



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

STANDARD AIRCRAFT CHARACTERISTICS

F9F-5,5P "PANTHER"

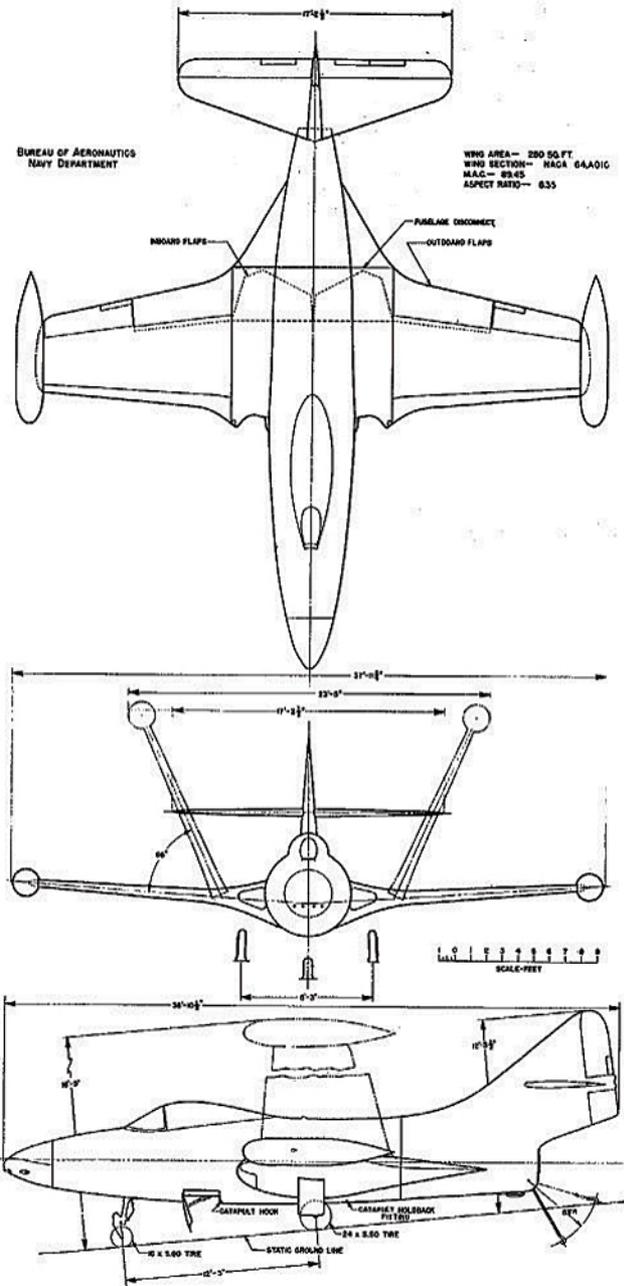
GRUMMAN

1 JUNE 1952

F9F-5,5P

BUREAU OF AERONAUTICS
NAVY DEPARTMENT

WING AREA— 230 SQ. FT.
WING SECTION— NACA 64A010
M.A.C.— 89.45
ASPECT RATIO— 8.5

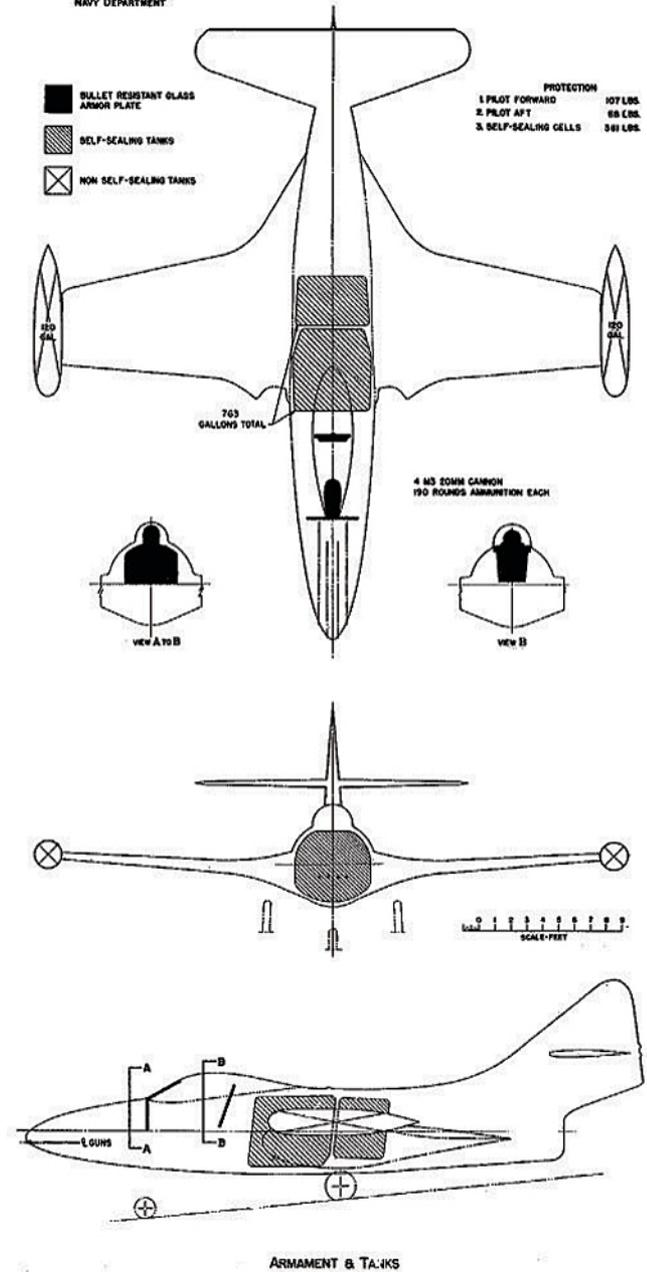


DESCRIPTIVE ARRANGEMENT

BUREAU OF AERONAUTICS
NAVY DEPARTMENT

- BULLET RESISTANT GLASS ARMOR PLATE
- SELF-SEALING TANKS
- NON SELF-SEALING TANKS

PROTECTION
1. PILOT FORWARD 107 LBS.
2. PILOT AFT 180 LBS.
3. SELF-SEALING CELLS 381 LBS.



ARMAMENT & TANKS

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POWER PLANT

NO. & MODEL.....(1) J48-P-6
 MFR.....Pratt and Whitney
 TYPE...Centrifugal Compressor
 ENG. LENGTH.....107"
 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.

NORM. 5,000 10,450 S.S.L.

SPEC. NO. N-1614-B

ORDNANCE

GUNS			
No.	Size	Location	Rds.
4	20mm(M-3)	Fuselage	760

BOMBS AND ROCKETS			
Type	Size	Location	No.
Bombs	100#	Wings	8
Bombs	250#	Wings	8
Bombs	500#	Wings	6
Bombs	1,000#	Wings	2
HPAG	5"	Wings	6
Rock, Pack.			
-6 Shot	1,000#	Wings	2

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

