

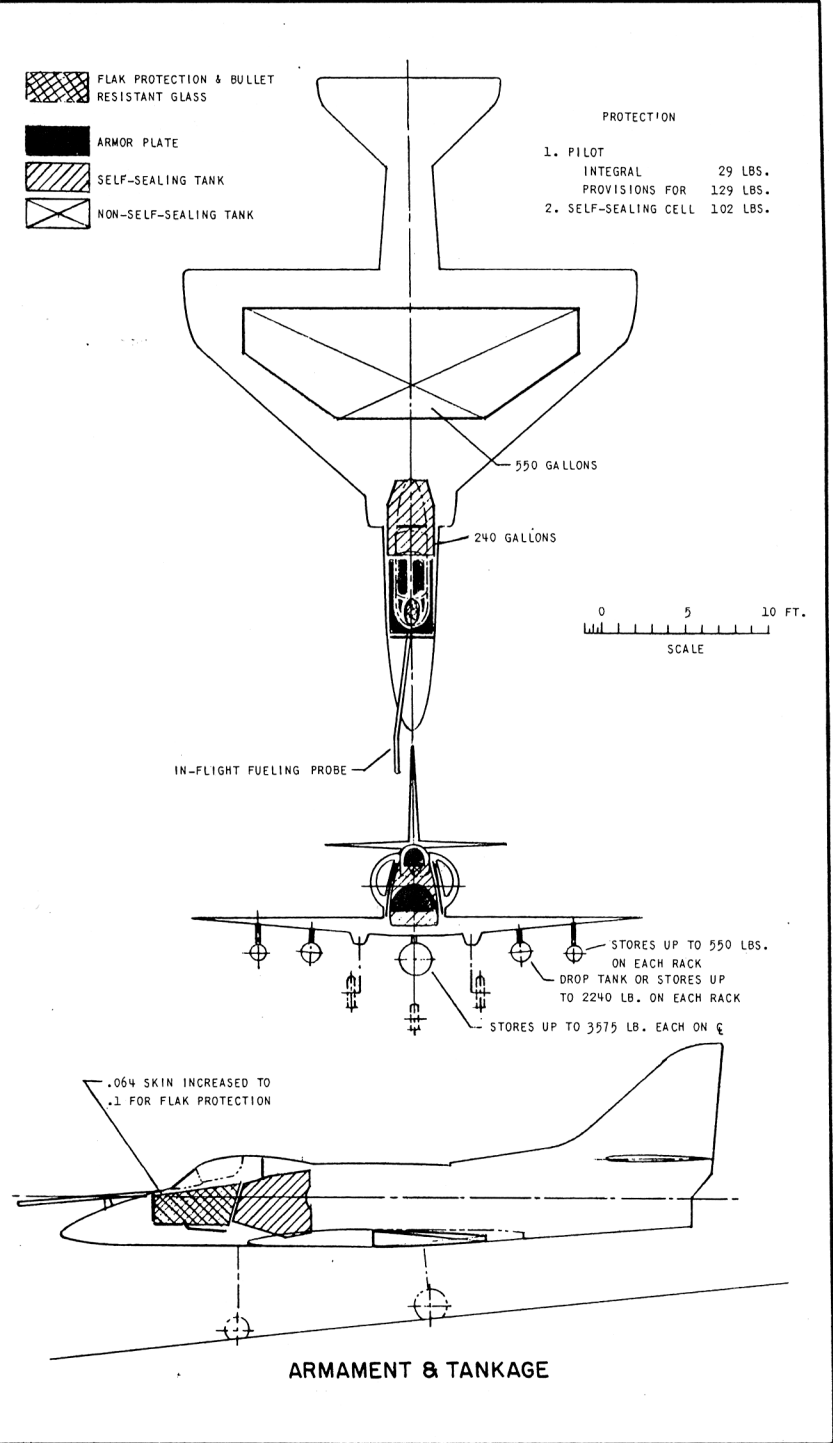
