

STANDARD AIRCRAFT CHARACTERISTICS

AD-3Q "SKYRAIDER"

DOUGLAS

MISSION AND DESCRIPTION

The AD-3Q model is primarily designed for use as a radar countermeasures airplane. As such it can be used for the search and jamming of enemy radar. This airplane has accomodation for an RCM operator in the rear.

This modification of the AD-3 airplane can also be used for dive and glide bombing and torpedo and rocket attacks. Use of the standard Mark 51-9 Racks permits alternate installations of mines, incendiary clusters, fuel tanks, and other standard external stores up to a maximum of 2,000 pounds weight. The structure and basic equipment are identical to the AD-3 except that the RCM operator's compartment is provided aft of the fuel tank with partial controls for the radio and complete controls for radar and radar countermeasures equipment. An entrance door (incorporating a window) for this compartment is provided on the right side of the fuselage. RCM equipment has been improved and relocated to provide better operation and crew comfort.

DIMENSIONS

WING AREA.....400 sq. ft.
SPAN.....50' - 0"
LENGTH.....38' - 2"
HEIGHT.....15' - 8"
TREAD.....13' - 11"
M.A.C.....8' - 4"
PROP. CLEAR.....6"

WEIGHTS

Loadings	Lbs.	L.F.
EMPTY.....	11,607.....	
BASIC.....	12,188.....	
DESIGN.....	15,600.....	7.0
COMBAT.....	15,460.....	7.0
MAX.T.O..(Cat.)..	19,700.....	5.5
(Field).....	24,460*.....	4.4
MAX.LD.(Smooth).....	19,000.....	
(Rough).....	16,800.....	
(Arrest.).....	17,000.....	
(Qualif.).....	15,600.....	

*Tentative
All weights are actual.

FUEL AND OIL

Gal.	No. Tanks	Location
380	1	Fuse, S.S.
150	1	Ctr., Drop
300	2	Wing, Drop

FUEL GRADE.....115/145
FUEL SPEC.....AN-F-48

OIL

CAPACITY (Gals.).....31
GRADE.....1120
SPEC.....AN-O-8

ELECTRONICS

RANGE RECEIVER.....AN/ARC-5
HOMING.....AN/ARR-2A
VHF.....AN/ARC-1
RADIO ALTIMETER.....AN/APN-1
IFF.....AN/APX-2A
SEARCH RADAR.....AN/APS-4
RCM RECEIVER.....AN/APR-9
RCM PULSE ANAL.....AN/APA-64
RCM HOMING.....AN/APA-70A

POWER PLANT

NO. & MODEL....(1) R-3350-26W
MFR.....Wright
SUPERCH.....1 Stage, 2 Speed
PROP. GEAR RATIO.....0.4375
PROP. MFR.....Aero Prod
PROP. DES. NO.....M20A-162-0
NO. BL./DIA.....4/13'-6"

RATINGS

	Hhp @	Rpm @	Alt.
T. O.	2,700	2,900	S. L.
COMBAT	3,020	2,900	S. L.
	2,570	2,600	8,900'
MIL.	2,700	2,900	3,700'
	2,100	2,600	14,500'
NORMAL	2,300	2,600	S. L.
	1,900	2,600	17,100'

SPEC. NO. N-836

ORDNANCE

GUNS			
No.	Size	Location	Rds.
2	20 mm	Wing	400

BOMBS & ROCKETS

Type	Size	Location	No.
HVAR	5"	Wing	12
A.R.	11.75"	Wing	2
Torp.	Mk-13	External	3
D.B.	325#	External	3
Bomb	500#	External	3
Bomb	2,000#	External	3
Mine	1,000#	External	3
Mine	2,000#	External	3

FIRE CONTROLS

Sighting Sys.....Mk 1 Mod 2
Bomb Director.....AN/ASG-10A

MAX. BOMB CAP.....9,000 lbs.