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

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.

Droop-nose flaps, under-fuselage split flaps, and wing slotted flaps are fitted. The guns and radio are accessible by sliding forward the movable nose. The engine is serviced 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 ejection 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 metal covered and spot welded. The elevator is electrically trimmed.

DIMENSIONS

WING AREA.....	250 sq. ft.
SPAN.....	38' - 0"
LENGTH.....	38' - 10"
HEIGHT.....	12' - 3"
TREAD.....	8' - 3"
M.A.C.....	7' - 5"

WEIGHTS

Loadings	Lbs.	L.F.
EMPTY.....	10,147.....	
BASIC.....	11,013.....	
DESIGN.....	14,900..7.5	
COMBAT.....	15,359..7.25	
MAX.T.O..(Field).	21,245* 5.25	
	(Cat.) 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-C-6081

ELECTRONICS

RADIO VHF.....	AN/ARC-1 or -1A
VHF TRANS.-REC.....	AN/ARC-27
	(P.S.I.-Repl. for AN/ARC-1)
UHF D.F.....	AN/ARA-25
	(Planned Service Installation)
RADIO COMPASS.....	AN/ARN-6
HOMING.....	AN/ARR-2A
RADIO HOMING.....	AN/ARN-21
	(P.S.I.-Repl. for AN/ARR-2A
	and AN/ARN-6)
RADIO ALTIMETER.....	AN/APN-1
IFF.....	AN/APX-6
RADAR SET.....	AN/APG-30