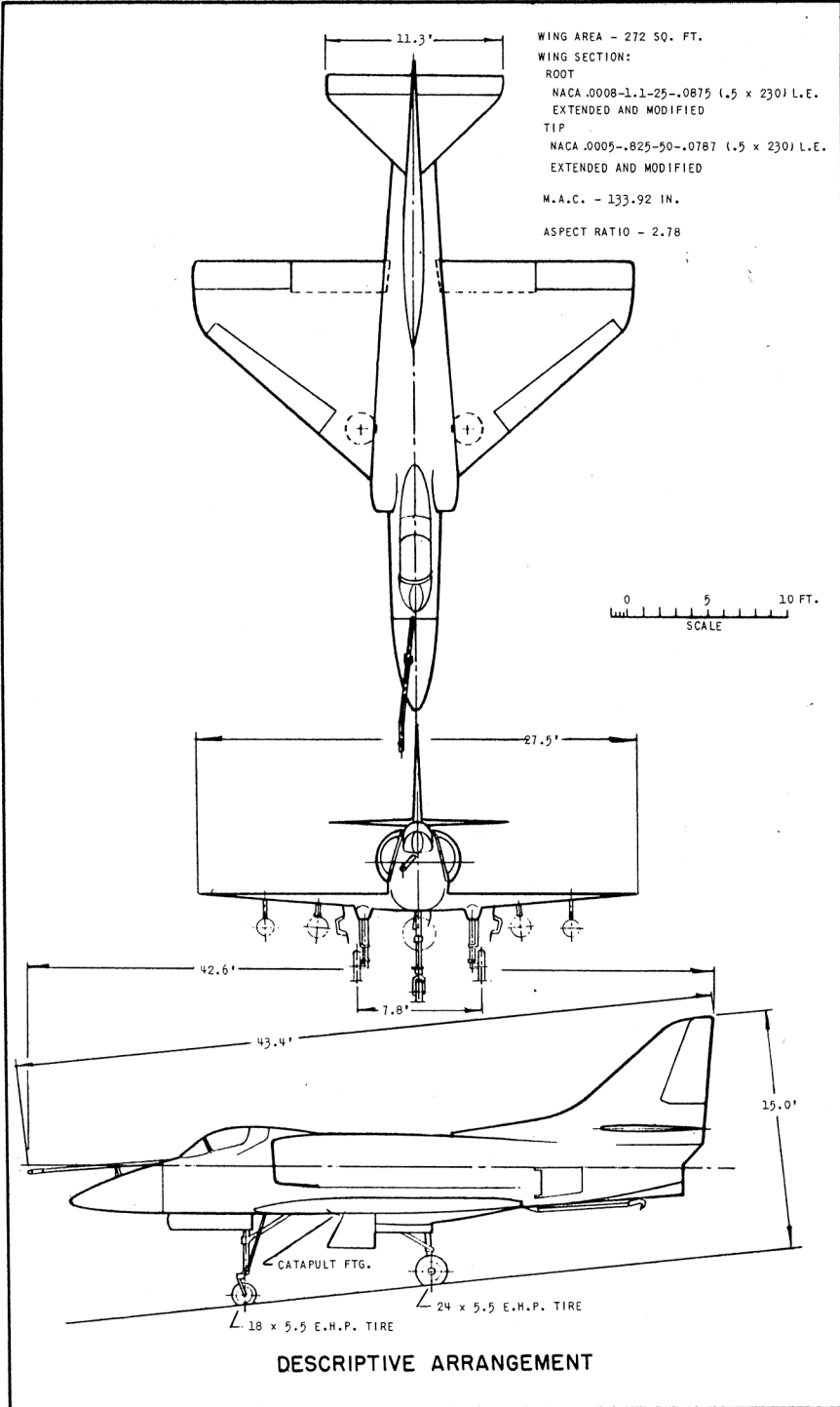
STANDARD AIRCRAFT CHARACTERISTICS

