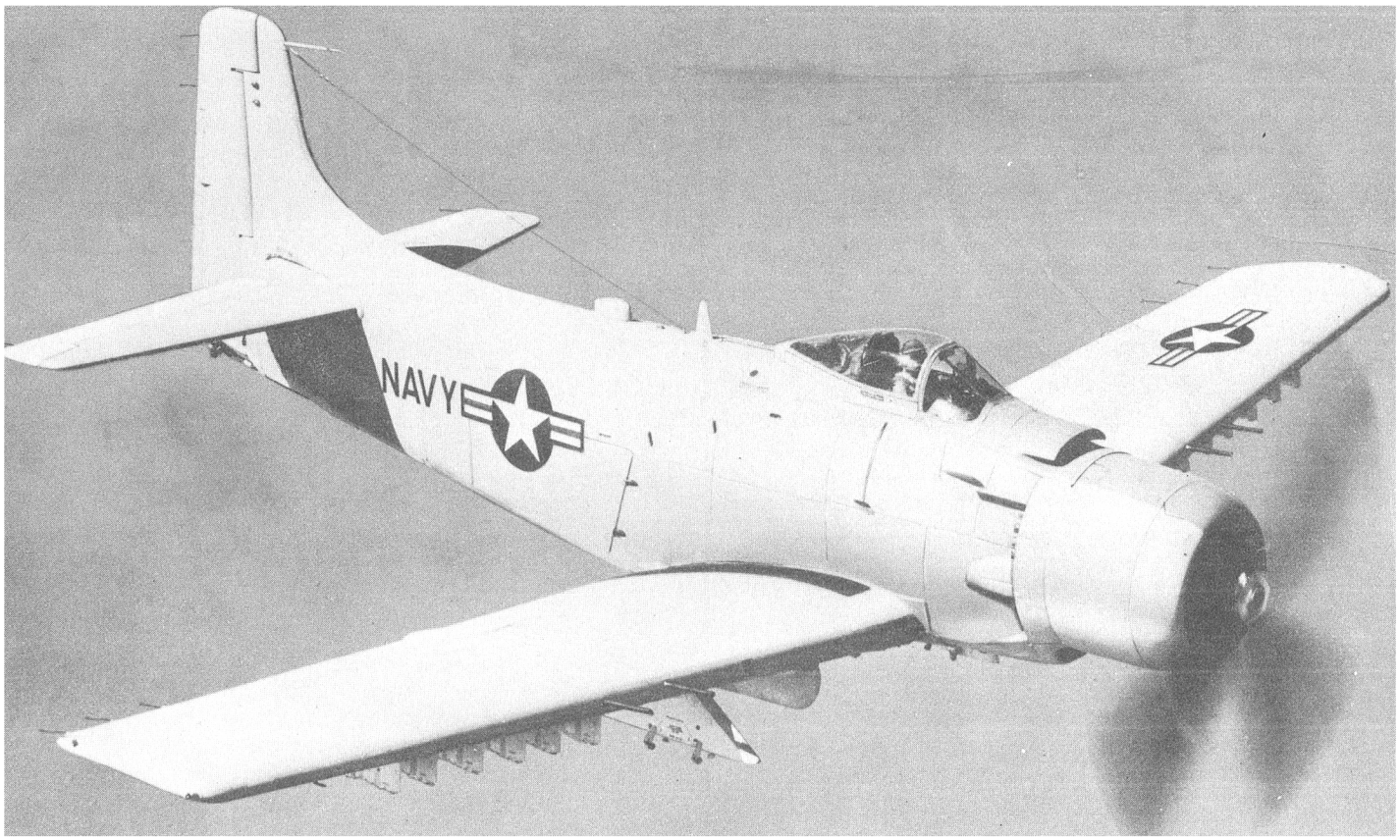


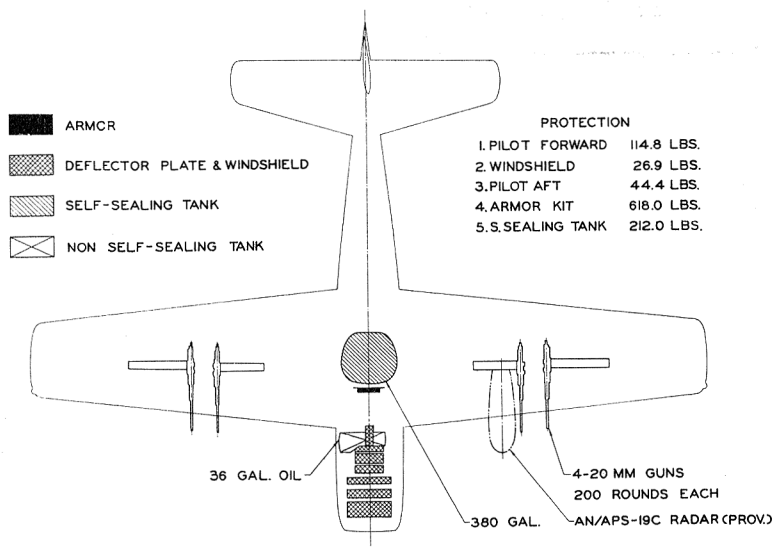
13

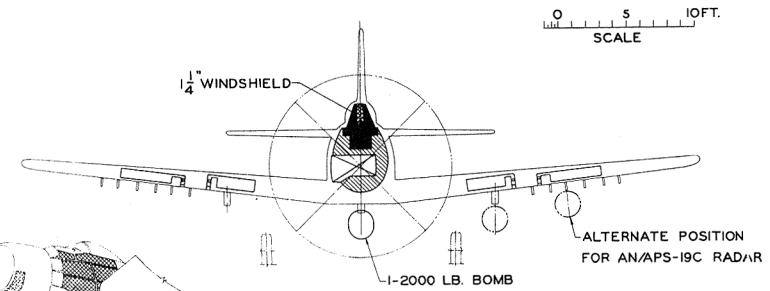
STANDARD AIRCRAFT CHARACTERISTICS

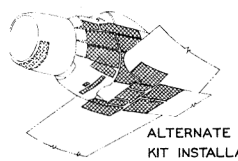
AD-7 "SKYRAIDER"

DOUGLAS

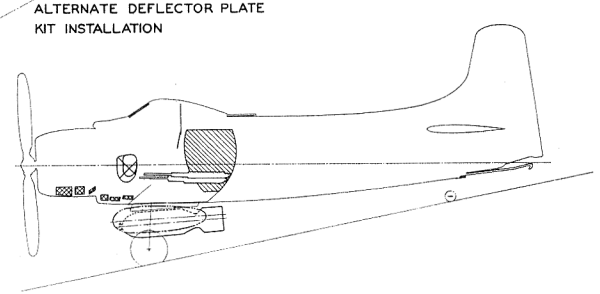
Standard Aircraft Characteristics NAVAER 1335A (REV. 1-55)