PERFORMANCE SUMMARY

LOADING CONDITION	(1) ATTACK 1-2000# Bomb 2-150 Gal. Ext. Tanks			(5) ATTACK 1-2000# Bomb AN/APS-4
TAKE-OFF WEIGHT	lbs.	19,603		17,602
Fuel (Fixed/Drop)	lbs.	2,280/1,800		2,280
Bombs	lbs.	2,000		2,000
Wing/Power Loading (A) lbs/sq.ft; lbs/bhp.		49.0/10.3		44.0/9.3
Stall Speed--Power off	kn.	84.4		80.1
Stall Speed--Power off - No Fuel	kn.	75.3		74.8
Stall Speed--Power on	kn.	79.2		75.1
Maximum Speed/Alt (B)	kn/ft.	267/18,300		275/18,300
Take-off Distance, deck -- calm	ft.	1,001		776
Take-off Distance, deck 25 kn.	ft.	493		365
Take-off Distance, Airport	ft.			
Rate of climb -- sea level (B)	ft/min.	2,110		2,520
Service Ceiling (B)	ft.	28,200		30,900
Time-to-climb 10,000 ft. (B)	min.	5.2		4.3
Time-to-climb 20,000 ft. (B)	min.	13.2		10.3
Combat Range/V av 15,000	ft. n.mi/kn.	1,395/181		720/178
Combat Radius/V av B-1	ft. n.mi/kn.	670/176		250/175
LOADING CONDITION	(2) COMBAT	(3) COMBAT	(4) COMBAT	
GROSS WEIGHT	lbs.	15,460	15,460	15,460
Engine power		Combat	Military	Normal
Fuel	lbs.	2,280	2,280	2,280
Bombs/Tanks				
Max. speed at sea level	kn.	315	294	277
Max. speed/Alt	kn/ft.	319/10,700	313/16,200	310/18,700
Combat speed/Alt	kn/ft.	314/1,500	298/1,500	281/1,500
Rate of climb SL	ft/min.	4,130	3,730	3,150
Ceiling for 500 fpm R/C	ft.	32,000	32,000	32,000
Time-to-climb/Alt.	min/ft.			

