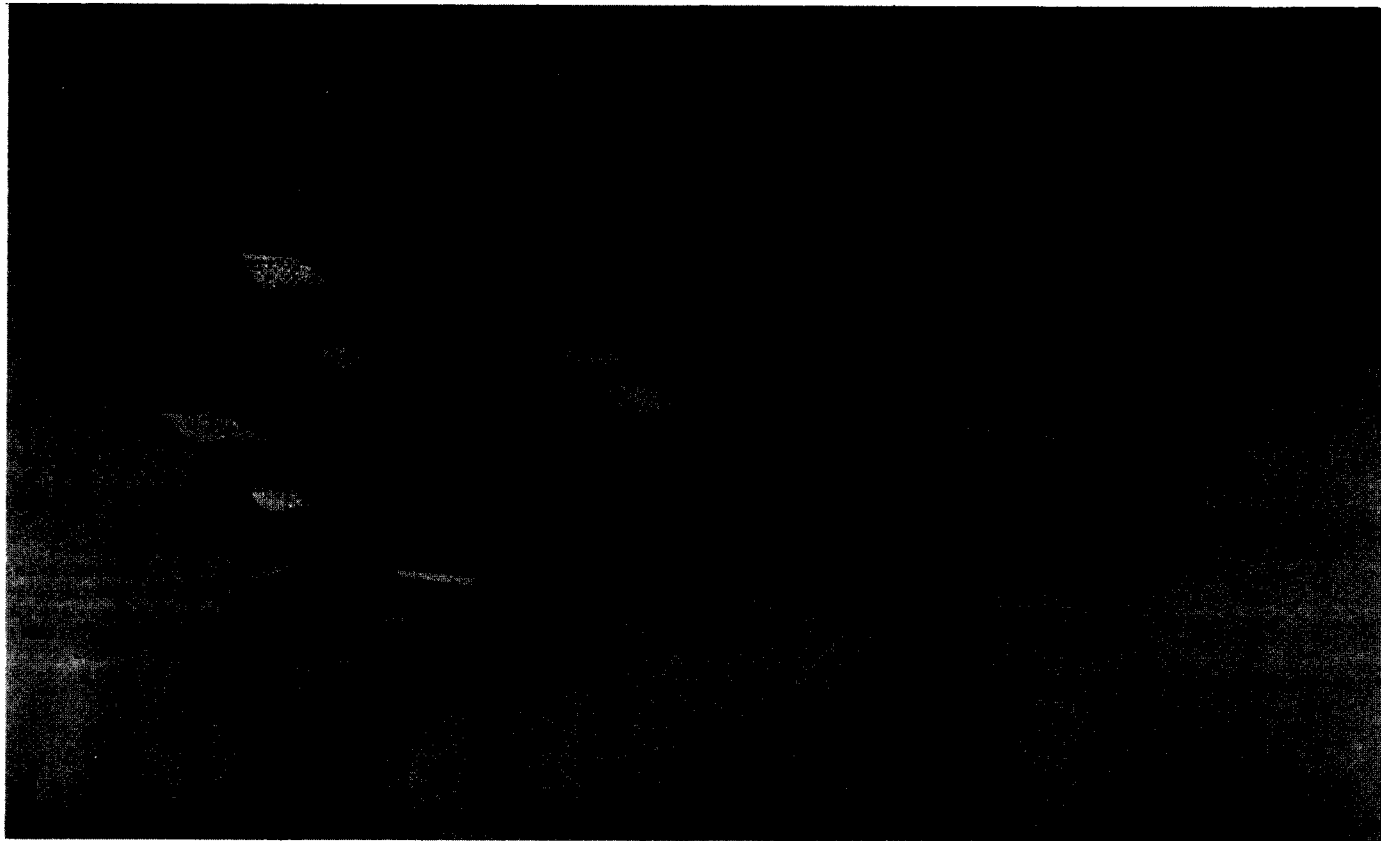


Standard Aircraft Characteristics

NAVY MODEL F-14D AIRCRAFT

THIS PUBLICATION IS REQUIRED FOR OFFICIAL USE OR FOR ADMINISTRATIVE OR OPERATIONAL PURPOSES ONLY. DISTRIBUTION IS LIMITED TO U.S. GOVERNMENT AGENCIES. OTHER REQUESTS FOR THIS DOCUMENT MUST BE REFERRED TO COMMANDING OFFICER, NAVAL AIR TECHNICAL SERVICES FACILITY, 700 ROBBINS AVENUE , PHILADELPHIA, PA. 19111 WITH A COPY OF THE REQUEST FORWARDED TO COMMANDING OFFICER, NAVAL AIR SYSTEMS COMMAND, ATTEN: AIR 53012, 990 JP2, WASHINGTON,D.C. 20361.

