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CONSOLIDATED VULTEE AIRCRAFT CORP., FORT WORTH DIV., TEX.
(REPORT NO. FZS-36-140)

STRESS ANALYSIS OF WING - PART I - DETERMINATION OF APPLIED LOADS - MODEL YB-36, YB-36A, AND B-36A

ALLEN, D.V.; BISER, L.E. 4 DEC'45 311PP TABLES, DIAGRS

USAF CONTRS. NO. W-33-038-AC-7 AND W-535-AC-22352

WINGS - STRESS ANALYSIS
B-36
B-36A

AIRCRAFT STRUCTURES (7)
STRESS ANALYSIS (6)

UNCLASSIFIED

Crash Tests - 115232

REPORT FZS-36-140

MODEL YB-36
B-36A

DATE December 4, 1945

TITLE

STRESS ANALYSIS OF WING

PART I

DETERMINATION OF APPLIED LOADS

SUBMITTED UNDER

CONTRACT W33-038 ac-7

and

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PREPARED BY: D. V. Allen

L. E. Bisse

GROUP: STRUCTURES

REFERENCE:

CHECKED BY: C. M. Prosser

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2	"	L. Bisse	TAB. 21, COL. 29, STA. 41 ORD. -.0175 TO +.00175 AND +.0075 TO +.00075	163
3	"	L. Bisse	TAB. 33, COL. 28, STA. 41, ORD. -.826 TO -.0876 AND -.706 TO -.751	
			TAB. 33, COL. 29, STA. 41 ORD. -.8928 TO -.0264 AND -.5924 TO -.0174	112
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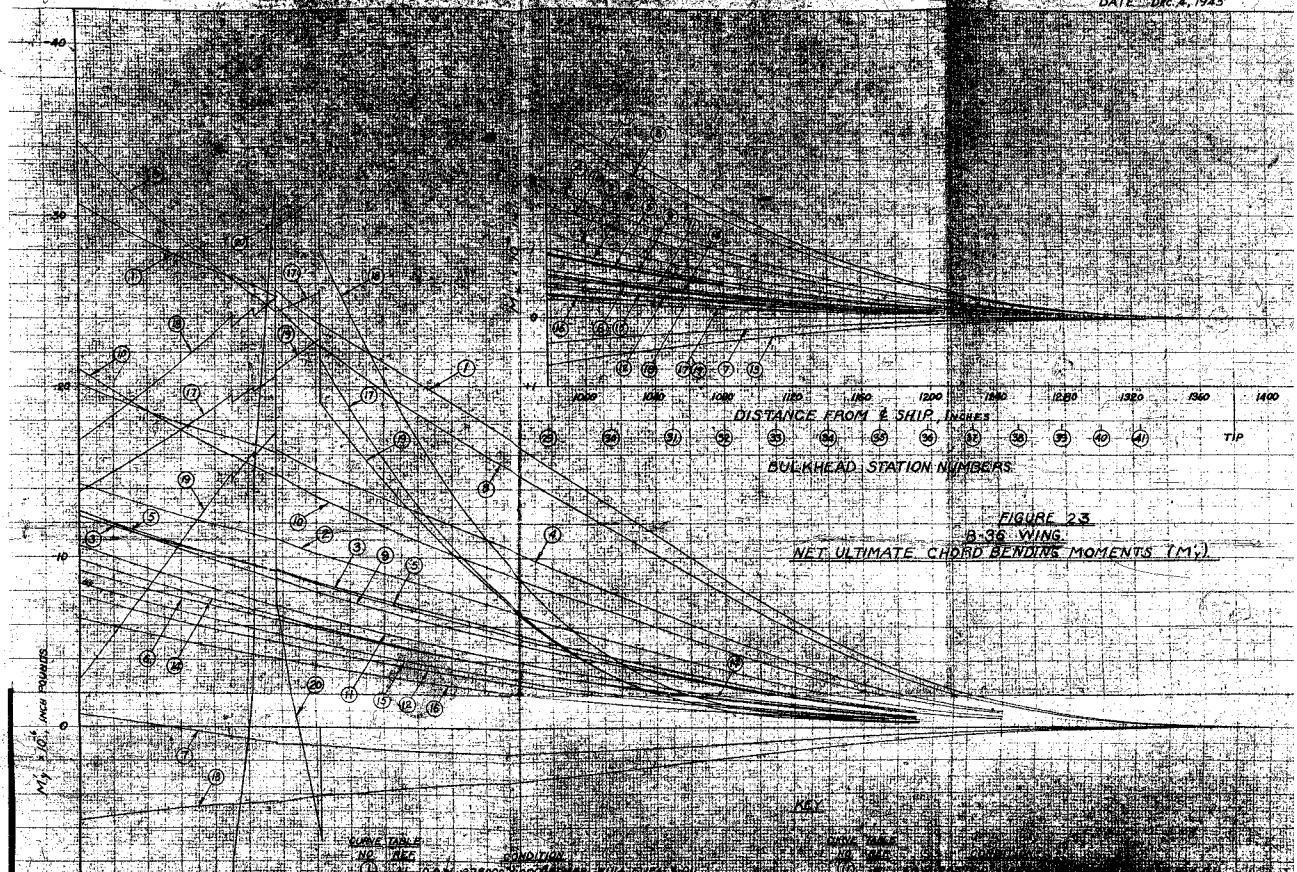
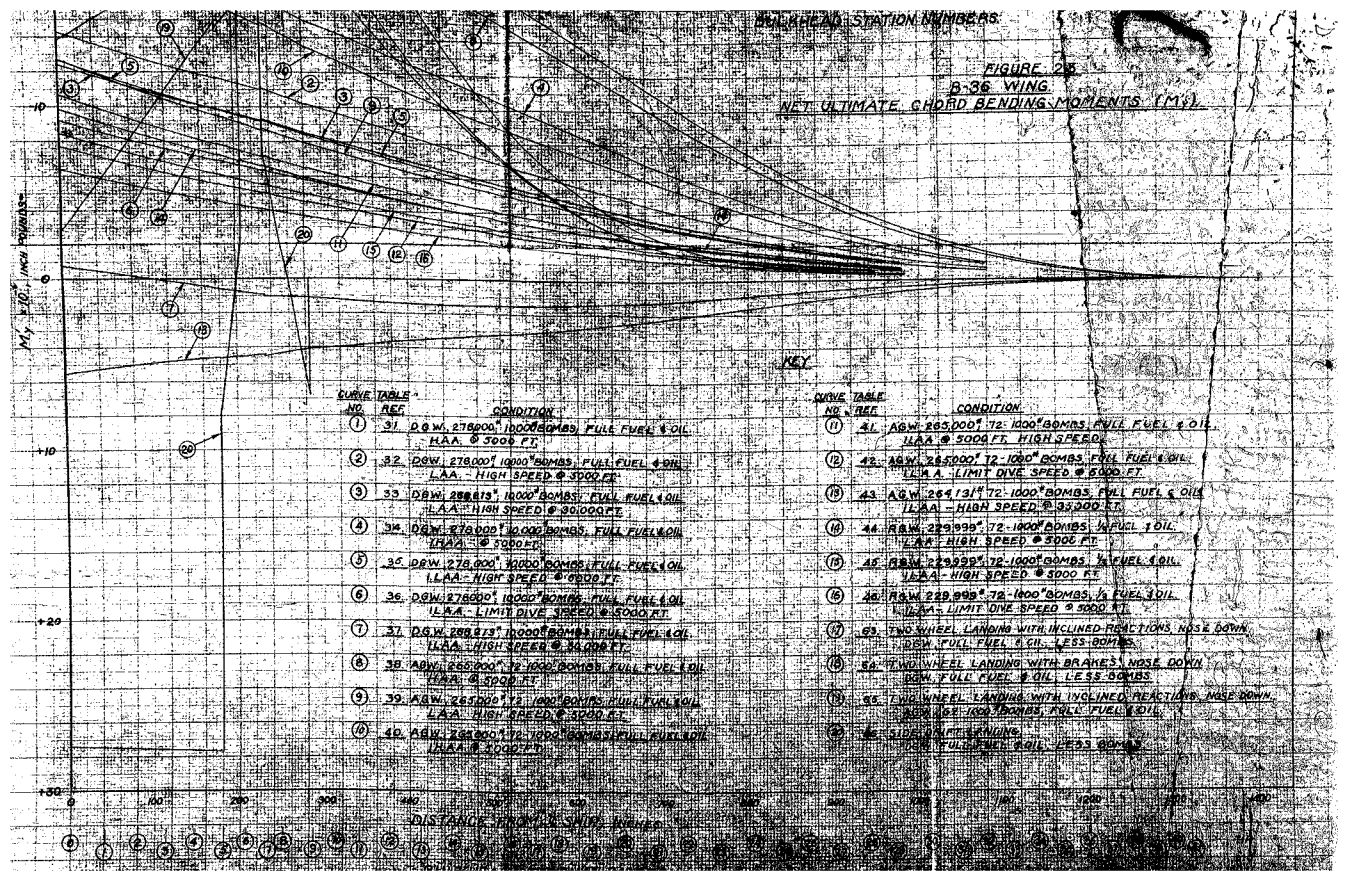


FIGURE 23
B-36 WING
NET ULTIMATE CHORD BENDING MOMENTS (M_y)


BULKHEAD STATION NUMBERS
FIGURE 28
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NET ULTIMATE CHORD BENDING MOMENTS (M1)
M1 x 10⁶ INCH POUNDS
-10
0
+10
+20
+30
KEY
CURVE NO. TABLE REF. CONDITION
1 31 D.G.W. 278,000# 10,000# BOMBS FULL FUEL & OIL H.A.A. @ 3000 FT.
2 32 D.G.W. 278,000# 10,000# BOMBS FULL FUEL & OIL L.A.A. - HIGH SPEED @ 3000 FT.
3 33 D.G.W. 288,813# 10,000# BOMBS FULL FUEL & OIL L.A.A. - HIGH SPEED @ 30,000 FT.
4 34 D.G.W. 278,000# 10,000# BOMBS FULL FUEL & OIL H.A.A. - @ 3000 FT.
5 35 D.G.W. 278,000# 10,000# BOMBS FULL FUEL & OIL L.A.A. - HIGH SPEED @ 6000 FT.
6 36 D.G.W. 278,000# 10,000# BOMBS FULL FUEL & OIL L.A.A. - LIMIT DIVE SPEED @ 5000 FT.
7 37 D.G.W. 288,813# 10,000# BOMBS FULL FUEL & OIL L.A.A. - HIGH SPEED @ 30,000 FT.
8 38 A.G.W. 265,000# 72-1000# BOMBS FULL FUEL & OIL H.A.A. @ 3000 FT.
9 39 A.G.W. 265,000# 72-1000# BOMBS FULL FUEL & OIL L.A.A. HIGH SPEED @ 3000 FT.
10 40 A.G.W. 265,000# 72-1000# BOMBS FULL FUEL & OIL H.A.A. @ 3000 FT.
11 41 A.G.W. 265,000# 72-1000# BOMBS FULL FUEL & OIL H.A.A. @ 5000 FT. HIGH SPEED
12 42 A.G.W. 265,000# 72-1000# BOMBS FULL FUEL & OIL L.A.A. - LIMIT DIVE SPEED @ 5000 FT.
13 43 A.G.W. 264,131# 72-1000# BOMBS FULL FUEL & OIL L.A.A. - HIGH SPEED @ 33,200 FT.
14 44 A.G.W. 229,999# 72-1000# BOMBS 1/4 FUEL & OIL L.A.A. HIGH SPEED @ 3000 FT.
15 45 A.G.W. 229,999# 72-1000# BOMBS 1/4 FUEL & OIL H.A.A. - HIGH SPEED @ 3000 FT.
16 46 A.G.W. 229,999# 72-1000# BOMBS 1/4 FUEL & OIL L.A.A. - LIMIT DIVE SPEED @ 5000 FT.
17 63 TWO WHEEL LANDING WITH INCLINED REACTIONS NOSE DOWN D.G.W. FULL FUEL & OIL LESS BOMBS
18 64 TWO WHEEL LANDING WITH BRAKES NOSE DOWN D.G.W. FULL FUEL & OIL LESS BOMBS
19 65 TWO WHEEL LANDING WITH INCLINED REACTIONS NOSE DOWN A.G.W. 72-1000# BOMBS FULL FUEL & OIL
20 66 SIDE SLIP LANDING D.G.W. FULL FUEL & OIL LESS BOMBS
DISTANCE FROM A/C WING BUTTER
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400

REPORT FBS-36-140

DATE December 4, 1945

MODEL YB-36
YB-36A
B-36A

TITLE

STRESS ANALYSIS OF WING

PART I

DETERMINATION OF APPLIED LOADS

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PREPARED BY: D. V. Allen

L. E. Bisen

GROUP: STRUCTURES

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CHECKED BY: C m Propper

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NOMENCLATURE

SYMBOL	DEFINITION
α	- Angle in chord plane between rear spar and line perpendicular to intersection of root chord and plane of symmetry.
α	- Pitching acceleration about the airplane center of gravity, radians per (second)^2.
β	- Angle in chord plane between elastic axis and a line perpendicular to intersection of root chord and plane of symmetry.
θ	- Angle in chord plane between line of A.C.'s and a line perpendicular to intersection of root chord and plane of symmetry.
γ	- Rolling acceleration about an axis through the airplane center of gravity and parallel to the centerline of fuselage, radians per (second)^2.
ϕ	- Angle whose tangent is the slope of the curve of I_x/Q_x vs. y.
A.C.	- Aerodynamic center.
b	- Wing span, inches.
c	- Wing chord, inches.
$\bar{c}$	- Mean aerodynamic chord, inches.
$C_{M_{A.C.}}$	- Over all wing pitching moment coefficient about the A.C.
C_{M_o}	- Low speed section pitching moment coefficient about the section A.C.
$C_{\ell_{a_1}}$	- Additional section lift coefficient for an over all wing C_L equal to one.
C_{ℓ_b}	- Basic section lift coefficient.

NOMENCLATURE (cont'd.)

SYMBOL	DEFINITION
e	- Distance along station chord line between the center of gravity of the panel point load and the elastic axis, inches (e is + when c.g. is forward of E.A.).
e'	- Distance, $-\Delta y \tan \beta$, inches, where Δy is the distance between adjacent wing stations, inches.
g	- Acceleration of gravity, 32.2 feet per (second)^2,
$M_{c_{\ell_{a_1}}}$	- One g beam bending moment due to additional lift (directly proportional to gross weight).
$M_{c_{\ell_b}}$	- Beam bending moment due to basic lift (directly proportional to $V^2\sigma$).
M_{x_a}	- Ultimate beam bending moment due to air loads $= 1.5(\frac{Z}{W} M_{c_{\ell_{a_1}}} + M_{c_{\ell_b}})$.
M_{x_i}	- One g beam bending moment due to inertia loads.
M_x	- Ultimate beam bending moment.
M_x	- Net ultimate beam bending moment; for flight conditions $M_x = M_{x_a} + 1.5(\frac{-N_A}{W})M_{x_i}$.
M'_x	- Net ultimate beam bending moment on a section normal to rear spar and chord plane $= M_x \cos \alpha - T_{E.A.} \sin \alpha$.
M_y	- Ultimate chord bending moment.
M_y	- Net ultimate chord bending moment; for flight conditions $M_y = 1.5(\frac{X}{W} M_{c_{\ell_{a_1}}} + \frac{X_m}{W} M_{x_i})$.

NOMENCLATURE (cont'd.)

SYMBOL	DEFINITION
M'_y	- Net ultimate chord moment on a section normal to rear spar and chord plane $= M_y$.
r	- Distance from pitching moment axis to the elastic axis for two-wheel landing conditions, inches.
$\bar{r}$	- Distance from pitching moment axis to the center of gravity of the station load for two-wheel landing conditions, inches. Note: $\bar{r}$ is + when measured aft from pitching axis.
S	- Planform area of wing, square feet.
$S_{c_{\ell a_1}}$	- One g beam shear due to additional lift (directly proportional to gross weight).
$S_{c_{\ell b}}$	- Beam shear due to basic lift (directly proportional to $V^2\sigma$).
S_{b_a}	- Ultimate beam shear due to air loads $= 1.5(\frac{Z}{W} S_{c_{\ell a_1}} + S_{c_{\ell b}})$.
S_{b_i}	- One g beam shear due to inertia loads.
S_b	- Ultimate beam shear.
S_b	- Net ultimate beam shear; for flight conditions $S_b = S_{b_a} + 1.5(\frac{-N_A}{W}) S_{b_i}$.
S'_b	- Net ultimate beam shear on a section normal to rear spar and chord plane $= S_b$.

NOMENCLATURE (cont'd.)

SYMBOL	DEFINITION
S''_b	- Reduced net ultimate beam shear on a section normal to rear spar and chord plane $= S'_b - \frac{.7M'_x}{I_x/Q_x} \tan \phi$ or $0.5\ S'_b$, whichever is greater. Note: If S'_b and M'_x have opposite signs, the .7 factor is omitted.
S_c	- Ultimate chord shear.
S_c	- Net ultimate chord shear; for flight conditions $S_c = 1.5(\frac{X}{W} S_{c_{\ell a_1}} + \frac{Xm}{W} S_{b_1})$.
S'_c	- Net ultimate chord shear on a section normal to rear spar and chord plane $= S_c \cos \alpha$.
$T_{E.A._a}$	- Ultimate torsion about the elastic axis due to air loads $= \frac{1.5(.002558)}{144} V^2 \sigma\ F_3 \int_{b/2}^{y} C_{M_c} c^2\, dy - M_{x_a} \tan \theta + .011\ c\ S_{b_a}$.
$T_{E.A._i}$	- One g torsion about the elastic axis due to inertia loads.
$T_{E.A.}$	- Ultimate torsion about the elastic axis.
$T_{E.A.}$	- Net ultimate torsion about the elastic axis; for flight conditions $T_{E.A.} = T_{E.A._a} + 1.5(\frac{-NA}{W})\ T_{E.A._i}$.

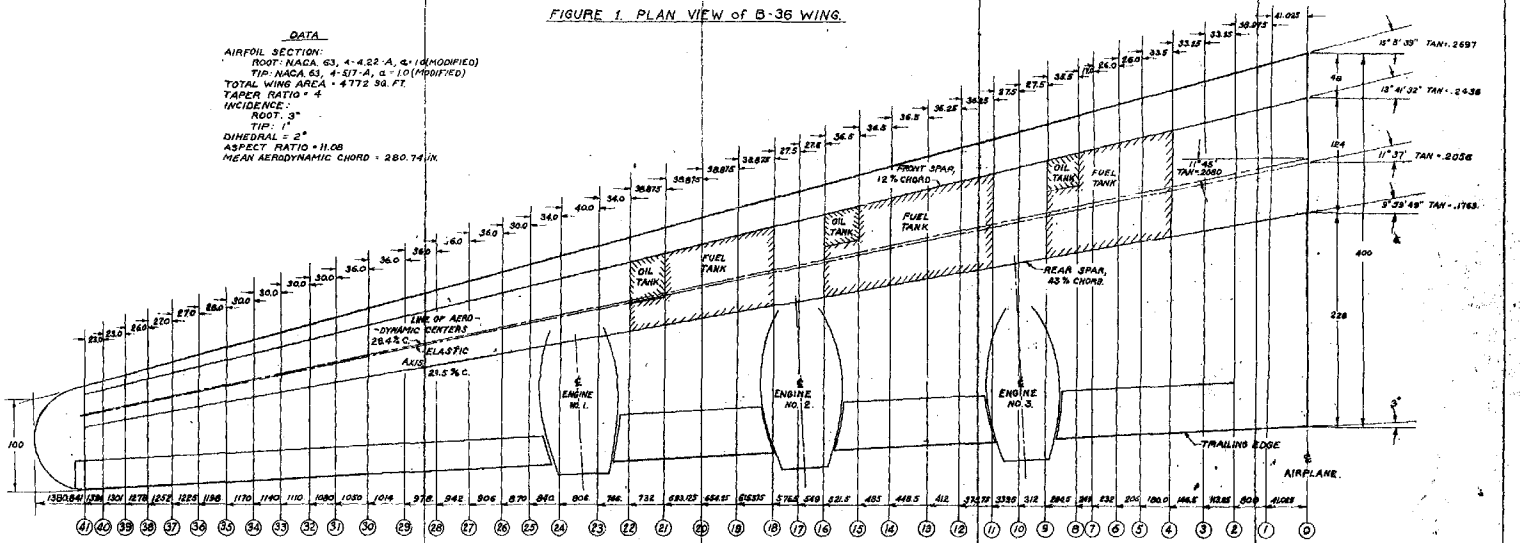
NOMENCLATURE (cont'd.)

SYMBOL	DEFINITION
$T'_{E.A.}$	- Net ultimate torsion about the elastic axis on a section normal to the rear spar and chord plane $= M_x \sin \alpha + T_{E.A.} \cos \alpha$.
V	- Airplane true velocity, miles per hour.
$\bar{X}$	- Distance from nose reference line to center of gravity of airplane, inches.
y	- Distance from root chord along semi-span, inches.

FIGURE 1. PLAN VIEW of B-36 WING.

DATA

AIRFOIL SECTION:
ROOT: NACA 63, 4-4.22-A, a=1.0 (MODIFIED)
TIP: NACA 63, 4-517-A, a=1.0 (MODIFIED)
TOTAL WING AREA = 4772.98 FT.
TAPER RATIO = 4
INCIDENCE:
ROOT: 3°
TIP: 1°
DIHEDRAL = 2°
ASPECT RATIO = 11.08
MEAN AERODYNAMIC CHORD = 280.74 IN.



NOTE: ALL LINEAR DIMENSIONS ARE IN INCHES.

CHECKED BY:		FIGURE 1.
DRAWN BY:		
COMPUTED BY:		
APPROVED BY:		

LOCKHEED-CONVAIR AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS

DOC. NO. FZS-36-140
MODEL B-36

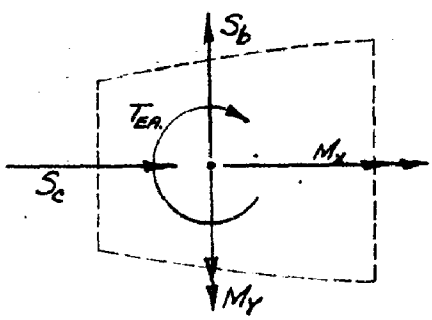
INTRODUCTION

The B-36 wing, consisting of a center section and two outer panels, is a two-spar, stressed skin box structure. Primary structural materials are aluminum alloys, steel, and magnesium alloys. A plan view of the wing including the basic geometric data is shown in Figure 1.

This report contains computations of the net ultimate shears, bending moments, and torsions for the critical design conditions for the B-36 wing. Part I contains the net ultimate loads for critical flight conditions, and Part II includes computations of the design loads for the critical landing conditions. In Part III the critical loads are summarized in graphs or in tabular form for convenience of use.

The sign conventions used for shears, moments, and torsions throughout the report are indicated in the following sketch (positive moments and shears are shown):

Note: Left hand rule is used for moment vectors.



Left Hand Wing Section

Looking Inboard

All air load coefficients and load factors for flight conditions have been obtained from C.V.A.C. Report FZS-36-136, "Basic Flight Criteria." Other C.V.A.C. Reports which are used as references are the following:

ZA-36-028, "Correlation of Experimental Data with Estimated Aerodynamic Data for Structural Analysis of the XB-36";

FZS-36-137, "Derivation of Wing and Fuselage Inertia Distribution and Airplane Moments of Inertia";

FZS-36-138, "Spanwise Distribution of Air Loads";

FZS-36-143, "Stress Analysis of Fuselage - Part I, Applied Loads";

FZS-36-149, "Stress Analysis of Landing Gear."

PART I

FLIGHT CONDITIONS

FLIGHT CONDITIONS

Design computations for the XB-36 airplane and a detailed study of summary Table XXV of C.V.A.C. Report FZS-36-136, "Basic Flight Criteria," show that the critical design shears, bending moments, and torsions from flight conditions for the B-36 wing will be obtained from the following sixteen flight conditions:

Design Gross Weight - 10,000# of bombs-full fuel and oil:

1. H.A.A. @ 5,000',
2. L.A.A. @ 5,000' - high speed,
3. L.A.A. @ 30,000' - high speed,
4. I.H.A.A. @ 5,000',
5. I.L.A.A. @ 5,000' - high speed,
6. I.L.A.A. @ 5,000' - limit dive speed,
7. I.L.A.A. @ 30,000' - high speed;

Alternate Gross Weight - (72)1000# bombs-full fuel and oil:

8. H.A.A. @ 5,000',
9. L.A.A. @ 5,000' - high speed,
10. I.H.A.A. @ 5,000',
11. I.L.A.A. @ 5,000' - high speed,
12. I.L.A.A. @ 5,000' - limit dive speed,
13. I.L.A.A. @ 35,000' - high speed;

Reduced Gross Weight -(72)1000# bombs - 1/3 fuel and oil:

14. L.A.A. @ 5,000' - high speed,
15. I.L.A.A. @ 5,000' - high speed,
16. I.L.A.A. @ 5,000' - limit dive speed.

Preliminary studies show that for normal flight conditions the Design Gross Weight Condition is critical outboard of the landing gear because of the high product of load factor and gross weight. Inboard of the gear an Alternate Gross Weight condition becomes critical because of the reduction in the relieving fuel moment. Both H.A.A. and L.A.A. (high speed) conditions at 5,000 feet for D.G.W. and A.G.W. are included since the variation in chord bending moment will cause each to be critical in different portions of the structural box. L.A.A. (high speed), Reduced Gross Weight at 5,000 feet, is also included since the high gust load factor makes it a critical L.A.A. condition inboard of the landing gear. A high pitching moment, producing critical rear spar shears, requires that computations also be made for L.A.A. (high speed), D.G.W., at 30,000 feet.

Flight conditions critical or near-critical for compression in the lower surface are the following:

I.H.A.A. @ 5,000', D.G.W.;

I.L.A.A. (high speed) @ 5,000', D.G.W.;

I.H.A.A. @ 5,000', A.G.W.;

I.L.A.A. (high speed) @ 5,000', A.G.W.;

I.L.A.A. (high speed) @ 5,000', R.G.W.;

I.L.A.A. (high speed) @ 30,000', D.G.W.;

I.L.A.A. (high speed) @ 35,000', A.G.W.

The last two conditions are included because the decreased relieving fuel moment causes higher beam bending near the wing root.

Preliminary calculations show that critical front spar shears will be produced by the remaining three conditions for which computations are made:

I.L.A.A. (limit dive speed) @ 5,000', D.G.W.;

I.L.A.A. (limit dive speed) @ 5,000', A.G.W.;

I.L.A.A. (limit dive speed) @ 5,000', R.G.W.

Section A contains computations of net ultimate wing loads due to air loads only. Section B contains the shears, bending moments, and torsions due to inertia loads at one g for each of the weight conditions considered. Section C includes computations of the ultimate inertia loads which are combined with the ultimate air loads to produce the net ultimate design shears, bending moments, and torsions for the B-36 wing in flight.

PART I

SECTION A

ULTIMATE AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSIONS

ULTIMATE AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSIONS

The ultimate aerodynamic shears, bending moments, and torsions for each of the sixteen flight conditions included in this report are computed in Tables 3 through 18. For simplicity of calculations the loads are computed at thirteen points along the semi-span, and the results are plotted in Figures 2 through 17. From these curves the aerodynamic loads to be used in determining the net ultimate loads at each bulkhead station may be obtained. (Note: Curves plotted to a larger scale were actually used to obtain greater accuracy in the net ultimate loads.)

S_{b_a}, M_{x_a}, and $T_{E.A._a}$ are calculated by use of the formulas noted in the "Nomenclature." The correction factor, F_3, to be applied to C_{M_D} in computing $T_{E.A._a}$ is developed in the following pages of explanation and is computed for each flight condition studied in Table 2. Table 1 contains the computation of various constants to be used in Table 2 and in Tables 3 through 18.

DETERMINATION OF CORRECTION FACTOR (F_3)

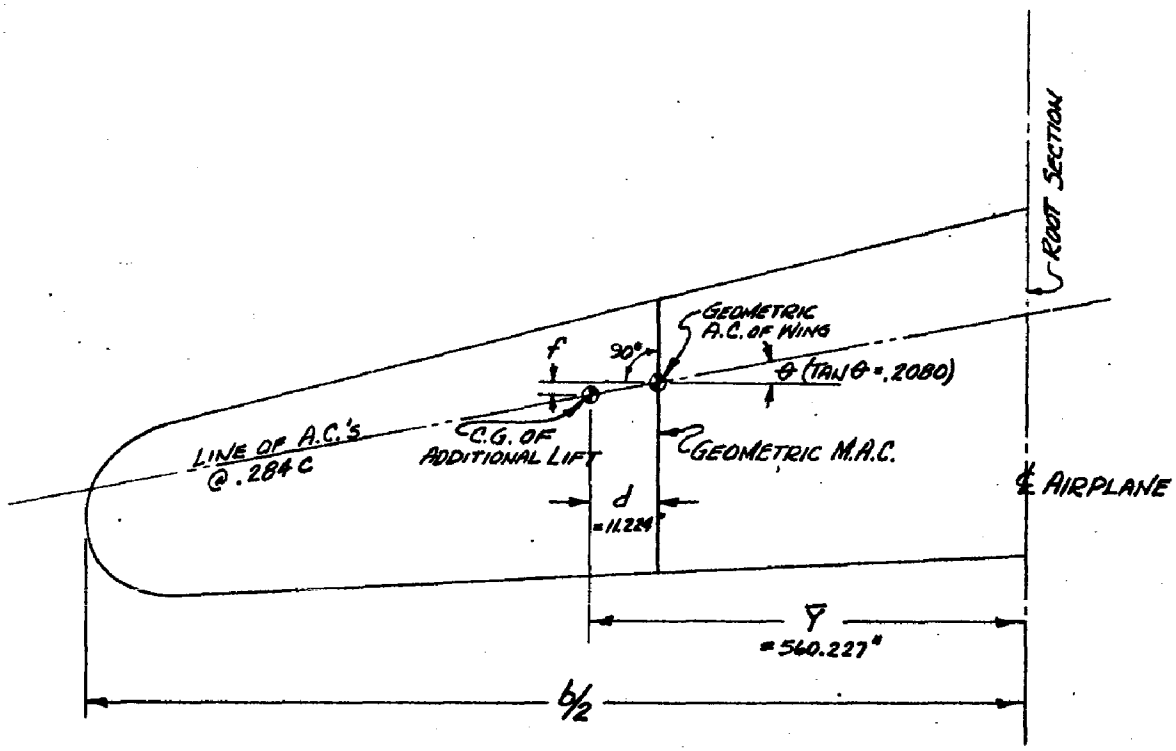
FOR SECTION PITCHING MOMENT COEFFICIENT (C_{M_0})

In the determination of balancing tail loads in C.V.A.C. Report FZS-36-136 ("Basic Flight Criteria"), the over all wing pitching moment coefficients about the aerodynamic center ($C_{M_{A.C.}}$), based on wind tunnel tests and corrected for Mach number according to the method of A.C.T.R. 4524 - Revision I, are used. (Note: In FZS-36-136, the symbol C_{M_0} is used in place of $C_{M_{A.C.}}$ while in this report C_{M_0} refers to low speed section data only.)

In general the weighted mean value of low speed section pitching moment data over the span does not agree with the value of $C_{M_{A.C.}}$ for a particular flight condition. The underlying reason for this is that four primary items based on various parameters contribute to the value of $C_{M_{A.C.}}$. These items are:

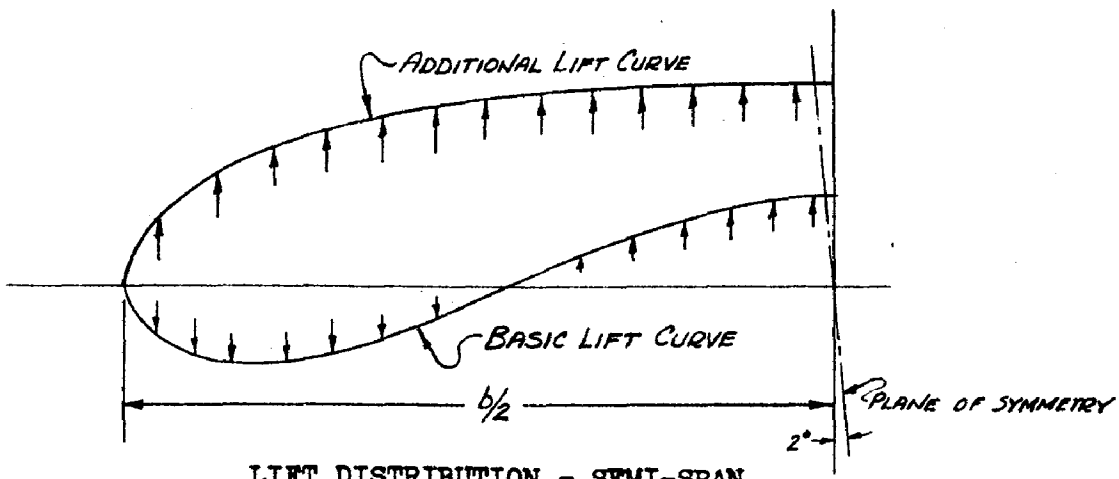
1. The basic lift distribution over the span,
2. The additional lift distribution over the span,
3. Section moment coefficient values, and
4. Mach number .

A correction factor is developed for application to low speed section moment coefficient data to bring the combined effects of the above four items into agreement with over all wing data. The development of this factor follows.



PLAN VIEW - SEMI-SPAN

Inasmuch as the section moment coefficient is about the section A.C., the section lift is assumed acting at the section A.C. The over all wing moment coefficient ($C_{M_{A.C.}}$) is referred to the geometric A.C.



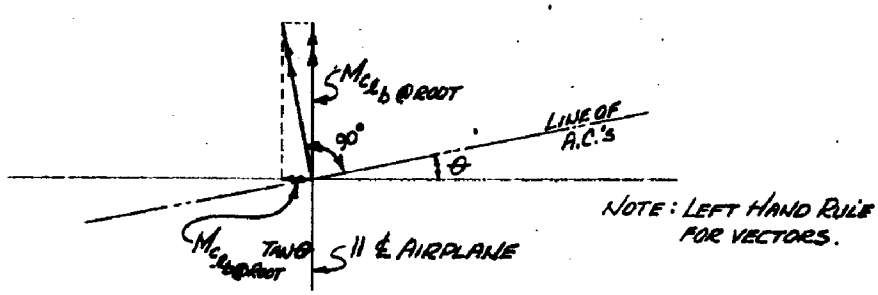
LIFT DISTRIBUTION - SEMI-SPAN

A. Torsion of basic lift about the geometrical A.C.:

The net lift due to the basic lift distribution over the semi-span equals zero and is therefore equivalent to a couple in a plane normal to the chord plane and passing through the line of A.C.'s. Therefore the torsion about an axis perpendicular to the plane of symmetry through the A.C. of the wing due to basic lift

$= -1.5\, M_{c_{\ell_b}\ @\ root} \times \tan\theta$ (see following sketch), (1)

where $M_{c_{\ell_b}\ @\ root}$ is the moment at the root section due to the basic lift over the semi-span.



B. Torsion of the additional lift about the geometric A.C.:

The center of gravity of the additional lift over the semi-span as represented by the equation

$$\bar{y} = \frac{\int_0^{b/2} c\, C_{\ell_{a_1}}\, y\, dy}{\int_0^{b/2} c\, C_{\ell_{a_1}}\, dy} \qquad (2)$$

does not coincide with the geometric A.C. of the wing but lies on the line of A.C.'s a distance d outboard of the geometric A.C. The resulting torsion of the semi-span air load about the geometric A.C.

$$= -1.5\, \frac{Z}{W}\, S_{c_{\ell_{a_1}}\ @\ root} \times f = -1.5\, \frac{Z}{W}\, S_{c_{\ell_{a_1}}\ @\ root} \times d \tan\theta \qquad (3)$$

where $\frac{Z}{W}$ is the beam air load factor and $S_{c_{\ell_{a_1}}\ @\ root}$

B. (con't.)

is the 1 g semi-span air load.

C. Torsion about the geometric A.C. due to section pitching moment coefficient

$$= 1.5\ (.002558)V^2\sigma\ K\int_{b/2}^{0} C_{M_0}\ c^2\ dy \qquad (4)$$

for the semi-span, where K is the Mach number correction factor according to the method of A.C.T.R. 4524 - Revision I.

Introducing a correction factor F, the following relationship holds:

$$1.5\ C_{M_{A.C.}}\ \bar{c}(.002558)\frac{S}{2}\ V^2\sigma = -1.5\ M_{c_{\ell_b}\ @\ root} \times \tan\theta$$

$$-1.5\ \frac{Z}{W}\ S_{c_{\ell_{a_1}}\ @\ root} \times d\ \tan\theta$$

$$+ F(1.5)(.002558)V^2\sigma\ K\int_{b/2}^{0} C_{M_0}\ c^2\ dy. \qquad (5)$$

Then the C_{M_0} correction factor $F_3 = F\ K$

$$= \Big[1.5\ C_{M_{A.C.}}\bar{c}(.002558)\frac{S}{2}\ V^2\sigma + 1.5\ M_{c_{\ell_b}\ @\ root} \times \tan\theta$$

$$+ 1.5\ \frac{Z}{W}\ S_{c_{\ell_{a_1}}\ @\ root} \times d\ \tan\theta\Big] \div 1.5(.002558)V^2\sigma\int_{b/2}^{0} C_{M_0}c^2\ dy. \qquad (6)$$

TABLE 1. EVALUATION OF $\int_{b/2}^{y} C_{m_0} c^2 dy$ AND .011 C.

STA. DISTANCE FROM ℄ SHIP.	C WING DATA BOOK	C^2	C_{m_0}, FIG. 2 ZR-36-028	$C_{m_0} C^2$	SIMPSON'S MULTIPLIER	$(C_{m_0} c^2)(S.M.)$	$\sum_{b/2}^{y}(C_{m_0} c^2)(S.M.)$	.011 C
1	2	3	4	5	6	7	8	9
				③ x ④		⑤ x ⑥	$\sum_{b/2}^{y}$ ⑦	.011 x ②
0	400	160,000	-.0646	-10,336	1	-10,336	-332020	4.400
57.5	387.5	150,156	-.0646	-9700	4	-38,800		
115	375	140,625	-.0647	-9098	2	-18,196	-273,184	4.125
172.5	362.5	131,406	-.0648	-8515	4	-34,060		
230	350	122,500	-.0649	-7950	2	-15,900	-222,678	3.850
287.5	337.5	113,960	-.0650	-7407	4	-29,628		
345	325	105,625	-.0651	-6876	2	-13,752	-178224	3.575
402.5	312.5	97,656	-.0653	-6377	4	-25,508		
460	300	90,000	-.0656	-5904	2	-11,808	-139,956	3.300
517.5	287.5	82,656	-.0659	-5447	4	-21,788		
575	275	75,625	-.0662	-4991	2	-9982	-107,253	3.025
632.5	262.5	68,906	-.0662	-4562	4	-18,248		
690	250	62,500	-.0666	-4163	2	-8326	-79,051	2.750
747.5	237.5	56,406	-.0669	-3774	4	-15,096		
805	225	50,625	-.0671	-3397	2	-6,794	-57,195	2.475
862.5	212.5	45,156	-.0674	-3044	4	-12,176		
920	200	40,000	-.0682	-2728	2	-5456	-38,894	2.200
977.5	187.5	35,156	-.0689	-2422	4	-9688		
1035	175	30,625	-.0697	-2135	2	-4270	-24,343	1.925
1092.5	162.5	26,406	-.0705	-1862	4	-7448		
1150	150	22,500	-.0714	-1607	2	-3214	-13,153	1.650
1207.5	137.5	18,906	-.0723	-1367	4	-5468		
1265	125	15,625	-.0734	-1147	2	-2294	-4931	1.375
1322.5	108	12,680	-.0747	-946	4	-3784		
1380	0	0	-.0760	0	1	0	0	0

AT Y=0: $\int_{b/2}^{y} C_{m_0} c^2 dy = \frac{575}{3}(-332,020) = -6,364,823$

FOR ANY SPEED AND ALTITUDE:

TORSION DUE TO $C_{m_0} = 1.5 \frac{\rho}{2} V_{MPH}^2 \sigma \int_{b/2}^{0} C_{m_0} c^2 dy$

$= 1.5 \frac{.002558}{144} V_{MPH}^2 \sigma (-6,364,823) = -169.56 V^2 \sigma$

BY: Brown
CHECKED: [illegible]

TABLE 2. CALCULATION OF F_3 FOR DESIGN CONDITIONS.

Condition	Z/W	Gross Weight	V	V^2	Ultimate Torsion Due To C_{l_a}: $1.5\frac{Z}{W}$	$5\,C_{l_a}$, $d\tan\theta$	$\frac{G.W.}{265,000}$	Ultimate Torsion Due To C_{l_a}: $1.5\,M_{c_{l_a}}\left(\frac{V}{311}\right)^2\sigma\tan\theta$		Ultimate Torsion Due To C_{m_a}: $1.5\times.002558\,V^2\sigma\int C_{m_a}c\,dy$		Ultimate Torsion Due To $C_{m_{ac}}$: $1.5\,C_{m_{ac}}\,c\,.002558\,\frac{S}{2}V^2\sigma$			F_3
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					(1) $1.5\,C_{l_a}$, $d\tan\theta$	(2)	⑤×⑥	$\left(\frac{V}{311}\right)^2\sigma$	(3) ⑧×-2,026,000	$V^2\sigma$	(4) ⑩×-169.56	$C_{m_{ac}}$ FZS-36-136	(5) ⑫×⑩×2570	⑬+⑦+⑪	⑭/⑪
D.G.W.-H.A.A. @ 5,000'	2.691	278,000	219.8	48,311	-464,000	1.049	+1,309,800	.4305	-872,300	41,625	-7,057,900	-.0486	-5,201,000	-4,763,500	.6749
D.G.W.-L.A.A. @ 5,000' (High Speed)	2.737	278,000	275.0	75,625	-464,000	1.049	+1,332,200	.6738	-1,365,000	65,159	-11,048,000	-.0548	-9,181,000	-9,213,800	.8340
D.G.W.-I.H.A.A. @ 5,000'	-1.682	278,000	202.8	41,128	-464,000	1.049	-818,700	.3665	-743,500	35,436	-6,008,000	-.0582	-5,302,300	-6,864,500	1.1425
D.G.W.-I.L.A.A. @ 5,000' (High Speed)	-1.648	278,000	275.0	75,625	-464,000	1.049	-802,100	.6738	-1,365,000	65,159	-11,048,000	-.0548	-9,181,000	-11,348,100	1.0272
D.G.W.-I.L.A.A. @ 5,000' (Limit Dive Speed)	-1.470	278,000	308.0	94,864	-464,000	1.049	-715,500	.8452	-1,712,500	81,735	-13,859,000	-.0559	-11,746,900	-14,174,900	1.0228
A.G.W.-H.A.A. @ 5,000'	2.551	265,000	209.0	43,681	-464,000	1.000	+1,184,000	.3892	-789,000	37,640	-6,382,000	-.0484	-4,683,500	-4,288,500	.6719
A.G.W.-L.A.A. @ 5,000' (High Speed)	2.598	265,000	276.2	76,286	-464,000	1.000	+1,205,500	.6797	-1,377,200	65,728	-11,144,800	-.0548	-9,260,500	-9,432,200	.8463
A.G.W.-I.H.A.A. @ 5,000'	-1.522	265,000	188.3	35,457	-464,000	1.000	-706,200	.3159	-640,000	30,550	-5,180,000	-.0578	-4,539,700	-5,885,900	1.1363
A.G.W.-I.L.A.A. @ 5,000' (High Speed)	-1.484	265,000	276.2	76,286	-464,000	1.000	-688,600	.6797	-1,377,200	65,728	-11,144,800	-.0548	-9,260,500	-11,326,300	1.0163
A.G.W.-I.L.A.A. @ 5,000' (Limit Dive Speed)	-1.324	265,000	308.0	94,864	-464,000	1.000	-614,300	.8452	-1,712,500	81,735	-13,859,000	-.0559	-11,746,900	-14,073,700	1.0155
R.G.W.-L.A.A. @ 5,000' (High Speed)	2.740	229,999	280.6	78,736	-464,000	0.868	+1,103,500	.7015	-1,421,300	67,839	-11,503,000	-.0550	-9,592,800	-9,910,600	.8616
R.G.W.-I.L.A.A. @ 5,000' (High Speed)	-1.473	229,999	280.6	78,736	-464,000	0.868	-593,300	.7015	-1,421,300	67,839	-11,503,000	-.0550	-9,592,800	-11,607,400	1.0091
R.G.W.-I.L.A.A. @ 5,000' (Limit Dive Speed)	-1.327	229,999	308.0	94,864	-464,000	0.868	-534,500	.8452	-1,712,500	81,735	-13,859,000	-.0559	-11,746,900	-13,993,800	1.0097
D.G.W.-L.A.A. @ 30,000' (High Speed)	2.758	268,213	338.2	114,379	-464,000	1.012	+1,295,100	.4426	-896,800	42,778	-7,253,000	-.1210	-13,307,500	-12,909,200	1.7798
D.G.W.-I.L.A.A. @ 30,000' (High Speed)	-1.690	268,213	338.2	114,379	-464,000	1.012	-793,570	.4423	-896,200	42,778	-7,253,000	+.0166	+1,825,700	+135,969	-.0187
A.G.W.-I.L.A.A. @ 35,000' (High Speed)	-1.541	254,131	350.0	122,500	-464,000	0.959	-685,708	.3924	-795,100	37,951	-6,435,000	+.0289	+2,819,800	+1,339,100	-.2081

(1) C_{l_a} (For G.W. = 265000#) = 132500#
(2) $d \times \tan\theta = 2.335$
(3) $1.5\,M_{c_{l_a}}\tan\theta = -2026,000$ ($M_{c_{l_a}}$ for V=311 @ Sea Level = -6,894,500)
(4) $1.5 \times \frac{.002558}{144} \times \int C_{m_a} c\,dy = -169.56$ (See Table 1.)
(5) $1.5\,C\,.002558\,\frac{S}{2} = 2570.$

By: Dist
Chk: Bilan

TABLE 3. B-36 WING, AERODYNAMIC, SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE.
CONDITION: 0.3W=278,000 LBS, 1000 LBS. FUEL & OIL. M.A.C. 5000 FT

STA	DISTANCE FROM ℄ SHIP	$S_{Cs_{a_1}}$ (W=265,000 lb)	$S_{Cs_{a_1}}$ (W=278,000 lb)	$\frac{\Sigma}{W} S_{Cs_{a_1}}$ (W=265,000 lb)	S_{Cs_b} (311.0 MPH)	S_{Cs_b} (219.8 MPH)	$\frac{\Sigma}{W} S_{Cs_{a_1}} + S_{Cs_b}$	S_{D_a}	$M_{Cs_{a_1}} \times 10^{-3}$ (W=265,000 lb)	$M_{Cs_{a_1}} \times 10^{-3}$ (W=278,000 lb)	$\frac{\Sigma}{W} M_{Cs_{a_1}} \times 10^{-3}$ (W=265,000 lb)	$M_{Cs_b} \times 10^{-3}$ (311.0 MPH)	$M_{Cs_b} \times 10^{-3}$ (219.8 MPH)	$\frac{\Sigma}{W} M_{Cs_{a_1}} + M_{Cs_b} \times 10^{-3}$	$M_{V_{1/2}} \times 10^{-3}$	$M_{Cs_{a_1}} \times 10^{-3}$	TORSION ave 50 $C_{M_c} \times 10^{-3}$	$M_{X_{L.E.}} \times 10^{-3}$ (W=265,000)	$M_{C_{L.E.}} \times 10^{-3}$	$M_{T_{A_{L.E.}}} \times 10^{-3}$
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
		FZS-36-138 TAB X COL 9 $F_2 \times$ ②		$F_2 \times$ ③	FZS-36-138 TAB X COL 10		⑤ + ⑥	1.5 X ⑦	FZS-36-138 TAB X COL 11 $F_2 \times$ ⑨		$F_2 \times$ ⑩	FZS-36-138 TAB X COL 12 $F_2 \times$ ⑫		⑪ + ⑬	1.5 X ⑭	TAB X COL 13 $F_2 \times$ ⑮		-2080 ⑮			
0	0	131,900	138,376	372,370	0	0	372,370	558,555	73,804	77,522	208,612	-4,424,500	-2,795,000	205,817	308,726	-232,020	-4,765.6	-54,215	2,137,642		-66,521.0
	57.5																				
2	115	116,144	121,847	327,890	-2002	-862	327,028	490,542	59,632	62,560	168,349	-4,326,500	-2,740,000	165,605	248,408	-273,770	-5,928.1	-51,643	2,023,484		-53,573.6
	172.5																				
4	230	100,856	105,808	284,729	-3792	-1633	283,096	424,644	47,161	49,477	133,142	-4,040,800	-2,600,000	130,543	195,814	-322,670	-5,184.9	-40,739	1,634,879		-42,283.0
	287.5																				
6	345	86,236	90,332	243,614	-5284	-2274	241,350	362,025	36,407	38,195	102,783	-3,515,800	-2,374,000	100,409	150,614	-372,210	-5,557.1	-31,228	1,299,239		-32,590.9
	402.5																				
8	460	72,525	76,086	204,747	-6418	-2762	201,985	302,978	27,283	28,623	77,024	-4,038,300	-2,083,000	74,941	112,412	-432,930	-2,907.7	-23,392	993,827		-24,389.8
	517.5																				
10	575	59,613	62,540	168,238	-7149	-3077	165,218	247,827	19,694	20,661	55,599	-4,054,900	-1,745,000	53,854	80,781	-487,283	-1,538.8	-16,802	743,677		-17,531.1
	632.5																				
12	690	47,622	49,960	134,442	-7400	-3185	131,257	196,886	13,237	14,202	38,218	-3,213,700	-1,383,000	36,835	55,252	-479,231	-1,145.7	-11,432	541,436		-12,096.9
	747.5																				
14	805	36,607	38,404	103,345	-7169	-3086	100,259	150,388	8,703	9,130	24,563	-4,371,700	-1,031,000	23,548	35,322	-531,195	-820.6	-7,247	372,210		-7,295.4
	862.5																				
16	920	28,620	30,027	75,182	-6473	-2786	72,396	108,594	5,078	5,327	14,335	-1,582,600	-681,200	13,654	20,481	-493,830	-559.0	-4,266	238,808		-4,573.2
	977.5																				
18	1035	17,732	18,610	50,080	-5311	-2286	47,794	71,691	2,538	2,663	7,166	-960,068	-337,700	6,773.3	10,167	-414,343	-340.3	-2,115	138,005		-2,223.3
	1092.5																				
20	1150	10,083	10,578	28,465	-3645	-1569	26,888	40,332	250.6	997.3	2,684	-329,820	-163,500	2,520.5	3,781	-313,153	-188.7	-724	66,548		-908.6
	1207.5																				
22	1265	3,808	3,995	10,751	-1626	-700	10,051	15,076	166.3	175.0	470.9	-79,447	-31,610	473.3	633.9	-4,921	-70.75	-137.0	20,730		-187.07
	1322.5																				
24	1380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

$F_1 = \frac{0.W.}{265,000} = \frac{278,000}{265,000} = 1.0491$

$F_2 = \left(\frac{M.P.H.}{311.0}\right)^2 = \left(\frac{219.8}{311.0}\right)^2 = .5000$

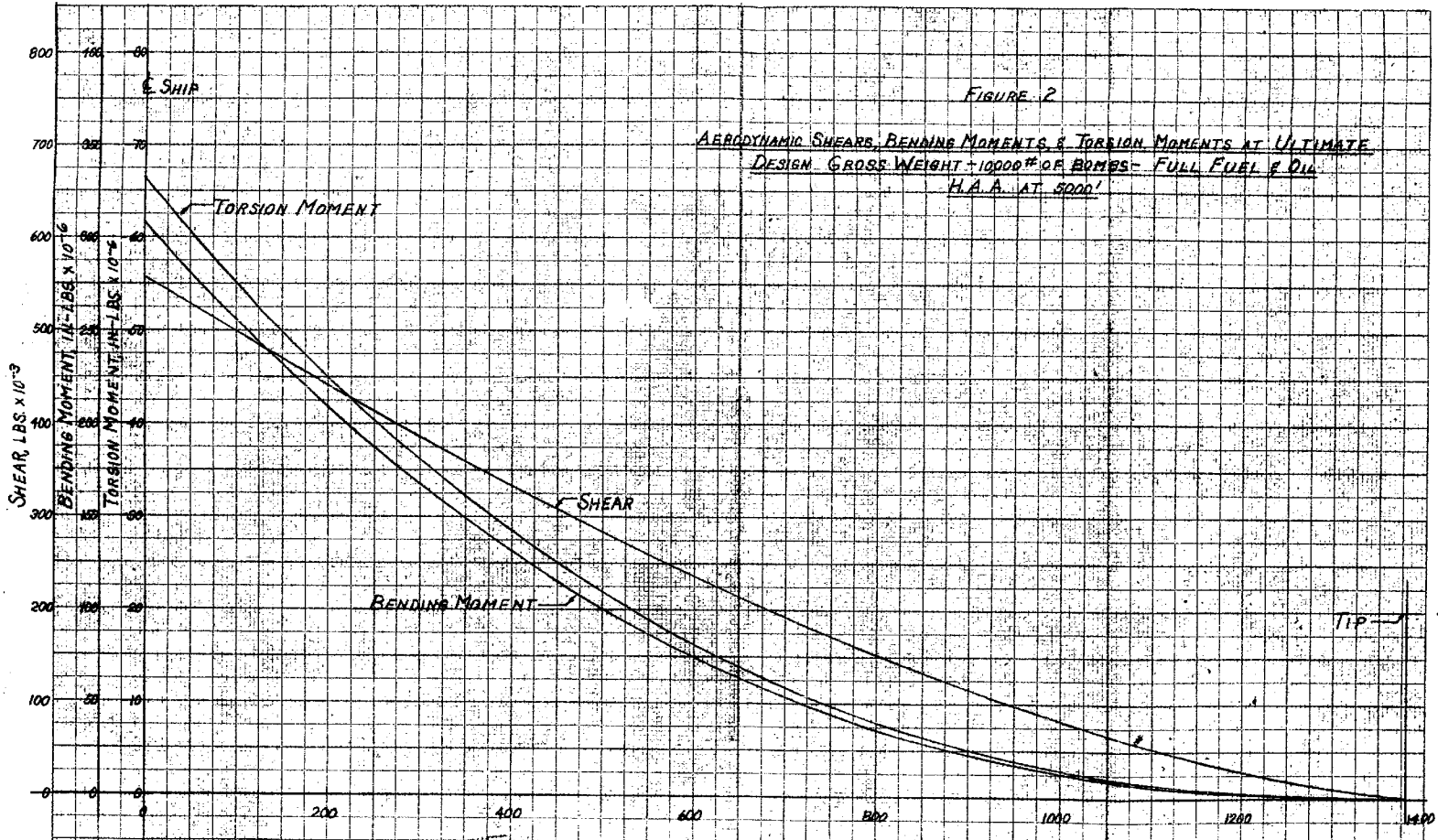
F_4 = Torsion Conversion $F_4 = 5 \times .003552 \times 575 \times 5 = .0005107 (21.25) = .6749$

$= 21.2586$

$F_5 = .6749$ (TABLE 2.)

$F_6 = 5 \times F_4 = .6749 \times 21.2586 = 14.3474$

By J. Ellis
Ck'd [illegible]



CALCULATED BY	J. Ellis	FIGURE 2	DOC. NO. FZS-36-140
DRAWN BY	J. Ellis		
CHECKED BY	[illegible]	CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION, FORT WORTH, TEXAS	MODEL B-36
APPROVED BY			

TABLE 4. B-36 WING AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE.
CONDITION: GW - 278,000# 100% - FULL FUEL FOIL LAA #3206 HIGH SPEED.

STA.	DISTANCE FROM ℄ SHIP	S_{Cx_1}	S_{Cy_1}	S_{Cz_1}	S_{Cz_2}	S_{Cz_3}	S_{Cz_4}	S_{bz}	M_{Cx_1}	$M_{Cx_2} \times 10^{-3}$	$M_{Cx_3} \times 10^{-3}$	$M_{Cz_2} \times 10^{-3}$	$M_{Cz_3} \times 10^{-3}$	$M_{Cz_4} \times 10^{-3}$	$M_{Cz_b} + M_{Cz_b} \times 10^{-3}$	$M_{Cy_1} \times 10^{-3}$	$M_{Cy_2} \times 10^{-3}$	TORSION due to $C_{M_0} \times 10^{-3}$	$M_{Y_b} \times 10^{-3}$	M_{Cz_b}	M_{Cz_b}
		(GW-226,000)	(GW-278,000)	(GW=2.737)	(110 MPH)	(750 MPH)			(GW-226,000)	(GW-278,000)	(GW=2.737)	(110 MPH)	(750 MPH)		$\times 10^{-3}$				(GW=2.737)		
		2		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
				FZS-36-148 TAB. X, COL. 4	FZS-36-148 TAB. IX, COL. 3	Fz × ③	Fz × ③	④ + ⑤	1.5 × ⑦	FZS-36-148 TAB. X, COL. 4	Fy × ⑧	2.737 × ⑨	FZS-36-148 TAB. IX, COL. 4	Fz × ⑫	⑩ + ⑬	1.5 × ⑭	No. 1, Col. 8 Fx × ⑮	−2080 (GW=2.737)			
0	0	131,900	139,376	378,735	0	0	378,735	568,102	75,894	77,522	212,178	−6,578,500	−4,578,000	207,803	311,704	−392,020	−3,914.6	−64,834		2,490,649	−71,598.9
	57.5																				
2	115	116,194	121,947	332,495	−2002	−1349	332,146	498,219	59,672	62,260	171,227	−6,376,500	−4,296,000	166,931	250,396	−273,786	−7,598.4	−52,082		2,035,183	−27,625.7
	172.5																				
4	230	100,856	105,803	288,536	−3795	−2555	287,041	430,562	47,161	49,977	135,419	−6,040,300	−4,070,000	131,448	197,024	−222,678	−6,180.0	−40,981		1,657,664	−45,503.3
	287.5																				
6	345	86,296	90,535	247,789	−5284	−3560	244,229	366,244	36,407	38,195	104,840	−5,513,500	−3,716,000	100,824	151,236	−178,224	−4,946.3	−31,457		1,305,680	−35,095.6
	402.5																				
8	460	72,525	76,056	208,247	−6118	−4124	202,323	305,805	27,280	28,622	78,341	−4,833,000	−3,260,000	75,081	112,622	−133,934	−3,889.7	−23,425		1,009,417	−26,293.3
	517.5																				
10	575	59,613	62,540	171,172	−7149	−4816	166,356	249,594	18,634	20,661	56,549	−4,054,300	−2,752,300	53,817	80,726	−107,253	−2,976.6	−16,791		754,040	−19,012.3
	632.5																				
12	690	47,622	49,960	136,741	−7900	−4985	131,756	197,434	13,837	14,202	38,871	−3,313,700	−2,165,000	36,706	55,059	−79,861	−2,216.1	−11,482		543,444	−13,124.4
	747.5																				
14	805	36,607	38,404	105,112	−7169	−4837	100,232	150,423	8,703	9,130	24,989	−2,371,700	−1,582,000	23,391	35,086	−57,195	−1,587.5	−7,238		372,597	−8,513.0
	862.5																				
16	920	26,620	27,927	76,436	−6473	−4361	72,076	108,112	5,078	5,327	14,580	−1,522,600	−1,061,000	13,814	20,271	−38,894	−1,079.4	−4,218		237,868	−5,037.6
	977.5																				
18	1035	17,799	18,610	50,936	−5311	−3578	47,358	71,037	2,633	2,663	7,289	−900,000	−606,800	6,682.2	10,023.3	−24,345	−676.6	−2,095		136,746	−2,623.9
	1092.5																				
20	1150	10,553	10,577	28,952	−3665	−2469	26,483	39,724	958.6	987.31	2,720	−379,800	−255,800	2,474.1	3,711.15	−13,153	−365.0	−775.3		65,595	−1,071.4
	1207.5																				
22	1265	3,805	3,995	10,934	−1626	−1095	9,839	14,758	166.8	175.0	479.0	−72,977	−49,400	429.5	644.25	−4,591	−136.85	−134.0		20,282	−250.56
	1322.5																				
24	1380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0

STA.	$M_{Cy_b} \times 10^{-3}$	$M_{Cz_b} \times 10^{-3}$	$M_{Cx_b} \times 10^{-3}$	$M_{Cz_b} \times 10^{-3}$	$M_{Cy_b} \times 10^{-3}$	$M_{Cz_b} \times 10^{-3}$
0	2,490,649	−71,598.9				
2	2,035,183	−27,625.7				
4	1,657,664	−45,503.3				
6	1,305,680	−35,095.6				
8	1,009,417	−26,293.3				
10	754,040	−19,012.3				
12	543,444	−13,124.4				
14	372,597	−8,513.0				
16	237,868	−5,037.6				
18	136,746	−2,623.9				
20	65,595	−1,071.4				
22	20,282	−250.56				
24	0	0				

$F_1 = \frac{GW}{265,000} = \frac{278,000}{265,000} = 1.0491$

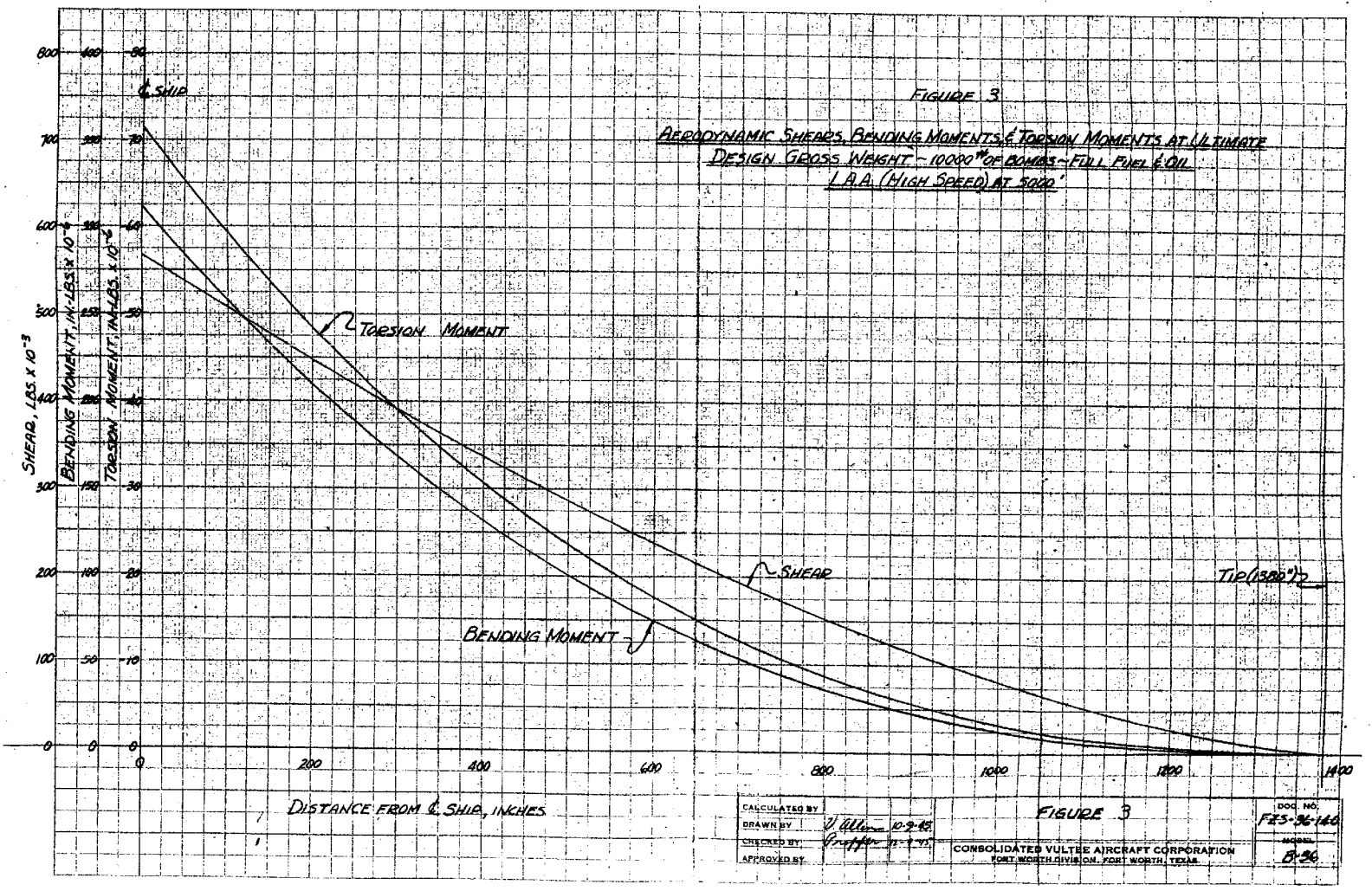
$F_2 = \left(\frac{N_{Ult}}{N_{Lim}}\right)^2 = .8616\left(\frac{275.0}{311.0}\right)^2 = .6737$

$F_3 = 8240$ (TABLE 2.)

$F_4 = \text{COLLECTIVE FACTOR} = .5 \times \frac{602,738}{265,000} \times 5.8 \sqrt{F_3} = .0002 \times 1071.1 \sqrt{F_3} \times .9616$
$= 33.4771.$

$F_5 = F_1 \times F_4 = 1.0491 \times 33.4771 = 27.7531$

By: J. Ellis
Chk: B. Jones 11/11



CALCULATED BY		FIGURE 3	DOC. NO. FZS-36-140
DRAWN BY	V. Allen 10-9-45		
CHECKED BY	[illegible] 11-1-45	CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION, FORT WORTH, TEXAS	MODEL B-36
APPROVED BY			

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 125 PADS 11-43

TABLE 5. B-36 WING. AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE.

CONDITION: D.G.W. - 258,213# - 100,000#B, FULL FUEL & OIL. LAA & 30,000', HIGH SPEED.

STA.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
		(G.W. = 258,213)		(G.W. = 258,213)	(G.W. = 258,213)	(311.0 MPH)	(338.2 MPH)			(G.W. = 265,000)	(G.W. = 268,213)	(G.W. = 275,750)	(311.0 MPH)	(338.2 MPH)								
		FZS-36-138 TAB. 7, Col. 9	$F_2 \times$ (3)	+2,758.5	FZS-36-138 TAB. 7, Col. 9	$F_2 \times$ (5)		(4) + (6)	1.5 × (7)	FZS-36-138 TAB. 7, Col. 8	$F_1 \times$ (3)	+2,758.5	FZS-36-138 TAB. 7, Col. 8	$F_2 \times$ (12)	(11) + (13)	1.5 × (14)	TAB. 1, Col. 8	$F_3 \times$ (16)	−2080 (15)	$10^{-3} \times$ (19) × (8)	(17) + (18) + (20)	
0	0	131,900	133,496	368,182	0	0		368,182	552,273	73,894	74,788	206,265	−6,494,500	−2,878,000	203,382	305,088	−332,020	−12,910.1	−63,458		2,430.0	−73,938.1
	57.5																					
2	115.0	116,144	117,549	324,200	−2,122	−885.5		323,314.5	484,972	53,634	60,354	166,456	−6,376,500	−2,820,000	163,636	245,454	−273.786	−10,645.8	−51,054		2,000.5	−59,693.3
	172.5																					
4	230.0	100,856	102,076	281,526	−3793	−1678		279,848	419,772	47,161	47,732	131,645	−6,040,500	−2,672,000	128,973	193,460	−222,678	−8,658.5	−40,240		1,616.1	−47,282.4
	287.5																					
6	345.	86,296	87,340	240,884	−5284	−2337		238,547	357,820	36,407	36,848	101,627	−5,515,500	−2,442,000	99,187	148,780	−178.224	−6,930.0	−30,946		1,292.2	−36,596.8
	402.5																					
8	460.	72,525	73,403	202,445	−6418	−2839		199,606	299,409	27,283	27,619	76,157	−4,939,300	−2,140,000	74,617	111,026	−129.836	−5,441.2	−23,092		988.05	−27,546.15
	517.5																					
10	575.	59,613	60,334	166,401	−7148	−3162		163,239	244,858	19,694	19,932	54,974	−4,054,900	−1,792,000	53,179	79,768	−107,253	−4,170.4	−16,592		790.70	−20,021.70
	632.5																					
12	690	47,622	48,198	132,930	−7470	−3273		129,657	194,486	13,527	13,701	37,787	−3,219,700	−1,421,000	36,366	54,549	−79.851	−3,104.9	−11,346		534.84	−13,916.06
	747.5																					
14	805	36,607	37,050	102,184	−7163	−3171		99,013	148,520	8,703	8,808	24,292	−2,371,700	−1,042,000	23,243	34,864	−57,195	−2,223.9	−7,252		367.53	−9,108.91
	862.5																					
16	920	26,620	26,942	74,306	−6475	−2863		71,443	107,164	5,078	5,132	14,173	−1,582,600	−760,000	13,473	20,210	−38.894	−1,512.3	−4,204		235.76	−5,480.54
	977.5																					
18	1035.	17,739	17,954	49,517	−5311	−2349		47,168	70,752	2,538	2,569	7,085	−900,600	−398,400	6,686	10,030	−24.243	−946.5	−2,696		136.20	−2,896.30
	1092.5																					
20	1150.	10,082	10,205	28,146	−3643	−1621		26,524	39,786	950.6	962.1	2,653	−379,800	−168,000	2,485	3,728	−13.153	−511.4	−775		65.65	−1,221.15
	1207.5																					
22	1265.	3,808	3,854	10,629	−1629	−719.2		9,909.8	14,865	166.8	168.8	465.6	−78,447	−32,400	433.11	649.7	−4.931	−191.7	−135.1		20.44	−306.36
	1322.5																					
24	1380.				0								0	0	0		0	0	0		0	0

$F_1 = \frac{G.W.}{265,000} = \frac{268,213}{265,000} = 1.0121$

$F_2 = \left(\frac{M.P.H.}{311.0}\right)^2 = .3740\left(\frac{338.2}{311.0}\right)^2 = .4423$

$F_3 = 1.7798$ (TABLE 2.)

$F_4 = \text{Torsion Constant} = \frac{1.5 \times 602,558}{3 \times 144} \times 575\sqrt{F_2} = .00051071\sqrt{.3740} \times .3740$
$= 21.8471$

$F_5 = F_3 \cdot F_4 = 1.7798 \times 21.8471 = 38.8835$

By J. Ellis
Chk. Engr. C. H. [illegible]

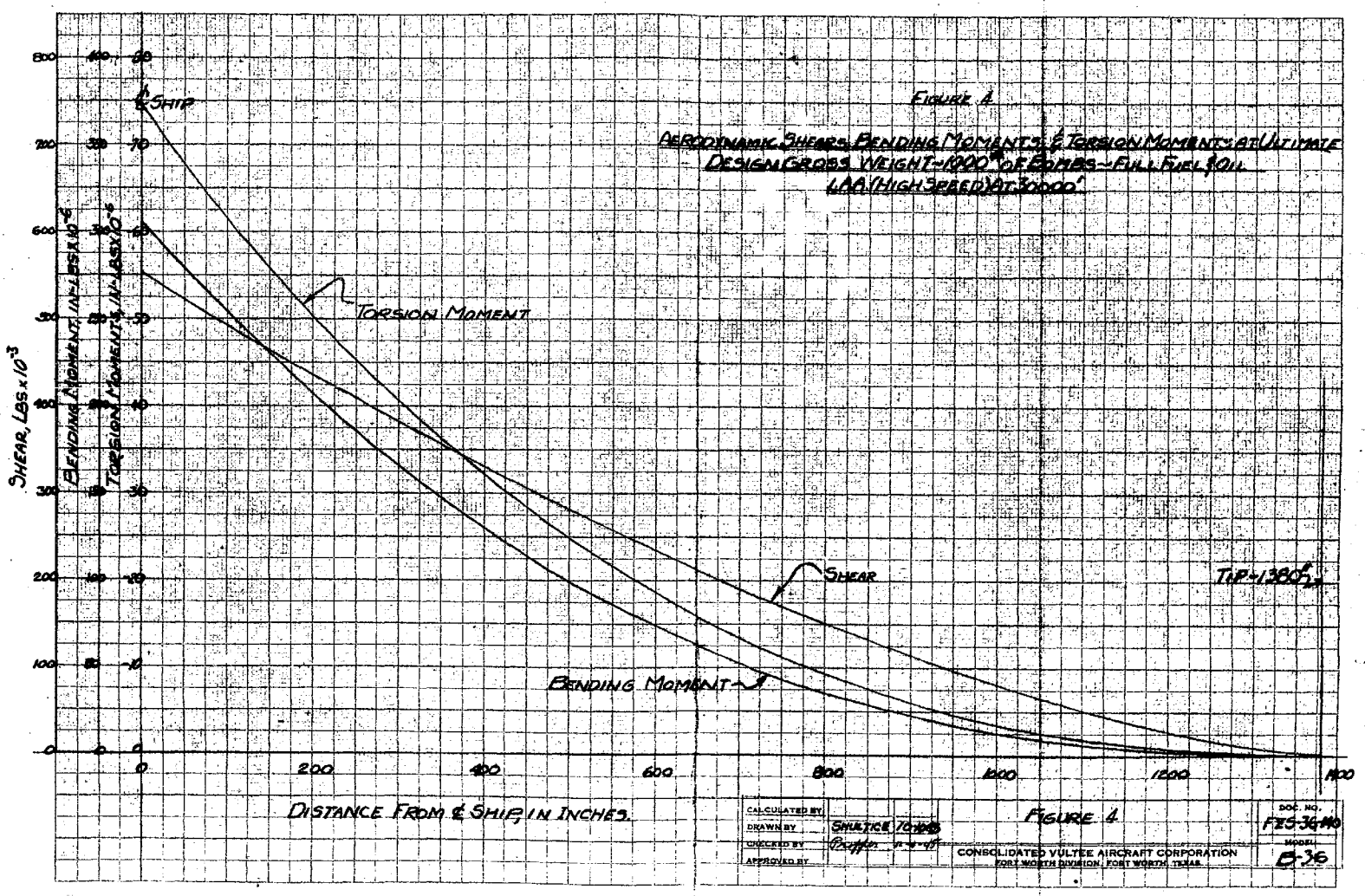


FIGURE 4
AERODYNAMIC SHEARS, BENDING MOMENTS, & TORSION MOMENTS AT ULTIMATE
DESIGN GROSS WEIGHT-1000# OF BOMBS-FULL FUEL & OIL
LAA (HIGH SPEED) AT 30000'
℄ SHIP
TORSION MOMENT
SHEAR
BENDING MOMENT
TOP-1380 F.
SHEAR, LBS x 10^-3
BENDING MOMENT, IN-LBS x 10^-6
TORSION MOMENT, IN-LBS x 10^-6
DISTANCE FROM ℄ SHIP, IN INCHES.
0
200
400
600
800
1000
1200
1400
100
300
500
700
900
10
20
30
40
50
60
70
80
90
CALCULATED BY
DRAWN BY
CHECKED BY
APPROVED BY
FIGURE 4
DOC. NO. FZS-36-110
MODEL B-36
CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION, FORT WORTH, TEXAS

TABLE 6. B-36 WING. AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE.

CONDITION: D.G.W. - 278000#, 10,000# BOMBS, FULL FUEL & OIL. LHAA. @ 5,000'

STA.	DISTANCE FROM ¢ SHIP	$S_{c_{\ell a_1}}$ (G.W.=265,000#)	$S_{c_{\ell a_1}}$ (G.W.=278,000#)	$\frac{z}{w} S_{c_{\ell a_1}}$ ($\frac{z}{w}$=-1.682)	$S_{c_{\ell b}}$ (311.0 M.P.H.)	$S_{c_{\ell b}}$ (202.5 M.P.H.)	$\frac{z}{w} S_{c_{\ell a_1}} + S_{c_{\ell b}}$	S_{b_u}	$M_{c_{\ell a_1}} \times 10^{-3}$ (G.W.=265,000#)	$M_{c_{\ell a_1}} \times 10^{-3}$ (G.W.=278,000#)	$\frac{z}{w} M_{c_{\ell a_1}} \times 10^{-3}$ ($\frac{z}{w}$=-1.682)
	1	2	3	4	5	6	7	8	9	10	11
		FZS-36-138 TAB. I, Col. 9	$F_1 \times$ (2)	-1.682×(3)	FZS-36-138 TAB. II, Col. 9.	$F_2 \times$ (5)	(4)+(6)	1.5×(7)	FZS-36-138 TAB. I, Col. 15	$F_1 \times$ (9)	-1.682×(10)
0	0	131 900	138 376	-232 748	0	0	-232 748	-349 122	73 894	77 522	-130 392
	57.5										
2	115.	116 144	121 847	-204 947	-2002	-734	-205 681	-308 522	59 632	62 560	-105 226
	172.5										
4	230.	100 856	105 808	-177 969	-3793	-1390	-179 359	-269 038	47 161	49 477	-83 220
	287.5										
6	345.	86 296	90 533	-152 277	-5284	-1936	-154 213	-231 320	36 407	38 195	-64 244
	402.5										
8	460	72 525	76 086	-127 977	-6418	-2352	-130 329	-195 494	27 283	28 623	-48 144
	517.5										
10	575.	59 613	62 540	-105 192	-7149	-2619	-107 811	-161 717	19 694	20 661	-34 752
	632.5										
12	690	47 622	49 960	-84 033	-7400	-2711	-86 744	-130 116	13 537	14 202	-23 888
	747.5										
14	805	36 607	38 404	-64 596	-7169	-2627	-67 223	-100 835	8703	9130	-15 357
	862.5										
16	920	26 620	27 927	-46 973	-6473	-2372	-49 345	-74 018	5078	5327	-8960
	977.5										
18	1035	17 739	18 610	-31 302	-5311	-1946	-33 248	-49 872	2538	2663	-4479
	1092.5										
20	1150	10 083	10 578	-17 792	-3665	-1343	-19 135	-28 703	950.6	997.3	-1677
	1207.5										
22	1265	3808	3995	-6720	-1626	-596	-7316	-10 974	166.8	175.0	-294
	1322.5										
24	1380.				0	0	0	0			

STA.	$M_{c_{\ell b}} \times 10^{-3}$ (311.0 M.P.H.)	$M_{c_{\ell b}} \times 10^{-3}$ (202.8 M.P.H.)	$(\frac{z}{w} M_{c_{\ell a_1}} + M_{c_{\ell b}}) \times 10^{-3}$	$M_{x_a} \times 10^{-3}$	$\sum (C_{m_0} c^2 dy)(SM)$ ($\times 10^{-3}$)	TORSION DUE TO C_{m_0} ($\times 10^{-3}$)	$-M_{x_a} \tan\theta \times 10^{-3}$ ($\tan\theta$=.2080)	[illegible]	$.011 \omega_{ba}$ ($\times 10^{-3}$)	$T_{E.A._a}$ ($\times 10^{-3}$)
	12	13	14	15	16	17	18	19	20	21
	FZS-36-138 TAB. II, Col. 15	$F_2 \times$ (12)	(11)+(13)	1.5×(14)	TAB. 1, Col. 8.	$F_5 \times$ (16)	-.2080×(15)	[illegible]	10^{-3}×(19)×(8)	(17)+(18)+(20)
0	-6 494,500	-2379.6	-132 771.6	-199 157.4	-332.020	-6 869.945	41 424.7	[illegible]	-1 536.137	+33 023.7
2	-6 376,500	-2336.3	-107 562.3	-161 343.5	-273.796	-5660.881	33 559.4	[illegible]	-1 272.653	+26 625.8
4	-6 040,900	-2213.4	-85 433.4	-128 150.1	-222.675	-4604.157	26 655.2	[illegible]	-1 035.796	+21 015.2
6	-5 515,800	-2021.0	-66 265.0	-99 397.5	-178.224	-3 686.013	20 674.7	[illegible]	-826.969	+16 162.7
8	-4 839,300	-1773.1	-49 917.1	-74 875.7	-139.936	-2893.359	15 574.1	[illegible]	-645.130	+12 035.6
10	-4 054,100	-1485.4	-36 237.7	-54 356.6	-107.253	-2 217.595	11 306.2	[illegible]	-489.193	+8599.4
12	-3 213,700	-1177.5	-25 065.5	-37 598.3	-79.851	-1651.023	7820.4	[illegible]	-357.819	+5811.6
14	-2 371,700	-869.0	-16 226.0	-24 339.0	-57.195	-1182.551	5062.5	[illegible]	-249.567	+3630.9
16	-1 582,600	-579.9	-9539.9	-14 309.9	-38.894	-804.184	2976.5	[illegible]	-162.840	+2009.5
18	-900,620	-330.0	-4809.0	-7213.5	-24.343	-503.323	1500.4	[illegible]	-96.003	+901.1
20	-374,820	-139.2	-1816.2	-2724.3	-13.153	-271.955	566.7	[illegible]	-47.360	+247.3
22	-73,447	-26.9	-320.9	-481.4	-4.931	-101.966	100.1	[illegible]	-16.089	-17.0
24	0	0							0	0

$F_1 = \frac{G.W.}{265000} = \frac{278000}{265000} = 1.0491$

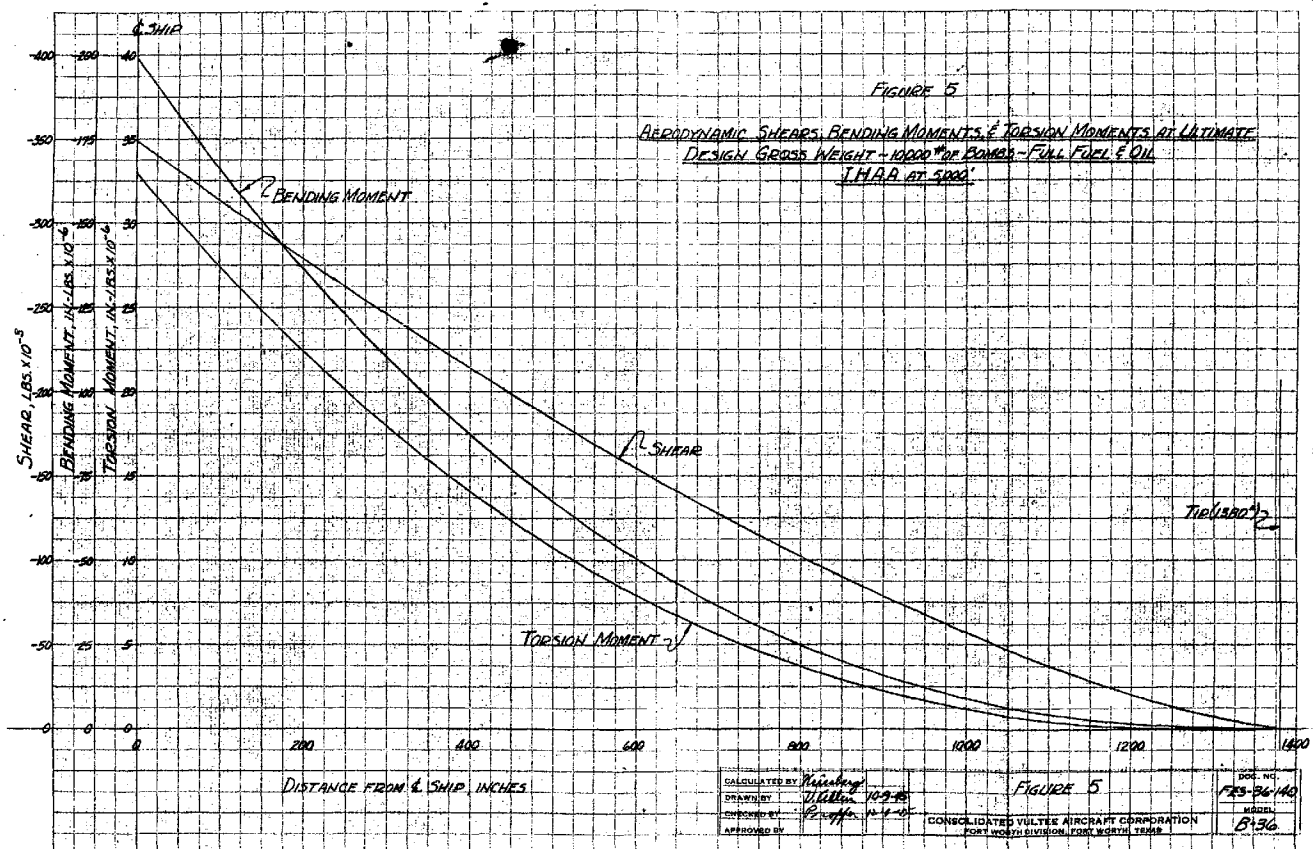
$F_2 = \left(\frac{M.P.H.}{311.0}\right)^2 = \left(\frac{202.8}{311.0}\right)^2 \times .8616 = 0.3664$

$F_3 = C_{m_0}$ Correction Factor = 1.1425 (SEE TABLE 2 FOR CALC.)

F_4 = Torsion Constant = $\frac{1.5 \times .002358 \times 53.3}{3 \times 144} V^2 \sigma = .0005107 (202.8)^2 \, 0.8616$
= 18.0974

$F_5 = F_3 \times F_4 = 1.1425 \times 18.0974 = 20.6763$

By: D. E. Kriegberg
Ckd:



CALCULATED BY	Kirkberg	10-9-45	
DRAWN BY	J. Allen	10-9-45	
CHECKED BY	[illegible]	10-9-45	
APPROVED BY			

FIGURE 5

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION, FORT WORTH, TEXAS

DOC. NO. FZS-96-140
MODEL B-36

TABLE 7 B-36 WING. AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE
CONDITION: DSW-278,000 @ 12,000 lb, FULL FUEL & OIL. ILAA.-HIGH SPEED @ 5000 FT.

STA.	DISTANCE FROM ℄ SHIP	$Sc_{B_{x_1}}$ (GW-265,000)	$Sc_{B_{x_2}}$ (DSW-278,000)	$\frac{Z}{W}Sc_{B_{x_3}}$ (Z=-2551)	$Sc_{B_{x_4}}$ (5211 MPH)	$S_{D_{B_x}}$ (577 MPH)	$\frac{Z}{W}S_{D_{B_x}}$	$S_{D_{B_x}}$	$M_{B_{x_1}} \times 10^3$ (GW-265,000)	$M_{B_{x_2}} \times 10^3$ (DSW-278,000)	$\frac{Z}{W}M_{B_{x_3}} \times 10^3$	$M_{B_{x_4}} \times 10^3$ (5211 MPH)	$M_{B_{x_5}} \times 10^3$ (577 MPH)	$\frac{Z}{W}M_{B_{x_6}}$	$M_{x_c} \times 10^3$	$M_{B_{x_7}} \times 10^3$	TORSION ABOVE TO C_{m_0} $\times 10^3$	$M_{T_{B_x}}$ (MPH, 2000)
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
		FZS-36-138 TAB X COL. 8	F_1 × ②	-1649 × ③	FZS-36-138 TAB X COL. 9	F_2 × ④	⑤ + ⑥	15 × ⑦	FZS-36-138 TAB X COL. 8	F_1 × ⑧	-1649 × ⑨	FZS-36-138 TAB X COL. 9	F_3 × ⑩	⑪ + ⑫	15 × ⑬	TAB I COL. 8	F_3 × ⑭	-2000 × ⑮
0	0	131900	138371	-228035	0	0			-228235	-342653	733994	775519	-127751	-6494.5	-4375.2	-132126	-198189	-332,020
	57.5																	
2	115	116144	121842	-200796	-2002	-1348			-202144	-303216	596632	625558	-103096	-6376.5	-4295.7	-107392	-161088	-273,786
	172.5																	
4	230	100856	105803	-174363	-3793	-2555			-176918	-265377	47161	49475	-81535	-6040.9	-4069.6	-85605	-128407	-222678
	287.5																	
6	345	86296	90529	-149192	-5284	-3560			-152752	-229128	36407	38193	-62942	-5515.8	-3715.9	-66658	-99987	-178224
	402.5																	
8	460	72535	76083	-125395	-6418	-4324			-129709	-194564	27283	28622	-47169	-4839.3	-3260.1	-50429	-75643	-139,936
	517.5																	
10	575	59613	62538	-103062	-7149	-4816			-107812	-161819	17694	20660	-34048	-4054.9	-2731.7	-36780	-55170	-107,253
	632.5																	
12	690	47622	49958	-82230	-7400	-4985			-87215	-130872	13537	14201	-23403	-3213.7	-2165.0	-25568	-38352	-77,857
	747.5																	
14	805	36607	38403	-63288	-7169	-4830			-68119	-102177	8703	9130	-15046	-2371.7	-1597.8	-16644	-24966	-57,195
	862.5																	
16	920	26620	27926	-46022	-6473	-4361			-50383	-75574	5075	5322	-8779	-1582.6	-1068.2	-2847.2	-14771	-33,894
	977.5																	
18	1035	17739	18607	-30667	-5311	-3578			-34245	-51367	2538	2662	-4389	-900.68	-606.8	-4995.8	-7493.7	-24,343
	1092.5																	
20	1150	10083	10577	-17431	-3665	-2469			-19900	-29850	950.6	997	-1643	-379.82	-255.9	-1898.7	-2843.4	-13,153
	1207.5																	
22	1265	3808	3995	-6584	-1626	-1095			-7671	-11519	166.8	175	-288	-72.477	-49.5	337.5	-5062	-4,931
	1322.5																	
24	1380	0	0	0	0	0			0	0	0	0	0	0	0	0	0	0

STA.	$M_{B_{x_8}} \times 10^3$	$Sc_{B_{x_8}} \times 10^3$	$T_{B_{x_8}} \times 10^3$
	19	20	21
	⑪+⑬+⑭+⑮	⑪+⑬+⑮	⑪+⑬+⑮
0	-1505.0	28369.4	
2	1250.8	22897.0	
4	-1021.7	18075.5	
6	-819.1	13876.2	
8	-642.1	10308.6	
10	-489.5	7319.7	
12	-360.2	4887.7	
14	-252.9	2985.1	
16	-166.3	1576.6	
18	-98.9	627.7	
20	-49.3	93.6	
22	-15.8	-79.1	
24	0	0	

$F_1 = \frac{GW}{265,000} = \frac{278,000}{265,000} = 1.0491$

$F_2 = \left(\frac{MPH}{311.0}\right)^2 = \left(\frac{275.5}{311.0}\right)^2 = .9116 = .67368$

$F_3 = 1.0272$ (TABLE 2)

F_4 = TORSION CONSTANT = $\frac{.15 \times 208,558 \times 25.5}{3 \times 144} V^2_{cr} = 33.2772$

$F_5 = F_3 \times F_4 = 1.0272 \times 33.2772 = 34.182$

By: [illegible]
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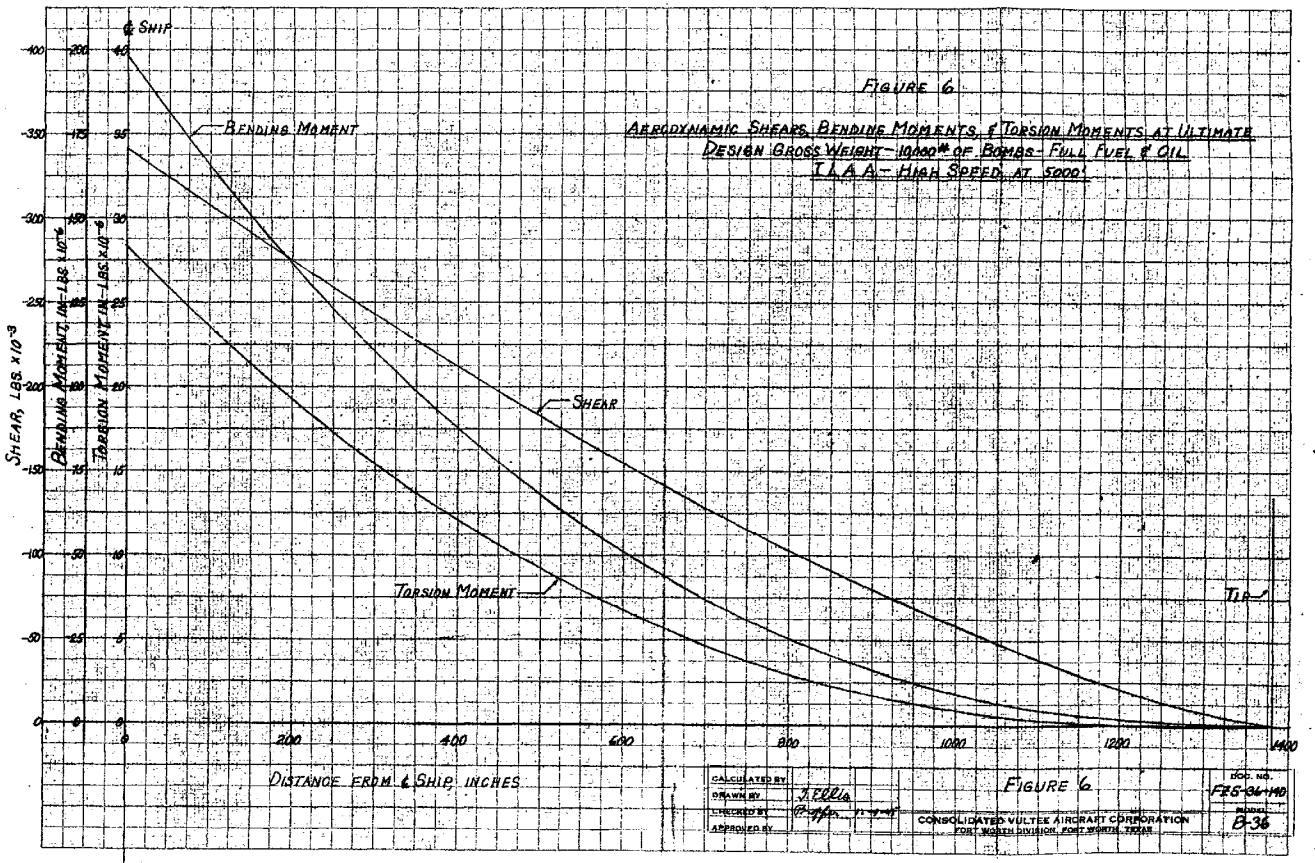

CALCULATED BY		FIGURE 6	DOC. NO. FZS-36-110
DRAWN BY	J. Ellis		
CHECKED BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION, FORT WORTH, TEXAS	MODEL B-36
APPROVED BY			

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FZS 36-125 PAGE 11-43

TABLE 8 B-36 AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE

CONDITION: D.G.W. - 278000# 10000# B. FULL FUEL & OIL. ILAA @ 5000' LIMIT DIVE SPEED

STA.	Distance Aft of F.S.	2 S_{Cb_n} (G.W.-265000) Tab. 7, Col. 9 FZS-36-138	3 S_{Cb_n} (G.W.-278000)	4 $\frac{F}{W}S_{Cb_n}$ $\frac{F}{W}$ = 1.070	5 S_{Cb} (310 MPH)	6 S_{Cb} (300 MPH)	7 $\frac{F}{W}S_{Cb_n} \cdot S_{Cb}$	8 S_{Cb_n}	9 $M_{Cb_n} \times 10^3$ (G.W. 265000)	10 $M_{Cb_n} \times 10^3$ (G.W. 278000)	11 $\frac{F}{W}M_{Cb_n} \times 10^3$ ($\frac{F}{W}$ = 1.070)	12 $M_{Cb} \times 10^3$ (310 MPH)	13 $M_{Cb} \times 10^3$ (300 MPH)	14 $\frac{F}{W}M_{Cb_n} + M_{Cb}$	15 $M_{X_n} \times 10^{-3}$	16 $\frac{1}{2}(C_{m_q}+C_{m_\delta})\rho_0 a_0 V_0 S_h \bar{c}_h \times 10^{-3}$	Torsion Due To $C_{m_q} \times 10^{-3}$	18 $-M_{X_n} \cdot \frac{L_{cp}}{c_h} \times 10^{-3}$ (Col. 6 × -2000)	19 OIL C	20 OIL $C_{S_{cp}} \times 10^3$	21 $T_{EA_n} \times 10^3$
		Tab. 7, Col. 9 FZS-36-138		$F \times$ ③	Tab. 7, Col. 9 FZS-36-138	$F_2 \times$ ⑤	④ × ⑥	1.5 × ⑦	Tab. 7, Col. 15 FZS-36-138	$F_3 \times$ ⑨	-1.070 × ⑩	Tab. 7, Col. 15 FZS-36-138	$F_2 \times$ ⑫	⑪ + ⑬	1.5 × ⑭	Tab. 1, Col. 9	$F_5 \times$ ⑮	-2000 × ⑯	Tab. 1, Col. 9	⑰ × ⑱	⑲ × ⑳	⑮ + ㉑
0		131,900	138,363	-203,394	0	0	-203,394	-305,241	73,814	77,515	-113,947	-4,484,500	-5,489	-117,436	-179,154	-330,920	-14,175.4	-37,240.0	4,400	-1,502.4	21,762
2	625	116,144	121,835	-179,097	-2002	-1,692	-180,789	-271,184	59,632	62,554	-91,954	-6,376,500	-5,389	-97,343	-146,014	-273,786	-11,689.2	30,370.0	4,125	-1118.6	17,563.1
4	1250	100,956	105,918	-155,593	-3,713	-3,205	-158,798	-238,192	47,161	49,472	-72,724	-6,040,100	-5,105	-77,829	-116,744	-202,678	-9,507.1	24,282.9	3,850	-916.1	13,859.0
6	1875	86,876	90,525	-133,072	-5,284	-4,446	-137,538	-206,307	36,407	38,191	-56,141	-5,555,800	-4,661	-60,902	-91,203	-170,924	-7,609.2	18,970.2	3,575	-737.6	10,623.4
8	2500	72,525	76,079	-111,836	-6,418	-5,424	-117,260	-175,890	27,283	28,614	-42,060	-4,839,300	-4,093	-44,150	-66,225	-139,836	-5,974.5	14,348.8	3,300	-580.9	7,839
10	3125	59,613	62,534	-91,925	-7,149	-6,042	-97,967	-146,950	19,641	20,659	-30,369	-4,054,400	-3,427	-33,796	-50,694	-107,253	-4,579.1	10,504.9	3,025	-444.5	5,520.8
12	3750	47,642	49,955	-73,434	-7,400	-6,254	-78,688	-118,032	13,537	14,200	-20,874	-3,218,700	-2,716	-23,570	-35,385	-78,851	-3,404.6	7,360.1	2,750	-328.7	3,622.2
14	4375	36,607	38,401	-56,449	-7,169	-6,059	-62,508	-93,762	8,703	9,129	-13,420	-2,371,700	-2,004	-15,424	-23,136	-57,115	-2,441.9	4,812.3	2,475	-237.1	2,128.3
16	5000	26,620	27,924	-41,048	-6,913	-5,470	-46,518	-69,777	5,078	5,327	-7,830.7	-1,582,600	-1,337.5	-9,168.2	-13,752	-30,894	-1,660.6	2,860.4	2,200	-153.5	1,046.3
18	5625	17,739	18,608	-27,351	-5,911	-4,488	-31,939	-47,958	2,538	2,662	-3,913.1	-900,600	-761.2	-4,674.3	-7,011.4	-24,945	-1,039.3	1,458.4	1,925	-91.9	317.2
20	6250	10,083	10,572	-15,548	-3,665	-3,097	-18,645	-27,968	950.6	997.2	-1,465.9	-370,800	-321.0	-1,786.9	-2,680.4	-13,153	-561.56	557.52	1,650	-46.2	-50.3
22	6875	3,808	3,995	-5,873	-1,626	-1,374	-7,247	-10,870	166.8	175.0	-257.25	-73,447	-62.07	-319.32	-478.98	-4,931	-210.53	97.63	1,375	-13.0	-125.9
24	7500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$F = \frac{G.W.}{265000} = 1.049$

$F_2 = \sigma\left(\frac{M.P.H.}{310}\right)^2 = .9616\left(\frac{300.0}{310}\right)^2 = .8451$

$F_3 = 1.0228$ (TABLE 2)

$F_4 = \frac{.18 \times .062550 \times 32.2}{3 \times 144} V^2 = .000 51071 (300.0)^2 .8616 = 41.7428$

$F_5 = F_3 \times F_4 = 1.0228 \times 41.7428 = 42.6945$

By: [illegible]
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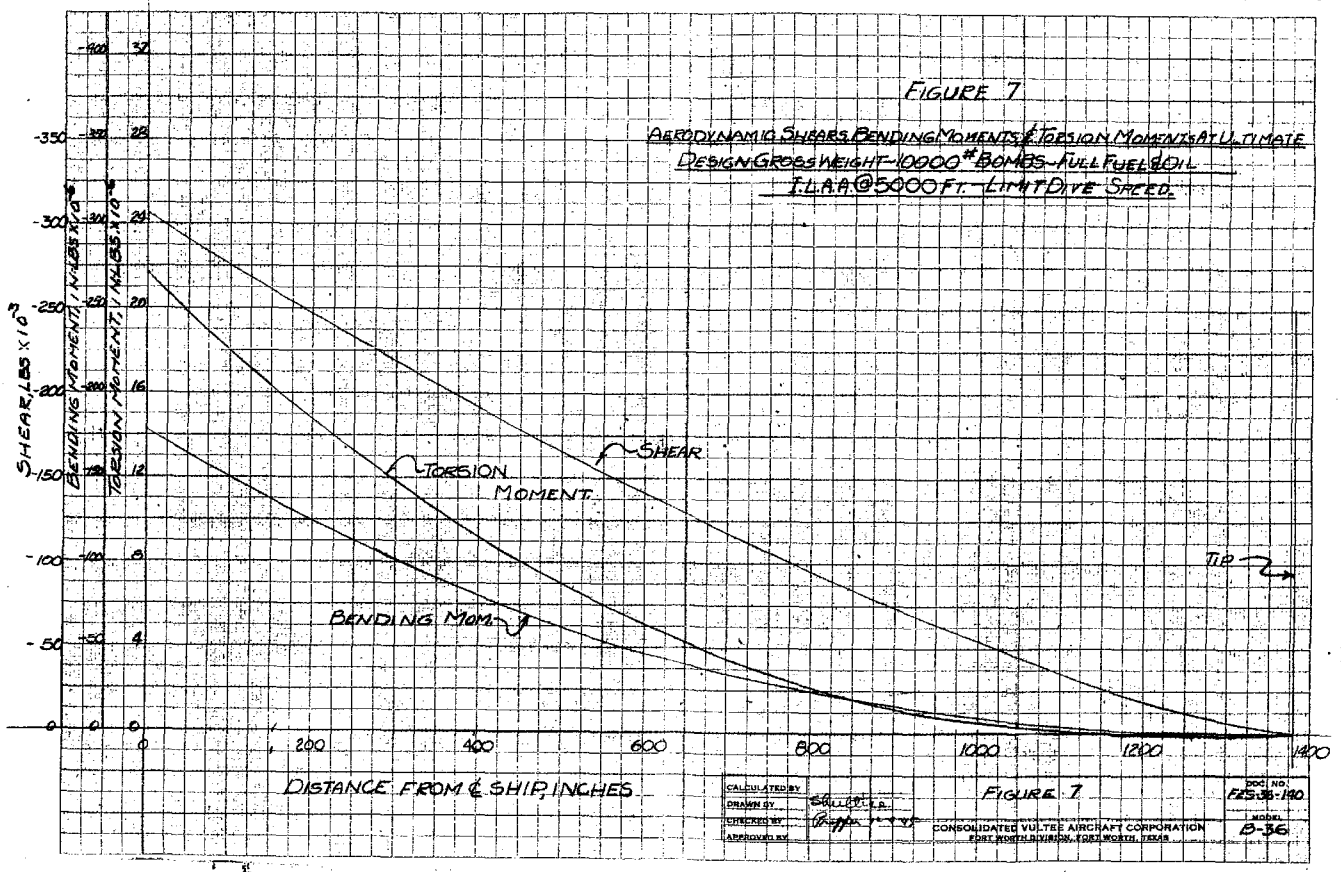


FIGURE 7
AERODYNAMIC SHEARS, BENDING MOMENTS & TORSION MOMENTS AT ULTIMATE
DESIGN GROSS WEIGHT-10000# BOMBS-FULL FUEL & OIL
I.L.A.A. @ 5000 FT.-LIMIT DIVE SPEED.
SHEAR, LBS X 10^3
BENDING MOMENT, IN-LBS X 10^-6
TORSION MOMENT, IN-LBS X 10^-6
-350
-300
-250
-200
-150
-100
-50
0
-900
-800
-700
-600
-500
-400
-300
-200
-100
0
37
28
24
20
16
12
8
4
0
SHEAR
TORSION MOMENT
BENDING MOM.
TIP
200
400
600
800
1000
1200
1400
DISTANCE FROM ℄ SHIP, INCHES
CALCULATED BY
DRAWN BY
CHECKED BY
APPROVED BY
FIGURE 7
DOC. NO. FZS-36-190
MODEL B-36
CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION, FORT WORTH, TEXAS

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

FW 633 125 PADS 11-43

TABLE 9. B-36 WING AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE.
CONDITION: DGW.-268,213# 10,000 H.P., FULL FUEL & OIL. I.L.A.A. @ 30,000' HIGH SPEED.

STATION	D. STANCE FROM ℄ SHIP	S_{Cb_a} (G.W.=265,000)	S_{Cb_a} (G.W.=268213 & $\frac{\Sigma}{W}$=-1.690)	$\frac{\Sigma}{W} S_{Cb_a}$	S_{Cb_b} (311 M.P.H.)	S_{Cb_b} (338.2 M.P.H.)	$\frac{\Sigma}{W} S_{Cb_a} + S_{Cb_b}$	S_{Da}	$M_{Cb_a} \times 10^{-3}$ (G.W.=265,000)	$M_{Cb_a} \times 10^{-3}$ (G.W.=268213 & $\frac{\Sigma}{W}$=-1.690)	$\frac{\Sigma}{W} M_{Cb_a} \times 10^{-3}$	$M_{Cb_b} \times 10^{-3}$ (311 M.P.H.)	$M_{Cb_b} \times 10^{-3}$ (338.2 M.P.H.)	$(\frac{\Sigma}{W} M_{Cb_a} + M_{Cb_b}) \times 10^{-3}$	$M_{Ta} \times 10^{-3}$	$\frac{\Sigma}{W} C_{M_a} C_{L_a} (S_M) \times 10^{-3}$	TORSION DUE TO $C_{M_a} \times 10^{-3}$	$-M_{Ta} \tan\theta \times 10^{-3}$ (TAN θ = .2080)	$DIC \times S_{Da}$	$DIC \times S_{Da} \times 10^{-3}$	$T_{Ea-a} \times 10^{-3}$
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
		TAB. IX COL. 9 FZS-96-138	$F_1 \times$ ②	-1.690 × ③	TAB. IX COL. 9 FZS-96-138	$F_2 \times$ ⑤	④ + ⑥	1.5 × ⑦	TAB. IX COL. 15 FZS-96-138	$F_1 \times$ ⑨	-1.690 × ⑩	TAB. IX COL. 15 FZS-96-138	$F_2 \times$ ⑫	⑪ + ⑬	1.5 × ⑭	TAB. 1, COL. 8	$F_5 \times$ ⑯	-.2080 × ⑮	[illegible]	$10^{-3} \times$ ⑲	⑪ + ⑱ + ⑳
0	0	131900	133499	-225613	0	0	-225613	-338420	73894	74790	-126395	-6492.5	-2872.4	-129267	-193901	-332,020	+135643	+40331	[illegible]	-1489.048	38978
	57.5																				
2	115.0	116144	117552	-198612	-2002	-886	-199498	-299247	59632	60355	-102000	-6376.5	-2820.2	-104820	-157230	-273,786	116556	32,704	[illegible]	-1234.394	31591
	172.5																				
4	230	100856	102078	-172512	-3793	-1678	-174190	-261285	47161	47733	-80669	-6040.9	-2671.8	-83341	-125012	-222,618	90973	26,002	[illegible]	-1005.947	25087
	287.5																				
6	345	86296	87342	-147608	-5284	-2338	-149946	-224919	36407	36848	-62273	-5515.8	-2439.5	-64713	-97070	-178,224	72812	20,191	[illegible]	-804.085	19460
	402.5																				
8	460	72525	73404	-124053	-6418	-2840	-126893	-190340	27283	27614	-46660	-4839.3	-2140.3	-48808	-73212	-139936	57169	15,228	[illegible]	-608.122	14657
	517.5																				
10	575	59613	60336	-101968	-7149	-3163	-105131	-157697	19694	19933	-33687	-4054.9	-1793.4	-35480	-53220	-107253	43817	11,070	[illegible]	-457.033	10687
	632.5																				
12	690	47622	48199	-81456	-7400	-3274	-84730	-127095	13537	13701	-23155	-3213.7	-1421.4	-24576	-36864	-78851	32622	7668	[illegible]	-349.511	7351
	747.5																				
14	805	36607	37051	-62616	-7169	-3172	-65788	-98682	8703	8808	-14886	-2371.7	-1049.0	-15935	-23903	-57,195	23,366	4972	[illegible]	-244.238	4751
	862.5																				
16	920	26920	26943	-45534	-6473	-2864	-48398	-72597	5078	5140	-8687	-1582.6	-700.0	-9387	-14081	-38894	15890	2,929	[illegible]	-159.713	2185
	977.5																				
18	1035	17739	17954	-30342	-5311	-2350	-32692	-49038	2538	2569	-4342	-900.68	-398.4	-4740	-7110	-24,343	9945	1,479	[illegible]	-94.398	1395
	1092.5																				
20	1150	10083	10205	-17246	-3665	-1622	-18868	-28302	950.6	962	-1626	-279.82	-168.0	-1794	-2691	-13,153	5274	560.	[illegible]	-46.698	519
	1207.5																				
22	1265	3808	3854	-6513	-1626	-719	-7232	-10848	166.8	169	-286	-73.477	-32.5	-319	-479	-4931	2015	996	[illegible]	-14.916	87
	1322.5																				
24	1380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	[illegible]	0	0

$F_1 = \frac{G.W.}{265,000} = \frac{268213}{265,000} = 1.01212$

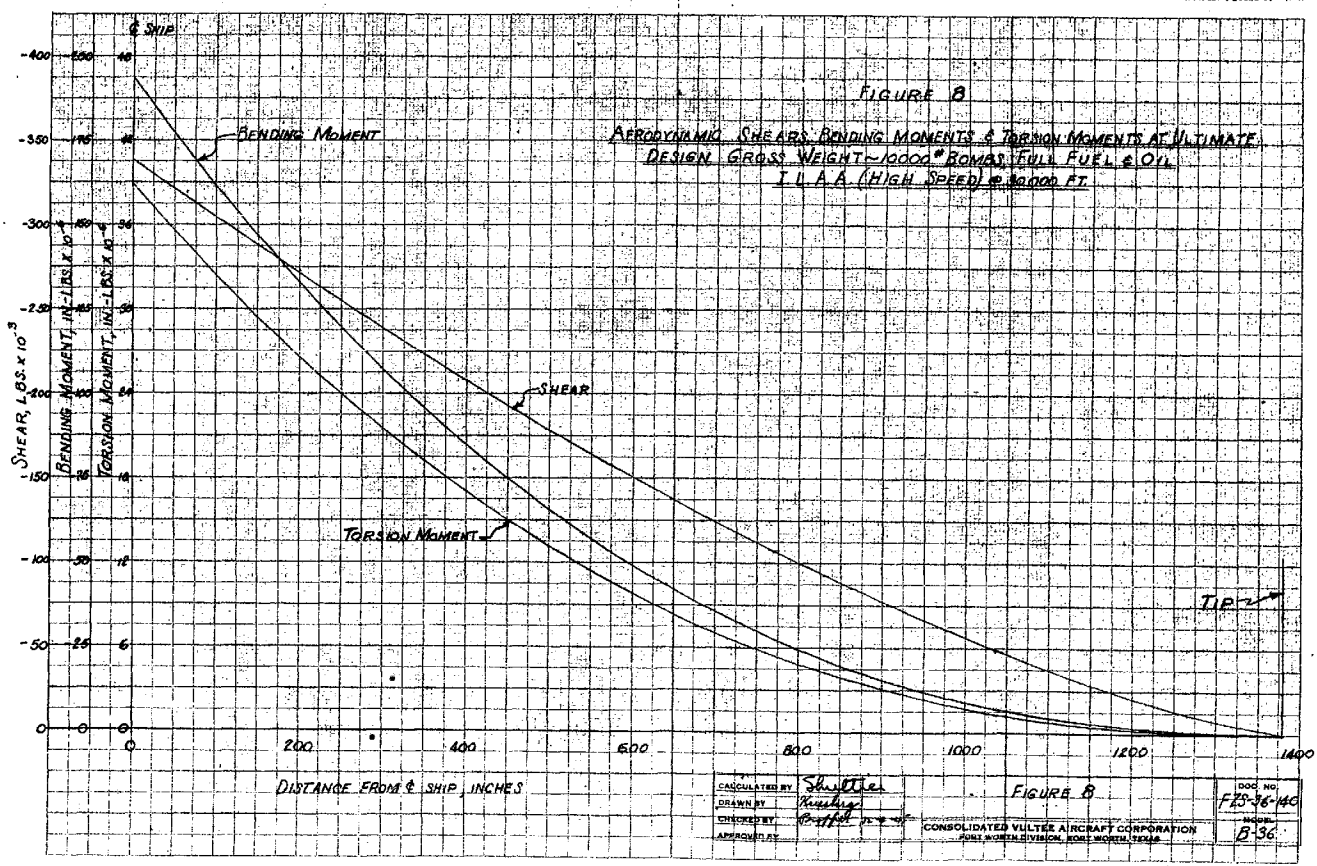
$F_2 = \left(\frac{M.P.H.}{311.0}\right)^n = \left(\frac{338.2}{311.0}\right)^{1.3740} = .44228$

$F_3 = -.0187$ (TABLE 2)

$F_4 = \frac{\text{MAXIMUM CONSTANT}}{} = \frac{15 \times 302,558 \times 57.5}{3 \times 144} V^2 = 21.8471$

$F_5 = F_4 \times F_3 = 21.8471 \times (-.0187) = -.40854$

By: Shultice
Checked: [illegible]



CALCULATED BY	Schuttler	FIGURE 8	DOC. NO. FZS-36-140
DRAWN BY	Kuehling		
CHECKED BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION, FORT WORTH, TEXAS	MODEL B-36
APPROVED BY			

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 125 PADS 11-43

TABLE 10 B-36 WING AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE
CONDITION: AGW=265000# 78-1000 B. FULL FUEL & OIL HAA @ 5000'

STA	DIST. FROM ℄ SHIP 1	S_{Sol_1} (GW=265000#) 2	S_{Sol_1} (GW=265000#) 3	$\frac{F}{F_3}S_{Sol_1}$ (F_3=2.551) 4	S_{Sol_2} (311 MPH) 5	S_{Sol_2} (209 MPH) 6	$\frac{F}{F_3}S_{Sol_2}$ F_3 7	S_{Tot} 8	$M_{Sol_1}\times10^{-3}$ (GW=265000#) 9	$M_{Sol_1}\times10^{-3}$ (GW=265000#) 10	$M_{Sol_1}\times10^{-3}$ (F_3=2.551) 11	$M_{Sol_2}\times10^{-3}$ (311 MPH) 12	$M_{Sol_2}\times10^{-3}$ (209 MPH) 13	$\frac{F}{F_3}M_{Sol_2}$ F_3 14	$M_{Tot}\times10^{-3}$ 15	$\frac{2}{3}M_{Tot}\times10^{-3}$ 16	Torsion due to $C_{M_{c/4}}\times10^{-3}$ 17	$-M_{Torsion}\times10^{-3}$ 18	$S_{Tot}\times10^{-3}$ 20	$M_{Tot}\times10^{-3}$ 21
		TABI COL 8 FZS-36-138	$F_1\times$ ②	2.551×③	TAB II COL 8 FZS-36-138	$F_2\times$ ⑤	④+⑥	1.5×⑦	TABI COL 15 FZS-36-138	$F_1\times$ ⑨	2.551×⑩	TABI COL 15 FZS-36-138	$F_2\times$ ⑫	⑪+⑬	1.5×⑭	Tab I Col 8	$F_2\times$ ⑯	-2.8×⑮	⑨×⑧	⑪+⑭+⑰
0	0	131900	131900	336477	0	0	336477	504715	73894	73894	188504	-6,494.5	-2527	185977	278966	-332.020	-4289.0	58025.0	2221.0	-60093
	57.5																			
2	116.0	116144	116144	296283	-2002	-779	295504	443256	59632	59632	152121	-6376.5	-2481	149640	224460	-273.786	-3536.7	-46688.0	1828.4	-48396
	172.5																			
4	230.0	100856	100856	257284	-3793	-1476	255808	383712	47161	47161	120308	-6040.9	-2350	117958	176937	-222.678	-2876.5	-36807.0	1477.3	-38202
	287.5																			
6	345	86296	86296	220141	-5284	-2056	218085	327128	36407	36407	92874	-5515.8	-2146	90728	136092	-178.224	-2302.2	-28307.0	1169.5	-29440
	402.5																			
8	460	72525	72525	185011	-6418	-2497	182514	273771	27283	27283	69599	-4839.3	-1883	67716	101574	-139.936	-1807.6	-21127.0	903.4	-22031
	517.5																			
10	575	59613	59613	152073	-7149	-2782	149291	223936	19694	19694	50239	-4054.9	-1578	48661	72992	-107.253	-1385.4	-15182.0	677.4	-15890
	632.5																			
12	690	47622	47622	121484	-7400	-2879	118605	177907	13537	13537	34533	-3213.7	-1250	33283	49925	-79.851	-1031.5	-10384.0	489.2	-10926
	747.5																			
14	805	36607	36607	93384	-7169	-2789	90595	135893	8703	8703	22201	-2371.7	-923	21278	31917	-57.195	-738.8	-6639.0	336.3	-7042
	862.5																			
16	920	26620	26620	67908	-6473	-2519	65389	98084	5078	5078	12954	-1582.6	-616	12338	18507	-38.894	-502.4	-3849.0	215.8	-4136
	977.5																			
18	1035	17739	17739	45252	-5311	-2067	43185	64778	2538	2538	6474	-900.68	-350	6124	9186	-24.343	-314.5	-1911.0	129.7	-2101
	1092.5																			
20	1150	10083	10083	25722	-3665	-1426	24296	36444	950.6	950.6	2439	-379.82	-148	2291	3437	-13.153	-169.9	-714.9	60.1	-825
	1207.5																			
22	1265	3808	3808	9714	-1626	-633	9081	13622	166.8	166.8	426	-73.447	-29	397	596	-4.931	-63.7	-124.0	18.7	-169
	1322.5																			
24	1380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$F_1 = \frac{G.W.}{265000} = \frac{265,000}{265,000} = 1$

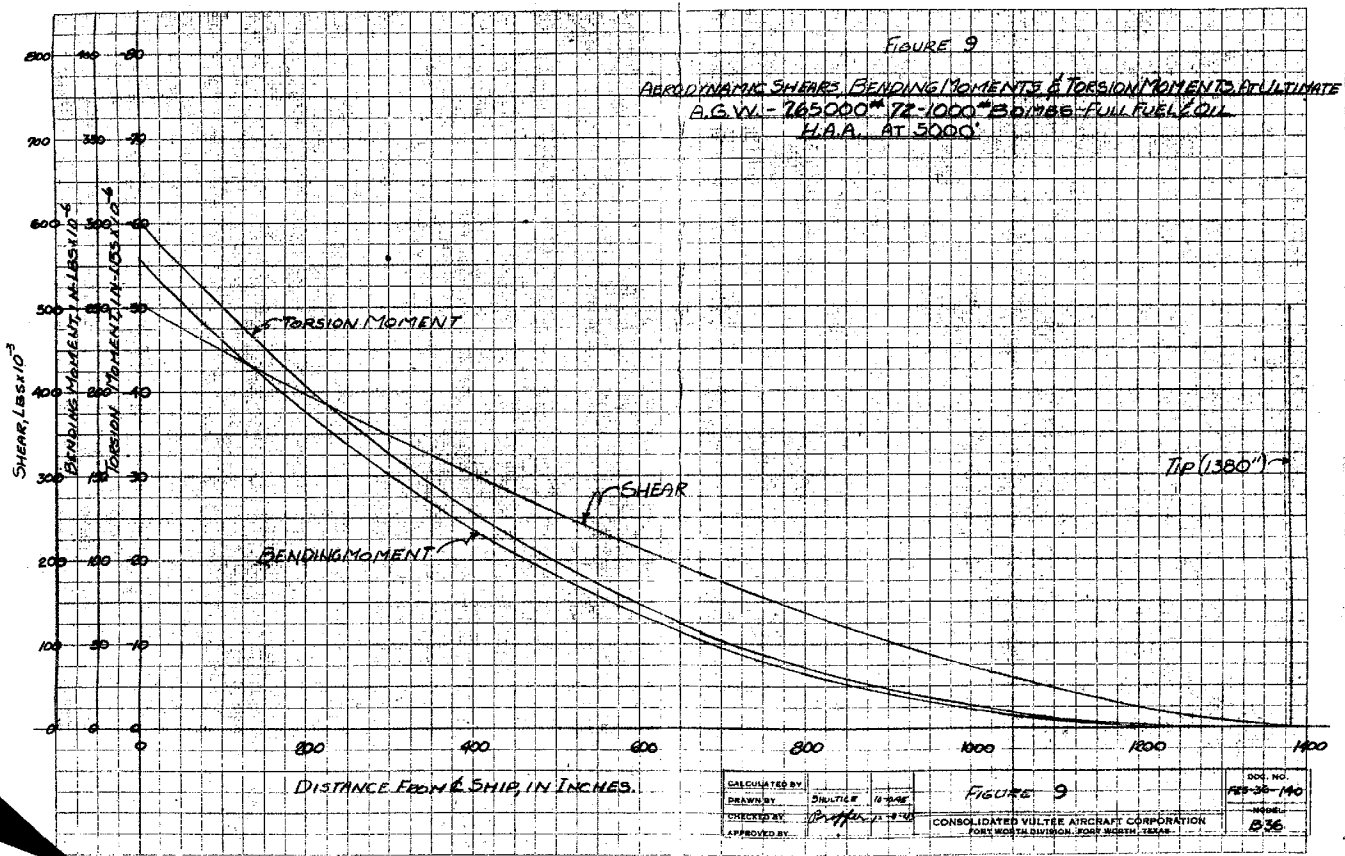
$F_2 = \left(\frac{MPH}{311.0}\right)^2 \sigma = \left(\frac{209}{311}\right)^2 .8016 = .3891$

F_3 = SHEAR CORRECTION FACTOR = .6719 (TABLE 2)

F_4 = TORSION CONST. = $\frac{1.5 \times 0.0255 \times 4^3}{3 \times 144} \sqrt{\sigma} = 19.226$

$F_5 = F_3 \times F_4 = .6719 \times 19.226 = 12.918$

By: [illegible]
CHK: [illegible]



CALCULATED BY			FIGURE 9	DOC. NO. FZB-36-140
DRAWN BY	SHULTICE	10-1-46		MODEL B36
CHECKED BY			CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION, FORT WORTH, TEXAS	
APPROVED BY				

TABLE II B-36 WING AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE.
CONDITION: ABAK-265000# 12-1000# B, FULL FUEL FCH LAA 6 3000' HIGH SPEED

STA.	DISTANCE FROM ℄ STA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
			$C_{L_{\alpha_1}}$ (G.W.=265,000#)	$S_{CL_{\alpha_1}}$ (G.W.=265,000#)	$\frac{C_{L_{\alpha_1}}}{W}$ (G.W.=265,000#)	S_{CL_b} (G.W.=265,000#) (V=272.9 MPH) (311.0 MPH) (276.2 MPH)	$S_{CL_{\alpha_1}}+S_{CL_b}$	$S_{D_{b_1}}$	$M_{CL_{\alpha_1}} \times 10^{-3}$ (G.W.=265,000#)	$M_{CL_b} \times 10^{-3}$ (G.W.=265,000#)	$\frac{M_{CL_{\alpha_1}}}{W} \times 10^{-3}$ (G.W.=265,000#)	$M_{CL_{\alpha_2}} \times 10^{-3}$ (V=272.9 MPH)	$M_{CL_b} \times 10^{-3}$ (V=311.0 MPH)	$M_{D_{b_1}} \times 10^{-3}$ (V=276.2 MPH)	$\frac{M_{D_{b_1}}}{W} \times 10^{-3}$	$M_{D_{b_2}}$	$M_{T_{a_1}} \times 10^{-3}$	$M_{T_{a_2}} \times 10^{-3}$	$M_{T_{a_3}} \times 10^{-3}$	$M_{T_{a_4}} \times 10^{-3}$	$C_{L_{\alpha_1}} \times 10^{-3}$	$C_{L_b} \times 10^{-3}$	$T_{ea_1} \times 10^{-3}$
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
			Tab X Col 3 FZS-36-138	F_1 X ⑥	÷2.5986 ⑦	Tab IX Col 3 FZS-36-138	F_2 X ⑥	④ + ⑤	1.5 X ⑦	Tab X Col 4 FZS-36-138	F_3 X ⑥	÷2.5986 ⑩	Tab IX Col 4 FZS-36-138	F_4 X ⑥	⑪ − ⑫	1.5 X ⑬	Tab I Col 8	F_5 X ⑥	÷2.5986 ⑮	⑨ × 10⁻³	⑭ × 10⁻³	⑰ × 10⁻³	⑲ + ⑱ + ⑳
0	0	131,900	131,900	342,676	0	0		342,676	514,014	73,894	73,894	191,977	-6,493,500	-4,414	187,563	281,344	-592,020	-9,432.3	-58,520		2,261.7	-65,690.6
	57.5																					
2	115.0	116,144	116,144	301,742	-2,002	-1361		300,381	450,572	59,632	59,632	154,924	-6,376,500	-4,332	150,591	225,886	-273,786	-7,777.0	-46,984		1,858.6	-52,903.3
	172.5																					
4	230.	100,856	100,856	262,024	-3735	-2538		259,486	389,169	47,161	47,161	122,524	-6,000,900	-4,105	118,419	177,628	-222,678	-6,326.0	-36,947		1,498.3	-41,774.7
	287.5																					
6	345.	86,296	86,296	224,197	-5284	-3591		220,606	330,909	36,407	36,407	94,582	-5,515,800	-3,749	93,836	140,754	-178,224	-5,063.1	-28,241		1,183.0	-32,221.1
	402.5																					
8	460.	72,525	72,525	188,410	-6418	-4362		184,048	276,071	27,283	27,283	70,881	-4,932,300	-3,283	67,592	101,389	-138,996	-3,975.4	-21,080		911.00	-24,153.3
	517.5																					
10	575.	59,613	59,613	154,875	-7142	-4858		150,017	225,026	19,694	19,694	51,165	-4,032,900	-2,756	48,409	72,614	-107,253	-3,046.9	-15,184		680.10	-17,470.2
	630.5																					
12	690.	47,622	47,622	123,722	-7400	-5029		118,693	178,040	13,537	13,537	35,169	-3,213,700	-2,184	33,985	49,476	-79,851	-2,268.5	-10,291		489.61	-12,068.9
	747.5																					
14	805.	36,607	36,607	95,105	-7162	-4872		90,233	135,350	8,703	8,703	22,610	-2,371,700	-1,612	20,998	31,497	-57,135	-1,624.8	-6,551		334.99	-7,840.8
	862.5																					
16	920.	26,620	26,620	69,150	-6472	-4399		64,766	97,142	5,078	5,078	13,193	-1,582,600	-1,076	12,117	18,176	-38,894	-1,104.9	-3,781		213.71	-4,672.2
	977.5																					
18	1035.	17,759	17,759	46,086	-5211	-3609		42,477	63,716	2,538	2,538	6,593.7	-900.68	-612.1	5,981.6	8,972.4	-24.343	-691.55	-1,866.2		122.65	-2,435.2
	1092.5																					
20	1150.	10,083	10,083	26,196	-3665	-2491		23,705	35,558	850.6	850.6	2,209.7	-379.920	-258.1	2,211.6	3,317.4	-13.153	-373.66	-650.02		53.67	-1,005.0
	1207.5																					
22	1265.	3,808	3,808	9,893	-1424	-1105.0		8,788	12,182	166.8	166.8	433.3	-73.447	-49.91	383.44	575.16	-4.931	-140.08	-119.63		13.125	-241.6
	1322.5																					
24	1380.					0	0	0	0	0	0		0	0			0	0	0	0	0	0

$F_1 = \frac{G.W.}{265,000} = 1$

$F_2 = \sigma\left(\frac{M.P.H.}{311.0}\right)^2 = .8616\left(\frac{276.2}{311.0}\right)^2 = .6796$

$F_3 = F_1 \times F_2 = .8463$ (TABLE 2.)

$F_4 = F_3 \times F_A = .8463 \times 33.5681 = 28.4087$

F_A = TORSION CONSTANT = $1.57 \times .022938 \times 5^{-5} \sqrt{\frac{1}{\sigma}} = 1.57 \times .022938 \times 5^{-5} \sqrt{\frac{1}{.8616}}$ (276.2/311.0)^2
$= 33.5681$

By: A. Ellis
Chk'd: Brown, Nathan

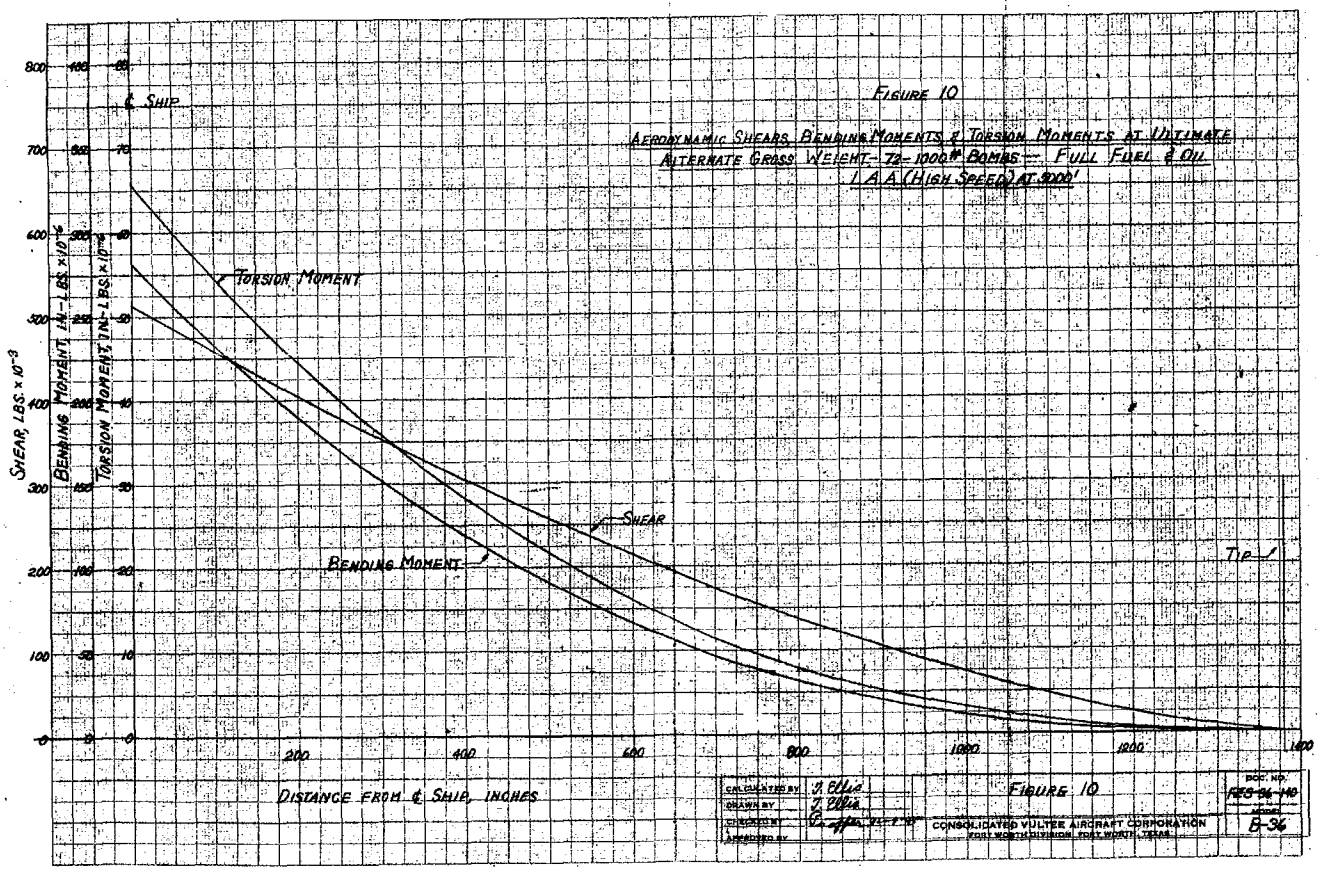


FIGURE 10
AERODYNAMIC SHEARS, BENDING MOMENTS & TORSION MOMENTS AT ULTIMATE
ALTERNATE GROSS WEIGHT - 72-1000# BOMBS - FULL FUEL & OIL
1 A A (HIGH SPEED) AT 9000'
℄ SHIP
TORSION MOMENT
SHEAR
BENDING MOMENT
TIP
SHEAR, LBS. x 10^-3
BENDING MOMENT, IN.-LBS. x 10^-6
TORSION MOMENT, IN.-LBS. x 10^-6
DISTANCE FROM ℄ SHIP, INCHES
0
100
200
300
400
500
600
700
800
1000
1200
1400
CALCULATED BY
DRAWN BY
CHECKED BY
APPROVED BY
FIGURE 10
DOC. NO. FES-56-140
MODEL B-36
CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION, FORT WORTH, TEXAS

TABLE 12. B-36 WING AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE

CONDITION AGW 265000 LB -1000 LB FULL FUEL & OIL. INBD @ 5000'

STA.	DISTANCE FROM ℄ SHIP	$S_{c_{Sym}}$ (GW=265,000)	$S_{c_{Sym}}$ (GW=265,000)	$\frac{3}{2} S_{c_{Sym}}$ $\frac{3}{2}$ = 1.5	$S_{c_{Lb}}$ (310 MPH)	$S_{c_{Lb}}$ (188.3 MPH)	$\frac{3}{2} S_{c_{Lb}}$	$S_{c_{Sym}}$
	1	2	3	4	5	6	7	8
		FZS-36-138 TAB. X COL. 9	$F_2 \times$ (2)	-1.5 (3)	FZS-36-138 TAB. X COL. 9	$F_2 \times$ (5)	(4) + (6)	1.5 × (7)
0	0	131,900	131,900	-200,752	0	0	-200,752	-301,128
	57.5							
2	115.	116,144	116,144	-174,771	-2002	-632	-177,403	-266,105
	172.5							
4	230.	100,856	100,856	-153,503	-3993	-1198	-154,701	-232,052
	287.5							
6	345.	86,296	86,296	-131,343	-5284	-1669	-133,012	-199,518
	402.5							
8	460.	72,525	72,525	-110,583	-6418	-2027	-112,410	-168,615
	517.5							
10	575.	59,613	59,613	-90,781	-7149	-2258	-92,989	-139,484
	632.5							
12	690.	47,622	47,622	-72,481	-7400	-2338	-74,819	-112,229
	747.5							
14	805	36,607	36,607	-55,716	-7169	-2265	-57,981	-86,972
	862.5							
16	920.	26,620	26,620	-40,516	-6478	-2045	-42,561	-63,842
	977.5							
18	1035	17,739	17,739	-26,999	-5311	-1676	-28,677	-43,016
	1092.5							
20	1150	10,883	10,883	-15,846	-3662	-1158	-16,504	-24,756
	1207.5							
22	1265.	3808	3808	-5,796	-1626	-514	-6,310	-9,465
	1322.5							
24	1380	0	0	0	0	0	0	0

STA.	M_{Ex} $\times 10^{-3}$ (GW=265,000)	M_{Ex} $\times 10^{-3}$ (GW=265,000)	$\frac{3}{2} M_{Ex}$ $\times 10^{-3}$ $\frac{3}{2}$ = 1.5	M_{Ex} $\times 10^{-3}$ (310 MPH)	M_{Ex} $\times 10^{-3}$ (188.3 MPH)	$\frac{3}{2} M_{Ex}$ $\times 10^{-3}$	M_{Ex} $\times 10^{-3}$	M_{Ex} $\times 10^{-3}$
	9	10	11	12	13	14	15	16
	FZS-36-138 TAB. X COL. 15	$F_2 \times$ (10)	-1.5 × (10)	FZS-36-138 TAB. X COL. 15	$F_2 \times$ (13)	(11) + (13)	1.5 × (14)	TAB. I, COL. 8
0	-6,944,000	73,894	-112,467	-6,944,000	73,894	-112,467	-2051.6	-1145186
2	-6,874,500	59,632	-90,763	-6,874,500	59,632	-90,763	-2014.3	-1277.4
4	-6,040,000	47,161	-71,780	-6,040,000	47,161	-71,780	-1908.3	-736883
6	-5,515,000	36,407	-55,411	-5,515,000	36,407	-55,411	-1742.4	-671534
8	-4,839,000	27,283	-41,525	-4,839,000	27,283	-41,525	-1528.7	-430537
10	-4,004,000	19,694	-29,974	-4,004,000	19,694	-29,974	-1280.7	-312549
12	-3,213,000	13,537	-20,603	-3,213,000	13,537	-20,603	-1016.2	-216182
14	-2,271,000	8,703	-13,246	-2,271,000	8,703	-13,246	-749.2	-139952
16	-1,583,000	5,078	-7,729	-1,583,000	5,078	-7,729	-499.9	-82283
18	-903,000	2,538	-3,863	-903,000	2,538	-3,863	-284.5	-41475
20	-379,820	950.6	-1,447	-379,820	950.6	-1,447	120.0	-15670
22	-73,997	166.8	-254	-73,997	166.8	-254	23.2	-2772
24	0	0	0	0	0	0	0	0

STA.	M_{Ex} $\times 10^{-3}$ $\frac{(C_m \rho V^2 S b c)}{10}$	TORSION DUE TO CONFIG. $\times 10^{-3}$ (MPH = 188.3)	$-M_{Ex}$ $\times 10^{-3}$ (MPH = 188.3)	$F_5 \times$ (16)	$\times 10^{-3}$	$\times 10^{-3}$	T_{Ex} $\times 10^{-3}$
	17	18	19	20	21	22	23
	TAB. I, COL. 8	$F_5 \times$ (16)	-1080 × (19)	TAB. I, COL. 8	(20) × (18)	(21) × (18)	(22) + (23)
0	-332,020	-5886.3	35,722.8			-1325.0	28,518.6
2	-273,764	-4853.8	29,446.5			-1098.3	22,993.4
4	-222,678	-3,947.8	23,980.8			-894.5	18,148.5
6	-178,224	-3,159.7	19,031.9			-714.7	13,957.5
8	-139,936	-2480.9	15,432.8			-558.0	10,393.9
10	-102,253	-1901.4	11,751.6			-423.6	7,426.5
12	-79,851	-1415.6	6,744.9			-310.2	5,019.1
14	-57,195	-1014.0	4,366.5			-216.6	3,135.9
16	-38,894	-689.5	2,567.4			-141.5	1736.4
18	-24,343	-431.6	1,294.0			-83.6	778.8
20	-13,153	-233.2	488.9			-41.3	214.4
22	-4,931	-86.5	88.6			-13.2	-11.1
24	0	0	0			0	0

$F_1 = \frac{GW}{265000} = \frac{265000}{265000} = 1.000$

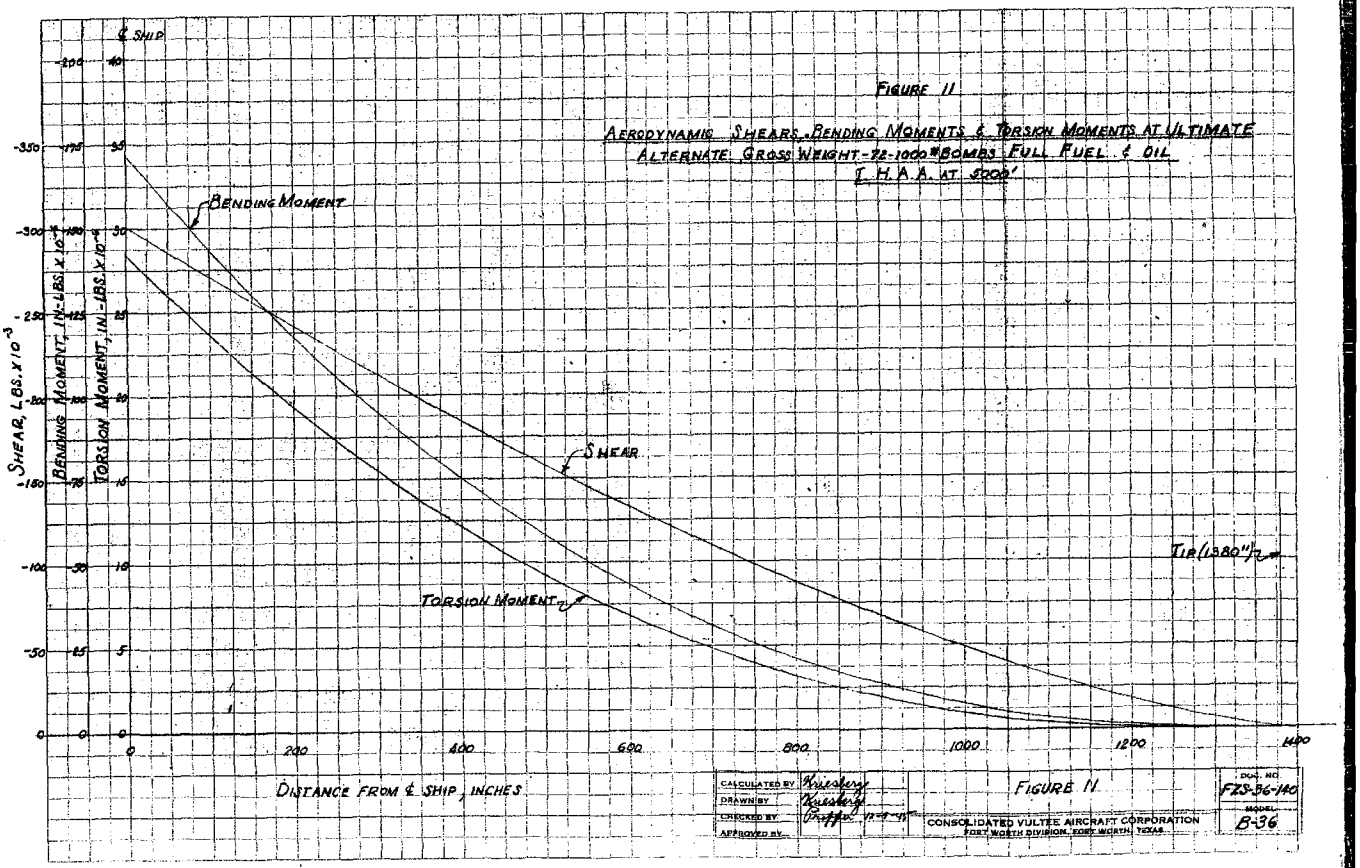
$F_2 = \left(\frac{M.P.H.}{310}\right)^2 = \left(\frac{188.3}{310}\right)^2 \times 0.8616 = 0.3159$

$F_3 =$ CMC CORRECTION FACTOR $= 1.1363$ (SEE TABLE 2 FOR CALC.)