PERFORMANCE SUMMARY					
TAKE-OFF LOADING CONDITION		(1) FIGHTER 2 - 120 Gal. Tip Tanks	(3) GRD. SUPPORT 6-5" HVAR Rock. 2 - 120 Gal. Tip Tanks		
TAKE-OFF WEIGHT	lb.	17,766	18,721		
Fuel (Internal/Fixed Tip)	lb.	4,578/1,440	4,578/1,440		
Payload (Ammunition/Rockets)	lb.	471/-	471/840		
Wing loading	lb./sq.ft.	71.1	74.9		
Stall speed - power-off	(C) kn.	114.2	118.5		
Take-off run at S.L. - calm	(C) ft.	(Dry) 2,257	(Dry) 2,490		
Take-off run at S.L. 25 kn. wind	(C) ft.	(Dry) 1,435	(Dry) 1,562		
Take-off to clear 50 ft. - calm	ft.	---	---		
Max. speed/altitude	(A) kn./ft.	503/5,000	438/10,000		
Rate of climb at S.L.	(B) fpm	5,090	4,000		
Time: S.L. to 20,000 ft.	(B) min.	4.8	6.9		
Time: S.L. to 30,000 ft.	(B) min.	8.7	15.0		
Service ceiling (100 fpm)	(B) ft.	42,800	32,300		
Combat range	n.mi.	1,130	770		
Average cruising speed	kn.	418	353		
Cruising altitude(s)	ft.	41,000/46,000	30,600/34,800		
Combat radius	n.mi.	420	130		
Average cruising speed	kn.	418	342		
COMBAT LOADING CONDITION		(2) TIP TANKS	(4) TIP TANKS 6-14A Launchers		
COMBAT WEIGHT	lb.	15,359	15,474		
Engine power		Military	Military		
Fuel	lb.	3,611	3,611		
Combat speed/combat altitude	kn./ft.	472/35,000	517/S.L.		
Rate of climb/combat altitude	fpm/ft.	1,850/35,000	5,700/S.L.		
Combat ceiling (500 fpm)	ft.	42,500	41,500		
Rate of climb at S.L.	fpm	6,000	5,700		
Max. speed at S.L.	kn.	525	517		
Max. speed/altitude	kn./ft.	525/S.L.	517/S.L.		
LANDING WEIGHT					
Fuel	lb.	12,819			
Stall speed - power-off	kn.	96.9			
Stall speed - with approach power	kn.	94			