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



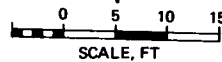
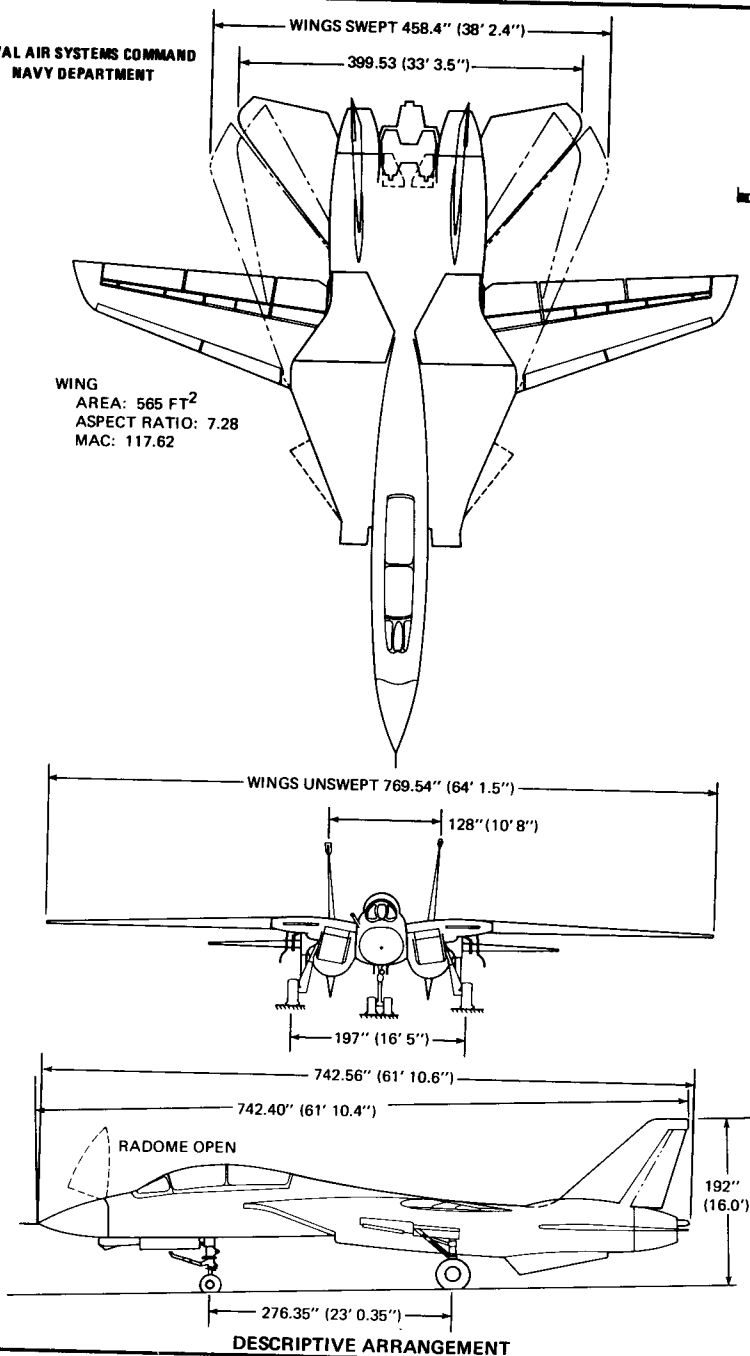
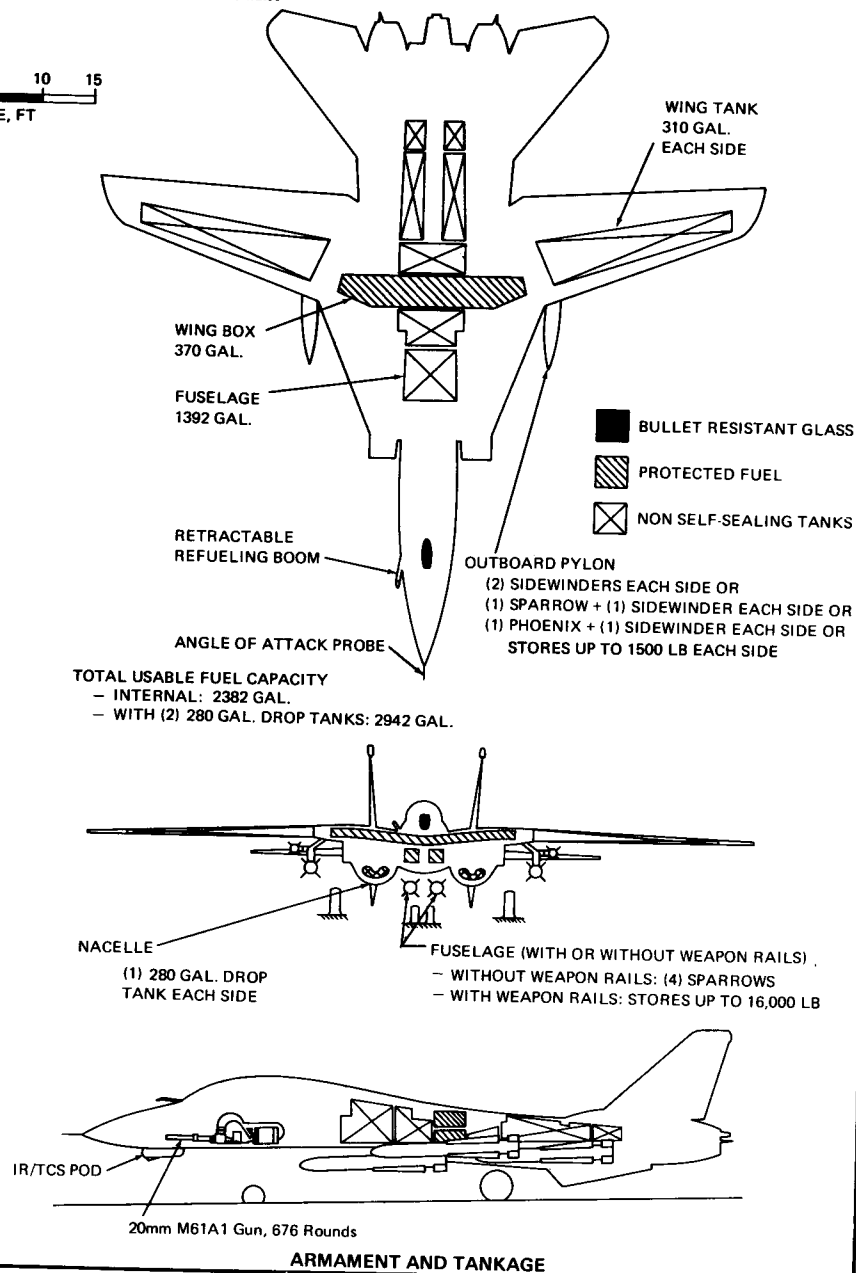
STANDARD AIRCRAFT CHARACTERISTICS

