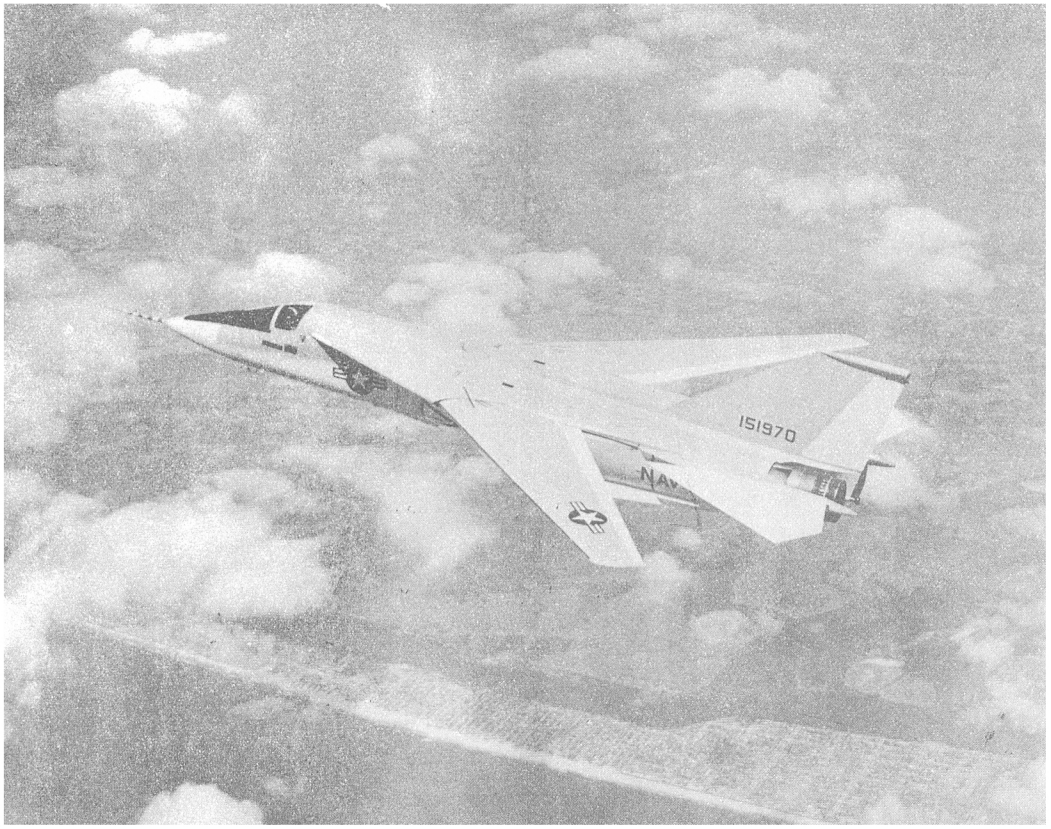


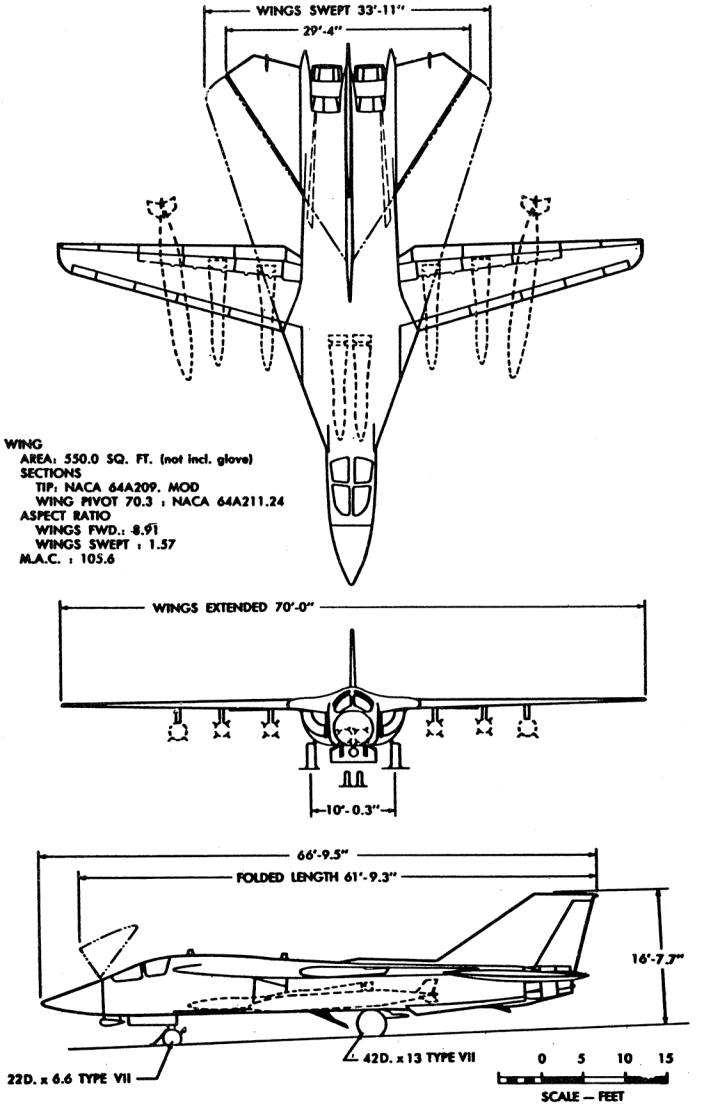
STANDARD AIRCRAFT CHARACTERISTICS

F-111B

GENERAL DYNAMICS

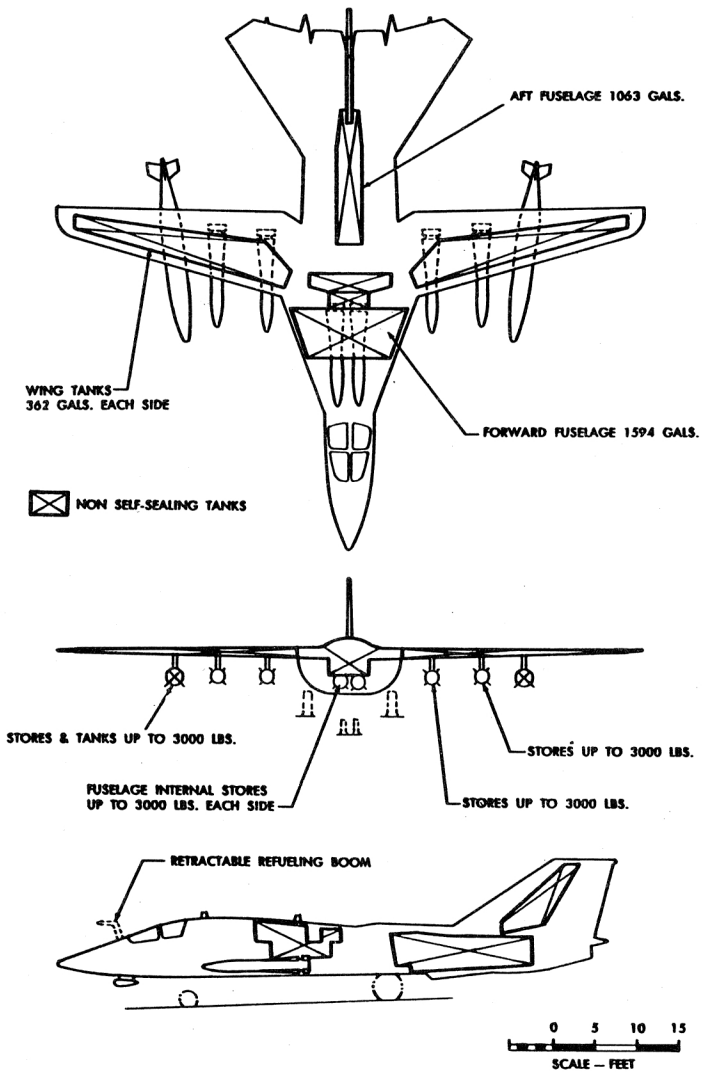
SERVICE

BUREAU OF NAVAL WEAPONS
NAVY DEPARTMENT



F-111B
DESCRIPTIVE ARRANGEMENT

BUREAU OF NAVAL WEAPONS
NAVY DEPARTMENT



F-111B
ARMAMENT AND TANKAGE

SERVICE

POWER PLANT

No. and Model	(2) TF 30-P-1A
Manufacturer	Pratt & Whitney
Specification	P&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

