STANDARD AIRCRAFT CHARACTERISTICS
A3D-2T "SKY WARRIOR"
DOUGLAS
DECLASSIFIED

15 SEPTEMBER 1959
POWER PLANT

No. & Model——(2) J57-P-10
MFR.——Pratt & Whitney
Type——Turbojet
Compr——Dual Rotor Axial Flow
Length——158 in.
Diameter——A1 in.
No. & Type Assist J2-5K-S4500Jato
Tail Pipe No. 22LE—Constant Exit
Area

RATINGS

SEA LEVEL STATIC
THRUST RPM
LB. N1 * N2 **
Maximum 10500 6450 9900
Military 10500 6150 9900
Normal 9000 5900 9650
*N1 Speed of Low Pressure
Compressor
**N2 Speed of High Pressure
Compressor
Eng. Spec. No. N-1700-A

MISSION AND DESCRIPTION

The primary mission of the A3D-2T airplane is that of
a trainer for bombardiers and navigators. The airplane is
designed to operate from land bases and from CVA-19 and
CVA-59 class carriers.
The airplane has a conventional swept wing and swept
tail arrangement. Two turbo-jet engines are pylon-mounted
in winging nacelles. Provisions are made for a crew of
eight men, consisting of a pilot, an instructor and six bomb-
arding/navigator trainees.
The basic structure is nearly identical to the A3D-2. The
wing has a cambered leading edge and full-span slats.
One bomb rack is located under each wing to carry practice
bomb dispensers. The rear compartment floor is adaptable
to carrying cargo or transport type seats.

ORDNANCE

WING PYLONS
2 3348 Lb. T-65 Training Shapes
2 750 Lb. Aero 8A Practice
Bomb Dispensers Carrying
4-MK 89 Bombs Each
No Provision for Internal Carriage of Stores

WEIGHTS

LOADING LBS. LF.
Empty 39933
Basic 40679
Design 55942 3.4
Combat 59690
Max T.O. (Land) 78000 2.44
Max T.O. (Cat.) 73000 2.60
Catapult Design 70000 2.72
Max. Landing (Land) 56000
Max. Landing (Carrier) 49000 (with
ASC 155)
46000 (without
ASC 155)

FUEL AND OIL

GAL. NO. TANKS LOCATION
*1825 1 Fwd. Fuselage
*1958 1 Aft Fuselage
666.5 ea. 2 Wing
* Self Sealing
Total Fuel Capacity 5116 Gals.
Fuel Grade ———— JP-5
Fuel Spec. ———— MIL-F-5624

OIL

GAL. NO. TANKS LOCATION
11 2 Integral with
Engine
Oil Spec. ——— MIL-L-7808

DEVELOPMENT

First Flight ——— May 1959
Service Use (Estimated) ——-October 1959

DIMENSIONS

WING
AREA ———— 812 sq. ft.*
SPAN ———— 72.5 ft.
M.A.C. ———— 145.2 in.*
SWEETBACK ———— 36°
LENGTH ———— 74.4 ft.
HEIGHT ———— 22.8 ft.
TREAD ———— 10.4 ft.
*All aerodynamic coefficients are
based on the original wing area
of 779 square feet and MAC of
140.14 inches

ELECTRONICS

Radio Rec. (VOR) ——— AN/ARN-14-E
Radio Compass ——— AN/ARN-6
Tacao ——— AN/ARN-21
Direction Finder, (UHF)—AN/ARA-25
Radio Altimeter ——— AN/APN-22
IFF Transponder ——— AN/APX-68
Cider Group ——— AN/APA-89
(would video coder)
Trans-Receiver, (UHF) ——— AN/ARC-27A
Communication Radio ——— AN/ARC-38
Radio Receiver (UHF) ——— AN/ARR-40
Radar Bomb Director ———— AN/ASD-1A
Antenna Couples ———— CU-509A/AR

