

NAVAL AIRCRAFT

VENTURA

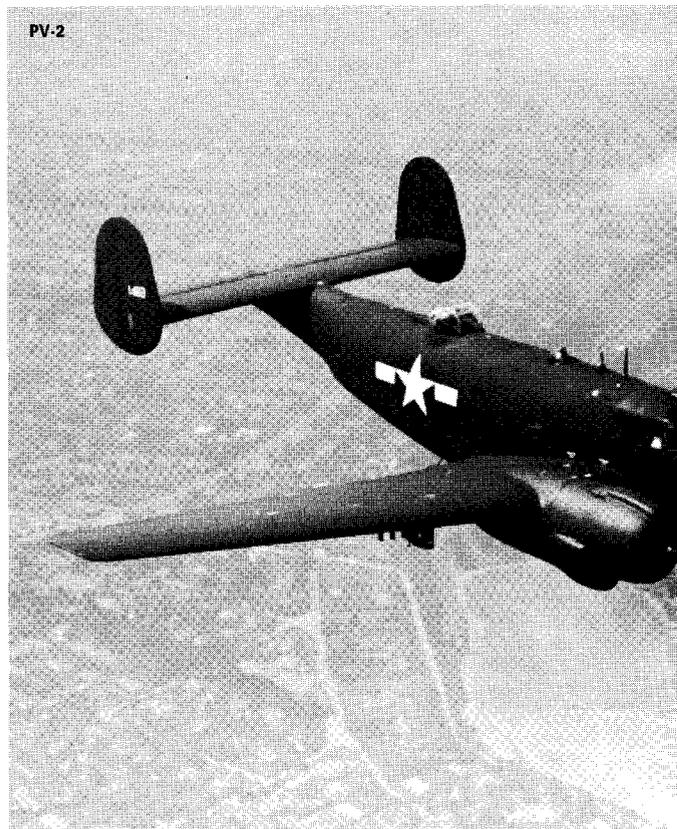
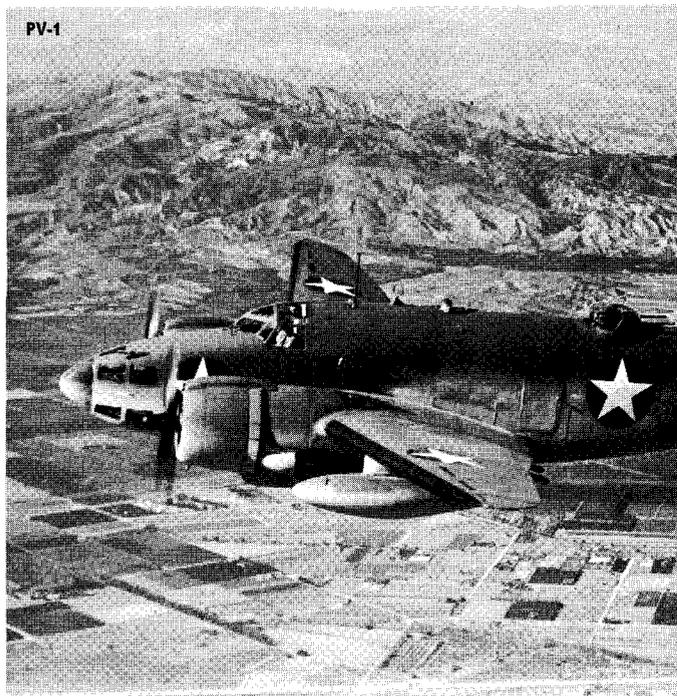
Early WW II experience demonstrated that seaplanes operating in combat zones were vulnerable to enemy fighters. To meet the requirement for aircraft with superior offensive and defensive capability, bombers were obtained from Army Air Force contracts. One of these types was the Vega (a Lockheed subsidiary) *Ventura*, originally developed for the British and procured for the AAF as the B-34.

While production of the basic Navy model, the PV-1, was getting under way, 27 British aircraft were requisitioned and, as PV-3s, became the first Navy *Venturas*, operating with VP-82 beginning in October 1942.