$F_4 =$ TORSION CONSTANT $= \frac{(L.E. + 1.0925 \times 5.5)^2}{3 \times 144} \sqrt{\sigma} = 0.0005071 (188.3)^2 \, 0.8616 = 15.6020$

$F_5 = F_3 \times F_4 = 1.1363 \times 15.6020 = 17.7286$

By: J. L. Kinsberg
Chk: Brown Griffin



CALCULATED BY	Kuisberg	FIGURE 11	DOC. NO. FZS-B6-140
DRAWN BY	Kuisberg		
CHECKED BY	[illegible] 12-4-45	CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION, FORT WORTH, TEXAS	MODEL B-36
APPROVED BY			

TABLE 19 B-36 WING, AERODYNAMIC SHEARS, BENDING MOMENTS AND TORSION MOMENTS AT ULTIMATE

CONDITION AGW=265000#, 72-1000#, FULL FUEL & OIL, LAA & 5000', HIGH SPEED

STA.	DISTANCE FROM ℄ SHIP	S_{cen} (G.W.=265000)	S_{cen} (G.W.=265000)	$\frac{1}{2}S_{cen}$ (F_z=-1.4844)	S_{cld} (311.0 MPH)	S_{cld} (276.2 MPH)	$\frac{1}{2}S_{cld}+S_{cen}$	S_{bm}	$M_{cen}\times10^{-3}$ (G.W.=265000)	$M_{cld}\times10^{-3}$ (G.W.=265000)	$\frac{1}{2}M_{cen}+M_{cld}\times10^{-3}$ (F=-1.4844)	$M_{bm}\times10^{-3}$ (311.0 MPH)	$M_{bm}\times10^{-3}$ (276.2 MPH)	$\frac{1}{2}M_{cen}+M_{bm}$	M_{yen} $\times10^{-3}$	$\frac{1}{2}M_{cen}+M_{yen}$ $\times10^{-3}$	Torsion due to $C_{m_{cen}}$ ($\times10^{-3}$)	$-M_{cen}\cdot\alpha$ $\times10^{-3}$ (α=0.2000)	$0.1\,C_{bm}$ $\times10^{-3}$	T_{cen} $\times10^{-3}$
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
			FZS-36-138 TAB. XC-6.2	$F_z\times$②	-1.4844 ③	FZS-36-138 TAB. XC-6.3	$F_z\times$⑤	④+⑥	1.0×⑦	FZS-36-138 TAB. XC-6.1	$F_z\times$⑨	-1.4844×⑩	TABLE 20	$F_z\times$⑫	⑪+⑬	1.5×⑭	TAB. XC-6.8	$F_z\times$⑯	-2.000×⑯	⑧×⑩	⑦×⑩+⑧×⑨
0	0	131900	131900	-195740	0	0	-195740	-243610	73894	73894	-109659	-64944.5	-44130	-114072	-171108	-333.036	-11327.0	35593.0		-1291.9	22971.6
	57.5																				
2	115.	116144	116144	-172358	-2002	-1360	-173718	-260577	59632	59632	-88444	-6376.5	-4332.8	-92826	-139240	-273.786	-9340.3	28961.9		-1074.9	16546.7
	172.5																				
4	230.	100856	100856	-149670	-3793	-2577	-152247	-228371	47161	47161	-69987	-6040.1	-4104.8	-74091.8	-111138	-222.478	-7594.7	23116.7		-879.6	14640.8
	287.5																				
6	345.	86296	86296	-128063	-5284	-3590	-131653	-197480	36407	36407	-54028	-5515.8	-3748.0	-57776.0	-86664	-182.24	-6080.2	18026.1		-706.0	11239.9
	402.5																				
8	460	72525	72525	-107627	-6418	-4361	-111988	-167982	27288	27288	-40495	-4839.3	-3288.3	-43783.3	-65675	-139.936	-4774.0	13660.4		-564.3	8332.1
	517.5																				
10	575.	59613	59613	-88466	-7149	-4858	-93324	-139986	19694	19694	-29236	-4054.9	-2755.3	-31981.3	-47972	-107.253	-3659.0	9938.2		-423.5	5895.7
	632.5																				
12	690.	47622	47622	-70671	-7400	-5028	-75699	-113549	13537	13537	-20089	-3213.7	-2183.7	-22272.7	-33409	-79.861	-2724.1	6949.1		-312.3	3912.7
	747.5																				
14	805.	36607	36607	-54325	-7169	-4871	-59196	-88794	8703	8703	-12915	-2317.7	-1451.6	-14376.6	-21565	-57.195	-1951.2	4485.6		-219.8	2314.5
	862.5																				
16	920	26620	26620	-39504	-6473	-4398	-43902	-65853	5078	5078	-7536	-1583.6	-1075.4	-8611.4	-12917	-38.894	-1327.0	2686.7		-144.9	1214.8
	977.5																				
18	1035.	17739	17739	-26325	-5311	-3609	-29934	-44901	2538	2538	-3766	-900.65	-612.0	-4378.0	-6567	-24.343	-830.5	1865.9		-86.4	449.0
	1092.5																				
20	1150.	10083	10083	-14963	-3665	-2490	-17453	-26180	950.6	950.6	-1411	-379.82	-258.1	-1669.1	-2504	-13.153	-448.7	510.8		-43.2	28.9
	1207.5																				
22	1265	3808	3808	-5651	-1626	-1104	-6755	-10133	166.8	166.8	-248	-73.447	-49.9	-297.9	-447	-4.931	-168.2	93.6		-13.9	-89.1
	1322.5																				
24	1380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0

$F_1 = \frac{G.W.}{265000} = \frac{265000}{265000} = 1.000$

$F_2 = \left(\frac{M.P.H.}{311.0}\right)^2 = \left(\frac{276.2}{311.0}\right)^2 \times 0.8616 = 0.6795$

$F_3 = C_{m_0}$ CORRECTION FACTOR = 1.0163 (TABLE 2)

$F_4 = \text{TORSION CONSTANT} = \frac{(S.F.)(\text{DIST})(\text{DIST})}{3\times137} V^2 = 0.000\,61071(276.2)^2 0.5616 = 33.5681$

$F_5 = F_3 \times F_4 = 1.0163 \times 33.5681 = 34.1153$

By: Kreisberg
Chk.: Perry, Jaffe

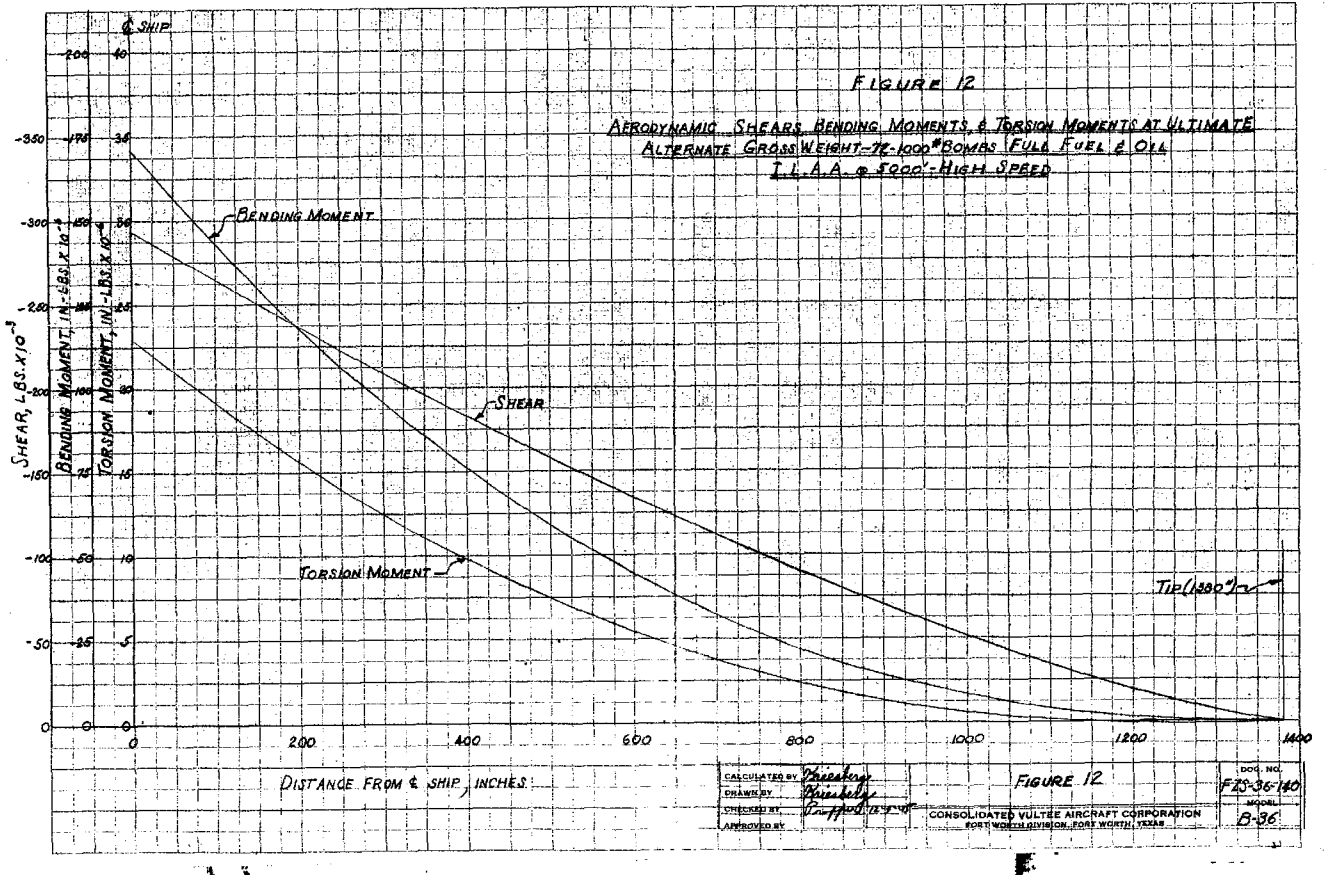


FIGURE 12
AERODYNAMIC SHEARS, BENDING MOMENTS, & TORSION MOMENTS AT ULTIMATE
ALTERNATE GROSS WEIGHT-72-1000# BOMBS FULL FUEL & OIL
T.L.A.A. @ 5000'-HIGH SPEED
℄ SHIP
BENDING MOMENT
SHEAR
TORSION MOMENT
TIP (1380")
SHEAR, LBS. X 10^-3
BENDING MOMENT, IN-LBS. X 10^-4
TORSION MOMENT, IN-LBS. X 10^-4
-350 -300 -250 -200 -150 -100 -50 0
200 150 100 50 0
40 35 30 25 20 15 10 5 0
0 200 400 600 800 1000 1200 1400
DISTANCE FROM ℄ SHIP, INCHES
CALCULATED BY
DRAWN BY
CHECKED BY
APPROVED BY
FIGURE 12
CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION, FORT WORTH, TEXAS
DOC. NO. FZS-36-140
MODEL B-36

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 823 125 PADS 11-43

TABLE 14. B-36 WING AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE
CONDITION: AGW-265,000#, TE-1000#, FULL FUEL, 0.1 MACH 5000' LIMIT DIVE SPEED

STA	DISTANCE FROM ℄ SHIP	S_{Ch_1} (GW=265,000#)	S_{Ch_1} (GW=265,000#)	$\frac{E}{W}S_{Ch_1}$ (E/W=-1.324)	S_{Ch_1} (311 MPH)	S_{Ch_1} (308 MPH)	$\frac{E}{W}S_{Ch_1}$ (E/W=-1.324)	S_{Ch_1}	M_{Ch_1} (GW=265,000#)	M_{Ch_1} (GW=265,000#)	$\frac{E}{W}M_{Ch_1}$ (E/W=-1.324)	M_{Ch_1} (311 MPH)	M_{Ch_1} (308 MPH)	$\frac{E}{W}M_{Ch_1}$	M_{Ch_1}	TORSION DUE TO $C_{m_{0/1}}$	M_{Ch_1} (Tan=0.0087)	S_{Ch_2}	M_{Ch_2}
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20
		FAS-36-138 TABLE 1, COL. 2	4 × (2)	-1.324 × (3)	FAS-36-138 TABLE II, COL. 3	F_3 × (5)	(4) + (6)	(5) × 7	FAS-36-138 TABLE 1, COL. 4	F_3 × (9)	-1.324 × (10)	FAS-36-138 TABLE II, COL. 5	× (13)	(10)+(13)	15 × (3)	TABLE 1, COL. 8	F_3 × (16)	2080 × (15)	F_3 × (18) × (3)
0	0	131900	131900	-174356	0	0	-174356	-174356	73894	73894	-97856	-6499.5	-5499.2	-7099.3	-1549857	-332016.74	0	-32437.0	-115256
	57.5																		
2	115.0	116194	116194	-153774.7	-20002	-16941.5	-154966.5	-233196.8	59633	59633	-78952.3	-6376.5	-5388.5	-6934.13	-1265119	-273782	-116656	+26314.5	96119
	172.5																		
4	230.0	100856	100856	-133532.3	-27793	-23505.3	-126738.6	-215189	47161	47161	-62411.2	-6040.9	-5109.9	-6584.1	-1013192	-222678	-94391	+21014.4	-78917
	287.5																		
6	345	86296	86296	-114255.9	-52894	-44655.3	-118721.2	-178094.8	36407	36407	-48207.7	-5515.8	-4661.2	-5984.1	-79266.2	-178220	-75593	-16824.7	-63696
	402.5																		
8	460	72525	72525	-96023.1	-64188	-54232.6	-161446.1	-152170.0	27283	27283	-36113.7	-4839.3	-4089.5	-4021.2	-46318.3	-139932	-59317	-12946.2	-50122
	517.5																		
10	575	59613	59613	-78927.6	-71149	-60113	-849689	-127453.4	19679	19679	-26019.9	-4059.9	-3426.6	-4295.15	-44251.3	-107249	-45463	-9214.5	-38557
	632.5																		
12	690	47622	47622	-63051.5	-74400	-62823.4	-693049	-103957.4	13537	13537	-17923.0	-3213.7	-2715.7	-2063.87	-30858.1	-79847	-33941	-6489.3	-28597
	747.5																		
14	865	36607	36607	-48467.6	-71169	-60082.4	-545.59	-81788.7	8703	8703	-11522.8	-2371.7	-2004.2	-1352.70	-20395	-57191	-24243	-4220.4	-20124
	862.5																		
16	920	26620	26620	-35294.8	-64730	-54700	-467148	-61672.2	5078	5078	-6723.3	-1582.6	-1337.4	-806.07	-12091.1	-38894	-16487	+2514.9	-13434
	977.5																		
18	1035	17739	17739	-23486.0	-53110	-44863.1	-319795	-41961.2	2538	2538	-3360.3	-900.68	-761.1	-412.14	-6882.1	-29343	-10319	+1285.9	-8034
	1092.5																		
20	1150	10083	10083	-13345.9	-36657	-30971.1	-164470	-24672.5	9506	9506	-11285	-379.82	-320.9	-159.4	-2369.1	-13133	-5573	+492.8	-4080
	1207.5																		
22	1265	3808	3808	-5040.6	-16262	-13741	-6215.9	-9623.9	166.8	166.8	-220.8	-73.847	-62.1	-28.29	-424.4	-4931	-2090	+88.2	-1324
	1322.5																		
24	1380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$F_1 = \frac{265{,}000}{265{,}000} = 1$

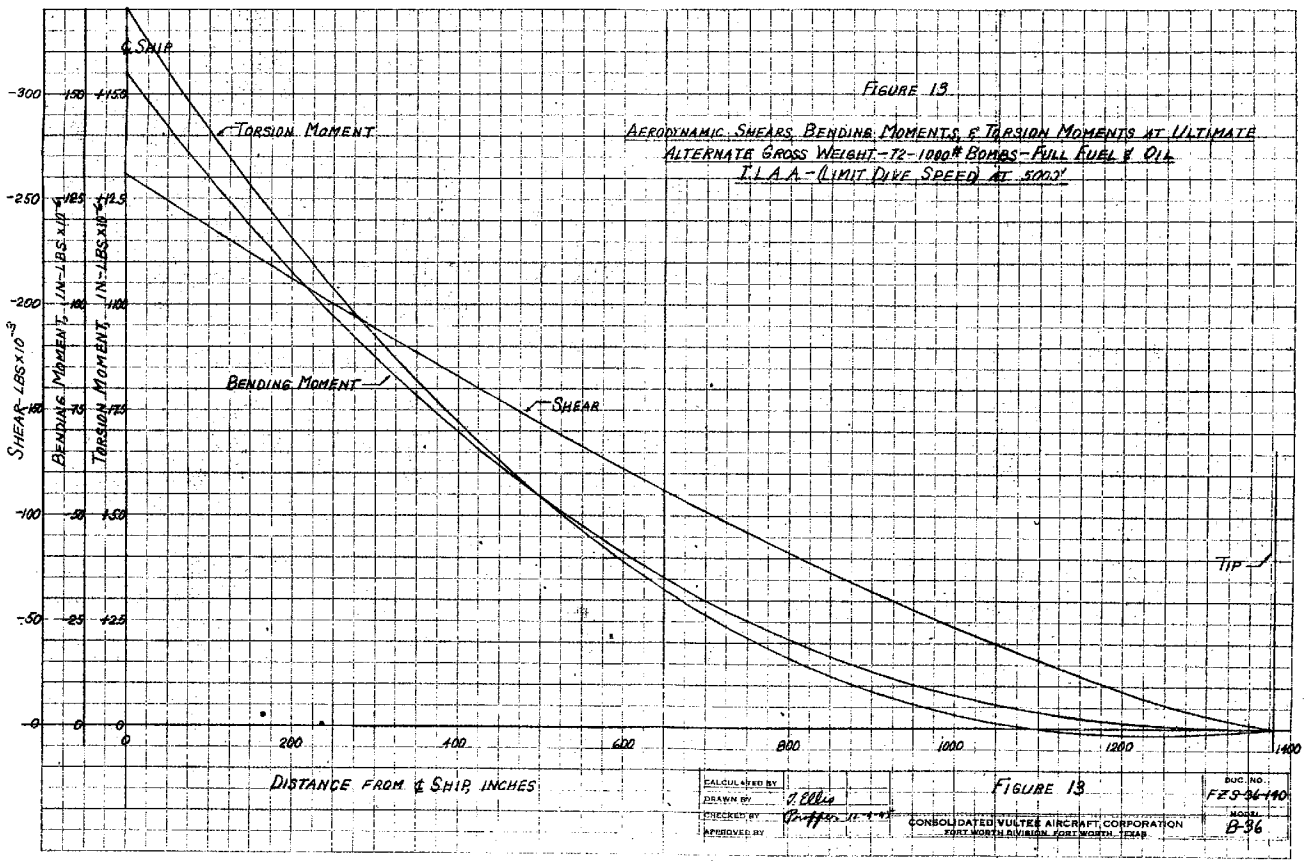
$F_2 = \left(\frac{MPH}{311.0}\right)^2 \sigma = \left(\frac{308}{311}\right)^2 .3616 = .845057$

$F_3 = F_3 \times F_1 = 1.0155 \times 41.7429 = 42.3899$

$F_3 = 101.55$ (TABLE 2)

$F_4 = \text{TORSION CONSTANT} = \frac{.15 \times 2002 \times 508 \times 57.5}{3 \times 144} \times \sqrt{\sigma} = 41.7429$

By: [illegible]
Chk: [illegible]



CALCULATED BY		FIGURE 13	DOC. NO. FZS-36-140
DRAWN BY	T. Ellis		
CHECKED BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36
APPROVED BY			

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 125 PADS 11-45

TABLE 15. B-36 WING. AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE.
CONDITION: A.G.W.- 254,131#, 72-1000# B, FULL FUEL & OIL. I.L.A.A. @ 35000' HIGH SPEED.

PAGE
REPORT
DATE

STATION	DISTANCE FROM ℄ SHIP	$S_{CE_{A_1}}$ (G.W.=265000#)	$S_{CE_{A_2}}$ (G.W.=254131#)	$\frac{\ell}{W} S_{CE_{A_2}}$ ($\frac{\ell}{W}$=-.1541)	S_{CE_B} (311 M.P.H.)	S_{CE_B} (350 M.P.H.)	$\frac{\ell}{W} S_{CE_{A_2}} + S_{CE_B}$	S_{b_A}	$M_{CE_{A_1}} \times 10^3$ (G.W.=265000#)	$M_{CE_{A_2}} \times 10^3$ (G.W.=254131#)	$\frac{\ell}{W} M_{CE_{A_2}} \times 10^3$ ($\frac{\ell}{W}$=-.1541)	$M_{CE_B} \times 10^3$ (311 M.P.H.)	$M_{CE_B} \times 10^3$ (350 M.P.H.)	$\frac{\ell}{W} M_{CE_{A_2}} \times 10^3$	$M_{x_A} \times 10^3$	$M_{CE_{A_1}} \times 10^3$ DUE TO C_{m_A}	TORSION $\times 10^3$ DUE TO C_{m_A}	$-M_{x_B}$ TAN $\theta \times 10^3$ (TAN θ = .2098)	$M_{CE_B} \times 10^3$	$S_{CE_B} \times 10^3$
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
			TAB. X COL. 9 P.B3-36-138	$F_1 \times$ ②	-.1541 × ③	TAB. II COL. 9 P.B3-36-138	$F_2 \times$ ⑤	④ + ⑥	1.5 × ⑦	TAB. X COL. 15 P.B3-36-138	$F_1 \times$ ⑨	-.1541 × ⑩	TAB. II COL. 15 P.B3-36-138	$F_3 \times$ ⑫	⑪ + ⑬	1.5 × ⑭	TAB. I COL. 8	$F_4 \times$ ⑯	-2090 × ⑰	TAB. I COL. 8	$10^3 \times$ ⑲
0	0	131900	126492	-194924	0	0	-194924	-292,386	73894	70864	-109201	-6494.5		-2548.4	-111,749	-167624	-332,020	+1339.2	34865.8	[illegible]	-1286.5
	57.5																				
2	115	116144	111382	-171640	-2002	-786	-172426	-258639	59632	57187	-88125	-6376.5		-2502.1	-90627	-135941	-273,786	+1104.3	28215.7	[illegible]	-1066.9
	172.5																				
4	230	100856	96721	-149047	-3793	-1488	-150535	-225803	47161	45227	-69695	-6040.9		-2370.4	-72065	-108098	-222678	898.1	22484.4	[illegible]	-869.3
	287.5																				
6	345	86296	82758	-127530	-5284	-2073	-129603	-194405	36407	34914	-53802	-5515.8		-2164.4	-55966	-83949	-178224	718.8	17461.4	[illegible]	-695.0
	402.5																				
8	460	72525	69551	-107178	-6418	-2518	-109696	-164544	27283	26164	-40319	-4833.3		-1898.9	-42218	-63327	-139,936	564.4	13172.0	[illegible]	-543.0
	517.5																				
10	575	59613	57147	-88097	-7149	-2805	-90902	-136353	19694	18887	-29105	-4054.9		-1591.1	-30696	-46044	-102253	432.6	9577.2	[illegible]	-412.5
	632.5																				
12	690	47622	45669	-70376	-7400	-2904	-73280	-109920	13537	12982	-20005	-3213.7		-1261.1	-21266	-31899	-79,851	322.1	6635.0	[illegible]	-302.3
	747.5																				
14	805	36407	35106	-54098	-7169	-2813	-56911	-85367	8703	8346	-12861	-2371.7		-930.7	-13,792	-20688	-57,195	230.7	4303.1	[illegible]	-211.3
	862.5																				
16	920	26620	25529	-39340	-6473	-2540	-41880	-62820	5078	4870	-7505	-1582.6		-621.0	-8126	-12189	-38,894	156.9	2535.2	[illegible]	-138.2
	977.5																				
18	1035	17737	17012	-26215	-5311	-2084	-28299	-42449	2538	2434	-3751	-900.68		-353.4	-4104	-6156	-24,343	98.2	1280.4	[illegible]	-81.7
	1092.5																				
20	1150	10083	9670	-14901	-3665	-1438	-16339	-24509	950.6	912	-1405	-379.82		-149.0	-1554	-2331	-13,153	53.1	484.8	[illegible]	-40.4
	1207.5																				
22	1265	3869	3652	-5628	-1626	-638	-6266	-9399	166.8	160	-247	-73.477		-28.8	-276	-414	-4931	19.9	86.1	[illegible]	-12.9
	1322.5																				
24	1380	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	[illegible]	0

$F_1 = \frac{G.W.}{265000} = \frac{254131}{265000} = 0.9590$

$F_2 = \left(\frac{M.P.H.}{350}\right)^2 \sigma = \left(\frac{350}{311}\right)^2 \times .3098 = 0.3924$

$F_3 = -.2081$ (TABLE 2)

F_4 = TORSION CONSTANT = $\frac{1.5 \times .0025586 \times 2.75 \times (350)^2 \times .3098}{3 \times 144} = 19.3918$

$F_5 = F_3 \times F_4 = -.2081 \times 19.3918 = -4.0334$

By: Kreisberg
Ck'd: Brey

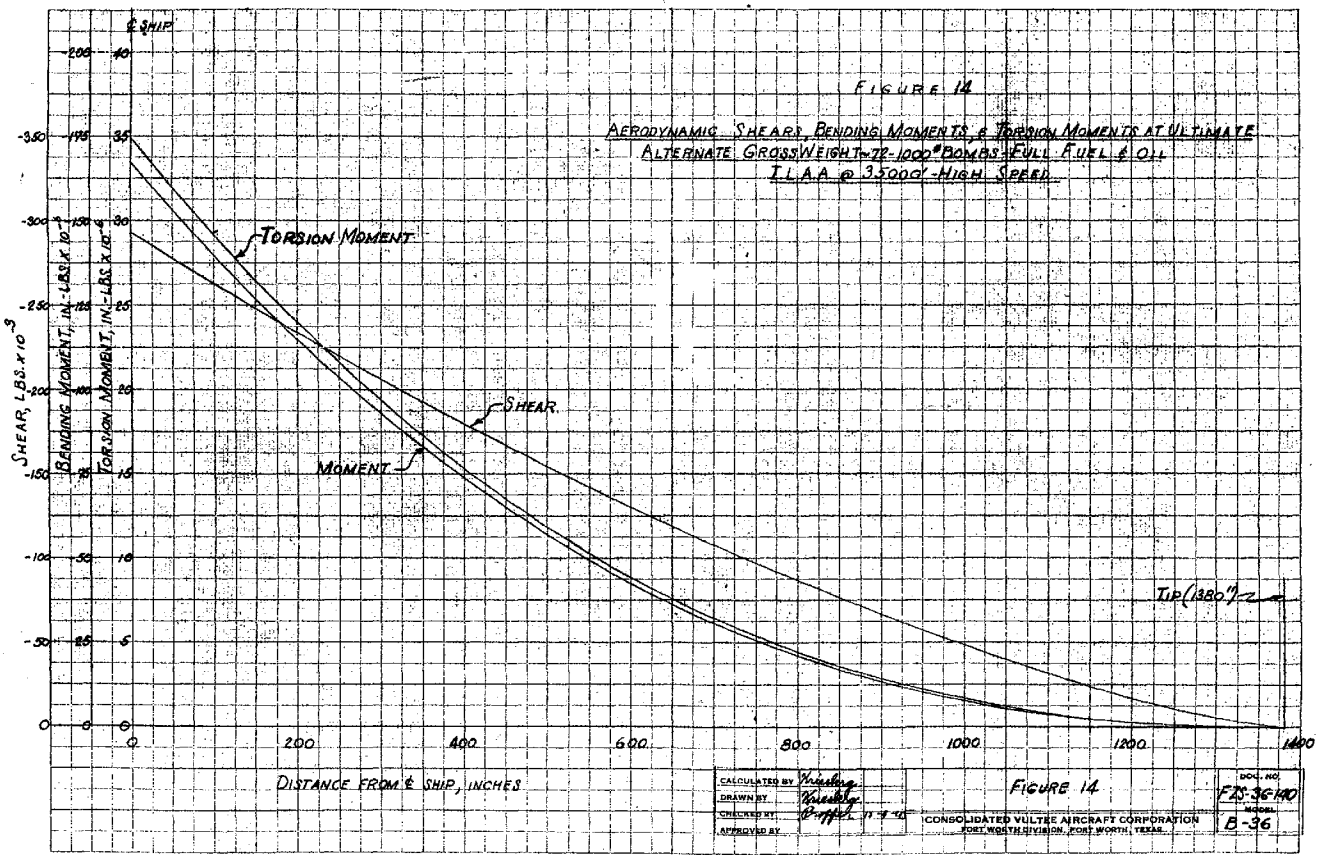


FIGURE 14
AERODYNAMIC SHEARS, BENDING MOMENTS, & TORSION MOMENTS AT ULTIMATE
ALTERNATE GROSS WEIGHT-72-1000# BOMBS-FULL FUEL & OIL
I.L.A. @ 3,500'-HIGH SPEED
℄ SHIP
TORSION MOMENT
SHEAR
MOMENT
TIP (380")
SHEAR, LBS. X 10^-3
BENDING MOMENT, IN.-LBS. X 10^-6
TORSION MOMENT, IN.-LBS. X 10^-6
DISTANCE FROM ℄ SHIP, INCHES
-3.50
-3.00
-2.50
-2.00
-1.50
-1.00
-.50
0
200
400
600
800
1000
1200
1400
CALCULATED BY
DRAWN BY
CHECKED BY
APPROVED BY
FIGURE 14
CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION, FORT WORTH, TEXAS
DOC. NO. FZS-36-140
MODEL B-36

TABLE 16. B-36 WING. AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE

CONDITION: R.G.W. - 229,999# 72-100.5% ½ FUEL & OIL LAA. 6. 300K. HIGH SPEED

STA.	DISTANCE FROM ℄ SHIP	$S_{c_{a_1}}$ (R.W.=229,999#)	$S_{c_{a_2}}$	⅓ $S_{c_{a_1}}$ (R.W.=229,999#)	S_{c_b} (R.W.=229,999#)	S_{c_b} (R.W.=229,999#)	⅓ $S_{c_{a_1}}$ + S_{c_b}	S_{b_a} (R.W.=229,999#)	$M_{c_{a_1}} \times 10^{-3}$ (R.W.=229,999#)	$M_{c_{a_2}} \times 10^{-3}$	⅓ $M_{c_{a_1}} \times 10^{-3}$ (R.W.=229,999#)	$M_{c_b} \times 10^{-3}$	$M_{c_b} \times 10^{-3}$	(⅓ $M_{c_{a_1}}$ + M_{c_b}) $\times 10^{-3}$	$M_{x_a} \times 10^{-3}$	$\frac{1}{2}\rho V_{eq}^2 S_{eq} \times 10^{-3}$	TORSION DUE TO C_{m_0} $\times 10^{-3}$	$-M_{T_{a_1}}$ $\times 10^{-3}$	$C_{m_0} C S_{b_a} \times 10^{-3}$	$T_{E_a} \times 10^{-3}$
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	21	21
			FRS-36-138 TAB. X, Col. 8	$F_1 \times$ ②	$F_1 \times$ ③	$F_2 \times$ ⑤	④ + ⑥	$1.5 \times$ 7	FRS-36-138 TAB. X, Col. 14	$F_1 \times$ ⑨	$F_1 \times$ ⑩	FRS-36-138 TAB. X, Col. 14	$F_2 \times$ ⑫	⑪ + ⑬	$1.5 \times$ ⑭	TAB. 1 Col. 8	$F_3 \times$ ⑯	-2080 ⑰	[illegible]	[illegible]
0	0	131,900	114,476	213,664	0	0	213,664	470,496	73,894	64,133	175,794	-6,494.500	-4,855.2	171,168.6	256,753.9	-332.020	-9,911.2	-83,404.7	[illegible]	2,070.2	-61,245.7
	57.5																				
2	115.	116,144	100,831	276,195	-2002	-1404	274,721	412,186	59,682	51,755	141,809	-6376.500	-4,472.5	137,336.5	206,004.8	-293.786	-8,722.8	-42,849.0	[illegible]	1,700.3	-49,321.5
	172.5																				
4	230.	100,856	87,593	239,840	-3793	-2660	237,180	355,770	47,161	40,931	112,151	-6,040.300	-4,237.1	107,913.9	161,870.8	-222.678	-6,647.2	-33,663.1	[illegible]	1,349.7	-38,946.6
	287.5																				
6	345.	86,236	74,896	205,215	-5284	-3706	201,509	303,264	36,407	31,538	86,579	-5,515.800	-3,868.8	82,710.2	124,065.3	-178.494	-5,320.2	-25,885.6	[illegible]	1,080.6	-30,045.2
	402.5																				
8	460.	72,825	62,044	172,467	-6418	-4502	167,965	251,948	27,283	23,679	64,880	-4,859.300	-3,394.3	61,485.7	92,228.6	-139.936	-4,177.3	-19,183.5	[illegible]	831.4	-22,528.4
	517.5																				
10	575.	59,613	51,738	141,762	-7149	-5014	136,748	205,122	19,604	17,092	46,852	-4,054.900	-2,844.1	43,987.9	65,981.8	-107.253	-3,201.6	-13,724.2	[illegible]	620.5	-16,205.3
	632.5																				
12	690.	47,622	41,331	113,247	-7400	-5190	108,057	162,086	13,337	11,749	32,192	-3,215.700	-2,254.1	29,937.9	44,906.8	-70.851	-2,383.6	-9,340.6	[illegible]	445.7	-11,278.5
	747.5																				
14	805.	36,607	31,771	87,053	-7169	-5028	82,025	123,038	8,703	7,553	20,636	-2,311.700	-1,643.5	18,992.5	28,488.8	-47.195	-1,701.3	-5,938.4	[illegible]	304.5	-7,341.0
	862.5																				
16	920.	26,620	23,103	63,302	-6473	-4540	58,762	88,143	5,078	4,407	12,076	-1,582.400	-1,110.0	10,966.0	16,449.0	-38.894	-1,161.0	-3,421.4	[illegible]	193.9	-4,288.5
	977.5																				
18	1035.	17,739	15,396	42,185	-5311	-3725	38,460	57,690	2,933	2,207	6,035.4	-900.687	-631.7	5,403.7	8,105.6	-24.343	-726.7	-1,686.0	[illegible]	111.1	-2,301.6
	1092.5																				
20	1150.	10,083	8,810	23,373	-3665	-2571	21,407	32,110	950.6	825.03	2,260.6	-379.820	-266.4	1,994.2	2,991.3	-13.153	-392.6	-632.2	[illegible]	53.0	-961.8
	1207.5																				
22	1265.	3,808	3,305.0	9,055.7	-1626	-1140	7,915.7	11,873.6	166.8	144.77	396.67	-73.447	-51.52	345.15	517.72	-4.931	-147.20	-107.69	[illegible]	16.33	-238.56
	1322.5																				
24	1380.	0	0	0	0	0	0	0	0	0	0	0	0			0	0			0	0

$F_1 = \frac{G.W.}{265,000} = \frac{229,999}{265,000} = .8679$

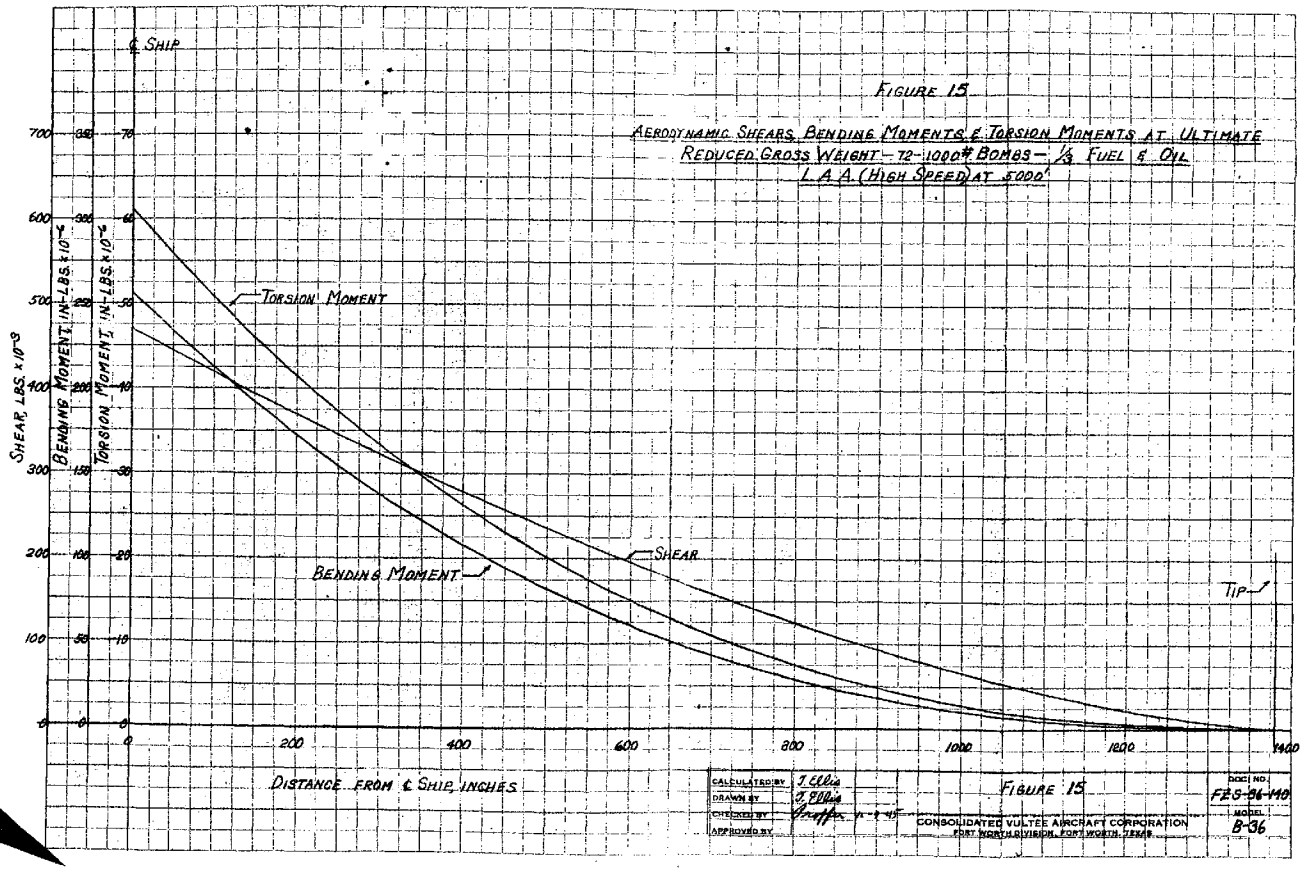
$F_2 = \sigma\left(\frac{M.P.H.}{311.0}\right)^2 = .8616\left(\frac{280.6}{311.0}\right)^2 = .7614$

$F_3 = .8616$ (TABLE 2)

F_4 = TORSION CONSTANT $= 1.5 \times .00051558 \times 87.5 \sqrt{\sigma} = .00051021 (280.6)^2 .8616$
$= 34.6442$

$F_5 = F_3 \times F_4 = .8616 \times 34.6442 = 29.8512$

By J. Ellis
Chk'd Gray Joffe



CALCULATED BY	T. Ellis	FIGURE 15	DOC. NO. FZS-86-140
DRAWN BY	T. Ellis		
CHECKED BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION, FORT WORTH, TEXAS	MODEL B-36
APPROVED BY			

TABLE 17 B-36 WING AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE

CONDITION: NGW-229999# 72-1936 GAL FUEL, 11A 30,000' HIGH SPEED

STA	DISTANCE FROM ℄ SHIP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
			FZS-36-138 TAB. X, Col. 3	F1 x ②		FZS-36-138 TAB. X, Col. 14	F2 x ③		FZS-36-138 TAB. X, Col. 14	5 x ⑥		FZS-36-138 TAB. X, Col. 14	F2 x ⑧		15 x ⑩	TABLE I, Col. 8	F3 x ⑫			17 x ⑬ x ⑭ x ⑮	16 x ⑬ x ⑭ x ⑮
0	0	121,200	114,476	-168,623	0	0	-168,623	-252,935	73,894	64,133	-94,468	-6,494.50	-4,555.2	-99,023.2	-148,534.8	-932.020	-11,607.9	+30,895.2	[illegible]	-1112.9	+16,174.4
	57.5																					
2	115	116,144	100,801	-148,480	-2002	-1404	-149,884	-224,826	52,632	51,735	-76,235	-6,376.500	-4,472.5	-80,707.5	-121,061.2	-273.786	-3,872.0	+35,190.7	[illegible]	-547.4	+14,681.3
	172.5																					
4	230	100,856	87,633	-128,936	-3793	-2660	-131,596	-197,394	47,161	40,231	-60,231	-6,040.900	-4,237.1	-64,528.1	-96,792.2	-222.678	-7,785.2	+20,132.8	[illegible]	-760.0	+11,587.6
	287.5																					
6	345	86,296	74,896	-110,322	-5284	-3706	-114,028	-171,042	36,407	31,598	-46,544	-5,515.800	-3,868.8	-50,412.6	-75,619.2	-178.224	-6,231.0	+15,758.8	[illegible]	-611.5	+8,886.9
	402.5																					
8	460	72,525	62,944	-92,717	-6418	-4502	-97,219	-145,828	27,283	23,670	-34,273	-4,893.300	-3,394.3	-38,273.3	-57,410.0	-159.936	-4,892.4	+11,841.3	[illegible]	-481.2	+6,567.7
	517.5																					
10	575	59,613	51,738	-76,210	-7140	-5014	-81,224	-121,836	19,694	17,022	-25,177	-4,054.900	-2,844.1	-28,021.1	-42,031.6	-107.232	-3,749.7	+8,742.6	[illegible]	-368.6	+4,624.3
	632.5																					
12	690	47,622	41,321	-60,881	-7400	-5190	-66,071	-99,107	13,537	11,749	-17,306	-3,218.700	-2,254.1	-19,560.1	-29,340.2	-79.851	-2,731.7	+6,102.8	[illegible]	-272.5	+3,038.6
	747.5																					
14	805	36,607	31,771	-46,799	-7169	-5028	-51,827	-77,741	8,723	7,553.3	-11,124.0	-2,571.700	-1,663.5	-12,789.5	-19,184.2	-57.125	-1,999.6	+3,990.4	[illegible]	-192.4	+1,798.3
	862.5																					
16	920	26,620	23,103	-34,031	-6473	-4540	-38,571	-57,856	5,078	4,407.2	-6,491.8	-1,982.600	-1,110.0	-7,601.8	-11,402.7	-38.894	-1,359.6	+2,371.8	[illegible]	-127.3	+884.7
	977.5																					
18	1035	17,732	15,386	-22,678	-5311	-3725	-26,403	-39,605	2,598	2,262.7	-3,344.6	-900.600	-631.7	-3,876.3	-5,814.4	-24.343	-851.1	+1,209.4	[illegible]	-76.2	+282.1
	1092.5																					
20	1150	10,983	8,751	-12,890	-3665	-2571	-15,461	-23,192	950.6	825.03	-1,215.3	-379.820	-246.4	-1,461.6	-2,212.4	-13.153	-455.8	+463.5	[illegible]	-38.9	-35.8
	1207.5																					
22	1265	3,606	3,905	-4,869	-1626	-1140	-6,009	-9,012	166.8	144.77	-213.26	-73.447	-51.52	-264.77	-397.16	-4.951	-172.40	+82.61	[illegible]	-12.39	-102.18
	1322.5																					
24	1380	0	0	0	0	0			0	0		0	0							0	0	

$F_1 = \frac{GW}{265{,}000} = \frac{229{,}999}{265{,}000} = .8679$

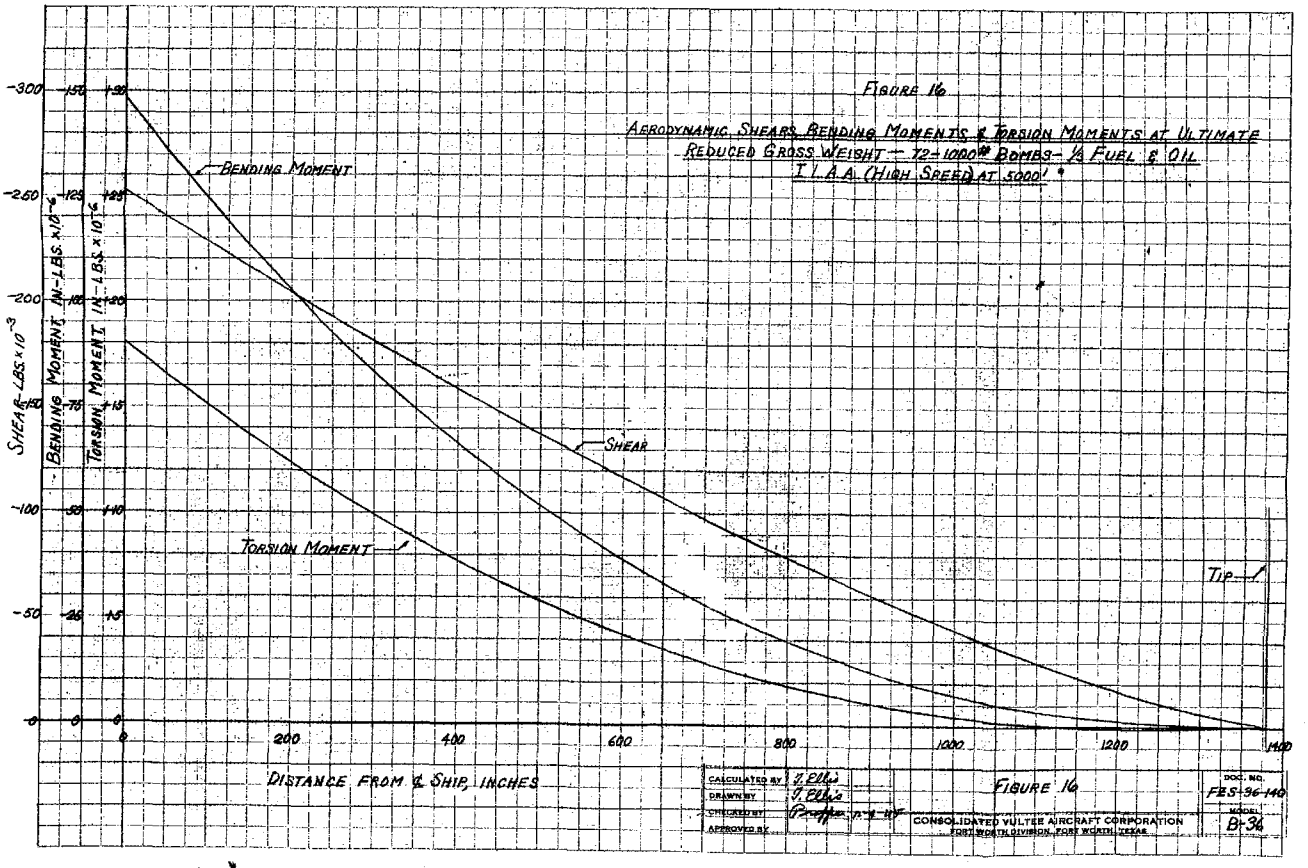
$F_2 = \sigma\left(\frac{M.P.H.}{311.0}\right)^2 = .8616\left(\frac{280.6}{311.0}\right)^2 = .7014$

$F_3 = 1.0091$ (TABLE 21)

F_4 = TORSION CONSTANT $= \frac{1.5 \times .002558 \times 37.5^3 \times \sigma}{32/94} = .00051071\,(280.6)^2 \cdot .8616$
$= 34.6462$

$F_5 = F_3 \times F_4 = 1.0091 \times 34.6462 = 34.9615$

By: J. Ellis
Chk: Rice Jappa



CALCULATED BY	J. Ellis	FIGURE 16	DOC. NO. FZS-96-140
DRAWN BY	J. Ellis		
CHECKED BY	[illegible]	CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION, FORT WORTH, TEXAS	MODEL B-36
APPROVED BY			

TABLE 18. B-36 WING AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE.

CONDITION: R.G.W. 229999# 72-1000# B.G. FUEL & OIL. 1.5 N 5000 LIMIT DIVE SPEED

STA	DISTANCE FROM ℄ SHIP	$S_{Cb_{a_1}}$ (G.W.=265,000)	$S_{Cb_{a_1}}$ (G.W.=229999)	% $S_{Cb_{a_1}}$ (G.W.=-1322)	S_{Cb_b} (311 MPH)	S_{Cb_b} (308 MPH)	% S_{Cb_b}	S_{ba}	$M_{Cb_a} \times 10^{-3}$ (G.W.=265,000)	$M_{Cb_a} \times 10^{-3}$ (G.W.=229999)	% $M_{Cb_a} \times 10^{-3}$ (G.W.=-1322)	$M_{Cb_b} \times 10^{-3}$ (311 MPH)	$M_{Cb_b} \times 10^{-3}$ (308 MPH)	% $M_{Cb_b} \times 10^{-3}$	$M_{ba} \times 10^{-3}$	$M_{ba} \times 10^{-3}$	$M_{ba} \times 10^{-3}$	TORSION DUE TO $C_{m_0} \times 10^{-3}$	$M_{ba_\theta} \times 10^{-3}$	$M_{ic_{ba}} \times 10^{-3}$	$T_{ba_\theta} \times 10^{-3}$
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20	21
			FZS-36-138 TAB. 2 COL. 3		-1.327 ③	FZS-36-138 TAB. 12 COL. 3		② + ⑥	1.5 ⑦	FZS-36-138 TAB. 2 COL. 4		F_1 ①	FZS-36-138 TAB. 12 COL. 4	F_2 ⑤	-1.322 × (10)	F_3 ⑬	⑦ × ⑬	1.5 × ⑭	TAB. 2 COL. 8	F_4 × ⑯	-2080 × ⑮	$M_{ic_{ba}} \times 10^{-3}$ ⑱ × ⑯	$T_{ba_\theta} \times 10^{-3}$ ⑰ × ⑲
0	0	151903	119476	-151910	0	0		-151910	-327965	73894	64133	-85104	6494.5	-54880	-5592	-135888	-332.020	-13994		28265	-1003	13,268
	57.5																				
2	115.0	116144	100801	-133763	-2002	-1672		-135,455	-203,183	59632	51755	-68679	-6376.5	-53885	-14068	-111102	-273.786	-11539		23169	-838	10,732
	172.5																				
4	230.0	100856	87533	-116156	-3793	-3205		-119,361	-179,042	47161	40931	-54315	-6040.9	-5104.9	-59420	-87130	-222.678	-9385		18539	-689	8465
	287.5																				
6	345	86296	74896	-99387	-5284	-4465		-103,852	-155,778	36407	31598	-41931	-5515.8	-4661.2	-46592	-69888	-178.224	-7512		14537	-557	6,468
	402.5																				
8	460	72525	62949	-83527	-6418	-5424		-88,951	-133,427	27283	23679	-31422	-4839.3	-4089.5	-35512	-53268	-139.936	-5898		11080	-440	4,742
	517.5																				
10	575	59613	51738	-68656	-7199	-6041		-74,697	-112,046	19694	17092	-22681	-4054.9	-3426.6	-26108	-39162	-107.253	-4520		8196	-339	3,287
	632.5																				
12	690	47622	41331	-54846	-7400	-6253		-61,099	-91,648	13537	11749	-15591	-3213.7	-2715.8	-18307	-27461	-79.851	-3366		5712	-252	2,094
	747.5																				
14	805	36607	31771	-42160	-7169	-6058		-48,218	-72,307	8702	7553	-10023	-2371.7	-2004.2	-12027	-18041	-57.185	-2411		3753	-179	1,163
	862.5																				
16	920	26620	23103	-30658	-6473	-5470		-36,128	-54,192	5078	4407	-5848	-1582.6	-1337.4	-7185	-10778	-38.894	-1639		2242	-119	484
	977.5																				
18	1035	17739	15396	-20430	-5311	-4488		-24,918	-37,377	2558	2203	-2923	-900.68	-761.13	-3684	-5526	-24.343	-1026		1149	-72	51
	1092.5																				
20	1150	10083	8751	-11613	-3665	-3097		-14,710	-22,065	950.6	825	-1095	-379.82	-320.97	-1416	-2124	-13.153	-554		442	-36	-148
	1207.5																				
22	1265.0	3808	3305	-4386	-1626	-1374		-5,760	-8,640	166.8	145	-192	-73.447	-62.067	-254	-381	-4.931	-208		79	-12	-141
	1322.5																				
24	1380	0	0	0	0	0		0	0	0		0	0	0	0	0	0	0		0	0	0

$F_1 = \frac{G.W.}{265,000} = \frac{229,999}{265,000} = .8679$

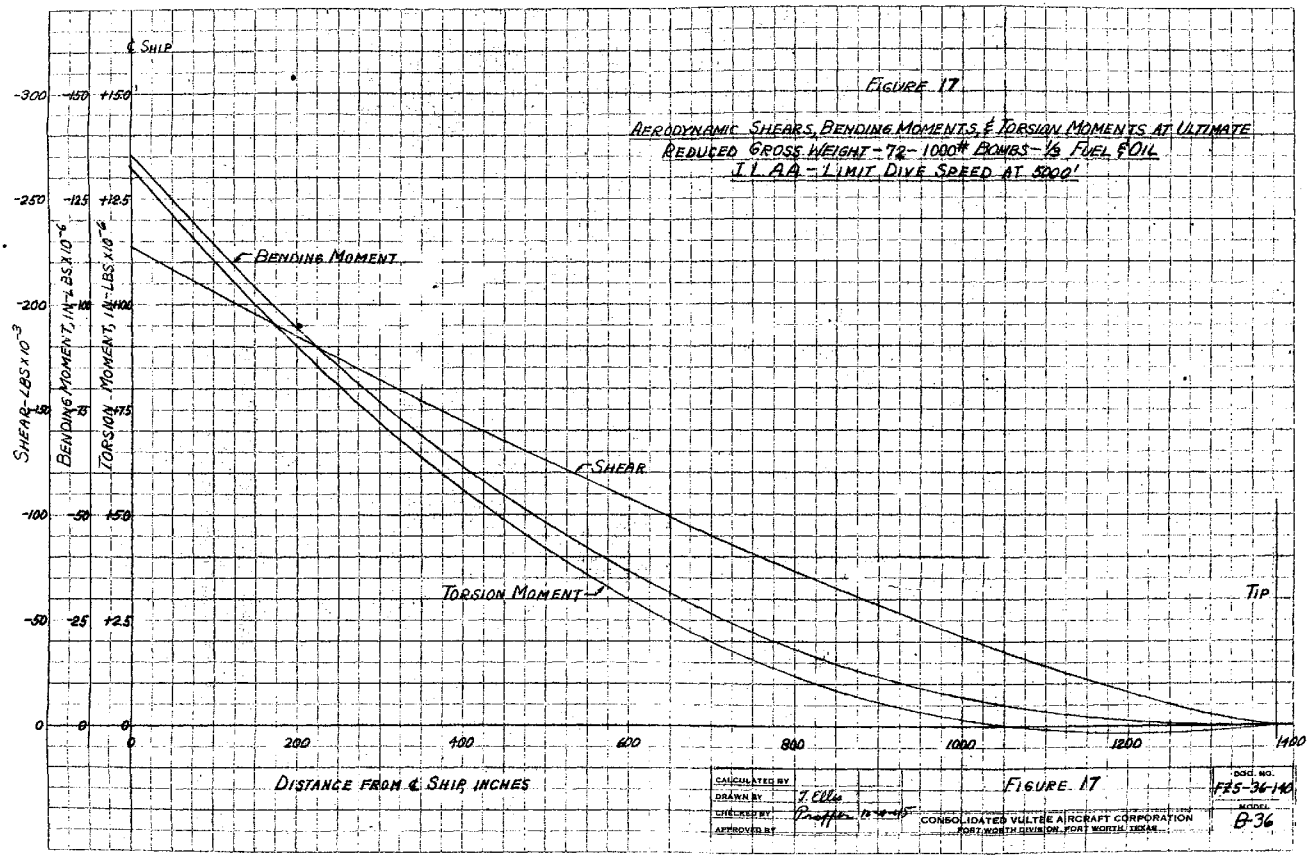
$F_2 = \left(\frac{MPH}{311.0}\right)^2 = \left(\frac{308}{311}\right)^2 .8616 = .84506$

$F_3 = C_{M_0}$ CORRECTION FACTOR = 1.0097 (TABLE 2).

$F_4 = \text{TORSION CONST.} = \frac{1.5 \times 683.5 \times 57.3}{3 \times 144} \times \frac{1}{3} = 1.000051071 (308)^2 \times .8616 = 41.7428$

$F_5 = F_3 \times F_4 = 1.0097 \times 41.7428 = 42.1477$

By [illegible]
Chk. [illegible]



CALCULATED BY		FIGURE 17	DOC. NO. FZS-36-140
DRAWN BY	J. Ellis		
CHECKED BY	Proffer 12-4-45	CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36
APPROVED BY			

PART I

SECTION B

1 G INERTIA SHEARS, BENDING MOMENTS, AND TORSIONS

1 G INERTIA SHEARS, BENDING MOMENTS, AND TORSIONS

The 1 g inertia loads of the wing have been divided into three classes. Table 19 contains the 1 g loads due to wing empty less landing gear, and Table 20 contains the 1 g loads due to the landing gear retracted. The 1 g fuel and oil loads for the five gross weight conditions considered are included in Tables 21 through 25. Total 1g inertia shears, bending moments, and torsions for each of the five conditions are shown in Tables 26 through 28.

All inertia loads have been obtained from C.V.A.C. Report FZS-36-137.

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 125 PADS 11-43

TABLE 19 SHEET 1 OF 3

B-36 WING - 1G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS
WING EMPTY LESS LANDING GEAR

	STATION	DISTANCE FROM ℄ SHIP, INCHES	DISTANCE BETWEEN STATIONS, INCHES	PANEL POINT LOAD, #	LOCATION OF PANEL POINT LOAD, % CHORD	C, INCHES	LOCATION OF PANEL PT. LOAD FROM L.E. (in.)	LOCATION OF E.A. FROM L.E. .295 C (in.)	e, INCHES	S_{bi}	ΔM_{xi}	M_{xi}	ΔT_{EAi} DUE TO e	ΣT_{EAi} DUE TO e	$-M_{xi}\tan\beta$ ($\tan\beta = .2056$)	T_{EAi} INBOARD	T_{EAi} OUTBOARD
				FZS-36-137 TAB. I, Col. 2	FZS-36-137 TAB. I, Col. 7		⑤/100 × ⑥	.295 × ④	⑧ − ⑦	Σ ④	⑩ + ⑨	Σ ⑪	④ × ⑨	Σ ⑬	−.2056 × ⑫	⑭ + ⑮	⑭ − ⑬
	TIP	1346.4*		49.5	39.71	107.42	42.66	31.69	-10.97	0 / 49.5		0	-543	-543	0	-543	0
			22.4								1,109						
	41	1324		15.7	36.32	112.29	40.78	33.13	-7.65	49.5 / 65.2		1,109	-120	-663	-228	-891	-771
			23								1,500						
	40	1301		33.1	33.92	117.29	39.78	34.60	-5.18	65.2 / 98.3		2,609	-171	-834	-536	-1,370	-1199
			23								2,261						
	39	1278		170.0	62.43	122.29	76.35	36.08	-40.27	98.3 / 268.3		4,870	-6846	-7,680	-1,001	-8681	-1835
			26								6,976						
	38	1252		45.2	33.83	127.94	43.28	37.74	-5.54	268.3 / 313.5		11,850	-250	-7,930	-2,436	-10,370	-10,120
			27								8,464						
	37	1225		45.4	34.11	133.80	45.64	39.47	-6.17	313.5 / 358.9		20,310	-280	-8,210	-4,176	-12,390	-12,110
			27								9,690						
	36	1198		55.0	33.34	139.67	46.57	41.20	-5.37	358.9 / 413.9		30,000	-295	-8,505	-6,168	-14,670	-14,380
			28								11,589						
	35	1170		212.9	51.54	145.76	75.12	43.00	-32.12	413.9 / 626.8		41,590	-6838	-15,343	-8,551	-23,890	-17,060
			30								18,804						
	34	1140		74.7	33.52	152.28	51.04	44.92	-6.12	626.8 / 701.5		60,390	-457	-15,800	-12,420	-28,220	-27,760
			30								21,045						
	33	1110		84.5	32.63	158.79	51.81	46.84	-4.97	701.5 / 786.0		81,440	-420	-16,220	-16,740	-32,960	-32,540
			30								23,580						
	32	1080		255.0	50.47	165.31	83.43	48.77	-34.66	786.0 / 1041		105,000	-8838	-25,058	-21,590	-46,650	-37,810
			30								31,230						
	31	1050		127.3	32.38	171.83	55.64	50.69	-4.95	1041. / 1168.		136,200	-630	-25,688	-28,010	-53,700	-53,070
			36								42,059						
	30	1014		154.7	32.30	179.66	58.03	53.00	-5.03	1168. / 1323.		178,300	-778	-26,466	-36,660	-63,130	-62,350
			36								47,628						
	29	978		316.5	45.48	187.48	85.27	55.31	-29.96	1323. / 1640		225,900	-9482	-35,948	-46,450	-82,400	-72,920
			36								59,022						
	28	942		183.0	32.22	195.30	62.93	57.61	-5.32	1640 / 1823		285,000	-974	-36,928	-58,590	-95,520	-94,540
			36								65,610						
	27	906		199.8	32.22	203.12	65.45	59.92	-5.53	1823 / 2022.		350,600	-1105	-38,027	-72,080	-110,100	-109,000

* C.G. OF TIP SECTION

BY: J. Ellis
CHECKED: [illegible], Inspector

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION — FORT WORTH, TEXAS
FW 633 125 PADS 11-43

TABLE 19 SHEET 2 OF 3

B-36 WING – 1 G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS
WING EMPTY LESS LANDING GEAR

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
STATION	DISTANCE FROM ℄ SHIP, INCHES	DISTANCE BETWEEN STATIONS, INCHES	PANEL POINT LOAD, #	LOCATION OF PANEL POINT LOAD % CHORD	C_i INCHES	LOCATION OF PANEL PT. LOAD FROM L.E., INCHES	LOCATION OF E.A. FROM L.E. .295 C. (in)	e, INCHES	S_{bi}	ΔM_{xi}	M_{xi}	ΔT_{EA_i} DUE TO e	ΣT_{EA_i} DUE TO e	$-M_{xi} \tan\beta$ ($\tan\beta = .2056$)	T_{EA_i} INBOARD	T_{EA_i} OUTBOARD
			FZS-36-137	FZS-36-137		② / 100 × ⑥	.295 × ⑥	⑧ - ⑦	Σ ④	⑩ × ③	Σ ⑪	⑤ × ⑨	Σ ⑬	-.2056 × ⑫	⑭ + ⑮	⑯ - ⑬
			TAB. I, Col. 2	TAB. I, Col. 7												
		36								65,610						
27	906		199.8	32.22	203.12	65.45	59.92	- 5.53	18223 / 2022		350,600	- 1105	-38027	-72,080	-110,100	-109,000
		36								72,803						
26	870		299.9	42.79	210.95	90.27	62.23	- 28.04	2023 / 2322		423,400	- 8409	-46,436	-87,050	-133,500	-125,100
		30								69,666						
25	840		262.5	29.39	217.46	63.91	64.15	+ 0.24	2322 / 2585		493,000	+ 63	-46,373	-101,360	-147,700	-147,800
		34								87,880						
24	806		3691.3	74.99	224.85	168.62	66.33	-102.29	2585 / 6276		580,900	-377,583	-423,956	-119,400	-543,400	-165,800
		40								251,040						
23	766		3711.8	76.30	233.55	178.20	68.90	-109.30	6276 / 9988		832,000	-405,700	-829,656	-171,100	-1,001,000	-595,000
		34								339,585						
22	732		722.4	35.23	240.93	84.88	71.07	- 13.81	9988 / 10710		1,172,000	- 9976	-839,632	-249,900	-1,081,000	-1,071,000
		38.875								416,359						
21	693.125		620.9	32.18	249.38	80.25	73.57	- 6.68	10710 / 11331		1,588,000	-4,148	-843,780	-326,500	-1,170,000	-1,166,000
		38.875								440,497						
20	654.25		515.8	31.94	257.83	82.35	76.06	- 6.29	11331 / 11847		2,028,000	- 3,244	-847,024	-417,000	-1,264,000	-1,261,000
		38.875								460,548						
19	615.375		644.0	38.06	266.28	101.35	78.55	- 22.80	11847 / 12491		2,489,000	- 14,683	-861,707	-511,800	-1,373,000	-1,357,000
		38.875								485,584						
18	576.5		3988.1	76.39	274.72	209.86	81.04	-128.82	12491 / 16479		2,975,000	- 513,747	-1,375,454	-611,600	-1,987,000	-1,473,000
		27.5								453,172						
17	549		284.1	27.91	280.70	78.34	82.81	+ 4.47	16479 / 16763		3,428,000	+1270	-1374,184	-704,700	-2,079,000	-2,080,000
		27.5								460,985						
16	521.5		4124.4	76.46	286.68	219.20	84.57	- 134.63	16763 / 20888		3,889,000	-555,268	-1,929,452	-799,500	-2,729,000	-2,174,000
		36.5								762,394						
15	485		840.7	37.78	294.61	111.30	86.91	- 24.39	20888 / 21728		4,651,000	-20,505	-1,949,957	-956,300	-2,906,000	-2,886,000
		36.5								793,079						
14	448.5		622.5	32.35	302.54	97.87	89.25	- 8.62	21728 / 22337		5,444,000	-5,366	-1,955,323	-1,119,300	-3,075,000	-3,069,000
		36.5								815,801						
13	412		643.6	32.34	310.47	100.41	91.59	- 8.82	22337 / 22994		6,260,000	-5,677	-1961,000	-1,287,000	-3,248,000	-3,242,000
		36.25								833,543						
12	375.75		774.5	37.32	318.35	118.81	93.91	- 24.90	22994 / 23769		7,094,000	-19,285	-1,980,285	-1,458,500	-3,439,000	-3,419,000

BY: J. Ellis
CHECKED: Kuehling, Jaeger

TABLE 19 SHEET 3 OF 3

B-36 WING ~ 1 G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS
WING EMPTY LESS LANDING GEAR

C	STATION	2 DISTANCE FROM ℄ SHIP, INCHES	3 DISTANCE BETWEEN STATIONS, INCHES	4 PANEL POINT LOAD, #	5 LOCATION OF PANEL PT LOAD FROM L.E., % CHORD	6 C, INCHES	7 LOCATION OF PANEL PT LOAD FROM L.E., (in.)	8 LOCATION OF E.A. FROM L.E., .295 C, (in.)	9 e, INCHES	10 S_{bi}	11 ΔM_{xi}	12 M_{xi}	13 $\Delta T_{EA,i}$ DUE TO e	14 $\Sigma T_{EA,i}$ DUE TO e	15 $-M_{xi}$ TAN β (TAN β = .2056)	16 $T_{EA,i}$ INBOARD	17 $T_{EA,i}$ OUTBOARD
				FZS-36-137	FZS-36-137		⑤/100 × ⑥	295 × ⑥	⑧ - ⑦	Σ ④	⑩ × ⑨	Σ ⑪	④ × ⑨	Σ ⑬	-.2056 × ⑫	⑭ + ⑮	⑯ - ⑬
				TAB. I, Col. 2	TAB. I, Col. 7												
			36.25								833,543						
	12	375.75		774.5	37.32	318.35	118.81	93.91	-24.90	22,994. / 23,769.		7,094,000	-19,285	-1,980,285	-1,458,500	-3,439,000	-3,419,000
			36.25								861,618						
	11	339.5		4260.4	76.79	326.23	250.51	96.24	-154.27	23,769 / 28,029		7,955,000	-657,252	-2,637,537	-1,635,000	-4,273,000	-3,616,000
			27.5								770,803						
	10	312		360.4	28.95	332.20	96.17	98.00	+ 1.83	28,029. / 28,390		8,726,000	+ 660	-2636,877	-1,794,000	-4,431,000	-4,432,000
			27.5								780,714						
	9	284.5		5097.0	71.83	338.18	242.91	99.76	-143.15	28,390 / 33,487		9,507,000	-729,636	-3,366,513	-1,954,600	-5,321,000	-4,591,000
			35.5								1,188,774						
	8	249		783.8	41.60	345.89	143.89	102.04	- 41.85	33,487 / 34,270.		10,695,000	-32,802	-3,399,315	-2,199,000	-5,598,000	-5,565,000
			17								582,597						
	7	232		825.2	33.75	349.59	117.99	103.13	-14.86	34,270 / 35,096		11,278,000	-12,262	-3,411,577	-2,319,000	-5,730,000	-5,718,000
			26								912,486						
	6	206		543.9	33.90	355.24	120.43	104.80	- 15.63	35,096 / 35,640		12,190,000	- 8,501	-3,420,078	-2,506,000	-5,926,000	-5,918,000
			26								926,627						
	5	180		870.8	32.72	360.88	118.08	106.46	- 11.62	35,640 / 36,510.		13,117,000	-10,119	-3,430,197	-2,697,000	-6,127,000	-6,117,000
			33.5								1,223,085						
	4	146.5		887.0	27.20	368.16	100.14	108.61	+ 8.47	36,510. / 37,397.		14,340,000	+7,513	-3,422,684	-2,948,000	-6,371,000	-6,379,000
			33.25								1,243,460						
	3	113.25		595.5	31.94	375.39	119.90	110.74	-9.16	37,397. / 37,993.		15,584,000	- 5,455	-3,428,139	-3,204,000	-6,632,000	-6,627,000
			33.25								1,263,261						
	2	80.0		835.0	38.32	382.62	146.62	112.87	-33.75	37,993. / 38,828		16,847,000	-28,181	-3,456,320	-3,464,000	-6,920,000	-6,892,000
			38.975								1,513,314						
	1	41.025		1021.2	28.89	391.08	112.98	115.37	+2.39	38,828 / 39,849.		18,360,000	+2441	-3453,879	-3,775,000	-7,229,000	-7,231,000
			41.025								1,634,805						
	0	0		494.4	28.43	400.00	113.72	118.00	+4.28	39,849 / 40,343.		19,995,000	+2,116	-3451,763	-4,111,000	-7,563,000	-7,565,000

BY: J. Ellis
CHECKED: Kriesberg, Pfeffer

1 G INERTIA SHEARS, BENDING MOMENTS, AND TORSIONS

LANDING GEAR RETRACTED

The landing gear fitting loads due to landing gear (retracted) inertia at 1 g as noted in the following sketch are obtained from C.V.A.C. Report FZS-36-137, Table II. The panel point shears, bending moments, and torsions, as shown in columns 4, 6, and 9 of Table 20, are obtained in the manner shown on pages 255 through 259 of this report.

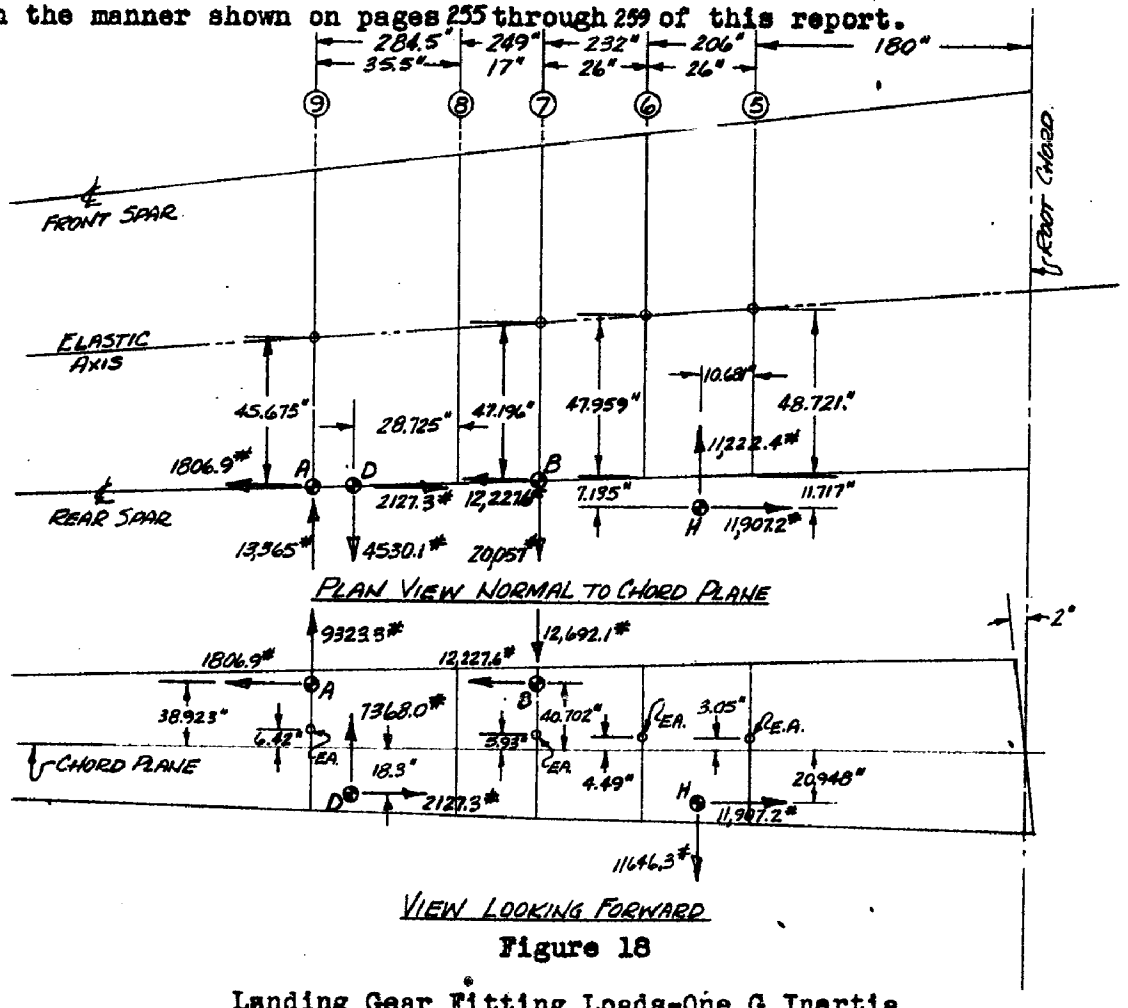


Figure 18

Landing Gear Fitting Loads-One G Inertia

Landing Gear Retracted

TABLE 20 B-36 WING - 1G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS DUE TO LANDING GEAR
LANDING GEAR RETRACTED

STATION	DIST. FROM ℄ INCHES	DIST. BETWEEN STATIONS, ΔY, IN.	PANEL POINT LOAD (ΔS) #	S_{b_i}	PANEL POINT MOMENT ΔM_{x_1}	ΔM_{x_2}	M_{x_i}	PANEL POINT TORSION $\Delta T_{E.A._1}$	-ΔY TAN β (TAN β = .2056)	$\Delta T_{E.A._2}$	$T_{E.A._i}$
1	2	3	4	5	6	7	8	9	10	11	12
			PAGE 66	Σ④	PAGE 66	⑤INBD × ③	Σ⑥+⑦	PAGE 66	-.2056×③	⑤INBD × ⑩	Σ⑨+⑪
9	284.5		15,743	0	+104,329		0	+1,250,985			0
				15743			104,330				+1,251,000
		35.5				-558,876			-7.299	+114,908	
8	249		0	-15,743	0		-454,550	0			+1,365,900
				-15,743			-454,550				+1,365,900
		17				-267,631			-3.495	+55,022	
7	232		+11,744	-15,743	+471,410		-782,180	-1,237,522			+1,420,900
				-3,999			-250,770				+183,490
		26				-103,974			-5.346	+21,379	
6	206		+4,777	-3999	+110993		-354,740	-380,453			+204,770
				778			+243,750				-175,680
		26				20,228			-5.346	-4,159	
5	180		+6,869	778	+153101		-823,520	-573,851			-179,840
				7647			-70,420				-753,690
		33.5				256,174			-6.888	-52,673	
4	146.5		0	7647	0		+185,750	0			-806,360
				7647			+185,750				-806,360
		33.25				254,263			-6.836	-52,275	
3	113.25		0	7647	0		+440,020	0			-858,640
				7647			+440,020				-858,640
		33.25				254,263			-6.836	-52,275	
2	80.0		0	7647	0		+694,280	0			-910,910
				7647			+694,280				-910,910
		38.975				298,042			-8.013	-61,275	
1	41.025		0	7647	0		+992,320				-972,190
				7647			+992,320				-972,190
		41.025				313,718			-8.435	-64,502	
0	0		0	7647	0		+1,306,040	0			-1,036,690
							+1306,040				-1,036,690

BY: List
CHECKED: J. Ellis

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 125 PADS 11-43

TABLE 21 SHEET 1 OF 2

B-36 WING – 1 G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS FOR FUEL & OIL ONLY
CONDITION: D.G.W. – 10,000 # OF BOMBS – FULL FUEL & OIL – @ 5000 FT.

STA.	DIST. FROM ℄ SHIP, IN.	DIST. BETWEEN STATIONS, IN.	PANEL POINT LOAD, #	LOCATION OF PANEL PT. LOAD, % CHORD	C, IN.	LOCATION OF LOAD FROM L.E. INCHES	LOCATION OF E.A., .295C, IN.	e, IN.	S_{bi}	ΔM_{xi}	M_{xi}	ΔT_{EAi} DUE TO e	$\Sigma \Delta T_{EAi}$ DUE TO e	$-M_{xi} \tan\beta$ ($\tan\beta = .2056$)	T_{EAi} INBOARD	T_{EAi} OUTBOARD
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
			FZS-36-137 SHEET 1 OF 4 TABLE II, COL. 2	FZS-36-137 SHEET 1 OF 4 TABLE II, COL. 4		(5)/100 × (6)	.295 (6)	(8) − (7)	Σ (4)	(10) × (3)	Σ (11)	(4) × (9)	Σ (13)	−.2056 × (12)	(14) + (15)	(16) − (13)
24	806		10.3	57.90	224.85	130.19	66.33	−63.86	0 / 10.3	0	0	−658	−658	0	−658	0
		40														
23	766		10.4	60.23	233.55	140.67	68.90	−71.77	10.3 / 20.7	412	412	−746	−1,404	−85	−1,489	−743
		34														
22	732		1163.1	28.14	240.93	67.80	71.07	+3.27	20.7 / 1,184.	704	1,116	+3,803	+2,399	−229	+2,170	−1,633
		38.875														
21	693.125		3049.8	29.88	249.38	74.51	73.57	−.94	1,184 / 4,234.	46,020	47,140	−2,886	−487	−9,691	−10,180	−7,292
		38.875														
20	654.25		3899.9	28.25	257.83	72.84	76.06	+3.22	4,234 / 8,154	165,359	211,500	+12,558	+12,071	−42,689	−31,620	−44,180
		38.875														
19	615.375		4186.5	28.26	266.28	75.25	78.55	+3.30	8,154 / 12,340.	316,967	528,500	+13,815	+25,886	−108,857	−82,970	−96,730
		38.875														
18	576.5		2248.7	28.27	274.72	77.66	81.04	+3.38	12,340 / 14,589.	473,718	1,009,000	+7,601	+33,487	−207,487	−174,000	−181,600
		27.5														
17	549.		0						14,589 / 14,589	401,189	1,410,000	0	+33,487	−289,972	−256,500	−256,500
		27.5														
16	521.5		1856.6	27.38	286.68	78.49	84.57	+6.08	14,589 / 16,445.	401,189	1,812,000	+11,288	+44,775	−372,456	−327,700	−339,000
		36.5														
15	485.0		4382.2	29.49	294.61	86.88	86.91	+.03	16,445 / 20,828	600,253	2,412,000	+131	+44,906	−495,868	−451,000	−451,100
		36.5														
14	448.5		5154.8	28.08	302.54	84.95	89.25	+4.30	20,828 / 25,982.	760,204	3,172,000	+22,166	+67,072	−652,166	−585,100	−607,300
		36.5														
13	412.0		5418.7	28.10	310.47	87.24	91.59	+4.35	25,982 / 31,401.	948,354	4,120,000	+23,571	+90,643	−847,148	−756,500	−780,100
		36.25														
12	375.75		5689.9	28.04	318.35	89.27	93.91	+4.64	31,401 / 37,091	1,138,286	5,259,000	+26,401	+117,044	−1,081,179	−964,100	−990,500
		36.25														
11	339.5		3008.2	28.36	326.23	92.52	96.24	+3.72	37,091 / 40,099.	1,344,545	6,603,000	+11,191	+128,235	−1,357,618	−1,229,000	−1,241,000
		27.5														
10	312		0						40,099 / 40,099.	1,102,725	7,706,000	0	+128,235	−1,584,338	−1,456,000	−1,456,000
		27.5														
9	284.5		2538.2	26.69	338.18	90.26	99.76	+9.50	40,099 / 42,637.	1,102,725	8,809,000	+24,113	+152,348	−1,811,058	−1,659,000	−1,683,000

BY: J. Ellis
CHECKED: Bian, Greffer

TABLE 21 SHEET 2 OF 2

B-36 WING ~ 1 G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS FOR FUEL & OIL ONLY

CONDITION: D.G.W. ~ 10000# OF BOMBS ~ FULL FUEL & OIL ~ @ 5000 FT.

STA.	DIST. FROM ℄ SHIP, IN.	DIST. BETWEEN STATIONS, IN.	PANEL POINT LOAD, #	LOCATION OF PANEL PT. LOAD, % CHORD	C, IN.	LOCATION OF LOAD FROM L.E., INCHES	LOCATION OF E.A., .295 C, IN.	e, IN.	S_{bi}	ΔM_{xi}	M_{xi}	ΔT_{EAi} DUE TO e	$\Sigma \Delta T_{EAi}$ DUE TO e	$M_{xi} \tan\beta$ ($\tan\beta = .2056$)	T_{EAi} INBOARD	T_{EAi} OUTBOARD
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
			FES-36-137 SHEET 1 OF 4 TAB. IV, Col. 2	FES-36-137 SHEET 1 OF 4 TAB. IV, Col. 4		⑤/100 × ⑥	.295 ⑥	⑧ − ⑦	Σ ④	⑩ × ③	Σ ⑪	④ × ⑨	Σ ⑬	−.2056 × ⑫	⑭ + ⑮	⑯ − ⑬
9	284.5		2,538.2	26.69	338.18	90.26	99.76	+9.50	40,098 / 42,637	1,102,725	8,809,000	+24,113	+152,348	$\bar{1}$,811,058	$\bar{1}$,659,000	$\bar{1}$,683,000
		35.5														
8	249		4,060.3	28.17	345.89	97.44	102.04	+4.60	42,637 / 46,698	1,513,624	10,322,000	+18,677	+171,025	$\bar{2}$,122,260	$\bar{1}$,951,000	$\bar{1}$,970,000
		17														
7	232		3,643.2	28.01	349.59	97.92	103.13	+5.21	46,698 / 50,341	1,923,859	11,116,000	+18,981	+190,006	$\bar{2}$,285,477	$\bar{2}$,095,000	$\bar{2}$,114,000
		26														
6	206		4,552.7	28.09	355.24	99.79	104.80	+5.01	50,341 / 54,894	2,308,861	12,425,000	+22,809	+212,815	$\bar{2}$,554,579	$\bar{2}$,342,000	$\bar{2}$,365,000
		26														
5	180		5,385.4	28.03	360.88	101.15	106.46	+5.31	54,894 / 60,279	2,727,231	13,852,000	+28,596	+241,411	$\bar{2}$,848,017	$\bar{2}$,607,000	$\bar{2}$,635,000
		33.5														
4	146.5		3,148.2	28.03	368.16	103.20	108.61	+5.41	60,279 / 63,427	2,019,343	15,872,000	+17,032	+258,443	$\bar{3}$,263,195	$\bar{3}$,005,000	$\bar{3}$,022,000
		33.25														
3	113.25		0						63,427 / 63,427	2,108,951	17,989,000	0	+258,443	$\bar{3}$,696,795	$\bar{3}$,438,000	$\bar{3}$,438,000
		33.25														
2	80.0		0						63,427 / 63,427	2,108,951	20,089,000	0	+258,443	$\bar{4}$,130,395	$\bar{3}$,872,000	$\bar{3}$,872,000
		38.975														
1	41.025		0						63,427 / 63,427	2,472,071	22,562,000	0	+258,443	$\bar{4}$,638,653	$\bar{4}$,380,000	$\bar{4}$,380,000
		41.025														
0	0		0						63,427	2,602,097	25,164,000	0	+258,443	$\bar{5}$,173,644	$\bar{4}$,915,000	$\bar{4}$,915,000

BY: J. Ellis
CHECKED: Bisen, Hoffer

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 125 PADS 11-43

TABLE 22
SHEET 1 of 2

B-36 WING - 1G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS FOR FUEL & OIL ONLY
CONDITION: D.G.W. - 10,000# OF BOMBS - FULL FUEL & OIL - @ 30,000 FT.

STA.	DIST. FROM ℄ SHIP (in)	DIST. BETWEEN STATIONS (in)	PANEL POINT LOAD, #	LOCATION OF PANEL PT. LOAD, % CHORD	C, (in)	LOCATION OF LOAD FROM L.E. (in)	LOCATION OF E.A., .295 C. (in)	e, (in)	S_{b_i}	ΔM_{x_i}	M_{x_i}	ΔT_{EA_i} DUE TO e	$\Sigma \Delta T_{EA_i}$ DUE TO e	$-M_{x_i} \tan\beta$ ($\tan\beta = .2656$)	T_{EA_i} INBOARD	T_{EA_i} OUTBOARD
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
			FZS-36-137 SHEET 1 of 4 OF TAB IV, Col. 5	FZS-36-137 SHEET 1 of 4 OF TAB IV, Col. 7		(5/100) × (6)	.295 (6)	(8) - (7)	Σ (4)	(10) × (3) / Q.B.	Σ (11)	(4) × (9)	Σ (13)	-.2656 × (12)	(14) + (15)	(16) - (13)
24	806		10.3	57.90	224.85	130.19	66.33	-63.86	0 10.3	0	0	-658	-658	0	-658	0
		40														
23	766		10.4	60.23	233.55	140.67	68.80	-71.77	10.3 20.7	412	412	-746	-1,404	-85	-1489	-743
		34														
22	732		1136.7	28.29	240.93	68.16	71.07	+2.91	20.7 1,157.	704	1,116	+3,308	+1,904	-229	+1675	-1633
		38.875														
21	693.125		3041.1	29.93	249.38	74.64	73.57	-1.07	1,157 4,199	44,994	46,110	-3,254	-1,350	-9,480	-10,830	-7576
		38.875														
20	654.25		3899.9	28.25	257.83	72.84	76.06	+3.22	4,199 8,098.	163,217	209,300	+12,558	+11,208	-43,038	-31,830	-44390
		38.875														
19	615.375		4186.5	28.26	266.28	75.25	78.55	+3.30	8,098 12,285	314,825	524,200	+13,815	+25,023	-107,766	-82,740	-96,560
		38.875														
18	576.5		2248.7	28.27	274.72	77.66	81.04	+3.38	12,285 14,534	477,575	1,002,000	+7,601	+32,624	-205,955	-173,300	-180,900
		27.5														
17	549.		0						14,534 14,534	399,674	1,401,000	0	+32,624	-288,120	-255,500	-255,500
		27.5														
16	521.5		1829.5	27.54	286.68	78.95	84.57	+5.62	14,534 16,363.	399,674	1,801,000	+10,282	+42,906	-370,301	-327,400	-337,700
		36.5														
15	485.0		4354.1	29.57	294.61	87.12	86.91	-.21	16,363 20,717.	597,253	2,398,000	-914	+41,992	-493,096	-451,100	-450,200
		36.5														
14	448.5		5154.8	28.08	302.54	84.95	89.25	+4.30	20,717 25,872	756,178	3,155,000	+22,166	+69,158	-648,566	-584,400	-606,600
		36.5														
13	412.0		5418.7	28.10	310.47	87.24	91.59	+4.35	25,872 31,291	944,328	4,099,000	+23,571	+87,729	-842,720	-755,000	-778,600
		36.25														
12	375.75		5689.9	28.04	318.35	89.27	93.91	+4.64	31,291 36,981	1,134,288	5,233,000	+26,401	+114,130	-1,075,930	-961,800	-988,200
		36.25														
11	339.5		3008.2	28.36	326.23	92.52	96.24	+3.72	36,981 39,989.	1,340,547	6,574,000	+11,191	+125,321	-1,351,546	-1,226,000	-1,237,000
		27.5														
10	312.		0						39,989. 39,989.	1,099,692	7,673,000	0	+125,321	-1,577,643	-1,452,000	-1,452,000
		27.5														
9	284.5		2078.3	26.54	338.18	89.75	99.76	+10.01	39,989. 42,067.	1,099,692	8,773,000	+20,804	+146,125	-1,803,740	-1,657,000	-1,678,000

BY: J. Ellis
CHECKED: Brien, Jaeffer

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 125 PADS 11-43

TABLE 22
SHEET 2 OF 2

B-36 WING ~ 1 G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS FOR FUEL & OIL ONLY
CONDITION: D. G. W. ~ 10,000# OF BOMBS ~ FULL FUEL & OIL ~ @ 30,000 FT.

STA.	DIST. FROM ℄ SHIP, IN. 2	DIST. BETWEEN STATIONS, IN. 3	PANEL POINT LOAD, # 4	LOCATION OF PANEL PT. LOAD, % CHORD 5	C, (in) 6	LOCATION OF LOAD FROM L.E. (in) 7	LOCATION OF E.A., .295 C, (in) 8	e, (in) 9	S_{b_i} 10	ΔM_{x_i} 11	M_{x_i} 12	ΔT_{EA_i} DUE TO e 13	$\Sigma \Delta T_{EA_i}$ DUE TO e 14	$-M_{x_i} \tan\beta$ ($\tan\beta = .2058$) 15	T_{EA_i} INBOARD 16	T_{EA_i} OUTBOARD 17
			FES-36-137 SHEET 1 of 4 OF TAB IV, Col. 5	FES-36-137 SHEET 1 of 4 OF TAB IV, Col. 7												
						⑤/100 × ⑥	.295 ⑥	⑧ − ⑦	Σ ④	⑩ × ⑧	Σ ⑪	④ × ⑨	Σ ⑬	−.2058 × ⑫	⑭ + ⑮	⑯ − ⑬
1																
		35.5														
9	284.5		2078.3	26.54	338.18	89.75	99.76	+10.01	39,989. / 42,067.	1,099,622	8,773,000	+20,804	+146,125	−1,803,740	−1,658,000	−1,678,000
		17														
8	249.		3279.0	28.04	345.89	96.99	102.04	+5.05	42,067. / 45,346.	1,493,382	10,266,000	+16,559	+162,684	−2,110,779	−1,948,000	−1,965,000
		26														
7	232.		2871.9	28.18	349.59	98.51	103.13	+4.62	45,346. / 48,218.	770,884	11,037,000	+13,268	+175,952	−2,269,273	−2,093,000	−2,107,000
		26														
6	206		3588.8	28.24	355.24	100.32	104.80	+4.48	48,218. / 51,807.	1,253,668	12,291,000	+16,078	+192,030	−2,527,027	−2,335,000	−2,351,000
		26														
5	180		4245.2	28.20	360.88	101.77	106.46	+4.69	51,807 / 56,052.	1,346,977	13,638,000	+19,910	+211,940	−2,803,965	−2,592,000	−2,612,000
		33.5														
4	146.5		2481.7	28.19	368.16	103.78	108.61	+4.83	56,052. / 58,534.	1,877,742	15,516,000	+11,987	+223,927	−3,190,029	−2,966,000	−2,978,000
		33.25														
3	113.25		0						58,534 / 58,534	1,946,246	17,462,000	0	+223,927	−3,590,177	−3,366,000	−3,366,000
		33.25														
2	80.0		0						58,534 / 58,534	1,946,246	19,408,000	0	+223,927	−3,990,326	−3,766,000	−3,766,000
		38.975														
1	41.025		0						58,534 / 58,534	2,251,351	21,690,000	0	+223,927	−4,459,371	−4,235,000	−4,235,000
		41.025														
0	0		0						58,534 / 58,534	2,401,345	24,091,000	0	+223,927	−4,953,088	−4,729,000	−4,729,000

BY: J. Ellis
CHECKED: B. [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 125 PADS 11-43

TABLE 23
SHEET 1 OF 2

B-36 WING – 1 G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS FOR FUEL & OIL ONLY
CONDITION: A.G.W. – 72-1000# BOMBS – FULL FUEL & OIL @ 5,000 FT.

STATION	DISTANCE FROM ℄ OF SHIP, IN.	DISTANCE BETWEEN STATIONS, IN.	PANEL POINT LOAD, #	LOCATION OF PANEL POINT LOAD % CHORD	CHORD LENGTH (INCHES), C	LOCATION OF PANEL POINT LOAD AFT OF L.E., IN.	LOCATION OF ELASTIC AXIS AFT OF L.E. = .295C, IN.	e, IN.	S_{bi}	ΔM_{xi}	M_{xi}	$\Delta T_{E.A.i}$ DUE TO e	$\Sigma \Delta T_{E.A.i}$ DUE TO e	$-M_{yi}$ (tan β = 0.2056)	T_{EAi} INBOARD	T_{EAi} OUTBOARD
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
			FZS-36-137 SHEET 2 OF 4 OF TAB III Co. 2	FZS-36-137 SHEET 2 OF 4 TAB III, Co. 4		(5)/100 × (6)	.295 (6)	(8) − (7)	Σ (4)	(3) × (10)	Σ (11)	(4) × (9)	Σ (13)	.2056 (12)	(14) + (15)	(16) − (13)
24	806		10.3	57.90	224.85	130.19	66.33	−63.86	0 / 10.3		0	−658	−658	0	−658	0
		40								412						
23	766		10.4	60.23	233.55	140.67	68.90	−71.77	10.3 / 20.7		412	−746	−1404	−85	−1489	−743
		34								704						
22	732		952.8	29.58	240.93	71.27	71.07	−0.20	20.7 / 973.5		1116	−191	−1595	−229	−1824	−1633
		38.875								37845						
21	693.125		2842.0	30.56	249.38	76.21	73.57	−2.64	973.5 / 3816.		38960	−7503	−9098	−8010	−17110	−9605
		38.875								148328						
20	654.25		3899.9	28.25	257.83	72.84	76.06	+3.22	3816 / 7716.		187300	+12558	+3460	−38507	−35050	−47610
		38.875								299736						
19	615.375		4186.5	28.26	266.28	75.25	78.55	+3.30	7715. / 11902.		487300	+13815	+17275	−100173	−82900	−96710
		38.875								462686						
18	576.50		2248.7	28.27	274.72	77.66	81.04	+3.38	11902. / 14181		950,000	+7601	+24876	−195302	−170400	−178,000
		27.5								389142						
17	549.		0		280.70		82.81		14160.		1339000	0	+24876	−275309	−250400	−250400
		27.5								389142						
16	521.5		889.2	27.50	286.68	78.84	84.57	+5.73	14181. / 15040.		1728000	+5095	+29971	−355317	−325300	−330400
		36.5								548953						
15	485.0		2016.7	29.65	294.61	87.35	86.91	−0.44	15040 / 17057		2277000	−887	+29084	−468182	−439100	−438,200
		36.5								622562						
14	448.5		2308.6	28.60	302.54	86.53	89.25	+2.72	17057. / 19265.		2,900,000	+6279	+35363	−596180	−560800	−567100
		36.5								706826						
13	412.0		2426.7	28.60	310.47	88.79	91.59	+2.80	19365. / 21792		3607000	+6795	+42158	−741504	−699300	−706100
		36.25								789953						
12	375.75		2548.2	28.58	318.35	90.83	93.91	+3.08	21792 / 24340		4396000	+7848	+50006	−903918	−853900	−861800
		36.25								882325						
11	339.5		1353.0	29.02	326.23	94.67	96.24	+1.57	24340. / 25693.		5279000	+2124	+52130	−1085324	−1033000	−1035000
		27.5								706558						
10	312.		0		332.20		98.00		25693.		5985000	0	+52130	−1230592	−1178000	−1178000
		27.5								706558						
9	284.5		278.6	18.74	338.18	63.37	99.76	+36.39	25693. / 25972.		6692000	+10138	+62268	−1375861	−1314000	−1324000

BY: Kriesberg
CHECKED: Bisch, Propper

CONSOLIDATED VULTEE AIRCRAFT CORPORATION TABLE 23 SHEET 2 OF 2

FORT WORTH DIVISION FORT WORTH, TEXAS

FW 833 125 PADS 11-43

B-36 WING ~ 1G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS FOR FUEL & OIL ONLY

CONDITION: A.C.W. - 72-1000# BOMBS - FULL FUEL & OIL @ 5,000 FT.

REPORT NO. FZS-36-140

DATE 12-4-45

	STATION	DISTANCE FROM ℄ OF SHIP, IN.	DISTANCE BETWEEN STATIONS, IN.	PANEL POINT LOAD, #	LOCATION OF PANEL POINT LOAD % CHORD	CHORD LENGTH, (INCHES)	LOCATION OF PANEL POINT LOAD AFT OF L.E., IN.	LOCATION OF ELASTIC AXIS AFT OF L.E. = .295C, IN.	e, IN.	S_{bi}	ΔM_{xi}	M_{xi}	$\Delta T_{E.A.i}$ DUE TO e	$\Sigma \Delta T_{E.A.i}$ DUE TO e	$-M_{xi} \tan\beta$ ($\tan\beta = .2056$)	$T_{E.A.i}$ INBOARD	$T_{E.A.i}$ OUTBOARD
1	2		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
				FZS-36-137 SHEET 2 OF 4 OF TAB. IV, Col. 2	FZS-36-137 SHEET 2 OF 4 OF TAB. IV, Col. 4		(5)/100 × (6)	.295 × (6)	(8) - (7)	Σ (4)	(3) × (10)	Σ (11)	(4) × (9)	Σ (13)	.2056 × (12)	(14) + (15)	(16) ÷ (18)
	9	284.5		278.6	18.74	338.18	63.37	99.76	+36.39	25673. 25979.		6,692,000	+10138	+62268	-1375861	-1,314,000	-1,324,000
			36.5								921992						
	8	249.0		279.3	16.59	345.89	57.38	102.04	+44.66	25979 26251		7,614,000	+12474	+74742	-1565422	-1,491,000	-1,503,000
			17.0								446265						
	7	232.0		0						26251		8,060,000	0	+74742	-1657174	-1,582,000	-1,582,000
			26.0								682523						
	6	206.0		0						26251.		8,743,000	0	+74742	-1797501	-1,723,000	-1,723,000
			26.0								682523						
	5	180.0		0						26251		9,425,000	0	+74742	-1937828	-1,863,000	-1,863,000
			33.5								879405						
	4	146.5		0						26251		10,305,000	0	+74742	-2118634	-2,044,000	-2,044,000
			33.25								872842						
	3	113.25		0						26251		11,177,000	0	+74742	-2298090	-2,223,000	-2,223,000
			33.25								872842						
	2	80.0		0						26251		12,050,000	0	+74742	-2477546	-2,403,000	-2,403,000
			38.975								1023129						
	1	41.025		0						26251		13,073,000	0	+74742	-2687902	-2,613,000	-2,613,000
			41.025								1076943						
	0	0		0						26251		14,150,000	0	+74742	-2909321	-2,835,000	-2,835,000

BY: Kiesling

CHECKED: Ries, Proffer

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 125 PADS 11-43

TABLE 24
SHEET 1 OF 2

B-36 WING ~ 1 G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS FOR FUEL & OIL ONLY
CONDITION: A. G. W. ~ 72-1,000# BOMBS ~ FULL FUEL & OIL @ 35,000 FT.

STATION	DISTANCE FROM ℄ SHIP, IN.	DISTANCE BETWEEN STATIONS, IN.	PANEL POINT LOAD #	LOCATION OF PANEL POINT LD., % CHORD	C, IN.	LOCATION OF LOAD FROM L.E., INCHES	LOCATION OF E.A. .295 C, INCHES	e, IN.	S_{b_i}	ΔM_{x_i}	M_{x_i}	ΔT_{EA_i} DUE TO e	$\Sigma \Delta T_{EA_i}$ DUE TO e	$-M_{x_i} \tan\beta$ ($\tan\beta = .2056$)	$T_{E.A._i}$ INBOARD	$T_{E.A._i}$ OUTBOARD
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
			FZS-36-137 SHEET 2 OF 4 TAB. IV, CH. 5	FZS-36-137 SHEET 2 OF 4 TAB. IV, CH. 7		(5)/100 × (6)	.295 (6)	(8) − (7)	Σ (4)	(10) × (3)/OB.	Σ (11)	(4) × (9)	Σ (13)	−.2056 × (12)	(14) + (15)	(16) − (13)
24	806		10.3	57.90	224.85	130.19	66.33	−63.86	0 10.3	0	0	−658	−658	0	−658	0
		40														
23	766		10.4	60.23	233.55	140.67	68.90	−71.77	10.3 20.7	412	412	−746	−1,404	−85	−1489	−743
		34														
22	732		923.4	29.88	240.93	71.99	71.07	−0.92	20.7 944.1	704	1,116	−850	−2,254	−229	−2483	−1633
		38.875														
21	693.125		2810.1	30.65	249.38	76.43	73.57	−2.86	944.1 3,754.	36,702	37,820	−8,037	−10,291	−7,775	−18,070	−10,030
		38.875														
20	654.25		3899.9	28.25	257.83	72.84	76.06	+3.22	3,754. 7,654.	145,945	183,800	+12,558	+2,267	−37,782	−35,520	−48,070
		38.875														
19	615.375		4186.5	28.26	266.28	75.25	78.55	+3.30	7,654. 11,841	297,553	481,300	+13,815	+16,082	−98,959	−82,880	−86,690
		38.875														
18	576.5		2248.7	28.27	274.72	77.66	81.04	+3.38	11,841 14,089.	460,303	941,600	+7,601	+23,683	−193,597	−169,900	−177,500
		27.5														
17	549								14,089. 14,089.	387,456	1,329,000	0	+23,683	−273,258	−249,600	−249,600
		27.5														
16	521.5		567.0	26.87	286.68	77.03	84.57	+7.54	14,089. 14,656.	387,456	1,717,000	+4,275	+27,958	−352,919	−325,000	−329,200
		36.5														
15	485.0		1154.2	29.49	294.61	86.88	86.91	+0.03	14,656. 15,811	534,955	2,251,000	+35	+27,993	−462,906	−434,900	−434,900
		36.5														
14	448.5		1204.0	29.59	302.54	89.52	89.25	−0.27	15,811 17,018	577,083	2,829,000	−32.5	+27,660	−581,554	−553,900	−553,600
		36.5														
13	412.0		1265.7	29.57	310.47	91.81	91.59	−0.22	17,018 18,280.	621,029	3,450,000	−278	+27,390	−709,237	−681,800	−681,600
		36.25														
12	375.75		1329.0	29.48	318.35	93.85	93.91	+0.06	18,280 19,609.	662,657	4,112,000	+80	+27,470	−845,480	−818,000	−818,100
		36.25														
11	339.5		710.6	30.23	326.23	98.62	96.24	−2.38	19,609. 20,320	710,834	4,823,000	−1,691	+25,779	−991,627	−965,800	−964,200
		27.5														
10	312								20,320 20,320	558,795	5,382,000	0	+25,779	−1,106,515	−1,081,000	−1,081,000
		27.5														
9	284.5		248.6	19.02	338.18	64.32	99.76	+35.44	20,320. 20,568.	558,795	5,941,000	+8,810	+34,589	−1,221,404	−1,187,000	−1,196,000

BY: J. Ellis
CHECKED: Bu[illegible], Prapper

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 125 PADS 11-43

TABLE 24
SHEET 2 OF 2

B-36 WING ~ 1 G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS FOR FUEL & OIL ONLY
CONDITION: A.G.W. ~ 72-1000# BOMBS ~ FULL FUEL & OIL @ 35,000 FT.

STATION	DISTANCE FROM ℄ SHIP, IN.	DISTANCE BETWEEN STATIONS, IN.	PANEL POINT LOAD, #	LOCATION OF PANEL POINT LD., % CHORD	C, IN.	LOCATION OF PANEL PT. LOAD AFT L.E., IN.	LOCATION OF E.A. AFT L.E. .295 C, IN.	e, IN.	S_{b_i}	ΔM_{x_i}	M_{x_i}	ΔT_{EA_i} DUE TO e	$\Sigma \Delta T_{EA_i}$ DUE TO e	$-M_{z_i}$ TAN β (TAN β = .2056)	T_{EA_i} INBOARD	T_{EA_i} OUTBOARD
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
			FZS-36-137 SHEET 2 OF 4 OF TAB. II COL. 5	FZS-36-137 SHEET 2 OF 4 OF TABLE IX, COL. 7		⑤/100 × ⑥	.295 × ⑥	⑧ - ⑦	Σ ④	⑩ × ③ OB.	Σ ⑪	④ × ⑨	Σ ⑬	-.2056 × ⑫	⑭ + ⑮	⑯ - ⑬
9	284.5		248.6	19.02	338.18	64.32	99.76	+35.44	20,320 20,560	558,795	5,941,000	+8,810	+34,589	-1,221,404	-1,187,000	-1,196,000
		35.5														
8	249		248.0	16.59	345.89	57.38	102.04	+44.66	20,560 20,816	730,178	6,671,000	+11,076	+45,665	-1,371,528	-1,326,000	-1,337,000
		17														
7	232		0						20,816	353,879	7,025,000	0	+45,665	-1,444,286	-1,399,000	-1,399,000
		26														
6	206		0						20,816	541,226	7,566,000	0	+45,665	-1,555,562	-1,510,000	-1,510,000
		26														
5	180		0						20,816	541,226	8,107,000	0	+45,665	-1,666,838	-1,621,000	-1,621,000
		33.5														
4	146.5		0						20,816	697,349	8,805,000	0	+45,665	-1,810,213	-1,765,000	-1,765,000
		33.25														
3	113.25		0						20,816	692,145	9,497,000	0	+45,665	-1,952,518	-1,907,000	-1,907,000
		33.25														
2	80.0		0						20,816	692,145	10,189,000	0	+45,665	-2,094,823	-2,049,000	-2,049,000
		38.975														
1	41.025		0						20,816	811,319	11,000,000	0	+45,665	-2,261,630	-2,216,000	-2,216,000
		41.025														
0	0		0						20,816	853,993	11,854,000	0	+45,665	-2,427,211	-2,382,000	-2,382,000

BY: J. Ellis
CHECKED: Bivens, Snyder

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION — FORT WORTH, TEXAS
FW 633 185 PADS 11-43

TABLE 25 — SHEET 1 OF 2

[illegible] STATIC STRESS, LANDING MOMENT, & TORSIONS FOR FUEL & OIL ONLY

CONDITION: R. G. W. - 12-1000# BOMBS - 1/3 FUEL & OIL @ 5,000 FT.

STA.	DIST. FROM ℄ SHIP, IN.	DIST. BETWEEN STATIONS, IN.	PANEL POINT LOAD, #	LOCATION OF PANEL PT. LOAD, % CHORD	C, (in)	LOCATION OF LOAD FROM L.E. (in)	LOCATION OF E.A., .295 C (in)	e, (in)	S_{bi}	ΔM_{xi}	M_{xi}	ΔT_{EAi} DUE TO e	$\Sigma \Delta T_{EAi}$ DUE TO e	$-M_{xi} \tan\beta$ ($\tan\beta = .2056$)	T_{EAi} INBOARD	T_{EAi} OUTBOARD
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
			F25-36-137 SHEET 3 OF 4 OF TAB. IV, Col. 11	F25-36-137 SHEET 3 OF 4 OF TAB. IV, Col. 13		(C/100) × ⑥	.295 ⑥	⑧ − ⑦	Σ ④	⑩ × ③ (O.B.)	Σ ⑪	④ × ⑨	Σ ⑬	−.2056 × ⑫	⑭ + ⑮	⑯ − ⑬
24	806		10.3	57.90	224.85	130.19	66.33	−63.86	0 / 10.3	0	0	−658	−658	0	−658	0
		40														
23	766		10.4	60.23	233.55	140.67	68.90	−71.77	10.3 / 20.7	412	412	−746	−1404	−85	−1489	−743
		34														
22	732		497.0	31.03	240.93	74.76	71.07	−3.69	20.7 / 517.7	704	1116	−1834	−3238	−229	−3467	−1633
		38.875														
21	693.125		1629.4	31.18	249.38	77.76	73.57	−4.19	517.7 / 2147.	20,126	21,240	−6827	−10,065	−4,367	−14,430	−7605
		38.875														
20	654.25		2351.1	28.43	257.83	73.30	76.06	+2.76	2147. / 4498.	83,469	104,700	+6489	−3,576	−21,529	−25,110	−31,600
		38.875														
19	615.375		2523.9	28.44	266.28	75.73	78.55	+2.82	4498. / 7022.	174,869	279,600	+7117	+3,541	−57,481	−53,940	−61,060
		38.875														
18	576.5		1359.7	28.57	274.72	78.49	81.04	+2.55	7022. / 8382.	272,984	552,600	+3467	+7,008	−113,607	−106,600	−110,100
		27.5														
17	549.								8382. / 8382.	230,500	783,100	0	+7,008	−160,998	−154,000	−154,000
		27.5														
16	521.5		93.0	23.98	286.68	68.75	84.57	+15.82	8382. / 8475.	230,500	1,014,000	+1471	+8,479	−208,389	−199,900	−201,900
		36.5														
15	485.0		86.1	18.21	294.61	53.65	86.91	+33.26	8475. / 8561.	309,330	1,323,000	+2864	+11,343	−271,987	−260,600	−263,500
		36.5														
14	448.5								8561. / 8561	312,473	1,635,000	0	+11,343	−336,231	−324,900	−324,900
		36.5														
13	412.0								8561 / 8561	312,473	1,948,000	0	+11,343	−400,476	−389,100	−389,100
		36.25														
12	375.75								8561 / 8561	310,333	2,258,000	0	+11,343	−464,280	−452,900	−452,900
		36.25														
11	339.5		10.4	74.07	326.23	241.64	96.24	−145.40	8561 / 8571.	310,333	2,569,000	−1512	+9,831	−528,085	−518,300	−516,700
		27.5														
10	312.								8571. / 8571.	235,711	2,804,000	0	+9,831	−576,547	−566,700	−566,700
		27.5														
9	284.5		93.0	23.10	338.18	78.12	99.76	+21.64	8571. / 8664.	235,711	3,040,000	+2013	+11,844	−625,009	−613,200	−615,200

BY: J. Ellis
CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION TABLE 25 SHEET 2 OF 2

B-36 W/ [illegible]

CONDITION: R.G.W. ~ 72-1000# BOMBS ~ 1/3 FUEL & OIL @ 5000 FT.

FW 633 125 PADS 11-43

STA.	DIST. FROM ℄ SHIP, in.	DIST. BETWEEN STATIONS, in.	PANEL POINT LOAD, #	LOCATION OF PANEL PT. LOAD, % CHORD	C, (in.)	LOCATION OF LOAD FROM L.E. (in.)	LOCATION OF E.A., .295 C, (in.)	e, (in.)	S_{b_i}	ΔM_{x_i}	M_{x_i}	ΔT_{EA_i} DUE TO e	$\Sigma \Delta T_{EA_i}$ DUE TO e	$M_{x_i} \tan\beta$ ($\tan\beta = .2056$)	T_{EA_i} INBOARD	T_{EA_i} OUTBOARD
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
			FZS-36-137 SHEET 3 of 4 OF TAB. IV, Col. 11	FZS-36-137 SHEET 3 of 4 OF TAB. IV, Col. 13		⑤/100 × ⑥	.295 ⑥	② − ⑦	Σ ④	⑩ × ③ (B.D.)	Σ ⑪	④ × ⑨	Σ ⑬	−.2056 ⑫	⑭ + ⑮	⑯ − ⑬
9	284.5		93.0	23.10	338.18	78.12	99.76	+ 21.64	8571.3 / 8664.3	235,711	3,040,000	+2013	+11,844	−625,003	−613200	−615200
		35.5														
8	249.		86.1	16.59	345.89	57.38	102.04	+ 44.66	8664.3 / 8750.4	207,583	3,248,000	+ 3845	+15,689	−688,248	−672,600	−676,400
		17														
7	232		0.						8750.4 / 8750.4	148,757	3,496,000	0	+15,689	−718,832	−703,100	−703,100
		26														
6	206		0						8750.4 / 8750.4	227,510	3,724,000	0	+15,689	−765,609	−749,900	−749,900
		26														
5	180		0						8750.4 / 8750.4	227,510	3,951,000	0	+15,689	−812,385	−796,700	−796,700
		33.5														
4	146.5		0						8750.4 / 8750.4	293,138	4,244,000	0	+15,689	−872,654	−857,000	−857,000
		33.25														
3	113.25		0						8750.4 / 8750.4	290,951	4,535,000	0	+15,689	−932,473	−916,800	−916,800
		33.25														
2	80.0		0						8750.4 / 8750.4	290,951	4,826,000	0	+15,689	−992,293	−976,600	−976,600
		38.975														
1	41.025		0						8750.4 / 8750.4	341,047	5,167,000	0	+15,689	−1,062,412	−1,047,000	−1,047,000
		41.025														
0	0.		0						8750.4 / 8750.4	358,985	5,526,000	0	+15,689	−1,136,219	−1,121,000	−1,121,000

BY: J. Ellis
CHECKED: [illegible]

TABLE 21 — R-4 WING — TOTAL & INCREMENTAL SHEARS, BENDING MOMENTS, & TORSIONS
SHEET 1 OF 4
CONDITIONS: D.G.W. - 10000# OF BOMBS - FULL FUEL & OIL (1) @ 30000 FT., & (2) @ 5000 FT.

STATION	WING EMPTY LESS LANDING GEAR			D.G.W. - 10000# OF BOMBS - FULL FUEL & OIL @ 30,000 FT.						D.G.W. - 10000# OF BOMBS - FULL FUEL & OIL @ 5000 FT.					
				FUEL & OIL ONLY			TOTAL			FUEL & OIL ONLY			TOTAL		
	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION
	2	3	4	8	9	10	11	12	13	14	15	16	17	18	19
	TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16 & 17	TABLE 22 COLUMN 10	TABLE 22 COLUMN 12	TABLE 22 COLS. 16 & 17	②+⑤+⑧	③+⑥+⑨	④+⑦+⑩	TABLE 21 COLUMN 10	TABLE 21 COLUMN 12	TABLE 21 COLS. 16 & 17	②+⑤+⑭	③+⑥+⑮	④+⑦+⑯
TIP *	0	0	0				0	0	0				0	0	0
	49.5		- 543				49.5		- 543				49.5		- 543
41	49.5	1109	- 771				49.5	1109	- 771				49.5	1109	- 771
	65.2		- 891				65.2		- 891				65.2		- 891
40	65.2	2609	- 1199				65.2	2609	- 1199				65.2	2609	- 1199
	98.3		- 1370				98.3		- 1370				98.3		- 1370
39	98.3	4870	- 1835				98.3	4870	- 1835				98.3	4870	- 1835
	268.3		- 8681				268.3		- 8681				268.3		- 8681
38	268.3	11,850	- 10,120				268.3	11,850	- 10,120				268.3	11,850	- 10,120
	313.5		- 10,370				313.5		- 10,370				313.5		- 10,370
37	313.5	20,310	- 12,110				313.5	20,310	- 12,110				313.5	20,310	- 12,110
	358.9		- 12,390				358.9		- 12,390				358.9		- 12,390
36	358.9	30,000	- 14,380				358.9	30,000	- 14,380				358.9	30,000	- 14,380
	413.9		- 14,670				413.9		- 14,670				413.9		- 14,670
35	413.9	41,590	- 17,060				413.9	41,590	- 17,060				413.9	41,590	- 17,060
	626.8		- 23,890				626.8		- 23,890				626.8		- 23,890
34	626.8	60,390	- 27,760				626.8	60,390	- 27,760				626.8	60,390	- 27,760
	701.5		- 28,220				701.5		- 28,220				701.5		- 28,220

* C.G. OF TIP SECTION

BY: J. Ellis
CHECKED: B. [illegible], [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION (FORT WORTH DIVISION) (FORT WORTH, TEXAS)

TABLE 26 — B-36 WING – TOTAL 1 G INERTIA SHEARS, BENDING MOMENTS & TORSIONS

CONDITIONS: D. G. W. – 10,000 # OF BOMBS – FULL FUEL & OIL (1) @ 30,000 FT. (2) @ 5,000 FT.

REPORT NO. FZS-36-140
DATE 12-4-45

FW 643 125 PADS 11-45

	2	3	4	8	9	10	11	12	13	14	15	16	17	18	19
STATION	WING EMPTY LESS LANDING GEAR			D. G. W. – 10,000 # OF BOMBS – FULL FUEL & OIL @ 30,000 FT.						D. G. W. – 10,000 # OF BOMBS – FULL FUEL & OIL @ 5,000 FT.					
				FUEL & OIL ONLY			TOTAL			FUEL & OIL ONLY			TOTAL		
	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION
	TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16 & 17	TABLE 22 COLUMN 10	TABLE 22 COLUMN 12	TABLE 22 COLS. 16 & 17	(2)+(5)+(8)	(3)+(6)+(9)	(4)+(7)+(10)	TABLE 21 COLUMN 10	TABLE 21 COLUMN 12	TABLE 21 COLS. 16 & 17	(2)+(5)+(14)	(3)+(6)+(15)	(4)+(7)+(16)
33	701.5	81,440	-32,540				701.5	81,440	-32,540				701.5	81,440	-32,540
	786.0		-32,960				786.0		-32,960				786.0		-32,960
32	786	105,000	-37,810				786	105,000	-37,810				786	105,000	-37,810
	1041		-46,650				1041		-46,650				1041		-46,650
31	1041	136,200	-53,070				1041	136,200	-53,070				1041	136,200	-53,070
	1168		-53,700				1168		-53,700				1168		-53,700
30	1168	178,300	-62,350				1168	178,300	-62,350				1168	178,300	-62,350
	1323		-63,130				1323		-63,130				1323		-63,130
29	1323	225,900	-72,920				1323	225,900	-72,920				1323	225,900	-72,920
	1640		-82,400				1640		-82,400				1640		-82,400
28	1640	285,000	-94,540				1640	285,000	-94,540				1640	285,000	-94,540
	1823		-95,520				1823		-95,520				1823		-95,520
27	1823	350,600	-109,000				1823	350,600	-109,000				1823	350,600	-109,000
	2022		-110,100				2022		-110,100				2022		-110,100
26	2022	423,400	-125,100				2022	423,400	-125,100				2022	423,400	-125,100
	2322		-133,500				2322		-133,500				2322		-133,500
25	2322	493,000	-147,800				2322	493,000	-147,800				2322	493,000	-147,800
	2585		-147,700				2585		-147,700				2585		-147,700

BY: J. Elke
CHECKED: Oliver Cropper

TABLE 26 B-36 WING - TOTAL I.G. INERTIA SHEARS, BENDING MOMENTS & TORSIONS
CONDITIONS: D.G.W. - 10,000# OF BOMBS - FULL FUEL & OIL @ 30,000 FT. & @ 5000 FT.

STATION	WING EMPTY LESS LANDING GEAR.			D.G.W.-10,000# BOMBS - FUEL & OIL ONLY			FULL FUEL & OIL @ 30,000 TOTALS			D.G.W.-10,000# BOMBS - FUEL & OIL ONLY			FULL FUEL & OIL @ 5000' TOTALS		
	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION
	TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16 & 17	TABLE 22 COLUMN 10	TABLE 22 COLUMN 12	TABLE 22 COLS. 16 & 17	②+⑤+⑧	③+⑥+⑨	④+⑦+⑩	TABLE 21 COLUMN 10	TABLE 21 COLUMN 12	TABLE 21 COLS. 16 & 17	⑤+⑮+⑱	⑥+⑫+⑬	⑦+⑦+⑯
24	2585	580,900	-165,800	0	0	0	2585	580,900	-165,800	0	0	0	2585	580,900	-165,800
	6276		-543,400	10		-658	6286		-544,100	10		-658	6286		-544,100
23	6276	832,000	-595,000	10	412	-743	6286	832,400	-595,700	10	412	-743	6286	832,400	-595,700
	9988		-1,001,000	21		-1489	10,009		-1,002,000	21		-1489	10,009		-1,002,000
22	9988	1,172,000	-1,071,000	21	1116	-1633	10,009	1,173,000	-1,073,000	21	1,116	-1633	10,009	1,173,000	-1,073,000
	10,710		-1,081,000	1157		+1675	11,867		-1,079,000	1184		+2170	11,894		-1,079,000
21	[illegible]	[illegible]	-1,166,000	1157	46,110	-7576	11,867	1,634,000	-1,174,000	1184	47,140	-7292	11,894	1,635,000	-1,179,000
	[illegible]		-1,170,000	4199		-10,830	15,530		-1,181,000	4254		-10,180	15,585		-1,180,000
20	11,331	2,028,000	-1,261,000	4199	209,300	-44,390	15,530	2,238,000	-1,305,000	4254	212,500	-44,180	15,585	2,241,000	-1,305,000
	11,847		-1,264,000	8098		-31,830	19,945		-1,296,000	8154		-31,620	20,001		-1,296,000
19	11,847	2,489,000	-1,359,000	8098	524,200	-96,560	19,945	3,013,000	-1,456,000	8154	529,500	-96,790	20,001	3,018,000	-1,456,000
	12,491		-1,373,000	12,285		-82,740	24,776		-1,456,000	12,340		-82,970	24,831		-1,456,000
18	12,491	2,875,000	-1,473,000	12,285	1,002,000	-180,900	24,776	3,976,000	-1,654,000	12,340	1,009,000	-181,600	24,831	3,984,000	-1,655,000
	16,479		-1,987,000	14,534		-173,300	31,013		-2,160,000	14,589		-174,000	31,068		-2,161,000
17	16,479	3,428,000	-2,080,000	14,534	1,401,000	-255,500	31,013	4,829,000	-2,336,000	14,589	1,410,000	-256,500	31,068	4,838,000	-2,337,000
	16,763		-2,079,000	14,534		-255,500	31,297		-2,336,000	14,589		-256,500	31,352		-2,336,000
16	16,763	3,889,000	-2,174,000	14,534	1,801,000	-337,700	31,297	5,690,000	-2,512,000	14,589	1,812,000	-338,000	31,352	5,700,000	-2,512,000
	20,888		-2,729,000	16,363		-327,400	37,251		-3,056,000	16,445		-327,700	37,333		-3,057,000
15	20,888	4,651,000	-2,886,000	16,363	2,398,000	-450,200	37,251	7,049,000	-3,336,000	16,445	2,412,000	-451,100	37,333	7,063,000	-3,337,000
	21,728		-2,906,000	20,717		-451,100	42,445		-3,357,000	20,828		-451,000	42,556		-3,357,000
14	21,728	5,444,000	-3,069,000	20,717	3,155,000	-606,600	42,445	8,599,000	-3,676,000	20,828	3,172,000	-607,300	42,556	8,616,000	-3,676,000
	22,351		-3,075,000	25,872		-584,400	48,223		-3,659,000	25,982		-585,100	48,333		-3,660,000
13	22,351	6,260,000	-3,242,000	25,872	4,099,000	-778,600	48,223	10,359,000	-4,024,000	25,982	4,120,000	-780,100	48,333	10,380,000	-4,022,000
	28,994		-3,248,000	31,291		-755,000	54,285		-4,003,000	31,401		-756,500	54,395		-4,005,000

BY: J. Ellis
CHECKED: B. Brown, Proffer

CONSOLIDATED VULTEE AIRCRAFT CORPORATION Table 26 [illegible]
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 693 [illegible] PAGE 11-43

CONDITIONS [illegible] 10,000 LB BOMBS ~ FULL FUEL & OIL (1) @ 30,000 FT. & (2) @ 5,000 FT.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
STATION	WEIGHT EMPTY LESS LANDING GEAR			LANDING GEAR RETRACTED			D.G.W.~10,000 LB. [illegible] FUEL & OIL ONLY			FULL FUEL & OIL @ 30,000 [illegible]			D.G.W.~10,000 LB. BOMBS FUEL & OIL ONLY			[illegible]		
	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	[illegible]	[illegible]	[illegible]
	TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16 & 17	TABLE 20 COLUMN 5	TABLE 20 COLUMN 8	TABLE 20 COLUMN 12	TABLE [illegible]	[illegible]	[illegible]	②+④+⑤	③+⑥+⑨	④+⑦+⑩	TABLE 21 COLUMN [illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	22,394	7,094,000	-3,419,000				31,[illegible]	[illegible]	-388,200	54,786	12,327,000	-4,407,000	[illegible]	[illegible]	-330,500	[illegible]	[illegible]	[illegible]
	33,169		-3,439,000				36,9[illegible]		-361,800	60,750		-4,406,000	37,09[illegible]		[illegible]	[illegible]		[illegible]
11	[illegible]769	3,956,000	-3,4[illegible]				36,984	6,574,000	-1,257,000	60,750	14,529,000	-4,0[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-4,8[illegible]
	29,099		-4,278,000				39,989		-1,226,000	68,018		-5,43[illegible]	40,099		[illegible]	[illegible]		-4,8[illegible]
10	28,029	[illegible]	-4,452,000				39,989	7,673,000	-1,462,000	68,018	16,[illegible]	-5,884,000	40,099	7,7[illegible]	-1,4[illegible]	[illegible]	[illegible]	[illegible]
	28,[illegible]		[illegible]				39,989		-1,432,000	68,379		-5,882,000	40,099		[illegible]	[illegible]		[illegible]
9	[illegible]	[illegible]07,000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]79,000	-1,378,000	68,379	18,[illegible]	[illegible]	40,[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	42,06[illegible]		-1,658,000	59,811	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10,266,000	-1,965,000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		-1,940,000	63,47[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	45,346	11,037,000	-2,107,000	63,873	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	48,218		-2,099,000	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	46,215	12,281,000	-2,351,000	74,315	24,124,000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	51,907		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	-2,0[illegible]	[illegible]	[illegible]	-806,[illegible]	56,052	15,516,000	-2,918,000	100,309	30,042,000	-10,11[illegible]	60,279	15,877,000	-3,022,000	[illegible]	[illegible]	-10,[illegible]
	[illegible]		-3,371,000	+7647	+195,[illegible]	-806,360	58,534		-2,9[illegible]	103,57[illegible]	30,0[illegible]	-10,143,000	63,427		-3,005,000	108,471	30,888,000	-10,182,000
3	37,497	15,584,000	-6,627,000	+7647	+440,020	-858,640	58,534	17,462,000	-3,366,000	103,578	33,486,000	-10,852,000	63,427	17,981,000	-3,428,000	108,471	34,005,000	-10,92[illegible]
	37,993		-6,632,000	+7647	+440,020	-858,640	58,534		-3,366,000	104,174	33,486,000	-10,857,000	63,427		-3,428,000	109,067	34,005,000	-10,929,000
2	37,993	16,847,000	-6,892,000	+7647	+694,280	-910,910	58,534	19,408,000	-3,766,000	104,174	36,949,000	-11,569,000	63,427	20,089,000	-3,872,000	109,067	37,630,000	-11,675,000
	38,828		-6,920,000	+7647	+694,280	-910,910	58,534		-3,766,000	105,009	36,949,000	-11,597,000	63,427		-3,872,000	109,902	37,632,000	-11,703,000
1	38,828	18,360,000	-7,231,000	+7647	+992,320	-972,190	58,534	21,690,000	-4,235,000	105,009	41,042,000	-12,438,000	63,427	22,562,000	-4,380,000	109,902	41,914,000	-12,583,000
	[illegible]		-7,229,000	+7647	+992,320	-972,190	58,534		-4,235,000	106,030	41,042,000	-12,436,000	63,427		-4,380,000	110,923	41,914,000	-12,581,000
0	39,849	19,995,000	-7,565,000	+7647	+1,306,040	-1,036,690	58,534	24,091,000	-4,729,000	106,030	45,392,000	-13,331,000	63,427	25,164,000	-4,915,000	110,923	46,465,000	-13,517,000
	40,343		-7,563,000	+7647	+1,306,040	-1,036,690	58,534		-4,729,000	106,524	45,392,000	-13,329,000	63,427		-4,915,000	111,417	46,465,000	-13,515,000

BY: J. Ellis
CHECKED: Bisey, Proffer

CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION

FW 633 125 PADS 11-43

TABLE 27

P-36 WING - TOTAL I.C. INERTIA, SHEARS, BENDING MOMENTS & TORSIONS

CONDITION: H.G.W. ~ 72-1000# BOMBS ~ FULL FUEL & OIL @ 35000 FT.

REPORT NO. FZS-36-140

DATE 12-4-45

1	2	3	4	5	6	7	8	9	10	11	12	13
STATION	WING EMPTY LESS LANDING GEAR			LANDING GEAR RETRACTED			FUEL & OIL ONLY			TOTALS		
	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION
	TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16 & 17	TABLE 20 COLUMN 5	TABLE 20 COLUMN 8	TABLE 20 COLUMN 12	TABLE 24 COLUMN 10	TABLE 24 COLUMN 12	TABLE 24 COLS. 16 & 17	②+⑤+⑧	③+⑥+⑨	④+⑦+⑩
TIP *	0	0	0							0	0	0
	49.5		-543							49.5		-543
41	49.5	1,109	-771							49.5	1,109	-771
	65.2		-891							65.2		-891
40	65.2	2,609	-1,199							65.2	2,609	-1,199
	98.3		-1,370							98.3		-1,370
39	98.3	4,870	-1,835							98.3	4,870	-1,835
	268.3		-8,681							268.3		-8,681
38	268.3	11,850	-10,120							268.3	11,850	-10,120
	313.5		-10,370							313.5		-10,370
37	313.5	20,310	-12,110							313.5	20,310	-12,110
	358.9		-12,390							358.9		-12,390
36	358.9	30,000	-14,380							358.9	30,000	-14,380
	413.9		-14,670							413.9		-14,670
35	413.9	41,590	-17,060							413.9	41,590	-17,060
	626.8		-23,890							626.8		-23,890
34	626.8	60,390	-27,760							626.8	60,390	-27,760
	701.5		-28,220							701.5		-28,220
33	701.5	81,440	-32,540							701.5	81,440	-32,540
	786.0		-32,960							786.0		-32,960
32	786.0	105,000	-37,810							786.0	105,000	-37,810
	1041		-46,650							1041		-46,650

* C.G. OF TIP SECTION

BY: J. Ellis

CHECKED: B. Mc., Pfeffer

B-36 WING ~ TOTAL 1 G INERTIA SHEARS, BENDING MOMENTS & TORSIONS

CONDITION: R.G. W/ 72-1000# BOMBS - EXT. FUEL & OIL ON BOMBS ET

STATION	WING EMPTY LESS LANDING GEAR			LANDING GEAR RETRACTED			FUEL & OIL ONLY			TOTALS		
	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION
	TABLE 19	TABLE 19	TABLE 19	TABLE 20	TABLE 20	TABLE 20	TABLE 24	TABLE 24	TABLE 24	②+⑤+⑧	③+⑥+⑨	④+⑦+⑩
	COLUMN 10	COLUMN 12	COLS. 16 & 17	COLUMN 5	COLUMN 8	COLUMN 12	COLUMN 10	COLUMN 12	COLS. 16 & 17			
31	1041	136,200	-53,070							1,041	136,200	-53,070
	1168		-53,700							1,168		-53,700
30	1168	178,300	-62,350							1,168	178,300	-62,350
	1323		-63,130							1,323		-63,130
29	1323	225,900	-72,920							1,323	225,900	-72,920
	1640		-82,400							1,640		-82,400
28	1640	285,000	-94,540							1,640	285,000	-94,540
	1823		-95,520							1,823		-95,520
27	1823	350,600	-109,000							1,823	350,600	-109,000
	2022		-110,100							2,022		-110,100
26	2022	423,400	-125,100							2,022	423,400	-125,100
	2322		-133,500							2,322		-133,500
25	2322	493,000	-147,800							2,322	493,000	-147,800
	2585		-147,700							2,585		-147,700
24	2585	580,900	-165,800				0	0	0	2,585	580,900	-165,800
	6276		-543,400				10		-658	6,286		-544,100
23	6276	832,000	-595,000				10	412	-743	6,286	832,000	-595,700
	9988		-1,001,000				21		-1,483	10,009		-1,002,000
22	9988	1,172,000	-1,071,000				21	1,116	-1,633	10,009	1,173,000	-1,073,000
	10710		-1,081,000				944		-2,483	11,654		-1,083,000
21	10710	1,588,000	-1,166,000				944	37,820	-10,030	11,654	1,626,000	-1,176,000
	11331		-1,170,000				3,754		-18,070	15,085		-1,188,000

BY: J. Ellis
CHECKED: Brian, Tapper

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 125 PADS 11-43

TABLE 27

B-36 WING - TOTAL 1G INERTIA SHEARS, BENDING MOMENTS & TORSIONS
CONDITION: A.G.W. - 72-1,000# BOMBS - FULL FUEL & OIL @ 35,000 FT.

