

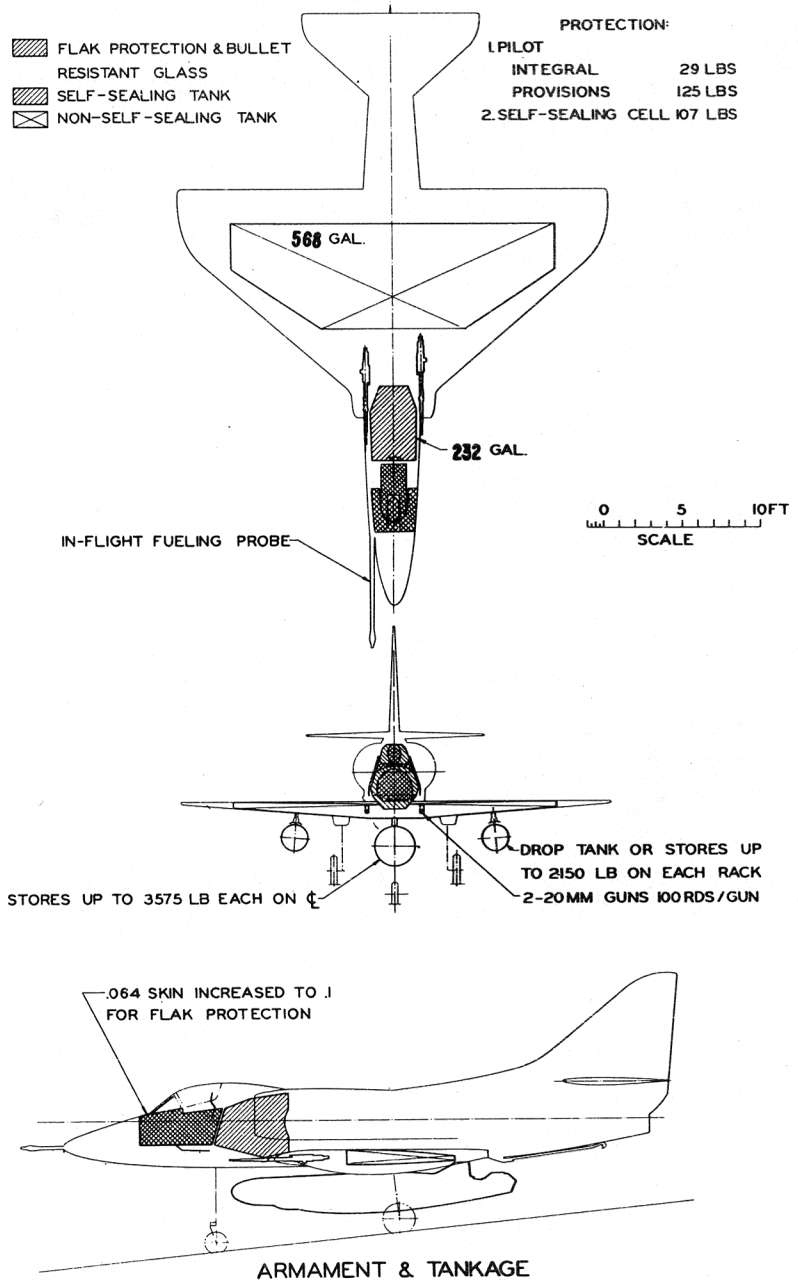
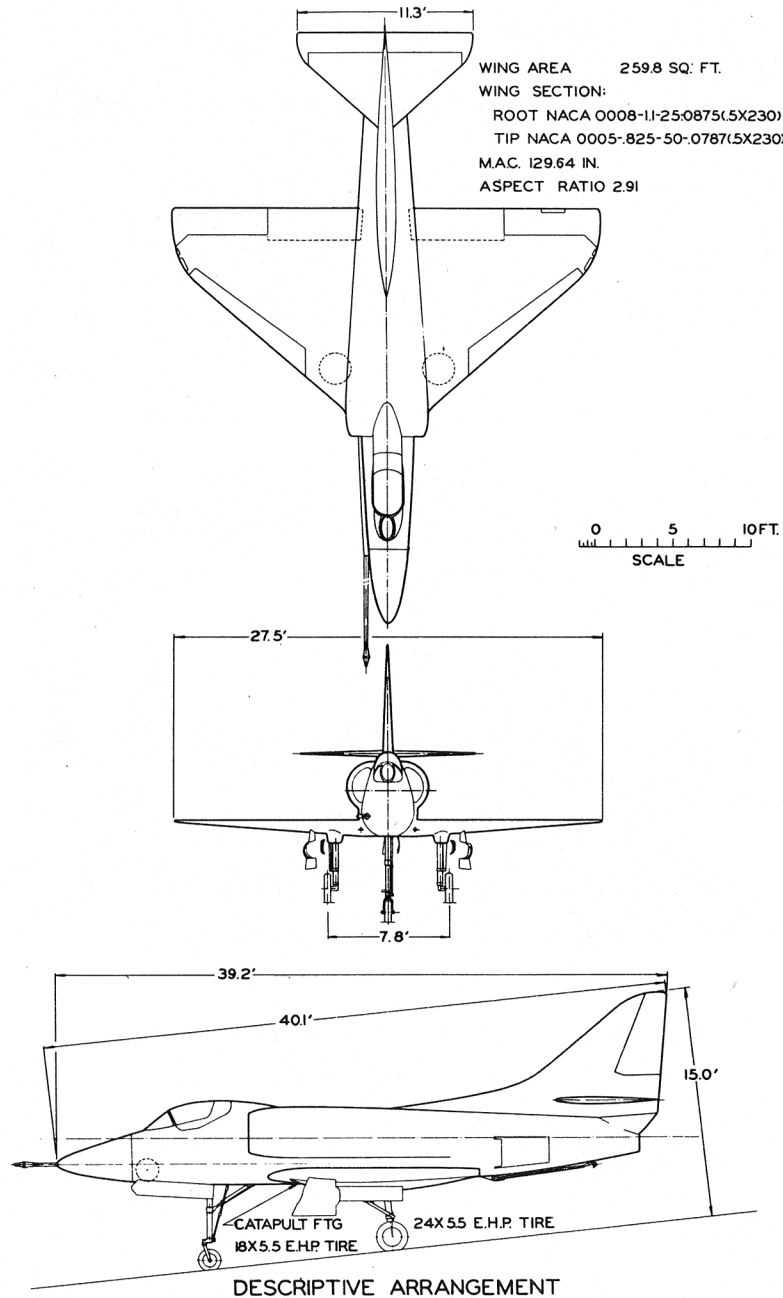
STANDARD AIRCRAFT CHARACTERISTICS

