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FUSELAGE   STRUCTURAL   ANALYSIS
VOLUME I
SHEAR AND BENDING

XV-5A

LIFT FAN FLIGHT RESEARCH AIRCRAFT PROGRAM

CONTRACT NUMBER DA44-177-TC-715

GENERAL ⊛ ELECTRIC

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FUSELAGE STRUCTURAL ANALYSIS

Volume I

SHEAR AND BENDING

XV-5A Lift Fan

Flight Research Aircraft Program
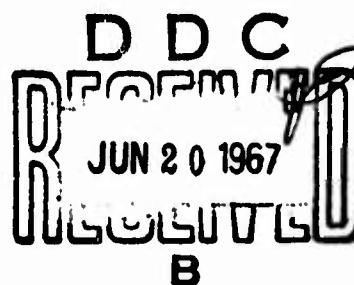
Advanced Engine and Technology Department

General Electric Company

Cincinnati, Ohio 45215

CONTENTS

SIGN CONVENTION AND REFERENCE AXES

LOADS PROGRAM OUTPUT - POSITIVE LOADS
(LEFT-HAND RULE)

CONVENTION USED FOR 1012 BOX BEAM PROGRAM
(LEFT-HAND RULE)

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INTRODUCTION

The final stress analysis of the U.S. Army XV-5A lift fan research aircraft forward and aft fuselage sections is presented in this report. The forward and aft sections of the fuselage are conventional aircraft semi-monocoque structures, and the center section is a welded tubular space truss. The analysis of the longitudinal bending members and skins or webs is contained in this report. Volume II contains the analysis of the space truss and engine mounts. Analyses of the bulkheads, frames, fittings and miscellaneous components are contained in Volume III.

The primary intent of this report is to provide a tabulation of internal shear and bending stress distributions for the final critical loading conditions. Critical margins of safety of primary components are computed. Structural adequacy has also been demonstrated by proof tests simulating the critical conditions.

All loads shown in this report are ultimate values, unless otherwise stated. MIL HBBK-5 is used for material mechanical properties and fastener allowables. Other references are given where they are first used.

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SHEAR AND BENDING ANALYSIS

Basic fuselage structure is shown on Figures 1 through 7. Bending of
the forward fuselage is taken by four longerons plus skins effective in
tension. An additional longeron along the upper centerline is used in
the aft fuselage box. Torque is taken by a closed torque box, except in
the cockpit section, where torque is reacted by differential bending of
the sides.

Bending stresses and shear flows are determined by a digital computer
from the ordinary engineering theory of bending, shear and torque
(Ryan IBM Job No. 1012). A complete description of this program is
given in Ryan Report No. 62B118, "DESCRIPTION OF BOX BEAM
PROGRAM FOR IBM JOB NO. 1012", 18 November 1962. Output from
this program is modified where necessary to include effects of shear
lag, differential bending, composite materials and longitudinal loads.
Allowable crippling stresses are found by methods in Ryan Structures
Manual (Section 5.5) and in Lockheed Aircraft Corporation stress
memorandum No. 45e.

Values of fuselage shear, moments and torques used in the box beam
program input were obtained from the fuselage loads report. Critical
conditions occur in symmetric flight maneuvers, rolling pullouts,
rudder maneuvers, lateral gust or landing. Bending stresses and shear
flows are obtained at each station for conditions which produce maxi-
mum values of one or more of the following: vertical shear, lateral
shear, vertical B.M., lateral B.M. or torque.

LIST OF CRITICAL CONDITIONS

FLIGHT CONDITIONS

G.W. = 9200 LB.

COND.	DESCRIPTION	C.G.	n_Z	g (PSF)	MACH. NO.
F-1P	Symmetrical Maneuver - Power on - $\ddot{\theta} = 0$	FWD	+4.0	846.6	.8
F-8	Symmetrical Maneuver $\ddot{\theta} = 1.5$	AFT	-1.0	846.6	.8
F-8P	Symmetrical Maneuver - Power on - $\ddot{\theta} = 0$	AFT	-1.0	846.6	.8
F-12	Symmetrical Maneuver $\ddot{\theta} = 3.0$	AFT	-2.0	595	.8
Roll-3	Rolling Pullout	AFT	1.1	370.3	.500
Roll-5	Rolling Pullout	AFT	1.1	477.8	.756
AF-5	Asymmetrical Flight - Dynamic Overswing	FWD	1.0	846.6	.756
AF-6	Asymmetrical Flight - Dynamic Overswing	AFT	1.0	846.6	.756
LG-1	Asymmetrical Flight - Lateral Gust - V(G) = 24 FPS	FWD	1.0	846.6	.756
LG-3	Asymmetrical Flight - Lateral Gust - V(G) = 40 FPS	FWD	1.0	595	.638
LG-4	Asymmetrical Flight - Lateral Gust - V(G) = 40 FPS	AFT	1.0	595	.638

LANDING CONDITIONS

G.W. = 9200 LB.

COND.	DESCRIPTION	C.G.	n_Z	n_X	$\ddot{\theta}$
L-2	Two Point Level Spin Up	FWD	2.994	1.255	-8.247
L-4	Three Point Spring Back	FWD	3.802	-1.461	5.723
L-16	Two Point Tail Down Spring Back	AFT	3.778	-1.820	2.780
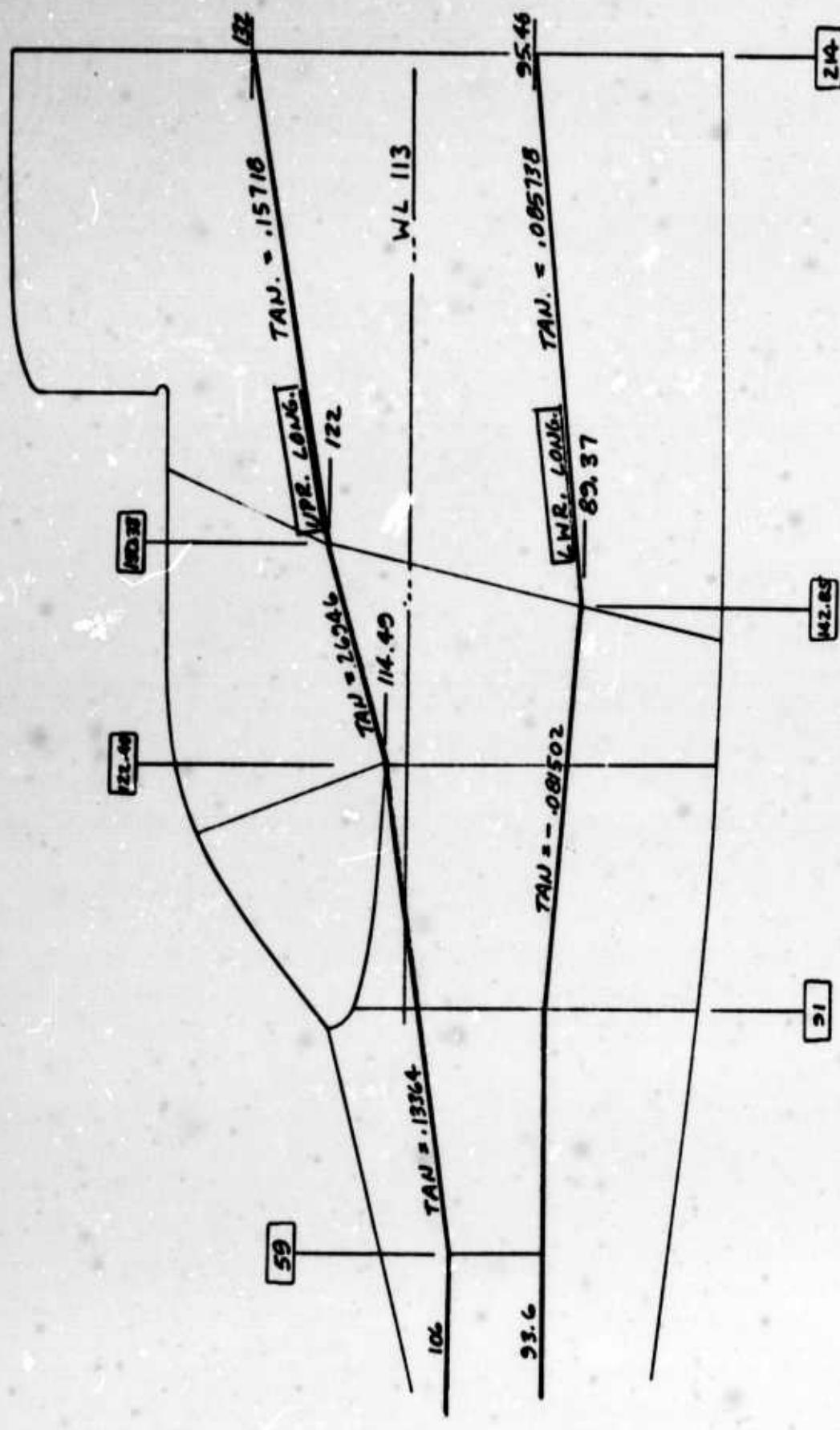
Figure 1 Forward Fuselage
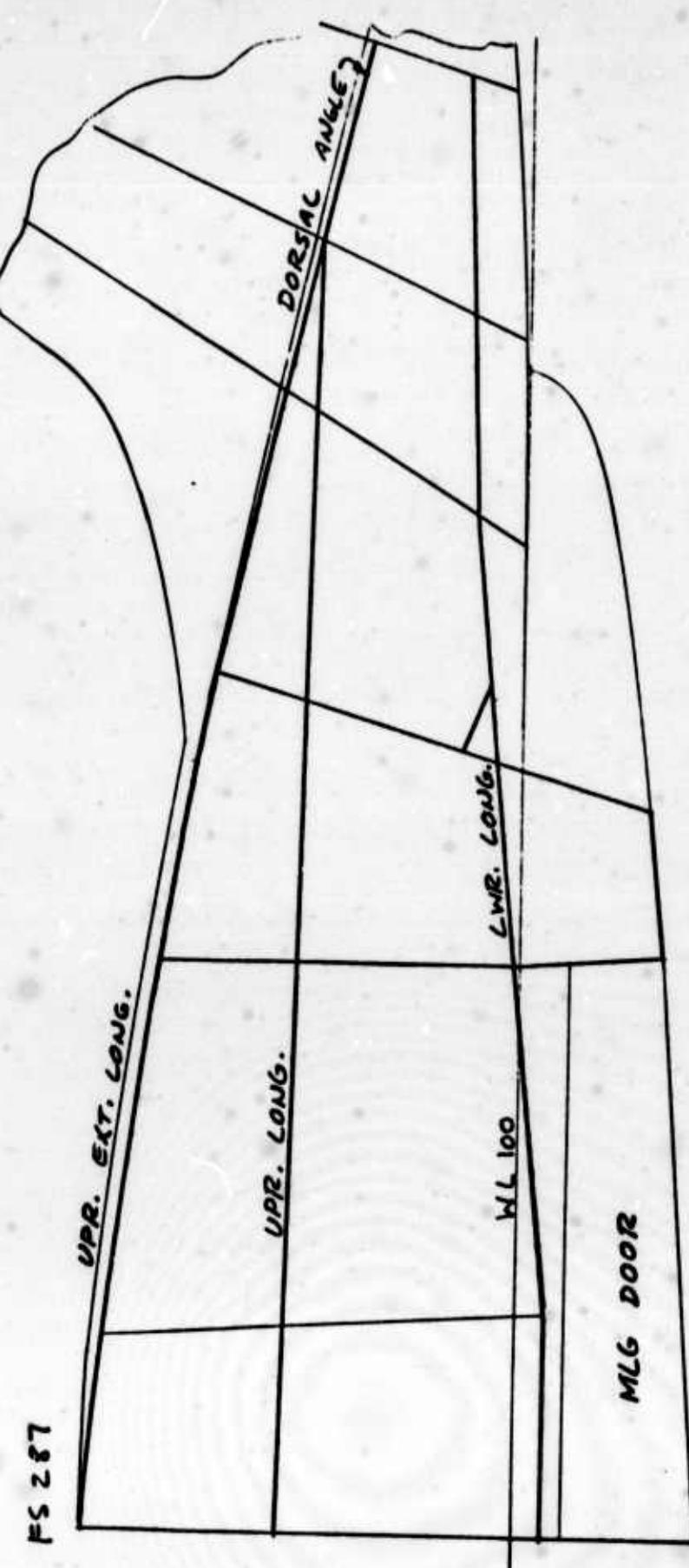
Figure 2 Aft Fuselage

PITCH FAN SUPPORT BEAMS - FUSELAGE STATIONS 35.2 TO 91

(Ref. Drawings 143F003 and 143F085)
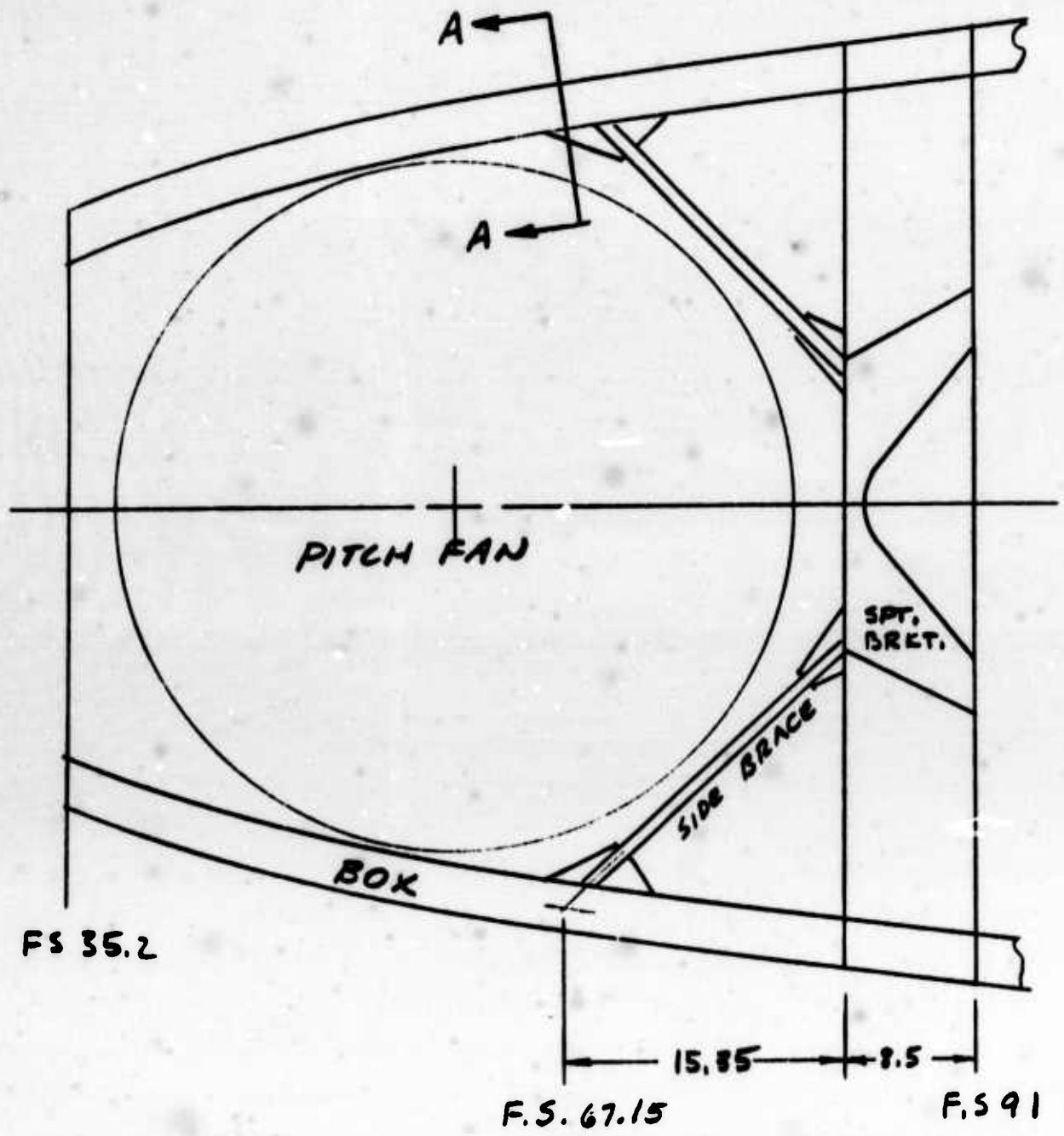
The fuselage nose, primary structure consists of two box beams which straddle the pitch fan. The box beams are formed by upper and lower longerons and inner and outer skins, stiffened by formers.

Side loads are assumed to be reacted equally be bending of the box beams. The beams are supported at Fuselage Station 67.15 by side braces mounted on the seal panel. Vertical bending moment is distributed equally to the beams, assuming concentrated flange area at the longerons.

The critical condition is LG-3. Ultimate loads are:
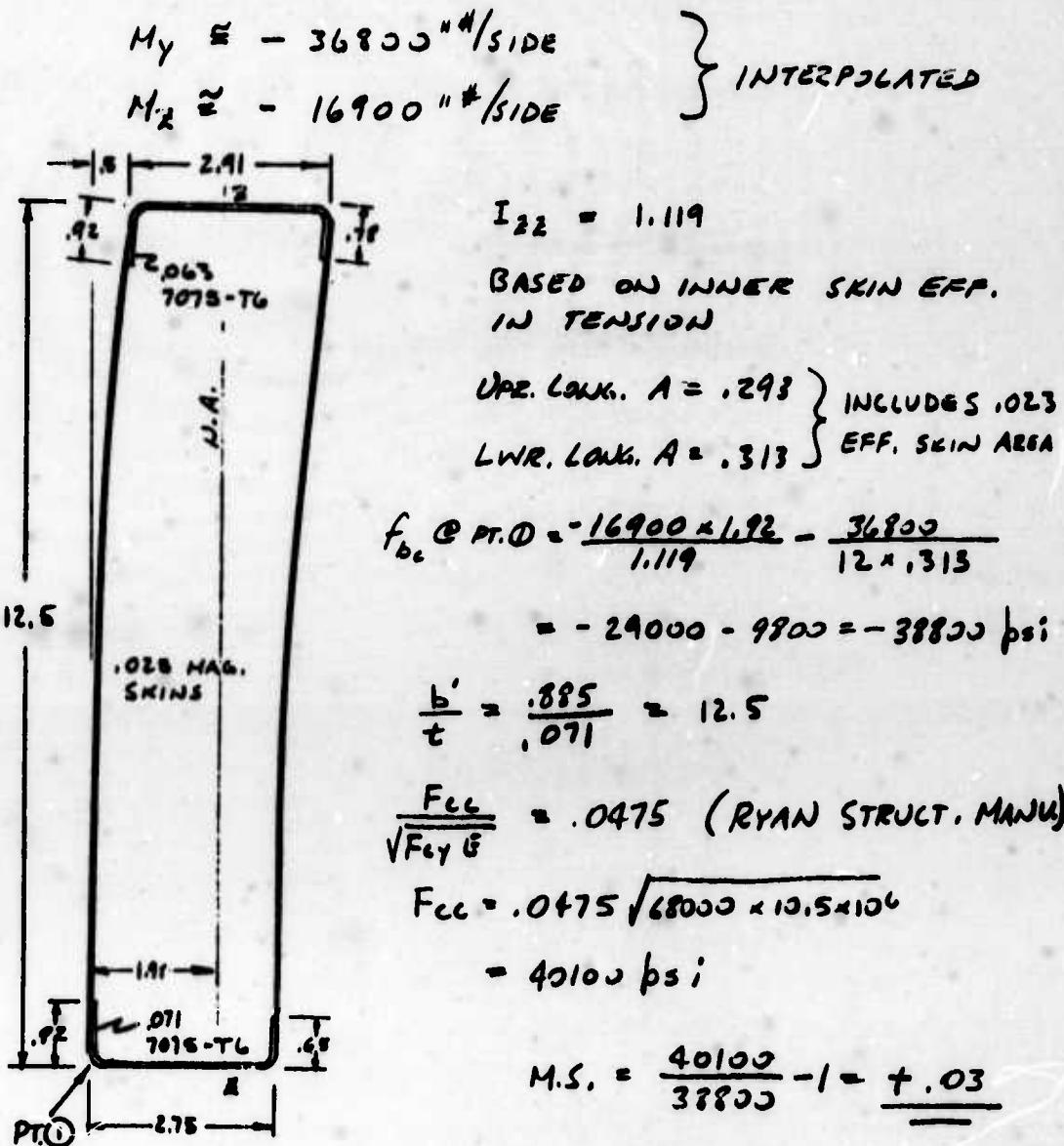
STA.	F_y	M_y	M_z
35.2	462 lb	-10800 in/lb	-8090 in/lb
47	671	-24650	-14900
59	936	-48000	-24650
71	1232	-85600	-38000
82.6	1550	-142800	-54100
91	1810	-201000	-68400

PITCH FAN SUPPORT BEAMS

FS 35.2

BOX

SIDE BRACE

PITCH FAN

SPT. BRKT.

A

A

15.85

8.5

F.S. 67.15

F.S 91

SECT. A-A : Fuselage Station 67.15

$$M_y \cong -36800 \,''^\#/\text{SIDE}$$
$$M_z \cong -16900 \,''^\#/\text{SIDE}$$

} INTERPOLATED

SECT. A-A

$$I_{zz} = 1.119$$

BASED ON INNER SKIN EFF.
IN TENSION

UPR. LONK. $A = .293$
LWR. LONK. $A = .313$

} INCLUDES .023
EFF. SKIN AREA

$$f_{bc} @ \text{PT.} \textcircled{1} = \frac{-16900 \times 1.92}{1.119} - \frac{36800}{12 \times .313}$$

$$= -29000 - 9800 = -38800 \text{ psi}$$

$$\frac{b'}{t} = \frac{.885}{.071} = 12.5$$

$$\frac{F_{cc}}{\sqrt{F_{cy} E}} = .0475 \quad (\text{RYAN STRUCT. MANU})$$

$$F_{cc} = .0475 \sqrt{68000 \times 10.5 \times 10^6}$$

$$= 40100 \text{ psi}$$

$$M.S. = \frac{40100}{38800} - 1 = \underline{+.03}$$
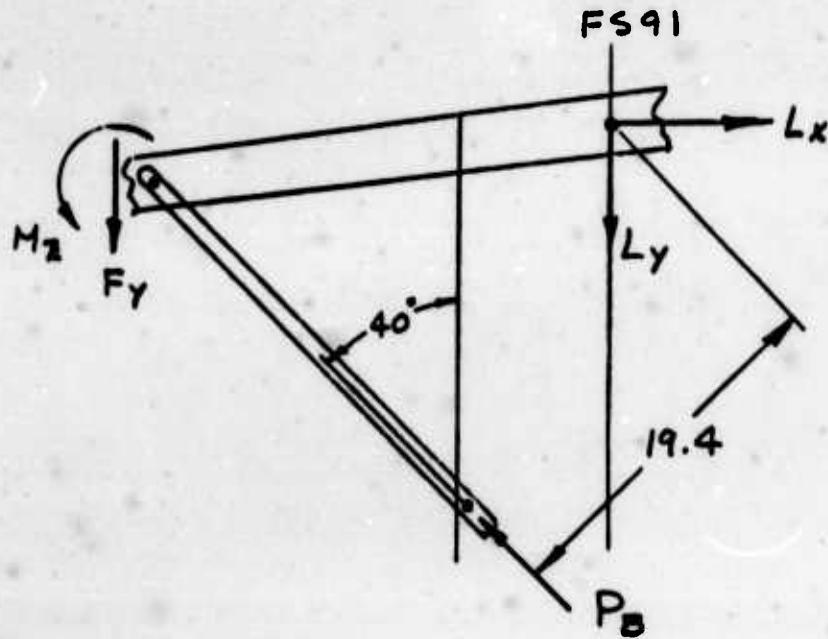
PITCH FAN SUPPORT BEAMS

Side Braces and Support Bracket
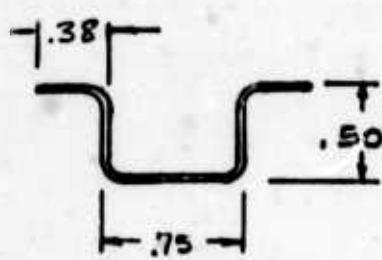
FIND LOAD IN SIDE BRACE ASSUMMING B.M.
IN BOX IS ZERO @ F.S. 91 .

M_z @ FS 91 = ±34200 "# /SIDE

BRACE LOAD , P_B = ±34200/19.4 = ±1760 #

BRACE IS CRITICAL FOR COLUMN LOAD :

.040 2024 - T4

$$AREA = .0876$$
$$\rho = .308$$
$$LENGTH = 21.5$$
$$L/\rho = 21.5/.308 = 70$$
$$F_c = 20200 \text{ psi}$$
$$f_c = 1760/.0876 = 20100 \text{ psi}$$
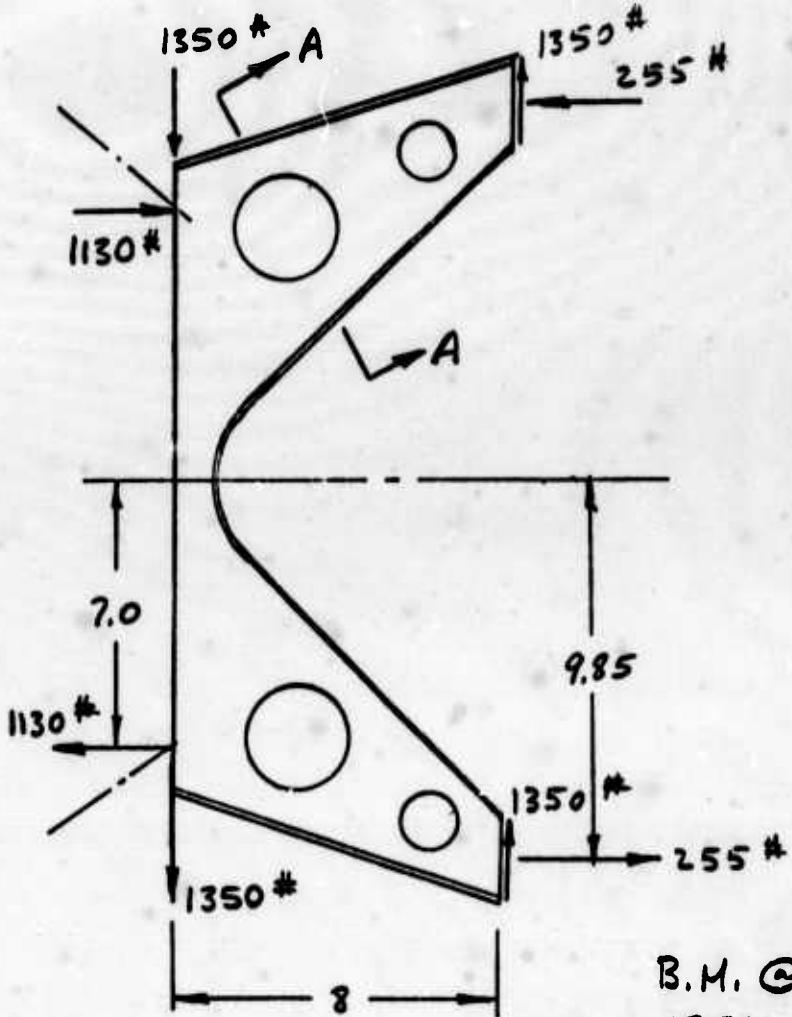
<u>M.S. = O</u>

PITCH FAN SUPPORT BEAMS
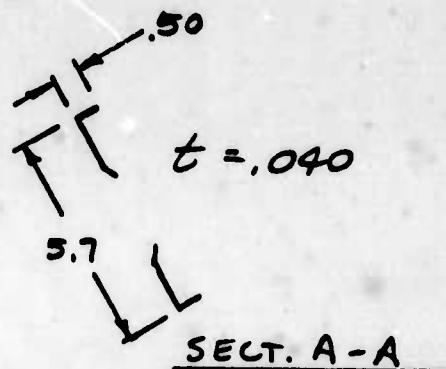
Side Braces and Support Bracket

$1760 \sin 40° = 1130^\#$

$1760 \cos 40° = 1350^\#$

$(1130 \times 14 - 1350 \times 8)/19.7 = 255^\#$

SECT. A-A

B.M. @ SECT. A-A. =

$1350 \times 5.6 - 255 \times 3.65 = 6630''^\#$

FLG. LOAD $= 6630/5.25 = 1260^\#$

AREA (ASSUME .5×.5 ANGLE) $= 2 \times .46 \times .04 = .037$

$f_c = 1260/.037 = 34000 \text{ psi}$

$b/t = .48/.04 = 12$

$F_{cc} = .053 \sqrt{68000 \times 10.5 \times 10^6} = 45000 \text{ psi}$
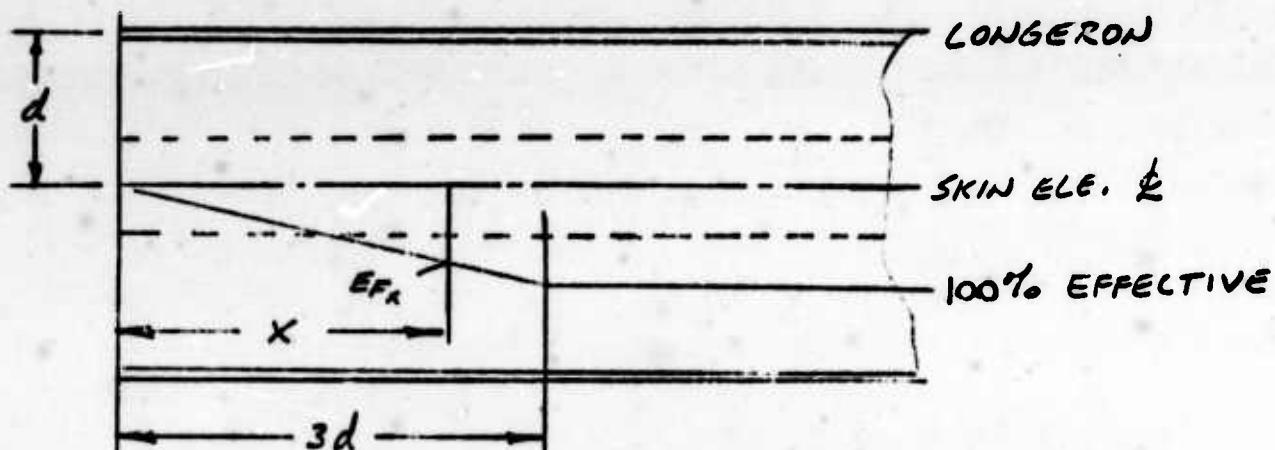
$M.S. = \dfrac{45000}{34000} - 1 = + .32$

SHEAR FLOWS AND BENDING STRESSES FUSELAGE STATION 91 AFT

Skin Effective in Bending

Discontinuities of the fuselage skins are located at Fuselage Station 214
and Fuselage Station 286. Also, the cockpit floor ends @ Fuselage
Station 91; the upper cover is eliminated forward of Fuselage Station
150.38 for the cockpit; and the aft fuselage lower skin (or wheel well
cover) contains several discontinuities because of wheel well and tail
pipe exit nozzles. No skin is considered effective in bending @ discon-
tinuities. Skin panels are assumed to be divided into elements of ap-
proximately 6-inch widths. It is estimated that these skin elements
have effectiveness factors which vary linearly from zero @ discontinuity
to 100% at longitudinal distance equal to 3 times the transverse distance
to the nearest longeron (Ref. ANALYSIS AND DESIGN OF AIRPLANE
STRUCTURES, Vol I, 1958, by Bruhn, Pg. A19.25). For simplicity,
the aft fuselage lower skin or floor is considered not effective.

SKIN EFFECTIVENESS FACTORS:

$$EF_x = 1.00 \frac{x}{3d} = .333 \frac{x}{d}$$

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SHEAR FLOWS AND BENDING STRESSES FUSELAGE STATION 91 AFT

Skin Effective in Bending

Effective Thickness of Magnesium Alloy Skins

The thickness of the magnesium alloy skin is reduced by the ratio of E_{MAG} over E_{AL} to make the magnesium skin equivalent stresses compatible with the aluminum alloy longerons. True magnesium skin stresses are found by multiplying the equivalent stress by t_E/t or E_{MAG}/E_{AL}.

$$t_E = t \frac{E_{MAG}}{E_{AL}}$$

$$= t \times \frac{6.5}{10.3}$$

$$= .63 \, t$$

SECTIONS FROM FUSELAGE STATION 91 TO FUSELAGE STATION 150
(FWD)

The cockpit is located in this portion of the fuselage, and therefore, a
typical cross section is an open section with torsion taken by differen-
tial bending. Standard box beam program is not applicable for open
sections and is not used to determine shear flows for side shear and
torsion. Structure below the floor is neglected for primary bending.
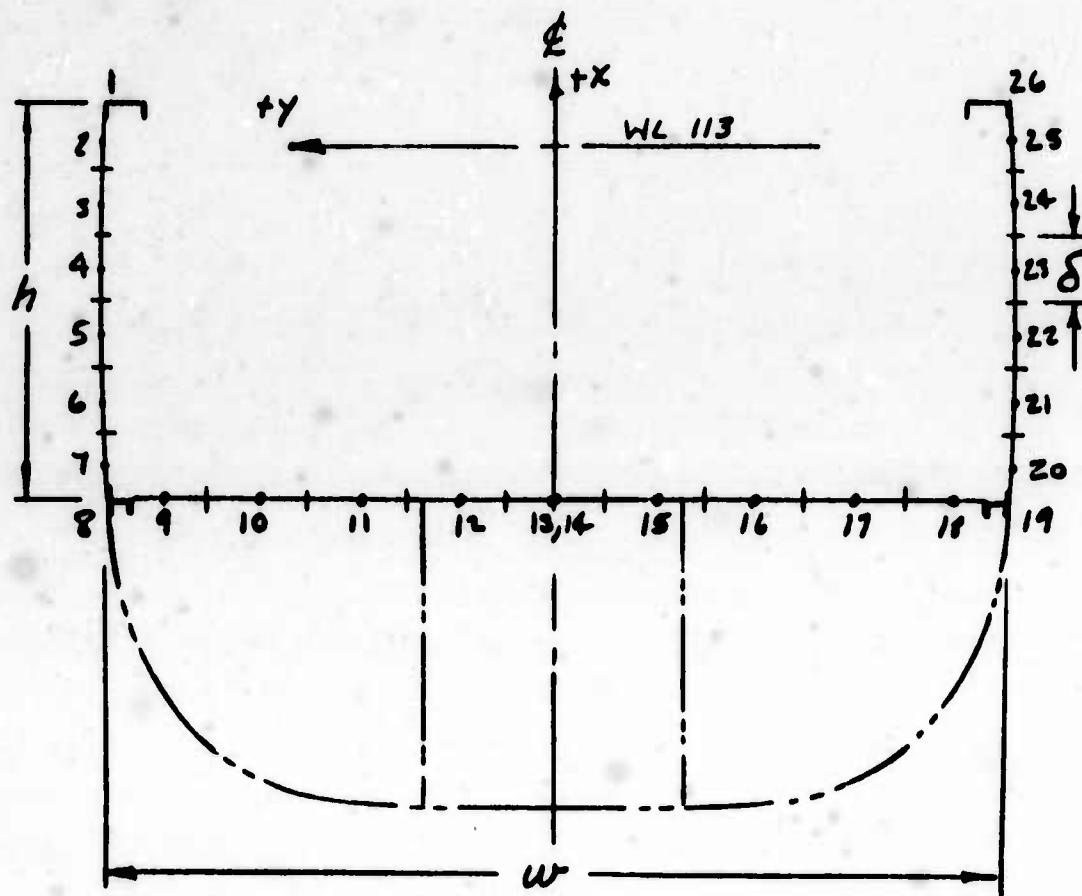
Figure 3

SECTIONS FROM FUSELAGE STATION 150 (AFT) TO FUSELAGE STATION 214

The primary structure of this portion of the fuselage consists of a closed rectangular box. The secondary structure above and below the longerons is neglected.
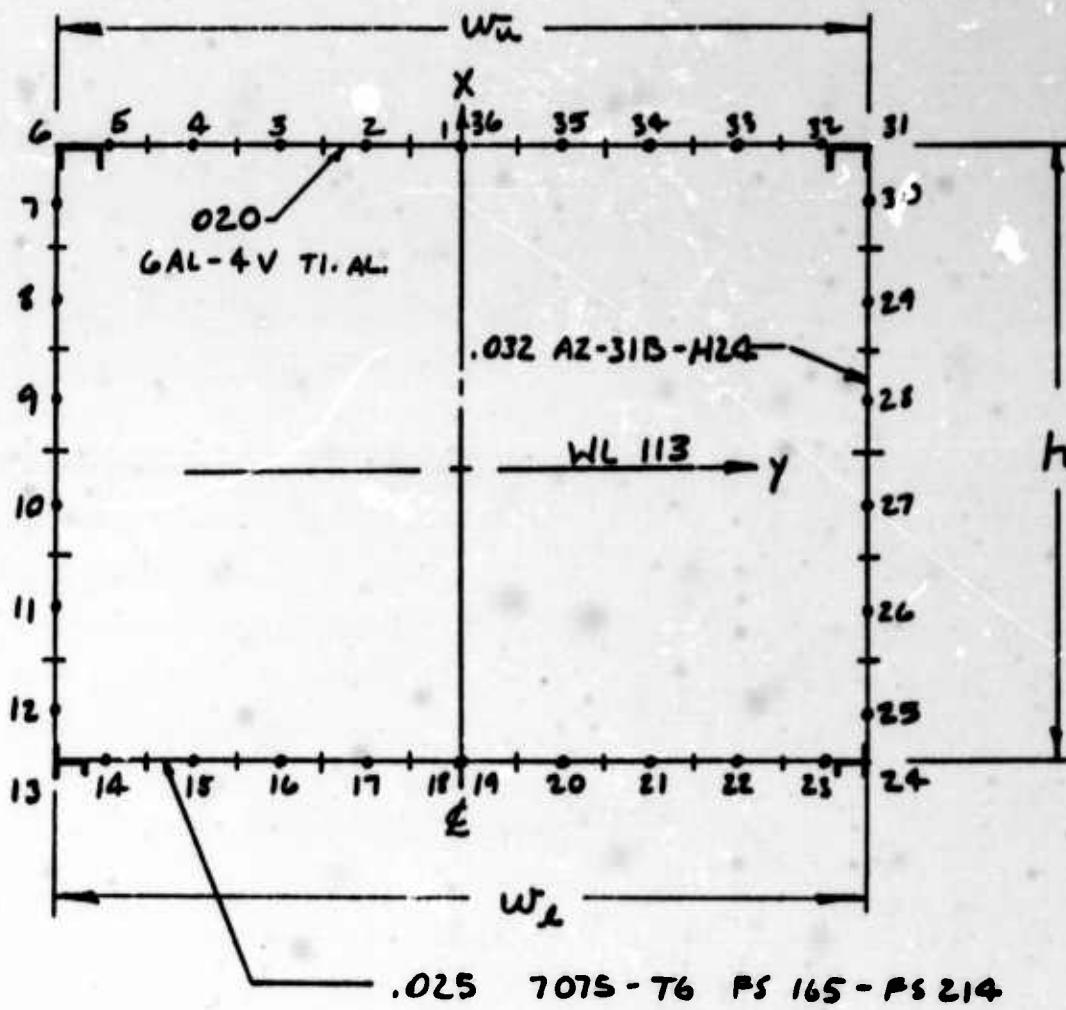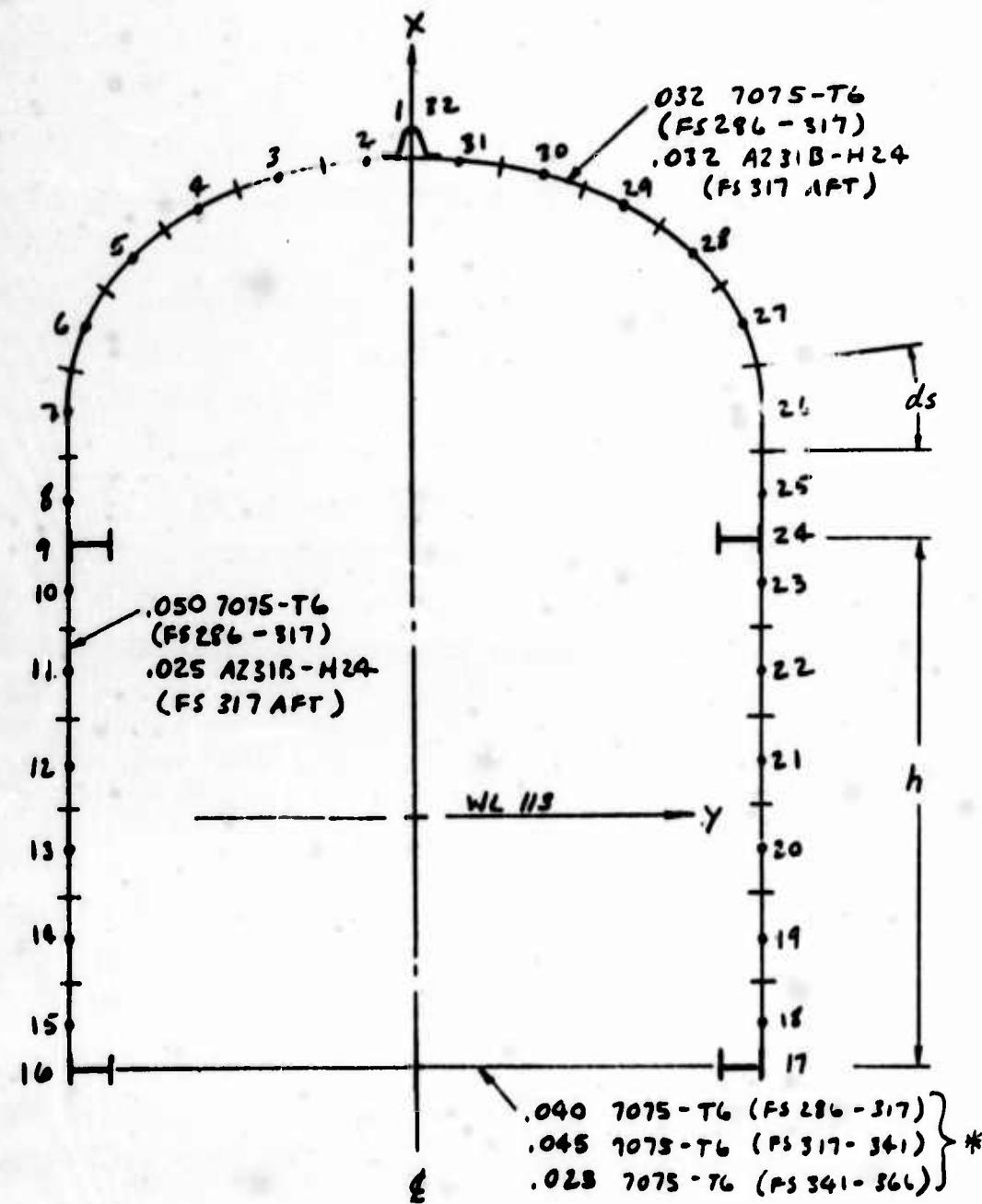
Figure 4
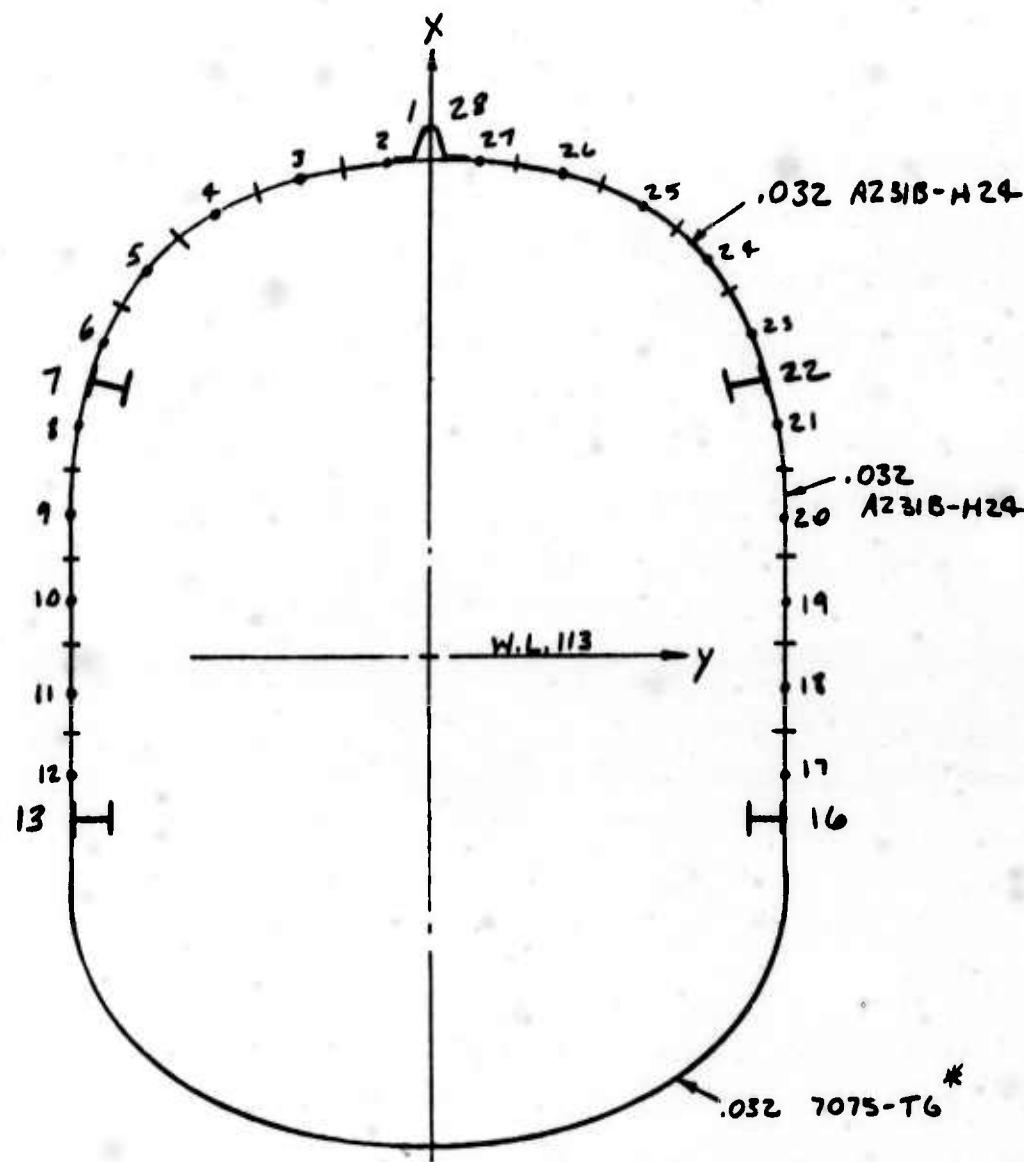
SECTIONS FROM FUSELAGE STATION 286 TO FUSELAGE STATION 366
(FWD)

