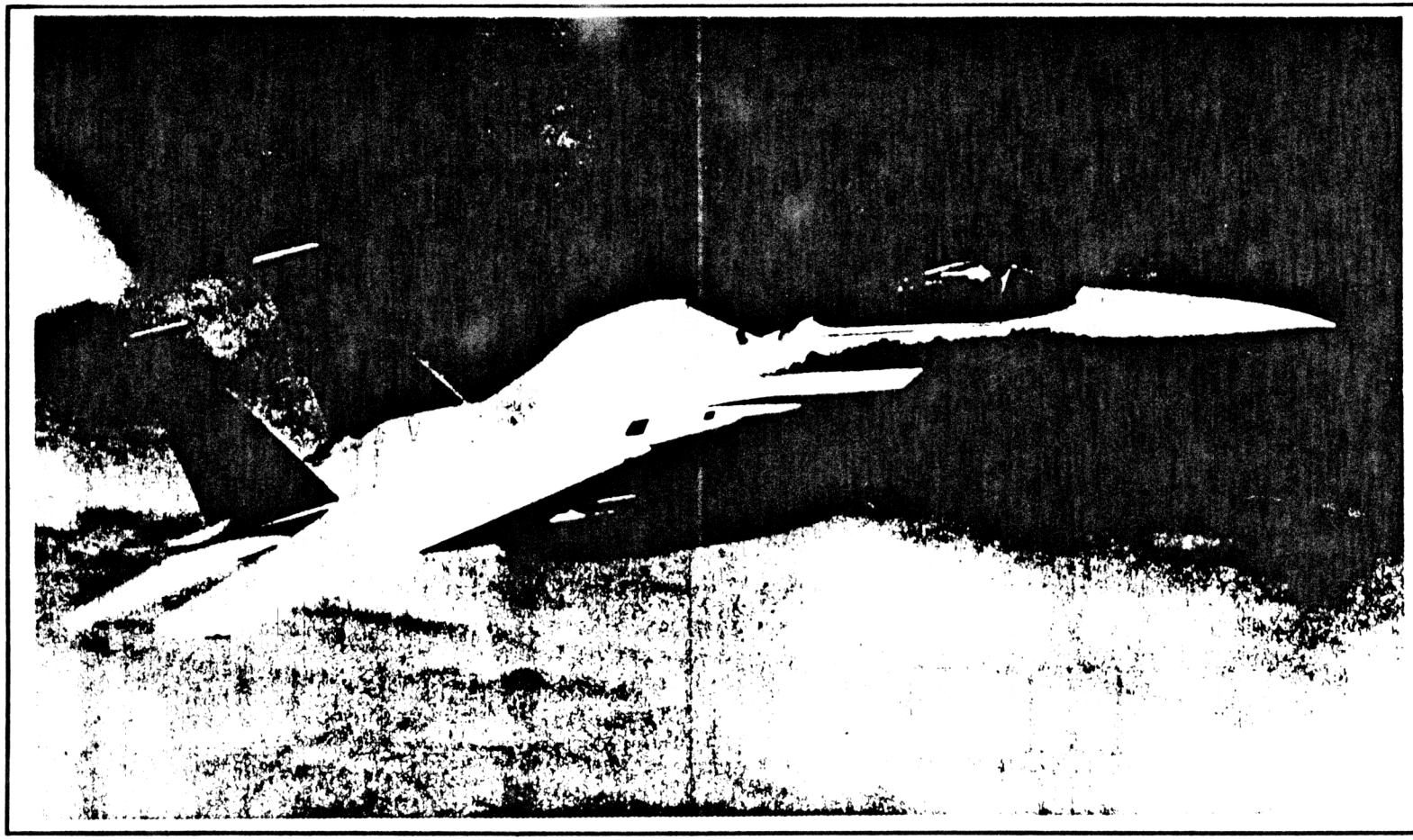


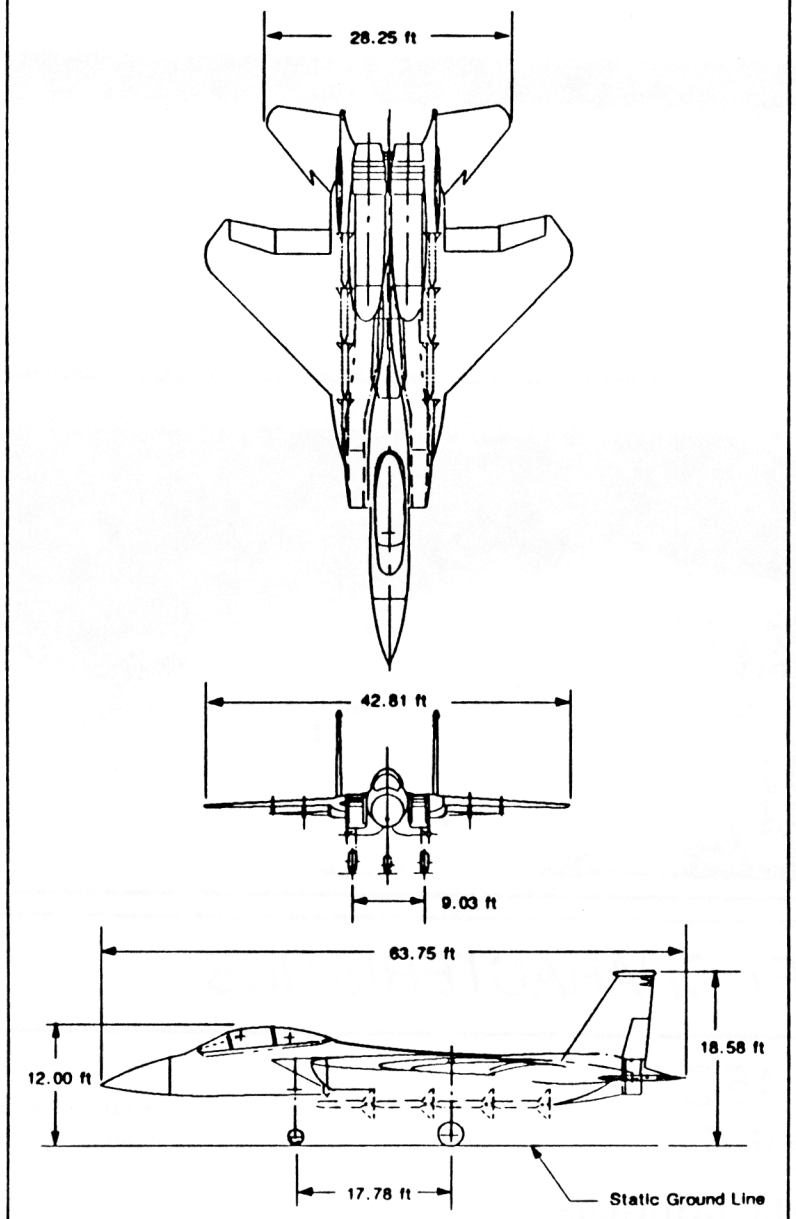
STANDARD AIRCRAFT CHARACTERISTICS

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

F-15C
EAGLE

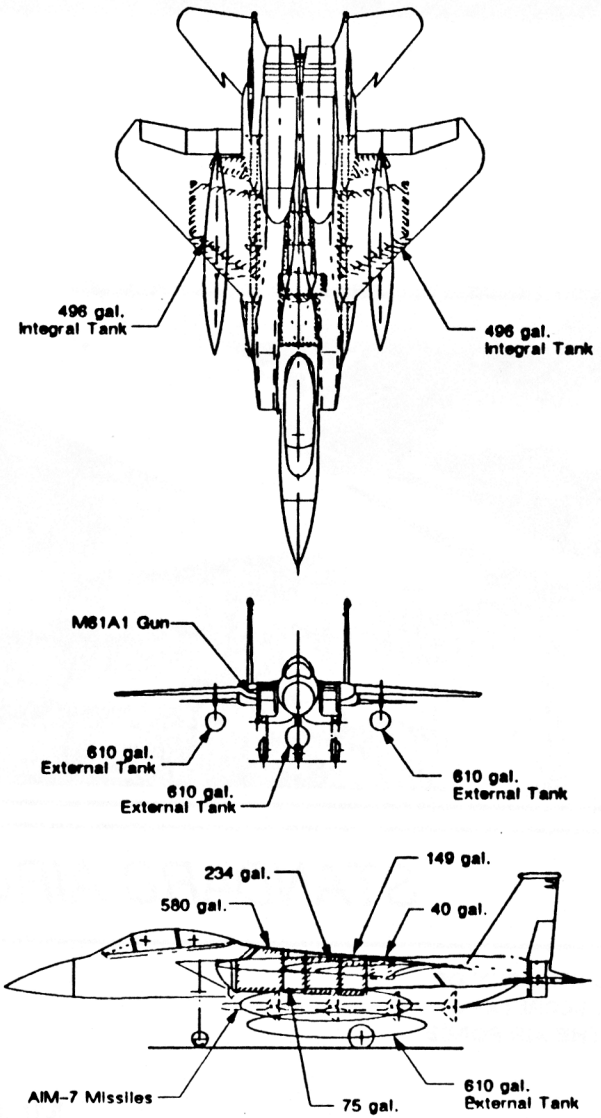
Two
F-100-PW-220
Pratt & Whitney

MCDONNELL DOUGLAS



Wing Area ..... 608 sq ft
Aspect Ratio 3.01
M.A.C. ..... 191.28 in

Wing Section
Root ..... NACA 64A006.6
Tip ..... NACA 64A203.0



F-15C (220 engine)

POWER PLANT

No. & Model ... (2) F100-PW-220
Mfr ..... Pratt & Whitney
Engine Spec. No. CP11344A
Type ..... Twin Spool, Turbofan
Length ..... 208.13 in.
Diameter (Nom) ..... 46.5 in.
Weight (dry) ..... 3200 lb
Nozzle ..... CD Balanced Beam
Augmentation ..... Afterburner

ENGINE RATINGS

SL Static	lb	RPM (N_1/N_2)	Min
Max:	*23,450	10,010/12,960	5
Mil:	14,370	10,010/12,960	30
Max Cont	12,420	9790/12,440	Cont

Uninstalled, Per Engine
* With afterburner operating

DIMENSIONS

Wing
Span ..... 42.81 ft
Sweepback (LE) ..... 45°
Incidence ..... 0°
Dihedral ..... -1°

