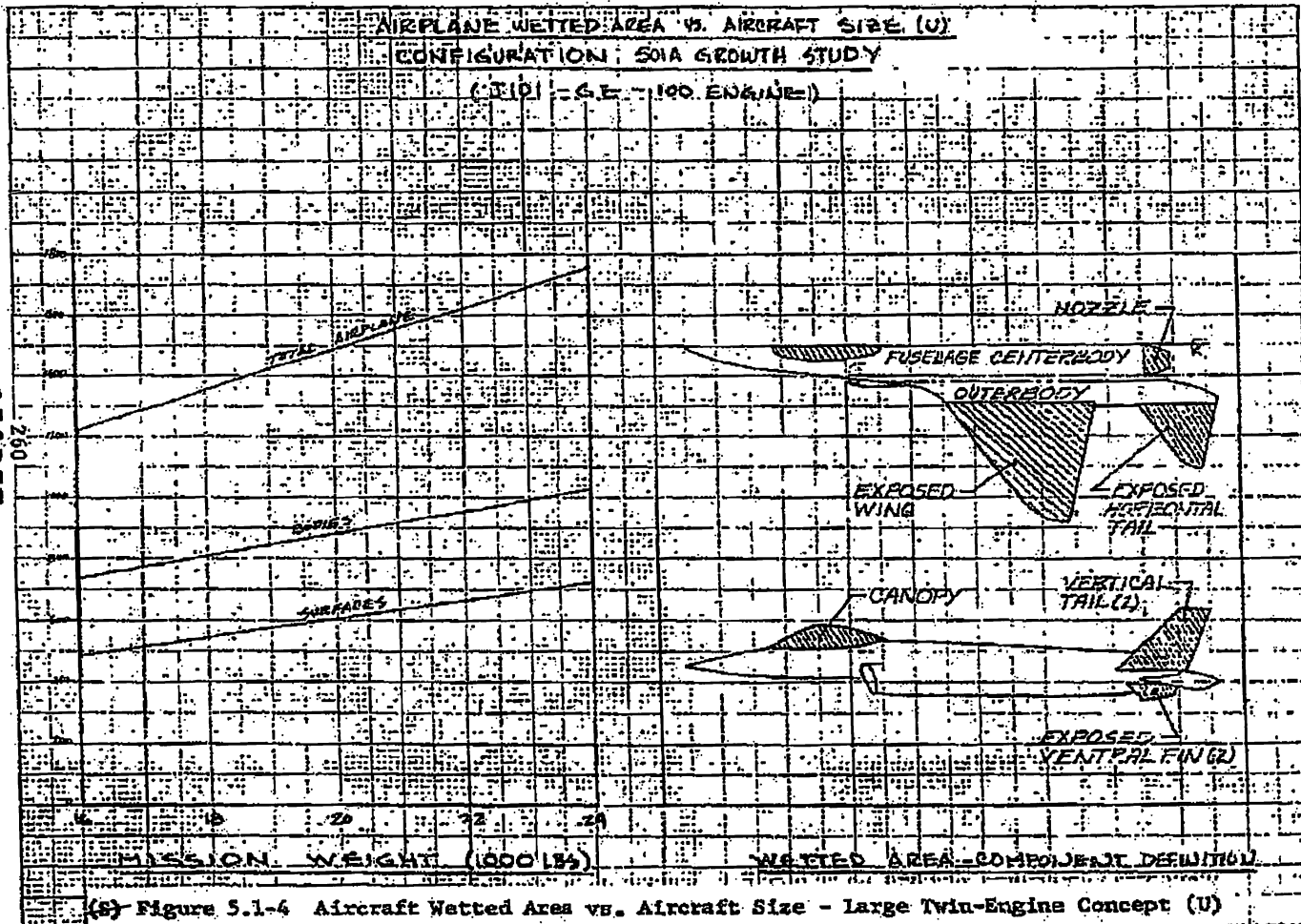


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(S) Figure 5.1-4 Aircraft Wetted Area vs. Aircraft Size - Large Twin-Engine Concept (U)

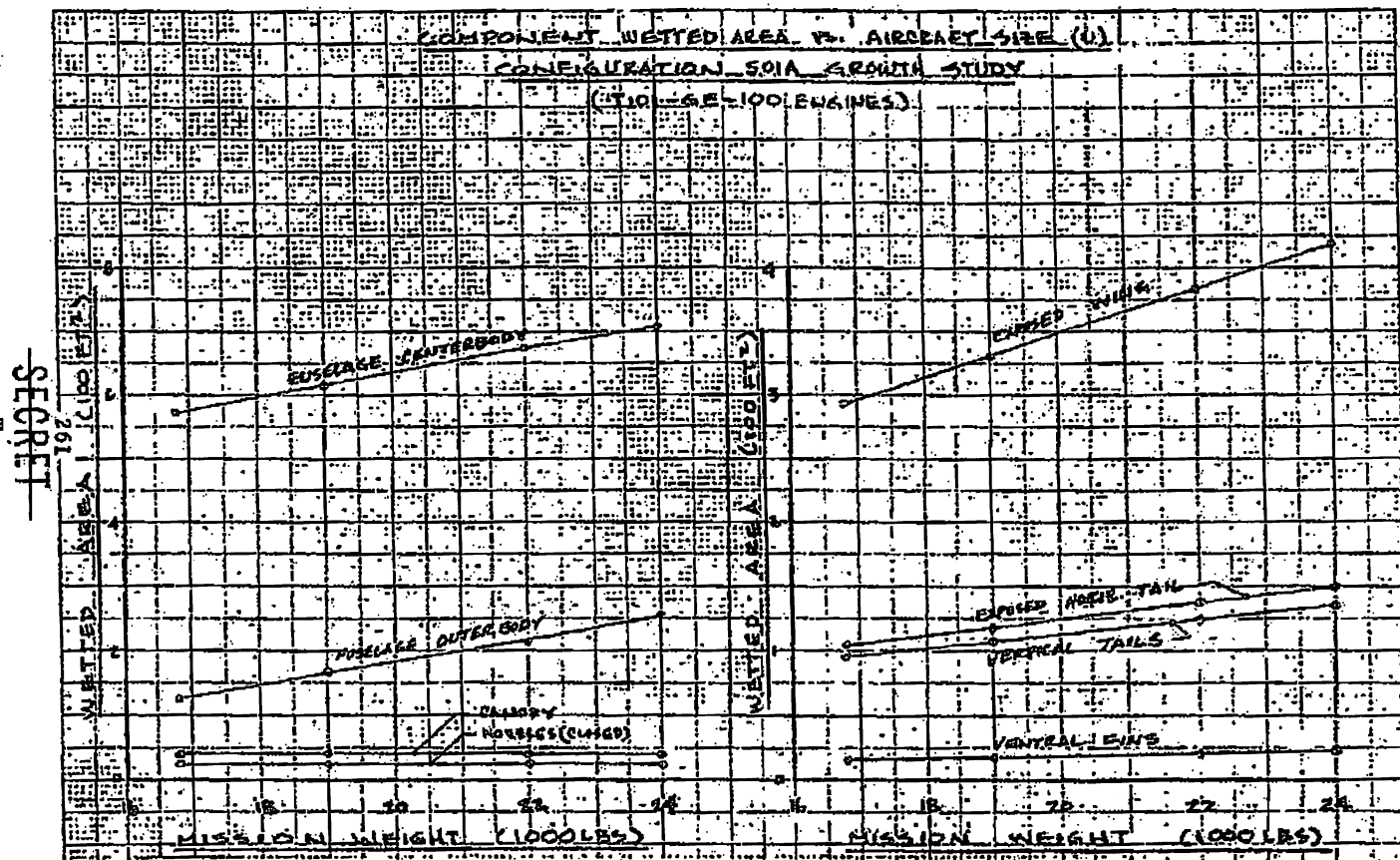
88th ABW/PT/7
 E.O. 13526 (S) (U)
 (S) (U) (S) (U) (S) (U)
 (S) (U) (S) (U) (S) (U)
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 OFFICE OF AIR FORCE RESEARCH AND DEVELOPMENT
 WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433-3941



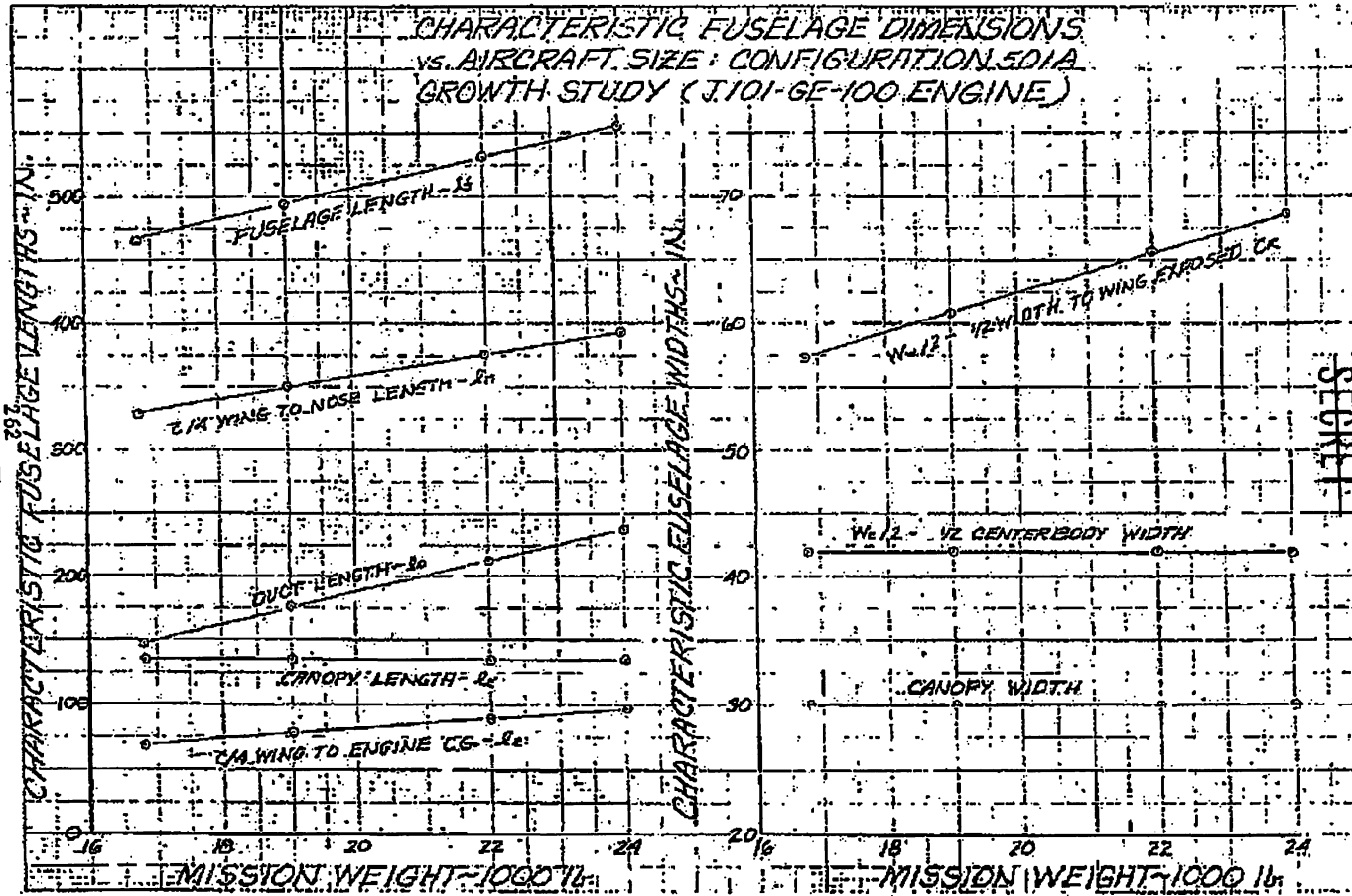
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(S) Figure 5.1-5 Component Wetted Area vs. Aircraft Size - Large Twin-Engine Concept (U)