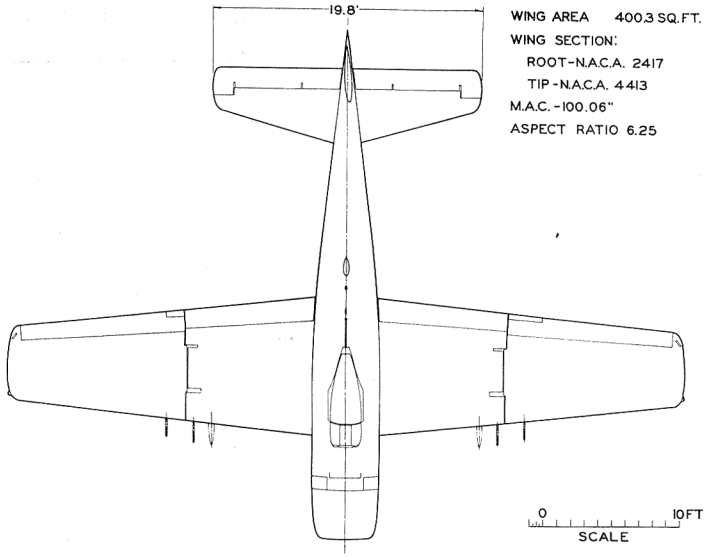


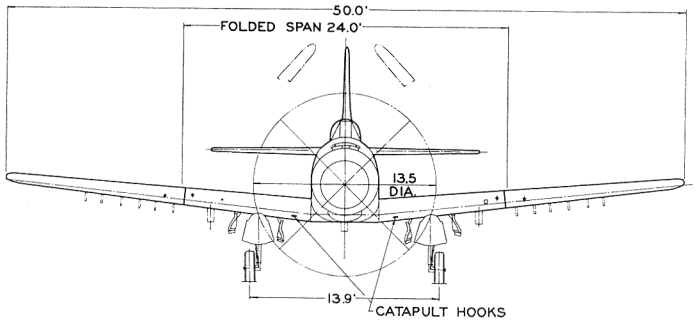


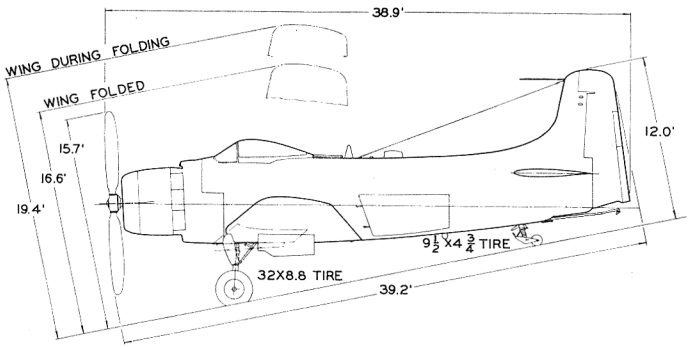
ALTERNATE DEFLECTOR PLATE
KIT INSTALLATION



ARMAMENT & TANKAGE







DESCRIPTIVE ARRANGEMENT

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Standard Aircraft Characteristics NAVAER 1335B (Rev. 1-55)

POWER PLANT

NO. & MODEL.....(1) R-3350-26WB
MFR.....Wright
SUPERCH.....1 Stage, 2 Speed
RED. GR. RATIO.....0.4375
PROP. MFR.....Aero Products
BLADE DESIGN...A-642-G-805/M20A2-162-0
NO. BL./DIA.....4/13' - 6"

RATINGS

	BHP	RPM	ALT.
T.O.	2700	2900	S.L.
MIL.	2700	2900	S.L. to 3700'
	2100	2600	11500' to 14500'
NORM.	2300	2600	S.L. to 6200'
	1900	2600	12000' to 17000'

SPEC. NO. N-836D

ORDNANCE

GUNS

NO.	SIZE	LOCATION	RDS.
4	20mm, M-3	Wings	800

Armament Control Sys. (LABS) Aero 18C

EXTERNAL LOAD

RACKS	NO.	LOCATION	MAX. CAP.
Aero 3A Bomb Ejector	1	Fuselage C.L.	2000 lb.
Mk. 51 with Aero 1-A Adapter	2	Inner Wing	4000 lb.
Aero 14D-2 or Aero 14E	12	Outer Wing	3000 lb.

1 Mk. 7, Mk. 8, Mk. 12, Mk. 91, or BOAR store can be carried at the fuselage c.l.

MISSION AND DESCRIPTION

The primary mission of the AD-7 airplane is the destruction of sea and ground targets by dive bombing attacks. The airplane is also capable of torpedo, glide bombing, rocket attacks and tactical support missions. The AD-7 is designed to operate from all classes of naval aircraft carriers or from land bases.

The single-place airplane is conventional in design and structure. Landing gear, flaps, canopy, wing folding, and three fuselage dive brakes are operated hydraulically. Flaps are NACA single-slotted trailing-edge type. The pressure-balance type ailerons are operated by power boost. The rudder is equipped with a spring tab system. Longitudinal trim is achieved by an electrically adjustable stabilizer. Power plant, engine mount, and elevators are conventional. Oxygen for five hours is supplied.

The improvements included in the AD-7 over its predecessors include the use of the R-3350-26WB engine and structural improvements in the wing to improve fatigue life.