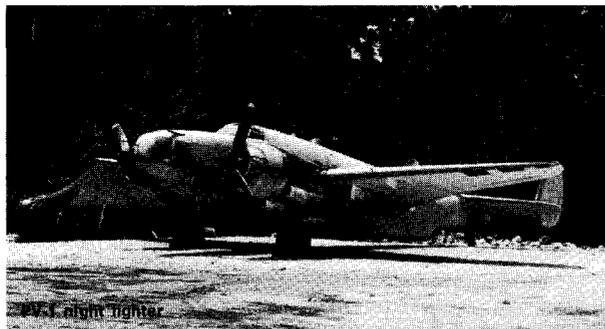
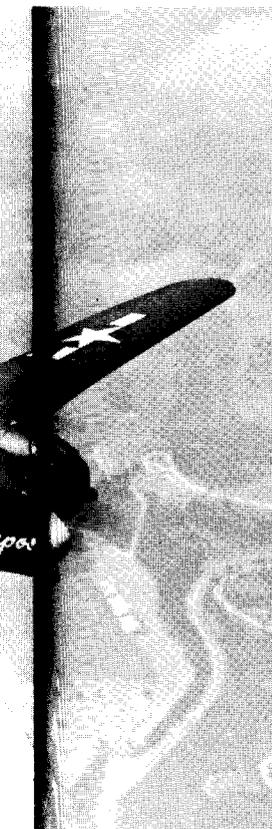
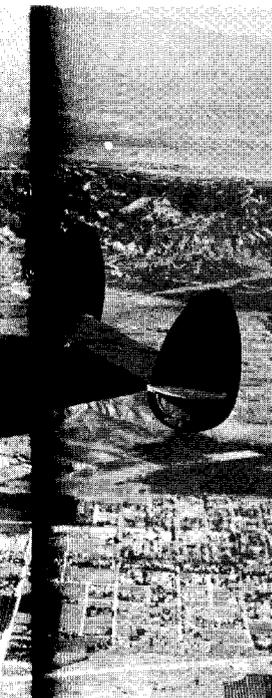
The 1,600 PV-1s which followed were quite similar. A unique feature carried over from the British design was the single-pilot cockpit configuration. Dual controls could be provided with a squadron installed kit. Powered with two P&W R-2800 engines, the PV-1 had a high wing loading and used Fowler flaps to give a respectable landing speed. With good performance and handling qualities, it was an extremely capable all-purpose airplane. It did require careful attention to minimum control speed in one-engine-out situations. PV-1s operated with Navy patrol squadrons in all WW II combat theaters and served the Marines as night fighters. Of all PV-1 operations, those which made the best use of its versatility were Fleet Air Wing Four's daily patrols over the Japanese held Kuriles ("Empire Express"), where the *Venturas* regularly faced impossible weather, Japanese fighters and long distances over enemy territory.

The PV-2 was an extensive redesign with increased wing span providing over a ton of additional payload and an increase in range at the expense of speed and maneuverability. Deliveries began in December 1944 with 535 completed by the time production terminated after VJ Day. Initial PV-2s were designated PV-2Cs for training operations, while final production had converted to the PV-2D with eight forward-firing .50 guns in lieu of the previous five.

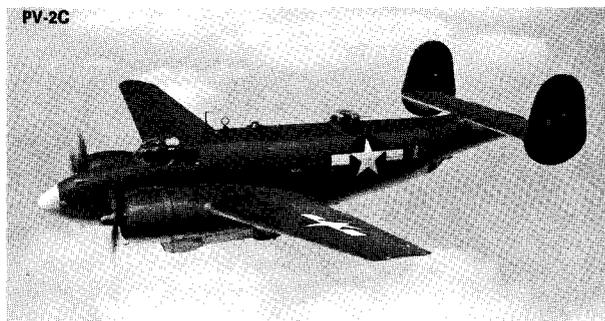
After the war, the PV-2s gradually transitioned to reserve squadrons, with VP-ML-3, the last fleet *Harpoon* squadron, turning in its final PV-2 in the summer of 1948. The reserves continued to fly PV-2s into the early Fifties. Other countries continued to operate them for two more decades.