88th ABW/PI
 FOIA (b)(7)
 E.O. 13526 SEC.
 3.3.(b)(4)
 1.4.(a)(9)

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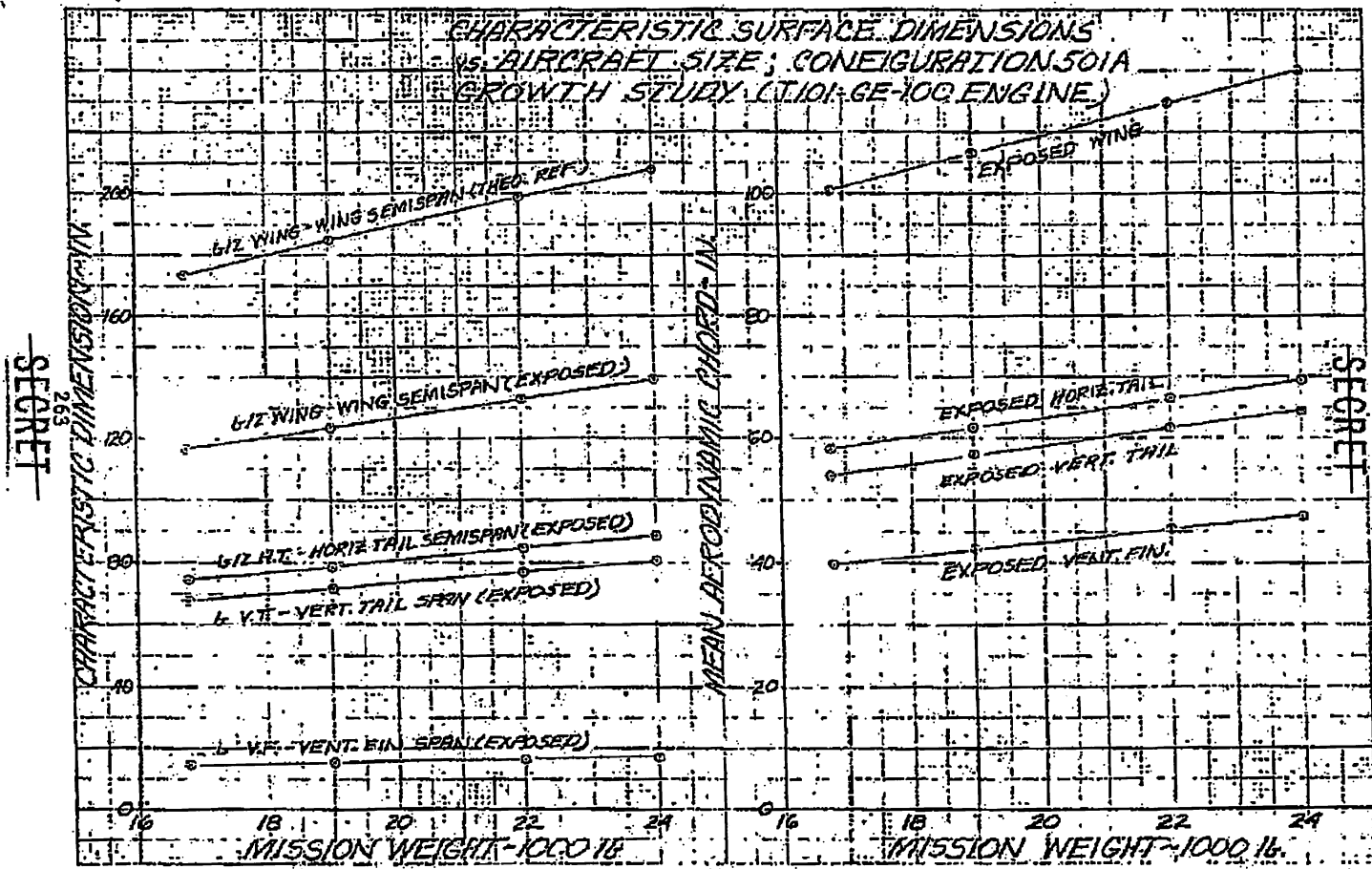


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(S) Figure 5.1-6 Characteristic Fuselage Dimensions vs. Aircraft Size - Large Twin-Engine Concept (U)

88th ABW/PI
 FOIA (b)(7)
 E.O. 13526 SEC. 3.3
 (b)(4)
 1.4. (a)(9)

FORM 12-61 (REV. 10-10-61)
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88th ABW/PI
 FOIA (b)(1)
 E.O. 13526 SEC. 3.3 (b)
 (4)
 1.4. (a)(6)

(6) Figure 5.1-7 Characteristic Surface Dimensions vs. Aircraft Size - Large Twin-Engine Concept (U)

88th ABW/IPI
 FOIA (b)(1)
 E.O. 13526 SEC.
 3.3.(b)(4)
 1.4. (a)(g)

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BASIC DESCRIPTIONS

PROJECT: ANFFX PROGRAM

G.W. = 16,800 lbs
 W/S = 60 PSF
 T/W = 1.702
 PROPULSION - (2) J71-GE-100
 ENGINES

CONFIGURATION: 501A-GROWTH STUDY
 501A-16800

DATE: 28 JULY 1971

Wing of F-15 +5.9


BODIES

	LENGTH (IN.)	X (IN.)	Y (IN.)	Z (IN.)
FUSELAGE ^{NO CANOPY} CENTERBODY *	495.8	0	0	0
FUSELAGE OUTERBODY	307.1	234.5	± 49.8	+2.0
NOSE CONE	135.0	90.0	0	+32.5

* Length includes nose (open position)

WING REF. AREA (IN²)

SURFACES

	FUSelage WING-NORMAL	30° WING REF. LINE HORIZ. TAIL	PERP SIDE VERT. TAIL	PERP SIDE VERTICAL
AREA (FT ²)	280.00	143.21	23.80	3.92
A - ASPECT RATIO	3.00	3.453	1.83	0.373
λ - TAPER RATIO	0.20	0.132	0.00	0.596
 E ₁ E ₂	+55°	+55°	+45°	+45°
	+10°41'	+10°41'	-19°22'	-19°22'
Q - CUTOUT ^{WING REF. LINE}				
R - ROOT CHORD (IN.)	193.218	136.579	72.613	48.754
T - TIP CHORD (IN.)	38.644	17.980	29.045	29.045
b - SPAN (IN.)	347.793	266.847	67.426	14.523
AIRFOIL	4% BICONVEX	4% BICOUV - 4% BICOUV - 4% root chord	6% BICOUV - 4% BICOUV - 4% root chord	6% BICOUV
d (IN.)	57.36	59.24	0	0
x (IN.)	288.6	455.6	418.10	431.1
y (IN.)	0	0	± 62.96	± 59.24
z (IN.)	+5.0	-9.55	+5.0	-8.0

- d = Average buried semi-span
- x = Distance aft from fuselage nose to body nose or surface fuselage intersection point.
- y = Distance outbd. from fuselage ref. line to body ref. line or vertical surface chord line.
- z = Distance up (+) or down (-) from fuselage ref. line to body or surface ref line.

(8) Figure 5.1-8 Basic Description Data Sheet - Configuration 501A Growth Study at 16,800-lb Mission Weight (U)

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SECRET
 BASIC DESCRIPTIONS

G.W. = 19,000 Lbs.
 W/S = 60PSE
 T/W = 1.505
 PROPULSION - (2) J101-GE-100
 ENGINES

PROJECT: AUFFX PROGRAM

CONFIGURATION: 501A - GROWTH STUDY
 501A - 19000

DATE: 29 JULY 1971

Nose of F.S. - 15.0

BODIES

	LENGTH (IN.)	X (IN.)	Y (IN.)	Z (IN.)
FUSELAGE CANOPY	513.5	0	0	0
FUSELAGE OUTER BODY	341.5	234.5	± 53.0	± 2.0
CANOPY	135.0	90.0	0	± 32.5

* Length includes nozzle (open position)

WING REF. AREA (IN²)

SURFACES

	2 ND SIDE WING	2 ND SIDE HORIZ. TAIL	PER SIDE VERT. TAIL	PER SIDE VERTICAL
AREA (FT ²)	316.67	161.96	26.92	4.44
AR - ASPECT RATIO	3.00	3.453	1.33	0.373
λ - TAPER RATIO	0.20	0.132	0.40	0.596
LEADING EDGE	E ₁	E ₂	E ₃	E ₄
TE ₁ (°)	+55°	+55°	+45°	+45°
TE ₂ (°)	+10°41'	+10°41'	-19°22'	+19°22'
CL - CUTOUT = $\frac{L_{CL}}{L_{REF}}$				
R - ROOT CHORD (IN.)	205.880	145.247	77.221	51.848
T - TIP CHORD (IN.)	41.096	19.122	30.888	30.888
b - SPAN (IN.)	369.865	283.781	71.705	15.444
AIRFOIL	4% BICONVEX	6% BICONVEX - 4% BICAV - tip	6% BICONVEX - 4% BICAV - tip	6% BICONVEX
d (IN.)	61.00	63.00	0	0
x (IN.)	306.5	485.0	465.93	478.93
y (IN.)	0	0	± 66.75	± 63.00
z (IN.)	+5.0	-9.77	+5.0	-9.0

- d = Average buried semi-span
- x = Distance aft from fuselage nose to body nose or surface fuselage intersection point.
- y = Distance outboard from fuselage ref. line to body ref. line or vertical surface chord line.
- z = Distance up (+) or down (-) from fuselage ref. line to body or surface ref line.

