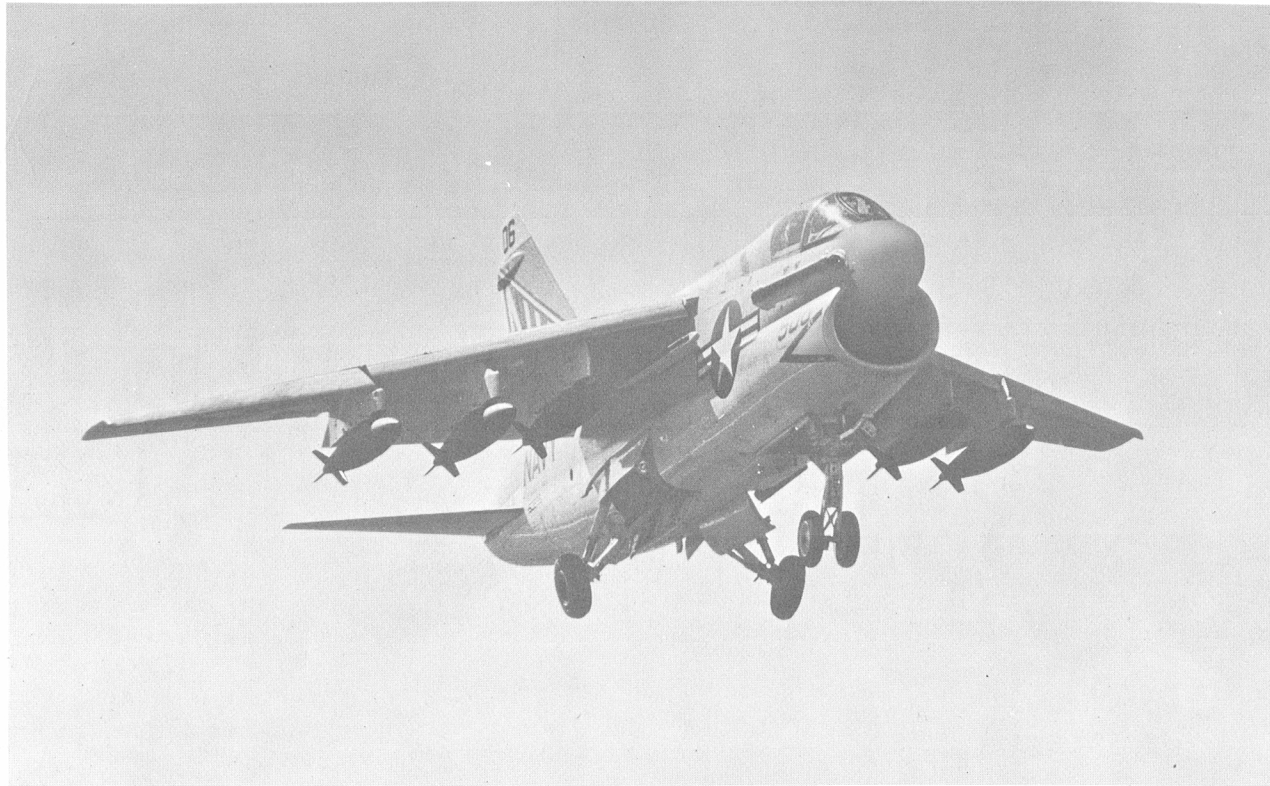


STANDARD AIRCRAFT CHARACTERISTICS, NAVWEPS FORM 13100/4D (Rev. 7-65)



STANDARD AIRCRAFT CHARACTERISTICS

A-7E

(ALLISON TF41-A-2 ENGINE)

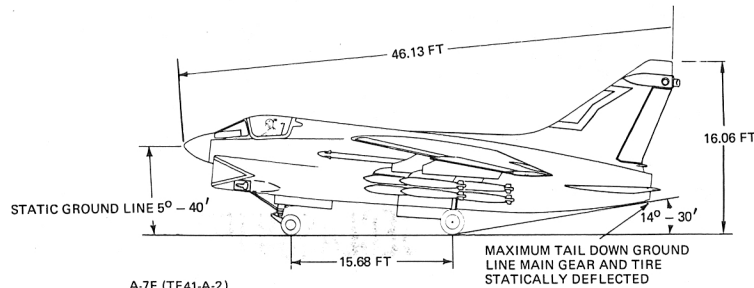
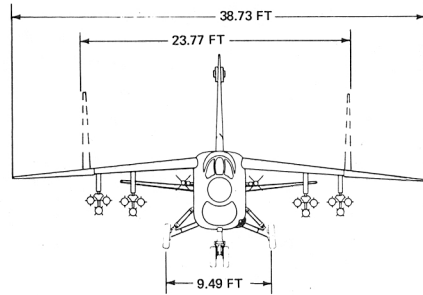
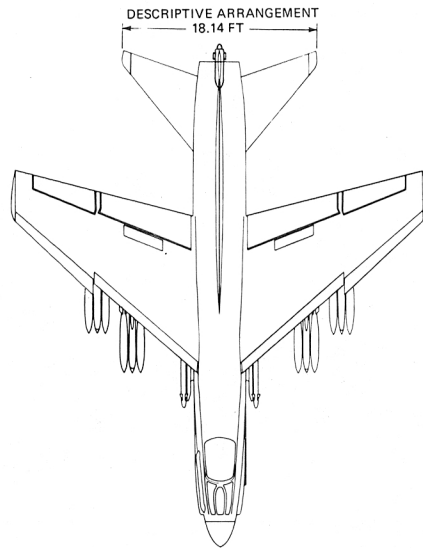


