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Standard Aircraft Characteristics

A-6C AIRCRAFT

(TITLE UNCLASSIFIED)

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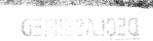
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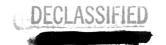
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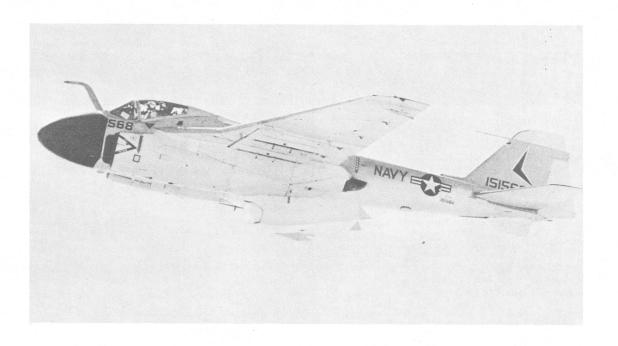
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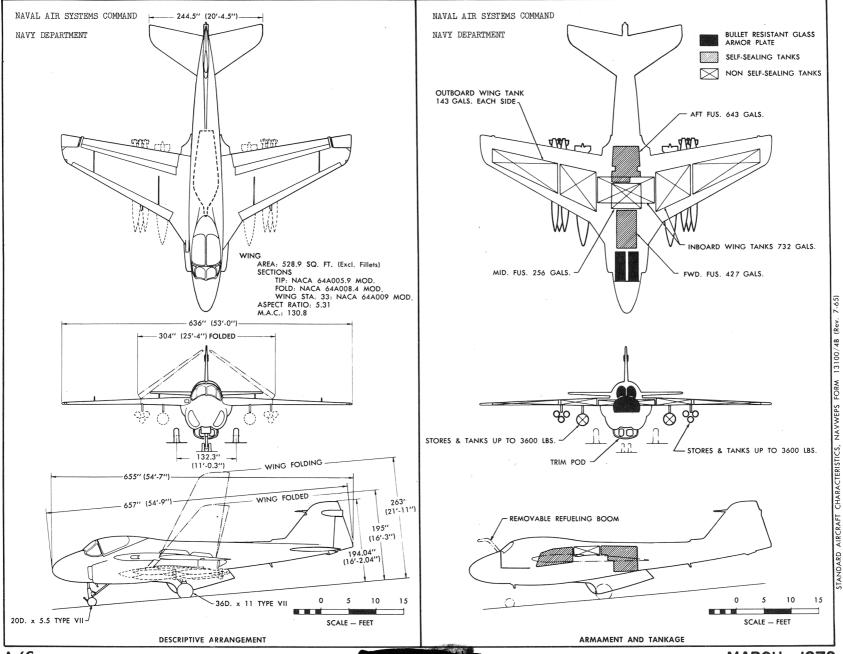
STANDARD AIRCRAFT CHARACTERISTICS