DEVELOPMENT

Prototype - - - - - - - - - - -AD-6
First Flight - - - - - - - - - June 1956
Service Use - - - - - - September 1956

DIMENSIONS

WING
AREA.....400 Sq. Ft.
SPAN.....50' - 0"
MAC.....8' - 4"
LENGTH.....39' - 2"
HEIGHT.....15' - 8"
TREAD.....13' - 11"
PROP. GRD. CLEARANCE.....6"

WEIGHTS

LOADINGS	LBS.	L.F.
EMPTY	12,094	
BASIC	13,565	
DESIGN	15,595	7.0
COMBAT	16,199	6.7
MAX. T.O. (Field)	25,000	4.1
(Cat.)	25,000	
MAX. LAND. (Field)	21,000	
(Arrest)	17,500	

ALL WEIGHTS ARE CALCULATED

FUEL AND OIL

NO TANKS	TOTAL GAL.	LOCATION
1	380	Fuselage
1	150 or 300	Ctr. Drop
2	150 or 300	Wing Drop

FUEL GRADE.....115/145
FUEL SPEC.....MIL-F-5572

OIL

CAPACITY (Gal.).....36
GRADE.....1120
SPEC.....MIL-O-6082A

ELECTRONICS

UHF COMM.....AN/ARC-27A
IFF.....AN/APX-6B, AN/APA-89
LF ADF.....AN/ARN-6
UHF DIR. FINDER.....AN/ARA-25
RADIO ALTIMETER.....AN/APN-22
MARK. BEACON REC.....AN/ARN-12
TACAN (Alt. to AN/ARN-6).....AN/ARN-21
SEARCH RADAR (Prov.).....AN/APS-19C

PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION		(1) ATTACK 1-2,000 Lb. Bomb	(3) ATTACK 1-1,660 Lb. Store	(4) ATTACK 1-1,660 Lb. Store 2-300 Gal. Aero 1 A Fuel Tanks	(5) ATTACK 1-2,000 Lb. Bomb 2-150 Gal. Tanks 12-5 in. HVAR	
TAKE-OFF WEIGHT	lb.	19,111	18,771	22,781	22,795	
Fuel	lb.	2,280	2,280	5,880	4,080	
Payload	lb.	2,000	1,660	1,660	3,680	
Wing loading	lb./sq.ft.	47.8	46.9	57.0	57.0	
Stall speed - power-off	kn.	86.6	85.8	94.5	94.6	
Take-off run at S.L. - calm	ft.	1,185	1,140	2,165	2,170	
Take-off run at S.L. 25 kn. wind	ft.	635	620	1,190	1,195	
Take-off to clear 50 ft. - calm	ft.	- -	- -	- -	- -	
Max. speed/altitude (B)	kn./ft.	286/15,500	288/15,500	275/15,300	262/15,100	
Rate of climb at S.L. (A)	fpm.	2,000	2,070	1,420	1,350	
Time: S.L. to 10,000 ft. (A)	min.	5.2	5.0	7.6	8.1	
Time: S.L. to 20,000 ft. (A)	min.	12.8	12.2	20.2	21.8	
Service ceiling (100 fpm) (A)	ft.	30,650	31,150	26,100	25,400	
Combat range	n.mi.	720	740	1,960	1,130	
Average cruising speed	kn.	170	170	170	170	
Cruising altitude(s)	ft.	5,000	5,000	5,000	5,000	
Combat radius	n.mi.	265	270	675 (C)	555	
Average cruising speed	kn.	170	170	170	170	
Total Mission Time		3.4	3.5	8.1	6.8	

COMBAT LOADING CONDITION		(2) CLEAN				
COMBAT WEIGHT	lb.	16,199				
Engine power		Military				
Fuel	lb.	1,368				
Combat speed/combat altitude	kn./ft.	274/Sea Level				
Rate of climb/combat altitude	fpm/ft.	3230/Sea Level				
Combat ceiling (500 fpm)	ft.	30,900				
Rate of climb at S.L.	fpm.	3,230				
Max. speed at S.L.	kn.	274				
Max. speed/altitude	kn./ft.	298/15,700				
LANDING WEIGHT	lb.	15,043				
Fuel	lb.	212				
Stall speed - power-off	kn.	76.8				
Stall speed - with approach power	kn.	72.2				

