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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

REPORT FZS-36-140

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

DATE December 4, 1945

TITLE

STRESS ANALYSIS OF WING

PART I

DETERMINATION OF APPLIED LOADS

SUBMITTED UNDER

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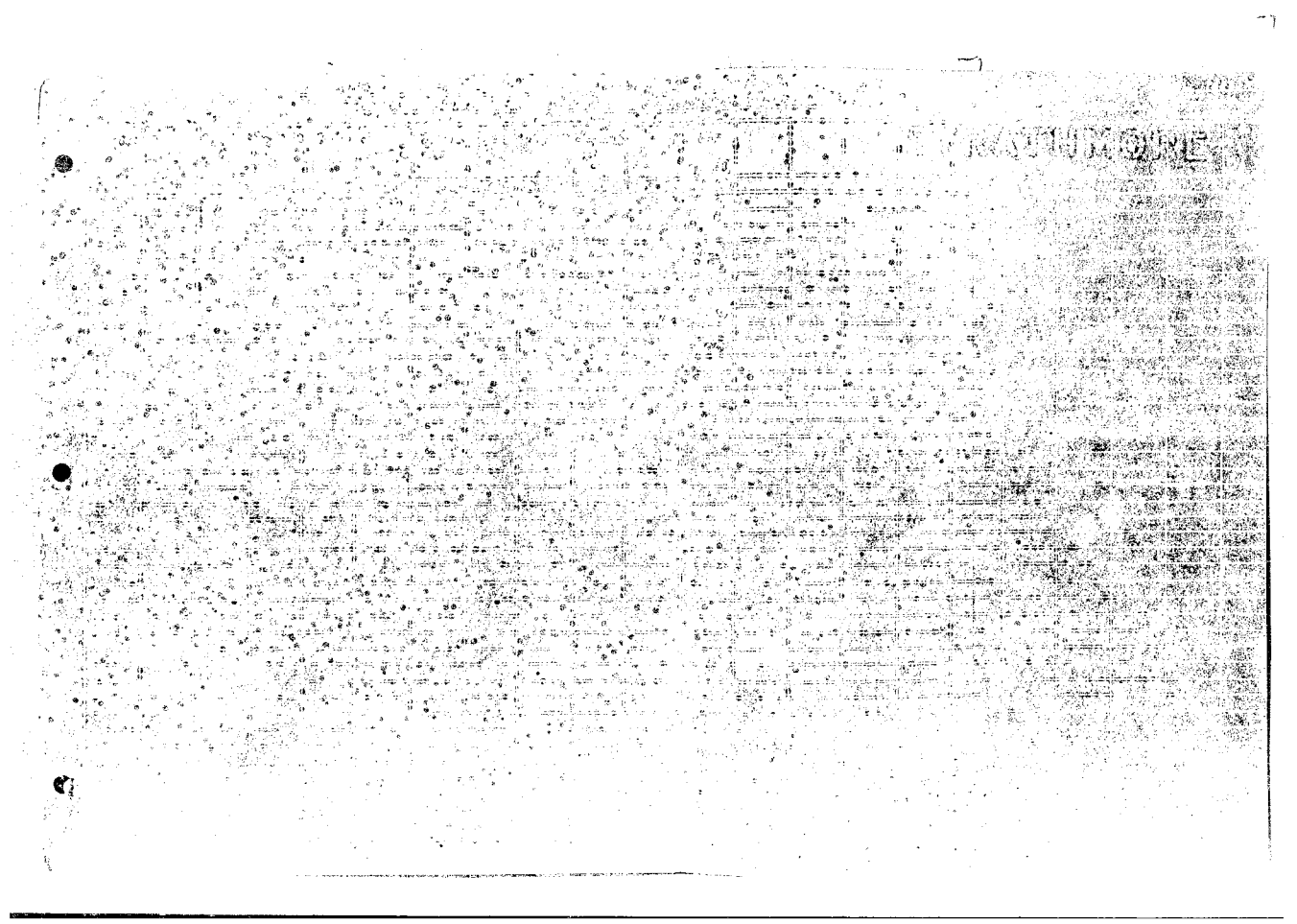


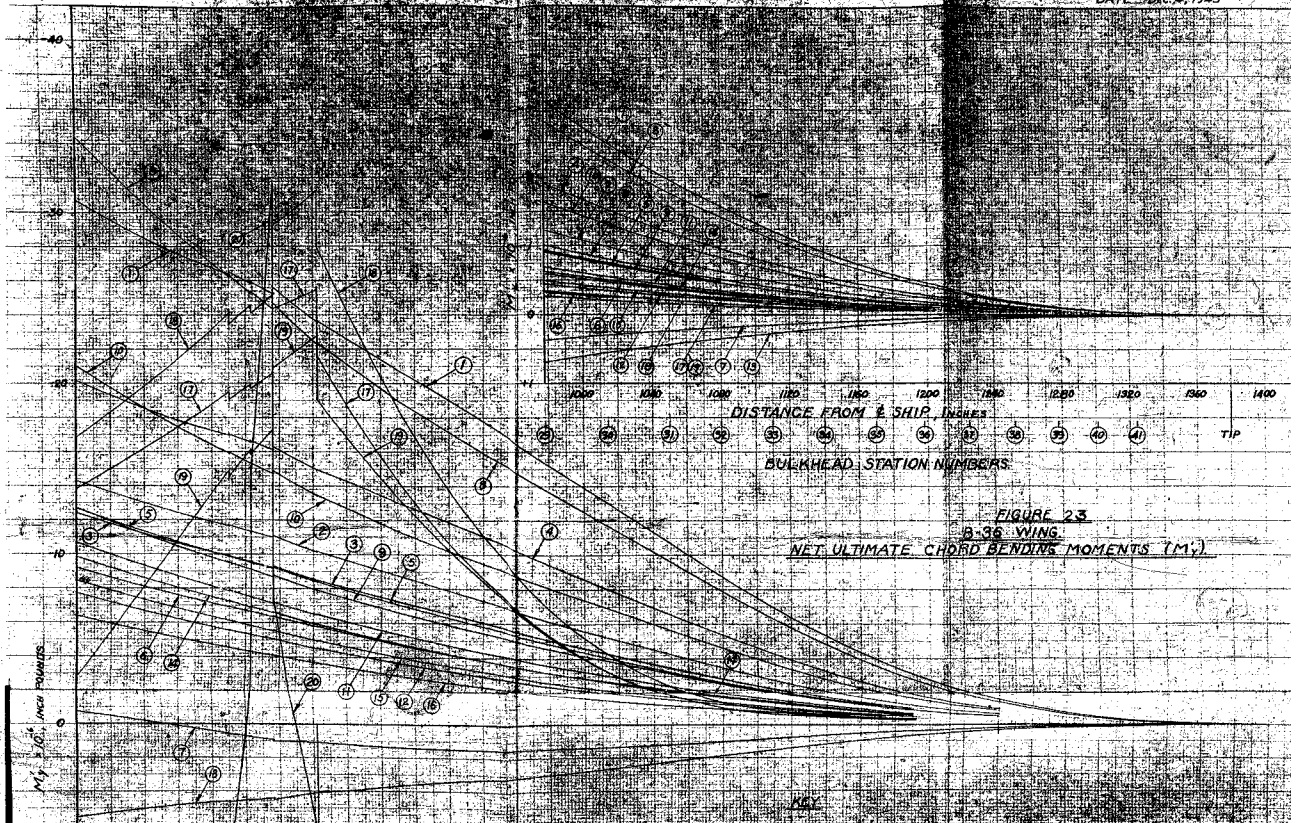
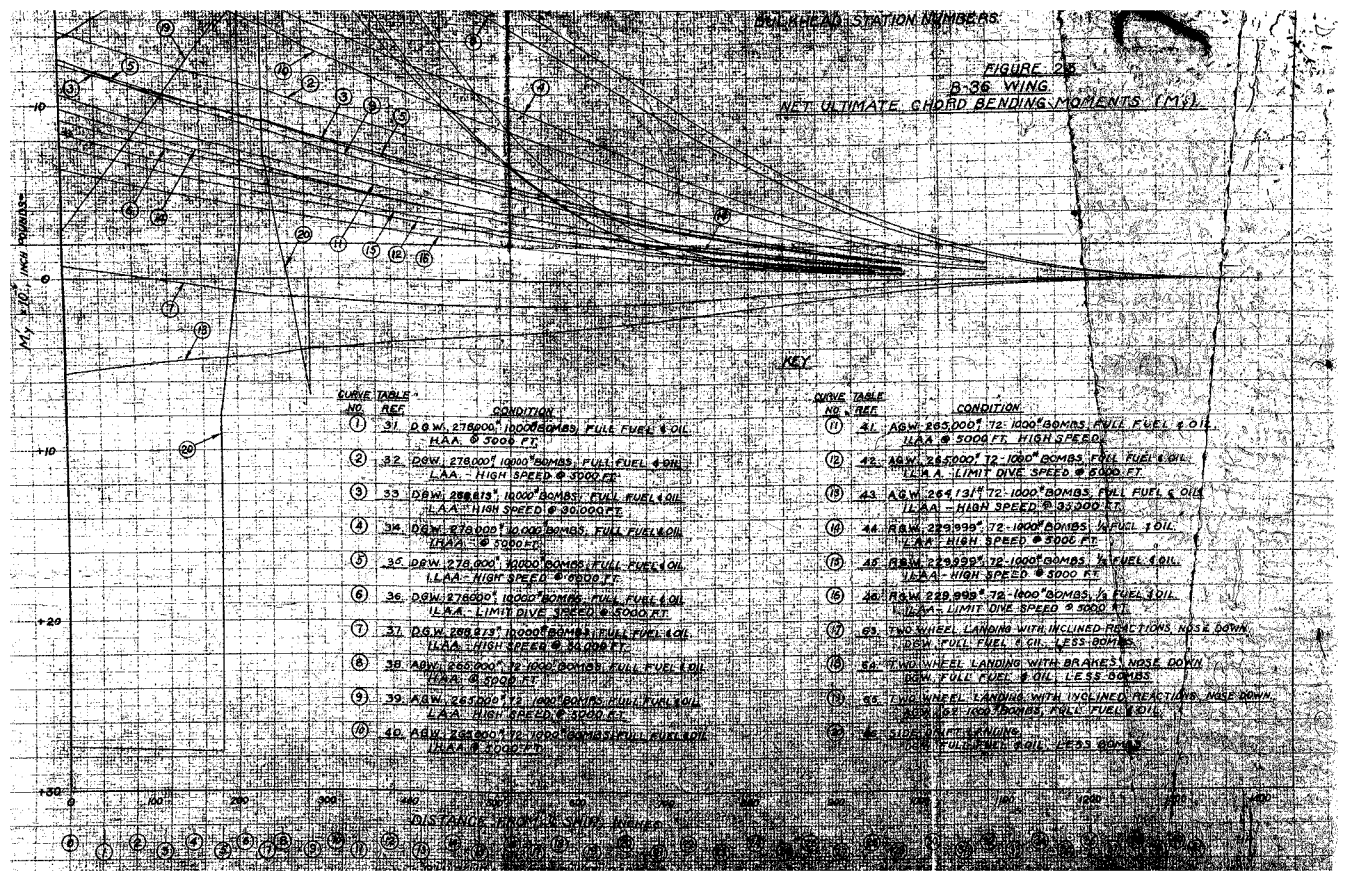


FIGURE 23
B-36 WING
NET ULTIMATE CHORD BENDING MOMENTS (M_y)


BUTT LINE STATION NUMBERS
FIGURE 25
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M_y x 10^6 IN. LBS.
-10
0
+10
+20
+30
DISTANCE FROM "A" SHIP BUTTLINE
KEY
CURVE NO. | TABLE REF | CONDITION
(1) 31 D.G.W. 278,000# (10000# BOMBS) FULL FUEL & OIL I.A.A. @ 3000 FT.
(2) 32 D.G.W. 278,000# (10000# BOMBS) FULL FUEL & OIL I.A.A. - HIGH SPEED @ 3000 FT.
(3) 33 D.G.W. 288,813# (10000# BOMBS) FULL FUEL & OIL I.A.A. - HIGH SPEED @ 30,000 FT.
(4) 34 D.G.W. 278,000# (10,000# BOMBS) FULL FUEL & OIL I.A.A. - @ 3000 FT.
(5) 35 D.G.W. 278,000# (10000# BOMBS) FULL FUEL & OIL I.A.A. - HIGH SPEED @ 6000 FT.
(6) 36 D.G.W. 278,000# (10000# BOMBS) FULL FUEL & OIL I.A.A. - LIMIT DIVE SPEED @ 5000 FT.
(7) 37 D.G.W. 288,813# (10000# BOMBS) FULL FUEL & OIL I.A.A. - HIGH SPEED @ 30,000 FT.
(8) 38 A.G.W. 265,000# 72-1000# BOMBS FULL FUEL & OIL I.A.A. @ 5000 FT.
(9) 39 A.G.W. 265,000# 72-1000# BOMBS FULL FUEL & OIL I.A.A. HIGH SPEED @ 5000 FT.
(10) 40 A.G.W. 265,000# 72-1000# BOMBS FULL FUEL & OIL I.A.A. @ 5000 FT.
(11) 41 A.G.W. 265,000# 72-1000# BOMBS, FULL FUEL & OIL I.A.A. @ 5000 FT. HIGH SPEED
(12) 42 A.G.W. 265,000# 72-1000# BOMBS, FULL FUEL & OIL I.A.A. - LIMIT DIVE SPEED @ 5000 FT.
(13) 43 A.G.W. 265,813# 72-1000# BOMBS, FULL FUEL & OIL I.A.A. - HIGH SPEED @ 30,000 FT.
(14) 44 A.G.W. 229,999# 72-1000# BOMBS, 1/4 FUEL & OIL I.A.A. - HIGH SPEED @ 3000 FT.
(15) 45 A.G.W. 229,999# 72-1000# BOMBS, 1/4 FUEL & OIL I.A.A. - HIGH SPEED @ 3000 FT.
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(20) 66 SIDE DRIFT LANDING D.G.W. FULL FUEL & OIL - LESS BOMBS

REPORT FBS-36-140

DATE December 4, 1945

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

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PART I

DETERMINATION OF APPLIED LOADS

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PREPARED BY: D. V. Allen

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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.
$C_{l_{a_1}}$	- 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 $(\text{second})^2$,
$M_{c_{l_{a_1}}}$	- One g beam bending moment due to additional lift (directly proportional to gross weight).
$M_{c_{l_b}}$	- Beam bending moment due to basic lift (directly proportional to $V^2\sigma$).
M_{x_a}	- Ultimate beam bending moment due to air loads $= 1.5(\frac{Z}{W} M_{c_{l_{a_1}}} + M_{c_{l_b}})$.
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 $M_y = 1.5(\frac{X}{W} M_{c_{l_{a_1}}} + \frac{X_m}{W} M_{x_i})$.

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 $S_c = 1.5(\frac{X}{W} S_{c_{l_{a_1}}} + \frac{X_m}{W} S_{b_1})$.
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 $T_{E.A.} = T_{E.A._a} + 1.5(\frac{-N_A}{W}) T_{E.A._i}$.

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.

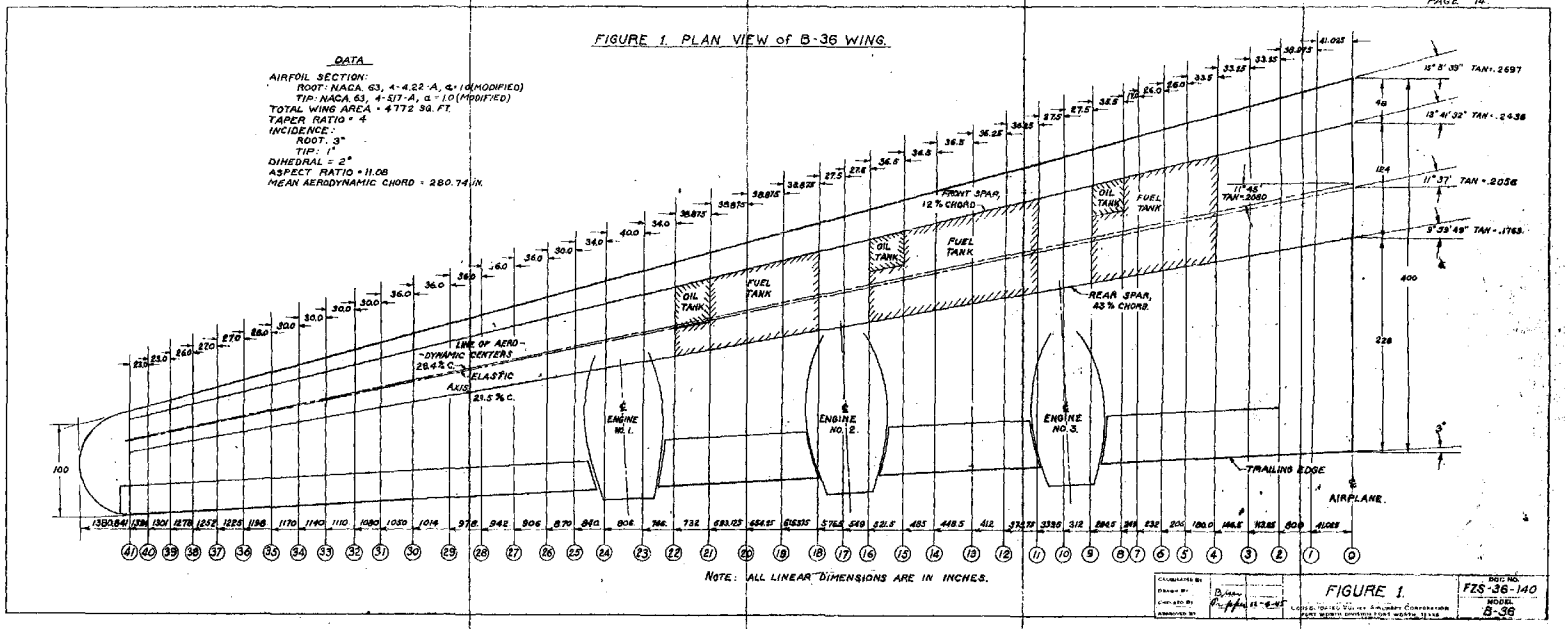


FIGURE 1.

DOC. NO. FZS-36-140

MODEL: B-36

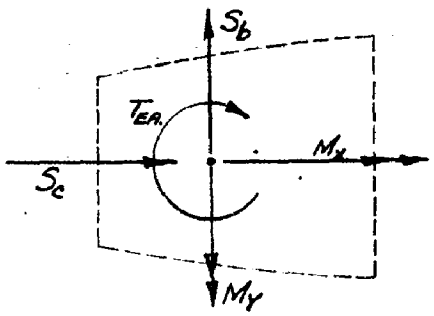
INTRODUCTION

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_o} 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.

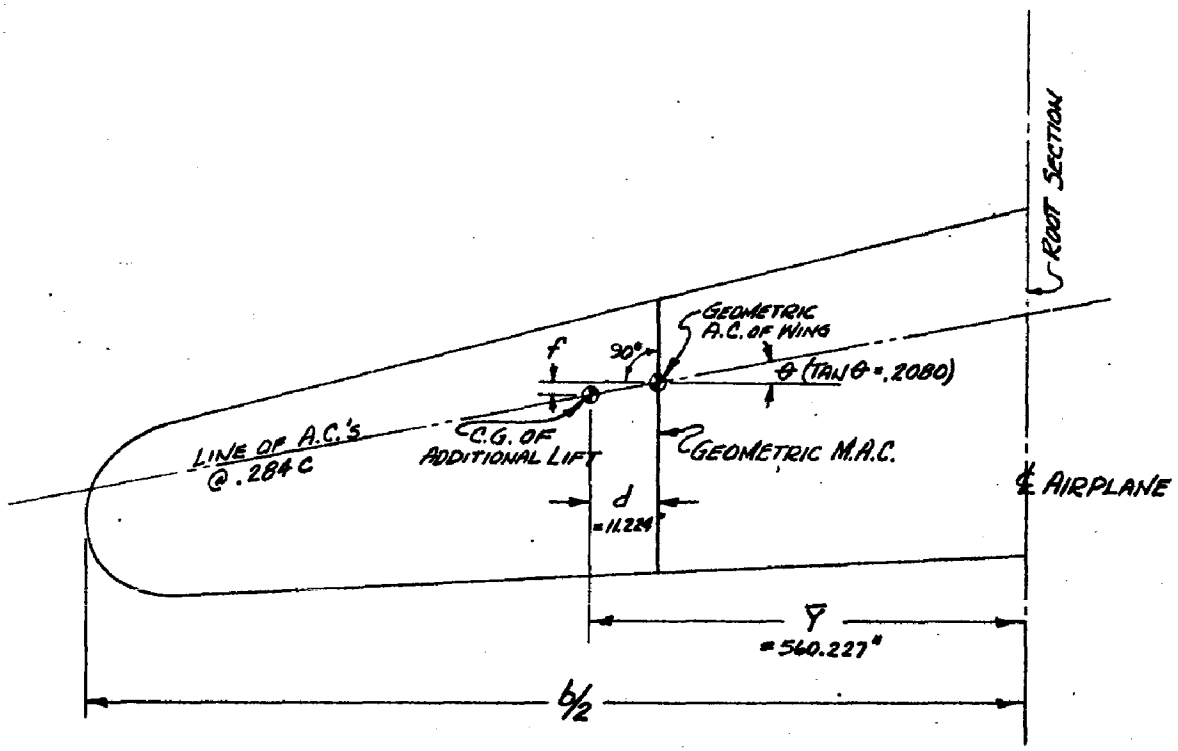
DETERMINATION OF CORRECTION FACTOR (F_3) FOR SECTION PITCHING MOMENT COEFFICIENT (C_{M_o})

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_o} is used in place of $C_{M_{A.C.}}$ while in this report C_{M_o} 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:

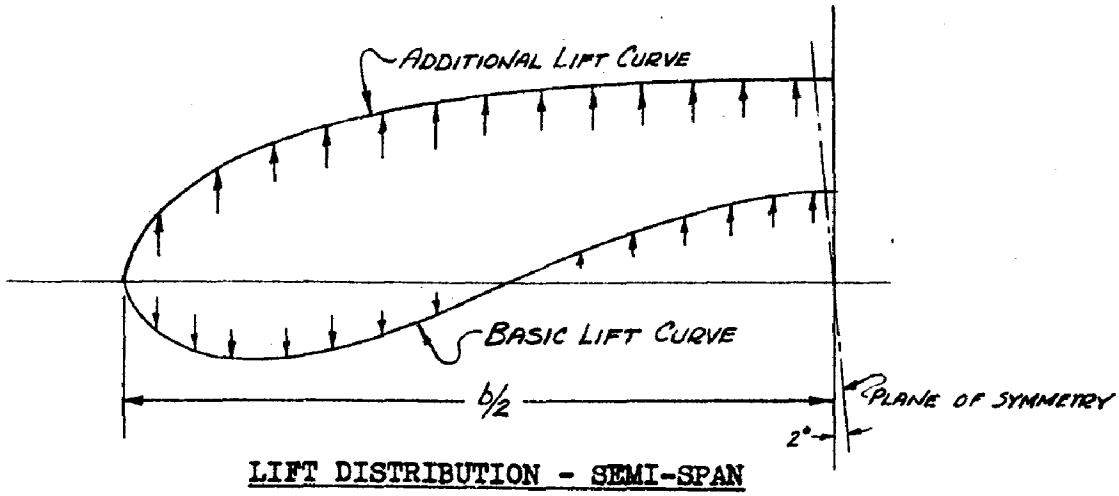
1. The basic lift distribution over the span,
2. The additional lift distribution over the span,
3. Section moment coefficient values, and
4. Mach number .

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.



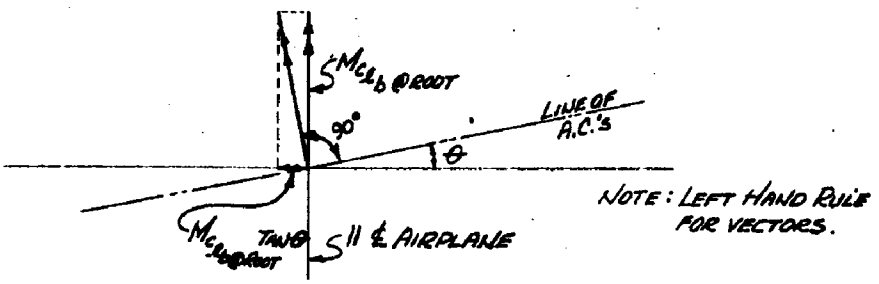
LIFT DISTRIBUTION - SEMI-SPAN

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

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

where $M_{c_{l_b}\ @\ root}$ 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

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

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.

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

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

B. (con't.)

is the 1 g semi-span air load.

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

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

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:

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

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

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

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

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

$$\left. + 1.5\ \tfrac{Z}{W}\ S_{c_{l_{a_1}}\ @\ root} \times d\ \tan\theta\right] \div 1.5(.002558)V^2\sigma\int_{b/2}^{o} C_{M_o}c^2\, dy. \qquad (6)$$

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

STA. DISTANCE FROM ℄ SHIP.	C WING DATA BOOK	C^2	C_{m_0}, FIG. 2 ZA-36-028	$C_{m_0} C^2$	SIMPSON'S MULTIPLIER	$(C_{m_0} c^2)(SM)$	$\sum_{\frac{b}{2}}^{y}(C_{m_0} c^2)(SM)$	.011 C
1	2	3	4	5 ③×④	6	7 ⑤×⑥	8 $\sum_{\frac{b}{2}}^{y}$ ⑦	9 .011×②
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	-273,186	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	-.0668	-4562	4	-18,248		
690	250	62,500	-.0666	-4163	2	-8326	-79,851	2.750
747.5	237.5	56,406	-.0669	-3774	4	-15,096		
805	225	50,625	-.0671	-3397	2	-6794	-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	-2299	-4931	1.375
1322.5	108	12,680	-.0747	-946	4	-3784		
1380	0	0	-.0760	0	1	0	0	0

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

FOR ANY SPEED AND ALTITUDE:

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

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

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TABLE 2. CALCULATION OF F_3 FOR DESIGN CONDITIONS.

CONDITION	$\frac{Z}{W}$	GROSS WEIGHT	V	V^2	ULTIMATE $1.5\frac{Z}{W}Sc_{l_a}d\tan\theta\frac{GW}{265,000}$	TORSION DUE TO C_{l_a}	ULTIMATE TORSION DUE TO C_{l_a} $1.5\,Mc_{l_a}(\frac{V}{311})^2\sigma\tan\theta$		ULTIMATE TORSION DUE TO C_{m_c} $1.5\times.002558\,V_o^2\int C_{m_c}c\,dy$		ULTIMATE TORSION DUE TO $C_{m_{ac}}$ $1.5\,C_{m_{ac}}\,c.002558\frac{S}{2}V_o^2$			F_3
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
					(1) $1.5\,Sc_{l_a}$ (2) $d\tan\theta$	$\frac{G.W.}{265,000}$	⑤×⑥	$(\frac{V}{311})^2\sigma$	⑧×-2,026,000 (3)	V_o^2	⑩×-169.56 (4)	C_{MAC}. FZS-36-136	⑫×⑩×2570 (5)	⑬+⑦+⑪	⑭/⑩
D.G.W.-H.A.A. @ 5,000'	2.691	278,000	219.3	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	-13859,000	-.0559	-11,746,900	-14,174,900	1.0228
A.G.W.-H.A.A. @ 5,000'	2.531	265,000	209.0	43,681	-464,000	1.000	+1,184,000	.3892	-789,000	37,640	-6,382,000	-.0484	-4683500	-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	-14073,700	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	-593300	.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	-6,435000	+.0289	+2,819,800	+1339,100	-.2091

(1) Sc_{l_a} (For G.W. = 265000#) = 132500#
(2) $d\tan\theta = 2.335$
(3) $1.5\,Mc_{l_a}\tan\theta = -2026.000$ (Mc_{l_a} for V=311 @ Sea Level = -6894.506)
(4) $1.5\times\frac{.002558}{144}\times\int C_{m_c}c\,dy = -169.56$ (See Table 1.)
(5) $1.5\,c.002558\frac{S}{2} = 2570$.

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TABLE 3. B-36 WING, AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE.

CONDITION: D.S.W.=278,000#, 10000 #'S FUEL & OIL. HAA = 5000 FT

STA	DISTANCE FROM ℄ SHIP	S_{Ca_1} (GW=265,000 W.S.=1900 $\frac{GW}{W.S.}$=141)	S_{Ca_1} (GW=278,000 W.S.=1900 $\frac{GW}{W.S.}$=147)	$\frac{GW}{W.S.} S_{Ca_1}$ (511.0 MPH) (318.8 MPH)	S_{Cl_b}	$\frac{GW}{W.S.} S_{Cl_b}$	$S_{D_{ba}}$	M_{Ca_1} (GW=265,000) $\times 10^{-3}$	M_{La_b} $\times 10^{-3}$	M_{Ca_1} (GW=278,000) $\times 10^{-3}$	M_{Ca_b} (511.0 MPH) $\times 10^{-3}$	M_{Cl_b} (318.8 MPH) $\times 10^{-3}$	$\frac{GW}{W.S.} M_{Cl_b}$ $\times 10^{-3}$	$M_{Ca_1} + M_{Cl_b}$ $\times 10^{-3}$	$M_{D_{ba}}$ $\times 10^{-3}$	TORSION due to $C_{M_{ac}}$ $\times 10^{-3}$	TORSION due to C_{Ca} $\times 10^{-3}$	$-M_{A_{La_b}}$ (q_{ac}=208) $\times 10^{-3}$	$GI/C S_{D_{ba}}$ $\times 10^{-3}$	$T_{FA} \times 10^{-3}$
		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	$F_L \times$ ②	FZS-36-138 TAB X Col 10	④ + ⑥	1.5 X ⑦	FZS-36-138 TAB X Col 11	$F_L \times$ ⑨	1.2 X ⑩	FZS-36-138 TAB X Col 12	$F_L \times$ ⑫	⑪ + ⑬	1.5 X ⑭	$T_{M/C} = F_L \times$ ⑮	$T_{Ca} = F_L \times$ ⑯	-2080 ⑮		⑰ + ⑱	⑲ + ⑳
0	0	131,900	138,376	372,370	0	0	372,370	558,555	73,804	77,522	208,612	-6,424,500	-2,795,000	205,817	308,726	-232,020	+4,765.6	- 64,215	2,437,642	-66,821.0
2	115. 345 172.5	116,144	121,847	327,890	-2002	-862	327,028	490,542	59,632	62,560	168,349	-6,326,500	-2,740,000	165,605	248,408	-223,770	+3,918.1	-51,643	2,025,486	-53,573.6
4	230. 287.5	100,856	105,808	284,729	-3792	-1633	283,096	424,644	47,161	49,477	133,142	-6,040,800	-2,600,000	130,543	195,814	-212,670	+3,184.9	-40,729	1,634,879	-42,283.0
6	345 402.5	86,236	90,532	243,614	-5384	-2274	241,350	362,025	36,407	38,195	102,783	-5,515,800	-2,374,000	100,409	150,614	-172,224	+2,557.1	-31,328	1,294,239	-32,590.9
8	460 517.5	72,525	76,086	204,747	-6418	-2762	201,985	302,978	27,283	28,623	77,044	-4,838,200	-2,083,000	74,941	112,412	-128,934	+2,007.7	-23,392	993,827	-24,389.8
10	575 632.5	59,613	62,540	168,238	-7149	-3077	165,218	247,827	19,694	20,661	55,599	-4,064,900	-1,745,000	53,854	80,781	-107,262	-1,538.8	-16,802	743,677	-17,531.1
12	690 747.5	47,622	49,960	134,442	-7400	-3185	131,257	196,886	13,537	14,202	38,218	-3,213,700	-1,383,000	36,835	55,252	-79,231	-1,145.7	-11,422	541,436	-12,096.9
14	805 862.5	36,607	38,404	103,345	-7169	-3086	100,259	150,388	8,703	9,130	24,563	-2,371,700	-1,021,000	23,548	35,322	-51,195	-820.6	-7,247	372,210	-7,295.4
16	920 977.5	26,620	27,927	75,152	-6473	-2786	72,366	108,549	5,079	5,327	14,355	-1,582,600	-681,200	13,654	20,481	-33,834	-559.0	-4,266	238,808	-4,573.2
18	1035. 1092.5	17,732	18,610	50,080	-5311	-2286	47,794	71,821	2,538	2,663	7,166	-960,068	-397,700	6,778.3	10,167	-14,343	-240.3	-2,115	138,005	-2,224.3
20	1150 1207.5	10,083	10,578	28,465	-3644	-1577	26,888	40,332	250.6	997.3	2,684	-379,820	-163,500	2,520.5	3,781	-13,153	-188.7	-724	66,548	- 908.6
22	12.65 1322.5	3,809	3,995	10,751	-1626	-700	10,051	15,076	166.8	175.0	470.9	-79,447	- 31,610	439.38	659.1	-4,931	- 70.75	-157.0	20.730	- 187.07
24	1380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

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

$F_2 = \left(\frac{M.P.H.}{511.0}\right)^2 = .8616$; $\left(\frac{318.8}{511.0}\right)^2 = .3894$

F_4 = Torsion Constant $F_L \times .003552 \times 575 \times 2 = .0005107 \times 21.2586 = .8616$

$F_L = 1.6749$ (TABLE 2.)

$S_{Ca} = S_{Ca_1} \times F_L = 1.6749 \times 21.2586 = 14.5474$

By J. Ellis
Ck'd [illegible]

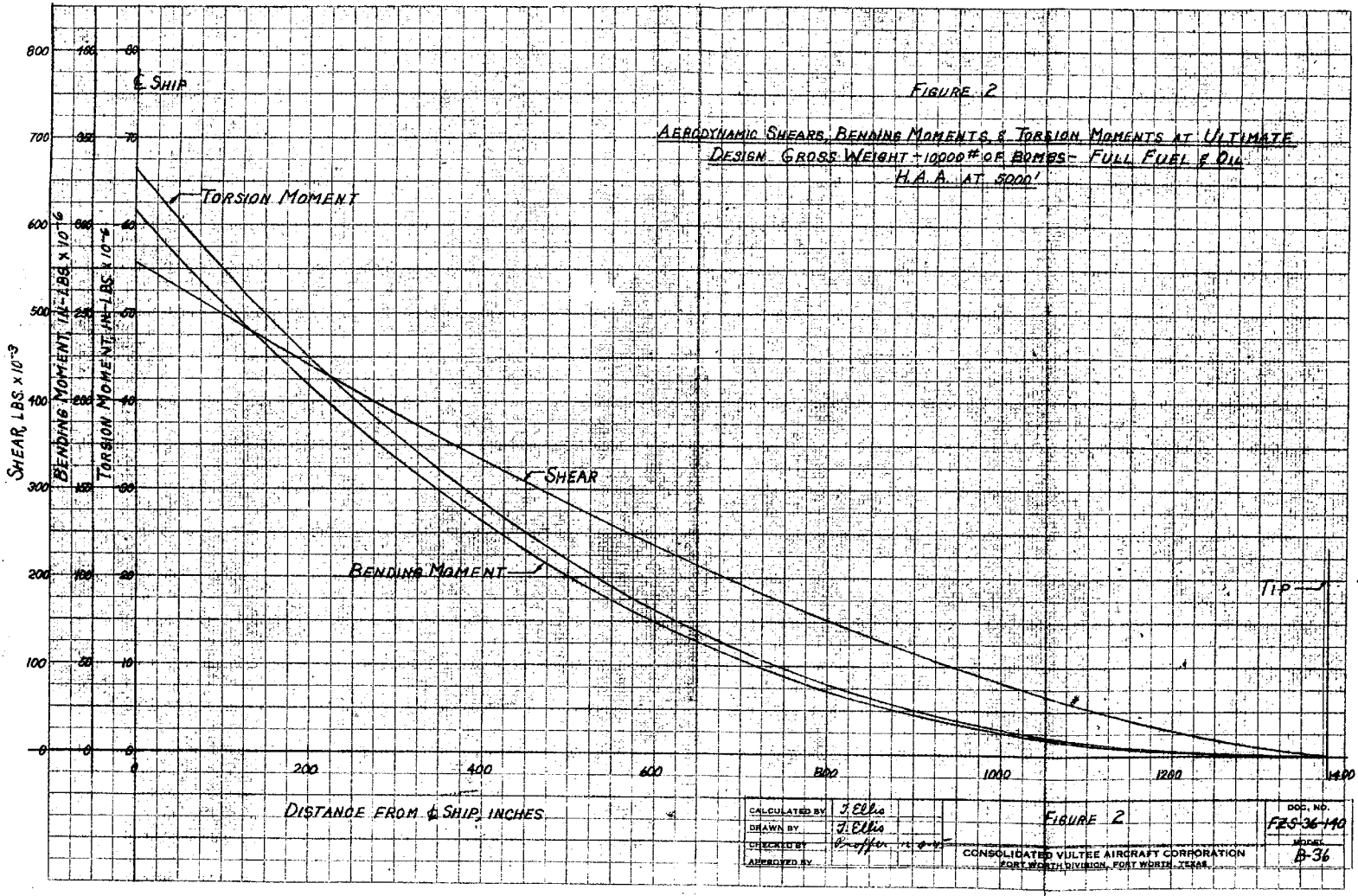


FIGURE 2

AERODYNAMIC SHEARS, BENDING MOMENTS, & TORSION MOMENTS AT ULTIMATE DESIGN GROSS WEIGHT + 10000 # OF BOMBS - FULL FUEL & OIL H.A.A. AT 5000'

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: SYM. - 2.5 MOS. 100% - 8 FUEL FUEL FOIL LAA @ 32.0 C HIGH SPEED.

STA.	DISTANCE FROM C. OF SHIP	S_{CG_1} (W=265,000)	S_{CG_2} (W=378,000)	S_{CG_3} = 2.737	S_{CG_b} (310 MPH)	S_{CG_b} (350 MPH)	$S_{CG_1} + S_{CG_b}$	S_{Gb}	M_{CG_1} (W=265,000)	M_{CG_2} (W=378,000)	M_{CG_3} = 2.737	M_{CG_b} (311.0 MPH)	M_{CG_b} (375.0 MPH)	$\frac{S}{2}M_{CG_b}$ + M_{CG_b}	M_{Gb}	$\frac{S}{2}M_{CG_b}$	Torsion due to C_{M_0}	$-M_{Tan.D}$	$\frac{1}{2}CG_{Tan.D}$	$T_{Tan.D}$
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20	21
			FZS-36-118 Tab. X Col. 8	F.S. ⑤	2.737 × ③	F.S. ⑤	④ + ⑤	FZS-36-118 Tab. X Col. 9	F.S. ⑥	2.737 × ⑨	Tab. X Col. 10	F.S. ⑥	F.S. ⑥	⑪ + ⑫	1.5 × ⑬	Tab. I, Col. 8	F.S. × ⑯	= 20800 ⑰	⑧ + ⑭ + ⑮ + ⑱	⑲ + ⑳
0	0	131,900	138,376	378,736	0	0	378,736	568,102	75,894	77,522	212,178	-6,221,500	-4,376,500	207,803	311,704	-332,020	-8,214.6	-64,834	2,490,649	-71,548.9
	57.5																			
2	115	116,194	121,947	333,495	-2002	-1349	332,146	498,219	59,632	62,260	171,227	-4,376,500	-4,296,000	166,991	250,336	-273,786	-7,598.4	-52,082	2,055,183	-27,615.7
	172.5																			
4	230	100,856	105,863	288,536	-3795	-2555	287,041	430,562	47,161	49,977	135,419	-6,040,300	-4070,300	131,148	197,024	-222,678	-6,180.6	-40,981	1,657,664	-45,503.3
	287.5																			
6	345	86,296	90,535	247,789	-5288	-3560	244,229	366,344	36,407	38,195	103,840	-5,513,300	-3716,000	100,824	151,236	-178,224	-4,946.3	-31,457	1,302,680	-35,093.6
	402.5																			
8	460	72,525	76,056	208,247	-6118	-4124	202,123	303,185	27,260	28,602	78,341	-4,833,900	-3260,000	79,081	118,622	-139,934	-3889.7	-25,455	1,009,417	-26,299.3
	517.5																			
10	575	58,613	62,540	171,172	-7149	-4816	166,356	249,534	18,434	20,661	56,549	-4,054,300	-2,752,300	63,817	80,726	-107,253	-2,976.6	-16,791	754,040	-18,012.3
	632.5																			
12	690	47,622	49,960	136,741	-7920	-4985	131,756	197,634	13,837	14,202	38,871	-3,213,300	-2,165,300	36,706	55,059	-79,851	-2,214.1	-11,482	543,434	-13,124.6
	747.5																			
14	805	36,607	38,404	105,112	-7169	-4837	100,232	150,423	8,703	9,150	24,989	-2,371,700	-1,592,700	23,391	35,086	-57,195	-1,587.3	-7,238	378,597	-8,513.0
	862.5																			
16	920	26,620	27,927	76,436	-6473	-4361	72,076	108,112	5,078	5,927	14,580	-1,552,600	-1,061,600	13,814	20,271	-38,894	-1,078.4	-4,218	237,868	-5,037.6
	977.5																			
18	1035	17,799	18,618	50,976	-5511	-3578	47,398	71,097	2,833	2,663	7,289	-920,400	-606,800	6,482.2	10,023.3	-24,343	-674.6	-2,095	136,744	-2,623.9
	1092.5																			
20	1150	10,159	10,577	28,952	-3665	-2469	26,483	39,724	956.6	987.31	2,720	-379,800	-255,800	2,474.1	3,711.15	-13,153	-365.0	-715.8	65,595	-1,071.4
	1207.5																			
22	1265	3,805	3,995	10,934	-1629	-1095	9,839	14,758	166.8	175.0	473.0	-72,977	-49.48	423.5	644.23	-4.391	-136.85	-134.0	20,282	-250.54
	1322.5																			
24	1380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$F_1 = \frac{C.W.}{265,000} = \frac{378,000}{265,000} = 1.0401$

$F_2 = 8240$ (TABLE 2.)

$F_3 = e^{\left(\frac{M_{CG_b}}{311.0}\right)^2} = .8616^{\left(\frac{275.0}{311.0}\right)^2} = .6737$

$F_4 = S_1 \times F_2 \times F_3 = 1.040 \times 33.4771 = 27.7521$

$F_4 = 1.040 \times 8240 \times .8616 \times .6737 = 33.4771$

By J. Rice
Chk: B. Rice 11/9

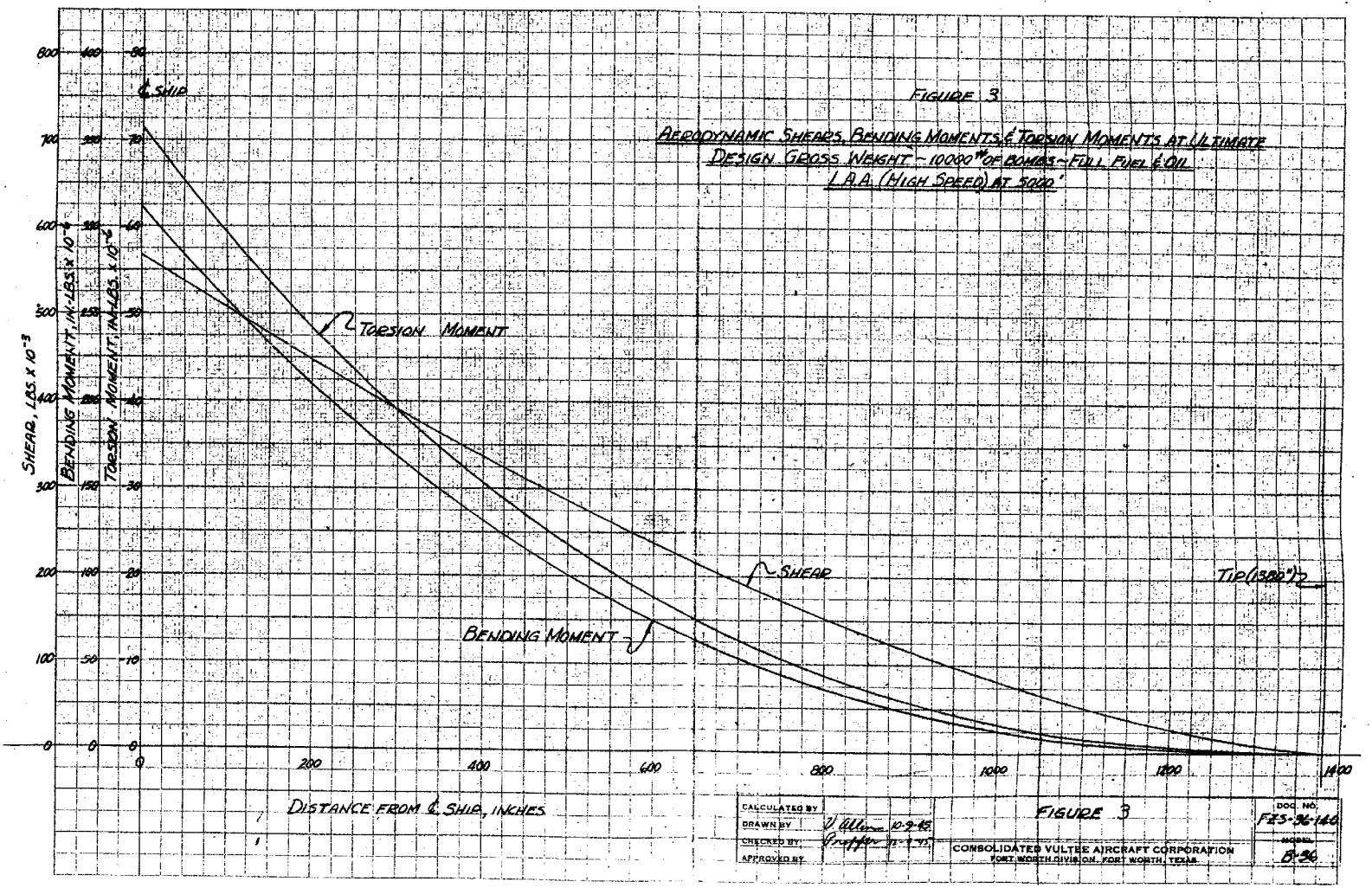


FIGURE 3

AERODYNAMIC SHEARS, BENDING MOMENTS, & TORSION MOMENTS AT ULTIMATE DESIGN GROSS WEIGHT - 10000# OF BOMBS - FULL FUEL & OIL L.A.A. (HIGH SPEED) AT 5000'

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#, - 100.0"B.A., FULL FUEL & O.L., LAA & 30,000', HIGH SPEED.

STA.	Actual Station	S_{z_a} (G.W. = 225,000 / 311.0 M.P.H.)	S_{z_b}	$\frac{z}{w} S_{z_a}$	S_{z_b} (G.W. = 265,000 / 311.0 M.P.H.)	$\frac{z}{w} S_{z_b}$	S_{y_b} (G.W. = 265,000 / 338.2 M.P.H.)	$M_{C_{z_a}} \times 10^{-3}$ (G.W. = 225,000 / $\frac{z}{w}$ = +2.758)	$M_{C_{z_b}} \times 10^{-3}$	$\frac{z}{w} M_{C_{z_a}} \times 10^{-3}$	$M_{C_{z_b}} \times 10^{-3}$ (311.0 M.P.H.)	$M_{C_{y_b}} \times 10^{-3}$ (338.2 M.P.H.)	$\frac{z}{w} M_{C_{z_b}} \times 10^{-3}$	$M_{T_a} \times 10^{-3}$	$\frac{1}{2} C_{m_c} S^2 d_{y_b} (\frac{\rho}{2})$ $\times 10^{-3}$	Torsion due to $C_{m_c} \times 10^{-3}$	$M_{x_{a_{Dy}}} \times 10^{-3}$ (G.W. = 265,000)	$M_{C_{z_a}}$	$M_{T_a} \times 10^{-3}$
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
		FZS-36-138 Tab. X, Col. 9			FZS-36-138 Tab. Z, Col. 9	$F_2 \times$ (3)	(4) + (6)	1.5 X (7)	FZS-36-138 Tab. X, Col. 14	$F_1 \times$ (9)	(10) X 2.758	FZS-36-138 Tab. Z, Col. 14	$F_2 \times$ (12)	(11) + (13)	1.5 X (14)	Tab. I, col. 8	$F_3 \times$ (16)	(15) + (17)			
0	0	131,900	133,496	368,182	0	0	368,182	552,273	73,894	74,788	206,265	-6,434,500	-2,878,000	203,382	305,088	-332,020	-12,910.1	-62,458	2,430.0	-73,938.1	
		57.5																			
2	116.0	116,144	117,549	324,200	-232	-585.5	323,314.5	484,972	53,634	60,354	166,456	-6,376,500	-2,920,000	163,676	245,454	-278.786	-10,645.8	-51,054	2,000.5	-59,699.3	
		172.5																			
4	230.0	100,856	102,076	281,526	-379.3	-1678	279,848	419,772	47,161	47,732	131,645	-6,040,250	-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	-522.4	-2437	238,447	357,820	36,407	36,948	101,927	-5,515,500	-2,446,200	99,187	148,780	-178.224	-6,930.0	-30,946	1,279.2	-36,596.8	
		402.5																			
8	460.	72,525	73,403	200,445	-644.8	-2839	199,606	299,409	27,283	27,619	76,157	-4,939,300	-2,140,000	74,017	111,026	-129.936	-5,441.2	-23,092	988.05	-27,546.15	
		517.5																			
10	575	59,613	60,334	166,401	-714.9	-3162	163,239	244,858	19,694	19,932	54,975	-4,054,900	-1,793,000	53,179	79,768	-107,253	-4,170.4	-16,592	790.70	-20,021.70	
		632.5																			
12	690	47,622	48,198	132,920	-714.0	-3275	129,657	194,486	13,527	13,701	37,787	-3,213,700	-1,421,200	36,366	54,549	-79.851	-3,104.3	-11,346	534.84	-13,916.06	
		747.5																			
14	805	36,607	37,050	102,184	-718.9	-3171	99,013	148,520	8,703	8,808	24,292	-2,371,200	-1,049,200	23,243	34,864	-57,195	-2,223.9	-7,252	367.53	-9,108.91	
		862.5																			
16	920	26,620	26,942	74,506	-647.5	-2863	71,643	107,464	5,078	5,139	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	-530	-2349	47,168	70,752	2,538	2,569	7,085	-900,680	-398,400	6,6866	10,030	-24.243	-946.5	-2,696	136.20	-2,896.30	
		1092.5																			
20	1150.	10,082	10,205	28,146	-260.5	-1162	26,624	39,784	950.6	962.1	2,652	-379,020	-168,000	2,485	3,728	-13.153	-511.4	-1754	65.65	-2,221.15	
		1207.5																			
22	1265.	3,808	3,854	10,629	-162.9	-719.2	9,9098	14,865	166.8	168.8	465.6	-78,447	-32,480	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	

$F_1 = \frac{G.W.}{265,000} = \frac{258,213}{265,000} = .9745$

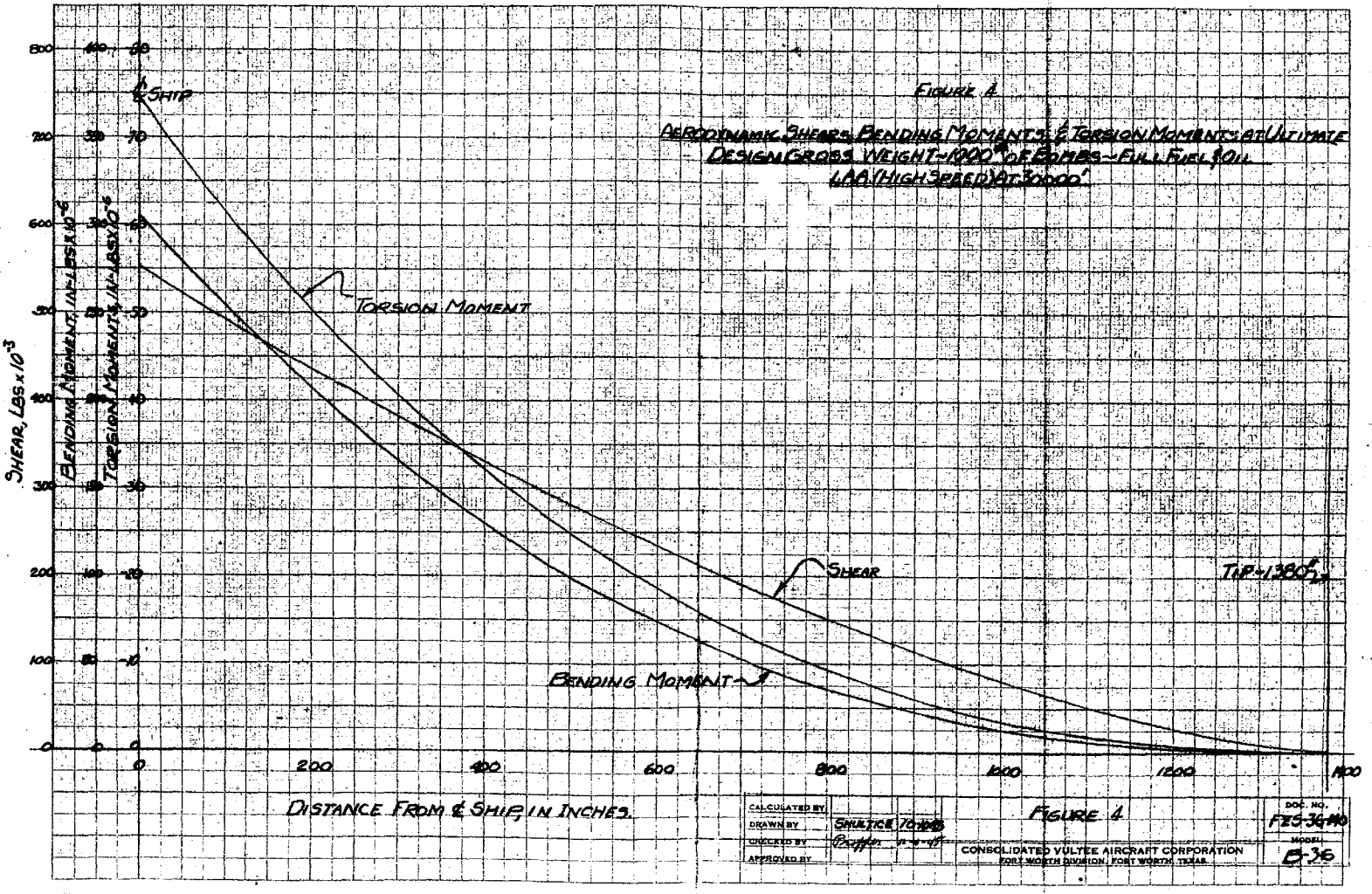
$F_2 = \left(\frac{M.P.H.}{311.0}\right)^2 = .3740 \left(\frac{338.2}{311.0}\right)^2 = .4423$

$F_3 = 1.7798$ (TABLE B.)

$F_4 = \text{Torsion Constant} = 1.5 \times \frac{602.598}{3 \times 14} \times 575 \sqrt{\rho_y} = .0051071 \sqrt{\rho_y} \times .3740$

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

By J. Ellis
Chk. Dept. C. H.



CALCULATED BY		FIGURE 4	DOC. NO. FZS-36-110
DRAWN BY	SHULTICE 10-1-45		
CHECKED BY	Griffin 10-4-45	CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION, FORT WORTH, TEXAS	MODEL B-36
APPROVED BY			

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

CONDITION: DGW- 278000 # 10,000 # BOMBS, FULL FUEL & OIL. 1 HAA. @ 5000'

STA.	DISTANCE FROM ℄ SHIP	$S_{c_{SHEAR}}$ (GW=278,000)	$S_{c_{BEND}}$ (GW=278,000)	$\frac{S_{c_{SHEAR}}}{S_{c_{BEND}}}$ (=-1.682)	$S_{c_{SHEAR}}$ (311.4 MPH)	$I_{S_{c_{SHEAR}}/S_{c_{BEND}}}$ (202.8 MPH)	$S_{b_{BEND}}$	$M_{c_{BEND}}$ $\times 10^{-6}$ (GW=278,000)	$M_{c_{SHEAR}}$ $\times 10^{-6}$ (GW=278,000)	$\frac{M_{c_{SHEAR}}}{M_{c_{BEND}}}$ (=-1.682)	$M_{c_{SHEAR}}$ (311.4 MPH)	$M_{c_{BEND}}$ (202.8 MPH)	$M_{BA} \times 10^{-6}$	$\frac{M_{c_{SHEAR}}}{M_{BA}}$	$M_{BA} \times 10^{-6}$	$\frac{S_{c_{SHEAR}}}{E}$ ($\times 10^{-3}$)	TORSION due to C_{MAC} ($\times 10^{-3}$)	$-M_{ac_{TAIL}}$ due to C_{MAC} $\times 10^{-6}$ (GW=278,000)	.0110 I_{BA} ($\times 10^{-3}$)	$T_{E.A.C.}$ ($\times 10^{-6}$)
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20	21
		TAB. 3, Col. 2	F_S (2)	-1.682x(3)	TAB. II, Col. 9	F_B (5)	(4)+(6)	.15 x (7)	TAB. 3, Col. 15	F_S x (9)	-1.682 x (10)	TAB. II, Col. 8	F_B x (12)	(11)+(13)	1.5 x (14)	TAB. 1, Col. 8	F_S x (15)	-.3080 (4)	10^3 (8)+(16)	(17)+(18)+(20)
0	0	131 900	138 376	-232 748	0	0	-232 748	-349 122	73 844	77 522	-130 392	-6 494 500	-2371.6	-132 771.6	-199 157.4	-332 020	-5 869 945	41 424.7	-1596.137	+33 023.7
	57.5																			
2	115.	116 144	121 847	-204 947	-3002	-734	-205 681	-306 522	59 631	62 560	-105 226	-6 376 500	-2336.3	-107 562.3	-161 343.5	-273 906	-5 662 881	33 559.9	-1275.653	+26 662.58
	172.5																			
4	230.	100 856	105 508	-177 469	-3793	-1390	-179 369	-269 038	47 161	44 477	-83 220	-6 040 800	-2213.4	-85 433.4	-128 150.1	-221 475	-4 604 457	26 665.5	-1035.796	+21015.2
	287.5																			
6	345.	86 296	90 533	-152 277	-5284	-1936	-154 213	-231 320	36 407	38 195	-64 244	-5 815 800	-202 1.0	-66 265.0	-99 397.5	-173 254	-3 586 013	20 674.9	-826.965	+16 162.7
	402.5																			
8	460	72 525	76 086	-127 977	-6418	-2352	-130 329	-195 494	27 283	28 623	-48 184	-4 838 300	-1773.1	-49917.1	-74 876.7	-139 936	-2 898 359	15 574.1	-646.130	+12 086.6
	517.5																			
10	575	59 613	62 542	-105 192	-7149	-2619	-107 811	-161 717	19 694	20 161	-34 756	-4 054 700	-1485.9	-36 243.7	-54 365.6	-107 253	-2 219 598	11 306.2	-489.193	+ 8599.4
	632.5																			
12	690	47 622	49 960	-84 033	-7900	-2911	-86 744	-130 116	13 537	14 202	-23 888	-3 213 700	-1177.8	-25 065.5	-37 598.3	-74 851	-1 651 013	7824.4	-337.819	+ 5811.6
	747.5																			
14	860	36 607	38 404	-64 596	-7169	-2627	-67 223	-100 835	8703	9130	-15 357	-2 371 700	-869.0	-16 226.0	-24 339.0	-57 195	-1181.551	5662.5	-249.567	+ 3690.9
	862.5																			
16	920	26 620	27 927	-46 973	-6473	-2372	-49 345	-74 018	5078	5327	-8960	-1 582 400	-579.9	-9539.9	-14 309.9	-38 894	-804.184	2976.5	-162.840	+ 2009.5
	977.5																			
18	1035	17 739	18 610	-31 302	-5311	-1946	-33 248	-49 872	2838	2663	-4479	-937 600	-330.0	-4809.0	-7213.5	-24 343	-503.323	1500.4	-96.002	+ 901.1
	1092.5																			
20	1150	10 053	10 578	-17 791	-2016	-1343	-19 135	-28 703	950.6	997.3	-1677	-574 820	-139.2	-1816.2	-2724.3	-13 163	-271.955	866.7	-47.360	+ 247.3
	1207.5																			
22	1265	5308	3995	- 6720	-1426	- 596	- 7316	-10974	166.8	175.0	- 294	-213.447	- 36.9	- 320.8	- 481.4	- 4931	-101.956	100.1	- 16.089	- 17.0
	1322.5																			
24	1380.				0	0	0	0											0	0

$F_1 = \frac{G.W.}{24,000} = \frac{278000}{247200} = 1.0091$

$F_2 = \left(\frac{M.P.H.}{311.4}\right)^2 \times \left(\frac{202.8}{311.4}\right)^2 = .9616 = .3664$

$F_3 = C_{M_{AC}} \text{ CORRECTION FACTOR} = 1.1425$ (SEE TABLE 2 FOR CALC.)

$F_4 = \text{TORSION CONSTANT} = \frac{134,631,858 \times 12^2}{3 \times 14} \times \frac{1}{10^6} \times .8616 = .8616$

$= 18.2974$

$F_5 = F_3 \times F_4 = 1.1425 \times 18.2974 = 20.6763$

By D. E. Kingsbury

Ck'd:

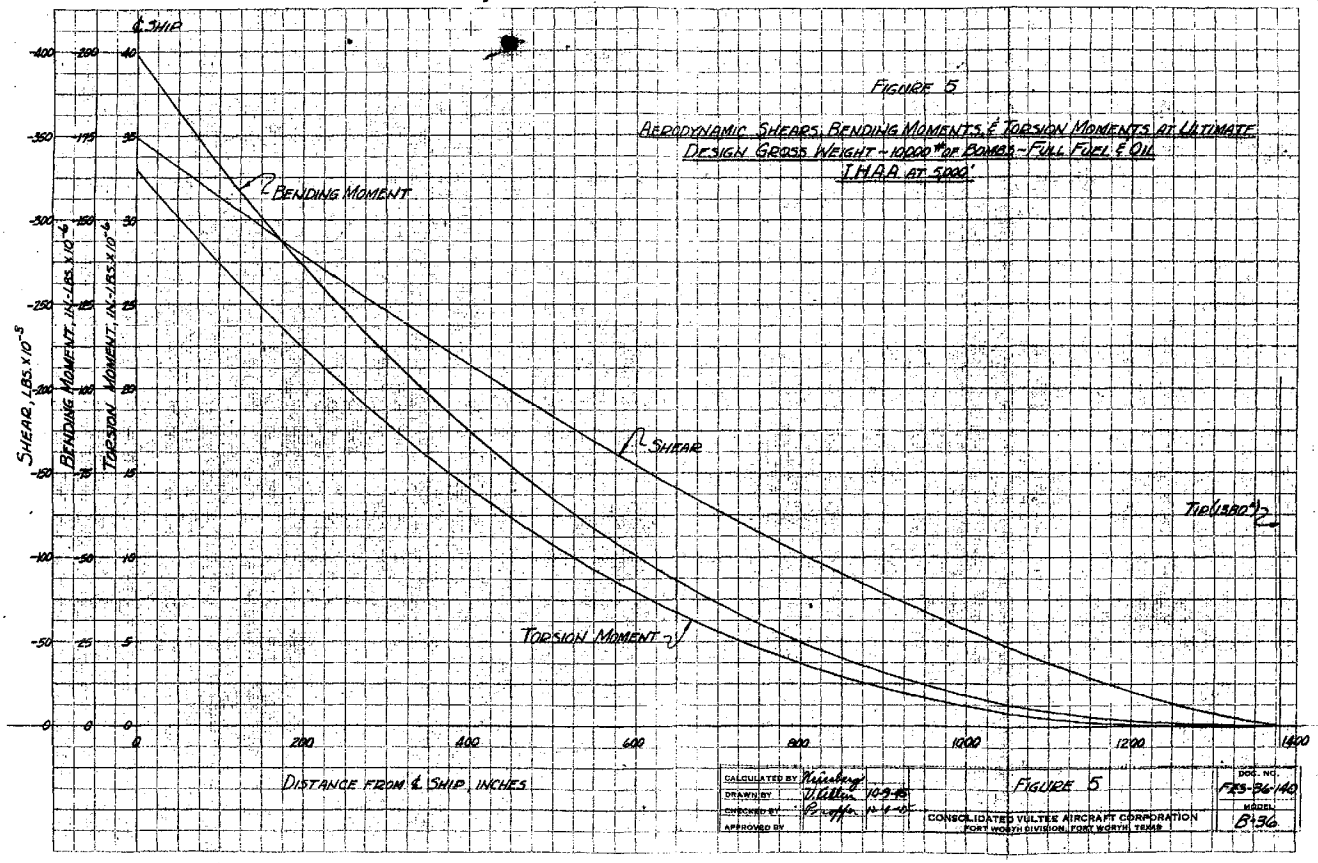


FIGURE 5

AERODYNAMIC SHEARS, BENDING MOMENTS & TORSION MOMENTS AT ULTIMATE DESIGN GROSS WEIGHT = 10000 #/FT BOMB - FULL FUEL & OIL
I.M.A.R. AT 5000'

CALCULATED BY	Reinberg	10-9-45	FIGURE 5
DRAWN BY	J. Allen	10-9-45	DOC. NO. FZS-96-140
CHECKED BY	[illegible]	10-9-45	MODEL 8-36
APPROVED BY			CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION, FORT WORTH, TEXAS

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 533 125 PADS 11-43

TABLE 7 B-36 WING AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE
CONDITION: DSW-274,000# 10,000 #/ft FULL FUEL 1 GIL. ILAA.-HIGH SPEED @ 5000 FT.

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REPORT FZS-36-140
DATE 11-4-45

STA.	DISTANCE FROM ℄ SHIP	S_{Cz_o} (SW = 265,000)	$S_{Cz_{ow}}$ (SW = 274,000)	$\frac{z}{w} S_{Cz_{ow}}$ ($\frac{z}{w}$ = 2.551)	S_{Cz_b} (3 G MAN.)	S_{Cz_w} (3 G MAN.)	$\frac{z}{w} S_{Cz_w}$	S_{Dz_o}	$M_{Cz_o} \times 10^3$ (3 G MAN.)	$M_{Cz_{ow}} \times 10^3$ (3 G MAN.)	$\frac{z}{w} M_{Cz_{ow}} \times 10^3$	$M_{Cz_b} \times 10^3$ (3 G MAN.)	$M_{Cz_w} \times 10^3$ (3 G MAN.)	$\frac{z}{w} M_{Cz_w} \times 10^3$	$M_{Cz_T} \times 10^3$	$M_{Cm_{c/4}}$ $\times 10^3$	TORSION TO $C_{m_{c/4}}$ $\times 10^3$	$M_{T_{IAW\theta}} \times 10^3$ (IAW θ, 2060)	$\frac{111.5 S_{Dz_o}}{\times 10^3}$	T_{2A_o} $\times 10^{-3}$
	1	2	3	4 = ③	5	6	7 = ⑥	8	9	10	11	12	13	14	15	16	17	18	19	20 = ⑲ + ⑱ + ⑰
		FZS-36-139 TAB ℄ COL. 9	F_z × ②	③ - ①	FZS-36-138 TAB ℄ COL. 9	F_z × ⑤	⑥ - ⑤	FZS-36-138 TAB ℄ COL. 9	F_z × ⑧	⑨ - ⑧	⑩ - ⑧	FZS-36-138 TAB ℄ COL. 9	F_z × ⑫	⑪ - ⑫	⑬ - ⑫	TAB I COL. 9 F_z × ⑭	⑮ × 2060			
0	0	131900	133711	-228035	0	0	-228035	-342653	739194	775119	-127754	-6494.5	-9375.2	-132126	-198189	-332020	-11349	-412234	-1505.0	28369.9
	57.5																			
2	115	116144	121842	-200796	-2002	-1348	-201144	-303216	596332	625558	-103096	-6376.5	-4297.7	-107392	-161088	-273786	-9358.4	-335062	-1250.8	22897.0
	172.5																			
4	230	100856	105803	-174363	-3793	-2555	-176918	-265311	471.61	479.75	-81533	-6040.9	-4067.6	-85605	-128407	-222678	-7611.4	-267086	-1021.7	18075.5
	287.5																			
6	345	86296	90529	-149192	-5284	-3560	-152752	-237128	364.07	381.93	-62942	-5515.8	-3715.9	-66658	-99987	-178224	-6091.9	-207922	-819.1	13876.2
	402.5																			
8	460	72583	76083	-125395	-6418	-4324	-129709	-199464	272.83	286.22	-47169	-4839.3	-3260.1	-50429	-75643	-139936	-4783.1	-157338	-642.1	10308.6
	517.5																			
10	575	59613	62538	-103062	-7149	-4816	-107879	-161819	176.94	206.60	-34048	-4059.9	-2731.7	-36780	-55170	-107253	-3666.0	-114752	-489.5	7319.7
	632.5																			
12	690	47622	49958	-82280	-7400	-4985	-87215	-130972	135.37	142.01	-23403	-3213.7	-2165.0	-25568	-38352	-77857	-2729.3	-79772	-360.2	4887.7
	747.5																			
14	805	36607	38403	-63288	-7162	-4830	-68119	-103171	87.03	91.30	-15046	-2371.7	-1597.8	-16644	-24966	-57195	-1954.9	-57921	-252.9	2985.1
	862.5																			
16	920	26620	27926	-46022	-6473	-4361	-50383	-75514	50.76	53.32	-8779	-1582.6	-1068.2	-9847.2	-14771	-33894	-1327.4	-30723	-166.3	1576.6
	977.5																			
18	1035	17739	18607	-30667	-5311	-3578	-34245	-51317	25.38	26.62	-4387	-900.68	-606.8	-4995.8	-7493.7	-24393	-832.1	-15587	-98.9	627.7
	1092.5																			
20	1150	10083	10577	-17431	-3665	-2467	-19900	-29850	9.506	9.97	-1643	-379.82	-255.9	-1898.7	-2847.4	-13153	-449.6	-5925	-49.3	93.6
	1207.5																			
22	1265	3808	3995	-6584	-1626	-1095	-7671	-11514	1.668	1.75	-288	-72.477	-49.5	-3375	-5062	-4931	-168.6	-10553	-15.8	-79.1
	1322.5																			
24	1380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$F_1 = \frac{GW}{265,000} = \frac{274,000}{265,000} = 1.0291$

$F_2 = \left(\frac{MPH}{311.6}\right)^2 = \left(\frac{275}{311}\right)^2 = .97368$

$F_3 = 1.0272$ (TABLE 2)

F_4 = TORSION CONSTANT = $\frac{15 \times 102.5 \times 2.5^3}{3 \times 144} V^2_{EAS} = 33.2772$

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

By: [illegible]
Ck'd. [illegible]

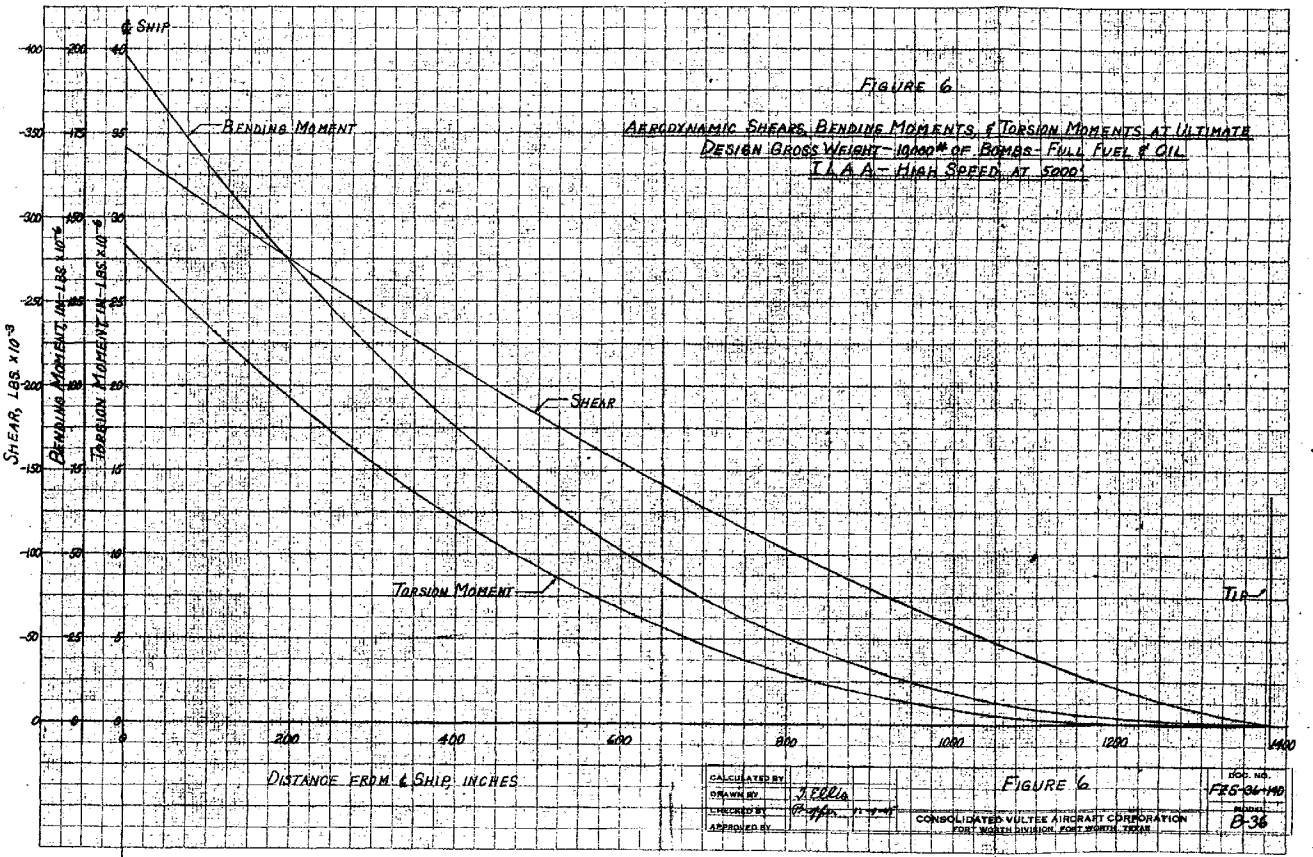


FIGURE 6

AERODYNAMIC SHEARS, BENDING MOMENTS, & TORSION MOMENTS AT ULTIMATE DESIGN GROSS WEIGHT - 10400# OF BOMBS - FULL FUEL & OIL
T.A.A. - HIGH SPEED, AT 5000'

CALCULATED BY		FIGURE 6	DOC. NO. FZS-84-M10
DRAWN BY	J. Fells		
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
AV 125 PAGES 11-43

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

CONDITION: D.G.W. - 278000# 100% F.S. FULL FUEL & OIL H.A.A. @ 5000' LIMIT DIVE SPEED

STA.	Distance Between Sta.	S_{CG_N} (G.W. 265000)	$S_{CG_{N-1}}$ (G.W. 278000)	$\frac{F_W}{W} S_{CG_N}$ $\frac{F_W}{W}$=1.070 (310 MPH)	S_{CG_D} (300 MPH)	$\frac{F_W}{W} S_{CG_{N-1}} + S_{CG_D}$	S_{Dm}	$M_{CG_N} \times 10^3$ (G.W. 265000)	$M_{CG_{N-1}} \times 10^3$ (G.W. 278000)	$\frac{F_W}{W} M_{CG_{N-1}}$ ($\frac{F_W}{W}$=1.070)	$M_{CG_D} \times 10^3$ (310 MPH)	$M_{CG_D} \times 10^3$ (300 MPH)	$\frac{F_W}{W} M_{CG_{N-1}} + M_{(CG_D)}$	$M_{X_m} \times 10^3$	$\frac{1}{2}(C_{m_q} + C_{m_{\dot{\alpha}}}) \rho_{SL} V_D^2 \times 10^{-3}$	Torsion Due To $C_{m_{TAIL}} \times 10^{-3}$	$-M_{X_m}$ to $C_{m_{TAIL}} \times 10^{-3}$ ($C_{m_{TAIL}}$ = -.2000)	OIL C	OIL $C_{m_{TAIL}} \times 10^3$	$T_{EA} \times 10^3$
		2	3	4	5	6	7	8	9	10	11	12	13	14	15	15	17	18	19	20	21
		Tab. 7, Col. 3 FZS-36-138	F × ③	-1.070 × ③	Tab. 12, Col. 3 FZS-36-138	F_2 × ⑤	⑥ + ④	1.5 × ⑦	Tab. 7, Col. 15 FZS-36-138	F × ⑨	-1.070 × ⑩	Tab. 12, Col. 15 FZS-36-138	F_2 × ⑫	⑪ + ⑬	1.5 × ⑭	Tab. 1, Col. 8	FS × ⑮	-.2000 × ⑯	TAB. 1 COL. 9	⑰ × ⑱	⑲ + ⑰
0	0	131,900	138,363	-203,394	0	0	-203,394	-305,091	73,884	77,515	-113,947	-4,481,500	-5,489	-119,436	-179,154	-330,920	-14,175.4	-37,264.0	4,400	-1,502.4	21,762
1	575	116,144	121,835	-179,097	-2002	-1,692	-180,789	-271,184	57,632	62,554	-91,954	-6,376,500	-5,389	-97,343	-146,014	-278,786	-11,689.2	-30,370.9	4,125	-1,118.6	19,563.1
2	575	100,956	105,719	-155,523	-3713	-3,205	-158,728	-238,092	47,161	43,472	-72,124	-6,040,100	-5,105	-77,229	-116,744	-232,618	-9,507.1	-24,702.9	3,850	-916.1	17,859.0
3	575	86,876	90,525	-133,072	-5284	-4,446	-137,518	-206,277	36,407	38,191	-56,141	-5,515,800	-4,661	-60,802	-91,203	-178,824	-7,609.2	-19,770.2	3,575	-737.6	16,623.4
4	575	72,525	76,079	-111,836	-6,418	-5,424	-117,260	-175,890	27,283	28,612	-42,060	-4,839,300	-4,093	-44,150	-67,225	-139,136	-5,974.5	-14,348.8	3,300	-580.4	15,439
5	575	58,613	62,534	-91,925	-7149	-6,042	-97,967	-146,950	19,644	20,659	-30,369	-4,054,400	-3,427	-33,796	-50,694	-107,253	-4,579.1	-10,594.9	3,025	-444.5	15,520.8
6	575	47,692	49,955	-73,434	-7,400	-6,254	-79,688	-119,532	13,537	14,200	-20,874	-3,418,700	-2,716	-23,570	-35,385	-79,851	-3,409.6	-7,360.1	2,750	-328.7	3622.2
7	575	38,607	38,401	-56,449	-7,169	-6,059	-62,508	-93,762	8,703	9,129	-13,420	-2,837,700	-2,004	-15,424	-23,136	-57,185	-2,441.9	-4,813.3	2,475	-237.4	2,138.3
8	575	26,620	27,924	-41,048	-6,413	-5,470	-46,518	-69,777	5,078	5,327	-7,830.7	-1,982,400	-1,337.5	-9,168.2	-13,752	-30,894	-1,660.6	-2,860.4	2,200	-153.5	1046.3
9	575	17,739	18,608	-27,351	-5,911	-4,988	-31,939	-47,758	2,538	2,662	-3,913.1	-900,600	-761.2	-4,674.3	-7,011.4	-24,345	-1,039.3	-1,459.4	1,925	-91.9	317.2
10	575	10,083	10,577	-15,548	-3665	-3,097	-18,645	-27,968	950.6	997.2	-1,465.9	-374,800	-321.0	-1,786.9	-2,680.4	-13,153	-561.56	-557.50	1,650	-46.2	-50.3
11	575	3,808	3,995	-5,873	-1626	-1,374	-7,247	-10,870	166.8	175.0	-257.25	-73,447	-62.07	-319.32	-478.98	-4,491	-210.53	-91.63	1,375	-13.0	-125.9
12	575	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

$F = \frac{G.W.}{265,000} = 1.049$

$F_2 = \sqrt{\left(\frac{M.P.H.}{310.}\right)^2} = .9616\left(\frac{300.0}{310.0}\right)^2 = .8451$

$F_3 = 1.0228$ (TABLE 2)

$F_z = \frac{\frac{1}{2} \times .002378 \times 93^2}{3 \times 144} V^2 \sigma$

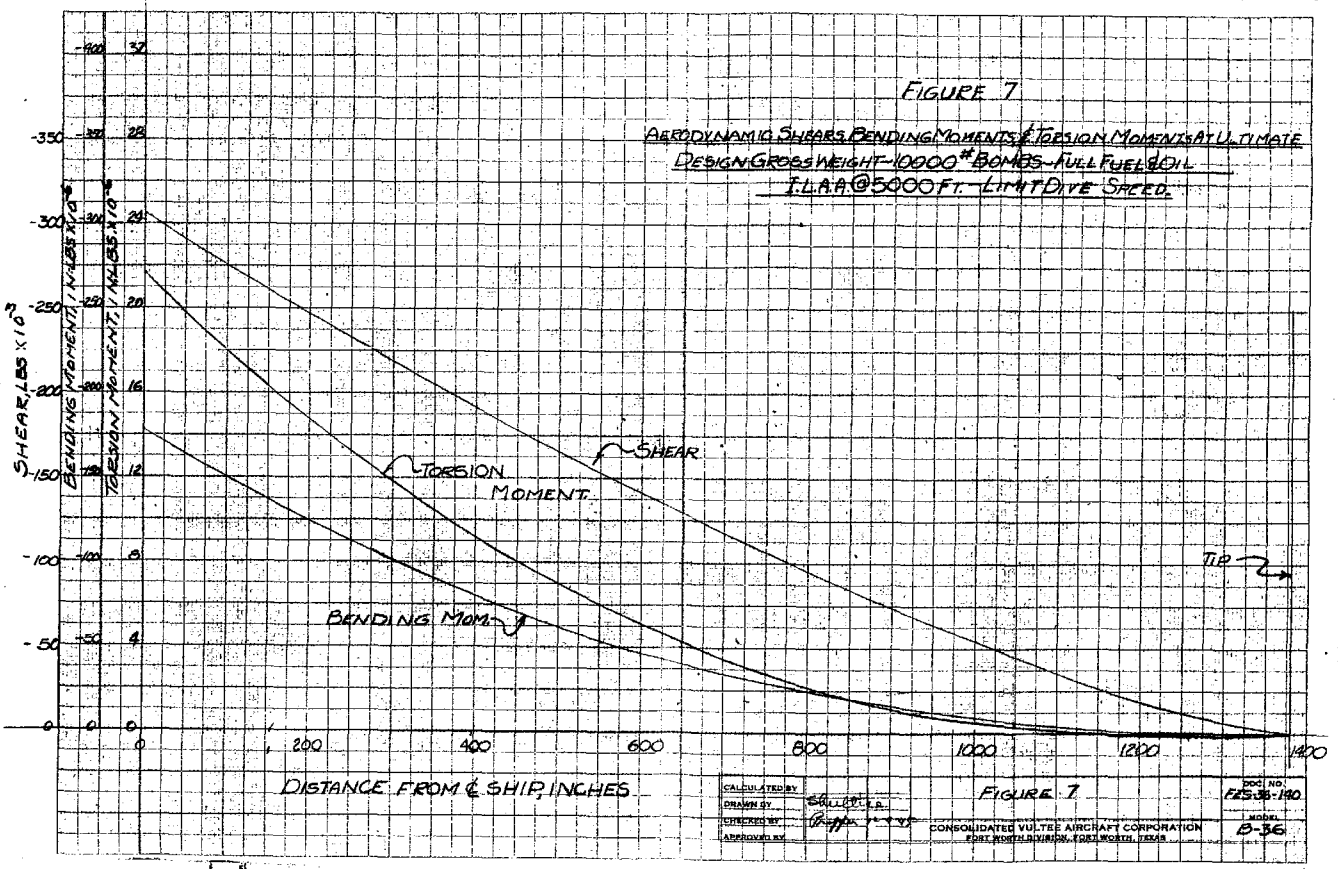
$F_4 = .000574(1)(308.0)^2 .8616 = 41.7428$

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

By: [illegible]
CHK: [illegible]

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.



CALCULATED BY		FIGURE 7	DOC NO. FZS-36-140
DRAWN BY			
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 9. B-36 WING AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE.

CONDITION: D.G.W. - 268,213# 10.000"B, FULL FUEL & OIL. I.L.A.A. @ 30,000' HIGH SPEED.

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DATE 12-4-45

STATION	D. STA. FROM ℄ SHIP	S_{Cb_u} (G.W.=265,000)	S_{Cb_u} (G.W.=268213#)	$\frac{\partial}{\partial\alpha}S_{Cb_u}$ (α=-1.690)	S_{Cb_b} (311 M.P.H.)	S_{Cb_b} (338.2 M.P.H.) + S_{Cb_u}	S_{Da}	$M_{Cb_u}\times10^3$ (G.W.=265,000)	$M_{Cb_u}\times10^3$ (G.W.=268213#)	$\frac{\partial}{\partial\alpha}M_{Cb_u}\times10^3$ (α=-1.690)	$M_{Cb_b}\times10^3$ (311 M.P.H.)	$M_{Cb_b}\times10^3$ (338.2 M.P.H.) + $M_{Cb_u}\times10^3$	$M_{Ta}\times10^3$	$\frac{\partial}{\partial\alpha}C_{m_c/4}(\alpha_m)\times10^3$	TORSION DUE TO $C_{M_a}\times10^3$	$M_{Ta}\times10^3$ TAN θ (TAN θ=.2080)	DIC = S_{Da}	DIC × S_{Da} ×10⁻³	$T_{EA-a}\times10^3$
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
		TAB. X COL. 9 FZS-96-138	F₁ × ②	-1.690 × ③	TAB. IX COL. 9 FZS-96-138	F₂ × ⑤	④ + ⑥	1.5 × ⑦	TAB. X COL. 15 FZS-96-138	F₁ × ⑨	-1.690 × ⑩	TAB. IX COL. 15 FZS-96-138	F₂ × ⑫	⑪ + ⑬	1.5 × ⑭	TAB. I COL. 8	F₅ × ⑯	-.2080 × ⑮		⑰ + ⑱	⑲ × ⑳	㉑ + ⑱ ㉑
0	0	131900	133999	-225613	0	0	-225613	-338420	73894	74790	-126395	6492.5	-2872.4	-129267	-193901	-332,070	+135643	+40331		-1489.048	38978
	57.5																				
2	115.0	116144	117552	-198612	-2002	-886	-199498	-299247	59632	60355	-102000	6376.5	-2820.2	-104820	-157230	-273,186	113573	32,704		-1234.394	31591
	172.5																				
4	230	100856	102078	-172512	-3793	-1678	-174190	-261285	47161	47733	-80669	6644.9	-2671.8	-83341	-125012	-222,618	90973	26,002		-1045.947	25087
	287.5																				
6	345	86296	87342	-147608	-5284	-2338	-149946	-224919	36407	36848	-62273	5515.8	-2439.5	-64713	-97070	-178,224	72813	20,191		-804.085	19460
	402.5																				
8	460	72525	73404	-124053	-6718	-2840	-126893	-190340	27283	27614	-46660	4839.3	-2140.3	-48800	-73212	-139,936	57169	15,228		-608.182	14657
	517.5																				
10	575	59613	60336	-101968	-7149	-3163	-105131	-157697	19694	19933	-33687	4054.9	-1793.4	-35480	-53220	-107,253	43817	11,070		-457.033	10681
	632.5																				
12	690	47622	48199	-81456	-7400	-3274	-84730	-127095	13537	13701	-23155	3313.7	-1421.4	-24576	-36864	-78,851	32622	7668		-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		-244.238	4751
	862.5																				
16	920	26020	26943	-45534	-6473	-2864	-48398	-72597	5078	5140	-8687	1582.6	-700.0	-9387	-14081	-38894	15890	2,929		-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		-94.398	1395
	1092.5																				
20	1150	10083	10205	-17246	-3665	-1622	-18868	-28302	950.6	962	-1626	278.32	-168.0	-1794	-2691	-13,153	5274	560.		-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	936		-14.916	87
	1322.5																				
24	1380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0

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

$F_2 = \left(\frac{M.P.H.}{311.0}\right)^n = \left(\frac{338.2}{311.0}\right)^{3} \times 3740 = .44223$

$F_3 = -.0187$ (TABLE 2)

$F_4 = F_{\alpha=3.1} \times \frac{CONSTANT}{\alpha \times 144} = \frac{15 \times 802.58 \times 57.5}{3 \times 144} V^2_{30} = 21.8471$

$F_5 = F_4 \times F_2 = 21.8471 \times (-.0157) = -.40554$

By: Shuttee
Checked: RW

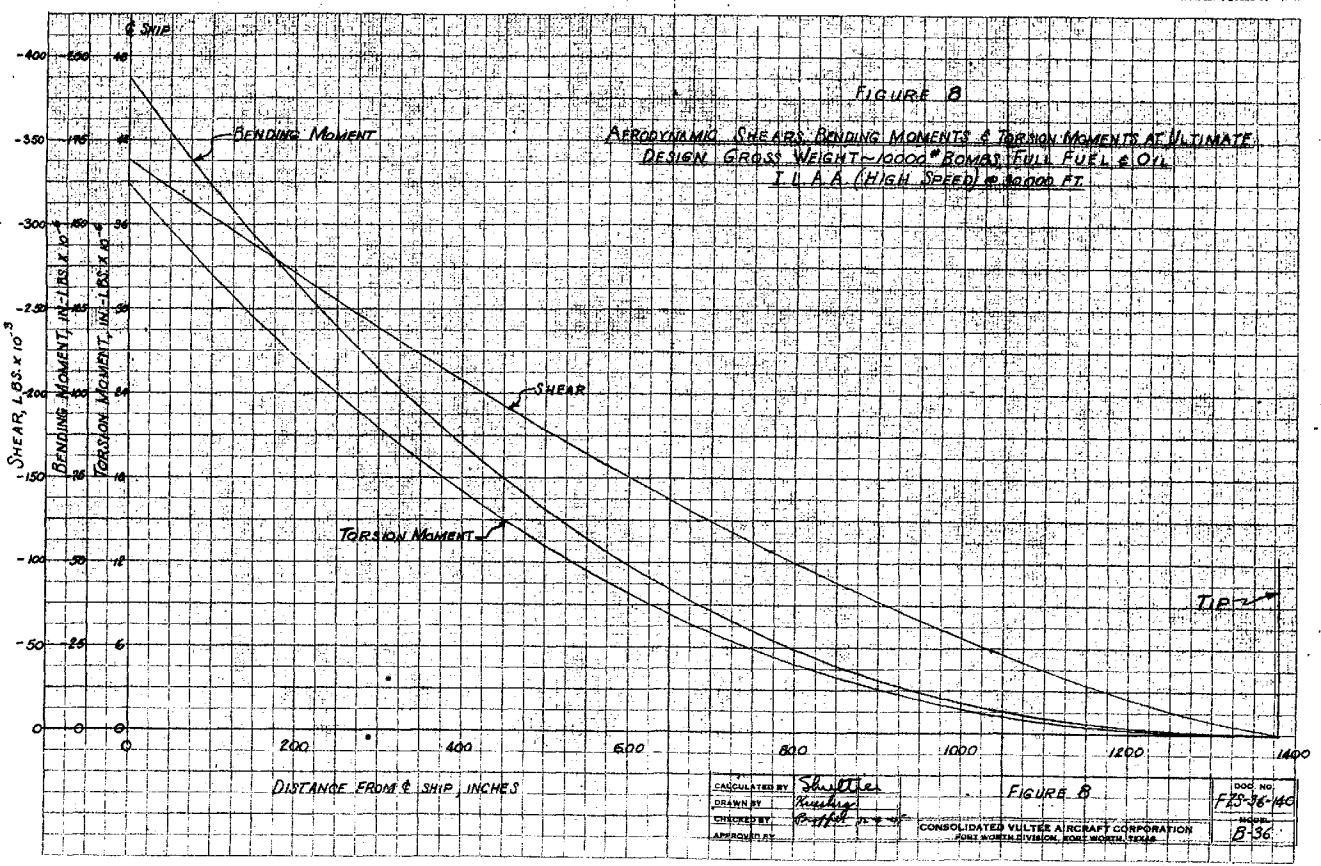


FIGURE 8

AERODYNAMIC SHEARS, BENDING MOMENTS & TORSION MOMENTS AT ULTIMATE DESIGN GROSS WEIGHT—10000# BOMAS, FULL FUEL & OIL
I. L. A. A. (HIGH SPEED) @ 10000 FT.

CALCULATED BY	Shuttler	FIGURE 8	DOC. NO. FZS-36-140
DRAWN BY	Kreuling		
CHECKED BY	[illegible]	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 (15 PADS 11-43)

TABLE 10 B-36 WING AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE
CONDITION: AGW=265000# 78-100% B. FULL FUEL & OIL HAA @ 5000'

STA	DIST. FROM I/B SHIP	S_{Oz_n} (GW=265000)	S_{Oz_n} (GW=265000)	$F_2 S_{Oz_n}$ (F_2=2.551)	S_{Oz_n} (311 MPH)	S_{Oz_n} (209 MPH)	$F_2 S_{Oz_n}$ (209 MPH)	S_{TO}	$M_{Ox_n} \times 10^{-3}$ (GW=265000)	$M_{Ox_n} \times 10^{-3}$ (GW=265000)	$M_{Ox_n} \times 10^{-3}$ (F_2=2.551)	$M_{Ox_n} \times 10^{-3}$ (311 MPH)	$M_{Ox_n} \times 10^{-3}$ (209 MPH)	$F_2 M_{Ox_n}$	$M_{Ox_n} \times 10^{-3}$	$\Sigma M_{Ox_n} \times 10^{-3}$	TORSION DUE TO $C_{M_{c/4}} \times 10^{-3}$	MOMENT ARM $\bar{x}$	$C_{M_{c/4}} \times 10^{-3}$	$T_{O_n} \times 10^{-3}$
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
		TAB I COL 8	$F_2 \times$ ②	2.551 × ③	TAB II COL 8 FZS-36-138	$F_2 \times$ ⑤	④ + ⑥	1.5 × ⑦	TAB I COL 15 FZS-36-138	$F_2 \times$ ⑨	2.551 × ⑩	TAB I COL 16 FZS-36-138	$F_2 \times$ ⑫	⑪ + ⑬	1.5 × ⑭	TAB I COL 8	$F_2 \times$ ⑯	2.551 × ⑰		⑧ × ⑧	⑨ + ⑩ + ⑱
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	-222.618	-2876.5	36809.0		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	-29446
	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	34535	-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		124.7	-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	

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

$F_2 = \left(\frac{MPH}{311.0}\right)^2 \sigma = \left(\frac{209}{311}\right)^2 .8616 = .3891$

F_3 = Sta. Correction Factor = .6719 (TABLE 2)

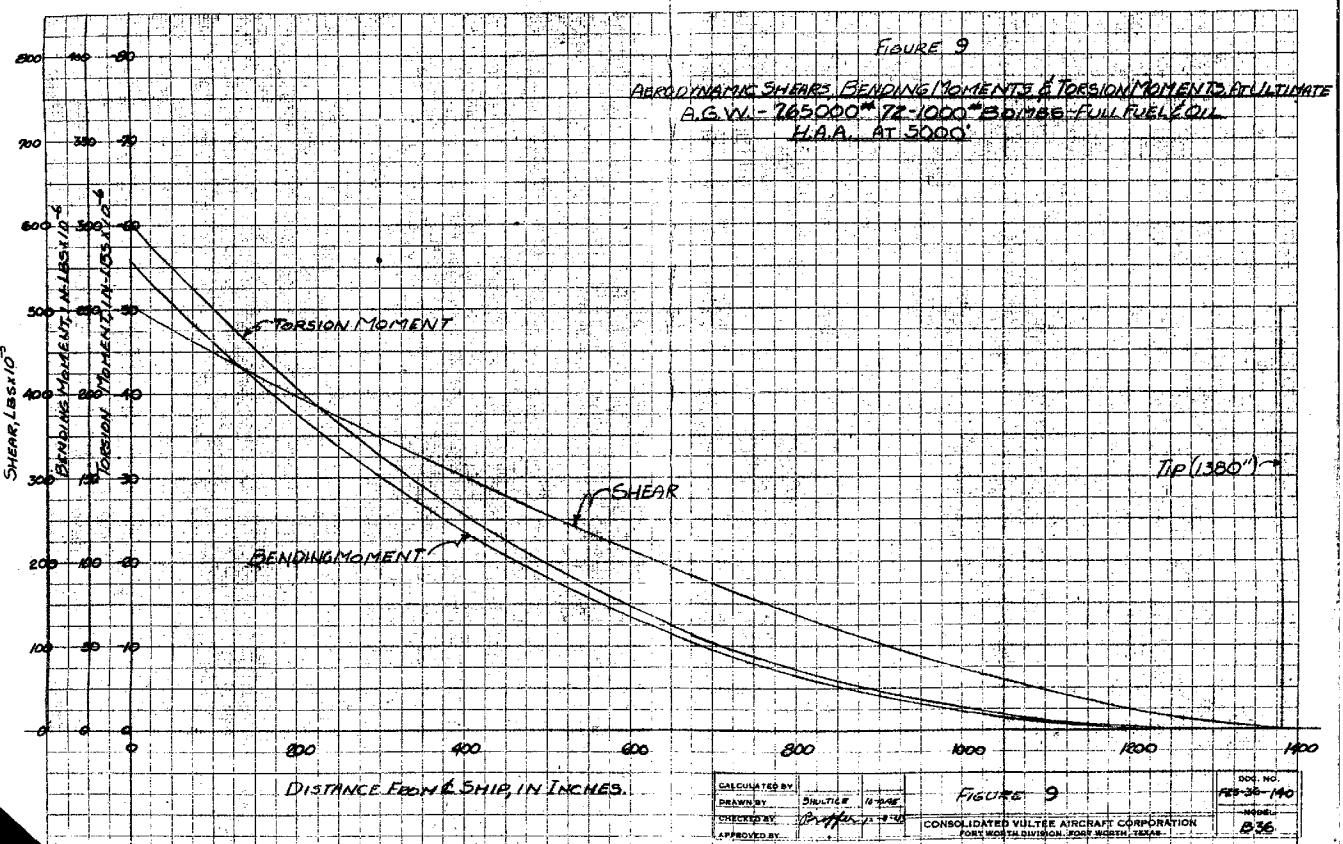
F_4 = Torsion Const. = $\frac{1.5 \times 0.0255 \times 4^{1/2}}{3 \times 144} \sqrt{\sigma} = 19.226$

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

By: [illegible]
CKD: [illegible]

FIGURE 9

AERODYNAMIC SHEARS, BENDING MOMENTS & TORSION MOMENTS AT ULTIMATE
A.G.W. - 765000# 72-1000# BOMBS FULL FUEL & OIL
H.A.A. AT 5000'



CALCULATED BY			FIGURE 9	DOC. NO. FZS-36-140
DRAWN BY	SHULTICE	11-10-45		
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
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TABLE II B-36 WING AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE.
CONDITION: ABAK-265,000# 12-1000 B, FULL FUEL FCH LAA & 3000' HIGH SPEED

STA.	DISTANCE FROM $\frac{L}{2}$ STA	$C_{m_{a_1}}$	$S_{w_{a_1}}$	$\frac{W}{W_o} S_{c/2_1}$	$S_{c/2_b}$	$S_{t_{a_1}}$	$+S_{t_{a_b}}$	$S_{b_{a_1}}$	$M_{c/4_{a_1}} \times 10^{-3}$	$M_{c/4_b} \times 10^{-3}$	$\frac{W}{W_o} M_{c/4_{a_1}} \times 10^{-3}$	$M_{w_{a_1}} \times 10^{-3}$	$M_{t_{a_1}} \times 10^{-3}$	$M_{t_{a_b}} \times 10^{-3}$	$+M_{t_{a_b}}$	$M_{a_1} \times 10^{-3}$	$\frac{\Delta C_{m_{a_1}}}{\Delta C_{L_{a_1}}} \times 10^{-3}$	$\frac{\Delta C_{m_{a_1}}}{\Delta C_{L_{a_1}}} C_{L_{a_1}} \times 10^{-3}$	$M_{a_1} \times 10^{-3}$	$\frac{\Delta C_{m_{a_b}}}{\Delta C_{L_{a_b}}} \times 10^{-3}$	$\frac{\Delta C_{m_{a_b}}}{\Delta C_{L_{a_b}}} C_{L_{a_b}} \times 10^{-3}$	$M_{a_b} \times 10^{-3}$	$+M_{a_b}$	$0.11 C S_{b_a} Ten_a \times 10^{-3}$
		(W=265,000)	(W=265,000)	(W=265,000)	(W=265,000)	(W=265,000)	(W=265,000)	(W=265,000)	(W=265,000)	(W=265,000)	(W=265,000)	(W=265,000)	(W=265,000)	(W=265,000)	(W=265,000)	(W=265,000)								
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
			$Ten_a \times C_{m_{a_1}}$ FZS-36-138	$F_1 \times$ ②	$\times 2.5986$ ④	FZS-36-138	$F_2 \times$ ⑤	⑥ + ⑦	$1.5 \times$ ⑧	TAB IX Col 8 FZS-36-138	$F_2 \times$ ⑩	⑨ + ⑪	$2.5986 \times$ ⑫	TAB IX Col 14 FZS-36-138	$F_2 \times$ ⑭	⑬ − ⑮	$1.5 \times$ ⑯	TAB I Col 8	$F_2 \times$ ⑱	⑰ + ⑲	$\times 2.5986$ ⑳	$10^3 \times$ ⑧	⑫ + ⑳
0	0	131,900	131,900	342,676	0	0		342,676	513,514	73,824	73,824	191,777	-6,495.00	-4,414	187,563	251,344	-392.020	-9,932.3	-58,520		2,261.7	-65,690.6
	57.5																					
2	115.0	116,144	116,144	301,792	-2,002	-1361		300,381	450,572	59,632	59,632	154,924	-6,376.500	-4,333	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	-6,040.900	-4,105	118,419	177,678	-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	176,254	-178.224	-5,043.1	-28,341		1,183.0	-32,221.1
	402.5																					
8	460.	72,525	72,525	188,410	-6412	-4360		184,050	276,087	27,283	27,283	70,881	-4,990.200	-3,390	67,591	101,585	-138.996	-3,975.4	-21,933		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	51,145	-4,464.300	-2,756	48,409	72,614	-107.253	-3,048.9	-15,184		680.10	-17,470.2
	632.5																					
12	690.	47,622	47,622	123,721	-7400	-5029		118,693	178,040	13,537	13,537	35,149	-3,213.700	-2,184	33,985	49,476	-79.881	-2,268.6	-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	69,193	-6472	-4399		64,794	97,192	5,078	5,078	13,192	-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.	17,799	17,799	46,246	-5211	-3609		42,637	63,956	2,538	2,538	6,593.7	-900.683	-612.1	5,981.6	8,972.4	-24.843	-681.55	-1,866.3		122.65	-2,435.2
	1092.5																					
20	1150.	10,083	10,083	26,196	-3665	-2491		23,705	35,558	930.6	930.6	2,419.7	-378.926	-257.1	2,211.6	3,317.4	-13.183	-373.66	-690.03		58.67	-1,005.0
	1207.5																					
22	1265.	3,808	3,808	9,893	-1424	-1105.0		8,788	13,182	166.8	166.8	433.2	-78.447	-49.91	383.44	575.16	-4.931	-140.08	-119.63		19.125	-241.6
	1322.5																					
24	1380.				0	0		0	0	0	0	0	0	0	0	0	0	0	0		0	0

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

$F_2 = \sigma\left(\frac{M.P.H.}{511.0}\right)^2 = .8616\left(\frac{276.2}{511.0}\right)^2 = .6796$

$F_4 = \text{TORSION CONSTANT} = 1.5 \times .002538 \times 5 \sqrt{\frac{}{}} = .019017 (276.2)^2 .8616$
$= 33.5681$

$F_5 = .8403$ (TABLE 2.)

