Standard Aircraft Characteristics

NAVY MODEL
P-3A
AIRCRAFT
(TITLE UNCLASSIFIED)

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COMMANDER OF THE NAVAL AIR SYSTEMS COMMAND

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STANDARD AIRCRAFT CHARACTERISTICS
P-3A ORION
LOCKHEED
NOTE: TOTAL USABLE TANK CAPACITIES INDICATED

OIL TANKS, 7.35 GAL. EA.

1671 GAL.

1606 GAL.

2046 GAL.
INTERCONNECTED TANKS

OIL TANKS, 7.35 GAL. EA.
POWER PLANT

NO. AND MODEL:..................(4) 756-A-1-AW
MFR:..................Allison
SPECIFICATION:..................14,000 ft. 1,725,000 lbs.
PROP. MFR:..................bfm-std
NO. RL. (EST):..................4/12.5. 71
PROP. DESIGN:..............32RSO-77/AT1213-2
PROP. SPEC:..................1:13.5-24
PROP SPEC:..................184-A

RATINGS

EXHAUST

NAVIER

T.O. 4000 4500 12600
MII. 4050 4740 12600
Soros 3730 546 12600

* Augmented = Water-Alcohol Injection

MISSION AND DESCRIPTION

The Lockheed P3-V-1 is designed to detect, locate and
destroy enemy submarines. Additional mission capa-
bilities include the following; barrier patrol, covert
escorts, hold down, hunter-killer operations, area
search, and in-flight area coordinator at a scene of
action.

The external configuration is similar to that of the
commercial Electra, except for modifications required
to accomplish the ASW mission. External changes to
the airplane include an 88-inch reduction in fuselage
length, the addition of a bomb bay, NO tail cone
extension, and a modified flight station enclosure
to increase visibility during ASW operations.

DEVELOPMENT

FIRST FLIGHT:..................MAR. 1961

WEIGHTS

LOADINGs

LBS.
L.F.
Empty 59,300
Design 107,200
Combat 102,600
Max. T.O. 107,200
Max. LG. 91,300
Emergency 107,200

All weights are estimated.

FUEL AND OIL

NO. TANKS GALL. LOCATOR
1 3512 Wing (outside)
2 1381 Wing (inboard)
1 2646 Center and
Fuselage Aux.
Total 9000

FUEL GRAD:..................JP-4
FUEL SPEC:..................MIL-F-5624C

* Total Usable Capacity

OIL

Total Usable Capacity (gall.) 90,400

DIMENSIONS

WING:
Area:..................1795 Sq. Ft.
Span:..................59 Ft. 6 In.
A.C.:..................125.7 In.
Length:..................115 Ft. 10 In.
Weight:..................93 Lb. 8.5 In.
Tow:..................29 Ft. 2 In.
Prop. Ord. Clearance:........71.75 In.

ORDNANCE

INTERNAL CAPACITY OF BOMB BAY

LOADING NUMBER WEAPON TYPE
A 8 Torpedoes MK 46
B 2 Bombs MK-101
C 4 Torpedoes MK 46
D 4 Bombs MK 54-1
E 4 Torpedoes MK 46
F 2 Bombs MK-101
G 4 Torpedoes MK 46
H 6 Bombs MK-54-1
I 2 Torpedoes MK 46
J 2 Torpedoes MK 46
K 6 Torpedoes MK 46

EXTERNAL CAPACITY OF BOMB BAY

NUMBER SIZE (Inch.) WEAPON TYPE
1 5.00 Rockets R76
2 5.00 Rockets FFAR
4 2.25 Rockets ASSD
8 - Torpedoes MK 46