A4D-2N "SKYHAWK"

DOUGLAS

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Standard Aircraft Characteristics NAVAER 1335A (REV. 1-55)



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POWER PLANT

NO. & MODEL.....(1) J65-W-16A
 MFR.....WRIGHT AERONAUTICAL
 TYPE.....AXIAL FLOW
 LENGTH.....113 in.
 DIAMETER.....31 in.
 AUGMENTATION.....NONE

RATINGS

	<u>LBS</u>	<u>RPM</u>
MILITARY	7000	8300
NORMAL	6780	8030

SEA LEVEL STATIC

SPEC WAD N 890-B

MISSION AND DESCRIPTION

The A4D-2N airplane is a light-weight, carrier based, jet attack airplane whose primary mission is the destruction of enemy ground and surface targets. The aircraft is capable of in-flight refueling as a tanker or receiver and is provided with limited all-weather navigational aids.

The arrangement is conventional with all-metal semi-monocoque structure and three-spar low aspect ratio wing. Landing gear, flaps and speed-brakes are hydraulically operated. An electrically operated, fully adjustable stabilizer is used to trim throughout the normal flight range. The aileron elevator, and rudder systems are hydraulic-power operated. Manual control is provided for emergencies. An automatic flight control system is provided for pilot relief.

This airplane does not have folding wings. The A4D-2N differs from the A4D-2 in that the A4D-2N has the following:

1. The nose of the A4D-2N fuselage has been extended 9 inches to provide room for additional electronics gear.
2. Basic weight increase of 590 lbs.