F-14D TOMCAT

GRUMMAN

ALL INQUIRIES CONCERNING DATA
IN THIS CHART SHOULD BE DIRECTED
TO NAVAIR, CODE AIR-53012

NAVAL AIR SYSTEMS COMMAND
NAVY DEPARTMENT

WING
AREA: 565 FT²
ASPECT RATIO: 7.28
MAC: 117.62

NAVAL AIR SYSTEMS COMMAND
NAVY DEPARTMENT


JULY 1985

POWER PLANT

Number and Model: (2) F110-GE-400
 Length with A/B: 232 in.
 Manufacturer: General Electric
 Inlet Diameter: 35.66 in.
 Specification: E2272, 5, Dec. 1984
 Dry Weight: 4183 Lb. (Est.)
 Type: Twin-Spool Axial-Flow
 Turbofan
 Tail Pipe: Converging/
 Diverging
 Augmentation: Modulated A/B

RATINGS

Power Setting	Static Thrust At Sea Level (Lb)	RPM (HPC)
Maximum A/B	26950	14666
Intermediate	16333	14673
Max. Continuous	11800	13994

ELECTRONICS**WEAPONS CONTROL**

Radar (Multi-stage Improvement Program) _____ AN / APG-71
 Infra-Red Search & Track System _____ TBD
 Television Camera Set _____ AN / AXX-1
 Stores Management System _____ AN / AYO-15

ELECTRONIC WARFARE

Countermeasure Warning and Control Set _____ AN / ALR-67
 Airborne Self-Protection Jammer _____ AN / ALQ-165(V)
 Chaff / Flare Dispenser _____ AN / ALE-39

FLIGHT CONTROL

Automatic Flight Control Set _____ AN / ASW-43A
 Approach Power Control Set _____ AN / ASN-105
 Air Inlet Control System _____ C-9684 A/A

COMMUNICATION

Intercommunication Set _____ LS-460B / AIC
 IFF Transponder _____ AN / APX-100(V)
 IFF Interrogator _____ AN / APX-76B(V)
 Secure Voice System _____ TSEC / KY-58
 VHF / UHF AM / FM Communication Set 1 _____ AN / ARC-182(V)
 VHF-UHF, AM / FM Communication Set 2 _____ AN / ARC-182(V)
 Adaptive Interference Blanker Unit _____ MX-10666 / A
 Digital Data Link _____ AN / ASW-27B
 Beacon Augmentor _____ R-1623 / APN-154
 Radar Beacon _____ AN / APN-154(V)
 Receiver Decoder Group _____ AN / ARA-63B

NAVIGATION

Radar Altimeter _____ AN / APN-194(V)
 Inertial Navigation Set _____ AN / ASN-130A
 JTIDS or TACAN _____ JTIDS or AN / ARN-118
 Automatic Direction Finder _____ OA-8697A / ARD
 Converter Interface Unit _____ CV-3845 / A
 Mission Computer 1 & 2 _____ AN / AYK-14(V)
 Standard Attitude Heading Reference System _____ AN / USN-2(V)

DISPLAYS

Head Up Display _____ IP-1494 / A
 Display Processor _____ CV-3916 / A
 Data Entry Keyboard Indicator _____ C-11554
 Multiple Display Remote Ind. _____ IP-1514 / A

MISSION AND DESCRIPTION

The F-14D is an air superiority fighter whose primary missions are fleet air defense and fighter escort and secondary mission is deck launched intercept.

This aircraft is an all weather, carrier based, variable-sweep-wing, twin tailed, two man tandem cockpit, twin engine podded nacelle, weapons system.