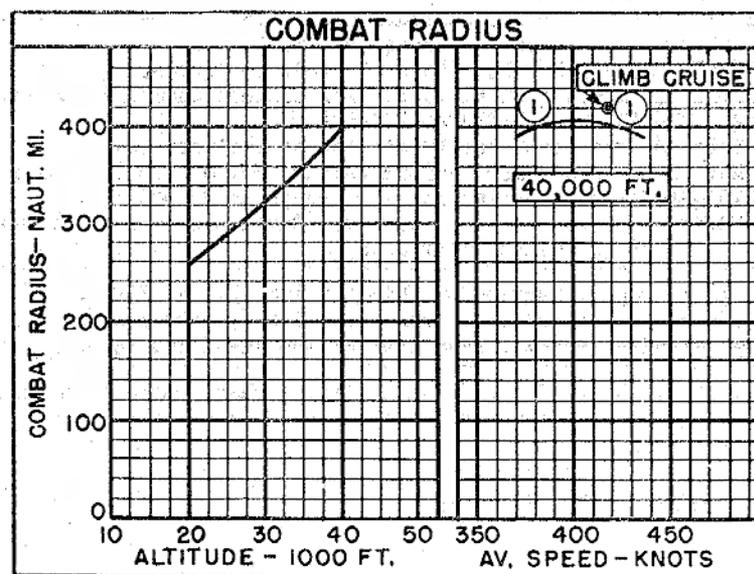
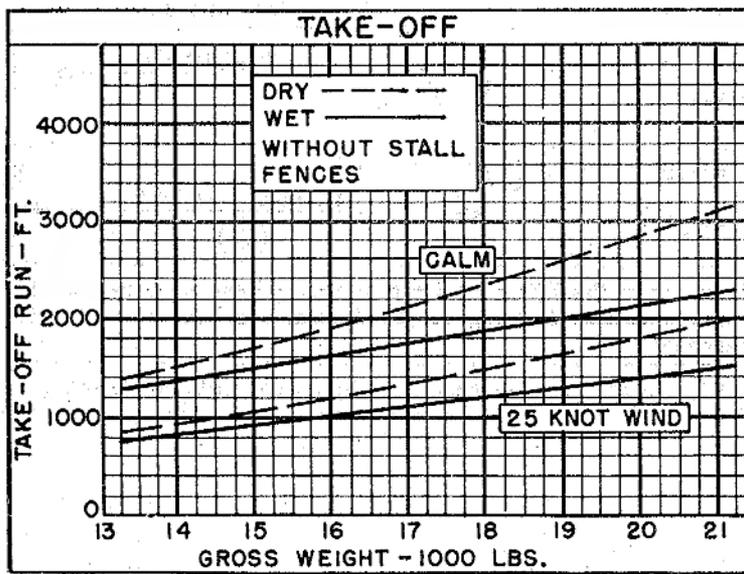
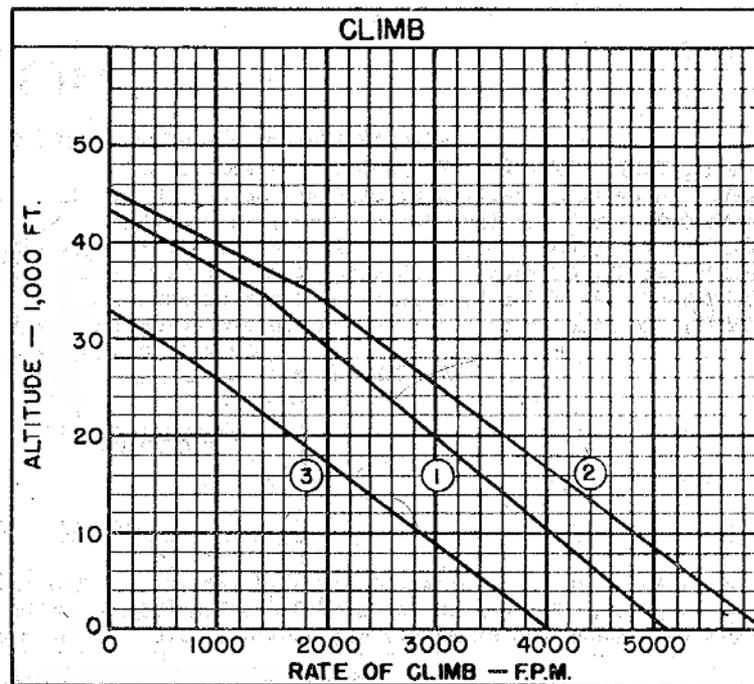
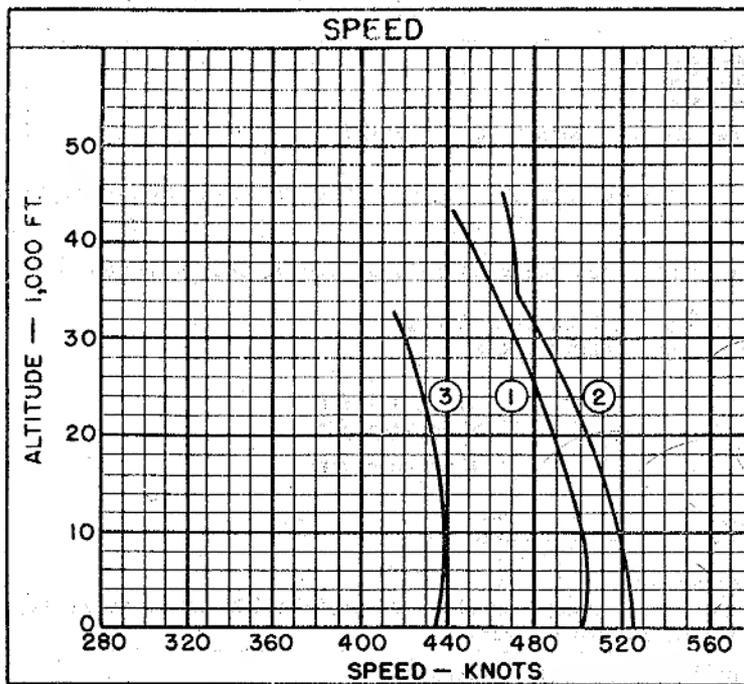
NOTES

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

Performance is based on NATC 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 28 airplanes (wings folded) on the 96 ft. wide deck immediately aft of the forward ramp on CV-9 class carriers.



○ LOADING CONDITION COLUMN NUMBER

Standard Aircraft Characteristics: ICS, NAVAER 1335E (REV. 2-50)

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.

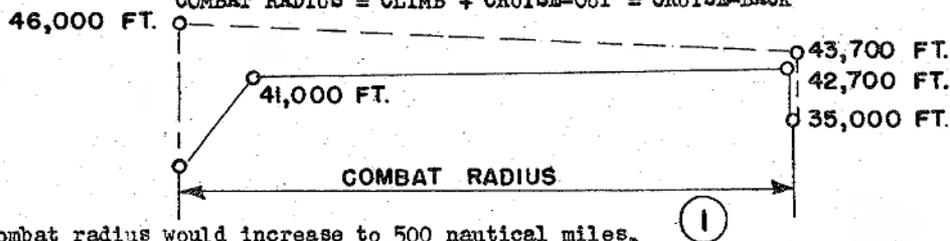
DESCEND: To 35,000 feet. (No fuel used, no distance gained.)