$F_6 = F_4 F_5 = .9463 \times 33.5681 = 28.4087$

By: A Ellis
Chk: Bisen

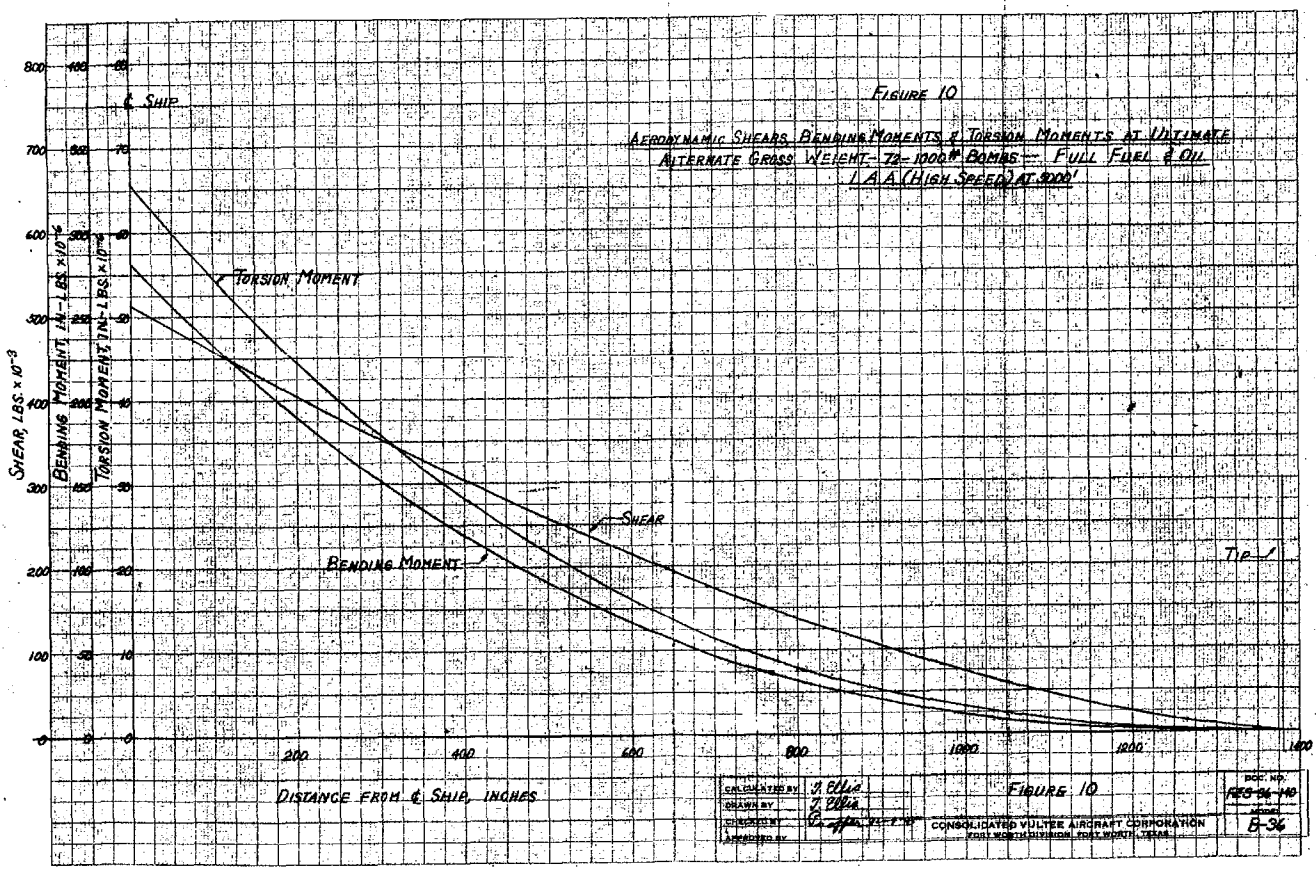

FIGURE 10

AERODYNAMIC SHEARS, BENDING MOMENTS & TORSION MOMENTS AT ULTIMATE
ALTERNATE GROSS WEIGHT - 72-1000# BOMBS - FULL FUEL & OIL
1 A A (HIGH SPEED) AT 9200'

CALCULATED BY	J. Ellis	FIGURE 10	DOC. NO. FES-36-140
DRAWN BY	J. Ellis	CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION, FORT WORTH, TEXAS	MODEL B-36
CHECKED BY			
APPROVED BY			

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

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

CONDITION: AGW 265000 LB -100K MAN, FULL FUEL & OIL, 1.5 N.L.F. @ 5000'

STA.	DISTANCE FROM ℄ SHIP	$S_{C_{Lmax}}$ (GW=265,000 lb; $C_{L_{MAX}}$=1.265; $\frac{q}{144}$=16.622)	$S_{C_{La}}$ (GW=265,000 lb; $C_{L_{MAX}}$=1.265; $\frac{q}{144}$=16.622)	$\frac{S_{C_{La}}}{S_{C_{Lb}}}$	$S_{C_{Lb}}$ (311.6 MPH)	$S_{C_{Lb}}$ (188.3 MPH)	$\frac{S_{C_{Lb}}}{S_{C_{Lb}}}$	$S_{b_{ac}}$	M_{EA} x10^{-3} (FZS-36-138 TAB. X COL. 5, F_4 ×⑤)	M_{CL_a} x10^{-3} (FZS-36-138 TAB. X COL. 6, F_5 ×⑤)	$\frac{S_{C_{La}}}{S_{C_{Lb}}}$	M_{EA} x10^{-3} (FZS-36-138 TAB. X COL. 7, F_6 ×⑤)	M_{CL_b} x10^{-3} (FZS-36-138 TAB. X COL. 8, F_7 ×⑤)	$\frac{S_{C_{Lb}}}{S_{C_{Lb}}}$	M_{CL_b} x10^{-3} (311.6 MPH)	M_{CL_b} x10^{-3} (188.3 MPH)	$M_{T_{a-c}}$ x10^{-3}	$\frac{S_{C_{La}}(\frac{q}{144})(\frac{MPH}{311.6})^2}{10}$	TORSION DUE TO CONFIG. (FZS-36-1000)	$-M_{T_{a-c}}$ x10^{-3} (FZS-36-1000 TAB. I COL. 8, F_8 ×⑯)	$S_{C_{Lb}}$	ΔM_{CL_b} x10^{-3}	$T_{E.A.}$ x10^{-3}
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		20	21
0	0	131,900	131,900	-200.762	0	0		-200.762	-361.128	73.894	-112.467	-6 474.600	-2051.6	-1145186	-171 7774	-332.020	-5886.2	35 729.8		-132.5.0	28 516.6
	57.5																				
2	115.	116 144	116 144	-176.771	-2.002	- 632	-177 403	-240 105	59632	59632	- 90 763	-6 376.500	-2014.3	- 9277.4	-139161.0	-273.761	-4853.8	28 946.5		-1078.3	22 993.4
	172.5																				
4	230.	100856	100 856	-153 503	-3998	-1198	-164701	-232 052	47161	47161	-71 780	-6 040.300	-1908.3	-73 6883	-110 532.5	-222.478	-3 947.8	22 990.8		- 894.5	18 148.5
	287.5																				
6	345.	86 296	86 296	-131345	-5204	-1669	-133012	-199 518	36407	36407	-55 411	-5 515.800	-1742.4	-671534	-85730.1	-178.224	-3164.7	17831.9		- 714.7	13 915.5
	402.5																				
8	460.	72 525	72 525	-110 383	-6418	-2027	-112 410	-168 615	27 283	27 283	-41 525	-4 839.100	-1528.7	-430537	-64 580.6	-139.936	-2480.9	13 432.8		- 558.0	10 393.9
	517.5																				
10	675.	59618	59618	-90 731	-7149	-2258	-92 989	-139 484	19694	19694	-29 974	-4 084.300	1280.9	-312549	-46 882.4	-102.253	-1901.4	9751.6		- 423.6	7 426.9
	632.5																				
12	690.	47622	47622	-72 481	-7460	-2338	-74 819	-112 229	13 537	13 537	-20 603	-3 213.700	-1016.2	-216782	-32 492.3	-79.851	-1415.6	6744.9		-310.2	5 019.1
	747.5																				
14	805	36607	36607	-55 716	-7169	-2265	-57 981	-86 972	8703	8 703	-13 246	-2 331.203	-749.2	-139952	-20 992.8	-57.195	-1014.0	4 366.5		-216.6	3 135.9
	862.5																				
16	920.	26630	26630	-40 516	-6478	-2045	-42 561	-63 842	5078	5078	- 7729	-1 603.600	-499.9	-82283	-12 343.4	-38.894	- 689.5	2 567.4		-141.5	1736.4
	977.5																				
18	1035	17739	17739	-26 999	-5311	-1676	-28 677	-43 016	2538	2538	- 3 863	- 900.680	-284.5	-41476	- 6221.3	-24.343	-431.6	1894.0		- 83.6	778.8
	1092.5																				
20	1150	10083	10083	-15 346	-3662	-1158	-16 504	-24 756	954.6	954.6	- 1 447	-379.820	120.0	-16670	-2 360.5	-13.163	- 233.2	488.9		- 41.3	214.4
	1207.5																				
22	1265	3808	3808	- 5796	-1626	- 514	- 6310	- 9466	146.8	146.8	- 264	- 73.997	- 23.2	- 2772	- 415.8	- 4.931	- 86.5	88.6		- 13.2	- 11.1
	1322.5																				
24	1380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0

$F_1 = \frac{S_W}{S_{WB\,MAX}} = \frac{265,000}{265,000} = 1.000$

$F_2 = \left(\frac{M.P.H.}{311.6}\right)^2 = \left(\frac{188.3}{311.6}\right)^2 \times 0.8616 = 0.3159$

$F_3 = C_{M_0}$ CORRECTION FACTOR = 1.1363 (SEE TABLE 2 FOR CALC.)

F_4 = TORSION CONSTANT = $\frac{(L.E.\ SWEEP\ 5.5°)^2}{3 \times 144} = \frac{0.0095871^2}{3 \times 144} = 0.000071071 (188.3)^2 \times 0.8616 = 15.6020$

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

By: J. E. Kinsberg
Chk: B. [illegible]

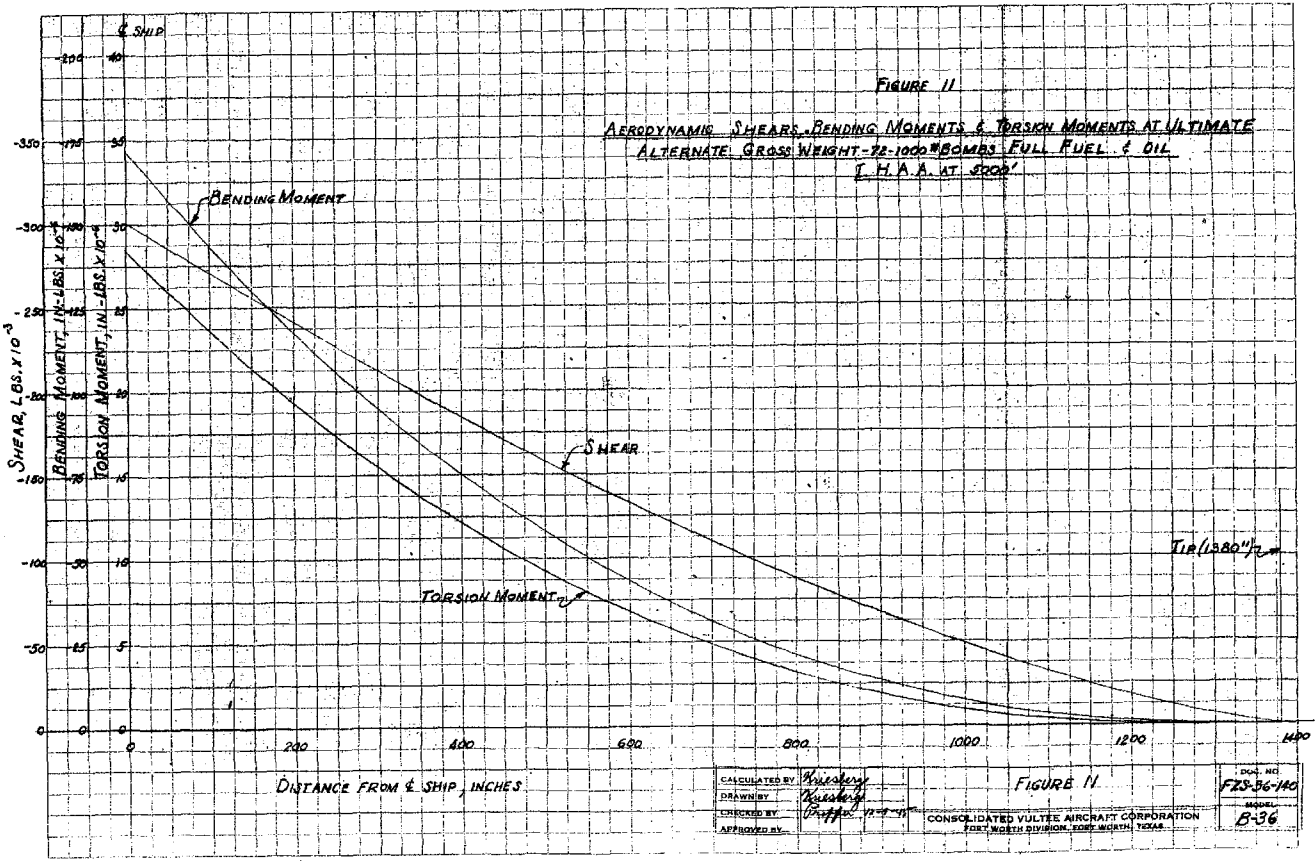

FIGURE 11

AERODYNAMIC SHEARS, BENDING MOMENTS & TORSION MOMENTS AT ULTIMATE
ALTERNATE GROSS WEIGHT - 72-1000# BOMBS FULL FUEL & OIL
T. H. A. A. AT 5000'

CALCULATED BY	Kuisberg	FIGURE 11	DOC. NO. FZS-86-140
DRAWN BY	Kuisberg		
CHECKED BY	Griffin 12-4-45	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 833 125 PADS 11-43

TABLE 13 B-36 WING AERODYNAMIC SHEARS, BENDING MOMENTS AND TORSION MOMENTS AT ULTIMATE
CONDITION AQW-265000# 72-1000# G, FULL FUEL & OIL ILAA @ 5000', HIGH SPEED

STA.	DISTANCE FROM ℄ SHIP	Scen. (Lw.+265000#)	Scen. (Lw.+265000#)	3/2 Scen. (3/2 n=1.484)	Scen (311.0 MPH)	Sceb (276.2 MPH)	1/2 Sceb + Sceb	Sbm (Lw.+265000#)	Mcen x10^-3 (Lw.+265000#)	Mceb x10^-3 (Lw.+265000#)	1/2 Mceb x10^-3 (1/2 n=1.484)	Mebx10^-3 (311.0 MPH)	Mebx10^-3 (276.2 MPH)	1/2 Mebx + Mebx (1/2 n=1.484)	Mbm x10^-3	∫Mbm dx(Sim) x10^-3	Torsion due to Cma (Lw.+265000#)	-Mcm c.p. x10^-3 (n=0, 200 MPH)			
	1		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 x ②	-1.484 x ④	TAB. XC-6.3	F_z x ⑤	⑥ + ⑦	1.5 x ⑧	FZS-36-138 TAB. XC-6.1	F_z x ⑨	-1.484 x ⑩	TAB. XC-6.4	F_z x ⑫	⑪ + ⑬	1.5 x ⑭	TAB. XC-6.5	F_z x ⑯	-2.682 x ⑰		⑨ x ⑲	⑫ + ⑱ + ⑮
0	0	131900	131900	-195740	0	0	-195740	-293610	73844	73844	-109659	-64944.5	-44113.0	-114072	-171108	-333.036	-11327.0	35593.6		-1291.9	22971.6
2	57.5 115. 172.5	116144	116144	-172358	-2002	-1360	-173718	-260577	57432	59632	-88444	-64976.5	-4332.8	-92826.8	-139240	-273.786	-9340.3	28961.9		-1074.9	16546.7
4	230.	100856	100856	-149670	-3793	-2577	-152247	-228371	47161	47161	-69987	-6040.1	-4104.8	-74091.8	-111138	-222.478	-7894.7	23116.7		-879.8	14640.8
6	287.5 345.	86296	86296	-128063	-5284	-3590	-131653	-197480	36407	36407	-54028	-5515.8	-3748.0	-57776.0	-86664	-182.249	-6080.2	18026.1		-706.0	11239.9
8	402.5 460.	72525	72525	-107627	-6418	-4361	-111988	-167982	27288	27288	-40495	-4839.3	-3288.3	-43783.3	-65675	-139.936	-4774.0	13660.6		-554.3	8332.1
10	517.5 575.	59613	59613	-88466	-7144	-4858	-93324	-139986	19694	19694	-29236	-4054.9	-2755.3	-31981.3	-47972	-107.253	-3659.0	9938.2		-423.5	5895.7
12	632.5 690.	47622	47622	-70671	-7400	-5028	-75699	-113549	13537	13537	-20089	-3213.7	-2183.7	-22272.7	-33409	-79.851	-2729.1	6949.1		-312.3	3912.7
14	747.5 805.	36602	36602	-54325	-7169	-4871	-59196	-88794	8703	8703	-12915	-2347.7	-1458.6	-14376.6	-21565	-57.195	-1951.2	4485.6		-219.8	2314.5
16	862.5 920	26620	26620	-39504	-6478	-4398	-43902	-65853	5078	5078	-7536	-1583.6	-1075.4	-8611.4	-12917	-38.394	-1327.0	2686.7		-144.9	1214.8
18	977.5 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
20	1092.5 1150.	10083	10083	-14963	-3665	-2490	-17453	-26180	952.6	952.6	-1411	-379.82	-258.1	-1669.1	-2504	-13.153	-448.7	520.8		-43.2	28.9
22	1207.5 1265	3809	3809	-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
24	1322.5 1380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0

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

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

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

F_4 = TORSION CONSTANT = $\frac{(57.0)^2 \times 12}{5 \times 137} = V_{ac} = 0.0004897 (211.3)^2 0.5616 = 33.5681$

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

By: Kriesberg
Chk.: Riley, Griffen

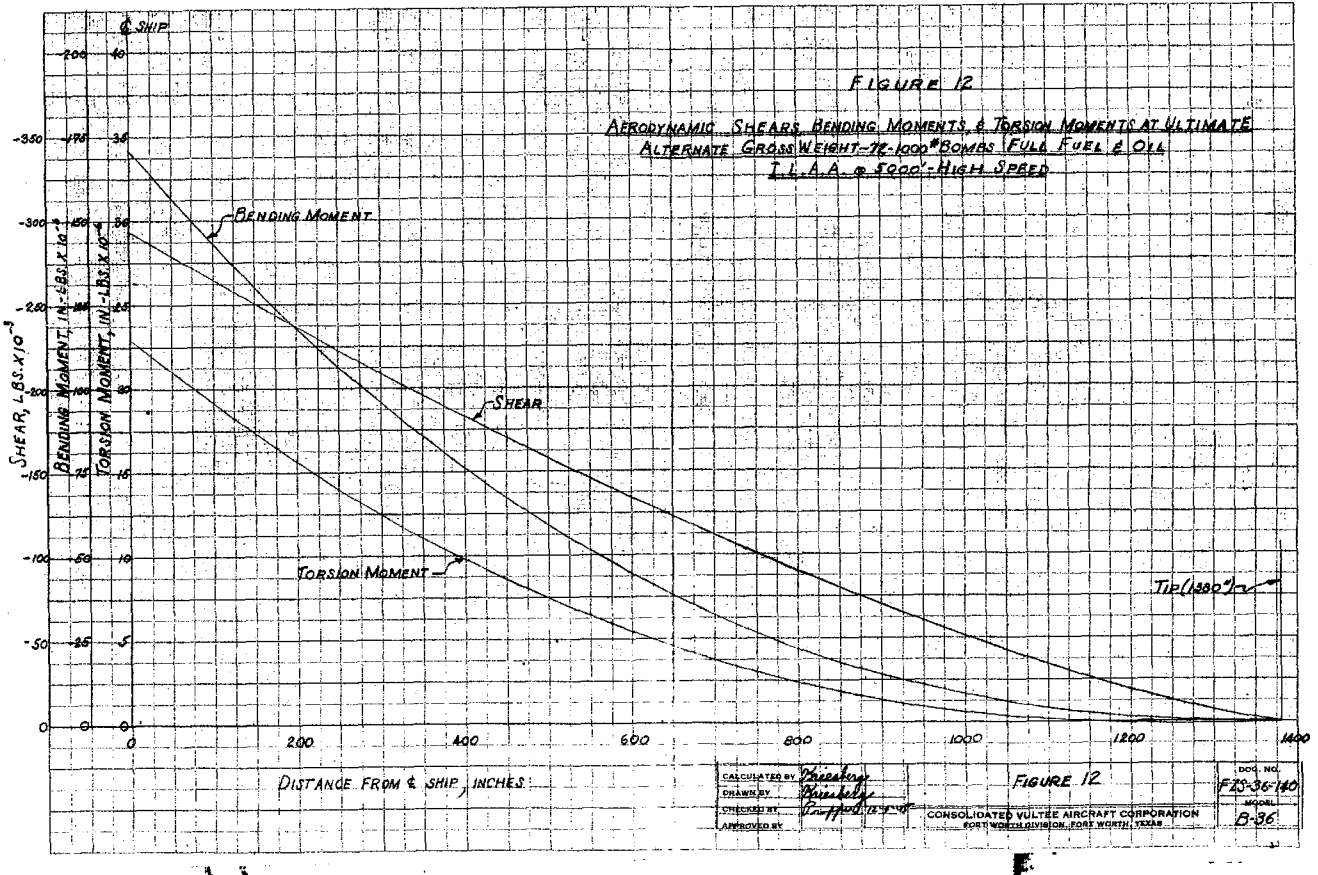

FIGURE 12

AERODYNAMIC SHEARS, BENDING MOMENTS, & TORSION MOMENTS AT ULTIMATE ALTERNATE GROSS WEIGHT-78-1000# BOMBS FULL FUEL & OIL T.L.A.A. @ 5000'-HIGH SPEED

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

TABLE 14. B-36 WING AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE
CONDITION: AGW=265,000#, 72-1000# B, FULL FUEL, 0.91 M @ 5000' LIMIT DIVE SPEED

STA	DISTANCE FROM C/L OF SHIP	$S_{C_{la}}$ (GW=265,000#)	$S_{C_{l_0}}$ (GW=265,000#)	$\frac{K}{GW}S_{3_{C_{l_0}}}$ ($\frac{K}{GW}$=1.324)	$S_{3_{C_{l_0}}}$ (311 MPH)	$S_{C_{m_{ac}}}$ (308 MPH)	$\frac{K}{GW}S_{C_{m_{ac}}}$	$S_{C_{l_a}}$	$M_{C_{l_a}}\times10^{-3}$ (GW=265,000#)	$\frac{K}{GW}M_{C_{l_0}}\times10^{-3}$ ($\frac{K}{GW}$=1.324)	$M_{C_{m_{ac}}}\times10^{-3}$ (311 MPH)	$\frac{K}{GW}M_{C_{m_{ac}}}\times10^{-3}$ (308 MPH)	$M_{3_{C_{l_0}}}\times10^{-3}$	$M_{C_{l_a}}\times10^{-3}$	$S_{C_{m_{ac}}}\times10^{-3}$	TORSION DUE TO $C_{m_{ac}}\times10^{-3}$	$M_{C_{m_{ac}}}\times10^{-3}$ (tan θ=.0504)	$S_{TC}\times10^{-3}$	$M_{TC}\times10^{-3}$
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
			FAS-36-138 TABLE CAL 3	K=1	K=1.324 (3)	FAS-36-138 TABLE II CAL 3	F_6 x (6)	(4)+(6)	(5) x 7	FAS-36-138 TABLE II CAL 5	F_6 x (9)	(10) x (11)	FAS-36-138 TABLE II CAL 5	(12) x (13)	(10)+(14)	(15) x (9)	TAB. I CAL 8	F_6 x (16)	(17) x (18)	(19) x (8)	(20) x (21)
0	0	131900	131900	-174656	0	0	-1746.6	-1746.6	-18534	73519	73894	-97856	-6499.5	-5495.2	-7039.3	-1549853	-332016	.74	-245772	-1152.6	+170103
2	115.0 172.5	116194	116194	-153774	-2002	-1691.8	-1559.6	-3251.4	-23198.8	59037	59632	-78952.8	-6376.5	-5388.5	-6434.3	-1265119	-273782	-1160.6	+26314.5	-961.9	+137470
4	230.0 287.5	100856	100856	-133532.3	-2793	-3205.3	-2587.8	-5793.1	-25181.9	47161	47161	-62441.2	-6060.9	-5109.9	-6546.1	-1015192	-222678	-943.1	+21018.4	-789.7	+108856
6	345 402.5	86296	86296	-114255.9	-5284	-4465.3	-4187.2	-17809.8	-36407	36407	36407	-48211.7	-5,515.8	-4661.2	-52844.1	-792662	-178220	-15547	+1638.24	-636.6	+82961
8	460 517.5	72525	72525	-96023.1	-6418	-5123.6	-16144.1	-15267.0	-27283	27283	27283	-36117.7	-4839.3	-4468.5	-402122	-603183	-139932	-5931.7	-12546.2	-501.2	+61123
10	575 632.5	59613	59613	-78927.6	-7149	-6091.3	-8496.89	-12743.4	-19679	19679	19679	-26119.9	-4059.9	-3476.6	-295015	-441251.3	-107249	-4546.3	-9246.5	-385.5	+42727
12	690 747.5	47622	47622	-63051.5	-7400	-6253.4	-6930.49	-13,395.4	-13537	13537	13537	-17923.6	-3213.7	-2715.7	-206787	-309381	-79847	-3384.7	-6889.3	-285.9	+27687
14	805 862.5	36607	36607	-48467.6	-7169	-6058.6	-5452.58	-11,188.1	-8703	8703	8703	-11522.8	-2371.7	-2004.2	-135270	-202955	-57191	-2424.3	-4220.4	-201.4	+15937
16	920 977.5	26620	26620	-35249.8	-6473	-5470.0	-4671.98	-10,141.2	-5078	5078	5078	-6723.3	-1582.6	-1337.4	-80601.7	-120911	-38899	-1648.1	+2519.9	-134.4	+7318
18	1035 1092.5	17739	17739	-23486.0	-5211	-4486.1	-3979.5	-8,961.6	-2538	2538	2538	-3360.3	-900.68	-761.1	-41014	-61521	-20343	-1031.9	+1285.9	-80.8	+1732
20	1150 1207.5	10083	10083	-13345.9	-3665	-3154.7	-1647.0	-4,801.7	-950.6	9506	-12585	-379.82	-320.9	-1519.4	-23691	-13153	-557.5	+492.8		-40.7	-1054
22	1265 1322.5	3808	3808	-5040.5	-1626	-1374.1	-645.9	-2,020.0	-166.8	166.8	-221.8	-73.447	-62.1	-282.9	-4244	-4931	-209.0	+88.2		-13.2	-1339
24	1380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0

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

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

$F_3 = 1.0155$ (TABLE 2)

$F_4 = \text{TORSION CONSTANT} = \frac{15 \times 802.5 \times 588 \times 57.5 \times V^2 \sigma}{3 \times 144} = 41.7429$

$F_5 = F_3 \times F_4 = 1.0155 \times 41.7429 = 42.3899$

By: [illegible]
Chk: Basic Staff

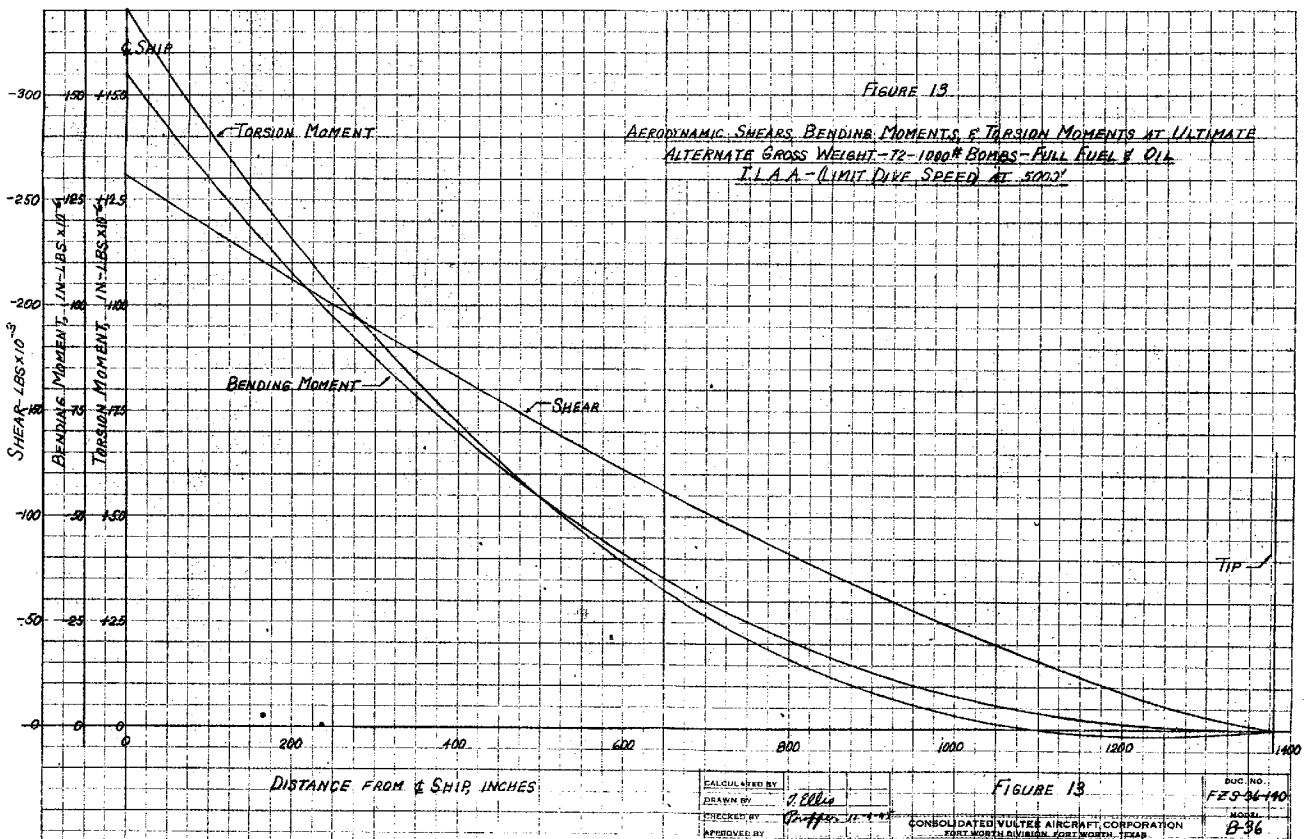

FIGURE 13

AERODYNAMIC, SHEARS, BENDING MOMENTS, & TORSION MOMENTS AT ULTIMATE
ALTERNATE GROSS WEIGHT - 72-1000# BOMBS - FULL FUEL & OIL
T.L.A.A. - LIMIT DIVE SPEED AT 5000'

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 633 123 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. 11.4 A. @ 35000' HIGH SPEED.

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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_{be}	$M_{CE_{A_1}} \times 10^3$ (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.)	$\frac{\ell}{w} M_{CE_{A_2}} \times 10^3$	$M_{x_0} \times 10^3$	$M_{CE_{A_2}} C_{M_0} (c.m.) \times 10^5$	TORSION $\times 10^5$ DUE TO C_{M_0}	$-M_{CE} \tan\theta \times 10^3$ TAN θ = .2083	ΣM_{CE} $\times 10^3$	$\Sigma M_{CE} \times S_{be}$ $\times 10^3$
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
			TAB II COL 9 P.83-36-138	$F_1 \times$ ②		TAB II COL 9 P.83-36-138	$F_2 \times$ ⑤	④ + ⑥	1.5 x ⑦	TAB X COL 15 P.83-36-138	$F_1 \times$ ⑨	-.1541 x ⑩	TAB II COL 12 P.83-36-138	$F_3 \times$ ⑫	⑪ + ⑬	1.5 x ⑭	TAB I COL 8	$F_4 \times$ ⑯	-2080 x ⑰	⑧ + ⑮ + ⑱	⑲ x ⑧
0	0	131900	126492	-194924	0	0		-194924	-292,386	73894	70864	-10920	-6494.5	-2568.4	-111,749	-167624	-332,020	+1339.2	34865.8	-1286.5	3
	57.5																				
2	115	116144	111382	-171640	-2002	-786		-172426	-258 639	59632	57187	-8812.5	-6376.5	-2502.1	-90627	-135941	-273,786	+1104.3	28215.7	-1066.9	2
	172.5																				
4	230	100856	96721	-149047	-3793	-1488		-150535	-225803	47161	45227	-6969.5	-6044.9	-2370.4	-72065	-108098	-222678	898.1	22484.4	-869.3	2
	287.5																				
6	345	87296	82758	-127530	-5284	-2073		-129603	-194405	36407	34914	-5380.2	-5515.8	-2164.4	-55966	-83949	-178224	718.8	17461.4	-695.0	1
	402.5																				
8	460	72525	69551	-107178	-6418	-2518		-109696	-164544	27283	26164	-4031.9	-4833.3	-1898.9	-42218	-63327	-139,936	564.4	13172.0	-543.0	1
	517.5																				
10	575	59613	57147	-88097	-7149	-2805		-90902	-136353	19694	18887	-2910.5	-4054.9	-1591.1	-30696	-46044	-102863	432.6	9577.2		-412.5
	632.5																				
12	690	47622	45669	-70376	-7400	-2904		-73280	-109920	13537	12982	-2000.5	-3213.7	-1261.1	-21266	-31899	-79851	322.1	6635.0		-302.3
	747.5																				
14	805	36407	35106	-54098	-7169	-2813		-56911	-85367	8703	8346	-1286.1	-2371.7	-930.7	-13 792	-20688	-57,195	230.7	4303.1		-211.3
	862.5																				
16	920	26620	25529	-39340	-6473	-2540		-41880	-62820	5078	4870	-750.5	-1582.6	-621.0	-8126	-12 189	-38894	156.9	2535.2		-138.2
	977.5																				
18	1035	17737	17012	-26215	-5311	-2084		-28299	-42449	2538	2434	-375.1	-900.68	-353.4	-4104	-6156	-24343	98.2	1280.4		-81.7
	1092.5																				
20	1150	10083	9670	-14901	-3665	-1438		-16339	-24509	950.6	912	-140.5	-379.82	-149.0	-1554	-2331	-13,153	53.1	484.8		-40.4
	1207.5																				
22	1265	3869	3652	-5628	-1626	-638		-6266	-9399	166.8	160	-24.7	-73.477	-28.8	-276	-414	-4931	19.9	86.1		-12.9
	1322.5																				
24	1380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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

$F_2 = \left(\frac{M.P.H.}{311.0}\right)^2 \sigma = \left(\frac{350}{311}\right)^2 \times .8098 = 0.9924$

$F_3 = -.2081$ (TABLE 2)

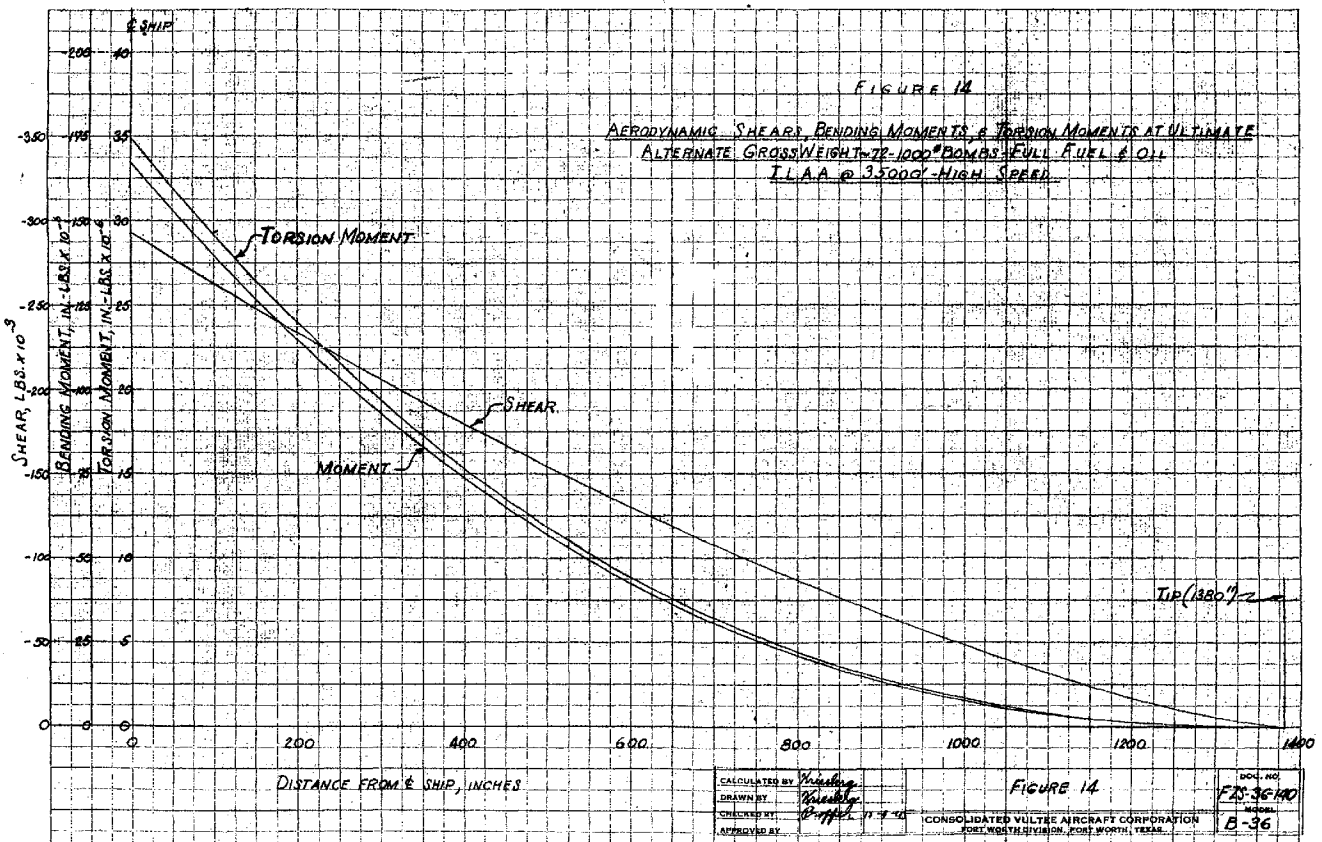
F_4 = TORSION CONSTANT = $\frac{1.5 \times .0025 \times 275 \times (350)^2}{3 \times 144} \times .3098 = 19.3918$

$F_E = F_3 \times F_4 = -.2081 \times 19.3818 = -4.0334$

By Kaisberg
C'k'd. Brey

FIGURE 14

AERODYNAMIC SHEARS, BENDING MOMENTS, & TORSION MOMENTS AT ULTIMATE
ALTERNATE GROSS WEIGHT-72-1000# BOMBS-FULL FUEL & OIL
T.L.A.A @ 35000'-HIGH SPEED



CALCULATED BY	Weisberg	FIGURE 14		DOC. NO. FZ-36-140
DRAWN BY	Weisberg			
CHECKED BY	[illegible] 11-4-46	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 655 125 PAGES 11-43

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

CONDITION: R.G.W. - 229,999# 72-100.5% n_z FUEL & OIL LAA 6, SPD'L HIGH SPEED

STA.	DISTANCE FROM ℄ SHIP	1 $S_{Cz_{a_I}}$ (G.W.=265,000)	2 $S_{Cz_{a_M}}$ (G.W.=229,999)	3 $\frac{G.W.}{265,000} S_{Cz_{a_I}}$ (G.W.=247,740)	4 S_{Cz_b} (311 M.P.H.)	5 $S_{C_{b_I}}$ (280 M.P.H.)	6 $\frac{G.W.}{265,000} S_{C_{b_I}}$ (G.W.=247,740)	7 $+S_{C_{b_M}}$	8 S_{b_a}	9 $M_{Cz_{a_I}} \times 10^{-3}$ (G.W.=265,000)	10 $M_{Cz_{a_M}} \times 10^{-3}$ (G.W.=229,999)	11 $\frac{G.W.}{265,000} M_{Cz_{a_I}} \times 10^{-3}$ (G.W.=247,740)	12 $M_{C_{b_I}} \times 10^{-3}$ (311 M.P.H.)	13 $M_{C_{b_M}} \times 10^{-3}$ (280 M.P.H.)	14 $M_{C_{b_a}} \times 10^{-3}$	15 $M_{Z_{a_a}} \times 10^{-3}$	16 $\left(\frac{C_{m_{ac}}}{C_{L_{max}}}\right)_{M=.3} \times 10^{-3}$	17 TORSION TO C_{M_0}	18 $-M_{T_{a_{M=.3}}} \times 10^{-3}$	19 $C_{M_0} C S_{D_a} \times 10^{-3}$	20 $T_{E_a} \times 10^{-3}$
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		FRS-36-138 TAB. ΣC_{Lo_a}	$F_1 \times$ ②	FRS-36-138 TAB. ΣC_{Lo_a}	$F_2 \times$ ④	④ + ⑤	$1.5 \times$ ⑦	FRS-36-138 TAB. $\Sigma C_{m_{ac}}$	$F_1 \times$ ⑨	$\frac{G.W.}{265,000} \times$ ⑨	$F_2 \times$ ⑪	FRS-36-138 TAB. $\Sigma C_{m_{ac}}$	$F_3 \times$ ⑬	⑪ + ⑬	$1.5 \times$ ⑭	TAB. 1 Cl. B	$F_4 \times$ ⑮	-2080 ⑯	⑫ + ⑰	⑲ + ⑱
0	0	131,900	114,476	213,664	0	0	213,664	470,496	73,894	64,133	115,734	-6,494.500	-4,555.2	171,168.6	256,753.0	-332.020	-2,911.2	-83,424.7	2,070.2	-61,245.7
2	57.5 115.	116,144	100,831	276,195	-2002	-1404	274,791	412,186	59,692	51,755	101,809	-6376.500	-4,472.5	137,336.5	206,004.8	-243.786	-8,172.8	-42,849.0	1,700.3	-49,321.5
4	172.5 230.	100,856	87,593	229,840	-3793	-2660	227,180	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	-38,662.1	1,349.7	-38,946.6
6	287.5 345.	86,236	74,896	205,215	-5284	-3706	201,509	301,264	36,407	31,588	86,578	-5,515.800	-3,868.8	82,710.2	124,065.3	-178.494	-5,320.2	-25,885.6	1,080.6	-30,045.2
8	402.5 460.	72,825	62,044	172,447	-6418	-4502	167,945	251,948	27,283	23,679	64,880	-4,899.300	-3,394.3	61,485.7	92,228.6	-139.936	-4,177.3	-19,183.5	851.4	-22,520.4
10	517.5 575.	59,613	51,738	141,762	-7149	-5014	136,748	205,122	19,604	17,092	46,852	-4,059.900	-2,844.1	43,987.9	65,981.8	-107.258	-3,201.6	-13,724.2	620.6	-16,305.2
12	632.5 690.	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	-78.851	-2,383.6	-9,340.6	445.7	-11,278.5
14	747.5 805.	36,607	31,771	87,053	-7169	-5028	82,025	123,038	8,703	7,553	20,696	-2,311.700	-1,643.5	19,052.5	28,578.8	-57.195	-1,701.3	-5,938.4	304.5	-7,341.0
16	862.5 920.	26,620	23,103	63,262	-6473	-4540	58,762	88,143	5,078	4,407.2	12,076	-1,582.400	-1,110.0	10,966.0	16,449.0	-38.894	-1,161.0	-3,421.4	193.9	-4,288.5
18	977.5 1035.	17,739	15,396	42,185	-5311	-3725	38,460	57,690	2,533	2,200.7	6,035.4	-900.687	-631.7	5,403.7	8,105.6	-24.343	-726.7	-1,686.0	111.1	-2,301.6
20	1092.5 1150.	10,083	8,751	23,978	-3665	-2571	21,407	32,110	950.6	825.03	2,260.6	-379.824	-266.4	1,994.2	2,991.3	-13.153	-392.6	-632.2	83.0	-961.8
22	1207.5 1265.	3,808	3,305.0	9,055.7	-1626	-1140	7,915.7	11,873.6	166.8	144.77	396.7	-73.447	-51.52	345.25	517.72	-4.931	-147.20	-107.69	16.33	-238.56
24	1322.5 1380.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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

$F_2 = .9\left(\frac{M.P.H.}{311.0}\right)^2 = .8616\left(\frac{280.0}{311.0}\right)^2 = .7614$

$F_3 = .8616$ (TABLE 2)

$F_4 = \text{TORSION CONSTANT} = 1.5 \times .002558 \times 37.5 \left(\frac{V}{3 \times 144}\right)^2 = .000610721 (280.0)^2 .8616$
$= 34.6962$

$F_5 = F_3 \times F_4 = .8616 \times 34.6962 = 29.8512$

By J. Ellis
Chkd. Tony Joffe

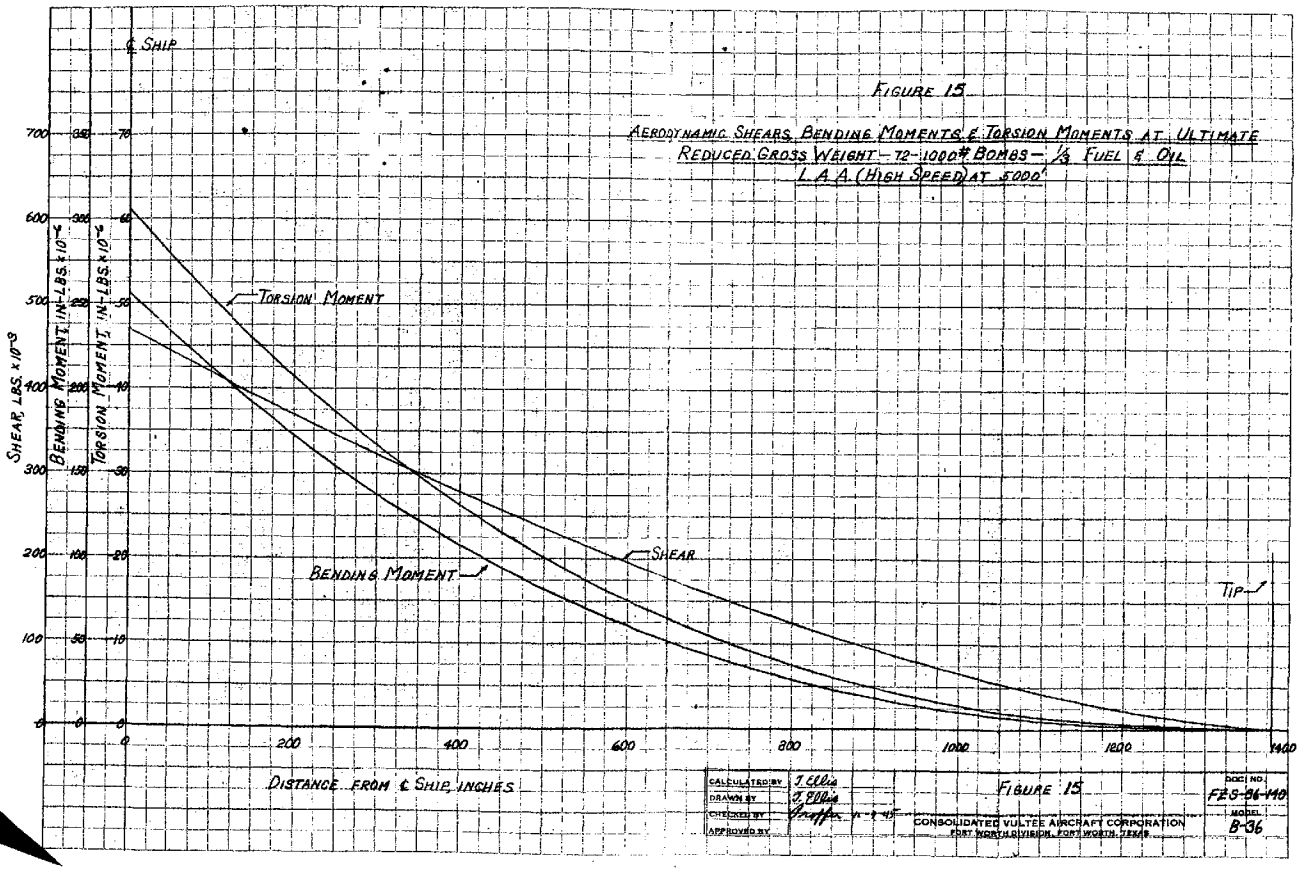


FIGURE 15

AERODYNAMIC SHEARS, BENDING MOMENTS & TORSION MOMENTS AT ULTIMATE REDUCED GROSS WEIGHT - 12-1000# BOMBS - 1/3 FUEL & OIL L.A.A. (HIGH SPEED) AT 5000'

CALCULATED BY	T. Ellis
DRAWN BY	T. Ellis
CHECKED BY	Griffin 11-2-45
APPROVED BY	

FIGURE 15

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

DOC. NO. FZS-86-140

MODEL B-36

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

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

CONDITION: NGW-229999# 78-1536 FT/SEC 60% ILA & SPOILERS HIGH SPEED

STA	DISTANCE FROM ℄ SHIP	S_{CL_a}	$S_{CL_{max}}$	$\frac{q}{W}S_{CL_a}$	$S_{C_{D_o}}$	$S_{C_{D_i}}$	$\frac{q}{W}S_{C_{D_a}}$	S_{D_a}	M_{Y_a}	$M_{Y_{max}}$	$\frac{q}{W}M_{Y_a}$	M_{Z_a}	$M_{Z_{max}}$	$\frac{q}{W}M_{Z_a}$	M_{X_a}	$M_{X_{max}}$	TORSION $C_{m_c/4}(W)\times10^{-3}$ TO C_{M_o}	$-M_{X_a}\alpha_0$ $\times10^{-3}$	$\frac{q}{W}$	$AlCD_a$ $\times10^{-3}$	TEA_a $\times10^{-3}$
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		20	21
		FZS-36-138 TAB. X, Col. 8	F_1 ⑤	② × ④	FZS-36-138 TAB. IX Col. 8	F_2 ⑥	⑤ × ⑥ + ⑦	③ × ⑧	FZS-36-138 TAB. X Col. 14	⑤ × ⑩	FZS-36-138 TAB. IX Col. 14	F_2 ⑫	⑪ × ⑫	⑬ × F_1 ⑤	TABLE I Col. 8	F_3 ⑮ × ⑭	−2080 ⑯			⑰ × ① × ⑳	⑱ × ② × ⑳
0	0	121,200	114,476	-168,623	0	0	-168,623	-252,935	73,824	69,732	-94,468	-6,494,570	-4,553.2	-99,033.2	-148,534.8	-932.020	-11,607.9	+30,895.2		-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	-9,672.0	+35,180.7		-527.4	+14,681.3
	172.5																				
4	230	100,856	87,633	-128,936	-3793	-2460	-131,396	-197,394	47,161	40,231	-60,231	-6,060,900	-4,237.1	-64,298.1	-96,792.2	-222.678	-7,785.2	+20,132.8		-760.0	+11,587.6
	287.5																				
6	345	86,296	74,896	-110,322	-5284	-6706	-114,028	-171,042	36,407	31,598	-46,544	-5,515,800	-3,868.0	-50,412.0	-75,619.2	-178.224	-6,231.0	+15,738.8		-611.5	+8,886.9
	402.5																				
8	460	72,525	62,944	-93,717	-6418	-4502	-97,419	-145,598	27,283	23,670	-34,279	-4,893,300	-3,394.3	-38,273.3	-57,410.0	-159.936	-4,892.4	+11,841.3		-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	-107.252	-3,749.7	+8,742.6		-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	-17,396	-3,218,700	-2,254.1	-19,560.1	-29,340.2	-79.851	-2,781.7	+6,102.8		-272.5	+3,038.6
	747.5																				
14	805	36,607	31,771	-46,799	-7169	-5028	-51,827	-77,741	8,763	7,553.3	-11,126.0	-2,571,700	-1,663.5	-12,789.5	-19,184.2	-57.125	-1,999.6	+3,990.4		-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	-38.924	-1,359.6	+2,371.8		-127.3	+884.7
	977.5																				
18	1035	17,732	15,026	-22,678	-5311	-3725	-26,403	-39,605	2,599	2,262.7	-3,344.6	-900 680	-631.7	-3,976.3	-5,814.4	-24.343	-851.1	+1,209.4		-76.2	+282.1
	1092.5																				
20	1150	10,053	8,751	-12,800	-3665	-2571	-15,461	-23,192	950.6	825.03	-1,215.3	-379,820	-246.4	-1,481.6	-2,222.4	-13.153	-459.6	+468.5		-38.9	-35.8
	1207.5																				
22	1265	3,805	3,305	-4,869	-1626	-1140	-6,009	-9,013	166.8	144.71	-213.26	-73,447	-51.52	-264.77	-397.16	-4.951	-172.40	+82.61		-12.39	-102.18
	1322.5																				
24	1380	0	0	0	0	0			0	0		0	0							0	0

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

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

$F_3 = 1.0091$ (TABLE II)

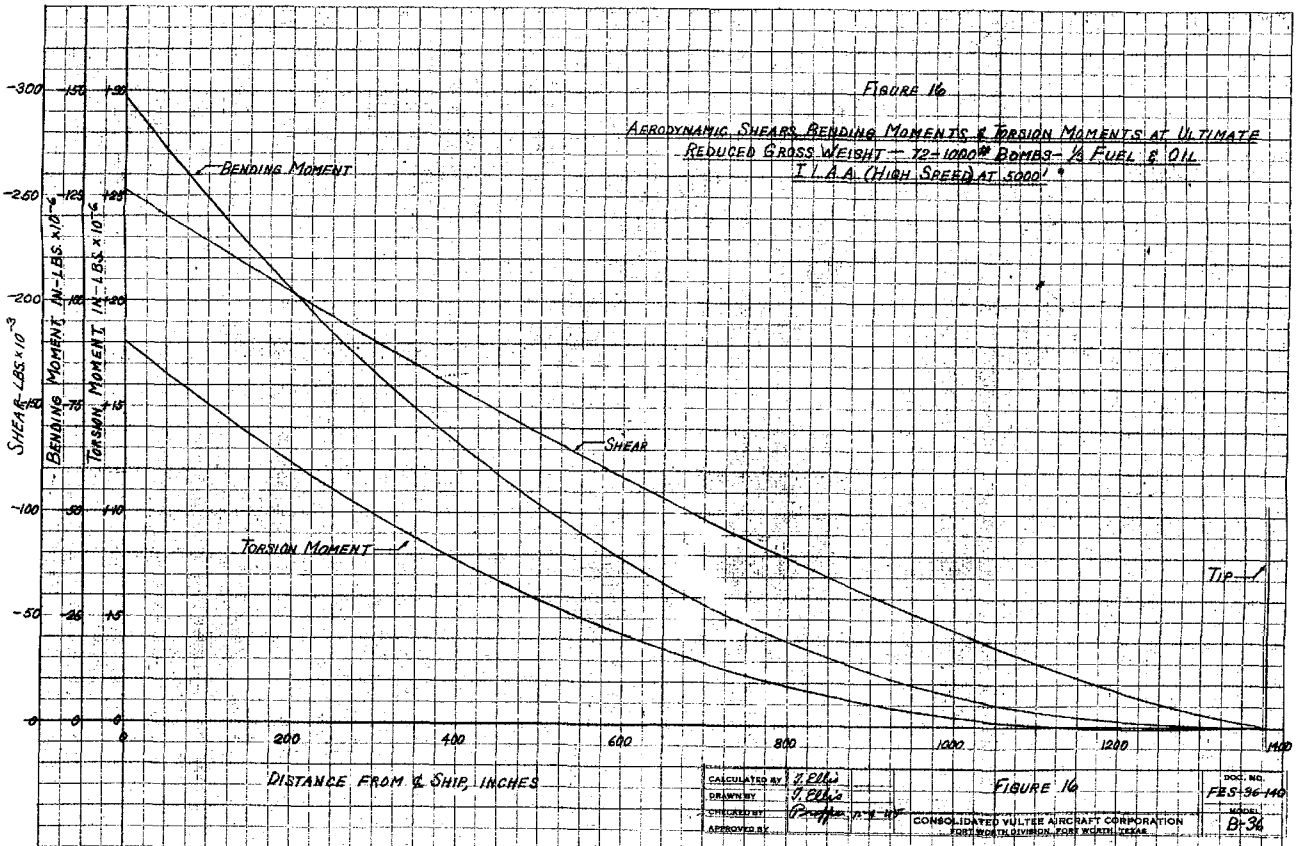
F_4 = TORSION CONSTANT $= \frac{1.5 \times .002558 \times 97.5^3 \sigma}{32.174} = .00051071\,(280.6)^2 .8616 = 34.6462$

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

By: J. Ellis
CHK: Rose Jaffe

FIGURE 16

AERODYNAMIC SHEARS, BENDING MOMENTS & TORSION MOMENTS AT ULTIMATE REDUCED GROSS WEIGHT — 72-1000# BOMBS - ½ FUEL & OIL
I. A. A. (HIGH SPEED) AT 5000'



CALCULATED BY	J. Ellis	FIGURE 16	DOC. NO. FBS-96-140
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
FW 693 125 PADS 11-43

TABLE 18. B-36 WING AERODYNAMIC SHEARS, BENDING MOMENTS, AND TORSION MOMENTS AT ULTIMATE.
CONDITION: R&W - 329999# 72-1000# B.3 FUEL # OIL. IL/A @ 5000' LIMIT DIVE SPEED

Sta	Distance From ℄ Ship	S_{Cb_n} (G.W.=265,000)	S_{Cb_n} (G.W.=329,999)	$\%_n S_{Cb_n}$ (G.W.=329,999)	S_{Cb} (311 MPH)	S_{Ib} (308 MPH)	$\%_n S_{Ib}$	S_{Mb}	$\%_n M_{Cb}$ (G.W.=265,000)	$\%_n M_{Cb}$ (G.W.=329,999)	M_{Cb} (311 MPH)	M_{Ib} (308 MPH)	$\%_n M_{Ib}$	M_{Mb}	M_{Mb}	$\%_n M_{Mb}$	M_{Tb}	M_{Tb}	M_{Tb}	ΔM_{Cb}	T_{Tb}
	/	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
		FZS-36-138 TAB. 2, COL. 3	F_1 ②	③ ÷ 1.327	FZS-36-138 TAB. 12, COL. 2	⑤ × .8	⑥ ÷ ⑦		FZS-36-138 TAB. 2, COL. 4	⑨ × 1.327	FZS-36-138 TAB. 12, COL. 3	F_2 ⑪ × 1.327	⑫ × ⑬	⑭ ÷ ⑬	1.5 × ④	TAB. 1 COL. 6	F_3 × ⑯	2.000 × ⑮	⑱ × ⑰	⑲ × ⑳	
0	0	151920	119476	151910	0	0		-151910	-327865	247894	64133	-85104		69945	-54889	0.592	-135088	-332,020	-13994	28265	
	87.5																			-1003	13,268
2	1150	116149	100801	133763	-2002	-1672		-135,663	-293,183	221,755	57632	-76479		61,655	-49068		-111102	-273,186	-11539		
	172.5																			-838	10,732
4	2300	100856	87533	116156	-3793	-3205		-119,361	-179,042	47161	40931	-54315		43,809	-34910		-79130	-222,678	-9385		
	287.5																			-689	8465
6	345	86296	70896	99387	-5284	-4465		-103,852	-155,778	36407	31598	-41931		33,818	-26892		-69888	-178,224	-7512		
	402.5																			-557	6,468
8	460	72525	62949	83527	-6418	-5424		-88,951	-133,427	27283	23679	-31422		25,339	-20168		-53268	-139,936	-5898		
	517.5																			-440	4,742
10	575	59613	51738	68656	-7199	-6041		-74,697	-112,046	19694	17092	-22681		18,292	-14556		-39162	-107,253	-4520		
	632.5																			-339	3,287
12	690	47622	41331	54846	-7900	-6253		-61,099	-91,648	13537	11749	-15591		12,573	-10004		-27961	-79,851	-3366		
	747.5																			-252	2,094
14	805	36607	31771	42160	-7169	-6058		-48,218	-72,307	8702	7553	-10023		8,081	-6431		-18041	-57,185	-2411		
	862.5																			-179	1,163
16	920	26620	23103	30658	-6473	-5470		-36,128	-54,192	5078	4407	-5848		4,715	-3752		-10778	-38,894	-1639		
	977.5																			-119	484
18	1035	17739	15396	20430	-5311	-4488		-24,918	-37,377	2538	2203	-2923		2,357	-1876		-5386	-24,343	-1026		
	1092.5																			-72	51
20	1150	10083	8751	11613	-3665	-3097		-14,710	-22065	9506	825	-1095		883	-703		-2124	-13,153	-554		
	1207.5																			-36	-148
22	1265.0	3808	3305	4386	-1626	-1314		-5,760	-8,640	166.8	145	-192		155	-123		-381	-4,931	-208		
	1322.5																			-12	-141
24	1380	0	0	0	0	0		0	0	0		0		0	0		0	0	0		
																				0	0

$F_1 = \frac{G.W.}{265{,}000} = \frac{329{,}999}{265{,}000} = .8679$

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

$F_3 = C^2 M_b$ CORRECTION FACTOR = 1.0097 (TABLE 2).

$F_4 = \text{TORSION CONST.} = \frac{1.5 \times 683 \times 5.94 \times 5.78}{3 \times 144} V^2 = .0005107 (308)^2 \times .8616 = 41.7428$

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

By [illegible]
Ckd. R. [illegible] 12-11-44

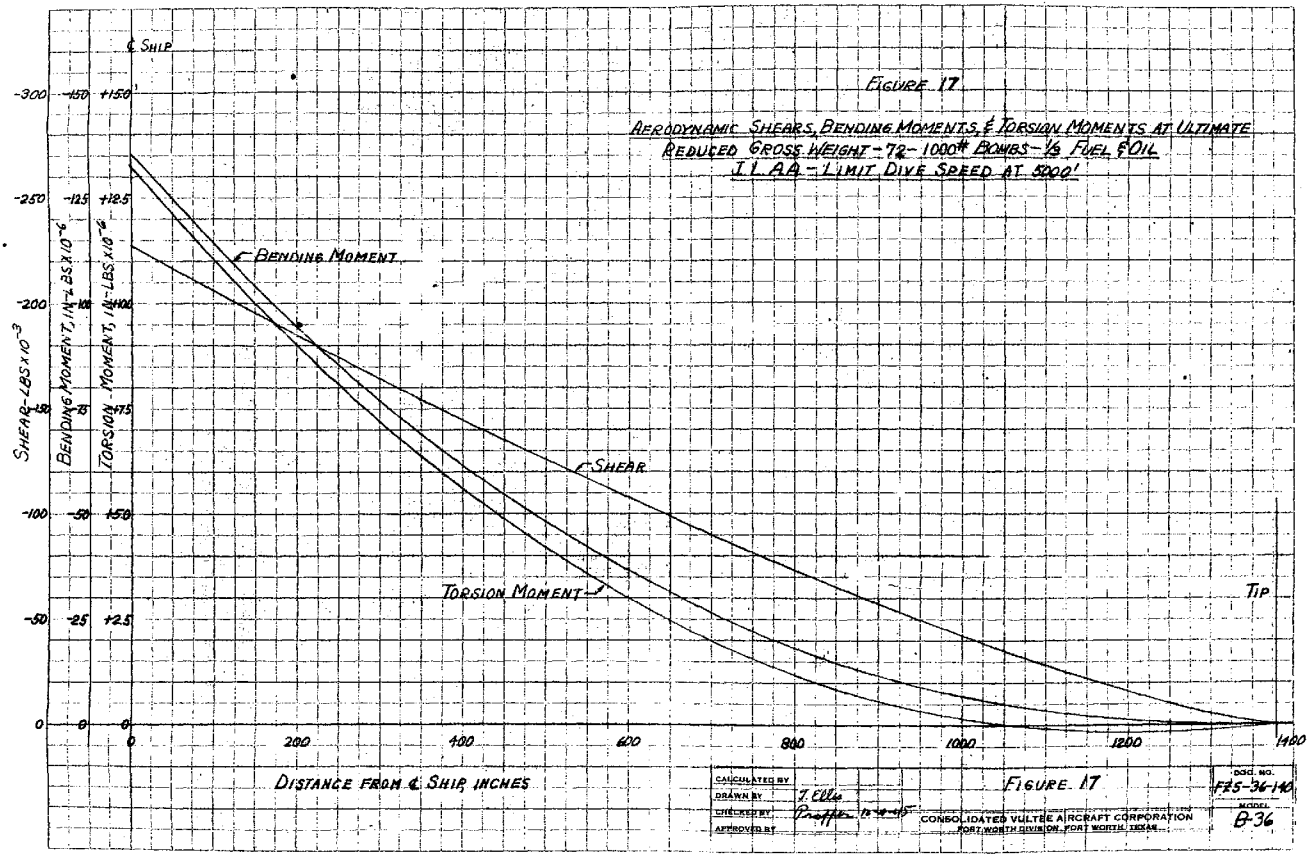


FIGURE 17

AERODYNAMIC SHEARS, BENDING MOMENTS & TORSION MOMENTS AT ULTIMATE REDUCED GROSS WEIGHT - 72 - 1000# BOMBS - ½ FUEL & OIL
1.1 AA - LIMIT DIVE SPEED AT 5000'

CALCULATED BY		FIGURE 17	DOC. NO. FZS-36-140
DRAWN BY	T. Ellis		
CHECKED BY	Proffer 12-6-45	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 633 128 PADS 11-43

TABLE 19 SHEET 1 OF 3 — B-36 WING - 1G INERTIA SHEARS, BENDING MOMENTS & TORSIONS
WING EMPTY LESS LANDING GEAR

	1 STATION	2 DISTANCE FROM ℄ SHIP, INCHES	3 DISTANCE BETWEEN STATIONS, INCHES	4 PANEL POINT LOAD, #	5 LOCATION OF PANEL POINT LOAD, % 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 ΔTEA_i DUE TO e	14 ΣTEA_i DUE TO e	15 $-M_{xi}\tan\beta$ ($\tan\beta = .2056$)	16 TEA_i INBOARD	17 TEA_i OUTBOARD
				FZS-36-137 TAB I, Col. 2	FZS-36-137 TAB I, Col. 7		⑤/100 × ⑥	.295 × ④	⑧ − ⑦	Σ ⑨		Σ ⑪	④ × ⑨	Σ ⑬	−.2056 × ⑫	⑭ + ⑮	⑯ − 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								1109						
	41	1324		15.7	36.32	112.29	40.78	33.13	-7.65	49.5 / 63.2		1,109	-120	-663	-228	-891	-771
			23								1,500						
	40	1301		33.1	33.92	117.29	39.78	34.60	-5.18	63.2 / 98.3		2609	-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		4870	-6846	-7,680	-1001	-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	-7930	-2436	-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								9690						
	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	-8551	-23,890	-17,060
			30								18,804						
	34	1140		74.7	33.52	152.28	51.04	44.92	-6.12	626.8 / 701.3		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	701.3 / 786.3		81440	-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								47628						
	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: Kirsten, Thompson

TABLE 19 SHEET 2 OF 3

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

WING EMPTY LESS LANDING GEAR

1 STATION	2 DISTANCE FROM ℄ SHIP, INCHES	3 DISTANCE BETWEEN STATIONS, INCHES	4 PANEL POINT LOAD, #	5 LOCATION OF PANEL POINT LOAD %a CHORD	6 C_i INCHES	7 LOCATION OF PANEL PT. LOAD FROM L.E., INCHES	8 LOCATION OF E.A. FROM L.E. .295 C (in)	9 e, INCHES	10 S_{bi}	11 ΔM_{xi}	12 M_{xi}	13 ΔT_{EA_i} DUE TO e	14 ΣT_{EA_i} DUE TO e	15 $-M_{x_i} \tan\beta$ ($\tan\beta = .2056$)	16 T_{EA_i} INBOARD	17 T_{EA_i} OUTBOARD
			FZS-36-137	FZS-36-137		② / 100 × ⑥	.295 × ⑥	⑧ − ⑦	Σ ④	⑩ × ③	Σ ⑪	⑨ × ⑤	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	18235 / 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 / 4345		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	−112,400	−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		7224	35.23	240.93	84.88	71.07	− 13.81	9988 / 10710.		1,172,000	− 9976	−839,632	−249,900	−1,089,000	−1,071,000
		38.875								416,359						
21	693.125		620.9	32.18	249.38	80.25	73.57	− 6.68	10710. / 11331.		1,588000	−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	−1264,000	−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	−1357,000
		38.875								485,584						
18	576.5		3988.1	76.39	274.72	209.86	81.04	−128.82	12491. / 16479.		2975000	− 513,747	−1375,454	−611,600	−1,987,000	−1473,000
		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		3889,000	−555,268	−1929,452	−799,500	−2729,000	−2,174,000
		36.5								762,394						
15	485		840.7	37.78	294.61	111.30	86.91	− 24.39	20888 / 21728.		4651,000	−20,505	−1949,957	−956,300	−2906,000	−2,886,000
		36.5								793,079						
14	448.5		622.5	32.35	302.54	97.87	89.25	− 8.62	21728. / 22,337		5444.000	− 5,366	−1955,323	−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	−3242,000
		36.25								833,543						
12	375.75		774.5	37.32	318.35	118.81	93.91	− 24.90	22994 / 23769.		7094,000	−19,285	−1980,285	−1458,500	−3439,000	−3,419,000

BY: J. Ellis
CHECKED: Kuehn / Jnopfer

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

TABLE 19 SHEET 3 OF 3

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

REPORT NO. FES-36-14
DATE 12-4-45

C	1 STATION	2 DISTANCE FROM ℄ SHIP, INCHES	3 DISTANCE BETWEEN STATIONS, INCHES	4 PANEL POINT LOAD, #	5 LOCATION OF PANEL POINT LOAD, %CHORD	6 C_i, INCHES	7 LOCATION OF PANEL OT LOAD FROM L.E., (in.)	8 LOCATION OF E.A. FROM L.E., 295 C, (in.)	9 e_i, 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 = .2058)	16 $T_{EA,i}$ INBOARD	17 $T_{EA,i}$ OUTBOARD
				FES-36-137	FES-36-137		(9) / 1000 x (6)	295 x (6)	(8) - (7)	Σ (4)	(10) x (9)	Σ (11)	(4) x (9)	Σ (13)	-.2056 x (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 / 28029		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	28,020. / 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 / 33487		9,507,000	-729,636	-3386,513	-1,954,600	-5,321,000	-4591,000
			35.5								1,188,774						
	8	249		783.8	41.60	345.89	143.89	102.04	- 41.85	33487 / 34,270.		10695,000	-32,802	-3,390,315	-2,199,000	-5598,000	-5,565,000
			17								582,597						
	7	232		825.2	33.75	342.59	117.99	103.13	-14.86	34,270 / 35,096		11,278,000	-12,262	-3,411,577	-2,319,000	-5730,000	-5,718,000
			26								912,486						
	6	206		543.9	33.90	355.24	120.43	104.80	- 15.63	35,096 / 35,690		12,190,000	- 8501	-3420,078	-2,506,000	-5926,000	-5,918,000
			26								926,627						
	5	180		870.8	32.72	360.88	118.08	106.46	- 11.62	35690 / 36,510.		13,117,000	-10,119	-3430,197	-2,697,000	-6127,000	-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. / 37,332.		14,340,000	+7513	-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	37,332 / 37,773.		15584,000	- 5455	-3428,139	-3,204,000	-6632,000	-6,627,000
			33.25								1,263,261						
	2	80.0		835.0	38.32	382.62	146.62	112.87	-33.75	37,773. / 38,828		16,847,000	-28,181	-3,456,320	-3,364,000	-6820,000	-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	-7229,000	-7231,000
			41.025								1,634,805						
	0	0		494.4	28.43	400.00	113.72	118.00	+4.28	39,849 / 40343.		19995,000	+2,116	-3451,763	-4111,000	-7563,000	-7565,000

BY: J. Ellis
CHECKED: Krieberg, Peffer

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.

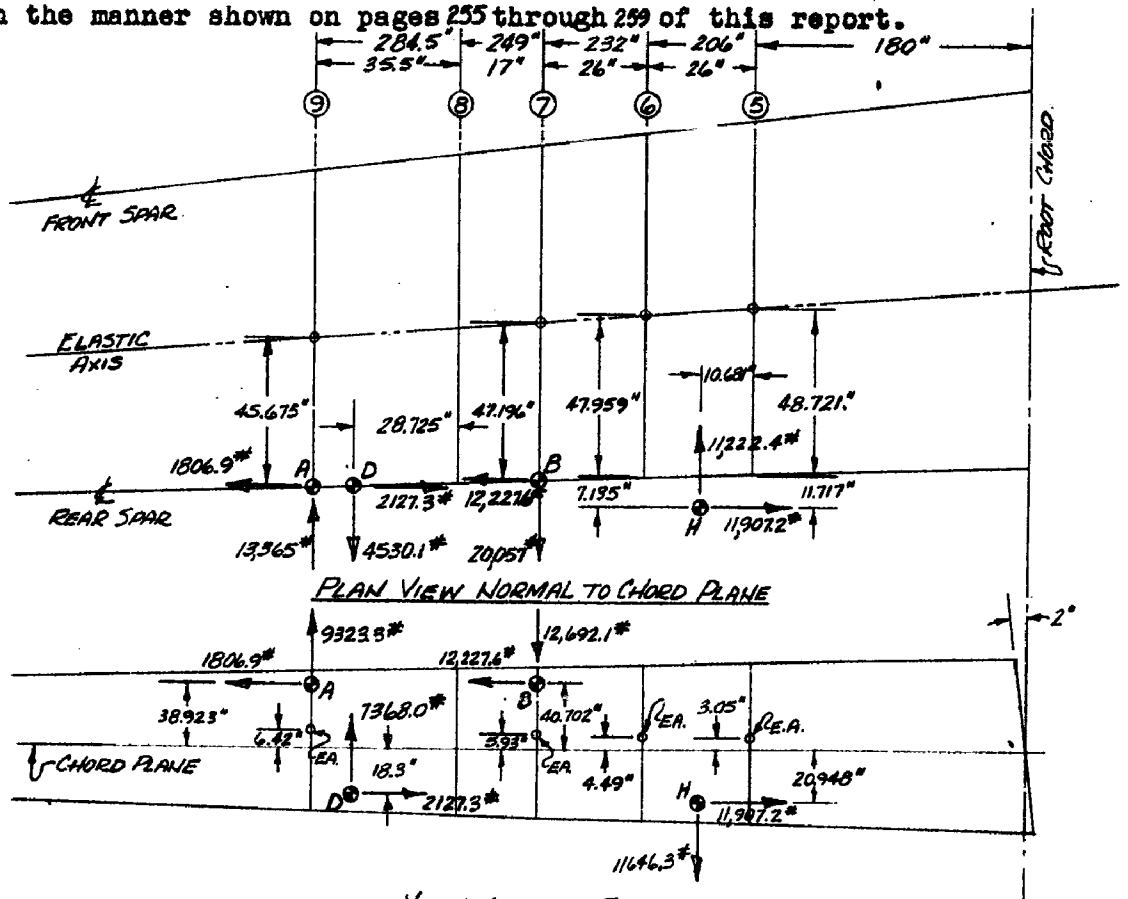


Figure 18

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_i}	ΔM_{x_2}	M_{x_i}	PANEL POINT TORSION $\Delta T_{E.A.}$	$-\Delta Y \tan\beta - \Delta T_{E.A.2}$ ($\tan\beta = .2056$)		$T_{E_{M_i}}$
1	2	3	4	5	6	7	8	9	10	11	12
			PAGE 66	Σ④	PAGE 66	⑤INER × ③	Σ⑥+⑦	PAGE 66	-.2056×③	⑤INER × 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
				-3999			-250,170				+183,490
		26				-103,974			-5.346	+21,379	
6	206		+4,777	-3999	+110993		-354,740	-380,453			+804,770
				7718			+243,750				-175,680
		26				20228			-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		+1306040	0			-1036,690
							+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}	$\Delta M_{\chi i}$	$M_{\chi i}$	ΔT_{EAi} DUE TO e	$\Sigma \Delta T_{EAi}$ DUE TO e	$-M_{\chi i} \tan\beta$ ($\tan\beta = .2056$)	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 II, COL 2	FES-36-137 SHEET 1 OF 4 TAB 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 / 4,289.	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	4,289 / 8,154	165,359	212,500	+12,558	+12,071	-43,689	-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	529,500	+13,815	+25,886	-108,851	-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	-990,600
		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: L. Ellis
CHECKED: Bieri, Greffer

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

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.

PAGE 65
REPORT NO. [illegible]-3240
DATE 12-4-45

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}	$\Delta M_{\chi i}$	$M_{\chi i}$	ΔT_{EA_i} DUE TO e	$\Sigma \Delta T_{EA_i}$ DUE TO e	$M_{\chi_i} \tan\beta$ ($\tan\beta = .2056$)	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
			FES-36-137 SHEET 1 OF 4 for TAB. IV, Col. 2	FES-36-137 SHEET 1 OF 4 for TAB. IV, Col. 4		⑦/100 × ⑥	.295 ⑥	⑧-⑦	Σ④	⑩×③	Σ⑪	④×⑨	Σ⑬	-.2056×⑫	⑭+⑮	⑯-⑬
9	284.5		2,538.2	26.69	338.18	90.26	99.76	+9.50	40,093 / 42,637	1,102,725	8,809,000	+24,113	+152,348	-1,811,058	-1,659,000	-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	-2,122,260	-1,951,000	-1,970,000
		17														
7	232		3,643.2	28.01	349.59	97.92	103.13	+5.21	46,698 / 50,341	782,859	11,116,000	+18,981	+190,006	-2,285,477	-2,095,000	-2,114,000
		26														
6	206		4,552.7	28.09	355.24	99.79	104.80	+5.01	50,341 / 54,894	1,308,861	12,425,000	+22,809	+212,815	-2,554,579	-2,342,000	-2,365,000
		26														
5	180		5,385.4	28.03	360.88	101.15	106.46	+5.31	54,894 / 60,279	1,127,231	13,552,000	+28,596	+241,411	-2,848,017	-2,607,000	-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	-3,263,195	-3,005,000	-3,022,000
		33.25														
3	113.25		0						63,427 / 63,427	2,108,951	17,989,000	0	+258,443	-3,696,795	-3,438,000	-3,438,000
		33.25														
2	80.0		0						63,427 / 63,427	2,108,951	20,089,000	0	+258,443	-4,130,395	-3,872,000	-3,872,000
		38.975														
1	41.025		0						63,427 / 63,427	2,472,071	22,562,000	0	+258,443	-4,638,653	-4,380,000	-4,380,000
		41.025														
0	0		0						63,427	2,602,097	25,164,000	0	+258,443	-5,173,644	-4,915,000	-4,915,000

BY: J. Ellis
CHECKED: Brown, Hopper

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_i (in)	LOCATION OF L.O.A. FROM L.E. (in)	LOCATION OF E.A., .295 C. (in)	e_i (in)	Σb_i	ΔM_{χ_i}	M_{χ_i}	ΔT_{EA_i} DUE TO e	$\Sigma \Delta T_{EA_i}$ DUE TO e	$-M_{\chi_i} \tan\beta$ ($\tan\beta = .2058$)	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, Cn. 5	FZS-36-137 Sheet 1 of 4 Tab IV, Cn. 7		(3)/100 × (6)	.295 (6)	(8) − (7)	Σ (4)	(10) × (3) / 0.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							10.3 / 20.7							
23	766		10.4	60.23	233.55	140.67	68.80	−71.77		412	412	−746	−1,404	−85	−1489	−743
		34							20.7 / 1,157.							
22	732		1136.7	28.29	240.93	68.16	71.07	+2.91		704	1,116	+3,208	+1,904	−229	+1675	−16.33
		38.875							1,157 / 4,199							
21	693.125		3041.1	29.93	249.38	74.64	73.57	−1.07		44,994	46,110	−3,254	−1,350	−9,480	−10,830	−7576
		38.875							4,199 / 8,098.							
20	654.25		3899.9	28.25	257.83	72.84	76.06	+3.22		163,217	209,300	+12,558	+11,208	−43,038	−31,830	−44390
		38.875							8,098. / 12,285							
19	615.375		4186.5	28.26	266.28	75.25	78.55	+3.30		314,825	524,200	+13,815	+25,023	−107,766	−82,740	−96,560
		38.875							12,285 / 14,534							
18	576.5		2248.7	28.27	274.72	77.66	81.04	+3.38		477,575	1,002,000	+7,601	+32,624	−205,955	−173,300	−180,900
		27.5							14,534 / 14,534							
17	549.		0							399,674	1,401,000	0	+32,624	−288,120	−255,500	−255,500
		27.5							14,534 / 16,363							
16	521.5		1829.5	27.54	286.68	78.95	84.57	+5.62		399,674	1,801,000	+10,282	+42,906	−370,301	−327,400	−337,700
		36.5							16,363 / 20,717.							
15	485.0		4354.1	29.57	294.61	87.12	86.91	−.21		597,253	2,398,000	−914	+41,992	−493,096	−451,100	−450,200
		36.5							20,717 / 25,872							
14	448.5		5154.8	28.08	302.54	84.95	89.25	+4.30		756,178	3,155,000	+22,166	+64,158	−648,564	−584,400	−606,600
		36.5							25,872 / 31,297							
13	412.0		5418.7	28.10	310.47	87.24	91.59	+4.35		944,328	4,099,000	+23,571	+87,729	−842,720	−755,000	−778,600
		36.25							31,297 / 36,981							
12	375.75		5689.9	28.04	318.35	89.27	93.91	+4.64		1,134,288	5,233,000	+26,401	+114,130	−1,075,930	−961,800	−988,200
		36.25							36,981 / 39,989							
11	339.5		3008.2	28.36	326.23	92.52	96.24	+3.72		1,340,547	6,574,000	+11,191	+125,321	−1,351,546	−1,226,000	−1,237,000
		27.5							39,989 / 39,989							
10	312.		0							1,099,692	7,673,000	0	+125,321	−1,577,643	−1,452,000	−1,452,000
		27.5							39,989 / 42,067.							
9	284.5		2078.3	26.54	338.18	89.75	99.76	+10.01		1,099,692	8,773,000	+20,804	+146,125	−1,803,740	−1,657,000	−1,678,000

BY: J. Ellis
CHECKED: Brien, Shaffer

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

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, %C 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 TAB II, COL. 5	FES-36-137 SHEET 1 OF 4 TAB II, COL. 7		⑤/100 × ⑥	.295 ⑥	⑧ − ⑦	Σ ④	⑩ × ⑨	Σ ⑪	④ × ⑨	Σ ⑬	−.2058 × ⑫	⑭ + ⑮	⑯ − ⑬
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
		35.5														
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	−2,110,778	−1,948,000	−1,965,000
		17														
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		2401.7	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.M. 12-9-45

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 683 125 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_{xbi}	M_{xbi}	$\Delta T_{EA,i}$ DUE TO e	$\Sigma \Delta T_{EA,i}$ DUE TO e	$-M_{yi}$ tan β = 0.2054	$T_{EA,i}$ 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 III Co. 2	FZS-36-137 SHEET 2 OF 4 TAB III, Co. 4		⑤/100 × ⑥	.295 ⑥	⑧ − ⑦	Σ ⑨	③ × ⑩	Σ ⑪	④ × ⑨	Σ ⑬	.2054 (-M)	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.		38,960	−7503	−9098	−8010	−17110	−9605
		38.875								148 328						
20	654.25		3899.9	28.25	257.83	72.84	76.06	+3.22	3816 / 7716.		187,300	+12558	+3460	−38507	−35050	−47610
		38.875								299 736						
19	615.375		4186.5	28.26	266.28	75.25	78.55	+3.30	7715. / 11903.		487,300	+13815	+17275	−100178	−82900	−96710
		38.875								462 686						
18	576.50		2248.7	28.27	274.72	77.66	81.04	+3.38	11902 / 14151		950,000	+7601	+24876	−195302	−170400	−178,000
		27.5								389 142						
17	549.		0		280.70		82.81		14160.		1,339,000	0	+24876	−275309	−250400	−250400
		27.5								389 142						
16	521.5		889.2	27.50	286.68	78.84	84.57	+5.73	14151. / 15040		1,728,000	+5095	+29971	−355317	−325300	−330400
		36.5								548 953						
15	485.0		2016.7	29.65	294.61	87.35	86.91	−0.44	15040 / 17057		2,277,000	−887	+29084	−468182	−439100	−438,200
		36.5								622 562						
14	448.5		2308.6	28.60	302.54	86.53	89.25	+2.72	17057. / 19268.		2,900,000	+6279	+35363	−596180	−560800	−567100
		36.5								706 826						
13	412.0		2426.7	28.60	310.47	88.79	91.59	+2.80	19365 / 21792		3,607,000	+6795	+42158	−741504	−699300	−706,100
		36.25								789 953						
12	375.75		2548.2	28.58	318.35	90.83	93.91	+3.08	21792 / 24340		4,396,000	+7848	+50006	−903918	−853900	−861800
		36.25								882 325						
11	339.5		1353.0	29.02	326.23	94.67	96.24	+1.57	24340. / 25693.		5,279,000	+2124	+52130	−1085324	−1033000	−1035,000
		27.5								706 558						
10	312.		0		332.20		98.00		25693.		5,985,000	0	+52130	−1230592	−1178,000	−1178,000
		27.5								706 558						
9	284.5		278.6	18.74	338.18	63.37	99.76	+36.39	25693. / 25972.		6,692,000	+10138	+62268	−1375861	−1314,000	−1324,000

BY: Kriesberg
CHECKED: Bisch, Propper

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

TABLE 23 SHEET 2 OF 2

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

REPORT NO. FZS-36-140
DATE 12-9-45

STATION	DISTANCE FROM ℄ OF SHIP, IN.	DISTANCE BETWEEN STATIONS, IN.	PANEL POINT LOAD, #	LOCATION OF PANEL POINT LOAD % OF CHORD	CHORD LENGTH, C (INCHES)	LOCATION OF PANEL POINT LOAD AFT OF L.E., IN.	LOCATION OF ELASTIC AXIS AFT OF L.E. = .295C, IN.	e, IN.	S_{b_i}	ΔM_{x_i}	M_{x_i}	$\Delta T_{E.A._i}$ DUE TO e	$\Sigma \Delta T_{E.A._i}$ DUE TO e	$-M_{x_i} \times \beta$ ($\beta = .2056$)	$T_{E.A._i}$ 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 SHEETS OF TAB IV, Col. 2	FZS-36-137 SHEET 2 OF 4 SHEETS OF TAB IV, Col. 4		⑤/100 × ⑥	.295 × ⑥	⑧ − ⑦	Σ ④	③ × ⑩	Σ ⑪	⑨ × ⑦	Σ ⑬	.2056 × ⑫	⑭ + ⑮	⑯ − ⑬
9	284.5		278.6	18.74	338.18	63.37	99.76	+36.39	25653. 25979.		6,692,000	+10138	+62268	-1375861	-1314000	-1324000
		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	-1491000	-1503000
		17.0								446265						
7	232.0		0						26251		8,060,000	0	+74742	-1657174	-1582000	-1587000
		26.0								682523						
6	206.0		0						26251.		8,743,000	0	+74742	-1797501	-1729000	-1723000
		26.0								682523						
5	180.0		0						26251		9425,000	0	+74742	-1937828	-1863000	-1863000
		33.5								879405						
4	146.5		0						26251		10,305,000	0	+74742	-2118634	-2044000	-2044000
		33.25								872842						
3	113.25		0						26251		11,177,000	0	+74742	-2298090	-2223000	-2223000
		33.25								872842						
2	80.0		0						26251		12,050,000	0	+74742	-2477546	-2403000	-2403000
		38.975								1023129						
1	41.025		0						26251		13,073,000	0	+74742	-2687902	-2613000	-2613000
		41.025								1076943						
0	0		0						26251		14,150,000	0	+74742	-2909321	-2835000	-2835000

BY: Kriesberg
CHECKED: Rines, 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. ~ 72-1000# BOMBS ~ FULL FUEL & OIL @ 35,000 FT.

STATION	DISTANCE FROM ℄ SHIP, IN.	DISTANCE BETWEEN STATIONS, IN.	PANEL POINT LOAD #	LOCATION OF PANEL POINT L.E., % 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_{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 TAB. IV, Col. 5	FZS-36-137 SHEET 2 OF 4 TAB. IV, Col. 7		⑥/100 × ⑥	.295 ⑥	⑧ - ⑦	Σ④	⑪ × ③ / 08	Σ⑪	④ × ⑨	Σ⑬	-.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							10.3 / 20.7							
23	766		10.4	60.23	233.55	140.67	68.90	-71.77		412	412	-746	-1,404	-85	-1489	-743
		34							20.7 / 3441							
22	732		923.4	29.88	240.93	71.99	71.07	- 0.92		704	1,116	-850	-2,254	-229	-2483	-1633
		38.875							3441 / 3754							
21	693.125		2810.1	30.65	249.38	76.43	73.57	- 2.86		36,702	37,820	-8,037	-10,291	-7,775	-18,070	-10,030
		38.875							3754 / 7654							
20	654.25		3899.9	28.25	257.83	72.84	76.06	+ 3.22		145,945	183,800	+12,558	+2,267	-37,782	-35,520	-48,070
		38.875							7654 / 11,841							
19	615.375		4186.5	28.26	266.28	75.25	78.55	+ 3.30		297,553	481,200	+13,815	+16,082	-98,959	-82,880	-96,690
		38.875							11,841 / 14,089							
18	576.5		2248.7	28.27	274.72	77.66	81.04	+ 3.38		460,303	941,600	+7,601	+23,683	-193,597	-169,900	-177,500
		27.5							14,089 / 14,289							
17	549									287,456	1,329,000	0	+23,683	-273,258	-249,600	-249,600
		27.5							14,289 / 14,696							
16	521.5		567.0	26.87	286.68	77.03	84.57	+ 7.54		387,456	1,717,000	+4,275	+27,958	-352,919	-325,000	-329,200
		36.5							14,696 / 15,811							
15	485.0		1154.2	29.49	294.61	86.88	86.91	+ 0.03		534,955	2,251,990	+35	+27,993	-462,906	-434,900	-434,900
		36.5							15,811 / 17,018							
14	448.5		1204.0	29.59	302.54	89.52	89.25	- 0.27		577,083	2,829,070	-32.5	+27,660	-581,554	-553,900	-553,600
		36.5							17,018 / 18,280							
13	412.0		1265.7	29.57	310.47	91.81	91.59	- 0.22		621,029	3,450,000	-278	+27,390	-709,237	-681,800	-681,600
		36.25							18,280 / 19,609							
12	375.75		1329.0	29.48	318.35	93.85	93.91	+ 0.06		662,657	4,112,000	+80	+27,470	-845,480	-818,000	-818,100
		36.25							19,609 / 20,320							
11	339.5		710.6	30.23	326.23	98.62	96.24	- 2.38		710,834	4,823,000	-1,691	+25,779	-991,627	-965,800	-964,200
		27.5							20,320 / 20,310							
10	312									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: B. M. [illegible], Propper

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_{i} TAN β (TAN β = .2056)	T_{EA_i} INBOARD	T_{EN_i} OUTBOARD
1	2	3	4 FZS-36-137 SHEET 2 OF 4 OF TAB. IV, COL. 5	5 FZS-36-137 SHEET 2 OF 4 OF TAB. IX, COL. 7	6	7 ⑤/100 × ⑥	8 .295 × ⑥	9 ⑦ - ⑦	10 Σ ④	11 ⑩ × ③ OR	12 Σ ⑪	13 ④ × ⑨	14 Σ ⑬	15 -.2056 × ⑫	16 ⑭ + ⑮	17 ⑯ - ⑬
9	284.5		248.6	12.02	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
		35.5														
8	249		248.0	16.59	345.89	57.38	102.04	+44.66	20,568 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	-2,437,211	-2,392,000	-2,392,000

BY: J. Ellis
CHECKED: Brian Snapp

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

FW 633 185 PADS 11-43

TABLE 25 — SHEET 1 OF 2

WING AND CENTER SECTION BENDING, LANDING MOMENT AND TORSIONS FOR FUEL & OIL ONLY

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

REPORT NO. FZS-36-140

DATE 12-4-45

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
			FZS-36-137 SHEET 3 OF 4 OF TAB IV, Cv. III	FZS-36-137 SHEET 3 OF 4 OF TAB IV, Cv. 13		⑫/100 × ⑥	.295 ⑥	⑧ - ⑦	Σ ④	⑩ × ③ / 0.5	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							10.3 / 20.7	412	412	-746	-1404	-.85	-1489	-743
23	766		10.4	60.23	233.55	140.67	68.90	-71.77								
		34							20.7 / 51.7	704	1116	-1834	-3238	-229	-3467	-1633
22	732		49.7.0	31.03	240.93	74.76	71.07	-3.69								
		38.875							51.7 / 214.7	20,126	21,240	-6827	-10,065	-4,367	-14,430	-7605
21	693.125		1629.4	31.18	249.38	77.76	73.57	-4.19								
		38.875							214.7 / 449.8	83,469	104,700	+6489	-3,576	-21,529	-25,110	-31,600
20	654.25		2351.1	28.43	257.83	73.30	76.06	+2.76								
		38.875							449.8 / 702.2	174,869	279,600	+7117	+3,541	-57,481	-53,940	-61,060
19	615.375		2523.9	28.44	266.28	75.73	78.55	+2.82								
		38.875							702.2 / 838.2	272,984	552,600	+3467	+7,008	-113,607	-106,600	-110,100
18	576.5		1359.7	28.57	274.72	78.49	81.04	+2.55								
		27.5							838.2 / 838.2	230,500	783,100	0	+7,008	-160,998	-159,000	-159,000
17	549.															
		27.5							838.2 / 847.8	230,500	1,013,600	+1471	+8,479	-208,383	-199,900	-201,900
16	521.5		93.0	23.98	286.68	68.75	84.57	+15.82								
		36.5							847.8 / 856.1	309,330	1,323,000	+2864	+11,343	-271,987	-260,600	-263,500
15	4850		86.1	18.21	294.61	53.65	86.91	+33.26								
		36.5							856.1 / 856.1	312,473	1,635,000	0	+11,343	-336,231	-324,900	-324,900
14	448.5															
		36.5							856.1 / 856.1	312,473	1,948,000	0	+11,343	-400,476	-389,100	-389,100
13	412.0															
		36.25							856.1 / 856.1	310,333	2,258,000	0	+11,343	-464,280	-452,900	-452,900
12	375.75															
		36.25							856.1 / 857.1	310,333	2,569,000	-1512	+9,831	-528,085	-518,300	-516,700
11	339.5		10.4	74.07	326.23	241.64	96.24	-145.40								
		27.5							857.1 / 857.1	235,711	2,804,000	0	+9,831	-576,547	-566,700	-566,700
10	312.															
		27.5							857.1 / 864.7	235,711	3,040,000	+2013	+11,844	-625,009	-613,200	-615,200
9	284.5		93.0	23.10	338.18	78.12	99.76	+21.64								

BY: J. Ellis

CHECKED: Gim, Tupper

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.