Two F110-GE-400 twin spool axial flow turbofan afterburning engines are fed by twelve wing and fuselage fuel tanks. The two wing box feed tanks are self sealing. Two nacelle mounted external jettisonable fuel tanks supplement the internal fuel. A retractable inflight refueling boom enhances range capability.

The F-14D multi-mission store loading combinations of Phoenix, Sparrow, AMRAAM and Sidewinder missiles are achieved through four fuselage stations (either semi-submerged for Sparrow/AMRAAM or weapon rails for Phoenix) along with two dual stationed glove pylons which allow the flexibility to carry a selection of the above missiles. The aircraft is configured with an internally mounted 20 MM cannon and a nose mounted infra-red/television camera set.

Control about all three axes is achieved by irreversible hydraulically actuated surfaces. Symmetric movement of the all-movable horizontal tail surfaces provides longitudinal control. Lateral control is attained by spoilers and asymmetric movement of the horizontal tail surfaces. Twin rudders are used for directional control. High lift devices consist of simple pivoted single-slotted trailing edge flaps and conventional leading edge slats. A maneuver configuration consists of inboard and outboard maneuver flaps and leading edge slats and an automatic glove vane. Deceleration control is provided by conventional speedbrakes located on the upper and lower fuselage surfaces.

The F-14D air superiority is made possible by the incorporation of an integrated airborne missile control system, an upgraded weapons control radar and stores management system. Other avionic upgraded systems are listed in the electronics section.

The aircraft is equipped with an automatically sequenced command escape system incorporating two rocket assisted ejection seats. Each crew member has an anti-g suit which automatically inflates when 1.5 g's are exceeded. A 10,000 foot cabin pressure is maintained at 26,000 feet aircraft altitude.

DEVELOPMENT

Contract Date _____ July 1984
 First Flight (Prototype) _____ Aug. 1986 (est.)
 Initial NPE (Prototype) _____ Dec. 1986 (est.)
 Initial Carrier Sea Trial _____ Nov. 1987 (est.)
 First Flight Pilot Production _____ April 1990 (est.)

DIMENSIONS**WING**

Area (Reference)	565 Sq. Ft.	Length	61.9 Ft.
Span	64.13 Ft.	Height	16.0 Ft.
M.A.C.	117.62 in.	Wheelbase	23.0 Ft.
Sweepback (25% Chord)	15.0°	Tread	16.4 Ft.
Incidence at B.L.	96.3	MLG Tires	37" x 11.5" Type VII
Dihedral	-1°50'	NLG Tires	22" x 6.6" Type VII

WEIGHTS

Loading	Lb.	Subsonic L.F.	Supersonic L.F.
Empty	41,353		
Basic	43,470		
Design	57,000	6.5 N _Z	6.5 N _Z
Maximum Takeoff			
Field	74,349	4.55 N _X	
Cat.	74,349		
Maximum Landing			
Field	60,029	6.5 N _Z	
Arrest	54,000		

Note: Per F-14D Weight & Balance Status Issue #1
 A55-328-R-84-1; 22 July 1984

FUEL AND OIL**FUEL**

No. Tanks	Gallons	Location
2	620	Wing
2	370	Wing Box
8	1392	Fuselage
2	560	Drop Tanks
Fuel Grade	JP-5	
Fuel Spec.	MIL-F-5624	

OIL

Capacity	TBD
Specification	MIL-L-23699A

ORDNANCE**GUN**

Vulcan _____ M61A1 (676 rounds)

MISSILES

Sparrow _____ AIM-7F / M
 Sidewinder _____ AIM-9L / M
 Phoenix _____ AIM-54C
 AMRAAM (PROVISIONS FOR) _____ AIM-120A

FUEL TANKS _____ FPU-1 / A (280 GAL)

LAUNCHERS _____ LAU-92, C / A (AIM-7), LAU-7A-5
 (AIM-9), LAU-93B / A (AIM-54)