*Lower shear web is neglected for bending

Figure 5
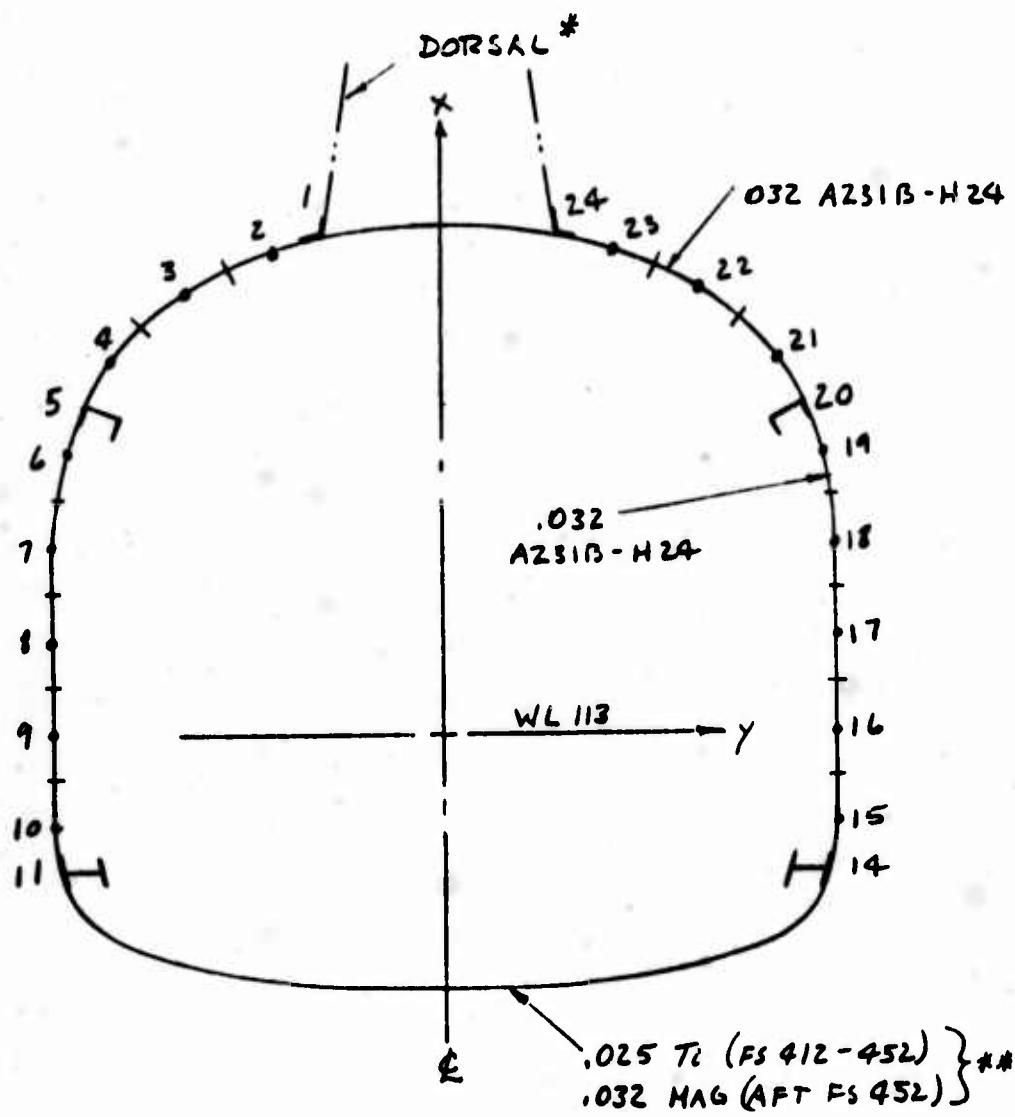
*Lower skin is neglected for bending

Figure 6

SECTIONS AFT FUSELAGE STATION 392.1

*Neglect fuselage skin between dorsal since this portion terminates
 @ vertical stabilizer front spar
**Lower skin is neglected for bending

Figure 7

COMPUTATION OF SKIN EFFECTIVE IN TENSION

F.S. 91   h = 16.67   w = 56.8   x = 91 -35 = 56 (SKIN)

x = 0 (FLOOR)

ELE.	δ	t	d	x/d	E_F	t_e	TRUE AREA	EFF. AREA
	①	②	③	④	⑤	⑥	⑦	⑧
					.333 ④	.63 ②	① x ②	① x ⑤ x ⑥
2 & 25	2.78	.025	1.39	40	1	.0157	.0695	.0436
3 & 24			4.17	13.4	1			
4 & 23			6.95	8.1	1			
5 & 22			6.95	8.1	1			
6 & 21			4.17	13.4	1			
7 & 20	2.78		1.39	40	1		.0695	.0436
9 & 18	6.3		-	0	0		.1575	.099
10 & 17			-					
11 & 16			-					
12 & 15			-					
13 & 14	6.3	.025	-	0	0	.0157	.1575	.099

F.S. 122.5   h = 23.45   w = 59.28   x = 122.5 -35 = 87.5 (SKIN)

x = 122.5 -91 = 31.5 (FLOOR)

ELE.	δ	t	d	x/d	E_F	t_e	TRUE AREA	EFF. AREA
2 & 25	3.91	.025			1	.0157	.0973	.0614
3 & 24					1			
4 & 23					1			
5 & 22					1			
6 & 21					1			
7 & 20	3.91	.025			1		.0978	.0614
9 & 18	6.6	.025	3.3	9.6	1		.165	.109
10 & 17			9.9	3.18	1			.109
11 & 16			16.5	1.91	.64			.0698
12 & 15			23.1	1.36	.45			.0491
13 & 14	6.6	.025	29.64	1.06	.35	.0157	.165	.0382

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COMPUTATION OF SKIN EFFECTIVE IN TENSION

F.S. 150 (FWD) h = 32 w = 58.5 x = 214 - 150 = 64 (SKIN)

x = 150 - 91 = 59 (FLOOR)

ELE.	δ	t	d	x/d	E_F	t_e	TRUE AREA	EFF. AREA
	①	②	③	④	⑤	⑥	⑦	⑧
					.333 ④	.63 ②	① x ②	① x ⑤ x ⑥
2 & 25	5.33	.025	2.67	24	1	.0157	.1332	.0836
3 & 24	↕	↕	8.00	8	1		↕	↕
4 & 23			13.33	4.8	1			
5 & 22			13.33	4.8	1			
6 & 21			8.00	8	1			
7 & 20	5.33		2.67	24	1		.1332	.0836
9 & 18	6.5		3.25	18.1	1		.1625	.102
10 & 17	↕		9.75	6.1	1		↕	.102
11 & 16			16.25	3.6	1			.102
12 & 15			22.75	2.6	.87			.0887
13 & 14	6.5	.025	29.25	2.02	.67	.0157	.1625	.0684

COMPUTATION OF SKIN EFFECTIVE IN TENSION

F.S. 177.2　　h = 33.9　　w_u = 52.6　　x = 214 -177.2 = 36.8 (SKIN & FLOOR)

　　　　　　　　　　　　w_ℓ = 53.2　　x = 177.2 -150 = 27.2 (UPPER WEB)

ELE.	δ	t	d	x/d	E_F	t_e	TRUE AREA	EFF. AREA
	①	②	③	④	⑤	⑥	⑦	⑧
					.333 ④	.63 ② 1.52 ②	① x ②	① x ⑤ x ⑥
5 & 32	5.85	.020	2.93	9.3	1	.038	.117	.222
4 & 33				8.78	3.1	1			.222
3 & 34		Ti.	14.63	1.86	.62			.138
2 & 35			20.48	1.33	.44			.098
1 & 36	5.85	.020	26.3	1.03	.34	.038	.117	.075
7 & 30	5.65	.032	2.83	13	1	.020	.181	.113
8 & 29			8.48	4.34	1			.113
9 & 28		Mag.	14.13	2.6	.87			.090
10 & 27			14.13	2.6	.87			.090
11 & 26			8.48	4.34	1			.113
12 & 25	5.65	.032	2.83	13	1	.020	.181	.113
14 & 23	5.91	.025	2.96	12.5	1	.025	.148	.148
15 & 22			8.87	4.15	1			.148
16 & 21		Al.	14.78	2.49	.83			.123
17 & 20			20.69	1.78	.59			.087
18 & 19	5.91	.025	26.6	1.38	.46	.025	.148	.068

COMPUTATION OF SKIN EFFECTIVE IN TENSION

F.S. 201.9 h = 35.7   w = 48.2   x = 214 − 201.9 = 12.1

ELE.	δ ①	t ②	d ③	x/d ④	E_F ⑤	t_e ⑥	TRUE AREA ⑦	EFF. AREA ⑧
					.333 ④	.63 ② / 1.52 ②	① × ②	① × ⑤ × ⑥
5 & 32	5.36	.020	2.68	4.5	1	.038	.107	.204
4 & 33			8.04	1.51	.50			.102
3 & 34		Ti.	13.4	.9	.3			.061
2 & 35			18.76	.65	.22			.045
1 & 36	5.36	.020	24.1	.50	.17	.038	.107	.035
7 & 30	5.95	.032	2.98	4.06	1	.020	.19	.119
8 & 29			8.93	1.36	.45			.053
9 & 28		Mag.	14.88	.81	.27			.032
10 & 27			14.88	.81	.27			.032
11 & 26			8.93	1.36	.45			.053
12 & 25	5.95	.032	2.98	4.06	1	.020	.19	.119
14 & 23	5.36	.025	2.68	4.5	1	.025	.134	.134
15 & 22			8.04	1.51	.5			.067
16 & 21		Al.	13.4	.9	.3			.04
17 & 20			18.76	.65	.22			.03
18 & 19	5.36	.025	24.1	.50	.17	.025	.134	.023

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COMPUTATION OF SKIN EFFECTIVE IN TENSION

__F.S. 296.5__   h = 35.75   ds = 6   x = 296.5 -286 = 10.5

ELE.	δ ①	t ②	d ③	x/d ④	E_F ⑤	t_e ⑥	TRUE AREA ⑦	EFF. AREA ⑧
					.333④	.63②	①x②	①x⑤x⑥
8 & 25	6	.032	3	3.5	1	.032	.192	.192
7 & 26			9	1.17	.39			.075
6 & 27			15	.7	.23			.044
5 & 28			21	.5	.17			.033
4 & 29			27	.39	.13			.025
3 & 30			33	.32	.11			.021
2 & 31	6	.032	39	.27	.09	.032	.192	.017
Top Ext. Long.			42	.25	.08			
10 & 23	5.96	.050	2.98	3.52	1	.05	.298	.298
11 & 22			8.94	1.18	.39			.116
12 & 21			14.90	.71	.24			.072
13 & 20			14.9	.71	.24			.072
14 & 19			8.94	1.18	.39			.116
15 & 18	5.96	.050	2.98	3.52	1	.05	.298	.298

__F.S. 315.9__   h = 35.49   ds = 5.8   x = 315.9 -286 = 29.9

ELE.	δ ①	t ②	d ③	x/d ④	E_F ⑤	t_e ⑥	TRUE AREA ⑦	EFF. AREA ⑧
8 & 25	5.8	.032	2.9	10.3	1	.02	.185	.116
7 & 26			8.7	3.4	1			.116
6 & 27			14.5	2.06	.68			.079
5 & 28			20.3	1.47	.49			.057
4 & 29			26.1	1.14	.38			.044
3 & 30			31.9	.94	.31			.036
2 & 31	5.8	.032	36.7	.81	.27	.02	.185	.031
Top Ext. Long.			39.6	.755	.25			
10 & 23	5.91	.025	2.96	10.1	1	.0157	.148	.093
11 & 22			8.87	3.37	1			.093
12 & 21			14.78	2.02	.67			.062
13 & 20			14.78	2.02	.67			.062
14 & 19			8.87	3.37	1			.093
15 & 18	5.91	.025	2.96	10.1	1	.0157	.148	.093

COMPUTATION OF SKIN EFFECTIVE IN TENSION
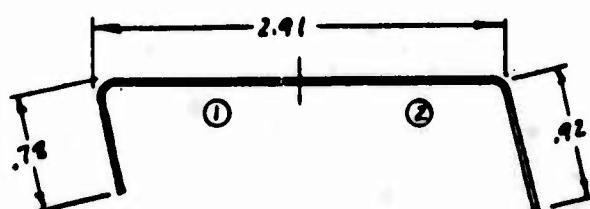
F.S. 341   h = 32.8   ds = 5.2   x = 341 -286 = 55

ELE.	δ	t	d	x/d	E_F	t_e	TRUE AREA	EFF. AREA
	①	②	③	④	⑤	⑥	⑦	⑧
					.333 ④	.63 ②	① x ②	① x ⑤ x ⑥
8 & 25	5.2	.032	2.6	21.2	1	.02	.166	.104
7 & 26	↑	↑	7.8	7.1	1	↑	↑	↕
6 & 27			13.0	4.2	1			
5 & 28			18.2	3.02	1			.104
4 & 29		↓	23.4	2.35	.78			.081
3 & 30	↓		28.6	1.92	.64	↓	↓	.067
2 & 31	5.2	.032	33.8	1.63	.54	.02	.166	.056
Top Ext.			36.4	1.51	.50			
Long.								
10 & 23	5.46	.025	2.73	20.1	1	.0157	.137	.086
11 & 22	↑	↑	8.19	6.7	1	↑	↑	↑
12 & 21			13.65	4.01	1			
13 & 20			13.65	4.01	1			
14 & 19	↓	↓	8.19	6.7	1	↓	↓	↓
15 & 18	5.46	.025	2.73	20.1	1	.0157	.137	.086

F.S. 366   h = 29.68   ds = 4.8   x = 366 -286 = 80

ELE.	δ	t	d	x/d	E_F	t_e	TRUE AREA	EFF. AREA
8 & 25	4.8	.032	2.4	33	1	.02	.154	.096
7 & 26	↑	↑	7.2	11	↑	↑	↑	↑
6 & 27			12.0	6.7				
5 & 28			16.8	4.8	↓			↓
4 & 29			21.6	3.7				
3 & 30	↓	↓	26.4	3.03	1	↓	↓	.096
2 & 31	4.8	.032	31.2	2.56	.85	.02	.154	.081
Top Ext.			33.6	2.38	.79			
Long.								
10 & 23	4.95	.025	-	-	1	.0157	.124	.078
11 & 22	↑	↑	-	-	1	↑	↑	↑
12 & 21			-	-	1			
13 & 20			-	-	1			
14 & 19	↓	↓	-	-	1	↓	↓	↓
15 & 18	4.95	.025	-	-	1	.0157	.124	.078

UPPER LONGERON FUSELAGE STATION 35.2 – FUSELAGE STATION 52.5

$.032 \quad 7075 - T6$

$F_{cy} = 68000 \text{ psi}$

$E = 10.5 \times 10^6 \text{ psi}$

ELE	$\dfrac{a+b}{2t}$	$\dfrac{P_{cc}}{t^2\sqrt{F_{cy}E}}$	$\dfrac{A}{t^2}$
1	34.2	1.63	68
2	36.4	1.66	72
Σ		3.29	140

$A = 140(.032)^2 = .143 \text{ IN}^2$

$\dfrac{F_{cc}}{\sqrt{F_{cy}E}} = \dfrac{3.29}{140} = .0235$

$F_{cc} = .0235\sqrt{F_{cy}E}$

$\qquad = 19900 \text{ psi}$

UPPER LONGERON FUSELAGE STATION 52.5 – FUSELAGE STATION 82.77

Same cross section as shown above.

$t = .063 \qquad\qquad 7075 - T6 \qquad F_{cy} = 68000 \text{ psi}$

ELE	$\dfrac{a+b}{2t}$	$\dfrac{P_{cc}}{t^2\sqrt{F_{cy}E}}$	$\dfrac{A}{t^2}$
1	17.1	1.34	32
2	18.2	1.37	36
Σ		2.71	68
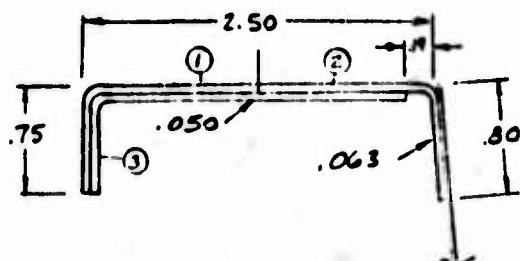
$A = 68(.063)^2 = .27 \text{ IN}^2$

$\dfrac{F_{cc}}{\sqrt{F_{cy}E}} = \dfrac{2.71}{68} = .0398$

$F_{cc} = .0398\sqrt{F_{cy}E}$

$\qquad = 33700 \text{ psi}$

UPPER LONGERON FUSELAGE STATION 91 – FUSELAGE STATION 150.4

MATL   7075 -T6

$F_{cy} = 68000$ psi

ELE	$\dfrac{a+b}{2t}$	$\dfrac{P_{cc}}{t^2\sqrt{F_{cy}E}}$	$\dfrac{A}{t^2}$
1	15.3	1.29	30
2	15.8	1.30	31
Σ		2.59	61
3	28.3	1.43	56

$\dfrac{F_{cc}}{\sqrt{F_{cy}E}} = \dfrac{2.59}{61} = .0425$

$F_{cc} = .0425\sqrt{F_{cy}E}$

$= 36000$ psi (.063 CHANNEL)

.051 ANGLE : $F_{cc}/\sqrt{F_{cy}E} = 1.43/56 = .0256$

$F_{cc} = .0256\sqrt{F_{cy}E} = 21600$ psi

WEIGHTED AVERAGE :
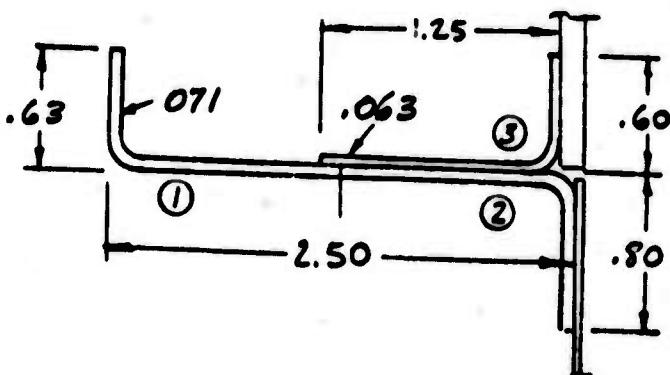
	A		F_{cc}	P_{cc}
1+2	$61(.063)^2 =$	.242	36000	8700
3	$56(.05)^2 =$	.14	21600	3020
		.382		11720

Av. $F_{cc} = 11720/.382 = 30700$ psi

AREA $= .382$ IN^2

NOTE: The windshield retainer strap (.071AZ31B-0, Drawing 143K006-15) is effective with the upper longeron from Fuselage Station 107.5 to Fuselage Station 122.5, where it is spliced to an .080″7075-T6 external strap (Drawing 143F004-563, Sht 4) which terminates at Fuselage Station 150.4. These members are considered effective for local lateral bending of upper longeron, but are conservatively neglected for fuselage bending.

UPPER LONGERON FUSELAGE STATION 150.4 – FUSELAGE STATION 214

MAT'L 7075-T6

$F_{cy} = 68000$ psi

ELE	$\dfrac{a+b}{t}$	$\dfrac{P_{cc}}{t^2 \sqrt{F_{cy} E}}$	$\dfrac{A}{t^2}$
1	12.7	1.22	24
2	13.9	1.26	26
Σ		2.48	50
3	14.2	1.18	28

.071 ZEE $\quad F_{cc}/\sqrt{F_{cy} E} = 2.48/50 = .0495$

$\qquad\qquad F_{cc} = .0495 \sqrt{F_{cy} E} = 42000$ psi

.063 ANGLE $\quad F_{cc}/\sqrt{F_{cy} E} = 1.18/28 = .042$

$\qquad\qquad F_{cc} = .042 \sqrt{F_{cy} E} = 35600$ psi
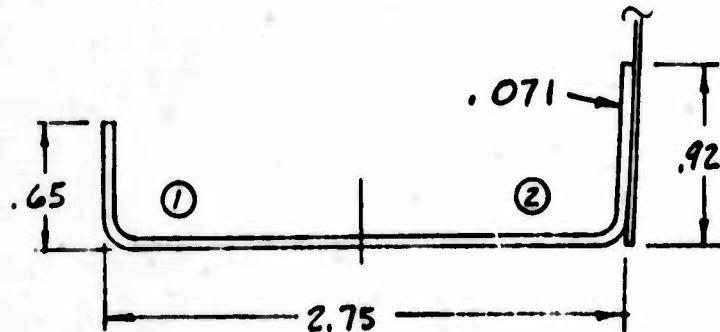
WEIGHTED AVERAGE

	A	F_{cc}	P_{cc}
1+2	$50(.071)^2 = .252$	42000	10600
3	$28(.063)^2 = .111$	35600	3950
	.363		14550

AV. $F_{cc} = 14550/.363 = 40000$ psi

AREA $= .363$ IN.^{2}

LOWER LONGERON FUSELAGE STATION 34.7 TO FUSELAGE STATION 80.5

MAT'L   7075-T6

$F_{cy} = 68000$ psi

ELE	$\dfrac{a+b}{2t}$	$\dfrac{P_{cc}}{t^2\sqrt{F_{cy}E}}$	$\dfrac{A}{t^2}$
1	13.8	1.27	27.5
2	15.7	1.30	30
Σ		2.57	57.5
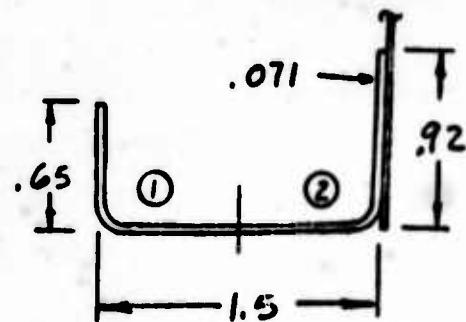
$$\frac{F_{cc}}{\sqrt{F_{cy}E}} = \frac{2.57}{57.5} = .0447$$

$$F_{cc} = .0447\sqrt{F_{cy}E}$$

$$= 37800 \text{ psi}$$

AREA $= 57.5 (.071)^2 = .29$

LOWER LONGERON FUSELAGE STATION 91, FWD

MAT'L   7075-T6

$F_{cy} = 68000$ psi

ELE	$\dfrac{a+b}{2t}$	$\dfrac{P_{cc}}{t^2\sqrt{F_{cy}E}}$	$\dfrac{A}{t^2}$
1	9.4	1.11	18
2	11.3	1.16	21
Σ		2.27	39
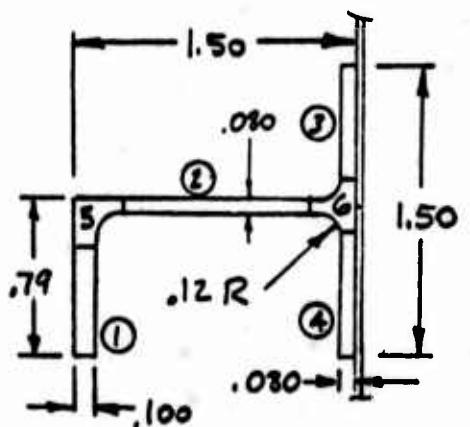
$$\frac{F_{cc}}{\sqrt{F_{cy}E}} = \frac{2.27}{39} = .0581$$

$$F_{cc} = .0581\sqrt{F_{cy}E}$$

$$= 49200 \text{ psi}$$

AREA $= 39(.071)^2 = .197$

30

LOWER LONGERON FUSELAGE STATION 91 TO
FUSELAGE STATION 165

MAT'L 7075 -T6
       EXTRUSION

F_{cy} = 71000 psi

Crippling allowable is found by method given in Lockheed Aircraft
Corporation Stress Memorandum 45e
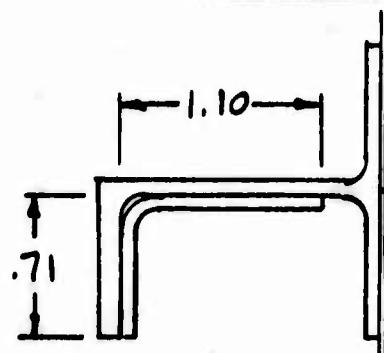
ELE	b	$\frac{b}{t}$ OR $\frac{Re}{t}$	A_n	F_{c_n} *	P_{c_n}
1	.59	5.9	.059	65000	3830
2	1.08	13.5	.0865	71000	6140
3	.59	7.4	.0471	40000	1880
4	.59	7.4	.0471	40000	1880
5		1.83	.0327	83000	2710
6		2.0	.0383	83000	3180
Σ			.3107		19620

* BASED ON PROBABILITY VALUE OF F_{cy} = 75000 psi

F_{cr} = $\frac{19620}{.3107}$ × $\frac{71000}{75000}$ = 59900 psi

AREA = .311 IN²

31

.071 7075-T6 NESTED ANGLE (DWG. 143 F004-416, SHT. 6) ADDED TO BASIC "JAY" SECTION –

NESTED ANGLE:

$$\frac{b'}{t} = \frac{.675 + 1.065}{2 \times .071} = 12.3$$

$$\frac{F_{cc}}{\sqrt{F_{cy} E}} = .047$$

$$F_{cc} = .047\sqrt{68000 \times 10.5 \times 10^6} = 39700 \text{ psi}$$

AREA = .118
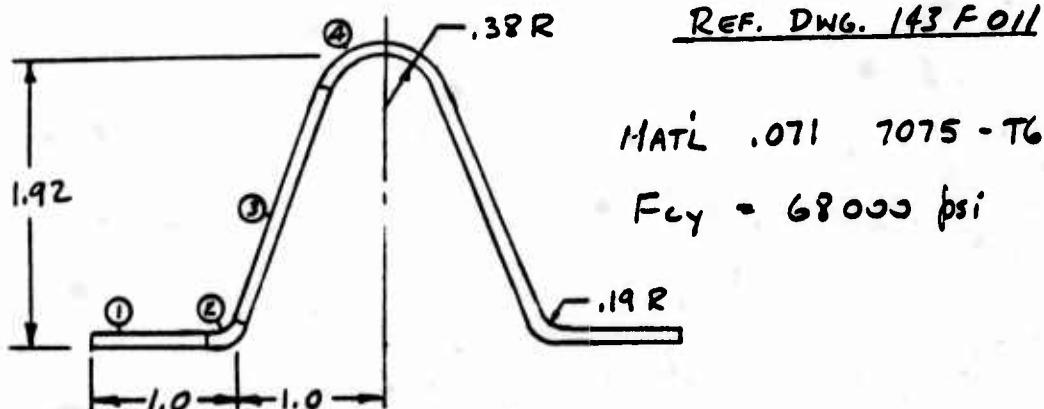
WEIGHTED AVERAGE F_{cr} :

	A	F_{cn}	P_{cn}
ANGLE	.118	39700	4690
"JAY"	.311	59900	18600
	.429		23290

AV. $F_{cr} = \frac{23290}{.429} = 54400 \text{ psi}$

AREA = .429 IN^2

32

TOP EXTERNAL LONGERON FUSELAGE STATION 288 – FUSELAGE STATION 306, 4

REF. DWG. _143 F 011_

MAT'L .071 7075 - T6

F_{cy} = 68000 psi

Crippling allowable is found by method given in Lockheed Aircraft Corporation Stress Memorandum 45e

ELE	b	$\frac{b}{t}$ or $\frac{t}{t}$	A_n	F_{c_n} *	P_{c_n}
1	.74	10.3	.0525	22800	1200
2		3.1	.0205	79000	1620
3	1.6	22.5	.1135	42000	4770
4		5.9	.0378	77000	2910
			.2243		10500

* BASED ON PROBABILITY VALUE OF F_{cy} = 71000 psi

$$F_{cr} = \frac{10500}{.2243} \times \frac{68000}{71000} = 44700 \text{ psi}$$

AREA = 2 × .224 = .448

33

TOP EXTERNAL LONGERON FUSELAGE STATION 306.4 – FUSELAGE STATION 395

Same section as shown on previous page, except t = .080".
Material is 7075-T6.
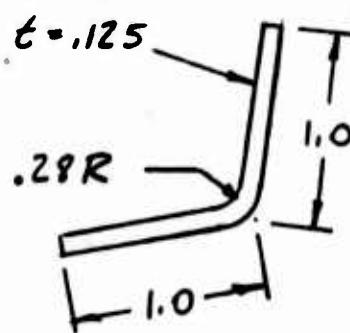
ELE	b	$\frac{b}{t}$ OR $\frac{r}{t}$	A_M	F_{c_n}*	P_{c_n}
1	.73	9.1	.0584	26000	1515
2		2.9	.0236	79000	1865
3	1.5	18.7	.1200	56000	6710
4		5.3	.0429	74200	3180
			.2449		13270

* BASED ON PROBABILITY VALUE OF $F_{cy} = 71000\ psi$

$$F_{cr} = \frac{13270}{.2449} \times \frac{68000}{71000} = 51900\ psi$$

TOP EXTERNAL LONGERON FUSELAGE STATION 395 – FUSELAGE STATION 462.5

Hat section is spliced to two angles which also function as fin drag angles. (Ref. Drawing 143T034)

MATL 7075 - T6
$F_{cy} = 68000\ psi$

AREA = .217 IN^2

$$\frac{b'}{t} = \frac{.937}{.125} = 7.5$$
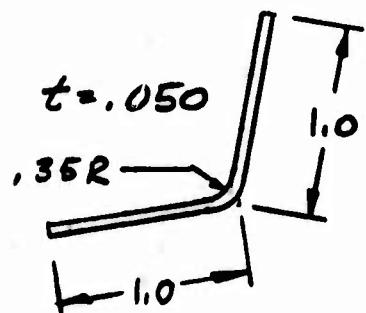
$$F_{cc}/\sqrt{F_{cy} E} = .07$$

$$F_{cc} = .07\sqrt{68000 \times 10.5 \times 10^6}$$

$$= 59000\ psi$$

34

TOP EXTERNAL LONGERON FUSELAGE STATION 462.5 – FUSELAGE STATION 495

Angle tapers linearly from .125" thickness at Fuselage Station 462.5 to .050" thickness at Fuselage Station 495

$t = .050$

$.35R$

1.0

1.0

SECT. @ FS 495

$$\text{MAT'L} \quad 7075 - T6$$
$$F_{cy} = 68000 \text{ psi}$$
$$\text{AREA} = .087$$
$$\frac{b'}{t} = \frac{.975}{.05} = 19.5$$
$$\frac{F_{cc}}{\sqrt{F_{cy} \, e}} = .034$$
$$F_{cc} = .034 \sqrt{68000 \times 10.5 \times 10}$$
$$= 28800 \text{ psi}$$
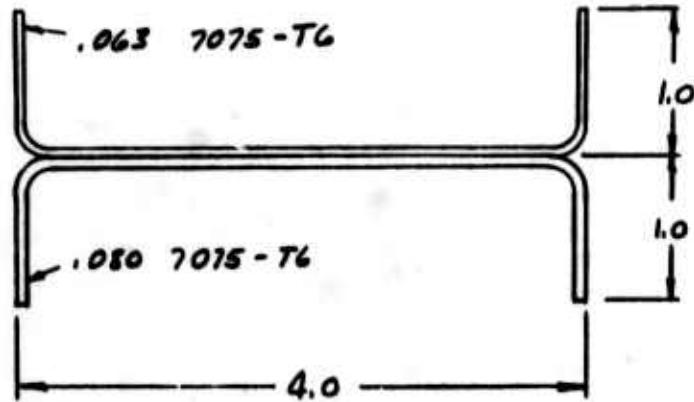
NOTE: F_{cc} at intermediate stations is a function of $1/(b/t).75$

35

.063 CHANNEL :

$A = .362 \ IN^2$

$\dfrac{b'}{t} = \dfrac{.968 + 1.968}{2 \times .063} \approx 23.3$ (ONE EDGE FREE)

$\dfrac{F_{cc}}{\sqrt{F_{cy} E}} = .032$

$F_{cc} = .032 \sqrt{68000 \times 10.5 \times 10^6} = 27000 \ psi$

.080 CHANNEL :

$A = .454 \ IN^2$ $\dfrac{b'}{t} = \dfrac{.96 + 1.96}{2 \times .080} = 18.2$
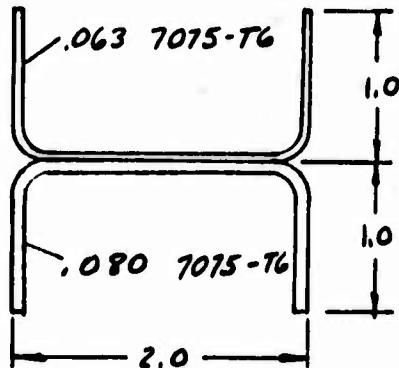
$\dfrac{F_{cc}}{\sqrt{F_{cy} E}} = .038$ $F_{cc} = .038 \sqrt{68000 \times 10.5 \times 10^6} = 32200 \ psi$

$TOTAL \ AREA = .362 + .454 = \underline{.816} \ IN^2$

$Av. \ F_{cc} = \dfrac{.362 \times 27000 + .454 \times 32200}{.816} = \underline{29800 \ psi}$

36

UPPER LONGERON FUSELAGE STATION 314.9 – FUSELAGE STATION 364.5

Longeron tapers linearly from section at Fuselage Station 287 to section at Fuselage Station 314.9 shown below. Section below remains constant to Fuselage Station 364.5

.063 CHANNEL :

$$A = .236 \text{ IN}^2 \qquad b'/t = .968/.063 = 15.4$$

$$F_{cc}/\sqrt{F_{cy}E} = .044 \quad (\text{ONE EDGE FREE})$$

$$F_{cc} = .044\sqrt{68000 \times 10.5 \times 10^6} = 37200 \text{ psi}$$

.080 CHANNEL :

$$A = .294 \text{ IN}^2 \qquad b'/t = .96/.080 = 12$$
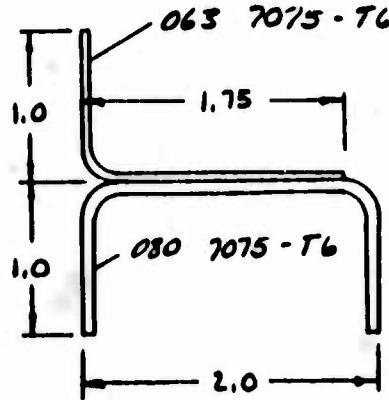
$$F_{cc}/\sqrt{F_{cy}E} = .049$$

$$F_{cc} = .049\sqrt{68000 \times 10.5 \times 10^6} = 41500 \text{ psi}$$

$$\text{TOTAL AREA} = .236 + .294 = \underline{.53 \text{ IN}^2}$$

$$\text{Av. } F_{cc} = \frac{.236 \times 37200 + .294 \times 41500}{.53} = \underline{39600 \text{ psi}}$$

.063 ANGLE :

$A = .165$ IN^2

$b'/t = \dfrac{.963 + 1.718}{2 \times .063} = 21.3$

$\dfrac{F_{cc}}{\sqrt{F_{cy} E}} = .032$ (TWO EDGES FREE)

$F_{cc} = .032 \sqrt{68000 \times 10.5 \times 10^6}$

$= 27000$ psi

TOTAL AREA $= .165 + .294 = \underline{.459}$ IN^2

Av. $F_{cc} = \dfrac{.165 \times 27000 + .294 \times 41500}{.459} = \underline{36300}$ psi

UPPER LONGERON FUSELAGE STATION 389.3

.063 ANGLE IS TAPERED TO 1.12 WIDTH AT
FS 389.3

.063 ANGLE : $A = .126$

$b'/t = \dfrac{.968 + 1.088}{2 \times .063} = 16.3$

$\dfrac{F_{cc}}{\sqrt{F_{cy} E}} = .039$ (TWO EDGES FREE)
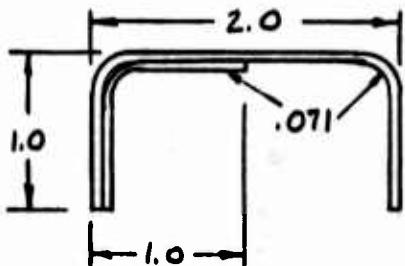
$F_{cc} = .039 \sqrt{68000 \times 10.5 \times 10^6} = 33000$ psi

TOTAL AREA $= .126 + .294 = \underline{.42}$ IN^2

Av. $F_{cc} = \dfrac{.126 \times 33000 + .294 \times 41500}{.42} = \underline{39000}$ psi

38

Fwd. section is spliced to following section at Fuselage Station 395.3:

$$MAT'L \quad 2024 - T4$$

$$F_{cy} = 40000 \ psi$$

CHANNEL: $\qquad A = .264 \qquad \dfrac{b'}{t} = \dfrac{.965}{.071} = 13.6$

$\dfrac{F_{cc}}{\sqrt{F_{cy}E}} = .047 \qquad (ONE \ EDGE \ FREE)$

$F_{cc} = .047 \sqrt{40000 \times 10.7 \times 10^6} = 30800 \ psi$

ANGLE: $\qquad A = .122 \qquad \dfrac{b'}{t} = \dfrac{.895}{.071} = 12.6$

$\dfrac{F_{cc}}{\sqrt{F_{cy}E}} = .046 \qquad (TWO \ FREE \ EDGES)$

$F_{cc} = .046 \sqrt{40000 \times 10.7 \times 10^6} = 30100 \ psi$
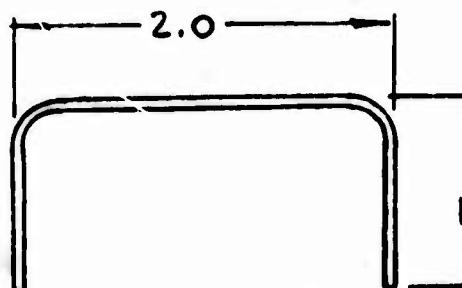
TOTAL AREA $= .264 + .122 = \underline{.386}$

$Av. \ F_{cc} = \dfrac{.264 \times 30800 + .122 \times 30100}{.386}$

$\qquad = \underline{30600 \ psi}$

UPPER LONGERON FUSELAGE STATION 439.4 TO
FUSELAGE STATION 454.7
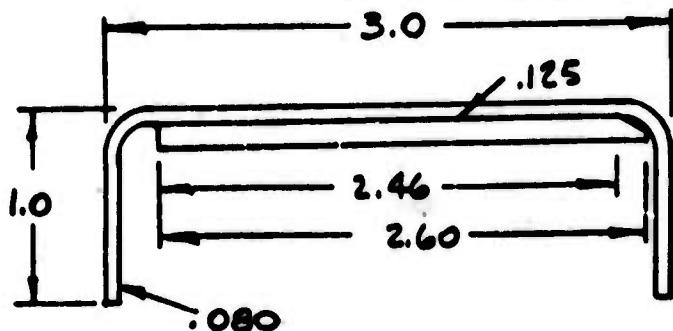
Following section is spliced to top external longeron (drag angles)
between Fuselage Station 454.7 and Fuselage Station 462.5:

.071   2024 - T4

$$AREA = .264 \ IN^2$$
$$F_{cc} = 30800 \ psi$$
} REF P. 39

LOWER LONGERON FUSELAGE STATION 297 -
FUSELAGE STATION 297.5

$$MAT'L \quad 7075 - T6$$

$$F_{cy} = 68000 \, psi$$

NOTE: Above section does not represent true total effective area, since main landing gear attachment fitting (Ref. Drawing 143 F020) is partially effective with lower longeron. Detail analysis of this region is shown in Volume III.

$$AREA = .693 \, IN^2$$
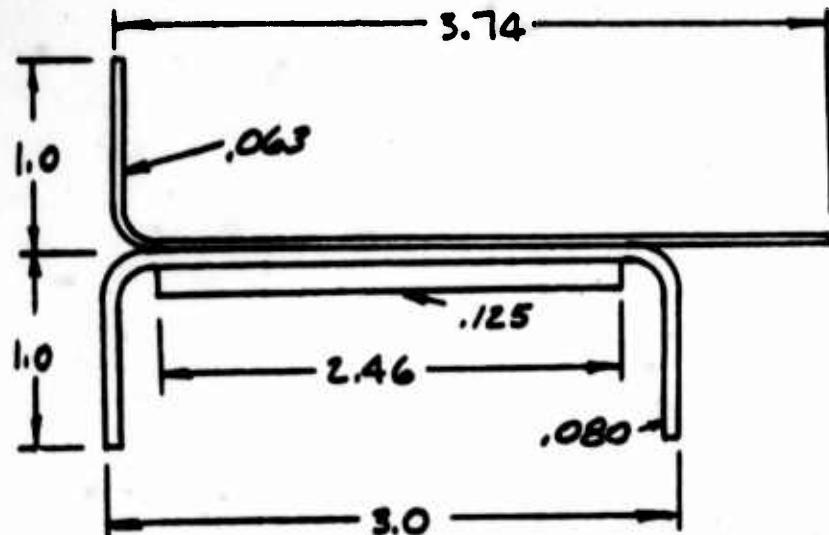
$$\frac{b'}{t} = \frac{.96 + 1.46}{2 \times .080} = 15.1$$

$$\frac{F_{cc}}{\sqrt{F_{cy} E}} = .044 \quad (ONE \ EDGE \ FREE)$$

$$F_{cc} = .044 \sqrt{68000 \times 10.5 \times 10^6}$$

$$= 37200 \, psi$$

LOWER LONGERON FUSELAGE STATION 303

.063 ANGLE :   AREA = .291 IN²

$$\frac{b'}{t} = \frac{.968 + 3.708}{2 \times .063} = 37.1$$

$$\frac{F_{cc}}{\sqrt{F_{cy} E}} = .022 \quad (\text{TWO EDGES FREE})$$

$$F_{cc} = .022 \sqrt{68000 \times 10.5 \times 10^6} = 18600 \text{ psi}$$

.080 CHANNEL :

AREA = .374

$F_{cc} = 37200$ psi   } REF P. 41

TOTAL AREA = .291 + .374 + 2.46 × .125 = <u>.973 IN²</u>

$$\text{AV. } F_{cc} = \frac{.291 \times 18600 + .374 \times 37200}{.291 + .374}$$

$$= \underline{29000 \text{ psi}}$$

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LOWER LONGERON FUSELAGE STATION 317.2 (FWD)

Section is same as Fuselage Station 303 except strap thickness is tapered to .020.