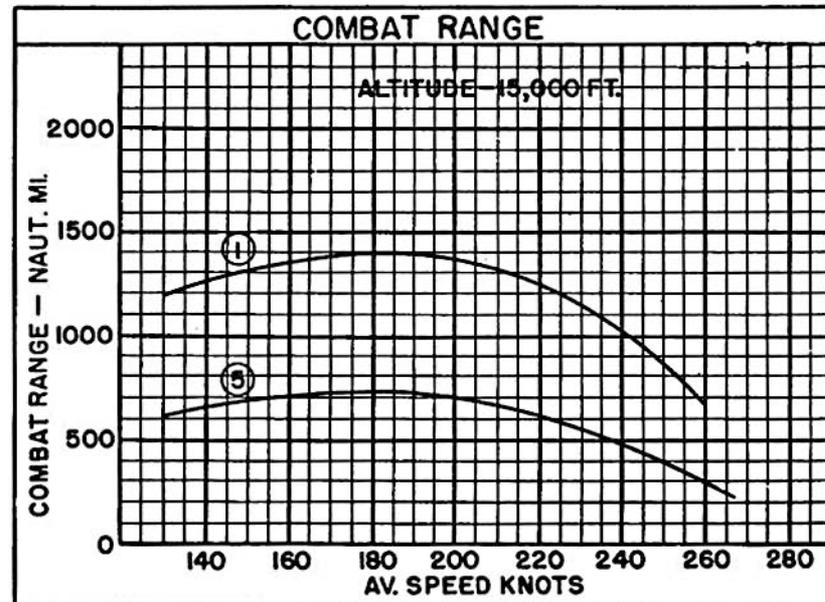
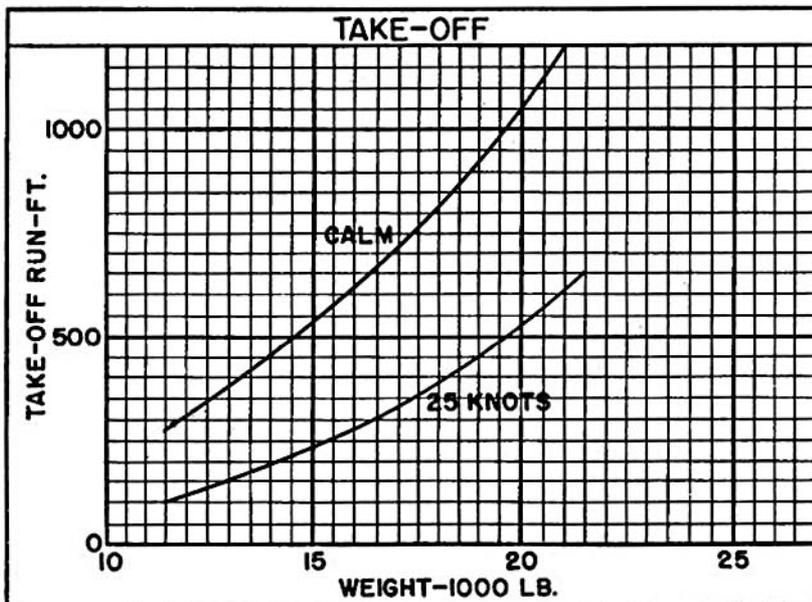
