

DECLASSIFIED



NAVAIR 00-110AF111-1

GROUP 4 DOCUMENT  
DECLASSIFIED AFTER 12 YEARS  
DOD DIR 5200.10

# Standard Aircraft Characteristics

## NAVY MODEL F-111B AIRCRAFT

(TITLE UNCLASSIFIED)

**THIS PUBLICATION SUPERSEDES NAVAIR 00-110A-1 DATED  
1 MAY 1955 IN PART AND ALL ADDENDA THERETO**

*This publication shall not be carried in aircraft on combat missions or when there is a reasonable chance of its falling into the hands of an unfriendly nation, unless specifically authorized by the "Operational Commander."*

**PUBLISHED BY DIRECTION OF THE  
COMMANDER OF THE NAVAL AIR SYSTEMS COMMAND**

NOTICE—This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18, U. S. C., Sections 793 and 794. The transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.



DECLASSIFIED

CLASSIFIED by NAVAIR  
SUBJECT TO GENERAL DECLASSIFICATION  
SCHEDULE OF EXECUTIVE ORDER 11652  
AUTOMATICALLY DOWNGRADED AT TWO YEAR  
INTERVALS  
DECLASSIFIED ON DECEMBER 31, 1973

1 JULY 1967

**UNCLASSIFIED**  
**NAVAIR 00-110AF111-1**

Reproduction for non-military use of the information or illustrations contained in this publication is not permitted without specific approval of the issuing service (NAVAIR or USAF). The policy for use of Classified Publications is established for the Air Force in AFR 205-1 and for the Navy in Navy Regulations, Article 1509.

**LIST OF CHANGED PAGES ISSUED**

**INSERT LATEST CHANGED PAGES. DESTROY SUPERSEDED PAGES.**

NOTE: The portion of the text affected by the current change is indicated by a vertical line in the outer margins of the page.

\* The asterisk indicates pages changed, added or deleted by the current change.

**ADDITIONAL COPIES OF THIS PUBLICATION MAY BE OBTAINED AS FOLLOWS:**

**NAVAIR**

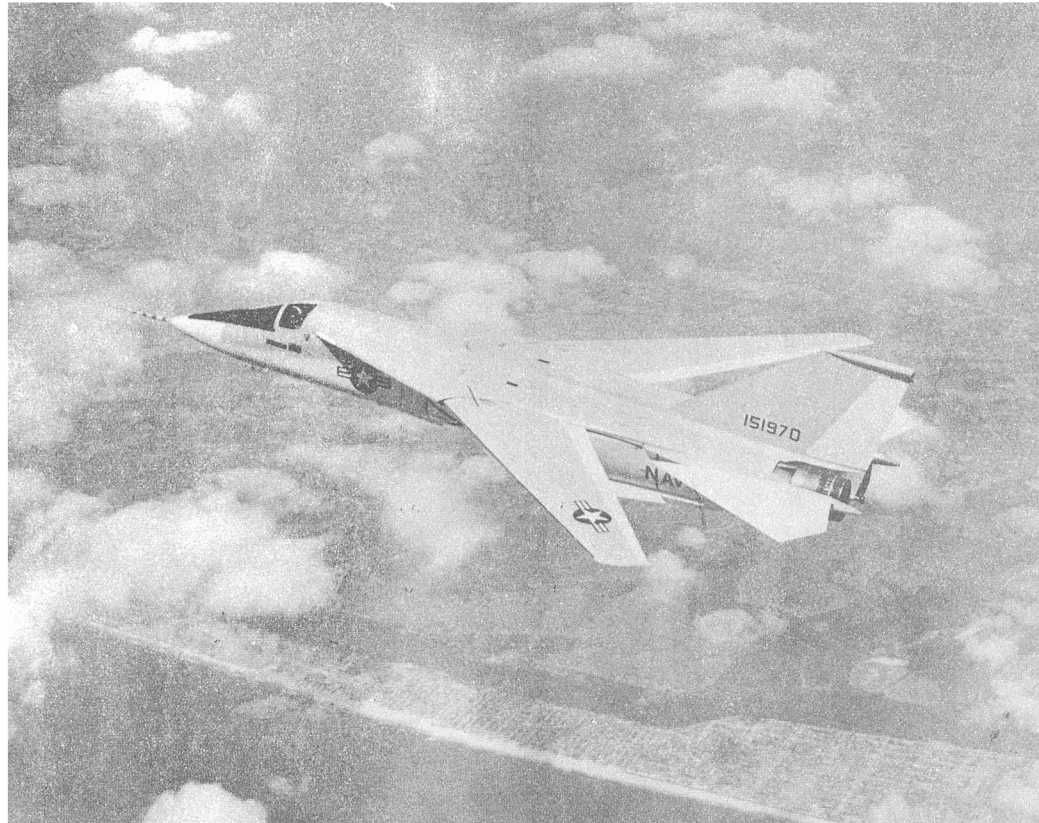
**ASAF ACTIVITIES.**—In accordance with Technical Order No. 00-5-2.

**NAVY ACTIVITIES.**—Use DD FORM 1348 and submit in accordance with the instructions contained in NAVSUP PUBLICATION 437—Military Standard Requisitioning and Issue Procedures.

For information on other available material and details of distribution refer to NAVSUP PUBLICATION 2002, SECTION VIII and NAVAIR 00-500A.