AREA $=$ .291 + .374 + 2.46 x .02 = .714 IN^4

AV. F_{cc} = 29000 psi

LOWER LONGERON FUSELAGE STATION 317.2
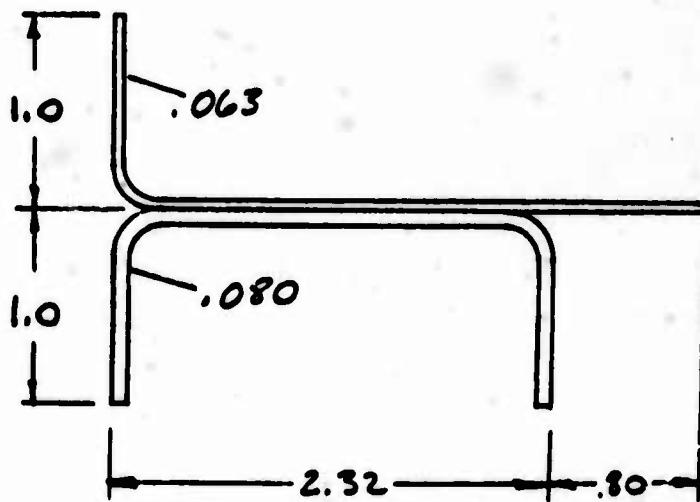
Same section as Fuselage Station 303 except strap ends at this station and angle is 3.8" wide.

AREA $=$ .295 + .374 = .669

AV. F_{cc} = 29000 psi

LOWER LONGERON FUSELAGE STATION 358 (FWD)

Longeron tapers uniformly from section at Fuselage Station 317.2 to following section:

LOWER LONGERON FUSELAGE STATION 358 (FWD)

.063 ANGLE: AREA = .252 IN^2

$$\frac{b'}{t} = \frac{.968 + 3.087}{2 \times .063} = 32.2$$

$$\frac{F_{cc}}{\sqrt{F_{cy} E}} = .023 \quad (TWO \ EDGES \ FREE)$$

$$F_{cc} = .023 \sqrt{68000 \times 10.5 \times 10^6} = 19400 \ psi$$

.080 CHANNEL: AREA = .32 IN^2

$$\frac{b'}{t} = \frac{.96 + 1.12}{2 \times .08} = 13$$

$$\frac{F_{cc}}{\sqrt{F_{cy} E}} = .05 \quad (ONE \ EDGE \ FREE)$$

$$F_{cc} = .05 \sqrt{68000 \times 10.5 \times 10^6} = 42300 \ psi$$

TOTAL AREA = .252 + .32 = $\underline{.572 \ IN^2}$

$$Av. \ F_{cc} = \frac{.252 \times 19400 + .32 \times 42300}{.572}$$

$$= \underline{\underline{32100 \ psi}}$$

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LOWER LONGERON FUSELAGE STATION 358 (AFT)

Section on AFT side of Fuselage Station 358 is same as that shown FWD except .30" overhang of .063" angle is dropped.

$$\underline{.063 \ \text{ANGLE}} : \qquad \text{AREA} = .201 \ \text{IN}^2$$

$$\frac{b'}{t} = \frac{.968 + 2.288}{2 \times .063} = 25.8$$

$$\frac{F_{cc}}{\sqrt{F_{cy} E}} = .0275 \ (\text{TWO EDGES FREE})$$
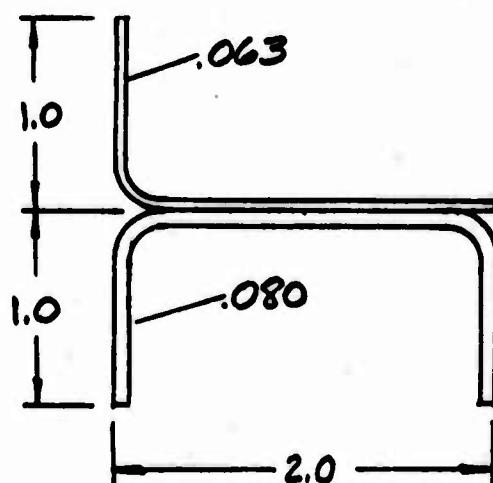
$$F_{cc} = .0275 \sqrt{68000 \times 10.5 \times 10^6} = 23200 \ psi$$

$$\text{TOTAL AREA} = .201 + .32 = \underline{.521 \ \text{IN}^2}$$

$$\text{Av.} \ F_{cc} = \frac{.201 \times 23200 + .32 \times 42300}{.521}$$

$$= \underline{34800 \ psi}$$

LOWER LONGERON FUSELAGE STATION 377.3 TO FUSELAGE STATION 391.8

Above section tapers uniformly to following section at Fuselage Station 377.3:

LOWER LONGERON FUSELAGE STATION 377.3 TO FUSELAGE STATION 391.8

.063 ANGLE :

$$AREA = .181 \text{ IN}^2$$

$$\frac{b'}{t} = \frac{.968 + 1.968}{2 \times .063} = 23.2$$

$$\frac{F_{cc}}{\sqrt{F_{cy}E}} = .032 \quad (\text{TWO EDGES FREE})$$

$$F_{cc} = .032\sqrt{68000 \times 10.5 \times 10^6} = 27100 \text{ psi}$$

.080 CHANNEL :

$$AREA = .294 \text{ IN}^2$$

$$\frac{b'}{t} = \frac{.96}{.080} = 12$$
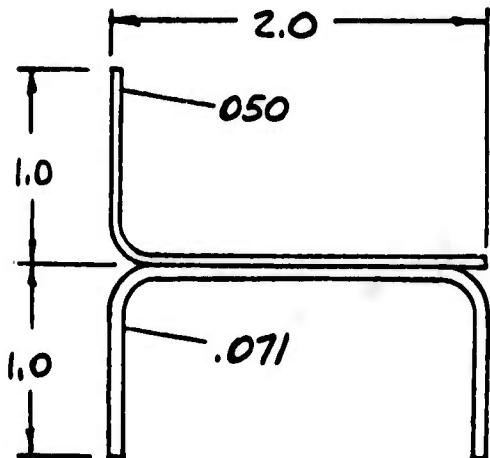
$$\frac{F_{cc}}{\sqrt{F_{cy}E}} = .049 \quad (\text{ONE EDGE FREE})$$

$$F_{cc} = .049\sqrt{68000 \times 10.5 \times 10^6} = 41500 \text{ psi}$$

$$TOTAL\ AREA = .181 + .294 = \underline{.475\ \text{IN}^2}$$

$$AV.\ F_{cc} = \frac{.181 \times 27100 + .294 \times 41500}{.475}$$

$$= \underline{36000\ \text{psi}}$$

LOWER LONGERON FUSELAGE STATION 391.8 TO FUSELAGE STATION 425.4

MAT'L 7075-T6

$F_{cy} = 68000$ psi

.050 ANGLE :

AREA = .145 $\dfrac{b'}{t} = \dfrac{.975 + 1.975}{2 \times .05} = 29.5$

$\dfrac{F_{cc}}{\sqrt{F_{cy}E}} = .025$ (TWO EDGES FREE)

$F_{cc} = .025 \sqrt{68000 \times 10.5 \times 10^6} = 21100$ psi

.071 CHANNEL :

AREA = .264 $\dfrac{b'}{t} = \dfrac{.965}{.071} = 13.6$

$\dfrac{F_{cc}}{\sqrt{F_{cy}E}} = .047$ (ONE EDGE FREE)

$F_{cc} = .047 \sqrt{68000 \times 10.5 \times 10^6} = 39700$ psi

TOTAL AREA $= .145 + .264 = \underline{.409}$ IN^2

Av. $F_{cc} = \dfrac{.145 \times 21100 + .264 \times 39700}{.409}$

$= \underline{33200}$ psi

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LOWER LONGERON FUSELAGE STATION 434.5 TO FUSELAGE STATION 443.6

$$\text{TOTAL AREA} = .085 + .264 = \underline{.349 \text{ IN}^2}$$

$$\text{AV. } F_{cc} = \frac{.085 \times 31300 + .264 \times 30800}{.349}$$

$$= \underline{30900 \text{ psi}}$$

.050 ANGLE TAPERED TO .80 WIDTH
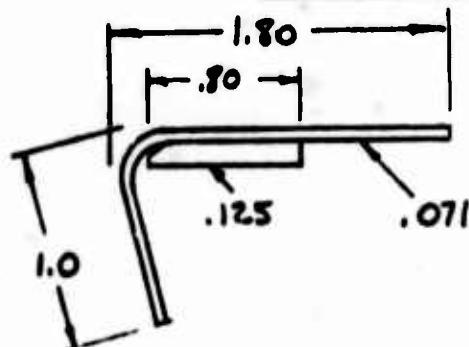
.050 ANGLE :

$$\text{AREA} = .085 \text{ IN}^2 \qquad \frac{b'}{t} = \frac{.975 + .775}{2 \times .05} = 17.5$$

$$\frac{F_{cc}}{\sqrt{F_{cy}E}} = .037 \qquad \text{(TWO EDGES FREE)}$$

$$F_{cc} = .037 \sqrt{68000 \times 10.5 \times 10^6} = 31300 \text{ psi}$$

LOWER LONGERON FUSELAGE STATION 452.7

MAT'L 7075 - T6

071 ANGLE :
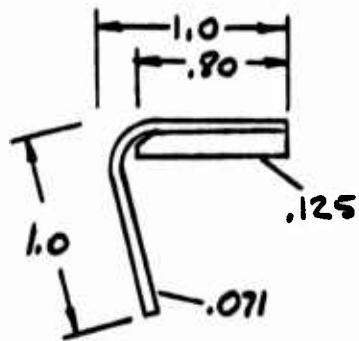
$$\text{AREA} = .189 \text{ IN}^2 \qquad \frac{b'}{t} = \frac{.965 + 1.765}{2 \times .071} = 19.2$$

$$\frac{F_{cc}}{\sqrt{F_{cy}E}} = .034 \qquad \text{(TWO EDGES FREE)}$$

$$F_{cc} = .034 \sqrt{68000 \times 10.5 \times 10^6} = \underline{28300 \text{ psi}}$$

$$\text{TOTAL AREA} = .189 + .8 \times .125 - .001 = \underline{.288 \text{ IN}^2}$$

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LOWER LONGERON FUSELAGE STATION 460.7 TO
FUSELAGE STATION 485

$$AREA = .132 + .8 \times .125 - .001 = \underline{.231 \ IN^2}$$

$$\frac{b'}{t} = \frac{.965}{.071} = 13.6$$

$$\frac{F_{cc}}{\sqrt{F_{cy} E}} = .045$$

$$F_{cc} = .045 \sqrt{68000 \times 10.5 \times 10^6} = \underline{38100 \ psi}$$

SECTION INPUT DATA

WIDTH TOL.	R(STG)	R(PLATE)	W/T	G/1E6
0.050	1.000	1.000	10.00	3.900

C	XO/C	R(WEB)	2A(TE)	DS(TE)
16.67	1.1520	1.000	0.	0.

T(TE)	2A(LE)	DS(LE)	T(LE)
0.	0.	0.	0.

FP(MAX)	FP(MIN)	FS(MIN)	QP(MAX)
45000.	-30000.	-60000.	250.

WEB	XW(U)	YW(U)	XW(L)	YW(L)	TW
1	-2.60	28.00	-2.60	-28.00	0.0157
2	-19.40	28.40	-19.40	-28.40	0.0157

MODEL XV-5A
FUSELAGE
STATION   91.00

SECTION INPUT DATA

ITEM	X(S)	Y(S)	A(S)	IXOS	IYOS	IXYOS	X(P)	Y(P)	T(P)	E/1E6
1	-2.60	26.75	0.38	0.	0.	0.	-2.60	28.00	0.016	10.50
2	-3.90	28.06	0.	0.	0.	0.	-3.90	28.06	0.016	0.
3	-6.77	28.12	0.	0.	0.	0.	-6.77	28.12	0.016	0.
4	-9.55	28.18	0.	0.	0.	0.	-9.55	28.18	0.016	0.
5	-12.33	28.24	0.	0.	0.	0.	-12.33	28.24	0.016	0.
6	-15.11	28.30	0.	0.	0.	0.	-15.11	28.30	0.016	0.
7	-17.89	28.36	0.	0.	0.	0.	-17.89	28.36	0.016	0.
8	-19.40	27.65	0.20	0.	0.	0.	-19.40	28.40	0.016	10.50
9	-19.40	-27.65	0.20	0.	0.	0.	-19.40	-28.40	0.016	10.50
10	-17.89	-28.36	0.	0.	0.	0.	-17.89	-28.36	0.016	0.
11	-15.11	-28.30	0.	0.	0.	0.	-15.11	-28.30	0.016	0.
12	-12.33	-28.24	0.	0.	0.	0.	-12.33	-28.24	0.016	0.
13	-9.55	-28.18	0.	0.	0.	0.	-9.55	-28.18	0.016	0.
14	-6.77	-28.12	0.	0.	0.	0.	-6.77	-28.12	0.016	0.
15	-3.90	-28.06	0.	0.	0.	0.	-3.90	-28.06	0.016	0.
16	-2.60	-26.75	0.38	0.	0.	0.	-2.60	-28.00	0.016	10.50

CONDITION F-8P

SX	SY	MXX	MYY	T
0.	-9825.	0.	-245900.	0.

	NO. IT.	QXP(N)	QYP(N)	
	2	-0.	0.00001	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
9.91483E 02	7.60426E 01	3.42910E-07	-7.99180E 00	-1.66828E-08

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
9.91418E 02	7.60325E 01	3.42925E-07	-7.99113E 00	-1.66838E-08

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.81727E-01	5.27681E-01	3.45664E 00	1.89576E 03

	THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
	-0.	-4.12455E-12	0.

	S.C.(X)	S.C.(X/C)	S.C.(Y)
	-0.	1.15200E 00	0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-0.0000
CELL	1	-0.0000
WEB	2	0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   91.00

CONDITION F-8P

ITEM	WP(EFF)	F(P)	F(S)	OP(NET)
WEB 1				-0.0000
1	0.6507	17435.68	17435.68	-272.8070 **
2	2.0860	13231.29	13231.29	-288.4612 **
3	2.8256	3949.30	3949.30	-295.5903 **
4	0.	-5041.62	-5041.62	-295.5903 **
5	0.	-14032.54	-14032.54	-295.5903 **
6	0.	-23023.46	-23023.46	-295.5903 **
7	0.	-32014.38 **	-32014.38	-295.5903 **
8	0.2251	-36897.94 **	-36897.94	0.0000
WEB 2				0.0000
9	0.2251	-36897.94 **	-36897.94	295.5903 *
10	0.	-32014.38 **	-32014.38	295.5903 *
11	0.	-23023.46	-23023.46	295.5903 *
12	0.	-14032.54	-14032.54	295.5903 *
13	0.	-5041.62	-5041.62	295.5903 *
14	2.8256	3949.30	3949.30	288.4612 *
15	2.0860	13231.29	13231.29	272.8070 *
16	0.6507	17435.68	17435.68	0.0000
WEB 1				0.0000

* VALUE IS GREATER THAN MAXIMUM
** VALUE IS LESS   THAN MINIMUM

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   91.00

CONDITION   ROLL-5

SX	SY	MXX	MYY	T
-1254.	-5357.	-47800.	-116500.	-21100.

	NO. IT.	QXP(N)	QYP(N)	
	2	-0.00000	0.00001	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
9.94119E 02	7.64466E 01	-1.48023E-01	-8.01890E 00	9.97453E-03

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
9.94049E 02	7.64360E 01	-1.28452E-01	-8.01818E 00	8.65352E-03

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.84991E-01	5.27681E-01	3.45664E 00	1.89576E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
1.08200E-05	3.90182E-08	-1.40386E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
-1.29685E 01	3.74045E-01	-1.09472E-02

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	10.0058
CELL	1	10.0058
WEB	2	-13.0428

JOB NO. 1012

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   91.00

22 AUG 63

CONDITION   ROLL-5

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				10.0058
1	0.6507	9610.08	9549.73	-152.0456
2	2.0860	7631.47	7631.47	-161.7660
3	2.8256	3259.82	3259.82	-167.3013
4	0.	-974.64	-974.64	-167.3013
5	0.	-5209.11	-5209.11	-167.3013
6	0.	-9443.58	-9443.58	-167.3013
7	0.	-13678.05	-13678.05	-167.3013
8	0.3421	-15977.71	-16013.92	-13.0428
WEB 2				-13.0428
9	0.3161	-18720.19	-18683.98	155.1130
10	0.	-16416.67	-16416.67	155.1130
11	0.	-12176.40	-12176.40	155.1130
12	0.	-7936.14	-7936.14	155.1130
13	0.	-3695.88	-3695.88	155.1130
14	2.8256	544.38	544.38	152.7476
15	2.0860	4921.83	4921.83	145.3634
16	0.6507	6906.23	6966.58	10.0058
WEB 1				0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   91.00

CONDITION AF-6

SX	SY	MXX	MYY	T
-1528.	-9356.	-58400.	-212100.	-24900.

	NO. IT.	QXP(N)	QYP(N)	
	2	-0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
9.91934E 02	7.61124E 01	-7.41404E-02	-7.99647E 00	4.95724E-03

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
9.91866E 02	7.61018E 01	-6.38390E-02	-7.99576E 00	4.26744E-03

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.82282E-01	5.27681E-01	3.45664E 00	1.89576E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
1.31988E-05	3.40942E-08	-1.65669E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
-1.29829E 01	3.73184E-01	-5.47708E-03

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	12.6212
CELL	1	12.6212
WEB	2	-15.4637

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   91.00

22 AUG 63

CONDITION AF-6

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				12.6212
1	0.6507	16691.93	16618.10	-263.4160 **
2	2.0860	13072.23	13072.23	-279.7515 **
3	2.8256	5076.78	5076.78	-288.4907 **
4	0.	-2667.83	-2667.83	-288.4907 **
5	0.	-10412.44	-10412.44	-288.4907 **
6	0.	-18157.05	-18157.05	-288.4907 **
7	0.	-25901.66	-25901.66	-288.4907 **
8	0.2492	-30107.83 **	-30152.12	-15.4637
WEB 2				-15.4637
9	0.2364	-33462.34 **	-33418.05	274.4910 *
10	0.	-29251.45	-29251.45	274.4910 *
11	0.	-21499.75	-21499.75	274.4910 *
12	0.	-13748.06	-13748.06	274.4910 *
13	0.	-5996.36	-5996.36	274.4910 *
14	2.8256	1755.34	1755.34	269.6149 *
15	2.0860	9757.88	9757.88	256.1266 *
16	0.6507	13384.66	13458.48	12.6212
WEB 1				0.0000

* VALUE IS GREATER THAN MAXIMUM
** VALUE IS LESS   THAN MINIMUM

CONDITION LG-1

SX	SY	MXX	MYY	T
-1136.	-9347.	-43100.	-211700.	-18700.

	NO. IT.	QXP(N)	QYP(N)	
	2	-0.00000	0.00002	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
9.91936E 02	7.61127E 01	-5.48140E-02	-7.99649E 00	3.66504E-03

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
9.91868E 02	7.61023E 01	-4.72110E-02	-7.99579E 00	3.15593E-03

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.82286E-01	5.27681E-01	3.45664E 00	1.89576E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
9.81271E-06	2.51860E-08	-1.24418E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
-1.29828E 01	3.73185E-01	-4.04991E-03

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	9.2839
CELL	1	9.2839
WEB	2	-11.5960

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   91.00

CONDITION LG-1

ITEM	WP(EFF)	F(P)	F(S)	OP(NET)
WEB 1				9.2839
1	0.6507	16230.32	16175.84	-262.3299 **
2	2.0860	12616.58	12616.58	-278.2859 **
3	2.8256	4635.40	4635.40	-286.5232 **
4	0.	-3095.42	-3095.42	-286.5232 **
5	0.	-10826.24	-10826.24	-286.5232 **
6	0.	-18557.05	-18557.05	-286.5232 **
7	0.	-26287.87	-26287.87	-286.5232 **
8	0.2477	-30486.66 **	-30519.35	-11.5960
WEB 2				-11.5960
9	0.2382	-32962.33 **	-32929.64	275.9172 *
10	0.	-28760.05	-28760.05	275.9172 *
11	0.	-21024.01	-21024.01	275.9172 *
12	0.	-13287.96	-13287.96	275.9172 *
13	0.	-5551.91	-5551.91	275.9172 *
14	2.8256	2184.14	2184.14	270.5519 *
15	2.0860	10170.55	10170.55	256.7126 *
16	0.6507	13789.52	13844.00	9.2839
WEB 1				0.0000

* VALUE IS GREATER THAN MAXIMUM
** VALUE IS LESS   THAN MINIMUM

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   91.00

CONDITION LG-3

SX	SY	MXX	MYY	T
-1810.	-7910.	-68300.	-201100.	-30600.

	NO. IT.	QXP(N)	QYP(N)	
	2	-0.00000	0.00002	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
9.92107E 02	7.61390E 01	-9.39597E-02	-7.99824E 00	6.28626E-03

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
9.92036E 02	7.61282E 01	-8.09345E-02	-7.99752E 00	5.41351E-03

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.82494E-01	5.27681E-01	3.45664E 00	1.89576E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
1.56334E-05	3.65216E-08	-2.03593E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
-1.29817E 01	3.73252E-01	-6.93956E-03

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	14.3600
CELL	1	14.3600
WEB	2	-18.9073

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   91.00

CONDITION LG-3

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				14.3600
1	0.6507	16191.88	16105.55	-224.5139
2	2.0860	12761.86	12761.86	-238.8079
3	2.8256	5184.40	5184.40	-246.8560
4	0.	-2155.30	-2155.30	-246.8560
5	0.	-9495.00	-9495.00	-246.8560
6	0.	-16834.70	-16834.70	-246.8560
7	0.	-24174.40	-24174.40	-246.8560
8	0.2577	-28160.56	-28212.36	-18.9073
WEB 2				-18.9073
9	0.2414	-32083.38 **	-32031.59	229.1221
10	0.	-28091.70	-28091.70	229.1221
11	0.	-20743.71	-20743.71	229.1221
12	0.	-13395.72	-13395.72	229.1221
13	0.	-6047.73	-6047.73	229.1221
14	2.8256	1300.26	1300.26	225.6471
15	2.0860	8886.00	8886.00	214.7235
16	0.6507	12324.31	12410.64	14.3600
WEB 1				0.0000

** VALUE IS LESS   THAN MINIMUM

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   122.49

SECTION INPUT DATA

WIDTH TOL.	R(STG)	R(PLATE)	W/T	G/1E6
0.050	1.000	1.000	10.00	3.900

	C	X0/C	R(WEB)	2A(TE)	DS(TE)
	23.45	0.9340	1.000	0.	0.

T(TE)	2A(LE)	DS(LE)	T(LE)
0.	0.	0.	0.

FP(MAX)	FP(MIN)	FS(MIN)	QP(MAX)
45000.	-30000.	-60000.	250.

WEB	XW(U)	YW(U)	XW(L)	YW(L)	TW
1	1.49	29.64	1.49	-29.64	0.0157
2	-21.96	0.	-21.96	0.	0.0157

MODEL XV-5A
FUSELAGE
STATION   122.49

SECTION INPUT DATA

ITEM	X(S)	Y(S)	A(S)	IXOS	IYOS	IXYOS	X(P)	Y(P)	T(P)	E/1E6
1	1.49	28.39	0.38	0.	0.	0.	1.49	29.64	0.016	10.50
2	-0.47	29.64	0.	0.	0.	0.	-0.47	29.64	0.016	0.
3	-4.38	29.64	0.	0.	0.	0.	-4.38	29.64	0.016	0.
4	-8.29	29.64	0.	0.	0.	0.	-8.29	29.64	0.016	0.
5	-12.20	29.64	0.	0.	0.	0.	-12.20	29.64	0.016	0.
6	-16.11	29.64	0.	0.	0.	0.	-16.11	29.64	0.016	0.
7	-20.02	29.64	0.	0.	0.	0.	-20.02	29.64	0.016	0.
8	-21.96	28.89	0.31	0.	0.	0.	-21.96	29.64	0.016	10.50
9	-21.96	26.34	0.	0.	0.	0.	-21.96	26.34	0.016	0.
10	-21.96	19.74	0.	0.	0.	0.	-21.96	19.74	0.016	0.
11	-21.96	13.14	0.	0.	0.	0.	-21.96	13.14	0.010	0.
12	-21.96	6.54	0.	0.	0.	0.	-21.96	6.54	0.007	0.
13	-21.96	0.	0.	0.	0.	0.	-21.96	0.	0.005	0.
14	-21.96	-0.	0.	0.	0.	0.	-21.96	-0.	0.005	0.
15	-21.96	-6.54	0.	0.	0.	0.	-21.96	-6.54	0.007	0.
16	-21.96	-13.14	0.	0.	0.	0.	-21.96	-13.14	0.010	0.
17	-21.96	-19.74	0.	0.	0.	0.	-21.96	-19.74	0.016	0.
18	-21.96	-26.34	0.	0.	0.	0.	-21.96	-26.34	0.016	0.
19	-21.96	-28.89	0.31	0.	0.	0.	-21.96	-29.64	0.016	10.50
20	-20.02	-29.64	0.	0.	0.	0.	-20.02	-29.64	0.016	0.
21	-16.11	-29.64	0.	0.	0.	0.	-16.11	-29.64	0.016	0.
22	-12.20	-29.64	0.	0.	0.	0.	-12.20	-29.64	0.016	0.
23	-8.29	-29.64	0.	0.	0.	0.	-8.29	-29.64	0.016	0.
24	-4.38	-29.64	0.	0.	0.	0.	-4.38	-29.64	0.016	0.
25	-0.47	-29.64	0.	0.	0.	0.	-0.47	-29.64	0.016	0.
26	1.49	-28.39	0.38	0.	0.	0.	1.49	-29.64	0.016	10.50

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   122.49

CONDITION F-8P

SX	SY	MXX	MYY	T
0.	-8247.	0.	-590700.	0.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.	-0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.36265E 03	2.01514E 02	-1.40829E-06	-8.15253E 00	-7.47225E-08

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.36264E 03	2.01512E 02	-1.40827E-06	-8.15243E 00	-7.47230E-08

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
2.59203E-01	1.41207E 00	3.72877E 00	2.78023E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
0.	-2.06911E-14	0.

S.C.(X)	S.C.(X/C)	S.C.(Y)
0.	9.34000E-01	0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-0.0000
CELL	1	-0.0000
WEB	2	-0.0000

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CONDITION F-8P

ITEM	WP(EFF)	F(P)		F(S)	QP(NET)
WEB 1					-0.0000
1	0.9800	28265.24		28265.24	-156.5089
2	2.9350	22519.82		22519.82	-170.0773
3	3.9100	11058.28		11058.28	-179.5548
4	0.	-403.26		-403.26	-179.5548
5	0.	-11864.80		-11864.80	-179.5548
6	0.	-23326.34		-23326.34	-179.5548
7	0.	-34787.88	**	-34787.88	-179.5548
8	0.4299	-40474.68	**	-40474.68	-0.0000
9	0.	-40474.68	**	-40474.68	-0.0000
10	0.	-40474.68	**	-40474.68	-0.0000
11	0.	-40474.68	**	-40474.68	-0.0000
12	0.	-40474.68	**	-40474.68	-0.0000
13	0.	-40474.68	**	-40474.68	-0.0000
WEB 2					-0.0000
14	0.	-40474.68	**	-40474.68	-0.0000
15	0.	-40474.68	**	-40474.68	-0.0000
16	0.	-40474.68	**	-40474.68	-0.0000
17	0.	-40474.68	**	-40474.68	-0.0000
18	0.	-40474.68	**	-40474.68	-0.0000
19	0.4299	-40474.68	**	-40474.68	179.5548
20	0.	-34787.88	**	-34787.88	179.5548
21	0.	-23326.34		-23326.34	179.5548
22	0.	-11864.80		-11864.80	179.5548
23	0.	-403.26		-403.26	179.5548
24	3.9100	11058.28		11058.28	170.0773
25	2.9350	22519.82		22519.82	156.5089
26	0.9800	28265.24		28265.24	-0.0000
WEB 1					-0.0000

** VALUE IS LESS   THAN MINIMUM

MODEL XV-5A
FUSELAGE
STATION   122.49

CONDITION   ROLL-5

SX	SY	MXX	MYY	T
-1997.	-4499.	-99200.	-306400.	-29500.

	NO. IT.	QXP(N)	QYP(N)	
	2	-0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.41957E 03	2.02675E 02	-6.43751E-01	-8.20339E 00	1.08325E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.41929E 03	2.02611E 02	-5.48930E-01	-8.20066E 00	1.07923E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
3.25958E-01	1.41207E 00	3.72877E 00	2.78023E 03

	THETA X	THETA Y	THETA T	
	(RADIANS)	(RADIANS)	(RADIANS)	
	6.34821E-06	2.73146E-08	-1.24000E-05	

	S.C.(X)	S.C.(X/C)	S.C.(Y)	
	-7.56262E 00	6.11500E-01	-1.44437E-02	

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	15.8112
CELL	1	15.8112
WEB	2	-18.8457

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   122.49

CONDITION   ROLL-5

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				15.8112
1	0.9800	16669.57	16581.47	-84.9376
2	2.9350	13705.17	13705.17	-94.2131
3	3.9100	7791.49	7791.49	-101.9039
4	3.9100	1877.81	1877.81	-104.2641
5	0.	-4035.87	-4035.87	-104.2641
6	0.	-9949.55	-9949.55	-104.2641
7	0.	-15863.23	-15863.23	-104.2641
8	0.6310	-18797.38	-18850.24	-18.8457
9	0.	-19029.96	-19029.96	-18.8457
10	0.	-19495.12	-19495.12	-18.8457
11	0.	-19960.29	-19960.29	-18.8457
12	0.	-20425.45	-20425.45	-18.8457
13	0.	-20886.38	-20886.38	-18.8457
WEB 2				-18.8457
14	0.	-20886.38	-20886.38	-18.8457
15	0.	-21347.31	-21347.31	-18.8457
16	0.	-21812.47	-21812.47	-18.8457
17	0.	-22277.64	-22277.64	-18.8457
18	0.	-22742.80	-22742.80	-18.8457
19	0.5707	-22975.38	-22922.52	92.5117
20	0.	-20041.23	-20041.23	92.5117
21	0.	-14127.55	-14127.55	92.5117
22	0.	-8213.87	-8213.87	92.5117
23	0.	-2300.19	-2300.19	92.5117
24	3.9100	3613.49	3613.49	89.9724
25	2.9350	9527.17	9527.17	84.5638
26	0.9800	12491.57	12579.67	15.8112
WEB 1				0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   122.49

CONDITION AF-6

SX	SY	MXX	MYY	T
-2436.	-7775.	121100.	-541900.	-34400.

	NO. IT.	QXP(N)	QYP(N)	
	2	0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.41538E 03	2.01763E 02	4.79844E-01	-8.16465E 00	-1.07629E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.41514E 03	2.01709E 02	4.31597E-01	-8.16236E 00	-1.07425E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)	
3.21207E-01	1.41207E 00	3.72877E 00	2.78023E 03	

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
7.76622E-06	-2.52148E-08	-1.44597E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
-7.58457E 00	6.10564E-01	7.71532E-03

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	19.7932
CELL	1	19.7932
WEB	2	-22.4705

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   122.49

22 AUG 63

CONDITION AF-6

ITEM	WP(EFF)	F(P)		F(S)	QP(NET)
WEB 1					19.7932
1	0.9800	23279.79		23387.78	-147.8028
2	2.9350	18013.80		18013.80	-163.0183
3	3.9100	7508.67		7508.67	-175.1907
4	0.	-2996.45		-2996.45	-175.1907
5	0.	-13501.57		-13501.57	-175.1907
6	0.	-24006.70		-24006.70	-175.1907
7	0.	-34511.82	**	-34511.82	-175.1907
8	0.4340	-39724.08	**	-39659.29	-22.4705
9	0.	-39438.98	**	-39438.98	-22.4705
10	0.	-38868.78	**	-38868.78	-22.4705
11	0.	-38298.58	**	-38298.58	-22.4705
12	0.	-37728.38	**	-37728.38	-22.4705
13	0.	-37163.36	**	-37163.36	-22.4705
WEB 2					-22.4705
14	0.	-37163.36	**	-37163.36	-22.4705
15	0.	-36598.35	**	-36598.35	-22.4705
16	0.	-36028.15	**	-36028.15	-22.4705
17	0.	-35457.95	**	-35457.95	-22.4705
18	0.	-34887.74	**	-34887.74	-22.4705
19	0.4651	-34602.64	**	-34667.44	161.9447
20	0.	-29390.38		-29390.38	161.9447
21	0.	-18885.26		-18885.26	161.9447
22	0.	-8380.14		-8380.14	161.9447
23	3.9100	2124.99		2124.99	165.2446
24	3.9100	12630.11		12630.11	159.2935
25	2.9350	23135.23		23135.23	148.7481
26	0.9800	28401.23		28293.24	19.7932
WEB 1					0.0000

** VALUE IS LESS   THAN MINIMUM

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   122.49

22 AUG 63

CONDITION LG-3

SX	SY	MXX	MYY	T
-2904.	-7319.	-142900.	-484300.	-43500.

	NO. IT.	QXP(N)	QYP(N)	
	2	-0.00000	0.00001	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.41612E 03	2.01927E 02	-5.68054E-01	-8.17162E 00	1.08004E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.41586E 03	2.01868E 02	-4.98567E-01	-8.16914E 00	1.07709E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)	
3.22046E-01	1.41207E 00	3.72877E 00	2.78023E 03	

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
9.25353E-06	3.26882E-08	-1.82848E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
-7.58071E 00	6.10729E-01	-1.06252E-02

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	22.8020
CELL	1	22.8020
WEB	2	-27.5990

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 122.49

22 AUG 63

CONDITION LG-3

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				22.8020
1	0.9800	26082.48	25955.27	-138.5505
2	2.9350	21379.78	21379.78	-153.3168
3	3.9100	11998.36	11998.36	-165.3700
4	3.9100	2616.94	2616.94	-168.7197
5	0.	-6764.47	-6764.47	-168.7197
6	0.	-16145.89	-16145.89	-168.7197
7	0.	-25527.31	-25527.31	-168.7197
8	0.4980	-30182.02 **	-30258.35	-27.5990
9	0.	-30517.87 **	-30517.87	-27.5990
10	0.	-31189.57 **	-31189.57	-27.5990
11	0.	-31861.27 **	-31861.27	-27.5990
12	0.	-32532.97 **	-32532.97	-27.5990
13	0.	-33198.56 **	-33198.56	-27.5990
WEB 2				-27.5990
14	0.	-33198.56 **	-33198.56	-27.5990
15	0.	-33864.16 **	-33864.16	-27.5990
16	0.	-34535.85 **	-34535.85	-27.5990
17	0.	-35207.55 **	-35207.55	-27.5990
18	0.	-35879.25 **	-35879.25	-27.5990
19	0.4545	-36215.10 **	-36138.77	151.1799
20	0.	-31560.38 **	-31560.38	151.1799
21	0.	-22178.97	-22178.97	151.1799
22	0.	-12797.55	-12797.55	151.1799
23	0.	-3416.14	-3416.14	151.1799
24	3.9100	5965.28	5965.28	146.6369
25	2.9350	15346.70	15346.70	137.5081
26	0.9800	20049.40	20176.62	22.8020
WEB 1				0.0000

** VALUE IS LESS   THAN MINIMUM

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   122.49

CONDITION L-4

SX	SY	MXX	MYY	T
0.	11373.	0.	324200.	0.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.	-0.00002	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.61402E 03	2.73495E 02	-1.55030E-06	-1.37253E 01	-9.56660E-08

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.61399E 03	2.73487E 02	-2.65607E-06	-1.37255E 01	-9.96870E-08

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
9.30931E-01	1.41207E 00	3.72877E 00	2.78023E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
0.	5.46736E-12	0.

S.C.(X)	S.C.(X/C)	S.C.(Y)
0.	9.34000E-01	0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	0.0000
CELL	1	0.0000
WEB	2	0.0000

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BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   122.49

CONDITION L-4

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				0.0000
1	0.3220	-18036.92	-18036.92	244.8710
2	0.	-15713.48	-15713.48	244.8710
3	0.	-11078.45	-11078.45	244.8710
4	0.	-6443.42	-6443.42	244.8710
5	0.	-1808.40	-1808.40	244.8710
6	3.9100	2826.63	2826.63	238.7840
7	2.9250	7461.66	7461.66	227.7040
8	2.6200	9761.40	9761.40	106.8274
9	4.9500	9761.40	9761.40	80.2153
10	6.6000	9761.40	9761.40	44.7325
11	6.6000	9761.40	9761.40	22.1320
12	6.5700	9761.40	9761.40	6.1586
13	3.2700	9761.40	9761.40	0.0000
WEB 2				0.0000
14	3.2700	9761.40	9761.40	-6.1586
15	6.5700	9761.40	9761.40	-22.1320
16	6.6000	9761.40	9761.40	-44.7325
17	6.6000	9761.40	9761.40	-80.2153
18	4.9500	9761.40	9761.40	-106.8274
19	2.6200	9761.40	9761.40	-227.7040
20	2.9250	7461.66	7461.66	-238.7840
21	3.9100	2826.63	2826.63	-244.8710
22	0.	-1808.40	-1808.40	-244.8710
23	0.	-6443.42	-6443.42	-244.8710
24	0.	-11078.45	-11078.45	-244.8710
25	0.	-15713.48	-15713.48	-244.8710
26	0.3220	-18036.92	-18036.92	-0.0000
WEB 1				-0.0000

NET STRESSES - INCLUDING AXIAL LOAD (REF. P. 211)

UPPER LONGERON: -18037 + 15000 = -3037 psi

LOWER LONGERON: + 9761 + 1250 = 11011 psi

MODEL XV-5A
FUSELAGE
STATION   150.00

SECTION INPUT DATA

WIDTH TOL.	R(STG)	R(PLATE)	W/T	G/1E6
0.050	1.000	1.000	10.00	3.900

C	XO/C	R(WEB)	2A(TE)	DS(TE)
32.00	0.7200	1.000	0.	0.

T(TE)	2A(LE)	DS(LE)	T(LE)
0.	0.	0.	0.

FP(MAX)	FP(MIN)	FS(MIN)	QP(MAX)
45000.	-30000.	-60000.	250.

WEB	XW(U)	YW(U)	XW(L)	YW(L)	TW
1	9.00	29.00	9.00	-29.00	0.0157
2	-23.00	0.	-23.00	0.	0.0157

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   150.00

22 AUG 63

SECTION INPUT DATA

ITEM	X(S)	Y(S)	A(S)	IXOS	IYOS	IXYOS	X(P)	Y(P)	T(P)	E/1E6
1	9.00	27.75	0.36	0.	0.	0.	9.00	29.00	0.016	10.50
2	6.33	29.02	0.	0.	0.	0.	6.33	29.02	0.016	0.
3	1.00	29.06	0.	0.	0.	0.	1.00	29.06	0.016	0.
4	-4.33	29.10	0.	0.	0.	0.	-4.33	29.10	0.016	0.
5	-9.66	29.14	0.	0.	0.	0.	-9.66	29.14	0.016	0.
6	-15.00	29.18	0.	0.	0.	0.	-15.00	29.18	0.016	0.
7	-20.33	29.22	0.	0.	0.	0.	-20.33	29.22	0.016	0.
8	-23.00	28.50	0.31	0.	0.	0.	-23.00	29.25	0.016	10.50
9	-23.00	26.00	0.	0.	0.	0.	-23.00	26.00	0.016	0.
10	-23.00	19.50	0.	0.	0.	0.	-23.00	19.50	0.016	0.
11	-23.00	13.00	0.	0.	0.	0.	-23.00	13.00	0.016	0.
12	-23.00	6.50	0.	0.	0.	0.	-23.00	6.50	0.014	0.
13	-23.00	0.	0.	0.	0.	0.	-23.00	0.	0.010	0.
14	-23.00	-0.	0.	0.	0.	0.	-23.00	-0.	0.010	0.
15	-23.00	-6.50	0.	0.	0.	0.	-23.00	-6.50	0.014	0.
16	-23.00	-13.00	0.	0.	0.	0.	-23.00	-13.00	0.016	0.
17	-23.00	-19.50	0.	0.	0.	0.	-23.00	-19.50	0.016	0.
18	-23.00	-26.00	0.	0.	0.	0.	-23.00	-26.00	0.016	0.
19	-23.00	-28.50	0.31	0.	0.	0.	-23.00	-29.25	0.016	10.50
20	-20.33	-29.22	0.	0.	0.	0.	-20.33	-29.22	0.016	0.
21	-15.00	-29.18	0.	0.	0.	0.	-15.00	-29.18	0.016	0.
22	-9.66	-29.14	0.	0.	0.	0.	-9.66	-29.14	0.016	0.
23	-4.33	-29.10	0.	0.	0.	0.	-4.33	-29.10	0.016	0.
24	1.00	-29.06	0.	0.	0.	0.	1.00	-29.06	0.016	0.
25	6.33	-29.02	0.	0.	0.	0.	6.33	-29.02	0.016	0.
26	9.00	-27.75	0.36	0.	0.	0.	9.00	-29.00	0.016	10.50

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   150.00

CONDITION F-8P

SX	SY	MXX	MYY	T
0.	-5940.	0.	-766000.	0.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.35853E 03	3.75085E 02	-1.11025E-06	-4.04412E 00	-1.00997E-07

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.35851E 03	3.75078E 02	-1.11021E-06	-4.04389E 00	-1.00998E-07

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
3.48693E-01	1.86218E 00	4.12078E 00	3.72741E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
0.	-9.59136E-14	0.