ELECTRONICS

TAG:..................AR/A6H-21A
Direction Finder (DF)........AR/A6H-50
Communication (COM)........(BP) AR/A6H-50
Communication (COM)........BP243/A6H-24
Coupler:..................(2) CN-312
Communication Rec.:........(SF) AR/A6H-21
Telemeter..................TT-5A AG
Loran Set:..................AR/A6H-21
Marker Beacon..............AR/A6H-21
Radar Altimeter............AR/A6H-117
Radar Identifications........AR/A6H-6
Radar Recognition........AR/A6H-7
Coder:..................AR/A6H-89
Radio Rec:..................AR/A6H-50
COM:..................(2) "Heavy"

CONFIDENTIAL

- Cont'd on NOTES page -
## PERFORMANCE SUMMARY

### TAKE-OFF LOADING CONDITION

<table>
<thead>
<tr>
<th></th>
<th>(1) AW BASIC MIOSSION 4.5 &amp; 8-44 Torp</th>
<th>(2) AW LOW ALTITUDE PATROL 4.5 &amp; 8-44 Torp</th>
<th>(3) AW HIGH ALTITUDE PATROL 4.5 &amp; 8-44 Torp</th>
<th>(4) AW BASIC MISSION 4.5 &amp; 8-44 Torp</th>
<th>(5) AW HIGH ALTITUDE PATROL 4.5 &amp; 8-44 Torp</th>
<th>(6) AW MISSION 4.5 &amp; 8-44 Torp</th>
<th>(7) AW MISSION 4.5 &amp; 8-44 Torp</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAKE-OFF WEIGHT</td>
<td>127,500</td>
<td>127,500</td>
<td>127,500</td>
<td>127,500</td>
<td>127,500</td>
<td>127,500</td>
<td>127,500</td>
</tr>
<tr>
<td>Fuel, Internal/external (26-44)</td>
<td>59,800/600</td>
<td>59,800/600</td>
<td>59,800/600</td>
<td>59,800/600</td>
<td>59,800/600</td>
<td>59,800/600</td>
<td>59,800/600</td>
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<tr>
<td>Dry/Load</td>
<td>4786/600</td>
<td>4786/600</td>
<td>4786/600</td>
<td>4786/600</td>
<td>4786/600</td>
<td>4786/600</td>
<td>4786/600</td>
</tr>
<tr>
<td>Take-Off Run at S.L. (A)</td>
<td>4150</td>
<td>4150</td>
<td>4150</td>
<td>4150</td>
<td>4150</td>
<td>4150</td>
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<tr>
<td>Take-Off to Clear 50 Ft. - Calm (A)</td>
<td>4610</td>
<td>4610</td>
<td>4610</td>
<td>4610</td>
<td>4610</td>
<td>4610</td>
<td>4610</td>
</tr>
<tr>
<td>Max. Speed/Altitude</td>
<td>376/13,000</td>
<td>376/13,000</td>
<td>376/13,000</td>
<td>366/13,000</td>
<td>376/13,000</td>
<td>376/13,000</td>
<td>376/13,000</td>
</tr>
<tr>
<td>Rate of Climb at S.L. (B)</td>
<td>1400</td>
<td>1400</td>
<td>1400</td>
<td>1400</td>
<td>1400</td>
<td>1400</td>
<td>1400</td>
</tr>
<tr>
<td>Time: S.L. to 10,000 Feet (B) Min.</td>
<td>6.8</td>
<td>6.8</td>
<td>6.8</td>
<td>7.5</td>
<td>6.1</td>
<td>6.1</td>
<td>6.1</td>
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<tr>
<td>Time: S.L. to 20,000 Feet (B) Min.</td>
<td>20.0</td>
<td>20.0</td>
<td>20.0</td>
<td>22.5</td>
<td>18.6</td>
<td>20.0</td>
<td>20.0</td>
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<tr>
<td>Service Ceiling (100 FPM) (B) Ft.</td>
<td>24,600</td>
<td>24,600</td>
<td>24,600</td>
<td>24,600</td>
<td>24,600</td>
<td>24,600</td>
<td>24,600</td>
</tr>
<tr>
<td>Combat Range</td>
<td>3700</td>
<td>3700</td>
<td>3700</td>
<td>3700</td>
<td>3700</td>
<td>3700</td>
<td>3700</td>
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<tr>
<td>Average Cruising Speed Mph</td>
<td>175</td>
<td>175</td>
<td>175</td>
<td>175</td>
<td>175</td>
<td>175</td>
<td>175</td>
</tr>
<tr>
<td>Cruising Altitude(s) Ft.</td>
<td>12,000</td>
<td>12,000</td>
<td>12,000</td>
<td>12,000</td>
<td>12,000</td>
<td>12,000</td>
<td>12,000</td>
</tr>
<tr>
<td>Combat Radius/Mission Time NM/Br.</td>
<td>1400/12,000</td>
<td>1400/12,000</td>
<td>1400/12,000</td>
<td>1255/11,07</td>
<td>1255/11,07</td>
<td>1255/11,07</td>
<td>1255/11,07</td>
</tr>
<tr>
<td>Average Cruising Speed Mph</td>
<td>175</td>
<td>175</td>
<td>175</td>
<td>175</td>
<td>175</td>
<td>175</td>
<td>175</td>
</tr>
<tr>
<td>Search Time/Altitude Min/Br.</td>
<td>1,070/1500</td>
<td>1,070/1500</td>
<td>1,070/1500</td>
<td>1,070/1500</td>
<td>1,070/1500</td>
<td>1,070/1500</td>
<td>1,070/1500</td>
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<tr>
<td>Search Speed</td>
<td>199</td>
<td>199</td>
<td>199</td>
<td>199</td>
<td>199</td>
<td>199</td>
<td>199</td>
</tr>
</tbody>
</table>