(S) Figure 5.1-9 Basic Description Data Sheet - Configuration 501A Growth Study at 19,000-lb Mission Weight (U)

88th ABW/IPI
 FOIA (b)(4)
 E.O. 13526 SEC.
 3.3.(b)(4)
 1.4. (a)(g)

~~SECRET~~

G.W. = 22,000 lbs
 W/S = 60 PSF
 T/W = 1.2995
 PROVISION - (2) J101-GE-100
 Engines

PROJECT: AVFFX PROGRAM
 CONFIGURATION: 501A - GROWTH STUDY
501A - 22000
 DATE: 29 JULY 1971


Nose of F.S. - 414

BODIES					
	LENGTH (IN.)	X (IN.)	Y (IN.)	Z (IN.)	
FUSELAGE ^{W/O canopy}	551.1	0	0	0	
Fuselage Outerbody	385.6	234.5	± 57.0	+ 2.0	
Canopy	135.0	90.0	0	+ 32.5	

* Length includes Nozzle (open position)

WING REF. AREA (IN²)

SURFACES

AREA (FT ²)	2 nd WING AREA		PER SIDE		
	WING AREA	PERCENTAGE	WING AREA	PERCENTAGE	
AREA (FT ²)	266.47	187.53	31.17	5.14	
A - ASPECT RATIO	9.00	3.453	1.33	0.373	
λ - TAPER RATIO	0.20	0.132	0.40	0.596	
 E ₁ E ₂	E ₁	+ 55°	+ 55°	+ 45°	+ 45°
	E ₂	+ 10° 41'	+ 10° 41'	- 19° 22'	+ 19° 22'
C - CUTOFF = $\frac{R - T}{L}$					
R - ROOT CHORD (IN.)	221.108	156.293	83.094	55.792	
T - TIP CHORD (IN.)	44.222	20.576	33.238	33.238	
b - SPAN (IN.)	397.995	305.364	77.159	16.619	
AIRFOIL	4% BICONVEX	6% Biconvex - sup. root 4% Biconvex - tip sup. root @ 81	6% Biconvex - sup. root 4% Biconvex - tip root @ 97	6% BICONVEX	
d (IN.)	65.64	67.79	0	0	
x (IN.)	330.1	522.1	501.35	514.35	
y (IN.)	0	0	± 71.82	± 67.79	
z (IN.)	+ 5.0	- 10.06	+ 5.0	- 8.0	

- d = Average buried semi-span
- x = Distance aft from fuselage nose to body nose or surface fuselage intersection point.
- y = Distance outbd from fuselage ref. line to body ref. line or vertical surface chord line.
- z = Distance up (+) or down (-) from fuselage ref. line to body or surface ref line.

(8) Figure 5.1-1D Basic Description Data Sheet - Configuration 501A Growth Study at 22,000-lb Mission Weight (0)

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88th ABW/PI
 FOIA (b)(1)
 E.O. 13526 SEC.
 3.3.(b)(4)
 1.4.(a)(g)

~~SECRET~~
 BASIC DESCRIPTIONS

GW = 24,000 lbs
 W/S = 60 PSF
 T/W = 1.191
 PROPULSION - (2) J101-GE-100
 Engines

PROJECT: AVFX PROGRAM
 CONFIGURATION: 501A - GROWTH STUDY
501A - 24000
 DATE: 28 JULY 71

Miss at F.S. - 504


BODIES

	LENGTH (IN.)	X (IN.)	Y (IN.)	Z (IN.)
W/O CANOPY FUSELAGE CENTERBODY	574.7	0	0	0
FUSELAGE OUTERBODY	412.5	± 24.5	± 59.6	± 2.0
CANOPY	135.0	90.0	0	+ 32.5

* Length includes nose (open position)

WING REF. AREA (IN²)

SURFACES

	2 ND ORDER WING NORMAL	2 ND ORDER WING VERT. TAIL	PER SIDE VERT. TAIL	PER SIDE HORIZONTAL
AREA (FT ²)	400.00	204.58	34.00	5.60
R - ASPECT RATIO	3.00	3.453	1.33	0.373
λ - TAPER RATIO	0.20	0.132	0.40	0.596
 E ₁ E ₂	+55°	+55°	+45°	+45°
	+10°41'	+10°41'	-19°22'	+19°22'
Q - CUTOUT - $\frac{LE - TE}{LE + TE}$				
R - ROOT CHORD (IN.)	230.940	163.243	86.789	58.273
T - TIP CHORD (IN.)	46.188	21.491	34.716	34.716
b - SPAN (IN.)	415.692	318.943	80.590	17.358
AIRFOIL	4% BICONVEX	6% Biconvex-root 4% Biconvex-tip reflex 4%	6% Biconvex-root 4% Biconvex-tip reflex 4%	6% BICONVEX
d (IN.)	68.56	70.81	0	0
x (IN.)	344.9	545.4	523.19	536.69
y (IN.)	0	0	± 75.02	± 70.81
z (IN.)	+5.0	-10.24	+5.0	-8.0

- d = Average buried semi-span
- x = Distance aft from fuselage nose to body nose or surface fuselage intersection point.
- y = Distance outbd from fuselage ref. line to body ref. line or vertical surface chord line.
- z = Distance up (+) or down (-) from fuselage ref. line to body or surface ref line.

(8) Figure 5.1-11 Basic Description Data Sheet - Configuration 501A Growth Study at 24,000-lb Mission Weight (U)

88th ABW/PI
 FOIA (b)(1)
 E.O. 13526
 SEC. 3.3.(b)(4)
 1.4. (a)(g)

~~SECRET~~ PROJECT AVEF X PROGRAM

FRICITION DRAG DATA

G.W. = 16,800 lbs
 W/S = 60 PSF
 T/W = 1.702
 PROPULSION - (2) J101-GE-100 ENGINES
 BODIES

CONFIGURATION 501A GROWTH STUDY
 501A-10600

DATE 28 JULY 1971

[Scaled down from 501A
 Dwa FW7104104]

BODY	WETTED AREA (FT ²)	LENGTH (IN)	MAX. WIDTH (IN)	MAX. HEIGHT (IN)
FUSELAGE CENTERBODY	571.5	501.35	84.0	54.5
FUSELAGE OUTERBODY	124.3	307.1	19.0	19.8
CONOPY (INCL. FAIRING)	41.0	135.0	36.0	19.0
NOZZLE (CLOSED)	25.2	25.05	32.4 DIA.	32.4 DIA.
NOZZLE (OPEN)	24.0	19.50	32.4 DIA.	32.4 DIA.
BODY TOTAL	762.0	* Length measured from nose to nozzle and in closed position (Nose for nozzle broken out separately)		

SURFACES

SURFACE	WETTED AREA (FT ²)	EXPOSED MAC LENGTH (IN)	MAX. THICKNESS SWEEP (DEG.)	AIRFOIL
WING	271.8	100.33	14° 30'	4% BICOVEX
HORIZ. TAIL	105.0	58.06	14° 30'	6% BICOVEX - root 5% BICOVEX - tip
VERT. TAIL (2)	96.0	53.94	34° 15'	6% BICOVEX - root 5% BICOVEX - tip
VENTRAL FIN (2)	15.7	39.73	17° 45'	6% BICOVEX
SURFACE TOTAL	509.5			

AIRPLANE TOTAL **1271.5**

BASIC WING GEOMETRY :

	TRAPEZOID SHAPE - BASIC REF WING	TRAPEZOID SHAPE - CURVED TIP WING
AREA (FT ²)	280.0	283.353
ASPECT RATIO	3.00	3.20
TAPER RATIO	0.20	0.1689
LEADING EDGE SWEEP (DEG.)	85.0	35.0

(6) Figure 5.1-12 Friction Drag Data Sheet - Configuration 501A Growth Study at 16,800-lb Mission Weight (U)

~~SECRET~~ PROJECT INTEK PROGRAM

FRICITION DRAG DATA
G.W. = 19,000 lbs.
W/S = 60 PSF
T/W = 1.585
PROPULSION - (2) J71-GE-100 Engines
BODIES

CONFIGURATION 501A GROWTH STUDY
SRA = 19000
DATE 28 JULY 1971

[Reference Config 501A
DWG FW 7104104]

BODY	WETTED AREA (FT ²)	LENGTH (IN)	MAX. WIDTH (IN)	MAX. HEIGHT (IN)
FUSELAGE CENTERBODY	615.9	519.05	84.0	54.5
FUSELAGE OUTERBODY	166.7	341.5	22.5	21.0
CANOPY (WHL. FAIRING)	41.0	135.0	30.0	19.0
NOZZLE (CLOSED)	25.2	25.05	32.4 DIA.	32.4 DIA.
NOZZLE (OPEN)	24.0	19.50	32.4 DIA.	32.4 DIA.

BODY TOTAL 848.8 * Length measured from nose to nozzle and in closed position (Awet for nozzle broken out separately)

SURFACES

SURFACE	WETTED AREA (FT ²)	EXPOSED MAC LENGTH (IN)	MAX. THICKNESS SWEEP (DEG.)	AIRFOIL
WING	331.1	106.69	14° 30'	4% BICOVEX
HORIZ. TAIL	118.7	61.75	14° 30'	6% BICOVEX - tip
VERT. TAIL (2)	107.7	57.36	34° 15'	6% BICOVEX - tip
VENTRAL FIN (2)	17.8	42.25	17° 45'	6% BICOVEX

SURFACE TOTAL 575.3

AIRPLANE TOTAL 1424.1

BASIC WING GEOMETRY:

	TRAPEZOID SHAPE - BASIC REF. WING	TRAPEZOID SHAPE - CORVED TIP WING
AREA (FT ²)	316.67	320.462
ASPECT RATIO	3.00	3.20
TAPER RATIO	0.20	0.1689
LEADING EDGE SWEEP (DEG.)	35.0	35.0

(8) Figure 5.1-13 Friction Drag Data Sheet - Configuration 501A Growth Study at 19,000-lb Mission Weight (U)

88th ABW/PI
 FOIA (b)(1)
 E.O. 13526 SEC.
 3.3.(b)(4)
 1.4. (a)(g)

FRICION DRAG DATA

~~SECRET~~ PROJECT AVFFX PROGRAM

G.W. = 22,000 lbs.
 W/S = 60 PSF
 T/W = 1.2995

CONFIGURATION 501A GROWTH STUDY

DATE: 28 JULY 1971

PROPULSION - (2) J101 GE-100 ENGINES
BODIES

[Scaled up from 501A]
 DWG FWT104104

BODY	WETTED AREA (FT ²)	LENGTH (IN)	MAX. WIDTH (IN)	MAX. HEIGHT (IN)
FUSELAGE (CENTERBODY)	673.6	556.65	34.0	54.5
FUSELAGE (OUTERBODY)	214.6	385.6	26.0	21.0
WING (W/ L. FAIRING)	41.0	135.0	30.0	22.6
NOZZLE (CLOSED) (2)	25.2	25.05	32.4 DIA.	31.4 DIA.
NOZZLE (OPEN) (2)	24.0	19.50	32.4 DIA.	32.4 DIA.

BODY TOTAL 954.4 * Length measured from nose to nozzle end in closed position (Aft for nozzle broken out separately)

SURFACES

SURFACE	WETTED AREA (FT ²)	EXPOSED MAC LENGTH (IN)	MAX. THICKNESS SWEEP (DEG.)	AIRFOIL
WING	383.4	114.81	14° 30'	4% BICONVEX
HORIZ. TAIL	137.5	66.44	14° 30'	6% BICONVEX
VERT. TAIL (2)	124.7	61.73	34° 15'	4% BICONVEX
VENTRAL FIN (2)	20.6	45.47	17° 45'	4% BICONVEX

SURFACE TOTAL 666.2

AIRPLANE TOTAL 1620.6

BASIC WING GEOMETRY:

	TRAPEZOID SHAPE - BASIC REF. WING	TRAPEZOID SHAPE - QUARTER TIP WING
AREA (FT ²)	<u>366.67</u>	<u>371.061</u>
ASPECT RATIO	<u>3.00</u>	<u>3.20</u>
TAPER RATIO	<u>0.20</u>	<u>0.1689</u>
LEADING EDGE SWEEP (DEG.)	<u>35.0</u>	<u>35.0</u>

(8) Figure 5.1-14 Friction Drag Data Sheet - Configuration 501A Growth Study at 22,000-lb Mission Weight (U)

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PROJECT AVFEX PROGRAM

FRICTION DRAG DATA

S.W. = 24,000 lbs

W/S = 60 lbs / ft²

T/W = 1.191

PROPULSION = (2) J101-GE-100 Engines

BODIES

CONFIGURATION 501A - GROWTH STUDY

501A-24000

DATE 28 JULY 1971

[scaled up from 501A
Dwg. #W7104104]

BODY	WETTED AREA (FT ²)	LENGTH (IN)	MAX. WIDTH (IN)	MAX. HEIGHT (IN)
FUSELAGE INTERBODY	707.6	* 580.25	84.0	54.5
FUSELAGE OUTERBODY	257.6	413.5	30.0	19.8
WING / INCL. TAILPIC	41.0	135.0	30.0	23.6
NOZZLE (CLOSED) (U)	25.2	25.05	32.4 DIA.	32.4 DIA.
NOZZLE (OPEN) (U)	24.0	19.50	32.4 DIA.	32.4 DIA.