A-6C TRIM

GRUMMAN

MARCH 1972





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POWER	PLANT
No. & Model	(2) J52-P-8A
Manufacturer	Pratt & Whitney
Type	Twin Spool Axial Flow
Length	117 in
Diameter	21 in
Didmeter	31 in.
Augmentation	none
RATIN	NGS
	LBS. RPM
Maximum	9300 12,060
Take-Off & Military	9300 12,060
Normal	8200 11,660
Sea Level	Static
Spec No.	N-1844-A
ELECTRO	ONICS
ATTACK-NAVIGATION INSTR	UMENTS
Indicator, Analog Display Indicator, Azimuth Range, Multi	IP-1000/AVA-1B
Indicator, Azimuth Range, Multi	isensor IP-691 A/A
MA-1 Compass System	
Air Data Computer Digital Computer (DIANE)	CP957/A
Digital Computer (DIANE)	AN/ASQ-61
Search Radar	AN/APQ-92
Track Radar	AN/APQ-112
Doppler Radar	AN/APN-153
Inertial Platform	ANI/ASNI 31
Radar Altimeter	ANI/ADNI 1.41
Pull-us T	ANI/ADM 72
Bullpup TransmitterBullpup System	AN/ARW-/3
Bullpup System	AGM-12B/12C
Shrike Missile System	AGM-45A
Shrike Missile System Integrated Display Subsystem AFCS Radar Recorder	
AFCS	AN/ASW-16
Radar Recorder	AN/ASH-18
Radar RecorderOptical Sight Head	MX-3146A/A
Weapon Fusing	AWW-1
Weapon Fusing Approach Power Compensator	ANI/ASN 54
Approach Tower Compensator	AIV/ ASIV-54
COMMUNICATIONS	
CNI Package	AN/ASQ-57B
UHF Transceiver IFF Transponder ANX. Receiver	RT-542ASQ
IFF Transponder	KY-533ASQ
ANX. Receiver	AN/ARR-40
IFF Transponder	KY-409ASQ/RT-541NSQ
Amplifier Power Supply	AW 2310 VC
Amplifier Fower Supply	AM-2310-A3Q
ICSCoder	AN/ AIC-14
Coder	KY-28
Beacon Radar	AN/APN-154
Data Link	AN/ARW-67
COUNTERMEASURES	
Repeater Jammer	AN/ALQ-41
Repeater Jammer	(2) AN/ALQ-100
Chaff Dispenser	AN/ALF-18
Chaff Dispenser Radar Warning Set	AN/APR-25
nadar warning set	AN/APR-27
Radar Warning	AIN/ APR-2/
TRIM EQUIPMENT	
Begcon Receiver (Direction Fine	der Set) AN/ASD-4
Television Camera Set	AN/ADX-4
Television Camera Set Infra-Red Detecting Set	AN/AAS-28
mind-ked beleding del	
Optical Sensor System Group I	Housing ANI/AIAO

MISSION AND DESCRIPTION

The A-6C is an A-6A Aircraft equipped with special electronic Trails-Roads Interdiction Multi-Sensor (TRIM) equipment to enhance its all-weather low altitude night attack capability. Installation of the TRIM Sensor Equipment, Forward Looking Infrared (FLIR), Low Light Level Television (LLLTV), and the Black Crow Receiver give the A-6C additional low light level night detection capabilities with high speed, low altitude penetration.

In the expected TRIM operational environment, that of non-permissive combat area operations, the prime use of FLIR & LLLTV sensors will be to detect such targets as slow moving ground objects of opportunity and non-radar significant river traffic. Their signatures are characterized by either the heat emitted by the object or by visual contrast with the background.

It can operate without restriction from CVA-19 class and superior class carriers with C11-1 catapults and from temporary airfields.

An integrated attack-navigation and central digital computer system is provided to locate, track and destroy small moving targets or fixed targets in all weather conditions, and at night. Pilot displays provide contact analog, terrain clearance, attack and horizontal situation information in integrated form. Four store stations are provided, inboard of the wing fold joint.

Irreversible hydraulic flight controls are provided. Longitudinal control is effected by an all movable stabilizer. Lateral control is provided by flaperons while a conventional rudder is used for directional control.

High lift devices are slotted flaps, and leading edge slats. Anti-skid brakes on main wheels are provided. Nose wheel tow catapulting is used. Speed brakes are located on the aft portion of each wing tip. Side by side ground level ejection seats are provided for the pilot and bombardier/navigator.

Power wing folding is provided. The engines are serviced by removal of fuselage fairing panels. Engines may be removed by dropping the pod that houses the TRIM equipment.

DEVELOPMENT

First Flight	December 1968
Service Use	Spring 1970

DIMENSIONS

Wing	
Area	528.9 sq ft
Span	
MAC	
Sweepback (¼ chord)	25°
Length	54 ft 9 in.
Height	16 ft. 2.040 in.
Tread	11 ft 0.3 in.

