STANDARD AIRCRAFT CHARACTERISTICS

AF-2S "GUARDIAN"

GRUMMAN

DECLASSIFIED

DECLASSIFIED AFTER 12 YEARS.

AF-2S
POWER PLANT

- No. & M.C.D.E. (1) R-2800-48
- M.F.R. (Fratt & Whitney
- Superch. 3 Stage, 1 Speed
- Prop. Gear Ratio 0.45
- Prop. M.F.R. 580,000 Horsepower
- Prop. D.E. No. 6554A-6
- No. B.L. DIA. 4/13"-2"n

RATINGS

- Bhp @ Rpm @ Alt.
- T.O. 2,300 2,800 S.L.
- M.L. 2,300 2,800 3,500
- Normal 1,900 2,500 7,000
- Spec. No. N-6132-C

MISSION AND DESCRIPTION

The AF-25 airplane's primary mission is to attack enemy submarines after it has been directed to the submarine's position last sighted by its companion aircraft, the AF-2W (search version). The AF-25 lays down a pattern of soundbombs to determine the exact location of the enemy submarine, after which, it launches its sonic-directed torpedo to complete the attack. Rockets and depth bombs may be carried to augment the attack.

The airplane is a 3 place land plane for operation ashore or aboard aircraft carriers, with or without the aid of a catapult.

The airplane is conventional in design and structure, with an all-metal 2 mpr wing and a semi-monocoque fuselage. Landing gear, slotted flaps, wing folding and pilot's canopy are hydraulically operated. All bombs are of sealed balance type with spring tabs and one trim tab. Rudder has a combination trim and 4 to 1 ratio balance tab. Elevators are interconnected; one is equipped with a spring tab and the other with a trim tab. Power plant installation is conventional with steel tube mount.

WEIGHTS

- Loadings Lb. L.F.
  - Empty 1,458
  - Basic 15,336
  -指责 13,000
  - Combat 12,123
  - Maximum (Field) 23,015
  - Maximum (Field) 22,500

All weights are actual.

*Maximum anticipated loading

FUEL AND OIL

- Gall. No. Tanks Location
  - 270 1 Fuse. S.
  - 150 2 Wing 8.5
  - 300 2 Wing 4

FUEL GRADE 115/145

OIL SPEC.

- Gall. No. Tanks Location
  - 1150
  - 6082

ELECTRONICS

- V.H.F. Command
  - AS/ARC-1
- U.H.F. Command
  - AS/ARC-27 or -28A
  - F.S.I. Repl. for AS/ARC-12
- V.H.F. Liaison
  - AS/ARC-2
- Interphone
  - AS/ARC-4 or -4A
- Homing
  - AS/ARC-2A
- AS/ARC-21
  - F.S.I. Repl. for AS/ARC-2A
- Range Finder
  - B-25A/ARC-5
- Marker Beacon Rec.
  - AS/ARC-12
  - (Planned Service Installation)
- Radar Alt.
  - AS/ARC-1 or -22

Continued on NOTER sheet.

DIMENSIONS

- Wing Area 549 sq. ft.
- Span 60' 6"
- Length 45' 6"
- Height 14' 7"
- Tread 12' 11" 5"
- M.A.C. 5' - 7"
- Prop. Clear 9"
## PERFORMANCE SUMMARY

