VENTUR

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.

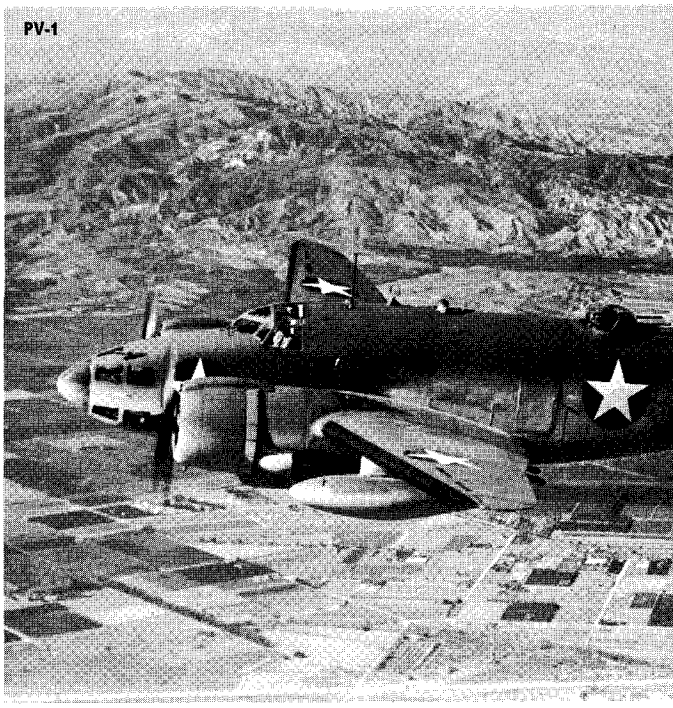
While production of the basic Navy model, the PV-1, was getting under way, 27 British aircraft were requisitioned and, as PV-3s, became the first Navy *Venturas*, operating with VP-82 beginning in October 1942.

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.

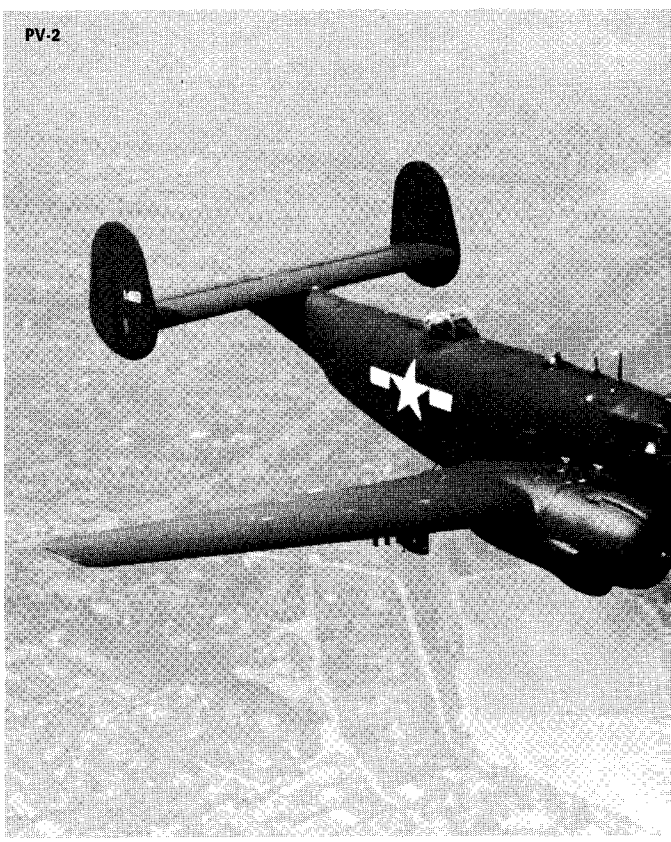
The PV-2 was an extensive redesign with increased wing span providing over a ton of additional payload and an increase in range at the expense of speed and maneuverability. Deliveries began in December 1944 with 535 completed by the time production terminated after VJ Day. Initial PV-2s were designated 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.