REPORT NO. FZD-36-140
DATE 12-4-45

1	2	3	4	5	6	7	8	9	10	11	12	13
STATION	WING EMPTY LESS LANDING GEAR			LANDING GEAR RETRACTED			FUEL & OIL ONLY			TOTALS		
	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION
	TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16 & 17	TABLE 20 COLUMN 5	TABLE 20 COLUMN 8	TABLE 20 COLUMN 12	TABLE 24 COLUMN 10	TABLE 24 COLUMN 12	TABLE 24 COLS. 16 & 17	②+⑤+⑧	③+⑥+⑨	④+⑦+⑩
20	11,331	2,028,000	-1,261,000				3,754	183,800	-48,070	15,085	2,212,000	-1,309,000
	11,847		-1,264,000				7,654		-35,520	19,501		-1,300,000
19	11,847	2,489,000	-1,359,000				7,654	481,300	-96,690	19,501	2,970,000	-1,456,000
	12,491		-1,373,000				11,841		-82,880	24,332		-1,456,000
18	12,491	2,975,000	-1,473,000				11,841	941,600	-177,500	24,332	3,917,000	-1,651,000
	16,479		-1,987,000				14,089		-169,900	30,568		-2,157,000
17	16,479	3,428,000	-2,083,000				14,089	1,329,000	-249,600	30,568	4,757,000	-2,330,000
	16,763		-2,079,000				14,089		-249,600	30,852		-2,329,000
16	16,763	3,889,000	-2,174,000				14,089	1,717,000	-329,200	30,852	5,606,000	-2,503,000
	20,888		-2,729,000				14,656		-325,000	35,544		-3,054,000
15	20,888	4,651,000	-2,886,000				14,656	2,251,000	-434,900	35,544	6,902,000	-3,321,000
	21,728		-2,906,000				15,811		-434,900	37,539		-3,341,000
14	21,728	5,444,000	-3,069,000				15,811	2,829,000	-553,600	37,539	8,273,000	-3,623,000
	22,351		-3,075,000				17,015		-553,900	39,366		-3,629,000
13	22,351	6,260,000	-3,242,000				17,015	3,450,000	-681,600	39,366	9,710,000	-3,924,000
	22,994		-3,248,000				18,280		-681,800	41,274		-3,930,000
12	22,994	7,094,000	-3,419,000				18,280	4,112,000	-818,100	41,274	11,206,000	-4,237,000
	23,769		-3,439,000				19,609		-818,000	43,378		-4,257,000
11	23,769	7,955,000	-3,616,000				19,609	4,823,000	-964,200	43,378	12,778,000	-4,580,000
	28,029		-4,273,000				20,320		-965,800	48,349		-5,239,000
10	28,029	8,726,000	-4,432,000				20,320	5,382,000	-1,081,000	48,349	14,108,000	-5,513,000
	28,390		-4,431,000				20,320		-1,081,000	48,710		-5,512,000

BY: J. Ulm
CHECKED: Bill, Chapman

TABLE 27 SHEET 4 OF 4

B-36 WING - TOTAL 1 G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS
CONDITION: A.G.W. - 72-1000# BOMBS - FULL FUEL & OIL @ 85000 FT

STATION	WING EMPTY LESS LANDING GEAR			LANDING GEAR RETRACTED			FUEL & OIL ONLY			TOTALS		
	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION
	TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16 & 17	TABLE 20 COLUMN 5	TABLE 20 COLUMN 8	TABLE 20 COLUMN 12	TABLE 24 COLUMN 10	TABLE 24 COLUMN 12	TABLE 24 COLS. 16 & 17	②+⑤+⑧	③+⑥+⑨	④+⑦+⑩
9	28,390	9,507,000	-4,591,000	0	0	0	20,320	5,941,000	-1,196,000	48,710	15,448,000	-5,787,000
	33,487		-5,321,000	-15,743	+104,330	+1,251,000	20,568		-1,187,000	38,312	15,552,000	-5,257,000
8	33,487	10,695,000	-5,565,000	-15,743	-454,550	+1,365,900	20,568	6,671,000	-1,337,000	38,312	16,911,000	-5,537,000
	34,270		-5,598,000	-15,743	-454,550	+1,365,900	20,816		-1,326,000	39,343	16,911,000	-5,558,000
7	34,270	11,278,000	-5,718,000	-15,743	-722,180	+1,420,900	20,816	7,025,000	-1,393,000	39,343	17,581,000	-5,696,000
	35,096		-5,730,000	-3,999	-250,770	+183,490	20,816		-1,393,000	51,913	18,052,000	-6,946,000
6	35,096	12,190,000	-5,918,000	-3,999	-354,740	+204,770	20,816	7,566,000	-1,510,000	51,913	19,401,000	-7,223,000
	35,640		-5,926,000	+778	-243,750	-175,680	20,816		-1,510,000	57,234	19,512,000	-7,612,000
5	35,640	13,117,000	-6,117,000	+778	-223,520	-179,840	20,816	8,107,000	-1,621,000	57,234	21,000,000	-7,918,000
	36,510		-6,127,000	+7,647	-70,420	-753,690	20,816		-1,621,000	64,973	21,154,000	-8,502,000
4	36,510	14,340,000	-6,379,000	+7,647	+185,750	-806,360	20,816	8,805,000	-1,765,000	64,973	23,331,000	-8,950,000
	37,397		-6,371,000	+7,647	+185,750	-806,360	20,816		-1,765,000	65,860	23,331,000	-8,942,000
3	37,397	15,584,000	-6,627,000	+7,647	+440,020	-858,640	20,816	9,497,000	-1,907,000	65,860	25,521,000	-9,392,000
	37,993		-6,632,000	+7,647	+440,020	-858,640	20,816		-1,907,000	66,456	25,521,000	-9,398,000
2	37,993	16,847,000	-6,892,000	+7,647	+694,280	-910,910	20,816	10,189,000	-2,049,000	66,456	27,730,000	-9,852,000
	38,828		-6,920,000	+7,647	+694,280	-910,910	20,816		-2,049,000	67,291	27,730,000	-9,880,000
1	38,828	18,360,000	-7,231,000	+7,647	+992,320	-972,190	20,816	11,000,000	-2,216,000	67,291	30,352,000	-10,419,000
	39,849		-7,229,000	+7,647	+992,320	-972,190	20,816		-2,216,000	68,312	30,352,000	-10,417,000
0	39,849	19,995,000	-7,565,000	+7,647	+1,306,040	-1,036,690	20,816	11,854,000	-2,392,000	68,312	33,155,000	-10,994,000
	40,343		-7,563,000	+7,647	+1,306,040	-1,036,690	20,816		-2,392,000	68,806	33,155,000	-10,992,000

BY: J. Ellis
CHECKED: Bass, Knapp

TABLE 28
SHEET 1 OF 4

B-36 WING ~ TOTAL 1G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS

CONDITIONS: A.G.W. ~ 72-1000# BOMBS ~ FULL FUEL & OIL @ 5000' & R.G.W. ~ 72-1000# BOMBS ~ 1/2 FUEL & OIL @ 5000'

STATION	WING EMPTY LESS LANDING GEAR			A.G.W. ~ 72-1000# BOMBS ~ FULL FUEL & OIL @ 5,000'						R.G.W. ~ 72-1000# BOMBS ~ 1/2 FUEL & OIL @ 5,000'					
				FUEL & OIL ONLY			TOTALS			FUEL & OIL ONLY			TOTALS		
	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION
	TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16 & 17	TABLE 23 COLUMN 10	TABLE 23 COLUMN 12	TABLE 23 COLS. 16 & 17	(2)+(5)+(8)	(3)+(6)+(9)	(4)+(7)+(10)	TABLE 25 COLUMN 10	TABLE 25 COLUMN 12	TABLE 25 COLS. 16 & 17	(2)+(5)+(14)	(3)+(6)+(15)	(4)+(7)+(16)
TIP *	0	0	0				0	0	0				0	0	0
	49.5		-543				49.5		- 543				49.5		- 543
41	49.5	1109	-771				49.5	1109	- 771				49.5	1109	- 771
	65.2		-891				65.2		- 891				65.2		- 891
40	65.2	2609	-1199				65.2	2609	- 1199				65.2	2609	- 1199
	98.3		-1370				98.3		- 1370				98.3		- 1370
39	98.3	4870	- 1835				98.3	4870	- 1835				98.3	4870	- 1835
	268.3		- 8,681				268.3		- 8681				268.3		- 8681
38	268.3	11,850	- 10,120				268.3	11,850	- 10,120				268.3	11,850	- 10,120
	313.5		- 10,370				313.5		- 10,370				313.5		- 10,370
37	313.5	20,310	-12,110				313.5	20,310	- 12,110				313.5	20,310	- 12,110
	358.9		-12,390				358.9		- 12,390				358.9		- 12,390
36	358.9	30,000	-14,380				358.9	30,000	- 14,380				358.9	30,000	- 14,380
	413.9		-14,670				413.9		- 14,670				413.9		- 14,670
35	413.9	41,590	-17,060				413.9	41,590	- 17,060				413.9	41,590	- 17,060
	626.8		-23,890				626.8		- 23,890				626.8		-23,890
34	626.8	60,390	-27,760				626.8	60,390	- 27,760				626.8	60,390	-27,760
	701.5		-28,220				701.5		- 28,220				701.5		-28,220

* C.G. OF TIP SECTION

BY: Allen
CHECKED: Bisen, Prapper

TABLE 28 SHEET 2 OF 4

B-36 WING - TOTAL 1 G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS

CONDITIONS: A.G.W. - 72-1000# BOMBS - FULL FUEL & OIL @ 5000' & R.G.W. - 72-1000# BOMBS - 1/2 FUEL & OIL @ 5000'

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	STATION	WING EMPTY LESS LANDING GEAR			A.G.W. - 72-1000# BOMBS - FULL FUEL & OIL @ 5000'						R.G.W. - 72-1000# BOMBS - 1/2 FUEL & OIL @ 5000'									
					FUEL & OIL ONLY			TOTALS			FUEL & OIL ONLY			TOTALS						
		SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION				
		TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16 & 17	TABLE 23 COLUMN 10	TABLE 23 COLUMN 12	TABLE 23 COLS. 16 & 17	②+⑤+⑧	③+⑥+⑨	④+⑦+⑩	TABLE 25 COLUMN 10	TABLE 25 COLUMN 12	TABLE 25 COLS. 16 & 17	⑪+⑤+⑭	⑬+⑥+⑮	⑫+⑦+⑯				
	33	701.5	81,440	- 32,540				701.5	81,440	- 32,540				701.5	81,440	- 32,540				
		786.0		- 32,960				786.0		- 32,960				786.0		- 32,960				
	32	786	105,000	- 37,810				786	105,000	- 37,810				786	105,000	- 37,810				
		1041		- 46,650				1041		- 46,650				1041		- 46,650				
	31	1041	136,200	- 53,070				1041	136,200	- 53,070				1041	136,200	- 53,070				
		1168		- 53,700				1168		- 53,700				1168		- 53,700				
	30	1168	178,300	- 62,350				1168	178,300	- 62,350				1168	178,300	- 62,350				
		1323		- 63,130				1323		- 63,130				1323		- 63,130				
	29	1323	225,900	- 72,920				1323	225,900	- 72,920				1323	225,900	- 72,920				
		1640		- 82,400				1640		- 82,400				1640		- 82,400				
	28	1640	285,000	- 94,540				1640	285,000	- 94,540				1640	285,000	- 94,540				
		1823		- 95,520				1823		- 95,520				1823		- 95,520				
	27	1823	350,600	- 109,000				1823	350,600	- 109,000				1823	350,600	- 109,000				
		2022		- 110,100				2022		- 110,100				2022		- 110,100				
	26	2022	423,400	- 125,100				2022	423,400	- 125,100				2022	423,400	- 125,100				
		2322		- 133,500				2322		- 133,500				2322		- 133,500				
	25	2322	493,000	- 147,800				2322	493,000	- 147,800				2322	493,000	- 147,800				
		2585		- 147,700				2585		- 147,700				2585		- 147,700				

BY: Allen
CHECKED: Dion, Dropper

FW 833 125 PADS/11-43

B-36 WING – TOTAL 1 G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS

DATE 12-4-45

	2	3	4	8	9	10	11	12	13	14	15	16	17	18	19
STATION	WING EMPTY LESS LANDING GEAR			A.G.W.-72-1000# BOMBS-FULL FUEL & OIL ONLY			FUEL & OIL @ 5000' TOTALS			R.G.W.-72-1000# FUEL & OIL	BOMBS-13 ONLY		FUEL & OIL @ 5000' TOTALS		
	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION
	TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16&17	TABLE 23 COLUMN 10	TABLE 23 COLUMN 12	TABLE 23 COLS. 16&17	②+⑤+⑧	③+⑥+⑨	④+⑦+⑩	TABLE 25 COLUMN 10	TABLE 25 COLUMN 12	TABLE 25 COLS. 16&17	②+⑤+⑭	③+⑥+⑮	④+⑦+⑯
24	2585	580900	-165800	0	0	0	2585	580900	-165800	0	0	0	2585	580900	-165800
	6276		-543400	10.		-658	6286		-544100	10		-658	6286		-544100
23	6276	832000	-595000	10.	412	-743	6286	832400	-595700	10	412	-743	6286	832400	-595700
	9988		-1001000	21.		-1489	10010		-1002000	21		-1489	10010		-1002000
22	9988	1172000	-1071000	21	1116	-1633	10010	1173000	-1073000	21	1116	-1633	10010	1173000	-1073000
	10710		-1081000	974		-1824	11680		-1083000	518		-3467	11230		-1084000
21	10710	1588000	-1166000	974	38960	-9605	11680	1627000	-1176000	518	21240	-7605	11230	1609000	-1174000
	11330		-1170000	3816		-17110	15150		-1187000	2147		-14430	13480		-1184000
20	11330	2028000	-1261000	3816	187900	-47610	15150	2215000	-1309000	2147	104700	-31600	13480	2133000	-1298000
	11850		-1264000	7715		-35050	19570		-1299000	4498		-25110	16350		-1289000
19	11850	2489000	-1359000	7715	487200	-96710	19570	2976000	-1456000	4498	279600	-61060	16350	2769000	-1420000
	12490		-1373000	11900		-82900	24390		-1456000	7022		-53940	19510		-1427000
18	12490	2975000	-1473000	11900	949900	-178000	24390	3925000	-1651000	7022	552600	-110100	19510	3528000	-1583000
	16480		-1987000	14150		-170000	30630		-2157000	8382		-106600	24860		-2094000
17	16480	3428000	-2080000	14150	1339000	-250400	30630	4767000	-2330000	8382	783100	-154000	24860	4211000	-2234000
	16760		-2079000	14150		-250400	30910		-2329000	8382		-154000	25140		-2233000
16	16760	3889000	-2174000	14150	1728000	-330400	30910	5617000	-2504400	8382	1014000	-201400	25140	4903000	-2375000
	20890		-2729000	15040		-325300	35930		-3054000	8475		-199900	29370		-2929000
15	20890	4651000	-2886000	15040	2277000	-438200	35930	6928000	-3324000	8475	1323000	-263500	29370	5974000	-3150000
	21730		-2906000	17060		-439100	38790		-3345000	8561		-260600	30290		-3167000
14	21730	5444000	-3069000	17060	2900000	-567100	38790	8344000	-3636000	8561	1635000	-324900	30290	7079000	-3394000
	22350		-3075000	19370		-560800	41720		-3636000	8561		-324900	30910		-3400000
13	22350	6260000	-3242000	19370	3607000	-706100	41720	9867000	-3948000	8561	1948000	-389100	30910	8208000	-3631000
	22990		-3248000	21790		-699300	44780		-3947300	8561		-389100	31550		-3637000

By: D. E. Kriesberg
CKd: Bizer, Pripper

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	WING EMPTY LESS LANDING GEAR			LANDING GEAR RETRACTED			A.G.W.-72-1000# BOMBS-FULL FUEL & OIL ONLY			FUEL & OIL @ 5000' TOTALS			R.G.W.-72-1000# BOMBS-1/3 FUEL & OIL ONLY			FUEL & OIL @ 5000' TOTALS		
STATION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION
	TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16 & 17	TABLE 20 COLUMN 5	TABLE 20 COLUMN 8	TABLE 20 COLUMN 12	TABLE 23 COLUMN 10	TABLE 23 COLUMN 12	TABLE 23 COLS. 16 & 17	②+③+⑧	③+⑥+⑨	④+⑦+⑩	TABLE 25 COLUMN 10	TABLE 25 COLUMN 12	TABLE 25 COLS. 16 & 17	⑤+⑨+⑫	③+⑥+⑮	④+⑦+⑯
12	22 990	7094 000	-3419000				21 790	4,396,000	-861 800	44 780	11490000	-4281,000	8561	2258000	-452 900	31 550	9352 000	-3,872 000
	23 770		-3439000				24340		-853900	48 110		-4293,000	8561		-452 900	32330		-3,892 000
11	23770	7955000	-3 616 000				24 340	5,279,000	-1035 000	48110	13 230 000	-4651000	8561	2569000	-516 700	32 330	10 524000	-4,133 000
	28 030		-4273000				25 690		-1033000	53720		-5,306,000	8571		-578 300	36 600		-4,791,000
10	28 030	8 726 000	-4432000				25690	5,985,000	-1178 000	53720	14710000	-5,610000	8571	2 804000	-566 700	36 600	11,530000	-4,999,000
	28 390		-4431000				25690		-1178000	54080		-5609000	8571		-566 700	36 960		-4,998000
9	28 390	9507000	-4591000	0	0	0	25690	6,692,000	-1324000	54 080	16200000	-5915000	8571	3 040000	-615200	36960	12547000	-5206000
	33 490		-5 321000	-15740	+104300	1251 000	25970		-1314000	43 720	16300000	-5384000	8664		-613200	26410	12 650000	-4683000
8	33 490	10 695000	-5565000	-15 740	-454600	1 366 000	25970	7614000	-1503000	43 720	17880000	-5702000	8664	3348000	-676 400	26410	13590000	-4875000
	34 270		-5598000	-15 740	-454 600	1366 000	26250		-1491000	44 780	17850000	-5723000	8750		-672 600	27280	13 590000	-4905000
7	34 270	11 278000	-5718000	-15 740	-722 200	1421 000	26250	8 060 000	-1582 000	44 780	18,620000	-5879 000	8750	3496000	-703100	27280	14060 000	-5,000,000
	35 100		-5730000	- 3999	-250 800	183 400	26250		-1582000	57350	19,090,000	-7129 000	8750		-703 100	39 850	14 520 000	-6,250,000
6	35 100	12 190000	-5918000	- 3999	-354 700	204 800	26250	8,743000	-1723 000	57350	20,580,000	-7,436,000	8750	3724000	-749900	39 850	15660000	-6,463,000
	35 640		-5926 000	+ 778	-243 800	-175 700	26250		-1723000	62670	20690,000	-7,825,000	8750		-749900	45 170	15 670000	-6,852,000
5	35 640	13 117 000	-6 117000	778	-223500	-179 800	26 250	9425000	-1863000	62670	22,320,000	-8,160 000	8750	3951,000	-796 700	45 170	16 840000	-7094000
	36 510		-6 127000	7647	- 70420	-753 700	26 250		-1863000	70410	22,470 000	-8744,000	8750		-796700	52 910	17,000,000	-7677000
4	36 510	14 340000	-6 379000	7 6 47	185 800	-806 400	26 250	10310,000	-2 044000	70410	24,840,000	-9229000	8750	4244000	-857000	52910	18,770000	-8,048,000
	37 400		-6371000	7647	185 800	-806 400	26250		-2044000	71 300	24,840,000	-9221 000	8750		-857000	53800	18,770 000	-8,034,000
3	37400	15584000	-6 627 000	7647	440000	-858 600	26250	11,180,000	-2223000	71 300	27,200 000	-9709 000	8750	4535000	-916800	53800	20,560,000	-8,402,000
	37 990		-6 632000	7647	440000	-858600	26 250		-2223000	71 890	27,200 000	-9714000	8750		-916 800	54390	20,560,000	-8,407,000
2	37 990	16 847000	-6 892000	7647	694300	-910 900	26250	12 050,000	-2403000	71 890	29,590000	-10,206 000	8750	4826000	-976 600	54390	22,370,000	-8,780,000
	38 830		-6 920 000	7647	694 300	-910 900	26 250		-2403000	72730	29 590 000	-10,234000	8750		-976 600	55 230	22,370,000	-8,808,000
1	38 830	18360000	-7 231000	7647	992 300	-972 200	26 250	13,070,000	-2613000	72730	32,420 000	-10,816,000	8750	5167000	-1 047000	55 230	24,520,000	-9,250,000
	39 850		-7 229000	7647	992 300	-972 200	26 250		-2613000	73750	32 420 000	-10,814,000	8750		-1047000	56 250	24,520 000	-9,248,000
0	39 850	19 995000	-7 565000	7647	1 306 000	-1037000	26 250	14150,000	-2835000	73750	35450000	-11,437000	8750	5526000	-1121000	56 250	26 830000	-9,723,000
	40 340		-7563000	7647	1306 000	-1037000	26 250		-2835000	74240	35 450000	-11,435,000	8750		-1121000	56740	26,830 000	-9,721,000

By: D. E. Kruesberg
Ckd: Bion Shopper

PART I

SECTION C

NET ULTIMATE SHEARS, BENDING MOMENTS, AND TORSIONS

NET ULTIMATE SHEARS, BENDING MOMENTS, AND TORSIONS

The net ultimate shears, bending moments, and torsions for the sixteen flight conditions included in this report are computed in Tables 31 through 46. In these tables the ultimate air loads and inertia loads are combined in accordance with the formulas included in the "Nomenclature."

Table 29 contains a tabulation of $S_{c_{\ell a_1}}$ and $M_{c_{\ell a_1}}$ for the five weight conditions to be used in the computation of chord shears and bending moments.

The net ultimate loads have been resolved normal and parallel to the rear spar which is parallel to the upper and lower surface stringers. Also the beam shear has been reduced to take into account the components, normal to the chord plane, of the upper and lower surface axial loads due to bending. If $\tan \phi$ = slope of the I_x/Q_x curve over the semi-span, the beam shear reduction

$$= \frac{M_x' \tan \phi}{I_x/Q_x} .$$

The reduction is conservatively taken to be 0.7 of the above amount and limited to 0.50 of the beam shear. When the moment and the shear are of opposite sign such that the shear "reduction" will add to the beam shear, the .7 factor is omitted. The values of $(.7 \tan \phi \div I_x/Q_x)(10^6)$ for every bulkhead station are tabulated in Table 30 for use in Column 30 of Tables 31 through 46.

TABLE 29 SHEET 1 of 2 — $S_{c_{l_{\alpha_1}}}$ & $M_{c_{l_{\alpha_1}}}$ FOR CRITICAL GROSS WEIGHT CONDITIONS.

				G.W. = 229,999		G.W. = 254,131#	
				$F_1 = \frac{229,999}{265,000}$		$F_1 = \frac{254,131}{265,000}$	
STATION	DISTANCE FROM ℄ SHIP, IN.	$S_{c_{l_{\alpha_1}}}$	$M_{c_{l_{\alpha_1}}} \times 10^{-6}$	$S_{c_{l_{\alpha_1}}}$	$M_{c_{l_{\alpha_1}}} \times 10^{-6}$	$S_{c_{l_{\alpha_1}}}$	$M_{c_{l_{\alpha_1}}} \times 10^{-6}$
1	2	3	4	9	10	11	12
		F83-36-138 FIGURE IV, PAGE 19.		$F_1 \times$ ③	$F_1 \times$ ④	$F_1 \times$ ③	$F_1 \times$ ④
0	0	131,900	73.894	114,480	64.134	126 490	70.863
1	41.025	126,250	68.70	109,600	59.63	121070	65.88
2	80.0	120,900	63.85	104,900	55.42	115940	61.23
3	113.25	116,400	59.85	101,000	51.95	111630	57.40
4	146.5	112,000	56.05	97,210	48.65	107440	53.75
5	180	107,500	52.30	93,300	45.39	103090	50.15
6	206	104,000	49.55	90,260	43.01	99730	47.52
7	232	100,600	46.95	87,310	40.75	96470	45.02
8	249	98,400	45.25	85,400	39.27	94360	43.37
9	284.5	93,800	41.85	81,410	36.32	89950	40.13
10	312	90,300	39.30	78,370	34.11	86600	37.69
11	339.5	86,900	36.85	75,420	31.98	83340	35.34
12	375.75	82,500	33.65	71,600	29.21	79120	32.27
13	412	78,100	30.85	67,780	26.78	74900	29.58
14	448.5	73,900	28.15	64,140	24.43	70870	27.00
15	485	69,700	25.50	60,490	22.13	66840	24.45

By: J. Ellis
CKD: Bruce, Pfeffer

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION — FORT WORTH, TEXAS
N 633 125 PADS 11-43

G.W. = 265,000#

TABLE 29 $Sc_{l_{\alpha_1}}$ & $Mc_{l_{\alpha_1}}$ FOR CRITICAL GROSS WEIGHT CONDITIONS.
SHEET 2 of 3.

DATE 12-4-45

STATION	FROM ℄ SHIP, IN.	$Sc_{l_{\alpha_1}}$	$Mc_{l_{\alpha_1}} \times 10^{-6}$	$Sc_{l_{\alpha_1}}$ GW = 278,000# $F_1 = \frac{278,000}{265,000}$	$Mc_{l_{\alpha_1}} \times 10^{-6}$	$Sc_{l_{\alpha_1}}$ GW = 268,213# $F_1 = \frac{268,213}{265,000}$	$Mc_{l_{\alpha_1}} \times 10^{-6}$	$Sc_{l_{\alpha_1}}$ GW = 229,999 $F_1 = \frac{229,999}{265,000}$	$Mc_{l_{\alpha_1}} \times 10^{-6}$	$Sc_{l_{\alpha_1}}$ GW = 254,131# $F_1 = \frac{254,131}{265,000}$	$Mc_{l_{\alpha_1}} \times 10^{-6}$
1	2	3 (P25-36-138 FIGURE IV, PAGE 19.)	4	5 $F_1 \times$ ③	6 $F_1 \times$ ④	7 $F_1 \times$ ③	8 $F_1 \times$ ④	9 $F_1 \times$ ③	10 $F_1 \times$ ④	11 $F_1 \times$ ③	12 $F_1 \times$ 4
16	521.5	65,650	23.10	68,870	24.23	66,450	23.38	56,980	20.05	62960	22.15
17	549	62,500	21.30	65,570	22.34	63,260	21.56	54,250	18.49	59940	20.43
18	576.5	59,400	19.65	62,310	20.61	60,120	19.89	51,550	17.05	56960	18.84
19	615.375	55,400	17.35	58,120	18.20	56,070	17.56	48,080	15.06	53130	16.64
20	654.25	51,300	15.35	53,820	16.10	51,920	15.54	44,520	13.32	49200	14.72
21	693.125	47,400	13.40	49,730	14.06	47,970	13.56	41,140	11.63	45460	12.85
22	732	43,500	11.60	45,630	12.17	44,030	11.74	37,750	10.07	41720	11.12
23	766	40,200	10.20	42,170	10.70	40,690	10.32	34,890	8.85	38550	9.78
24	806	36,500	8.65	38,290	9.07	36,940	8.75	31,680	7.51	35000	8.30
25	840	33,500	7.45	35,140	7.82	33,910	7.54	29,080	6.47	32130	7.14
26	870	30,900	6.50	32,420	6.82	31,270	6.58	26,820	5.64	29630	6.23
27	906	27,800	5.485	29,160	5.754	28,140	5.552	24,130	4.761	26660	5.260
28	942	24,850	4.485	26,070	4.705	25,150	4.539	21,570	3.893	23830	4.301
29	978	22,000	3.635	23,080	3.813	22,270	3.679	19,090	3.155	21100	3.486
30	1014	19,250	2.910	20,190	3.353	19,480	2.945	16,710	2.526	18460	2.791
31	1050	16,650	2.285	17,470	2.397	16,850	2.313	14,450	1.983	15970	2.191

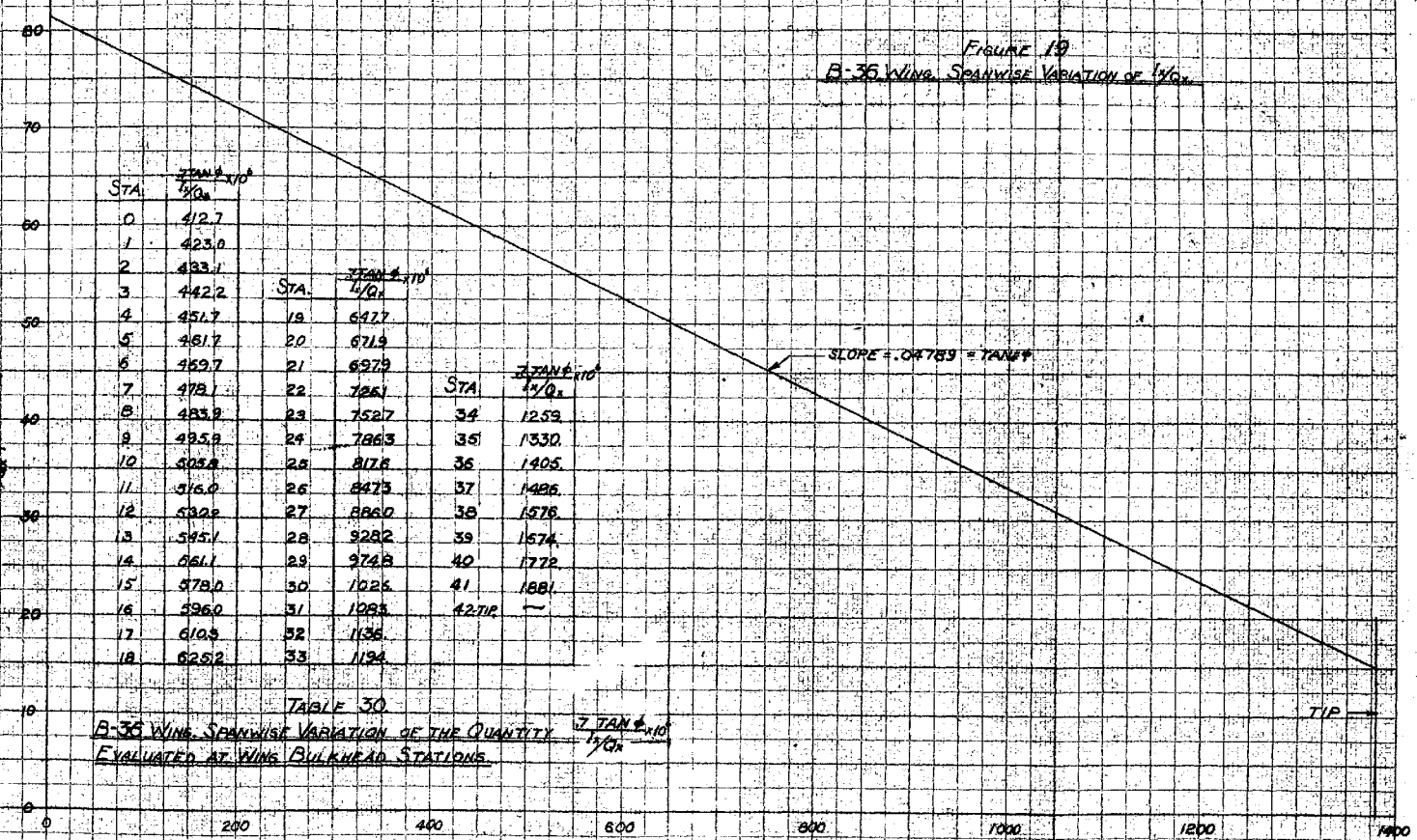
By: J. Ellis
CKD: Rice, Pfeffer

TABLE 29. Sc_{la_1} & Mc_{la_1} FOR CRITICAL GROSS WEIGHT CONDITIONS.
SHEET 3 of 3.

STATION	DISTANCE FROM ℄ SHIP, IN.	Sc_{a_1}	$Mc_{la_1} \times 10^{-6}$	Sc_{la_1} $F_1 = \frac{278,000}{265,000}$	$Mc_{la_1} \times 10^{-6}$	Sc_{la_1} $F_1 = \frac{268,213}{265,000}$	$Mc_{la_1} \times 10^{-6}$	Sc_{la_1} $F_1 = \frac{239,999}{265,000}$	$Mc_{la_1} \times 10^{-6}$	Sc_{la_1} $F_1 = \frac{254131}{265000}$	$Mc_{la_1} \times 10^{-6}$
1	2	3	4	5	6	7	8	9	10	11	12
		FZS-36-138. FIGURE IX PAGE 19.		$F_1 \times$ ③	$F_1 \times$ ④	$F_1 \times$ ③	$F_1 \times$ ④	$F_1 \times$ ③	$F_1 \times$ ④	$F_1 \times$ ③	$F_1 \times$ ④
32	1080	14,560	1.835	15,270	1.925	14,740	1.857	12,640	1.593	13960	1.760
33	1110	12,560	1.420	13,180	1.490	12,710	1.437	10,900	1.232	12040	1.362
34	1140	10,650	1.065	11,170	1.117	10,780	1.078	9,240	.924	10210	1.021
35	1170	8,800	.765	9,230	.803	8,910	.774	7,640	.664	8440	.734
36	1198	7,190	.540	7,540	.566	7,280	.547	6,240	.469	6900	.518
37	1225	5,750	.360	6,030	.378	5,820	.364	4,990	.312	5510	.345
38	1252	4,400	.225	4,620	.236	4,450	.228	3,820	.195	4220	.216
39	1278	3,280	.125	3,440	.131	3,320	.127	2,850	.108	3150	.120
40	1301	2,400	.070	2,520	.073	2,430	.071	2,080	.061	2300	.067
41	1324	1,600	.035	1,680	.037	1,620	.035	1,390	.030	1530	.034
TIP	1346.4*	900	.011	940	.0115	910	.0111	780	.0095	860	.011

By: J. Ellis
CKD: Bim, Pepper

FIGURE 19
B-36 WING SPANWISE VARIATION OF $1/Q_x$



STA.	$\frac{7 \tan\phi}{1/Q_x} \times 10^6$
0	412.7
1	423.0
2	433.1
3	442.2
4	451.7
5	461.7
6	469.7
7	478.1
8	483.9
9	495.9
10	505.8
11	516.0
12	530.9
13	545.1
14	561.1
15	578.0
16	596.0
17	610.9
18	625.2

STA.	$\frac{7 \tan\phi}{1/Q_x} \times 10^6$
19	647.7
20	671.9
21	697.9
22	726.1
23	752.7
24	786.3
25	817.8
26	847.3
27	886.0
28	928.2
29	974.8
30	1026.
31	1083.
32	1136.
33	1194.

STA.	$\frac{7 \tan\phi}{1/Q_x} \times 10^6$
34	1259.
35	1330.
36	1405.
37	1486.
38	1576.
39	1674.
40	1772.
41	1881.
42 TIP	—

TABLE 30
B-36 WING SPANWISE VARIATION OF THE QUANTITY $\frac{7 \tan\phi}{1/Q_x} \times 10^6$
EVALUATED AT WING BULKHEAD STATIONS

CALCULATED BY	Bian	
DRAWN BY	Bian	
CHECKED BY	Griffin	6-4-45
APPROVED BY		

FIGURE 19
TABLE 30

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION, FORT WORTH, TEXAS

DOC. NO. FZS-36-40
MODEL B-36

TABLE 31 B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 1 of 8 CONDITION: DGW 278,000# 10,000# B. FULL FUEL & OIL. HAA @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{ba}	S_{b_i}	$1.5(\frac{-N_z}{W})S_{b_i}$ $(\frac{-N_z}{W})=-2.646$	$S_b = S_b'$	$S_{CL_{a_i}}$	$1.5\frac{X}{W}S_{CL_{a_i}}$ $\frac{X}{W}=-.576$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=.521$	S_c	$M_{x_a} \times 10^6$	$M_{K_i} \times 10^6$	$1.5(\frac{-N_z}{W})M_{x_i} \times 10^6$ $(\frac{-N_z}{W})=-2.646$	$M_x \times 10^6$	$M_{CL_{a_i}} \times 10^6$	$1.5\frac{X}{W}M_{CL_{a_i}} \times 10^6$ $\frac{X}{W}=-.576$	$1.5\frac{X_m}{W}M_{x_i} \times 10^6$ $\frac{X_m}{W}=.521$	$(M_y = M_{y_i}) \times 10^6$	$T_{BA_a} \times 10^6$	$T_{BA_i} \times 10^6$	$1.5(\frac{-N_z}{W})T_{BA_i} \times 10^6$ $(\frac{-N_z}{W})=-2.646$	$T_{BA} \times 10^6$
		Fig. 2	TABLE 26	-3.969×④	③ + ⑤	[redacted] TAB. 29	-.864×⑦	.7815×④	⑥ + ⑨	Fig. 2	TABLE 26	-3.969×⑫	⑪ + ⑬	[redacted] TAB. 29	-.864×⑮	.7815×⑫	⑯ + ⑰	Fig. 2	TABLE 26	-3.969×⑳	⑲ + ㉑
0	0	558,200	111,417	-442,200	116,000	137,430	-118,790	87,070	-31,670	308.9	46,465	-189.4	124.5	77,519	-66.98	36.31	-30.67	-66.52	-13.515	53.64	-12.88
			110,923	-440,300	117,900			86,690	-32,050										-13.517	53.65	-12.87
1	41.025	534,000	110,923	-440,300	93,700	132,440	-114,430	86,690	-27,740	286.4	41,914	-166.4	120.0	72,070	-62.27	32.76	-29.51	-61.79	-12.581	49.93	-11.86
			109,902	-436,200	97,800			85,890	-28,540										-12.583	49.94	-11.85
2	80.8	511,400	109,902	-436,200	75,200	126,830	-109,580	85,890	-23,690	266.1	37,630	-149.4	116.7	66.98	-57.87	29.41	-28.46	-57.51	-11.703	46.45	-11.06
			109,067	-432,900	78,500			85,240	-24,340										-11.675	46.34	-11.17
3	113.25	491,600	109,067	-433,900	58,700	122,110	-105,500	85,240	-20,260	248.4	34,005	-135.0	114.4	62.79	-54.25	26.57	-27.68	-53.91	-10.929	43.38	-10.53
			108,471	-430,500	61,100			84,770	-20,730										-10.929	43.36	-10.53
4	146.5	472,800	108,471	-430,500	42,300	117,490	-101,510	84,770	-16,740	233.3	30,398	-120.6	112.7	58.80	-50.80	23.76	-27.04	-50.46	-10.182	40.41	-10.00
			104,436	-414,500	58,300			81,620	-19,890										-10.207	40.51	-9.98
5	180.0	453,400	104,436	-414,500	38,900	112,770	-97,430	81,620	-15,810	217.8	26,890	-106.7	111.1	54.87	-47.41	21.01	-26.40	-47.08	-9.488	37.66	-9.42
			91,312	-362,900	91,000			71,360	-26,070		26,795	-106.2	111.6			20.90	-26.51		-8.932	35.45	-11.13
6	206.0	438,800	91,312	-362,900	76,400	109,100	-94,260	71,360	-22,900	206.3	24,371	-96.7	109.6	51.19	-44.91	19.65	-25.86	-44.60	-8.444	33.57	-11.0
			81,438	-323,200	115,600			63,690	-30,620		24,260	-96.3	110.0			18.96	-25.95		-8.078	32.66	-12.2
7	232.0	424,400	81,438	-323,200	101,200	105,540	-91,190	63,690	-27,750	194.8	22,142	-87.9	106.9	49.25	-42.55	17.30	-25.25	-42.14	-7.642	30.33	-11.3
			65,225	-258,900	165,500			50,970	-40,220		21,672	-86.0	108.8			16.94	-25.61		-6.911	25.45	-14.0
8	249.0	414,600	65,225	-258,900	155,700	103,230	-89,190	50,970	-38,220	187.9	20,582	-81.6	106.3	47.47	-41.01	16.07	-24.94	-40.60	-6.783	24.54	-14.0
			60,381	-239,700	174,900			47,190	-42,000										-6.163	24.17	-14.1
9	284.5	394,800	60,381	-239,700	155,100	98,400	-85,020	47,190	-37,830	173.6	19,820	-73.1	100.5	43.90	-37.93	14.40	-23.53	-37.52	-5.729	22.74	-14.7
			68,489	-271,800	123,000			53,520	-31,500		18,316	-72.7	100.9			14.31	-23.62		-6.274	24.90	-12.6
10	312.0	379,700	68,489	-271,800	107,900	94,730	-81,850	53,520	-28,330	162.9	16,432	-65.2	97.7	41.23	-35.62	12.84	-22.78	-35.29	-5.887	23.37	-11.7
			68,128	-270,400	109,300			53,240	-28,610										-5.888	23.37	-11.7
11	339.5	365,000	68,128	-270,400	94,600	91,160	-78,760	53,240	-25,520	152.6	14,558	-57.8	94.8	38.66	-33.40	11.38	-22.02	-32.98	-5.502	21.84	-11.46
			60,860	-241,600	123,400			47,560	-31,200										-4.857	19.28	-13.3
12	375.75	345,900	60,860	-241,600	104,300	86,550	-74,780	47,560	-27,200	139.9	12,353	-49.0	90.9	35.30	-30.50	9.65	-20.85	-30.24	-4.403	17.48	-12.26
			54,395	-215,900	130,000			42,510	-32,270										-4.410	17.50	-13.1

TABLE 31

FZS-36-140
MODEL
B-36

TABLE 31. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 2 OF 8. CONDITION: DGW-278,000#-10,000# B. FULL FUEL & OIL. H.A.A. 9000 FT.

REPORT FZS-36-140
DATE 12-4-45

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{.7 \tan\phi}{I_x/Q_x} \times 10^6$	$\frac{.7 \tan\phi}{I_x/Q_x} M_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	(6) − (31) OR .5 × (6)
0	0	122.61	-2.24	124.85	-31189	21.61	-12.68	8.93	412.7	51526	64474
		122.61	-2.23	124.84	-31563	21.61	-12.67	8.94		51521	66379
1	41.025	118.18	-2.06	120.24	-27318	20.83	-11.68	9.15	423.0	50862	46850
		118.18	-2.06	120.24	-28106	20.83	-11.67	9.16		50862	45900
2	80.0	114.93	-1.92	116.85	-23330	20.26	-10.89	9.37	433.1	50608	37600
		114.93	-1.94	116.87	-23970	20.26	-11.00	9.26		50616	39250
3	113.25	112.66	-1.83	114.49	-19952	19.86	-10.37	9.49	442.2	50627	29350
		112.66	-1.83	114.49	-20415	19.86	-10.39	9.47		50627	30550
4	146.5	110.99	-1.74	112.73	-16486	19.56	-9.90	9.66	*645.3	72745	-30,450
		110.99	-1.73	112.72	-19588	19.56	-9.80	9.76	451.7	50916	29,150
5	180.0	109.41	-1.64	111.05	-15570	19.29	-9.28	10.01	*659.6	73249	-34,350
		109.90	-2.02	111.92	-25674	19.37	-11.45	7.92	461.7	51673	45500
6	206.0	107.93	-1.93	109.86	-22552	19.03	-10.92	8.11	469.7	51601	38200
		108.33	-2.18	110.51	-30155	19.10	-12.35	6.75		51907	63673
7	232.0	105.28	-2.05	107.33	-27328	18.56	-11.63	6.93	478.1	51317	50600
		107.15	-2.90	110.05	-39609	18.89	-16.44	2.45		52615	112885
8	249.0	104.68	-2.79	107.47	-37639	18.45	-15.82	2.63	483.9	52005	103695
		104.68	-2.80	107.48	-41362	18.45	-15.87	2.58		52010	122890
9	284.5	98.97	-2.57	101.54	-37255	17.45	-14.56	2.89	495.9	50354	104746
		99.37	-2.19	101.56	-31021	17.52	-12.43	5.09		50364	72636
10	312.0	96.21	-2.05	98.26	-27899	16.96	-11.65	5.31	505.8	49700	58200
			-2.05	98.26	-26175		-11.65	5.31		49700	59600
11	339.5	93.36	-1.93	95.29	-25132	16.46	-10.97	5.49	516.0	49170	47300
			-2.38	95.74	-30726		-13.49	2.97		49402	73998
12	375.75	89.52	-2.22	91.74	-26189	15.78	-12.57	3.21	530.2	48641	55659
			-2.21	91.73	-31779		-12.55	3.23		48635	81365

*$\frac{\tan\phi}{I_x/Q_x} \times 10^6$

CALCULATED BY	[illegible]	TABLE 31	DOC NO. FZS-36-140
DRAWN BY			MODEL B-36
CHECKED BY	[illegible] 12-8-45	CONSOLIDATED VULTEE AIRCRAFT CORPORATION	

TABLE 31. B-36 WING. NET ULTIMATE SHEARS BENDING MOMENTS & TORSIONS

SHEET 3 OF 8 CONDITION: DGW. 278000# 10000# B, FULL FUEL 10G. HAA @ 3000 FT

PAGE REPORTED DATE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STATION	DIST. FROM C OF SHIP	S_{u_L}	S_{u_R}	$1.5 \times S_{u_L}$ (Fig. 2)	$S_b = S_b'$	S_{d_L}	$1.5 \times S_{d_L}$	S_W	S_E	$M_{L_u} \times 10^6$	$M_{R_u} \times 10^6$	$1.5 \times M_{L_u} \times 10^6$	$M_{L_d} \times 10^6$	$M_{R_d} \times 10^6$	$1.5 \times M_{L_d} \times 10^6$	$M_W \times 10^6$	$M_E \times 10^6$	$T_{L_u} \times 10^6$	$T_{R_u} \times 10^6$
13	442.0	227,200	54,875	42,400	71,300	81,930	-70,790	42,810	[illegible]	8.72	10,380	-41.2	38.63	8.36	3.46	8.11	-12.86	-2.760	-1.005
			18,353	16,900	135,400			37,770	[illegible]										-4.892
14	[illegible]	308,800	48,333	19,900	117,000	77,550	-66,940	37,720	34,420	16.2	8.64	-34.4	29.0	2.58	-2.58	6.73	-10.78	-25.13	-3.140
			42,564	16,800	137,900			35,440	33,730										[illegible]
15	[illegible]	[illegible]	42,556	16,900	124,700	73,100	-63,180	33,260	34,400	105.6	7.063	-38.8	7.73	24.76	-29.11	3.52	-17.57	-22.80	-1.557
			37,333	14,800	140,400			28,180	34,000										[illegible]
16	525	272,800	37,343	14,800	124,600	68,870	-59,800	29,860	30,930	34.8	5.700	-20.2	7.02	20.28	-19.92	1.45	[illegible]	-20.34	-2.057
			31,352	14,100	148,400			24,880	28,000										-1.573
17	[illegible]	[illegible]	31,352	[illegible]	135,000	65,570	-56,650	24,300	31,150	31.0	4.159	-18.2	6.83	22.32	-14.50	2.78	-15.60	[illegible]	[illegible]
			24,063	11,900	136,300			24,080	25,270										[illegible]
18	[illegible]	[illegible]	21,048	[illegible]	123,300	60,310	-53,940	[illegible]	[illegible]	28.4	3.994	-15.8	6.26	20.61	-17.81	2.11	-14.70	-17.12	[illegible]
			21,831	10,300	148,000			14,410	24,430										-1.205
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	54,120	-50,200	[illegible]	[illegible]	24.1	3.049	-12.0	5.91	[illegible]	-15.72	2.36	-12.36	[illegible]	[illegible]
			3001	[illegible]	[illegible]			13,430	[illegible]										[illegible]
20	[illegible]	214,700	[illegible]	[illegible]	109,300	48,820	-46,500	15,330	30,870	19.7	2.247	-9.4	5.58	16.10	-13.91	1.75	-12.16	[illegible]	[illegible]
			12,309	4,900	149,400			12,100	24,320										[illegible]
21	[illegible]	196,100	[illegible]	4,900	133,500	42,730	[illegible]	10,180	[illegible]	34.5	1.653	-6.5	4.28	14.06	-12.15	1.28	-10.87	-11.[illegible]	[illegible]
			11,834	4,200	148,400			9,300	23,220										[illegible]
22	[illegible]	179,200	[illegible]	4,200	131,100	45,630	-39,420	9,300	30,420	4.5	1.013	-4.7	4.8	12.17	-10.51	0.92	-9.59	-10.40	[illegible]
			10,009	3,700	159,800			8,820	31,600										4.21
23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	42,170	-36,830	7,840	[illegible]	4.6	0.804	-3.3	3.83	10.70	-9.24	0.80	-8.59	-8.16	[illegible]
			6,286	2,900	140,800			4,910	31,520										[illegible]
24	806.0	130,800	6,286	[illegible]	125,100	38,170	-33,880	4,910	28,170	35.2	0.6[illegible]	-4.3	3.29	9.07	-7.84	0.45	-7.39	-7.78	-0.540
			2,385	-10,300	139,700			2,020	31,060										[illegible]
25	840.0	137,300	2,385	-10,300	137,000	35,140	-30,360	2,020	28,360	30.8	0.4130	-2.8	2.83	7.82	-6.76	0.39	-6.37	-6.70	[illegible]
			2,302	-1,200	128,100			1,810	28,530										[illegible]

TABLE 31

TABLE 31 B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 4 of 8. CONDITION: DGW-278000# 10000# B, FULL FUEL & OIL. - HAA. @ 5,000 FT.

PAGE 38 REPORT FZS-36-100 DATE 12-2-46

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_z \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_z \times 10^6$	$S'_c = S_z \cos\alpha$	$M_z \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T_{TAU}}{\frac{1}{2}Q_z} \times 10$	$\frac{T_{TAU}}{\frac{1}{2}Q_z} M'_z$	S''_z (6) - (31)
		3848 - (14)	1734 - (22)	(23) - (24)	3848 - (10)	1736 - (14)	3848 - (22)	(27) + (28)	TABLE 30	(29) × (30)	OR. 61 (6)
13	412.0	85.19	-2.03	87.22	-27850	15.02	-11.52	3.50	545.1	47544	63756
			-2.02	87.21	-33518		-11.46	3.56		47538	87862
14	449.5	80.75	-1.84	82.59	-28776	14.24	-10.44	3.80	561.1	46341	70659
			-1.83	82.58	-33217		-10.38	3.86		46336	93564
15	485.0	76.09	-1.65	77.69	-29465	13.37	-9.34	4.03	578.0	44900	76800
			-1.66	77.69	-33483		-9.41	3.96		44905	97494
16	522.5	71.40	-1.46	72.86	-29659	12.53	-8.30	4.23	596.0	43246	81354
			-1.84	72.84	-34468		-10.43	2.10		43472	104928
17	549.0	67.26	-1.69	68.95	-31661	11.86	-9.58	2.28	610.3	42090	99420
			-1.69	68.95	-31878		-9.57	2.29		42080	99220
18	576.5	63.62	-1.55	65.17	-29111	11.21	-8.77	2.44	625.2	40744	82556
			-1.90	65.52	-33907		-10.75	.46		40963	107937
19	615.75	58.20	-1.69	59.89	-30342	10.26	-9.57	.69	647.7	38791	91609
			-1.69	59.89	-34064		-9.57	.69		38791	110809
20	654.25	52.98	-1.48	54.46	-30401	9.34	-8.39	.95	671.9	36592	95108
			-1.47	54.45	-38798		-8.35	.99		36585	113215
21	693.125	47.87	-1.27	48.84	-30322	8.38	-7.19	1.19	697.5	34085	99415
			-1.27	48.84	-33158		-7.21	1.17		34085	114115
22	732.0	42.15	-1.06	43.21	-29662	7.43	-6.03	1.40	726.1	31375	100625
			-1.07	43.22	-31120		-6.05	1.38		31382	108118
23	766.0	37.72	-0.90	38.62	-28175	6.65	-5.10	1.55	752.7	29069	96831
			-1.18	38.90	-31041		-6.70	-0.05		29280	111820
24	806.0	32.40	-0.98	33.38	-27742	5.71	-5.53	.18	786.3	26247	98853
			-1.24	33.64	-30588		-7.01	-1.30		26451	113249
25	840.0	27.87	-1.06	28.93	-27909	4.91	-6.04	-1.13	817.6	23653	103347
			-1.06	28.93	-28116		-6.04	-1.13		23653	104447

CALCULATED BY [illegible] DRAWN BY CHECKED BY [illegible]

TABLE 31

CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS

DOC NO. FZS-36-100 MODEL B-36

TABLE 31. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 5 of 8. CONDITION: D.G.W. 278,000#, 10000#B.; FULL FUEL & OIL. H.A.A @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{ba}	S_{b_i}	$1.5(\frac{-N_a}{W})S_{b_i}$ $(\frac{-N_a}{W})=-2.646$	$S_b = S_b'$	$S_{C_{L_{a_i}}}$	$1.5\frac{X}{W}S_{C_{L_{a_i}}}$ $\frac{X}{W}=-0.576$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=0.521$	S_c	$M_{x_a}\times10^{-6}$	$M_{x_i}\times10^{-6}$	$1.5(\frac{-N_a}{W})M_{x_i}\times10^{-6}$ $(\frac{-N_a}{W})=-2.646$	$M_x\times10^{-6}$	$M_{C_{L_{a_i}}}\times10^{-6}$	$1.5\frac{X}{W}M_{C_{L_{a_i}}}\times10^{-6}$ $\frac{X}{W}=-0.576$	$1.5\frac{X_m}{W}M_{x_i}\times10^{-6}$ $\frac{X_m}{W}=0.521$	$(M_y=M_y')\times10^{-6}$	$T_{EA_a}\times10^{-6}$	$T_{EA_i}\times10^{-6}$	$1.5(\frac{-N_a}{W})T_{EA_i}\times10^{-6}$ $(\frac{-N_a}{W})=-2.646$	$T_{EA}\times10^{-6}$
		Fig. 2.	TABLE 26	-3.969×④	③ + ⑤	[redacted] TAB. 29	-0.864×⑦	0.7815×④	⑧ + ⑨	Fig. 2.	TABLE 26	-3.969×⑫	⑪ + ⑬	[redacted] TAB. 29	-0.864 ⑮	0.7815×⑫	⑯ + ⑰	Fig. 2.	TABLE 26	-3.969×⑳	⑲ + ㉑
26	870.0	126,200	2,322	-9,200	117,000	32,420	-28,010	1,810	-26,200	26.4	0.4234	-1.7	24.7	6.82	-5.89	0.33	-5.56	-5.84	-0.1335	0.53	-5.31
			2,022	-8,200	118,200			1,580	-26,430										-0.1251	0.50	-5.34
27	906.0	113,400	2,022	-8,200	105,400	28,160	-25,190	1,580	-23,610	22.1	0.3506	-1.4	20.7	5.754	-4.971	0.274	-4.697	-4.89	-0.1101	0.44	-4.45
			1,823	-7,200	106,200			1,420	-23,770										-0.1030	0.43	-4.46
28	942.0	101,400	1,823	-7,200	94,200	26,070	-22,520	1,420	-21,100	18.17	0.2850	-1.13	17.04	4.705	-4.065	0.223	-3.842	-4.088	-0.0955	0.379	-3.709
			1,640	-6,500	94,900			1,280	-21,240										-0.0945	0.375	-3.713
29	978.0	89,500	1,640	-6,500	83,000	23,080	-19,940	1,280	-18,660	14.75	0.2259	-0.90	13.85	3.813	-3.294	0.177	-3.117	-3.330	-0.0824	0.327	-3.003
			1,323	-5,300	84,200			1,030	-18,910										-0.0729	0.289	-3.041
30	1014.0	78,300	1,323	-5,300	73,000	20,190	-17,440	1,030	-16,410	11.72	0.1783	-0.71	11.01	3.053	-2.638	0.139	-2.499	-2.670	-0.0631	0.250	-2.420
			1,168	-4,600	73,700			910	-16,530										-0.0624	0.248	-2.422
31	1050.0	67,400	1,168	-4,600	62,800	17,470	-15,090	910	-14,180	9.13	0.1362	-0.54	8.59	2.397	-2.071	0.106	-1.965	-2.094	-0.0537	0.213	-1.881
			1,041	-4,100	63,300			810	-14,280										-0.0531	0.211	-1.883
32	1080.0	58,800	1,041	-4,100	54,700	15,270	-13,190	810	-12,380	7.19	0.1050	-0.42	6.77	1.925	-1.663	0.082	-1.581	-1.672	-0.0466	0.185	-1.487
			786	-3,100	55,700			610	-12,580										-0.0378	0.150	-1.522
33	1110.0	50,700	786	-3,100	47,600	13,180	-11,390	610	-10,780	5.57	0.0814	-0.32	5.25	1.490	-1.287	0.064	-1.223	-1.314	-0.0330	0.131	-1.183
			701.5	-2,800	47,900			550	-10,840										-0.0324	0.129	-1.185
34	1140.0	42,800	701.5	-2,800	40,000	11,170	-9,650	550	-9,100	4.15	0.0604	-0.24	3.91	1.117	-0.965	0.047	-0.918	-0.998	-0.0282	0.112	-0.886
			626.8	-2,500	40,300			490	-9,160										-0.0278	0.110	-0.888
35	1170.0	35,200	626.8	-2,500	32,700	9,230	-7,970	490	-7,480	3.00	0.0416	-0.17	2.83	0.803	-0.694	0.033	-0.661	-0.732	-0.0239	0.095	-0.637
			413.9	-1,600	33,600			320	-7,650										-0.0171	0.068	-0.664
36	1198.0	28,700	413.9	-1,600	27,100	7,540	-6,510	320	-6,190	2.10	0.0300	-0.12	1.98	0.566	-0.489	0.023	-0.466	-0.530	-0.0147	0.058	-0.472
			358.9	-1,400	27,300			280	-6,230										-0.0144	0.057	-0.473
37	1225.0	22,900	358.9	-1,400	21,500	6,030	-5,210	280	-4,930	1.40	0.0203	-0.08	1.32	0.378	-0.327	0.016	-0.311	-0.368	-0.0124	0.049	-0.319
			313.5	-1,200	21,700			250	-4,960										-0.0121	0.048	-0.320
38	1252.0	17,700	313.5	-1,200	16,500	4,620	-3,990	250	-3,740	0.85	0.0118	-0.05	0.80	0.236	-0.204	0.0092	-0.195	-0.236	-0.0104	0.041	-0.195
			268.3	-1,100	16,600			210	-3,780										-0.0101	0.040	-0.196

List
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TABLE 31

DOCKET NO. FZS-36 - 140
MODEL B-36

TABLE 31. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 6 of 8. CONDITION: D.G.W. 278000# 18000#B. FULL FUEL & OIL. H.A.A. @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{J \tan\phi}{\frac{I_x}{Q_x}} \times 10^{-6}$	$\frac{J \tan\phi}{\frac{I_x}{Q_x}} M_x$	S''_k (6) - (31)
		(23)×(14)	.1736 × (22)	(23) - (24)	(25)×(10)	.1736 × (14)	(22)×(14)	(27) + (28)	TABLE 30	(26) × (30)	OR (5) - (6)
26	870.0	24.32	-0.92	25.24	-25802	4.29	-5.23	-0.94	847.3	21386	95614
			-0.93	25.25	-26028		-5.26	-0.97		21394	96806
27	906.0	20.39	-0.77	21.16	-23251	3.59	-4.38	-0.79	886.0	18748	86652
			-0.77	21.16	-23409		-4.39	-0.80		18748	87452
28	942.0	16.181	-0.694	17.425	-20779	2.96	-3.65	-0.69	928.2	16174	78096
			-0.695	17.425	-20917		-3.66	-0.70		16174	78726
29	978.0	13.639	-0.521	14.160	-18376	2.40	-2.96	-0.56	974.8	13803	69197
			-0.528	14.167	-18623		-2.99	-0.59		13810	70390
30	1014.0	10.843	-0.420	11.263	-16161	1.91	-2.38	-0.47	1026	11556	61844
			-0.420	11.263	-16279		-2.39	-0.48		11556	63164
31	1050.0	8.659	-0.327	8.786	-13964	1.491	-1.852	-0.361	1083	8515	53285
			-0.327	8.786	-14063		-1.854	-0.363		8515	53785
32	1080.0	6.667	-0.258	6.925	-12192	1.175	-1.464	-0.289	1136	7367	46839
			-0.264	6.931	-12389		-1.499	-0.346		7874	47826
33	1110.0	5.170	-0.205	5.375	-10616	.911	-1.165	-0.254	1194	6418	41182
			-0.206	5.376	-10675		-1.167	-0.256		6419	41481
34	1140.0	3.851	-0.153	4.004	-8962	.679	-.873	-0.194	1259	5041	34959
			-0.154	4.005	-9021		-.875	-0.196		5042	35258
35	1170.0	2.786	-0.111	2.897	-7366	.491	-.627	-0.136	1330	3853	28847
			-0.115	2.901	-7534		-.654	-0.163		3858	29742
36	1198.0	1.850	-0.082	2.032	-6096	.344	-.465	-0.121	1405	2855	24245
			-0.082	2.032	-6135		-.466	-0.122		2855	24445
37	1225.0	1.300	-0.055	1.355	-4853	.229	-.314	-0.085	1486	2014	19486
			-0.056	1.356	-4885		-.315	-0.086		2015	19685
38	1250.0	0.788	-0.034	0.822	-3683	.139	-.192	-0.053	1576	1255	15205
			-0.034	0.822	-3723		-.193	-0.054		1295	15305

CALCULATED BY [illegible]
DRAWN BY
CHECKED BY [illegible]

TABLE 31

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
CONVAIR DIVISION FORT WORTH, TEXAS

DOC NO. FZS-36-140
MODEL B-36

TABLE 31. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 7 of 8. CONDITION: D.G.W. 278,000#, 10000#B, FULL FUEL & OIL. H.A.A. @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_i}	$1.5(\frac{-N_z}{W})S_{b_i}$ $(\frac{-N_z}{W})=-2.646$	$S_b = S_b'$	$S_{C_{L_{a_i}}}$	$1.5\frac{X}{W}S_{C_{L_{a_i}}}$ $\frac{X}{W}=0.576$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=0.521$	S_c	$M_{x_a}\times10^{-6}$	$M_{x_i}\times10^{-6}$	$1.5(\frac{-N_z}{W})M_{x_i}\times10^{-6}$ $(\frac{-N_z}{W})=-2.646$	$M_x\times10^{-6}$	$M_{C_{L_{a_i}}}\times10^{-6}$	$1.5\frac{X}{W}M_{C_{L_{a_i}}}\times10^{-6}$ $\frac{X}{W}=0.576$	$1.5\frac{X_m}{W}M_{x_i}\times10^{-6}$ $\frac{X_m}{W}=0.521$	$(M_y=M_y')\times10^{-6}$	$T_{EA_a}\times10^{-6}$	$T_{EA_i}\times10^{-6}$	$1.5(\frac{-N_z}{W})T_{EA_i}\times10^{-6}$ $(\frac{-N_z}{W})=-2.646$	$T_{EA}\times10^{-6}$
		Fig. 2.	TABLE 26	-3.969×(4)	(3) + (5)	TAB. 29	-0.864×(7)	0.7815×(4)	(8) + (9)	Fig. 2.	TABLE 26	-3.969×(12)	(11) + (13)	TAB. 29	-0.864×(15)	0.7815×(12)	(16) + (17)	Fig. 2.	TABLE 26	-3.969×(20)	(19) + (22)
39	1278.0	13,000	268.3	-1,100	11,900	3,440	-2,970	210	-2,760	0.48	0.0049	-0.02	0.46	0.131	-0.113	0.0038	-0.109	-0.146	-0.0087	0.035	-0.111
			98.3	-400	12,600			80	-2,890										-0.0018	0.007	-0.139
40	1301.0	9,300	98.3	-400	8,900	2,520	-2,180	80	-2,100	0.26	0.0026	-0.01	0.25	0.073	-0.063	0.0020	-0.061	-0.080	-0.0014	0.006	-0.074
			65.2	-300	9,000			50	-2,130										-0.0012	0.005	-0.075
41	1324.0	6,100	65.2	-300	5,800	1,680	-1,450	50	-1,400	0.18	0.0011	-0.00	0.18	0.037	-0.032	0.0009	-0.031	-0.034	-0.0009	0.004	-0.030
			49.5	-200	5,900			40	-1,410										-0.0008	0.003	-0.031
TIP CG	1346.4	3,400	49.5	-200	3,200	940	-810	40	-770	0.04	0	0	0.04	0.0115	-.0099	0	-0.0099	-0.008	-0.0005	0.002	-0.006
TIP	1380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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TABLE 31

DOC NO. FZS-36-140
MODEL B-36

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

TABLE 31. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 8 of 8. CONDITION: D.G.W. 278,000#; 10,000#B.; FULL FUEL & OIL. H.A.A. @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{T \tan\phi}{I_x/Q_x} \times 10$	$\frac{T \tan\phi}{I_x/Q_x} M'_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (16)	.9848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	OR. 5 = (6)
39	1278.0	0.453	-0.019	0.472	-2718	.0799	-.1093	-.0294	1674	790	11110
			-0.024	0.477	-2846		-.1368	-.0570		798	11802
40	1301.0	0.246	-0.013	0.259	-2068	.0434	-.0728	-.0294	1772	459	8441
			-0.013	0.259	-2098		-.0739	-.0305		459	8541
41	1324.0	0.177	-0.005	0.182	-1379	.03125	-.0295	.0175	1881	342	5458
			-0.005	0.182	-1389		-.0305	.0075		342	5558
TIP	1346.4	0.039	-0.001	0.040	-758	.00684	-.0059	.00104	0	0	3200
			.0	0.039	-0		0		0	0	

CALCULATED BY	Rost	TABLE 31	DOC NO. FZS-36-
DRAWN BY			MODEL B-36
CHECKED BY	Pratt	CONSOLIDATED VULTEE AIRCRAFT CORPORATION CONSOLIDATED DIVISION FORT WORTH, TEXAS	

TABLE 32. [illegible] WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS. PAGE 104 REPORT [illegible]

SHEET 1 OF [illegible]. CONDITION: DGW = 78000 [illegible] 000 LB. FULL FUEL & OIL. LAA - HIGH SPEED [illegible] 5000 FT. DATE [illegible]

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Station	Dist. from C of Ship	S_{Oa}	S_{a1}	[illegible]	S_b , S_b'	S_{c}	[illegible] S_{c}	[illegible] S_d	S_d	M [illegible]	M [illegible]	[illegible]	M	$M_{Ca} \times 10$	[illegible]	[illegible]	[illegible]	[illegible]	T [illegible]	[illegible]	T [illegible]
		Fig. 3	Table 26	[illegible] ④	③ + ⑤	[illegible]	[illegible] ⑦	[illegible] ④	⑧ + ⑨	Fig. 3	Table 26	[illegible] ⑫	⑪ + ⑬	Table [illegible]	[illegible] ⑮	[illegible]	[illegible]	Fig. 3	Table 26	[illegible]	⑳ + ㉑
0	0	568,100	111,417	-443,389	122,811	138,510	-46,810	28,160	-19,600	+711.8	46.465	-185,744	126.4[illegible]	77.519	-26.[illegible]	11.938	-14.4[illegible]	-1.58	-13.513	[illegible]	-17.825
			110,923	-443,415	124,785			28,400	-18,310										-13.8[illegible]	[illegible]	-17.516
1	41.025	[illegible],100	110,923	-443,415	99,685	132,440	-44,800	28,400	-16,[illegible]	+285.0	41.914	-167,551	121,[illegible]	72.07	-24.432	10.814	-13.61[illegible]	-66.31	-12.58[illegible]	60.[illegible]	-16.017
			109,902	-439,335	103,767			28,260	-16,[illegible]										-12.583	50.301	-16.009
2	80.0	519,100	109,902	-439,335	79,767	128,830	-43,000	28,350	-14,[illegible]	+268.[illegible]	37.[illegible]	-150,926	117.[illegible]	66.88	-23.706	9.709	-12.997	-61.65	-11.[illegible]	46.783	-14.867
			109,067	-435,995	83,705			28,0[illegible]	-14,860										-11.675	44.671	-14.979
3	113.25	[illegible]	109,067	-435,995	62,095	12[illegible]	-41,400	28,140	-13,860	+251.[illegible]	[illegible]	-13[illegible]	115.[illegible]	[illegible].71	-21.[illegible]	8.773	[illegible]	-57.88	-10.[illegible]	43.682	-14.141
			108,471	[illegible]	65,387			27,880	-13,410										-10.[illegible]	43.669	-14.161
4	[illegible]	479,100	108,471	-43[illegible]	4[illegible]	117,[illegible]	[illegible]	27,990	-11,840	+[illegible].2	20.[illegible]	-141.5[illegible]	113.[illegible]	60.90	-19.[illegible]	[illegible]	-12.09[illegible]	[illegible].19	-10.1[illegible]	[illegible]	-16.477
			104,434	-417,483	61,617			26,170	-12,890										[illegible]	[illegible]	[illegible]
5	[illegible]	459,500	104,434	-417,483	59,017	11[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	26.[illegible]	[illegible]	111.5[illegible]	[illegible]	-18.[illegible]	[illegible]	-11.[illegible]	-50.[illegible]	-9.[illegible]	37.938	-12.712
			91,313	-365,020	94,488			25,560	-14,[illegible]		26.[illegible]	[illegible]	11[illegible]			6.[illegible]0	-11.101		-9.932	35.706	-14.934
6	[illegible]	444,100	91,313	-365,020	[illegible]	10[illegible]	[illegible]	23,[illegible]	[illegible]	+207.8	24.571	[illegible]	10[illegible]	51.[illegible]	-17.[illegible]	6.488	[illegible]	-47.94	-8.[illegible]	[illegible]	[illegible]
			81,438	-325,[illegible]	108,[illegible]			21,910	-16,[illegible]		24.26[illegible]	-96,[illegible]	110.[illegible]			6.[illegible]	[illegible]		-8.[illegible]	[illegible]	-15.[illegible]
7	[illegible].33	429,100	81,438	-325,[illegible]	103,5[illegible]	105,540	[illegible]	21,[illegible]	-14,[illegible]	+1[illegible]	22.1[illegible]	[illegible]17	107.[illegible]	[illegible]	-16.[illegible]	5.712	[illegible]	[illegible]	-7.[illegible]	[illegible]	[illegible]
			65,[illegible]	-260,73[illegible]	168,[illegible]			18,[illegible]	-18,[illegible]		21.[illegible]	[illegible]	105.[illegible]			5.[illegible]	[illegible]		-6.[illegible]	[illegible]	[illegible]
8	[illegible]	420,000	65,[illegible]	-260,7[illegible]	108,[illegible]	103,[illegible]	[illegible]	16,[illegible]	-18,160	[illegible].1	20.562	-8[illegible]97	106.803	44.47	-16.092	5.30[illegible]	-10.[illegible]	-4[illegible].67	-6.3[illegible]	[illegible]	[illegible]
			60,381	-241,373	128,627			15,[illegible]	-19,410										-6.[illegible]	[illegible]	[illegible]
9	[illegible]	399,[illegible]	60,[illegible]	-241,[illegible]	[illegible],127	9[illegible]	[illegible]	15,[illegible]	[illegible]	+1[illegible]	[illegible]	-78,634	100.966	43.90	-14.882	4.752	-10,130	-40.3[illegible]	-5.729	22,902	-17.418
			68,489	-273,[illegible]	[illegible]			17,670	-15,[illegible]		[illegible]	-73,218	101.[illegible]			4.776	-10,156		-6.274	25,050	-16,140
10	[illegible]	[illegible],100	[illegible]	-27[illegible]	110,[illegible]	[illegible]	[illegible]	17,6[illegible]	[illegible]	[illegible]	[illegible]	-65,607	98,3[illegible]	41.23	-13.31[illegible]	4.2[illegible]	[illegible]	-37.[illegible]	-5.887	23,53[illegible]	-14,317
			68,[illegible]	-27[illegible]	11[illegible]			17,580	[illegible]										-5.[illegible]	[illegible]	-1[illegible]
11	[illegible]	369,100	68,12[illegible]	[illegible]	[illegible]	[illegible],160	[illegible]	17,580	[illegible]	[illegible]	14,558	-58,1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-35.4[illegible]	[illegible]	[illegible]	[illegible]
			60,860	[illegible]	[illegible]			15,[illegible]	[illegible]										[illegible]	[illegible]	[illegible]
12	[illegible].75	349,300	60,860	[illegible]	106,21[illegible]	[illegible]	[illegible]	15,[illegible]	[illegible]	+1[illegible]	[illegible]	-49,[illegible]	90.013	35.30	-11.[illegible]	4.1[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-14.919
			54,395	[illegible]	[illegible]			14,350	-15.3[illegible]										[illegible]	[illegible]	[illegible]

TABLE [illegible]

TABLE 32 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 2 of 8. CONDITION: O.G.W. 278,000# 10,000# B, FULL FUEL & OIL L.A.A.-HIGH SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{I_x}{Q_x}$	$\frac{I_x}{Q_x} M'_x$	S''_c
		(3)(4)	(1.736 × (22))	(23) − (24)	(3)(4) − (10)	(1.736 × (14))	(3)(4) − (22)	(27) ÷ (28)	TABLE 30	(25) × (30)	(4) − (31) OR S = (8)
0	0	124.140	-3.042	127.182	-17.880	21.883	-17.258	4.625	412.7	52,488	70,323
			-3.041	127.181	-18.030		-17.250	4.633		52,488	72,287
1	41.025	119.603	-2.781	122.384	-16.050	21.084	-15.774	5.310	423.0	51,768	49,843
			-2.779	122.382	-16.300		-15.766	5.318		51,768	51,998
2	80.0	116.181	-2.581	118.762	-14.430	20.480	-14.641	5.839	433.1	51,436	39,884
			-2.600	118.781	-14.630		-14.751	5.729		51,444	41,553
3	113.25	113.110	-2.455	116.165	-13.060	20.045	-13.926	6.119	442.2	51,368	31,503
			-2.458	116.168	-13.210		-13.946	6.099		51,369	32,684
4	146.5	111.856	-2.390	114.296	-11.660	19.736	-13.072	6.464	454.3	73,755	-28,268
			-2.322	114.278	-12.690		-13.138	6.521	451.7	51,619	30,869
5	180	110.269	-2.207	112.476	-11.120	19.438	-12.513	6.919	459.6	74,189	-32,172
		110.876	-2.583	113.469	-14.480	19.545	-14.707	4.838	461.7	52,389	47,240
6	206	108.693	-2.463	111.162	-12.270	19.161	-13.963	5.198	460.7	52,213	39,540
		109.137	-2.716	111.853	-12.730	19.230	-15.410	3.820		52,537	66,015
7	238	106.046	-2.566	108.612	-14.550	18.694	-14.556	4.138	478.1	51,927	51,776
		107.301	-3.420	111.321	-18.660	19.021	-19.403	-.382		53,223	115,140
8	268.25	105.278	-3.280	108.558	-17.880	18.558	-18.665	-.107	463.9	52,536	106,727
			-3.300	108.578	-19.110		-18.730	-.162		52,541	126,088
9	298.5	99.431	-3.029	102.459	-17.510	17.529	-17.163	+.375	495.9	50,807	107,320
		99.841	-2.646	102.487	-15.450	17.600	-15.088	+2.592		50,823	74,392
10	312	96.720	-2.485	99.205	-14.220	17.050	-14.085	+2.651	505.8	50,178	60,137
			-2.485	99.205	-14.310		-14.095	+2.555		50,178	61,580
11	339.5	93.767	-2.343	96.100	-13.120	16.527	-13.091	+3.036	516.0	49,588	48,379
			-2.790	96.557	-14.970		-15.830	+.697		49,818	75,994
12	375.25	89.527	-2.590	92.127	-13.430	15.784	-14.692	+1.092	530.2	48,846	57,366
			-2.585	92.122	-15.080		-14.665	+1.119		48,843	83,319

CALCULATED BY J.B.W.
DRAWN BY
CHECKED BY

TABLE 32

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

DOC NO. FZS-36-140
MODEL B-36

TABLE 32 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 3 OF 8 CONDITION: D.G.W. 278,000# 10,000# B, FULL FUEL & OIL L.A.A. HIGH SPEED @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{Xa}	S_{Ya}	S_{Za}	S_b	S_c	S_{Xb}	S_{Yb}	S_{Zb}	$M_{Xa}\times10^6$	$M_{Ya}\times10^6$	$M_{Za}\times10^6$	$M_{Xb}\times10^6$	$M_{Yb}\times10^6$	$M_{Zb}\times10^6$	$M_{Xc}\times10^6$	$(M_Y=M_Z)\times10^6$	$Tor_a\times10^6$	$Tor_b\times10^6$	$Tor_c\times10^6$
		Fig. 3	Table 26		④	③ + ⑤				Fig. 3	Table 26		⑩	⑪ + ⑬			⑯ + ⑱	Fig. 3	Report		⑳ + ㉒
13	412	330,000	84,232	-227,444	120,256	281,930	-27,720	34,320	-13,240	+127.8	10,380	[illegible]	86,906	32,361	-10.97	2.[illegible]	-8.29[illegible]	-29.73	-4.005	+16.010	-13.720
			49,332	-183,211	136,883			12,470	-15,300										-4.023	+6.078	-15,652
14	445.5	311,500	48,332	-183,211	118,293	77,520	-26,280	12,470	-19,810	+116	8,016	[illegible]	81,858	29,[illegible]	[illegible]	2.223	-7.787	-27.[illegible]	-8.660	+14.621	-18,418
			40,556	-170,118	141,382			10,980	-15,300										-3.676	+12.[illegible]	-18,355
15	485	293,000	40,556	-170,118	123,882	73,120	-24,790	10,380	-12,810	+105.5	7,060	-28[illegible]	76,766	25.75	-2.0[illegible]	1.822	-7.234	-24.[illegible]	-3.387	+10,420	-11,160
			37,333	-149,238	143,761			9,630	-12,[illegible]										-3.137	+8,340	-11,140
16	521.5	273,000	37,333	-149,238	128,661	68,870	-25,350	9,[illegible]	-12,[illegible]	+94.50	5,700	-22,[illegible]	72,014	24.[illegible]	-8.21[illegible]	1.471	-6.742	-22.[illegible]	-2.[illegible]	12,280	-9,990
			31,352	-125,339	143,570			8,670	-[illegible]										-2.[illegible]	10,[illegible]	-12,160
17	[illegible]	264,300	31,352	-125,339	125,870	65,870	-25,700	8,070	[illegible]	[illegible]	4,838	-19,340	67,860	22.[illegible]	-7.572	1.[illegible]	-6.326	-22.[illegible]	[illegible]	[illegible]	-11,[illegible]
			26,828	-104,184	137,006			6,[illegible]	-14,210										[illegible]	[illegible]	-11,[illegible]
18	592.5	250,000	26,828	-104,184	123,800	62,310	-21,[illegible]	6,020	-13,[illegible]	[illegible]	3,[illegible]	-[illegible]	63,[illegible]	20.61	-6.[illegible]	[illegible]	-5.[illegible]	-18.98	[illegible]	[illegible]	-10,[illegible]
			22,831	-89,662	148,720			5,610	-[illegible]										[illegible]	[illegible]	-10,[illegible]
[illegible]	[illegible]	240,000	22,831	-89,662	128,700	58,100	-18,[illegible]	5,610	-13,200	+78.95	2,810	[illegible]	[illegible]	[illegible]	-6.170	[illegible]	-5.[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]
			19,[illegible]	-79,[illegible]	150,046			5,160	-14,[illegible]										[illegible]	[illegible]	-[illegible]
[illegible]	[illegible]	214,[illegible]	20,001	-79,954	132,546	53,820	-16,[illegible]	5,160	-13,[illegible]	+65.25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			15,[illegible]	-62,301	150,199			4,020	-14,[illegible]										[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	190,[illegible]	15,685	-62,301	133,[illegible]	49,730	-14,850	4,020	[illegible]	[illegible]	[illegible]	[illegible]	47,914	14.06	[illegible]	[illegible]	-4.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			11,[illegible]	-47,[illegible]	148,[illegible]			3,070	[illegible]										[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	-47,[illegible]	131,854	45,[illegible]	-13,470	[illegible]	[illegible]	+47.15	1.172	-4.6631	42.4608	12.17	-4.126	[illegible]	-3.[illegible]	-11.80	-1.079	[illegible]	[illegible]
			8,[illegible]	-30,011	139,389			2,580	[illegible]										-1.072	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	10,[illegible]	-30,011	125,[illegible]	42,[illegible]	-13,300	[illegible]	-11,[illegible]	+41.25	[illegible]	-3.3275	37.9235	10.10	[illegible]	[illegible]	-3.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			6,886	-25,128	140,372			1,670	-10,[illegible]										[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	243,000	6,886	-25,128	124,672	38,[illegible]	-12,[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			3,585	-10,[illegible]	[illegible]			[illegible]	[illegible]										[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	35,170	-11,910	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			3,[illegible]	[illegible]	[illegible]			[illegible]	[illegible]										[illegible]	[illegible]	[illegible]
																		TABLE 32			

TABLE 32 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 4 of 8. CONDITION: D.S.W. 270000# 10000# B. FULL FUEL & OIL. 1.4A. HIGH SPEED @ 5000 FT.

1.	2.	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_z \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M_z \times 10^6$	$S_r = S_s \cos\alpha$	$M_z \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J_{max}}{J_z} \times 10^6$	$\frac{J_{max}}{J_z} M_z$	S''_s (6) - (24)
		(14) × (22)	(15) × (22)	(23) - (24)	(9) × (10)	(14) × (16)	(22) × (17)	(27) × (18)	TABLE 30	(29) × (30)	OR (5) - (6)
13	412	85.093	-2.382	87.475	-13.530	15.000	-13.511	1.489	546.1	47,683	64,973
			-2.370	87.463	-15.070		-13.444	1.556		47,676	89,213
14	448.5	80.417	-2.152	82.573	-13,600	14.176	-12.230	1.946	561.1	46,332	71,257
			-2.145	82.562	-15.070		-12.167	2.009		46,326	95,056
15	485	75.599	-1.937	77.536	-13,600	13.327	-10.990	2.337	578.0	44,816	78,066
			-1.937	77.550	-14,930		-11.069	2.258		44,824	98,937
16	521.5	70.919	-1.734	72.653	-13,510	12.502	-9.838	2.664	596.0	43,301	82,360
			-2.112	73.031	-15,030		-11.979	0.523		43,526	106,044
17	559	66.829	-1.945	68.774	-13,930	11.780	-11.032	0.748	610.3	41,933	98,897
			-1.944	68.773	-13,990		-11.028	0.752		41,873	95,034
18	576.5	63.248	-1.797	65.045	-12,900	11.148	-10.184	0.965	625.7	40,660	83,141
			-2.166	65.394	-14,990		-12.170	-1.027		40,804	107,854
19	612.5	57.931	-1.648	59.579	-13,020	10.033	-10.813	-.780	642.7	38,705	91,343
			-1.808	59.739	-14,920		-10.813	-.806		38,795	104,251
20	648.5	52.486	-1.472	54.154	-12,880	9.251	-9.483	-.232	671.9	36,380	96,168
			-1.465	54.147	-14,000		-9.447	-.196		36,291	113,819
21	685.5	47.186	-1.424	48.620	-12,640	8.318	-8.127	+.191	697.9	33,932	90,662
			-1.439	48.625	-13,580		-8.166	+.153		33,939	114,319
22	724	41.918	-1.213	43.028	-12,210	7.371	-6.881	+.490	724.1	31,243	90,967
			-1.217	43.032	-12,690		-6.904	+.467		31,246	108,143
23	766	37.246	-1.031	38.377	-11,540	6.583	-5.850	+.733	752.7	28,886	96,603
			-1.313	38.689	-12,490		-7.449	-.866		29,099	112,273
24	806	32.083	-1.095	33.178	-11,190	5.656	-6.214	-.558	786.3	26,088	99,504
			-1.358	33.441	-12,120		-7.705	-2.047		26,295	112,171
25	840	27.603	-1.174	28.777	-11,070	4.866	-6.662	-1.796	817.6	23,528	102,938
			-1.174	28.777	-11,140		-6.661	-1.795		23,529	103,090

CALCULATED BY: T.E.L.
DRAWN BY:
CHECKED BY: B. Loe, Pfeffer

TABLE 32

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

DOC NO. FZS-36-140
MODEL B-36

TABLE 32 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 4 of 8. CONDITION: D.S.W. 278,000# 10,000# B. FULL FUEL & OIL 1.5 A. HIGH SPEED @ 5000 FT.

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STATION	DIST. FROM ℄ OF SHIP	23	24	25	26	27	28	29	30	31	32
		$P_{1z}\cos\alpha \times 10^6$	$T_{EA}\sin\alpha \times 10^6$	$P_{1z}\sin\alpha \times 10^6$	$S_c' \cdot S_z\cos\alpha$	$P_{1z}\sin\alpha \times 10^6$	$T_{EA}\cos\alpha \times 10^6$	$T_{EA} \times 10^6$	$\frac{I_z}{Q_z}$	$\frac{I_z}{Q_z} \times P_{1z}$	S_c'
		(19)×(14)	.1736 × (22)	(23) − (24)	(18)×(10)	.1736 × (14)	(29)×(28)	(27) + (28)	TABLE 30	(27) × (30)	(6) − (31) OR (5) − (6)
13	414	85.093	−2.382	87.475	−13.530	15.000	−13.511	1.489	546.1	47,683	64,973
			−2.370	87.463	−15.070		−13.444	1.556		47,676	89,212
14	448.5	80.417	−2.156	82.573	−13.600	14.176	−12.230	1.946	561.1	46,332	71,957
			−2.145	82.562	−15.070		−12.167	2.009		46,326	95,056
15	485	75.599	−1.937	77.536	−13.600	13.327	−10.990	2.337	578.0	44,816	78,066
			−1.851	77.550	−14.930		−11.062	2.258		44,824	98,937
16	521.5	70.919	−1.734	72.653	−13.510	12.502	−9.838	2.664	596.0	43,301	82,360
			−2.112	73.031	−15.030		−11.979	0.523		43,586	106,014
17	560	66.829	−1.945	68.774	−13.930	11.780	−11.032	0.748	610.3	41,933	93,897
			−1.944	68.773	−13.990		−11.028	0.752		41,872	95,034
18	576.5	62.248	−1.795	65.043	−12.900	11.148	−10.104	0.965	625.7	40,615	83,141
			−2.146	65.394	−14.990		−12.170	−1.027		40,884	107,854
19	612.5	57.931	−1.648	59.579	−12.090	10.223	−10.813	−.590	642.7	38,795	91,243
			−1.806	59.737	−14.920		−10.813	−.590		38,795	81,257
20	648.5	54.482	−1.672	56.154	−12.880	9.251	−9.483	−.232	671.9	36,266	96,168
			−1.665	56.147	−14.000		−9.447	−.196		36,281	113,818
21	685.5	47.186	−1.434	48.620	−12.640	8.318	−8.127	+.191	697.9	33,932	99,862
			−1.439	48.625	−13.580		−8.165	+.153		33,937	114,319
22	724	41.318	−1.213	43.028	−12.210	7.371	−6.891	+.490	786.1	31,243	102,011
			−1.217	43.032	−12.690		−6.904	+.467		31,244	106,143
23	766	37.346	−1.031	38.377	−11.540	6.583	−5.850	+.733	751.7	28,886	96,803
			−1.313	38.659	−12.490		−7.449	−.866		29,099	111,273
24	806	32.083	−1.095	33.178	−11.190	5.656	−6.214	−.558	786.3	26,088	98,594
			−1.358	33.441	−12.120		−7.703	−2.047		26,295	113,171
25	840	27.603	−1.174	28.777	−11.070	4.866	−6.662	−1.796	817.6	23,528	102,938
			−1.174	28.777	−11.140		−6.661	−1.795		23,528	103,990

CALCULATED BY	T. Ellis	
DRAWN BY		
CHECKED BY	Robert Pruffer	

TABLE 32

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

DOC. NO. FZS-38-140
MODEL B-36

TABLE 32 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 5 of 8 — CONDITION: O.G.W. - 278,000# 10,000 G. FULL FUEL & OIL L.A.A. - HIGH SPEED @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Station	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_i}	$L(\frac{W}{L})S_{b_i}$ (W)=2665	$S_b = S_b'$	$S_{a_{M_i}}$	$L(\frac{W}{L})S_{a_{M_i}}$ $\frac{W}{L}$=-224	$L(\frac{W}{L})S_{a_{M_N}}$ $\frac{W}{L}$=-172	S_c	$M_{x_a} \times 10^6$	$M_{x_i} \times 10^6$	$L(\frac{W}{L})M_{x_i}$ $\times 10^6$ (W)=2665	$M_x \times 10^6$	$M_{c_a} \times 10^6$	$L(\frac{W}{L})M_{c_a}$ $\times 10^6$ $\frac{W}{L}$=-224	$L(\frac{W}{L})M_{c_N}$ $\times 10^6$ $\frac{W}{L}$=-172	$(M_y = M_z')$ $\times 10^6$	$T_{B_a} \times 10^6$	$T_{B_i} \times 10^6$	$L(\frac{W}{L})T_{B_i}$ $\times 10^6$ (W)=2665	$T_{B_N} \times 10^6$
		Fig. 3	Table 26	2.665 (4)	(3)+(5)	Table 26	-.224 (7)	.172 (8)	(6)+(9)	Fig. 3	Table 26	2.665 (11)	(10)+(12)	Table 26	-.224 (14)	.172 (15)	(13)+(16)	Fig. 3	Table 26	2.665 (19)	(18)+(20)
16	570	12,546	2322	-9,282	116,418	32,920	-10,990	599	-10,391	+26.00	.4234	-1.6425	24.3075	6.82	-2.312	.1892	-2.2028	-4.516	-.1235	+.5337	-5.8813
			2022	-8,083	117,617			522	-10,469										-.1251	+.5001	-5.9142
27	886	112,800	2022	-8,083	105,717	29,160	-9,885	522	-9,363	+21.74	.3506	-1.4015	20.9185	5.754	-1.951	.0905	-1.8605	-5.416	-.1101	+.4401	-5.9758
			1823	-7,287	105,513			470	-9,415										-.1090	+.4357	-5.9803
28	1111	100,300	1823	-7,287	93,013	26,070	-8,636	470	-8,368	+17.91	.2850	-1.1393	16.8307	4.705	-1.595	.0735	-1.5215	-4.616	-.0955	+.3818	-4.1282
			1640	-6,554	93,144			423	-8,415										-.09454	+.27792	-4.13208
29	1336	88,650	1640	-6,554	81,904	23,080	-7,624	423	-7,481	+13.63	.2259	-.9036	13.7170	3.813	-1.293	.0595	-1.2335	-3.710	-.08249	+.22659	-3.38661
			1322	-5,289	82,261			381	-7,483										-.07282	+.25150	-3.41850
30	1814	77,260	1322	-5,289	71,971	20,190	-6,644	341	-6,503	+11.63	.1783	-.7128	10.9172	3.055	-1.035	.0460	-.9890	-2.999	-.06315	+.18236	-2.76679
			1168	-4,672	72,611			301	-6,543										-.06235	+.14594	-2.74572
31	2050	66,500	1168	-4,672	62,828	17,670	-5,812	301	-5,521	+9.625	.1362	-.5445	8.9175	2.397	-.8126	.0351	-.7775	-2.369	-.05790	-.1[illegible]	-2.1[illegible]
			1041	-4,161	62,330			269	-5,493										-.05867	+.11[illegible]	-2.12[illegible]
32	1080	58,000	1041	-4,161	53,839	15,270	-5,177	269	-4,908	+7.180	.1050	-.4197	6.7853	1.925	-.6526	.0271	-.6255	-1.920	-.04645	+.10[illegible]	-1.8[illegible]
			786	-3,142	54,858			203	-4,974										-.03781	+.8[illegible]	-1.8[illegible]
33	1119	48,900	786	-3,142	46,758	13,180	-4,460	203	-4,146	+5.485	.0845	-.3256	5.1274	1.480	-.5021	.0210	-.4811	-1.520	-.03234	+.7[illegible]	-1.3[illegible]
			706	-2,806	47,000			184	-4,243										-.03254	+.13008	-1.3[illegible]
34	1040	41,000	706	-2,806	39,194	11,170	-3,787	181	-3,606	+4.110	.0633	-.2414	3.8686	1.117	-.3787	.0156	-.3631	-1.175	-.02320	+.0[illegible]	-1.2[illegible]
			617	-2,506	39,494			162	-3,423										-.02774	+.1[illegible]	-1.2[illegible]
35	1170	34,500	617	-2,506	32,044	9,200	-3,183	142	-2,947	+2.944	.0453	-.1663	2.8137	.803	-.2722	.0101	-.2615	-.8845	-.02509	+.0[illegible]	-[illegible]
			514	-1,488	32,503			107	-3,242										-.01708	+.0[illegible]	-[illegible]
36	1238	28,100	514	-1,665	26,445	7,590	-2,556	107	-2,449	+1.889	.02060	-.1199	1.9651	.556	-.1919	.0077	-.1842	-.6458	-.01867	+.0[illegible]	-[illegible]
			359	-1,435	26,665			93	-2,448										+.01[illegible]	[illegible]	[illegible]
37	1425	22,000	359	-1,435	20,915	6,030	-2,054	93	-1,961	+1.400	.0203	-.0819	1.3181	.378	-.1281	.0052	-.1229	-.4[illegible]	-.01[illegible]	[illegible]	[illegible]
			314	-1,255	21,095			81	-1,962										-.01[illegible]	[illegible]	[illegible]
38	1652	17,000	314	-1,255	15,745	4,620	-1,646	81	-1,485	+0.870	.01185	-.04737	.8243	.236	-.0800	.0031	-.0769	-.3120	-.01057	[illegible]	[illegible]
			246	-1,011	16,013			69	-1,497										-.0101[illegible]	[illegible]	[illegible]

TABLE 32

TABLE 32 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 4 of 8 CONDITION: D.G.W. 278,000# 10,000# B. FULL FUEL & OIL L.A.A.-HIGH SPEED @ 5,000 ft.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_z \cos\theta \times 10^6$	$T_{EA} \sin\theta \times 10^6$	$M_x^+ \times 10^6$	$S_z^+ \times S_z \cos\theta$	$M_y \sin\theta \times 10^6$	$T_{EA} \cos\theta \times 10^6$	$T_{EA}^+ \times 10^6$	$\frac{J_z}{Q_z} \times 10 \times T \tan\theta$	$\frac{T_z}{Q_z} \times T \tan\theta \times M_x$	S_z^+ (6) − (31)
		3648 × (14)	1.736 × (22)	(23) − (24)	3648 × (10)	1.736 × (14)	3648 × (22)	(27) + (28)	TABLE 30	(29) × (30)	OR. ℄ (6)
26	870	23.939	-1.021	24.959	-10,230	4.220	-5.792	-1.572	847.3	21,148	95,270
			-1.027	24.965	-10,310		-5.825	-1.605		21,153	96,464
27	906	20.010	-.8638	20.874	-9,021	3.527	-4.900	-1.373	886.0	18,494	86,223
			-.8646	20.875	-9,272		-4.905	-1.378		18,495	87,018
28	942	16.575	-.7167	17.292	-8,241	2.922	-4.065	-1.143	929.2	16,050	76,963
			-.7173	17.292	-8,297		-4.065	-1.147		16,051	77,699
29	978	13.509	-.5869	14.096	-7,289	2.381	-3.329	-0.948	974.8	13,741	68,253
			-.5935	14.103	-7,365		-3.367	-0.986		13,747	69,514
30	1014	10.751	-.4768	11.228	-6,404	1.895	-2.705	-0.810	1026	11,520	60,471
			-.4774	11.228	-6,444		-2.708	-0.813		11,520	61,091
31	1050	8.347	-.3738	8.721	-5,536	1.471	-2.121	-0.650	1083	9,445	52,386
			-.3743	8.721	-5,567		-2.123	-0.652		9,445	52,894
32	1080	6.628	-.3009	6.929	-4,833	1.168	-1.707	-0.539	1136	7,871	45,968
			-.3071	6.935	-4,898		-1.742	-0.574		7,879	46,980
33	1110	5.081	-.2410	5.322	-4,200	.8957	-1.367	-0.4713	1194	6,354	40,494
			-.2418	5.322	-4,222		-1.369	-0.4733		6,355	40,739
34	1140	3.910	-.1839	3.994	-3,551	.6716	-1.043	-0.3714	1259	5,089	34,166
			-.1842	3.994	-3,570		-1.045	-0.3734		5,089	34,465
35	1170	2.771	-.1370	2.908	-2,922	.4885	-.7770	-0.2885	1330	3,868	29,176
			-.1417	2.913	-2,976		-.8039	-0.3154		3,874	29,021
36	1198	1.935	-.1023	2.037	-2,412	.3411	-.5804	-0.2393	1405	2,862	23,583
			-.1025	2.038	-2,426		-.5815	-0.2404		2,863	23,802
37	1225	1.299	-.0798	1.371	-1,921	.2290	-.4082	-0.1792	1486	2,037	18,878
			-.0715	1.371	-1,933		-.4093	-0.1803		2,038	19,057
38	1252	.8101	-.04697	.8571	-1,462	.1428	-.2664	-0.1236	1576	1,351	14,394
			-.04714	.8578	-1,474		-.2674	-0.1246		1,351	14,578

CALCULATED BY	J. Pelle	TABLE 32	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY			

TABLE 32 B-36 WING NET ULTIMATE SHEARS BENDING MOMENTS & TORSIONS

SHEET 7 OF 8 CONDITION 10 @ W = 278,000# 10,000# Bomb, Full Fuel & Oil 2.4 A.A. - High Speed @ 5000 FT.

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	$S_{b_{LL}}$	S_{b_1}	$S_{b_{RL}}$	$S_b = S_b'$	$S_{c_{LL}}$	$S_{c_{RL}}$	S_{c_1}	S_c	$M_{x_{LL}}$	M_{x_1}	$M_{x_{RL}}$	M_x	$M_{y_{LL}}$	$M_{y_{RL}}$	M_{y_1}	$(M_y = M_z)$	$T_{BL_{LL}}$	T_{BL_1}	$T_{BL_{RL}}$	T_{BL}
		Fig. 3	Table 4	⑥	⑦ + ⑧		⑩	⑪	⑫ + ⑬	Fig. 3	Table 4	⑯	⑰ + ⑱			Fig. 3	㉑ + ㉒	㉓ + ㉔	Fig. 3	Table 4	㉗ + ㉘
39	1278	12,500	240	3,074	11,420	3,440	-1156	20	-1057		0.00487	-0.01343	1.42833	.131	-0.0444	0.00144	-0.04344	-2060	-0.03470	-1530	
			98	392	12,104														-0.01896	+0.00794	-1.0266
40	1201	8,470	240	-392	8,558	2,520	-854	25	-808	+0.220	0.00260	-0.0112	1.21357	.073	-0.0247	0.00647	-0.02402	-1200	-0.01370	+0.00548	-1.1432
			45	260	8,490			17	-697										-0.01198	+0.00479	-1.1541
41	1124	5,350	48	-260	5,098	1,680	-570	17	-583	+0.075	0.00109	-0.0113	0.8057	.037	-0.0164	0.00229	-0.01225	-0.0810	-0.00801	+0.00356	-0.8514
			39	200	5,550			13	-557										-0.00771	+0.00301	-0.8470
41PT.	1124	6,100	50	-200	5,900	940	-319	13	-306	+0.000	0	0	0	0.110	-0.0390	0	-0.0390	-0.0140	-0.00398	+0.0217	-0.0181
13PT.	1200.84	0	0	0	0	0	0	0	0	0	0.13	0	0	0	0	0	0	0	0	0	0

TABLE 32

TABLE 32 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

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DATE: 12-7-4

SHEET 7 of 8 CONDITION 1 @ 278,000# 10 G FULL FUEL & OIL 1.4 A. HIGH SPEED @ 30,000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
STATION	DIST. FROM ℄ OF SHIP	$S_{b_{cu}}$	S_{b_1}	$10^{6}S_{b_1}$ (1.5)=2.25	$S_b = S_b'$	S_{cu_1}	$10^{6}S_{cu_1}$ (1.5)=2.25	$10^{6}S_{cu_2}$ (1.5)=1.75	S_{cu_2}	$M_{x_a} \times 10^{6}$	$M_{z_a} \times 10^{6}$	$10^{6}M_{z_a}$ (1.5)=2.25	$M_x \times 10^{6}$	$M_{o_x} \times 10^{6}$	$10^{6}M_{o_x}$ (1.5)=2.25	$M_{y_i} \times 10^{6}$	$(M_y - M_i)$	$T_{BA_a} \times 10^{6}$	$T_{BA_i} \times 10^{6}$	$10^{6}T_{BA_i}$ (1.5)=2.25
		Fig. 5	Table 2	⑥	⑦	⑥ + ⑦	Table 3	Fig. 5	⑨	⑩	⑪	⑫	Fig. 2	Table 2	⑭	⑮	⑯	⑰	Fig. 3	Table 2	⑳
39	1478	14,800	2,440	5,490	11,420	3,440	-1,146	2,29	-1,073	0.0486	0.00487	-0.01097	4.2853	.1911	-0.0444	0.01900	-0.03144	2.0009	-0.00681	+0.03470
			98	392	12,104				-646										-0.01313	+0.01981
40	1201	8,490	1,680	-382	8,558	2,520	-839	25	-848	+0.0225	0.00240	-0.0439	2.1987	.073	-0.2147	0.00667	-0.2403	-1.1008	-0.01250	+0.0234
			45	240	8,490			17	-637										-0.01194	+0.01479
41	1024	5,350	1,560	-0.40	8,490	1,660	-570	17	-583	+0.0736	0.01109	-0.0445	0.7055	.037	-0.1254	0.00039	-0.1225	-0.0330	-0.00881	+0.00556
			39	200	5,550			13	-557										-0.00771	+0.00908
41 F.S.	1340	0,100	50	-400	2,000	940	-319	13	-306	0	0	0	0.0146	-0.0390	0	-0.0390	-0.0160	0		+0.0217
	(200.85)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

TABLE 32

TABLE 32 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 2 of 8 CONDITION: DG.W. 278,000#, 10,000# B. FULL FUEL & OIL. L.A.A.-HIGH SPEED @ 5,000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T_{TRAN}}{T_x} \times \frac{M'_x}{Q'_x}$	$\frac{T_{TRAN}}{T_x} \times M'_x$	$S'_b = (5) - (31)$
		3848 × (14)	1756 × (22)	(23) − (24)	3848 × (10)	1756 × (16)	3848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	OR. 5 − (6)
39	1278	.4585	−.02870	.4872	−1080	.08082	−.1628	−.08198	1674	816	10,613
			−.08345	.4920	−1124		−.1897	−.10888		824	11,284
40	1901	.2162	−.01988	.2362	−816	.08812	−.1128	−.07468	1772	418	8,140
			−.02040	.2363	−824		−.1135	−.07539		419	8,271
41	1384	.06950	−.00928	.0788	−545	.01225	−.05163	−.04038	1881	149	5,342
			−.00936	.0789	−549		−.05310	−.04098		148	5,402
TIP C.G.	1346A	0	−.00240	.00240	−301	0	−.01362	−.01362	—	—	2,300
TIP	1380	0	0	0	0	0	0	0			0

CALCULATED BY J. Ellis
CHECKED BY
PROJECT BY B. Scott

TABLE 32

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

DOC NO. FZS-36-RD
MODEL

TABLE 33 B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 1 of 8 CONDITION: D.G.W. 268,213 # 10000 # B. FULL FUEL & OIL. LAA-HIGH SPEED @ 30,000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST FROM ℄ OF SHIP	S_{ba}	S_{b_1}	$1.5(\frac{M_{y_1}}{W})S_{b_1}$ $(\frac{M_{y_1}}{W})=0.447$	$S_b = S_b'$	$S_{c_{a_1}}$	$1.5\frac{S_{c_{a_1}}}{W}$ $\frac{S_{c_{a_1}}}{W}=0.180$	$1.5\frac{S_{b_1}}{W}$ $\frac{S_{b_1}}{W}=0.180$	S_c	$M_{x_a} \times 10^6$	$M_{x_1} \times 10^6$	$1.5(\frac{M_{x_1}}{W})M_{x_1}$ $\times 10^6$ $(\frac{M_{x_1}}{W})=0.447$	$M_x \times 10^6$	$M_{c_{a_1}} \times 10^6$	$1.5\frac{S_{c_{a_1}}}{W}M_{c_{a_1}}$ $\times 10^6$ $\frac{S_{c_{a_1}}}{W}=0.180$	$1.5\frac{M_{y_1}}{W}M_{y_1}$ $\times 10^6$ $(\frac{M_{y_1}}{W})=0.447$	$(M_y = M_{y_1})$ $\times 10^6$	$T_{BA_a} \times 10^6$	$T_{BA_1} \times 10^6$	$1.5(\frac{M_{y_1}}{W})T_{BA_1}$ $\times 10^6$ $(\frac{M_{y_1}}{W})=0.447$	$T_{BA} \times 10^6$
		Fig. 4	TABLE 26	1.400 × (4)	(3) + (5)	TAB 29	1.285 × (7)	1.0447 × (4)	(8) + (9)	Fig. 4	TABLE 26	1.400 × (12)	(11) + (13)	TAB 29	1.285 × (16)	1.0447 × (12)	(16) + (17)	Fig. 4	TABLE 26	1.400 × (22)	(20) + (21)
0	0	552800	106524	-424100	126700	133500	-38048	20932	-17116	302.5	45.392	-181.570	120.530	74.770	-21.32	8.920	-12.400	-73.85	-13.329	+53.32	-20.57
			106030	-424100	128700			20835	-17213		45.392	-181.570	120.530			8.920	-12.400		-13.331	+53.33	-20.56
1	41.025	528600	106030	-424100	104500	127780	-36417	20835	-15582	281.8	41.042	-164.170	117.630	69.53	-19.82	8.065	-11.755	-68.60	-12.436	+49.75	-18.85
			105009	-420000	108600			20634	-15783		41.042	-164.170	117.630			8.065	-11.755		-12.438	+49.75	-18.85
2	80.0	505600	105009	-420000	85600	122370	-34875	20634	-14241	262.6	36.949	-147.800	114.800	64.62	-18.42	7.260	-11.160	-63.72	-11.597	+46.39	-17.35
			104174	-416700	88900			20470	-14405		36.949	-147.800	114.800			7.260	-11.160		-11.569	+46.28	-17.44
3	113.25	486200	104174	-416700	69500	117810	-33576	20470	-13106	246.5	33.486	-133.940	112.560	60.58	-17.27	6.580	-10.690	-59.84	-10.857	43.43	-16.41
			103578	-414300	71900			20353	-13223		33.486	-133.940	112.560			6.580	-10.690		-10.852	43.41	-16.43
4	146.5	467400	103578	-414300	53100	113360	-32308	20353	-11955	230.8	30.042	-120.170	110.630	56.73	-16.17	5.903	-10.267	-56.08	-10.143	40.57	-15.51
			100209	-400800	66600			19691	-12617		30.042	-120.170	110.620			5.903	-10.267		-10.163	40.65	-15.43
5	180.0	448000	100209	-400800	47200	108800	-31008	19691	-11317	215.4	26.685	-106.740	108.660	52.93	-15.09	5.294	-9.846	-52.40	-9.473	37.89	-14.51
			88225	-352900	95100			17336	-13672		26.531	-106.120	109.280			5.213	-9.877		-9.909	35.64	-16.76
6	206.0	433600	88225	-352900	80300	105260	-29999	17336	-12663	204.0	24.237	-96.950	107.050	50.15	-14.29	4.763	-9.527	-49.68	-8.437	33.75	-15.93
			79315	-317300	116300			15585	-14414		24.126	-96.500	107.500			4.741	-9.599		-8.064	32.26	-17.82
7	232.0	419000	79315	-317300	101700	101870	-29019	15585	-13434	192.6	22.064	-88.260	109.340	47.54	-13.54	4.336	-9.204	-46.96	-7.640	30.58	-16.80
			63873	-255500	163500			12551	-16468		21.593	-86.370	106.230			4.243	-9.97		-6.404	25.62	-26.34
8	269.0	403800	63873	-255500	154300	89590	-28383	12551	-15832	185.5	20.506	-82.020	103.980	45.80	-13.05	4.029	-9.021	-45.32	-6.180	24.72	-20.60
			59811	-239100	170500			11753	-16630		20.506	-82.020	103.980			4.029	-9.021		-6.164	24.66	-20.66
9	284.5	390000	59811	-239100	150700	94340	-27058	11753	-15305	171.3	18.384	-73.540	97.760	42.36	-12.07	3.612	-8.458	-41.92	-5.728	22.91	-19.01
			68379	-273500	116500			13436	-13622		18.280	-73.120	96.180			3.592	-8.478		-5.769	23.08	-16.84
10	312.0	375400	68379	-273500	101900	91390	-26046	13936	-12610	160.8	16.399	-65.600	95.20	38.78	-11.34	3.222	-8.118	-39.48	-5.283	23.53	-15.95
			68018	-272100	103300			13366	-12680										-5.894	23.54	-15.94
11	339.5	360800	68018	-272100	88700	87950	-25066	13366	-11700	150.4	14.529	-58.180	92.80	37.30	-10.63	2.855	-7.775	-36.96	-5.498	22.00	-14.96
			60750	-243000	117800			11937	-13129										-4.953	19.81	-17.53
12	375.75	348000	60750	-243000	99000	83500	-23798	11937	-11861	137.8	12.327	-49.310	88.490	34.06	-9.71	2.422	-7.288	-34.00	-4.401	17.60	-16.40
			54285	-217100	124900			10667	-13131										-4.407	17.63	-16.37

TABLE 33

DOC NO. FZS-36-140

MODEL B-36

TABLE 33. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 2 of 8. CONDITION: D.G.W. 268,213# 10,000# B. FULL FUEL & OIL. L.A.A. HIGH SPEED @ 20,000 FT.

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DATE: 12-4-45

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST FROM ℄ OF SYM	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_x \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T_{max}}{\frac{I_z}{Q_x}} = M'_x$	$\frac{T_{max}}{\frac{I_z}{Q_x}} M'_x$	S''_c (6) − (31)
		3648 × (14)	.1786 × (22)	(23) − (24)	3648 × (10)	.1786 × (14)	3648 × (22)	(27) + (28)	TABLE 30	(29) × (30)	ON P. 5 = (6)
0	0	119.092	-3.571	122.66	-16856	20.993	-20.257	+ .736	442.7	50623	76077
		119.092	-3.569	122.66	-16951	20.993	-20.247	+ .746		50622	78078
1	41.025	115.882	-3.272	119.11	-15345	20.421	-18.563	+ 1.858	433.0	50385	54115
		115.882	-3.272	119.11	-15543	20.421	-18.563	+ 1.858		50385	58215
2	80.0	113.055	-3.028	116.08	-14025	19.929	-17.047	+ 2.862	439.1	50267	42800
		113.055	-3.028	116.08	-14186	19.929	-17.175	+ 2.754		50267	44450
3	113.75	110.849	-2.849	113.70	-12907	19.590	-16.161	+ 3.379	442.2	50277	34750
		110.849	-2.852	113.70	-13022	19.590	-16.180	+ 3.360		50279	36950
4	186.5	108.948	-2.693	111.64	-11778	19.205	-15.274	+ 3.931	451.7	50428	26550
		108.948	-2.679	111.63	-12425	19.205	-15.195	+ 4.010		50422	33500
5	1800	107.008	-2.513	109.53	-11145	18.863	-14.289	+ 4.574	*659.6	72246	-18046
		107.619	-2.910	110.53	-13464	18.871	-16.405	+ 2.466	461.7	51031	47550
6	286.0	105.873	-2.765	108.39	-12471	18.584	-15.688	+ 2.896	469.7	50816	40350
		105.876	-3.024	108.90	-14136	18.662	-17.155	+ 1.507		51196	65154
7	238.0	103.784	-2.847	106.60	-13236	18.113	-16.157	+ 1.961	478.1	50888	51212
		103.882	-3.705	108.32	-16218	18.442	-21.016	- 2.574		51788	111712
8	249.0	101.907	-3.576	105.48	-15591	17.964	-20.287	- 2.323	483.9	51043	103257
		101.907	-3.587	105.49	-16377	17.964	-20.346	- 2.382		51088	119481
9	289.5	96.274	-3.300	99.57	-15072	16.971	-18.721	- 1.750	495.9	49370	101311
		96.688	-3.023	99.61	-13415	17.044	-16.584	+ .460		49391	67183
10	312.0	93.753	-2.759	96.52	-12418	16.527	-15.708	+ .819	505.8	48821	53679
			-2.767	96.52	-12487		-15.688	+ .829		48820	54480
11	339.5	90.877	-2.597	93.47	-11522	16.020	-14.733	+ 1.287	516.0	48233	44350
			-3.047	93.92	-12929		-17.283	- 1.263		48465	69335
12	375.75	87.14	-2.847	89.99	-11681	+15.36	-16.451	- .791	530.2	48206	50254
			-2.842	89.98	-12931		-16.121	- .761		48183	76197

CALCULATED BY	Shultz	TABLE 33	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY	Prupper		
APPROVED BY			

TABLE 33 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS [illegible]

SHEET 3 of 4 CONDITION: OGW [illegible]

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
[illegible]	[illegible]	S_{x_1}	S_{x_2}	$S_{x_1}-S_{x_2}$	[illegible]	[illegible]	S_0	$M_{x_1}\times10^6$	$M_{x_2}\times10^6$	$M_x\times10^6$	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12	412.0	[illegible]	34665	21700	14400	79450	[illegible]	10647	11862	[illegible]	10.358	[illegible]	[illegible]	[illegible]	[illegible]	3.093	[illegible]
			48223	[illegible]	[illegible]			9476	11050								
13	[illegible]	[illegible]	[illegible]	19500	11400	74600	-2918	9476	-11841	1143	[illegible]	[illegible]	10001	28.99	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]			8340	-11978								
14	[illegible]	[illegible]	[illegible]	16900	[illegible]	76450	[illegible]	8340	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.225	[illegible]
			37451	[illegible]	38000			7320	[illegible]								
15	[illegible]	[illegible]	37251	[illegible]	[illegible]	66450	-10936	7320	-1618	93.2	5.600	[illegible]	[illegible]	22.38	-6.66	1.118	[illegible]
			31297	[illegible]	14700			6150	[illegible]								
16	345.0	[illegible]	31187	[illegible]	[illegible]	[illegible]	[illegible]	6150	-1873	86.1	4.249	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			31012	[illegible]	[illegible]			5097	-1985								
17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10.88	-5.67	.701	[illegible]
			[illegible]	99100	[illegible]			[illegible]	[illegible]								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]				[illegible]	[illegible]								
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]			[illegible]	[illegible]								
20	[illegible]	[illegible]	15530	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	46100			[illegible]	[illegible]								
21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	46.8	1.112	[illegible]	[illegible]	[illegible]	[illegible]	230	[illegible]
			[illegible]	[illegible]	[illegible]			[illegible]	[illegible]								
22	764.0	[illegible]	18059	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-9630	41.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	25100	138900			[illegible]	-10364								
23	[illegible]	[illegible]	[illegible]	25100	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]			[illegible]	[illegible]								
24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]			[illegible]	[illegible]								

TABLE [illegible]

TABLE 33. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 4 of 8. CONDITION: DGW-268,213# 10,000# B. FULL FUEL & OIL. LAA.-HIGH SPEED @ 30,000 ft.

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DATE: 12-8-45

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_z \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_z \times 10^6$	$S'_c = S_c \cos\alpha$	$M_z \sin\alpha \times 10^6$	$T'_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J \tan\phi}{I_z / Q_z}$	$\frac{J \tan\phi}{I_z / Q_c} M'_z$	S'_h (6) - (31)
		2848 × (14)	.1734 × (22)	(23) - (24)	2848 × (10)	.1734 × (14)	2848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	OR. # (6)
13	412.0	83,176	-2.616	85.79	-11682	14662	-19841	-.179	545.1	46765	59335
			-2.604	85.78	-12855		-19772	-.110		46759	83541
14	448.5	78,690	-2.375	81.07	-11662	13,670	-13470	+.400	561.1	45488	66612
			-2.364	81.05	-12781		-13.413	+.457		45477	89723
15	485.0	74057	-2.154	76.21	-11588	13,055	-12.221	+.834	578.0	44050	79150
			-2.170	76.23	-12593		-12,310	+.745		44059	93941
16	521.5	69,369	-1.934	71.30	-11441	12,228	-10.971	+1257	596.0	42497	78903
			-2.311	71.68	-12594		-12108	-.880		42721	101979
17	549.0	65.765	-2.142	67.91	-11698	11.593	-12.152	-.559	610.3	41444	90156
			-2.142	67.91	-11754		-12.152	-.559		41444	91256
18	576.5	62,436	-1.972	64.41	-10872	11.006	-11.187	-.181	625.2	40268	79632
			-2.323	64.76	-12080		-13.177	-2.171		40487	104413
19	615.375	57.463	-2.087	59.55	-10943	10,130	-11.837	-1.707	647.7	38571	89129
			-2.087	59.55	-11878		-11.837	-1.707		38571	108429
20	654.25	52.097	-1.823	53.87	-10713	9,175	-10340	-1.165	671.9	36195	94005
			-1.816	53.86	-11566		-10.301	-.426		36191	111709
21	693.125	46.837	-1.576	48.41	-10458	8.256	-8.942	-.686	697.9	33787	97713
			-1.560	48.40	-11167		-8.962	-.706		33776	112324
22	732.0	41.568	-1.333	42.90	-10062	7.328	-7.563	-.235	726.1	31150	98950
			-1.338	42.91	-10421		-7.593	-.265		31154	106446
23	766.0	37.097	-1.137	38.23	-9484	6.540	-6.438	+.0900	752.7	28779	95221
			-1.420	38.52	-10204		-8.056	-1.516		28992	109908
24	806.0	31.586	-1.191	32.18	-9152	5.639	-6.758	-1.117	786.3	26087	96813
			-1.455	32.44	-9867		-8.253	-2.614		26295	111405
25	840.0	27.505	-1.262	28.77	-9017	4.849	-7.159	-2.310	817.6	23520	101380
			-1.262	28.77	-9068		-7.159	-2.310		23520	102380

CALCULATED BY	Shuttleworth	TABLE 33	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY	Proffer		
APPROVED BY			

NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

CONDITION

TABLE 35

TABLE 33. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 6 of 8. CONDITION: D.G.W. - 268213# 10,000# B. FULL FUEL & OIL. LAA-HIGH SPEED @ 30,000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_z \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_z \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T \tan\phi}{I_z/Q_z}$	$\frac{T \tan\phi}{I_z/Q_z} M'_z$	S''_b (6) - (31)
		(2)(23) = (24)	(25) - (24)	(25) + (24)	(2)(26) = (27)	(2)(28) = (29)	(27) + (29)	TABLE 30	(25) × (30)	OR. E. = (6)	
26	870.0	23,940	-1.102	2504	-8327	4.220	-6.253	-2.033	8473	21216	93684
			-1.108	2505	-8386		-6.283	-2.063		21225	94895
27	906.0	20,110	-.943	2105	-7507	3.545	-5.347	-1.802	8860	18653	85147
			-.943	2105	-7546		-5.347	-1.802		18653	85949
28	942.0	16,623	-.788	1741	-6706	2.930	-4.456	-1.541	928.2	16159	76494
			-.788	1741	-6742		-4.456	-1.541		16159	77141
29	978.0	13,511	-.647	1416	-5933	2.382	-3.668	-1.286	9768	13801	67899
			-.654	1417	-5994		-3.708	-1.326		13808	68792
30	1014.0	10,744	-.529	1127	-5212	1.894	-3.004	-1.110	1026	11566	60234
			-.529	1127	-5241		-3.004	-1.110		11566	60834
31	1050.0	8.341	-.421	8.762	-4503	1.470	-2.388	-.918	1083	9489	52111
			-.421	8.762	-4527		-2.388	-.918		9489	52611
32	1080.0	6.638	-.340	+6.978	-3935	1.170	-1.930	-.760	1136	7927	45773
			-.347	+6.985	-3985		-1.970	-.800		7935	46865
33	1110.0	5.131	-.276	+5.407	-3415	.904	-1.566	-.662	1194	6456	40244
			-.276	+5.407	-3431		-1.566	-.662		6456	40544
34	1140.0	3.888	-.214	+4.072	-2889	.680	-1.216	-.536	1259	5127	33973
			-.214	+4.072	-2904		-1.216	-.536		5127	34273
35	1170.0	2.791	-.161	+2.952	-2378	.492	-.9159	-.4239	1330	3926	28274
			-.165	+2.956	-2421		-.9356	-.4436		3931	29069
36	1188.0	1.950	-.122	+2.072	-1864	.3437	-.6943	-.3506	1405	2911	23589
			-.122	+2.072	-1975		-.6943	-.3506		2911	23889
37	1225.0	1.338	-.0876	+1.4256	-1565	.2359	-.497	-.2611	1486	2118	18982
			-.0876	+1.4256	-1573		-.497	-.2611		2118	19082
38	1252.0	0.8199	-.0608	0.8807	-1188	.1445	-.345	-.2005	1576	1388	14572
			-.0608	0.8807	-1197		-.345	-.2005		1388	14712

CALCULATED BY	Shillings	TABLE 33	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY	R-H		
APPROVED BY			

TABLE 35: B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

CONDITION: [illegible] FUEL [illegible] SPEED @ 30000 FT.

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REPORT FZS-36-1[illegible]

DATE 12-[illegible]

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Station	Net Shear	S_x	S_y	S_z	S_x	S_y	S_z	M_x	M_y	S_c	$M_{x(0)}$	$M_{x(1)}$	$M_{x(2)}$	$M_{y(0)}$	$M_{y(1)}$	$M_{y(2)}$	Torsion	$T_{(0)}$	$T_{(1)}$	$T_{(2)}$	Torsion x10
35	12780	12600	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.025
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.007
40	[illegible]	9000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.005
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.005
41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.004
			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.003
[illegible]	[illegible]	2000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.002
[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.

TABLE 33. B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 2 OF 4 CONDITION: 2.5 NZ 215 - 10000 LB. FULL FUEL & OIL. LAA. HIGH SPEED @ 38000 FT.

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DATE 12-6-51

20	21	22	23	24	25	26	27	28	29	30	31	32
DIST. FROM ℄ (FT)	$M_x \cos\theta \times 10^6$	$T_{EA} \sin\theta \times 10^6$	$M_x \times 10^6$	S_x	$M_z \sin\theta \times 10^6$	$T_{EA} \cos\theta \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J_T \tan\theta}{J_x}$	$\frac{J_T \tan\theta}{J_x} M_x$	S'_x
	(20) × (21)	(24) × (22)	(20) − (23)	(20) × (24)	(20) × (26)	(27) × (22)	(27) − (28)	(29) × (30)	(31) × (20)	(25) + (32)
32.780	473	-.0382	5162	-379	.0283	-217	-1357	.1674	550	10844
		-.0451	5161	-513		-244	-1607		564	11336
50.0	827	-.0269	8932	-684	.0399	-153	-1131	.1674	850	8150
		-.0269	8938	-690		-153	-1131		880	8250
[illegible]	1288	-.0148	[illegible]	-[illegible]	.0132	-.356	-[illegible]	[illegible]	670	[illegible]
		-.0148	8906	-[illegible]		-.356	-[illegible]		771	3529
[illegible]	1092	-.0035	[illegible]	[illegible]	.0035	-.423	-4106	0	0	2000
	0	0	0	0		0	0	0	0	0

CALCULATED BY [illegible]
CHECKED BY [illegible]

TABLE 33

FZS-30-102

TABLE 34. B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & [illegible]

SHEET 1 of 8 CONDITION: D.G.W. 278,000#, 10,000# & FULL FUEL & OIL, IHAA @ 2000 FT

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Station	Dist. from ℄ of Ship	S_{ba}	S_{ba}	S_{ba}	S_b	S_b	S_b	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	16.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABLE 34 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 2 of 2. CONDITION: D.G.W. 278,000# 10,000# B. FULL FUEL & OIL. 1 HAA. @ 3000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. BETWEEN ⊥ OF SHEAR	$M_z \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$T_{torq} \frac{S}{S_c}$	$T_{torq} \frac{M_x}{M'_x}$	S'_x
		(23)+(24)	(25)+(26)	(23)−(24)	(25)+(26)	(27)+(28)	(29)+(28)	(27)+(28)	max (29)	(30)+(31)	(30)−(31)
0	0	-80.27	-.21	-80.06	28025	-16.15	-1.178	-15.508	4127	3541	-33569
		-80.27	+.21	-80.06	23241	-16.16	-1.183	-15.333		3541	-33519
1	24.025	-77.87	-.20	-77.77	-20168	-7.24	-1.182	-18.882	4230	32897	-26820
		-77.87	+.20	-77.77	-20613	-8.27	-1.187	-18.807		32897	-20118
2	50.2	-76.05	-.19	-75.86	-17107	-9.41	-1.093	-14.503	4331	-32855	-21185
		-76.05	-.18	-75.87	-18071	-9.44	-1.02	-14.830		-32859	-22820
3	114.25	-74.75	-.18	-74.59	-15.78	-13.18	.82	-16.11	4262	[illegible]	-16420
		-74.75	-.16	-74.59	-16.05	-13.18	.81	-16.10		[illegible]	-18.85
4	146.5	-73.78	-.13	-73.66	-15.53	-13.01	-.76	-13.77	[illegible]	[illegible]	-14.583
		-73.78	-.14	-73.65	-15.25	-13.01	.78	-13.03	4.15	[illegible]	-16.585
5	186	-72.35	.11	[illegible]	[illegible]	[illegible]	.63	[illegible]	[illegible]	[illegible]	-24.952
		-72.35	+.13	-72.35	-18.594	-12.83	-.75	-12.12	4.17	[illegible]	-27.516
6	225	-70.08	+.13	-70.21	-16.08	-12.27	.58	-11.68	4.07	-32.17	-13.150
		-70.08	+.30	-70.08	-20.85	-12.15	-1.07	-11.08		-32.14	-39.716
7	292	-70.77	+.28	-70.02	-19.16	-11.57	[illegible]	-10.80	4.24	[illegible]	-31.950
		-70.06	+.28	-70.71	[illegible]	[illegible]	[illegible]	-8.08		-32.77	-68.37
8	295	-70.16	+.18	-70.34	-15.08	-12.08	[illegible]	-7.91	3.28	[illegible]	[illegible]
		-70.16	+.29	-70.05	-27.17	-12.12	[illegible]	-7.85		-33.33	-75.987
9	[illegible]	-66.74	+.17	-67.74	[illegible]	[illegible]	[illegible]	-7.16	3.95	-31.85	-15.325
		[illegible]	+.37	-67.16	[illegible]	-11.28	[illegible]	-3.07		[illegible]	-14.780
10	312	-64.93	+.40	-65.63	-19.74	-11.55	1.90	-8.80	2.65	[illegible]	[illegible]
			+.44	-65.03	-19.52	-11.22	2.50	-8.89		[illegible]	-30.03
11	3985	-62.97	+.42	-63.39	-17.80	-11.10	3.30	-8.74	3.46	[illegible]	-30.450
			+.70	-63.67	-20.61	-10.02	3.97	-7.13		[illegible]	[illegible]
12	376.65	-60.97	+.66	-61.63	-18.26	-10.59	3.75	-6.84	3.62	-32.195	-38.501
			+.86	-61.73	-21.84		3.78	-6.86		-33.195	-51.871

TABLE 34

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TABLE 34 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 3 of 8 CONDITION: PGW 278,000# @ 10.0" B. FULL FUEL & OIL. 1 HAA @ 3,000 ft

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STATION	DIST. FROM ℄ OF SHIP	S_{bz}	S_b	ΔS_b	S_b	S_t	S_{tz}	ΔS_t	S_z	M_{bz}	M_b	ΔM_b	M_z	M_t	ΔM_t	M_z	T_{EA}	T_{EA}	T_{EA}
		Fig. 5	TABLE 26	④ ③ + ⑤														Fig. 5	TABLE 26
12	412.0	-380,200	64,316	137,930	-72,470	81,[illegible]	[illegible]	24,[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-12,[illegible]	[illegible]	-17.04	[illegible]	[illegible]	-15.66
			48,938	122,500	-57,800														-4.0[illegible]
14	448.5	-199,000	48,353	122,400	-74,100	72,530	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	21.82	[illegible]	[illegible]	-18.56	[illegible]	-11.72	+12.42
			42,656	107,250	-91,250														[illegible]
[illegible]	486	-188,000	44,656	107,250	-80,250	73,120	-18,[illegible]	[illegible]	[illegible]	-70.00	2.[illegible]	19.38	-[illegible]	[illegible]	[illegible]	3.1[illegible]	[illegible]	[illegible]	[illegible]
			27,333	94,630	-79,430														-[illegible]
16	521.5	-177,000	27,333	94,630	-82,470	69,070	-3[illegible]	[illegible]	-19,620	-63.45	5.[illegible]	14.43	-4.02	[illegible]	-18.74	[illegible]	[illegible]	[illegible]	[illegible]
			31,[illegible]	[illegible]	-97,620														[illegible]
[illegible]	557	-169,000	31,[illegible]	77,850	-81,530	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12.28	-4.65	[illegible]	-11.26	2.15	-9.61	[illegible]	[illegible]
			[illegible]	77,850	-103,250														[illegible]
[illegible]	[illegible]	-161,100	31,048	77,850	-82,440	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-10.05	[illegible]	-9.08	[illegible]	[illegible]
			[illegible]	[illegible]	-78,230														[illegible]
[illegible]	[illegible]	-150,000	[illegible]	[illegible]	-87,330	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.64	-40.[illegible]	[illegible]	7.58	7.34	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]														[illegible]
[illegible]	[illegible]	-139,700	[illegible]	[illegible]	-89,260	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.241	5.67	-34.78	-16.10	-3.48	[illegible]	-7.48	[illegible]	[illegible]
			[illegible]	[illegible]	-100,440														[illegible]
[illegible]	[illegible]	-129,600	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-33.11	[illegible]	-7.50	[illegible]	[illegible]	[illegible]	[illegible]
			11,814	[illegible]	-[illegible]														[illegible]
[illegible]	734	-119,800	11,814	20,120	-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	-6.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	-[illegible]														[illegible]
28	[illegible]	-110,400	[illegible]	[illegible]	-[illegible]	[illegible]	[illegible]	4440	-[illegible]	[illegible]	0.5[illegible]	[illegible]	-[illegible]	[illegible]	-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]				[illegible]	-[illegible]									[illegible]
34	806	-100,100	[illegible]	[illegible]	-64,180	[illegible]	-28,140	2790	-[illegible]	[illegible]	0.5[illegible]	1.42	[illegible]	[illegible]	-[illegible]	[illegible]	-4.52	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]				[illegible]	-[illegible]									[illegible]
38	840	-92,100	[illegible]	[illegible]	-[illegible]	[illegible]	[illegible]	1150	[illegible]	[illegible]	[illegible]	1.2[illegible]	[illegible]	[illegible]	-4.12	[illegible]	-[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	[illegible]				[illegible]	[illegible]									[illegible]

Kowalczyk

J. Ellis Griffith

TABLE 34

TABLE 34. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 4 of 8 — CONDITION: D.G.W. 278,000# + 10,000# B.C. FULL FUEL & OIL, 1.1 HAA @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T_x \tan\phi}{Q_x} \times 10$	$\frac{T_x \tan\phi}{Q_x} M'_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR. 8 = (6)
13	412.0	-57.48	+.61	-58.09	-18701	-10.13	3.47	-6.66	545.1	-31665	-40805
			.60	-58.08	-21350		3.43	-6.70		-31659	-56191
14	448.5	-54.49	.55	-55.04	-19066	-9.61	3.10	-6.51	561.1	-30883	-45717
			.54	-55.03	-21597		3.06	-6.55		-30877	-60373
15	485	-51.33	.47	-51.80	-19312	-9.05	2.69	-6.36	578.1	-29940	-50310
			.48	-51.81	-21587		2.74	-6.31		-29946	-63524
16	521.5	-48.24	.41	-48.68	-19391	-8.51	2.32	-6.19	596.0	-29013	-57457
			.65	-48.92	-22000		3.68	-4.83		-29156	-69464
17	558	-45.74	.59	-46.33	-20287	-8.06	3.35	-4.73	610.3	-28325	-61385
			.58	-46.33	-20415		3.327	-4.733		-28275	-62065
18	576.5	-43.29	.53	-43.82	-18731	-7.63	3.007	-4.613	625.2	-27396	-55099
			.75	-44.04	-21459		4.269	-3.361		-27524	-66685
19	612.375	-39.75	.67	-40.42	-19282	-7.01	3.777	-3.233	647.7	-26180	-61160
			.67	-40.42	-21390		3.777	-3.233		-26180	-73360
20	648.25	-36.22	.58	-36.80	-18164	-6.39	3.282	-3.107	671.9	-24725	-69534
			.57	-36.79	-21154		3.261	-3.129		-24719	-76721
21	684.125	-32.61	.48	-33.09	-18969	-5.75	2.785	-2.965	697.9	-23054	-76898
			.49	-33.10	-20582		2.762	-2.988		-23060	-79490
22	720	-29.08	.39	-29.47	-18955	-5.13	2.219	-2.911	726.2	-21398	-81394
			.39	-29.47	-19282		2.219	-2.901		-21398	-83681
23	788	-26.04	.31	-26.35	-17990	-4.58	1.750	-2.830	762.7	-19874	-85716
			.49	-26.53	-19115		2.763	-1.827		-19869	-74511
24	856	-22.83	.39	-23.22	-17106	-3.95	2.198	-1.752	799.3	-17943	-66297
			.55	-23.38	-18021		3.142	-0.808		-18039	-[illegible]
25	940	-19.45	.47	-19.92	-17086	-3.45	2.669	-0.781	848.1	-16[illegible]	-[illegible]
			.47	-19.92	-17.09		2.660	-0.770		-16[illegible]	-69933

CALCULATED BY: [illegible]
CHECKED BY:
CHECKED BY: [illegible]

TABLE 34

[illegible] AIRCRAFT CORPORATION

PAGE [illegible]

TABLE 34 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 3 of 8 CONDITION: D.G.W. 278,000#, 10,000# B. FULL FUEL & OIL. 1.H.AA @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{ba}	S_{bi}	$1.5(\frac{N_z}{W})S_{bi}$ $(\frac{N_z}{W})=1.688$	$S_b = S_b'$	S_{cia_1}	$1.5\frac{X_m}{W}S_{cia_1}$ $\frac{X_m}{W}=-.351$	$1.5\frac{X_m}{W}S_{bi}$ $\frac{X_m}{W}=0.296$	S_c	$M_{xa} \times 10^6$	$M_{xi} \times 10^6$	$1.5(\frac{N_z}{W})M_{xi} \times 10^6$ $(\frac{N_z}{W})=1.688$	$M_x \times 10^6$	$M_{cia_1} \times 10^6$	$1.5\frac{X_m}{W}M_{cia_1} \times 10^6$ $\frac{X_m}{W}=-.351$	$1.5\frac{X_m}{W}M_{xi} \times 10^6$ $\frac{X_m}{W}=.296$	$(M_y = M_y') \times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_i} \times 10^6$	$1.5(\frac{N_z}{W})T_{EAi} \times 10^6$ $(\frac{N_z}{W})=1.688$	$T_{EA} \times 10^6$
		Fig. 5	TABLE 26	2.532×(4)	(3) + (5)	TABLE 29	-.5265 (7)	0.444×(4)	(8) + (9)	Fig. 5	TABLE 26	2.532×(12)	(11) + (13)	TABLE 29	-.5265 (15)	.444×(12)	(16) + (17)	Fig. 5	TABLE 26	1.532×(20)	(19) + (21)
26	870	-85150	2322	6880	-79270	32 420	-17070	1030	-16040	-18.30	0.4233	1.07	-17.23	6.82	-3.590	.183	-3.402	+2.640	-.1335	-.238	2.302
			2022	5120	-80030			900	-16170										-.1251	-.317	2.323
27	906	-77250	2022	5120	-72130	29160	-15350	900	-14450	-15.25	0.2506	0.89	-14.36	5.754	-3.029	.156	-2.873	+2.185	-.1101	-.279	1.906
			1823	4620	-72630			810	-14540										-.1090	-.276	1.909
28	942	-69250	1823	4620	-64630	26070	-13730	810	-12920	-12.80	0.2850	0.72	-12.08	4.785	-2.477	.127	-2.350	+1.714	-.09552	-.242	1.472
			1640	4150	-65100			730	-13000										-.09454	-.239	1.475
29	978	-61500	1640	4150	-57350	23080	-12160	730	-11420	-10.48	0.2269	0.57	-9.91	3.813	-2.008	.100	-1.908	+1.373	-.08240	-.209	1.164
			1323	3350	-58150			590	-11560										-.07848	-.185	1.188
30	1014	-54000	1323	3350	-50650	20190	-10630	590	-10040	-8.376	0.1783	0.451	-7.924	3.058	-1.607	.079	-1.528	+1.062	-.06313	-.160	.902
			1168	2960	-51040			520	-10110										-.06235	-.158	.904
31	1050	-46850	1168	2960	-43890	17470	-9200	520	-8680	-6.515	0.1362	0.345	-6.170	2.397	-1.262	.060	-1.202	+0.786	-.05370	-.136	.650
			1041	2640	-44210			460	-8740										-.05307	-.134	.652
32	1080	-41180	1041	2640	-38540	15270	-8040	460	-7580	-5.210	0.1058	0.266	-4.944	1.925	-1.014	.046	-.968	+0.6885	-.04665	-.1181	.570
			786	1990	-39190			350	-7690										-.03781	-.0957	.572
33	1110	-35750	786	1990	-33760	13180	-6940	350	-6590	-4.048	0.08144	0.206	-3.839	1.490	-.784	.036	-.748	+0.4200	-.02916	-.0855	.3345
			702	1780	-33970			310	-6630										-.02854	-.0824	.3376
34	1140	-30450	702	1780	-28670	11170	-5880	310	-5570	-3.040	0.06039	0.153	-2.887	1.117	-.588	.028	-.560	+0.2825	-.02522	-.0715	.2110
			627	1590	-28860			280	-5600										-.02726	-.0703	.2128
35	1170	-25170	627	1590	-23580	9230	-4860	280	-4580	-2.198	0.04157	0.105	-2.090	0.903	-.423	.018	-.405	+0.1746	-.02381	-.0605	.1141
			414	1050	-24120			180	-4680										-.01906	-.0432	.1315
36	1198	-20550	414	1050	-19500	7540	-3970	180	-3790	-1.545	0.0304	0.076	-1.469	0.566	-.298	.0133	-.285	+0.0956	-.01467	-.0371	.0584
			259	910	-19640			160	-3810										-.01438	-.0364	.0591
37	1225	-16450	259	910	-15540	6030	-3170	160	-3010	-1.028	0.02031	0.051	-.974	0.378	-.199	.00902	-.190	+0.0385	-.01339	-.0314	.0071
			314	800	-15650			140	-3030										-.01311	-.0307	.0095
38	1252	-12550	314	800	-11750	4620	-2430	140	-2290	-0.630	0.01185	0.030	-.600	0.236	-.124	.00526	-.119	+0.0025	-.01037	-.0263	-.0238
			268	680	-11870			120	-2310										-.01012	-.0256	-.0281

Kirkberg
J. [illegible]

TABLE 34

TABLE 34. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 6 of 8. CONDITION: D.G.W. 278,000 #, 10,000 #B. FULL FUEL & OIL. 1HAA @ 5,000 FT

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DATE: 12-4-45

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J_x}{Q_x} \times \frac{T \tan\phi}{10^6}$	$\frac{J_x}{Q_x} \times \frac{T \tan\phi}{10^6} - M'_x$	S''_b
		9848 × (14)	1736 × (22)	(23) − (24)	9848 × (10)	1736 × (16)	9848 × (23)	(27) + (28)	TABLE 30	(29) × (30)	(26) − (31)
26	879	-16.97	+.40	-17.37	-15796	-2.99	2.267	-.923	847.3	-14718	-64552
			+.40	-17.37	-15524		2.288	-.702		-14718	-65312
27	906	-14.14	.33	-14.47	-14236	-2.49	1.877	-.613	886.0	-12820	-59310
			.33	-14.47	-14319		1.880	-.610		-12820	-59810
28	942	-11.90	.26	-12.16	-12724	-2.10	1.450	-.650	928.2	-11287	-53343
			.26	-12.16	-12802		1.453	-.647		-11287	-53813
29	978	-9.76	.20	-9.96	-11246	-1.72	1.146	-.574	974.8	-9709	-47641
			.21	-9.97	-11384		1.170	-.550		-9719	-48431
30	1014	-7.804	.157	-7.961	-9887	-1.376	.888	-.488	1026	-8168	-42482
			.157	-7.961	-9956		.890	-.486		-8168	-42872
31	1050	-6.076	.113	-6.189	-8548	-1.071	.640	-.431	1083	-6703	-37187
			.113	-6.189	-8607		.642	-.429		-6703	-37507
32	1080	-4.869	.082	-4.951	-7465	-.858	.4632	-.395	1136	-5624	-33916
			.086	-4.955	-7573		.4853	-.373		-5629	-33561
33	1110	-3.781	.058	-3.839	-6490	-.666	.3314	-.3346	1194	-4584	-29176
			.059	-3.840	-6529		.3328	-.3335		-4585	-29385
34	1140	-2.843	.037	-2.880	-5485	-.501	.2078	-.2932	1259	-3626	-26044
			.037	-2.880	-5515		.2090	-.2920		-3626	-25234
35	1170	-2.058	.020	-2.078	-4510	-.363	.1122	-.2508	1330	-2764	-20816
			.023	-2.081	-4609		.1293	-.2337		-2768	-21352
36	1198	-1.447	.010	-1.457	-3732	-.255	.0575	-.1975	1405	-2047	-17453
			.010	-1.457	-3752		.0582	-.1968		-2047	-17593
37	1225	-.959	.001	-.960	-2964	-.169	.0070	-.1620	1486	-1427	-14113
			.001	-.960	-2984		.0077	-.1613		-1427	-14223
38	1252	-.591	-.005	-.586	-2255	-.104	-.0284	-.1324	1576	-923	-10827
			-.005	-.586	-2275		-.0277	-.1317		-923	-10947

CALCULATED BY	Kaisberg	TABLE 34	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY	Dupper		
APPROVED BY			

TABLE 34 B-35 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 3 of 4 CONDITION: DGW 278,000# 10,000# B. FUEL FUEL 6 GAL 1HAA @ 80,000#

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STATION	DIST. FROM ℄	S_{bu}	S_{ol}	$(M_{ol})_{bu}$	S_{bl}	S_{bl}'	S_{cu}	S_{cl}	S_c	M_{xu}	M_{xl}	$(M_y)_{bu}$	$(M_y)_{bl}$	$(M_y)_{cu}$	$(M_y)_{cl}$	T_{bu}	T_{bl}	$(M_z)_{bu}$	T_{cu}
		FIG. 2	TABLE 26	3	4	5	6	7	8	FIG. 2	TABLE 26	3	4	5	6	FIG. 2	TABLE 26	3	4
33	1278	-4850	268	250	8700	5440	-10100	120	-1690	0.845	0.487	0.018	-.852	0.001	-0.040	0.0216	0.8658	0.0000	0.0000
34	1301	-8500	28	250	-6250	2560	-13900	20	-1576	0.199	0.609	0.062	-.192	0.012	-0.024	0.0174	0.0240	0.0270	-0.0300
35	1324	-8570	60	250	4300	1860	-8600	20	-860	0.114	0.023	-.007	0.037	0.018	-0.010	0.0045	0.0023	0.0000	-0.0060
FIG. 6 TIP	1348	-2800	40	150	-2400	880	-490	20	-170	0.016	0	0.006	0.015	0.004	0.007	0.0000	0.0000	0.0000	-0.0170

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Engineering

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TABLE 34. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 3 of 8. CONDITION: D.G.W. 278,000#, 10,000"B., FULL FUEL & OIL. 1HAA @ 5000 FT.

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REPORT: FZS-36-140
DATE: 12-1-48

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHEAR	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J \tan\phi}{I_x} \frac{1}{Q_x}$	$\frac{J \tan\phi}{I_x} \frac{1}{Q_x} M'_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	(26) − (31) OR S = (6)
39	1278	-.348	-.008	-.340	-1664	-.061	-.0478	-.1088	1674	-569	-8131
			-.005	-.343	-1743		-.0306	-.0916		-574	-8556
40	1301	-.189	-.007	-.182	-1270	-.0333	-.0379	-.0712	1772	-323	-6227
			-.007	-.182	-1280		-.0374	-.0707		-323	-6317
41	1324	-.086	-.006	-.080	-837	-.0151	-.0362	-.0513	1881	-150	-4200
			+.006	-.080	-847		-.0359	-.0570		-150	-4230
T.P.(6)	1346.4	-.015	-.005	-.010	-463	-.0026	-.0270	-.0296	0	0	-2450
T.P.	1380.8				0				0	0	0

CALCULATED BY	Kaiserberger	TABLE 34	DOC NO. FZS-36-140
DRAWN BY			MODEL B-36
CHECKED BY	Pfeffer	CONSOLIDATED VULTEE AIRCRAFT CORPORATION	

TABLE 35. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIO

SHEET 1 of 8. CONDITION: D.G.W. - L.L.A. @ 5000' - HIGH SPEED

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
STATION	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_1}	$1.5\frac{\Delta M_x}{\Delta y}S_{b_1}$ ($\frac{\Delta M_x}{\Delta y}$=1.678)	$S_b = S_b'$	$S_{c_{a_1}}$	$1.5\frac{\Delta M_y}{\Delta x}S_{c_{a_1}}$ ($\frac{\Delta M_y}{\Delta x}$=-0.170)	$1.5\frac{\Delta M_x}{\Delta y}S_{b_1}$ ($\frac{\Delta M_x}{\Delta y}$=+0.168)	S_c	$M_{x_a} \times 10^6$	$M_{y_1} \times 10^6$	$1.5\left(\frac{\Delta M_x}{\Delta y}\right)M_{y_1}$ ($\frac{\Delta M_x}{\Delta y}$=1.678)	$M_x \times 10^6$	M_{z_a}	$1.5\frac{\Delta M_z}{\Delta x}M_{z_a}$ ($\frac{\Delta M_z}{\Delta x}$=-0.170)	$1.5\frac{\Delta M_x}{\Delta y}M_x$ ($\frac{\Delta M_x}{\Delta y}$=+0.168)	M_y (M_y=M)	T_{FA}
		Fig. 6	TABLE 26	22.517 ④	③ + ⑤	TA 6.21	-3.520	16.183	② + ⑥	Fig. 6	TABLE 26	22.517 ⑪	+ ⑫	TA 6.21	-3.520	16.183	⑨ + ⑭	Fig. 6
0	0	-342,052	111,417	280,437	-61,616	138,270	-35,884	13,947	-18,237	-198.2	46.465	116.952	-81.248	77.519	-19.767	3.100	-13.438	28.3
			110,923	279,193	-68,860			14,971	-18,918									
1	41.025	-328,140	110,923	279,193	-68,907	132,440	-33,772	14,971	-16,801	-164.3	41.914	105.498	-78.802	72.07	-18.378	6.413	-11.965	26.3
			109,904	276,623	-51,477			16,815	-16,957									
2	80.0	-314,800	109,904	276,623	-38,177	126,830	-32,342	16,815	-15,527	-171.9	37.630	94.715	-77.185	66.98	-17.080	5.757	-11.323	24.5
			109,067	274,522	-40,278			16,687	-15,655									
3	113.25	-303,800	109,067	274,522	-29,278	122,110	-31,138	16,687	-14,451	-161.8	34.005	85.591	-76.209	62.79	-16.011	5.203	-10.808	23.0
			108,471	273,022	-30,778			16,596	-14,542									
4	146.5	-292,500	108,471	273,022	-19,478	117,490	-29,960	16,596	-13,364	-151.8	30.338	76.312	-75.286	58.80	-14.994	4.651	-10.343	21.1
			104,436	262,865	-29,635			15,979	-13,981									
5	180	-281,400	104,436	262,865	-18,835	112,770	-28,786	15,979	-12,777	-141.9	26.892	67.705	-74.195	54.87	-13.992	4.116	-9.876	20.1
			91,312	229,832	-51,968			13,971	-14,785		26.745	67.317	-74.583			4.092	-9.900	
6	206	-273,000	91,312	229,832	-43,168	109,100	-27,821	13,971	-13,850	-134.6	24.371	61.342	-73.236	51.88	-13.285	3.729	-9.526	19.1
			81,438	204,979	-68,021			12,460	-15,361		24.260	61.042	-73.538			3.712	-9.843	
7	232	-264,200	81,438	204,979	-59,721	105,540	-26,913	12,460	-14,453	-127.5	22.143	55.734	-71.746	49.25	-12.559	3.388	-9.171	18.0
			65,225	164,171	-100,525			9,979	-16,924		21.674	54.548	-72.932			3.316		
8	258	-255,300	65,225	164,171	-92,125	102,330	-26,024	9,979	-16,045	-123.0	20.662	51.755	-71.245	47.47	-12.105	3.146	-8.959	17.1
			60,381	151,979	-107,321			9,438	-17,086									
9	284.5	-248,100	60,381	151,979	-96,121	98,400	-25,092	9,238	-15,854	-113.9	18.420	46.363	-67.537	43.90	-11.185	2.818	-8.377	16.0
			68,489	172,387	-75,712			10,479	-14,913		18.316	46.101	-67.799			2.802	-8.393	
10	312	-239,300	68,489	172,387	-66,912	94,730	-24,156	10,479	-13,677	-107.9	16.432	41.359	-65.941	41.29	-10.514	2.514	-8.000	15.0
			68,128	171,478	-67,822			10,434	-13,732									
11	339.5	-230,800	68,128	171,478	-59,322	91,160	-23,246	10,434	-12,812	-100.9	14.538	36.642	-64.258	38.66	-9.856	2.203	-7.631	
			60,860	153,185	-77,615			9,312	-19,924									
12	376.75	-219,800	60,860	153,185	-66,615	86,800	-22,070	9,312	-12,758	-92.95	12.352	31.093	-61.817	35.80	-9.002	1.890	-7.112	
			53,385	134,312	-82,888			8,212	-13,746									

TABLE 35

TABLE 35 B-58 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TOF

SHEET 2 of 8 CONDITION: DGW 278,000# 10,000# B. FULL FUEL & OIL. LAA HIGH SPEED @ 5000 FT

& IP	23 $M_x \cos\alpha \times 10^6$	24 $T_{EA} \sin\alpha \times 10^6$	25 $M'_x \times 10^6$	26 $S'_c = S_c \cos\alpha$	27 $M_x \sin\alpha \times 10^6$	28 $T_{EA} \cos\alpha \times 10^6$	29 $T'_{EA} \times 10^6$	30 $\frac{J \tan\phi}{I_x/Q_x} \times 10$	31 $\frac{J \tan\phi}{I_x/Q_x} M'_x$	32 S''_b (5) - (31)
	.9848 × (14)	.1736 × (22)	(23) - (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(23) × (30)	OR .5 × (6)
0	-80.013	-.9803	-79.032	-17,2[illegible]	-14.105	-5.561	-19.666	+12.7	-32,617	-30,868
		-.9912	-79.032	-18,0[illegible]		-5.566	-19.671		-32,617	-31,430
025	-77.604	-.9194	-76.685	-16,546	-13.680	-5.216	-18.896	423.0	-32,433	-24,454
		-.9203	-76.684	-16,601		-5.220	-18.900		-32,427	-25,783
0	-76.012	-.8604	-75.152	-15,231	-13.399	-4.881	-18.280	433.1	-32,548	-19,089
		-.8432	-75.164	-15,417		-4.812	-18.211		-32,554	-20,130
25	-75.051	-.7826	-74.268	-14,231	-13.230	-4.439	-17.669	*621.7	-46,915	+17,637
		-.7805	-74.271	-14,221		-4.428	-17.658		-46,917	+16,130
5	-74.144	-.7166	-73.427	-13,[illegible]	-13.070	-4.067	-17.135	*645.3	-47,382	+27,304
		-.7276	-73.416	-13,763		-4.127	-17.197		-47,375	+17,740
	-73.061	-.6651	-72.402	-12,58[illegible]	-12.[illegible]	-3.772	-16.653	*658.6	-47,756	+29,221
	-73.448	-.4222	-73.027	-14,560	-12.948	-2.395	-15.343	461.7	-33,717	-25,784
	-72.144	-.3878	-71.756	-12,8[illegible]	-12.715	-2.200	-14.918	462.7	-33,704	-21,584
	-72.420	-.2278	-72.192	-15,[illegible]	-12.[illegible]	-1.292	-14.058		-33,903	-34,112
	-70.675	-.2144	-70.461	-14,283	-12.459	-1.216	-13.675	478.1	-33,687	-29,861
	-71.833	+.3236	-72.167	-16,677	-12.6[illegible]	+1.836	-10.829		-34,503	-66,026
2	-70.162	+.3137	-70.476	-16,027	-12.363	+1.780	-10.583	483.9	-34,103	-61,026
		+.3199	-70.482	-16,626		+1.815	-10.553		-34,106	-73,215
4.5	-66.510	+.2830	-66.793	-15,6[illegible]	-11.724	+1.605	-10.119	435.9	-33,123	-62,998
	-66.768	+.0447	-66.813	-14,331	-11.770	+.2541	-11.516		-33,133	-42,580
-	-64.3[illegible]	+.0422	-64.386	-13,46[illegible]	-11.447	+.2[illegible]79	-11.179	505.5	-32,970	-34,643
		+.0487	-64.986	-12,[illegible]		+.2659	-11.181		-32,970	-34,252
3.5	-63.251	+.0522	-63.333	-12,[illegible]	-11.155	+.2964	-10.950	516.0	-32,690	-29,661
		+.3342	-63.615	-13,[illegible]		+1.892	-8.259		-3[illegible],825	-44,780
1.75	-60.317	+.0101	-61.236	-12,264	-10.733	+1.810	-8.929	5[illegible].2	-3[illegible],167	-34,143
		+.3160	-61.233	-13,[illegible]30		+1.7[illegible]	-8.[illegible]		-3[illegible] +26	-50,422

$* \frac{J \tan\phi}{I_x/Q_x} \times 10^6$

CALCULATED BY	[illegible]
DRAWN BY	
CHECKED BY	[illegible]

TABLE 35

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

FZS-[illegible]

TABLE 35 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 3 of 3 CONDITION: DGW 278,000 - 10,000 B. FULL FUEL 10% T.A.A. HIGH SPEED @ 5000 FT.