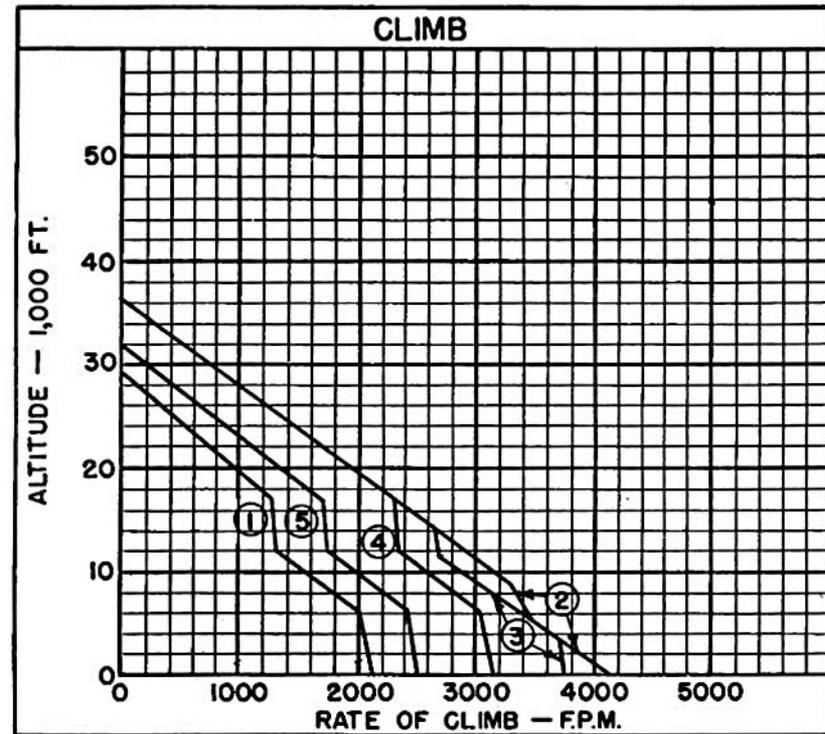
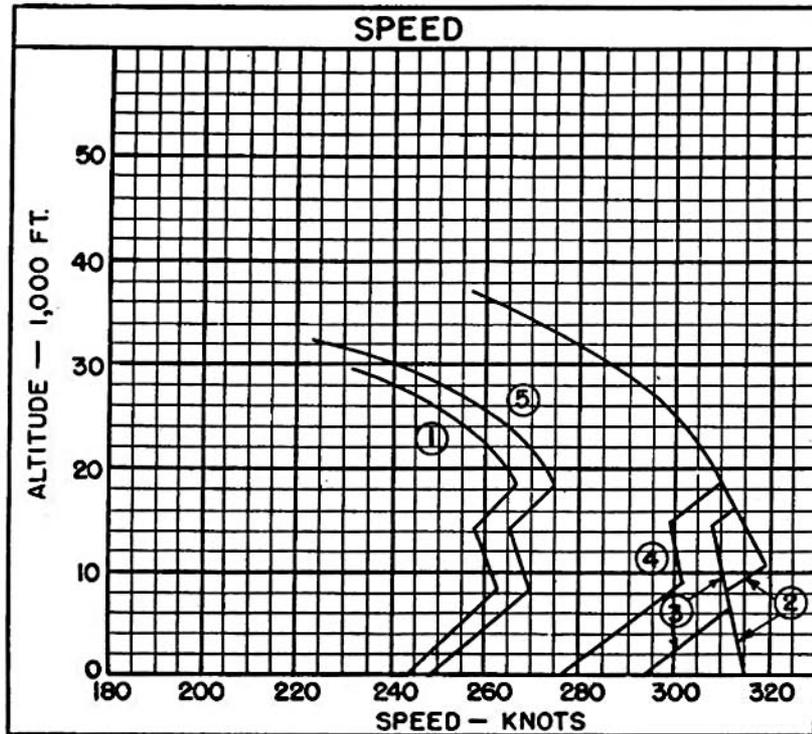
NOTES

