STANDARD AIRCRAFT CHARACTERISTICS

F9F-5,5P "PANTHER"

GRUMMAN

1 JUNE 1952
POWER PLANT
NO. & MODEL........ (1) JH8-P-6
MFR............. Pratt and Whitney
TPE............. Centrifugal Compressor
ENG. LENGTH........ 110"
ENG. DIA............ 50"

RATINGS
Lbs. @ Rpm @ Alt.
T. O. (Wet) 7,000 11,000 S.S.L.
T. O. (Dry) 6,250 11,000 S.S.L.
MIL. 6,250 11,000 S.S.L.
N.G.M. 5,000 10,150 S.S.L.
SPEC. NO. H-1614-8

MISSION AND DESCRIPTION
The F9F-5 is a carrier based single seat fighter whose mission is the destruction of opposing aircraft. Twenty-five gallons of water injection is available to aid in take-off.

Drop-nose flaps, under-fuselage split flaps, and wing slotted flaps are fitted. The guns and rocket are accessible by sliding forward the movable nose. The engine is served or changed by removal of the tail section of the fuselage.

Two removable tip tanks feed into the main fuel tank. These tanks are not droppable in flight.

A pressurized cabin with temperature control and a Grumman ejector seat are installed.

For normal aileron control a hydraulic boost system is provided. In case of hydraulic failure a mechanical boost is available to reduce stick forces. The canopy also is hydraulically operated.

Dive brakes are located under the fuselage. All control surfaces are covered and spot welded. The elevator is electrically trimmed.

WEIGHTS
Loadings Lbs. L.F.
EMPTY........... 10,147
BASIC............ 11,013
DG. ............. 14,900 7.5
COMBAT........... 15,350 7.25
MAX.T.O. (Field) 21.2% 5.25
(Min.) 20,600
MAX.LAND. (Field) 16,000
(Arrest.) 14,000

All weights are actual.
* Maximum Anticipated Loading

FUEL AND OIL
Gals. No. Tanks Location
763 2 Fuse., S.S.
240 2 Wing, Tip

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

OIL
CAPACITY (Gals.)........... 3
GRADE........... 1010
SPEC............ MIL-O-6061

DIMENSIONS
WING AREA........ 250 sq. ft.
SPAN............. 36" - 0"
LENGTH........... 36' - 10"
HEIGHT........... 12' - 3"
TREAD............ 8' - 3"
M.A.C............. 7' - 5"

ORDNANCE
GUNS
No. Size Location Rds.
4 20mm (M-1) Fuselage 760

BOMBS AND ROCKETS
Type Size Location No.
Bombs 500# Wings 8
Bombs 250# Wings 6
Bombs 1,000# Wings 2
MISSILES 5" Wings 6
Rock, Pack.
-6 Shot 1,000# Wings 2

FIRE CONTROL
A.F.C.S........... Mk. 6, Mod. 0
RADAR HOMING EQUIPMENT...... AN/AFF-30

TOTAL BOMB CAP........ 3,465 lbs.

ELECTRONICS
RADAR VHF........ AN/ARC-1 or -1A
VHF TRANT.-REC........ AN/ARC-27
(P.S.I.-Repl. for AN/ARC-1)

VHF D.F......... AN/ARA-25
(Planned Service Installation)

RADIO COMPASS........ AN/ARR-6

RADIO HOMING........ AN/ARR-21
(P.S.I.-Repl. for AN/ARR-2A
and AN/ARR-6)

RADIO ALTITUDE........ AN/AFR-1
IFF........... AN/AFK-1
RADAR SET........ AN/AFR-30

1 JUNE 1952
F9F-5-5P
## PERFORMANCE SUMMARY

<table>
<thead>
<tr>
<th>TAKE-OFF LOADING CONDITION</th>
<th>(1) FIGHTER</th>
<th>(2) TIP TANKS</th>
<th>(3) OVEN SUPPORT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - 120 Gal. Tip Tanks</td>
<td>12 - 120 Gal. Tip Tanks</td>
<td>2 - 120 Gal. Tip Tanks</td>
<td></td>
</tr>
</tbody>
</table>

### TAKE-OFF WEIGHT
- Fuel (Internal/Fixed Tip) 1b. 17.766 15.721
- Payload (Ammunition/Rockets) 1b. 4.578/1.440 4.578/1.440
- Wing loading lb./sq.ft. 57.1 74.2

### Stall Speed - Power-off
- (C) ft./sec. 112 118

### Take-off Run
- S.L. - calm ft. (Dry) 2.257 (Dry) 2.490
- S.L. 25 kts. wind at ft. (Dry) 1.335 (Dry) 1.562

### Take-off Run to Clear 50 ft.
- Max. speed/altitude (A) ft./min. 503/5,000 438/10,000
- Rate of climb at S.L. (B) ft./min. 5,090 4,400
- Time: S.L. to 20,000 ft. (C) min. 4.8 6.2
- Time: S.L. to 30,000 ft. (D) min. 8.7 15.9