DEVELOPMENT

First Flight.....August 1958
 Service Use (Estimate).....September 1959

WEIGHTS

LOADINGS	<u>LBS</u>	<u>L.F.</u>
EMPTY	9,563	
BASIC	10,160	
DESIGN	12,504	7.0
COMBAT	15,661	5.6
MAX. T.O.(FIELD)	20,000	4.2
(CAT)	22,500	3.8
MAX. LAND(FIELD)	16,000	5.5
(ARREST)	12,000	7.0

ALL WEIGHTS ARE ACTUAL

FUEL AND OIL

<u>NO. TANKS</u>	<u>TOL. GALS.</u>	<u>LOCATION</u>
1	568	Wing
1	232	Fuselage
2	300 or 600	Wing Pylons

FUEL GRADE.....JP-4 or-5
 FUEL SPEC.(APPLICABLE).....MIL-F-5624

OIL

CAPACITY (GALS).....4.0
 SPEC (APPLICABLE).....MIL-L-7808

ORDNANCE

	<u>FUSELAGE</u>
Bombs	1-Mk.81 Mod.1 (250 lb.) 1-Mk.82 Mod.1 (500 lb.) 1-Mk.83 Mod.2 or 3 (1000 lb.) 1-Mk.84 Mod.1 (2000 lb.)
Stores	1-1050 lb. 1-1480 lb. 1-1660 lb. 1-2025 lb. 1-3500 lb. 1-In-flight Refueling Store
Spray Tank	1-Aero L4B
Fire Bomb	1-Mk.79 Mod.0 (1000 lbs.) or 1-150 gal.DAC fuel tank
Missiles	1-ASM-N-7 Bullpup
Pyrotechnics	1-Aero 5A Flare Dispenser
Rockets	1-pkg. (7) 2.75" Aero 3A 1-pkg.(19) 2.75" Aero X7A 1-pkg. (4) 5.00" Aero X10A
Prac. Bombs	1-Aero 5A prac. bomb cont.
Drop Tanks	1-150 gal. (DAC) (2 fins) 1-300 gal. (DAC) (no fins)
Radio	1-NAVPAC unit
Misc.	1-Aero 1A Missile Disp.

(Continued on NOTES page)

DIMENSIONS

<u>WING</u>	
AREA.....	260 Sq.Ft.
SPAN.....	27' - 6"
MAC.....	10' - 9.6"
SWEEPBACK.....	33.2°
LENGTH.....	40' - 1.2"
HEIGHT.....	15' - 0"
TREAD.....	7' - 9.6"

ELECTRONICS

Electronics Central.....AN/ASQ-17B
 consisting of
 UHF Communications.....AN/ARC-27A
 IFF.....AN/APX-6B
 Direction Finder.....AN/ARA-25
 TACAN.....AN/ARN-21
 Auto. Dead Reckoning NAV Computer....
 AN/ASN-19
 LABS.....AN/AJB-3
 Radar.....AN/APG-53A
 Auto Pilot.....Douglas
 Store Arming.....T-249
 SIF.....AN/APA-89

Standard Aircraft Characteristics NAVAER-L335C (Rev. 1-55)