NOTES

(A) Normal Rated Power

(B) Military Rated Power

(C) External fuel tanks and 1,247 lb. of external fuel dropped prior to combat

Performance Basis: Performance is calculated and based on flight tests of models AD-4B, AD-5 and AD-6. Combat range and radius are based on fuel consumption data from AD-4B, AD-5 and AD-6 flight tests

All loadings include centerline and inner wing bomb racks, 12-aero 14 racks, and 4-20 MM guns

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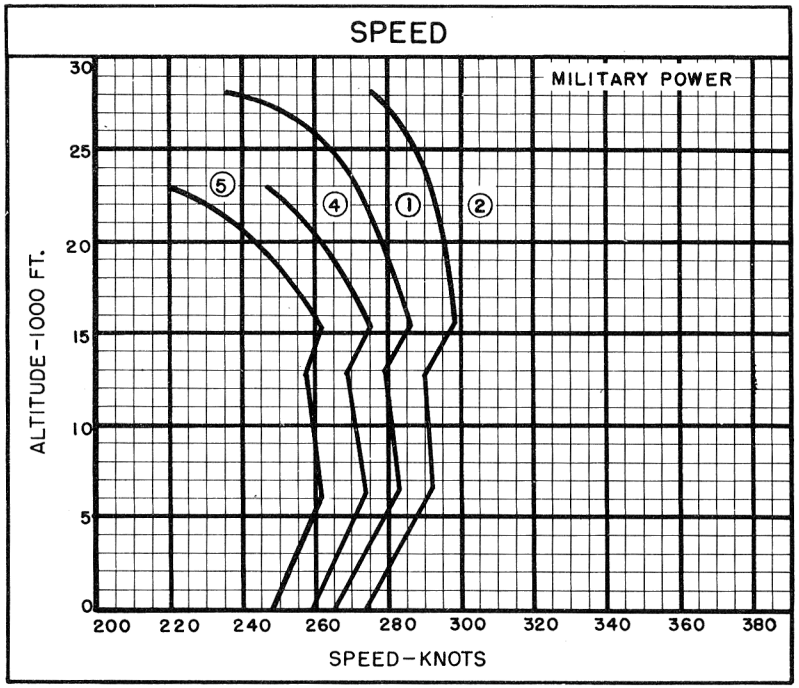