RATINGS

Static Thrust at Sea Level

	Lb.	RPM
Maximum (A/B)	18,500	14,200
Military	10,750	14,200
Normal	8,500	13,450

ORDNANCE

Missiles:	Phoenix
	Sidewinder IC-IR
	Shrike
Rocket Launchers:	LAU-3A/A
	LAU-10/A
	LAU-32A/A
Gun Pod:	MK-4
Nuclear Weapons:	MK-43
	MK-57
	TX-61

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

Fuel Tanks:	450 Gallon
Miscellaneous:	MX-900 Chaff Dispenser
	MK-12 Smoke Tank
	ALQ-76- ECM Pod
	AUX Power Unit (RCPP-105)
	AQM-37A Target
	Supersonic Aerial Tow Target

MISSION AND DESCRIPTION

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.

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.

The aircraft uses an escape capsule containing the entire cockpit rather than ejection seats. F-111B features antiskid brakes.

The F-111B is basically similar to the Air Force F-111A being concurrently developed. Many components are common to both designs.

DEVELOPMENT

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

DIMENSIONS

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.
Tread	10 Ft 0.4 in.

WEIGHTS

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	

*Projected Fleet Configuration

FUEL AND OIL

No. of Tanks	Gallons	Location
2	363 each	Wing
1	1594	Forward Fuselage
1	1063	Aft Fuselage
2	450 each	Fixed Pylon Ext. Drop

Grade	JP-4 or JP-5
Specification	MIL-F-5624

OIL

2	4 each (3 useable)
Specification	MIL-L-7808 & MIL-L-23699

ELECTRONICS

UHF TRANSCEIVER	AN/ARC-51B
AUXILIARY UHF	AN/ARR-69
HF TRANSCEIVER	AN/ARC-104
INTERCOM	AN/AIC-18
DATA LINK	AN/ASW-21A
DATA LINK TRANSCEIVER	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

SERVICE

PERFORMANCE SUMMARY

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

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

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)

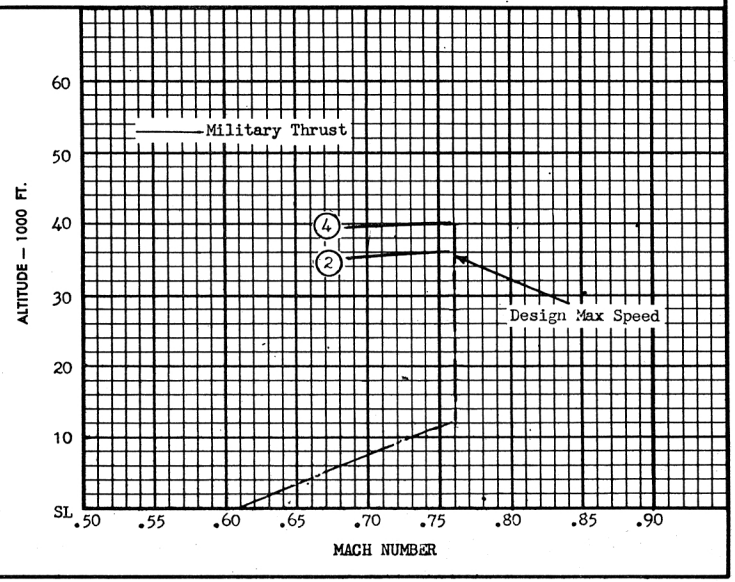
(N) 18° Sweep Required for Stability (21° if Missiles Not Retained) - (5% Static Margin)

(P) 21° Sweep Required for Stability - (5% Static Margin)

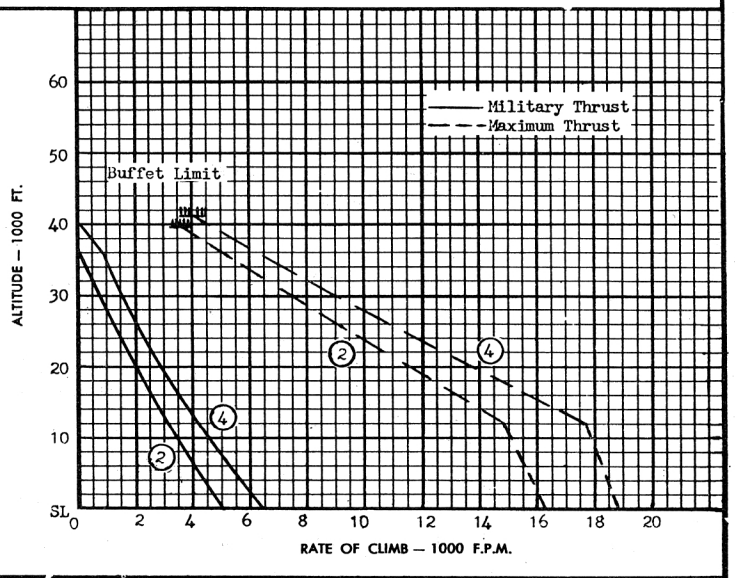
* Wing sweep limited to 26° when fixed pylon stations are loaded. External fuel tanks may be carried at fixed pylon stations only.