PERFORMANCE SUMMARY						
TAKE-OFF LOADING CONDITION	(1) SEA LEVEL STORE DELIVERY 1-2025 LB. STORE	(3) SEA LEVEL STORE DELIVERY 1-2025 LB. STORE 2-300 GAL. EXT. TANKS	(5) SEA LEVEL STORE DELIVERY 1-1660 LB. STORE 2-300 GAL. EXT. TANKS	(7) SEA LEVEL STORE DELIVERY 1-2000 LB. STORE 2-1000 LB. STORES	(9) SEA LEVEL STORE DELIVERY 3-BULLPUP MISSILES	
TAKE-OFF WEIGHT	lb.	17,837	22,423	22,058	19,918	17,711
Fuel internal/external (JP-5)	lb./lb.	5440/NONE	5440/4080	5440/4080	5440/NONE	5440/NONE
payload	lb.	2025	2025	1660	4000	1650
Wing loading	lb./sq.ft.	68.6	86.2	84.8	76.6	68.1
Stall speed - power-off	kn.	118	135	134	127	120
Take-off run at S.L. - calm (A)	ft.	2900	5300	5100	3900	2860
Take-off run at S.L. 25 kn. wind (A)	ft.	2200	4100	3800	2800	2100
Take-off to clear 50 ft. - calm (A)	ft.	3800	7100	6650	5040	3700
Max. speed/altitude (A)	kn./ft.	562/S.L.	522/11,000	512/10,000	544/8,000	526/14,000
Rate of climb at S.L. (A)	fpm.	7200	4700	4700	5950	6250
Time: S.L. to 20,000 ft. (A)	min.	3.4	5.7	5.7	4.3	4.1
Time: S.L. to 30,000 ft. (A)	min.	6.1	11.5	11.6	7.9	7.4
Service ceiling (100 fpm) (A)	ft.	39,200	32,600	32,700	36,400	37,900
Combat range	n.mi.	820	1380	1375	655	680
Average cruising speed	kn.	405	400	400	405	395
Cruising altitude(s)	ft.	33,200-37,700	28,900-37,400	29,500-38,000	31,100-35,000	34,400-39,100
Combat radius / mission time	n.mi./hr.	160/0.8 (B)	505/2.6	500/2.6	135/0.7	130/0.7
Average cruising speed	kn.	405	400	400	405	400
IFR-Buddy refuel.-rad./mission time	n.mi./hr.		865/4.5	860/4.4		
IFR(30,000') Fuel transf./dist. out	lb/n.mi.		4160/439	4170/437		
COMBAT LOADING CONDITION	(2) STORE RETAINED	(4) TANKS OFF STORE RELEASED	(6) TANKS OFF STORE RETAINED	(8) STORES RETAINED	(10) MISSILES RETAINED	
COMBAT WEIGHT	lb.	15,661	15,918	17,578	17,742	15,535
Engine power		MILITARY	MILITARY	MILITARY	MILITARY	MILITARY
Fuel		60% INTERNAL	FULL INTERNAL	FULL INTERNAL	60% INTERNAL	60% INTERNAL
Combat speed/altitude	kn./M/ft.	563/.85/S.L.	561/.85/S.L.	534/.81/S.L.	543/.82/S.L.	511/.77/S.L.
Rate of climb/altitude	fpm/ft.	8400/S.L.	8200/S.L.	6900/S.L.	6900/S.L.	7300/S.L.
Combat ceiling (500 fpm)	ft.	40,900	40,500	38,000	37,800	39,600
Rate of climb at 15,000 ft.	fpm.	5900	5700	4700	4650	4950
Max. speed at 15,000 ft.	kn/M	566/.89	559/.89	528/.84	544/.87	527/.84
Max. speed/altitude	kn./M/ft.	563/.85/S.L.	563/.87/7000	534/.81/2000	547/.85/8000	527/.85/16,000
Max. speed at 35,000 ft.	kn./M	515/.89	516/.89	482/.84	498/.86	496/.86
LANDING WEIGHT	lb.	11,446	11,768	11,768	11,560	11,705
Fuel	lb.	1074	1290	1290	1082	1084
Stall speed - power-off/appr.pwr	kn./kn.	94.7/90.4	96.0/91.6	96.0/91.6	95.2/90.8	95.8/91.4
Dist. -grnd. run/over 50 ft. obst.	ft./ft.	2770/3485	2865/3580	2865/3580	2805/3520	2850/3565

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PERFORMANCE BASIS: Contractor and NATC flight test results

RANGE AND/OR RADIUS are based on NATC flight test fuel consumption data.

(A) Military Rated Thrust

(B) By adding 2-150 gallon external tanks, combat radius is 345 nautical miles; mission time is 1.8 hrs.

(C) For effect of JP-4 fuel in combat radius and mission time, see NOTES page.

