STANDARD AIRCRAFT CHARACTERISTICS

A4D-2 "SKYHAWK"

DOUGLAS

15 JUNE 1959
POWER PLANT

No. & Model: (1) 365-A16A or -41B
NPR: WEIGHT AERONAUTICAL
Type: AXIAL FLOW
Length: 113 in.
Diameter: 31 in.
Augmentation: NONE

RATINGS

MILITARY

7000

3300

NORMAL

6700

3300

SEA LEVEL, STATIC

SPEC. WAD #990-B

MISSION AND DESCRIPTION

The A-1D-2 airplane is a light-weight, carrier-based, jet attack airplane whose primary mission is the destruction of enemy ground and surface targets. The airplane is also capable of in-flight refueling as a tanker or a receiver.

The arrangement is conventional with all-metal semi-monocoque structure and three open low aspect ratio wings. 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 alleron, elevator, and rudder systems are hydraulic-power operated. Manual control is provided for emergencies.

This airplane does not have folding wings. The A-1D-2 differs from the A-1D in that A-1D-2 has the following:

1. Receiver and tanker in-flight refueling capabilities
2. Basic weight increase of 75 lbs.
3. Installation of a "tadpole" rudder.

DEVELOPMENT

First Flight: March 1956
Service Use: July 1957

WEIGHTS

LOADING

Lbs

LbF

WEIGHT

BOTH

8965

WEIGHT

BASIC

9790

DESIGN

12534

Combat

16014

MAX, P.O. (FIELD)

20,500

MAX, L.G. (FIELD)

20,500

MAX, L.G. (ABNINT)

18,500

6000

ALL WEIGHS ARE ACTUAL

FUEL AND OIL

NO. TANKS

XG, GALLONS

LOCATION

1

232

Fuselage

2

300 or 600

Wing Fins

FUEL GRADE:

JP-4 or -5

FUEL SPEC. (APPLICABLE):

MIL-D-83534

OIL

CAPACITY (GALLONS):

32

SPEC. (APPLICABLE):

MIL-L-7808

DIMENSIONS

WING

Area: 260 sq. ft.

Spar: 27'-6"

Mac: 10'-9.6"

Sweepback (4 chord): 33.2"

Length: 39'-4.8"

Height: 15'-10"

Tread: 7'-9.8"

EXTERNAL WEIGHTS

Load: 10,500 lbs.

FUEL: 4,100 lbs.

Landing Gear: 1,900 lbs.

