STANDARD AIRCRAFT CHARACTERISTICS
AD-4 "SKYRAIDER"

DOUGLAS

1 NOVEMBER 1952
POWER PLANT

NO. & MODEL... (1) R-3350-25WA
MFR. .......... Wright
SUPERCH. ... 1 Stage, 2 Speed
R2D2, R2D1, RATIO .... 0.4375
PROP, MFR. ....... Aero, Fred.
BLADE DESIGN. A6-26E/M20-1A2-2
NO. BL./DIA. ... 4/31 - 6"

RATINGS

T.O. 2,700 2,500 S.L.
MIL. 2,700 2,900 S.L.
2,100 2,600 2,900 to 3,700'
NORMAL 2,300 2,600 2,900 to 4,500'
1,900 2,600 12,000 to 17,000

SPEC. NO. N336-8

MISSION AND DESCRIPTION

The primary mission of the AD-4 is the destruction of ground targets by dive bombing tactics. The airplane is also capable of torpedo, glide bombing, rocket attacks and tactical support missions. The AD-4 is designed to operate from all classes of naval aircraft carriers or from land bases.

It is equipped with a strengthened landing gear, 0-2 compass, anti-2 suit provisions, 4-20 mm cannon, and Aero 14 rocket launchers capable of carrying bombs up to 500 lbs.

The airplane is conventional in design and structure. Landing gear, canopy, flaps, wing folding, and three fuselage dive brakes are hydraulically operated. 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. Elevators, power plant, and engine mount are conventional. Oxygen for five hours is supplied. Bomb dispatching gear at the centerline station is power operated. Twenty gallons of ADI fluid are supplied for injection.

DEVELOPMENT

First Flight — — June 1942
Service Use — — July 1949

WEIGHTS

Loadings Lbs. L.F.
EMPTY ...... 11,712
BASIC ...... 12,602
DESIGN ...... 15,599
COMBAT ...... 17,199
MAX, T.O. (Field) ... 24,000
(Cat.) ... 20,500
MAX, LAND (Field) ... 21,000
(Arrest) ... 17,500

All weights are actual.

FUEL AND OIL

Gals. No. Tanks Location
150 1 Fuselage
150 1 Contr. Drop
500 2 Wing Drop
MAX, GRADE ... 115/145
FUEL SPEC. MIL-D-5572

OIL

CAPACITY (Gals.) ... 37
GRADE ...... 1120
SPEC. ...... MIL-O-6682A

ORDNANCE

GUNS

No. Size Location Type
1 20 mm Ring 800

Aero, Model 1 Gun

BOMBS & ROCKETS STATIONS

Max. Load Capacity Location No.
Mc. 51 2,000 Inner Wing 2
Douglas 2,000 Center 1
Rector Fuselage
Aero 500 Outer Wing 1
1 lb A

Max. Bomb Cap. (Ship) 6,500 lbs. (Shore) 9,000 lbs.

DIMENSIONS

WING
ARIA. .... 1400 sq. ft.
SPAN ....... 500' - 0"
M.A.S. ....... 0' - 4"
LENGTH ....... 38' - 11"
HEIGHT ....... 15' - 6"
THROAT ....... 13' - 11"
PROP, GRD, CLEAR ....... 6"

ELECTRONICS

VHF COMM. AN/ARC-1 or -1A or AN/ARC-27
RADIO AALT ......... AN/APX-1
RANGE REC. ......... N-23A/ARC-5
RADIO BTO ......... AN/ARC-2A
SEARCH & AIM HDR. ......... AN/AES-13A
IFF ......... AN/AEF-6

1 NOVEMBER 1942
### PERFORMANCE SUMMARY

**TAKE-OFF LOADING CONDITION**

<table>
<thead>
<tr>
<th></th>
<th>(1) Day Attack</th>
<th>(1) Day Attack</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1-2000 lb.Bomb</td>
<td>2-2500 lb.Bomb</td>
</tr>
<tr>
<td></td>
<td>2-45000 lb. T.</td>
<td>2-45000 lb. T.</td>
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<tr>
<td></td>
<td>2-5 In. E clinging</td>
<td>2-5 In. E clinging</td>
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</table>