**UNCLASSIFIED**

**A**



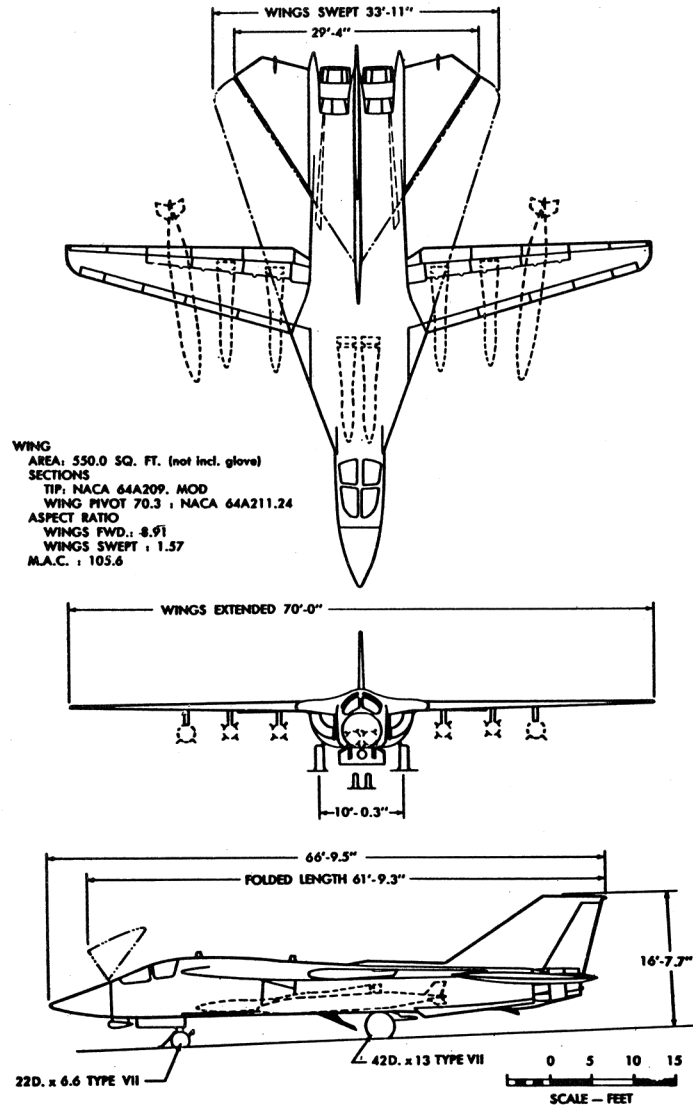
# **STANDARD AIRCRAFT CHARACTERISTICS**

**F-111B**

**GENERAL DYNAMICS**

SERVICE

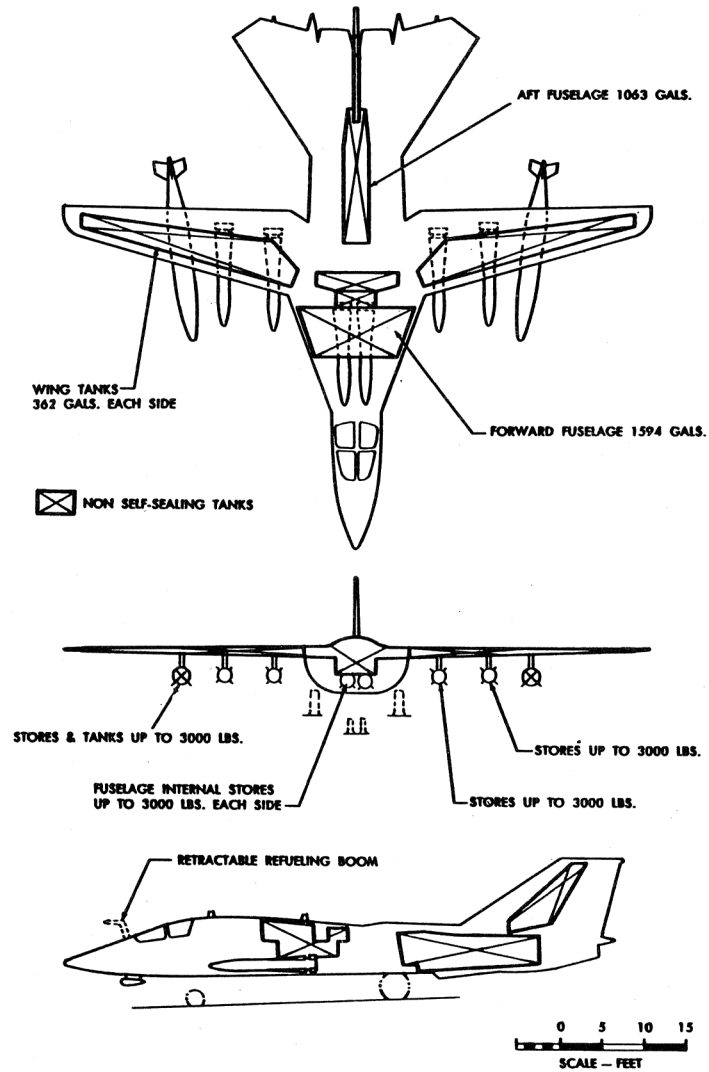
BUREAU OF NAVAL WEAPONS  
NAVY DEPARTMENT



WING  
AREA: 550.0 SQ. FT. (not incl. glove)  
SECTIONS  
TIP: NACA 64A209. MOD  
WING PIVOT 70.3 ; NACA 64A211.24  
ASPECT RATIO  
WINGS FWD.: 8.91  
WINGS SWEPT : 1.57  
M.A.C. : 103.6

