	(17)	-12.575	16.145	-1.273
8	3.200	(17)	1.247	13.060	-1.273
9	3.400	(17)	3.802	12.492	-1.273
10	3.600	(17)	6.246	11.951	-1.273
11	4.100	(17)	11.907	10.723	-1.273
JTAN	4.500	(17)	16.021	9.867	-1.273

AXIAL MINIMUM

	L	CASE	M	J	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(17)	-3.046	11.789	-1.891
1	.400	(17)	1.510	10.953	-1.891
2	.900	(17)	6.661	9.593	-1.891
3	1.100	(17)	8.517	8.951	-1.891
4	1.300	(17)	10.238	8.253	-1.891
5	3.250	(17)	17.700	-1.487	-1.891
6	3.650	(17)	16.612	-3.919	-1.891
7	3.650	(17)	16.612	-5.919	-1.891
8	5.200	(17)	-3.822	-20.508	-1.891
9	5.400	(17)	-8.219	-23.434	-1.891
10	5.600	(17)	-13.185	-26.206	-1.891
11	6.100	(17)	-27.892	-32.460	-1.891
JTAN	6.500	(17)	-41.758	-36.769	-1.891
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(17)	-37.716	52.707	-2.964
1	.400	(17)	-17.474	48.398	-2.964
2	.900	(17)	5.201	42.143	-2.964
3	1.100	(17)	13.355	39.371	-2.964
4	1.300	(17)	20.939	36.445	-2.964
5	3.250	(17)	73.560	16.213	-2.964
6	5.200	(17)	52.698	-32.899	-2.964
7	5.400	(17)	55.823	-35.826	-2.964
8	5.600	(17)	48.378	-38.599	-2.964
9	6.100	(17)	27.475	-44.854	-2.964
JTAN	6.500	(17)	8.651	-49.163	-2.964
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(16)	-67.265	31.356	-1.433
1	.400	(16)	-55.463	28.440	-1.433
2	.900	(16)	-41.672	26.650	-1.433
3	1.100	(16)	-36.424	25.311	-1.433
4	1.300	(16)	-31.352	24.900	-1.433
5	1.650	(16)	-22.929	23.351	-1.433
6	1.650	(16)	-22.929	22.631	-1.433
7	2.250	(16)	-9.944	20.609	-1.433
8	3.200	(16)	8.119	17.525	-1.433
9	3.400	(16)	11.566	16.956	-1.433
10	3.600	(16)	14.903	16.416	-1.433
11	4.100	(16)	22.797	15.187	-1.433
JTAN	4.500	(16)	28.697	14.331	-1.433

PICK UP 3

AXIAL MAXIMUM

	-----L---	-CASE-	-----M---	-----Q---	-----N---
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(16)	-29.544	18.892	0.000
1	.400	(16)	-22.343	17.112	0.000
2	1.600	(16)	-5.013	11.772	0.000
3	3.250	(16)	8.354	4.430	0.000
4	4.900	(16)	9.606	-2.913	0.000
5	6.100	(16)	2.906	-8.253	0.000
JTAN	6.500	(16)	-.751	-10.033	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(16)	-28.863	18.098	0.000
1	.400	(16)	-21.980	16.318	0.000
2	1.600	(16)	-5.603	10.978	0.000
3	3.250	(16)	6.453	3.635	0.000
4	4.900	(16)	6.394	-3.707	0.000
5	6.100	(16)	-1.259	-9.047	0.000
JTAN	6.500	(16)	-5.234	-10.827	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(16)	-25.950	19.844	0.000
1	.400	(16)	-18.369	18.064	0.000
2	1.600	(16)	.104	12.724	0.000
3	2.250	(16)	7.434	9.831	0.000
4	2.900	(16)	12.884	6.939	0.000
5	4.100	(16)	18.007	1.599	0.000
JTAN	4.500	(16)	18.290	-.181	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(17)	22.786	-4.311	-39.149
JTAN	9.635	(17)	-18.755	-4.311	-54.565
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(16)	33.587	-6.404	-225.455
JTAN	9.635	(16)	-28.112	-6.404	-240.871
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(17)	.342	-.729	-182.905
JTAN	9.635	(17)	-6.680	-.729	-198.321
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(16)	17.237	-3.687	1.621
JTAN	9.635	(16)	-18.290	-3.687	-13.795