S.C.(X)	S.C.(X/C)	S.C.(Y)
0.	7.20000E-01	0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-0.0000
CELL	1	-0.0000
WEB	2	0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   150.00

CONDITION F-8P

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-0.0000
1	1.3350	26638.78	26638.78	-79.0939
2	4.0001	21185.99	21185.99	-88.7501
3	5.3302	10300.85	10300.85	-95.4346
4	0.	-584.30	-584.30	-95.4346
5	0.	-11469.45	-11469.45	-95.4346
6	0.	-22375.02	-22375.02	-95.4346
7	0.	-33260.16 **	-33260.16	-95.4346
8	0.4396	-38712.95 **	-38712.95	0.0000
9	0.	-38712.95 **	-38712.95	0.0000
10	0.	-38712.95 **	-38712.95	0.0000
11	0.	-38712.95 **	-38712.95	0.0000
12	0.	-38712.95 **	-38712.95	0.0000
13	0.	-38712.95 **	-38712.95	0.0000
WEB 2				0.0000
14	0.	-38712.95 **	-38712.95	0.0000
15	0.	-38712.95 **	-38712.95	0.0000
16	0.	-38712.95 **	-38712.95	0.0000
17	0.	-38712.95 **	-38712.95	0.0000
18	0.	-38712.95 **	-38712.95	0.0000
19	0.4396	-38712.95 **	-38712.95	95.4346
20	0.	-33260.16 **	-33260.16	95.4346
21	0.	-22375.02	-22375.02	95.4346
22	0.	-11469.45	-11469.45	95.4346
23	0.	-584.30	-584.30	95.4346
24	5.3302	10300.84	10300.84	88.7501
25	4.0001	21185.99	21185.99	79.0939
26	1.3350	26638.78	26638.78	-0.0000
WEB 1				0.0000

** VALUE IS LESS   THAN MINIMUM

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 150.00

CONDITION ROLL-5

SX	SY	MXX	MYY	T
-2229.	-4385.	-158600.	-413900.	-20700.

	NO. IT.	QXP(N)	QYP(N)	
	3	0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.43036E 03	3.77133E 02	-1.36040E 00	-4.11220E 00	1.38840E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.43035E 03	3.77130E 02	-1.35803E 00	-4.11210E 00	1.38833E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
4.37538E-01	1.86218E 00	4.12078E 00	3.72741E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
3.50037E-06	1.28813E-08	-4.51059E-06

S.C.(X)	S.C.(X/C)	S.C.(Y)
-7.20677E 00	4.94788E-01	-1.34811E-02

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	20.2448
CELL	1	20.2448
WEB	2	-19.0890

MODEL XV-5A

FUSELAGE

STATION   150.00

CONDITION   ROLL-5

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				20.2448
1	1.3350	17486.23	17346.33	-54.0853
2	4.0001	14557.07	14557.07	-63.9520
3	5.3302	8709.72	8709.72	-72.5628
4	5.3302	2862.37	2862.37	-75.9901
5	0.	-2984.97	-2984.97	-75.9901
6	0.	-8843.30	-8843.30	-75.9901
7	0.	-14690.65	-14690.65	-75.9901
8	0.6516	-17618.69	-17702.64	-19.0890
9	0.	-17982.45	-17982.45	-19.0890
10	0.	-18709.95	-18709.95	-19.0890
11	0.	-19437.46	-19437.46	-19.0890
12	0.	-20164.97	-20164.97	-19.0890
13	0.	-20892.47	-20892.47	-19.0890
WEB 2				-19.0890
14	0.	-20892.47	-20892.47	-19.0890
15	0.	-21619.98	-21619.98	-19.0890
16	0.	-22347.49	-22347.49	-19.0890
17	0.	-23074.99	-23074.99	-19.0890
18	0.	-23802.50	-23802.50	-19.0890
19	0.5563	-24166.25	-24082.31	66.1717
20	0.	-21231.49	-21231.49	66.1717
21	0.	-15375.19	-15375.19	66.1717
22	0.	-9507.91	-9507.91	66.1717
23	0.	-3651.61	-3651.61	66.1717
24	5.3302	2204.69	2204.69	65.1941
25	4.0001	8060.99	8060.99	61.0488
26	1.3350	10994.63	11134.54	20.2448
WEB 1				0.0000

CONDITION AF-6

SX	SY	MXX	MYY	T
-2654.	-6762.	-192300.	-717800.	-20300.

	NO. IT.	QXP(N)	QYP(N)	
	2	-0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.42679E 03	3.75631E 02	-1.25040E 00	-4.06768E 00	1.38514E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.42641E 03	3.75463E 02	-1.08844E 00	-4.06267E 00	1.38034E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)	
4.32877E-01	1.86218E 00	4.12078E 00	3.72741E 03	

	THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)	
	4.17738E-06	1.09721E-08	-4.42343E-06	

	S.C.(X)	S.C.(X/C)	S.C.(Y)	
	-7.22338E 00	4.94269E-01	-7.44650E-03	

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	25.2933
CELL	1	25.2933
WEB	2	-21.5445

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   150.00

CONDITION AF-6

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				
1	1.3350	28741.86	28571.52	25.2933
2	4.0001	23639.09	23639.09	-83.8378
3	5.3302	13452.67	13452.67	-98.0977
4	5.3302	3266.26	13452.67	-110.0717
5	0.	-6920.16	3266.26	-114.0165
6	0.	-17125.70	-6920.16	-114.0165
7	0.	-27312.12	-17125.70	-114.0165
8	0.4806	-32413.52 **	-27312.12	-114.0165
9	0.	-32856.41 **	-32515.73	-21.5445
10	0.	-33742.18 **	-32856.41	-21.5445
11	0.	-34627.96 **	-33742.18	-21.5445
12	0.	-35513.73 **	-34627.96	-21.5445
13	0.	-36399.50 **	-35513.73	-21.5445
			-36399.50	-21.5445
WEB 2				
14	0.	-36399.50 **	-36399.50	-21.5445
15	0.	-37285.27 **	-37285.27	-21.5445
16	0.	-38171.05 **	-38171.05	-21.5445
17	0.	-39056.82 **	-39056.82	-21.5445
18	0.	-39942.59 **	-39942.59	-21.5445
19	0.4305	-40385.48 **	-39942.59	-21.5445
20	0.	-35275.90 **	-40283.27	104.6680
21	0.	-25078.58	-35275.90	104.6680
22	0.	-14862.14	-25078.58	104.6680
23	0.	-4664.82	-14862.14	104.6680
24	5.3302	5532.50	-4664.82	104.6680
25	4.0001	15729.82	5532.50	101.8103
26	1.3350	20838.04	15729.82	94.3836
WEB 1			21008.38	25.2933
				0.0000

** VALUE IS LESS   THAN MINIMUM

JOB NO. 1012   BOX BEAM ANALYSIS   22 AUG 63
                                  MODEL XV-5A
                                   FUSELAGE
                               STATION   150.00

                               CONDITION LG-3

        SX   SY   MXX   MYY   T
      -3594.   -7369.   -234300.   -668400.   -35000.

                       NO. IT.   QXP(N)   QYP(N)
                         3   0.00000   0.00000

     IX(NA)   IY(NA)   IXY(NA)   XBAR   YBAR
  1.42687E 03   3.75664E 02   -1.23038E 00   -4.06864E 00   1.38454E 00

    IX(NA)F   IY(NA)F   IXY(NA)F   XBARF   YBARF
  1.42687E 03   3.75662E 02   -1.22903E 00   -4.06858E 00   1.38450E 00

    AP(EFF)   AP(FULL)   A(TRUE)   2A(CELLS)
  4.33433E-01   1.86218E 00   4.12078E 00   3.72741E 03

                    THETA X   THETA Y   THETA T
                   (RADIANS)   (RADIANS)   (RADIANS)
                  5.65542E-06   1.59025E-08   -7.62660E-06

                    S.C.(X)   S.C.(X/C)   S.C.(Y)
                  -7.22143E 00   4.94330E-01   -9.90359E-03

        NET WEB AND INTERNAL CELL SHEAR FLOWS

                    WEB   1   32.2344
                    CELL   1   32.2344
                    WEB   2   -31.1906

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   150.00

CONDITION LG-3

ITEM	WP(EFF)	F(P)		F(S)	QP(NET)
WEB 1					32.2344
1	1.3350	27836.45		27629.28	-91.6987
2	4.0001	23087.69		23087.69	-108.0965
3	5.3302	13607.97		13607.97	-122.2929
4	5.3302	4128.25		4128.25	-127.7447
5	0.	-5351.47		-5351.47	-127.7447
6	0.	-14848.98		-14848.98	-127.7447
7	0.	-24328.70		-24328.70	-127.7447
8	0.5072	-29075.80		-29200.11	-31.1906
9	0.	-29614.46		-29614.46	-31.1906
10	0.	-30691.76	**	-30691.76	-31.1906
11	0.	-31769.06	**	-31769.06	-31.1906
12	0.	-32846.37	**	-32846.37	-31.1906
13	0.	-33923.67	**	-33923.67	-31.1906
WEB 2					-31.1906
14	0.	-33923.67	**	-33923.67	-31.1906
15	0.	-35000.97	**	-35000.97	-31.1906
16	0.	-36078.27	**	-36078.27	-31.1906
17	0.	-37155.58	**	-37155.58	-31.1906
18	0.	-38232.88	**	-38232.88	-31.1906
19	0.4392	-38771.53	**	-38647.23	111.0158
20	0.	-34014.49	**	-34014.49	111.0158
21	0.	-24521.51		-24521.51	111.0158
22	0.	-15010.73		-15010.73	111.0158
23	0.	-5517.75		-5517.75	111.0158
24	5.3302	3975.22		3975.22	109.1523
25	4.0001	13468.20		13468.20	101.9988
26	1.3350	18223.59		18430.76	32.2344
WEB 1					0.0000

** VALUE IS LESS   THAN MINIMUM

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   150.00

CONDITION L-16

SX	SY	MXX	MYY	T
0.	-9886.	0.	-400700.	0.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.	0.00001	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.36312E 03	3.77008E 02	-1.12049E-06	-4.10388E 00	-1.00679E-07

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.36310E 03	3.76998E 02	-8.82019E-07	-4.10359E 00	-1.00680E-07

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
3.54053E-01	1.86218E 00	4.12078E 00	3.72741E 03

	THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
	0.	-1.39423E-12	0.

	S.C.(X)	S.C.(X/C)	S.C.(Y)
	0.	7.20000E-01	0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-0.0000
CELL	1	-0.0000
WEB	2	0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 150.00

CONDITION L-16

ITEM		WP(EFF)	F(P)	F(S)	OP(NET)
WEB	1				-0.0000
	1	1.3350	13927.41	13927.41	-131.5674
	2	4.0001	11089.54	11089.54	-147.6547
	3	5.3302	5424.45	5424.45	-158.8542
	4	0.	-240.64	-240.64	-158.8542
	5	0.	-5905.74	-5905.74	-158.8542
	6	0.	-11581.46	-11581.46	-158.8542
	7	0.	-17246.56	-17246.56	-158.8542
	8	0.6103	-20084.42	-20084.42	0.0000
	9	0.	-20084.42	-20084.42	0.0000
	10	0.	-20084.42	-20084.42	0.0000
	11	0.	-20084.42	-20084.42	0.0000
	12	0.	-20084.42	-20084.42	0.0000
	13	0.	-20084.42	-20084.42	0.0000
WEB	2				0.0000
	14	0.	-20084.42	-20084.42	0.0000
	15	0.	-20084.42	-20084.42	0.0000
	16	0.	-20084.42	-20064.42	0.0000
	17	0.	-20084.42	-20084.42	0.0000
	18	0.	-20084.42	-20084.42	0.0000
	19	0.6103	-20084.42	-20084.42	158.8542
	20	0.	-17246.56	-17246.56	158.8542
	21	0.	-11581.46	-11581.46	158.8542
	22	0.	-5905.74	-5905.74	158.8542
	23	0.	-240.64	-240.64	158.8542
	24	5.3302	5424.45	5424.45	147.6547
	25	4.0001	11089.54	11089.54	131.5674
	26	1.3350	13927.41	13927.41	0.0000
WEB	1				0.0000

NET STRESSES - INCLUDING AXIAL LOAD (REF. P. 211)

UPPER LONGERON: 13927 -3900 = 10027 psi

LOWER LONGERON: -20084 -1700 = -21854 psi

SECTION INPUT DATA

WIDTH TOL.	R(STG)	R(PLATE)	W/T	G/1E6
0.050	1.000	1.000	10.00	3.900

C	XO/C	R(WEB)	2A(TE)	DS(TE)
33.90	0.6110	1.000	0.	0.

T(TE)	2A(LE)	DS(LE)	T(LE)
0.	0.	0.	0.

FP(MAX)	FP(MIN)	FS(MIN)	QP(MAX)
45000.	-30000.	-54000.	250.

WEB	XW(U)	YW(U)	XW(L)	YW(L)	TW
1	13.20	0.	13.20	0.	0.0380
2	-20.70	0.	-20.70	0.	0.0250

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   177.20

SECTION INPUT DATA

ITEM	X(S)	Y(S)	A(S)	IXOS	IYOS	IXYOS	X(P)	Y(P)	T(P)	E/1E6
1	13.20	0.	0.	0.	0.	0.	13.20	0.	0.013	0.
2	13.20	5.85	0.	0.	0.	0.	13.20	5.85	0.017	0.
3	13.20	11.70	0.	0.	0.	0.	13.20	11.70	0.024	0.
4	13.20	17.55	0.	0.	0.	0.	13.20	17.55	0.038	0.
5	13.20	23.40	0.	0.	0.	0.	13.20	23.40	0.038	0.
6	13.20	25.05	0.36	0.	0.	0.	13.20	26.30	0.020	10.50
7	10.37	26.33	0.	0.	0.	0.	10.37	26.33	0.020	0.
8	4.72	26.38	0.	0.	0.	0.	4.72	26.38·	0.020	0.
9	-0.93	26.43	0.	0.	0.	0.	-0.93	26.43	0.017	0.
10	-6.58	26.48	0.	0.	0.	0.	-6.58	26.48	0.017	0.
11	-12.23	26.53	0.	0.	0.	0.	-12.23	26.53	0.020	0.
12	-17.88	26.58	0.	0.	0.	0.	-17.88	26.58	0.020	0.
13	-20.70	26.60	0.43	0.	0.	0.	-20.70	26.60	0.020	10.50
14	-20.70	23.64	0.	0.	0.	0.	-20.70	23.64	0.025	0.
15	-20.70	17.73	0.	0.	0.	0.	-20.70	17.73	0.025	0.
16	-20.70	11.82	0.	0.	0.	0.	-20.70	11.82	0.021	0.
17	-20.70	5.91	0.	0.	0.	0.	-20.70	5.91	0.015	0.
18	-20.70	0.	0.	0.	0.	0.	-20.70	0.	0.011	0.
19	-20.70	-0.	0.	0.	0.	0.	-20.70	-0.	0.011	0.
20	-20.70	-5.91	0.	0.	0.	0.	-20.70	-5.91	0.015	0.
21	-20.70	-11.82	0.	0.	0.	0.	-20.70	-11.82	0.021	0.
22	-20.70	-17.73	0.	0.	0.	0.	-20.70	-17.73	0.025	0.
23	-20.70	-23.64	0.	0.	0.	0.	-20.70	-23.64	0.025	0.
24	-20.70	-26.60	0.43	0.	0.	0.	-20.70	-26.60	0.020	10.50
25	-17.88	-26.58	0.	0.	0.	0.	-17.88	-26.58	0.020	0.
26	-12.23	-26.53	0.	0.	0.	0.	-12.23	-26.53	0.020	0.
27	-6.58	-26.48	0.	0.	0.	0.	-6.58	-26.48	0.017	0.
28	-0.93	-26.43	0.	0.	0.	0.	-0.93	-26.43	0.017	0.
29	4.72	-26.38	0.	0.	0.	0.	4.72	-26.38	0.020	0.
30	10.37	-26.33	0.	0.	0.	0.	10.37	-26.33	0.020	0.
31	13.20	-25.05	0.36	0.	0.	0.	13.20	-26.30	0.020	10.50
32	13.20	-23.40	0.	0.	0.	0.	13.20	-23.40	0.038	0.
33	13.20	-17.55	0.	0.	0.	0.	13.20	-17.55	0.038	0.
34	13.20	-11.70	0.	0.	0.	0.	13.20	-11.70	0.024	0.
35	13.20	-5.85	0.	0.	0.	0.	13.20	-5.85	0.017	0.
36	13.20	-0.	0.	0.	0.	0.	13.20	-0.	0.013	0.

MODEL XV-5A
FUSELAGE
STATION   177.20

CONDITION F-1P

SX	SY	MXX	MYY	T
0.	-13110.	0.	-1030900.	0.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.	-0.00001	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.78925E 03	7.27554E 02	-1.40809E-06	3.78442E 00	-7.44050E-09

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.78910E 03	7.27432E 02	-1.40806E-06	3.78587E 00	-7.44094E-09

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)	
1.85795E 00	3.74457E 00	5.32857E 00	3.58724E 03	

	THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)	
	0.	3.87868E-13	0.	

	S.C.(X)	S.C.(X/C)	S.C.(Y)	
	0.	6.11000E-01	-0.	

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	0.0000
CELL	1	0.0000
WEB	2	-0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   177.20

CONDITION F-1P

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				0.0000
1	2.9250	13341.49	13341.49	-6.4019
2	5.8500	13341.49	13341.49	-22.9772
3	5.8500	13341.49	13341.49	-46.4011
4	5.8500	13341.49	13341.49	-84.1174
5	4.3750	13341.49	13341.49	-112.3241
6	2.8651	13341.49	13341.49	-183.6468
7	4.2402	9330.88	9330.88	-192.6322
8	5.6502	1323.82	1323.82	-194.5347
9	0.	-6683.23	-6683.23	-194.5347
10	0.	-14690.28	-14690.28	-194.5347
11	0.	-22697.33	-22697.33	-194.5347
12	0.	-30704.38 **	-30704.38	-194.5347
13	0.5915	-34700.82 **	-34700.82	-0.0000
14	0.	-34700.82 **	-34700.82	-0.0000
15	0.	-34700.82 **	-34700.82	-0.0000
16	0.	-34700.82 **	-34700.82	-0.0000
17	0.	-34700.82 **	-34700.82	-0.0000
18	0.	-34700.82 **	-34700.82	-0.0000
WEB 2				-0.0000
19	0.	-34700.82 **	-34700.82	-0.0000
20	0.	-34700.82 **	-34700.82	-0.0000
21	0.	-34700.82 **	-34700.82	-0.0000
22	0.	-34700.82 **	-34700.82	-0.0000
23	0.	-34700.82 **	-34700.82	-0.0000
24	0.5915	-34700.82 **	-34700.82	194.5347
25	0.	-30704.38 **	-30704.38	194.5347
26	0.	-22697.33	-22697.33	194.5347
27	0.	-14690.28	-14690.28	194.5347
28	0.	-6683.23	-6683.23	194.5347
29	5.6502	1323.82	1323.82	192.6322
30	4.2402	9330.88	9330.88	183.6468
31	2.8651	13341.49	13341.49	112.3241
32	4.3750	13341.49	13341.49	84.1174
33	5.8500	13341.49	13341.49	46.4011
34	5.8500	13341.49	13341.49	22.9772
35	5.8500	13341.49	13341.49	6.4019
36	2.9250	13341.49	13341.49	-0.0000
WEB 1				-0.0000

** VALUE IS LESS   THAN MINIMUM

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   177.20

CONDITION   ROLL-3

SX	SY	MXX	MYY	T
-3527.	-5249.	-294200.	-511900.	-36300.

	NO. IT.	QXP(N)	QYP(N)	
	3	0.00000	-0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.77758E 03	7.35974E 02	-1.11228E 01	3.54077E 00	1.65888E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.77736E 03	7.35786E 02	-1.10937E 01	3.54302E 00	1.65853E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.85412E 00	3.74457E 00	5.32857E 00	3.58724E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
1.71811E-06	2.79540E-08	-6.23999E-06

S.C.(X)	S.C.(X/C)	S.C.(Y)
-2.83379E 00	5.27407E-01	-3.09806E-02

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	38.1916
CELL	1	38.1916
WEB	2	-35.8429

MODEL XV-5A
FUSELAGE
STATION   177.20

CONDITION   ROLL-3

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				38.1916
1	2.9250	6461.52	6461.52	35.5961
2	5.8500	7455.34	7455.34	28.0059
3	5.8500	8449.17	8449.17	15.6409
4	5.8500	9442.99	9442.99	-6.9076
5	4.3750	10436.82	10436.82	-25.4954
6	2.8651	10929.49	10717.13	-74.6730
7	4.2402	8958.45	8958.45	-82.6391
8	5.6502	5021.66	5021.66	-89.2606
9	5.6502	1084.87	1084.87	-91.0516
10	0.	-2851.91	-2851.91	-91.0516
11	0.	-6788.70	-6788.70	-91.0516
12	0.	-10725.49	-10725.49	-91.0516
13	0.9782	-12691.24	-12691.24	-35.8429
14	0.	-13194.10	-13194.10	-35.8429
15	0.	-14198.12	-14198.12	-35.8429
16	0.	-15202.14	-15202.14	-35.8429
17	0.	-16206.16	-16206.16	-35.8429
18	0.	-17210.18	-17210.18	-35.8429
WEB 2				-35.8429
19	0.	-17210.18	-17210.18	-35.8429
20	0.	-18214.19	-18214.19	-35.8429
21	0.	-19218.21	-19218.21	-35.8429
22	0.	-20222.23	-20222.23	-35.8429
23	0.	-21226.25	-21226.25	-35.8429
24	0.7475	-21729.11	-21729.11	66.7221
25	0.	-19756.56	-19756.56	66.7221
26	0.	-15802.79	-15802.79	66.7221
27	0.	-11849.01	-11849.01	66.7221
28	0.	-7895.23	-7895.23	66.7221
29	0.	-3941.46	-3941.46	66.7221
30	4.2402	12.32	12.32	67.8198
31	2.8651	1993.55	2205.91	61.6575
32	4.3750	2486.22	2486.22	58.3596
33	5.8500	3480.04	3480.04	51.6438
34	5.8500	4473.87	4473.87	45.8341
35	5.8500	5467.69	5467.69	40.5633
36	2.9250	6461.52	6461.52	38.1916
WEB 1				-0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   177.20

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CONDITION LG-3

SX	SY	MXX	MYY	T
-4171.	-8409.	-341800.	-881900.	-41000.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.00000	-0.00001	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.70944E 03	7.28519E 02	1.34656E 00	3.73587E 00	9.14291E-01

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.70924E 03	7.28344E 02	1.41753E 00	3.73802E 00	9.13419E-01

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.74715E 00	3.74457E 00	5.32857E 00	3.58724E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
2.06640E-06	1.22377E-08	-7.04793E-06

S.C.(X)	S.C.(X/C)	S.C.(Y)
-2.88202E 00	5.25985E-01	-8.46601E-03

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	45.8810
CELL	1	45.8810
WEB	2	-41.7846

                                 CONDITION LG-3

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				45.8810
1	2.9250	11271.44	11271.44	41.7103
2	5.8500	12435.40	12435.40	29.8700
3	5.8500	13599.37	13599.37	11.1745
4	5.8500	14763.33	14763.33	-22.0896
5	4.3750	15927.30	15927.30	-49.0325
6	2.8651	16504.30	16255.59	-119.7673
7	4.2402	13084.72	13084.72	-130.8085
8	5.6502	6255.67	6255.67	-139.0843
9	0.	-573.38	-573.38	-139.0843
10	0.	-7402.43	-7402.43	-139.0843
11	0.	-14231.48	-14231.48	-139.0843
12	0.	-21060.54	-21060.54	-139.0843
13	0.7044	-24470.00	-24470.00	-41.7846
14	0.	-25058.95	-25058.95	-41.7846
15	0.	-26234.85	-26234.85	-41.7846
16	0.	-27410.75	-27410.75	-41.7846
17	0.	-28586.66	-28586.66	-41.7846
18	0.	-29762.56	-29762.56	-41.7846
WEB 2				-41.7846
19	0.	-29762.56	-29762.56	-41.7846
20	0.	-30938.46 **	-30938.46	-41.7846
21	0.	-32114.36 **	-32114.36	-41.7846
22	0.	-33290.27 **	-33290.27	-41.7846
23	0.	-34466.17 **	-34466.17	-41.7846
24	0.5885	-35055.11 **	-35055.11	112.0033
25	0.	-31637.69 **	-31637.69	112.0033
26	0.	-24788.74	-24788.74	112.0033
27	0.	-17939.79	-17939.79	112.0033
28	0.	-11090.84	-11090.84	112.0033
29	0.	-4241.89	-4241.89	112.0033
30	4.2402	2607.05	2607.05	111.8198
31	2.8651	6038.58	6287.29	92.6132
32	4.3750	6615.58	6615.58	83.9862
33	5.8500	7779.55	7779.55	69.6883
34	5.8500	8943.51	8943.51	58.8453
35	5.8500	10107.48	10107.48	49.7834
36	2.9250	11271.44	11271.44	45.8810
WEB 1				-0.0000

** VALUE IS LESS   THAN MINIMUM

CONDITION L-16

SX	SY	MXX	MYY	T
0.	-13172.	0.	-718800.	0.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.	-0.00001	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.79263E 03	7.30421E 02	-1.40896E-06	3.75041E 00	-7.43016E-09

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.79246E 03	7.30276E 02	-1.40892E-06	3.75213E 00	-7.43068E-09

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.86270E 00	3.74457E 00	5.32857E 00	3.58724E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
0.	-4.24677E-13	0.

S.C.(X)	S.C.(X/C)	S.C.(Y)
0.	6.11000E-01	0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	0.0000
CELL	1	0.0000
WEB	2	-0.0000

MODEL XV-5A
FUSELAGE
STATION 177.20

CONDITION L-16

ITEM		WP(EFF)	F(P)	F(S)	QP(NET)
WEB	1				0.0000
	1	2.9250	9299.40	9299.40	-6.4300
	2	5.8500	9299.40	9299.40	-23.0784
	3	5.8500	9299.40	9299.40	-46.6054
	4	5.8500	9299.40	9299.40	-84.4878
	5	4.3750	9299.40	9299.40	-112.8187
	6	2.8651	9299.40	9299.40	-184.4554
	7	4.2402	6513.87	6513.87	-193.4998
	8	5.6502	952.66	952.66	-195.4726
	9	0.	-4608.55	-4608.55	-195.4726
	10	0.	-10169.76	-10169.76	-195.4726
	11	0.	-15730.97	-15730.97	-195.4726
	12	0.	-21292.18	-21292.18	-195.4726
	13	0.7103	-24067.86	-24067.86	-0.0000
	14	0.	-24067.86	-24067.86	-0.0000
	15	0.	-24067.86	-24067.86	-0.0000
	16	0.	-24067.86	-24067.86	-0.0000
	17	0.	-24067.86	-24067.86	-0.0000
	18	0.	-24067.86	-24067.86	-0.0000
WEB	2				-0.0000
	19	0.	-24067.86	-24067.86	-0.0000
	20	0.	-24067.86	-24067.86	-0.0000
	21	0.	-24067.86	-24067.86	-0.0000
	22	0.	-24067.86	-24067.86	-0.0000
	23	0.	-24067.86	-24067.86	-0.0000
	24	0.7103	-24067.86	-24067.86	195.4726
	25	0.	-21292.18	-21292.18	195.4726
	26	0.	-15730.97	-15730.97	195.4726
	27	0.	-10169.76	-10169.76	195.4726
	28	0.	-4608.55	-4608.55	195.4726
	29	5.6502	952.66	952.66	193.4998
	30	4.2402	6513.87	6513.87	184.4554
	31	2.8651	9299.40	9299.40	112.8187
	32	4.3750	9299.40	9299.40	84.4878
	33	5.8500	9299.40	9299.40	46.6054
	34	5.8500	9299.40	9299.40	23.0784
	35	5.8500	9299.40	9299.40	6.4300
	36	2.9250	9299.40	9299.40	-0.0000
WEB	1				-0.0000

NET STRESSES - INCLUDING AXIAL LOAD (REF. P. 211)

UPPER LONGERON: 9299 -3900 = 5399 psi

LOWER LONGERON: -24068 -2440 = -26508 psi

SECTION INPUT DATA

WIDTH TOL.	R(STG)	R(PLATE)	W/T	G/1E6
0.050	1.000	1.000	10.00	3.900

C	XO/C	R(WEB)	2A(TE)	DS(TE)
35.70	0.5210	1.000	0.	0.

T(TE)	2A(LE)	DS(LE)	T(LE)
0.	0.	0.	0.

FP(MAX)	FP(MIN)	FS(MIN)	QP(MAX)
45000.	-30000.	-54000.	250.

WEB	XW(U)	YW(U)	XW(L)	YW(L)	TW
1	17.10	0.	17.10	0.	0.0380
2	-18.60	0.	-18.60	0.	0.0250

SECTION INPUT DATA

ITEM	X(S)	Y(S)	A(S)	IXOS	IYOS	IXYOS	X(P)	Y(P)	T(P)	E/1E6
1	17.10	0.	0.	0.	0.	0.	17.10	0.	0.006	0.
2	17.10	5.36	0.	0.	0.	0.	17.10	5.36	0.008	0.
3	17.10	10.72	0.	0.	0.	0.	17.10	10.72	0.011	0.
4	17.10	16.08	0.	0.	0.	0.	17.10	16.08	0.019	0.
5	17.10	21.44	0.	0.	0.	0.	17.10	21.44	0.038	0.
6	17.10	22.85	0.36	0.	0.	0.	17.10	24.10	0.020	10.50
7	14.12	24.10	0.	0.	0.	0.	14.12	24.10	0.020	0.
8	8.17	24.10	0.	0.	0.	0.	8.17	24.10	0.009	0.
9	2.22	24.10	0.	0.	0.	0.	2.22	24.10	0.005	0.
10	-3.73	24.10	0.	0.	0.	0.	-3.73	24.10	0.005	0.
11	-9.68	24.10	0.	0.	0.	0.	-9.68	24.10	0.009	0.
12	-15.63	24.10	0.	0.	0.	0.	-15.63	24.10	0.020	0.
13	-18.60	23.35	0.43	0.	0.	0.	-18.60	24.10	0.020	10.50
14	-18.60	21.44	0.	0.	0.	0.	-18.60	21.44	0.025	0.
15	-18.60	16.08	0.	0.	0.	0.	-18.60	16.08	0.012	0.
16	-18.60	10.72	0.	0.	0.	0.	-18.60	10.72	0.007	0.
17	-18.60	5.36	0.	0.	0.	0.	-18.60	5.36	0.005	0.
18	-18.60	0.	0.	0.	0.	0.	-18.60	0.	0.004	0.
19	-18.60	-0.	0.	0.	0.	0.	-18.60	-0.	0.004	0.
20	-18.60	-5.36	0.	0.	0.	0.	-18.60	-5.36	0.005	0.
21	-18.60	-10.72	0.	0.	0.	0.	-18.60	-10.72	0.007	0.
22	-18.60	-16.08	0.	0.	0.	0.	-18.60	-16.08	0.012	0.
23	-18.60	-21.44	0.	0.	0.	0.	-18.60	-21.44	0.025	0.
24	-18.60	-23.35	0.43	0.	0.	0.	-18.60	-24.10	0.020	10.50
25	-15.63	-24.10	0.	0.	0.	0.	-15.63	-24.10	0.020	0.
26	-9.68	-24.10	0.	0.	0.	0.	-9.68	-24.10	0.009	0.
27	-3.73	-24.10	0.	0.	0.	0.	-3.73	-24.10	0.005	0.
28	2.22	-24.10	0.	0.	0.	0.	2.22	-24.10	0.005	0.
29	8.17	-24.10	0.	0.	0.	0.	8.17	-24.10	0.009	0.
30	14.12	-24.10	0.	0.	0.	0.	14.12	-24.10	0.020	0.
31	17.10	-22.85	0.36	0.	0.	0.	17.10	-24.10	0.020	10.50
32	17.10	-21.44	0.	0.	0.	0.	17.10	-21.44	0.038	0.
33	17.10	-16.08	0.	0.	0.	0.	17.10	-16.08	0.019	0.
34	17.10	-10.72	0.	0.	0.	0.	17.10	-10.72	0.011	0.
35	17.10	-5.36	0.	0.	0.	0.	17.10	-5.36	0.008	0.
36	17.10	-0.	0.	0.	0.	0.	17.10	-0.	0.006	0.

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   201.90

CONDITION F-1P

SX	SY	MXX	MYY	T
0.	-15270.	0.	-1392600.	0.

NO. IT.	QXP(N)	QYP(N)
3	-0.	0.00000

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.29294E 03	7.36961E 02	-1.02022E-06	5.13760E 00	-1.05491E-08

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.29291E 03	7.36938E 02	-1.02021E-06	5.13796E 00	-1.05493E-08

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.17484E 00	2.17649E 00	3.76049E 00	3.44148E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
0.	-4.26507E-13	0.

S.C.(X)	S.C.(X/C)	S.C.(Y)
0.	5.21000E-01	0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-0.0000
CELL	1	-0.0000
WEB	2	0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   201.90

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CONDITION F-1P

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
				-0.0000
WEB 1				-4.3178
1	2.6800	22604.81	22604.81	-15.4776
2	5.3600	22604.81	22604.81	-30.6231
3	5.3600	22604.81	22604.81	-55.8656
4	5.3600	22604.81	22604.81	-93.6351
5	4.0100	22604.81	22604.81	-197.5195
6	2.8200	22604.81	16973.47	-212.7658
7	4.4650	16973.47	5729.69	-216.1301
8	5.9500	5729.69	-5514.10	-216.1301
9	0.	-5514.10	-16757.88	-216.1301
10	0.	-16757.88	-28001.66	-216.1301
11	0.	-28001.66	-39245.45	-216.1301
12	0.	-39245.45 **	-44857.89	0.0000
13	0.5202	-44857.89 **	-44857.89	0.0000
14	0.	-44857.89 **	-44857.89	0.0000
15	0.	-44857.89 **	-44857.89	0.0000
16	0.	-44857.89 **	-44857.89	0.0000
17	0.	-44857.89 **	-44857.89	0.0000
18	0.	-44857.89 **	-44857.89	0.0000
				0.0000
WEB 2				0.0000
19	0.	-44857.89 **	-44857.89	0.0000
20	0.	-44857.89 **	-44857.89	0.0000
21	0.	-44857.89 **	-44857.89	0.0000
22	0.	-44857.89 **	-44857.89	0.0000
23	0.	-44857.89 **	-44857.89	0.0000
24	0.5202	-44857.89 **	-44857.89	216.1301
25	0.	-39245.45 **	-39245.45	216.1301
26	0.	-28001.66	-28001.66	216.1301
27	0.	-16757.88	-16757.88	216.1301
28	0.	-5514.10	-5514.10	216.1301
29	5.9500	5729.69	5729.69	212.7658
30	4.4650	16973.47	16973.47	197.5195
31	2.8200	22604.81	22604.81	93.6351
32	4.0100	22604.81	22604.81	55.8656
33	5.3600	22604.81	22604.81	30.6231
34	5.3600	22604.81	22604.81	15.4776
35	5.3600	22604.81	22604.81	4.3178
36	2.6800	22604.81	22604.81	0.0000
WEB 1				0.0000

** VALUE IS LESS   THAN MINIMUM

JOB NO. 1012

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   201.90

22 AUG 63

CONDITION   ROLL-3

SX	SY	MXX	MYY	T
-3747.	-5402.	-383800.	-646300.	-35100.

	NO. IT.	QXP(N)	QYP(N)	
	3	0.00000	-0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.28548E 03	7.43131E 02	-1.33762E 00	4.94400E 00	8.03524E-01

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.28529E 03	7.42940E 02	-1.22879E 00	4.94695E 00	8.01842E-01

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.16475E 00	2.17649E 00	3.76049E 00	3.44148E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-3.97783E-06	-6.27443E-10	-1.31345E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
2.83697E 00	6.00467E-01	3.10393E-04

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	39.3008
CELL	1	39.3008
WEB	2	-45.0562

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   201.90

CONDITION   ROLL-3

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				39.3008
1	2.6800	10338.12	10338.12	37.7331
2	5.3600	11943.14	11943.14	33.1521
3	5.3600	13548.15	13548.15	25.9780
4	5.3600	15153.16	15153.16	12.4260
5	4.0100	16758.17	16758.17	-9.9377
6	2.8200	17554.69	17180.39	-74.2356
7	4.4650	14960.85	14960.85	-85.7931
8	5.9500	9781.86	9781.86	-90.6947
9	5.9500	4602.88	4602.88	-92.2447
10	0.	-576.11	-576.11	-92.2447
11	0.	-5755.09	-5755.09	-92.2447
12	0.	-10934.07	-10934.07	-92.2447
13	0.9478	-13519.21	-13743.79	-45.0562
14	0.	-14315.73	-14315.73	-45.0562
15	0.	-15920.74	-15920.74	-45.0562
16	0.	-17525.75	-17525.75	-45.0562
17	0.	-19130.77	-19130.77	-45.0562
18	0.	-20735.78	-20735.78	-45.0562
WEB 2				-45.0562
19	0.	-20735.78	-20735.78	-45.0562
20	0.	-22340.79	-22340.79	-45.0562
21	0.	-23945.80	-23945.80	-45.0562
22	0.	-25550.81	-25550.81	-45.0562
23	0.	-27155.83	-27155.83	-45.0562
24	0.6590	-27952.34	-27727.76	61.9381
25	0.	-25367.20	-25367.20	61.9381
26	0.	-20188.22	-20188.22	61.9381
27	0.	-15009.24	-15009.24	61.9381
28	0.	-9830.25	-9830.25	61.9381
29	0.	-4651.27	-4651.27	61.9381
30	4.4650	527.71	527.71	62.9587
31	2.8200	3121.56	3495.86	55.1002
32	4.0100	3918.08	3918.08	51.2295
33	5.3600	5523.09	5523.09	47.2484
34	5.3600	7128.10	7128.10	43.9027
35	5.3600	8733.11	8733.11	40.7322
36	2.6800	10338.12	10338.12	39.3008
WEB 1				-0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   201.90

22 AUG 63

CONDITION LG-3

SX	SY	MXX	MYY	T
-4311.	-8870.	-446700.	-1098900.	-39100.

	NO. IT.	QXP(N)	QYP(N)	
	3	0.00000	-0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.28066E 03	7.38415E 02	2.53178E-01	5.01685E 00	7.78941E-01

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.28063E 03	7.38377E 02	2.63859E-01	5.01743E 00	7.78776E-01

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)	
1.15655E 00	2.17649E 00	3.76049E 00	3.44148E 03	

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-4.56294E-06	-1.64795E-08	-1.46314E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
2.82852E 00	6.00230E-01	4.96493E-03

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	45.6665
CELL	1	45.6665
WEB	2	-51.3920

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   201.90

22 AUG 63

CONDITION LG-3

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				45.6665
1	2.6800	17709.13	17709.13	43.1054
2	5.3600	19577.13	19577.13	35.8772
3	5.3600	21445.13	21445.13	24.9657
4	5.3600	23313.13	23313.13	4.9437
5	4.0100	25181.12	25181.12	-27.4160
6	2.8200	26108.15	25672.52	-119.6289
7	4.4650	21673.50	21673.50	-135.6017
8	5.9500	12819.07	12819.07	-141.8305
9	5.9500	3964.64	3964.64	-143.2714
10	0.	-4889.79	-4889.79	-143.2714
11	0.	-13744.22	-13744.22	-143.2714
12	0.	-22598.65	-22598.65	-143.2714
13	0.6703	-27018.42	-27279.80	-51.3920
14	0.	-27945.45	-27945.45	-51.3920
15	0.	-29813.45	-29813.45	-51.3920
16	0.	-31681.44 **	-31681.44	-51.3920
17	0.	-33549.44 **	-33549.44	-51.3920
18	0.	-35417.44 **	-35417.44	-51.3920
WEB 2				-51.3920
19	0.	-35417.44 **	-35417.44	-51.3920
20	0.	-37285.44 **	-37285.44	-51.3920
21	0.	-39153.43 **	-39153.43	-51.3920
22	0.	-41021.43 **	-41021.43	-51.3920
23	0.	-42889.43 **	-42889.43	-51.3920
24	0.5263	-43816.46 **	-43555.08	108.9956
25	0.	-39396.68 **	-39396.68	108.9956
26	0.	-30542.25 **	-30542.25	108.9956
27	0.	-21687.83	-21687.83	108.9956
28	0.	-12833.40	-12833.40	108.9956
29	0.	-3978.97	-3978.97	108.9956
30	4.4650	4875.46	4875.46	107.5017
31	2.8200	9310.12	9745.75	80.2567
32	4.0100	10237.14	10237.14	69.1845
33	5.3600	12105.14	12105.14	60.1797
34	5.3600	13973.14	13973.14	53.6752
35	5.3600	15841.14	15841.14	48.0705
36	2.6800	17709.13	17709.13	45.6665
WEB 1				-0.0000

** VALUE IS LESS   THAN MINIMUM

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   201.90

CONDITION L-16

SX	SY	MXX	MYY	T
0.	-16412.	0.	-1094600.	-0.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.29451E 03	7.38483E 02	-1.02089E-06	5.11437E 00	-1.05388E-08

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.29448E 03	7.38457E 02	-1.02088E-06	5.11477E 00	-1.05390E-08

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.17754E 00	2.17649E 00	3.76049E 00	3.44148E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
0.	1.50239E-12	-0.

S.C.(X)	S.C.(X/C)	S.C.(Y)
0.	5.21000E-01	-0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-0.0000
CELL	1	-0.0000
WEB	2	0.0000

JOB NO. 1012

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   201.90

22 AUG 63

CONDITION L-16

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-0.0000
1	2.6800	17765.48	17765.48	-4.6401
2	5.3600	17765.48	17765.48	-16.6331
3	5.3600	17765.48	17765.48	-32.9093
4	5.3600	17765.48	17765.48	-60.0363
5	4.0100	17765.48	17765.48	-100.6255
6	2.8200	17765.48	17765.48	-212.2657
7	4.4650	13348.28	13348.28	-228.6645
8	5.9500	4528.71	4528.71	-232.3006
9	0.	-4290.86	-4290.86	-232.3006
10	0.	-13110.42	-13110.42	-232.3006
11	0.	-21929.99	-21929.99	-232.3006
12	0.	-30749.56 **	-30749.56	-232.3006
13	0.5876	-35151.94 **	-35151.94	0.0000
14	0.	-35151.94 **	-35151.94	0.0000
15	0.	-35151.94 **	-35151.94	0.0000
16	0.	-35151.94 **	-35151.94	0.0000
17	0.	-35151.94 **	-35151.94	0.0000
18	0.	-35151.94 **	-35151.94	0.0000
WEB 2				0.0000
19	0.	-35151.94 **	-35151.94	0.0000
20	0.	-35151.94 **	-35151.94	0.0000
21	0.	-35151.94 **	-35151.94	0.0000
22	0.	-35151.94 **	-35151.94	0.0000
23	0.	-35151.94 **	-35151.94	0.0000
24	0.5876	-35151.94 **	-35151.94	232.3006
25	0.	-30749.56 **	-30749.56	232.3006
26	0.	-21929.99	-21929.99	232.3006
27	0.	-13110.42	-13110.42	232.3006
28	0.	-4290.86	-4290.86	232.3006
29	5.9500	4528.71	4528.71	228.6645
30	4.4650	13348.28	13348.28	212.2657
31	2.8200	17765.48	17765.48	100.6255
32	4.0100	17765.48	17765.48	60.0363
33	5.3600	17765.48	17765.48	32.9093
34	5.3600	17765.48	17765.48	16.6331
35	5.3600	17765.48	17765.48	4.6401
36	2.6800	17765.48	17765.48	0.0000
WEB 1				0.0000

** VALUE IS LESS   THAN MINIMUM

NET STRESSES - INCLUDING AXIAL LOAD (REF. P. 211)

UPPER LONGERON: 17765 -4990 = 12775 psi

LOWER LONGERON: -35152 -3660 = -38812 psi

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   296.50

SECTION INPUT DATA

WIDTH TOL.	R(STG)	R(PLATE)	W/T	G/1E6
0.050	1.000	1.000	10.00	3.900

C	X0/C	R(WEB)	2A(TE)	DS(TE)
35.75	0.4720	1.000	0.	0.