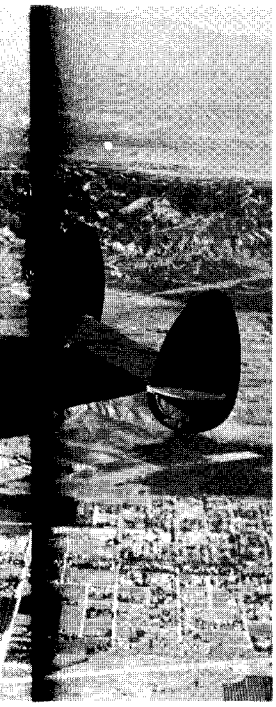
PV-1

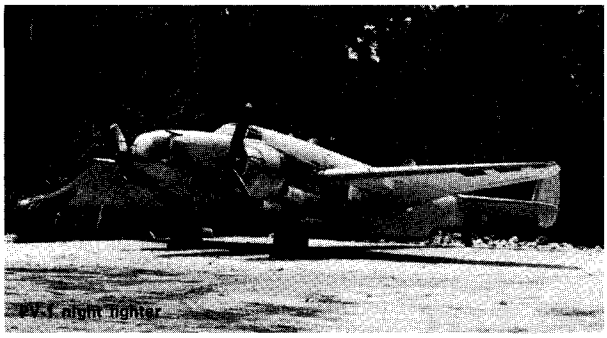


PV-2

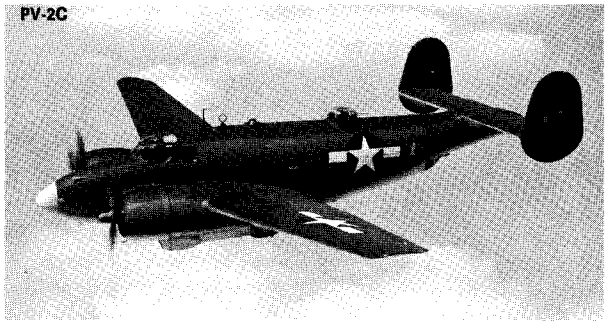


A/HARPOON

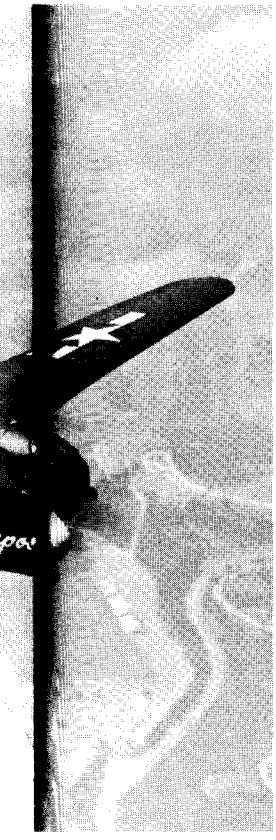


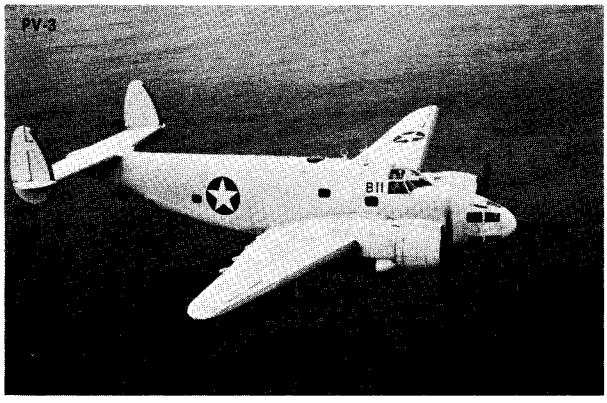


PV-1 night fighter

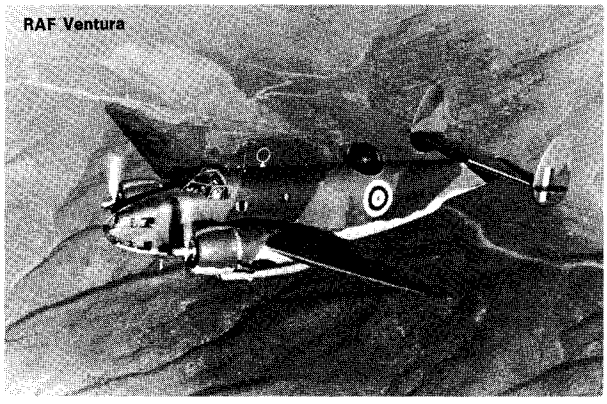


PV-2C



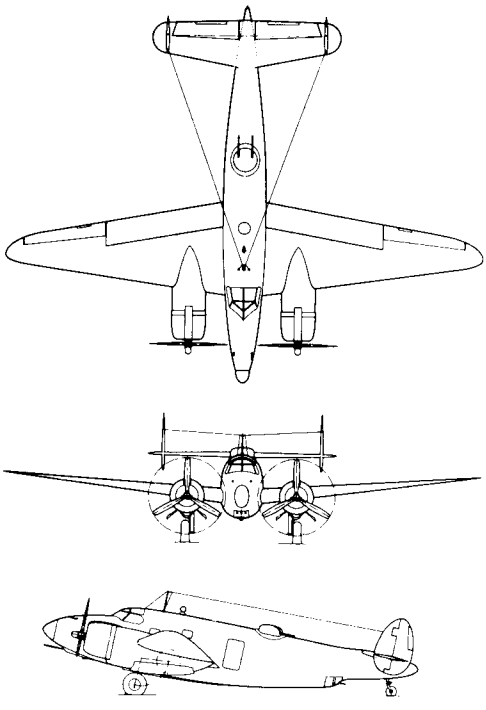


PV-3



RAF Ventura

Wing span	
PV-1, 3	65'6"
PV-2	74'11 7/8"
Length	
PV-1, 3	51'9 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	GALS.	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
FIXED	PROTECTED		823
	UNPROTECTED -See Note, pg. 2	65	
	TOTAL-INCL.PROT.	65	823
	INCREASE-REMOVED PROTECTION	FIXED	
AUX.	Bomb-bay-fixed-unprot.(fwd.)	-	210
	Bomb-bay-fixed-unprot.(aft)		280
	DROPPABLE -Wings - 2 @ 150		300
	DROPPABLE		
PROTECTED+UNPROTECTED+DROPPABLE		65	1613

OFFENSIVE ARMAMENT

FUSELAGE BOMB-BAY
Bombs: 1-2000#, 1-1000#, or 6-500#
Depth Bombs: 6-325#
Torpedoes: 1 MK 13-2
WINGS: (External)
Bombs: 2-1000#, or 2-500#
Depth Bombs: 2-650#, or 2-325#

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-19-43 C.S. (-7)

DATE-1 DEC 1943 PAGE 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.