<table>
<thead>
<tr>
<th>TAKE-OFF WEIGHT</th>
<th>11</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel (Fixed/Drop)</td>
<td>1lb</td>
<td>18,111</td>
</tr>
<tr>
<td>Payload (Bomb/Rockets)</td>
<td>1lb</td>
<td>2,230/18,000</td>
</tr>
<tr>
<td>Wing loading (lb/ft²)</td>
<td>45.3</td>
<td>55.1</td>
</tr>
<tr>
<td>Stall speed - power-off</td>
<td>88.7</td>
<td>88.7</td>
</tr>
<tr>
<td>Take-off run at S.L.</td>
<td>1,600</td>
<td>1,600</td>
</tr>
<tr>
<td>Take-off run at S.L.</td>
<td>1,600</td>
<td>1,600</td>
</tr>
<tr>
<td>Take-off to clear</td>
<td>1,600</td>
<td>1,600</td>
</tr>
<tr>
<td>Max. speed/altitude</td>
<td>295/19,700</td>
<td>262/18,200</td>
</tr>
<tr>
<td>Rate of climb at S.L.</td>
<td>2,210</td>
<td>1,350</td>
</tr>
<tr>
<td>Time to 10,000 ft.</td>
<td>16.7</td>
<td>16.7</td>
</tr>
<tr>
<td>Time to S.L.</td>
<td>16.7</td>
<td>16.7</td>
</tr>
<tr>
<td>Service ceiling (100 fps)</td>
<td>28,500</td>
<td>22,800</td>
</tr>
<tr>
<td>Combat range</td>
<td>720</td>
<td>1,110</td>
</tr>
<tr>
<td>Average cruising speed</td>
<td>203</td>
<td>203</td>
</tr>
<tr>
<td>Cruising altitude(s)</td>
<td>15,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Combat radius</td>
<td>240</td>
<td>520</td>
</tr>
<tr>
<td>Average cruising speed</td>
<td>293</td>
<td>193</td>
</tr>
</tbody>
</table>

**COMBAT LOADING CONDITION**

<table>
<thead>
<tr>
<th></th>
<th>(2) Combat</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMBAT WEIGHT</td>
<td>15,199</td>
</tr>
<tr>
<td>Engine power</td>
<td>Military</td>
</tr>
<tr>
<td>Fuel</td>
<td>2.15 g</td>
</tr>
<tr>
<td>Combat speed/combat altitude</td>
<td>290/1.1</td>
</tr>
<tr>
<td>Rate of climb/combat altitude</td>
<td>3,570/1.1</td>
</tr>
<tr>
<td>Combat ceiling (500 fps)</td>
<td>29,600</td>
</tr>
<tr>
<td>Rate of climb at S.L.</td>
<td>3,550</td>
</tr>
<tr>
<td>Max. speed at S.L.</td>
<td>260</td>
</tr>
<tr>
<td>Max. speed/altitude</td>
<td>316/17,500</td>
</tr>
</tbody>
</table>

**LANDING WEIGHT**

<table>
<thead>
<tr>
<th></th>
<th>14,037</th>
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<tbody>
<tr>
<td>Fuel</td>
<td>134</td>
</tr>
<tr>
<td>Stall speed - power-off</td>
<td>111</td>
</tr>
<tr>
<td>Stall speed - with approach power</td>
<td>67.5</td>
</tr>
</tbody>
</table>

**NOTES**

- (A) Normal rated power
- (B) Performance is based on AD series flight tests
- (C) Range and radius are based on AD series flight test fuel consumption data increased 5%
- (D) All loadings include 12 Aero-14A racks
- (E) 20 airplanes (wings folded) can be spotted in a rectangular area 200 feet long and 96 feet wide.
LOW ALTITUDE ATTACK COMBAT RADIUS PROBLEM (RECIPROCATING ENGINE)

WARM-UP, TAXI, TAKE-OFF: 10 minutes at normal power.
CLIMB: On course to 15,000 feet at normal power.
Cruise-Out: At 15,000 feet, at \( V \) for long range. External fuel tanks dropped when empty.
DESCEND: To sea level. (No fuel used, no distance gained)
HECP BOMBS, FIRE ROCKETS
COMBAT: 15 minutes at sea level, (5 minutes at military power and 10 minutes at normal power)
CLIMB: On course to 5,000 feet at normal power.
Cruise-Back: At 5,000 feet at \( V \) for long range.
RESERVE: 20 minutes at \( V \) for long range at sea level plus 5% of initial fuel load.

\[
\text{COMBAT RADIUS} = \text{CLIMB+CRUISE-OUT} = \text{CLIMB+CRUISE-BACK}
\]
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.