WEIGHTS

LOADINGS	LBS.	L.F.	
Empty:	28,744		
Design:	36,526	6.5/5.8*	
Combat: HI-LO-LO-HI	53,546		
Maximum Take-Off, overload:	58,612		
Maximum Take-Off, normal: (Basic catapulting design gross weight)	54,049		
Maximum Landing, field: (Basic landing design gross weight)	36,000		
Maximum Landing, arrested: (Basic arresting design gross weight)	36,000		

*Wing tip brakes extended.

FUEL AND OIL

All weights are based on A-6C Weapon System Specification

SD-534-3.

NO. TANKS	GALS.	LBS.	LOCATION
3	1326	9016	fuselage
5	1018	6923	wings
4 (300 gal.)	1182	8036	drop tanks
Fuel Grade			JP-5
Fuel Spec. (appli	icable)		MIL-F-5624C-1

OIL

Capacity	5 gals./engine
Spec. (applicable)	MIL-L-23699

ORDNANCE

Maximum Bomb Capacity: 11,440 lbs.

Bombs LDGP: MK 81, MK 82, MK 83, MK 84

/ MK 81 Snakeye, MK 82 Snakeye / GP: AN-M57,
AN-M64, AN-M65, AN-M66 / Fragmentation: AN-M81,
AN-M88 / Demolition: M-117 / Destructor: MK 36,
MK 40 / Firebomb: MK 77, MK 79, BLU-27/B

/ Chemical: MK 94 / Cluster: CBU-1A/A, CBU-9 Mods,
CBU-24 Mods, CBU-29 Mods, CBU-49 Mods,
MK 20 Mod 0 Rockeye.

Special Weapons: MK 28, MK 43, MK 57, B-61.

Rocket Pods: 7 Round 2.75 FFAR, 19 Round 2.75 FFAR, 4 Round 5.0 ZUNI.

Guided Missiles: AGM-12B Bullpup A, AGM-12C Bullpup B, AGM-45A Shrike, AIM-9B Sidewinder 1A, AIM-9D Sidewinder 1C.

Mines: MK 25, MK 36, MK 50, MK 52, MK 53, MK 55, MK 56.

Pyrotechnics Flare: MK 6 Mod-6, MK 24 Mod-2A, -3, -4 / Flare Pod: SUU-40/A, SUU-44/A / Marker: MK 58.

Practice Bombs and Training Shapes: MK 76, MK 86, MK 87, MK 88, MK 89, MK 106, MK 124, Aero 8A-1 Container, MK 104, BDU-6E, BDU-8/B, BDU-11/E, BDU-12B, BDU-20C.

Bomb Racks, Launchers, and Adapters: Aero 7A-1 EBR, A/A37B-3 PMBR, A/A37B-5 TER, A/A37B-6 MER / Missile Launcher: Aero 5A-1, LAU-7/A / Adapter: ADU-299/E, ADU-315 or -316, Aero 1A.