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1	2	23	24	25	26	27	28	29	30	31	32
STATION	STAT. FROM ℄ OF SHIP	$M_z \cos\alpha \times 10^{-6}$	$T_{BA} \sin\alpha \times 10^{-6}$	$M_z' \times 10^{-6}$	$S_c' \times S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{BA} \cos\alpha \times 10^{-6}$	$T_{EA}' \times 10^{-6}$	$T_{Trust} \frac{L_3}{Q_x}$	$T_{Trust} \frac{L_4}{Q_x}$	M_x'	S_c''
		(14) × (18)	(15) × (18)	(23) - (24)	(22) × (19)	(16) × (18)	(17) × (18)	(27) + (28)	TABLE 30	(29) × (30)	(26) + (31)	(6) - (32)
13	412.5	-50.176	.290	-50.466	-12.319	-10.252	1.444	-8.811	545.1	-31.870	-39.568	
			.242	-50.458	-13.292		1.602	-8.436		-31.865	-85.233	
14	444.5	-55.360	.250	-55.610	-9.187	-5.785	1.416	-8.343	561.1	-31.403	-45.042	
			.243	-55.603	-13.057		1.377	-8.382		-31.189	-59.288	
15	485	-52.845	.600	-52.445	-11.951	-3.715	1.133	-8.980	578.8	-30.326	-49.660	
			.288	-52.433	-12.732		1.187	-8.930		-30.329	-63.004	
16	521.5	-49.364	.181	-49.545	-11.670	-2.363	0.912	-7.787	596.0	-29.586	-53.447	
			.295	-49.592	-12.577		0.840	-7.903		-29.572	-60.340	
17	560	-46.554	.374	-46.908	-11.742	-1.287	2.003	-6.198	610.3	-28.820	-61.469	
			.354	-46.908	-11.785		2.002	-6.200		-28.820	-70.174	
18	574.5	-43.239	.311	-43.550	-10.967	-1.795	1.764	-6.034	625.2	-27.805	-85.209	
			.532	-43.771	-11.906		3.017	-4.781		-27.931	-70.009	
19	618.5	-40.627	.486	-41.093	-10.359	-1.762	2.643	-4.518	647.7	-26.616	-61.684	
			.466	-41.093	-11.582		2.644	-4.378		-26.616	-78.791	
20	654.25	-36.791	.395	-37.186	-10.502	-1.486	3.543	-4.243	671.9	-24.985	-64.872	
			.321	-37.182	-11.167		3.821	-4.265		-24.983	-76.990	
21	693.125	-33.321	.318	-33.639	-10.140	-1.274	1.802	-4.012	697.9	-23.477	-67.296	
			.321	-33.642	-10.696		1.810	-4.054		-23.479	-76.584	
22	732	-29.641	.247	-29.888	-9.667	-1.225	1.402	-3.823	724.1	-21.702	-68.561	
			.250	-29.891	-9.951		1.417	-3.808		-21.704	-73.303	
23	766	-26.496	.196	-26.692	-9.082	-1.071	1.111	-3.860	752.7	-20.091	-66.316	
			.273	-26.869	-9.642		2.118	-2.553		-20.224	-75.554	
24	806	-22.934	.288	-23.222	-8.668	-1.043	1.636	-2.407	784.3	-18.259	-67.919	
			.454	-23.388	-9.226		2.573	-1.470		-18.390	-77.104	
25	840	-19.754	.378	-20.132	-8.435	-1.482	2.145	-1.337	817.6	-16.460	-70.984	
			.378	-20.132	-8.476		2.145	-1.337		-16.460	-71.646	

CALCULATED BY: J. Pelle
DRAWN BY:
CHECKED BY: R. Roffe

TABLE 35

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

REPORT FZS-38-MO
MODEL B-36

TABLE 35 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 5 OF 8 — CONDITION: D.G.W. - I.L.A.A. @ 5000' - HIGH SPEED

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_1}	$(\frac{L}{W})S_{b_1}$ $(\frac{L}{W})=1.668$	$S_b = S_b'$	$S_{c_{a_1}}$	$(\frac{L}{W})S_{c_{a_1}}$ $\frac{L}{W}=0.138$	$(\frac{L}{W})S_{b_1}$ $\frac{L}{W}=0.102$	S_c	$M_{x_a} \times 10^{-6}$	$M_{x_1} \times 10^{-6}$	$(\frac{L}{W})M_{x_1}$ $(\frac{L}{W})=1.678$	$M_x \times 10^{-6}$	$M_{c_{a_1}} \times 10^{-6}$	$(\frac{L}{W})M_{c_{a_1}}$ $\times 10^{-6}$ $\frac{L}{W}=0.138$	$(\frac{L}{W})M_{c_1}$ $\times 10^{-6}$ $\frac{L}{W}=0.102$	$(M_y = M_z)$ $\times 10^{-6}$	$T_{BA_a} \times 10^{-6}$	$T_{BA_1} \times 10^{-6}$	$(\frac{L}{W})T_{BA_1}$ $\times 10^{-6}$ $(\frac{L}{W})=1.678$	$T_{BA} \times 10^{-6}$
		Fig. 6	TABLE 26			TABLE 27				Fig. 6	TABLE 26			TABLE 27				Fig. 6	TABLE 26		
24	878	-84,950	2322	3844	-81,106	32,420	-8,247	355	-7,817	-18.70	.4234	1.066	-17.634	2.82	-1.722	.065	-1.474	2.172	-.1235	-.356	1.834
			2022	3889	-81,861			309	-7,928										-.1251	-.318	1.855
25	986	-78,900	2022	3889	-75,011	29,160	-7,436	309	-7,127	-15.78	.3506	0.882	-14.896	5.764	-1.467	.054	-1.413	2.700	-.1101	-.317	1.883
			1823	3500	-74,312			279	-7,157										-.1030	-.324	1.926
28	992	-74,832	1823	3500	-66,241	26,070	-6,648	279	-6,369	-12.22	.2850	0.717	-12.513	4.793	-1.200	.044	-1.156	1.922	-.0896	-.310	1.112
			1640	3128	-66,702			251	-6,397										-.0830	-.328	1.144
29	998	-62,760	1640	3128	-59,632	23,000	-5,862	251	-5,611	-10.72	.2158	0.569	-10.151	3.813	-.972	.035	-.937	1.020	-.0824	-.307	.813
			1323	2534	-59,430			203	-5,203										-.0292	-.184	.836
30	1014	-52,800	1323	2534	-53,470	20,130	-5,130	203	-4,927	-8.780	.1793	.449	-8.149	3.053	-.779	.027	-.752	.7424	-.0613	-.1280	.5915
			1168	2240	-52,860			169	-4,963										-.0445	-.1649	.2865
31	1020	-48,600	1168	2240	-45,480	17,470	-4,453	169	-4,284	-6.780	.1362	.343	-6.437	2.397	-.601	.021	-.580	.1100	[illegible]	[illegible]	.2248
			1061	2020	-45,080			169	-4,284										[illegible]	[illegible]	.3764
32	1080	-42,840	1061	2020	-40,220	15,270	-3,894	159	-3,735	-5.168	.1050	.264	-5.154	1.825	-.491	.016	-.475	.3470	[illegible]	[illegible]	.2900
			986	1978	-40,861			120	-3,774										-.0370	[illegible]	.2522
33	1110	-37,130	986	1978	-35,192	13,180	-3,361	120	-3,241	-4.080	.08144	.205	-3.983	1.490	-.380	.013	-.368	.2204	-.0256	-.0830	.1372
			702	1767	-35,403			107	-3,334										-.0254	[illegible]	.1304
34	1140	-31,050	702	1767	-29,883	11,170	-2,848	107	-2,741	-3.126	.06039	.152	-2.974	1.117	-.288	.009	-.279	.1200	-.0208	[illegible]	.0490
			627	1678	-30,074			96	-2,777										-.0174	-.0699	.0501
35	1170	-24,250	627	1678	-22,672	8,290	-2,354	96	-2,258	-2.226	.04159	.105	-2.121	.803	-.205	.006	-.199	.0430	-.0138	-.0601	.0171
			414	1047	-23,408			63	-2,201										-.0128	[illegible]	.0001
36	1198	-21,400	414	1047	-20,258	7,744	-1,993	63	-1,860	-1.848	.03000	.076	-1.772	.566	-.144	.004	-.139	.0108	-.0147	[illegible]	[illegible]
			359	904	-20,496			57	-1,868										-.0140	[illegible]	[illegible]
37	1225	-17,130	359	904	-16,226	6,030	-1,538	55	-1,483	-1.038	.02093	.051	-1.987	.318	-.081	.002	-.092	.0077	-.0120	.0312	.0103
			314	790	-16,340			48	-1,490										-.0121	[illegible]	[illegible]
38	1252	-12,290	314	790	-12,500	4,630	-1,176	48	-1,130	-.6600	.01185	.030	-.631	.236	-.060	.002	-.058	-.0711	-.0104	.0241	-.0174
			248	675	-12,615			41	-1,137										-.0102	.0158	-.0344

TABLE 35

TABLE 35. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 6 of 8 — CONDITION: G.W. 278,000# 10,000# B. FULL FUEL FOR ILAA - HIGH SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T \tan\phi}{I_z/Q_x} \times 10$	$\frac{T \tan\phi}{I_z/Q_x} M'_x$	S''_b (6) − (31)
		.9848 × (16)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (16)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR 5 − (6)
26	870	−17.366	.3184	−17.684	−7792	−3.061	1.806	−1.255	847.3	−14,884	−66,122
			.3220	−17.688	−7827		1.827	−1.234		−14,987	−66,574
27	906	−14.642	.2470	−14.889	−7019	−2.581	1.401	−1.180	886.0	−13,192	−60,619
			.2476	−14.890	−7048		1.404	−1.177		−13,193	−61,119
28	942	−12.323	.1930	−12.516	−6272	−2.172	1.095	−1.077	928.2	−11,617	−54,625
			.1934	−12.516	−6300		1.097	−1.075		−11,617	−55,085
29	978	−9.997	.1411	−10.1381	−5548	−1.762	.8006	−.9614	974.8	−9,883	−48,749
			.1451	−10.1421	−5597		.8233	−.9397		−9,887	−49,543
30	1014	−8.025	.1015	−8.1265	−4871	−1.415	.5756	−.8394	1026	−8,388	−44,132
			.1018	−8.1268	−4893		.5776	−.8374		−8,338	−44,527
31	1050	−6.339	.0651	−6.4041	−4211	−1.117	.3691	−.7479	1083	−6,936	−38,724
			.0653	−6.4043	−4231		.3707	−.7463		−6,936	−39,044
32	1080	−5.076	.0398	−5.1158	−3678	−.8947	.2265	−.6682	1136	−5,812	−34,408
			.0438	−5.1198	−3717		.2484	−.6463		−5,816	−35,046
33	1110	−3.922	.0238	−3.9458	−3192	−.6914	.1351	−.5563	1194	−4,711	−30,481
			.0240	−3.9460	−3205		.1362	−.5552		−4,712	−30,691
34	1140	−2.929	.0085	−2.9375	−2699	−.5163	.04826	−.46804	1259	−3,698	−26,185
			.0087	−2.9377	−2710		.04934	−.46636		−3,699	−26,373
35	1170	−2.089	−.0030	−2.0860	−2224	−.3682	−.01684	−.38504	1330	−2,774	−21,898
			—	−2.0890	−2256		—	−.36820		−2,778	−22,430
36	1198	−1.450	−.0083	−1.4417	−1832	−.2555	−.04697	−.30247	1405	−2,026	−18,332
			−.0082	−1.4418	−1840		−.04629	−.30179		−2,026	−18,470
37	1225	−.9720	−.0136	−.9584	−1460	−.1713	−.07711	−.24841	1486	−1,424	−14,802
			−.0135	−.9585	−1467		−.07642	−.24772		−1,424	−14,916
38	1252	−.6262	−.0169	−.6094	−1113	−.1104	−.09572	−.20612	1576	−960	−11,540
			−.0168	−.6095	−1120		−.09513	−.20553		−961	−11,654

CALCULATED BY	J. Ellis	TABLE 35	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION, FORT WORTH, TEXAS	MODEL B-36
CHECKED BY	Proffer		

TABLE 35. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 7 of 8. CONDITION: D.G.W. – I.L.A.A. @ 5000' – HIGH SPEED

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_i}	$1.5(\frac{-N_z}{W})S_{b_i}$ $(\frac{-N_z}{W})=+1.678$	$S_b = S_b'$	$S_{c_{L_a}}$	$1.0\frac{X_m}{W}S_{c_{L_a}}$ $\frac{X_m}{W}=-0.170$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=+0.102$	S_c	$M_{x_a} \times 10^{-6}$	$M_{x_i} \times 10^{-6}$	$1.0(\frac{-N_z}{W})M_{x_i} \times 10^{-6}$ $(\frac{-N_z}{W})=+1.678$	$M_x \times 10^{-6}$	$M_{c_{L_a}} \times 10^{-6}$	$1.5\frac{X_m}{W}M_{c_{L_a}} \times 10^{-6}$ $\frac{X_m}{W}=-0.170$	$1.5\frac{X_m}{W}M_{x_i} \times 10^{-6}$ $\frac{X_m}{W}=+0.102$	$(M_y = M_{y_i}) \times 10^{-6}$	$T_{BA_a} \times 10^{-6}$	$T_{BA_i} \times 10^{-6}$	$1.5(\frac{-N_z}{W})T_{BA_i} \times 10^{-6}$ $(\frac{-N_z}{W})=+1.678$	$T_{BA} \times 10^{-6}$
		Fig. 6	TABLE 26	+2.517 (4)	(5) + (6)	[redacted] TABLE 29	+0.255 (7)	+0.102 (4)	(8) + (9)	Fig. 6	TABLE 26	+0.517 (12)	(11) + (13)	[redacted] TABLE 29	+0.255 (16)	+0.102 (12)	(10) + (17)	Fig. 6	TABLE 26	+0.517 (22)	(19) + (22)
39	1278	-10,080	268	675	-9,405	3,440	-877	41	-836	-.4170	.00487	.0123	-.4047	.121	-.033	.001	-.032	-.0810	-.008681	-.0219	-.1029
			98	247	-9,833			15	-862										-.001835	-.0046	-.0856
40	1301	-7,575	98	247	-7,328	2,520	-643	15	-628	-.2490	.002609	.0065	-.2425	.073	-.019	.0	-.019	-.0804	-.001370	-.0034	-.0838
			65	164	-7,411			10	-633										-.001199	-.0030	-.0834
41	1324	-5,250	65	164	-5,086	1,680	-428	10	-418	-.1440	.001109	.0028	-.1412	.037	-.009	0	-.009	-.0702	-.000891	-.0022	-.0724
			50	126	-5,124			8	-420										-.000771	-.0019	-.0721
TIP G.G.	1346.4	-3,150	50	126	-3,024	940	-240	8	-232	-.0600	0	0	-.0600	.0115	-.0029	0	-.0029	-.0501	-.000543	-.0014	-.0515
TIP	1380.841	0	0	0	0			0	0	0	0	0	0			0		0	0	0	0

J. Ellis
Kriegsheim

TABLE 35

DOC. NO. FZS-36-140
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TABLE 35. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 8 of 8. CONDITION: D.G.W. 278,000#, 10000#B, FULL FUEL & OIL, 1.1 A.A. HIGH SPEED @ 5000 FT.

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1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\phi \times 10^6$	$T_{EA} \sin\phi \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\phi$	$M_x \sin\phi \times 10^6$	$T_{EA} \cos\phi \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T \tan\phi}{I_x/Q_x} \times 10$	$\frac{T \tan\phi}{I_x/Q_x} M'_x$	S''_b ⑥ − ㉛
		2845 × (14)	1736 × (22)	(23) − (24)	2846 × (25)	1736 × (16)	2845 × (28)	(27) + (28)	TABLE 20	(25) × (30)	OR Σ = ⑥
39	1278	−.3885	−.0179	−.3806	−823	−.0763	−.1013	−.1776	1674	−637	−8,768
			−.0149	−.3836	−849		−.0843	−.1546		−642	−9,121
40	1334	−.2388	−.0145	−.2243	−618	−.0421	−.0825	−.1246	1772	−397	−6,931
			−.0145	−.2243	−843		−.0821	−.1242		−397	−7,014
41	1324	−.1390	−.0126	−.1264	−412	−.0245	−.0713	−.0958	1881	−238	−4,848
			−.0125	−.1265	−414		−.0710	−.0955		−238	−4,886
TIP ℄	1346.4	−.0591	−.0089	−.0502	−228	−.0184	−.0507	−.0611	—	—	−3,024
TIP	1388.841	0	0	0	0	0	0	0	—	—	0

CALCULATED BY	[illegible]
DRAWN BY	
CHECKED BY	[illegible]

TABLE 35

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

DOC NO. FZS-36-140
MODEL B-36

TABLE 36. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 1 of 8. CONDITION: GW. 278,000# 10,000#B. FULL FUEL & OIL. ILAA-LIMIT DIVE SPEED @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{ba}	S_{b_1}	$1.5(\frac{N_z}{W})S_{b_1}$ $(\frac{N_z}{W})=1.516$	$S_b = S_b'$	$S_{CL_{a_1}}$	$1.5\frac{X_m}{W}S_{CL_{a_1}}$ $\frac{X}{W}=-0.107$	$1.5\frac{X_m}{W}S_{b_1}$ $\frac{X_m}{W}=-.047$	S_c	$M_{x_a} \times 10^6$	$M_{x_1} \times 10^6$	$1.5(\frac{N_z}{W})M_{x_1}$ $\times 10^6$ $(\frac{N_z}{W})=1.516$	$M_x \times 10^6$	$M_{CL_{a_1}} \times 10^6$	$1.5\frac{X_m}{W} M_{CL_{a_1}}$ $\times 10^6$ $\frac{X}{W}=-0.107$	$1.5\frac{X_m}{W}M_{x_1}$ $\times 10^6$ $\frac{X_m}{W}=.047$	$(M_y = M_y')$ $\times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_1} \times 10^6$	$1.5(\frac{N_z}{W})T_{EA_1}$ $\times 10^6$ $(\frac{N_z}{W})=1.516$	$T_{EA} \times 10^6$
		Fig. 7	TABLE 26	2.274 (4)	(3) + (5)	TAB. 29	.1605 (7)	.0705 × (4)	(6) + (9)	Fig. 7	TABLE 26	2.274 (12)	(11) + (13)	TAB. 29	-.1605 (15)	3.145 (2)	(16) + (17)	Fig. 7	TABLE 26	2.274 (22)	(18) + (22)
0	0	-305,400	111,417	253362	-52038	138370	-22208	7855	-14353	-178.92	46.465	105.661	-73.259	77.519	-12.442	3.276	-9.166	21.744	-13.515	-30.733	8.989
			110,523	252239	-53161			7820	-14388		46.465	105.661	-73.259			3.276	-9.166		-13.517	-30.738	8.994
1	41.025	-293,300	110,923	252239	-40961	132440	-21257	7820	-13437	-166.98	41.914	95.312	-71.668	72.070	-11.567	2.955	-8.612	20.214	-12.581	-28.609	8.395
			109,902	249917	-43283			7748	-13509		41.914	95.312	-71.668			2.955	-8.612		-12.583	-28.614	8.400
2	80.0	-281,800	109,902	249917	-31883	126830	-20356	7748	-12608	-155.82	37.630	85.571	-70.249	66.980	-10.750	2.653	-8.097	18.786	-11.703	-26.613	7.817
			109,067	248018	-33782			7689	-12667		37.630	85.571	-70.249			2.653	-8.097		-11.675	-26.549	7.763
3	113.25	-271,600	109,067	248018	-23586	122110	-19599	7689	-11920	-146.70	34.005	77.327	-69.313	62.790	-10.078	2.397	-7.681	17.640	-10.929	-24.853	7.213
			108,471	246663	-24937			7647	-11952		34.005	77.327	-69.313			2.397	-7.681		-10.924	-24.841	7.201
4	146.5	-261,900	108,471	246663	-15737	117490	-18857	7647	-11210	-137.80	30.398	69.125	-68.675	58.800	-9.437	2.143	-7.294	16.518	-10.182	-23.154	-6.636
			104,936	237487	-24413			7363	-11494		30.398	69.125	-68.675			2.143	-7.294		-10.287	-23.211	-6.693
5	180.0	-252,400	104,936	237487	-14913	112770	-18100	7363	-10737	-128.30	26.895	61.168	-68.132	54.870	-8.807	1.886	-6.911	15.420	-9.988	-21.576	-6.156
			94,312	207643	-44757			6437	-11663		26.745	60.818	-68.482			1.886	-6.911		-8.932	-20.311	4.891
6	206.0	-245,000	91,312	207643	-37357	109100	-17511	6437	-11074	-122.91	24.371	55.420	-67.490	51.980	-8.343	1.718	-6.625	14.598	-8.944	-19.202	4.604
			81,838	185190	-53910			5741	-11770		24.260	55.167	-67.743			1.710	-6.33		-8.078	-18.369	3.771
7	232.0	-237,800	81,438	185190	-52610	105540	-16939	5741	-11198	-116.70	22.143	50.353	-66.347	49.250	-7.905	1.561	-6.344	13.806	-7.642	-17.378	-3.572
			65,225	148322	-89478			4598	-12341		21.672	49.282	-67.418			1.528	-6.177		-6.414	-14.579	-.773
8	249.0	-233,000	65,225	148322	-84678	103230	-16568	4598	-11970	-112.68	20.562	46.758	-65.922	47.470	-7.619	1.450	-6.169	13.302	-6.183	-14.060	-.758
			60,381	137306	-95694			4257	-12311		20.562	46.758	-65.922			1.450	-6.169		-6.169	-14.028	-.726
9	284.5	-223,000	60,381	137306	-85694	98400	-15793	4257	-11536	-104.65	18.420	41.887	-62.763	43.900	-7.046	1.289	-5.757	12.276	-5.729	-13.028	-.752
			68,989	155744	-67256			4828	-10965		18.316	41.651	-62.527			1.291	-5.755		-6.274	-14.267	1.931
10	312.0	-215,400	68,989	155744	-59656	94730	-15204	4828	-10376	-98.43	16.492	37.366	-61.064	41.230	-6.617	1.158	-5.459	11.508	-5.887	-13.387	-1.879
			68,128	154923	-60477			4803	-10401										-5.888	-13.389	-1.881
11	339.5	-207,800	68,128	154923	-52872	91,160	-14631	4803	-9828	-92.67	14.558	33.105	-59.565	38.660	-6.205	1.026	-5.179	10.590	-5.502	-12.512	-1.922
			60,860	138396	-69404			4291	-10340										-4.857	-11.045	-.255
12	375.75	-198,000	60,860	138396	-59604	86550	-13891	4291	-9600	-85.08	12.353	28.091	-56.589	35.300	-5.666	.871	-4.795	9.840	-4.403	-10.012	-.172
			59,395	134994	-74406			3835	-10056										-4.410	-10.028	-.188

TABLE 36

TABLE 36. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 2 of 8 — CONDITION: D.G.W. 278,000#, 10,000#B., FULL FUEL & OIL. (LAA.-LIMIT DIVE SPEED @ 5000 FT.

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DATE: 12-4-45

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} \times 10$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} M'_x$	S''_b (8) - (31)
		.9848 × (14)	.1736 × (22)	(23) - (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR .5 × (6)
0	0	-72.145	-1.560	-70.585	-14135	-12.718	-8.852	-21.570	412.7	-29130	-26019
		-72.145	-1.561	-70.584	-14169	-12.718	-8.857	-21.575		-29130	-26581
1	41.025	-70.579	-1.457	-69.122	-13233	-12.442	-8.267	-20.709	423.0	-29239	-20481
		-70.579	-1.458	-69.121	-13304	-12.442	-8.272	-20.714		-29238	-21642
2	80.0	-69.181	-1.359	-67.822	-12416	-12.195	-7.708	-19.903	433.1	-29374	-15942
		-69.181	-1.348	-67.833	-12474	-12.195	-7.645	-19.840		-29378	-16891
3	113.25	-68.319	-1.252	-67.067	-11739	-12.093	-7.103	-19.196	631.7*	-42367	+18800
		-68.319	-1.250	-67.069	-11770	-12.093	-7.092	-19.185		-42369	+17463
4	146.5	-67.631	-1.152	-66.479	-11040	-11.922	-6.535	-18.457	645.3*	-42899	+27663
		-67.631	-1.162	-66.469	-11319	-11.922	-6.591	-18.513		-42899	+18487
5	180.0	-67.056	-1.069	-66.027	-10574	-11.828	-6.062	-17.890	659.6*	-43550	+28687
		-67.441	-.849	-66.592	-11486	-11.888	-4.817	-16.705	461.7	-30746	-22379
6	206.0	-66.464	-.799	-65.665	-10906	-11.716	-4.534	-16.250	469.7	-30843	-18679
		-66.713	-.655	-66.058	-11591	-11.760	-3.714	-15.474		-31027	-29905
7	232.0	-65.339	-.620	-64.719	-11028	-11.518	-2.518	-15.036	478.1	-30942	-26305
		-66.253	-.134	-66.119	-12153	-11.704	-.361	-12.065		-31678	-57900
8	249.0	-64.920	-.132	-64.788	-11788	-11.444	-.746	-12.190	483.9	-31351	-53327
		-64.920	-.126	-64.794	-12124	-11.444	-.715	-12.159		-31354	-64340
9	284.5	-61.809	-.131	-61.678	-11361	-10.896	-.741	-11.637	495.9	-30586	-55108
		-62.041	-.346	-61.695	-10798	-10.937	-1.961	-12.898		-30595	-36661
10	312.0	-60.136	-.326	-59.810	-10218	-10.601	-1.850	-12.451	505.8	-30292	-29828
			-.327	-59.809	-10293		-1.853	-12.953		-30251	-30239
11	339.5	-58.660	-.2[illegible]	-58.461	-9619	-10.340	-1.696	-12.036	516.0	-30114	-26436
			-.0493	-58.616	-10183		-.251	-10.591		-30246	-39158
12	375.75	-[illegible]	-.0[illegible]	-56.[illegible]	-9454	-9.893	-.169	-10.062	530.2	-29739	-29865
			-.0336	-56.100	-9903		-.185	-10.078		-29739	-44367

CALCULATED BY	Shutlick	TABLE 36	DOC NO. FZS-36-140
DRAWN BY			MODEL B-36
CHECKED BY	Pepper	CONSOLIDATED VULTEE AIRCRAFT CORPORATION NORTH DIVISION FORT WORTH, TEXAS	

$* \frac{\tan\theta}{I/Q} \times 10^6$

TABLE 36. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 3 of 8. CONDITION: DGW-278,000#, 10,000# B, FULL FUEL & OIL, I.L.A.A.-LIMIT DIVE SPEED @ 5000 FT.

2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST FROM ℄ OF SHIP	S_{b_a}	S_{b_i}	$1.5(\frac{N_z}{W})S_{b_i}$ $(\frac{N_z}{W})=1.516$	$S_b = S'_b$	$S_{CL_{a_i}}$	$1.5\frac{X_m}{W}S_{CL_{a_i}}$ $\frac{X}{W}=-0.107$ $\frac{X_m}{W}=.047$	$1.5\frac{X_m}{W}S_{b_i}$	S_c	$M_{x_a} \times 10^6$	$M_{x_i} \times 10^6$	$1.5(\frac{N_z}{W})M_{x_i} \times 10^6$ $(\frac{N_z}{W})=1.516$	$M_x \times 10^6$	$M_{CL_{a_i}} \times 10^6$	$1.5\frac{X}{W}M_{CL_{a_i}} \times 10^6$ $\frac{X}{W}=-0.107$	$1.5\frac{X_m}{W}M_{x_i} \times 10^6$ $\frac{X_m}{W}=.047$	$(M_y = M_{y_i})$ $\times 10^6$	$T_{EA_2} \times 10^6$	$T_{EA_1} \times 10^6$	$1.5(\frac{N_z}{W})T_{EA_1} \times 10^6$ $(\frac{N_z}{W})=1.516$	$T_{EA} \times 10^6$
			7	26 2.274	3 + 5	TAB. 29 -1.603	.0705 × 4	6 + 9	Fig. 7		TABLE 26 2.274	12	11 + 13	TAB. 29 -0.1605	15	.0705	12 + 17	Fig. 7	TABLE 26 2.274	20	19 + 21
13	4120	-188,200	54,395	123,684	-64,506	81,930	-13,190	3835	-9315	-77.95	10,380	23,604	-54,346	32,360	-5.194	.7318	-4.462	8.952	-4.005	-9.107	-.155
			48,383	109,908	-61,291			3407	-9743										-4.002	-9.101	-.149
14	4485	-178,800	48,333	109,905	-61,891	77,530	-12,494	3407	-9037	-71.28	8,616	19,593	-51,687	29,530	-4.740	.6074	-4.133	8.106	-3.660	-8.323	-.217
			42,556	96,772	-54,028			3000	-9944										-3.676	-8.359	-.253
15	4850	-169,500	42,556	96,772	-54,128	73,120	-11,736	3000	-8736	-64.80	7,063	16,061	-48,139	26,750	-4.294	.4979	-3.796	7.308	-3.357	-7.634	-.326
			37,333	84,895	-47,605			2632	-9104										-3.337	-7.588	-.280
16	5215	-160,200	37,333	84,895	-75,305	68,870	-11,054	2632	-8422	-58.80	5,700	12,962	-45,838	24,230	-3.889	.4019	-3.487	6.546	-3.057	-6.952	-.406
			31,352	71,294	-88,306			2210	-8844										-2.513	-5.715	+.831
17	5580	-153,400	31,352	71,294	-82,106	65,570	-10,524	2210	-8314	-54.60	4,838	11,002	-42,598	22,340	-3.586	.3411	-3.245	6.012	-2.336	-5.312	+.700
			31,068	70,649	-82,751			2190	-8334										-2.337	-5.314	+.678
18	5765	-146,700	31,068	70,649	-76,051	62,310	-10,001	2190	-7811	-50.50	3,984	9,060	-41,440	20,610	-3.308	.2809	-3.027	5.496	-2.161	-4.914	+.582
			24,831	56,466	-90,734			1751	-8250										-1.655	-3.763	+1.733
19	6150	-137,900	24,831	56,466	-80734	58,120	-9328	1751	-7577	-44.80	3,018	6,863	-38,017	18,200	-2.921	.2128	-2.708	4.812	-1.456	-3.311	+1.501
			20,001	45482	-91718			1410	-7918										-1.456	-3.311	+1.501
20	6545	-128,000	20,001	45482	-82518	53,820	-8638	1410	-7228	-39.75	2,241	5,096	-34,654	16,100	-2.584	.1580	-2.426	4.152	-1.296	-2.947	+1.205
			15,585	35440	-92560			1099	-7539										-1.305	-2.968	+1.232
21	6935	-119,100	15,586	35440	-83860	49,130	-7982	1099	-6883	-34.92	1,635	3,718	-31,202	14,060	-2.257	.1153	-2.141	3.600	-1.186	-2.683	+.917
			11,894	27047	-92082			839	-7143										-1.173	-2.667	+.933
22	7320	-110,000	11,894	27047	-82959	45,620	-7324	839	-6485	-30.60	1173	2,667	-27,933	12,170	-1.953	.0827	-1.8703	3.012	-1.079	-2.459	+.558
			10,009	22760	-87240			706	-6618										-1.073	-2.440	+.372
23	7660	-102,500	10,009	22760	-79740	42,170	-6768	706	-6062	-26.88	.8324	1.893	-24.987	10.700	-1.717	.05868	-1.658	2.580	-.1002	-2.272	+.301
			6,286	14294	-88206			443	-6325										-0.5957	-1.3546	+1.225
24	8060	-93,700	6286	14294	-79906	38,290	-6146	443	-5703	-22.92	.5809	1.321	-21.599	9.070	-1.456	.04095	-1.415	2.130	-0.6941	-1.2373	+.8927
			2585	5878	-81822			182	-5964										+0.1658	-.3770	+1.7530
25	8400	-86,300	2585	5878	-80422	35,140	-5646	182	-5458	-19.80	.493	1.121	-18.679	7.820	-1.255	.03476	-1.220	1.758	-0.1477	-.3359	+1.4212
			2322	5280	-81020			167	-5476										-0.1478	-.3361	+1.4213

Shellice

Trapper

TABLE 36

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B-36

TABLE 36. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 4 of 8. CONDITION: DGW-278,000# 10000#B. FULL FUEL & OIL. 1LAA-LIMIT DIVE SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} \times 10$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} - M'_x$	$S''_b = (6) - (31)$
		.9848 × (14)	.1736 × (23)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR .5 × (6)
13	412.0	-53.520	-.0269	-53.493	-9173	-9.434	-.153	-9.587	545.1	-29159	-55347
			-.0259	-53.494	-9555		-.147	-9.591		-29160	-57131
14	448.5	-50.901	-.0317	-50.869	-8900	-8.973	-.214	-9.187	561.1	-28539	-40350
			-.0439	-50.857	-9300		-.249	-9.222		-28536	-53492
15	485.0	-47.998	-.0566	-47.941	-8603	-8.461	-.321	-8.782	578.0	-27710	-45018
			-.0486	-47.949	-8966		-.276	-8.737		-27715	-56840
16	521.5	-45.141	-.0705	-45.071	-8294	-7.957	-.400	-8.357	596.0	-26862	-48443
			+.1443	-45.285	-8110		+.818	-7.139		-26990	-61916
17	549.0	-42.985	+.1220	-43.057	-8188	-7.563	+.689	-6.880	610.3	-26278	-55878
			+.1212	-43.056	-8207		+.681	-6.882		-26277	-57474
18	576.5	-40.810	+.1010	-40.911	-7692	-7.194	+.573	-6.621	625.2	-25578	-50473
			+.3008	-41.111	-8125		+1.707	-5.487		-25703	-64521
19	615.375	-37.939	+.2605	-37.700	-7462	-6.600	+1.478	-5.122	647.7	-24418	-56316
			+.2605	-37.700	-7463		+1.478	-5.122		-24418	-67200
20	654.25	-34.127	+.2092	-34.336	-7118	-6.016	+1.187	-4.829	671.9	-23070	-59448
			+.2055	-34.333	-7424		+1.166	-4.850		-23068	-69492
21	693.125	-30.728	+.1591	-30.887	-6778	-5.417	+.903	-4.514	697.9	-21556	-62104
			+.1620	-30.890	-7034		+.919	-4.498		-21558	-70495
22	732.0	-27.508	+.0969	-27.605	-6386	-4.849	+.550	-4.299	726.1	-20044	-[illegible]09
			+.0993	-27.607	-6517		+.563	-4.286		-20045	-61195
23	766.0	-24.607	+.0523	-24.659	-5970	-4.338	+.296	-4.042	752.7	-18,561	-61179
			+.2127	-24.820	-6229		+1.206	-3.132		-18,682	-69534
24	806.0	-21.271	+.1550	-21.426	-5616	-3.750	+.8791	-2.871	786.3	-16,847	-60559
			+.3043	-21.575	-5873		+1.726	-2.024		-16,964	-70858
25	840.0	-18.396	+.2469	-18.642	-5325	-3.243	+1.400	-1.843	817.6	-15,242	-65180
			+.2468	-18.642	-5393		+1.400	-1.843		-15,242	-65778

CALCULATED BY	Shultice	TABLE 36	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY	Cropper		
APPROVED BY			

TABLE 36 B-36 WING NET ULTIMATE SHEARS BENDING MOMENTS & TORSIONS

SHEET 3 of 4 CONDITION: DGW 278,000# 10,000# B. FULL FUEL KOH. 11 AA-LIMIT DIVE SPEED @ 5000 ft

PAGE NEPORT-FZ DATE 12-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
STATION	DIST. FROM ℄ OF SYMM.	S_{b_0}	S_{b_1}	$1.5\frac{1}{2}S_{b_1}$ (1.516)	$S_b = S_b^{\circ}$	S_{c_0}	$1.5\frac{1}{2}S_{c_1}$ (1.516)	$1.5\frac{1}{2}S_{b_1}$	S_z	M_{x_0}	M_{x_1}	$(M_{x_1})_{x_0}$	M_x	M_{c_0}	$1.5\frac{1}{2}M_{c_1}$	$M_{y_1} = M_{s_1}$	T_{EA_0}	T_{EA_1}	T_{EA_1}	T_{EA_1}
		Fig. 7	Table 26	2274-(1)	(3) + (4)	Table 27	Table 27 (7)	(6) + (8)	(5) + (9)	Fig. 7	Table 26	2274 (12)	(11) + (12)	Table 27	(14)	(15) + (17)	Fig. 7	Table 26	(19) + (20)	(21) + (19)
26	8700	-80000	2922	5280	-74720	32420	-5203	164	-5039	-17.28	0.1334	.9628	-16.318	4.821	-1.095	.5665	-1.0665	1.470	-0.1385	-.3036
			2022	4598	-75482			143	-5860										-0.1281	-.2845
27	9960	-72700	2022	4598	-68102	29160	-4680	133	-4537	-14.40	0.3504	.1973	-13.8057	3.754	-.9235	.2272	-.9958	1.160	-0.1010	-.2504
			1823	4146	-68554			120	-4551										-0.1090	-.2479
28	9420	-65300	1823	4146	-61154	26070	-4184	120	-4055	-12.78	0.2[illegible]	.6481	-11.6319	4.705	-.7524	.2009	-.7351	0.885	[illegible]	-.172
			1640	3729	-61571			[illegible]	-4068										[illegible]	-.150
29	9140	-58400	1640	3729	-54671	23,080	-3704	114	-3588	-11.01	0.2369	.5120	-9.9464	3.873	-.6140	.1593	-.5961	0.650	[illegible]	[illegible]
			1323	3009	-55391			93	-3611										[illegible]	-.1658
30	7040	-51600	1323	3009	-48591	20,100	-3240	93	-3147	-8.00	0.1783	.4055	-6.5463	3.453	-.490	.1277	-.3714	0.440	[illegible]	[illegible]
			1168	2656	-49244			82	-3158										[illegible]	[illegible]
31	5800	-45200	1168	2656	-41544	17,470	-2804	82	-2722	-6.32	0.1392	.3092	-5.0103	2.957	-.3827	[illegible]	-.3751	0.2535	[illegible]	-.1211
			1041	2367	-42883			73	-2721										[illegible]	[illegible]
32	4840	-39800	1041	2367	-37433	15,270	-2451	73	-2378	-4.99	0.1050	.2332	-4.0[illegible]	1.925	-.2638	[illegible]	-.2016	0.1470	[illegible]	[illegible]
			786	1787	-38013			55	-2396										[illegible]	[illegible]
33	3900	-34400	786	1787	-32613	12,180	-2105	[illegible]	-2160	-3.87	[illegible]	[illegible]	[illegible]	1.120	-.2391	[illegible]	-.1334	0.0350	[illegible]	[illegible]
			701.5	1595	[illegible]			[illegible]	[illegible]										[illegible]	[illegible]
34	3140	-31600	701.5	1595	-29905	10,170	-1783	49	[illegible]	-2.[illegible]	[illegible]	.1378	[illegible]	.417	-.1793	[illegible]	-.1150	0.0335	[illegible]	[illegible]
			624.0	1436	-28115			44	[illegible]										[illegible]	[illegible]
35	2480	[illegible]	[illegible]	[illegible]	[illegible]	8,230	-1461	44	-1437	-2.37	[illegible]	[illegible]	[illegible]	.803	-.1283	[illegible]	-.1106	0.0800	[illegible]	[illegible]
			415.3	[illegible]	-23859			29	-1452										[illegible]	[illegible]
36	[illegible]	[illegible]	415.3	941	-19559	7,590	-1370	29	-1341	[illegible]	0.0300	.0632	-1.[illegible]	.566	-.0908	[illegible]	-.0887	0.1080	[illegible]	[illegible]
			319.9	876	-19444			25	-1165										[illegible]	[illegible]
37	[illegible]	[illegible]	319.9	876	-15584	6,030	-968	25	-943	-1.[illegible]	[illegible]	[illegible]	[illegible]	.378	[illegible]	0.001432	-0.0558	0.1[illegible]	[illegible]	[illegible]
			213.5	443	-15987			22	-[illegible]										[illegible]	[illegible]
38	1350.0	-12,600	213.5	443	-11881	4,600	-742	22	-720	-0.[illegible]	0.0185	.0235	[illegible]	.236	[illegible]	[illegible]	[illegible]	0.1[illegible]	[illegible]	[illegible]
			26.3	212	-11990			19	-923										[illegible]	[illegible]

TABLE 36

TABLE 36. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 6 of 8. CONDITION: D.G.W. 278,000#, 10,000#B., FULL FUEL & OIL, ILAA.-LIMIT DIVE SPEED @ 5,000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c + S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{.7 \tan\phi}{\frac{I_x}{Q_x}} \times 10$	$\frac{.7 \tan\phi}{\frac{I_x}{Q_x}} M'_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR. 5 × (6) − (31)
26	870.0	-16,069	+.202	-16,271	-4962	-2,833	+1.145	-1.684	847.3	-13786	[illegible]
			+.206	-16,275	-4983		+1.167	-1.666		-13790	-61612
27	906.0	-13,396	+.158	-13,554	-4468	-2,361	+.894	-1.461	886.0	-12009	[illegible]
			+.158	-13,554	-4482		+.896	-1.465		-12009	-56545
28	942.0	-11,455	+.118	-11,573	-3993	-2,019	+.667	-1.352	928.2	-10742	-50412
			+.118	-11,573	-4006		+.670	-1.349		-10742	-50829
29	978.0	-9,352	+.080	-9,432	-3533	-1,645	+.456	-1.193	974.8	-9194	-45477
			+.084	-9,436	-3556		+.477	-1.172		-9198	-46[illegible]
30	1014.0	-7,538	+.051	-7,589	-3099	-1,329	+.292	-1.037	1026	-7786	-40805
			+.052	-7,590	-3110		+.294	-1.035		-7787	-41157
31	1050.0	-5,919	+.023	-5,942	-2681	-1,043	+.128	-.915	1083	-6435	-36109
			+.023	-5,942	-2695		+.130	-.913		-6435	-36396
32	1080.0	-4,679	+.004	-4,683	-2342	-.825	+.021	-.804	1136	-5320	-32113
			+.007	-4,686	-2360		+.0409	-.784		-5323	[illegible]
33	1110.0	-3,648	[illegible]	-3,6483	-2075	-.6432	+.00201	-.641	1194	-4356	-28257
			-.0069	-3,6411	-2035		-.0354	-.6825		-4347	-28358
34	1140.0	-2,760	-.017	-2,743	-1717	-.486[illegible]	-.0962	-.5827	1259	-3453	-24552
			-.017	-2,743	[illegible]		-.0952	-.5817		-3453	-24[illegible]
35	1170.0	-2,005	-.023	-1,982	-1415	-.3535	-.1223	-.4858	1330	-2637	-20738
			-.021	-1,984	-1430		-.1170	-.4705		-2639	[illegible]
36	1198.0	-1,415	-.025	-1,390	-1163	-.2454	-.1402	-.3856	1405	-1953	-17406
			-.025	-1,390	-1167		-.1395	-.3885		-1953	-17531
37	1225.0	-.954	-.026	-.928	[illegible]	-.1682	-.1498	-.3180	1486	-1379	-14005
			-.026	[illegible]	[illegible]		-.1492	-.3174		-1379	-14163
38	1252.0	-.580	-.026	-.554	-709	[illegible]	-.1433	-.2511	1576	-873	-11014
			-.026	-.554	-712		-.1432	-.2505		-873	-11117

CALCULATED BY	[illegible]	TABLE 36	DOC NO. FZS-36-140
DRAWN BY			MODEL B-36
CHECKED BY	[illegible]	CONSOLIDATED VULTEE AIRCRAFT CORPORATION	

TABLE 36. B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 7 of 8 — CONDITION: D.G.W. 278,000# 10,000# B.G. FULL FUEL & OIL 1.1 L.A.A. LIMIT DIVE SPEED @ 5000 FT.

MODEL: 1-46 B
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ 40 #1 & #11	S_{b_a}	S_{b_1}	$1.6\frac{\Sigma m}{W}S_{b_a}$ $(\frac{\Sigma m}{W})=.1516$	$S_b = S_b'$	S_{c_a}	$1.4\frac{\Sigma m}{W}S_{c_a}$ $\frac{\Sigma m}{W}=.0107$	$1.5\frac{\Sigma m}{W}S_{b_1}$ $\frac{\Sigma m}{W}=.0107$	S_c	$M_{x_a} \times 10^6$	$M_{x_1} \times 10^6$	$1.5(\frac{\Sigma m}{W})M_{x_a}$ $\times 10^6$ $(\frac{\Sigma m}{W})=.0107$	$M_x \times 10^6$	$M_{c_a} \times 10^6$	$1.6\frac{\Sigma m}{W}M_{c_a}$ $\times 10^6$ $\frac{\Sigma m}{W}=0.107$	$1.5\frac{\Sigma m}{W}M_{y_1}$ $\times 10^6$ $\frac{\Sigma m}{W}=.0107$	$(M_y = M_{y_1})$ $\times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_1} \times 10^6$	$1.4(\frac{\Sigma m}{W})T_{EA_a}$ $\times 10^6$ $(\frac{\Sigma m}{W})=.1076$	$T_{EA} \times 10^6$
		Fig. 7	TABLE 26	.274 × ①	② + ③	[redacted]	.065 × ⑦	.065 × ⑨	⑧ + ⑩	Fig. 7	TABLE 26	.274 × ⑫	⑪ + ⑬	[redacted]	TABLE 26	.274 × ⑯	⑭ + ⑰	Fig. 7	TABLE 26	.274 × ⑳	⑲ + ㉑
39	12,200.0	-2,400	268.3	610	-8190	3,440	-552	19	-533	-0.343	-.00107	-.01167	-.02319	[redacted]	-.00483	.000363	-.0207	-0.12000	-0.00681	.01974	-.12417
			98.3	224	-9176			7	-545										-0.00655	-.00913	
40	13,300.0	-6,900	525.5	224	-6616	2,520	-404	7	397	-0.197	.002608	.00[illegible]	[illegible]	[illegible]	-.01128	.0001039	-.0115	-0.10[illegible]	-0.00[illegible]	.00[illegible]115	-.0072
			652	148	-6152			4.6	-390										-0.00[illegible]	-.00[illegible]	-.06193
41	13,740.0	-4,600	65.2	148	-4452	1,6[illegible]	-276	4.6	[illegible]	-0.[illegible]	.001109	[illegible]	.0615	.037	-0.0[illegible]	.00[illegible]	-.00[illegible]	-0.0[illegible]	-0.[illegible]	.0020[illegible]	-0.0[illegible]
			45.5	113	-4487			3.5	[illegible]										-0.00[illegible]	-.00[illegible]	-0.0[illegible]
66.5	[illegible]	-2,600	435	113	-2487	840	-1[illegible]	3.5	-147	-0.000	0	0	-.010	.0115	-.00[illegible]	0	-.00[illegible]	-0.0[illegible]	[illegible]	-.00[illegible]235	-0.05[illegible]
TIP	1[illegible]	0	0	0	0	0	0	0	0	0	0	0	0		0	0				0	0

TABLE 36

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B-36

TABLE 36. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 8 of 8. CONDITION: D.G.W. 278,000# 10,000#B, FULL FUEL & OIL, I.L.A.A. LIMIT DIVE SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{.7 \tan\phi}{I_x/Q_x} \times 10^{-6}$	$\frac{.7 \tan\phi}{I_x/Q_x} M'_x$	S''_b (6) − (31)
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR .5 × (6)
39	1278.0	-.3269	-.0243	-.3026	-525	-.0576	-.1376	-.1952	1674	-507	-8283
			-.0216	-.3068	-531		-.1212	-.1928		-511	-8665
40	1301.0	-.1527	-.0288	-.1239	-361	-.0269	-.1067	-.1336	1772	-237	-6939
			-.0187	-.1340	-[illegible]		-.1063	-.1250		-237	-6515
41	1324.0	-.0665	-.0139	-.0526	-261	-.0117	-.0550	-.0667	1881	-99	-4353
			-.0148	-.0516	-262		-.0644	-.1161		-97	-4390
46.TIP	1346.4	-.0386	.0006	-.0392	-195	-.0174	-.0440	-.0614		0	-2987
TIP	1380		0		0	0	0	0	0	0	0

Stultz
Propper

TABLE 36

DOC NO. FZS-36-140
MODEL B-36

TABLE 37. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 1 of 8. CONDITION: D.G.W. 268 213# 10,000# B, FULL FUEL & OIL. ILAA - HIGH SPEED @ 30,000 FT.

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REPORT: FZS-36-140
DATE: 1/1/45

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_i}	$1.5(\frac{-N_z}{W})S_{b_i}$ $(\frac{-N_z}{W})=1.665$	$S_b = S_b'$	$S_{C_{L_{a_i}}}$	$1.5\frac{X}{W}S_{C_{L_{a_i}}}$ $\frac{X}{W}=.077$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=-.138$	S_c	$M_{x_a} \times 10^{-6}$	$M_{x_i} \times 10^{-6}$	$1.5(\frac{-N_z}{W})M_{x_i} \times 10^{-6}$ $(\frac{-N_z}{W})=1.665$	$M_x \times 10^{-6}$	$M_{C_{L_{a_i}}}$	$1.5\frac{X}{W}M_{C_{L_{a_i}}} \times 10^{-6}$ $\frac{X}{W}=.077$	$1.5\frac{X_m}{W}M_{x_i} \times 10^{-6}$ $\frac{X_m}{W}=-.138$	$(M_y = M_y') \times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{-N_z}{W})T_{EA_i} \times 10^{-6}$ $(\frac{-N_z}{W})=1.665$	$T_{EA} \times 10^{-6}$
		Fig. 8	TABLE 26	24375 (4)	(3) + (5)	TAB. 29	1155 × (7)	-207 × (4)	(8) + (9)	Fig. 8	TABLE 26	24375 × (12)	(11) + (13)	TAB. 29	1155 × (15)	-207 × (12)	(16) + (17)	Fig. 8	TABLE 26	24375 (20)	(19) + (21)
0	0	-338,420	106,524	260,044	-72,376	135,500	15,413	-22,050	-6,631	-193.9	45.392	113.367	-80.533	74.720	8.638	-9.396	-.758	38.378	-13.323	-33.289	5.089
			106,030	264,810	-73,610			-21,948	-6,529										-13.331	-33.294	5.694
1	41.025	-324,300	106,030	264,810	-59,490	127,730	14,753	-21,948	-7,189	-180.5	41.042	102.502	-77.938	69.53	8.031	-8.496	-.465	36.45	-12.436	-31.053	5.191
			105,309	262,260	-62,040			-21,737	-6,978										-12.438	-31.064	5.186
2	80.0	-311,200	105,309	262,260	-48,940	122,370	14,134	-21,737	-7,603	-168.1	36.349	92.280	-75.820	64.62	7.464	-7.648	-.184	33.76	-11.597	-28.964	4.796
			104,174	260,175	-51,025			-21,564	-7,430										-11.569	-28.889	4.871
3	113.25	-300,000	104,174	260,175	-39,825	117,810	13,607	-21,564	-7,957	-157.9	33.486	83.631	-74.263	60.58	6.937	-6.932	+.065	31.69	-10.857	-27.115	4.575
			103,578	258,686	-41,314			-21,441	-7,834										-10.852	-27.103	4.587
4	146.5	-289,100	103,578	258,686	-30,414	113,260	13,093	-21,441	-8,348	-148.1	30.042	75.030	-73.070	56.73	6.552	-6.219	+.333	29.69	-10.143	-25.332	4.358
			100,409	250,272	-38,828			-20,743	-7,650										-10.163	-25.382	4.308
5	180	-278,100	100,209	250,272	-27,828	108,800	12,566	-20,743	-8,177	-138.5	26.685	66.646	-71.854	52.93	6.113	-5.524	+.589	27.78	-9.473	-23.659	4.121
			88,225	220,342	-57,758			-18,263	-5,697		26.531	66.261	-72.239			-5.492	+.621		-8.909	-22.250	5.530
6	206	-269,800	88,225	220,342	-43,458	105,260	12,158	-18,263	-6,105	-131.4	24.237	60.532	-70.868	50.15	5.792	-5.017	+.775	26.34	-8.437	-21.071	5.269
			79,315	198,089	-71,711			-16,418	-4,260		24.126	60.255	-71.145			-4.994	+.798		-8.064	-20.140	6.200
7	232	-261,200	79,315	198,089	-63,111	101,520	11,760	-16,418	-4,658	-124.4	22.064	55.105	-69.295	47.52	5.490	-4.567	+.922	24.93	-7.640	-19.081	5.899
			63,973	159,523	-101,677			-13,222	-1,462		21.593	53.929	-70.471			-4.470	+1.019		-6.404	-15.994	8.986
8	243	-255,600	63,873	159,523	-96,077	99,590	11,503	-13,222	-1,719	-120.1	20.506	51.214	-68.886	45.80	5.290	-4.245	+1.045	24.09	-6.180	-15.435	8.655
			59,811	149,378	-106,222			-12,381	-878										-6.164	-15.395	8.695
9	284.5	-244,000	59,811	149,378	-94,622	94,940	10,966	-12,381	-1,415	-111.2	18.384	45.914	-65.286	42.36	4.833	-3.805	+1.088	22.32	-5.728	-14.306	8.014
			68,370	170,777	-73,223			-14,154	-3,188		18.280	45.654	-65.546			-3.784	+1.103		-6.269	-15.657	6.663
10	312	-235,100	68,370	170,777	-64,323	91,390	10,556	-14,154	-3,598	-104.6	16.399	40.957	-63.643	39.78	4.535	-3.395	+1.200	21.00	-5.883	-14.693	6.307
			63,015	163,875	-65,225			-14,080	-3,524										-5.884	-14.695	6.305
11	339.5	-226,100	68,018	169,875	-56,525	87,950	10,158	-14,080	-3,922	-98.34	14.529	36.286	-62.054	37.30	4.308	-3.008	+1.300	19.74	-5.499	-13.734	6.006
			60,750	151,723	-74,677			-12,575	-2,417										-4.853	-12.120	7.620
12	375.75	-215,500	60,750	151,723	-63,577	83,500	9,644	-12,575	-2,931	-90.94	12.527	30.787	-59.453	34.06	3.934	-2.552	+1.382	18.11	-4.401	-10.991	7.113
			54,285	135,577	-79,723			-11,237	-1,593										-4.407	-11.006	7.104

J. Ellis
K. Kaufman

TABLE 37

FZS 36-140
B-36

TABLE 37. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 2 of 8. CONDITION: D.G.W. 268,213#, 70,000# B. FULL FUEL & OIL. 7 L.A.A. - HIGH SPEED @ 30,000 FT.

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1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T_{TAN}}{I_x/Q_x} \times 10^6$	$\frac{T_{TAN}}{I_x/Q_x} M'_x$	S''_h
		3048 × (14)	1734 × (22)	(23) − (24)	3048 × (10)	1734 × (14)	3048 × (12)	(27) + (28)	TABLE 30	(29) × (30)	OR $S'' = (6)$
0	0	-79.309	.9876	-80.297	-6530	-13.981	5.603	-8.378	412.7	-33,139	-30,237
			.9867	-80.296	-6430		5.508	-8.383		-33,188	-40,472
1	41.025	-76.812	.9012	-77.713	-7080	-13.540	5.112	-8.428	423.0	-32,872	-29,745
			.9003	-77.712	-6872		5.107	-8.433		-32,872	-31,020
2	80.0	-74.660	.8326	-75.501	-7487	-13.162	4.723	-8.439	433.1	-32,698	-24,470
			.8456	-75.514	-7317		4.707	-8.365		-32,705	-25,513
3	113.25	-73.140	.7942	-73.934	-7838	-12.893	4.505	-8.388	442.2	-32,694	-19,313
			.7963	-73.936	-7715		4.517	-8.376		-32,694	-20,657
4	146.5	-71.959	.7565	-72.716	-8221	-12.685	4.292	-8.393	*6453	-49,923	-16,509
			.7479	-72.707	-7534		4.243	-8.442	451.7	-32,842	-19,414
5	180	-70.762	.7154	-71.477	-8053	-12.474	4.058	-8.416	*6526	-47,145	+19,018
		-71.741	.9600	-72.101	-5,610	-12.541	5.446	-7.095	461.7	-33,289	-28,879
6	206	-69.791	.9147	-70.706	-6,012	-12.303	5.189	-7.114	469.7	-33,211	-24,729
		-70.064	1.076	-71.140	-8,195	-12.351	6.106	-6.245		-33,414	-38,297
7	232	-68.242	1.024	-69.266	-4,587	-12.030	5.809	-6.221	478.1	-33,116	-31,556
		-69.400	1.560	-70.960	-1,440	-12.234	9.849	-3.385		-33,926	-61,751
8	249	-67.839	1.503	-69.342	-1,693	-11.959	8.523	-3.436	483.9	-33,555	-62,522
			1.509	-69.348	-865		8.563	-3.396		-33,557	-71,665
9	284.5	-64.294	1.391	-65.685	-1,393	-11.334	7.892	-3.442	495.9	-32,572	-62,049
		-64.550	1.157	-65.707	-3,140	-11.379	6.562	-4.817		-32,584	-40,639
10	312	-62.676	1.095	-63.771	-3,543	-11.048	6.211	-4.837	505.8	-32,255	-32,162
			1.095	-63.771	-3,470		6.209	-4.839		-32,255	-32,970
11	339.5	-61.111	1.043	-62.154	-3,862	-10.773	5.915	-4.858	516.0	-32,071	-28,263
			1.323	-62.434	-1,380		7.504	-3.269		-32,216	-42,481
12	375.75	-58.549	1.236	-59.785	-2,886	-10.321	7.011	-3.310	530.2	-31,698	-31,879
			1.233	-59.782	-1,569		6.996	-3.325		-31,696	-48,027

* $\frac{T_{TAN}}{I_x/Q_x} \times 10^6$

CALCULATED BY	J. Ellis	TABLE 37	DOC. NO. FZS-36-140
DRAWN BY			MODEL B-36
CHECKED BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	

TABLE 37 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 2 of 5 CONDITION: D.G.W. 268213 BOMB 6 FULL FUEL & OIL ILAA HIGH SPEED DIVE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
STATION	DIST FROM ℄	S_{bu}	S_1	$1.5(\frac{M}{b})S_b$	S_b	S_b'	S_{cu}	$1.5 S_{cu}$	$1.5(\frac{M}{b})S_c$	S_c	$M_{x_{cu}}$	$M_{y_{cu}}$	$1.5(\frac{M}{b})M_x$	M_x	M_{cu}	$1.5(\frac{M}{b})M_c$	$(M_y - M_x)$	T_{cu}	T_{cu}	[illegible]
			TABLE 26	1.5	④	③		1.5	⑦	⑧	Fig. 8	TABLE 26	1.5	⑫	⑪	1.5	⑬	⑩	TABLE 28	[illegible]
78	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9,130	-11,287 -9,982	-8,187 -6,496	-62.74	10,259	23,872	56,868	31,826	5,602	-2,784	[illegible]	[illegible]	[illegible]
14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8,439	-9,944 -8,786	-7,342 -6,197	-76.54	8,579	21,896	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8,149	-8,786 -6,711	-6,371 +4,328	[illegible]	9,049	19,605	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
36	5213	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7,635	-7,711 -6,440	-56.7 +1,784	-62.10	5,698	16,311	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
16	749	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7,307	[illegible]	[illegible]	-50.39	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
18	1615	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	51,980	5,997	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	649.785	186,000	10530	38,186	87,414	47,970	5,581	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
22	732	[illegible]	11867 10008	25638 24987	-86,762 -61,903	44030	5083	-2456 -2072	+2623 +3013	-31.72	1173	2030	20,880	11.74	[illegible]	7420	1.732	[illegible]	[illegible]	[illegible]
23	766	[illegible]	10008 6286	24987 15695	-83003 -82301	40690	4700	-2072 -1301	+1628 +3395	-23.84	8324	2.099	25,761	10.32	[illegible]	[illegible]	6.375	[illegible]	[illegible]	[illegible]
24	806	[illegible]	6286 2585	15695 6456	-82551 -91,794	36940	4267	-1301 -535	+2966 +3732	-23.73	5809	1.451	-22.270	8.75	1.011	[illegible]	8908	4.715	[illegible]	[illegible]
25	840	[illegible]	2585 2322	6456 5799	-83794 -84931	33910	3917	-535 -481	+3382 +3436	-20.96	4030	1.381	-19.109	7.84	0.709	[illegible]	7668	4.065	[illegible]	[illegible]

TABLE 37

TABLE 37 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 4 of 8. CONDITION: D.G.W. 268,213# 10000#B, FULL FUEL & OIL. ILAA - HIGH SPEED @ 30,000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{.7 T \tan\phi}{I_x/Q_x} \times 10$	$\frac{.7 T \tan\phi}{I_x/Q_x} M'_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR .5 × (6)
13	412	-56.004	1.145	-57.149	-2,075	-9.872	6.493	-3.379	545.1	-31,152	-37,871
			1.137	-57.141	-839		6.448	-3.424		-31,148	-53,015
14	448.5	-53.242	1.038	-54.280	-1,323	-9.386	5.891	-3.495	561.1	-30,457	-43,006
			1.031	-54.273	-145		5.849	-3.537		-30,453	-57,441
15	485	-50.259	.9263	-51.185	-627	-8.860	5.255	-3.605	578.0	-29,585	-47,609
			.9354	-51.194	+431		5.306	-3.554		-29,590	-60,576
16	521.5	-47.161	.8329	-47.994	-35	-8.314	4.725	-3.589	596.0	-28,604	-51,162
			1.069	-48.230	+1,179		6.062	-2.252		-28,745	-65,891
17	549	-44.641	.9805	-45.622	+816	-7.869	5.562	-2.307	610.3	-27,843	-58,993
			.9801	-45.621	+874		5.560	-2.309		-27,842	-59,723
18	576.5	-42.337	.9001	-43.237	+516	-7.463	5.106	-2.357	625.2	-27,032	-52,613
			1.120	-43.457	+1,787		6.351	-1.112		-27,169	-68,053
19	615.375	-38.973	.9998	-39.973	+1,327	-6.870	5.671	-1.199	647.7	-25,891	-58,731
			.9998	-39.973	+2,311		5.671	-1.199		-25,891	-70,796
20	654.25	-35.473	.8781	-36.351	+1,840	-6.253	4.981	-1.272	671.9	-24,424	-62,063
			.8742	-36.347	+2,740		4.959	-1.294		-24,422	-73,092
21	693.125	-31.995	.7508	-32.746	+2,291	-5.640	4.259	-1.381	697.9	-22,853	-64,561
			.7539	-32.749	+3,038		4.277	-1.363		-22,856	-73,706
22	732	-28.402	.6302	-29.032	+2,589	-5.007	3.575	-1.432	726.1	-21,080	-65,682
			.6328	-29.035	+2,967		3.590	-1.417		-21,082	-70,321
23	766	-25.369	.5335	-25.903	+2,588	-4.472	3.026	-1.446	752.7	-19,497	-63,506
			.7095	-26.079	+3,347		4.025	-.447		-19,630	-72,671
24	806	-21.940	.5826	-22.523	+2,921	-3.868	3.305	-.563	786.3	-17,710	-64,841
			.7466	-22.687	+3,675		4.236	+.368		-17,839	-73,955
25	840	-18.937	.6416	-19.579	+3,331	-3.338	3.640	+.302	817.6	-16,008	-67,786
			.6416	-19.579	+3,304		3.640	+.302		-16,008	-68,443

CALCULATED BY	J. Ellis	TABLE 37.	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY			

TABLE 37. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 5 of 8. CONDITION: D.G.W. -268,213#, 10,000#B., FULL FUEL & OIL, I.L.A. HIGH SPEED @ 30,000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{ba}	S_{b_i}	$1.5(\frac{-N_a}{W})S_{b_i}$ $(\frac{-N_a}{W})=1.665$	$S_b = S_b'$	$S_{CL_{a_i}}$	$1.5\frac{x}{W}S_{CL_{a_i}}$ $\frac{x}{W}=.077$	$1.5\frac{x_m}{W}S_{b_i}$ $\frac{x_m}{W}=-.138$	S_c	$M_{x_a} \times 10^{-6}$	$M_{x_i} \times 10^{-6}$	$1.5(\frac{-N_a}{W})M_{x_i} \times 10^{-6}$ $(\frac{-N_a}{W})=1.665$	$M_x \times 10^{-6}$	$M_{CL_{a_i}} \times 10^{-6}$	$1.5\frac{x}{W}M_{CL_{a_i}} \times 10^{-6}$ $\frac{x}{W}=.077$	$1.5\frac{x_m}{W}M_{x_i} \times 10^{-6}$ $\frac{x_m}{W}=-.138$	$(M_y = M_{y_i}') \times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{-N_a}{W})T_{EA_i} \times 10^{-6}$ $(\frac{-N_a}{W})=1.665$	$T_{EA} \times 10^{-6}$
		Fig. 8	TABLE 26	2.4975×(4)	(3) + (5)	TAB. 29	.1155×(7)	-.207×(4)	(8) + (9)	Fig. 8	TABLE 26	2.4975×(12)	(11) + (13)	TAB. 29	.1155×(15)	.207×(12)	(16) + (17)	Fig. 8.	TABLE 26	2.4975×(20)	(19) + (21)
26	870	-83450	2322	5799	-77651	31270	3612	-481	3131	-17.97	.4234	1.057	-16.913	6.58	.7600	-.08764	.67236	3.535	-.1335	-.3334	3.2016
			2022	5050	-78400			-419	3193										-.1251	-.3124	3.2226
27	906	-75350	2022	5050	-70300	28140	3250	-419	2831	-15.06	.3506	.8756	-14.1844	5.552	.6413	-.07257	.56873	2.965	-.1101	-.2750	2.6900
			1823	4553	-70197			-377	2873										-.1090	-.2722	2.6928
28	942	-68000	1823	4553	-63447	25150	2905	-377	2528	-12.61	.2850	.7118	-11.8982	4.539	.5243	-.05900	.46530	2.488	-.09552	-.2386	2.2494
			1640	4096	-63904			-339	2566										-.09454	-.2361	2.2519
29	978	-60450	1640	4096	-56354	22270	2572	-339	2233	-10.34	.2259	.5642	-9.7758	3.679	.4249	-.04676	.37814	2.030	-.08240	-.2058	1.8242
			1323	3304	-57146			-274	2298										-.07292	-.1821	1.8479
30	1014	-53100	1323	3304	-49796	19480	2250	-274	1976	-8.220	.1783	.4453	-7.7747	2.945	.3401	-.03691	.30319	1.618	-.06313	-.1577	1.4603
			1168	2917	-50183			-242	2008										-.06235	-.1557	1.4623
31	1050	-46150	1168	2917	-43233	16850	1946	-242	1704	-6.415	.1362	.3402	-6.0748	2.313	.2672	-.02819	.23901	1.255	-.05370	-.1341	1.1209
			1041	2600	-43550			-215	1731										-.05307	-.1325	1.1225
32	1080	-40600	1041	2600	-38000	14740	1702	-215	1487	-5.105	.1050	.2622	-4.8428	1.857	.2145	-.02174	.19276	.995	-.04665	-.1165	.8785
			786	1963	-38637			-163	1539										-.03781	-.09443	.9006
33	1110	-35250	786	1963	-33287	12710	1468	-163	1305	-3.990	.08144	.2034	-3.7866	1.437	.1660	-.01686	.14914	.767	-.03296	-.08232	.6847
			702	1753	-33497			-145	1323										-.03254	-.08127	.6857
34	1140	-30000	702	1753	-28247	10780	1245	-145	1100	-3.005	.06039	.1508	-2.8542	1.078	.1245	-.01250	.11200	.572	-.02822	-.07048	.5015
			627	1566	-28434			-130	1115										-.02776	-.06933	.5027
35	1170	-24900	627	1566	-23334	8910	1029	-130	899	-2.185	.04159	.1039	-2.0811	.774	.08940	-.00861	.08079	.409	-.02389	-.05967	.3493
			414	1034	-23866			-86	943										-.01706	-.04261	.3664
36	1198	-20350	414	1034	-19316	7280	841	-86	755	-1.535	.03000	.07493	-1.4601	.547	.06318	-.00621	.05697	.281	-.01467	-.03664	.2444
			359	897	-19453			-74	767										-.01438	-.03591	.2451
37	1225	-16300	359	897	-15403	5820	672	-74	598	-1.030	.02031	.05072	-.9793	.364	.04204	-.00420	.03784	.185	-.01239	-.03094	.1541
			314	784	-15516			-65	607										-.01211	-.03024	.1548
38	1252	-12550	314	784	-11766	4450	514	-65	449	-.645	.01185	.02960	-.6154	.228	.02633	-.00245	.02388	.110	-.01037	-.02590	.08410
			268	669	-11881			-55	459										-.01012	-.02527	.08473

TABLE 37

FZS-36-140
B-36

TABLE 37 B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 6 of 8. CONDITION: D.G.W.-268,213# 10,000#B. FULL FUEL & OIL. (L.A.A.-HIGH SPEED @ 30,000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T_{TAIL}}{I_x} \cdot \frac{I_x}{Q_x}$	$\frac{T_{TAIL}}{I_x} \cdot \frac{I_x}{Q_x} M'_x$	S''_b ⑥ − ㉛
		(19)×(14)	(17)×(22)	(23) − (24)	(19)×(10)	(17)×(14)	(19)×(22)	(27) + (28)	TABLE 30	(29) × (30)	OR. S − (6)
26	870	-16.656	.5558	-17.212	+3,083	-2.936	3.153	+.217	847.3	-14,584	-63,067
			.5594	-17.215	+3,144		3.174	+.238		-14,586	-63,814
27	906	-13.969	.4670	-14.436	+2,788	-2.462	2.649	+.187	886.0	-12,790	-57,510
			.4675	-14.437	+2,829		2.652	+.190		-12,791	-58,006
28	942	-11.717	.3905	-12.108	+2,490	-2.066	2.215	+.149	928.2	-11,239	-52,208
			.3909	-12.108	+2,527		2.218	+.152		-11,230	-52,665
29	978	-9.627	.3167	-9.944	+2,199	-1.697	1.796	+.099	974.8	-9,693	-46,661
			.3208	-9.949	+2,263		1.820	+.123		-9,697	-47,449
30	1014	-7.657	.1535	-7.911	+1,946	-1.350	1.438	+.088	1026	-8,117	-41,679
			.2539	-7.911	+1,977		1.440	+.090		-8,117	-42,066
31	1050	-5.982	.1946	-6.177	+1,678	-1.055	1.104	+.049	1083	-6,690	-36,543
			.1949	-6.177	+1,705		1.105	+.050		-6,690	-36,860
32	1080	-4.769	.1525	-4.922	+1,464	-.8407	.8651	+.0244	1136	-5,591	-32,409
			.1563	-4.925	+1,516		.8869	+.0462		-5,595	-33,042
33	1110	-3.729	.1189	-3.848	+1,285	-.6574	.6743	+.0169	1194	-4,595	-28,692
			.1190	-3.848	+1,303		.6753	+.0179		-4,595	-28,902
34	1140	-2.811	.08706	-2.898	+1,083	-.4955	.4939	-.0016	1259	-3,649	-24,598
			.08727	-2.898	+1,098		.4951	-.0004		-3,649	-24,785
35	1170	-2.049	.06064	-2.110	+885	-.3613	.3440	-.0173	1330	-2,806	-20,528
			.06361	-2.113	+929		.3608	-.0005		-2,810	-21,056
36	1198	-1.438	.04243	-1.480	+744	-.2535	.2407	-.0128	1405	-2,079	-17,237
			.04255	-1.481	+755		.2414	-.0121		-2,081	-17,372
37	1225	-.9644	.02675	-.9912	+589	-.1700	.1518	-.0182	1486	-1,473	-13,930
			.02687	-.9913	+598		.1524	-.0176		-1,473	-14,043
38	1252	-.6060	.01460	-.6206	+442	-.1068	.08282	-.02398	1576	-978	-10,788
			.01471	-.6207	+452		.08344	-.02336		-978	-10,903

Manufactured by J. Ellis
Reviewed by
Checked by R. L. [illegible]

TABLE 37.

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

REPORT NO. FZS-35-140
MODEL B-36

TABLE 37 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 7 OF 8 CONDITION: DGW 268,212 - 10000# FULL FUEL & OIL 1L AA - HIGH SPEED @ 30000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_1}	$1.5(\frac{N_z}{W})S_{b_1}$ $(\frac{N_z}{W})=1.665$	S_b	S_b'	$S_{c_{L_a}}$	$1.5\frac{X_m}{W}S_{c_{L_a}}$ $\frac{X_m}{W}=.077$	$1.5\frac{X_m}{W}S_{b_1}$ $\frac{X_m}{W}=-.138$	S_c	$M_{x_a}\times10^6$	$M_{x_1}\times10^6$	$1.5(\frac{N_z}{W})M_{x_1}$ $\times10^6$ $(\frac{N_z}{W})=1.665$	$M_x\times10^6$	$M_{c_{L_a}}\times10^6$	$1.5\frac{X_m}{W}M_{c_{L_a}}$ $\times10^6$ $\frac{X_m}{W}=.077$	$1.5\frac{X_m}{W}M_{x_1}$ $\times10^6$ $\frac{X_m}{W}=-.138$	$(M_y=M_z)$ $\times10^6$	$T_{BA_a}\times10^6$	$T_{BA_1}\times10^6$	$1.5(\frac{N_z}{W})T_{BA_1}$ $\times10^6$ $(\frac{N_z}{W})=1.665$	$T_{BA}\times10^6$
		Fig. 8	TABLE 26	2.9775 (4)	(3) + (5)	[redacted]	1.155 × (7)	-.207 × (4)	(8) + (9)	Fig. 8	TABLE 26	2.9775 (14)	(11) + (13)	[redacted]	1.155 (12)	-.207 × (12)	(16) + (17)	Fig. 8	TABLE 26	2.9775 (20)	(19) + (21)
39	1298	-9400	268	669	-8731	3,380	3.83	-55	328	-.365	.004870	.01816	-.3728	.127	.01467	-.0101	.01366	.026	.00066	.00198	.04038
			98	263	-9155			-20	363										.00165	.00528	.05792
40	1301	-6900	98	895	-6005	2,430	281	-20	261	-.265	.004[illegible]	.006516	-.2685	.0071	.00[illegible]	.00074	.00765	.034	.00182	.00454	.04058
			65	162	-6738			-13	268										.00[illegible]	.00[illegible]	.04107
41	1322	-4700	65	168	-4532	1,620	187	-13	174	-.110	.001169	.00871[illegible]	.1028	.035	.00[illegible]	.00[illegible]	.00[illegible]	.014	.00[illegible]	.00[illegible]	.01[illegible]
			56	125	-4576			-10	179										.00[illegible]	.00[illegible]	.01[illegible]
TIP OF FUS.	1340.5	-2,750	50	185	-2565	900	105	-10	95	-.045	0	0	-.045	.0111	.00[illegible]	0	.00[illegible]	.005	.00[illegible]	.01[illegible]	.01[illegible]
TIP	1380.81	0	0	0	0	0	0	0	0	0				0				0	0	0	

TABLE 37

TABLE 37. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 8 of 18. CONDITION: DGW 268,213# 10,000#B. FULL FUEL & OIL. 1.1 A.A. - HIGH SPEED @ 30,000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M'_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M'_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T_{TAN\,\phi}}{I_x}$	$\frac{T_{TAN\,\phi}}{G_x} M'_x$	S''_x (9) + (28)
		(2)×(14)	(1)×(13)	(23) − (24)	(2)×(10)	(1)×(14)	(2)×(13)	(27) + (28)	TABLE 30	(29) × (30)	ORIG. + (31)
39	1278	-.9671	.0070	-.3741	323	-.06472	.03871	-.02601	1674	-626	-8105
			.0100	-.3771	359		.05655	-.00817		-631	-8524
40	1301	-.2053	.0053	-.2106	257	-.03620	.03012	-.00608	1772	-373	-6282
			.0054	-.2107	264		.03054	-.00566		-373	-6365
41	1324	-.1056	.0027	-.1083	171	-.01861	.01553	-.00308	1884	-204	-4334
			.0028	-.1084	174		.01589	-.00278		-204	-4371
TIP O.B.	1364	-.0443	.0012	-.0455	94	-.00781	.00654	-.00127	—	—	-2625
TIP	1380 BH				0				—	—	—

CALCULATED BY: J. Ellis
DRAWN BY:
CHECKED BY: B. Kistler

TABLE 37.

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

SDC NO. FZS-36-140
MODEL A-36

TABLE 38. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 1 of 8. CONDITION: A.G.W.-H.A.A. @ 5000' - 72-1000# BOMBS - FULL FUEL & OIL

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP.	S_{ba}	S_{bi}	$1.5(\frac{N_z}{W})S_{bi}$ $(\frac{N_z}{W})=2.478$	$S_b = S_b'$	S_{ca_i}	$1.5\frac{X}{W}S_{ca_i}$ $\frac{X}{W}=0.594$ $\frac{X}{W}=0.492$	$1.5(\frac{N_z}{W})S_{bi}$ $(\frac{N_z}{W})=2.478$	S_c	$M_{xa} \times 10^6$	$M_{xi} \times 10^6$	$1.5(\frac{N_z}{W})M_{xi} \times 10^6$ $(\frac{N_z}{W})=2.478$	$M_x \times 10^6$	$M_{ca_i} \times 10^6$	$1.5\frac{X}{W}M_{ca_i} \times 10^6$ $\frac{X}{W}=0.594$	$1.5\frac{X}{W}M_{xi} \times 10^6$ $\frac{X}{W}=0.492$	$(M_y = M_{yi}) \times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_i} \times 10^6$	$1.5(\frac{N_z}{W})T_{EA_i} \times 10^6$ $(\frac{N_z}{W})=2.478$	$T_{EA} \times 10^6$
		Fig. 9	TABLE 28	-3717 (4)	(3) + (5)	TAB. 29	-0.819 (7) 0.738 (8)	(4)	(6) + (9)	Fig. 9	TABLE 28	-3717 (12)	(11) + (13)	TAB. 28	-0.819 (15)	0.738 (12)	(14) + (17)	Fig. 9	TABLE 28	-3717 (20)	(19) + (21)
0	0	504,700	14,240	-276,000	228,700	131,900	-108,030	54,790	-53,240	272.9	35.45	-131.8	147.1	73,894	-60.52	26.16	-34.36	-60.09	-11.435	42.50	-17.53
			13,150	-274,100	230,600			54,430	-53,600		35.45	-131.8	147.1			26.16	-34.36		-11.437	42.51	-17.58
1	41.0.5	485,400	12,150	-274,100	211,300	126,250	-103,400	54,430	-49,970	259.1	32.42	-120.5	138.6	68.70	-56.27	23.93	-32.34	-55.92	-10.814	40.20	-15.72
			12,130	-270,300	215,100			53,670	-49,730		32.42	-120.5	138.6			23.93	-32.34		-10.816	40.20	-15.72
2	82.0	463,000	12,130	-270,300	192,700	120,900	-99,020	53,670	-45,350	240.7	29.59	-110.0	130.7	63.85	-52.29	21.84	-30.45	-51.94	-10.234	38.04	-13.90
			11,870	-267,200	195,800			53,050	-45,970		29.59	-110.0	130.7			21.84	-30.45		-10.206	37.94	-14.00
3	113.25	445,000	11,870	-267,200	177,800	116,400	-95,330	53,050	-42,280	225.6	27.20	-101.1	124.5	59.85	-49.02	20.07	-28.95	-48.66	-9.714	36.11	-12.55
			11,300	-265,000	180,000			52,620	-42,710		27.20	-101.1	124.5			20.07	-28.95		-9.709	36.09	-12.57
4	146.5	426,900	11,300	-265,000	161,900	112,000	-91,730	52,620	-39,110	210.9	24.84	-92.33	118.6	56.05	-45.90	18.33	-27.57	-45.56	-9.221	34.27	-11.29
			10,410	-261,700	165,200			51,960	-40,040		24.84	-92.33	118.6			18.33	-27.57		-9.229	34.30	-11.26
5	180.0	408,600	10,410	-261,700	146,900	107,500	-88,040	51,960	-36,080	196.7	22.47	-83.5	113.2	52.30	-42.83	16.58	-26.25	-42.54	-8.744	32.50	-10.04
			9,410	-252,900	175,700			46,250	-41,790		22.32	-83.0	113.7			16.47	-26.36		-8.160	30.33	-12.21
6	206.0	395,400	9,410	-252,900	162,500	104,000	-85,180	46,250	-38,930	186.1	20.69	-76.9	109.2	49.55	-40.58	15.27	-25.31	-40.36	-7.825	29.09	-11.27
			8,350	-213,200	182,300			42,320	-42,860		20.58	-76.5	109.6			15.19	-25.39		-7.436	27.64	-12.72
7	232.0	382,000	8,350	-213,200	168,800	100,600	-82,390	42,320	-40,070	176.2	19.09	-71.0	105.2	46.95	-38.45	14.09	-24.36	-38.20	-7.129	26.50	-11.70
			4,120	-166,400	215,600			33,050	-49,340		18.62	-69.2	107.0			13.74	-24.71		-5.879	21.85	-16.35
8	249.0	373,800	4,120	-166,400	207,400	98,400	-80,590	33,050	-47,540	169.8	17.85	-66.3	103.5	45.25	-37.06	13.17	-23.89	-36.82	-5.723	21.27	-15.55
			4,120	-162,500	211,300			32,270	-48,320		17.85	-66.3	103.5			13.17	-23.89		-5.702	21.19	-15.63
9	284.5	365,600	4,120	-162,500	191,300	93,800	-76,820	32,270	-44,550	156.9	16.30	-60.6	96.3	41.85	-34.28	12.03	-22.25	-34.04	-5.384	20.01	-14.03
			3,980	-201,000	154,600			39,910	-36,910		16.20	-60.2	96.7			11.96	-22.32		-5.915	21.99	-19.05
10	312.0	342,000	3,980	-201,000	141,000	90,300	-73,960	39,910	-34,050	142.5	14.71	-54.7	92.8	39.30	-32.19	10.86	-21.33	-32.00	-5.609	20.85	-11.15
			3,720	-199,700	142,300			39,650	-34,310										-5.610	20.85	-11.15
11	332.5	329,200	3,720	-199,700	129,500	86,400	-71,170	39,650	-31,520	138.4	13.23	-49.2	89.2	36.85	-30.18	9.76	-20.42	-29.98	-5.306	19.72	-10.26
			3,410	-178,800	150,400			33,510	-37,660										-4.651	17.29	-12.69
12	375.75	311,400	3,410	-178,800	132,600	82,500	-67,570	33,510	-34,060	126.9	11.49	-42.7	84.2	33.65	-27.56	8.48	-19.08	-27.40	-4.293	15.96	-11.44
			3,410	-166,400	145,000			33,050	-34,520										-4.281	15.91	-11.42

Left
Copper

TABLE 38

FZS-36-140
B-36

TABLE 38. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 2 of 8

CONDITION: A.G.W. - 265,000 #, 72-1000 #B, FULL FUEL & OIL. H.A.A. @ 5,000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{T \tan\phi}{I_x/Q_x} \times 10^{-6}$	$\frac{T \tan\phi}{I_x/Q_x} M'_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR .5 × (6) − (31)
0	0	144.86	-3.05	147.91	-52430	25.54	-17.32	8.22	412.7	61040	167700
		144.86	-3.05	147.91	-52790	25.54	-17.31	8.23		61040	169600
1	41.025	136.49	-2.73	139.22	-48230	24.06	-15.48	8.58	423.0	58900	152400
		136.49	-2.73	139.22	-48970	24.06	-15.48	8.58		58900	156200
2	80.0	128.71	-2.41	131.12	-44660	22.69	-13.69	9.00	433.1	56800	135900
		128.71	-2.43	131.14	-45270	22.69	-13.79	8.90		56800	139000
3	113.25	122.61	-2.18	124.79	-41640	21.61	-12.36	9.25	442.2	55200	122600
		122.61	-2.18	124.79	-42060	21.61	-12.38	9.23		55200	124800
4	146.5	116.80	-1.96	118.76	-38520	20.59	-11.12	9.47	451.7	54100	107800
		116.80	-1.95	118.75	-39430	20.59	-11.09	9.50		54100	111100
5	180.0	111.98	-1.74	113.22	-35530	19.65	-9.89	9.76	461.7	52300	94600
		111.97	-2.12	114.09	-41150	19.74	-12.02	7.72		52700	123000
6	206.0	107.54	-1.96	109.50	-38340	18.96	-11.10	7.86	469.7	51400	111100
		107.93	-2.21	110.14	-42210	19.03	-12.53	6.50		51700	130500
7	232.0	103.60	-2.03	105.63	-39460	18.26	-11.52	6.74	478.1	50500	118300
		105.37	-2.84	108.21	-48590	18.58	-16.10	2.48		51800	163800
8	249.0	101.93	-2.70	104.63	-46820	17.97	-15.31	2.66	483.9	50600	156800
		101.93	-2.71	104.64	-47590	17.97	-15.39	2.58		50600	160700
9	284.5	94.84	-2.44	97.28	-43870	16.72	-13.82	2.90	495.9	48200	143100
		95.23	-2.09	97.32	-36350	16.79	-11.87	4.92		48300	106300
10	312.0	91.39	-1.94	93.33	-33530	16.11	-10.98	5.13	505.8	47200	93800
			-1.94	93.33	-33790		-10.98	5.13		47200	95100
11	339.5	87.84	-1.78	89.62	-31040	15.49	-10.10	5.39	516.0	46200	83300
			-2.20	90.04	-37090		-12.50	2.99		46500	103900
12	375.75	82.92	-1.99	84.91	-33540	14.62	-11.27	3.35	530.2	45000	87600
			-1.99	84.91	-34000		-11.32	3.30		45000	100000

CALCULATED BY	Kat	TABLE 38	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION	MODEL B-36
CHECKED BY	Coffer		

TABLE 38. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 3 of 8. CONDITION: A.G.W. 265,000#, 72-1000# B, FULL FUEL & OIL, H.A.A. @ 5000 FT.

PAGE: 154. REPORT: FZS-36-140 DATE: 12-6-45

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{ba}	S_{bi}	$1.5(\frac{-N_z}{W})S_{bi}$ $(\frac{-N_z}{W})=-2.478$	$S_b = S_b'$	S_{cL_a}	$1.5\frac{X}{W}S_{cL_a}$ $\frac{X}{W}=-.546$	$1.5\frac{X_m}{W}S_{bi}$ $\frac{X_m}{W}=.492$	S_c	$M_{xa} \times 10^6$	$M_{xi} \times 10^6$	$1.5(\frac{-N_z}{W})M_{xi} \times 10^6$ $(\frac{-N_z}{W})=-2.478$	$M_x \times 10^6$	$M_{cL_a} \times 10^6$	$1.5\frac{X}{W}M_{cL_a} \times 10^6$ $\frac{X}{W}=-.546$	$1.5\frac{X_m}{W}M_{xi} \times 10^6$ $\frac{X_m}{W}=.492$	$(M_y = M_y') \times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_i} \times 10^6$	$(\frac{-N_z}{W})T_{EA_i} \times 10^6$ $(\frac{-N_z}{W})=-2.478$	$T_{EA} \times 10^6$
		Fig. 9	TABLE 28	-3.717 × (4)	(3) + (5)	TABLE 29	-.819 × (7)	.738 × (4)	(8) + (9)	Fig. 9	TABLE 28	-3.717 × (12)	(11) + (13)	TABLE 29	-.819 × (15)	.738 × (12)	(16) + (17)	Fig. 9	TABLE	-3.717 × (20)	(19) + (21)
13	412.0	294,400	44,780	-166,400	128,000	78100	-63960	33,050	-30910	115.5	9,862	-36.7	78.8	30.85	-25.27	7.28	-17.99	-25.06	-3.947	14.67	-10.39
			41,720	-155,100	139,300			30790	-33170										-3.948	14.67	-10.39
14	448.5	277,600	41,720	-155,100	122,500	73900	-60520	30790	-29,730	104.8	8,344	-31.0	73.8	28.15	-23.05	6.16	-16.89	-22.80	-3.636	13.52	-9.28
			38,790	-144,200	133,400			28630	-31,890										-3.636	13.52	-9.28
15	485.0	261,200	38,790	-144,200	117,000	69700	-57080	28630	-28450	94.7	6,928	-25.8	68.9	25.50	-20.88	5.11	-15.77	-20.79	-3.345	12.43	-8.31
			35,930	-133,600	127,600			26,520	-30,560										-3.324	12.36	-8.38
16	512.5	245,600	35,930	-133,600	112,000	65600	-53,770	26,520	-27,250	85.4	5,617	-20.9	64.5	23.10	-18.92	4.15	-14.77	-18.74	-3.059	11.35	-7.39
			30,910	-114,900	130,700			22,810	-30,960										-2.504	9.31	-9.43
17	549.0	233,800	30,910	-114,900	118,900	62500	-51,190	22,810	-28,380	78.8	4,767	-17.7	61.1	21.30	-17.44	3.52	-13.92	-17.24	-2.329	8.66	-8.58
			30,630	-113,900	119,900			22,600	-28,890										-2.330	8.66	-8.58
18	576.5	222,600	30,630	-113,900	108,700	59400	-48650	22,600	-26,050	72.5	3,925	-14.6	57.9	19.65	-16.08	2.90	-13.19	-15.88	-2.157	8.02	-7.86
			24,370	-90,700	131,900			18,000	-30,530										-1.657	6.14	-9.74
19	615.375	206,600	24,370	-90,700	115,900	55400	-45370	18,000	-27,370	64.1	2,976	-11.1	53.9	17.35	-14.21	2.20	-12.01	-14.06	-1.456	5.42	-8.64
			19,570	-72,700	133,900			14,440	-30,230										-1.456	5.42	-8.64
20	654.25	191,200	19,570	-72,700	118,500	51300	-42,010	14,440	-27,570	56.4	2,215	-8.2	48.0	15.35	-12.57	1.63	-10.94	-12.90	-1.299	4.83	-7.57
			15,150	-56,300	134,900			11,180	-30,830										-1.309	4.87	-7.53
21	693.125	176,200	15,150	-56,300	119,900	47400	-38820	11,180	-27,640	49.5	1,827	-6.0	43.5	13.40	-10.97	1.20	-9.77	-10.82	-1.187	4.41	-6.41
			11,680	-43,400	132,800			8,620	-30,200										-1.176	4.37	-6.45
22	732.0	161,600	11,680	-43,400	118,200	43500	-35630	8,620	-27,010	43.0	1,173	-4.4	38.6	11.60	-9.50	.87	-8.63	-9.38	-1.083	4.03	-5.35
			10,010	-37,200	124,400			7,390	-28,240										-1.073	3.99	-5.39
23	766.0	149,000	10,010	-37,200	111,800	40200	-32,920	7,390	-25,530	37.5	832.4	-3.1	34.4	10.20	-8.35	.61	-7.74	-8.22	-1.002	3.72	-4.50
			6,286	-23,400	125,600			4,640	-28,280										-.5957	2.21	-6.01
24	806.0	135,200	6,286	-23,400	111,800	36,500	-29,890	4,640	-25,260	31.9	580.7	-2.2	29.7	8.65	-7.08	.43	-6.65	-6.98	-.5441	2.02	-4.96
			2585	-9,600	125,600			1,910	-27,990										-.1658	.62	-6.38
25	840.0	123,600	2585	-9,600	114,000	33,500	-27,440	1,910	-25,530	27.3	49.30	-1.8	25.5	7.45	-6.10	.36	-5.74	-6.02	-.1472	.55	-5.47
			2322	-8600	115,000			1710	-25,730										-.1478	.55	-5.47

TABLE 38.

DOC NO. FZS-36-140

MODEL B-36

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

TABLE 38. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 4 of 8. CONDITION: A.G.W. 265000# 72-1000#B, FULL FUEL & OIL. H.A.A. @ 5,000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J \tan\phi}{I_x} \times 10$	$\frac{J \tan\phi}{I_x} M'_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR. 5 = (6) − (31)
13	412.0	77.60	-1.80	79.40	-30440	13.68	-10.23	3.45	595.1	43300	84700
			-1.80	79.40	-32670		-10.23	3.45		43300	96000
14	448.5	72.68	-1.61	74.29	-29280	12.81	-9.14	3.67	561.1	41700	80800
			-1.61	74.29	-31410		-9.14	3.67		41700	91700
15	485.0	67.85	-1.44	69.29	-28020	11.96	-8.18	3.78	578.0	40000	77000
			-1.45	69.30	-30100		-8.25	3.71		40000	87600
16	521.5	63.52	-1.28	64.80	-26840	11.20	-7.28	3.92	596.0	38600	73400
			-1.64	65.16	-30490		-9.29	1.91		38800	91900
17	549.0	60.17	-1.49	61.66	-27950	10.61	-8.45	2.16	610.3	37600	81300
			-1.49	61.66	-28160		-8.45	2.16		37600	82300
18	576.5	57.02	-1.36	58.38	-25650	10.05	-7.74	2.31	625.2	36500	72200
			-1.69	58.71	-30180		-9.59	0.46		36700	95200
19	615.375	52.19	-1.50	53.69	-26,950	9.20	-8.51	0.69	647.7	34800	81100
			-1.50	53.69	-30460		-8.51	0.69		34800	99100
20	654.25	47.27	-1.31	48.58	-27150	8.42	-7.45	0.97	671.9	32700	85800
			-1.31	48.58	-30360		-7.42	1.00		32700	102200
21	693.125	42.84	-1.11	43.95	-27220	7.60	-6.31	1.29	697.9	30700	89200
			-1.12	43.96	-29790		-6.35	1.25		30700	102100
22	732.0	38.01	-0.93	38.94	-26600	6.70	-5.27	1.43	726.1	28300	89900
			-0.94	38.95	-27810		-5.31	1.39		28300	96100
23	766.0	33.88	-0.78	34.66	-25140	5.97	-4.43	1.54	752.7	26100	85700
			-1.04	34.92	-27850		-5.92	0.05		26300	99300
24	806.0	29.25	-0.86	30.11	-24870	5.16	-4.83	0.28	786.3	23700	88100
			-1.10	30.35	-27550		-6.26	-1.10		23900	101700
25	840.0	25.11	-0.95	26.06	-25,40	4.43	-5.39	-0.96	817.6	21300	92700
			-0.95	26.06	-25340		-5.39	-0.96		21300	93700

CALCULATED BY		TABLE 38	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION	MODEL B-36
CHECKED BY			

TABLE 38. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 5 of 8. CONDITION: A.G.W. 265,000# 72-1000#B, FULL FUEL & OIL. HAA. @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP.	S_{b_a}	S_{b_i}	$1.5(\frac{-N_z}{W})S_{b_i}$ $(\frac{-N_z}{W})=-2.478$	$S_b = S'_b$	$S_{C_{L_{a_i}}}$	$1.5\frac{X}{W}S_{C_{L_{a_i}}}$ $\frac{X}{W}=.546$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=.492$	S_c	$M_{X_a} \times 10^{-6}$	$M_{X_i} \times 10^{-6}$	$1.5(\frac{-N_z}{W})M_{X_i} \times 10^{-6}$ $(\frac{-N_z}{W})=-2.478$	$M_X \times 10^{-6}$	$M_{C_{L_{a_i}}} \times 10^{-6}$	$1.5\frac{X}{W}M_{C_{L_{a_i}}} \times 10^{-6}$ $\frac{X}{W}=-.546$	$1.5\frac{X_m}{W}M_{X_i} \times 10^{-6}$ $\frac{X_m}{W}=.492$	$(M_y = M'_y) \times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{-N_z}{W})T_{EA_i} \times 10^{-6}$ $(\frac{-N_z}{W})=-2.478$	$T_{EA} \times 10^{-6}$
		Fig. 9	TABLE 28	-3.717 × (4)	(3) + (5)	[redacted] TAB. 29	-.819 × (7)	.738 × (4)	(8) + (9)	Fig. 9	TABLE 28	-3.717 × (12)	(11) + (13)	[redacted] TAB. 29	-.819 × (15)	.738 × (12)	(16) + (17)	Fig. 9	TABLE 28	-3.717 × (20)	(19) + (21)
26	870.0	113600	2322	-8600	105000	30900	-25310	1710	-23600	23.9	0.4233	-1.6	22.3	6,500	-5.324	0.312	-5.012	-5.26	-0.1335	0.50	-4.76
			2022	-7500	106100			1490	-23320										-0.1251	0.96	-4.80
27	906.0	102000	2022	-7500	94500	27800	-22780	1490	-21390	19.40	0.3506	-1.57	18.33	5,485	-4.492	0.259	-4.233	-4.44	-0.1101	0.41	-4.03
			1823	-6800	95200			1350	-21430										-0.1090	0.41	-4.03
28	942.0	90800	1823	-6800	84000	24850	-20350	1350	-19000	16.30	0.2850	-1.06	15.24	4,485	-3.673	0.210	-3.463	-3.696	-0.0955	0.355	-3.341
			1640	-6100	84700			1210	-19140										-0.0945	0.351	-3.345
29	978.0	80500	1640	-6100	74400	22000	-18020	1210	-16810	13.30	0.2259	-0.84	12.46	3,635	-2.977	0.166	-2.811	-3.020	-0.0824	0.306	-2.714
			1,323	-4900	75600			980	-17040										-0.0729	0.271	-2.749
30	1014.0	70300	1323	-4900	65400	19250	-15770	980	-14790	10.63	0.1783	-0.663	9.969	2,910	-2.383	0.132	-2.251	-2.416	-0.0631	0.235	-2.181
			1168	-4300	66000			860	-14910										-0.0624	0.232	-2.184
31	1050.0	60800	1168	-4300	56500	16650	-13640	860	-12780	8.225	0.1362	-0.506	7.719	2,285	-1.871	0.101	-1.770	-1.890	-0.0537	0.200	-1.690
			1041	-3900	56900			770	-12870										-0.0531	0.197	-1.693
32	1080.0	52900	1041	-3900	49000	14560	-11920	770	-11150	6.520	0.1050	-0.390	6.130	1.835	-1.503	0.077	-1.426	-1.512	-0.0466	0.173	-1.339
			786	-2900	50000			580	-11340										-0.0378	0.141	-1.371
33	1110.0	45500	786	-2900	42600	12560	-10290	580	-9710	5.075	0.0814	-0.303	4.767	1.420	-1.163	0.060	-1.103	-1.182	-0.0330	0.123	-1.059
			701.5	-2600	42900			520	-9770										-0.0324	0.120	-1.062
34	1140.0	38400	701.5	-2600	35800	10650	-8720	520	-8200	3.600	0.0604	-0.224	3.376	1.065	-0.872	0.045	-0.827	-0.906	-0.0282	0.105	-0.801
			626.8	-2300	36100			460	-8260										-0.0278	0.103	-0.803
35	1170.0	31700	626.8	-2300	29400	8800	-7210	460	-6750	2.720	0.0416	-0.155	2.565	0.765	-0.627	0.031	-0.596	-0.676	-0.0239	+0.089	-0.587
			413.9	-1500	30200			310	-6900										-0.0171	+0.064	-0.612
36	1198.0	25900	413.9	-1500	24400	7190	-5890	310	-5580	1.885	0.0300	-0.112	1.773	0.540	-0.442	0.022	-0.420	-0.488	-0.0147	0.055	-0.433
			358.9	-1300	24600			260	-5630										-0.0144	0.054	-0.434
37	1225.0	20400	358.9	-1300	19100	5750	-4710	260	-4450	1.255	0.0203	-0.075	1.180	0.360	-0.295	0.015	-0.280	-0.344	-0.0124	0.046	-0.298
			313.5	-1200	19200			230	-4430										-0.0121	0.045	-0.299
38	1252.0	15700	313.5	-1200	14500	4400	-3600	230	-3370	0.780	0.0118	-0.044	0.736	0.225	-0.184	0.009	-0.175	-0.228	-0.0104	0.039	-0.189
			268.3	-1000	14700			200	-3400										-0.0101	0.038	-0.190

Last
Stiffener

TABLE 38

TABLE 38. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 6 of 8. CONDITION: AGW-265,000# 72-1000#B, FULL FUEL & OIL. HAA @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_z \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{J \tan\phi}{I_x/Q_x} \times 10$	$\frac{J \tan\phi}{I_x/Q_x} M'_x$	S''_b (6) − (31)
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	OR, 5 = (6)
26	870.0	21.96	-0.83	22.79	-23240	3.87	-4.69	-0.82	847.3	19300	85700
			-0.83	22.79	-23460		-4.73	-0.86		19300	86800
27	906.0	18.05	-0.70	18.75	-20970	3.18	-3.97	-0.79	886.0	17300	77200
			-0.70	18.75	-21100		-3.97	-0.79		17300	77900
28	942.0	15.008	-0.580	15.588	-18710	2.646	-3.290	-0.644	928.2	14500	69500
			-0.581	15.589	-18850		-3.294	-0.648		14500	70200
29	978.0	12.272	-0.471	12.743	-16550	2.163	-2.673	-0.510	974.8	12422	61978
			0.472	12.744	-16780		-2.707	-0.544		12423	63177
30	1014.0	9.816	-0.379	10.195	-19570	1.730	-2.148	-0.418	1026	10460	54940
			-0.379	10.195	-14680		-2.151	-0.421		10460	55540
31	1050.0	7.602	-0.293	7.895	-12590	1.340	-1.664	-0.324	1083	8550	47950
			-0.294	7.896	-12670		-1.667	-0.327		8551	48349
32	1080.0	6.037	-0.232	6.269	-10980	1.064	-1.319	-0.255	1136	7122	41878
			-0.238	6.275	-11170		-1.350	-0.286		7128	42872
33	1110.0	4.695	-0.184	4.879	-9560	.8276	-1.043	-0.2154	1194	5826	36774
			-0.184	4.879	-9620		-1.046	-0.2184		5826	37074
34	1140.0	3.522	-0.139	3.661	-8080	.6258	-0.789	-0.1682	1259	4609	31191
			-0.139	3.661	-8130		-0.791	-0.1702		4609	31491
35	1170.0	2.526	-0.102	2.628	-6650	.4453	-0.578	-0.1327	1130	2970	26430
			-0.106	2.632	-6800		-0.603	-0.1377		2974	27226
36	1198.0	1.746	-0.075	1.821	-5500	.3078	-0.426	-0.1182	1405	2559	21841
			-0.075	1.821	-5540		-0.427	-0.1192		2559	22041
37	1225.0	1.162	-0.052	1.214	-4380	.2048	-0.293	-0.0882	1486	1804	17296
			-0.052	1.214	-4410		-0.294	-0.0892		1804	17396
38	1252.0	0.725	-0.033	0.758	-3320	.1277	-0.186	-0.0583	1576	1195	13305
			-0.033	0.758	-3350		-0.187	-0.0593		1195	13505

CALCULATED BY: [illegible]
DRAWN BY:
CHECKED BY: [illegible]

TABLE 38

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

DOC NO. FZS-36-140
MODEL B-36

TABLE 38 B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 7 of 8. CONDITION: AGW., 265,000#, 72-1000"B., FULL FUEL & OIL, HAA @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_i}	$1.5(\frac{N_z}{W})S_{b_i}$ $(\frac{N_z}{W})=-2.717$	$S_b = S'_b$	$S_{C_{L_{a_i}}}$	$1.5\frac{X_m}{W}S_{C_{L_{a_i}}}$ $\frac{X}{W}=-.546$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=.492$	S_c	$M_{x_a} \times 10^6$	$M_{x_i} \times 10^6$	$1.5(\frac{N_z}{W})M_{x_i} \times 10^6$ $(\frac{N_z}{W})=-2.717$	$M_x \times 10^6$	$M_{C_{L_{a_i}}} \times 10^6$	$1.5\frac{X}{W}M_{C_{L_{a_i}}} \times 10^6$ $\frac{X}{W}=-.546$	$1.5\frac{X_m}{W}M_{x_i} \times 10^6$ $\frac{X_m}{W}=.492$	$(M_y = M'_y) \times 10^6$	$T_{BA_a} \times 10^6$	$T_{BA_i} \times 10^6$	$1.5(\frac{N_z}{W})T_{BA_i} \times 10^6$ $(\frac{N_z}{W})=-2.717$	$T_{BA} \times 10^6$
		Fig. 9	TABLE 28	-3.717 × (4)	(3) + (5)	[redacted] TABLE 29	-.819 × (7)	.738 × (4)	(8) + (9)	Fig. 9	TABLE 28	-3.717 × (12)	(11) + (13)	[redacted] TABLE 29	-.819 × (15)	.738 × (12)	(16) + (17)	Fig. 9	TABLE 28	-3.717 × (20)	(19) + (22)
39	1278.0	11,700	268.3	-1000	10700	3280	-2690	200	-2470	0.448	0.0049	-0.062	0.386	0.125	-0.102	0.004	-0.098	-0.144	-0.0087	0.032	-0.112
			98.3	-400	11300			70	-2620										-0.0018	0.007	-0.137
40	1301.0	8500	98.3	-400	8100	2400	-1970	70	-1900	0.240	0.0026	-0.010	0.230	0.070	-0.057	0.002	-0.055	-0.094	-0.0014	0.005	-0.069
			65.2	-200	8300			50	-1920										-0.0012	0.004	-0.090
41	1324.0	5200	65.2	-200	5000	1600	-1310	50	-1260	0.105	0.0011	-0.04	0.065	0.035	-0.029	0.001	-0.028	-0.048	-0.0009	0.003	-0.045
			49.5	-200	5000			40	-1270										-0.0008	0.008	-0.045
TIP OG	1346.4	3250	49.5	-184	3056	900	-737	40	-697	0.025	0	0	0.025	0.011	-0.009	0	-0.009	-0.020	-0.0005	0.002	-0.018
TIP	1390.84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PREPARED BY	Lust	TABLE 38.	DOC. NO. FZS-36-140
CHECKED BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION	MODEL B-36

TABLE 38. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 8 of 8. CONDITION: A.G.W. 265000#, 72-1000# B., FULL FUEL & OIL, H.A.A. @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{.7 \tan\phi}{\frac{I_x}{Q_x}} \times 10$	$\frac{.7 \tan\phi}{\frac{I_x}{Q_x}} M'_x$	$S''_b = (6) - (31)$
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR. 5 = (6)
39	12780	0.380	-0.019	0.399	-2430	0.0670	-0.110	-0.043	1674	668	10032
			-0.024	0.404	-1580		-0.135	-0.068		676	10624
40	13010	0.2265	-0.015	0.2415	-1870	0.0399	-0.088	-0.0481	1772	428	7672
			-0.016	0.2425	-1890		-0.089	-0.0491		430	7870
41	13240	0.064	-0.008	0.072	-1240	0.01128	-0.044	-0.03272	1881	135	4865
			-0.008	0.072	-1250		-0.044	-0.03272		135	4865
TIP CG	13464	0.035	-0.003	0.028	-686	0.0043	-0.018	-0.014	—	—	3066
TIP	1380	0	0	0.0	0		0	0	0	0	0

CALCULATED BY Lost
DRAWN BY
CHECKED BY Dupper

TABLE 38

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION, FORT WORTH, TEXAS.

DOC NO. FZS-36-140
MODEL B-36

TABLE 39. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

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REPORT FZS-36-140
DATE 12-4-48

SHEET 1 of 8. CONDITION: A.G.W. 265,000#, 72-1000#B, FULL FUEL & OIL, LAA-HIGH SPEED @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ of SHIP	S_{b_a}	S_{b_1}	$1.5(\frac{-N_z}{W})S_{b_1}$ $(\frac{-N_z}{W})=2.497$	$S_b = S_b'$	$S_{C_{L_a}}$	$1.5\frac{x_m}{W}S_{C_{L_a}}$ $\frac{x_m}{W}=-.174$	$1.5\frac{x_m}{W}S_{b_1}$ $\frac{x_m}{W}=.124$	S_c	$M_{x_a}\times10^{-6}$	$M_{x_1}\times10^{-6}$	$1.5(\frac{-N_z}{W})M_{x_1}\times10^{-6}$ $(\frac{-N_z}{W})=2.497$	$M_x\times10^{-6}$	$M_{C_{L_a}}\times10^{-6}$	$1.5\frac{x_m}{W}M_{C_{L_a}}\times10^{-6}$ $\frac{x_m}{W}=-.174$	$1.5\frac{x_m}{W}M_{x_1}\times10^{-6}$ $\frac{x_m}{W}=.124$	$(M_y=M_y')\times10^{-6}$	$T_{EA_a}\times10^{-6}$	$T_{EA_1}\times10^{-6}$	$1.5(\frac{-N_z}{W})T_{EA_1}\times10^{-6}$ $(\frac{-N_z}{W})=2.497$	$T_{EA}\times10^{-6}$
		Fig. 10	TABLE 28	3.7455 (4)	(3) + (5)	TABLE 29	-.261 × (7)	.186 × (4)	(6) + (9)	Fig. 10	TABLE 28	3.7455 (12)	(11) + (13)	TABLE 29	-.261 × (15)	.186 × (12)	(16) + (12)	Fig. 10	TABLE 28	3.7455 (20)	(19) + (21)
0	0	514000	74240	278100	235900	131900	-34430	13810	-20620	281.3	35.45	-132.8	148.5	73.894	-19.29	6.59	-12.70	-65.69	-11.435	42.83	-22.86
			73750	276200	237800			13720	-20710		35.45	-132.8	148.5			6.59	-12.70		-11.457	42.84	-22.85
1	41.025	491000	73750	276200	214800	126250	-32950	13720	-19230	260.3	32.42	-121.4	138.9	68.70	-17.93	6.03	-11.90	-60.96	-10.814	40.50	-20.46
			72730	272400	218600			13530	-19410										-10.816	40.51	-20.45
2	80.0	469100	72730	272400	196700	120900	-31550	13530	-18020	241.5	29.59	-110.8	130.7	63.85	-16.66	5.60	-11.16	-56.65	-10.234	38.33	-18.32
			71890	269300	198800			13370	-18180										-10.206	38.23	-18.42
3	113.25	451000	71890	269300	181700	116400	-30380	13370	-17010	226.1	27.20	-101.8	124.2	59.85	-15.62	5.06	-10.56	-53.10	-9.714	36.38	-16.72
			71300	267100	183900			13260	-17120										-9.708	36.37	-16.73
4	146.5	433300	71300	267100	166200	112000	-29230	13260	-15970	211.6	24.84	-93.0	118.6	56.05	-14.63	4.62	-10.01	-49.75	-9.221	34.54	-15.21
			70910	265700	169600			13100	-16130										-9.228	34.57	-15.18
5	180	415200	70410	263700	151500	107500	-28060	13100	-14960	197.4	22.47	-84.2	113.2	52.30	-13.65	4.18	-9.47	-46.45	-8.744	32.75	-13.70
			62670	234700	180500			11660	-16400		22.32	-83.6	113.8			2.15	9.50		-8.160	30.56	-13.06
6	206	401600	62670	234700	166900	104000	-27140	11660	-15480	187.4	20.69	-77.5	108.9	49.35	-12.93	3.85	-9.08	-44.00	-7.826	29.31	-12.69
			57350	214800	186600			10670	-16470		20.58	-77.1	110.3			3.33	-9.10		-7.436	27.85	-10.15
7	232	388000	57350	214800	173200	100600	-26260	10670	-15590	177.0	19.09	-71.5	105.5	46.85	-12.25	3.55	-8.70	-41.62	-7.129	26.70	-9.92
			44780	167700	220300			8330	-17930		18.62	-69.7	107.3			3.46	-8.79		-5.879	22.00	-10.02
8	249	374300	44780	167700	211600	98400	-25680	8330	-17350	170.6	17.85	-66.8	103.7	45.25	-11.81	3.32	-8.49	-40.10	-5.733	21.44	-10.66
			43720	163800	215500			8130	-17550										-5.702	21.36	-10.14
9	289.5	361000	43720	163800	197200	93800	-24480	8130	-16350	157.8	16.30	-61.1	96.7	41.85	-10.92	3.03	-7.89	-37.10	-5.384	20.17	-16.93
			54080	202600	159400			10060	-14420		16.20	-60.7	97.1			3.01	-7.91		-5.915	22.15	-14.95
10	318	347200	54080	202600	144600	90300	-23570	10060	-13510	148.2	14.71	-55.1	93.1	39.30	-10.26	2.74	-7.52	-34.83	-5.609	21.01	-13.82
			53720	201200	146800			9990	-13580										-5.610	21.01	-13.82
11	339.5	333700	53720	201200	132500	86900	-22680	9990	-12690	138.9	13.23	-49.6	89.3	36.85	-9.618	2.461	-7.157	-32.65	-5.306	19.87	-12.78
			48110	180200	133500			8890	-13730										-4.651	17.42	-15.23
12	375.75	316800	48110	180200	135600	82500	-21500	8950	-12550	127.1	11.49	-43.0	84.1	33.65	-8.783	2.137	-6.646	-30.00	-4.293	16.08	-13.92
			44780	167700	148100			8330	-13170										-4.281	16.03	-13.97

TABLE 39

FZS-36-140
B-36

TABLE 39. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 2 of 8. CONDITION: A.G.W. 265,000 # 72-1000 # B. FULL FUEL & OIL. L.A.A. HIGH SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{J \tan\phi}{I_x} \times 10^{-6}$	$\frac{J \tan\phi}{I_x} M'_x$	S''_b
		9848 × (14)	.1736 × (22)	(23) − (24)	9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(23) × (30)	OR .5 × (6)
0	0	146.24	-3.97	150.21	-20224	25.780	-22.512	3.268	412.7	61992	173908
		146.24	-3.97	150.21	-20312		-22.503	3.277		61992	175808
1	41.025	136.79	-3.55	140.34	-18861	24.113	-20.149	3.964	423.0	59364	155436
			-3.55	140.34	-19047		-20.139	3.974		59364	159236
2	80.0	128.71	-3.18	131.89	-17674	22.690	-18.042	4.648	+33.1	57122	139578
			-3.20	131.91	-17831		-18.140	4.550		57130	142670
3	113.25	121.31	-2.90	124.21	-16683	21.561	-16.466	5.095	442.2	54926	126774
			-2.90	124.21	-16791		-16.476	5.085		54926	128974
4	146.5	116.80	-2.64	119.44	-15663	20.589	-14.979	5.610	451.7	53951	112249
			-2.64	119.44	-15820		-14.949	5.640		53951	115649
5	180.0	111.48	-2.38	113.86	-14673	19.652	-13.492	6.160	461.7	52569	98931
		112.07	-2.76	114.83	-16085	19.756	-15.648	4.108		53017	127483
6	206.0	108.23	-2.55	110.78	-15183	19.079	-14.467	4.612	469.7	52033	114867
		108.62	-2.80	111.42	-16154	19.148	-15.905	3.243		52334	134466
7	232.0	103.90	-2.59	106.49	-15291	18.315	-14.693	3.622	478.1	50913	122287
		105.67	-3.40	109.07	-17586	18.627	-19.302	-.675		52146	168154
8	249.0	102.12	-3.24	105.36	-17017	18.002	-18.376	-.374	483.9	50984	160616
			-3.25	105.37	-17213		-18.455	-.453		50989	164511
9	284.5	95.2	-2.94	98.14	-16036	16.787	-16.673	+.114	495.9	48668	148532
		95.6	-2.60	98.20	-14143	16.857	-14.723	+2.134		48697	109703
10	312.0	91.88	-2.40	94.08	-13251	16.162	-13.610	+2.552	505.8	47586	97014
			-2.40	94.08	-13319		-13.610	2.552		47586	98414
11	339.5	87.94	-2.22	90.16	-12446	15.502	-12.586	2.916	516.0	46523	85977
			-2.64	90.58	-13466		-14.999	+.503		46739	106761
12	375.75	82.82	-2.42	85.24	-12309	14.600	-13.708	+.892	530.2	45194	90406
			-2.43	85.25	-12917		-13.758	+.842		45200	102900

CALCULATED BY Kriedberg
DRAWN BY
CHECKED BY Bill Dapper

TABLE 39

CONVAIR AND VULTEE AIRCRAFT CORPORATION

DOC NO. FZS-36-140
MODEL B-36

TABLE 39 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 3 of 10 CONDITION: A.G.W. 265,000 lb. 72-1200 H.P. FULL FUEL & OIL & A.A. HIGH SPEED @ 300 mph

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ SHIP	S_{Bu}	S_{Tu}	S_{Bu}	S_{Tu}	S_{Bu}	S_{Bu}	S_{Tu}	S_c	$M_{Xu} \times 10^6$	$M_{Yu} \times 10^6$	$M_{Zu} \times 10^6$	M_{Xu}	$M_{Yu} \times 10^6$	$M_{Zu} \times 10^6$	$(M_{Y_1} - M_{Y_2}) \times 10^6$	$T_{BA} \times 10^6$	$T_{BA_1} \times 10^6$	$T_{BA_2} \times 10^6$	$T_{BA} \times 10^6$
		Fig. 10	TABLE 28							Fig. 10	TABLE 28							Fig. 10	TABLE 28		
13	4438	248600	44700	-167700	120900	78100	-20500	2030	-12050	1136	2867	-36.96	78.84	30.85	-8.058	1.896	-6.347	-27.38	-9.947	14.78	-12.60
			41720	-156700	112900			2760	-12620										-3.948	14.79	-12.59
14	4838	281600	41720	-158300	185200	73900	-19290	7760	-11590	1050	2.344	-31.26	79.72	28.14	-7.247	1.862	-5.915	-34.92	-3.656	19.62	-11.30
			28790	-156300	185200			7610	-12080										-3.836	19.62	-11.30
15	[illegible]	[illegible]	28790	-117300	114500	69700	-18190	9810	-10980	94.3	4.928	-25.95	69.00	24.50	-6.[illegible]	1.[illegible]	-5.362	-22.60	-3.326	12.00	-10.07
			25930	-117300	120600			6630	-11510										-3.324	12.00	-10.07
16	5518	234200	35950	-134600	135600	62600	-17450	6680	-10490	86.4	5.617	-21.24	66.41	23.70	-6.0[illegible]	[illegible]	[illegible]	[illegible]	-1.0[illegible]	11.41	-8.76
			30910	-134600	132400			5780	-11580										-1.0[illegible]	8.38	-11.04
17	[illegible]	235900	30910	-[illegible]	120700	52500	-16900	[illegible]	-10[illegible]	78.35	4.742	-17.85	61.00	21.38	-5.[illegible]	[illegible]	[illegible]	[illegible]	-2.3[illegible]	[illegible]	-16.15
			30910	-[illegible]	112400			[illegible]	[illegible]										-2.3[illegible]	[illegible]	-12.16
18	[illegible]	[illegible]	32650	-[illegible]	[illegible]	47400	-16500	5700	[illegible]	[illegible]	3.765	-14.70	57.65	19.68	-5.127	[illegible]	-4.397	[illegible]	[illegible]	[illegible]	[illegible]
			32650	-[illegible]	[illegible]			4[illegible]	-10[illegible]										[illegible]	6.70	[illegible]
19	[illegible]	207900	34[illegible]	-[illegible]	[illegible]	43400	-14500	[illegible]	[illegible]	[illegible]	2.876	-11.15	52.80	17.35	-4.[illegible]	[illegible]	-3.974	-15.45	[illegible]	5.46	-10.[illegible]
			18470	-[illegible]	134000			3630	[illegible]										-1.4[illegible]	5.45	-10.00
20	[illegible]	[illegible]	[illegible]	-[illegible]	[illegible]	[illegible]	-13340	[illegible]	[illegible]	[illegible]	2.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-16.64	-1.237	[illegible]	[illegible]
			[illegible]	-[illegible]	[illegible]			[illegible]	[illegible]										-1.309	[illegible]	[illegible]
21	[illegible]	146500	14750	-[illegible]	119800	42[illegible]	-12[illegible]	[illegible]	-9550	44.00	1.427	-6.[illegible]	[illegible]	-18.60	-4.[illegible]	[illegible]	-3.724	-11.96	-1.107	4.45	-7.[illegible]
			11680	-[illegible]	132800			2170	-10200										-1.196	4.40	-7.56
22	7[illegible]	141400	11680	-[illegible]	117800	38[illegible]	-11950	8290	-9160	42.[illegible]	1.175	-4.34	[illegible]	16.[illegible]	-3.[illegible]	.2[illegible]	-2.810	-10.[illegible]	-1.[illegible]	[illegible]	[illegible]
			10010	-[illegible]	[illegible]			1860	-9490										-1.023	[illegible]	[illegible]
23	7[illegible]	140000	10010	-[illegible]	111400	35[illegible]	-10[illegible]	1860	-8630	37.00	.8324	-3.18	[illegible]	10.20	-2.[illegible]	.15[illegible]	-2.502	-8.[illegible]	[illegible]	3.35	[illegible]
			6286	-[illegible]	[illegible]			4170	-9460										[illegible]	2.35	[illegible]
24	8[illegible]	138[illegible]	6286	-[illegible]	[illegible]	26[illegible]	-9[illegible]	1170	-8[illegible]	8.[illegible]	.5[illegible]	-2.[illegible]	[illegible]	8.5[illegible]	-2.[illegible]	.108	-2.[illegible]	-7.[illegible]	[illegible]	2.038	[illegible]
			[illegible]	-[illegible]	[illegible]			480	-9000										-.1636	.621	[illegible]
25	8[illegible]	138[illegible]	[illegible]	-[illegible]	110[illegible]	3[illegible]	-8700	480	-8270	[illegible]	[illegible]	[illegible]	28.[illegible]	8.45	-2.[illegible]	.092	-1.882	-6.80	-.1472	.55	-6.[illegible]
			[illegible]	-[illegible]	[illegible]			430	-8270										-.1472	.55	-6.25

Hoadley

TABLE 39

B-36

TABLE 39. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 4 of 8. CONDITION: A.G.W. 265,000# 72-1000#B. FULL FUEL & OIL. L.A.A.-HIGH SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{.7 \tan\phi}{\frac{I_x}{Q_x}} \times 10$	$\frac{.7 \tan\phi}{\frac{I_x}{Q_x}} M'_x$	S''_b (6) - (31)
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(23) × (30)	OR .5 × (6)
13	412.0	77.64	-2.19	79.83	-11867	13.687	-12.408	1.279	545.1	43515	87385
			-2.19	79.83	-12428		-12.399	1.288		43515	98785
14	448.5	72.63	-1.96	74.59	-11355	12.803	-11.128	1.675	561.1	41852	83348
			-1.96	74.59	-11897		-11.128	1.675		41852	94348
15	485	67.95	-1.75	69.70	-10813	11.978	-9.917	2.061	578.0	40287	79213
			-1.76	69.71	-11335		-9.996	1.982		40292	89908
16	521.5	63.43	-1.56	64.99	-10291	11.182	-8.844	2.338	596.0	38734	74866
			-1.92	65.35	-11207		-10.872	.310		38949	93451
17	549.0	60.07	-1.76	61.83	-10390	10.590	-10.006	.584	610.3	37735	82365
			-1.76	61.83	-10439		-9.996	.594		37735	83465
18	576.5	56.77	-1.62	58.39	-9651	10.008	-9.178	.830	625.2	36505	72895
			-1.95	58.72	-10793		-11.049	-1.041		36712	96088
19	615.375	52.00	-1.74	53.74	-9809	9.166	-9.848	-.682	647.7	34807	81193
			-1.74	53.74	-10695		-9.848	-.682		34807	99193
20	654.25	47.22	-1.52	48.74	-9602	8.324	-8.637	-.313	671.9	32748	85752
			-1.52	48.74	-10409		-8.607	-.283		32748	102352
21	693.125	42.26	-1.30	43.56	-9405	7.449	-7.396	+.053	697.9	30401	89399
			-1.31	43.57	-10045		-7.445	+.004		30408	102392
22	732	37.38	-1.11	38.49	-9040	6.590	-6.283	+.307	726.1	27948	89852
			-1.11	38.49	-9346		-6.322	+.268		27948	96052
23	766	33.37	-.941	34.31	-8499	5.882	-5.338	+.544	752.7	25825	85675
			-1.20	34.57	-9178		-6.835	-.953		26021	99479
24	806	28.63	-1.00	29.63	-8233	5.047	-5.699	-.652	786.3	23298	88002
			-1.25	29.88	-8912		-7.094	-2.047		23495	101625
25	840	24.62	-1.09	25.71	-8075	4.340	-6.155	-1.815	817.6	21020	92300
			-1.09	25.71	-8144		-6.165	-1.815		21020	93280

CALCULATED BY	Kirsebery	TABLE 39	DOC NO. FZS-36-140
DRAWN BY			MODEL B-36
CHECKED BY	Brown	CONSOLIDATED VULTEE AIRCRAFT CORPORATION	

TABLE 39. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 5 of 8. CONDITION: AGW 265000# 72-1000# B, FULL FUEL & OIL. LAA. HIGH SPEED @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{ba}	S_{bi}	$1.5(\frac{-N_a}{W})S_{bi}$ $(\frac{-N_a}{W})=2.497$	$S_b = S_b'$	$S_{CL_{a_i}}$	$1.5\frac{X}{W}S_{CL_{a_i}}$ $\frac{X}{W}=-.174$	$1.5\frac{X_m}{W}S_{bi}$ $\frac{X_m}{W}=.124$	S_c	$M_{x_a} \times 10^{-6}$	$M_{x_i} \times 10^{-6}$	$1.5(\frac{-N_a}{W})M_{x_i} \times 10^{-6}$ $(\frac{-N_a}{W})=2.497$	$M_x \times 10^{-6}$	$M_{CL_{a_i}} \times 10^{-6}$	$1.5\frac{X}{W}M_{CL_{a_i}} \times 10^{-6}$ $\frac{X}{W}=-.174$	$1.5\frac{X_m}{W}M_{x_i} \times 10^{-6}$ $\frac{X_m}{W}=.124$	$(M_y = M_y') \times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{-N_a}{W})T_{EA_i} \times 10^{-6}$ $(\frac{-N_a}{W})=2.497$	$T_{EA} \times 10^{-6}$
		Fig. 10	TABLE 28	3.7455 × (4)	(3) + (5)	[redacted] TAB 29	-.261 × (7)	.186 × (4)	(8) + (9)	Fig. 10	TABLE 28	3.7455 × (12)	(11) + (13)	[redacted] TAB 29	-.261 × (15)	.186 × (12)	(16) + (17)	Fig. 10	TABLE 28	3.7455 × (20)	(19) + (21)
26	870	113200	2322	-8700	104500	30900	-8060	430	-7630	23.25	.4233	-1.59	21.66	6.50	-1.697	.079	-1.618	-5.96	-.1335	.500	-5.46
			2022	-7570	105630			380	-7680										-.1251	.468	-5.492
27	906	101500	2022	-7570	93930	27800	-7260	380	-6880	19.58	.3506	-1.31	18.27	5.485	-1.432	.065	-1.367	-5.00	-.1101	.412	-4.588
			1823	-6830	94670			340	-6920										-.1090	.408	-4.592
28	942	90450	1823	-6830	83620	24850	-6490	340	-6150	16.08	.2850	-1.07	15.01	4.485	-1.171	.053	-1.118	-4.167	-.09552	.358	-3.809
			1640	-6140	84310			310	-6180										-.09454	.354	-3.813
29	978	79750	1640	-6140	73610	22000	-5740	310	-5430	13.00	.2259	-.85	12.15	3.635	-.949	.042	-.907	-3.425	-.08290	.309	-3.116
			1323	-4960	74790			250	-5490										-.07292	.273	-3.152
30	1014	69500	1323	-4960	64540	19250	-5020	250	-4770	10.35	.1783	-.67	9.68	2.910	-.760	.033	-.727	-2.766	-.06373	.236	-2.530
			1168	-4370	65130			220	-4800										-.06235	.234	-2.532
31	1050	59750	1168	-4370	55380	16650	-4350	220	-4130	8.00	.1362	-.51	7.49	2.285	-.596	.025	-.571	-2.200	-.05370	.201	-1.999
			1041	-3900	55850			190	-4160										-.05307	.199	-2.001
32	1080	52200	1041	-3900	48300	14560	-3800	190	-3610	6.38	.1050	-.39	5.99	1.835	-.479	.020	-.459	-1.780	-.04665	.175	-1.605
			786	-2940	49260			150	-3650										-.03781	.142	-1.638
33	1110	44700	786	-2940	41760	12560	-3280	150	-3130	4.91	.08144	-.305	4.605	1.420	-.371	.015	-.356	-1.410	-.03296	.123	-1.287
			702	-2630	42070			130	-3150										-.03254	.122	-1.288
34	1140	37650	702	-2630	35030	10650	-2780	130	-2650	3.70	.06039	-.23	3.47	1.065	-.278	.012	-.266	-1.085	-.02822	.106	-.979
			627	-2350	35300			120	-2660										-.02776	.104	-.981
35	1170	31000	627	-2350	28650	8800	-2300	120	-2180	2.66	.04159	-.16	2.50	.765	-.200	.008	-.192	-.820	-.02389	.089	-.731
			414	-1550	29450			80	-2220										-.01706	.064	-.756
36	1198	25120	414	-1550	23570	7190	-1880	80	-1800	1.92	.0300	-.11	1.81	.540	-.141	.006	-.135	-.603	-.01467	.055	-.548
			359	-1340	23780			70	-1810										-.01438	.054	-.549
37	1225	20000	359	-1340	18660	5750	-1500	70	-1430	1.245	.02031	-.076	1.169	.360	-.0940	.0038	-.0902	-.439	-.01239	.046	-.393
			314	-1180	18820			60	-1440										-.01211	.045	-.394
38	1252	15200	314	-1180	14020	4400	-1150	60	-1090	.800	.01185	-.044	.756	.225	-.0587	.0022	-.0565	-.298	-.01037	.039	-.259
			268	-1000	14200			50	-1100										-.01012	.038	-.260

Kriesberg

Bin Pfeffer

TABLE 39

TABLE 39. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 6 of 8. CONDITION: A.G.W. 265000# 72-1000# B.; FULL FUEL & OIL. LAA.- HIGH SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{.7 \tan\phi}{\frac{I_x}{Q_x}} \times 10^6$	$\frac{.7 \tan\phi}{\frac{I_x}{Q_x}} M'_x$	S''_b (6) - (31)
		.9848 × (14)	.1736 × (22)	(23) - (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR. 5 = (6)
26	870	21.33	-.948	22.28	-7514	3.760	-5.371	-1.617	847.3	18878	85622
			-.953	22.28	-7563		-5.404	-1.649		18878	86752
27	906	17.99	-.796	18.79	-6775	3.172	-4.518	-1.346	886.0	16648	77282
			-.797	18.79	-6815		-4.522	-1.350		16648	78022
28	942	14.78	-.661	15.44	-6057	2.606	-3.751	-1.145	928.2	14331	69289
			-.662	15.44	-6086		-3.755	-1.149		14331	69979
29	978	11.97	-.541	12.51	-5367	2.109	-3.069	-.960	974.8	12195	61415
			-.547	12.56	5407		-3.104	-.995		12204	62586
30	1014	9.533	-.439	9.972	-4697	1.680	-2.492	-.812	1026	10231	54309
			-.440	9.973	-4727		-2.494	-.814		10232	54898
31	1050	7.346	-.347	7.693	-4067	1.300	-1.969	-.669	1053	8332	47048
			-.347	7.693	-4097		-1.971	-.671		8332	47518
32	1080	5.875	-.279	6.154	-3555	1.040	-1.581	-.541	1136	6991	41309
			-.284	6.159	-3595		-1.613	-.573		6997	42263
33	1110	4.517	-.223	4.740	-3082	.799	-1.267	-.468	1194	5660	36100
			-.224	4.741	-3102		-1.268	-.469		5661	36409
34	1140	3.403	-.170	3.573	-2610	.6024	-.9641	-.3617	1251	4498	30532
			-.170	3.573	-2620		-.9660	-.3636		4498	30802
35	1170	2.452	-.127	2.579	-2147	.4340	-.7199	-.2859	1330	3430	25220
			-.131	2.583	-2186		-.7445	-.3105		3435	26015
36	1198	1.775	-.095	1.870	-1773	.3142	-.5347	-.2205	1405	2627	20943
			-.095	1.870	-1782		-.5407	-.2265		2627	21153
37	1225	1.147	-.068	1.215	-1408	.2029	-.3570	-.1841	1482	1805	16855
			-.068	1.215	-1418		-.3880	-.1851		1805	17015
38	1252	.7415	-.0450	.7865	-1073	.1312	-.2551	-.1239	1576	1240	12780
			-.0451	.7866	-1083		-.2560	-.1248		1240	12960

CALCULATED BY Kriesberg
DRAWN BY
CHECKED BY C. Kupper

TABLE 39

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

DOC NO. FZS-36-140
MODEL B-36

TABLE 39 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 7 of 8 CONDITION: A.G.W. 265000# 72.1000" B. FULL FUEL & OIL L.A.A.- HIGH SPEED @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIR	S_{b_a}	S_{b_i}	$1.5(\frac{N_z}{W})S_{b_i}$ $(\frac{N_z}{W})=2.497$	$S_b = S_b'$	$S_{CL_{a_i}}$	$1.5\frac{X}{W}S_{CL_{a_i}}$ $\frac{X}{W}=.174$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=.124$	S_c	$M_{X_a} \times 10^{-6}$	$M_{X_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})M_{X_i} \times 10^{-6}$ $(\frac{N_z}{W})=2.497$	$M_X \times 10^{-6}$	$M_{CL_{a_i}} \times 10^{-6}$	$1.5\frac{X}{W}M_{CL_{a_i}} \times 10^{-6}$ $\frac{X}{W}=.174$	$1.5\frac{X_m}{W}M_{X_i} \times 10^{-6}$ $\frac{X_m}{W}=.124$	$(M_y = M_y')$ $\times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})T_{EA_i} \times 10^{-6}$ $(\frac{N_z}{W})=2.497$	$T_{EA} \times 10^{-6}$
		Fig. 10	TABLE 28	3.7455 ④	③ + ⑤		TABLE 29 .261 × ⑦	.186 × ④	⑥ + ⑨	Fig. 10	TABLE 28	3.7455 ⑫	⑪ + ⑬		TABLE 29 .261 × ⑮	.186 × ⑫	⑯ + ⑰	Fig. 10	TABLE 28	3.7455 ⑳	⑲ + ㉑
39	1278	11100	268	-1000	10100	3280	-860	50	-810	.440	.00487	-.018	.422	.125	-.0326	.0009	-.0317	-.190	-.006681	.033	-.157
			98	-370	10730			20	-840										-.001855	.007	-.183
40	1301	7800	98	-370	7430	2400	-630	20	-610	.220	.002609	-.010	.210	.070	-.0183	.0005	-.0178	-.116	-.001370	.005	-.111
			65	-240	7560			10	-620										-.001199	.004	-.112
41	1324	5000	65	-240	4760	1600	-420	10	-410	.095	.001109	-.004	.091	.035	-.0091	.0002	-.0089	-.065	-.000891	.003	-.062
			50	-190	4810			10	-410										-.000771	.003	-.062
Fwd(C.G.)	1346.4	2700	50	-190	2510	900	-230	10	-220	.020	0	0	.020	.011	-.0029	0	-.0029	-.032	-.000593	.002	-.030
T.P	1000.841	0	0	0	0	0	0	0											0		

CALCULATED BY Kriezberg
CHECKED BY J. Ellis-Bynum

TABLE 39

DOC NO. FZS-36-140
MODEL B-36

TABLE 39 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 7 of 8 CONDITION: A.G.W. 265000# 72.1000# B. FULL FUEL & OIL L.A.A. - HIGH SPEED @ 5000 FT.

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DATE: 12-4-45

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_i}	$1.5(\frac{N_z}{W})S_{b_i}$ $(\frac{N_z}{W})=2.497$	$S_b = S_b'$	$S_{c_{L_{a_i}}}$	$1.5\frac{X}{W}S_{c_{L_{a_i}}}$ $\frac{X}{W}=.174$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=.124$	S_c	$M_{x_a}\times10^6$	$M_{x_i}\times10^6$	$1.5(\frac{N_z}{W})M_{x_i}\times10^6$ $(\frac{N_z}{W})=2.497$	$M_x\times10^6$	$M_{c_{L_{a_i}}}\times10^6$	$1.5\frac{X}{W}M_{c_{L_{a_i}}}\times10^6$ $\frac{X}{W}=.174$	$1.5\frac{X_m}{W}M_{x_i}\times10^6$ $\frac{X_m}{W}=.124$	$(M_y=M_y')\times10^6$	$T_{EA_a}\times10^6$	$T_{EA_i}\times10^6$	$1.5(\frac{N_z}{W})T_{EA_i}\times10^6$ $(\frac{N_z}{W})=2.497$	$T_{EA}\times10^6$
		Fig. 10	TABLE 28	3.7455 (4)	(3) + (5)		TABLE 29 .261 × (7)	.186 × (4)	(6) + (9)	Fig. 10	TABLE 28	3.7455 (12)	(11) + (13)		TABLE 29 .261 × (15)	.186 × (12)	(16) + (17)	Fig. 10	TABLE 28	3.7455 (20)	(19) + (22)
39	1278	11100	268	-1000	10100	3280	-860	50	-810	.440	.004817	-.018	.422	.125	-.0326	.0009	-.0317	-.190	-.006681	.033	-.157
			98	-370	10730			20	-840										-.001835	.007	-.183
40	1301	7800	98	-370	7430	2400	-630	20	-610	.220	.002609	-.010	.210	.070	-.0183	.0005	-.0178	-.116	-.001370	.005	-.111
			65	-240	7560			10	-620										-.001199	.004	-.112
41	1324	5000	65	-240	4760	1400	-420	10	-410	.095	.001109	-.004	.091	.035	-.0091	.0002	-.0089	-.065	-.000891	.003	-.062
			50	-190	4810			10	-410										-.000771	.003	-.062
T.E.	1346.8	2700	50	-190	2510	900	-230	10	-220	.020	0	0	.020	.011	-.0029	0	-.0029	-.032	-.000503	.002	-.0301
T.P.	1380.41	0	0	0	0	0	0	0											0		

CALCULATED BY	Kriesberg	TABLE 39	DOC. NO. FZS-36-140
CHECKED BY	J. Ellis Pepper		MODEL B-36

TABLE 39 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 8 OF 8 CONDITION: AGW-265000#, 72-1000# B., FULL FUEL & OIL, LAA-HIGH SPEED, 5000' ALT.

