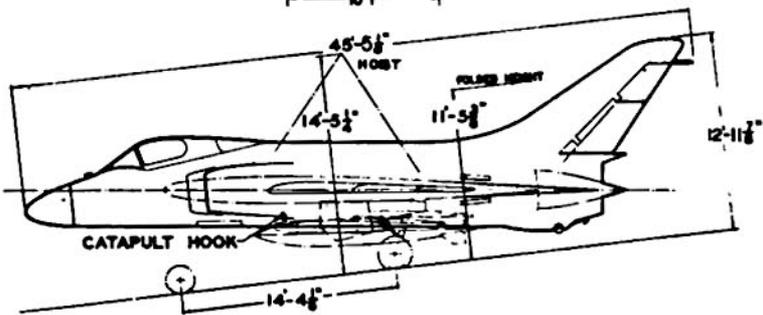
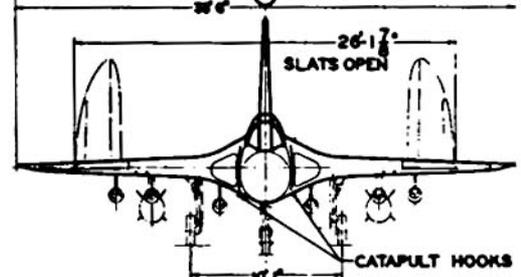
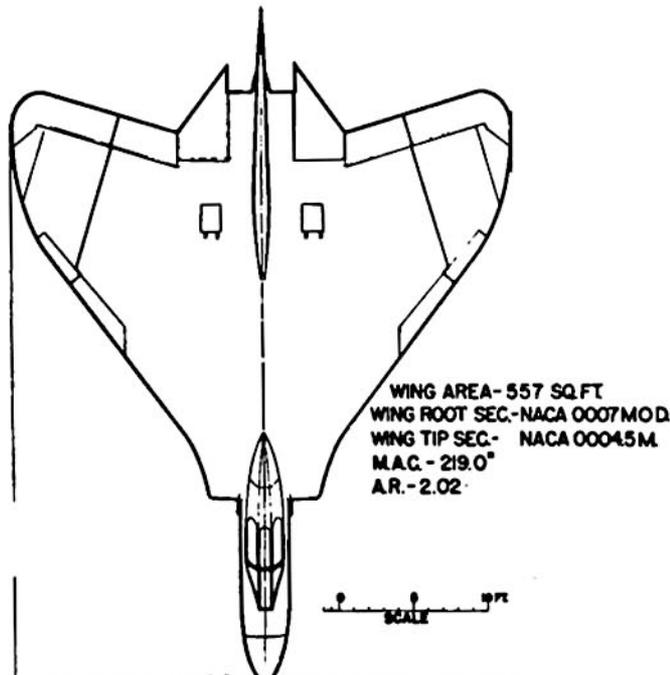