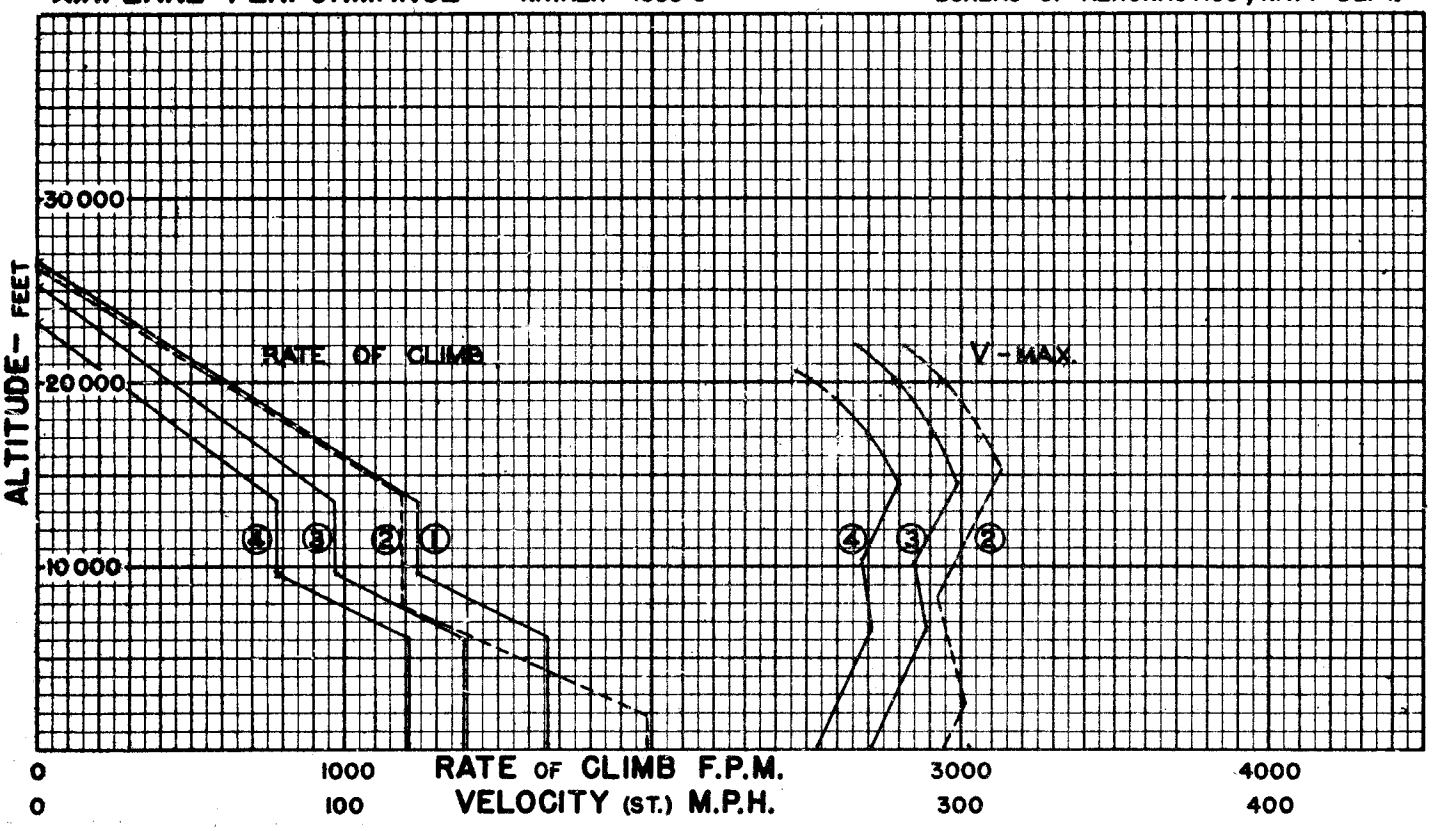
Reserve considered 20% for good flight conditions and 33% for adverse flight conditions.

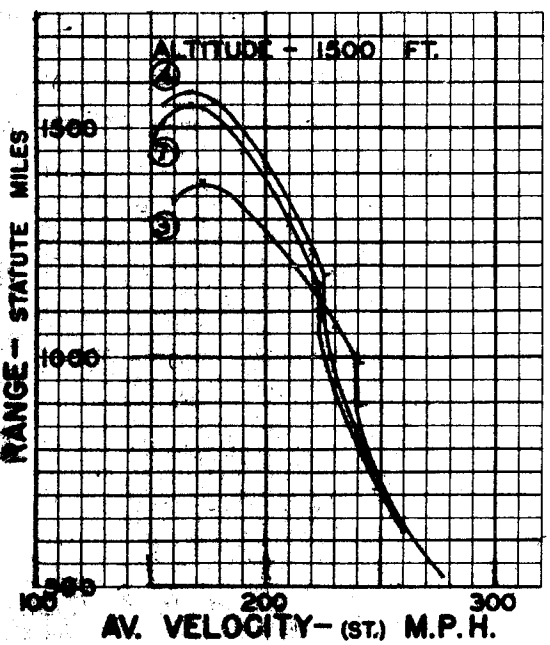
The following changes are incorporated: Contract - thru "E"; Service - thru #70; Pending - Chin gun (3-.50/750) installation.