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

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_{χ_i}	M_{χ_i}	ΔT_{EA_i} DUE TO e	$\Sigma \Delta T_{EA_i}$ DUE TO e	$-M_{\chi_i} \tan \beta$ tan β = .2056	T_{EA_i} INBOARD	T_{EA_i} OUTBOARD
1	2	3	4 FZS-36-137 SHEET 3 of 4 OF TAB IV, Col. II	5 FZS-36-137 SHEET 3 of 4 OF TAB IV, Col. III	6	7 ⑤/100 X ⑥	8 .295 ⑥	9 ⑧ − ⑦	10 Σ ④	11 ⑩ X ③	12 Σ ⑪	13 ④ X ⑨	14 Σ ⑬	15 −2056 ⑫	16 ⑭ + ⑮	17 ⑯ − ⑬
9	284.5	35.5	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
8	249.	17	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
7	232	26	0.						8750.4 8750.4	148,757	3,396,000	0	+15,689	-718,832	-703,100	-703,100
6	206	26	0						8750.4 8750.4	227,510	3,724,000	0	+15,689	-765,609	-749,900	-749,900
5	180	33.5	0						8750.4 8750.4	227,510	3,951,000	0	+15,689	-812,385	-796,700	-796,700
4	146.5	33.25	0						8750.4 8750.4	293,138	4,244,000	0	+15,689	-872,654	-857,000	-857,000
3	113.25	33.25	0						8750.4 8750.4	290,951	4,535,000	0	+15,689	-932,473	-916,800	-916,800
2	80.0	38.975	0						8750.4 8750.4	290,951	4,826,000	0	+15,689	-992,293	-976,600	-976,600
1	41.025	41.025	0						8750.4 8750.4	341,047	5,167,000	0	+15,689	-1,062,412	-1,047,000	-1,047,000
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]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION — FORT WORTH, TEXAS

FW 633 125 PADS 11-43

TARIF 91 — SHEET 1 OF 4

R-81 Wing - Total S. Inertia Shears, Bending Moments, & Torsions

Conditions: D.G.W. - 10000# of Bombs - Full Fuel & Oil (1) @ 30000 ft. & (2) @ 5000 ft.

M.C.P. 15

Report No. FZS-36-140

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			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
	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]

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

TABLE 26 SHEET NO. 4 — 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. EQ. @ 5,000 FT.

REPORT NO. FZS-36-140

DATE 12-4-45

FW 645 125 PADS 11-45

1	2	3	4	8	9	10	11	12	13	14	15	16	17	18	19
STATION	WING EMPTY LESS LANDING GEAR			D.G.W.-10000 # 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	TABLE 19	TABLE 19	TABLE 22	TABLE 22	TABLE 22	②+⑤+⑧	③+⑥+⑨	④+⑦+⑩	TABLE 21	TABLE 21	TABLE 21	②+⑤+⑭	③+⑥+⑮	④+⑦+⑯
	COLUMN 10	COLUMN 12	COLS. 16 & 17	COLUMN 10	COLUMN 12	COLS. 16 & 17				COLUMN 10	COLUMN 12	COLS. 16 & 17			
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: Elmer Clapper

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

FW 693 125 PADS 11-43

TABLE 26 (SHEET 5 OF 6)

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

CONDITIONS: D.G.W. - 10,000# OF BOMBS - FULL FUEL & OIL (A) @ 30,000 FT. & (B) @ 5,000 FT.

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REPORT NO. F25-36-100

DATE 12-4-45

	2	3	4	6	9	10	11	12	13	14	15	16	17	18	19
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 - FULL FUEL & OIL @ 5000' 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	②+⑮+⑭	③+⑯+⑬	④+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		−1,002,800	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	[redacted]	1,550,000	−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
			−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	−1261,000	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	3,019,000	−1,456,000	8154	529,500	−96,780	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	−2,513,000
	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	8,598,000	−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	−4,021,000	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: Brian Griffin

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

FW 655 129 PAGES 11-45

STATION	1	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			D.G.W.-10000 LBS. - FULL FUEL & OIL @ 30,000 FT.			D.G.W.-10000 LBS. - FUEL & OIL ONLY									
	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION							
	TABLE 19 COLUMN 10	TABLE 19 COLUMN 12	TABLE 19 COLS. 14 & 17	TABLE 20 COLUMN 5	TABLE 20 COLUMN 8	TABLE 20 COLUMN 12	TABLE 22												
12	22,894	7,094,000	-3,419,000				31,[illegible]	[illegible],000	-366,200	54,286	14,427,000	-4,407,000							
	23,169		-3,489,000				34,[illegible]		-361,800	60,758		-4,406,600							
11	23,769	7,955,000	-3,914,000				36,984	16,574,000	-1,087,000	60,758	19,329,000	-4,884,000							
	24,045		-4,278,000				39,589		-1,226,000	68,018		-5,439,000							
10	24,322	8,807,000	-4,651,000				39,589	17,673,000	-1,462,000	68,018	24,189,000	-5,884,000							
	24,598		-5,041,000				42,329		-1,462,000	68,379		-5,884,000							
9	24,875	9,707,000	-5,450,000				42,329	18,773,000	-1,698,000	68,379	29,049,000	-6,329,000							
	25,151		-5,858,000				45,044		-1,698,000	69,811		-6,329,000							
8	25,428	10,607,000	-6,267,000				45,044	19,873,000	-1,935,000	69,811	33,909,000	-6,774,000							
	25,704		-6,677,000				47,759		-1,935,000	69,872		-6,774,000							
7	25,981	11,507,000	-7,085,000				47,759	20,973,000	-2,172,000	69,872	38,769,000	-7,219,000							
	26,257		-7,494,000				50,474		-2,172,000	69,872		-7,219,000							
6	26,534	12,407,000	-7,903,000				50,474	22,073,000	-2,409,000	69,872	43,629,000	-7,664,000							
	26,810		-8,313,000				53,189		-2,409,000	69,872		-7,664,000							
5	27,087	13,307,000	-8,722,000				53,189	23,173,000	-2,646,000	69,872	48,489,000	-8,109,000							
	27,363		-9,131,000				55,904		-2,646,000	69,872		-8,109,000							
4	27,640	14,207,000	-9,540,000				55,904	24,273,000	-2,883,000	69,872	53,349,000	-8,554,000							
	27,916		-9,950,000				58,619		-2,883,000	69,872		-8,554,000							
3	28,193	15,107,000	-10,359,000				58,619	25,373,000	-3,120,000	69,872	58,209,000	-8,999,000							
	28,469		-10,768,000				61,334		-3,120,000	69,872		-8,999,000							
2	28,746	16,007,000	-11,177,000				61,334	26,473,000	-3,357,000	69,872	63,069,000	-9,444,000							
	29,022		-11,587,000				64,049		-3,357,000	69,872		-9,444,000							
1	29,299	16,907,000	-11,996,000				64,049	27,573,000	-3,594,000	69,872	67,929,000	-9,889,000							
	29,575		-12,405,000				66,764		-3,594,000	69,872		-9,889,000							
0	29,852	17,807,000	-12,814,000				66,764	28,673,000	-3,831,000	69,872	72,789,000	-10,334,000							
	30,128		-13,224,000				69,479		-3,831,000	69,872		-10,334,000							
12	30,405	18,707,000	-13,633,000				69,479	29,773,000	-4,068,000	69,872	77,649,000	-10,779,000							
	30,681		-14,042,000				72,194		-4,068,000	69,872		-10,779,000							
11	30,958	19,607,000	-14,451,000				72,194	30,873,000	-4,305,000	69,872	82,509,000	-11,224,000							
	31,234		-14,861,000				74,909		-4,305,000	69,872		-11,224,000							
10	31,511	20,507,000	-15,270,000				74,909	31,973,000	-4,542,000	69,872	87,369,000	-11,669,000							
	31,787		-15,679,000				77,624		-4,542,000	69,872		-11,669,000							
9	32,064	21,407,000	-16,088,000				77,624	33,073,000	-4,779,000	69,872	92,229,000	-12,114,000							
	32,340		-16,498,000				80,339		-4,779,000	69,872		-12,114,000							
8	32,617	22,307,000	-16,907,000				80,339	34,173,000	-5,016,000	69,872	97,089,000	-12,559,000							
	32,893		-17,316,000				83,054		-5,016,000	69,872		-12,559,000							
7	33,170	23,207,000	-17,725,000				83,054	35,273,000	-5,253,000	69,872	101,949,000	-13,004,000							
	33,446		-18,135,000				85,769		-5,253,000	69,872		-13,004,000							
6	33,723	24,107,000	-18,544,000				85,769	36,373,000	-5,490,000	69,872	106,809,000	-13,449,000							
	33,999		-18,953,000				88,484		-5,490,000	69,872		-13,449,000							
5	34,276	25,007,000	-19,362,000				88,484	37,473,000	-5,727,000	69,872	111,669,000	-13,894,000							
	34,552		-19,772,000				91,199		-5,727,000	69,872		-13,894,000							
4	34,829	25,907,000	-20,181,000				91,199	38,573,000	-5,964,000	69,872	116,529,000	-14,339,000							
	35,105		-20,590,000				93,914		-5,964,000	69,872		-14,339,000							
3	35,382	26,807,000	-20,999,000				93,914	39,673,000	-6,201,000	69,872	121,389,000	-14,784,000							
	35,658		-21,409,000				96,629		-6,201,000	69,872		-14,784,000							
2	35,935	27,707,000	-21,818,000				96,629	40,773,000	-6,438,000	69,872	126,249,000	-15,229,000							
	36,211		-22,227,000				99,344		-6,438,000	69,872		-15,229,000							
1	36,488	28,607,000	-22,636,000				99,344	41,873,000	-6,675,000	69,872	131,109,000	-15,674,000							
	36,764		-23,046,000				102,059		-6,675,000	69,872		-15,674,000							
0	37,041	29,507,000	-23,455,000				102,059	42,973,000	-6,912,000	69,872	135,969,000	-16,119,000							
	37,317		-23,864,000				104,774		-6,912,000	69,872		-16,119,000							

BY: J. Ellis
CHECKED: Riley, Griffin

CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION

TABLE 27

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

CONDITION: H.G.W. ~ 72-100 # BOMBS ~ FULL FUEL & OIL @ 35000 FT.

REPORT NO. FTS-36-140

DATE 12-4-45

FW 633 125 PADS 11-43

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. Mac, Propper

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

CONDITION: D.G.W. - 72-1000# BOMBS - FULL FUEL & OIL - 8 CREW

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	6286		-544,100
23	6276	832,000	-595,000				10	412	-743	6286	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		-2,183	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, Tupper

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

TABLE 27

B-36 WING - TABULATION OF INERTIA SHEARS, BENDING MOMENTS & TORSIONS
CONDITION: A.G.W. ~ 72-1000# BOMBS ~ FULL FUEL & OIL @ 35000 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	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			
	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	2,439,000	-1,359,000				7,654	481,300	-96,690	19,501	2,920,000	-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	-243,600	30,568	4,757,000	-2,330,000
		16,763		-2,079,000				14,089		-244,600	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	2,823,000	-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
		28,330		-4,431,000				20,320		-1,081,000	48,710		-5,512,000

BY: J. Ellis
CHECKED: Bisney, Chaffee

B-36 WING - TOTAL 1 G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS
CONDITION: A.G.W. - 72-1000# BOMBS - FULL FUEL & OIL @ 85,000 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	-5,536,100
	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	-7,223,230
	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: Bmw, 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 ~ 1/6 FUEL & OIL @ 5000'

STATION	WING EMPTY LESS LANDING GEAR			A.G.W. ~ 72-1000# BOMBS ~ FULL FUEL & OIL @ 5000'						R.G.W. ~ 72-1000# BOMBS ~ 1/6 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		- 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: Allen
CHECKED: Bisen, Pfapper

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 - ½ FUEL & OIL @ 5000'

STATION	WING EMPTY LESS LANDING GEAR			A.G.W. - 72-1000# BOMBS - FULL FUEL & OIL @ 5000'						R.G.W. - 72-1000# BOMBS - ½ 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	⑫+⑮+⑭	⑬+⑯+⑮	⑭+⑰+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: Dixon, Doppler

CONSOLIDATED VULTEE AIRCRAFT CORPORATION — FORT WORTH, TEXAS

TABLE 28 SHEET 3 OF 4

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

FW 833 125 PADS/11-43

DATE 12-4-45

STATION	WING EMPTY LESS LANDING GEAR			A.G.W. ~ 72 ~ 1000# BOMBS ~ FULL FUEL & OIL ONLY			FUEL & OIL @ 50000# TOTALS			R.G.W. ~ 72 ~ 1000# FUEL & OIL ONLY			BOMBS ~ 18 FUEL & OIL @ 50000# 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	-145800	0	0	0	2585	580900	-145800	0	0	0	2585	580900	-145800
	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	-9405	11680	1627000	-1176000	518	21240	-7605	11230	1609000	-1174000
	11330		-1170000	3816		-17110	15150		-1187000	2147		-14430	13480		-1184000
20	11380	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
	22360		-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: Bacon, Pripper

CONSOLIDATED VULTEE AIRCRAFT CORPORATION. TABLE 28 B-36 WING – TOTAL I G INERTIA SHEARS, BENDING MOMENTS, & TORSIONS

CONDITIONS: [illegible] 72-1000# BOMBS – 1/3 FUEL & OIL @ 5000'

FORT WORTH DIVISION FORT WORTH, TEXAS

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DATE 17-4-45

	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
STATION	WING EMPTY LESS LANDING GEAR			LANDING GEAR RETRACTED			A.G.W.-72-1000# BOMBS-FULL FUEL & OIL ONLY			TOTALS			A.G.W.-72-1000# BOMBS-1/3 FUEL & OIL & 5000'			TOTALS		
	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	⑫+⑬+⑰	⑬+⑯+⑱	⑭+⑰+⑲
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		-3439 000				24340		-853 900	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		-4273 000				25 690		-1033000	53720		-5,306,000	8571		-518 300	36 400		-4,791,000
10	28 030	8 726 000	-4432000				25690	5,985,000	-1178 000	53720	14710000	-5610000	8571	2 804000	-566 700	36 600	11,530000	-4999 000
	28 390		-4431 000				25690		-1178000	54080		-5609000	8571		-566 700	36 960		-4,998 000
9	28 390	9507000	-4591000	0	0	0	25690	6,692,000	-1324000	54 080	16 200000	-5915000	8571	3 040000	-615200	36960	12 547000	-5206 000
	33 490		-5 321000	- 15740	+104300	1251 000	25970		-1314000	43 720	16300 000	-5384000	8664		-613200	26410	12 650 000	-4683000
8	33 490	10 695000	-5 565 000	-15 740	-454600	1 366 000	25970	7614000	-1503000	43 720	17880000	-5702000	8664	3348000	-676 400	26410	13590000	-4875000
	34 270		-5598 000	-15 740	-454600	1366 000	26250		-1491000	44 780	17850000	-5723000	8750		-672 600	27280	13 590000	-4905000
7	34270	11278000	-5718000	-15740	-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	-250800	183 400	26250		-1582000	57350	19090 000	-7129 000	8750		-703 100	39850	14 520 000	-6,250,000
6	35 100	12 190000	-5918000	- 3999	-354 700	204800	26250	8,743000	-1723 000	57350	20,580,000	-7,436,000	8750	3724000	-749900	39 850	15660 000	-6,463,000
	35640		-5926 000	+ 778	-243800	-175 700	26250		-1723000	62670	20690,000	-7825000	8750		-749900	45 170	15 670 000	-6,852,000
5	35640	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	-7,677000
4	36 510	14 340000	-6 379000	7647	185 800	-806400	26250	1031 0,000	-2 044000	70410	24,840 000	-9229000	8750	4244000	-857000	52910	18,770 000	-8,048,000
	37 400		-6371 000	7647	185 800	-806400	26250		-2044000	71 300	24,840,000	-9221 000	8750		-857000	53800	18,770 000	-8,034,000
3	37400	15584 000	-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		-6 632 000	7647	440000	-858600	26 250		-2223 000	71 890	27,200 000	-9714 000	8750		-916 800	54390	20,660 000	-8,407,000
2	37 990	16 847000	-6 892 000	7647	694300	-910 900	26 250	12 050,000	-2403 000	71 890	29,590000	-10,206 000	8750	4826000	-976 600	54390	22,370,000	-8,780,000
	38 830		-6 920 000	7647	694300	-910 900	26 250		-2403000	72730	29 690 000	-10,234000	8750		-976 600	55 230	22, 370, 000	-8,808,000
1	38 830	18360000	-7 231000	7647	992 300	-972200	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	-10,819,000	8750		-1047000	56 250	24,520 000	-9,248,000
0	39 850	19 995000	-7 565 000	7647	1 306 000	-1037000	26 250	14150,000	-2835000	73750	35450000	-11,437000	8750	5526000	-1121000	56 250	26,830 000	-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: Bison / Hopper

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.

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

TABLE 29 SHEET 1 of 2 — SC_{la_1} & MC_{la_1} FOR CRITICAL GROSS WEIGHT CONDITIONS.

DATE 12-4-45

GW = 229,999 GW = 254,131

STATION	DISTANCE FROM ℄ SHIP, IN.	SC_{la_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} $F_1 = \frac{229,999}{265,000}$	$MC_{la_1} \times 10^{-6}$	SC_{la_1} $F_1 = \frac{254,131}{265,000}$	$MC_{la_1} \times 10^{-6}$
1	2	3	4	5	6	7	8	9	10	11	12
		FBS-36-138 FIGURE IV, 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
0	0	131,900	73.894	138,370	77.519	133,500	74.790	114,480	64.134	126 490	70.863
1	41.025	126,250	68.70	132,440	72.07	127,780	69.53	109,600	59.63	121070	65.88
2	80.0	120,900	63.85	126,830	66.98	122,370	64.62	104,900	55.42	115940	61.23
3	113.25	116,400	59.85	122,110	62.79	117,810	60.58	101,000	51.95	111630	5740
4	146.5	112,000	56.05	117,490	58.80	113,360	56.73	97,210	48.65	107440	53.75
5	180	107,500	52.30	112,770	54.87	108,800	52.93	93,300	45.39	103090	50.15
6	206	104,000	49.55	109,100	51.98	105,260	50.15	90,260	43.01	99730	47.52
7	232	100,600	46.95	105,540	43.25	101,820	47.52	87,310	40.75	96470	45.02
8	249	98,400	45.25	103,230	47.47	99,590	45.80	85,400	39.27	94360	43.37
9	284.5	93,800	41.85	98400	43.90	94,940	42.36	81,410	36.32	89950	40.13
10	312	90,300	39.30	94,730	41.23	91,390	39.78	78,370	34.11	86600	37.69
11	339.5	86,900	36.85	91,160	38.66	87,950	37.30	75,420	31.98	83340	35.34
12	375.75	82,500	33.65	86,550	35.30	83500	34.06	71,600	29.21	79120	32.27
13	412	78,100	30.85	81,930	32.36	79,050	31.22	67,780	26.78	74900	29.58
14	448.5	73,900	28.15	77,590	29.53	74,800	28.49	64,140	24.43	70870	27.00
15	485	69,700	25.50	73,120	26.75	70,550	25.81	60,490	22.13	66840	2445

By: J Ellis
CKD: Bisson, Pfeffer

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

TABLE 29 $Sc_{l_{a_1}}$ & $MC_{l_{a_1}}$ FOR CRITICAL GROSS WEIGHT CONDITIONS.
SHEET 2 of 3.

PAGE 93
DATE 12-4-45

STATION	FROM L.E. SHIP. IN.	$Sc_{l_{a_1}}$ G.W. = 265,000#	$MC_{l_{a_1}} \times 10^{-6}$ G.W. = 265,000#	$Sc_{l_{a_1}}$ $F_1 = \frac{278,200}{265,000}$ G.W. = 278,000#	$MC_{l_{a_1}} \times 10^{-6}$ $F_1 = \frac{278,200}{265,000}$ G.W. = 278,000#	$Sc_{l_{a_1}}$ $F_1 = \frac{268,213}{265,000}$ G.W. = 268,213#	$MC_{l_{a_1}} \times 10^{-6}$ $F_1 = \frac{268,213}{265,000}$ G.W. = 268,213#	$Sc_{l_{a_1}}$ $F_1 = \frac{229,999}{265,000}$ G.W. = 229,999#	$MC_{l_{a_1}} \times 10^{-6}$ $F_1 = \frac{229,999}{265,000}$ G.W. = 229,999#	$Sc_{l_{a_1}}$ $F_1 = \frac{254,131}{265,000}$ G.W. = 254,131#	$MC_{l_{a_1}} \times 10^{-6}$ $F_1 = \frac{254,131}{265,000}$ G.W. = 254,131#
1	2	3 PAS-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	14450	1.983	15970	2.191

By: J. Ellis
CKD: Rice, Pfeffer

TABLE 29. $Sc_{l_{a_1}}$ & $Mc_{l_{a_1}}$ FOR CRITICAL GROSS WEIGHT CONDITIONS.
SHEET 3 of 3.

STATION	DISTANCE FROM E SHIP, IN.	Sc_{a_1}	$Mc_{l_{a_1}} \times 10^{-6}$	$Sc_{l_{a_1}}$ $F_1 = \frac{278,000}{265,000}$	$Mc_{l_{a_1}} \times 10^{-6}$	$Sc_{l_{a_1}}$ $F_1 = \frac{268,213}{265,000}$	$Mc_{l_{a_1}} \times 10^{-6}$	$Sc_{l_{a_1}}$ $F_1 = \frac{239,999}{265,000}$	$Mc_{l_{a_1}} \times 10^{-6}$	$Sc_{l_{a_1}}$ $F_1 = \frac{251,131}{265,000}$	$Mc_{l_{a_1}} \times 10^{-6}$
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	2850	.108	3150	.120
40	1301	2,400	.070	2,520	.073	2430	.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, Pappas

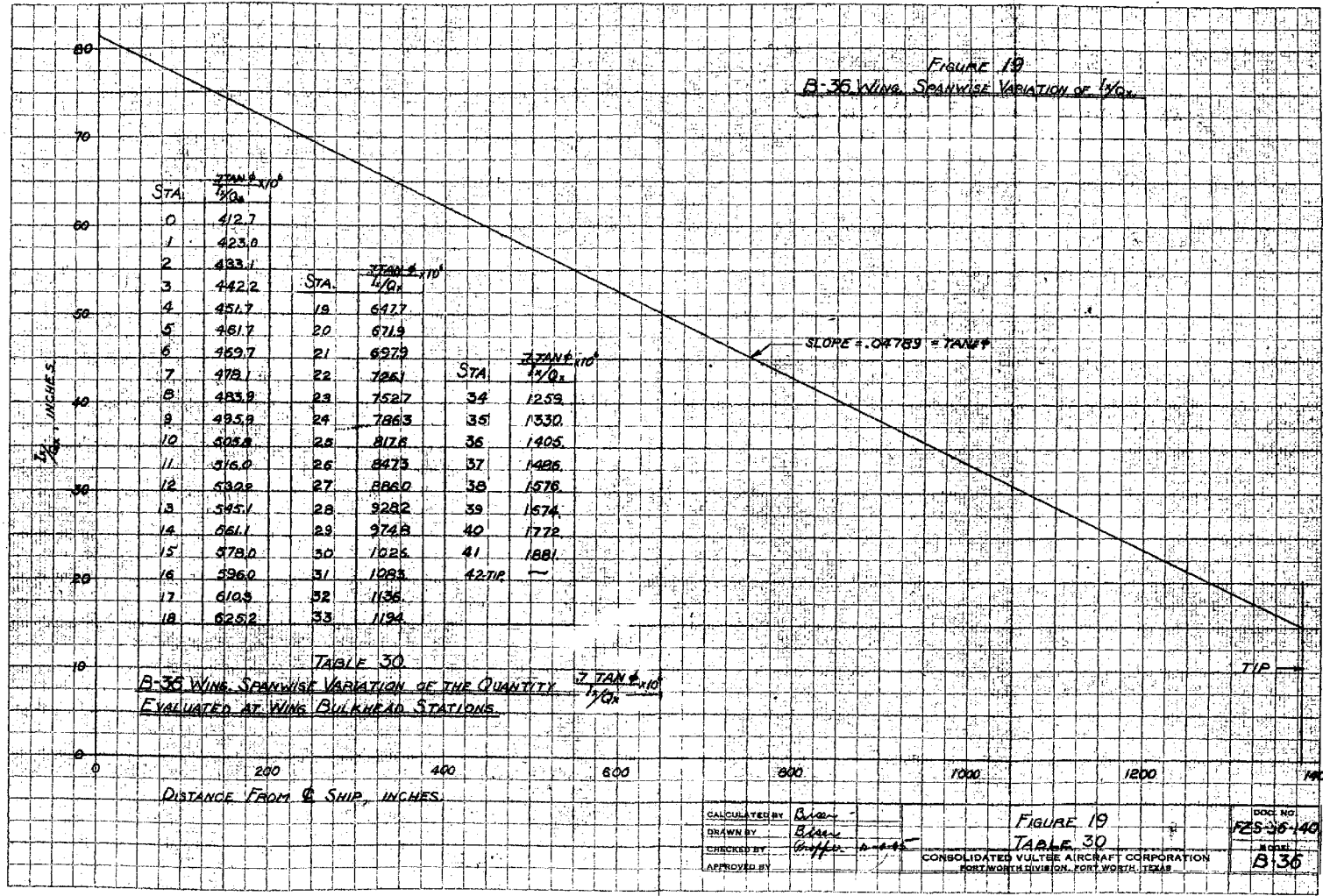

FIGURE 19
B-36 WING SPANWISE VARIATION OF $\frac{T}{I/Q_x}$

STA	$\frac{T \tan \Gamma \times 10^6}{I/Q_x}$
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	$\frac{T \tan \Gamma \times 10^6}{I/Q_x}$
19	6427
20	6719
21	6979
22	7261
23	7527
24	7863
25	8178
26	8473
27	8860
28	9282
29	9748
30	10226
31	10933
32	11536
33	11941

STA	$\frac{T \tan \Gamma \times 10^6}{I/Q_x}$
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 $\frac{T \tan \Gamma \times 10^6}{I/Q_x}$
EVALUATED AT WING BULKHEAD STATIONS

CALCULATED BY	Bian	FIGURE 19 TABLE 30
DRAWN BY	Bian	CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION, FORT WORTH, TEXAS
CHECKED BY	[illegible] 6-4-45	DOC. NO. FZS-36-40
APPROVED BY		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_{bi}	$1.5(\frac{-N_z}{W})S_{bi}$ $(\frac{-N_z}{W})=-2.64$	$S_b = S_b'$	$S_{CL_{ai}}$	$1.5\frac{X}{W}S_{CL_{ai}}$ $\frac{X}{W}=-.576$	$1.5\frac{X_m}{W}S_{bi}$ $\frac{X_m}{W}=.521$	S_c	$M_{Xa}\times10^6$	$M_{Ki}\times10^6$	$1.5(\frac{-N_z}{W})M_{Xi}$ $(\frac{-N_z}{W})=-2.646$	$M_X\times10^6$	$M_{CL_{ai}}\times10^6$	$1.5\frac{X}{W}M_{CL_{ai}}$ $\frac{X}{W}=-.576$	$1.5\frac{X_m}{W}M_{Xi}$ $\frac{X_m}{W}=.521$	$(M_y=M_y')\times10^6$	$T_{EA_a}\times10^6$	$T_{EA_i}\times10^6$	$1.5(\frac{-N_z}{W})T_{EA_i}$ $(\frac{-N_z}{W})=-2.646$	$T_{EA}\times10^6$
		Fig. 2	TABLE 26	-3.969×④	③ + ⑤	TAB 29	-.864×⑦	1.815×④	⑥ + ⑨	Fig. 2	TABLE 26	-3.969×⑫	⑪ + ⑬	TAB 29	-.864×⑮	1.815×⑫	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	-13.315	53.64	-12.89
			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	41,814	-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	-28,580										-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	-10.33
			102,471	-430,500	64,100			84,770	-20,730										-10.929	43.36	-10.33
4	146.5	472,800	102,471	-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	-9.68
			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	-9.14
			91,312	-362,900	91,000			71,360	-26,070		26,745*	-106.2	111.6			20.90	-26.51		-8.932	25.45	-11.13
6	206.0	438,800	91,312	-362,400	76,400	109,100	-94,260	71,360	-22,900	206.3	24,371	-96.7	109.6	51.19	-44.21	19.65	-25.86	-44.60	-8.946	33.51	-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	-12.8
7	232.0	429,400	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	165,600			50,970	-40,220		21,672	-86.0	108.8			16.94	-25.61		-6.911	25.45	-9.6
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	28.58	-10.6
			60,381	-239,700	174,900			47,190	-42,000										-6.163	24.17	-9.6
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	-37.13	14.40	-23.23	-37.52	-5.729	22.74	-9.0
			68,489	-271,800	123,000			53,520	-31,500		18,316	-72.7	100.9			14.31	-23.42		-6.274	24.90	-9.6
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	-23.78	-35.29	-5.867	23.37	-9.3
			68,128	-270,400	109,300			53,240	-28,610										-5.888	23.37	-9.3
11	338.5	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	-8.68
			60,860	-241,600	123,400			47,560	-31,200										-4.857	19.28	-7.6
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	-6.9
			54,395	-215,900	130,000			42,510	-32,270										-4.410	17.50	-6.9

Drawn By [illegible] Date 11-9-45 Checked By [illegible]

TABLE 31

Contract No. W-Vultee Aircraft Division

FZS-36-140

MODEL B-36

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

SHEET 2 OF 8. CONDITION: LGW- 278,000# - 10000# B. FULL FUEL & OIL. H.A.A. 9000 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	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J \tan\phi}{I_x/Q_x} \times 10^6$	$\frac{J \tan\phi}{I_x/Q_x} M_x$	S''_b
		.9848×(14)	.1736×(22)	(23) − (24)	.9848×(10)	.1736×(14)	.9848×(22)	(27) + (28)	TABLE 30	(29) × (30)	OR .5×(6) − (31)
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	29150
5	180.0	109.41	-1.64	111.05	-15570	19.29	-9.28	10.01	*659.6	73249	-34350
		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	63693
7	232.0	105.28	-2.05	107.33	-27328	18.56	-11.63	6.93	478.1	57317	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	103615
		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	-26789	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] 12-9-45	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 @ 9000 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 C of SHIP	$S_{W_{ult}}$	$S_{H_{ult}}$	$1.5(S_{W_{ult}} + S_{H_{ult}}) = S_{ult}$	S_{ult}	$1.5 S_{W_{ult}}$	$1.5 S_H$	S_{ult}	$M_{W_{ult}} \times 10^6$	$M_{H_{ult}} \times 10^6$	$1.5(M_{W_{ult}} + M_{H_{ult}}) = M_{ult} \times 10^6$	$M_{W_{ult}} \times 10^6$	$M_{H_{ult}} \times 10^6$	$1.5(M_{W_{ult}} + M_{H_{ult}}) = M_{ult} \times 10^6$	$M_{T_{ult}} \times 10^6$	$M_{T_{ult}} \times 10^6$	$M_{T_{ult}} \times 10^6$	$T_{W_{ult}} \times 10^6$	$T_{H_{ult}} \times 10^6$	$T_{ult} \times 10^6$
		Fig. 2	TABLE 26	③ + ④		① × 1.5	② × 1.5	⑤ + ⑥	Fig. 2	TABLE 26	⑧ + ⑨	TABLE 28	TABLE 29	⑪ + ⑫	Fig. 2	TABLE 28	⑭ + ⑮	Fig. 2	TABLE 26	⑱ + ⑲
13	442.0	+227,200	-24,875	+202,300	211,300	+341,100	-37,350	+303,750	317,700	-10,740	+306,960	-41.2	346.5	305.3	32.36	-27.46	4.11	-12.86	-27.60	-40.46
			+8,353	+211,900			+12,530	+316,280			+317,700								-48.32	
14	484.5	308,800	+28,333	+337,100	317,000	463,200	+42,500	+505,700	476,550	-64,940	+411,610	-77.0	439.0	362.0	28.58	-25.87	2.73	-10.78	-25.13	-35.91	
			+2,564	+340,700			+38,440	+501,940			+411,610								-33.40	
15	526.0	340,600	+42,556	+383,100	324,700	510,900	+63,840	+574,740	487,050	-94,440	+392,610	-108.8	778	669.2	24.76	-23.11	1.65	-11.51	-22.80	-34.31	
			+37,253	+418,800			+58,190	+569,240			+392,610								-33.97	
16	567.5	372,800	+37,548	+410,300	324,600	559,200	+56,320	+615,520	498,150	-120,330	+377,820	-142.8	782.2	639.4	20.98	-20.98	1.46	-10.46	-20.34	-30.80	
			+31,352	+404,100			+47,030	+606,230			+377,820								-29.73	
17	609.0	340,600	+31,352	+371,900	325,400	510,900	+47,030	+557,930	498,150	-120,330	+377,820	-142.8	782.2	639.4	20.98	-20.98	1.46	-10.46	-20.34	-30.80	
			+24,063	+364,300			+36,090	+546,990			+377,820								-29.73	
18	650.5	308,800	+24,631	+333,400	325,300	463,200	+36,950	+500,150	498,150	-120,330	+377,820	-142.8	782.2	639.4	20.61	-17.81	2.11	-14.70	-17.12	-31.82	
			+16,400	+325,200			+24,600	+488,000			+377,820								-29.73	
19	692.0	277,000	+16,850	+293,850	325,400	415,500	+25,280	+440,780	498,150	-120,330	+377,820	-142.8	782.2	639.4	20.36	-15.36	2.36	-13.00	-15.56	-28.56	
			+9,001	+286,001			+13,500	+428,500			+377,820								-29.73	
20	733.5	246,200	+9,001	+255,200	325,300	369,300	+13,500	+382,800	498,150	-120,330	+377,820	-142.8	782.2	639.4	20.10	-13.91	1.75	-12.16	-14.46	-26.62	
			+1,809	+247,900			+2,710	+372,010			+377,820								-29.73	
21	775.0	215,400	+1,809	+217,200	325,400	323,100	+2,710	+325,810	498,150	-120,330	+377,820	-142.8	782.2	639.4	19.85	-12.46	1.15	-11.31	-13.37	-24.68	
			-4,200	+211,200			-6,300	+316,800			+377,820								-29.73	
22	816.5	184,600	-4,200	+180,400	325,400	276,900	-6,300	+270,600	498,150	-120,330	+377,820	-142.8	782.2	639.4	19.59	-10.97	0.92	-9.59	-10.40	-19.99	
			-9,009	+175,600			-13,510	+263,390			+377,820								-29.73	
23	858.0	153,800	-9,009	+144,800	325,400	230,700	-13,510	+217,190	498,150	-120,330	+377,820	-142.8	782.2	639.4	19.34	-9.54	0.70	-8.84	-9.46	-18.30	
			-13,806	+140,000			-20,710	+210,000			+377,820								-29.73	
24	899.0	123,000	-13,806	+109,200	325,400	184,500	-20,710	+163,790	498,150	-120,330	+377,820	-142.8	782.2	639.4	19.08	-8.14	0.45	-7.69	-8.52	-16.21	
			-18,385	+104,700			-27,580	+157,050			+377,820								-29.73	
25	940.0	92,300	-18,385	+73,900	325,400	138,450	-27,580	+110,870	498,150	-120,330	+377,820	-142.8	782.2	639.4	18.83	-6.77	0.29	-6.48	-7.62	-14.10	
			-23,382	+69,000			-35,070	+103,380			+377,820								-29.73	

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.

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DATE 12-2-46

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM Σ OF SHIP	$M_z \cos\alpha$ x 10^6	$T_{EA} \sin\alpha$ x 10^6	M'_x x 10^6	$S'_c = -S_z \cos\alpha$	$M_x \sin\alpha$ x 10^6	$T_{EA} \cos\alpha$ x 10^6	T'_{EA} x 10^6	$\frac{J_{TRUE}}{I_z/Q_x}$	$\frac{J_{TRUE}}{I_z/Q_x} M'_x$	S''_x (6) + (31)
		(22) x (14)	(23) x (24)	(21) − (25)	(22) x (10)	(15) x (16)	(22) x (22)	(27) + (28)	TABLE 30	(29) x (30)	on. (6)
13	442.8	86.19	-2.03	87.22	-27850	15.02	-11.52	3.50	545.1	47544	63756
			-2.02	89.21	-33518		-11.46	3.56		47538	81862
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	76.03	-1.65	77.68	-29465	13.37	-9.34	4.03	578.0	44900	76800
			-1.66	77.69	-33483		-9.91	3.96		44905	97498
16	520.5	71.40	-1.46	72.86	-29859	12.53	-8.30	4.23	596.0	43246	81354
			-1.64	72.94	-34468		-10.93	2.10		43472	104928
17	549.0	67.26	-1.69	68.95	-31661	11.86	-9.58	2.28	610.3	42080	99320
			-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	107837
19	615.875	58.20	-1.69	59.89	-30342	10.26	-9.57	.69	647.7	38791	81609
			-1.69	59.89	-34064		-9.57	.69		38791	110809
20	634.25	52.98	-1.48	54.46	-30401	9.34	-8.39	.95	671.9	36592	95108
			-1.47	54.45	-35798		-8.35	.99		36585	113215
21	683.125	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	119115
22	732.0	42.15	-1.06	43.21	-29662	7.63	-6.03	1.60	726.1	31375	100625
			-1.07	43.22	-31120		-6.05	1.58		31382	108118
23	766.0	37.72	-0.90	38.62	-28175	6.85	-5.10	1.55	752.7	30069	96831
			-1.18	38.90	-31041		-6.70	-0.05		29280	111920
24	806.0	32.40	-0.98	33.38	-27742	5.71	-5.53	.18	786.3	26247	98853
			-1.24	33.64	-30588		-7.61	-1.30		26451	113249
25	840.0	27.85	-1.06	28.93	-27709	4.91	-6.04	-1.13	817.6	23653	103347
			-1.06	28.93	-28116		-6.04	-1.18		23653	109447

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

TABLE 31

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

CODE NO.
FZS-36-102
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_{bi}	$1.5(\frac{-N_a}{W})S_{bi}$ $\frac{-N_a}{W}=2.646$	$S_b = S'_b$	$S_{CL_{a_i}}$	$1.5\frac{X_m}{W}S_{CL_{a_i}}$ $\frac{X_m}{W}=0.576$	$1.5\frac{X_m}{W}S_{bi}$ $\frac{X_m}{W}=0.521$	S_c	$M_{X_a} \times 10^6$	$M_{X_i} \times 10^6$	$1.5(\frac{-N_a}{W})M_{X_i} \times 10^6$ $(\frac{-N_a}{W})=2.646$	$M_X \times 10^6$	$M_{CL_{a_i}} \times 10^6$	$1.5\frac{X_m}{W}M_{CL_{a_i}} \times 10^6$ $\frac{X_m}{W}=0.576$	$1.5\frac{X_m}{W}M_{X_i} \times 10^6$ $\frac{X_m}{W}=0.521$	$(M_y = M'_y) \times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_i} \times 10^6$	$1.5(\frac{-N_a}{W})T_{EA_i} \times 10^6$ $(\frac{-N_a}{W})=2.646$	$T_{EA} \times 10^6$
		Fig. 2.	TABLE 26	-0.969× (4)	(3) + (5)	TAB. 29	-0.864× (7)	0.7815× (4)	(8) + (9)	Fig. 2.	TABLE 26	-0.969× (12)	(11) + (13)	TAB. 29	-0.864 (14)	0.7815× (12)	(16) + (17)	Fig. 2.	TABLE 26	-0.969× (20)	(19) + (20)
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	-8,220	105,400	22,160	-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	69,300			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	-10,760	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

TABLE 31

DOC. 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# 10000#B. FULL FUEL & OIL H.A.A. @ 5000 FT.

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DATE 12-1-45

1 STATION	2 DIST FROM ℄ OF SHIP	23 $M_x \cos\alpha \times 10^6$ (24)×(22)	24 $T_{EA} \sin\alpha \times 10^6$	25 $M'_x \times 10^6$ (23)−(24)	26 $S'_c = S_c \cos\alpha$	27 $M_x \sin\alpha \times 10^6$	28 $T_{EA} \cos\alpha \times 10^6$ (24)×(22)	29 $T'_{EA} \times 10^6$ (27)+(28)	30 $\frac{J \tan\phi}{I_x/Q_x} \times 10^6$ TABLE 30	31 $\frac{I_x}{Q_x} M_x$ (25)×(30)	32 S''_w OR $S=$ (6)−(31)
26	870.0	24.32	-0.92	25.24	-25807	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	78026
			-0.695	17.425	-20917		-3.66	-0.70		16174	78726
29	978.0	13.439	-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		-2.35	-0.48		11556	63164
31	1050.8	8.659	-0.327	8.786	-13964	1.491	-1.852	-0.361	1083	9515	53285
			-0.327	8.786	-14063		-1.854	-0.363		9515	53785
32	1080.0	6.667	-0.258	6.925	-12192	1.175	-1.464	-0.289	1136	7867	46833
			-0.264	6.931	-12389		-1.499	-0.324		7874	47826
33	1110.0	5.170	-0.205	5.375	-10616	.911	-1.165	-0.254	1184	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	1239	5041	34559
			-0.154	4.005	-9021		-.875	-0.196		5042	35258
35	1170.0	2.786	-0.111	2.897	-7346	.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	24945
			-0.082	2.032	-6135		-.466	-0.122		2855	24945
37	1225.0	1.300	-0.055	1.355	-4855	.229	-.314	-0.085	1486	2014	19486
			-0.056	1.356	-4885		-.315	-0.086		2015	19685
38	1252.0	0.788	-0.034	0.822	-3683	.139	-.191	-0.052	1576	1295	15705
			-0.034	0.822	-3723		-.193	-0.054		1295	15305

CALCULATED BY
DRAWN BY
CHECKED BY

TABLE 31

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH 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_{ba}	S_{bi}	$1.5(\frac{-N_z}{W})S_{bi}$ $(\frac{-N_z}{W})=-2.646$	$S_b = S_b'$	$S_{CL_{a_i}}$	$1.5\frac{x}{w}S_{CL_{a_i}}$ $\frac{x}{w}=0.576$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=0.521$	S_c	$M_{x_a} \times 10^6$	$M_{x_i} \times 10^6$	$1.5(\frac{-N_z}{W})M_{x_i}$ $\times 10^6$ $(\frac{-N_z}{W})=-2.646$	$M_x \times 10^6$	$M_{CL_{a_i}} \times 10^6$	$1.5\frac{x}{W}M_{CL_{a_i}}$ $\frac{x}{W}\times 10^6=0.576$	$1.5\frac{X_m}{W}M_{x_i}$ $\times 10^6$ $\frac{X_m}{W}=0.521$	$(M_y = M_y')$ $\times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_i} \times 10^6$	$1.5(\frac{-N_z}{W})T_{EA_i}$ $\times 10^6$ $(\frac{-N_z}{W})=-2.646$	$T_{EA} \times 10^6$
		Fig. 2.	TABLE 26	-3969 × ④	③ + ⑤	TAB 29	0.864 × ⑦	0.7815 × ④	⑧ + ⑨	Fig. 2.	TABLE 26	-2.646 × ⑫	⑪ + ⑬	TAB 29	0.864 × ⑮	0.7815 × ⑫	⑯ + ⑰	Fig. 2.	TABLE 26	-2.646 × ⑳	⑲ + ㉑
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 SG	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

Last
Griffith

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. HAA. @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_z \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{J \tan\phi}{I_x} \times 10$	$\frac{J \tan\phi}{I_x} M'_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (16)	.9848 × (23)	(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		-.1369	-.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	.00694	-.0059	.00104	0	0	3200
			.0	0.039	- 0		0		0	0	

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

TABLE 3.2 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS, REPORT FZR-96

SHEET 1 of 8 CONDITION: DGW 76,000 lb, 2.5g, 8 Full Fuel Tanks, LAA, Hi Alt, 5,000 ft

Fig. 3																										
0	0	568,100	116,417	-44,339	122,811	138,910	-46,810	28,160	19,600	-1,210	84,965	-165,748	176,896	77,519	-24,670	11,936	-14,000	58	6,213	5,400	-17,974					
			108,923	24,434	5,124,788			18,400	-16,310										6,213	2,916	-17,974					
41.025	41.025	545,100	114,915	-44,415	139,685	132,440	-49,800	28,300	-16,550	+2,830	91,314	-167,551	191,855	72,97	-24,434	10,814	-13,648	-16,31	-16.58	6,400	-16,017					
			109,902	-438,333	40,3,767			28,300	-16,550										-12,883	5,301	-16,009					
80.0	80.0	519,100	109,902	-428,033	19,247	126,830	-49,000	28,350	-16,550	+2,830	87,880	-150,324	187,978	66.86	-23.704	9.709	-12.997	-61.65	-11.383	4,781	-14,867					
			109,067	-435,995	83,705			28,300	-16,560										-11,874	4,677	-13,979					
113.25	113.25	493,800	103,067	-435,995	62,096	120,810	-49,000	28,340	-16,560	+2,830	84,000	-133,538	115,445	62.79	-21.256	6,773	-11,113	-57.88	-10,929	4,669	-13,141					
			166,971	-423,613	65,827			27,800	-13,410										-10,931	4,669	-13,141					
		479,100	108,971	-425,613	45,488	7,830	-49,000	27,950	-13,240	+2,832	80,998	-141,614	113,488	58.903	-19,853	2,868	-10,094	-54.18	-10,167	4,669	-13,477					
			104,936	-417,693	64,617			26,740	-12,850										-10,167	4,669	-13,278					
		459,500	104,936	-417,693	28,617	116,710	-48,200	27,800	-12,850	+2,832	76,888	-129,232	112,921	55.07	-18,481	2,868	-11,481	-50.20	-9,939	4,669	-13,712					
			98,316	-345,020	98,488			25,660	-24,430										-9,939	4,669	-13,924					
		444,100	91,216	-345,020	113,888	103,980	-48,200	27,800	-12,850	+2,832	74,771	-121,402	112,921	51.251	-17,109	6,488	-11,933	-47.98	-8,939	4,669	-13,924					
			81,438	-315,918	108,438			24,010	-24,430										-8,939	4,669	-13,924					
		429,100	81,438	-315,918	103,588	105,640	-48,200	27,800	-14,270	+2,832	72,193	-113,617	107,682	48.26	-16,256	5,311	-10,945	-45.34	-8,939	4,669	-13,924					
			65,925	-287,727	168,363			24,010	-24,430										-8,939	4,669	-13,924					
		420,800	65,225	-240,738	168,263	103,350	-38,800	14,350	-8,160	+2,832	70,562	-93,197	104,902	44.47	-16,092	5,306	-10,787	-44.67	-6,333	4,669	-13,923					
			60,381	-241,738	178,628			15,480	-10,410										-6,333	4,669	-13,923					
		395,500	60,381	-241,738	168,427	98,430	-38,800	14,350	-8,160	+2,832	68,000	-78,634	90,964	43.90	-14,062	5,252	-10,130	-40.87	-6,724	22,902	-17,818					
			68,485	-219,785	196,210			12,270	-15,630										-6,274	25,050	-16,140					
		384,100	68,485	-219,785	170,110	94,180	-38,800	13,670	-8,160	+2,832	65,438	-65,607	88,913	41.22	-13,917	5,252	-9,536	-37.65	-5,887	23,038	-14,317					
			68,485	-219,785	196,210			12,270	-15,630										-5,888	25,050	-14,317					
		369,100	68,485	-219,785	170,110	94,180	-38,800	13,670	-8,160	+2,832	62,876	-56,196	86,784	38.54	-13,772	5,252	-8,920	-35.42	-5,498	23,038	-14,317					
			68,485	-219,785	196,210			12,270	-15,630										-5,498	25,050	-14,317					
		349,300	68,860	-219,785	170,110	94,180	-38,800	13,670	-8,160	+2,832	59,313	-49,381	84,655	35.86	-13,627	5,252	-8,375	-33.19	-5,108	23,038	-14,317					
			68,485	-219,785	196,210			12,270	-15,630										-5,108	25,050	-14,317					

TABLE 3.2

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

SHEET 2 of 8. CONDITION: G.W. 278,000#, 10,000# B, FULL FUEL & OIL, L.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	$M_x \cos\alpha$ x10⁶	$T_{EA} \sin\alpha$ x10⁶	M'_x x10⁶	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha$ x10⁶	$T_{EA} \cos\alpha$ x10⁶	T'_{EA} x10⁶	$\frac{T_{TAN}}{I_x/Q_x}$	$\frac{I_x}{Q_x} M'_x$	S''_c (4) − (31)
		(3) × (11)	(12) × (22)	(23) − (24)	(3) × (10)	(12) × (14)	(3) × (13)	(27) + (28)	TABLE 30	(25) × (30)	ON S = (5)
0	0	124,140	-3,042	127,182	-17,880	21,883	-17,258	4,625	412.7	52,488	70,323
			-3.04	127,181	-18,030		-17,250	4,633		52,488	72,297
1	41.025	119,603	-2,781	122,384	-16,050	21,084	-15,774	5,310	423.0	51,769	49,843
			-2,779	122,382	-16,300		-15,746	5,319		51,769	51,298
2	80.0	116,181	-2,581	118,762	-14,430	20,480	-14,641	5,839	439.1	51,436	39,884
			-2,600	118,781	-14,630		-14,751	5,729		51,444	41,553
3	113.25	113,310	-2,455	116,165	-13,060	20,095	-13,926	6,119	442.2	51,368	31,503
			-2,458	116,168	-13,210		-13,946	6,099		51,365	32,685
4	146.5	111,856	-2,390	114,296	-11,660	19,736	-13,076	6,466	445.3	73,755	-28,268
			-2,322	114,278	-12,490		-13,139	6,541	451.7	51,619	30,809
5	180	110,269	-2,207	112,476	-11,120	19,438	-12,513	6,819	459.6	74,189	-32,172
		110,876	-2,593	113,469	-14,460	19,545	-14,707	4,838	461.7	52,389	47,249
6	208	108,699	-2,463	111,162	-9,220	19,161	-13,963	5,198	466.7	52,213	39,540
		109,137	-2,716	111,853	-12,730	19,230	-15,410	3,820		52,537	66,015
7	236	106,046	-2,564	108,612	-14,550	18,694	-14,556	4,138	478.1	51,927	51,776
		107,301	-3,420	111,721	-18,660	19,021	-19,403	-382		53,423	115,140
8	264.25	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		-18,780	-,162		52,541	126,088
9	288.5	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	-15,008	+2,592		50,823	74,892
10	312	96,720	-2,485	99,205	-14,220	17,050	-14,085	+2,965	505.8	50,178	60,137
			-2,485	99,205	-14,310		-14,085	+2,985		50,178	61,680
11	339.5	93,767	-2,343	96,100	-13,120	16,527	-13,209	+3,236	516.0	49,588	48,379
			-2,790	96,547	-14,970		-15,830	+,697		49,818	75,994
12	375.25	89,527	-2,590	92,127	-10,430	15,784	-14,692	+1,092	530.2	48,846	57,966
			-2,585	92,122	-15,080		-14,665	+1,119		48,843	83,219

CALCULATED BY	JDH	TABLE 32	DOC NO. FZS-36-140
DRAWN BY			MODEL A-36
CHECKED BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION	

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

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REPORT: FZA-16-140
DATE: 1-4-46

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

1 Station	2 Dist. from E.C. of Shir	3 S_{Wa}	4 S_{bi}	5 $S_{Wa}+S_{bi}=S_b$	6 $S_b+S_t=S_w$	7 S_{cw}	8 $1.46S_{cw}$	9 $2.29S_{bi}$	10 S_c	11 $M_{xw}\times10^6$	12 $M_{xi}\times10^6$	13 $M_x\times10^6$	14 $M_{cw}\times10^6$	15 $1.5\frac{D}{D}M_{cw}\times10^6$	16 $1.6\frac{dm}{dx}M_x\times10^6$	17 $(M_y=M_b)\times10^6$	18 $T_{mw}\times10^6$	19 $T_{Ea}\times10^6$	20 $T_{Ea}\times10^6$
		Fig. 3	Table 26	⑤ = ② + ④	⑥ = ③ + ⑤	Fig. 3	⑧ = 1.46 × ⑦	⑨ = 2.29 × ④	⑩ = ⑧ + ⑨	Fig. 3	Table 26	⑫ = ⑪ + ⑪	Fig. 3	⑭ = 1.5 × ⑬	⑮ = 1.6 × ⑫	⑯ = ⑫ + ⑭ + ⑮	Fig. 3	Fig. 3	⑳ = ⑱ + ⑲
0	412	55,000	84,292	-29,292	125,708	381,930	557,720	34,220	591,940	10.380	86,906	97.286	32.381	48.57	155.66	-10.97	2.478	-8.492	-29.772
			49,333	-180,211	136,889			12,470	15,800										
10	442.5	241,500	48,333	-193,211	118,289	77,530	116,280	12,470	19,810	8.616	84,242	92,858	29.88	44.81	143.55	-7.787	2.223	-5.564	-27.93
			40,556	-170,114	141,386			10,980	15,300										
15	465	299,000	40,556	-158,118	123,882	73,140	109,790	10,380	12,810	7.060	78,760	85,820	25.75	38.62	123.94	-6.234	2.006	-4.228	-24.98
			37,333	-149,238	143,762			9,630	12,140										
20	491.5	277,000	37,333	-149,238	127,762	69,870	104,810	9,630	11,960	5.700	73,014	78,714	24.43	36.65	117.15	-4.742	1.847	-2.895	-22.87
			31,352	-120,538	145,462			8,670	11,960										
25	518	261,500	31,352	-120,538	140,962	65,570	98,360	8,670	14,440	4.838	67,860	72,698	23.24	34.86	111.42	-3.346	1.618	-1.728	-20.77
			24,169	-92,869	168,131			6,680	14,210										
30	544	250,000	24,169	-92,869	157,131	62,210	93,310	6,680	13,000	3.982	62,348	66,330	22.51	33.77	107.93	-2.158	1.388	-0.770	-19.54
			16,831	-64,669	185,331			4,650	11,710										
35	570	250,000	16,831	-64,669	185,331	58,100	87,200	4,650	11,300	3.318	57,000	60,318	21.80	32.70	104.52	-1.182	1.157	-0.025	-18.77
			10,681	-41,069	208,931			2,950	14,250										
40	596	214,500	10,681	-41,069	173,431	53,820	80,770	2,950	5,160	2.838	51,300	54,138	19.16	28.74	91.88	-0.568	0.782	+0.214	-16.49
			5,385	-20,701	194,299			1,490	6,980										
45	622	193,500	5,385	-20,701	172,799	49,730	74,600	1,490	2,980	2.557	46,140	48,697	17.23	25.85	82.65	-0.217	0.406	+0.189	-14.83
			2,405	-9,245	190,755			660	3,650										
50	648	172,500	2,405	-9,245	163,255	45,670	68,500	660	1,320	2.317	41,400	43,717	15.47	23.21	74.20	-0.042	0.182	+0.140	-13.32
			1,085	-4,169	167,831			300	1,620										
55	674	151,500	1,085	-4,169	147,331	41,730	62,600	300	600	2.107	36,450	38,557	13.89	20.84	66.63	+0.065	0.081	+0.146	-11.96
			485	-1,863	149,637			130	730										
60	700	130,500	485	-1,863	128,637	38,050	57,100	130	260	1.917	31,500	33,417	12.42	18.63	59.59	+0.111	0.036	+0.147	-10.81
			215	-826	129,674			60	330										
65	726	112,500	215	-826	111,674	34,500	51,800	60	120	1.727	27,000	28,727	11.04	16.56	52.99	+0.111	0.016	+0.127	-9.80
			95	-365	112,135			30	150										
70	752	97,500	95	-365	97,135	31,050	46,600	30	60	1.537	22,500	24,037	9.67	14.50	46.39	+0.111	0.008	+0.119	-8.79
			40	-154	97,346			10	70										
75	778	84,500	40	-154	84,346	27,600	40,300	10	20	1.347	18,450	19,797	8.29	12.44	39.80	+0.111	0.003	+0.114	-7.78
			15	-58	84,442			3	23										
80	804	71,500	15	-58	71,442	24,150	35,270	3	6	1.157	14,850	16,007	6.91	10.37	33.19	+0.111	0.001	+0.112	-6.77
			5	-19	71,481			1	7										
85	830	58,500	5	-19	58,481	20,700	30,230	1	2	0.967	11,700	12,667	5.53	8.30	26.50	+0.111	0.000	+0.111	-5.76
			2	-8	58,492			0	2										
90	856	45,500	2	-8	45,492	17,250	25,190	0	0	0.777	8,550	9,327	4.14	6.21	19.68	+0.111	0.000	+0.111	-4.75
			1	-4	45,496			0	0										
95	882	32,500	1	-4	32,496	13,800	20,150	0	0	0.587	5,850	6,437	2.76	4.14	13.34	+0.111	0.000	+0.111	-3.74
			0	0	32,500			0	0										
100	908	19,500	0	0	19,500	10,350	15,110	0	0	0.397	3,600	3,997	1.38	2.07	6.67	+0.111	0.000	+0.111	-2.73
			0	0	19,500			0	0										
105	934	6,500	0	0	6,500	6,900	10,070	0	0	0.207	1,350	1,557	0.69	1.04	3.33	+0.111	0.000	+0.111	-1.72
			0	0	6,500			0	0										
110	960	0	0	0	0	3,450	5,040	0	0	0.017	0	0.017	0	0	0	+0.111	0.000	+0.111	-0.71
			0	0	0			0	0										

TABLE 32

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

SHEET 4 of 8. CONDITION: DSW 278000# 10000# B, FULL FUEL & OIL, 1.AA, HIGH SPEED @ 3000 FT.

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1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM C OF SHIP	$M_z \cos\alpha \times 10^6$	$T_{BA} \sin\alpha \times 10^6$	$M_{z_1} \times 10^6$	$S_z \cdot S_x \cos\alpha$	$M_{z_2} \sin\alpha \times 10^6$	$T_{BA} \cos\alpha \times 10^6$	$T'_{BA} \times 10^6$	$\frac{J_{max}}{J_z} \frac{\phi}{Q_z} \times 10^6$	$\frac{J_{max}}{J_z} M_x$	S''_x (6) - (24)
		(23) x (14)	(22) x (15)	(23) - (24)	(23) x (10)	(22) x (16)	(22) x (17)	(27) - (28)	TABLE 30	(29) x (30)	OR S_x (6)
13	411	85.093	-2.382	87.475	-13.530	15.000	-13.611	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	-2.156	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	75.593	-1.937	77.526	-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		45,524	106,041
17	558	66.829	-1.944	68.773	-13,930	11.780	-11.032	0.748	610.3	41,973	93,897
			-1.944	68.773	-13,990		-11.828	0.752		41,973	95,031
18	594.5	63.248	-1.595	65.043	-12,909	11.148	-10.104	0.965	625.7	40,640	93,161
			-2.186	65.334	-14,990		-12.170	-1.027		40,864	107,859
19	631.5	57.991	-1.908	59.899	-13,020	10.033	-10.812	-.530	642.7	38,705	91,343
			-1.908	59.897	-14,920		-10.813	-.506		38,705	104,251
20	668.5	52.484	-1.472	54.156	-12,880	9.251	-9.483	-.232	671.9	36,380	86,108
			-1.665	54.147	-14,000		-9.447	-.196		36,221	113,819
21	693.75	47.186	-1.424	48.610	-12,640	8.318	-8.167	+.151	697.9	33,932	80,562
			-1.439	48.625	-13,580		-8.166	+.153		33,939	114,319
22	729	41.318	-1.213	43.028	-12,210	7.371	-6.681	+.490	726.1	31,243	86,611
			-1.217	43.032	-12,690		-6.904	+.267		31,246	108,143
23	766	37.246	-1.031	38.277	-11,540	6.583	-5.950	+.733	752.8	28,886	86,603
			-1.313	38.685	-12,490		-7.449	-.866		29,099	118,273
24	806	32.053	-1.095	33.178	-11,190	5.656	-6.214	-.558	786.3	26,088	90,584
			-1.358	33.441	-12,120		-7.705	-2.047		26,295	113,171
25	840	27.603	-1.174	28.777	-11,070	4.866	-6.662	-1.796	817.6	23,529	102,938
			-1.174	28.774	-11,140		-6.661	-1.795		23,529	168,990

CALCULATED BY T.E.L.
DRAWN BY
CHECKED BY B. Lee P. Potter

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

TABLE 32

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. 270000# 10000# B. FULL FUEL & OIL 1.5 A. HIGH SPEED @ 5000 FT.

STATION	DIST. FROM C OF SYM	23 $V_z \cos\phi \times 10^6$	24 $T_{EA} \sin\phi \times 10^6$	25 $V_z \sin\phi \times 10^6$	26 $S'_c = S_c \cos\phi$	27 $V_x \sin\phi \times 10^6$	28 $V_{EA} \cos\phi \times 10^6$	29 $V_{EA} \times 10^6$	30 $\frac{I_{max}}{Q_z} \times 10^6$	31 $\frac{J_{TORS}}{Q_z} \times \phi$	32 $S''_c = (6) - (31)$
		(23)x(14)	(24) x (22)	(23) - (24)	(25) + (10)	(17) x (14)	(28) + (22)	(27) + (28)	TABLE 30	(29) x (30)	OR S'_c (6)
13	611	85.093	-2.382	87.475	-13.530	15.000	-13.511	1.489	545.1	47,683	64,973
			-2.370	87.463	-15.070		-13.444	1.556		47,676	89,212
14	648.5	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	85,056
15	685	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		-11.052	2.258		44,824	93,937
16	721.5	70.919	-1.731	72.650	-13,570	12.502	-9.838	2.664	596.0	43,301	82,369
			-2.112	73.031	-15,030		-11.979	0.523		43,526	106,014
17	758	66.829	-1.945	68.774	-13,930	11.780	-11.032	0.748	610.3	41,973	93,897
			-1.944	68.773	-13,990		-11.028	0.752		41,972	95,034
18	814.5	62.948	-1.795	65.043	-12,900	11.148	-10.104	0.365	625.2	40,640	83,314
			-2.166	65.304	-14,490		-12.176	-1.027		40,864	107,854
19	871.5	59.331	-1.908	59.831	-13,020	10.223	-10.813	-.590	647.7	38,795	91,245
			-1.906	59.237	-14,920		-10.813	-.590		38,795	93,257
20	928.5	51.440	-1.672	54.154	-12,880	9.251	-9.483	-.232	671.9	36,366	96,168
			-1.665	54.147	-14,000		-9.447	-.196		36,281	113,818
21	985.5	47.186	-1.434	48.620	-12,640	8.318	-8.127	+.191	697.9	33,923	99,662
			-1.439	48.625	-13,880		-8.165	+.153		33,937	114,318
22	1042.5	41.318	-1.213	43.026	-12,210	7.371	-6.891	+.480	746.1	31,243	102,911
			-1.217	43.032	-12,690		-6.904	+.467		31,244	106,143
23	1166	37.346	-1.031	38.377	-11,540	6.583	-5.950	+.733	751.8	28,886	96,803
			-1.313	38.659	-12,490		-7.449	-.866		29,099	111,273
24	1226	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		-7.705	-2.047		26,295	113,171
25	1340	27.603	-1.174	28.777	-11,070	4.866	-6.662	-1.796	817.6	23,529	102,938
			-1.174	28.777	-11,140		-6.661	-1.795		23,529	103,990

CALCULATED BY T. Ellis
DRAWN BY
CHECKED BY Price Pruffer

CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH, TEXAS

TABLE 32

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

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

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DATE 12-4-45

SHEET 5 of 8

CONDITION: D.G.W. 278,000 10,000 Gal Full Fuel & Oil LAA - High Speed @ 5000 Ft.

1 Station	2 Dist. from C of S Unit	3 $S_{b_{ult}}$	4 S_{b_i}	5 $L_{x_i}\delta_{b_i}$	6 $S_{b_i} = S_{b_i}'$	7 $S_{a_{ult}}$	8 $L_{x_i}S_{a_i}$	9 $L_{x_i}S_{a_i}$	10 S_{c_i}	11 $M_{x_{b_i}}$	12 M_{x_i}	13 $L_{x_i}M_{x_i}$	14 M_{x_i}	15 $M_{c_{ult}}$	16 $L_{x_i}M_{c_{ult}}$	17 $L_{x_i}M_{x_i}$	18 $(M_y = M_z)$	19 $T_{BA_{ult}}$	20 T_{BA_i}	21 $L_{x_i}T_{BA_i}$	22 T_{BA_i}
		Fig. 3	Table 26	4 sheet ④	⑤ + ⑥	Table 27	999 × ⑦	999 × ⑧	⑨ + ⑩	Fig. 3	Table 26	2 sheet ⑫	⑪ + ⑬	Table 28	999 × ⑮	999 × ⑯	⑰ + ⑱	Fig. 3	Table 26	2 sheet ⑳	⑲ + ㉑
16	570	12,540	2322	− 9,288	116,418	32,920	− 10,990	599	−10,391	+ 26.00	.4254	− 1.6925	24.5075	6.82	− 2.712	.1892	− 2.9028	− 4.116	− .1235	+ .5937	.5881
			2022	− 8,083	117,617			522	−10,169										− .1261	+ .5001	.5914
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	− 1.9605	− 5.416	− .1101	+ .4401	.4759
			1823	− 7,287	105,513			470	− 9,415										− .1090	+ .4357	.4803
38	1200	100,300	1823	− 6,557	93,918	26,070	− 8,636	470	− 8,368	+ 17.91	.2850	− 1.1393	16.8307	4.705	− 1.595	.0735	− 1.521	− 4.616	− .0955	+ .3818	.4129
			1649	− 6,554	93,744			423	− 8,415										− .0945	+ .2792	.4132
49	1600	88,850	1640	− 4,554	81,804	23,080	− 7,624	423	− 7,201	+ 14.63	.2259	− .9030	13.7170	3.813	− 1.293	.0582	− 1.2347	− 3.710	− .0824	+ .3296	.3561
			1322	− 5,285	83,066			341	− 7,483										− .0729	+ .2915	.3150
60	1914	77,260	1322	− 5,282	71,991	20,190	− 6,671	341	− 6,503	+ 11.63	.1783	− .7128	10.9172	3.055	− 1.035	.0460	− .9890	− 2.999	− .0631	+ .2524	.2726
			1168	− 4,669	72,611			301	− 6,543										− .0623	+ .2492	.2741
71	2250	66,500	1168	− 4,669	62,831	17,420	− 5,757	301	− 5,621	+ 9.029	.1362	− .5445	8.4784	2.397	− .8126	.0351	− .7775	− 2.369	− .0479	+ .1916	.2070
			1041	− 4,161	62,339			269	− 5,482										− .0467	+ .1868	.2017
82	2600	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	− .0384	+ .1536	.1652
			786	− 3,142	54,858			203	− 4,974										− .0291	+ .1163	.1254
93	3119	48,900	786	− 3,142	46,758	13,180	− 4,468	203	− 4,265	+ 5.485	.0795	− .3256	5.1594	1.480	− .5018	.0210	− .4808	− 1.520	− .0299	+ .1196	.1287
			786	− 3,142	47,000			184	− 4,449										− .0299	+ .1196	.1287
104	3540	41,000	803	− 2,806	38,194	11,170	− 3,787	181	− 3,606	+ 4.110	.0589	− .2414	3.8686	1.117	− .3787	.0156	− .3631	− 1.178	− .0230	+ .0922	.0992
			617	− 2,806	38,194			162	− 3,425										− .0174	+ .0696	.0748
115	4170	34,580	803	− 2,806	31,774	9,200	− 3,120	142	− 2,947	+ 2.998	.0432	− .1663	2.8317	.803	− .2722	.0101	− .2615	− .8845	− .0169	+ .0676	.0727
			617	− 2,806	31,774			107	− 2,842										− .0128	+ .0512	.0551
126	4738	28,100	814	− 1,665	26,445	7,640	− 2,591	107	− 2,419	+ 2.088	.03060	− .1199	1.9651	.586	− .1919	.00727	− .1846	− .6258	− .01194	+ .04776	.05134
			859	− 1,665	26,445			93	− 2,448										− .01034	+ .04136	.04448
137	5325	22,000	859	− 1,435	20,915	6,030	− 2,054	93	− 1,961	+ 1.400	.02031	− .08112	+ .31881	.378	− .1281	.00485	− .1232	− .4177	− .00797	+ .03188	.03427
			314	− 1,255	21,095			81	− 1,943										− .00696	+ .02784	.02992
148	5912	17,000	314	− 1,255	15,745	5,620	− 1,646	81	− 1,565	+ 0.870	.01285	− .04737	.83548	.236	− .0800	.00231	− .0742	− .3120	− .00577	+ .02308	.02481
			968	− 4071	16,913			69	− 4,137										− .01019	+ .04076	.04382

TABLE 32

FZS-36-140

B-36

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 @ 5000 ft.

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1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_L \cos \times 10^6$	$T_{EA} \sin \times 10^6$	$M'_x \times 10^6$	$S'_L \cos$	$M_x \sin \times 10^6$	$T_{EA} \cos \times 10^6$	$T'_{EA} \times 10^6$	$\frac{I_x}{Q_x} \tan \lambda$	$\frac{I_x}{Q_x} \tan \lambda \times M_x$	S''_L
		9648 × (12)	1736 × (22)	(23) − (24)	9648 × (10)	1736 × (14)	9648 × (22)	(27) + (28)	TABLE 30	(29) × (30)	on ℄ (6) − (31)
26	870	23.939	-1.021	24.959	-10,230	4.220	-5.702	-1.572	847.3	21,148	95,270
			-1.027	24.965	-10,310		-5.825	-1.605		21,153	96,464
27	906	20.610	-.8638	20.874	-9,021	3.527	-4.900	-1.373	886.0	18,494	86,223
			-.8646	20.875	-9,032		-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	-8,247		-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	69,516
30	1014	10.751	-.4748	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	45,962
			-.3071	6.935	-4,898		-1.742	-0.574		7,872	46,980
33	1110	5.081	-.2410	5.322	-4,200	.8957	-1.367	-0.4713	1194	6,354	40,494
			-.2419	5.322	-4,222		-1.369	-0.4733		6,355	40,739
34	1140	3.810	-.1839	3.994	-3,551	.6716	-1.043	-0.3714	1259	5,030	34,166
			-.1842	3.994	-3,570		-1.045	-0.3734		5,030	34,465
35	1170	2.771	-.1370	2.908	-2,922	.4885	-.7770	-0.2885	1330	3,868	28,176
			-.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	2.035	-2,426		-.5815	-0.2404		2,863	23,802
37	1225	1.299	-.0719	1.371	-1,921	.2290	-.4082	-0.1792	1486	2,037	18,878
			-.0721	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. Fiddo
DRAWN BY	
CHECKED BY	

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 7 OF 8 CONDITION 1 @ W = 278,000# 10,000# Fuel & Oil 1.4 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	$S_{B_{ult}}$	S_{B_1}	S_{B_2}	$S_B = S_B' + S_{B_2}$	$S_{C_{ult}}$	S_{C_2}	S_{C_1}	$S_C = S_C' + S_{C_1}$	M_{X_B}	M_{X_C}	M_X	M_{Q_B}	M_{Q_C}	M_Q	$M_Y = M_Q$	T_{B_1}	T_{B_2}	T_B	T_{C_1}	T_C
		Fig 3	Table 34 ⑥	②	① + ②	Fig 3	③	④	③ + ④	Fig 3	Table 34 ⑤	⑤ + ⑥	Fig 3	⑦	⑦ + ⑧	⑨ + ⑩	Fig 3	⑫	⑪ + ⑫	Fig 3	⑭ + ⑮
39	1278	12,500	248	3,071	11,428	3,440	-1164	5 40	-1077												
			98	392	12,184																
40	1201	8,470	150	392	8,558	2,520	-954	25	-849	+0.228	.002608	-.01012	.21387	.073	-.0147	.06847	-.02402	-.1206	-.001210	+.00348	-.11432
			45	240	8,490			17	-697										-.001192	+.00479	-.11541
41	1124	5,350	68	240	8,495	1,680	-570	17	-553	+0.075	.001109	-.00443	.03057	.037	-.01354	.00022	-.01225	-.0510	-.000801	+.00359	-.04754
			30	200	8,550			13	-557										-.000771	+.00380	-.04756
41F	1124	3,100	50	200	8,600	840	-319	13	-306	+0.000	0	0	0	0	0	0	-.00398	-.0160	-.000398	+.00217	-.01783
137	(200.84)	0	0	0	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

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REPORT AZS-6
DATE 12-7-6

SHEET 7 OF 8 CONDITION 1 @ W = 278,000# 10 Nov 46 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	$S_{A_{ac}}$	S_{A_i}	$\pm\frac{1}{2}S_{A_i}$ (1/2 of 4)	$S_B = S_B'$	$S_{C_{L_{ac}}}$	$\pm\frac{1}{2}S_{C_{L_{ac}}}$	$\pm\frac{1}{2}S_{C_{L_i}}$	S_C	$M_{X_{ac}} \times 10^6$	$M_{X_i} \times 10^6$	$\pm\frac{1}{2}M_{X_i} \times 10^6$	$M_X \times 10^6$	$M_{Y_{ac}} \times 10^6$	$M_{Y_i} \times 10^6$	$\pm\frac{1}{2}M_{Y_i} \times 10^6$	$M_Y \times 10^6$	$(M_Y - M_X) \times 10^6$	$T_{BA_{ac}} \times 10^6$	$T_{BA_i} \times 10^6$	$\pm\frac{1}{2}T_{BA_i} \times 10^6$
		Fig 5	Table 5 (3) + (4)			Table 6 (3) + (4)			Fig 12	Table 28 (3) + (4)			Table 29 (3) + (4)				Fig 3	Table 4 (3) + (4)			
39	1428	12,800	248 −8,074		11,428	3,448	−1,114	2,334	−1,000	0.00487	−0.00253	.00117	.00351	.00253	−.00114	.00069	.00208	−.00143	−.00346	−.00173
			98 32		12,098														−.00519	−.00259
40	1201	8,552	248 −392		8,552	2,520	−814	1,706	−825	0.00240	−0.00130	.00055	.00185	.00130	−.00059	.00035	.00106	−.00079	−.00173	−.00086
			45 −240		8,192														−.00259	−.00130
41	1024	5,750	248 −240		8,190	1,660	−270	1,390	−563	0.00109	−0.00045	.00027	.00072	.00045	−.00013	.00016	.00029	−.00016	−.00043	−.00021
			200		5,950														−.00064	−.00032
41 F.S.	1340	0	50 200		2,800	940	−319	621	−500	0	0	0	0	0	−0.00390	0.00390	0.00780	−0.00390	−0.00780	−0.00390
	1340		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

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REPORT ZPA-B-168
DATE 12-4-45

SHEET 2 of 8 CONDITION: D.G.W. 278,200#, 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	$M_z \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = -S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T''_{EA} \times 10^6$	$\frac{T_{TAN}}{I_z/Q_z} \cdot H$	$T_{TAN} \frac{I_z}{Q_z} M'_x$	S''_h
		(3) × (4)	(22) - (23)	(5) - (24)	(3) × (10)	(3) × (4)	(22) + (23)	(27) + (28)	TABLE 30	(29) × (30)	(6) - (31)
28	1278	.4585	-.02870	.4872	-.1080	.08082	-.1628	-.08198	1674	816	10,613
			-.08345	.4920	-.1124		-.1897	-.10888		824	11,284
40	1901	.2162	-.01988	.2361	-.816	.08812	-.1128	-.07468	1772	418	8,140
			-.02040	.2366	-.824		-.1135	-.07539		410	8,271
41	1984	.06950	-.00928	.07878	-.545	.01225	-.05163	-.04038	1881	149	5,342
			-.00936	.07887	-.549		-.05310	-.04085		148	5,402
VIP.C.℄	13464	0	-.01340	.01340	-.301	0	-.01362	-.01362	—	—	2,300
TIP	13580	0	0	0	0	0	0	0			0

CALCULATED BY J. Ellis
CHECKED BY
DRAWN BY R. Griffin

TABLE 32

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

DOC NO. FZS-36-80
MODEL B-36

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

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

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_{ba}	S_{b_1}	$1.5(\frac{W_{ba}}{W})S_{b_1}$ ($\frac{W_{ba}}{W}$=.9447)	$S_b = S'_b$	$S_{c_{ba}}$	$1.5\frac{W_{ba}}{W}S_{c_{ba}}$ ($\frac{W_{ba}}{W}$=.9447)	$1.5\frac{W_{ba}}{W}S_{b_1}$ ($\frac{W_{ba}}{W}$=.9447)	S_c	$M_{x_a} \times 10^6$	$M_{x_1} \times 10^6$	$1.5(\frac{W_{ba}}{W})M_{x_1}$ ($\frac{W_{ba}}{W}$=.9447)	$M_x \times 10^6$	$Mc_{a_1} \times 10^6$	$1.5\frac{W_{ba}}{W}Mc_{a_1}$ $\times 10^6$ ($\frac{W_{ba}}{W}$=.9447)	$1.5\frac{W_{ba}}{W}M_{x_1}$ $\times 10^6$ ($\frac{W_{ba}}{W}$=.9447)	$(M_y = M_{y_1})$ $\times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_1} \times 10^6$	$1.5(\frac{W_{ba}}{W})T_{EA}$ $\times 10^6$ ($\frac{W_{ba}}{W}$=.9447)	$T_{EA} \times 10^6$
		Fig. 4	TABLE 26	-4.00 × ④	③ + ⑤	TAB 29 - 285	⑦ × .9447	④ + ⑧	⑥ + ⑨	Fig. 4	TABLE 26	-1.00 × ⑫	⑪ + ⑬	TAB 29 - 285	⑮ × .9447	⑫ + ⑮	⑯ + ⑰	Fig. 4	TABLE 26	-4.00 × ⑲	⑱ + ⑳
0	0	552800	106524	-426100	126700	133500	-38098	20932	-17116	302.5	45.392	-181.570	120.530	74.72	-21.32	8.920	-12.400	-73.89	-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	-169.170	111.630	69.53	-19.82	8.065	-11.755	-68.60	-12.436	+49.75	-18.85
			105009	-420000	108600			20634	-15783		41.042	-169.170	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	119.800	69.62	-18.42	7.260	-11.160	-63.72	-11.597	+46.39	-17.35
			104174	-416700	88900			20470	-14405		36.949	-147.800	118.800			7.260	-11.160		-11.569	+46.28	-17.28
3	113.25	486200	104174	-416700	69500	117810	-33576	20470	-13106	246.5	33.486	-133.940	112.760	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	19621	-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	-12672		26.531	-106.120	109.280			5.213	-9.877		-9.509	+35.64	-16.76
6	206.0	433600	88225	-352900	80100	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
			29315	-347300	116300			15585	-14414		24.126	-96.500	107.500			4.741	-9.598		-8.464	+33.86	-17.02
7	232.0	419000	79315	-317200	101700	101820	-29019	15585	-13434	192.6	22.064	-88.260	104.340	47.56	-13.54	4.336	-9.204	-46.96	-7.640	+30.58	-16.65
			69873	-235900	163500			12551	-16468		21.593	-86.370	106.230			9.298	-9.97		-6.404	+25.62	-26.71
8	269.0	409800	63873	-255500	154300	89530	-28383	12551	-15832	185.5	20.506	-82.020	103.480	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	304.5	390000	59811	-239300	150700	94940	-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
			68979	-273900	116500			13436	-13622		18.280	-73.120	96.180			3.592	-8.478		-6.269	+25.08	-16.84
10	312.0	378400	68379	-273500	101900	91390	-26046	13936	-12610	160.8	16.399	-65.600	95.240	38.78	-11.34	3.222	-8.118	-39.48	-5.883	+23.53	-15.96
			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	92.280	33.30	-10.63	2.855	-7.775	-36.96	-5.498	+22.00	-14.96
			60750	-243000	117800			11937	-13129										-5.553	+19.91	-17.53
12	375.75	342000	60750	-243000	99000	83500	-23798	11937	-11861	137.8	12.327	-49.310	88.290	34.06	-9.71	2.422	-7.288	-34.00	-4.401	+17.60	-16.40
			34285	-217100	134900			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

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DATE 12-4-45

SHEET 2 of 8. CONDITION: D.G.W. 268,219# 10,000# B. FULL FUEL 60 M.P.H. L.A.A. HIGH SPEED @ 20,000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha$ x10⁶	$T_{EA} \sin\alpha$ x10⁶	M'_x x10⁶	$S'_c = S_x \cos\alpha$	$M_x \sin\alpha$ x10⁶	$T_{EA} \cos\alpha$ x10⁶	T'_{EA} x10⁶	$\frac{I_{front\ \&\ rear}}{I_x / Q_x}$	$\frac{I_{front}}{I_x / Q_x} M'_x$	S''_c (6) − (31)
		(22)×(4)	(23)×(24)	(22) − (24)	(25)×(10)	(23)×(4)	(24)×(22)	(27) + (28)	TABLE 30	(29) × (30)	(26) − (31)
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	76078
1	91.025	114.862	-3.272	118.11	-15345	20.421	-18.563	+ 1.858	433.0	50385	54115
		114.862	-3.272	118.11	-15543	20.421	-18.563	+ 1.858		50385	58215
2	180.0	113.055	-3.028	116.08	-14045	19.929	-17.067	+ 2.862	439.1	50267	42800
		113.055	-3.028	116.08	-14186	19.929	-17.175	+ 2.754		50267	44450
3	269.75	110.849	-2.849	113.70	-12907	19.540	-16.161	+ 3.379	442.2	50277	34750
		110.849	-2.852	113.70	-13022	19.540	-16.180	+ 3.360		50279	36950
4	366.5	108.908	-2.693	111.64	-11778	19.205	-15.274	+ 3.931	451.7	50428	26550
		108.948	-2.679	111.63	-12925	19.205	-15.195	+ 4.010		50422	33300
5	480.0	107.000	-2.513	109.53	-11195	18.863	-14.289	+ 4.574	459.6	50246	18046
		107.619	-2.910	110.53	-13464	18.871	-16.405	+ 2.466	461.7	51031	47550
6	586.0	105.977	-2.765	108.74	-12471	18.584	-15.680	+ 2.896	469.7	51086	40350
		105.826	-3.024	108.85	-14186	18.462	-17.155	+ 1.507		51196	56154
7	691.0	103.364	-2.847	106.21	-13236	18.113	-16.157	+ 1.961	478.1	50788	51212
		104.467	-3.705	108.17	-16213	18.442	-21.016	- 2.574		51726	111712
8	798.0	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		51046	119481
9	898.5	96.274	-3.300	99.57	-15072	16.971	-18.771	- 1.750	495.9	49379	101321
		96.688	-3.013	99.61	-13415	17.044	-16.584	+ .460		49391	67163
10	998.0	93.753	-2.769	96.52	-12418	16.527	-15.708	+ .819	505.8	48821	53679
			-2.767	96.52	-12487		-15.688	+ .829		48820	54650
11	1099.5	90.877	-2.597	93.47	-11522	16.020	-14.793	+ 1.227	516.0	48230	44350
			-3.047	93.92	-12929		-17.283	- 1.263		48465	69735
12	1375.75	87.14	-2.847	89.99	-11681	+15.36	-16451	- .791	530.2	48706	50254
			-2.842	89.98	-12931		-16.121	- .761		48703	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	Propp		
APPROVED BY			

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

SHEET 3 of 4 CONDITION: OGW 288,213 LB

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

SHEET 4 of 8. CONDITION: DGW-268,213# 10,000# B. FUEL MISC. & OIL, 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	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c \cdot S_\alpha \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J}{I_2} \tan\phi \frac{I_2}{Q_x}$	$\frac{J}{I_2} \tan\phi \frac{I_2}{Q_x} M_x$	S'_h
		(2)(4)=(12)	(23)×(22)	(22)−(24)	(2)(5)=(10)	(23)×(14)	(2)(3)=(13)	(27)+(28)	TABLE 30	(29)×(30)	(6)−(31)
13	412.0	83.176	-2.646	85.79	-11682	14662	-14811	-.179	545.1	46765	59335
			-2.604	85.78	-12855		-19772	-.110		46759	83541
14	448.5	78.680	-2.375	81.07	-11662	13670	-13470	+.400	561.1	45488	66612
			-2.364	81.05	-12781		-13413	+.457		45477	89783
15	485.0	74.057	-2.154	76.21	-11588	13055	-12721	+.834	578.0	44050	79150
			-2.170	76.23	-12593		-12310	+.745		44059	93941
16	521.5	69.369	-1.934	71.30	-11941	12,228	-10,971	+1257	596.0	42497	78403
			-2.311	71.68	-12594		-13108	-.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	62.936	-1.972	64.91	-10872	11.006	-11,187	-.181	625.2	40268	79632
			-2.323	65.26	-12080		-13,177	-2.171		40987	104913
19	615.375	57.463	-2.087	59.55	-10943	10,190	-11,837	-1.707	647.7	38571	89129
			-2.087	59.55	-11878		-11,837	-1.707		38571	108929
20	654.25	52.097	-1.823	53.92	-10713	9,175	-10340	-1.165	671.9	36195	99005
			-1.816	53.86	-11566		-16,301	-4.126		36191	111709
21	693.125	46.837	-1.536	48.41	-10458	8.256	-8.942	-.686	697.0	33787	97713
			-1.560	48.40	-11167		-8962	-.706		33776	112314
22	732.0	41.568	-1.338	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	-6.408	+.0900	752.7	28779	95221
			-1.420	38.52	-10204		-8.056	-1.516		28992	109908
24	806.0	31.586	-1.191	32.78	-9162	5,639	-6.758	-1.117	786.3	26087	96813
			-1.455	33.04	-9867		-8.253	-2614		26295	111405
25	840.0	27.305	-1.262	28.77	-9017	4849	-7.159	-2310	817.6	23520	101380
			-1.262	28.77	-9068		-7.159	-2310		23520	102380

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

NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 3 of 6 CONDITION: [illegible]

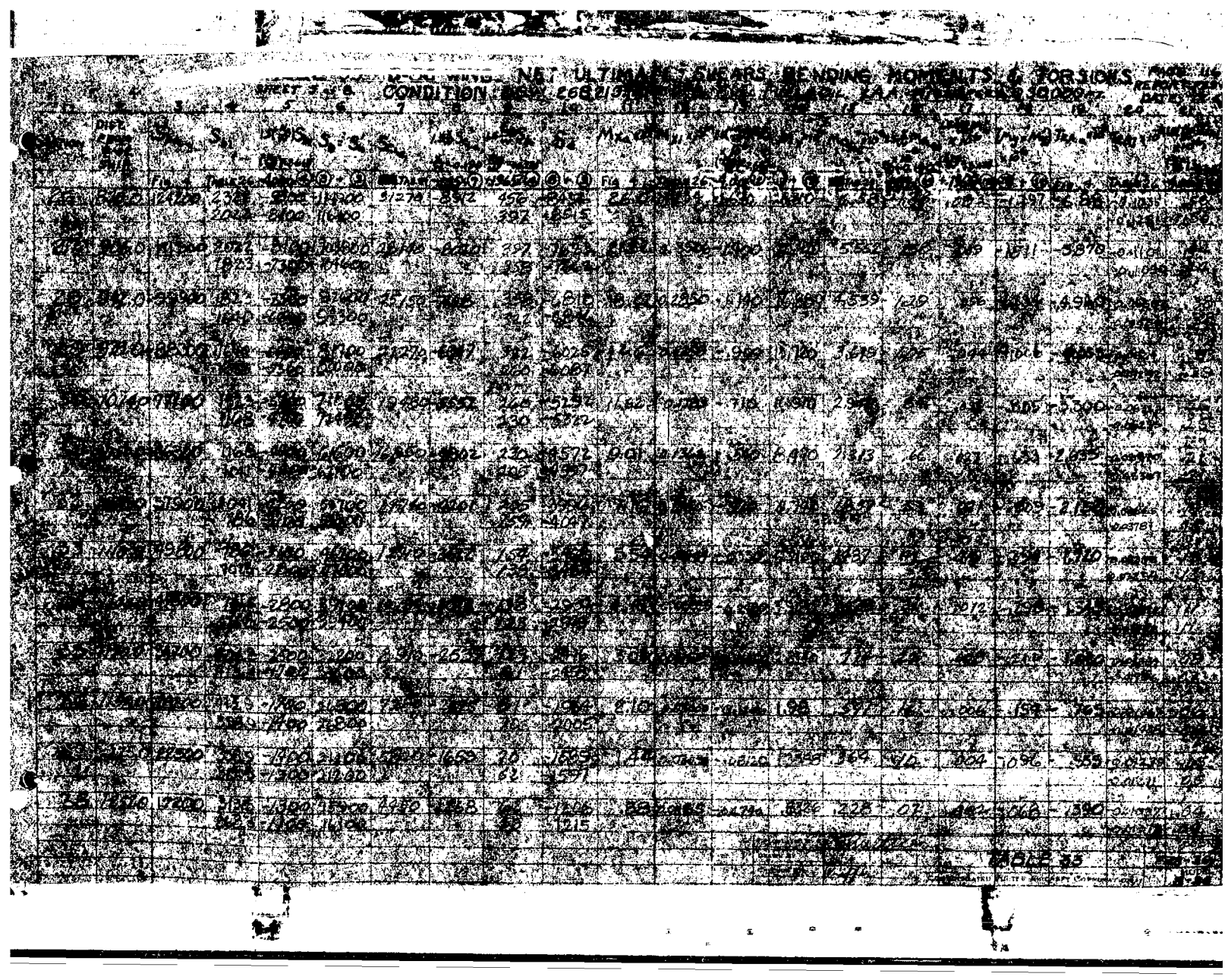

TABLE 33. B-36 WING. NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

SHEET 6 of 8. CONDITION: DGW-266213# 10000# B. FULL FUEL & OIL. LAA-HIGH SPEED @ 30,000 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	$M_z \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_z \times 10^6$	$S'_c \cdot S_c \cos\alpha$	$M_z \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J_{TAN}}{J_z} M_z$	$\frac{J_{TAN}}{J_z} M'_z$	S'_b (6) - (31)
		(22)×(4)	(23)×(12)	(22) - (24)	(22)×(10)	(23)×(14)	(22)×(12)	(25) + (28)	TABLE 30	(25) × (30)	OR. S. (6)
26	870.0	23.940	-1.102	25.04	-8327	4.220	-6.253	-2.033	8473	21216	93684
			-1.108	25.05	-8386		-6.283	-2.063		21225	94895
27	906.0	20.110	-.943	21.05	-7507	3.545	-5.347	-1.802	8860	18653	85147
			-.943	21.05	-7546		-5.347	-1.802		18653	85949
28	942.0	16.623	-.788	17.41	-6706	2.930	-4.456	-1.541	928.2	16155	76494
			-.788	17.41	-6742		-4.456	-1.541		16159	77141
29	978.0	13.511	-.647	14.16	-5933	2.382	-3.668	-1.286	9768	13801	67899
			-.654	14.17	-5994		-3.708	-1.326		13808	69192
30	1014.0	10.744	-.529	11.27	-5212	1.894	-3,004	-1.110	1026	11566	60234
			-.529	11.27	-5241		-3.004	-1.110		11562	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	1086.0	6.638	-.340	+6.978	-3935	1.170	-1.930	-.760	1136	7927	45773
			-.347	+6.985	-3985		-1.770	-.800		7935	46865
33	1110.0	5.191	-.276	+5.907	-3415	.904	-1.566	-.662	1139	6456	40244
			-.276	+5.907	-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	-1964	.3437	-.6943	-.3506	1405	2911	23589
			-.122	+2.078	-1975		-.6943	-.3506		2911	23889
37	1225.0	1.388	-.0876	+1.4756	-1565	.2359	-.497	-.2611	1486	2118	18982
			-.0876	+1.4756	-1573		-.497	-.2611		2118	19082
38	1252.0	0.8199	-.0608	0.8807	-1138	.1445	-.345	-.2005	1576	1388	14572
			-.0608	0.8807	-1197		-.345	-.2005		1388	14712

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

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DATE 12-6-57

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

SHEET 7 of 8 CONDITION: DGW 268 21# 10000 [illegible] Fuel 40% [illegible] Speed @ 30000 ft.

Station	S_w	S_b	S_n	S_s	S_c	$M_{x_{wb}}$	$M_{x_{nb}}$	$M_{x_{sb}}$	$M_{y_{wb}}$	$M_{y_{nb}}$	$M_{y_{sb}}$	T_w	T_n	T_s
35	12800	12600	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
40	9000	9000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
41	[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 33 B-36 WING ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET A-14 CONDITION: 2.5 n_z 210 - 10000 LB. FULL FUEL & OIL. LAA. HIGH SPEED @ 36000 FT.