MODEL 725

REGRADED TO UNCLASSIFIED
BY AUTHORITY OF DD 254 12/9/65

DOUGLAS AIRCRAFT COMPANY, INC., EL SEGUNDO DIVISION

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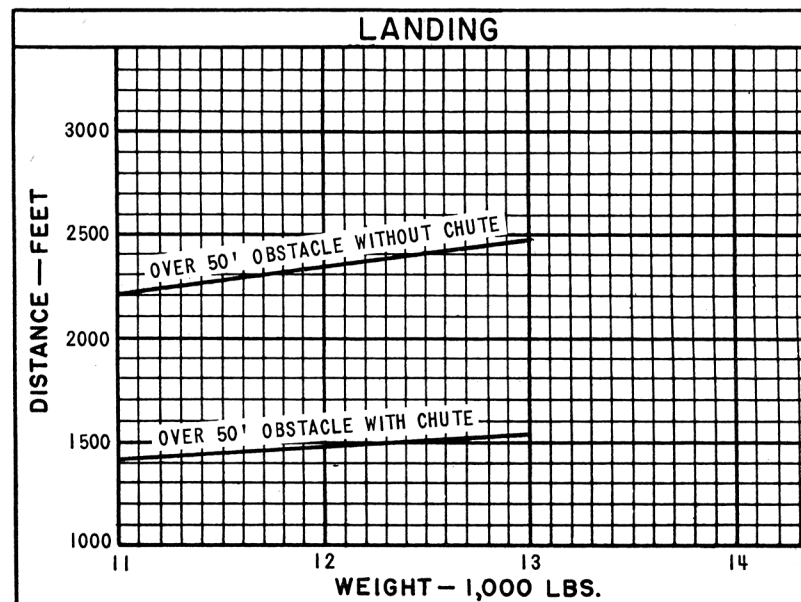
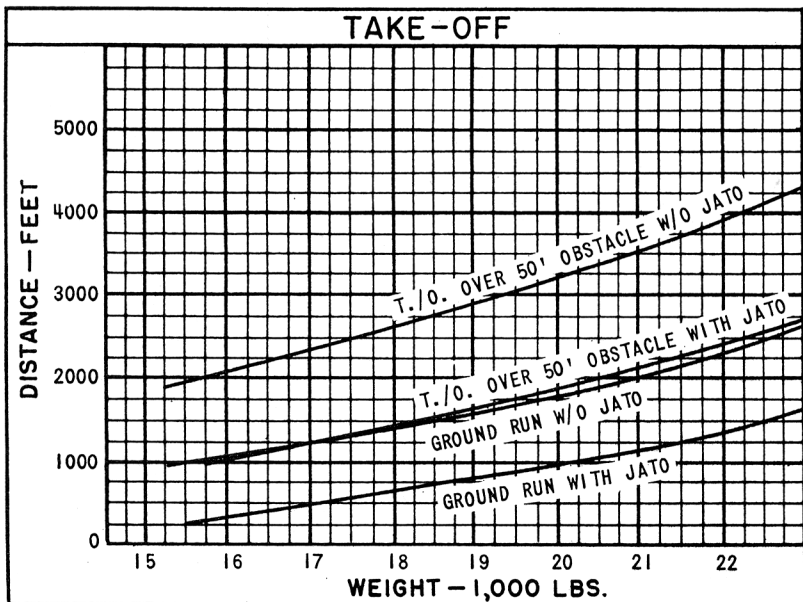
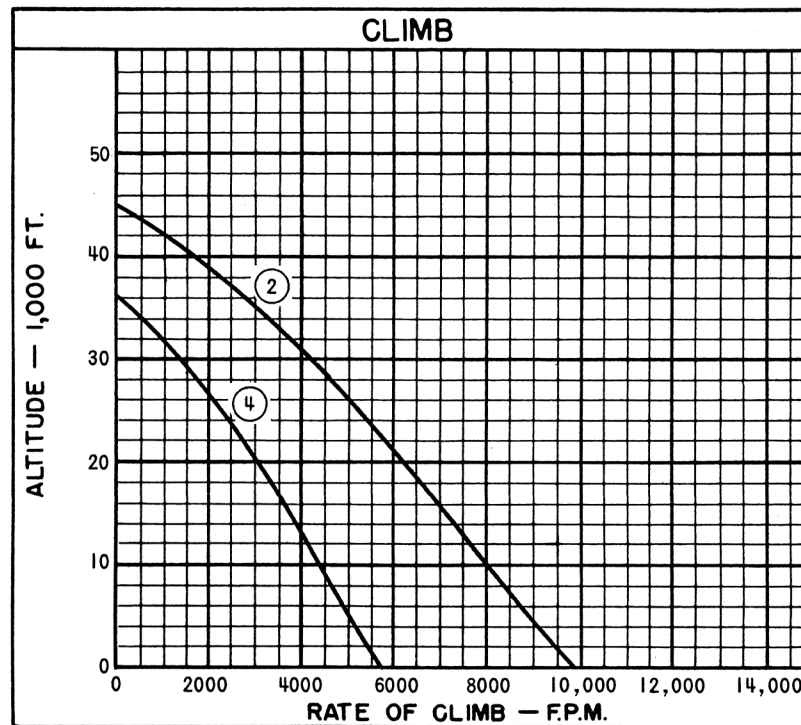
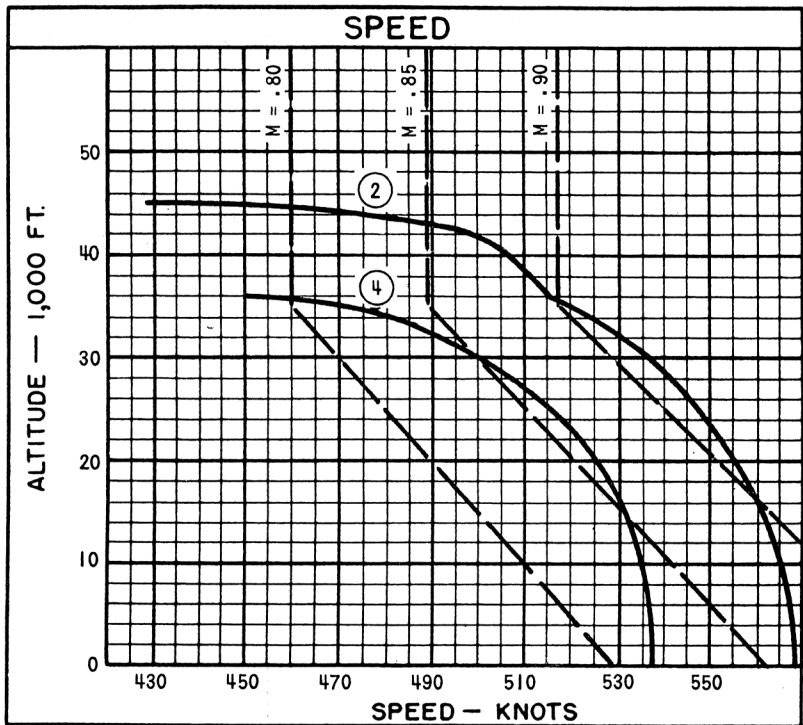


PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION	(1) CLOSE SUPPORT 2 1000-LB MK 83 BOMBS	(4) LONG RANGE 1 MK 28 STORE 2 300-GAL.EXT. FUEL TANKS
TAKE-OFF WEIGHT lb.	17,827	22,599
Fuel (790 Gal. JP-5 @ 6.8 Lb./Gal.) lb.	5372	9452
Payload lb.	2000	2250
Wing loading lb./sq.ft.	65.5	83.1
Stall speed - power-off kn.	116	131
Take-off run at S.L. - No JATO (A) ft.	1410	2495
Take-off run at S.L. - With JATO (A) ft.	695 (B)	1660
Take-off to clear 50 ft.-No JATO (A) ft.	2600	4180
Take-off to clear 50 ft.-with JATO (A) ft.	1490 (B)	2715
Rate of climb at S.L. (C) fpm	8250	5650
Time: S.L. to 20,000 ft. (C) min.	2.8	4.6
Time: S.L. to 30,000 ft. (C) min.	5.3	8.8
Service ceiling (100 fpm) (C) ft.	41,900	36,000
Combat range n.mi.	1055	1812
Average cruising speed kn.	433	432
Cruising altitude(s) ft.	37,300-42,200	31,900-41,800
Combat radius n.mi.	300 (D)	800 (E)
Average cruising speed kn.	433	432
Mission Time/Cycle Time hr./hr.	2.4/2.7	3.9/4.3
COMBAT LOADING CONDITION	(2) COMBAT 60% FUEL 2 1000-LB. MK 83 BOMB	
COMBAT WEIGHT lb.	15,553	
Engine power	Military	
Fuel lb.	3223	
Combat speed/combat altitude kn./ft.	568/S.L.	
Rate of climb/combat altitude fpm/ft.	9750/S.L.	
Combat ceiling (500 fpm) ft.	43,600	
Rate of climb at S.L. fpm	9750	
Max. speed at S.L. kn.	568	
Max. speed/altitude kn./ft.	520/35,000	
LANDING WEIGHT (20% Fuel-No Stores) lb.	11,404	
Fuel lb.	1074	
Stall speed - power-off kn.	92.8	
Stall speed - with approach power kn.	88.5	
Landing Distance-Calm, With Chute ft.	1440	