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.

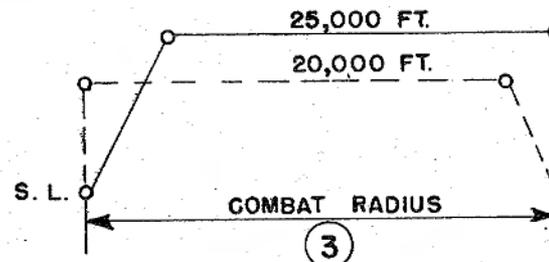
DROP BOMBS AND FIRE EXTERNAL ROCKETS

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.

RESERVE: 20 minutes at velocity for maximum endurance at sea level plus 5% of initial fuel load.

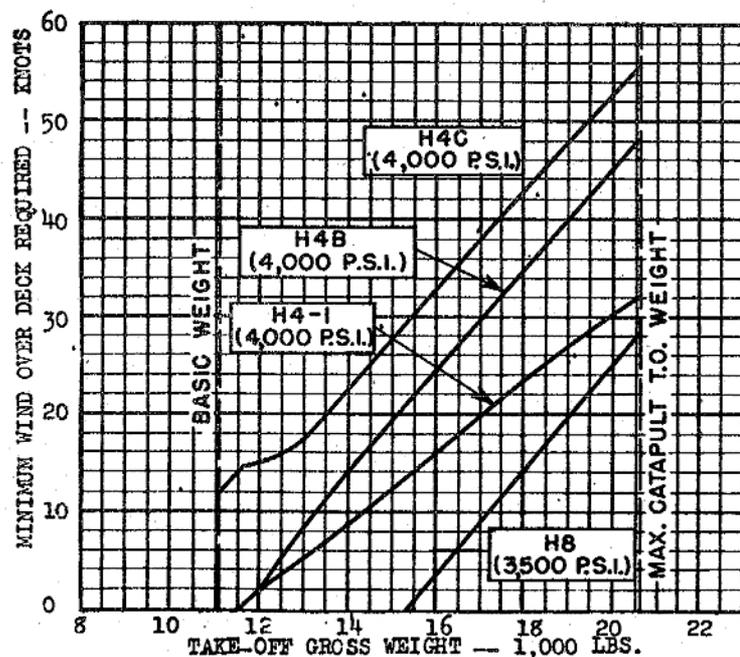


The photographic version of this airplane is the F9F-5P. It differs from the F9F-5 in that the guns have been replaced by camera equipment and 118 pounds of ballast, resulting in a 103 pound decrease in weight. Performance of the F9F-5P will be very slightly improved over that of the F9F-5 due to weight difference.

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

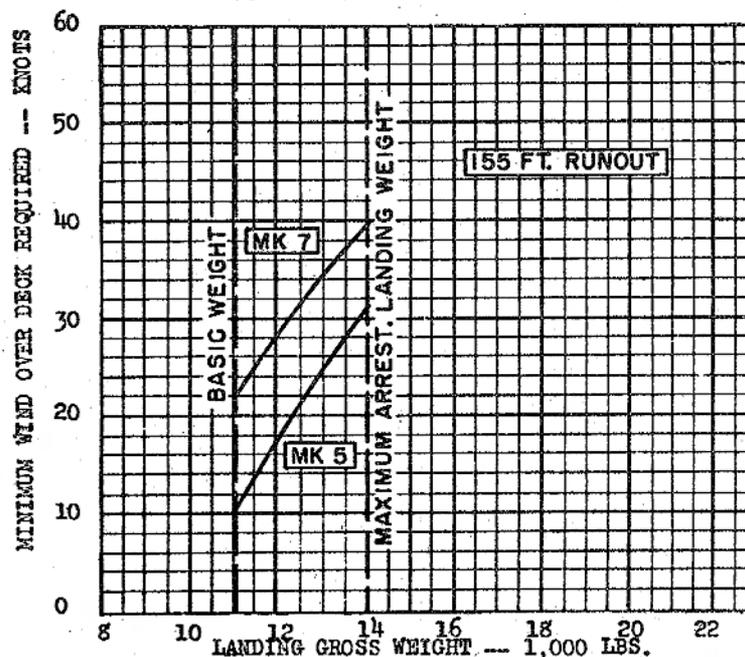
CARRIER SUITABILITY

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.