Station	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M_x \times 10^6$	S_z	M_x Limit $\times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T_{EA} \times 10^6$	$\frac{J_{Trans}}{R_x}$	$\frac{J_{Trans}}{Q_x}$	S_x	
	(20) x (21)	(24) x (23)	(22) - (25)	(20) x (26)	(27) x (28)	(23) x (29)	(25) - (30)	(26) x (31)	(31) x (32)	(33) x (34)	(35) + (36)
32.780	473	-.0302	.5162	-.879	.0253	-.217	-.1332	.1678	.350	.1064	.1714
		-.0454	.5167	-.913		-.2944	-.1607		.364	.1136	.1743
38.10	.827	-.0269	.8239	-.680	.0399	-.153	-.1129	.0788	.250	.0850	.1638
		-.0269	.8538	-.690		-.153	-.1129		.280	.0950	.1779
44.880	.0788	-.0118	.7906	-.772	.0132	-.356	-.2428	.2261	.170	.0930	.3191
		-.0146	.8206	-.846		-.396	-.2698		.171	.3573	.3573
47.83	.0927	-.0035	.0962	-.248	.0035	-.483	-.4195	0	0	.2600	.2600
	0	0	0	0		0	0	0	0	0	

CALCULATED BY [illegible] CHECKED BY [illegible]

TABLE 33

FZS-38-40

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

SHEET 1 of 8 CONDITION G.W. 278,000 # 10,000 lb FUEL [illegible] & OIL (HAA @ 5000 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_{b}	[illegible]	$S_b \cdot S_b'$	S_{c}	[illegible]	[illegible]	[illegible]	$M_{x_a} \times 10^6$	$M_{x_b} \times 10^6$	[illegible]	$M_x \times 10^6$	$M_{c_a} \times 10^6$	[illegible]	[illegible]	$M_y \times 10^6$	[illegible]
		FIG. 5	TABLE 26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	TABLE 26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	FIG. 5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-81.61	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
			[illegible]	[illegible]	68,860			[illegible]	[illegible]		[illegible]	[illegible]	-81.61			[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: DGW 278,000# 10,000# B. FULL FUEL 40L. 1 HAA. @ 3000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. BTWN STA. OR SHAF	$M_z \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M'_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T_{EA}}{J}\frac{\beta}{\rho}$	$\frac{T_{EA}}{J_\rho}\beta M'_x$	S''_c
		(4) × (12)	(23) × (12)	(22) − (25)	(10) × (26)	(10) × (27)	(28) × (29)	(27) + (29)	max (30)	(30) × (31)	(26) + (32)
0	0	-80.27	-.21	-80.06	-2802.5	-16.15	1.178	-15.328	423.7	-3501.1	-33569
		-80.27	+.21	-80.06	-2324.1	-16.15	1.183	-15.333		-3493.7	-3531.8
1	144.25	-77.97	-.20	-77.77	-2016.8	-7.24	1.185	-6.055	423.0	-2559.7	-2680.0
		-77.97	+.20	-77.77	-2061.4	-7.24	1.187	-6.053		-2559.7	-2016.8
2	288.5	-76.06	-.19	-75.86	-1910.7	-29.41	1.093	-14.503	423.1	-2135.5	-21186
		-76.65	-.18	-75.87	-1907.1	-29.41	1.102	-14.490		-2134.0	-2220.0
3	144.25	-74.75	-.18	-74.59	-1576.8	-15.18	1.03	-14.11	422.2	-1710.2	-1642.0
		-74.75	-.16	-74.58	-1580.5	-15.18	1.04	-14.10		-1711.6	-1648.5
4	144.5	-73.78	-.13	-73.66	-1355.5	-13.01	1.06	-11.97			-1364.583
		-73.78	-.14	-73.65	-1525.5	-13.01	1.06	-11.95		-1311.0	-1476.585
5	144.5	-72.82	-.11	-72.71	-1134.6	-11.00	1.05	-9.95		-1081.7	-1144.95
		-72.82	-.13	-72.70	-1358.4	-12.03	1.05	-10.98		-1193.7	-1371.46
6	144.5	-72.08	-.13	-71.95	-1039.7	-9.28	1.04	-8.24	420.7	-3467.1	-1313.50
		-72.08	-.30	-71.78	-1209.5	-10.75	1.04	-9.71		-3211.4	-3221.25	
7	288	-70.74	-.28	-70.46	-1019.6	-9.11	1.03	-8.08	419.8	-3392.6	-3134.50
		-70.74	-.26	-70.48	-1206.4	-10.75	1.03	-9.72		-3237.7	-3685.75
8	288	-69.16	-.18	-68.98	-997.2	-8.91	1.02	-7.89	418.8	-3304.3	-3301.5
		-70.16	-.29	-70.45	-1206.2	-10.75	1.02	-9.73		-3237.7	-3567.87
9	288	-66.84	-.17	-66.67	-963.8	-8.61	1.01	-7.60	417.8	-3175.5	-3532.5
		-68.67	-.31	-67.16	-1149.2	-10.28	1.01	-9.27		-3109.4	-3478.0
10	312	-64.93	-.16	-64.63	-1134.0	-10.13	1.00	-9.13	416.8	-3804.8	-3944.8
			+.14	-68.08	-1195.2	-10.72	2.50	-8.22		-3424.2	-3700.3
11	3985	-62.97	+.42	-63.39	-1248.0	-11.10	3.30	-8.14	346.8	-2824.5	-3045.0
			+.70	-63.67	-2666.1	-11.10	3.97	-7.13		-2472.4	-4646.6
12	3765	-60.71	+.66	-61.37	-1426.8	-10.59	3.75	-6.84	336.2	-2299.5	-3726.1
			+.86	-61.57	-1894.1		3.78	-6.86		-2309.0	-5187.1

TABLE 34

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

SHEET 3 of 8 CONDITION: GW 278,000# @ 30" B.L. FULL FUEL & OIL IHAA @ 5,000 FT

STATION	DIST FROM ℄ OF SHIP	S_{Bz}	S_{By}	M_{Bx}	S_{Bx}	S_{Tz}	M_{Tz}	S_{Ty}	M_{By}	M_{Bz}	M_{Tx}	M_{Bz}	M_{By}	M_{Bx}	M_{Tx}	M_{Tz}	M_{Tx}	M_{Tz}	M_{Tx}	M_{Tz}
		Fig. 5	TABLE 26																	
12	412.5	-38,200	64,316	-137,950	-72,470	81,720														
			48,938	-122,500	-57,800															
16	448.5	-199,000	48,353	-122,400	-74,160	77,530														
			42,556	-107,250	-91,240															
20	484	-188,000	46,556	-107,250	-80,250	73,120														
			37,353	-94,630	-79,440															
24	521.5	-177,000	37,353	-94,630	-82,470	68,870														
			31,356	-81,900	-77,620															
28	557	-166,000	31,356	-81,900	-82,320	64,620														
			25,359	-69,170	-76,320															
32	593.5	-156,100	25,359	-69,170	-82,440	60,360														
			19,362	-56,440	-78,230															
36	630	-145,100	19,362	-56,440	-82,330	56,120														
			13,365	-43,710	-78,160															
40	666	-134,200	13,365	-43,710	-81,260	53,870														
			7,368	-31,980	-77,440															
44	702	-123,300	7,368	-31,980	-80,260	49,620														
			1,371	-20,250	-74,580															
48	738	-112,400	1,371	-20,250	-79,150	45,370														
			-4,626	-8,520	-71,680															
52	774	-101,500	-4,626	-8,520	-78,040	41,120														
			-10,623	+3,210	-68,780															
56	810	-90,600	-10,623	+3,210	-76,930	36,870														
			-16,620	+14,940	-65,880															
60	846	-79,700	-16,620	+14,940	-75,820	32,620														
			-22,617	+26,670	-62,980															

Boeing

TABLE 34

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

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SHEET 4 of 8. CONDITION: D.G.W. 278,000# + 10,000# BE FULL FUEL & ON I.H.A.A. @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{I_x}{Q_x} \tan\phi \times 10$ TABLE 30	$\frac{I_x}{Q_x} \tan\phi \, M_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)		(25) × (30)	(6) − (31)
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	-34.89	.55	-55.09	-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	-10312	-9.05	2.69	-6.36	578.1	-29940	-50310
			.98	-51.81	-21587		2.74	-6.31		-29946	-63524
16	521.5	-48.71	.41	-49.12	-19391	-8.51	2.32	-6.19	596.0	-29533	-57857
			.65	-48.92	-22000		3.68	-4.83		-29156	-60964
17	558	-45.74	.59	-46.33	-20287	-8.06	3.33	-4.73	610.3	-28325	-61385
			.58	-46.33	-20415		3.327	-4.735		-28275	-62065
18	576.5	-43.29	.53	-43.82	-18731	-7.63	3.007	-4.623	625.2	-27396	-55089
			.75	-44.04	-21959		4.269	-3.361		-27624	-24665
19	618.375	-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	660.25	-36.22	.58	-36.80	-18164	-6.39	3.282	-3.107	671.9	-24725	-69536
			.57	-36.79	-21154		3.261	-3.129		-24719	-76721
21	698.75	-32.61	.48	-33.09	-18569	-5.75	2.785	-2.965	697.9	-23054	-64838
			.49	-33.10	-20582		2.762	-2.988		-23060	-74891
22	737	-29.08	.39	-29.47	-18955	-5.13	2.219	-2.911	726.2	-21398	-61353
			.39	-29.47	-19267		2.219	-2.901		-21396	-70041
23	788	-26.04	.31	-26.35	-17990	-4.58	1.750	-2.840	762.7	-19369	-45716
			.95	-26.53	-19115		4.763	-1.827		-19969	-74511
24	808	-22.83	.19	-23.02	-17206	-3.95	2.138	-1.752	782.3	-17943	-46297
			.55	-22.98	-18021		3.142	-0.808		-17969	-64701
25	840	-19.45	.47	-19.92	-17086	-3.45	2.665	-2.770	813.8	-16218	-46863
			.47	-19.92	-17209		2.660	-0.510		-16211	-49983

CALCULATED BY: K. Kelley
CHECKED BY:
CHECKED BY: [signature]

TABLE 34

PZA-34-123

Vultee Aircraft Corporation

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

SHEET 3 of 8 CONDITION: DGW 278,000# 10000#B, FULL FUEL & OIL. 1H 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}	$1.5(\frac{W}{W})S_{bi}$ $(\frac{W}{W})=1.668$	$S_b = S'_b$	S_{ci_a}	$1.5\frac{X_{cp}}{X_{ac}}S_{ci_a}$ $\frac{X_{cp}}{X_{ac}}=-.351$	$1.5\frac{X_{cp}}{W}S_{bi}$ $\frac{X_{cp}}{W}=0.296$	S_c	$M_{Xa}\times10^6$	$M_{Xi}\times10^6$	$(1.5\frac{W}{W})M_{xi}$ $\times10^6$ $(\frac{W}{W})=1.668$	$M_{X}\times10^6$	$M_{Ci_a}\times10^6$	$1.5\frac{X_{cp}}{W}M_{Ci_a}$ $\times10^6$ $\frac{X_{cp}}{W}=-.351$	$1.5\frac{X_{cp}}{W}M_{Xi}$ $\times10^6$ $\frac{X_{cp}}{W}=.296$	$(M_y=M'_y)$ $\times10^6$	$T_{EA_a}\times10^6$	$T_{EA_i}\times10^6$	$1.5(\frac{W}{W})T_{EAi}$ $\times10^6$ $(\frac{W}{W})=1.668$	$T_{EA}\times10^6$
		Fig. 5	TABLE 26	2.532×④	③ + ⑤	TABLE 27	-.5265×⑦	0.444×④	⑧ + ⑨	Fig. 5	TABLE 26	2.532×⑫	⑪ + ⑬	TABLE 27	-.5460×⑮	.444×⑰	⑯ + ⑰	Fig. 5	TABLE 26	1.532×⑳	⑲ + ㉑
26	870	-85150	2322	6880	-79270	32 420	-17070	1030	-16040	-18.30	.44233	1.07	-17.23	6.82	-3.590	.183	-3.402	+2.640	-.1335	-.238	2.502
			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	-2.875	+2.185	-.1101	-.279	1.906
			1823	4620	-72630			810	-14540										-.1090	-.276	1.909
28	942	-69250	1823	4620	-64630	26070	-13750	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	0.2259	0.57	-9.91	3.813	-2.008	.100	-1.908	+1.373	-.08248	-.209	1.164
			1323	3350	-58150			590	-11560										-.07348	-.185	1.188
30	1014	-54000	1323	3350	-50650	20190	-10630	590	-10040	-8.376	0.1183	0.451	-7.924	3.068	-1.607	.079	-1.528	+1.062	-.06213	-.160	.902
			1168	2960	-51040			520	-10110										-.06235	-.168	.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										-.05407	-.134	.652
32	1080	-41180	1041	2640	-38540	15270	-8040	460	-7580	-5.210	0.1054	0.266	-4.944	1.925	-1.014	.046	-.968	+0.6885	-.04665	-.1181	.5706
			786	1990	-39190			350	-7690										-.03781	-.0957	.4623
33	1110	-35750	786	1990	-33760	13180	-6940	350	-6590	-4.048	0.08144	0.205	-3.839	1.490	-.784	.036	-.748	+0.4100	-.03216	-.0855	.3546
			702	1780	-33970			310	-6630										-.03254	-.0824	.3576
34	1140	-30450	702	1780	-28670	11170	-5880	310	-5570	-3.040	0.06838	0.153	-2.887	1.117	-.588	.026	-.560	+0.2825	-.02532	-.0715	.2110
			627	1590	-28860			280	-5600										-.02726	-.0703	.2126
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	-.01881	-.0605	.1141
			414	1050	-24120			180	-4680										-.01906	-.0432	.1315
36	1198	-20550	414	1050	-19600	7540	-3970	180	-3790	-1.646	0.0304	0.076	-1.441	0.546	-.298	.0128	-.285	+0.0956	-.01467	-.0371	.0584
			259	910	-19640			160	-3810										-.01438	-.0864	.0591
37	1226	-16450	259	910	-15540	6030	-3178	160	-3010	-1.026	0.01931	0.061	-.974	0.378	-.199	.00902	-.190	+0.0385	-.01339	-.0314	.0077
			314	800	-15650			140	-3030										-.01811	-.0307	.0095
38	1252	-12550	314	800	-11750	4620	-2438	140	-2290	-.630	0.01165	0.030	-.600	0.236	-.124	.00526	-.119	+0.0026	-.01057	-.0263	-.0288
			248	680	-11870			120	-2310										-.01012	-.0256	-.0282

Kirkberg

J. Schaffner

TABLE 34

BOEING FZS-36-190

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. IHAA @ 5,000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_z \cos\alpha$ x 10⁶	$T_{EA} \sin\alpha$ x 10⁶	M'_z x 10⁶	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha$ x 10⁶	$T_{EA} \cos\alpha$ x 10⁶	T'_{EA} x 10⁶	$\frac{J_{TAN}}{J_z} \frac{I_z}{Q_z}$	$\frac{J_{TAN}}{J_z} \frac{I_x}{Q_z} M_x$	$S'_b = (6) - (31)$
		(8) x (14)	(22) x 1736	(23) − (24)	(9) x (10)	(16) x 1736	(23) x (25)	(27) + (28)	TABLE 30	(29) x (30)	CH. E = (6)
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	-19.14	.33	-19.47	-19236	-2.49	1.877	-.613	886.0	-12820	-59310
			.33	-19.47	-19319		1.880	- .610		-12820	-59810
28	942	-11.90	.26	-12.16	-12724	-2.10	.1450	- .650	928.2	-11287	-53343
			.26	-12.16	-12802		1.853	- .647		-11287	-53813
29	978	-9.76	.20	-9.96	-11246	-1.72	1.146	- .574	976.8	-9709	-47641
			.21	-9.97	-11384		1.170	- .550		-9719	-48831
30	1014	-7.808	.157	-7.961	-9887	-1.376	.888	- .488	1026	-8168	-42482
			.157	-7.961	-9956		.890	- .486		-8168	-42874
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	-4869	.082	-4951	-7465	-.858	.4632	-.395	1136	-5624	-33916
			.086	-4955	-7573		.4853	-.373		-5629	-35561
33	1110	-3.781	.058	-3.839	-6490	-.666	.3314	-.3346	1194	-4584	-29176
			.059	-3.890	-6529		.3328	-.3335		-4585	-29385
34	1140	-2.843	.037	-2.880	-5485	-.501	.2078	-.2932	1259	-3626	-24044
			.037	-2.880	-5515		.2090	-.2920		-3626	-25234
35	1170	-2.058	.020	-2.078	-4510	-.363	.1172	-.1508	1330	-2764	-20816
			.023	-2.081	-4609		.1293	-.1337		-2768	-21352
36	1198	-1.447	.010	-1.457	-3732	-.255	.0575	-.1975	1403	-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	Kaiserberg
DRAWN BY	
CHECKED BY	Zupper
APPROVED BY	

TABLE 34

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

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

TABLE 31 B-35 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 2 OF 6 CONDITION: DGW 278,000#, 10,000#B, FUEL FUEL & OIL IHAA @ 50,000'

STATION	DIST. FROM $\frac{\Delta}{2}$ STATION	S_{UA}	S_{UT}	$(\Delta\Phi S_{UA})_{UT}$	$S_{UT} = S_{UA}'$	$S_{CL_{UT}}$	$\frac{1}{2}S_{CL_{UT}}$	$\frac{1}{2}S_{UT}$	S_C	$M_{UA} \times 10^{-6}$	$M_{UT} \times 10^{-6}$	$\frac{1}{2}M_{UT} \times 10^{-6}$	$M_{UT} \times 10^{-6}$	$\frac{1}{2}M_{UT} \times 10^{-6}$	$(M_y = M_{UT}) T_{BR_{UT}} \times 10^{-6}$	$T_{UT} \times 10^{-6}$	$\left(\frac{M_y}{M_x}\right) T_{BR_{UT}} \times 10^{-6}$	$T_{BR_{UT}} \times 10^{-6}$
		FIG 2	TABLE 26	② + ③	① − ④		⑥ × .361	⑦ × .286	⑤ + ⑧	FIG 2	TABLE 26	⑪ × .286	⑩ + ⑫	⑬ × .361	⑭ × ⑮	FIG 2	TABLE 26	⑰ × ⑱	FIG 2	TABLE 26	⑳ × ㉑
33	127.8	-9850	560	2560	8700	5490	-1810	130	-1680	-0.445	-0.407	-0.116	-0.523	-0.189	-0.0840	-0.0262	-0.0840	-0.0262	-0.0840	-0.0262	-0.0840
			48	2560	-1132			130	-1775												
32	120.1	-8850	28	2490	-6360	2760	-1300	-26	-1326	-0.378	-0.309	-0.082	-0.391	-0.141	-0.0574	-0.0200	-0.0574	-0.0200	-0.0574	-0.0200	-0.0574
			65	2490	-4442			-26	-1326												
31	112.4	-8850	40	2450	-6400	2760	-1300	-37	-1337	-0.315	-0.259	-0.068	-0.327	-0.118	-0.0480	-0.0167	-0.0480	-0.0167	-0.0480	-0.0167	-0.0480
			50	2450	-4450			-37	-1337												
30	104.7	-8850	40	2410	-6440	2760	-1300	-37	-1337	-0.252	-0.211	-0.055	-0.266	-0.096	-0.0390	-0.0136	-0.0390	-0.0136	-0.0390	-0.0136	-0.0390
			50	2410	-4490			-37	-1337												
29	97.0	-8850	40	2370	-6480	2760	-1300	-37	-1337	-0.189	-0.163	-0.042	-0.205	-0.074	-0.0300	-0.0105	-0.0300	-0.0105	-0.0300	-0.0105	-0.0300
			50	2370	-4520			-37	-1337												
28	89.3	-8850	40	2330	-6520	2760	-1300	-37	-1337	-0.126	-0.115	-0.030	-0.145	-0.052	-0.0210	-0.0073	-0.0210	-0.0073	-0.0210	-0.0073	-0.0210
			50	2330	-4550			-37	-1337												
27	81.6	-8850	40	2290	-6560	2760	-1300	-37	-1337	-0.063	-0.067	-0.017	-0.080	-0.029	-0.0120	-0.0042	-0.0120	-0.0042	-0.0120	-0.0042	-0.0120
			50	2290	-4580			-37	-1337												
26	73.9	-8850	40	2250	-6600	2760	-1300	-37	-1337	0	-0.023	-0.006	-0.023	-0.008	-0.0040	-0.0014	-0.0040	-0.0014	-0.0040	-0.0014	-0.0040
			50	2250	-4610			-37	-1337												
FWD C.G.	346.8	-8850	40	150	-8700	2760	-1300	-37	-1337	0	-0.006	-0.002	-0.006	-0.002	-0.0010	-0.0004	-0.0010	-0.0004	-0.0010	-0.0004	-0.0010
TIP	1138.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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

SHEET 3 of 8 — CONDITION: G.G.W. 278,000# 10,000#B. FULL FUEL & OIL. IHAA @ 5000 FT.

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1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J_{TAN}\phi \times 10^6}{I_x / Q_x}$	$\frac{J_{TAN}\phi}{I_x / Q_x} M_x$	S''_b ⑥ − ㉛
		.9848 × (13)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	OR. ℄ − ⑥
39	1278	−.348	−.008	−.340	−.1664	−.061	−.478	−.1088	1674	−569	−8131
			−.005	−.343	−.1743		−.0306	−.0916		−574	−8596
40	1301	−.189	−.007	−.182	−.1270	−.0333	−.0379	−.0712	1772	−323	−6227
			−.007	−.182	−.1280		−.0377	−.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)	13469	−.015	−.005	−.010	−.463	−.0026	−.0270	−.0296	0	0	−2450
T.P.	13089				0				0	0	0

CALCULATED BY	Rosenberger
DRAWN BY	
CHECKED BY	Pfeffer

TABLE 34

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

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

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

SHEET 1 of 10. CONDITION: D.G.W. – L.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
STATION	DIST. FROM ℄ OF SHIP	S_{b_a}	S_{b_1}	$\frac{I_{SC}}{I_{SC_a}} S_{b_a}$ (=1.478)	$S_b = S'_b$	$S_{C_{a_a}}$	$\frac{I_{SC}}{I_{SC_a}} S_{C_a}$ (=0.170 $\frac{\Delta I_{SC}}{I_{SC_a}}$=0.166)	$\frac{I_{SC}}{I_{SC_a}} S_{b_1}$ (=1.478)	S_c	$M_{X_a} \times 10^6$	$M_{Y_1} \times 10^6$	$\frac{I_{SC}}{I_{SC_a}} M_{Y_1}$ ($\frac{I_{SC}}{I_{SC_a}}$=1.478) $\times 10^6$	$M_X \times 10^6$	$M_{T_{a_a}} \times 10^6$	$\frac{I_{SC}}{I_{SC_a}} M_{T_a}$ ($\frac{I_{SC}}{I_{SC_a}}$=0.170 $\frac{\Delta I_{SC}}{I_{SC_a}}$=0.166) $\times 10^6$	M_Y ($M_Y = M_{Y_1}$) $\times 10^6$	
		Fig. 6	TABLE 26		④ + ⑤	TABLE 27		TABLE 26	⑦ + ⑧	Fig. 6	TABLE 26		⑩ + ⑪	TABLE 27		⑬ + ⑭	Fig. 6	
0	0	-342,852	111,417	280,437	-61,616	138,370	-35,884	13,947	-13,237	-198.2	46.445	116.952	-81.248	77.519	-19.767	3.109	-16.658	28.9
			110,923	279,193	-62,860			14,911	-18,318									
1	41.025	-328,140	110,923	279,193	-48,907	132,440	-33,772	16,371	-16,801	-184.3	41.914	105.498	-78.802	72.07	-18.378	6.413	-11.965	26.3
			109,902	276,623	-51,477			16,815	-16,957									
2	80.0	-314,800	109,902	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	-76.205	62.79	-16.011	5.203	-10.808	23.0
			108,471	273,024	-30,778			16,536	-14,542									
4	146.5	-293,500	108,471	273,024	-19,478	117,490	-29,960	16,536	-13,424	-150.8	30.228	76.012	-75.286	58.80	-14.994	4.65[illegible]	-10.[illegible]	21.[illegible]
			104,736	262,846	-29,655			15,979	-13,981									
5	180	-283,400	104,436	262,865	-18,535	112,770	-28,786	15,979	-12,777	-141.9	26.932	67.705	-74.195	54.87	-13.992	4.116	-9.876	20.[illegible]
			91,312	229,832	-51,568			13,971	-14,785		26.745	67.317	-74.883			4.092	-9.900	
6	206	-273,000	91,312	229,832	-43,168	108,100	-27,821	13,971	-13,850	-134.6	24.371	61.342	-73.206	51.88	-13.295	3.729	-9.526	19.[illegible]
			81,138	204,379	-68,021			12,460	-15,361		24.260	61.062	-73.538			3.712	-9.843	
7	232	-262,200	81,138	204,379	-57,821	103,340	-26,613	12,460	-14,153	-127.5	22.143	55.734	-71.746	49.25	-12.559	3.388	-9.171	18.0
			65,225	164,171	-100,529			9,979	-16,934		21.674	54.548	-72.952			3.316	-9.[illegible]	
8	258	-253,300	65,225	164,171	-88,129	103,330	-26,324	9,979	-16,345	-123.0	20.862	51.755	-71.245	47.47	-12.105	3.196	-8.909	17.[illegible]
			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	-67.531	42.90	-11.105	2.818	-8.287	16.0
			68,489	172,387	-75,712			10,479	-14,913		18.316	46.101	-67.793			2.800	-8.993	
10	312	-239,300	68,489	172,387	-66,913	94,730	-24,156	10,479	-13,677	-107.3	16.432	41.359	-65.941	41.29	-10.894	2.514	-8.380	15.[illegible]
			68,198	171,678	-67,822			10,434	-13,732									
11	339.5	-230,800	68,198	171,678	-59,322	91,160	-23,246	10,434	-12,812	-100.9	14.538	36.642	-64.258	38.66	-9.856	2.307	-7.631	
			60,860	153,185	-77,615			9,312	-13,934									
12	376.75	-219,800	60,860	153,185	-66,615	86,880	-22,070	9,312	-12,758	-98.95	12.353	31.093	-61.837	35.89	-9.002	1.890	-7.112	
			54,395	136,912	-82,888			8,242	-13,748									

TABLE 35

TABLE 35. B-36 WING, INT. ULTIMATE SHEARS & BENDING MOMENTS @ TOF

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

23	24	25	26	27	28	29	30	31	32
$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J \tan\phi}{I_z/Q_x} \times 10^6$	$\frac{J \tan\phi}{I_z/Q_x} M'_x$	S''_b (5) - (31)
.9848 × (4)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (4)	.9848 × (22)	(27) + (28)	TABLE 30	(23) × (30)	OR .5 × (6)
-80,013	-.9803	-79,032	-17,263	-14,105	-5,561	-19,666	+12.7	-32,617	-30,869
	-.2312	-79,032	-18,022		-5,566	-19,671		-32,617	-31,430
-77,604	-.9194	-76,685	-16,546	-13,680	-5,216	-18,896	425.0	-32,433	-24,454
	-.3203	-76,684	-16,601		-5,220	-18,900		-32,427	-25,787
-76,612	-.8604	-75,752	-15,231	-13,399	-4,881	-18,280	433.1	-32,548	-19,089
	-.8432	-75,169	-15,417		-4,812	-18,211		-32,554	-20,130
-75,051	-.7826	-74,268	-14,231	-13,230	-4,439	-17,669	* 431.7	-46,915	-17,637
	-.7805	-74,271	-14,021		-4,428	-17,658		-46,917	-16,130
-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]	-12,930	-3,772	-16,659	* 650.6	-47,756	+29,221
-72,998	-.4222	-73,027	-14,560	-12,948	-2,395	-15,343	461.7	-33,717	-25,784
-72,194	-.3878	-71,756	-12,[illegible]	-12,716	-2,200	-14,918	462.7	-33,704	-21,584
-72,410	-.2278	-72,182	-15,[illegible]	-12,[illegible]	-1,292	-14,058		-33,903	-34,112
-70,675	-.2144	-70,461	-14,[illegible]	-12,459	-1,216	-13,675	478.1	-33,687	-29,861
-71,833	+.3236	-72,167	-16,677	-12,[illegible]	+1,836	-10,829		-34,503	-66,026
-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
-66,510	+.2830	-66,793	-15,[illegible]	-11,724	+1,605	-10,119	435.9	-33,123	-62,998
-66,768	+.0447	-66,813	-14,931	-11,770	+.254	-11,516		-33,133	-42,580
-64,[illegible]	+.0472	-64,986	-13,[illegible]	-11,447	+.268	-11,179	505.5	-32,870	-34,643
	+.0468	-64,986	-12,[illegible]		+.2659	-11,181		-32,870	-34,252
-63,[illegible]	+.0522	-63,333	-12,[illegible]	-11,155	+.2964	-10,950	516.0	-32,680	-29,661
	+.3342	-63,615	-13,[illegible]		+1.896	-9,259		-3[illegible],825	-49,780
-60,[illegible]	+.3181	-61,236	-12,[illegible]	-10,[illegible]	+1.810	-8,[illegible]	542.2	-33,[illegible]	-34,148
	+.3162	-61,233	-12,[illegible]		-1.79[illegible]	-8,[illegible]		-32,426	-50,422

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

CALCULATED BY [illegible] CHECKED BY [illegible]

TABLE 35

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

FZS-316

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

SHEET 2 of 3 — CONDITION: DGW 278,000 #10,000 #B. FULL FUEL 10G. T.A.A. - HIGH SPEED @ 5000 FT.

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22 Buttock Line	23 Stat. Plane of Symm.	24 $M_z \cos\alpha$ $\times 10^6$	$T_{EA} \sin\alpha$ $\times 10^6$	25 $M_x \sin\alpha$ $\times 10^6$	$S_c \cos\alpha$	26 $M_x \cos\alpha$ $\times 10^6$	27 $T_{EA} \cos\alpha$ $\times 10^6$	28 $T_{EA} \times 10^6$	29 $\frac{\text{Trans } I_{xy}}{I_z}$	30 $\frac{\text{Trans } I_{xy}}{I_x} M_z$	31 S_c'' ⑥ − ⑪	32
		Items (4)	Items (5)	(21) − (22)	Items (10)	Items (11)	Items (12)	(27) × (28)	Trans (29)	(29) × (30)	on ⑥ − ⑪	
13	412	-58.176	.290	-58.466	-12.319	-10.252	1.443	-8.811	545.1	-31.870	-39.568	
			.292	-58.458	-13.292		1.602	-8.436		-31.865	-85.231	
14	444.5	-55.360	.290	-55.650	-9.187	-5.785	1.416	-8.348	561.1	-31.403	-45.043	
			.449	-55.809	-13.557		1.377	-8.382		+31.189	-58.588	
15	485	-52.845	.500	-53.345	-11.951	-9.215	1.133	-8.980	578.0	-30.326	-43.640	
			.508	-53.473	-13.787		1.187	-8.934		-30.529	-69.004	
16	521.5	-49.185	.191	-49.376	-11.670	-8.843	0.912	-7.757	596.0	-29.566	-43.447	
			.206	-49.582	-13.577		2.540	-6.403		-29.572	-69.340	
17	560	-45.559	.247	-45.806	-11.742	-8.287	2.003	-6.198	610.3	-28.609	-61.469	
			.264	-46.008	-11.785		2.600	-5.800		-28.636	-73.174	
18	596.5	-44.239	.211	-44.450	-10.967	-7.735	1.764	-6.034	626.0	-27.805	-85.049	
			.532	-44.771	-11.906		3.017	-4.781		-27.991	-70.009	
19	633.5	-43.627	.486	-44.092	-10.869	-7.762	2.644	-5.518	642.7	-26.616	-61.684	
			.466	-44.093	-11.582		2.644	-4.938		-26.616	-78.291	
20	671.25	-38.791	.395	-37.186	-10.502	-6.486	3.243	-4.243	671.9	-24.985	-54.872	
			.321	-37.182	-11.167		13.821	-4.245		-24.984	-76.980	
21	695.125	-33.321	.318	-33.639	-10.140	-5.874	1.862	-4.012	697.9	-23.477	-47.296	
			.321	-33.642	-10.496		2.810	-4.854		-23.479	-76.584	
22	732	-29.641	.247	-29.888	-9.667	-5.225	1.402	-3.823	724.1	-21.702	-69.561	
			.250	-29.891	-9.951		1.417	-3.808		-21.704	-73.303	
23	766	-26.496	.196	-26.692	-9.082	-4.671	1.111	-3.560	752.7	-20.091	-66.316	
			.373	-26.869	-9.442		2.118	-2.753		-20.224	-75.554	
24	806	-22.934	.288	-23.222	-8.668	-4.043	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	-3.482	2.145	-1.337	817.6	-16.460	-70.984	
			.378	-20.132	-8.475		2.145	-1.337		-16.460	-71.646	

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

TABLE 35

CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS

DOCUMENT 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. @ 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_{ba}	S_{b_1}	$\frac{L_{ba}}{L_{b_1}}S_{b_1}$ $(\frac{L_{ba}}{L_{b_1}})=1.448$	$S_b = S'_b$	$S_{c_{A_1}}$	$\frac{L_{c_{A_1}}}{L_{b_1}}S_{c_{A_1}}$ $(\frac{L_{c_{A_1}}}{L_{b_1}})=0.138$	$\frac{L_{c_{A_2}}}{L_{b_1}}S_{b_1}$ $(\frac{L_{c_{A_2}}}{L_{b_1}})=0.102$	S_c	$M_{X_{BA}} \times 10^6$	$M_{X_1} \times 10^6$	$\frac{L_{(M_{X_1})}}{L_{(M_{X_2})}}M_{X_1}$ $(\frac{L_{(M_{X_1})}}{L_{(M_{X_2})}})=1.678$	$M_{X_2} \times 10^6$	$M_{C_{A_1}} \times 10^6$	$\frac{L_{C_{A_1}}}{L_{C_{A_2}}}M_{C_{A_1}} \times 10^6$ $(\frac{L_{C_{A_1}}}{L_{C_{A_2}}})=1.448$	$\frac{L_{(M_{X_1})}}{L_{(M_{X_2})}}M_{X_1} \times 10^6$ $(\frac{L_{(M_{X_1})}}{L_{(M_{X_2})}})=1.678$	$(M_{X_2}=M_{X_3}) \times 10^6$	$T_{BA_1} \times 10^6$	$T_{BA_2} \times 10^6$	$\frac{L_{T_{BA_1}}}{L_{T_{BA_2}}}T_{BA_1} \times 10^6$ $(\frac{L_{T_{BA_1}}}{L_{T_{BA_2}}})=1.678$	$T_{BA_3} \times 10^6$
		Fig. 6	Table 26 p.517 ①	②	① + ② Table 27 p.518	③	③ × 0.138 ④	⑤ × 0.102 ⑤	① + ② + ④	Fig. 6	Table 26 p.517 ⑥	⑥ × 1.678 ⑦	⑦ + ⑧ Table 27 p.518	⑨	⑨ × 1.448 ⑩	⑩ × 1.678 ⑪	⑧ + ⑨ + ⑪	Fig. 6	Table 26 p.517 ⑫	⑫ × 1.678 ⑬	⑫ + ⑬ + ⑭
26	878	-84,950	2322	3364	-81,586	32,420	-4,247	355	-7,817	-18.70	.4234	1.066	-17.634	3.82	-1.722	.065	-15.474	2.178	-.1335	-.0896	1.834
			2021	2929	-81,861			309	-7,998										-.1251	-.318	1.855
27	986	-78,900	2022	2929	-75,971	29,160	-4,024	309	-7,137	-15.78	.3506	0.884	-14.896	5.764	-1.467	.054	-11.413	1.709	-.1101	-.0772	1.803
			1823	2640	-74,514			279	-7,157										-.1030	-.324	1.426
28	1092	-70,830	1823	2640	-68,241	26,010	-3,590	279	-6,362	-12.33	.2850	0.717	-12.613	4.787	-1.400	.046	-9.180	1.443	-.0976	-.0650	1.112
			1640	2376	-66,707			251	-6,397										-.0896	-.0486	1.144
29	1198	-62,760	1640	2376	-58,624	23,000	-3,174	251	-5,648	-10.74	.2268	0.569	-10.151	3.813	-.972	.035	-6.937	1.020	-.08240	-.0507	.813
			1323	1936	-56,430			202	-5,083										-.07292	-.0384	.836
30	1304	-54,600	1323	1936	-52,470	20,130	-2,778	202	-4,916	-8.760	.1793	.450	-8.149	3.053	-.779	.027	-5.780	.7484	-.06413	-.0380	.5915
			1168	1936	-52,860			182	-4,963										-.06448	-.0343	.5845
31	1080	-48,600	1168	2940	-45,660	17,470	-2,411	179	-4,276	-6.780	.1362	.343	-6.437	2.397	-.611	.021	-4.630	.5188	-.04910	-.0260	.3948
			1061	2620	-45,980			169	-4,254										-.04841	-.0256	.3764
32	1080	-42,840	1061	2620	-40,220	15,270	-2,108	159	-3,735	-5.168	.1030	.1261	-5.154	1.825	-.521	.018	-3.475	.3478	-.03687	-.0195	.2968
			986	1978	-40,868			150	-3,774										-.03701	-.0196	.2821
33	1110	-37,140	986	1978	-35,192	13,180	-1,819	140	-3,241	-4.008	.08144	.285	-3.983	1.490	-.380	.013	-2.660	.2204	-.02854	-.0150	.2178
			702	1767	-35,403			107	-2,852										-.02854	-.0150	.1384
34	1140	-31,950	702	1767	-30,883	11,170	-1,542	107	-2,741	-3.126	.06039	.152	-2.974	1.117	-.288	.009	-1.976	.1200	-.02026	-.0110	.0990
			427	1878	-30,074			96	-2,476										-.01774	-.0099	.0901
35	1170	-24,350	427	1878	-23,472	8,290	-1,144	96	-2,258	-2.226	.04159	.105	-2.084	.803	-.205	.006	-1.486	.0430	-.01383	-.0081	.0171
			414	1042	-23,908			63	-1,201										-.01786	-.0089	.0061
36	1198	-21,400	414	1042	-20,358	7,240	-1,000	63	-1,860	-1.548	.03000	.076	-1.472	.566	-.144	.004	-1.056	.0108	-.01467	-.0087	.0027
			359	304	-20,496			57	-1,860										-.01490	-.0088	.0027
37	1225	-17,130	359	304	-16,326	6,030	-1,538	55	-1,483	-1.038	.02403	.051	-.987	.378	-.094	.003	-.703	-.0477	-.01490	-.0112	.0103
			314	190	-16,340			48	-1,490										-.01541	-.0121	.0176
38	1252	-12,290	314	190	-12,500	4,630	-1,176	48	-1,130	-.6600	.01185	.030	-.636	.236	-.060	.002	-.458	-.0711	-.01541	-.0141	.0176
			248	675	-13,615			41	-1,137										-.01612	-.0158	.0176

MARTIN-JOHNSON, FORT WORTH, TEXAS

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

SHEET 6 OF 8 — CONDITION: D.G.W. 278000# 10,000# B, FULL FUEL FOR ILAA - HIGH SPEED @ 5000 FT.

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DATE: 12-4-45

1 STATION	2 DIST. FROM Ł OF SHIP	23 $M_x \cos\alpha \times 10^6$	24 $T_{EA} \sin\alpha \times 10^6$	25 $M'_x \times 10^6$	26 $S'_c \cdot S_c \cos\alpha$	27 $M_x \sin\alpha \times 10^6$	28 $T_{EA} \cos\alpha \times 10^6$	29 $T'_{EA} \times 10^6$	30 $\frac{T \tan\phi \times 10}{I_x / Q_x}$ TABLE 30	31 $\frac{T \tan\phi}{I_x / Q_x} M'_x$	32 S''_b
		2048 × (16)	1736 × (22)	(23) − (24)	2048 × (10)	1736 × (14)	2048 × (22)	(27) ÷ (28)		(25) × (30)	(6) − (31) or 5 − (6)
A6	870	−17366	.9184	−17.684	−7792	−3.061	1.806	−1.255	847.3	−14,984	−46,122
			.3220	−17.698	−7827		1.827	−1.234		−14,587	−46,574
27	906	−14.642	.2470	−14.889	−7019	−2.581	1.401	−1.180	886.0	−13,192	−60,618
			.2476	−14.890	−3048		1.404	−1.177		−13,193	−61,119
28	942	−12.323	.1980	−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	−.8934	1026	−8,338	−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	−.46696		−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	−.9730	−.0136	−.9584	−1460	−.1713	−.07711	−.24841	1486	−1,424	−14,802
			−.0135	−.9585	−1467		−.07642	−.24772		−1,424	−14,916
38	1252	−.6293	−.0169	−.6094	−1113	−.1104	−.09572	−.20612	1576	−960	−11,540
			−.0168	−.6095	−1120		−.09513	−.20553		−961	−11,654

CALCULATED BY	J. Ellis
DRAWN BY	
CHECKED BY	Proffer

TABLE 35

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

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

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}	$1.5(\frac{W_i}{W})S_{b_i}$ $(\frac{W_i}{W})=+1.678$	$S_b = S'_b$	$S_{c_{a_a}}$	$1.0(\frac{X_m}{W})S_{c_{a_a}}$ $\frac{X_m}{W}=-0.170$	$1.5(\frac{X_m}{W})S_{b_i}$ $\frac{X_m}{W}=+0.102$	S_c	$M_{x_a} \times 10^{-6}$	$M_{x_i} \times 10^{-6}$	$1.0(\frac{-W_i}{W})M_{x_i}$ $\times 10^{-6}$ $(\frac{-W_i}{W})=+1.678$	$M_x \times 10^{-6}$	$M_{c_{a_a}} \times 10^{-6}$	$1.5(\frac{X_m}{W})M_{c_{a_a}}$ $\times 10^{-6}$ $\frac{X_m}{W}=-0.170$	$1.5(\frac{X_m}{W})M_{x_i}$ $\times 10^{-6}$ $\frac{X_m}{W}=+0.102$ $\times 10^{-6}$	$(M_y = M'_y)_i \times 10^{-6}$	$T_{BA_a} \times 10^{-6}$	$T_{BA_i} \times 10^{-6}$	$1.5(\frac{W_i}{W})T_{BA_i}$ $\times 10^{-6}$ $(\frac{W_i}{W})=+1.678$	$T_{BA} \times 10^{-6}$
		Fig. 6	TABLE 26 +2.517% ④	⑤ + ⑤		TABLE 28 +0.885% ⑦	+0.102% ④	⑧ + ⑨	Fig. 6	TABLE 26 +0.877% ⑫	⑪ + ⑬	No. 29 +0.285% ⑭	+0.153% ⑫	⑮ + ⑰	Fig. 6	TABLE 26 +0.317% ⑲	⑳ + ㉑				
39	1278	-10,080	268	675	-9,405	3,440	- 877	41	-836	-.4170	.00487	.0133	-.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 C.C.	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	1380.84	0	0	0	0			0	0	0	0	0	0			0		0	0	0	0

Approved
Kriegsheim

TABLE 35

DWG. NO. FZS-36-140
B-36

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, I.L.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	$M_x \cos\alpha$ x10⁶	$T_{EA} \sin\alpha$ x10⁶	M'_x x10⁶	S'_c $=S_c \cos\phi$	$M_x \sin\alpha$ x10⁶	$T_{EA} \cos\alpha$ x10⁶	T'_{EA} x10⁶	$\frac{T \tan\phi}{I_x/Q_x} \times 10$	$\frac{T \tan\phi}{I_x/Q_x} M_x$	S''_b (6) - (31)
		(23)=(14)	(22) - (23)	(24) - (25)	(16)=(26)	(22) - (27)	(23)=(28)	(27) + (28)	TABLE 20	(25) × (30)	OR (6) - (31)
39	1278	-.3885	-.0179	-.3806	-803	-.0763	-.1013	-.1776	1674	-637	-8,168
			-.0149	-.3836	-849		-.0843	-.1546		-642	-9,191
40	1351	-.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 ℄	1346.1	-.8591	-.0089	-.0502	-228	-.0184	-.0507	-.0611	—	—	-3,024
TIP	1388.81	-0	0	0	0	0	0	0	—	—	0

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

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}	$1.5(\frac{N_z}{W})S_{b_1}$ $(\frac{N_z}{W})=1.516$	$S_b = S_b'$	$S_{CL_{a_1}}$	$1.5\frac{X_m}{W}S_{CL_{a_1}}$ $\frac{X_m}{W}=-0.107$	$1.5\frac{X_m}{W}S_{b_1}$ $\frac{X_m}{W}=.047$	S_c	M_{Xa} x10⁶	M_{X_1} x10⁶	$1.5(\frac{N_z}{W})M_{X_1}$ $(\frac{N_z}{W})=1.516$ x10⁶	M_X x10⁶	$M_{CL_{a_1}}$ x10⁶	$1.5\frac{X_m}{W}M_{CL_{a_1}}$ x10⁶ $\frac{X_m}{W}=-0.107$	$1.5\frac{X_m}{W}M_{X_1}$ x10⁶ $\frac{X_m}{W}=.047$	$M_y=M_y'$ x10⁶	T_{EA_a} x10⁶	T_{EA_1} x10⁶	$1.5(\frac{N_z}{W})T_{EA_1}$ x10⁶ $(\frac{N_z}{W})=1.516$	T_{EA} x10⁶
		Fig. 7	TABLE 26	2.274 ④	③ + ⑤	TAB 28 .1605 ⑦	.0705 x ④	⑥ + ⑨	Fig. 7	TABLE 26	2.274 ⑫	⑪ + ⑬	TAB 29 .1605 ⑮	.107 x ⑮	⑯ + ⑰	.047 x ⑫	⑱ + ⑲	Fig. 7	TABLE 26	2.274 ㉒	㉑ + ㉓
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	110,523	252239	-40961	132440	-21257	7820	-13437	-166.98	41.914	95.312	-71.660	72.070	-11.567	2.955	-8.612	20.214	-12.581	-28.609	8.395
			109,902	249917	-43283			7748	-13509		41.914	95.212	-71.668			2.955	-8.612		-12.583	-28.619	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	-146.30	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	58.000	-9.437	2.143	-7.294	16.548	-10.182	-23.154	-6.636
			107,936	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	107,936	237487	-14913	112770	-18100	7363	-10737	-128.30	26.895	61.168	-68.132	54.870	-8.807	1.896	-6.911	15.420	-9.988	-21.576	-6.156
			91,312	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	55.410	-67.490	51.980	-8.343	1.718	-6.625	14.598	-8.944	-19.202	-4.604
			81,838	185190	-59810			5741	-11770		24.260	55.167	-67.743			1.710	-6.633		-8.078	-18.369	-3.771
7	239.0	-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	-6.317		-6.411	-14.579	-.773
8	268.0	-233,000	65,225	148322	-84678	103230	-16568	4598	-11370	-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	-228,000	60,381	137306	-85694	98400	-15793	4257	-11536	-104.65	18.420	41.887	-62.763	43.900	-7.046	1.289	-5.747	12.276	-5.729	-13.048	-.762
			68,989	155744	-67256			4828	-10965		18.316	41.651	-62.993			1.291	-5.755		-6.274	-14.267	-1.991
10	312.0	-215,400	68,989	155744	-59656	94,730	-15204	4828	-10376	-98.43	16.492	37.366	-61.064	41.230	-6.617	1.158	-5.459	11.508	-5.887	-13.381	-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	10.890	-5.502	-12.512	-1.722
			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	8.840	-4.403	-10.012	-1.172
			54,335	123604	-74396			3835	-10056										-4.410	-10.028	-1.188

TABLE 36

FZS-36-140

B-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.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J \tan\phi}{I_x} \cdot 10^6$ / $\frac{J}{Q_x}$	$\frac{I_x \tan\phi}{J_x} M'_x$	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	-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	-20981
		-70.579	-1.458	-69.121	-13304	-12.442	-8.272	-20.714		-29236	-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	1800	-67.0%	1.069	-66.071	-10574	-11.828	-6.062	-17.890	659.6*	-43530	+28687
		-67.441	.849	-66.592	-11486	-11.888	-4.817	-16.705	461.7	-30746	-22379
6	2060	-66.464	.799	-65.665	-10906	-11.716	-4534	-16.250	469.7	-30843	-18679
		-66.713	.655	-66.058	-11591	-11.760	-3.714	-15.474		-31027	-29905
7	2320	-65.339	.620	-64.719	-11028	-11.518	-2.518	-15.036	478.1	-30942	-26305
		-66.253	1.134	-66.389	-12153	-11.704	-.761	-12.465		-31678	-57800
8	2490	-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	2845	-61.809	-.131	-61.678	-11361	-10.896	-.741	-11.637	495.9	-30586	-55108
		-62.041	-.346	-61.695	-10758	-10.937	-1.861	-12.898		-30595	-36661
10	312.0	-60.136	-.326	-59.810	-10218	-10.601	-1.650	-12.451	505.8	-30252	-29828
			-.327	-59.809	-10293		-1.653	-12.953		-30251	-30239
11	339.5	-58.660	-.3[illegible]	-58.361	-9619	-10.240	-1.696	-12.036	516.0	-30114	-26436
			-.0493	-58.616	-10183		-.251	-10.591		-30246	-39158
12	375.75	-17.153	-.0259	-56.980	-9454	-9.893	-.169	-10.062	530.2	-29739	-29865
			-.0326	-56.100	-9903		-.185	-10.078		-29736	-44367

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

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.

STATION	DIST. FROM ℄ of SHIP	S_{ba}	S_{b_i}	$1.5(\frac{Km}{W})S_{b_i}$ ($\frac{Km}{W}$=1.516)	$S_b = S'_b$	$S_{CL_{a_i}}$	$1.5\frac{K_{\alpha}}{W}S_{CL_{a_i}}$ ($\frac{K_{\alpha}}{W}$=-0.107 $\frac{Km}{W}$=.047)	S_o	$M_{x_\alpha} \times 10^6$	$M_{x_i} \times 10^6$	$1.5(\frac{Km}{W})M_{x_i} \times 10^6$ ($\frac{Km}{W}$=1.516)	$M_x \times 10^6$	$M_{CL_{a_i}} \times 10^6$	$1.5\frac{K_{\alpha}}{W}M_{CL_{a_i}} \times 10^6$ ($\frac{K_{\alpha}}{W}$=-0.107 $\frac{Km}{W}$=.047)	$(M_y = M_{y_i})_{TEA_i} \times 10^6$	$TEA_2 \times 10^6$	$TEA_i \times 10^6$	$1.5(\frac{Km}{W})(M_y)_{TEA_i} \times 10^6$ ($\frac{Km}{W}$=1.516)	$TEA_i \times 10^6$
			26 2274	3 + 5	TAB 29 -1.603	.0705 x 4	6 + 9	Fig 7	TABLE 26 12,274	12	11 + 13	TAB 29 -0.1605	.0705 x 12	8 + 12	Fig 7	TABLE 26 12,274 x 10	10 + 14	
-13	4420	-188,200	54,395	1.516	645.06	81,930	-13190	2835	-9315	-77.95	10,380	23,604	-54,346	32,360	-5.194	.7318	-4.462	8.952	-4.005	-5.107	-.155
			48,383	109909	-10291			3407	-9743										-4.002	-9.101	-.149
-14	4485	-178,800	48,333	108905	-6.8891	77530	-12494	3407	-9037	-71.28	8.616	19593	-51687	29530	-4.740	.6074	-4.133	8.106	-3.660	-8.323	-.217
			42,556	96772	-82028			3000	-9944										-3.676	-8.359	-.253
-15	4830	-168,500	42,556	96772	-77728	73120	-11736	3000	-8736	-64.80	7.063	16.061	-48739	26750	-4.294	.4979	-3.796	7.308	-3.357	-7.634	-.326
			37,333	84895	-84605			2632	-9104										-3.337	-7.588	-.280
-16	5415	-160,200	31,333	104895	-75305	68870	-11054	2632	-8422	-58.80	9.700	12.962	-45.838	24.230	-3.889	.4019	-3.487	6.546	-3.057	-6.952	-.406
			31,352	71294	-88506			2210	-8844										-2.513	-5.715	-.331
-17	5420	-153,400	31,352	71294	-82106	65570	-10524	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	70649	-82751			2190	-8334										-2.337	-5.314	+.678
-18	5765	-144,700	31,068	70899	-76051	62,310	-10001	2190	-7811	-50.50	3.984	9060	-41440	20.610	-3.308	.2809	-3.027	5.496	-2.161	-4.914	+.582
			24,831	56966	-90734			1751	-8150										-1.655	-3.763	+1.733
-19	615.325	-137,200	24,831	56466	-80734	58,120	-9328	1751	-7571	-44.80	3,018	6863	-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	654.25	-128,000	20,001	45482	-82518	53,820	-8638	1410	-7228	-39.75	2,241	5,096	-34654	16,100	-2.584	.1580	-2.426	4.152	-1.296	-2.947	+1.205
			15,585	35440	-92560			1059	-7539										-1.305	-2.968	+1.192
-21	693.125	-119,100	15,586	35440	-83601	49,130	-7982	1059	-6883	-34.92	1.635	3.718	-31.202	14,060	-2.257	.1153	-2.1417	3.600	-1.186	-2.683	+.917
			11,894	27047	-92082			839	-7143										-1.173	-2.667	+.933
-22	732.0	-110,000	11,894	27047	-82959	45,630	-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	-87140			706	-6618										-1.073	-2.440	+.572
-23	766.0	-102,500	10,009	22760	-79740	42,470	-6768	706	-6062	-26.82	.8324	1.893	-24.987	10.700	-1.717	.05868	-1.658	2.580	-.9002	-2.275	+.301
			6286	14294	-88206			443	-6325										-.8357	-1.3546	+1.225
-24	806.0	-93,700	6286	14294	-79906	38,290	-6196	443	-5703	-22.92	.5809	1.321	-21.599	9.070	-1.456	.04095	-1.415	2.130	-.6941	-1.2373	+.8927
			2525	5878	-81822			182	-5964										+.1658	-.3770	+1.1530
-25	840.0	-86,500	2525	5878	-80422	35,140	-5646	182	-5458	-19.86	.1493	1.121	-18.619	7.820	-1.255	.03476	-1.220	1.758	-.1478	-.3359	+1.1921
			2322	5280	-81040			167	-5476										-.1478	-.3359	+1.1921

Stauffer

Trapper

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

SHEET 4 of 8. CONDITION: DGW-278,000#, 10,000# B. FULL FUEL & OIL. ILAA-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	$M_z \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{I_x}{Q_x}$ TAN ϕ SEC ϕ	$\frac{I_x}{Q_x}$ TAN ϕ M_x	S''_b (6) - (31)
		.9848 × (14)	.1736 × (23)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	OR .5 × (6)
13	412.0	-53.520	-.0269	-53.493	-9173	-2.434	-.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	-40353
			-.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
			-.0686	-47.929	-8966		-.276	-8.737		-27715	-57890
16	521.5	-45.141	-.3105	-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	-7.565	+.689	-6.880	610.3	-26278	-55878
			+.1212	-43.056	-8207		+.681	-6.882		-26277	-57474
18	576.5	-46.810	+.1010	-40.511	-7692	-7.194	+.573	-6621	625.2	-25578	-50473
			+.3008	-41.111	-8125		+1.707	-5.487		-25703	-64521
19	625.375	-37.935	+.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	-4849	+.550	-4299	726.1	-20094	-64809
			+.0993	-27.607	-6517		+.563	-4286		-20095	-66195
23	766.0	-24.607	+.0523	-24.659	-5970	-4338	+.296	-4042	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	-5813		+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	Shoultice	TABLE 36	DOC NO. FZS-36-140
DRAWN BY			
CHECKED BY	Propper	CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH, TEXAS	MODEL B-36
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 40%, 11 AA-LIMIT DIVE 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
STATION	DIST. FROM ℄ OF FUSE	S_{ho}	S_{bi}	S_{hi}	$S_b + S_h$	S_{Cw}	S_{Cw}	S_{bi}	S_z	M_{xw}	M_{yi}	W_{xw}	M_z	M_{Cw}	M_{Cw}	M_x	M_y	T_{EA}	T_{EA}	T_{EA}
		Fig. 7	Table 26	②+③	④+⑤	Table 7	Table 7	⑦×⑧	⑨+⑩	Fig. 8	Table 26	⑫×⑬	⑪+⑭	Table 26	⑯×⑰	⑮+⑱	⑫×⑬	Fig. 7	Table 26	⑳×M.C.
16	800.0	-80000	2922	5280	-74720	32420	-5203	164	-5367	-17.28	0.2534	.9628	-16.317	6.821	-10.95	.5885	-.4965	1.470	-.1385	-.3036
			2022	4598	-75482			143	-5860										-.0131	-.2845
21	980.0	-72700	2022	4598	-68102	29160	-4680	129	-4937	-14.40	0.2504	.1993	-13.6087	5.754	-9.235	.4972	-.4263	1.160	-.1010	-.2504
			1823	4146	-68554			120	-4551										-.0090	-.2479
22	1120.0	-65300	1823	4146	-61154	26070	-4184	120	-4055	-12.78	0.2298	.6481	-11.9192	4.705	-7.524	.4049	-.3475	0.885	-.0854	-.2172
			1640	3729	-61571			108	-4063										-.0768	-.2150
24	1440.0	-58400	1640	3729	-54671	23,080	-3704	114	-3598	-10.01	0.1963	.5120	-9.4917	3.873	-6.119	0.3593	-.3081	0.650	-0.0627	-.1875
			1323	3009	-55991			93	-3611										-0.0502	-.1658
30	1904.0	-51600	1323	3009	-48591	20,100	-3240	93	-3147	-8.66	0.1763	.4055	-8.4582	3.453	-5.490	0.3124	-.2714	0.440	-0.0515	-.1356
			1168	2656	-49244			82	-3158										-0.0412	-.1216
36	2380.0	-45200	1168	2656	-41544	17,430	-2809	82	-2727	-6.52	0.1582	.1092	-6.4103	2.597	-3.847	0.2751	-.2373	0.2535	-0.0330	-.1211
			1091	2367	-42883			73	-2791										-0.0264	-.1477
42	2840.0	-39800	1091	2367	-37433	15,270	-2451	73	-2378	-4.99	0.1450	.2386	-4.7514	1.925	-2.826	0.2077	-.1816	0.1980	-0.0211	-.0646
			186	1787	-38013			25	-2596										-0.0169	-.0853
50	3300.0	-34400	186	1787	-32613	12,180	-2105	25	-2080	-3.60	0.1284	.1852	-3.4148	1.390	-2.024	0.1742	-.1554	0.0350	-0.0135	-.0429
			7015	1595	-34208			48	-2128										-0.0108	-.0537
56	3760.0	-31600	7015	1595	-30005	10,700	-1783	48	-1735	-2.84	0.1139	.1378	-2.8021	1.147	-1.655	0.1393	-.1250	0.0335	-0.0107	-.0417
			424.0	436	-30175			34	-1769										-0.0086	-.0503
62	4220.0	-29000	424.0	436	-28564	9,230	-1461	34	-1427	-2.251	0.0959	.0808	-2.1743	.803	-1.371	0.1093	-.0981	0.0310	-0.0068	-.0354
			413.3	382	-28859			291	-1452										-0.0058	-.0412
68	4680.0	-26300	413.3	382	-25535	7,960	-1270	25	-1181	-1.6603	0.0800	.0682	-1.6603	.566	-1.0908	0.0915	-.0821	0.1080	-0.0047	-.0373
			398.9	316	-25849			25	-1206										-0.0038	-.0411
74	5140.0	-23600	398.9	316	-23284	6,030	-968	25	-943	-1.0153	0.0618	.0268	-.9885	.378	-.6105	0.0614	-.0491	0.1080	-0.0123	-.0280
			313.5	193	-23491			25	-968										-0.0160	-.0440
78	5520.0	-21200	313.5	193	-21080	4,610	-742	25	-720	-0.6116	0.0485	.0215	-.5901	.226	-.3641	0.0358	-.0283	0.1275	-0.0108	-.0175
			248.3	212	-21290			19	-739										-0.0068	-.0243

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.

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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	$M_x \cos\alpha$ x10⁶	$T_{EA} \sin\alpha$ x10⁶	M'_x x10⁶	$S'_c + S_c \cos\alpha$	$M_x \sin\alpha$ x10⁶	$T_{EA} \cos\alpha$ x10⁶	T'_{EA} x10⁶	$\frac{I_x}{Q_x} \cdot 10 \cdot \tan\phi$	$\frac{I_x}{Q_x} \tan\phi \, M'_x$	S''_b (6) − (31)
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	DR.5 × (6)
26	870.0	-16,069	+.202	-16,271	-4962	-3,853	+1.145	-1,684	847.3	-13786	-[illegible]
			+.236	-16,275	-4983		+1.167	-1,666		-13790	-61612
27	906.0	-13,396	+.158	-13,554	-4968	-2,361	+.894	-1,461	886.0	-12009	-[illegible]
			+.158	-13,554	-4482		+.896	-1,465		-12009	-[illegible]
28	942.0	-11,455	+.118	-11,573	-3993	-2,019	+.667	-1,352	928.2	-10742	-[illegible]
			+.118	-11,573	-4006		+.670	-1,349		-10742	-50839
29	978.0	-9352	+.080	-9,432	-3533	-1,645	+.456	-1,189	974.8	-9194	-45477
			+.084	-9,436	-3556		+.477	-1,172		-9198	-46[illegible]
30	1014.0	-7,523	+.051	-7,589	-3099	-1,329	+.292	-1,037	1026	-7786	-40805
			+.062	-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	-4682	-2342	-.825	+.021	-.804	1136	-5320	-32113
			+.007	-4686	-2360		+.0905	-.784		-5323	-32[illegible]
33	1110.0	-3.648	-.[illegible]	-3.6483	-2075	-.6432	+.00201	-.641	1194	-4356	-28257
			-.0069	-3.6411	-2025		-.0353	-.6825		-4347	-28358
34	1140.0	-2.760	-.017	-2.743	-1717	-.4867	-.0962	-.5827	1259	-3453	-24552
			-.017	-2.743	-1723		-.0952	-.5817		-3453	-24[illegible]
35	1170.0	-2.005	-.023	-1982	-1415	-.3556	-.1223	-.4858	1330	-2637	-20738
			-.021	-1.984	-1430		-.1170	-.4705		-2639	-21[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]	-.1655	-.1498	-.3180	1486	-1379	-14065
			-.026	-.928	-[illegible]		-.1492	-.3174		-1379	-14163
38	1252.0	-.580	-.026	-.554	-709	-.1007	-.1432	-.2511	1576	-873	-11017
			-.026	-.554	-712		-.1482	-.2565		-873	-11117

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

TABLE 36

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

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

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

SHEET 7 of 8 CONDITION: D.G.W. 278,000# 10000# Bu FULL FUEL & OIL 1 L.A.A. LIMIT DIVE SPEED @ 5000 FT.

REPORT AFSC 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 $\frac{\text{C}}{\text{WING}}$	$S_{b_{ult}}$	S_{b_1}	$1.5(\frac{W}{W_o})S_{b_1}$ (W/Wo=.4516)	$S_b = S_b^1$	$S_{t_{ult}}$	$1.5\frac{W}{W_o}S_{a_{ult}}$ (W/Wo=.4107)	$1.5\frac{W}{W_o}S_{t_1}$ (W/Wo=.2097)	S_c	$M_{x_{ult}} \times 10^6$	$M_{x_1} \times 10^6$	$1.5(\frac{W}{W_o})M_{x_1}$ ($\frac{W}{W_o}$=.6774)	$M_x \times 10^6$	$M_{c_{ult}} \times 10^6$	$1.5\frac{W}{W_o}M_{c_{ult}}$ ($\frac{W}{W_o}$=0.107)	$1.5\frac{W}{W_o}M_{y_1} \times 10^6$ ($\frac{W}{W_o}$=2.647)	$(M_y = M_{y_1}) \times 10^6$	$T_{BA_{ult}} \times 10^6$	$T_{BA_1} \times 10^6$	$1.5(\frac{W}{W_o})T_{BA_1} \times 10^6$ ($\frac{W}{W_o}$=1.076)	$T_{BA} \times 10^6$
		Fig. 7	TABLE 26	1.274 × ②	③ + ⑤	TABLE 27	.65 × ⑦	.615 × ⑨	⑥ + ⑩	Fig. 7	TABLE 26	1.274 × ⑫	⑪ + ⑬	TABLE 27	1.5 × ⑮	⑯ + ⑰	Fig. 7	TABLE 26	1.274 × ⑳	⑲ + ㉑	㉒
39	12780	+9400	268.3	610	8790	3440	-552	19	-533	-0.345	-.00827	-.01167	-.3319	1.01	-.108	.00348	-.0207	-0.2200	-0.00648	-.01974	-.33974
			98.3	224	9176			7	-545										-.00655	-.00913	-.33913
40	13010	-8900	95.5	224	-6676	2520	-404	7	397	-0.187	.002609	.003689	.1851	.125	.01328	.001939	.0115	+0.1050	.001115	.002032	.10032
			65.2	148	-6152			4.6	-399										.001132	.001955	.10195
41	13240	-4600	65.2	148	-4452	1664	-270	4.6	-265	-0.0792	.001109	.001569	.0615	.037	.00396	.000552	.000328	+0.0298	.000463	.000798	.02798
			45.5	113	-4487			3.5											.000471	.000811	.02811
66.5 R	13464	-2600	45.5	113	-2487	840	-136	3.5	-147	-0.000	0	0	-.010	.0115	.00123	.000172	.000102	.0093	.000144	.000248	.00248
R.P.	13464	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Thurber
Engineer

TABLE 36

DOC NO AFSC 36-140

B-36

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

SHEET 8 of 8. CONDITION: DGW 278,000# 10,000#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	$M_X \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_X \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_X \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$.7 \tan\phi \times 10^{-6} \frac{I_x}{Q_x}$	$\frac{\tan\phi}{\frac{I_x}{Q_x}} M'_X$	S''_b (6) - (31)
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (23)	(27) + (28)	TABLE 30	(29) × (30)	OR .5 × (6)
39	1278.0	-.1329	-.0243	-.3226	-.2258	-.0576	-.1376	-.1952	1674	-.507	-8283
			-.0214	-.3083	-.2137		-.1223	-.1919		-.511	-8665
40	1301.0	-.1527	-.0257	-.1284	-.361	-.0269	-.1067	-.1336	1772	-.237	-6939
			-.0181	-.1340	-.303		-.1063	-.1244		-.237	-6515
41	1324.0	-.0665	-.0129	-.0526	-.261	-.0135	-.0530	-.0656	1881	-.99	-4353
			-.0149	-.0516	-.262		-.0681	-.0830		-.97	-4390
46.TIP	1346.4	-.0386	.0006	-.0392	-.195	-.0074	-.0340	-.0414		0	-2987
TIP	1380		0		0	0	0	0	0	0	0

Prepared: Shelton
Supervised: Pepper

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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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}	$1.5(\frac{-N_z}{W})S_{bi}$ $(\frac{-N_z}{W})=1.665$	$S_b = S_b'$	$S_{CL_{a_i}}$	$1.5\frac{X}{W}S_{CL_{a_i}}$ $\frac{X}{W}=.077$	$1.5\frac{X_m}{W}S_{bi}$ $\frac{X_m}{W}=-.138$	S_c	$M_{X_a} \times 10^6$	$M_{X_i} \times 10^6$	$1.5(\frac{-N_z}{W})M_{X_i}$ $\times 10^6$ $(\frac{-N_z}{W})=1.665$	$M_X \times 10^6$	$M_{CL_{a_i}} \times 10^6$	$1.5\frac{X}{W}M_{CL_{a_i}}$ $\times 10^6$ $\frac{X}{W}=.077$	$1.5\frac{X_m}{W}M_{X_i}$ $\times 10^6$ $\frac{X_m}{W}=-.138$	$(M_y = M_y')$ $\times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_i} \times 10^6$	$1.5(\frac{-N_z}{W})T_{EA_i}$ $(\frac{-N_z}{W})=1.665$	$T_{EA} \times 10^6$
		Fig. 8	TABLE 26	24375 ④	③ + ⑤	TAB 29	1155 × ⑦	-207 × ④	⑥ + 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	-328,420	106,524	260,044	-72,376	135,500	15,413	-22,050	-6,631	-193.9	45.332	113.367	-80.533	71.720	8.638	-9.396	-.758	38.378	-13.329	-33.289	5.697
			106,030	264,810	-73,610			-21,948	-6,529										-13.231	-33.294	5.694
1	41.025	-324,300	106,030	264,810	-59,490	127,790	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	36.249	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	-28.899	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	85.631	-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										-10.952	-27.103	4.587
4	146.5	-289,100	103,578	258,686	-30,414	113,360	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	4.353
			100,499	250,272	-38,828			-20,743	-7,650										-10.163	-25.382	4.308
5	180	-278,100	100,203	250,272	-27,828	109,800	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			-16,413	-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	20.064	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
			59,611	149,378	-106,222			-12,391	-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	4.893	-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	33.78	4.595	-3.395	+1.200	21.00	-5.883	-14.693	6.307
			62,015	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	14.520	36.286	-62.054	37.30	4.308	-3.008	+1.300	19.74	-5.499	-13.734	6.006
			60,700	151,723	-74,677			-12,575	-2,417										-4.853	-12.120	7.620
12	375.75	-215,900	60,730	151,723	-63,577	83,500	9,644	-12,575	-2,931	-90.94	12.427	30.787	-59.453	24.06	3.934	-2.552	+1.382	18.11	-4.401	-10.991	7.113
			54,285	135,571	-79,723			-11,237	-1,593										-4.407	-11.006	7.104

J. Ellis

R. Phillips

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# 10,000 #B, FULL FUEL & OIL, 7 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	$M_x \cos\alpha$ x10⁶	$T_{EA} \sin\alpha$ x10⁶	M'_x x10⁶	S'_c $S_c \cos\alpha$	$M_x \sin\alpha$ x10⁶	$T_{EA} \cos\alpha$ x10⁶	T'_{EA} x10⁶	$\frac{J \tan\phi}{I_x} \times 10^6$ / $\frac{J}{Q_x}$	$\frac{J \tan\phi}{I_x} M_x$ / $\frac{J}{Q_x} T_x$	S''_h ⑥ - ㉞
		⑨ cos α - ⑭	1736 × ㉒	㉓ - ㉔	⑨ sin α - ⑩	1736 × ⑭	⑨ cos α + ㉕	㉗ + ㉘	TABLE 30	㉙ × ㉚	⑥ - ㉛
0	0	-79.309	.9876	-80.297	-6530	-13.981	5.603	-8.378	412.7	-33,139	-39,237
			.9867	-80.296	-6430		5.508	-8.383		-33,138	-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	-74.668	.8326	-75.501	-7487	-13.162	4.723	-8.439	433.1	-32,698	-24,470
			.8456	-75.514	-7317		4.797	-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	-71.969	.7565	-72.716	-8221	-12.685	4.292	-8.393	6453 / 449.23	-47,123	+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	6496 / 447.96	-47,196	+19,218
		-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
		-70.066	1.076	-71.140	-8,195	-12.351	6.106	-6.245		-33,414	-28,297
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	-41,751
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	-31,573	-62,049
		-64.550	1.157	-65.707	-3,140	-11.379	6.562	-4.817		-31,584	-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	-2,380		7.504	-3.269		-32,216	-42,461
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

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

CALCULATED BY	J. Ellis	TABLE 37	DOC NO. FZS-36-140
DRAWN BY			MODEL B-36
CHECKED BY	Bill Cuppy	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. 265,213 lbs 6 Gal. Fuel & Oil, 1.1 AA High Speed Dive

Station	Dist from ℄ Fuse.	S_{bu}	S_1	$\frac{1.5}{1.25}S_{bu}$	$S_2 = S_1$	S_{cu}	$\frac{1.5}{1.25}S_{cu}$	$\frac{1.5}{1.25}S_2$	S_c	$M_{x_u} \times 10^6$	$M_{y_u} \times 10^6$	$\frac{1.5}{1.25}M_{y_u}$	$M \times 10^6$	$M_{cu} \times 10^6$	$\frac{1.5}{1.25}M_{cu}$	$\frac{1.5}{1.25}M_{y_u}$	$(M_y - M_x)$	T_{cu}	$T_{cu} \times 10^6$	
			Table 26		④ + ⑤			⑦ + ⑥	⑧ + ⑤	Fig. 8			⑫ + ⑪							
20	600	600,000	56,977	71,221	-60,983	74,030	92,538	-1,483	-8,187	-62.74	10,252	12,815	57,872	58,866	73,582	5,402	-2,784	4,868	4,868	52,005
			46,584	58,230	-24,183			-9,382	-2,256											-8,081
18	600	600,000	46,584	58,230	-24,183	74,030	92,538	-9,382	-2,256	-25.84	12,529	15,661	21,896	22,268	27,835	1,602	-1,602	1,602	1,602	5,876
			36,445	45,556	-27,694			-6,786	-1,197											-5,876
15	600	600,000	36,445	45,556	-27,694	74,030	92,538	-6,786	-1,197	-10.60	9,049	11,305	31,008	31,551	39,439	1,491	-1,491	1,491	1,491	3,336
			27,837	34,796	-30,166			-4,711	-438											-3,336
10	600	600,000	27,837	34,796	-30,166	74,030	92,538	-4,711	-438	-6.10	5,428	6,785	37,211	37,860	47,325	1,790	-1,790	1,790	1,790	1,446
			21,297	26,621	-29,636			-3,429	+1,194											-1,446
5	600	600,000	21,297	26,621	-29,636	74,030	92,538	-3,429	+1,194	-3.77	2,428	3,035	40,538	41,266	51,582	1,957	-1,957	1,957	1,957	-510
			16,013	20,016	-28,442			-2,680	+1,883											+510
0	600	600,000	16,013	20,016	-28,442	74,030	92,538	-2,680	+1,883	-2.74	1,173	1,466	41,711	42,466	53,082	2,014	-2,014	2,014	2,014	-2,524
			11,867	14,834	-26,562			-2,456	+2,325											+2,524
28	732	439,200	11,867	14,834	-26,562	44,030	50,635	-2,456	+2,325	-3.77	1,173	1,759	28,880	41,774	52,420	1,932	-1,932	1,932	1,932	-592
			10,008	12,510	-24,587			-2,072	+3,015											+592
23	766	459,600	10,008	12,510	-24,587	47,690	54,844	-2,072	+3,015	-23.84	8,324	12,486	25,761	40,332	50,415	1,828	-1,828	1,828	1,828	-1,236
			6,286	7,858	-23,003			-1,201	+3,395											+1,236
24	806	483,600	6,286	7,858	-23,003	51,350	59,053	-1,201	+3,395	-23.73	8,309	12,464	22,279	38,715	48,394	1,391	-1,391	1,391	1,391	-1,915
			2,585	3,231	-21,794			-535	+3,732											+1,915
25	840	504,000	2,585	3,231	-21,794	53,910	61,997	-535	+3,732	-20.96	7,338	11,007	19,129	34,484	43,105	1,021	-1,021	1,021	1,021	-2,436
			2,372	2,965	-21,559			-481	+3,436											+2,436

TABLE 37

CONFIDENTIAL

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.

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1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_z \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c \cdot S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J \tan\phi}{I_x / Q_x} \cdot \frac{1}{10}$	$\frac{J \tan\phi}{I_x / Q_x} M'_x$	S''_h
		9848-(14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	9848-(22)	(27) + (28)	TABLE 30	(29) × (30)	OR .8 × (5)
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	-28,609	-51,162
			1.069	-48.230	+1,179		6.062	-2.252		-28,745	-65891
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	-59,703
18	576.5	-42.337	.9001	-43.237	+516	-7.463	5.106	-2.357	625.2	-27,032	-52,613
			1.120	-43457	+1,787		6.35	-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
			.7533	-32.749	+3,039		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
DRAWN BY	
CHECKED BY	

TABLE 37.

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

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

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

SHEET 5 of 8. CONDITION: DGW -268,213 #, 10000 #B. FULL FUEL & OIL, ILAA. 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_{bi}	$1.5(\frac{-N_a}{W})S_{bi}$	$S_b = S'_b$	S_{CL_a}	$1.5\frac{x}{W}S_{CL_a}$	$1.5\frac{x_m}{W}S_{bi}$	S_c	$M_{Xa} \times 10^{-6}$	$M_{Xi} \times 10^{-6}$	$1.5(\frac{-N_a}{W})M_{xi} \times 10^{-6}$	$M_x \times 10^{-6}$	$M_{CL_a} \times 10^{-6}$	$1.5\frac{x}{W}M_{CL_a} \times 10^{-6}$	$1.5\frac{x_m}{W}M_{xi} \times 10^{-6}$	$(M_y = M'_y) \times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{-N_a}{W})T_{EAi} \times 10^{-6}$	$T_{EA} \times 10^{-6}$
		Fig. 8	TABLE 26	2.4975x ④	③ + ⑤	TAB 29	.1155 x ⑦	-.207 x ④	⑧ + ⑨	Fig. 8	TABLE 26	2.4975x ⑫	⑪ + ⑬	TAB 29	.1155 x ⑮	.207 x ⑫	⑯ + ⑰	Fig. 8	TABLE 26	2.4975 ⑳	⑲ + ⑳
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	2965	-.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	2488	-.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										-.07192	-.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	-3990	.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

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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.

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1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM Ⓒ OF SHIP	$M_z \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_z \times 10^6$	$S'_c = S_c \cos\alpha$	$M_z \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T'_{EA}}{I_z} \frac{I_z}{Q_z}$	$\frac{T'_{EA}}{I_z} \frac{I_z}{Q_z} M'_z$	⑥ - ㉛
		(23)+(24)	(22) × (22)	(23) - (24)	(25)+(26)	(22) × (22)	(23) + (28)	(27) + (28)	TABLE 30	(29) × (30)	CHK. (5) - (6)
26	870	-16.656	.5558	-17.212	+3,093	-2.936	3.153	+.217	8473	-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	8860	-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	9282	-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	9748	-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
34	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	-3,643	-24,598
			.08727	-2.898	+1,098		.4951	-.0004		-3,643	-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
			.04355	-1.481	+755		.2414	-.0121		-2,081	-17,372
37	1225	-.9644	.02675	-.9912	+689	-.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

COMPUTED BY	J. Ellis	TABLE 37.	REPORT NO. FZS-35-140
CHECKED BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36

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

SHEET 7 of 8 CONDITION: DGW 268,212# 10000# Fuel, Fuel & Oil, II 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 C of S in F	S_{Bg}	S_{b_1}	$1.5(\frac{N_z}{W})S_{b_1}$ $(\frac{N_z}{W})=1.665$	S_b S_b'	$S_{c_{1g}}$	$1.5\frac{X_{cg}}{W}S_{c_{1g}}$ $\frac{X_{cg}}{W}=.077$	$1.5\frac{X_{cg}}{W}S_{b_1}$ $\frac{X_{cg}}{W}=-.138$	S_c	$M_{x_b}\times10^6$	$M_{x_1}\times10^6$	$1.5(\frac{N_z}{W})M_{x_1}$ $\times10^6$ $(\frac{N_z}{W})=1.665$	$M_x\times10^6$	$M_{c_{1g}}\times10^6$	$1.5\frac{X_{cg}}{W}M_{c_{1g}}$ $\times10^6$ $\frac{X_{cg}}{W}=.077$	$1.5\frac{X_{cg}}{W}M_{x_1}$ $\times10^6$ $\frac{X_{cg}}{W}=-.138$	$(M_y=M_z)$ $\times10^6$	$T_{BA_1}\times10^6$	$T_{BA_1}\times10^6$	$1.5(\frac{N_z}{W})T_{BA_1}$ $\times10^6$ $(\frac{N_z}{W})=1.665$	$T_{BA}\times10^6$
		Fig. 8	TABLE 26	2.9775 ④	③ + ⑤	TABLE 25	1155 = ⑦	-.207 × ④	⑧ + ⑨	Fig. 8	TABLE 26	2.9775 ⑫	⑪ + ⑬	TABLE 25	1155 ⑫	-.207 × ⑫	⑮ + ⑰	Fig. 8	TABLE 26	2.9775 ⑳	⑲ + ⑳
32	1298	-9400	268	669	-8731	3380	363	-55	308	-.365	.004830	.01816	-.3568	127	.01467	-.0101	.01366	.026	.00078	.00130	.08742
			98	265	-9155		-20	343													
40	1301	-6900	98	895	-6005	2430	281	-80	201	-.815	.010789	.006516	-.2085	.0731	.00844	-.0074	.00769	.074	.00123	.00128	.08558
			65	162	-6838		13	268													
81	1280	-4700	65	168	-4532	1620	187	-13	174	-.110	.001469	.000434	.01446	.0035	.00041	-.0005	.00391	.004	.00006	.00008	.01598
			56	225	-4756			-10	164												
TIP OB	1240 E	-2,750	50	185	-2685	900	105	-10	95	-.055	0	0	.0945	.0111	.00128	0	.00141	.004	.00006	.00008	.01484
TIP	1240 AI	0	0	0	0	0	0	0	0	0			0					0			0

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. 11.A.A. - HIGH SPEED @ 30000 FT.

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1 STATION	2 DIST. FROM Δ OF SHIP	23 $M'_z \cos\alpha \times 10^6$	24 $T_{EA} \sin\alpha \times 10^6$	25 $M'_x \times 10^6$	26 $S'_c = S_c \cos\alpha$	27 $M'_z \sin\alpha \times 10^6$	28 $T_{EA} \cos\alpha \times 10^6$	29 $T'_{EA} \times 10^6$	30 $T \tan\phi \times 10^6 \frac{I_x}{Q_x}$	31 $T \tan\phi \times M'_z \frac{I_x}{Q_x}$	32 S''_h
		(22)×(14)	(23)×(13)	(23) − (24)	(22)×(10)	(23)×(14)	(22)×(13)	(27) + (28)	TABLE 30	(25)×(30)	ONE-(4)
89	1278	-.9671	.0070	-.3741	923	-.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 0.6	1364	-.0443	.0012	-.0455	94	-.00781	.00654	-.00127	—	—	-.2625
TIP	1380 BH				0						

CALCULATED BY J. Pell
DRAWN BY
CHECKED BY B. Kuhlman

TABLE 37.

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

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

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

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

SHEET 1 of 8. CONDITION: A.G.W.-M.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}	$1.5(\frac{N_z}{W})S_{bi}$ $(\frac{N_z}{W})=2.48$	$S_b = S_b'$	S_{Sea}	$1.5\frac{K_{Sea}}{K_{bi}}S_{Sea}$ $\frac{K_{Sea}}{K_{bi}}=0.996$	$1.5\frac{K_{bi}}{W}S_{bi}$ $\frac{K_{bi}}{W}=0.992$	S_c	$M_{Xa}\times10^6$	$M_{Xi}\times10^6$	$1.5(\frac{N_z}{W})M_{Xi}\times10^6$ $(\frac{N_z}{W})=2.48$	$M_X\times10^6$	$M_{Ca_i}\times10^6$	$1.5\frac{K_{Ca}}{K_{bi}}M_{Ca_i}\times10^6$ $\frac{K_{Ca}}{K_{bi}}=0.996$	$1.5\frac{K_{bi}}{W}M_{Xi}\times10^6$ $\frac{K_{bi}}{W}=0.992$	$M_y=M_Y'\times10^6$	$T_{EA_a}\times10^6$	$T_{EA_i}\times10^6$	$1.5(\frac{N_z}{W})T_{EA_i}\times10^6$ $(\frac{N_z}{W})=2.48$	$T_{EA}\times10^6$
		Fig. 9	TABLE 28	-3717 ④	③ + ⑤	Tab. 29	-0.996 ⑦	0.992 ④	⑧ + ⑨	Fig. 9	TABLE 28	-3717 ⑫	⑪ + ⑬	Tab. 29	0.996 ⑭	⑫ + 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	-17.59
			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	41.35	485,400	12,150	-274,100	211,300	126,250	-103,400	54,430	-48,970	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	80.0	463,000	12,130	-270,300	192,700	120,900	-99,040	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	58.85	-49.02	20.07	-28.95	-48.66	-9.714	36.11	-12.55
			11,300	-265,000	180,000			52,620	-43,710		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	53.30	-42.83	16.68	-26.25	-42.54	-8.744	32.50	-10.04
			9,490	-259,900	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	9,490	-259,900	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
			8,530	-213,200	182,300			42,330	-42,860		20.58	-76.5	109.6			15.19	-25.89		-7.436	27.64	-12.72
7	232.0	382,000	8,530	-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	-24.96	-38.20	-7.129	26.50	-11.70
			6,720	-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	6,720	-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
			6,120	-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	6,120	-162,500	191,300	93,900	-76,820	32,270	-44,550	156.9	16.30	-60.6	96.3	44.85	-34.28	12.03	-22.25	-34.04	-5.384	20.01	-14.03
			5,280	-201,000	154,600			31,910	-36,910		16.20	-60.2	96.7			11.96	-22.32		-5.915	21.99	-19.05
10	312.0	342,000	5,280	-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
			5,140	-199,700	142,300			39,650	-34,310										-5.610	20.85	-11.15
11	332.5	322,200	5,140	-199,700	122,500	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
			4,410	-178,800	150,400			33,510	-37,660										-4.651	17.29	-12.62
12	375.75	311,400	4,410	-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
			4,140	-166,400	145,000			33,050	-34,520										-4.281	15.91	-11.49

Last 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	$M_X \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_X \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_X \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{J \tan\phi}{I_X/Q_X} \times 10^{-6}$	$\frac{J \tan\phi}{I_X/Q_X} M'_X$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	(6) − (31)
											OR .8 × (6)
0	0	144.86	-3.05	147.91	-52430	25.54	-17.32	8.22	412.7	61040	167,700
		144.86	-3.05	147.91	-52790	25.54	-17.91	8.23		61040	169,600
1	41.025	136.49	-2.73	139.22	-48230	24.06	-15.48	8.58	423.0	58900	152400
		136.49	-2.78	139.22	-48970	24.06	-15.98	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	-41,150	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	-47,590	17.97	-15.39	2.58		50600	160700
9	284.5	94.84	-2.44	97.28	-43870	16.72	-13.82	2.90	485.9	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	-33,790		-10.98	5.13		47200	95100
11	339.5	87.84	-1.78	89.62	-31,040	15.99	-10.10	5.39	516.0	46200	83300
			-2.20	90.04	-37,090		-12.50	2.99		46500	103900
12	375.75	82.92	-1.99	84.91	-33,540	14.62	-11.27	3.35	530.2	45000	87600
			-1.99	84.91	-34,000		-11.32	3.30		45000	100,000

CALCULATED BY	Kat
DRAWN BY	
CHECKED BY	Griffin

TABLE 38

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

DOC NO. FZS-36-140

MODEL B-36

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

PAGE: 154.
REPORT: FZS-36-140
DATE: 12-4-45

SHEET 3 of 8. CONDITION: A.G.W. 265,000# 72.1000 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_{bi}	$1.5(\frac{N_z}{W})S_{bi}$ $(\frac{N_z}{W})=2478$	$S_b = S_b'$	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	$M_{X_a} \times 10^6$	$M_{X_i} \times 10^6$	$1.5(\frac{N_z}{W})M_{X_i}$ $(\frac{N_z}{W})=2478$ $\times 10^6$	$M_X \times 10^6$	$M_{CL_a} \times 10^6$	$1.5\frac{x}{W}M_{CL_a}$ $\times 10^6$ $\frac{x}{W}=546$	$1.5\frac{x_m}{W}M_{X_i}$ $\times 10^6$ $\frac{x_m}{W}=492$	$(M_y = M_y')$ $\times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_i} \times 10^6$	$(\frac{N_z}{W})T_{EA_i}$ $\times 10^6$ $(\frac{N_z}{W})=2478$	T_{EA} $\times 10^6$
		Fig. 9	TABLE 28	3.717 × ④	③ + ⑤	TAB 25	.819 × ⑦	.738 × ④	⑧ + ⑨	Fig. 9	TABLE 28	3.717 × ⑫	⑪ + ⑬	TAB 29	.819 × ⑮	.738 × ⑫	⑯ + ⑰	Fig. 9	TABLE	3.717 × ⑳	⑱ + ㉑
13	412.0	294,400	44,780	-166,400	128,000	78100	-63,960	33,050	-30,910	115.5	9,862	-36.7	78.8	30.85	-25.27	7.28	-17.99	-25.06	-3.947	1467	-10.59
			41,720	-155,100	139,300			30,790	-33,170										-3.948	1467	-10.39
14	448.5	277,600	41,720	-155,100	122,500	73,900	-60,520	30,790	-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			28,630	-31,890										-3.636	13.52	-9.28
15	485.0	261,200	38,790	-144,200	117,000	69,700	-57,080	28,630	-28,450	94.7	6,928	-25.6	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	65,600	-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	62,500	-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	59,400	-48,650	22,600	-26,050	72.6	3,925	-14.6	57.9	19.65	-16.08	2.90	-13.19	-15.68	-2.157	8.02	-7.66
			24,390	-90,700	131,900			18,000	-30,630										-1.651	6.19	-9.74
19	615.375	206,600	24,390	-90,700	115,900	55,400	-45,370	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										-1.458	5.42	-8.64
20	654.25	191,200	19,570	-72,700	118,500	51,300	-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	-7.73
21	693.125	176,200	15,150	-56,300	119,900	47,400	-38,820	11,180	-27,640	49.5	1827	-6.0	43.5	13.40	-10.97	1.20	-9.77	-10.82	-1.187	4.41	-6.91
			11,680	-43,400	132,800			8620	-30,200										-1.176	4.37	-6.95
22	732.0	161,400	11,680	-43,400	118,200	43,500	-35,630	8620	-27,010	43.0	1173	-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			7390	-28,240										-1.073	3.99	-5.34
23	766.0	149,000	10,010	-37,200	111,800	40,200	-32,920	7390	-25,530	37.5	8324	-3.1	34.4	10.20	-8.35	.61	-7.74	-8.22	-1.002	3.72	-4.80
			6286	-23,400	125,600			4,640	-28,280										-.5957	2.21	-6.01
24	806.0	135,200	6286	-23,400	111,800	36,500	-29,890	4,640	-25,250	31.9	.5809	-2.2	29.7	8.65	-7.08	.93	-6.15	-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	1910	-25,530	27.3	.4930	-1.8	25.5	7.45	-6.10	.36	-5.74	-6.02	-.1972	.55	-5.47
			2322	-8600	115,000			1710	-25,730										-.1978	.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	$M_x \cos\alpha$ x10⁶	$T_{EA} \sin\alpha$ x10⁶	M'_x x10⁶	S'_c $\pm S_c \cos\alpha$	$M_x \sin\alpha$ x10⁶	$T_{EA} \cos\alpha$ x10⁶	T'_{EA} x10⁶	$\frac{J \tan\phi}{I_z/Q_x} \times 10$	$\frac{J \tan\phi}{I_z/Q_x} M'_x$	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)
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	-9.19	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	-4.88	0.28	786.3	23700	88100
			-1.10	30.35	-27,550		-6.26	-1.10		23900	101700
25	840.0	25.11	-0.95	26.06	-25,140	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 3 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_{ba}	S_{bi}	$1.5(\frac{-N_z}{W})S_{bi}$ $(\frac{-N_z}{W})=-2.417$	$S_b = S_b'$	$S_{CL_{a_i}}$	$1.5\frac{X}{W}S_{CL_{a_i}}$ $\frac{X}{W}=.546$	$1.5\frac{X_m}{W}S_{bi}$ $\frac{X_m}{W}=.492$	S_c	$M_{X_a} \times 10^6$	$M_{X_i} \times 10^6$	$1.5(\frac{-N_z}{W})M_{X_i}$ $(\frac{-N_z}{W})=-2.478$	$M_X \times 10^6$	$M_{CL_{a_i}} \times 10^6$	$1.5\frac{X}{W}M_{CL_{a_i}}$ $\times 10^6$ $\frac{X}{W}=.546$	$1.5\frac{X_m}{W}M_{X_i}$ $\times 10^6$ $\frac{X_m}{W}=.492$	$(M_y = M_y')$ $\times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_i} \times 10^6$	$1.5(\frac{-N_z}{W})T_{EA_i}$ $\times 10^6$ $(\frac{-N_z}{W})=-2.478$	$T_{EA} \times 10^6$
		Fig. 9	TABLE 28	-3.717 × ④	③ + ⑤	TAB. 39	-.819 × ⑦	.738 × ④	⑧ + ⑨	Fig. 9	TABLE 28	-3.717 × ⑫	⑪ + ⑬	TAB. 39	-.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	9.967	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	5.073	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	-8760										-0.0238	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	1885	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	358.5	-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

TABLE 38

FZS-36-140

B-36

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	$F_{iz}\cos\alpha \times 10^{-6}$	$T_{EA}\sin\alpha \times 10^{-6}$	$M'_x \times 10^{6}$	$S'_c = S_c\cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA}\cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{6}$	$\frac{J\tan\phi}{I_x/Q_x} \times 10$	$\frac{J\tan\phi}{I_x/Q_x} M'_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(28) × (30)	OR. 6 = (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	-18,850		-3.294	-0.648		14500	70200
29	978.0	12.272	-0.471	12.743	-16550	2.163	-2673	-0.510	974.8	12422	61978
			0.472	12744	-16780		-2707	-0.544		12923	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	7.856	-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	.6208	-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	-0.1577		2974	27226
36	11980	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	17236
			-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}	$1.5(\frac{N_z}{W})S_{b_i}$ $(\frac{N_z}{W})=2.478$	$S_b = S_b'$	$S_{C_{L_a}}$	$1.5\frac{x_m}{w}S_{C_{L_a}}$ $\frac{x_m}{w}=-.546$	$1.5\frac{x_m}{w}S_{b_i}$ $\frac{x_m}{w}=.492$	S_c	$M_{x_a} \times 10^6$	$M_{x_i} \times 10^6$	$1.5(\frac{N_z}{W})M_{x_i} \times 10^6$ $(\frac{N_z}{W})=2.478$	$M_x \times 10^6$	$M_{C_{L_a}} \times 10^6$	$1.5\frac{x_m}{w}M_{C_{L_a}} \times 10^6$ $\frac{x_m}{w}=-.546$	$1.5\frac{x_m}{w}M_{z_i} \times 10^6$ $\frac{x_m}{w}=.492$	$(M_y = M_{y_i}') \times 10^6$	$T_{BA_a} \times 10^6$	$T_{BA_i} \times 10^6$	$1.5(\frac{N_z}{W})T_{BA_i} \times 10^6$ $(\frac{N_z}{W})=2.478$	$T_{BA_c} \times 10^6$
		Fig. 9	TABLE 28	-3.717 × ④	③ + ⑤	TAB 29	-.819 × ⑦	.738 × ④	⑧ + ⑨	Fig. 9	TABLE 28	-3.717 × ⑫	⑪ + ⑬	TAB 29	-.819 × ⑮	.738 × ⑫	⑯ + ⑰	Fig. 9	TABLE 28	-3.717 × ⑳	⑲ + ㉑
39	1278.0	11,700	268.3	-1000	10700	3280	-2690	200	-2470	0.948	0.0049	-0.062	0.886	0.125	-0.102	0.004	-0.098	-0.194	-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 PLG	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

STRESSED BY	Last	TABLE 38.	DOC NO. FZS-36-140
CHECKED BY			MODEL B-36
APPROVED BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION	

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	$M_x \cos\alpha$ x 10^6	$T_{EA} \sin\alpha$ x 10^6	$M'_x \times 10^6$	S'_c $= S_c \cos\alpha$	$M_x \sin\alpha$ x 10^6	$T_{EA} \cos\alpha$ x 10^6	$T'_{EA} \times 10^6$	$\frac{.7 \tan\phi}{Q_x} \times 10$	$\frac{.7 \tan\phi}{Q_x} M'_x$	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	-2,430	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	0.025	-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 Dupp

TABLE 38

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH, TEXAS

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

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

PAGE 160
REPORT: FZS-36-140
DATE: 12-9-48

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_{ba}	S_{b_1}	$1.5(\frac{-N_a}{W})S_{b_1}$ $(\frac{-N_a}{W})=-2497$	$S_b = S'_b$	S_{CL_a}	$1.5\frac{X_m}{W}S_{CL_a}$ $\frac{X_m}{W}=-.174$	$\frac{X_m}{W}S_{b_1}$ $\frac{X_m}{W}=.124$	S_c	$M_{XL}\times10^6$	$M_{X_1}\times10^6$	$1.5(\frac{-N_a}{W})M_{X_1}$ $\times10^6$ $(\frac{-N_a}{W})=-2497$	$M_X\times10^6$	$M_{CL_a}\times10^6$	$1.5\frac{X_m}{W}M_{CL_a}$ $\times10^6$ $\frac{X_m}{W}=-.174$	$1.5\frac{X_m}{W}M_{X_1}$ $\times10^6$ $\frac{X_m}{W}=.124$	$(M_y=M'_y)$ $\times10^6$	$T_{EA_a}\times10^6$	$T_{BA_1}\times10^6$	$(\frac{-N_a}{W})T_{BA_1}$ $\times10^6$ $(\frac{-N_a}{W})=-2497$	$T_{BA}\times10^6$
		Fig. 10	TABLE 28	3.7855 ④	③ + ⑤	TABLE 29	-.261 × ⑦	.186 × ④	⑧ + ⑨	Fig. 10	TABLE 28	3.7855 ⑫	⑪ + ⑬	TABLE 29	.186 × ⑮	⑯ + ⑰	Fig. 10	TABLE 28	3.7855 ⑳	⑱ + ⑳
0	0	514000	742.40	678100	2356.00	131900	-34430	13810	-20620	281.3	35.45	-132.8	148.5	73.894	-19.29	6.59	-12.70	-65.69	-11.485	42.83	-22.86
			737.50	676200	2378.00			13720	-20710		35.45	-132.8	148.5			6.59	-12.70		-11.457	42.84	-22.85
1	41.625	491000	737.50	676200	2148.00	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
			727.30	667400	2138.00			13530	-19410										-10.816	40.51	-20.45
2	80.0	469100	727.30	667400	1967.00	120960	-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
			712.90	653900	1958.00			13370	-18180										-10.206	38.23	-18.42
3	113.25	451000	712.90	653900	1817.00	116400	-30380	13370	-17010	224.1	27.20	-101.8	129.2	59.85	-15.62	5.06	-10.56	-53.10	-9.714	36.38	-16.72
			713.00	267100	1839.00			13260	-17120										-9.709	36.37	-16.73
4	146.5	433300	713.00	267100	1662.00	112000	-29230	13260	-15970	211.6	24.84	-93.0	118.6	56.05	-14.63	4.62	-10.01	-49.75	-9.211	34.49	-15.26
			709.10	265700	1636.00			13180	-16130										-9.229	34.57	-15.15
5	180	415200	709.10	265700	1515.00	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
			626.70	234700	1805.00			11660	-16400		22.32	-83.6	113.8			2.15	9.50		-8.160	30.56	12.04
6	206	401600	626.70	234700	1669.00	104000	-27140	11660	-15480	180.9	20.69	-77.5	104.9	49.35	-12.93	3.85	-9.08	-44.00	-7.815	29.21	-11.79
			573.50	214800	1866.00			10670	-16470		20.58	-77.1	104.3			3.83	-9.10		-7.436	27.85	-10.15
7	232	388000	573.50	214800	1732.00	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	-10.92
			447.80	167700	2203.00			8330	-17930		18.62	-69.7	107.3			3.46	-8.79		-5.819	22.08	-8.92
8	249	378300	447.80	167700	2166.00	98400	-25680	8330	-17350	170.6	17.85	-66.9	103.7	45.25	-11.81	3.32	-8.49	-40.10	-5.733	21.44	-8.66
			437.20	163800	2155.00			8130	-17550										-5.702	21.36	-8.64
9	289.5	361000	437.20	163800	1972.00	93800	-24480	8130	-16350	157.8	16.30	-61.1	96.7	41.85	-10.92	3.03	-7.89	-37.70	-5.384	20.17	-7.93
			400.60	150000	1894.00			10060	-14820		16.20	-60.7	97.1			3.01	-7.91		-5.915	22.15	-8.95
10	318	347200	400.60	150000	1446.00	90300	-23570	10060	-13510	148.2	14.71	-55.1	93.1	39.30	-10.26	2.84	-7.52	-34.83	-5.609	21.01	-8.82
			387.20	145000	1968.00			9990	-13580										-5.610	21.01	-8.82
11	339.5	333700	387.20	145000	1325.00	86900	-22680	9990	-12690	138.9	13.23	-49.6	89.3	36.85	-9.618	2.741	-7.187	-32.65	-5.306	19.87	-8.38
			368.10	138000	1395.00			8850	-13730										-4.651	17.42	-7.23
12	375.75	316800	368.10	138000	1256.00	82500	-21500	8850	-12650	127.1	11.49	-43.0	84.1	33.65	-8.783	2.137	-6.646	-30.00	-4.293	16.08	-6.92
			341.60	127900	1481.00			8330	-13170										-4.281	16.03	-6.97

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. 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	$M_x \cos\alpha$ x 10^6	$T_{EA} \sin\alpha$ x 10^6	M'_x x 10^6	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha$ x 10^6	$T_{EA} \cos\alpha$ x 10^6	T'_{EA} x 10^6	$\frac{J \tan\phi}{I_x} \times 10$ / $\frac{J \tan\phi}{I_x Q_x} M'_x$		S''_b
		9848 × (14)	.1736 × (22)	(23) − (24)	9848 × (10)	.1736 × (14)	9848 × (22)	(27) + (28)	TABLE 30	(23) × (30)	OR $S = (6)$
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	59369	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	53961	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		52339	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	91.68	-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 Bissell Pfeffer

TABLE 39

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

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

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

SHEET 3 of 5 — CONDITION: A.G.W. 265000 #; 72-1000 # G, FULL FUEL & OIL; A-4 HIGH SPEED @ 5000 FT.