SERVICE

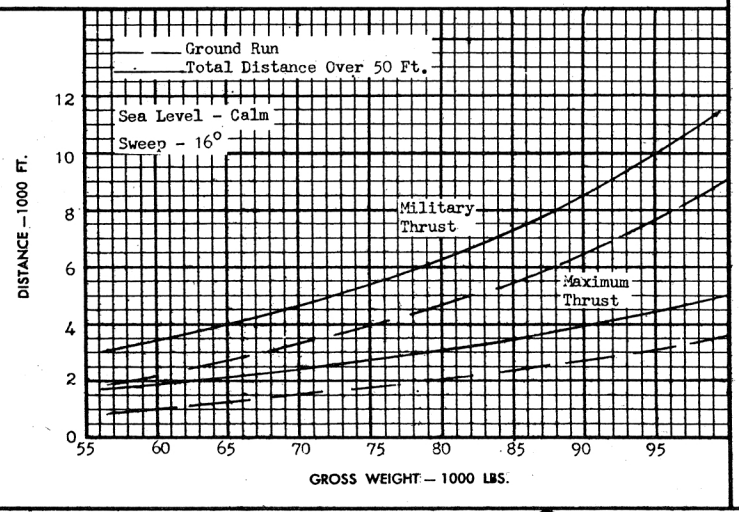
SPEED (SWEEP=26°)



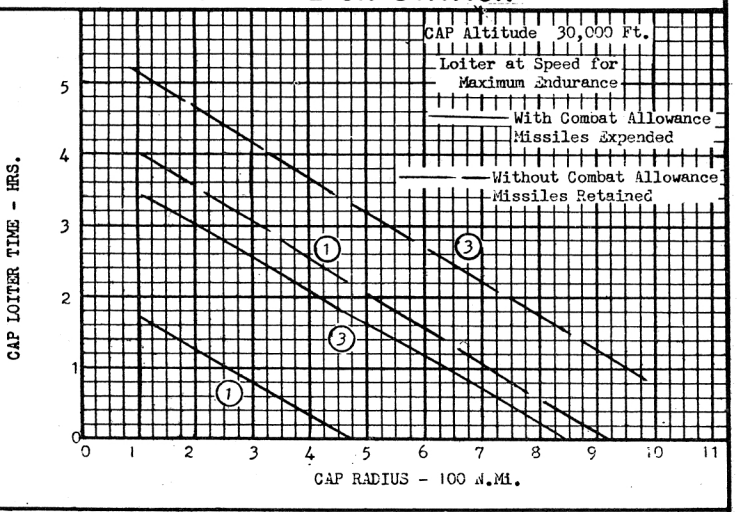
CLIMB (SWEEP=26°)