FUEL TANK JETTISON MECHANISM _____ MXU-611 / A

PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION		① HI-HI-HI (2) STUB PYLONS	③ FIGHTER ESCORT (4) SPARROWS + (4) SIDEWINDERS	⑤ FLEET AIR DEFENSE (4) PHOENIX + (2) SPARROWS + (2) SIDEWINDERS + (2) 280 GAL. DROP TANKS	⑦ DECK LAUNCHED INTCP (2) PHOENIX + (2) SPARROWS + (2) SIDEWINDERS + (2) 280 GAL. DROP TANKS	⑨ FERRY RANGE (2) STUB PYLONS + (2) 280 GAL. DROP TANKS
TAKE-OFF WEIGHT	lb.	60,432	63,666	72,646	69,758	64,492
Fuel internal/external (JP-5)	lb./lb.	16,200	16,200	16,200/3,800	16,200/3,800	16,200/3,800
Payload	lb.	378	3,158	5,980	3,908	—
Wing loading (Based on reference area)	lb./sq. ft.	106.9	112.7	128.6	123.5	114.1
Stall speed—power-off/take-off power	kn.	118/108	122/112	132/122	129/119	122/112
Take-off run at S.L.— calm/25 kn.wind (A)	ft.	2,040/1,350	2,340/1,580	3,200/2,230	2,900/2,000	2,420/1,640
Take-off to clear 50 ft.— calm/25 kn.wind (A)	ft.	2,950/2,080	3,300/2,330	4,300/3,120	3,970/2,860	3,380/2,400
Max. effort take-off — calm (B)	ft.	1,150	1,290	1,690	1,550	1,320
Max. speed/altitude (A)	kn./ft.	625/14,000	614/10,000	595/10,000	596/10,000	614/10,000
Rate of climb at S.L. (A)	fpm.	15,050	13,550	10,800	11,500	13,600
Time: S.L. to 20,000 ft. (A)/(B)	min.	1.46/0.45	1.68/0.50	2.23/0.63	2.07/0.58	1.66/0.50
Time: S.L. to 30,000 ft. (A)/(B)	min.	2.86/0.82	3.31/0.88	4.53/1.10	4.16/1.03	3.28/0.90
Service ceiling (100 fpm) (A)/(B)	ft.	43,600/55,000	42,050/52,700	38,600/46,300	39,600/47,300	42,000/51,200
Combat range	n.mi.	1,312	1,158	1,226(D)	1,312(D)	1,591(D)
Average cruising speed	kn.	421	420	419	419	421
Cruising altitude(s)	ft.	38,500/43,200	37,400/41,700	34,800/40,500	35,600/41,100	37,200/43,000
Combat radius/mission time	n.mi./hr.	618/3.01	401/1.96	150/2.47(C)	204/0.75 (C)	—
Average cruising speed	kn.	422	420	419	860/419	—
COMBAT LOADING CONDITION		②	④ MISSILES RETAINED	⑥ TANKS OFF MISSILES RETAINED	⑧ TANKS OFF MISSILES RETAINED	⑩ TANKS RETAINED
COMBAT WEIGHT	lb.	53,952	57,186	64,172	61,284	56,492
Engine power		MAX A/B	MAX A/B	MAX A/B	MAX A/B	MAX A/B
Fuel	lb.	9,720	9,720	12,000	12,000	12,000
Combat speed/combat altitude (B)	kn./ft.	1185/40,675	(E) 921/20,000	(E) 1,052/35,000	1,038/45,000	—
Rate of climb/combat altitude (B)	fpm/ft.	18,000/40,675	29,900/20,000	14,800/35,000	6,800/45,000	—
Combat ceiling (500 fpm) (A)/(B)	ft.	45,100/56,500	43,500/54,200	40,500/51,200	41,600/52,200	43,600/53,200
Rate of climb at S.L. (B)	fpm.	44,500	39,900	34,000	36,200	41,200
Max. speed at S.L. (B)	kn.	740	712	692	694	698
Max. Speed/altitude (B)	kn./ft.	1,196/35,000	(E) 1,052/35,000	(E) 1,052/35,000	(E) 1,052/35,000	1,038/35,000
Time S.L. to 40,000 Ft (B)	min.	1.35	1.52	1.83	1.70	1.48
LANDING WEIGHT	lb.	46,501	49,842	54,875	51,920	46,990
Fuel	lb.	2,269	2,376	2,703	2,636	2,498
Stall speed—power-off/approach power	kn./kn.	106/102	109/105	116/112	113/109	107/103
Landing distance-groundroll/over 50 ft. obst	ft./ft.	2,200/3,020	2,350/3,170	2,600/3,420	2,450/3,270	2,220/3,040