F-111B  
DESCRIPTIVE ARRANGEMENT

BUREAU OF NAVAL WEAPONS  
NAVY DEPARTMENT



F-111B  
ARMAMENT AND TANKAGE

POWER PLANT	MISSION AND DESCRIPTION	WEIGHTS																																													
<p>No. and Model (2) TF 30-P-1A                      Manufacturer Pratt &amp; Whitney                      Specification P&amp;W A-1795                      12/5/64                      Type Turbo Fan                      Augmentation Modulated A/B                      Length with A/B (Operating Temp) 251.20 in                      Diameter (Operating Temp) 48.06 in                      Dry Weight 3880 lb</p> <p align="center"><b>RATINGS</b></p> <p align="center">Static Thrust at Sea Level</p> <table border="1"> <thead> <tr> <th></th> <th>Lb.</th> <th>RPM</th> </tr> </thead> <tbody> <tr> <td>Maximum (A/B)</td> <td>18,500</td> <td>14,200</td> </tr> <tr> <td>Military</td> <td>10,750</td> <td>14,200</td> </tr> <tr> <td>Normal</td> <td>8,500</td> <td>13,450</td> </tr> </tbody> </table>		Lb.	RPM	Maximum (A/B)	18,500	14,200	Military	10,750	14,200	Normal	8,500	13,450	<p>The F-111B is a two-place, twin engine fighter whose primary mission is the destruction of enemy aircraft. The aircraft has the additional capability of carrying conventional and special weapons for attack missions. The basic armament consists of 4 air-to-air PHOENIX missiles pylon mounted under the wings and 2 PHOENIX missiles in the weapons bay. Two 450 gal. external fuel tanks may be carried on the outboard wing stations.</p> <p>The F-111B features a variable sweep wing, 4 pivoting wing pylons which may be utilized at all sweep positions and 2 fixed pylons useable for the swept forward configuration. The high lift system is composed of full span double slotted flaps and slats with a rotating section in the leading edge of the wing glove. Lateral control is accomplished by spoilers and differential horizontal tail deflection.</p> <p>The aircraft uses an escape capsule containing the entire cockpit rather than ejection seats. F-111B features antiskid brakes.</p> <p>The F-111B is basically similar to the Air Force F-111A being concurrently developed. Many components are common to both designs.</p>	<table border="1"> <thead> <tr> <th>LOADING</th> <th>WEIGHT (POUNDS)</th> <th>LOAD FACTOR</th> </tr> </thead> <tbody> <tr> <td>Empty</td> <td>46000*</td> <td>.....</td> </tr> <tr> <td>Basic</td> <td>47519</td> <td>.....</td> </tr> <tr> <td>Flight Design</td> <td>60700</td> <td>..... 6.5</td> </tr> <tr> <td>Combat</td> <td>68365</td> <td>.....</td> </tr> <tr> <td>Max. Take-Off</td> <td></td> <td></td> </tr> <tr> <td>  Field</td> <td>77724</td> <td>.....</td> </tr> <tr> <td>  Catapult</td> <td>77724</td> <td>.....</td> </tr> <tr> <td>Max. Landing</td> <td></td> <td></td> </tr> <tr> <td>  Field</td> <td>64000</td> <td>.....</td> </tr> <tr> <td>  Arrest</td> <td>62000</td> <td>.....</td> </tr> </tbody> </table> <p align="center">*Projected Fleet Configuration</p>	LOADING	WEIGHT (POUNDS)	LOAD FACTOR	Empty	46000*	.....	Basic	47519	.....	Flight Design	60700	..... 6.5	Combat	68365	.....	Max. Take-Off			Field	77724	.....	Catapult	77724	.....	Max. Landing			Field	64000	.....	Arrest	62000	.....
	Lb.	RPM																																													
Maximum (A/B)	18,500	14,200																																													
Military	10,750	14,200																																													
Normal	8,500	13,450																																													
LOADING	WEIGHT (POUNDS)	LOAD FACTOR																																													
Empty	46000*	.....																																													
Basic	47519	.....																																													
Flight Design	60700	..... 6.5																																													
Combat	68365	.....																																													
Max. Take-Off																																															
Field	77724	.....																																													
Catapult	77724	.....																																													
Max. Landing																																															
Field	64000	.....																																													
Arrest	62000	.....																																													
<p align="center"><b>ORDNANCE</b></p>	<p align="center"><b>DEVELOPMENT</b></p> <p>First Flight F-111A ..... December 1964                      First Flight F-111B (modified F-111A) ..... May 1965                      First Flight Aircraft Representing Production F-111B (Estimated) ..... May 1966                      First Service Use (estimated) ..... July 1970</p>	<p align="center"><b>FUEL AND OIL</b></p> <table border="1"> <thead> <tr> <th>No. of Tanks</th> <th>Gallons</th> <th>Location</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>363 each</td> <td>Wing</td> </tr> <tr> <td>1</td> <td>1594</td> <td>Forward Fuselage</td> </tr> <tr> <td>1</td> <td>1063</td> <td>Aft Fuselage</td> </tr> <tr> <td>2</td> <td>450 each</td> <td>Fixed Pylon Ext. Drop</td> </tr> </tbody> </table> <p>Grade JP-4 or JP-5                      Specification MIL-F-5624</p> <p align="center"><b>OIL</b></p> <p>2 4 each (3 useable)                      Specification MIL-L-7808 &amp; MIL-L-23699</p>	No. of Tanks	Gallons	Location	2	363 each	Wing	1	1594	Forward Fuselage	1	1063	Aft Fuselage	2	450 each	Fixed Pylon Ext. Drop																														