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PERFORMANCE SUMMARY									
		HI-LO-LO-HI TRIM DASH	HI-LO-LO-HI TRIM DASH	LO-LO-LO TRIM DASH	LO-LO-LO TRIM DASH	FERRY			
TAKE-OFF LOADING CONDITION		(12) MK-82 Snakeye I (2) 300 Gal. Tanks	(20) MK-82 Snakeye I	(12) MK-82 Snakeye I (2) 300 Gal. Tanks	7) (20) MK-82 Snakeye I	g (4) 300 Gal. Tanks			
TAKE-OFF WEIGHT	lb.	57,980	58,612	57,980	58,612	55,105			
Fuel internal/external (JP-5)	lb./lb.	15,939/4018	. 15,939/0	15,939/4018	15,939/0	15,939/8036			
Payload	lb.	6864	11,440	6864	11,440	0			
Wing loading	b./sq. ft.	109.2	110.9	109.2	110.9	104.2			
Stall speed — power-off	kn.	132.5	133.1	132.5	133.1	129.1			
Take-off run at S.L. — calm	ft.	5120	5290	5120	5290	4480			
Take-off run at S.L. — 25 kn. wind	ft.	3890	4010	3890	4010	3380			
Take-off to clear 50 ft.—calm	ft.	5850	6000	5850	6000	5150			
Max. speed/altitude (A)	kn./ft.	478/13,500	459/15,000	478/13,500	459/15,000	505/10,000			
Rate of climb at S.L. (A)	fpm.	3990	3620	3990	3620	4900			
Time: S.L. to 20,000 ft. (A) (B)	min.	7.7	8.7	7.7	8.7	5.8			
Time: S.L. to 30,000 ft. (A) (B)	min.	19.0	29.5	19.0	29.5	11.9			
Service ceiling (100 fpm) (A)	ft.	30,700	28,200	30,700	28,200	35,300			
Combat range (C) n.mi.		1108	701	687	474	1901			
Average cruising speed cr. distance/cr. tir	ne kn.	399	386	257	258	405			
Cruising altitude(s)	ft.	26,500 — 34,800	24,000 — 31,900	S.L.	S.L.	30,300 — 39,700			
Combat radius/mission time (C) n.mi./hr.		500/2.53	314/1.63	345/2.14	246/1.38	, — · · · · · · · · · · · · · · · · · ·			
Average cruising speed kn.		403	400	251	241	_			
COMBAT LOADING CONDITION		TANKS DROPPED STORES RETAINED	4 STORES RETAINED	STORES RETAINED 6 STORES RETAINED		10 TANKS DROPPED			
COMBAT WEIGHT	lb.	53,546	52,236	53,546	52,236	46,237			
Engine power		Military	Military	Military	Military	Military			
Fuel	lb.	15,939	9563	15,939	9563	15,939			
Combat speed/combat altitude	kn./ft.	493/2000	449/2000	493/2000	449/2000	527/2000			
Rate of climb/combat altitude	fpm/ft.	4540/2000	4000/2000	4540/2000	4000/2000	6280/2000			
Combat ceiling (500 fpm)	ft.	33,500	29,400	33,500	29,400	39,400			
Rate of climb at S.L.	fpm.	4860	4300	4860	4300	6660			
Max. speed at S.L.	kn.	492	447	492	447	527			
Max. speed/altitude	kn./ft.	496/11,500	462/15,000	496/11,500	462/15,000	527/5000			
LANDING WEIGHT (stores & tanks off)	lb.	32,931	33,252	32,931	33,252	32,647			
Fuel	lb.	2188	2019	2188	2019	2349			
Stall speed—power-off/approach power	kn./kn.	96.8/90.8	97.1/91.2	96.8/90.8	97.1/91.2	96.3/90.3			
Landing distance-ground roll/over 50 ft. obst.	ft./ft.	1745/2395	1760/2410	1745/2395	1760/2410	1730/2380			

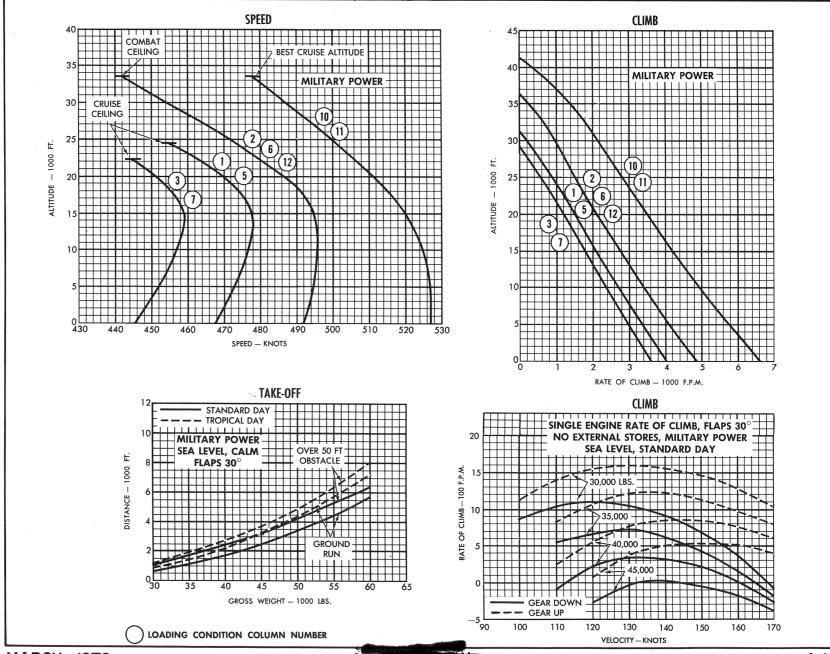
NOTES

PERFORMANCE BASIS: Contractor flight test.