Length ..... 63.75 ft
Height ..... 18.58 ft
Tread ..... 9.03 ft
Wheelbase ..... 17.78 ft

MISSION AND DESCRIPTION

Navy Equivalent: None Manufacturer's Model: 199-1C

The F-15C is a single-place, land based, twin jet, high performance air superiority fighter. The principle mission of the F-15C is to assure decisive supremacy in the air. The airplane has the additional capability to perform an attack mission with conventional externally mounted weapons and missiles. Basic armament is an M61A1 gun and four air-to-air Sparrow missiles. The M61A1 gun is mounted in the right hand wing root fillet, aft of the engine inlet while the missiles are carried on the fuselage on corner mounted submerged racks. A fuselage centerline store station plus inner wing store stations are provided for carriage of either 610 gallon fuel tanks or air-to-ground weaponry. The airplane is capable of being refueled in-flight.

Special features of the F-15C are swept wings and tails, twin vertical tails, all-moving differentially controlled horizontal tails, automatically controlled external compression engine air inlets with three overhead ramps, and trailing edge flaps for low speed operations. Lateral control is achieved by the differentially controlled horizontal tails in combination with the ailerons.

The avionics subsystems provide the capability for communications, navigation, identification, detection threat warning, armament control, attack steering, and computational functions required during mission operations. The Fire Controlled Systems (FCS) provides an effective weapons systems capability for visual and all-weather air-to-air and air-to-ground missions. Provisions for a Tactical Electronics Warfare System (TEWS) are provided.

Equipment includes a pressurized cockpit with an ACES II ejection seat, liquid oxygen system, and anti-G non-pressure suit provisions.

Development

Contract ..... Feb 1983
First Flight ..... Jun 1985
First Squadron Delivery ..... Jun 1985

BOMBS

See STORE LOADINGS, Page 9.

GUNS

One gun mounted in right hand wing root fillet aft of the engine inlet.

Type	Size	Rds
M61A1	20 mm	940

WEIGHTS

LOADINGS	LB	LOAD FACTOR
Empty	28,476 (A)	7.33
Basic	45,713	6.00
Basic Flight Design	37,400	7.33
Combat	41,286*	6.64
Max T.O.	68,000+	4.03
Landing Design	35,000++	7.33
Max Landing Design Weight	44,300	6.19

(A) Actual F-15C MSIP
* For Mission 1
+ Maximum Spec Limit Weight
++ 10.0 ft/sec Design Rate of Sink

FUEL

LOCATION	NO. TANKS	GAL
Fus, int*	3	1078
Wings, Int	2	992
Fus, Ext, Drop	1	610
Wings, Ext, Drop	2	1220
	Total	3900

*Tank No. 1 .... Bladder; Tanks No. 2 and No. 3 ... Self-Sealing

Grade ..... JP-4 or JP-5
Specification MIL-T-5624

OIL

Engine ..... 5 gal/eng ..... 10 (Total)
Specification ..... MIL-L-7808 and MIL-L-23699

ELECTRONICS

See Page 10.