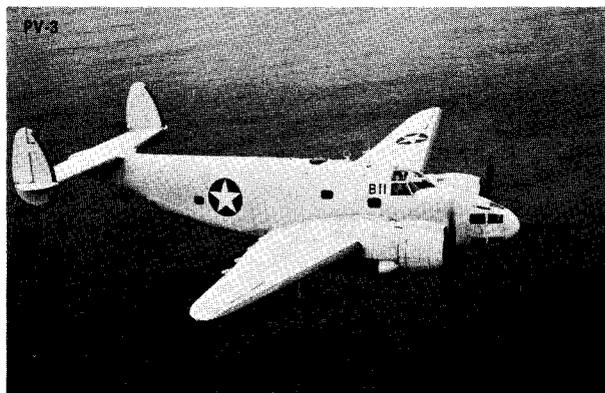
A/HARPOON



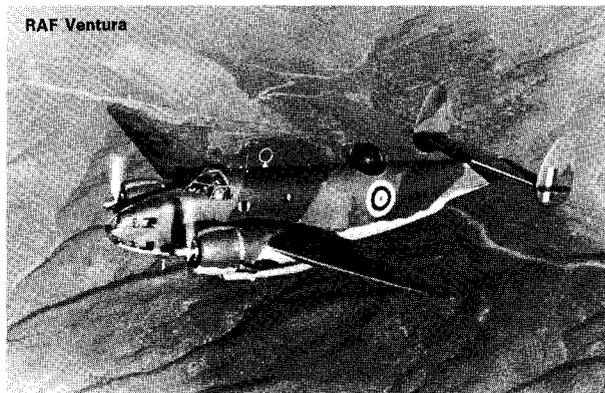
PV-1 night fighter



PV-2C

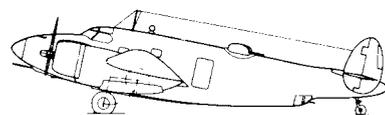
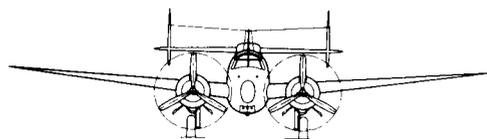
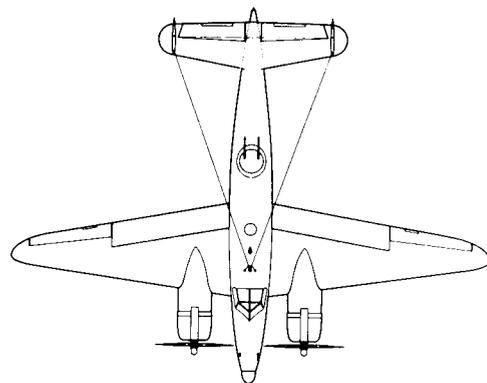


PV-3



RAF Ventura

Wing span	
PV-1, 3	65'6"
PV-2	74'11 7/8"
Length	
PV-1, 3	5'19 1/2"
PV-2	52'1 7/16"
Height	
PV-1, 3	14'3"
PV-2	14'4 7/16"
Power plant	
Two P&W R-2800-31	2,000 hp
Maximum speed	
PV-1	312 mph
PV-2	282 mph
Service ceiling	
PV-1	26,300'
PV-2	23,900'
Range (internal fuel)	
PV-1	1,660 miles
PV-2	1,790 miles
Armament	
Guns	
PV-1	five .50, fixed forward two .50, turret two .30, tunnel
PV-2	same, except two .50 tunnel
Bomb bay	
	Bombs, mines, torpedoes
PV-1	up to 3,000 lbs.
PV-2	up to 4,000 lbs.
Wing pylons	
	up to two 1,000 pounders
Wings	
PV-2	up to eight 5" HVAR



AIRPLANE CHARACTERISTICS & PERFORMANCE

BUREAU OF AERONAUTICS-NAVY DEPT.

COLUMN NUMBER	1	2	3	4
LOADING CONDITION	A.S.PATROL 3-325#	A.S.PATROL 6-325#	A.S.PATROL 6-325#	A.S.PATROL 6-325# Two Tanks External
GROSS WEIGHT LBS.	26500	29325	29325	31000
EMPTY WEIGHT - Actual LBS.	19190			
FUEL/OIL GAL.	550/30	823/46	823/46	1057/60
FIXED GUNS/AMMUNITION	5-.50 cal./1250 rds			
FLEXIBLE GUNS/AMMUNITION	2-.50/800, 2-.30/2000			
ENGINE POWER USED FOR PERFORMANCE	NORMAL	MILITARY	NORMAL	NORMAL
WING LOADING LBS/SQ.FT.	48.1	53.2	53.2	56.2
POWER LOADING ① LBS/BHP.	9.1	9.2	10.1	10.7
V-MAX. SEA LEVEL MPH.	273	294	271	254
V-MAX. AIRPLANE CRIT. ALT. MPH.	303/14700	313/15200	298/14700	280/14700
V-STALL. GROSS WEIGHT. ② MPH.	91.0	95.7	95.7	98.4
V-STALL. WITHOUT FUEL ② MPH.	85.2	87.2	87.2	87.8
TIME-TO-CLIMB -10000FT.- MIN.	6.4	6.6	7.8	9.1
TIME-TO-CLIMB -20000FT.- MIN.	16.4	16.9	21.2	27.4
SERVICE CEILING FT.	25500	25200	24000	21900
TAKE-OFF DISTANCE -CALM- FT.	1250	1640	1640	2010
TAKE-OFF DISTANCE -15 KN- FT.	825	1110	1110	1370
TAKE-OFF DISTANCE -25 KN- FT.	590	810	810	1015
RATE OF CLIMB -SL- FT/MIN.	1665	1990	1395	1215
MAX. RANGE/V-AV. ③ ST.MI/MPH.	960/171		1375/173	1575/168
BOMBING RADIUS/V-AV.-20% R- NMI/KN.				
BOMBING RADIUS/V-AV.-33% R- NMI/KN.				
PATROL RADIUS/V-AV.-20% R- NMI/KN.	220/149		315/151	360/147
PATROL RADIUS/V-AV.-33% R- NMI/KN.	185/149		260/152	295/147
SCOUT. RADIUS NMI.				
COMBAT RADIUS NMI.				
ENGINE /PROP.GEAR RATIO	2 P & W R-2800-31 (16:9)			
ENGINE RATING BHP/RPM/ALT.	NORMAL 1600/2400/SL-5700 1450/2400/9200-13000		MILITARY 2000/2700/SL-1500 1600/2700/7400-13500	

NOTE STATUTE MILES USED-EXCEPT-RADIUS IS GIVEN IN NAUTICAL MILES & KNOTS.
 ① BHP AT MAX.CRIT.ALT. ② STALL-WITHOUT POWER ③ AT 1500' ALTITUDE

