STANDARD AIRCRAFT CHARACTERISTICS
A3D-2Q SKYWARRIOR

DECLASSIFIED

DOUGLAS
POWER PLANT

No. & Model: (2) J52-P-10
Mfr.: Pratt & Whitney
Eng. Spec. No.: N-1700-A (2-2-55)
Type: Turbojet
Compr.: Dual rotor, Axial Flow
Length: 156 in.
Diameter: 41 in.
N2 & Type Assist: 12-SKS-4000 JATO
Tail Pipe Nozzle: Constant Exit Area

RATINGS

Sea Level Static
THRUST: RPM
LB. N1 N2

Maximum: 10600 6150 9900
Military: 10600 6150 9900
Normal: 9000 5900 9650

*N1: Speed of low pressure compressor
**N2: Speed of high pressure compressor

FUEL AND OIL

Gal. No. Tanks Location
3114 2 Fuselage
1290 2 Wing
4412

Fuel spec.: MIL-F-5624

*Self-sealing

OIL

Gal. No. Tanks Location
11 2 Integral with eng.

Oil spec.: MIL-L-7808

MISSION AND DESCRIPTION

The principal mission of the A3D-2Q airplane is effective search for enemy radar. It can operate from land bases and from carriers.

The airplane is conventional with two turbojet engines in under-wing nacelles. Provisions are incorporated for a crew of seven: a pilot, a navigator-assistant pilot, a gunner-radio operator, four ECM operators including an evaluator.

The tricycle landing gear, arresting gear, wing-fold and tail-fold mechanisms, single-slotted wing flaps, fuselage speed brakes, and power mechanisms for rudder, elevator and ailerons are operated by hydraulic power. The horizontal stabilizer is electrically adjustable for trim in-flight.

Leading edge slats are actuated automatically by aerodynamic loads.

DEVELOPMENT

Contract: NOA(s) 55-205 Five airplanes
NOA(s) 57-181 Eight airplanes
NOA(s) 57-181 Amendment #2 14 May 1958

Twelve airplanes (cambered leading edge wing)

First Flight: 12-10-58
First Fleet Delivery: November 1959

WEIGHTS

Loading: Lbs. L.F.
Empty: 41,193
Basic: 41,297
Design: 55,942 3.40
Combat: 61,593 3.09
Max. T.O. (Land) 78,000 2.44
Max. T.O. (Cat) 73,000 2.60
Max. Land (Land) 56,000
Max. Landing (Carrier) 49,000

ELECTRONICS

UHF Xmt-Rec. AN/NC-27
IFF AN/AXK-66 & AN/AKP-93
Radar Altimeter AN/ARN-25
TACAN AN/ARC-21
Radio Compass AN/ARN-6
Search Radar AN/ARC-18
Video Omni-Range AN/AVN-148
VHF Xmt-Rec. AN/ARC-1
Radar Analyzer AN/ALR-3
Countermeas. Rec. AN/ALR-9
Radar Rec. AN/ALR-3
Direction Finder AN/AOA-69
Signal Analyzer AN/AOA-74
Radar Rec. AN/AKR-9
Radar Rec. AN/AKR-15
Range Rec. AN/ARC-6
HP Xmt-Rec. AN/APS-36
Radio Rec. AN/ARQ-40
Radio Direction Finder AN/AOA-23
L.C.S.-Transistorized L.C.S. (DAC)
By retrofit:
Radar Set AN/AXK-175
Comm. Set AN/AAR-14
BEAM AN/ALQ-38/AN/61