AUXIL. Equipment: 675 lbs.
## Performance Summary

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Take-off Weight</td>
<td>1 lb</td>
<td>14.3 lb</td>
<td>21.46 lb</td>
<td>17.25 lb</td>
<td>16.94 lb</td>
<td>19.93 lb</td>
<td>20.98 lb</td>
</tr>
<tr>
<td>Fuel internal/external (JP-5)</td>
<td>1b/1b</td>
<td>5440/5600</td>
<td>5440/5600</td>
<td>5440/5600</td>
<td>5440/5600</td>
<td>5440/5600</td>
<td>5440/5600</td>
</tr>
<tr>
<td>Payload</td>
<td>1 lb</td>
<td>1050 lb</td>
<td>2052 lb</td>
<td>1650 lb</td>
<td>1284 lb</td>
<td>350 lb</td>
<td>80.5 lb</td>
</tr>
<tr>
<td>Wing loading</td>
<td>1b/eq.kt</td>
<td>72.5 lb</td>
<td>82.4 lb</td>
<td>66.2 lb</td>
<td>65.2 lb</td>
<td>117 lb</td>
<td>110 lb</td>
</tr>
<tr>
<td>Stall speed - power-off</td>
<td>1b</td>
<td>123 lb</td>
<td>123 lb</td>
<td>123 lb</td>
<td>123 lb</td>
<td>123 lb</td>
<td>123 lb</td>
</tr>
<tr>
<td>Take-off run at S.L. - calm (A)</td>
<td>ft</td>
<td>10 ft</td>
<td>15 ft</td>
<td>15 ft</td>
<td>15 ft</td>
<td>15 ft</td>
<td>15 ft</td>
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<tr>
<td>Take-off run at S.L. - 25 km wind (A)</td>
<td>ft</td>
<td>3150 ft</td>
<td>6750 ft</td>
<td>2850 ft</td>
<td>2850 ft</td>
<td>2850 ft</td>
<td>2850 ft</td>
</tr>
<tr>
<td>Take-off to clear 50 ft. - calm (A)</td>
<td>ft</td>
<td>320 ft</td>
<td>620 ft</td>
<td>320 ft</td>
<td>320 ft</td>
<td>320 ft</td>
<td>320 ft</td>
</tr>
<tr>
<td>Max. speed/altitude (A)</td>
<td>km/hr</td>
<td>542/7000</td>
<td>530/71,000</td>
<td>529/71,000</td>
<td>529/71,000</td>
<td>529/71,000</td>
<td>529/71,000</td>
</tr>
<tr>
<td>Rate of climb at S.L. (A)</td>
<td>ft/min</td>
<td>6590</td>
<td>42.90</td>
<td>42.90</td>
<td>42.90</td>
<td>42.90</td>
<td>42.90</td>
</tr>
<tr>
<td>Time: S.L. to 20,000 ft. (A)</td>
<td>min</td>
<td>1.9</td>
<td>5.0</td>
<td>3.9</td>
<td>3.5</td>
<td>4.9</td>
<td>4.9</td>
</tr>
<tr>
<td>Time: S.L. to 30,000 ft. (A)</td>
<td>min</td>
<td>7.0</td>
<td>9.3</td>
<td>7.1</td>
<td>6.3</td>
<td>9.4</td>
<td>9.4</td>
</tr>
<tr>
<td>Service ceiling (100 fps) (A)</td>
<td>ft</td>
<td>31,100 ft</td>
<td>31,100 ft</td>
<td>31,100 ft</td>
<td>31,100 ft</td>
<td>31,100 ft</td>
<td>31,100 ft</td>
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<tr>
<td>Combat radius (A)</td>
<td>nm</td>
<td>1300</td>
<td>1300</td>
<td>1300</td>
<td>1300</td>
<td>1300</td>
<td>1300</td>
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<tr>
<td>Average cruising speed</td>
<td>400 km/hr</td>
<td>395</td>
<td>395</td>
<td>395</td>
<td>395</td>
<td>395</td>
<td>395</td>
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<tr>
<td>Cruise altitude</td>
<td>31,100-40,600</td>
<td>31,100-40,600</td>
<td>31,100-40,600</td>
<td>31,100-40,600</td>
<td>31,100-40,600</td>
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<td>31,100-40,600</td>
</tr>
<tr>
<td>Combat Radius/Mission Time</td>
<td>h</td>
<td>50/9.4</td>
<td>50/9.4</td>
<td>50/9.4</td>
<td>50/9.4</td>
<td>50/9.4</td>
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</tr>
<tr>
<td>Average cruising speed</td>
<td>400 km/hr</td>
<td>395</td>
<td>395</td>
<td>395</td>
<td>395</td>
<td>395</td>
<td>395</td>
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<tr>
<td>Performance Basis: Contractor and NAC Flight Test Results</td>
<td></td>
<td></td>
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<tr>
<td>Range and/or radius are based on NAC Flight test fuel consumption data.</td>
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<tr>
<td>(4) Military Rated Thrust</td>
<td></td>
<td></td>
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<tr>
<td>(5) For effect of JP-5 fuel on combat radius and mission time. See Notes page.</td>
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<tr>
<td>All configurations include wing pylons and in-flight refueling probe loadings 5, 6, 7 and 8 include guns and ammunition.</td>
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</tbody>
</table>

## Notes

**Mission Time:** Any time where fuel is used and distance gained plus combat and refuel allowance times.

**Spawning:** A total of 106 aircraft can be accommodated in a landing spot on the flight and hangar decks of a CVA-19 class angled-deck carrier.
DECLASSIFIED
## NOTES

### LOADING

(All data based on JP-4 fuel)

| 1-2025 lb. store plus 2-300 gal. ext tanks | 21,049 lb. |
| 3-Bullpup Missiles plus 1-300 gal. ext. tank | 19,983 lb. |
| 2-Orsus Missiles plus 1-300 gal. ext. tank | 20,198 lb. |

### TAKE-OFF

<table>
<thead>
<tr>
<th>15,000 FT. STORE DELIVERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIGHT</td>
</tr>
<tr>
<td>710 n.m.</td>
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<tr>
<td>405 n.m.</td>
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<tr>
<td>490 n.m.</td>
</tr>
</tbody>
</table>