<table>
<thead>
<tr>
<th>TAKE-OFF LOADING CONDITION</th>
<th>TAKE-OFF WEIGHT</th>
<th>(1) ATTACK</th>
<th>(2) ATTACK</th>
<th>(3) ATTACK</th>
<th>(4) ATTACK</th>
<th>(5) ATTACK</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAKE-OFF WEIGHT</td>
<td>lb.</td>
<td>lb.</td>
<td>lb.</td>
<td>lb.</td>
<td>lb.</td>
<td>lb.</td>
</tr>
<tr>
<td>Fuel (Fixed/Drop)</td>
<td>lb.</td>
<td>20,268</td>
<td>21,555</td>
<td>21,163</td>
<td>22,655</td>
<td></td>
</tr>
<tr>
<td>Payload</td>
<td>lb.</td>
<td>1,467</td>
<td>2,424</td>
<td>2,132</td>
<td>2,232</td>
<td></td>
</tr>
<tr>
<td>Wing loading</td>
<td>lb./sq. ft.</td>
<td>37.0</td>
<td>39.3</td>
<td>39.1</td>
<td>41.1</td>
<td></td>
</tr>
<tr>
<td>Stall speed - power-off</td>
<td>km./hr.</td>
<td>76.9</td>
<td>75.2</td>
<td>75.0</td>
<td>81.0</td>
<td></td>
</tr>
<tr>
<td>Take-off run at S.L. - calm</td>
<td>ft.</td>
<td>925</td>
<td>1,060</td>
<td>1,055</td>
<td>1,200</td>
<td></td>
</tr>
<tr>
<td>Take-off run at S.L. 17,500</td>
<td>ft.</td>
<td>955</td>
<td>640</td>
<td>630</td>
<td>730</td>
<td></td>
</tr>
<tr>
<td>Take-off to clear 50 ft. -</td>
<td>km./hr.</td>
<td>231/3,200</td>
<td>216/3,200</td>
<td>225/3,200</td>
<td>221/3,200</td>
<td></td>
</tr>
<tr>
<td>Max. speed/altitude</td>
<td>(1) km./hr.</td>
<td>231/3,200</td>
<td>216/3,200</td>
<td>225/3,200</td>
<td>221/3,200</td>
<td></td>
</tr>
<tr>
<td>Rate of climb at S.L.</td>
<td>(1) fpm</td>
<td>1,480</td>
<td>1,310</td>
<td>1,250</td>
<td>1,120</td>
<td></td>
</tr>
<tr>
<td>Time: S.L. to 10,000 ft.</td>
<td>(1) min.</td>
<td>7.3</td>
<td>8.3</td>
<td>7.8</td>
<td>8.9</td>
<td></td>
</tr>
<tr>
<td>Time: S.L. to 20,000 ft.</td>
<td>(1) min.</td>
<td>22.0</td>
<td>27.8</td>
<td>26.1</td>
<td>31.8</td>
<td></td>
</tr>
<tr>
<td>Service ceiling (100 fps)</td>
<td>(1) ft.</td>
<td>22,900</td>
<td>21,100</td>
<td>21,700</td>
<td>20,500</td>
<td></td>
</tr>
<tr>
<td>Combat range</td>
<td>n.mi.</td>
<td>795</td>
<td>595</td>
<td>710</td>
<td>990</td>
<td></td>
</tr>
<tr>
<td>Average cruising speed</td>
<td>km./hr.</td>
<td>144</td>
<td>146</td>
<td>147</td>
<td>148</td>
<td></td>
</tr>
<tr>
<td>Cruising altitude(s)</td>
<td>ft.</td>
<td>1,500</td>
<td>1,500</td>
<td>1,500</td>
<td>1,500</td>
<td></td>
</tr>
<tr>
<td>Combat radius</td>
<td>n.mi.</td>
<td>320</td>
<td>260</td>
<td>286</td>
<td>395</td>
<td></td>
</tr>
<tr>
<td>Average cruising speed</td>
<td>km./hr.</td>
<td>144</td>
<td>146</td>
<td>147</td>
<td>148</td>
<td></td>
</tr>
</tbody>
</table>

## COMBAT OCCASIONAL CONDITION

<table>
<thead>
<tr>
<th>COMBAT WEIGHT</th>
<th>(2) COMBAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine power</td>
<td>Military</td>
</tr>
<tr>
<td>Fuel</td>
<td>lb.</td>
</tr>
<tr>
<td>Combat speed/combat altitude</td>
<td>km./hr.</td>
</tr>
<tr>
<td>Rate of climb/combat altitude fpm</td>
<td>2,280/1,500</td>
</tr>
<tr>
<td>Combat ceiling (700 fps)</td>
<td>ft.</td>
</tr>
<tr>
<td>Rate of climb at S.L.</td>
<td>fpm</td>
</tr>
<tr>
<td>Max. speed at S.L.</td>
<td>km.</td>
</tr>
<tr>
<td>Max. speed/altitude</td>
<td>km./hr.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LANDING WEIGHT</th>
<th>lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel</td>
<td>16,862</td>
</tr>
<tr>
<td>Stall speed - power-off</td>
<td>km.</td>
</tr>
<tr>
<td>Stall speed - with approach power</td>
<td>km.</td>
</tr>
</tbody>
</table>

## NOTES

(1) Normal Power

Performance is based on NATO flight test of the AF-25 airplane.

Range and radius are based on flight test fuel consumption data increased by 5%.

All conditions include AN/AQS-2 searchlight on port wing and AN/APQ-11 radar on starboard wing.

All climbs are made with rich mixture for satisfactory engine cooling.
NOTES

Spotting: 200 ft. length is required to spot 16 airplanes on the 96 ft. wide deck immediately aft of the forward ramp on the CV-9 class carriers.

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ASW RANGE AND RADIUS PROBLEM

WARM-UP, TAXI, TAKE-OFF: 10 minutes at normal power.
CLIMB: On course to 1,500 ft. at normal power.
COMBAT RANGE: Cruise at V for long range at 1,500 ft. External fuel tanks dropped when empty.
RESERVE: 20 minutes at V for long range plus 5% of initial fuel load.

COMBAT RADIUS = 40% OF COMBAT RANGE

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ELECTRONICS (Continued)

SONARRECEIVER............. AN/APB-31 or -26
RADAR...................... AN/APX-31 or -31A
RADAR RELAY RECEIVER...... AN/ARR-27A
SEARCHLIGHT.............. AN/AVQ-2A
IFF........................ AN/APX-2 or -2A
16 SONGBUOYS IN AERO 2A DISPENSER, SSQ-2

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IFF ................ AN/APX-6
IFF (I-R UNIT) .......... AN/APX-17
(f.r.t., Sp. for AN/APX-2, -2A)
WIRE RECORDER...... 13-K-3-j or 10/VRW-7
SWEEP INTERMITTER KIT (Planned Service Installation)

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This chart supersedes previously issued chart dated 1 October 1949.
Reason for release: NATO flight test data available.

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AF-2S

15 FEBRUARY 1952