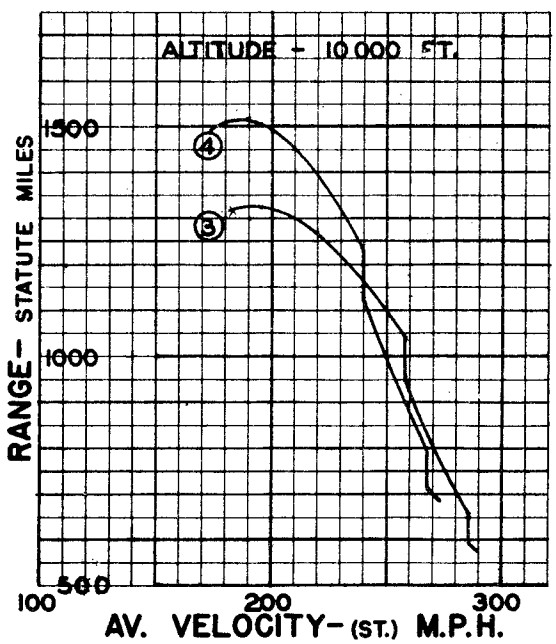
Oil tanks are protected against .30 cal. gunfire only by "Armorite".

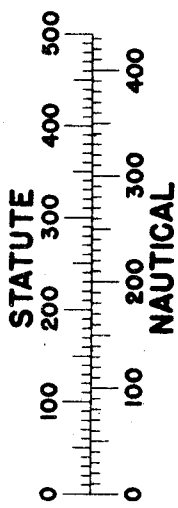
Condition 8 - Includes 2 bomb-bay tanks.