LOADING AND PERFORMANCE – TYPICAL MISSION

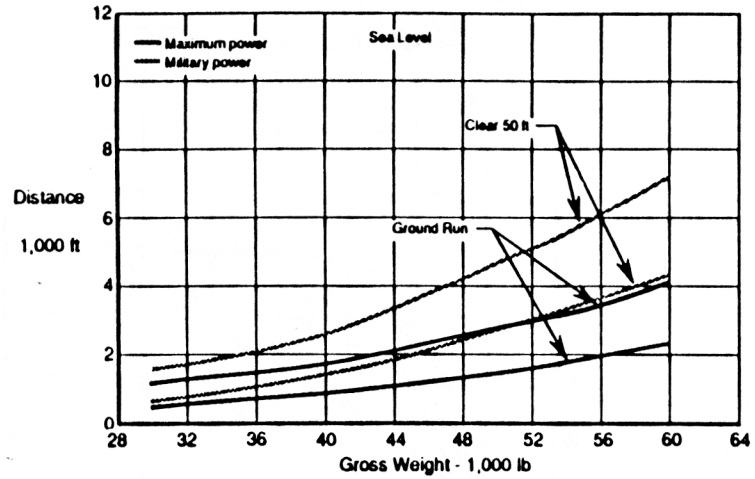
TAKEOFF LOADING CONDITION		I AIR SUPERIORITY	II CLOSE AIR SUPPORT	III COUNTER AIR	IV COUNTER AIR	V AREA INTERCEPT	VI FERRY RANGE
		(4) AIM-7F	(16) MK-82	(4) AIM-7F (2) MK-84	(4) AIM-7F (2) MK-84 CL Tank	(4) AIM-7F	Clean + (3) Ext Tanks
TAKE-OFF WEIGHT	(lb)	45,713	54,333	50,365	54,949	45,713	57,539
Fuel (JP-4, 6.5 lb/gal.)							
Internal	(lb)	13,455	13,455	13,455	13,455	13,455	13,455
Conformal fuel tanks	(lb)	—	—	—	—	—	—
External	(lb)	—	—	—	3965	—	11,895
Payload (missiles)	(lb)	2040	—	2040	2040	2040	—
Payload (bombs)	(lb)	—	8080	3940	3940	—	—
Wing loading	(lb/sq ft)	75.2	89.4	82.8	90.4	75.2	94.6
Stall speed (power off, flaps up)	(kts)	135	147	142	148	135	152
Take-off ground run at SL ①	(ft)	1250	1800	1500	1850	1250	2050
Take-off to clear 50 ft ①	(ft)	2350	3200	2800	3250	2350	3600
Rate of climb at SL ②	(fpm)	15,250	10,120	13,140	11,270	15,250	10,730
Rate of climb at SL (one engine out) ①	(fpm)	12,870	8380	11,040	9400	12,870	8940
Time: SL to 20,000 ft/40,000 ft ② ⑤ / ① ⑤	(min)	2.00/1.87 ⑦	2.99/2.54 ⑦	2.32/2.13 ⑦	2.72/2.44 ⑦	2.03/1.90 ⑦	2.88/2.57 ⑦
Time: SL to 30,000 ft/50,000 ft ② ⑤ / ① ⑤	(min)	3.56/2.95 ⑦	5.69/5.52 ⑦	4.23/3.53 ⑦	5.15/4.55 ⑦	3.62/3.00 ⑦	5.48/5.45 ⑦
Service ceiling (100 fpm) ②	(ft)	46,750	38,790	44,020	41,150	46,750	40,260
Service ceiling (one engine out) ①	(ft)	45,080	37,980	42,800	40,080	45,080	39,290
COMBAT RANGE ⑥	(nm)	—	—	—	—	—	1933/2144 ④
COMBAT RADIUS ⑥	(nm)	235	100	424	551/586 ④	470	—
Average speed	(kts)	499	288	496	493/495 ④	498	493/496 ④
Initial cruising altitude	(ft)	42,450	5000	40,500	38,920	42,210	37,880
Final cruising altitude	(ft)	47,670	5000	46,900	46,190/46,520 ④	47,190	46,940/47,480 ④
Total mission time	(hr)	0.99	1.46/0.70 ③	1.78	2.31/2.44 ④	1.97	3.93/4.33 ④
COMBAT LOADING CONDITION		(4) AIM-7F	(3) BRU-26 (3) Pylons	(4) AIM-7F (2) Wing Pylons	(4) AIM-7F (3) Pylons	(4)AIM-7F	(3) Pylons
COMBAT WEIGHT	(lb)	41,286	36,981	38,982	40,965	40,382	33,979
Combat altitude	(ft)	10,000	5000	10,000	10,000	50,000	47,480
Combat speed ① / ②	(kts)	857/629	708/594	836/625	830/624	1304/-	1353/563
Combat climb ① / ②	(fpm)	46,210/13,520	48,210/14,420	47,480/13,940	44,650/13,020	6209/-	12,000/1950
Combat ceiling (500 fpm) ①	(ft)	56,100	56,220	56,280	55,370	56,340	58,540
Service ceiling (100 fpm) ① / ②	(ft)	56,440/48,780	56,590/48,090	56,630/49,500	56,730/48,280	56,680/49,240	58,870/52,650
Service ceiling (one engine out) ①	(ft)	46,860	45,350	47,380	46,200	47,270	49,720
Max. rate of climb at SL ①	(fpm)	55,960	51,910	57,440	53,810	57,210	67,050
Max. speed at 45,000 ft ①	(kts)	1340	892	1303	1290	1335	1356
Max. speed at 35,000 ft ①	(kts)	1309 ⑧	959	1309 ⑧	1307	1309 ⑧	1309 ⑧
LANDING WEIGHT	(lb)	33,693	35,021	35,114	35,629	34,437	33,979
Approach speed (flaps down)	(kts)	140	143	143	144	141	140
Ground roll at SL	(ft)	4300	4500	4500	4600	4400	4300
Total from 50 ft	(ft)	5300	5500	5500	5600	5400	5300

NOTES

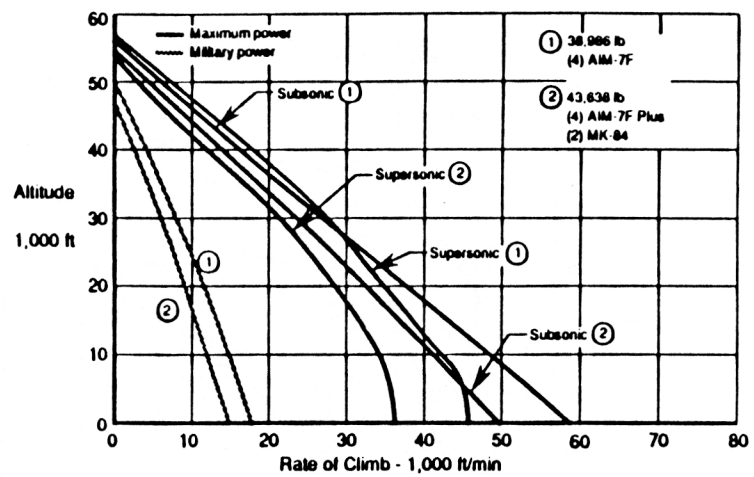
① Maximum power
② Military power
③ Mission time/loiter time
④ External fuel tanks retained/dropped
⑤ Allows for weight reduction during ground operation and climb
⑥ Detailed description of range and radius missions are given on page 7
⑦ Climb speed schedules per TO 1F-15A-1
⑧ Structural limit