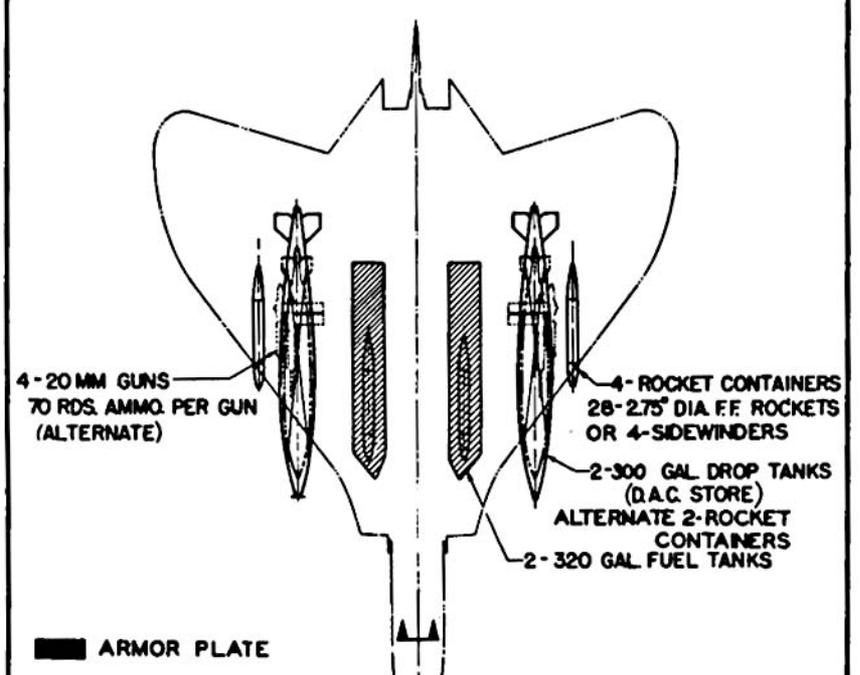
STANDARD AIRCRAFT CHARACTERISTICS

F-6A SKYRAY

DOUGLAS



DESCRIPTIVE ARRANGEMENT



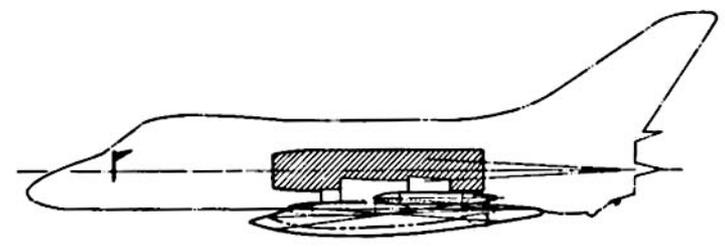
- ARMOR PLATE
- DEFLECTOR PLATE
- BLADDER TANK (NON S.S.)
- DROP TANK



PROTECTION
 ARMOR PLATE AND
 DEFLECTOR PLATE 60 LB.

ALTERNATE 4-19 SHOT
 ROCKET CONTAINERS

ALTERNATE 1-NAVPAC



ARMAMENT & TANKAGE

POWER PLANT

No. & Model(1) J57-P-8 or -8B
 Mfr.Pratt & Whitney
 Eng. Spec.N-1694B (Rev. 9-15-55)
 Type Turbo-Jet
 Compr. Multi-Stage, Axial Flow
 Augmentation Afterburner
 Tail Pipe Nozzle Two-Position
 Length 250 in.
 Diameter 40.5 in.

RATINGSSea Level Static

	THRUST	⊙
	Lbs.	RFM
Normal	8700	5750
Military	10200	6050
Maximum (with A/B).....	16000	6050

ORDNANCE

28 - 2.75 in. diameter folding fin rockets in 4 external packages, 7 rockets in each package

or

76 - 2.75 in. diameter folding fin rockets in 4 external packages, 19 rockets in each package

or

4 - 20mm M-12 guns mounted in wing, 70 rounds ammunition per gun

or

4 - AAM-N-7 Sidewinders on special launchers.

MISSION AND DESCRIPTION

The primary mission of the Model F-6a (F4D-1) airplane is that of an all-weather general purpose fighter. The airplane is capable of controlled diving flight at supersonic speeds at medium and high altitudes. The airplane is designed to operate from aircraft carriers or from land bases.

The design of the airplane is based on a tailless low aspect ratio planform with provision for the power plant within the wing structure. The cockpit is located forward of the wing. Flight control is provided by means of power-operated elevons which perform the functions of conventional elevators and ailerons. Electrically actuated trimming surfaces are provided inboard of the elevons for longitudinal trim. Lateral trim is provided by displacing the control stick neutral point with a small electric actuator. Directional trim is accomplished with the upper section of the split rudder by means of a hydraulic servo-cylinder.

DEVELOPMENT

First Flight June 1954
 Service Use June 1956

DIMENSIONS**Wing:**

Area 557 sq. ft.
 Span 33.5 ft.
 M.A.C. 219 in.
 Sweepback (lead. edge) 32.5°
 Length 45.4 ft.
 Height 13 ft.
 Tread 10.1 ft.

WEIGHTS

Loadings	Lbs.	L.F.
Empty (A)	16,024	
Basic	16,667	
Flt Design	18,215	6.3
Combat	22,648	5.1
Max. T.O (Field) (Catapult)	28,000	4.1
Max. Land (Field) (Arrest)	21,000	5.1

FUEL AND OIL

Gal.	No. Tanks	Location
640	2	Inner Wing*
600	2	Ext. Droppable
Maximum Usable Fuel 1240 Gal.		
Fuel Grade JP-4		
Fuel Spec. MIL-F-5624		
*Self-Sealing		