15 SEPTEMBER 1959
## PERFORMANCE SUMMARY

### TAKE-OFF LOADING CONDITION

<table>
<thead>
<tr>
<th></th>
<th>(1) HIGH ALTITUDE ATTACK 2 AERO SA DISPERGERS</th>
<th>(2) 60% FUEL WITH STORES</th>
<th>(3) HIGH ALTITUDE ATTACK 2 AERO SA DISPERGERS</th>
<th>(4) 60% FUEL WITH STORES</th>
<th>(5) HIGH ALTITUDE ATTACK WITH TWO 7-45 TRAINING STORES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TAK-OFF WEIGHT</strong></td>
<td>lb. 70,000</td>
<td>lb. 65,000</td>
<td>lb. 70,000</td>
<td>lb. 65,000</td>
<td>lb. 70,000</td>
</tr>
<tr>
<td>Fuel (JP-5)</td>
<td>lb. 25,785</td>
<td>lb. 25,785</td>
<td>lb. 25,785</td>
<td>lb. 25,785</td>
<td>lb. 25,785</td>
</tr>
<tr>
<td>Payload</td>
<td>lb. 1,500</td>
<td>lb. 1,500</td>
<td>lb. 1,500</td>
<td>lb. 1,500</td>
<td>lb. 1,500</td>
</tr>
<tr>
<td>Wing loading 1lb./sq.ft.</td>
<td>86.2</td>
<td>86.2</td>
<td>86.2</td>
<td>86.2</td>
<td>86.2</td>
</tr>
<tr>
<td>Stall speed - power-off</td>
<td>km. 119.7</td>
<td>km. 128.4</td>
<td>km. 128.4</td>
<td>km. 128.4</td>
<td>km. 128.4</td>
</tr>
<tr>
<td>Take-off run at S.L. - climax</td>
<td>ft. 4920</td>
<td>ft. 4920</td>
<td>ft. 4920</td>
<td>ft. 4920</td>
<td>ft. 4920</td>
</tr>
<tr>
<td>Take-off To Clear 50 ft. - 60%</td>
<td>(h) 6300</td>
<td>(h) 6300</td>
<td>(h) 6300</td>
<td>(h) 6300</td>
<td>(h) 6300</td>
</tr>
<tr>
<td>Max. speed/Altitude (G)</td>
<td>km./ft. 531/5.1</td>
<td>km./ft. 531/5.1</td>
<td>km./ft. 531/5.1</td>
<td>km./ft. 531/5.1</td>
<td>km./ft. 531/5.1</td>
</tr>
<tr>
<td>Rate of climb at S.L.</td>
<td>(G) 4000</td>
<td>(G) 4000</td>
<td>(G) 4000</td>
<td>(G) 4000</td>
<td>(G) 4000</td>
</tr>
<tr>
<td>Time: S.L. to 20,000 ft.</td>
<td>min. 6.2</td>
<td>min. 6.2</td>
<td>min. 6.2</td>
<td>min. 6.2</td>
<td>min. 6.2</td>
</tr>
<tr>
<td>Time: S.L. to 30,000 ft.</td>
<td>min. 10.7</td>
<td>min. 10.7</td>
<td>min. 10.7</td>
<td>min. 10.7</td>
<td>min. 10.7</td>
</tr>
<tr>
<td>Service ceiling (100 fps)</td>
<td>ft. 51,500</td>
<td>ft. 51,500</td>
<td>ft. 51,500</td>
<td>ft. 51,500</td>
<td>ft. 51,500</td>
</tr>
<tr>
<td><strong>COMBAT RANGE</strong></td>
<td>n.mi. 2815</td>
<td>n.mi. 2815</td>
<td>n.mi. 2815</td>
<td>n.mi. 2815</td>
<td>n.mi. 2815</td>
</tr>
<tr>
<td>Average cruising speed</td>
<td>km. 430</td>
<td>km. 430</td>
<td>km. 430</td>
<td>km. 430</td>
<td>km. 430</td>
</tr>
<tr>
<td>Cruising altitude(s)</td>
<td>ft. 35600/4900</td>
<td>ft. 35600/4900</td>
<td>ft. 35600/4900</td>
<td>ft. 35600/4900</td>
<td>ft. 35600/4900</td>
</tr>
<tr>
<td><strong>MISSION TIME</strong></td>
<td>n.min. 1190</td>
<td>n.min. 1190</td>
<td>n.min. 1190</td>
<td>n.min. 1190</td>
<td>n.min. 1190</td>
</tr>
<tr>
<td>Low Altitude Attack (Radius/Mission Time) n.mi./hr.</td>
<td>1270/6.0</td>
<td>1270/6.0</td>
<td>1270/6.0</td>
<td>1270/6.0</td>
<td>1270/6.0</td>
</tr>
</tbody>
</table>

