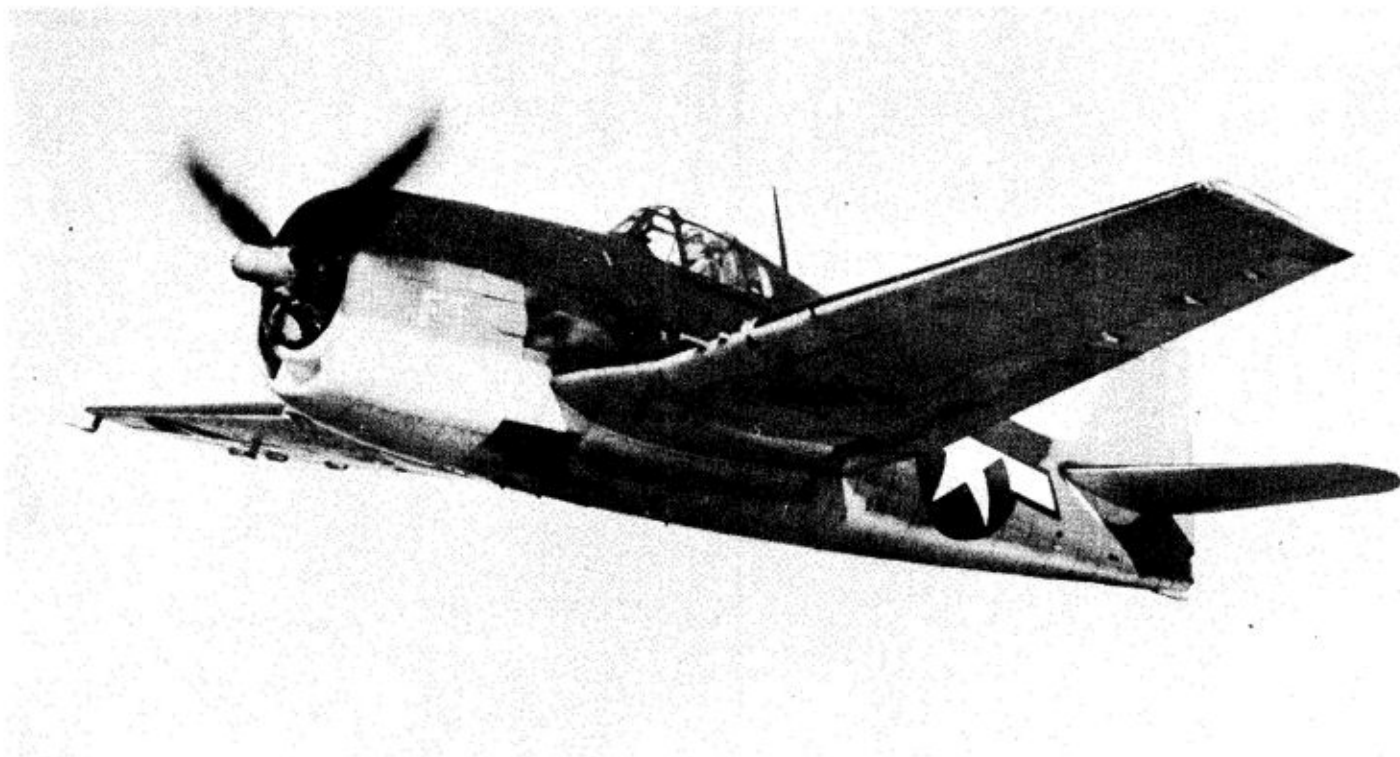


DECLASSIFIED



STANDARD AIRCRAFT CHARACTERISTICS
F6F-5 "HELLCAT"