NOTES

SPOTTINGS: A total of 92 airplanes can be accommodated in a safe parking area on the flight and hangar decks of CVA-62 class angled deck carrier.

(A) Intermediate Thrust

(B) Max A/B Thrust

(C) External Fuel Tanks Symmetrically
Dropped When Empty

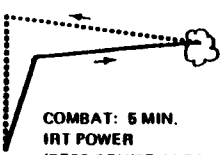
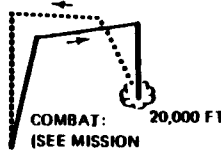
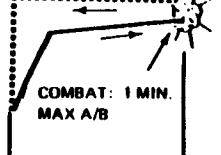
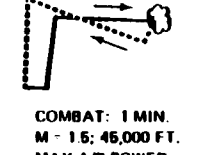
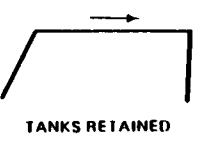
(D) Drop Tanks Retained

(E) Current Limit, Maximum Allowable Airspeeds

All Loadings Contain (1) M61A1 20 MM Gun

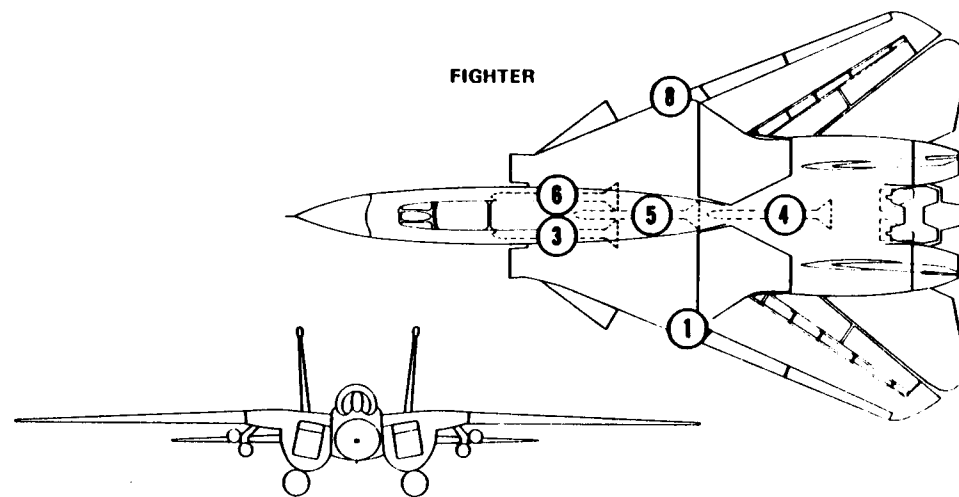
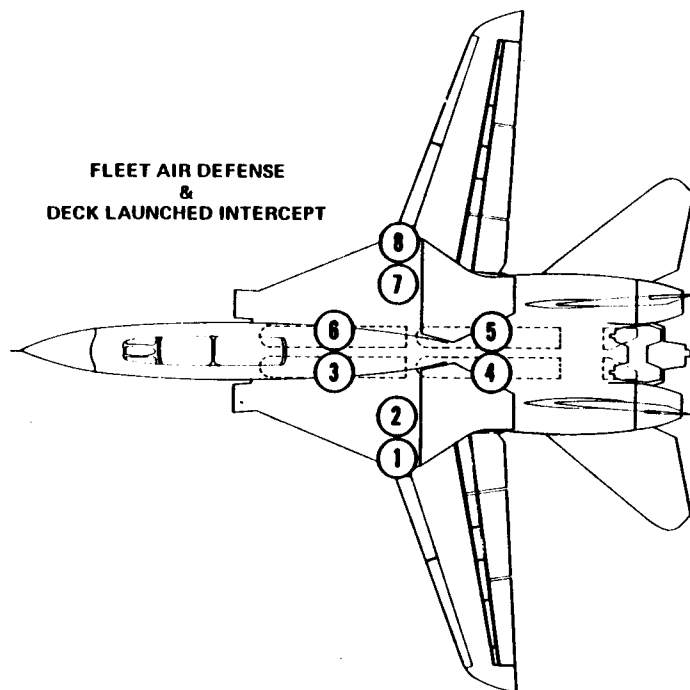
PERFORMANCE BASIS: F-14A Flight Test Data and Estimated Engine Performance (GAC Reports A55-335-R-84-02; Nov. 1984 and A55-333-R-84-05; Nov. 1984)