AXIAL MINIMUM

	-----L---	-CASE-	-----M---	-----Q---	-----N---
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(16)	-29.544	18.892	0.000
1	.400	(16)	-22.343	17.112	0.000
2	1.600	(16)	-5.013	11.772	0.000
3	3.250	(16)	8.354	4.430	0.000
4	4.900	(16)	9.606	-2.913	0.000
5	6.100	(16)	2.906	-8.253	0.000
JTAN	6.500	(16)	-.751	-10.033	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(16)	-28.863	18.098	0.000
1	.400	(16)	-21.980	16.318	0.000
2	1.600	(16)	-5.603	10.978	0.000
3	3.250	(16)	6.453	3.635	0.000
4	4.900	(16)	6.394	-3.707	0.000
5	6.100	(16)	-1.259	-9.047	0.000
JTAN	6.500	(16)	-5.234	-10.827	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(16)	-25.950	19.844	0.000
1	.400	(16)	-18.369	18.064	0.000
2	1.600	(16)	.104	12.724	0.000
3	2.250	(16)	7.434	9.831	0.000
4	2.900	(16)	12.884	6.939	0.000
5	4.100	(16)	18.007	1.599	0.000
JTAN	4.500	(16)	18.290	-.181	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(16)	34.981	-6.697	-42.206
JTAN	9.635	(16)	-29.544	-6.697	-57.622
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(17)	19.197	-3.493	-226.386
JTAN	9.635	(17)	-14.496	-3.493	-241.802
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(16)	14.857	-3.692	-185.243
JTAN	9.635	(16)	-20.717	-3.692	-200.659
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(17)	4.561	-1.147	-2.843
JTAN	9.635	(17)	-6.489	-1.147	-18.259

PICK UP 4

MOMENT MAXIMUM

	L	CASE	M	Q	N
== MEMBER 1 (1 - 2) G ==					
ITAN	0.000	(19)	18.179	8.302	.350
1	.400	(19)	21.340	7.466	.350
2	.900	(19)	24.748	6.106	.350
3	1.100	(19)	25.906	5.464	.350
4	1.300	(19)	26.930	4.766	.350
5	3.250	(19)	27.592	-4.974	.350
6	3.650	(19)	25.109	-7.406	.350
7	3.650	(19)	25.109	-9.406	.350
8	5.200	(18)	1.505	-19.807	-2.490
9	5.400	(18)	-2.588	-21.096	-2.490
10	5.600	(18)	-6.923	-22.230	-2.490
11	6.100	(18)	-18.618	-24.389	-2.490
JTAN	6.500	(18)	-28.600	-25.422	-2.490
MAX	2.167	(19)	29.545	1.095	.350
== MEMBER 2 (2 - 3) G ==					
ITAN	0.000	(18)	-25.953	27.121	-2.897
1	.400	(18)	-15.291	26.089	-2.897
2	.900	(18)	-2.746	23.929	-2.897
3	1.100	(18)	1.929	22.795	-2.897
4	1.300	(19)	6.411	21.830	1.199
5	3.250	(19)	32.314	2.540	1.199
6	5.200	(19)	15.713	-17.528	1.199
7	5.400	(19)	12.076	-18.817	1.199
8	5.600	(19)	8.197	-19.952	1.199
9	6.100	(19)	-2.360	-22.112	1.199
JTAN	6.500	(19)	-11.432	-23.145	1.199
MAX	3.611	(19)	32.390	-2.040	1.199
== MEMBER 3 (3 - 4) G ==					
ITAN	0.000	(18)	-16.343	12.440	-1.662
1	.400	(18)	-11.581	11.324	-1.662
2	.900	(18)	-6.348	9.534	-1.662
3	1.100	(18)	-4.524	8.695	-1.662
4	1.300	(19)	-2.868	11.908	.965
5	1.650	(19)	1.038	10.358	.965
6	1.650	(19)	1.008	9.638	.965
7	2.250	(19)	6.197	7.616	.965
8	3.200	(19)	11.917	4.532	.965
9	3.400	(19)	12.766	3.963	.965
10	3.600	(19)	13.504	3.423	.965
11	4.100	(19)	14.901	2.195	.965
JTAN	4.500	(19)	15.604	1.339	.965