### PERFORMANCE BOUNDS

- Flight tests and calculations based on engine specification.
- Fuel consumption data increased by 5%.

### CONFLICTED

- (A) TAKE-OFF RATED POWER
- (B) NORMAL RATED POWER
- (C) 4 x 44-44 TORPEDOS MOUNTED EXTERNALLY
NOTES

ADW PROBLEM
(Basic Mission)

WARM-UP, TAXI, TAKE-OFF: 5 minutes with normal power at sea level.

CLIMB: With normal power to 15,000 feet.

CRUISE-OUT: At 15,000 feet at the higher of the speeds corresponding to 0.99 max. n.m./lb. (TAS = 225 Knots)

DESCEDE: To 1500 feet - No fuel is used; no distance is gained.

SEARCH: At 1500 feet for 3 hours at the speed corresponding to (l/b)max (TAS = 195 Knots)

CLIMB: With normal power to 15,000 feet.

CRUISE-IN: At 15,000 feet at the higher of the speeds corresponding to 0.99 max. n.m./lb. (TAS = 277 Knots)

RESERVE: 5% of the initial fuel load plus an amount corresponding to 20 minutes of flight at (l/b)max at sea level.

ADW PROBLEM
(Low Altitude Patrol)

WARM-UP, TAXI, TAKE-OFF: 5 minutes with normal power at sea level.

CLIMB: With normal power to 1,500 feet.

CRUISE-OUT: At 1,500 feet at the higher of the speeds corresponding to 0.99 max. n.m./lb. (200 = 290 Knots)

SEARCH: At 1,500 feet for 1 hour at the speed corresponding to (l/b)max (TAS = 195 Knots)

CRUISE-IN: At 1,500 feet at the higher of the speeds corresponding to 0.99 max. n.m./lb. (TAS = 277 Knots)

RESERVE: 5% of the initial fuel load plus an amount corresponding to 20 minutes of flight at (l/b)max at sea level.

ADW PROBLEM
(High Altitude Patrol)

WARM-UP, TAXI, TAKE-OFF: 5 minutes with normal power at sea level.

CLIMB: With normal power to 22,000 feet.

CRUISE-OUT: Cruise-climb with normal power from 22,000 feet to 25,000 feet. Then, cruise at 25,000 feet at the higher of the speeds corresponding to 0.99 max. n.m./lb. (TAS = 352 Knots)

DESCEDE: To 1,500 feet - No fuel is used; no distance is gained.