GRUMMAN

Archives of M. Williams

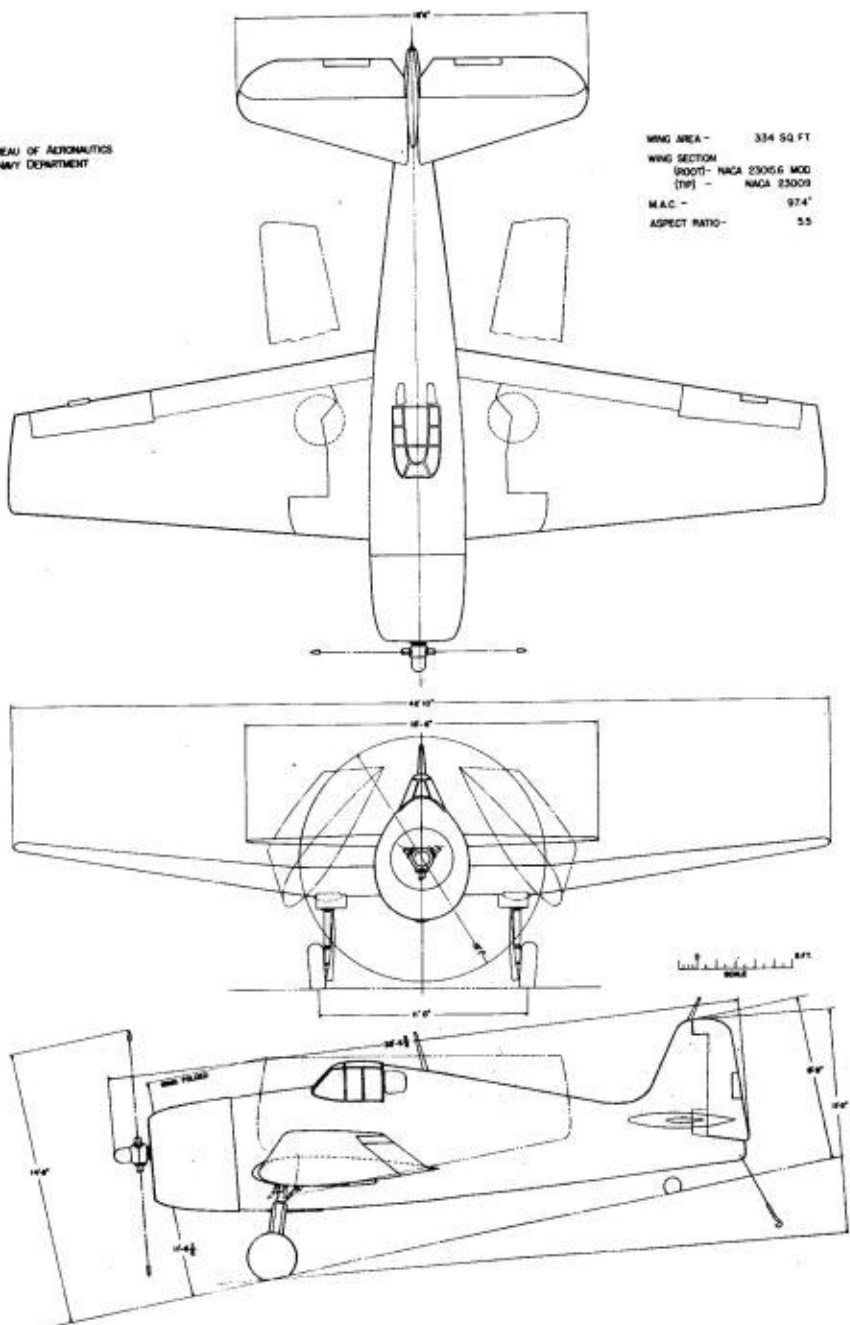
UNCLASSIFIED

5

Standard Aircraft Characteristics NAVAER 1335A (REV. 1-49)