No. of Tanks	Gallons	Location																																													
2	363 each	Wing																																													
1	1594	Forward Fuselage																																													
1	1063	Aft Fuselage																																													
2	450 each	Fixed Pylon Ext. Drop																																													
<p>Missiles: Phoenix                      Sidewinder IC-IR                      Shrike</p> <p>Rocket Launchers: LAU-3A/A                      LAU-10/A                      LAU-32A/A</p> <p>Gun Pod: MK-4</p> <p>Nuclear Weapons: MK-43                      MK-57                      TX-61</p> <p>Conventional Bombs:                      (For Multiple Carriage on MER/TER 7 Racks)                      MK-81, MK-82, MK-83                      MK-84 (Single Carriage Only)                      MK-81 Snakeye I, MK-82 Snakeye I                      220# AN/FRAG (Banded)                      260# AN/FRAG (Banded)                      250# ANGP (Banded)                      MK-77 MOD 2 Firebomb                      MK-79 Firebomb                      MK-24 Flare                      CBU-1, CBU-2, CBU-3                      Sadeye, Rockeye II, Fireye                      Briteye, Bigeye, Weteye</p> <p>Fuel Tanks: 450 Gallon                      MX-900 Chaff Dispenser</p> <p>Miscellaneous: MK-12 Smoke Tank                      ALQ-76- ECM Pod                      AUX Power Unit (RCPP-10)                      AQM-37A Target                      Supersonic Aerial Tow Target</p>	<p align="center"><b>DIMENSIONS</b></p> <table border="1"> <tbody> <tr> <td>Wing Area</td> <td>550 Sq. Ft.</td> </tr> <tr> <td>Most Forward Sweep (ldg. edge)</td> <td>16 deg.</td> </tr> <tr> <td>Span</td> <td>70 ft.</td> </tr> <tr> <td>M.A.C.</td> <td>8 Ft. 10 in.</td> </tr> <tr> <td>Incidence</td> <td>1 deg.</td> </tr> <tr> <td>Dihedral</td> <td>1 deg.</td> </tr> <tr> <td>Airfoil Section Sta 134</td> <td>NACA 64A211.24</td> </tr> <tr> <td>Most Aft Sweep (ldg. edge)</td> <td>72.5 deg.</td> </tr> <tr> <td>Span</td> <td>33 Ft. 11 in.</td> </tr> <tr> <td>Length</td> <td>66 Ft 9.5 in.</td> </tr> <tr> <td>Height</td> <td>16 Ft 7.7 in.</td> </tr> <tr> <td>Wheelbase</td> <td>24 Ft 3 in.</td> </tr> <tr> <td>Iread</td> <td>10 Ft 0.4 in.</td> </tr> </tbody> </table>	Wing Area	550 Sq. Ft.	Most Forward Sweep (ldg. edge)	16 deg.	Span	70 ft.	M.A.C.	8 Ft. 10 in.	Incidence	1 deg.	Dihedral	1 deg.	Airfoil Section Sta 134	NACA 64A211.24	Most Aft Sweep (ldg. edge)	72.5 deg.	Span	33 Ft. 11 in.	Length	66 Ft 9.5 in.	Height	16 Ft 7.7 in.	Wheelbase	24 Ft 3 in.	Iread	10 Ft 0.4 in.	<p align="center"><b>ELECTRONICS</b></p> <p>UHF TRANSCIVER ..... AN/ARC-51B                      AUXILIARY UHF ..... AN/ARR-69                      HF TRANSCIVER ..... AN/ARC-104                      INTERCOM ..... AN/AIC-18                      DATA LINK ..... AN/ASW-21A                      DATA LINK TRANSCIVER ..... AN/ARC-88A                      UHF ADF ..... AN/ARA-50                      RADIO SET (TACAN) ..... AN/ARN-52                      RADAR ALTIMETER ..... AN/APN-167                      INERTIAL NAVIGATION SYSTEM ..... LN-14                      IFF ..... AN/APX-46                      PHOENIX MISSILE SYSTEM ..... AN/AWG-9                      SHRIKE COMPUTER ..... CP-741/A                      ELECTRIC BOMB FUZING ..... AWN-2                      ARMAMENT MONITOR AND CONTROL (AMAC) ..... A/A24B-4</p>																			
Wing Area	550 Sq. Ft.																																														
Most Forward Sweep (ldg. edge)	16 deg.																																														
Span	70 ft.																																														
M.A.C.	8 Ft. 10 in.																																														
Incidence	1 deg.																																														
Dihedral	1 deg.																																														
Airfoil Section Sta 134	NACA 64A211.24																																														
Most Aft Sweep (ldg. edge)	72.5 deg.																																														
Span	33 Ft. 11 in.																																														
Length	66 Ft 9.5 in.																																														
Height	16 Ft 7.7 in.																																														
Wheelbase	24 Ft 3 in.																																														
Iread	10 Ft 0.4 in.																																														