BODY TOTAL 1021.4 * Length measured from nose to nozzle end in closed position (Aural Sec. 1121c broken out separately)

SURFACES

SURFACE	WETTED AREA (FT ²)	EXPOSED MAC LENGTH (IN)	MAX. THICKNESS SWEEP (DEG.)	AIRFOIL
WING	418.2	119.91	14°30'	4% BROWDER
HORIZ. TAIL	150.0	69.40	18°30'	6% BROWDER
VERT. TAIL (2)	136.0	64.87	34°15'	6% BROWDER
VENTRAL FLN (2)	22.4	47.49	17°45'	6% BROWDER

SURFACE TOTAL 726.6

AIRPLANE TOTAL 1758.0

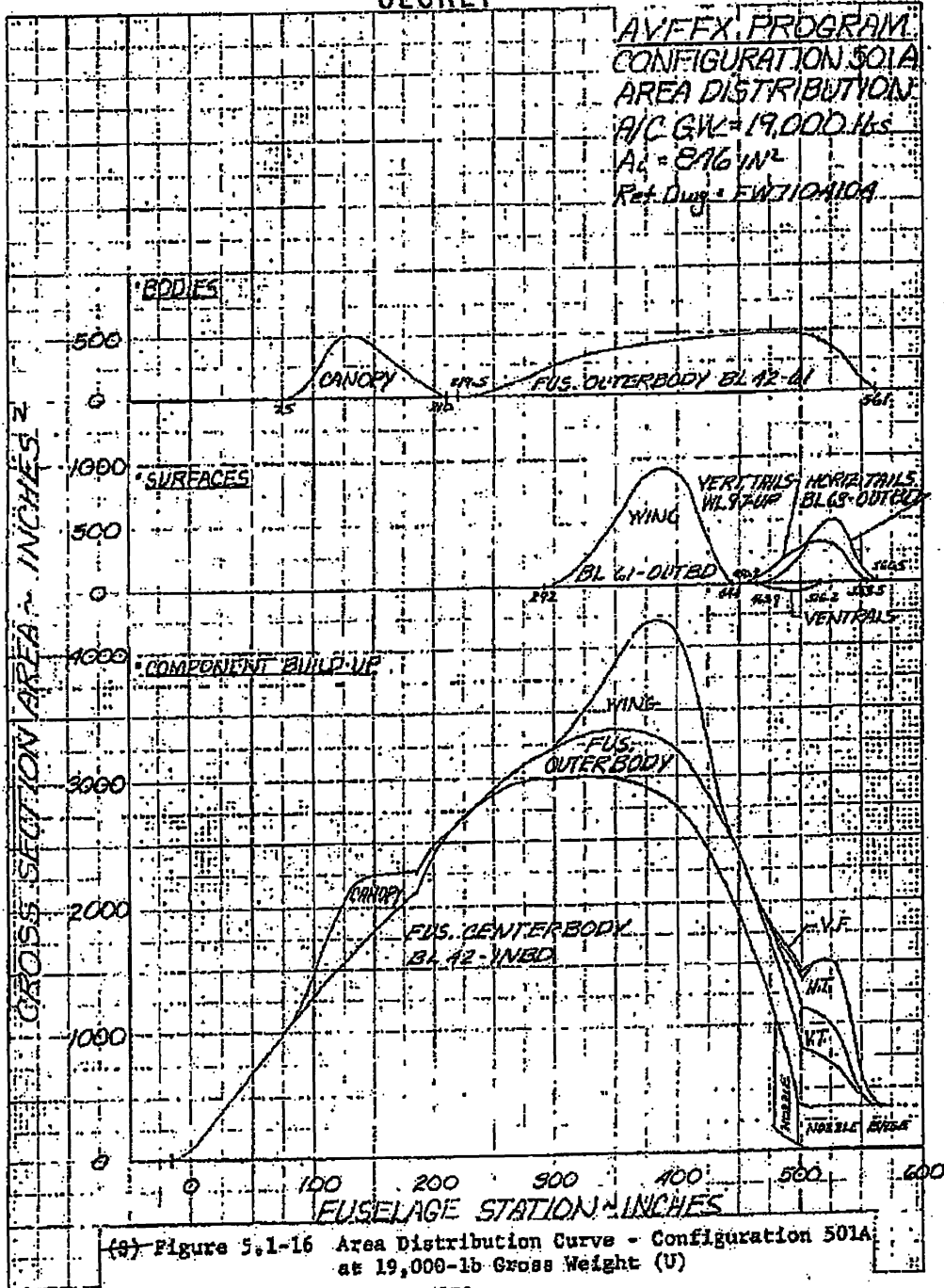
BASIC WING GEOMETRY:

	TRAPPED SHAPE - BASIC REF WING	STRAPPED SHAPE - CURVED TIP WING
AREA (FT ²)	400.00	404.740
ASPECT RATIO	3.00	3.20
TAPER RATIO	0.70	0.1689
LEADING EDGE SWEEP (DEG.)	35.00	35.00

(8) Figure 5.1-15 Friction Drag Data Sheet - Configuration 501A Growth Study at 24,000-lb Mission Weight (U)

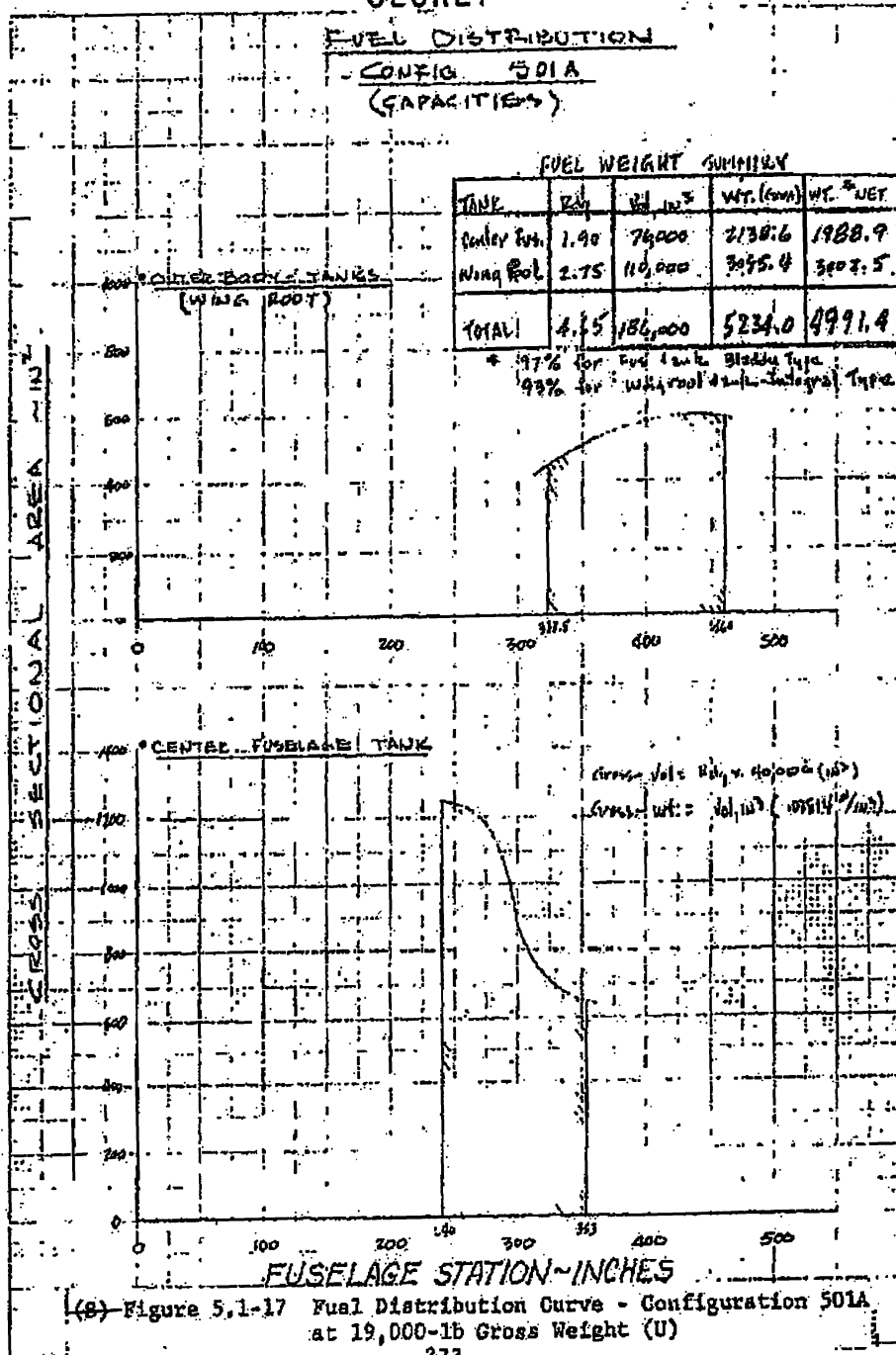
88th ABW/PI
 FOIA (b)(1)
 E.O. 13526 SEC. 3.3.(b)
 (4)
 1.4. (a)(g)

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~~SECRET~~



88th ABW/PI
 FOIA (b)(1)
 E.O. 13526 SEC.
 3.3.(b)(4)
 1.4. (a)(g)

(g) Figure 5.1-17 Fuel Distribution Curve - Configuration 501A
 at 19,000-lb Gross Weight (U)

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5.2 PERFORMANCE

(S) The mission performance capabilities of Configuration 501A were evaluated at the 19,000-lb-size aircraft used for the design layout and at a smaller and a larger size. The mission definitions and performance rules of Section 3.2 (Configuration 401B) were used. The results of the evaluation are presented in Figure 5.2-1. The performance data presented in this section are for Configuration 501A sized to meet the desired 750-n.mi LRASM radius. The resulting mission weight for this distance is 22,680 lb. This configuration can be compared to 401B as follows:

	<u>501A</u>	<u>401B</u>	<u>% Change</u>
Wing Loading, lb/sq ft.	60	60	None
Thrust Loading	1.26	1.37	-8.0
Takeoff Gross Weight, lb	22680	17115	+32.2
Basic Operating Weight, lb	15712	12367	+26.4
SRASM Radius, n.mi	240	239	Negl.
LRASM Radius, n.mi	750	750	None
Ferry Range, n.mi	2166	2614	-17.1
Turn Rate - LRASM, sec	9.45	9.9	-4.6
Accel. Time - LRASM, sec	51.0	35.5	+43.6

(S) The major cause for the large size of the 501A twin-engine aircraft compared to the 401B single-engine aircraft is the difference in engine cycle. The TSFC's for GE engines used in the twin-engine aircraft are approximately 20-percent higher than those of the P&W engine used in the single-engine aircraft. Also, when compared at the same uninstalled thrust loading (1.37), the twin-engine aircraft weight-empty is 2575 lb greater than the single-engine aircraft. This means that it has 2575 lb less fuel for a constant mission weight.