	TANKAGE IN GALLONS	OIL	FUEL	OFFENSIVE ARMAMENT
FIXED	PROTECTED		823	FUSELAGE BOMB-BAY Bombs: 1-2000#, 1-1000#, or 6-500# Depth Bombs: 6-325# Torpedoes: 1 MK 13-2
	UNPROTECTED -See Note, pg. 2	65		
	TOTAL-INCL. PROT.	65	823	
AUX.	INCREASE-REMOVED PROTECTION		FIXED	WINGS: (External) Bombs: 2-1000#, or 2-500# Depth Bombs: 2-650#, or 2-325#
	Bomb-bay-fixed-unprot. (fwd.)	-	210	
	Bomb-bay-fixed-unprot. (aft)		280	
	DROPPABLE -Wings - 2 @ 150		300	
	DROPPABLE			
	PROTECTED+UNPROTECTED+DROPPABLE.	65	1613	

REMARKS- Installation of 1-2000# or 1-1000# Bomb or Torpedo in bomb-bay requires partial opening of bomb-bay doors.

Bombs cannot be carried in bomb-bay with two bomb-bay tanks installed. Removal of one tank provides space for 3 bombs.

SUPERSEDES P-18-43

DATE-1 DEC 1943

DECLASSIFIED

MODEL-PV-1

AIRPLANE CHARACTERISTICS & PERFORMANCE

BUREAU OF AERONAUTICS-NAVY DEPT.

COLUMN NUMBER	5	6	7	8
LOADING CONDITION	BOMBER 6-500#	TORPEDO 1 MK13-2 Two Tanks External	BOMBER 2-1000#Ext. One B.B. Tank	FERRY Two Tanks External
GROSS WEIGHT LBS.	30250	31000	30675	30375
EMPTY WEIGHT - Actual - LBS.	19190			18880
FUEL/OIL GALS.	823/46	1048/58	1033/58	1613/65
FIXED GUNS/AMMUNITION	5-.50 cal/1250 rds			None
FLEXIBLE GUNS/AMMUNITION	2-.50/800, 2-.30/1000			None
ENGINE POWER USED FOR PERFORMANCE	NORMAL	NORMAL	NORMAL	NORMAL
WING LOADING LBS./SQ.FT.	54.9	56.2	55.7	55.1
POWER LOADING ① LBS/BHP.	10.4	10.7	10.6	10.5
V-MAX. SEA LEVEL MPH.	270	245	254	254
V-MAX. AIRPLANE CRIT. ALT. MPH.	297/14700	270/14700	280/14700	281/14700
V-STALL. GROSS WEIGHT. ② MPH.	97.2	98.4	97.8	97.4
V-STALL. WITHOUT FUEL ② MPH.	88.9	87.8	87.4	80.4
TIME-TO-CLIMB -10000FT.- MIN.	8.3	9.4	8.9	8.7
TIME-TO-CLIMB -20000FT.- MIN.	23.3	29.1	26.0	25.0
SERVICE CEILING FT.	22900	21600	22300	22600
TAKE-OFF DISTANCE -CALM- FT.	1790	2070	1950	1890
TAKE-OFF DISTANCE -15 KN- FT.	1215	1420	1325	1285
TAKE-OFF DISTANCE -25 KN- FT.	895	1050	980	945
RATE OF CLIMB -SL- FT/MIN.	1315	1180	1240	1260
MAX. RANGE/V-AV. ③ ST.MI/MPH.	1350/175	1485/163	1550/167	2545/164
BOMBING RADIUS/V-AV.-20% R- NMI/KN.	460/152	505/142	525/144	
BOMBING RADIUS/V-AV.-33% R- NMI/KN.	380/153	415/143	435/147	
PATROL RADIUS/V-AV.-20% R- NMI/KN.				
PATROL RADIUS/V-AV.-33% R- NMI/KN.				
SCOUT. RADIUS NMI.				
COMBAT RADIUS NMI.				

PERFORMANCE IS BASED ON- FLIGHT TEST

RANGE & RADIUS ARE BASED ON ENGINE REQUIREMENT FUEL CONSUMPTION DATA INCREASED BY 15 PERCENT TO CONFORM WITH PAST EXPERIENCE.

Practical patrol radius (Patrol and A.S. loadings) is 1/3 of range at V for max. range at 1500 ft. with fuel taken out for reserve.

Practical patrol bombing radius (Bomber and Torpedo loadings) is 1/2 of range at V for max. range at 1500 ft. with fuel taken out for reserve.