BUREAU OF AERONAUTICS
NAVY DEPARTMENT

WING AREA - 334 SQ FT
WING SECTION
(ROOT) - NACA 23066 MOD
(TIP) - NACA 23009
M.A.C. - 97'4"
ASPECT RATIO - 5.5

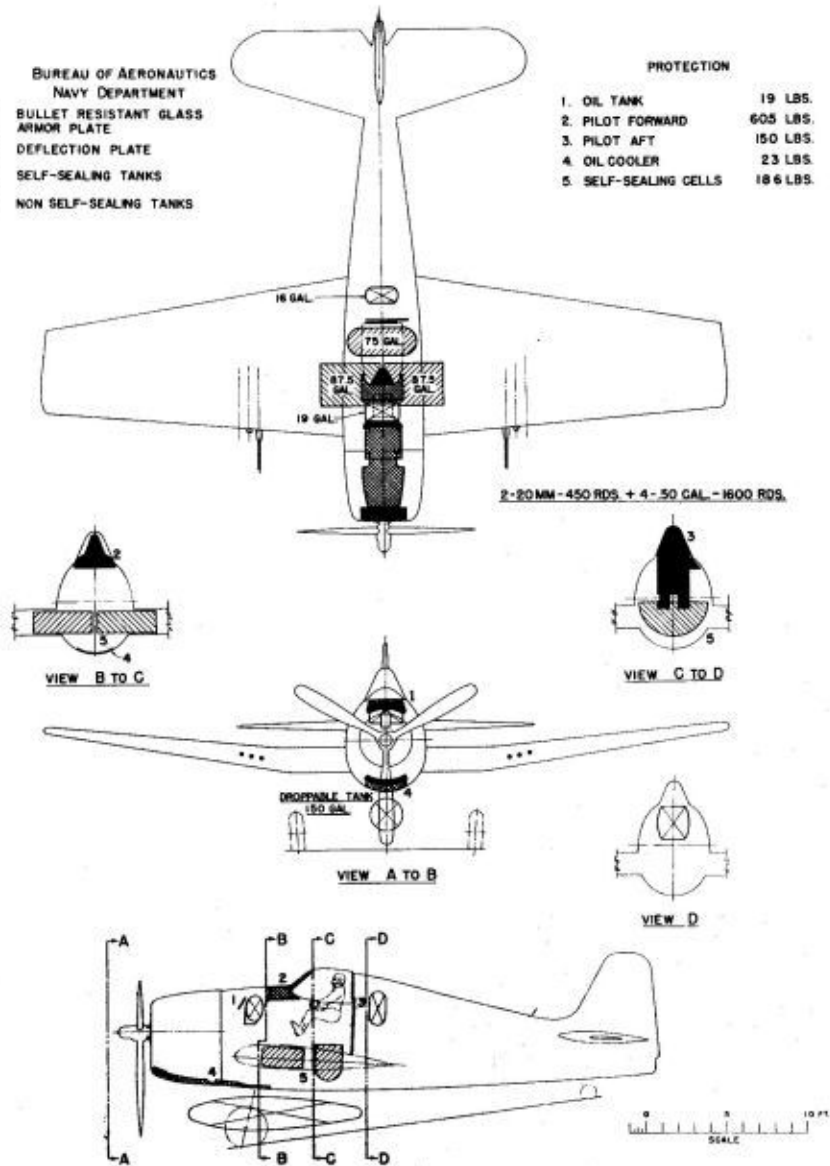


BUREAU OF AERONAUTICS
NAVY DEPARTMENT

- BULLET RESISTANT GLASS ARMOR PLATE
- ▨ DEFLECTION PLATE
- ▩ SELF-SEALING TANKS
- NON SELF-SEALING TANKS

PROTECTION

- | | |
|-----------------------|----------|
| 1. OIL TANK | 19 LBS. |
| 2. PILOT FORWARD | 605 LBS. |
| 3. PILOT AFT | 150 LBS. |
| 4. OIL COOLER | 23 LBS. |
| 5. SELF-SEALING CELLS | 186 LBS. |



ARMAMENT & TANKS

MISSION AND DESCRIPTION

The F6F-5 airplane is a general purpose fighter intended to destroy enemy aircraft and installations. It is capable of bombing and rocket attacks. It is now a second-line fighter and trainer, having been superseded by the F8F as a first-line aircraft.

It is designed for catapulting and for arrested landings aboard a carrier. The airplane is conventional in design and structure, with aluminum alloy two-spar wing and monocoque fuselage. Landing gear, slotted blow-up flaps, gun charging and oil cooler doors are hydraulically operated. Spring type balancing tabs are provided on both ailerons. The left tab is controllable in flight by the pilot. The rudder and elevators are provided with trim tabs adjustable in flight by the pilot. Capacity of 16 gallons of water is supplied for water injection.

Service use started in 1944.

DIMENSIONS

WING AREA.....334 sq. ft.
SPAN.....42' - 10"
LENGTH.....33' - 7"
HEIGHT.....14' - 5"
TREAD.....11' - 0"
M.A.C.....8' - 1"

WEIGHTS

Loadings	Lbs.	L.F.
EMPTY.....	9,238.....	
BASIC.....	10,035.....	
DESIGN.....	11,000.....	7.0
COMBAT.....	12,740.....	6.6
MAX.T.O.....	15,300.....	5.5
MAX.LAND.....	15,000.....	

All weights are actual.