MOMENT MINIMUM

	L	CASE	M	Q	N
== MEMBER 1 (1 - 2) G ==					
ITAN	0.000	(18)	3.483	11.548	-2.490
1	.400	(18)	7.942	10.712	-2.490
2	.900	(18)	12.973	9.352	-2.490
3	1.100	(18)	14.780	8.710	-2.490
4	1.300	(18)	16.453	8.012	-2.490
5	3.250	(18)	23.444	-1.728	-2.490
6	3.650	(18)	22.259	-4.160	-2.490
7	3.650	(18)	22.259	-6.160	-2.490
8	5.200	(19)	-.675	-23.053	.350
9	5.400	(19)	-5.417	-24.341	.350
10	5.600	(19)	-10.401	-25.475	.350
11	6.100	(19)	-23.719	-27.635	.350
JTAN	6.500	(19)	-35.000	-28.667	.350
MAX	2.889	(18)	23.665	.477	-2.490
== MEMBER 2 (2 - 3) G ==					
ITAN	0.000	(19)	-26.324	27.444	1.199
1	.400	(19)	-15.532	26.411	1.199
2	.900	(19)	-2.826	24.252	1.199
3	1.100	(19)	1.913	23.118	1.199
4	1.300	(18)	6.362	21.507	-2.897
5	3.250	(18)	31.635	2.217	-2.897
6	5.200	(18)	14.405	-17.851	-2.897
7	5.400	(18)	10.703	-19.140	-2.897
8	5.600	(18)	6.759	-20.274	-2.897
9	6.100	(18)	-3.958	-22.435	-2.897
JTAN	6.500	(18)	-13.159	-23.468	-2.897
MAX	3.250	(18)	31.635	2.217	-2.897
== MEMBER 3 (3 - 4) G ==					
ITAN	0.000	(19)	-21.697	16.564	.965
1	.400	(19)	-15.285	15.447	.965
2	.900	(19)	-7.991	13.658	.965
3	1.100	(19)	-5.342	12.818	.965
4	1.300	(18)	-2.875	7.784	-1.662
5	1.650	(18)	-.442	6.235	-1.662
6	1.650	(18)	-.442	5.515	-1.662
7	2.250	(18)	2.273	3.493	-1.662
8	3.200	(18)	4.076	.408	-1.662
9	3.400	(18)	4.100	-.160	-1.662
10	3.600	(18)	4.014	-.700	-1.662
11	4.100	(18)	3.349	-1.929	-1.662
JTAN	4.500	(18)	2.402	-2.785	-1.662
MAX	3.400	(18)	4.100	-.160	-1.662

PICK UP 4

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(19)	1.571	10.696	0.000
1	.400	(19)	5.493	8.916	0.000
2	1.600	(19)	12.988	3.576	0.000
3	3.250	(19)	12.831	-3.766	0.000
4	4.900	(18)	2.210	-8.187	0.000
5	6.100	(18)	-10.818	-13.527	0.000
JTAN	6.500	(18)	-16.585	-15.307	0.000
MAX	2.167	(19)	14.300	1.354	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(18)	-17.974	15.106	0.000
1	.400	(18)	-12.288	13.326	0.000
2	1.600	(18)	.500	7.986	0.000
3	3.250	(19)	7.739	.759	0.000
4	4.900	(19)	2.933	-6.584	0.000
5	6.100	(19)	-8.171	-11.924	0.000
JTAN	6.500	(19)	-13.297	-13.704	0.000
MAX	3.250	(19)	7.739	.759	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(18)	-8.822	10.423	0.000
1	.400	(18)	-5.009	8.643	0.000
2	1.600	(19)	2.221	7.456	0.000
3	2.250	(19)	6.127	4.564	0.000
4	2.900	(19)	8.153	1.671	0.000
5	4.100	(19)	6.955	-3.669	0.000
JTAN	4.500	(19)	5.131	-5.449	0.000
MAX	3.500	(19)	8.355	-.999	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(18)	12.897	-2.490	-38.908
JTAN	9.635	(19)	1.571	.350	-51.078
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(18)	2.533	-.407	-123.523
JTAN	9.635	(19)	4.683	.849	-142.507

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(18)	-11.097	13.618	0.000
1	.400	(18)	-6.006	11.838	0.000
2	1.600	(18)	4.996	6.498	0.000
3	3.250	(18)	9.661	-.844	0.000
4	4.900	(19)	.559	-11.109	0.000
5	6.100	(19)	-15.976	-16.449	0.000
JTAN	6.500	(19)	-22.912	-18.229	0.000
MAX	2.889	(18)	9.675	.763	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(19)	-18.228	15.221	0.000
1	.400	(19)	-12.496	13.441	0.000
2	1.600	(19)	.430	8.101	0.000
3	3.250	(18)	7.619	.643	0.000
4	4.900	(18)	2.623	-6.699	0.000
5	6.100	(18)	-8.620	-12.039	0.000
JTAN	6.500	(18)	-13.791	-13.819	0.000
MAX	3.250	(18)	7.619	.643	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(19)	-15.405	14.576	0.000
1	.400	(19)	-9.931	12.796	0.000
2	1.600	(18)	2.159	3.303	0.000
3	2.250	(18)	3.366	.411	0.000
4	2.900	(18)	2.693	-2.482	0.000
5	4.100	(18)	-3.488	-7.822	0.000
JTAN	4.500	(18)	-6.973	-9.602	0.000
MAX	2.250	(18)	3.366	.411	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(19)	-1.799	.350	-35.662
JTAN	9.635	(18)	-11.097	-2.490	-54.324
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(19)	-3.496	.849	-127.091
JTAN	9.635	(18)	-1.389	-.407	-138.939

PICK UP 4

MOMENT MAXIMUM

		CASE	L	M	J	N
= = MEMBER 9	(3 - 7) C = =					
ITAN	0.000	(19)	.145	-.234	-97.149	
JTAN	9.635	(18)	4.959	1.236	-108.764	
= = MEMBER 10	(4 - 8) C = =					
ITAN	0.000	(19)	4.164	-.965	-11.371	
JTAN	9.635	(18)	6.973	1.662	-30.911	