1 Station No.	2 Dist. from ℄ of Ship	3 S_{Ba}	4 S_{Bi}	5	6 $S_B + S_B'$	7 S_{Qa}	8	9	10 S_C	11 $M_{Xa} \times 10^{-6}$	12 $M_{Xi} \times 10^{-6}$	13 $\times 10^{-6}$	14 $M_X \times 10^{-6}$	15 $M_{Cya} \times 10^{-6}$	16 $\times 10^{-6}$	17 $\times 10^{-6}$	18 $(M_y = M_y') \times 10^{-6}$	19 $T_{EA_a} \times 10^{-6}$	20 $T_{EA_L} \times 10^{-6}$	21 $\times 10^{-6}$	22 $T_{EA} \times 10^{-6}$
		Fig. 10	Table 28	④	③ + ⑤	Table 29	-.261 × ⑦	.186 × ④	⑧ + ⑨	Fig. 10	Table 28	⑫	⑪ + ⑫	Table 29	-.261 × ⑮	.186 × ⑫	⑯ + ⑰	Fig. 10	Table 28	⑳	⑲ + ㉑
13	413.0	298600	44780	167700	130900	78100	-20390	8030	-12050	116.8	9.867	-36.96	78.84	30.85	-8.052	1.830	-6.217	-27.38	-3.947	14.78	-12.60
			41720	[illegible]	142900			7760	-12620										-3.948	14.79	-12.57
14	[illegible]	281600	41720	-156300	125800	73900	-19290	7760	-11590	103.12	8.394	-31.86	78.75	28.16	-7.247	1.662	-5.915	-24.92	-3.636	13.62	-11.30
			38790	[illegible]	136200			7610	-12080										-3.636	13.62	-11.30
15	[illegible]	269600	38790	-148800	119600	69800	-18190	8210	-10980	94.98	6.928	-28.95	69.06	25.50	-6.[illegible]	1.529	-5.367	-22.60	-3.326	12.08	-10.07
			35980	-134800	130800			6680	-11510										-3.324	12.46	-10.12
16	361.5	258200	35930	-134600	113600	65600	-19830	6880	-10400	86.42	5.617	-21.04	64.41	23.70	-6.0[illegible]	[illegible]	[illegible]	-20.42	[illegible]	11.44	-8.76
			30910	-118800	132600			5700	-11380										[illegible]	4.38	-11.04
[illegible]	[illegible]	235900	30910	-115800	120100	62500	-16200	6360	-10950	78.30	4.767	-17.85	61.00	21.90	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	-10.1[illegible]
			30430	-114800	131200			5700	[illegible]										-2.3[illegible]	[illegible]	-10.1[illegible]
[illegible]	[illegible]	224900	20650	-114200	109400	58400	-16500	6700	[illegible]	[illegible]	3.925	-14.70	57.65	19.68	-6.127	[illegible]	-4.397	[illegible]	[illegible]	8.0[illegible]	[illegible]
			26210	-94100	147800			4760	-10980										[illegible]	6.78	[illegible]
[illegible]	[illegible]	207300	19410	-71800	116000	53400	-14500	6640	[illegible]	[illegible]	2.876	-11.15	52.80	17.35	-4.5[illegible]	.654	-3.974	-15.45	-1.[illegible]	5.46	-10.0[illegible]
			14170	[illegible]	134000			3630	[illegible]										-1.4[illegible]	5.45	-10.00
[illegible]	[illegible]	[illegible]	10620	[illegible]	116800	51800	-13900	[illegible]	[illegible]	[illegible]	2.215	[illegible]	41.95	15.35	-4.0[illegible]	.442	-3.094	-13.64	-1.237	[illegible]	[illegible]
			[illegible]	[illegible]	136100			[illegible]	-10390										-1.309	4.90	[illegible]
[illegible]	[illegible]	176500	13150	-56900	118000	49400	-12900	3980	-9550	49.02	1.427	-6.[illegible]	[illegible]	17.90	-3.6[illegible]	[illegible]	-3.144	-11.96	-1.107	4.45	-7.91
			11680	-43700	137800			2170	-10200										-1.1[illegible]	4.40	-7.96
21	732	161500	11686	-49100	117800	43600	-11250	2170	-9180	42.32	1.178	-4.39	[illegible]	11.40	-3.023	.218	-2.810	-10.[illegible]	-.6083	4.06	-6.[illegible]
			10010	-37600	134000			1860	-9490										-.6073	4.05	-6.2[illegible]
22	766	148000	10010	-37200	111600	40800	-10690	1860	-8630	37.00	.8324	-3.12	33.88	10.20	[illegible]	.155	-2.507	-9.17	[illegible]	2.25	-5.[illegible]
			6286	-25500	125900			1170	-9300										[illegible]	2.23	-6.1[illegible]
23	806	136800	6286	-23600	111350	36500	-9530	1170	-8380	30.25	.5809	-2.28	31.07	8.66	[illegible]	.108	-2.0[illegible]	-7.825	-.[illegible]	2.036	-5.3[illegible]
			2627	-9680	125780			480	-9050										-.1655	.621	[illegible]
[illegible]	840	123800	[illegible]	[illegible]	112320	38500	-8700	480	-8870	24.80	[illegible]	-1.[illegible]	26.00	8.45	[illegible]	.092	-1.862	-6.80	-.1477	.55	-6.2[illegible]
			[illegible]	[illegible]	114900			430	-8270										-.1478	.55	-6.25

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	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$.7 \tan\phi \cdot \frac{I_x}{Q_x} \cdot 10$	$.7 \tan\phi \frac{I_x}{Q_x} M'_x$	S''_b ⑥ - ㉛
		.9848 × ⑭	.1736 × ㉒	㉓ − ㉔	.9848 × ⑩	.1736 × ⑭	.9848 × ㉒	㉗ + ㉘	TABLE 30	㉙ × ㉚	OR .5 × ⑥
13	412.0	77.64	- 2.19	79.83	-11867	13.687	-12.408	1.279	545.1	43515	89385
			-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		-10.876	.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	81143
			-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	102342
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	Krisbey	TABLE 39	DOC NO. FZS-36-140
DRAWN BY			MODEL B-36
CHECKED BY	Bill Griffith	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}	$1.5(\frac{-N_z}{W})S_{bi}$ $(\frac{-N_z}{W})=2.497$	$S_b = S_b'$	$S_{CL_{a_i}}$	$1.5\frac{X}{W}S_{CL_{a_i}}$ $\frac{X}{W}=-.174$	$1.5\frac{X_m}{W}S_{bi}$ $\frac{X_m}{W}=.124$	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 x (4)	(3) + (5)	TAB 29	-.261 x (7)	.186 x (4)	(8) + (9)	Fig. 10	TABLE 28	3.7455 x (12)	(11) + (13)	TAB 29	-.261 x (15)	.186 x (12)	(16) + (17)	Fig. 10	TABLE 28	3.7455 x (20)	(19) + (21)
26	870	113200	2322	-5700	107500	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	89310			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	-.08240	.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	-.06313	.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	.956	.225	-.0587	.0022	-.0565	-.298	-.01037	.039	-.259
			268	-1000	14200			50	-1100										-.01012	.038	-.260

Kriesberg

Bin Pfeffer

TABLE 39

FZS-36-140

B-36

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	$M_x \cos\alpha$ x 10⁶	$T_{EA} \sin\alpha$ x 10⁶	M'_x x 10⁶	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha$ x 10⁶	$T_{EA} \cos\alpha$ x 10⁶	T'_{EA} x 10⁶	$\frac{.7 \tan\phi}{I_z/Q_x} \times 10^6$	$\frac{.7 \tan\phi}{I_z/Q_x} M'_x$	S''_L (6) - (31)
		.9848 × (4)	.1736 × (23)	(23) - (24)	.9848 × (10)	.1736 × (4)	.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	-5347	2.109	-3.069	-.960	974.8	12195	61415
			-.547	12.56	5407		-3.104	-.995		12204	62586
30	1014	9.539	-.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	-.2255	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		-.3680	-.1851		1805	17015
38	1252	.7415	-.0450	.7865	-1073	.1312	-.2651	-.1239	1576	1240	12780
			-.0451	.7866	-1083		-.2560	-.1248		1240	12960

CALCULATED BY Kriesberg
DRAWN BY
CHECKED BY C. Kniffen

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 SHIP	S_{b_a}	S_{b_i}	$1.5(\frac{N_z}{W})S_{b_i}$ $(\frac{N_z}{W})=2.497$	$S_b = S'_b$	$S_{CL_{a_i}}$	$1.5\frac{X}{W}S_{CL_{a_i}}$ $\frac{X}{W}=.174$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=.124$	S_c	$M_{X_a} \times 10^6$	$M_{X_i} \times 10^6$	$1.5(\frac{N_z}{W})M_{X_i}$ $\times 10^6$ $(\frac{N_z}{W})=2.497$	$M_X \times 10^6$	$M_{CL_{a_i}} \times 10^6$	$1.5\frac{X}{W}M_{CL_{a_i}}$ $\frac{X}{2}\times 10^6 \times .174$	$1.5\frac{X_m}{W} \times 10^6 M_{X_i}$ $\frac{X_m}{W}=.124$	$(M_y = M_{y_i})$ $\times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_i} \times 10^6$	$1.5(\frac{N_z}{W})T_{EA_i}$ $\times 10^6$ $(\frac{N_z}{W})=2.497$	$T_{EA} \times 10^6$
		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 + ⑳		
39	1278	11100	260	-1000	10100	3280	-860	50	-810	.440	.00487	-.018	.422	.125	-.0326	.0009	-.0317	-.190	-.001681	.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	1600	-420	10	-410	.095	.001109	-.004	.091	.035	-.0091	.0002	-.0089	-.065	-.000891	.003	-.062
			50	-190	4810			10	-410										-.000771	.003	-.062
End (C.L)	1346.4	2700	50	-190	2510	900	-230	10	-220	.020	0	0	.020	.011	-.0029	0	-.0029	-.032	-.000593	.002	-.030
T.P	1800.241	0	0	0	0	0	0	0											0		

CALCULATED BY: Kriezek & Co
CHECKED BY: J. Ellis Phillips
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_{ba}	S_{bi}	$1.5(\frac{N_z}{W})S_{bi}$ $(\frac{N_z}{W})=2.197$	$S_b = S'_b$	$S_{CL_{ai}}$	$1.5\frac{X}{W}S_{CL_{ai}}$ $\frac{X}{W}=.174$	$1.5\frac{X_m}{W}S_{bi}$ $\frac{X_m}{W}=.184$	S_c	$M_{X_a} \times 10^6$	$M_{Xi} \times 10^6$	$1.5(\frac{N_z}{W})M_{xi}$ $\times 10^6$ $(\frac{N_z}{W})=2.197$	$M_x \times 10^6$	$M_{CL_{ai}} \times 10^6$	$1.5\frac{X}{W}M_{CL_{ai}}$ $\times 10^6$ $\frac{X}{W}=.174$	$1.5\frac{X_m}{W} \times 10^6 M_{xi}$ $\frac{X_m}{W}=.184$	$(M_y = M'_y)$ $\times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_i} \times 10^6$	$1.5(\frac{N_z}{W})T_{EAi}$ $\times 10^6$ $(\frac{N_z}{W})=2.197$	$T_{EA} \times 10^6$
		Fig. 10	TABLE 28	3.755 ④	③ + ⑤	[redacted]	TABLE 26 ×.261 ⑦	.186 × ④	⑥ + ⑨	Fig. 10	TABLE 28	3.755 ⑫	⑪ + ⑬	[redacted]	TABLE 26 ×.261 ⑮	.186 × ⑫	⑱ + ⑰	Fig. 10	TABLE 28	3.755 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										-.001835	.009	-.183
40	1301	7800	98	-370	7430	2400	-630	20	-610	.220	.002609	-.010	.210	.070	-.0183	.0005	-.0178	-.116	-.001370	.065	-.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
Tail (10)	1346.8	2700	50	-190	2510	900	-230	10	-220	.020	0	0	.020	.011	-.0029	0	-.0029	-.032	-.000585	.002	-.030
Tip	1380.241	0	0	0	0	0	0	0											0		

CHECKED BY: Krieberg
COMPUTED BY: J. Pilla Pippin

TABLE 39

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

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

SHEET 6 OF 8

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

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REPORT FZS-36-108
DATE 12-1-45

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM C OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c \cdot S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J_z}{Q_z}$ TABLE 30	$\frac{J_z}{Q_z} M'_x$	S''_b
		(14)	(22)	(23) − (24)	(25) + (16)	(18) × (26)	(28)	(22) + (28)		(29) × (30)	(6) − (31)
39	1278	.4156	-.0273	.4429	-797	.0733	-.1546	-.0813	1674	741	1359
			-.0318	.4474	-827		-.1802	-.1069		749	1381
40	1301	.2628	-.0193	.2821	-680	.0365	-.1093	-.0728	1772	401	7029
			-.0194	.2822	-611		-.1103	-.0738		401	7159
41	1324	.0896	-.0108	.1004	-404	.0158	-.0611	-.0453	1881	185	4571
			-.0108	.1004	-404		-.0611	-.0453		189	4621
[illegible]	[illegible]	.0117	-.0052	.0169	-219	.0036	-.0296	-.0260	—	—	2510
TIP											

CALCULATED BY	Kriebery	TABLE 39	DOC NO. FZS-36-108	
DRAWN BY			MODEL B-36	
CHECKED BY	B Clapp	CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS		

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

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

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DATE 12-4-[illegible]

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 Center	S_{bu}	S_{bl}	S_{fA} Wy/wL	S_s	S_t	S_{ail}	S_{fB}	S_{fC}	$M_{x_{bu}}$	$M_{x_{bl}}$	$M_{y_{fA}}$	$M_{y_{fB}}$	$M_{y_{fC}}$	$M_{z_{fA}}$	$M_{z_{fB}}$	$M_{y_{fA}}$	T_{fA}	T_{fB}	T_{fC}
		Fig. 1	Table 2 ①	Table 3 ②	③	④	Table 4 ⑤	⑥	⑦	Fig. 11	Table 5 ⑧	Table 6 ⑨	⑩	⑪	Table 7 ⑫	⑬	⑭	⑮	Fig. 11 ⑯	Table 8 ⑰
6	0	-30,200	74,700 72,750	146,800 147,200	11,500 133,400	24,400	-6,900	27,800 29,680	-33,070 -33,210	-171.8	35.45 35.45	80.6 80.6	-96.2 -96.2	83.84	-35.25	14.25 14.25	+21.00 +21.00	-28.52	-11.487 -11.487	-26.00 -26.01
7	240.5	-29,200	28,760 27,720	147,700 147,200	-28,000 -14,300	96,200	-69,221	-29,658 -29,658	-30,571 -30,891	-157.9	32.42 30.42	73.8 73.7	-84.2 -84.2	68.70	-32.77	13.03 13.09	+17.74 +17.74	-26.44	-10.844 -10.844	-24.50 -24.60
8	360.0	-274,600	72,730 74,400	145,000 145,580	-28,400 -28,500	89,700	-59,670	-29,240 -29,240	-29,430 -29,770	-148.8	29.58 29.58	67.3 67.3	-76.9 -76.5	63.85	-30.46	11.90 11.90	+13.56 +13.56	-20.56	-10.234 -10.46	-23.07 -23.21
9	481.25	-246,800	71,811 71,200	143,540 144,400	-28,200 -28,200	116,400	-53,250	-29,000 -28,640	-26,623 -26,870	-134.9	27.20 27.20	62.0 61.9	-70.8 -70.1	58.85	-28.55	10.95 10.95	+9.62 +9.62	-15.06	-9.748 -9.748	-20.00 -20.01
10	602.5	-236,800	71,000 70,810	142,100 142,100	-28,200 -28,200	142,200	-53,200	-28,440 -28,800	-24,440 -24,420	-131.3	25.84 25.84	56.5 56.5	-64.8 -64.2	54.05	-26.74	9.99 9.99	-6.95 -6.75	-11.67	-9.07 -9.069	-18.97 -18.97
11	723.8	-226,900	71,200 71,200	140,400 140,400	-28,200 -28,200	207,500	-51,200	-28,200 -28,100	-24,980 -24,010	-120.8	24.42 24.32	51.1 51.0	-59.7 -59.7	52.30	-24.95	9.03 8.97	-4.92 -4.98	-10.14	-8.394 -8.168	-18.03 -18.56
12	845.0	-206,300	69,470 51,850	138,900 139,400	-28,200 -28,200	184,400	-49,650	-25,190 -29,080	-20,420 -24,530	-116.8	20.48 20.48	40.0 40.0	-47.3 -47.5	44.85	-20.64	8.52 8.51	-1.530 -1.537	-10.08	-7.895 -7.896	-16.79 -16.84
13	966.2	-183,200	67,250 67,200	137,800 137,800	-28,200 -28,200	161,400	-47,900	-23,050 -23,000	-20,460 -20,790	-110.1	17.09 16.62	33.8 33.8	-41.7 -41.7	38.35	-18.00	7.67 7.48	-1.73 -1.87	-10.16	-7.196 -7.196	-15.31 -15.31
14	1087.5	-164,800	64,700 63,720	135,200 135,200	-28,200 -28,200	138,200	-46,140	-21,000 -17,500	-20,460 -21,360	-106.2	17.85 12.85	30.6 30.6	-36.6 -36.6	46.35	-21.38	7.18 7.18	-14.40 -14.40	-17.42	-5.716 -5.716	-13.97 -13.97
15	1208.8	-144,200	62,700 62,080	132,600 132,600	-28,200 -28,200	115,000	-44,760	-19,500 -21,700	-17,460 -23,000	-98.9	14.90 16.20	27.1 26.8	-32.6 -32.6	41.80	-19.96	6.66 6.67	-13.11 -12.96	-16.88	-5.346 -5.346	-12.84 -12.84
16	1330.0	-123,200	60,000 52,720	130,000 130,000	-28,200 -26,600	93,300	-43,070	-21,700 -21,600	-21,330 -21,470	-92.5	14.31	23.5	-28.0	37.30	-18.15	5.93	-12.84	-15.08	-5.601 -5.601	-13.75 -13.76
17	1451.25	-101,000	57,700 48,110	127,400 127,400	-28,200 -21,400	74,900	-41,450	-21,600 -21,340	-19,850 -20,410	-86.9	13.03	20.1	-24.8	33.85	-17.58	5.32	-12.26	-14.18	-5.346 -4.651	-12.87 -11.50
18	1572.5	-84,200	48,110 46,740	124,800 124,800	-21,400 -21,400	62,500	-39,850	-19,500 -19,000	-20,010 -21,350	-79.5	11.42	16.1	-21.6	33.65	-16.05	4.62	-11.43	-13.44	-4.248 -4.248	-10.52 -10.52

TABLE 40

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

SHEET 2 of 8. CONDITION: ABW 265000# 72-1800#B, FULL FUEL & OIL. 1HAA @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha$ x10⁻⁶	$T_{EA} \sin\alpha$ x10⁻⁶	M'_x x10⁻⁶	S'_c $=S_c \cos\alpha$	$M_x \sin\alpha$ x10⁻⁶	$T_{EA} \cos\alpha$ x10⁻⁶	T'_{EA} x10⁻⁶	$\frac{T_{TAN}\phi \times I_x}{Q_x}$	$\frac{T_{TAN}\phi}{Q_x} M_x$	S''_c (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	-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	-76514
		-80.26	0.23	-80.49	-28333	-14,148	1,329	-12,819		-34860	-78490
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	-9928		-32325	-76575
7	232.0	-65.69	0.32	-66.01	-24364	-11,579	1.822	-9757	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	4.349	-7,045	483.9	-31633	-93367
		-64.60	0.77	-65.37	-28914	-11,388	4.382	-7,006		-31639	-95767
9	284.5	-60.27	0.67	-60.94	-26747	-10,624	3.782	-6842	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	2.295	-7947	505.8	-29589	-56211
			0.40	-58.50	-21144		2.285	-7.957		-29589	-57011
11	339.5	-55.94	0.36	-56.30	-19548	-9,860	-2.029	-7831	516.0	-29051	-49749
			0.62	-56.56	-21774		3.496	-6364		-29185	-62915
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: Shifflett
DRAWN BY:
CHECKED BY: Propfer

TABLE 40.

CONSOLIDATED VULTEE 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: 45W 265000# 72.1000 #/ft FULL FUEL 60 lbs. NACA @ 5000 FT.

REPORT FZS-36-190

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
STATION	DIST. FROM SHIFT	S_{ba}	S_{bi}	$(\frac{Ec}{W})S_b$	S_b	S_c	S_{ca}	$(\frac{Ec}{W})S_{ca}$	$(\frac{Ec}{W})S_{bi}$	S_c	M_{xa}	M_{xi}	$(\frac{Ec}{W})M_{xi}$	M_c	M_{ca}	$(\frac{Ec}{W})M_{ca}$	$(\frac{Ec}{W})M_{xi}$	$(M_y+M_{yi})_a$	T_{EA_a}	T_{EA_a}	$(\frac{Ec}{W})T_{ei}$	T_{EA}
		Fig. 11	TABLE 28	2274×④	⑤ + ⑥		TABLE 28	⑧×.4576	⑧×.0216	⑨ + ⑩	Fig. 11	TABLE 28	2274×⑫	⑪ + ⑬	TABLE 28	⑮×.4576	⑮×.0216	⑰ + ⑲	Fig. 11	TABLE 28	⑳×.4576	㉑ + ㉒
13	412.0	181,500	44,700	103,400	-79,500	728,100	-37,250	16,000	-18,250	-452.0	1.847	-20.4	-50.6	-30.85	-14.72	5.97	10.75	11.78	-3.47	-3.47
			4.720	14,400	-24,400			16,770	-20,490										-3.448	-3.48
14	466.5	171,400	44,720	34,900	-76,400	713,300	-35,250	16,270	-18,480	-44.7	2.044	19.0	-44.7	-25.15	-13.43	3.35	10.03	10.69	-3.436	-3.44
			34,700	88,300	-83,600			16,570	-19,640										-3.426	-3.43
15	489.0	161,100	34,710	86,200	-78,100	697,900	-34,450	16,540	-17,910	-60.3	6.908	15.8	-44.5	-28.50	-12.16	2.79	-9.37	9.68	-3.385	-3.39
			54,230	86,700	-24,400			16,340	-19,810										-3.394	-3.39
16	511.5	153,900	25,000	41,200	-78,400	682,500	-33,320	16,440	-16,880	-54.6	5.612	12.9	-41.8	-28.10	-11.92	2.26	-9.76	8.72	-3.354	-3.35
			30,810	72,010	-28,400			16,238	-16,890										-3.604	-3.60
17	534.0	146,700	24,990	71,200	-76,400	667,500	-32,410	16,230	-16,180	-58.5	4.767	11.8	-39.7	-27.90	-10.16	1.82	-8.34	8.04	-3.334	-3.33
			54,230	80,700	-24,400			16,010	-16,500										-3.458	-3.46
18	576.5	134,900	24,990	49,100	-74,400	651,100	-28,530	14,210	-14,320	-46.6	3.485	8.9	-37.7	-28.80	-1.379	1.578	-7.795	7.40	-2.157	-2.16
			54,230	85,500	-23,400			14,000	-14,530										-1.651	-1.65
19	619.5	123,100	24,990	49,100	-74,400	634,700	-26,430	14,210	-12,220	-44.4	2.076	6.8	-37.6	-30.80	-0.276	1.196	-7.080	6.58	-1.454	-1.45
			44,300	93,500	-23,400			13,990	-13,560										-1.466	-1.47
20	662.5	111,300	24,990	49,100	-74,400	618,300	-24,470	14,210	-10,260	-39.6	1.127	5.0	-34.6	-29.60	-0.890	0.892	-6.432	5.73	-1.294	-1.29
			44,300	93,500	-23,400			13,990	-12,600										-1.368	-1.37
21	705.5	99,600	24,990	49,100	-74,400	601,900	-22,610	14,210	-8,400	-32.0	0.627	3.7	-28.3	-24.30	-0.342	0.654	-5.788	4.98	-1.167	-1.17
			44,300	93,500	-23,400			13,990	-11,410										-1.414	-1.41
22	748.0	87,900	24,990	49,100	-74,400	585,500	-20,750	14,210	-6,540	-26.0	0.313	2.7	-23.3	-20.60	-0.139	0.472	-5.041	4.20	-1.093	-1.09
			44,300	93,500	-23,400			13,990	-9,550										-1.028	-1.03
23	790.0	76,200	24,990	49,100	-74,400	569,100	-18,880	14,210	-4,670	-21.4	0.0824	1.9	-19.5	-17.30	-0.065	0.295	-4.339	3.73	-0.941	-0.94
			44,300	93,500	-23,400			13,990	-7,660										-0.957	-0.96
24	831.0	64,500	24,990	49,100	-74,400	552,700	-17,010	14,210	-2,800	-17.0	0.0000	1.5	-15.5	-14.10	0.045	0.234	-3.892	3.41	-0.5441	-0.54
			44,300	93,500	-23,400			13,990	-4,940										-0.1658	-0.16
25	870.0	52,800	24,990	49,100	-74,400	536,300	-15,150	14,210	-940	-12.1	0.1481	1.1	-11.0	-9.45	0.126	0.198	-3.356	2.98	-0.1477	-0.15
			44,300	93,500	-23,400			13,990	-2,950										-0.1478	-0.15

List

Dupe

TABLE 40

FZS-36-190

B-36

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. IHAA @ 5,000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha$ x 10^{-6}	$T_{EA} \sin\alpha$ x 10^{-6}	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha$ x 10^{-6}	$T_{EA} \cos\alpha$ x 10^{-6}	$T'_{EA} \times 10^{-6}$	$\frac{J \tan\phi}{I_x} \times 10^{-6}$ / $\frac{J}{Q_x}$	$\frac{J \tan\phi}{I_x} M_x$	S''_b
		.9848×(14)	.1736×(22)	(23) − (24)	.9848×(10)	.1736×(14)	.9848×(22)	(27) + (28)	TABLE 30	(25)×(30)	OR .5×(6)
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	-53911
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	-51009
15	485.0	-43.82	0.36	-44.18	-17392	-7.725	2.098	-5677	578.0	-25536	-48164
			0.40	-44.22	-18529		2.098	-5.627		-25559	-49641
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	-6.852	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	-4093	625.2	-23483	-45717
			0.63	-37.76	-18248		3.595	-2.950		-23608	-59752
19	615.375	-34.07	0.56	-34.63	-16377	-6.007	3.171	-2836	647.7	-22430	-51610
			0.56	-34.63	-18278		3.171	-2.836		-22430	-61610
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	0.46	-28.27	-16269	-4.913	2.245	-2668	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	-59578

CALCULATED BY: S. B.
DRAWN BY:
CHECKED BY:

TABLE 40

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

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

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

SHEET 3 of 8 CONDITION: AGW 265000, 7g 1000 12 FULL FUEL 10 OIL IHAA @ 5000 FT.

REPORT FZB-SCHM-

DATE 12 OCT 51

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1 Station	2 DIST. FROM $\frac{\ell}{2}$ of SHIP	3 S_{b_0}	4 S_{b_1}	5 $1.5 \frac{n_z W}{2}$	6 $S_b = S'_b$	7 $S_{b_{max}}$	8 $\frac{n_z W}{2} - S_{b_1}$	9 $\frac{n_z W}{2} - S_{b_1}$	10 S_b	11 $M_{x_0} \times 10^6$	12 $M_{x_1} \times 10^6$	13 $1.5 \frac{n_z W}{2} M_{x_1} \times 10^6$	14 $M_x = M_{x_0} + M_{x_1} \times 10^6$	15 $M_{c_1} \times 10^6$	16 $1.5 \frac{n_z W}{2} M_{x_1} \times 10^6$	17 $\frac{n_z W}{2} M_{x_1} \times 10^6$	18 $(M_y = M_{y_0})$	19 $T_{R_0} \times 10^6$	20 $T_{R_1} \times 10^6$	21 $\frac{n_z W}{2} T_{R_1} \times 10^6$	22 $T_R = T_{R_0} + \frac{n_z W}{2} T_{R_1} \times 10^6$
		Fig. 11	Tab. 28	2.5 x 4	② + ⑤	Tab. 27	① - ⑦	⑧ x 0.6	⑥ + ⑨	Fig. 15	Tab. 28	2.5 x ⑫	⑩ + ⑬	Fig. 16	Tab. 27	2.5 x ⑮	⑪ + ⑯	Fig. 18	Tab. 28	2.5 x ⑲	⑱ + ⑳
26	870.0	-73300	2372	5,900	-67400	30,900	-14,340	850	-73910	-15.90	0.1435	0.86	-16.76	6.500	-8.01	0.170	-2.93	-2.30	0.1385	-2.550	-2.0
			2022	4,500	-68,700			400	-73,310										-0.635	-0.38	-2.0
27	906.0	-66,200	2022	4,600	-61,700	27,800	-13,760	800	-66,460	-13.40	0.1336	0.80	-14.60	5.485	-2.616	0.141	-2.475	-1.90	0.1102	-0.25	-2.0
			1,823	4,100	-62,200			730	-62,530										-0.1099	-0.25	-2.0
28	942.0	-57,700	1,823	4,100	-53,600	24,850	-12,850	730	-58,330	-11.06	0.0980	0.65	-10.43	4.485	-1.948	0.115	-2.024	-1.54	0.0855	-0.20	-1.7
			1,640	3,200	-56,000			660	-58,990										-0.0915	-0.21	-1.7
29	978.0	-53,200	1,640	3,200	-49,500	22,000	-11,990	660	-53,860	-9.20	0.0859	0.51	-8.67	3.635	-1.734	0.091	-1.643	-1.22	0.0678	-0.17	-1.4
			1,323	3,000	-50,500			530	-54,030										-0.0724	-0.17	-1.4
30	1014.0	-46,700	1,323	3,000	-43,700	19,250	-10,790	530	-47,230	-7.20	0.0785	0.41	-6.79	2.810	-1.388	0.072	-1.316	-0.93	0.0621	-0.14	-1.2
			1,168	2,700	-46,400			470	-47,870										-0.0663	-0.14	-1.2
31	1050.0	-40,900	1,168	2,700	-38,200	16,650	-9,960	470	-41,370	-5.60	0.0722	0.31	-5.29	2.065	-1.190	0.056	-1.134	-0.69	0.0533	-0.12	-1.0
			1,040	2,400	-39,800			420	-41,820										-0.0569	-0.12	-1.0
32	1086.0	-35,700	1,040	2,400	-33,300	14,360	-9,050	420	-36,150	-4.47	0.0650	0.24	-4.23	1.635	-1.025	0.042	-0.983	-0.54	0.0462	-0.10	-0.9
			926	1,800	-34,900			370	-36,630										-0.0493	-0.10	-0.9
33	1122.0	-31,000	926	1,800	-29,200	12,560	-8,160	370	-31,570	-3.48	0.0614	0.19	-3.29	1.270	-0.877	0.033	-0.844	-0.37	0.0330	-0.07	-0.7
			785	1,600	-30,600			330	-31,930										-0.0352	-0.07	-0.7
34	1140.0	-26,300	701.5	1,600	-24,700	10,650	-7,080	330	-27,030	-2.63	0.0604	0.14	-2.49	1.065	-0.509	0.024	-0.484	-0.25	0.0242	-0.06	-0.6
			626.8	1,400	-24,900			250	-27,280										-0.0259	-0.06	-0.6
35	1176.0	-21,900	626.8	1,400	-20,400	8,800	-6,200	250	-22,450	-1.92	0.0416	0.09	-1.83	0.765	-0.346	0.017	-0.329	-0.15	-0.0234	-0.05	-0.4
			439	900	-20,900			170	-22,620										-0.0171	-0.04	-0.4
36	1212.0	-17,400	313.9	700	-16,700	7,190	-5,430	170	-17,570	-1.38	0.0300	0.07	-1.31	0.540	-0.252	0.012	-0.240	-0.08	-0.0142	-0.03	-0.3
			350.9	800	-17,500			140	-17,640										-0.0144	-0.03	-0.3
37	1225.0	-14,300	358.9	800	-13,500	5,750	-4,940	140	-14,600	-0.98	0.0203	0.05	-0.93	0.360	-0.174	0.009	-0.165	-0.03	-0.0084	-0.02	-0.2
			313.5	700	-13,600			130	-14,610										-0.0131	-0.03	-0.2
38	1248.0	-11,000	313.5	700	-10,300	4,400	-3,900	130	-11,970	-0.58	0.0118	0.03	-0.55	0.225	-0.107	0.005	-0.102	-0.01	-0.0042	-0.02	-0.2
			268.3	600	-10,400			110	-11,990										-0.0101	-0.02	-0.2

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

SHEET 6 of 8.

CONDITION: A.G.W. 265,000# 72-1000 #D. 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	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{.7\tan\phi}{I_x/Q_x} \times 10^6$	$\frac{.7\tan\phi}{I_x/Q_x} M'_x$	S''_b (6) - (31)
		.9848×(14)	.1736×(22)	(23) − (24)	.9848×(10)	.1736×(14)	.9848×(22)	(27) + (28)	TABLE 30	(29) × (30)	OR .8×(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	-12,908	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	-45859
			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	1086.0	-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
			0.035	-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	-2919	-17981
			0.019	-1.821	-3969		0.1083	-0.2097		-2922	-18478
36	1198.0	-1.290	0.009	-1.299	-3210	-0.227	0.0492	-0.1778	1486.0	-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-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION	MODEL B-36
CHECKED BY			

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_{ba}	S_{b_1}	$1.5(\frac{x_{cg}}{w})S_{b_1}$ $(\frac{x_{cg}}{w})=.456$	$S_b = S_b'$	$S_{c_{L_{a_1}}}$	$1.5\frac{x}{w}S_{c_{L_{a_1}}}$ $\frac{x}{w}=.2318$	$1.5\frac{x_{cg}}{w}S_{b_1}$ $\frac{x_{cg}}{w}=.2268$	S_c	$M_{X_a} \times 10^6$	$M_{X_1} \times 10^6$	$1.5(\frac{x_{cg}}{w})M_{X_1}$ $\times 10^6$ $(\frac{x_{cg}}{w})=.456$	$M_X \times 10^6$	$M_{Q_{a_1}} \times 10^6$	$1.5\frac{x_{cg}}{w}M_{c_{L_{a_1}}}$ $\times 10^6$ $\frac{x_{cg}}{w}=.2318$	$1.5\frac{x_{cg}}{w}M_{Q_1}$ $\times 10^6$ $\frac{x_{cg}}{w}=.2268$	$(M_y = M_{Q_1}) \times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_1} \times 10^6$	$1.5(\frac{x_{cg}}{w})T_{EA_1}$ $\times 10^6$ $(\frac{x_{cg}}{w})=.456$	$T_{EA_a} \times 10^6$
		Fig. 11	TABLE 28 .2274 × ④	③ + ⑤		TAB 29 .0477 × ⑦	.0402 × ④	⑧ + ⑨	Fig. 11		TABLE 28 .2274 × ⑫	⑪ + ⑬	TAB 29 .0477 × ⑮	.0402 × ⑯	⑭ + ⑰	Fig. 11	TABLE 28	.2274 × ⑲	⑳ + 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	-0.0047	-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	-0.0205
TIP	1380.0		0	0	0			0	0	0								0	0	0	

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

SHEET 8 of 8. CONDITION: AGW 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	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J \tan\phi}{I_x} \cdot 10$ / $\frac{I_x}{Q_x}$	$\frac{J \tan\phi}{I_x} M'_x$ / $\frac{I_x}{Q_x}$	S''_c
		9848 × (14)	1736 × (22)	(23) − (24)	9848 × (10)	1736 × (14)	9848 × (28)	(27) + (28)	TABLE 30	(25) × (30)	0.5 × (6)
39	1278.0	-0.315	-0.007	-0.308	-1428	-0.00586	-0.0394	+0.0956	1614.0	516	-7084
			-0.003	-0.312	-1497		-0.0197	-0.0753		522	-7478
40	1301.0	-0.177	-0.005	-0.172	-1083	-0.00312	-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	-0.00389	-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	-0.0161	-20	-0.000972	-0.0209	+0.02366			-2200
TIP	1380	0	0	0	0	0			0	0	0

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

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

SHEET 1 OF 8 — CONDITION: AGW-265000# 72-400 A FULL FUEL 10 IL AA HIGH SPEED @ 5000 FT.

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 C/L OF SHIP	$S_{b_{ac}}$	$S_{b_{LT}}$	$\frac{1.506}{1.0}S_{b_{LT}}$	$S_b = S_b'$	$S_{c_{ac}}$	$\frac{-.181}{1.0}S_{c_{ac}}$	$\frac{1.105}{1.0}S_{L_T}$	S_c	$M_{x_{ac}} \times 10^6$	$M_{y_{ac}} \times 10^6$	$\frac{(4)\times(12)}{(3)}M_{x_T} \times 10^6$	$M_x \times 10^6$	$M_{c_{ac}} \times 10^6$	$\frac{1.506}{1.0}M_{c_{LT}} \times 10^6$	$\frac{1.506}{1.0}M_{c_{LT}} \times 10^6$	$M_{y_T} \times 10^6$	$T_{EA_c} \times 10^6$	$T_{EA_T} \times 10^6$	$\frac{1.506}{1.0}T_{EA_T} \times 10^6$	$T_{EA} \times 10^6$
		Fig. 12	TABLE 4.8	2.257 ④	③ + ④	1.0	-.181 ⑦	1.105 ⑧	⑤ + ⑨	Fig. 12	TABLE 4.8	2.257 ⑫	⑪ + ⑬	1.0	-.181 ⑫	1.105 ⑭	⑯ + ⑰	Fig. 12	TABLE 4.8	1.506 ⑳	⑲ + ㉑
0	0	-255,600	742.40	+167,700	-125,900	+21,900	-3970	8220	-117900	-191.1	+85.98	86.1	-91.0	72.814	-14.619	3.824	-10.795	2.972	-11.455	-8.832	-2.860
			737.50	166,600	-129000			7770	-119969		+38.96								-11.487	-8.832	-2.866
1	41.624	-251,200	732.80	166,600	-114900	126,250	-22810	24470	-116840	-159.5	62.42	72.2	-86.3	68.70	-13.500	3.501	-9.999	21.30	-10.814	-8.443	-3.13
			727.90	164,300	-117800			7850	-116960										-10.814	-8.443	-3.13
2	80.0	-246,300	727.30	164,300	-108,700	120,900	-21,760	23850	-115910	-148.9	59.89	66.8	-82.1	63.85	-12.597	3.196	-9.351	19.81	-10.234	-8.23	-3.21
			717.80	162,400	-107,600			7760	-113900										-10.206	-8.23	-3.225
3	118.25	-240,900	717.80	162,400	-99,500	116,400	-21,030	23760	-113810	-140.0	57.20	61.4	-78.6	59.85	-11.761	2.938	-8.823	18.60	-9.714	-7.99	-3.00
			708.00	160,100	-97,900			7700	-111870										-9.707	-7.99	-3.00
4	144.2	-235,800	711.300	161,100	-90,400	112,900	-20,410	23200	-111810	-131.4	54.64	56.11	-75.3	56.45	-11.014	2.683	-8.331	17.54	-9.221	-7.68	-3.01
			701.410	159,100	-84,300			7680	-109790										-9.228	-7.68	-3.01
5	180	-242,200	701.10	159,100	-83,100	107,800	-19,510	23600	-108520	-122.2	50.80	52.8	-72.4	53.30	-10.277	2.427	-7.850	16.89	-8.744	-7.19	-2.96
			692.70	141,600	-100,600			7720	-104350			50.8	-72.8			2.846	-7.846		-8.160	-10.45	-2.96
6	206	-238,300	684.20	141,600	-92,300	103,700	-18,770	23520	-103270	-114.9	20.64	46.1	-70.2	49.62	-9.736	2.236	-7.500	15.92	-7.825	-17.68	-2.96
			673.60	124,600	-105,300			7680	-101250		20.28	46.5	-70.4			2.223	-7.513		-7.836	-16.80	-2.96
7	232	-227,900	573.80	124,600	-98,200	100,200	-18,170	23440	-101180	-110.8	19.04	42.1	-67.2	46.25	-9.286	2.062	-7.154	14.58	-7.169	-16.10	-2.96
			447.80	101,200	-124,800			6840	-98230		19.62	42.11	-68.2			2.011	-7.215		-5.827	-13.28	+1.36
8	249	-223,100	447.80	101,200	-121,900	98,300	-17,810	23440	-99210	-107.2	18.95	40.3	-66.7	45.25	-8.992	1.928	-6.864	14.05	-5.702	-12.93	+1.36
			437.80	98,800	-124,800			6730	-96620		18.20	36.60	-62.65			1.750	-6.474		-5.702	-12.28	+1.36
9	284.5	-213,700	437.80	98,800	-114,900	95,800	-17,430	23420	-91210	-99.25	16.20	36.82	-62.43	41.86	-8.224	1.780	-6.444	12.98	-5.384	-12.16	+1.36
			540.80	122,300	-91,500			5840	-89240		16.20	36.60	-62.65			1.750	-6.474		-5.715	-12.26	+1.36
10	312	-206,200	54.080	122,400	-84,000	90,300	-16,360	23440	-81900	-93.5	14.71	33.2	-60.3	37.30	-7.758	1.589	-6.133	12.18	-5.601	-12.02	-1.44
			53.780	121,400	-84,800			5800	-81940										-5.610	-12.02	-1.44
11	339.5	-198,900	53.720	121,400	-77,500	86,900	-15,680	23400	-71280	-87.9	13.23	29.9	-58.2	36.86	-7.241	1.429	-5.812	11.40	-5.306	-11.44	-1.51
			48.110	108,900	-80,200			5200	-71880										-4.651	-10.51	-1.51
12	375.75	-189,400	48.110	108,700	-80,700	82,300	-15,210	23200	-71010	-80.95	11.49	25.96	-54.99	33.66	-6.612	1.241	-5.371	10.43	-4.293	-9.70	-1.51
			44.780	101,200	-88,200			4840	-71370										-4.281	-9.67	-1.51

Kriesberg

T. Ellis

TABLE 41

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

PAGE 177
REPORT FZS-36-140
DATE 12-4-48

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	$M_z \cos\Phi$ $\times 10^6$	$T_{EA} \sin\Phi$ $\times 10^6$	M_z $\times 10^6$	S'_c $S_c \cos\Phi$	$M_x \sin\Phi$ $\times 10^6$	$T_{EA} \cos\Phi$ $\times 10^6$	$T'_{EA} \times 10^6$	$\frac{J}{q_z} \tan\Phi$	$\frac{I_z}{Q_z} \tan\Phi M_x$	S'_b ⑥ − ㉛
		㉓ × (A)	㉕ × (B)	㉖ + ㉔	㉗ + (C)	㉘ × (A)	㉙ × (B)	㉙ + ㉘	TABLE 39	㉛ × ㉚	⑥ − ㉛
0	0	-84.62	-.4965 +.4972	-85.12 -85.13	-17628 -17677	-16.80	+2.00 -1.81	-18.62 -18.42	412.7	-36780 -36780	-84120 -90210
1	21.025	-84.97	-.4965 +.4972	-85.46 -85.47	-17689 -17738	-16.83	-3.08 +3.08	-18.11 +18.11	423.0	-35780 -35780	-79200 -81900
2	80.0	-80.84	-.4965 +.5044	-81.33 -81.34	-16848 -16897	-14.25	-3.26 -3.20	+17.51 +17.45	425.1	-34769 -34774	-91169 -93846
3	113.25	-77.45	+.5798 +.5841	-76.87 -76.91	-14807 -14857	-13.66	-3.28 -3.23	-16.94 -16.92	442.2	-33974 -33974	-64434 -65786
4	146.5	-74.16	+.6586 +.6638	-73.51 -73.52	-14218 -14191	-13.07	-3.34 -3.34	-16.41 -16.45	451.7	-33498 -33498	-56902 -58902
5	180.3	-71.30	-.6007 +.7015	-70.70 -70.59	-13614 -13592	-12.57	-3.44 -3.42	-15.98 -15.96	461.7	-32642 -32642	-56250 -62772
6	214.5	-68.13	+.3942 +.2870	-67.74 -67.84	-13048 -13067	-12.01	-2.38 -3.86	-14.42 -15.58	469.7	-32387 -32387	-61013 -72888
7	282.0	-66.67	+.2831 +.2874	-66.41 -66.89	-13374 -14703	-11.76	-1.45 +1.29	-13.24 -10.64	478.1	-31751 -32458	-58441 -94142
8	249.0	-65.69	+.1774 +.2831	-65.88 -66.86	-14280 -14398	-11.58	+1.10 +1.15	-10.48 -10.43	483.9	-31897 -31886	-90021 -92416
9	284.5	-61.48 -61.70	+.1624 -.0660	-61.32 -61.63	-13502 -13558	-10.84 -10.88	+.81 -.37	-10.03 -11.26	495.9	-30508 -30562	-84342 -60930
10	312.8	-59.38	-.0850 -.0850	-59.29 -59.29	-11716 -11768	-10.47	-.48 -.48	-10.95 -10.95	506.8	-29988 -29988	-54011 -54811
11	339.6	-57.18	-.1064 +.1045	-57.03 -57.27	-11109 -11432	-10.069	-.581 +.876	-10.65 -9.193	516.0	-29422 -29551	-48678 -60642
12	378.75	-54.15	+.1267 +.1319	-54.28 -54.28	-10838 -11167	-9.686	+.719 +.768	-8.827 -8.798	530.2	-28779 -28779	-51921 -59421

CALCULATED BY: Breenberg
DRAWN BY:
CHECKED BY: Prosper

TABLE 41

CONSOLIDATED VULTEE AIRCRAFT CORPORATION, FORT WORTH, TEXAS

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

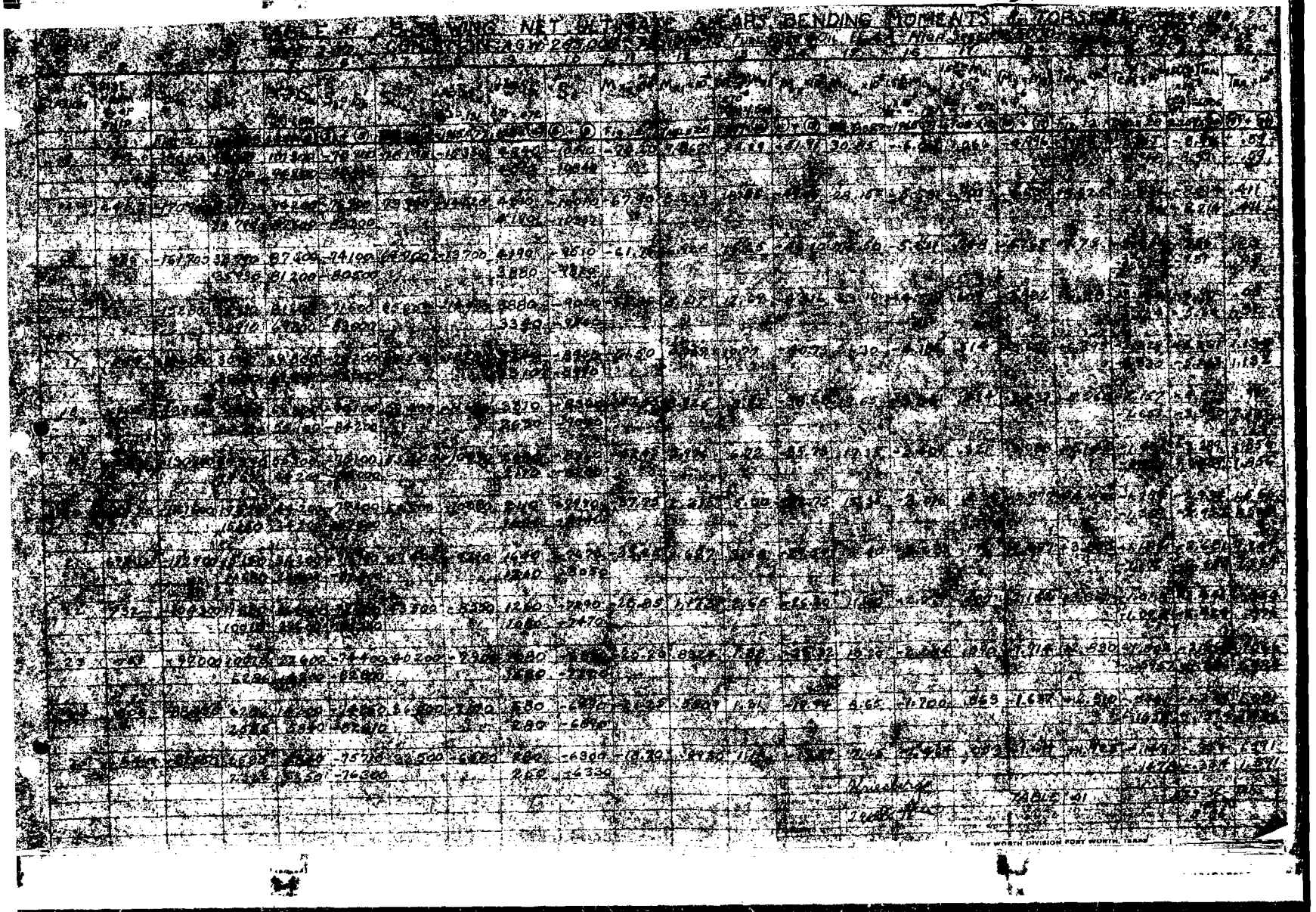

TABLE 41 — B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

SHEET 4 of 4 — CONDITION: A.G.W. 265,000# 72-1000-B, FULL FUEL & OIL, 1LAA - HIGH SPEED @ 5000 FT.

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1 Station	2 Ultimate Design Moment & Air Shear	23 $M_{y_1}\cos\alpha$ x10⁶	24 $T_{EA}\sin\alpha$ x10⁶	25 M_x x10⁶	26 S_c' $-S_c\cos\alpha$	27 $M_z\sin\alpha$ x10⁶	28 $T_{EA}\cos\alpha$ x10⁶	29 T'_{EA} x10⁶	30 $\frac{J_{max}}{Q_x}$	31 J_{max} $\frac{J_{max}}{Q_x}M_x$	32 S_b'' ⑥ - ㉛
		(23) x (4)	(24) x (2)	(3) - (25)	(26) = (4)	(26) x (4)	(28) = (22)	(27) + (28)	TABLE 30	(3) x (30)	on S = ⑥
13	412.8	-51.12	+.102	-5112	-10350	-9012	.581	-8431	545.1	-27920	-50180
			+.102	-51182	-10626		.581	-8431		-27920	-57980
14	4485	-48.30	.071	-48.37	-9858	-8.516	.485	-8.110	561.1	-27140	-49560
			.071	-48.37	-10172		.485	-8.110		-27140	-36160
15	4385	-45.40	.040	-45.44	-9365	-8.009	.227	-7.726	578.0	-26264	-47836
			.049	-45.45	-9671		.276	-7.727		-26270	-58230
16	5845	-42.86	.014	-42.87	-8883	-7.443	.077	-7.414	596.0	-25536	-46240
			.029	-42.73	-9445		1.300	-6.193		-25467	-57230
17	5429	-40.11	.197	-40.31	-8452	-7.071	1.119	-5.954	614.2	-24601	-51699
			.197	-40.21	-8736		1.115	-5.956		-24601	-67199
18	5766	-38.09	.172	-38.26	-8253	-6.715	.977	-5.738	626.2	-23920	-46180
			.371	-38.46	-8923		2.183	-5.615		-24049	-60165
19	6538	-35.19	.322	-35.51	-8134	-6.209	1.828	-4.375	647.7	-23000	-52100
			.382	-35.61	-8447		1.828	-4.375		-23000	-63000
20	6546	-32.25	.292	-32.58	-7844	-5.685	1.542	-4.143	671.9	-21850	-55550
			.268	-32.62	-8312		1.520	-4.143		-21850	-66560
21	6738	-29.12	.209	-29.33	-7533	-5.183	1.194	-3.987	697.9	-20468	-58231
			.213	-29.33	-7926		1.210	-3.923		-20468	-66031
22	782	-25.80	.148	-25.95	-7179	-4.548	.841	-3.707	726.1	-18842	-57460
			.158	-25.95	-7556		.863	-3.685		-18842	-67858
23	766	-22.77	.098	-23.07	-6716	-4.048	.557	-3.491	782.7	-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	786.3	-15592	-58658
			.336	-19.98	-6786		1.909	-1.585		-15700	-66906
25	860	-17.32	.276	-17.60	-6204	-3.054	1.867	-1.187	817.6	-14390	-61320
			.276	-17.60	-6234		1.567	-1.187		-14390	-61910

CALCULATED BY — DRAWN BY — CHECKED BY

TABLE 41

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

REPORT NO. ZS-38-140 — MODEL B-36

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

SHEET 5 of 9 CONDITION: AGW-226,700# TZ-30,000# FWD FUEL & OIL, 11 G.A. HIGH SPEED @ 5000 FT.

1 STATION	2 DIST. FROM $\frac{\Delta x}{2}$	3 S_{ba}	4 S_{b_1}	5 $\frac{I_s(\frac{dy}{dx})S_h}{I_b}$ $(\frac{I_s}{I_b})=1.65$	6 $S_b = S'_b$	7 $S_{a_{max}}$	8 $\frac{I_s}{I_b}=.131$	9 $\frac{I_s}{I_b}=.042$	10 S_{h_1}	11 S_a	12 M_{x_a} x10	13 M_{x_b} x10	14 $M_{x_{max}}$ x10	15 M_{y_a} x10	16 M_{y_b} x10	17 $M_{y_{max}}$ x10 $\frac{I_s}{I_b}=.072$	18 $(M_y = M_{y_1})$ x10	19 T_{BA} x10	20 T_{BA_1} x10 $(\frac{I_s}{I_b})=$
		$F_{b_{12}}$	TABLE 28	2.15×④	⑤ + ③	2×⑥	-100 ⑦	.105 ×④	⑨ + ③	S_{h_1} ×12									
25	870	-75450	2982	5850	-70400	32400	-6000	350	-5820	-15.5	4.23	-.76	-15.74	2.30	-1.278	.046	-1.231	1.61	
			2822	4570	-71080			330	-5850										
24	906	-68700	2922	4870	-64130	27000	-5400	320	-5240	-13.20	3.52	.74	-13.11	2.488	-1.078	.035	-1.040	1.29	
			1823	4120	-64250			300	-5260										
23	942	-61850	1822	4120	-57730	24300	-4860	280	-4700	-10.80	2.84	.64	-10.84	2.180	-.881	.031	-.850	1.095	
			2640	3900	-58160			260	-4720										
22	978	-54200	1320	3900	-50300	21000	-4200	180	-4140	-9.420	2.36	.510	-8.965	2.634	-.714	.024	-.690	.960	
			1323	2340	-52110			140	-4160										
21	1014	-46600	1318	2340	-43610	17460	-3490	140	-3450	-7.860	1.965	.423	-7.187	2.210	-.589	.019	-.570	.797	
			1148	2340	-45750			120	-3470										
20	1050	-42150	1162	2340	-39610	16460	-3290	130	-3140	-7.090	1.77	.380	-6.715	2.158	-.449	.015	-.434	.600	
			1041	2340	-39790			110	-3160										
19	1086	-37730	1041	2340	-35390	14460	-2890	110	-2850	-6.230	1.557	.334	-5.912	2.092	-.361	.011	-.350	.462	
			1041	1980	-36420			85	-2870										
18	1122	-33450	1041	1980	-30570	12460	-2490	85	-2585	-5.480	1.370	.294	-5.180	2.024	-.284	.009	-.270	.341	
			741	1440	-30630			76	-2590										
17	1158	-27630	622	1440	-25060	10260	-2090	76	-2311	-4.860	1.215	.260	-4.595	1.957	-.222	.007	-.215	.262	
			622	1320	-25210			68	-2322										
16	1194	-22650	622	1320	-20730	8400	-1730	68	-1965	-4.130	1.032	.221	-3.906	1.890	-.169	.004	-.165	.200	
			414	990	-22310			60	-1985										
15	1230	-19000	414	990	-18010	7360	-1520	60	-1645	-3.450	.862	.185	-3.265	1.868	-.106	.003	-.103	.120	
			259	810	-18190			49	-1671										
14	1266	-15200	369	810	-14390	5760	-1190	49	-1049	-2.198	.550	.118	-2.080	1.844	-.060	.002	-.058	.060	
			311	720	-14490			39	-1088										
13	1302	-11700	311	740	-10990	4400	-860	34	-824	-1.698	.424	.091	-1.607	1.828	-.044	.001	-.043	.036	
			248	810	-11040			30	-829										

Kaiserlinger

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	$M_X \cos\alpha$ x 10^{-6}	$T_{EA} \sin\alpha$ x 10^{-6}	$M'_X \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_X \sin\alpha$ x 10^{-6}	$T_{EA} \cos\alpha$ x 10^{-6}	$T'_{EA} \times 10^{-6}$	$\frac{I_z}{Q_x} \tan\phi \times 10$	$\frac{I_z}{Q_y} \tan\phi M'_x$	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	-52780
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	-38216
			.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	-.3361	-.0630	-.3991	1330	-2522	-19108
			-.009	-1.898	-1654		-.0483	-.3844		-2524	-19586
36	1198	-1.361	-.014	-1.347	-1344	-.2379	-.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
[illegible] FORT WORTH, TEXAS

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

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

PAGE 182
REPORT AFZ-36-140
DATE: 12 [illegible] 49

SHEET 7 of 8 CONDITION: AGW = 265000# 72-100% B, FULL FUEL 40% 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}	$1.5(\frac{N_z}{W})S_b$ $(\frac{N_z}{W})=1.506$	$S_b = S'_b$	S_{CL_a}	$1.3\frac{X_m}{W}S_{CL_a}$ $\frac{X_m}{W}=-.131$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=0.072$	S_c	$M_{X_a} \times 10^6$	$M_{X_i} \times 10^6$	$1.5(\frac{N_z}{W})M_{X_i}$ $\times 10^6$ $(\frac{N_z}{W})=1.506$	$M_X \times 10^6$	$M_{CL_a} \times 10^6$	$1.5\frac{X_m}{W}M_{CL_a}$ $\times 10^6$ $\frac{X_m}{W}=-.131$	$1.5\frac{X_m}{W}M_{X_i}$ $\times 10^6$ $\frac{X_m}{W}=.072$	$M_Y = M'_Y$ $\times 10^6$	$T_{EA_a} \times 10^6$	$T_{EX_i} \times 10^6$	$1.5(\frac{X_m}{W})T_{EX_i}$ $\times 10^6$ $(\frac{X_m}{W})=1.506$	$T_{EA_a} \times 10^6$
		Fig. 12	TABLE 28	2.259 × (4)	(3) + (5)	[redacted] 3.28Cb	.1965 × (7)	.108 × (4)	(8) + (9)	Fig. 12	TABLE 28	2.259 × (12)	(11) + (13)	[redacted] TAB. 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	.00467	.011	-.334	.125	-.025	.0005	-.0245	-.085	-.00868	-.020	-.105
			98	220	-8530			10	-630										-.00835	-.004	-.089
40	1301	-8450	98	220	-8230	2400	-470	10	-460	-.195	.002609	.006	-.189	.070	-.014	.0003	-.0137	-.077	-.001370	-.003	-.080
			65	150	-8300			7	-463										-.001199	-.009	-.080
41	1324	-4200	165	150	-4050	1600	-310	7	-303	-.096	.001109	.002	-.092	.035	-.002	.0001	-.0069	-.0615	-.000891	-.0020	-.0635
			120	110	-4090			6	-305										-.000977	-.0012	-.0647
TIP	1344.4 (1320.64)	-2400	50	110	-2290	900	-180	6	-175	-.020	0	0	-.020	.011	-.002	0	-.0070	-.040	-.000543	-.001	-.041
		0	0	0	0		0	0	0	0								0	0	0	0

Krenberg
T. Ellis Hughes

TABLE 41

DCC
AFZ-36-140
B-36

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	$M_x \cos\alpha$ x 10^{-6}	$T_{EA} \sin\alpha$ x 10^{-6}	M'_x x 10^{-6}	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha$ x 10^{-6}	$T_{EA} \cos\alpha$ x 10^{-6}	T'_{EA} x 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
		.9848×⑯	.1736×㉒	㉓ − ㉔	.9848×⑩	.1736×⑭	.9848×㉒	㉗ + ㉘	TABLE 30	㉙ × 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 C.G.	1344.4	-.0197	-.0071	-.0126	-172	-.0035	-.0404	-.0439	—	—	-2290
TIP	1380.84	—	0	0	0		0	0	—		0

CALCULATED BY
DRAWN BY
CHECKED BY

TABLE 41

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 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_{ba}	S_{bi}	$1.5(\frac{-N_z}{W})S_{bi}$ $(\frac{-N_z}{W})=1.364$	$S_b = S'_b$	$S_{CL_{a_i}}$	$1.5\frac{X}{W}S_{CL_{a_i}}$ $\frac{X}{W}=-.082$	$1.5\frac{X_m}{W}S_{bi}$ $\frac{X_m}{W}=.026$	S_c	$M_{X_a} \times 10^6$	$M_{X_i} \times 10^6$	$1.5(\frac{-N_z}{W})M_{X_i}$ $\times 10^6$ $(\frac{-N_z}{W})=1.364$	$M_X \times 10^6$	$M_{CL_{a_i}} \times 10^6$	$1.5\frac{X}{W}M_{CL_{a_i}}$ $\times 10^6$ $\frac{X}{W}=-.082$	$1.5\frac{X_m}{W}M_{X_i}$ $\times 10^6$ $\frac{X_m}{W}=.026$	$(M_y = M'_y) \times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_i} \times 10^6$	$1.5(\frac{-N_z}{W})T_{EA_i} \times 10^6$ $(\frac{-N_z}{W})=1.364$	$T_{EA} \times 10^6$
		Fig. 13	TABLE 28	2.046 × ④	③ + ⑤	TAB 29	-.123 × ⑦	.039 × ④	⑧ + ⑨	Fig. 13	TABLE 28	2.046 × ⑫	⑪ + ⑬	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	-86673	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	-87580			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	129223	-83017			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	-83622			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	-111269			1705	-10398		17.85	36.52	-60.93			.696	-4.870		-5.702	-11.666	-1.266
9	284.5	-192080	43720	89451	-102629	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
			54080	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

Kimball

Bintliff

TABLE 42

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	$M_x \cos\alpha$ x 10^6	$T_{EA} \sin\alpha$ x 10^6	M'_x x 10^6	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha$ x 10^6	$T_{EA} \cos\alpha$ x 10^6	T'_{EA} x 10^6	$\frac{J \tan\phi}{I_z/Q_x} \cdot 10^6$	$\frac{J \tan\phi}{I_z/Q_x} M'_x$	S''_b (6) - (31)
		9848 × (14)	J736 × (22)	(23) - (24)	9848 × (10)	J736 × (14)	9848 × (22)	(27) + (28)	TABLE 30	(25) × (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	-20.605		-33056	-78051
1	41.025	-76.982	-1.093	-75.889	-12461	-13.570	-6.199	-19.769	423.0	-32101	-68486
			-1.094	-75.888	-12500		-6.204	-19.774		-32101	-70473
2	80.0	-73.317	-1.080	-72.297	-11852	-12.935	-6.124	-19.059	433.1	-31312	-61882
			-1.070	-72.307	-11884		-6.067	-19.052		-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.[illegible]	-11361		-5.973	-18.379		-30693	-57187
4	146.5	-67.58	-1.032	-66.56	-10828	-11.914	-5.856	-17.700	451.7	-29679	-47961
			-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	-16045		-29673	-59344
6	206	-62.948	-.799	-62.151	-10191	-11.097	-4.520	-15.617	469.7	-29192	-53545
		-63.165	-.659	-62.506	-10395	-11.135	-3.736	-14871		-29359	-64263
7	232	-60.851	-.659	-60.192	-9983	-10.727	-3.738	-14.465	476.1	-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	-11824		-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	-12426		-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	-9.244	-2.419	-11.66[illegible]	516.0	-26855	-42594
			-.194	-52.276	-8679		-1.099	-10.344		-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	Kreisberg
DRAWN BY	
CHECKED BY	Propper

TABLE 42

CONSOLIDATED VULTEE AIRCRAFT [illegible]PORATION [illegible]ORT, TEXAS

DOC NO. FZS-36-140

MODEL B-36

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. - LIMIT DIVE SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha$ x 10⁶	$T_{EA} \sin\alpha$ x 10⁶	M'_x x 10⁶	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha$ x 10⁶	$T_{EA} \cos\alpha$ x 10⁶	T'_{EA} x 10⁶	$\frac{J \tan\phi}{I_z} \cdot \frac{10}{Q_x}$	$\frac{J \tan\phi}{I_z} M'_x$	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
			-1.104	-80.098	-13145		-6.298	-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	-19.059	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.[illegible]	-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	-.654	-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	476.1	-28778	-58684
		-61.796	-.215	-61.581	-10466	-10.893	-1.219	-12.112		-29442	-85738
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	-11.32[illegible]	495.9	-27762	-74867
		-56.429	-.437	-55.992	-9285	-9.947	-2.479	-12426		-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	Kruseberg	TABLE 42	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT [illegible] FORT [illegible] TEXAS	MODEL B-36
CHECKED BY	Popper		

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. I.L.A.-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_{bi}	$1.5(\frac{\Delta x}{\Delta y})S_{bi}$ $(\frac{\Delta x}{\Delta y})=.4364$	$S_b = S'_b$	S_{CL_a}	$1.5(\frac{\Delta x}{\Delta y})S_{CL_a}$ $\frac{\Delta x}{\Delta y}=.082$	$1.5(\frac{\Delta x}{\Delta y})S_{bi}$ $\frac{\Delta x}{\Delta y}=.026$	S_c	$M_{X_a} \times 10^{-6}$	$M_{X_i} \times 10^{-6}$	$1.5(\frac{\Delta x}{\Delta y})M_{X_i}$ $\times 10^{-6}$ $(\frac{\Delta x}{\Delta y})=.1364$	$M_X \times 10^{-6}$	$M_{CL_a} \times 10^{-6}$	$1.5(\frac{\Delta x}{\Delta y})M_{CL_a}$ $\times 10^{-6}$ $\frac{\Delta x}{\Delta y}=.082$	$1.5(\frac{\Delta x}{\Delta y})M_{X_i}$ $\times 10^{-6}$ $\frac{\Delta x}{\Delta y}=.026$	$(M_y = M_L)$ $\times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{\Delta x}{\Delta y})T_{EA_i}$ $\times 10^{-6}$ $(\frac{\Delta x}{\Delta y})=.1364$	$T_{EA} \times 10^{-6}$
		Fig. 13	TABLE 28	2.046% ④	③ + ⑤	TAG 29	-.123 x ⑦	.039 x ④	⑧ + ⑨	Fig. 13	TABLE 28	2.046% ⑪	⑩ + ⑫	TAG 29	-.123% ⑭	.039 x ⑪	⑮ + ⑯	⑬ + ⑰	Fig. 13	TABLE 28	2.046% ⑲	⑱ + ⑳
13	41½	-162880	44780	91620	-71260	78100	-9606	1746	-7860	-67.85	1.867	20.19	-47.66	30.55	-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	-75596			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	62600	-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	-7306	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	43600	-5351	456	-4895	-26.62	1.173	2.400	-24.22	11.60	-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	-23.58	.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	-4246	-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	+.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

Kreisberg
Dropper

TABLE 42

FZS-36-140

B-36

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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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	$M_z \cos\alpha$ x10⁻⁶	$T_{EA} \sin\alpha$ x10⁻⁶	M'_x x10⁻⁶	$S'_c = S_c \cos\alpha$	$M_z \sin\alpha$ x10⁻⁶	$T_{EA} \cos\alpha$ x10⁻⁶	T'_{EA} x10⁻⁶	$\frac{J\tan\phi}{I_x/Q_x} \times 10$	$\frac{J\tan\phi}{I_x/Q_x} M'_x$	S''_b ⑥ - ㉛
		.9848×⑭	.1736×㉒	㉓ - ㉔	.9848×⑩	.1736×⑭	.9848×㉒	㉗ + ㉘	TABLE 30	㉓ × 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	615.875	-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	-30.052	-5632		+.539	-4.742		-20193	-60010
21	692.125	-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	-3.843	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	766.3	-14902	-53677
			+.217	-19.086	-4322		+1.232	-2.094		-15007	-61144
25	840	-16.387	+.173	-16.560	-3957	-2.889	.983	-1.906	817.3	-13524	-56337
			+.173	-16.560	-3969		.983	-1.906		-13524	-56875

CALCULATED BY	K. Kinsinger
DRAWN BY	
CHECKED BY	V. Hyler

TABLE 42

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

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

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_{ba}	S_{bi}	$L\delta(\frac{W_i}{W})S_{bi}$ $(\frac{W_i}{W})\times.364$	$S_b = S'_b$	$Sc_{L_{a_i}}$	$1.5\frac{L_{a_i}}{W}Sc_{L_{a_i}}$ $\frac{L_{a_i}}{W}=0.082$ $\frac{X_{m_i}}{W}=0.026$	$1.5\frac{X_{m_i}}{W}S_{bi}$	S_c	$M_{Xa}\times10^6$	$M_{Xi}\times10^6$	$L\delta(\frac{W_i}{W^2})M_{Xi}$ $\times10^6$ $(\frac{W_i}{W^2})=.364$	$M_X\times10^6$	$MC_{L_{a_i}}\times10^6$	$L\delta\frac{L_{a_i}}{W}MC_{L_{a_i}}$ $\times10^6$ $\frac{L_{a_i}}{W}=.082$	$1.5\frac{X_{m_i}}{W}\times10^6 M_{Xi}$ $\frac{X_{m_i}}{W}=.026$	$(M_y=M'_y)\times10^6$	$T_{EA_a}\times10^6$	$T_{EA_i}\times10^6$	$L\delta(\frac{W_i}{W^2})T_{EAi}$ $\times10^6$ $(\frac{W_i}{W^2})=.1364$	$T_{EA}\times10^6$
		Fig. 13	TABLE 28 2.046× ④	③+②		TAB 29 .125× ⑦	.039× ④	⑧+⑨	Fig 13	TABLE 28 2.046× ⑫	⑪+⑬	TAB 29 .125× ⑮	.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	-1458	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	-.5617	.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	-2037										-.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	-.0446	-.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	-.08680	-.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	.02091	.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	.01185	.02425	-.5207	.225	-.02768	.00044	-.02722	-.1378	-.01037	-.02122	-.1690
			268	548	-10537			10	-531										-.01012	-.02071	-.1685

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.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_z \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J \tan\phi}{I_z/Q_z} \times 10^6$	$\frac{J \tan\phi}{I_z/Q_z} M'_x$	$S''_b = (6) - (31)$
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	OR .5 × (6)
26	870	-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	1086	-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	1194	-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	Hoffer		

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

PAGE: 190
REPORT: FZS-96-140
DATE: 12-4-45

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_{ba}	S_{bi}	$1.5(\frac{N_z}{W})S_{bi}$ $(\frac{N_z}{W})=1.364$	$S_b = S_b'$	$S_{C_{L_{\alpha_i}}}$	$1.5\frac{x}{w}S_{C_{L_{\alpha_i}}}$ $\frac{x}{w}=-.082$	$1.5\frac{x_m}{w}S_{bi}$ $\frac{x_m}{w}=.026$	S_c	$M_{x_a} \times 10^{-6}$	$M_{x_i} \times 10^{-6}$	$1.5(\frac{-N_z}{W})M_{x_i} \times 10^{-6}$ $(\frac{-N_z}{W})=1.364$	$M_x \times 10^{-6}$	$M_{C_{L_{\alpha_i}}} \times 10^{-6}$	$1.5\frac{x}{w}M_{C_{L_{\alpha_i}}} \times 10^{-6}$ $\frac{x}{w}=-.082$	$1.5\frac{x_m}{w}M_{x_i} \times 10^{-6}$ $\frac{x_m}{w}=.026$	$(M_y = M_y') \times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{-N_z}{W})T_{EA_i} \times 10^{-6}$ $(\frac{-N_z}{W})=1.364$	$T_{EA} \times 10^{-6}$
		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	⑱ + ㉑
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	1380.84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

CALCULATED BY: Kriesberg
DRAWN BY:
CHECKED BY: Duffer
APPROVED BY:

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH, TEXAS

TABLE 42.

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

TABLE 42 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-LIMIT DIVE SPEED @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha$ x 10^6	$T_{EA} \sin\alpha$ x 10^6	M'_x x 10^6	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha$ x 10^6	$T_{EA} \cos\alpha$ x 10^6	T'_{EA} x 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. 6 = (6) − (31)
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	-142		-.0841	-.0981		-154	-4154
TIP C.G.	1376.4	0	-.0091	+.0091	-107	0	-.0519	-.0519	—	—	-2538
TIP					0		0	0			0

CALCULATED BY	Krisberg
DRAWN BY	
CHECKED BY	Jaffee
APPROVED BY	

TABLE 42.

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

PAGE: 192
REPORT: FZ3-36-140
DATE: 12-4-45

SHEET 1 of 8 CONDITION: A.G.W. 254,131# 72-1000# B. FULL FUEL & OIL. 11.4A - 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_{ba}	S_{bi}	$1.5(\frac{N_z}{W})S_{bi}$ $(\frac{N_z}{W})=1.492$	$S_b = S'_b$	$S_{CL_{a_i}}$	$1.5\frac{X}{W}S_{CL_{a_i}}$ $\frac{X}{W}=.145$	$1.5\frac{X_{cg}}{W}S_{bi}$ $\frac{X_{cg}}{W}=.199$	S_c	$M_{X_a} \times 10^{-6}$	$M_{X_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})M_{X_i}$ $\times 10^{-6}$ $(\frac{N_z}{W})=1.492$	$M_X \times 10^{-6}$	$M_{CL_{a_i}} \times 10^{-6}$	$1.5\frac{X}{W}M_{CL_{a_i}}$ $\times 10^{-6}$ $\frac{X}{W}=.145$	$1.5\frac{X_{cg}}{W}M_{X_i}$ $\times 10^{-6}$ $\frac{X_{cg}}{W}=.199$	$(M_y = M'_y)$ $\times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})T_{EA_i}$ $\times 10^{-6}$ $(\frac{N_z}{W})=1.492$	$T_{EA_i} \times 10^{-6}$
		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 + ⑳
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	39.92	-10.992	-24.60	10.32
			68312	152902	-138518			-20391	7121										-10.994	-24.60	10.32
1	41.025	230100	68312	152882	-127818	121070	26333	-20391	5942	-156.0	30.352	67.928	-88.07	65.88	14.33	-9.060	5.270	32.52	-10.917	-23.313	9.207
			67291	150597	-129603			-20086	6247										-10.819	-23.318	9.202
2	80.0	226800	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	123.25	223500	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	-111808			-19659	4621										-9.393	-21.022	7.438
4	146.5	219500	65860	147395	-102105	107410	23362	-19659	3703	-127.9	23.331	52.215	-75.69	53.75	11.69	-6.964	4.726	26.66	-8.942	-20.012	6.648
			64973	145410	-104090			-19399	3968										-8.950	-20.030	6.630
5	180	213800	64973	145410	-94590	103090	22422	-19394	3028	-119.7	21.150	47.345	-72.36	50.15	10.91	-6.314	4.596	24.97	-8.502	-19.027	5.943
			64278	143850	-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	-17.836	6.644
			51913	116181	-116315			-15496	6195		19.901	43.419	-70.08			-5.791	4.549		-7.223	-16.145	7.515
7	232	225200	51913	116181	-103019	96970	20982	-15496	5486	-107.5	18.052	40.400	-67.10	45.02	9.792	-5.389	4.403	22.43	-6.946	-15.595	6.885
			39343	88050	-131150			-11744	9238		17.581	39.346	-68.15			-5.248	4.544		-5.056	-11.748	9.682
8	249	220300	39343	88050	-132450	94360	20523	-11744	8779	-103.8	16.941	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			-19590	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	195800	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	-98720			-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	-53.20	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. Kilgore
CHECKED BY: B. Shaffer

TABLE 43

DOC. NO. FZ3-36-140
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, 1.1 A.A.-High Speed @ 35000 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	$M_z \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_z \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T'_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{T_{TAU}}{\frac{z}{Q_z}} \times 10$	$\frac{T_{TAU}}{\frac{z}{Q_z}} M'_z$	$S'_h = (6) - (31)$
		.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
			1.798	-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	-97856
			1.597	-88.33	6152		9.062	-6.227		-37364	-98139
2	80.0	-81.88	1.413	-83.29	5053	-14.433	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	1.164	-75.69	3647	-13.160	6.549	-6.593	451.7	-34169	-67916
			1.151	-75.69	3908		6.529	-6.611		-34169	-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	1.158	-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	1.195	-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	-102654
9	284.5	-60.47	1.435	-61.91	8004	-10.659	8139	-2.520	495.9	-30701	-94457
		-60.69	1.229	-61.92	8948	-10.698	6.971	-3.728		-30826	-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	5099		7.327	-2.481		-29376	-69344
12	375.75	-52.21	1.166	-53.38	4196	-9.204	6.611	-2.593	530.2	-28302	-61018
			1.173	-53.38	4815		6.665	-2.549		-28302	-65717

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

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 @ 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_{ba}	S_{bi}	$1.5(\frac{N_z}{W})S_{bi}$ ($\frac{N_z}{W}$)=1.492	$S_b = S'_b$	S'_{CL_a}	$1.5\frac{x}{W}S_{CL_a}$ $\frac{x}{W}$=.145	$1.5\frac{x_m}{W}S_{bi}$ $\frac{x_m}{W}$=-.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	$M_x \times 10^6$	$M_{CL_a} \times 10^6$	$1.5\frac{x}{W}M_{CL_a} \times 10^6$ $\frac{x}{W}$=.145	$1.5\frac{x_m}{W}M_{x_i} \times 10^6$ $\frac{x_m}{W}$=-.199	$(M_y = M'_y) \times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_i} \times 10^6$	$1.5(\frac{N_z}{W})T_{EA_i} \times 10^6$ ($\frac{N_z}{W}$)=1.492	$T_{EA} \times 10^6$
		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 + ㉑
13	412.0	-176800	41279	92371	-84429	7990	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	7010	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	5.948
			31539	84012	-83288			-11205	4209										-3.623	-8.108	5.962
15	485.0	-158100	37599	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
			25594	79547	-78553			-10610	3928										-3.321	-7.432	4.918
16	521.5	-149200	35544	79547	-69653	62360	13694	-10610	3084	-53.7	5.606	12.546	-41.15	22.15	4.818	-1.673	3.145	11.18	-3.054	-6.895	4.345
			30852	69047	-80153			-9209	4485										-2.503	-5.602	5.578
17	542.0	-142500	30852	69047	-73453	59940	13037	-9209	3828	-49.7	4,757	10,646	-39.05	20.93	4,444	-1.420	3.024	10.34	-2.329	-5.212	5.128
			30568	68411	-74559			-9125	3912										-2.330	-5.215	5.125
18	576.5	-136000	30568	68411	-67889	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	-83151			-5821	5735										-1.456	-3.259	5.231
20	654.25	-117800	19501	43643	-74157	49200	10701	-5821	4880	-35.9	2,212	4950	-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	3639	-27.96	12.65	2795	-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	-1.089	-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	.5808	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	3.039
25	840.0	-78200	2585	5785	-72415	31730	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	$M_z \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_z \times 10^6$	$S'_c = S_c \cos\alpha$	$M_z \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J \tan\phi \text{ at } .15}{I_z/Q_z}$	$\frac{J \tan\phi}{I_z/Q_z} M'_z$	S''_b
		(23)+(24)	.1736 × (22)	(25) − (26)	.9848 × (10)	.1736 × (14)	(23)−(27)	(27) + (28)	TABLE 30	(29) × (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	-24547	-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	654.25	-30.48	.796	-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	6812		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
			.694	-19.59	6737		3.879	+.546		-16404	-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	
DRAWN BY	
CHECKED BY	Brice Hyer

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

PAGE 196
REPORT FZS-36-140
DATE 12-4-45

SHEET 5 of 6. CONDITION: A.G.W. 254,131 #, 72-1000 #B. FULL FUEL & OIL, LAA. 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_{ba}	S_{b_i}	$1.5(\frac{-N_z}{W})S_{b_i}$ $(\frac{-N_z}{W})=.1492$	$S_b = S_b'$	$S_{C_{L_{a_i}}}$	$1.5\frac{x_{ba}}{W}S_{C_{L_{a_i}}}$ $\frac{x_{ba}}{W}=.145$	$1.5\frac{x_{b_i}}{W}S_{b_i}$ $\frac{x_{b_i}}{W}=-.199$	S_c	$M_{X_a}\times10^6$	$M_{X_i}\times10^6$	$1.5(\frac{-N_z}{W})M_{X_i}$ $(\frac{-N_z}{W})=.1492$	$M_{X}\times10^6$	$M_{C_{L_{a_i}}}\times10^6$	$1.5\frac{x_{ba}}{W}M_{C_{L_{a_i}}}$ $\frac{x_{ba}}{W}=.145$	$1.5\frac{x_{b_i}}{W}M_{X_i}$ $\frac{x_{b_i}}{W}=-.199$	$(M_y=M_Y')\times10^6$	$T_{EA_a}\times10^6$	$T_{EA_1}\times10^6$	$1.5(\frac{-N_z}{W})T_{EA_1}$ $(\frac{-N_z}{W})=.1492$	$T_{EA}\times10^6$
		Fig. 14	TABLE 27	2230×④	③ + ⑤	TABLE 29	.2175×⑦	-.2985×④	⑧ + ⑨	Fig. 14	TABLE 27	2230×⑫	⑪ + ⑬	TABLE 29	.2175×⑭	-.2985×⑫	⑯ + ⑰	Fig. 14	TABLE 27	2230×⑳	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	-65900	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	1.495	-.06313	-.141	1.344
			1168	2614	-43386			-349	3666										-.06285	-.140	1.345
31	1050	-40000	1168	2614	-37386	15970	3473	-349	3124	-5.57	.1363	.3048	-5.215	2.191	.4765	-.0407	.4358	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	.00144	.1823	-3.218	1.362	.2962	-.0243	.2719	.720	-.03296	-.0738	.6462
			702	1571	-28929			-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	.4780
			627	1403	-24497			-187	2034										-.02776	-.0621	.4799
35	1170	-21500	627	1403	-20097	8440	1836	-187	1649	-1.88	.04159	.0031	-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	.03080	.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

Kriegsberg
Buell Myers

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. I.L.A. - HIGH SPEED @ 35000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha$ x10⁶	$T_{EA} \sin\alpha$ x10⁶	M'_x x10⁶	S'_c $+S_c \cos\alpha$	$M_x \sin\alpha$ x10⁶	$T_{EA} \cos\alpha$ x10⁶	T'_{EA} x10⁶	$\frac{J \tan\phi}{I_x/Q_x} \times 10$	$\frac{J \tan\phi}{I_x/Q_x} M'_x$	S''_b (8) - (31)
		9848 × (14)	.1736 × (22)	(23) - (24)	9848 × (10)	.1736 × (14)	9848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	OR. 8 = (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	-55143
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	1960	-.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 Kincaboy
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

PAGE: 198
REPORT: FZ3-36-140
DATE: 12-4-45

SHEET 7 of 8. CONDITION: AGW 254131# 72-1000#B. FULL FUEL & OIL. 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_{bi}	$1.5(\frac{N_z}{W})S_{bi}$ $(\frac{N_z}{W})=1.492$	$S_b = S'_b$	$S_{C_{L_{a_i}}}$	$1.8\frac{x}{W}S_{C_{L_{a_i}}}$ $\frac{X}{W}=.145$	$1.5\frac{X_m}{W}S_{bi}$ $\frac{X_m}{W}=.199$	S_c	$M_{X_a} \times 10^{-6}$	$M_{X_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})M_{X_i} \times 10^{-6}$ $(\frac{N_z}{W})=1.492$	$M_X \times 10^{-6}$	$M_{C_{L_{a_i}}} \times 10^{-6}$	$1.5\frac{x}{W}M_{C_{L_{a_i}}} \times 10^{-6}$ $\frac{x}{W}=.145$	$1.5\frac{X_m}{W}M_{X_i} \times 10^{-6}$ $\frac{X_m}{W}=.199$	$(M_y = M'_y) \times 10^{-6}$	$T_{EA-a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})T_{EA_i} \times 10^{-6}$ $(\frac{N_z}{W})=1.492$	$T_{EA} \times 10^{-6}$
		Fig. 14	TABLE 27	2.238×④	③ + ⑤	[redacted] TAB 29	.145 × ⑦	.2985× ④	⑧ + ⑨	Fig. 14	TABLE 27	2.238×⑫	⑪ + ⑬	[redacted] TAB 27	.145× 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	.0103	-.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
TIPLG	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

Kreisinger
Brian Snyder

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#, 72-1000#B, FULL FUEL & OIL, ILAA - HIGH SPEED @ 35000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_X \cos\alpha$ x10⁻⁶	$T_{EA} \sin\alpha$ x10⁻⁶	$M'_X \times 10^{-6}$	$S'_c + S_c \cos\alpha$	$M_X \sin\alpha$ x10⁻⁶	$T_{EA} \cos\alpha$ x10⁻⁶	$T'_{EA} \times 10^{-6}$	$\frac{J \tan\phi}{I_z/Q_x} \times 10$	$\frac{J \tan\phi}{I_z/Q_x} M'_X$	S''_b (6) - (31)
		.9848 × (3)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(29) × (30)	OR. S = (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	Krisberg	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 Hipps		

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

SHEET 1 OF 8 CONDITION: ROW-829999 32-1000 ℔ ½ FUEL & OIL AAA- HIGH SPEED @ 4000 FT.

STATION																					
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

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	$M_z \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{T \tan\phi \times 10^{-6}}{I_z / Q_x}$	$\frac{T \tan\phi}{I_z / Q_x} M_x$	S''_b (6) - (31)
		(23)&(16)	(24)×(22)	(23) - (26)	(23)&(10)	(24)×(16)	(23)&(22)	(27) + (28)	TABLE 30	(29) × (30)	OR. S= (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	6.269	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	-12,280	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	-0.225	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
DRAWN BY	
CHECKED BY	Kirkpatrick

TABLE 44

CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS

DOC NO. FZS-36-140

MODEL B-36

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

SHEET 3 of 8. CONDITION: R.G.W.-229,999# 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_{ba}	S_{bi}	$1.5(-\frac{N_z}{W})S_{bi}$ $(-\frac{N_z}{W})=2.623$	$S_b = S'_b$	$S_{CL_{a_i}}$	$1.5\frac{X_m}{W}S_{CL_{a_i}}$ $\frac{X_m}{W}=-.139$	$1.5\frac{X_m}{W}S_{bi}$ $\frac{X_m}{W}=.088$	S_c	$M_{X_a} \times 10^6$	$M_{X_i} \times 10^6$	$1.5(-\frac{N_z}{W})M_{X_i} \times 10^6$ $(-\frac{N_z}{W})=-2.623$	$M_X \times 10^6$	$M_{CL_{a_i}} \times 10^6$	$1.5\frac{1}{W}M_{CL_{a_i}} \times 10^6$ $\frac{X_m}{W}=-.139$	$1.5\frac{X_m}{W}M_{X_i} \times 10^6$ $\frac{X_m}{W}=.088$	$(M_y = M'_y) \times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_i} \times 10^6$	$1.5(-\frac{N_z}{W})T_{EA_i} \times 10^6$ $(-\frac{N_z}{W})=-2.623$	$T_{EA} \times 10^6$
		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	⑳ + ⑲		
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										-3.394	13.354	-9.906
15	485	241,400	30,290	-119,176	122,214	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			3,377	-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	11.529	-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	615.376	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	-7,861										-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	3.942	-4.633
			6,286	-24,732	111,268			830	-6,475										-.5957	2.344	-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	-5,770										-.1478	.582	-5.793

TABLE 44

FZS-36-140

B-36

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 @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J \tan\phi}{I_x} \times 10^6$ / $\frac{J \tan\phi}{Q_x}$	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	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	54.196	-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	596.5	51.081	-1.389	52.470	-7,353	9.004	-7.875	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	654.15	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	-6,696	6.609	-6.427	+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	83,221
23	766	30.012	-.804	30.816	-5,863	5.230	-4.561	+0.727	752.7	23,195	73,421
			-1.082	31.094	-6,347		-6.132	-0.846		23,404	87,864
24	806	25.766	-.832	26.658	-5,687	4.542	-5.061	-0.519	786.3	20,961	77,107
			-1.151	26.917	-6,169		-6.520	-1.985		21,165	91,464
25	840	22.266	-.995	23.261	-5,635	3.777	-5.044	-1.722	817.6	19,018	82,911
			-.995	23.261	-5,669		-5.040	-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			

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

SHEET 6 of 8 CONDITION: RQW = 229,000#, RF 100%, ½ FUEL & OIL, 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 C/L	S_{ba}	S_{ai}	$\frac{1}{2}S_{ai}$	S_a	S_{ai}	$\frac{1}{2}S_{ai}$	S_{ai}	S_a	$M_{xa}\times10^6$	$M_{xi}\times10^6$	$\frac{1}{2}M_{xi}\times10^6$	$M_{xi}\times10^6$	$M_x\times10^6$	$\frac{1}{2}M_{ai}\times10^6$	$T_{ai}\times10^6$	$\frac{1}{2}T_{ai}\times10^6$	$T_{ai}\times10^6$	$T_a\times10^6$	$\frac{1}{2}T_{ai}\times10^6$
		Fig. 16	Table 6.26	③+④	① + ⑤				⑥+⑦	Fig. 16				⑪+⑫	⑬				⑮+⑯	
20	870	102,300	4322	-3,136	99,164	26,800	-5,032	2635	-5,285	21,515										
			2042	-7,956	94,344			4647	-9,925											
21	906	92,100	4042	-7,956	84,144	24,180	-5,031	2617	-7,964	17,216	8568	1,075	16,864	+761	-883	-.046	-.947	-.510	-1101	.4831
			1823	-7,173	84,971			4591	-9,730										-1584	.429
28	1447	82,000	1823	-7,173	74,827	21,570	-4,492	2545	-6,256	14,814	20870	-1,241	16,419	3,393	-812	.0338	-.776	-3.80	-.035952	.3972
			1640	-6,363	75,977			4416	-8,728										-.04459	.872
29	1578	72,900	1640	-6,453	66,447	19,090	-3,980	2416	-5,744	11,778	22,497	-.889	10,891	3,384	-.688	.0290	-.616	-3.10	-.028240	.5065
			1309	-5,085	67,795			4185	-7,265										-.0292	.7285
30	1814	63,100	1329	-5,285	57,815	16,710	-3,448	1165	-4,613	7,165	17,785	-.648	8,268	3,524	-.527	.0248	-.463	-1.618	-.016313	.4198
			1168	-4,595	58,520			1934	-6,529										-.016248	.4198
31	1958	54,100	1168	-4,529	49,585	14,450	-2,613	1837	-3,450	3,715	13,962	-.506	8,104	3,598	-.431	.0218	-.395	-.080	-.005370	.2115
			1041	-3,034	50,009			1707	-4,741										-.005201	.2115
32	2080	47,200	1041	-4,034	43,166	12,640	-2,655	1585	-3,240	-.785	10840	-.393	7,314	3,921	-.336	.0170	-.308	-.060	-.003666	.1846
			786	-3,021	44,107			1337	-4,358										-.003781	.1492
33	2110	40,950	786	-3,093	37,857	10,900	-2,273	1064	-2,980	4.447	8614	-.312	6,080	4,082	-.257	.0131	-.238	-.060	-.002796	.1207
			732	-2,762	37,688			1023	-3,785										-.003264	.1207
34	2140	34,100	703	-2,764	31,336	9,240	-1,927	932	-1,839	8.448	6899	-.238	4,998	4,244	-.195	.0098	-.185	-.060	-.002012	.0978
			627	-2,447	31,433			893	-3,340										-.002578	.0978
35	2170	28,100	627	-2,467	25,633	7,560	-1,593	832	-1,510	12.37	5439	-.164	2,106	4,417	-.136	.0065	-.133	-.796	-.000849	.0894
			414	-1,629	26,471			552	-2,181										-.001706	.0867
36	2198	22,800	414	-1,629	21,171	6,248	-1,301	553	-1,246	15.81	03800	-.118	1,662	4,603	-.098	.0047	-.098	-.600	-.001147	.0858
			359	-1,412	21,988			477	-1,854										-.001938	.0867
37	2225	18,800	359	-1,412	16,588	4,930	-1,040	477	-.893	19.58	02031	-.080	1,055	4,812	-.069	.003	-.062	-.440	-.001239	.0912
			314	-1,235	16,765			411	-1,646										-.001211	.0912
38	2252	13,750	314	-1,235	12,515	3,820	-796	411	-.755	23.08	01185	-.047	653	5,195	-.041	.002	-.039	+.309	-.000837	.0911
			268	-1,054	12,696			351	-1,405										-.001210	.0910

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., ⅓ 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	$M_X \cos\alpha$ x10⁶	$T_{EA} \sin\alpha$ x10⁶	M'_X x10⁶	S'_c $=S_c \cos\alpha$	$M_X \sin\alpha$ x10⁶	$T_{EA} \cos\alpha$ x10⁶	T'_{EA} x10⁶	$\frac{J \tan\phi}{I_x/Q_x}$ x10⁶	$\frac{J \tan\phi}{I_x/Q_x} M'_X$	S''_h (6) − (31)
		8848×(14)	1136×(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	56,000
			-.512	11.237	-3,747		-2.903	-1.012		10,954	56,241
30	1014	8.536	-.411	8.947	-3,259	1.505	-2.334	-.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	3976	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
			-.0459	.6889	- 749		-.2600	-.1466		1,086	11,610

CALCULATED BY	TSH	TABLE 44	DOC NO. FZS-36-140
DRAWN BY			MODEL B-36
CHECKED BY	Richard Griffith	CONSOLIDATED VULTEE AIRCRAFT CORPORATION	

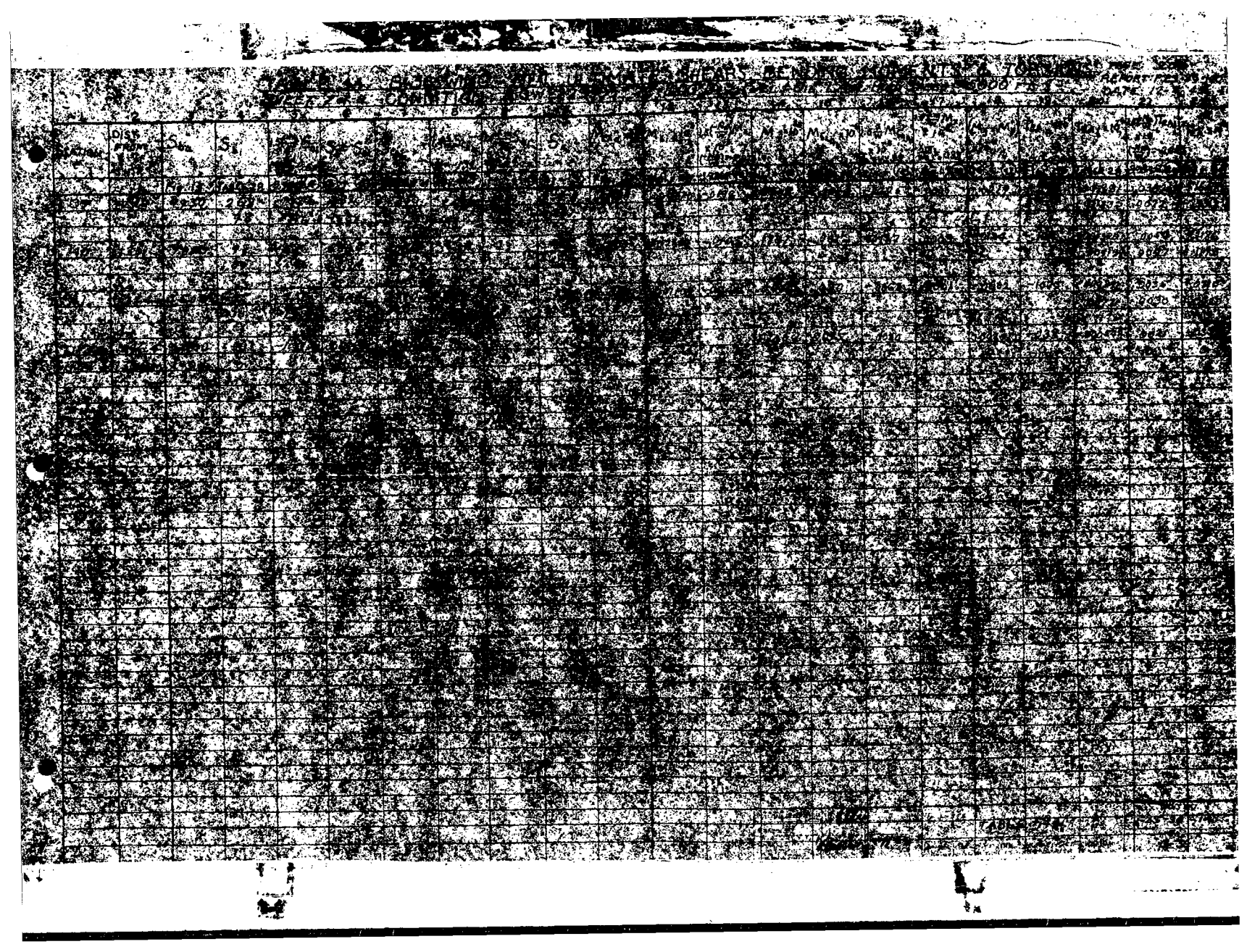

TABLE 44. B-36 WING, NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS.