SPOTTING: A total of 63 airplanes can be accommodated in the safe parking area on the flight and hangar decks of a CVA-19 class angled deck carrier.

- (A) Military rated thrust.
- (B) Take-off gross weight, minus fuel for warm-up, taxi, take-off and climb.
- (C) Tanks retained throughout mission. Mission performance is based on reserves using five percent of total take-off fuel, plus 20 minutes maximum endurance at sea level.





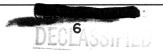


MISSION SUMMARY — ALTERNATE LOADINGS

		HI-FO-FO-HI		HI-LO-LO-HI TRIM Dash		LO-LO-LO TRIM Dash		CLOSE SUPPORT		
		SEA LEVEL 300 N. MI.		NOTE 2 & 3 2000 FT SEA LEVEL 100 N. MI.		NOTE 2 & 3 2000 FT SEA LEVEL - 200 N. MI.		1 HR LOITER AT 2000 FT		
EXI	TERNAL STORE LOADINGS	Take-Off Gross Weight	Combat Radius n. mi.	Mission Time hours	Combat Radius n. mi.	Mission Time hours	Combat Radius n. mi.	Mission Time hours	Combat Radius n. mi.	Mission Time hours
(1) (5)	(12) MK 82 Snakeye l (2) 300 Gal. Drop Tanks	57,980	-	_	500	2.53	345	2.14	400	3.03
<u>3</u>	(20) MK 82 Snakeye I	58,612	_	1	314	1.63	246	1.38	204	2.10
9	(4) 300 Gal. Drop Tanks	55,105	608	3.66	786	3.89	473	3.14	697	4.41
11)	Clean Configuration	46,227		<u>-</u>	534	2.36	331	2.02	447	3.18
(12)	(12) MK 82 Snakeye I	53,541	_	_	407	2.04	288	1.69	308	2.54

NOTES

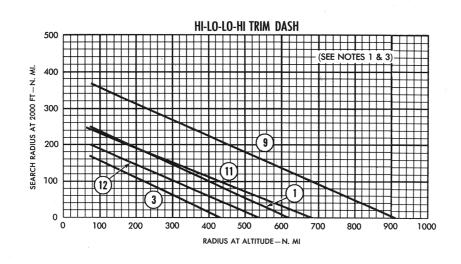
⁽³⁾ Maximum speed for TRIM operations is 400 knots.

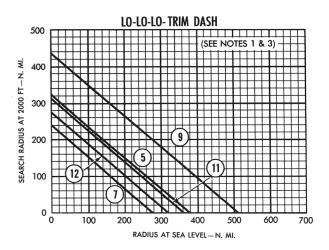


⁽¹⁾ Mission performance reflects the effects of mission reserves computed with five percent of total take-off fuel, plus 20 minutes maximum endurance at sea level. Tanks retained throughout mission.

⁽²⁾ For variation of low altitude radius, refer to graphs.