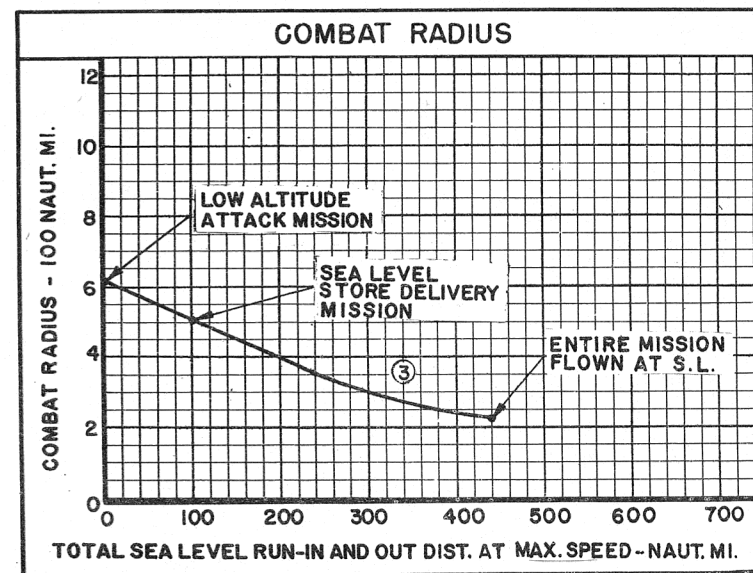
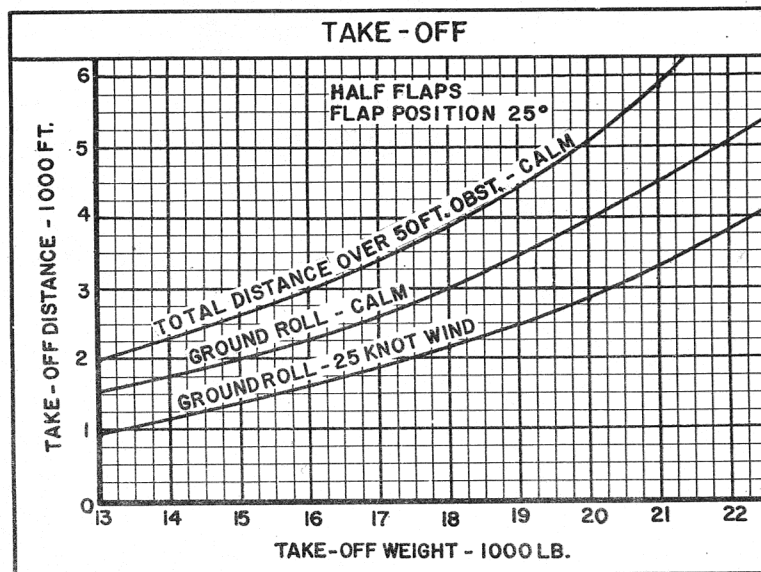
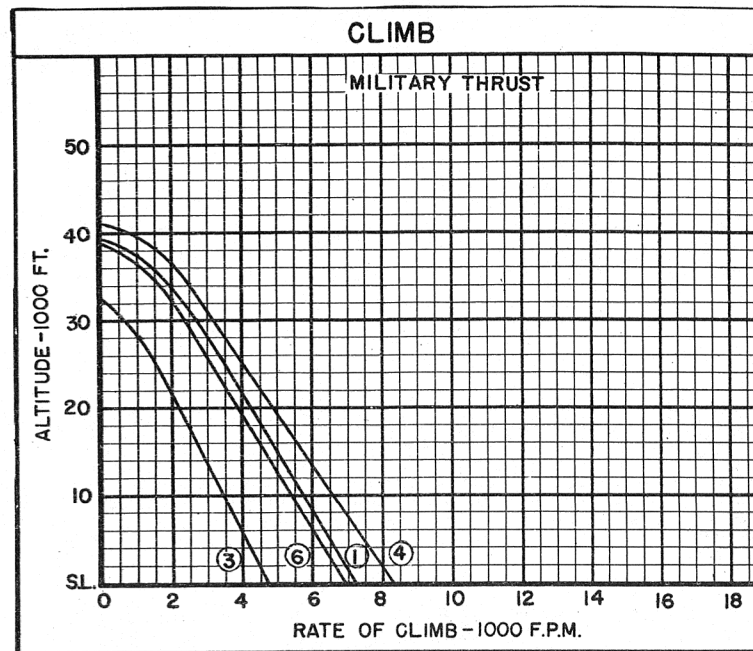
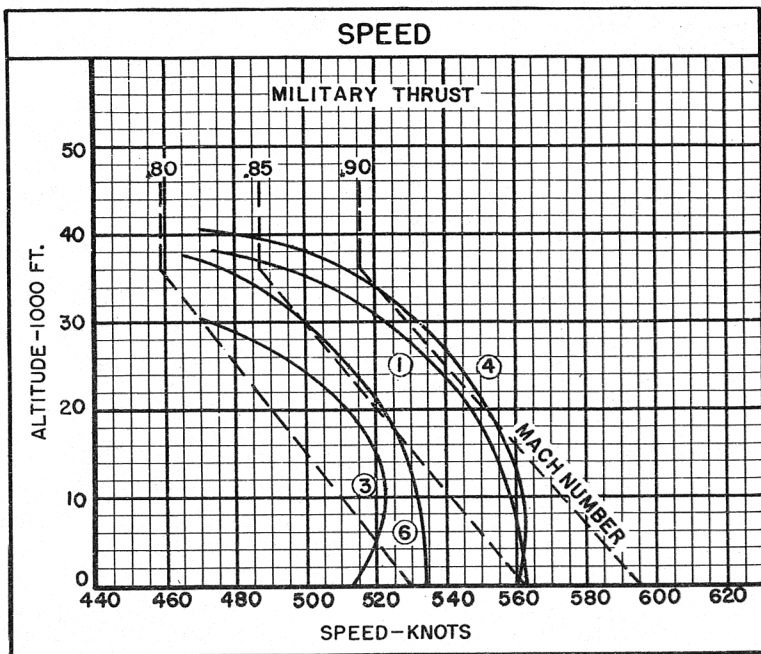
All configurations include IFR probe, guns and ammunition