- (A) BHP at Maximum Critical Altitude
(B) Normal BHP

Performance is based on NATC flight test of AD-1 and AD-1Q.

Combat range and radius are based on engine manufacturer's specification fuel consumption data increased 5%.

Rocket launchers not aboard. Addition of 12 launchers to Cond. (2) reduces V_{max} , S. L. to 308 kn. and V_{max}/ACA to 312/10,700 ft. Addition of 12 launchers and 12-5" HVAR increases gross weight of Cond. (2) to 17,189 lbs. and decreases V_{max} , S. L. to 289 kn. and V_{max}/ACA to 292 kn./10,700 ft.



○ LOADING CONDITION COLUMN NUMBER

NOTES

All loadings include 2 Mk-51 wing bomb racks with sway bracing and fuselage bomb ejector with sway bracing.

AN/APS-4 radar is carried on port side wing bomb rack for Condition (5) only.

Twelve 100 lb. bombs or twelve 250 lb. bombs can be carried at Mk-9 rocket launcher positions by replacing launchers with Mk-55 bomb racks.

Twenty gallons of ADI fluid are available for 12 minutes at combat power.

200 ft. length is required to spot 20 planes on the 96 ft. wide deck immediately aft of the forward ramp on the CV-9 class carriers.

ATTACK COMBAT RADIUS FORMULA NO. B-1

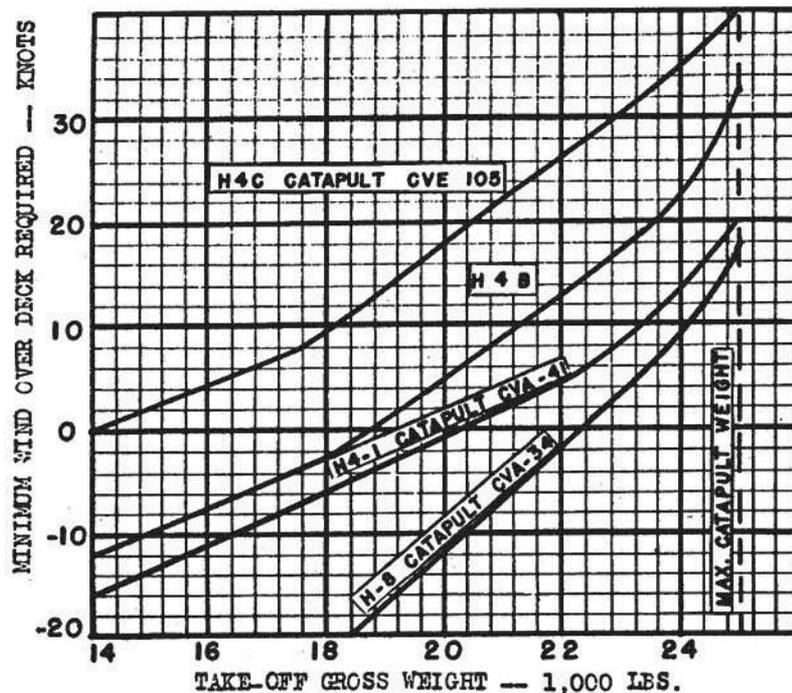
<u>WARM-UP</u>	<u>RENDEZVOUS</u>	<u>CLIMB</u>	<u>CRUISE-OUT</u>	<u>DROP TANKS</u>	<u>COMBAT</u>	<u>CRUISE-BACK</u>	<u>RESERVE</u>
20 min. ½ Normal RPM	20 min. at Sea Level at 60%	to 15000 ft. at Normal Power	at 15,000 ft. 180 kts. TAS Normal Mixture	<u>DESCEND</u> to 1,500 ft. <u>DROP BOMBS</u> FIRE ROCKETS	15 min. at 1,500 ft. 5 min. combat and 10 min. N. Pr.	at 1,500 ft. 170 kts. TAS Normal Mixture	60 min. at V for Max. Range at 1,500 ft. Normal Mixture

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

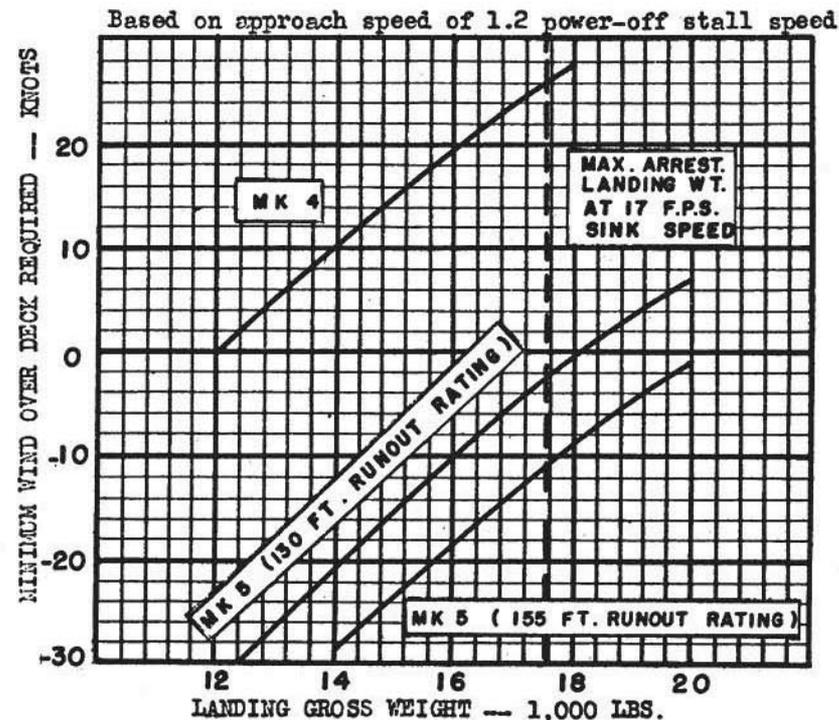
Addition of window dispenser to Condition (5) increases gross weight to 17,803 lbs., decreases V_{max}. S. L. 9 km., decreases combat range 53 n. mi. and increases T. O. distance (25 km.) 21 ft.

CARRIER SUITABILITY

MINIMUM WIND OVER DECK REQUIRED FOR CATAPULTING
VS. GROSS WEIGHT



MINIMUM WIND OVER DECK REQUIRED FOR LANDING
VS. GROSS WEIGHT



NOTES

- (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.
- (B) Based on NATC flight test.

NAVAER-13351 (New 5-52)

1 JULY 1954