~~CONFIDENTIAL~~

NAVAIR OO-110AF111-1

SERVICE

**PERFORMANCE SUMMARY**

TAKE-OFF LOADING CONDITION	(1) FIGHTER 6 Phoenix	(3) FIGHTER 2 Phoenix	(5) FERRY 2 450 Gal. Tanks
<b>TAKE-OFF WEIGHT</b> lb.	77566	72421	77302
<b>Fuel internal/external (JP-5)</b> lb./lb.	23003/--	23003/--	23003/6210
<b>Payload</b> lb.	6620	2207	--
<b>Wing loading</b> lb./sq. ft.	141.0	131.8	140.5
<b>Stall speed—power-off</b> kn.	114.3	110.3	114.0
<b>Take-off to clear 50 ft at S.L. - calm (A)</b> ft.	6000	5100	5950
<b>Take-off to clear 50 ft at S.L. - calm (B)</b> ft.	3070	2700	3050
<b>Wind Over Deck Required for Launch (C)</b> kn.	+10.6	+2.5	+10.0
<b>Max. speed/altitude (A)</b> kn./ft.	568/SL	622/SL	(D) 480/12000
<b>Rate of climb at S.L. (A)/(B)</b> fpm.	4360/17900	5505/23200	4720/--
<b>Time: S.L. to 20,000 ft. (A)/(B)</b> min.	7.1/1.2	5.1/0.9	6.3/--
<b>Time: S.L. to 30,000 ft. (E)</b> (A)/(B) min.	13.9/2.2	11.0/1.7	13.8/--
<b>Service ceiling (100 fpm) (A)</b> ft.	32100	37600	34200
<b>Combat range</b> n.mi.	1830	2330	(F) 2760
<b>Average cruising speed</b> kn.	416	428	423
<b>Cruising altitude(s)</b> ft.	27000 to 39100	33200 to 40300	29300 to 38600
<b>Combat radius/mission time</b> n.mi./hr.	475/2.40	845/4.02	--
<b>Average cruising speed</b> kn.	420	428	--
<b>CAP loiter time/mission time (G)</b> hr.	(H) 1.52/2.37	(I) 3.25/4.02	--
<b>Average loiter speed (J)</b> kn.	365	367	--

COMBAT LOADING CONDITION	(2) 6 Phoenix	(4) 2 Phoenix	(6) 2 450 Gal. Tanks
<b>COMBAT WEIGHT</b> lb.	68365	63220	65617
<b>Engine power/ Wing sweep</b>	Maximum/Optimum	Maximum/Optimum	Military/26°
<b>Fuel</b> lb.	13800	13800	17528
<b>Combat speed/combat altitude</b> kn./ft.	(K) 1150/30000	(K) 1150/30000	(D) 448/30000
<b>Rate of climb at combat altitude (L)/(M)</b> fpm.	7485/6212	9065/25100	1035/--
<b>Combat ceiling (500 fpm) (L)/(M)</b> ft.	-/ 44900	-/ 52600	36100/--
<b>Rate of climb at S.L.</b> fpm.	21300	27200	5740
<b>Max. speed at S.L. (A)/(B)</b> kn.	575/678	(K) 625/793	(D) 400/400
<b>Max. speed/altitude</b> kn./ft.	(K) 1260/40000	(K) 1260/40000	(D) 480/12000
<b>Acceleration time, V<sub>cruise</sub> to V<sub>combat</sub></b> min.	10.2	4.0	--
<b>LANDING WEIGHT (External Stores retained)</b> lb.	56980	51613	50637
<b>Fuel</b> lb.	2417	2195	2548
<b>Stall speed—power-off/approach power</b> kn./kn.	(N) 100.3/99.6	(N) 95.5/94.8	(P) 96.6/95.8
<b>Landing distance—ground roll/over 50 ft. obst.</b> ft./ft.	2268/2983	2092/2807	2125/2840

**NOTES**

DATA BASIS: Calculations Based on BUWEPS Estimated Performance As of 1 March 1965

Fuel Consumption Based on Engine Manufacturer's Specification Fuel Flows Increased 5%

Weight and Aerodynamic Data Based on Projected Fleet Configuration

~~CONFIDENTIAL~~

NOTES

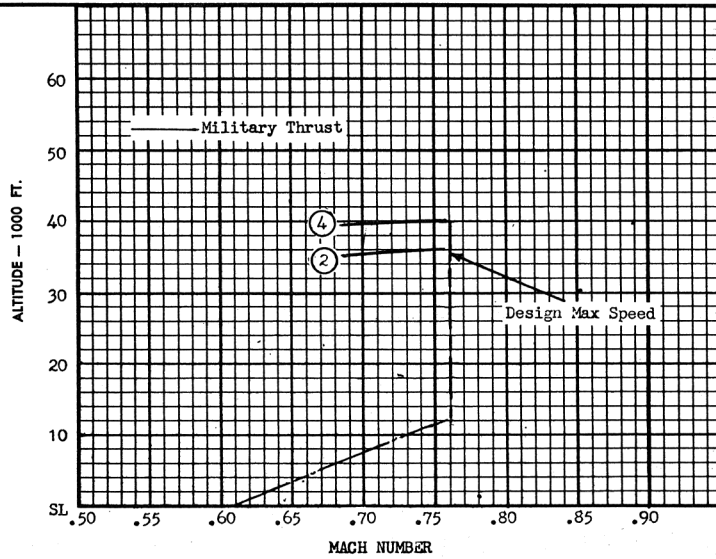
Footnotes For Performance Summary

- (A) Military Rated Thrust
- (B) Maximum Rated Thrust
- (C) Minimum Catapult Take-Off Speed, C-7 Catapult, 90°F Ambient Temperature
- (D) Design Maximum Level Flight Speed for 26° Sweep per Contractor's FZM-12-929 Revised 6 Dec 1964 - Not Thrust Limit\*
- (E) 30,000 ft. or Cruise Ceiling, Whichever is Lower for Military Thrust Climbs
- (F) Tanks Retained, Range is 2997 N.Mi. if Tanks Dropped When Empty
- (G) Combat Air Patrol Radius 150 N.Mi. CAP Altitude 30,000 ft.
- (H) 3.79 hrs. If No Combat Fuel Allowance is Made - Mission Time 4.64 hrs.
- (I) 4.90 hrs. If No Combat Fuel Allowance is Made - Mission Time 5.66 hrs.
- (J) Speed for Maximum Endurance, Maneuverability Limited to 1.27g By Buffet. Loiter Time Significantly Reduced at Higher Speed
- (K) Design Maximum Level Flight Speed for 72.5° Sweep per Contractor's FZM-12-929 Revised 6 Dec 1964; Not Thrust Limit
- (L) Subsonic Climb Speed
- (M) Supersonic Climb Speed (Design Maximum Speed for 72.5° Sweep)
- (N) 18° Sweep Required for Stability (21° if Missiles Not Retained) - (5% Static Margin)
- (P) 21° Sweep Required for Stability - (5% Static Margin)