NOTES

MISSION TIME: Any time where fuel is used and distance gained plus combat and refuel allowance times.

SPOTTING: A total of 106 aircraft can be accommodated in a landing spot on the flight and hanger decks of a CVA-19 class angled-deck carrier.

NAVPER-1335D (Rev. 1-55)



○ LOADING CONDITION COLUMN NUMBER

Standard Aircraft Characteristics NAVAER 1335E (REV. 1-55)

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NOTES

ORDINANCE (CONT'D)

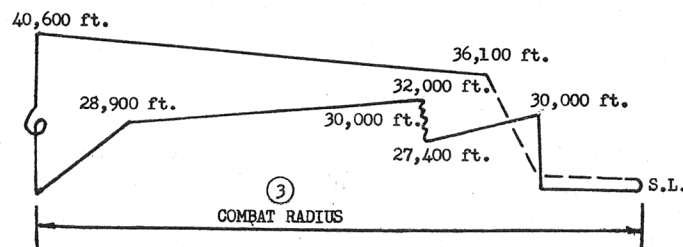
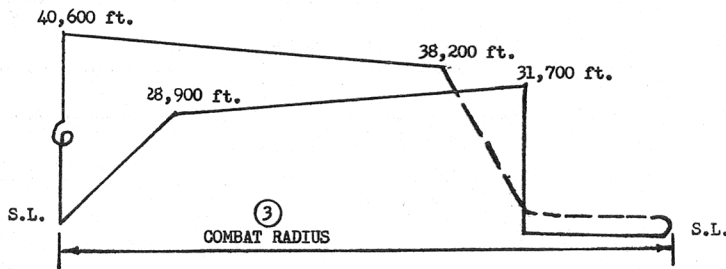
	WING				
Bombs	2-Mk.81 Mod.1 (250 lb.) 2-Mk.82 Mod.1 (500 lb.) 2-Mk.83 Mods. 2 or 3 (1000 lb.)	Drop Tank	2-150 gal. DAG (2 fins) 2-300 gal. DAG (2 fins)	Rockets	2-pkgs. (7) 2.75" Aero 3A 2-pkgs. (19) 2.75" Aero X7A 2-pkgs. (4) 5.00" Aero X10A
Missiles	2-ASM-N-7 Bullpup	Fire Bomb	2-Mk. 79 Mod.0 or 2-150 gal. DAG fuel tanks	FIXED GUNS/RD. AMM.	
Stores	2-1480 lb.	Pyrotechnics	2-Aero 5A Flare Dispensers	2 Mk. 12 Mod.0 20mm/100 rds. per gun	
		Misc.	2-Aero 1A Missile Disp.		