**VOUGHT
AERONAUTICS**

DECLASSIFIED

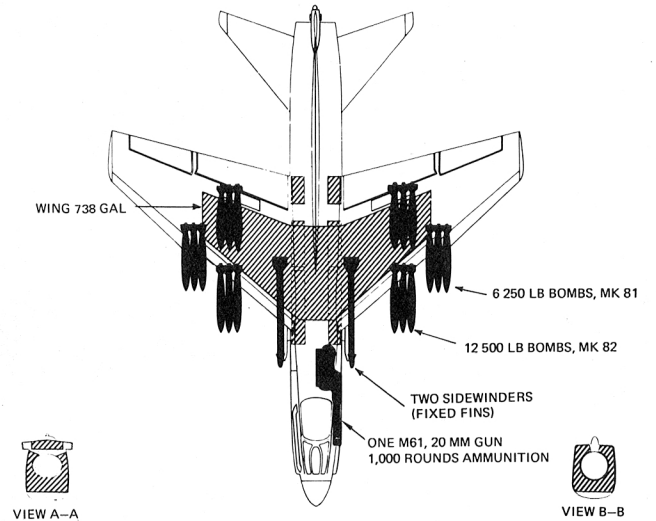
APRIL 1972

A-7E

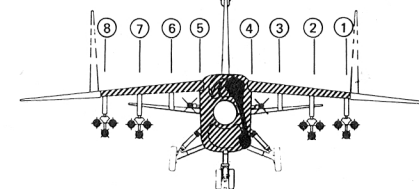


A-7E (TF41-A-2)

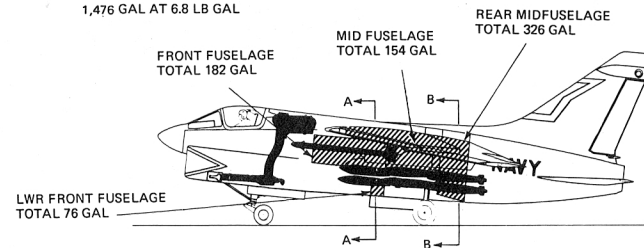
ARMAMENT AND TANKAGE



WET PYLONS - 1 AND 3, 6 AND 8



- ARMAMENT
- FUEL CELLS
TOTAL USABLE CAPACITY
1,476 GAL AT 6.8 LB GAL



STANDARD AIRCRAFT CHARACTERISTICS, NAVWEPS FORM 13100/4A (Rev. 7-65)