OIL

Capacity 3 gal. (integral with engine)
 Oil Spec. MIL-L-7808

ELECTRONICS

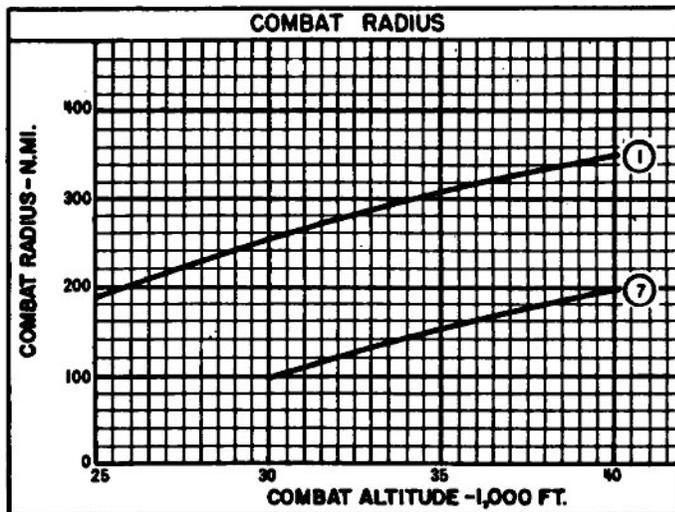
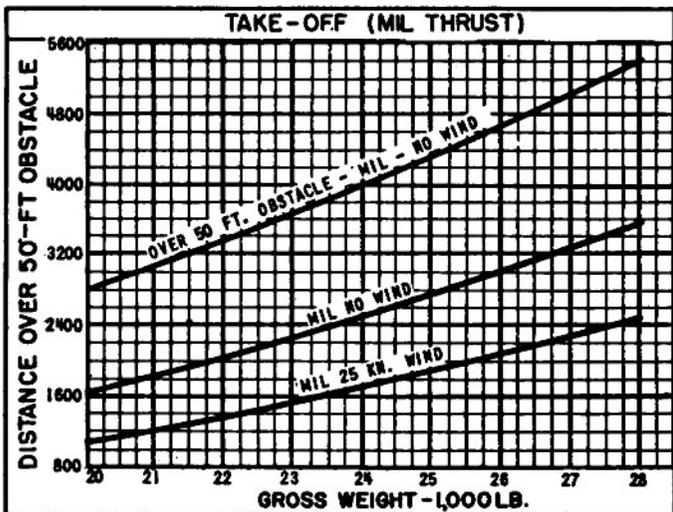
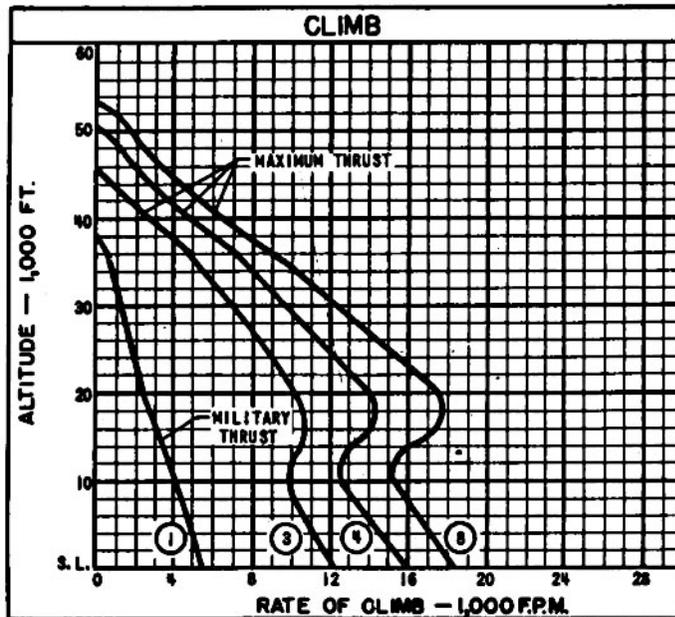
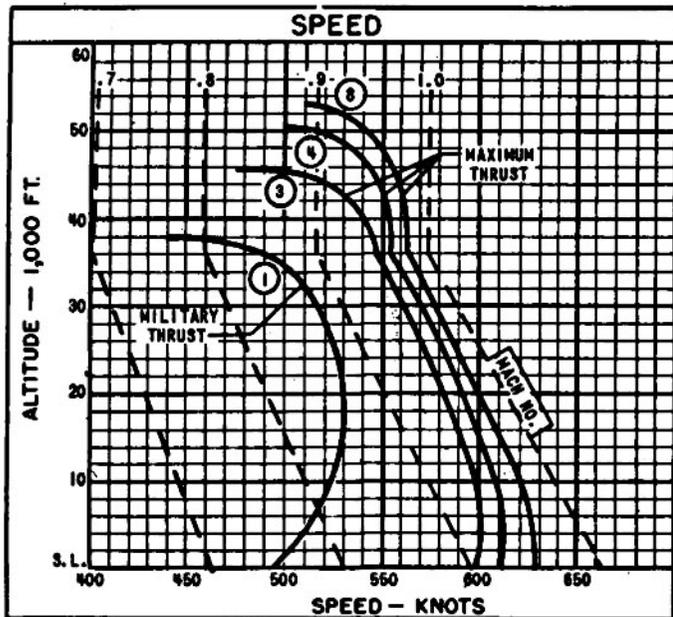
UHF Comm. AN/ARC-27A
 Nav. Rec. AN/ARN-21
 Radio Altm. AN/APN-22
 IFF AN/APX-6B
 Dir. Finder AN/ARA-25
 NAV PAC, consisting of:
 VHF NAV AN/ARN-14
 Marker Beacon AN/ARN-12
 Fire Control Aero 13-F System
 Consisting of:
 Radar AN/APQ-50
 Arm. Cont. Dir. Aero 5B
 Opt. Sight Syst. Mc. 16 Mod. 11

PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION	① G.P. FIGHTER 4-SIDEWINDERS 2-300 GAL. TANKS	③ G.P. FIGHTER 4-19 SHOT RKT. PKGS. 2-300 GAL. TANKS	⑤ G.P. FIGHTER 2-SIDEWINDERS 2-19 SHOT RKT PKGS. 2-300 GAL. TANKS	⑦ G.P. FIGHTER 4-SIDEWINDERS 2-150 GAL. TANKS	⑨ FERRY 4-ROCKET RACKS 1-HAYPAC 2-300 GAL. TANKS
TAKE-OFF WEIGHT lb.	27,116	27,937	27,517	24,910	26,529
Fuel Internal/External (JP-5) lb./lb.	4352/4080	4352/4080	4352/4080	4352/2040	4352/4080
Payload lb.	830	1558	1194	830	----
Wing loading lb./sq. ft.	48.7	50.2	49.4	44.7	47.6
Stall speed - power-off kn.	120	122	121	115	119
Take-off run at S.L. - calm ft.	3295	3515	3400	2740	3140
Take-off run at S.L. 25 kn. wind ft.	2300	2460	2380	1870	2180
Take-off to clear 50 ft. - calm ft.	5055	5360	5210	4280	4850
Max. speed/altitude (A) kn./ft.	529/15,000	505/15,000	514/15,000	540/15,000	532/20,000
Rate of climb at S.L. (A) fpm	5400	5000	5230	6250	5600
Time: S.L. to 20,000 ft. (A) min.	5.1	5.7	5.4	4.4	4.9
Time: S.L. to 30,000 ft. (A) min.	10.5	12.0	11.2	8.4	10.0
Service ceiling (100 fpm) (A) ft.	37,600	36,400	37,000	39,600	38,000
Combat range n.mi.	973	879	923	702	1000
Average cruising speed kn.	447	437	441	452	448
Cruising altitude(s) ft.	34,900-41,800	31,800-40,100	33,200-40,900	37,600-41,900	35,900-42,400
Combat radius n.mi./hr.	306/1.7	290/1.7	297/1.7	151/1.0	
Average cruising speed kn.	452	447	450	457	
CAP Loiter time/mission time hr./hr.	0.7/1.7	0.6/1.7	0.6/1.7	0/1.0	
CAP loiter altitude ft.	28,000	27,200	27,600	29,400	
COMBAT LOADING CONDITION	② TANKS OFF MISSILES ON	④ TANKS OFF ROCKETS ON	⑥ TANKS OFF ROCKETS ON, MISSILES OFF	⑧ TANKS OFF MISSILES OFF	
COMBAT WEIGHT lb.	22,648	23,469	23,049	22,008	
Engine power	MAXIMUM	MAXIMUM	MILITARY	MAXIMUM	
Fuel	FULL INTERNAL	FULL INTERNAL	FULL INTERNAL	FULL INTERNAL	
Combat speed/combat altitude kn./M/ft.	565/.98/35,000	557/.97/35,000	531/.92/35,000	566/.98/35,000	
Rate of climb/combat altitude fpm/ft.	8400/35,000	7300/35,000	1540/35,000	9300/35,000	
Combat ceiling (500 fpm) ft.	51,000	49,400	39,600	52,100	
Rate of climb at S.L. fpm	17,300	15,900	6,900	18,300	
Max. speed at S.L. kn./M	625/.94	612/.92	512/.77	627/.95	
Max. speed/altitude kn./M/ft.	623/.94/S.L.	612/.92/S.L.	544/.89/20,000	627/.95/S.L.	
LANDING WEIGHT lb.	18,982	18,894	18,930	18,877	19,446
Fuel lb.	1326	1337	1333	1221	1349
Stall speed-power-off/appr. pwr. kn./kn.	100/100	100/100	100/100	100/100	102/101
Distance-gr. run/over 50 ft. obst. ft./ft.	5430/6145	5410/6125	5420/6135	5400/6115	5565/6285