T(TE)	2A(LE)	DS(LE)	T(LE)
0.	0.	0.	0.

FP(MAX)	FP(MIN)	FS(MIN)	QP(MAX)
45000.	-30000.	-37000.	1250.

WEB	XW(U)	YW(U)	XW(L)	YW(L)	TW
1	44.80	0.	44.80	0.	0.0320
2	-16.89	24.00	-16.89	-24.00	0.0400

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SECTION INPUT DATA

ITEM	X(S)	Y(S)	A(S)	IXOS	IYOS	IXYOS	X(P)	Y(P)	T(P)	E/1E6
1	45.40	0.	0.02	0.	0.	0.	44.80	0.	0.002	10.50
2	44.66	3.00	0.	0.	0.	0.	44.66	3.00	0.003	0.
3	43.98	9.00	0.	0.	0.	0.	43.98	9.00	0.003	0.
4	42.16	14.70	0.	0.	0.	0.	42.16	14.70	0.004	0.
5	38.82	23.00	0.	0.	0.	0.	38.82	19.60	0.005	0.
6	33.82	24.00	0.	0.	0.	0.	33.82	23.00	0.007	0.
7	27.86	24.00	0.	0.	0.	0.	27.86	24.00	0.012	0.
8	21.86	24.00	0.	0.	0.	0.	21.86	24.00	0.032	0.
9	18.86	22.34	0.72	0.	0.	0.	18.86	24.00	0.050	10.50
10	15.88	24.00	0.	0.	0.	0.	15.88	24.00	0.050	0.
11	9.92	24.00	0.	0.	0.	0.	9.92	24.00	0.019	0.
12	3.96	24.00	0.	0.	0.	0.	3.96	24.00	0.012	0.
13	-2.00	24.00	0.	0.	0.	0.	-2.00	24.00	0.012	0.
14	-7.96	24.00	0.	0.	0.	0.	-7.96	24.00	0.019	0.
15	-13.92	24.00	0.	0.	0.	0.	-13.92	24.00	0.050	0.
16	-16.89	22.50	0.97	0.	0.	0.	-16.89	24.00	0.050	10.50
17	-16.89	-22.50	0.97	0.	0.	0.	-16.89	-24.00	0.050	10.50
18	-13.92	-24.00	0.	0.	0.	0.	-13.92	-24.00	0.050	0.
19	-7.96	-24.00	0.	0.	0.	0.	-7.96	-24.00	0.019	0.
20	-2.00	-24.00	0.	0.	0.	0.	-2.00	-24.00	0.012	0.
21	3.96	-24.00	0.	0.	0.	0.	3.96	-24.00	0.012	0.
22	9.92	-24.00	0.	0.	0.	0.	9.92	-24.00	0.019	0.
23	15.88	-24.00	0.	0.	0.	0.	15.88	-24.00	0.050	0.
24	18.86	-22.34	0.72	0.	0.	0.	18.86	-24.00	0.050	10.50
25	21.86	-24.00	0.	0.	0.	0.	21.86	-24.00	0.032	0.
26	27.86	-24.00	0.	0.	0.	0.	27.86	-24.00	0.012	0.
27	33.82	-24.00	0.	0.	0.	0.	33.82	-23.00	0.007	0.
28	38.82	-23.00	0.	0.	0.	0.	38.82	-19.60	0.005	0.
29	42.16	-14.70	0.	0.	0.	0.	42.16	-14.70	0.004	0.
30	43.98	-9.00	0.	0.	0.	0.	43.98	-9.00	0.003	0.
31	44.66	-3.00	0.	0.	0.	0.	44.66	-3.00	0.003	0.
32	45.40	-0.	0.02	0.	0.	0.	44.80	-0.	0.002	10.50

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   296.50

CONDITION F-8P

SX	SY	MXX	MYY	T
0.	8580.	0.	-1932400.	0.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
2.65759E 03	1.91880E 03	-3.18816E-06	5.91164E 00	-8.37468E-09

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
2.65757E 03	1.91878E 03	-3.18815E-06	5.91178E 00	-8.37473E-09

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.78784E 00	2.81048E 00	8.14848E 00	5.61479E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
0.	-1.56791E-13	0.

S.C.(X)	S.C.(X/C)	S.C.(Y)
0.	4.72000E-01	-0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-0.0000
CELL	1	-0.0000
WEB	2	0.0000

CONDITION F-8P

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-0.0000
1	1.5016	39164.26	39768.52	3.8306
2	4.5208	39023.27	39023.27	6.0981
3	6.0110	38338.44	38338.44	9.6797
4	5.9568	36505.52	36505.52	13.7355
5	5.9883	33141.81	33141.81	18.4909
6	6.0449	28106.32	28106.32	24.0734
7	6.0217	22104.01	22104.01	31.4644
8	4.5000	16061.42	16061.42	42.2165
9	2.9900	13040.13	13040.13	92.4473
10	4.4700	10038.98	10038.98	101.6650
11	5.9600	4036.67	4036.67	103.7481
12	0.	-1965.64	-1965.64	103.7481
13	0.	-7967.94	-7967.94	103.7481
14	0.	-13970.25	-13970.25	103.7481
15	0.	-19972.55	-19972.55	103.7481
16	0.9088	-22963.64	-22963.64	0.0000
WEB 2				0.0000
17	0.9088	-22963.64	-22963.64	-103.7481
18	0.	-19972.55	-19972.55	-103.7481
19	0.	-13970.25	-13970.25	-103.7481
20	0.	-7967.94	-7967.94	-103.7481
21	0.	-1965.64	-1965.64	-103.7481
22	5.9600	4036.67	4036.67	-101.6650
23	4.4700	10038.98	10038.98	-92.4473
24	2.9900	13040.13	13040.13	-42.2165
25	4.5000	16061.42	16061.42	-31.4644
26	6.0217	22104.01	22104.01	-24.0734
27	6.0449	28106.32	28106.32	-18.4909
28	5.9883	33141.81	33141.81	-13.7355
29	5.9568	36505.52	36505.52	-9.6797
30	6.0110	38338.44	38338.44	-6.0981
31	4.5208	39023.27	39023.27	-3.8306
32	1.5016	39164.26	39768.52	0.0000
WEB 1				0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   296.50

CONDITION   ROLL-5

SX	SY	MXX	MYY	T
2582.	5526.	-606700.	-896900.	-196000.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
2.54744E 03	1.92584E 03	3.35359E 01	5.02108E 00	2.48400E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
2.54713E 03	1.92564E 03	3.33420E 01	5.02296E 00	2.48582E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.65049E 00	2.81048E 00	8.14848E 00	5.61479E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-8.35769E-06	-1.92955E-07	-3.18807E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
-1.99003E 01	-8.46505E-02	-2.14671E-01

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-54.0476
CELL	1	-54.0476
WEB	2	2.6074

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   296.50

CONDITION   ROLL-5

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-54.0476
1	1.5016	17789.84	18066.89	-51.5987
2	4.5208	18421.63	18421.63	-50.1026
3	6.0110	19500.51	19500.51	-47.6307
4	5.9568	19983.36	19983.36	-44.6817
5	5.9883	19578.64	20367.93	-41.0249
6	6.0449	18059.20	18291.34	-36.4540
7	6.0217	15539.33	15539.33	-29.9669
8	4.5000	12768.85	12768.85	-19.7173
9	2.9900	11383.61	10998.25	31.5869
10	4.4700	10007.61	10007.61	42.7290
11	5.9600	7255.60	7255.60	46.7939
12	5.9600	4503.59	4503.59	48.0793
13	5.9600	1751.58	1751.58	48.1487
14	0.	-1000.43	-1000.43	48.1487
15	0.	-3752.44	-3752.44	48.1487
16	1.9242	-5123.83	-5472.04	2.6074
WEB 2				2.6074
17	1.0799	-16266.79	-15918.57	-86.6424
18	0.	-14895.40	-14895.40	-86.6424
19	0.	-12143.39	-12143.39	-86.6424
20	0.	-9391.38	-9391.38	-86.6424
21	0.	-6639.37	-6639.37	-86.6424
22	0.	-3887.36	-3887.36	-86.6424
23	0.	-1135.35	-1135.35	-86.6424
24	2.9900	240.65	626.02	-73.6658
25	4.5000	1625.89	1625.89	-70.1648
26	6.0217	4396.37	4396.37	-67.2050
27	6.0449	7380.53	7148.38	-64.6431
28	5.9883	10478.55	9689.26	-62.2252
29	5.9568	13158.30	13158.30	-59.9937
30	6.0110	15321.90	15321.90	-57.8911
31	4.5208	17028.76	17028.76	-56.4911
32	1.5016	17789.84	18066.89	-54.0476
WEB 1				0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   296.50

CONDITION LG-1

SX	SY	MXX	MYY	T
2081.	7772.	-472800.	-1501000.	-217000.

	NO. IT.	QXP(N)	QYP(N)	
	3	0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
2.63583E 03	1.92387E 03	1.92094E 00	5.73281E 00	9.30688E-01

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
2.63578E 03	1.92383E 03	1.95600E 00	5.73320E 00	9.30371E-01

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.75779E 00	2.81048E 00	8.14848E 00	5.61479E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-6.83836E-06	-4.33772E-08	-3.52965E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
-2.02027E 01	-9.31092E-02	-3.43129E-02

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-54.0600
CELL	1	-54.0600
WEB	2	-8.3992

JOB NO. 1012

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   296.50

22 AUG 63

CONDITION LG-1

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-54.0600
1	1.5016	30307.07	30775.09	-50.5980
2	4.5208	30734.26	30734.26	-48.5111
3	6.0110	31276.63	31276.63	-45.1276
4	5.9568	30876.12	30876.12	-41.1753
5	5.9883	29146.93	29754.84	-36.3811
6	6.0449	25854.67	26033.47	-30.5299
7	6.0217	21384.47	21384.47	-22.4339
8	4.5000	16704.27	16704.27	-10.0051
9	2.9900	14364.16	14067.36	50.7959
10	4.4700	12039.66	12039.66	63.3386
11	5.9600	7390.66	7390.66	67.4127
12	5.9600	2741.66	2741.66	68.1982
13	0.	-1907.34	-1907.34	68.1982
14	0.	-6556.34	-6556.34	68.1982
15	0.	-11205.34	-11205.34	68.1982
16	1.1843	-13522.04	-13790.24	-8.3992
WEB 2				-8.3992
17	0.9263	-22104.38	-21836.18	-120.2931
18	0.	-19787.68	-19787.68	-120.2931
19	0.	-15138.68	-15138.68	-120.2931
20	0.	-10489.68	-10489.68	-120.2931
21	0.	-5840.67	-5840.67	-120.2931
22	0.	-1191.67	-1191.67	-120.2931
23	4.4700	3457.33	3457.33	-116.1882
24	2.9900	5781.83	6078.63	-86.2631
25	4.5000	8121.93	8121.93	-79.2707
26	6.0217	12802.13	12802.13	-74.0163
27	6.0449	17629.93	17451.13	-69.7834
28	5.9883	22138.02	21530.10	-65.9874
29	5.9568	25619.44	25619.44	-62.6131
30	6.0110	28058.26	28058.26	-59.5269
31	4.5208	29661.47	29661.47	-57.5176
32	1.5016	30307.07	30775.09	-54.0600
WEB 1				0.0000

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BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   296.50

22 AUG 63

CONDITION LG-3

SX	SY	MXX	MYY	T
2835.	5888.	−664800.	−984900.	−303600.

	NO. IT.	QXP(N)	QYP(N)	
	3	−0.00000	−0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
2.54352E 03	1.92287E 03	3.41623E 01	5.04990E 00	2.47729E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
2.54321E 03	1.92267E 03	3.39812E 01	5.05179E 00	2.47899E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.64331E 00	2.81048E 00	8.14848E 00	5.61479E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
−9.18392E−06	−2.00655E−07	−4.93825E−05

S.C.(X)	S.C.(X/C)	S.C.(Y)
−1.99161E 01	−8.50927E−02	−2.09513E−01

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	−75.0736
CELL	1	−75.0736
WEB	2	−12.8612

CONDITION LG-3

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-75.0736
1	1.5016	19551.17	19855.82	-72.4645
2	4.5208	20243.93	20243.93	-70.8689
3	6.0110	21426.36	21426.36	-68.2291
4	5.9568	21953.57	21953.57	-65.0751
5	5.9883	21505.29	22370.98	-61.1585
6	6.0449	19832.21	20086.83	-56.2560
7	6.0217	17060.60	17060.60	-49.2888
8	4.5000	14014.07	14014.07	-38.2653
9	2.9900	12490.81	12068.14	16.9650
10	4.4700	10977.70	10977.70	28.9898
11	5.9600	7951.48	7951.48	33.3982
12	5.9600	4925.26	4925.26	34.8137
13	5.9600	1899.03	1899.03	34.9320
14	0.	-1127.19	-1127.19	34.9320
15	0.	-4153.41	-4153.41	34.9320
16	1.8306	-5661.44	-6043.37	-12.8612
WEB 2				-12.8612
17	1.0300	-17883.06	-17501.14	-108.7638
18	0.	-16375.03	-16375.03	-108.7638
19	0.	-13348.81	-13348.81	-108.7638
20	0.	-10322.59	-10322.59	-108.7638
21	0.	-7296.37	-7296.37	-108.7638
22	0.	-4270.14	-4270.14	-108.7638
23	0.	-1243.92	-1243.92	-108.7638
24	2.9900	269.19	691.85	-95.6973
25	4.5000	1792.45	1792.45	-92.0977
26	6.0217	4838.98	4838.98	-89.0110
27	6.0449	8119.82	7865.20	-86.3185
28	5.9883	11524.30	10658.60	-83.7649
29	5.9568	14467.82	14467.82	-81.4002
30	6.0110	16843.25	16843.25	-79.1666
31	4.5208	18716.23	18716.23	-77.6768
32	1.5016	19551.17	19855.82	-75.0736
WEB 1				-0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   296.50

CONDITION L-16

SX	SY	MXX	MYY	T
0.	71931.	0.	-2452700.	0.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
2.65161E 03	1.91378E 03	-3.18625E-06	5.95551E 00	-8.39142E-09

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
2.65158E 03	1.91376E 03	-3.18624E-06	5.95569E 00	-8.39149E-09

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.77745E 00	2.81048E 00	8.14848E 00	5.61479E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
0.	4.89876E-13	0.

S.C.(X)	S.C.(X/C)	S.C.(Y)
0.	4.72000E-01	0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	0.0000
CELL	1	0.0000
WEB	2	-0.0000

CONDITION L-16

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				0.0000
1	1.5016	49783.29 *	50552.25	32.1621
2	4.5208	49603.86 *	49603.86	51.2005
3	6.0110	48732.37 *	48732.37	81.2706
4	5.9568	46399.84 *	46399.84	115.3208
5	5.9883	42119.25	42119.25	155.2393
6	6.0449	35711.20	35711.20	202.0892
7	6.0217	28072.80	28072.80	264.0900
8	4.5000	20383.13	20383.13	354.2298
9	2.9900	16538.30	16538.30	775.0156
10	4.4700	12719.10	12719.10	852.1264
11	5.9600	5080.70	5080.70	869.4435
12	0.	-2557.70	-2557.70	869.4435
13	0.	-10196.10	-10196.10	869.4435
14	0.	-17834.50	-17834.50	869.4435
15	0.	-25472.91	-25472.91	869.4435
16	0.8048	-29279.29	-29279.29	-0.0000
WEB 2				-0.0000
17	0.8048	-29279.29	-29279.29	-869.4435
18	0.	-25472.91	-25472.91	-869.4435
19	0.	-17834.50	-17834.50	-869.4435
20	0.	-10196.10	-10196.10	-869.4435
21	0.	-2557.70	-2557.70	-869.4435
22	5.9600	5080.70	5080.70	-852.1264
23	4.4700	12719.10	12719.10	-775.0156
24	2.9900	16538.30	16538.30	-354.2298
25	4.5000	20383.13	20383.13	-264.0900
26	6.0217	28072.80	28072.80	-202.0892
27	6.0449	35711.20	35711.20	-155.2393
28	5.9883	42119.25	42119.25	-115.3208
29	5.9568	46399.84 *	46399.84	-81.2706
30	6.0110	48732.37 *	48732.37	-51.2005
31	4.5208	49603.86 *	49603.86	-32.1621
32	1.5016	49783.29 *	50552.25	0.0000
WEB 1				0.0000

* VALUE IS GREATER THAN MAXIMUM

NET STRESSES - INCLUDING AXIAL LOAD (REF. P. 211)

UPPER LONGERON: 35711 -13300 = 22411 psi

LOWER LONGERON: -29279 -10980 = -40259 psi

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   315.90

22 AUG 63

SECTION INPUT DATA

WIDTH TOL.	R(STG)	R(PLATE)	W/T	G/1E6
0.050	1.000	1.000	10.00	3.900

C	XO/C	R(WEB)	2A(TE)	DS(TE)
35.49	0.4760	1.000	0.	0.

T(TE)	2A(LE)	DS(LE)	T(LE)
0.	0.	0.	0.

FP(MAX)	FP(MIN)	FS(MIN)	QP(MAX)
45000.	-30000.	-30000.	1250.

WEB	XW(U)	YW(U)	XW(L)	YW(L)	TW
1	43.40	0.	43.40	0.	0.0320
2	-16.89	24.00	-16.89	-24.00	0.0400

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BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   315.90

SECTION INPUT DATA

ITEM	X(S)	Y(S)	A(S)	IXOS	IYOS	IXYOS	X(P)	Y(P)	T(P)	E/1E6
1	44.00	0.	0.06	0.	0.	0.	43.40	0.	0.005	10.50
2	43.26	2.90	0.	0.	0.	0.	43.26	2.90	0.005	0.
3	42.66	8.60	0.	0.	0.	0.	42.66	8.60	0.006	0.
4	40.86	14.30	0.	0.	0.	0.	40.86	14.30	0.008	0.
5	37.60	19.10	0.	0.	0.	0.	37.60	19.10	0.010	0.
6	32.86	22.40	0.	0.	0.	0.	32.86	22.40	0.014	0.
7	27.30	23.90	0.	0.	0.	0.	27.30	23.90	0.020	0.
8	21.50	24.00	0.	0.	0.	0.	21.50	24.00	0.020	0.
9	18.60	23.00	0.53	0.	0.	0.	18.60	24.00	0.016	10.50
10	15.64	24.00	0.	0.	0.	0.	15.64	24.00	0.016	0.
11	9.73	24.00	0.	0.	0.	0.	9.73	24.00	0.016	0.
12	3.82	24.00	0.	0.	0.	0.	3.82	24.00	0.010	0.
13	-2.09	24.00	0.	0.	0.	0.	-2.09	24.00	0.010	0.
14	-8.00	24.00	0.	0.	0.	0.	-8.00	24.00	0.016	0.
15	-13.91	24.00	0.	0.	0.	0.	-13.91	24.00	0.016	0.
16	-16.89	22.50	0.67	0.	0.	0.	-16.89	24.00	0.016	10.50
17	-16.89	-22.50	0.67	0.	0.	0.	-16.89	-24.00	0.016	10.50
18	-13.91	-24.00	0.	0.	0.	0.	-13.91	-24.00	0.016	0.
19	-8.00	-24.00	0.	0.	0.	0.	-8.00	-24.00	0.016	0.
20	-2.09	-24.00	0.	0.	0.	0.	-2.09	-24.00	0.010	0.
21	3.82	-24.00	0.	0.	0.	0.	3.82	-24.00	0.010	0.
22	9.73	-24.00	0.	0.	0.	0.	9.73	-24.00	0.016	0.
23	15.64	-24.00	0.	0.	0.	0.	15.64	-24.00	0.016	0.
24	18.60	-23.00	0.53	0.	0.	0.	18.60	-24.00	0.016	10.50
25	21.50	-24.00	0.	0.	0.	0.	21.50	-24.00	0.020	0.
26	27.30	-23.90	0.	0.	0.	0.	27.30	-23.90	0.020	0.
27	32.86	-22.40	0.	0.	0.	0.	32.86	-22.40	0.014	0.
28	37.60	-19.10	0.	0.	0.	0.	37.60	-19.10	0.010	0.
29	40.86	-14.30	0.	0.	0.	0.	40.86	-14.30	0.008	0.
30	42.66	-8.60	0.	0.	0.	0.	42.66	-8.60	0.006	0.
31	43.26	-2.90	0.	0.	0.	0.	43.26	-2.90	0.005	0.
32	44.00	-0.	0.06	0.	0.	0.	43.40	-0.	0.005	10.50

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   315.90

CONDITION F-8P

SX	SY	MXX	MYY	T
0.	9562.	0.	-1759600.	0.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.	0.00001	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.86025E 03	1.69854E 03	-1.81222E-07	9.60915E 00	-5.86335E-08

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.86023E 03	1.69851E 03	-1.81164E-07	9.60941E 00	-5.86341E-08

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.32384E 00	1.93580E 00	6.37580E 00	5.46418E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
0.	2.23065E-13	0.

S.C.(X)	S.C.(X/C)	S.C.(Y)
0.	4.76000E-01	0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-0.0000
CELL	1	-0.0000
WEB	2	0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   315.90

22 AUG 63

CONDITION F-8P

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-0.0000
1	1.4517	35005.87	35627.45	13.1893
2	4.3174	34860.84	34860.84	17.5980
3	5.8545	34239.26	34239.26	24.3491
4	5.8899	32374.52	32374.52	32.2290
5	5.7890	28997.28	28997.28	41.1702
6	5.7672	24086.80	24086.80	51.4383
7	5.7798	18326.84	18326.84	62.9439
8	4.3504	12318.24	12318.24	69.1234
9	2.9300	9313.94	9313.94	98.2731
10	4.4350	6247.48	6247.48	100.3479
11	5.9100	124.93	124.93	100.4109
12	0.	-5997.62	-5997.62	100.4109
13	0.	-12120.17	-12120.17	100.4109
14	0.	-18242.73	-18242.73	100.4109
15	0.	-24365.28	-24365.28	100.4109
16	0.2610	-27452.46	-27452.46	0.0000
WEB 2				0.0000
17	0.2610	-27452.46	-27452.46	-100.4109
18	0.	-24365.28	-24365.28	-100.4109
19	0.	-18242.73	-18242.73	-100.4109
20	0.	-12120.17	-12120.17	-100.4109
21	0.	-5997.62	-5997.62	-100.4109
22	5.9100	124.93	124.93	-100.3479
23	4.4350	6247.48	6247.48	-98.2731
24	2.9300	9313.94	9313.94	-69.1234
25	4.3504	12318.24	12318.24	-62.9439
26	5.7798	18326.84	18326.84	-51.4383
27	5.7672	24086.80	24086.80	-41.1702
28	5.7890	28997.28	28997.28	-32.2290
29	5.8899	32374.52	32374.52	-24.3491
30	5.8545	34239.26	34239.26	-17.5980
31	4.3174	34860.84	34860.84	-13.1893
32	1.4517	35005.87	35627.45	0.0000
WEB 1				0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   315.90

CONDITION   ROLL-5

SX	SY	MXX	MYY	T
3008.	5094.	-554600.	-791100.	-197300.

	NO. IT.	QXP(N)	QYP(N)	
	4	-0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.75265E 03	1.69291E 03	1.92959E 01	8.81738E 00	2.60641E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.75264E 03	1.69291E 03	1.92982E 01	8.81735E 00	2.60650E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.18065E 00	1.93580E 00	6.37580E 00	5.46418E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-2.63686E-06	3.92447E-08	-2.56363E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
-6.74652E 00	2.85904E-01	5.92917E-02

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-60.3947
CELL	1	-60.3947
WEB	2	6.1784

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 315.90

CONDITION ROLL-5

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-60.3947
1	1.4517	15226.36	15504.61	-53.5189
2	4.3174	16064.29	16064.29	-51.0832
3	5.8545	17560.62	17560.62	-47.0419
4	5.8899	18500.45	18500.45	-41.8728
5	5.7890	18482.99	18482.99	-35.4152
6	5.7672	17312.19	17312.19	-27.1630
7	5.7798	15200.71	15200.71	-16.6350
8	4.3504	12542.07	12542.07	-10.0149
9	2.9300	11197.18	10885.85	26.6814
10	4.4350	9824.47	9824.47	30.4557
11	5.9100	7083.69	7083.69	34.0504
12	5.9100	4342.90	4342.90	35.3580
13	5.9100	1602.11	1602.11	35.5691
14	0.	-1138.67	-1138.67	35.5691
15	0.	-3879.46	-3879.46	35.5691
16	0.5962	-5261.45	-5728.44	6.1784
WEB 2				6.1784
17	0.3042	-20205.30	-19738.30	-74.0942
18	0.	-18823.31	-18823.31	-74.0942
19	0.	-16082.52	-16082.52	-74.0942
20	0.	-13341.74	-13341.74	-74.0942
21	0.	-10600.95	-10600.95	-74.0942
22	0.	-7860.16	-7860.16	-74.0942
23	0.	-5119.38	-5119.38	-74.0942
24	1.4129	-3746.66	-3435.33	-81.7826
25	0.	-2401.78	-2401.78	-81.7826
26	5.7798	319.13	319.13	-80.5565
27	5.7672	3364.60	3364.60	-78.2189
28	5.7890	6590.18	6590.18	-75.4085
29	5.8899	9596.40	9596.40	-72.3885
30	5.8545	12205.74	12205.74	-69.4055
31	4.3174	14258.58	14258.58	-67.2527
32	1.4517	15226.36	15504.61	-60.3947
WEB 1				-0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 315.90

22 AUG 63

CONDITION LG-1

SX	SY	MXX	MYY	T
2496.	7518.	-430400.	-1349600.	-217400.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.79541E 03	1.69927E 03	7.89786E-01	9.40194E 00	1.44699E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.79538E 03	1.69923E 03	7.82412E-01	9.40231E 00	1.44706E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)	
1.22487E 00	1.93580E 00	6.37580E 00	5.46418E 03	

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-2.15412E-06	6.00147E-09	-2.82480E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
-6.64196E 00	2.88850E-01	6.14366E-03

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-60.0135
CELL	1	-60.0135
WEB	2	-4.7918

JOB NO. 1012

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   315.90

22 AUG 63

CONDITION LG-1

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-60.0135
1	1.4517	26652.19	27128.67	-49.7168
2	4.3174	27235.21	27235.21	-46.1613
3	5.8545	28123.20	28123.20	-40.4596
4	5.8899	28058.23	28058.23	-33.4303
5	5.7890	26618.39	26618.39	-24.9625
6	5.7672	23644.17	23644.17	-14.5407
7	5.7798	19587.88	19587.88	-1.7902
8	4.3504	15005.87	15005.87	5.8686
9	2.9300	12702.89	12463.51	46.6008
10	4.4350	10352.26	10352.26	50.4751
11	5.9100	5658.96	5658.96	53.5148
12	5.9100	965.65	965.65	53.9254
13	0.	-3727.66	-3727.66	53.9254
14	0.	-8420.97	-8420.97	53.9254
15	0.	-13114.27	-13114.27	53.9254
16	0.3476	-15480.78	-15839.85	-4.7918
				-4.7918
WEB 2				
17	0.2633	-26971.03	-26611.96	-105.4688
18	0.	-24604.52	-24604.52	-105.4688
19	0.	-19911.21	-19911.21	-105.4688
20	0.	-15217.90	-15217.90	-105.4688
21	0.	-10524.60	-10524.60	-105.4688
22	0.	-5831.29	-5831.29	-105.4688
23	0.	-1137.98	-1137.98	-105.4688
24	2.9300	1212.64	1452.02	-101.6489
25	4.3504	3515.62	3515.62	-99.7862
26	5.7798	8145.51	8145.51	-94.7073
27	5.7672	12919.94	12919.94	-89.1634
28	5.7890	17474.07	17474.07	-83.7035
29	5.8899	21211.96	21211.96	-78.4467
30	5.8545	24005.86	24005.86	-73.6178
31	4.3174	25846.81	25846.81	-70.2956
32	1.4517	26652.19	27128.67	-60.0135
WEB 1				0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   315.90

22 AUG 63

CONDITION LG-4

SX	SY	MXX	MYY	T
2998.	5629.	-603000.	-833700.	-304400.

	NO. IT.	OXP(N)	QYP(N)	
	4	-0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.75158E 03	1.69265E 03	1.95618E 01	8.81527E 00	2.61677E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.75157E 03	1.69265E 03	1.95638E 01	8.81524E 00	2.61685E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.17912E 00	1.93580E 00	6.37580E 00	5.46418E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-2.62839E-06	4.37622E-08	-3.95524E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
-6.74776E 00	2.85869E-01	5.98328E-02

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-79.9590
CELL	1	-79.9590
WEB	2	-13.6188

JOB NO. 1012

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   315.90

22 AUG 63

CONDITION LG-4

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-79.9590
1	1.4517	16012.40	16305.58	-72.3242
2	4.3174	16926.53	16926.53	-69.6353
3	5.8545	18564.54	18564.54	-65.2078
4	5.8899	19616.19	19616.19	-59.5897
5	5.7890	19649.53	19649.53	-52.6243
6	5.7672	18451.50	18451.50	-43.7899
7	5.7798	16242.95	16242.95	-32.6091
8	4.3504	13442.80	13442.80	-25.6372
9	2.9300	12025.79	11686.98	12.7320
10	4.4350	10579.45	10579.45	16.6266
11	5.9100	7691.68	7691.68	20.2296
12	5.9100	4803.90	4803.90	21.4268
13	5.9100	1916.12	1916.12	21.4115
14	0.	-971.66	-971.66	21.4115
15	0.	-3859.44	-3859.44	21.4115
16	0.5931	-5315.54	-5023.75	-13.6188
WEB 2				-13.6188
17	0.2944	-21578.14	-21069.93	-99.2094
18	0.	-20122.04	-20122.04	-99.2094
19	0.	-17234.26	-17234.26	-99.2094
20	0.	-14346.48	-14346.48	-99.2094
21	0.	-11458.70	-11458.70	-99.2094
22	0.	-8570.92	-8570.92	-99.2094
23	0.	-5683.15	-5683.15	-99.2094
24	1.3287	-4236.81	-3898.01	-105.0540
25	0.	-2819.80	-2819.80	-105.0540
26	5.7798	48.11	48.11	-103.1266
27	5.7672	3273.08	3273.08	-100.1759
28	5.7890	6707.22	6707.22	-96.8386
29	5.8899	9926.40	9926.40	-93.3584
30	5.8545	12737.11	12737.11	-89.9837
31	4.3174	14961.46	14961.46	-87.5762
32	1.4517	16012.40	16305.58	-79.9590
WEB 1				-0.0000

CONDITION L-16

SX	SY	MXX	MYY	T
0.	68316.	0.	-1105200.	0.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.	0.00005	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.86149E 03	1.70002E 03	-1.84541E-07	9.59442E 00	-5.86006E-08

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.86147E 03	1.69999E 03	-1.84470E-07	9.59474E 00	-5.86013E-08

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.32599E 00	1.93580E 00	6.37580E 00	5.46418E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
0.	-1.50473E-12	0.

S.C.(X)	S.C.(X/C)	S.C.(Y)
0.	4.76000E-01	-0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-0.0000
CELL	1	-0.0000
WEB	2	-0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   315.90

CONDITION L-16

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-0.0000
1	1.4517	21977.52	22367.59	94.1898
2	4.3174	21886.50	21886.50	125.6742
3	5.8545	21496.43	21496.43	173.8868
4	5.8899	20326.21	20326.21	230.1630
5	5.7890	18206.82	18206.82	294.0214
6	5.7672	15125.24	15125.24	367.3643
7	5.7798	11510.57	11510.57	449.5635
8	4.3504	7739.86	7739.86	493.7262
9	2.9300	5854.51	5854.51	702.1454
10	4.4350	3930.15	3930.15	716.9973
11	5.9100	87.94	87.94	717.5016
12	0.	-3754.28	-3754.28	717.5016
13	0.	-7596.50	-7596.50	717.5016
14	0.	-11438.71	-11438.71	717.5016
15	0.	-15280.93	-15280.93	717.5016
16	0.3296	-17218.29	-17218.29	-0.0000
WEB 2				-0.0000
17	0.3296	-17218.29	-17218.29	-717.5016
18	0.	-15280.93	-15280.93	-717.5016
19	0.	-11438.71	-11438.71	-717.5016
20	0.	-7596.50	-7596.50	-717.5016
21	0.	-3754.28	-3754.28	-717.5016
22	5.9100	87.94	87.94	-716.9973
23	4.4350	3930.15	3930.15	-702.1454
24	2.9300	5854.51	5854.51	-493.7262
25	4.3504	7739.86	7739.86	-449.5635
26	5.7798	11510.57	11510.57	-367.3643
27	5.7672	15125.24	15125.24	-294.0213
28	5.7890	18206.82	18206.82	-230.1630
29	5.8899	20326.21	20326.21	-173.8868
30	5.8545	21496.43	21496.43	-125.6742
31	4.3174	21886.50	21886.50	-94.1898
32	1.4517	21977.52	22367.59	0.0000
WEB 1				0.0001

NET STRESSES - INCLUDING AXIAL LOAD (REF. P. 211)

UPPER LONGERON: 5855 -18630 = -12775 psi

LOWER LONGERON: -17218 -16290 = -33508 psi

JOB NO. 1012

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   341.00

22 AUG 63

SECTION INPUT DATA

WIDTH TOL.	R(STG)	R(PLATE)	W/T	G/1E6
0.050	1.000	1.000	10.00	3.900

C	XO/C	R(WEB)	2A(TE)	DS(TE)
32.80	0.4450	1.000	0.	0.

T(TE)	2A(LE)	DS(LE)	T(LE)	
0.	0.	0.	0.	

FP(MAX)	FP(MIN)	FS(MIN)	QP(MAX)	
45000.	-30000.	-32000.	250.	

WEB	XW(U)	YW(U)	XW(L)	YW(L)	TW
1	39.82	0.	39.82	0.	0.0200
2	-14.58	0.	-14.58	0.	0.0450

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BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   341.00

SECTION INPUT DATA

ITEM	X(S)	Y(S)	A(S)	IXOS	IYOS	IXYOS	X(P)	Y(P)	T(P)	E/1E6
1	40.42	0.	0.12	0.	0.	0.	39.82	0.	0.010	10.50
2	39.67	2.60	0.	0.	0.	0.	39.67	2.60	0.011	0.
3	39.00	7.72	0.	0.	0.	0.	39.00	7.72	0.013	0.
4	37.42	12.77	0.	0.	0.	0.	37.42	12.77	0.016	0.
5	34.64	17.24	0.	0.	0.	0.	34.64	17.24	0.020	0.
6	30.70	20.64	0.	0.	0.	0.	30.70	20.64	0.020	0.
7	25.94	22.80	0.	0.	0.	0.	25.94	22.80	0.020	0.
8	20.82	23.80	0.	0.	0.	0.	20.82	23.80	0.020	0.
9	18.22	23.00	0.53	0.	0.	0.	18.22	24.00	0.016	10.50
10	15.49	24.00	0.	0.	0.	0.	15.49	24.00	0.016	0.
11	10.03	24.00	0.	0.	0.	0.	10.03	24.00	0.016	0.
12	4.57	24.00	0.	0.	0.	0.	4.57	24.00	0.016	0.
13	-0.89	24.00	0.	0.	0.	0.	-0.89	24.00	0.016	0.
14	-6.35	24.00	0.	0.	0.	0.	-6.35	24.00	0.016	0.
15	-11.81	24.00	0.	0.	0.	0.	-11.81	24.00	0.016	0.
16	-14.58	22.50	0.61	0.	0.	0.	-14.58	24.00	0.016	10.50
17	-14.58	-22.50	0.61	0.	0.	0.	-14.58	-24.00	0.016	10.50
18	-11.81	-24.00	0.	0.	0.	0.	-11.81	-24.00	0.016	0.
19	-6.35	-24.00	0.	0.	0.	0.	-6.35	-24.00	0.016	0.
20	-0.89	-24.00	0.	0.	0.	0.	-0.89	-24.00	0.016	0.
21	4.57	-24.00	0.	0.	0.	0.	4.57	-24.00	0.016	0.
22	10.03	-24.00	0.	0.	0.	0.	10.03	-24.00	0.016	0.
23	15.49	-24.00	0.	0.	0.	0.	15.49	-24.00	0.016	0.
24	18.22	-23.00	0.53	0.	0.	0.	18.22	-24.00	0.016	10.50
25	20.82	-23.80	0.	0.	0.	0.	20.82	-23.80	0.020	0.
26	25.94	-22.80	0.	0.	0.	0.	25.94	-22.80	0.020	0.
27	30.70	-20.64	0.	0.	0.	0.	30.70	-20.64	0.020	0.
28	34.64	-17.24	0.	0.	0.	0.	34.64	-17.24	0.020	0.
29	37.42	-12.77	0.	0.	0.	0.	37.42	-12.77	0.016	0.
30	39.00	-7.72	0.	0.	0.	0.	39.00	-7.72	0.013	0.
31	39.67	-2.60	0.	0.	0.	0.	39.67	-2.60	0.011	0.
32	40.42	-0.	0.12	0.	0.	0.	39.82	-0.	0.010	10.50

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   341.00

22 AUG 63

CONDITION F-8P

SX	SY	MXX	MYY	T
0.	10165.	0.	-1512300.	0.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.69205E 03	1.62960E 03	-1.46656E-06	1.34017E 01	-5.17287E-08

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.69203E 03	1.62958E 03	-1.46653E-06	1.34018E 01	-5.17291E-08

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.41259E 00	2.26264E 00	4.79064E 00	4.83280E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
0.	1.96697E-13	0.

S.C.(X)	S.C.(X/C)	S.C.(Y)
0.	4.45000E-01	0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	0.0000
CELL	1	0.0000
WEB	2	-0.0000

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				0.0000
1	1.3022	24516.79	25073.60	22.7039
2	3.8840	24377.58	24377.58	29.5594
3	5.2275	23755.80	23755.80	40.2408
4	5.2777	22289.52	22289.52	52.5773
5	5.2341	19709.60	19709.60	66.4517
6	5.2157	16053.17	16053.17	77.7042
7	5.2220	11635.76	11635.76	85.8740
8	3.9122	6884.26	6884.26	89.8092
9	2.6688	4471.38	4471.38	106.9895
10	4.0950	1937.87	1937.87	107.5532
11	0.	-3129.16	-3129.16	107.5532
12	0.	-8196.19	-8196.19	107.5532
13	0.	-13263.23	-13263.23	107.5532
14	0.	-18330.26	-18330.26	107.5532
15	0.	-23397.29	-23397.29	107.5532
16	0.2683	-25967.93	-25967.93	-0.0000
WEB 2				-0.0000
17	0.2683	-25967.93	-25967.93	-107.5532
18	0.	-23397.29	-23397.29	-107.5532
19	0.	-18330.26	-18330.26	-107.5532
20	0.	-13263.23	-13263.23	-107.5532
21	0.	-8196.19	-8196.19	-107.5532
22	0.	-3129.16	-3129.16	-107.5532
23	4.0950	1937.87	1937.87	-106.9895
24	2.6688	4471.38	4471.38	-89.8092
25	3.9122	6884.26	6884.26	-85.8740
26	5.2220	11635.76	11635.76	-77.7042
27	5.2157	16053.17	16053.17	-66.4517
28	5.2341	19709.60	19709.60	-52.5773
29	5.2777	22289.52	22289.52	-40.2408
30	5.2275	23755.80	23755.80	-29.5594
31	3.8840	24377.58	24377.58	-22.7039
32	1.3022	24516.79	25073.60	0.0000
WEB 1				0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   341.00

CONDITION   ROLL-5

SX	SY	MXX	MYY	T
3224.	4821.	-476600.	-666300.	-198200.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.65505E 03	1.63220E 03	6.59974E 00	1.22375E 01	3.20344E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.65447E 03	1.63215E 03	6.67687E 00	1.22366E 01	3.20900E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.40562E 00	2.26264E 00	4.79064E 00	4.83280E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
5.47954E-06	1.76602E-08	-2.56875E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
1.31139E 01	8.44813E-01	2.82645E-02

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-69.6286
CELL	1	-69.6286
WEB	2	3.8298

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   341.00

CONDITION   ROLL-5

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-69.6286
1	1.3022	10309.03	10553.27	-59.2658
2	3.8840	10992.68	10992.68	-55.8820
3	5.2275	12186.44	12186.44	-50.0193
4	5.2777	12989.73	12989.73	-42.3871
5	5.2341	13138.42	13138.42	-32.6330
6	5.2157	12508.44	12508.44	-23.4386
7	5.2220	11189.50	11189.50	-15.2593
8	3.9122	9391.76	9391.76	-10.0271
9	2.6688	8390.68	8104.26	22.0521
10	4.0950	7279.40	7279.40	25.1279
11	5.4600	5056.84	5056.84	28.0225
12	5.4600	2834.28	2834.28	29.5383
13	5.4600	611.71	611.71	29.6753
14	0.	-1610.85	-1610.85	29.6753
15	0.	-3833.41	-3833.41	29.6753
16	0.6139	-4960.97	-5390.61	3.8298
WEB 2				3.8298
17	0.3162	-18709.38	-18279.74	-75.6411
18	0.	-17581.81	-17581.81	-75.6411
19	0.	-15359.25	-15359.25	-75.6411
20	0.	-13136.69	-13136.69	-75.6411
21	0.	-10914.13	-10914.13	-75.6411
22	0.	-8691.56	-8691.56	-75.6411
23	0.	-6469.00	-6469.00	-75.6411
24	1.1819	-5357.72	-5071.30	-93.8532
25	0.	-4242.07	-4242.07	-93.8532
26	0.	-1871.49	-1871.49	-93.8532
27	5.2157	684.81	684.81	-92.9999
28	5.2341	3262.48	3262.48	-90.2319
29	5.2777	5674.44	5674.44	-86.6703
30	5.2275	7764.04	7764.04	-82.8166
31	3.8840	9503.27	9503.27	-79.9586
32	1.3022	10309.03	10553.27	-69.6286
WEB 1				-0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   341.00

22 AUG 63

CONDITION LG-1

SX	SY	MXX	MYY	T
2659.	7409.	-365600.	-1162100.	-216900.