SEA LEVEL STORE DELIVERY

START ENGINE, TAKE-OFF AND ACCELERATE: 5 minutes at normal thrust at sea level.
 CLIMB OUT: With military thrust on course to optimum cruise altitude.
 CRUISE OUT: At altitudes and speeds for maximum range (External tanks dropped when empty)
 DESCEND: To sea level (no fuel used - no distance gained.)
 RUN-IN: At sea level for 50 N. Mi. with military thrust. Drop bomb.
 COMBAT: At sea level for 5 minutes with military thrust. No distance made good.
 RUN-OUT: At sea level for 50 nautical miles with military thrust.
 CLIMB BACK: With military power on course to optimum cruise altitude.
 CRUISE BACK: At maximum range airspeeds at optimum cruise altitude.
 DESCEND: To sea level (no fuel consumed - no distance covered.)
 RESERVE: 5% of initial fuel plus 20 minutes at speed for max. endurance at S.L.

SEA LEVEL STORE DELIVERY WITH IFR FROM BUDDY TANKER

WARM-UP, TAKE-OFF AND ACCELERATE: 5 minutes at normal thrust at sea level.
 CLIMB: On course to cruise altitude with military thrust.
 CRUISE OUT: At altitudes and speeds for maximum range.
 DESCEND to 30,000 feet REFUELING ALTITUDE: No fuel used no distance gained.
 ALLOWANCE FOR HOOK-UP AND FLIGHT CONTINGENCIES: 5 minutes at maximum endurance airspeeds. (no distance made good during transfer of fuel)
 REFUEL POINT: Limited to return of aircraft to base with normal reserve if contact for refueling is not made.
 The remainder of the problem is the same as the Special Store Problem of loading condition column number ③.



LOADING (All data based on JP-5 fuel)	TAKE-OFF WEIGHT	SEA LEVEL STORE DELIVERY		LOW ALTITUDE ATTACK	
		Combat Radius	Mission time	Combat Radius	Mission Time
1-1660 lb. Store	17,472	155	0.8	315	1.7
1-1660 lb. Store + 2-150 gal. Ext. Tanks	19,888	340	1.8	475	2.5
1-3500 lb. Store	19,312	155	0.8	300	1.6
1-3500 lb. Store + 2-150 gal. Ext. Tanks	21,728	335	1.7	460	2.3
1-3500 lb. Store + 2-300 gal. Ext. Tanks	23,898	490	2.5	605	3.1
3 Aero 10D Rocket Packages	17,455	140	0.7	290	1.6
3-1480 lb. Stores	20,459	120	0.6	245	1.4
1-1000 lb. Store + 2-300 gal. Ext. Tanks	21,398	525	2.6	660	3.3
1-1050 lb. Store + 2-150 gal. Ext. Tanks	19,278	355	1.8	495	2.6

LOADING (All data based on JP-4 fuel)	WEIGHT	SEA LEVEL STORE DELIVERY		LOW ALTITUDE ATTACK	
		Combat Radius	Mission time	Combat Radius	Mission Time
1-1660 lb. Store + 2-300 gal. Ext. Tanks	21,638	450	2.4	595	3.1
1-3500 lb. Store + 2-150 gal. Ext. Tanks	21,398	300	1.6	430	2.2
3-1480 lb. Stores	20,219	105	0.5	220	1.2

○ LOADING CONDITION COLUMN NUMBER

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Standard Aircraft Characteristics NUMBER 1395F (Rev. 1-55)