ELECTRONICS	MISSION AND DESCRIPTION	WEIGHTS																																																																								
<p>Communications Encoder Juliet 28</p> <p>Heading Mode System Data Link AN/ASW-25A</p> <p>UHF Radio Receiver-Transmitter AN/ARC-51A</p> <p>Radio Set Control C-8191/ARC</p> <p>Switching Unit SA-1652/ARC</p> <p>Freq Channel Ind ID-1660/ARC</p> <p>UHF ADF AN/ARA-50</p> <p>UHF Receiver AN/ARR-69A</p> <p>Doppler Radar System AN/APN-190(V)</p> <p>Radar Beacon AN/APN-154</p> <p>2-Inch Remote Attitude IND System</p> <p>Air Data Computer CP-953/AJQ</p> <p>IFT Transponder AN/APX-72</p> <p>TACAN AN/ARN-52(V)</p> <p>Intercom AN/AIC-25</p> <p>Automatic Flight Control System AN/ASW-30(V) 1</p> <p>Roll/Pitch Trim System</p> <p>Nose Gear Steering System</p> <p>Approach Power Compensating System AN/ASN-54 (V)</p> <p>Angle-of-Attack System Head-Up Display AN/AVQ-7 (V)</p> <p>Radio Command Control Transmitter AN/ARW-77</p> <p>Forward-Looking Radar AN/APQ-126(V)</p> <p>Electrical Fusing System Armament Monitor and Control A/A24B-4 (V)</p> <p>Shrike Signal Conditioner (SIDS)</p> <p>Radar Altimeter AN/APN-141(V)</p> <p>Inertial Measurement Set AN/ASN-90(V)</p> <p>Nav/WD Digital Computer AN/ASN-91(V)</p> <p>Armament Stations Control Unit C-8185/AWE</p> <p>Interference Blanker MX-8253/A</p> <p>Destruct Initiator MX-7832/ASQ</p> <p>Destruct Battery</p> <p>Countermeasures Receiver-Transmitter AN/ALQ-100</p> <p>ECM Warning Receiver AN/APR-27</p> <p>ECM Warning Receiver Countermeasures AN/APR-25(V)</p> <p>Dispenser Set AN/ALE-29A</p> <p>Integrated ECM Control Projected Map Display Set AN/ASN-99</p> <p>ADS (Altitude Reporting)</p> <p>AAU-19 Servoed Altimeter AIMS</p> <p>MK 12 Computer KIT-1/TSEC</p> <p>Inflight Monitor TS 1843/APX</p> <p>Indicator AAU-19/A</p>	<p>The A-7E (TF41-A-2) is a single-place, carrier-based, turboprop, light attack airplane developed from the A-7E (TF30-P-8). The airplane is designed to provide high attack utility and flexibility for close support and interdiction missions by virtue of a large number of external store stations to provide ordnance loading capacity and freedom of ordnance choice, a large internal fuel capacity to make external fuel unnecessary for most missions, while retaining a maximum number of stations for armament, an excellent over-load capability in terms of wind-over-deck requirements, flying qualities, and structural integrity. Features to expedite maintenance and airplane turnaround are important A-7E design characteristics.</p> <p>The A-7E has fixed wing incidence and a high-lift system composed of leading edge flaps and single slotted trailing edge flaps. Lateral control is provided by outboard ailerons and inboard spoilers. Superior stability and control qualities over the entire aircraft speed envelope, including transonic, are features of the A-7E.</p> <p>A stick steering autopilot is provided to augment the weapon system capability. An approach power compensator provides automatic speed control for carrier landing.</p> <p>In addition to the basic A-7B features, the A-7E provides a high accuracy flexible weapons delivery system, an M61 Vulcan cannon, a head-up display to aid the pilot during weapons delivery, enroute, and terrain following and landing modes.</p> <p>Weapon delivery improvements include a new all-weather type radar, digital weapon delivery and navigation computer, inertial quality platform, head-up display, projected map display, a new air data computer, and a new roll stabilized doppler radar system.</p>	<p style="text-align: right;">TF41-A-2</p> <p style="text-align: center;"><u>Loading</u> <u>Pounds</u></p> <p>Empty 18,546</p> <p>Basic 19,576*</p> <p>Design 29,575</p> <p>Combat (Clean A/P) 25,834*</p> <p>Max T.O. (Overload) 42,000</p> <p>Max T.O. (Normal) 37,279*</p> <p>Max Ldg (Carrier) 25,300</p> <p style="text-align: right;">*Includes 652 pounds Special Equipment</p>																																																																								
POWER PLANT		FUEL AND OIL																																																																								
<p>Engine TF41-A-2 (68 and Subsequent)</p> <p>Type Turboprop</p> <p>Manufacturer Allison</p> <p>Length 185.36 Inches</p> <p>Diameter 37.18 Inches</p> <p>Specification 798 (26 Jan 1969)</p> <p>Compressor and Fan ... Axial Flow</p> <p>Tail Pipe Nozzle Fixed</p> <p style="text-align: center;">Specification Thrust Ratings (Sea Level Static)</p> <p>Intermediate 15,000 Pounds (30 Minute Limit)</p> <p>Max. Continuous 12,950 Pounds</p>		<table border="1"> <thead> <tr> <th>Gal</th> <th>No. Tanks</th> <th>Location</th> <th>Self-Sealing</th> </tr> </thead> <tbody> <tr> <td colspan="4" style="text-align: right;">Main Cluster:</td> </tr> <tr> <td colspan="4" style="text-align: right;">Fuselage</td> </tr> <tr> <td>182</td> <td>2</td> <td>Left and Right Forward</td> <td>No</td> </tr> <tr> <td>154</td> <td>2</td> <td>Mid</td> <td>No</td> </tr> <tr> <td>76</td> <td>1</td> <td>Main Sump</td> <td>Yes</td> </tr> <tr> <td>326</td> <td>1</td> <td>Fuselage: Aft Bladder Transfer System</td> <td>Partial</td> </tr> <tr> <td colspan="4" style="text-align: right;">Wing: Integral</td> </tr> <tr> <td>738</td> <td>1</td> <td>Transfer System</td> <td>No</td> </tr> <tr> <td colspan="4"><hr/></td> </tr> <tr> <td colspan="4">1,476</td> </tr> <tr> <td colspan="2">Usable Fuel Capacity ...</td> <td colspan="2">1,476 Gal</td> </tr> <tr> <td colspan="2">Fuel Specification</td> <td colspan="2">MIL-J-5624F</td> </tr> <tr> <td colspan="2">Fuel Grade</td> <td colspan="2">JP-5</td> </tr> <tr> <td colspan="4" style="text-align: center;">OIL</td> </tr> <tr> <td colspan="2">Engine Oil Tank (total)</td> <td colspan="2">3.5 Gal</td> </tr> <tr> <td colspan="2"></td> <td colspan="2">(useable) 3.1 Gal</td> </tr> <tr> <td colspan="2">Oil Specification</td> <td colspan="2">MIL-L-23699</td> </tr> </tbody> </table>	Gal	No. Tanks	Location	Self-Sealing	Main Cluster:				Fuselage				182	2	Left and Right Forward	No	154	2	Mid	No	76	1	Main Sump	Yes	326	1	Fuselage: Aft Bladder Transfer System	Partial	Wing: Integral				738	1	Transfer System	No	<hr/>				1,476				Usable Fuel Capacity ...		1,476 Gal		Fuel Specification		MIL-J-5624F		Fuel Grade		JP-5		OIL				Engine Oil Tank (total)		3.5 Gal				(useable) 3.1 Gal		Oil Specification		MIL-L-23699	
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SERVICE