MOMENT MINIMUM

		CASE	L	M	J	N
= = MEMBER 9	(3 - 7) C = =					
ITAN	0.000	(18)	-6.936	1.236	-93.348	
JTAN	9.635	(19)	-2.108	-.234	-112.565	
= = MEMBER 10	(4 - 8) C = =					
ITAN	0.000	(18)	-9.038	1.662	-15.495	
JTAN	9.635	(19)	-5.131	-.965	-26.787	

PICK UP 4

SHEAR MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(18)	3.483	11.548	-2.490
1	.400	(18)	7.942	10.712	-2.490
2	.900	(18)	12.973	9.352	-2.490
3	1.100	(18)	14.780	8.710	-2.490
4	1.300	(18)	16.453	8.012	-2.490
5	3.250	(18)	23.444	-1.728	-2.490
6	3.650	(18)	22.259	-4.160	-2.490
7	3.650	(18)	22.259	-6.160	-2.490
8	5.200	(18)	1.505	-19.807	-2.490
9	5.400	(18)	-2.588	-21.096	-2.490
10	5.600	(18)	-6.923	-22.230	-2.490
11	6.100	(18)	-18.618	-24.389	-2.490
JTAN	6.500	(18)	-28.600	-25.422	-2.490
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(19)	-26.324	27.444	1.199
1	.400	(19)	-15.532	26.411	1.199
2	.900	(19)	-2.826	24.252	1.199
3	1.100	(19)	1.913	23.118	1.199
4	1.300	(19)	6.411	21.830	1.199
5	3.250	(19)	32.314	2.540	1.199
6	5.200	(19)	15.713	-17.528	1.199
7	5.400	(19)	12.076	-18.817	1.199
8	5.600	(19)	8.197	-19.952	1.199
9	6.100	(19)	-2.360	-22.112	1.199
JTAN	6.500	(19)	-11.432	-23.145	1.199
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(19)	-21.697	16.564	.965
1	.400	(19)	-15.285	15.447	.965
2	.900	(19)	-7.991	13.658	.965
3	1.100	(19)	-5.342	12.818	.965
4	1.300	(19)	-2.862	11.908	.965
5	1.650	(19)	1.008	10.368	.965
6	1.650	(19)	1.008	9.638	.965
7	2.250	(19)	6.197	7.616	.965
8	3.200	(19)	11.917	4.532	.965
9	3.400	(19)	12.766	3.963	.965
10	3.600	(19)	13.504	3.423	.965
11	4.100	(19)	14.901	2.195	.965
JTAN	4.500	(19)	15.604	1.339	.965

SHEAR MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(19)	18.179	8.302	.350
1	.400	(19)	21.340	7.466	.350
2	.900	(19)	24.748	6.105	.350
3	1.100	(19)	25.906	5.464	.350
4	1.300	(19)	26.930	4.766	.350
5	3.250	(19)	27.592	-4.974	.350
6	3.650	(19)	25.109	-7.406	.350
7	3.650	(19)	25.109	-9.406	.350
8	5.200	(19)	-.675	-23.053	.350
9	5.400	(19)	-5.417	-24.341	.350
10	5.600	(19)	-10.401	-25.475	.350
11	6.100	(19)	-23.719	-27.635	.350
JTAN	6.500	(19)	-35.000	-28.667	.350
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(18)	-25.953	27.121	-2.897
1	.400	(18)	-15.291	26.089	-2.897
2	.900	(18)	-2.746	23.929	-2.897
3	1.100	(18)	1.929	22.795	-2.897
4	1.300	(18)	6.362	21.507	-2.897
5	3.250	(18)	31.635	2.217	-2.897
6	5.200	(18)	14.405	-17.851	-2.897
7	5.400	(18)	10.703	-19.140	-2.897
8	5.600	(18)	6.759	-20.274	-2.897
9	6.100	(18)	-3.958	-22.435	-2.897
JTAN	6.500	(18)	-13.159	-23.468	-2.897
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(18)	-16.343	12.440	-1.662
1	.400	(18)	-11.581	11.324	-1.662
2	.900	(18)	-6.348	9.534	-1.662
3	1.100	(18)	-4.524	8.695	-1.662
4	1.300	(18)	-2.875	7.784	-1.662
5	1.650	(18)	-.442	6.235	-1.662
6	1.650	(18)	-.442	5.515	-1.662
7	2.250	(18)	2.273	3.493	-1.662
8	3.200	(18)	4.075	.408	-1.662
9	3.400	(18)	4.100	-.160	-1.662
10	3.600	(18)	4.014	-.700	-1.662
11	4.100	(18)	3.349	-1.929	-1.662
JTAN	4.500	(18)	2.402	-2.785	-1.662