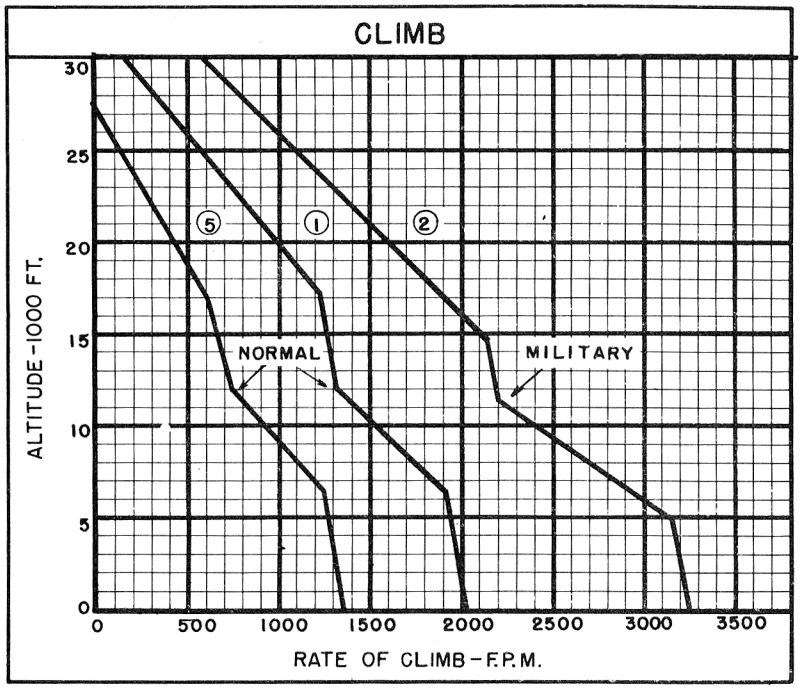

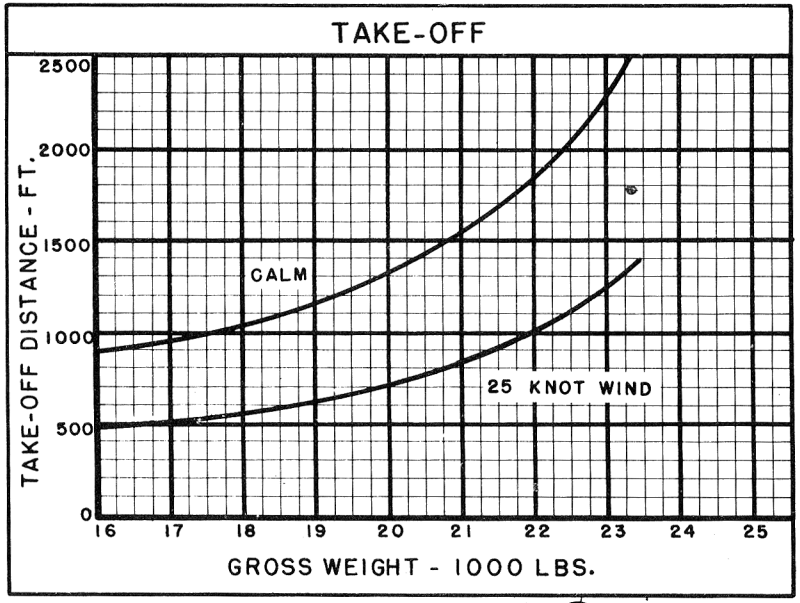

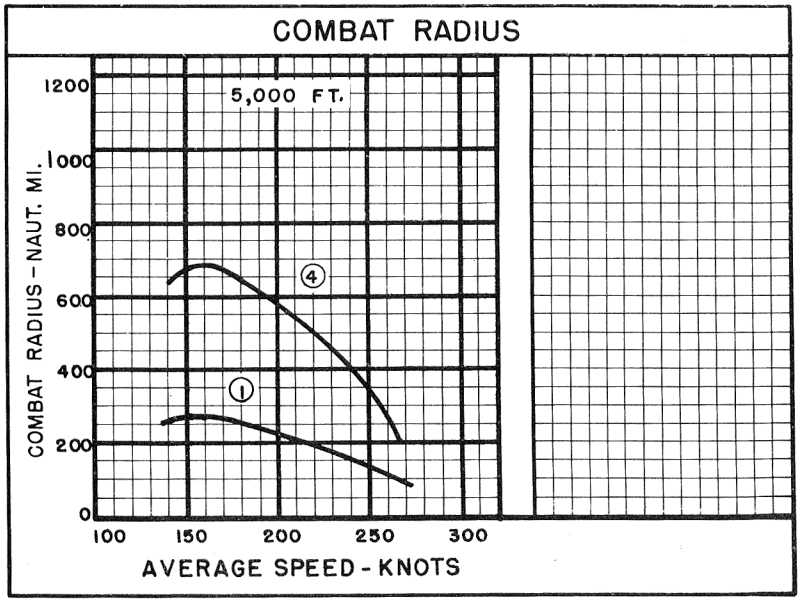

◯ LOADING CONDITION COLUMN NUMBER

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

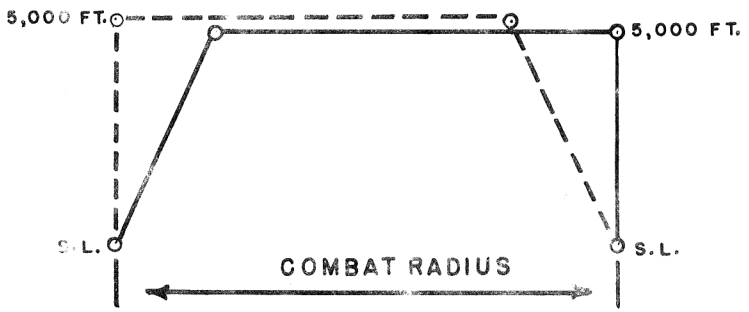
NOTES

SPOTTING: A maximum operating spot aboard a CVA-19 (Angled Deck) class carrier consists of 42 aircraft on the flight deck with elevators and landing area clear and 41 aircraft on the hangar deck with hangar bay fire doors and elevators clear. Total 83 aircraft.