	NO. IT.	QXP(N)	QYP(N)	
	4	-0.00000	-0.00001	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.64648E 03	1.62589E 03	1.21571E 01	1.31179E 01	1.48303E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.69524E 03	1.63133E 03	-3.97021E 00	1.32833E 01	9.83278E-01

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)	
1.42480E 00	2.26264E 00	4.79064E 00	4.83280E 03	

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
4.53991E-06	1.19415E-09	-2.81111E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
1.31738E 01	8.46639E-01	1.24360E-03

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-68.6975
CELL	1	-68.6975
WEB	2	-8.1454

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   341.00

CONDITION LG-1

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				
1	1.3022	18704.07	19131.80	-68.6975
2	3.8840	19162.20	19162.20	-52.2765
3	5.2275	19797.30	19797.30	-47.1090
4	5.2777	19768.46	19768.46	-38.5741
5	5.2341	18758.09	18758.09	-28.0085
6	5.2157	16688.23	16688.23	-15.1562
7	5.2220	13764.30	13764.30	-3.6617
8	3.9122	10331.63	10331.63	5.9460
9	2.6688	8521.57	8304.24	11.6626
10	4.0950	6575.38	6575.38	44.4400
11	5.4600	2682.99	2682.99	47.2222
12	0.	-1209.40	-1209.40	49.0703
13	0.	-5101.79	-5101.79	49.0703
14	0.	-8994.18	-8994.18	49.0703
15	0.	-12886.56	-12886.56	49.0703
16	0.3546	-14861.27	-15187.27	49.0703
				-8.1454
WEB 2				
17	0.2720	-25293.21	-24967.21	-8.1454
18	0.	-23318.50	-23318.50	-109.0593
19	0.	-19426.11	-19426.11	-109.0593
20	0.	-15533.72	-15533.72	-109.0593
21	0.	-11641.33	-11641.33	-109.0593
22	0.	-7748.94	-7748.94	-109.0593
23	0.	-3856.55	-3856.55	-109.0593
24	1.9916	-1910.36	-1693.03	-109.0593
25	3.9122	-13.37	-13.37	-117.7710
26	5.2220	3853.96	3853.96	-117.9111
27	5.2157	7716.77	7716.77	-115.8238
28	5.2341	11264.49	11264.49	-111.1302
29	5.2777	14217.80	14217.80	-103.9740
30	5.2275	16441.70	16441.70	-96.7273
31	3.8840	18032.07	18032.07	-89.8305
32	1.3022	18704.07	18032.07	-85.0917
WEB 1			19131.80	-68.6975
				-0.0000

JOB NO. 1012

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   341.00

22 AUG 63

CONDITION LG-4

SX	SY	MXX	MYY	T
3336.	5392.	-524000.	-695200.	-305700.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.00000	-0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.65413E 03	1.63210E 03	6.62018E 00	1.22363E 01	3.21280E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.65361E 03	1.63208E 03	6.67117E 00	1.22352E 01	3.21818E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.40450E 00	2.26264E 00	4.79064E 00	4.83280E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
5.66968E-06	1.99603E-08	-3.96200E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
1.31134E 01	8.44798E-01	2.85627E-02

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-92.9376
CELL	1	-92.9376
WEB	2	-16.9167

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   341.00

CONDITION LG-4

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-92.9376
1	1.3022	10700.16	10954.97	-81.2774
2	3.8840	11455.90	11455.90	-77.4926
3	5.2275	12785.04	12785.04	-70.9843
4	5.2777	13705.66	13705.66	-62.5751
5	5.2341	13933.89	13933.89	-51.9032
6	5.2157	13332.26	13332.26	-41.9144
7	5.2220	11991.60	11991.60	-33.0981
8	3.9122	10132.45	10132.45	-27.5065
9	2.6688	9091.35	8776.18	6.5260
10	4.0950	7932.00	7932.00	9.7487
11	5.4600	5613.30	5613.30	12.6959
12	5.4600	3294.60	3294.60	14.1007
13	5.4600	975.90	975.90	13.9631
14	0.	-1342.80	-1342.80	13.9631
15	0.	-3661.50	-3661.50	13.9631
16	0.6217	-4837.84	-5310.59	-16.9167
WEB 2				-16.9167
17	0.3061	-19965.96	-19493.21	-103.2279
18	0.	-18789.62	-18789.62	-103.2279
19	0.	-16470.92	-16470.92	-103.2279
20	0.	-14152.22	-14152.22	-103.2279
21	0.	-11833.53	-11833.53	-103.2279
22	0.	-9514.83	-9514.83	-103.2279
23	0.	-7196.13	-7196.13	-103.2279
24	1.1134	-6036.78	-5721.61	-121.2318
25	0.	-4869.60	-4869.60	-121.2318
26	0.	-2380.12	-2380.12	-121.2318
27	5.2157	322.08	322.08	-119.8741
28	5.2341	3066.85	3066.85	-116.4310
29	5.2777	5656.24	5656.24	-112.2340
30	5.2275	7918.83	7918.83	-107.8045
31	3.8840	9817.02	9817.02	-104.5638
32	1.3022	10700.16	10954.97	-92.9376
WEB 1				-0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   341.00

CONDITION L-2

SX	SY	MXX	MYY	T
0.	7377.	0.	-707700.	0.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.	-0.00001	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.69431E 03	1.63260E 03	-1.47216E-06	1.33742E 01	-5.16773E-08

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.69429E 03	1.63257E 03	-1.47211E-06	1.33744E 01	-5.16778E-08

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.41650E 00	2.26264E 00	4.79064E 00	4.83280E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
0.	-4.59844E-13	0.

S.C.(X)	S.C.(X/C)	S.C.(Y)
0.	4.45000E-01	-0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	0.0000
CELL	1	0.0000
WEB	2	-0.0000

JOB NO. 1012

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   341.00

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CONDITION L-2

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				0.0000
1	1.3022	11463.84	11723.93	16.4634
2	3.8840	11398.81	11398.81	21.4347
3	5.2275	11108.38	11108.38	29.1806
4	5.2777	10423.47	10423.47	38.1273
5	5.2341	9218.37	9218.37	48.1909
6	5.2157	7510.43	7510.43	56.3551
7	5.2220	5447.02	5447.02	62.2862
8	3.9122	3227.56	3227.56	65.1465
9	2.6688	2100.49	2100.49	77.6627
10	4.0950	917.07	917.07	78.0790
11	0.	-1449.78	-1449.78	78.0790
12	0.	-3816.62	-3816.62	78.0790
13	0.	-6183.47	-6183.47	78.0790
14	0.	-8550.31	-8550.31	78.0790
15	0.	-10917.16	-10917.16	78.0790
16	0.3928	-12117.92	-12117.92	-0.0000
WEB 2				-0.0000
17	0.3928	-12117.92	-12117.92	-78.0790
18	0.	-10917.16	-10917.16	-78.0790
19	0.	-8550.31	-8550.31	-78.0790
20	0.	-6183.47	-6183.47	-78.0790
21	0.	-3816.62	-3816.62	-78.0790
22	0.	-1449.78	-1449.78	-78.0790
23	4.0950	917.07	917.07	-77.6627
24	2.6688	2100.49	2100.49	-65.1465
25	3.9122	3227.56	3227.56	-62.2862
26	5.2220	5447.02	5447.02	-56.3551
27	5.2157	7510.43	7510.43	-48.1909
28	5.2341	9218.37	9218.37	-38.1273
29	5.2777	10423.47	10423.47	-29.1806
30	5.2275	11108.38	11108.38	-21.4347
31	3.8840	11398.81	11398.81	-16.4634
32	1.3022	11463.84	11723.93	-0.0000
WEB 1				-0.0000
				-0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 365.99

SECTION INPUT DATA

WIDTH TOL.	R(STG)	R(PLATE)	W/T	G/1E6
0.050	1.000	1.000	20.00	3.900

C	X0/C	R(WEB)	2A(TE)	DS(TE)
29.68	0.3980	1.000	-0.	-0.

T(TE)	2A(LE)	DS(LE)	T(LE)
-0.	-0.	-0.	-0.

FP(MAX)	FP(MIN)	FS(MIN)	QP(MAX)
45000.	-30000.	-30000.	250.

WEB	XW(U)	YW(U)	XW(L)	YW(L)	TW
1	36.18	-0.	36.18	-0.	0.0200
2	-11.80	23.70	-11.80	-23.70	0.0250

JOB NO. 1012

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 365.99

22 AUG 63

SECTION INPUT DATA

ITEM	X(S)	Y(S)	A(S)	IXOS	IYOS	IXYOS	X(P)	Y(P)	T(P)	E/1E6
1	36.78	-0.	0.19	-0.	-0.	-0.	36.18	-0.	0.016	10.50
2	36.10	2.40	-0.	-0.	-0.	-0.	36.10	2.40	0.017	-0.
3	35.58	7.10	-0.	-0.	-0.	-0.	35.58	7.10	0.020	-0.
4	34.31	11.80	-0.	-0.	-0.	-0.	34.31	11.80	0.020	-0.
5	32.18	16.00	-0.	-0.	-0.	-0.	32.18	16.00	0.020	-0.
6	28.91	19.50	-0.	-0.	-0.	-0.	28.91	19.50	0.020	-0.
7	24.81	22.00	-0.	-0.	-0.	-0.	24.81	22.00	0.020	-0.
8	20.25	23.42	-0.	-0.	-0.	-0.	20.25	23.42	0.020	-0.
9	17.88	22.89	0.46	-0.	-0.	-0.	17.88	23.89	0.016	10.50
10	15.43	23.89	-0.	-0.	-0.	-0.	15.43	23.89	0.016	-0.
11	10.48	23.89	-0.	-0.	-0.	-0.	10.48	23.89	0.016	-0.
12	5.53	23.89	-0.	-0.	-0.	-0.	5.53	23.89	0.016	-0.
13	0.58	23.89	-0.	-0.	-0.	-0.	0.58	23.89	0.016	-0.
14	-4.37	23.89	-0.	-0.	-0.	-0.	-4.37	23.89	0.016	-0.
15	-9.32	23.80	-0.	-0.	-0.	-0.	-9.32	23.80	0.016	-0.
16	-11.80	22.70	0.50	-0.	-0.	-0.	-11.80	23.70	0.016	10.50
17	-11.80	-22.70	0.50	-0.	-0.	-0.	-11.80	-23.70	0.016	10.50
18	-9.32	-23.80	-0.	-0.	-0.	-0.	-9.32	-23.80	0.016	-0.
19	-4.37	-23.89	-0.	-0.	-0.	-0.	-4.37	-23.89	0.016	-0.
20	0.58	-23.89	-0.	-0.	-0.	-0.	0.58	-23.89	0.016	-0.
21	5.53	-23.89	-0.	-0.	-0.	-0.	5.53	-23.89	0.016	-0.
22	10.48	-23.89	-0.	-0.	-0.	-0.	10.48	-23.89	0.016	-0.
23	15.43	-23.89	-0.	-0.	-0.	-0.	15.43	-23.89	0.016	-0.
24	17.88	-22.89	0.46	-0.	-0.	-0.	17.88	-23.89	0.016	10.50
25	20.25	-23.42	-0.	-0.	-0.	-0.	20.25	-23.42	0.020	-0.
26	24.81	-22.00	-0.	-0.	-0.	-0.	24.81	-22.00	0.020	-0.
27	28.91	-19.50	-0.	-0.	-0.	-0.	28.91	-19.50	0.020	-0.
28	32.18	-16.00	-0.	-0.	-0.	-0.	32.18	-16.00	0.020	-0.
29	34.31	-11.80	-0.	-0.	-0.	-0.	34.31	-11.80	0.020	-0.
30	35.58	-7.10	-0.	-0.	-0.	-0.	35.58	-7.10	0.020	-0.
31	36.10	-2.40	-0.	-0.	-0.	-0.	36.10	-2.40	0.017	-0.
32	36.78	0.	0.19	-0.	-0.	-0.	36.18	0.	0.016	10.50

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   365.99

CONDITION L-2

SX	SY	MXX	MYY	T
-0.	5717.	-0.	-540700.	-0.

	NO. IT.	OXP(N)	OYP(N)	
	3	0.	-0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.37985E 03	1.25840E 03	6.92300E-07	1.60071E 01	-4.84855E-08

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.37980E 03	1.25834E 03	6.92406E-07	1.60077E 01	-4.84865E-08

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.34870E 00	2.22985E 00	5.72285E 00	4.22159E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
0.	1.40342E-14	-0.

S.C.(X)	S.C.(X/C)	S.C.(Y)
-0.	3.98000E-01	0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	0.0000
CELL	1	0.0000
WEB	2	-0.0000

JOB NO. 1012

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 365.99

22 AUG 63

CONDITION L-2

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				0.0000
1	1.2007	8667.93	8925.74	19.9513
2	3.5650	8633.55	8633.55	25.4701
3	4.7986	8410.11	8410.11	34.0014
4	4.7889	7864.40	7864.40	41.9718
5	4.7496	6949.15	6949.15	48.9464
6	4.7960	5544.05	5544.05	54.5680
7	4.7890	3782.30	3782.30	58.4010
8	3.5961	1822.90	1822.90	59.9732
9	2.4331	804.52	804.52	64.2012
10	-0.	-248.23	-248.23	64.2012
11	-0.	-2375.22	-2375.22	64.2012
12	-0.	-4502.21	-4502.21	64.2012
13	-0.	-6629.20	-6629.20	64.2012
14	-0.	-8756.18	-8756.18	64.2012
15	-0.	-10883.17	-10883.17	64.2012
16	0.3956	-11948.81	-11948.81	-0.0000
WEB 2				-0.0000
17	0.3956	-11948.81	-11948.81	-64.2012
18	-0.	-10883.17	-10883.17	-64.2012
19	-0.	-8756.18	-8756.18	-64.2012
20	-0.	-6629.20	-6629.20	-64.2012
21	-0.	-4502.21	-4502.21	-64.2012
22	-0.	-2375.22	-2375.22	-64.2012
23	-0.	-248.23	-248.23	-64.2012
24	2.4331	804.52	804.52	-59.9732
25	3.5961	1822.90	1822.90	-58.4010
26	4.7890	3782.30	3782.30	-54.5680
27	4.7960	5544.05	5544.05	-48.9464
28	4.7496	6949.15	6949.15	-41.9718
29	4.7889	7864.40	7864.40	-34.0014
30	4.7986	8410.11	8410.11	-25.4701
31	3.5650	8633.55	8633.55	-19.9513
32	1.2007	8667.93	8925.74	-0.0000
WEB 1				-0.0000

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BOX BEAM ANALYSIS   22 AUG 63
                                          MODEL   XV-5A
                                             FUSELAGE
                                        STATION   365.99

                                        CONDITION LG-1

SX	SY	MXX	MYY	T
2885.	7149.	-293700.	-981000.	-215400.

	NO. IT.	OXP(N)	QYP(N)	
	3	-0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.40054E 03	1.25679E 03	-2.81326E 00	1.57941E 01	1.43191E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.39991E 03	1.25674E 03	-2.76867E 00	1.57939E 01	1.43836E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)	
1.39359E 00	2.22985E 00	⌐.72285E 00	4.22159E 03	

	THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)	
	4.17359E-06	1.35230E-08	-2.83458E-05	

	S.C.(X)	S.C.(X/C)	S.C.(Y)	
	1.09931E 01	7.68388E-01	1.43742E-02	

                       NET WEB AND INTERNAL CELL SHEAR FLOWS

                              WEB   1   -77.8705
                              CELL   1   -77.8705
                              WEB   2   -10.7562

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 365.99

CONDITION LG-1

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-77.8705
1	1.2007	15618.64	16087.28	-53.2204
2	3.5650	16063.39	16063.39	-46.0375
3	4.7986	16650.56	16650.56	-34.0977
4	4.7889	16651.94	16651.94	-21.9446
5	4.7496	15875.94	15875.94	-10.2200
6	4.7960	14061.59	14061.59	0.5313
7	4.7890	11387.63	11387.63	9.5312
8	3.5961	8126.13	8126.13	14.8416
9	2.4331	6374.36	6163.02	42.9244
10	3.7000	4460.78	4460.78	45.2998
11	4.9500	594.56	594.56	46.5642
12	-0.	-3271.66	-3271.66	46.5642
13	-0.	-7137.88	-7137.88	46.5642
14	-0.	-11004.10	-11004.10	46.5642
15	-0.	-14889.35	-14889.35	46.5642
16	0.3332	-16847.50	-17058.84	-10.7562
WEB 2				-10.7562
17	0.2638	-26865.22	-26653.88	-115.5898
18	-0.	-24949.34	-24949.34	-115.5898
19	-0.	-21102.14	-21102.14	-115.5898
20	-0.	-17235.92	-17235.92	-115.5898
21	-0.	-13369.70	-13369.70	-115.5898
22	-0.	-9503.48	-9503.48	-115.5898
23	-0.	-5637.26	-5637.26	-115.5898
24	1.4179	-3723.68	-3512.33	-134.1812
25	-0.	-1773.24	-1773.24	-134.1812
26	4.7890	2088.47	2088.47	-133.9129
27	4.7960	5819.16	5819.16	-130.9138
28	4.7496	9112.91	9112.91	-125.4943
29	4.7889	11664.21	11664.21	-118.0102
30	4.7986	13649.47	13649.47	-108.9079
31	3.5650	15048.93	15048.93	-102.4734
32	1.2007	15618.64	16087.28	-77.8705
WEB 1				0.0000

BOX BEAM ANALYSIS
MODEL   XV-5A
FUSELAGE
STATION   365.99

22 AUG 63

CONDITION LG-4

SX	SY	MXX	MYY	T
4215.	4776.	-426700.	-568500.	-311100.

	NO. IT.	QXP(N)	QYP(N)	
	4	-0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.33185E 03	1.24115E 03	2.95078E 01	1.49429E 01	3.17347E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.33185E 03	1.24115E 03	2.95095E 01	1.49429E 01	3.17346E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.27788E 00	2.22985E 00	5.72285E 00	4.22159E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
5.99104E-06	7.46470E-08	-4.09396E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
1.08009E 01	7.61913E-01	1.18769E-01

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-112.1345
CELL	1	-112.1345
WEB	2	-14.2159

CONDITION LG-4

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-112.1345
1	1.2007	8585.76	8856.15	-96.7436
2	3.5650	9294.65	9294.65	-91.9508
3	4.7986	10519.17	10519.17	-83.3056
4	4.7889	11405.69	11405.69	-73.7637
5	4.7496	11749.44	11749.44	-63.8282
6	4.7960	11362.15	11362.15	-53.9462
7	4.7890	10290.42	10290.42	-44.8214
8	3.5961	8676.15	8676.15	-38.7739
9	2.4331	7753.97	7443.57	-2.9404
10	3.7000	6649.84	6649.84	0.7373
11	4.9500	4419.06	4419.06	4.3886
12	4.9500	2188.27	2188.27	6.5878
13	-0.	-42.52	-42.52	6.5878
14	-0.	-2273.30	-2273.30	6.5878
15	-0.	-4532.02	-4532.02	6.5878
16	0.5737	-5680.71	-5991.11	-14.2159
WEB 2				-14.2159
17	0.3028	-20393.48	-20083.08	-105.7824
18	-0.	-19306.87	-19306.87	-105.7824
19	-0.	-17104.02	-17104.02	-105.7824
20	-0.	-14873.24	-14873.24	-105.7824
21	-0.	-12642.45	-12642.45	-105.7824
22	-0.	-10411.66	-10411.66	-105.7824
23	-0.	-8180.88	-8180.88	-105.7824
24	1.0281	-7076.75	-6766.36	-138.7205
25	-0.	-5862.79	-5862.79	-138.7205
26	-0.	-3367.00	-3367.00	-138.7205
27	-0.	-743.29	-743.29	-138.7205
28	4.7496	1816.77	1816.77	-138.1604
29	4.7889	4080.34	4080.34	-135.5610
30	4.7986	6111.55	6111.55	-131.1351
31	3.5650	7804.75	7804.75	-127.4552
32	1.2007	8585.76	8856.15	-112.1345
WEB 1				-0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 365.99

CONDITION ROLL-5

SX	SY	MXX	MYY	T
3786.	4131.	-386500.	-554900.	-201500.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.33282E 03	1.24117E 03	2.96058E 01	1.49438E 01	3.16198E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.33256E 03	1.24107E 03	2.96650E 01	1.49446E 01	3.16356E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.27873E 00	2.22985E 00	5.72285E 00	4.22159E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
5.38204E-06	6.40134E-08	-2.65166E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
1.08025E 01	7.61964E-01	1.17753E-01

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-82.2122
CELL	1	-82.2122
WEB	2	5.7219

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 365.99

CONDITION ROLL-5

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-82.2122
1	1.2007	8465.82	8730.07	-68.9757
2	3.5650	9103.16	9103.16	-64.8335
3	4.7986	10191.27	10191.27	-57.3195
4	4.7889	10949.07	10949.07	-48.9839
5	4.7496	11187.99	11187.99	-40.2661
6	4.7960	10728.67	10728.67	-31.5579
7	4.7890	9623.57	9623.57	-23.4792
8	3.5961	8013.21	8013.21	-18.0984
9	2.4331	7101.14	6820.90	13.9214
10	3.7000	6022.13	6022.13	17.2282
11	4.9500	3842.07	3842.07	20.5557
12	4.9500	1662.01	1662.01	22.6282
13	-0.	-518.04	-518.04	22.6282
14	-0.	-2698.10	-2698.10	22.6282
15	-0.	-4903.38	-4903.38	22.6282
16	0.5572	-6023.63	-6303.87	5.7219
WEB 2				5.7219
17	0.3112	-19306.98	-19026.74	-74.8111
18	-0.	-18242.77	-18242.77	-74.8111
19	-0.	-16087.94	-16087.94	-74.8111
20	-0.	-13907.88	-13907.88	-74.8111
21	-0.	-11727.83	-11727.83	-74.8111
22	-0.	-9547.77	-9547.77	-74.8111
23	-0.	-7367.72	-7367.72	-74.8111
24	1.0907	-6288.70	-6008.46	-104.6418
25	-0.	-5113.20	-5113.20	-104.6418
26	-0.	-2706.97	-2706.97	-104.6418
27	-0.	-200.67	-200.67	-104.6418
28	4.7496	2220.33	2220.33	-104.3483
29	4.7889	4335.42	4335.42	-102.2507
30	4.7986	6211.87	6211.87	-98.5280
31	3.5650	7758.02	7758.02	-95.3857
32	1.2007	8465.82	8730.07	-82.2122
WEB 1				-0.0000

CONDITION F-8

SX	SY	MXX	MYY	T
-0.	11141.	-0.	-1246400.	-0.

	NO. IT.	QXP(N)	QYP(N)	
	3	0.	-0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.37744E 03	1.25516E 03	6.98011E-07	1.60393E 01	-4.85423E-08

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.37741E 03	1.25512E 03	6.98083E-07	1.60397E 01	-4.85430E-08

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.34444E 00	2.22985E 00	5.72285E 00	4.22159E 03

	THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
	0.	5.62927E-14	-0.

	S.C.(X)	S.C.(X/C)	S.C.(Y)
	-0.	3.98000E-01	0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	0.0000
CELL	1	0.0000
WEB	2	-0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 365.99

CONDITION F-8

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				0.0000
1	1.2007	20000.38	20596.22	38.9194
2	3.5650	19920.94	19920.94	49.6846
3	4.7986	19404.55	19404.55	66.3253
4	4.7889	18143.37	18143.37	81.8702
5	4.7496	16028.17	16028.17	95.4697
6	4.7960	12780.88	12780.88	106.4258
7	4.7890	8709.36	8709.36	113.8873
8	3.5961	4181.04	4181.04	116.9385
9	2.4331	1827.50	1827.50	125.0575
10	-0.	-605.48	-605.48	125.0575
11	-0.	-5521.09	-5521.09	125.0575
12	-0.	-10436.71	-10436.71	125.0575
13	-0.	-15352.32	-15352.32	125.0575
14	-0.	-20267.94	-20267.94	125.0575
15	-0.	-25183.56	-25183.56	125.0575
16	0.2601	-27646.33	-27646.33	-0.0000
WEB 2				-0.0000
17	0.2601	-27646.33	-27646.33	-125.0575
18	-0.	-25183.56	-25183.56	-125.0575
19	-0.	-20267.94	-20267.94	-125.0575
20	-0.	-15352.32	-15352.32	-125.0575
21	-0.	-10436.71	-10436.71	-125.0575
22	-0.	-5521.09	-5521.09	-125.0575
23	-0.	-605.48	-605.48	-125.0575
24	2.4331	1827.50	1827.50	-116.9385
25	3.5961	4181.04	4181.04	-113.8873
26	4.7890	8709.36	8709.36	-106.4258
27	4.7960	12780.88	12780.88	-95.4697
28	4.7496	16028.17	16028.17	-81.8702
29	4.7889	18143.37	18143.37	-66.3253
30	4.7986	19404.55	19404.55	-49.6846
31	3.5650	19920.94	19920.94	-38.9194
32	1.2007	20000.38	20596.22	-0.0000
WEB 1				-0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   366.01

22 AUG 63

SECTION INPUT DATA

WIDTH TOL.	R(STG)	R(PLATE)	W/T	G/1E6
0.050	1.000	1.000	20.00	3.900

C	XO/C	R(WEB)	2A(TE)	DS(TE)
29.68	1.0700	1.000	-0.	-0.

T(TE)	2A(LE)	DS(LE)	T(LE)
-0.	-0.	-0.	-0.

FP(MAX)	FP(MIN)	FS(MIN)	QP(MAX)
45000.	-30000.	-30000.	250.

WEB	XW(U)	YW(U)	XW(L)	YW(L)	TW
1	36.18	-0.	36.18	-0.	0.0200
2	-31.80	-0.	-31.80	-0.	0.0320

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SECTION INPUT DATA

ITEM	X(S)	Y(S)	A(S)	IXOS	IYOS	IXYOS	X(P)	Y(P)	T(P)	E/1E6
1	36.78	-0.	0.19	-0.	-0.	-0.	36.18	-0.	0.016	10.50
2	36.10	2.40	-0.	-0.	-0.	-0.	36.10	2.40	0.017	-0.
3	35.58	7.10	-0.	-0.	-0.	-0.	35.58	7.10	0.020	-0.
4	34.31	11.80	-0.	-0.	-0.	-0.	34.31	11.80	0.020	-0.
5	32.18	16.00	-0.	-0.	-0.	-0.	32.18	16.00	0.020	-0.
6	28.91	19.50	-0.	-0.	-0.	-0.	28.91	19.50	0.020	-0.
7	24.81	22.00	-0.	-0.	-0.	-0.	24.81	22.00	0.020	-0.
8	20.25	23.42	-0.	-0.	-0.	-0.	20.25	23.42	0.020	-0.
9	17.88	22.89	0.46	-0.	-0.	-0.	17.88	23.89	0.016	10.50
10	15.43	23.89	-0.	-0.	-0.	-0.	15.43	23.89	0.016	-0.
11	10.48	23.89	-0.	-0.	-0.	-0.	10.48	23.89	0.016	-0.
12	5.53	23.89	-0.	-0.	-0.	-0.	5.53	23.89	0.016	-0.
13	0.58	23.89	-0.	-0.	-0.	-0.	0.58	23.89	0.016	-0.
14	-4.37	23.89	-0.	-0.	-0.	-0.	-4.37	23.89	0.016	-0.
15	-9.32	23.80	-0.	-0.	-0.	-0.	-9.32	23.80	0.016	-0.
16	-11.80	22.70	0.50	-0.	-0.	-0.	-11.80	23.70	0.016	10.50
17	-14.50	23.70	-0.	-0.	-0.	-0.	-14.50	23.70	-0.032	-0.
18	-19.90	23.65	-0.	-0.	-0.	-0.	-19.90	23.65	-0.032	-0.
19	-25.30	22.25	-0.	-0.	-0.	-0.	-25.30	22.25	-0.032	-0.
20	-29.30	18.65	-0.	-0.	-0.	-0.	-29.30	18.65	-0.032	-0.
21	-31.10	13.50	-0.	-0.	-0.	-0.	-31.10	13.50	-0.032	-0.
22	-31.70	8.10	-0.	-0.	-0.	-0.	-31.70	8.10	-0.032	-0.
23	-31.80	2.70	-0.	-0.	-0.	-0.	-31.80	2.70	-0.032	-0.
24	-31.80	-0.	-0.	-0.	-0.	-0.	-31.80	-0.	-0.032	-0.
25	-31.80	0.	-0.	-0.	-0.	-0.	-31.80	0.	-0.032	-0.
26	-31.80	-2.70	-0.	-0.	-0.	-0.	-31.80	-2.70	-0.032	-0.
27	-31.70	-8.10	-0.	-0.	-0.	-0.	-31.70	-8.10	-0.032	-0.
28	-31.10	-13.50	-0.	-0.	-0.	-0.	-31.10	-13.50	-0.032	-0.
29	-29.30	-18.65	-0.	-0.	-0.	-0.	-29.30	-18.65	-0.032	-0.
30	-25.30	-22.25	-0.	-0.	-0.	-0.	-25.30	-22.25	-0.032	-0.
31	-19.90	-23.65	-0.	-0.	-0.	-0.	-19.90	-23.65	-0.032	-0.
32	-14.50	-23.70	-0.	-0.	-0.	-0.	-14.50	-23.70	-0.032	-0.
33	-11.80	-22.70	0.50	-0.	-0.	-0.	-11.80	-23.70	0.016	10.50
34	-9.32	-23.80	-0.	-0.	-0.	-0.	-9.32	-23.80	0.016	-0.
35	-4.37	-23.89	-0.	-0.	-0.	-0.	-4.37	-23.89	0.016	-0.
36	0.58	-23.89	-0.	-0.	-0.	-0.	0.58	-23.89	0.016	-0.
37	5.53	-23.89	-0.	-0.	-0.	-0.	5.53	-23.89	0.016	-0.
38	10.48	-23.89	-0.	-0.	-0.	-0.	10.48	-23.89	0.016	-0.
39	15.43	-23.89	-0.	-0.	-0.	-0.	15.43	-23.89	0.016	-0.
40	17.88	-22.89	0.46	-0.	-0.	-0.	17.88	-23.89	0.016	10.50
41	20.25	-23.42	-0.	-0.	-0.	-0.	20.25	-23.42	0.020	-0.
42	24.81	-22.00	-0.	-0.	-0.	-0.	24.81	-22.00	0.020	-0.
43	28.91	-19.50	-0.	-0.	-0.	-0.	28.91	-19.50	0.020	-0.
44	32.18	-16.00	-0.	-0.	-0.	-0.	32.18	-16.00	0.020	-0.
45	34.31	-11.80	-0.	-0.	-0.	-0.	34.31	-11.80	0.020	-0.
46	35.58	-7.10	-0.	-0.	-0.	-0.	35.58	-7.10	0.020	-0.

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 366.01

22 AUG 63

SECTION INPUT DATA

ITEM	X(S)	Y(S)	A(S)	IXOS	IYOS	IXYOS	X(P)	Y(P)	T(P)	E/1E6
47	36.10	-2.40	-0.	-0.	-0.	-0.	36.10	-2.40	0.017	-0.
48	36.78	0.	0.19	-0.	-0.	-0.	36.18	0.	0.016	10.50

BOX BEAM ANALYSIS
MODEL   XV-5A
FUSELAGE
STATION   366.01

CONDITION F-8

SX	SY	MXX	MYY	T
-0.	11141.	-0.	-1246400.	-0.

	NO. IT.	QXP(N)	QYP(N)	
	4	0.	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.38204E 03	1.26155E 03	6.86919E-07	1.59767E 01	-4.84337E-08

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.38203E 03	1.26154E 03	6.86939E-07	1.59769E 01	-4.84339E-08

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.35267E 00	-7.65497E-02	2.23145E 00	5.95567E 03

	THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
	0.	-3.93016E-14	-0.

	S.C.(X)	S.C.(X/C)	S.C.(Y)
	-0.	1.07000E 00	-0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	0.0000
CELL	1	0.0000
WEB	2	-0.0000

JOB NO. 1012   BOX BEAM ANALYSIS   22 AUG 63
MODEL   XV-5A
FUSELAGE
STATION   366.01

CONDITION F-8

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				0.0000
1	1.2007	19960.69	20553.49	38.8390
2	3.5650	19881.65	19881.65	49.5831
3	4.7986	19367.89	19367.89	66.1923
4	4.7889	18113.13	18113.13	81.7113
5	4.7496	16008.69	16008.69	95.2943
6	4.7960	12777.93	12777.93	106.2478
7	4.7890	8727.14	8727.14	113.7245
8	3.5961	4221.86	4221.86	116.8001
9	2.4331	1880.30	1880.30	125.1538
10	-0.	-540.30	-540.30	125.1538
11	-0.	-5430.90	-5430.90	125.1538
12	-0.	-10321.49	-10321.49	125.1538
13	-0.	-15212.09	-15212.09	125.15 8
14	-0.	-20102.69	-20102.69	125.1538
15	-0.	-24993.28	-24993.28	125.1538
16	0.5221	-27443.52	-27443.52	-0.0000
17	0.	-30111.12 **	-30111.12 **	-0.0000
18	0.	-35446.32 **	-35446.32 **	-0.0000
19	0.	-40781.51 **	-40781.51 **	-0.0000
20	0.	-44733.51 **	-44733.51 **	-0.0000
21	0.	-46511.91 **	-46511.91 **	-0.0000
22	0.	-47104.71 **	-47104.71 **	-0.0000
23	0.	-47203.51 **	-47203.51 **	-0.0000
24	0.	-47203.51 **	-47203.51 **	-0.0000
WEB 2				-0.0000
25	0.	-47203.51 **	-47203.51 **	-0.0000
26	0.	-47203.51 **	-47203.51 **	-0.0000
27	0.	-47104.71 **	-47104.71 **	-0.0000
28	0.	-46511.91 **	-46511.91 **	-0.0000
29	0.	-44733.51 **	-44733.51 **	-0.0000
30	0.	-40781.51 **	-40781.51 **	-0.0000
31	0.	-35446.32 **	-35446.32 **	-0.0000
32	0.	-30111.12 **	-30111.12 **	-0.0000
33	0.5221	-27443.52	-27443.52	-125.1538
34	-0.	-24993.28	-24993.28	-125.1538
35	-0.	-20102.69	-20102.69	-125.1538
36	-0.	-15212.09	-15212.09	-125.1538
37	-0.	-10321.49	-10321.49	-125.1538
38	-0.	-5430.90	-5430.90	-125.1538
39	-0.	-540.30	-540.30	-125.1538
40	2.4331	1880.30	1880.30	-116.8001
41	3.5961	4221.86	4221.86	-113.7245
42	4.7890	8727.14	8727.14	-106.2478
43	4.7960	12777.93	12777.93	-95.2943
44	4.7496	16008.69	16008.69	-81.7113
45	4.7889	18113.13	18113.13	-66.1923
46	4.7986	19367.89	19367.89	-49.5831
47	3.5650	19881.65	19881.65	-38.8390
48	1.2007	19960.69	20553.49	0.0000
WEB 1				0.0000

BOX BEAM ANALYSIS
MODEL   XV-5A
FUSELAGE
STATION   366.01

CONDITION   ROLL-5

SX	SY	MXX	MYY	T
3786.	4131.	-386500.	-554900.	-201500.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.34051E 03	1.25174E 03	2.79049E 01	1.48346E 01	3.17889E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.33992E 03	1.25110E 03	2.82803E 01	1.48410E 01	3.17700E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.29265E 00	-7.65497E-02	2.23145E 00	5.95567E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-1.03398E-05	2.77673E-07	-6.37808E-06

S.C.(X)	S.C.(X/C)	S.C.(Y)
-8.62816E 01	-1.83706E 00	2.12355E 00

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-83.8156
CELL	1	-83.8156
WEB	2	4.0873

BOX BEAM ANALYSIS
MODEL   XV-5A
FUSELAGE
STATION   366.01

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CONDITION   ROLL-5

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-83.8156
1	1.2007	8442.67	8705.00	-70.6138
2	3.5650	9077.82	9077.82	-66.4825
3	4.7986	10162.81	10162.81	-58.9894
4	4.7889	10919.88	10919.88	-50.6769
5	4.7496	11161.34	11161.34	-41.9820
6	4.7960	10708.92	10708.92	-33.2937
7	4.7890	9614.38	9614.38	-25.2285
8	3.5961	8017.17	8017.17	-19.8522
9	2.4331	7112.20	6832.98	12.1708
10	3.7000	6041.02	6041.02	15.4814
11	4.9500	3876.79	3876.79	18.8217
12	4.9500	1712.57	1712.57	20.9158
13	-0.	-451.65	-451.65	20.9158
14	-0.	-2615.88	-2615.88	20.9158
15	-0.	-4805.23	-4805.23	20.9158
16	1.1249	-5917.45	-6196.67	4.0873
17	0.	-7097.93	-7097.93	4.0873
18	0.	-9472.87	-9472.87	4.0873
19	0.	-12224.75	-12224.75	4.0873
20	0.	-14978.81	-14978.81	4.0873
21	0.	-17203.79	-17203.79	4.0873
22	0.	-18973.91	-18973.91	4.0873
23	0.	-20525.43	-20525.43	4.0873
24	0.	-21279.33	-21279.33	4.0873
WEB 2				4.0873
25	0.	-21279.33	-21279.33	4.0873
26	0.	-22033.22	-22033.22	4.0873
27	0.	-23497.30	-23497.30	4.0873
28	0.	-24742.76	-24742.76	4.0873
29	0.	-25393.76	-25393.76	4.0873
30	0.	-24650.09	-24650.09	4.0873
31	0.	-22680.03	-22680.03	4.0873
32	0.	-20333.02	-20333.02	4.0873
33	0.6250	-19152.53	-18873.31	-76.6282
34	-0.	-18096.16	-18096.16	-76.6282
35	-0.	-15957.07	-15957.07	-76.6282
36	-0.	-13792.84	-13792.84	-76.6282
37	-0.	-11628.62	-11628.62	-76.6282
38	-0.	-9464.40	-9464.40	-76.6282
39	-0.	-7300.17	-7300.17	-76.6282
40	1.0960	-6228.99	-5949.77	-106.2128
41	-0.	-5061.55	-5061.55	-106.2128
42	-0.	-2671.35	-2671.35	-106.2128
43	-0.	-180.71	-180.71	-106.2128
44	4.7496	2226.26	2226.26	-105.9075
45	4.7889	4330.26	4330.26	-103.8075
46	4.7986	6197.87	6197.87	-100.0901
47	3.5650	7737.56	7737.56	-96.9547
48	1.2007	8442.67	8705.00	-83.8156
WEB 1				-0.0000

CONDITION LG-4

SX	SY	MXX	MYY	T
4215.	4776.	-426700.	-568500.	-311100.

	NO. IT.	OXP(N)	QYP(N)	
	3	-0.00000	-0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.37240E 03	1.26744E 03	5.12382E 00	1.45317E 01	3.62749E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.37183E 03	1.26691E 03	5.42736E 00	1.45369E 01	3.62692E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.36964E 00	-7.65497E-02	2.23145E 00	5.95567E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-1.15639E-05	3.66036E-07	-9.84725E-06

S.C.(X)	S.C.(X/C)	S.C.(Y)
-8.66745E 01	-1.85030E 00	2.42128E 00

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-107.8818
CELL	1	-107.8818
WEB	2	-10.0312

BOX BEAM ANALYSIS
MODEL   XV-5A
FUSELAGE
STATION   366.01

CONDITION LG-4

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-107.8818
1	1.2007	8561.52	8829.97	-92.5295
2	3.5650	9267.99	9267.99	-87.7511
3	4.7986	10488.93	10488.93	-79.1373
4	4.7889	11374.32	11374.32	-69.6350
5	4.7496	11720.30	11720.30	-59.7445
6	4.7960	11339.74	11339.74	-49.9102
7	4.7890	10278.57	10278.57	-40.8315
8	3.5961	8677.57	8677.57	-34.8155
9	2.4331	7762.57	7453.30	0.8297
10	3.7000	6666.43	6666.43	4.4874
11	4.9500	4451.77	4451.77	8.1180
12	4.9500	2237.11	2237.11	10.3035
13	4.9500	22.46	22.46	11.0438
14	-0.	-2192.20	-2192.20	11.0438
15	-0.	-4434.70	-4434.70	11.0438
16	1.1588	-5575.19	-5884.46	-10.0312
17	0.	-6783.18	-6783.18	-10.0312
18	0.	-9214.64	-9214.64	-10.0312
19	0.	-12063.61	-12063.61	-10.0312
20	0.	-14966.63	-14966.63	-10.0312
21	0.	-17364.72	-17364.72	-10.0312
22	0.	-19303.25	-19303.25	-10.0312
23	0.	-21018.07	-21018.07	-10.0312
24	0.	-21853.11	-21853.11	-10.0312
WEB 2				-10.0312
25	0.	-21853.11	-21853.11	-10.0312
26	0.	-22688.16	-22688.16	-10.0312
27	0.	-24313.50	-24313.50	-10.0312
28	0.	-25715.14	-25715.14	-10.0312
29	0.	-26502.58	-26502.58	-10.0312
30	0.	-25826.34	-25826.34	-10.0312
31	0.	-23843.34	-23843.34	-10.0312
32	0.	-21442.81	-21442.81	-10.0312
33	0.6081	-20234.81	-19925.54	-101.8521
34	-0.	-19156.18	-19156.18	-101.8521
35	-0.	-16969.35	-16969.35	-101.8521
36	-0.	-14754.69	-14754.69	-101.8521
37	-0.	-12540.04	-12540.04	-101.8521
38	-0.	-10325.38	-10325.38	-101.8521
39	-0.	-8110.72	-8110.72	-101.8521
40	1.0328	-7014.58	-6705.30	-134.4641
41	-0.	-5808.87	-5808.87	-134.4641
42	-0.	-3329.53	-3329.53	-134.4641
43	-0.	-721.98	-721.98	-134.4641
44	4.7496	1823.50	1823.50	-133.8777
45	4.7889	4075.43	4075.43	-131.2650
46	4.7986	6097.23	6097.23	-126.8384
47	3.5650	7783.47	7783.47	-123.1645
48	1.2007	8561.52	8829.97	-107.8818
WEB 1				-0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 366.01

CONDITION LG-1

SX	SY	MXX	MYY	T
2885.	7149.	-293700.	-981000.	-215400.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.40593E 03	1.26425E 03	-3.25880E 00	1.57214E 01	1.43622E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.40528E 03	1.26400E 03	-3.13402E 00	1.57233E 01	1.44053E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)	
1.40323E 00	-7.65497E-02	2.23145E 00	5.95567E 03	

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-7.56062E-06	4.37379E-08	-6.81806E-06

S.C.(X)	S.C.(X/C)	S.C.(Y)
-8.27936E 01	-1.71954E 00	1.93285E-01

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-74.7016
CELL	1	-74.7016
WEB	2	-7.6070

JOB NO. 1012

BOX BEAM ANALYSIS
MODEL   XV-5A
FUSELAGE
STATION   366.01

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CONDITION LG-1

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-74.7016
1	1.2007	15583.64	16049.62	-50.1083
2	3.5650	16027.26	16027.26	-42.9416
3	4.7986	16613.85	16613.85	-31.0283
4	4.7889	16617.96	16617.96	-18.9009
5	4.7496	15848.81	15848.81	-7.1977
6	4.7960	14046.79	14046.79	3.5399
7	4.7890	11389.44	11389.44	12.5370
8	3.5961	8147.26	8147.26	17.8540
9	2.4331	6405.69	6194.96	46.0302
10	3.7000	4502.95	4502.95	48.4220
11	4.9500	658.65	658.65	49.7190
12	-0.	-3185.66	-3185.66	49.7190
13	-0.	-7029.97	-7029.97	49.7190
14	-0.	-10874.27	-10874.27	49.7190
15	-0.	-14737.55	-14737.55	49.7190
16	0.6697	-16684.66	-16895.39	-7.6070
17	0.	-18781.55	-18781.55	-7.6070
18	0.	-22985.88	-22985.88	-7.6070
19	0.	-27474.69	-27474.69	-7.6070
20	0.	-31339.83 **	-31339.83 **	-7.6070
21	0.	-33823.02 **	-33823.02 **	-7.6070
22	0.	-35426.94 **	-35426.94 **	-7.6070
23	0.	-36642.54 **	-36642.54 **	-7.6070
24	0.	-37211.51 **	-37211.51 **	-7.6070
WEB 2				-7.6070
25	0.	-37211.51 **	-37211.51 **	-7.6070
26	0.	-37780.48 **	-37780.48 **	-7.6070
27	0.	-38840.76 **	-38840.76 **	-7.6070
28	0.	-39512.73 **	-39512.73 **	-7.6070
29	0.	-39200.06 **	-39200.06 **	-7.6070
30	0.	-36852.17 **	-36852.17 **	-7.6070
31	0.	-32953.41 **	-32953.41 **	-7.6070
32	0.	-28770.15	-28770.15	-7.6070
33	0.5296	-26673.26	-26462.53	-112.5823
34	-0.	-24768.30	-24768.30	-112.5823
35	-0.	-20942.95	-20942.95	-112.5823
36	-0.	-17098.65	-17098.65	-112.5823
37	-0.	-13254.34	-13254.34	-112.5823
38	-0.	-9410.03	-9410.03	-112.5823
39	-0.	-5565.73	-5565.73	-112.5823
40	1.4295	-3662.99	-3452.26	-130.9469
41	-0.	-1723.34	-1723.34	-130.9469
42	4.7890	2117.32	2117.32	-130.6538
43	4.7960	5828.32	5828.32	-127.6442
44	4.7496	9105.45	9105.45	-122.2263
45	4.7889	11644.73	11644.73	-114.7531
46	4.7986	13621.48	13621.48	-105.6685
47	3.5650	15015.76	15015.76	-99.2478
48	1.2007	15583.64	16049.62	-74.7016
WEB 1				0.0000

BOX BEAM ANALYSIS
MODEL   XV-5A
FUSELAGE
STATION   366.01

CONDITION L-2

SX	SY	MXX	MYY	T
-0.	5717.	-0.	-540700.	-0.