(U) The performance data presented in this section are for standard-day conditions and are based on

88th ABW/IRP
FOIA (b)(1)
E.O. 13526
(4) (S) (U)
1.4 (S) (U) 3.3 (S) (U)
SEC 1.4 (S) (U)

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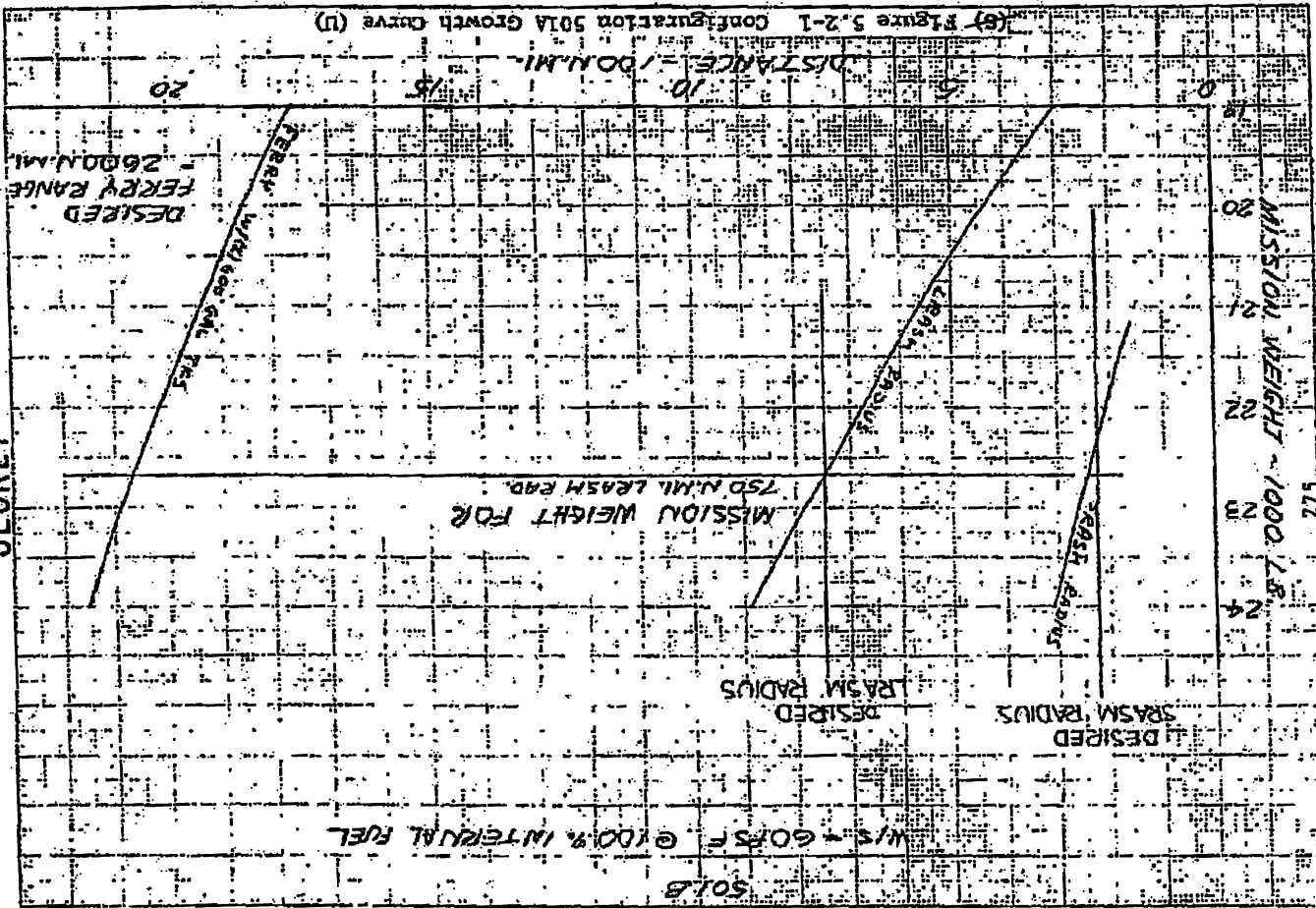
8814 ABW/PI

FOIA (b)(1) See 35 (b)(4)
E.O. 13526 See 35 (b)(4)

14 (b)(3) (b)(4) (b)(5)
20 15376 58 33 (b)(3) (b)(4)

SEE 14 (b)(3)

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1. Aerodynamic data presented in Section 5.3.
2. Stability and Control data presented in Section 5.4.
3. Weight data presented in Section 5.5.
4. Propulsion data presented in Section 5.6.

(S) The following corrections, obtained from the growth data presented in Section 5.3, were added to the basic aerodynamic data of Section 3.3, together with the increment for differences between Configuration 501A and 401B from Section 5.3, to account for the configuration differences in aircraft and the increased aircraft size and wing area. (The reference wing area of Configuration 501A changed from 316.7 sq ft at 19,000 lb to 378.0 sq ft at 22,680 lb to maintain a constant wing loading of 60 psf.)

<u>Mach No.</u>	<u>ΔC_D 401B to 501A</u>	<u>ΔC_D Size</u>	<u>ΔC_D Total</u>
0.6	-0.00005	-0.00112	-0.00117
0.8	0.00010	-0.00112	-0.00102
0.9	0.00035	-0.00125	-0.00095
1.2	0.00535	-0.00600	-0.00065
1.5	0.00365	-0.00580	-0.00215

(S) The weight data for the 22,680-lb aircraft were determined from the growth data presented in Section 5.5. A summary of the weight data used in the performance calculations is presented in Table 5.2-1.]

(U) The engine size was maintained fixed, and the propulsion data from Section 5.6 were used without modification.

(S) The basic mission performance of Configuration 501A sized to 22,680 lb is summarized in Figure 5.2-2. Mission tabulated data are presented in Tables 5.2-2 through 5.2-4. General performance data are shown in Figures 5.2-3 through 5.2-12.

(U) The sensitivity of aircraft size to weight-empty variation is shown in Figure 5.2-13.

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88th ABW/PI
FOIA (b)(1) / (b)(7)
E.O. 13526 (b)(3)
(b)(4) / (b)(7) ZG
1.4 (a)(1)
SEC. 1.4 (a)(2)(g)

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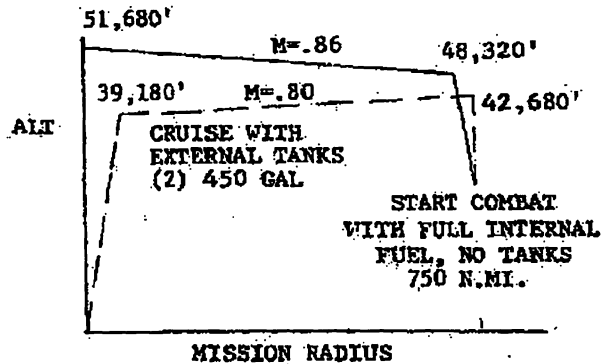
~~(S)~~ Table 5.2-1. CONFIGURATION SOLA WEIGHT SUMMARY
(22,680-Lb Airplane Without Tanks)

Item	Weight (lb)
1. SRASM and LRASM	
Basic Operating Weight	15,557
Ammunition (500 rounds)	285
Two AIM9-X Missiles	348
Fuel	6,490
SRASM Takeoff Gross Weight	<u>22,680</u>
Two Full 450-Gallon Tanks and Pylons	7,004
LRASM Takeoff Gross Weight	<u>29,684</u>
Basic Operating Weight	15,557
One Half Ammunition	142
Fuel for 20-Minute Sea-Level Loiter	1,038
SRASM and LRASM Landing Weight	<u>16,737</u>
2. FERRY MISSION	
Basic Operating Weight	15,557
Missile Pylon (Removed)	-124
Ammunition (500 Rounds)	285
Zero Fuel Weight	<u>15,718</u>
Internal Fuel	6,490
Two Full 600-Gallon Tanks and Pylons	9,348
One Full 150-Gallon Tank and Pylon	1,309
Takeoff Gross Weight	<u>32,865</u>
Zero Fuel Weight	15,718
Two Empty 600-Gallon Tanks and Pylons	1,506
One Empty 150-Gallon Tank and Pylon	308
Five percent Initial Fuel	767
Twenty-Minute Sea-Level Loiter	<u>1,128</u>
Landing Weight	<u>19,427</u>

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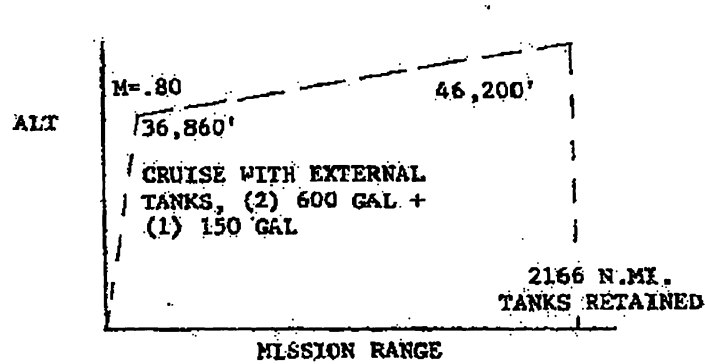
(22,680-LB A/P W/O TANKS)

LONG-RANGE AIR-SUPERIORITY MISSION



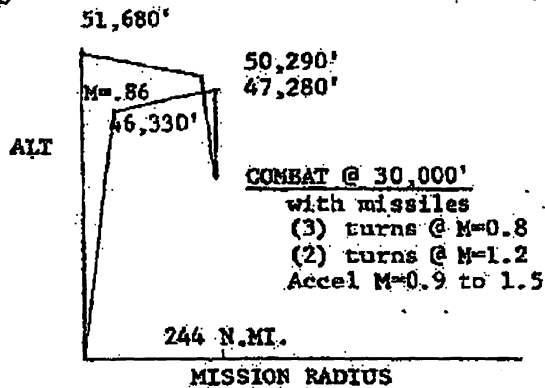
MISSION RADIUS

FERRY MISSION



MISSION RANGE

SHORT-RANGE AIR-SUPERIORITY MISSION



MISSION RADIUS

LONG-RANGE AIR-SUPERIORITY MISSION

Takeoff Gross Weight	29,684 lb
Takeoff Distance over 50 ft	2,150 ft
Landing Distance over 50 ft	3,320 ft
Accel Time, M=0.9 to 1.5	51.4 sec
Turn Rate @ M=0.8	9.5 deg/sec
Turn Rate @ M=1.2	6.9 deg/sec