PICK UP 4

SHEAR MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(18)	-11.097	13.618	0.000
1	.400	(18)	-6.006	11.838	0.000
2	1.600	(18)	4.996	6.498	0.000
3	3.250	(18)	9.661	-.844	0.000
4	4.900	(18)	2.210	-8.187	0.000
5	6.100	(18)	-10.818	-13.527	0.000
JTAN	6.500	(18)	-16.585	-15.307	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(19)	-18.228	15.221	0.000
1	.400	(19)	-12.496	13.441	0.000
2	1.600	(19)	.430	8.101	0.000
3	3.250	(19)	7.739	.759	0.000
4	4.900	(19)	2.933	-6.584	0.000
5	6.100	(19)	-8.171	-11.924	0.000
JTAN	6.500	(19)	-13.297	-13.704	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(19)	-15.405	14.576	0.000
1	.400	(19)	-9.931	12.796	0.000
2	1.600	(19)	2.221	7.456	0.000
3	2.250	(19)	6.127	4.564	0.000
4	2.900	(19)	8.153	1.671	0.000
5	4.100	(19)	6.955	-3.669	0.000
JTAN	4.500	(19)	5.131	-5.449	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(19)	-1.799	.350	-35.662
JTAN	9.635	(19)	1.571	.350	-51.078
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(19)	-3.496	.849	-127.091
JTAN	9.635	(19)	4.683	.849	-142.507
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(18)	-6.936	1.236	-93.348
JTAN	9.635	(18)	4.969	1.236	-108.764
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(18)	-9.038	1.662	-15.495
JTAN	9.635	(18)	6.973	1.662	-30.911

SHEAR MINIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(19)	1.571	10.696	0.000
1	.400	(19)	5.493	8.916	0.000
2	1.600	(19)	12.988	3.576	0.000
3	3.250	(19)	12.831	-3.766	0.000
4	4.900	(19)	.559	-11.109	0.000
5	6.100	(19)	-15.976	-16.449	0.000
JTAN	6.500	(19)	-22.912	-18.229	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(18)	-17.974	15.106	0.000
1	.400	(18)	-12.288	13.326	0.000
2	1.600	(18)	.500	7.986	0.000
3	3.250	(18)	7.619	.643	0.000
4	4.900	(18)	2.623	-6.699	0.000
5	6.100	(18)	-8.620	-12.039	0.000
JTAN	6.500	(18)	-13.791	-13.819	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(18)	-8.822	10.423	0.000
1	.400	(18)	-5.009	8.643	0.000
2	1.600	(18)	2.159	3.303	0.000
3	2.250	(18)	3.366	.411	0.000
4	2.900	(18)	2.693	-2.482	0.000
5	4.100	(18)	-3.488	-7.822	0.000
JTAN	4.500	(18)	-6.973	-9.602	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(18)	12.897	-2.490	-38.908
JTAN	9.635	(18)	-11.097	-2.490	-54.324
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(18)	2.533	-.407	-123.523
JTAN	9.635	(18)	-1.389	-.407	-138.939
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(19)	.145	-.234	-97.149
JTAN	9.635	(19)	-2.108	-.234	-112.565
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(19)	4.164	-.965	-11.371
JTAN	9.635	(19)	-5.131	-.965	-26.787

PICK UP 4

AXIAL MAXIMUM

	L	CASE	M	J	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(19)	18.179	8.302	.350
1	.400	(19)	21.340	7.466	.350
2	.900	(19)	24.748	6.106	.350
3	1.100	(19)	25.906	5.464	.350
4	1.300	(19)	26.930	4.766	.350
5	3.250	(19)	27.592	-4.974	.350
6	3.650	(19)	25.109	-7.406	.350
7	3.650	(19)	25.109	-9.406	.350
8	5.200	(19)	-.675	-23.053	.350
9	5.400	(19)	-5.417	-24.341	.350
10	5.600	(19)	-10.401	-25.475	.350
11	6.100	(19)	-23.719	-27.635	.350
JTAN	6.500	(19)	-35.000	-28.667	.350
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(19)	-26.324	27.444	1.199
1	.400	(19)	-15.532	26.411	1.199
2	.900	(19)	-2.826	24.252	1.199
3	1.100	(19)	1.913	23.118	1.199
4	1.300	(19)	6.411	21.830	1.199
5	3.250	(19)	32.314	2.540	1.199
6	5.200	(19)	-15.713	-17.528	1.199
7	5.400	(19)	12.076	-18.817	1.199
8	5.600	(19)	8.197	-19.952	1.199
9	6.100	(19)	-2.360	-22.112	1.199
JTAN	6.500	(19)	-11.432	-23.145	1.199
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(19)	-21.697	16.564	.965
1	.400	(19)	-15.295	15.447	.965
2	.900	(19)	-7.991	13.658	.965
3	1.100	(19)	-5.342	12.818	.965
4	1.300	(19)	-2.868	11.908	.965
5	1.650	(19)	1.008	10.358	.965
6	1.650	(19)	1.008	9.638	.965
7	2.250	(19)	5.197	7.616	.965
8	3.200	(19)	11.917	4.532	.965
9	3.400	(19)	12.766	3.963	.965
10	3.600	(19)	13.504	3.423	.965
11	4.100	(19)	14.901	2.195	.965
JTAN	4.500	(19)	15.604	1.339	.965