	NO. IT.	QXP(N)	QYP(N)	
	4	0.	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.38687E 03	1.26817E 03	6.75377E-07	1.59116E 01	-4.83202E-08

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.38685E 03	1.26815E 03	6.75409E-07	1.59118E 01	-4.83205E-08

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.36126E 00	-7.65497E-02	2.23145E 00	5.95567E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
0.	-3.98254E-14	-0.

S.C.(X)	S.C.(X/C)	S.C.(Y)
-0.	1.07000E 00	-0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	0.0000
CELL	1	0.0000
WEB	2	-0.0000

CONDITION L-2

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				0.0000
1	1.2007	8641.70	8897.52	19.8884
2	3.5650	8607.59	8607.59	25.3908
3	4.7986	8385.88	8385.88	33.8975
4	4.7889	7844.40	7844.40	41.8476
5	4.7496	6936.23	6936.23	48.8092
6	4.7960	5542.01	5542.01	54.4288
7	4.7890	3793.90	3793.90	58.2735
8	3.5961	1849.66	1849.66	59.8646
9	2.4331	839.17	839.17	64.2747
10	-0.	-205.44	-205.44	64.2747
11	-0.	-2315.96	-2315.96	64.2747
12	-0.	-4426.48	-4426.48	64.2747
13	-0.	-6537.00	-6537.00	64.2747
14	-0.	-8647.53	-8647.53	64.2747
15	-0.	-10758.05	-10758.05	64.2747
16	0.7957	-11815.44	-11815.44	-0.0000
17	0.	-12966.64	-12966.64	-0.0000
18	0.	-15269.03	-15269.03	-0.0000
19	0.	-17571.41	-17571.41	-0.0000
20	0.	-19276.89	-19276.89	-0.0000
21	0.	-20044.35	-20044.35	-0.0000
22	0.	-20300.17	-20300.17	-0.0000
23	0.	-20342.81	-20342.81	-0.0000
24	0.	-20342.81	-20342.81	-0.0000
WEB 2				-0.0000
25	0.	-20342.81	-20342.81	-0.0000
26	0.	-20342.81	-20342.81	-0.0000
27	0.	-20300.17	-20300.17	-0.0000
28	0.	-20044.35	-20044.35	-0.0000
29	0.	-19276.89	-19276.89	-0.0000
30	0.	-17571.41	-17571.41	-0.0000
31	0.	-15269.03	-15269.03	-0.0000
32	0.	-12966.64	-12966.64	-0.0000
33	0.7957	-11815.44	-11815.44	-64.2747
34	-0.	-10758.05	-10758.05	-64.2747
35	-0.	-8647.53	-8647.53	-64.2747
36	-0.	-6537.00	-6537.00	-64.2747
37	-0.	-4426.48	-4426.48	-64.2747
38	-0.	-2315.96	-2315.96	-64.2747
39	-0.	-205.44	-205.44	-64.2747
40	2.4331	839.17	839.17	-59.8646
41	3.5961	1849.66	1849.66	-58.2735
42	4.7890	3793.90	3793.90	-54.4288
43	4.7960	5542.01	5542.01	-48.8092
44	4.7496	6936.23	6936.23	-41.8476
45	4.7889	7844.40	7844.40	-33.8975
46	4.7986	8385.88	8385.88	-25.3908
47	3.5650	8607.59	8607.59	-19.8884
48	1.2007	8641.70	8897.52	0.0000
WEB 1				0.0000

SECTION INPUT DATA

WIDTH TOL.	R(STG)	R(PLATE)	W/T	G/1E6
0.050	1.000	1.000	10.00	3.900

C	X0/C	R(WEB)	2A(TE)	DS(TE)
27.14	0.3550	1.000	0.	0.

T(TE)	2A(LE)	DS(LE)	T(LE)
0.	0.	0.	0.

FP(MAX)	FP(MIN)	FS(MIN)	QP(MAX)
45000.	-30000.	-27000.	320.

WEB	XW(U)	YW(U)	XW(L)	YW(L)	TW
1	31.00	0.	31.00	0.	0.0200
2	-28.00	22.75	-28.00	-22.75	0.0320

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   392.10

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SECTION INPUT DATA

ITEM	X(S)	Y(S)	A(S)	IXOS	IYOS	IXYOS	X(P)	Y(P)	T(P)	E/1E6
1	31.60	0.	0.24	0.	0.	0.	31.00	0.	0.020	10.50
2	30.90	2.80	0.	0.	0.	0.	30.90	2.80	0.020	0.
3	30.10	8.24	0.	0.	0.	0.	30.10	8.24	0.020	0.
4	28.22	13.52	0.	0.	0.	0.	28.22	13.52	0.020	0.
5	24.78	17.90	0.	0.	0.	0.	24.78	17.90	0.020	0.
6	20.18	20.90	0.	0.	0.	0.	20.18	20.90	0.020	0.
7	17.50	20.75	0.39	0.	0.	0.	17.50	21.75	0.020	10.50
8	14.75	22.38	0.	0.	0.	0.	14.75	22.38	0.020	0.
9	9.33	22.75	0.	0.	0.	0.	9.33	22.75	0.020	0.
10	3.91	22.75	0.	0.	0.	0.	3.91	22.75	0.020	0.
11	-1.51	22.75	0.	0.	0.	0.	-1.51	22.75	0.020	0.
12	-6.93	22.75	0.	0.	0.	0.	-6.93	22.75	0.020	0.
13	-9.64	21.75	0.41	0.	0.	0.	-9.64	22.75	0.020	10.50
14	-28.00	22.75	0.	0.	0.	0.	-28.00	22.75	-0.032	0.
15	-28.00	-22.75	0.	0.	0.	0.	-28.00	-22.75	-0.032	0.
16	-9.64	-21.75	0.41	0.	0.	0.	-9.64	-22.75	0.020	10.50
17	-6.93	-22.75	0.	0.	0.	0.	-6.93	-22.75	0.020	0.
18	-1.51	-22.75	0.	0.	0.	0.	-1.51	-22.75	0.020	0.
19	3.91	-22.75	0.	0.	0.	0.	3.91	-22.75	0.020	0.
20	9.33	-22.75	0.	0.	0.	0.	9.33	-22.75	0.020	0.
21	14.75	-22.38	0.	0.	0.	0.	14.75	-22.38	0.020	0.
22	17.50	-20.75	0.39	0.	0.	0.	17.50	-21.75	0.020	10.50
23	20.18	-20.90	0.	0.	0.	0.	20.18	-20.90	0.020	0.
24	24.78	-17.90	0.	0.	0.	0.	24.78	-17.90	0.020	0.
25	28.22	-13.52	0.	0.	0.	0.	28.22	-13.52	0.020	0.
26	30.10	-8.24	0.	0.	0.	0.	30.10	-8.24	0.020	0.
27	30.90	-2.80	0.	0.	0.	0.	30.90	-2.80	0.020	0.
28	31.60	-0.	0.24	0.	0.	0.	31.00	-0.	0.020	10.50

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 392.10

22 AUG 63

CONDITION F-8

SX	SY	MXX	MYY	T
0.	8627.	0.	-1013400.	0.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.	0.00001	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
9.86284E 02	8.23432E 02	-2.95043E-06	1.57730E 01	-0.

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
9.86258E 02	8.23400E 02	-2.95043E-06	1.57734E 01	-0.

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.19245E 00	1.97974E 00	5.51574E 00	5.03073E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
0.	1.90686E-13	0.

S.C.(X)	S.C.(X/C)	S.C.(Y)
0.	3.55000E-01	0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-0.0000
CELL	1	-0.0000
WEB	2	0.0000

CONDITION F-8

ITEM	WP(EFF)	F(P)		F(S)		QP(NET)
WEB 1						-0.0000
1	1.4009	18740.18		19478.63		45.0884
2	4.1501	18617.10		18617.10		58.1795
3	5.5516	17632.50		17632.50		74.8384
4	5.5870	15318.69		15318.69		89.4152
5	5.5306	11084.91		11084.91		99.8697
6	4.1517	5423.46		5423.46		104.2186
7	2.8164	2125.05		2125.05		112.2191
8	0.	-1259.51		-1259.51		112.2191
9	0.	-7930.18		-7930.18		112.2191
10	0.	-14600.84		-14600.84		112.2191
11	0.	-21271.51		-21271.51		112.2191
12	0.	-27942.17		-27942.17	**	112.2191
13	0.6230	-31277.51	**	-31277.51	**	0.0000
14	-0.	-53874.08	**	-53874.08	**	0.0000
WEB 2						0.0000
15	-0.	-53874.08	**	-53874.08	**	0.0000
16	0.6230	-31277.51	**	-31277.51	**	-112.2191
17	0.	-27942.17		-27942.17	**	-112.2191
18	0.	-21271.51		-21271.51		-112.2191
19	0.	-14600.84		-14600.84		-112.2191
20	0.	-7930.18		-7930.18		-112.2191
21	0.	-1259.51		-1259.51		-112.2191
22	2.8164	2125.05		2125.05		-104.2186
23	4.1517	5423.46		5423.46		-99.8697
24	5.5306	11084.91		11084.91		-89.4152
25	5.5870	15318.69		15318.69		-74.8384
26	5.5516	17632.50		17632.50		-58.1795
27	4.1501	18617.10		18617.10		-45.0884
28	1.4009	18740.18		19478.63		0.0000
WEB 1						0.0000

** VALUE IS LESS   THAN MINIMUM

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   392.10

CONDITION   ROLL-5

SX	SY	MXX	MYY	T
3908.	3942.	-283000.	-450000.	-202000.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.00000	-0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
9.85310E 02	8.25403E 02	9.51521E 00	1.49415E 01	2.70752E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
9.84979E 02	8.24955E 02	9.80410E 00	1.49470E 01	2.70415E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.17886E 00	1.97974E 00	5.51574E 00	5.03073E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-1.63918E-05	2.23854E-07	-1.64142E-06

S.C.(X)	S.C.(X/C)	S.C.(Y)
-5.16185E 02	-1.86643E 01	6.98846E 00

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-98.9745
CELL	1	-98.9745
WEB	2	-1.3205

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   392.10

CONDITION   ROLL-5

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-98.9745
1	1.4009	7940.50	8265.78	-80.3613
2	4.1501	8675.66	8675.66	-73.8751
3	5.5516	9775.59	9775.59	-63.4963
4	5.5870	10244.92	10244.92	-51.7413
5	5.5306	9614.78	9614.78	-40.0032
6	4.1517	7966.73	7966.73	-31.8931
7	2.8164	6753.44	6471.52	4.9649
8	4.1269	5440.18	5440.18	11.0274
9	5.4263	2606.13	2606.13	16.6735
10	0.	-332.24	-332.24	16.6735
11	0.	-3270.60	-3270.60	16.6735
12	0.	-6208.96	-6208.96	16.6735
13	1.2580	-7678.15	-7960.07	-1.3205
14	-0.	-17631.72	-17631.72	-1.3205
				-1.3205
WEB 2				-1.3205
15	-0.	-30459.06 **	-30459.06 **	-91.4425
16	0.7695	-20505.48	-20223.56	-91.4425
17	0.	-19036.30	-19036.30	-91.4425
18	0.	-16097.94	-16097.94	-91.4425
19	0.	-13159.57	-13159.57	-91.4425
20	0.	-10221.21	-10221.21	-91.4425
21	0.	-7178.53	-7178.53	-124.7603
22	1.4842	-5510.06	-5228.14	-124.7603
23	0.	-3817.51	-3817.51	-124.7603
24	0.	-477.93	-477.93	-124.8442
25	5.5870	2621.81	2621.81	-121.6616
26	5.5516	5129.56	5129.56	-117.4339
27	4.1501	7096.91	7096.91	-98.9745
28	1.4009	7940.50	8265.78	-0.0000
WEB 1				

** VALUE IS LESS   THAN MINIMUM

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   392.10

CONDITION LG-1

SX	SY	MXX	MYY	T
2959.	7042.	-215500.	-795600.	-215000.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.00000	-0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
9.81832E 02	8.23750E 02	5.13855E 00	1.55661E 01	1.22463E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
9.81862E 02	8.23707E 02	5.16390E 00	1.55667E 01	1.22344E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.17908E 00	1.97974E 00	5.51574E 00	5.03073E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-1.22123E-05	1.04599E-07	-1.74705E-06

S.C.(X)	S.C.(X/C)	S.C.(Y)
-5.07907E 02	-1.83593E 01	1.82794E 00

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-87.9555
CELL	1	-87.9555
WEB	2	-13.5957

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   392.10

JOB NO. 1012

CONDITION LG-1

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
				-87.9555
				-51.6970
WEB 1				-40.3383
1	1.4009	14623.58	15202.30	-24.2576
1	4.1501	15127.47	15127.47	-8.1157
2	5.5516	15522.22	15522.22	6.0632
3	5.5870	14840.98	14840.98	14.5237
4	5.5306	12462.09	12462.09	47.6267
5	4.1517	8668.46	8668.46	51.7990
6	2.8164	6265.76	6051.35	51.7990
7	4.1269	3748.37	3748.37	51.7990
8	0.	-1400.07	-1400.07	51.7990
9	0.	-6627.84	-6627.84	51.7990
10	0.	-11855.61	-11855.61	51.7990
11	0.	-17083.38	-17083.38	-13.5957
12	0.	-19697.26	-19911.67	-13.5957
13	0.7850	-37406.09 **	-37406.09 **	
14	-0.			-13.5957
				-13.5957
WEB 2				-133.1117
15	-0.	-47161.66 **	-47161.66 **	-133.1117
16	0.6420	-29452.84	-29238.43 **	-133.1117
17	0.	-26838.95	-26838.95	-133.1117
18	0.	-21611.18	-21611.18	-133.1117
19	0.	-16383.41	-16383.41	-133.1117
20	0.	-11155.64	-11155.64	-153.9857
21	0.	-5848.54	-5848.54	-153.9857
22	1.9912	-3061.00	-2846.59	-151.5543
23	0.	-293.80	-293.80	-144.3774
24	5.5306	4786.28	4786.28	-133.7461
25	5.5870	9043.38	9043.38	-124.0976
26	5.5516	11988.78	11988.78	-87.9555
27	4.1501	13926.78	13926.78	-0.0000
28	1.4009	14623.58	15202.30	
WEB 1				

** VALUE IS LESS THAN MINIMUM

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   392.10

CONDITION LG-4

SX	SY	MXX	MYY	T
4428.	4606.	-310100.	-446500.	-311900.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.02668E 03	8.38888E 02	-1.41829E 01	1.45794E 01	3.37198E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.02633E 03	8.38524E 02	-1.39562E 01	1.45837E 01	3.37049E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
1.28647E 00	1.97974E 00	5.51574E 00	5.03073E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-1.86088E-05	2.87539E-07	-2.53445E-06

S.C.(X)	S.C.(X/C)	S.C.(Y)
-5.17183E 02	-1.87011E 01	7.68254E 00

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-128.5096
CELL	1	-128.5096
WEB	2	-17.9980

JOB NO. 1012
BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   392.10
22 AUG 63

CONDITION LG-4

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-128.5096
1	1.4009	7782.97	8105.55	-106.7021
2	4.1501	8595.68	8595.68	-99.1615
3	5.5516	9849.00	9849.00	-87.1901
4	5.5870	10472.17	10472.17	-73.7312
5	5.5306	9978.11	9978.11	-60.3957
6	4.1517	8433.36	8433.36	-51.2597
7	2.8164	7255.54	6946.08	-10.0845
8	4.1269	5972.00	5972.00	-3.3889
9	5.4263	3172.52	3172.52	2.6725
10	5.4200	258.55	258.55	5.4548
11	0.	-2655.43	-2655.43	5.4548
12	0.	-5569.41	-5569.41	5.4548
13	1.3149	-7026.39	-7335.85	-17.9980
14	-0.	-16897.35	-16897.35	-17.9980
WEB 2				-17.9980
15	-0.	-30977.51 **	-30977.51 **	-17.9980
16	0.7584	-21106.55	-20797.10	-122.0329
17	0.	-19649.56	-19649.56	-122.0329
18	0.	-16735.59	-16735.59	-122.0329
19	0.	-13821.61	-13821.61	-122.0329
20	0.	-10907.63	-10907.63	-122.0329
21	0.	-7879.16	-7879.16	-122.0329
22	1.3987	-6205.71	-5896.26	-159.2718
23	0.	-4501.82	-4501.82	-159.2718
24	0.	-1100.34	-1100.34	-159.2718
25	5.5870	2104.53	2104.53	-159.0698
26	5.5516	4749.20	4749.20	-155.1565
27	4.1501	6862.74	6862.74	-150.1449
28	1.4009	7782.97	8105.55	-128.5096
WEB 1				-0.0000

** VALUE IS LESS   THAN MINIMUM

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   419.00

SECTION INPUT DATA

WIDTH TOL.	R(STG)	R(PLATE)	W/T	G/1E6
0.050	1.000	1.000	10.00	3.900

C	XO/C	R(WEB)	2A(TE)	DS(TE)
24.00	0.2890	1.000	0.	0.

T(TE)	2A(LE)	DS(LE)	T(LE)
0.	0.	0.	0.

FP(MAX)	FP(MIN)	FS(MIN)	QP(MAX)
45000.	-30000.	-27000.	320.

WEB	XW(U)	YW(U)	XW(L)	YW(L)	TW
1	25.60	5.90	25.60	-5.90	0.0200
2	-12.10	20.10	-12.10	-20.10	0.0380

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   419.00

22 AUG 63

SECTION INPUT DATA

ITEM	X(S)	Y(S)	A(S)	IXOS	IYOS	IXYOS	X(P)	Y(P)	T(P)	E/1E6
1	25.85	6.15	0.22	0.	0.	0.	25.60	5.90	0.020	10.50
2	25.00	7.60	0.	0.	0.	0.	25.00	7.60	0.020	0.
3	22.90	12.65	0.	0.	0.	0.	22.90	12.65	0.020	0.
4	19.40	16.80	0.	0.	0.	0.	19.40	16.80	0.020	0.
5	17.07	17.47	0.39	0.	0.	0.	17.07	18.47	0.020	10.50
6	14.90	19.35	0.	0.	0.	0.	14.90	19.35	0.020	0.
7	10.15	20.30	0.	0.	0.	0.	10.15	20.30	0.020	0.
8	5.25	20.40	0.	0.	0.	0.	5.25	20.40	0.020	0.
9	0.38	20.40	0.	0.	0.	0.	0.38	20.40	0.020	0.
10	-4.50	20.40	0.	0.	0.	0.	-4.50	20.40	0.020	0.
11	-6.93	19.10	0.41	0.	0.	0.	-6.93	20.10	0.020	10.50
12	-12.10	20.10	0.	0.	0.	0.	-12.10	20.10	-0.038	0.
13	-12.10	-20.10	0.	0.	0.	0.	-12.10	-20.10	-0.038	0.
14	-6.93	-19.10	0.41	0.	0.	0.	-6.93	-20.10	0.020	10.50
15	-4.50	-20.40	0.	0.	0.	0.	-4.50	-20.40	0.020	0.
16	0.38	-20.40	0.	0.	0.	0.	0.38	-20.40	0.020	0.
17	5.25	-20.40	0.	0.	0.	0.	5.25	-20.40	0.020	0.
18	10.15	-20.30	0.	0.	0.	0.	10.15	-20.30	0.020	0.
19	14.90	-19.35	0.	0.	0.	0.	14.90	-19.35	0.020	0.
20	17.07	-17.47	0.39	0.	0.	0.	17.07	-18.47	0.020	10.50
21	19.40	-16.80	0.	0.	0.	0.	19.40	-16.80	0.020	0.
22	22.90	-12.65	0.	0.	0.	0.	22.90	-12.65	0.020	0.
23	25.00	-7.60	0.	0.	0.	0.	25.00	-7.60	0.020	0.
24	25.85	-6.15	0.22	0.	0.	0.	25.60	-5.90	0.020	10.50

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 419.00

22 AUG 63

CONDITION F-12

SX	SY	MXX	MYY	T
0.	8682.	0.	-780900.	0.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
7.42174E 02	4.74917E 02	-3.54300E-07	1.22951E 01	-3.48169E-08

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
7.42124E 02	4.74871E 02	-3.54217E-07	1.22959E 01	-3.48184E-08

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
8.38035E-01	1.50105E 00	5.28865E 00	2.81953E 03

	THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
	0.	3.83733E-13	0.

	S.C.(X)	S.C.(X/C)	S.C.(Y)
	0.	2.89000E-01	0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-0.0000
CELL	1	-0.0000
WEB	2	0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   419.00

22 AUG 63

CONDITION F-12

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-0.0000
1	0.9014	21877.85	22288.96	58.1098
2	3.6360	20891.18	20891.18	74.5476
3	5.4490	17437.85	17437.85	95.6865
4	4.1478	11682.29	11682.29	107.1486
5	2.6042	7850.73	7850.73	145.4949
6	3.5929	4282.29	4282.29	148.1215
7	0.	-3528.83	-3528.83	148.1215
8	0.	-11586.61	-11586.61	148.1215
9	0.	-19595.06	-19595.06	148.1215
10	0.	-27619.95	-27619.95 **	148.1215
11	0.6197	-31615.95 **	-31615.95 **	0.0000
12	-0.	-40117.73 **	-40117.73 **	0.0000
WEB 2				0.0000
13	-0.	-40117.73 **	-40117.73 **	0.0000
14	0.6197	-31615.95 **	-31615.95 **	-148.1215
15	0.	-27619.95	-27619.95 **	-148.1215
16	0.	-19595.06	-19595.06	-148.1215
17	0.	-11586.61	-11586.61	-148.1215
18	0.	-3528.83	-3528.83	-148.1215
19	3.5929	4282.29	4282.29	-145.4949
20	2.6042	7850.73	7850.73	-107.1485
21	4.1478	11682.29	11682.29	-95.6865
22	5.4490	17437.85	17437.85	-74.5476
23	3.6360	20891.18	20891.18	-58.1098
24	0.9014	21877.85	22288.96	0.0000
WEB 1				0.0000

** VALUE IS LESS   THAN MINIMUM

CONDITION   ROLL-5

SX	SY	MXX	MYY	T
4004.	3804.	-175900.	-345900.	-202000.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
7.60761E 02	4.80450E 02	-4.20005E 00	1.20926E 01	1.13947E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
7.61010E 02	4.80425E 02	-4.21183E 00	1.20940E 01	1.13410E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
8.88928E-01	1.50105E 00	5.28865E 00	2.81953E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-7.06045E-06	1.79582E-08	-2.92163E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
-1.21917E 01	-2.18987E-01	3.26399E-02

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-131.7676
CELL	1	-131.7676
WEB	2	-13.7018

CONDITION   ROLL-5

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-131.7676
1	0.9014	10872.60	11111.90	-99.8043
2	3.6360	10839.11	10839.11	-89.7036
3	5.4490	10510.24	10510.24	-73.6662
4	4.1478	8958.89	8958.89	-61.8439
5	2.6042	7669.19	7434.05	-6.2076
6	3.5929	6309.26	6309.26	2.0577
7	4.8725	3102.91	3102.91	10.4479
8	0.	-411.62	-411.62	10.4479
9	0.	-3928.00	-3928.00	10.4479
10	0.	-7451.60	-7451.60	10.4479
11	1.1440	-9276.72	-9511.85	-13.7018
12	-0.	-13009.71	-13009.71	-13.7018
WEB 2				-13.7018
13	-0.	-22462.20	-22462.20	-13.7018
14	0.8050	-18729.20	-18494.07	-123.8326
15	0.	-17045.16	-17045.16	-123.8326
16	0.	-13521.57	-13521.57	-123.8326
17	0.	-10005.19	-10005.19	-123.8326
18	0.	-6443.63	-6443.63	-123.8326
19	0.	-2790.52	-2790.52	-123.8326
20	3.1594	-1016.75	-781.62	-150.7912
21	4.1478	1058.30	1058.30	-153.3586
22	5.4490	4561.29	4561.29	-151.9397
23	3.6360	7265.03	7265.03	-148.3601
24	0.9014	8097.99	8219.72	-131.7676
WEB 1				-0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   419.00

CONDITION LG-1

SX	SY	MXX	MYY	T
3068.	6918.	-133900.	-607900.	-214400.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.00000	-0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
7.52329E 02	4.76418E 02	-1.82019E 00	1.21496E 01	1.18376E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
7.52321E 02	4.76412E 02	-1.82588E 00	1.21497E 01	1.18386E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
8.67190E-01	1.50105E 00	5.28865E 00	2.81953E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-5.40898E-06	1.66656E-08	-3.10098E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
-1.21895E 01	-2.18895E-01	1.66558E-02

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-122.3074
CELL	1	-122.3074
WEB	2	-31.6543

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   419.00

CONDITION LG-1

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-122.3074
1	0.9014	18025.82	18390.27	-70.7906
2	3.6360	17567.65	17567.65	-55.3925
3	5.4490	15801.06	15801.06	-33.2171
4	4.1478	12084.13	12084.13	-18.7531
5	2.6042	9411.85	9230.77	42.2149
6	3.5929	6800.79	6800.79	49.8726
7	4.8725	908.54	908.54	54.6830
8	0.	-5329.13	-5329.13	54.6830
9	0.	-11546.61	-11546.61	54.6830
10	0.	-17776.85	-17776.85	54.6830
11	0.7615	-20933.53	-21114.61	-31.6543
12	-0.	-27534.02	-27534.02 **	-31.6543
WEB 2				-31.6543
13	-0.	-34813.47 **	-34813.47 **	-31.6543
14	0.6559	-28212.99	-28031.90 **	-184.0054
15	0.	-25164.95	-25164.95	-184.0054
16	0.	-18934.71	-18934.71	-184.0054
17	0.	-12717.23	-12717.23	-184.0054
18	0.	-6443.35	-6443.35	-184.0054
19	0.	-207.04	-207.04	-184.0054
20	2.6042	2722.72	2903.80	-186.3992
21	4.1478	5999.81	5999.81	-183.0915
22	5.4490	11219.71	11219.71	-172.2497
23	3.6360	14815.22	14815.22	-161.9073
24	0.9014	15889.07	16162.97	-122.3074
WEB 1				-0.0000

** VALUE IS LESS   THAN MINIMUM

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 419.00

CONDITION LG-4

SX	SY	MXX	MYY	T
4595.	4482.	-188000.	-324300.	-311700.

	NO. IT.	QXP(N)	QYP(N)	
	3	0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
7.93350E 02	4.85552E 02	-1.64538E 01	1.18496E 01	1.82197E 00

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
7.93498E 02	4.85546E 02	-1.64762E 01	1.18506E 01	1.81894E 00

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
9.81010E-01	1.50105E 00	5.28865E 00	2.81953E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-8.11596E-06	2.70162E-08	-4.50828E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
-1.22118E 01	-2.19826E-01	4.16753E-02

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-179.1200
CELL	1	-179.1200
WEB	2	-44.0317

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   419.00

CONDITION LG-4

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-179.1200
1	0.9014	10324.62	10556.47	-142.0351
2	3.6360	10345.42	10345.42	-130.3603
3	5.4490	10192.33	10192.33	-111.9339
4	4.1478	8866.37	8866.37	-98.4557
5	2.6042	7709.43	7458.46	-35.4894
6	3.5929	6462.44	6462.44	-26.2218
7	4.8725	3487.85	3487.85	-17.0154
8	4.8855	198.47	198.47	-12.2235
9	0.	-3095.71	-3095.71	-12.2235
10	0.	-6396.66	-6396.66	-12.2235
11	1.2230	-8115.66	-8366.63	-44.0317
12	-0.	-11612.78	-11612.78	-44.0317
WEB 2				-44.0317
13	-0.	-21701.81	-21701.81	-44.0317
14	0.8165	-18204.70	-17953.72	-172.7546
15	0.	-16636.28	-16636.28	-172.7546
16	0.	-13335.33	-13335.33	-172.7546
17	0.	-10041.14	-10041.14	-172.7546
18	0.	-6701.57	-6701.57	-172.7546
19	0.	-3250.13	-3250.13	-172.7546
20	2.7875	-1561.44	-1310.47	-202.3489
21	4.1478	433.75	433.75	-205.1079
22	5.4490	3842.76	3842.76	-203.1769
23	3.6360	6530.66	6530.66	-198.8605
24	0.9014	7363.16	7469.53	-179.1200
WEB 1				0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   446.60

22 AUG 63

SECTION INPUT DATA

WIDTH TOL.	R(STG)	R(PLATE)	W/T	G/1E6
0.050	1.000	1.000	10.00	3.900

C	XO/C	R(WEB)	2A(TE)	DS(TE)
22.46	0.2560	1.000	0.	0.

T(TE)	2A(LE)	DS(LE)	T(LE)
0.	0.	0.	0.

FP(MAX)	FP(MIN)	FS(MIN)	QP(MAX)
45000.	-30000.	-27000.	320.

WEB	XW(U)	YW(U)	XW(L)	YW(L)	TW
1	19.50	7.40	19.50	-7.40	0.0200
2	-11.31	16.48	-11.31	-16.48	0.0380

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   446.60

SECTION INPUT DATA

ITEM	X(S)	Y(S)	A(S)	IXOS	IYOS	IXYOS	X(P)	Y(P)	T(P)	E/1E6
1	19.75	7.65	0.22	0.	0.	0.	19.50	7.40	0.020	10.50
2	19.20	8.40	0.	0.	0.	0.	19.20	8.40	0.020	0.
3	18.30	10.30	0.	0.	0.	0.	18.30	10.30	0.020	0.
4	17.20	12.13	0.	0.	0.	0.	17.20	12.13	0.020	0.
5	16.71	11.98	0.26	0.	0.	0.	16.71	12.98	0.020	10.50
6	14.80	14.40	0.	0.	0.	0.	14.80	14.40	0.020	0.
7	10.60	16.30	0.	0.	0.	0.	10.60	16.30	0.020	0.
8	6.00	17.10	0.	0.	0.	0.	6.00	17.10	0.020	0.
9	1.20	17.10	0.	0.	0.	0.	1.20	17.10	0.020	0.
10	-3.50	16.90	0.	0.	0.	0.	-3.50	16.90	0.020	0.
11	-5.75	16.00	0.29	0.	0.	0.	-5.75	16.48	0.020	10.50
12	-11.31	16.48	0.	0.	0.	0.	-11.31	16.48	-0.038	0.
13	-11.31	-16.48	0.	0.	0.	0.	-11.31	-16.48	-0.038	0.
14	-5.75	-16.00	0.29	0.	0.	0.	-5.75	-16.48	0.020	10.50
15	-3.50	-16.90	0.	0.	0.	0.	-3.50	-16.90	0.020	0.
16	1.20	-17.10	0.	0.	0.	0.	1.20	-17.10	0.020	0.
17	6.00	-17.10	0.	0.	0.	0.	6.00	-17.10	0.020	0.
18	10.60	-16.30	0.	0.	0.	0.	10.60	-16.30	0.020	0.
19	14.80	-14.40	0.	0.	0.	0.	14.80	-14.40	0.020	0.
20	16.71	-11.98	0.26	0.	0.	0.	16.71	-12.98	0.020	10.50
21	17.20	-12.13	0.	0.	0.	0.	17.20	-12.13	0.020	0.
22	18.30	-10.30	0.	0.	0.	0.	18.30	-10.30	0.020	0.
23	19.20	-8.40	0.	0.	0.	0.	19.20	-8.40	0.020	0.
24	19.75	-7.65	0.22	0.	0.	0.	19.50	-7.40	0.020	10.50

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   446.60

CONDITION F-12

SX	SY	MXX	MYY	T
0.	17138.	0.	-396000.	0.

	NO. IT.	QXP(N)	QYP(N)	
	3	-0.	-0.00001	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
3.21489E 02	2.35524E 02	6.00982E-07	1.06244E 01	-5.90651E-08

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
3.21478E 02	2.35513E 02	6.01020E-07	1.06247E 01	-5.90662E-08

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
4.64463E-01	1.08851E 00	4.17499E 00	1.95149E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
0.	1.90540E-13	0.

S.C.(X)	S.C.(X/C)	S.C.(Y)
0.	2.56000E-01	0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	0.0000
CELL	1	0.0000
WEB	2	-0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 446.60

CONDITION F-12

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				0.0000
1	.5220	14923.19	15343.55	150.7813
2	1.5732	14418.76	14418.76	170.1837
3	2.1188	12905.47	12905.47	193.8392
4	1.5581	11055.89	11055.89	209.0837
5	1.6806	10231.99	10231.99	340.2498 *
6	3.4949	7020.45	7020.45	358.9955 *
7	0.	-41.58	-41.58	358.9955 *
8	0.	-7776.18	-7776.18	358.9955 *
9	0.	-15847.07	-15847.07	358.9955 *
10	0.	-23749.81	-23749.81	358.9955 *
11	0.6640	-27533.04	-27533.04 **	-0.0000
12	-0.	-36881.81 **	-36881.81 **	-0.0000
WEB 2				-0.0000
13	-0.	-36881.81 **	-36881.81 **	-0.0000
14	0.6640	-27533.04	-27533.04 **	-358.9955 **
15	0.	-23749.81	-23749.81	-358.9955 **
16	0.	-15847.07	-15847.07	-358.9955 **
17	0.	-7776.18	-7776.18	-358.9955 **
18	0.	-41.58	-41.58	-358.9955 **
19	3.4949	7020.45	7020.45	-340.2498 **
20	1.6806	10231.99	10231.99	-209.0837
21	1.5581	11055.89	11055.89	-193.8392
22	2.1188	12905.47	12905.47	-170.1837
23	1.5732	14418.76	14418.76	-150.7813
24	0.5220	14923.19	15343.55	-0.0000
WEB 1				-0.0000

* VALUE IS GREATER THAN MAXIMUM
** VALUE IS LESS   THAN MINIMUM

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 446.60

CONDITION ROLL-5

		MXX	MYY	T
SX	SY	-54900.	-179400.	-202100.
4632.	7356.			

	NO. IT.	QXP(N)	QYP(N)	
	3	0.00000	-0.00001	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
3.48773E 02	2.39403E 02	-1.15148E 00	1.05141E 01	7.52605E-01

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
3.48728E 02	2.39356E 02	-1.11198E 00	1.05155E 01	7.51454E-01

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
5.71099E-01	1.08851E 00	4.17499E 00	1.95149E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-1.71367E-05	5.45898E-08	-4.54927E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
-1.64356E 01	-4.75771E-01	3.29682E-02

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-202.6204
CELL	1	-202.6204
WEB	2	-28.1660

MODEL XV-5A
FUSELAGE
STATION   446.60

CONDITION   ROLL-5

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-202.6204
1	0.5220	7803.24	8030.75	-117.0525
2	1.5732	7737.98	7737.98	-105.4128
3	2.1188	7366.41	7366.41	-89.8414
4	1.5581	6833.61	6833.61	-78.6442
5	1.6806	6601.83	6442.01	23.1372
6	3.4949	5395.79	5395.79	44.3195
7	4.6394	2548.38	2548.38	63.8305
8	0.	-774.93	-774.93	63.8305
9	0.	-4376.15	-4376.15	63.8305
10	0.	-7934.31	-7934.31	63.8305
11	1.1195	-9689.51	-9766.22	-28.1660
12	-0.	-13860.92	-13860.92	-28.1660
WEB 2				-28.1660
13	-0.	-19128.64	-19128.64	-28.1660
14	0.9009	-14957.22	-14880.51	-250.1561
15	0.	-13336.28	-13336.28	-250.1561
16	0.	-9842.05	-9842.05	-250.1561
17	0.	-6240.82	-6240.82	-250.1561
18	0.	-2661.80	-2661.80	-250.1561
19	3.4949	792.93	792.93	-256.4080
20	1.6806	2452.86	2612.69	-251.1572
21	1.5581	2956.34	2956.34	-249.8691
22	2.1188	4074.09	4074.09	-245.9863
23	1.5732	5052.98	5052.98	-241.6255
24	0.5220	5437.88	5585.49	-202.6204
WEB 1				-0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   446.60

CONDITION LG-1

SX	SY	MXX	MYY	T
3565.	13088.	-41100.	-310300.	-214300.

	NO. IT.	QXP(N)	QYP(N)	
	3	0.00000	-0.00001	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
3.46012E 02	2.36629E 02	-4.37635E-01	1.05949E 01	7.31795E-01

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
3.46005E 02	2.36622E 02	-4.35751E-01	1.05951E 01	7.31740E-01

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
5.60826E-01	1.08851E 00	4.17499E 00	1.95149E 03

	THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
	-1.31446E-05	2.23963E-08	-4.82389E-05

	S.C.(X)	S.C.(X/C)	S.C.(Y)
	-1.63799E 01	-4.73293E-01	7.60201E-03

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-186.3678
CELL	1	-186.3678
WEB	2	-51.8671

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   446.60

CONDITION LG-1

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-186.3678
1	0.5220	12482.68	12840.69	-55.0245
2	1.5732	12209.64	12209.64	-37.6375
3	2.1188	11258.03	11258.03	-15.3722
4	1.5581	10035.68	10035.68	-0.1256
5	1.6806	9495.37	9374.93	135.2533
6	3.4949	7161.24	7161.24	159.7246
7	4.6394	1881.37	1881.37	174.6654
8	0.	-4055.61	-4055.61	174.6654
9	0.	-10351.26	-10351.26	174.6654
10	0.	-16539.84	-16539.84	174.6654
11	0.7881	-19541.52	-19599.32	-51.8671
12	-0.	-26833.98	-26833.98	-51.8671
WEB 2				-51.8671
13	-0.	-30803.55 **	-30803.55 **	-51.8671
14	0.7185	-23511.09	-23453.28	-377.8785 **
15	0.	-20610.59	-20610.59	-377.8785 **
16	0.	-14470.18	-14470.18	-377.8785 **
17	0.	-8174.53	-8174.53	-377.8785 **
18	0.	-2044.84	-2044.84	-377.8785 **
19	3.4949	3692.68	3692.68	-374.6747 **
20	1.6806	6368.85	6489.28	-314.1281
21	1.5581	7113.90	7113.90	-306.5630
22	2.1188	8777.05	8777.05	-293.3590
23	1.5732	10186.31	10186.31	-281.6148
24	0.5220	10700.23	10998.02	-186.3678
WEB 1				-0.0000

** VALUE IS LESS   THAN MINIMUM

CONDITION LG-4

SX	SY	MXX	MYY	T
5127.	7235.	-52600.	-153000.	-311700.

	NO. IT.	QXP(N)	QYP(N)	
	3	0.00000	-0.00001	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
3.49734E 02	2.40360E 02	-1.36989E 00	1.04863E 01	7.58973E-01

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
3.49696E 02	2.40321E 02	-1.33811E 00	1.04874E 01	7.58046E-01

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
5.74748E-01	1.08851E 00	4.17499E 00	1.95149E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-1.89906E-05	6.73393E-08	-7.01636E-05

S.C.(X)	S.C.(X/C)	S.C.(Y)
-1.64551E 01	-4.76641E-01	4.13481E-02

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-269.2242
CELL	1	-269.2242
WEB	2	-76.2177

MODEL XV-5A
FUSELAGE
STATION 446.60

CONDITION LG-4

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-269.2242
1	0.5220	6760.79	6958.38	-182.5674
2	1.5732	6722.39	6722.39	-170.7213
3	2.1188	6439.07	6439.07	-154.7528
4	1.5581	6017.54	6017.54	-143.1771
5	1.6806	5835.10	5682.24	-37.5623
6	3.4949	4834.53	4834.53	-15.1307
7	4.6394	2447.45	2447.45	6.4607
8	0.	-362.77	-362.77	6.4607
9	0.	-3422.77	-3422.77	6.4607
10	0.	-6449.59	-6449.59	6.4607
11	1.2360	-7948.17	-8021.54	-76.2177
12	-0.	-11492.67	-11492.67	-76.2177
WEB 2				-76.2177
13	-0.	-16530.79	-16530.79	-76.2177
14	0.9668	-12986.29	-12912.92	-303.1089
15	0.	-11616.11	-11616.11	-303.1089
16	0.	-8650.43	-8650.43	-303.1089
17	0.	-5590.43	-5590.43	-303.1089
18	0.	-2535.64	-2535.64	-303.1089
19	3.4949	432.28	432.28	-310.9737
20	1.6806	1866.96	2019.82	-311.9609
21	1.5581	2309.27	2309.27	-311.3282
22	2.1188	3290.24	3290.24	-308.2678
23	1.5732	4154.42	4154.42	-304.4600
24	0.5220	4498.53	4619.69	-269.2242
WEB 1				-0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 470.80

SECTION INPUT DATA

WIDTH TOL.	R(STG)	R(PLATE)	W/T	G/1E6
0.050	1.000	1.000	10.00	3.900
C	XO/C	R(WEB)	2A(TE)	DS(TE)
18.70	0.2620	1.000	0.	0.
T(TE)	2A(LE)	DS(LE)	T(LE)	
0.	0.	0.	0.	
FP(MAX)	FP(MIN)	FS(MIN)	QP(MAX)	
45000.	-30000.	-38000.	320.	