SHORT RANGE AIR SUPERIORITY MISSION

Takeoff Gross Weight	22,680 lb
Takeoff Distance over 50 ft	1,400 ft
Landing Distance over 50 ft	3,320 ft
Accel Time, M = 0.9 to 1.5	46.1 sec
Turn Rate @ M= 0.8	10.5 deg/sec
Turn Rate @ M=1.2	7.6 deg/sec

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(B) Figure 5.2-2 Configuration 501A Mission Performance Summary (U)

88th ABW/PI 1799
 FOIA (b)(1) (b)(7) (b)(8)
 E.O. 13526, SEC 1.3 (D)(4)
 (U) (S) (b) (6) (b) (7) (D)
 E.O. 13526, SEC 1.3 (D)(4)
 (U) (S) (b) (6) (b) (7) (D)
 SEC 1.4 (a)(1)(B)
 SEC 1.4 (a)(1)(B)
 98-307

(S) Table 5.2-2 CONFIGURATION 501A LRASM MISSION TABULATION (U)

Mission Phase	Mach No.	Alt. (ft)	Weight (lb)	Weight (lb)	Dist. (n.mi)	Time (hr)	Initial Zero	Initial TSFC	Initial L/D	Combat Cr.	Combat E.s
Initial Weight	0	0	29684								
Ground Operation				523	0	0					
Accel to Climb Speed	0	0	29161								
	0.50	0	28829	332	0	.11					
Climb to Cruise Alt.				764	33	.08	3398	1.015	7.65		
Outbound Cruise	0.80	39183	28065				2942	.977	9.64		
	0.80	42678	23902	4163	717	1.56					
Drop Tanks (076#Tank+146#Fuel)	0.80	42678	22680	1222	0	0					
Combat				(2444)		(.08)					
Accel NO. 9-MI. 5	0.9-1.5	30000		535	0	.02					
(2)MI. 2 Turns	1.2	30000		1065	0	.03				.411	4.57
(2)NO. 8 Turns	0.8	30000		844	0	.03				.852	4.20
	0.86	30000	20236								
Drop Payload				348	0	0					
	0.86	30000	19888								
Drop 4 Ammo				143	0	0					
	0.86	30000	19745				2885	1.036	6.49		
Climb to Cruise Alt.				209	20	.04					
	0.86	48318	19536				1980	1.025	9.98		
Return Cruise				2799	730	1.47					
	0.86	51684	16737								
Descend				0	0	0					
	0.21	0	16737				2000	1.57	8.37		
Landing Reserves (20-Min. Loiter S.L.)				1038	0	.33					
Zero-Fuel Weight			15699								

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(b)(4)
1.4. (a)(g)
88th ABW/PI
FOIA (b)(1)
E.O. 13526 SEC. 3.3.

(c) Table 5.2-3 CONFIGURATION 501A SRASH MISSION TABULATION (U)

Mission Phase	Mach Nr.	Alt. (ft)	Weight (lb)	Weight (lb)	Dist. (n.mi)	Time (hr)	Initial Fzo	Initial FPC	Initial L/D	Combat Cl.	Combat S.S.
Initial Weight	0	0	22680								
Ground Operation	0	0	22268	412	0	0					
Accel to Climb Speed	0.50	0	22021	247	0	.11	2890	1.015	6.30		
Climb to Cruise Alt.	0.86	46327	21368	653	34	.07	2190	1.015	9.84		
Outbound Cruise	0.86	47278	20445	923	210	.43					
Combat				(2192)		(.07)					
Accel MO. 9-MI. 5	0.9-1.5	30000		535	0	.01					
(2)MO. 2 Turns	1.2	30000		965	0	.03				.406	5.02
(3)MO. 8 Turns	0.8	30000		692	0	.03				.841	4.63
Drop Payload	0.86	30000	18253	348	0	0					
Drop 2 Ammo	0.86	30000	17905	143	0	0	2858	1.036	5.63		
Climb to Cruise Alt.	0.86	50286	17555	207	21	.05	1780	1.040	9.93		
Return Cruise	0.86	51684	16737	818	223	.45					
Descend	0.21	0	16737	0	0	0	2000	1.570	8.40		
Landing Reserves (20 Min. Tofter S.L.)				1038	0	.33					
Zero-Fuel Weight			15699								

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88th ABW/PI
FOIA (b)(1)
E.O. 13526 SEC.
3.3.(b)(4)
1.4. (a)(9)

(S) Table 5.2-4 CONFIGURATION SOLA FERRY MISSION TABULATION (U)

Mission Phase	Mach No.	Alt. (ft)	Weight (lb)	Weight (lb)	Dist (n.mi)	Time (hr)	Initial FREQ	Initial TSEC	Initial L/D	Combat Cl	Combat E's
Initial Weight	0	0	32865								
Ground Operation				565	0	0					
Accel to Climb Speed	0	0	32300		0	.11					
	0.50	0	31927	373	0		3657	1.015	8.15		
Climb to Cruise Alt.				840	35	.08					
	0.80	36361	31087	21660	2131	4.65	3350	.968	9.67		
Cruise w/(2)Ext.Tanks	0.80	46200	19427								
Descend				0	0	0					
	0.22	0	19427				2450	1.40	8.00		
Landing Reserves (20 Min. Loiter S.L.) (5% Initial Fuel)				(1895) 1128 767	0	.36					
Zero-Fuel Weight			17532								

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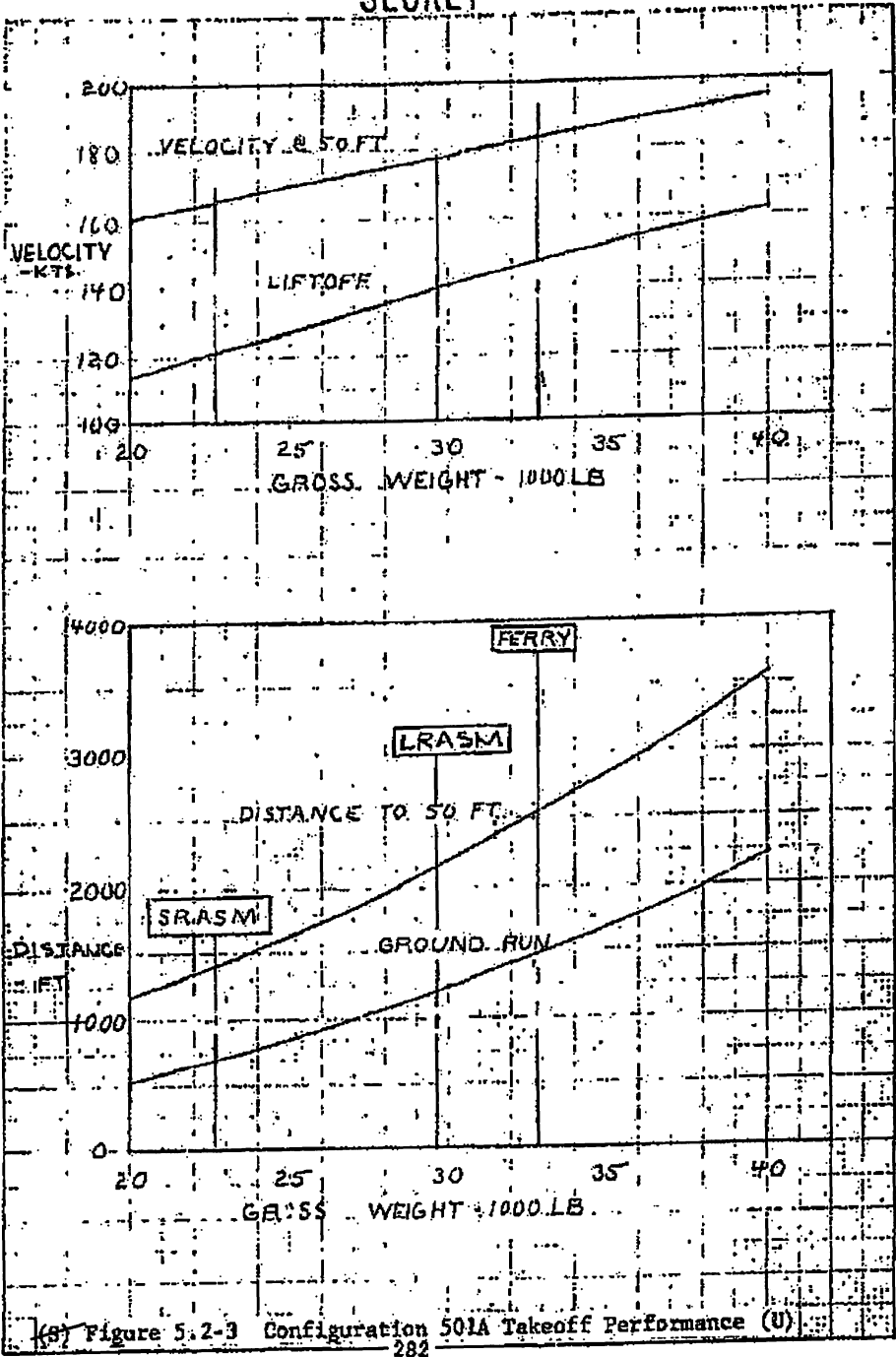
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88th ABW/PI
FOIA (b)(1)
E.O. 13526-SEC.
3.3.(b)(4)
1.4.(a)(9)

88th ABW/PI
EOIA (b)(1)
E.O. 13526 SEC.
3.3.(b)(4)
1.4.(a)(g)

