

STANDARD AIRCRAFT CHARACTERISTICS

F-14D TOMCAT

GRUMMAN

Only pages
1,2,3,4,5, and 9
of
NAVAIR 00-110AF14-2
are

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FOR OPEN PUBLICATION

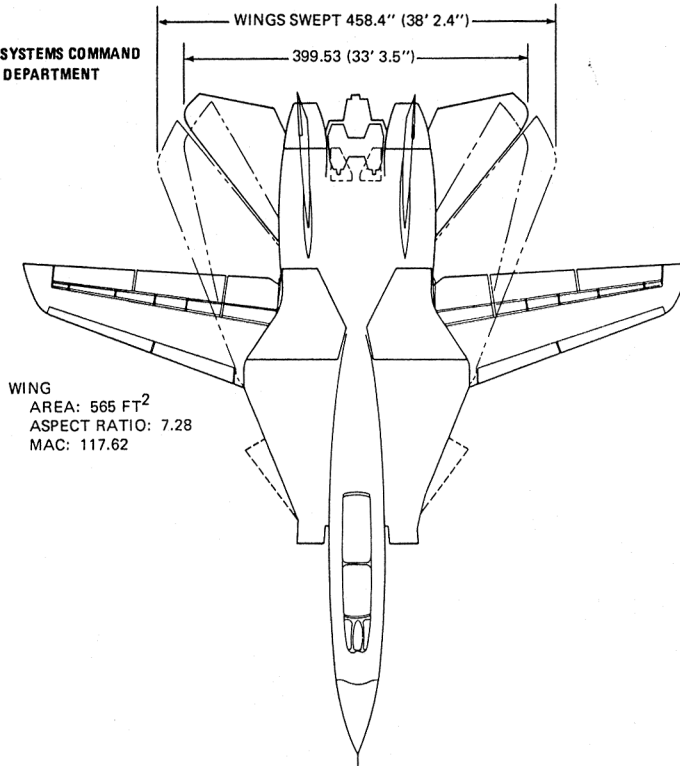
Reserve
JAN 27 1992

CONGRESSIONAL AND
PUBLIC AFFAIRS OFFICE
NAVAL AIR SYSTEMS COMMAND

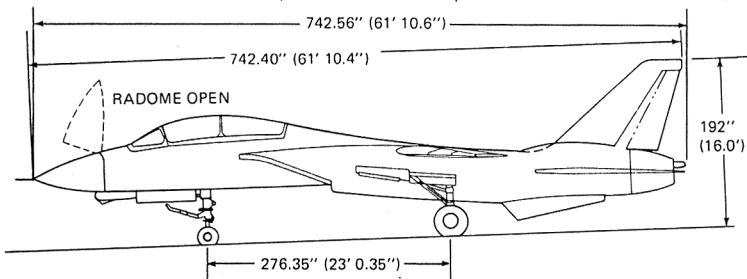
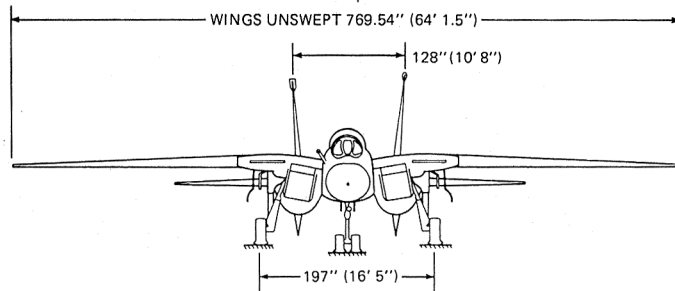
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TO NAVAIR, CODE AIR-53012