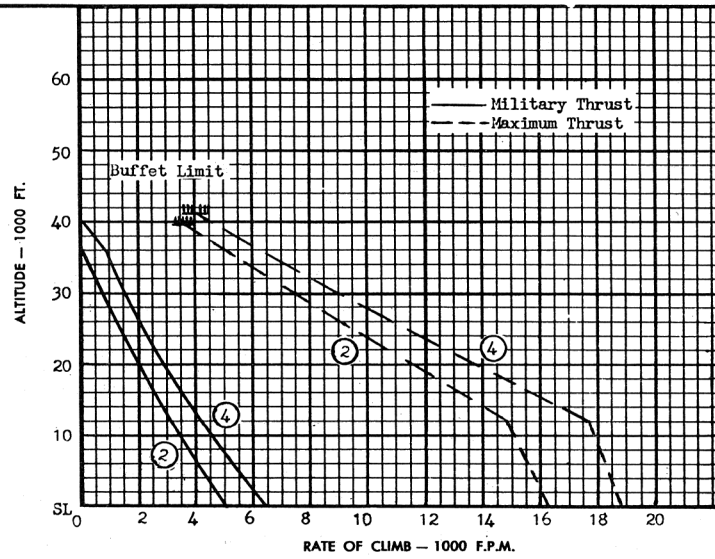
\* Wing sweep limited to 26° when fixed pylon stations are loaded. External fuel tanks may be carried at fixed pylon stations only.