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1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_z \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_z \times 10^6$	$S'_c = S_c \cos\alpha$	$M_z \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T_{max}}{I_z/Q_z} \times 10^6$	$\frac{T_{max}}{I_z/Q_z} M'_z$	S''_b
		3846 × (14)	1134 × (22)	(23) − (24)	3846 × (10)	1136 × (26)	3846 × (10)	(27) + (28)	TABLE 30	(29) × (30)	OR. 5 − (6)
39	1278	.4156	.0273	.4429	-797	.0733	-1546	-.0813	1674	741	1359
			-.0318	.4474	-827		-1802	-.1069		749	1381
40	1301	.2268	-.0193	.2261	-400	.0365	-.1093	-.0728	1772	401	7029
			-.0194	.2262	-611		-.1103	-.0738		401	7159
41	1324	.0896	-.0108	.1004	-404	.0158	-.0611	-.0453	1881	185	4571
			-.0108	.1004	-404		-.0611	-.0453		189	4621
TIP	1346.4	.0117	-.0052	.0249	-219	.0035	-.0296	-.0260	—	—	2510

CALCULATED BY	Kreisberg	TABLE 39
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS
CHECKED BY	B. Clapp	DOC NO. FZS-36-148 MODEL B-36

TABLE 40 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 1 of 8 CONDITION: AGW 265000# 72-1000# B. FULL FUEL & OIL. 1 HAA @ 5000 FT.

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Station	Dist from ℄ of Sym.	S_{bu}	S_{bl}	S_{bA} (Sym.)	S_s	S_u	S_{uS} (Sym.)	S_{uB} (Sym.)	S_o	M_{x_u} x10⁶	M_{x_l} x10⁶	M_{y_u} x10⁶ (Sym.)	M_{y_l} x10⁶ (Sym.)	M_{z_u} x10⁶	M_{z_l} x10⁶	M_{yA} x10⁶ (Sym.)	M_{yB} x10⁶	T_{Au} x10⁶	T_{Al} x10⁶	T_{Bu} x10⁶ (Sym.)	T_{Bl} x10⁶
		Fig. 1	Table 22				Table 22			Fig. 11	Table 22							Fig. 11	Table 22		
6	0	30,100	74,700	148,800	-72,300	28,400	-6,900	27,880	-33,070	-171.8	35.45	80.6	-91.2	83.894	-35.25	14.25	-21.00	21.52	41.85	-26.01	21.[illegible]
			72,750	147,300	133,400			29,680	-33,210		35.45	80.6	-91.2			14.25	-21.00		41.437	-26.01	[illegible]
7	21.25	[illegible]	28,760	147,700	-72,000	26,200	-6,021	29,650	-30,578	-157.9	32.42	73.7	-84.2	68.70	-32.77	13.03	-17.74	26.44	-14.44	24.50	[illegible]
			72,720	146,[illegible]	143,300			29,980	-30,091		32.42	73.7	-84.2			13.03	-17.74		-10.84	-19.60	[illegible]
8	30.0	274,800	72,730	145,000	-72,300	[illegible]	-4,670	29,740	-29,430	-148.8	29.57	67.3	-81.9	63.85	-30.46	11.90	-15.58	27.56	-10.24	25.97	[illegible]
			74,490	145,500	70,500			29,100	-29,770		29.57	67.3	-81.9			11.90	-15.58		10.46	-23.71	-1.2
9	43.25	266,900	71,411	143,300	-73,800	116,400	52,260	28,000	-26,623	-137.9	26.20	61.9	-78.0	58.85	-28.55	10.[illegible]	-12.62	23.06	-9.14	[illegible]	[illegible]
			71,[illegible]	142,400	74,800			28,640	-26,880		26.20	61.9	-78.0			10.[illegible]	-12.62		-9.14	-22.01	[illegible]
10	56.25	256,800	71,500	142,100	[illegible]	112,200	53,120	28,440	-24,440	-131.3	23.84	56.5	-74.8	54.05	-26.74	9.[illegible]	-10.75	21.07	-7.07	-20.[illegible]	[illegible]
			70,810	140,100	76,700			28,300	-25,120		23.84	56.5	-74.8			9.[illegible]	-10.75		-7.07	[illegible]	[illegible]
5	344.0	236,900	70,200	138,400	106,500	107,500	-51,200	28,200	-24,980	-120.8	21.42	51.1	-71.7	52.30	-24.95	9.03	-10.92	20.14	-3.74	-18.03	[illegible]
			67,[illegible]	136,[illegible]	104,200			25,190	-26,010		21.32	51.1	-71.7			8.97	-10.92		-3.68	-18.56	[illegible]
6	344.0	218,300	62,470	[illegible]	[illegible]	102,100	-49,610	25,190	-24,420	-116.8	20.18	40.0	-67.3	49.85	-23.64	8.52	-15.30	19.08	-1.85	-16.70	[illegible]
			51,850	[illegible]	[illegible]			29,050	-26,560		20.[illegible]	40.0	-67.3			8.37	-15.37		-1.44	-16.41	[illegible]
7	344.0	237,200	57,350	[illegible]	111,800	102,400	-47,[illegible]	23,050	[illegible]	-110.1	18.07	35.8	[illegible]	[illegible]	-20.10	7.67	-14.75	18.36	-1.[illegible]	[illegible]	[illegible]
			49,200	[illegible]	[illegible]			19,000	[illegible]		18.62	35.8	[illegible]			7.48	-14.75		[illegible]	[illegible]	[illegible]
8	344.0	226,900	44,700	[illegible]	[illegible]	[illegible]	-44,[illegible]	18,000	-20,400	-106.2	17.85	40.6	-66.6	48.25	-21.38	7.18	-14.40	17.12	[illegible]	[illegible]	[illegible]
			43,730	[illegible]	[illegible]			17,520	-21,360		17.85	40.6	-66.6			7.18	-14.40		-5.[illegible]	-23.[illegible]	[illegible]
9	[illegible]	216,700	43,700	89,000	[illegible]	[illegible]	44,[illegible]	17,[illegible]	[illegible]	-98.9	16.20	37.1	-57.[illegible]	41.80	-18.96	6.[illegible]	-13.41	16.88	-5.[illegible]	[illegible]	[illegible]
			41,080	[illegible]	85,700			21,700	-23,080		16.20	37.1	-57.[illegible]			6.[illegible]	-13.41		-5.[illegible]	[illegible]	[illegible]
10	344.0	208,800	40,000	[illegible]	[illegible]	98,300	-43,070	21,700	-21,330	-92.5	14.71	33.5	-52.0	39.30	-18.15	[illegible]	-12.[illegible]	15.08	-5.[illegible]	-16.75	[illegible]
			37,720	[illegible]	86,600			21,600	-21,470										-5.60	-17.26	[illegible]
11	[illegible]	201,000	37,700	[illegible]	[illegible]	86,900	-41,450	21,600	-19,850	-86.9	13.03	30.1	-56.8	36.85	-17.58	5.32	-12.26	14.13	-5.34	-12.07	[illegible]
			48,110	[illegible]	81,400			19,[illegible]	-20,110										-4.63	-18.58	[illegible]
12	344.0	194,200	48,110	[illegible]	[illegible]	82,300	-39,350	19,[illegible]	-20,010	-79.7	11.42	26.1	-53.6	33.65	-16.05	4.62	-11.43	13.[illegible]	-4.[illegible]	[illegible]	[illegible]
			46,740	[illegible]	81,400			19,000	-21,350										-4.[illegible]	[illegible]	[illegible]

TABLE 40

TABLE 40. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 2 of 8. CONDITION: A&W. 265000# 72-1000# B. FULL FUEL & OIL. 1 HAA @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T \tan\phi}{I_x/Q_x} \times .10$	$\frac{T \tan\phi}{I_x/Q_x} M'_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	OR .5 × (6) − (31)
0	0	-89.81	0.44	-90.25	-32567	-15.832	2.482	-13.350	412.7	-37246	-95054
		-89.81	0.44	-90.25	-32764	-15.832	2.472	-13.360		-37246	-96154
1	41.025	-84.89	0.32	-85.21	-30126	-14.964	1.822	-13.142	423.0	-36044	-84956
		-84.89	0.32	-85.21	-30310	-14.964	1.812	-13.152		-36044	-87256
2	80.0	-80.26	0.22	-80.48	-27998	-14.148	1.270	-12.878	433.1	-34856	-76594
		-80.26	0.23	-80.49	-28333	-14.148	1.329	-12.819		-34860	-78990
3	113.25	-76.81	0.17	-76.98	-26218	-13.541	0.955	-12.586	442.2	-34041	-69359
		-76.81	0.17	-76.98	-26452	-13.541	0.975	-12.566		-34041	-70759
4	146.5	-73.66	0.10	-73.76	-24384	-12.985	0.591	-12.394	451.7	-33629	-61071
		-73.66	0.10	-73.76	-24738	-12.985	0.571	-12.414		-33629	-63071
5	180.0	-70.61	0.05	-70.66	-22631	-12.447	0.256	-12.191	461.7	-32624	-54176
		-70.61	0.27	-70.88	-25693	-12.447	1.556	-10.891		-32725	-71675
6	206.0	-68.25	0.22	-68.47	-24049	-12.030	1.270	-10.760	469.7	-32160	-64640
		-68.44	0.38	-68.82	-26156	-12.065	2.137	-9.928		-32325	-76575
7	232.0	-65.69	0.32	-66.01	-24364	-11.579	1.822	-9.757	478.1	-31559	-69741
		-66.77	0.81	-67.58	-29534	-11.770	4.619	-7.151		-32310	-91590
8	249.0	-64.60	0.77	-65.37	-28500	-11.388	4.343	-7.045	483.9	-31633	-93367
		-64.60	0.77	-65.37	-28914	-11.388	4.382	-7.006		-31633	-95767
9	284.5	-60.27	0.67	-60.94	-26747	-10.624	3.782	-6.842	495.9	-30220	-87080
		-60.57	0.46	-61.03	-22650	-10.676	2.590	-8.086		-30265	-68435
10	312.0	-58.10	0.40	-58.50	-21006	-10.242	2.285	-7.947	505.8	-29589	-56211
			0.40	-58.50	-21144		2.285	-7.957		-29589	-57011
11	350.5	-55.94	0.36	-56.30	-19548	-9.860	-2.029	-7.831	516.0	-29051	-49749
			0.62	-56.56	-21774		3.496	-6.364		-29185	-62415
12	375.78	-52.79	0.55	-53.34	-19706	-9.305	3.132	-6.173	530.2	-28281	-53579
			0.56	-53.35	-21025		3.161	-6.144		-28286	-61114

CALCULATED BY: Shelton
DRAWN BY:
CHECKED BY: Pepper

TABLE 40.

FLEETWOOD VOUGHT AIRCRAFT CORPORATION

DOC NO. FZS-36-140
MODEL B-36

TABLE 40 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 3 of 6 — CONDITION: 46W, 265000#, 72,1000# FULL FUEL, 60K INA @ 5000 FT.

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ SHIP	S_{ba}	S_{bi}	$(\frac{L_e}{L_m})S_b$ (4)×0.56	S_b (3)+(5)	S_c	S_{ca}	$(\frac{L_e}{L_m})S_{ca}$ (8)×0.816	$(\frac{L_e}{L_m})S_{bi}$ (6)×0.816	S_c (8)+(9)	M_{xa} ×10⁶	M_{xi} ×10⁶	$(\frac{L_e}{L_m})M_{xi}$ ×10⁶ (11)×0.56	M_x ×10⁶ (10)+(12)	M_{ca} ×10⁶	$(\frac{L_e}{L_m})M_{ca}$ ×10⁶ (15)×0.816	$(\frac{L_e}{L_m})M_{ci}$ ×10⁶ (15)×0.816	$(M_y)_{ai}$ ×10⁶	T_{EA_a} ×10⁶	T_{EA_i} ×10⁶	$(\frac{L_e}{L_m})T_{ai}$ ×10⁶ (21)×0.56	T_{EA} ×10⁶ (20)+(22)
		Fig. 11	Table 28	2.274×(4)		Table 28	1.677×(7)	0.816×(4)			Fig. 11	Table 28	2.274×(12)		Table 28	1.407×(16)	0.402×(16)		Fig. 11	Table 28	2.274×(21)	
13	4120	181,500	44,700	10,300	-79,500	78,300	-37,250	18,000	-18,250		-322.0	1.247	-32.4	-50.6	30.85	-14.72	3.97	10.75	11.78	-3.447	-8.00	2.80
	3.7%		44,700	10,300	-79,500	78,300		14,700	-20,400											-3.448	-8.00	2.80
14	4425	171,400	44,720	34,900	-76,100	73,300	-35,250	16,270	-18,400		-66.7	2.044	19.0	-44.7	28.15	-13.43	3.35	-10.08	10.69	-3.626	-8.27	2.42
			34,700	88,300	83,600			14,570	-19,640											-3.626	-8.27	2.42
15	4730	160,900	34,790	88,200	-53,700	61,900	-34,550	15,540	-17,640		-60.3	6.928	15.8	-44.5	25.50	-12.16	2.79	-9.37	9.69	-3.386	-7.61	2.08
			54,931	87,900	33,200			14,540	-19,810											-3.334	-7.56	2.13
16	5035	163,300	35,100	41,200	7,400	25,650	-31,320	14,440	-18,880		-54.6	5.612	12.8	-41.8	23.10	-11.02	2.26	-8.76	8.72	-3.254	-6.74	1.91
			30,810	40,800	38,600			14,430	-18,890											-3.254	-6.67	2.03
17	5340	146,700	30,000	72,300	-42,100	40,500	-29,820	14,630	-19,300		-50.5	4.167	10.8	-39.7	21.50	-10.16	1.82	-8.34	8.04	-3.334	-5.30	-2.72
			29,850	89,700	46,100			13,910	-18,500											-3.338	-5.30	-2.72
18	5765	138,900	37,600	49,100	-12,000	51,600	-28,530	12,220	-16,920		-46.6	3.485	8.9	-37.7	19.65	-9.379	1.519	-7.795	7.40	-3.157	-4.91	-2.49
			24,300	85,500	83,500			12,800	-18,530											-3.151	-5.25	3.00
19	6195	128,200	34,300	35,500	22,100	55,400	-26,430	11,330	-16,270		-44.4	2.976	6.8	-37.6	18.35	-8.276	1.106	-7.080	6.53	-2.456	-3.97	-3.51
			34,300	44,300	44,300			11,300	-18,500											-2.406	-3.97	-3.51
20	6625	114,800	26,300	14,500	40,800	28,500	-24,470	10,470	-16,600		-39.4	2.096	5.0	-31.4	15.35	-7.330	0.890	-6.442	5.73	-1.790	-1.98	-2.42
			26,300	21,500	26,000			10,470	-16,600											-1.388	-2.42	-2.42
21	7025	114,600	15,500	8,600	17,100	27,400	-22,610	9,080	-14,570		-33.0	1.627	3.7	-29.3	13.00	-6.342	0.654	-5.688	4.88	-1.197	-0.74	-2.67
			15,500	24,400	22,100			9,700	-13,970											-1.114	-2.67	-2.67
22	7425	102,800	11,400	36,400	47,800	24,210	-19,850	8,720	-12,660		-28.0	1.173	2.7	-25.3	11.60	-5.638	0.472	-5.041	4.20	-1.003	-0.26	-2.46
			11,400	29,300	29,300			8,020	-12,230											-1.028	-2.46	-2.46
23	7825	89,000	10,010	29,300	39,300	22,200	-19,180	8,030	-11,660		-24.6	0.8324	1.9	-22.7	10.30	-4.865	0.335	-4.530	3.73	-0.797	-0.20	-2.25
			6,010	14,300	20,700			7,530	-11,650											-0.757	-2.25	-2.25
24	8225	76,300	6,024	14,300	20,300	36,500	-17,010	7,530	-10,800		-21.0	0.5808	1.3	-19.7	8.65	-4.126	0.234	-3.892	3.11	-0.541	-0.38	2.73
			2,505	5,800	20,400			7,040	-10,370											-0.1650	-0.38	2.73
25	8625	79,300	2,585	5,800	22,400	54,500	-15,900	7,040	-9,940		-18.1	0.4980	1.1	-17.0	7.45	-3.554	0.198	-3.356	2.68	-0.477	-0.34	2.34
			2,322	5,300	74,000			9,30	-5,050											-0.1478	-0.34	2.34

List

Dixon

TABLE 40

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TABLE 40. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 4 of 8. CONDITION: AGW-265,000#, 72-1000#B. FULL FUEL & OIL. 1HAA @ 5,000 FT.

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REPORT: FZS-36-140
DATE: 12-4-45

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M''_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{.7 \tan\phi \times 10^{-6}}{\frac{I_x}{Q_x}}$	$\frac{.7 \tan\phi}{\frac{I_x}{Q_x}} M_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	(6) − (31) OR .5 × (6)
13	412.0	-49.83	0.49	-50.32	-18,957	-8.784	2.757	-6.027	595.1	-27429	-52071
			0.49	-50.32	-20,169		2.757	-6.027		-27429	-58911
14	448.5	-46.97	0.42	-47.39	-18199	-8.281	2.383	-5.898	561.1	-26591	-50309
			0.42	-47.39	-19361		2.383	-5.898		-26591	-57009
15	485.0	-43.82	0.36	-44.18	-17392	-7.725	2.098	-5.627	578.0	-25536	-48164
			0.40	-44.22	-18524		2.098	-5.627		-25559	-54641
16	521.5	-41.16	0.31	-41.47	-16623	-7.256	1.753	-5.503	596.0	-24716	-46384
			0.53	-41.69	-18603		2.984	-4.272		-24847	-57653
17	549.0	-39.10	0.48	-39.58	-17116	-6.882	2.698	-4.194	610.3	-24156	-51244
			0.48	-39.58	-17234		2.698	-4.199		-24156	-51844
18	576.5	-37.13	0.63	-37.56	-15776	-6.545	2.452	-4.093	625.2	-23483	-45717
			0.63	-37.76	-18248		3.595	-2.950		-23608	-59732
19	615.375	-34.07	0.56	-34.63	-16377	-6.007	3.171	-2.836	647.7	-22430	-51610
			0.56	-34.63	-18278		3.171	-2.836		-22430	-62610
20	654.25	-30.92	0.48	-31.40	-16348	-5.451	2.738	-2.713	671.9	-21098	-55002
			0.48	-31.40	-18101		2.708	-2.743		-21098	-65002
21	693.125	-27.87	0.40	-28.27	-16269	-4.913	2.245	-2.668	697.9	-19730	-57370
			0.40	-28.27	-17638		2.275	-2.638		-19730	-65270
22	732.0	-24.92	0.32	-25.24	-15806	-4.392	1.812	-2.580	726.1	-18327	-57873
			0.32	-25.24	-16476		1.832	-2.560		-18327	-61673
23	766.0	-22.55	0.25	-22.80	-14930	-3.915	1.428	-2.547	752.7	-17162	-55038
			0.41	-22.96	-16397		2.344	-1.631		-17282	-63418
24	806.0	-19.40	0.32	-19.72	-14654	-3.420	1.842	-1.578	786.3	-15506	-56494
			0.47	-19.87	-16121		2.689	-0.731		-15624	-64776
25	840.0	-16.74	0.41	-17.15	-14712	-2.951	2.304	-0.647	817.6	-14022	-59378
			0.41	-17.15	-14821		2.304	-0.647		-14022	-59378

CALCULATED BY	[illegible]	TABLE 40	DOC NO. FZS-36-140
DRAWN BY			MODEL B-36
CHECKED BY	[illegible]	CONSOLIDATED VULTEE AIRCRAFT CORPORATION	

TABLE 40 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 3 of 8 CONDITION: AGW 265000, 72-1000 12 FULL FUEL & OIL IHAA @ 5000 FT.

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Station	Dist. from ℄ of Ship	S_{b_0}	S_{b_1}	$\frac{1}{W}\times S_{b_1}$	$S_b = S_{b_0}$	$S_{b_{max}}$	$\frac{1}{W}\times S_{b_{max}}$	$\frac{1}{W}\times S_b$	S_a	$M_{x_0}\times10^6$	$M_{x_1}\times10^6$	$\frac{1}{W}\times M_{x_1}$	$M_x = M_{x_0}$	$M_{c_1}\times10^6$	$M_{c_{max}}$	$\frac{1}{W}\times M_{c_{max}}$	$M_y = M_{y_0}$	$T_{R_0}\times10^6$	$T_{R_1}\times10^6$	$\frac{1}{W}\times T_{R_1}$	$T_{R_{max}}$
		Fig. 11	Table 28		② + ⑤			⑦ + ⑨	⑧ + ⑤	Fig. 15	Table 28		⑪ + ⑬		Table 28		⑭ + ⑯	Fig. 18	Table 28		
26	870.0	-23,300	2372	5,300	-68,000	30,900	-14,740	820	-13,910	-15.90	0.1935	0.86	-14.74	6.500	-3.101	0.170	-2.931	-2.30	0.1385	-2.301	-2.0
			2082	4,500	-68,700			800	-13,980										-0.151	-0.18	-2.0
27	906.0	-66,300	2072	4,600	-61,700	27,800	-13,260	800	-12,460	-13.40	0.3316	0.80	-12.60	5.485	-2.616	0.141	-2.475	-1.90	0.1102	-0.25	1.6
			1,823	4,100	-62,200			730	-12,530										-0.1090	-0.25	1.6
28	942.0	-57,700	1,823	4,100	-53,600	24,850	-12,850	730	-12,120	-11.08	0.3050	0.65	-10.43	4.485	-2.140	0.115	-2.024	-1.54	0.0905	-0.20	1.3
			1,640	3,700	-56,000			660	-11,190										-0.0895	-0.21	1.3
29	978.0	-53,200	1,640	3,700	-49,500	22,000	-11,490	660	-10,830	-9.20	0.2651	0.51	-8.69	3.635	-1.734	0.091	-1.643	-1.22	0.0739	-0.18	1.0
			1,323	3,000	-50,800			530	-9,960										-0.0724	-0.17	1.0
30	1014.0	-46,700	1,323	3,000	-43,700	19,250	-9,180	530	-8,650	-7.20	0.1785	0.47	-6.73	2.810	-1.494	0.072	-1.316	-0.93	0.0631	-0.14	0.7
			1,146	2,700	-44,000			470	-8,180										-0.0608	-0.14	0.7
31	1050.0	-40,300	1,146	2,700	-37,000	16,650	-8,180	470	-7,710	-5.60	0.1342	0.31	-5.29	2.085	-1.190	0.055	-1.035	-0.69	0.0531	-0.12	0.5
			1,014.5	2,400	-38,300			400	-7,520										-0.0513	-0.12	0.5
32	1086.0	-33,700	1,014.5	2,400	-31,300	14,360	-7,050	420	-6,630	-4.47	0.1050	0.24	-4.23	1.635	-0.925	0.042	-0.883	-0.54	0.0446	-0.10	0.4
			886	1,800	-29,900			390	-6,630										-0.0418	-0.10	0.4
33	1122.0	-29,000	886	1,800	-26,000	12,560	-6,160	340	-5,820	-3.48	0.0814	0.19	-3.29	1.270	-0.677	0.033	-0.644	-0.37	0.0334	-0.07	0.3
			781.5	1,600	-22,900			300	-5,710										-0.0334	-0.07	0.3
34	1140.0	-26,300	701.5	1,400	-24,900	10,650	-5,080	260	-4,800	-2.63	0.0614	0.14	-2.49	0.965	-0.508	0.024	-0.484	-0.25	0.0252	-0.06	0.2
			626.8	1,400	-19,900			250	-4,550										-0.0238	-0.06	0.2
35	1176.0	-21,800	626.8	1,400	-20,400	8,800	-4,200	250	-3,950	-1.92	0.0416	0.09	-1.83	0.765	-0.346	0.017	-0.348	-0.15	-0.0234	-0.05	0.1
			433.9	900	-20,900			170	-3,780										-0.0171	-0.04	0.1
36	1212.0	-17,600	433.9	900	-16,700	7,190	-3,430	170	-3,260	-1.38	0.0300	0.07	-1.31	0.540	-0.250	0.012	-0.246	-0.08	-0.0142	-0.03	0.0
			358.9	800	-17,000			140	-3,290										-0.0144	-0.03	0.0
37	1225.0	-14,300	358.9	800	-13,500	5,750	-2,740	140	-2,600	-0.92	0.0203	0.05	-0.87	0.360	-0.172	0.008	-0.164	-0.03	-0.0124	-0.03	0.0
			293.5	700	-13,600			130	-2,610										-0.0131	-0.03	0.0
38	1248.0	-11,000	293.5	700	-10,300	2,400	-2,100	130	-1,970	-0.38	0.0118	0.03	-0.36	0.225	-0.107	0.005	-0.102	-0.01	-0.0102	-0.02	-0.0
			268.3	600	-10,400			110	-1,990										-0.0101	-0.02	-0.0

TABLE 40

TABLE 40 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 6 of 8. CONDITION: A.G.W. 265,000# 72-1000#B. FULL FUEL & OIL. I.H.A.A. @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J \tan\phi}{I_x} \cdot \frac{1}{Q_x} \times 10$	$\frac{J \tan\phi}{I_x} \cdot \frac{1}{Q_x} M'_x$	S''_b (6) − (31)
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR .5 × (6)
26	870.0	-14.713	0.347	-15.060	-13600	-2.594	1.970	-0.624	847.3	-12760	-55840
			0.351	-15.064	-13728		1.989	-0.605		-12764	-55936
27	906.0	-12.408	0.286	-12.694	-12271	-2.187	1.625	-0.562	886.0	-11247	-50453
			0.286	-12.694	-12340		1.625	-0.562		-11247	-50553
28	942.0	-10.271	0.229	-10.500	-10951	-1.811	1.300	-0.511	928.2	-9746	-45854
			0.231	-10.502	-11020		1.310	-0.501		-9748	-46252
29	978.0	-8.440	0.179	-8.619	-9681	-1.488	1.014	-0.474	974.8	-8402	-41098
			0.182	-8.622	-9809		1.034	-0.454		-8405	-41795
30	1014.0	-6.687	0.137	-6.824	-8519	-1.179	0.778	-0.401	1026.0	-7001	-36699
			0.137	-6.824	-8578		0.778	-0.401		-7001	-36999
31	1050.0	-5.210	0.097	-5.307	-7356	-0.918	0.551	-0.367	1089.0	-5747	-32253
			0.097	-5.307	-7406		0.551	-0.367		-5747	-32553
32	1080.0	-4.166	0.069	-4.235	-6431	-0.734	0.394	-0.340	1136.0	-4811	-28489
			0.073	-4.239	-6529		0.414	-0.320		-4816	-29084
33	1110.0	-3.240	0.050	-3.290	-5584	-0.571	0.286	-0.285	1194.0	-3928	-25172
			0.052	-3.292	-5623		0.295	-0.276		-3931	-25369
34	1140.0	-2.452	0.033	-2.485	-4727	-0.432	0.187	-0.245	1259.0	-3129	-21571
			0.033	-2.485	-4757		0.187	-0.245		-3129	-21771
35	1170.0	-1.802	0.017	-1.819	-3890	-0.318	0.0985	-0.2195	1330.0	-2419	-17981
			0.019	-1.821	-3969		0.1083	-0.2097		-2422	-18478
36	1198.0	-1.290	0.009	-1.299	-3210	-0.227	0.0492	-0.1778	1405.0	-1825	-15075
			0.009	-1.299	-3240		0.0492	-0.1778		-1825	-15175
37	1225.0	-0.857	0.000	-0.857	-2560	-0.151	0.000	-0.1510	1486.0	-1274	-12226
			0.000	-0.857	-2570		0.000	-0.1510		-1274	-12326
38	1252.0	-0.542	-0.005	-0.537	-1940	-0.0955	-0.0295	-0.0660	1576.0	-846	-9454
			-0.005	-0.537	-1960		-0.0295	-0.0660		-846	-9554

CALCULATED BY		TABLE 40	DOC NO. FZS-36-160
DRAWN BY			MODEL B-36
CHECKED BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION	

TABLE 40 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 7 of 8 CONDITION: A.G.W. 265,000 #, 72-1000 #B., FULL FUEL & OIL. 1HAA @ 5,000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST FROM ℄ OF SHIP	S_{b_a}	S_{b_1}	$1.5\frac{M_y}{W}S_{b_1}$ $(\frac{M_y}{W})=1.56$	$S_b = S_b'$	$S_{c_{L_a}}$	$1.5\frac{X}{W}S_{c_{L_a}}$ $\frac{X}{W}=0.318$	$1.5\frac{X}{W}S_{c_1}$ $\frac{X}{W}=0.268$	S_c	$M_{X_a}\times10^6$	$M_{X_1}\times10^6$	$1.5(\frac{M_y}{W})M_{X_1}\times10^6$ $(\frac{M_y}{W})=1.56$	$M_X\times10^6$	$M_{Q_{a_1}}\times10^6$	$1.5\frac{X}{W}M_{Q_{a_1}}\times10^6$ $\frac{X}{W}=0.318$	$1.5\frac{X}{W}M_{Q_1}\times10^6$ $\frac{X}{W}=0.268$	$(M_y=M_{Q_1})\times10^6$	$T_{EA_a}\times10^6$	$T_{EA_1}\times10^6$	$1.5(\frac{M_y}{W})T_{EA_1}\times10^6$ $(\frac{M_y}{W})=1.56$	$T_{EA}\times10^6$
		Fig. 11	TABLE 28	2.274 × ④	③ + ⑤	TABLE 29	0.477 × ⑦	0.402 × ④	⑧ + ⑨	Fig. 11	TABLE 28	2.274 × ⑫	⑪ + ⑬	TABLE 29	0.477 × ⑮	0.402 × ⑫	⑯ + ⑰	Fig. 11	TABLE 28	2.274 × ⑳	⑲ + ㉑
39	1278.0	-8,200	268.3	600	-7,600	3,280	-1,560	110	-1,450	-0.33	0.0049	0.01	-0.32	0.125	-0.060	0.002	-0.058	-0.02	-0.0087	-0.02	-0.04
			98.3	200	-8,000			40	-1,520										-0.0018	-0.00	-0.02
40	1301.0	-6,000	98.3	200	-5,800	2400	-1,140	40	-1,100	-0.19	0.0026	0.01	-0.18	0.070	-0.033	0.001	-0.032	-0.03	-0.0014	-0.00	-0.03
			65.2	100	-5,900			30	-1,110										-0.0012	-0.00	-0.03
41	1324.0	-4,000	65.2	100	-3,900	1,600	-760	30	-730	-0.08	0.0011	0.00	-0.08	0.035	-0.017	0.000	-0.017	-0.03	-0.0009	-0.00	-0.03
			49.5	100	-3,900			20	-740										-0.0008	-0.00	-0.03
CG TIP	1346.4	-2,300	49.5	100	-2,200	0	0	20	20	-0.02	0	0	-0.02	0.011	-0.005	0	-0.005	-0.02	-0.0005	-0.00	-0.03
TIP	1380.0		0	0	0			0	0	0								0	0	0	

List
Cropper

TABLE 40

DOCUMENT FZS-36-140
MODEL B-36

TABLE 40 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 8 of 8. CONDITION: AGW. 265000# 72-1000# B. FULL FUEL & OIL. I.HAA. @ 5000 FT.

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DATE: 12-4-45

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} \times 10$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} M'_x$	S''_b (6) − (31)
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR .5 × (6)
39	1278.0	-0.315	-0.007	-0.308	-1428	-0.00546	-0.0394	+0.0950	1614.0	516	-7084
			-0.003	-0.312	-1447		-0.0197	-0.0753		522	-7478
40	1301.0	-0.177	-0.005	-0.172	-1083	-0.0312	-0.0295	-0.0607	1772.0	305	-5495
			-0.005	-0.172	-1093		-0.0295	-0.0607		305	-5595
41	1324.0	-0.079	-0.005	-0.074	-719	-0.01389	-0.0295	-0.04339	1881.0	139	-3761
			-0.005	-0.074	-729		-0.0295	-0.04339		139	-3761
CG-TIP	1346.4	-0.0197	-0.00358	-0.0164	-20	-0.00372	-0.02019	+0.02366			-2200
TIP	1380	0	0	0	0	0			0	0	0

CALCULATED BY	[illegible]	TABLE 40	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION, 10th WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY	Pepper		
APPROVED BY			

TABLE 41 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 1 OF 8 — CONDITION: RGW-26 5000# 72 [illegible] FULL FUEL & OIL, ILAA, HIGH SPEED @ 5000 FT.

PAGE: 1.70 REPORT: FZS-36-140 DATE: 12-4-45

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Station	Dist. from ℄ of Ship	S_{bu}	S_{bl}	$\frac{1}{2}S_{bu}$ (÷1.506)	$S_b = S_b'$	S_{cu}	$\frac{1}{2}S_{cu}$ (÷1.181)	$\frac{1}{2}S_{cl}$ (÷2.072)	S_c	$M_{x_{bu}} \times 10^6$	$M_{x_{bl}} \times 10^6$	$\frac{1}{2}M_{x_{bu}}$ (÷1.414)	$M_x \times 10^6$	$M_{cu} \times 10^6$	$\frac{1}{2}M_{cu}$ (÷1.181)	$M_{cl} \times 10^6$	$\frac{1}{2}M_{cl}$ (÷2.072)	$M_y = (M_z)$ $\times 10^6$	$T_{Bu} \times 10^6$	$T_{Bl} \times 10^6$	$\frac{1}{2}T_{Bl}$ (÷1.806)	$T_{Cu} \times 10^6$
		Fig. 12	Table 4.2	2.257 (4)	(3) ÷ (4)	[illegible]	(7)	(5) ÷ (6)	(8)	Fig. 12	Table 4.2	2.257 (12)	(11) ÷ (13)	[illegible]	(14)	.106 (16)	(15) ÷ (17)	Fig. 12	Table 4.2	2.257 (20)	(19) ÷ (21)	[illegible]
0	0	-235,600	74240	+167700	-125900	121900	15910	8820	-17900	-191.1	135.40	80.1	-91.0	72.894	-14.619	3.824	-10.895	22.972	-11.455	-25.832	2.860
			73780	166800	-127000			7970	-17980		-38.96								-11.487	-25.836	-2.866
1	41.625	-281,200	73700	166,800	-114900	126250	-24810	7470	-16840	-159.5	62.42	73.2	-86.3	68.70	-13.500	3.501	-9.999	21.30	-10.814	-24.43	-3.13
			72730	164300	-117800			7850	-16960										-10.816	-24.43	-3.13
2	80.0	-280200	72730	164300	-108700	120900	-22760	7850	-15910	-148.9	49.89	66.8	-82.1	63.85	-12.597	3.196	-9.351	19.81	-10.294	-23.12	-3.21
			71890	162400	-109600			7760	-15000										-10.296	-23.20	-3.25
3	118.25	-260000	71890	162400	-98500	114400	-22820	7760	-14910	-140.0	37.20	61.4	-78.6	59.85	-11.761	2.938	-8.823	18.60	-9.714	-21.94	-3.30
			71300	161100	-99700			7700	-14910										-9.707	-21.93	-3.33
4	142.5	-251,100	71300	161100	-90400	112000	-22010	7600	-14410	-134.4	25.04	56.11	-75.3	56.45	-11.014	2.683	-8.331	17.54	-9.221	-20.68	-3.37
			70410	159100	-88900			7600	-14410										-9.229	-20.85	-3.41
5	180	-242200	70410	159100	-83100	107800	-21110	7600	-13520	-124.2	22.88	50.8	-72.4	53.30	-10.297	2.427	-7.850	16.89	-8.744	-19.75	-3.46
			69270	141600	-100600			6720	-14350										-8.160	-18.43	-3.54
5.5	206	-238300	69270	141600	-92300	104000	-20440	6720	-13670	-116.9	20.64	46.1	-70.2	49.62	-9.736	2.236	-7.500	15.42	-7.826	-17.68	-3.60
			67360	124600	-105300			6480	-14280										-7.826	-16.80	-3.64
6	232	-227800	67360	124600	-95200	100200	-19470	6480	-12680	-110.8	19.04	43.1	-67.7	46.25	-9.286	2.062	-7.164	14.54	-7.129	-16.10	-3.68
			64780	101200	-106800			4840	-14930										-5.877	-13.28	-3.72
7	259.5	-222100	64780	101200	-121900	98300	-19040	4840	-14300	-107.0	17.55	40.3	-66.7	45.25	-8.992	1.928	-6.864	14.05	-5.723	-12.93	-3.76
			63780	98800	-124800			4720	-14620										-5.702	-12.88	-3.12
8	284.5	-213700	63780	98800	-114900	95800	-18430	4720	-13710	-99.25	16.20	36.82	-62.43	41.86	-8.224	1.780	-6.444	12.98	-5.384	-12.16	-3.80
			54080	122200	-91500			5840	-12940										-5.215	-13.26	-3.80
10	312	-206200	54080	122200	-84000	90300	-17560	5840	-11900	-93.5	14.71	33.2	-60.3	37.30	-7.732	1.589	-6.133	12.18	-5.601	-12.92	-3.84
			53780	121400	-84800			5800	-11940										-5.610	-12.92	-3.92
11	339.5	-198900	53780	121400	-77600	86900	-17080	5800	-11280	-87.9	13.23	29.9	-58.2	30.86	-7.241	1.429	-5.812	11.40	-5.306	-11.94	-3.97
			48110	108900	-90200			5200	-10880										-4.651	-10.51	-4.03
12	375.75	-189400	48110	108700	-80700	82300	-16210	5200	-10010	-80.95	11.49	25.96	-54.99	33.66	-6.612	1.241	-5.371	10.43	-4.293	-9.70	-4.08
			44780	101200	-88200			4840	-11370										-4.281	-9.67	-4.16

Kriesberg

J. Elliott Hyer

TABLE 41

TABLE 41 B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

CONDITION: AGW = 265000# 72-1000#B. FULL FUEL & OIL. ILAA. HIGH SPEED @ 5000 FT

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_z \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M_z' \times 10^6$	S_c' $S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T_{EA}' \times 10^6$	$\frac{J \tan\phi}{I_z/a_z}$	$\frac{J \tan\phi}{I_z/a_z} M_x$	S_b''
		(23)×(4)	(25)×(2)	(23)+(24)	(26)×(3)	(23)×(4)	(28)×(2)	(27)+(28)	TABLE 39	(29)×(30)	(6)−(31)
0	0	-84.62	-.4965	-84.12	-17628	-16.80	+2.88	-18.62	412.7	-34780	-89120
			+.4972	-84.12	-17677		-2.88	-18.62		-36780	-90280
1	81.025	-84.99	+3.439	-80.96	-16589	-16.03	-3.08	-18.11	423.0	-35780	-79200
			-3.439	-80.96	-16762		-3.08	+18.11		-35780	-81500
2	160.0	-80.85	+6.744	-80.23	-16248	-14.20	-3.26	-17.51	429.1	-34769	-91769
			-6.744	-80.23	-16762		-3.20	+17.45		-34774	-93086
3	243.25	-77.45	+5.798	-76.83	-14880	-13.66	-3.23	-16.89	432.2	-33928	-64436
			-5.798	-76.83	-14881		-3.23	-16.92		-33974	-65786
4	326.5	-74.15	+5.886	-73.57	-14242	-13.07	-3.34	-16.41	451.7	-33498	-56902
			-5.886	-73.57	-14131		-3.34	-16.45		-33498	-58902
5	408.3	-71.30	-6.007	-70.70	-13214	-12.57	-3.41	-15.98	461.7	-32642	-50250
			+6.007	-73.95	-14752	-12.57	-2.91	-15.48		-34890	-62272
6	491.5	-68.13	+3.942	-68.98	-13418	-12.09	-2.38	-14.47	469.7	-32287	-61013
			-3.942	-68.09	-13400	-12.09	-1.46	-13.58		-32287	-72888
7	582.0	-66.67	+2.831	-66.41	-13374	-11.76	-1.45	-13.24	478.1	-31757	-84441
		-67.66	-2.874	-67.89	-14703	-11.93	+1.29	-10.64		-32456	-94142
8	249.0	-65.69	+1.774	-65.88	-14280	-11.58	+1.10	-10.48	483.9	-31877	-90021
			+2.831	-65.88	-14398		+1.35	-10.23		-31888	-92416
9	284.5	-61.48	+1.824	-61.52	-13502	-10.84	+.81	-10.03	495.9	-30508	-84392
		-61.70	-.0660	-61.63	-13398	-10.88	-.37	-11.26		-30562	-60930
10	312.0	-59.38	-.085	-59.29	-11718	-10.47	-.48	-10.95	506.8	-29988	-54011
			-.0850	-59.29	-11708		-.48	-10.95		-29988	-54811
11	339.5	-57.12	-.1064	-57.03	-11109	-10.069	-.581	-10.65	516.0	-29422	-48078
			+.1045	-57.27	-11498		+.876	-9.193		-29551	-60642
12	375.0	-54.15	+.1267	-54.28	-10838	-9.686	+.719	-8.827	530.2	-28779	-51921
			+.1319	-54.28	-11187		+.768	-8.798		-28779	-59421

CALCULATED BY: Breckenridge
CHECKED BY: Prosper

TABLE 41

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH, TEXAS

DOC NO. FZS-36-140
MODEL B-36

TABLE 21 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

CONDITION A6W 2.67 LOAD FACTOR

TABLE 41 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 4 of 4 CONDITION: A.G.W. 265,000# 72-1000# B, FULL FUEL & OIL. 1LAA - HIGH SPEED @ 3000 FT.

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DATE 12-6-48

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST FROM ℄ OF SYM	$M_L \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M_L \times 10^6$	$S_L' = S_L \cos\alpha$	$M_L \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T_{EA}' \times 10^6$	$T_{max} \frac{I_s}{Q_s}$	$T_{max} \frac{I_s}{Q_s} - M_L$	$S_L'' = S_L' - T_{EA}'$
		(20) × (21)	(22) × (21)	(23) − (24)	(19) × (20)	(19) × (21)	(22) × (20)	(27) + (28)	TABLE 30	(29) × (30)	(5) − (31) OR S'' = (6)
13	412.8	-51.12	+.102	-51.22	-10350	-9.012	.581	-8.431	5451	-27920	-50980
			+.102	-51.22	-10676		.581	-8.431		-27920	-57980
14	445.5	-48.30	.071	-48.37	-9858	-8.515	.485	-8.110	5611	-27140	-49560
			.071	-48.37	-10172		.485	-8.110		-27140	-56160
15	485.5	-45.40	.040	-45.44	-9365	-8.005	.237	-7.726	5780	-26264	-47836
			.049	-45.45	-9671		.276	-7.727		-26270	-54230
16	585.5	-42.50	.014	-42.51	-8883	-7.443	.077	-7.414	5960	-25336	-46260
			.029	-42.53	-9415		1.300	-6.193		-25467	-52722
17	549.0	-40.11	.197	-40.31	-8342	-7.071	1.119	-5.954	6143	-24601	-51699
			.197	-40.31	-8734		1.115	-5.956		-24601	-57199
18	576.5	-38.07	.172	-38.24	-8253	-6.715	.477	-6.238	6262	-23920	-46180
			.371	-38.46	-8963		2.183	-4.615		-24049	-60155
19	615.375	-35.19	.322	-35.51	-8134	-6.203	1.828	-4.375	6477	-23000	-52100
			.332	-35.51	-8447		1.828	-4.375		-23000	-63000
20	654.25	-32.25	.292	-32.58	-7848	-5.685	1.542	-4.143	6719	-21850	-58550
			.268	-32.52	-8312		1.520	-4.143		-21850	-66560
21	693.125	-29.12	.209	-29.33	-7533	-5.183	1.194	-3.947	6979	-20448	-58231
			.213	-29.33	-7928		1.210	-3.923		-20448	-66031
22	732	-25.80	.148	-25.95	-7179	-4.548	.841	-3.707	7261	-18842	-54460
			.154	-25.95	-7556		.863	-3.685		-18842	-62858
23	766	-22.97	.098	-23.07	-6716	-4.048	.557	-3.491	7527	-17365	-57035
			.258	-23.23	-7110		1.461	-2.587		-17485	-65316
24	806	-19.64	.188	-19.83	-6391	-3.462	1.065	-2.397	7863	-15592	-58658
			.336	-19.98	-6786		1.907	-1.555		-15700	-66906
25	860	-17.32	.276	-17.60	-6204	-3.054	1.567	-1.487	8176	-14390	-61320
			.276	-17.60	-6234		1.567	-1.487		-14390	-61910

CALCULATED BY Brockley
DRAWN BY
CHECKED BY Griffith

TABLE 41

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

REPORT NO. FZS-38-140
MODEL B-36

TABLE 41 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 5 of 9 CONDITION: AGW-126,700# [illegible] FULL FUEL & OIL, [illegible] HIGH SPEED @ 5000 ft.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
STATION	DIST. FROM ℄	S_{ba}	S_{b_1}	$1.5(\frac{L}{W})S_{b_1}$	$S_b = S'_b$	S_{a_m}	$1.5\frac{L}{W}S_{a_1}$	$\frac{L}{W}S_{a_1}$	S_a	M_{x_a}	M_{x_b}	M_{x_1}	M_{x_2}	M_x	M_{a_m}	M_{a_1}	M_{a_2}	$M_y = M_{y_1}$	T_{BA}	T_{BA_1}
		F_{b_1} 12	TABLE 28	2.25 (4)	(5) + (3)	[illegible]	-140 (7)	.08 × (4)	(8) + (9)	[illegible]	[illegible]	[illegible]	[illegible]	(11) + (12)	[illegible]	[illegible]	[illegible]	.08 × (13)	(14) + (15)	F_{b_1} 12	TABLE 28
28	870	-75450	2422	5250	-70400	30400	-6090	280	-5820	-16.[illegible]	[illegible]	[illegible]	-15.[illegible]	[illegible]	[illegible]	[illegible]	.048	-1.231	1.61	1.36
			2422	4570	-71080			280	-5850											1.31
29	906	-68700	2022	4870	-64130	27000	-5400	220	-5240	-13.20	[illegible]	.74	-13.11	2.488	-1.078	.038	-1.040	1.29	-1.101	[illegible]
			1823	4120	-64200			200	-5260										-1.099	[illegible]
30	942	-61850	1822	4120	[illegible]	24000	-4800	160	-4640	-10.[illegible]	[illegible]	[illegible]	-10.[illegible]	[illegible]	-.881	.034	-.846	1.195	-.9552	[illegible]
			1640	3700	[illegible]			160	-4700										-.9454	[illegible]
31	978	-55200	1640	3700	-51500	21000	-4200	140	-4140	-9.436	[illegible]	.510	-8.960	2.634	-.714	.024	-.690	.9760	[illegible]	[illegible]
			1323	2980	-52310			140	-4180										[illegible]	[illegible]
32	1014	-48600	1323	2980	-45620	18000	-3600	120	-3640	-7.[illegible]	[illegible]	.403	-7.187	[illegible]	-.[illegible]	.019	-.[illegible]	.[illegible]	[illegible]	[illegible]
			1148	2440	-45900			120	-3650										[illegible]	[illegible]
33	1050	-42500	1148	2440	-39610	16000	-3200	100	-3140	-6.[illegible]	[illegible]	.300	-6.[illegible]	2.288	-.449	.015	-.434	.400	[illegible]	[illegible]
			1041	2250	-39900			100	-3160										[illegible]	[illegible]
34	1086	-37300	1041	2250	-35000	14000	-2800	80	-2780	-4.730	[illegible]	[illegible]	[illegible]	[illegible]	.261	.011	-.250	.262	[illegible]	[illegible]
			934	1980	-35220			80	-2790										[illegible]	[illegible]
35	1122	-32400	934	1980	-30420	12000	-2400	60	-2385	-3.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.[illegible]	.009	-.270	.141	[illegible]	[illegible]
			704	1500	-30600			60	-2394										[illegible]	[illegible]
36	1158	-27600	704	1500	-26060	10000	-2000	50	-2000	-2.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-.[illegible]	.007	-.[illegible]	.052	[illegible]	[illegible]
			627	1420	-26250			50	-2002										[illegible]	[illegible]
37	1194	-23050	627	1420	-21630	8400	-1700	40	-1685	-1.[illegible]	[illegible]	.084	-1.336	.746	-.160	.004	-.146	-.010	[illegible]	[illegible]
			414	940	-22310			40	-1695										[illegible]	[illegible]
38	1230	-19000	[illegible]	940	-18060	7100	[illegible]	30	-1365	-1.490	[illegible]	.062	-1.308	[illegible]	-.106	.002	-.103	-.050	[illegible]	[illegible]
			259	810	-18190			30	-1371										[illegible]	[illegible]
39	1266	-15200	259	810	-14390	5700	-1130	20	-1095	[illegible]	[illegible]	.046	-.829	.360	-.024	.002	-.004	-.074	[illegible]	[illegible]
			314	900	-14490			20	-1098										[illegible]	[illegible]
40	1302	-11700	314	740	-10990	4400	-860	14	-824	-.608	[illegible]	.027	-.578	.225	-.044	.001	-.043	-.036	[illegible]	[illegible]
			260	610	-11090			14	-826										[illegible]	[illegible]

Kaiserange

TABLE 41

TABLE 41 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 6 of 8. CONDITION: A.G.W. 265,000# 72-1000#B, FULL FUEL & OIL. (L.A.A.-HIGH SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{7 \tan\phi}{\frac{I_z}{Q_x}} \times 10^{-6}$	$\frac{7 \tan\phi}{\frac{I_z}{Q_y}} M'_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR. 5 × (6)
26	870	-15.30	.227	-15.53	-5732	-2.698	1.240	-1.408	847.3	-13159	-57241
			.231	-15.53	-5761		1.310	-1.388		-13159	-57921
27	906	-12.91	.179	-13.09	-5160	-2.278	1.014	-1.264	886.0	-11600	-52530
			.179	-13.09	-5180		1.014	-1.264		-11600	-52980
28	942	-10.76	.135	-10.90	-4609	-1.8976	.7660	-1.132	928.2	-10100	-47630
			.136	-10.90	-4629		.7670	-1.129		-10100	-48050
29	978	-8.829	.100	-8.929	-4077	-1.5563	.5649	-.9914	974.8	-8697	-42803
			.100	-8.929	-4116		.5860	-.9703		-8701	-43509
30	1014	-7.078	.074	-7.152	-3585	-1.2477	.4210	-.8267	1026	-7334	-38276
			.074	-7.152	-3595		.4230	-.8247		-7335	-38625
31	1050	-5.532	.048	-5.580	-3092	-.9751	.2747	-.7004	1083	-6040	-33570
			.048	-5.580	-3112		.2759	-.6992		-6040	-33860
32	1080	-4.425	.027	-4.452	-2708	-.7800	.1547	-.6253	1136	-5056	-29944
			.031	-4.456	-2733		.1742	-.6058		-5060	-30510
33	1110	-3.453	.012	-3.465	-2349	-.6086	.0660	-.5426	1194	-4137	-26533
			.012	-3.465	-2358		.0660	-.5426		-4137	-26723
34	1140	-2.624	-.002	-2.622	-1983	-.4625	-.0108	-.4733	1259	-3301	-22759
			-.002	-2.622	-1991		-.0098	-.4723		-3301	-22929
35	1170	-1.907	-.011	-1.896	-1637	-.3561	-.0630	-.3991	1330	-2522	-19108
			-.009	-1.898	-1659		-.0483	-.3844		-2524	-19586
36	1198	-1.361	-.014	-1.347	-1344	-.2399	-.0817	-.3216	1405	-1893	-16167
			-.014	-1.347	-1350		-.0808	-.3207		-1893	-16297
37	1225	-.9247	-.0172	-.9070	-1074	-.1630	-.1004	-.2634	1486	-1348	-13042
			-.0175	-.9072	-1079		-.0995	-.2625		-1348	-13142
38	1252	-.5692	-.0189	-.5503	-813	-.1003	-.1073	-.2076	1576	-867	-10123
			-.0189	-.5503	-817		-.1073	-.2076		-867	-10223

CALCULATED BY [illegible]
DRAWN BY
CHECKED BY [illegible]

TABLE 41

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH, TEXAS

DOC NO. FZS-36-160
MODEL B-36

TABLE [illegible] B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 7 of 8 CONDITION: AGW = 265000# 72-1000 B, FULL FUEL & OIL, 1L AA - HIGH SPEED @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST FROM ℄ OF SHIP	S_{b_a}	S_{b_i}	$1.5(\frac{N_z}{W})S_{b_i}$ $(\frac{N_z}{W})=1.506$	$S_b = S'_b$	S_{CL_a}	$1.25\frac{X_m}{W}S_{CL_a}$ $\frac{X_m}{W}=-.131$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=0.072$	S_c	$M_{x_a} \times 10^{-6}$	$M_{x_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})M_{x_i} \times 10^{-6}$ $(\frac{N_z}{W})=1.506$	$M_x \times 10^{-6}$	$M_{CL_a} \times 10^{-6}$	$1.5\frac{X_m}{W}M_{x_i} \times 10^{-6}$ $\frac{X_m}{W}=-.131$	$1.5\frac{X_m}{W}M_{x_i} \times 10^{-6}$ $\frac{X_m}{W}=.072$	$M_y = M_y' \times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EX_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})T_{EX_i} \times 10^{-6}$ $(\frac{N_z}{W})=1.506$	$T_{EA_i} \times 10^{-6}$
		Fig. 12	TABLE 28	2.259×(4)	(3) + (5)	[redacted] TABLE 29	.1965×(7)	.108×(4)	(8) + (9)	Fig. 12	TABLE 28	2.259×(12)	(11) + (13)	[redacted] TABLE 29	.1965×(15)	.108×(12)	(16) + (17)	Fig. 12	TABLE 28	2.259×(20)	(19) + (21)
39	1298	-8750	268	610	-8140	3280	-640	30	-610	-.345	.00487	.011	-.334	.125	-.025	.0005	-.0246	-.085	-.008681	-.020	-.105
			98	220	-8530			10	-630										-.001835	-.004	-.089
40	1301	-6850	98	220	-6230	2400	-470	10	-460	-.195	.002609	.006	-.189	.070	-.014	.0003	-.0137	-.077	-.001370	-.003	-.080
			65	150	-6300			7	-463										-.001199	-.003	-.080
41	1324	-4200	65	150	-4050	1600	-310	7	-303	-.096	.001109	.002	-.092	.035	-.007	.0001	-.0069	-.0615	-.000891	-.0020	-.0635
			30	110	-4090			5	-305										-.000777	-.0017	-.0635
TIP	1344.4	-2400	50	110	-2290	900	-180	5	-175	-.020	0	0	-.020	.011	-.002	0	-.0020	-.040	-.000543	-.001	-.041
	1344.4	0	0	0			0	0	0	0								0	0	0	0

Kressberg
T. Ellingsgaard

TABLE 41

TABLE 41 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 8 of 8

CONDITION: A.G.W.-265000#, 72-1000#B, FULL FUEL & OIL. I.L.A.A.- HIGH SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} \times 10$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} M'_x$	S''_b (6) − (31)
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR .5 × (6)
39	1278	-.3289	-.0182	-.3107	-601	-.0580	-.1034	-.1614	1674	-520	-7620
			-.0155	-.3134	-620		-.0876	-.1456		-525	-8005
40	1301	-.1861	-.0139	-.1722	-453	-.0328	-.0788	-.1116	1772	-305	-5925
			-.0139	-.1722	-456		-.0788	-.1116		-305	-5995
41	1324	-.0906	-.0110	-.0796	-298	-.0160	-.0625	-.0785	1881	-150	-3900
			-.0110	-.0796	-300		-.0622	-.0782		-150	-3940
TIP G.G.	1344.4	-.0197	-.0071	-.0126	-172	-.0035	-.0404	-.0439	—	—	-2290
TIP	1380.84	-	0	0	0		0	0	—		0

CALCULATED BY	[illegible]	TABLE 41	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY	[illegible]		

TABLE 42 B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 1 of 8 CONDITION: AGW-265,000#, 72-1000#B, FULL FUEL & OIL. ILAA-LIMIT DIVE SPEED @5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_i}	$1.5(\frac{-N_z}{W})S_{b_i}$ $(\frac{-N_z}{W})=1.364$	$S_b = S_b'$	$S_{CL_{a_i}}$	$1.5\frac{X}{W}S_{CL_{a_i}}$ $\frac{X}{W}=-.082$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=.026$	S_c	$M_{x_a} \times 10^{-6}$	$M_{x_i} \times 10^{-6}$	$1.5(\frac{-N_z}{W})M_{x_i} \times 10^{-6}$ $(\frac{-N_z}{W})=1.364$	$M_x \times 10^{-6}$	$M_{CL_{a_i}} \times 10^{-6}$	$1.5\frac{X}{W}M_{CL_{a_i}} \times 10^{-6}$ $\frac{X}{W}=-.082$	$1.5\frac{X_m}{W}M_{x_i} \times 10^{-6}$ $\frac{X_m}{W}=.026$	$(M_y = M_y')$ $\times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{-N_z}{W})T_{EA_i} \times 10^{-6}$ $(\frac{-N_z}{W})=1.364$	$T_{EA} \times 10^{-6}$
		Fig. 13	TABLE 28	2.046 × (4)	(3) + (5)	[redacted] TAB. 29	-.123 × (7)	.039 × (4)	(8) + (9)	Fig. 13	TABLE 28	2.046 × (12)	(11) + (13)	[redacted] TAB. 29	-.123 × (15)	.039 × (12)	(16) + (17)	Fig. 13	TABLE 28	2.046 × (20)	(19) + (21)
0	0	-262000	74240	151895	-110105	131900	-16224	2895	-13329	-154.99	35.45	72.53	-82.46	73.894	-9.089	1.382	-7.707	17.01	-11.435	-23.396	-6.386
			73750	150893	-111107			2876	-13348										-11.437	-23.400	-6.390
1	41.025	-251880	73750	150893	-100987	126250	-15529	2876	-12653	-144.50	32.42	66.33	-78.17	68.70	-8.450	1.264	-7.186	15.83	-10.814	-22.125	-6.295
			72730	148806	-103074			2836	-12693										-10.816	-22.130	-6.300
2	80.0	-242000	72730	148806	-93194	120900	-14871	2836	-12035	-135.05	29.59	60.54	-74.51	63.85	-7.854	1.154	-6.700	14.72	-10.234	-20.939	-6.219
			71890	147087	-94313			2804	-12067										-10.206	-20.881	-6.161
3	113.25	-233760	71890	147087	-86273	116400	-14317	2804	-11513	-127.20	27.20	55.65	-71.55	59.85	-7.362	1.061	-6.301	13.80	-9.714	-19.875	-6.075
			71300	145880	-87220			2781	-11536										-9.709	-19.865	-6.065
4	146.5	-225520	71300	145880	-79640	112000	-13776	2781	-10995	-119.45	24.84	50.82	-68.63	56.05	-6.894	.969	-5.925	12.92	-9.221	-18.866	-5.946
			70410	144059	-81461			2746	-11030										-9.229	-18.883	-5.963
5	180	-217240	70410	144059	-73131	107500	-13223	2746	-10477	-111.75	22.47	45.97	-65.78	52.30	-6.433	.876	-5.557	12.05	-8.744	-17.890	-5.840
			62670	128223	-82017			2444	-10779		22.32	45.67	-66.08			.870	-5.563		-8.160	-16.695	-4.645
6	206	-210960	62670	128223	-82737	104000	-12792	2444	-10348	-106.25	20.69	42.33	-63.92	49.55	-6.095	.807	-5.288	11.42	-7.825	-16.010	-4.590
			57350	117338	-83222			2237	-10555		20.58	42.11	-64.14			.803	-5.292		-7.436	-15.214	-3.794
7	232	-204800	57350	117338	-87462	100600	-12374	2237	-10137	-100.85	19.09	39.06	-61.79	46.95	-5.775	.745	-5.030	10.79	-7.129	-14.586	-3.796
			44780	91620	-113150			1746	-10628		18.62	38.10	-62.75			.726	-5.049		-5.879	-12.028	-1.238
8	249	-200720	44780	91620	-109100	98400	-12103	1746	-10357	-97.45	17.85	36.52	-60.93	45.25	-5.566	.696	-4.870	10.40	-5.723	-11.709	-1.309
			43720	89451	-111223			1705	-10398		17.85	36.52	-60.93			.696	-4.870		-5.702	-11.666	-1.266
9	284.5	-192080	43720	89451	-102623	93800	-11537	1705	-9832	-90.45	16.30	33.35	-57.10	41.85	-5.148	.636	-4.512	9.585	-5.384	-11.016	-1.431
			54082	110648	-81452			2109	-9423		16.20	33.15	-57.30			.632	-4.516		-5.915	-12.102	-2.517
10	312	-185720	54080	110648	-75072	90300	-11107	2109	-8998	-85.25	14.71	30.10	-55.15	39.30	-4.834	.574	-4.260	8.985	-5.609	-11.476	-2.491
			53720	109911	-75809			2095	-9012										-5.610	-11.478	-2.493
11	339.5	-179360	53720	109911	-69449	86900	-10683	2095	-8594	-80.35	13.23	27.07	-53.28	36.85	-4.533	.516	-4.017	8.400	-5.306	-10.856	-2.456
			48110	98433	-80927			1876	-8813										-4.651	-9.516	-1.116
12	375.75	-171160	48110	98433	-72727	82500	-10143	1876	-8272	-74.00	11.49	23.51	-50.49	33.65	-4.139	.448	-3.691	7.665	-4.293	-8.783	-1.118
			44790	91620	-73540			1746	-8402										-4.281	-8.759	-1.094

TABLE 42 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 2 of 8. CONDITION: AGW-265,000# 72-1000#B, FULL FUEL & OIL, ILAA-LIMIT DIVE SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} \times 10$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} M'_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR .5 × (6)
0	0	-81.207	-1.109	-80.098	-13.126	-14.315	-6.289	-20.604	412.7	-33056	-77049
			-1.109	-80.098	-13145		-6.293	-20.608		-33056	-78051
1	41.025	-76.982	-1.093	-75.889	-12461	-13.570	-6.199	-19.769	423.0	-32101	-68886
			-1.094	-75.888	-12500		-6.204	-19.774		-32101	-70973
2	80.0	-73.377	-1.080	-72.297	-11852	-12.935	-6.124	-19.057	433.1	-31312	-61882
			-1.070	-72.307	-11884		-6.067	-19.062		-31316	-63597
3	113.25	-70.462	-1.223	-69.239	-11338	-12.421	-5.983	-18.404	442.2	-30617	-56056
			-1.053	-69.409	-11361		-5.973	-18.394		-30693	-57187
4	146.5	-67.58	-1.032	-66.56	-10828	-11.914	-5.856	-17.700	451.7	-29679	-49961
			-1.035	-66.55	-10862		-5.873	-17.787		-29677	-51784
5	180	-64.780	-1.014	-63.766	-10318	-11.419	-5.751	-17.170	461.7	-29441	-43740
		-65.076	-.806	-64.270	-10615	-11.471	-4.574	-16.045		-29673	-59344
6	206	-62.948	-.797	-62.151	-10191	-11.097	-4.520	-15.617	469.7	-29192	-53545
		-63.165	-.659	-62.506	-10395	-11.135	-3.736	-14.871		-29359	-64263
7	232	-60.851	-.659	-60.192	-9983	-10.727	-3.738	-14.465	478.1	-28778	-58684
		-61.796	-.215	-61.581	-10466	-10.893	-1.219	-12.112		-29442	-83738
8	249	-60.004	-.227	-59.777	-10200	-10.577	-1.289	-11.866	483.9	-28926	-80174
		-60.004	-.220	-59.784	-10240	-10.577	-1.247	-11.824		-28929	-82340
9	284.5	-56.232	-.248	-55.984	-9683	-9.913	-1.409	-11.322	495.9	-27762	-74867
		-56.429	-.437	-55.992	-9285	-9.947	-2.479	-12.426		-27766	-53666
10	312	-54.312	-.432	-53.880	-8861	-9.574	-2.453	-12.027	505.8	-27253	-47819
			-.433	-53.879	-8875		-2.455	-12.029		-27252	-48557
11	339.5	-52.470	-.426	-52.044	-8463	-9.249	-2.419	-11.668	516.0	-26855	-42594
			-.194	-52.276	-8679		-1.099	-10.348		-26974	-53953
12	375.75	-49.723	-.194	-49.529	-8146	-8.765	-1.101	-9.866	530.2	-26260	-46467
			-.190	-49.533	-8274		-1.077	-9.842		-26262	-53278

CALCULATED BY	Kirschberg	TABLE 42	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY	Propper		

TABLE 42 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 2 of 8. CONDITION: A.G.W. - 265,000#, 72-1000#B, FULL FUEL & OIL. I.L.A.A. - LIMIT DIVE SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T \tan\phi}{I_x/Q_x} \times 10^6$	$\frac{T \tan\phi}{I_x/Q_x} M'_x$	S''_b (6) - (31)
		.9848 × (14)	.1736 × (22)	(23) - (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	OR. 5 × (6)
0	0	-81.207	-1.109	-80.098	-13126	-14.315	-6.289	-20.604	412.7	-33056	-77049
			-1.109	-80.098	-13145		-6.293	-20.608		-33056	-78051
1	41.025	-76.982	-1.093	-75.889	-12461	-13.570	-6.199	-19.769	423.0	-32101	-68986
			-1.094	-75.888	-12500		-6.204	-19.774		-32101	-70973
2	80.0	-73.377	-1.080	-72.297	-11852	-12.935	-6.124	-19.051	433.1	-31312	-61882
			-1.070	-72.307	-11884		-6.067	-19.058		-31316	-63597
3	113.25	-70.462	-1.223	-69.239	-11338	-12.421	-5.983	-18.404	442.2	-30617	-56056
			-1.053	-69.409	-11361		-5.973	-18.394		-30693	-57187
4	146.5	-67.58	-1.032	-66.56	-10828	-11.914	-5.856	-17.700	451.7	-29679	-44961
			-1.035	-66.55	-10862		-5.873	-17.787		-29677	-51784
5	180	-64.780	-1.014	-63.766	-10318	-11.419	-5.751	-17.170	461.7	-29441	-43740
		-65.076	-.806	-64.270	-10615	-11.471	-4.574	-16.045		-29673	-59344
6	206	-62.948	-.797	-62.151	-10191	-11.097	-4.520	-15.617	469.7	-29192	-53545
		-63.165	-.659	-62.506	-10395	-11.135	-3.736	-14.871		-29359	-64263
7	232	-60.851	-.659	-60.192	-9983	-10.727	-3.738	-14.465	478.1	-28778	-58684
		-61.796	-.215	-61.581	-10466	-10.893	-1.219	-12.112		-29442	-83738
8	249	-60.004	-.227	-59.777	-10200	-10.577	-1.289	-11.866	483.9	-28926	-80174
		-60.004	-.220	-59.784	-10240	-10.577	-1.247	-11.824		-28929	-82340
9	284.5	-56.232	-.248	-55.984	-9683	-9.913	-1.409	-11.322	495.9	-27762	-74867
		-56.429	-.437	-55.992	-9285	-9.947	-2.479	-12.426		-27766	-53666
10	312	-54.312	-.432	-53.880	-8861	-9.574	-2.453	-12.027	505.8	-27253	-47819
			-.433	-53.879	-8875		-2.455	-12.029		-27252	-48567
11	339.5	-52.470	-.426	-52.044	-8463	-9.249	-2.419	-11.668	516.0	-26853	-42594
			-.194	-52.276	-8679		-1.099	-10.349		-26974	-53953
12	375.75	-49.723	-.194	-49.529	-8146	-8.765	-1.101	-9.866	530.2	-26260	-46467
			-.196	-49.533	-8274		-1.077	-9.842		-26262	-53278

CALCULATED BY: Kuesberg
DRAWN BY:
CHECKED BY: Propper

TABLE 42

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH TEXAS

DOC NO. FZS-36-140
MODEL B-36

TABLE 42 B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 3 of 8. CONDITION: A.G.W. - 265,000# 72-1000 B, FULL FUEL & OIL. ILAA-LIMIT DIVE SPEED @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{ba}	S_{b1}	$1.5(\frac{N_z}{W})S_{bi}$ $(\frac{N_z}{W})=1.364$	$S_b = S_b'$	$S_{Cl_{a_1}}$	$1.5\frac{X}{W}S_{Cl_{a_1}}$ $\frac{X}{W}=.082$	$1.5\frac{X_m}{W}S_{bi}$ $\frac{X_m}{W}=.026$	S_c	$M_{X_a} \times 10^{-6}$	$M_{X_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})M_{X_i} \times 10^{-6}$ $(\frac{N_z}{W})=1.364$	$M_X \times 10^{-6}$	$M_{Cl_{a_1}} \times 10^{-6}$	$1.5\frac{X}{W}M_{Cl_{a_1}} \times 10^{-6}$ $\frac{X}{W}=.082$	$1.5\frac{X_m}{W}M_{X_i} \times 10^{-6}$ $\frac{X_m}{W}=.026$	$(M_y = M_L) \times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})T_{EA_i} \times 10^{-6}$ $(\frac{N_z}{W})=1.364$	$T_{EA} \times 10^{-6}$
		Fig. 13	TABLE 28	2.046 x ④	③ + ⑤	TAB 29	.123 x ⑦	.039 x ④	⑧ + ⑨	Fig. 13	TABLE 28	2.046 x ⑪	⑪ + ⑬	TAB 29	.123 x ⑮	.039 x ⑫	⑭ + ⑰	Fig. 13	TABLE 28	2.046 x ⑳	⑲ + ㉒
13	411	-162880	44780	91620	-71260	78100	-9606	1746	-7860	-67.85	9.867	20.19	-47.66	30.85	-3.795	.385	-3.410	6.96	-3.947	-8.076	-1.116
			41720	85359	-77521			1627	-7979										-3.948	-8.078	-1.118
14	448.5	-154760	41720	85359	-69401	73900	-9090	1627	-7463	-62.30	8.344	17.07	-45.23	28.15	-3.462	.325	-3.137	6.305	-3.636	-7.439	-1.134
			38790	79364	-75396			1513	-7577										-3.636	-7.439	-1.134
15	485	-146760	38790	79364	-67396	69700	-8573	1513	-7060	-56.80	6.928	14.17	-42.63	25.50	-3.137	.270	-2.867	5.695	-3.345	-6.844	-1.149
			35930	73513	-73247			1401	-7172										-3.324	-6.801	-1.106
16	521.5	-138720	35930	73513	-65207	65650	-8075	1401	-6674	-51.75	5.617	11.49	-40.26	23.10	-2.841	.219	-2.622	5.125	-3.054	-6.248	-1.123
			30910	63242	-75478			1205	-6870										-2.504	-5.123	+.002
17	541	-132840	30910	63242	-69598	62500	-7688	1205	+6483	-48.20	4.767	9.753	-38.45	21.30	-2.620	.186	-2.434	4.725	-2.329	-4.765	-.040
			30630	62669	-70171			1195	-6493										-2.330	-4.767	-.042
18	576.5	-127120	30630	62669	-64451	59400	-7906	1195	-6111	-44.75	3.925	8.031	-36.72	19.65	-2.417	.153	-2.264	4.320	-2.157	-4.413	-.093
			24390	49902	-77218			951	-6355										-1.651	-3.378	+.942
19	615.375	-119040	24390	49902	-69138	55400	-6814	951	-5863	-39.75	2.976	6.089	-33.66	17.35	-2.134	.1161	-2.018	3.765	-1.456	-2.979	+.786
			19570	40040	-79000			763	-6051										-1.456	-2.979	+.786
20	654.25	-111200	19570	40040	-71160	51300	-6310	763	-5547	-34.95	2.215	4.532	-30.42	15.35	-1.888	.0864	-1.802	3.225	-1.299	-2.658	+.567
			15150	30997	-80203			591	-5719										-1.309	-2.678	+.547
21	693.125	-103560	15150	30997	-72563	47400	-5830	591	-5239	-30.55	1.627	3.329	-27.22	13.40	-1.648	.0635	-1.584	2.725	-1.187	-2.429	+.296
			11680	23897	-79663			456	-5374										-1.176	-2.406	+.319
22	732	-95840	11680	23897	-71943	43500	-5351	456	-4895	-26.62	1.173	2.400	-24.22	11.00	-1.427	.0457	-1.381	2.288	-1.083	-2.216	+.072
			10010	20480	-75360			390	-4961										-1.073	-2.195	+.093
23	766	-89040	10010	20480	-68560	40200	-4945	390	-4555	-23.53	.8324	1.703	-21.88	10.20	-1.255	.0325	-1.222	1.950	-1.002	-2.050	-.100
			6286	12861	-76179			245	-4700										-.5457	-1.219	+.731
24	806	-81440	6286	12861	-68579	36500	-4490	245	-4245	-20.35	.5809	1.189	-19.16	8.65	-1.064	.0227	-1.041	1.590	-.5441	-1.113	+.477
			2585	5289	-76151			101	-4389										-.1656	-.339	+1.251
25	840	-75160	2585	5289	-69871	33500	-4121	101	-4020	-17.65	.4930	1.009	-16.64	7.45	-.9164	.0192	-.8972	1.300	-.1477	-.302	+.998
			2322	4751	-70409			91	-4030										-.1478	-.302	+.998

Kreeberg
Dropper

TABLE 42 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 4 of 8. CONDITION: A.G.W.-265000,# 72-1000#B, FULL FUEL & OIL. ILAA.-LIMIT DIVE SPEED @5000 FT.

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1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} \times 10$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} M'_x$	S''_b (6) - (31)
		.9848 × (14)	.1736 × (22)	(23) - (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR. 5 = (6)
13	412	-46.936	-.194	-46.742	-7741	-8.274	-1.099	-9.373	545.1	-25479	-45781
			-.194	-46.742	-7858		-1.101	-9.375		-25479	-52042
14	448.5	-44.543	-.197	-44.346	-7350	-7.852	-1.117	-8.969	561.1	-24883	-44518
			-.197	-44.346	-7462		-1.117	-8.969		-24883	-50513
15	485	-41.982	-.199	-41.783	-6958	-7.401	-1.132	-8.533	578.0	-24151	-43245
			-.192	-41.790	-7063		-1.089	-8.490		-24155	-49092
16	521.5	-39.648	-.195	-39.453	-6573	-6.989	-1.106	-8.095	596.0	-23514	-41693
			+.0003	-39.648	-6766		+.002	-6.987		-23630	-52118
17	549	-37.866	-.007	-37.859	-6384	-6.675	-.039	-6.714	610.3	-23105	-46493
			-.007	-37.859	-6394		-.041	-6.716		-23105	-47066
18	576.5	-36.162	-.016	-36.146	-6018	-6.375	-.092	-6.467	625.2	-22598	-41853
			+.164	-36.326	-6258		+.928	-5.447		-22711	-54507
19	615.375	-33.145	+.136	-33.284	-5774	-5.843	+.774	-5.069	647.7	-21558	-47580
			+.136	-33.284	-5959		+.774	-5.069		-21558	-57442
20	654.25	-29.956	+.098	-30.056	-5463	-5.281	+.558	-4.723	671.9	-20195	-50965
			+.095	-30.053	-5632		+.539	-4.742		-20193	-60010
21	693.125	-26.806	+.051	-26.857	-5159	-4.725	+.292	-4.433	697.9	-18744	-53819
			+.055	-26.861	-5292		+.314	-4.411		-18746	-60917
22	732	-23.852	+.012	-23.864	-4821	-4.205	+.071	-4.134	726.1	-17328	-54615
			+.016	-23.868	-4866		+.092	-4.113		-17331	-58029
23	766	-21.547	-.017	-21.530	-4486	-3.798	-.095	-3.893	752.7	-16206	-52354
			+.127	-21.674	-4629		+.720	-3.078		-16314	-59865
24	806	-18.869	+.083	-18.952	-4180	-3.326	+.470	-2.856	786.3	-14902	-53677
			+.217	-19.086	-4322		+1.232	-2.094		-15007	-61144
25	840	-16.387	+.173	-16.560	-3959	-2.889	.983	-1.906	817.3	-13524	-56337
			+.173	-16.560	-3969		.983	-1.906		-13524	-56875

CALCULATED BY	K. Kiewage	TABLE 42	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY	[illegible]		

TABLE 42 B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 5 of 8. CONDITION: A.G.W. 265,000#, 72-1000#B, FULL FUEL & OIL. (LAA LIMIT DIVE SPEED @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_i}	$1.5(\frac{M_y}{W})S_{b_i}$ $(\frac{M_y}{W})=1.364$	$S_b = S_b'$	$S_{c_{L_a}}$	$1.5\frac{L}{W}S_{c_{L_a}}$ $\frac{X}{W}=-0.082$ $\frac{X_m}{W}=0.026$	$1.5\frac{X_m}{W}S_{b_i}$	S_c	$M_{x_a} \times 10^{-6}$	$M_{x_i} \times 10^{-6}$	$1.5(\frac{M_y}{W})M_{x_i} \times 10^{-6}$ $(\frac{M_y}{W})=1.364$	$M_x \times 10^{-6}$	$M_{c_{L_a}} \times 10^{-6}$	$1.5\frac{L}{W}M_{c_{L_a}} \times 10^{-6}$ $\frac{X}{W}=-.082$	$1.5\frac{X_m}{W}M_{x_i} \times 10^{-6}$ $\frac{X_m}{W}=.026$	$(M_y=M_y')T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{M_y}{W})T_{EA_i} \times 10^{-6}$ $(\frac{M_y}{W})=1.364$	$T_{EA} \times 10^{-6}$
			Fig. 13	TABLE 28 2.046 ④	③+②	TAB 27 .123 × ⑦	.039 × ④	⑧+⑨	Fig. 13		TABLE 28 2.046 × ⑫	⑪+⑬	TAB 29 -.123 × ⑭	.039 × ⑫	⑯+⑰	Fig. 13	TABLE 28 2.046 × ⑳	⑲+㉑
26	870	-69760	2322	4751	-65009	30900	-3801	91	-3710	-15.45	.4234	.8663	-14.58	6.50	-.7995	.0165	-.7830	1.068	-.1335	-.273	+.795
			2022	4137	-65623			79	-3722										-.1251	-.256	+.812
27	906	-63600	2022	4137	-59463	27800	-3419	79	-3340	-13.00	.3506	.7173	-12.28	5.485	-.6747	.0137	-.6610	.820	-.1101	-.225	+.595
			1823	3730	-59870			71	-3348										-.1090	-.223	+.597
28	942	-57255	1823	3730	-53525	24950	-3057	71	-2986	-10.79	.2950	.5831	-10.21	4.455	-.5517	.0111	-.5406	.6196	-.09552	-.1954	+.4242
			1640	3355	-53900			64	-2993										-.09454	-.1934	+.4262
29	978	-51120	1640	3355	-47765	22000	-2706	64	-2642	-8.76	.2259	.4622	-8.298	3.635	-.4471	.0088	-.4383	.4328	-.08240	-.1686	+.2642
			1323	2707	-48413			52	-2654										-.07292	-.1492	+.2836
30	1014	-45270	1323	2707	-42563	19250	-2368	52	-2316	-6.99	.1783	.3648	-6.625	2.910	-.3579	.0070	-.3509	.2608	-.06313	-.1292	+.1316
			1168	2390	-42880			46	-2322										-.06235	-.1276	+.1332
31	1050	-39600	1168	2390	-37210	16650	-2048	46	-2002	-5.45	.1362	.2787	-5.171	2.295	-.2811	.0053	-.2758	.1150	-.05370	-.1099	+.0051
			1041	2130	-37470			41	-2007										-.05307	-.1086	+.0064
32	1080	-35010	1041	2130	-32880	14560	-1791	41	-1750	-4.345	.1050	.2148	-4.130	1.835	-.2257	.0041	-.2216	.0208	-.04665	-.0954	-.0746
			786	1608	-33402			31	-1760										-.03781	-.0774	-.0566
33	1110	-30600	786	1608	-28992	12560	-1545	31	-1514	-3.395	.08144	.1666	-3.228	1.420	-.1747	.0032	-.1715	-.0466	-.03296	-.0674	-.1140
			702	1436	-29164			27	-1518										-.03254	-.0666	-.1132
34	1140	-26190	702	1436	-24754	10650	-1310	27	-1283	-2.575	.06039	.1236	-2.451	1.065	-.1310	.0024	-.1286	-.09248	-.02822	-.05774	-.1502
			627	1283	-24907			24	-1286										-.02776	-.05680	-.1493
35	1170	-21825	627	1283	-20542	8800	-1082	24	-1058	-1.860	.04159	.08509	-1.775	.765	-.09410	.00162	-.09248	-.1224	-.02389	-.04888	-.1713
			414	847	-20978			16	-1066										-.01706	-.03490	-.1573
36	1198	-17805	414	847	-16958	7190	-884	16	-868	-1.310	.03000	.06138	-1.249	.540	-.06642	.00117	-.06525	-.1374	-.01467	-.03001	-.1674
			359	735	-17070			14	-870										-.01438	-.02942	-.1668
37	1225	-14250	359	735	-13515	5750	-707	14	-693	-.885	.02031	.04155	-.8434	.360	-.04428	.00079	-.04349	-.1428	-.01239	-.02535	-.1682
			314	642	-13608			12	-695										-.01211	-.02478	-.1676
38	1252	-11085	314	642	-10443	4400	-541	12	-529	-.545	.01188	.02425	-.5207	.225	-.02768	.00046	-.02722	-.1378	-.01037	-.02122	-.1690
			268	548	-10537			10	-531										-.01012	-.02071	-.1585

Kirchberg
Pepper

TABLE 42

DOC NO. FZS-36-140
B-36

TABLE 42. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 6 of 8. CONDITION: A.G.W.-265,000#, 72-1000#B; FULL FUEL & OIL. ILAA-LIMIT DIVE SPEED @ 5000 FT.

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1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_z \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T \tan\phi}{I_x/Q_x} \times 10$	$\frac{T \tan\phi}{I_x/Q_x} M'_x$	S''_b (6) - (31)
		.9848 × (14)	.1736 × (22)	(23) - (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR .5 × (6)
26	870	-14.358	+.138	-14.496	-3654	-2.531	+.783	-1.748	847.3	-12282	-52727
			+.141	-14.499	-3665		+.800	-1.731		-12285	-53338
27	906	-12.093	+.103	-12.196	-3289	-2.132	+.586	-1.546	886.0	-10806	-48657
			+.104	-12.197	-3297		+.588	-1.544		-10807	-49063
28	942	-10.055	+.074	-10.129	-2941	-1.7725	+.4178	-1.3547	928.2	-9402	-44123
			+.074	-10.129	-2948		+.4199	-1.3528		-9402	-44498
29	978	-8.172	+.046	-8.218	-2602	-1.4405	+.2602	-1.1803	974.8	-8011	-39754
			+.049	-8.221	-2614		+.2793	-1.1612		-8014	-40399
30	1014	-6.524	+.023	-6.547	-2281	-1.1501	+.1296	-1.0205	1026	-6717	-35846
			+.023	-6.547	-2287		+.1312	-1.0189		-6717	-36163
31	1050	-5.092	+.001	-5.093	-1972	-.8977	+.0050	-.8927	1083	-5516	-31694
			+.001	-5.093	-1976		+.0063	-.8914		-5516	-31954
32	1080	-4.067	-.013	-4.054	-1723	-.7170	-.0735	-.7905	1136	-4605	-28275
			-.010	-4.057	-1733		-.0557	-.7727		-4609	-28793
33	1110	-3.179	-.020	-3.159	-1491	-.5604	-.1123	-.6727	1194	-3772	-25220
			-.020	-3.159	-1495		-.1115	-.6719		-3772	-25392
34	1140	-2.414	-.026	-2.388	-1263	-.4255	-.1479	-.5734	1259	-3006	-21748
			-.026	-2.388	-1266		-.1470	-.5725		-3006	-21901
35	1170	-1.748	-.030	-1.718	-1042	-.3081	-.1687	-.4768	1330	-2285	-18257
			-.027	-1.721	-1050		-.1549	-.4630		-2289	-18689
36	1195	-1.230	-.029	-1.201	-855	-.2168	-.1649	-.3817	1405	-1687	-15271
			-.029	-1.201	-857		-.1643	-.3811		-1687	-15383
37	1225	-.8306	-.0292	-.8014	-682	-.1464	-.1656	-.3120	1486	-1191	-12324
			-.0291	-.8015	-684		-.1650	-.3114		-1191	-12329
38	1252	-.5128	-.0276	-.4852	-521	-.0904	-.1566	-.2470	1576	-765	-9678
			-.0275	-.4853	-523		-.1561	-.2465		-765	-9772

CALCULATED BY	[illegible]	TABLE 42.	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY	[illegible]		

TABLE 42. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 7 of 8. CONDITION: AGW-265,000#, 72-1000#B, FULL FUEL & OIL, 1L AA-LIMIT DIVE SPEED @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP.	S_{b_a}	S_{b_i}	$1.5(\frac{-N_z}{W})S_{b_i}$ $(\frac{-N_z}{W})=1.364$	$S_b = S_b'$	$S_{C_{L_{a_i}}}$	$1.5\frac{X}{W}S_{C_{L_{a_i}}}$ $\frac{X}{W}=-.082$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=.026$	S_c	$M_{x_a} \times 10^{-6}$	$M_{x_i} \times 10^{-6}$	$1.5(\frac{-N_z}{W})M_{x_i} \times 10^{-6}$ $(\frac{-N_z}{W})=1.364$	$M_x \times 10^{-6}$	$M_{C_{L_{a_i}}} \times 10^{-6}$	$1.5\frac{X}{W}M_{C_{L_{a_i}}} \times 10^{-6}$ $\frac{X}{W}=-.082$	$1.5\frac{X_m}{W}M_{x_i} \times 10^{-6}$ $\frac{X_m}{W}=.026$	$(M_y = M_y')_i \times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{-N_z}{W})T_{EA_i} \times 10^{-6}$ $(\frac{-N_z}{W})=1.364$	$T_{EA} \times 10^{-6}$
		Fig. 13	TABLE 28	2.046 × (4)	(3) + (5)	[redacted] TAB 29	-.123 × (7)	.039 × (4)	(8) + (9)	Fig. 13	TABLE 28	2.046 × (12)	(11) + (13)	[redacted] TAB 29	-.123 × (15)	.039 × (12)	(16) + (17)	Fig. 13	TABLE 28	2.046 × (20)	(19) + (20)
39	1278	-8415	268	548	-7867	3280	-403	10	-393	-.320	.00487	.00996	-.3100	.125	-.01538	.00019	-.01519	-.1246	-.00868	-.01776	-.1424
			98	201	-8214			4	-399										-.00184	-.00376	-.1284
40	1301	-6300	98	201	-6099	2400	-295	4	-291	-.195	.00261	.00534	-.1897	.070	-.00861	.00010	-.00851	-.1062	-.00137	-.0028	-.1890
			65	133	-6167			3	-292										-.00120	-.0025	-.1087
41	1324	-4410	65	133	-4277	1600	-197	3	-194	-.100	.0011	.00227	-.0977	.035	-.00431	.00004	-.00427	-.0808	-.00089	-.0018	-.0826
			50	102	-4308			2	-195										-.00077	-.0016	-.0824
TIP C.G.	1346.4	-2640	50	102	-2538	900	-111	2	-109	-.050	0	0	0	.011	-.00135	0	-.00135	-.0516	-.00054	-.0011	-.0527
TIP	1380.841	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

CALCULATED BY	Kriesberg	TABLE 42.	DOC NO. FZS-36-140
DRAWN BY			MODEL B-36
CHECKED BY	Duffer	CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	
APPROVED BY			

TABLE 42 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 8 of 8. CONDITION: A.G.W.-265,000# 72-1000#B, FULL FUEL & OIL, I.L.A.A.-LIMIT DIVE SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} \times 10$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} M'_x$	S''_b (6) - (31)
		.9848 × (14)	.1736 × (22)	(23) - (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR. 5 = (6)
39	1278	-.3053	-.0247	-.2806	-387	-.0538	-.1402	-.1940	1674	-470	-7397
			-.0223	-.2830	-393		-.1264	-.1802		-474	-7740
40	1301	-.1868	-.0189	-.1679	-287	-.0329	-.1073	-.1402	1772	-298	-5801
			-.0189	-.1679	-288		-.1070	-.1399		-298	-5869
41	1324	-.0962	-.0143	-.0819	-191	-.0170	-.0813	-.0983	1881	-154	-4123
			-.0143	-.0819	-192		-.0841	-.0981		-154	-4154
TIP C.G.	1346.4	0	-.0091	+.0091	-107	0	-.0519	-.0519	—	—	-2538
TIP					0		0	0			0

CALCULATED BY	Kirsbing	TABLE 42.	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY	J. Hoffman		
APPROVED BY			

TABLE 43 B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

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SHEET 1 of 8 CONDITION: A.G.W. 254,131# 72-1000# B. FULL FUEL & OIL. 1LAA - HIGH SPEED @ 35000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_i}	$1.5(\frac{N_z}{W})S_{b_i}$ $(\frac{N_z}{W})=1.492$	$S_b = S_b'$	$S_{C_{L_a}}$	$1.5\frac{X}{W}S_{C_{L_a}}$ $\frac{X}{W}=.145$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=-.199$	S_c	$M_{x_a} \times 10^{-6}$	$M_{x_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})M_{x_i} \times 10^{-6}$ $(\frac{N_z}{W})=1.492$	$M_x \times 10^{-6}$	$M_{C_{L_a}} \times 10^{-6}$	$1.5\frac{X}{W}M_{C_{L_a}} \times 10^{-6}$ $\frac{X}{W}=.145$	$1.5\frac{X_m}{W}M_{x_i} \times 10^{-6}$ $\frac{X_m}{W}=-.199$	$(M_y = M_y')$ $\times 10^{-6}$	$T_{BA_a} \times 10^{-6}$	$T_{BA_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})T_{BA_i} \times 10^{-6}$ $(\frac{N_z}{W})=1.492$	$T_{BA} \times 10^{-6}$
		Fig. 14	TABLE 27	2.238 × (4)	(3) + (5)	TAB. 29	.2175 × (7)	-.2985 × (4)	(8) + (9)	Fig. 14	TABLE 27	2.238 × (12)	(11) + (13)	TAB. 29	.2175 × (15)	-.2985 × (12)	(16) + (17)	Fig. 14	TABLE 27	2.238 × (20)	(19) + (22)
0	0	232400	68806	153988	-138412	126490	27512	-20539	6973	-167.62	33.155	74.134	-93.49	70.863	15.413	-9.897	5.516	34.92	-10.992	-24.60	10.32
			68312	152882	-139518			-20391	7121										-10.994	-24.60	10.32
1	41.025	230100	68312	152882	-127218	121070	26333	-20391	5942	-156.0	30.352	67.928	-88.07	65.88	14.33	-9.060	5.270	32.52	-10.417	-23.313	9.207
			67291	150597	-129503			-20086	6247										-10.419	-23.318	9.202
2	80.0	228800	67291	150597	-118203	115940	25217	-20086	5131	-145.2	27.730	62.060	-83.14	61.23	13.32	-8.277	5.043	30.25	-9.880	-22.111	8.139
			66456	148729	-120071			-19837	5380										-9.852	-22.049	8.201
3	119.25	228500	66456	148729	-110171	111630	24280	-19837	4443	-136.2	25.521	57.116	-79.08	57.40	12.48	-7.618	4.862	28.46	-9.398	-21.033	7.427
			65860	147395	-111505			-19659	4621										-9.393	-21.022	7.438
4	146.5	229500	65860	147395	-102105	107410	23362	-19659	3703	-127.9	23.331	52.215	-75.69	53.76	11.69	-6.964	4.726	26.66	-8.942	-20.012	6.648
			64973	145410	-104090			-19394	3968										-8.930	-20.030	6.630
5	180	230800	64973	145410	-94590	103090	22422	-19394	3028	-119.7	21.180	47.375	-72.36	50.15	10.91	-6.314	4.596	24.97	-8.502	-19.027	5.943
			51624	115030	-111710			-17084	5338		21.000	46.998	-72.70			-6.269	4.641		-7.918	-17.720	7.250
6	206	232500	57234	128090	-104410	99730	21691	-17084	4607	-113.5	19.512	43.668	-69.83	47.52	10.34	-5.824	4.516	23.68	-7.612	-17.036	6.644
			51913	116181	-116319			-15496	6195		19.901	43.419	-70.08			-5.791	4.549		-7.223	-16.165	7.515
7	232	225200	51913	116181	-103019	96970	20882	-15496	5386	-107.5	18.052	40.400	-67.10	45.02	9.792	-5.389	4.403	22.43	-6.946	-15.545	6.885
			39343	88050	-137150			-11744	9238		17.581	39.346	-68.15			-5.048	4.544		-5.496	-12.298	9.682
8	259	220500	39343	88050	-132450	94360	20523	-11744	8779	-103.8	16.911	37.847	-65.95	43.39	9.437	-5.048	4.389	21.63	-5.558	-12.439	9.191
			38312	85742	-139758			-11436	9087										-5.536	-12.390	9.240
9	284.5	200900	38312	85742	-125158	89950	19569	-11436	8128	-96.2	15.552	34.805	-61.40	40.13	8.728	-4.642	4.086	20.03	-5.257	-11.765	8.265
			48710	109013	-101887			-14540	5024		15.448	34.573	-61.63			-4.611	4.117		-5.787	-12.951	7.079
10	312	203200	48710	109013	-94187	86600	18836	-14540	4296	-90.4	14.108	31.574	-58.85	37.69	8.198	-4.211	3.987	18.83	-5.512	-12.336	6.494
			48349	108205	-94995			-14432	4404										-5.513	-12.338	6.492
11	339.5	198800	48349	108205	-87595	83340	18126	-14432	3694	-85.1	12.778	28.597	-56.50	35.34	7.686	-3.814	3.872	17.69	-5.239	-11.725	5.965
			43378	97080	-98120			-12948	5118										-4.580	-10.250	7.440
12	375.75	186400	43378	97080	-89320	79120	17209	-12948	4261	-78.1	11.206	25.079	-53.02	32.27	7.019	-3.345	3.674	16.24	-4.257	-9.527	6.713
			41274	92371	-94029			-12320	4889										-4.237	-9.482	6.758

CALCULATED BY: K. Kiss 8-19 CHECKED BY: B. Shaffer

TABLE 43

DOC. NO. F23-36-140 MODEL B-36

TABLE 43 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 2 of 8. CONDITION: AGW 234,131# 72-1000* FULL FUEL & OIL, 1L A.A.-HIGH SPEED @ 35000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_z \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_z \times 10^6$	$S'_c = S_c \cos\alpha$	$M_z \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T_{TAU}}{\frac{I_z}{Q_z}} \times 10$	$\frac{T_{TAU}}{\frac{I_z}{Q_z}} M'_z$	$S'_b = (6) - (31)$
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	ON P. 6
0	0	-92.07	1.792	-93.86	6867	-16.230	10.163	-6.067	412.7	-38736	-99676
			1.792	-93.86	7013		10.163	-6.067		-38736	-100782
1	41.025	-86.73	1.598	-88.33	5852	-15.289	9.067	-6.222	423.0	-37364	-97854
			1.597	-88.33	6152		9.062	-6.227		-37364	-98139
2	80.0	-81.88	1.413	-83.29	5053	-14.453	8.015	-6.418	433.1	-36073	-82130
			1.424	-83.30	5298		8.076	-6.357		-36077	-83996
3	113.25	-77.87	1.289	-79.16	4375	-13.728	7.314	-6.414	442.2	-35005	-75166
			1.291	-79.16	4551		7.325	-6.403		-35005	-76500
4	146.5	-74.54	1.154	-75.69	3647	-13.140	6.549	-6.593	451.7	-34189	-67915
			1.151	-75.69	3908		6.529	-6.611		-34189	-69901
5	180	-71.26	1.032	-72.29	2982	-12.568	5.853	-6.709	461.7	-33376	-61014
		-71.59	1.259	-72.85	5257	-12.621	7.140	-5.481		-33633	-78075
6	206	-68.77	1.153	-69.92	4537	-12.122	6.543	-5.579	469.7	-32841	-71569
		-69.01	1.305	-70.32	6101	-12.166	7.401	-4.765		-33029	-83290
7	232	-66.08	1.145	-67.28	5403	-11.649	6.780	-4.869	478.1	-32167	-76852
		-67.11	1.681	-68.79	9098	-11.831	9.535	-2.296		-32888	-104267
8	249	-64.95	1.596	-66.55	8646	-11.449	9.051	-2.398	483.9	-32204	-100246
			1.604	-66.55	8949		9.100	-2.349		-32204	-102554
9	284.5	-60.47	1.455	-61.91	8004	-10.659	8.139	-2.520	495.9	-30701	-94457
		-60.69	1.229	-61.92	4948	-10.699	6.971	-3.728		-30706	-71181
10	312.0	-57.94	1.127	-59.07	4231	-10.213	6.395	-3.818	505.8	-29878	-64209
			1.127	-59.07	4337		6.393	-3.820		-29878	-65117
11	339.5	-55.64	1.036	-56.68	3638	-9.808	5.874	-3.934	516.0	-29247	-58348
			1.292	-56.93	5049		7.327	-2.481		-29376	-69344
12	375.75	-52.21	1.145	-53.38	4196	-9.204	6.611	-2.593	530.2	-28302	-61018
			1.193	-53.38	4815		6.655	-2.549		-28302	-65727

CALCULATED BY	Kreisling	TABLE 43	DOC NO. FZS-36-140
DRAWN BY			MODEL B-36
CHECKED BY	Cooper	CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	

TABLE 43 B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 3 of 8. CONDITION: A.G.W. 254,131# 72-1000# B. FULL FUEL 40 IL. ILAA - HIGH SPEED @ 35,000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{ba}	S_{b_i}	$1.5(\frac{N_b}{W})S_{b_i}$ $(\frac{N_b}{W})=1.492$	$S_b = S_b'$	$S'_{C_{L_a}}$	$1.5\frac{X}{W}S_{C_{L_a}}$ $\frac{X}{W}=.145$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=-.199$	S_c	$M_{x_a} \times 10^{-6}$	$M_{x_i} \times 10^{-6}$	$1.5(\frac{N_b}{W})M_{x_i} \times 10^{-6}$ $(\frac{N_b}{W})=1.492$	$M_x \times 10^{-6}$	$M_{C_{L_a}} \times 10^{-6}$	$1.5\frac{X}{W}M_{C_{L_a}} \times 10^{-6}$ $\frac{X}{W}=.145$	$1.5\frac{X_m}{W}M_{x_i} \times 10^{-6}$ $\frac{X_m}{W}=-.199$	$(M_y = M_y') \times 10^{-6}$	$T_{BA_a} \times 10^{-6}$	$T_{BA_i} \times 10^{-6}$	$1.5(\frac{N_b}{W})T_{BA_i} \times 10^{-6}$ $(\frac{N_b}{W})=1.492$	$T_{BA} \times 10^{-6}$
		Fig. 14	TABLE 27	2238 × (4)	(3) + (5)	TAB 27 × .2175 × (7)	.2985 × (4)	(8) + (9)	Fig. 14	TABLE 27	2238 × (12)	(11) + (13)		TAB 29 × .2175 × (15)	.2985 × (12)	(16) + (17)	Fig. 14	TABLE 27	2238 × (20)	(19) + (22)
13	412.0	-176800	41274	92371	-84429	74900	16291	-12320	3971	-71.4	9710	21.731	-49.67	29.58	6.434	-2.898	3.536	14.59	-3.930	-8.795	6.095
			39366	88101	-88699			-11751	4540										-3.924	-8.782	6.108
14	448.5	-167300	39366	88101	-79199	70210	15414	-11751	3663	-65.1	+8.273	18.515	-46.59	27.00	5.873	-2.469	3.404	13.57	-3.629	-8.122	5.448
			37539	84012	-83288			-11205	4209										-3.623	-8.108	5.462
15	485.0	-158100	37539	84012	-74088	66840	14538	-11205	3333	-59.3	6.902	15.447	-43.85	24.45	5.318	-2.060	3.258	12.35	-3.341	-7.477	4.873
			35544	79547	-78553			-10610	3928										-3.321	-7.432	4.918
16	521.5	-149200	35544	79547	-69653	62860	13694	-10610	3084	-53.7	5.606	12.546	-41.15	22.15	4.818	-1.673	3.145	11.18	-3.054	-6.835	4.345
			30852	69047	-80153			-9209	4485										-2.503	-5.602	5.578
17	549.0	-142500	30852	69047	-73453	59940	13037	-9209	3828	-49.7	4.757	10.646	-39.05	20.43	4.444	-1.420	3.024	10.34	-2.329	-5.212	5.128
			30568	68411	-74159			-9125	3912										-2.330	-5.215	5.125
18	576.5	-136000	30568	68411	-67589	56960	12389	-9125	3264	-46.0	3.917	8.766	-37.23	18.84	4.098	-1.169	2.929	9.54	-2.157	-4.827	4.713
			24332	54455	-81545			-7263	5126										-1.651	-3.695	5.845
19	615.375	-126800	24332	54455	-72345	53130	11556	-7263	4293	-40.8	2.970	6.647	-34.15	16.64	3.619	-.887	2.732	8.49	-1.456	-3.259	5.231
			19501	43643	-83157			-5821	5735										-1.456	-3.259	5.231
20	654.25	-117800	19501	43643	-74157	49200	10701	-5821	4880	-35.9	2.212	4.950	-30.95	14.72	3.202	-.660	2.542	7.45	-1.300	-2.909	4.581
			15085	33756	-84044			-4503	6198										-1.309	-2.930	4.560
21	693.125	-109100	15085	33756	-75344	45460	9888	-4503	5385	-31.6	1.626	3.639	-27.96	12.85	2.795	-.485	2.310	6.59	-1.188	-2.659	3.931
			11654	26082	-83018			-3479	6409										-1.176	-2.632	3.958
22	732.0	-100800	11654	26082	-74718	41720	9074	-3479	5595	-27.5	1.173	2.625	-24.88	11.12	2.419	-.350	2.069	5.76	-1.083	-2.424	3.336
			10009	22400	-78400			-2988	6086										-1.073	-2.401	3.359
23	766.0	-93500	10009	22400	-71100	38550	8385	-2988	5397	-24.1	.832	1.862	-22.24	9.78	2.127	-.248	1.879	5.07	-1.002	-2.242	2.828
			6286	14068	-79432			-1876	6509										-.5957	-1.333	3.737
24	806.0	-85000	6286	14068	-70932	35000	7613	-1876	5737	-20.5	.5809	1.300	-19.20	8.30	1.805	-.173	1.632	4.31	-.5441	-1.218	3.092
			2585	5785	-79215			-772	6841										-.1658	-.371	3.939
25	840.0	-78200	2585	5785	-72415	32130	6988	-772	6216	-17.8	.4930	1.103	-16.70	7.14	1.553	-.147	1.406	3.74	-.1477	-.331	3.409
			2322	5197	-73003			-693	6255										-.1478	-.331	3.409

Kriesberg

TABLE 43

FZS-36-140

B-36

TABLE 43 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 4 of 8. CONDITION: AGW-254,131#, 72-1000#B., FULL FUEL & OIL. I.L.A.A.-HIGH SPEED @ 35,000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J \tan\phi}{\frac{I_x}{Q_x}} \times 10^6$	$\frac{J \tan\phi}{\frac{I_x}{Q_x}} M'_x$	S''_b (6) - (31)
		.9848 × (14)	.1736 × (22)	(23) - (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR .5 × (6)
13	412.0	-48.92	1.058	-49.98	3911	-8.623	6.002	-2.621	545.1	-27244	-57185
			1.060	-49.98	4471		6.015	-2.608		-27244	-61465
14	448.5	-45.88	.946	-46.83	3607	-8.088	5.365	-2.723	561.1	-26276	-52923
			.948	-46.83	4145		5.379	-2.709		-26276	-57012
15	485	-43.18	.846	-44.03	3282	-7.612	4.799	-2.813	578.0	-25449	-48639
			.854	-44.03	3868		4.843	-2.769		-25449	-53104
16	521.5	-40.52	.754	-41.27	3037	-7.144	4.279	-2.865	596.0	-24597	-45056
			.968	-41.49	4417		5.493	-1.651		-24728	-55425
17	549	-38.46	.890	-39.35	3770	-6.779	5.050	-1.729	610.3	-24015	-49438
			.890	-39.35	3853		5.047	-1.732		-24015	-50074
18	576.5	-36.66	.818	-37.48	3214	-6.463	4.641	-1.822	625.2	-23432	-44157
			1.015	-37.68	5048		5.756	-.707		-23432	-58113
19	615.375	-33.63	.908	-34.54	4228	-5.928	5.151	-.777	647.7	-22268	-50077
			.908	-34.54	5648		5.151			-22268	-60889
20	664.25	-30.48	.795	-31.28	4806	-5.373	4.511	-.862	671.9	-21017	-53140
			.792	-31.27	6104		4.491	-.882		-21010	-63034
21	693.125	-27.54	.682	-28.22	5303	-4.854	3.871	-.983	697.9	-19695	-55649
			.687	-28.23	6312		3.898	-.956		-19702	-63316
22	732	-24.50	.579	-25.08	5510	-4.302	3.285	-1.017	726.1	-18138	-56580
			.583	-25.08	5993		3.308	-.994		-18138	-60262
23	766	-21.90	.491	-22.39	5315	-3.861	2.785	-1.076	752.7	-16853	-54247
			.649	-22.55	6410		3.680	-.181		-16973	-62459
24	806	-18.91	.537	-19.45	5650	-3.333	3.045	-.288	786.3	-15294	-55638
			.684	-19.59	6737		3.879	+.546		-15404	-63811
25	840	-16.45	.592	-17.04	6122	-2.899	3.357	+.458	817.6	-13932	-58483
			.592	-17.04	6199		3.357	+.458		-13932	-59071

CALCULATED BY: Kruebbe
DRAWN BY:
CHECKED BY: Bier Hyper
APPROVED BY:

TABLE 43

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

DOC NO. FZS-36-140
MODEL B-36

TABLE 43. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 5 of 8. CONDITION: A.G.W. 254,131# 72-1000#B. FULL FUEL & OIL 1LAA. HIGH SPEED @35,000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP.	S_{ba}	S_{b_i}	$1.5(\frac{-N_z}{W})S_{b_i}$ $(\frac{-N_z}{W})=1.492$	$S_b = S_b'$	$S_{c_{L_a}}$	$1.5\frac{X_m}{W}S_{c_{L_a}}$ $\frac{X_m}{W}=.145$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=-.199$	S_c	$M_{x_a}\times10^{-6}$	$M_{x_i}\times10^{-6}$	$1.5(\frac{-N_z}{W})M_{x_i}$ $\times10^{-6}$ $(\frac{-N_z}{W})=1.492$	$M_{x_c}\times10^{-6}$	$M_{c_{L_a}}\times10^{-6}$	$1.5\frac{X_m}{W}M_{c_{L_a}}$ $\times10^{-6}$ $\frac{X_m}{W}=.145$	$1.5\frac{X_m}{W}M_{x_i}$ $\times10^{-6}$ $\frac{X_m}{W}=-.199$	(M_y+M_y') $\times10^{-6}$	$T_{EA_a}\times10^{-6}$	$T_{EA_1}\times10^{-6}$	$1.5(\frac{-N_z}{W})T_{EA_1}$ $\times10^{-6}$ $(\frac{-N_z}{W})=1.492$	$T_{EA}\times10^{-6}$
		Fig. 14	TABLE 27	2.236×(4)	(3) + (5)	TABLE 29	.2175×(7)	.2985×(4)	(6) + (9)	Fig. 14	TABLE 27	2.236×(12)	(11) + (13)	TABLE 29	.2175×(14)	.2985×(12)	(16) + (17)	Fig. 14	TABLE 27	2.236×(20)	(19) + (21)
26	870	-72300	2322	5197	-67103	29630	6445	-693	5752	-15.5	.4234	.9476	-14.55	6.23	1.355	-.126	1.229	3.28	-.1335	-.299	2.981
			2022	4525	-67775			-604	5841										-.1251	-.280	3.000
27	906	-65400	2022	4525	-60875	26660	5799	-604	5195	-13.09	.3506	.7846	-12.31	5.26	1.144	-.105	1.039	2.74	-.1101	-.246	2.494
			1823	4080	-61320			-544	5255										-.1090	-.244	2.496
28	942	-58850	1823	4080	-54770	23830	5183	-544	4639	-10.81	.2850	.6378	-10.17	4.301	.9355	-.0851	.8504	2.28	-.0935B	-.214	2.066
			1640	3670	-55180			-490	4693										-.09454	-.212	2.068
29	978	-52400	1640	3670	-48730	21100	4589	-490	4099	-8.82	.2259	.5056	-8.314	3.486	.7582	-.0674	.6908	1.86	-.08240	-.184	1.676
			1323	2961	-49439			-395	4194										-.07292	-.163	1.687
30	1014	-46000	1323	2961	-43039	18460	4015	-395	3620	-7.08	.1783	.3990	-6.681	2.791	.6070	-.0532	.5538	1.485	-.06313	-.141	1.344
			1168	2614	-43386			-349	3666										-.06235	-.140	1.345
31	1050	-40000	1168	2614	-37386	15970	3473	-349	3124	-5.52	.1362	.3048	-5.215	2.181	.4725	-.0407	.4318	1.164	-.05370	-.120	1.044
			1041	2330	-37670			-311	3162										-.05307	-.119	1.045
32	1080	-35100	1041	2330	-32770	13960	3036	-311	2725	-4.40	.1050	.2350	-4.165	1.760	.3828	-.0313	.3515	.929	-.04665	-.1044	.8246
			786	1759	-33341			-235	2801										-.03781	-.0846	.8444
33	1110	-30500	786	1759	-28471	12040	2619	-235	2384	-3.40	.08144	.1823	-3.218	1.362	.2962	-.0243	.2719	.720	-.03296	-.0738	.6462
			702	1571	-28329			-210	2409										-.03254	-.0728	.6472
34	1140	-25900	702	1571	-24329	10210	2221	-210	2011	-2.58	.06039	.1352	-2.445	1.021	.2221	-.0180	.2041	.542	-.02822	-.0632	.4788
			627	1403	-24497			-187	2034										-.02776	-.0621	.4799
35	1170	-21500	627	1403	-20097	8440	1836	-187	1649	-1.88	.04159	.0931	-1.787	.734	.1596	-.0124	.1472	.398	-.02389	-.0535	.3945
			414	927	-20573			-124	1712										-.01706	-.0382	.3598
36	1198	-17600	414	927	-16673	6900	1501	-124	1377	-1.32	.03000	.0671	-1.253	.518	.1127	-.0090	.1037	.280	-.01467	-.0328	.2472
			359	803	-16797			-107	1394										-.01438	-.0322	.2478
37	1225	-14100	359	803	-13297	5510	1198	-107	1091	-.90	.02031	.0455	-.8545	.345	.0750	-.0061	.0689	.192	-.01239	-.0277	.1643
			314	703	-13397			-94	1104										-.01211	-.0271	.1649
38	1252	-10750	314	703	-10047	4220	918	-94	824	-.57	.01185	.0265	-.5435	.216	.0470	-.0035	.0435	.120	-.01037	-.0232	.0968
			268	600	-10150			-80	838										-.01012	-.0226	.0974

Kriesberg

TABLE 43

FZS-36-140

B-36

TABLE 43 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 6 of 8. CONDITION: A.G.W. - 254131 # 72-1000# B; FULL FUEL & OIL. (L.A.A.-HIGH SPEED @ 35000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J \tan\phi}{I_x/Q_x} \times 10$	$\frac{J \tan\phi}{I_x/Q_x} M'_x$	S''_b (8) - (31)
		.9848 × (14)	.1736 × (22)	(23) - (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR .5 × (6)
26	870	-14.33	.518	-14.85	5665	-2.526	2.936	+.410	847.3	-12582	-54521
			.521	-14.85	5752		2.954	+.428		-12582	-55193
27	906	-12.13	.429	-12.56	5116	-2.139	2.456	+.317	886.0	-11128	-49747
			.430	-12.56	5175		2.458	+.317		-11128	-50192
28	942	-10.02	.359	-10.38	4566	-1.766	2.035	+.269	928.2	-9635	-45135
			.359	-10.38	4622		2.037	+.271		-9635	-45545
29	978	-8.188	.291	-8.479	4037	-1.443	1.651	+.208	974.8	-8265	-40465
			.295	-8.483	4130		1.671	+.228		-8269	-41170
30	1014	-6.579	.233	-6.812	3565	-1.160	1.324	+.164	1026	-6989	-36050
			.238	-6.812	3610		1.325	+.165		-6989	-36397
31	1050	-5.136	.181	-5.317	3077	-.9054	1.0281	+.1227	1083	-5758	-31628
			.181	-5.317	3114		1.0291	+.1237		-5758	-31912
32	1080	-4.102	.143	-4.245	2684	-.7230	.8121	+.0891	1136	-4822	-27948
			.143	-4.245	2758		.8316	+.1086		-4822	-28519
33	1110	-3.169	.112	-3.281	2348	-.5586	.6364	+.0778	1194	-3918	-24553
			.112	-3.281	2372		.6374	+.0788		-3918	-25011
34	1140	-2.408	.083	-2.491	1980	-.4245	.4715	+.0470	1259	-3136	-21193
			.083	-2.491	2003		.4726	+.0481		-3136	-21361
35	1170	-1.760	.060	-1.820	1624	-.3102	.3393	+.0291	1330	-2421	-17676
			.062	-1.822	1656		.3543	+.0441		-2423	-18150
36	1198	-1.234	.043	-1.277	1356	-.2175	.2434	+.0259	1405	-1794	-14879
			.043	-1.277	1373		.2440	+.0265		-1794	-15003
37	1225	-.8415	.0285	-.8700	1074	-.1483	.1618	+.0135	1486	-1293	-12004
			.0286	-.8701	1097		.1624	+.0141		-1293	-12104
38	1252	-.5352	.0168	-.5520	811	-.0944	.0953	+.0009	1576	-870	-9177
			.0169	-.5521	825		.0959	+.0015		-870	-9280

CALCULATED BY: Riccabony
DRAWN BY:
CHECKED BY: Bischoff
APPROVED BY:

TABLE 43

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH TEXAS

DOC NO. FZS-36-140
MODEL B-36

TABLE 43 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 7 of 8. CONDITION: AGW 254131# 72-1000#B. FULL FUEL 40IL. ILAA. HIGH SPEED @ 35,000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_i}	$1.5(\frac{-N_a}{W})S_{b_i}$ $(\frac{-N_a}{W})=1.492$	$S_b = S_b'$	$S_{C_{L_{a_i}}}$	$1.5\frac{X}{W}S_{C_{L_{a_i}}}$ $\frac{X}{W}=.145$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=-.199$	S_c	$M_{x_a} \times 10^{-6}$	$M_{x_i} \times 10^{-6}$	$1.5(\frac{-N_a}{W})M_{x_i} \times 10^{-6}$ $(\frac{-N_a}{W})=1.492$	$M_x \times 10^{-6}$	$M_{C_{L_{a_i}}} \times 10^{-6}$	$1.5\frac{X}{W}M_{C_{L_{a_i}}} \times 10^{-6}$ $\frac{X}{W}=.145$	$1.5\frac{X_m}{W}M_{x_i} \times 10^{-6}$ $\frac{X_m}{W}=-.199$	$(M_y = M_y')$ $\times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{-N_a}{W})T_{EA_i} \times 10^{-6}$ $(\frac{-N_a}{W})=1.492$	$T_{EA} \times 10^{-6}$
		Fig. 14	TABLE 27	2.238×(4)	(3) + (5)	[redacted] TAB 29	.2175 × (7)	-.2985 × (4)	(8) + (9)	Fig. 14	TABLE 27	2.238×(12)	(11) + (13)	[redacted] TAB 29	.2175 × (15)	-.2985 × (12)	(16) + (17)	Fig. 14	TABLE 27	2.238 × (20)	(19) + (21)
39	1278	-8000	268	600	-7400	3150	685	-80	605	-.320	.00487	.0109	-.3091	.120	.0261	-.0015	.0246	.074	-.00868	-.0194	.0546
			98	219	-7781			-29	656										-.00184	-.0041	.0699
40	1301	-5900	98	219	-5681	2300	500	-29	471	-.180	.002609	.0058	-.1742	.067	.0146	-.0008	.0138	.040	-.00137	-.0031	.0369
			65	145	-5755			-19	481										-.00120	-.0027	.0373
41	1324	-3900	65	145	-3755	1530	333	-19	314	-.090	.001109	.0025	-.0875	.034	.0074	-.0003	.0071	.020	-.00089	-.0020	.0180
			50	112	-3788			-15	318										-.00077	-.0017	.0183
TIP LG	1364	-2100	50	112	-1988	860	187	-15	172	-.010	0	0	-.0100	.011	.0024	0	.0024	.006	-.00054	-.0012	.0098
TIP	1380.84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Kreisberg
Bisnopper

TABLE 43.

FZ3-36-140
B-36

TABLE 43 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 8 of 8. CONDITION: A.G.W. - 254,131#, 72-1,000#B, FULL FUEL & OIL, ILAA - HIGH SPEED @ 35,000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{.7 \tan\phi}{I_x/Q_x} \times 10$	$\frac{.7 \tan\phi}{I_x/Q_x} M'_x$	S''_b (6) - (31)
		.9848 × (13)	.1736 × (22)	(23) - (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	OR. 5 = (6)
39	1278	-.3044	.0095	-.3139	596	-.0537	.0538	+.0001	1674	-525	-6875
			.0121	-.3165	646		.0688	+.0151		-530	-7261
40	1301	-.1716	.0064	-.1780	464	-.0302	.0363	+.0061	1772	-315	-5866
			.0065	-.1781	474		.0367	+.0065		-316	-5439
41	1324	-.0862	.0031	-.0893	309	-.0152	.0177	+.0025	1881	-168	-3587
			.0032	-.0894	313		.0180	+.0028		-168	-3620
TIP C.G.	1346.4	-.0098	.0008	-.0106	169	-.0017	.0047	+.0030	—	—	-1988
TIP	1380.841				0						0

CALCULATED BY	Krieshey	TABLE 43	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH TEXAS	MODEL B-36
CHECKED BY	Bissell		

TABLE 44 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

CONDITION: RGW-829999, 32-100% 1/2 FUEL & OIL, AA-HIGH SPEED 8000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Station	Diag. Moment	S_{h_x}	S_{v_x}	S_{h_x}	S_{v_x}	S_{v_x}	S_{v_x}	S_{h_x}	S_{v_x}	M_{x_x}	M_{z_x}	M_{y_x}	M_{x_x}	M_{z_x}	M_{y_x}	T_{x_x}	T_{z_x}	T_{y_x}	T_{x_x}
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
52	[illegible]	[illegible]	56,748	223,148	284,252	114,380	-23,869	7,490	-16,379	416.3	26.830	-103.563	151.237	64.147	-13.372	3.541	-3.890	-61.25	-9.871
			56,250	221,376	249,160			7,425	-16,944										-8.328
1	41.925	[illegible]	56,850	222,840	227,244	109,600	-22,852	7,425	-15,437	208.2	24.52	-86.474	141.726	63.683	-12.433	4.237	-3.196	-56.84	-9.938
			58,230	217,302	231,128			7,250	-15,568										-9.250
2	80.0	429,800	65,230	217,302	212,498	104,900	-21,872	7,290	-14,582	221.6	22.97	-88.019	132.088	63.32	-11.655	2.958	-3.602	-52.81	-8.808
			64,390	213,310	215,803			7,179	-14,693										-8.780
3	113.25	413,400	53,290	212,387	199,403	101,800	-21,059	7,179	-13,880	207.0	20.56	-80.893	126.107	58.95	-10.832	2.714	-3.118	-49.30	-8.487
			53,880	211,676	201,724			7,102	-13,857										-8.402
4	144.81	396,800	53,800	211,676	185,124	97,210	-20,268	7,102	-13,166	192.9	18.72	-79.851	119.693	48.65	-10.144	2.478	-2.668	-46.32	-8.083
			52,910	208,124	188,636			6,984	-13,234										-8.032
5	180.	380,100	52,970	208,124	176,336	93,200	-19,453	6,984	-12,469	180.2	17.00	-66.887	113.813	45.55	-9.464	2.244	-2.400	-43.20	-7.677
			45,170	207,741	168,373			5,962	-13,491		16.84	-66.257	113.383			2.223	-2.341		-7.894
6	218.1	367,500	46,170	177,741	168,373	90,260	-18,218	5,962	-12,857	170.3	15.47	-61.654	108.666	43.01	-8.968	2.068	-2.000	-41.05	-6.852
			44,850	156,[illegible]	210,310			5,240	-13,659		45.56	-61.221	109.075			2.014			-6.468
7	242.	355,400	44,850	156,[illegible]	158,310	87,310	-17,266	5,240	-12,844	162.3	14.38	-57.129	103.631	40.7	[illegible]	1.917	[illegible]	[illegible]	-6.346
			37,830	157,300	217,667			4,601	-14,602		14.05	-58.280	104.420			1.832			-5.700
8	249.	347,100	37,280	157,300	208,327	85,400	-17,006	3,601	-14,205	154.6	13.89	-53.430	101.338	39.27	-8.188	1.754	[illegible]	-37.40	-4.805
			36,940	149,[illegible]	242,190			3,486	-14,320										-4.875
9	282.5	330,100	36,410	149,310	226,150	81,410	-16,374	3,486	-13,488	149.1	12.65	-49.771	93.329	36.30	-7.579	1.670	[illegible]	-34.46	-4.685
			36,960	145,419	189,681			4,879	-12,095		12.547	-49.366	88.734			1.656			-4.246
10	312.	317,800	36,960	145,419	172,391	78,370	-16,340	4,879	-11,461	134.7	11.53	-45.365	88.805	34.11	-7.112	1.522	[illegible]	-32.51	-4.358
			36,600	144,002	173,757			4,831	-11,509										-4.339
11	339.5	306,200	36,[illegible]	[illegible]	161,197	75,420	-15,725	4,831	-10,894	126.8	10.524	-41.407	84.393	31.98	-6.660	1.389	-5.279	-30.52	-4.731
			32,330	[illegible]	177,498			4,268	-11,457										-4.133
12	347.73	288,800	33,230	137,202	161,538	71,600	-14,929	4,268	-10,661	115.0	9.362	-36.795	78.265	29.21	-6.090	1.294	-4.856	-27.98	-3.893
			31,650	124,133	164,663			4,165	-10,764										-3.872

Fellows

Bill Hoppel

TABLE 44

TABLE 44 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 2 of 8. CONDITION: RGW: 229000#, 72-1000# B, 1/3 FUEL & OIL, LAA, HIGH SPEED @ 5000' FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} \times 10$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} M'_x$	S''_b (6) − (31)
		.9848 × (16)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (16)	.9848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	OR. 5 = (6)
0	0	148.938	-3.993	152.931	-16,130	26.255	-22.653	3.602	412.7	63,115	184,137
			-3.992	152.930	-16,190		-22.645	3.610		63,114	186,066
1	41.025	139.572	-3.551	143.123	-15,190	24.604	-20.143	4.461	423.0	60,541	167,143
			-3.549	143.121	-15,330		-20.135	4.469		60,540	171,158
2	80.0	130.964	-3.152	134.116	-14,360	23.086	-17.879	5.207	433.1	58,086	154,412
			-3.171	134.135	-14,470		-17.987	5.099		58,094	157,709
3	113.25	124.190	-2.851	127.041	-13,670	21.892	-16.173	5.719	442.2	56,178	143,225
			-2.854	127.044	-13,740		-16.192	5.700		56,179	145,545
4	146.5	117.732	-2.554	120.286	-12,970	20.754	-14.486	6.268	451.7	54,333	130,791
			-2.548	120.280	-13,080		-14.456	6.298		54,330	134,296
5	180	111.591	-2.272	113.863	-12,290	19.671	-12.886	6.785	461.7	52,571	119,355
		112.211	-2.670	114.881	-13,290	19.781	-15.145	4.636		53,041	149,338
6	206	106.995	-2.439	109.434	-12,660	18.861	-13.837	5.024	469.7	51,401	138,378
		107.421	-2.705	110.126	-13,350	18.936	-15.344	3.592		51,726	158,984
7	232	102.194	-2.467	104.661	-12,750	18.015	-13.993	+4.022	478.1	50,038	148,172
		104.015	-3.320	107.335	-14,380	18.336	-18.836	-0.500		51,317	196,350
8	249	99.790	-3.142	102.932	-13,990	17.591	-17.826	-0.235	483.9	49,809	189,958
			-3.163	102.953	-14,100		-17.942	-0.351		49,819	193,371
9	284.5	91.910	-2.817	94.727	-13,280	16.202	-15.978	+0.224	495.9	46,975	179,215
		92.309	-2.459	94.768	-11,910	16.272	-13.952	+2.320		46,995	137,686
10	312	87.485	-2.230	89.715	-11,290	15.422	-12.650	+2.772	505.8	45,378	127,003
			-2.229	89.714	-11,330		-12.646	+2.776		45,377	128,420
11	339.5	83.110	-2.026	85.136	-10,730	14.651	-11.493	+3.158	516.0	43,930	117,267
			-2.475	85.585	-11,280		-14.042	+0.609		44,162	133,836
12	375.75	77.016	-2.201	79.217	-10,500	13.576	-12.484	+1.092	530.2	42,001	119,597
			-2.214	79.230	-10,600		-12.562	+1.014		42,008	122,659

CALCULATED BY	J Ellis	TABLE 44	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY	Kirkwood Hutter		

TABLE 44. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 3 of 8. CONDITION: R.G.W.-229999# 72-1000#B, 1/3 FUEL & OIL. L.A.A.-HIGH SPEED @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_i}	$1.5(\frac{-N_z}{W})S_{b_i}$ $(\frac{-N_z}{W})=2.623$	$S_b = S_b'$	$S_{C_{L_{a_i}}}$	$1.5\frac{X}{W}S_{C_{L_{a_i}}}$ $\frac{X}{W}=-.139$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=.088$	S_c	$M_{x_a} \times 10^{-6}$	$M_{x_i} \times 10^{-6}$	$1.5(\frac{-N_z}{W})M_{x_i} \times 10^{-6}$ $(\frac{-N_z}{W})=-2.623$	$M_x \times 10^{-6}$	$M_{C_{L_{a_i}}} \times 10^{-6}$	$1.5\frac{1}{W}M_{C_{L_{a_i}}} \times 10^{-6}$ $\frac{X}{W}=-.139$	$1.5\frac{X_m}{W}M_{x_i} \times 10^{-6}$ $\frac{X_m}{W}=.088$	$(M_y = M_y') \times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{-N_z}{W})T_{EA_i} \times 10^{-6}$ $(\frac{-N_z}{W})=-2.623$	$T_{EA} \times 10^{-6}$
		Fig. 15	TABLE 28	-3.9345 (4)	(3) + (5)	TAB 29	-.2085 (7)	+.132 x (4)	(8) + (9)	Fig. 15	TABLE 28	-3.9345 (12)	(11) + (13)	TAB 29	+.2085 (15)	+.132 x (12)	(16) + (17)	Fig. 15	TABLE 28	-3.9345 (20)	(19) + (20)
13	412	272,500	31,550	-124,133	148,367	67,780	-14,132	4,165	-9,967	105.0	8.208	-32.294	72.706	26.78	-5.584	1.083	-4.501	-25.57	-3.6371	14.310	-11.260
			30,910	-121,615	150,885			4,080	-10,052										-3.631	14.286	-11.284
14	448.5	256,500	30,910	-121,615	134,885	64,140	-13,373	4,080	-9,293	95.45	7.079	-27.852	67.598	24.43	-5.094	.984	-4.160	-23.26	-3.400	13.377	-9.883
			30,290	-119,176	137,324			3,998	-9,375										-3.334	13.354	-9.906
15	485	241,400	30,290	-119,176	122,224	60,490	-12,612	3,998	-8,614	86.15	5.974	-23.505	62.645	22.13	-4.614	.789	-3.825	-21.07	-3.167	12.461	-8.609
			29,370	-115,556	125,844			3,877	-8,735										-3.150	12.394	-8.676
16	521.5	226,600	29,370	-115,556	111,044	56,980	-11,880	3,877	-8,003	77.8	4.903	-19.291	58.509	20.05	-4.180	.647	-3.533	-19.05	-2.929	11.524	-7.526
			25,140	-98,913	127,687			3,318	-8,562										-2.375	9.344	-9.706
17	549	215,500	25,140	-98,913	116,587	54,250	-11,311	3,318	-7,993	71.6	4.211	-16.568	55.032	18.49	-3.855	.556	-3.299	-17.60	-2.233	8.786	-8.814
			24,860	-97,812	117,688			3,282	-8,029										-2.234	8.790	-8.810
18	576.5	204,800	24,860	-97,812	106,988	51,550	-10,748	3,282	-7,466	65.75	3.528	-13.881	51.869	17.05	-3.555	.466	-3.089	-16.24	-2.094	8.239	-8.001
			19,510	-76,762	128,038			2,575	-8,173										-1.583	6.228	-10.012
19	615.375	189,800	19,510	-76,762	113,038	48,080	-10,025	2,575	-7,450	57.95	2.769	-10.895	47.055	15.06	-3.140	.366	-2.774	-14.40	-1.427	5.615	-8.785
			16,350	-64,329	125,471			2,158	-7,867										-1.420	5.587	-8.813
20	654.25	175,100	16,350	-64,329	110,771	44,520	-9,282	2,158	-7,124	50.95	2.133	-8.392	42.558	13.32	-2.777	.282	-2.495	-12.73	-1.289	5.072	-7.658
			13,480	-53,037	122,063			1,779	-7,503										-1.293	5.087	-7.643
21	693.125	161,000	13,480	-53,037	107,963	41,140	-8,578	1,779	-6,799	44.4	1.609	-6.331	38.069	11.63	-2.425	.212	-2.213	-11.18	-1.184	4.658	-6.522
			11,230	-44,184	116,816			1,482	-7,096										-1.174	4.619	-6.561
22	732	147,500	11,230	-44,184	103,316	37,750	-7,871	1,482	-6,389	38.45	1.173	-4.615	33.835	10.07	-2.100	.155	-1.945	-9.70	-1.084	4.265	-5.435
			10,010	-39,384	108,116			1,321	-6,550										-1.073	4.222	-5.478
23	766	136,000	10,010	-39,384	96,616	34,890	-7,275	1,321	-5,954	33.75	.8324	-3.275	30.475	8.85	-1.845	.110	-1.735	-8.575	-1.002	3.242	-4.633
			6,286	-24,732	111,268			830	-6,475										-.5957	2.244	-6.231
24	806	122,800	6,286	-24,732	98,068	31,680	-6,605	830	-5,775	28.45	.5809	-2.286	26.164	7.51	-1.566	.077	-1.489	-7.28	-.5441	2.141	-5.139
			2,585	-10,171	112,629			341	-6,264										-.1658	.652	-6.628
25	840	112,100	2,585	-10,171	101,929	29,080	-6,063	341	-5,722	24.55	.4930	-1.940	22.610	6.47	-1.349	.065	-1.284	-6.315	-.1477	.581	-5.734
			2,322	-9,136	102,964			307	-5,756										-.1478	.582	-5.783

TABLE 44

TABLE 44. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 4 of 8. CONDITION: R.G.W.-229,999# 72-1000#B., 1/3 FUEL & OIL. L.A.A.-HIGH SPEED @ 5,000 FT.