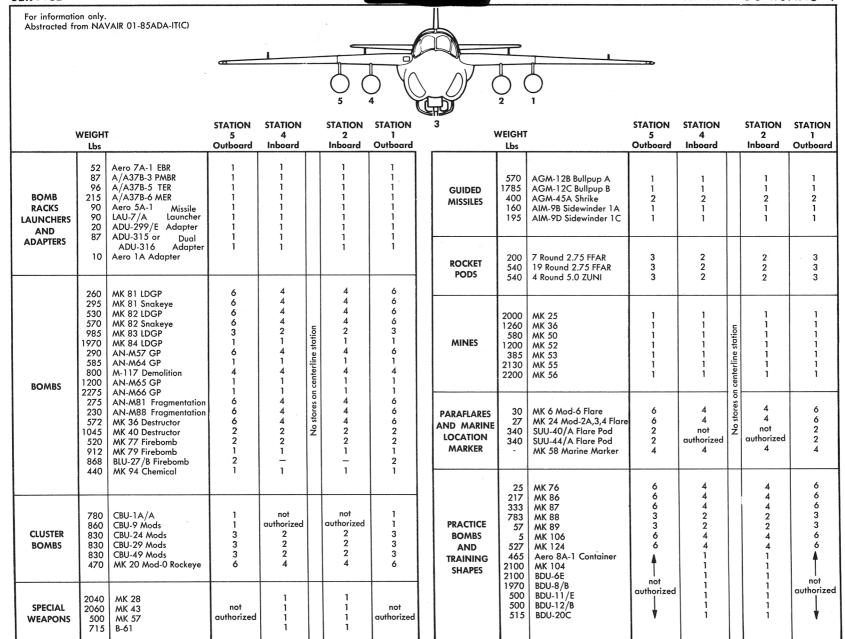






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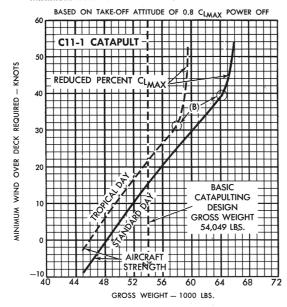
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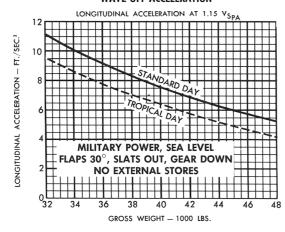
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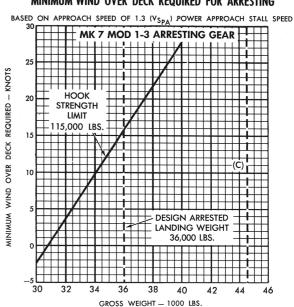




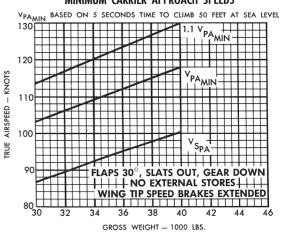
WAVE-OFF ACCELERATION



MINIMUM WIND OVER DECK REQUIRED FOR ARRESTING



MINIMUM CARRIER APPROACH SPEEDS



(A) These curves should be used for planning purposes only. Actual catapult and arresting gear operation should be in accordance with applicable Aircraft Technical Orders, and Catapult and Arresting Gear Bulletins.

NOTES

- (B) Maximum weight for tropical day longitudinal acceleration of 2.1 ft/sec2 for C11-1 catapult at take-off.
- (C) Maximum weight, 44,500 lbs, for tropical day longitudinal acceleration of 5.0 ft/sec² at 1.15 Vsp. (speed brakes retracted).
- (D) Flap deflection: for catapulting $\delta_{\scriptscriptstyle F}=30^{\circ}$, for landing $\delta_{\scriptscriptstyle F}=30^{\circ}$.



NOTES

HI-LO-LO-HI

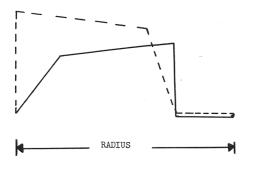
- (1) Warm-up, Taxi, Take-off: 5 Min. S.L. NRP
- (2) Climb: On Course To Opt Cruise Alt With Mil Thrust
- (3) Cruise Out: At Speed For Max Range at Opt Cruise Alt. (Drop Fuel Tanks When Empty)
- (4) Descend: To S.L. When 100/200/300 N.Mi. From Target (No Fuel Used, No Dist. Gained)
- (5) Cruise: At Max Range Speed at S.L.
- (6) Combat: 5 Min. MRT (Stores on, No Dist. Gained)
- (7) Drop Stores
- (8) Cruise: At Max Range Speed At S.L. To a Point 100/200/300 N.Mi. From Target
- (9) Climb: On Course To Opt Cruise Alt With Mil Thrust
- (10) Cruise Back: At Max Range Speed at Opt Alt.
- (11) Reserve: 5% of Initial Fuel Plus 20 Min. at Max Endurance Speed at S.L.