NAVAIR OO-110AA7-4

STANDARD AIRCRAFT CHARACTERISTICS, NAVWEPS FORM 13100/4J (Rev. 7-65)

TAKEOFF LOADING CONDITION		① HI-HI-HI MISSION CLEAN AIRPLANE	② PRIMARY ATTACK MISSION 6 MK 81 SNAKEYES	③ PRIMARY ATTACK MISSION 12 MK 81 SNAKEYES	④ 5,000 FT LOITER MISSION 12 MK 82 AND 6 MK 81 BOMBS	⑤ DEEP STRIKE MISSION 1 MK 43 AND 3-300-GAL TANKS	⑥ FERRY MISSION 2-300-GAL TANKS
Takeoff weight	lb	30,131	32,745	34,781	39,465	40,119	34,860
Fuel-internal/external	lb/lb	10,036/0	10,036/0	10,036/0	10,036/0	10,036/6,120	10,036/4,080
Payload ¹	lb	0	1,800	3,600	7,500	2,140	0
Wing loading	lb/sq ft	80.9	87.4	92.8	105.2	107.1	93.0
Stall speed - power off, 25° flap	kn	129.3	136.8	141.2	150.4	151.6	142.5
Takeoff grd run/over 50 ft obs - calm 59°F ² , SL	ft/ft	2,670/3,710	3,210/4,440	3,670/5,080	4,890/6,800	5,060/7,060	3,680/5,110
Takeoff grd run/over 50 ft obs - calm 89.6°F ² , SL	ft/ft	3,450/4,870	4,170/5,890	4,770/6,780	6,390/9,260	6,650/9,670	4,790/6,820
Intermediate max speed/altitude	kn/ft	602/SL	567/6,000	561/7,500	503/8,000	548/6,000	575/4,000
Intermediate rate of climb at SL	fpm	9,380	7,430	6,540	5,120	5,510	7,320
Intermediate time: SL to 20,000 ft ³	min	2.6	3.5	4.3	5.7	5.0	3.5
Intermediate time: SL to 30,000 ft ³	min	4.4	6.9	9.1	-	11.7	6.7
Intermediate service ceiling (100 fpm)	ft	43,280	37,120	34,750	28,790	31,620	37,750
Combat range	nmi	1,987	1,359	1,167	835	2,269	2,312 ¹³
Average cruising speed	kn	480	435	442	402	455	454
Cruising altitude(s)	ft	39,170/44,970	36,180/39,980	34,380/38,920	28,290/31,680	30,110/40,710	35,320/42,850
Combat radius/mission time ⁴	nmi/hr	894/3.81	488/2.48	432/2.23	256/2.25	916/4.06	-
Average cruising speed	kn	479	408	403	409	461	-
IFR refuel radius ⁵ /mission time ⁴	nmi/hr	1,522/6.48	1,015/4.87	926/4.43	653/4.21	-	-
Fuel transferred/distance from base	lb/nmi	5,241/978 ⁶	5,517/735 ⁶	5,678/659 ⁶	5,929/515 ⁶	-	-
Acceleration at CES at 89.6°F ²	ft/sec/sec	6.05	4.80	4.17	3.02	2.86	4.39
COMBAT LOADING CONDITION ¹⁴		⑦	⑧	⑨	⑩	⑪	⑫
Combat weight	lb	26,117	28,731	30,767	35,451	33,036	29,214
Engine power		Intermediate	Intermediate	Intermediate	Intermediate	Intermediate	Intermediate
Fuel	lb	6,022	6,022	6,022	6,022	9,694	8,470
Combat speed/altitude	kn/ft	572/23,000	560/SL	553/SL	502/5,000	580/SL	-
Rate of climb/altitude	fpm/ft	6,780/23,000	8,630/SL	7,920/SL	5,220/5,000	7,840/SL	-
Combat ceiling (500 fpm)	ft	44,490	37,910	35,300	29,210	37,210	39,490
Rate of climb at SL	fpm	10,320	8,630	7,920	5,850	7,840	8,940
Max speed at SL	kn	602	561	553	500	580	574
Max speed/altitude	kn/ft	602/SL	567/6,000	562/7,500	505/10,000	584/5,000	576/6,000
Landing weight ¹⁴	lb	21,367	22,211	22,465	23,284	22,816	22,257 ¹⁴
Fuel	lb	1,272	1,301	1,320	1,352	1,614	1,513
Stall speed - power off/appr power	kn/kn	106.8/104.6	110.2/107.4	110.7/108.2	112.7/109.8	111.7/108.0	111.9/109.0
Dist grd roll ¹³ /over 50 ft obs ¹³	ft/ft	3,100/4,055	3,200/4,155	3,230/4,185	3,330/4,285	3,270/4,175	3,210/4,165
Notes:		¹ Payload is droppable ordnance. Does not include 500 rounds of ammunition or external fuel tanks. ² Intermediate thrust, 25° flap, .82 CL _{max} . ³ Climb times consider weight reduction due to fuel used. ⁴ Mission time excludes time for warmup and takeoff and 20 minute loiter at sea level. ⁵ Refuel radius is determined with refueling to full internal fuel capacity of 10,036 pounds. ⁶ Refueling altitude is cruise ceiling with full internal fuel or 35,000 ft.				⁷ Refuel altitude is 34,190 ft. ⁸ Refuel altitude is 33,660 ft. ⁹ Refuel altitude is 26,980 ft. ¹⁰ 283 lb ammunition retained. ¹¹ External fuel tanks retained. No ammunition carried. ¹² Antiskid braking, 40° flap. ¹³ With 4 300 gallon tanks, range is 2,485 nmi. ¹⁴ Combat loading performance includes stores and ammunition.	