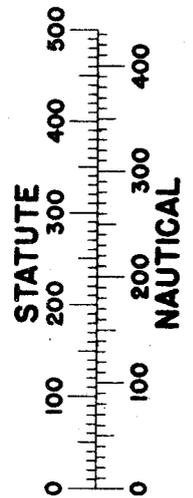
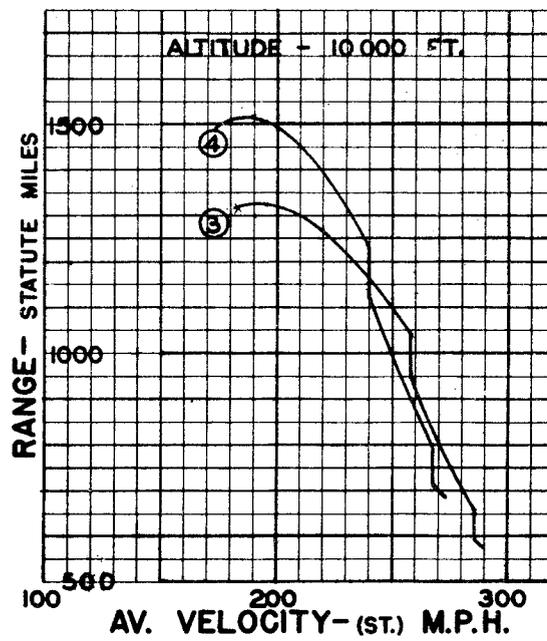
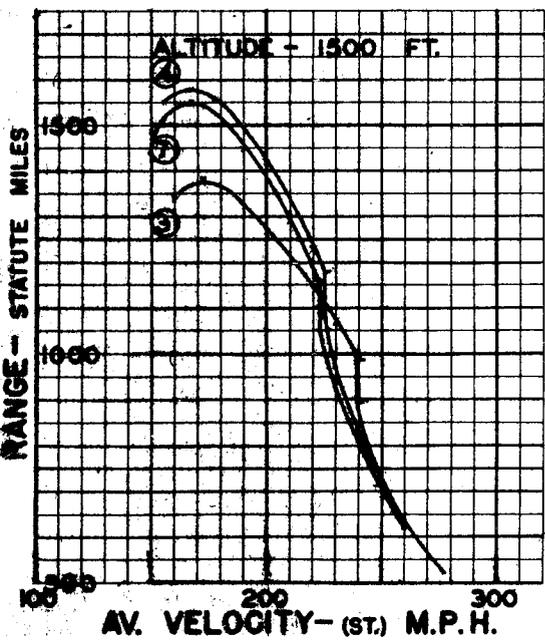
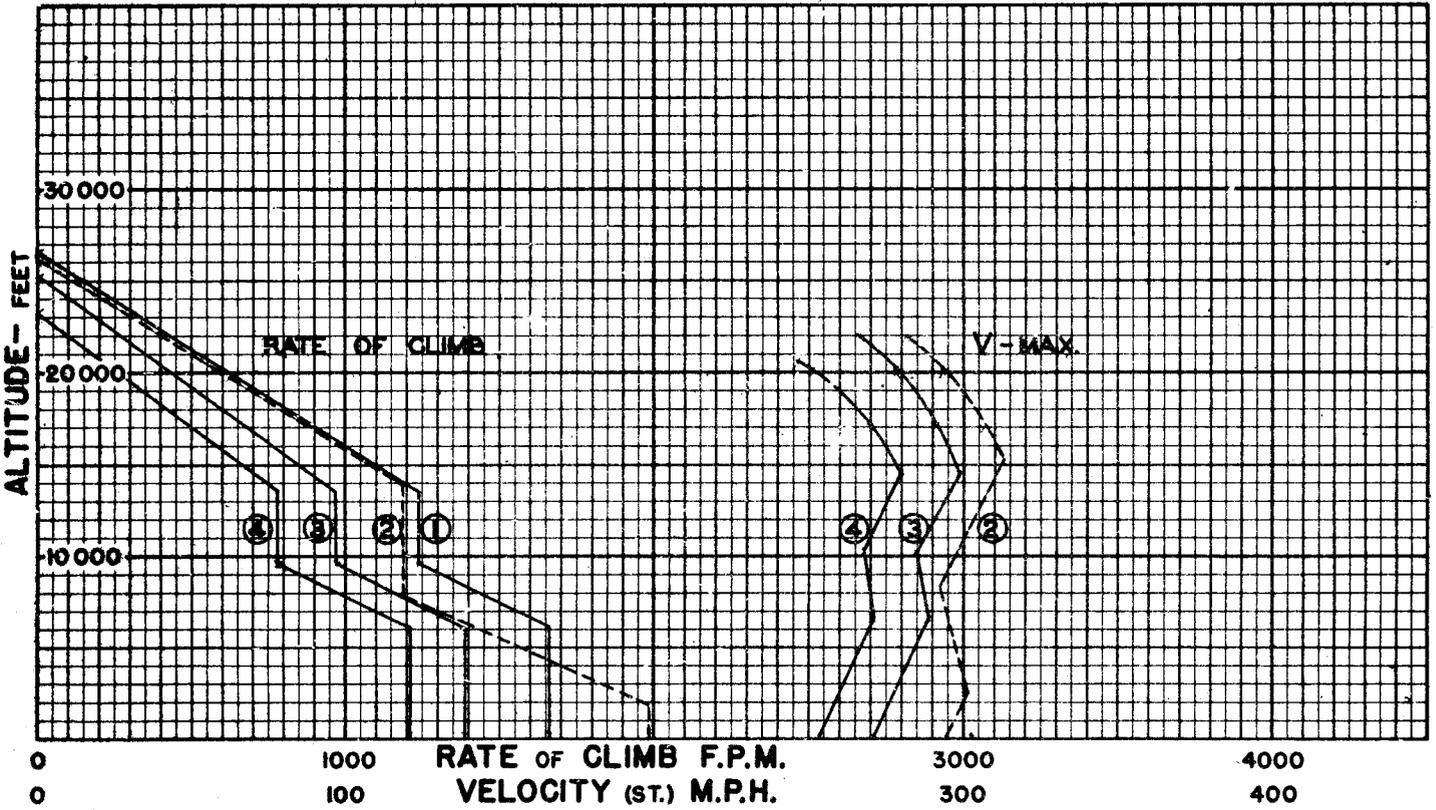
Reserve considered 20% for good flight conditions and 33% for adverse flight conditions.