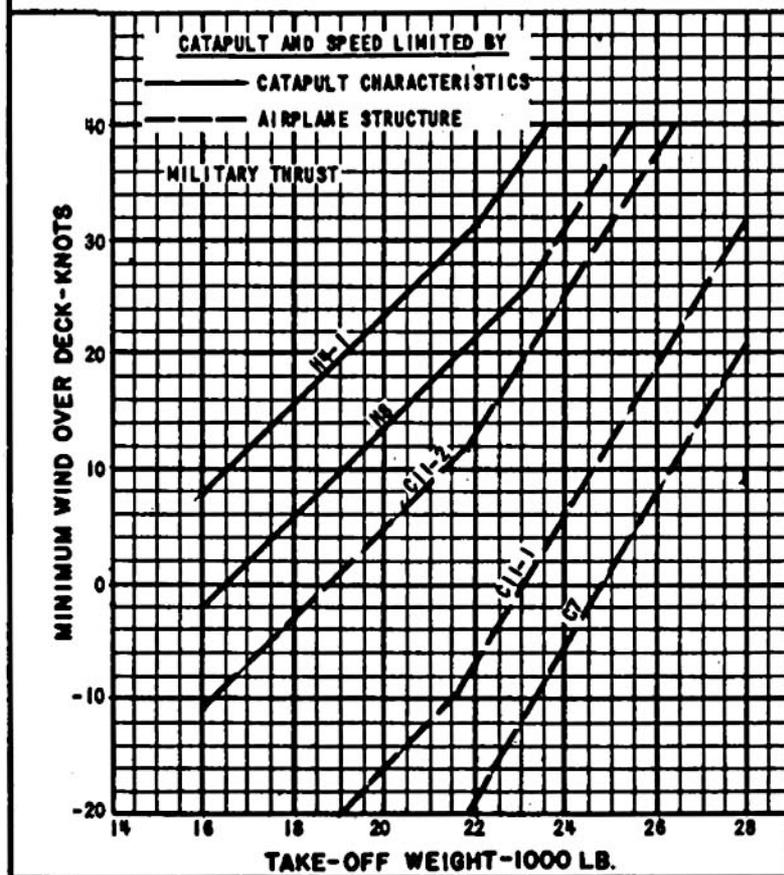
NOTES

- (A) Military thrust
- (B) For effect of JP-4 fuel on combat radius and mission time see Notes page.
- (C) All loadings include 4-20mm guns and ammunition.
- (D) Mission Time: Any time where fuel is used and distance gained, including CAP loiter and combat time.
- (E) Performance Basis: Contractor and NATESCEN flight test data. Combat range and radius are based on fuel consumption of Pratt and Whitney J57-P-8B engine derived from contractor and NATESCEN flight tests.
- (F) Tanks dropped when empty
- (G) Operational Spotting: A total of 84 airplanes (wings folded) can be accommodated in a landing spot on the flight and hangar deck of a CVA-19 class angled-deck carrier.