MISSION SUMMARY — ALTERNATE LOADINGS

		HI - HI - HI		FIGHTER ESCORT		FLEET AIR DEFENSE		DECK LAUNCHED INTERCEPT		COMBAT RANGE	
											
EXTERNAL STORE LOADING	T.O.G.W. LB.	COMBAT RADIUS n. mi.	MISSION TIME hr.	COMBAT RADIUS n. mi.	MISSION TIME hr.	LOITER TIME ON STATION hr.	MISSION TIME hr.	COMBAT RADIUS n. mi.	MISSION TIME hr.	COMBAT RANGE n. mi.	MISSION TIME hr.
(11) (4) Sparrows + (4) Sidewinders	63,668	545	2.67	401	1.96	1.38	2.13	155	0.58	1158	2.75
(12) (4) Phoenix + (2) Sparrows + (2) Sidewinders + (2) 280 Gallon Drop Tanks	72,646	608	2.99	457	2.25	1.71	2.47	189	0.70	1227	2.92
(13) (2) Phoenix + (2) Sparrows + (2) Sidewinders + (2) 280 Gallon Drop Tanks	69,758	650	3.19	503	2.45	1.91	2.68	204	0.75	1312	3.13
(14) (2) Stub Pylons + (2) 280 Gallon Drop Tanks	64,870	786	3.81	646	3.11	2.50	3.24	257	0.94	1580	3.75
(15) (4) Sparrows + (2) Stub Pylons	62,432	591	2.88	452	2.19	1.59	2.33	178	0.68	1256	2.97
(16) (4) Sparrows + (2) Stub Pylons + (2) 280 Gallon Drop Tanks	66,870	753	3.65	613	2.95	2.37	3.12	242	0.89	1516	3.60
(17) (6) Phoenix + (2) 280 Gallon Drop Tanks	73,329	601	2.95	448	2.20	1.67	2.43	181	0.67	1213	2.89

NOTES

1. All mission groundrules presented on pages 10 and 11.



STORE	STATION 1	STATION 2	STATION 3	STATION 4	STATION 5	STATION 6	STATION 7	STATION 8
MISSILES								
AIM 7F/M (SPARROW)	1		1	1	1	1		1
AIM 9L/M (SIDEWINDER)	2							2
AIM 54C (PHOENIX)	1		1	1	1	1		1
AIM 120A (AMRAAM)	1		1	1	1	1		1
FUEL TANKS								
FPU-1/A (280 GAL.)		1					1	
PLUS INTERNAL M61A1 20 MM GUN/676 ROUNDS								