A-7E

APRIL 1972

SUPPLEMENTARY MISSIONS

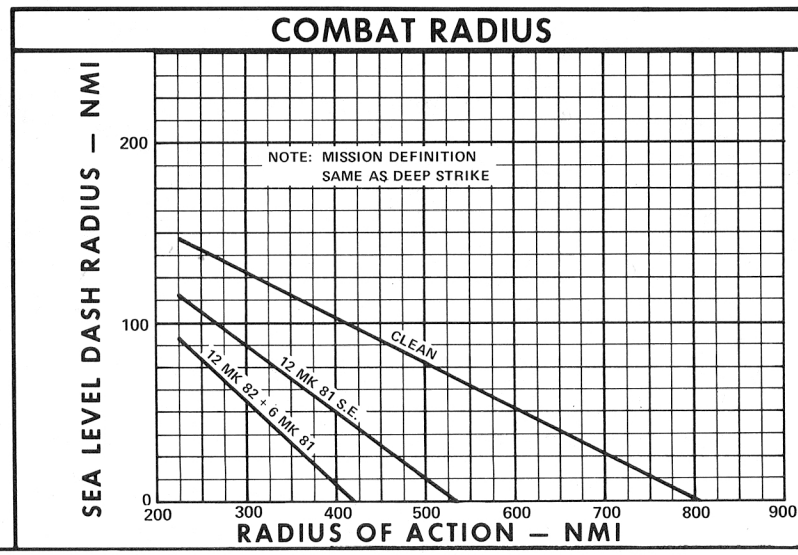
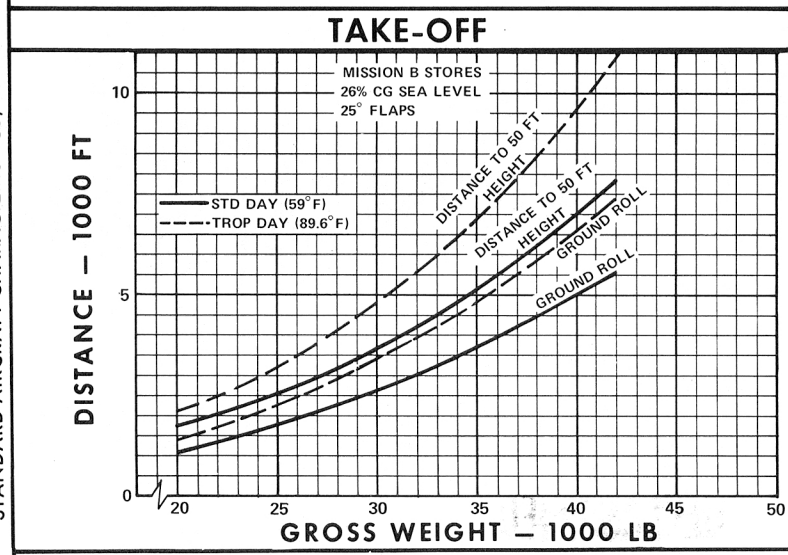
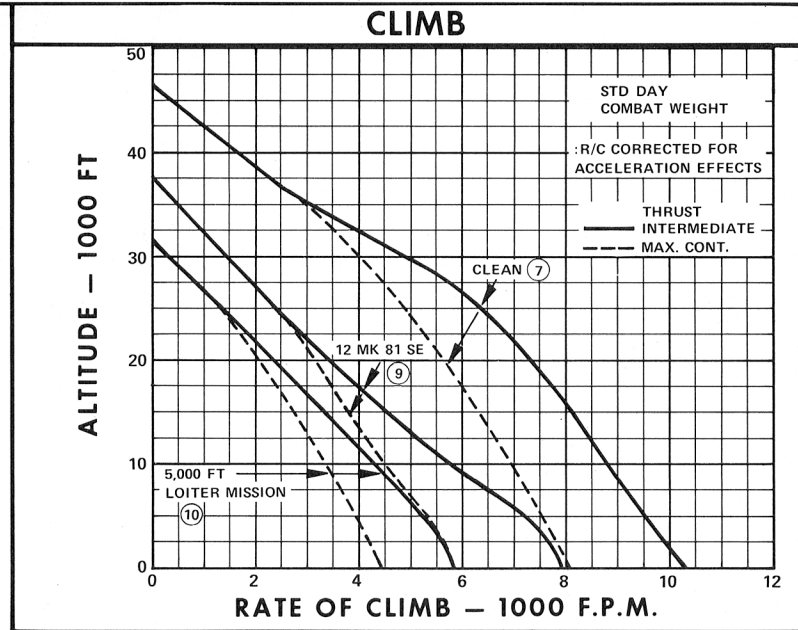
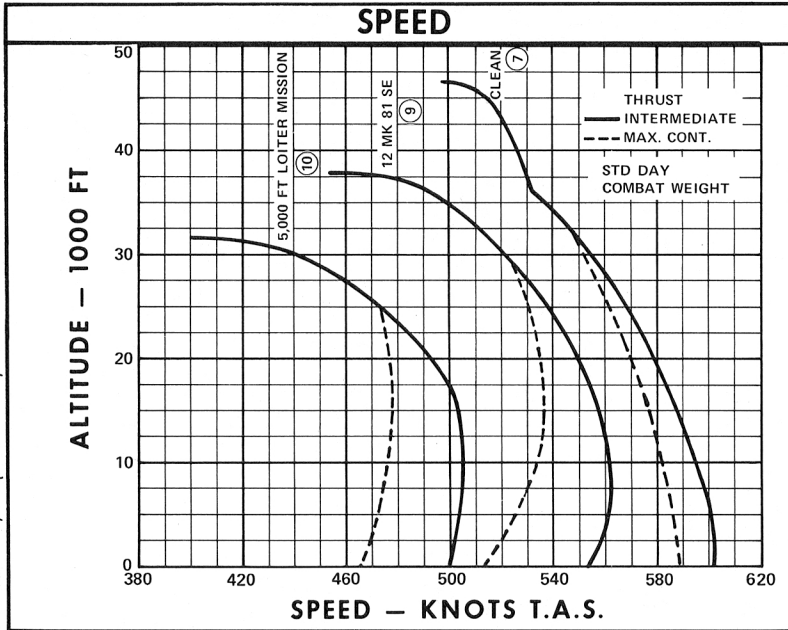
MISSION LOADINGS FUEL - GAL TAKEOFF WT - LB	100 NMI IN AND OUT		200 NMI IN AND OUT		LO-LO-LO		5,000 FT LOITER		HI-HI-HI	
	R/A NMI	• TIME HR	R/A NMI	• TIME HR	R/A NMI	• TIME HR	R/A NMI	• TIME HR	R/A NMI	• TIME HR
1 MK 43 CG-26.06% MGC 1,476 GAL INT 32,573, a = 4.09 FT/SEC ² •••	586	2.74	450	2.36	356	2.26	556	3.34	801	3.45
1 MK 43 CG-25.60% MGC 1,476 GAL INT 900 GAL EXT 40,119, a = 2.86 FT/SEC ² ••••	952	4.44	848	4.18	576	3.69	901	4.96	1,117	4.97