ORDNANCE

GUNS/AMM.
2-30mm (30) / 500 rds. per gun
Tail Turret System Aero 218

15 APRIL 1961

A3D-2Q
## PERFORMANCE SUMMARY

<table>
<thead>
<tr>
<th>TAKE-OFF LOADING CONDITION</th>
<th>(1) Limit Carrier T.G. Wt. High Alt Reconnaissance</th>
<th>(2) Full Fuel High Altitude Reconnaissance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TAKE-OFF WEIGHT (A)</strong></td>
<td>lb. 72,000</td>
<td>lb. 74,483</td>
</tr>
<tr>
<td>Fuel</td>
<td>lb. 28,518</td>
<td>lb. 30,000</td>
</tr>
<tr>
<td>Payload</td>
<td>lb. 1894</td>
<td>lb. 1894</td>
</tr>
<tr>
<td>Wing loading</td>
<td>lb./sq. ft. 23.7</td>
<td>lb./sq. ft. 23.6</td>
</tr>
<tr>
<td>Stall speed - power-off (B)</td>
<td>kn. 132</td>
<td>kn. 134</td>
</tr>
<tr>
<td>Take-off run at S.L. - calm (B)</td>
<td>ft. 4460</td>
<td>ft. 4700</td>
</tr>
<tr>
<td>Take-off run at S.L. 25 kn.wind (B)</td>
<td>ft. 2940</td>
<td>ft. 3150</td>
</tr>
<tr>
<td>Take-off to clear 50 ft. - calm (B)</td>
<td>ft. 6270</td>
<td>ft. 6560</td>
</tr>
<tr>
<td>Max. speed/altitude</td>
<td>kn./ft. 557/S.L.</td>
<td>kn./ft. 557/S.L.</td>
</tr>
<tr>
<td>Rate of climb at S.L.</td>
<td>fpm 3320</td>
<td>fpm 4210</td>
</tr>
<tr>
<td>Time: S.L. to 20,000 ft.</td>
<td>min. 5.3</td>
<td>min. 5.3</td>
</tr>
<tr>
<td>Time: S.L. to 30,000 ft.</td>
<td>min. 9.3</td>
<td>min. 9.3</td>
</tr>
<tr>
<td>Service ceiling (100 fpm)</td>
<td>ft. 39,000</td>
<td>ft. 38,600</td>
</tr>
<tr>
<td>Combat range</td>
<td>n.mi. 3290</td>
<td>n.mi. 2370</td>
</tr>
<tr>
<td>Average cruising speed</td>
<td>kn./M 459.80</td>
<td>kn./M 459.80</td>
</tr>
<tr>
<td>Cruising altitude</td>
<td>ft. 35,400 - 43,200</td>
<td>ft. 35,000 - 43,200</td>
</tr>
<tr>
<td>Combat radius/Mission Time</td>
<td>hr.n.mi. 1110/4.8</td>
<td>hr.n.mi. 1160/5.1</td>
</tr>
<tr>
<td>Average cruising speed</td>
<td>kn./M 459.80</td>
<td>kn./M 459.80</td>
</tr>
<tr>
<td>IFR-Radius/Mission Time</td>
<td>n.mi./hr. 1510/6.9</td>
<td>n.mi./hr. 1600/7.3</td>
</tr>
<tr>
<td>IFR-Fuel Trans./Distance</td>
<td>lb./n.mi. 10,590/650</td>
<td>lb./n.mi. 11,150/685</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMBAT LOADING CONDITION</th>
<th>(2) 60% Fuel</th>
<th>(4) 60% Fuel</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COMBAT WEIGHT</strong></td>
<td>lb. 61,593</td>
<td>lb. 62,483</td>
</tr>
<tr>
<td>Engine power</td>
<td>MILITARY</td>
<td>MILITARY</td>
</tr>
<tr>
<td>Fuel</td>
<td>lb. 17,117</td>
<td>lb. 18,000</td>
</tr>
<tr>
<td>Combat speed/combat altitude</td>
<td>kn./ft. 407/41,000</td>
<td>kn./ft. 407/40,600</td>
</tr>
<tr>
<td>Rate of climb/combat altitude</td>
<td>fpm/ft. 520/41,000</td>
<td>fpm/ft. 520/40,600</td>
</tr>
<tr>
<td>Combat ceiling (500 fpm)</td>
<td>ft. 41,300</td>
<td>ft. 40,900</td>
</tr>
<tr>
<td>Rate of climb at S.L.</td>
<td>fpm 6150</td>
<td>fpm 6050</td>
</tr>
<tr>
<td>Max. speed at S.L.</td>
<td>kn./M 557/.84</td>
<td>kn./M 557/.84</td>
</tr>
<tr>
<td>Max. speed at 30,000 ft.</td>
<td>kn./M 511/.89</td>
<td>kn./M 510/.88</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LANDING WEIGHT</th>
<th>lb. 47,617</th>
<th>lb. 47,691</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel</td>
<td>lb. 3,195</td>
<td>lb. 3,209</td>
</tr>
<tr>
<td>Stall speed - power-off/Appr. Pwr kn./kn.</td>
<td>ft. 107/105</td>
<td>ft. 107/105</td>
</tr>
<tr>
<td>Land. Dist. Gr. Run/Over 50 ft. (E)</td>
<td>ft./ft. 553/60X0</td>
<td>ft./ft. 553/60X5</td>
</tr>
</tbody>
</table>

(A) The limit catapult take-off weight of 72,000 pounds is consistent with current operating bulletins. Under emergency conditions increased take-off weights may be utilized.

(B) Full flaps

(C) One refueling from A3D-2 cambered wing tanker. (Tanker T.G. Wt. = 73,000 lb.)

(D) One refueling from A3D-2 cambered wing tanker. (Tanker T.G. Wt. = 78,000 lb.)

(E) Without chute. With chute distance is decreased approximately 2400 ft.

(F) All loadings include IFR probe.


(H) Spotting: A total of 27 aircraft can be accommodated in the landing spot of the flight and hangar decks of a CVA-19 class angle-deck carrier.

A3D-2Q

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Catapult take-off speed is based on Launching Bulletin No. 6-49.

Catapult end speed limited by aircraft strength below 60,700 lbs. on C11 Catapult and below 64,200 lbs. on the C7 Catapult. Above these weights catapult end speed is limited by catapult capacity.

Approach speed is based on NAVIC recommended minimums.

Engaging speed limited by airplane strength limit as determined by maximum rate of sink.
HIGH ALTITUDE RECONNAISSANCE MISSION

WARM UP, TAKE OFF, AND ACCELERATE: 5 minutes at normal thrust at sea level.

CLIMB: On course to optimum cruise altitude with military thrust.

CRUISE OUT: At altitudes and speeds for maximum range.

CLIMB: With maximum thrust on course to cruise ceiling.

RUN IN: 25 minutes at normal thrust at combat altitude.

Evasive Action: 2 minutes at normal thrust at combat altitude (no distance gained).

ESC: 8 minutes at normal thrust (assume escape ends at optimum cruise altitude).

CRUISE BACK: At altitudes and speeds for maximum range.

RESERVE: 20 minutes at sea level at speed for maximum endurance plus 5% of the initial fuel load.

Combat Radius = climb + cruise out + climb + run in = escape + cruise back

Mission Time = time required for climb + cruise out + climb + run in + evasive action + escape + cruise back.

Loading Condition 3

Radius = 1160 N. Mi.