SERVICE

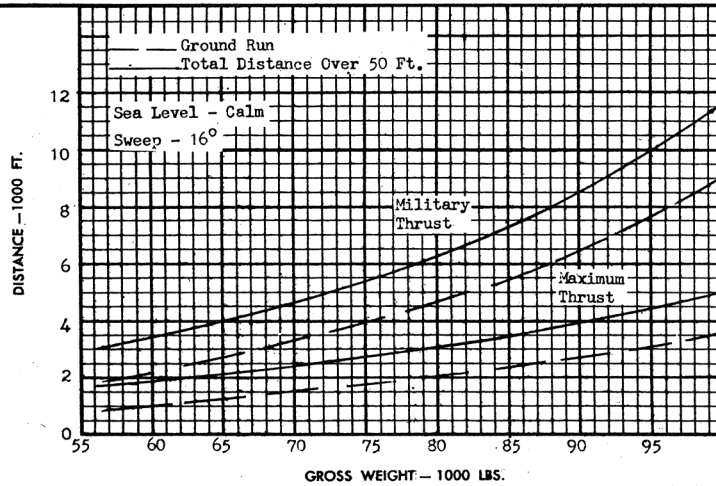
**SPEED (SWEEP=26°)**



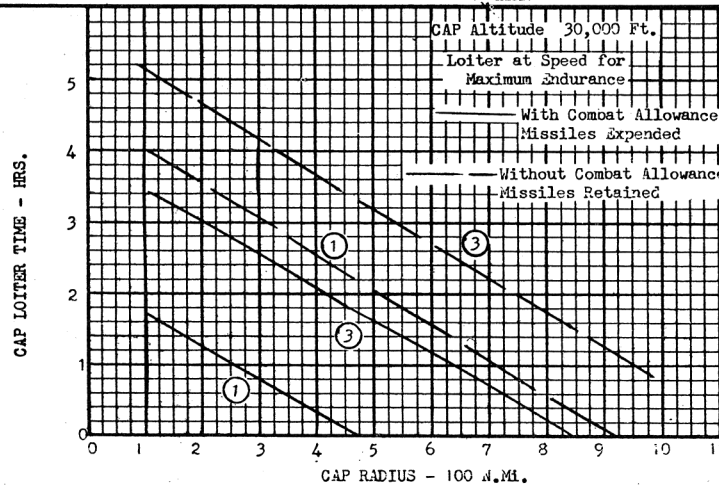
**CLIMB (SWEEP=26°)**



**TAKE-OFF**

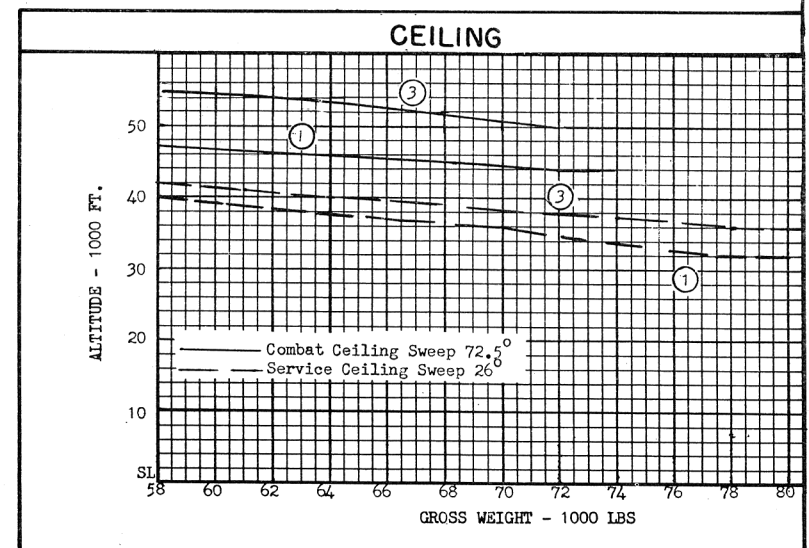
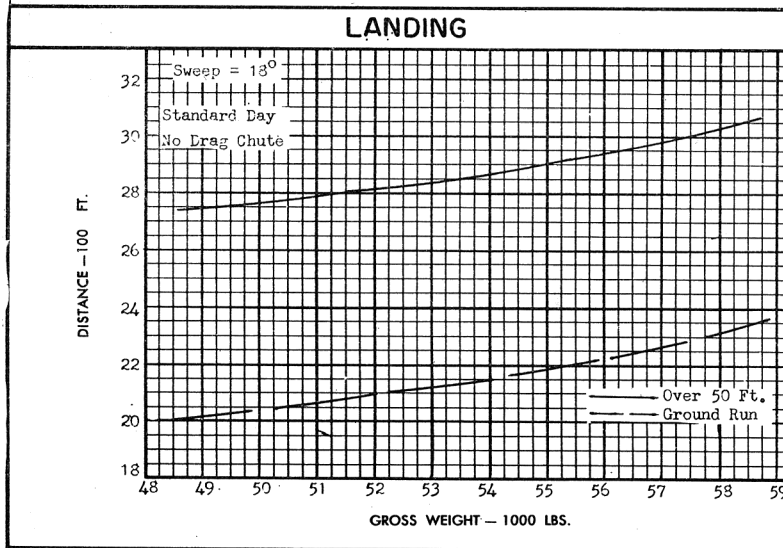
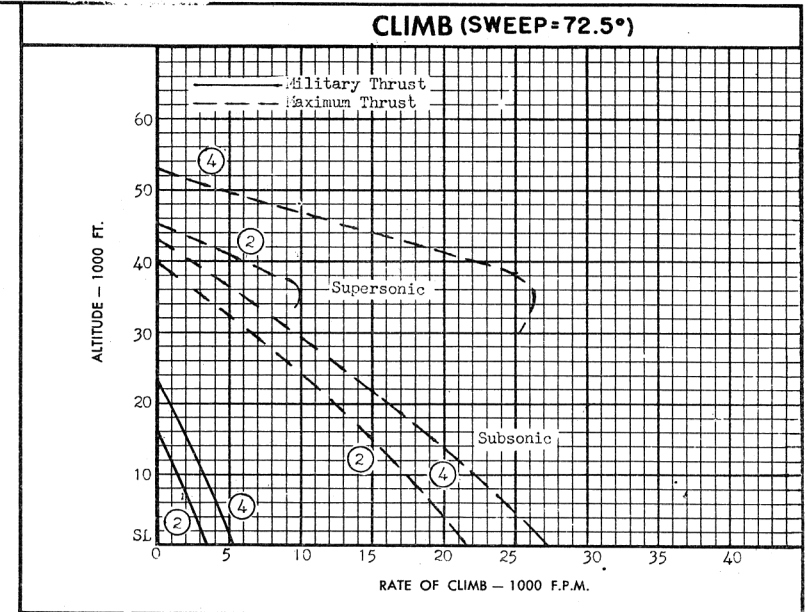
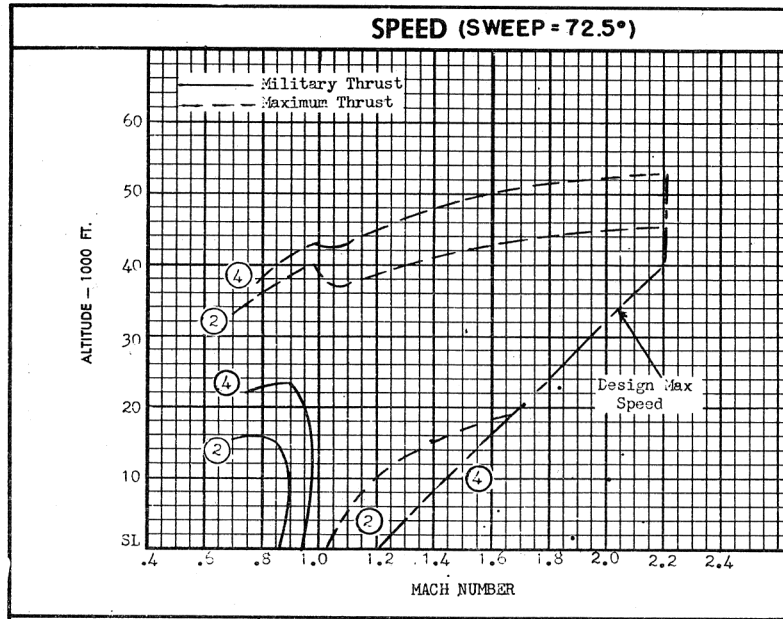