The following changes are incorporated: Contract - thru "E"; Service - thru #70; Pending - Chin gun (3-.50/750) installation.

Oil tanks are protected against .30 cal. gunfire only by "Armorite".

Condition 8 - Includes 2 bomb-bay tanks.

DECLASSIFIED

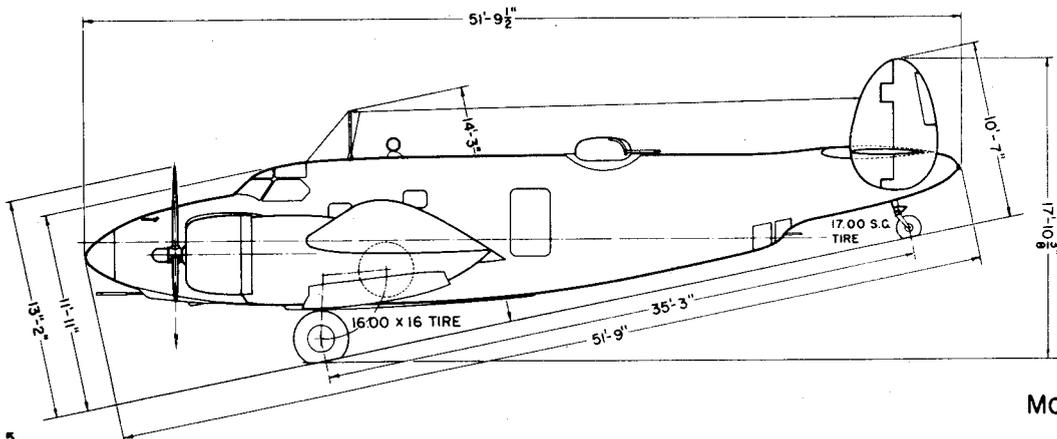
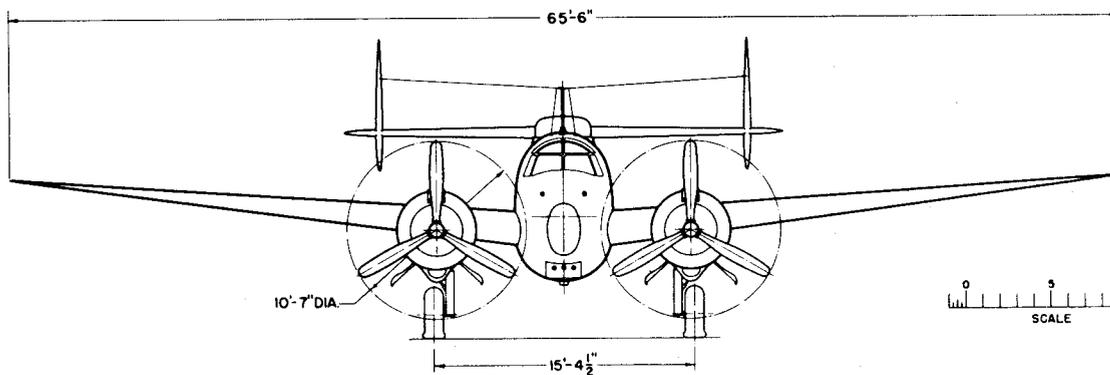
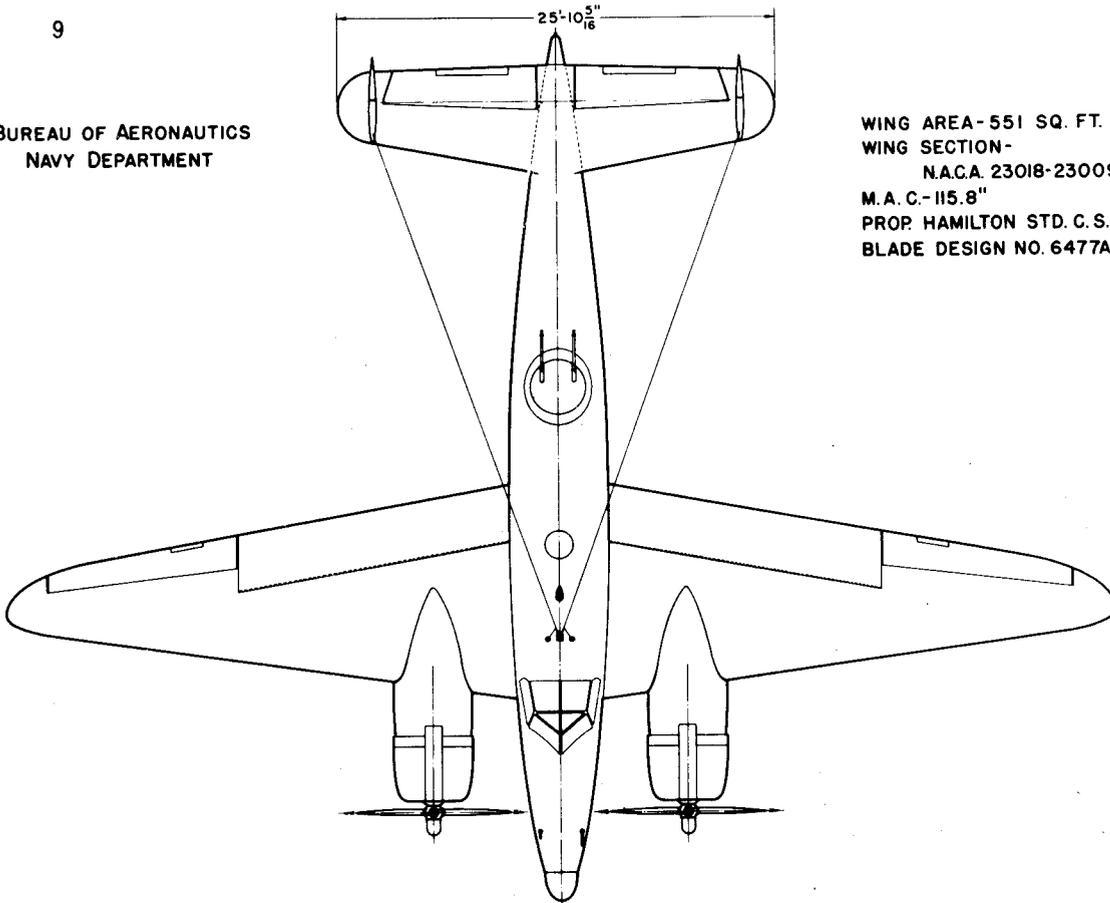