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

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha$ x 10^6	$T_{EA} \sin\alpha$ x 10^6	M'_x x 10^6	S'_c $+S_c \cos\alpha$	$M_x \sin\alpha$ x 10^6	$T_{EA} \cos\alpha$ x 10^6	T'_{EA} x 10^6	$\frac{J \tan\phi}{I_z/Q_x} \times 10$	$\frac{J \tan\phi}{I_z/Q_x} M'_x$	S''_b (6) − (31)
		.9848×(14)	.1736×(22)	(23) − (24)	.9848×(10)	.1736×(14)	.9848×(22)	(27) + (28)	TABLE 30	(25) × (30)	OR.S=(6)
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	.009898	−.006232	.016130	−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		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY	Kinsley Snipes		

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

PAGE 208
REPORT AER-36-140
DATE 12-4-45

SHEET 1 of 8. CONDITION: R.O.W. 273999# 72-1000# B, 3 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}	$1.5\frac{\Sigma}{\Sigma}S_{b_1}$ $(\frac{\Sigma}{\Sigma}=1.504)$	$S_b = S'_b$	$S_{CL_{a_1}}$	$1.5\frac{\Sigma}{\Sigma}S_{CL_{a_1}}$ $(\frac{\Sigma}{\Sigma}=-.108)$	$1.5\frac{\Sigma Y}{\Sigma}S_{b_1}$ $(\frac{\Sigma Y}{\Sigma}=.048)$	S_c	$M_{x_a} \times 10^6$	$M_{x_1} \times 10^6$	$1.5(\frac{N_x}{W})M_{x_1}$ $\times 10^6$ $(\frac{N_x}{W})=1.504$	$M_x \times 10^6$	$MCL_{a_1} \times 10^6$	$1.5\frac{\Sigma}{\Sigma}MCL_{a_1}$ $\times 10^6$ $\frac{\Sigma}{\Sigma}=-.108$	$(M_y = M_{y_1}) \times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_1} \times 10^6$	$1.5(\frac{\Sigma Y}{\Sigma})T_{EA_1}$ $\times 10^6$ $(\frac{\Sigma Y}{\Sigma}=1.504)$	$T_{EA} \times 10^6$
		Fig. 16	TABLE 28	⑤ × 1.504	③ + ⑤	Tab. 29	⑦ × -.108	⑤ × .048	⑥ + ⑨	Fig. 16	TABLE 28	2.256 × ⑫	⑪ + ⑬	Tab. 29	⑮ × -.108	⑯ × .048	⑱ + ⑰	Fig. 16	TABLE 28	2.256 × ⑳	⑲ + ㉑
0	0	52900	36740	128003	-124895	114480	-12596	4170	-14376	-148.5	86.83	60.528	-87972	64.134	-10.590	1.972	-8.418	18.17	-9121	-21.940	-3.740
			56250	126900	-126000			4134	-14412		26.83	60.528	-87970				-8.918		-9223	-21.985	-3.765
1	41.025	-242800	34250	116900	-115900	103600	-17755	4134	-13621	-138.4	24.52	55.317	-83.089	59.63	-9.66	1.802	-7.858	16.89	-9.248	-20.863	-3.973
			55230	114599	-118201			4059	-13696		64.52	56.317	-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	-78533	55.42	-8.978	1.644	-7.334	15.69	-8.808	-19.871	-4.201
			54390	122704	-110296			3998	-12996		22.97	50,467	-78,583			1.644	-7.339		-8.780	-19.868	-4.198
3	113.25	-224800	54390	122704	-102096	101000	-16362	3998	-12364	-121.4	20.56	46.383	-75017	51.95	-8.416	1.511	-6.905	14.69	-8.407	-18.946	-4.276
			53800	121373	-103427			3954	-12408		20.56	46.383	-75017			1.511	-6.905		-8.402	-18.955	-4.285
4	146.5	-217800	53800	121373	-958 27	97210	-15798	3954	-11794	-113.9	18.79	42.345	-71535	48.25	-7.881	1.380	-6.501	13.76	-8.034	-18.125	-4.365
			52910	119365	-97835			3889	-11859		18.77	42.345	-71.535			1.380	-6.501		-8.042	-18.183	-4383
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	-7.977	-17.319	-4.449
			45170	101904	-107196			3320	-11796		16.84	37.991	-68509			1.238	-6.115		-7.994	-17.004	-3.194
6	206.0	-203100	45170	101904	-101196	90260	-14672	3320	-11352	-101.2	15.67	35352	-65.898	43.01	-6.968	1.152	-5.816	12.20	-6852	-17.168	-3.258
			39850	89902	-113198			2928	-11695		15.56	35.103	-66.037			1.144	-5.824		-6.963	-16.681	-2.381
7	232.0	-197100	39850	89902	-107198	87310	-14194	2929	-11215	-96.8	14.52	32.757	-63.893	40.75	-6.602	1.067	-5535	11.33	-6250	-14.300	-3.970
			27280	61544	-135556			2005	-12139		14.05	31.697	-64.203			1.038	-5569		-5.000	-11.230	+1.250
8	259.0	-182800	27280	61544	-121256	85400	-13835	2005	-11830	-93.0	13.69	30,659	-62341	39.27	-6.342	0.999	-5343	11.11	-4.905	-11.046	+.094
			26410	59581	-133291			1941	-11899		13.59	30.653	-62341			0.999	-5.343		-4.875	-11.093	+.112
9	284.5	-184800	26410	59581	-125219	81410	-13188	1941	-11297	-86.1	12.65	28538	-57.562	36.32	-5884	0.930	-4954	10.27	-4.603	-10.265	-.295
			36960	83382	-101418			2717	-10771		12.547	28.306	-57.794			0.922	-4.962		-5.206	-11.745	-1.775
10	312.0	-178500	36960	83382	-95118	78970	-12696	2717	-9979	-81.2	11.53	26.012	-55188	34.11	-5.526	0.847	-4679	9.635	-4.398	-11.275	-1.660
			36000	82570	-95930			2690	-10006										-4.393	-11.278	-1.673
11	339.5	-178000	36000	82570	-89430	75420	-12218	2670	-9528	-76.5	10.524	23.742	-52768	31.98	-5181	0.774	-4.407	9.00	-4.791	-10.808	-1.808
			32330	72936	-99064			2376	-9842										-4.133	-9.824	-.394
12	375.75	-164200	32330	72936	-91764	71600	-11509	2376	-9223	-70.6	9.352	21.098	-49502	29.21	-4.732	0.687	-4045	8.22	-3.993	-8.780	-.560
			31560	71177	-92423			2319	-9280										-3.872	-8.735	-.515

Shear

Bend

TABLE 45

F23-36-140
B-36

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	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M'_x \times 10^{-6}$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T'_{EA} \times 10^{-6}$	$\frac{J \tan\phi}{I_x/Q_x} \cdot 10$	$\frac{J \tan\phi}{I_x/Q_x} M'_x$	S''_b
		.9848 × (14)	.1736 × (22)	(23) − (24)	.9848 × (10)	.1736 × (14)	.9848 × (22)	(27) + (28)	TABLE 30	(25) × (30)	OR. 6 = (6) − (31)
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	-75821
		-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	-101544
		-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

CALCULATED BY
DRAWN BY
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 9 of 8. CONDITION. RGW, 229,999# 72-1000#B, 5 FUEL, 4 OIL. 1 AA. 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}	$1.5(\frac{M_y}{W})S_{b_1}$ $(\frac{M_y}{W})=1504$	$S_b = S_b'$	$S_{(A_{ea})_1}$	$1.5\frac{x_m}{W}S_{c_{a_1}}$ $\frac{x_m}{W}=-.108$	$1.5\frac{x_m}{W}S_{b_1}$ $\frac{x_m}{W}=.049$	S_c	$M_{x_a} \times 10^6$	$M_{x_1} \times 10^6$	$1.5(\frac{M_y}{W})M_{x_1}$ $(\frac{M_y}{W})=1504$	$M_x \times 10^6$	$Mc_{a_1} \times 10^6$	$1.5\frac{x_m}{W}Mc_{a_1}$ $\times 10^6$ $\frac{x_m}{W}=-.108$	$1.5\frac{x_m}{W}M_x$ $\times 10^6$ $\frac{x_m}{W}=.049$	$(M_y - M_x) \times 10^6$	$T_{EA_a} \times 10^6$	$T_{EA_1} \times 10^6$	$(\frac{M_y}{W})T_{EA_1}$ $\times 10^6$ $(\frac{M_y}{W})=1504$	$T_{EA} \times 10^6$
		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	412.0	156200	31550	71177	-85023	67780	-10980	2318	-8662	-65.0	8.208	18517	-44483	24.78	-4.338	.6033	-3.7347	7.50	-3.6371	-8.1053	-.17053
			30910	69733	-86467			2272	-8708										-3.6310	-8.1915	-.16915
14	448.5	148200	30910	69733	-78467	64140	-10391	2272	-8119	-59.6	7.079	15.970	-43530	24.43	-3.958	.5203	-3.4377	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	-54.6	5.974	13.477	-40.723	22.13	-3.585	.4391	-3.1459	6.12	-3.167	-7.1448	-1.0285
			29370	66259	-74141			2159	-7640										-3.150	-7.1064	-.9864
16	521.5	132750	29370	66259	-66491	56980	-9231	2159	-7072	-49.1	4.903	11.067	-38039	20.05	-3.248	.3604	-2.8876	5.50	-2.929	-6.6078	-.1078
			25140	56716	-76094			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	.3305	-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	-34041	17.05	-2.762	.2533	-2.5027	4.61	-2.094	-4.7241	-.1141
			15510	44015	-77885			1134	-6917										-1.583	-3.5112	+1.0888
19	615.3	113700	19510	44015	-69685	48080	-7782	1437	-6355	-37.3	2.769	6.247	-31.053	15.06	-2.440	.2035	-2.2365	4.02	-1.427	-3.2193	+.8007
			16350	36826	-76814			1202	-6587										-1.420	-3.2015	+.8165
20	654.15	106200	16350	36886	-69314	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	+.8920
			13480	30411	-75789			991	-6121										-1.293	-2.9170	+.5830
21	693.125	98000	13480	30411	-68389	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										-1.092	-2.6485	+.3515
22	732.0	91300	11230	25335	-65965	37750	-6116	825	-5291	-25.6	.1173	2.646	-22.854	10.07	-1.631	.0862	-1.5448	2.55	-1.084	-2.4455	+1043
			10010	22583	-68717			736	-5380										-1.078	-2.4107	+.1293
23	766.0	83000	10010	22583	-62917	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	-70819			462	-5190										-.5957	-1.3439	+.2461
24	800.0	77700	6286	14181	-63515	31680	-5132	462	-4670	-19.1	.5809	1.311	-17789	7.51	-1.217	.0427	-1.1743	1.79	-.5441	-1.2275	+.5625
			2535	5832	-71868			190	-4942										-.1658	-.3742	+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	-1.0118	1.49	-0.1477	-.3332	+.1568
			2322	5238	-66162			171	-4540										-0.1478	-.3334	+.1566

Thistlethwaite
Boyer

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 @ 5000 FT.

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF SHIP	$M_x \cos\alpha$ x 10⁻⁶	$T_{EA} \sin\alpha$ x 10⁻⁶	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha$ x 10⁻⁶	$T_{EA} \cos\alpha$ x 10⁻⁶	$T'_{EA} \times 10^6$	$\frac{J_x}{Q_x} \tan\phi_c \times 10$	$\frac{J_x}{Q_x} \tan\phi$	S''_b
		(8)×(14)	.1736×(22)	(23) − (24)	(8)×(10)	.1736×(14)	(8)×(22)	(27) + (28)	TABLE 30	(25) × (30)	(8) − (31)
13	412.0	-45.776	-.1224	-45.654	-8530	-8069	-.6946	-8.7636	645.1	-24886	-60137
			-.1200	-45.656	-8576		-.6810	-8.7500		-24887	-61580
14	448.5	-42.868	-.1511	-42.717	-7996	-7.557	-.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	-48985
			-.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		+.1398	-6.4642		-22341	-53093
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	-1.124	-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
			+.1947	-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	-4.3189		-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	-20.467	-.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
DRAWN BY
CHECKED BY

TABLE 45

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

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

TABLE 15. B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

CONDITION: R&W 223393 lbs 90,000 lbs. U.A.H. Wing Sheet 8,000

Station	Dist from ℄ of Fuselage	S_{Iw}	S_{Ib}	S_L	S_T	S_V	T_{Sv}	T_{Sh}	S_R	S_C	M_{Iw}	M_{Ib}	M_L	M_T	M_V	M_{Mv}	M_{Mh}	T_{Mv}	T_{Mh}	T_{Ev}	T_{Eh}
		Fig. 16	Item 1a	215c	③ + ⑤				⑥ + ⑦												
26	53.0	66000	2252	15256	60962	26820	-4935	170	-9175	-14.7		.0956	13745	5644	-.9137		-8824	1.25			
			1023	4562	65438			145	-4196												
27	90.0	66000	2002	4562	35638	24734	-3909	149	-3760	-16.		.0300	.7910								
			1823	4113	58987			134	-3775												
28	142.0	58300	1843	4113	50187	21570	-3488	134	-3360	-18.2		.0430	.9570								
			1646	3706	50600			121	-3373												
29	194.0	49500	1448	3706	44800	18090	-3089	121	-2972	-8.40		.0255	.5056								
			1323	2586	45515			97	-2986												
30	201.0	45000	1323	2586	40015	16240	-2707	97	-2610	-9.71		.0180	.4078								
			1168	2635	40345			86	-2621												
31	250.0	39500	1168	2635	34865	14240	-2381	80	-2305	-5.22		.0132	.3079								
			1048	2180	35152			71	-2264												
32	300.0	33000	1048	2180	30658	12540	-2048	71	-1971	-4.14		.0100	.2360								
			936	1721	31271			66	-1990												
33	348.0	28500	936	1721	27023	10900	-1764	58	-1706	-3.20		.0144	.1837								
			901.5	1383	27217			54	-1719												
34	396.0	24600	901.5	1383	23017	9480	-1497	54	-1445	-2.30		.0100	.1362								
			684.8	1144	23186			46	-1451												
35	444.0	20600	684.8	1144	19186	7640	-1295	46	-1192	-1.70		.0139	.0838								
			413.8	784	19866			30	-1203												
36	492.0	16800	413.8	934	15866	6240	-1081	30	-981	-1.20		.0100	.0677								
			328.9	570	16236			26	-965												
37	522.0	13600	328.9	570	12890	4530	-880	26	-803	-.880		.0098	.0458								
			215.5	707	12893			23	-785												
38	540.0	10800	215.5	707	9893	3370	-696	24	-596	-.0580		.0185	.0267								
			260.3	605	9999			28	-589												

TABLE 15

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. 1 LAA - HIGH SPEED @ 5000 F.T.

MOD: 213
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	$M_x \cos\alpha$ x 10^{-6}	$T_{EA} \sin\alpha$ x 10^{-6}	M'_x x 10^{-6}	S'_c $= S_c \cos\alpha$	$M_x \sin\alpha$ x 10^{-6}	$T_{EA} \cos\alpha$ x 10^{-6}	T'_{EA} x 10^{-6}	$\frac{J \tan\phi}{I_x} \cdot 10^6$ / $\frac{J}{Q_x}$	$\frac{J \tan\phi}{I_x} M'_x$	S''_b = (6) - (31)
		(23) x (14)	.1736 x (22)	(25) - (24)	(23) x (10)	.1736 x (14)	(23) x (22)	(27) + (28)	TABLE 30	(29) x (30)	(6) - (5)
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		-11608	-50030
27	906.0	-11.334	.1270	-11.461	-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	-3308	-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	-31164
			.0669	-7.839	-2950		.380	-.990		-7639	-31876
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	-.6928		-4374	-26853
33	1110.0	-2.970	-.00597	-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	1198.0	-1.115	-.0124	-1.084	-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	Shaffer

TABLE 45

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

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

TABLE 4.5 B-36 WING NET ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS

PAGE 5.15
REPORT FZS-36-100
DATE: 12-4-45

SHEET 7 of 8 CONDITION: R&W-229,999#-72-1000 lb/s 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	22
STATION	DIST. FROM ℄ of SHIP	S_{ba}	S_{bi}	$1.5(\frac{\Delta n}{W})S_{bi}$ $\frac{\Delta n}{W}=1504$	$S_b = S'_b$	$S_{CL_{ai}}$	$1.5\frac{\Delta n}{W}S_{CL_{ai}}$ $\frac{\Delta n}{W}=108$	$1.5\frac{\Delta n}{W}S_{bi}$ $\frac{\Delta n}{W}=049$	S_c	$M_{Xa}\times10^6$	$M_{Xi}\times10^6$	$1.5(\frac{\Delta n}{W})M_{Xi}\times10^6$ $(\frac{\Delta n}{W})=1504$	$M_X\times10^6$	$M_{CL_{ai}}\times10^6$	$1.5\frac{\Delta n}{W}M_{CL_{ai}}\times10^6$ $\frac{\Delta n}{W}=108$	$1.5\frac{\Delta n}{W}M_{Yi}\times10^6$ $\frac{\Delta n}{W}=049$	$(M_y=M'_y)\times10^6$	$T_{EA_a}\times10^6$	$T_{EA_i}\times10^6$	$1.5(\frac{\Delta n}{W})T_{EA_i}\times10^6$ $(\frac{\Delta n}{W})=1504$	$T_{EA}\times10^6$
		Fig. 16	TABLE 28	2256×④	③ + ⑤	TAB 29	-162×⑦	.0735×④	⑧ + ⑨	Fig. 16.	TABLE 28	2256×⑫	⑪ + ⑬	TAB 29	-162×⑮	.0735×⑯	⑰ + ⑱	Fig. 16	TABLE 28	2256×⑳	⑲ + ⑳
39	1278.0	-8000	268.3	605	-7395	2850	-461.7	20	-441.7	-0.29	.0487	.01098	-.27902	.108	-.0175	.000258	.017142	-0.10	-0.000681	-.01958	-.10958
			98.3	222	-7778			7	-454.7										-0.001595	-.004147	-.104147
40	1301.0	-6000	98.3	222	-5778	2080	-336.9	7	-329.9	-0.16	.0262609	.00592	-.15412	.062	-.0099	.000382	-.009108	-0.10	-0.001390	-.005091	-.105091
			65.2	147	-5853			4.8	-332.2										-0.001139	-.002795	-.102795
41	1324.0	-4000	65.2	147	-3853	1390	-225	4.8	-220.2	-0.09	0.001109	.002502	-.0875	.030	-.0049	.000076	-.004824	-0.09	-0.000871	-.002501	-.052501
			49.5	111	-3889			3.16	-221.4										-0.000771	-.001729	-.051729
TIP S.C.	1346.4	-2200	49.5	111	-2089	780	-126	3.16	-122.8	0	0	0	0	.0095	.0015	.0	-.0015	-0.07	-0.000598	-.001228	-.021228
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 4.5

FZS-36-100

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	$M_x \cos\alpha$ x 10^6	$T_{EA} \sin\alpha$ x 10^6	$M'_x \times 10^6$	S'_c $= S_c \cos\alpha$	$M_x \sin\alpha$ x 10^6	$T_{EA} \cos\alpha$ x 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	(25) × (30)	OR. E= (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	-.09061	-.10580	1881	-132	-3721
			-.01593	-.07024	-218.0		-.09024	-.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		TABLE 45	DOC NO. FZS-36-140
DRAWN BY		CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS	MODEL B-36
CHECKED BY	Proffer		

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.

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_{b_a}	S_{b_i}	$1.5(\frac{N_z}{W})S_{b_i}$ $(\frac{N_z}{W})=1.376$	$S_b = S'_b$	$S_{CL_{a_i}}$	$1.5\frac{X}{W}S_{CL_{a_i}}$ $\frac{X}{W}=-.071$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=.011$	S_c	$M_{X_a} \times 10^{-6}$	$M_{X_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})M_{X_i}$ $\times 10^{-6}$ $(\frac{N_z}{W})=1.376$	$M_X \times 10^{-6}$	$M_{CL_{a_i}} \times 10^{-6}$	$1.5\frac{X}{W}M_{CL_{a_i}}$ $\times 10^{-6}$ $\frac{X}{W}=-.071$	$1.5\frac{X_m}{W}M_{X_i}$ $\times 10^{-6}$ $\frac{X_m}{W}=.011$	$(M_y = M'_y)$ $\times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})T_{EA_i}$ $\times 10^{-6}$ $(\frac{N_z}{W})=1.376$	$T_{EA} \times 10^{-6}$
		Fig. 17	TABLE 28	2.064 × (4)	(3) + (5)	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)
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	-76.041	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	-3.394
			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	-7,032	-65.15	9.352	19.303	-45.847	29.21	-3.111	.1543	-2.957	5.985	-3.892	-8.093	-2.048
			31,550	65,120	-84,780			521	-7,104										-3.872	-7.992	-2.007

Y Ellis

Brien Hopper

TABLE 46

FZS-36-140

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. I.L.A.A. - LIMIT DIVE SPEED @ 5000 FT.

PAGE: 217
REPORT: [illegible]
DATE: 12-1-48

1	2	23	24	25	26	27	28	29	30	31	32
STATION	DIST. FROM ℄ OF BWP	$M_x \cos\alpha \times 10^6$	$T_{EA} \sin\alpha \times 10^6$	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T'_{EA} \times 10^6$	$\frac{J \tan\phi}{I_z} \times 10^6$	$\frac{J \tan\phi}{I_z} M'_x$	S''_c (6) - (31)
		(25) = (14)	(24) = (22)	(23) - (24)	(25) = (10)	(24) = (16)	(25) = (22)	(27) + (28)	TABLE 30	(29) × (30)	(26) - (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	-72.911	-10,597		-6.644	-19.879		-31,264	-72,946
2	80.0	-71.179	-1.162	-70.017	-10,105	-12.547	-6.533	-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	-56,841
			-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	-.7679	-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	-27,328	-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	371.75	-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]
DRAWN BY	
CHECKED BY	[illegible]
APPROVED BY	

TABLE 46.

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

DOC NO. FZS-26-140
MODEL B-36

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, ⅓ 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_{ba}	S_{b_i}	$1.5(\frac{N_z}{W})S_{b_i}$ $(\frac{N_z}{W})=1.376$	$S_b = S_b'$	$S_{CL_{a_i}}$	$1.5\frac{X_m}{W}S_{CL_{a_i}}$ $\frac{X_m}{W}=-.071$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=.011$	S_c	$M_{x_a} \times 10^{-6}$	$M_{x_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})M_{x_i} \times 10^{-6}$ $(\frac{N_z}{W})=1.376$	$M_x \times 10^{-6}$	$M_{CL_{a_i}} \times 10^{-6}$	$1.5\frac{X_m}{W}M_{CL_{a_i}} \times 10^{-6}$ $\frac{X_m}{W}=-.071$	$1.5\frac{X_m}{W}M_{x_i} \times 10^{-6}$ $\frac{X_m}{W}=.011$	$(M_y=M_{y_i}) \times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{N_z}{W})T_{EA_i}$ $(\frac{N_z}{W})=1.376$	$T_{EA} \times 10^{-6}$
		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) + (20)
13	412	-142800	31550	65120	-77680	67780	-7,219	521	-6698	-59.90	8.208	16.941	-42.989	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	-54.65	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	60450	-6442	500	-5942	-50.00	5974	12.330	-37.670	22.13	-2.357	.09857	-2.258	+4.405	-3.167	-6.539	-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	4903	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	-0.867
17	549	-117000	25140	51890	-65110	54250	-5778	415	-5363	-42.20	4211	8692	-33.508	18.49	-1.969	.06998	-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	3528	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	2769	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	-97250	16350	33750	-64000	44520	-4741	270	-4471	-30.75	2.133	4.403	-26.347	13.32	-1.419	.03519	-1.384	2435	-1.289	-2.660	-0.225
			13490	27820	-69930			222	-4519										-1.293	-2.669	-0.234
21	693.125	-90900	13490	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	1450	-1.002	-2.068	-0.618
			6286	12970	-65680			109	-3612										-.5357	-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	-.4691	.008135	-.6810	.9350	-.1477	-.3049	+0.6301
			2322	4793	-61957			38	-3059										-.1478	-.3051	+0.6299

Tables

Copper

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, ILAA-LIMIT DIVE SPEED @ 5000 FT.

PAGE: 219
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	$M_z \cos\alpha$ x10⁻⁶	$T_{EA} \sin\alpha$ x10⁻⁶	M'_x x10⁻⁶	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha$ x10⁻⁶	$T_{EA} \cos\alpha$ x10⁻⁶	T'_{EA} x10⁻⁶	$\frac{J_1}{Q_x} \tan\phi$ x10⁻⁶	$\frac{I_2}{Q_x} \tan\phi \, M_z$	S''_b = (5) - (31)
		.9848×(14)	.1736×(22)	(23) - (24)	.9848×(10)	.1736×(14)	.9848×(22)	(27) + (28)	TABLE 30	(29) × (30)	qn. 5 - (6)
13	412	-42,308	-.3537	-41,946	-6596	-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	-36,799	-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	-7.054		-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	-52,161
19	615.375	-28,692	-.0191	-28,673	-4726	-5,059	-.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	-.1079	-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

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

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

SHEET 5 of 8 CONDITION: RGW 229992# 12,000# 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	$S_{b\infty}$	S_{bi}	S_{bi} (%)=.316	$S_b = S'_b$	$S_{c\infty}$	$S_{c\infty}$ x/c=.071	S_{bi} Δw=.011	S_c	$M_{x\infty}$ x10⁻⁶	M_{xi} x10⁻⁶	M_{xi}	M_x x10⁻⁶	$M_{c\infty}$ x10⁻⁶	$M_{c\infty}$ x10⁻⁶ x/c=.071	M_{xi} x10⁻⁶ Δw=.011	(M_c=M_t) x10⁻⁶	$T_{A\infty}$	T_{Ai} x10⁻⁶	T_{Ai} x10⁻⁶ (%)=.316	T_A x10⁻⁶
		Fig. 17	Table 28	2064 × ④	③ + ⑤	Table 29	.1065 × ⑦	.0165 × ④	⑧ + ⑨	Fig. 17	Table 28	2064 × ⑫	⑪ + ⑬	Table 29	.1065 × ⑮	.0165 × ⑫	⑯ + ⑰	Fig. 17	Table 28	2064 × ⑳	⑲ + ㉑
26	870	-62,000	2322	4793	-57,207	26,820	-2856	28	-2828	-13.65	.4234	.8739	-12.776	5.64	-.6007	.006986	-.5937	+.7490	-.1335	-.2755	+.4735
			2022	4173	-57,827			33	-2823										-.1251	-.2589	+.4908
27	906	-56,450	2022	4173	-52,277	24,130	-2570	33	-2537	-11.84	.3506	.7236	-10.810	4.761	-.5070	.005785	-.5012	+.5500	-.1101	-.2272	+.3228
			1823	3763	-52,687			30	-2540										-.1090	-.2250	+.3250
28	942	-50,850	1823	3763	-47,087	21,570	-2297	30	-2267	-9.61	.2850	.5882	-9.022	3.883	-.4146	.004703	-.4099	+.3885	-.09552	-.1972	+.1913
			1640	3385	-47,465			27	-2270										-.09454	-.1951	+.1934
29	978	-45,500	1640	3385	-42,115	19,090	-2033	27	-2006	-7.896	.2259	.4663	-7.429	3.155	-.3360	.003727	-.3323	+.2420	-.08240	-.1701	+.0719
			1323	2731	-42,769			22	-2011										-.07292	-.1505	+.0915
30	1014	-40,350	1323	2731	-37,619	16,710	-1780	22	-1758	-6.95	.1783	.3680	-5.088	2.596	-.2690	.002942	-.2661	+.1145	-.06313	-.1303	-.0152
			1168	2411	-37,939			19	-1761										-.06235	-.1287	-.0148
31	1050	-35,220	1168	2411	-32,809	14,450	-1539	19	-1520	-4.98	.1362	.2811	-4.699	1.983	-.2112	.002147	-.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	-3.89	.1050	.2167	-3.773	1.593	-.1697	.001733	-.1680	-.0545	-.04645	-.09619	-.1308
			786	1622	-29,598			13	-1333										-.03781	-.07804	-.1325
33	1110	-27,230	786	1622	-25,608	10,900	-1161	13	-1148	-3.11	.08144	.1681	-2.942	1.232	-.1312	.001344	-.1299	-.1045	-.03296	-.06803	-.1725
			702	1449	-25,781			12	-1149										-.03254	-.06716	-.1717
34	1140	-23,400	702	1449	-21,951	9,240	-984	12	-972	-2.36	.06039	.1246	-2.235	.924	-.09841	.000996	-.09741	-.1395	-.02822	-.05825	-.1960
			627	1295	-22,105			10	-974										-.02776	-.05730	-.1958
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	-18,696			7	-807										-.01706	-.03521	-.1927
36	1198	-16,150	414	854	-15,296	6,240	-665	7	-658	-1.21	.03000	.06192	-1.148	.469	-.04995	.0004950	-.04945	-.1645	-.01467	-.03028	-.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	-.1899
			268	553	-9,497			4	-403										-.01012	-.02089	-.1894

CALCULATED BY: J. Ellis
CHECKED BY: Popp

TABLE 46.

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

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

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

SHEET 5 of 8 CONDITION: R&W 229995 - 72,000 #, ½ FUEL & OIL ILAA - LIMIT ONE 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_{bm}	S_{sj}	$1.5(S_{sj})$ (K=1.514)	$S_b = S'_b$	S_{sm}	$1.5(S_{sm})$ K=.071	$1.5(S_{sj})$ K=.011	S_{tj}	$M_{xm} \times 10^6$	$M_{mj} \times 10^6$	$1.5(M_{mj})$ K=.011	$M_x \times 10^6$	$M_m \times 10^6$	$1.5(M_m)$ K=.071	$(M_j = M_s) \times 10^6$	$T_{BM} \times 10^6$	$T_{BA_1} \times 10^6$	$1.5(T_{BM})$ K=1.514	$T_{BA} \times 10^6$	
		Fig. 17	Table 28 2.441 ④	⑤ + ②	Fig. 27 1.064 ⑦	0.165 ⑧	⑨ + ⑦		Fig. 17	Table 28 2.004 ⑫	⑬ + ⑮	Fig. 27 1.064 ⑰	0.165 ⑱	⑲ + ⑰		Fig. 17	Table 28 1.514 ㉓	㉔ + ㉒	
26	870	-62,000	2322 2022	4193 4173	-57,807 -57,827	26,820	- 2856	28 33	-2818 -2823	-13.65	.4234	.8739	-12.776	5.64	-.6007	.006986	-.5937	+.7490	-.1395 -.1251	-.2755 -.2582	+.4735 +.4908
27	906	-56,450	2022 1823	4173 3763	-52,277 -52,627	24,130	- 2570	33 30	-2537 -2540	-11.84	.9596	.7336	-10.816	4.761	-.5070	.005785	-.5012	+.5500	-.1101 -.1090	-.2272 -.2250	+.3228 +.3180
28	942	-50,850	1823 1640	3763 3385	-47,087 -47,465	21,570	- 2297	30 27	-2267 -2270	- 9.61	.2850	.5882	-9.022	3.893	-.4146	.004703	-.4099	+.5885	-.09552 -.09454	-.1972 -.1951	+.1913 +.1934
29	978	-45,500	1640 1323	3385 2731	-42,115 -42,765	19,090	- 2033	27 22	-2006 -2011	-7.895	.2259	.4663	-7.429	3.155	-.3360	.003727	-.3323	+.2420	-.08240 -.07292	-.1701 -.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	-5.898	2.526	-.2690	.002942	-.2661	+.1145	-.06313 -.06235	-.1303 -.1287	-.0158 -.0142
31	1050	-35,220	1168 1041	2411 2149	-32,809 -33,071	14,450	- 1539	19 17	-1520 -1522	-4.98	.1342	.2811	-4.699	1.983	-.2112	.002247	-.2090	+.0125	-.05370 -.05307	-.1108 -.1096	-.0983 -.0970
32	1080	-31,320	1041 786	2149 1622	-29,071 -29,598	12,660	- 1346	17 13	-1329 -1333	-3.99	.1050	.2167	-3.773	1.593	-.1697	.001733	-.1680	-.0545	-.04665 -.03781	-.09629 -.07804	-.1508 -.1325
33	1110	-27,230	786 702	1622 1449	-25,608 -25,781	10,900	- 1161	13 12	-1148 -1149	-3.11	.00144	.1681	-2.942	1.232	-.1312	.001344	-.1299	-.1045	-.03296 -.03234	-.06803 -.06116	-.1745 -.1717
34	1140	-23,100	702 627	1449 1295	-21,951 -22,105	9,240	- 984	12 10	-972 -974	-2.36	.06039	.1246	-2.235	.324	-.09841	.000996	-.09741	-.1395	-.02822 -.02776	-.05825 -.05730	-.1968 -.1950
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	.0006862	-.07003	-.1575	-.02389 -.01706	-.04931 -.03521	-.2018 -.1927
36	1198	-16,150	414 359	854 741	-15,296 -15,409	6,240	- 665	7 6	-658 -659	-1.21	.03000	.06192	-1.149	.469	-.04995	.0004950	-.04945	-.1645	-.01467 -.01438	-.03029 -.02968	-.1948 -.1942
37	1225	-12,950	359 314	741 648	-12,209 -12,302	4,990	- 531	6 5	-525 -526	-.815	.02031	.04192	-.7731	.312	-.03323	.0003351	-.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	.0001955	-.02057	-.1485	-.01037 -.01012	-.02140 -.02089	-.1699 -.1694

TABLE 46.

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

SHEET 6 of 8 CONDITION: R.G.W. - 229,999# 72-1000 #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	$M_x \cos\alpha$ x 10^6	$T_{EA} \sin\alpha$ x 10^6	$M'_x \times 10^6$	$S'_c = S_c \cos\alpha$	$M_x \sin\alpha$ x 10^6	$T_{EA} \cos\alpha$ x 10^6	$T'_{EA} \times 10^6$	$\frac{J \tan\phi}{I_x} \times 10^6 / Q_x$	$\frac{J \tan\phi}{I_x} M'_x / Q_x$	S''_b (6) - (31)
		(23)=(14)	(24)=(22)	(25) - (24)	(23) x (10)	(24) x (14)	(23)=(22)	(27) + (28)	TABLE 30	(29) x (30)	OR $S=$ (6)
26	870	-12.582	+.0822	-12.664	-2775	-2218	.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	-.0625	-.1673	-.2498	1576	-692	-8,710
			-.0294	-.4389	-397		-.1668	-.2493		-692	-8,805

CALCULATED BY: JEBA
DRAWN BY:
CHECKED BY: Wagner

TABLE 46.

CONSOLIDATED VULTEE AIRCRAFT CORPORATION

DOC NO. FZS-36-140
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}	$1.5(\frac{-N_z}{W})S_{b_i}$ $(\frac{-N_z}{W})=1.37$	$S_b = S'_b$	$S_{C_{L_{\alpha_i}}}$	$1.5\frac{X}{W}S_{C_{L_{\alpha_i}}}$ $\frac{X}{W}=-.071$	$1.5\frac{X_m}{W}S_{b_i}$ $\frac{X_m}{W}=.011$	S_c	$M_{X_a} \times 10^6$	$M_{X_i} \times 10^{-6}$	$1.5(\frac{-N_z}{W})M_{X_i} \times 10^{-6}$ $(\frac{-N_z}{W})=1.37$	$M'_X \times 10^{-6}$	$M_{C_{L_{\alpha_i}}} \times 10^{-6}$	$1.5\frac{X}{W}M_{C_{L_{\alpha_i}}} \times 10^{-6}$ $\frac{X}{W}=-.071$	$1.5\frac{X_m}{W}M_{X_i} \times 10^{-6}$ $\frac{X_m}{W}=.011$	$(M_y = M'_y) \times 10^{-6}$	$T_{EA_a} \times 10^{-6}$	$T_{EA_i} \times 10^{-6}$	$1.5(\frac{-N_z}{W})T_{EA_i} \times 10^{-6}$ $(\frac{-N_z}{W})=1.37$	$T_{EA_a} \times 10^{-6}$
		Fig. 17	TABLE 28	2.064 x (4)	(3) + (5)	TAB 29	-.1065 x (7)	.0165 x (4)	(8) + (9)	Fig. 17	TABLE 28	2.064 x (12)	(11) + (13)	TAB 29 -.1065 x	.0165 x (12)	(16) + (17)	Fig. 17	TABLE 28	2.064 x (20)	(19) + (20)	
39	1278	-7,500	+268	553	-6,947	2,850	-304	4	-300	-.280	.009870	.01605	-.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	-2600	50	103	-1897	780	-83	1	-82	-.010	0	0	-.010	.0095	-.0010 12	0	-.001012	-.0545	-.000593	-.0012	-.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. Ellis
Chief Engr.

TABLE 46 FZS-36-140
B-36

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

SHEET 8 of 18 — CONDITION: R.G.W. - 229998# 7g - 1000# B, ½ Fuel & Oil, I.L.A.A. - Limit Dive Speed @ 5000 FT.

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STATION	DIST. FROM ℄ OF SHIP	23 $M'_c \cos\alpha \times 10^6$	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 $\frac{T \tan\phi}{I_x/Q_x} \times 10$	31 $\frac{T_x}{Q_c} \tan\phi \, M'_x$	32 S''_b
		9848 - (14)	1736 x (22)	(23) - (24)	9848 x (10)	1736 x (16)	9848 x (28)	(27) + (28)	TABLE 36	(29) x (30)	OR, 6 - (31)
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	-.04408	-.01493	-.03199	-145	-.00828	-.08503	-.09331	1881	-60	-3,456
			-.01495	-.02903	-145		-.08478	-.09306		-60	-3,487
TIP C.G.	1340.4	-.000948	-.009656	-.000191	81	-.001796	-.05477	-.05651	—	—	-2,000
TIP	1380.84	0	0	0	0	0	0				

CALCULATED BY	J. Ellis
DRAWN BY	
CHECKED BY	Pfeffer

TABLE 46

CONSOLIDATED VULTEE AIRCRAFT CORPORATION, FORT WORTH, TEXAS

DOC NO. FZS-36-160

MODEL B-36

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.

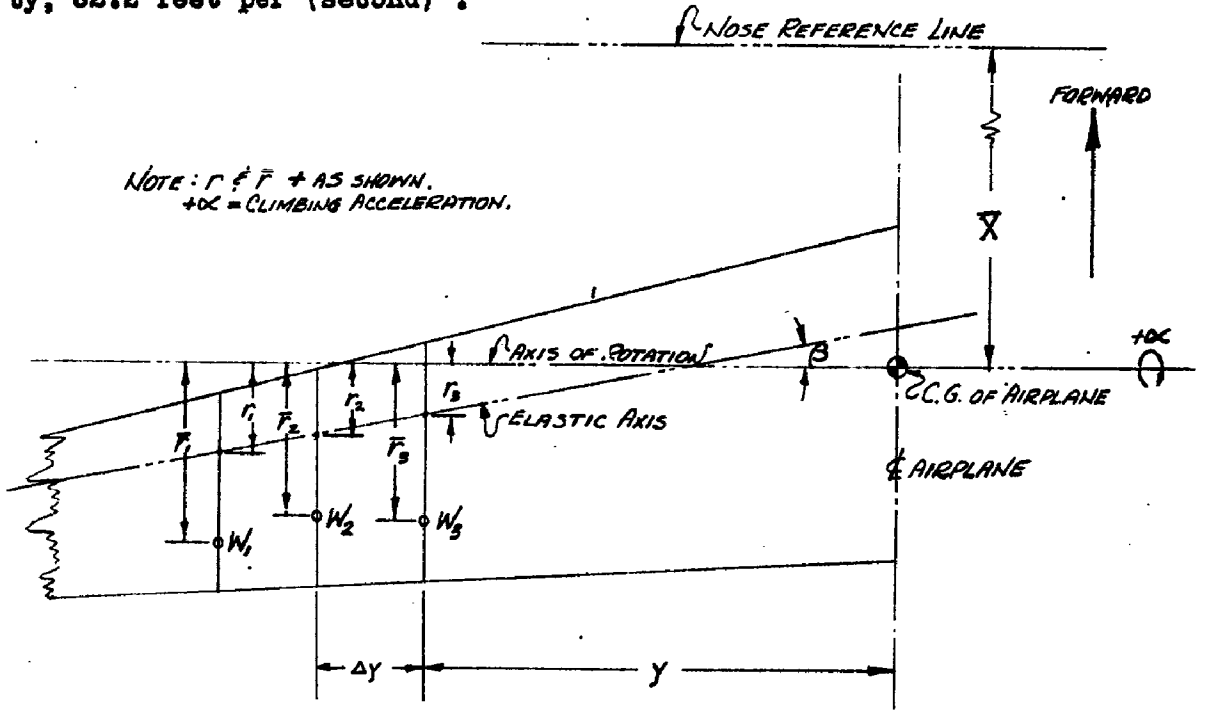
PART II

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:

$$T_{E.A._n}(\text{inb'd}) = \sum_o^n \Delta T_{E.A.} + \sum_o^n \left[S_{b_{n-1}}(r_n-r_{n-1})\right] \quad (6)$$

and $$T_{E.A._n}(\text{out'b}) = \sum_o^{n-1} \Delta T_{E.A.} + \sum_o^n \left[S_{b_{n-1}}(r_n-r_{n-1})\right] \quad (7)$$

However, since $(r_n-r_{n-1}) = -\Delta y \tan\beta$, where $\Delta y = y_{n-1}-y_n$, then

$$T_{E.A._n}(\text{inb'd}) = \sum_o^n \Delta T_{E.A.} + \sum_o^n \left[S_{b_{n-1}}(-\Delta y \tan\beta)\right] \quad (8)$$

and $$T_{E.A._n}(\text{outb'd}) = \sum_o^{n-1} \Delta T_{E.A.} + \sum_o^n \left[S_{b_{n-1}}(-\Delta y \tan\beta)\right] . \quad (9)$$

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

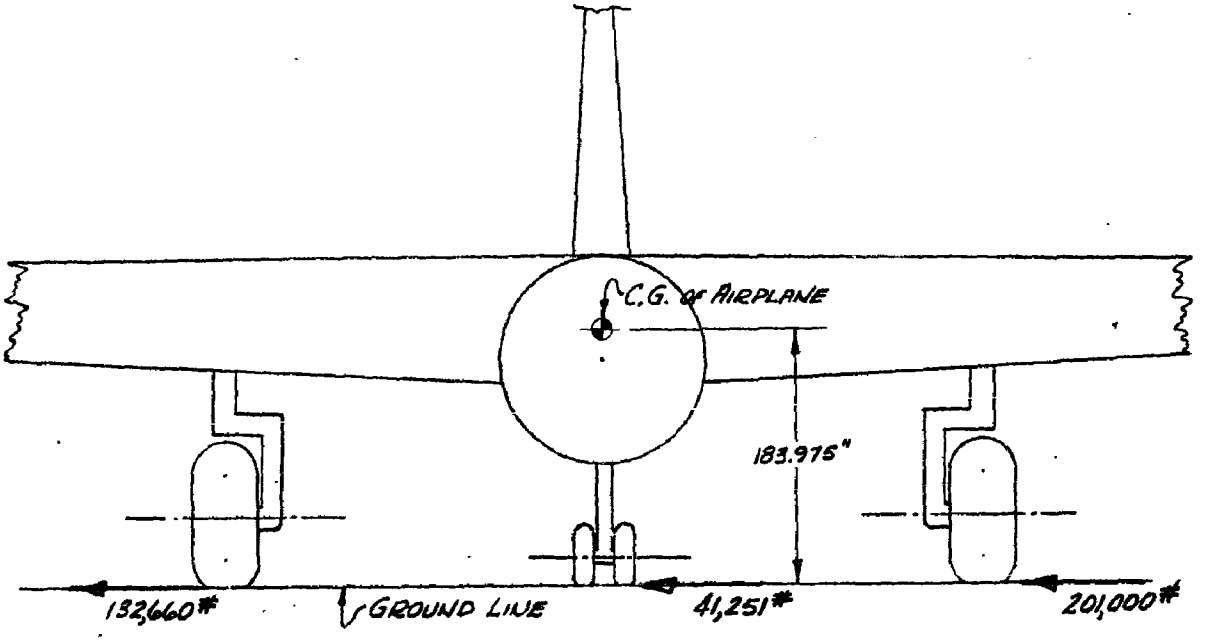
(+ α = CLIMBING ACCELERATION)

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. - I.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,

$M = 183.975(374,911) = 68,906,800$ in.-lbs.

$= 5,742,230$ ft.-lbs.

$I_{x-x} = 348,602,344$ lb.-ft^2 $= 10,826,200$ slug-ft.^{2} (see FZS-36-137, Table XVII)

$\gamma = \frac{M}{I_{x-x}} = \frac{5,742,230}{10,826,200} = 0.53040$ 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.

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TABLE 46 — SHEET 10 of 3

B-36 WING - ULTIMATE SHEARING, BENDING MOMENTS, & TORSIONS DUE TO PITCHING ACCELERATION - VARIABLE EMPTY LESS I_x

CONDITION: 2 WHEEL LANDING WITH INCLINED REACTIONS - NOSE DOWN - 5.6 W.C. - FULL FUEL & OIL - 1200 BOMBS

1 STA.	2 DIST. FROM ℄ SHT. IN.	3 DISTANCE BETWEEN STATIONS (in)	4 CHORD LENGTH, C_y (in)	5 C_y * (20-36-135 TAIL CON. ℄)	6 C_y * (20-36-135 TAIL CON. ℄)	7 LIFT PER UNIT SPAN No. 1 REF. WING TAPER (20-36-135 TAIL CON. ℄)	8 LIFT PER UNIT SPAN (20-36-135 TAIL CON. ℄)	9 C_z (INCHES)	10 Q_z (INCHES)	11 F (6) × 129	12 Δ_{cz} = F (11) × (10)	13 TOTAL C_z AT STA. $=\Sigma_{sta}$ (12)	14 ΔI_{xx} $=\Sigma_{sta}$ (13)	15 TOTAL M_x AT STA. I_x (13) × (14)	16 ΔI_{zz} (13) × (5)	17 I_{zz} (CUM. 16)	18 C_{M_x} (CUM. 15)	19 $C_{M_x} \times \frac{C}{C_{sta}}$ (18) × (8)	20 TORSION IN BOARD (17) + (19)	21 TORSION OUTBOARD (17) - (19)
777	1346.4	22.4	107.92	99.5	1028.80	39.71	10.21	10.967	179.56	.345	60.34	60.34	0	0	+662.	662	-461	0	662	0
41	1324	23.0	112.29	15.7	1076.88	36.32	6.82	7.656	167.64	.109	18.21	78.55	-1352	-1355	139	801	-473	278	1079	940
40	1301	23.0	117.29	33.1	1063.68	33.90	4.43	5.186	159.84	.231	36.91	115.46	-1807	-3159	191	992	-473	371	1642	1451
39	1278	23.0	122.29	170.0	1059.04	62.43	-32.93	-40.170	132.20	1.180	155.99	271.45	-2656	-5815	9076	10068	-473	546	11264	2188
38	1255	23.0	127.59	95.2	1053.56	33.81	-4.35	-5.540	150.12	.315	47.29	318.74	-8865	-14678	362	10330	-5.55	1824	13350	11408
37	1225	27.0	133.80	95.4	1033.49	34.11	-4.61	-6.168	145.20	.316	45.86	364.6	-10981	-35159	283	10613	-5.55	2154	15787	13554
36	1198	27.0	139.67	65.0	1022.68	33.94	-3.84	-5.363	138.84	.363	53.18	417.8	-11172	-36878	285	10898	-5.76	2403	18881	16196
35	1170	28.0	145.76	212.9	1164.48	51.59	-22.04	-32.126	133.84	1.484	197.20	615.0	-13682	-50520	762	16518	-6.17	2806	28907	21787
34	1140	30.0	152.28	74.7	1631.52	33.52	-4.02	-6.127	127.68	.521	66.51	681.5	-21733	-72253	467	16765	-6.17	4220	33789	23377
33	1110	30.0	159.78	84.5	1624.70	32.63	-3.13	-4.970	120.36	.589	70.89	752.4	-23729	-95982	352	19277	-6.17	4880	39016	38664
32	1080	30.0	165.31	255.0	1447.21	50.47	-20.97	-29.666	112.88	1.777	255.67	1118	-29855	-125837	8863	28140	-6.17	5318	52197	44334
31	1050	30.0	171.83	127.3	1611.84	32.38	-2.88	-4.569	108.00	.887	95.80	1214	-32515	-155762	974	28614	-7.40	6895	60266	60092
30	1014	36.0	178.66	154.7	1609.51	32.30	-2.80	-5.010	100.68	1.476	148.7	1362.7	-43679	-199041	596	29160	-7.40	8978	70090	69744
29	978	36.0	187.98	316.5	1622.04	45.48	-15.96	-28.559	92.20	2.206	266.15	1628.8	-47586	-246627	7812	36972	-7.40	9782	87684	79872
28	942	36.0	195.30	187.7	956.04	27.21	-2.72	-5.311	86.16	1.776	229.04	1857.8	-56774	-303401	584	37556	-7.40	11711	99979	88295
27	[illegible]	36.0	203.12	195.8	982.80	27.20	-2.72	-5.035	78.96	1.533	197.84	2055.6	-60830	-364231	668	38164	-7.40	12515	113112	102504
26a	870	22.0	211.96	299.9	997.92	41.79	-18.59	-28.135	74.76	2.106	271.74	2327.4	-63240	-427471	5313	43477	-7.40	13339	131964	120451
25	848	22.0	211.96	260.5	962.98	28.39	+0.11	+0.039	69.84	1.505	194.14	2521.5	-59976	-487447	26	43651	-6.17	12335	144273	144299

* .76 of Tip Section.

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B-36 WING - ULTIMATE STRAINS, BENDING MOMENTS, & TORSIONS DUE TO PITCHING ACCELERATION - WING EMPTY LESS ENGINES

CONDITION: 2 WHEEL LANDING WITH INCLINED REACTIONS - NOSE DOWN - D.G.W. - FULL FUEL & OIL - LESS BOMBS.

STA	DIST FROM ℄ SHIP, IN	DIST BETWEEN LOCATIONS, IN	CHANGE IN C.W.	PANEL PA LOAD, LBS	UNIT TORQUE LOAD, IN-LBS/IN	DIST FROM UNIT TO LOAD, IN	e, IN	f, IN	W/g	Δz	JT STA. AT STA.	Δ M_A	TOTAL MOM. AT STA.	Δ T.A. DUE TO Δ M_A	Σ ΔT_A (Δ T.A. + e)	e'	S_A × 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
		24.0		FROM SHEET NO. 2 COL. 2	FROM SHEET NO. 2 COL. 3	FROM SHEET NO. 2 COL. 4	FROM ⑤	FROM ⑥	⑧ - ⑨	⑦ × 2094	⑩ × ⑪	Σ ⑫	⑬ × ⑭	Σ ⑮	⑯ × 1054	Σ ⑰	⑱ + 6950	⑲ × ⑱	⑳ + ⑲	㉑ - ⑳
24	806.0	40.0	224.85	369.3	1059.00	74.39	-45.49	-462.554	+155.16	-25.728	-3990.0	-71682	-561079	+403818	451969	-8.724	14737	567328	175910
23	766.0	24.0	233.85	211.5	1057.80	76.30	-46.96	-405.847	153.16	-25.871	-3962.1	-244012	-805091	+323357	881326	-6.930	50169	1057854	471991
22	742.0	28.875	240.93	722.4	955.92	55.23	-5.78	-13.855	51.85	-5.085	-259.2	-342916	-1147927	+13578	1161505	-7.993	70483	1164915	1123337
21	693.125	25.375	249.35	2.0.9	940.22	55.18	-2.65	-6.683	36.38	-4.318	-157.5	-679383	-1549996	+1065	1551957	-7.993	62668	1210636	1120883
20	654.25	26.875	257.89	515.8	938.80	31.94	-2.44	-6.291	27.96	-3.595	-100.5	-1050621	-1958187	+632	1692589	-7.993	85917	1205195	1194543
19	615.375	38.875	266.28	644.0	940.32	38.06	-8.56	-22.794	36.48	-4.969	-163.5	-1506385	-2370185	+3794	1896323	-7.993	84781	1383660	1375956
18	576.5	27.5	274.72	3588.1	1038.36	76.59	-46.89	-128.846	+134.50	-27.197	-2720.3	-1717165	-2768351	+4418	4158605	-5.654	560450	1925782	1669200
17	549	27.5	280.70	284.1	1350.60	27.91	+1.59	+9.463	-9.24	-1.980	+6.8	-1966456	-3187603	+7.0	1378044	-5.654	82004	2083425	2033386
16	521.5	27.5	286.65	4129.4	1032.84	76.96	-46.96	-24.625	+129.60	-28.797	-3708.4	-2296610	-3586713	+4391.43	1877787	-7.504	219954	2614612	2116278
15	494	36.5	294.01	2.0.7	914.40	37.78	-8.28	-24.742	+1.28	-5.869	-66.1	-1823.3	-669430	-025063	+1612	-7.504	196592	2757853	2751220
14	457.5	36.5	302.54	6225.5	891.80	32.35	-2.85	-8.622	-12.60	-4.339	+52.1	-1823.3	-666433	-491766	-449	-7.504	137604	2889477	2889936
13	421.0	36.5	311.47	643.6	884.52	32.34	-2.84	-8.617	-19.30	-4.966	-86.7	-1823.3	-663391	-358391	+744	-7.504	136703	3025916	3026186
12	384.5	36.25	315.35	774.5	893.16	37.32	-7.80	-24.895	-16.66	-5.356	+57.7	-1813.1	-659324	-239721	-426	-7.504	136652	3160033	3161468
11	348.25	36.25	319.5	4260.6	1015.65	76.19	-47.09	-154.179	+111.54	-29.695	-3303.3	-1803.6	-655143	-6834864	+2385863	-7.504	134697	3805392	3294725
10	312.0	36.5	323.70	3601.4	845.00	28.95	-0.05	+1.827	-22.61	-2.512	+26.5	-1794.1	-587270	-148271	+530	-7.504	120861	3925255	3926205
9	275.5	36.5	328.18	2.0.10	1.0.22	71.82	-42.93	-149.152	+86.80	-35.526	-2154.7	-1794.1	-584356	-804766	+1614	-7.504	120194	4497181	4045579

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CONSOLIDATED VULTEE AIRCRAFT CORPORATION — FORT WORTH DIVISION — FORT WORTH, TEXAS
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TABLE 48 — SHEET 8 OF 8

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 - D.S.M. - FULL FUEL & OIL - LESS BOMBS

STA.	DIST. FROM C OF SHIP BETWEEN STATIONS	DIST. BETWEEN STATIONS	CHORD LENGTH	VALUES FR. LOAD	DIST. FROM NOSE REF. LINE	DIST. FROM LE TO LOAD PC	C_l	C_l	$\bar{x}$	$\frac{W_x}{\Delta g}$	ΔS_b	TORN. MOM. AT STA.	ΔM_s	TOTAL MOM. M_x	ΔT_{EA}	ΔQ_{EA}	C'	$\bar{x}'$	TORSION I-BOARD	TORSION OUTBOARD	$\Sigma C_l \bar{x}$	TORSION I-BOARD	TORSION OUTBOARD
1	2	3	4		6		8	9	10	11	12												
				FROM STA. 197 ADD. FOR C	FROM STA. 197 ADD. FOR C	FROM STA. 197 ADD. FOR C	$\frac{2C_l}{C_{AVG}}$	$\frac{C_l}{C_{AVG}}$	(6) − (7)	$\frac{W_x}{\Delta g} \times \bar{x}$	$\frac{W}{\Delta g} \times \bar{x} \times \frac{\Delta g}{2}$	$\Sigma = \Delta M_s$	(5) × (8)	$\Sigma = M_x$	$\frac{\Delta M_x}{\Delta S_{EA}}$	$\Sigma = Q_{EA}$	(5) × (11)	(10) + (12)					
		26.5																					
8	249.0		345.89	783.8	884.06	41.60	-12.10	-41.855	-19.80	-5.86	+108.11	2449.96	866342	6933408	-952.5	2833.72	-7.299	-3.495	172125		0	666	0
		17.0										2442.96											
7	232.0		349.59	825.2	853.56	33.76	-4.75	-16.428	-50.84	-5.35	+99.11	2442.96	419030	3346438	-429.6	2828876		-5.346	84914		4751399	4755695	
		26.0										2437.61											
6	206.0		355.24	593.4	849.00	33.90	-4.90	-16.631	-54.64	-5.79	+27.64	2437.61	124177	9910615	-1.49	2825567		-5.346	128340		4876490	4670739	
		26.0										2431.82											
5	180.0		360.88	870.8	839.64	32.72	-3.75	-11.729	-64.20	-6.61	-389.69	2431.82	618714	-1089389	-9.571	2821056		-6.886	127229		4999148	5003719	
		33.5										2425.21											
4	146.5		368.16	887.0	812.64	27.20	+2.30	+8.468	-91.20	-6.18	-563.62	2425.21	797247	-1132656	+7.773	2823583		-6.836	161243		5165164	5160391	
		33.25										2418.38											
3	113.5		375.39	595.5	823.44	31.94	-3.44	-9.160	-80.60	-9.15	-333.66	2418.38	759620	-1249276	-3.056	2822173		-6.836	158173		5518081	5321337	
		33.25										2409.23											
2	80.0		382.62	835.0	841.20	30.32	-5.52	-33.747	-62.68	-5.82	+264.56	2409.23	748524	-1894800	-12.303	2810970		-8.013	153077		5918605	5917178	
		38.975										2403.41											
1	41.025		391.08	1021.2	792.64	28.69	+0.061	+2.386	-106.80	-7.12	-760.41	2403.41	865195	-1357586	+15.14	2812384		-8.435	177467		5637537	5637537	
		41.025										2396.29											
0	0		400.16	494.4	786.72	28.43	+1.07	+4.286	-117.12	-3.95	-404.06	2396.29	836377	-1459438	+17.29	2814913			180399		5818278	5818550	

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$\Sigma C_l \bar{x}$	TORSION I-BOARD	TORSION OUTBOARD
21	22	
Σ(18)	(17)+(20)	(21)-(20)
0	666	0
280	1087	946
654	1653	1461
1203	11,339	2,202
2037	13,437	13,173
3206	15,892	15,606
4692	18,605	18,318
6456	29,100	21,429
7955	34,008	33,599
9866	39,214	37,919
11,218	53,552	44,626
12,157	60,968	60,991
13,193	70,557	70,009
14,047	88,271	88,406
14,839	100,651	100,063
15,450	113,874	113,742
15880	132,853	132,706

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TABLE 18 SHEET 5 OF 7

B-36 WING - ULTIMATE SHEARS, BENDING MOMENTS & TORSION DUE TO PITCHING ACCELERATION - WING ENDTY LESS L.G.

CONDITION: 2 PIVOTAL LANDING GEAR REACTIONS - NOSE DOWN - D.G.W. - FULL FUEL & OIL - LESS BOMBS.

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STA.	DIST. FROM STA. & SHIP BETWEEN STATIONS	DIST. FROM STA. & SHIP BETWEEN STATIONS	CANTED LENGTH	AVAIL. PT. LOAD	DIST. FROM NOSE REF. LINES	DIST. FROM LE. TO LOAD PT.	C_1	C_2	π	W_L	ΔS_b	TOTAL SHEAR AT STA.	ΔM_x	TOTAL MOM.	ΔT_{EA}	ΣT_{EA}			TORSION IN BOARD	TORSION OUTBOARD
	IN.	IN.	IN.	Y_L	Y_{LE}	X_{LE}	$\%C$	$\frac{C_2}{C_1}(\%C)$	$\frac{\pi}{C_1}-\bar{X}$	$\frac{W_L}{2g}$	$\frac{W_L}{2g}\times\frac{\Delta F}{\Delta S}$	ΣS_{EQ}	$\Delta S_{EQ}\times\Delta S$	ΣM_x	ΔT_{EA}	ΣT_{EA}				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22
				FZS-36-137 PAGE 2, ITEM 4	FZS-36-137 PAGE 2, ITEM 4	FZS-36-137 PAGE 2, ITEM 7	245-(1)	(5) × (4)	6 − 90.96	(10) × (11)	(12) × (10)	ΣS_{EQ} (1)	(13) × (5)	ΣM_x (14)	(15) × (3)	ΣT_{EA} (16)	(17) × (18)		(21) + (20)	(22) − (18)
																	-0.235	-0.235		
		35.5															-7.299			
8	249.0		345.89	788.8	884.04	41.60	-12.10	-41.855	-19.80	-5.96	+108.11	24498 / 23390	-2666342	-8934408	-9525	2833.112		178135	4641781	4641806
		17.0															-3.495			
7	232.0		349.59	825.2	853.56	33.78	-9.25	-14.958	-50.28	-5.75	+289.11	24396 / 22407	-4130.30	-6346438	-9296	2828876		84914	4751399	4755695
		26.0															-5.946			
6	206.0		355.24	843.9	849.00	33.90	-9.40	-15.631	-54.84	-5.79	+221.84	23967 / 23258	-624177	-9910615	-9249	2825667		128340	4817482	4678739
		26.0															-5.946			
5	180.0		360.88	870.8	839.64	32.72	-9.25	-11.759	-64.20	-6.07	+389.69	23399 / 23399	-618714	-10893399	-9571	2819656		127239	4999148	5003719
		33.5															-6.888			
4	146.5		368.16	897.0	812.64	27.20	-7.30	-8.468	-91.20	-6.18	+563.62	23006 / 22896	-797247	-13806564	-9773	2812959		161243	5161564	5160391
		23.25															-6.836			
3	113.5		376.39	595.5	823.44	31.94	-2.44	-9.160	-80.96	-9.15	+333.66	22442 / 22975	-7596270	-12466716	-30.56	2822713		156173	5318281	5321337
		33.25															-6.836			
2	80.0		382.62	625.0	841.20	36.22	-8.82	-33.147	-62.64	-5.83	+264.56	22442 / 22442	-748524	-12834800	-12303	2810470		153892	5458984	5472173
		38.975															-8.013			
1	41.025		391.08	1021.2	792.64	28.69	+0.61	+2.386	-106.80	-2.12	+760.62	22367 / 20987	-863195	-13575795	+1814	2812284		177467	5639151	5637357
		41.025															-8.435			
0	0		400.10	494.4	786.72	28.43	+1.07	+4.280	-117.12	-3.85	+969.06	21382 / 20983	-836377	-14594372	+1729	2814013		189399	5821279	5819550

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

TABLE 49 — SHEET 1 OF 2

B-36 WING NO. 1 — D. SPECIAL CONDITION — MOMENT, TORSION, DUE TO PROPELLER ARRANGEMENT — HIGH FUEL LOAD L.G.

CONDITION: 2 WHEEL LANDING WITH BOMBS - NOSE DOWN - INBD - FULL FUEL & CARGO BOARD

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STATION	1. DISTANCE BETWEEN STATIONS	2. CHORD C, in.	3. PANEL RUN LENGTH, W, in.	4. LOAD LINE ON BOMBS	5. DIST. FROM N.E. L.E. TO LONG. N.C.	6. DIST. FROM L.E. TO LONG. N.C.	7. θ, % C	8. e, INCHES	9. $\bar{F}$	10. $W_{el}/2g$	11. $\Delta S_{bo} = \frac{W_{el}}{2g}\bar{F}$	12. TOTAL SHEAR AT STA. $= -S_{bo}$	13. $\Delta M_x = S_{bo} \times \Delta Y$	14. TOTAL MOMENT AT STA. M_x	15. $\Delta e_o = (\Delta e_o \text{ to } \theta) + e$	16. $\sum \Delta T_{eo} = (\Delta e_o \text{ to } \theta) \times \theta$	17. e'	18. $S_{eo} \times e'$	19. $\sum_0^{\theta} S_{eo} \times \theta$	20. TORSION INBOARD	21. TORSION OUTBOARD
					125-34-137 to Tab Ln 7	125-34-137 to 346 Ln 7															
1												0	0	0							
TIP												-60.71									
	22,400	102,920	49.5	1070.00	39.71		-10.21	-10.908	14.96	-0.347	-60.71		0	0	666	666		0	0	666	0
41												-60.71					-4.605				
	22,800	102,291	15.7	1070.88	36.32	-6.82	-7.658	167.04	-0.110	-18.37	-78.08		-1,360	-1,360	141	807		280	280	1087	946
40												-78.08					-4.729				
	23,000	102,289	33.1	1063.68	33.92	-4.42	-5.184	159.84	-0.252	-37.06	-115.5		-1,819	-3,179	192	999		374	654	1,653	1,461
39												-115.5					-4.729				
	24,000	102,287	170.0	1028.00	62.43	-32.93	-10.269	180.20	-1.193	-226.91	-340.1		-7,672	-5,851	9,137	10,136		549	1,203	11,339	11,202
38												-340.1					-5.346				
	25,000	102,937	45.2	1052.96	38.83	-4.93	-5.640	150.12	-0.317	-41.59	-381.7		-8,900	-14,771	264	10,400		1,834	3,037	13,457	13,173
37												-381.7					-5.551				
	27,000	103,804	45.4	1042.64	34.41	-4.61	-6.168	142.50	-0.319	-44.38	-426.1		-10,918	-25,819	286	10,686		2,169	5,206	15,892	15,606
36												-426.1					-5.551				
	28,000	104,671	55.0	1042.60	33.54	-3.81	-5.363	138.84	-0.386	-58.59	-484.6		-14,799	-37,118	287	10,973		2,426	7,632	18,605	18,318
35												-484.6					-5.757				
	30,000	145,755	212.9	1063.68	51.58	-22.04	-30.124	153.84	-1.444	-238.80	-723.4		-73,736	-50,854	7,671	18,644		2,824	10,456	29,100	21,929
34												-723.4					-6.168				
	30,000	150,275	74.7	1031.52	33.52	-4.02	-6.181	127.69	-0.524	-66.90	-790.3		-21,881	-72,735	409	19,053		4,499	14,955	34,009	33,599
33												-790.3					-6.168				
	30,000	150,744	84.5	1024.20	32.63	-3.13	-4.970	120.36	-0.593	-71.37	-861.6		-23,888	-96,623	955	19,408		4,911	19,866	39,274	38,914
32												-861.6					-6.168				
	30,000	165,313	255.0	1047.72	50.97	-20.97	-31.664	143.88	-1.289	-257.90	-1119		-26,089	-122,712	8926	28,334		5,352	25,218	53,552	44,696
31												-1119					-6.168				
	30,000	171,832	127.3	1011.84	32.38	-2.88	-4.349	108.00	-0.993	-96.44	-1215		-33751	-156,463	477	28,811		6,939	32,157	60,968	60,491
30												-1215					-7.402				
	30,000	176,655	154.7	1004.52	32.30	-2.80	-5.030	100.68	-1.083	-109.04	-1331		-43973	-200,876	548	29,359		4,041	41,198	70,557	70,009
29												-1331					-7.402				
	30,000	181,478	316.5	1002.04	45.48	-15.98	-28.952	118.20	-2.221	-262.52	-1594		-42,399	-243,275	7065	37,424		9,849	51,047	83,271	80,806
28												-1594					-7.402				
	30,000	175,301	183.0	990.00	32.22	-2.72	-5.342	86.16	-1.284	-110.63	-1704		-57,349	-345,624	509	37,612		11,792	62,839	100,651	100,063
27												-1704					-7.402				
	26,000	203,125	199.8	982.80	32.22	-2.72	-5.525	78.96	-1.402	-110.70	-1814		-61,332	-364,956	612	38,224		13,611	75,450	113,874	113,262
26												-1814					-7.402				
		210,146	299.2	977.92	42.79	-13.29	-28.035	94.08	-2.104	-197.44	-2011		-65,317	-430,273		43,473		13,430	88,880	132,853	132,304

& C.G. of Tip Section.

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CONSOLIDATED VULTEE AIRCRAFT CORPORATION — FORT WORTH DIVISION — FORT WORTH, TEXAS — TABLE 19 — SHEET 6 OF 8

B-36 WING - ULTIMATE SHEARS, BENDING MOMENTS, & TORSION DUE TO PITCHING ACCELERATION-NINE CHART LESS L.E. & EMPTY

CONDITION: 2 WHEEL LANDING WITH BRAKES - NOSE DOWN - D.G.W. - FULL FUEL & OIL - LESS BOMBS.

PAGE 2 — REPORT FZS-34-145 — DATE 12-4-45

REFER PAGES 31-48

STATION	DISTANCE BETWEEN STATIONS	CHORD LENGTH C in.	PANEL OR LAND W#	DIST FROM NOSE OR L.E. OF SPARS	DIST FROM L.E. TO LINE OF C's	e	e'	Γ	W#/2g	Δ S.C. W#/2g Γ	TOTAL SHEAR AT STA. S.C.	ΔM x	TOTAL MOMENT AT STA.	Δ T.C. (DUE TO e)	Σ Δ T.C. (DUE TO e)	e'	S.C. x e'	½ S.C. x e'	TORSION LOADED	TORSION UNLOADED
				FZS-34-157 FZS-34-158	FZS-34-159															
				Tan C to 2	Tan 1 to 4	Tan 1 to 7														
1		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
																	-6.948				
	30.000																				
25		217.46	262.5	963.43	28.89	+0.11	+0.239	.5264	-.1342	-109.86	-2,018 / -4,188	-60,369	-687,642	-26	61,967		-6.990	12,412	102,272	145,239	45,265
	34.000																				
24		224.85	3,611.3	1,059.00	76.19	-95.49	-102.284	155.16	-25.893	-4,018.83	-6,207 / -4,188	-72,154	-564,796	411,011	458,958		-8.204	14,834	116,126	571,984	160,073
	40.000																				
23		239.55	3,711.8	1,057.80	76.30	-46.80	-109.301	153.96	-26.042	-4,018.23	-10,225 / -4,188	-245,520	-810,416	628,225	893,183		-6.990	50,499	166,625	1,039,818	62,159
	34.000																				
22		240.13	732.4	955.32	35.23	-5.73	-13.805	51.48	-5.068	-260.10	-10,485 / -4,188	-345,090	-1,155,514	36,602	894,795		-7.993	70,940	237,573	1,134,468	1,139,766
	38.875																				
21		249.38	620.9	940.20	32.18	-2.68	-6.683	36.36	-4.356	-158.47	-10,911 / -4,188	-404,781	-1,560,295	1,059	895,854		-7.993	83,214	320,787	1,218,141	121,782
	38.875																				
20		257.83	515.8	921.60	21.94	-2.44	-6.291	27.94	-3.619	-101.19	-10,012 / -4,188	-440,892	-1,971,117	637	896,491		-7.993	84,488	405,275	1,303,756	1,303,121
	38.875																				
19		266.28	644.0	940.32	38.06	-8.56	-20.792	36.48	-4.518	-164.82	-10,176 / -4,188	-449,915	-2,365,932	3,757	900,248		-7.993	85,201	490,476	1,392,804	1,389,047
	38.875																				
18		274.72	3,998.1	1,038.36	76.39	-46.89	-128.816	134.50	-27.181	-3,746.60	-13,922 / -4,188	-421,228	-2,807,158	484,963	1,385,211		-5.654	86,607	577,143	1,964,278	1,478,411
	27.500																				
17		280.71	284.1	892.40	27.91	+1.59	+4.463	-4.44	-1.993	8.85	-13,913 / -4,188	-401,481	-3,208,639	39	1,385,250		-5.654	84,254	659,397	2,044,897	2,044,858
	27.500																				
16		286.68	4,244.9	1,032.84	76.46	-46.96	-134.448	128.00	-28.197	-3,732.87	-17,646 / -4,188	-401,297	-3,609,815	502,530	1,887,780		-7.504	82,494	742,201	2,629,898	2,127,368
	36.500																				
15		294.61	840.7	915.12	37.78	-8.28	-24.394	11.98	-5.698	-66.53	-17,712 / -4,188	-468,802	-4,278,615	1,693	1,889,473		-7.504	187,498	879,699	2,817,397	2,767,397
	36.500																				
14		302.54	620.5	891.84	32.35	-2.85	-8.620	-10.00	-4.367	52.40	-17,659 / -4,188	-671,230	-4,949,845	-452	1,889,021		-7.504	137,598	1,017,297	2,955,052	2,992,808
	36.500																				
13		310.47	643.6	864.52	30.34	-2.84	-8.617	-19.32	-4.515	87.35	-17,572 / -4,188	-669,317	-5,619,162	-769	1,888,252		-7.504	187,604	1,155,301	3,045,391	3,046,160
	36.350																				
12		318.35	774.5	893.16	37.32	-7.82	-24.895	-10.68	-5.434	58.04	-17,514 / -4,188	-661,571	-6,280,733	-1,446	1,886,806		-7.453	136,019	1,291,320	3,179,265	3,181,660
	36.250																				
11		326.23	4,810.4	1,015.08	76.79	-47.29	-154.374	111.24	-29.891	-3,323.96	-20,838 / -4,188	-659,467	-6,940,260	512,801	2,401,607		-7.453	135,586	1,426,906	3,315,352	3,315,551
	27.500																				
10		332.20	540.4	859.32	29.95	+0.55	+1.827	-50.52	-2.549	182.77	-20,774 / -4,188	-591,634	-7,531,894	993	2,402,600		-5.654	123,652	1,550,558	3,350,257	3,350,108
	27.500																				
9		339.18	5,097.0	894.24	71.83	-42.33	-143.152	88.86	-35.761	-3,175.53	-24,267 / -4,188	-508,160	-8,130,139	454,511	2,856,770		-5.654	120,930	1,671,488	4,526,258	4,071,747

BY: [illegible] CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS — TABLE 49 SHEET 3 OF 3

E-3 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.

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STATION	DISTANCE BETWEEN STATIONS (IN.)	CHORD LENGTH C, IN.	PANEL POINT LOAD W, LB	DIST. FROM NOSE EXT. LINE OF LOAD IN INCHES	DIST. FROM L.E. TO LOAD PT. C	e % C	e INCHES	F (2) - X	W/A 129	ΔSn = W/A 129 F	TOTAL SHEAR AT STA = Sn	ΔMn = Sn × ΔY	TOTAL MOMENT AT STA Mn	ΔTm (DUE TO Θ) = ΔSn × e	Σ ΔTm (DUE TO Θ)	Θ' (ΔY tan Θ)	Sm + e'	Σ Sm × C	TORSION INBOARD	TORSION OUTBOARD
				FZS-36-137 Tab I Col 2	FZS-36-138 Tab I Col 3	FZS-36-137 Tab I Col 7														
9	35.500	345.89	1888	88.04	41.60	-12.10	-41.863	-19.80	-5.499	108.88	-34,146 / -34,255	-872.021	-8,992.158	-4,557	2,851,713	-7.299	179,296	1,048,780	4,720,492	4,705,180
8	11.000	349.59	8252	85.54	39.25	-4.25	-14.858	-50.28	-5.790	291.12	-34,255 / -34,146	-415.784	-9,407.941	-4,325	2,847,388	-5.345	85,471	1,146,251	4,781,649	4,766,964
7	24.000	355.84	5439	84.00	33.90	-4.40	-15.651	-32.84	-3.816	209.27	-34,146 / -33,936	-628.263	-10,036.154	-3,271	2,844,117	-5.346	129,181	1,213,432	4,987,549	4,970,880
6	24.000	360.86	8708	83.46	32.20	-9.82	-11.620	-14.80	-6.110	392.96	-33,936 / -33,543	-623.822	-10,659.976	-4,558	2,839,559	-5.346	128,062	1,341,494	5,021,253	5,018,611
5	31.500	368.16	8810	81.24	27.20	+2.30	8.968	-9.20	-6.223	567.58	-33,543 / -32,975	-789.341	-11,449.317	4,806	2,844,365	-6.888	162,288	1,503,782	5,183,157	5,183,361
4	39.250	375.39	5745	80.94	21.82	-2.44	-9.160	-20.40	-4.178	335.31	-32,975 / -32,639	-766.580	-12,215.897	-5,077	2,841,288	-6.836	157,143	1,660,925	5,340,300	5,335,200
3	33.250	382.62	4250	80.20	28.22	-8.82	-33.747	-62.61	-5.858	346.95	-32,639 / -32,292	-753.411	-12,969.308	-12,385	2,828,903	-6.836	154,897	1,815,822	5,494,787	5,501,170
2	38.875	391.08	10212	79.04	23.89	+0.41	2.386	-106.80	-7.166	765.22	-32,292 / -31,526	-868.832	-13,838.140	1,826	2,830,731	-8.013	178,646	1,994,508	5,673,439	5,673,413
1	41.025	400.00	494.4	78.72	20.43	+1.07	4.280	-117.42	-3.469	406.29	-31,526 / -31,121	-883.131	-14,721.271	1,739	2,832,470	-8.435	181,578	2,176,086	5,858,897	5,858,888
0																				

BY: [illegible]

CHECKED: Brown / Griffin

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION
FORT WORTH, TEXAS

TABLE 50 SHEET 1 OF 2

FW 888 126 PAGES 11-45

EQUIVALENT ULTIMATE SHEARS, BENDING MOMENTS, & TORSIONS, DUE TO PITCHING ACCELERATION - MAN EMPTY LESS L.G.
CONDITION 1 - 3 WHEEL LANDING WITH INCLINED REACTIONS - NOSE DOWN - 7.5 G IN - 44-1000 ★ BOMBS - FULL FUEL & OIL

Sta.	Dist. From (Sta.) in.	Dist. Between Lengths, Stations Apart	Chord Length C_n in.	Panel Point Loads on Wing Lbs. (Col. 3 x Col. 4)	Dist. From Nose Rib Line Sta. in. (Col. 3 + Col. 5)	Dist. from L.E. Sta. in. (Col. 3 + Col. 7)	e	e_1	$\bar{I}$	$\frac{Wx}{Ig}$	$\frac{\Delta g_n}{\frac{W_n x}{Ig}}$	Torsional Arm Sta. in. $+\bar{z}_{bn}$	M_{Xn}	Total Mom. at Sta. M_X	M_{EA}	$M_{AT_{EA}}$	e'	S_{xx}	Torsion Inboard	Torsion Outboard
				(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
T.P	1346.4★		101.41	99.5	1078.80	39.71	-10.21	-14367	18696	-.243	-49.2	-952	0	0	+5396	5396		0	5400	0
		22.4															-9.61			
41	1324		112.29	15.7	1076.88	36.31	-6.81	-7658	17804	-.083	-14.9	-265 / -687	-1102.1	-1102.1	1141	6537		2268	881	766
		23.0															-9.73			
40	1301		117.29	93.1	1063.68	33.91	-4.82	-5184	17184	-.116	-30.2	-684 / -1369	-1476.3	-2578.4	1516	8103		3032	1340	1184
		23.0															-9.73			
39	1278		122.29	170.0	1094.09	62.43	-31.93	-40.370	20120	-.902	-182.9	-2068 / -3769	-2168.9	-4745.3	7995.2	8156		4960	9132	7787
		26.0															-5.35			
38	1252		127.94	95.2	1059.56	33.83	-4.33	-5.540	16212	-.240	-38.9	-3762 / -7196	-7192	-11939	215.5	8372		4480	10618	10612
		27.0															-5.55			
37	1225		133.80	45.4	1049.04	34.11	-4.61	-6.168	15720	-.241	-37.9	-3624 / -7353	-8521.2	-20460	23.8	8406		4203	12814	12580
		27.0															-5.55			
36	1198		139.61	55.0	1041.66	33.99	-5.84	-5.363	15084	-.291	-44.0	-4295 / -8398	-9545	-30005	23.01	8842		4421	15213	14716
		28.0															-5.76			
35	1170		145.76	212.9	1063.76	51.54	-20.04	-32.126	17184	-1.169	-188.0	-18315 / -35915	-11130.0	-41135	6231.4	13074		6537	23583	17301
		30.0															-6.17			
34	1140		152.28	78.7	1631.52	33.52	-4.02	-6.122	13968	-.396	-55.3	-5515 / -10870	-17750	-58880	338.5	15413		7706	26496	
		30.0															-6.17			
33	1110		158.74	84.5	1029.20	32.63	-3.13	-4.510	13236	-.448	-59.3	-5868 / -11567	-23618	-82498	394.7	15708		7854	34348	34573
		30.0															-6.17			
32	1080		165.31	255.0	1047.72	50.67	-20.97	-34.666	15588	-1.353	-210.9	-20864 / -41118	-21183	-99967	7311.1	23019		11509	45846	36167
		30.0															-6.17			
31	1050		171.83	127.3	1011.89	32.38	-2.88	-4.949	12060	-.615	-81.0	-7986 / -15739	-27570	-124977	4009	23420		11710	56579	49133
		36.0															-7.90			
30	1014		179.66	157.7	1000.62	32.30	-2.90	-5.030	11268	-.821	-92.5	-9126 / -17865	-35928	-160905	465.3	23885		11943	73852	
		36.0															-7.90			
29	978		187.98	316.5	1022.04	45.48	-15.98	-29959	13020	-1.679	-218.6	-21586 / -39302	-39358	-204163	6589.0	30434		15217	89697	65859
		36.0															-7.90			
28	942		195.30	183.0	990.00	27.22	-2.72	-5.312	9816	-.571	-95.3	-11369 / -21769	-47128	-251291	606.2	30840		15420	94873	81691
		36.0															-7.90			
27	906		203.12	199.8	982.60	32.22	-3.72	-5.515	9096	-1.060	-96.4	-11981 / -23301	-50558	-301848	532.4	31473		15736	103922	92589
		36.0															-7.90			
26	870		210.95	299.3	969.91	49.79	-13.29	-29.478	10668	-1.591	-168.8	-19871 / -38170	-57423	-359878	4967.9	36440		18220	111059	104218
		30.0															-6.17			
25	840		217.46	262.5	947.58	29.39	+0.11	+.0229	11764	-1.393	-99.8	-16476 / -31769	-50685	-409366	-23.9	36416		18208	129147	119496

★ C.G. of Tip Section

BY: SEL
CHECKED:

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION — FORT WORTH, TEXAS
FW 931, 100 PAPER 11-43

TABLE 50
SHEET 2 OF 2

C-34 WING - ULTIMATE SHEARS, BENDING MOMENTS & TORSIONS DUE TO SYMMETRICAL ACCELERATIONS - MAIN TANKS, LESS LA...
CONDITION: 2 WHEEL LANDING WITH INCLINED REACTIONS - NOSE DOWN - NACA - 42 INCH POWER - FULL FUEL & OIL

STA.	DIST. FROM E SHIP, IN.	DIST BETWEEN STATIONS, (ONE) IN.	CHORD LENGTH, C_n, IN	PANEL AV. LOAD, W_1, #	DIST. FROM NACELLE REF. LINE IN LINE PARS	DIST. FROM NACELLE REF. LET'S IN.	e_1 / C_n	e_1, INCHES	$\bar{n}$	$\frac{W_1 C_n}{12}$	$\frac{W_1 C_n}{12} \Delta n$	TOTAL SHEAR AT STA. ΣS_{n+1}	ΔM_x $-S_{n+1} \times \Delta Y$	TOTAL MOMENT (INCREMENT) $\Sigma M_x + \Sigma S_{n+1} \times \Delta Y$	ALTER. (INCREMENT) $\Sigma S_{n+1} \times \Delta Y$	ΣM_{TOR} (INCREMENT)	e' (AV. ENG.)	$S_{n+1} \times e'$	TORSION (INBOARD) (17)+(20)	TORSION (OUTBOARD) (21)-(16)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	21	22
				FZS-34-137 Tab I Ch 2	FZS-34-137 Tab I Ch 4	FZS-34-137 Tab I Ch 7	285 - (7)	(8) × (3)	(6) - (9) + 7	(5) × (3) / 12	(10) × (3)	Σ_n^{∞} (12)	(13) × (3)	Σ_n^{∞} (14)	(13) × (15)	Σ_n^{∞} (16)	(18) × 12.56	(13) × (18)	(17) + (20)	(21) - (16)
24	806.0	34.0	229.85	3691.3	1059.60	74.99	-45.99	-102.284	+167.16	+19.682	3373.33	-1752 -1752	-60160	-464176	334800	371225	-6.99	-12368.1	166689	131890
23	766.0	40.0	239.55	3711.8	1057.80	76.30	-46.80	-109.301	+165.96	-19.691	3267.91	-5019 -6771	-60108	-665892	357185	728410	-8.224	-14971.2	865906	507896
22	732.0	34.0	240.93	722.4	955.31	36.23	-5.73	-13.805	6.88	-3.832	-249.06	-5231 -7554	-282560	-948396	+ 3358	1317160	-6.990	-58091.1	926755	923397
21	693.05	38.815	249.38	620.9	940.20	32.18	-2.68	-6.683	98.36	-5.294	-159.30	-2804 -8173	-332533	-1280929	+ 1065	1321833	-7.993	-65371.3	996191	995126
20	654.25	38.875	257.83	515.8	931.80	31.94	-2.94	-6.291	99.96	-6.736	-109.33	-8373 -8511	-335726	-1616653	+ 688	1338521	-7.993	-68044.6	1064584	1063936
19	615.375	38.875	266.28	644.0	940.32	38.06	-8.56	-22.794	98.89	-3.416	-165.61	-8538 -8677	-341975	-1962628	+ 3775	1357296	-7.993	-70518.2	1140811	1137041
18	576.5	38.875	274.72	3988.1	1038.36	76.39	-46.89	-128.816	146.58	-21.157	-209.90	-8748 -8887	-349412	-2311040	+ 3869	1394615	-7.993	-71811.9	1411978	1216658
17	549	27.5	280.70	284.1	899.40	27.91	+1.59	+4.463	7.50	-1.507	-11.39	-12488 -12627	-333480	-2644440	- 51	1336564	-5.654	-68385.6	1680273	1680323
16	521.5	27.5	286.68	4126.4	1033.84	76.96	-46.96	-134.625	141.00	-21.880	3085.08	-15713 -15852	-332734	-2977194	+15329	1351893	-5.654	-69410.0	2146011	1798682
15	493.50	36.5	294.61	844.7	965.12	32.78	-8.28	-24.394	23.38	4.460	-103.83	-15956 -16095	-554134	-3531328	+2533	1554426	-7.504	-73044.5	2220489	2217956
14	448.5	36.5	302.54	662.5	891.84	33.35	-2.85	-8.622	0.00	-3.302	0	-15956 -16095	-558023	-4089351	0	1554426	-7.504	-74729.9	2398212	2395212
13	412.0	36.5	310.47	643.6	894.52	32.34	-2.84	-8.817	-7.32	-3.414	125.00	-15831 -15970	-552033	-4647479	- 220	1554206	-7.504	-74729.9	2509796	2509936
12	375.75	36.25	318.35	774.5	893.16	37.32	-7.82	-24.895	+1.32	-4.109	-5.42	-15836 -15975	-553295	-5100769	+ 135	1554341	-7.453	-73574.6	2625796	2623573
11	339.5	36.25	326.23	4260.4	1015.08	76.79	-47.79	-154.274	+133.94	-22.601	-278.55	-15269 -15408	-552240	-5752059	+429507	1984068	-7.453	-73574.6	3167113	3137406
10	312.0	27.5	332.20	3123.4	858.32	28.95	+0.55	+1.827	- 2.851	-1.912	+73.65	-18058 -18058	-496988	-6250547	+ 135	1984183	-6.654	-108719.8	3269326	3269191
9	284.5	27.5	338.18	5097.0	992.64	71.83	-42.33	-143.151	+ 100.80	-27.040	-2725.43	-7796 -7796	-494461	-6745008	3901179	5374362	-6.654	-101662	3761166	3761087

BY: J. Cox
CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 685 125 PA-DS 11-43

TABLE 50 SHEET 3 OF 3

B-36 WING - ULTIMATE SHEAR, BENDING MOMENTS & TORSION DUE TO PITCHING ACCELERATION - WING EMPTY LESS L.G.
CONDITION: 2 WHEEL LANDING WITH INCLINED REACTIONS - NOSE DOWN - HIGH - 42-1000# BOMBS - FULL FUEL & OIL

STA.	LAST FRONT & SHEAR INC.	DIST. BETWEEN STATIONS Δy IN.	CHORD LENGTH C_{IN}	PANEL AV. LOAD $N_{\#}$	MOT. ARM LINE TO TORQUE	DIST. FROM LE. TO L_{CG} / $\frac{1}{4}C$	e_1 % C	e_2 INCHES	$\bar{Y}$	$\frac{W_{IN}}{12g}$	$\frac{N_{\#}}{12g}$	TOTAL SHEAR AT STA. S_{lbs}	ΔM_y $S_{lbs} \times \Delta y$	TOTAL MOM. AT STA. M_x	ΔT_{EA} $Q_{lbs} \times e_2$	$\Sigma \Delta T_{EA}$ $(\Delta L = e_1)(\Delta y \cos \gamma)$	e'	$S_{lbs} \times e'$	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
				FZS-36-137	FZS-36-137	FZS-36-137	295-A	⑧ ÷ ④	⑥ - 89.84	⑩ × -1005.305	⑪ × 1.402	Σ ⑫	⑬ × ⑨	Σ ⑭	⑫ × ⑯	Σ ⑰	⑱ × ⑨	⑲ × ⑮	⑳ + ㉑	⑳ - ㉑
				Tab I Col 2	Tab I Col 4	Tab I Col 7														
		35.5															-7.299			
8	249.0		395.89	783.8	880.04	41.60	-12.10	-41.852	-7.60	-4.158	+32.43	-2426.4 / -2426.4	-735063	-1980171	-1357	2375005			1511934.1	3512395
		17.0															-3.495			
7	232.0		349.59	825.2	853.56	33.75	-9.75	-19.869	-38.28	-4.353	+166.63	-2430.8 / -4857.2	-351451	-1831522	-2476	2370529			722542	3363780
		26.0															-5.396			
6	206.0		355.24	893.9	889.00	33.90	-9.90	-15.631	-42.84	-2.885	+123.59	-2557 / -7414.2	-533182	-1364704	-1932	2368057			1096824	4688118	3690380
		26.0															-5.396			
5	180.0		360.88	870.8	839.64	32.72	-9.25	-11.729	-51.20	-4.620	+241.16	-2525.3 / -9939.5	-529968	-8894672	-2829	2365768			1085960.6	4194559	4197388
		33.5															-6.888			
4	146.5		368.16	867.0	812.64	27.20	+2.30	+8.468	-79.00	-4.706	+371.77	-2504.9 / -12444.4	-614764	-7529436	+3148	2368916			1387395	4836417	4838288
		33.25															-6.836			
3	113.25		376.39	795.5	823.44	31.04	-2.44	-9.160	-68.46	-3.159	+216.08	-2379 / -14823	-657366	-6872041	-1379	2366937			1251502.5	4469618	4471537
		33.25															-6.836			
2	80.0		387.42	835.0	841.20	38.32	-8.82	-23.747	-50.20	-4.430	+222.35	-2302.5 / -17125.5	-650180	-6874982	-7505	2365932			1331632	4595786	4603491
		28.875															-8.613			
1	41.125		391.08	1021.2	797.04	28.89	+0.61	+2.386	-94.80	-5.917	+513.59	-2333.2 / -19458	-753461	-1162943	+1225	2366057			1519065	4759118	4759693
		41.025															-5.435			
0	0		400.00	494.4	786.72	28.83	+1.07	+4.280	-105.12	-2.623	+275.73	-1858 / -21316	-771025	-1140468	+1180	2361837			1582262	4911830	4910650

BY: T. E. S.
CHECKED: Pappas

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, lb *	Dist. from Nose Ref. Line in inches	Dist. from L.E. to load, % C	e, % C	e, inches	$\frac{W \cdot k}{129}$	$\Delta S_b = \frac{W \cdot k}{129} \bar{r}$	Total shear, S_b, lb	$\Delta M_x = -S_b \times \Delta y$	Total moment, M_x	$\Delta T_{E.A.}$ (E.A. about ℄ of ac) = $\Delta S_b \times e$	$\Sigma \Delta T_{E.A.}$ due to e	e' (Y from B)	$S_{b_{K'}} = S_b \times K'$	$T_{n_{K'}} = T_n \times K'$	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 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 cum ③	Σ ⑬	⑪ × ⑨	Σ ⑮	③ × .1056	⑫ × ⑰	Σ ⑱	⑯ + ⑲	⑳ - ⑮
											0	0					0			
16	1346.1 *		107.42	49.5	1018.80	39.71	- 10.21	-10,968	.068	11.56	11.6		0	-1004	-1004			0	-1004	0
		22.4									96.6	2,052				-4,605	-421			
41	1324.0		112.29	15.7	1070.88	36.32	- 6.82	-7658	.022	29.13	120.7		2,052	-223	-1227			-421	-1698	-1725
		23.000									120.7	2,776				-4729	-571			
40	1301.0		117.29	33.1	1063.68	33.92	- 4.42	-5,184	.046	58.55	179.2		4828	-304	-1531			-992	-2523	-2219
		23.000									179.2	4,122				-4.729	-847			
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			-1839	-15360	-3370
		26.000									477.0	12,400				-5.346	-2,550			
38	1252.0		127.94	15.2	1053.96	33.83	- 4.33	-5,540	.062	77.62	554.7		21,350	- 430	-13,950			-4389	-18340	-17,910
		27.000									554.7	14,980				-5,551	-3,079			
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			-7468	21,890	-21,420
		27.000									630.6	17,030				-5,551	-3,500			
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			-10,970	-25,870	-25,390
		28.000									720.5	20,170				-5,757	-4,148			
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			-15,120	-40,990	-30,020
		30.000									1062	31,860				-6.168	-6,550			
34	1140.0		152.28	79.7	1031.52	33.52	- 4.02	-6,121	.103	117.4	1179		105,400	-719	-26,590			-21,670	-48,260	-47,540
		30.000									1179	35,370				-6,168	-7272			
33	1110.0		158.79	84.5	1024.20	32.63	- 3.13	-4.970	.116	128.8	1308		140,800	-640	-27,230			-28,940	-56,170	-55,530
		30.000									1308	39,240				-6,168	-8068			
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			-37,010	-77,340	-64,240
		30.000									1686	50,580				-6.168	-10,400			
31	1050.0		171.83	127.3	1011.84	32.38	- 2.88	-4949	.175	183.8	1870		230,600	- 910	-41,240			-47,410	-88,650	-87,740
		36.000									1870	67,320				-7.402	-13,840			
30	1014.0		179.66	159.7	1004.52	32.30	- 2.80	-5,030	.212	215.0	2085		297,900	-1081	-42,320			-61,250	-103,600	-102,500
		36.000									2085	75,060				-1402	-15,430			
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			-76,680	-131,700	-119,000
		36.000									2510	90,360				-7,402	-18,580			
28	942.0		195.30	183.0	990.00	32.22	- 2.72	-5,312	.251	236.4	2746		463,200	- 1256	-56,300			-95,260	-151,600	-105,300
		36.000									2746	98,860				-7.402	-20,330			
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			-115,600	-173,300	-171,900
		36.000									2994	107,800				-7,402	-22,160			
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			-137,800	-205,500	-195,500
		30.000																		

* C.G. OF TIP SECTION

BY: [illegible]
CHECKED: [illegible]

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

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_x, in.	Panel Wt. Load, W, #	Dist. From Neut. Axis Line in Inches	Dist. From L.E. to Load, %C	e, %C	e, Inches	$\frac{Wx}{129}$	$\Delta S_b = \frac{Wx}{129} \gamma$	Total Shear S_{bn}	$\Delta M_x = S_{bn} \times \Delta y$	Total Moment M_x	$\Delta I_{E.A.}$ (Due to e) $\Delta S_b \times e$	$\Sigma \Delta I_{E.A.}$ (Due to e)	e' (Δy Tan γ)	$S_{bn} \times e'$	$\Sigma \frac{S_{bn} \times e'}{G_{bn}}$	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. I, Col. 2	FZS-36-137 Tab. I, Col. 4	FZS-36-137 Tab. I, Col. 7	29.5 - ⑦	⑧ × ⑨ / 100	.00137276 ⑩ × ②		Σ ⑪	⑫ × ③	Σ ⑬	⑪ × ⑨	Σ ⑮	-③ × 2.0356	⑫ × ⑰	Σ ⑱	⑯ + ⑲	⑳ - ⑮
		30.000									3353	100,600				-6.168	-20,680			
25	840.0		217.46	262.5	963.48	29.89	+ 0.11	+0.239	.360	302.4	3655		770,600	+72	-67,690			-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									12959	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	-2,914	-928,800			-531,500	-1,960,000	-1,957,000
		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	3556	17,122		3,650,000	-906,500	-1,348,000			-750,900	-2,698,000	-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	-1,769,000			-1,413,000	-3,177,000	-3,174,000
		36.250									21,596	782,900				-7.453	-161,000			
12	375.75		318.35	774.5	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	-3,813,000	-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], Ritter

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 533 125 PADS 11-43

TABLE 51
SHEET 3 OF 3

8-36 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 E SHIP, IN.	DIST. BETWEEN STATIONS (Δy), IN.	CHORD LENGTH, C, IN.	VANE POINT CO-ORDS.	DIST. FROM NOSE OF AIRFOIL IN INCHES	DIST. FROM L.E. TO LOAD % C	e, % C	e, INCHES	WX / 12g	456 MAX / 12g = F	TOTAL SHEAR, Sh	Σ M_x	TOTAL M_x	ΔT.E. (Double)	Σ ΔT.E. (Double)	C' (Δy THICK.)	S_bh-1	Σ S_bh-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. I Col. 2	FZS-36-137 TAB. I Col. 4	FZS-36-137 TAB. I, Col. 7	295 - ①	⑧ × ④ / 100	.0013727 × ⑧	⑩ × ⑥	Σ ⑪	⑫ + ③	Σ ⑬	⑪ × ⑨	Σ 15	-⑨ × 20.576	⑫ + ⑰	Σ ⑱	⑯ + ⑲	⑳ - ⑮
		35,500									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	26,794		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	-4,669,000
		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	-4,813,000	-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		12,593,000	-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		15261,000	-3,094	-2,388,000			-3,138,000	-5526,000	-5523,000
		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	-5,971,000

By: List
CHECKED: SHULTICE, Proffer

CONSOLIDATED VULTEE AIRCRAFT CORPORATION — FORT WORTH DIVISION, FORT WORTH, TEXAS — 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, FUEL, FUEL & OIL.

STA.	DISTANCE BETWEEN STATIONS (Δx) in.	CHORD LENGTH, c in.	AREA, A in.²	DIST. FROM N.A. TO LEAD. EDGE, (-) OR TRAIL. EDGE, (+) e in.	e (8c)	e (in.)	F = e·X	W/A 139	ΔS_L = W/A ΔF	TOTAL SHEAR AT STA. = ΣS_L	ΔM_y = S_L × Δx	TOTAL MOM. AT STA. = M_y	ΔT_EA (due to e) = ΔS_L e	ΣΔT_EA (Lag.)	x' = Δy cos β	S_L × e' O.B.	2S_L × e' I.B.	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-36-130 TABLE 25 SHEET 1, COL. 2	FZS-36-130 TABLE 28 SHEET 1, COL. 2	FZS-36-130 TABLE 26 CHANGE IN M.A. SHEET 1, COL. 4	295 - (7)	(5) × (8) / 100	5 - 0.0225 × 80.0000 - (9)	(6) × (10)	Σ (11)	(12) × (4)	Σ (13)	(12) × (9)	Σ (14)	(12) × (16)	Σ (16)	(3) × 2.0764	(18) × (5)	Σ (19)	(17) + (20)	(21) - (16)
24		224.85	103.1	20.62	57.90	-28.40	-63.86	116.76	-.072	-8.41	-8	0	0	+537.06	+537.06		0	0	+537.	0
	40.000																			
23		239.55	104.1	26.24	60.23	-30.73	-71.77	116.40	-.072	-8.38	-8 -16	-334.4	-338.	+601.43	+1138.49	-5.22	+69.13	+69.13	+132.	+64.
	34.000																			
22		240.93	116.3	29.28	39.14	+ 1.56	+3.27	34.44	-8.106	279.17	-17 -296	-5760	-9097	-912.89	+225.60	-6.99	+117.96	+186.49	+68.	+1325
	38.875																			
21		249.98	306.9	83.44	29.88	- 0.38	- .94	30.60	-21.395	684.69	-296 -981	-11,506	-12413.	+615.41	+841.01	- 7.99	+239.72	+551.21	+332.	+2777
	38.875																			
20		257.83	308.9	92.92	28.33	+ 1.25	+3.22	18.49	-27.180	502.23	-981 -1423	-36,056	-49,569	-1617.87	-1776.36	- 7.99	+758.69	+1146.90	+237.	+10988
	38.875																			
19		266.98	418.6	104.16	28.26	+ 1.24	+3.30	10.32	-29.178	301.12	-1423 -1722	-56,483	-105,852	- 993.70	-1770.06	- 7.99	+1160.89	+2317.58	+1159.	+10980.
	38.875																			
18		274.72	224.8	56.12	28.27	+ 1.23	+3.32	2.28	-15.672	-39.73	-1722 -1790	-68,189	-174,041	-1240.77	-3010.83	- 7.99	+1901.94	+5170.62	+3268.	+34081.
	47.500																			
17											-1790 -1770	-48,239	-223,261		-1830.83	5.65	+10,112.31	+15882.16	+5770.	+43912
	27.500																			
16		286.68	185.6	46.26	27.22	+ 1.28	+3.48	11.76	-12.940	+181.17	-1770 -1638	-43,219	-266,480	+995.19	-835.64	- 5.65	+10,112.31	+5590.58	+5503.	+59105
	36.500																			
15		294.61	438.2	120.64	29.49	+ 2.01	+ 4.03	-13.20	-30.542	+403.15	-1638 -1234	-59,173	-324,653	+ 12.09	-9 53.55	- 7.50	+12281.15	+28277.60	+6732.	+67312.
	36.500																			
14		302.54	515.8	142.62	28.08	+ 1.44	+4.30	-24.96	-35.946	896.71	-1234 -938	-45,058	-377,311	+3,685.85	+2902.30	- 7.50	+13,585.2	+37,536.12	+5048.	+76583
	36.500																			
13		310.47	541.8	151.32	28.10	+ 1.40	+4.22	-32.52	-37.766	1322.15	-938 -638	-19,328	-389,639	+5342.45	+8244.75	- 7.50	+3533.20	+80069.32	+55314.	+81972
	36.250																			
12		318.35	568.9	173.64	28.04	+ 1.49	+4.44	-40.20	-39.456	1524.17	+890 +1483	+32,976	-357,362	+7,396.95	+15,641.70	- 7.45	-6,635.41	+134,359.91	+1189.078	+81,681
	36.250																			
11		326.23	600.2	195.04	28.36	+ 1.14	+3.72	-16.80	-20.966	981.21	+2,483 +3,949	+98,066	-259,296	+3,650.10	+19,291.80	- 7.45	-18,509.97	+59,939.89	+4,318.	+70,568
	27.500																			
10											+3466 +4466	+122,903	-136,393		+19,291.80	- 5.65	-19,581.60	+39,521.49	+4,636.	+54,436.
	27.500																			
9		328.18	250.2	82.56	28.22	+ 1.21	+3.50	-63.84	-17.690	112.933	+3466 +5505	+90,309	-46,084	+10,728.64	+30,020.44	- 5.65	-19,581.60	+13,762.74	+45,782.	+35,056

By: J. Ellis

CHECKED: B. [illegible] Taylor

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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 - D.G.W. LESS BOMBS, FULL FUEL & OIL

STA.	DISTANCE BETWEEN STATIONS (Δy)	CHORD LENGTH, C, in.	PANEL POINT LOAD, V_y, lb	DIST. FROM DIST. NOSE REF. FROM L.E. LINE TO 10 LOAD (in) (Δx)	e (%c)	c (in)	F = e - x̄	M_x = F × V_y	ΔS_b = (1/2)(V_y)(Δy)	TOTAL SHEAR AT STA. S_b	ΔM_x = (1/2)(V_y)(Δy)	TOTAL BEND. MOM. AT STA. M_x	Δ T_EA = (Δx)(Δy)(e)	Σ Δ T_EA = (Δx)(Δy)(e)	e	S_b × e	Σ S_b × e	TORSION INBOARD	TORSION OUTBOARD
1		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
			FZS-36-137 TABLE IX SHEET 1 COL. 2	FZS-36-137 TABLE IX SHEET 1 COL. 3 CHECKED TO 14															
9	33.5	338.18	4,558.2	840.00	26.22	+5.81	+0.41	-6.54	-17.630	1129.23	+3466 +4,595	+2530.9	-76.985	+10,728.64	+30,020.64	5.65	-19,581.60	+15,762.14	+45,783
8	35.5	345.80	4,660.2	837.60	26.17	+1.33	+4.60	-28.64	-28.208	12,744.46	+3,592 +2,470	+142,126	+88,492	+8,692.52	+38,841.96	7.30	-33,544.23	-17,781.89	+0,861
7	17	347.32	5,643.2	833.52	26.01	+1.43	+5.21	-70.97	-25.391	17,850.50	+2,470 +3,255	+109,383	+136,417	+93,026	+131,845.41	3.96	-23,443.48	-40,471.85	+1,528
6	26	355.56	4,552.2	828.24	26.03	+1.41	+5.01	-75.66	-31.730	23,398.79	+8,285 +10,684	+213,621	+211,083	+12,078.24	+50,923.24	5.35	-64,169.67	-84,589.52	-24,636
5	26	360.56	5,355.4	822.72	26.03	+1.47	+4.91	-81.12	-37.534	32,944.76	+10,684 +15,689	+277,002	+255,240	+16,167.68	+76,131.04	5.95	-56,998.10	-141,587.62	-65,457
4	33.5	363.16	3,148.2	815.76	28.03	+1.47	+5.41	-88.06	-21.941	39,332.56	+15,689 +15,631	+425,905	+116,369	+10,455.18	+86,586.19	6.89	-94,389.42	-235,976.04	-149,385
3	33.25	365									+15,631 +15,631	+519,736	+166,796		+86,586.19	6.84	-106,817.20	-342,793.24	-256,302
2	33.25										+15,631 +15,631	+519,737	+89,427		+86,586.19	6.94	-106,911.20	-449,704.44	-363,319
1	38.975	367.5									+15,631 +15,631	+623,299	+132,681		+86,586.19	8.01	-125,260.95	-574,965.39	-488,985
0	41.025										+15,631 +15,631	+641,269	+343,382		+86,586.19	8.43	-131,770.76	-706,736.15	-620,196

BY: J. Ellis
CHECKED: Evans, Duffer

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.