OK

NAVAL AIR SYSTEMS COMMAND
NAVY DEPARTMENT

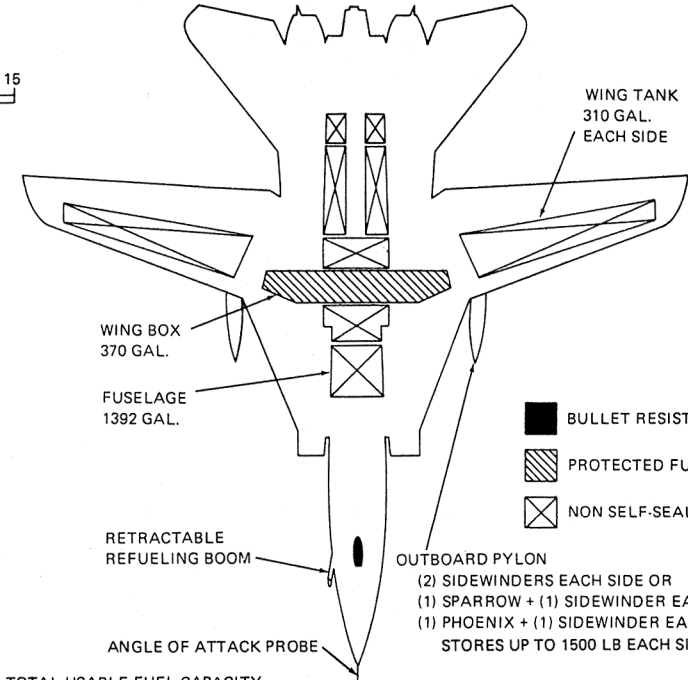


WING
AREA: 565 FT²
ASPECT RATIO: 7.28
MAC: 117.62



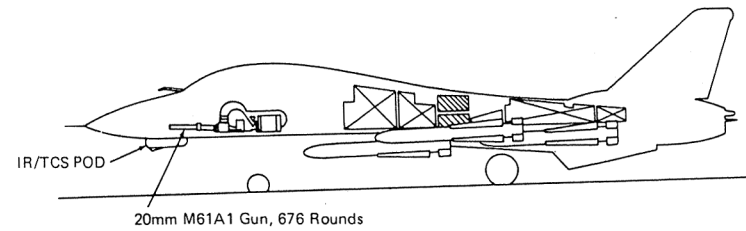
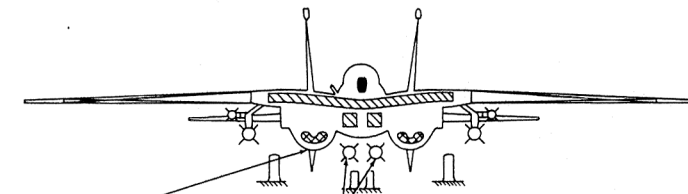
DESCRIPTIVE ARRANGEMENT

NAVAL AIR SYSTEMS COMMAND
NAVY DEPARTMENT



■ BULLET RESISTANT GLASS
▨ PROTECTED FUEL
⊠ NON SELF-SEALING TANKS

TOTAL USABLE FUEL CAPACITY
- INTERNAL: 2382 GAL.
- WITH (2) 280 GAL. DROP TANKS: 2942 GAL.



ARMAMENT AND TANKAGE

POWER PLANT <i>OK</i>		
Number and Model: (2) F110-GE-400		
Manufacturer: General Electric		Length with A/B: 232 in.
Specification: E2272, 5, Dec. 1984		Inlet Diameter: 35.66 in.
Type: Twin-Spool Axial-Flow Turbofan		Dry Weight: 4183 Lb. (Est.)
Augmentation: Modulated A/B		Tail Pipe: Converging/Diverging
RATINGS		
	Static Thrust At Sea Level	RPM (HPC)
Power Setting	(Lb)	
Maximum A/B	26950	14666
Intermediate	16333	14673
Max. Continuous	11800	13994

ELECTRONICS <i>OK</i>	
WEAPONS CONTROL	
Radar (Multi-stage Improvement Program)	AN/APG-71
Infra-Red Search & Track System	AN/AAS-42 T8D
Television Camera Set	AN/AXX-1
Stores Management System	AN/AQ-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/AJK-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 <i>OK</i>																									
<p>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.</p> <p>This aircraft is an all weather, carrier based, variable-sweep-wing, twin tailed, two man tandem cockpit, twin engine podded nacelle, weapons system.</p> <p>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.</p> <p>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.</p>																									
<p>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.</p> <p>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.</p> <p>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.</p>																									
<p><i>DATES ARE F-14D AT FIRST FLT 29 SEP 86</i></p> <p>DEVELOPMENT</p> <p>Contract Date _____ July 1984</p> <p>First Flight (Prototype) <i>April 1988</i> Aug.-1986 (est.)</p> <p>Initial NPE (Prototype) <i>July 1988</i> Dec.-1986 (est.)</p> <p>Initial Carrier Sea Trial _____ Nov.-1987 (est.)</p> <p>First Flight Pilot Production <i>Mar 1990</i> April-1990 (est.)</p> <p><i>Operational Evaluation July 1990</i></p>																									
DIMENSIONS																									
<p><i>139</i> WING</p> <table border="1"> <tr> <td>Area (Reference)</td> <td>565 Sq. Ft.</td> <td>Length</td> <td>61.9 Ft.</td> </tr> <tr> <td>Span</td> <td>64.13 Ft.</td> <td>Height</td> <td>16.0 Ft.</td> </tr> <tr> <td>M.A.C.</td> <td>117.62 in.</td> <td>Wheelbase</td> <td>23.0 Ft.</td> </tr> <tr> <td>Sweepback (25% Chord)</td> <td>15.0°</td> <td>Tread</td> <td>16.4 Ft.</td> </tr> <tr> <td>Incidence at B.L. 96.3</td> <td>+0.74°</td> <td>MLG Tires</td> <td>37" x 11.5" Type VII</td> </tr> <tr> <td>Dihedral</td> <td>-1°50'</td> <td>NLG Tires</td> <td>22" x 6.6" Type VII</td> </tr> </table>		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	+0.74°	MLG Tires	37" x 11.5" Type VII	Dihedral	-1°50'	NLG Tires	22" x 6.6" Type VII
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WEIGHTS <i>OK</i>			
Loading	Lb.	Subsonic L.F.	Supersonic L.F.
Empty	41,353		
Basic	43,470		
Design	57,000	6.5 N ₂	6.5 N ₂
Maximum Takeoff			
Field	74,349	4.55 N _X	
Cat.	74,349		
Maximum Landing			
Field	60,029	6.5 N ₂	
Arrest	54,000		
<p>Note: Per F-14D Weight & Balance Status Issue #1 A55-328-R-84-1; 22 July 1984</p>			