REPORT: FZS-36-140
DATE: 12-4-45

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{.7 \tan\phi}{I_x/Q_x} \times 10^{-6}$	$\frac{.7 \tan\phi}{I_x/Q_x} M'_x$	S''_b (6) - (31)
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR. 5 = (6)
13	412	71.601	-1.955	73.556	-9,816	12.622	-11.089	1.533	545.1	40,095	108,272
			-1.959	73.560	-9,899		-11.112	1.510		40,098	110,787
14	448.5	66.571	-1.716	68.287	-9,152	11.735	-9.733	2.002	561.1	38,316	96,569
			-1.720	68.291	-9,233		-9.755	1.980		38,318	99,006
15	485	61.633	-1.495	63.188	-8,483	10.875	-8.478	2.397	578.0	36,523	85,701
			-1.506	63.199	-8,602		-8.544	2.331		36,529	89,315
16	521.5	57.620	-1.307	58.927	-7,881	10.157	-7.412	2.745	596.0	35,120	75,924
			-1.685	59.305	-8,432		-9.558	0.599		35,346	92,341
17	549	54.136	-1.530	55.726	-7,872	9.554	-8.683	0.874	610.3	34,010	82,577
			-1.529	55.725	-7,907		-8.676	0.878		34,009	83,679
18	576.5	51.081	-1.389	52.470	-7,353	9.004	-7.878	1.125	625.2	32,804	74,184
			-1.738	52.819	-8,049		-9.860	-0.856		33,022	95,016
19	615.375	46.340	-1.525	47.865	-7,337	8.169	-8.651	-0.482	647.7	31,002	82,036
			-1.530	47.870	-7,747		-8.679	-0.510		31,005	94,466
20	654.25	41.911	-1.329	43.240	-7,016	7.388	-7.542	-0.154	671.9	29,053	81,718
			-1.327	43.238	-7,389		-7.527	-0.139		29,052	93,011
21	693.125	37.490	-1.132	38.622	-6,636	6.609	-6.422	+0.186	697.9	26,954	81,009
			-1.139	38.629	-6,988		-6.461	+0.148		26,959	89,857
22	732	33.321	-0.944	34.265	-6,292	5.874	-5.352	+0.522	726.1	24,880	78,436
			-0.951	34.272	-6,450		-5.395	+0.479		24,885	88,22[illegible]
23	766	30.012	-.804	30.816	-5,863	5.230	-4.56[illegible]	+0.727	752.7	23,195	78,421
			-1.082	31.094	-6,347		-6.13[illegible]	-0.846		23,404	87,864
24	806	25.766	-.832	26.658	-5,687	4.542	-5.06[illegible]	-0.519	786.3	20,961	77,107
			-1.151	26.917	-6,169		-6.52[illegible]	-1.985		21,165	91,464
25	840	22.266	-.995	23.261	-5,635	3.[illegible]	-3.04[illegible]	-1.722	817.6	19,018	82,911
			-.995	23.261	-5,669		-3.07[illegible]	-1.721		19,018	83,046

CALCULATED BY	J. Ellis	TABLE 44	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH TEXAS	MODEL B-36
CHECKED BY	Kurt Griffin		

TABLE 44 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 6 of 8 CONDITION: R.G.W. 229,000 LB, 1000 G, ½ FUEL & OIL, 1 AA - HIGH SPEED 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
STATION	DIST. FROM S/P	S_{ba}	S_{a}	S_{b}	S_{c}	S_{d}	S_{e}	S_{f}	S_{g}	M_{x_a}	M_{x_b}	M_{x_c}	M_{x_d}	M_{x_e}	M_{x_f}	M_{x_g}	T_{x_a}	T_{x_b}	T_{x_c}	T_{x_d}
		Fig. 16	Table 6.26	(4)	(5)		(7)		(9)	Fig. 16				(13)		(15)				
26	870	102,300	4322	-9,136	93,264	26,800	-5,092	903	-3,885	21,248	1,234	-1,666	15,584	2,649	-1,376	.036	-.130	-.256	-.1423	.544
			2022	-7,956	85,596			844	-3,425										-.1723	.494
27	906	92,100	6022	-7,956	94,144	24,180	-5,031	267	-4,164	17,848	2,586	-1,079	16,869	+.761	-.893	.046	-.347	-.310	-.1101	.433
			1823	-7,173	84,927			241	-4,130										-.1430	.429
28	942	82,000	1823	-7,173	74,827	21,570	-4,432	1,848	-4,256	14,888	2,820	-1,121	16,419	3,893	-.812	.038	-.776	-.580	-.03952	.392
			1640	-6,963	75,382			416	-4,281										-.04459	.372
29	978	72,900	1640	-6,453	65,947	19,090	-3,880	216	-3,744	11,778	2,497	-.889	10,891	3,184	-.688	.030	-.618	-.708	-.02240	.306
			1309	-5,088	67,195			185	-3,908										-.02292	.278
30	1014	63,100	1309	-5,088	57,895	16,910	-3,440	115	-3,209	8,570	1,783	-.665	8,168	2,724	-.527	.024	-.502	-.618	-.01313	.198
			1168	-4,595	58,505			134	-3,338										-.01348	.216
31	1050	54,100	1168	-4,595	49,505	14,450	-3,013	97	-2,868	5,902	1,362	-.504	5,104	2,283	-.378	.019	-.335	-.080	-.00370	.211
			1041	-3,954	50,004			107	-2,926										-.00380	.202
32	1080	47,200	1041	-3,954	43,254	12,640	-2,655	88	-2,528	3,725	1,040	-.413	3,314	1,854	-.328	.016	-.218	-.588	-.00466	.184
			786	-3,093	43,107			84	-2,444										-.00381	.149
33	1110	40,950	786	-3,093	37,857	10,900	-2,273	106	-2,169	2,447	814	-.321	2,069	1,706	-.257	.011	-.208	-.560	-.00296	.130
			732	-2,762	37,688			93	-2,080										-.00264	.128
34	1140	34,100	732	-2,762	30,838	9,240	-1,927	93	-1,834	1,439	639	-.242	1,224	1,588	-.198	.008	-.185	-.1,040	-.00192	.108
			-627	-2,467	31,639			82	-1,844										-.00176	.105
35	1170	28,100	627	-2,467	25,633	7,840	-1,593	82	-1,510	2,37	.04159	-.164	2,106	.664	-.156	.005	-.133	-.796	-.00149	.094
			414	-1,629	26,471			53	-1,588										-.00146	.067
36	1198	22,800	414	-1,629	21,171	6,240	-1,301	53	-1,246	1,58	.00000	-.118	1,662	.469	-.098	.004	-.058	-.600	-.01467	.058
			359	-1,412	21,888			47	-1,254										-.01438	.054
37	1225	18,000	359	-1,412	16,588	4,990	-1,040	47	-.993	1,158	.02031	-.080	1,055	.312	-.064	.003	-.062	-.440	-.01239	.042
			314	-1,235	16,765			41	-.992										-.01211	.040
38	1252	13,750	314	-1,235	12,515	3,820	-.796	41	-.755	.702	.01185	-.047	.653	.198	-.041	.002	-.039	-.304	-.00837	.031
			268	-1,054	12,696			35	-.761										-.00812	.030

J. Elkus

Bill Spitz

TABLE 44

TABLE 44. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 6 of 8. CONDITION: R.G.W.-229,999# 72-1000# B., 1/3 FUEL & OIL. L.A.A.-HIGH SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{.7 \tan\phi}{\frac{I_x}{Q_x}} \times 10^6$	$\frac{.7 \tan\phi}{\frac{I_x}{Q_x}} M'_x$	S''_b (6) − (31)
		.8848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	OR. 5 × (6)
26	870	19.287	-.872	20.159	-5,205	3.400	-4.949	-1.549	847.3	17,081	76,283
			-.878	20.165	-5,244		-4.981	-1.581		17,086	77,458
27	906	16.112	-.741	16.853	-4,692	2.840	-4.202	-1.362	886.0	14,932	69,212
			-.741	16.853	-4,717		-4.206	-1.366		14,932	69,995
28	942	13.215	-.612	13.827	-4,191	2.330	-3.474	-1.144	928.2	12,834	61,993
			-.616	13.831	-4,216		-3.494	-1.164		12,838	62,709
29	978	10.725	-.505	11.230	-3,707	1.891	-2.867	-.976	974.8	10,947	55,000
			-.512	11.237	-3,747		-2.903	-1.012		10,954	56,241
30	1014	8.536	-.411	8.947	-3,259	1.505	-2.324	-.829	1026	9,180	48,715
			-.412	8.948	-3,279		-2.337	-.832		9,181	49,324
31	1050	6.602	-.324	6.926	-2,816	1.164	-1.841	-.677	1083	7,501	42,004
			-.325	6.927	-2,832		-1.843	-.679		7,502	42,502
32	1080	5.231	-.261	5.492	-2,460	.9222	-1.481	-.5588	1136	6,239	36,865
			-.267	5.498	-2,493		-1.516	-.5938		6,246	37,861
33	1110	4.018	-.214	4.232	-2,136	.7083	-1.211	-.5027	1194	5,053	32,304
			-.214	4.232	-2,147		-1.213	-.5047		5,053	32,635
34	1140	2.936	-.162	3.158	-1,806	.5281	-.9198	-.3917	1259	3,976	27,362
			-.162	3.158	-1,816		-.9218	-.3937		3,976	27,657
35	1170	2.172	-.122	2.294	-1,487	.3830	-.6913	-.3083	1330	3,051	22,582
			-.127	2.299	-1,515		-.7179	-.3349		3,058	23,413
36	1198	1.538	-.094	1.632	-1,227	.2712	-.5338	-.2626	1405	2,293	18,878
			-.094	1.632	-1,235		-.5347	-.2635		2,293	19,095
37	1225	1.039	-.068	1.107	-978	.1831	-.3851	-.2020	1486	1,643	14,945
			-.068	1.107	-984		-.3860	-.2029		1,643	15,122
38	1252	.6431	-.0457	.6888	-744	.1134	-.2590	-.1456	1576	1,086	11,429
			-.0458	.6889	-749		-.2600	-.1466		1,086	11,610

CALCULATED BY	[illegible]	TABLE 44	DOC NO. FZS-36-140
DRAWN BY			MODEL B-36
CHECKED BY	[illegible]	CONSOLIDATED VULTEE AIRCRAFT CORPORATION	

[illegible]

TABLE 44. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 8 of 8 CONDITION: R.G.W., 223,999# 72-1000# B., 1/3 FUEL & OIL. L.A.A.-HIGH SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{J \tan\phi}{I_x/Q_x} \times 10$	$\frac{J \tan\phi}{I_x/Q_x} M'_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR. 5 = (6) − (31)
39	1278	.3750	−.0288	.4038	−551	.0661	−.1633	−.0972	1674	676	8,220
			−.0335	.4085	−572		−.1899	−.1238		684	8,880
40	1301	.1868	−.0206	.2074	−415	.0329	−.1168	−.0839	1772	368	6,296
			−.0207	.2075	−419		−.1175	−.0846		368	6,426
41	1324	.07445	−.01241	.08686	−277	.01312	−.07041	−.05729	1881	163	4,081
			−.01250	.08695	−279		−.07091	−.05779		164	4,139
TIP C.S.	1346.4	.009848	−.006232	[illegible]	−154	.00174	−.03535	−.03361	—	—	2,303
TIP	1380.841	0	0		0	0	0	0	—	—	—

CALCULATED BY	J. Ellis	TABLE 44	DOC NO. FZS-36-140
DRAWN BY			MODEL B-36
CHECKED BY	Kinsley Cupp	CONSOLIDATED VULTEE AIRCRAFT CORPORATION 3127 W. 6TH DIVISION FORT WORTH, TEXAS	

TABLE 45 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 1 of 8. CONDITION: R.B.W. 273999# 72-1000# B. & FUEL & OIL. 11 AA - HIGH SPEED @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{ba}	S_{b_1}	$1.5\frac{\Phi}{\Phi}S_{b_1}$ ($\frac{\Phi}{\Phi}$)=1.504	$S_b = S_b'$	S_{CL_a}	$1.5\frac{\Phi}{\Phi}S_{CL_a}$ $\frac{x}{\Phi}$=-.108	$1.5\frac{\Phi}{\Phi}S_{b_1}$ $\frac{x_m}{\Phi}$=.048	S_c	$M_{x_a} \times 10^6$	$M_{x_1} \times 10^6$	$1.5(\frac{M_x}{\Phi})M_{x_1}$ $\times 10^6$ ($\frac{\Phi}{\Phi}$)=1.504	$M_x \times 10^6$	$M_{CL_a} \times 10^6$	$1.5\frac{\Phi}{\Phi}M_{CL_a}$ $\times 10^6$ $\frac{x}{\Phi}$=-.108	$1.5\frac{x_m}{\Phi}M_{x_1}$ $\times 10^6$ $\frac{x_m}{\Phi}$=.048	$(M_y = M_y')$ $\times 10^6$	$T_{BA_a} \times 10^6$	$T_{BA_1} \times 10^6$	$1.5(\frac{\Phi}{\Phi})T_{BA_1}$ $\times 10^6$ ($\frac{\Phi}{\Phi}$)=1.504	$T_{BA} \times 10^6$
		Fig. 16	TABLE 28	8256 ÷ ④	③ + ⑤	TABLE 29	-162 ÷ ⑦	.0735 × ⑨	⑧ + ⑨	Fig. 16	TABLE 28	2.256 ⑫	⑪ + ⑬	TABLE 29	-162 × ⑬	.0735 × ⑮	⑩ + ⑰	Fig. 16	TABLE 28	2.256 ⑳	⑲ + ㉑
0	0	-152900	56740	128003	-124895	114480	-18496	4170	-14326	-148.5	26.83	60.528	-87.972	64.134	-10.390	1.972	-8.418	18.17	-9.121	-21.940	-3.740
			56250	126900	-126000			4134	-14412		26.83	60.528	-87.970			1.972	-8.418		-9.223	-21.585	-3.765
1	41.025	-242800	54250	116900	-115900	103600	-17755	4134	-13621	-138.4	24.52	55.317	-83.083	59.63	-9.66	1.802	-7.858	16.89	-9.248	-20.863	-3.973
			55230	124599	-118201			4059	-13696		24.52	55.317	-83.083			1.802	-7.858		-9.250	-20.868	-3.978
2	80.0	-233000	55260	124599	-108401	104900	-16994	4059	-12935	-129.0	22.37	50.467	-78.533	55.42	-8.978	1.644	-7.334	15.69	-8.808	-19.971	-4.201
			54390	122704	-110296			3998	-12996		22.37	50.467	-78.533			1.644	-7.334		-8.780	-19.868	-4.138
3	113.25	-224800	54390	122704	-102406	101000	-16362	3998	-12364	-121.4	20.56	46.383	-75.017	51.35	-8.416	1.511	-6.905	14.69	-8.407	-18.946	-4.276
			53800	121373	-103427			3854	-12408		20.56	46.383	-75.017			1.511	-6.905		-8.402	-18.955	-4.265
4	146.5	-217800	53800	121373	-95827	97210	-15748	3854	-11794	-113.9	18.79	42.345	-71.555	48.65	-7.881	1.380	-6.501	13.76	-8.034	-18.125	-4.365
			52910	119365	-97835			3889	-11859		18.77	42.345	-71.555			1.380	-6.501		-8.042	-18.183	-4.383
5	180.0	-209100	52910	119365	-89735	93300	-15115	3889	-11226	-106.9	17.00	38.352	-68.548	45.39	-7.353	1.250	-6.103	12.87	-7.677	-17.319	-4.449
			45170	101964	-107196			3320	-11796		16.84	37.991	-68.909			1.238	-6.115		-7.094	-16.004	-3.194
6	206.0	-203100	45170	101964	-101196	90260	-14622	3320	-11302	-101.2	15.67	35.352	-65.848	43.01	-6.868	1.152	-5.816	12.20	-6.852	-15.468	-3.258
			39850	89902	-113198			2928	-11605		15.56	35.103	-66.059			1.144	-5.824		-6.463	-14.584	-2.381
7	232.0	-197100	39850	89902	-107198	87310	-14144	2928	-11215	-96.8	14.52	32.757	-63.493	40.75	-6.602	1.067	-5.535	11.33	-6.250	-14.100	-1.970
			27280	61544	-135556			2005	-12139		14.05	31.697	-64.203			1.038	-5.569		-5.000	-11.280	+1.250
8	290.0	-182800	27280	61544	-131256	85400	-13835	2005	-11830	-93.0	13.59	30.659	-62.341	39.27	-6.342	0.999	-5.363	11.11	4.905	-11.066	+.044
			26410	59581	-133291			1941	-11894		13.59	30.653	-62.341			0.999	-5.363		4.875	-11.098	+.112
9	284.5	-184800	26410	59581	-125219	81410	-13188	1941	-11397	-86.1	12.65	28.538	-57.562	36.32	-5.884	0.930	-4.954	10.27	-4.683	-10.265	-.295
			36960	83382	-101418			2717	-10471		12.547	28.306	-57.794			0.922	-4.966		-5.206	-11.745	-1.478
10	312.0	-178300	36960	83382	-95118	78370	-12696	2717	-9979	-81.2	11.53	26.012	-55.188	34.11	-5.526	0.847	-4.679	9.635	-4.998	-11.275	-1.660
			36000	82570	-95930			2690	-10006										-4.999	-11.278	-1.673
11	339.5	-178000	36000	82570	-89430	75420	-12218	2690	-9528	-76.5	10.584	23.742	-52.768	31.98	-5.181	0.774	-4.407	9.00	-4.791	-10.808	-1.808
			32330	72936	-99064			2376	-9842										-4.133	-9.324	-.394
12	375.75	-164200	32330	72936	-91764	71600	-11599	2376	-9223	-70.6	9.352	21.098	-49.502	29.21	-4.732	0.687	-4.045	8.22	-3.393	-8.780	-.560
			31560	71177	-92073			2319	-9280										-3.872	-8.735	-.515

Shelton
Pfaff

TABLE 45

TABLE 45. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 2 of 8. CONDITION: R.G.W. = 229999#, 72-1000#B, ½ FUEL & OIL. ILAA. HIGH SPEED @ 5000 FT

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{.7 \tan\phi}{\frac{I_x}{Q_x}} \times 10$	$\frac{.7 \tan\phi}{\frac{I_x}{Q_x}} M'_x$	S''_b (6) − (31)
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR. 5 = (6)
0	0	-86.635	-.6493	-85.986	-14157	-15.272	-3.683	-18.955	412.7	-35086	-89809
		-86.635	-.6536	-85.981	-14193	-15.272	-3.708	-18.980		-35485	-90515
1	41.025	-81.820	-.6897	-81.130	-13414	-14.475	-3.913	-18.388	423.0	-34600	-81300
		-81.820	-.6906	-81.129	-13488	-14.475	-3.918	-18.393		-34600	-83600
2	80.0	-77.339	-.7293	-76.610	-12738	-13.633	-4.137	-17.770	433.1	-33180	-75221
		-77.339	-.7184	-76.621	-12798	-13.633	-4.075	-17.708		-33184	-77112
3	113.25	-73.877	-.7423	-73.135	-12176	-13.023	-4.211	-17.234	442.2	-32340	-69756
		-73.877	-.7404	-73.137	-12219	-13.023	-4.200	-17.223		-32341	-71086
4	146.5	-70.467	-.7578	-69.709	-11615	-12.422	-4.299	-16.721	451.7	-31488	-64339
		-70.467	-.7609	-69.760	-11679	-12.422	-4.317	-16.739		-31511	-66324
5	180.0	-67.506	-.7723	-66.734	-11055	-11.890	-4.381	-16.271	461.7	-30811	-58924
		-67.862	-.5441	-67.318	-11616	-11.963	-3.086	-15.049		-31081	-76115
6	206.0	-64.847	-.5656	-64.281	-11130	-11.431	-3.208	-14.639	469.7	-30193	-71003
		-65.092	-.4134	-64.679	-11515	-11.474	-2.345	-13.819		-30380	-82818
7	232.0	-62.479	-.4462	-62.033	-11045	-11.014	-2.531	-13.545	478.1	-29658	-77540
		-63.523	+.0434	-63.566	-11954	-11.198	+0.246	-10.952		-30391	-105165
8	249.0	-61.393	+.0076	-61.401	-11650	-10.822	+.043	-10.779	483.9	-29712	-101594
		-61.393	+.0194	-61.412	-11713	-10.822	+.110	-10.712		-29717	-103574
9	284.5	-56.687	-.0512	-56.636	-11076	-9.993	-.291	-10.284	495.9	-28086	-97133
		-56.916	-.2639	-56.652	-10312	-10.033	-1.453	-11.486		-28094	-73324
10	312.0	-54.349	-.2882	-54.061	-9827	-9.581	-1.635	-11.216	505.8	-27344	-67774
			-.2904	-54.059	-9854		-1.648	-11.229		-27343	-68587
11	339.5	-51.956	-.3139	-51.642	-9383	-9.159	-1.781	-10.940	516.0	-26647	-62783
			-.0562	-51.900	-9692		-.319	-9.478		-26780	-72284
12	375.75	-48.750	-.0972	-48.653	-9083	-8.628	-.551	-9.179	530.2	-25796	-65468
			-.0894	-48.661	-9139		-.507	-9.135		-25800	-67223

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CHECKED BY

TABLE 45

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH, TEXAS

DOC NO. FZS-36-140
MODEL B-36

TABLE 45. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 3 of 8. CONDITION RGW, 229,999# 72-1000#B, 5 FUEL, 1 OIL. 11AA - High Speed 45,000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ of SHIP	S_{ba}	S_{b_1}	$1.5(\frac{M_b}{W})S_{b_1}$ $(\frac{M_b}{W})=1504$	$S_b = S_b'$	$S_{c_{a_1}}$	$1.5\frac{X_m}{W}S_{c_{a_1}}$ $\frac{X_m}{W}=.108$	$1.5\frac{X_m}{W}S_{b_1}$ $\frac{X_m}{W}=.049$	S_c	$M_{x_a} \times 10^6$	$M_{x_1} \times 10^6$	$1.5(\frac{M_b}{W})M_{x_1}$ $\times 10^6$ $(\frac{M_b}{W})=1504$	$M_x \times 10^6$	$M_{c_{a_1}} \times 10^6$	$1.5\frac{X_m}{W}M_{c_{a_1}}$ $\times 10^6$ $\frac{X_m}{W}=.108$	$1.5\frac{X_m}{W}M_{x_1}$ $\times 10^6$ $\frac{X_m}{W}=.049$	$(M_y - M_y')$ $\times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_1} \times 10^6$	$1.5(\frac{M_b}{W})T_{EA_1}$ $(\frac{M_b}{W})=1504$	$T_{EA} \times 10^6$
		Fig. 16	TABLE 28	2256 × (4)	(3) + (5)	TAB. 29	-.162 × (7)	.0235 × (4)	(8) + (9)	Fig. 16	TABLE 28	2256 × (12)	(11) + (13)	TAB. 29	-.162 × (14)	.0735 × (12)	(16) + (17)	Fig. 16	TABLE 28	1.256 × (20)	(19) + (21)
13	4120	-156200	31550	71177	-85023	67780	-10980	2318	-8662	-65.0	8.208	18517	-46483	26.78	-4.338	.6033	-3.7347	7.50	-3.6371	-8.2053	-.7053
			30910	69733	-86461			2272	-8708										-3.6310	-8.1915	-.6915
14	448.5	-48200	30910	69733	-78461	64140	-10391	2272	-8119	-55.6	7.079	15.970	-43530	24.43	-3.958	.5203	-3.4379	6.80	-3.900	-7.6704	-.8704
			30290	68334	-79866			2226	-8165										-3.894	-7.6569	-.8569
15	485.0	-140400	30290	68334	-72066	60490	-9799	2226	-7573	-54.2	5.974	13.477	-40.723	22.13	-3.585	.4391	-3.1459	6.12	-3.167	-7.1448	-1.0248
			25370	66259	-74141			2159	-7640										-3.150	-7.1064	-.9864
16	521.5	-132750	25370	66259	-66491	56980	-9231	2159	-7072	-49.1	4.903	11.061	-38.039	20.05	-3.248	.3604	-2.8876	5.50	-2.929	-6.6078	-.1078
			25140	56716	-76694			1848	-7383										-2.395	-5.3580	+.1420
17	549.0	-121000	25140	56716	-70284	54250	-8789	1848	-6941	-45.5	4.211	9.500	-36.000	18.49	-2.995	.3005	-2.6855	5.03	-2.233	-5.0376	-.0376
			24860	56084	-70916			1827	-6962										-2.234	-5.0399	-.0099
18	576.5	-121400	24860	56084	-65316	51550	-8351	1827	-6524	-42.0	3.528	7.959	-34.041	17.05	-2.762	.2593	-2.5027	4.61	-2.094	-4.7241	-.1141
			19510	44015	-73685			1434	-6917										-1.583	-3.5712	+1.0888
19	615.5	-113700	19510	44015	-69685	48080	-7789	1434	-6355	-37.3	2.769	6.247	-31.053	15.06	-2.440	.2035	-2.2365	4.02	-1.427	-3.2193	+.8007
			16350	36886	-76814			1202	-6587										-1.420	-3.2035	+.8165
20	654.75	-106400	16350	36886	-65314	44520	-7212	1202	-6010	-33.0	2.133	4.812	-28.188	13.32	-2.158	.1568	-2.0016	3.50	-1.289	-2.9080	+.5920
			13480	30411	-75789			991	-6421										-1.293	-2.9170	+.5830
21	693.125	-98000	13480	30411	-68589	41140	-6665	991	-5674	-29.1	1.609	3.630	-25.370	11.43	-1.884	.1183	-1.7657	3.00	-1.184	-2.6711	+.3289
			11230	25335	-73465			825	-5840										-1.172	-2.6485	+.3515
22	732.0	-91300	11230	25335	-65965	37950	-6116	825	-5291	-25.6	1.173	2.646	-22.954	10.07	-1.631	.0862	-1.5448	2.55	-1.084	-2.4455	+1.045
			10010	22583	-68717			736	-5380										-1.073	-2.4207	+1.293
23	766.0	-85000	10010	22583	-62417	34890	-5652	736	-4916	-22.6	.8324	1.878	-20.722	8.85	-1.434	.0612	-1.3728	2.19	-1.002	-2.2605	-.0105
			6286	14181	-70919			462	-5190										-.9957	-1.3439	+.2461
24	800.0	-77700	6286	14181	-63519	31680	-5132	462	-4670	-19.1	.5809	1.311	-17.789	7.51	-1.217	.0427	-1.1743	1.79	-.5441	-1.2275	+.5625
			2585	5832	-71868			190	-4942										-.1658	-.3740	+1.4160
25	840.0	-71400	2585	5832	-65568	29080	-4711	190	-4521	-16.9	.0893	1.112	-15.588	6.47	-1.048	.0362	-1.0115	1.49	-0.1477	-.3332	+1.1568
			2322	5238	-66162			171	-4540										-0.1478	-.3334	+1.1566

Structures
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TABLE 45

FZS-36-140

B-36

TABLE 45. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 4 of 8. CONDITION: R.G.W. 229,999# 72-1000# B, ½ FUEL & OIL. ILAA-HIGH SPEED @ 3000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{J \tan\phi}{I_x} \times 10$ / $\frac{I_x}{Q_x}$	$\frac{J \tan\phi}{I_x} M'_x$ / $\frac{I_x}{Q_x}$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	(8) − (31) OR .6 × (6)
13	412.0	-45.776	-.1224	-45.654	-8530	-8069	-.6946	-8.7636	545.1	-24886	-60137
			-.1200	-45.656	-8576		-.6810	-8.7500		-24887	-61580
14	448.5	-42.868	-.1511	-42.717	-7996	-7557	-.8572	-8.4142	561.1	-23969	-54498
			-.1488	-42.719	-8041		-.8439	-8.4009		-23970	-55896
15	485.0	-40.104	-.1779	-39.926	-7458	-7.070	-1.0092	-8.0792	578.0	-23077	-48989
			-.1712	-39.933	-7524		-.9714	-8.0414		-23081	-51060
16	521.5	-37.461	-.1923	-37.269	-6965	-6604	-1.0910	-7.6950	596.0	-22212	-44429
			+.0247	-37.486	-7271		+1.1398	-6.4642		-22341	-53893
17	549.0	-35.453	-.00132	-35.452	-6835	-6250	-.0075	-6.2575	610.3	-21636	-48648
			-.0017	-35.451	-6856		-.0097	-6.2597		-21636	-49280
18	576.5	-33.524	-.0198	-33.504	-6425	-5910	-11.24	-6.0324	625.2	-20947	-44370
			+.1803	-33.704	-6812		+1.0230	-4.8870		-21072	-56313
19	615.375	-30.881	+.1390	-30.720	-6258	-5991	+.7885	-4.6025	647.7	-19897	-49788
			+.1917	-30.723	-6487		+.8041	-4.5869		-19899	-52915
20	654.25	-27.760	+.1028	-27.863	-5919	-4893	+.5830	-4.3100	671.9	-18721	-50593
			+.1012	-27.861	-6126		+.5741	-4.3188		-18720	-57269
21	693.125	-24.984	+.0570	-25.041	-5588	-4404	+.3239	-4.0801	697.9	-17476	-50913
			+.0610	-25.045	-5751		+.3462	-4.0578		-17479	-55986
22	732.0	-22.507	+.0181	-22.525	-5211	-3967	+.1029	-3.8641	726.1	-16355	-49610
			+.0224	-22.529	-5298		+.1273	-3.8397		-16359	-52358
23	766.0	-20.407	-.0122	-20.395	-4841	-3597	-.0694	-3.6664	752.7	-15351	-47066
			+.1469	-20.554	-5111		+.8332	-2.7638		-15471	-55348
24	806.0	-17.519	+.0977	-17.618	-4599	-3.088	+.5540	-2.5340	786.3	-13853	-49666
			+.2458	-17.765	-4867		1.3945	-1.6935		-13968	-57900
25	840.0	-15.351	+.2008	-15.552	-4452	-2.706	1.1392	-1.5668	817.6	-12715	-52853
			+.2008	-15.552	-4471		1.1390	-1.5670		-12715	-53447

CALCULATED BY: [illegible]
DRAWN BY:
CHECKED BY: [illegible]

TABLE 45

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

DOC NO. FZS-36-140
MODEL B-36

TABLE 45. B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

CONDITION: RSW 223999 [illegible] 3 [illegible] 10 [illegible] ULA: [illegible]

Station	Dist. from ℄ of Ship	S_{Ba}	S_{Bi}	S_L	S_T	S_{Ba}	S_{Bi}	S_L	S_T	S_e	M_{Ba}	M_{Bi}	M_L	M_T	M_{Ba}	M_{Bi}	M_L	M_T	T_{Ba}	T_{Bi}	T_e
		Fig. 16	[illegible]	2156	③ + ⑤	[illegible]	[illegible]	0035	④	⑥ + ⑧	Fig. 16	[illegible]	[illegible]	⑪	⑫	⑬	[illegible]	[illegible]	⑯ × ⑦	Fig. 16	[illegible]	[illegible]	⑲ + ⑳
26	2300	66000	2322	5238	60962	26820	-4235	170	-4175	-1.47	[illegible]	.9560	13745	5464	-.9137	[illegible]	-8824	1.25	[illegible]	[illegible]	9289
			2022	4562	66438			145	-4196										[illegible]	[illegible]	8472
27	3060	60000	2022	4562	55638	24344	-3909	149	-3760	-1.6	0.0300	.7910	[illegible]	4.841	.7713	.0158	.7415	[illegible]	[illegible]	[illegible]	.7317
			1823	4113	58987			134	-3775										[illegible]	2450	.7341
28	3920	50300	1823	4113	50187	21570	-3444	134	-3360	-1.02	[illegible]	.6430	9.570	[illegible]	-.6307	.0248	-.6082	0.75	[illegible]	[illegible]	.5325
			1640	3700	50600			121	-3373										[illegible]	[illegible]	.5217
29	5980	49500	1640	3700	44800	18090	-3089	121	-2972	-.840	0.0259	.5056	7.8902	3.255	-.5116	.0184	-.0945	.0.56	[illegible]	[illegible]	[illegible]
			1323	2986	45515			97	-2986										[illegible]	[illegible]	[illegible]
30	7070	45000	1323	2985	40015	16210	-2707	97	-2610	-.674	0.0180	.4024	6.178	2.516	-.4086	0.0131	-.3264	0.37	[illegible]	[illegible]	.2746
			1168	2635	40365			86	-2621										[illegible]	[illegible]	.2295
31	8500	38500	[illegible]	2035	34865	[illegible]	-2381	80	-2305	-.522	0.1362	.3079	5.127	2.033	.3270	.0100	.3112	0.2	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	35152			77	-2264										[illegible]	[illegible]	[illegible]
32	10000	33000	1041	2398	30658	12540	-2048	[illegible]	-1971	-.414	0.1060	.3360	3.8031	1.593	-.3581	.0073	-.3404	0.12	[illegible]	[illegible]	[illegible]
			786	1821	31271			[illegible]	-1990										[illegible]	[illegible]	[illegible]
33	11400	28500	786	1778	27022	10900	-1766	58	-1708	-.320	0.0144	.1837	3.0163	1.232	-.1996	.0059	-.1936	0.07	[illegible]	[illegible]	-.0344
			701.5	1583	27217			56	-1719										[illegible]	[illegible]	-.0338
34	12400	24600	701.5	1583	22017	9400	-1497	54	-1445	-.230	[illegible]	.1362	2.248	.924	-.1497	[illegible]	[illegible]	0.00	[illegible]	[illegible]	[illegible]
			628.8	1414	23186			46	-1451										[illegible]	[illegible]	[illegible]
35	13400	20600	628.8	1414	19186	7640	-1238	46	-1192	-.170	0.0159	.0838	1.6062	.664	-.1076	[illegible]	[illegible]	0.00	[illegible]	.0539	[illegible]
			413.9	[illegible]	19666			30	-1203										[illegible]	[illegible]	[illegible]
36	14900	16800	413.9	934	15866	6240	-1011	30	-981	-.120	0.0100	.0677	1.4323	.469	-.0760	.0028	-.0138	0.00	[illegible]	-.0281	[illegible]
			328.9	870	15258			26	-955										[illegible]	[illegible]	[illegible]
37	17250	13600	328.9	870	12790	4930	-820	26	-793	-.080	0.0081	.0456	.7542	.312	-.0505	[illegible]	.0490	0.10	[illegible]	-.0280	-.1180
			213.5	707	13493			23	-765										[illegible]	[illegible]	[illegible]
38	[illegible]	10800	213.5	707	[illegible]	[illegible]	-645	24	-596	-.050	0.0185	.0267	[illegible]	.295	-.0316	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			260.3	605	9994			22	-589										[illegible]	[illegible]	[illegible]

TABLE 45

TABLE 45. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 6 of 8 — CONDITION: R.G.W. -228,999# -72-1000# B. 1/3 FUEL 40 IL. ILAA - HIGH SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{J_{TAN}}{J_x} \cdot \frac{1}{Q_x}$	$\frac{J_{TAN}}{J_x} \cdot \frac{1}{Q_x} M'_x$	S'_b (6) - (31)
		9848 × (14)	.1736 × (22)	(23) - (24)	9848 × (10)	.1736 × (14)	9848 × (22)	(27) + (28)	TABLE 30	(26) × (30)	OR, S = (6)
26	870.0	-13.536	.1612	-13.697	-9112	-2.386	.915	-1.471	847.3	-11605	-49857
			.1645	-13.700	-4132		.933	-1.453		-11605	-50030
27	906.0	-11.334	.1270	-11.460	-3702	-1.998	.721	-1.277	886.0	-10155#	-45384
			.1274	-11.461	-3718		.723	-1.275		-10155	-45832
28	942.0	-9.412	.0928	-9.509	-3309	-1.659	.526	-1.133	928.2	-8822	-41365
			.0932	-9.505	-3322		.529	-1.130		-8822	-41778
29	978.0	-7.770	.0632	-7.833	-2927	-1.370	.359	-1.011	974.8	-7636	-37164
			.0669	-7.839	-2950		.380	-.990		-7639	-37876
30	1014.0	-6.222	.0395	-6.262	-2570	-1.097	.224	-.873	1026	-6424	-33591
			.0398	-6.262	-2581		.226	-.871		-6425	-33940
31	1050.0	-4.838	.0172	-4.855	-2221	-.853	.097	-.756	1083	-5258	-29607
			.0173	-4.855	-2230		.098	-.755		-5258	-29894
32	1080.0	-3.844	.00256	-3.847	-1941	-.677	.0145	-.6625	1136	-4370	-26282
			.0060	-3.850	-1960		.0342	-.6428		-4374	-26853
33	1110.0	-2.970	-.0059	-2.964	-1682	-.524	-.0339	-.5579	1194	-3539	-23488
			-.0058	-2.964	-1688		-.0329	-.5569		-3539	-23678
34	1140.0	-2.210	-.0145	-2.195	-1423	-.390	-.0824	-.4724	1259	-2764	-20253
			-.0143	-2.196	-1429		-.0813	-.4713		-2764	-20422
35	1170.0	-1.582	-.0198	-1.562	-1174	-.279	-.1122	-.3912	1330	-2078	-17108
			-.0171	-1.565	-1190		-.0970	-.3760		-2081	-17585
36	1190.0	-1.115	-.0124	-1.094	-966	-.197	-.1212	-.3182	1405	-1537	-14329
			-.0212	-1.094	-970		-.1205	-.3175		-1537	-14453
37	1225.0	-.743	-.0222	-.721	-770	-.131	-.1260	-.2570	1486	-1071	-11719
			-.0221	-.721	-773		-.1254	-.2564		-1071	-11822
38	1252.0	-.466	-.0232	-.443	-587	-.082	-.1314	-.2134	1576	-698	-9195
			-.0231	-.443	-590		-.1308	-.2128		-698	-9297

CALCULATED BY: [illegible]
DRAWN BY:
CHECKED BY: [illegible]

TABLE 45

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION, FORT WORTH, TEXAS

DOC NO. FZS-36-140
MODEL B-36

TABLE 45. B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 7 of 8 CONDITION: R.B.W. 229,999#, 72-1000 #/s FUEL & OIL, 1 LA-HIGH SPEED @ 5000 FT.

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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_i}	$1.5(\frac{L_b}{W})S_{b_i}$ $\frac{L_b}{W}=.1504$	$S_b = S'_b$	$S_{C_{L_a}}$	$1.5\frac{L_b}{W}S_{C_{L_a}}$ $\frac{L_b}{W}=.108$	$1.5\frac{L_b}{W}S_{b_i}$ $\frac{L_b}{W}=.049$	S_c	$M_{X_a}\times10^6$	$M_{X_i}\times10^6$	$1.5(\frac{L_b}{W})M_{X_i}\times10^6$ $(\frac{L_b}{W})=.1504$	$M_X\times10^6$	$M_{C_{L_a}}\times10^6$	$1.5\frac{L_b}{W}M_{C_{L_a}}\times10^6$ $\frac{L_b}{W}=.108$	$1.5\frac{L_b}{W}M_{X_i}\times10^6$ $\frac{L_b}{W}=.049$	$(M_y=M'_y)\times10^6$	$T_{EA_a}\times10^6$	$T_{EA_i}\times10^6$	$1.5(\frac{L_b}{W})T_{EA_i}\times10^6$ $(\frac{L_b}{W})=.1504$	$T_{EA}\times10^6$
		Fig. 16	TABLE 28	2256×④	③ + ⑤	[redacted] TABLE 29	−.162×⑦	.0735×④	⑧ + ⑨	Fig. 16	TABLE 28	2256×⑫	⑪ + ⑬	[redacted] TABLE 29	−.162×⑮	.0735×⑰	⑯ + ⑰	Fig. 16	TABLE 28	2256×⑳	⑲ + ㉑
39	1278.0	8000	268.3	605	-7395	2850	-461.7	20	-441.7	-0.29	.0487	.01098	-.27902	.108	-.0175	.000098	.017192	-0.10	-0.00681	-.01538	-.10838
			98.3	222	-7778			7	-454.7										-0.00135	-.00414	-.10414
40	1301.0	-6000	68.3	222	-5778	2080	-337.0	7	-330.0	-0.16	.002609	.00588	-.15412	.061	-.0099	.000392	.009108	-0.10	-0.001390	-.003091	-.103091
			65.2	147	-5853			4.8	-332.2										-0.001139	-.002765	-.102765
41	1324.0	4000	65.2	147	-3853	1390	-225	4.8	-220.2	-0.09	0.001109	.002502	-.0875	.030	-.0049	.000001	-.004899	-0.09	-0.000811	-.002101	-.09201
			49.5	111	-3889			3.6	-221.4										-0.000771	-.001729	-.09129
TIP S.G	1346.4	-2200	49.5	111	-2089	780	-126	3.6	-122.4	0	0	0	0	.0095	.0015	0	.0015	-0.07	-0.000598	-.001228	-.07228
TIP	1380	0	0.0	0	0	0	0	0	-1260	0	0	0	0	0	0	0	0	0	0.000000	0	0

TABLE 45.

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B-36

TABLE 45. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 8 of 8. CONDITION: R.G.W. - 229,999#, 72-1000#B, 1/3 FUEL & OIL, ILAA-HIGH SPEED @ 5,000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{J \tan\phi}{\frac{I_x}{Q_x}} \times 10^{-6}$	$\frac{J \tan\phi}{\frac{I_x}{Q_x}} M'_x$	S''_b (6) − (31)
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR. 5 = (6)
39	1278.0	-.27478	-.01887	-.2559	-435.0	-.04844	-.10703	-.15547	1674	-428.39	-6966.61
			-.01808	-.2567	-447.8		-.10256	-.15100		-429.72	-7388.28
40	1301.0	-.15178	-.01790	-.1399	-325.0	-.02676	-.10152	-.12828	1772	-237	-5541
			-.01783	-.1340	-327.15		-.10114	-.12790		-237	-5616
41	1324.0	-.08617	-.01597	-.07020	-216.9	-.01519	-.09261	-.10580	1881	-132	-3721
			-.01593	-.07024	-218.0		-.09264	-.10553		-132	-3757
TIP CG.	1346.4	0	-.01236	+.01236	0	0	-.07014	-.07014	—	—	-2089
TIP	1380.	0	0	0	0	0	0	0	0	0	0

CALCULATED BY	[illegible]	TABLE 45	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY	Pfeffer		

TABLE 46 B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 1 of 8. CONDITION: R.G.W. 229,999 #, 72-1000 #B, 1/3 FUEL & OIL, ILAA.-LIMIT DIVE SPEED @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_i}	$1.5(\frac{N_z}{W})S_{b_i}$ $(\frac{N_z}{W})=1.376$	$S_b = S_b'$	$S_{C_{L_{a_i}}}$	$1.5\frac{X}{W}S_{C_{L_{a_i}}}$ $\frac{X}{W}=-.071$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=.011$	S_c	$M_{X_a} \times 10^{-6}$	$M_{X_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})M_{X_i} \times 10^{-6}$ $(\frac{N_z}{W})=1.376$	$M_X \times 10^{-6}$	$M_{C_{L_{a_i}}} \times 10^{-6}$	$1.5\frac{X}{W}M_{C_{L_{a_i}}} \times 10^{-6}$ $\frac{X}{W}=-.071$	$1.5\frac{X_m}{W}M_{X_i} \times 10^{-6}$ $\frac{X_m}{W}=.011$	$(M_y = M_y')$ $\times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})T_{EA_i} \times 10^{-6}$ $(\frac{N_z}{W})=1.376$	$T_{EA} \times 10^{-6}$
		Fig. 17	TABLE 28	2.064×(4)	(3) + (5)	TABLE 29	-.1065×(7)	.0165×(4)	(8) + (9)	Fig. 17	TABLE 28	2.064×(12)	(11) + (13)	TABLE 29	-.1065 (15)	.0165×(12)	(16) + (17)	Fig. 17	TABLE 28	2.064×(20)	(19) + (21)
0	0	-227,865	56,740	117,110	-110,755	114,480	-12,192	936	-11,256	-135.888	26.83	55.377	-80.511	64.134	-6.830	.4427	-6.387	13.268	-9.721	-20.064	-6.796
			56,250	116,100	-111,765			928	-11,264										-9.723	-20.068	-6.800
1	41.025	-219,100	56,250	116,100	-103,000	109,600	-11,672	928	-10,744	-126.85	24.52	50.609	-76.241	59.63	-6.351	.4046	-5.946	12.345	-9.248	-19.088	-6.743
			55,230	113,990	-105,110			911	-10,761										-9.250	-19.092	-6.747
2	80.0	-210,900	55,230	113,990	-96,910	104,900	-11,172	911	-10,261	-118.45	22.37	46.172	-72.278	55.42	-5.902	.3691	-5.533	11.485	-8.808	-18.180	-6.695
			54,390	112,260	-98,640			897	-10,275										-8.780	-18.122	-6.637
3	113.25	-203,800	54,390	112,260	-91,540	101,000	-10,757	897	-9,860	-111.50	20.56	42.436	-69.064	51.95	-5.533	.3392	-5.194	10.765	-8.407	-17.352	-6.587
			53,800	111,040	-92,760			888	-9,869										-8.402	-17.342	-6.577
4	146.5	-196,800	53,800	111,040	-85,760	97,210	-10,353	888	-9,465	-104.85	18.77	38.741	-66.109	48.65	-5.181	.3097	-4.871	10.095	-8.034	-16.582	-6.487
			52,910	109,210	-87,590			873	-9,480										-8.042	-16.599	-6.504
5	180	-189,600	52,910	109,210	-80,390	93,300	-9,936	873	-9,063	-98.45	17.00	35.088	-63.362	45.39	-4.834	.2805	-4.554	9.425	-7.677	-15.845	-6.420
			45,170	93,230	-96,370			745	-9,191		16.84	34.758	-63.692			.2779	-4.556		-7.094	-14.642	-5.217
6	206	-184,100	45,170	93,230	-90,870	90,260	-9,613	745	-8,868	-93.55	15.67	32.343	-61.207	43.01	-4.581	.2586	-4.322	8.920	-6.852	-14.143	-5.223
			39,850	82,250	-101,850			658	-8,955		15.56	32.116	-61.434			.2567	-4.324		-6.463	-13.340	-4.420
7	232	-178,700	39,850	82,250	-96,450	87,310	-9,299	658	-8,641	-88.80	14.52	29.969	-58.831	40.75	-4.340	.2396	-4.100	8.425	-6.250	-12.900	-4.475
			27,280	56,310	-122,390			450	-8,849		14.05	28.999	-59.801			.2318	-4.108		-5.000	-10.320	-1.895
8	249	-175,100	27,280	56,310	-118,790	85,400	-9,095	450	-8,645	-85.75	13.59	28.050	-57.700	39.27	-4.182	.2242	-3.958	8.120	-4.905	-10.124	-2.004
			26,410	54,510	-120,590			436	-8,659										-4.875	-10.062	-1.942
9	284.5	-167,900	26,410	54,510	-113,390	81,410	-8,670	436	-8,234	-79.75	12.65	26.110	-53.640	36.32	-3.868	.2087	-3.659	7.490	-4.683	-9.666	-2.176
			36,960	76,290	-91,610			610	-8,060		12.547	25.897	-53.853			.2070	-3.661		-5.206	-10.745	-3.255
10	312	-162,300	36,960	76,290	-86,010	78,370	-8,346	610	-7,736	-75.05	11.530	23.798	-51.252	34.11	-3.633	.1902	-3.443	7.005	-4.998	-10.316	-3.311
			36,600	75,540	-86,760			604	-7,742										-4.999	-10.318	-3.313
11	339.5	-156,900	36,600	75,540	-81,360	75,420	-8,032	604	-7,428	-70.65	10.524	21.722	-48.928	31.98	-3.406	.1736	-3.232	6.545	-4.791	-9.889	-3.344
			32,330	66,730	-90,170			593	-7,499										-4.133	-8.531	-1.986
12	375.75	-149,900	32,330	66,730	-83,170	71,600	-7,625	593	-7,092	-65.15	9.352	19.303	-45.847	29.21	-3.111	.1543	-2.957	5.985	-3.892	-8.033	-2.048
			31,550	65,120	-84,780			521	-7,104										-3.872	-7.992	-2.007

J. Ellis

Bruce Napier

TABLE 46

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B-36

TABLE 46. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 2 of 8. CONDITION: R.G.W. - 229,999# - 72-1000# B. 1/3 FUEL & OIL. ILAA. LIMIT DIVE SPEED @ 5000 FT.

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DATE: 12-1-48

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T \tan\phi}{I_z/Q_z} \times 10^6$	$\frac{T \tan\phi}{I_z/Q_z} - M'_x$	$S''_b = (6) - (31)$
		(8)(48) = (14)	.1736 × (22)	(23) − (24)	(8)(48) = (10)	.1736 × (16)	(8)(48)(22)	(27) + (28)	TABLE 30	(25) × (30)	OR. 5 = (6)
0	0	-79.287	-1.180	-78.107	-11,085	-13.977	-6.693	-20.670	412.7	-32,235	-78,520
			-1.180	-78.107	-11,093		-6.697	-20.674		-32,235	-79,530
1	41.025	-75.082	-1.171	-73.911	-10,581	-13.235	-6.641	-19.876	423.0	-31,264	-71,736
			-1.171	-73.911	-10,597		-6.644	-19.879		-31,264	-73,846
2	80.0	-71.179	-1.162	-70.017	-10,105	-12.547	-6.593	-19.140	433.1	-30,324	-66,586
			-1.152	-70.027	-10,119		-6.536	-19.083		-30,329	-68,311
3	113.25	-69.014	-1.144	-66.870	-9,710	-11.990	-6.487	-18.477	442.2	-29,570	-61,970
			-1.142	-66.872	-9,719		-6.477	-18.467		-29,571	-63,189
4	146.5	-65.104	-1.126	-63.978	-9,321	-11.477	-6.388	-17.865	451.7	-28,899	-56,861
			-1.129	-63.975	-9,336		-6.405	-17.882		-28,898	-58,692
5	180	-62.399	-1.115	-61.284	-8,925	-11.000	-6.322	-17.322	461.7	-28,295	-52,095
		-62.724	-.9057	-61.818	-9,051	-11.057	-5.138	-16.195		-28,541	-67,829
6	206	-60.277	-.9067	-59.370	-8,733	-10.626	-5.144	-15.770	469.7	-27,886	-62,884
		-60.500	-.7673	-59.733	-8,819	-10.665	-4.953	-15.018		-28,057	-73,793
7	232	-57.937	-.7769	-57.160	-8,510	-10.213	-4.407	-14.620	478.1	-27,323	-69,122
		-58.892	-.3290	-58.563	-8,714	-10.381	-1.866	-12.247		-27,999	-94,391
8	249	-56.823	-.3479	-56.475	-8,514	-10.017	-1.974	-11.991	483.9	-27,328	-91,462
			-.3371	-56.486	-8,527		-1.912	-11.929		-27,334	-93,256
9	284.5	-52.825	-.3778	-52.447	-8,109	-9.312	-2.143	-11.455	495.9	-26,008	-87,382
		-53.094	-.5651	-52.469	-7,937	-9.349	-3.206	-12.555		-26,019	-65,591
10	312	-50.473	-.5748	-49.898	-7,618	-8.897	-3.261	-12.158	505.8	-25,238	-60,772
			-.5751	-49.898	-7,624		-3.263	-12.160		-25,238	-61,522
11	339.5	-48.184	-.5805	-47.604	-7,315	-8.494	-3.293	-11.787	516.0	-24,564	-56,796
			-.3448	-47.839	-7,385		-1.956	-10.450		-24,685	-65,485
12	375.75	-45.150	-.3555	-44.795	-6,984	-7.959	-2.017	-9.976	530.2	-23,750	-59,420
			-.3484	-44.802	-6,996		-1.976	-9.935		-23,754	-61,026

CALCULATED BY	[illegible]	TABLE 46.	DOC NO. FZS-26-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY	[illegible]		
APPROVED BY			

TABLE 46 B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

PAGE: 218
REPORT: FZS-36-140
DATE: 12-4-45

SHEET 3 of 8. CONDITION: RGW 229,999# 72-1000# B, 1/3 FUEL & OIL. ILAA. LIMIT DIVE SPEED @ 5000

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_i}	$1.5(\frac{N_a}{W})S_{b_i}$ $(\frac{N_a}{W})=1.376$	$S_b = S_b'$	$S_{C_{L_{a_i}}}$	$1.5\frac{X}{W}S_{C_{L_{a_i}}}$ $\frac{X}{W}=-.071$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=.011$	S_c	$M_{x_a}\times10^{-6}$	$M_{x_i}\times10^{-6}$	$1.5(\frac{N_a}{W})M_{x_i}\times10^{-6}$ $(\frac{N_a}{W})=1.376$	$M_x\times10^{-6}$	$M_{C_{L_{a_i}}}\times10^{-6}$	$1.5\frac{X}{W}M_{C_{L_{a_i}}}\times10^{-6}$ $\frac{X}{W}=-.071$	$1.5\frac{X_m}{W}M_{x_i}\times10^{-6}$ $\frac{X_m}{W}=.011$	$(M_y=M_y')\times10^{-6}$	$T_{EA_a}\times10^{-6}$	$T_{EA_i}\times10^{-6}$	$1.5(\frac{N_a}{W})T_{EA_i}\times10^{-6}$ $(\frac{N_a}{W})=1.376$	$T_{EA}\times10^{-6}$
		Fig. 17	TABLE 28	2.064×(4)	(3)+(5)	TAB 29	-.1065×(7)	.0165×(4)	(8)+(9)	Fig. 17	TABLE 28	2.064×(12)	(11)+(13)	TAB. 29	-.1065×(15)	.0165×(12)	(16)+(17)	Fig. 17	TABLE 28	2.064×(20)	(19)+(21)
13	412	-142800	31550	65120	-77680	67780	-7219	521	-6698	-59.90	8.208	16.941	-42.959	26.78	-2.852	.1354	-2.717	+5.435	-3.637	-7.507	-2.072
			30910	63800	-79,000			510	-6709										-3.631	-7.494	-2.059
14	448.5	-135800	30910	63800	-72000	64140	-6831	510	-6321	-54.85	7.079	14.611	-40.239	24.43	-2.602	.1168	-2.485	+4.905	-3.400	-7.018	-2.113
			30290	62520	-73280			500	-6331										-3.394	-7.025	-2.100
15	485	-128900	30290	62520	-66380	60490	-6442	500	-5942	-50.00	5.974	12.330	-37.670	22.13	-2.357	.09857	-2.258	+4.405	-3.167	-6.537	-2.132
			29370	60620	-68280			485	-5957										-3.150	-6.502	-2.097
16	521.5	-122000	29370	60620	-61380	56980	-6068	485	-5583	-45.50	4.903	10.120	-35.380	20.05	-2.135	.08080	-2.054	3.935	-2.929	-6.045	-2.110
			25140	51890	-70110			415	-5653										-2.375	-4.902	-0.967
17	549	-117000	25140	51890	-65110	54250	-5778	415	-5363	-42.20	4.211	8.692	-33.508	18.49	-1.969	.06948	-1.900	3.585	-2.233	-4.609	-1.024
			24860	51310	-65690			410	-5368										-2.234	-4.611	-1.026
18	576.5	-111900	24860	51310	-60590	51550	-5490	410	-5080	-39.00	3.528	7.282	-31.718	17.05	-1.816	.05821	-1.758	3.265	-2.094	-4.322	-1.057
			19510	40270	-71630			322	-5168										-1.583	-3.267	-0.002
19	615.375	-104800	19510	40270	-64530	48080	-5121	322	-4799	-34.85	2.769	5.715	-29.135	15.06	-1.604	.04569	-1.558	2.835	-1.427	-2.945	-0.110
			16350	33750	-71,050			270	-4851										-1.420	-2.931	-0.096
20	654.25	-97750	16350	33750	-64000	44520	-4741	270	-4471	-30.75	2.133	4.403	-26.347	13.32	-1.419	.03519	-1.384	2.435	-1.289	-2.660	-0.225
			13480	27820	-69930			222	-4519										-1.293	-2.669	-0.234
21	693.125	-90900	13480	27820	-63080	41140	-4381	222	-4159	-27.05	1.609	3.321	-23.729	11.63	-1.239	.02685	-1.212	2.055	-1.184	-2.444	-0.389
			11230	23180	-67720			185	-4196										-1.174	-2.423	-0.368
22	732	-84150	11230	23180	-60970	37750	-4020	185	-3835	-23.75	1.173	2.421	-21.329	10.07	-1.072	.01935	-1.0527	1.720	-1.084	-2.237	-0.517
			10010	20660	-63490			165	-3855										-1.073	-2.215	-0.495
23	766	-78650	10010	20660	-57990	34890	-3716	165	-3551	-21.00	.8324	1.718	-19.282	8.85	-.9425	.01373	-.9288	1.450	-1.002	-2.068	-0.618
			6286	12970	-65680			104	-3612										-.5957	-1.230	+0.220
24	806	-72050	6286	12970	-59080	31680	-3374	104	-3270	-18.00	.5809	1.199	-16.801	7.51	-.7998	.009585	-.7902	1.150	-.5941	-1.123	+0.027
			2585	5335	-66715			43	-3331										-.1658	-.3422	+0.8018
25	840	-66750	2585	5335	-61415	29080	-3097	43	-3054	-15.65	.4930	1.018	-14.632	6.47	-.6691	.008135	-.6810	.9350	-.1477	-.3049	+0.6301
			2322	4793	-61957			38	-3059										-.1478	-.3051	+0.6299

TABLE 46

FZS-36-140

B-36

TABLE 46 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 4 of 8. CONDITION: R.G.W. 229,999# 72-1000#B, 1/3 FUEL & OIL, 1LAA-LIMIT DIVE SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\phi$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} \times 10$	$\frac{T \tan\phi}{\frac{I_x}{Q_x}} M'_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	QR.5 × (6) − (31)
13	412	−42.308	−.3537	−41.946	−6536	−7.458	−2.041	−9.499	545.1	−22,865	−54,815
			−.3574	−41.949	−6607		−2.028	−9.486		−22,866	−56,134
14	448.5	−39.627	−.3668	−39.260	−6225	−6.985	−2.081	−9.066	561.1	−22,029	−49,971
			−.3646	−39.262	−6235		−2.068	−9.053		−22,030	−51,250
15	485	−37.097	−.3701	−36.727	−5852	−6.540	−2.100	−8.640	578.0	−21,228	−45,152
			−.3640	−36.733	−5866		−2.045	−8.605		−21,232	−47,048
16	521.5	−34.842	−.3663	−34.476	−5498	−6.142	−2.078	−8.220	596.0	−20,548	−40,832
			−.1679	−34.674	−5567		−0.952	−7.094		−20,666	−49,444
17	549	−32.999	−.1778	−32.821	−5281	−5.817	−1.008	−6.825	610.3	−20,031	−45,079
			−.1781	−32.821	−5286		−1.010	−6.827		−20,031	−45,659
18	576.5	−31.236	−.1835	−31.053	−5003	−5.506	−1.041	−6.547	625.2	−19,414	−41,176
			−.0003	−31.236	−5089		−.0020	−5.508		−19,529	−52,101
19	615.375	−28.692	−.0191	−28.673	−4726	−5.058	−.1083	−5.166	647.7	−18,572	−45,958
			−.0167	−28.675	−4777		−.0945	−5.153		−18,573	−52,477
20	654.25	−25.947	−.0391	−25.908	−4403	−4.574	−.2216	−4.796	671.9	−17,408	−46,592
			−.0406	−25.906	−4450		−.2304	−4.804		−17,406	−52,524
21	693.125	−23.368	−.0675	−23.301	−4096	−4.119	−.3831	−4.502	697.9	−16,262	−46,818
			−.0699	−23.304	−4132		−.3624	−4.481		−16,264	−51,456
22	732	−21.005	−.0898	−20.915	−3777	−3.703	−.5091	−4.212	726.1	−15,186	−45,784
			−.0859	−20.919	−3796		−.4875	−4.191		−15,189	−48,301
23	766	−18.989	−.1073	−18.882	−3497	−3.347	−.6086	−3.956	752.7	−14,212	−43,778
			+.0382	−19.027	−3557		+.2167	−3.130		−14,322	−51,358
24	806	−16.546	+.0047	−16.551	−3220	−2.917	+.0266	−2.890	786.3	−13,014	−46,066
			+.1402	−16.686	−3280		+.7955	−2.122		−13,120	−53,595
25	840	−14.410	+.1094	−14.519	−3008	−2.540	+.6205	−1.920	817.6	−11,871	−49,544
			+.1094	−14.519	−3013		+.6203	−1.920		−11,871	−50,086

CALCULATED BY: J. Ellis
DRAWN BY:
CHECKED BY:

TABLE 46

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH TEXAS

DOC NO. FZS-36-140
MODEL B-36

TABLE 46 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 5 of 8 CONDITION ABN 229995 233000 B, ½ FUEL 10 OIL ILAA - LIMIT DIVE SPEED @ 3000 FT

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	$S_{b_{max}}$	S_{b_1}	$1.6 S_{b_1}$ (1.6)=1.216	$S_b = S_b'$	$S_{a_{max}}$	$1.6 S_{a_{max}}$ (-.071) (-.011)	$1.6 S_{a_1}$	S_c	$M_{x_{max}} \times 10^6$	$M_{z_1} \times 10^6$	$1.6 M_{z_1}$	$M_{y_{max}} \times 10^6$	$M_{a_{max}} \times 10^6$	$1.6 M_{a_1}$ (-.071) (-.011)	$M_{b_1} = M_a'$	$T_{b_{max}} \times 10^6$	$T_{b_1} \times 10^6$	$1.6 T_{b_1}$ (1.216)	$T_{c_{max}} \times 10^6$	$T_{c_1} \times 10^6$
		Fig. 17	Table 28 2041 ④	⑤ + ② 2427	1065 ⑦	1665 ⑧	⑨ + ⑩	Fig. 17	Table 28 2041 ⑭	⑭ + ⑮ 2427	1665 ⑰	1665 ⑱	⑲ + ⑳	Fig. 17	Table 28 2041 ㉔	㉔ + ㉕					
26	870	-62,000	2322 2022	4193 4173	-52,207 -52,827	26,820	-2856	28 23	-2818 -2823	-13.65	.4234	.8732	-12.776	5.64	-.6007	.006986	-.5937	+.7490	-.13951 -.1251	-.2155 -.4582	+.4735 +.4308
27	806	-56,480	2022 1823	4173 3763	-52,277 -52,657	24,190	-2570	23 20	-2537 -2540	-11.84	.9506	.7236	-10.810	4.761	-.5070	.005785	-.5012	+.5500	-.1101 -.1090	-.2272 -.2250	+.3220 +.3180
28	942	-50,850	1823 1640	3763 3385	-47,087 -47,465	21,570	-2297	20 27	-2267 -2270	-9.61	.2850	.5882	-9.022	3.893	-.4146	.004703	-.4099	+.5685	-.09552 -.09454	-.1872 -.1951	+.1913 +.1934
29	978	-45,500	1640 1323	3385 2731	-42,115 -42,765	19,090	-2033	27 22	-2009 -2011	-7.858	.2239	.4663	-7.429	3.155	-.3360	.003727	-.3323	+.2420	-.08240 -.07287	-.1781 -.1505	+.0719 +.0915
30	1014	-40,350	1323 1168	2731 2411	-37,619 -37,939	16,710	-1780	22 19	-1758 -1761	-6.35	.1783	.3680	-5.886	2.526	-.2830	.002942	-.2661	+.1145	-.06313 -.06235	-.1363 -.1287	-.0158 -.0142
31	1050	-35,220	1168 1041	2411 2149	-32,809 -33,071	14,450	-1599	19 17	-1580 -1582	-4.98	.1342	.2811	-4.699	1.983	-.2112	.002147	-.2090	+.0125	-.05370 -.05307	-.1198 -.1098	-.0983 -.0970
32	1080	-31,320	1041 786	2149 1622	-29,071 -29,598	12,640	-1346	17 13	-1328 -1333	-3.89	.1050	.2167	-3.773	1.293	-.1697	.001733	-.1680	-.0545	-.04665 -.03781	-.0929 -.0780	-.1708 -.1525
33	1110	-27,230	786 702	1622 1449	-25,608 -25,781	10,900	-1161	13 12	-1148 -1149	-3.11	.0844	.1681	-2.942	1.232	-.1312	.001344	-.1299	-.1045	-.03205 -.03284	-.0803 -.0711	-.1745 -.1717
34	1140	-23,480	702 627	1449 1295	-21,951 -22,105	9,240	-984	12 10	-972 -974	-2.36	.06039	.1246	-2.235	.324	-.09841	.000906	-.09741	-.1395	-.02822 -.02776	-.05825 -.05730	-.1968 -.1930
35	1170	-19,550	627 414	1295 854	-18,255 -18,696	7,640	-814	10 7	-804 -807	-1.71	.04159	.08584	-1.624	.664	-.07072	.000682	-.07003	-.1575	-.02389 -.01706	-.04931 -.03521	-.2068 -.1927
36	1198	-16,160	414 359	854 741	-15,296 -15,409	6,240	-665	7 6	-658 -659	-1.21	.03009	.06192	-1.148	.469	-.04995	.000493	-.04945	-.1645	-.01467 -.01438	-.03028 -.02968	-.1948 -.1942
37	1225	-12,950	359 314	741 648	-12,208 -12,302	4,290	-531	6 5	-525 -526	-.815	.02031	.04192	-.7731	.312	-.03323	.000335	-.03289	-.1600	-.01239 -.01211	-.02557 -.02500	-.1856 -.1850
38	1252	-10,050	314 268	648 553	-9,402 -9,497	3,820	-407	5 4	-402 -403	-.500	.01485	.02446	-.4755	.195	-.02077	.000195	-.02057	-.1485	-.01037 -.01012	-.02140 -.02089	-.1899 -.1894

TABLE 46

TABLE 46 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 5 of 8 CONDITION: RBW 229995 - 723000 B, ½ FUEL & OIL ILAA - LIMIT DIVE SPEED @ 5000 FT

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST FROM ℄ OF SHIP	S_{b_m}	S_{s_i}	$1.5(\frac{1}{2})S_{s_i}$ (1.5)=1.516	$S_b = S_b'$	S_{s_m}	$1.5(\frac{1}{2})S_{s_m}$ (1.5)=-.071	$1.5(\frac{1}{2})S_{b_i}$ (1.5)=.011	S_{s_i}	$M_{x_m} \times 10^6$	$M_{x_i} \times 10^6$	$1.5(\frac{1}{2})M_{x_i}$ (1.5)=.016	$M_{x_i} \times 10^6$	$M_{z_m} \times 10^6$	$1.5(\frac{1}{2})M_{z_m}$ $\times 10^6$ (1.5)=-.071	$1.5(\frac{1}{2})M_{z_i}$ $\times 10^6$ (1.5)=.011	$(M_y = M_z)$ $\times 10^6$	$T_{RA_m} \times 10^6$	$T_{RA_i} \times 10^6$	$1.5(\frac{1}{2})T_{RA_i}$ $\times 10^6$ (1.5)=.016	$T_{RA} \times 10^6$
			Fig. 17	Table 28 2.041 (4)	(5) + (3)	Table 27 -1.065 (7)	.016 (8) × (4)	(9) + (2)	Fig. 17		Table 28 2.041 (11)	(11) + (13)	Table 27 -1.065 (15)	.016 (16) × (14)	(17) + (18)	Fig. 17		Table 28 2.041 (20)	(20) + (21)	(22) + (21)
26	870	-62,000	2322	4193	-57,807	26,820	-2856	28	-2818	-13.65	.4234	.8739	-12.776	5.64	-.6007	.006986	-.5937	+.7490	-.1335	-.2755	+.4735
			2022	4173	-57,827			33	-2823										-.1251	-.5582	+.4908
27	906	-56,450	2022	4173	-52,277	24,130	-2570	33	-2537	-11.84	.9506	.7236	-10.816	4.761	-.5070	.005785	-.5012	+.5500	-.1101	-.2272	+.3228
			1823	3763	-52,627			30	-2540										-.1090	-.2250	+.3260
28	942	-50,850	1823	3763	-47,087	21,570	-2297	30	-2267	-9.61	.2850	.5882	-9.022	3.893	-.4146	.004703	-.4099	+.5885	-.09552	-.1872	+.1913
			1640	3385	-47,465			27	-2270										-.09454	-.1951	+.1934
29	978	-45,500	1640	3385	-42,115	19,090	-2033	27	-2006	-7.895	.2259	.4663	-7.429	3.155	-.3360	.003727	-.3323	+.2420	-.08240	-.1781	+.0719
			1323	2731	-42,769			22	-2011										-.07292	-.1505	+.0915
30	1014	-40,350	1323	2731	-37,619	16,710	-1780	22	-1758	-6.35	.1783	.3680	-5.882	2.576	-.2690	.002942	-.2661	+.1148	-.06313	-.1303	-.0158
			1168	2411	-37,939			19	-1761										-.06235	-.1287	-.0142
31	1050	-35,220	1168	2411	-32,809	14,450	-1539	19	-1520	-4.98	.1342	.2811	-4.699	1.983	-.2112	.002247	-.2090	+.0125	-.05370	-.1108	-.0983
			1041	2149	-33,071			17	-1522										-.05307	-.1096	-.0970
32	1080	-31,220	1041	2149	-29,071	12,640	-1346	17	-1329	-3.99	.1050	.2167	-3.773	1.893	-.1697	.001733	-.1680	-.0545	-.04665	-.09629	-.1508
			786	1622	-29,598			13	-1333										-.03781	-.07804	-.1325
33	1110	-27,230	786	1622	-25,608	10,900	-1161	13	-1148	-3.11	.0144	.1681	-2.942	1.232	-.1312	.001344	-.1299	-.1045	-.03296	-.06803	-.1745
			702	1449	-25,781			12	-1149										-.03234	-.06116	-.1717
34	1140	-23,400	702	1449	-21,951	9,240	-984	12	-972	-2.36	.06039	.1246	-2.235	.324	-.09841	.000996	-.09741	-.1305	-.02822	-.05825	-.1968
			627	1295	-22,105			10	-974										-.02776	-.05730	-.1930
35	1170	-19,550	627	1295	-18,255	7,640	-814	10	-804	-1.71	.04159	.08584	-1.624	.664	-.07072	.0006862	-.07003	-.1575	-.02389	-.04931	-.2068
			414	854	-18,496			7	-807										-.01706	-.03521	-.1927
36	1198	-16,150	414	854	-15,296	6,240	-665	7	-658	-1.21	.03000	.06192	-1.149	.469	-.04995	.0004950	-.04945	-.1645	-.01467	-.03029	-.1948
			359	741	-15,409			6	-659										-.01438	-.02968	-.1942
37	1225	-12,950	359	741	-12,209	4,990	-531	6	-525	-.815	.02031	.04192	-.7731	.312	-.03323	.0003351	-.03289	-.1600	-.01239	-.02557	-.1856
			314	648	-12,302			5	-526										-.01211	-.02500	-.1850
38	1252	-10,050	314	648	-9,402	3,820	-407	5	-402	-.500	.01185	.02446	-.4755	.195	-.02077	.0001955	-.02057	-.1485	-.01037	-.02140	-.1699
			268	553	-9,497			4	-403										-.01012	-.02089	-.1694

TABLE 46.

TABLE 46 B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 6 of 8

CONDITION: R.G.W. - 229,999# 72-1,000# B., 1/3 FUEL & OIL. 1LAA - LIMIT DIVE SPEED @ 5,000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{.7 \tan\phi \times 10}{I_x / Q_x}$	$\frac{.7 \tan\phi}{I_x / Q_x} M'_x$	S''_b (6) - (31)
		.9848 × (14)	.1736 × (22)	(23) - (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	OR. 5 = (6)
26	870	-12.582	+.0822	-12.664	-2775	-2.218	.4663	-1.752	847.3	-10,730	-46,477
			+.0852	-12.667	-2780		.4833	-1.735		-10,733	-47,094
27	906	-10.652	+.0560	-10.708	-2498	-1.878	.3179	-1.560	886.0	-9,487	-42,790
			+.0564	-10.709	-2501		.3201	-1.558		-9,487	-43,200
28	942	-8.885	+.0332	-8.918	-2233	-1.566	.1884	-1.378	928.2	-8278	-38,809
			+.0336	-8.919	-2235		.1905	-1.376		-8279	-39,186
29	978	-7.316	+.0125	-7.329	-1976	-1.290	.0708	-1.219	974.8	-7144	-34,971
			+.0159	-7.332	-1980		.0901	-1.200		-7147	-35,622
30	1014	-5.891	-.0027	-5.888	-1731	-1.038	-.0156	-1.054	1026	-6041	-31,578
			-.0025	-5.889	-1734		-.0140	-1.052		-6042	-31,897
31	1050	-4.628	-.0171	-4.611	-1497	-.8157	-.0968	-.9125	1083	-4994	-27,815
			-.0168	-4.611	-1499		-.0955	-.9112		-4994	-28,077
32	1080	-3.716	-.0262	-3.690	-1309	-.6550	-.1485	-.8035	1136	-4192	-24,879
			-.0230	-3.693	-1313		-.1305	-.7855		-4195	-25,403
33	1110	-2.897	-.0299	-2.867	-1131	-.5107	-.1699	-.6806	1194	-3,423	-22,185
			-.0298	-2.867	-1132		-.1691	-.6798		-3,423	-22,358
34	1140	-2.201	-.0342	-2.167	-957	-.3880	-.1938	-.5818	1259	-2728	-19,223
			-.0340	-2.167	-959		-.1928	-.5808		-2728	-19,377
35	1170	-1.599	-.0359	-1.563	-792	-.2819	-.2037	-.4856	1330	-2,079	-16,176
			-.0335	-1.566	-795		-.1898	-.4717		-2,083	-16,613
36	1198	-1.131	-.0338	-1.097	-648	-.1993	-.1918	-.3911	1405	-1541	-13,755
			-.0337	-1.097	-649		-.1912	-.3905		-1541	-13,868
37	1225	-.7613	-.0322	-.7291	-517	-.1342	-.1828	-.3170	1486	-1083	-11,126
			-.0321	-.7292	-518		-.1822	-.3164		-1084	-11,218
38	1252	-.4683	-.0295	-.4388	-396	-.0825	-.1673	-.2498	1576	-692	-8,710
			-.0294	-.4389	-397		-.1668	-.2493		-692	-8,805

CALCULATED BY	JEB	TABLE 46.	DOC NO. FZS-36-140
CHECKED BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION	MODEL B-36

TABLE 46 B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 7 of 8. CONDITION: R.G.W. 229,999#, 72-1000#B, 1/3 FUEL & OIL. ILAA - LIMIT DIVE SPEED @ 5000 FT.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
STATION	DIST. FROM ℄ OF SHIP	S_{ba}	S_{b_i}	$1.5(\frac{-N_a}{W})S_{b_i}$ $(\frac{-N_a}{W})=1.3\%$	$S_b = S_b'$	$S_{C_{L_{a_i}}}$	$1.5\frac{X}{W}S_{C_{L_{a_i}}}$ $\frac{X}{W}=-.071$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=.011$	S_c	$M_{x_a} \times 10^{-6}$	$M_{x_i} \times 10^{-6}$	$1.5(\frac{-N_a}{W})M_{x_i} \times 10^{-6}$ $(\frac{-N_a}{W})=1.3\%$	$M_x' \times 10^{-6}$	$M_{C_{L_{a_i}}} \times 10^{-6}$	$1.5\frac{X}{W}M_{C_{L_{a_i}}} \times 10^{-6}$ $\frac{X}{W}=-.071$	$1.5\frac{X_m}{W}M_{x_i} \times 10^{-6}$ $\frac{X_m}{W}=.011$	$(M_y = M_y') \times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{-N_a}{W})T_{EA_i} \times 10^{-6}$ $(\frac{-N_a}{W})=1.3\%$	$T_{EA} \times 10^{-6}$
		Fig. 17	TABLE 28	2.064 × (4)	(3) + (5)	[redacted] TAB 29	-.1065 × (7)	.0165 × (4)	(8) + (9)	Fig. 17	TABLE 28	2.064 × (12)	(11) + (13)	[redacted] TAB 29	-.1065 × (15)	.0165 × (12)	(16) + (17)	Fig. 17	TABLE 28	2.064 × (20)	(19) + (20)
39	1278	-7,500	+268	553	-6,947	2,850	-304	4	-300	-.280	.009870	.01005	-.2700	.108	-.01150	.00008	-.011420	-.1305	-.003681	-.0179	-.1484
			98	202	-7,298			2	-302										-.001835	-.0038	-.1393
40	1301	-5,500	98	202	-5,298	2,080	-222	2	-220	-.140	.002609	.00538	-.1346	.061	-.006497	.000043	-.006454	-.1085	-.001370	-.0028	-.1113
			65	134	-5,366			1	-221										-.001199	-.0025	-.1110
41	1324	-3650	65	134	-3,516	1,390	-148	1	-147	-.050	.001109	.00229	-.04771	.030	-.003195	.000018	-.003177	-.0845	-.000891	-.00184	-.08634
			50	103	-3,547			1	-147										-.000771	-.00159	-.08609
TIP C.G.	1346.4	-2,600	50	103	-1897	780	-83	1	-82	-.010	0	0	-.010	.0095	-.001012	0	-.001012	-.0545	-.000543	-.00112	-.05562
TIP.	1380.891	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

J. Gelis
Chief Engr.

TABLE 46

FZS-36-140
B-36

TABLE 46. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 8 of 8 — CONDITION: R.G.W. - 229998# ZF - 1000# B, ½ FUEL & OIL, 1L.A.A. - LIMIT DIVE SPEED @ 5000 FT.

PAGE: 223 REPORT: FZS-36-160 DATE: 12-4-45

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_E \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T \tan\phi}{I_x/Q_x} \times 10$	$\frac{T \tan\phi}{I_x/Q_c} M'_x$	S''_b (6) - (31)
		9848 × (14)	1736 × (22)	(23) - (24)	9848 × (10)	1736 × (16)	9848 × (22)	(27) + (28)	TABLE 36	(29) × (30)	OR, 5 × (6)
39	1278	-.2659	-.02376	-.2401	-295	-.04687	-.14619	-.19301	1674	-402	-6.545
			-.02331	-.2426	-297		-.13226	-.17913		-406	-6.892
40	1201	-.1326	-.01832	-.1133	-217	-.02337	-.10961	-.13298	1772	-201	-5.097
			-.01827	-.1139	-218		-.10931	-.13268		-201	-5.165
41	1324	-.04608	-.01492	-.03199	-145	-.00828	-.08503	-.09331	1881	-60	-3.456
			-.01495	-.03203	-145		-.08478	-.09306		-60	-3.487
TIP C.G.	1340.4	-.000948	-.009656	-.000197	-81	-.001796	-.05477	-.05651	—	—	-2.000
TIP	1380.841	0	0	0	0	0	0				

CALCULATED BY	J. Ellis	TABLE 46.	DOC NO. FZS-36-160
DRAWN BY			MODEL B-36
CHECKED BY	Pfeffer	CONVAIR, A DIV. OF VOUGHT AIRCRAFT CORPORATION FORT WORTH, TEXAS	

PART II

LANDING CONDITIONS

LANDING CONDITIONS

Preliminary investigations and information acquired during the design of the XB-36 Airplane show that critical landing loads on the wing will be produced by the following four conditions:

1. Two-wheel landing with inclined reactions, nose down, Design Gross Weight, full fuel and oil, less bombs;
2. Two-wheel landing with brakes, nose down, Design Gross Weight, full fuel and oil, less bombs:
3. Two-wheel landing with inclined reactions, nose down, Alternate Gross Weight, (62)1000# bombs, full fuel & oil;
4. Side drift landing (ground load acting inboard), Design Gross Weight, full fuel and oil, less bombs.

Three-wheel landing conditions prove to be less critical than two-wheel landings since the applied loads at the main wheels are smaller and since no pitching acceleration loads are produced by a three-wheel landing. Due to the location of the engines and the sweep back of the wing, pitching acceleration loads contribute appreciably to spar shears and wing bending. Two wheel landings with inclined reactions are included for two gross weight conditions, one with no bombs and a heavy fuel load and one with a high bomb load and reduced fuel load. Previous design computations on the XB-36 show that the two-wheel landing with vertical reactions, nose up, is less critical than other two-wheel landing conditions. The calculations also show that for a braked landing, the Alternate Gross Weight condition is less critical than the Design Gross Weight Condition. Therefore the Design Gross Weight braked landing condition only is included. Similarly,

computations are made for only the critical side drift landing (Design Gross Weight) condition.

Section A contains pitching or rolling acceleration inertia loads for all landing conditions considered, and Section B includes the wing loads due to landing gear ground loads less the inertia effects of the gear. Section C combines the loads of Sections A and B with the ultimate inertia loads to produce the net ultimate shears, bending moments, and torsions from the critical landing conditions for the B-36 wing.

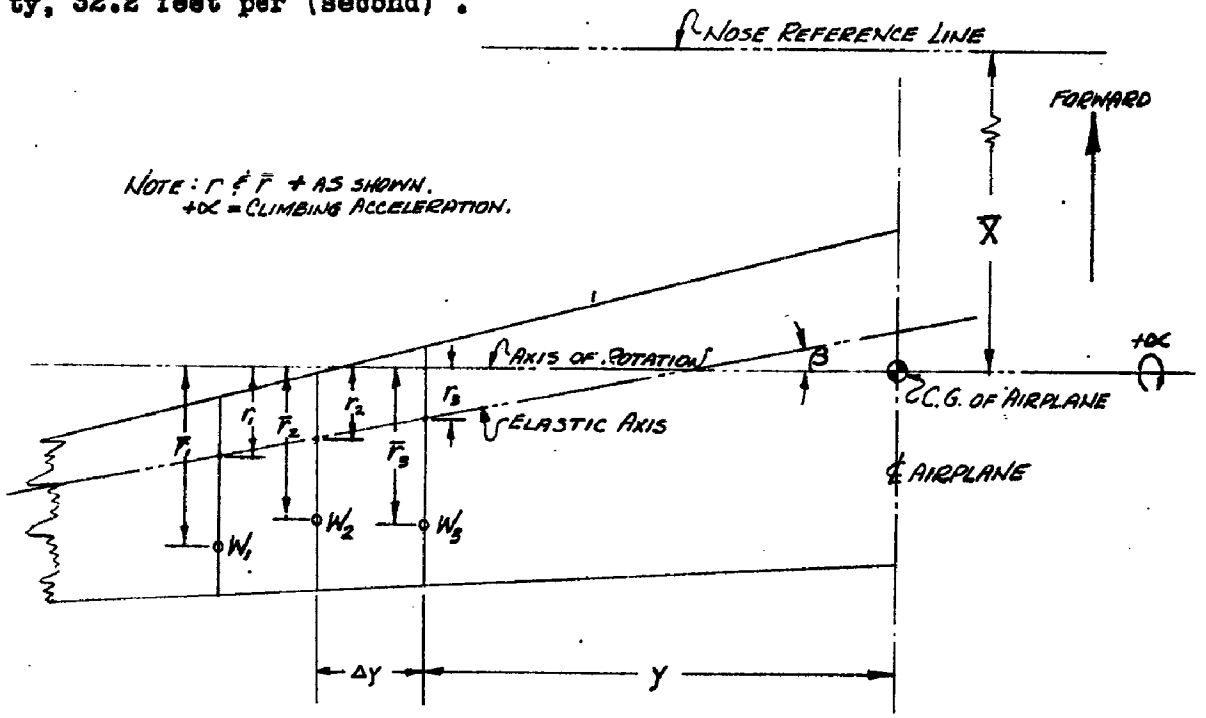
PART II

SECTION A

ULTIMATE INERTIA SHEARS, BENDING MOMENTS, AND TORSIONS DUE TO PITCHING AND ROLLING ACCELERATIONS

ULTIMATE SHEARS, BENDING MOMENTS, AND TORSIONS DUE TO PITCHING AND ROLLING ACCELERATIONS

In any two wheel landing condition the loads applied at the wheels produce a pitching acceleration, α, about the center of gravity of the airplane. Dynamic equilibrium is maintained by inertia loads throughout the ship. For a given α, radians per (second)^2, the vertical linear acceleration at any point = $\frac{\alpha \bar{r}}{12}$ feet per (second)^2, where $\bar{r}$ is the horizontal distance from the axis of rotation in inches. Therefore the load factor at any point = $\frac{\alpha \bar{r}}{12\,g}$, where g is the acceleration of gravity, 32.2 feet per (second)^2.



PLAN VIEW

For the wing (see above sketch), if the total station load, W, is assumed to be concentrated at its center of gravity at a distance $\bar{r}$ from the axis of rotation, the ultimate inertia station load, which is the

beam increment at each station,

$$\Delta S_b = \frac{W\alpha}{12\,g}\,\bar{r}\,. \tag{1}$$

The net ultimate shear at each station is equal to the sum of the shear increments outboard of the station. The beam bending moment is obtained from the area under the shear curve.

At each station the station load produces a torsion increment in inch-pounds,

$$\Delta T_{E.A.} = \frac{W\alpha}{12\,g}\,\bar{r}\,(r-\bar{r}), \tag{2}$$

where r equals the distance from the axis of rotation to the elastic axis in inches.

At station 1 (see figure, page 228) the total torsion is due only to the torsion increment at that station, or

$$T_{E.A._1} = \Delta T_{E.A._1} = \frac{W_1\alpha}{12\,g}\,\bar{r}_1(r_1-\bar{r}_1), \tag{3}$$

the I_o of the wing being neglected since the torsion due to I_o is relatively small.

At station 2 the total torsion must also include the torsion due to the shear at station 1 times the arm produced by the sweepback of the elastic axis from station 1 to station 2, or

$$T_{E.A._2} = \Delta T_{E.A._1} + S_{b_1}(r_2-r_1) + \Delta T_{E.A._2} \tag{4}$$

Similarly at station 3:

$$T_{E.A._3} = T_{E.A._2} + S_{b_2}(r_3 - r_2) + \Delta T_{E.A._3} .$$

Substituting for $T_{E.A._2}$ from equation 4:

$$T_{E.A._3} = \Delta T_{E.A._1} + S_{b_1}(r_2 - r_1) + \Delta T_{E.A._2} + S_{b_2}(r_3 - r_2) + \Delta T_{E.A._3} . \quad (5)$$

Therefore at any station, n:

$$T_{E.A._n}(\text{inb'd}) = \sum_0^n \Delta T_{E.A.} + \sum_0^n \left[S_{b_{n-1}}(r_n - r_{n-1})\right] \quad (6)$$

and $$T_{E.A._n}(\text{out'b}) = \sum_0^{n-1} \Delta T_{E.A.} + \sum_0^n \left[S_{b_{n-1}}(r_n - r_{n-1})\right] \quad (7)$$

However, since $(r_n - r_{n-1}) = -\Delta y \tan\beta$, where $\Delta y = y_{n-1} - y_n$,

then

$$T_{E.A._n}(\text{inb'd}) = \sum_0^n \Delta T_{E.A.} + \sum_0^n \left[S_{b_{n-1}}(-\Delta y \tan\beta)\right] \quad (8)$$

and $$T_{E.A._n}(\text{outb'd}) = \sum_0^{n-1} \Delta T_{E.A.} + \sum_0^n \left[S_{b_{n-1}}(-\Delta y \tan\beta)\right] . \quad (9)$$

In a side drift landing condition the ground loads applied to the main and nose gear result in a rolling acceleration, γ, about the airplane center of gravity. Equation 1 will also apply in this case where $\bar{r}$ will equal y, the distance in inches to the station from the centerline of the airplane (see preceeding sketch, page 228). The total ultimate beam shears and bending moments are obtained as in a two wheel landing condition, and equations 8 and 9 also apply in determining torsions.

The following table contains $\bar{X}$, the distance in inches from the nose reference line to the center of gravity of the airplane, the pitching acceleration, α, and the quantity $\frac{\alpha}{12g}$ for the three critical two-wheel landing conditions.

TABLE 47

TABULATION OF α, $\bar{X}$, AND $\frac{\alpha}{12g}$ FOR CRITICAL TWO-WHEEL LANDING CONDITIONS

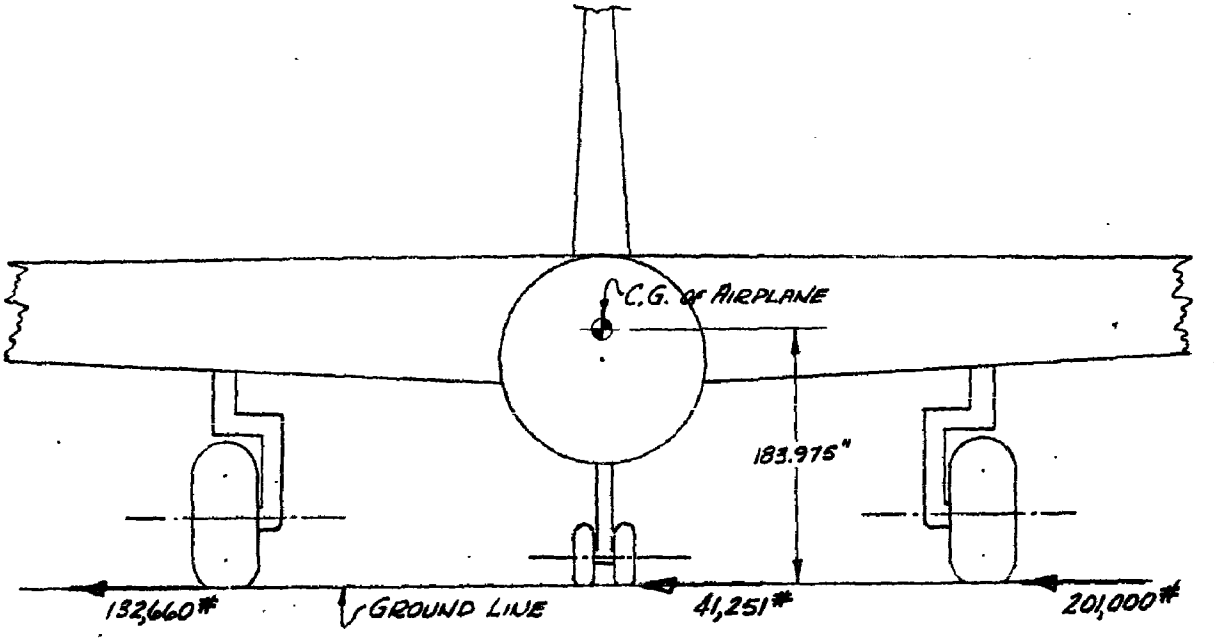
(+ α = CLIMBING ACCELERATION)

CONDITION	$\bar{X}$, IN.	α	$\frac{\alpha}{12g}$
2 W.L. - I.R. - N.D. D.G.W. - Full Fuel and Oil-Less Bombs	903.84	-2.693	-.006969
2 W.L. - B. - N.D. D.G.W. - Full Fuel and Oil-Less Bombs	903.84	-2.711	-.007016
2 W.L. - H.R. - N. D. A.G.W. - (62) 1000# Bombs-Full Fuel & Oil	891.84	-2.050	-.005305

References: For $\bar{X}$ see FZS-36-137, Table XVII

For α see FZS-36-143

For Side Drift Landing, Design Gross Weight Less Bombs, Full Fuel and Oil, the ground loads shown in the following sketch are obtained from C.V.A.C. Report FZS-36-149.



VIEW LOOKING AFT

The total side ground load = 374,911 lbs.

Moment of ground loads about the center of gravity of the airplane,

$$M = 183.975(374,911) = 68,906,800 \text{ in.-lbs.}$$

$$= 5,742,230 \text{ ft.-lbs.}$$

$$I_{x-x} = 348,602,344 \text{ lb.-ft}^2 = 10,826,200 \text{ slug-ft.}^2$$ (see FZS-36-137, Table XVII)

$$\gamma = \frac{M}{I_{x-x}} = \frac{5,742,230}{10,826,200} = 0.53040 \text{ rad./Sec.}^2$$

$$\frac{\gamma}{12g} = \frac{0.5304}{12(32.2)} = 0.0013727$$

The ultimate inertia loads due to pitching and rolling accelerations for all four critical landing conditions are computed in Tables 48 through 51 for loads due to wing empty less landing gear and in Tables 52 through 55 for loads due to fuel and oil only. In addition the rolling acceleration loads due to landing gear (extended) only, Side Drift Landing condition, are computed in Table 56.

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION — FORT WORTH, TEXAS
FW 653 135 PADM/1149

TABLE 48
SHEET 1 OF 3

B-36 WING - ULTIMATE SHEARING, BENDING MOMENTS, & TORSIONS DUE TO PITCHING ACCELERATION - VARIOUS EMPTY, LESS I_x
CONDITIONS: 2 WHEEL LANDINGS WITH INCLINED REACTIONS - NOSE DOWN - 3.6 W.S. - FULL FUEL & OIL - 1300 BOMBS.

1 STA.	2 DIST. FROM ℄ SHT. N.	3 DISTANCE BETWEEN STATIONS (IN)	4 CHECK WHEEL LOADS C_{W_n}	5 WHEEL FT. C_{W_n}	6 LEFT FT. NOR. REF. LINE TORQ. 100 RPS 20-36-137 FIG. 24.4	7 RIGHT FT. NOR. REF. LINE TORQ. 100 RPS 20-36-137 FIG. 24.4	8 C_n	9 G_n INCHES	10 $\bar{F}$	11 $\frac{W_S}{139}$	12 Δ_{G_n}	13 TOTAL M. AT STA. ΣM_n	14 ΔM_n	15 TOTAL M. M_n	16 M_{E_n} (DIST. M_n)	17 SAT. M_{E_n}	18 $\Sigma M_n \times C$ (ARCS)	19 TORSION INBOARD	20 TORSION OUTBOARD
					786.6 ON. 2	786.6 ON. 2	⑦	⑨ × ⑦	⑩ = 9.8 M	⑪ × 10000	⑫ × ⑩	Σ ⑫	⑬ × ⑤	Σ ⑬	⑭ + ⑮	Σ ⑭	⑯ × ⑦	⑰ + ⑱	⑲ + ⑳
77P	1346.4	22.4	107.42	49.5	1018.80	39.71	-10.21	+10.967	179.56	-.345	-60.34	-60.34	0	0	+662.	662	-461	0	662
41	1324	23.0	112.29	15.7	1076.88	36.32	-6.82	-7.656	167.64	-.109	-18.21	-78.55	-1352	-1352	159	801	-473	278	1079
40	1301	23.0	117.29	33.1	1143.68	33.90	-4.42	-5.184	159.84	-.221	-35.19	-113.74	-1807	-3159	191	992	-473	374	1642
39	1278	23.0	122.29	170.0	1254.04	62.43	-32.95	-40.470	130.20	-1.180	-153.59	-267.33	-2656	-5815	9076	10068	-733	546	11264
38	1255	23.0	127.54	45.2	1253.56	33.82	-4.33	-5.540	150.12	-.315	-47.29	-314.62	-8863	-14678	362	10330	-733	1824	13350
37	1225	27.0	133.80	45.4	1299.44	26.11	-4.61	-6.168	145.20	-.316	-45.86	-360.48	-10981	-25659	263	10613	-5.55	2154	15767
36	1198	27.0	139.67	65.0	1342.68	33.94	-3.84	-5.363	138.84	-.383	-53.18	-413.66	-17112	-42678	285	10898	-5.55	2403	18481
35	1170	28.0	145.76	21.9	1364.48	51.54	-22.04	-32.116	159.84	-.484	-77.20	-490.86	-13642	-56320	762	11660	-5.76	2806	21287
34	1140	30.0	152.28	74.7	1439.52	33.52	-4.02	-6.132	127.68	-.521	-66.51	-557.37	-21733	-78253	407	12067	-6.17	4470	33777
33	1110	30.0	158.79	84.5	1524.70	32.63	-3.13	-4.970	120.36	-.589	-70.89	-628.26	-23729	-95982	352	12419	-6.17	4880	39066
32	1080	30.0	165.31	255.0	1779.72	50.47	-20.97	-34.666	183.88	-1.777	-255.61	-883.87	-29855	-125837	8863	21282	-6.17	5318	52197
31	1050	30.0	171.83	127.3	1911.84	32.38	-2.88	-4.949	108.00	-.887	-95.80	-979.67	-32515	-158352	474	21756	-7.90	6895	60266
30	1014	36.0	178.66	154.7	2066.54	32.30	-2.82	-5.080	100.63	-1.076	-108.23	-1087.90	-43679	-199041	596	22352	-7.90	8978	70290
29	978	36.0	187.48	316.5	2382.04	45.48	-15.98	-29.959	48.20	-2.206	-106.35	-1194.25	-47586	-246627	7812	30164	-7.90	9782	87684
28	942	36.0	196.30	187.2	2569.24	22.22	-2.72	-5.318	86.16	-1.176	-101.04	-1295.29	-36774	-283401	584	30748	-7.90	11711	99979
27	[illegible]	36.0	203.12	195.8	2765.80	22.22	-2.72	-5.035	78.96	-1.323	-104.46	-1399.75	-60330	-343731	668	31416	-7.90	12515	113112
26	870	36.0	[illegible]	299.9	2997.50	42.70	-18.29	-38.135	94.68	-2.416	-228.74	-1628.49	-47270	-390931	5373	36789	-6.17	13339	131964
25	[illegible]		211.96	262.5	3262.98	28.33	+0.11	+0.239	59.64	-1.[illegible]	-103.14	-1731.63	-59976	-450907	-26	36651		12335	144273

* 76 = Tip Section.

BY: [illegible]
CHECKED: [illegible]
Eng. [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS

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TABLE 48 SHEET 3 OF 3

B-36 WING - ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS DUE TO PITCHING ACCELERATION - WING EMPTY LESS BOMBS

CONDITION: 2 WHEEL LANDING WITH INCLINED REACTIONS - NOSE DOWN - D.G.W. - FULL FUEL & OIL - LESS BOMBS.

STA	Dist Forward Ship, in	Dist Between Sections (Sum of Cols 1 & 2)	Chord Length C_n	Panel Area	Dist From Inboard L.E. To Load Pt.	Distance L.E. To Load Pt.	e_n	C_n	ΔC_n	$\frac{W_n}{C_n} \times \frac{\Delta C}{C_n}$	ΔM_n	Total Moment At Sta.	ΔM_n	Total Moment At Sta.	$\Sigma \Delta T_{n-1}$	e'	S_{n-1}	e'	Torsion Inboard	Torsion Outboard
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
			240																			
24	866.0		224.85	3691.3	1059.00	76.39	-45.49	-162.554	+155.16	-25.728	-3990.0	-21168	-716682	-561079	+403718	451969						
		40.0																-8.324	14737		567328	175010
23	746.0		233.85	2111.3	1057.80	76.30	-46.98	-165.871	153.16	-25.871	-3982.1	-17186	-244012	-805091	+23357	887326						
		24.0																-6.930	50169		1058854	47497	
22	722.0		240.93	722.4	955.32	55.23	-5.73	-13.885	51.85	-5.035	-259.2	-16183	-342916	-1147927	+3578	890504						
		28.875																-7.993	70483		1126915	123337	
21	693.125		249.35	2003	940.22	55.18	-2.65	-6.683	36.38	-3.318	-157.5	-16183	-422	-1549996	+1053	851957						
		28.875																-7.993	62668		1210636	100.883	
20	664.25		257.89	515.8	931.80	31.94	-2.44	-6.291	27.96	-3.195	-100.5	-10500	-46.8131	-1958187	+632	892589						
		28.875																-7.993	85917		1295135	189453	
19	635.375		266.28	644.0	940.32	28.06	-8.56	-22.794	36.48	-4.169	-163.5	-16161	-41.3392	-2570185	+3734	896323						
		38.875																-7.993	84781		1383660	1375026	
18	596.5		274.72	3588.1	1038.36	76.39	-46.89	-128.816	+134.54	-27.797	-3723.3	-17164	-418466	-2768351	+4[illegible]	1318605						
		27.5																-5.64	56040		1357482	1469700	
17	549		286.70	284.1	950.60	27.91	+1.59	+4.463	-9.24	-1.080	+8.8	-19646	-59.852	-3187603	+[illegible]	1378044						
		27.5																-5.64	82004		2033425	2033386	
16	521.5		286.65	4129.4	1032.84	76.96	-46.96	-124.625	+129.00	-28.797	-3708.4	-19495	-596610	-3586713	+[illegible]	1377087						
		36.5																-7.504	21954		2614672	2116279	
15	485.0		294.61	[illegible]	916.00	37.78	-8.28	-24.[illegible]	+1.28	-5.869	-6.61	-18203	-669430	-4256063	+1612	1378099						
		36.5																-7.504	136592		2757832	2751730	
14	448.5		302.54	6222.5	891.84	37.35	-2.85	-8.622	-12.00	-4.339	+52.1	-18203	-666433	-4917466	-449	1378450						
		36.5																-7.504	137004		2889477	2895936	
13	412.0		310.47	643.6	884.52	37.34	-2.84	-8.617	-19.30	-4.966	-86.7	-18217	-66[illegible]	-5583[illegible]	744	1377686						
		36.25																-7.504	136703		3025816	3026186	
12	375.75		318.35	774.5	893.16	37.32	-2.80	-24.805	-16.66	-5.356	+57.7	-18131	-65[illegible]324	-6230972	-426	1676250						
		36.25																-7.504	136652		3160832	3161468	
11	339.5		[illegible]	4260.4	1015.55	76.19	-47.09	-154.274	+111.54	-29.695	-3303.3	-18173	-655143	-6894864	[illegible]	2285863						
		[illegible]																-7.504	139697		3300342	3299724	
10	[illegible]		[illegible]	366.4	[illegible]	28.95	-0.55	+1.827	-22.53	-2.512	+146.5	-21376	-59[illegible]	-7482710	+[illegible]	2382605						
		[illegible]																-5.64	120861		3527425	3527205	
9	[illegible]		[illegible]	[illegible]	[illegible]	71.82	-42.[illegible]	-143.[illegible]	+86.80	-35.526	-3154.7	-21523	-59[illegible]	-8047066	[illegible]	2359[illegible]						
																			120194		4497181	4045879

BY: [illegible]
CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION — FORT WORTH DIVISION — FORT WORTH, TEXAS

LW 693 125 PAGE 1143

TABLE 48 — SHEET 3 OF 3

B-36 WING - ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS DUE TO PITCHING ACCELERATION - WING EMPTY LESS L.G.

CONDITION: 2 WHEEL LANDING WITH INCLINED REACTIONS - FREE DOWN - D.S.M. - FULL FUEL & OIL - LESS BOMBS.

PAGE 236 — REPORT No. FZS-56-140 — DATE 12-4-45

PAGE 237 — REPORT No. FZS-56-140 — DATE 12-4-45

STA.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	21	22
		Distance Ft.	Dist. Between Stations	Chord Length C in.	Shear Ft. Load V lb.	Dist. From Nose Ref. Line to Load Ac in.	Dist. From L.E. to Load Xc in.	C_1 % C	C_1 (1000 lbs)	$\bar{x}$	$\frac{Wx}{\Delta g}$	$\frac{\Delta S_b}{\frac{Wx}{\Delta g}\bar{x}}$	Shear Sum At Sta. ΣS_{bn}	ΔM_x Sum ΔM	Total Moment M_x	ΔT_{EA} (Q.S.m.) ΔS_{vc}	ΣS_{vn} (Dynamic)	C' (Static Tor.)	$\frac{C'}{C}\times\bar{x}$	Torsion In Board	Torsion Outboard	ΣS_{vn}	Torsion Inboard	Torsion Outboard
			25.5																						
8		249.0		345.89	783.8	884.04	41.60	-12.10	-41.855	-19.80	-5.86	+108.11	24406 / 24396	966342	6933408	-9525	2833172	-7.299	172125	4616781	4675306	0	666	0
			17.0																						
7		222.0		349.59	825.2	853.56	33.75	-9.75	-19.858	-50.28	-5.15	+299.11	24256 / 24097	419030	5346438	-4296	2828876	-3.495	84914	4751399	4755695	280	1087	946
			26.0																						
6		206.0		355.24	593.4	849.00	33.90	-9.40	-15.631	-54.64	-5.79	+277.64	23962 / 23795	224177	9910615	-549	2825647	-5.346	128340	4876490	4878739	654	1653	1461
			26.0																						
5		180.0		360.88	870.8	839.64	32.75	-9.25	-11.729	-64.20	-6.61	+389.69	23799 / 23389	618714	-10589399	-9571	2821056	-5.346	127239	4999148	5003719	1203	11,339	2,202
			33.5																						
4		146.5		368.16	887.0	812.64	27.20	+2.30	+8.468	-91.20	-6.18	+563.62	23402 / 22884	797267	-11326634	+773	2815589	-6.836	161243	5165164	5160391	3037	13,437	13,173
			33.25																						
3		113.25		375.39	595.5	823.44	31.94	-2.44	-9.160	-80.40	-4.15	+333.66	22884 / 22572	759610	-12462716	-3056	2822173	-6.836	158173	5518281	5521337	5206	15,592	15,606
			33.25																						
2		80.0		382.61	835.0	841.20	30.32	-6.82	-33.747	-62.64	-5.82	+264.56	22572 / 22147	748524	-13894800	-12303	2810970	-8.013	153870	5795878	5972173	7692	18,605	18,318
			38.975																						
1		41.025		391.08	1021.2	792.04	28.69	+0.61	+2.386	-106.80	-2.12	-760.42	22147 / 21387	863195	-13757986	+1814	2812184	-8.835	177467	5639151	5637337	9456	29,100	21,429
			41.025																						
0		0		400.10	494.4	786.72	28.43	+1.07	+4.230	-117.12	-3.95	+404.06	21387 / 20983	836377	-14594376	+1729	2814913		180399	5821279	5819550	11955	34,008	33,599
																							9866	39,274	39,919
																							5218	53,552	44,626
																							2157	60,968	60,991
																							1193	70,557	70,009
																							7047	88,271	88,406
																							2839	100,651	100,063
																							5450	113,874	113,242
																							8880	132,823	133,304

BY: Sl[illegible]ing, Suffin

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CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION — FORT WORTH, TEXAS
FW 533 175 PAGE 11-11

TABLE 18
SHEET 5 OF 7

B-36 WING-ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS DUE TO PITCHING ACCELERATION - WING ENTITY LESS L.G.
CONDITION: 2 WHEEL LANDING WITH INCLINED REACTIONS - NOSE DOWN - D.G.W. - FULL FUEL & OIL - LESS BOMBS.

STA.	DIST FROM STA. & SHIP BETWEEN STATIONS (IN.)	DIST BETWEEN STATIONS (IN.)	CARGO LENGTH (IN.)	FUEL & OIL LOAD W# (LBS)	DIST FROM NOSE REF. (LBS-IN/IN)	DIST FROM L.E. TO LOAD (IN.)	C_1 % C	C_2 (IN.-LBS)	π (IN.)	W_c (LB)	ΔS_D (LBS)	TOTAL SHEAR AT STA. (LBS)	ΔM_x (IN.-LBS)	TOTAL MOM. M_x (IN.-LBS)	ΔT_{EA} (IN.-LBS/IN.)	ΣT_{EA} (IN.-LBS)	σ (LBS/IN.)	τ (LBS/IN.)	TORSION IN BOARD	TORSION OUTBOARD
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22
				FZS-56-137 PAGE 24, 25	FZS-56-137 PAGE 26, 4	FZS-56-137 PAGE 24, 7	245-(1)	(2)×(4)	(6)-(3)	(5)×(10)	(11)×(10)	(7)+(1)	(12)×(5)	(13)×(8)	(12)×(9)	(14)+(15)			(17)÷(20)	(17)÷(18)
		35.5																-7.299		
8	249.0		345.89	783.8	884.04	41.60	-12.10	-41.855	-19.80	-5.46	+108.11	24444 / 23396	-266342	-8934408	-4525	2833112		-3.495	178125	4641781	4625306
		17.0																		
7	232.0		349.59	875.2	853.56	33.75	-4.25	-14.958	-50.8	-5.75	+289.11	23996 / 22207	-412030	-8346438	-4296	2828876		-5.946	84914	4751399	4755695
		26.0																		
6	206.0		355.24	943.9	849.00	33.90	-4.40	-15.631	-54.84	-5.79	+221.84	22207 / 22388	-624177	-9910615	-5249	2825667		-5.346	128340	4879739	4879739
		26.0																		
5	180.0		360.88	870.8	839.04	32.72	-2.25	-11.729	-64.20	-6.67	+389.69	22388 / 23779	-618714	-10529329	-4571	2821056		-4.888	127239	4999168	5003719
		33.5																		
4	146.5		368.16	897.0	812.64	27.20	+2.30	+8.468	-91.20	-6.18	+563.62	23779 / 25296	-797247	-11306576	+4773	2822829		-6.836	161243	5165164	5160391
		33.25																		
3	113.25		376.39	595.5	823.44	31.94	-2.44	-9.160	-80.40	-4.15	+333.66	25296 / 25975	-759620	-12066196	-3056	2822773		-6.836	156173	5318281	5321337
		33.25																		
2	80.0		382.62	625.0	841.20	36.22	-5.82	-33.947	-62.64	-5.83	+264.56	25975 / 26767	-748524	-12814720	-12303	2810470		-8.013	153802	5470982	5472173
		38.975																		
1	41.025		391.08	1021.2	797.04	28.69	+0.61	+2.386	-106.80	-2.12	+760.42	26767 / 28367	-863195	-13677915	+1614	2812284		-8.435	177467	5639151	5637537
		41.025																		
0	0		400.00	494.4	786.72	28.43	+1.07	+4.280	-117.72	-3.45	+909.06	28367 / 30783	-836377	-14514292	+1729	2814013			189399	5821279	5819550

BY: [illegible]
CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION — FORT WORTH, TEXAS

TABLE 49 SHEET 1 OF 2

5.5g VERTICAL LANDING, SHEARS, BENDING MOMENT, TORSION DUE TO PROPELLER ROTATION - WING FUEL LESS L.G.
CONDITION: 2 WHEEL LANDING WITH BOATS - NOSE DOWN - TAIL - FULL FUEL & OVERWEIGHT BOMBS.

REPORT NO. 175-3-10
DATE 12-6-45

FILE PAGE 1-10

STATION	Distance Between Stations (Sq. in.)	Chord Length C, in.	Panel Run W, ft.	Dist. From Nose Per Line on Drawing	Dist. From L.E. To Long. % C	θ, % C	θ, Inches	F	$W_{sl}/12g$	$\Delta S_D = \frac{W_{sl}}{12} F$	Total Shear at Sta. $= \Sigma \Delta S_D$	$\Delta M_x = \Delta S_D \times \Delta y$	Total Moment at Sta. M_x	ΔT_{ex} (Dw to θ) $= \Delta S_{D_w} \times e$	$\Sigma \Delta T_{ex}$ (Dx to θ) $(\Delta y \times \Delta S_D)$	e' $(\Delta y \times \Delta S_D)$	$S_{D_w} \times e'$	$\Sigma_0^{\theta} S_{D_w} \times \theta$	Torsion Inboard	Torsion Outboard
1		3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.
				F25-34-137	F25-34-137	F25-34-137	29.50 (7)	(8) ÷ 100 (9)	(5) × 2000 (10)	(10) × (10)	Σ (12)	(13) × Δy (14)	Σ (14)	(12) × (9)	Σ (16)	(15) × (16)	(5) × 2050 (17)	(17) × (18)	Σ (19)	(17) × (20)	(21) × (18)
				Tab I Ch. 2	Tab I Ch. 4	Tab I Ch. 7															
TIP											0										
	22.000	102.400	49.5	1070.00	39.71	-10.21	-10.408	174.46	-0.347	-60.71	-60.71	0	0		666	666		0	0	666	0
41											-60.71						-4.605				
	23.000	102.291	15.7	1070.88	36.32	-6.82	-7.658	167.04	-0.110	-18.37	-79.08	-1,360	-1,360		141	807		280	280	1087	966
40											-79.08						-4.729				
	23.000	102.289	33.1	1063.68	33.92	-4.42	-5.184	159.84	-0.232	-37.06	-116.2	-1,819	-3,179		192	999		374	654	1,653	1,461
39											-116.2						-4.729				
	26.000	102.287	170.0	1062.04	62.43	-32.93	-10.269	150.20	-1.193	-226.91	-343.1	-2,672	-5,851		9,137	10,136		549	1,203	11,339	9,202
38											-343.1						-5.346				
	22.000	102.287	45.2	1052.96	38.83	-4.93	-5.640	150.12	-0.317	-47.59	-390.7	-8,900	-14,751		264	10,400		1,834	3,037	13,437	12,173
37											-390.7						-5.551				
	22.000	102.004	45.4	1042.04	34.41	-4.61	-5.168	145.20	-0.319	-46.32	-437.0	-10,918	-25,669		946	10,686		2,169	5,206	15,892	15,606
36											-437.0						-5.551				
	22.000	102.671	55.0	1042.68	32.34	-3.84	-5.363	138.84	-0.386	-58.59	-495.6	-14,289	-37,118		287	10,973		2,426	7,632	18,605	18,318
35											-495.6						-5.757				
	28.000	145.755	212.9	1063.48	51.54	-22.04	-32.124	132.84	-1.444	-238.80	-734.4	-13,736	-50,854		7,671	18,644		2,824	10,456	29,100	21,429
34											-734.4						-6.168				
	30.000	152.275	74.7	1031.52	33.52	-4.02	-6.121	127.68	-0.524	-66.90	-801.3	-20,081	-72,935		409	19,053		4,499	14,955	34,008	33,599
33											-801.3						-6.168				
	30.000	158.714	84.5	1024.20	32.63	-3.13	-4.970	120.36	-0.593	-71.37	-872.6	-23,888	-96,823		955	19,408		4,911	19,866	39,274	38,919
32											-872.6						-6.168				
	30.000	165.913	255.0	1017.72	50.47	-20.97	-34.666	113.88	-1.289	-257.90	-1,125	-26,069	-102,892		8,926	28,334		5,352	25,218	53,552	44,426
											-1,125						-6.168				
31		171.832	127.3	1011.84	32.38	-2.88	-4.949	108.00	-0.893	-96.44	-1,221	-33,751	-136,643		477	28,811		6,139	32,157	60,968	60,491
											-1,221						-7.402				
30											-1,221										
	36.000	176.655	154.7	1004.52	32.30	-2.80	-5.030	100.68	-1.083	-168.04	-1,389	-43,973	-200,376		548	29,359		4,041	41,193	70,557	70,009
29											-1,389						-7.402				
	36.000	187.478	316.5	1002.04	45.48	-15.98	-29.959	118.20	-2.221	-262.52	-1,651	-47,899	-248,275		7,065	37,424		9,818	51,047	83,271	80,806
											-1,651						-7.402				
28											-1,651										
	36.000	195.301	183.0	990.00	32.22	-2.72	-5.312	86.16	-1.284	-110.13	-1,761	-57,349	-305,624		588	37,812		11,792	62,839	100,651	100,063
											-1,761						-7.402				
27											-1,761										
	26.000	203.125	199.8	982.80	32.22	-2.72	-5.535	78.96	-1.402	-110.70	-1,872	-61,332	-366,956		612	38,424		13,611	75,450	113,874	113,262
											-1,872						-7.402				
26		210.46	299.2	977.92	42.79	-13.29	-28.035	94.08	-2.104	-197.24	-2,069	-65,317	-432,273		43,973			13,430	88,880	132,853	132,304

* C.G. of Tip Section.

BY: [illegible]
CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION — FORT WORTH DIVISION — FORT WORTH, TEXAS

TABLE 19 — SHEET 6 OF 5

B-36 WING - ULTIMATE SHEARS, BENDING MOMENTS, & TORSION DUE TO PITCHING (ACCELERATION-NOSE DOWN) LESS LIFT

CONDITION: 2 WHEELS LANDING WITH BRAKES - NOSE DOWN - D.G.W. - FULL FUEL & OIL - LESS BOMBS.

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STATION	DISTANCE BETWEEN STATIONS (Inches)	CHORD LENGTH C_n	PANEL WT. LOAD W_n	DIST. FROM NOSE OF LOAD	DIST. FROM L.E. TO LOAD % C	e % C	e INCHES	F (1)-(7)	$\frac{W_n e}{12g}$	ΔS_{on}	$\frac{W_n}{12g} F$	ΔM_n $S_{on} \times \Delta Y$	TOTAL MOMENT AT STA. M_x	ΔT_{on} (DUE TO e) $\Delta S_{on} \times e$	$\Sigma \Delta T_{on}$ (DUE TO e)	e' (7)/(6)	$S_{on} \times e'$	$\frac{e}{2} S_{on} \times e$	TORSION INBOARD	TORSION OUTBOARD
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
			F25-94-187	F25-94-187	F25-94-187	(6)/50 - (7)	(8) × (4) / 100	(5) - (10) × (8) × 0.0254	$\frac{W_n e}{12g}$	(5) × (10)		(13) × (3)	Σ (14)	(13) × (3)	Σ (16)	(8) × 0.0254	(3) × (18)	Σ (19)	(17) + (20)	(21) - (20)
	31.000		Tab. I Col. 2	Tab. I Col. 4	Tab. I Col. 7											-6.148				
25		217.46	262.5	963.4	28.93	+0.11	+0.239	52.64	-1.862	-109.86	-2.018 / -1.918	-62.369	-4,874,642	-26	63,967		12,412	102,222	165,239	45,265
	34.000															-6.990				
24		224.85	3,641.3	1,059.00	74.49	-45.47	-102.284	155.16	-25.889	-4,018.83	-2.024 / -1.918	-72,154	-5,447,796	411,011	459,958		14,834	114,126	571,084	112,073
	41.000															-8.224				
23		239.55	3,711.8	1,057.00	76.30	-46.80	-109.301	153.96	-26.042	-4,018.83	-2.024 / -1.918	-245,620	-8,10,416	428,225	888,183		52,499	166,615	1,059,798	62,129
	34.000															-6.990				
22		240.93	732.4	955.30	35.83	-5.73	-13.805	51.48	-5.068	-260.10	-2.024 / -1.918 / -0.441	-345,098	-11,55,514	3,602	896,795		70,940	237,573	1,134,368	1,130,966
	38.875															-7.993				
21		249.39	620.9	940.20	32.18	-2.68	-6.683	36.36	-4.356	-158.47	-2.024 / -1.918 / -0.441	-409,741	-13,60,235	1,059	897,854		83,214	320,787	1,217,641	1,217,382
	38.875															-7.993				
20		257.83	515.8	921.80	21.94	-2.44	-6.291	27.94	-3.619	-101.19	-2.024 / -1.918 / -0.441	-410,882	-14,71,117	627	898,481		84,488	405,267	1,303,748	1,303,121
	38.875															-7.993				
19		266.28	644.0	940.30	38.06	-8.56	-22.792	36.48	-4.518	-164.82	-2.024 / -1.918 / -0.441	-449,915	-3,26,932	3,757	902,238		85,281	490,554	1,392,804	1,388,047
	38.875															-7.993				
18		274.72	3,988.1	1,038.36	76.39	-46.89	-128.816	134.50	-27.801	-3,746.00	-2.024 / -1.918 / -0.441	-421,228	-3,807,158	484,063	1,387,111		86,607	577,163	1,964,274	1,412,411
	27.500															-5.654				
17		280.70	204.1	892.40	27.91	+1.59	+4.463	-4.44	-1.993	0.85	-2.024 / -1.918 / -0.441	-401,481	-3,208,636	39	1,387,150		82,514	659,707	2,046,857	2,046,818
	27.500															-5.654				
16		286.68	4,124.4	1,032.84	76.46	-46.96	-134.648	129.00	-28.137	-3,732.87	-2.024 / -1.918 / -0.441	-401,237	-3,609,873	502,530	1,889,680		82,494	742,201	2,631,881	2,129,351
	36.500															-7.504				
15		294.61	840.7	915.12	37.78	-8.28	-24.394	11.28	-5.898	-66.53	-2.024 / -1.918 / -0.441	-468,802	-4,278,675	1,623	1,891,311		137,498	879,699	2,771,010	2,767,387
	36.500															-7.504				
14		302.54	620.5	891.84	32.35	-2.85	-8.620	-12.00	-4.367	52.40	-2.024 / -1.918 / -0.441	-671,230	-4,949,905	-452	1,890,859		137,998	1,017,697	2,908,556	2,909,008
	36.500															-7.504				
13		310.47	6436	884.52	38.34	-2.84	-8.617	-14.32	-4.515	87.35	-2.024 / -1.918 / -0.441	-669,317	-5,619,222	-769	1,890,090		137,604	1,155,301	3,045,391	3,046,160
	36.250															-7.453				
12		318.35	774.5	892.16	37.32	-7.82	-24.895	-10.68	-5.434	58.04	-2.024 / -1.918 / -0.441	-661,571	-6,280,793	-1,446	1,888,645		136,019	1,291,320	3,179,965	3,181,411
	36.250															-7.453				
11		326.23	4,820.4	1,015.08	76.79	-47.29	-154.274	111.24	-28.891	-3,323.96	-2.024 / -1.918 / -0.574	-659,467	-6,940,260	512,801	2,401,446		135,586	1,426,906	3,802,852	3,315,551
	27.500															-5.654				
10		332.20	5,04	1,053.32	38.95	+0.55	+1.827	-50.52	-2.549	122.77	-2.024 / -1.918 / -0.588	-591,634	-7,531,954	693	2,401,639		121,652	1,548,558	3,950,237	3,950,004
	27.500															-5.654				
9		338.18	5,097.0	1,124.4	71.83	-42.33	-143.152	88.80	-35.761	-3,175.58	-2.024 / -1.918 / -0.624	-508,160	-8,130,139	454,541	2,856,770		120,930	1,669,488	4,505,628	4,051,147

BY: [illegible]

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CONSOLIDATED VULTEE AIRCRAFT CORPORATION — FORT WORTH DIVISION — FORT WORTH, TEXAS — TABLE 49 — SHEET 3 OF 3

B-36 WING - ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS DUE TO PITCHING ACCELERATION - WING EMPTY LESS L.G.

CONDITION: 2 WHEEL LANDING WITH BOMBS - NOSE DOWN - D.G.W. - FULL FUEL & OIL - LESS BOMBS.

SEE PAGE 1-48

STATION	DISTANCE BETWEEN STATIONS (Inches)	CHORD LENGTH C, in.	PANEL POINT LOAD W_p lb	DIST. FROM NOSE EYE LINE IN INCHES	DIST. FROM L.E. TO LOAD % C	e % C	e INCHES	F (2) - $\bar{x}$	$\frac{W_{ok}}{129}$	$\frac{\Delta S_{ok}}{W_{ok}/129}$ F	TOTAL SHEAR AT STA. $\Sigma \Delta S_{ok}$	ΔM_x $\Delta S_{ok} \times \Delta Y$	TOTAL MOMENT AT STA. M_x	ΔT_{ea} (DUE TO e) $\Delta S_{ok} \times e$	$\Sigma \Delta T_{ea}$ (DUE TO e)	e' $(\Delta Y \text{ for } e')$	$S_{ok} \times e'$	$\Sigma S_{ok} \times e'$	TORSION INBOARD	TORSION OUTBOARD
1		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
			FZS-34-137 Tab I Col 2	FZS-34-137 Tab I Col 3	FZS-34-137 Tab I Col 7											+(8) × .2054 -7.299				
	35.500																			
8		345.89	7888	884.04	41.60	-12.10	-41.863	-12.80	-5.499	108.88	-24,146 / -24,146	-812021	-8,992,158	-4,557	2,851,713	-3.495	179,296	1,048,780	4,700,492	4,705,500
	17.000																			
7		349.59	8252	853.54	33.25	-4.25	-14.853	-50.28	-5.790	291.12	-23,555 / -24,146	-415,786	-9,407,891	-4,325	2,847,388	-5.246	85,471	1,133,251	4,701,629	4,706,964
	26.000																			
6		355.84	5439	804.00	53.90	-4.40	-15.651	-52.84	-3.816	201.37	-23,555 / -23,555	-628,263	-10,034,154	-3,271	2,844,117	-5.246	129,181	2,013,432	4,987,549	4,990,820
	26.000																			
5		360.88	8708	839.60	52.70	-3.82	-11.620	-64.00	-6.110	392.96	-23,555 / -23,555	-622,822	-10,656,976	-4,558	2,839,559	-6.888	128,062	2,141,494	5,021,053	5,028,411
	31.500																			
4		368.16	8810	812.64	37.20	+2.30	8.468	-91.20	-6.223	567.58	-23,555 / -23,555	-789,941	-11,446,917	4,806	2,844,365	-6.836	162,288	2,353,780	5,148,157	5,143,351
	33.250																			
3		375.39	5745	785.44	21.82	-2.44	-9.163	-104.40	-4.178	435.91	-23,555 / -23,555	-766,500	-12,213,417	-3,077	2,841,288	-6.836	157,143	2,510,923	5,255,278	5,252,200
	33.250																			
2		382.62	8250	841.20	38.32	-8.82	-33.747	-126.4	-5.858	346.95	-23,555 / -23,555	-753,411	-12,966,828	-12,985	2,828,303	-8.013	154,897	2,665,820	5,404,787	5,397,170
	38.375																			
1		391.08	10212	787.04	38.89	+0.61	2.386	-106.80	-7.165	765.22	-23,555 / -23,555	-868,832	-13,835,140	1,826	2,830,131	-8.435	170,626	2,836,508	5,575,239	5,573,413
	41.025																			
0		400.00	4924	786.72	38.43	+1.07	4.200	-112.42	-3.469	406.29	-21,707 / -21,707	-883,137	-14,718,277	1,739	2,832,470		181,578	3,026,087	5,658,257	5,656,518

BY: [illegible]
CHECKED: Brown / Pappas

CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION — FORT WORTH, TEXAS

FW 833 126 PAGES 11-45

TABLE 50 — SHEET 1 OF 2

BENDING - ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS DUE TO MOVING REACTIONS - WING EMPTY LESS L.G.
CONDITION 1 WHEEL LOADING WITH INCLINED REACTIONS - 1.5G DIVE, 7.5 G PULL-UP - 62-1000 # BOMBS - FULL FUEL & OIL

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
STA.	DIST. FROM ℄ SHIP, IN.	DIST. BETWEEN STATIONS, IN.	CHORD C_1, IN.	PANEL POINT LOADS, LB. (Col. 3 × Col. 4)	DIST. FROM NOSE BRK. LINE ALONG LOADING LINES (Col. 5 × 0.707)	DIST. FROM L.E. ALONG LOADING LINES (Col. 5 × 0.707 × Col. 7)	e, IN. (Col. 6 × Col. 8)	e_1, IN. (Col. 9 × Col. 8)	$\bar{T}$ (Col. 10 × Col. 5)	$\frac{W_{NK}}{12\,q}$ (Col. 11 × Col. 5)	ΔM_{B_1} (Col. 12 × Col. 5)	TORSIONAL MOMENT AT STATION M_x (Col. 13 + Col. 14)	M_x (Col. 15 × Col. 8)	TOTAL MOM. AT STATION M_x	M_{TEA} (Col. 17 × Col. 8)	M_{BEA} (Col. 17 × Col. 8)	S_{TEA} (Col. 18 − Col. 19)	S_{BEA} (Col. 18 + Col. 19)	TORSION INBOARD (Col. 16 + Col. 20)	TORSION OUTBOARD (Col. 16 + Col. 21)
T.P.	1346.4*	22.4	101.41	49.5	107.88	39.71	-10.21	-14.367	18696	-263	-49.2	-49.2	0	0	+5396	5396	-4.61		540	0
41	1324	23.0	112.29	15.7	107.88	36.31	-6.81	-7.658	17804	-083	-14.9	-64.1	-1102.1	-1102.1	1141	6537	-4.73		881	766
40	1301	23.0	117.29	33.1	1063.68	33.92	-4.82	-5.184	171.84	-.116	-30.2	-94.3	-1476.3	-2576.4	1516	8103	-4.73		1340	1184
39	1278	26.0	122.29	170.0	1094.04	62.43	31.93	40.370	201.20	-.902	-182.4	-276.7	-2168.9	-4745.3	7395.2	8156	-5.35		9132	1787
38	1252	27.0	127.94	45.2	1053.36	33.83	4.33	5.540	162.12	.240	38.9	-315.6	-7192	-11939	215.5	8372	-5.55		10618	10612
37	1225	27.0	133.80	45.4	1049.04	34.11	-4.61	-6.168	157.20	.241	37.9	-353.5	-8521.2	-20460	233.8	8606	-5.55		12814	12580
36	1198	28.0	139.61	55.0	1041.66	33.33	-3.84	-5.363	150.84	.291	44.0	-397.5	-9545	-30005	236.0	8842	-5.576		15212	14716
35	1170	30.0	145.76	212.9	1007.32	51.54	-22.02	-32.126	141.84	-1.169	-138.0	-535.5	-11730.0	-41735	623.4	15074	-6.17		23539	17301
34	1140	30.0	152.28	74.7	1031.52	33.52	-4.02	-6.122	139.68	.396	55.3	-590.8	-13450	-55880	338.5	15413	-6.17		26496	27583
33	1110	30.0	158.74	84.5	1029.20	32.63	-3.13	-4.970	132.36	.448	-59.3	-649.8	-15467	-70284	394.7	15808	-6.17		31808	31513
32	1080	30.0	165.31	255.0	1047.72	50.47	-20.97	-34.666	125.88	1.353	-210.9	-760.7	-17710	-88467	1311	15019	-6.17		43415	36164
31	1050	30.0	171.83	127.3	1011.84	32.38	-2.88	-4.949	120.00	.675	-81.0	-841.7	-19870	-108337	409.9	15420	-7.40		52579	49133
30	1014	36.0	179.66	157.7	1000.52	32.30	-2.80	-5.030	112.68	.821	-92.5	-933.2	-22028	-130365	465.3	15885	-7.40		73852	58920
29	978	36.0	187.98	316.5	1022.04	45.48	-15.98	-29.959	130.20	1.679	-218.6	-1086	-25638	-156003	654.0	16439	-7.40		80627	65959
28	942	36.0	195.30	183.0	990.00	37.22	-2.72	-5.312	98.16	.971	-95.3	-1369	-32318	-188321	606.2	16046	-7.40		96873	81691
27	906	36.0	203.12	199.8	982.50	32.22	-2.72	-5.525	90.96	1.060	-96.4	-1465	-35058	-223648	532.6	31473	-7.40		103925	92589
26	870	30.0	210.95	299.3	969.92	49.79	-13.29	-29.478	106.68	1.591	-168.8	-1634	-39278	-262926	496.7	36440	-6.17		110519	109228
25	840		217.46	262.5	947.58	29.39	+6.11	+12.249	71.64	1.393	-99.8	-1676	-40288	-303386	-23.9	36416			103048	119496

* C.G. OF TIP SECTION

BY: [illegible]
CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS
FW 933, 188 PAGE 11-43

TABLE 50
SHEET 2 OF 2

B-36 WING - ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS DUE TO OTTOLINE RECEIVER TANK - FULL EMPTY, LESS L.
CONDITION: 2 WHEEL LANDING WITH TRUNNION REACTIONS - NOSE DOWN - NO N.V. - 42 1000# BOMBS - FULL FUEL & OIL

STA.	DIST. FROM SHIP ℄, IN.	DIST BETWEEN STATIONS, (IN) IN.	CHORD LENGTH, C, IN	PANEL ℄ LOAD, W_1, #	DIST FROM NOSE REF. LINE TO LINE, IN.	DIST FROM LE TO ℄, IN.	e, ℄/C	e, INCHES	$\bar{r}$ = (10)·(7)	$\frac{W_1 C}{12}$	$\frac{M_x}{12}$	TOTAL SHEAR AT STA. Σ_{Sh}	ΔM_x = Σ_{Sh}·ΔY	TOTAL MOMENT AT STA. ΣM_x	ALTER. (DELTA M) Σ_{Sh}·Y	ΣM_{TOR} (DELTA M)	e' (ΔY FROM ℄)	Σ_{Sh}·e'	TORSION THROUGH	TORSION OVER
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22
				FZS-34-137 THE I Co. 2	FZS-34-137 THE I Co. 4	FZS-34-137 THE I Co. 7	Z05-(7)	(8)·(7)	(6)-(9)=(10)	(5)·(10)=(11)	(11)·(12)	Σ_{Sh} (12)	(13)·(14)	Σ_{Sh} (14)	(13)·(15)	Σ_{Sh} (16)	(13)·(17) (ΔY FROM ℄)	(13)·(18)	(11)+(20)	(21)-(16)
24	806.0	34.0	224.85	3691.3	1059.60	74.99	-45.49	-102.284	+161.16	-19.682	3273.33	-1752 -2248	-60160	-464176	334800	371225	-6.99 -8.224	12368.1	166689	131840
23	766.0	40.0	233.55	3711.8	1057.80	76.30	-46.80	-109.301	+165.96	-19.691	3267.31	-5448 -8371	-201708	-665884	1357185	728410	-6.990	41471.2	865906	507896
22	732.0	34.0	240.93	722.4	955.32	36.23	-5.73	-13.805	63.88	-3.832	-243.26	-2431 -3354	-282580	-948394	+3358	137160	-7.993	58091.1	926735	923397
21	693.05	38.875	249.38	620.9	940.20	32.18	-2.68	-6.683	98.36	-3.294	-159.30	-2004 -2873	-332533	-1280927	+1065	122833	-7.993	65371.3	986191	985126
20	654.21	38.875	257.83	515.8	931.80	31.94	-2.94	-6.291	99.96	-2.726	-109.33	-1873 -2611	-335726	-1616653	+688	733521	-7.993	65644.6	1046524	1045836
19	615.375	38.875	266.28	644.0	940.32	38.06	-8.56	-22.704	98.80	-3.416	-165.61	-1538 -2168	-341595	-1962626	-3775	737236	-7.993	70518.2	1160816	1157041
18	576.5	38.875	274.72	3988.1	1038.36	76.39	-46.89	-128.816	146.56	-21.157	-2309.80	-1208 -1705	-349412	-2311040	+355318	1194615	-5.654	71841.9	1611978	1216658
17	549	27.5	280.70	284.1	899.40	27.91	+1.59	+4.463	75.6	-1.507	-11.39	-1208 -1705	-339420	-2650460	-51	1136564	-5.654	68385.6	1680271	1680323
16	521.5	27.5	286.68	4126.4	1032.84	76.96	-46.96	-134.625	141.00	-21.880	3085.08	-1208 -1705	-332734	-2977194	+15220	1351893	-5.654	68400.0	2146011	1948682
15	488.0	36.5	294.61	844.7	915.12	37.78	-8.28	-24.394	23.78	4.460	-103.83	-1208 -1705	-334218	-3311412	+2533	1354426	-7.504	11304.5	2280489	2277956
14	448.5	36.5	302.54	622.5	891.84	33.35	-2.85	-8.622	0.00	-3.302	0	-1208 -1705	-558023	-4088951	0	1354426	-7.504	11429.8	2395212	2395212
13	412.0	36.25	310.47	643.6	884.52	32.34	-2.84	-8.817	-7.32	-3.414	125.00	-1208 -1705	-556023	-4647479	-220	1354206	-7.453	11437.9	2509396	2509396
12	375.75	36.25	318.35	774.5	893.16	37.32	-7.82	-24.895	+1.32	-4.109	-5.42	-1208 -1705	-553295	-5200769	+135	1354341	-7.453	11357.6	2623873	2623738
11	339.5	27.5	326.23	4260.4	1015.08	76.79	-47.79	-154.274	+133.94	-22.601	-2785.35	-1208 -1705	-555290	-5756059	+4239707	5984048	-6.654	11397.6	3167113	3237406
10	312.0	27.5	332.20	973.4	858.32	28.95	+0.55	+1.827	-38.51	-1.912	+73.65	-1208 -1705	-496488	-6250547	+135	1984183	-6.654	10267.5	3269326	3268191
9	284.5		338.18	5097.0	992.64	71.83	-42.33	-143.152	+100.80	-27.040	-2725.63	-1208 -1705	-494461	-6745008	+390179	2374362	-6.654	10266.8	3376166	3376087

BY: [illegible]
CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 655 125 PA/DS 11-43

TABLE 50
SHEET 3 OF 3

B-36 WING - ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS DUE TO PITCHING ACCELERATION - WING EMPTY LESS L.G.
CONDITION: 2 WHEEL LANDING WITH INCLINED REACTIONS - NOSE DOWN - HEAVY - 42-1000# BOMBS - FULL FUEL & OIL

STA.	DIST. FROM ℄ SHIP, IN.	DIST. BETWEEN STATIONS Δx, IN.	CHORD LENGTH C_{in}	PANEL AIR LOAD N_z	DIST. FROM NOSE TO C_{in}	DIST. FROM LE TO C_{in}	e_1 % C	e_2 INCHES	$\bar{r}$	$\frac{Wx}{129}$	$\Delta\Omega_z$ = $\frac{Wx\bar{r}}{129}$	TOTAL SHEAR AT STA. $\Sigma\Delta\Omega$	ΔM_z $S_{in} \times \Delta x$	TOTAL MOM. AT STA. M_x	ΔT_{EB} DUE TO e_1 $\Delta\Omega \times e_1$	$\Sigma\Delta T_{EB}$ $(\Delta\Omega \times e_1)$	e' $(\Delta\Omega/C_{in})$	$S_{in} \times e'$	TORSION INBOARD	TORSION OUTBOARD
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22
				FZS-36-137	FZS-36-137	FZS-36-137	295-(1)	⑧ e_{in} ④	⑥ - 89.06	⑤ × 1.005305	(11)×(12)	Σ^{n}_{in} (13)	(13)$_{out}$ ⑨	Σ^{n}_{in} (14)	(12)×(9)	Σ^{n}_{in} (16)	(16)×306 / -7.299	(18)×(8)	(19)+(20)	(21)+(16)
		35.5			Tab I Col 2	Tab I Col 4	Tab I Col 7													
8	269.0			395.89	783.8	889.04	4160	-12.10	-41.853	-7.60	-4.158	132.43		-735063	-1351	23750005			59110942	59123359
		17.0															-3.495			
7	232.0			349.59	825.2	853.56	33.75	-4.25	-14.859	-39.28	-4.353	+166.63		-351451	-7831522	-2476			72254.2	58837780	58831196
		26.0															-5.396			
6	206.0			355.24	593.9	849.00	33.90	-4.40	-15.631	-42.84	-2.885	+123.59		-533182	-6364704	-1932			1096324	4688118	4690350
		26.0															-5.396			
5	180.0			360.88	870.8	839.64	32.72	-3.25	-11.729	-52.20	-4.620	+241.16		-529968	-8894672	-2829			1084066	4194559	4197388
		33.5															-6.888			
4	146.5			368.16	887.0	812.64	27.20	+2.30	+8.468	-79.00	-4.706	+371.77		-617764	-9569436	+3148			1387395	4324447	4327595
		33.25															-6.836			
3	113.25			376.29	595.5	873.44	31.04	-2.44	-9.160	-68.46	-3.159	+216.08		-657366	-10226802	-1979			1251502	4469618	4471597
		33.25															-6.836			
2	80.0			387.62	835.0	841.20	38.32	-8.82	-23.797	-50.20	-4.930	+222.33		-650180	-10876982	-7505			1336732	4595786	4603291
		28.875															-8.013			
1	41.025			391.08	1021.2	797.04	28.89	+0.61	+2.386	-94.20	-5.417	+513.53		-753461	-11630443	+1225			1519065	4759118	4752693
		41.025															-5.435			
0	0			400.00	424.4	786.72	28.43	+1.07	+4.280	-105.12	-2.623	+275.73		-771.025	-12401468	+1180			1587262	4911830	4910650

BY: [illegible]
CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION — FORT WORTH, TEXAS
FW 633 125 PADS 11-43

TABLE 51
SHEET 1 OF 3

B-36 WING – ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS DUE TO ROLLING ACCELERATION – WING EMPTY LESS L.G.
CONDITION: SIDE DRIFT LANDING (GROUND LOAD ACTING INBOARD) – D.G.W. – FULL FUEL & OIL – LESS BOMBS.

STATION	DIST FROM ℄ SHIP ℄ IN.	DISTANCE BETWEEN STATIONS (Δy) IN.	CHORD LENGTH, C_x IN.	PANEL POINT LOAD W, *	DIST. FROM NOSE REF LINE IN INCHES	DIST. FROM L.E. (ALONG) % C	e, % C	e, INCHES	$\frac{W \cdot K}{129}$	$\Delta S_b = \frac{W \cdot K}{129} \bar{r}$	TOTAL SHEAR, S_{bn}	$\Delta M_x = S_{bn} \times \Delta y$	TOTAL MOMENT, M_x	ΔT_{EA} (ZERO ECC) $= \Delta S_b \times e$	$\Sigma \Delta T_{EA}$ DUE TO e
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
				FZS-36-137 TAB I, COL. 2	FZS-36-137 TAB I, COL. 4	FZS-36-137 TAB I, COL. 7	29.5 – ⑦	⑧ × ④ / 100	.00153127 × ⑨	⑩ × ②	Σ ⑪	⑫ × ③	Σ ⑬	⑪ × ⑨	Σ ⑮
											0	0			
1/2	1346.1 *		107.42	49.5	1018.10	39.71	-10.21	-10.968	.068	11.56	51.6		0	-1004	-1004
		22.4									91.6	2,052			
41	1324.0		112.29	15.7	1070.88	36.32	-6.82	-7.658	.022	29.13	120.7		2,052	-223	-1227
		23.000									120.7	2,776			
40	1301.0		117.29	33.1	1063.68	33.92	-4.42	-5.184	.045	58.55	179.2		4,828	-304	-1531
		23.000									179.2	4,122			
39	1278.0		122.29	170.0	1094.04	62.43	-32.93	-40.269	.233	297.8	477.0		8,950	-11,990	-13,520
		26.000									477.0	12,400			
38	1252.0		127.94	45.2	1053.96	33.83	-4.33	-5.540	.062	77.62	554.7		21,350	-430	-13,950
		27.000									554.7	14,980			
37	1225.0		133.80	45.4	1049.04	34.11	-4.61	-6.168	.062	75.95	630.6		36,330	-468	-14,420
		27.000									630.6	17,030			
36	1198.0		139.67	55.0	1042.68	33.34	-3.84	-5.363	.075	89.85	720.5		53,360	-482	-14,900
		28.000									720.5	20,170			
35	1170.0		145.76	212.9	1063.68	51.54	-22.04	-32.124	.292	341.6	1062		73,530	-10,970	-25,870
		30.000									1062	31,860			
34	1140.0		152.28	79.7	1031.52	33.52	-4.02	-6.121	.103	117.4	1179		105,400	-719	-26,590
		30.000									1179	35,370			
33	1110.0		158.79	84.5	1024.20	32.63	-3.13	-4.970	.116	128.8	1308		140,800	-640	-27,230
		30.000									1308	39,240			
32	1080.0		165.31	255.0	1047.72	50.47	-20.97	-34.666	.350	378.0	1686		180,000	-13,100	-40,330
		30,000									1686	50,580			
31	1050.0		171.83	127.3	1011.84	32.38	-2.88	-4.949	.175	183.8	1870		230,600	-510	-41,240
		36,000									1870	67,320			
30	1014.0		179.66	154.7	1004.52	32.30	-2.80	-5.030	.212	215.0	2085		297,900	-1081	-42,320
		36,000									2085	75,060			
29	978.0		187.48	316.5	1022.04	45.48	-15.98	-29.959	.434	424.5	2510		373,000	-12,720	-55,040
		36,000									2510	90,360			
28	942.0		195.30	183.0	990.00	32.22	-2.72	-5.312	.251	236.4	2746		463,300	-1256	-56,300
		36,000									2746	98,860			
27	906.0		203.12	199.8	982.80	32.22	-2.72	-5.525	.274	248.2	2994		562,200	-1,370	-57,670
		36,000									2994	107,800			
26	870.0		210.95	299.9	997.92	42.79	-13.29	-28.035	.412	358.4	3353		670,000	-10,050	-67,720
		30,000													

STATION	e' (AY FAN B)	$S_{bn} \times e'$	$\Sigma_{20}^{n} S_{bn} \times e'$	TORSION INBOARD	TORSION OUTBOARD
17	18	19	20	21
	-③ × .056	⑫ × ⑰	Σ ⑱	⑯ + ⑲	⑳ – ⑮
			0		
1/2			0	-1004	0
	-4,605	-421			
41			-421	-1648	-1425
	-4729	-571			
40			-992	-2523	-2219
	-4,729	-847			
39			-1839	-15360	-3370
	-5,346	-2,550			
38			-4389	-18,340	-17,910
	-5,551	-3,079			
37			-7468	21,890	-21,420
	-5,551	-3,500			
36			-10,970	-25,870	-25,390
	-5,757	-4,148			
35			-15,120	-40,990	-30,020
	-6,168	-6,550			
34			-21,670	-48,260	-47,540
	-6,168	-7,272			
33			-28,940	-56,170	-55,530
	-6,168	-8,068			
32			-37,010	-77,340	-64,240
	-6,168	-10,400			
31			-47,410	-88,650	-87,740
	-7,402	-13,840			
30			-61,250	-103,600	-102,500
	-7,402	-15,430			
29			-76,680	-131,700	-119,000
	-7,402	-18,580			
28			-95,260	-151,600	-105,300
	-7,402	-20,330			
27			-115,600	-173,300	-171,900
	-7,402	-22,160			
26			-137,800	-205,500	-195,500

BY: [illegible]
CHECKED: [illegible]

* C.G. OF TIP SECTION

TABLE 51 SHEET 2 OF 3.

B-36 WING - ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS DUE TO ROLLING ACCELERATION - WING EMPTY LESS L.G.
CONDITION: SIDE DRIFT LANDING (GROUND LOAD ACTING INBOARD) - D.G.W. - FULL FUEL & OIL - LESS BOMBS.

Station	Dist. from ℄ Ship, in.	Dist. between stations (Δy), in.	Chord length, c, in.	Panel wt. load, W, #	Dist. from nose rib line in inches	Dist. from L.E. to load, % c	e, % c	e, inches	Wx/129	ΔSb = Wx/129 ↑	Total shear Sb	ΔMx = Sb × Δy	Total moment Mx	Area (due to e) = ΔSb × e	Σ ΔT E.A. (due to e)	e' (Δy Tab. 3)	Sb in × e'	Σ Sb in × e'	Torsion inboard	Torsion outboard
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
				FZS-36-137	FZS-36-137	FZS-36-137	29.5 - (7)	(8) × (4) / 100	.0013727(5)	(10) × (2)	Σ (11)	(2nd) × (3)	Σ (13)	(11) × (9)	Σ (15)	(3) × .2056	(2nd) × (11)	Σ (18)	(16) + (19)	(20) - (15)
		30.000		Tab. I, Col. 2	Tab. I, Col. 4	Tab. I, Col. 7					3353	100,600				-6.168	-20,680			
25	840.0		217.46	262.5	963.48	29.39	+ 0.11	+0.239	.360	302.4	3655		770,600	+72	-67,640			-158,400	-226,000	-226,000
		34.000									3655	124,300				-6.990	-25,550			
24	806.0		224.85	3691.3	1059.00	74.99	- 45.49	-102.284	5.067	4084	7739		894,900	-417,700	-485,300			-184,000	-669,300	-251,600
		40.000									7739	309,600				-8.224	-63,650			
23	766.0		233.55	3711.8	1057.80	76.30	- 46.80	-109.301	5.095	3903	11642		1,204,000	-426,600	-911,900			-247,600	-1,160,000	-733,400
		34.000									11642	395,800				-6.990	-81,380			
22	732.0		240.93	722.4	956.32	35.23	- 5.73	-13.805	.992	726.1	12368		1,600,000	-10,020	-922,000			-329,000	-1,251,000	-1,241,000
		38.875									12,368	480,800				-7.993	-98,860			
21	693.125		249.38	620.9	940.22	32.18	- 2.68	-6.683	.852	590.5	12959		2,081,000	-3,946	-925,900			-427,900	-1,354,000	-1,350,000
		38.875									12,959	503,800				-7.993	-103,600			
20	654.25		257.83	515.8	931.80	31.94	- 2.44	-6.291	.708	463.2	13,422		2,585,000	-2914	-928,800			-531,500	-1,460,000	-1,457,000
		38.875									13,422	521,800				-7.993	-101,300			
19	615.375		266.28	694.0	940.32	38.06	- 8.56	-22.794	.884	574.0	13,966		3,107,000	-12,900	-941,200			-638,800	-1,580,000	-1,568,000
		38.875									13,966	542,900				-7.993	-111,600			
18	576.50		274.72	3988.1	1038.36	76.39	- 46.89	-128.816	5.474	3156	17,122		3,650,000	-406,500	-1,348,000			-750,900	-2,098,000	-1,692,000
		27.500									17,122	470,900				-5.654	-96,810			
17	549.0		280.70	259.1	899.40	27.91	+ 1.59	+4.463	.390	214.1	17,336		4,120,000	+956	-1,347,000			-847,200	-2,194,000	-2,195,000
		27.500									17,336	476,700				-5.654	-98,020			
16	521.5		286.68	4124.4	1032.84	76.46	- 46.96	-134.625	5.662	2953	20,289		4,597,000	-397,500	-1,744,000			-945,200	-2,689,000	-2,292,000
		36.500									20,289	740,500				-7.504	-152,200			
15	485.0		294.61	840.7	915.12	37.78	- 8.28	-24.394	1.154	559.7	20,849		5,338,000	-13,650	-1,758,000			-1,097,000	-2,855,000	-2,841,000
		36.500									20,849	761,000				-7.504	-156,500			
14	448.5		302.54	621.5	891.84	32.35	- 2.85	-8.622	.855	383.5	21,232		6,099,000	-3,307	-1,761,000			-1,259,000	-3,015,000	-3,012,000
		36.500									21,232	775,000				-7.504	-159,300			
13	412.0		310.47	643.6	884.52	32.34	- 2.84	-8.817	.883	363.8	21,596		6,874,000	-3,208	-1,764,000			-1,413,000	-3,177,000	-3,174,000
		36.250									21,596	782,900				-7.453	-161,000			
12	375.75		318.35	7745	893.16	37.32	- 7.82	-24.895	1.063	399.4	21,995		7,657,000	-9,943	-1,774,000			-1,574,000	-3,348,000	-3,338,000
		36.250									21,995	797,300				-7.453	-163,900			
11	339.5		326.23	4260.4	1015.08	76.79	- 47.29	-154.274	5.848	1985	23,980		8,454,000	-306,200	-2,081,000			-1,738,000	-3,819,000	-3,513,000
		27.500									23,980	659,500				-5.654	-135,600			
10	312.0		332.20	360.4	853.32	28.95	+ 0.55	+1.827	.495	154.4	24,135		9,113,000	+282	-2,080,000			-1,874,000	-3,954,000	-3,954,000
		27.500									24,135	663,700				-5.654	-136,500			
9	284.5		338.18	5097.0	992.64	71.83	- 42.33	-143.152	6.997	1991	26,126		9,777,000	-285,000	-2,365,000			-2,010,000	-4,375,000	-4,090,000

BY: List
CHECKED: [illegible], Pfitzer

TABLE 51 SHEET 3 OF 3

B-36 WING – ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS DUE TO ROLLING ACCELERATION – WING EMPTY LESS L.G.
CONDITION: SIDE DRIFT LANDING (GROUND LOAD ACTING INBOARD) – D.G.W. – FULL FUEL & OIL – LESS BOMBS.