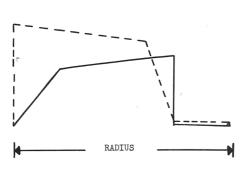
HI-LO-LO-HI TRIM "DASH" MISSION

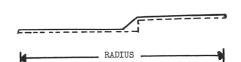
- (1) Warm-up, Taxi, Take-off: 5 Min. S.L.
- (2) Climb: On Course To Opt Cruise Alt With Mil Thrust
- (3) Cruise Out: At Speed For Max Range at Opt Cruise Alt. (Drop Fuel Tanks When Empty)
- (4) Descend: To 2,000 Ft. When 100/200/300 N.Mi. From Target (No Fuel Used, No Dist. Gained)
- (5) Run In: At 400 Kts at 2,000 Ft. Altitude
- (6) Combat: 5 Min. MRT (Stores on, No Dist. Gained)
- (7) Drop Stores
- (8) Run Out: At 400 Kts at 2,000 Ft. Altitude To a Point 100/200/300 N.Mi. From Target
- (9) Climb: On Course To Opt Cruise Alt With Mil Thrust
- (10) Cruise Back: At Max Range Speed at Opt Alt.
- (11) Reserve: 5% of Initial Fuel Plus 20 Min. at Max Endurance Speed at S.L.

LO-LO-LO TRIM "DASH" MISSION

- (1) Warm-up, Taxi, Take-off: 5 Min. S.L.
- (2) Cruise Out: At Speed For Max Range at S.L. (Drop Fuel Tanks When Empty)
- (3) Climb: On Course To 2,000 Ft. With Mil Thrust When 100/200/300 N.Mi. From Target
- (4) Run In: At 400 Kts at 2,000 Ft.
 Altitude
- (5) Combat: 5 Min. MRT (Stores on, No Dist. Gained)
- (6) Drop Stores
- (7) Run Out: At 400 Kts at 2,000 Ft. Altitude To a Point 100/200/300 N.Mi. From Target
- (8) Descend: To S.L. (No Fuel Used, No Dist. Gained)
- (9) Cruise Back: At Max Range Speed at Sea Level
- (10) Reserve: 5% Initial Fuel Plus 20 Min. at Max Endurance Speed at S.L.







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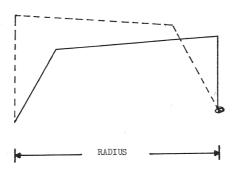
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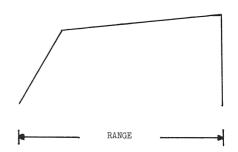
CLOSE SUPPORT

- (1) Warm-up, Taxi, Take-off: 5 Min. S.L. NRP
- (2) Climb: On Course To Opt Cruise Alt With Mil Thrust
- (3) Cruise Out: At Speed For Max Range at Opt Cruise Alt. (Drop Fuel Tanks
- When Empty)
 (4) Descend: To 2,000 Ft. (No Fuel Used, No Dist. Gained)
- (5) Loiter: One Hour at Max Endurance Speed at 2,000 Ft. (Stores On, No Dist. Gained)
- (6) Drop Stores (7) Climb: On Course To Opt Cruise Alt With Mil Thrust
- (8) Cruise Back: At Max Range Speed at Opt Alt
- (9) Reserve: 5% of Initial Fuel Plus 20 Min. at Max Endurance Speed at S.L.

FERRY

- (1) Warm-up, Taxi, Take-Off: 5 Min. S.L. NRP Climb: On Course To Cruise Alt With Mil Thrust
- (3) Cruise Out: Speed For Max Range at
- Opt Cruise Alt
 (4) Reserve: 5% of Initial Fuel Plus 20 Min. at Max Endurance Speed at S.L.





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