FUEL AND OIL <i>OK</i>		
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 <i>OK</i>	
GUN	
Vulcan	M61A1 (676 rounds)
MISSILES	
Sparrow	AIM-7F/A
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-811/A
	<i>776</i>

OK

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 INTCPY (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)

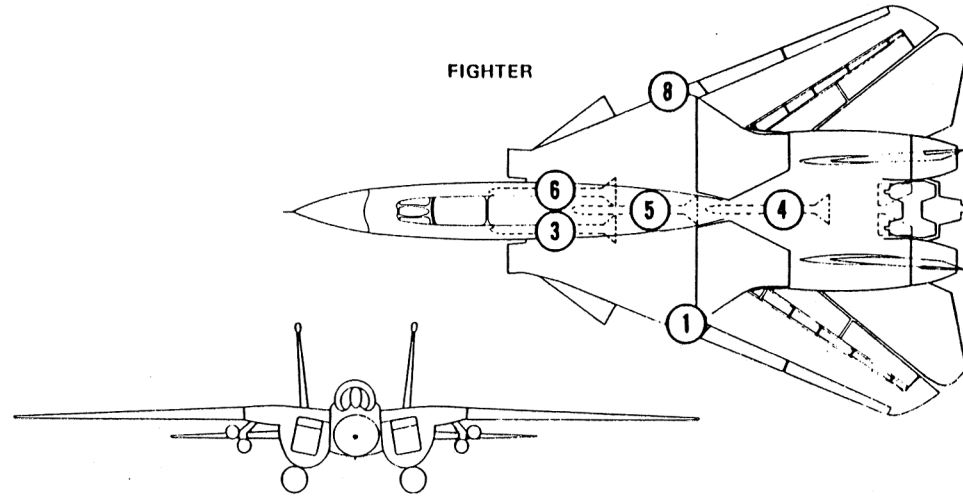
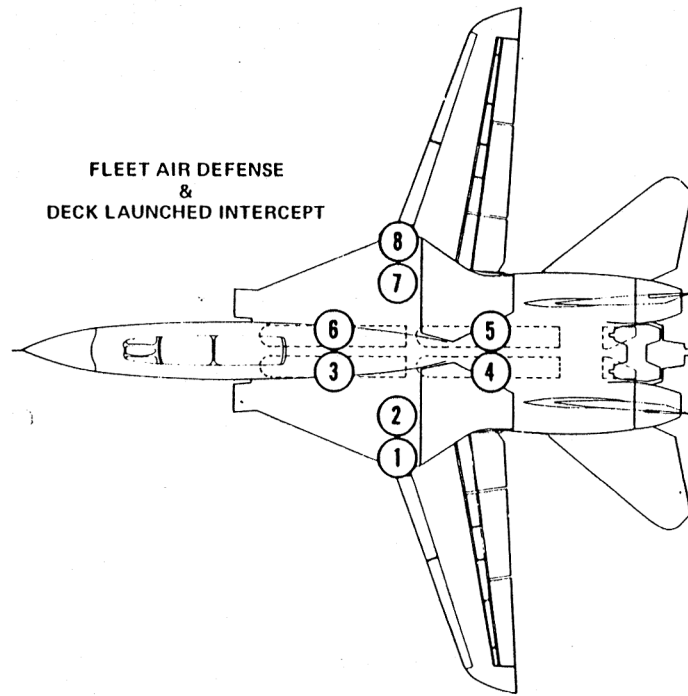
MISSION SUMMARY — ALTERNATE LOADINGS

		HI - HI - HI		FIGHTER ESCORT		FLEET AIR DEFENSE		DECK LAUNCHED INTERCEPT		COMBAT RANGE	
EXTERNAL STORE LOADING	T.O.G.W. LB.	COMBAT RADIUS n. ml.	MISSION TIME hr.	COMBAT RADIUS n. ml.	MISSION TIME hr.	LOITER TIME ON STATION hr.	MISSION TIME hr.	COMBAT RADIUS n. ml.	MISSION TIME hr.	COMBAT RANGE n. ml.	MISSION TIME hr.
⑪ (4) Sparrows + (4) Sidewinders	63,666	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	2.66	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	0.66	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.

OK



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