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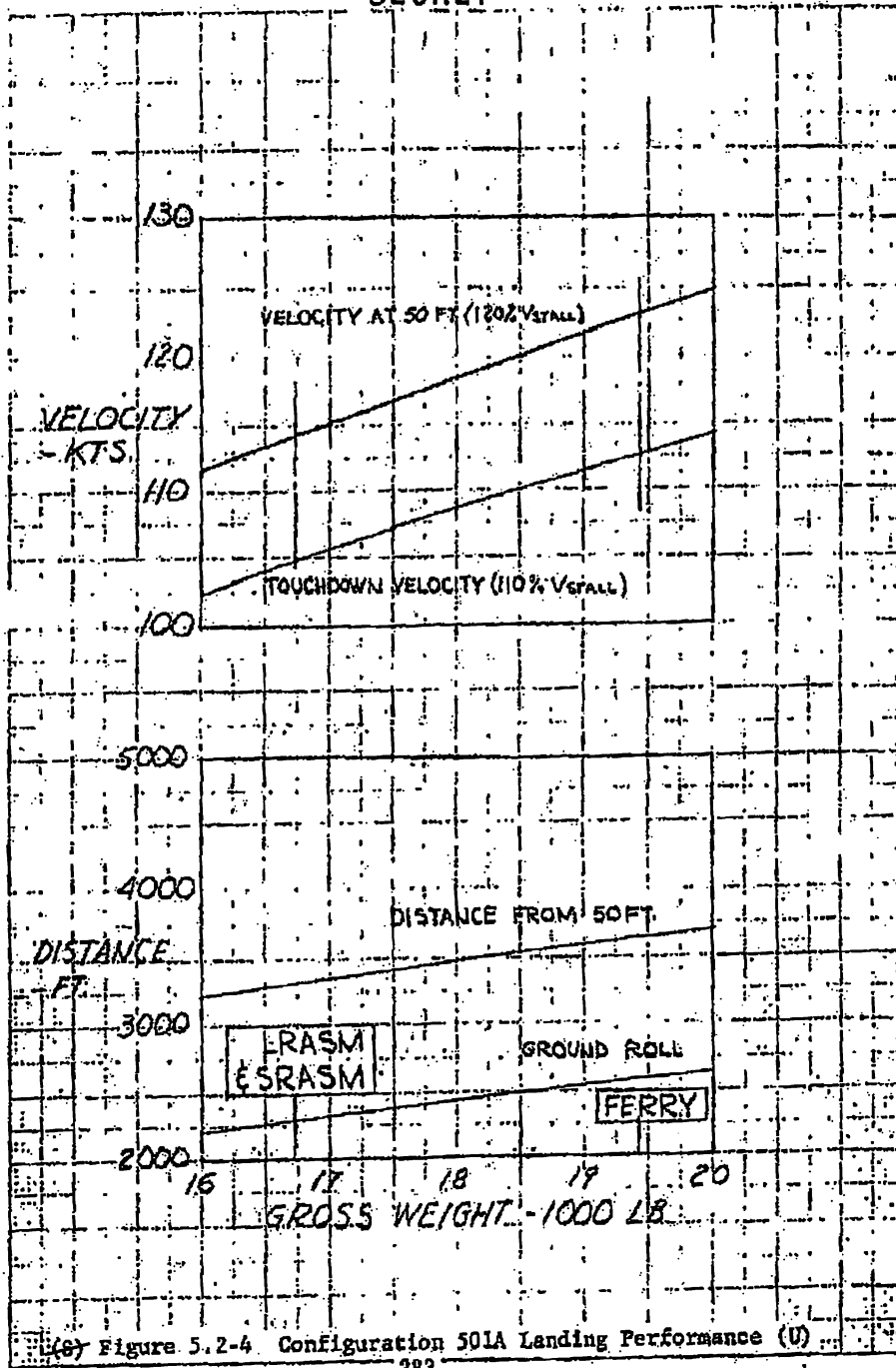
(S) Figure 5.2-3 Configuration 501A Takeoff Performance (U)

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88th ABW/IPI
 FOIA (b)(4)
 E.O. 13526 SEC.
 3.3.(b)(4)
 1.4. (a)(g)

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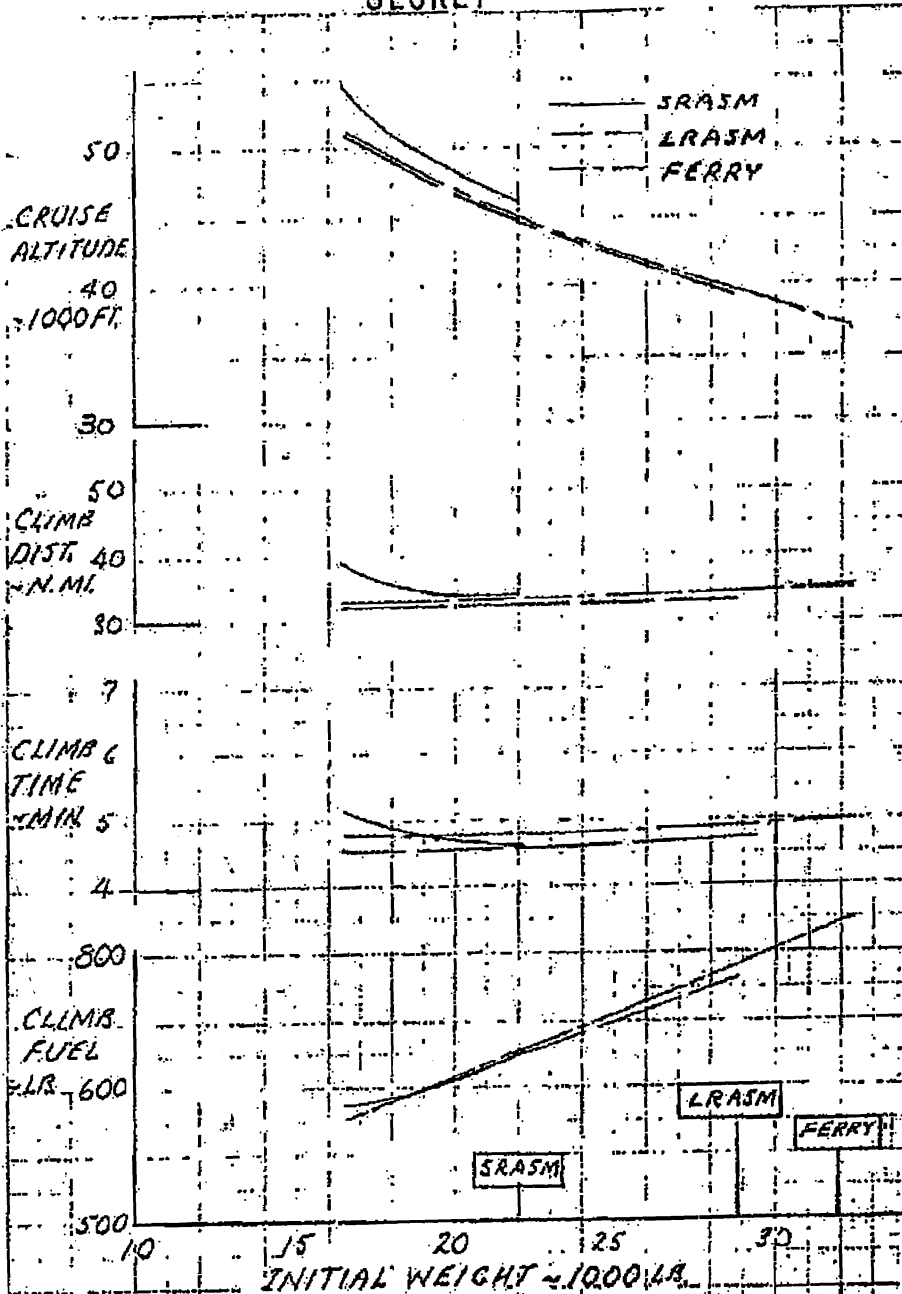
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 1/8" x 10" x 1/4" INCH. 99 1253
 FRANK & SON, CO.
 WILMINGTON, DE.



(U) Figure 5.2-4. Configuration 501A Landing Performance (U)

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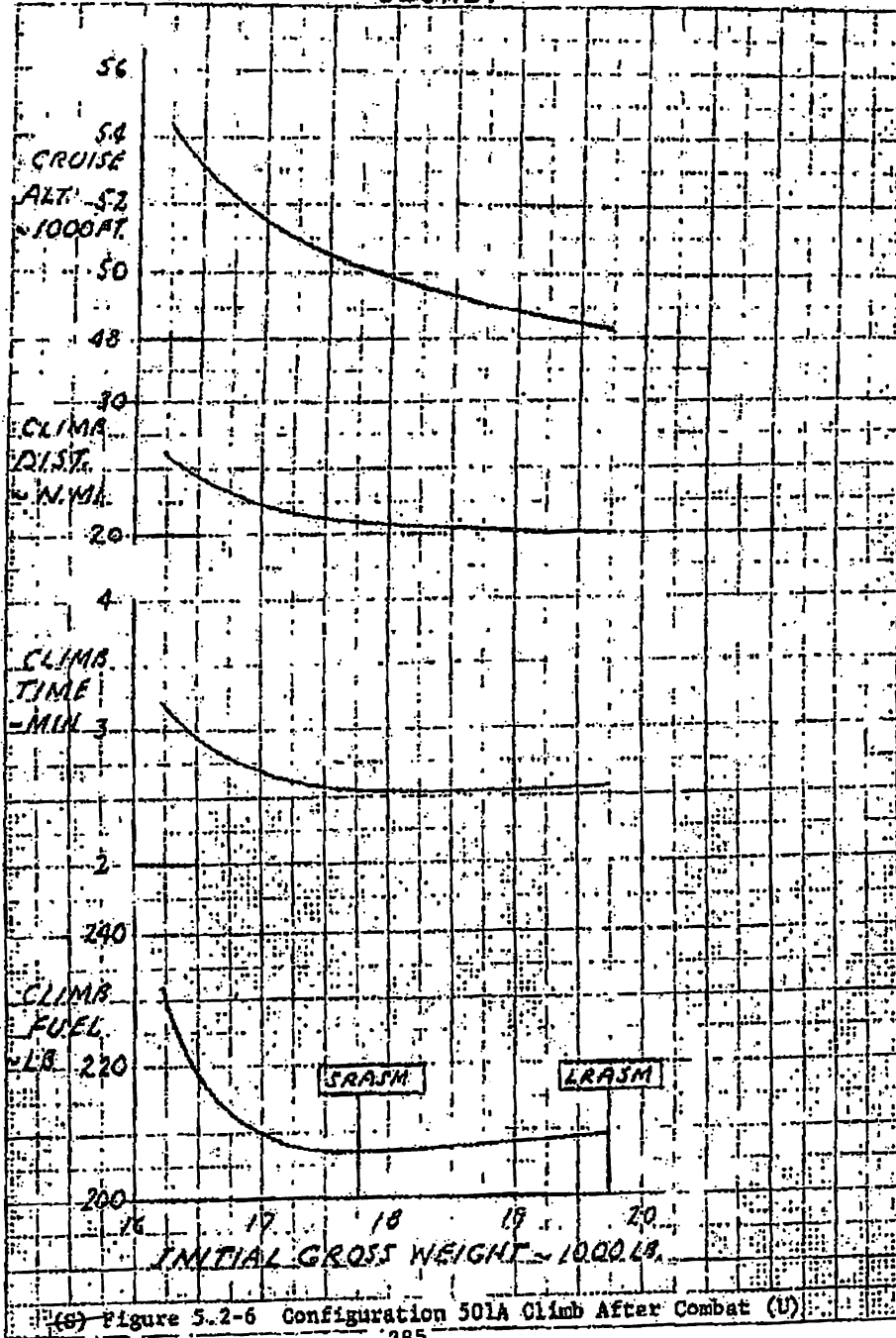
(S) Figure 5.2-5 Configuration 501A Initial Climb Performance (U)

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88th ABW/PI
 FOIA (b)(1)
 E.O. 13526 SEC.
 3.3.(b)(4)
 1.4.(a)(g)