○ LOADING CONDITION COLUMN NUMBER

DECLASSIFIED

BUREAU OF AERONAUTICS
NAVY DEPARTMENT

WING AREA - 551 SQ. FT.
WING SECTION -
N.A.C.A. 23018-23009
M.A.C. - 115.8"
PROP. HAMILTON STD. C.S.
BLADE DESIGN NO. 6477A-12



CONFIDENTIAL

MODEL PV-1

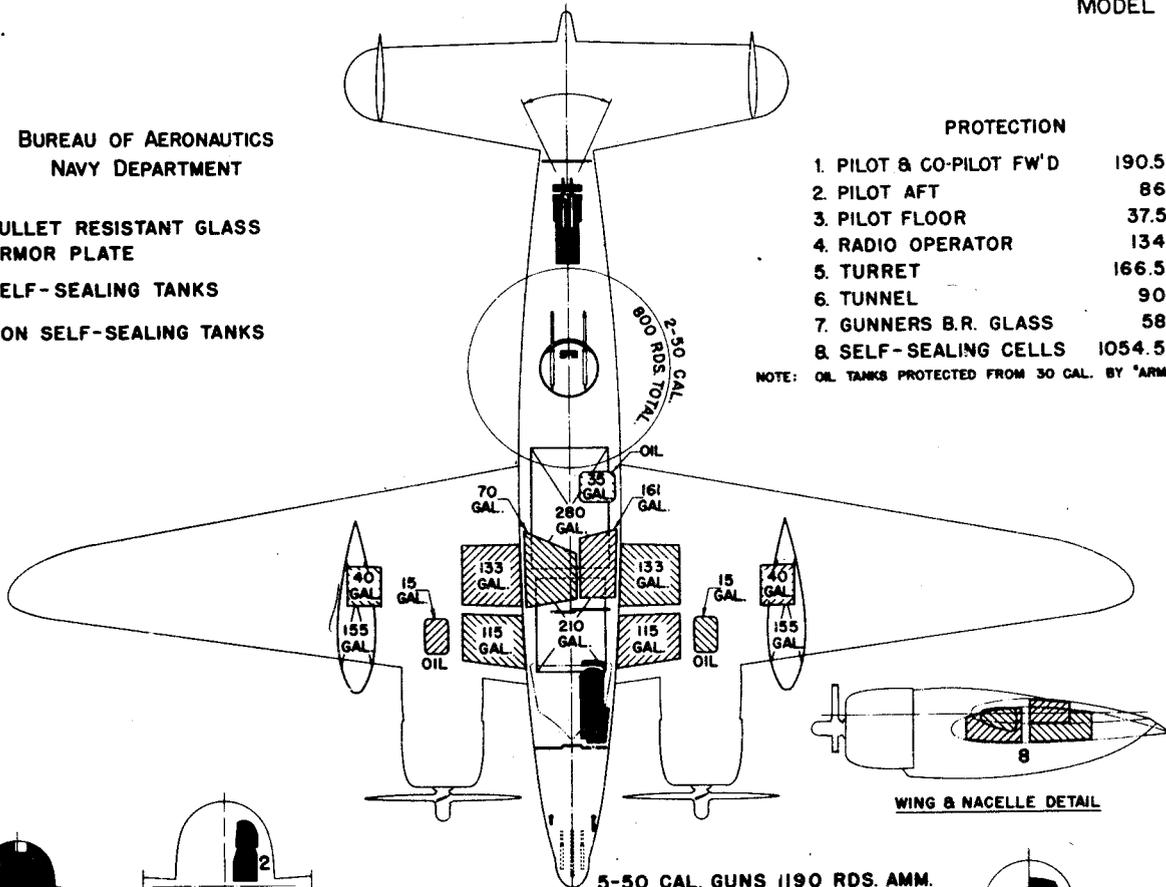
BUREAU OF AERONAUTICS
NAVY DEPARTMENT

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

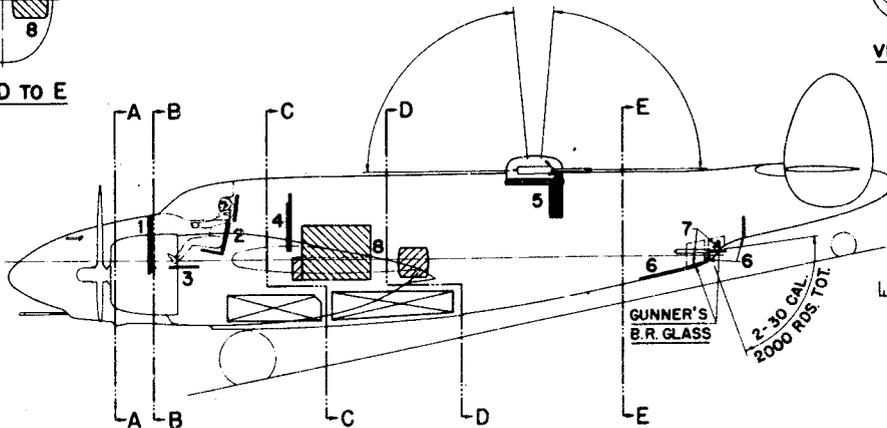
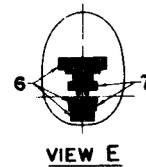
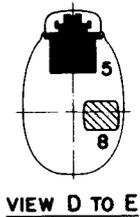
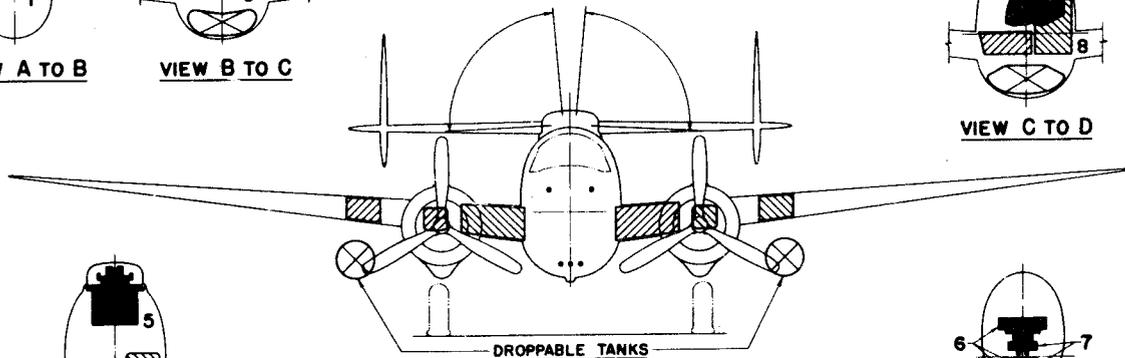
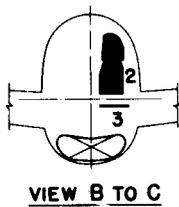
PROTECTION

- | | |
|--------------------------|-------------|
| 1. PILOT & CO-PILOT FW'D | 190.5 LBS. |
| 2. PILOT AFT | 86 LBS. |
| 3. PILOT FLOOR | 37.5 LBS. |
| 4. RADIO OPERATOR | 134 LBS. |
| 5. TURRET | 166.5 LBS. |
| 6. TUNNEL | 90 LBS. |
| 7. GUNNERS B.R. GLASS | 58 LBS. |
| 8. SELF-SEALING CELLS | 1054.5 LBS. |

NOTE: OIL TANKS PROTECTED FROM 30 CAL. BY 'ARMORITE'



5-50 CAL. GUNS 1190 RDS. AMM.



10.

REPRODUCED FROM THE ARCHIVES OF THE NATIONAL ARCHIVES