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STA	DIST FROM ℄ SHIP	DISTANCE BETWEEN STATIONS (Δy)	CHORD LENGTH	PANEL POINT LOAD, W	DIST FROM NOSE REF. LINE TO LOAD (in.)	DIST. FROM L.E. TO LOAD, (in.)	ε (°)	2	∅ − R	T	Wy / 129	$AS_b = \frac{W}{129} \cdot \frac{\Delta T}{\Delta S_{b_{AV}}}$	TOTAL SHEAR AT STA. S_{b_0}	$\Delta M_y = S_{b_{AV}} \times \Delta y$	TOTAL MOM. AT STA = M_{y_0}	Δ Tor. $\frac{\Delta T}{\Delta S_{b_{AV}}}$ (Ref. 1)	$\Sigma \Delta_{Tor.}$ (Ref. 1)	$\frac{\Delta T}{\Delta S_{b_{AV}}} - \Delta T_{AIR\,B}$	$S_{b_{AV}} \times e$	$\Sigma S_{b_{AV}} \times e$	TORSION INBOARD	TORSION OUTBOARD
1	2	3	4	5	6	7	9	9	10	11	12	13	14	15	16	17	18	19	20	21	22
							FRS-36-137 TABLE 38 SHEET 1, COL 2	FRS-36-137 TABLE 38 SHEET 1, COL 5													
24	904	274.65		103.1	1020.60	37.90	-23.40	-13.86	116.76	-.07	-3.17	-8.17	0	0	+521.7	+521.7		0	0	+521.7	0
		40.000										-8.17									
23	766.9	233.55		104.1	1020.24	60.23	-20.73	-11.77	116.40	-.07	-2.15	-10.32	-326.8	-326.8	+384.9	+1,106.6	-8.22	+67.2	167.2	+1,174.6	+838.0
		34.000										-18.49									
22	732.9	240.93		116.3	938.28	28.14	-18.34	-10.27	34.44	-8.16	-22.63	-32.79	-554.9	-881.7	-913.0	+187.6	-6.89	+184.1	+184.3	+368.9	+1,287.9
		38.875										-51.28									
21	693.9	249.23		306.9	934.44	29.85	-15.98	-9.91	30.60	-21.54	-659.12	-710.4	-11,569	-12,451	+613.6	+837.2	-7.99	+2275.8	+2557.1	+5,364	+2,745
		38.875										-749.2									
20	654.9	257.33		389.9	922.32	28.25	-13.25	-8.22	18.48	-27.36	-836.61	-1,585.8	-31,183	-43,634	+1,028.1	-820.9	-7.99	+7642.9	+10,199.3	+9,378	+11,007
		38.875										-1,585.8									
19	615.9	266.28		418.6	914.16	28.46	-10.24	-6.30	10.32	-29.37	-898.10	-2,483.9	-56,838	-100,472	-1,000.2	-1,821.1	-7.99	+11,681.0	+21,880.3	+20,060	+21,068
		38.875										-2,483.9									
18	576.9	274.12		2248.7	906.12	28.97	-7.23	-4.38	2.28	-25.78	-788.56	-3,272.5	-68,622	-169,094	-121.6	-1,942	-7.99	+14,103.8	+35,984.1	+34,012	+34,164
		27.500										-3,272.5									
17	549.4											-3,272.5									
		27.500										-3,272.5									
16	521.9	286.68		1224.2	893.08	27.28	-4.21	-2.69	11.76	-12.02	-367.91	-3,640.4	-80,089	-249,183	+691.6	-1,251	-5.65	+10,176.6	+46,060.9	+55,237	+54,337
		36.500										-3,640.4									
15	485.4	294.61		4382.2	890.64	29.29	-1.21	-.83	-13.20	-30.75	-1,005.30	-4,645.7	-60,149	-309,332	+12.32	-998.2	-7.50	+13,359.5	+68,697.8	+67,629	+67,687
		36.500										-4,645.7									
14	448.9	302.54		5154.8	878.88	29.06	+1.42	+1.00	-24.96	-36.17	-1,182.80	-5,828.5	-45,235	-379,481	+3,383.0	+2,384.8	-7.50	+9,315.0	+78,013.0	+80,896	+77,014
		36.500										-5,828.5									
13	412.4	310.47		5418.7	871.32	29.10	+4.40	+3.09	-32.52	-36.02	-1,178.00	-7,006.5	-12,382	-392,419	+5,375.4	+7,760.2	-7.50	+2,544.2	+80,557.2	+88,819	+83,440
		36.250										-7,006.5									
12	376.15	318.25		5689.9	865.64	29.04	+7.46	+5.24	-42.20	-39.92	-1,305.75	-8,312.2	+32,525	-412,476	+7,442.2	+15,202.4	-7.45	-6,684.0	+73,873.2	+89,581	+82,125
		36.250										-8,312.2									
11	339.9	326.43		9008.2	851.24	28.36	+10.14	+7.12	-46.80	-21.11	-690.40	-9,002.6	+90,620	-502,374	+9,670.2	+24,872.6	-7.45	-18,639.6	+55,233.6	+76,617	+70,241
		27.500										-9,002.6									
10	312.4											-9,002.6	+35,272	-502,222		+24,872.6	-7.65	-19,718.0	+35,515.6	+54,809	+54,299
		27.500										-9,002.6									
9	284.9	338.18		2588.2	840.20	26.23	+12.51	+8.61	-62.84	-17.81	-1,136.93	-10,139.5	+35,973	-16,940	+10,861.4	+35,734.0	-7.65	-19,718.0	+15,797.6	+45,982	+45,181

BY: J. E. Clay
CHECKED BY: Elaine, Griffin

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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 WHEL LANDING WITH BRAKES, NOSE DOWN. D.G.W. LESS BOMBS, FULL FUEL & OIL.

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STA.	DIST FROM ℄	DISTANCE BETWEEN STATIONS	CHORD LENGTH, C, in	PANEL POINT LOAD, W, #	DIST FROM NOSE PER FROM L.E. LINE TO P.P. LOAD, (ARM) (X)	DIST FROM ℄	C	C	-(C - X̄)	W/129	ΔS_b = W/129 × Δn̄	TOTAL SHEAR AT STA. = S_b	ΔM_x = S_b × Δy	TOTAL MOM AT STA = M_x = ΣΔS_b e	Δ Tan (que to e)	ΣΔ Tan (que to e)	e' =	S_b × e'	ΣS_b × C
1	0	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
					FZS-36-137 TABLE IV	FZS-36-137 TABLE III	29.5-⑰	⑧ x ⑨ / 100	⑧-90354	.007016 x ⑧	⑪ x (10)	Σ ⑫	⑬ x ③	Σ ⑭	⑫ x ⑮	Σ ⑯	⑰ x 2.3026	⑮ x ⑱	⑲ x (10)
					SHEET 1, COL 5	SHEET 1, COL 3													
9	1344	338.18	9,539.2	645.00	26.69	+2.81	+9.50	-66.84	-17.51	+1,136.99	+2,490 +4,647	+95,923	-76,842	+20,184.3	-5.65	-19,718.0	+15,797.6	+45,382	+35,181
		35.500																	
8	1379.68	345.80	4,060.5	837.60	28.17	+1.33	+14.60	-66.24	-23.48	+1,221.18	+7,677 +10,514	+164,755	+87,406	+108,265.3	-7.30	-39,776.4	-17,978.8	+20,887	+12,274
		17.000									+6,514								
7	1414.68	349.52	3,643.2	632.52	28.01	+1.49	+15.21	-70.25	-25.55	+1,797.38	+8,311 +10,774	+110,799	+138,145	+248,944.3	-8.50	-42,799.3	-40,776.1	+7,452	-1,913
		24.000									+8,311								
6	1462.68	355.24	4,552.1	828.24	28.09	+1.41	+15.01	-75.00	-31.94	+2,414.66	+10,774	+216,098	+41,249	+289,327.0	-5.85	-44,466.3	-85,244.4	-24,917	-21,015
		26.000									+10,765								
5	1488	360.88	5,385.4	922.72	28.03	+1.47	+15.31	-81.12	-37.76	+3,064.71	+10,765	+278,875	+62,122	+476,660.4	-5.85	-57,324.7	-142,482.1	-66,629	-42,220
		33.500									+10,731								
4	1521.5	368.16	3,148.2	815.76	28.03	+1.47	+15.11	-88.08	-22.00	+1,945.69	+10,732	+461,913	+55,115	+587,128.5	-6.69	-95,018.8	-237,647.9	-170,621	-161,047
		33.250									+10,737								
3	1118.25	33.250									+15,737	+523,250	+1,673,954		+87,126.8	-6.64	-107,637.8	-345,285.7	-258,149	-258,139
1	1484.825										+15,737	+1,212,281	+2,814,025		+57,106.2	-8.01	-126,048.5	-570,973.0	-491,846	-491,846
		41.025																	
0											+15,737	+1,695,530	+3,460,815		+87,126.8	-8.43	-132,658.9	-711,631.9	-624,805	-624,805

BY: J. Ellis
CHECKED BY: Brien Jaeger

CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS

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 - 1000# BOMBS, FULL FUEL & OIL.

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STA.	DIST. BETWEEN STA. & PREV. STA.	DISTANCE CM. BETWEEN STA. & REF. LINE l_i	TOTAL DISTANCE FROM REF. LINE TO STA. L_i	DIST. FROM C.G. TO STA. $d_i = L_i - \bar{x}$	e_i	E_i	$f_i = \frac{e_i}{I_i}$	$\frac{W_i x_i}{12.3}$	$\Delta S_b = \frac{W_i x_i}{12.3} n$	TOTAL NEW SHEAR AT STA. S_{b_T}	$\Delta M_x = S_{b_T} \Delta x$	TOTAL INCREMENT AT STA. M_x	$\Delta T_{e_x} = \Delta S_b \cdot e$	ΔT_{f_x}	T_{e_x}	E'	$S_{b_x} \times e'$	$\Sigma S_{b_x} \times e'$	T_{E_x} INBOARD	T_{E_x} 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 COL. 3	FZS-36-133 TABLE IV SHEET 2 COL. 4	FZS-36-133 TABLE IV SHEET 2 COL. 5	295-(7)	(6) x 5/288	(6 - 6418)	6418 (5)	(10) x (11)	Σ_0^n (12)	(13) x Δx_{00}	(9) x (14)	(8) x (15)	= (16) + (17)	= 2.05 e (3)	(18) x (15)	Σ (19)	(18) + (20)	(21) - (16)
24		224.85	10.3	1020.60	5290	- 28.40	- 63.86	128.76	- .05464	- 7	- 7			0	+ 447	+ 447	0	0	0	+ 447	0
	40.000												- 280								
23		235.55	10.4	1020.24	6023	- 30.73	- 71.77	125.40	- .05317	- 7	- 14			- 280	+ 502	+ 949	- 6.22	+ 58	+ 58	1007	605
	34.000												- 476								
22		240.93	952.8	941.76	29.58	- 9.08	- 0.19	49.92	- 5.1534	- 252	- 266			- 756	+ 48	+ 997	- 6.99	+ 98	156	1153	1105
	38.875												-10341								
21		249.38	2842.0	936.12	30.56	- 1.06	- 2.64	44.26	- 15.0764	- 668	- 934			-11097	+ 1764	+ 2761	- 7.99	+ 2125	2281	5042	3278
	38.875												-36309								
20		257.83	3899.9	922.32	28.25	+ 1.25	+ 3.22	31.48	- 20.6890	- 631	- 1265			-47406	- 2032	+ 729	- 7.99	+ 7463	9744	10473	12505
	38.875												-60839								
19		266.28	4186.5	914.16	28.26	+ 1.24	+ 3.30	22.32	- 22.2044	- 496	- 2661			-108245	- 1637	- 768	- 7.99	+12504	22248	21340	22977
	38.875												-80121								
18		274.72	2278.7	906.12	28.27	+ 1.23	+ 3.38	14.26	- 11.9214	- 170	- 2831			-188366	- 675	- 1483	- 7.99	+16447	38715	37232	37809
	27.500												-61353								
16		286.68	889.2	892.44	27.00	+ 2.00	+ 5.73	0.60	- 4.7172	- 3	- 2834			-311072	- 17	- 1500	- 5.65	+12605	63225	62425	62442
	36.500												-81541								
15		294.61	2016.7	891.12	29.65	- 0.15	- 0.44	- 0.72	- 16.6986	- 6	- 2840			-352613	- 4	- 1504	- 7.50	+16755	80680	79176	79180
	36.500												-81249								
14		302.54	2308.6	880.44	28.60	+ 0.90	+ 2.72	- 11.40	- 12.2471	+ 140	- 2700			-473862	+ 381	- 1123	- 7.50	+16755	97435	96312	95931
	36.500												-76139								
13		310.92	2426.7	872.88	28.60	+ 0.90	+ 2.79	- 18.96	- 12.8734	+ 244	- 2456			-550001	+ 681	- 442	- 7.50	+15645	113080	112638	111957
	36.250												-66773								
12		318.35	2648.2	865.20	28.53	+ 0.97	+ 3.09	- 26.64	- 13.5182	+ 260	- 2196			-616774	+ 1112	+ 670	- 7.45	+13723	126803	127473	126361
	36.250												-58723								
11		326.23	1353.0	851.20	29.02	+ 0.48	+ 1.57	- 32.64	- 7.1772	+ 234	- 1962			-670497	+ 367	+ 1037	- 7.45	+11041	137844	138881	138514
	27.500												-43320								
10		332.20	0					C	C		- 1248			-704817	0	+ 1037	- 5.65	+ 7051	144895	145932	145932
	27.500												-34320								
9		338.18	278.6	813.12	13.74	+10.76	+36.39	- 76.12	- 1.4786	+ 116	- 1248 - 1132			-739137	+ 4221	+5258	- 5.65	+ 7051	151946	157204	152983

By: Kriegberg

CHECKED BY: Daven

CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS

TABLE 54 B-36 WINGS, 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

FS 833 125 PADS 11-43

STA.	INCREMENTAL DISTANCE BETWEEN STATIONS, IN.	CHORD LENGTH C, IN.	PANEL LOAD W, #	DIST. FROM NOSE REF. LINE TO E.A. m, IN.	e % c	e' % c	$\bar{x}$	$\frac{W_x}{12g}$	$\Delta S_x = \frac{W_x}{12g}\bar{x}$	TOTAL SHEAR AT STA. S_{BM}	$\Delta M_x = S_{BM} \times \Delta Y$	TOTAL MOMENT AT STA. M_x	$\Delta T_{EA} = \Delta S_{EA} \times e$	ΣT_{EA} (SEE N-2)	$e' = \text{DIFF. OF } e$ (SEE N-2)	S_{BM-1}	e'	$\Sigma S_{BM-1} e'$	$T_{E.A.}$ INBOARD	$T_{E.A.}$ OUTBOARD
1		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
			FBS-36-137 TABLE IX SHEET 2 COL. 3	FBS-36-137 TABLE IX SHEET 2 COL. 4	FBS-36-137 TABLE IX SHEET 2 COL. 5	29.5 (7)	$\frac{6}{79.5}$	$\bar{x}$ - 891.84	-.0082 (10) × (11)	Σ_o^A (13)	(3) × (13)	Σ_o^M (14)	(4) × (12)	Σ_o^n (16)	-.2058 × (3)	29 × (18)	= (19)	(19) × (21)	(21) - (20)
9	338.5	338.18	278.6	813.12	18.74	+ 10.76	+3613.9	- 78.78	- 1.4793	+ 116	-1248 -1132	-739137	+ 422.1	+5258	- 6.65	+ 7051	151 446	157204	152983	
	35.500										-40184									
8	373.0	345.84	279.3	797.62	16.59	+ 12.91	+4446	- 94.32	- 1.4917	+ 140	-1132 -992	-779323	+ 6251	+11509	- 7.30	+ 8264	160 210	171719	165468	
	17.000										-16864									
7	412.0		0				c	c			-992	-796187	0	+11509	- 2.50	+ 3472	163682	175191	175191	
	26.000										-25792									
6	506.0		0				c	c			-992	-821979	0	+11509	- 5.35	+ 5307	168989	180498	180498	
	26.500										-25792									
5	680.0		0				c	c			-992	-847771	0	+11509	- 5.35	+ 5307	174296	185805	185805	
	33.600										-33232									
4	796.5		0				c	c			-992	-881003	0	+11509	- 6.89	+ 6835	181 131	192640	192640	
	33.250										-32984									
2	913.24		0				c	c			-992	-913987	0	+11509	- 6.84	+ 6785	187 916	199425	199425	
	33.250										-32984									
1	980		0				c	c			-992	-946 971	0	+11509	- 6.84	+ 6785	194 701	206210	206 210	
	41.025										-40677									
0	0		0				c	c			-992	-1026 331	0	+11509	- 8.43	+ 8363	211 010	222		

BY: Kriesberg

CHECKED BY: Burr

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/P, in.	Dist. Between Stations (adjacent)	Chord Length C, in.	Panel Point Loading	Dist. From Nacelle F.S. Line, in. inches	Dist. From L.E. To Load, %C	e, % C	e, inches	W_x / 129	$\Delta S_b = \frac{W_x}{129} \bar{n}$	Total Shear S_{b_n}	$\Delta M_x = S_{b_n} \Delta y$	Total Moment, M_x	$\Delta T_{E.A.}$ (due to $\Delta e_{E.A.} \times e$)	$\Sigma \Delta T_{E.A.}$ (due to $e_{E.A.}$)	e' (Δy Gauge)	$S_{b_{n+1}} \times e'$	$\sum_{n-1}^{n} S_{b_{n-1}} \times e'$	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
				F.S. 34-137 Tab II, Sht 1 Col. 2	F.S. 34-137 Tab III, Sht 1 Collimn 8 Closed to In.	F.S. 34-137 Tab III, Sht 1 Col. 4	89.5-⑦	⑧ × ④ / 100	.00137 27 × ⑨	⑩ × ②	Σ ⑪	⑫ × ③	Σ ⑬	⑪ × ⑤	Σ ⑮	③ × .2056	② × ⑰	Σ ⑱	⑯ + ⑰	⑳ - ⑮
											0	0								
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	-32860			
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	22487	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	21549	1329	14259		1,648,000	8,080	36,640			-338,800	-302,200	-310,300
		36.500									14259	520,500				-7.504	-107,000			
15	485.0		299.61	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	627,400				-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	-529,300	-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		4387,000	13,620	77,320			-901,900	-824,600	-838,200
		36.250									26350	955,200				-7.453	-196,400			
11	339.5		326.23	3008.2	857.04	28.36	+1.14	+3.72	4.129	1402	27752		5342,000	5,215	82,540			-1,098,000	-1,015,000	-1,029,000
		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: Lint
CHECKED: Shultice, Vinyard

CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS — FW 683 125 PADS 11-43

TABLE 55 — SHEET 202 — B-36 WING-U.T. SHEARS, BENDING MOMENTS & TORSIONS DUE TO ROLLING MANEUVER (1.0 g) — CONDITION: SYMMETRICAL DRIFT LANDING (GEOMETRIC) LOAD FACTOR = 1.0 — DESIGN WEIGHT = D.G.W. – FULL FUEL — DIFFERENCE BETWEEN STATIONS

PAGE 253 — REPORT NO. FZS-36-140 — DATE 12-4-45

Station No.	1 Dist. From C/L of Ship, in.	2	3 Distance Between Stations C, in.	4 Chord Length, in.	5 Panel Point No.	6 Dist. From Nose of A/C Line in Inches	7 Dist. From Leading Edge Load, in.	8 e, % C	9 e, Inches	10 Wx 12.9	11 Δq/b Wx 12.9 ÷	12 Total Shear, Sb_n	13 ΔM_x = Sb_n ΔY	14 Total Moment M_x	15 ΔTen. (Quarter) M_x × e	16 Σ ΔTen. (Quarter)	17 e' (ΔY_avg.)	18 Sb_n × e'	19 Σ Sb_n × e'	20 Torsion Inboard	21 Torsion Outboard
						FBS-36-137 19.5 RE Sec. Con. 2	FBS-36-137 Tab. TE Set / Con. Length in.	FBS-36-137 19.5 RE Sec. Con. 4													
		17.000																			
7	232.0		349.59	3693.2	833.52	28.01	+1.49	+5.21	5.001	1160		30,131	512,200				-3.495	-105,300			
		26.000										31,291		8,401,000	6,044	104,900			-1,727,000	-1,623,000	-1,623,000
6	206.0		355.24	4552.7	828.24	28.09	+1.41	+5.01	6.249	1287		31,291	813,600				-5.346	-167,300			
		26.000										32,578		9,214,000	6,948	110,800			-1,895,300	-1,789,000	-1,789,000
5	180.0		360.88	5385.4	822.72	28.03	+1.47	+5.31	7.393	1331		32,578	847,000				-5.346	-174,200			
		33.500										33,909		10,061,000	7,068	117,900			-2,069,000	-1,957,000	-1,957,000
4	146.5		368.16	3148.2	815.76	28.03	+1.47	+5.41	4.322	633.2		33,909	1,136,000				-6.888	-233,600			
		33.250										34,542		11,137,000	3,926	121,300			-2,302,900	-2,181,000	-2,184,000
3	113.25			0					0			34,542	1,149,000				-6.836	-236,100			
		33.250										34,542		12,346,000	0	0			-2,538,000	-2,538,000	-2,538,000
2	80.0			0					0			34,542	1,149,000				-6.836	-236,100			
		38.975										34,542		13,495,000	0	0			-2,775,000	-2,775,000	-2,775,000
1	41.025			0					0			34,542	396,000				-8.013	-276,800			
		41.025										34,542		14,841,000	0	0			-3,051,000	-3,051,000	-3,051,000
												34,542	1,911,000				-8.935	-291,900			
												34,542		16,258,000	0	0			-3,343,000	-3,343,000	-3,343,000

BY: [illegible]
CHECKED: [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:

$$V_H = \frac{10.681}{26.000}(+ 282) = + 116\#$$

$$D_H = \frac{10.681}{26.000}(-721) = - 296\#$$

$$S_H = \frac{10.681}{26.000}(-590) = -242\#$$

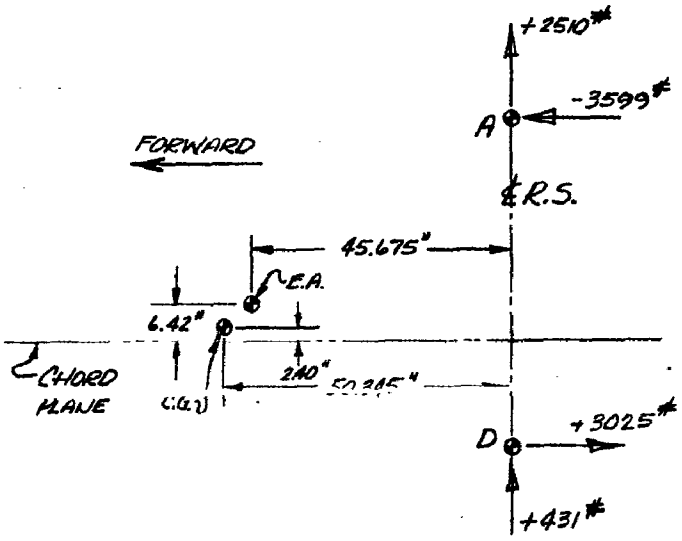
At station 5:

V_H = + 282-116 = + 166#

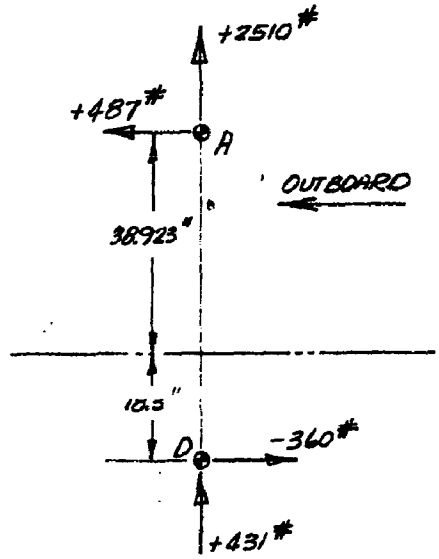
D_H = -721 + 296 = -425#

S_H = -590 + 242 = -348#

Station 9:



VIEW LOOKING INBOARD



VIEW LOOKING FORWARD

ΔS_b = + 431 + 2510 = + 2941#

ΔS_c = + 3025-3599 = - 574#

ΔM_{x_1} = -487(36.523)-360(20.700) = -25,240 in.-lbs.

ΔM_{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.

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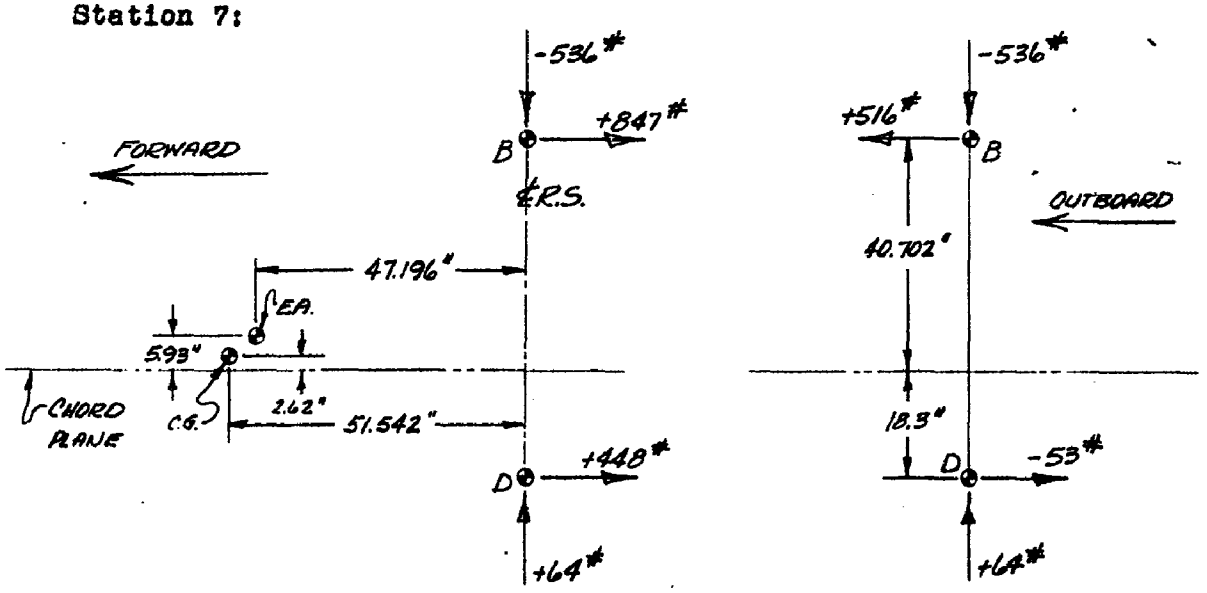
FORT WORTH, TEXAS

Station 7:



VIEW LOOKING INBOARD

VIEW LOOKING FORWARD

$\Delta S_b = +64-536 = -472\#$

$\Delta S_{\_} = +448 + 847 = +1295\#$

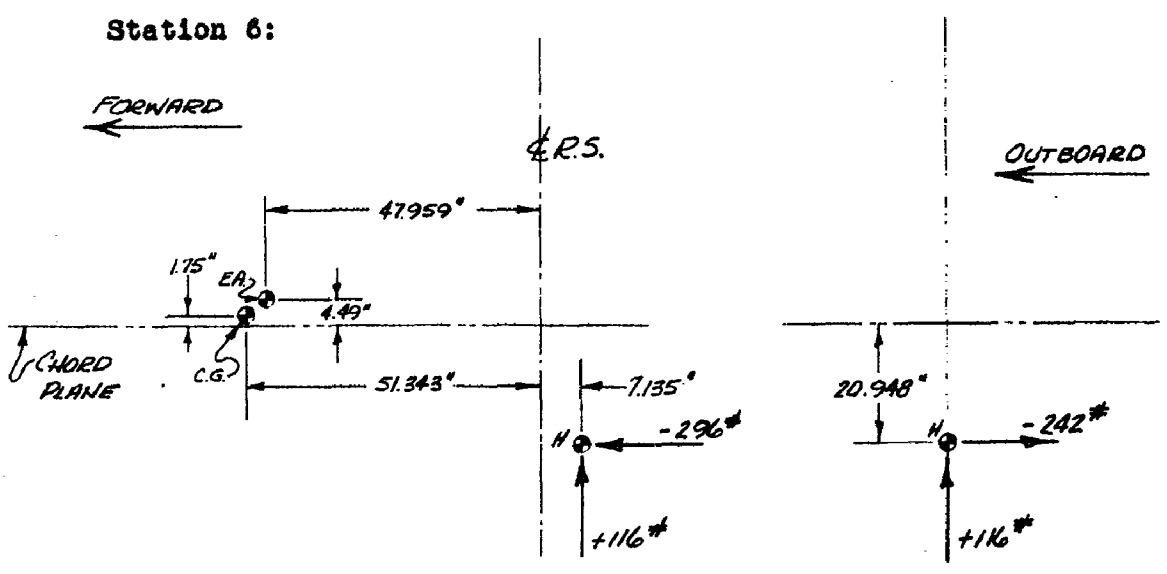
$\Delta M_{x_1} = -516(38.082)-53(20.920) = -20,760$ in.-lbs.

$\Delta M_{y_1} = -463(51.542) = -23,860$ 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]

$\Delta S_o = -296\#$

$\Delta M_{x_1} = -242(22.698) = -5493$ in.-lbs.

$\Delta M_{y_1} = +242(58.478) = +14,150$ in.-lbs.

$\Delta T_{E.A._1} = +296(25.438) - 116(55.094) = +1,139$ in.-lbs.

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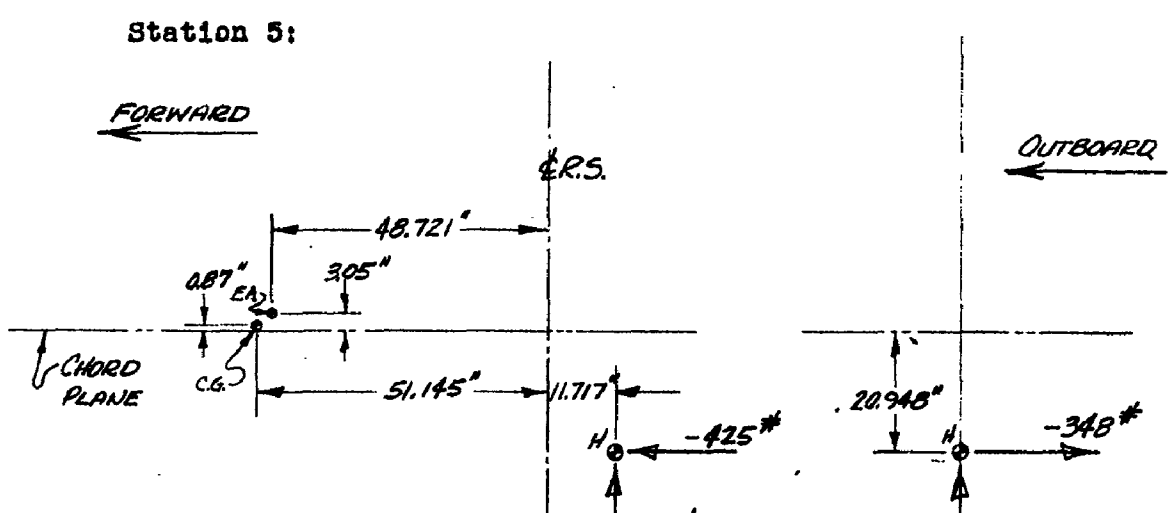
FORT WORTH, TEXAS

Station 5:



VIEW LOOKING INBOARD

VIEW LOOKING FORWARD

ΔS_u = +166#

ΔS_c = -425#

ΔM_{x_1} = -348(21.818) = -7,593 in.-lbs.

ΔM_{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 (Δw), in.	Vertical Panel Point Load, w	S_b	Panel Point Moment ΔM_{x_1}	ΔM_{x_2}	M_x	Panel Point Torsion ΔT_{EA_1}	$-\Delta y \tan\beta$	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
			p. 256-259	Σ④	p. 256-259	⑤ x③	Σ(⑦+⑧)	p. 256-259	-.2056 x ③	⑤ x⑩	Σ(⑨+⑩)	p. 256-259	Σ⑬	p. 256-259	⑭ x③	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	+2751	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		+112,100	+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, Propp

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.

FW 444

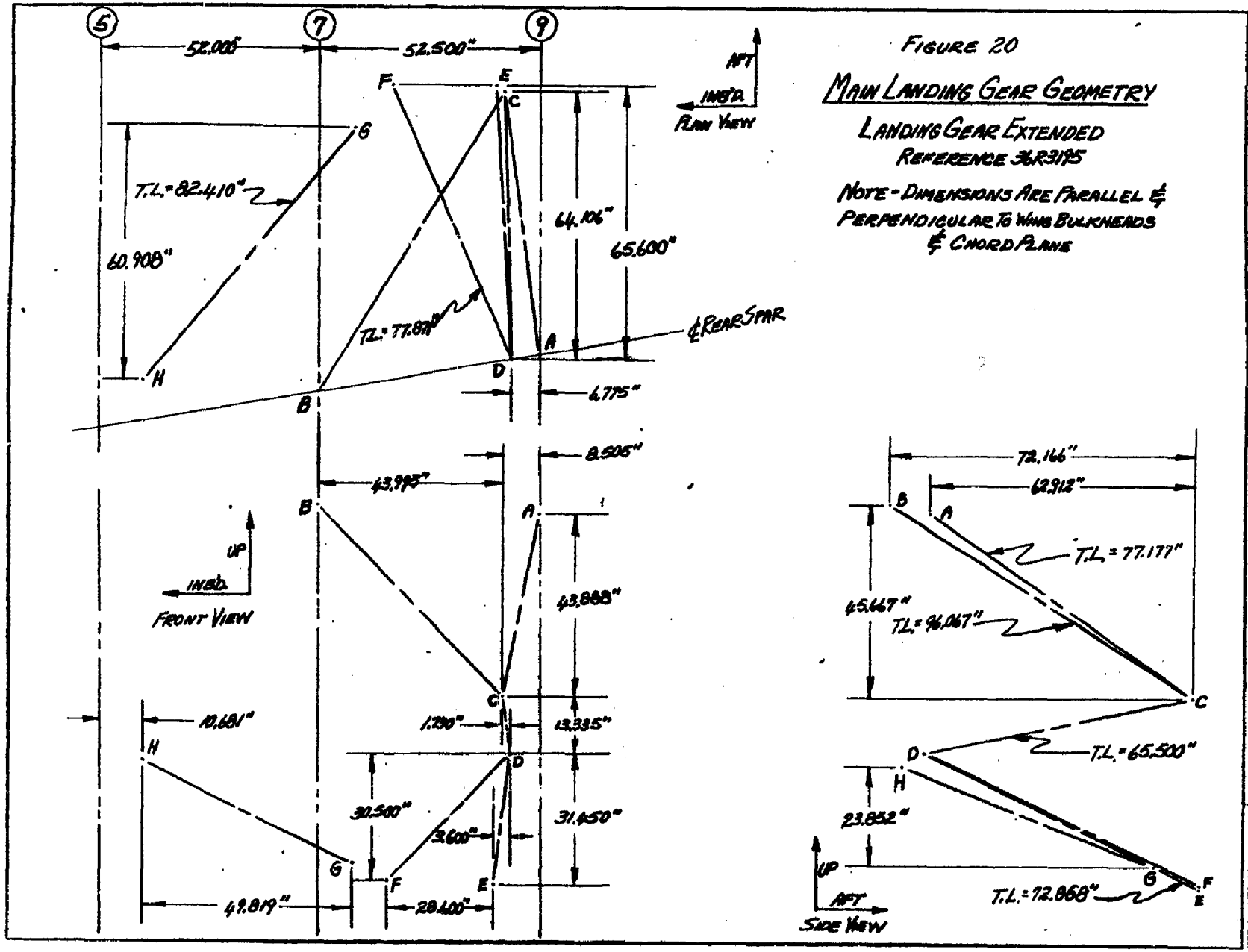


FIGURE 20

MAIN LANDING GEAR GEOMETRY

LANDING GEAR EXTENDED

REFERENCE 36R3175

NOTE - DIMENSIONS ARE PARALLEL ℄ PERPENDICULAR TO WING BULKHEADS ℄ CHORD PLANE

ANALYSIS
PREPARED BY
CHECKED BY
REVISED BY

Consolidated Vultee Aircraft Corporation
FORT WORTH DIVISION
FORT WORTH, TEXAS

PAGE 263
REPORT NO. FZS-36-140
MODEL 56
DATE 12-4-45

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

TABLE 57 B-36 WING - ULTIMATE LANDING GEAR FITTING LOADS

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

MEMBER	DIRECTION COSINE	2WLIR(ND) D.G.W (268,000*)	2WL-B(ND) D.G.W (268,000*)	2WLIR(ND) A.G.W. (255,030*)	SIDE DRIFT (LOAD ACTING IN) D.G.W. (268,000*)
1	2	3	4	5	6
		②×AXIAL LOAD	②×AXIAL LOAD	②×AXIAL LOAD	②×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	+103,479	+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]

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

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.

DATE - 12-4-45

	STATION	DISTANCE FROM ℄ SHIP, IN.	DISTANCE BETWEEN STATIONS (Δ), IN.	VERTICAL PANEL POINT LOAD, #	Sb	PANEL POINT MOMENT, ΔMx1	ΔMx2	Mx	PANEL POINT TORSION, ΔTEA1	-ΔY tan β (100 β = .2056)	ΔTEA2	TE.A.	DRAG PANEL POINT LOAD, #	Sc	PANEL POINT MOMENT, ΔMy1	ΔMy2 . My
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16 17
				TABLE 57	Σ④	TABLE 57	⑤0.8 x ③	Σ(⑦+⑧)	TABLE 57	.2056 x ③	⑤0.8 x ⑩	Σ(⑨+⑪)	TABLE 57	Σ⑬	TABLE 57	⑭0.8 x 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	-2,841,000			-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
			39.975		+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

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 12B PADS 11-43

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	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	③$_{0.8}$ × ③	Σ(⑥+⑦)	TABLE 57	-.2056 × ③ ⑤$_{0.8}$ × ⑩		Σ(⑨+⑪)	TABLE 57	Σ⑬	TABLE 57	⑭$_{0.8}$ × 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	+8,343	+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, Snapp

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.b. × ③	Σ(⑥+⑦)	TABLE 57	.2056 × ③	⑤ o.b. × ⑩	Σ(⑨+⑪)	TABLE 57	Σ ⑬	TABLE 57	⑭ o.b. × 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
		55.5		+439,997		+15,620,000	+11,214,000		-7.299	-3,212,000	-69,734,000		+106,151		+3768,000	+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	+3559,000		+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		+3,306,000	+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
		39.975		+487,876		+19,015,000	+114,690,000		-8.013	-3,909,000	-99,814,000		+142,709		+5562,000	+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	-4115,000	-103,929,000		+142,709		+5855,000	+37,338,000
0	0		0	+487,876	0		+134,705,000	0			-103,929,000	0	+142,709	0		+37,338,000

BY: Lust
CHECKED: Allen, Roffler

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'N	DIST BETWEEN STATIONS (Δη) IN.	VERTICAL PANEL PT. LOADS #	S_b	PANEL PT. MOMENT, ΔM_{x_1}	ΔM_{x_2}	M_x	PANEL PT. TORSION ΔT_{EA_1}	$-6 y_{CAM} \beta$ (for $\beta = .2054$)	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	Σ④	TABLE 57	⑤ 0.8 × ③	Σ⑥ + ⑦	TABLE 57	-2056 × ⑤	⑤ 0.8 × ⑩	Σ⑩ + ⑪	TABLE 57	Σ⑬	TABLE 57	⑭ 0.8 × ③	Σ⑮ + 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		+12,808,000	+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	-34,498,000		-8.435	-22,980	-1,762,000		-1,499		-61,500	+27,397,000
0	0		0	2,724	0		-34,498,000	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.

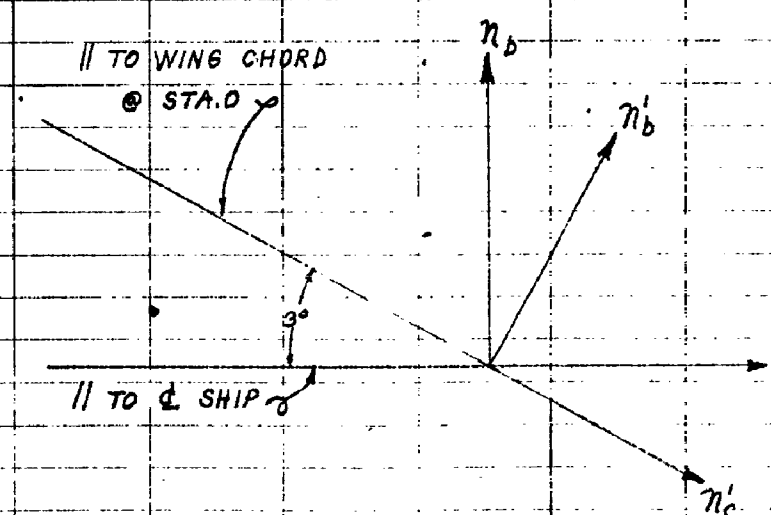
The net ultimate loads have been resolved normal and parallel to the rear spar, and the beam shear has been reduced in the same manner as in Tables 31 through 46 for the flight conditions.

TABLE No. 62.

ULTIMATE BEAM & CHORD INERTIA LOAD FACTORS – LANDING CONDITIONS

CONDITION	n_b	n_c	$n_b \cos 3° + n_c \sin 3°$	$n_c \cos 3° - n_b \sin 3°$
1	2	3	4	5
	REPORT # FZS-36-143		.99863×② .05234×③	④+⑤
D.G.W. 2WLIRND	-3.9712	-1.3890	-3.9658	-.0727
D.G.W. 2WBND	-1.9670	-1.6348	-1.9643	-.0856
A.G.W. 2WLIRND	-3.9712	-1.3890	-3.9658	-.0727

$n_b' =$			
6	7	8	9
④+⑤	.99863×③	.05234②	⑦−⑧
-4.0385	-1.3871	-.2079	-1.1792
-2.0499	-1.6326	-.1030	-1.5296
-4.0385	-1.3871	-.2079	-1.1792



Kuesberg
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CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW 633 12 - PADS 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, - D.G.W. - FULL FUEL & OIL - LESS BOMBS

STATION	DISTANCE FROM ℄ SHIP	1G INERTIA LOADS: WING EMPTY LESS LANDING GEAR — SHEAR	MOMENT @ 10^6	TORSION @ 10^6	1G INERTIA LOADS: FUEL & OIL ONLY — SHEAR	MOMENT @ 10^6	TORSION @ 10^6	1G INERTIA LOADS: TOTALS — SHEAR	MOMENT @ 10^6	TORSION @ 10^6	ULTIMATE INERTIA LOADS — BEAM SHEAR	BEAM BENDING MOMENT @ 10^6	TORSION @ 10^6	CHORD SHEAR	CHORD BENDING MOMENT @ 10^6	ULTIMATE PITCHING ACCELERATION LOADS: WING EMPTY LESS LANDING GEAR — B.B. SHEAR	B.B. MOM @ 10^6	TORSION @ 10^6	ULTIMATE PITCHING ACCELERATION LOADS: FUEL & OIL ONLY — B.B. SHEAR	B.B. MOM @ 10^6	TORSION @ 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. 16 FT	TABLE 21 COLUMN 10	TABLE 21 COLUMN 12	TABLE 21 COL. 16 FT	⑦+⑥	④+⑦	⑨+⑧	⑩×1.89	⑪×1.89	⑫×1.89	⑬×1.178	⑭×1.178	TABLE 48 COLUMN 13	TABLE 48 COLUMN 15	TABLE 48 COL. 2 FT	TABLE 52 COLUMN 13	TABLE 52 COLUMN 15	TABLE 52 COL. 2 FT
0	0	40343	20.00	-15.63	63427	25.16	-4.915	103770	45.16	-12.478	-419075	-182.4	50.39	-122346	-53.25	-20983	-14.594	5.811	15621	+3.521	-.6202
		39849		-1565	63427	2516	-4.915	103276	45.16	-12.480	-411080	-182.4	50.40	-121783	-53.25	-21387		5.820	15631		-.6202
1	41.025	39849	18.36	-12.229	63427	22.56	-4.380	103215	40.92	-11.61	-417076	-165.3	46.89	-121782	-48.25	-21387	-13.758	5.639	15631	+2.796	-.4884
		38828		-12.231	63427	22.56	-4.380	102255	40.92	-11.61	-412657	-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	-412657	-149.2	43.58	-120579	-43.56	-22147	-12.895	5.460	15631	+2.188	-.3632
		37993		- 6.892	63427	20.09	-3.876	101420	36.94	-10.76	-409585	-149.2	43.45	-119594	-43.56	-22512		5.472	15631		-.3632
3	119.25	37993	15.58	-6.632	63427	17.99	-3.438	101420	33.56	-10.07	-409585	-135.5	40.67	-119594	-39.57	-22512	-12.146	5.318	15631	+1.647	-.2563
		37397		-6.627	63427	17.99	-3.436	100824	33.56	-10.07	-407178	-135.5	40.67	-118892	-39.57	-22846		5.321	15631		-.2563
4	146.5	37397	14.34	-6.671	63427	15.87	-3.008	100824	30.21	-9.376	-407178	-122.0	37.86	-118892	-35.62	-22846	-11.387	5.165	15631	+1.147	-.1494
		36510		-6.379	60279	15.87	-3.022	96789	30.21	-9.401	-390880	-122.0	37.97	-114134	-35.62	-23403		5.160	15699		-.1538
5	180.0	36510	13.12	-6.127	60279	13.85	-2.607	96789	26.97	-8.734	-390880	-108.9	35.27	-114134	-31.80	-23403	-10.589	4.999	13699	+.6881	-.1016
		35640		-6.117	54894	13.85	-2.635	90534	26.97	-8.752	-365622	-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	-365622	-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	-345037	-99.43	33.95	-100747	-29.03	-24007		4.880	8255		-.02346
7	232.0	35096	11.28	- 5.730	50341	11.12	-2.095	85437	22.40	-7.825	-345037	- 90.46	31.60	-100747	- 26.41	-24007	-9.346	4.751	8255	+.1964	+.001752
		34270		- 5.718	44698	11.12	-2.114	80968	22.40	-7.832	-326989	- 90.46	31.63	- 95477	-26.41	-24296		4.756	6970		-.001782
8	249.0	34270	10.70	-5.556	44698	10.32	-1.951	80968	21.02	-7.549	-326989	- 84.89	30.49	- 95477	- 24.79	-24296	-8.933	4.671	6970	+.08645	+.001886
		33487		-5.565	42631	10.32	-1.970	76124	21.02	-7.535	-307427	- 84.89	30.43	- 89765	- 24.79	-24404		4.675	4595		+.001824
9	284.5	33487	9.507	-5.21	42631	8.809	-1.659	76124	18.32	-6.980	-307427	- 73.99	28.19	- 89765	- 21.60	-24404	-8.067	4.497	4595	-.0167	-.001818
		28390		-4.591	40099	8.809	-1.683	68489	18.32	-6.274	-276593	- 73.99	25.34	- 80762	- 21.60	-21249		4.046	3466		-.001644
10	312.0	28390	8.726	-4.431	40099	7.706	-1.456	68489	16.43	-5.887	-276593	- 66.35	23.77	- 80762	- 19.37	-21249	-7.685	3.925	3466	-.1782	+.001644
		28029		-4.432	40099		-1.456	68128		-5888	-275135		23.78	-80335		-21376		3.925	3466		+.001644

BY: Saulter
CHKD: Bell

CONSOLIDATED VULTEE AIRCRAFT CORPORATION FORT WORTH DIVISION FORT WORTH, TEXAS

TABLE 63 SHEET 2 OF 8

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

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN - DBW - FULL FUEL & OIL - LESS BOMBS

W 633 129 1M/DS 11-45

STATION	DISTANCE FROM $\mathcal{L}$ SHIP	ULTIMATE LANDING GEAR FITTING LOADS: BEAM SHEAR	BEAM BENDING MOMENT $\times 10^{-6}$	TORSION $\times 10^{-6}$	SHEAR SHEAR	SHEAR BENDING MOMENT $\times 10^{-6}$	TOTAL ULTIMATE LOADS // & TO $\mathcal{L}$ SHIP: B. SHEAR $S_b = 36$	LR MOMENT $M_r \times 10^{-6}$	TORSION $T_{24} \times 10^{-6}$	C. SHEAR S_c	CR MOMENT $M_c \times 10^{-6}$	$M_r \cos\alpha \times 10^{-6}$	$T_{24} \sin\alpha \times 10^{-6}$	$M_r' \times 10^{-6}$	$S_c' = S_c \cos\alpha$	$M_c \sin\alpha \times 10^{-6}$	$T_{24} \cos\alpha \times 10^{-6}$	$T_{24}' \times 10^{-6}$	$\frac{T_{24}' \times 10^{-6}}{J \times 10^{-6}}$	$\frac{T_{24}' \times 10^{-6}}{M_r'}$	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	TABLE 58	TABLE 58	TABLE 58	TABLE 58	(12) + (17)	(13) + (18)	(14) + (19)	(15) + (20)	(16) + (21)	30948×(23)	.1736×(25)	(33) - (34)	30948×(28)	.1736×(27)	30948×(28)	(35) + (36)	TABLE 30	(39) × (40)	(22) - (41)
		COLUMN 5	COLUMN 8	COLUMN 12	COLUMN 14	COLUMN 17	(23)+(28)+(30)	(24)+(29)+(31)	(25)+(26)+(32)	(27)+(33)											SEE SHEET 8
0	0	+514184	141.963	-109.523	150512	39420	+89757	-51.59	-53.92	+28146	-13.83	-50.81	-9.362	-41.45	27718	-8.956	-53.11	-62.07	5996	-24439	114196
		514184	141.963	-109.523	150512	39420	+91398	-51.59	-53.92	+28789	-13.83	-50.81	-9.361	-41.45	28192	-8.956	-53.10	-62.06		-24439	115797
1	41.025	514184	120.869	-105.186	150512	33.245	+91352	-55.39	-53.15	+28780	-15.005	-54.55	-9.227	-45.32	28292	-9.616	-52.34	-61.96	604.3	-27387	118739
		514184	120.869	-105.186	150512	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	150512	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	150512	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	83.782	-97.561	150512	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	130766
		514184	83.782	-97.561	150512	22.374	+99791	-62.25	-51.82	+31620	-17.196	-61.30	-8.996	-52.30	31139	-10.81	-51.03	-61.84		-35038	138279
4	146.5	514184	66.635	-94.036	150512	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	150512	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	-90.894	150512	12.327	+113592	-69.39	-50.29	+36378	-19.873	-68.34	-8.730	-59.61	35825	-12.05	-49.53	-61.58	658.6	-39310	152911
		517445	49.263	-90.891	142263	12.751	+118618	-69.54	-50.23	+35505	-19.049	-68.48	-8.720	-59.76	34965	-12.10	-49.47	-61.54		-39418	178066
6	206.0	517445	35.810	-87.725	142263	9.052	+118618	-73.18	-49.48	+35505	-19.878	-72.07	-8.590	-63.48	34965	-12.70	-48.73	-61.43	671.0	-42595	181243
		519661	35.763	-87.703	136511	9.327	+118618	-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	+118618	-77.42	-48.57	+35764	-20.634	-76.24	-8.432	-67.81	35220	-13.44	-47.83	-61.27	683.0	-46314	205192
		462498	19.692	-75.084	112341	2.017	+118619	-79.92	-38.70	+16864	-24.393	-78.71	-6.718	-71.99	16608	-13.87	-38.11	-51.98		-49169	167098
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	-13.22	-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	-14.28	-37.77	-51.99		-51163	187421
9	284.5	463494	-4.641	-76.981	112341	-3.981	+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	-254576	-82.13	+20.42	-80762	-21.60	-80.88	+5.107	-85.99	-79538	-14.26	+20.95	+14.69		-42642	231734
10	312.0						-254576	-74.01	+27.95	-80762	-19.37	-72.89	+4.817	-77.71	-79538	-12.85	+27.35	+14.48		-39306	235680
							-254576		+27.96	+80835			+4.819	-77.71	-79114		+27.34	+14.49		-39306	233734

NOTE: WHEN S_b & M_r HAVE OPPOSITE SIGNS THE MINUS T_{24} IS OMITTED.

BY: [illegible] CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

FW 633 185 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 - LI:33 BOMBS

REPORT NO. FZS-[illegible]
DATE 12-4-45

STATION	DISTANCE FROM E. SWD	1G INERTIA LOADS: WING EMPTY LESS LANDING GEAR — SHEAR	MOMENT	BEND. MOM.	FUEL & OIL ONLY — SHEAR	MOMENT	BEND. MOM.	TOTALS — SHEAR	MOMENT	BEND. MOM.	ULTIMATE INERTIA LOADS: BEAM SHEAR	BEAM BENDING MOMENT	TORSION X 10^-6	CHORD SHEAR	CHORD BENDING MOMENT	ULTIMATE PITCHING ACCELERATION LOADS: WING EMPTY LESS LANDING GEAR — B. SHEAR	B. BEND. MOM. x 10^-6	TORSION x 10^-6	FUEL & OIL ONLY — B. SHEAR x 10^-6	B. BEND. MOM. x 10^-6	TORSION x 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 16	TABLE 19 COLUMN 12	TABLE 19 COLUMN 16	TABLE 21 COLUMN 16	TABLE 21 COLUMN 12	TABLE 21 COLUMN 16	⑥+⑥	⑧+⑦	⑨+⑩	-1.0383 ⑤	-1.0385 ⑧	-1.1782 ⑨	-1.1782 ⑩		TABLE 48 COLUMN 18	TABLE 48 COLUMN 12	TABLE 48 COLUMN 16	TABLE 52 COLUMN 18	TABLE 52 COLUMN 12	TABLE 52 COLUMN 16
11	339.5	28029	7.955	-4.273	40099	6.603	-1.229	68128	14.56	-5.502	-2.75135	-58.80	-28.22	80338	-17.17	-2.1316	-6.895	3.504	3.966	-2.679	.007422
		23769		-3.646	37091		-1.241	60860		-4.887	-2.45780		19.61	-71766		-1.8073		3.295	2.485		.007057
12	375.75	23769	7.094	-3.939	37091	5.259	-.9641	60860	12.35	-4.903	-2.45783	-49.88	17.78	-71766	-14.56	-1.8073	-6.240	3.160	2.485	-.3574	.006908
		22994		-3.419	31401		-.9905	54395		-4.410	-2.19674		17.81	-64193		-1.8131		3.161	.890		.006868
13	412.0	22994	6.260	-3.248	31401	4.120	-.9565	54395	10.38	-4.005	-2.19674	-41.92	16.17	-64193	-12.24	-1.8131	-5.582	3.025	.890	-.3856	.006891
		22951		-3.242	25982		-.7801	48333		-4.022	-1.95793		16.24	-57894		-1.8217		3.026	-.330		.006297
14	448.5	22351	5.4410	-3.015	25982	3.172	-.5851	48333	8.616	-3.660	-1.95793	-39.80	19.78	-57894	-10.16	-1.8217	-4.917	2.889	-.330	-.3773	.006868
		21728		-3.049	20828		-.6073	42556		-3.676	-1.71862		19.85	-50182		-1.8269		2.890	-1.234		.006428
15	485.0	21728	4.6510	-2.906	20828	2.412	-.4510	42556	7.043	-3.357	-1.71862	-28.52	13.56	-50182	-8.328	-1.8269	-4.251	2.753	-1.234	-.3323	.006732
		20888		-2.864	16445		-.4511	37333		-3.337	-1.50769		13.98	-44023		-1.8203		2.715	-1.630		.006738
16	521.5	20888	3.8930	-2.729	16445	1.812	-.3277	37333	5.701	-3.057	-1.50769	-23.02	12.35	-44023	-6.729	-1.8203	-3.586	2.615	-1.630	-.2725	.006503
		16763		-2.174	14589		-.3350	31352		-2.513	-1.26615		10.15	-36970		-1.4498		2.115	-1.790		.005911
17	549	16763	3.480	-2.079	14589	1.410	-.2565	31352	4.838	-2.336	-1.26615	-19.54	9.194	-36970	-5.705	-1.4498	-3.188	2.033	-1.790	-.2235	.006388
		16479		-2.060	14589		-.2565	31068		-2.387	-1.25968		9.458	-36635		-1.4504		2.038	-1.790		.006399
18	576.5	16479	2.9790	-1.907	14589	1.009	-.1140	31068	3.984	-2.161	-1.25968	-16.09	8.727	-36635	-4.698	-1.4504	-2.989	1.951	-1.790	-.1740	.006388
		12491		-1.473	12340		-.1816	24831		-1.655	-1.00280		6.694	-29281		-1.0764		1.870	-1.295		.004862
19	615.375	12491	2.4890	-1.373	12340	1.5296	-.0852970	24831	3.019	-1.456	-1.00280	-12.19	5.880	-29281	-3.560	-1.0764	-2.370	1.804	-1.295	-.1059	.004862
		11847		-1.359	8154		-.0590190	20001		-1.456	-.80774		5.880	-23585		-1.0601		1.780	-1.295		.004796
20	654.25	11847	2.0220	-1.264	8154	2.125	-.0731610	20001	2.941	-1.296	-.80774	-9.080	5.234	-23585	-2.643	-1.0601	-1.818	1.705	-1.295	-.1037	.004796
		11331		-1.261	4234		-.0441180	15585		-1.305	-.62340		4.344	-18419		-1.0601		1.705	-1.295		.004796
21	693.125	11331	1.5880	-1.170	4234	0.7710	-.0101180	15585	1.635	-1.180	-.62340										
		10712		-1.160	1184		-.0107292	11894		-1.167	-.48059										

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 (28)	(29)	Torsion	Shear		$M_x \cos$	Tension	M_x'	S_c	$M_x \sin\alpha$	Tee cos × 10^6 (38)	Tee × 10^6 (39)	Table 30 (40)	M_x' (41)	S_b'' (42)
11	339.5	-293045	-66.05	26.10	-80335	-17.17	-65.05	4.591	-69.58	-79114	-11.47	25.70	14.23	516.0	-35903	-257142
		-261371		22.98	-71766			3.989	-69.04	-70615		22.63	11.16		-35625	-225746
12	375.75	-261371	-56.48	21.03	-71766	-14.56	-55.62	3.651	-59.27	-70675	-9.805	20.71	10.91	530.2	-31425	-229946
		-236915		21.05	-64163			3.654	-59.27	-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	-27533	-209382
		-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	-39.48	3.081	-42.56	-56128	-6.960	17.46	10.52	561.1	-23880	-189868
		-191365		+17.82	-50182			3.094	-42.57	-49419		17.55	10.59		-23886	-167479
15	485.0	-191365	-33.10	+16.38	-50182	-8.329	-32.60	2.844	-35.44	-49419	-5.746	16.15	10.38	578.0	-20484	-170881
		-170610		+16.30	-44023			2.830	-35.43	-43354		16.05	10.30		-20479	-150181
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		[illegible]	-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	-127887
		-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	-3.307	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	-14.67	+7.234	-29281	-3.560	-14.45	1.265	-15.72	-28836	-2.547	7.173	4.626	647.7	-10182	-102616
		-92828		+7.281	-23585			1.264	-15.71	-23227		7.170	4.623		-10175	-82653
20	654.25	-92828	-11.06	+6.538	-23585	-2.643	-10.89	1.135	-12.03	-23227	-1.920	6.439	4.519	671.9	-8083	-84745
		-74391		+6.576	-18378			1.142	-12.03	-18099		6.476	4.556		-8083	-66308
21	693.125	-74391	-8.17	+5.979	-18378	-1.928	-8.046	1.038	-9.084	-18099	-1.418	5.888	4.470	697.9	-6340	-68051
		-58673		+5.926	-14025			1.029	-9.075	-13812		5.836	4.418		-6333	-52040

* NOTE: WHEN S_b' & M_x' HAVE OPPOSITE SIGNS THE FACTOR .7 IS OMITTED.

BY: Shultice
CHECKED: Bilaen, Briffen

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	Landing gear & tank loads: Rear Spar	Landing gear & tank loads	Landing gear & tank loads	Landing gear & tank loads	Landing gear & tank loads: Chord	Total Ultimate Loads Ref. to ⊄ Ship: Shear S_c	Total Ultimate Loads: Moment $M_x \times 10^{-6}$	Total Ultimate Loads: Torsion $T_{EA} \times 10^{-6}$	Chord Shear	C.P.	$M_x \cos\alpha$	$T_{EA} \sin\alpha \times 10^{-6}$	$M_x' \times 10^{-6}$	S_c' = $S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T_{EA}' \times 10^{-6}$	$I/Q_x \times 10^{6}$	M_x'	S_b''
1	2						28	29	30	31	32	33	34	35	36	37	38	39	40 *	41	42
		Table 58 Col. 5	Table 58 Col. 8	Table 58 Col. 12	Table 58 Col. 14	Table 58 Col. 17								(33)-(34)	×(31)	.1736×(29)	×(30)	(37)+(38)	Table 30	(35)×(40)	(28)-(41) or .5×(28)
11	339.5						-293045	-66.05	26.10	-80335	-17.17	-65.05	4.531	-69.58	-79114	-11.47	25.70	14.23	516.0	-35903	-257142
							-261371		22.98	-71766			3.989	-69.04	-70675		22.63	11.16		-35625	-225746
12	375.75						-261371	-56.48	21.03	-71766	-14.56	-55.62	3.651	-59.27	-70675	-9.805	20.71	10.91	530.2	-31425	-229946
							-236915		21.05	-64163			3.654	-59.27	-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	-27533	-209382
							-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	-39.48	3.081	-42.56	-56128	-6.960	17.46	10.52	561.1	-23880	-189868
							-191365		+17.82	-50182			3.094	-42.57	-49419		17.55	10.59		-23886	-167479
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	-150131
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	-127887
							-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	-3.307	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	-14.67	+7.234	-29281	-3.560	-14.45	1.265	-15.72	-28836	-2.547	7.173	4.626	647.7	-10182	-102616
							-92828		+7.281	-23585			1.264	-15.71	-23227		7.170	4.623		-10175	-82653
20	654.25						-92828	-11.06	+6.538	-23585	-2.643	-10.89	1.135	-12.03	-23227	-1.920	6.439	4.519	671.9	-8083	-84745
							-74391		+6.576	-18378			1.142	-12.03	-18099		6.476	4.556		-8083	-66308
21	693.125						-74391	-8.17	+5.979	-18378	-1.928	-8.046	1.038	-9.084	-18099	-1.418	5.888	4.470	698.2	-6340	-68051
							-58673		+5.926	-14025			1.029	-9.075	-13812		5.836	4.418		-6333	-52040

* NOTE: WHEN S_b' & M_x' HAVE OPPOSITE SIGNS THE FACTOR .7 IS OMITTED.

By: Shultice
Checked: Bilaer, Briffer

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 C/L SHIP	1 G INERTIA LOADS: WING EMPTY LESS LANDING GEAR SHEAR	WING EMPTY LESS LANDING GEAR MOMENT x 10^6	WING EMPTY LESS LANDING GEAR TORSION x 10^6	FUEL & OIL ONLY SHEAR	FUEL & OIL ONLY MOMENT x 10^6	FUEL & OIL ONLY TORSION x 10^6	TOTALS SHEAR	TOTALS MOMENT x 10^6	TOTALS 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	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	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 CASE NO. 11	TABLE 21 COLUMN 10	TABLE 21 COLUMN 12	TABLE 21 CASE 16(E)	⑦+⑥	⑧+⑦	⑨+⑧	-1.0385 ⑤	-1.038G ⑧	-1.0385 ⑪	-1.1782 ⑫	-1.1782 ⑬	TABLE 48 PAGE 13	TABLE 48 COLUMN 15	TABLE 48 CASE 21E2G	TABLE 52 COLUMN 13	TABLE 52 COLUMN 15	TABLE 52 CASE 21E2G
22	732.0	.10710	.11780	.10810	1184	.001116	+.002170	11854	1.173	1.079	-48034	-4737	+4358	-19025	-1383	70343	-498	1.127	-296	-.000907	+.000472
		.9988		.10710	21		-.001835	10009		1.073	-40421		4.393	-11803		-10083		1.123	-17		+.001325
23	766.0	.9988	.8320	.10410	21	.000412	-.001469	10009	.8324	1.002	-40421	-3362	9.047	-11803	-.9816	-10083	.8051	1.053	-17	-.000036	+.001208
		.6276		.5950	10		-.000745	6286		.5957	-25386		2.406	-7412		-6100		.6175	-8		+.000606
24	806.0	.6276	.5809	.5884	10	0	.000658	6286	.5809	.5941	-25386	-2846	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	.14770				2585	.4930	.1417	-10440	-1.991	.5945	-3048	-.5813	-2108	.3894	.1449			
		.2322		.14780				2322		.1478	-9377		.5969	-2738		-1999		.1499			
26	870	.2322	.4234	.13500				2322	.4234	.1335	-9377	-1.710	.5091	-2738	-.4993	-1999	.4294	.1320			
		.2022		.12510				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		.11090				1823		.1090	-7362		.4402	-2150		-1692		.1125			
28	942	.1823	.2850	.09552				1823	.2850	.09552	-7362	-1.151	.3858	-2150	-.3361	-1692	.3036	.09938			
		.1640		.09454				1640		.09454	-6623		.3817	-1934		-1583		.09840			
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	-5345	-.7201	.2550	-1560	-.2103	-1322	-.1990	.07009			
		.1168		.06235				1168		.06235	-4717		.2518	-1377		-1213		.06954			
31	1050	.1168	.1362	.05370				1168	.1362	.05370	-4717	-.5500	.2169	-1377	-.1606	-1213	-.1524	.06057			
		.1041		.05307				1041		.05307	-4204		.2143	-1228		-1118		.06009			
32	1080	.1041	.1250	.04665				1041	.1250	.04665	-4204	-.4290	.1884	-1228	-.1238	-1118	-.1218	.05320			
		.786		.03781				786		.03781	-3174		.1527	-927		-862		.04433			

BY: Shidtke
CHECKED: Brian Dutter

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 x 10⁶	TORSION x 10⁶	CHORD SHEAR	CHORD BENDING MOMENT x 10⁶	TOTAL ULTIMATE LOADS NET TO ℄ SHIP: B. SHEAR $S_B = S_B'$	B.B. MOMENT $M_x \times 10^6$	TORSION $T_{EAR} \times 10^6$	C. SHEAR S_C	C.B. MOMENT $M_y = M_{C_{ULT}} \times 1.5$	M_y COEFF. $\times 10^{-6}$	$T_{EN\,SHEAR}$	$M_x' \times 10^6$	S_D	M_z SHEAR $\times 10^{-6}$	T_{ES} COEFF. $\times 10^{-6}$	T_{EN} x 10⁻⁶	TORS'N M_x $\frac{1}{2}M_x$	TORS'N M_x $\frac{1}{2}M_x$	S_B''
L	R	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 SUMMIT	(20)+(21)	(22)+(23)	(24)+(25)	(26)+(27)	(28)×(29)	1.5×(30)	(31)×(32)	(33)×(34)	(35)×(36)	1.15×(37)	(38)×(32)	(39)×(32)	TABLE 30	(40)×(41)	(28)−(42) OR -(42)
22	732.0						-58473 -50521	-5.886	+5.485 +5.957	-14025 -11803	-1383	-5797	.9522 .9479	-6.749 -6.744	-13812 -11634	-1022	5402 5374	4380 4352	7661	-4900 -4847	-53773 -45624
23	766.0						-50521 -31494	-4.167	+5.101 +3.024	-11803 -7412	-1816	-4104	.8855 .7550	-4.990 -4.629	-11624 -7299	-.7234	5023 2978	4300 2155	7529	-3756 -3484	-46165 -28010
24	806.0						-31494 -12548	-2.907	+2.765 +.8785	-7412 -3098	-.6850	-2863	.4800 .1438	-3.343 -3.007	-7299 -3002	-.5047	2723 .0152	2.218 .2112	7863	-2629 -2364	-20865 -10194
25	840						-12548 -11376	-2.480	+.7408 +.7412	-3048 -2735	-.5813	-2442	.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	-2106	.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 +.5527	-2384 -2150	-.4134	-1754	.09682 .09595	-1.851 -1.850	-2348 -2117	-.3092	.5492 .5449	.2400 .2351	8860	-1640 -1639	-8328 -7415
28	942						-9054 -8206	-1.455	+.4858 +.4811	-2150 -1934	-.3361	-1433	.08433 .08352	-1.517 -1.517	-2117 -1905	-.2526	.4784 .4738	.2258 .2212	9032	-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	9148	-1183 -1176	-7023 -5489
30	1014						-6665 -5930	-.9181	+.3251 +.3213	-1560 -1377	-.2103	-.9051	.05644 .05578	-.9615 -.9609	-1536 -1356	-.1596	.3202 .3164	.1606 .1568	10280	-987 -986	-5678 -4944
31	1050						-5930 -5322	-.7054	+.2775 +.2744	-1377 -1228	-.1606	-.6947	.04817 .04764	-.7429 -.7423	-1356 -1209	-.1225	.2733 .2702	.1508 .1477	10830	-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	11360	-658	-4664 -3378

* NOTE: WHEN S_B & M_y HAVE OPPOSITE SIGNS THE FACTOR .7 IS OMITTED

BY Shelton
CHECKED: Brady & Goodman

CONSOLIDATED VULTEE AIRCRAFT CORPORATION — FORT WORTH DIVISION — FORT WORTH, TEXAS
W 630 10T PAGE 11-A1

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 C. SHP	1G INERTIA LOADS: WING EMPTY LESS LANDING GEAR SHEAR	WING EMPTY LESS LANDING GEAR MOMENT $\times 10^6$	WING EMPTY LESS LANDING GEAR TORSION $\times 10^6$	1G INERTIA LOADS: 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 $\times 10^6$	ULTIMATE INERTIA LOADS: BEAM SHEAR	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 14	TABLE 19 COLUMN 15	TABLE 19 CASE 16 FT	TABLE 21 COLUMN 14	TABLE 21 COLUMN 15	TABLE 21 CASE 16 FT	③+⑥	④+⑦	⑤+⑧	4.0280 × ⑨	4.0385 × ⑩	-1.1792 × ⑪	-1.1792 × ⑫		TABLE 48 COLUMN 13	TABLE 48 COLUMN 15	TABLE 48 CASE 21-22	TABLE 52 COLUMN 14	TABLE 52 COLUMN 15	TABLE 52 CASE 21-22
33	1110	786	.081440	.078960				786	.08144	-.03296	-3174	-.3289	+.1331	-927	-.09603	-862	-.08938	.03902			
		702		.078540				702		-.03154	-2835		+.1314	-828		-791		.038866			
34	1140	702	.060390	.048220				702	.06039	-.02822	-2835	-.2439	+.1140	-828	-.01121	-791	-.01025	.03378			
		627		.047760				627		-.02776	-2532		+.1121	-739		-724		.03338			
35	1170	627	.041590	.023880				627	.041590	-.02389	-2532	-.1680	+.09648	-739	-.04904	-724	-.03852	.02891			
		414		.017060				414		-.01706	-1672		+.06690	-488		-487		.02129			
36	1198	414	.030000	.016670				414	.0300	-.01667	-1672	-.1212	+.05924	-488	-.03538	-487	-.02688	.01848			
		359		.013380				359		-.01483	-1450		+.05289	-423		-434		.01820			
37	1225	359	.020310	.012350				359	.02031	-.01239	-1450	-.0820	+.03004	-423	-.02395	-434	-.01816	.01578			
		314		.012110				314		-.01211	-1268		+.04891	-370		-388		.01550			
38	1252	314	.011650	.010370				319	.01185	-.01037	-1268	-.0478	+.04181	-370	-.01397	-388	-.01668	.01335			
		268		.010120				268		-.01012	-1082		+.04087	-316		-341		.01309			
39	1278	268	.014870	.008691				268	.0148870	-.008681	-1082	-.01967	+.03506	-316	-.005742	-341	-.005815	.01126			
		98		.001835				98		-.001835	-396		+.001411	-116		-116		.002180			
40	1301	98	.002609	.001370				98	.002609	-.001370	-396	-.01059	+.005833	-116	-.003017	-116	-.003159	.001642			
		65		.001199				65		-.001199	-263		+.004442	-77		-79		.001451			
41	1324	65	.001109	.000891				65	.001109	-.000891	-263	-.004478	+.003588	-77	-.001308	-79	-.001352	.001079			
		49		.000771				49		-.000771	-198		+.003114	-58		-60		.000940			
TIP*	1346.4	49	0	.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 Barker

CONSOLIDATED VULTEE AIRCRAFT CORPORATION — TABLE 63 SHEET 8 OF 8 — PAGE 279 — REPORT NO. 1675-16-180 — DATE 12-6-45

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	ULTIMATE LANDING GEAR FITTING LOADS: BEAM SHEAR	BEAM BENDING MOMENT $\times 10^{-6}$	TORQUE $\times 10^{-6}$	CHORD SHEAR	CHORD BENDING MOMENT $\times 10^{-6}$	TOTAL ULTIMATE LOADS II & III & IV SHIP: B. SHEAR $S_b = 3_b$	B. MOMENT $M_b \times 10^{-6}$	TORSION $T \times 10^{-6}$	C. SHEAR S_c	C. MOMENT $M_c = M_x \times 10^{-6}$	M_x COS ∠	TEN SHEAR $\times 10^{-6}$	$M_x' \times 10^{-6}$	S_c - $\frac{1}{2}$ COS ∠	M_x SHEAR $\times 10^{-6}$	TEN SHEAR $\times 10^{-6}$	TEN SHEAR $\times 10^{-6}$	TABLE 30 $\frac{M_x}{I/c_x} \times 10^6$	TABLE 30 $\frac{M_x}{I/c_y}$	S_b''
	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 15	(23)+(17)	(24)+(18)	(25)+(19)	(26)+(20)	(27)+(21)	.9848×(28)	.1736×(29)	(33)-(34)	9848×(30)	.1736×(31)	(32)+(35)	TABLE 30	(36)×(40)	(37)+(38)
33	1110							-4036	-.4245	+.1721	-927	-.0960	-.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	+.1284	-739	-.04904	-.2152	.02177	-.2370	-728	-.03793	.1235	.08557	.1320	-315	-2941
								-2159		+.09019	-488			.01566	-.2302	-481		.08882	.05089		-307	-1852
36	1198							-2159	-.1581	+.07778	-488	-.03538	-.1557	.01349	-.1692	-481	-.02745	.07654	.04928	.1405.0	-238	-1921
								-1884		+.07809	-423			.01356	-.1693	-417		.07690	.04945		-238	-1696
37	1225							-1884	-.1072	+.06583	-423	-.02395	-.1056	.01163	-.1170	-417	-.01861	.06583	.04622	.1486.0	-179	-1710
								-1656		+.06441	-370			.01118	-.1168	-364		.06343	.04482		-179	-1482
38	1252							-1656	-.06258	+.05516	-370	-.01351	-.06163	.009576	-.07121	-364	-.01086	.05432	.04346	1576.0	-112	-1314
								-1423		+.05396	-316			.009867	-.07100	-311		.05314	.04228		-112	-1311
39	1278							-1423	-.02549	+.04632	-316	-.005748	-.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	-.002278	.007066	.004688	1778.0	-26	-486
								-342		+.006193	-77			.001092	-.01958	-76		.006197	.003819		-26	-316
41	1324							-342	-.003831	+.004677	-77	-.001308	-.005742	.0008119	-.006554	-76	-.001012	.004606	.003594	1881.0	-12	-330
								-258		+.004054	-58			.0007038	-.006446	-57		.003992	.002980		-12	-246
TIP*	1346.4							-258	0	+.002855	-58	0	0	.0004856	-.000494	-57	0	.001812	.002812	0	0	-258
								0		0	0					0				0		0

*C.G. at TIP SECTION

* NOTE: WHEN S_c & M_x HAVE OPPOSITE SIGNS THE FACTOR .7 IS OMITTED.

By: Shubkagel
Checked: Brian Trapp

CONSOLIDATED VULTEE AIRCRAFT CORPORATION — FORT WORTH, TEXAS

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 C/L SHIP	1G INERTIA LOADS									ULTIMATE INERTIA LOADS					ULTIMATE PITCHING ACCELERATION LOADS					
		WING EMPTY LESS LANDING GEAR			FUEL & OIL ONLY			TOTALS			BEAM SHEAR	BEAM BENDING MOMENT $\times 10^{-6}$	TORSION $\times 10^{-6}$	CHORD SHEAR	CHORD BENDING MOMENT $\times 10^{-6}$	WING EMPTY LESS LANDING GEAR			FUEL & OIL ONLY		
		SHEAR	MOMENT $\times 10^{-6}$	TORSION $\times 10^{-6}$	SHEAR	MOMENT $\times 10^{-6}$	TORSION $\times 10^{-6}$	SHEAR	MOMENT $\times 10^{-6}$	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 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	-.6345
		39,849		-7.565				103,276		-12.480	-211,705		+25.583	-157,971		-21,527		5.857			-.6345
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[illegible]	+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		5.673			-.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	-12.946	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	-.1505
		36,510		-6.379	60,279		-3.022	96,789		-9.401	-198,408		+19.271	-148,048		-23,562		5.193	13,791		-.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	13,791	.6931	-.06603
		35,640		-6.117	54,894		-2.635	90,534		-8.752	-185,586		+17.941	-138,481		-23,955		5.036	12,726		-.08230
6	206	35,640	12.190	-5.926	54,894	12.425	-2.342	90,534	24.615	-8.268	-185,586	-50.958	+16.949	-138,481	-37.657	-23,955	-10.036	4.908	12,726	.4142	-.04932
		35,096		-5.918	50,341		-2.365	85,437		-8.283	-175,131		+16.979	-130,694		-24,164		4.911	8,811		-.03702
7	232	35,096	11.278	-5.730	50,341	11.116	-2.095	85,437	22.394	-7.825	-175,131	-45.985	+16.040	-130,694	-34.254	-24,164	-9.408	4.782	8,811	.1961	-.01961
		34,270		-5.718	46,698		-2.114	80,968		-7.832	-165,976		+16.055	-123,849		-24,455		4.786	6,514		-.01913
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	4.760	6,514	.0874	-.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	-28.014	-24,564	-8.120	4.526	4,627	-.0768	-.00839
		28,390		-4.591	40,099		-1.683	68,489		-6.274	-140,306		+12.861	-104,761		-21,388		4.071	3,490		-.01518
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	-.01490
		28,029		-4.432	40,099		-1.456	68,128		-5.888	-139,656		+12.070	-104,209		-21,516		3.950	3,490		-.01490

BY: J. Ellis
CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION — FORT WORTH DIVISION, FORT WORTH, TEXAS — 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 4 OIL - 1.5 G'S

REPORT NO. FDS 36-40 — PAGE 201 — DATE 12-4-45

STATION	DISTANCE FROM C/SHIP	ULTIMATE LANDING GEAR FITTING LOADS: BEAM SHEAR	BEAM BENDING MOMENT x 10^6	TORSION x 10^6	CHORD SHEAR	CHORD BENDING MOMENT x 10^6	TOTAL ULTIMATE LOADS IN E & TO C/SHIP: A. SHEAR $S_A = S_L$	B. MOMENT $M_A \times 10^6$	TORSION $T_{EA} \times 10^6$	C. SHEAR S_C	C.B. MOMENT $M_C = M_A - M_L \times 10^6$	M_L COS α x 10^{-6}	T_{EA} SIN α x 10^{-6}	$M_L' \times 10^6$	S_C - S_L COS α	M_L SIN α x 10^{-6}	T_{EA} COS α x 10^{-6}	T_{EA} SIN $\alpha \times 10^6$	$\frac{T_{EA}}{M_C}$	$\frac{T_{EA}}{M_C} M_C'$	S_C''
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 6	TABLE 59 COLUMN 12	TABLE 59 COLUMN 14	TABLE 59 COLUMN 17	(2) + (17)	(3) + (18)	(4) + (19)	(5) - (22)	(6) + (21)	.9848 (23)	.1736 (24)	(23) - (34)	.9848 (25)	.1736 (23)	(36) + (37)	(37) - (36)	TABLE 32	(38) x (40)	(39) - (41)
0	0	263,088	73.297	-81.791	195,197	52.245	+44,984 +46,593	-30.531 -30.978	-50.979 -50.978	36,470 37,926	-16.830	-30.067	-8.850 -8.849	-21.217 -21.218	35,816 36,660	-5.300	-50.293 -50.801	-55.509 -55.501	1.088.6	-18,310 -18,510	87,496 88,103
1	41.025	263,088	62.504	-79.572	195,197	44.237	+45,593 +46,900	-22.402	-50.522 -50.590	37,226 38,788	-18.957	-31.909	-8.783 -8.782	-23.126 -23.127	36,660 38,198	-5.645	-49.821 -49.681	-55.446 -55.446	1.088.9	-19,975 -19,976	89,569 90,856
2	90.0	263,088	52.250	-77.464	195,197	36.629	+46,900 +48,265	-24.229	-50.212 -50.958	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	-55.361 -55.436	1.088.7	-19,463 -19,458	62,383 63,723
3	143.25	263,088	43.502	-75.446	195,197	28.139	+48,265 +49,151	-25.830	-49.930 -49.937	40,065 40,977	-21.202	-35.295	-8.646 -8.669	-26.625 -26.642	39,456 40,359	-6.291	-49.171 -49.178	-55.332 -55.299	1.088.7	-16,813 -16,818	45,084 45,840
4	194.5	263,088	34.754	-73.868	195,197	23.649	+49,151 +54,909	-27.471	-49.601 -49.568	40,977 47,142	-23.562	-36.901	-8.611 -8.604	-28.290 -28.297	40,359 46,492	-6.805	-48.847 -48.821	-55.252 -55.217	1.088.8	-18,256 -18,260	47,207 49,168
5	180	263,088	25.990	-72.056	195,197	17.110	+54,909 +63,570	-32.310 -38.599	-49.187 -49.156	47,142 53,917	-24.142	-38.714	-8.539 -8.548	-30.173 -30.415	46,432 52,659	-6.804 -6.866	-48.429 -48.409	-55.216 -55.175	1.088.6	-19,902 -19,902	48,811 50,960
6	206	268,335	18.724	-70.616	181,798	13.078	+63,570 +81,004	-41.356 -41.835	-48.784 -48.727	53,917 71,771	-24.579	-40.727	-8.469 -8.459	-32.258 -32.439	52,659 71,136	-7.178 -7.209	-48.044 -47.986	-55.138 -55.135	1.088.0	-21,645 -21,746	85,145 100,981
7	232	271,994	11.479	-69.126	172,455	9.035	+81,004 +238,358	-43.634 -46.297	-48.287 -39.934	71,771 93,914	-25.219	-42.979	-8.384 -6.822	-34.589 -28.771	71,136 93,299	-7.578 -8.037	-47.662 -39.669	-55.158 -46.736	1.088.0	-23,424 -26,481	104,628 130,912
8	249	238,358	4.766	-59.302	157,763	2.385	+154,441 +162,374	-47.212	-39.106 -39.139	93,914 101,324	-29.823	-46.491	-6.789 -6.795	-39.705 -39.699	93,393 101,426	-8.196	-38.512 -38.511	-46.709 -46.742	1.088.3	-27,495 -27,497	81,860 83,868
9	284.5	238,358	-3.696	-57.562	157,763	-2.276	+162,374 -158,298	-49.439 -45.748	-38.680 -16.267	101,324 104,761	-31.232	-48.688	-6.715 -28.018	-41.973 -45.048	101,426 +2.945	-8.583 -47.992	-38.054 -103.160	-46.677 +7.241	1.088.4	-29,736 +16,702	92,168 124,488
10	312						-158,298 -157,608	-41.389	-16.072 -16.075	-104,761 -104,209	-25.134	-40.760	+2.790 +2.791	-43.550 -43.551	-103,160 -102,625	-7.185	+15,828 +15,831	+8.648 +8.646	1.088.8	+17,228 +17,228	136,000 135,974

* NOTE: WHEN S_L & M_L HAVE OPPOSITE SIGNS THE ARITHM. T_{EA} OMITTED.

CHECKED: [illegible]

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

TABLE 64 — SHEET 3 OF 8

B-36 WING - NET ULTIMATE SHEARS, BENDING MOMENTS, & TORSION

CONDITION: TWO WHEEL LANDING WITH BRAKES, NOSE DOWN, - D.G.W. - FULL FUEL & OIL - LESS BOMBS

REPORT AL/FE-2-40 — DATE 12-6-44

STATION	DISTANCE FROM C/L SHIP	I.G INERTIA LOADS: WING EMPTY LESS LANDING GEAR — SHEAR	MOMENT x10⁻⁶	TORSION x10⁻⁶	FUEL & OIL ONLY — SHEAR	MOMENT x10⁻⁶	TORSION x10⁻⁶	TOTALS — SHEAR	MOMENT x10⁻⁶	TORSION x10⁻⁶	ULTIMATE INERTIA LOADS: BEAM SHEAR	BEAM BENDING MOMENT x10⁻⁶	TORSION x10⁻⁶	CHORD SHEAR	CHORD BENDING MOMENT x10⁻⁶	ULTIMATE PITCHING RECIPROCATION LOADS: WING EMPTY LESS LANDING GEAR — B. SHEAR	B.B.MOM. x10⁻⁶	TORSION x10⁻⁶	FUEL & OIL ONLY — B. SHEAR	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 10	TABLE 19 COL 6 LEFT	TABLE 21 COLUMN 10	TABLE 21 COLUMN 11	TABLE 21 COL 6 LEFT	③+⑥	④+⑦	⑤+⑧	2.0495 ⑨	2.0495 ⑩	1.5296 ⑪	1.5296 ⑫		TABLE 49 COLUMN 13	TABLE 49 COLUMN 15	TABLE 49 COL 8 LEFT	TABLE 53 COLUMN 18	TABLE 53 COLUMN 15	TABLE 53 COL 2 LEFT
11	339.5	28,029	7.955	-4.273	40,089	6.603	-1.239	68,118	14.558	-5.502	-139,656	-29.842	11.279	-104,208	-19.260	-21,516	-6.940	3.848	3.498	-2.688	.07462
		23,743		-3.616	37,091		-1.241	60,860		-4.857	-124,757		9.956	-93,091		-18,192		3.316	3.502		.07094
12	375.75	23,769	7.094	-3.439	37,091	5.259	-.9641	60,860	12.353	-4.403	-124,757	-25.329	9.026	-93,091	-18.895	-18,192	-6.281	3.180	3.502	-.3595	.08956
		22,934		-3.419	31,461		-.3905	54,395		-4.410	-111,504		9.040	-83,203		-18,250		3.181	897		.08214
13	412	22,934	6.260	-3.248	31,461	4.120	-.7565	54,395	10.380	-4.004	-111,504	-21.278	8.210	-83,203	-15.977	-18,250	-5.619	3.045	4.897	-.9320	.08882
		22,351		-3.242	26,982		-.7801	48,333		-4.022	-99,078		8.245	-73,930		-18,337		3.046	-.728		.08344
14	448.5	22,351	5.444	-3.075	26,982	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	-.3796	.08090
		21,728		-3.069	20,828		-.6073	42,556		-3.676	-87,236		7.535	-65,694		-18,390		2.969	-1.242		.07761
15	485	21,728	4.651	-2.906	20,828	2.414	-.4610	42,556	7.065	-3.357	-87,236	-14.478	6.882	-65,694	-10.804	-18,390	-4.279	2.771	-1.242	-.3343	.06778
		20,988		-2.884	16,445		-.3511	37,333		-3.237	-76,529		6.841	-57,105		-18,323		2.769	-2.246		.06463
16	521.5	20,988	3.889	-2.729	16,445	1.812	-.3277	37,333	5.700	-3.057	-76,529	-11.694	6.247	-57,105	-8.719	-18,323	-3.610	2.632	-2.246	-.2741	.05533
		16,763		-2.174	14,589		-.2330	31,352		-2.513	-64,269		5.151	-47,956		-14,590		4.129	-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	2.447	-1.801	-.2246	.04623
		16,479		-2.080	14,589		-.2565	31,068		-2.337	-63,686		4.791	-47,582		-14,599		3.047	-1.801		.04460
18	576.5	16,479	2.978	-1.987	14,589	1.008	-.1740	31,068	3.986	-2.161	-63,686	-8.167	4.430	-47,582	-6.084	-14,599	-2.807	1.964	-1.801	-.1751	.03841
		12,491		-1.473	12,340		-.1816	24,831		-1.655	-50,901		3.383	-37,981		-10,835		1.473	-1.765		.03954
19	615.375	12,491	2.489	-1.373	12,340	.5295	-.08257	24,831	3.018	-1.452	-50,901	-6.187	2.985	-37,981	-4.616	-10,835	-2.386	1.393	-1.765	-.1065	.03066
		11,847		-1.339	8,154		-.08679	20,001		-1.426	-41,000		2.985	-30,594		-10,670		1.389	-1.468		.03164
20	654.25	11,847	2.028	-1.264	8,154	.2725	-.03162	20,001	2.341	-1.296	-41,000	-4.594	2.657	-30,594	-3.425	-10,670	-1.871	1.304	-1.468	-.04361	.00939
		11,331		-1.261	4,254		-.04418	15,585		-1.305	-31,948		2.675	-23,839		-10,569		1.303	-.357		.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	-1.540	1.219	-.357	-.01244	.00258
		10,710		-1.164	1,184		-.007392	11,894		-1.171	-24,382		2.405	-18,193		-10,411		1.218	-.357		.00258

BY: Tellers

CHECKED: Faulkner, Propper

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 - DGW - FULL FUEL & OIL - LESS BOMBS

REPORT NO. FZS-36-140 DATE 12-9-45 PAGE 283

STA.	DISTANCE FROM Δ STA.	ULTIMATE LANDING GEAR FITTING LOADS: BEAM SHEAR	BEAM BENDING MOMENT	TORSION x10⁻⁶	CHORD SHEAR	CHORD BENDING MOMENT	TOTAL ULTIMATE LOADS @ ℄ TO ℄ SHIP: S_B SHEAR	B.S. MOMENT M_B x10⁻⁶	TORSION T_EA x10⁻⁶	C. SHEAR S_C	C.S. MOMENT M_C x10⁻⁶	M_A cos ε x10⁻⁶	T_EA sin ε x10⁻⁶	M_A' x10⁻⁶	S_C' -S_C cos ε	M_A sin ε x10⁻⁶	T_EA cos ε x10⁻⁶	T_EA x10⁻⁶	TABLE 40 T_EA/M_A	TABLE 40 M_A	S_C''
		63	74	75	76	77	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
		TABLE 59 VOLUME 5	TABLE 59 VOLUME 8	TABLE 59 VOLUME 12	TABLE 59 VOLUME 14	TABLE 59 VOLUME 7	⑫+⑰+⑳+㉓	⑬+⑱	⑭+⑲+㉑+㉔	⑮+㉒	⑯+㉕	39.48×㉘	17.24×㉙	㉛-㉜	39.48×㉘	17.24×㉙	39.48×㉘	㉞+㉟	TABLE 30	㉛×㊵	㉘-㊱ OR ㉘+㊱
11	339.5						-157,682	-37.051	15.182	-104,209	-22.268	-36.488	2.636	-39.124	-102,625	-6.432	14.851	8.519	E16.0	-20,188	-137,444
							-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	12.102	6.560	E20.2	-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	E48.1	-15,722	-113,135
							-117,754		11.374	-73,830			1.975	-28.849	-72,806		11.201	6.464		-15,726	-102,028
14	448.5						-117,754	-20.992	10.493	-73,830	-13.179	-22.643	1.822	-24.465	-72,806	-3.291	10.334	6.343	E61.1	-13,727	-104,027
							-106,869		10.591	-65,094			1.824	-24.469	-64,105		10.341	6.370		-13,730	-93,139
15	485						-106,868	-19.091	9.721	-65,094	-10.804	-18.801	1.688	-20.489	-64,105	-3.314	9.573	6.259	E78.0	-11,843	-85,015
							-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	E96.0	-10,063	-86,437
							-80,669		7.934	-47,956			1.573	-16.604	-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	E10.3	-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	6.280	4.395	E28.2	-7,562	-72,524
							-63,501		4.206	-37,981			.8517	-11.832	-37404		4.031	2.896		-7,397	-56,184
19	615.875						-63,501	-8.680	4.298	-37,981	-4.616	-8.548	.7635	-9.312	-37404	-1.507	4.331	2.824	E47.7	-6,031	-47,470
							-53,132		4.395	-30,534			.7630	-9.311	-30,129		4.428	2.821		-6,031	-47,101
20	669.25						-53,132	-6.615	3.570	-30,534	-3.428	-6.514	.6892	-7.203	-30,129	-1.148	3.210	2.762	E71.2	-4,840	-48,292
							-43,474		3.289	-23,839			.6925	-7.207	-23,477		3.248	2.780		-4,842	-38,632
21	698.125						-43,474	-4.924	3.641	-23,839	-2.501	-4.849	.6321	-5.481	-23,477	-.8548	3.586	2.751	E97.9	-3,825	-39,643
							-35,090		3.626	-18,193			.6295	-5.479	-17,916		3.571	2.716		-3,824	-31,266

* NOTE: WHEN S.C. & M.A HAVE OPPOSITE SIGNS THE FACTOR .7 IS OMITTED.