Station	Dist. Fr. ℄ Ship, in.	Dist. Between Stations, Δy, in.	Chord Length, C, in.	Vance Point Coordinate	Dist. From Nose of F. Line in Inches	Dist. From L.E. To Load ℄	e, % C	e, in. Inches	WX/2g	ΔSb Max/2g F	Total Static, Sbn	ΣΔMx = Sbn × Δy	Total Inertia Moment Mx	ΔTEA (Double e)	ΣΔTEA (Double e)	e' (Δy Tan ϕ)	Sbn-1	Σ Sbn × e'	Torsion Inboard	Torsion Outboard
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
				FZS-36-137	FZS-36-137	FZS-36-137	295 – (7)	(8) × (4) / 100	.0013727 × (3)	(10) × (6)	Σ (11)	(12) × (3)	Σ (13)	(1) × (3)	Σ 15	(8) × 20.576	(12) × (17)	Σ (18)	(16) + (19)	(20) – (15)
		35,500		TAB. I, Col. 2	TAB. I, Col. 4	TAB. I, Col. 7					26,126	927,500				-7.799	-190,700			
8	249.0		345.89	783.8	884.04	41.60	-12.10	-41.853	1.076	267.9	26,394		10,705,000	-11,210	-2,377,000			-2,201,000	-4,578,000	-4,567,000
		17,000									26,394	448,700				-3.495	-92,250			
7	232.0		349.59	825.2	853.56	33.75	-4.25	-14.858	1.133	262.9	26,656		11,153,000	-3,906	-2,380,000			-2,293,000	-4,673,000	-4,663,000
		26,000									26,656	693,100				-5.346	-142,500			
6	206.0		355.24	543.9	849.00	33.90	-4.40	-15.631	.747	153.9	26,810		11,846,000	-2,406	-2,383,000			-2,436,000	-4,819,000	-4,817,000
		26,000									26,810	697,100				-5.346	-143,300			
5	180.0		360.88	870.8	839.64	32.72	-3.25	-11.620	1.195	215.1	27,025		12,543,000	-2,499	-2,385,000			-2,579,000	-4,964,000	-4,962,000
		33,500									27,025	905,300				-6.888	-186,100			
4	146.5		368.16	887.0	812.64	27.20	+2.30	8.468	1.218	178.4	27,204		13,449,000	+1,511	-2,389,000			-2,765,000	-5,149,000	-5,151,000
		33,250									27,204	904,500				-6.836	-186,000			
3	113.25		375.39	595.5	823.44	31.94	-2.44	-9.160	.817	92.53	27,296		14,353,000	-848	-2,365,000			-2,951,000	-5,336,000	-5,335,000
		33,250									27,296	907,600				-6.836	-186,000			
2	80.0		382.62	835.0	841.20	38.32	-8.82	-33.747	1.146	91.68	27,388		15,261,000	-3,094	-2,388,000			-3,138,000	-5,526,000	-5,523,000
		38,975									27,388	1,067,000				-8.013	-219,500			
1	41.025		391.08	1021.2	797.04	28.89	+0.61	+2.386	1.402	57.52	27,446		16,328,000	+137	-2,388,000			-3,357,000	-5,745,000	-5,745,000
		41.025									27,446	1,127,000				-8.435	-231,700			
0	0		400.00	994.4	786.72	28.43	+1.07	4.280	.679	0	27,446		17,455,000	0	-2,388,000			-3,589,000	-5,977,000	-5,977,000

By: List
Checked: Shultice, Proffer

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION . FORT WORTH, TEXAS
B-25 PADS 11-43

TABLE 52 B-36 WING, ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS FROM PITCHING ACCELERATION - FUEL & OIL ONLY.
SHEET 1 OF 2. CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS-NOSE DOWN--D.G.W. LESS BOMBS, FULL FUEL & OIL.

STA.	DISTANCE BETWEEN STATIONS (Δx) in.	CHORD LENGTH, C_{ch} in.	PANEL POINT LOAD, $V_{\Delta x}$	DIST. FROM W.P. TO NEAR ROTATION C.G. LOAD TO 'TO' LOAD (Δx) (in.)	e (%c)	e (in.)	$\bar{F}$ (%) - $\bar{X}$	$\frac{WA}{I_{zz}}$	$\Delta S_b = \frac{M_y}{I_{zz}} \Delta \bar{F}$	TOTAL SHEAR AT STA. ΣS_{bx}	$\Delta M_y = \Sigma S_{bx} \times \Delta_y$	TOTAL MOM. AT STA. ΣM_y	ΔT_{EA} (due to C.G.) $= \Delta S_b \cdot e$	$\Sigma \Delta T_{EA}$ (due to e)	$\Delta' = S_{bx} \times e'$ $- \Delta T_{EA} \cdot B$	$\Sigma S_{bx} \times e'$ O.R.	TORSION INBOARD	TORSION OUTBOARD
1	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
			FZS-26-139 TABLE 25 SHEET 1, COL. 2	FZS-26-139 TABLE 28 SHEET 1, COL. 2	FZS-26-139 TABLE 28 SHEET 1, COL. 4	7×8	(9)×(6)/12	5 - 0.0225 × 10000000	10 × 11	12 × (10)	Σ_0^n (12)	(13) × (9)	Σ_0^n (14)	(12) × (9)	Σ_0^n (16)	(13) × 2056	(13) × (6)	Σ (19)	(17) + (20)	(21) - (16)
			CHANGED TO IN.																	
24		224.85	103.102	60.21	57.90	-28.40	-63.86	116.76	-0.72	-8.41	-8	0	0	+537.06	+537.06		0	0	+537	0
	40.000																			
23		232.55	104.102	62.21	60.23	-30.73	-71.77	116.40	-0.72	-8.38	-16	-3364	-336	+601.43	+1138.49	-5.22	+69.13	+69.13	+132	+606
	34.000																			
22		240.93	116.3	92.28	93.14	+1.56	+3.27	34.44	-8.106	279.17	-296	-5760	-902	-912.89	+225.60	-6.99	+117.96	+186.49	+412	+1325
	28.875																			
21		249.38	306.8	93.44	93.88	-0.38	-0.94	30.60	-21.395	654.69	-950	-11,506	-1,413	+615.41	+841.01	-7.99	+229.72	+551.21	+322	+2777
	28.875																			
20		257.83	308.9	92.32	92.32	+1.25	+3.22	18.49	-27.180	502.23	-1,453	-26,056	-19,369	-1617.57	-1776.36	-7.99	+753.69	+1,146.90	+2371	+10,988
	28.875																			
19		266.28	418.6	91.16	90.26	+1.24	+3.30	10.32	-29.178	301.12	-1,754	-56,483	-105,850	-993.70	-1770.06	-7.99	+1,108.89	+2,755.80	+3,986	+10,082
	28.875																			
18		274.72	224.7	90.12	90.27	+1.23	+3.32	2.24	-15.672	-35.13	-1,790	-68,189	-174,041	-1207.77	-1890.83	-7.99	+1,401.44	+2,770.62	+2,880	+4,081
	27.500																			
17											-1,790	-49,220	-223,261		1890.83	5.65	+10,112.31	+5,882.16	+3,892	+4,972
	27.500																			
16		286.68	185.6	89.26	87.22	+1.22	+4.28	-11.76	-12.240	+137.17	-1,658	-43,219	-272,480	+923.19	-2656.4	-5.65	+10,112.31	+5,590.54	+5,030	+5,104
	26.500																			
15		294.61	438.2	88.64	86.49	+1.21	+7.03	-19.20	-20.542	403.15	-1,658	-29,172	-322,253	+12.09	-2553.55	-7.50	+12,281.15	+8,277.60	+7,324	+7,312
	26.500																			
14		302.54	515.8	87.82	86.08	+1.44	+14.30	-24.96	-26.926	896.71	-1,658	-45,058	-377,311	+3,885.85	+2902.30	-7.50	+12,281.15	+17,536.12	+5,438	+16,583
	26.500																			
13		310.47	541.8	87.32	88.10	+1.40	+14.28	-32.52	-37.766	1228.15	-1,658	-12,328	-389,639	+5,342.45	+8244.75	-7.50	+12,281.15	+20,526.32	+8,244	+12,072
	26.250																			
12		318.35	568.9	86.84	88.04	+1.46	+14.44	-40.20	-39.656	1524.17	-1,658	+22,276	-367,362	+7,396.95	+15,641.70	-7.45	-6,235.41	+23,455.11	+11,890.78	+31,681
	26.250																			
11		326.23	300.6	86.44	88.36	+1.14	+13.72	-46.80	-26.966	981.21	-1,658	+98,066	-269,296	+3,650.10	+19,291.80	-7.45	-18,509.97	+54,926.94	+14,218	+70,568
	27.500																			
10											-1,658	+98,308	-171,987		+19,291.80	-5.65	-19,581.60	+35,244.54	+14,436	+54,436
	27.500																			
9		328.18	250.6	86.04	88.22	+1.21	+13.50	-63.84	-17.690	1129.33	-1,658	+80,309	-91,678	+10,720.64	+30,012.44	-5.65	-19,581.60	+15,762.74	+45,783	+35,056

BY: J. Ellis
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CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION
FORT WORTH, TEXAS
FZS PAGE 11-43

TABLE 52 B-36 WING ULT. SHEARS, BENDING MOMENTS & TORSIONS FROM PITCHING ACCELERATION ~ FUEL & OIL ONLY
SHEET 2 OF 2. CONDITION: TWO WHEEL LANDING, WITH INCLINED REACTIONS-NOSE DOWN – DGW LESS BOMBS, FULL FUEL & OIL

STA.	DISTANCE BETWEEN STATIONS (IN)	CHORD LENGTH C, IN	PANEL POINT LOAD W, #	DIST. FROM NOSE REF. LINE TO 10 LOAD LOAD (IN) (4 C)	e (%C)	C (IN)	F	$\Delta S_b = \frac{W}{2}(F)$	TOTAL SHEAR AT STA. S_b	$\Delta M_x = S_b \times \Delta x$	M_x	$\Delta T_{EA} = \Delta S_b \times e$	$\Sigma \Delta T_{EA}$	e	$S_b \times e$	$\Sigma S_b \times e$	TORSION INBOARD	TORSION OUTBOARD
1		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
			FZS-36-137 TABLE IX SHEET (COL. 2 CHORD-TO-IN)	FZS-36-137 TABLE IX SHEET (COL. 3 CHORD-TO-IN)																
9		332.18	4,558.2	840.00	26.22	+1.81	+4.21	-46.54	-17.636	1129.23	+3,466 +4,595	+25,309	-16,685	+10,7284	+30,0204	5.65	-19,581.60	+15,762.14	+49,783	+15,855
35.5																				
8		345.80	4,060.2	837.60	26.17	+1.83	+4.60	-28.24	-28.208	12,744.46	+3,592 +2,970	+142,126	+86,442	+8,622.52	+38,664.36	7.30	-33,544.23	-177,814.8	+20,861	+16,239
17																				
7		341.32	3,643.2	832.92	26.01	+1.43	+5.21	-70.37	-25.391	17,850.50	+2,470 +3,255	1109,383	1,196,119	+93,0246	+1,095.44	3.96	-23,443.46	-404,485	+1,528	-1,792
26																				
6		355.64	4,552.7	828.24	28.02	+1.41	+5.01	-75.66	-31.730	23,398.79	+8,255 +10,684	1213,621	+1,1283	+12,1784	+5,0,2.24	5.35	-44,169.67	-94,588.52	-24,626	-36,644
26																				
5		360.56	5,935.4	822.72	28.03	+1.47	+5.31	-81.12	-37.534	32,244.76	-10,684 +13,699	+277,002	+255,206	+16,1678	+76,151.04	5.95	-56,928.10	-141,587.62	-65,457	-21,644
4		358.16	3,148.2	815.76	28.03	+1.47	+5.41	-88.06	-21.941	19,32.56	-13,699 +15,931	+45,905	+14,364	+10,4558	+6,556.19	6.89	-94,382.42	-235,970.4	+49,385	+33,440
3																				
33.25											-15,931 +15,931	+519,736	+1,666,706		+86,556.19	6.84	-106,917.20	342,888.42	+56,302	+56,302
2											-15,931 +15,931	+519,737	+2,186,427		+86,556.19	6.94	-106,911.20	449,805.44	+56,219	+56,219
1											-15,931 +15,931	1625,249	+3,732,661		+86,556.19	5.01	-125,206.67	575,011.11	+56,443	+56,425
0											-15,931 +15,931	+641,269	+3,434,392		+86,556.19	8.43	-131,770.76	706,781.87	+20,136	+20,136
38.975																				
41.025																				

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CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION — FORT WORTH, TEXAS

TABLE 13 B-36 WING. ULT. SHEARS, BENDING MOMENTS & TORSIONS FROM PITCHING ACCELERATION – FUEL & OIL ONLY.
SHEET 1 OF 2. CONDITION: TWO WHEEL LANDING WITH BRAKES, NOSE DOWN – D.G.W. LESS BOMBS, FULL FUEL & OIL.

STA	DIST. FROM ℄ SHIP (AY)	DISTANCE BETWEEN STATIONS (AY)	CHORD LENGTH, C	PANEL POINT LOAD, W	DIST FROM NOSE REF. LINE TO LOAD (IN)	DIST. FROM L.E. TO LOAD, (IN)	e (%C)	e (IN)	r	W_d (129)	$AS_b = W/129 \times r$	TOTAL SHEAR AT STA. $= \Sigma S_{b_x}$	$AM_y = S_{b_x} \times \Delta y$	TOTAL MOM. AT STA $= M_y$	Δ Tea $\Sigma AS_b \times e$	ΣA_{Tea} $(\Delta \times e \times C)$	$\Delta y \tan B$	$S_{b_x} \times e$	$\Sigma S_{b_x} \times e$	TORSION INBOARD	TORSION OUTBOARD
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
					FRS-36-137 TABLE 12 SHEET 1 COL 2	FRS-36-137 TABLE 12 SHEET 1 COL 3															
24	806		274.65	103.1020.60	57.90		-23.40	-63.86	116.76	-.07	-3.17	-8.17	0	0	+521.7	+521.7		0	0	+521.7	0
		40.000																			
23	766		333.55	104.1020.24	60.23		-30.73	-71.77	116.40	-.07	-2.15	-10.32	-326.8	-326.8	+384.9	+1,106.6	-8.22	+67.2	+67.2	+1,174.6	+388.5
		39.000																			
22	726		240.03	1163.1	938.28	28.14	-1.36	-2.27	34.44	-8.16	-22.03	-32.34	-554.9	-881.7	-213.0	+187.6	-6.89	+114.1	+181.3	+368.9	+1,287.9
		38.875																			
21	686		249.23	3069.8	934.44	29.86	-0.98	-.94	30.60	-21.54	-659.12	-691.46	-11,569	-12,451	+613.6	+837.2	-7.99	+2,275.8	+2,557.1	+3,384	+2,745
		38.875																			
20	646		257.33	3899.9	922.32	28.25	+1.25	+1.22	18.48	-27.36	-505.61	-1,197	-21,183	-33,634	-1,828.1	-820.9	-7.99	+7642.9	+10,132.9	+9,378	+11,067
		38.875																			
19	606		266.28	4186.5	914.16	28.46	+1.24	+1.30	10.32	-29.37	-303.10	-1,500	-26,888	-106,169	-1,000.2	-1,821.1	-7.99	+11,682.0	+21,815.9	+20,060	+21,066
		38.875																			
18	566		274.72	2248.7	906.12	28.67	+1.23	+1.38	2.28	-15.78	-35.93	-1,536	-63,622	-115,089	-121.6	-1,942	-7.99	+14,103.9	+35,985.1	+34,012	+34,164
		27.500																			
17	526											-1,571									
		27.500																			
16	486		286.24	1224.2	899.08	27.28	+1.21	+1.09	11.76	-13.03	-133.12	-1,648	-40,193	-97,118	+891.6	-1,011	-7.65	+10,176.6	+46,293.0	+45,327	+45,337
		36.500																			
15	446		294.61	4382.2	890.64	29.49	+1.21	+1.03	-13.20	-30.75	+405.90	-1,648	-60,142	-124,207	+19.2	-998.2	-7.50	+12,353.5	+68,697.8	+67,629	+67,687
		36.500																			
14	406		302.54	5154.8	878.88	29.06	+1.42	+1.30	-24.96	-36.17	+373.80	-1,274	-45,334	-179,401	+3,332.0	+2,331.1	-7.50	+9,315.7	+78,013.0	+80,896	+77,014
		36.500																			
13	366		310.47	5418.7	871.32	29.10	+1.40	+1.49	-32.52	-38.02	+392.41	-882.2	-12,382	-192,019	+5,373.4	+8,704.5	-7.50	+2,544.2	+80,557.2	+88,819	+83,440
		36.250																			
12	326		318.20	5689.9	865.64	29.04	+1.46	+1.64	-42.20	-39.92	+412.75	+1,530.5	+32,533	-159,486	+7,442.2	+10,146.7	-7.45	-6,684.0	+73,873.2	+89,581	+82,125
		36.250																			
11	286		326.23	5908.2	857.24	28.36	+1.4	+1.5	-46.80	-41.11	+433.5	+2,963.5	+50,620	-108,866	+9,676.2	+11,832.2	-7.45	-18,639.6	+55,233.6	+74,617	+70,241
		27.500																			
10	246											+3,396									
		27.500										+3,396	+35,272				-5.65	-19,718.0	+35,515.6	+54,899	+54,899
9	206		338.18	2588.2	849.00	26.72	+2.51			-17.81	+1,136.93	+4,533	+55,913	-16,440	+10,861.4	+10,161.4	-5.65	-19,718.0	+15,797.6	+45,982	+45,181

BY: J. E. Clay
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CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
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TABLE 53 B-36 WING, ULT. SHEARS, BENDING MOMENTS & TORSIONS FROM PITCHING ACCELERATION — FUEL & OIL ONLY
SHEET 2 of 2. CONDITION: TWO WHEEL LANDING WITH BRAKES, NOSE DOWN. D.G.W. LESS BOMBS, FULL FUEL & OIL.

STA.	DIST FROM	DISTANCE BETWEEN STATIONS @ y, in	CHORD LENGTH, C, in	PANEL POINT LOAD, W, #	DIST FROM NOSE PER FROM LINE TO TO LOAD, (DIM. FIG. 1)	DIST	C	C	-(6)- $\bar{x}$	$\frac{W}{129}$	$\Delta S_b = \frac{W}{129} \times \bar{y}$	TOTAL SHEAR AT STA. $= \Sigma S_b$	$\Delta M_x = S_b \times \Delta y$	TOTAL MOM AT STA $= M_x$	ΔT_{EA} (due to e) $= \Delta S_b \cdot e$	$\Sigma \Delta T_{EA}$ (due to e)	$e' =$	$S_b \times e'$	$\Sigma S_b \times e'$	TORSION INBOARD	TORSION OUTBOARD
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
							29.5-(7)	(8)×(9)/100	(6)-90354	007016 × (9)	(11)×(10)	Σ (12)	(13)×(3)	Σ (14)	(12)×(16)	Σ (16)	-5×(18)	(12)×(19)	Σ (19)	(17)+(20)	(21)-(17)
					FZS-36-137 TABLE IV SHEET 1, COL. 3	FZS-36-137 TABLE III SHEET 1, COL. 3															
9			338.18	2,539.2	845.00	26.03	+2.81	+9.50	-66.84	-17.51	+1,136.99	+2,490 +146.7	+35,923	-76,812	+10,801.4	+30,184.3	-5.65	-19,718.0	+15,707.6	+45,882	+35,181
		35.500																			
8			345.89	4,060.2	831.60	28.17	+1.32	+14.60	-66.24	-23.49	+1,247.18	+2,677 +169.4	+164,255	+87,406	8,881.0	+55,065.3	-7.30	-33,776.4	-17,973.8	+29,887	+12,274
		17.000																			
7			349.52	3,643.2	832.52	28.01	+1.49	+15.21	-10.22	-25.55	+1,797.38	+2,844 +183.1	+110,792	+188,145	9,964.3	+46,238.6	-8.50	-24,799.3	-40,776.1	+7,452	-1,913
		26.000																			
6			355.24	4,552.7	828.24	28.03	+1.41	+15.01	-15.00	-31.94	+2,414.66	+3,311 +207.6	+216,038	+411,249	12,037.4	+60,327.0	-5.85	-44,466.3	-85,244.4	-24,917	-21,015
		26.000																			
5			360.88	5,385.4	822.72	28.03	+1.47	+15.21	-21.12	-37.72	+3,064.71	+3,764 +235.7	+278,875	+690,124	16,273.6	+76,600.6	-5.35	-57,324.7	-142,569.1	-66,529	-59,200
		33.500																			
4			368.16	3,148.2	815.76	28.03	+1.47	+15.11	-28.08	-22.00	+1,945.69	+3,731 +233.7	+461,913	+1,152,115	10,926.2	+87,126.8	-6.69	-35,018.8	-237,647.9	-130,521	-161,047
		33.250																			
3												+3,737	+523,250	+1,673,364		+87,126.8	-6.64	-107,637.8	-345,285.7	-258,149	-258,159
		33.250																			
1												+3,737	+523,250	+2,196,614		+87,126.8	-8.01	-126,048.5	-570,973.0	-491,846	-491,846
		41.025																			
0												+3,737	+615,530	+2,812,145		+87,126.8	-8.43	-132,658.9	-711,631.9	-624,505	-624,505

BY: J. Ellis
CHECKED BY: Brian Jaffer

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
25 PADS 11-43

TABLE 24 B-36 WING ULT. SHEARS, BENDING MOMENTS & TORSIONS FROM PITCHING ACCELERATION - FUEL & OIL ONLY
SHEET 1 of 2 CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS-VSSI: DOWN.- A.G.W. 62-1600# BOMBS, FULL FUEL & OIL.

STA.	DIST. FROM STA. 0	DISTANCE ON BL BETWEEN STA.	P_n	TOTAL LOAD W_n	DISTANCE FROM STA. 0 TO CG OF LOAD	DIST. FROM C.G. TO STA.	e	e_n	$\bar{r}$ $=(e-\bar{x})$	$\frac{Wx}{12.3}$	ΔS_b $=\frac{Wx}{12.3}\bar{r}$	TOTAL SHEAR BY STAT. ON S_{b_n}	ΔM_x $=S_{b_n}\Delta x$	TOTAL MOMENT BY STAT. ON M_x	$\Delta T_{s.a.}$ $=\Delta S_b \cdot e$	Δx	E' $=-y\tan\theta$	$S_{b_n} \times e'$	$\Sigma S_{b_n} \times e'$	T.S.A. INBOARD	T.S.A. OUTBOARD
1		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
				FZS-36-133 TABLE IV SHEET 2 SEQ. 3	FZS-36-133 TABLE IV SHEET 2 SEQ. 3	FZS-36-133 TABLE IV SHEET 2 SEQ. 3	295.5-(7)	(8)×4/20	(6)-(9)=$\bar{x}$	(5)×(11)/12.3	(10)×(11)	Σ_0^n (13)	(3)×(13)	Σ_0^n (14)	(3)×(16)	Σ_0^n (16)	=2.056×(18)	(13)×(18)	Σ (19)	(12)+(20)	(21)-(16)
24			224.85	10.3	1020.60	57.90	-28.40	-63.86	128.76	-0.5464	-7	-7	-280	0	+447	+447	0	0	0	+447	0
		40.000																			
23			235.55	10.4	1020.24	60.23	-30.73	-71.77	125.40	-0.5517	-7	-14	-476	-280	+502	+449	-0.22	+58	+58	1007	605
		34.000																			
22			240.93	952.8	941.76	29.58	-0.08	-0.17	49.92	-5.554	-258	-272	-10341	-756	+48	+977	-4.99	+98	156	1153	1105
		38.875																			
21			249.38	2842.0	936.12	30.56	-1.06	-2.64	44.26	-15.0761	-668	-940	-36309	-11047	+1764	+2761	-7.99	+2125	2281	5042	2278
		38.875																			
20			257.83	3899.9	922.32	28.25	+1.25	+3.22	31.48	-20.6890	-651	-1591	-64839	-47406	-2032	+729	-7.99	+7463	9744	10473	12505
		38.875																			
19			266.28	4186.5	914.16	28.26	+1.24	+3.30	22.32	-22.044	-496	-2087	-80121	-108245	-1637	-408	-7.99	+12504	22248	21340	22977
		38.875																			
18			274.72	2248.7	906.12	28.27	+1.23	+3.38	14.28	-11.9214	-170	-2257	-61353	-188366	-575	-1483	-7.99	+16447	38715	37232	37807
		27.500																			
16			286.68	884.2	892.44	27.00	+2.00	+5.73	0.60	-4.7172	-3	-2260	-81541	-311072	-17	-1500	-5.65	+12605	63225	62425	62442
		36.500																			
15			294.61	2016.7	881.12	29.65	-0.15	-0.44	-0.72	-10.6986	+6	-2254	-81249	-392613	-4	-1504	-7.50	+16755	80680	79176	79180
		36.500																			
14			302.54	2308.6	860.44	28.60	+0.90	+2.72	-11.40	-12.2471	+140	-2114	-76139	-473862	+381	-1123	-7.50	+16755	97435	96312	95931
		36.500																			
13			310.47	2426.7	872.88	28.60	+0.90	+2.79	-18.96	-12.8734	+244	-1870	-66773	-550001	+681	-442	-7.50	+15645	113080	112638	111957
		36.500																			
12			318.35	2548.4	865.20	28.53	+0.97	+3.09	-26.64	-13.5182	+360	-1510	-53723	-616774	+1112	+670	-7.45	+13723	126803	127473	126361
		36.250																			
11			326.23	1353.0	859.20	29.02	+0.48	+1.57	-32.64	-7.1772	+234	-1276	-43320	-670497	+367	+1037	-7.45	+11041	137844	138881	138514
		27.500																			
10			332.20	0						0	0	-1248	-34320	-704817	0	+1037	-5.65	+7051	144895	145932	145932
		27.500																			
9			338.18	278.6	813.12	18.74	+10.76	+36.39	-76.12	-1.4785	+116	-1132		-739137	+4221	+5258	-5.65	+7051	151946	157204	152983

By: Kriesberg
CHECKED BY: Baum, Dreffer

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

TABLE 54 B-36 WING, ULT. SHEARS, BENDING MOMENTS & TORSIONS FROM PITCHING ACCELERATION, — FUEL & OIL ONLY.
SHEET 2 OF 2. CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS NOSE DOWN. - AGW. 62-1000 BOMBS, FULL FUEL & OIL

STA.		INCREMENT BETWEEN STA. IN.	CHORD LENGTH C, IN.	PANEL POINT LOAD W, #	DIST. FROM NOSE REF. LINE TO W, % C	e % c	C_1	$\bar{F}$	$\frac{W\bar{F}}{12g}$	$\Delta S_B = \frac{W\bar{F}}{12g}$	TOTAL SHEAR AT STA. S_{BM}	$\Delta M_x = S_{BM} \times \Delta Y$	TOTAL MOMENT AT STA. M_x	$\Delta T_{B.M.}$ (SEE TABLE 53) $= \Delta S_B \times e$	$\Sigma \Delta T_{B.M.}$ (SEE COL. 17)	e' (SEE COL. 8) $= \Delta Y \times e'$ (SEE COL. 8 + 205.0)	$S_{BM-1} \times e'$	$\Sigma S_{BM-1} e'$	$T_{B.M.}$ INBOARD	$T_{B.M.}$ OUTBOARD
1		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
				FES-36-137 TABLE IX SHEET 2 COL. 3	FES-36-137 TABLE IX SHEET 2 COL. 4	FES-36-137 TABLE IX SHEET 2 COL. 5	$\frac{R_1 + R_2}{2g}$	$\bar{R} - 894.84$	$.0082 \times (10)$	(10) × (11)	Σ_0^n (12)	(13) × (14)	Σ_0^n (14)	(4) × (15)	Σ_0^n (16)	$= 205 \times$ (3)	(8) × (16)	Σ (18)	(19) + (20)	(21) − (20)
9	338.5		338.18	278.6	873.12	18.74	+ 10.76	+ 36.29	− 78.77	− 1.4793	+ 116	−1248 −1132	−751137	+ 422.1	+ 5258	− 6.65	+ 7051	151 446	157204	152483
		35.500											−40184								
8	319.0		345.84	274.3	797.62	16.59	+ 12.91	+ 44.65	− 74.32	− 1.4517	+ 140	−1132 −992	−777323	+ 6251	+ 11509	− 7.30	+ 8264	160 210	171719	165468
		17.000											−16864								
7	332.0			0						0		−992	−796187	0	+ 11509	− 3.50	+ 3472	163682	175191	175191
		26.000											−25792								
6	306.0			0						0	0	−992	−821979	0	+ 11509	− 5.35	+ 5307	168989	180498	180498
		26.000											−25792								
5	280.0			0						0	0	−992	−847771	0	+ 11509	− 5.35	+ 5307	174296	185805	185805
		33.500											−33232								
4	246.5			0						0	0	−992	−881003	0	+ 11509	− 6.89	+ 6835	181131	192640	192640
		33.250											−32984								
3	213.25			0						0	0	−992	−913987	0	+ 11509	− 6.84	+ 6785	187916	199425	199425
		33.250											−32984								
2	180.0			0						0	0	−992	−946971	0	+ 11509	− 6.84	+ 6785	194701	206210	206210
		41.025											−40677								
1	0			0						0	0	−992	−1026331	0	+ 11509	− 8.43	+ 8363	211010	222	

BY: Kriesberg
CHECKED BY: Bill Dempsey

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 833 125 PADS 11-43

TABLE 55 B36 WING - ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS DUE TO ROLLING ACCELERATION - FUEL & OIL ONLY
SHEET 1 OF 2 CONDITION: SIDE DRIFT LANDING (GROUND LOAD ACTING INBOARD) - D.G.W. - FULL FUEL & OIL - LESS BOMBS

STATION	DIST FROM C OF S.T.P., IN	DIST BETWEEN STATIONS (Δy), IN	CHORD LENGTH C, IN	PANEL POINT LOAD, IN	DIST FROM NOSE L.E. OF CHORD TO INL.	DIST. FROM L.E. TO LOAD, % C	e, % C	e, INCHES	Wq/2g	ΔSb = Wq/2g π	TOTAL SHEAR Sb, n	Δ Mx = Sb, n Δy	TOTAL MOMENT, Mx	ΔTE.A. (DUE TO e) Δq × e	ΣΔTE.A. (DUE TO e)	e' (Δy tan ψ)	Sb, n × e'	Σ Sb, n-1 × e'	TORSION INBOARD	TORSION OUTBOARD
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
				FZS-36-137 TAB. II, SHT. 1 COL. 2	FZS-36-137 TAB. II SHT. 1 COLUMN 3 CHORD TO INL.	FZS-36-137 TAB. II, SHT. 1 COL. 4	(8)=(4)/100		.00137 27 × (5)	(10) × (2)	Σ (11) 0	(12) × (3) 0	Σ (13)	(11) × (5)	Σ (15)	-(3) × .2056	(12) × (17)	Σ (18)	(16) + (19)	(20) - (15)
24	806.0		224.85	10.3	1020.60	57.90	-28.40	-63.86	.014	11.28	11.28		0	-720	-720			0	-720	0
		40.000									11.28	451.2				-8.224	-93			
23	766.0		233.55	10.4	1020.24	60.13	-30.73	-71.77	.014	10.72	22.00		451	-769	-1489			-93	-1582	-813
		34.000									22.00	748.0				-6.990	-154			
22	732.0		240.93	1163.1	938.28	28.14	+1.36	+3.27	1.597	1169	1191		1199	3,823	+2334			-247	+2087	-1736
		38.875									1191	46,300				-7.993	-9520			
21	693.125		249.38	3069.8	934.44	29.88	-0.38	-0.94	4.213	2920	4111		47,500	-2,745	-411			-9,767	-10,180	-7435
		38.875									4111	159,800				-7.993	-32,860			
20	654.25		257.83	3899.9	922.32	28.25	+1.25	+3.22	5.352	3502	7613		207,300	11,280	+10870			-42,630	-31,760	-43040
		38.875									7613	296,000				-7.993	-60,850			
19	615.375		266.28	4186.5	914.16	28.26	+1.24	+3.30	5.747	3537	11150		503,300	11,670	+22,540			-103,500	-80,960	-92,630
		38.875									11150	433,500				-7.993	-89,120			
18	576.5		274.72	2248.7	906.12	28.27	+1.23	+3.38	3.087	1780	12930		936,800	6,016	+28,560			-192,600	-169,000	-170,000
		27.500									12930	355,600				-5.654	-73,110			
16	521.5		286.68	1856.6	892.08	27.38	+2.12	+6.08	2.549	1329	14259		1,648,000	8,080	36,640			-338,800	-302,300	-310,300
		36.500									14259	520,500				-7.504	-107,000			
15	485.0		294.61	4382.2	890.64	29.49	+0.01	+0.03	6.016	2918	17177		2,168,000	88	36,720			-445,800	-409,100	-403,200
		36.500									17177	627,000				-7.504	-128,900			
14	448.5		302.54	5154.8	878.88	28.08	+1.42	+4.30	7.076	3174	20351		2,795,000	13,650	50,370			-574,700	-524,300	-538,000
		36.500									20351	742,800				-7.504	-152,700			
13	412.0		310.47	5418.7	871.32	28.10	+1.40	+4.35	7.438	3064	23415		3,538,000	13,330	63,700			-727,400	-663,700	-677,000
		36.250									23415	848,800				-7.453	-174,500			
12	375.75		318.35	5689.9	863.64	28.04	+1.46	+4.64	7.811	2935	26350		4,387,000	13,620	77,320			-901,900	-824,600	-838,200
		36.250									26350	955,200				-7.453	-196,600			
11	339.5		326.23	3008.2	857.04	28.36	+1.14	+3.72	4.129	1402	27752		5,342,000	5,215	82,540			-1,098,000	-1,015,000	-1,020,000
		27.500									27752	763,200				-5.654	-156,900			
10	312.0			0							27752		6,105,000		82,540			-1,255,000	-1,172,000	-1,172,000
		27.500									27752	763,200				-5.654	-156,900			
9	284.5		338.18	2538.2	840.00	26.69	+2.81	+9.50	3.484	991.2	28743		6,869,000	9,416	91,950			-1,412,000	-1,320,000	-1,329,000
		35.500									28743	1,020,000				-7.299	-209,800			
8	249.0		345.89	4060.3	837.60	28.17	+1.33	+4.60	5.574	1388	30131		7,889,000	6,385	98,340			-1,622,000	-1,524,000	-1,530,000

BY: [illegible]
CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS

FW 693 125 PADS 11-43

TABLE 55 SHEET 2 OF 2

B-36 WING-ULT. SHEARS, BENDING MOMENTS & TORSIONS DUE TO ROLLING HORIZ. MANEUVER

CONDITION: SILVER DRIFT LANDING (GROUND LOAD FACTOR, TIPS UP, ENGINES) - D.G.W. - FULL FUEL

STATION	DIST. FROM ℄ SHIP, IN.	DISTANCE BETWEEN STATIONS, IN.	CHORD LENGTH, C_n, IN.	PANEL POINT LOAD, W, #	DIST. FROM NOSE RAIL LINE IN INCHES	DIST. FROM C.L. TO LOAD, y_{AC}	e, % C	e, INCHES	$\frac{WX}{12.9}$	$\frac{WX}{12.9} \mp$
1	2	3	4	5	6	7	8	9	10	11
				FZS-36-187 TB-5 EC 241.1 Col. 2	FZS-36-187 TB-IV Set 1 Col. Length in.	FZS-36-187 TB-II Set 1 Col. 4				
		17.000								
7	232.0		349.59	3693.2	833.52	28.01	+1.45	+5.21	5.001	1160
		26.000								
6	206.0		355.24	4,552.7	828.24	28.09	+1.41	+5.01	6.249	1287
		26.000								
5	180.0		360.88	5,385.4	822.72	28.03	+1.47	+5.31	7.393	1331
		33.500								
4	146.5		368.16	3,148.2	815.76	28.03	+1.47	+5.41	4.322	633.2
		33.250								
3	113.25			0					0	
		33.250								
2	80.0			0					0	
		38.975								
1	41.025			0					0	
		41.025								

STATION	TOTAL SHEAR, S_{b_n}	$\Delta M_x = S_{b_n} \Delta y$	TOTAL MOMENT, M_x	ΔT_{en} (Doublets) $\Delta S_{b_n} \times e$	$\Sigma \Delta T_{en}$ (Doublets)	e' $\Delta y_{(avg.)}$	$S_{b_n} \times e'$	$\Sigma S_{b_n} \times e'$	TORSION INBOARD	TORSION OUTBOARD
	12	13	14	15	16	17	18	19	20	21
	Σ (11)	(12) × (3)	Σ (13)	(11) × (9)	Σ (15)	(3) × .0054	(12) × (17)	Σ (18)	(16) + (19)	(20) − (15)
	30,131	512,200				-3.495	-105,300			
	31,291		8,401,000	6,044	104,900			-1,727,000	-1,623,000	-1,623,000
	31,291	813,600				-5.346	-167,300			
	32,578		9,214,000	6,448	110,800			-1,895,000	-1,784,000	-1,784,000
	32,578	847,000				-5.346	-174,200			
	33,909		10,061,000	7,068	117,900			-2,069,000	-1,951,000	-1,951,000
	33,909	1,136,000				-6.888	-233,600			
	34,542		11,197,000	3,426	121,300			-2,302,000	-2,181,000	-2,181,000
	34,542	1,149,000				-6.836	-236,100			
	34,542		12,346,000	0	0			-2,538,000	-2,538,000	-2,538,000
	34,542	1,149,000				-6.836	-236,100			
	34,542		13,495,000	0	0			-2,775,000	-2,775,000	-2,775,000
	34,542	1,346,000				-8.013	-276,800			
	34,542		14,841,000	0	0			-3,051,000	-3,051,000	-3,051,000
	34,542	1,411,000				-8.435	-291,400			
	34,542		16,252,000	0	0			-3,343,000	-3,343,000	-3,343,000

BY: [illegible]

CHECKED: SHORTICE, [illegible]

ULTIMATE ROLLING ACCELERATION LOADS-LANDING GEAR(EXTENDED) ONLY

SIDE DRIFT LANDING(GROUND LOAD ACTING INBOARD)-D.G.W. LESS BOMBS

For the Side Drift Landing condition only it is necessary to separately consider the angular acceleration loads due to the landing gear (extended).

The center of gravity of the landing gear(extended) is 262.12 inches from the centerline of ship (see FZS-36-137, Figure 2). From page 232 of this report the rolling acceleration $\gamma = 0.53040$. Therefore the ultimate vertical inertia factor for the gear

$$= \frac{\bar{Y}\gamma}{g} = \frac{262.12\ (.53040)}{12\ (32.2)} = 0.3598.$$

The one g applied loads at the fittings are obtained from Report FZS-36-137, Table III. The ultimate loads at fitting points A, D, B, and H (see sketch on page 66 for location of points) are as follows (+ = up, aft, and outboard):

At A: $V_A = +6977.2\ (.3598) = +2510\#$

$D_A = -10001.8\ (.3598) = -3599\#$

$S_A = +\ 1352.2\ (.3598) = +\ 487\#$

At D: $V_D = +\ 1374.4\ (.3598) = +495\#$

$D_D = +\ 9652.4\ (.3598) = +\ 3473\#$

$S_D = -\ 1147.7\ (.3598) = -413\#$

At B: $V_B = -1489.4\ (.3598) = -536\#$

$D_B = +2353.7\ (.3598) = +\ 847\#$

$S_B = +\ 1434.9\ (.3598) = +\ 516\#$

At H: $V_H = + 784.9\ (.3598) = + 282\#$

$D_H = - 2004.3\ (.3598) = - 721\#$

$S_H = - 1639.4\ (.3598) = - 590\#.$

From the ultimate fitting loads the panel point shears, bending moments, and torsions are obtained at wing stations 9, 7, 6 and 5 for use in Table 56. Bending moments due to side load are obtained about the center of gravity of each section based, with negligible error, on the latest available section properties.

The loads applied at D are beamed to stations 9 and 7.

At station 9:

$$V_D = \frac{45.725}{52.5}(+495) = + 431\#$$

$$D_D = \frac{45.725}{52.5}(+3473) = + 3025\#$$

$$S_D = \frac{45.725}{52.5}(-413) = - 360\#$$

At station 7:

$$V_D = + 495 - 431 = + 64\#$$

$$D_D = + 3473 - 3025 = + 448\#$$

$$S_D = - 413 + 360 = - 53\#$$

The loads applied at H are beamed to stations 6 and 5.

At station 6:

$$V_H = \frac{10.681}{26.000}(+ 282) = + 116\#$$

$$D_H = \frac{10.681}{26.000}(-721) = - 296\#$$

$$S_H = \frac{10.681}{26.000}(-590) = -242\#$$

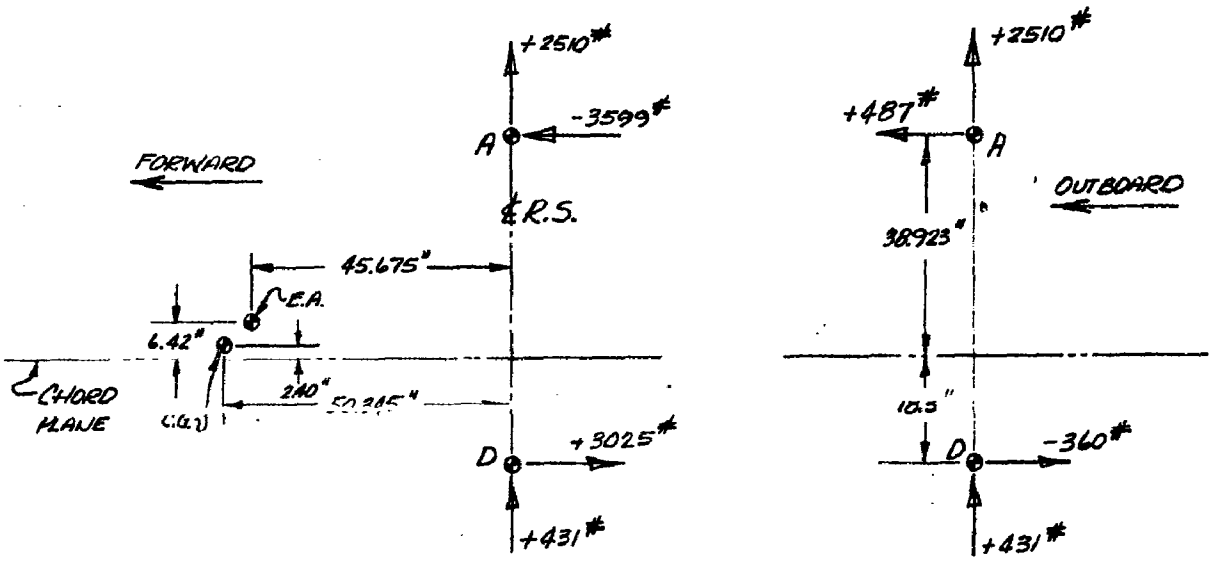
At station 5:

$V_H = + 282 - 116 = + 166\#$

$D_H = -721 + 296 = -425\#$

$S_H = -590 + 242 = -348\#$

Station 9:



VIEW LOOKING INBOARD

VIEW LOOKING FORWARD

$\Delta S_b = + 431 + 2510 = + 2941\#$

$\Delta S_c = + 3025 - 3599 = - 574\#$

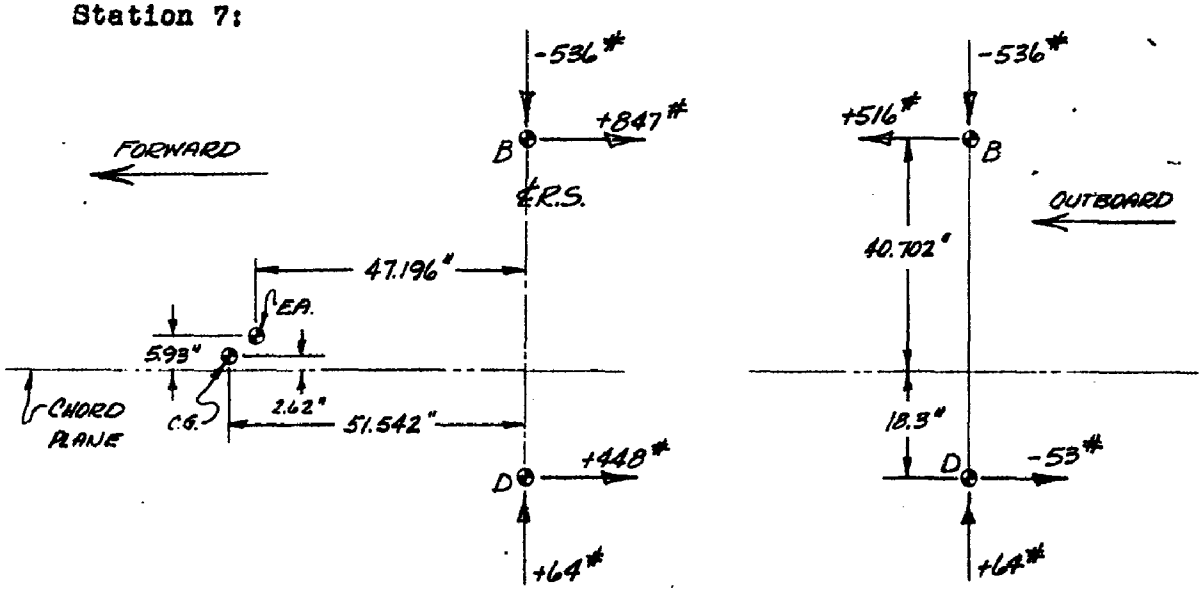
$\Delta M_{x_1} = -487(36.523) - 360(20.700) = -25,240$ in.-lbs.

$\Delta M_{y_1} = -127(50.345) = -6,394$ in.-lbs.

$\Delta T_{E.A._1} = -2941(45.675) - 3599(32.503) - 3025(24.720)$

$= -326,100$ in.-lbs.

Station 7:



VIEW LOOKING INBOARD

VIEW LOOKING FORWARD

$\Delta S_b = +64-536 = -472\#$

$\Delta S_a = +448 + 847 = +1295\#$

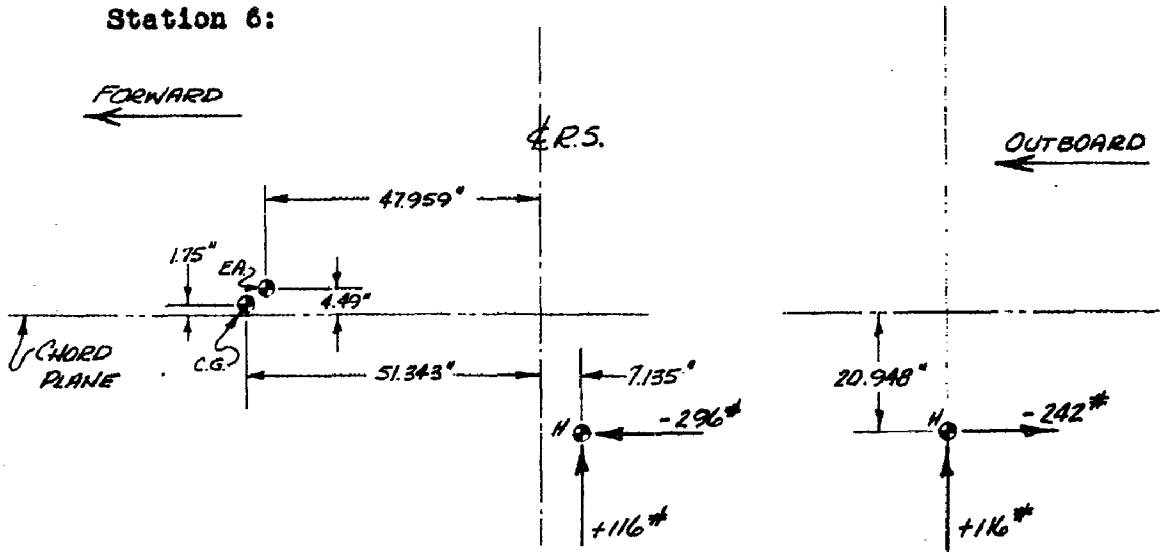
$\Delta M_{x_1} = -516(38.082)-53(20.920) = -20,760$ in.-lbs.

$\Delta M_{y_1} = -463(51.542) = -23,860$ in.-lbs.

$\Delta T_{E.A._2} = +847(34.772)-448(24.230)+472(47.196)$

$= +40,870$ in.-lbs.

Station 6:



VIEW LOOKING INBOARD

VIEW LOOKING FORWARD

ΔS_b = [illegible]#

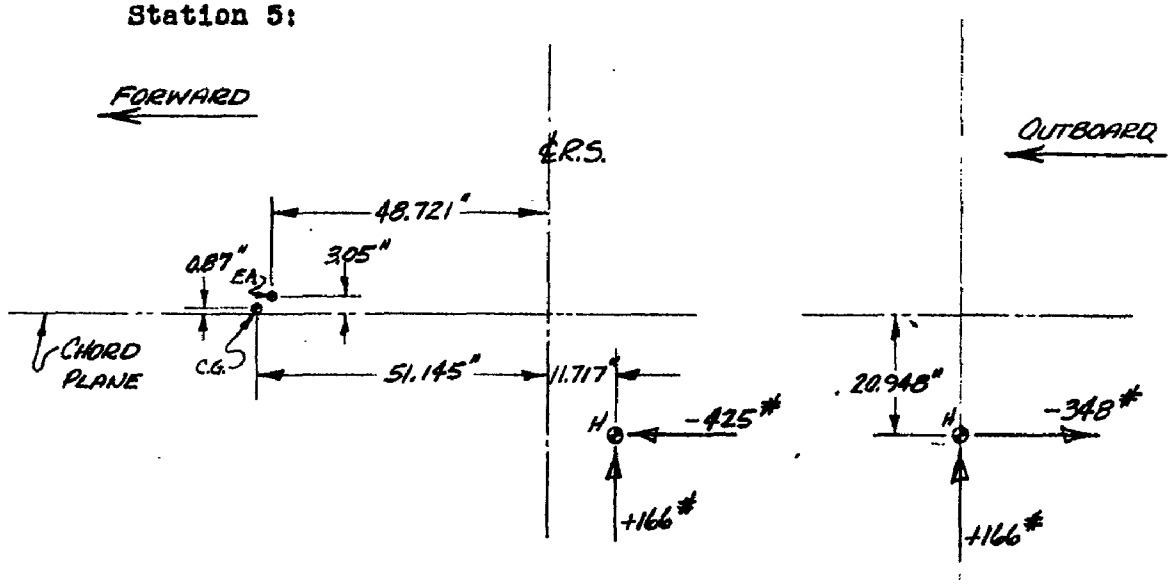
ΔS_c = -296#

ΔM_{x_1} = -242(22.698) = -5493 in.-lbs.

ΔM_{y_1} = +242(58.478) = +14,150 in.-lbs.

$\Delta T_{E.A._1}$ = +296(25.438)-116(55.094) = +1,139 in.-lbs.

Station 5:



VIEW LOOKING INBOARD

VIEW LOOKING FORWARD

$\Delta S_u = +348\#$

$\Delta S_c = -425\#$

$\Delta M_{x_1} = -348(21.818) = -7,593$ in.-lbs.

$\Delta M_{y_1} = +348(62.862) = +21,880$ in.-lbs.

$\Delta T_{E.A._1} = +425(23.998) - 166(60.438) = +166$ in.-lbs.

TABLE 56 B-36 WING ~ ULTIMATE SHEARS, MOMENTS & TORSIONS DUE TO ROLLING ACCELERATION - LANDING GEAR (EXTENDED) ONLY

CONDITION: SIDE DRIFT LANDING (GROUND LOAD ACTING INBOARD) - D.G.W. - FULL FUEL & OIL - LESS BOMBS

	Station	Distance From ℄ Ship, in.	Distance Between Stations (Δy), in.	Vertical Panel Point Load, W	S_b	Panel Point Moment ΔM_{x_1}	ΔM_{x_2}	M_x	Panel Point Torsion $\Delta T_{E.A.}$	$-\Delta y \tan\beta$	$\Delta T_{E.A._2}$	$T_{E.A}$	Drag Panel Point Load, #	S_c	Panel Point Moment ΔM_{y_1}	ΔM_{y_2}	M_y
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
				p. 256-259	Σ ④	p. 256-259	⑤ x ③	Σ(⑦+⑧)	p. 256-259	-.2056 x ③	⑤ x ⑩	Σ(⑨+⑪)	p. 256-259	Σ ⑬	p. 256-259	⑭ x ③	Σ(⑮+⑯)
					0		0	0			0	0		0		0	0
	9	284.5		+2,941	+2,941	-25,240		-25,240	-326,100			-326,100	-574	-574	-6,394		-6,394
			35.5		+2,941		+104,400	+79,160		-7.299	-21,470	-347,600		-574		-20,380	-26,770
	8	249.0		0	+2,941	0		+79,160	0			-347,600	0	-574	0		-26,770
			17.0		+2,941		+50,000	+129,200		-3.495	-10,280	-357,800		-574		-9,758	-36,530
	7	232.0		-472	+2,469	-20,760		+108,400	+40,870			-317,000	+1,295	+721	-23,860		-60,390
			26.0		+2,469		+64,190	+172,600		-5.346	-13,200	-330,200		+721		+18,750	-41,640
	6	206.0		+116	+2,585	-5,493		+167,100	+1,139			-329,000	-296	+425	+14,150		-27,490
			26.0		+2,585		+67,210	+234,300		-5.346	-13,820	-342,900		+425		+11,050	-16,440
	5	180.0		+166	+2,751	-7,593		+226,700	+166			-342,700	-425	0	+21,880		+5,438
			33.5		+2,751		+92,160	+318,900		-6.888	-18,950	-361,600		0		0	+5,438
	4	146.5		0	+2,751	0		+318,900	0			-361,600	0	0	0		+5,438
			33.25		+2,751		+91,470	+410,300		-6.836	-18,810	-380,500		0		0	+5,438
	3	113.25		0	+2,751	0		+410,300	0			-380,500	0	0	0		+5,438
			33.25		+2,751		+91,470	+501,800		-6.836	-18,810	-399,300		0		0	+5,438
	2	80.0		0	+2,751	0		+501,800	0			-399,300	0	0	0		+5,438
			38.975		+2,751		+107,200	+609,000		-8.013	-22,040	-421,300		0		0	+5,438
	1	41.025		0	+2,751	0		+609,000	0			-421,300	0	0	0		+5,438
			41.025		+2,751		+112,900	+721,900		-8.435	-23,200	-444,500		0		0	+5,438
	0	0		0	+2,751	0		+721,900	0			-444,500	0	0	0		+5,438

BY: List
CHECKER: Shultice, Proffer

PART II

SECTION B

ULTIMATE SHEARS, BENDING MOMENTS, AND TORSIONS DUE TO LANDING GEAR FITTING LOADS

ULTIMATE SHEARS, BENDING MOMENTS, AND TORSIONS DUE TO LANDING GEAR FITTING LOADS

The ultimate axial loads in the main landing gear structural members due to ground loads less landing gear inertia effects are obtained from C.V.A.C. Report FZS-36-149. Table 57 contains the fitting loads at the wing as computed from the member loads for all four of the critical landing conditions. The geometry of the members is shown in Figure 20 of this report.

The panel point shears, bending moments, and torsions are obtained from the fitting loads in the manner shown on pages 255 through 259. These panel point loads are used in Tables 58 through 61 to obtain the ultimate shears, bending moments, and torsions for the four landing conditions.

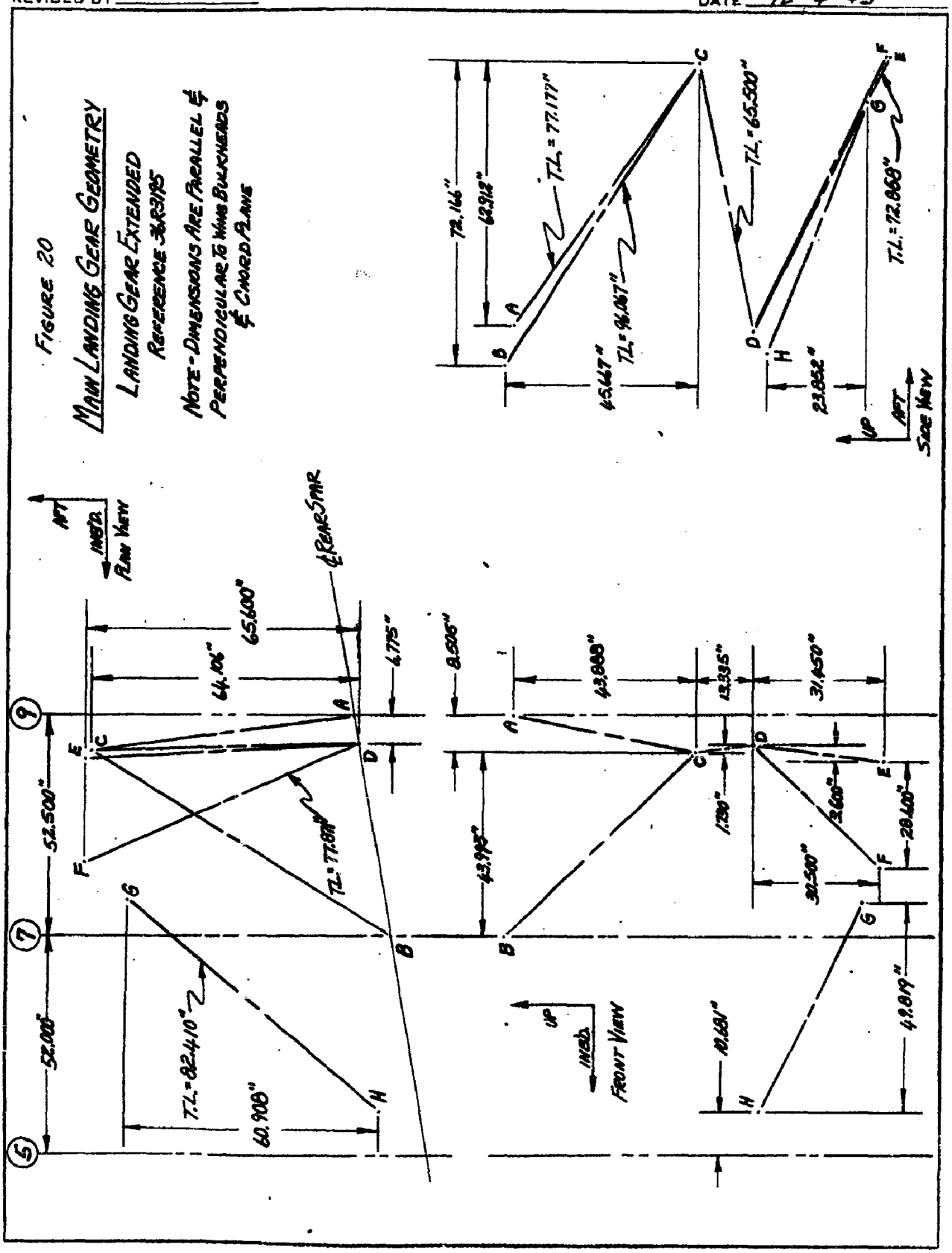


FIGURE 20
MAIN LANDING GEAR GEOMETRY
LANDING GEAR EXTENDED
REFERENCE 36R3195
NOTE - DIMENSIONS ARE PARALLEL ℄ PERPENDICULAR TO WING BULKHEADS ℄ CHORD PLANE
PLAN VIEW
FRONT VIEW
SIDE VIEW
℄ REAR SPAR
T.L. = 77.177"
T.L. = 65.500"
T.L. = 72.868"
T.L. = 77.818"
T.L. = 82.410"
72.146"
42.912"
46.667"
23.852"
65.600"
64.106"
52.500"
52.000"
60.908"
43.888"
31.450"
30.500"
28.400"
48.819"
10.681"
43.995"
13.335"
1.200"
3.600"
8.506"
4.775"

TABLE 57 B-36 WING - ULTIMATE LANDING GEAR FITTING LOADS

MEMBER	DIRECTION COSINE	2WL-R(ND) D.G.W (268,000#)	2WL-B(ND) D.G.W (268,000#)	2WL-R(ND) A.G.W. (255,030#)	SIDE DRIFT (LOAD ACTING IN) D.G.W. (268,000#)
1	2	3	4	5	6
		③ × AXIAL LOAD	③ × AXIAL LOAD	③ × AXIAL LOAD	③ × AXIAL LOAD
AC - OUTBOARD TRUSS TUBE					
* AXIAL LOAD		-988,000	-917,000	-939,000	-1,019,000
V	-.56867	+562,415	+521,470	+533,981	+579,475
D	+.81517	-806,203	-747,511	-765,445	-830,658
S	-.11020	+108,988	+101,053	+103,478	+112,294
BC - INBOARD TRUSS TUBE					
AXIAL LOAD		-149,000	-159,000	-141,000	+1,110,000
V	-.47537	+70,830	+75,584	+67,027	-527,661
D	+.75120	-111,929	-119,441	-105,919	+833,832
S	+.45796	-68,236	-72,816	-64,572	+508,336
HG - SIDE BRACE					
AXIAL LOAD		18,900	30,700	18,000	-878,000
V	-.29009	-5,483	-8,906	-5,222	+254,699
D	+.74077	+14,001	+22,742	+13,334	-650,396
S	+.60590	+11,452	+18,601	+10,906	-531,980
DC - PIVOT SHAFT					
AXIAL LOAD		583,000	258,000	553,000	-5,420
V	+.20358	+118,687	+52,524	+112,580	-1,103
D	+.97872	+570,594	+252,510	+541,232	-5,305
S	-.02641	-15,397	-6,814	-14,605	+ 143
DE - MAIN DRAG STRUT					
AXIAL LOAD		553,000	899,000	525,000	0
V	-.43178	-238,774	-388,170	-226,685	0
D	+.90063	+498,048	+809,666	+472,831	0
S	-.04942	-27,329	-44,429	-25,946	0
DF - AUXILIARY DRAG STRUT					
AXIAL LOAD		-16,600	-27,000	-15,800	+772,000
V	-.39208	+6,509	+10,586	+6,195	-302,686
D	+.84330	-13,999	-22,769	-13,324	+651,028
S	-.36766	+6,103	+9,927	+5,809	-283,834
TOTAL LOAD AT D					
V		-113,578	-325,060	-107,910	-303,789
D		+1,054,643	+1,039,407	+1,000,739	+645,723
S		-36,623	-41,316	-34,742	-283,691

* NOTE: AXIAL LOAD VALUES ARE OBTAINED FROM PRELIM. WORK FOR REPORT FZS-36-149. DIFFERENCES BETWEEN VALUES USED & FINAL VALUES ARE OF NEGLIGIBLE ORDER (LESS THAN 1%) FOR CRITICAL LOADS.

NOTE: POSITIVE (+) VALUES INDICATE UP, AFT, & OUTBOARD ACTION.

BY: [illegible]
CHK: [illegible]

TABLE 58 B-36 WING - ULTIMATE SHEARS, MOMENTS, & TORSIONS DUE TO LANDING GEAR FITTING LOADS

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS - NOSE DOWN - D.G.W. - FULL FUEL & OIL - LESS BOMBS.

	Station	Distance From ℄ Ship, in.	Distance Between Stations (Δy), in.	Vertical Panel Point Load, #	S_b	Panel Point Moment, ΔM_{x_1}	ΔM_{x_2}	M_x	Panel Point Torsion, ΔT_{EA_1}	$-\Delta y \tan\beta$ (100 β = 2056)	ΔT_{EA_2}	T_{EA}	Drag Panel Point Load, #	S_c	Panel Point Moment, ΔM_{y_1}	ΔM_{y_2}	M_y
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
				Table 57	Σ④	Table 57	⑤$_{0.B}$ × ③	Σ(⑥+⑦)	Table 57	-2056 × ③	⑤$_{0.B}$ × ⑩	Σ(⑨+⑪)	Table 57	Σ⑬	Table 57	⑭$_{0.B}$ × ③	Σ(⑮+⑯)
					0		0	0			0	0		0		0	0
	9	284.5		+463,494	+463,494	-4,641,000		-4,641,000	-70,081,000			-70,081,000	+112,341	+112,341	-3,881,000		-3,881,000
			35.5		+463,494		+16,454,000	+11,813,000		-7.299	-3,383,000	-73,464,000		+112,341		+3,988,000	+107,000
	8	249.0		0	+463,494	0		+11,813,000	0			-73,464,000	0	+112,341	0		+107,000
			17.0		+463,494		+7,879,000	+19,692,000		-3.495	-1,620,000	-75,084,000		+112,341		+1,910,000	+2,017,000
	7	232.0		+56,173	+519,667	+2,500,000		+22,192,000	-9,841,000			-84,925,000	+24,170	+136,511	+3,761,000		+5,778,000
			26.0		+519,667		+13,511,000	+35,703,000		-5.346	-2,778,000	-87,703,000		+136,511		+3,549,000	+9,327,000
	6	206.0		-2,252	+517,415	+106,800		+35,810,000	-22,250			-87,725,000	+5,752	+142,263	-275,100		+9,052,000
			26.0		+517,415		+13,453,000	+49,263,000		-5.346	-2,766,000	-90,491,000		+142,263		+3,699,000	+12,751,000
	5	180.0		-3,231	+514,184	+147,200		+49,410,000	-2,685			-90,494,000	+8,249	+150,512	-424,100		+12,327,000
			33.5		+514,184		+17,225,000	+66,635,000		-6.888	-3,542,000	-94,036,000		+150,512		+5,042,000	+17,369,000
	4	146.5		0	+514,184	0		+66,635,000	0			-94,036,000	0	+150,512	0		+17,369,000
			33.25		+514,184		+17,097,000	+83,732,000		-6.836	-3,515,000	-97,551,000		+150,512		+5,005,000	+22,374,000
	3	113.25		0	+514,184	0		+83,732,000	0			-97,551,000	0	+150,512	0		+22,374,000
			33.25		+514,184		+17,097,000	+100,829,000		-6.836	-3,515,000	-101,066,000		+150,512		+5,005,000	+27,379,000
	2	80.0		0	+514,184	0		+100,829,000	0			-101,066,000	0	+150,512	0		+27,379,000
			38.975		+514,184		+20,040,000	+120,869,000		-8.013	-4,120,000	-105,186,000		+150,512		+5,866,000	+33,245,000
	1	41.025		0	+514,184	0		+120,869,000	0			-105,186,000	0	+150,512	0		+33,245,000
			41.025		+514,184		+21,094,000	+141,963,000		-8.435	-4,337,000	-109,523,000		+150,512		+6,175,000	+39,420,000
	0	0		0	+514,184	0		+141,963,000	0			-109,523,000	0	+150,512	0		+39,420,000

BY: List
CHECKED: Allen Jupp

TABLE 59 B-36 WING - ULTIMATE SHEARS, MOMENTS & TORSIONS DUE TO LANDING GEAR FITTING LOADS
CONDITION: TWO-WHEEL LANDING WITH BRAKES - NOSE DOWN - D.G.W. FULL FUEL & OIL LESS BOMBS

STATION	DISTANCE FROM ℄ SHIP, IN.	DISTANCE BETWEEN STATIONS, (Δy), IN.	VERTICAL PANEL POINT LOAD, #	S_b	PANEL POINT MOMENT, ΔM_{X_1}	ΔM_{X_2}	M_X	PANEL POINT TORSION, $\Delta T_{E.A.}$	$-\Delta y \tan\beta$ ($\tan\beta = .2056$)	$\Delta T_{E.A._2}$	$T_{E.A.}$	DRAG PANEL POINT LOAD, #	S_c	PANEL POINT MOMENT, ΔM_{Y_1}	ΔM_{Y_2}	M_Y
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
			TABLE 57	Σ④	TABLE 57	⑤ o.b. × ③	Σ(⑥+⑦)	TABLE 57	-.2056×③	⑤ o.b. × ⑩	Σ(⑨+⑪)	TABLE 57	Σ⑬	TABLE 57	④ o.b. × ③	Σ(⑮+⑯)
				0		0	0			0	0		0		0	0
9	284.5		+238,358	+238,358	-3,696,000		-3,696,000	-57,562,000			-57,562,000	+157,763	+157,763	-3,276,000		-3,276,000
		35.5		+238,358		+8,462,000	+4,766,000		-7.299	-1,740,000	-59,302,000		+157,763		+5,601,000	+2,325,000
8	249.0		0	+238,358	0		+4,766,000	0			-59,302,000	0	+157,763	0		+2,325,000
		17.0		+238,358		+4,052,000	+8,818,000		-3.495	-833,100	-60,135,000		+157,763		+2,682,000	+5,007,000
7	232.0		+33,636	+271,994	+2,661,000		+11,479,000	-8,991,000			-69,126,000	+14,692	+172,455	+4,028,000		+9,035,000
		26.0		+271,994		+7,072,000	+18,551,000		-5.346	-1,454,000	-70,580,000		+172,455		+4,484,000	+13,519,000
6	206.0		-3,659	+268,335	+173,400		+18,724,000	-36,080			-70,616,000	+9,343	+181,798	-446,800		+13,072,000
		26.0		+268,335		+6,977,000	+25,701,000		-5.346	-1,435,000	-72,051,000		+181,798		+4,727,000	+17,799,000
5	180.0		-5,247	+263,088	+239,100		+25,940,000	-4,431			-72,056,000	+13,399	+195,197	-689,000		+17,110,000
		33.5		+263,088		+8,813,000	+34,754,000		-6.888	-1,812,000	-73,868,000		+195,197		+6,539,000	+23,649,000
4	146.5		0	+263,088	0		+34,754,000	0			-73,868,000	0	+195,197	0		+23,649,000
		33.25		+263,088		+8,748,000	+43,502,000		-6.836	-1,798,000	-75,666,000		+195,197		+6,490,000	+30,139,000
3	113.25		0	+263,088	0		+43,502,000	0			-75,666,000	0	+195,197	0		+30,139,000
		33.25		+263,088		+8,748,000	+52,250,000		-6.836	-1,798,000	-77,464,000		+195,197		+6,490,000	+36,629,000
2	80.0		0	+263,088	0		+52,250,000	0			-77,464,000	0	+195,197	0		+36,629,000
		38.975		+263,088		+10,254,000	+62,504,000		-8.013	-2,108,000	-79,572,000		+195,197		+7,608,000	+44,237,000
1	41.025		0	+263,088	0		+62,504,000	0			-79,572,000	0	+195,197	0		+44,237,000
		41.025		+263,088		+10,793,000	+73,297,000		-8.435	-2,219,000	-81,791,000		+195,197		+8,008,000	+52,245,000
0	0		0	+263,088	0		+73,297,000	0			-81,791,000	0	+195,197	0		+52,245,000

BY: List
CHECKED: Allen, Kupper

TABLE 60 B-36 WING ~ ULTIMATE SHEARS, MOMENTS & TORSIONS DUE TO LANDING GEAR FITTING LOADS

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS - NOSE DOWN - A.G.W. - FULL FUEL & OIL - 62 - 1000# BOMBS

STATION	DISTANCE FROM ℄ SHIP, IN.	DISTANCE BETWEEN STATIONS (Δy), IN.	VERTICAL PANEL POINT LOAD, #	S_b	PANEL POINT MOMENT, ΔM_{x_1}	ΔM_{x_2}	M_x	PANEL POINT TORSION, $\Delta T_{E.A._1}$	$-\Delta y \tan\beta$ ($\tan\beta = .2056$)	$\Delta T_{E.A._2}$	$T_{E.A.}$	DRAG PANEL POINT LOAD, #	S_c	PANEL POINT MOMENT, ΔM_{y_1}	ΔM_{y_2}	M_y
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
			TABLE 57	Σ ④	TABLE 57	⑤ o.a. × ③	Σ(⑥+⑦)	TABLE 57	-.2056 × ③	⑤ o.a. × ⑩	Σ(⑨+⑪)	TABLE 57	Σ ⑬	TABLE 57	⑭ o.a. × ③	Σ(⑮+⑯)
				0		0	0			0	0		0		0	0
9	284.5		+439,997	+439,997	-4,406,000		-4,406,000	-66,522,000			-66,522,000	+106,151	+106,151	-3,686,000		-3,686,000
		35.5		+439,997		+15,620,000	+11,214,000		-7.299	-3,212,000	-69,734,000		+106,151		+3,768,000	+82,000
8	249.0		0	+439,997	0		+11,214,000	0			-69,734,000	0	+106,151	0		+82,000
		17.0		+439,997		+7,480,000	+18,694,000		-3.495	-1,538,000	-71,272,000		+106,151		+1,805,000	+1,887,000
7	232.0		+53,101	+493,098	+2,365,000		+21,059,000	-9,318,000			-80,590,000	+23,224	+129,375	+3,559,000		+5,446,000
		26.0		+493,098		+12,821,000	+33,880,000		-5.346	-2,636,000	-83,226,000		+129,375		+3,364,000	+8,810,000
6	206.0		-2,145	+490,953	+101,700		+33,982,000	-21,170			-83,247,000	+5,478	+134,853	-262,000		+8,548,000
		26.0		+490,953		+12,765,000	+46,747,000		-5.346	-2,625,000	-85,872,000		+134,853		+3,506,000	+12,054,000
5	180.0		-3,077	+487,876	+140,200		+46,887,000	-2,560			-85,875,000	+7,856	+142,709	-404,000		+11,650,000
		33.5		+487,876		+16,344,000	+63,231,000		-6.888	-3,360,000	-89,235,000		+142,709		+4,781,000	+16,431,000
4	146.5		0	+487,876	0		+63,231,000	0			-89,235,000	0	+142,709	0		+16,431,000
		33.25		+487,876		+16,222,000	+79,453,000		-6.836	-3,335,000	-92,570,000		+142,709		+4,745,000	+21,176,000
3	113.25		0	+487,876	0		+79,453,000	0			-92,570,000	0	+142,709	0		+21,176,000
		33.25		+487,876		+16,222,000	+95,675,000		-6.836	-3,335,000	-95,905,000		+142,709		+4,745,000	+25,921,000
2	80.0		0	+487,876	0		+95,675,000	0			-95,905,000	0	+142,709	0		+25,921,000
		38.975		+487,876		+19,015,000	+114,690,000		-8.013	-3,909,000	-99,814,000		+142,709		+5,562,000	+31,483,000
1	41.025		0	+487,876	0		+114,690,000	0			-99,814,000	0	+142,709	0		+31,483,000
		41.025		+487,876		+20,015,000	+134,705,000		-8.435	-4,115,000	-103,929,000		+142,709		+5,855,000	+37,338,000
0	0		0	+487,876	0		+134,705,000	0			-103,929,000	0	+142,709	0		+37,338,000

BY: Lint
CHECKED: Allen, Pepper

TABLE 61 B-36 WING - ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS DUE TO LANDING GEAR FITTING LOADS
CONDITION: SIDE DRIFT LANDING (GROUND LOAD ACTING INBOARD) - D.G.W. - FULL FUEL & OIL - LESS BOMBS.

STATION	DIST FROM ℄ SHIP PIN	DIST BETWEEN STATIONS (Sq. In.)	VERTICAL PANEL PT. LOADS #	S_b	PANEL PT. MOMENT, ΔM_{x_1}	ΔM_{x_2}	M_x	PANEL PT. TORSION, ΔT_{EA_1}	$-b y \tan\beta$ ($\tan\beta = .2056$)	ΔT_{EA_2}	T_{EA}	DRAG PANEL PT. LOAD, #	S_c	PANEL PT. MOMENT, ΔM_{y_1}	ΔM_{y_2}	M_y
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
			TABLE 57	Σ(4)	TABLE 57	(3)$_{OB}$ × (3)	Σ(6) + (7)	TABLE 57	-.2056 × (3)	(3)$_{OB}$ × (10)	Σ(9) + (11)	TABLE 57	Σ(13)	TABLE 57	(14)$_{OB}$ × (3)	Σ((15) + (16))
				0		0	0				0		0			0
9	284.5		+314,889	+314,889	-9,216,000		-9,216,000	-55,289,000			55,284,000	268,264	-268,264	+6,786,000		+6,786,000
		35.5		+314,889		+11,179,000	+1,963,000		-7.299	-2,298,000	-57,582,000		-268,264		-9,523,000	-2,737,000
8	249		0	+314,889	0		+1,963,000	0			-57,582,000	0	-268,264	0		-2,737,000
		17.0		+314,889		+5,353,000	-7,316,000		-3.495	-1,101,000	-58,683,000		-268,264		-4,560,000	-7,297,000
7	232		-566,864	-251,975	-20,124,000		-18,808,000	+53,729,000			-4,954,000	+917,161	+648,897	-24,314,000		-31,611,000
		26.0		-251,975		-6,551,000	-19,359,000		-5.346	+1,347,000	-3,607,000		+648,897		+16,871,000	-14,740,000
6	206		+104,632	-147,343	-4,960,000		-24,319,000	+1,032,000			-2,515,000	-267,188	+381,709	+12,780,000		-1,960,000
		26.0		-147,343		-3,831,000	-28,150,000		-5.346	+787,700	-1,787,000		+381,709		+9,924,000	+7,964,000
5	180		+150,067	+2,724	-6,839,000		-34,989,000	+126,500			-1,661,000	-383,208	-1,499	+19,703,000		+27,667,000
		33.5		2,724		+91,250	-34,898,000		-6.888	-18,760	-1,680,000		-1,499		-50,220	+27,617,000
4	146.5		0	2,724	0		-34,898,000	0			-1,680,000	0	-1,499	0		+27,617,000
		33.25		2,724		+90,570	-34,807,000		-6.836	-18,620	-1,698,000		-1,499		-49,840	+27,567,000
3	113.25		0	2,724	0		-34,807,000	0			-1,698,000	0	-1,499	0		+27,567,000
		33.25		2,724		+90,570	-34,717,000		-6.836	-18,620	-1,717,000		-1,499		-49,840	+27,517,000
2	80.0		0	2,724	0		-34,717,000	0			-1,717,000	0	-1,499	0		+27,517,000
		38.975		2,724		+106,200	-34,610,000		-8.013	-21,830	-1,739,000		-1,499		-58,420	+27,459,000
1	41.025		0	2,724	0		-34,610,000	0			-1,739,000	0	-1,499	0		+27,459,000
		41.025		2,724		+111,800	-34,499,000		-8.435	-22,980	-1,762,000		-1,499		-61,500	+27,397,000
0	0		0	2,724	0		-34,499,000	0			-1,762,000	0	-1,499	0		+27,397,000

BY: List
CHECKED: SHULTICE, Griffin

PART II

SECTION C

NET ULTIMATE SHEARS, BENDING MOMENTS, AND TORSIONS

PART II

SECTION C

NET ULTIMATE SHEARS, BENDING MOMENTS, AND TORSIONS

NET ULTIMATE SHEARS, BENDING MOMENTS, AND TORSIONS

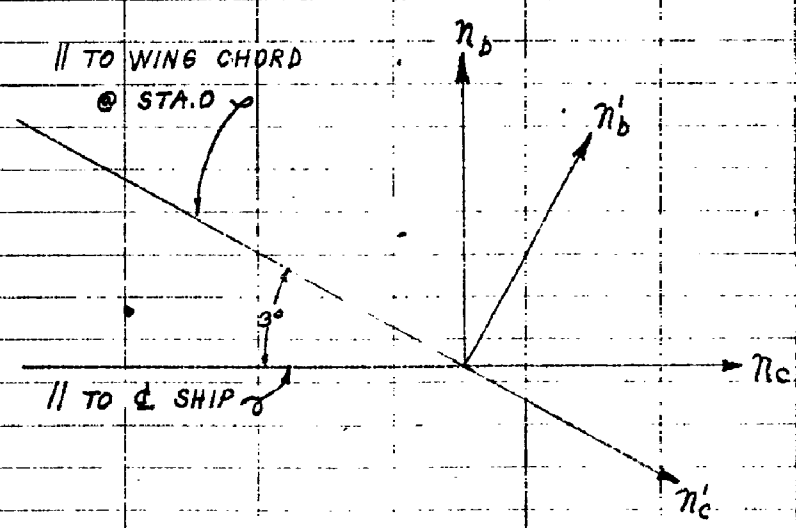
The net ultimate shears, bending moments, and torsions for the four landing conditions included in this report are computed in Tables 63 through 66. In these tables the ultimate inertia loads are calculated and combined with the ultimate pitching acceleration loads and the ultimate landing gear fitting loads. Table 62 contains the ultimate beam and chord inertia factors to be used in computing the ultimate inertia loads.

The net ultimate loads have been resolved normal and parallel to the rear spar, and the beam shear has been reduced in the same manner as in Tables 31 through 46 for the flight conditions.

TABLE No. 62.

ULTIMATE BEAM & CHORD INERTIA LOAD FACTORS – LANDING CONDITIONS

CONDITION	n_b	n_c	$n_b \cos 3°$	$n_c \sin 3°$	$n'_b = n_b \cos 3° + n_c \sin 3°$	$n_c \cos 3°$	$n_b \sin 3°$	$n'_c = n_c \cos 3° - n_b \sin 3°$
1	2	3	4	5	6	7	8	9
	REPORT # FZS-36-143		.99863×②	.05234×③	④+⑤	.99863×③	.05234×②	⑦−⑧
D.G.W. 2WLIRND	-3.9712	-1.3890	-3.9658	-.0727	-4.0385	-1.3871	-.2079	-1.1792
D.G.W. 2WBND	-1.9670	-1.6348	-1.9643	-.0856	-2.0499	-1.6326	-.1030	-1.5296
A.G.W. 2WLIRND	-3.9712	-1.3890	-3.9658	-.0727	-4.0385	-1.3871	-.2079	-1.1792



Kuesberg
Sheet 6 of 11

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 12 - PAGE 11-45

TABLE 63
SHEET 1 OF 8

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. - DGW. - FULL FUEL & OIL - LESS BOMBS

STATION	DISTANCE FROM ℄ SHIP	1G INERTIA LOADS: WING EMPTY LESS LANDING GEAR: SHEAR	BENDING MOMENT	TORSION	FUEL & OIL ONLY: SHEAR	BENDING MOMENT	TORSION	TOTALS: SHEAR	BENDING MOMENT	TORSION	BEAM SHEAR	BEAM BENDING MOMENT	TORSION	CHORD SHEAR	CHORD BENDING MOMENT	ULTIMATE INERTIA LOADS: WING EMPTY LESS LANDING GEAR: B. SHEAR	B.B. MOM.	TORSION	FUEL & OIL ONLY: B. SHEAR	B.B. MOM.	TORSION	ULTIMATE PITCHING ACCELERATION LOADS: WING EMPTY LESS LANDING GEAR: B. SHEAR	B.B. MOM.	TORSION	FUEL & OIL ONLY: B. SHEAR	B.B. MOM.	TORSION
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22						
		TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COL. 16 FT	TABLE 21 COLUMN 10	TABLE 21 COLUMN 12	TABLE 21 COL. 16 FT	③+⑥	④+⑦	⑤+⑧	③×⑨	④×⑨	⑤×⑨	③×⑪	④×⑪	TABLE 48 COLUMN 13	COLUMN 15	TABLE 48 COL. 21 FT	TABLE 52 COLUMN 13	COLUMN 15	TABLE 52 COL. 21 FT						
0	0	40343	20.00	-15.63	63427	25.16	-4.915	103770	45.16	-12.478	-41307.5	-182.4	50.39	-122346	-53.25	-20983		-14.594	5.821			15631	+3.521		-.6202		
		39849		-15.65	63427	25.16	-4.915	103276	45.16	-12.480	-41080	-182.4	50.40	-121783	-53.25	-21387			5.820			15631			-.6202		
1	41.025	39849	18.36	-12.29	63427	22.56	-4.380	103275	40.92	-11.61	-41076	-165.3	46.89	-121782	-48.25	-21387		-13.758	5.639			15631	+2.796		-.4884		
		38828		-12.31	63427	22.56	-4.380	102255	40.92	-11.61	-42957	-165.3	46.89	-120579	-48.25	-22147			5.637			15631			-.4884		
2	80.0	38828	16.85	-6.920	63427	20.09	-3.872	102255	36.94	-10.79	-42957	-149.2	43.58	-120579	-43.56	-22147		-12.895	5.460			15631	+2.188		-.3632		
		37993		-6.892	63427	20.09	-3.872	101420	36.94	-10.76	-40958.5	-149.2	43.45	-119594	-43.56	-22512			5.472			15631			-.3632		
3	119.25	37993	15.58	-6.627	63427	17.99	-3.438	101420	33.56	-10.07	-40958.5	-135.5	40.67	-119594	-39.57	-22512		-12.146	5.318			15631	+1.667		-.2563		
		37397		-6.627	63427	17.99	-3.438	100824	33.56	-10.07	-40178	-135.5	40.67	-118832	-39.57	-22846			5.321			15631			-.2563		
4	146.5	37397	14.34	-6.371	63427	15.87	-3.008	100824	30.21	-9.376	-40178	-122.0	37.86	-118832	-35.62	-22846		-11.387	5.165			15631	+1.147		-.1494		
		36510		-6.379	60279	15.87	-3.022	96789	30.21	-9.401	-39088	-122.0	37.97	-119134	-35.62	-23403			5.160			15631			-.1538		
5	180.0	36510	13.12	-6.127	60279	13.85	-2.607	96789	26.97	-8.734	39088	-108.9	35.27	-119134	-31.80	-23403		-10.589	4.999			13699	+.6681		-.1516		
		35640		-6.117	54894	13.85	-2.635	90534	26.97	-8.752	36562	-108.9	35.34	-106758	-31.80	-23799			5.004			10654			-.01163		
6	206.0	35640	12.19	-5.926	54894	12.43	-2.342	90534	24.62	-8.268	36562	-99.43	33.39	-106758	-29.03	-23799		-9.971	4.876			10654	+.4111		-.02343		
		35096		-5.918	50341	12.43	-2.365	85437	24.62	-8.283	35807	-99.43	33.95	-100797	-29.03	-24007			4.880			8255			-.02344		
7	232.0	35096	11.28	-5.730	50341	11.12	-2.095	85437	22.40	-7.825	35807	-90.46	31.60	-100797	-26.41	-24007		-9.346	4.751			8255	+.1964		+.00752		
		34270		-5.718	46698	11.12	-2.114	80968	22.40	-7.832	32698.9	-90.46	31.63	-95477	-26.41	-24296			4.756			6470			-.001782		
8	249.0	34270	10.70	-5.558	46698	10.32	-1.951	80968	21.02	-7.509	32698.9	-84.89	30.49	-95477	-24.79	-24296		-8.933	4.671			6470	+.08645		+.01886		
		33487		-5.565	42631	10.32	-1.970	76124	21.02	-7.535	30792.7	-84.89	30.43	-89765	-24.79	-24404			4.675			4595			+.01824		
9	284.5	33487	9.507	-4.921	42631	8.809	-1.659	76124	18.32	-6.580	30792.7	-73.99	28.19	-89765	-21.60	-24404		-8.067	4.497			4595	-.0167		-.01810		
		28390		-4.591	40099	8.809	-1.683	68489	18.32	-6.274	27639.2	-73.99	25.34	-80762	-21.60	-21249			4.046			3466			[illegible]		
10	312.0	28390	8.726	-4.431	40099	7.706	-1.456	68489	16.43	-5.887	27639.2	-66.35	23.77	-80762	-19.37	-21249		-7.885	3.925			3466	-.1720		-.02164		
		28079		-4.432	40099		-1.456	68178		-5.888	27335.5		23.78	-80335		-21376			3.925			3466			[illegible]		

Approved: [illegible]

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN - DBW - FULL FUEL & OIL - LESS BOMBS

STATION	DISTANCE FROM ℄ SHIP	ULTIMATE LANDING GEAR FITTING LOADS: BEAM SHEAR	BEAM BENDING MOMENT $M_x \times 10^{-6}$	TORSION $T_{ZX} \times 10^{-6}$	CHORD SHEAR	CHORD BENDING MOMENT $M_z \times 10^{-6}$	TOTAL ULTIMATE LOADS ‖ TO ℄ SHIP: B. SHEAR $S_z + S_b$	B. BENDING MOMENT $M_x + M_x \times 10^{-6}$	TORSION $T_{ZX} + T_{ZX} \times 10^{-6}$	C. SHEAR S_c	C.P. MOMENT $M_z + M_z \times 10^{-6}$	$M_x \cos\alpha \times 10^{-6}$	$T_{ZX} \sin\alpha \times 10^{-6}$	$M_z' \times 10^{-6}$	S_c'	$M_x \sin\alpha \times 10^{-6}$	$T_{ZX} \cos\alpha \times 10^{-6}$	$T_{ZX}' \times 10^{-6}$	$T_{ZX}'' \times 10^{-6}$	$T_{ZX}'' \times M_x$	S_b''
		23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
		TABLE 58 COLUMN 5	TABLE 58 COLUMN 8	TABLE 58 COLUMN 12	TABLE 58 COLUMN 14	TABLE 58 COLUMN 17	(23)+(28)	(24)+(29)	(25)+(30)	(26)+(31)	(27)+(32)	2040×(33)	1.736×(34)	2040×(35)	1.736×(36)	2040×(37)	1.736×(38)	(39)+(40)	TABLE 30	(40)×(41)	(42)-(41) OR -(40)×(41)
0	0	+514184	141.963	-109.523	150.512	39.420	+89757	-51.59	-53.92	+28146	-13.83	-50.81	-9.362	-41.45	27718	-8.956	-53.11	-62.47	589.6	-24439	114192
		514184	141.963	-109.523	150.512	39.420	+91348	-51.59	-53.92	+28789	-13.83	-50.81	-9.361	-41.45	28292	-8.956	-53.10	-62.06		-24439	115797
1	41.025	514184	120.869	-105.186	150.512	33.245	+91352	-55.39	-53.15	+28730	-15.005	-54.55	-9.227	-45.32	28292	-9.616	-52.34	-61.96	604.3	-27387	118739
		514184	120.869	-105.186	150.512	33.145	+94711	-55.39	-53.15	+29933	-15.005	-54.55	-9.227	-45.32	29478	-9.616	-52.34	-61.96		-27387	122098
2	80.0	514184	100.829	-101.066	150.512	27.379	+94711	-59.08	-52.39	+29933	-16.181	-58.18	-9.035	-49.09	29478	-10.26	-51.59	-61.85	618.7	-30372	125083
		514184	100.829	-101.066	150.512	27.379	+97118	-59.08	-52.51	+30918	-16.181	-58.18	-9.116	-49.06	30948	-10.26	-51.71	-61.97		-30353	128071
3	113.25	514184	83.732	-97.551	150.512	22.374	+97118	-62.25	-51.82	+30918	-17.196	-61.30	-8.996	-52.30	30948	-10.81	-51.03	-61.84	631.7	-33038	130756
		514184	83.732	-97.551	150.512	22.374	+99791	-62.25	-51.82	+31620	-17.196	-61.30	-8.996	-52.30	31139	-10.81	-51.03	-61.84		-33038	132829
4	146.5	514184	66.635	-94.036	150.512	17.369	+99791	-65.61	-51.16	+31620	-18.251	-64.61	-8.881	-55.73	31139	-11.39	-50.38	-61.77	645.3	-35963	135754
		514184	66.635	-94.036	150.512	17.369	+113592	-65.61	-51.07	+36378	-18.251	-64.61	-8.866	-55.74	35825	-11.39	-50.29	-61.68		-35969	149561
5	180.0	514184	49.410	-90.494	150.512	12.327	+113592	-69.39	-50.29	+36378	-19.473	-68.34	-8.730	-59.61	35825	-12.05	-49.53	-61.58	658.6	-39319	152911
		517415	49.763	-90.491	142.263	12.751	+138698	-69.54	-50.23	+35505	-19.043	-68.48	-8.720	-59.76	34965	-12.07	-49.47	-61.54		-39418	178066
6	206.0	517415	35.810	-87.725	142263	9.052	+138698	-73.18	-49.48	+35505	-19.878	-72.07	-8.590	-63.48	34965	-12.70	-48.73	-61.43	671.0	-42595	181243
		519667	35.763	-87.703	136511	9.327	+158078	-73.29	-49.41	+35764	-19.703	-72.18	-8.578	-63.60	35220	-12.72	-48.66	-61.38		-42676	201554
7	232.0	519667	22.192	-84.825	136511	5.778	+158078	-77.42	-48.57	+35764	-20.632	-76.24	-8.432	-67.81	35220	-13.34	-47.83	-61.27	683.0	-46314	205192
		463494	19.692	-75.084	112341	2.017	+118619	-79.92	-38.70	+16864	-24.393	-78.71	-6.718	-71.59	16608	-13.87	-38.11	-51.98		-49169	167848
8	249.0	463494	11.813	-73.964	112341	.1070	+118619	-81.92	-38.28	+16864	-24.683	-80.67	-6.645	-74.03	16608	-14.22	-37.70	-51.92	691.3	-51177	169856
		463494	11.813	-73.964	112341	.1070	+136258	-81.92	-38.35	+22576	-24.683	-80.67	-6.658	-74.01	22233	-14.22	-37.77	-51.99		-51163	187421
9	284.5	463494	-4.641	-70.081	112341	-3.881	+136258	-86.78	-37.348	+22576	-25.481	-85.46	-6.484	-78.98	22233	-15.07	-36.78	-51.85		-55864	192127
		0		0	0	0	-294376	-82.13	+129.42	-80762	-21.60	-80.88	+5.107	-85.99	-79534	-14.26	+28.95	+14.69	713.1	-42647	237734
10	312.0						-294376	-74.01	+27.95	-80762	-19.37	-72.89	+4.817	-77.71	-79534	-12.85	+27.35	+14.48	709.6	-39306	235836
							-290945		+27.76	-80935			+4.819	-77.71	-79114		+27.34	+14.49		-39306	233728

* NOTE: WHEN S_b & M_x HAVE OPPOSITE SIGNS THE BASTING T_{ZX} IS OMITTED.

BY: [illegible]
CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 125 PADS (11-43)

TABLE 63
SHEET 3 OF 8

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. - DGW - FULL FUEL & OIL - L=33 BOMBS

STATION	DISTANCE FROM ℄ SHIP	1G INERTIA LOADS: WING EMPTY LESS LANDING GEAR SHEAR	WING EMPTY LESS LANDING GEAR BENDING MOMENT	WING EMPTY LESS LANDING GEAR TORSION	FUEL & OIL ONLY SHEAR	FUEL & OIL ONLY BENDING MOMENT	FUEL & OIL ONLY TORSION	TOTALS SHEAR	TOTALS BENDING MOMENT	TOTALS TORSION	ULTIMATE INERTIA LOADS: BEAM SHEAR	BEAM BENDING MOMENT	TORSION X10^-6	CHORD SHEAR	CHORD BENDING MOMENT	ULTIMATE PITCHING ACCELERATION LOADS: WING EMPTY LESS LANDING GEAR B.S.	B.B. MOM. X10^-6	TORSION X10^-6	FUEL & OIL ONLY B.S.	B.B. MOM. X10^-6	TORSION X10^-6
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
		TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16-17	TABLE 21 COLUMN 10	TABLE 21 COLUMN 12	TABLE 21 COLS. 16-17	⑨+⑥	⑩+⑦	⑪+⑧	-4.0385 ⑨	-4.0385 ⑩	-4.0385 ⑪	-1.792 ⑨	-1.792 ⑩	TABLE 48 COLUMN 13	TABLE 48 COLUMN 13	TABLE 48 COLS. 8-12	TABLE 52 COLUMN 13	TABLE 52 COLUMN 13	TABLE 52 COLS. 21-22
11	339.5	28029	7.955	-4.273	40099	6.603	-1.229	68128	14.56	-5.502	-275135	-58.80	-22.22	-80338	-17.17	-21316	-6.895	3.604	3966	-2.673	+.007822
		23769		-3.646	37091		-1.241	60860		-4.887	-245783		19.61	-71766		-18073		3.295	2485		+.007057
12	375.75	23769	7.094	-3.439	37091	5.259	-.9641	60860	12.35	-4.403	-245783	-49.88	17.78	-71766	-14.56	-18073	-6.240	3.160	2485	-.3574	+.006008
		22994		-3.419	31401		-.9905	54395		-4.410	-219674		17.81	-64193		-18131		3.161	890		+.006168
13	412.0	22994	6.260	-3.248	31401	4.120	-.9565	54395	10.38	-4.005	-219674	-41.92	16.17	-64193	-12.24	-18131	-5.582	3.025	890	-.3896	+.005931
		22351		-3.292	25982		-.8801	48333		-4.022	-195193		16.24	-58294		-18217		3.026	-338		+.005297
14	448.5	22351	5.440	-3.015	25982	3.172	-.5851	48333	8.616	-3.660	-195193	-34.80	14.78	-58294	-10.16	-18217	-4.917	2.889	-338	-.3773	+.004684
		21728		-3.049	20828		-.6073	42556		-3.676	-171862		13.85	-50182		-18269		2.890	-1234		+.004019
15	485.0	21728	4.510	-2.906	20828	2.412	-.4510	42556	7.043	-3.357	-171862	-28.52	13.56	-50182	-8.328	-18269	-4.251	2.753	-1234	-.3323	+.004732
		20888		-2.864	16445		-.4511	37333		-3.337	-150769		13.48	-44023		-18203		2.751	-1638		+.004187
16	521.5	20888	3.890	-2.729	16445	1.812	-.3277	37333	5.701	-3.057	-150769	-23.02	12.35	-44023	-6.729	-18203	-3.506	2.615	-1638	-.2725	+.003503
		16763		-2.174	14589		-.3980	31352		-2.513	-126615		10.15	-36970		-14495		2.115	-1790		+.003411
17	549	16763	2.820	-2.079	14589	1.410	-.2565	31352	4.838	-2.336	-126615	-19.54	9.194	-36970	-5.705	-14495	-3.188	2.035	-1790	-.2233	+.003398
		16479		-2.060	14589		-.2565	31068		-2.387	-125468		9.458	-36635		-14504		2.033	-1790		+.003399
18	576.5	16479	2.790	-1.987	14589	1.009	-.1740	31068	3.984	-2.161	-125468	-16.09	8.727	-36635	-4.698	-14504	-2.989	1.951	-1790	-.1740	+.003388
		12491		-1.973	12340		-.1816	24831		-1.655	-100280		6.684	-29281		-10764		1.470	-1790		+.002882
19	615.375	12491	2.490	-1.373	12340	1.236	-.082970	24831	3.019	-1.456	-100280	-12.19	5.880	-29281	-3.560	-10764	-2.370	1.384	-1790	-.1059	+.002872
		11847		-1.359	8154		-.050790	20001		-1.456	-80774		5.880	-23585		-10661		1.380	-1453		+.002856
20	654.25	11847	2.020	-1.264	8154	2.125	-.031680	20001	2.941	-1.296	-80774	-9.030	5.234	-23585	-2.643	-10661	-1.818	1.284	[illegible]	-.04937	[illegible]
		11331		-1.261	4234		-.041180	15585		-1.302	-62946		4.340	-18495		[illegible]					
21	693.125	11331	1.580	-1.170	4234	0.710	-.010180	15585	1.635	-1.180	-62946	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					
		10712		-1.160	1184		-.007292	11894		-1.167	-48058		[illegible]	[illegible]							

[illegible]

TABLE 63

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

CONDITION - TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. - D.G.W. - FULL FUEL & OIL: LESS BOMBS

Station	Distance	Total Ultimate Loads: Shear	(28)	Torsion	Shear		M_x cos	Tension	M_x'	S_c	M_x sin	Ten coeff. $\times 10^{-6}$	Ten $\times 10^{-6}$	(40) Table 30 *	(41)	(42) S_b''
11	339.5	-293045 -261371	-66.05	26.10 22.98	-80335 -71766	-17.17	-65.05	4.591 3.989	-69.58 -69.04	-79114 -70615	-11.47	25.70 22.63	14.23 11.16	516.0	-35903 -35625	-257142 -225746
12	375.75	-261371 -236915	-56.48	21.03 21.05	-71766 -64163	-14.56	-55.62	3.651 3.654	-59.27 -59.27	-70675 -63188	-9.805	20.71 20.73	10.91 10.93	530.2	-31425 -31425	-229946 -205490
13	412.0	-236915 -213748	-47.89	+19.28 +19.35	-64163 -56994	-12.24	-47.16	3.347 3.359	-50.51 -50.52	-63188 -56128	-8.314	18.99 19.06	10.68 10.75	545.1	-27533 -27538	-209382 -186210
14	448.5	-213748 -191365	-40.09	+17.75 +17.82	-56994 -50182	-10.16	-39.48	3.081 3.094	-42.56 -42.57	-56128 -49419	-6.960	17.46 17.55	10.52 10.59	561.1	-23880 -23886	-189868 -167479
15	485.0	-191365 -170610	-33.10	+16.38 +16.30	-50182 -44023	-8.329	-32.60	2.844 2.830	-35.44 -35.43	-49419 -43354	-5.746	16.13 16.05	10.38 10.30	578.0	-20484 -20479	-170881 -150181
16	521.5	-170610 -142900	-26.88	+15.02 12.32	-44023 -36970	-6.723	-26.47	2.607 2.139	-29.08 -28.61	-43354 -36408	-4.666	14.79 12.13	10.12 7.46	596.0	-17332 -17052	-153278 -125948
17	549	-142900 -141762	-22.95	+11.51 +11.51	-36970 -36635	-5.705	-22.60	1.998 1.998	-24.60 -24.60	-36408 -36078	-3.984	11.34 11.34	7.356 7.356	610.3	-15013 -15013	-127887 -126749
18	576.5	-141762 -112798	-19.05	+10.71 +8.19	-36635 -29281	-4.698	-18.76	1.859 1.422	-20.62 -20.18	-36078 -28836	-3.307	10.55 8.066	7.243 4.759	625.2	-12892 -12617	-128870 -100181
19	615.375	-112798 -92828	-14.67	+7.234 +7.281	-29281 -23585	-3.560	-14.45	1.265 1.264	-15.72 -15.71	-28836 -23227	-2.547	7.173 7.170	4.626 4.623	647.7	-10182 -10175	-102616 -82653
20	654.25	-92828 -74391	-11.06	+6.538 +6.576	-23585 -18378	-2.643	-10.89	1.135 1.142	-12.03 -12.03	-23227 -18099	-1.920	6.439 6.476	4.519 4.556	671.9	-8083 -8083	-84745 -66308
21	693.125	-74391 -58673	-8.17	+5.979 +5.926	-18378 -14025	-1.928	-8.046	1.038 1.029	-9.084 -9.075	-18099 -13812	-1.418	5.888 5.836	4.470 4.418	692.9	-6340 -6333	-68051 -52040

* NOTE: WHEN S'_b & M'_x HAVE OPPOSITE SIGNS THE FACTOR .7 IS OMITTED.

By: Shultice
Checked: Bilaen, Griffin

TABLE 63
SHEET 4 OF 4

B-36 WING - NET ULTIMATE INERTIA, DYNAMIC MOMENTS & TENSIONS

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. - D.G.W. - FULL FUEL & OIL - LESS BOMBS

STATION	DISTANCE	INERTIA FORCE	INERTIA MOMENT	TOTAL ULTIMATE LOADS (1.5 TIMES SHOWN) SHEAR	REMARKS	TORSION	BENDING MOMENT	M_y 35	TEN SHEAR	M_x 37	S_c	M_z SHEAR	TEN CORR.	TEN MOM.	M_x 40	M_z 41	S''_b
		58	58	58	58	58	58										
		5	8	12	14	17	18										
11	339.5			-293045	-66.05	26.10	-80335	-17.17	-65.05	4.591	-69.58	-73914	-11.47	25.70	14.23	516.0	-35903 -257142
				-261371		22.98	-71766			3.989	-69.04	-70625		22.63	11.16		-35625 -225746
12	375.75			-261371	-56.48	21.03	-71766	-14.56	-55.62	3.651	-53.27	-70625	-9.805	20.71	10.91	530.2	-31425 -229946
				-236915		21.05	-64163			3.654	-53.27	-63188		20.73	10.93		-31425 -205490
13	412.0			-236915	-47.89	+19.28	-64163	-12.24	-47.16	3.347	-50.51	-63188	-8.314	18.99	10.68	545.1	-27553 -205382
				-213748		+19.35	-56994			3.359	-50.52	-56128		19.06	10.75		-27538 -186210
14	448.5			-213748	-40.09	+17.75	-56994	-10.16	-39.98	3.081	-42.56	-56128	-6.960	17.46	10.52	561.1	-23880 -189968
				-191365		+17.82	-50182			3.094	-42.57	-49419		17.55	10.59		-23886 -167979
15	485.0			-191365	-33.10	+16.38	-50182	-8.329	-32.60	2.844	-35.44	-49419	-5.746	16.13	10.38	578.0	-20484 -170881
				-170610		+16.30	-44023			2.830	-35.43	-43354		16.05	10.30		-20479 -150121
16	521.5			-170610	-26.88	+15.02	-44023	-6.723	-26.47	2.607	-29.08	-43354	-4.666	14.79	10.12	596.0	-17332 -153278
				-142900		12.32	-36970			2.139	-28.61	-36408		12.13	7.46		-17052 -125848
17	549			-142900	-22.95	+11.51	-36970	-5.705	-22.60	1.998	-24.60	-36408	-3.984	11.34	7.356	610.3	-15013 -126787
				-141762		+11.51	-36635			1.998	-24.60	-36078		11.34	7.356		-15013 -126749
18	576.5			-141762	-19.05	+10.71	-36635	-4.698	-18.76	1.859	-20.62	-36078	-3.367	10.55	7.243	625.2	-12892 -128870
				-112798		+8.19	-29281			1.422	-20.18	-28836		8.066	4.759		-12617 -100181
19	615.375			-112798	-19.67	+7.234	-29281	-3.560	-19.45	1.265	-15.72	-28836	-2.547	7.173	4.626	639.7	-10482 -102616
				-92828		+7.281	-23585			1.264	-15.71	-23227		7.170	4.623		-10475 -82653
20	654.25			-92828	-11.06	+6.538	-23585	-2.643	-10.89	1.135	-12.03	-23227	-1.920	6.939	4.513	658.8	-8083 -84745
				-74391		+6.576	-18378			1.142	-12.03	-18099		6.476	4.556		-8083 -66308
21	698.125			-74391	-8.17	+5.919	-18378	-1.928	-8.046	1.038	-9.084	-18099	-1.418	5.888	4.470	678.2	-6340 -68051
				-58673		+5.926	-14025			1.029	-9.075	-13812		5.236	4.418		-6333 -52040

* NOTE: WHEN S_b & M_x HAVE OPPOSITE SIGNS THE FACTOR .7 IS OMITTED.

B. Shutter
CHECKED B. Pearson

TABLE 63
SHEET 5 OF 9

B-36 WING – NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS
CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN – D.G.W. – FULL FUEL & OIL: LESS BOMBS

STATION	DISTANCE FROM ℄ SHIP	1 G INERTIA LOADS: WING EMPTY LESS LANDING GEAR SHEAR	MOMENT $\times 10^6$	DESIGN 10^6	FUEL & OIL ONLY SHEAR	MOMENT $\times 10^6$	DESIGN 10^6	TOTALS SHEAR	MOMENT $\times 10^6$	DESIGN 10^6	ULTIMATE INERTIA LOADS: BEAM SHEAR	BEAM BENDING MOMENT $\times 10^6$	TORSION $\times 10^6$	CHORD SHEAR	CHORD BENDING MOMENT $\times 10^6$	ULTIMATE PITCHING ACCELERATION LOADS: WING EMPTY LESS LANDING GEAR: B. SHEAR	B.B. MOM $\times 10^6$	TORSION $\times 10^6$	FUEL & OIL ONLY: B. SHEAR	B.B. MOM $\times 10^6$	TORSION $\times 10^6$
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
		TABLE 19 COLUMN 19	TABLE 19 COLUMN 18	TABLE 19 COL. 16 FT	TABLE 21 COLUMN 10	TABLE 21 COLUMN 12	TABLE 21 COL. 16 FT	⑨+⑥	⑩+⑦	⑤+⑧	-4.0985 ⑨	-4.0986 ⑩	-4.0985 ⑪	-1.1792 ⑫	-1.1782 ⑬	TABLE 48 COLUMN 13	TABLE 48 COLUMN 15	TABLE 48 COL. 21 FT	TABLE 52 COLUMN 13	TABLE 52 COLUMN 15	TABLE 52 COL. 21 FT
22	732.0	.10710	.11720	.10810	.1184	.001116	+.002170	.11854	1.173	-1.079	-48034	-4.737	+4.358	-1.9025	-1.383	-70343	-4.48	1.127	-296	-.000907	+.000412
		.9988		.10710	.21		-.001835	.10009		-1.073	-40421		4.333	-1.1803		-10083		1.123	-17		+.001325
23	766.0	.9988	.8320	.10810	.21	.00412	-.001489	.10009	.8324	-1.002	-40421	-3.362	4.047	-1.1603	-.9816	-10083	-.8051	1.053	-17	-.000936	+.001208
		.6276		.5950	.10		-.000945	.6286		-.5957	-25386		2.406	-.7412		-6100		.6175	-8		+.000606
24	806.0	.6276	.5809	.5934	.10	.0	-.000658	.6286	.5809	-.5941	-25386	-2.346	2.197	-.7412	-.6850	-6100	-.5611	.5673	-8	0	+.000537
		.2585		.1658	0		0	.2585		-.1658	-10440		.6695	-.3048		-2108		.1590	0	0	0
25	840	.2585	.4930	.14710				.2585	.4930	-.1471	-10440	-1.991	.5965	-.3048	-.5813	-2108	.4854	.1443			
		.2322		.14710				.2322		-.1418	-9377		.5969	-.2738		-1999		.1443			
26	870	.2322	.4234	.133500				.2322	.4234	-.1335	-9377	-1.710	.5391	-.2738	-.4993	-1999	.4294	.1320			
		.2022		.125100				.2022		-.1251	-8166		.5052	-.2384		-1802		.1265			
27	906	.2022	.3506	.11010				.2022	.3506	-.1101	-8166	-1.416	.4446	-.2384	-.4134	-1802	.3645	.1131			
		.1823		.1090				.1823		-.1090	-7362		.4402	-.2150		-1692		.1125			
28	942	.1823	.2850	-.09552				.1823	.2850	-.09552	-7362	-1.151	.3858	-.2150	-.3361	-1692	.3036	.09998			
		.1640		-.09454				.1640		-.09454	-6623		.3817	-.1934		-1583		.09940			
29	978	.1640	.2259	-.08240				.1640	.2259	-.08240	-6623	-.9123	.3328	-.1934	-.2664	-1583	.2466	.08768			
		.1323		-.07292				.1323		-.07292	-5343		.2945	-.1560		-1322		.07987			
30	1014	.1323	.1783	-.06313				.1323	.1783	-.06313	-5343	-.7201	.2550	-.1560	-.2103	-1322	.1990	.07003			
		.1168		-.06235				.1168		-.06235	-4717		.2518	-.1377		-1213		.06954			
31	1050	.1168	.1362	-.05370				.1168	.1362	-.05370	-4717	-.5500	.2169	-.1377	-.1606	-1213	.1554	.06057			
		.1041		-.05307				.1041		-.05307	-4204		.2143	-.1228		-1118		.06009			
32	1080	.1041	.1050	.04665				.1041	.1050	.04665	-4204	-.4290	.1884	-.1228	-.1238	-1118	.1218	.05320			
		.786		.03181				.786		.03181	-3174		.1527	-.927		-862		.04433			

BY: [illegible]
CHECKED: [illegible]

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN - D.G.W. - FULL FUEL & OIL - LESS BOMBS

STATION	DISTANCE FROM ℄ SHIP	ULTIMATE LANDING GEAR FITTING LOADS: BEAM SHEAR	BEAM BENDING MOMENT $\times 10^{-6}$	TORSION $\times 10^{-6}$	CHORD SHEAR	CHORD BENDING MOMENT $\times 10^{-6}$	TOTAL ULTIMATE LOADS IN ℄ TO ℄ SHIP: B. SHEAR	B. MOMENT $M_x \times 10^{-6}$	TORSION $T_{EN} \times 10^{-6}$	C. SHEAR	C. MOMENT $M_y \times 10^{-6}$	$M_x \cos\alpha$ $\times 10^{-6}$	$T_{EN} \sin\alpha$	$M_x' \times 10^{-6}$	S_b $\times 2\cos\alpha$	$M_x \sin\alpha$ $\times 10^{-6}$	$T_{EN} \cos\alpha$ $\times 10^{-6}$	$T_{EN} \sin\alpha$ $\times 10^{-6}$	T_{TOTAL} $\times 10^{-6}$	$T_{TOTAL} M_x$ $\times 10^{-6}$	S_b''
1	2	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
		TABLE 58 COLUMN 5	TABLE 58 COLUMN 8	TABLE 58 COLUMN 12	TABLE 58 COLUMN 14	TABLE 58 COLUMN 17	(22)+(23)	(21)+(24)	(26)+(27)	(22)−(23)	(21)−(24)	(28)×(33)	(28)×(34)	(29)×(35)	(29)×(36)	(29)×(37)	(30)×(33)	(30)×(34)	TABLE 30	(29)×(40)	(29)×(41)
22	732.0						-58673 -50521	-5.886	+5.485 +5.457	-14025 -11803	-1.393	-5.797	.9522 .9479	-6.149 -6.744	-13812 -11624	-1.022	5.402 5.374	4.380 4.352	7261	-4900 -4847	-53773 -47624
23	766.0						-50521 -31494	-4.167	+5.101 +3.024	-11803 -7412	-.7816	-4.104	.8855 .7550	-4.990 -4.629	-11624 -7299	-.7234	5.023 2.978	4.300 2.155	7527	-3756 -3484	-46165 -28010
24	806.0						-31494 -12548	-2.907	+2.765 +.8785	-7412 -3048	-.6850	-2.863	.4800 .1438	-3.343 -3.007	-7299 -3002	-.5097	2.723 .8159	2.218 .3112	7863	-2629 -2364	-20665 -10194
25	840						-12548 -11376	-2.480	+.7408 +.7412	-3048 -2733	-.5813	-2.442	.1286 .1287	-2.571 -2.571	-3002 -2696	-.4305	.7295 .7299	.2990 .2994	8176	-2102 -2102	-10446 -9274
26	870						-11376 -9968	-2.139	+.6711 +.6317	-2738 -2384	-.4993	-2.106	.1165 .1097	-2.223 -2.216	-2696 -2348	-.3719	.6609 .6221	.2896 .2508	8473	-1884 -1878	-9492 -8090
27	906						-9968 -9054	-1.781	+.5517 +.5327	-2384 -2150	-.4134	-1.754	.09682 .09595	-1.851 -1.850	-2348 -2117	-.3092	.5492 .5443	.2400 .2351	8860	-1640 -1639	-8328 -7415
28	942						-9054 -8206	-1.455	+.4858 +.4811	-2150 -1934	-.3361	-1.433	.08433 .08352	-1.517 -1.517	-2117 -1905	-.2526	.4784 .4738	.2258 .2212	9282	-1408 -1408	-7646 -6798
29	978						-8206 -6665	-1.159	+.4205 +.3744	-1934 -1560	-.2664	-1.141	.07300 .06500	-1.214 -1.206	-1905 -1536	-.2012	.4141 .3687	.2129 .1675	9748	-1183 -1176	-7023 -5989
30	1014						-6665 -5930	-.9121	+.3251 +.3213	-1560 -1377	-.2103	-.9051	.05644 .05578	-.9615 -.9609	-1536 -1356	-.1596	.3202 .3164	.1606 .1568	10210	-987 -986	-5678 -4944
31	1050						-5930 -5322	-.7054	+.2775 +.2744	-1377 -1228	-.1606	-.6947	.04817 .04764	-.7439 -.7423	-1356 -1209	-.1225	.2733 .2702	.1508 .1477	10850	-805 -804	-5125 -4518
32	1080						-5322 -4036	-.5458	+.2416 +.1970	-1228 -927	-.1238	-.5375	.04194 .03420	-.5794 -.5717	-1209 -913	-.09475	.2379 .1940	.1431 .0993	1136.0	-658	-4667 -3378

* NOTE: WHEN S_b & M_y HAVE OPPOSITE SIGNS THE FACTOR .71 IS OMITTED

BY Sullivan
CHECKED: Brian J. Coulter

TABLE 63
SHEET 7 OF 8

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS
CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. - D.G.W. - FULL FUEL & OIL - LESS BOMBS

STATION	DISTANCE FROM B.S.NO	1G INERTIA LOADS: WING EMPTY LESS LANDING GEAR: SHEAR	MOMENT $\times 10^{-6}$	TORSION $\times 10^{-6}$	FUEL & OIL ONLY: SHEAR	MOMENT $\times 10^{-6}$	TORSION $\times 10^{-6}$	TOTALS: SHEAR	MOMENT $\times 10^{-6}$	TORSION $\times 10^{-6}$	BEAM SHEAR	ULTIMATE INERTIA LOADS: BEAM BENDING MOMENT $\times 10^{-6}$	TORSION $\times 10^{-6}$	CARGO SHEAR	CARGO BENDING MOMENT $\times 10^{-6}$	ULTIMATE PITCHING ACCELERATION LOADS: WING EMPTY - LESS LANDING GEAR: B. SHEAR	B.B. MOM $\times 10^{-6}$	TORSION $\times 10^{-6}$	FUEL & OIL ONLY: B. SHEAR	B.B. MOM $\times 10^{-6}$	TORSION $\times 10^{-6}$
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
		TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16 & 17	TABLE 21 COLUMN 10	TABLE 21 COLUMN 12	TABLE 21 COLS. 16 & 17	③+⑥	④+⑦	⑤+⑧	40380 ⑨	-40385 ⑩	+40385 ⑪	-1.1792 ⑫	-1.1792 ⑬	TABLE 48 COLUMN 13	TABLE 48 COLUMN 15	TABLE 48 COLS. 21 & 22	TABLE 52 COLUMN 13	TABLE 52 COLUMN 15	TABLE 52 COLS. 21 & 22
33	1110	786	.081440	.028960				786	.08144	-.03296	-3174	-.3289	+.1331	-927	-.09603	-862	-.09598	.03902			
		702		.028540				702		-.03154	-2835		+.1314	-828		-791		.03866			
34	1140	702	.060390	.018220				702	.06039	-.02822	-2835	-.2439	+.1140	-828	.07121	-791	-.07225	.03378			
		627		.027760				627		-.02776	-2532		+.1121	-739		-724		.03338			
35	1170	627	.041590	.023890				627	.041590	-.02389	-2532	-.1680	+.09648	-739	-.04904	-724	-.05152	.02831			
		414		.017060				414		-.01706	-1672		+.06690	-488		-457		.02129			
36	1198	414	.030000	.014670				414	.0300	-.01467	-1672	-.1212	+.05924	-488	-.03538	-457	-.03688	.01648			
		359		.014380				359		-.01483	-1450		+.05289	-423		-434		.01820			
37	1225	359	.020310	.012350				359	.02031	-.01239	-1450	-.0820	+.03004	-423	-.02395	-434	-.02516	.01578			
		314		.012110				314		-.01211	-1268		+.04891	-370		-388		.01550			
38	1252	314	.011850	.010370				314	.01185	-.01037	-1268	-.0478	+.04181	-370	-.01397	-388	-.01468	.01335			
		268		.010120				268		-.01012	-1082		+.04087	-316		-341		.01309			
39	1278	268	.008870	-.008681				268	.008870	-.008681	-1082	-.01967	+.03506	-316	-.005742	-341	-.005815	.01126			
		98		-.001835				98		-.001835	-396		+.00741	-116		-116		.002180			
40	1301	98	.002609	-.001370				98	.002609	-.001370	-396	-.01054	+.005933	-116	-.003077	-116	-.003159	.001642			
		65		-.001199				65		-.001199	-263		+.004942	-77		-79		.001451			
41	1324	65	.001109	-.000891				65	.001109	-.000891	-263	-.004479	+.003588	-77	-.001308	-79	-.001352	.001079			
		49		-.000771				49		-.000771	-198		+.003114	-58		-60		.000940			
TIP*	1346.4	49		-.000543				49	0	-.000543	-198	0	+.002193	-58	0	-60	0	.000662			
		0		0				0		0	0			0		0	0	0			

*C.G. OF TIP SECTION

BY: Shelton
CHECKED: B. Lacy Parker

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS
CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. - DG.W. - FULL FUEL & OIL: LESS BOMBS

STATION	DISTANCE FROM ℄ SHIP	ULTIMATE LANDING GEAR FITTING LOADS: BEAM SHEAR	BEAM BENDING MOMENT $\times 10^{-6}$	TORSION $\times 10^{-6}$	CHORD SHEAR	CHORD BENDING MOMENT $\times 10^{-6}$	TOTAL ULTIMATE LOADS IN ℄ TO ℄ SHIP: B. SHEAR $S_b = 3b$	B. MOMENT $M_b \times 10^{-6}$	TORSION $T_{ER} \times 10^{-6}$	C. SHEAR S_c	C.C. MOMENT $M_c = M_c \times 10^{-6}$	M_c COS α $\times 10^{-6}$	T_{ER} SIN α $\times 10^{-6}$	$M_x \times 10^{-6}$	S_c	M_x SIN α $\times 10^{-6}$	T_{ER} COS α $\times 10^{-6}$	T_{ER} SIN α $\times 10^{-6}$	$T_{TOTAL} \times 10^{-6}$ T_{TOTAL}	$T_{TOTAL} \times 10^{-6}$ M_x	S_b''
	L"	ℓ	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
			TABLE 58 COLUMN 5	TABLE 58 COLUMN 8	TABLE 58 COLUMN 12	TABLE 58 COLUMN 14	TABLE 58 COLUMN 17	(23)+(17)	(24)+(19)	(26)+(21)	(25)+(26)	(31)+(32)	.9848×(29)	.1736×(29)	(34)-(35)	(34)+(35)	.9848×(36)	.1736×(29)	.9848×(36)+(37)	TABLE 30	(38)×(40)	(28)-(41)
								(27)+(28)	(29)+(30)	(27)+(30)	(28)+(30)	(27)+(31)										OR. SHEET 22
33	1110							-4036	-.4245	+.1721	-927	-.09603	-.4184	.02988	-.4483	-913	-.07376	.1695	.09574	1194.0	-535	-3501
								-3626		+.1701	-828			.02953	-.4479	-815		.1675	.09374		-535	-3091
34	1140							-3626	-.3162	+.1978	-828	-.07121	-.3114	.02566	-.3371	-815	-.05480	.1456	.09071	1253.0	-424	-3202
								-3256		+.1455	-739			.02526	-.3367	-728		.1433	.08841		-424	-2832
35	1170							-3256	-.2185	+.1254	-739	-.04904	-.2152	.02177	-.2370	-728	.03793	.1235	.08557	1330.0	-315	-2941
								-2159		+.09019	-488			.01566	-.2302	-481		.08882	.05889		-307	-1852
36	1198							-2159	-.1581	+.07772	-488	-.03538	-.1557	.01349	-.1692	-481	-.02745	.07654	.04920	1405.0	-238	-1921
								-1884		+.07809	-423			.01356	-.1693	-417		.07690	.04945		-238	-1646
37	1225							-1884	-.1072	+.06583	-423	-.02395	-.1056	.01143	-.1170	-417	-.01861	.06483	.04622	1466.0	-174	-1710
								-1656		.06441	-370			.01118	-.1168	-364		.06343	.04482		-174	-1482
38	1252							-1656	-.06358	.05516	-370	-.01357	-.06163	.009576	-.07121	-364	-.01086	.05432	.04346	1576.0	-112	-1464
								-1423		.05396	-316			.009367	-.07100	-311		.05314	.04228		-112	-1311
39	1278							-1423	-.02549	.04632	-316	-.005742	-.02510	.008041	-.03314	-311	.004425	.04562	.04120	1674.0	-55	-1368
								-512		.00960	-116			.001666	-.02677	-114		.00945	.005025		-45	-467
40	1301							-512	-.01370	.007125	-116	-.003077	-.01349	.001246	-.01474	-114	-.002228	.007066	.004888	1772.0	-26	-486
								-342		.006193	-77			.001092	-.01458	-76		.006197	.003819		-26	-316
41	1314							-342	-.003831	.004677	-77	-.001308	-.005742	.000819	-.006594	-76	-.001012	.004606	.003594	1881.0	-12	-330
								-258		.004054	-58			.000738	-.006446	-57		.003992	.002980		-12	-246
TIP*	1346.4							-258	0	.002855	-58	0	0	.0004936	-.000494	-57	0	.002812	.002812	0	0	-258
								0		0	0					0				0		0

*C.G. at TIP SECTION

* NOTE: WHEN S_b & M_x HAVE OPPOSITE SIGNS THE FACTOR 2 IS OMITTED.

BY: Shutler
CHECKED: Brian Trapp

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION

TABLE 64
SHEET 1 OF 8

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS

CONDITION: TWO WHEEL LANDING WITH BRAKES, NOSE DOWN. - D.G.W. - FULL FUEL & OIL - LESS BOMBS

STATION	DISTANCE FROM ℄ SHIP	I G INERTIA LOADS: WING EMPTY LESS LANDING GEAR SHEAR	MOMENT $\times 10^{-6}$	TORSION $\times 10^{-6}$	FUEL & OIL ONLY SHEAR	MOMENT $\times 10^{-6}$	TORSION $\times 10^{-6}$	TOTALS SHEAR	MOMENT $\times 10^{-6}$	TORSION $\times 10^{-6}$	ULTIMATE INERTIA LOADS: BEAM SHEAR	BEAM BENDING MOMENT $\times 10^{-6}$	TORSION $\times 10^{-6}$	CHORD SHEAR	CHORD BENDING MOMENT $\times 10^{-6}$	ULTIMATE PITCHING ACCELERATION LOADS: WING EMPTY LESS LANDING GEAR B. SHEAR	B.B. MOM. $\times 10^{-6}$	TORSION $\times 10^{-6}$	FUEL & OIL ONLY B. SHEAR	B.B. MOM. $\times 10^{-6}$	TORSION $\times 10^{-6}$
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
		TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16 & 17	TABLE 21 COLUMN 10	TABLE 21 COLUMN 12	TABLE 21 COLS. 16 & 17	③+⑥	④+⑦	⑤+⑧	-2.0499 × ⑨	-2.0499 × ⑩	-2.0499 × ⑪	-1.5296 × ⑨	-1.5296 × ⑩	TABLE 49 COLUMN 13	TABLE 49 COLUMN 15	TABLE 49 COLS. 21 & 22	TABLE 53 COLUMN 13	TABLE 53 COLUMN 15	TABLE 53 COLS. 21 & 22
0	0	40,343	19.995	-7.563	63,427	25.164	-4.915	103,770	45.159	-12.478	-212,718	-92.571	+25.579	-158,727	-69.075	-21,121	-14.718	5.859	15,737	3.461	-.6245
		39,849		-7.565				103,276		-12.480	-211,705		+25.583	-157,971		-21,527		5.857			-.6245
1	41.025	39,849	18.360	-7.229	63,427	22.562	-4.380	103,276	40.922	-11.609	-211,705	-83.86	+23.797	-157,971	-62.594	-21,527	-13.835	5.615	15,737	2.815	-.4918
		38,828		-7.231				102,255		-11.611	-209,613		+23.801	-156,409		-22,292		5.613			-.4918
2	80.0	38,828	16.847	-6.920	63,427	20.089	-3.872	102,255	36.936	-10.792	-209,613	-75.715	+22.123	-156,409	-56.497	-22,292	-12.966	5.495	15,737	2.202	-.3658
		37,993		-6.892				101,420		-10.764	-207,901		+22.065	-155,132		-22,659		5.507			-.3658
3	113.25	37,993	15.584	-6.632	63,427	17.981	-3.438	101,420	33.565	-10.070	-207,901	-68.805	+20.642	-155,132	-51.341	-22,659	-12.213	5.352	15,737	1.678	-.2582
		37,397		-6.627				100,824		-10.065	-206,679		+20.632	-154,220		-22,995		5.355			-.2582
4	146.5	37,397	14.340	-6.371	63,427	15.872	-3.005	100,824	30.212	-9.376	-206,679	-61.932	+19.220	-154,220	-46.212	-22,995	-11.448	5.198	15,737	1.155	-.1605
		36,510		-6.379	60,279		-3.022	96,789		-9.401	-198,408		+19.271	-148,048		-23,562		5.193	12,791		-.1618
5	180	36,510	13.117	-6.127	60,279	13.852	-2.607	96,789	26.969	-8.734	-198,408	-55.284	+17.964	-148,048	-41.252	-23,562	-10.659	5.031	12,791	.6931	-.06603
		35,640		-6.117	54,894		-2.635	90,534		-8.752	-185,586		+17.941	-138,481		-23,955		5.036	10,726		-.08230
6	206	35,640	12.190	-5.926	54,894	12.425	-2.342	90,534	24.615	-8.268	-185,586	-50.458	+16.949	-138,481	-37.657	-23,955	-10.036	4.908	10,726	.4142	-.04432
		35,096		-5.918	50,341		-2.365	85,437		-8.283	-175,137		+16.979	-130,684		-24,164		4.911	8,911		-.03702
7	232	35,096	11.278	-5.730	50,341	11.116	-2.095	85,437	22.394	-7.825	-175,137	-45.985	+16.040	-130,684	-34.254	-24,164	-9.408	4.782	8,911	.1981	+.00561
		34,270		-5.718	46,698		-2.114	80,968		-7.832	-165,976		+16.055	-123,849		-24,455		4.786	6,814		-.00913
8	249	34,270	10.695	-5.598	46,698	10.322	-1.951	80,968	21.017	-7.549	-165,976	-43.083	+15.475	-123,849	-32.148	-24,455	-8.992	4.700	6,814	.08741	+.01089
		33,487		-5.565	42,637		-1.970	76,124		-7.535	-156,047		+15.446	-116,439		-24,564		4.705	4,627		+.01221
9	284.5	33,487	9.507	-5.321	42,637	8.809	-1.659	76,124	18.316	-6.980	-156,047	-37.546	+14.308	-116,439	-28.016	-24,564	-8.120	4.526	4,627	-.07685	+.04589
		28,390		-4.591	40,099		-1.683	68,489		-6.274	-140,306		+12.861	-104,761		-21,388		4.071	3,490		+.03518
10	312	28,390	8.726	-4.431	40,099	7.706	-1.456	68,489	16.432	-5.887	-140,306	-33.684	+12.068	-104,761	-25.139	-21,388	-7.532	3.950	3,490	-.1728	+.04490
		28,029		-4.432	40,099		-1.456	68,128		-5.888	-139,656		+12.070	-104,209		-21,516		3.950	3,490		+.04490

BY: J. Ellis
CHECKED: [illegible]

TABLE 64
SHEET 2 OF 8

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS
CONDITION: TWO WHEEL LANDING WITH BRAKES, NOSE DOWN - DGW - FULL FUEL 40% - 1.5G PINNAS

STATION	DISTANCE FROM ℄ SHIP	ULTIMATE LANDING GEAR FITTING LOADS: BEAM SHEAR	BEAM BENDING MOMENT	TORSION	CHORD SHEAR	CHORD BENDING MOMENT	TOTAL ULTIMATE LOADS IN ℄ TO ℄ SHIP: B. SHEAR $S_y = S_b$	B. MOMENT $M_x \times 10^{-6}$	TORSION $T_{ex} \times 10^{-6}$	C. SHEAR S_c	C. MOMENT $M_y = M_z \times 10^{-6}$	$M_y \cos\alpha$ $\times 10^{-6}$	$T_{ex} \sin\alpha$ $\times 10^{-6}$	S_c $S_c \cos\alpha$	$M_z \sin\alpha$ $\times 10^{-6}$	$T_{ex} \cos\alpha$ $\times 10^{-6}$	$T_{ex} \sin\alpha \times 10^{-6}$	T_{ENG} $\times 10^{-6}$	T_{ENG} M_x	S_b''
1	2	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
		TABLE 59 COLUMN 5	TABLE 59 COLUMN 8	TABLE 59 COLUMN 12	TABLE 59 COLUMN 14	TABLE 59 COLUMN 17	(23)+(27)	(24)+(28)	(25)+(29)	(26)+(30)	(23)+(31)	3948 (33)	1736 (34)	3948 (35)	1736 (36)	3948 (37)	1736 (38)	TABLE 32	(39)×(40)	(36)-(41)
																					※ 5.6 (42)
0	0	263,088	73.297	-81.791	195,197	52.245	+44,984 +46,593	-30.531	-50.979 -50.976	36,470 37,226	-16.830	-30.067	-8.850 -8.849	-21.217 -21.218	35,816 36,460	-5.300	-50.203 -50.201	-55.209 -55.201	5828.6	-19,310 -19,510	37,496 38,103
1	41.025	263,088	62.504	-79.572	195,197	44.237	+45,532 +46,900	-32.402	-50.522 -50.590	37,226 38,788	-18.957	-31.909	-8.783 -8.782	-23.126 -23.127	36,660 38,198	-5.625	-49.823 -49.821	-55.418 -55.446	6043	-13,975 -13,976	39,568 40,836
2	90.0	263,088	52.250	-77.464	195,197	36.629	+46,900 +48,265	-34.229	-50.212 -50.258	38,788 40,065	-19.849	-33.709	-8.717 -8.725	-24.992 -24.984	38,198 39,456	-5.942	-49.419 -49.424	-55.531 -55.436	6187	-15,463 -15,458	42,383 43,723
3	143.25	263,088	43.502	-75.446	195,197	38.139	+48,265 +49,151	-35.858	-49.930 -49.937	40,065 40,977	-21.202	-35.295	-8.646 -8.669	-26.625 -26.642	39,486 40,354	-6.241	-49.171 -49.178	-55.332 -55.299	6321.7	-16,813 -16,818	45,084 45,840
4	146.5	263,088	34.754	-73.868	195,197	29.649	+49,151 +54,909	-37.471	-49.601 -49.568	40,977 47,149	-23.562	-36.901	-8.611 -8.604	-28.290 -28.297	40,354 46,432	-6.505	-48.847 -48.812	-55.352 -55.317	6453	-18,256 -18,240	47,407 49,180
5	180	263,088 268,335	25.940 25.701	-72.056 -72.051	195,197 181,798	17.110 17.799	+54,909 +63,570	-39.310 -39.549	-49.187 -49.156	47,149 43,917	-24.142	-38.712 -38.948	-8.532 -8.533	-30.173 -30.415	46,432 42,653	-6.804 -6.866	-48.429 -48.409	-55.262 -55.275	6536	-19,302 -19,642	51,812 54,960
6	206	268,335 271,994	18.724 18.551	-70.616 -70.580	181,798 172,455	13.072 12.519	+63,570 +81,004	-41.356 -41.525	-48.764 -48.727	43,917 41,771	-24.579 -24.132	-40.727 -40.895	-8.469 -8.459	-32.258 -32.439	42,653 41,136	-7.178 -7.209	-48.044 -47.986	-55.151 -55.195	6671.0	-21,436 -21,764	58,145 60,881
7	232	271,994 238,358	11.479 8.818	-60.126 -60.135	172,455 157,763	9.035 5.097	+81,004 +54,441	-43.634 -46.297	-48.287 -39.236	41,771 33,914	-25.219 -23.247	-42.972 -45.592	-8.384 -6.822	-34.589 -38.771	41,136 33,292	-7.578 -8.037	-47.662 -39.669	-55.158 -46.736	6845.0	-23,642 -26,481	64,628 80,812
8	249	238,358	4.766	-59.302	157,763	2.385	+54,441 +62,374	-47.212	-39.106 -39.130	33,914 41,324	-23.823	-46.497	-6.789 -6.795	-39.705 -39.693	33,292 40,636	-8.196	-38.512 -38.514	-46.700 -46.642	6913	-27,405 -27,444	81,886 83,812
9	284.5	238,358 0	-3.696 0	-57.562 0	157,763 0	-2.276 0	+62,374 -158,296	-49.439 -45.740	-38.680 -16.267	41,324 104,761	-31.232 -28.016	-48.688 -45.048	-6.715 +2.945	-41.973 -47.992	40,636 -103,160	-8.583 -7.241	-38.854 +16.702	-46.677 +8.768	6984	-29,794 -23,807	92,168 124,488
10	312						-158,296 -157,682	-41.380	-16.073 -16.075	-104,761 -104,209	-25.134	-40.760	+2.790 +2.791	-43.550 -42.551	-103,160 -102,625	-7.185	+15.828 +15.831	+8.444 +8.446	6888	-26,040 -22,168	-136,048 -137,638

* NOTE: WHEN S_c & M_z HAVE OPPOSITE SIGNS THE FACTOR T_{ex} OMITTED.

Dec. 7 1945
Approved [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION — FORT WORTH, TEXAS
FW 833 125 PAGES 11-42

TABLE 64
SHEET 3 OF 8

B-36 WING – NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS
CONDITION: TWO WHEEL LANDING WITH BRAKES, NOSE DOWN, – D.G.W. – FULL FUEL & OIL – LESS BOMBS

PAGE 2-82
REPORT NUMBER 2-40
DATE 12-1-42

STATION	DISTANCE FROM ℄ SHIP																											
			IG INERTIA LOADS										ULTIMATE INERTIA LOADS						ULTIMATE PITCHING RECEIPRATION LOADS									
			WING EMPTY LESS LANDING GEAR			FUEL & OIL ONLY			TOTALS										WING EMPTY LESS LANDING GEAR			FUEL & OIL ONLY						
			SHEAR	MOMENT 10^6	TORSION 10^6	SHEAR	MOMENT 10^6	TORSION 10^6	SHEAR	MOMENT 10^6	TORSION 10^6	BEAM SHEAR	BEAM BENDING MOMENT 10^6	TORSION $\times 10^6$	CHORD SHEAR	CHORD BENDING MOMENT 10^6	B. SHEAR	B.B. MOM. $\times 10^6$	TORSION $\times 10^6$	B. SHEAR	B.B. MOM. $\times 10^6$	TORSION $\times 10^6$	B. SHEAR	B.B. MOM. $\times 10^6$	TORSION $\times 10^6$
1	2		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22						
			TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COL. 13 & 14	TABLE 21 COLUMN 10	TABLE 21 COLUMN 12	TABLE 21 COL. 13 & 14	① + ⑥	④ + ⑦	⑤ + ⑧	-1.0499 ⑨	2.0499 ⑨ × ⑩	2.0499 ⑨ × ⑪	-1.5298 ⑨	-1.5298 ⑨ × ⑫	TABLE 49 COLUMN 13	TABLE 49 COLUMN 15	TABLE 49 COL. 16 & 17	TABLE 53 COLUMN 10	TABLE 53 COLUMN 12	TABLE 53 COL. 13 & 14						
11	339.5		28,029	7.955	-4.273	40,089	6.603	-1.239	68,128	14.558	-5.502	-139,656	-29.842	11.279	-104,208	-29.260	-21,516	-6.940	3.828	3,498	-2.688	.07462						
			23,762		-3.616	37,091		-1.241	60,860		-4.857	-124,757		9.956	-93,091		-18,192		3.216	2,502		.07094						
12	375.75		23,769	7.094	-3.439	37,091	5.259	-.9641	60,860	12.353	-4.403	-124,757	-25.322	9.026	-93,091	-18.835	-18,192	-6.281	3.180	2,502	-.3595	.08956						
			22,994		-3.413	31,401		-.9905	54,395		-4.410	-111,504		8.040	-83,203		-18,250		3.181	897		.08914						
13	412		22,994	6.260	-3.248	31,401	4.120	-.7565	54,395	10.380	-4.004	-111,504	-21.278	8.210	-83,203	-15.877	-18,250	-5.619	3.045	1,897	-.3320	.08882						
			22,351		-3.242	25,982		-.7801	48,333		-4.022	-99,078		8.245	-73,930		-18,337		3.046	-328		.08344						
14	448.5		22,351	5.444	-3.075	25,982	3.172	-.5851	48,333	8.616	-3.660	-99,078	-17.662	7.503	-73,930	-13.179	-18,337	-4.950	2.909	-329	-.3196	.08090						
			21,728		-3.069	20,828		-.6073	42,556		-3.676	-87,236		7.535	-65,094		-18,390		2.769	-1,242		.07701						
15	485		21,728	4.651	-2.906	20,828	2.414	-.4510	42,556	7.065	-3.357	-87,236	-14.478	6.882	-65,094	-10.804	-18,390	-4.279	2.771	-1,242	-.3343	.06770						
			20,888		-2.886	16,445		-.3511	37,333		-3.237	-76,529		6.841	-57,105		-18,323		2.769	-2,246		.06763						
16	521.5		20,888	3.889	-2.729	16,445	1.812	-.3277	37,333	5.700	-3.057	-76,529	-11.684	6.247	-57,105	-8.719	-18,323	-3.610	2.632	-2,246	-.2741	.05533						
			16,763		-2.174	14,589		-.3930	31,352		-2.513	-64,269		5.151	-47,956		-14,590		2.129	-1,801		.05440						
17	549		16,763	3.424	-2.079	14,589	1.410	-.2565	31,352	4.834	-2.336	-64,269	-9.917	4.789	-47,956	-7.400	-14,590	-3.203	2.047	-1,801	-.2246	.04433						
			16,479		-2.080	14,589		-.2565	31,068		-2.337	-63,686		4.791	-47,522		-14,599		2.047	-1,801		.04402						
18	576.5		16,479	2.975	-1.987	14,589	1.008	-.1740	31,068	3.984	-2.161	-63,686	-8.167	4.430	-47,522	-6.094	-14,599	-2.807	1.964	-1,801	-.1751	.03844						
			12,491		-1.473	12,340		-.1816	24,831		-1.655	-50,901		3.393	-37,981		-10,835		1.473	-1,765		.03064						
19	615.375		12,491	2.489	-1.373	12,340	5.595	-.08257	24,831	3.018	-1.458	-50,901	-6.187	2.985	-37,981	-4.616	-10,835	-2.386	1.373	-1,765	-.1065	.02064						
			11,847		-1.339	8,154		-.08679	20,001		-1.426	-41,000		2.985	-30,594		-10,670		1.389	-1,468		.01786						
20	654.25		11,847	2.028	-1.264	8,154	2.725	-.03162	20,001	2.341	-1.296	-41,000	-4.534	2.657	-30,594	3.428	-10,670	-1.871	1.304	-1,468	-.0436	.00978						
			11,331		-1.261	4,254		-.04418	15,585		-1.305	-31,948		2.675	-23,839		-10,569		1.303	-957		.00101						
21	693.125		11,331	1.588	-1.176	4,254	.04710	-.01018	15,585	1.635	-1.180	-31,948	-3.952	2.419	-23,839	-2.501	-10,569	-1.560	1.219	-957	-.0244	.00[illegible]						
			10,710		-1.164	1,184		-.007292	11,894		-1.173	-24,382		2.405	-18,193		-10,411		1.218	-957		.00[illegible]						

BY: [illegible]
CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION — TABLE 64, SHEET 4 OF 8

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

CONDITION: TWO WHEEL LANDING WITH BRAKES, NOSE DOWN. - D.G.W. - FULL FUEL & OIL - LESS BOMBS

Station	Distance from ℄ Sym.	Ultimate Landing Gear Fitting Loads: Beam Shear	Beam Bending Moment	Torsion $\times 10^{-6}$	Chord Shear	Chord Bending Moment	Total Ultimate Loads at ℄ to ℄ Ship: B. Shear $S_b = S_L$	B. Moment $M_b \times 10^{-6}$	Torsion $T_{EA} \times 10^{-6}$	C. Shear S_c	C. Moment $M_c = M_{EA}$	$M_c \cos\alpha$ $\times 10^{-6}$	$T_{EA} \sin\alpha$ $\times 10^{-6}$	$M_x' \times 10^{-6}$	S_c $-S_c \cos\alpha$	$M_x \sin\alpha$ $\times 10^{-6}$	$T_{EA} \cos\alpha$ $\times 10^{-6}$	$T_{EA} \times 10^{-6}$	$T_{EA} \times 10^{-6}$ / M_x	$T_{EA} \times 10^{-6}$ / M_x'	S_c''
1		23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
		TABLE 59	TABLE 59	TABL. 59	TABLE 59	TABLE 59	(21)+(22)	(23)+(24)	(25)+(26)	(27)+(28)	(29)+(30)	20.948×(31)	17.24×(32)	(33)+(34)	20.948×(35)	17.24×(36)	20.948×(37)	(37)+(38)	TABLE 30	(39)×(40)	(39)−(41)
		COLUMN 5	COLUMN 8	COLUMN 12	COLUMN 14	COLUMN 17															OR −5×(42)
11	339.5						-157,682	-37.051	15.162	-104,209	-22.268	-36.488	2.636	-39.124	-102,625	-6.432	14.851	8.519	516.0	-20,188	-137,494
							-142,447		13.343	-93,091			2.316	-38.804	-91,676		13.140	6.708		-20,023	-120,424
12	375.75						-140,447	-31.963	12.236	-93,091	-18.895	-31.477	2.135	-33.612	-91,676	-5.543	12.103	6.560	520.2	-17,821	-122,626
							-128,857		12.303	-83,203			2.136	-33.613	-81,938		12.116	6.567		-17,822	-111,035
13	412						-128,857	-27.289	11.344	-83,203	-15.877	-26.874	1.969	-28.843	-81,938	-4.737	11.172	6.435	524.1	-15,722	-113,135
							-117,754		11.374	-73,830			1.975	-28.849	-72,806		11.201	6.464		-15,726	-102,098
14	448.5						-117,754	-22.992	10.493	-73,830	-13.179	-22.643	1.822	-24.465	-72,806	-3.991	10.334	6.343	561.1	-13,727	-104,027
							-106,869		10.521	-65,094			1.826	-24.469	-64,105		10.361	6.370		-13,730	-93,139
15	485						-106,869	-19.091	9.721	-65,094	-10.804	-18.801	1.688	-20.489	-64,105	-3.314	9.573	6.259	579.0	-11,843	-85,025
							-96,500		9.678	-57,105			1.680	-20.481	-56,237		9.531	6.217		-11,838	-84,662
16	521.5						-96,500	-15.568	8.954	-57,105	-8.719	-15.331	1.554	-16.885	-56,237	-2.703	8.818	6.115	596.0	-10,063	-86,437
							-80,659		7.934	-47,956			1.473	-16.804	-47,227		7.823	4.520		-9,896	-70,762
17	549						-80,659	-13.351	6.880	-47,956	-7.400	-13.148	1.194	-14.342	-47,227	-2.318	6.775	4.457	610.3	-8,753	-71,906
							-80,086		6.882	-47,522			1.195	-14.343	-46,800		6.777	4.459		-8,754	-71,332
18	576.5						-80,086	-11.143	6.428	-47,522	-6.094	-10.980	1.116	-12.096	-46,800	-1.935	6.330	4.395	628.2	-7,562	-72,524
							-63,501		4.906	-37,981			.8517	-11.832	-37,404		4.831	2.836		-7,397	-56,104
19	615.875						-63,501	-8.680	4.298	-37,981	-4.616	-8.548	.7635	-9.312	-37,404	-1.507	4.331	2.824	647.7	-6,031	-57,470
							-53,132		4.395	-30,534			.7630	-9.311	-30,129		4.448	2.821		-6,031	-47,101
20	654.25						-53,132	-6.615	3.570	-30,534	-3.428	-6.514	.6832	-7.203	-30,129	-1.148	3.210	2.762	671.2	-4,840	-48,292
							-43,474		3.989	-23,839			.6825	-7.207	-23,477		3.928	2.780		-4,842	-38,632
21	693.125						-43,474	-4.924	3.641	-23,839	-2.501	-4.849	.6321	-5.481	-23,477	-.8548	3.586	2.751	697.9	-3,825	-39,649
							-35,090		3.626	-18,193			.6295	-5.479	-17,916		3.571	2.716		-3,824	-31,266

* NOTE: WHEN S_c & M_x HAVE OPPOSITE SIGNS THE EFFECT IS QUITTED.