LOW ALTITUDE ATTACK AND GROUND SUPPORT BOMBER

WARM-UP, TAKE-OFF, ACCELERATE: 10 minutes at normal rated power at sea level.
CLIMB: To 5,000 ft. at normal rated power.
CRUISE-OUT: At speed for long range at 5,000 ft.
DESCEND: To sea level - no fuel used - no distance gained.
DROP BOMBS AND FIRE ROCKETS
COMBAT: 5 minutes at maximum power plus 10 minutes at normal rated power at sea level.
CLIMB: To 5,000 ft. with normal rated power.
CRUISE-BACK: At speed for long range at 5,000 ft.
RESERVE: 20 minutes at speed for long range at sea level plus 5% of initial fuel.

MISSION TIME = TIME REQUIRED FOR CLIMB + CRUISE-OUT + COMBAT + CLIMB + CRUISE-BACK



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PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION			(1) ATTACK 1-2,000 lb. Bomb	(3) ATTACK 1-1,660 lb. Store	(4) ATTACK 1-1,660 lb. Store 2-300 Gal. Aero 1 A Fuel Tank	(5) ATTACK 1-2,000 lb. Bomb 2-150 Gal. Tanks 12-5 in. HVAR	(6) REFRESHER MISSION for refueling of Combat Air Patrol Aircraft (D) Full Internal Fuel
TAKE-OFF WEIGHT		lb.	19,111	18,771	22,781	22,795	25,510
Fuel Gasoline		lb.	2,280	2,280	5,880	4,080	2,280
Payload		lb.	2,000	1,660	1,660	3,680	—
Wing loading		lb./sq.ft.	47.8	46.9	57.0	57.0	63.8
Stall speed - power-off		kn.	86.6	85.8	94.5	94.6	100.1
Take-off run at S.L. - calm		ft.	1,185	1,140	2,165	2,170	3,700
Take-off run at S.L. 25 kn. wind		ft.	635	620	1,190	1,195	2,250
Take-off to clear 50 ft. - calm		ft.	—	—	—	—	—
Max. speed/altitude	(B)	kn./ft.	286/15,500	288/15,500	275/15,300	262/15,100	—
Rate of climb at S.L.	(A)	fpm.	2,000	2,070	1,420	1,350	—
Time: S.L. to 10,000 ft.	(A)	min.	5.2	5.0	7.6	8.1	—
Time: S.L. to 20,000 ft.	(A)	min.	12.8	12.2	20.2	21.8	—
Service ceiling (100 fpm)	(A)	ft.	30,650	31,150	26,100	25,400	19,800
Combat range		n.mi.	720	740	1,960	1,130	—
Average cruising speed		kn.	170	170	170	170	—
Cruising altitude(s)		ft.	5,000	5,000	5,000	5,000	—
Combat radius		n.mi.	265	270	675 (C)	555	145
Average cruising speed		kn.	170	170	170	170	167
Total Mission Time		**hrs.**	3.4	3.5	8.1	6.8	1.91
Loiter Time		**hrs.**	—	—	—	—	.50
COMBAT LOADING CONDITION			(2) CLEAN				
COMBAT WEIGHT		lb.	16,199				
Engine power			Military				
Fuel		lb.	1,368				
Combat speed/combat altitude		kn./ft.	274/Sea Level				
Rate of climb/combat altitude		fpm/ft.	3230/Sea Level				
Combat ceiling (500 fpm)		ft.	30,900				
Rate of climb at S.L.		fpm.	3,230				
Max. speed at S.L.		kn.	274				
Max. speed/altitude		kn./ft.	298/15,700				
LANDING WEIGHT		lb.	15,043				
Fuel		lb.	212				
Stall speed - power-off		kn.	76.8				
Stall speed - with approach power		kn.	72.2				