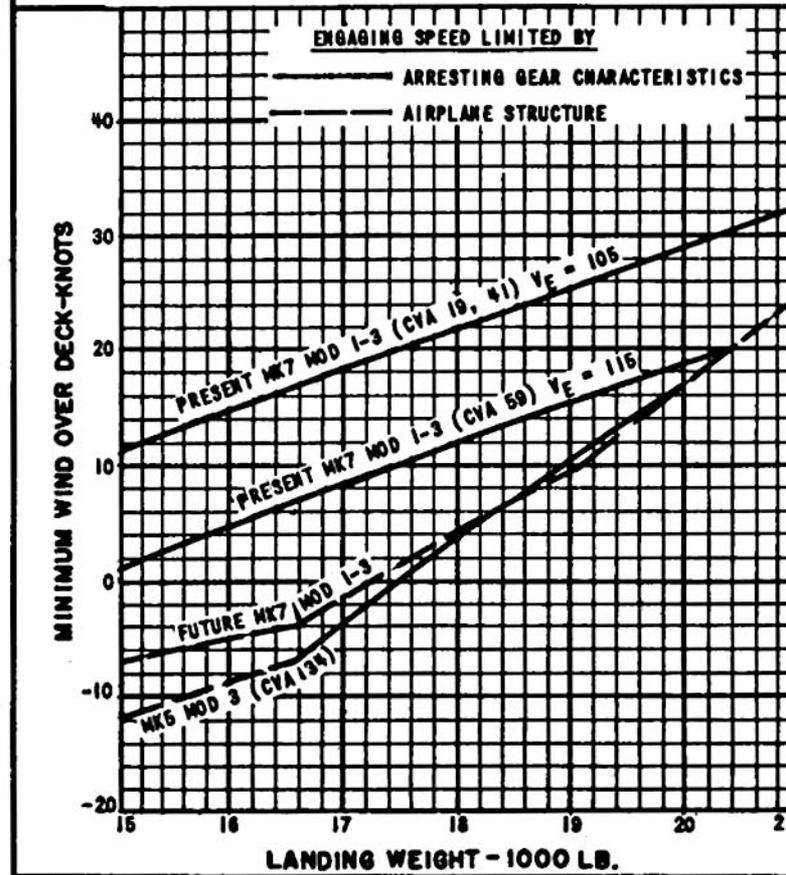


○ DENOTES LOADING CONDITION NUMBER

CARRIER SUITABILITY

DECK WIND REQUIRED
FOR CATAPULTING

1. Take-off speed is based on NATC recommended minimums.
2. Airplane structural limits for catapult take-off are: Horizontal hook load = 107,000 lb.; maximum acceleration = 5.17g.

DECK WIND REQUIRED
FOR LANDING

3. Approach speed equals 1.2 times power off stalling speed.
4. Airplane structural limits for arrested landing are: Horizontal hook load = 100,000 lb.; maximum deceleration = 8.04g; ultimate sinking speed based on 20.8 ft./sec. at 21,000 lb. and 6.25° angle between flight path and carrier deck.

NOTES

LOADING (ALL DATA BASED ON JP-4 FUEL)	TAKE-OFF WEIGHT (LB.)	GENERAL PURPOSE FIGHTER		COMBAT AIR PATROL		
		COMBAT RADIUS (N. MI.)	MISSION TIME (HR.)	LOITER TIME (HR.)	MISSION TIME (HR.)	LOITER ALTITUDE (FT.)
4-Sidewinders plus 2-300 gal. tanks	26,774	271	1.6	0.5	1.6	28,200
4-19 shot rkt. pkgs. plus 2-300 gal. tanks	27,565	263	1.6	0.5	1.6	27,500
2-Sidewinders 2-19 Shot rkt. pkgs. plus 2-300 gal. tanks	27,145	272	1.6	0.5	1.6	27,800
4-Sidewinders plus 2-150 gal. tanks	24,628	126	0.9			

GENERAL PURPOSE FIGHTER	
ITEM	DESCRIPTION
Start Engine, T.O. & Accelerate	5 minutes with normal power at sea level
Climb-Out	On course to cruise altitude with military thrust
Cruise-Out	At speed and altitude for max. range Drop tanks when empty.
Combat	At 35,000 ft. 5 minutes with maximum thrust plus 15 minutes with military thrust. No distance covered. Fire rockets and/or missiles
Cruise-Back	At speed and altitude for max. range
Descend	To sea level (No fuel consumed - No distance covered).
Reserve	5% initial fuel plus 20 minutes at speed for maximum endurance at sea level

COMBAT AIR PATROL	
ITEM	DESCRIPTION
Start Engine, T.O. & Accelerate	5 minutes with normal power at sea level
Climb-Out	On course to cruise altitude with military thrust
Cruise-Out	To patrol station 150 n. miles from base at speeds and altitudes for max. range
Loiter	On station at altitude and speed for maximum endurance. Drop tanks when empty.
Combat	At 35,000 ft. 5 minutes with maximum thrust plus 15 minutes with military thrust. No distance covered. Fire rockets and/or missiles
Cruise-Back	150 nautical miles to base at speed and altitude for max. range.
Descend	To sea level (no fuel used - No distance covered).
Reserve	5% initial fuel plus 20 minutes at speed for maximum endurance at sea level.

MISSION TIME: EXCLUDES WARMUP, TAKE-OFF & RESERVE FUEL
CYCLE TIME: EXCLUDES WARMUP & TAKE-OFF FUEL