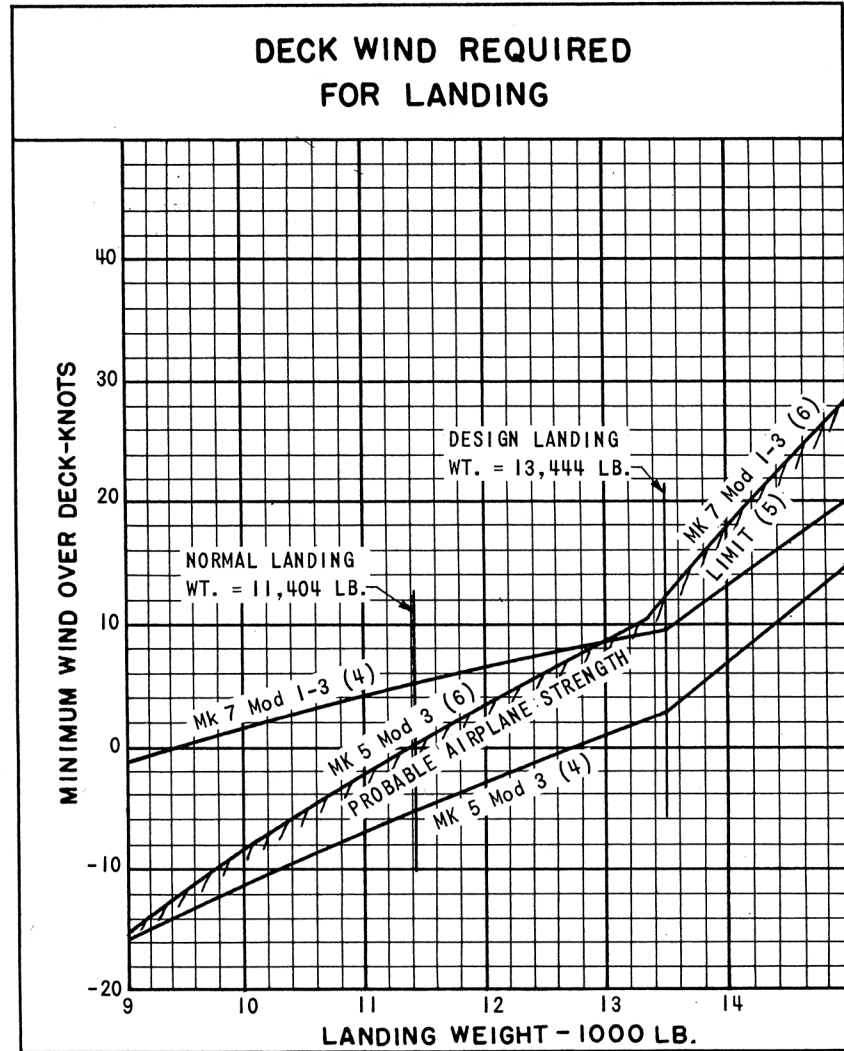
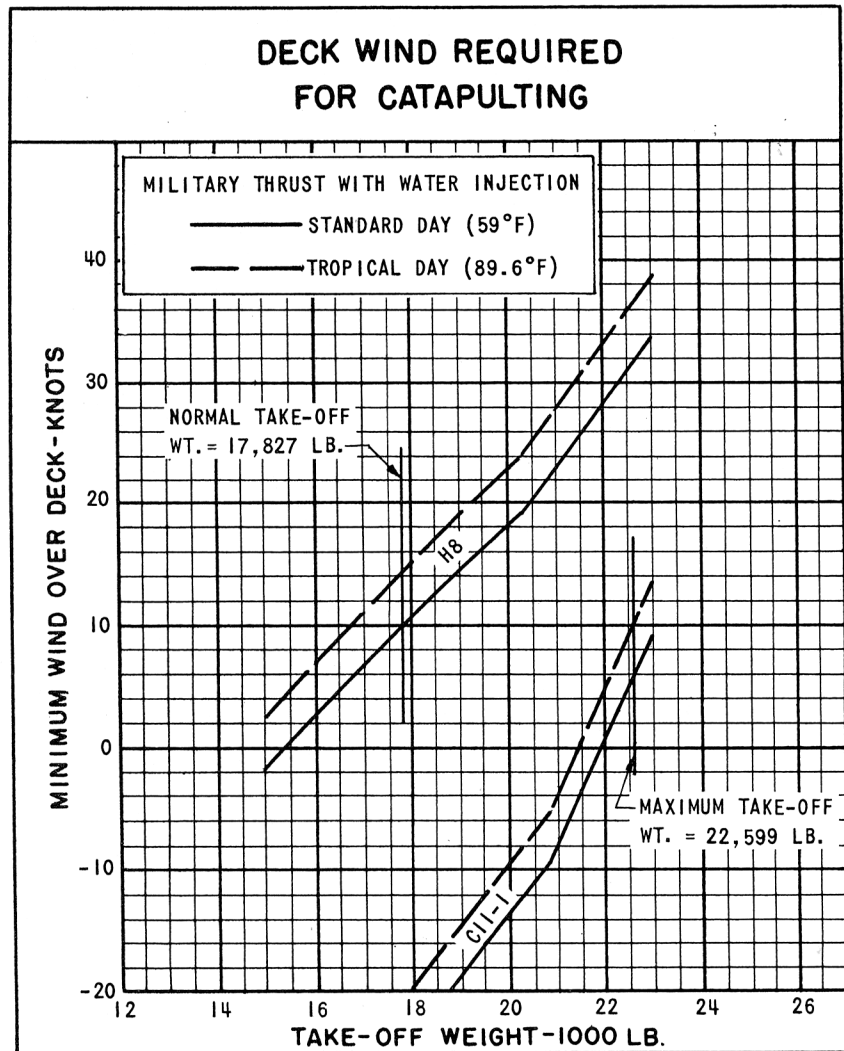
NOTES