AXIAL MINIMUM

	L	CASE	M	J	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(18)	3.483	11.548	-2.490
1	.400	(18)	7.342	10.712	-2.490
2	.900	(18)	12.973	9.352	-2.490
3	1.100	(18)	14.780	8.710	-2.490
4	1.300	(18)	16.453	8.012	-2.490
5	3.250	(18)	23.444	-1.728	-2.490
6	3.650	(18)	22.259	-4.160	-2.490
7	3.650	(18)	22.259	-6.160	-2.490
8	5.200	(18)	1.505	-19.807	-2.490
9	5.400	(18)	-2.588	-21.096	-2.490
10	5.600	(18)	-6.923	-22.230	-2.490
11	6.100	(18)	-18.618	-24.389	-2.490
JTAN	6.500	(18)	-28.600	-25.422	-2.490
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(18)	-25.953	27.121	-2.897
1	.400	(18)	-15.291	26.089	-2.897
2	.900	(18)	-2.746	23.929	-2.897
3	1.100	(18)	1.929	22.795	-2.897
4	1.300	(18)	6.362	21.507	-2.897
5	3.250	(18)	31.635	2.217	-2.897
6	5.200	(18)	14.405	-17.851	-2.897
7	5.400	(18)	10.703	-19.140	-2.897
8	5.600	(18)	6.759	-20.274	-2.897
9	6.100	(18)	-3.958	-22.435	-2.897
JTAN	6.500	(18)	-13.159	-23.468	-2.897
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(18)	-16.343	12.440	-1.662
1	.400	(18)	-11.581	11.324	-1.662
2	.900	(18)	-6.348	9.534	-1.662
3	1.100	(18)	-4.524	8.695	-1.662
4	1.300	(18)	-2.875	7.784	-1.662
5	1.650	(18)	-.442	6.235	-1.662
6	1.650	(18)	-.442	5.515	-1.662
7	2.250	(18)	2.273	3.493	-1.662
8	3.200	(18)	4.076	.408	-1.662
9	3.400	(18)	4.100	-.160	-1.662
10	3.600	(18)	4.014	-.700	-1.662
11	4.100	(18)	3.349	-1.929	-1.662
JTAN	4.500	(18)	2.402	-2.785	-1.662

PICK UP 4

AXIAL MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(18)	-11.097	13.618	0.000
1	.400	(18)	-6.006	11.838	0.000
2	1.600	(18)	4.996	6.498	0.000
3	3.250	(18)	9.661	-.844	0.000
4	4.900	(18)	2.210	-8.187	0.000
5	6.100	(18)	-10.818	-13.527	0.000
JTAN	6.500	(18)	-16.585	-15.307	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(18)	-17.974	15.106	0.000
1	.400	(18)	-12.288	13.326	0.000
2	1.600	(18)	.500	7.986	0.000
3	3.250	(18)	7.619	.643	0.000
4	4.900	(18)	2.623	-6.699	0.000
5	6.100	(18)	-8.620	-12.039	0.000
JTAN	6.500	(18)	-13.791	-13.819	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(18)	-8.822	10.423	0.000
1	.400	(18)	-5.009	8.643	0.000
2	1.600	(18)	2.159	3.303	0.000
3	2.250	(18)	3.366	.411	0.000
4	2.900	(18)	2.693	-2.482	0.000
5	4.100	(18)	-3.488	-7.822	0.000
JTAN	4.500	(18)	-6.973	-9.602	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(19)	-1.799	.350	-35.662
JTAN	9.635	(19)	1.571	.350	-51.078
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(18)	2.533	-.407	-123.523
JTAN	9.635	(18)	-1.389	-.407	-138.939
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(18)	-6.936	1.236	-93.348
JTAN	9.635	(18)	4.969	1.236	-108.764
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(19)	4.164	-.965	-11.371
JTAN	9.635	(19)	-5.131	-.965	-26.787