DECLASSIFIED







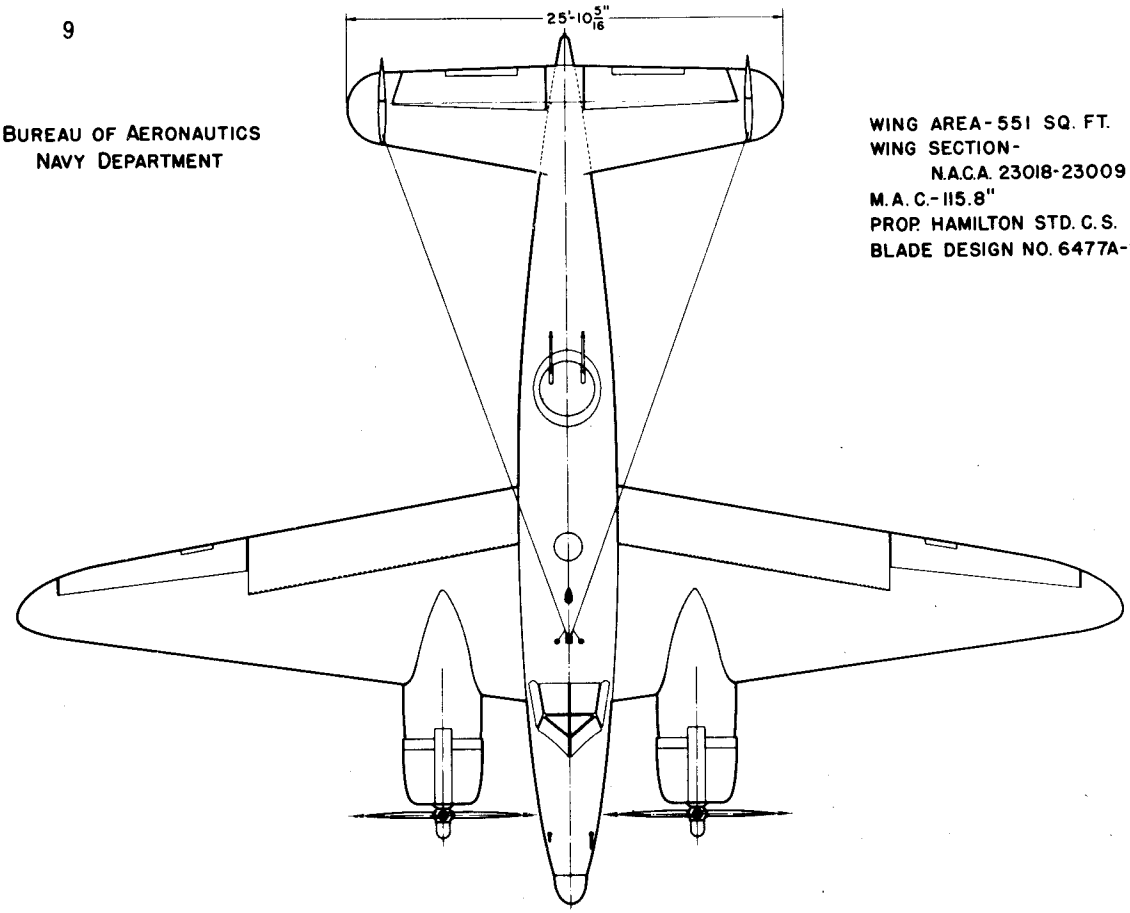


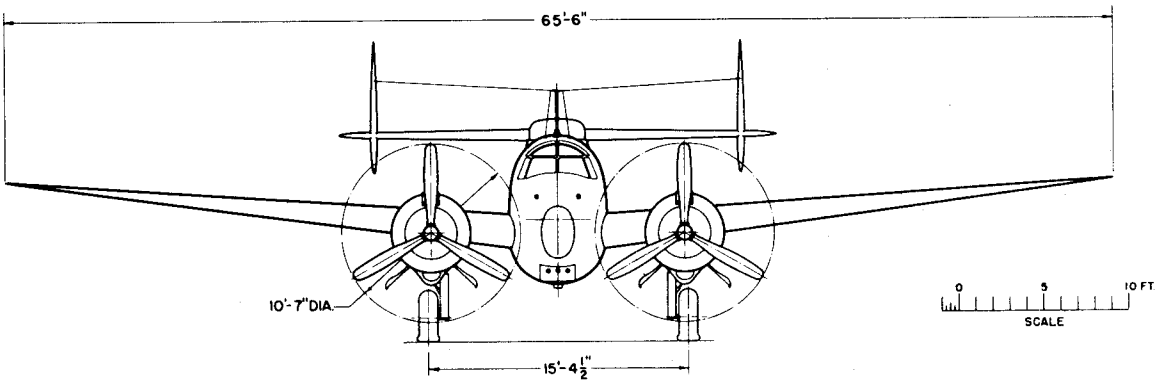
○ LOADING CONDITION COLUMN NUMBER

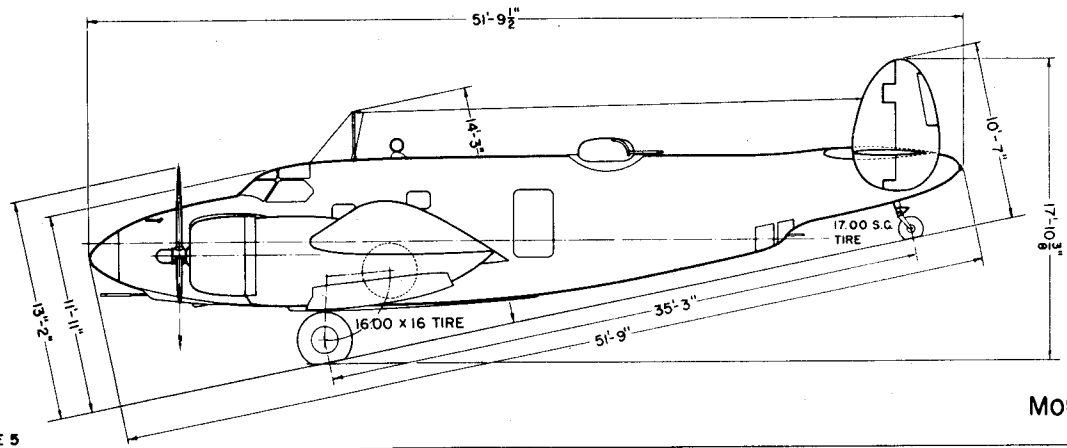
DECLASSIFIED

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