FUEL AND OIL

Gals.	No. Tanks	Location
250	3	Fus.; Prot.
150	1	Fus., Drop
300	2	Wing, Drop

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

OIL

CAPACITY (Gals.).....19
GRADE.....1100/1120
SPEC.....MIL-O-6082

ELECTRONICS

RANGE RECEIVER AND
MF TRANS. & REC.....AN/ARC-5
VHF COMMAND.....AN/ARC-1
IFF.....AN/APX-1
HOMING.....AN/ARR-2

POWER PLANT

NO. & MODEL...(1) R-2800-10W
MFR.....Pratt and Whitney
SUPERCH.....2 Stage, 2 Speed
PROP. GEAR RATIO.....2:1
PROP. MFR.....Ham. Std.
PROP. DES. NO.....6501A-0
BL./DIA.....3/13'-1"

RATINGS

	Bhp	@ Rpm	@ Alt.
T. O.	2,000	2,700	S. L.
MIL.	2,000	2,700	1,000'
	1,800	2,700	15,500'
	1,650	2,700	22,500'
NORM.	1,675	2,550	5,500'
	1,625	2,550	17,000'
	1,550	2,550	22,500'

SPEC. NO. N-8056
(See Note)

ORDNANCE

GUNS

No.	Size	Location	Rds.
2	20 mm	Wings	450
4	.50 cal.	Wings	1,600

*Some planes have 6-.50 cal. guns instead of mixed battery

BOMBS AND ROCKETS

Type	Size	Location	No.
Bombs	2,000#	Fuselage	1
Bombs	500#	Fuselage	1
Torp. Mk.13-3		Fuselage	1
A.R.	11.75"	Fuselage	1
Bombs	1,000#	Wings	2
Bombs	250#	Wings	2
Bombs	100#	Wings	6
A.R.	11.75"	Wings	2
HVAR	5"	Wings	6

FIRE CONTROL

Illum. Sight.....Mk. 8
MAX. BOMB CAPACITY..4,000 lbs.

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PERFORMANCE SUMMARY

LOADING CONDITION	(1) FIGHTER 1-150 Gal. Tank			
TAKE-OFF WEIGHT	lbs.	13,797		
Fuel (Fixed/Drop)	lbs.	1,500/900		
Bombs	lbs.	--		
Wing/Power Loading (A)	lbs/sq.ft; lbs/bhp.	41.3/8.9		
Stall Speed—Power off	kn.	79.2		
Stall Speed—Power off - No Fuel	kn.	72.0		
Stall Speed—Power on	kn.	72.2		
Maximum Speed/Alt (B)	kn/ft.	308/23,900		
Take-off Distance, deck — calm	ft.	799		
Take-off Distance, deck 25 kn.	ft.	384		
Take-off Distance, Airport	ft.	--		
Rate of climb — sea level (B)	ft/min.	2,010		
Service Ceiling (B)	ft.	35,100		
Time-to-climb 10,000 ft. (B)	min.	5.2		
Time-to-climb 20,000 ft. (B)	min.	11.2		
Combat Range/V av 15,000 ft.	n.mi./kn.	950/178		
Combat Radius/V av (F-1)	ft. n.mi./kn.	340/173		
LOADING CONDITION	(2) COMBAT	(3) COMBAT	(4) COMBAT	
GROSS WEIGHT	lbs.	12,740	12,740	12,740
Engine power		Combat	Military	Normal
Fuel	lbs.	1,500	1,500	1,500
Bombs/Tanks		None	None	None
Max. speed at sea level	kn.	276	273	260
Max. speed/Alt	kn/ft.	330/23,400	330/23,400	325/24,100
Combat speed/Alt	kn/ft.	318/15,000	311/15,000	302/15,000
Rate of climb SL	ft/min.	2,980	2,850	2,290
Ceiling for 500 fpm R/C	ft.	33,700	33,700	32,900
Time-to-climb/Alt.	min/ft.	7.7/20,000	8.4/20,000	9.7/20,000