AXIAL MINIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(18)	-11.097	13.618	0.000
1	.400	(18)	-6.006	11.838	0.000
2	1.600	(18)	4.996	6.498	0.000
3	3.250	(18)	9.661	-.844	0.000
4	4.900	(18)	2.210	-8.187	0.000
5	6.100	(18)	-10.818	-13.527	0.000
JTAN	6.500	(18)	-16.585	-15.307	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(18)	-17.974	15.106	0.000
1	.400	(18)	-12.288	13.326	0.000
2	1.600	(18)	.500	7.986	0.000
3	3.250	(18)	7.619	.643	0.000
4	4.900	(18)	2.623	-6.699	0.000
5	6.100	(18)	-8.620	-12.039	0.000
JTAN	6.500	(18)	-13.791	-13.819	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(18)	-8.822	10.423	0.000
1	.400	(18)	-5.009	8.643	0.000
2	1.600	(18)	2.159	3.303	0.000
3	2.250	(18)	3.366	.411	0.000
4	2.900	(18)	2.693	-2.482	0.000
5	4.100	(18)	-3.488	-7.822	0.000
JTAN	4.500	(18)	-6.973	-9.602	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(18)	12.837	-2.490	-38.908
JTAN	9.635	(18)	-11.097	-2.490	-54.324
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(19)	-3.496	.849	-127.091
JTAN	9.635	(19)	4.683	.849	-142.507
= = MEMBER 9 (3 - 7) C = =					
ITAN	0.000	(19)	.145	-.234	-97.149
JTAN	9.635	(19)	-2.108	-.234	-112.565
= = MEMBER 10 (4 - 8) C = =					
ITAN	0.000	(18)	-9.038	1.662	-15.495
JTAN	9.635	(18)	6.973	1.662	-30.911

PICK UP 5

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(21)	42.821	1.813	-2.585
1	.400	(21)	43.386	.977	-2.585
2	.900	(21)	43.549	-.383	-2.585
3	1.100	(21)	43.409	-1.025	-2.585
4	1.300	(21)	43.135	-1.723	-2.585
5	3.250	(21)	31.143	-11.464	-2.585
6	3.650	(21)	26.064	-13.896	-2.585
7	3.650	(21)	26.064	-15.896	-2.585
8	5.200	(20)	11.544	-11.927	-.773
9	5.400	(20)	9.027	-13.215	-.773
10	5.600	(20)	6.268	-14.349	-.773
11	6.100	(20)	-1.487	-16.508	-.773
JTAN	6.500	(20)	-8.317	-17.541	-.773
MAX	.722	(21)	43.570	.140	-2.585
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(21)	-6.706	21.088	-2.026
1	.400	(21)	1.543	20.055	-2.026
2	.900	(21)	11.071	17.896	-2.026
3	1.100	(21)	14.539	16.762	-2.026
4	1.300	(21)	17.765	15.474	-2.026
5	3.250	(20)	32.384	8.434	-1.429
6	5.200	(20)	27.278	-11.633	-1.429
7	5.400	(20)	24.820	-12.922	-1.429
8	5.600	(20)	22.120	-14.057	-1.429
9	6.100	(20)	14.511	-16.217	-1.429
JTAN	6.500	(20)	7.797	-17.250	-1.429
MAX	3.611	(20)	34.589	3.855	-1.429
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(21)	3.489	.755	-.451
1	.400	(21)	3.577	-.362	-.451
2	.900	(21)	2.967	-2.151	-.451
3	1.100	(21)	2.454	-2.991	-.451
4	1.300	(21)	1.766	-3.901	-.451
5	1.650	(21)	.109	-5.451	-.451
6	1.650	(21)	.109	-6.171	-.451
7	2.250	(20)	10.975	17.534	-1.371
8	3.200	(20)	26.118	14.450	-1.371
9	3.400	(20)	28.950	13.881	-1.371
10	3.600	(20)	31.672	13.341	-1.371
11	4.100	(20)	38.028	12.113	-1.371
JTAN	4.500	(20)	42.698	11.257	-1.371
MAX	1.650	(21)	.109	-6.171	-.451

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 1 (1 - 2) G = =					
ITAN	0.000	(20)	-27.458	19.428	-.773
1	.400	(20)	-19.846	18.592	-.773
2	.900	(20)	-10.875	17.232	-.773
3	1.100	(20)	-7.492	16.590	-.773
4	1.300	(20)	-4.243	15.892	-.773
5	3.250	(20)	18.115	6.152	-.773
6	3.650	(20)	20.082	3.720	-.773
7	3.650	(20)	20.082	1.720	-.773
8	5.200	(21)	-9.779	-29.542	-2.585
9	5.400	(21)	-15.819	-30.831	-2.585
10	5.600	(21)	-22.101	-31.965	-2.585
11	6.100	(21)	-38.664	-34.124	-2.585
JTAN	6.500	(21)	-52.540	-35.157	-2.585
MAX	3.650	(20)	20.082	1.720	-.773
= = MEMBER 2 (2 - 3) G = =					
ITAN	0.000	(20)	-45.412	33.339	-1.429
1	.400	(20)	-32.262	32.306	-1.429
2	.900	(20)	-16.609	30.147	-1.429
3	1.100	(20)	-10.690	29.013	-1.429
4	1.300	(20)	-5.014	27.725	-1.429
5	3.250	(21)	31.274	-3.817	-2.026
6	5.200	(21)	2.279	-23.884	-2.026
7	5.400	(21)	-2.629	-25.173	-2.026
8	5.600	(21)	-7.780	-26.308	-2.026
9	6.100	(21)	-21.514	-28.468	-2.026
JTAN	6.500	(21)	-33.128	-29.501	-2.026
MAX	3.250	(21)	31.274	-3.817	-2.026
= = MEMBER 3 (3 - 4) G = =					
ITAN	0.000	(20)	-39.234	26.482	-1.371
1	.400	(20)	-28.855	25.365	-1.371
2	.900	(20)	-16.602	23.576	-1.371
3	1.100	(20)	-11.969	22.736	-1.371
4	1.300	(20)	-7.512	21.826	-1.371
5	1.650	(20)	-.164	20.276	-1.371
6	1.650	(20)	-.164	19.556	-1.371
7	2.250	(21)	-4.187	-8.193	-.451
8	3.200	(21)	-13.486	-11.277	-.451
9	3.400	(21)	-15.798	-11.845	-.451
10	3.600	(21)	-18.222	-12.386	-.451
11	4.100	(21)	-24.729	-13.614	-.451
JTAN	4.500	(21)	-30.350	-14.470	-.451
MAX	1.650	(20)	-.164	19.556	-1.371