WEB	XW(U)	YW(U)	XW(L)	YW(L)	TW
1	20.00	6.70	20.00	-6.70	0.0320
2	-9.14	11.79	-9.14	-11.79	0.0200

JOB NO. 1012   BOX BEAM ANALYSIS   22 AUG 63
                        MODEL XV-5A
                        FUSELAGE
                  STATION   470.80

SECTION INPUT DATA

ITEM	X(S)	Y(S)	A(S)	IXOS	IYOS	IXYOS	X(P)	Y(P)	T(P)	E/1E6
1	20.00	6.70	0.	0.	0.	0.	20.00	6.70	-0.032	0.
2	14.25	7.25	0.18	0.	0.	0.	13.80	7.00	0.020	10.50
3	12.70	8.80	0.	0.	0.	0.	12.70	8.80	0.020	0.
4	9.20	11.25	0.	0.	0.	0.	9.20	11.25	0.020	0.
5	5.20	12.25	0.	0.	0.	0.	5.20	12.25	0.020	0.
6	1.00	12.30	0.	0.	0.	0.	1.00	12.30	0.020	0.
7	-3.00	11.60	0.	0.	0.	0.	-3.00	11.60	0.020	0.
8	-5.15	11.54	0.23	0.	0.	0.	-4.90	11.79	0.020	10.50
9	-9.14	11.79	0.	0.	0.	0.	-9.14	11.79	-0.020	0.
10	-9.14	-11.79	0.	0.	0.	0.	-9.14	-11.79	-0.020	0.
11	-5.15	-11.54	0.23	0.	0.	0.	-4.90	-11.79	0.020	10.50
12	-3.00	-11.60	0.	0.	0.	0.	-3.00	-11.60	0.020	0.
13	1.00	-12.30	0.	0.	0.	0.	1.00	-12.30	0.020	0.
14	5.20	-12.25	0.	0.	0.	0.	5.20	-12.25	0.020	0.
15	9.20	-11.25	0.	0.	0.	0.	9.20	-11.25	0.020	0.
16	12.70	-8.80	0.	0.	0.	0.	12.70	-8.80	0.020	0.
17	14.25	-7.25	0.18	0.	0.	0.	13.80	-7.00	0.020	10.50
18	20.00	-6.70	0.	0.	0.	0.	20.00	-6.70	-0.032	0.

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 470.80

CONDITION F-12

SX	SY	MXX	MYY	T
0.	7969.	0.	-123800.	0.

NO. IT.	QXP(N)	QYP(N)
3	-0.	0.00000

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.25852E 02	1.07238E 02	2.30960E-07	6.19977E 00	-2.79867E-08

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.25813E 02	1.07203E 02	2.31047E-07	6.20213E 00	-2.79927E-08

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
5.00810E-01	7.52531E-01	2.48293E 00	1.21925E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
0.	-1.04739E-12	0.

S.C.(X)	S.C.(X/C)	S.C.(Y)
0.	2.62000E-01	-0.

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-0.0000
CELL	1	-0.0000
WEB	2	-0.0000

CONDITION F-12

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-0.0000
1	0.	15933.97	15933.97	-0.0000
2	4.1584	8774.12	9293.79	163.1350
3	3.1909	7503.83	7503.83	192.0764
4	4.1977	3461.98	3461.98	210.9968
5	0.	-1157.27	-1157.27	210.9968
6	0.	-6007.49	-6007.49	210.9968
7	0.	-10626.74	-10626.74	210.9968
8	0.9733	-12820.89	-13109.59	-0.0000
9	-0.	-17717.30	-17717.30	-0.0000
WEB 2				-0.0000
10	-0.	-17717.30	-17717.30	-0.0000
11	0.9733	-12820.89	-13109.59	-210.9968
12	0.	-10626.74	-10626.74	-210.9968
13	0.	-6007.49	-6007.49	-210.9968
14	0.	-1157.27	-1157.27	-210.9968
15	4.1977	3461.98	3461.98	-192.0764
16	3.1909	7503.83	7503.83	-163.1350
17	4.1584	8774.12	9293.79	0.0000
18	0.	15933.97	15933.97	0.0000
WEB 1				0.0000

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 470.80

CONDITION ROLL-1

SX	SY	MXX	MYY	T
-445.	5717.	6800.	-89200.	-150.

	NO. IT.	QXP(N)	QYP(N)	
	3	0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.26872E 02	1.08140E 02	1.84613E-01	6.13890E 00	-1.24941E-02

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.26832E 02	1.08105E 02	2.13912E-01	6.14127E 00	-1.44770E-02

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
5.08145E-01	7.52531E-01	2.48293E 00	1.21925E 03

THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
-6.69978E-06	-9.30449E-08	-4.12982E-08

S.C.(X)	S.C.(X/C)	S.C.(Y)
5.46840E 01	3.18628E 00	-5.91132E-02

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	10.4927
CELL	1	10.4927
WEB	2	-11.9068

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 470.80

CONDITION ROLL-5

SX	SY	MXX	MYY	T
485.	3701.	-7400.	-57800.	0.

	NO. IT.	QXP(N)	QYP(N)	
	2	0.00000	0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.40216E 02	1.09761E 02	-1.47688E 00	5.99149E 00	7.52044E-01

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.40209E 02	1.09733E 02	-1.28966E 00	5.99329E 00	7.40055E-01

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)	
6.03349E-01	7.52531E-01	2.48293E 00	1.21925E 03	

	THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)	
	7.15459E-06	1.87717E-07	0.	

	S.C.(X)	S.C.(X/C)	S.C.(Y)	
	0.	2.62000E-01	0.	

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-11.4601
CELL	1	-11.4601
WEB	2	12.7997

BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   470.80

CONDITION   ROLL-5

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-11.4601
1	0.	7730.76	7730.76	-11.4601
2	4.1584	4478.10	4729.85	70.9283
3	3.1909	4001.69	4001.69	86.5543
4	4.1977	2296.94	2296.94	99.0636
5	4.1617	244.92	244.92	100.3921
6	0.	-1967.32	-1967.32	100.3921
7	0.	-4117.31	-4117.31	100.3921
8	1.5427	-5108.44	-5254.70	12.7997
9	-0.	-7344.66	-7344.66	12.7997
WEB 2				12.7997
10	-0.	-8703.57	-8703.57	12.7997
11	1.3691	-6467.35	-6584.79	-96.1925
12	0.	-5454.32	-5454.32	-96.1925
13	0.	-3385.01	-3385.01	-96.1925
14	0.	-1167.00	-1167.00	-96.1925
15	4.1977	1000.27	1000.27	-90.7943
16	3.1909	2987.40	2987.49	-79.5791
17	4.1584	3671.29	3894.22	-11.4601
18	0.	6958.53	6958.53	-11.4601
WEB 1				0.0000

MODEL XV-5A
FUSELAGE
STATION   470.80

CONDITION AF-5

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				18.5428
1	0.	11977.21	11977.21	18.5428
2	4.1584	6294.87	6681.82	135.8731
3	3.1909	5122.97	5122.97	155.2222
4	4.1977	1701.41	1701.41	164.5808
5	0.	-2040.21	-2040.21	164.5808
6	0.	-5875.17	-5875.17	164.5808
7	0.	-9457.44	-9457.44	164.5808
8	1.0406	-11207.99	-11412.55	-19.2215
9	-0.	-15074.75	-15074.75	-19.2215
WEB 2				-19.2215
10	-0.	-12864.37	-12864.37	-19.2215
11	1.1627	-8997.61	-9249.04	-169.6336
12	0.	-7282.68	-7282.68	-169.6336
13	0.	-3569.18	-3569.18	-169.6336
14	4.1617	256.41	256.41	-168.3869
15	4.1977	3810.55	3810.55	-147.7538
16	3.1909	6772.79	6772.79	-121.4115
17	4.1584	7607.22	8041.05	18.5428
18	0.	13233.32	13233.32	18.5428
WEB 1				-0.0000

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BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION   470.80

CONDITION LG-4

SX	SY	MXX	MYY	T
280.	2887.	-4200.	-45100.	200.

	NO. IT.	QXP(N)	QYP(N)	
	3	0.00000	-0.00000	

IX(NA)	IY(NA)	IXY(NA)	XBAR	YBAR
1.41393E 02	1.10726E 02	-1.10506E 00	5.93000E 00	7.28232E-01

IX(NA)F	IY(NA)F	IXY(NA)F	XBARF	YBARF
1.41349E 02	1.10694E 02	-1.15207E 00	5.93207E 00	7.31243E-01

AP(EFF)	AP(FULL)	A(TRUE)	2A(CELLS)
6.11450E-01	7.52531E-01	2.48293E 00	1.21925E 03

	THETA X (RADIANS)	THETA Y (RADIANS)	THETA T (RADIANS)
	4.11266E-06	1.24166E-07	5.50643E-08

	S.C.(X)	S.C.(X/C)	S.C.(Y)
	5.33489E 01	3.11488E 00	1.56213E-01

NET WEB AND INTERNAL CELL SHEAR FLOWS

WEB	1	-6.4528
CELL	1	-6.4528
WEB	2	7.5799
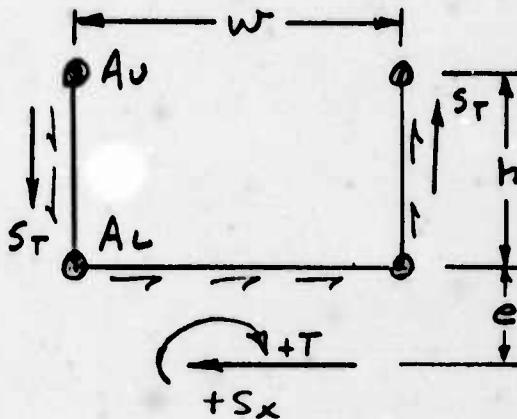
BOX BEAM ANALYSIS
MODEL XV-5A
FUSELAGE
STATION 470.80

CONDITION LG-4

ITEM	WP(EFF)	F(P)	F(S)	QP(NET)
WEB 1				-6.4528
1	0.	5933.74	5933.74	-6.4528
2	4.1584	3415.45	3607.20	56.4409
3	3.1909	3026.36	3026.36	68.2349
4	4.1977	1680.09	1680.09	77.4052
5	4.1617	82.03	82.03	77.8767
6	0.	-1628.98	-1628.98	77.8767
7	0.	-3283.20	-3283.20	77.8767
8	1.7310	-4051.70	-4161.90	7.5799
9	-0.	-5780.66	-5780.66	7.5799
WEB 2				7.5799
10	-0.	-6559.68	-6559.68	7.5799
11	1.5858	-4830.72	-4924.40	-75.3026
12	0.	-4049.67	-4049.67	-75.3026
13	0.	-2441.69	-2441.69	-75.3026
14	0.	-727.39	-727.39	-75.3026
15	4.1977	936.75	936.75	-70.2703
16	3.1909	2444.90	2444.90	-61.0429
17	4.1584	2952.92	3128.16	-6.4528
18	0.	5491.04	5491.04	-6.4528
WEB 1				-0.0000

MODIFICATION OF BENDING STRESSES IN COCKPIT
SECTION DUE TO DIFFERENTIAL BENDING

$$e = \frac{A_U}{A_U + A_L} \times h$$

$$S_T = T/w$$

Shear Center Locations

F.S.	A_U	A_L	h	e	W.L.	w
91	.38	.20	16.8	11	82.6	56.4
122.49	.38	.31	23.45	12.9	78.14	59.28

Computation of Loads   **AF-6 Condition is Critical**

Fuselage Station 91

$$S_x = 1528^{\#} \quad T_{113} = 24900''^{\#}$$

$$T_e = -24900 + 1528(113 - 82.6) = -20250''^{\#}$$

$$S_T = 20250/56.4 = \pm 360^{\#}$$

Fuselage Station 122.49

Assume change in shear and torque between Fuselage Station 91 and Fuselage Station 150 is concentrated @ Fuselage Station 122.49

$$S_x = -2436 + 1528 = -908^{\#} \quad T_{113} = -34400 + 24900 = -9500''^{\#}$$

$$T_e = -9500 + 908(113 - 78.14) = -22100''^{\#}$$

$$S_T = 22100/59.28 = \pm 373^{\#}$$

$$B.M. = 360(150-91) + 373(150-122.5) = 31500\ ''\#$$

$$LONGERON\ LOAD = 31500/_{32} = 985\ \#$$

$$f_{UPR} = \frac{985}{.36} = \pm 2740\ psi$$

$$f_{LWR} = \frac{985}{.31} = \pm 3180\ psi$$

NET LONGERON STRESSES : (REF. P. 79)

$$UPR\ LEFT\ f_t = 2740 + 21008 = 23750\ psi$$

$$LWR\ LEFT\ f_c = -3180 - 40283 = -43460\ psi$$

$$UPR\ RT\ f_t = -2740 + 28571 = 25830\ psi$$

$$LWR\ RT\ f_c = 3180 - 32516 = -29340\ psi$$

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COMPUTATION OF STRESSES DUE TO AXIAL LOAD LANDING CONDITIONS
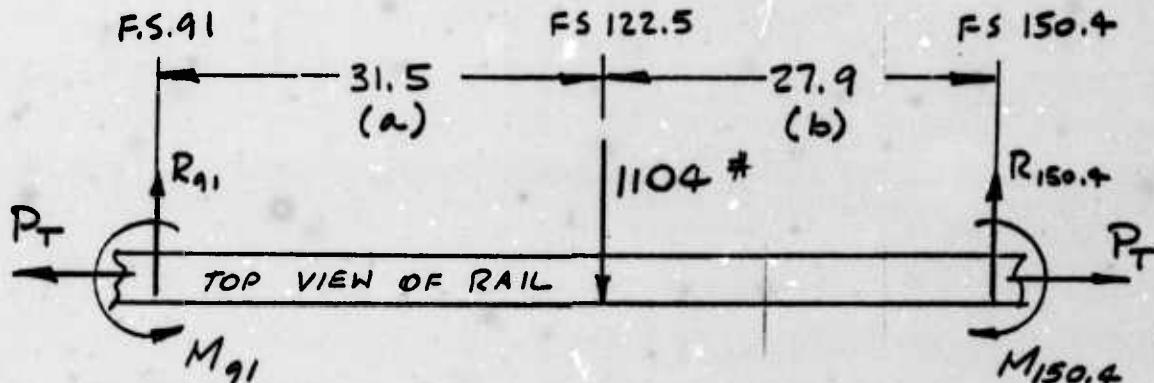
F.S.	P_x	cond.	d	h	P_L	A_L	f_L	P_U	A_U	f_U
122.5	-12215	L-4	1.44	23.45	388	.311	1250	5720	.382	15000
150	3930	L-16	9	32	-551	.311	-1770	-1414	.363	-3900
177.2	5352	L-16	13.2	33.9	-1043	.429	-2440	-1633	.363	-4500
201.9	6756	L-16	17.1	35.7	-1570	.429	-3660	-1808	.363	-4940
246.5	40470	L-16	18.86	35.75	-10680	.973	-10980	-9555	.718	-13300
315.9	41556	L-16	18.6	35.49	-10900	.669	-16290	-9877	.53	-18630

LOCAL BENDING OF UPPER LONGERON IN COCKPIT RAIL REGION

Concentrated side loads are applied to the rail @ Fuselage Station 122.5 by the windshield frame. This load is beamed to support bulkheads at Fuselage Station 91 and Fuselage Station 150.4 (canted bulkhead) by the rail. Support by intermediate formers is neglected. Fifty percent fixity of the rail at the supports is assumed. The applied side load is derived from windshield and canopy test loads (5° sideslip asymmetrical maneuver, g = 850 PSF). Bending stresses are combined with axial stress due to fuselage bending determined in condition AF-6.

Total Windshield Side Load   = 1891#   ULT

Load Applied to Frame   = 1285#   ULT

Total Canopy Side Load   = 1562#   ULT

Load Applied to Frame   =   922#   ULT

Total Side Load Per Rail   = $\dfrac{1285 + 922}{2}$ = 1104#

FROM ROARK, P. 106 :

$$M_{91} = .50 \left(\frac{Wab^2}{\ell^2} \right)$$

$$= .50 \times 1104 \times \frac{31.5 \times 27.9^2}{59.4^2} = 3840 \; ''\#$$

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COCKPIT RAIL (Cont.)
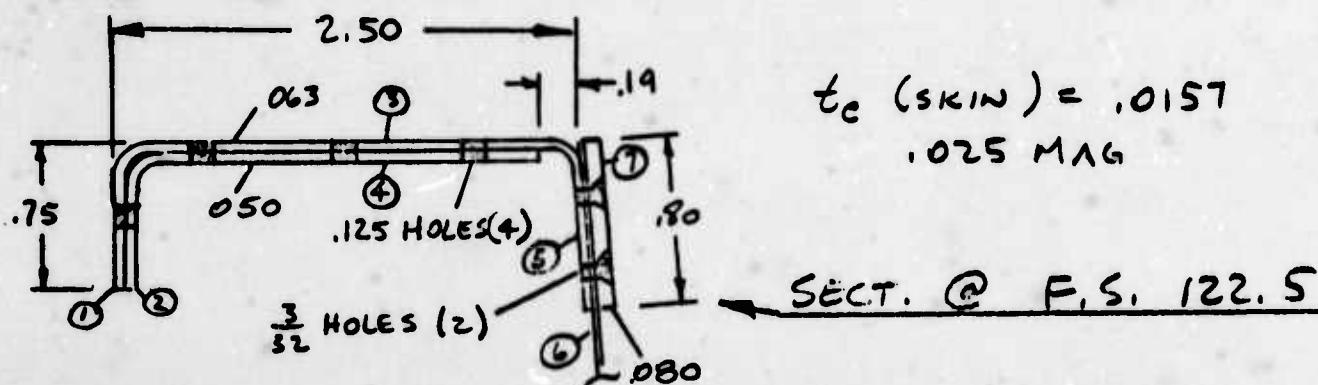
$$M_{150.4} = .50 \left(W \frac{a^2 b}{l^2} \right)$$

$$= .50 \times 1104 \times \frac{31.5^2 \times 27.9}{59.4^2} = 4330 \text{ "#}$$

$$R_{91} = \frac{1}{59.4} \left(1104 \times 27.9 + 3840 - 4330 \right) = 510^{\#}$$

$$R_{150.4} = 1104 - 510 = 594^{\#}$$

$$\text{MAX. B.M.} = 510 \times 31.5 - 3840 = 12220 \text{ "#}$$

$t_c \text{ (SKIN)} = .0157$

$.025$ MAG

SECT. @ F.S. 122.5

ELE	SIZE	A	Y	Ay	Ay²	I₀
1	.687 x .063	.0432	.032	.00138	−	
2	.637 x .050	.0319	.088	.00281	−	
3	2.374 x .063	.1493	1.25	.187	.234	.0703
4	2.2 x .050	.1100	1.213	.1337	.162	.0444
5	.737 x .063	.0464	2.468	.1148	.284	
6	1 x .0157	.0157	2.513	.0394	.099	
7	.8 x .08	.0640	2.565	.164	.421	
Σ		.4605		.643	1.20	.1147

$$\overline{Y} = .643 / .4605 = 1.396$$

$$I = 1.2 + .1147 - .4605 \times 1.396^2 = .4187$$

COCKPIT RAIL (Cont.)

$$\text{NET AREA} = .4605 - 4 \times .125 \times .113 + 2 \times .1 \times .159$$

$$= .3722$$

$$\text{ALLOWABLE } F_{tu} \text{ (GROSS AREA)} = \frac{.3722}{.4605} \times 77000$$

$$= 62100 \text{ psi}$$

ALLOWABLE BENDING MODULUS OF RUPTURE $= 1.25 \ F_{tu}$

$$F_b = 1.25 \times 62100 = 77800 \text{ psi}$$

$$f_{b_t} = \frac{12220 \times 1.396}{.4187} = 40700 \text{ psi}$$

AXIAL STRESS, $f_t = 28293$ psi   (REF. P. 69)

$$R_b = \frac{40700}{77800} = .523$$

$$R_t = \frac{28293}{62100} = .455$$

$$R_b + R_t = 1$$

$$M.S. = \frac{1}{.523 + .455} - 1 = \underline{+.02}$$

SUMMARY OF LONGERON MARGINS OF SAFETY (See Notes Next Page)

F.S.	UPPER LONGERON				LOWER LONGERON				TOP EXTERNAL LOADS			
	Ult. f	Cond.	Allow F	M.S.	Ult. f	Cond.	Allow F	M.S.	Ult. f	Cond.	Allow F	M.S.
91	17436	F-8P	57600 [1]	2.3	36898	F-8P	49200	.33				
122.5	28265	F-8P		1.04 [2]	-41220	AF-6	-59900	.45				
150	26639	F-8P		1.16	-43460	AF-6	-59900	.38				
177.2	16256	LG-3		2.55	-35055	LG-3	-54400	.55				
201.9	22605	F-1P		1.55	-44959	F-1P	-54400	.21				
296.5	22411	L-16		1.57	-22964	F-8P	-29000	.26 [2]	3150	F-8P	57600 [1]	HIGH
315.9	12464	LG-1		HIGH	-27452	F-8P	-29000	.05 [2]	5910	F-9P		
341	8304	LG-1		HIGH	-25968	F-5P	-30500	.18	12540	F-8P		
366	7444	LG-4	57600 [1]	HIGH	-27646	F-8	-34800	.26	16280	F-8		
392.1	6846	LG-4	46500	HIGH	-31275	F-8	-33200	.06	19479	F-8		
419	9231	LG-1	46500	HIGH	-31616	F-12	-33200	.05	22289	F-12		
446.5	7020	F-12	46500	HIGH	-27533	F-12	-28800	.05	15344	F-12		
470.8	-	-	-	-	-13110	F-12	-35100	1.90	9244	F-12	57600	HIGH

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NOTES:

(1) Longeron Allowable Tensile Stress

F_{tu} is reduced to 75% to allow for increased stress on net section (area reduced by rivet or bolt holes)

7075-T6

Allowable F_t = 77000 x .75

= 57600 psi

2024-T4

Allowable F_t = 62000 x .75

= 46500 psi

(2) Analysis of lower longeron in this region under loads occurring in the critical landing condition (L-16) is shown in Volume III.

(3) Upper longeron has lower M.S. (+.02) under combined local bending and axial stress in condition AF-6 (see analysis on P. 215).

SHEAR ANALYSIS

The fuselage skins are analyzed by the method given in the Convair Structures Manual - Report CVAL #1 "INCOMPLETE TENSION FIELD SHEAR WEBS" Page 7.411.

The allowable shear stress is given by the lower value from the following equations.

$$F_s = .75 \ F_{su}$$

$$\text{or} \quad F_s = K_1 \ K_2 \ F_{tu}$$

Where K_1 = Coefficient depending on the ratio of sheet thickness to panel dimensions

K_2 = Coefficient depending on the ratio between cross areas of web and stiffeners.

Values of skin shear flows taken from the IBM box-beam program output are usually conservative since shear relief due to beam taper is neglected.

b = Stiffener spacing
h = Depth
A_s = Stiffener area

Material	F_{tu}	F_{su}	$.75 \ F_{su}$
AZ-31B-H24	39000 psi	18000 psi	13500 psi
6AL-4V Ti	130000	80000	60000
7075-T6	76000	46000	34500

FUSELAGE SKIN SHEAR ANALYSIS

	LOCATION	$q_{crit.}$	t	f_s	b	h	$\frac{100t}{h}$	$\frac{b}{h}$	K_1	STIFF. SIZE	A_s	$\frac{A_s}{bt}$	K_2	F_s	M.S.	COND.
SIDE SKIN	F.S.91 TO 150	296 @ 91	.025 MAG.	11830	5.5	17.5	1.43	.314	.367	.624-.062 ANGLE	.042	.306	.94	13430	+.13	F-8P
	F.S.150 TO 214	252 @221.9	.032 MAG.	7250	5.25	13	2.46	.404	.37	.52-1.75 .032 CHANNEL	.085	.505	1.005	13500	+.86	L-16
	F.S.256 TO 317	869 @246.5	.05 AL.	17300	6.0	35	1.43	.171	.382	.75x2 .063 CHANNEL	.157	.524	1.206	29200	+1.69 *	L-16
	F.S.317 TO 366	125 @366	.025 MAG	5000	6.0	29	.86	.206	.368	.75x2 .032 CHANNEL	.108	.72	1.047	13500	+1.70	F-8
	F.S.366 AFT	378 @446	.032 MAG	11800	7.5	22	1.45	.341	.363	.75x.040 CHANNEL	.134	.56	1.015	13500	+.14	LG-1
TOP SKIN	F.S.150 TO 214	113 @177.2	.020 Ti	5660	8 TYP	10 TYP	2	.8	.337	VARIES	—	7.3	.94	41000	HIGH	L-16
	F.S.286 TO 317	494 @315.9	.032 AL.	15400	6.0	25	1.28	.24	.371	.75x2 .04 CHANNEL	.134	.7	1.04	29300	+.90	L-16
	F.S.317 AFT	314 @446	.032 MAG.	9810	6.0	20	1.6	.3	.37	.75x2 .04 CHANNEL	.134	.7	1.06	13500	+.37	LG-1
BOTTOM SKIN OR WEB	F.S.91 TO 165	107 @122.5	.025 MAG.	4290												L-4
	F.S.165 TO 214	51 @204	.025 AL.	2040												LG-3
	F.S.286 TO 366	17 @341	.040 AL	6870												LG-4
	F.S.366 TO 342	18 @355	.032 AL	565												LG-4
	FS 342 AFT @446.6	76	.032 MAG	2350												LG-4

M.S. AMPLE BY INSPECTION

* HIGH TO ALLOW FOR PEAKING OF CONCENTRATED MLG ATTACHMT LOADS

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NOSE WHEEL WELL BEAM

(Ref. Drawing 143 F004 Sheet 1)
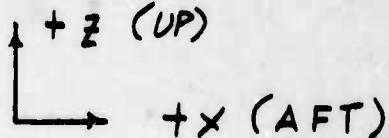
Loads applied to the beams by the nose gear trunnion and drag
brace are obtained from Report No. 133, Page 103. Loads @
the trunnion are per side and drag brace loads are total.
Also, Loud loads are limit values and are with respect to the
oleo G_L, which is canted 5° from airplane vertical axis.

Springback and Spinup (Gear FWD) are Critical.

COND.	$P_{V_{BD}}$	$P_{O_{BD}}$	$RV_{E,F}$	$RD_{E,F}$	
SPINUP	8120	-7818	-6974	2116	⎫
SPRINGBACK	-8504	8187	1150	-1881	⎬ LIMIT

Ultimate Loads Applied to Beam

Spinup Condition:

$+Z$ (UP)

$+X$ (AFT)

$$Z_D = \left(- \frac{8120}{2} \cos 5° - \frac{7818}{2} \sin 5°\right) 1.5 = -6576\,\#$$

$$X_D = \left(+ \frac{7818}{2} \cos 5° - \frac{8120}{2} \sin 5°\right) 1.5 = +5319\,\#$$

$$Z_{E,F} = (6974 \cos 5° + 2116 \sin 5°) 1.5 = 10707$$

$$X_{E,F} = (-2116 \cos 5° + 6974 \sin 5°) 1.5 = -2248$$

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NOSE WHEEL WELL BEAM

Ultimate Loads Applied to Beam

Springback Condition:
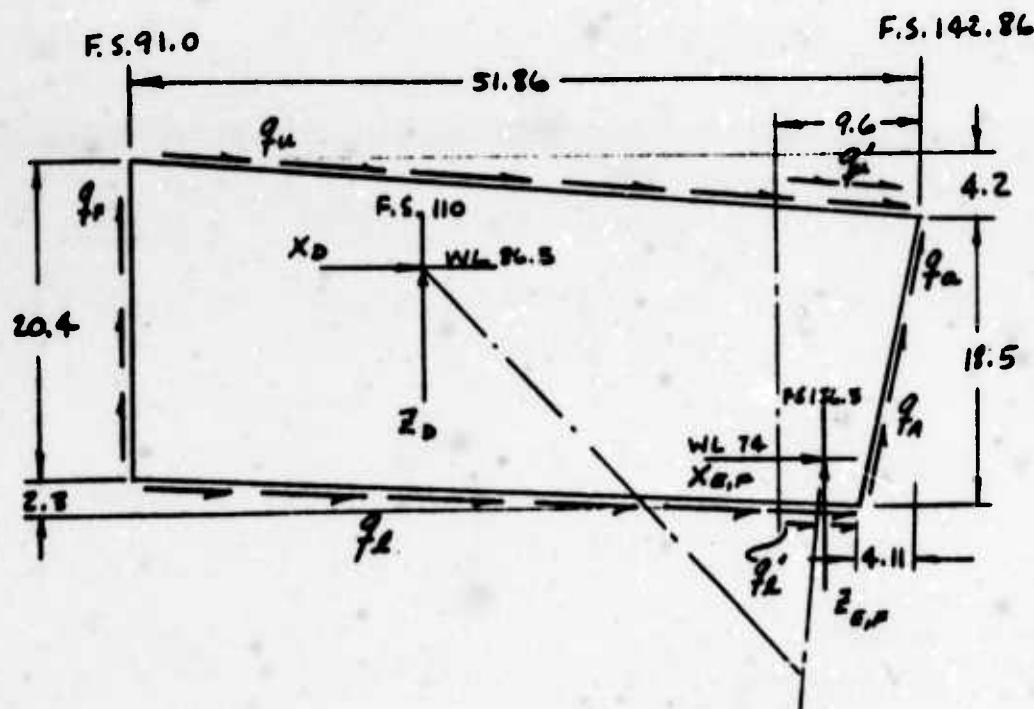
$$Z_D = \left(\frac{8504}{2} \cos 5° + \frac{8187}{2} \sin 5° \right) 1.5 = 6895^{\#}$$

$$X_D = \left(-\frac{8187}{2} \cos 5° + \frac{8504}{2} \sin 5° \right) 1.5 = -5554^{\#}$$

$$Z_{E,P} = \left(-1150 \cos 5° - 1881 \sin 5° \right) 1.5 = -1965^{\#}$$

$$X_{E,P} = \left(1881 \cos 5° - 1150 \sin 5° \right) 1.5 = 2664$$
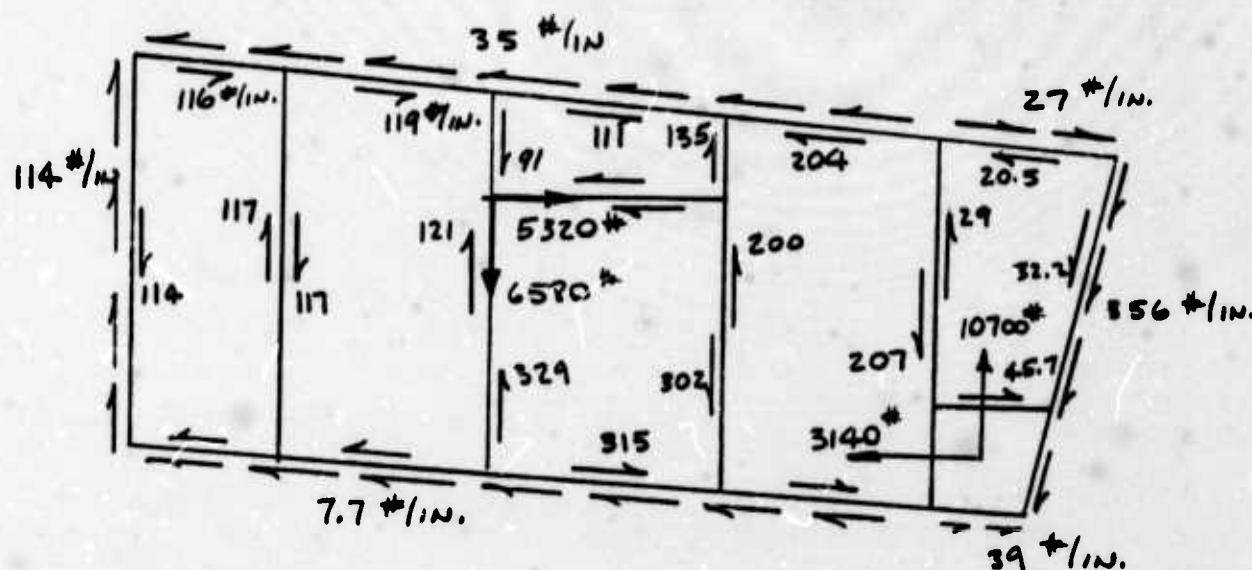
Geometry
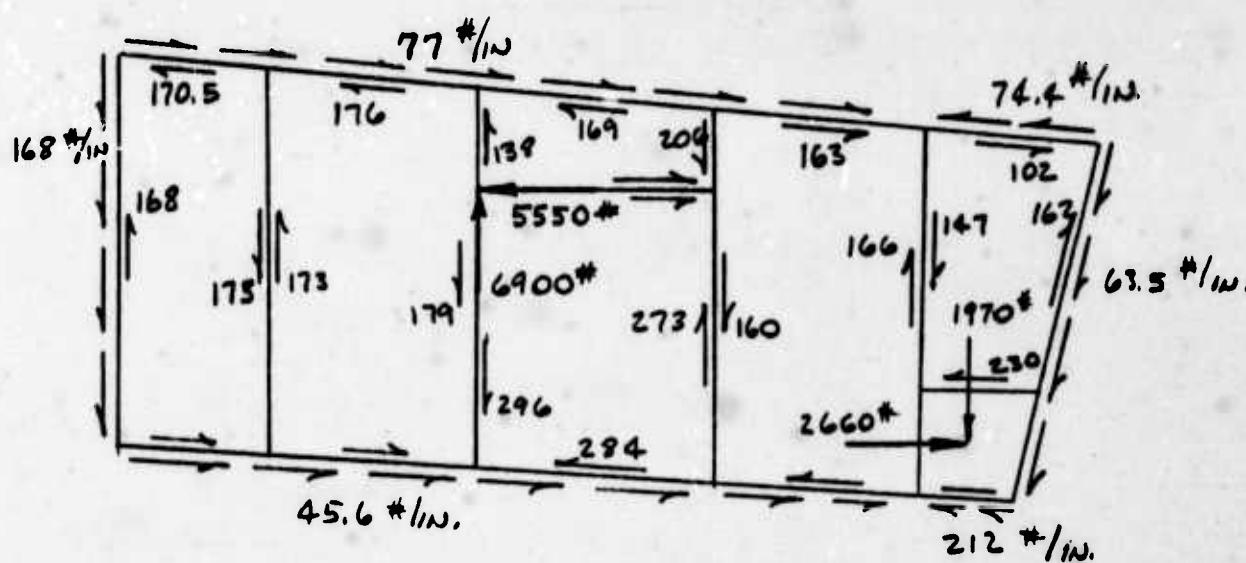
NOSE WHEEL WELL BEAM

The applied loads can be reacted by shear flows along all four sides of the beam. It is assumed that 64% of X_D is reacted by g_u and that $X_{E, F}$ is reacted equally by $g_{u'}$ and $g_{\ell'}$. Reacting shear flows and web shear flows are summarized by the following sketches.

Spinup Condition

Springback Condition

NOSE WHEEL WELL BEAM

Web Analysis

Critical Panel is one AFT of Fuselage Station 110

Max $q = 329 \#/\text{in.}$ SPINUP COND.

.025   7075-T6 WEB

$f_s = {}^{329}/.025 = 13160 \text{ psi}$

FIND ALLOWABLE SHEAR STRESS BY METHOD GIVEN IN CONVAIR STRUCTURES MANUAL, P. 7.411

$$\frac{b}{h} = \frac{5.9}{18} = .328 \qquad \frac{1000\,t}{h} = \frac{1000 \times .025}{18} = 1.39$$

.52 × .62 × .040 STIFF. $A_s = .0424$

$$\frac{A_s}{b\,t} = \frac{.0424}{5.9 \times .025} = .29$$

$K_1 = .363 \qquad K_2 = .935$

$$F_s = K_1 K_2 F_{tu}$$
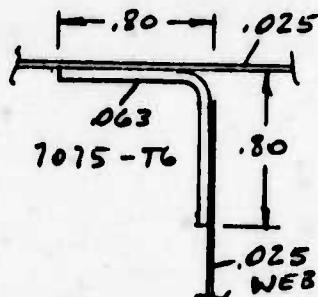
$$= .363 \times .935 \times 76000 = 25800 \text{ psi}$$

$$M.S. = \frac{25800}{13160} - 1 = \underline{\underline{+ .96}}$$

NOSE WHEEL WELL BEAM

Upper Cap

$$CRITICAL\ LOAD = -2520^{\#}\ SPINUP\ COND.$$

$$A = 2 \times .74 \times .063 = .093$$
$$2 \times .50 \times .025 = \underline{.025}$$
$$.118$$

$$f_c = \frac{2520}{.118} = 21400\ psi$$
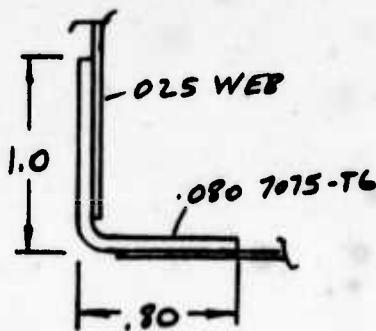
$$b/t = .77/.063 = 12.2$$

$$F_{cc}/\sqrt{F_{cy}E} = .048$$

$$F_{cc} = .048\sqrt{68000 \times 10.5 \times 10^6} = 40600\ psi$$

$$M.S. = \frac{40600}{21400} - 1 = \underline{+.90}$$

Lower Cap

$$CRITICAL\ LOAD = 4160^{\#}\ SPRINGBACK$$

$$A = (.92 + .72).08 = .131$$
$$.5 \times .025 = \underline{.013}$$
$$.144$$

$$f_c = \frac{4160}{.144} = 28900\ psi$$

$$b'/t = \frac{.96 + .76}{2 \times .08} = 10.8$$
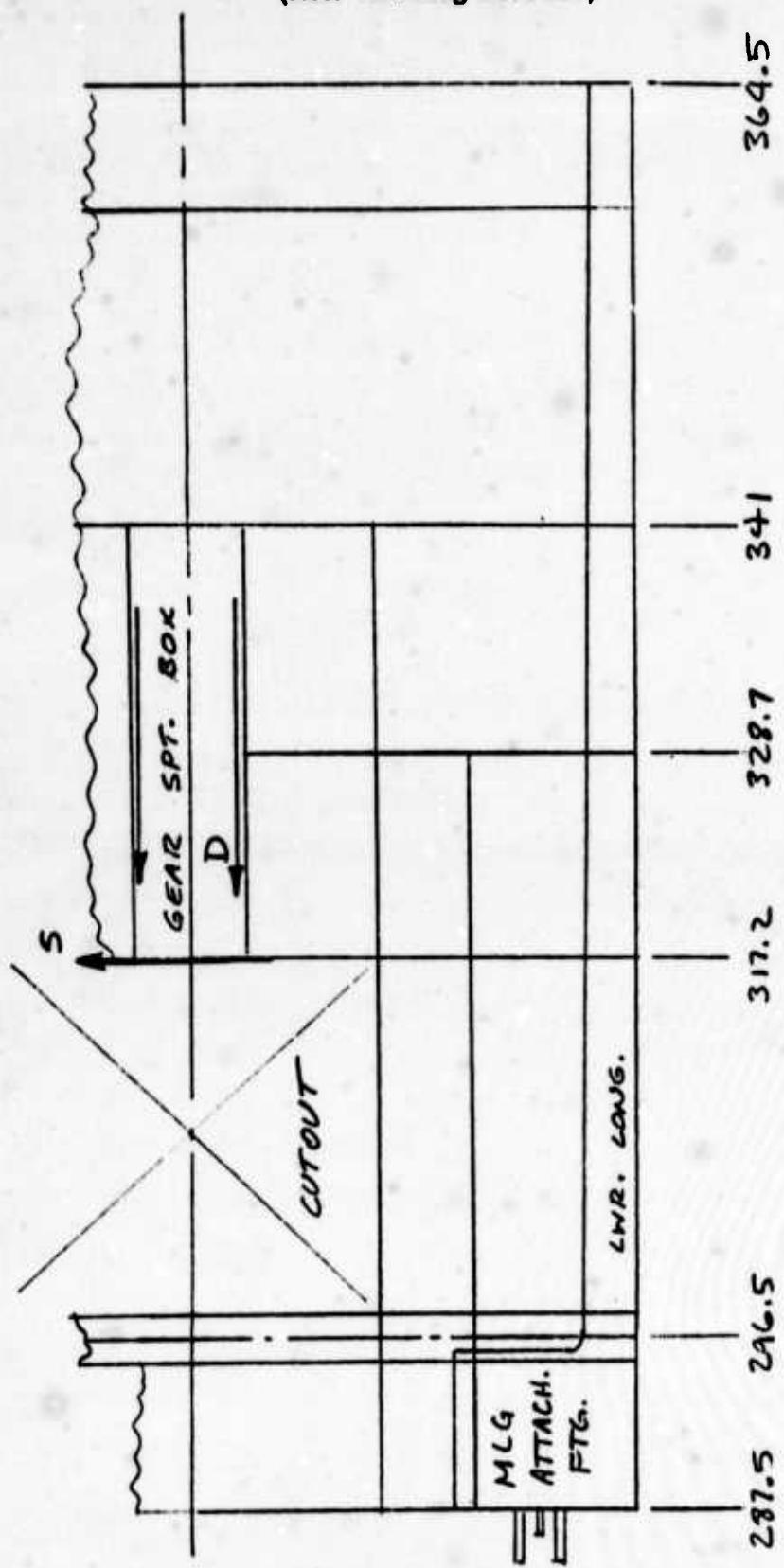
$$F_{cc}/\sqrt{F_{cy}E} = .053$$

$$F_{cc} = .053\sqrt{68000 \times 10.5 \times 10^6} = 44800\ psi$$

$$M.S = \frac{44800}{28900} - 1 = \underline{+.55}$$

LOWER SHEAR WEB FUSELAGE STATION 287 - 366

(Ref. Drawing 143 F057)

LOWER SHEAR WEB FUSELAGE STATION 287 - 366

The lower shear web closes the fuselage torque box in the main landing
gear wheel well region. The web is loaded by fuselage torsional shear
flows and by loads applied by the aft end of the main landing gear drag
braces. Side load is applied along bulkhead Fuselage Station 317.2 and
drag loads are applied by the gear support box structure between
Fuselage Station 317.2 and 341.

Ultimate critical loads are summarized as follows:

Fuselage Shear Flows

STA.	g	COND.	REF. PAGE
F.S. 287.5 - 296.5	12.9 #/IN.	LG-3	114
F.S. 296.5 - 315.9	13.6 #/IN.	LG-4	126
F.S. 315.9 - 341	16.9 #/IN.	LG-4	138
F.S. 341 - 366	14.2 #/IN.	LG-4	148

Side Load @ Fuselage Station 317.2

$$S = 1.5 (4848.1 + 815.7) = 8496\#$$

Unsymmetric braking condition - Ref. Report No. 131.
Page 141, conditions 47 and 48

Drag Load @ B.L. 3.4 from Fuselage Station 317.2 to 341

$$D = 25650 \text{ pounds per side}$$

LOWER SHEAR WEB FUSELAGE STATION 287 - 366

A portion of the web is cutout from Fuselage Station 296.5 to 317.2 to provide clearance for the gear components in the retracted position. Shears are carried around the cutout by local bending of the beams formed by the hole framing member and the lower longeron.

The drag load applied by main landing gear support box structure is sheared to the lower longeron and inboard edge of main landing gear attachment fitting. (Ref. Volume III).

A detailed analysis of the web can be found in the bound volumes of design stress analysis notes.