### Service Ceiling (100 fpm)
- ft. 41,900 46,000 30,600/14,800

### Combat Range n.m. 1,170 770

<table>
<thead>
<tr>
<th>COMBAT LOADINg CONDITION</th>
<th>(2) TIP TANKS</th>
<th>(4) TIP TANKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine power</td>
<td>Military</td>
<td>Military</td>
</tr>
<tr>
<td>Fuel</td>
<td>lb.</td>
<td>lb.</td>
</tr>
<tr>
<td>Combat speed/attack altitude km./min. 472/35,000 517/3,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate of climb/attack altitude fpm./mi. 1,890/15,000 5,700/9,800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combat ceiling (500 fpm)  ft. 42,800 41,500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate of climb at S.L.     fpm. 8,000 5,700</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. speed at S.L.        km./hr. 525 517</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. speed/altitude       km./hr. 525/3,500 517/3,500</td>
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### Landing Weight
- lb. 12.819 15.474

### Stall Speed - Power-off
- km./hr. 98.9 94

**NOTES**

- **(A)** Normal Power
- **(B)** Military Power
- **(C)** Without Stall Fences

Performance is based on NAMU flight test of the F9F-5 airplane. Range and radius are based on flight test fuel consumption increased by 5%.

Spotting: 200 ft. length is required to spot 22 airplanes (wings folded) on the 96 ft. wide deck immediately aft of the forward ramp on CV-4 class carriers.

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NOTES

GENERAL PURPOSE AND ESCORT FIGHTER COMBAT RADIUS PROBLEM (GAS TURBINE)

WARM-UP, TAXI, TAKE-OFF: 5 minutes at normal power.
CLIMB: To cruising ceiling at military power. (Cruising ceiling = altitude for 300 ft./min, rate of climb at normal power.)
CRUISE-OUT: At V for long range at cruising ceiling.
DESCEND: To 35,000 feet. (No fuel used, no distance gained.)
COMBAT: At 35,000 feet for 20 minutes at military power. (Assume combat concluded at initial cruise-back altitude.)
CRUISE-BACK: At V for long range at cruising ceiling.
RESERVE: 20 minutes at V for maximum endurance at sea level plus 5% of initial fuel load.

\[
\text{COMBAT RADIUS} = \text{CLIMB} + \text{CRUISE-OUT} = \text{CRUISE-BACK}
\]

Based on F-5 problem, combat radius would increase to 500 nautical miles.
Based on reserve fuel allowance of F-5 problem (10% of initial fuel load), range would increase to 1,290 nautical miles.
Radius is reduced approximately 6.5 nautical miles for each additional minute of combat.

GROUND SUPPORT FIGHTER COMBAT RADIUS PROBLEM (GAS TURBINE)

WARM-UP, TAXI, TAKE-OFF: 5 minutes at normal power.
CLIMB: To altitude for maximum radius (25,000 feet) at military power.
CRUISE-OUT: At V for long range at 25,000 feet.
DESCEND: To sea level. (No fuel used, no distance gained.)
LOITER: 10 minutes at airspeeds for maximum endurance at sea level.
DROP BOMBS AND FIRE EXTERNAL ROCKET
COMBAT: At sea level for 10 minutes at military power.
CLIMB: To altitude for maximum radius (20,000 feet) at military power.
CRUISE-BACK: At velocity for long range at 20,000 feet.
RESERVES: 20 minutes at velocity for maximum endurance at sea level plus 5% of initial fuel load.

The photographic version of this airplane is the F9F-5P. It differs from the F9F-5 in that the guns have been replaced by camera equipment and 115 pounds of ballast, resulting in a 105 pound decrease in weight. Performance of the F9F-5P will be very slightly improved over that of the F9F-5 due to weight difference.

This chart supersedes previously issued chart dated 1 February 1950. Reason for revision: Flight test data available.

F9F-5-5P

1 JUNE 1952
CARRIER SUITABILITY

MINIMUM WIND OVER DECK REQUIRED FOR CATAPULTING
VS. GROSS WEIGHT

MINIMUM WIND OVER DECK REQUIRED FOR LANDING
VS. GROSS WEIGHT

Based on approach speed of 1.2 power-off stall speed

NOTES
(a) These curves should be used for planning purposes only. Actual catapult and arresting gear operation should be in accordance with applicable Aircraft Technical Orders, and Catapult and Arresting Gear Bulletins.
(b) Based on NATC Flight Test.