### SEA LEVEL STORE DELIVERY

- **START ENGINE, TAKE-OFF AND ACCELERATE**: Fuel for 5 minutes with normal power at sea level.
- **CLIMB OUT**: At maximum rate of climb with military power on course to optimum cruise altitude.
- **GURIS OUT**: At maximum range speeds at optimum cruise altitude. (Drop any external tanks when empty.)
- **DESCEND**: To sea level (no fuel consumed - no distance covered.)
- **RUN-OUT**: At S.L. for 50 n.m., at maximum speed with military power. Drop bombs, fire rockets.
- **COMBAT**: At sea level for 5 minutes with military power. No distance made good.
- **RUN-OFF**: At sea level for 50 nautical miles at maximum speed with military power.
- **CLIMB BACK**: At maximum rate of climb 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**: Fuel allowance: 5% of initial fuel plus 20 minutes at speed for maximum endurance at sea level.

### 15,000 FT. STORE DELIVERY

- **START ENGINE, TAKE-OFF AND ACCELERATE**: Fuel for 5 minutes with normal power at sea level.
- **CLIMB OUT**: At maximum rate of climb with military power on course to optimum cruise altitude.
- **GURIS OUT**: At maximum range speeds at optimum cruise altitude. (Drop any external tanks when empty.)
- **DESCEND**: To 15,000 ft. (no fuel consumed - no distance covered) drop bombs, fire rockets.
- **COMBAT**: At 15,000 ft. for 5 minutes with military power. No distance made good.
- **CLIMB BACK**: At maximum rate of climb 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**: Fuel allowance: 5% of initial fuel plus 20 minutes at speed for maximum endurance at S.L.

### SEA LEVEL STORE DELIVERY

- **START ENGINE, TAKE-OFF AND ACCELERATE**: Fuel for 5 minutes with normal power at sea level.
- **CLIMB OUT**: At maximum rate of climb with military power on course to optimum cruise altitude.
- **GURIS OUT**: At maximum range speeds at optimum cruise altitude. (Drop any external tanks when empty.)
- **DESCEND**: To 15,000 ft. (no fuel consumed - no distance covered.)
- **RUN-OFF**: At sea level for 50 nautical miles at maximum speed with military power.
- **CLIMB BACK**: At maximum rate of climb 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**: Fuel allowance: 5% of initial fuel plus 20 minutes at speed for maximum endurance at sea level.

### MODIFIED HIGH ALTITUDE ATTACK

- **START ENGINE, TAKE-OFF AND ACCELERATE**: Fuel for 5 minutes with normal power at sea level.
- **CLIMB OUT**: At maximum rate of climb with military power on course to optimum cruise altitude.
- **IN-FLIGHT REFUELING**: At 30,000 ft. Fuel allowances for hook-up and flight contingencies = 5 minutes at maximum endurance speeds (no distance made good.) Note: Refueling point limited to return of aircraft to base with normal reserve if refueling contact is not made.
- **GURIS OUT**: Continue to climb at maximum range airspeeds at optimum cruise altitude. (Drop any external tanks when empty.)
- **CLIMB BACK**: At maximum rate of climb with military power on course to optimum cruise altitude.
- **CRUISE BACK**: At maximum range airspeeds at optimum cruise altitude.
- **DESCEND**: To see level (no fuel consumed - no distance covered.)
- **RESERVE**: Fuel allowances: 5% of initial fuel plus 20 minutes at speed for maximum endurance at 5,000 ft.

### ORDNANCE (Continued)

<table>
<thead>
<tr>
<th>Radio</th>
<th>Mise.</th>
<th>Bombs</th>
<th>Missiles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-NAVAC unit</td>
<td>1-Aero 11 Missile Disp.</td>
<td>2-NxRl Mod. 1 (250 lb.)</td>
<td>2-Orsus-B7 Bullpup</td>
</tr>
<tr>
<td>1-Aero 11 Missile Disp.</td>
<td>2-NxRl Mod. 1 (500 lb.)</td>
<td>2-NxRl Mod. 2 or 3 (1,000 lb.)</td>
<td>2-Orsus-B7 Bullpup</td>
</tr>
</tbody>
</table>

### AFFIXED GUNS/LDS. AMM.

| 2-Nx 12 Mod. | 20mm/100 rds. per gun | Maximum Bomb Capacity: 9575 lb. |