MODEL PV-1

DECLASSIFIED

MODEL PV-1

BUREAU OF AERONAUTICS
NAVY DEPARTMENT

BULLET RESISTANT GLASS ARMOR PLATE

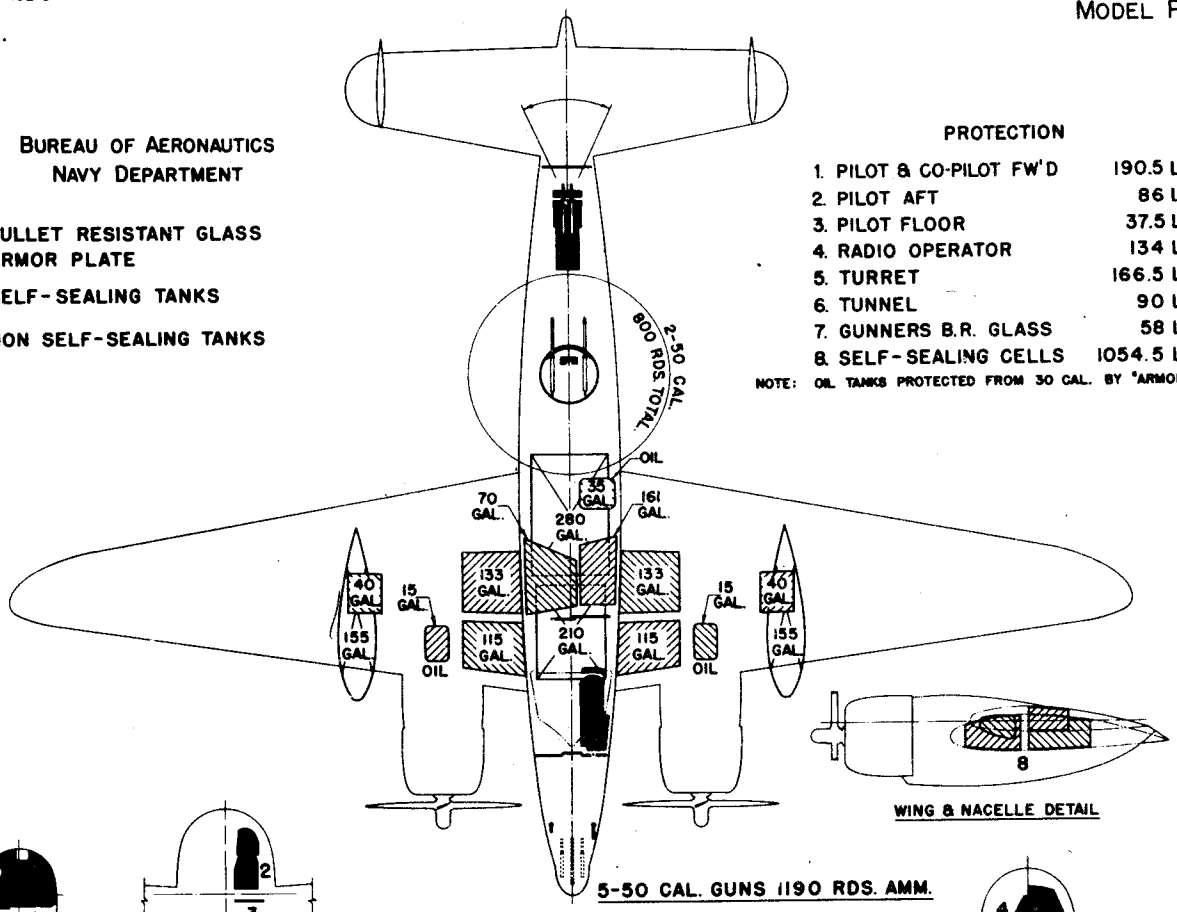
SELF-SEALING TANKS

NON SELF-SEALING TANKS

PROTECTION

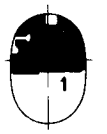
1. PILOT & CO-PILOT FW'D	190.5 LBS.
2. PILOT AFT	86 LBS.
3. PILOT FLOOR	37.5 LBS.
4. RADIO OPERATOR	134 LBS.
5. TURRET	166.5 LBS.
6. TUNNEL	90 LBS.
7. GUNNERS B.R. GLASS	58 LBS.
8. SELF-SEALING CELLS	1054.5 LBS.