BY: J. Ellis
CHECKED: Stellace Prokopec

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

TABLE 64
SHEET 5 OF 8

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

CONDITION: TWO WHEEL LANDING WITH BRAKES, NOSE DOWN. - D.G.W. - FULL FUEL & OIL - LESS BOMBS

STATION	DISTANCE FROM ℄ SHIP	WING EMPTY LESS LANDING GEAR: SHEAR	WING EMPTY LESS LANDING GEAR: MOMENT $\times 10^6$	WING EMPTY LESS LANDING GEAR: TORSION $\times 10^6$	I.G. INERTIA LOADS: FUEL & OIL ONLY: SHEAR	I.G. INERTIA LOADS: FUEL & OIL ONLY: MOMENT $\times 10^6$	I.G. INERTIA LOADS: FUEL & OIL ONLY: TORSION $\times 10^6$	TOTALS: SHEAR	TOTALS: MOMENT $\times 10^6$	TOTALS: TORSION $\times 10^6$	ULTIMATE INERTIA LOADS: BEAM SHEAR	ULTIMATE INERTIA LOADS: BEAM BENDING MOMENT $\times 10^6$	ULTIMATE INERTIA LOADS: TORSION $\times 10^6$	ULTIMATE INERTIA LOADS: CHORD SHEAR	ULTIMATE INERTIA LOADS: CHORD BENDING MOMENT $\times 10^6$	ULTIMATE PITCHING ACCELERATION LOADS: WING EMPTY LESS LANDING GEAR: B. SHEAR	ULTIMATE PITCHING ACCELERATION LOADS: WING EMPTY LESS LANDING GEAR: B.B. MOM. $\times 10^6$	ULTIMATE PITCHING ACCELERATION LOADS: WING EMPTY LESS LANDING GEAR: TORSION $\times 10^6$	ULTIMATE PITCHING ACCELERATION LOADS: FUEL & OIL ONLY: B. SHEAR	ULTIMATE PITCHING ACCELERATION LOADS: FUEL & OIL ONLY: B.B. MOM. $\times 10^6$	ULTIMATE PITCHING ACCELERATION LOADS: FUEL & OIL ONLY: TORSION $\times 10^6$
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
		TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS 16 & 17	TABLE 21 COLUMN 10	TABLE 21 COLUMN 12	TABLE 21 COLS 16 & 17	③+⑥	④+⑦	⑤+⑧	0.0499 ②	2.0499 ③	2.0499 ④	1.5294 ⑤	1.5294 ⑥	TABLE 49 COLUMN 13	TABLE 49 COLUMN 15	TABLE 49 COLS 21 & 22	TABLE 53 COLUMN 13	TABLE 53 COLUMN 15	TABLE 53 COLS 21 & 22
22	732	10,710	1.172	-1.081	1,184	.001116	-.002170	11,894	1.173	-1.079	-24,382	-2.405	2.212	-18,193	-1.794	-10,411	-1.156	1.134	-297	-.000882	.000369
		9,388		-1.071	21		-.001633	10,009		-1.072	-20,517		2.200	-15,310		-10,150		1.131	-16		.001288
23	766	9,388	.8320	-1.001	21	.000412	-.001589	10,009	.8324	-1.002	-20,517	-1.006	2.054	-15,310	-1.273	-10,150	-.8104	1.060	-16	.000307	.001174
		6,276		-.5950	10		-.000743	6,286		-.5957	-13,886		1.221	-9,615		-6,140		.6216	-8		.000589
24	806	6,276	.5809	-.5434	10	0	-.000658	6,286	.5809	-.5441	-12,886	-.191	1.115	-9,615	-.8885	-6,140	-.5648	.5711	-8	0	.000522
		2,585		-.1658	0		0	2,585		-.1658	-5,299		.3939	-3,954		-2,122		.1681	0		0
25	840	2,585	.4930	-.1477				2,585	.4930	-.1477	-5,299	-1.011	.3028	-3,954	-.7541	-2,122	-.4326	.1452			
		2,322		-.1478				2,322		-.1478	-4,760		.2930	-3,552		-2,012		.1453			
26	870	2,322	.4234	-.1335				2,322	.4234	-.1335	-4,760	-.8679	.2737	-3,552	-.6776	-2,012	-.4323	.1329			
		2,022		-.1251				2,022		-.1251	-4,145		.2564	-3,093		-1,814		.1279			
27	906	2,022	.3506	-.1101				2,022	.3506	-.1101	-4,145	-.7187	.2257	-3,093	-.5363	-1,814	-.3670	.1139			
		1,823		-.1090				1,823		-.1090	-3,737		.2234	-2,788		-1,704		.1138			
28	942	1,823	.2850	-.09552				1,823	.2850	-.09552	-3,737	-.5842	.1958	-2,788	-.4359	-1,704	-.2956	.1007			
		1,640		-.09454				1,640		-.09454	-3,362		.1938	-2,509		-1,593		.1001			
29	978	1,640	.2259	-.08240				1,640	.2259	-.08240	-3,362	-.4631	.1689	-2,509	-.3455	-1,593	-.2482	.08627			
		1,323		-.07292				1,323		-.07292	-2,712		.1495	-2,024		-1,331		.08041			
30	1014	1,323	.1783	-.06313				1,323	.1783	-.06313	-2,712	-.3655	.1294	-2,024	-.2727	-1,331	-.2004	.07056			
		1,168		-.06235				1,168		-.06235	-2,394		.1278	-1,787		-1,221		.07001			
31	1050	1,168	.1362	-.05370				1,168	.1362	-.05370	-2,394	-.2792	.1181	-1,787	-.2083	-1,221	-.1564	.06097			
		1,041		-.05307				1,041		-.05307	-2,134		.1088	-1,592		-1,125		.06049			
32	1080	1,041	.1050	-.04665				1,041	.1050	-.04665	-2,134	-.2182	.09563	-1,592	-.1806	-1,125	-.1227	.05355			
		786		-.03781				786		-.03781	-1,611		.07151	-1,202		-848		.04453			

BY: [illegible]
CHECKED: [illegible]

TABLE 64
SHEET 5 OF 8

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS

CONDITION: TWO WHEEL LANDING WITH BRAKES, NOSE DOWN - D.G.W. - FULL FUEL & OIL - LESS BOMBS

STATION	DISTANCE FROM ℄ SYM	1G INERTIA LOADS: WING EMPTY LESS LANDING GEAR: SHEAR	BENDING MOMENT	TORSION	FUEL & OIL ONLY: SHEAR	BENDING MOMENT	TORSION	TOTALS: SHEAR	BENDING MOMENT	TORSION	ULTIMATE INERTIA LOADS: BEAM SHEAR	BEAM BENDING MOMENT	TORSION	CHORD SHEAR	CHORD BENDING MOMENT	ULTIMATE PITCHING ACCELERATION LOADS: WING EMPTY LESS LANDING GEAR: B. SHEAR	B.B. MOM.	TORSION	FUEL & OIL ONLY: B. SHEAR	B.B. MOM.	TORSION
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
		TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COS 16°FT	TABLE 21 COLUMN 10	TABLE 21 COLUMN 12	TABLE 21 COS 16°FT	③+⑥	④+⑦	⑤+⑧	-2.0499 ⑨	-2.0499 ⑩	-2.0499 ⑪	-1.5296 ⑫	-1.5296 ⑬	TABLE 49 COLUMN 13	TABLE 49 COLUMN 15	TABLE 49 COS 16°FT	TABLES 53 COLUMN 13	TABLES 53 COLUMN 15	TABLES 53 COS 16°FT
22	732	10,710	1.172	-1.081	1,184	.001116	+.001170	11,894	1.173	-1.079	-24,382	-2.405	2.212	-18,193	-1.794	-10,411	7.156	1.134	-297	-.000682	.000349
		9,988		-1.071	21		-.001433	10,009		-1.072	-20,517		2.200	-15,310		-10,150		1.131	-16		.001288
23	766	9,988	.8320	-1.001	21	.000412	-.001489	10,009	.8324	-1.002	-20,517	-1.706	2.054	-15,310	-1.273	-10,150	-8.104	1.060	-16	-.000307	.001174
		6,276		-.5950	10		-.000743	6,286		-.5957	-12,886		1.221	-9,615		-6,140		.6216	-8		.000789
24	806	6,276	.5809	-.5434	10	0	-.000658	6,286	.5809	-.5441	-12,886	-1.191	1.115	-9,615	-.8885	-6,140	-5.648	.5711	-8	0	.000592
		2,585		-.1658	0		0	2,585		-.1658	-5,299		.3999	-3,954		-2,122		.1681	0		0
25	840	2,585	.4930	-.1477				2,585	.4930	-.1477	-5,299	-1.011	.3028	-3,954	-.7541	-2,122	-4.336	.1452			
		2,322		-.1478				2,322		-.1478	-4,760		.2030	-3,552		-2,012		.1453			
26	878	2,322	.4234	-.1335				2,322	.4234	-.1335	-4,760	-.8679	.2737	-3,552	-.6976	-2,012	-4.323	.1329			
		2,022		-.1251				2,022		-.1251	-4,145		.2564	-3,093		-1,814		.1279			
27	906	2,022	.3506	-.1101				2,022	.3506	-.1101	-4,145	-.7187	.2257	-3,093	-.5363	-1,814	-3.670	.1139			
		1,823		-.1090				1,823		-.1090	-3,737		.2234	-2,788		-1,704		.1138			
28	942	1,823	.2850	-.09552				1,823	.2850	-.09552	-3,737	-.5842	.1958	-2,788	-.4359	-1,704	-3.056	.1007			
		1,640		-.09454				1,640		-.09454	-3,362		.1938	-2,509		-1,593		.1001			
29	978	1,640	.2259	-.08240				1,640	.2259	-.08240	-3,362	-.4631	.1689	-2,509	-.3455	-1,593	-2.483	.08527			
		1,323		-.07292				1,323		-.07292	-2,712		.1495	-2,024		-1,331		.08041			
30	1014	1,323	.1783	-.06313				1,323	.1783	-.06313	-2,712	-.2655	.1274	-2,024	-.2737	-1,331	-2.004	.07056			
		1,168		[illegible]				1,168		[illegible]	[illegible]		.1078	-1,787		-1,221		.07001			
31	1050	1,168	.1362	-.05370				1,168	.1362	-.05370	-2,394	-.2792	.1181	-1,787	-.2083	-1,221	-1.564	.06097			
		1,041		-.05307				1,041		-.05307	-2,134		.1088	-1,592		-1,125		.06049			
32	1080	1,041	.1050	-.04665				1,041	.1050	-.04665	-2,134	-.2152	.08563	-1,592	-.1606	-1,125	-1.227	.05355			
		786		-.03781				786		-.03781	-1,611		.07751	-1,202		-868		.04423			

BY: [illegible]
CHECKED: [illegible]

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS

CONDITION: TWO WHEEL LANDING WITH BRAKES, NOSE DOWN. - D.G.W. - FULL FUEL & OIL - LESS BOMBS

STATION	DISTANCE FROM ℄ SHIP	ULTIMATE LANDING GEAR FITTING LOADS: BEAM SHEAR	BEAM BENDING MOMENT	TORSION 1.10×10^6	CHORD SHEAR	CHORD BENDING MOMENT	TOTAL ULTIMATE LOADS #1 TO ℄ SHIP: B. SHEAR $S_b = S_b'$	B. MOMENT $M_x \times 10^6$	TORSION $T_{EA} \times 10^6$	C. SHEAR S_c	C. MOMENT $M_y = M_x \tan\theta$	M_y COSC $\times 10^6$	T_{EB} SINC $\times 10^6$	$M_x'' \times 10^6$	S_c' $= S_c \cos\theta$	M_x SINC $\times 10^6$	T_{EA} COSC $\times 10^6$	T_{EA} $\times 10^6$	T_{EB} $\times 10^6$	M_x	T_{EB} $\times 10^6$	M_x	S_b''
1	2	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42		
		TABLE 59	TABLE 59	TABLE 59	TABLE 59	TABLE 59	(23) + (17)	(24) + (18)	(25) + (19)	(26) + (20)	(26) + (21)	(32)×(23)	(32)×(26)	(29) + (34)	(28) + (36)	(29)×(26)	(32)×(26)	(30) + (38)	(31) + (39)	TABLE 80	(40) × (41)	(28) − (41)	
		COLUMN 5	COLUMN 8	COLUMN 12	COLUMN 14	COLUMN 17	(10) + (22)	(11) + (23)	(12) + (24)													(28) × (42)	
22	732						-25,090	-2.562	3.246	-18,193	-1.794	-2.508	.5809	-2.683	-17,916	-.6184	3.235	2.677	726.1	-2,969	-32,121		
							-30,683		3.332	-15,310			.5784	-2.086	-15,077		3.281	2.663		-2,967	-27,716		
23	766						-20,683	-2.517	3.115	-15,310	-1.973	-2.479	.5408	-3.020	-15,077	-.4370	3.068	2.631	762.7	-2,273	-28,410		
							-19,034		1.842	-9,615			.3199	-2.723	-9,469		1.815	1.978		-2,127	-16,907		
24	806						-19,034	-1.756	1.687	-9,615	-.8885	-1.729	.2929	-2.022	-9,469	-.3048	1.661	1.956	786.3	-1,590	-17,444		
							-7,421		.5000	-3,954			.08690	-1.816	-3,824		.4924	.1876		-1,428	-5,993		
25	840						-7,421	-1.504	.4480	-3,954	-.7541	-1.481	.07777	-1.559	-3,824	-.2611	.4412	.1801	817.6	-1,275	-6,146		
							-6,772		.4483	-3,552			.07782	-1.559	-3,498		.4415	.1804		-1,275	-5,497		
26	870						-6,772	-1.200	.4066	-3,552	-.6476	-1.280	.07059	-1.251	-3,498	-.2257	.4004	.1747	847.3	-1,145	-5,627		
							-5,959		.2837	-3,093			.06661	-1.247	-3,046		.3779	.1522		-1,141	-4,818		
27	906						-5,959	-1.096	.2396	-3,093	-.5363	-1.069	.05895	-1.128	-3,046	-.1885	.3344	.1459	886.0	-999	-4,960		
							-5,441		.2367	-2,788			.05845	-1.127	-2,746		.3216	.1431		-999	-4,442		
28	942						-5,441	-.8898	.2365	-2,788	-.4359	-.8763	.05147	-.9278	-2,746	-.1545	.2920	.1375	918.2	-861	-4,580		
							-4,955		.2333	-2,509			.05102	-.9273	-2,471		.2894	.1349		-861	-4,094		
29	978						-4,955	-.7114	.2572	-2,509	-.3465	-.7006	.04465	-.7432	-2,471	-.1235	.2533	.1298	979.8	-742	-4,228		
							-4,043		.2299	-2,024			.03931	-.7405	-1,993		.2264	.1029		-742	-3,321		
30	1014						-4,043	-.5659	.2000	-2,024	-.2727	-.5573	.03472	-.5920	-1,993	-.09824	.1970	.09876	1026	-607	-3,436		
							-3,615		.1978	-1,787			.03434	-.5916	-1,760		.1948	.09656		-607	-3,008		
31	1050						-3,615	-.4956	.1711	-1,787	-.2083	-.4230	.02970	-.4567	-1,760	-.07562	.1685	.09288	1064	-497	-3,118		
							-3,259		.1693	-1,592			.02933	-.4584	-1,568		.1667	.09108		-496	-2,763		
32	1080						-3,259	-.3379	.1492	-1,592	-.1606	-.3228	.02590	-.3587	-1,568	-.05866	.1463	.08824	1126	-407	-2,852		
							-2,479		.1221	-1,202			.02120	-.3540	-1,194		.1202	.06154		-402	-2,077		

* NOTE: WHEN S_b & M_x HAVE OPPOSITE SIGNS, THE FACTOR .7 IS OMITTED.

By: J. Ollo
Checked: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION — FORT WORTH, TEXAS
FW-33 125 PAUS 11-43

TABLE 64
SHEET 7 OF 8

B-36 WING – NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS

CONDITION: TWO WHEEL LANDING WITH BRAKES NOSE DOWN. – D.G.W. – FULL FUEL & OIL – LESS BOMBS

STATION	DISTANCE FROM ℄ SHIP	1 G INERTIA LOADS: WING EMPTY LESS LANDING GEAR SHEAR	MOMENT $\times 10^6$	TORSION $\times 10^6$	FUEL & OIL ONLY SHEAR	MOMENT $\times 10^6$	TORSION $\times 10^6$	TOTALS SHEAR	MOMENT $\times 10^6$	TORSION $\times 10^6$	ULTIMATE INERTIA LOADS: BEAM SHEAR	BEAM BENDING MOMENT $\times 10^6$	TORSION $\times 10^6$	CHORD SHEAR	CHORD BENDING MOMENT $\times 10^6$	ULTIMATE PITCHING ACCELERATION LOADS: WING EMPTY LESS LANDING GEAR B. SHEAR	B.B. MOM. $\times 10^6$	TORSION $\times 10^6$	FUEL & OIL ONLY B. SHEAR	B.B. MOM. $\times 10^6$	TORSION $\times 10^6$
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
		TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16+17	TABLE 21 COLUMN 10	TABLE 21 COLUMN 12	TABLE 21 COLS. 16+17	③+⑥	④+⑦	⑤+⑧	-2.0499 ⑨	-2.0499 ×⑩	-2.0499 ×⑪	-1.5296 ⑨	-1.5296 ×⑩	TABLE 49 COLUMN 13	TABLE 49 COLUMN 15	TABLE 49 COLS. 21+22	TABLE 53 COLUMN 13	TABLE 53 COLUMN 15	TABLE 53 COLS. 21+22
33	1110	786	.08144	-.03296				786	.08144	-.03296	-1,611	-.1669	.06756	-1,202	-.1246	-868	-.09692	.03927			
		702		-.03254				702		-.03254	-1,439		.06670	-1,074		-796		.03882			
34	1140	702	.06039	-.02822				702	.06039	-.02822	-1,439	-.1238	.05785	-1,074	-.09237	-796	-.07274	.03401			
		627		-.02776				627		-.02776	-1,285		.05691	-959		-729		.03360			
35	1170	627	.04159	-.02389				627	.04159	-.02389	-1,285	-.08526	.04897	-959	-.06362	-729	-.05085	.02910			
		414		-.01706				414		-.01706	-849		.03497	-633		-491		.02143			
36	1188	414	.03000	-.01467				414	.03000	-.01467	-849	-.06150	.03007	-633	-.04589	-491	-.03712	.01861			
		359		-.01438				359		-.01438	-736		.02948	-549		-437		.01832			
37	1225	359	.02031	-.01239				359	.02031	-.01239	-736	-.04163	.02540	-549	-.03107	-437	-.02532	.01589			
		314		-.01211				314		-.01211	-644		.02482	-480		-391		.01561			
38	1252	314	.01185	-.01037				314	.01185	-.01037	-644	-.02429	.02126	-480	-.01813	-391	-.01477	.01344			
		268		-.01012				268		-.01012	-549		.02074	-410		-343		.01317			
39	1278	268	.004870	-.008681				268	.004870	-.008681	-549	-.009963	.01780	-410	-.007449	-343	-.005857	.01134			
		98		-.001835				98		-.001835	-201		.003742	-150		-116		.002202			
40	1301	98	.002609	-.001370				98	.002609	-.001370	-201	-.005348	.002808	-150	-.003991	-116	-.003179	.001653			
		65		-.001193				65		-.001193	-133		.002458	-99		-79		.001461			
41	1324	65	.001109	-.000891				65	.001109	-.000891	-133	-.002273	.001826	-99	-.001696	-79	-.001360	.001087			
		50		-.000771				50		-.000771	-102		.001580	-76		-61		.000946			
TIP C.G	13464	50	0	-.000593				50	0	-.000593	-102	0	.001113	-76	0	-61	0	.000666			
TIP	1380.841	0		0				0	0	0	0	0	0	0		0		0			

BY: J. Ellis
CHECKED: Shelton, Pepper

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

CONDITION: TWO WHEEL LANDING WITH BRAKES, NOSE DOWN. - D.G.W. - FULL FUEL & OIL - LESS BOMBS

STATION	DISTANCE FROM ℄ SHIP	ULTIMATE LANDING GEAR FITTING LOADS: BEAM SHEAR	BEAM BENDING MOMENT $\times 10^{-6}$	TORSION $\times 10^{-6}$	CHORD SHEAR	CHORD BENDING MOMENT $\times 10^{-6}$	TOTAL ULTIMATE LOADS IN ℄ TO ℄ SHIP: B. SHEAR $S_b = S_L$	B.B. MOMENT $M_x \times 10^{-6}$	TORSION $T_{EN} \times 10^{-6}$	C. SHEAR S_c	C.B. MOMENT $M_y = M_x \times 10^{-6}$	$M_x \cos\alpha \times 10^{-6}$	$T_{EN} \sin\alpha \times 10^{-6}$	$M_x' \times 10^{-6}$	$S_c' = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EN} \cos\alpha \times 10^{-6}$	$T_{EN} \times 10^{-6}$	$\frac{T_{EN} \times 10^{-6}}{I_{xx}}$	$\frac{T_{EN} \times 10^{-6}}{I_{xx}} M_x$	S_b''
1	2	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
		TABLE 59 COLUMN 5	TABLE 59 COLUMN 8	TABLE 59 COLUMN 12	TABLE 59 COLUMN 14	TABLE 59 COLUMN 17	(23)+(17)	(24)+(18)	(25)+(19)	(26)+(20)	(27)+(21)	(29)×(33)	(30)×(34)	(29)-(35)	(31)×(36)	(29)×(37)	(30)×(38)	(30)+(39)	TABLE 30	(40)×(10)	(28)-(41) or (31)×(42)
33	1110						-2,479	-.2635	.1068	-1,202	-.1946	-.2595	.01854	-.2778	-1,184	-.05974	.1032	.05946	1184	-332	-2,147
							-2,235		.1056	-1,074			.01833		-1,058		.1040	.05826		-332	-1,903
34	1140						-2,235	-.1965	.09186	-1,074	-.08237	-.1955	.01595	-.2095	-1,058	-.04411	.09046	.05635	1183	-264	-1,971
							-2,014		.09051	-953			.01371		-944		.08913	.05502		-263	-1,751
35	1170						-2,014	-.1361	.07807	-953	-.06362	-.1940	.01355	-.1476	-944	-.02363	.07688	.05325	1330	-196	-1,818
							-1,340		.05440	-633			.009791		-.1438	-623		.05354		.03191	-191	-1,149
36	1199						-1,340	-.09862	.04868	-633	-.04589	-.09712	.008451	-.10557	-623	-.01712	.04794	.03082	1408	-148	-1,192
							-1,173		.04780	-549			.008398	-.10542	-541		.04707	.02995		-148	-1,025
37	1225						-1,173	-.06685	.04183	-549	-.03107	-.06599	.007168	-.07310	-541	-.01162	.04066	.02904	1486	-103	-1,064
							-1,035		.04043	-480			.007019	-.07295	-473		.03982	.02820		-108	-927
38	1252						-1,035	-.03906	.03470	-480	-.01813	-.03847	.006024	-.04449	-473	-.006781	.03417	.02739	1576	-70	-965
							-892		.03391	-410			.005887	-.04436	-404		.03339	.02661		-70	-822
39	1278						-892	-.01583	.02914	-410	-.007449	-.01559	.005059	-.02065	-404	-.002748	.02870	.02595	1674	-35	-857
							-317		.005964	-150			.001035	-.01663	-148		.005872	.003125		-38	-289
40	1301						-317	-.008527	.004461	-150	-.003391	-.008397	.000774	-.009171	-148	-.001480	.004399	.002919	1772	-16	-301
							-212		.003919	-93			.000680	-.009077	-97		.003859	.002379		-16	-196
41	1324						-212	-.003693	.002813	-89	-.001696	-.003578	.000506	-.004084	-97	-.000651	.002863	.002238	1881	-8	-204
							-163		.002526	-76			.000439	-.004017	-75		.002488	.001857		-8	-155
TIP ℄ ⓢ	1346.4						-163	0	.001779	-76	0	0	.000309	-.000309	-75	0	.001752	.001752	—	—	—
TIP	1380.841						0		0	0	0								—		—

* NOTE: WHEN S_L & M_x HAVE OPPOSITE SIGNS THE SECTION IS OMITTED.

BY: [illegible]
CHECKED: [illegible], [illegible]

B-36 WING – NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. AGW: 62-1000#, FULL FUEL & OIL

STATION	DISTANCE FROM ℄ SHIP	1G INERTIA LOADS: WING EMPTY LESS LANDING GEAR SHEAR	WING EMPTY LESS LANDING GEAR MOMENT $\times 10^{-6}$	WING EMPTY LESS LANDING GEAR TORSION $\times 10^{-6}$	FUEL & OIL ONLY SHEAR	FUEL & OIL ONLY MOMENT $\times 10^{-6}$	FUEL & OIL ONLY TORSION $\times 10^{-6}$	TOTALS SHEAR	TOTALS MOMENT $\times 10^{-6}$	TOTALS TORSION $\times 10^{-6}$
1	2	3	4	5	6	7	8	9	10	11
		TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16 & 17	TABLE 23 COLUMN 10	TABLE 23 COLUMN 12	TABLE 23 COLS. 16 & 17	③+⑥	④+⑦	⑤+⑧
0	0	40340	19.995	-7.563	26250	14.150	-2.835	66590	34.145	-10.398
		39850		-7.566	26250		-2.835	66100		-10.400
1	41.025	39850	18.360	-7.229	26250	13.070	-2.613	66100	31.430	-9.842
		38850		-7.231	26250		-2.613	65080		-9.844
2	80.0	38850	16.847	-6.920	26250	12.050	-2.403	65080	28.897	-9.323
		37990		-6.892	26250		-2.403	64240		-9.295
3	113.25	37990	15.584	-6.632	26250	11.180	-2.223	64240	26.764	-8.855
		37400		-6.627	26250		-2.223	63650		-8.850
4	146.5	37400	14.340	-6.371	26250	10.310	-2.044	63650	24.650	-8.415
		36510		-6.379	26250		-2.044	62760		-8.423
5	180.0	36510	13.117	-6.127	26250	9.425	-1.863	62760	22.542	-7.990
		35640		-6.117	26250		-1.863	61890		-7.980
6	206.0	35640	12.190	-5.926	26250	8.743	-1.723	61890	20.933	-7.649
		35100		-5.918	26250		-1.723	61350		-7.641
7	232.0	35100	11.278	-5.730	26250	8.060	-1.582	61350	19.338	-7.312
		34270		-5.718	26250		-1.582	60520		-7.300
8	249.0	34270	10.695	-5.593	26250	7.614	-1.491	60520	18.309	-7.089
		33490		-5.565	25970		-1.503	59460		-7.068
9	284.5	33490	9.507	-5.321	25970	6.692	-1.314	59460	16.199	-6.635
		28390		-4.591	25690		-1.324	54080		-5.915
10	312.0	28390	8.726	-4.431	25690	5.985	-1.178	54080	14.711	-5.609
		28030		-4.432	25690		-1.178	53720		-5.610

STATION	ULTIMATE INERTIA LOADS: BEAM SHEAR	BEAM BENDING MOMENT $\times 10^{-6}$	TORSION $\times 10^{-6}$	CHORD SHEAR	CHORD BENDING MOMENT $\times 10^{-6}$	ULTIMATE PITCHING ACCELERATION LOADS: WING EMPTY LESS LANDING GEAR B. SHEAR	WING EMPTY LESS LANDING GEAR B. & CHORD MOM. $\times 10^{-6}$	WING EMPTY LESS LANDING GEAR TORSION $\times 10^{-6}$	FUEL & OIL ONLY B. SHEAR	FUEL & OIL ONLY B. & CHORD MOM. $\times 10^{-6}$	FUEL & OIL ONLY TORSION $\times 10^{-6}$
1	12	13	14	15	16	17	18	19	20	21	22
		-4.0385 ⑨	-4.0385 ⑩	-1.1792 ⑪	-1.1792 ⑫	TABLE 50 COLUMN 13	TABLE 50 COLUMN 15	TABLE 50 COLS. 21 & 22	TABLE 54 COLUMN 13	TABLE 54 COLUMN 15	TABLE 54 COLS. 21 & 22
0	-266924	-137.895	41.992	-78523	-40.264	-18.543	-12.402	4.912	-992	-1.026	.2285
	-266945		42.000	-77845		-18818		4.911			.2285
1	-266946	-126.930	39.747	-77845	-37.062	-18818	-11.630	4.752	-992	-.9856	.2142
	-262826		39.755	-76742		-19332		4.751			.2142
2	-262826	-116.701	37.651	-76742	-34.075	-19332	-10.877	4.546	-992	-.9470	.2062
	-259433		37.598	-75752		-19554		4.603			.2062
3	-259433	-108.086	35.761	-75752	-31.560	-19554	-10.227	4.470	-992	-.9140	.1994
	-257051		35.741	-75056		-19770		4.492			.1994
4	-257051	-99.549	33.984	-75056	-29.067	-19770	-9.564	4.334	-992	-.8810	.1926
	-253456		34.016	-74007		-20142		4.333			.1926
5	-253456	-91.036	32.268	-74007	-26.582	-20142	-8.895	4.195	-992	-.8478	.1858
	-249963		32.227	-72981		-20383		4.197			.1858
6	-249963	-84.530	30.890	-72981	-24.688	-20383	-8.365	4.088	-992	-.8220	.1805
	-247762		30.858	-72344		-20507		4.090			.1805
7	-247762	-78.097	29.530	-72344	-22.803	-20507	-7.832	3.981	-992	-.7962	.1752
	-244410		29.481	-71365		-20674		3.983			.1752
8	-244410	-73.941	28.629	-71365	-21.590	-20674	-7.480	3.911	-992	-.7793	.1717
	-240129		28.544	-70115		-20706		3.912	-1132		.1655
9	-240129	-65.420	26.795	-70115	-19.102	-20706	-6.745	3.761	-1132	-.7391	.1572
	-218402		23.886	-63771		-17980		3.371	-1249		.1530
10	-218402	-59.410	22.658	-63771	-17.347	-17980	-6.251	3.269	-1248	-.7048	.1459
	-216948		22.656	-63847		-18054		3.269	-1248	-.7048	.1459

BY: [illegible]
CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION — FORT WORTH, TEXAS

TABLE 65
SHEET 1 OF 3

B-36 WING – NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. AGW=62-1000#; FULL FUEL & OIL

STATION	DISTANCE FROM ℄ SHIP	I G INERTIA LOADS — WING EMPTY LESS LANDING GEAR — SHEAR	MOMENT x 10⁻⁶	TORSION x 10⁻⁶	FUEL & OIL ONLY — SHEAR	MOMENT x 10⁻⁶	TORSION x 10⁻⁶	TOTALS — SHEAR	MOMENT x 10⁻⁶	TORSION x 10⁻⁶	ULTIMATE INERTIA LOADS — BEAM SHEAR	BEAM BENDING MOMENT x 10⁻⁶	TORSION x 10⁻⁶	CHORD SHEAR	CHORD BENDING MOMENT x 10⁻⁶
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16 & 17	TABLE 23 COLUMN 10	TABLE 23 COLUMN 12	TABLE 23 COLS. 16 & 17	③+⑥	④+⑦	⑤+⑧	-4.0385 ⑨	-4.0385 ⑩	-4.0385 ⑪	-1.1792 ⑫	-1.1792 ⑬
0	0	4.0340	19.995	-7.563	26850	14.150	-2.835	66590	34.145	-10.398	-266944	-137.895	41.992	-78523	-40.264
		39850		-7.565	26250		-2.835	66100		-10.400	-266945		42.000	-72945	
1	41.025	39850	18.360	-7.229	26250	13.070	-2.613	66100	31.430	-9.842	-266944	-126.993	39.747	-77945	-37.062
		38850		-7.231	26250		-2.613	65080		-9.844	-262826		39.755	-76742	
2	80.0	38830	16.847	-6.920	26250	12.050	-2.403	65080	28.897	-9.323	-262826	-116.701	37.651	-76742	-34.075
		37990		-6.892	26250		-2.403	64240		-9.295	-259433		37.538	-75752	
3	113.25	37990	16.584	-6.632	26250	11.180	-2.223	64240	26.764	-8.855	-259433	-108.086	35.761	-75752	-31.560
		37400		-6.627	26250		-2.223	63650		-8.850	-257051		35.741	-75056	
4	146.5	37400	14.340	-6.371	26250	10.310	-2.044	63650	24.650	-8.415	-257051	-99.549	33.984	-75056	-29.067
		36510		-6.379	26250		-2.044	62760		-8.423	-253456		34.016	-74007	
5	180.0	36510	13.117	-6.127	26250	9.425	-1.863	62760	22.542	-7.990	-253456	-91.036	32.268	-74007	-26.582
		35640		-6.117	26250		-1.863	61890		-7.980	-249983		32.227	-72981	
6	206.0	35640	12.190	-5.926	26250	8.743	-1.723	61890	20.933	-7.649	-249983	-84.538	30.890	-72981	-24.684
		35100		-5.918	26250		-1.723	61350		-7.641	-247762		30.858	-72344	
7	232.0	35100	11.278	-5.730	26250	8.060	-1.582	61350	19.338	-7.312	-247762	-78.099	29.530	-72344	-22.803
		34270		-5.718	26250		-1.582	60520		-7.300	-244410		29.481	-71365	
8	249.0	34270	10.415	-5.593	26250	7.614	-1.491	60520	18.029	-7.089	-244410	-73.941	28.649	-71365	-21.590
		33490		-5.565	25970		-1.603	59460		-7.068	-240129		28.544	-70115	
9	284.5	33490	9.507	-5.321	25970	6.698	-1.314	59460	16.199	-6.635	-240129	-65.420	26.795	-70115	-19.102
		28330		-4.571	25690		-1.324	54080		-5.915	-218402		25.888	-63771	
10	312.0	28330	8.226	-4.431	25690	5.985	-1.178	54080	14.211	-5.609	-218402	-59.410	22.652	-63771	-17.347
		28030		-4.432	25690		-1.178	53720		-5.610	-216948		22.656	-63847	

STATION	ULTIMATE PITCHING ACCELERATION LOADS — WING EMPTY LESS LANDING GEAR — B. SHEAR	B.B. MOM. x 10⁻⁶	TORSION x 10⁻⁶	FUEL & OIL ONLY — B. SHEAR	B.B. MOM. x 10⁻⁶	TORSION x 10⁻⁶
1	17	18	19	20	21	22
	TABLE 50 COLUMN 13	TABLE 50 COLUMN 15	TABLE 50 COLS. 21 & 22	TABLE 54 COLUMN 13	TABLE 54 COLUMN 15	TABLE 54 COLS. 21 & 22
0	-18.543	-12.402	4.912	-992	-1.026	.2285
	-18818		4.911			.2285
1	-18818	-11.630	4.752	-992	-.9856	.2142
	-19332		4.751			.2142
2	-19332	-10.877	4.596	-992	-.9470	.2062
	-19554		4.603			.2062
3	-19554	-10.227	4.470	-992	-.9140	.1994
	-19770		4.492			.1994
4	-19770	-9.569	4.334	-992	-.8810	.1926
	-20142		4.339			.1926
5	-20142	-8.895	4.195	-992	-.8478	.1858
	-20383		4.197			.1858
6	-20383	-8.365	4.088	-992	-.8220	.1805
	-20507		4.090			.1805
7	-20507	-7.832	3.981	-992	-.7962	.1752
	-20674		3.983			.1752
8	-20674	-7.480	3.911	-992	-.7793	.1717
	-20706		3.912	-1132		.1658
9	-20706	-6.745	3.761	-1132	-.7391	.1572
	-17980		3.371	-1248		.1530
10	-17980	-6.251	3.267	-1248	-.7048	.1459
	-18054		3.267	-1248	-.7048	.1459

BY: Wuschke
CHECKED: J. Ellis, Proofer

TABLE 65
SHEET 2 OF 8

B-36 WING – NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. A.G.W. 62-1000 #B. FULL FUEL & OIL.

STATION	DISTANCE FROM ℄ SHIP	Ultimate Landing Gear Fitting Loads: Beam Shear	Beam Bending Moment	Torsion ×10⁶	Chord Shear	Chord Bending Moment ×10⁶	Total Ultimate Loads: B. Shear $S_B = S_B$	B. Moment $M_B \times 10^6$	Torsion $T_B \times 10^6$	C. Shear S_C	C. Moment $M_C \times 10^6$	$M_{B\,SINGL}$ ×10⁶	$T_{B\,SINGL}$ ×10⁶	$M_{C\,SINGL}$ ×10⁶	$S_{B\,SINGL}$	$M_{B\,SINGL}$ ×10⁶	$T_{B\,SINGL}$ ×10⁶	$M_{C\,SINGL}$ ×10⁶	$S_{C\,SINGL}$	$M_{B\,SINGL}$ ×10⁶	$T_{B\,SINGL}$ ×10⁶	$M_{C\,SINGL}$ ×10⁶	$S_{C\,SINGL}$
1	2	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42		
		TABLE 60	TABLE 60	TABLE 60	TABLE 60	TABLE 60	(22) + (17)	(24) + (19)	(30) + (27)	(26) + (21)	(32) + (29)	(23) + (18)	(25) + (20)	(31) + (28)	(33) + (23)	(34) + (24)	(35) + (25)	(36) + (26)	(37) + (27)	(38) + (23)	(39) + (24)	(40) + (25)	(41) + (26)	(42) + (27)
		COLUMN 5	COLUMN 8	COLUMN 12	COLUMN 14	COLUMN 17	(22) + (23)	(24) + (25)	(30) + (31)	(26) + (27)													
0	0	487876	134705	-103929	142709	37338	199417	-16.618	-56.802	64186	-2.926	-16.365	-9.861	-6.504	63210	-2.885	-55.939	-58.824	*589.6	-3835	203252		
			134705	-103929	142709	37338	201121		-56.795	64764			-9.860	-6.505	63780		-55.932	-58.817		-3835	204456		
1	41.025	487876	114690	-99814	142709	31483	201121	-24.856	-55.181	64764	-5.579	-24.478	-9.566	-14.912	63780	-4.315	-54.263	-58.578	*604.3	-9011	210132		
			114690	-99814	142709	31483	204726		-55.094	65967			-9.564	-14.914	64964		-54.257	-58.572		-9013	213739		
2	80.0	487876	95675	-95905	142709	25921	204726	-32.850	-53.462	65967	-8.154	-32.381	-9.279	-23.072	64964	-5.703	-52.640	-58.343	*618.7	-14275	219001		
			95675	-95905	142709	25921	207897		-53.558	66957			-9.278	-23.058	65939		-52.744	-58.447		-14263	222160		
3	113.25	487876	79453	-92570	142709	21176	207897	-39.774	-52.140	66957	-10.384	-39.169	-9.052	-30.117	65939	-6.905	-51.347	-58.252	*631.7	-19025	226922		
			79453	-92570	142709	21176	210063		-52.158	67653			-9.055	-30.114	66625		-51.365	-58.270		-19023	229086		
4	142.5	487876	63231	-89235	142709	16431	210063	-46.768	-50.722	67653	-12.636	-46.057	-8.605	-37.252	66625	-8.119	-49.951	-58.070	*645.3	-24039	234102		
			63231	-89235	142709	16431	213286		-50.693	68702			-8.800	-37.257	67658		-49.922	-58.041		-24042	237328		
5	180.0	487876	46887	-85875	142709	11650	213286	-53.892	-49.276	68702	-14.932	-53.073	-8.546	-44.527	67658	-9.356	-48.478	-57.834	*659.6	-29370	242604		
		490953	46747	-85872	134855	11650	219635	-58.032	-49.262	61872	-14.928	-53.211	-8.552	-44.659	60932	-9.380	-48.513	-57.869		-29457	244012		
6	206.0	490953	33562	-83247	134855	8548	219635	-59.743	-48.088	61872	-16.136	-58.836	-8.348	-50.487	60932	-10.371	-47.357	-57.723	*671.0	-39877	253912		
		493098	33880	-83226	129375	8810	223837	-59.846	-48.097	57031	-15.874	-58.936	-8.350	-50.585	56164	-10.389	-47.366	-57.765		-39943	257780		
7	232.0	493098	21054	-80590	129375	5446	223837	-65.666	-46.904	57031	-12.357	-64.668	-8.143	-56.525	56164	-11.400	-46.191	-57.591	*683.0	-58607	262444		
		494997	18694	-71272	106151	1887	173921	-68.031	-37.633	34786	-20.916	-66.997	-6.583	-60.444	34257	-11.810	-37.061	-48.871		-41297	215218		
8	247.0	494997	11214	-69734	106151	08200	173921	-70.986	-37.022	34786	-21.508	-69.107	-6.427	-63.480	34257	-12.323	-36.459	-48.782	*691.3	-65884	217805		
		494997	11214	-69784	106151	08200	178030		-37.112	36036			-6.443	-63.464	35488		-36.548	-48.871		-63873	221103		
9	284.5	494997	-4406	-66522	106151	-3686	178030	-77.310	-35.809	36036	-22.788	-76.135	-6.216	-69.919	35488	-13.421	-35.265	-48.686	*708.4	-49581	227561		
		0	0	0	0	0	-237630	-72.904	+27.412	-63771	-19.102	-71.796	+4.759	-76.555	-62802	-12.656	+26.945	+14.339	49.5.9	-37964	-199666		
10	312.0						-237630	-66.366	+26.067	-63771	-17.347	-65.357	+4.525	-69.882	-62802	-11.521	+25.671	+14.150	505.8	-35846	-202284		
							-236250		+26.071	-63347					-62384		+25.675	+14.154		-35846	-200904		

* NOTE: WHEN S_B & M_B HAVE OPPOSITE SIGNS THE FACTOR .7 IS OMITTED.

BY: [illegible]
CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION — FORT WORTH, TEXAS
FW 001 125 PAGE 11-43

TABLE 65
SHEET 3 OF 8

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. ABW, 62-1000 #B, FULL FUEL & OIL.

STATION	DISTANCE FROM ℄ SHIP	1G THEORETICAL LOADS: WING EMPTY LESS LANDING GEAR			FUEL & OIL ONLY			TOTALS			ULTIMATE THEORETICAL LOADS:					WING EMPTY LESS LANDING GEAR			FUEL & OIL ONLY		
		SHEAR	MOMENT X10⁶	TORSION X10⁶	SHEAR	MOMENT X10⁶	TORSION X10⁶	SHEAR	MOMENT X10⁶	TORSION X10⁶	BEAM SHEAR	BEAM BENDING MOMENT X10⁶	TORSION X10⁶	CHORD SHEAR	CHORD BENDING MOMENT X10⁶	B. SHEAR	B.B. MOM. X10⁶	TORSION X10⁶	B. SHEAR	B.B. MOM. X10⁶	TORSION X10⁶
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
		TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 16 & 17	TABLE 23 COLUMN 10	TABLE 23 COLUMN 12	TABLE 23 COLS. 16 & 17	③+⑥	④+⑦	⑤+⑧	-1.0385 ③	-4.03556 ④	-1.0385 ⑤	-1.17924 ⑥	-1.17924 ⑦	TABLE 50 COLUMN 13	TABLE 50 COLUMN 15	TABLE 50 COLS. 21 & 22	TABLE 54 COLUMN 13	TABLE 54 COLUMN 15	TABLE 54 COLS. 21 & 22
11	339.5	28030	7.955	-4.273	25690	5.279	-1.033	53720	13.230	-5.306	-216948	-53.429	21.628	-63347	-15.601	-18054	-5.754	3.167	-1248	-.6705	.1389
		23770		-8.616	24340		-1.035	48110		-4.651	-194292		18.783	-56731		-15269		2.737	-1482		.1385
12	375.75	23770	7.094	-3.489	24340	4.346	-.8539	48110	11.440	-4.293	-194292	-46.402	17.337	-56731	-13.549	-15269	-5.201	2.624	-1482	-.6168	.1275
		22990		-3.419	21790		-.8618	44780		-4.281	-180844		17.284	-52806		-15263		2.624	-1842		.1264
13	412.0	22990	6.260	-3.248	21790	3.607	-.6998	44780	9.867	-3.947	-180844	-38.849	15.940	-52806	-11.635	-15263	-4.647	2.510	-1842	-.5600	.1126
		22350		-3.242	19370		-.7061	41720		-3.948	-168456		15.744	-49196		-15288		2.510	-2086		.1120
14	448.5	22350	5.444	-3.075	19370	2.900	-.5608	41720	8.344	-3.636	-168456	-33.699	14.684	-49196	-9.839	-15288	-4.089	2.395	-2086	-.4739	.09631
		21730		-3.069	17060		-.5671	38790		-3.636	-156653		14.684	-45741		-15288		2.395	-2226		.09593
15	485.0	21730	4.651	-2.906	17060	2.277	-.4391	38790	6.928	-3.345	-156653	-27.979	13.509	-45741	-8.169	-15288	-3.591	2.280	-2226	-.3926	.07918
		20870		-2.686	15040		-.4382	35930		-3.324	-145703		13.424	-42361		-15184		2.278	-2234		.07918
16	521.5	20890	3.889	-2.729	15040	1.728	-.3250	35930	5.617	-3.054	-146102	-22.684	12.384	-42369	-6.624	-15184	-2.977	2.164	-2234	-.3111	.06243
		16260		-2.174	14150		-.3304	30410		-2.504	-124830		10.112	-36449		-12099		1.749	-2231		.06244
17	549	16760	3.428	-2.079	14150	1.339	-.2504	30910	4.767	-2.329	-124830	-19.252	9.406	-36449	-5.621	-12099	-2.644	1.680	-2231	-.2497	.04984
		16480		-2.080	14150		-.2504	30630		-2.330	-123649		9.410	-36119		-12088		1.680	-2231		.04984
18	576.5	16480	2.975	-1.962	14150	.9499	-.1700	30630	3.925	-2.157	-123649	-15.861	8.711	-36119	-4.628	-12088	-2.312	1.612	-2231	-.1884	.03723
		16490		-1.473	11900		-.1780	28390		-1.651	-98499		6.663	-28761		-8988		1.213	-2061		.03781
19	615.315	16490	2.489	-1.373	11900	.4872	-.08290	28390	2.976	-1.456	-98499	-12.019	5.880	-28761	-3.509	-8988	-1.963	1.141	-2061	-.1082	.02134
		11850		-1.389	7715		-.09671	19570		-1.456	-79033		5.880	-23077		-8822		1.187	-1665		.02218
20	654.25	11850	2.028	-1.264	7715	.1873	-.03506	19570	2.215	-1.299	-79033	-8.945	5.246	-23077	-2.612	-8822	-1.620	1.067	-1565	-.04741	.01047
		11330		-1.261	3816		-.04761	15150		-1.309	-61183		5.286	-17865		-8713		1.066	-934		.01251
21	693.125	11930	1.588	-1.170	3816	.03896	-.01711	15150	1.627	-1.187	-61183	-6.571	4.794	-17865	-1.99	-8713	-1.251	.9962	-934	-.01110	.00504
		10710		-1.166	974		-.009605	11680		-1.176	-47170		4.749	-13773		-6554		.9951	-266		.003275

BY: [illegible]
CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

TABLE 65
SHEET 4 OF 8

B-36 WING – NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. AGW, 62-1000 #B FULL FUEL & OIL

STATION	DISTANCE FROM ℄ SHIP	ULTIMATE LANDING GEAR FITTING LOADS: BEAM SHEAR	BEAM BENDING MOMENT	TORSION	CHORD SHEAR	CHORD BENDING MOMENT	TOTAL ULTIMATE LOADS: B. SHEAR	B. BENDING MOMENT	TORSION	C. SHEAR	C. BENDING MOMENT	[illegible] x 10^-6	[illegible] x 10^-6	[illegible]	[illegible]	M_x SINK x 10^-6	TEN COSC x 10^-6	TEN x 10^-6	[illegible]	[illegible]	S_b''
1	2	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
		TABLE 60 COLUMN 5	TABLE 60 COLUMN 8	TABLE 60 COLUMN 12	TABLE 60 COLUMN 14	TABLE 60 COLUMN 17	(2)+(7)	(3)+(8)	(4)+(9)	(5)+(10)	(6)+(11)	(28)×(33)	(28)×(34)	(29)-(35)	(29)+(35)	(28)×(36)	(28)×(37)	(30)×(38)	(30)×(39)	TABLE 30	(31)×(40)	(32)-(41) OR (31)×(40)
11	339.5						-236250	-59.854	24.734	-63347	-15.601	-58.944	4.294	-63.238	-62.384	-10.391	24.358	13.967	516.0	-32691	-203619
							-211043		21.659	-56731			3.760	-62.704	-55869		21.330	10.939		-32355	-178.886
12	379.75						-211043	-52.220	20.089	-56731	-13.549	-51.426	3.481	-54.813	-55869	-9.065	19.784	10.719	530.2	-29026	-182017
							-197949		20.039	-52805			3.419	-54.905	-52002		19.734	10.669		-29022	-168927
13	412.0						-197949	-45.046	18.563	-52805	-11.635	-44.361	3.223	-47.533	-52002	-7.820	18.281	10.461	545.1	-25937	-172012
							-185860		18.561	-49196			3.223	-47.583	-49448		18.284	10.464		-25937	-159923
14	448.5						-185860	-38.260	17.175	-49196	-9.831	-37.678	2.982	-40.660	-49448	-6.642	16.914	10.272	561.1	-22.814	-163046
							-174167		12.175	-45741			2.982	-40.660	-45046		16.914	10.272		-22.814	-151353
15	485.0						-174167	-31.903	15.868	-45741	-8.167	-31.418	2.765	-34.173	-45046	-5.538	15.627	10.089	578.0	-19.752	-154415
							-162521		15.781	-42369			2.740	-34.158	-41725		15.541	10.003		-19.743	-142778
16	521.5						-162521	-25.472	14.560	-42369	-6.624	-25.577	2.528	-28.105	-41725	-4.509	14.339	9.830	596.0	-16.781	-145770
							-139160		11.923	-34449			2.070	-27.447	-35895		11.742	7.233		-16.478	-126682
17	549.0						-139160	-22.146	11.136	-34449	-5.621	-21.809	1.933	-23.742	-35895	-3.845	10.967	7.122	610.3	-14.490	-124670
							-138018		11.140	-36119			1.934	-23.743	-35570		10.971	7.126		-14.490	-123528
18	576.5						-138018	-18.851	10.360	-36119	-4.628	-18.072	1.798	-19.870	-35570	-3.186	10.203	7.017	624.[illegible]	-12423	-125595
							-109548		7.919	-28761			1.375	-19.447	-28324		7.799	4.613		-12158	-97390
19	615.375						-109548	-14.090	7.042	-28761	-3.509	-13.876	1.222	-15.098	-28324	-2.446	6.935	4.489	642.7	-9779	-99769
							-89420		7.040	-23077			1.222	-15.098	-22726		6.933	4.487		-9779	-79641
20	654.25						-89420	-10.612	6.323	-23077	-2.612	-10.451	1.098	-11.549	-22726	-1.842	6.227	4.385	671.94	-7760	-81660
							-70830		6.365	-17863			1.105	-11.556	-17593		6.268	4.426		-7764	-63066
21	693.125						-70830	-7.863	5.795	-17863	-1.919	-7.743	1.006	-8.749	-17593	-1.365	5.707	4.342	697.9	-6106	-64724
							-55990		5.747	-13723			.918	-8.741	-13864		5.660	4.295		-6100	-49890

* NOTE: WHEN S_b & M_x HAVE OPPOSITE SIGNS THE FACTOR .7 IS OMITTED.

BY: [illegible]
CHECKED: [illegible]

B-36 WING – NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. AGW, 62-1000# B, FULL FUEL & OIL.

STATION	DISTANCE FROM ℄ SYM.	WING EMPTY-LESS LANDING GEAR SHEAR	WING EMPTY-LESS LANDING GEAR BENDING MOMENT	WING EMPTY-LESS LANDING GEAR TORSION	I G INERTIA LOADS FUEL & OIL ONLY SHEAR	FUEL & OIL ONLY BENDING MOMENT	FUEL & OIL ONLY TORSION	TOTALS SHEAR	TOTALS BENDING MOMENT	TOTALS TORSION	BEAM SHEAR	BEAM BENDING MOMENT	TORSION	CHORD SHEAR	CHORD BENDING MOMENT	WING EMPTY-LESS LANDING GEAR B. SHEAR	WING EMPTY-LESS LANDING GEAR B. MOMENT	WING EMPTY-LESS LANDING GEAR TORSION	ULTIMATE PITCHING ACCELERATION LOADS FUEL & OIL ONLY B. SHEAR	FUEL & OIL ONLY B. MOMENT	FUEL & OIL ONLY TORSION
1		2	4	5	6	7	8	9	10	11	14	12	13	15	16	17	18	19	20	21	22
		TABLE 19 COLUMN 10	TABLE 19 COLUMN 11	TABLE 19 COLS 14 & 17	TABLE 23 COLUMN 10	TABLE 23 COLUMN 12	TABLE 23 COLS 14 & 17	⑦+⑥	④+⑤	⑤+⑧	-40385 ⑨	-40385 ⑩	-40385 ⑪	-1179243 ⑫	-1179243 ⑬	TABLE 50 COLUMN 13	TABLE 50 COLUMN 15	TABLE 50 COLS 21 & 22	TABLE 54 COLUMN 10	TABLE 54 COLUMN 12	TABLE 54 COLS 21 & 22
22	732	10210	1.172	-1.091	974	.001116	-.001828	11180	1.173	-1.083	-47170	-4.737	4.374	-13773	-1.383	-8554	-.8664	.9268	-266	-.000768	.001183
		9988		-1.071	21		-.001633	10010		-1.073	-40425		4.333	-11804		-8311		.9234	-14		.001105
23	766	9988	.8320	-1.001	21	.000412	-.001488	10010	.8324	-1.002	-40425	-3.362	4.047	-11804	-.9816	-8311	-.6658	.8653	-14	-.000280	.001007
		6276		-.595	10		-.000743	6286		-.5957	-25386		2.406	-7412		-5043		.5079	-7		.000505
24	806	6276	.5809	-.5434	10	0	-.000658	6286	.5809	-.5441	-25386	-2.346	2.197	-7412	-.6850	-5043	-.4641	.4666	-7	0	.000447
		2585		-.1658	0		0	2585		-.1658	-10440		.6696	-3048		-1769		.1818	0		0
25	840	2585	.4930	-.1477				2585	.4930	-.1477	-10440	-1.991	.5965	-3048	-.5818	-1769	-.4040	.1195			
		2322		-.1478				2322		-.1478	-9377		.5969	-2738		-1670		.1195			
26	870	2322	.4234	-.1335				2322	.4234	-.1335	-9377	-1.710	.5341	-2738	-.4993	-1670	-.3539	.1092			
		2022		-.1281				2022		-.1281	-8166		.5052	-2384		-1501		.1042			
27	906	2022	.3506	-.1101				2022	.3506	-.1101	-8166	-1.416	.4446	-2384	-.4134	-1501	-.2978	.09312			
		1623		-.1090				1623		-.1090	-7362		.4402	-2150		-1404		.09259			
28	942	1623	.2850	-.09558				1623	.2850	-.09558	-7362	-1.151	.3858	-2150	-.3361	-1404	-.2493	.08228			
		1640		-.09454				1640		-.09454	-6623		.3818	-1934		-1304		.08169			
29	978	1640	.2259	-.08240				1640	.2259	-.08240	-6623	-.9123	.3328	-1934	-.2664	-1304	-.2022	.07200			
		1323		-.07282				1323		-.07282	-5343		.2945	-1560		-1090		.06545			
30	1014	1323	.1783	-.06313				1323	.1783	-.06313	-5343	-.7201	.2550	-1560	-.2103	-1090	-.1629	.05739			
		1168		-.06236				1168		-.06236	-4717		.2518	-1377		-998		.05692			
31	1050	1168	.1362	-.05370				1168	.1362	-.05370	-4717	-.5500	.2169	-1377	-.1606	-998	-.1270	.04953			
		1041		-.05307				1041		-.05307	-4204		.2143	-1227		-917		.04913			
32	1080	1041	.1050	-.04465				1041	.1050	-.04465	-4204	-.4240	.1884	-1227	-.1238	-917	-.0947	.04348			
		786		-.03781				786		-.03781	-3174		.1527	-927		-706		.03616			

BY: [illegible]
CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 631 125 PADS 11-45

TABLE 65
SHEET 6 OF 8

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. AGW. 62-1000#B, FULL FUEL & OIL.

STATION	DISTANCE FROM ℄ SHIP	ULTIMATE LANDING GEAR FITTING LOADS: BEAM SHEAR	BEAM BENDING MOMENT $\times 10^{-6}$	TORSION $\times 10^{-6}$	CHORD SHEAR	CHORD BENDING MOMENT $\times 10^{-6}$	TOTAL ULTIMATE LOADS II ℄ TO ℄ SHIP: B. SHEAR $S_b = S_b'$	B. BENDING MOMENT $M_x \times 10^{-6}$	TORSION $T_{EA} \times 10^{-6}$	C. SHEAR S_c	C.B. MOMENT $M_y = M_x' \times 10^{-6}$	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M_x' \times 10^{-6}$	$S_c' = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T_{EA}' \times 10^{-6}$	$T_{EA}/10_x \cdot 10^{-6}$	$T_{EA}/10_x \cdot M_x'$	S_b''
1	2	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
		TABLE 60	TABLE 60	TABLE 60	TABLE 60	TABLE 60	(12)+(17)	(13)+(18)	(14)+(19)	(15)+(20)	(16)+(21)	.9848×(29)	.1736×(30)	(32)-(34)	.9848×(31)	.1736×(29)	.9848×(30)	(37)+(38)	TABLE 30	(35)×(40)	(28)-(41)
		COLUMN 5	COLUMN 8	COLUMN 12	COLUMN 14	COLUMN 17	+(22)+(23)	+(21)+(24)	+(22)+(25)												OR .6×(42)
22	732						-55990	-6.686	5.302	-13773	-1.383	-5.600	.920	-6.520	-13564	-.987	5.221	4.234	726.1	-4734	-51256
							-48750		5.257	-11804			.913	-6.513	-11625		5.177	4.190		-4729	-44021
23	766						-48750	-4.028	4.913	-11804	-.9816	-3.967	.853	-4.820	-11625	-.699	4.838	4.139	752.7	-3628	-45122
							-30436		2.915	-7412			.506	-4.473	-7299		2.871	2.172		-3367	-27069
24	806						-30436	-2.810	2.664	-7412	-.6850	-2.767	.462	-3.229	-7299	-.4878	2.6235	2.1357	786.3	-2539	-27897
							-12209		.8014	-3048			.134	-2.906	-3002		.7892	.3014		-2285	-9924
25	840						-12209	-2.395	.7160	-3048	-.5813	-2.359	.124	-2.483	-3002	-.4158	.7051	.2893	817.6	-2030	-10179
							-11047		.7164	-2738			.124	-2.483	-2696		.7055	.2897		-2030	-9017
26	870						-11047	-2.064	.6483	-2738	-.4993	-2.033	.113	-2.146	-2696	-.3583	.6384	.2801	847.3	-1818	-9229
							-9667		.6094	-2384			.106	-2.139	-2348		.6001	.2418		-1812	-7855
27	906						-9667	-1.716	.5377	-2384	-.4134	-1.690	.093	-1.783	-2348	-.2979	.5295	.2316	886.0	-1580	-8087
							-8766		.5328	-2150			.092	-1.782	-2117		.5247	.2268	—	-1579	-7187
28	942						-8766	-1.400	.4680	-2150	-.3361	-1.379	.081	-1.460	-2117	-.2430	.4609	.2179	928.2	-1355	-7411
							-7932		.4635	-1934			.080	-1.459	-1905		.4565	.2135		-1354	-6578
29	978						-7932	-1.1145	.4048	-1934	-.2664	-1.0976	.0703	-1.1679	-1905	-.1935	.3986	.2051	974.8	-1138	-6794
							-6433		.3600	-1560			.0625	-1.1601	-1536		.3545	.1610	"	-1131	-5302
30	1014						-6433	-.8830	.3124	-1560	-.2103	-.8696	.0542	-.9238	-1536	-.1533	.3077	.1544	1026	-948	-5485
							-5715		.3087	-1377			.0536	-.9232	-1356		.3040	.1507		-947	-4768
31	1050						-5715	-.6770	.2664	-1377	-.1606	-.6667	.0462	-.7129	-1356	-.1175	.2624	.1449	1083	-772	-4943
							-5121		.2634	-1227			.0457	-.7124	-1208		.2594	.1419		-772	-4349
32	1080						-5121	-.5235	.2319	-1227	-.1238	-.5155	.0403	-.5558	-1208	-.0909	.2284	.1375	1136	-631	-4490
							-3880		.1889	-927			.0328	-.5483	-913		.1860	.0951		-623	-3257

* NOTE: WHEN S_b & M_x HAVE OPPOSITE SIGNS THE FACTOR .7 IS OMITTED.

BY: [illegible]
CHECKED: [illegible], Propper

B-36 WING – NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS
CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN, AGW. 82-1000 LB, FULL FUEL & OIL

STATION	DISTANCE FROM ℄ SHIP	1G INERTIA LOADS: WING EMPTY LESS LANDING GEAR SHEAR	BENDING MOMENT	BENDING MOMENT	1G INERTIA LOADS: FUEL & OIL ONLY SHEAR	BENDING MOMENT	BENDING MOMENT	1G INERTIA LOADS: TOTALS SHEAR	BENDING MOMENT	BENDING MOMENT	ULTIMATE INERTIA LOADS: BEAM SHEAR	BEAM BENDING MOMENT	TORSION	CHORD SHEAR	CHORD BENDING MOMENT	ULTIMATE INERTIA LOADS: WING EMPTY LESS LANDING GEAR B. SHEAR	B. B. MOM.	TORSION	ULTIMATE INERTIA LOADS: FUEL & OIL ONLY B. SHEAR	B. B. MOM.	TORSION
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
		TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLUMN 11	TABLE 23 COLUMN 10	TABLE 23 COLUMN 12	TABLE 23 COLUMN 11	① + ⑥	④ + ⑦	⑤ + ⑧	4.0385 ⑨	4.0385 ⑩	4.0385 ⑪	-1.1792 ⑫	-1.1792 ⑬	TABLE 50 COLUMN 13	TABLE 50 COLUMN 15	TABLE 50 COLUMN 17	TABLE 54 COLUMN 13	TABLE 54 COLUMN 15	TABLE 54 COLUMN 17
33	1110	786	.08144	-.03296				786	.08144	-.03296	-3174	-.3289	.1331	-927	.09605	-706	-.07828	.03181			
		702		-.03254				702		-.03254	-2835		.1314	-828		-647		.03151			
34	1140	702	.06039	-.02822				702	.06039	-.02822	-2835	-.2439	.1140	-828	-.07121	-647	-.05988	.02762			
		627		-.02776				627		-.02776	-2532		.1121	-739		-592		.02716			
35	1170	627	.04159	-.02389				627	.04159	-.02389	-2532	-.1680	.09648	-739	-.04904	-592	-.04114	.02353			
		414		-.01706				414		-.01706	-1672		.06890	-488		-398		.01730			
36	1198	414	.03000	-.01467				414	.03000	-.01467	-1672	-.1212	.05924	-488	-.03598	-398	-.03001	.01501			
		359		-.01438				359		-.01438	-1450		.05807	-423		-354		.01478			
37	1225	359	.02031	-.01239				359	.02031	-.01239	-1450	-.08202	.05009	-423	-.02395	-354	-.02046	.01281			
		314		-.01211				314		-.01211	-1268		.04891	-370		-316		.01258			
38	1252	314	.01185	-.01037				314	.01185	-.01037	-1268	-.04786	.04188	-370	-.01847	-316	-.01194	.01083			
		268		-.01012				268		-.01012	-1082		.04087	-316		-277		.01061			
39	1278	268	.00487	-.00868				268	.00487	-.00868	-1082	-.01967	.03506	-316	-.005743	-277	-.005748	.009132			
		98		-.001835				98		-.001835	-396		.007411	-116		-94		.001787			
40	1301	98	.002609	-.001370				98	.002609	-.001370	-396	-.01054	.005533	-116	-.003077	-94	-.002576	.001340			
		65		-.001199				65		-.001199	-263		.004962	-77		-64		.001186			
41	1324	65	.001109	-.000891				65	.001109	-.000891	-263	-.004479	.003598	-77	-.001309	-64	-.001102	.000881			
		50		-.000771				50		-.000771	-202		.003114	-59		-49		.000762			
TIP ℄	1344	50	0	-.000543				50	0	-.000543	-202	0	.002193	-59	0	-49	0	.000540			
		0		0				0		0	0		0	0		0		0			

BY: [illegible]
CHECKED: [illegible]

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. AGW, 62-1000 #, FULL FUEL & OIL.

STATION	BUTTLINE FROM ℄ SHIP	ULTIMATE LANDING GEAR FITTING LOADS: BOOM BENDING MOMENT	BOOM BENDING SHEAR	TORSION ℄ SHIP	CHORD SHEAR	CHORD BENDING MOMENT	TOTAL ULTIMATE LOADS AT ℄ SHIP TO ℄ SHIP: B. SHEAR	B. MOMENT	TORSION	C. SHEAR	C. MOMENT	M_x COS α x 10^{-6}	T_{BN} SIN α x 10^{-6}	M'_x x 10^{-6}	S'_b ÷ ℄ COS α	M_x SIN α x 10^{-6}	T_{BN} COS α x 10^{-6}	T_{TOT} x 10^{-6}	T_{TOT} / I_{Ma}	M_x	S''_b
1	2	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
		TABLE 60 COLUMN 5	TABLE 60 COLUMN 8	TABLE 60 COLUMN 12	TABLE 60 COLUMN 16	TABLE 60 COLUMN 17	(23)+(17) (23)+(17)	(24)+(18) (24)+(18)	(25)+(19) (25)+(19)	(26)+(20) (26)+(20)	(27)+(21) (27)+(21)	(29)×(33)	(30)×(34)	(31)-(35)	(32)÷(36)	(29)×(37)	(30)×(38)	(31)+(39)	TABLE 38	(40)×(41)	(28)-(42)
33	1110						-3880. -3498	-4072	.1641 .1629	-927 -828	-.09603	-.4010	.0286 .0283	-.4296 -.4293	-913 -815	-.07064	.16239 .16042	+.09170 +.08973	1194	-513 -513	-3367 -2969
34	1140						-3482 -3124	-3028	.1415 .1349	-828 -739	-.07121	-.2982	.0246 .0242	-.3228 -.3224	-815 -728	-.05257	.13995 .13718	+.08678 +.08461	1259	-406 -406	-3076 -2718
35	1170						-3124 -2870	-2091	.1201 .0820	-739 -488	-.04904	-.2059	.0208 .0150	-.2267 -.2209	-728 -481	-.03630	.11819 .08459	+.08189 +.06289	1330	-302 -294	-2822 -1776
36	1200						-2088 -1808	-1518	.0742 .0728	-488 -423	-.03530	-.1489	.0129 .0124	-.1618 -.1615	-481 -417	-.02625	.07312 .07174	+.06187 +.04349	1406	-227 -227	-1843 -1677
37	1230						-1584 -1394	-1024	.0428 .0414	-423 -370	-.02396	-.1009	.0109 .0107	-.1118 -.1116	-417 -364	-.01779	.06187 .06058	+.04410 +.04277	[illegible]	-166 -166	-1418 -1418
38	1260						-1684 -1359	-0690	.0278 .0258	-370 -316	-.01397	-.0589	.00915 .00894	-.06804 -.06783	-364 -311	-.01038	.06191 .05070	+.04183 +.04032	[illegible]	-108 -107	-1326 -1252
39	1290						-1358 -490	-0442	.0198 .0198	-316 -116	-.00743	-.02405	.00947 .00160	-.02312 -.02865	-311 -114	-.00439	.04258 .00469	+.03871 +.00491	[illegible]	-43 -43	-1204 -447
40	1320						-490 -327	-0312	.0128 .0128	-116 -77	-.00077	-.01292	.00119 .00105	-.01411 -.01397	-114 -76	-.00270	.00469 .00393	+.00491 +.00396	[illegible]	-25 -25	-446 -325
41	1350						-327 -237	-0208	.0084 .0078	-77 -57	-.00050	-.00449	.000770 .000724	-.00546 -.00470	-76 -58	-.000169	.00441 .00382	+.00342 +.00286	[illegible]	-18 -18	-325 -239
42	1380						-237 -172	-0138	.0038 .0038	-57 -39	0	0	.000478 0	-.000478 0	-58 0	0	.00268 0	+.00268 0	[illegible]	—	-239 0

* NOTE: USING 5 x 10^6 [illegible]

[illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 653 125 PADS 11-43

TABLE 66
SHEET 1 OF 6

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS
CONDITION: SIDE DRIFT LANDING (GROUND LOAD ACTING INBOARD) ~ D.G.W. - FULL FUEL & OIL - LESS BOMBS

STATION	DISTANCE FROM ℄ SHIP	WING EMPTY LESS LANDING GEAR			ULTIMATE ROLLING ACCELERATION LOADS: FUEL AND OIL ONLY			ULTIMATE ROLLING ACCELERATION LOADS: LANDING GEAR (EXTENDED) ONLY					ULTIMATE LANDING GEAR FITTING LOADS				
		B.SHEAR	B.B.MOM. x10⁶	TORSION x10⁶	B.SHEAR	B.B.MOM. x10⁶	TORSION x10⁶	B.SHEAR	B.B.MOM. x10⁶	TORSION x10⁶	C.SHEAR	C.B.MOM. x10⁶	BEAM SHEAR	BEAM BENDING MOMENT x10⁶	TORSION x10⁻⁶	CHORD SHEAR	CHORD BENDING MOMENT x10⁶
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
		TABLE 51 COLUMN 12	TABLE 51 COLUMN 14	TABLE 51 COLS. 20 & 21	TABLE 55 COLUMN 12	TABLE 55 COLUMN 14	TABLE 55 COLS. 20 & 21	TABLE 56 COLUMN 5	TABLE 56 COLUMN 8	TABLE 56 COLUMN 12	TABLE 56 COLUMN 14	TABLE 56 COLUMN 17	TABLE 61 COLUMN 5	TABLE 61 COLUMN 8	TABLE 61 COLUMN 12	TABLE 61 COLUMN 14	TABLE 61 COLUMN 17
0	0	27,446	17.455	-5.977	34,542	16.258	-3.343	2,751	0.7219	0.4445	0	+0.0054	2,724	-34.499	-1.762	-1.499	27.397
		27,446		-5.977	34,542		-3.343	2,751	0.7219	0.4445	0	+0.0054	2,724	-34.499	-1.762	-1.499	27.397
1	41.025	27,446	16.328	-5.745	34,542	14.841	-3.051	2,751	0.6090	-0.4213	0	+0.0054	2,724	-34.610	-1.739	-1.499	27.459
		27,388		-5.745	34,542		-3.051	2,751	0.6090	-0.4213	0	+0.0054	2,724	-34.610	-1.739	-1.499	27.459
2	80.0	27,389	15.261	-5.526	34,542	13.495	-2.775	2,751	0.5018	-0.3993	0	+0.0054	2,724	-34.717	-1.717	-1.499	27.517
		27,296		-5.523	34,542		-2.775	2,751	0.5018	-0.3993	0	+0.0054	2,724	-34.717	-1.717	-1.499	27.517
3	113.25	27,296	14.353	-5.336	34,542	12.346	-2.538	2,751	0.4103	-0.3805	0	+0.0054	2,724	-34.807	-1.698	-1.499	27.567
		27,204		-5.335	34,542		-2.538	2,751	0.4103	-0.3805	0	+0.0054	2,724	-34.807	-1.698	-1.499	27.567
4	146.5	27,204	13.449	-5.149	34,542	11.197	-2.184	2,751	0.3189	-0.3616	0	+0.0054	2,724	-34.898	-1.680	-1.499	27.617
		27,025		-5.151	33,909		-2.184	2,751	0.3189	-0.3616	0	+0.0054	2,724	-34.898	-1.680	-1.499	27.617
5	180.0	27,025	12.543	-4.964	33,909	10.061	-1.951	2,751	0.2267	-0.3427	0	+0.0054	2,724	-34.989	-1.661	-1.499	27.667
		26,810		-4.962	32,578		-1.958	2,585	0.2343	-0.3429	425	-0.0164	-147,343	-28,150	-1.787	+381,709	7.964
6	206.0	26,810	11.846	-4.819	32,578	9.24	-1.784	2,585	0.1671	-0.3290	425	-0.0275	-147,343	-24,319	-2.575	381,709	-1.960
		26,656		-4.817	31,291		-1.790	2,469	0.1726	-0.3302	721	-0.0416	-251,975	-19,359	-3.607	648,897	-14.740
7	232.0	26,656	11.153	-4.673	31,291	8.401	-1.623	2,469	0.1084	-0.3170	721	-0.0604	-251,975	-12,808	-4.954	648,897	-31.611
		26,394		-4.669	30,131		-1.629	2,941	0.1292	-0.3578	-574	-0.0365	+314,889	+7.316	-58.083	-268,264	-7.297
8	249.0	26,394	10.705	-4.578	30,131	7.389	-1.524	2,941	0.0796	-0.3476	-574	-0.0268	+314,889	+1.963	-57.582	-268,264	-2.737
		26,126		-4.567	28,743		-1.530	2,941	0.0796	-0.3476	-574	-0.0268	+314,889	+1.963	-57.582	-268,264	-2.731
9	284.5	26,126	9.777	-4.375	28,743	6.869	-1.320	2,941	-0.0524	-0.3261	-574	-0.0064	+314,889	-9.216	-55.284	-268,264	6.786
		24,135		-4.090	27,752		-1.329	0	0	0	0	0	0	0	0	0	0
10	362.0	24,135	9.113	-3.954	27,752	6.105	-1.172										
		23,980		-3.954	27,752		-1.172										

BY: [illegible]
CHECKED: Allen, Supper

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 125 PADS 11-43

TABLE 66
SHEET 2 OF 6

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS
CONDITION: SIDE DRIFT LANDING (GROUND LOAD ACTING INBOARD) - D.G.W. - FULL FUEL & OIL - LESS BOMBS

		Total Ultimate Loads ⊥ to ℄ Ship														
Station	Distance From ℄ Ship	B. Shear S_b+S_b	B.B. Moment $M_x \times 10^{-6}$	Torsion $T_{EA} \times 10^{-6}$	C. Shear S_a	C.B. Moment $M_y = M_x' \times 10^{-6}$	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M_x' \times 10^{-6}$	$S_c' = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T_{EA}' \times 10^{-6}$	$\frac{T \tan\phi}{I_y/a_x} \times 10^{-6}$	$\frac{T \tan\phi}{I_y/a_x} \cdot M_x'$	S_b''
1	2	19	20	21	22	23	24	25	26	27	28	29	30	31 *	32	33
		③+⑥	④+⑦	⑤+⑧	⑫+⑰	⑬+⑱	.9848×⑳	.1736×㉑	㉔-㉕	.9848×㉓	.1736×⑳	.9848×㉑	㉘+㉙	TABLE 30	㉖×㉛	⑲-㉜ OR .5 ⑲
		+⑨+⑭	+⑩+⑮	+⑪+⑯												
0	0	67,463	-0.064	-11.526	-1,499	27,402	-0.063	-2.001	1.938	-1,476	-0.011	-11.351	-11.362	412.7	800	66,663
		67,463	-0.064	-11.526	-1,499	27,402	-0.063	-2.001	1.938	-1,476	-0.011	-11.351	-11.362	412.7	800	66,663
1	41.025	67,463	-2.832	-10.956	-1,499	27,464	-2.789	-1.902	-0.887	-1,476	-0.492	-10.789	-11.281	604.3	-536	67,999
		67,405	-2.832	-10.956	-1,499	27,464	-2.789	-1.902	-0.887	-1,476	-0.492	-10.789	-11.281	604.3	-536	67,941
2	80.0	67,405	-5.459	-10.417	-1,499	27,522	-5.376	-1.808	-3.568	-1,476	-0.948	-10.259	-11.207	618.7	-2,208	69,613
		67,313	-5.459	-10.414	-1,499	27,522	-5.376	-1.808	-3.568	-1,476	-0.948	-10.256	-11.204	618.7	-2,208	69,521
3	113.25	67,313	-7.698	-9.952	-1,499	27,572	-7.581	-1.728	-5.853	-1,476	-1.336	-9.801	-11.137	631.7	-3,697	71,010
		67,221	-7.698	-9.951	-1,499	27,572	-7.581	-1.727	-5.854	-1,476	-1.336	-9.800	-11.136	631.7	-3,698	70,919
4	146.5	67,221	-9.933	-9.372	-1,499	27,622	-9.782	-1.627	-8.155	-1,476	-1.724	-9.230	-10.954	645.3	-5,262	72,483
		66,409	-9.933	-9.377	-1,499	27,622	-9.782	-1.628	-8.154	-1,476	-1.724	-9.234	-10.958	645.3	-5,262	71,671
5	180.0	66,409	-12.158	-8.919	-1,499	27,672	-11.973	-1.548	-10.425	-1,476	-2.111	-8.783	-10.894	659.6	-6,876	73,285
		-85,370	-5.312	-9.050	+382,134	7,948	-5.231	-1.571	-3.660	+376,326	-0.922	-8.912	-9.834	461.7	-1,690	-83,680
6	206.0	-85,370	-3.092	-9.507	382,134	-1,988	-3.045	-1.650	-1.395	376,326	-0.537	-9.362	-9.899	469.7	-655	-84,715
		-191,559	+1.874	-10.544	649,618	-14,782	+1.846	-1.830	+3.676	639,744	+0.325	-10.384	-10.059	671.0	2,467	-194,026
7	232.0	-191,559	6.854	-11.567	649,618	-31,671	6.750	-2.008	8.758	639,744	1.190	-11.391	-10.201	683.0	5,982	-197,541
		+374,355	26.999	-65.339	-268,838	-7,333	26.589	-11.343	37.932	-264,752	4.687	-64.346	-59.659	478.1	18,135	356,220
8	249.0	374,355	20.636	-64.032	-268,838	-2,764	20.322	-11.116	31.438	-264,752	3.582	-63.059	-59.477	483.9	15,213	359,142
		372,699	20.636	-64.027	-268,838	-2,764	20.322	-11.115	31.437	-264,752	3.582	-63.054	-59.472	483.9	15,212	357,487
9	284.5	372,699	7.405	-61.305	-268,838	+6,780	7.292	-10.643	17.935	-264,752	1.286	-60.373	-59.087	495.9	8,894	363,805
		51,887	16.646	-5.419	0	0	16.393	-0.941	17.334	0	2.890	-5.337	-2.447	495.9	8,596	43,291
10	312.0	51,887	15.218	-5.126			14.987	-0.890	15.877		2.642	-5.048	-2.406	505.8	8,031	43,856
		51,732	15.218	-5.126			14.987	-0.890	15.877		2.642	-5.048	-2.406	505.8	8,031	43,701

BY: [illegible]
CHECKED: [illegible]

* NOTE: WHEN S_b & M_x HAVE OPPOSITE SIGNS THE FACTOR .7 IS OMITTED

TABLE 66 B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS
SHEET 3 OF 6 CONDITION: SIDE DRIFT LANDING (GROUND LOAD ACTING INBOARD) ~ D.G. W. - FULL FUEL & OIL - LESS BOMBS

℄ Station	Distance From ℄ Ship	Wing Empty Less Landing Gear: B. Shear	B.B. Mom. x10^6	Torsion x10^6	Ultimate Rolling Acceleration Loads, Fuel and Oil Only: B. Shear	B.B. Mom. x10^6	Torsion x10^6	Landing Gear (Extended) Only: B. Shear	B.B. Mom. x10^6	Torsion x10^6	C. Shear	C.B. Mom. x10^6	Ultimate Landing Gear Fitting Loads: Beam Shear	Beam Bending Moment x10^6	Torsion x10^-6	Chord Shear	Chord Bending Moment x10^6
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
		Table 51 Column 12	Table 51 Column 14	Table 51 Cols. 20 & 21	Table 55 Column 12	Table 55 Column 14	Table 55 Cols. 20 & 21	Table 56 Column 5	Table 56 Column 8	Table 56 Column 12	Table 56 Column 14	Table 56 Column 17	Table 61 Column 5	Table 61 Column 8	Table 61 Column 12	Table 61 Column 14	Table 61 Column 17
11	339.5	23,980	8.454	-3.819	27,752	5.342	-1.015										
		21,995		-3.513	26,350		-1.020										
12	375.75	21,995	7.657	-3.348	26,350	4.387	-0.8246										
		21,596		-3.338	23,415		-0.8382										
13	412.0	21,596	6.874	-3.177	23,415	3.638	-0.6637										
		21,232		-3.174	20,351		-0.6770										
14	448.5	21,232	6.099	-3.015	20,351	2.795	-0.5243										
		20,849		-3.012	17,177		-0.5380										
15	485.0	20,849	5.338	-2.855	17,177	2.168	-0.4091										
		20,289		-2.841	14,259		-0.4092										
16	521.5	20,289	4.597	-2.689	14,259	1.648	-0.3022										
		17,336		-2.292	12,930		-0.3103										
17	549.0	17,336	4.120	-2.194	12,930	1.292	-0.2371										
		17,122		-2.195	12,930		-0.2371										
18	576.5	17,122	3.650	-2.098	12,930	0.9363	-0.1640										
		13,966		-1.692	11,150		-0.1700										
19	615.375	13,966	3.107	-1.580	11,150	0.5033	-0.0810										
		13,422		-1.568	7,613		-0.0926										
20	654.25	13,422	2.585	-1.460	7,613	0.2073	-0.0318										
		12,959		-1.457	4,111		-0.0430										
21	693.125	12,959	2.081	-1.354	4,111	0.0475	-0.0102										
		12,368		-1.350	1,191		-0.0074										

BY: L.L.
CHECKED: Allen, Coffer

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 125 PADS 11-43

TABLE 66 B-36 WING-NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS
SHEET 4 OF 6
CONDITION: SIDE DRIFT LANDING (GROUND LOAD PATING INBOARD) - D.G.W. - FULL FUEL & OIL - LESS BOMBS

℄	STATION	DISTANCE FROM ℄ SHIP	TOTAL ULTIMATE LOADS // ⊥ TO ℄ SHIP: B. SHEAR $S_o + S_o'$	B.B. MOMENT $M_x \times 10^{-6}$	TORSION $T_{EA} \times 10^{-6}$	C. SHEAR S_a	C.P. MOMENT $M_y + M_y' \times 10^{-6}$	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M_x' \times 10^{-6}$	$S_a' = S_a \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T_{EA} \times 10^{-6}$	$T \tan\phi / I \times Q_x \times 10^{6}$	$T \tan\phi \cdot M_x / I \times Q_x$	S_a'
	1	2	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
			⑨ + ⑥ + ⑪ + ⑭	④ + ⑦ + ⑫ + ⑮	⑤ + ⑧ + ⑩ + ⑯	⑫ + ⑰	⑬ + ⑱	9.848 × ㉚	.1736 × ㉑	㉔ − ㉕	.9848 × ㉚	.1736 × ㉚	9.848 × ㉑	㉘ + ㉙	TABLE 30	㉖ × ㉛	⑱ − ㉜ OR ⑤ ⑰
	11	339.5	51,732	13,796	-4.834			13.586	-0.839	14.425		2.395	-4.761	-2.366	516.0	7,443	44,289
			48,345		-4.533				-0.787	14.373			-4.464	-2.069	516.0	7,416	40,929
	12	375.75	48345	12.044	-4.173			11.861	-0.724	12.585		2.091	-4.110	-2.019	530.2	6,673	41,672
			45,011		-4.176				-0.725	12.586			-4.113	-2.022	530.2	6,673	38,338
	13	412.0	45011	10.412	-3.841			10.254	-0.667	10.921		1.808	-3.783	-1.975	545.1	5,953	39,058
			41,583		-3.851				-0.669	10.923			-3.792	-1.984	545.1	5,954	35,629
	14	448.5	41,583	8.894	-3.539			8.759	-0.614	9.373		1.544	-3.485	-1.941	561.1	5,259	36,324
			38,026		-3.550				-0.616	9.375			-3.496	-1.952	561.1	5,260	32,766
	15	485.0	38,026	7.506	-3.264			7.392	-0.567	7.959		1.303	-3.214	-1.911	578.0	4,600	33,426
			34,548		-3.250				-0.564	7.956			-3.201	-1.898	578.0	4,599	29,949
	16	521.5	34,548	6.245	-2.991			6.150	-0.519	6.669		1.084	-2.946	-1.862	596.0	3,975	30,573
			30,266		-2.602				-0.452	6.602			-2.562	-1.474	596.0	3,935	26,331
	17	549.0	30,266	5.442	-2.431			5.330	-0.422	5.752		0.940	-2.394	-1.454	610.3	3,510	26,756
			30,052		-2.432				-0.422	5.752			-2.395	-1.455	610.3	3,510	26,542
	18	576.5	30,052	4.587	-2.262			4.517	-0.393	4.910		0.796	-2.228	-1.432	625.2	3,070	26,982
			25,116		-1.862				-0.323	4.840			-1.834	-1.038	625.2	3,026	22,090
	19	615.375	25,116	3.610	-1.661			3.555	-0.288	3.843		0.627	-1.636	-1.009	647.7	2,489	22,627
			21,035		-1.661				-0.288	3.843			-1.636	-1.009	647.7	2,489	18,546
	20	654.25	21,035	2.792	-1.492			2.750	-0.259	3.009		0.485	-1.469	-0.984	671.9	2,022	19,013
			17,070		-1.500				-0.260	3.010			-1.477	-0.992	671.9	2,022	15,048
	21	693.25	17,070	2.129	-1.364			2.097	-0.237	2.334		0.370	-1.343	-0.973	697.9	1,629	15,441
			13,559		-1.357				-0.236	2.333			-1.336	-0.966	697.9	1,628	11,931

BY: Rist
CHECKED: Allen, Propper

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 125 PADS 11-43

TABLE 66 B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS
SHEET 5 OF 6 CONDITION: SIDE DRIFT LANDING (GROUND LOAD ACTING INBOARD) + D.G.W. + FULL FUEL & OIL - LESS BOMBS

			Ultimate Rolling Acceleration Loads												Ultimate Landing Gear Fitting Loads				
	Station	Distance from ℄ Ship	Wing Empty Less Landing Gear			Fuel and Oil Only			Landing Gear (Extended) Only						Beam Shear	Beam Bending Moment x10⁶	Torsion x10⁻⁶	Chord Shear	Chord Bending Moment x10⁶
			B. Shear	B.B. Mom x10⁶	Torsion x10⁶	B. Shear	B.B. Mom x10⁶	Torsion x10⁶	B. Shear	B.B. Mom x10⁶	Torsion x10⁶	C. Shear	C.B. Mom x10⁶						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
			Table 51 Column 12	Table 51 Column 14	Table 51 Cols. 20 & 21	Table 55 Column 12	Table 55 Column 14	Table 55 Cols 20 & 21	Table 56 Column 5	Table 56 Column 8	Table 56 Column 12	Table 56 Column 14	Table 56 Column 17	Table 61 Column 5	Table 61 Column 8	Table 61 Column 12	Table 61 Column 14	Table 61 Column 17
	22	732.0	12,368	1.600	-1.251	1,191	0.001199	+0.0021											
			11,642		-1.241	22		-0.0017											
	23	766.0	11,642	1.204	-1.160	22	0.000451	-0.0016											
			7,739		-0.7334	11		-0.0008											
	24	806.0	7,739	0.8949	-0.6693	11	0	-0.0007											
			3,655		-0.2516	0		0											
	25	8400	3,655	0.7706	-0.2260														
			3,353		-0.2260														

NOTE: LOADS OUTBOARD OF STATION 25 ARE OBVIOUSLY NOT CRITICAL SINCE THEY INVOLVE ONLY WING WEIGHT EMPTY ITEMS WITH A MAXIMUM ULTIMATE LOAD FACTOR AT THE TIP OF ONLY 1.85.

BY: List
CHECKED: Allen

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 833 125 PADS 11-43

TABLE 66 B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS
SHEET 6 OF 6 CONDITION: SIDE DRIFT LANDING (GROUND LOAD ACTING INBOARD) + D.C.W. - FULL FUEL & OIL - LESS BOMBS

STATION	DISTANCE FROM ℄ SHIP	TOTAL ULTIMATE LOADS IN ℄ 1 TO ℄ SHIP: B. SHEAR $S_b = S_b'$	B.B. MOMENT $M_x \times 10^{-6}$	TORSION $T_{EA} \times 10^{-6}$	C. SHEAR S_c	C.B. MOMENT $M_y = M_y' \times 10^{-6}$	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M_x' \times 10^{-6}$	$S_c' = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T_{EA}' \times 10^{-6}$	$T \tan\phi / I_x/10_x$	$T \tan\phi \cdot M_x / I_x/10_x$	S_b''
1	2	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
		(5) + (6)	(4) + (7)	(5) + (8)	(12) + (17)	(13) + (18)	.9848 × (20)	.1736 × (21)	(24) − (25)	.9848 × (22)	.1736 × (20)	.9848 × (21)	(28) + (29)	TABLE 30	(30) × (31)	(19) − (32)
		+(9) +(14)	+(10) +(15)	+(11) +(16)												
22	7320	13,559	1.601	-1.249			1.577	-0.217	1.794		0.278	7.230	-0.952	726.1	1,303	12,256
		11,664		-1.243				-0.216	1.793			7.224	-0.946	726.1	1,302	10,362
23	766.0	11,664	1.204	-1.162			1.186	-0.202	1.388		0.209	-1.144	-0.935	752.7	1,045	10,619
		7,750		-0.7342				-0.127	1.313			-0.723	-0.514	752.7	988	6,762
24	806.0	7,750	0.8949	-0.6700			0.8813	-0.1163	0.9976		0.1554	-0.6598	-0.5044	786.3	784	6,966
		3,655		-0.2516				-0.0437	0.9250			-0.2478	-0.0924	786.3	727	2,928
25	840.0	3,655	0.7706	-0.2260			0.7589	-0.0392	0.7981		0.1338	-0.2226	-0.0888	817.6	653	3,002
		3,353		-0.2260				-0.0392	0.7981			-0.2226	-0.0888	817.6	653	2,700

BY: [illegible]
CHECKED: [illegible], [illegible]

PART III

SUMMARY OF CRITICAL SHEARS, BENDING MOMENTS, AND TORSIONS

SUMMARY OF CRITICAL SHEARS, BENDING MOMENTS, AND TORSIONS

In order to simplify the comparison of conditions in determining critical bending stresses, beam and chord moments over the semi-span for all conditions have been plotted in Figures 21, 22, and 23. Figure 21 contains the net ultimate beam bending moments (M'_x) for all H.A.A., I.H.A.A., and landing conditions included in this report. M'_x for all L.A.A. and I.L.A.A. conditions are plotted in Figure 22. The net ultimate chord bending moments (M'_y) for all conditions are plotted in Figure 23.

Preliminary investigations and studies of the net ultimate loads obtained in Tables 31 through 46 and 63 through 66 indicate that the critical spar and skin shears will be produced by the following eight conditions:

1. Design Gross Weight-10,000# of Bombs-Full Fuel and Oil, L.A.A. @ 30,000' -High Speed;
2. Design Gross Weight - 10,000# of Bombs-Full Fuel and Oil, I.L.A.A. @ 5,000' - Limit Dive Speed;
3. Alternate Gross Weight - (72)1000# Bombs-Full Fuel and Oil, I.L.A.A. @ 5,000' - Limit Dive Speed;
4. Reduced Gross Weight - (72)1000# Bombs-1/3 Fuel and Oil, I.L.A.A. @ 5,000' - Limit Dive Speed;
5. Two Wheel Landing with Inclined Reactions - Nose Down, Design Gross Weight-Full Fuel and Oil-Less Bombs;
6. Two Wheel Landing with Brakes-Nose Down, Design Gross Weight-Full Fuel and Oil-Less Bombs;
7. Two Wheel Landing with Inclined Reactions-Nose Down, Alternate Gross Weight-(62)1000# Bombs-Full Fuel and Oil;

8. Side Drift Landing (Ground Load Acting Inboard), Design Gross Weight-Full Fuel and Oil-Less Bombs.

For ease of reference the reduced net ultimate beam shears (S''_b), the net ultimate chord shears (S'_c), and the net ultimate torsions ($T'_{E.A.}$) for these eight conditions have been summarized in Table 67.

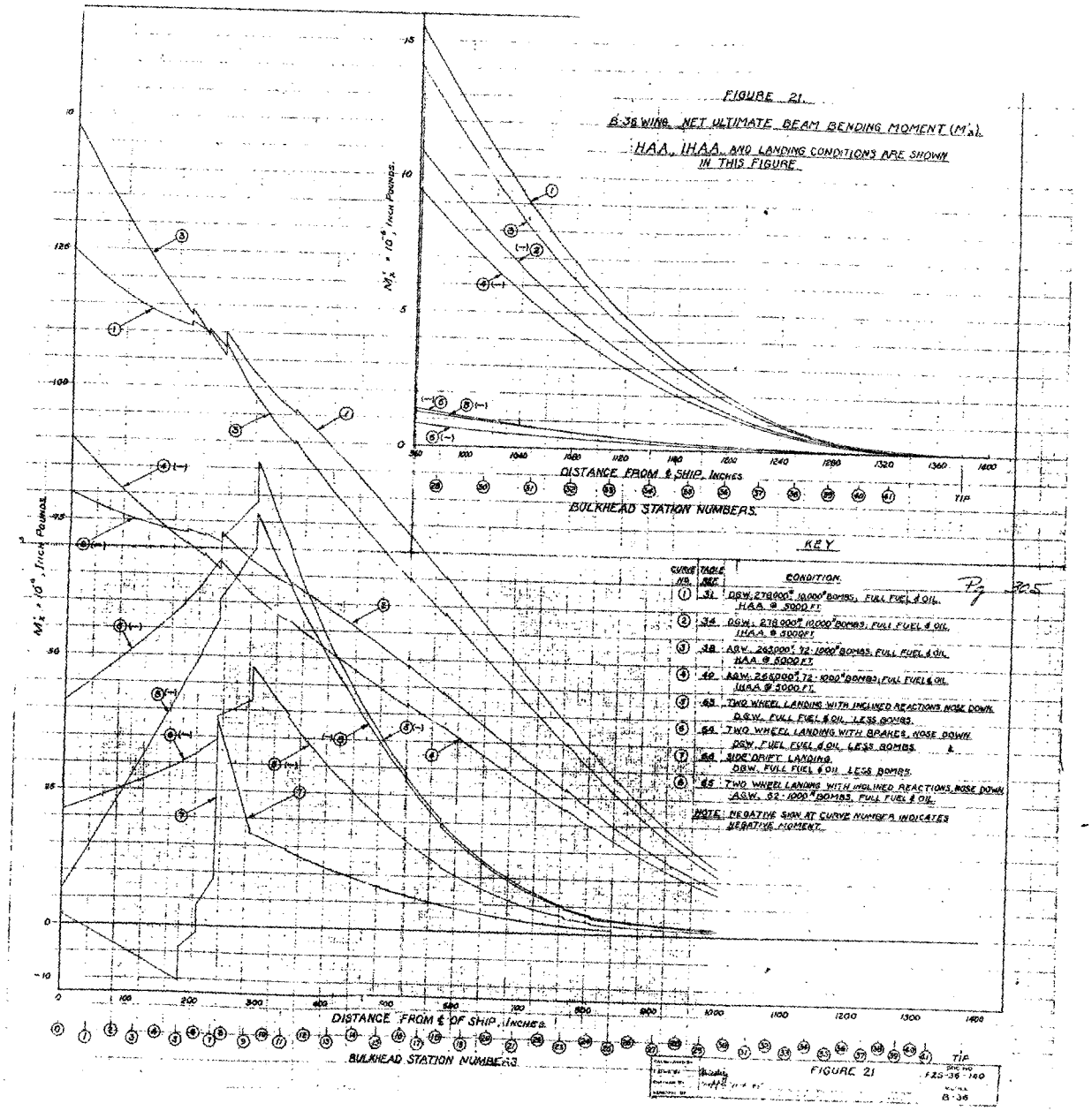


FIGURE 21.
B-36 WING NET ULTIMATE BEAM BENDING MOMENT (M_x').
HAA, IHAA, AND LANDING CONDITIONS ARE SHOWN IN THIS FIGURE.
$M_x' \times 10^{-6}$, INCH POUNDS.
DISTANCE FROM ℄ SHIP, INCHES.
BULKHEAD STATION NUMBERS.
TIP
KEY
CURVE NO. | TABLE REF. | CONDITION.
① 31 DGW. 278000# 10,000# BOMBS, FULL FUEL & OIL. HAA @ 5000 FT.
② 34 DGW. 278,000# 10,000# BOMBS, FULL FUEL & OIL. IHAA @ 5000 FT.
③ 38 ARW. 263000#, 72-1000# BOMBS, FULL FUEL & OIL. HAA @ 5000 FT.
④ 40 AAW. 268000#, 72-1000# BOMBS, FULL FUEL & OIL. IHAA @ 5000 FT.
⑤ 63 TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. DGW. FULL FUEL & OIL. LESS BOMBS.
⑥ 64 TWO WHEEL LANDING WITH BRAKES, NOSE DOWN. DGW. FUEL FUEL & OIL. LESS BOMBS.
⑦ 64 SIDE DRIFT LANDING. DGW. FULL FUEL & OIL. LESS BOMBS.
⑧ 65 TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. AGW. 52-1000# BOMBS. FULL FUEL & OIL.
NOTE: NEGATIVE SIGN AT CURVE NUMBER INDICATES NEGATIVE MOMENT.
$M_x' \times 10^{-6}$, INCH POUNDS.
DISTANCE FROM ℄ OF SHIP, INCHES.
BULKHEAD STATION NUMBERS.
TIP
FIGURE 21
B-36

Pg 305

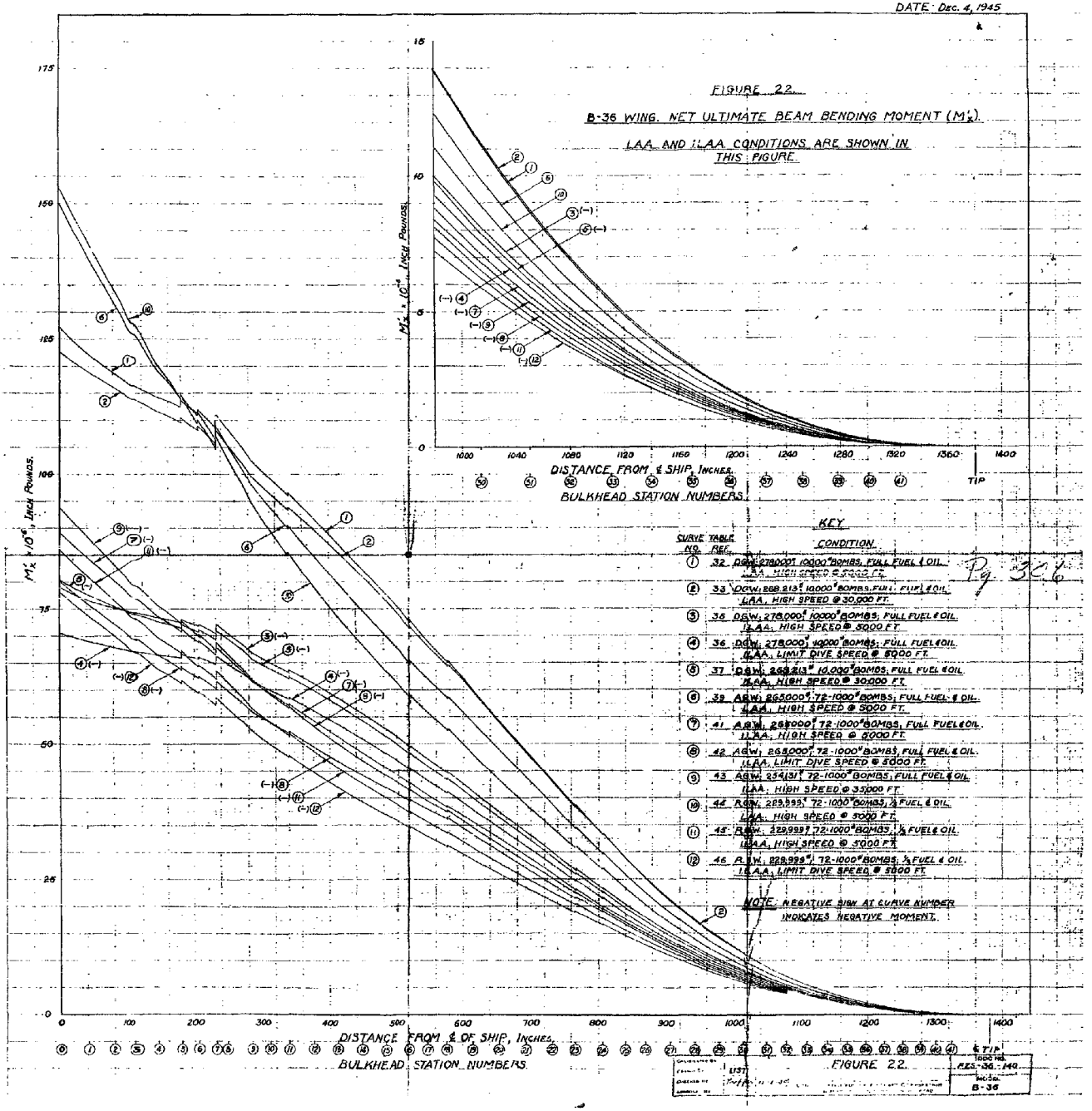


FIGURE 22.
B-36 WING. NET ULTIMATE BEAM BENDING MOMENT (M_x').
LAA AND ILAA CONDITIONS ARE SHOWN IN THIS FIGURE.
$M_x' \times 10^{-6}$, INCH POUNDS.
DISTANCE FROM ℄ SHIP, INCHES.
BULKHEAD STATION NUMBERS.
TIP
KEY
CURVE NO. | TABLE REF. | CONDITION
(1) 32 DGW, 278,000# 10000# BOMBS, FULL FUEL & OIL. ILAA, HIGH SPEED @ 5000 FT.
(2) 33 DGW, 268,213# 10000# BOMBS, FULL FUEL & OIL. LAA, HIGH SPEED @ 30,000 FT.
(3) 36 DGW, 278,000# 10000# BOMBS, FULL FUEL & OIL. ILAA, HIGH SPEED @ 5000 FT.
(4) 36 DGW, 278,000# 10000# BOMBS, FULL FUEL & OIL. ILAA, LIMIT DIVE SPEED @ 5000 FT.
(5) 37 DGW, 268,213# 10,000# BOMBS, FULL FUEL & OIL. ILAA, HIGH SPEED @ 30,000 FT.
(6) 39 AGW, 265,000# 72-1000# BOMBS, FULL FUEL & OIL. ILAA, HIGH SPEED @ 5000 FT.
(7) 41 AGW, 261,000# 72-1000# BOMBS, FULL FUEL & OIL. ILAA, HIGH SPEED @ 5000 FT.
(8) 42 AGW, 265,000# 72-1000# BOMBS, FULL FUEL & OIL. ILAA, LIMIT DIVE SPEED @ 5000 FT.
(9) 43 AGW, 254,131# 72-1000# BOMBS, FULL FUEL & OIL. ILAA, HIGH SPEED @ 35,000 FT.
(10) 44 RGW, 225,993# 72-1000# BOMBS, ½ FUEL & OIL. ILAA, HIGH SPEED @ 5000 FT.
(11) 45 RGW, 229,993# 72-1000# BOMBS, ½ FUEL & OIL. ILAA, HIGH SPEED @ 5000 FT.
(12) 46 RGW, 229,993#, 72-1000# BOMBS, ½ FUEL & OIL. ILAA, LIMIT DIVE SPEED @ 5000 FT.
NOTE: NEGATIVE SIGN AT CURVE NUMBER INDICATES NEGATIVE MOMENT.
Pg. 326
FIGURE 22.
FZS-36-140
B-36

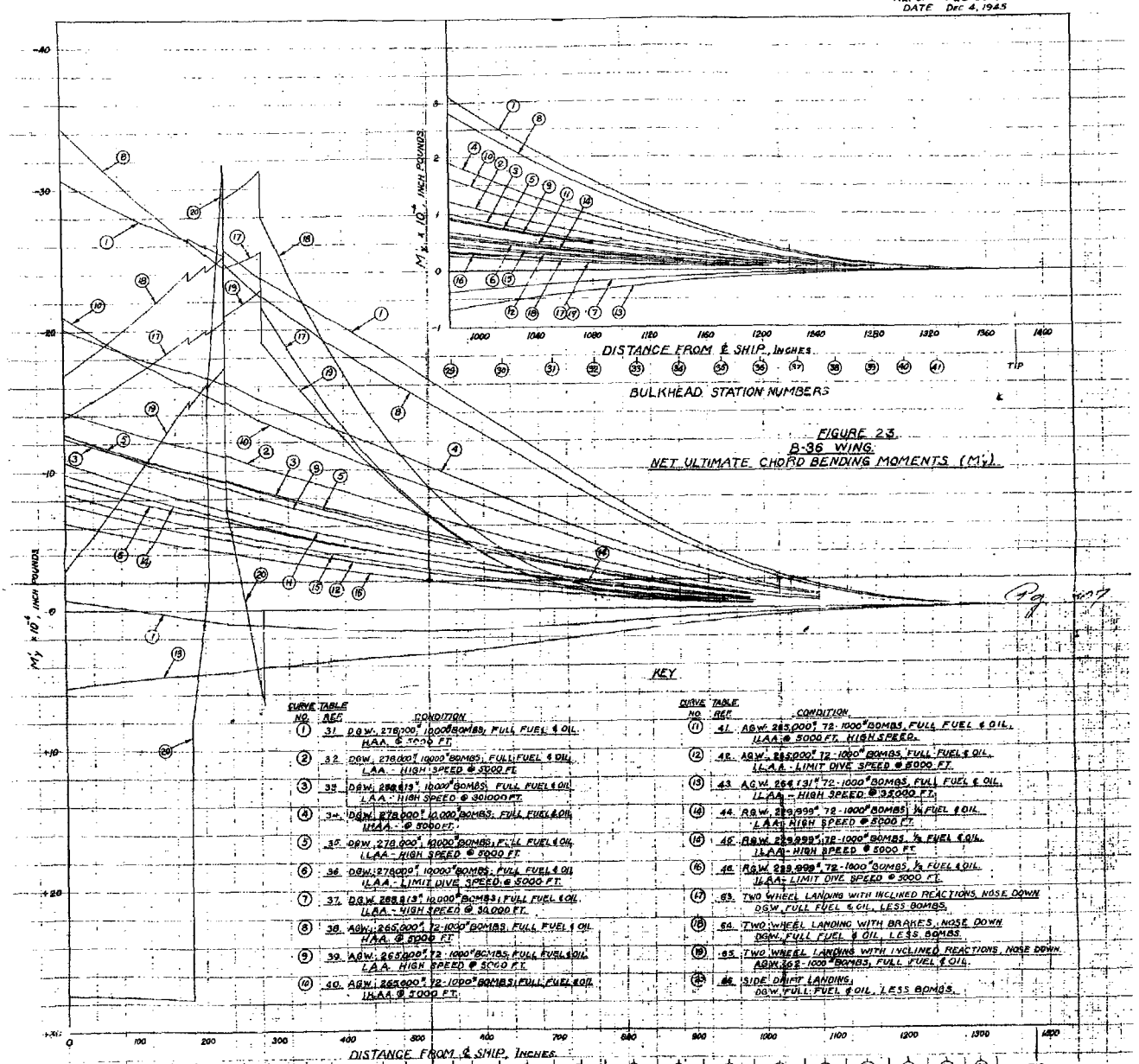


FIGURE 23.
B-36 WING.
NET ULTIMATE CHORD BENDING MOMENTS (M_y).

Pg. 307

KEY

CURVE NO.	TABLE REF	CONDITION
1	31	DGW, 278,000#, 10,000# BOMBS, FULL FUEL & OIL, HAA @ 5000 FT.
2	32	DGW, 278,000#, 10000# BOMBS, FULL FUEL & OIL, LAA - HIGH SPEED @ 5000 FT.
3	33	DGW, 278,000#, 10,000# BOMBS, FULL FUEL & OIL, LAA - HIGH SPEED @ 30,000 FT.
4	34	DGW, 278,000#, 10,000# BOMBS, FULL FUEL & OIL, HAA - @ 5000 FT.
5	35	DGW, 278,000#, 10000# BOMBS, FULL FUEL & OIL, LAA - HIGH SPEED @ 5000 FT.
6	36	DGW, 278,000#, 10,000# BOMBS, FULL FUEL & OIL, LAA - LIMIT DIVE SPEED @ 5000 FT.
7	37	DGW, 288,813#, 10,000# BOMBS, FULL FUEL & OIL, LAA - HIGH SPEED @ 30,000 FT.
8	38	AGW, 265,000#, 72-1000# BOMBS, FULL FUEL & OIL, HAA @ 5000 FT.
9	39	AGW, 265,000#, 72-1000# BOMBS, FULL FUEL & OIL, LAA - HIGH SPEED @ 5000 FT.
10	40	AGW, 265,000#, 72-1000# BOMBS, FULL FUEL & OIL, LAA @ 5000 FT.
11	41	AGW, 265,000#, 72-1000# BOMBS, FULL FUEL & OIL, LAA @ 5000 FT. HIGH SPEED.
12	42	AGW, 265,000#, 72-1000# BOMBS, FULL FUEL & OIL, LAA - LIMIT DIVE SPEED @ 5000 FT.
13	43	AGW, 264,131#, 72-1000# BOMBS, FULL FUEL & OIL, LAA - HIGH SPEED @ 30,000 FT.
14	44	RGW, 239,999#, 72-1000# BOMBS, ½ FUEL & OIL, LAA - HIGH SPEED @ 5000 FT.
15	45	RGW, 239,999#, 72-1000# BOMBS, ½ FUEL & OIL, LAA - HIGH SPEED @ 5000 FT.
16	46	RGW, 239,999#, 72-1000# BOMBS, ½ FUEL & OIL, LAA - LIMIT DIVE SPEED @ 5000 FT.
17	63	TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN DGW, FULL FUEL & OIL, LESS BOMBS.
18	64	TWO WHEEL LANDING WITH BRAKES, NOSE DOWN DGW, FULL FUEL & OIL, LESS BOMBS.
19	65	TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN AGW, 262-1000# BOMBS, FULL FUEL & OIL.
20	66	SIDE DRIFT LANDING, DGW, FULL FUEL & OIL, LESS BOMBS.

CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	FIGURE 23.	DOC NO. FZS-36-140	MODEL B-36

Station	Dist. from Sta.	1 Landing 15° L.A.W. 278000# High Speed Stall Sl	Sc	Tension	2 Landing 15° L.A.W. 265000# High Speed Stall Sl	Sc	Tension	3 Landing 15° L.A.W. 259,999# High Speed Stall Sl	Sc	Tension	4 Pull-Up Sl	Sc	Tension	5 Pull-Up Sl	Sc	Tension	6 Pull-Up Sl	Sc	Tension	7 Pull-Up Sl	Sc	Tension	8 Pull-Up Sl	Sc	Tension	9 Pull-Up Sl	Sc	Tension	10 Pull-Up Sl	Sc	Tension
		Table 33 Column 25	Table 33 Column 26	Table 33 Column 27	Table 34 Column 28	Table 34 Column 29	Table 34 Column 30	Table 42 Column 19	Table 42 Column 20	Table 42 Column 21	Table 46 Column 19	Table 46 Column 20	Table 46 Column 21	Table 46 Column 22	Table 46 Column 23	Table 46 Column 24	Table 63 Column 42	Table 63 Column 43	Table 63 Column 44	Table 63 Column 56	Table 63 Column 57	Table 63 Column 58	Table 64 Column 42	Table 64 Column 43	Table 64 Column 44	Table 65 Column 42	Table 65 Column 43	Table 65 Column 44	Table 66 Column 38	Table 66 Column 39	Table 66 Column 40
0		7601.7	-16856	2260	2019	-4155	-51,570	-77649	5313	20,604				-14196	27718	69.01	17496	25916		30,522	3210	-58.824	66663	-1976	-11.362						
		78778	-22551	2460	-2504	-14169	-21,075	-78051	-5141	-27,608				-15787	28292	62.06	58103	26,660		204556	6280	-58.817	66663	-1976	-11.362						
1	41.025	58115	-15245	1.858	-21481	-13233	20,169	-28896	-13461	-16,765			25591			-18139	28291	-61.56	25568	36,680		201132	6280	-58.518	-1999	-1976	-11.281				
		58215	-15543	1.858	-21662	-13204	20,114	-26973	-12500	-19,114				-22058	26478	61.56	-10856	28198		213735	6494	-58.512	67591	-1976	-11.281						
2	80.0	62800	-14025	2.862	-15942	-12416	19,903	-17882	-1.362	-19,059				-23683	26478	61.85	62383	28198		215900	6564	-58.343	65613	-1976	-11.207						
		63450	-14186	2.354	-16491	-12474	-19,846	-26357	-11894	-19,062				-28711	30498	-61.57	63723	29450		221160	6593	-58.447	69521	-1976	-11.204						
3	113.25	34720	-12967	3.319	+	-1735	-19,146	-56656	-11332	-18,464				-126376	30448	-61.84	56084	39456		226022	6589	-58.252	71010	-1976	-11.137						
		35950	-13022	3.360	+	-720	-19,135	-57187	-11361	-18,354				-32829	31139	-61.84	57969	40,354		229086	6625	-58.210	70519	-1976	-11.136						
4	146.5	26550	-11773	3.931	-17613	-11040	-19,427	-45561	-10828	-17,100				-135759	31139	-61.77	67407	40,354		234102	66625	-58.070	72483	-1976	-10.894						
		33900	-12625	4.010	-19457	-11319	-19,513	-51784	-10862	-17,187				-49561	35825	-61.68	73169	46432		237328	67658	-58.041	71611	-1976	-10.858						
5	180	-25546	-11145	4.574	-15247	1054	-17,890	-43740	-10318	-17,170				-152911	35825	-61.58	74811	46432		242656	67658	-57.834	73285	-1976	-10.894						
		47550	-13466	2.466	-22375	-11986	-16,105	-50344	-10619	-16,105				-122266	34367	-61.57	65582	46659		245092	6693	-57.893	83680	-376326	-9.834						
6	206	46350	-12471	2.896	-18675	-10906	-16,250	-53545	-11791	-15,617				-81243	34965	-61.43	91165	46659		248312	6093	-57.728	-84715	376326	-9.899						
		65154	-14195	1.507	-20905	-11591	-15,974	-49763	-10355	-15,871				-101354	35220	-61.38	102771	41136		257750	56164	-57.755	-194016	639744	-10.059						
7	232	51212	-13230	1.562	-26305	-11628	-15,036	-58684	5983	-14,465				205.92	35220	-61.27	104628	41136		262444	-76164	-57.591	-191541	639744	-10.201						
		111712	-16218	-2.574	-57800	-12153	-2,465	-63738	-10466	-12,112				147848	16608	-51.58	80522	23392		215218	34257	-48.811	356220	-269752	-59.659						
8	249	103257	-15591	-2.323	-53127	-11788	-12,130	-80174	-10200	-11,866				169856	16608	-51.92	61886	22393		217805	34257	-48.782	359142	-269752	-59.477						
		119451	-16377	-2.262	-63348	-12124	-12,127	-82346	-10240	-11,824				187421	22233	-51.99	69818	40696		221303	35488	-48.831	357987	-269752	-59.472						
9	264.5	101321	-15072	-1.350	-55108	-11361	-11,627	-74867	-9623	-11,322				192122	22233	-51.85	97.108	40696		227561	35468	-48.66	363805	-269752	-59.087						
		67103	-13415	+.460	-36661	-10798	-12,898	-53066	-50.85	-12,476				-201.37	-79554	+14.49	-12449.4	-103169		-149666	-62802	+14.339	49291	0	-2.447						
10	212	52019	-12418	.819	-36277	-10218	-12,451	47819	-8861	-12,027					-79554	+14.48	-136266	-103169		-200284	-62802	+14.150	49856		-2.406						
		54480	-12487	.829	-30223	-10243	-12,453	-49557	-8875	-12,029				-201.37	-79114	+14.49	-135654	-102625		-200904	-62384	+14.154	49701		-2.406						

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

SHEET 2 OF 4

DTA.	DIST. FROM START	D.G.W.-26,800 HIGH SPEED @30,000'		D.G.W.-27,800 LAA		D.G.W.-29,000 LAA		D.G.W.-29,995 LAA		TWL-R-ND D.G.W. 25,000 BOMBS		TWL-B-ND D.G.W. 25,000		TWL-R-ND D.G.W. (23,000) BOMBS		SLIP DRIFT LANDING D.G.W. LESS BOMBS	
		Sb	Sc	Sb	Sc	Sb	Sc	Sb	Sc	Sb	Sc	Sb	Sc	Sb	Sc	Sb	Sc
		TABLE 23		TABLE 23		TABLE 23		TABLE 23		TABLE 23		TABLE 23		TABLE 23		TABLE 66	
		COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23
11	339.5	44350	-11522	-1287	-50416	-5679	-[illegible]	-42094	-8463	-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-2.366
		5335	12520	-1263	-38159	-5083	-[illegible]	-23953	-8619	-10.349	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-2.068
12	375.75	52294	-1681	-1791	-25965	-5454	-[illegible]	-46967	-8146	-5.946	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-2.019
		2.197	-12931	-1761	-24567	-9003	-[illegible]	-39278	-8274	-9.842	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-2.022
13	412	59335	-11682	-1.179	-35341	-9113	-5.187	-45181	-7741	-5.373	[illegible]	[illegible]	[illegible]	-204982	-63188	10.68	-1.975
		83541	-12856	-1.110	-45151	-9595	-5.581	-52042	-7858	-5.375	[illegible]	[illegible]	[illegible]	-186210	-56128	10.15	-1.904
14	448.5	66612	-11662	+.900	-40252	-8900	-5.187	-44518	-7350	-6.213	[illegible]	[illegible]	[illegible]	-189868	-64128	10.52	-1.941
		89723	-12781	+.857	-53462	-9300	-5.222	-50513	-7462	-5.313	[illegible]	[illegible]	[illegible]	-167419	-59419	10.59	-1.952
15	485	73150	-11588	+.834	-45018	-8603	-5.282	-43245	-6953	-5.533	[illegible]	[illegible]	[illegible]	-170641	-64419	10.38	-1.911
		93341	-12593	+.745	-56890	-8966	-5.737	-49692	-7063	-5.693	[illegible]	[illegible]	[illegible]	-150131	-53944	10.30	-1.898
16	521.5	78403	-11441	+1.257	-48422	-8294	-5.337	-41653	-6573	8.000	[illegible]	[illegible]	[illegible]	-153278	-43354	10.12	-1.862
		101939	-12594	-.580	[illegible]	-9710	-5.133	-[illegible]	[illegible]	-6.587	[illegible]	[illegible]	[illegible]	-125848	-36608	7.46	-1.478
17	549	90156	-11298	-.559	-53828	-8188	-6.880	-46493	-6384	6.714	[illegible]	[illegible]	[illegible]	-137487	-36408	[illegible]	[illegible]
		91256	-11754	.559	-56473	-8207	-6.882	-47666	-6394	-6.716	[illegible]	[illegible]	[illegible]	-101149	-36018	7.356	-1.455
18	576.5	79232	-10872	-.181	-50473	-7692	-6.621	-41853	-6018	6.467	[illegible]	[illegible]	[illegible]	-128470	-36078	7.293	-1.432
		104413	-12080	-2.171	-69531	8125	-5.487	-54507	-6258	-5.997	[illegible]	[illegible]	[illegible]	-100181	-28836	4.759	-1.098
19	615.375	89129	-10343	-1.707	-56316	-7462	-5.122	-47580	-5774	-5.069	[illegible]	[illegible]	[illegible]	-102616	-28836	4.626	-1.009
		108425	-11878	-1.707	-67360	-7798	-5.122	-51942	-5959	-5.069	[illegible]	[illegible]	[illegible]	-82653	-23127	4.623	-1.009
20	654.25	94005	-10113	-1.165	-59448	-7118	-4.829	-50945	-5443	-4.723	[illegible]	[illegible]	[illegible]	-84745	-23127	4.519	-0.984
		111709	-11566	-1.126	-65492	7429	-4.850	-56010	-5.[illegible]	-4.742	[illegible]	[illegible]	[illegible]	-62208	-18099	4.556	-0.992
21	693.25	97113	-10458	-.656	-62104	-6.778	-4.514	-53819	-5159	-4.433	[illegible]	[illegible]	[illegible]	-68051	-18059	4.410	-0.973
		112324	-11167	-.706	-70235	-7034	-4.398	-57917	-5292	-4.411	[illegible]	[illegible]	[illegible]	-52040	-13812	4.418	-0.966

DTA.	TWL-R-ND D.G.W. 25,000 BOMBS						TWL-R-ND D.G.W. (23,000) BOMBS					
	Sb	Sc	TEAM	Sb	Sc	TEAM	Sb	Sc	TEAM	Sb	Sc	TEAM
	TABLE 23			TABLE 23			TABLE 23			TABLE 23		
	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23	COLUMN 23
11	-25117	-79116	14.23	-[illegible]	-[illegible]	[illegible]	-203619	-[illegible]	4.3561	-14.65		-2.366
	-20.14	-70675	11.16	-[illegible]	-91676	[illegible]	-178682	-55865	10.535	4.026		-2.068
12	-[illegible]	-70675	10.91	-[illegible]	-51676	[illegible]	-182017	-55865	10.719	4.672		-2.019
	-[illegible]	-63188	10.93	-[illegible]	-61928	[illegible]	-168927	-52002	10.669	5.338		-2.022
13	-204982	-63188	10.68	-[illegible]	-81938	[illegible]	-172012	-52002	10.461	3.908		-1.975
	-186210	-56128	10.15	-[illegible]	-72506	[illegible]	-155923	-48448	10.444	3.629		-1.904
14	-189868	-64128	10.52	-[illegible]	-72906	[illegible]	-163046	-49448	10.272	3.624		-1.941
	-167419	-59419	10.59	-[illegible]	-64105	[illegible]	-151353	-45046	10.212	3.266		-1.952
15	-170641	-59419	10.38	-[illegible]	-64105	[illegible]	-159415	-45046	10.089	3.426		-1.911
	-150131	-53944	10.30	-[illegible]	-56237	[illegible]	-142778	-41725	10.003	2.995		-1.898
16	-153278	-43354	10.12	-[illegible]	-56237	[illegible]	-145770	-41725	9.820	3.073		-1.862
	-125848	-36608	7.46	-[illegible]	-47227	[illegible]	-122682	-35895	7.233	2.631		-1.478
17	-137487	-36408	[illegible]	-[illegible]	-47227	[illegible]	-124670	-35855	7.122	2.756		-1.454
	-101149	-36018	7.356	-[illegible]	-46800	[illegible]	-123928	-35570	7.126	2.542		-1.455
18	-128470	-36078	7.293	-[illegible]	-46800	[illegible]	-125595	-35570	7.017	2.982		-1.432
	-100181	-28836	4.759	-[illegible]	-21409	[illegible]	-97590	-28324	4.613	2.090		-1.098
19	-102616	-28836	4.626	-[illegible]	-37409	[illegible]	-99765	-28324	4.469	2.627		-1.009
	-82653	-23127	4.623	-[illegible]	-30129	[illegible]	-79641	-22726	4.497	1.896		-1.009
20	-84745	-23127	4.519	-[illegible]	-30129	[illegible]	-81660	-22726	4.205	1.913		-0.984
	-62208	-18099	4.556	-[illegible]	-23477	[illegible]	-63066	-17893	4.216	1.548		-0.992
21	-68051	-18059	4.410	-[illegible]	-23477	[illegible]	-64724	-17793	4.342	1.544		-0.973
	-52040	-13812	4.418	-[illegible]	-17916	[illegible]	-49830	-13564	4.295	.931		-0.966

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Effective Date 25-36-140
Date 12-4-46

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION
FORT WORTH, TEXAS
FW-833 (25 PAGES 1943)

TABLE 67 — A 36 INCH SUMMARY OF DYNAMIC BEAM & CANTILEVER BENDING AND TORSIONS
SHEET 3 OF 4 — FOR EIGHT DESIGN FLIGHT AND LANDING CONDITIONS

PROJ. 310
SECTION NO. 1.65 - 26-140
DATE 12-8-45

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
STATION	DEVICE SCALE SHEET LINES	DGW-1.5G-1.4A, HIGH SPEED 30% LIMIT DIVE SPEED 5,000'			DGW-2.25G-1.4A, LIMIT DIVE SPEED 5,000'			A GIVEN 5G-1.4A, LIMIT DIVE SPEED 5,000'			1.4A SCALE 2.9,965			1.4A, 1.5G-1.4A, E.G.A. LOSS DOWN			1.4A, 1.5G-1.4A, E.G.A. LOSS DOWN			1.4A, 1.5G-1.4A, A.G.W. & WING LOSS DOWN			SIDE DRIFT LIMITING D.G.W. LOSS DOWN		
		SH	SC	TERM	SH	SC	TERM	SH	SC	TERM	SH	SC	TERM	SH	SC	TERM	SH	SC	TERM	SH	SC	TERM	SH	SC	TERM
		TABLE 53 COLUMN 3	TABLE 53 COLUMN 4	TABLE 53 COLUMN 5	TABLE 53 COLUMN 26	TABLE 53 COLUMN 27	TABLE 53 COLUMN 28	TABLE 53 COLUMN 29	TABLE 53 COLUMN 30	TABLE 53 COLUMN 31	TABLE 53 COLUMN 32	TABLE 53 COLUMN 33	TABLE 53 COLUMN 34	TABLE 53 COLUMN 35	TABLE 53 COLUMN 36	TABLE 53 COLUMN 37	TABLE 64 COLUMN 39	TABLE 64 COLUMN 40	TABLE 64 COLUMN 41	TABLE 64 COLUMN 42	TABLE 65 COLUMN 38	TABLE 65 COLUMN 39	TABLE 66 COLUMN 32	TABLE 66 COLUMN 33	TABLE 66 COLUMN 34
22	738	95050	-.0062	-.285	-42927	-6386	-4299	-5415	-4321		-1154	-45784	-5711	-2.712	53773	-13812	9380	-32121	-11916		-9256	-13564	6.239	12356	-0.5931
		100246	-1.421	-.365	-61195	-6517	-4286	-28029	-4886		-1.113	-53801	-7395	-2.931	45624	-11624	4352	-27116	-15077		-9402	-11625	-.190	16362	-0.9946
23	766	95121	-5484	+.090	-61179	-5970	-4042	-52354	-4486		-3.893	-43570	-5400	-8.332	-46765	-11624	9.360	-28410	-15077		-45122	-11625	4.133	.10619	-0.535
		99028	-10204	-1.516	-69524	-6229	-3.132	-59605	-4629		-3.078	-53324	-5.400	-8.332	-28010	-7299	2.255	-16927	-5469		-27069	-7299	-2.172	6762	-0.514
24	806	56813	-9152	-1.117	-62559	-5816	-2.871	-53677	-4180		-2.856	-41.02	-3.710	-5.793	-28865	-7299	2.218	-17444	-5469		-27897	-7299	2.1357	6766	-0.5044
		111425	-9867	-1.614	-70858	-5873	-2.024	-61144	-4322		-2.094	-52205	-3.770	-5.793	-10184	-3002	.3112	-15994	-2894		-9924	-3002	.3014	.2928	-0.0924
25	840	41382	-9017	-2.310	-65180	5375	-1.843	-14337	3959		-1.906	-45.44	5.6.8	-1.955	-10446	-3002	.2990	-6146	-3894		-16179	-3002	.2893	3002	-0.0880
		112380	-9068	-2.310	-65178	-5393	-1.843	-58875	-3969		-1.906	-52....	-3.19	[illegible]	-9274	-2696	.2994	-7457	-3498		-5017	-2696	.2697	2700	-0.0885
26	870	93684	-8327	-2.093	-60934	-4962	-1.684	-52127	-3654		-1.798	-41.77	-2.795	-1.762	-9492	-2696	.2896	-5427	-3498		-9.229	-2696	.2801		
		93875	-8386	-2.013	-61612	-4983	1.666	-53338	-3665		-1.731	-[illegible]	-2....	-1....	-8090	-2348	.2508	-4818	-3096		-7255	-2348	.2418		
27	906	85147	-7507	-1.802	-56093	-4468	-1.467	48657	-3289		-1.546	-37.20	1.479	[illegible]	-8338	-2348	.2400	-4960	-3046		-8087	-2348	.2216		
		85947	-7546	-1.802	-56545	-4482	-1.465	-49063	-3297		-1.594	-[illegible]	-2.511	[illegible]	-7415	-2117	.2351	-4492	-2746		-7197	-2117	.2268		
28	942	76448	-6706	-1.541	-50412	-3963	-1.352	44123	-2941		-1.3547	-[illegible]	-2....	[illegible]	-7646	-2117	.2256	-4580	-2746		-7411	-2117	.2175		
		77141	-6742	-1.541	-50625	-4006	-1.349	44458	-2948		1.3528	[illegible]	[illegible]	[illegible]	-6738	-1905	.2212	-4094	-2471		-6578	-1905	.2135		
29	978	67899	-5933	-1.286	-45477	-3533	-1.193	-39934	-2602		-1.1803	-32.0.1	[illegible]	[illegible]	-7023	-1.305	.2129	-4228	-2471		-6794	-1905	.2051		
		69192	-5994	-1.326	-46193	-3556	-1.172	-40359	-2614		-1.1612	[illegible]	[illegible]	[illegible]	-5489	-1536	.1615	-3321	-1993		-5362	-1536	.1610		
30	1014	60234	-5212	-1.110	40605	-3299	-1.037	-35846	-2281		-1.0205	[illegible]	[illegible]	[illegible]	-5678	-1536	.1606	-3436	-1993		-5485	-1536	.1544		
		60934	-5241	-1.110	-41157	-3110	-1.035	-36163	-2287		-1.0185	[illegible]	[illegible]	[illegible]	-4944	-1356	.1568	-3008	-1760		-4768	-1356	.1507		
31	1050	52111	-4503	-.918	-36109	-2681	-.915	-31594	1912		-.8927	[illegible]	[illegible]	[illegible]	-5125	-1356	.1508	-3118	-1760		-4943	-1356	.1449		
		52611	-4527	-.918	36398	-2689	-.913	-31954	-1926		-.9914	[illegible]	[illegible]	[illegible]	-4518	-1209	.1477	-2763	-1568		-4349	-1208	.1419		
32	1080	45773	-3935	-.760	-32113	-2142	-.804	-28225	-1723		-.7905	[illegible]	[illegible]	[illegible]	-4664	-1208	.1431	-2852	-1568		-4490	-1208	.1375		
		42865	-3985	-.800	-32690	-2360	-.784	-28759	-1733		-.7727	[illegible]	[illegible]	[illegible]	-3578	-.913	.0933	-2077	-1184		-3257	-.913	.0957		

Table 67 — Sheet 4 of 4

B-36 Wing Summary of Ultimate Beam & Chord Shears, and Tensions for Eight Design Flight and Landing Conditions

Sta.	Dist. From [illegible]	[illegible] High Speed @ 30,000' 5b	5c	Tens	[illegible] 5b	5c	Tens	[illegible] 5b	5c	Tens	[illegible] 5b	5c	Tens	2 Whl [illegible] D.G.W. Less Bombs 5b	5c	Tens	2 Whl B ND D.G.W. Less Bombs 5b	5c	Tens	[illegible] D.G.W. (57) 360# Bombs 5b	5c	Tens	Side Drift Landing D.G.W. Less Bombs 5b	5c	Tens
		Table 55 Column 25	Table 55 Column 26	Table 55 Column 29	Table 52 Column 25	Table 52 Column 26	Table 52 Column 29	Table 42 Column 25	Table 42 Column 26	Table 42 Column 29	Table 60 Column 25	Table 60 Column 26	Table 60 Column 29	Table 63 Column 42	Table 63 Column 36	Table 65 Column 39	Table 64 Column 42	Table 64 Column 36	Table 64 Column 39	Table 65 Column 42	Table 65 Column 36	Table 65 Column 39	Table 66 Column 33	Table 66 Column 27	Table 66 Column 30
33	1110.0	40244	-3415	-.662	-28257	-2029	-.691	-25220	-1491	-.4727	[illegible]	-757	[illegible]	-3501	-913	.09574	-2147	-1184	.05846	-3167	-919	.05170			
		40544	-3431	-.662	28358	-2035	-.6825	-25392	-1495	-.4735	[illegible]	-.32	[illegible]	3091	-815	.09374	[illegible]	-1058	.05826	-2569	815	.08573			
34	1140.0	33973	-2889	-.536	-24552	1717	-.5827	-21748	-1263	-.5724	[illegible]	-757	[illegible]	-3262	-910	.09071	-1971	1058	[illegible]	-3076	[illegible]	.08678			
		34273	-2904	-.536	-24722	-1722	-.5817	-21901	-1266	-.5725	[illegible]	-759	[illegible]	-2832	-728	.08841	[illegible]	-944	[illegible]	-2116	-728	.08461			
35	1170.0	28274	-2379	-.4239	-20738	-1415	-.4858	-18257	-1042	-.4768	[illegible]	[illegible]	[illegible]	2931	-728	.08557	-2116	-944	[illegible]	-2032	-728	.08189			
		29069	-2421	-.4436	-21220	-1430	-.4705	-18689	1050	-.4630	[illegible]	[illegible]	[illegible]	1852	-451	.05689	-1745	-623	[illegible]	-776	451	.04859			
36	1198.0	23589	-1964	-.3506	-17406	-1163	-.3896	-15271	-855	-.3817	[illegible]	[illegible]	[illegible]	1941	-481	.04901	-1921	623	[illegible]	-1543	-481	.04687			
		23889	-1975	-.3506	-17531	-1167	-.3889	-15383	-857	-.3811	[illegible]	[illegible]	[illegible]	1646	-417	.04545	-1025	-541	[illegible]	-577	-417	.04549			
37	1225.0	18982	-1565	-.2611	-19005	-929	-.3180	-12324	-682	-.3120	[illegible]	[illegible]	[illegible]	1110	-417	.04622	-1019	541	[illegible]	-1638	-417	.04416			
		19082	-1573	-.2611	-14108	-932	-.3174	-12324	-684	-.3114	[illegible]	[illegible]	[illegible]	-1482	-364	.04481	-927	-473	[illegible]	-1418	-364	.04271			
38	1252.0	14512	1188	-.2005	-11074	-709	-.2511	9678	-521	-.2470	[illegible]	[illegible]	[illegible]	-1544	364	.04346	-965	-473	.02198	-1476	-364	.04153			
		14712	-1197	-.2005	-11117	-712	-.2505	-9772	-525	-.2465	[illegible]	[illegible]	[illegible]	[illegible]	311	.04228	822	-404	[illegible]	-1352	-311	.04032			
39	1278.0	10644	-879	-.1337	-8283	-525	-.1952	-7397	-387	-.1940	[illegible]	[illegible]	[illegible]	-1368	311	.04120	857	-404	[illegible]	-1306	-311	.039279			
		11336	-913	-.1607	-8665	-537	-.1799	7140	-393	-.1802	[illegible]	[illegible]	[illegible]	-467	-114	.00505	-289	-148	[illegible]	-447	-114	.004819			
40	1301.0	8150	-664	-.1131	-6439	-391	-.1336	5801	-287	-.1402	[illegible]	[illegible]	[illegible]	3496	-114	.004688	-301	-148	[illegible]	-465	114	.004491			
		8250	-670	-.1131	-6515	-393	-.1332	-5869	-288	-.1399	[illegible]	[illegible]	[illegible]	-316	-76	.003819	-196	-57	[illegible]	-302	-76	.003656			
41	1324.0	5430	-442	-.8828	-4353	-261	-.0961	-4123	-191	-.0983	[illegible]	[illegible]	[illegible]	-330	-16	.003594	-204	-57	[illegible]	315	-76	.003442			
		5529	-445	-.8928	-4390	-262	-.0961	-4154	-192	-.0981	[illegible]	[illegible]	[illegible]	-246	-57	.002980	-155	-75	[illegible]	-239	-56	.002652			
Tip CG	1346.4	3000	-245	-.4195	-2487	-145	-.05614	-2538	-107	-.0519	[illegible]	-71	[illegible]	-258	-57	.00082	0	-75	[illegible]	-251	[illegible]	.002691			
Tip	1380.91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	[illegible]	0	0	0			

[illegible]
Checked [illegible]

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