### COMBAT LOADING CONDITION

<table>
<thead>
<tr>
<th></th>
<th>(2) 60% FUEL WITH STORES</th>
<th>(4) 60% FUEL WITH STORES</th>
<th>(6) 60% FUEL WITH STORES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COMBAT WEIGHT</strong></td>
<td>lb. 39,688</td>
<td>lb. 39,688</td>
<td>lb. 39,688</td>
</tr>
<tr>
<td>Engine power</td>
<td>MILITARY</td>
<td>MILITARY</td>
<td>MILITARY</td>
</tr>
<tr>
<td>Fuel</td>
<td>lb. 15,669</td>
<td>lb. 15,669</td>
<td>lb. 15,669</td>
</tr>
<tr>
<td>Combat speed/combat altitude</td>
<td>km./ft. 469/42,600</td>
<td>km./ft. 469/42,600</td>
<td>km./ft. 469/42,600</td>
</tr>
<tr>
<td>Rate of climb/combat altitude</td>
<td>km./ft. 669/24,280</td>
<td>km./ft. 669/24,280</td>
<td>km./ft. 669/24,280</td>
</tr>
<tr>
<td>Combat ceiling (500 fps)</td>
<td>ft. 41,400</td>
<td>ft. 41,400</td>
<td>ft. 41,400</td>
</tr>
<tr>
<td>Rate of climb at S.L.</td>
<td>km. 523</td>
<td>km. 523</td>
<td>km. 523</td>
</tr>
<tr>
<td>Max. speed at S.L.</td>
<td>km. 531</td>
<td>km. 531</td>
<td>km. 531</td>
</tr>
<tr>
<td>Max. speed/Altitude</td>
<td>km./ft. 505/35,000</td>
<td>km./ft. 505/35,000</td>
<td>km./ft. 505/35,000</td>
</tr>
</tbody>
</table>

### LANDING WEIGHT

<table>
<thead>
<tr>
<th></th>
<th>lb. 46,288</th>
<th>lb. 46,288</th>
<th>lb. 46,288</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel</td>
<td>lb. 25,21</td>
<td>lb. 25,21</td>
<td>lb. 25,21</td>
</tr>
<tr>
<td>Stall speed - power-off</td>
<td>km. 97.2</td>
<td>km. 97.2</td>
<td>km. 97.2</td>
</tr>
<tr>
<td>Stall speed - with approach power</td>
<td>km. 92.4</td>
<td>km. 92.4</td>
<td>km. 92.4</td>
</tr>
</tbody>
</table>

### NOTES

(4) HALF FLAPS
(6) HALF FLAPS: 12 JATO UNITS INCREASE TAKE-OFF WEIGHTS SHOWN BY 272 LBS.
(3) MILITARY STUNT
(3) WITH ONE REFUEL IN ON THE OUTFIELD LST, THE HIGH ALTITUDE ATTACK RANGE IS INCREASED TO 2036 N.M. WITH A MISSION TIME OF 9.54 HOURS

PERFORMANCE BASIS: Flight Test of A3D-1, wind tunnel tests of A3D-2 (cambered wing) and calculations

RANGE AND RADIUS are based on engine spec. Fuel consumption increased by 25%

SPOTTING: A total of 27 airplanes can be accommodated in a landing spot on the flight and hangar decks of a CVA-19 class angled deck carrier

A3D-2T

CONFORMED

15 SEPTEMBER 1959
NOTES

HIGH ALTITUDE ATTACK

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
CRUISE: With maximum thrust on course to cruise ceiling
BOMB RUNS: 15 minutes at normal thrust at combat altitude
DROP BOMBS:
EVADE ACTION: 2 minutes with normal thrust at combat altitude (no distance gained)
ESCAPE: 8 minutes with normal thrust (assumes escape ends at optimum cruise back altitude)
CRUISE-BACK: At altitudes and speeds for maximum range
RESERVES: 20 minutes at speed for maximum endurance at sea level plus 5% of initial fuel load

Combat Radius = Climb + Cruise-Out + Climb + Run-In = Escape + Cruise-Back
Mission Time = Time Required for Climb + Cruise-Out + Climb + Bomb Run + Evasive Action + Escape + Cruise-Back

LOW ALTITUDE ATTACK AND GROUND SUPPORT

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
DESCEND TO SEA LEVEL: No fuel consumed, no distance gained
DROP BOMBS:
COMBAT: 5 minutes at military thrust at sea level (no distance gained)
CLIMB: On course to optimum cruise altitude with military thrust
CRUISE BACK: At altitudes and speeds for maximum range
RESERVES: 20 minutes at speed for maximum endurance at sea level plus 5% of initial fuel load

Combat Radius = Climb + Cruise-Out = Climb + Cruise-Back
Mission Time = Time Required for Climb + Cruise-Out + Combat + Climb + Cruise-Back

15 SEPTEMBER 1959