- (A) Maximum thrust with water injection.
- (B) Take-off weight with two SKS 4500 JATO units is 18,281 lb.; JATO dropped after take-off.
- (C) Military thrust.
- (D) Close support mission defined in BuAer type specification 149 dated 19 Feb. 1957 and shown on 1st. NOTES page.
- (E) Modified long range problem. See Notes for mission profile.
- (F) PERFORMANCE BASIS: Flight test data obtained from A4D-1 and Model A4D-3 wind tunnel tests.
- (G) Combat range and radius are based on fuel consumption data from Pratt & Whitney specification N 1731 dated 7-17-57 and increased 5%.
- (H) A total of 27 airplanes can be accommodated in a landing spot 96 ft. wide by 200 ft. long.



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CARRIER SUITABILITY



NOTES :

- (1) H8 catapult take-off speed is based on $.81C_{Lmax}$. C11-1 catapult take-off speed is based on NATC recommended minimum for A4D-1.
- (2) H8 catapult end speed is limited by maximum end speed at weights below 20,260 lb. and by catapult capacity above 20,260 lb. C11-1 catapult end speed is limited by load factor of 5.86 at weights below 20,750 lb. and by horizontal hook load of 117,000 lb. above 20,750 lb.
- (3) Approach speed is based on $1.3V_{SPA}$.
- (4) Engaging speed limited by load factor of 5.72 at weights below 13,444 lb. and by maximum hook load of 77,000 lb. above 13,444 lb.
- (5) Engaging speed is based on ultimate sinking speed and 6.25° angle between flight path and carrier deck.
- (6) Probable airplane strength limit, based on sinking speed, restricts minimum wind with MK. 5 Mod. 3 at all weights and with MK. 7 Mod. 1-3 at weights above 13,000 lb.

NOTES

CLOSE SUPPORT (COMBAT RADIUS MISSION)

WARM-UP, TAKE-OFF AND ACCELERATE: 5 minutes at normal rated thrust at sea level.

CLIMB: On course to optimum cruise altitude with maximum rated thrust.

CRUISE OUT: At altitudes and speeds for maximum range.

DESCEND TO 5000 FT.: No fuel consumed, no credit for distance covered.

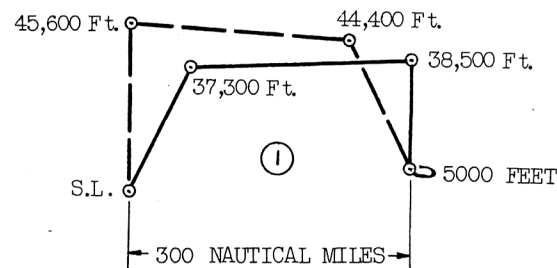
LOITER ONE HOUR: At 5000 feet at speed for maximum endurance (no credit for distance covered.)

DROP BOMBS:

CLIMB: On course to optimum cruise altitude with maximum rated thrust.

CRUISE BACK: At altitudes and speeds for maximum range.

RESERVE: 5% of initial fuel plus fuel for 20 minutes at speed for maximum endurance at sea level.



$$\text{COMBAT RADIUS} = \text{CLIMB} + \text{CRUISE-OUT} = \text{CLIMB} + \text{CRUISE-BACK}$$

$$\text{MISSION TIME} = \text{TIME REQUIRED FOR CLIMB} + \text{CRUISE OUT} + \text{LOITER} + \text{CLIMB} + \text{CRUISE BACK}$$

$$\text{CYCLE TIME} = \text{MISSION TIME} + 20 \text{ MINUTES RESERVE LOITER TIME}$$

LONG RANGE (COMBAT RADIUS MISSION)

WARM-UP, TAKE-OFF AND ACCELERATE: 5 minutes at normal rated thrust at sea level.

CLIMB: On course to optimum cruise altitude with maximum rated thrust.

CRUISE OUT: At altitudes and speeds for maximum range.

DESCEND TO SEA LEVEL: When 300 N.Mi. from target (no fuel used, no credit for distance covered)

CRUISE: At maximum range at sea level. Drop external fuel tanks when empty.

RUN-IN: 3 minutes to target at military power.

DROP BOMB:

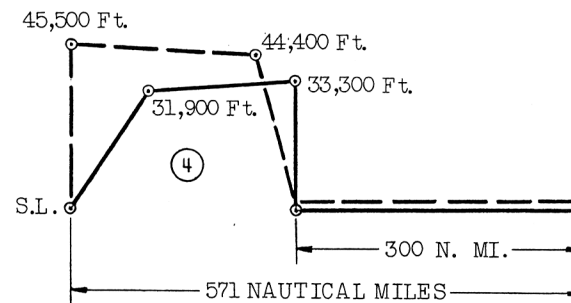
RUN-OUT: 2 minutes from target at military power at sea level.

CRUISE: At maximum range speed at sea level to a point 300 N.Mi. from target.

CLIMB: On course to optimum cruise altitude with maximum rated thrust.

CRUISE BACK: At altitudes and speeds for maximum range.

RESERVE: 5% of internal fuel capacity plus fuel for 20 minutes at maximum endurance speed at S.L.