PERFORMANCE BASIS:
Contractors June 1986 status

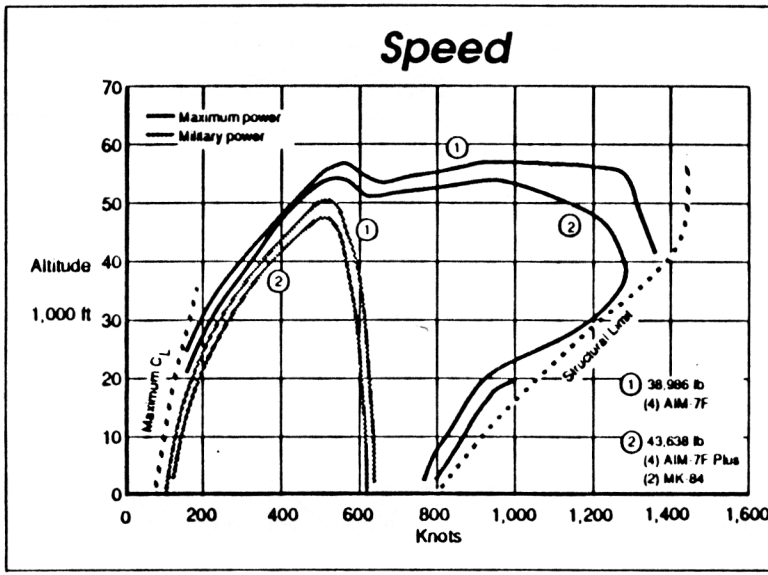
Take-Off



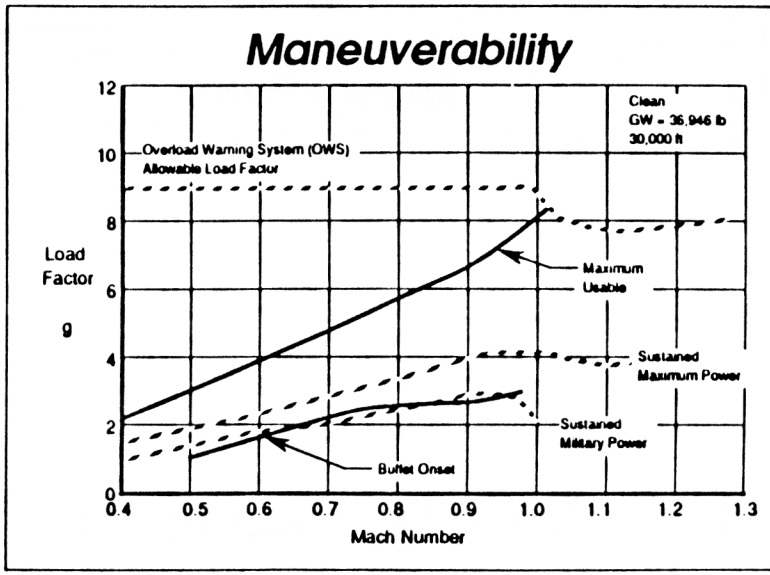
Climb



Speed

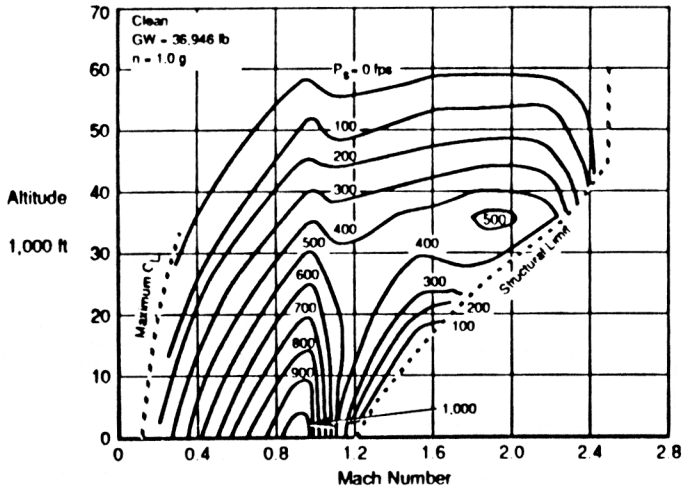


Maneuverability

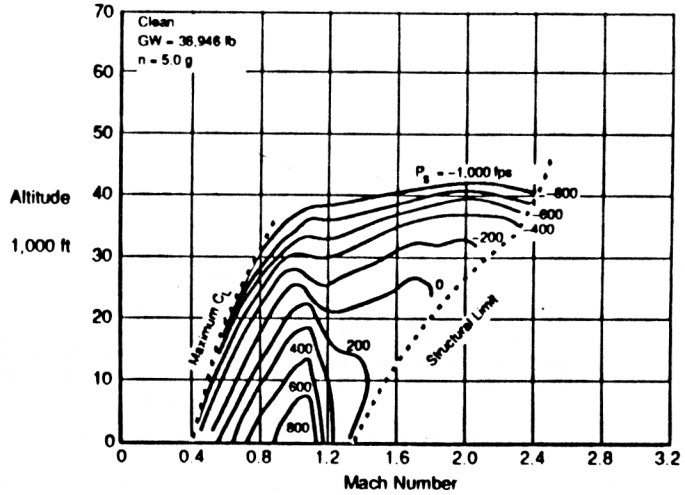


Specific Excess Power

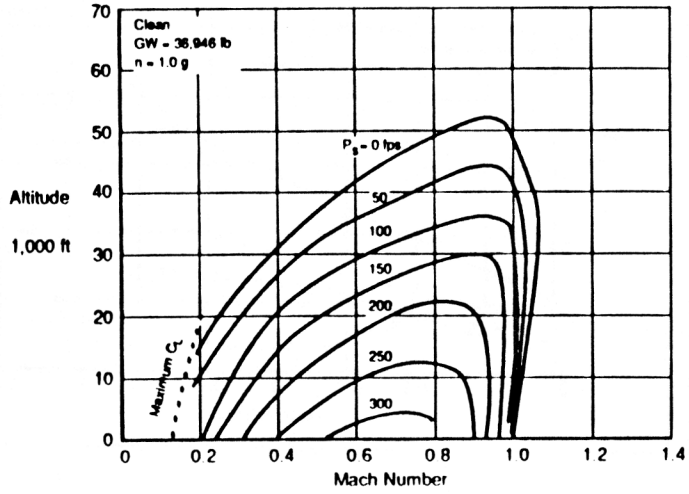
Maximum Power



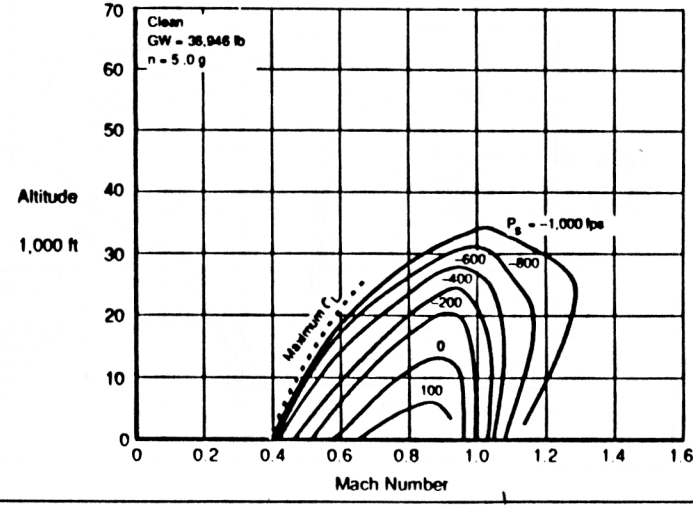
Maximum Power



Military Power



Military Power



NOTES

Formula: Radius Mission I (Air Superiority)

A. Takeoff and Acceleration Fuel Allowance (Sea Level, Standard Day)
   1. Ground Operation — 6 min at Thrust to Weight Ratio T/W = 0.2
   2. Accelerate to Mach 0.3 at Maximum Thrust — No Distance Credit

$$\Delta \text{ Fuel} = \frac{mV\ (\dot{W}_0 - \dot{W}_1)}{2\ (T - D)}$$

   3. Accelerate From Mach 0.3 to Initial Climb Speed at Military Thrust — No Distance Credited

B. Military Thrust Climb From Sea Level to Optimum Cruise Attitude

C. Cruise Out at Speed and Altitude for Optimum Range (Climb + Cruise = 200 NM)

D. Descend to 10,000 ft — No Credit for Fuel or Distance

E. Dash to Target Area at 10,000 ft at Mach 0.85

F. Combat Fuel Allowance: Equals Fuel Required to Attain 144,000 ft of Maneuver Energy at 10,000 ft at Mach 0.9 Using Maximum Thrust

$$\Delta \text{ Fuel} = 144{,}000 \times \dot{w}/P_s$$