6 MK 81 SE CG-26.27% MGC 1,496 GAL INT 32,745, a = 4.80 FT/SEC ²	485	2.47	372	2.16	328	2.21	446	3.01	658	3.04
6 MK 81 SE CG-27.21% MGC 1,476 GAL INT 1,079 GAL EXT 42,000, a = 2.54 FT/SEC ²	832	4.32	746	4.09	549	3.73	771	4.77	971	4.80
6 MK 82 SE CG-25.87% MGC 1,476 GAL INT 34,371, a = 4.28 FT/SEC ²	460	2.37	353	2.09	320	2.16	409	2.86	624	2.91
6 MK 82 SE CG-27.27% MGC 1,476 GAL INT 900 GAL EXT •••• 41,945, a = 2.55 FT/SEC ²	772	3.97	684	3.73	513	3.46	704	4.38	912	4.44
20 MK 82 SE CG-28.17% MGC 1,250 GAL INT •••• 42,000, a = 2.57 FT/SEC ²	195	1.28	•••••	•••••	196	1.46	86	1.45	299	1.57
12 MK 82 6 MK 81 2 MK 84 1,185 GAL INT •••• 42,000, a = 2.48 FT/SEC ²	184	1.20	•••••	•••••	189	1.38	77	1.40	289	1.54