TAKE-OFF



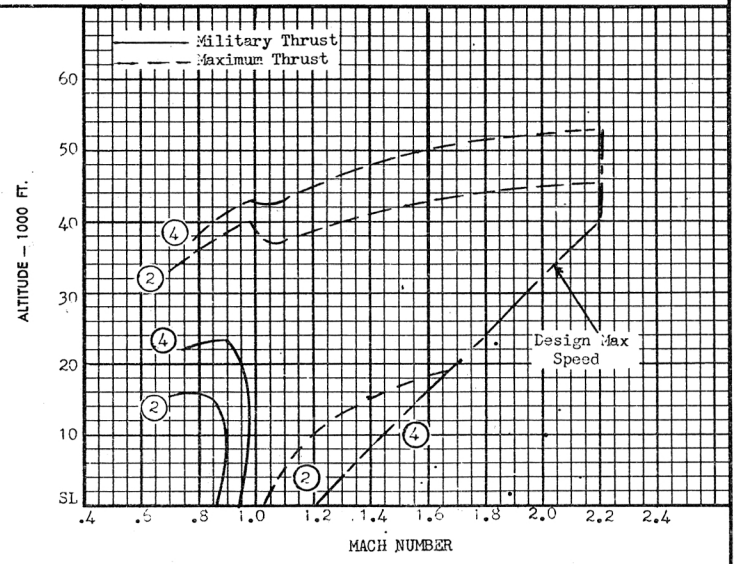
CAP TIME ON STATION



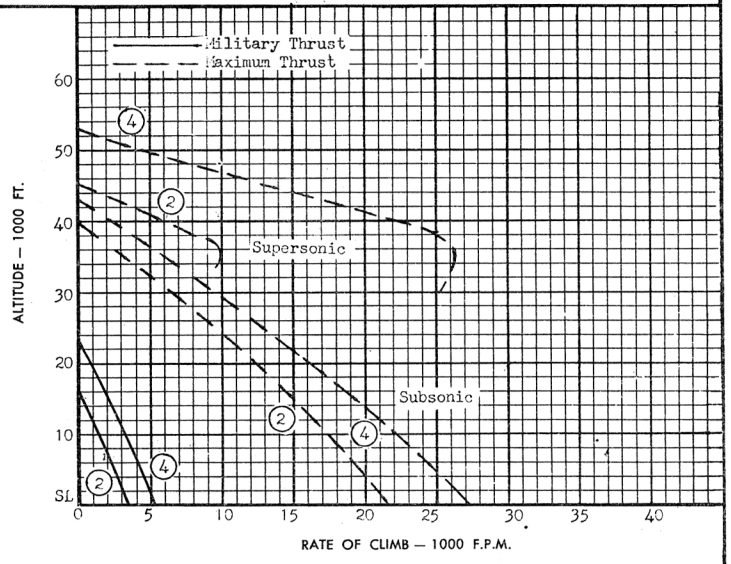
◯ LOADING CONDITION COLUMN NUMBER

SERVICE

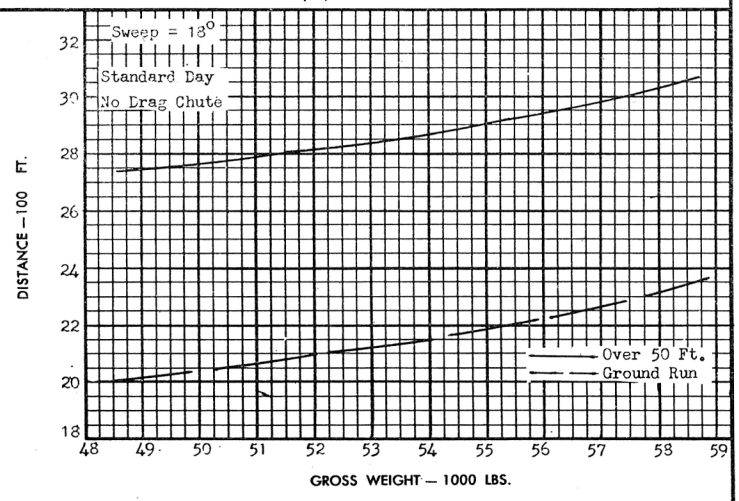
SPEED (SWEEP = 72.5°)



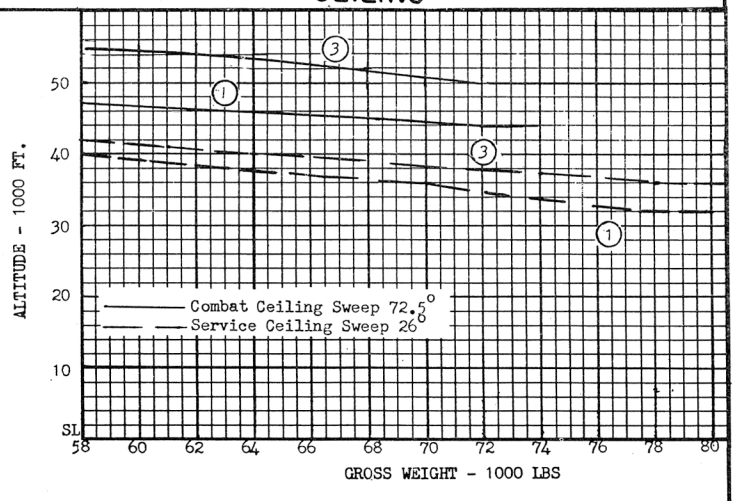
CLIMB (SWEEP = 72.5°)