(Calculated Using a Clean Aircraft With 50% Total Internal Fuel, P_s at 1.0 g Flight, Retain Missiles and Ammo After Combat)

G. Dash Back at 10,000 ft at Mach 0.85

H. Military Thrust Climb From 10,000 ft to Optimum Cruise Altitude

I. Cruise Back at Speed and Altitude for Optimum Range (Climb + Cruise = 200 NM)

J. Descend to Sea Level — No credit for Fuel or Distance

K. Reserves: 20 min at Speed for Maximum Endurance at Sea Level, Both Engines Operating

Formula: Radius Mission II (Close Air Support)

A. Takeoff and Acceleration Fuel Allowance (Sea Level, Standard Day)
   1. Ground Operation — 6 min at Thrust to Weight Ratio T/W = 0.2

Formula: Radius Mission II (Close Air Support) (Continued)

   2. Accelerate to Mach 0.3 at Maximum Thrust — No Distance Credit

$$\Delta \text{ Fuel} = \frac{mV\ (\dot{W}_0 - \dot{W}_1)}{2\ (T - D)}$$

   3. Accelerate From Mach 0.3 to Initial Climb Speed at Military Thrust — No Distance Credited

B. Military Thrust Climb From Sea Level to 5000 ft

C. Cruise Out to Station at Speed for Optimum Range at 5000 ft (Climb + Cruise = 100 NM)

D. Loiter for Specific Time at 5000 ft at Speed for Maximum Endurance

E. Combat Fuel Allowance Equals Fuel Required to Attain 50,000 ft of Maneuver Energy at 5000 ft at Mach 0.9 Using Maximum Thrust

$$\Delta \text{ Fuel} = 50{,}000 \times \dot{w}/P_s$$

(Calculated Using a Clean Aircraft with 50% Total Internal Fuel, P_s at 1.0 g Flight)