NOTES

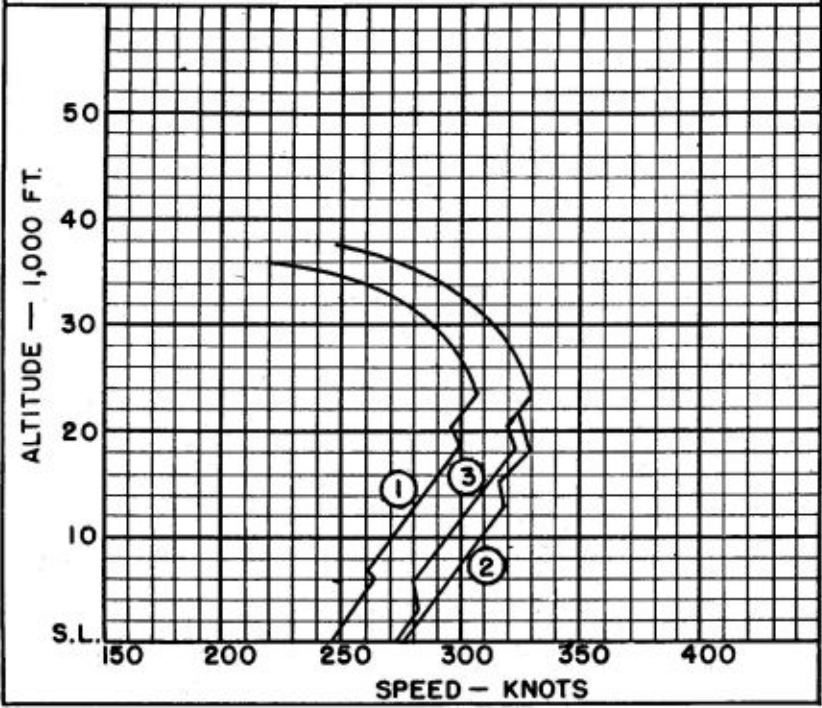
- (A) BHP at Maximum Critical Altitude
- (B) Normal BHP

Performance is based on flight test of F6F-3 and F6F-5 airplanes.

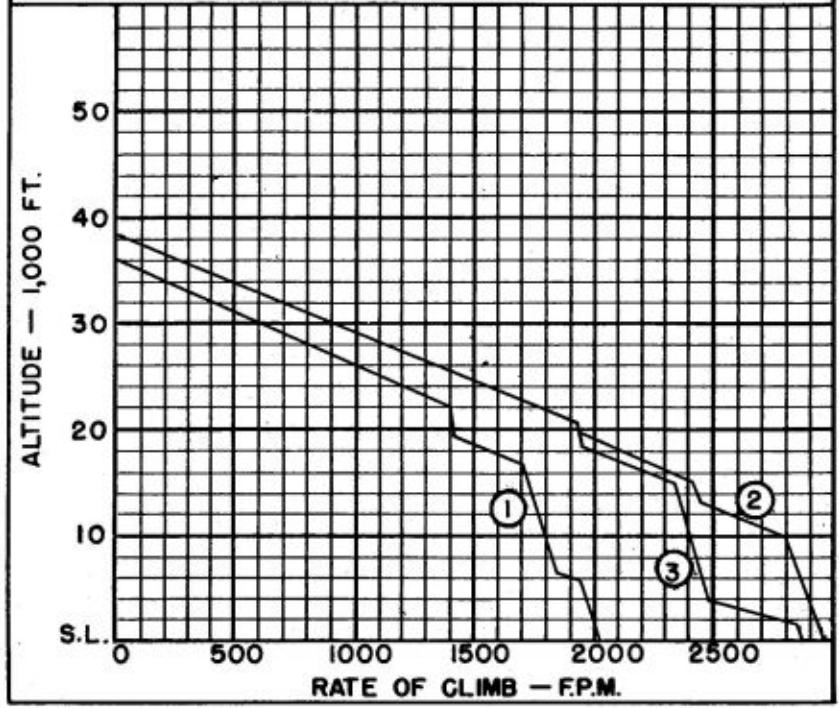
Range and radius are based on F6F-5 flight test fuel consumption data increased by 5%.

Combat conditions include fuselage bomb shackles and "T" bracing, faired wing bomb-racks and sway bracing.