SEARCH: At 1,500 feet for 3 hours at the speed corresponding to (l/b)max (225 = 195 Knots)

CLIMB: With normal power to 25,000 feet.

CRUISE-IN: At 25,000 feet at the higher of the speeds corresponding to 0.99 max. n.m./lb. (TAS = 238 Knots)

RESERVE: 5% of the initial fuel load plus an amount corresponding to 20 minutes of flight at (l/b)max at sea level.

Maximum rate-of-climb, at sea level, military power, one engine inoperative (propeller feathered), flaps and gear up.

<table>
<thead>
<tr>
<th>GROSS WEIGHT - LB.</th>
<th>Rate-of-Climb - FT/MIN.</th>
</tr>
</thead>
<tbody>
<tr>
<td>128,000</td>
<td>1220</td>
</tr>
<tr>
<td>126,000</td>
<td>1260</td>
</tr>
<tr>
<td>128,000</td>
<td>1300</td>
</tr>
<tr>
<td>130,000</td>
<td>1340</td>
</tr>
<tr>
<td>132,000</td>
<td>1380</td>
</tr>
</tbody>
</table>

LOADING CONDITION COLUMN NUMBER
NOTES

ELECTRONICS (Cont'd.)

Magnetic Detector (MDL) AR/ABA-10
Interphone System AR/ICC-15(V)
Maneuver Monitor ME-2230
Direction Finder (VHF/UFM, NCM) AR/ABA-8
Transmitter (VHF) (1) MERRX MA-21A
Recevier (VHF) (2) MERRX MA-21A
Display Indicator AR/ABA-16
Pulse Analyser AR/ABA-2
Indicator AR/ABA-34, or -4(V)
Ground Track Plotter PF-396
General Purpose Indicator AR/AAP-19S
Submarine Detector AR/ABA-3
Radar AR/AIR-40
Plotting Board GA-1700/AAM-13
Recorder AR/AAM-60
Indicator AR/AAM-64
Video Recorder (2) AR/ODA-6
ADS AR/AIR-37
Searchlight AR/AIR-2C
Auto Pilot MS-20
Com. Receiving Set R-1547/A
Nav. Computer Doppler/Air Mass Comp.
Navigation System LITTON LR-5C with AR/AAP-182

ORDNANCE

The ME-101 depth bomb is also called a "Lama" in this document.

PERFORMANCE DATA (Cont'd.)

<table>
<thead>
<tr>
<th>MISSION</th>
<th>LOADING</th>
<th>TAKE-OFF WT (LB)</th>
<th>TAKE-OFF FUEL (LB)</th>
<th>MISSION RADIUS (NMI)</th>
<th>MISSION TIME (HR)</th>
<th>SEARCH RADIUS (NMI)</th>
<th>SEARCH TIME (HR)</th>
<th>SEARCH ALTITUDE (FT)</th>
<th>RANGE (NMI)</th>
<th>AVG. CRUISE SPEED (K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASW BASIC (1) W Yamaha &amp; (2) Yamaha</td>
<td>127,700</td>
<td>59,558</td>
<td></td>
<td>1,305</td>
<td>11.57</td>
<td>1,500</td>
<td>3600</td>
<td>310</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASW LOW ALTITUDE PATROL (1) W Yamaha &amp; (2) Yamaha</td>
<td>127,700</td>
<td>59,558</td>
<td></td>
<td>1,210</td>
<td>9.51</td>
<td>1,500</td>
<td>260</td>
<td>285</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASW HIGH ALTITUDE PATROL (1) W Yamaha &amp; (2) Yamaha</td>
<td>127,700</td>
<td>59,558</td>
<td></td>
<td>1,560</td>
<td>12.17</td>
<td>1,500</td>
<td>1260</td>
<td>330</td>
<td></td>
<td></td>
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</tbody>
</table>