PICK UP 5

MOMENT MAXIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 6) G = =					
ITAN	0.000	(21)	23.611	4.322	0.000
1	.400	(21)	24.984	2.542	0.000
2	1.600	(21)	24.830	-2.798	0.000
3	3.250	(21)	14.156	-10.141	0.000
4	4.900	(20)	12.110	-.560	0.000
5	6.100	(20)	8.233	-5.900	0.000
JTAN	6.500	(20)	5.517	-7.680	0.000
MAX	.722	(21)	25.572	1.108	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(21)	-2.605	10.586	0.000
1	.400	(21)	1.273	8.806	0.000
2	1.600	(21)	8.636	3.466	0.000
3	3.250	(21)	8.298	-3.877	0.000
4	4.900	(20)	9.580	-2.113	0.000
5	6.100	(20)	3.840	-7.453	0.000
JTAN	6.500	(20)	.503	-9.233	0.000
MAX	4.333	(20)	10.063	.409	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(21)	15.590	-1.789	0.000
1	.400	(21)	14.518	-3.569	0.000
2	1.600	(21)	7.031	-8.909	0.000
3	2.250	(20)	8.011	14.997	0.000
4	2.900	(20)	16.818	12.104	0.000
5	4.100	(20)	28.139	6.764	0.000
JTAN	4.500	(20)	30.489	4.984	0.000
MAX	2.000	(20)	4.122	16.109	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(20)	43.838	-8.553	-46.788
JTAN	9.635	(21)	23.611	5.195	-44.589
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(20)	42.275	-8.436	-121.860
JTAN	9.635	(21)	39.697	8.339	-142.641

MOMENT MINIMUM

	L	CASE	M	Q	N
= = MEMBER 4 (5 - 5) G = =					
ITAN	0.000	(20)	-38.566	21.245	0.000
1	.400	(20)	-30.425	19.465	0.000
2	1.600	(20)	-10.271	14.125	0.000
3	3.250	(20)	6.977	6.782	0.000
4	4.900	(21)	-8.633	-17.483	0.000
5	6.100	(21)	-32.817	-22.823	0.000
JTAN	6.500	(21)	-42.302	-24.603	0.000
MAX	3.611	(20)	9.136	5.175	0.000
= = MEMBER 5 (6 - 7) G = =					
ITAN	0.000	(20)	-33.488	19.692	0.000
1	.400	(20)	-25.968	17.912	0.000
2	1.600	(20)	-7.677	12.572	0.000
3	3.250	(20)	7.009	5.229	0.000
4	4.900	(21)	-4.156	-11.219	0.000
5	6.100	(21)	-20.823	-16.559	0.000
JTAN	6.500	(21)	-27.803	-18.339	0.000
MAX	3.250	(20)	7.009	5.229	0.000
= = MEMBER 6 (7 - 8) G = =					
ITAN	0.000	(20)	-36.996	25.009	0.000
1	.400	(20)	-27.348	23.229	0.000
2	1.600	(20)	-2.677	17.889	0.000
3	2.250	(21)	.300	-11.802	0.000
4	2.900	(21)	-8.311	-14.694	0.000
5	4.100	(21)	-29.149	-20.034	0.000
JTAN	4.500	(21)	-37.518	-21.814	0.000
MAX	2.000	(21)	3.111	-10.689	0.000
= = MEMBER 7 (1 - 5) C = =					
ITAN	0.000	(21)	-25.441	5.195	-29.173
JTAN	9.635	(20)	-38.566	-8.553	-62.204
= = MEMBER 8 (2 - 6) C = =					
ITAN	0.000	(21)	-40.654	8.339	-127.225
JTAN	9.635	(20)	-39.005	-8.436	-137.276