STANDARD AIRCRAFT CHARACTERISTICS

HUP-2 "RETRIEVER"

PIASECKI

1 JULY 1952
BUREAU OF AERONAUTICS
NAVY DEPARTMENT

MAIN MOTOR DATA

SWING AREA (PROJECTED) 1670 SQ. FT.
SWUNG SIZE AREA PER MOTOR 1900 SQ. FT.
BLADE AREA (AC) 417.8 SQ. FT. 100.00 SQ. FT.
BLADES

AIRfoil: Section NASA NACA 0012 SERIES
CHORD: 50 % MAX CHORD: 50.8 % MAX
CHORD: 0.5 % MAX TO Tip Max: 0.52 %

SWING RATIO 6:6 TO 1

DESCRIPTIVE ARRANGEMENT
**POWER PLANT**

<table>
<thead>
<tr>
<th>NO. &amp; MODEL</th>
<th>R-975-4c</th>
</tr>
</thead>
<tbody>
<tr>
<td>HORSEPOWER</td>
<td>Continental</td>
</tr>
<tr>
<td>SUPERCHARGING</td>
<td>1 Stage, 1 Speed</td>
</tr>
<tr>
<td>ROotor Gear Ratio</td>
<td>0.116</td>
</tr>
</tbody>
</table>

**RATINGS**

<table>
<thead>
<tr>
<th>T.O.</th>
<th>550</th>
<th>2,400</th>
<th>S.L.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.O.M.</td>
<td>525</td>
<td>2,500</td>
<td>6,800</td>
</tr>
</tbody>
</table>

SPEC. NO. 2048-B

---

**MISSION AND DESCRIPTION**

The primary mission of the HUP-2 is to serve as an interim anti-submarine helicopter. It may also be used, by removal of ASN equipment, for search and rescue. In this configuration, its primary function is carrier plane guard duty.

The HUP-2 differs from the HUP-1 in appearance, only by the removal of the tail surfaces. In addition, it incorporates a more powerful engine and an auto-pilot.

**DEVELOPMENT**

First flight - November 1951
Service use to start - February 1952

---

**ACCOMMODATIONS**

- Anti-Submarine Search: Crew: 3
- Search and Rescue: Passengers: 5
- Litters: 2
- Bound Hatch: 45° x 25°
- Hoist Capacity: 400 lbs.

---

**DIMENSIONS**

- Disc Area: 1,570 sq. ft.
- Blade Area: 105 sq. ft.
- Motor Diameter: 35° - 0°
- Length*: .31° - 10°
- Height: 12° - 6°
- Tread: 8° - 0°

*Blades Folded

---

**WEIGHTS**

- Loadings: lbs.
- Empty: 4,121 lbs.
- Basic: 4,322 lbs.
- Design: 5,750 lbs.
- Max. T.O.: 6,100 lbs.
- Max. Level: 6,100 lbs.

All weights are actual. *Limited by strength

---

**FUEL AND OIL**

<table>
<thead>
<tr>
<th>Gals.</th>
<th>No. Tanks</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>1</td>
<td>Fuselage</td>
</tr>
</tbody>
</table>

FUEL SPEC.: MIL-F-5572
FUEL GRADE: 100/130

**OIL**

CAPACITY (Gals.): 10
SPEC.: MIL-C-6062
GRADE: 1100/1120

---

**ELECTRONICS**

- VHF COMM.: AN/ARC-1
- UHF COMM.: AN/ARC-12
- RADIO ALTITUDE: AN/APS-1
- INTERPHONE: AN/AC-10-4A
- IFF: AN/APS-6
- SONAR EQUIP.: AN/AQS-14A

---

1 JULY 1952
# PERFORMANCE SUMMARY

<table>
<thead>
<tr>
<th>TAKE-OFF LOADING CONDITION</th>
<th>(1) ASW SEARCH</th>
<th>(2) SEARCH AND RESCUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAKE-OFF WEIGHT</td>
<td>6,100</td>
<td>3,750</td>
</tr>
<tr>
<td>Fuel 1 lb.</td>
<td>676</td>
<td>756</td>
</tr>
<tr>
<td>Payload lb.</td>
<td>517</td>
<td>200</td>
</tr>
<tr>
<td>Disc loading lb./sq.ft.</td>
<td>3.7</td>
<td>3.4</td>
</tr>
<tr>
<td>Vertical rate of climb at s.l. (A/B) fpm</td>
<td>100/500</td>
<td>450/750</td>
</tr>
<tr>
<td>Absolute hovering ceiling (A/B) ft.</td>
<td>1,000/3,750</td>
<td>5,800/5,100</td>
</tr>
<tr>
<td>Max. rate of climb at s.l. (A) fpm</td>
<td>980</td>
<td>1,150</td>
</tr>
<tr>
<td>Service ceiling (100 fps) (A) ft.</td>
<td>11,400</td>
<td>12,700</td>
</tr>
<tr>
<td>Speed at s.l. (A) km.</td>
<td>87</td>
<td>96</td>
</tr>
<tr>
<td>Max. speed/altitude (A) km./ft.</td>
<td>87/3.5</td>
<td>96/5.5</td>
</tr>
<tr>
<td>Combat range n.mi.</td>
<td>340</td>
<td>310</td>
</tr>
<tr>
<td>Average cruising speed km.</td>
<td>81</td>
<td>80</td>
</tr>
<tr>
<td>Cruising altitude ft.</td>
<td>1,250</td>
<td>1,500</td>
</tr>
<tr>
<td>Combat radius n.mi.</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Average cruising speed km.</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Search endurance hr.</td>
<td>3.4</td>
<td>--</td>
</tr>
<tr>
<td>Maximum endurance/hr.</td>
<td>--</td>
<td>4.8/58</td>
</tr>
</tbody>
</table>

## NOTES

(A) Normal power
(B) Take-off power

Performance is based on flight tests of HUP-1 and HUP-1 helicopters.

Due to a higher RPM, normal power is greater than take-off power above 3,800 feet.

Sea level data do not include ground effect.

All performance items at HRF are quoted at 2,500 RPM.

Combat range and endurance are quoted at optimum RPM. Fuel consumption for range and endurance is based on engine specification fuel consumption data increased 5% and allowing fuel for warm-up and take-off and a 10% fuel reserve.

This helicopter, at present, is limited to a maximum gross weight of 5,900 pounds; however, this restriction is expected to be raised, following additional flight tests, to 6,100 pounds which is quoted herein as the maximum gross weight.

NAVAIR-1355 (Rev. 10-51) 1 JULY 1952
NOTES

AN/AQS-4A Sonar equipment included for ASW Search is removed for the Search and Rescue configuration.

Performance as quoted is for twisted wooden blades. Previtt metal blades are expected to be installed in the future. The change in performance should be negligible.

ASW SEARCH ENDURANCE PROBLEM

WARM-UP AND TAKE-OFF: 5 minutes at normal power.
CRUISE: At speed for long range 40% of time at sea level.
HOVER: Out of ground effect 60% of time at sea level.
RESERVE: 10% of initial fuel load.

SEARCH ENDURANCE = CRUISE TIME + HOVER TIME