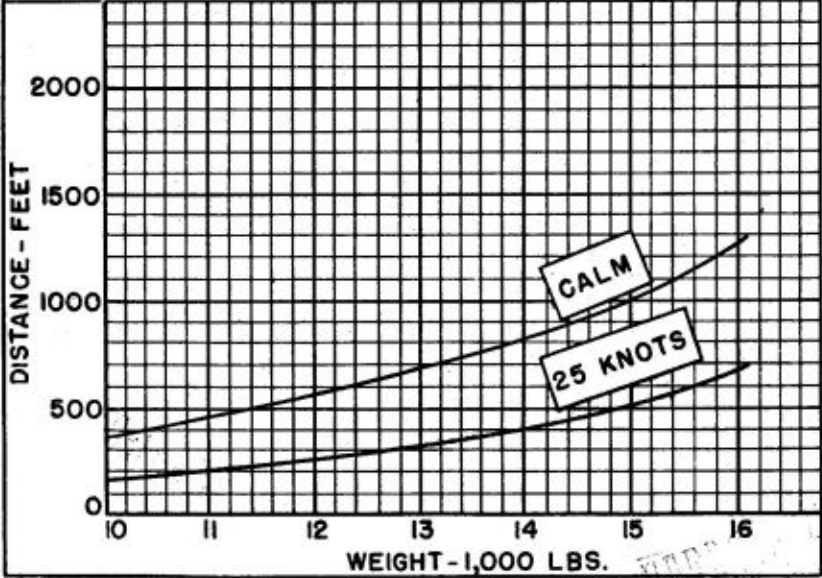
SPEED



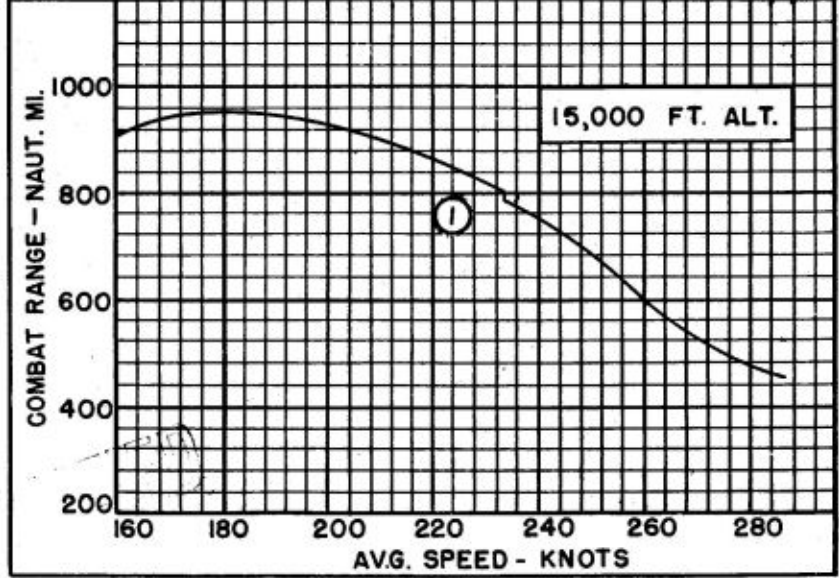
CLIMB



TAKE-OFF



COMBAT RANGE



○ LOADING CONDITION COLUMN NUMBER

9

NOTES

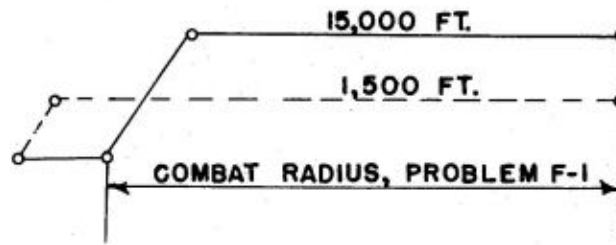
Water is available for approximately 15 minutes at combat power.

Provisions are incorporated for fuel transfer from droppable to main tanks after take-off.

FIGHTER COMBAT RADIUS FORMULA NO. F-1

<u>WARM-UP</u> 20 min. at 50% normal rated rpm <u>TAKE-OFF</u> 1 min.	<u>RENDEZVOUS</u> 20 min. at sea level at 60% N.S.P. Auto Lean	<u>CLIMB</u> to 15,000 ft. at 60% N.S.P. Auto Lean	<u>CRUISE-OUT</u> at 15,000 ft. Vel. for Max. Range Auto Lean	<u>DROP TANKS</u> and BOMBS FIRE ROCKETS	<u>COMBAT</u> 20 min. at 15,000 ft. 10 min. combat 10 min. Mil.Pr. and descend	<u>CRUISE-BACK</u> at 1,500 ft. 170 kts. TAS Auto Lean	<u>RESERVE</u> 60 min. at Vel. for Max. Range Auto Lean
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$$\text{RADIUS} = \text{CLIMB} + \text{CRUISE-OUT} + \text{CRUISE-BACK}$$



Spotting: 200 ft. length is required to spot 30 airplanes on the 96 ft. wide deck immediately aft of the forward ramp on CV-9 class carriers.

Performance based on engine power determined in flight test as follows:

<u>COMBAT</u>	<u>MILITARY</u>	<u>NORMAL</u>
2,030/2,700/ S. L.	1,960/2,700/ 3,400'	1,710/2,550/ 6,200'
2,110/2,700/13,100'	1,840/2,700/18,200'	1,690/2,550/19,000'
1,930/2,700/15,700'	1,670/2,700/23,400'	1,580/2,550/24,100'
1,940/2,700/18,000'		

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