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

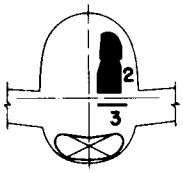


WING & NACELLE DETAIL

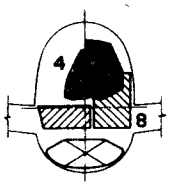
5-50 CAL. GUNS 1190 RDS. AMM.



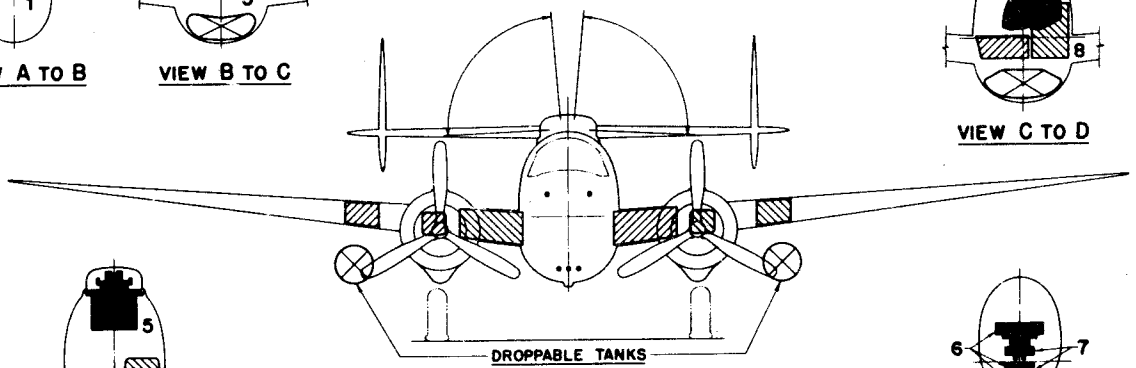
VIEW A TO B



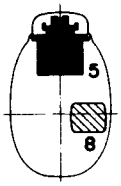
VIEW B TO C



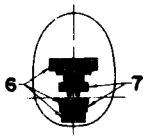
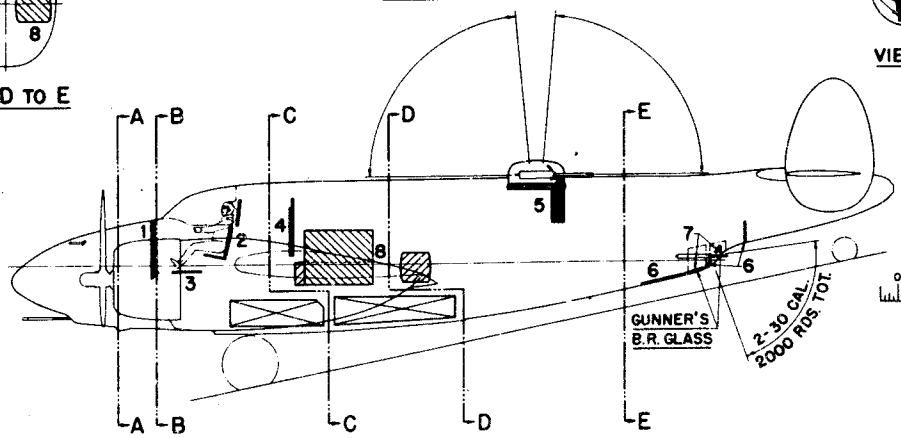
VIEW C TO D



DROPPABLE TANKS



VIEW D TO E



VIEW E