F. Initiate Search for Target and Drop Stores (Pylons, Racks, and Ammo Retained)

G. Cruise Back to Base (100 NM) at Speed for Optimum Range at 5000 ft

H. Descend to Sea Level — No Credit for Fuel or Distance

I. Reserves: 20 min at Speed for Maximum Endurance at Sea Level, Both Engines Operating, Plus 5% of Initial Fuel Load

Formula: Radius Mission III and IV (Counter Air)

A. Takeoff and Acceleration Fuel Allowance (Sea Level, Standard Day)
   1. Ground Operation — 6 min at Thrust to Weight Ratio T/W = 0.2
   2. Accelerate to Mach 0.3 at Maximum Thrust — No Distance Credit

$$\Delta \text{ Fuel} = \frac{mV\ (\dot{W}_0 - \dot{W}_1)}{2\ (T - D)}$$

(Continued on page 8)

NOTES

Formula: Radius Mission III and IV (Counter Air) (Continued)

3. Accelerate From Mach 0.3 to Initial Climb Speed at Military Thrust — No Distance Credited

B. Military Thrust Climb From Sea Level to Optimum Cruise Altitude

C. Cruise Out at Speed and Altitude for Optimum Range

D. Descend to 10,000 ft — No Credit for Fuel or Distance

E. Combat Fuel Allowance: Equals Fuel Required to Attain 60,000 ft of Maneuver Energy at 10,000 ft at Mach 0.7 Using Military Thrust

$$\Delta \text{ Fuel} = 60{,}000 \times \dot{w}/P_s$$

(Calculated Using a Clean Aircraft With 50% Total Internal Fuel, P_s at 1.0 g Flight)

F. Drop Stores (Retain Pylons, Racks, and Ammo)

G. Military Thrust Climb From 10,000 ft to Optimum Cruise Altitude

H. Cruise Back at Speed and Altitude for Optimum Range

I. Descend to Sea Level — No Credit for Fuel or Distance

J. Reserves: 20 min at Speed for Maximum Endurance at Sea Level, Both Engines Operating Plus 5% of Initial Fuel Load

Formula: Radius Mission V (Area Intercept)

A. Range Free Allowance for Ground Operation, Takeoff and Acceleration to Climb Speed Includes Fuel for 2 min at Maximum Continuous Thrust at Sea Level Static

B. Military Thrust Climb From Sea Level to Optimum Cruise Altitude

C. Cruise Out at Speed and Altitude for Optimum Range

D. Climb at Maximum Thrust to Subsonic Combat Ceiling

E. Combat at 50,000 ft, Mach 0.9 for 5 Min at Maximum Thrust (Retain Missiles and Ammo After Combat)

F. Descend to Optimum Subsonic Cruise Altitude — No Credit for Fuel or Distance

Formula: Radius Mission V (Area Intercept) (Continued)

G. Cruise Back at Speed and Altitude for Optimum Range

H. Descend to Sea Level — No Credit for Fuel or Distance

I. Reserves: 20 min at Speed for Maximum Endurance at Sea Level, Both Engines Operating, Plus 5% of Initial Fuel Load (This Mission Includes a 5% Increase in Fuel Consumption as a Service Tolerance)

Formula: Range Mission VI (Ferry)

A. Range Free Allowance for Ground Operation, Takeoff, and Acceleration to Climb Speed Includes Fuel for 5 min at Maximum Continuous Thrust at Sea Level Static

B. Military Thrust Climb From Sea Level to Optimum Cruise Altitude

C. Cruise Out at Speed and Altitude for Optimum Range Until Only Reserve Fuel Remains

D. Descend to Sea Level — No Credit for Fuel or Distance

E. Reserves: 20 min at Speed for Maximum Endurance at Sea Level, Both Engines Operating, Plus 5% of Initial Fuel Load (This Mission Includes a 5% Increase in Fuel Consumption as a Service Tolerance)

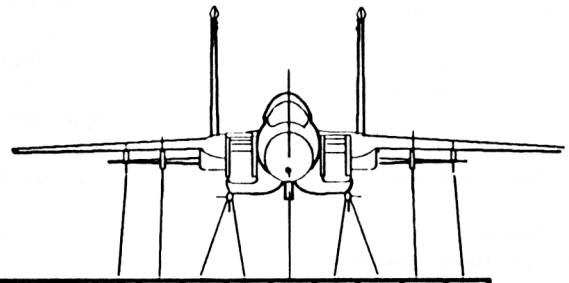
General Mission Notes:

1. JP-4 Fuel at 6.5 lb/gal
2. Ammunition is included in all Gross Weights
3. Maximum Continuous thrust is Defined as 85% of Military Thrust
4. Air Superiority, Close Air Support, and Counter Air Missions are F-15 Request for Proposal (RFP) Missions While the Area Intercept and Ferry Range Missions are MIL-C-5011A Type Missions