LANDING

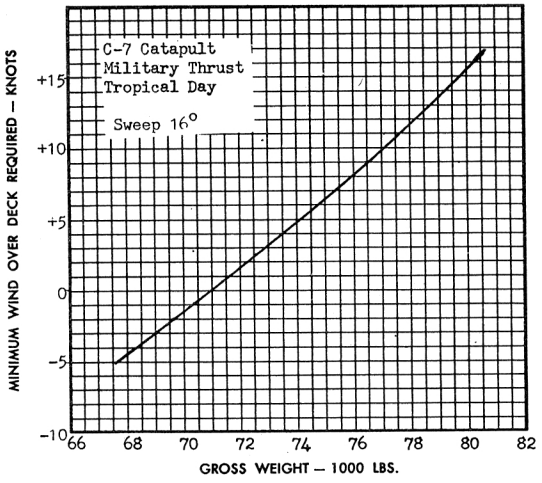


CEILING

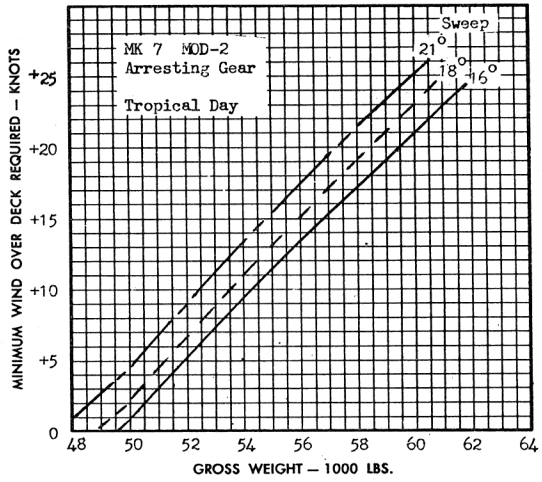


◯ **LOADING CONDITION COLUMN** NUMBER

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 MN 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.

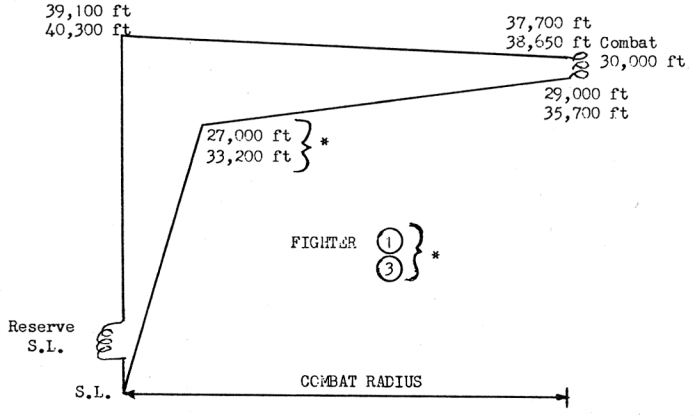
COMBAT AIR PATROL - MISSION DEFINITION

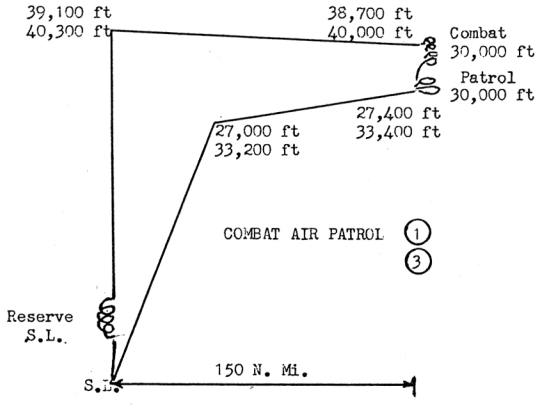
1) Warm-Up, Take-Off, Accelerate: Same as G.P. Fighter
2) Climb: Same as G. P. Fighter
3) Cruise-Out: To a point 150 Naut. miles from base at altitudes and speeds for best range
4) Loiter: On station at 30,000 ft at speed for maximum endurance
5) Combat Fuel Allowance: Same as G. P. Fighter
6) Cruise-Back: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