NOTES

- MISSION TIME: EXCLUDES TIME FOR WARMUP AND TAKEOFF AND 20-MINUTE LOITER TIME
- BCS: BEST CRUISE SPEED
- ACCELERATION AFTER CATAPULT AT 0.82 C_L max AT 89.6° F, INTERMEDIATE THRUST
- PARTIAL FUEL LOAD TO MAINTAIN 42,000 LB MAXIMUM TAKEOFF WEIGHT
- UNABLE TO MAINTAIN MISSION DEFINITION

STANDARD AIRCRAFT CHARACTERISTICS, NAVWEPS FORM 13100/41 (Rev. 7-65)

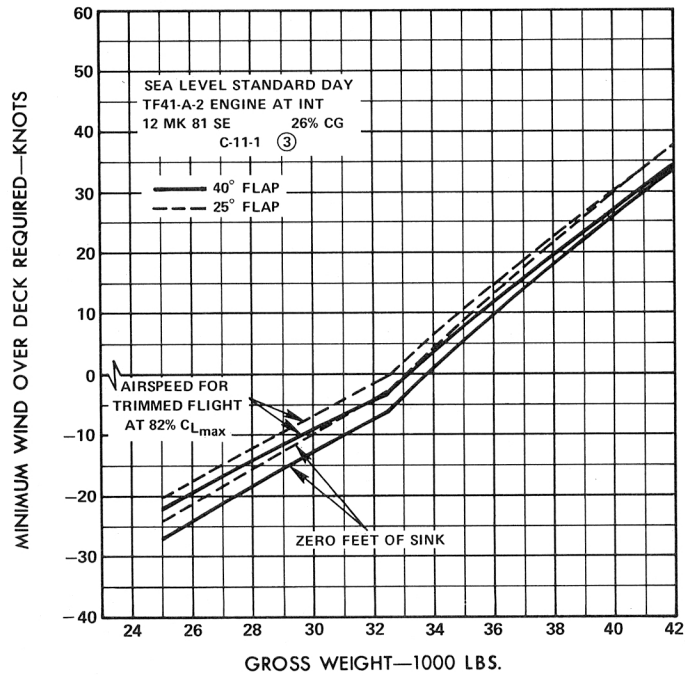
STANDARD AIRCRAFT CHARACTERISTICS, NAVWEPS FORM 13100/4F (Rev. 7-65)



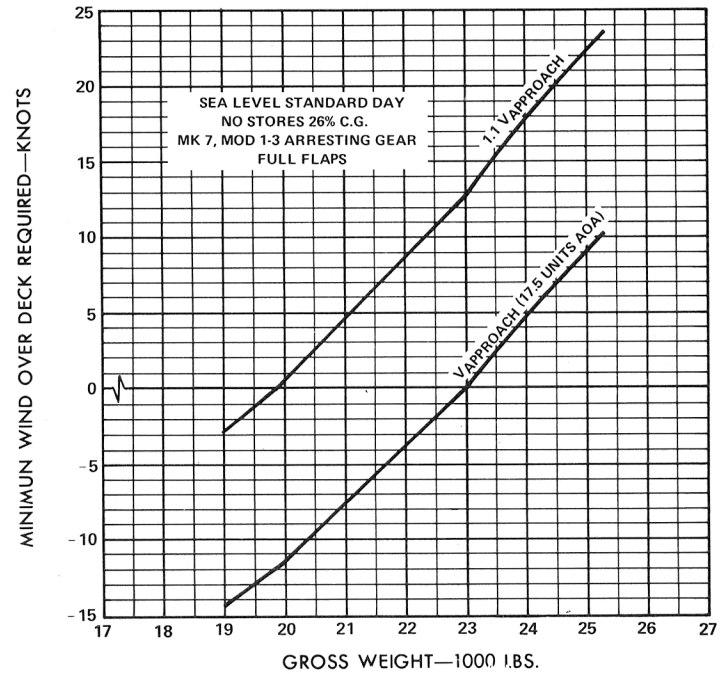
○ LOADING CONDITION COLUMN NUMBER — TF41-A-2 ENGINE

CARRIER SUITABILITY

MINIMUM WIND OVER DECK REQUIRED FOR CATAPULTING
VS. GROSS WEIGHT



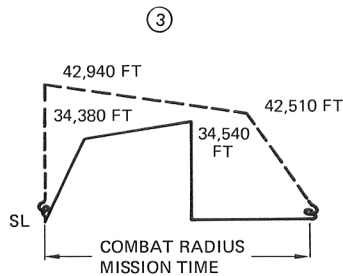
MINIMUM WIND OVER DECK REQUIRED FOR ARRESTING
VS. GROSS WEIGHT



STANDARD AIRCRAFT CHARACTERISTICS, NAVWEPS FORM 13100/4H (Rev. 7-65)