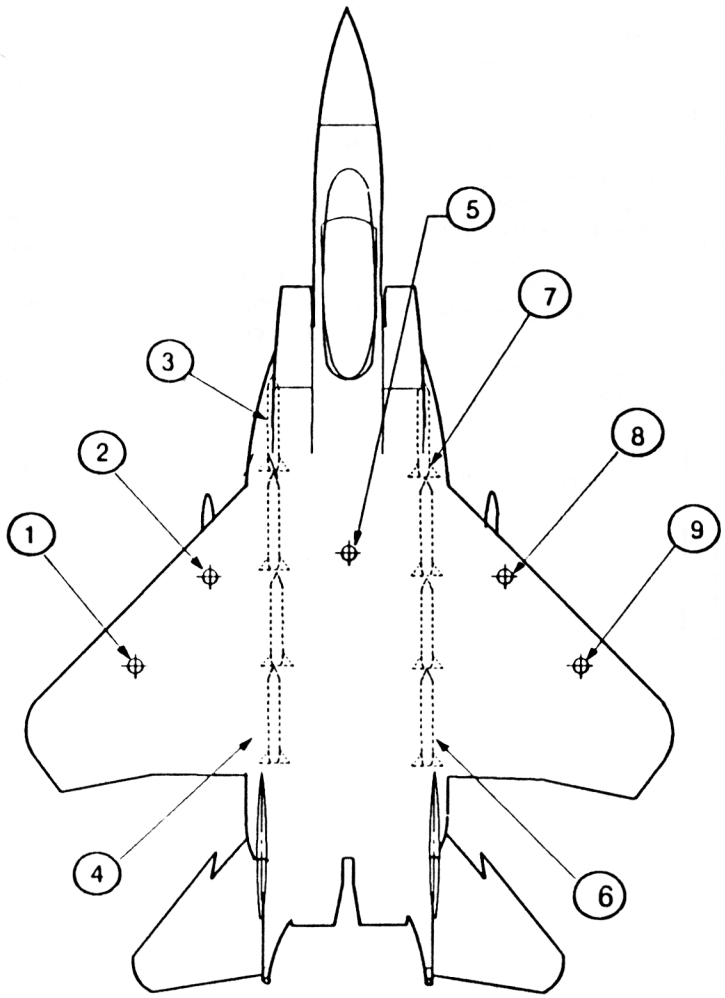
Data Reference: Contractor's Data Dated June 1986

Revision Basis: Initial Issue

External Store Loading — Supplemental



Stores	9	8	7	6	5	4	3	2	1
Air-toAir Missiles									
AIM-7F/M			1	1		1	1		
AIM-9J/P/L/M		2						2	
AIM-120 AMRAAM		2	1	1		1	1	2	
General Purpose									
MK-82 LDGP		6			6			6	
MK-82 Snakeye		6			6			6	
MK-84 LDGP		1			1			1	
Guided Weapons									
GBU-10A/B, C/B		1			1			1	
Dispensers									
CBU-52B/B		4			4			4	
CBU-58/B		4			4			4	
CBU-71/B		4			4			4	
MK-20 Rockeye		6			6			6	
Miscellaneous Stores									
610 gallon Fuel Tank		1			1			1	
SUU-20B/A		1			1			1	
MXU-648/A Cargo		1			1			1	
Mounting Hardware									
SUU-59B/A Pylon		1						1	
SUU-60B/A Pylon					1				
BRU-26A/A		1			1			1	
ADU-407A Adapter (AIM-9)		2						2	
LAU-114/A Launcher (AIM-9)		2						2	
LAU-128/A Launcher (AIM-9)		2						2	



Top View

ELECTRONICS (Continued from page 3)

Comm-Nav-Identification System
- Integrated Comm/Nav/Ident Panel
- Comm/Nav/Ident Antenna Group
- KY-58 Control Panel
- Automatic Direction Finder Set
- UHF Receiver/Transmitter
- IFF Interrogator Receiver/Transmitter
- IFF Transponder
- IFF Reply Evaluator
- TACAN Receiver/Transmitter
- Instrument Landing System Receiver
- Secure Speech KY-58
- Interrogation Computer ... KIR-1A/TSEC
- Cryto Computer KIT-1A/TSEC
- Anti Jam Comm (Prov)
- JTIDS (Prov)

Flight Control
- Auto Flight Control Set

Flight Instruments
- Airspeed Mach Indicator
- Altitude Indicator
- Vertical Speed Indicator
- Angle-of-Attack Indicator

Propulsion Subsystem
- Air Inlet Controller System

Navigation System
- Magnetic AZ, Detector Sensor
- Inertial Navigation Set
- Altitude and Heading Reference Set
- Air Data Computer
- AOA Sensor
- Total Temperature Probe
- Overspeed Detection Set

Fire Control System
- Programmable Armament Control Set
- APG-63/APG-70 Radar Set
- Lead Computing Gyro Unit

Penetration Aid (TEWS) System
- Countermeasures Dispenser
- Radar Warning Receiver Set
- Internal Countermeasures Set
- TEWS Pod Provisions
- Electronic Warfare Warning Set
- Interference Blanker Unit
- Tactical Information System (Prov)

Central Computer

Control and Display System
- Head Up Display Set
- Vertical Situation Display Set
- Horizontal Situation Display Set
- Altitude Director Indicator
- Video Tape Recorder
- Multipurpose Color Display Unit
- Data Transfer Module