BY: J. Ellis

CHECKED: Wallace Propper

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	1 G INERTIA LOADS: WING EMPTY LESS LANDING GEAR SHEARS	WING EMPTY LESS LANDING GEAR MOMENTS x10^6	WING EMPTY LESS LANDING GEAR TORQUES x10^6	FUEL & OIL ONLY SHEARS	FUEL & OIL ONLY MOMENTS x10^6	FUEL & OIL ONLY TORQUES x10^6	TOTALS SHEARS	TOTALS MOMENTS x10^6	TOTALS TORQUES x10^6	ULTIMATE INERTIA LOADS: BEAM SHEAR	BEAM BENDING MOMENTS x10^6	TORSION x10^6	CHORD SHEAR	CHORD BENDING MOMENTS x10^6	ULTIMATE PITCHING ACCELERATION LOADS: WING EMPTY LESS LANDING GEAR B. SHEARS	B.B. MOM. x10^6	TORSION x10^6	FUEL & OIL ONLY B. SHEARS	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 18	TABLE 19 COLUMN 16	TABLE 19 COLS 16&17	TABLE 21 COLUMN 10	TABLE 21 COLUMN 10	TABLE 21 COLS 16&17	⑥+⑧	⑦+⑨	⑤+⑩	-2.0499 ②	-2.0499 ③	-2.6499 ④	-1.5796 ⑤	-1.5796 ⑥	TABLE 49 COLUMN 13	TABLE 49 COLUMN 15	TABLE 49 COLS 21&22	TABLE 53 COLUMN 18	TABLE 53 COLUMN 19	TABLE 53 COLS 24&25
22	732	10,710	1.172	-1.081	1,184	.081116	-.003170	11,894	1.173	-1.079	-24,382	-2.405	2.212	-18,193	-1.794	-10,411	-1.156	1.139	-297	-.000682	.000348
		9,388		-1.071	21		-.001633	10,009		-1.079	-20,517		2.200	-15,310		-10,150		1.131	-16		.001288
23	766	9,388	.8320	-1.001	21	.000412	-.001489	10,009	.8329	-1.002	-20,517	-1.806	2.054	-15,310	-1.273	-10,150	-.8104	1.060	-16	-.000357	.001174
		6,276		-.5950	10		-.000743	6,286		-.5957	-13,886		1.221	-9,615		-6,140		.6216	-9		.000789
24	806	6,276	.5803	-.5934	10	0	-.000658	6,286	.5803	-.5941	-12,886	-.1191	1.115	-9,615	-.0885	-6,140	-.5648	.5781	-9	0	.000592
		2,585		-.1658	0		0	2,585		-.1658	-5,299		.3939	-3,354		-2,122		.1685	0		0
25	840	2,585	.4930	-.1477				2,585	.4930	-.1477	-5,299	-1.011	.3028	-3,354	-.7541	-2,122	-.4326	.1452			
		2,322		-.1478				2,322		-.1478	-4,760		.3030	-3,562		-2,012		.1453			
26	878	2,322	.4234	-.1335				2,322	.4234	-.1335	-4,760	-.8619	.2737	-3,552	-.6976	-2,012	-.4293	.1349			
		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	.2557	-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	-.09554	-3,737	-.5842	.1958	-2,788	-.4359	-1,704	-.3056	.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	-.2483	.08627			
		1,323		-.07292				1,323		-.07292	-2,712		.1485	-2,024		-1,331		.08041			
30	1014	1,323	.1783	-.06313				1,323	.1783	-.06313	-2,712	-.3655	.1494	-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	.06087			
		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	.09563	-1,592	-.1606	-1,125	-.1207	.05355			
		786		-.03781				.786		-.03781	-1,611		.07751	-1,202		-848		.04463			

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	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 $\times 10^{-6}$	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.B.Mom. $\times 10^{-6}$	WING EMPTY LESS LANDING GEAR TORSION $\times 10^{-6}$	FUEL & OIL ONLY B. SHEAR	FUEL & OIL ONLY B.B.Mom. $\times 10^{-6}$	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 16	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	②×1.0499 ⑨	②×1.0499 ⑩	②×1.0499 ⑪	③×1.5296 ⑫	③×1.5296 ⑬	TABLE 19 COLUMN 13	TABLE 19 COLUMN 15	TABLE 19 COLS. 21 & 22	TABLE 21 COLUMN 13	TABLE 21 COLUMN 15	TABLE 21 COLS. 21 & 22
22	732	10,710	1.172	-.1081	1,184	.001116	+.000170	11,894	1.173	-.1079	-24,382	-2.405	2.212	-18,193	-1.791	-10,411	-1.156	1.134	-297	-.000682	.000349
		9,986		-.1071	81		-.000433	10,009		-.1079	-20,517		2.200	-15,310		-10,150		1.131	-16		.001388
23	766	9,988	.8320	-.1001	21	.000112	-.000189	10,009	.8324	-.1002	-20,517	-1.706	2.054	-15,310	-1.273	-10,150	-.8104	1.060	-16	-.000387	.001174
		4,276		-.5950	10		-.000143	6,286		-.5957	-12,866		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	-.5648	.5781	-8	0	.000593
		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	-.4226	.1454			
		2,322		-.1478				2,322		-.1478	-4,760		.2830	-3,552		-2,012		.1453			
26	878	2,322	.4234	-.1935				2,322	.4234	-.1935	-4,760	-.8679	.2737	-3,552	-.6476	-2,012	-.4323	.1329			
		2,022		-.1251				2,022		-.1951	-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	-.3056	.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	-.2483	.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	-.3655	.1294	-2,024	-.2727	-1,331	-.2004	.07656			
		1,168		-.05370				1,168		-.05370	-2,394		.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	-.1544	.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	-.1227	.05355			
		786		-.03781				786		-.03781	-1,611		.07751	-1,202		-848		.04423			

BY: T. [illegible]
CHECKED: [illegible]

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

TABLE 64 — SHEET 6 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

REPORT No. FZS-36-140 — DATE 12-4-46

STATION	DISTANCE FROM ℄ SHIP	ULTIMATE LANDING GEAR FITTING LOADS: BEAM SHEAR	BEAM BENDING MOMENT	TORSION	CHORD SHEAR	CHORD BENDING MOMENT	TOTAL ULTIMATE LOADS #2 TO ℄ SHIP: $S_b - S_a$	$M_b - M_a \times 10^{-6}$	TORSION $T \times 10^{-6}$	C. SHEAR S_c	C.G. MOMENT $M_b + M_a \times 10^{-6}$	M_z CHORD $\times 10^{-6}$	TEN SHEAR $\times 10^{-6}$	$M'_z \times 10^{-6}$	S'_z	M_z SHEAR $\times 10^{-6}$	TEN CHORD $\times 10^{-6}$	TEN $\times 10^{-6}$	$\frac{\text{TEN}}{A_0}$	$\frac{\text{TEN}}{A_0} \frac{M_z}{A_0}$	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	(20) + (11)	(13) + (21)	(22) + (13)	(23) + (12)	(13) + (21)	9240 × (23)	(24) × (12)	(25)	9240 × (28)	(27) × (12)	9240 × (12)	(27) + (12)	TABLE 80	(39) × (40)	(28) − (41)
		COLUMN 5	COLUMN 8	COLUMN 12	COLUMN 14	COLUMN 17	(12) + (23)														or .5×(38)
22	732						-25,090	-3.562	3.246	-18,193	-1.794	-3.508	.5809	-4.089	-17,916	-.6184	3.235	2.677	726.1	-2,969	-32,121
							-30,683		3.332	-15,310			.5784	-4.086	-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	724.7	-2,273	-28,410
							-19,034		1.842	-9,615			.3199	-2.733	-9,449		1.815	1.978		-2,127	-16,907
24	806						-19,034	-1.756	1.667	-9,615	-.8885	-1.729	.2929	-2.022	-9,449	-.3048	1.661	1.956	786.3	-1,590	-17,444
							-7,421		.5000	-3,959			.08699	-1.816	-3,821		.4924	.1876		-1,428	-5,993
25	840						-7,421	-1.504	.4480	-3,959	-.7541	-1.481	.07777	-1.553	-3,894	-.2611	.4412	.1801	817.6	-1,275	-6,146
							-6,772		.4483	-3,552			.07782	-1.553	-3,498		.4415	.1804		-1,275	-5,497
26	870						-6,772	-1.200	.4066	-3,552	-.6476	-1.280	.07059	-1.351	-3,498	-.2257	.4004	.1747	847.3	-1,145	-5,627
							-5,959		.2837	-3,033			.06661	-1.347	-3,046		.3778	.1522		-1,141	-4,818
27	906						-5,959	-1.086	.3396	-3,033	-.5363	-1.069	.05895	-1.126	-3,046	-.1885	.3344	.1452	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	.2965	-2,788	-.4359	-.8763	.05147	-.9278	-2,746	-.1545	.2920	.1375	918.2	-861	-4,580
							-4,955		.2933	-2,509			.05102	-.9279	-2,471		.2894	.1349		-861	-4,094
29	978						-4,955	-.7114	.2572	-2,509	-.3465	-.7009	.04465	-.7439	-2,471	-.1235	.2533	.1298	949.8	-747	-4,208
							-4,043		.2299	-2,024			.03991	-.7405	-1,993		.2264	.1029		-743	-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	-.4930	.02970	-.4967	-1,760	-.07562	.1685	.09288	1064	-497	-3,118
							-3,259		.1693	-1,592			.02929	-.4584	-1,568		.1667	.09108		-496	-2,763
32	1080						-3,259	-.3379	.1492	-1,592	-.1606	-.3328	.02780	-.3587	-1,568	-.05846	.1462	.08824	1124	-407	-2,852
							-2,479		.1221	-1,202			.02130	-.3540	-1,184		.1202	.06154		-402	-2,077

* NOTE: WHEN S_b & M_b HAVE OPPOSITE SIGNS, THE FACTOR .7 IS OMITTED.

BY: J. Pelo

CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS
FW-433 125 PALS 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 C of S	1 G INERTIA LOADS: WING EMPTY LESS LANDING GEAR SHEAR	WING EMPTY LESS LANDING GEAR MOMENT x10^6	WING EMPTY LESS LANDING GEAR TORSION x10^6	1 G INERTIA LOADS: FUEL & OIL ONLY SHEAR	FUEL & OIL ONLY MOMENT x10^6	FUEL & OIL ONLY TORSION x10^6	1 G INERTIA LOADS: TOTALS SHEAR	TOTALS MOMENT x10^6	TOTALS TORSION x10^6	ULTIMATE INERTIA LOADS: BEAM SHEAR	BEAM BENDING MOMENT x10^6	TORSION x10^6	CHORD SHEAR	CHORD BENDING MOMENT x10^6	ULTIMATE PITCHING ACCELERATION LOADS: WING EMPTY LESS LANDING GEAR B. SHEAR	B.B. MOM. x10^6	TORSION x10^6	FUEL & OIL ONLY B. SHEAR	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 CAS 16-17	TABLE 21 COLUMN 10	TABLE 21 COLUMN 12	TABLE 21 CAS 16-17	③+⑥	④+⑦	⑤+⑧	③×-2.0499	④×-2.0499	⑤×-2.0499	③×-1.8284	④×-1.8284	TABLE 49 COLUMN 13	TABLE 49 COLUMN 15	TABLE 49 CAS 21+22	TABLE 53 COLUMN 13	TABLE 53 COLUMN 15	TABLE 53 CAS 21+22
33	1110	786	.08144	-.03296				786	.08144	-.03296	-1,611		.06756	-1,202	.1946	-868	-.09642	.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	353	.02031	-.01239				353	.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	-.02409	.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	-342	-.005851	.01134			
		98		-.001835				98		-.001835	-201		.003742	-150		-116		.002202			
40	1301	98	.002600	-.001970				98	.002609	-.001870	-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	1346.4	50	0	-.000593				50	0	-.000593	-102	0	.001113	-76	0	-61	0	.000666			
TIP	1380.84	0		0				0	0	0	0	0	0	0		0		0			

BY: J Ellis
CHECKED: S. Gutierrez, Phillips

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

FW 651 12½ PADS 1543

TABLE 64
SHEET 8 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

REPORT NO. FZ-36-140
DATE 12-4-45
PAGE 287

STATION	DISTANCE FROM E SHIP	ULTIMATE LANDING GEAR FITTING LOADS: BEAM SHEAR	BEAM BENDING MOMENT x 10⁻⁶	TORSION x 10⁻⁶	CHORD SHEAR	CHORD BENDING MOMENT x 10⁻⁶	TOTAL ULTIMATE LOADS 11° X TO E SHIP: B. SHEAR $S_B = S_L$	B.C. MOMENT $M_B = M_L \times 10^{-6}$	TORSION TENACT $\times 10^{-6}$	C. SHEAR S_C	C.P. MOMENT $M_C = M_L \times 10^{-6}$	M_C COSα x 10^{-6}	TEN SINα x 10^{-6}	$M_A \times 10^{-6}$ = S_C COSα	S_C	M_C SINα x 10^{-6}	TEN COSα x 10^{-6}	TEN $\times 10^{-6}$	TORQUE $\times 10^{-6}$ M_t	TORQUE / M_t	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)	33 x COS 4°	34 x SIN 4°	(28) - (33)	35 x COS 4°	36 x SIN 4°	33 x COS 4°	34 x COS 4°	(37) + (38)	TABLE 30	(39) x (40)	(28) - (41) or .5 x (42)
33	1110						-2,479	-.2635	-.1068	-1,202	-.1946	-.2595	.01854	-.2780	-1,184	-.05574	.1032	.05946	1184	-.332	-2,147
							-2,235		.1056	-1,074			.01893	-.2778	-1,058		.1040	.05826		-.332	-1,903
34	1140						-2,235	-.1265	.09186	-1,074	-.08237	-.1955	.01595	-.2095	-1,058	-.04111	.09046	.05635	1183	-.264	-1,971
							-2,014		.09051	-.959			.01571	-.2092	-.944		.08913	.05502		-.263	-1,751
35	1170						-2,014	-.1361	.07807	-.959	-.06362	-.1940	.01355	-.1476	-.944	-.02363	.07688	.05325	1330	-.196	-1,818
							-1,940		.05640	-.633			.009791	-.1438	-.623		.05554	.03191		-.191	-1,749
36	1199						-1,940	-.09862	.04868	-.633	-.04589	-.09712	.008451	-.10557	-.623	-.01712	.04794	.03082	1408	-.148	-1,792
							-1,173		.04780	-.549			.008398	-.10542	-.541		.04707	.02995		-.148	-1,025
37	1225						-1,173	-.06685	.04183	-.549	-.03107	-.06593	.007168	-.07310	-.541	-.01162	.04066	.02904	1486	-.103	-1,044
							-1,035		.04043	-.480			.007019	-.07295	-.473		.03982	.02820		-.102	-.927
38	1252						-1,035	-.02906	.03470	-.480	-.01813	-.03647	.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	.005089	-.02065	-.404	-.002148	.02870	.02595	1674	-.35	-.857
							-.317		.005361	-.150			.001035	-.01663	-.140		.005872	.003125		-.28	-.289
40	1301						-.317	-.008537	.004461	-.150	-.003391	-.008397	.000774	-.009171	-.148	-.001480	.004393	.002913	1772	-.16	-.301
							-.212		.003919	-.99			.000680	-.009077	-.97		.003859	.002379		-.16	-.196
41	1324						-.212	-.003623	.003213	-.99	-.001696	-.003578	.000506	-.004084	-.97	-.000651	.003863	.002338	1891	-.8	-.204
							-.163		.002526	-.76			.000399	-.004017	-.75		.003788	.001857		-.8	-.155
TIP C.L.	1346.4						-.163	0	.001779	-.76	0	0	.000309	-.000309	-.75	0	.001752	.001752	—	—	—
TIP	1350.84						0		0	0	0								—		—

* NOTE: WHEN S.L.E.M. HAVE OPPOSITE SIGN THE SECOND TERM IS OMITTED.

BY: L. Ellis
CHECKED: [illegible], [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION — TABLE 65, SHEET 1 OF 8

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

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. AGW-62-1000 lb, FULL FUEL & OIL

STATION	DISTANCE FROM ℄ SHIP	1G INERTIA LOADS: WING EMPTY LESS LANDING GEAR — SHEAR	MOMENT x10⁻⁶	TORSION x10⁻⁶	FUEL & OIL ONLY — SHEAR	MOMENT x10⁻⁶	TORSION x10⁻⁶	TOTALS — SHEAR	MOMENT x10⁻⁶	TORSION x10⁻⁶	ULTIMATE INERTIA LOADS: BEAM SHEAR	BEAM BENDING MOMENT x10⁻⁶	TORSION x10⁻⁶	CHORD SHEAR	CHORD BENDING MOMENT x10⁻⁶	ULTIMATE PITCHING ACCELERATION LOADS: WING EMPTY LESS LANDING GEAR — B. SHEAR	B. MOM. x10⁻⁶	TORSION x10⁻⁶	FUEL & OIL ONLY — B. SHEAR	B. MOM. x10⁻⁶	TORSION x10⁻⁶
		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 12 CG=16.61"	TABLE 23 COLUMN 10	TABLE 23 COLUMN 12	TABLE 23 CG=16.61"	③+⑥	④+⑦	⑤+⑧	-4.0385 ⑨	-4.0385 ⑩	-4.0385 ⑪	-1.1792 ⑫	-1.1792 ⑬	TABLE 52 COLUMN 13	TABLE 50 COLUMN 15	TABLE 50 CWS. 21.62"	TABLE 54 COLUMN 13	TABLE 54 COLUMN 15	TABLE 54 CWS. 21.62"
0	0	40340	19.995	-7.563	26250	14.150	-2.835	66590	34.145	-10.398	-266924	-137.895	41.992	-78523	-40.264	-18543	-12.402	4.912	-992	-1.026	.2285
		31850		-7.546	26250		-2.835	66100		-10.400	-266,945		42.000	-78445		-18818		4.911			.2275
1	41.025	31850	18.360	-7.229	26250	13.070	-2.613	66100	31.430	-9.842	-266946	-126.930	39.747	-77945	-37.062	-18818	-11.630	4.752	-992	-.9856	.2142
		38830		-7.231	26250		-2.613	65080		-9.844	-262826		39.755	-76742		-19332		4.751			.2142
2	80.0	38830	16.847	-6.920	26250	12.050	-2.403	65080	28.897	-9.323	-262826	-116.701	37.651	-76742	-34.675	-19332	-10.677	4.546	-992	-.9470	.2062
		37990		-6.892	26250		-2.403	64240		-9.295	-259453		37.598	-75752		-19554		4.603			.2062
3	113.25	37990	15.584	-6.632	26250	11.180	-2.223	64240	26.764	-8.855	-259433	-108.086	35.761	-75752	-31.560	-19554	-10.227	4.470	-992	-.9140	.1994
		37400		-6.627	26250		-2.223	63650		-8.850	-257051		35.741	-75056		-19770		4.472			.1994
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	-19770	-9.569	4.334	-992	-.8810	.1926
		36510		-6.379	26250		-2.044	62760		-8.423	-253456		34.016	-74007		-20142		4.339			.1926
5	180.0	36510	13.117	-6.127	26250	9.425	-1.863	62760	22.542	-7.990	-253456	-91.036	32.268	-74007	-26.592	-20142	-8.995	4.195	-992	-.8478	.1858
		35640		-6.117	26250		-1.863	61890		-7.980	-249963		32.227	-72981		-20383		4.197			.1858
6	206.0	35640	12.190	-5.926	26250	8.743	-1.723	61890	20.933	-7.649	-249963	-84.530	30.890	-72981	-24.688	-20383	-8.365	4.088	-992	-.8220	.1805
		35100		-5.918	26250		-1.723	61350		-7.641	-247762		30.858	-72344		-20507		4.090			.1806
7	232.0	35100	11.278	-5.730	26250	8.060	-1.582	61350	19.338	-7.312	-247762	-78.097	29.530	-72344	-22.803	-20507	-7.832	3.981	-992	-.7962	.1752
		34220		-5.718	26250		-1.582	60520		-7.300	-244410		29.481	-71365		-20674		3.983			.1762
8	249.0	34270	10.695	-5.593	26250	7.614	-1.491	60520	18.309	-7.084	-244410	-73.941	28.629	-71365	-21.596	-20674	-7.480	3.911	-992	-.7793	.1717
		33490		-5.565	25970		-1.503	54460		-7.068	-240129		28.544	-70115		-20706		3.912	-1132		.1655
9	284.5	33490	9.597	-5.321	25970	6.692	-1.314	59460	16.289	-6.635	-240129	-65.420	26.795	-70115	-19.102	-20706	-6.745	3.761	-1132	-.7391	.1572
		28390		-4.591	25690		-1.324	54080		-5.915	-218402		23.886	-63771		-17980		3.371	-1245		.1530
10	312.0	28390	8.726	-4.431	25690	5.985	-1.178	54080	14.711	-5.608	-218402	-59.410	22.658	-63771	-17.347	-17980	-6.251	3.269	-1245	-.7048	.1459
		28030		-4.432	25690		-1.178	53720		-5.610	-216948		22.656	-63847		-18054		3.269	-1245	-.7048	.1459

BY: [illegible]
CHECKED: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION — 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 ℄ SYM'D	1G INERTIA LOADS — WING EMPTY LESS LANDING GEAR			1G INERTIA LOADS — FUEL & OIL ONLY			1G INERTIA LOADS — TOTALS			ULTIMATE INERTIA LOADS					ULTIMATE PITCHING ACCELERATION LOADS — WING EMPTY LESS LANDING GEAR			ULTIMATE PITCHING ACCELERATION LOADS — FUEL & OIL ONLY		
		SHEAR	MOMENT $\times 10^6$	TORSION $\times 10^6$	SHEAR	MOMENT $\times 10^6$	TORSION $\times 10^6$	SHEAR	MOMENT $\times 10^6$	TORSION $\times 10^6$	BEAM SHEAR	BEAM BENDING MOMENT $\times 10^6$	TRUSION $\times 10^6$	CHORD SHEAR	CHORD BENDING MOMENT $\times 10^6$	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 COLS. 16 & 17	TABLE 23 COLUMN 10	TABLE 23 COLUMN 12	TABLE 23 COLS. 16 & 17	⑥ + ⑯	⑧ + ⑰	⑤ + ⑲	-1.0385 ⑨	-1.0385 ⑩	-1.0385 ⑪	-1.1792 ⑫	-1.1792 ⑬	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	0	40340	19.995	-7.563	26850	14.150	-2.835	66590	34.145	-10.398	-26.9724	-13.7895	41.992	-78523	-40.264	-16.543	-12.402	4.912	-.992	-1.026	.3285
		39850		-7.546	26250		-2.835	66100		-10.400	-26.6945		42.000	-77945		-18818		4.911			.3275
1	41.025	39850	18.360	-7.229	26260	13.070	-2.613	66100	31.430	-9.842	-26.6946	-12.6931	39.747	-77945	-37.062	-18818	-11.630	4.752	-.992	-.9856	.2142
		38850		-7.231	26250		-2.613	65080		-9.844	-26.2826		39.755	-76742		-19332		4.751			.2142
2	80.0	38830	16.847	-6.980	26250	12.050	-2.403	65080	28.897	-9.323	-26.2826	-11.6701	37.651	-76742	-34.075	-19332	-10.677	4.596	-.992	-.9470	.2062
		37990		-6.892	26250		-2.403	64240		-9.295	-25.9433		37.598	-75752		-19554		4.603			.2062
3	113.25	37990	16.584	-6.632	26250	11.180	-2.223	64240	26.764	-8.855	-25.9433	-10.8086	35.761	-75752	-31.560	-19554	-10.227	4.470	-.992	-.9140	.1994
		37400		-6.627	26250		-2.223	63650		-8.850	-25.7051		35.741	-75056		-19770		4.492			.1994
4	146.5	37400	14.340	-6.371	26250	10.310	-2.044	63650	24.650	-8.415	-25.7051	-9.9549	33.984	-75056	-29.067	-19770	-9.569	4.334	-.992	-.8810	.1926
		36510		-6.379	26250		-2.044	62760		-8.423	-25.3456		34.016	-74027		-20142		4.339			.1926
5	180.0	36510	13.117	-6.127	26250	9.425	-1.863	62760	22.542	-7.990	-25.3456	-9.1036	32.268	-74007	-26.582	-20142	-8.895	4.195	-.992	-.8478	.1858
		35640		-6.117	26260		-1.863	61890		-7.980	-24.9983		32.227	-72981		-20383		4.197			.1858
6	206.0	35640	12.190	-5.926	26250	8.743	-1.723	61890	20.933	-7.649	-24.9983	-8.4538	30.890	-72981	-24.684	-20383	-8.365	4.068	-.992	-.8220	.1805
		35100		-5.918	26250		-1.723	61350		-7.641	-24.7762		30.858	-72344		-20607		4.090			.1805
7	232.0	35100	11.278	-5.730	26260	8.060	-1.582	61350	19.338	-7.312	-24.7762	-7.8097	29.530	-72344	-22.803	-20607	-7.832	3.981	-.992	-.7962	.1752
		34220		-5.718	26250		-1.582	60520		-7.300	-24.4410		29.481	-71365		-20674		3.983			.1752
8	249.0	34270	10.615	-5.593	26250	7.614	-1.491	60520	18.309	-7.089	-24.4410	-7.3941	28.649	-71365	-21.590	-20674	-7.480	3.911	-.992	-.7793	.1717
		33490		-5.565	25970		-1.603	59460		-7.068	-24.0129		28.544	-70115		-20706		3.912	-1132		.1658
9	284.5	33490	9.507	-5.321	25970	6.698	-1.314	59460	16.199	-6.636	-24.0129	-6.5420	26.195	-70115	-19.102	-20706	-6.745	3.761	-1132	-.7391	.1572
		32830		-4.571	25690		-1.324	58080		-5.915	-23.8402		25.886	-63771		-17980		3.371	-1249		.1530
10	312.0	32830	8.726	-4.431	25690	5.985	-1.178	58080	14.711	-5.609	-23.8402	-5.9410	22.652	-63771	-17.347	-17980	-6.251	3.267	-1248	-.7048	.1459
		28030		-4.432	25690		-1.178	52720		-5.610	-21.6948		22.656	-63847		-18054		3.267	-1248	-.7048	.1459

BY: Krusky
CHECKED: J. Ellis, Propper

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

W 633 525 PAGES 1140

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.

PAGES 289 REVISED ULTIMATE LOAD DATE 12-4-45

STATION	DISTANCE FROM C/SHIP	ULTIMATE LANDING GEAR FITTING LOADS: BEAM SHEAR	BEAM BENDING MOMENT	TORSION $\times 10^{-6}$	CHORD SHEAR	CHORD BENDING MOMENT $\times 10^{-6}$	TOTAL ULTIMATE LOADS IF L.G. S.F.: S. SHEAR $S_b - S_t$	S. MOMENT $M_x \times 10^{-6}$	TORSION $T_{AA} \times 10^{-6}$	C. SHEAR S_c	C. MOMENT $M_y \times 10^{-6}$	$M_{y_{SHEAR}} \times 10^{-6}$	$T_{BEAM} \times 10^{-6}$	$M'_{y_{BEAM}} \times 10^{-6}$	$S_{c_{SHEAR}}$	$M_{x_{SHEAR}} \times 10^{-6}$	$E_{BEAM} \times 10^{-6}$	$T_{BEAM} \times 10^{-6}$	$T_{TUBE} \times 10^{-6}$	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 60 COLUMN 5	TABLE 60 COLUMN 8	TABLE 60 COLUMN 12	TABLE 60 COLUMN 14	TABLE 60 COLUMN 17	(12) - (17)	(13) + (18)	(14) + (19)	(15) + (20)	(16) + (21)	(22) + (23)	(24) + (25)	(26) + (27)	(28) + (29)	(30) + (31)	(32) + (33)	(34) + (35)	(36) + (37)	(38) + (39)	(40) + (41)	(42) + (43)
0	0	487876	134.705	-109.929	142.709	37.338	199417	-16.618	-56.802	64186	-2.926	-16.345	-9.861	-6.504	63210	-2.885	-55.931	-58.824	*589.6	-3835	203252
			134.705	-109.929	142.709	37.338	201.121		-56.795	64764			-9.860	-6.505	63780		-55.132	-58.817		-3835	204456
1	41.025	487876	114.690	-99.814	142.709	31.483	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
			114.690	-99.814	142.709	31.483	204726		-55.094	65967			-9.564	-14.914	64964		-54.257	-58.572		-9013	213739
2	80.0	487876	95.675	-90.905	142.709	25.921	204726	-32.850	-53.452	65967	-8.154	-32.381	-9.279	-23.072	64964	-5.703	-52.640	-58.343	*618.7	-14275	219001
			95.676	-90.905	142.709	25.921	207897		-53.558	66957			-9.298	-23.058	65939		-52.744	-58.441		-14263	222160
3	113.25	487876	79.453	-82.570	142.709	21.176	207897	-39.774	-52.140	66957	-10.384	-39.169	-9.052	-30.117	65939	-6.905	-51.347	-58.262	*631.7	-19025	226922
			79.453	-82.570	142.709	21.176	210063		-52.158	67653			-9.055	-30.114	66625		-51.365	-58.270		-19023	229086
4	142.5	487876	63.231	-89.235	142.709	16.431	210063	-46.768	-50.722	67653	-12.636	-46.057	-8.805	-37.252	66625	-8.119	-49.951	-58.070	*645.3	-24039	234102
			63.231	-89.235	142.709	16.431	213286		-50.693	68702			-8.800	-37.257	67658		-49.922	-58.041		-24042	237328
5	180.0	487876	46.587	-85.875	142.709	11.650	213286	-53.892	-49.276	68702	-14.932	-53.073	-8.546	-44.527	67658	-9.856	-48.478	-57.834	*659.6	-29370	242604
		490953	46.747	-85.872	134.853	11.654	219635	-54.032	-49.262	61878	-14.928	-53.211	-8.552	-44.659	60932	-9.880	-48.513	-57.849		-29457	244052
6	206.0	490953	33.562	-83.247	134.853	8.548	219635	-59.743	-48.088	61878	-16.136	-58.886	-8.348	-50.487	60932	-10.371	-47.357	-57.723	*671.0	-33877	253912
		493098	33.580	-83.226	129.376	8.610	223837	-59.846	-48.097	57031	-15.874	-58.936	-8.352	-50.585	56164	-10.389	-47.366	-57.765		-33943	257780
7	232.0	493098	21.057	-80.690	129.375	5.446	223837	-65.666	-46.904	57031	-17.357	-64.668	-8.143	-56.525	56164	-11.400	-46.191	-57.591	*683.0	-38607	262444
		494997	18.694	-71.272	106151	1.887	173921	-68.031	-37.633	34786	-20.916	-66.997	-6.583	-60.466	34257	-11.810	-37.061	-48.871		-41297	215218
8	249.0	494997	11.214	-69.734	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	-45084	217805
		494997	11.214	-69.784	106151	.08200	178930		-37.112	36036			-6.443	-63.464	35488		-36.548	-48.871		-43823	221103
9	284.5	439997	-4.406	-66.522	106151	-3.686	178930	-77.310	-35.801	36036	-22.788	-74.155	-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	495.9	-37764	-199666
10	318.0						-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
							-236.250		+26.071	-63347					-62384		+25.675	+14.154		-35846	-200904

* NOTE: WHEN S_b & M_x HAVE OPPOSITE SIGNS THE FACTOR .7 IS OMITTED.

BY: Kinsbury

CHECKED: J. Ellis, J. Fisher

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION — FORT WORTH, TEXAS
FW 61, 125 PAGE 11-43

TABLE 65
SHEET 3 OF 8

B-34 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	1G INERTIA LOADS: WING EMPTY LESS LANDING GEAR — SHEAR	MOMENT ×10⁶	TORSION ×10⁶	FUEL & OIL ONLY — SHEAR	MOMENT ×10⁶	TORSION ×10⁶	TOTALS — SHEAR	MOMENT ×10⁶	TORSION ×10⁶	ULTIMATE INERTIA LOADS: DESIGN SHEAR	DESIGN BENDING MOMENT ×10⁶	DESIGN TORSION ×10⁶	CHORD SHEAR	CHORD BENDING MOMENT ×10⁶
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		TABLE 19 COLUMN 16	TABLE 19 COLUMN 18	TABLE 19 COLS. 16+17	TABLE 23 COLUMN 16	TABLE 23 COLUMN 18	TABLE 23 COLS. (16+17)	⑥+⑫	⑧+⑬	⑨+⑭	-4.0385 ⑤	-4.0385 ⑦	-4.0385 ⑪	-1.1792 ⑤	-1.1792 ⑩
11	339.5	28030	7.955	-4.273	25690	6.279	-1.033	53720	13.280	-5.306	-216,948	-53.489	21,628	-63347	-15.601
		23770		-3.616	24340		-1.035	48110		-4.651	-190,892		18,783	-55731	
12	375.75	23770	7.094	-3.489	24340	4.396	-.8539	48110	11.490	-4.293	-176,298	-46.402	17,337	-56731	-13.549
		22790		-3.419	21790		-.8618	44780		-4.281	-180,844		17,284	-52805	
13	412.0	22790	6.260	-3.248	21790	3.607	-.6998	44780	9.867	-3.947	-180,344	-38.849	15,940	-52805	-11.635
		22350		-3.242	19320		-.7061	41720		-3.948	-168,456		15,744	-49196	
14	448.5	22350	5.444	-3.075	19370	2.900	-.5608	41720	8.344	-3.636	-168,456	-33.699	14,684	-49196	-9.839
		21730		-3.069	17060		-.5671	38790		-3.636	-166,563		14,684	-45741	
15	485.0	21730	4.651	-2.906	17060	2.277	-.4391	38790	6.928	-3.365	-166,563	-27.979	13,509	-45741	-8.169
		20870		-2.686	15040		-.4382	35930		-3.324	-145703		13,424	-42361	
16	521.5	20890	3.889	-2.729	15040	1.728	-.3250	35930	5.617	-3.054	-146,102	-22.684	12,384	-42369	-6.624
		16760		-2.174	14150		-.3304	30910		-2.504	-124,836		10,112	-36949	
17	549	16760	3.428	-2.079	14150	1.339	-.2504	30910	4.767	-2.329	-124,836	-19.252	9,406	-36449	-5.621
		16480		-2.080	14150		-.2504	30630		-2.330	-123699		9,410	-36119	
18	576.5	16480	2.975	-1.962	14150	.9499	-.1700	30630	3.925	-2.157	-122699	-15.861	8,711	-36119	-4.628
		16430		-1.473	11900		-.1780	24390		-1.651	-98499		6,668	-28761	
19	615.315	12490	2.489	-1.373	11900	.4872	-.08290	24390	2.976	-1.456	-98499	-12.019	5,880	-28761	-3.509
		11850		-1.359	7715		-.09671	19570		-1.456	-79033		5,880	-23077	
20	654.425	11850	2.028	-1.264	7715	.1873	-.03506	19570	2.215	-1.299	-79033	-8.945	5,246	-23077	-2.612
		11330		-1.261	3816		-.04761	15150		-1.309	-61183		5,286	-17865	
21	693.125	11330	1.583	-1.170	3816	.03896	-.01711	15150	1.627	-1.187	-61183	-6.571	4,794	-17865	-1.994
		10710		-1.166	974		-.009605	11680		-1.176	-47170		4,749	-13773	

STATION	ULTIMATE INERTIA LOADS: WING EMPTY LESS LANDING GEAR — B. SHEAR	B.B. MOM. ×10⁶	TORSION ×10⁶	FUEL & OIL ONLY — B. SHEAR	B.B. MOM. ×10⁶	TORSION ×10⁶
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
11	-18054	-5.754	3.167	-1248	-.4705	.1389
	-15269		2.737	-1482		.1385
12	-15269	-5.201	2.624	-1482	-.6168	.1275
	-15243		2.624	-1842		.1264
13	-15243	-4.647	2.510	-1842	-.5600	.1126
	-15288		2.510	-2086		.1120
14	-15288	-4.089	2.395	-2086	-.4739	.09631
	-15288		2.395	-2226		.09593
15	-15288	-3.591	2.280	-2226	-.3926	.07918
	-15184		2.278	-2234		.07918
16	-15184	-2.977	2.164	-2234	-.3111	.06243
	-12099		1.749	-2231		.04244
17	-12099	-2.644	1.680	-2231	-.2497	.04784
	-12088		1.680	-2231		.04824
18	-12088	-2.312	1.612	-2231	-.1884	.03723
	-8988		1.213	-2061		.03281
19	-8988	-1.963	1.141	-2061	-.1082	.03134
	-8822		1.187	-1665		.02296
20	-8822	-1.620	1.067	-1565	-.04741	.01047
	-8713		1.066	-934		.01251
21	-8713	-1.281	.9962	-934	-.01110	.005042
	-8554		.9951	-266		.003275

BY: Wrigley
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, 62,000 # B FULL FUEL & OIL

STATION	DISTANCE FROM E.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 CUMULATIVE LOADS FROM E.SHIP: B. SHEAR $S_b = S_a$	B.B. MOMENT $M_b \times 10^6$	TORSION $T_{EA} \times 10^6$	C. SHEAR S_c	C.B. MOMENT $M_c = M_a \times 10^6$	$\frac{S_b}{A_b} \times 10^6$	$\frac{M_b}{I_b} \times 10^6$	$\frac{S_c}{A_c} \cos\alpha$	$\frac{M_c}{I_c} \times 10^6$	$T_{EA} \cos\alpha \times 10^6$	$T_{EA} \times 10^6$	$\frac{T_{EA}}{J_{EA}} \times 10^6$	$\frac{T_{EA}}{J_{EA}} \cdot \frac{M_b}{I_b}$	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) + (17) (20)+(28)	(3) + (18) (21)+(29)	(4) + (19) (22)+(30)	(5) + (6) (23)+(24)	(6) + (7) (24)+(25)	2240 × (28)	1736 × (29)	(23) - (24)	2240 × (31)	1736 × (32)	2240 × (30)	(37) + (38)	(39) × (40)	(28) × (40) OR (5) × (40)	(41) - (42)
							-236,250	-59,854	24,734	-63,847	-15,601	-58,944	6,294	-63,238	-62,384	-10,391	24,358	13,967	516.0	-32,691	-203,619
							-211,043		21,659	-56,731			3,760	-62,704	-55,869		21,330	10,939		-32,355	-178,688
12	37.576						-211,043	-52,220	20,069	-56,731	-13,547	-51,426	3,481	-56,813	-55,869	-9,065	19,784	10,719	530.2	-29,026	-182,017
							-197,949		20,039	-52,805			3,479	-54,905	-52,002		19,734	10,669		-29,022	-168,927
13	412.0						-197,949	-45,046	18,563	-52,805	-11,635	-44,360	3,223	-47,533	-52,002	-7,820	18,281	10,461	545.1	-25,937	-172,012
							-185,860		18,566	-49,196			3,223	-47,583	-49,448		18,284	10,464		-25,937	-159,923
14	448.5						-185,860	-38,260	17,175	-49,196	-9,831	-37,678	2,982	-40,660	-48,448	-6,642	16,914	10,272	561.1	-22,814	-163,046
							-174,167		17,175	-45,741			2,982	-40,660	-45,046		16,914	10,272		-22,814	-151,353
15	485.0						-174,167	-31,903	15,868	-45,741	-8,167	-31,418	2,765	-34,173	-45,046	-5,538	15,627	10,089	578.0	-19,752	-154,415
							-162,521		15,781	-42,369			2,740	-34,158	-41,725		15,541	10,003		-19,748	-142,773
16	521.5						-162,521	-25,472	14,560	-42,369	-6,624	-25,577	2,528	-28,105	-41,725	-4,509	14,329	9,830	596.0	-16,781	-145,740
							-139,160		11,923	-34,441			2,070	-27,647	-35,895		11,742	7,239		-16,478	-122,682
17	549.0						-139,160	-22,146	11,136	-36,441	-5,621	-21,809	1,933	-23,742	-35,895	-3,845	10,967	7,122	610.3	-14,490	-124,670
							-138,018		11,140	-36,119			1,934	-23,743	-35,570		10,971	7,126		-14,490	-123,528
18	676.5						-138,018	-18,851	10,360	-36,119	-4,628	-18,072	1,798	-19,870	-35,570	-3,186	10,203	7,017	684.4	-12,423	-125,595
							-109,546		7,919	-28,761			1,375	-19,447	-28,324		7,799	4,613		-12,158	-97,390
19	615.375						-109,548	-14,090	7,042	-28,761	-3,509	-13,876	1,222	-15,098	-28,324	-2,446	6,935	4,489	692.7	-9,779	-99,769
							-89,420		7,040	-23,077			1,222	-15,098	-22,726		6,933	4,487		-9,777	-79,641
20	654.25						-89,420	-10,612	6,323	-23,077	-2,612	-10,451	1,098	-11,549	-22,726	-1,842	6,227	4,385	671.96	-7,760	-81,660
							-70,830		6,365	-17,865			1,105	-11,556	-17,593		6,268	4,426		-7,764	-63,066
21	693.125						-70,830	-7,863	5,795	-17,865	-1,919	-7,743	1,006	-8,749	-17,593	-1,365	5,707	4,342	697.9	-6,106	-64,724
							-55,990		5,747	-13,773			,918	-8,741	-13,864		5,660	4,295		-6,100	-49,890

* NOTE: WHEN S_b & M_b HAVE OPPOSITE SIGNS THE FACTOR .7 IS OMITTED.

BY: [illegible]
CHECKED: [illegible]

STATION	DISTANCE FROM ℄ S/C	WING EMPTY-LESS LANDING GEAR			1G INERTIA LOADS FUEL & OIL ONLY			TOTALS			BEAM SHEAR	BEAM BENDING MOMENT	TORQUE MOMENT	CHORD SHEAR	CHORD BENDING MOMENT	ULTIMATE INERTIA LOADS WING EMPTY-LESS LANDING GEAR			ULTIMATE PITCHING ACCELERATION LOADS FUEL & OIL ONLY		
		SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR	MOMENT	TORSION	SHEAR					B. SHEAR	B. BEND. & NOSE ×10⁻⁶	TORSION ×10⁻⁶	B. SHEAR	B. BEND. & NOSE ×10⁻⁶	TORSION ×10⁻⁶
1	-	2	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 14	TABLE 23 COLUMN 10	TABLE 23 COLUMN 12	TABLE 23 COL 14	⑨+⑥	⑩+⑦	⑪+⑧	-40385 ⑨	-40385 ⑬	-40385 ⑭	-1.1792 ⑮	-1.1792 ⑯	TABLE 50 SHEET 13 COLUMN 10	TABLE 50 COLUMN 12	TABLE 50 COL 14	TABLE 54 COLUMN 10	TABLE 54 COLUMN 12	TABLE 54 COL 14
22	732	10710	1.172	-1.091	974	.001116	-.001824	11680	1.173	-1.093	-47170	-4.737	4.374	-13773	-1.383	-8554	-.8584	.9868	-266	-.000766	.001153
		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	.001087
		6276		-.595	10		-.000743	6286		-.5957	-25386		2.406	-7412		-5043		.6079	-7		.000505
24	806	6276	.5801	-.5434	10	0	-.000668	6286	.5809	-.5441	-25386	-2.346	2.199	-7412	-.6850	-5043	-.4641	.4666	-7	0	.000447
		2585		-.1658	0		0	2585		-.1658	-10440		.6696	-3048		-1769		.1318	0		0
25	840	2585	.4930	-.1477				2585	.4930	-.1477	-10440	-1.991	.5965	-3048	-.5818	-1769	-.4040	.1195			
		2322		-.1478				2322		-.1478	-9377		.5169	-2738		-1670		.1195			
26	870	2322	.4234	-.1335				2322	.4234	-.1335	-9377	-1.710	.5391	-2735	-.4993	-1670	-.3539	.1098			
		2022		-.1281				2022		-.1281	-8166		.5052	-2384		-1601		.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	1823	.2850	-.09558				1823	.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		-.07252				1323		-.07252	-5343		.2945	-1560		-1090		.06545			
30	1014	1323	.1783	-.06313				1323	.1783	-.06313	-5343	-.7201	.2550	-1560	-.2103	-1010	-.1621	.05799			
		1168		-.06235				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	-.0946	.04348			
		786		-.03781				786		-.03781	-3174		.1527	-927		-706		.03676			

BY: K. KALENIUS
CHECKED: 12-18-45 [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 C SHIP	ULTIMATE LANDING GEAR FITTING LOADS: BEAM SHEAR	BEAM BENDING MOMENT x10⁻⁶	TORSION x10⁻⁶	CHORD SHEAR	CHORD BENDING MOMENT x10⁻⁶	TOTAL ULTIMATE LOADS II & I TO C SHIP: B. SHEAR $S_b = S_b'$	B. BENDING MOMENT M_x x10⁻⁶	TORSION T_{EA} x10⁻⁶	C. SHEAR S_c	C.B. MOMENT $M_y = M_y'$ x10⁻⁶	$M_x \cos\alpha$ x10⁻⁶	$T_{EA} \sin\alpha$ x10⁻⁶	M_x' x10⁻⁶	$S_c' = \frac{S_c}{2\cos\alpha}$	$M_x \sin\alpha$ x10⁻⁶	$T_{EA} \cos\alpha$ x10⁻⁶	T_{EA} x10⁻⁶	$T_{EA} \cdot M_x'$ x10⁻¹⁰ T/I_{Q_x}	$T_{EA} \cdot M_x'$ x10⁻¹⁰ T/I_{Q_y}	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	(12)+(17) +(22)+(23)	(13)+(18) +(21)+(24)	(14)+(19) +(22)+(25)	(15)+(20)	(16)+(27)	.9848×(29)	.1736×(30)	(33)-(34)	9848×(31)	.1736×(29)	.9848×(30)	(37)+(38)	TABLE 30	(35)×(40)	(28)-(41) OR .6×(28)
22	732						-55990	-6.686	5.202	-13773	-1.383	-5.600	.920	-6.520	-13564	-.987	5.121	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			.606	-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	-4309
32	1080						-5121	-.5236	.2319	-1227	-.1238	-.5155	.0403	-.5558	-1208	-.0909	.2284	.1375	1136	-631	-4490
							-3880		.1889	-927			.0329	-.5483	-913		.1860	.0951		-628	-3257

* NOTE: WHEN S_b & M_x HAVE OPPOSITE SIGNS THE FACTOR .7 IS OMITTED.

BY: [illegible]
CHECKED: [illegible], Propper

CONSOLIDATED VULTEE AIRCRAFT CORPORATION 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 82-1000 #B, FULL FUEL & OIL

DATE 12-1-45

STATION	DISTANCE FROM C of SHIP	1G INERTIA LOADS: WING EMPTY TEST LANDING GEAR — SHEAR	MOMENT	TORSION	FUEL & OIL ONLY — SHEAR	MOMENT	TORSION	TOTALS — SHEAR	MOMENT	TORSION	ULTIMATE INERTIA LOADS: BURN SHEAR	BURN BENDING MOMENT	BURN TORSION	CHORD SHEAR	CHORD BENDING MOMENT	ULTIMATE PITCHING ACCELERATION LOADS: WING EMPTY TEST LANDING GEAR — B. SHEAR	B. MOM. x 10^6	TORSION x 10^6	FUEL & OIL ONLY — B. SHEAR	B. MOM. x 10^6	TORSION x 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 11	TABLE 19 COLUMN 12	TABLE 23 COLUMN 10	TABLE 23 COLUMN 11	TABLE 23 COLUMN 12	④+⑥	④+⑦	⑤+⑧	4.0385 ⑨	4.0385 ⑩	4.0385 ⑪	-1.1782 ⑫	-1.1782 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	-.05888	.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	-485		-398		.01730			
36	1198	414	.03000	-.01467				414	.03000	-.01467	-1672	-.1212	.05924	-488	-.03538	-398	-.03001	.01501			
		359		-.01438				359		-.01438	-1450		.05807	-423		-354		.01478			
37	1225	359	.02031	-.01239				359	.02031	-.01239	-1450	-.08202	.05009	-423	-.02396	-354	-.02046	.01281			
		314		-.01211				314		-.01211	-1268		.04891	-370		-316		.01258			
38	1252	314	.01185	-.01037				314	.01185	-.01037	-1268	-.04786	.04188	-370	-.01397	-316	-.01194	.01083			
		268		-.01012				268		-.01012	-1082		.04087	-316		-277		.01061			
39	1298	268	.00487	-.008681				268	.00487	-.008681	-1082	-.01967	.03506	-316	-.005743	-277	-.005048	.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		.001184			
41	1324	65	.001109	-.000891				65	.001109	-.000891	-263	-.004479	.003598	-77	-.001305	-64	-.001102	.000881			
		50		-.000771				50		-.000771	-202		.003114	-59		-49		.000762			
TIP C.L.	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: Kreeberg
CHECKED: Tibbetts, Pappas

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

TABLE 65 — SHEET 6 of 9

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

CONDITION: TWO WHEEL LANDING WITH INCLINED REACTIONS, NOSE DOWN. AGW, 62-1000 #'s, FULL FUEL & OIL.

Station	Butt Line (Sym)	Ultimate Landing Gear Fitting Loads: Front Spar Shear Lug	Front Spar Bending Moment Lug	Torsion Lug	Chord Shear Lug	Chord Bending Moment Lug	Total Ultimate Loads B.L. to B.L. & Shift: B. Shear (A) Minus $N_z \times 10^{-6}$	S_z	Torsion (C) Minus $T_{sh} \times 10^{-6}$	C. Shear	CA Minus $M_z - N_z A_{eff}$	M_z Chord $\times 10^{-6}$	T_{sh} Chord $\times 10^{-6}$	$M_z' \times 10^{-6}$	S_z' Chord	M_z Shear $\times 10^{-6}$	T_{sh} Chord $\times 10^{-6}$	$T_{sh} \times 10^{-6}$	$\frac{T_{sh}}{M_z}$	$\frac{T_{sh}}{M_z}$	M_z	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	(B) + (T)	(B) + (A)	(C) + (C)	(B) + (C)	(A) + (T)	.3048 × (23)	.1746 × (24)	(33) + (34)	.3048 × (35)	.1746 × (36)	.3048 × (37)	(T) + (38)	Transfer	(39) × (40)	(D) − (41)	
		Column 5	Column 8	Column 12	Column 16	Column 17																M_z & (42)
33	1110						-.8380	-.4072	.1641	-.927	-.09603	-.4010	.0286	-.4296	-913	-.07049	.16239	+.09170	.1194	-513	-3367	
							-.3498		.1629	-.828			.0283	-.4293	-815		.16042	+.08723		-513	-2949	
34	1140						-.2482	-.3028	.1415	-.828	-.07121	-.2982	.0246	-.3228	-815	-.05257	.13995	+.08678	.1259	-406	-3076	
							-.3124		.1349	-.739			.0242	-.3224	-728		.13718	+.08461		-406	-2718	
35	1170						-.2124	-.2091	.1201	-.739	-.04904	-.2059	.0208	-.2267	-728	-.03630	.11819	+.08189	.1330	-302	-2822	
							-.2070		.0820	-.488			.0150	-.2209	-481		.08459	+.04281		-294	-1776	
36	1198						-.2038	-.1518	.07428	-.488	-.03530	-.1489	.0129	-.1618	-481	-.02625	.07312	+.04687	.1406	-227	-1843	
							-.1604		.07288	-.423			.0126	-.1615	-417		.07174	+.04569		-227	-1677	
37	1226						-.1604	-.0719	.04208	-.423	-.02396	-.1009	.0109	-.1118	-417	-.01779	.06187	+.04410		-166	-1734	
							-.1594		.04148	-.370			.0107	-.1116	-364		.06058	+.04277		-166	-1618	
38	1254						-.1604	-.0619	.02478	-.370	-.01397	-.0589	.00915	-.06804	-364	-.01038	.06191	+.04183		-108	-1726	
							-.1358		.02458	-.316			.00894	-.06783	-311		.05070	+.04038		-107	-1567	
							-.1358	-.02442	.02458	-.316	-.00743	-.02406	.00747	-.03172	-311	-.00423	.04258	+.03871		-43	-1324	
							-.0990		.00818	-.114			.00160	-.02866	-114		.00968	+.00481		-43	-443	
							-.0990	-.01311	.00818	-.114	-.00207	-.01298	.00119	-.01481	-114	-.00270	.00769	+.00491		-25	-445	
							-.0327		.00708	-.76			.00106	-.01587	-76		.00595	+.00391		-25	-345	
							-.0327	-.00644	.00708	-.76	-.00130	-.00644	.000770	-.00678	-76	-.000969	.00481	+.00342		-18	-345	
							-.0281		.00670	-.69			.000714	-.00670	-69		.00482	+.00286		-18	-239	
							0	0	0	-69	0	0	.000476	-.000476	-69	0	.00269	+.00269		—	-239	
													0	0			0	0				

* NOTE: USING 5 & 6 WT. WING GROUP

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									ULTIMATE LANDING GEAR FITTING LOADS				
					FUEL AND OIL ONLY			LANDING GEAR (EXTENDED) ONLY										
		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	17.465	-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	27,388	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	-2.181	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	-26.150	-1.787	+301,709	7.964
6	206.0	26,810	11.846	-4.819	32,578	9.24	-1.784	2,585	0.1671	-0.3290	425	-0.0295	-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	-58.183	-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	-2.737
9	284.5	26,126	9.777	-4.375	28,743	6.869	-1.320	2,941	-0.0534	-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: Rist
CHECKED: Allen, Stoffer

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

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

STATION	DISTANCE FROM ℄ SHIP	TOTAL ULTIMATE LOADS // & ⊥ TO ℄ SHIP: B.SHEAR S_b+S_b	B.B.MOMENT $M_x\times10^{-6}$	TORSION $T_{EA}\times10^{-6}$	C.SHEAR S_a	C.P. MOMENT $M_y=M_x\times l_a^{-6}$	$M_x\cos\alpha\times10^{-6}$	$T_{EA}\sin\alpha\times10^{-6}$	$M_x'\times10^{-6}$	$S_c'\cos\alpha$	$M_x\sin\alpha\times10^{-6}$	$T_{EA}\cos\alpha\times10^{-6}$	$T_{EA}\times10^{-6}$	$\frac{T_{EA}}{I_{Ya}}\times10^{-6}\cdot M_x'$	$\frac{T_{EA}}{I_{Ya}}\cdot M_x'$	S_b''
		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	⑨−㉜
		+⑨+⑭	+⑩+⑮	+⑪+⑯												OR ⑤−⑲
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	-1.809	-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	-1.936	-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	-1.936	-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	-13.158	-8.919	-1,499	27.672	-11.973	-1.549	-10.425	-1,476	-2.111	-8.783	-10.894	659.6	-6,876	73,285
		-85,370	-5.512	-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	8,844	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: Allen, Griffin

* NOTE: WHEN S_b & M_x HAVE OPPOSITE SIGNS THE FACTOR .7 IS OMITTED

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 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			Ultimate Rolling Acceleration Loads								Ultimate Landing Gear Fitting Loads				
					Fuel and Oil Only			Landing Gear (Extended) Only									
		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 4	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	6.454	-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	3.538	-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										
		17,396		-2.292	12,930		-0.3103										
17	549.0	17,396	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.L.
CHECKED: Allen, Coffee

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 ROTING INBOARD) + D.G.W. + FULL FUEL & OIL - LESS BOMBS

PAGE 299
REPORT NO. FZS 3[illegible]
DATE 12-4-45

℄	STATION	DISTANCE FROM ℄ SHIP	TOTAL ULTIMATE LOADS // & ⊥ TO ℄ SHIP: B. SHEAR $S_o = S_i$	B.B. MOMENT $M_x \times 10^{-6}$	TORSION $T_{EA} \times 10^{-6}$	C. SHEAR S_a	C.P. MOMENT $M_y = M_i' \times 10^{-6}$	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M_x' \times 10^{-6}$	$S_a' = S_a \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T_{EA} \times 10^{-6}$	$T_{TRN}\phi \times 10^{6} / I_x Q_x$	$T_{TRN}\phi \cdot M_x / I_x Q_x$	S_a'
	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 × ㉓	.1736 × ㉑	㉔ − ㉕	.9848 × ㉒	.1736 × ㉓	.9848 × ㉑	㉘ + ㉙	TABLE 30	㉖ × ㉛	⑭ − ㉜ OR .5 ⑰
			⑨ + ⑩	⑪ + ⑮	⑩ + ⑯												
	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
			45011		-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	5,853	39,058
			41,583		-3.851				-0.669	10.923			-3.792	-1.984	545.1	5,954	35,629
	14	448.5	41583	8.894	-3.599			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	38026	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	34548	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	5.412	-2.431			5.330	-0.422	5.752		0.940	-2.394	-1.454	610.3	3,510	26,756
			30052		-2.432				-0.422	5.752			-2.395	-1.455	610.3	3,510	26,542
	18	576.5	30052	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	2,032	15,048
	21	693.625	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, Proffer

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) - G.W. + FULL FUEL & OIL - LESS BOMBS

(C) STATION	DISTANCE FROM C/SHIP	WING EMPTY LESS LANDING GEAR: B. SHEAR	WING EMPTY LESS LANDING GEAR: B.B. MOM x10⁶	WING EMPTY LESS LANDING GEAR: TORSION x10⁶	ULTIMATE ROLLING ACCELERATION LOADS — FUEL AND OIL ONLY: B. SHEAR	FUEL AND OIL ONLY: B.B. MOM x10⁶	FUEL AND OIL ONLY: TORSION x10⁶	LANDING GEAR (EXTENDED) ONLY: B. SHEAR	LANDING GEAR (EXTENDED) ONLY: B.B. MOM x10⁶	LANDING GEAR (EXTENDED) ONLY: TORSION x10⁶	LANDING GEAR (EXTENDED) ONLY: C. SHEAR	LANDING GEAR (EXTENDED) ONLY: C.B. MOM x10⁶	ULTIMATE LANDING GEAR: BEAM SHEAR	ULTIMATE LANDING GEAR: BEAM BENDING MOMENT x10⁶	ULTIMATE LANDING GEAR: TORSION x10⁻⁶	FITTING LOADS: CHORD SHEAR	FITTING LOADS: CHORD BENDING MOMENT x10⁶
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
		TABLE 51	TABLE 51	TABLE 51	TABLE 55	TABLE 55	TABLE 55	TABLE 56	TABLE 56	TABLE 56	TABLE 56	TABLE 56	TABLE 61	TABLE 61	TABLE 61	TABLE 61	TABLE 61
		COLUMN 12	COLUMN 14	COLS. 20&21	COLUMN 12	COLUMN 14	COLS. 20&21	COLUMN 5	COLUMN 8	COLUMN 12	COLUMN 14	COLUMN 17	COLUMN 5	COLUMN 8	COLUMN 12	COLUMN 14	COLUMN 17
22	732.0	13,368	1.600	-1.251	1,191	0.001199	+0.0021										
		11,642		-1.241	22		-0.0017										
23	766.0	11,642	1.304	-1.160	22	0.000451	-0.0016										
		7,739		-0.7334	11		-0.0008										
24	806.0	7,739	0.8949	-0.6643	11	0	-0.0007										
		3,655		-0.2516	0		0										
25	8400	3,655	0.1706	-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.G.W. - FULL FUEL & OIL - LESS BOMBS

STATION	DISTANCE FROM ℄ SHIP	TOTAL ULTIMATE LOADS N.A. TO ℄ SHIP: B. SHEAR $S_b = S_6$	B.B. MOMENT $M_x \times 10^{-6}$	TORSION $T_{EA} \times 10^{-6}$	C. SHEAR S_c	C.B. MOMENT $M_y = M_x \times 10^{-6}$	$M_x \cos\alpha \times 10^{-6}$	$T_{EA} \sin\alpha \times 10^{-6}$	$M_x' \times 10^{-6}$	$S_c' = S_c \cos\alpha$	$M_x \sin\alpha \times 10^{-6}$	$T_{EA} \cos\alpha \times 10^{-6}$	$T_{EA} \times 10^{-6}$	$T_{TAN}\phi_{10^6}/I_{x/10_x}$	$T_{TAN}\phi_{10^6}/I_{x/10_x} \cdot M_x$	S_6'
1	2	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
		③+⑥ ⑩+⑭	④+⑦ ⑩+⑮	⑤+⑧ ⑪+⑯	⑫+⑰	⑬+⑱	.8948×⑳	.1736×㉑	㉔−㉓	.8948×⑫	.1736×⑳	.8948×㉑	㉘+㉙	TABLE 30	㉜×㉛	⑲−㉜
22	732.0	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	-0.0889	817.6	653	2,700

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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;

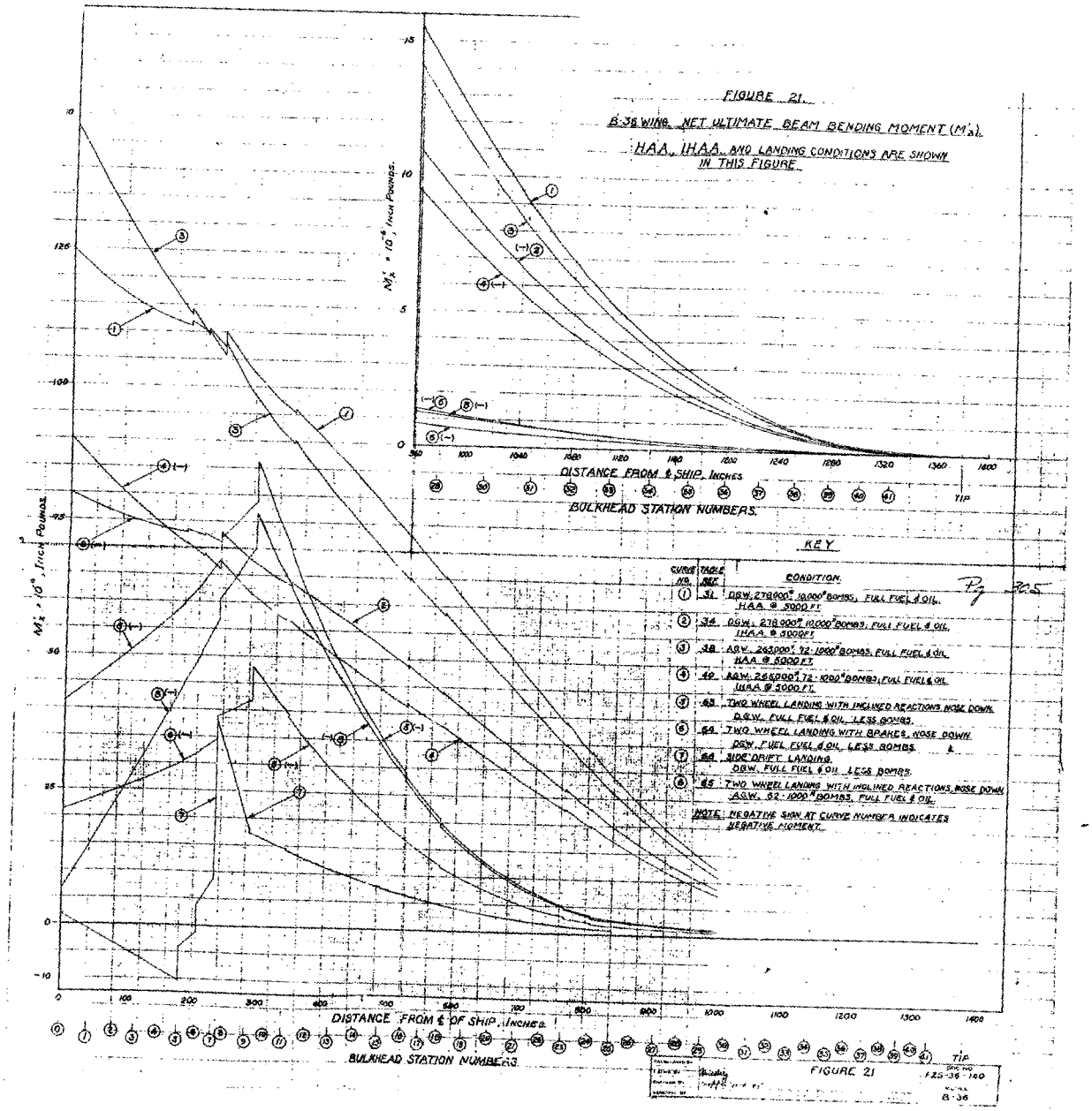
8. Side Drift Landing (Ground Load Acting Inboard), Design Gross Weight-Full Fuel and Oil-Less Bombs.

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



KEY

CURVE NO.	TABLE REF	CONDITION.
①	32	DGW, 279000# 10,000# BOMBS, FULL FUEL & OIL, HAA @ 5000 FT.
②	34	DGW, 279,000# 10,000# BOMBS, FULL FUEL & OIL, IHAA @ 5000 FT.
③	38	AGW, 263000# 72-1000# BOMBS, FULL FUEL & OIL, HAA @ 5000 FT.
④	40	AGW, 263000# 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.

FIGURE 21

FZS-36-140

B-36

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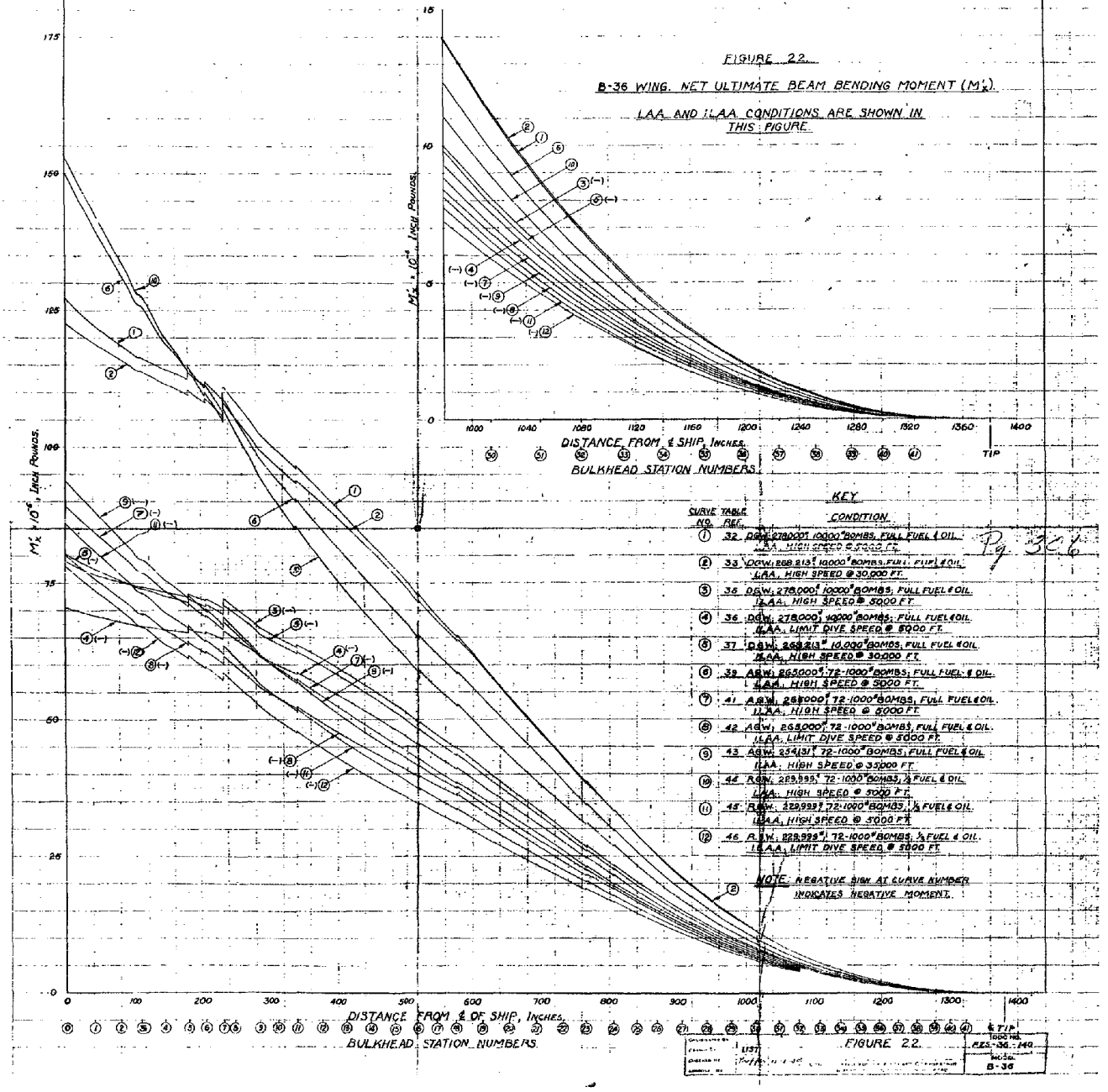
FIGURE 22.

B-36 WING. NET ULTIMATE BEAM BENDING MOMENT (M'_x).

LAA AND ILAA CONDITIONS ARE SHOWN IN THIS FIGURE.



Pg. 326

FIGURE 22.

	1000 NO.
	FZS-36-140
	MODEL B-36

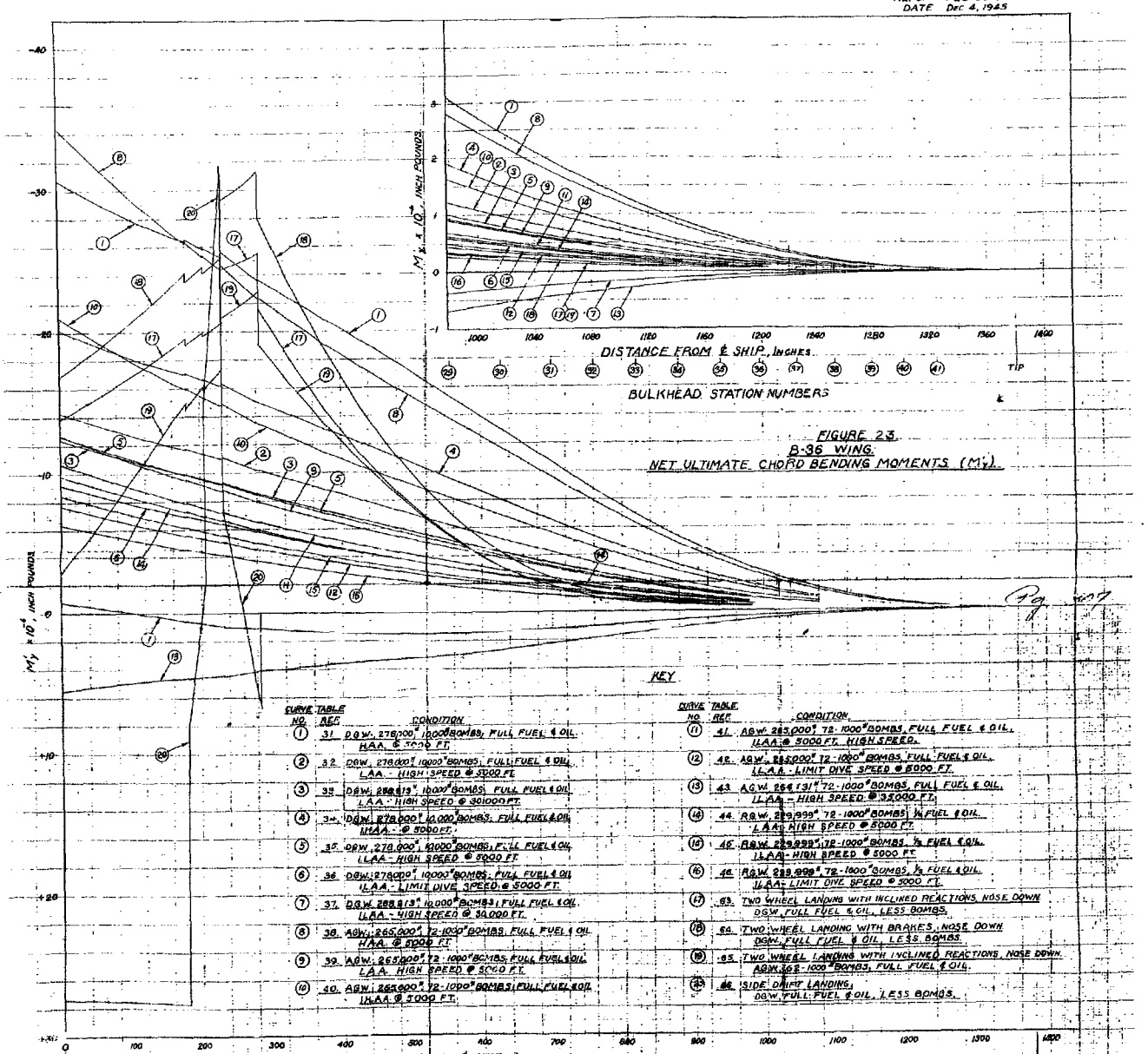


FIGURE 23.
B-36 WING.
NET ULTIMATE CHORD BENDING MOMENTS (M'y).

KEY

CURVE NO.	TABLE REF	CONDITION
(1)	31	DGW, 276,700#, 10008 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, 278,613#, 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, LLAA - HIGH SPEED @ 5000 FT.
(6)	36	DGW, 278,000#, 10000#BOMBS, FULL FUEL & OIL, LLAA - LIMIT DIVE SPEED @ 5000 FT.
(7)	37	DGW, 288,813#, 10,000#BOMBS, FULL FUEL & OIL, LLAA - 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, LLAA @ 5000 FT.
(11)	41	AGW, 265,000#, 72-1000#BOMBS, FULL FUEL & OIL, LLAA @ 5000 FT. HIGH SPEED.
(12)	42	AGW, 265,000#, 72-1000#BOMBS, FULL FUEL & OIL, LLAA - LIMIT DIVE SPEED @ 5000 FT.
(13)	43	AGW, 264,131#, 72-1000#BOMBS, FULL FUEL & OIL, LLAA - HIGH SPEED @ 35,000 FT.
(14)	44	AGW, 229,999#, 72-1000#BOMBS, ¼ FUEL & OIL, LAA, HIGH SPEED @ 5000 FT.
(15)	45	AGW, 229,999#, 72-1000#BOMBS, ¼ FUEL & OIL, LLAA - HIGH SPEED @ 5000 FT.
(16)	46	AGW, 229,999#, 72-1000#BOMBS, ¼ FUEL & OIL, LLAA - 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, 265-1000#BOMBS, FULL FUEL & OIL.
(20)	66	SIDE DRIFT LANDING, DGW, FULL FUEL & OIL, LESS BOMBS.

		FIGURE 23.	DOC NO. FZS-36-140
			MODEL B-36

Consolidated Vultee Aircraft Corporation
Fort Worth Division · Fort Worth, Texas
FW 633 125 PADS 11-43

Table 67 — B-36 Wing Summary of Ultimate Beam & Chord Shears and Torsions
Sheet 1 of 4 — Flight Design and Landing Conditions

Sta.	Dist. from Ship ¢	1 Sb	2 Sc	3 T'eahd	4 Sb	5 Sc	6 T'eahd	7 Sb	8 Sc	9 T'eahd	10 Sb	11 Sc	12 T'eahd	13 Sb	14 Sc	15 T'eahd	16 Sb	17 Sc	18 T'eahd	19 Sb	20 Sc	21 T'eahd	22 Sb	23 Sc	24 T'eahd
		... -L.A.A. High Speed ...			G.W. 278000# - II AA - ...			... 265,000# II AA - ... 5,000'			... 229,099# II.A.A. ...			PWL-I.R.-N.D. ... less Bombs			PWL-B-N.D. D.G.W. less Bombs			PWL-I.R.-N.D. A.G.W. (62) 1000# Bombs			Side Drift Landing D.G.W. less Bombs		
		Table 33 Column 32	Table 33 Column 26	Table 33 Column 29	Table 36 Column 32	Table 36 Column 26	Table 36 Column 29	Table 42 Column 42	Table 42 Column 36	Table 42 Column 39	Table 46 Column 32	Table 46 Column 26	Table 46 Column 29	Table 63 Column 42	Table 63 Column 36	Table 63 Column 39	Table 64 Column 42	Table 64 Column 36	[illegible]	Table 65 Column 42	Table 65 Column 36	Table 65 Column 39	Table 66 Column 33	Table 66 Column 27	Table 66 Column 30
0		76017	-16856	[illegible]	26019	-14135	-21.570	-77049	[illegible]	20.604	[illegible]	[illegible]	[illegible]	114196	27718	62.07	57496	35916	[illegible]	[illegible]	63210	-58.824	66663	-1476	-11.362
		78778	-12951	[illegible]	[illegible]	-14169	-21.515	-78651	-3145	-21.108	[illegible]	[illegible]	[illegible]	115797	28292	62.06	58103	36660	[illegible]	204956	63780	-58.817	66663	-1476	-11.362
1	41.025	54115	-15245	1.858	-20481	-13233	20.709	-58886	13461	-19.769	[illegible]	9581	[illegible]	118739	28292	[illegible]	59568	36660	[illegible]	210132	63780	-58.578	67999	-1476	-11.281
		58215	-15543	1.858	-21642	-13204	-20.714	-76973	-12506	19.774	[illegible]	[illegible]	[illegible]	122058	29478	61.96	60896	38198	[illegible]	213135	64964	-58.572	67541	-1476	-11.281
2	800	42800	-14025	2.862	-15942	-12416	19.903	-61882	[illegible]	-19.059	[illegible]	[illegible]	[illegible]	125083	29478	61.85	62385	38198	[illegible]	219001	64964	-58.343	69613	-1476	-11.207
		44450	-14186	2.754	-16891	-12474	-19.840	-63597	-11884	-19.002	[illegible]	[illegible]	[illegible]	128071	30498	-61.97	63723	39450	[illegible]	221160	65939	-58.447	69521	-1476	-11.204
3	113.25	34150	-12907	3.379	[illegible]	-11735	-19.146	-56056	-11338	18.404	[illegible]	[illegible]	[illegible]	130156	30448	-61.84	65084	39456	[illegible]	226922	65939	58.252	71010	-1476	-11.137
		35950	-13022	3.360	[illegible]	-11770	-19.135	-57187	-11361	18.394	[illegible]	[illegible]	[illegible]	132829	31139	61.84	65969	40354	[illegible]	229086	66625	58.270	70919	-1476	-11.136
4	146.5	26550	-11773	3.931	[illegible]	-11640	-19.451	-49561	-10828	17.160	[illegible]	[illegible]	[illegible]	135159	31139	-61.77	67407	40354	[illegible]	234102	66625	-58.010	72483	-1476	-10.954
		33300	-12425	4.010	[illegible]	-11319	-18.513	-51784	-10862	-17.187	[illegible]	[illegible]	[illegible]	149561	35825	-61.68	73169	46432	[illegible]	237328	67658	-58.041	71611	-1476	-10.958
5	180	-25546	-11145	4.574	-15597	10514	-17.890	-43740	-10318	-17.110	[illegible]	[illegible]	[illegible]	152911	35825	-61.58	74811	46432	[illegible]	242656	67658	-57.834	73285	-1476	-10.894
		47550	-13464	2.466	-22379	-11486	-16.705	-69344	-10615	-16.905	[illegible]	[illegible]	[illegible]	170066	34965	61.54	85580	42659	[illegible]	249092	[illegible]	-57.893	-83680	+376326	-9.834
6	206	40350	-12471	2.896	18679	-10906	-16.250	-53545	11191	-15.617	[illegible]	[illegible]	[illegible]	181243	34965	-61.43	91165	42659	[illegible]	253512	60932	-57.728	-84715	376326	-9.899
		65154	-14195	1.587	-29965	-11591	-15.974	-69263	-10355	[illegible]	[illegible]	[illegible]	[illegible]	201354	35220	-61.38	102711	41136	[illegible]	257780	56164	-57.755	-194026	639744	-10.059
7	232	51212	-13230	1.962	-26305	-11028	-15.036	-58684	9983	-14.465	[illegible]	[illegible]	[illegible]	205192	35220	-61.27	104628	41136	[illegible]	262444	56164	-57.591	-191541	639744	-10.201
		111712	-16218	-2.574	-57800	-12153	-2.465	-83738	-10466	-12.112	[illegible]	[illegible]	[illegible]	167848	16608	-51.98	80922	23399	[illegible]	215218	34257	-48.811	356220	-264752	-59.659
8	249	103257	-15591	-2.323	-53427	-11786	-12.190	-80174	-10200	-11.866	[illegible]	[illegible]	[illegible]	169856	16608	-51.92	81886	23399	[illegible]	217805	34257	-48.782	359142	-264752	-59.477
		119451	-16377	-2.282	-61340	-12124	[illegible]	-82340	-10240	-11.824	[illegible]	[illegible]	[illegible]	187421	22233	-51.99	89818	40696	[illegible]	221903	35488	48.871	357487	-264752	-59.472
9	254.5	101321	-15072	-.750	-55108	-11361	-11.637	-74861	-9623	11.322	[illegible]	[illegible]	[illegible]	192122	22233	-51.85	92108	40696	[illegible]	227561	35488	-48.886	363805	-264752	-59.087
		67103	-13415	+.460	-36661	-10798	-12.898	-53666	-9285	12.426	[illegible]	[illegible]	[illegible]	[illegible]	-79534	+14.69	-134494	-103169	[illegible]	-199666	-62802	+14.339	43291	0	-2.447
10	312	53079	-12418	.819	[illegible]	-10218	-12.451	47819	-8861	12.627	[illegible]	[illegible]	[illegible]	[illegible]	-79534	+14.48	-136266	-103169	[illegible]	-202284	-62802	+14.150	43856		-2.406
		54480	-12487	.829	-30253	-10243	-12.453	-49557	-8875	-12.029	[illegible]	[illegible]	[illegible]	[illegible]	-79114	+14.49	-135654	-102625	[illegible]	-200904	-62384	+14.154	43701		-2.406

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Checked: [illegible]

CONSOLIDATED VULTEE AIRCRAFT CORPORATION — FORT WORTH DIVISION — FORT WORTH, TEXAS — SHEET 2 OF 4

SUMMARY OF ULTIMATE STRAIN & GUSSET STRAINS, AND TORSION

EFFECTIVE 25-36-140 — DATE 12-4-46

STA.	DIST. FROM STA 0	D.G.W.-26,821# LAA — HIGH SPEED @ 30,000'				D.G.W.-27,805# LAA — LOW SPEED @ SEA LEVEL				A.G.W.-29,900# LAA — MAX. DIVE SPEED @ SEA LEVEL				D.G.W. LESS BOMBS				D.G.W. LESS BOMBS				A.G.W. LESS BOMBS			
		Sb	Sc	Tens.	Sb	Sc	Tens.	Sb	Sc	Tens.	Sb	Sc	Tens.	Sb	Sc	Tens.	Sb	Sc	Tens.	Sb	Sc	Tens.	Sb	Sc	Tens.
		TABLE 33 COLUMN 22	TABLE 33 COLUMN 23	TABLE 33 COLUMN 24	TABLE 34 COLUMN 22	TABLE 34 COLUMN 23	TABLE 34 COLUMN 24	TABLE 41 COLUMN 22	TABLE 41 COLUMN 23	TABLE 41 COLUMN 24	TABLE 42 COLUMN 22	TABLE 42 COLUMN 23	TABLE 42 COLUMN 24	TABLE 43 COLUMN 22	TABLE 43 COLUMN 23	TABLE 43 COLUMN 24	TABLE 44 COLUMN 22	TABLE 44 COLUMN 23	TABLE 44 COLUMN 24	TABLE 65 COLUMN 22	TABLE 65 COLUMN 23	TABLE 65 COLUMN 24	TABLE 66 COLUMN 22	TABLE 66 COLUMN 23	TABLE 66 COLUMN 24
11	339.5	49350	-11522	+1287	-50416	-5679	-1330	-42094	-8463	-1648				-25117	-7946	1423	-27496	-12625	2.15	-20619	-7711	+1.43	-3567	-4.65	-2.366
		45335	10529	+1263	48159	-5423	-1271	-39953	-8619	-1649				-22514	-10615	1116	-24914	-9167.6	1.96	-18682	-5865	1.053	-4.26	-2.068	
12	375.75	52294	-1681	-.191	-52965	-5454	-1.202	-46967	-8146	-5946				-27324	-10675	10.91	-29626	-5167.6	10.91	-22017	-5865	0.719	-1.672	-2.019	
		47197	-12531	-.161	-47867	-9003	-1.202	-42678	-5278	-8274				-24530	-63188	10.93	-111035	-61328	10.93	-19892	-52002	0.669	-58338	-2.022	
13	412	53335	-11682	-.179	-53341	-9113	-5.187	-45181	-7741	-5373				-29482	-63188	10.68	-31355	-81938	10.68	-24202	-52002	0.461	-39088	-1.975	
		83591	-12856	-.110	-45151	-5555	-5.181	-32042	-7858	-5375				-26210	-56128	10.15	-162024	-72506	10.15	-155923	-49449	10.464	-35629	-1.304	
14	448.5	66612	-11662	+.960	-42352	-8900	-5.187	-44518	-7350	-6033				-18986	-64128	10.52	-14027	-72506	10.52	-16346	-49449	10.372	-36324	-1.947	
		89723	-12781	+.457	-53462	-9300	-5.222	-50513	-7462	-6213				-16719	-69419	10.59	-53136	-68105	10.59	-15353	-45046	10.312	-32766	-1.952	
15	485	73150	-11588	+.834	-45018	-8603	-5.182	-43245	-6953	-6533				-16841	-69419	10.38	-36725	-69105	10.38	-15941.8	-45046	10.289	-33426	-1.911	
		93341	-12593	+.745	-56890	-8966	-5.237	-49692	-7063	-6893				-14131	-73944	10.30	-54662	-58237	10.30	-12718	-41725	10.203	-29995	-1.898	
16	521.5	78603	-11641	+1.257	-48422	-8294	-5.317	-41653	-6573	-8000				-13278	-73944	10.12	-36487	-58237	10.12	-14570	-41725	9.830	-30573	-1.862	
		101599	-13594	+.580	-61995	-9710	-5.453	-52118	-7466	-6.587				-12848	-76808	7.46	-30763	-47227	7.46	-12682	-35895	7.233	-26831	-1.478	
17	549	80156	-11498	-.559	-53828	-8188	-6.880	-46493	-6384	-6.719				-13487	-76808	7.164	-31544	-47227	7.164	-12676	-35855	7.122	-26756	-1.454	
		91256	-11754	+.559	-56477	-8201	-6.882	-47666	-6394	-6.716				-10749	-76018	7.356	-27322	-46800	7.356	-12328	-35570	7.126	-26542	-1.455	
18	576.5	79232	-10872	-.181	-50479	-7692	-6.621	-41855	-6018	-6.467				-10870	-76018	7.293	-32324	-46801	7.293	-13595	-35570	7.117	-26981	-1.431	
		104413	-12080	-2.171	-64931	-8125	-5.487	-54507	-6258	-5.997				-10181	-78836	4.759	-32104	-21404	4.759	-13590	-28324	4.613	-22090	-1.098	
19	615.375	89129	-10543	-.707	-56310	-7462	-5.122	-47580	-5778	-5.069				-10216	-78836	4.626	-37470	-37409	4.626	-19965	-28324	4.469	-22627	-1.009	
		108425	-11878	-1.107	-67360	-7798	-5.122	-51942	-5955	-5.069				-8265	-79327	4.623	-41101	-30129	4.623	-19641	-22726	4.487	-18546	-1.009	
20	654.25	94005	-10113	-1.165	-59148	-7118	-4.829	-50965	-5463	-4.723				-8475	-79327	4.519	-48292	-30129	4.519	-21660	-22726	4.285	-19613	-0.984	
		111709	-11566	-1.126	-69492	-7429	-4.850	-60010	-6.32	-4.742				-6208	-78099	4.556	-28632	-13477	4.556	-23066	-17893	4.426	-15048	-0.992	
21	693.25	97113	-10458	-1.656	-62164	-7778	-4.514	-53814	-5159	-4.433				-6051	-78099	4.410	-39645	-23477	4.410	-24724	-17793	4.342	-15941	-0.973	
		112324	-11167	-1.706	-70235	-7034	-4.398	-61917	-5292	-4.411				-5204.0	-73812	4.818	-31266	-17916	4.818	-24890	-13564	4.295	331	-0.966	

REF. SHEET 2 OF 4 — SHEET 3 OF 4

CONSOLIDATED VULTEE AIRCRAFT CORPORATION
FORT WORTH DIVISION FORT WORTH, TEXAS

TABLE 67 — SUMMARY OF ULTIMATE STRENGTH OF LANDING GEARS AND TORQUES
SHEET 3 OF 4 FOR EIGHT DESIGN FLIGHT AND LANDING CONDITIONS

FOR 833 LBS PAPER 1945

PAGE 310
SECTION NO. 13-1-40
DATE 12-1-45

STATION	DRAWING NO. & SHEET	1 D.G.W. 36,500 — L.A.A. HIGH SPEED 3 POINT	2 D.G.W. 36,500 — L.A.A. LOW SPEED 3 POINT	3 D.G.W. 28,500 — L.A.A. LOW SPEED 3 POINT	4 D.G.W. 28,500 — L.A.A. HIGH SPEED 3 POINT	5 D.G.W. 36,500 — L.A.A. LOW SPEED 3 POINT	6 D.G.W. 36,500 — L.A.A. HIGH SPEED 3 POINT	7 D.G.W. 28,500 — L.A.A. LOW SPEED 3 POINT	8 D.G.W. 28,500 — L.A.A. HIGH SPEED 3 POINT	9 D.G.W. 36,500 — L.A.A. LOW SPEED 3 POINT	10 D.G.W. 36,500 — L.A.A. HIGH SPEED 3 POINT	11 D.G.W. 28,500 — L.A.A. LOW SPEED 3 POINT	12 D.G.W. 28,500 — L.A.A. HIGH SPEED 3 POINT	13 ALL A.G.W. — E.G.A. LOW SPEED 3 POINT	14 ALL A.G.W. — E.G.A. HIGH SPEED 3 POINT	15 ALL A.G.W. — L.G.A. LOW SPEED 3 POINT	16 ALL A.G.W. — L.G.A. HIGH SPEED 3 POINT	17 A.G.W. 36,500 — SIDE LOAD 3 POINT	18 A.G.W. 28,500 — SIDE LOAD 3 POINT	19 A.G.W. 36,500 — SIDE LOAD DRIFT LANDING	20 A.G.W. 28,500 — SIDE LOAD DRIFT LANDING	21 SIDE DRIFT LANDING D.G.W. LESS 6,000 LBS.	22	23	24
		Sh	Sc	Tear	Sh	Sc	Tear	Sh	Sc	Tear	Sh	Sc	Tear	Sh	Sc	Tear	Sh	Sc	Tear	Sh	Sc	Tear	Sh	Sc	Tear	Sh	Sc	Tear
		TABLE 33	TABLE 34	TABLE 35	TABLE 36	TABLE 37	TABLE 38	TABLE 39	TABLE 40	TABLE 41	TABLE 42	TABLE 43	TABLE 44	TABLE 45	TABLE 46	TABLE 47	TABLE 48	TABLE 49	TABLE 50	TABLE 51	TABLE 52	TABLE 53	TABLE 54	TABLE 55	TABLE 56	TABLE 57	TABLE 58
		COLUMN 31	COLUMN 32	COLUMN 33	COLUMN 34	COLUMN 35	COLUMN 36	COLUMN 37	COLUMN 38	COLUMN 39	COLUMN 40	COLUMN 41	COLUMN 42	COLUMN 43	COLUMN 44	COLUMN 45	COLUMN 46	COLUMN 47	COLUMN 48	COLUMN 49	COLUMN 50	COLUMN 51	COLUMN 52	COLUMN 53	COLUMN 54	COLUMN 55	COLUMN 56
22	756	99260 -.0062	-.285	+27923 -.6386	-.4299	-.5615	-.4321	1.154	-.5284	-.5711	-.2715	53773	-13812	9380	-32121	-11916				-50256	-13564	6.234	-12256		-0.5923
		100240 -.1421	-.365	+61795 -.6517	-.4286	-.5029	-.4886	+1.113	-.5301	-.5701	-.2731	45624	-11624	4352	-27116	-10077				-44021	-11625	-.190	-16362		-0.5946
23	766	95121 -.5484	+.090 -.61179	-.5970	-.4042	-.5235	-.4486	-3.893	-.4370	-.5400	-.3132	-46765	-11624	9360	-28410	-15077				-45122	-11625	4.135	-10619		-0.5935
		99008 -.10204	-1.516	-.69524	-.6229	-.8132	-.5365	-3.078	-.4334	-.5400	-.3132	-28010	-7299	2255	-16921	-5469				-27069	-7299	-.272	-6762		-0.514
24	806	96873 -.9152	-1.117	-.62559	-.5816	-.2871	-.5367	-4180	-2.856	-.4106	-.3716	-.2783	-28865	-7299	2.218	-17444	-5469				-27897	-7299	2.1357	-6766		-0.5044
		111432 -.9867	-1.614	-.70858	-.5873	-.2.024	-.6144	-.4322	-2.094	-.4106	-.3716	-.2783	-10184	-3002	.3112	-.6994	-.1894				-9624	-3002	.3014	-.2928		-0.0924
25	840	97382 -.9017	-2.310	-.65180	-.5375	-1.843	-.4337	-.3959	-1.906	-.4543	-.3.1.4	-.2.1.3	-10446	-3002	.2990	-6146	-3894				-9679	-3002	.2893	-3002		-0.0880
		112380 -.9068	-2.310	-.65178	-.5393	-1.843	-.5.8.15	-.3969	-1.906	-.4543	-.3.1.4	-.2.1.3	-9274	-2696	.2594	-.7457	-.3498				-.5011	-.2696	.2697	-.2700		-0.0888
26	870	93684 -.8327	-2.093	-.60934	-.4962	-1.684	-.5.8127	-.3654	-1.798	-.4177	-.2.7.5	-.1.6.2	-9492	-2696	.2896	-.5627	-.3498				-9.129	-.2696	.2801			
		97875 -.8.8.8	-2.0.3	-.6.6.2	-.4983	-1.666	-.5.3.38	-.3665	-1.731	-.4.1.0	-.2.6.5	-.1.5.9	-8080	-2348	.2508	-.4818	-.3096				-7855	-.2348	.2418			
27	906	95147 -.7507	-1.802	-.56093	-.4468	-1.967	-.4.8657	-.3289	-1.596	-.3.7.0	-.2.4.0	-.1.4.6	-8338	-2348	.2400	-.4960	-.3046				-8087	-.2348	.2216			
		85947 -.7546	-1.8.0	-.5.6545	-.4482	-1.465	-.3.9.6.3	-.3297	-1.594	-.3.7.1	-.2.4.1	-.1.4.8	-1915	-2117	.2351	-.6492	-.2.746				-1.197	-.2117	.2.6.5			
28	942	76448 -.6706	-1.541	-.50412	-.3993	-1.352	-.4.4123	-.2941	-1.3547	-.3.4.1	-.2.2.5	-.1.3.2	-1646	-2117	.2258	-.4586	-.2746				-1911	-.2117	.2.1.5			
		77141 -.6742	-1.541	-.50625	-.4006	-1.349	-.4.4458	-.2948	-1.3528	-.3.4.1	-.2.2.5	-.1.3.2	-.6738	-1905	.2212	-.4094	-.2471				-.5578	-.1905	.2.1.35			
29	978	61899 -.5933	-1.286	-.45477	-.3533	-1193	-.3.9.3.4	-.2602	-1.1803	-.3.0.1	-.1.9.9	-.1.1.6	-1613	-1.305	.2.1.29	-.4228	-.2471				-.6794	-1905	.2051			
		69192 -.5994	-1.326	-.46193	-.3556	-1.172	-.4.0.3.9	-.2614	-1.1612	-.3.0.2.5	-.1.9.8.0	-.1.1.6.5	-.5489	-1536	.1675	-.3921	-.1993				-.5362	-.1536	.1.6.1.0			
30	1014	60239 -.5212	-1.110	-.40805	-.3096	-1.037	-.3.5.9.4.6	-.2281	-1.0205	-.2.6.3.8	-.1.7.2.3	-1.0.0.5	-.5678	-1536	.1606	-.3436	-1993				-.5485	-1536	.1544			
		60834 -.5241	-1.110	-.41157	-.3110	-1.035	-.3.6.1.6.3	-.2287	-1.0189	-.2.6.3.8	-.1.7.2.3	-1.0.0.5	-.4944	-1356	.1568	-.3008	-.1760				-.4768	-.1356	.1.5.0.7			
31	1050	52111 -.4503	-.918	-.36109	-.2681	-.915	-.3.1.6.9.4	.1912	-.8827	-.2.2.7.6	-.1.4.9.5	-.8.7.0	-.5125	-1356	.1508	-.3118	-.1760				-.4943	-.1356	.1449			
		52611 -.4527	-.918	-.36398	-.2689	-.913	-.3.1.9.5.4	-.1976	-.8914	-.2.2.7.6	-.1.4.9.5	-.8.7.0	-.4518	-1209	.1477	-.2763	-.1568				-.4349	-.1208	.1419			
32	1080	45773 -.3935	-.760	-.32113	-.2142	-.804	-.2.8.2.2.5	-.1723	-.7905	-.1.9.6.5	-.1.3.1.3	-.7.7.7	-.4669	-1208	.1431	-.2852	-.1568				-.4490	-.1208	.1375			
		42865 -.3985	-.860	-.32690	-.7360	-.784	-.2.8.7.5.9	-.1733	-.7727	-.1.9.6.5	-.1.3.1.3	-.7.7.7	-.3578	-.913	.0953	-.2077	-.1184				-.3257	-.9.3	.0951			

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

TABLE 67 — SHEET 4 OF 4

B-36 [illegible] SUMMARY OF ULTIMATE BEAM & CHORD SHEARS, AND TENSIONS FOR EIGHT DESIGN FLIGHT AND LANDING CONDITIONS

STA.	DIST. FROM [illegible]	HIGH SPEED [illegible] 5b	5c	TEAM	[illegible] 5b	5c	TEAM	[illegible] 5b	5c	TEAM	[illegible] 5b	5c	TEAM	2ND [illegible] D.G.W. LESS BOMBS 5b	5c	TEAM	2ND [illegible] D.G.W. LESS BOMBS 5b	5c	TEAM	[illegible] D.G.W. [illegible] BOMBS 5b	5c	TEAM	SIDE DRIFT LANDING D.G.W. LESS BOMBS 5b	5c	TEAM
		TABLE 55 COLUMN [illegible]	TABLE 55 COLUMN [illegible]	TABLE 55 COLUMN [illegible]	TABLE 55 COLUMN [illegible]	TABLE 55 COLUMN [illegible]	TABLE 55 COLUMN 29	TABLE [illegible] COLUMN [illegible]	TABLE [illegible] COLUMN [illegible]	TABLE [illegible] COLUMN [illegible]	TABLE [illegible] COLUMN [illegible]	TABLE [illegible] COLUMN [illegible]	TABLE [illegible] COLUMN 29	TABLE 63 COLUMN 47	TABLE 63 COLUMN 36	TABLE 63 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]	-[illegible]	[illegible]	-4501	-913	.9574	-2147	-1184	.05846	-3367	-519	.05170			
		40544	-3431	-.662	28358	-2035	-.6825	-25392	-1495	-.[illegible]75	[illegible]	-[illegible]	[illegible]	3691	-815	.09374	[illegible]	-1658	.05826	-2569	815	.08573			
34	1140.0	33973	-2889	-.536	-24552	1717	-.5827	-21748	-1263	-.5734	[illegible]	-[illegible]	[illegible]	-3262	[illegible]	.09071	-1971	1058	[illegible]	-3076	[illegible]	.08678			
		34273	-2904	-.536	-24722	-1122	-.5817	-21901	-1266	-.5725	[illegible]	-[illegible]	[illegible]	-2832	-728	.08941	[illegible]	-944	[illegible]	-2116	728	.08461			
35	1170.0	28274	-2379	-.4239	-20738	-1415	-.4858	-18257	-1042	-.4768	[illegible]	-[illegible]	[illegible]	2411	-728	.08557	-[illegible]	-944	[illegible]	-[illegible]	-728	.08189			
		29069	-2421	-.4436	-21220	-1430	-.4705	-18689	1050	-.4630	[illegible]	-[illegible]	[illegible]	1852	-481	.05689	-1195	-623	[illegible]	-776	481	.04859			
36	1198.0	23589	-1964	-.3506	-17406	-1163	-.3896	-15271	-855	-.3817	[illegible]	-[illegible]	[illegible]	1941	-481	.04907	-[illegible]	623	[illegible]	-1643	-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	-[illegible]	541	[illegible]	-1632	-417	.04410			
		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	-11014	-709	-.2511	-9678	-521	-.2470	[illegible]	-[illegible]	[illegible]	-1544	364	.04246	-565	-473	.02198	-1976	-364	.04153			
		14712	-1197	-.2005	-11117	-712	-.2505	-9772	-525	-.2465	[illegible]	-[illegible]	[illegible]	[illegible]	311	.04278	827	-404	[illegible]	-1252	-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	.005025	-289	-148	[illegible]	-447	-114	.004819			
40	1301.0	8150	-664	-.1131	-6439	-391	-.1336	5801	-287	-.1402	[illegible]	-[illegible]	[illegible]	1996	-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	-.0828	-4353	-261	-.0961	-4123	-191	-.0983	[illegible]	[illegible]	[illegible]	-330	-16	.003594	-204	-57	[illegible]	315	-76	.003442			
		5529	-445	-.0928	-4390	-262	-.0961	-4154	-192	-.0981	[illegible]	-[illegible]	[illegible]	-246	-57	.002980	-155	-75	[illegible]	-239	-56	.002852			
TIP C.G.	1346.4	3000	-245	-.4195	-2487	-145	-.05614	-2538	-167	-.0519	[illegible]	-[illegible]	[illegible]	-258	-57	.00282	0	-75	[illegible]	-251	-56	.002691			
TIP	1380.94	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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