NOTES

(A) Normal Rated Power

(B) Military Rated Power

(C) External fuel tanks and 1,247 lb. of external fuel dropped prior to combat

(D) Fuel available for transfer - 7,480 lb. JP-5

a. 1-300 gal. inflight refueling store
b. 2-400 gal. tanks

PERFORMANCE BASIS: Performance is calculated and based on flight tests of models AD-4B, AD-5 and AD-6. Combat range and radius are based on fuel consumption data from AD-4B, AD-5 and AD-6 flight tests

All loadings include centerline and inner wing bomb racks, 12-aero 14 racks, and 4-20mm guns

18

NAVAER-1335D (Rev. 1-55)

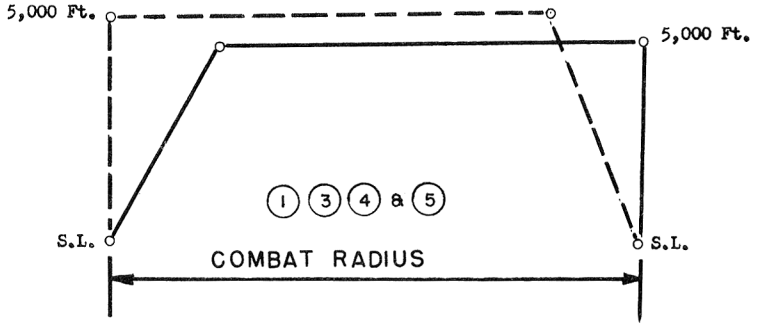
NOTES

SPOTTING: A maximum operating spot aboard a CVA-19 (Angled Deck) class carrier consists of 42 aircraft on the flight deck with elevators and landing area clear and 41 aircraft on the hangar deck with hangar bay fire doors and elevators clear. Total 83 aircraft.

LOW ALTITUDE ATTACK AND GROUND SUPPORT BOMBER

WARM-UP, TAKE-OFF, ACCELERATE: 10 minutes at normal rated power at sea level.
CLIMB: To 5,000 ft. at normal rated power.
CRUISE-OUT: At speed for long range at 5,000 ft.
DESCEND: To sea level - no fuel used - no distance gained.
DROP BOMBS AND FIRE ROCKETS
COMBAT: 5 minutes at maximum power plus 10 minutes at normal rated power at sea level.
CLIMB: To 5,000 ft. with normal rated power.
CRUISE-BACK: At speed for long range at 5,000 ft.
RESERVE: 20 minutes at speed for long range at sea level plus 5% of initial fuel.

MISSION TIME = TIME REQUIRED FOR CLIMB + CRUISE-OUT + COMBAT + CLIMB + CRUISE-BACK

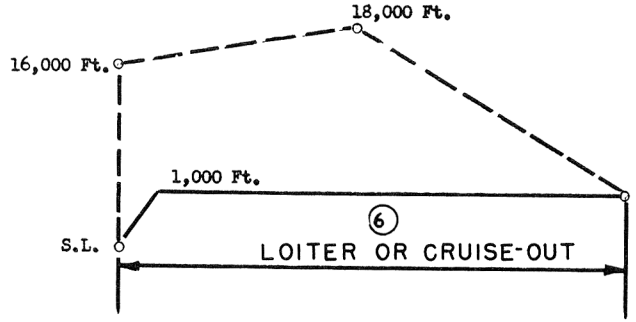


REFRESHER MISSION: FOR REFUELING OF COMBAT AIR PATROL AIRPLANES

WARM-UP, TAKE-OFF: 10 minutes at normal rated power at sea level.
CLIMB: To 1,000 ft. with normal rated power.
LOITER: On station (1,000 ft.) for 50 minutes at speed for maximum endurance, or cruise out (1,000 ft.) for 50 minutes to combat air patrol airplanes.
CLIMB: To 18,000 ft. at normal rated power.
REFUEL: For 20 minutes at normal rated power at 200 kn IAS. (See note 2)
RESERVE: 20 minutes at speed for long range plus 5% of initial fuel.

MISSION TIME = TIME REQUIRED FOR CLIMB + LOITER + CLIMB + REFUEL

NOTES:
1. Performance basis: NATC flight test results.
2. The dive angle required to maintain 200 kn IAS at 18,000 ft. is 1° on a Navy hot day.



◯ LOADING CONDITION COLMN NUMBER

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