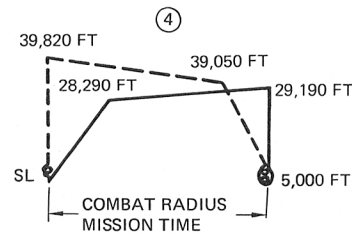
PRIMARY ATTACK MISSION
(12 MK 81 SE)

Warmup, taxi, takeoff: 5 min SL Max Continuous
 Climb: on course to opt cruise alt with Intermediate thrust
 Cruise out: at speed for max range at opt cruise alt
 Descend: to SL (no fuel used, no distance gained)
 Run in: 200 NMI at SL at speed for max range
 Combat: 5 min at Intermediate (stores on, no dist gained) drop bombs
 Climb: on course to opt cruise alt with Intermediate thrust
 Cruise back: at max range speed at opt alt
 Reserve: 5% of initial fuel +20 min at max endurance speed at SL



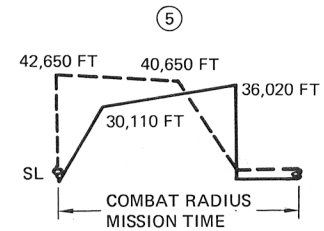
5000 FT LOITER MISSION

Warmup, taxi, takeoff: 5 min SL Max Continuous
 Climb: on course to opt cruise alt with Intermediate thrust
 Cruise out: at max range speed at opt cruise alt (drop fuel tanks when empty)
 Descend: to 5,000 ft (no fuel used, no dist gained)
 Loiter: 1 hour at max end. speed (no dist gained) stores dropped at end of loiter
 Climb: on course to opt cruise alt with Intermediate thrust
 Cruise back: at max range speed at opt alt
 Reserve: 5% initial fuel +20 min at max endurance speed at SL



DEEP STRIKE MISSION

Warmup, taxi, takeoff: 5 min SL Max Continuous
 Climb: on course to opt cruise alt with Intermediate thrust
 Cruise out: at max range speed at opt cruise alt (drop fuel tanks when empty)
 Descend: to SL when 50 NMI from target (no fuel used, no dist gained)
 Run in: 50 NMI at V_{max} at Intermediate
 Combat: 5 min at Intermediate (stores on, no dist gained) drop bombs
 Run out: 50 NMI at V_{max} at Intermediate at SL
 Climb: on course to opt cruise alt with Intermediate thrust
 Cruise back: at max range speed at opt alt
 Reserve: 5% initial fuel +20 min at max endurance speed at SL



Note:
 Mission Time: Excludes time for warmup and takeoff and 20-minute loiter time
 Cycle Time: Mission time +20 minutes SL loiter

○ LOADING CONDITION COLUMN NUMBER

STANDARD AIRCRAFT CHARACTERISTICS, NAVWEPFORM 13100/4G (Rev. 7-65)

STANDARD AIRCRAFT CHARACTERISTICS, NAVWEPS FORM 13100/4G (Rev. 7-65)

**HI-LO-LO-HI
MISSION**

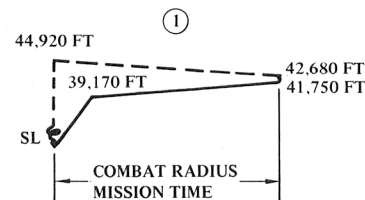
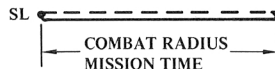
Warmup, taxi, takeoff: 5 min SL Max Continuous
 Climb: on course to opt cruise alt with Intermediate thrust
 Cruise out: at max range speed at opt cruise alt (drop fuel tanks when empty)
 Descend: to SL when 100/200 NMI from target (no fuel used, no dist gained)
 Cruise: at max range speed at SL (drop fuel tanks when empty)
 Combat: 5 min at Intermediate (stores on, no distance gained)
 Drop stores
 Cruise: at max range speed at SL to a point 100/200 NMI from target
 Climb: on course to opt cruise alt with Intermediate thrust
 Cruise back: at max range speed at opt alt
 Reserve: 5% initial fuel +20 min at max endurance speed at SL

**LO-LO-LO
MISSION**

Warmup, taxi, takeoff: 5 min SL Max Continuous
 Cruise: at max range speed at SL (drop fuel tanks when empty)
 Combat: 5 min at Intermediate (stores on, no distance gained)
 Drop stores
 Cruise: at max range speed at sea level
 Reserve: 5% initial fuel +20 min at max endurance speed at SL

**HI-HI-HI
MISSION**

Warmup, taxi, takeoff: 5 min SL Max Continuous
 Climb: on course to opt cruise alt with Intermediate thrust
 Cruise out: at max range speed at opt cruise alt (drop fuel tanks when empty)
 Combat: 5 min at Intermediate (stores on, no dist gained) at alt for max mach no.
 Drop stores
 Cruise back: at max range speed at opt alt
 Reserve: 5% initial fuel +20 min at max endurance speed at SL



Note:
 Mission Time: Excludes time for warmup and takeoff and 20-minute loiter time
 Cycle Time: Mission time +20 minutes SL loiter

○ LOADING CONDITION COLUMN NUMBER