**CAP TIME ON STATION**



○ LOADING CONDITION COLUMN NUMBER

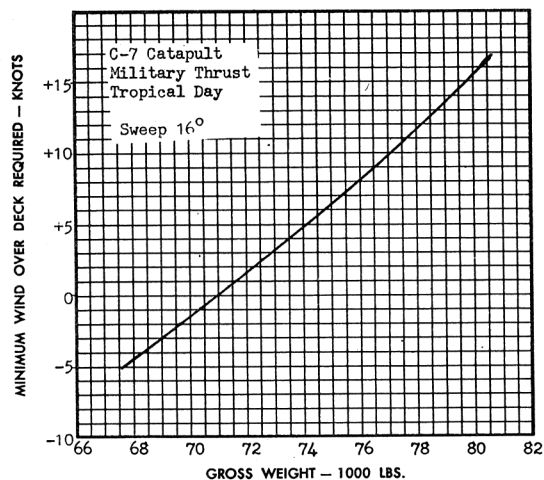




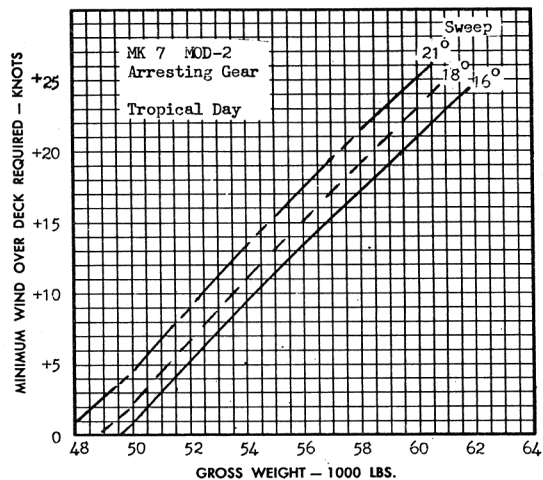
○ LOADING CONDITION COLUMN

SERVICE

**MINIMUM WIND OVER DECK REQUIRED FOR CATAPULTING  
VS. GROSS WEIGHT**



**MINIMUM WIND OVER DECK REQUIRED FOR ARRESTING  
VS. GROSS WEIGHT**



**NOTES**

These Curves Should be Used for Planing Purposes Only. Actual Catapult and Arresting Gear Operation Should be in Accordance with Applicable Aircraft Technical Orders, and Catapult and Arresting Gear Bulletins.

NOTES

GENERAL PURPOSE FIGHTER - MISSION DEFINITION

- 1) Warm-up, Take-off, Accelerate: 5 min. with normal thrust at sea level
- 2) Climb: On course to cruise altitude with military thrust
- 3) Cruise-Out: At altitude and speeds for maximum range
- 4) Combat Fuel Allowance: Accelerate with maximum thrust at 30,000 ft. from cruise speed to 1.5 MW and remain at this speed and altitude for 2 Min. at maximum power EXPEND MISSILES
- 5) Cruise-Back: At altitudes and speeds for maximum range
- 6) Reserve: 20 Min. at speed for maximum endurance at sea level (2 engines operating) plus 5% of initial fuel load.

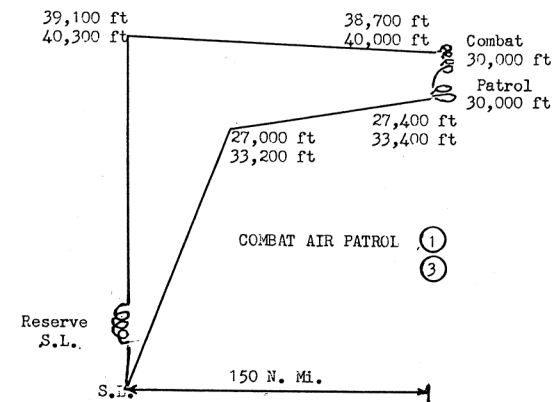
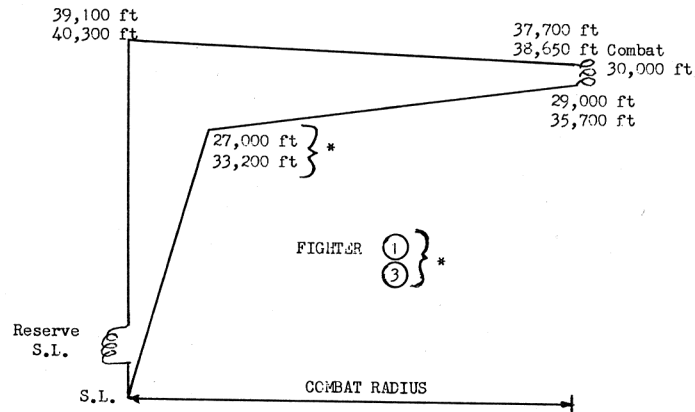
COMBAT AIR PATROL - MISSION DEFINITION

- 1) Warm-Up, Take-Off, Accelerate: Same as G.P. Fighter
- 2) Climb: Same as G. P. Fighter
- 3) Cruise-Out: To a point 150 Naut. miles from base at altitudes and speeds for best range
- 4) Loiter: On station at 30,000 ft at speed for maximum endurance
- 5) Combat Fuel Allowance: Same as G. P. Fighter
- 6) Cruise-Back: 150 Naut. miles to base at altitudes and speeds for best range
- 7) Reserve: Same as G.P. Fighter

COMBAT AIR PATROL - DESIGN MISSION

Same as above except:

- 5) Combat Fuel Allowance: None, Retain Missiles



\*Flight altitudes correspond to the take-off loading conditions shown on the Performance Summary page of this chart

**CONFIDENTIAL**

THIS PAGE INTENTIONALLY LEFT BLANK.

**CONFIDENTIAL**