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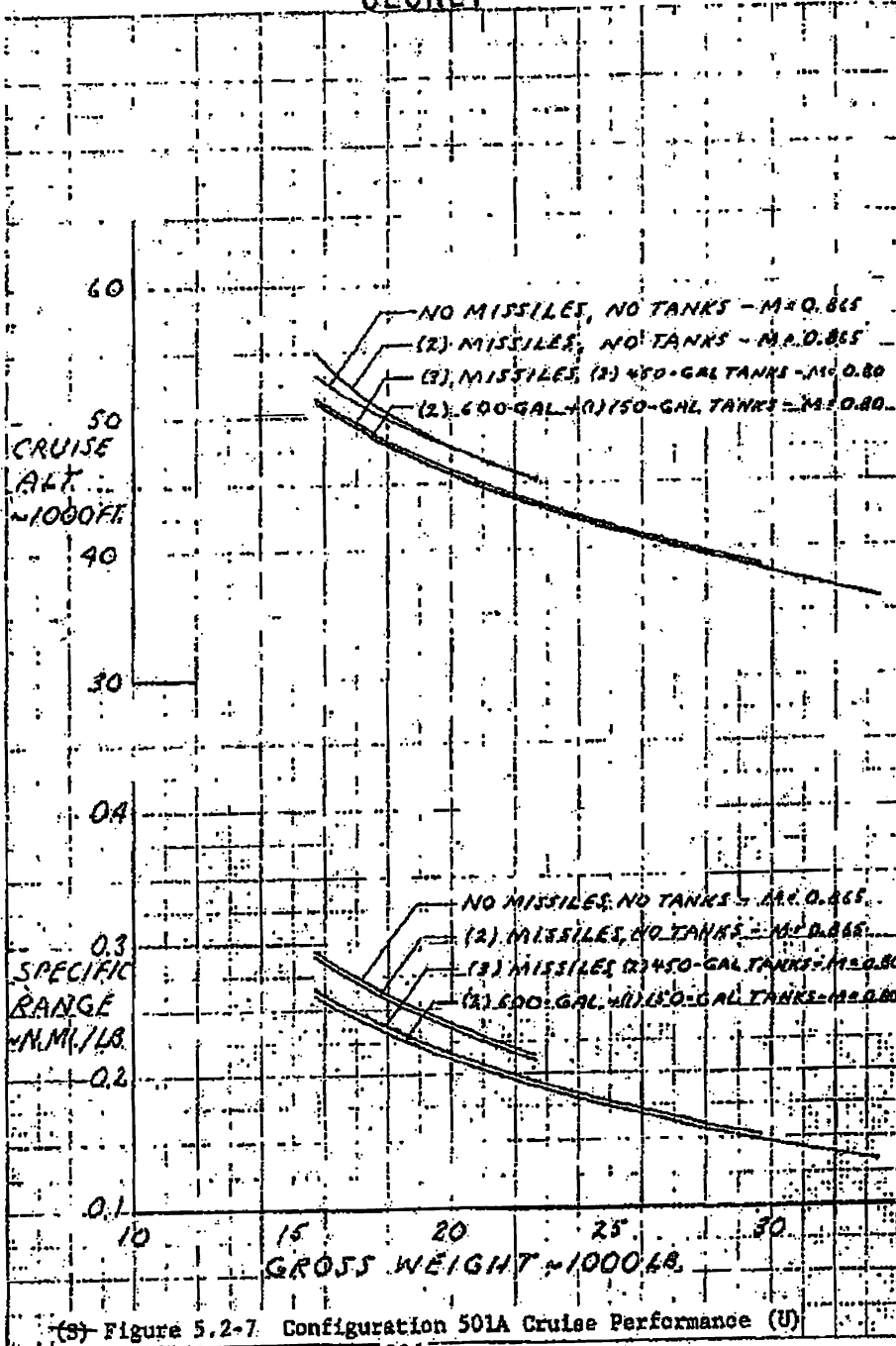
(S) Figure 5.2-6 Configuration 501A Climb After Combat (U)

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88th ABW/PI
 FOIA (b)(1)
 E.O. 13526/SEC.
 3.3.(b)(4)
 1.4. (a)(g)

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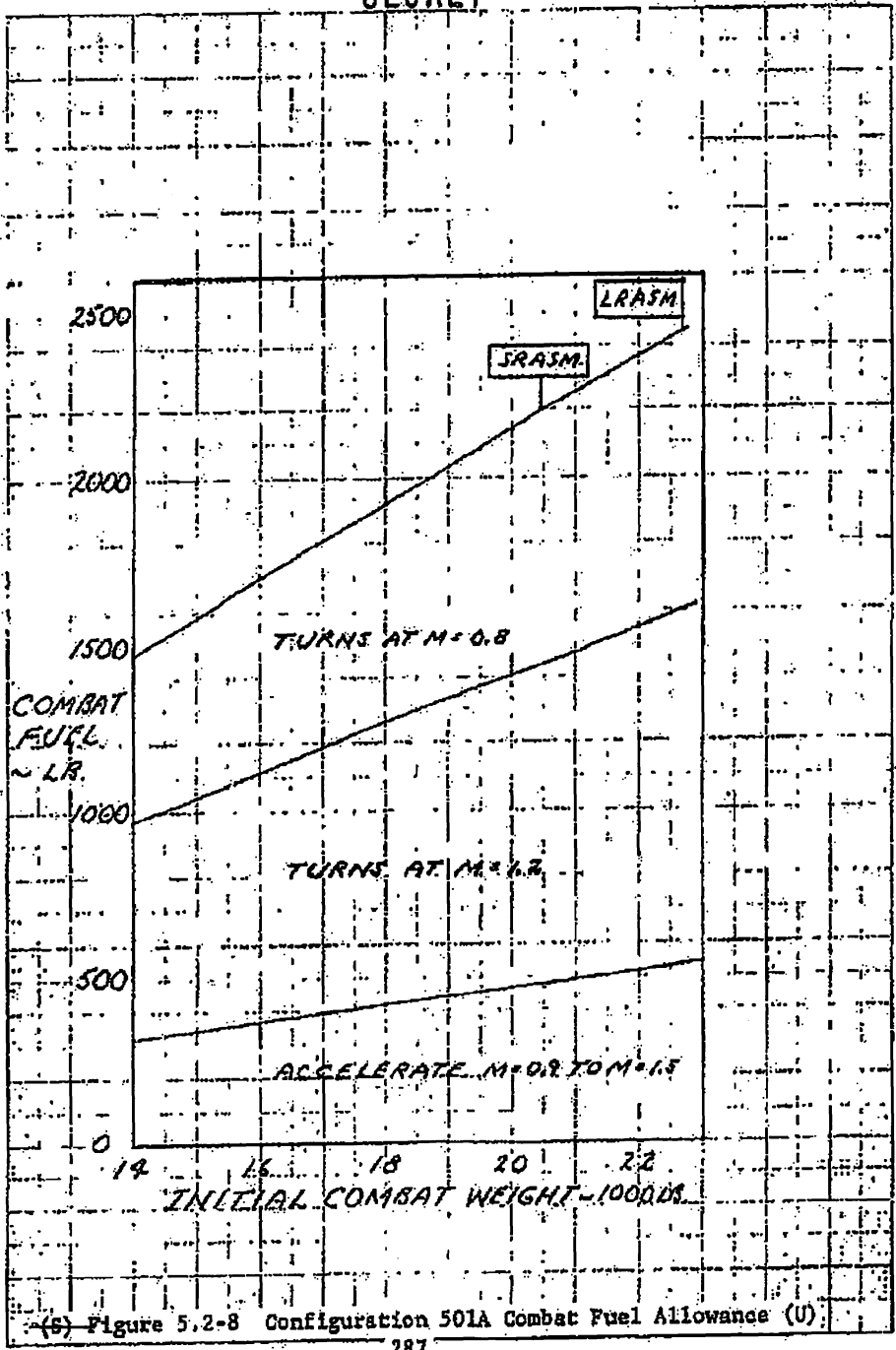


(S) Figure 5.2-7. Configuration 501A Cruise Performance (U)

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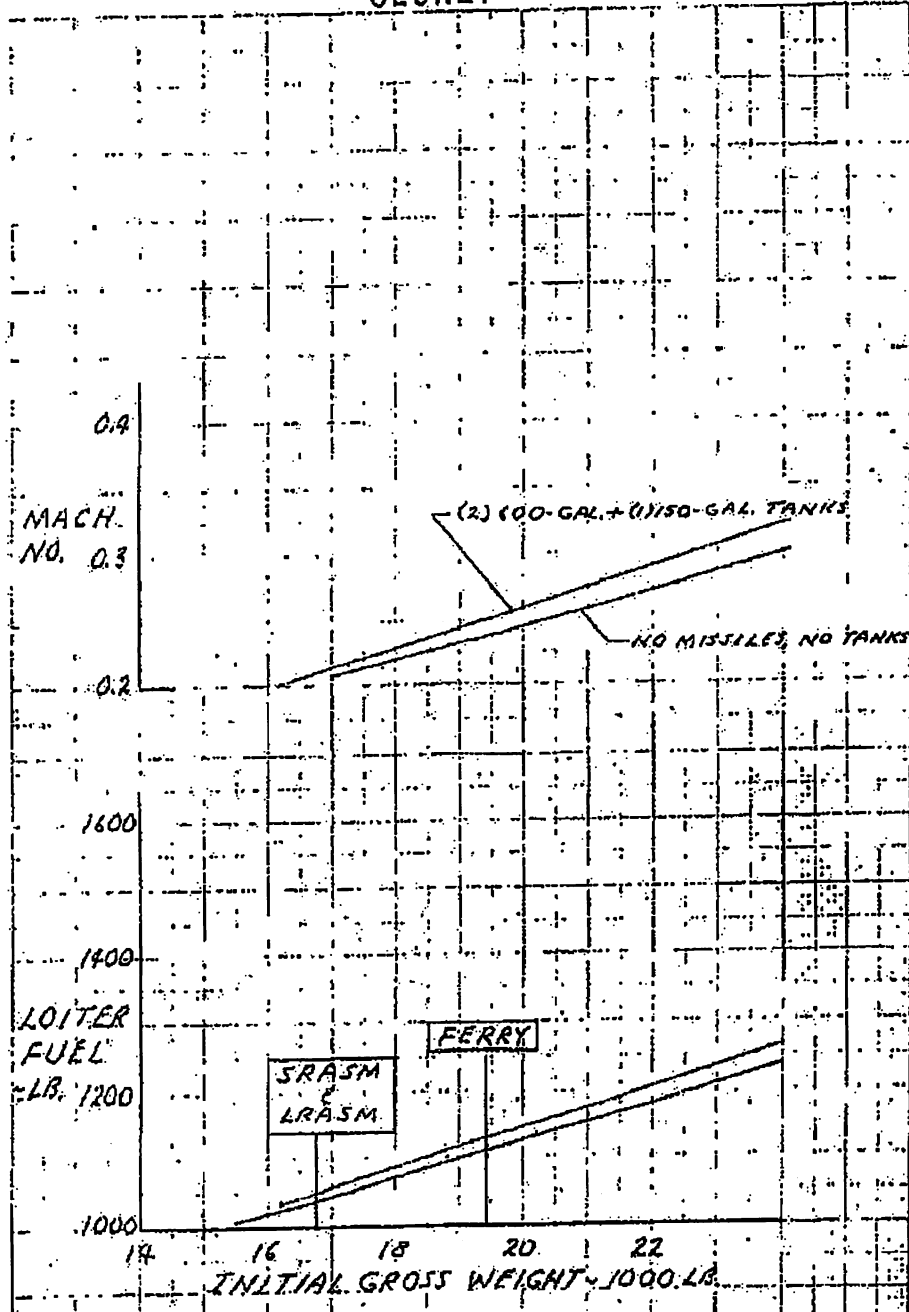
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(S) Figure 5.2-8 Configuration 501A Combat Fuel Allowance (U)

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Approved for Release by NSA on 05-08-2013 pursuant to E.O. 13526



(S) Figure 5.2-9 Configuration 501A Sea-Level Loiter Performance (U)

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