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NOTES

MODIFIED LONG RANGE (COMBAT RADIUS MISSION)

WARM-UP, TAKE-OFF AND ACCELERATE: 5 minutes at normal rated thrust at sea level.

CLIMB: On course to optimum cruise altitude with maximum rated thrust.

CRUISE-OUT: At altitude and speeds for maximum range.

DESCEND TO SEA LEVEL: When 152 N.Mi. from target (no fuel used, no credit for distance covered).

CRUISE: At maximum range at sea level. Drop external fuel tanks when empty.

RUN-IN: 3 minutes to target at military power.

DROP BOMB:

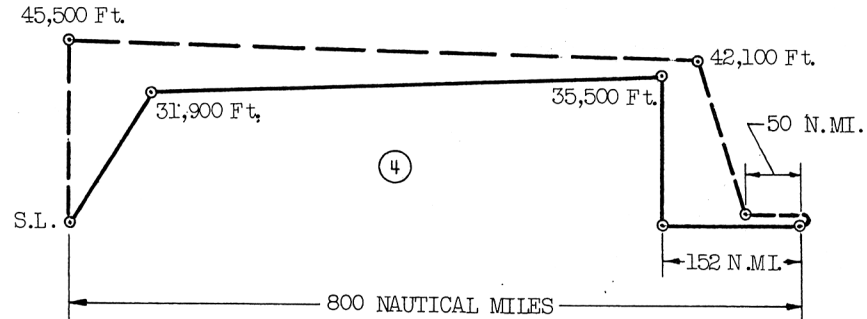
RUN-OUT: 2 minutes from target at military power at sea level.

CRUISE: At maximum range speed at sea level to a point 50 N.Mi. from target.

CLIMB: On course to optimum cruise altitude with maximum rated thrust.

CRUISE BACK: At altitudes and speeds for maximum range.

RESERVE: 5% of internal fuel capacity plus fuel for 20 minutes at maximum endurance speed at S.L.



MODIFIED LONG RANGE (COMBAT RADIUS MISSION) WITH ONE IN-FLIGHT REFUELING

WARM-UP, TAKE-OFF AND ACCELERATE: 5 minutes at normal rated thrust at sea level.

CLIMB: On course to optimum cruise altitude with maximum rated thrust.

CRUISE-OUT: At altitude and speeds for maximum range to 400 N.Mi.

REFUEL: From Buddy A3D, A4D, or Model 725 Tanker.

CRUISE OUT: At altitude and speeds for maximum range.

DESCEND TO SEA LEVEL: When 300 N.Mi. from target (no fuel used, no credit for distance covered)

CRUISE: At maximum range at sea level.

RUN-IN: 3 minutes to target at military power. External fuel tanks are dropped before run to target.

DROP BOMB:

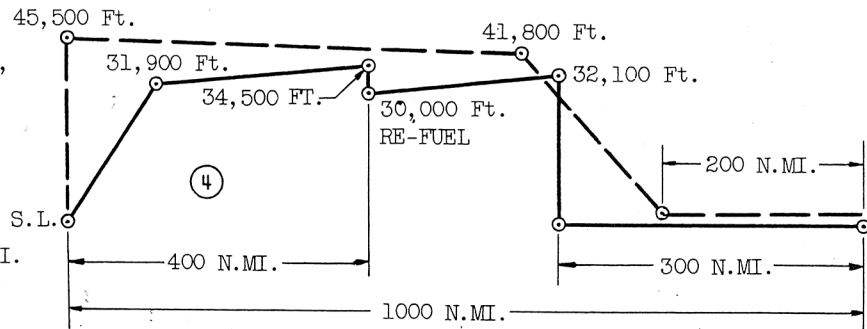
RUN-OUT: 2 minutes from target at military power at sea level.

CRUISE: At maximum range speed at sea level to a point 200 N.Mi. from target.

CLIMB: On course to optimum cruise altitude with maximum rated thrust.

CRUISE BACK: At altitudes and speeds for maximum range.

RESERVE: 5% of internal fuel capacity plus fuel for 20 minutes at maximum endurance speed at S.L.



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