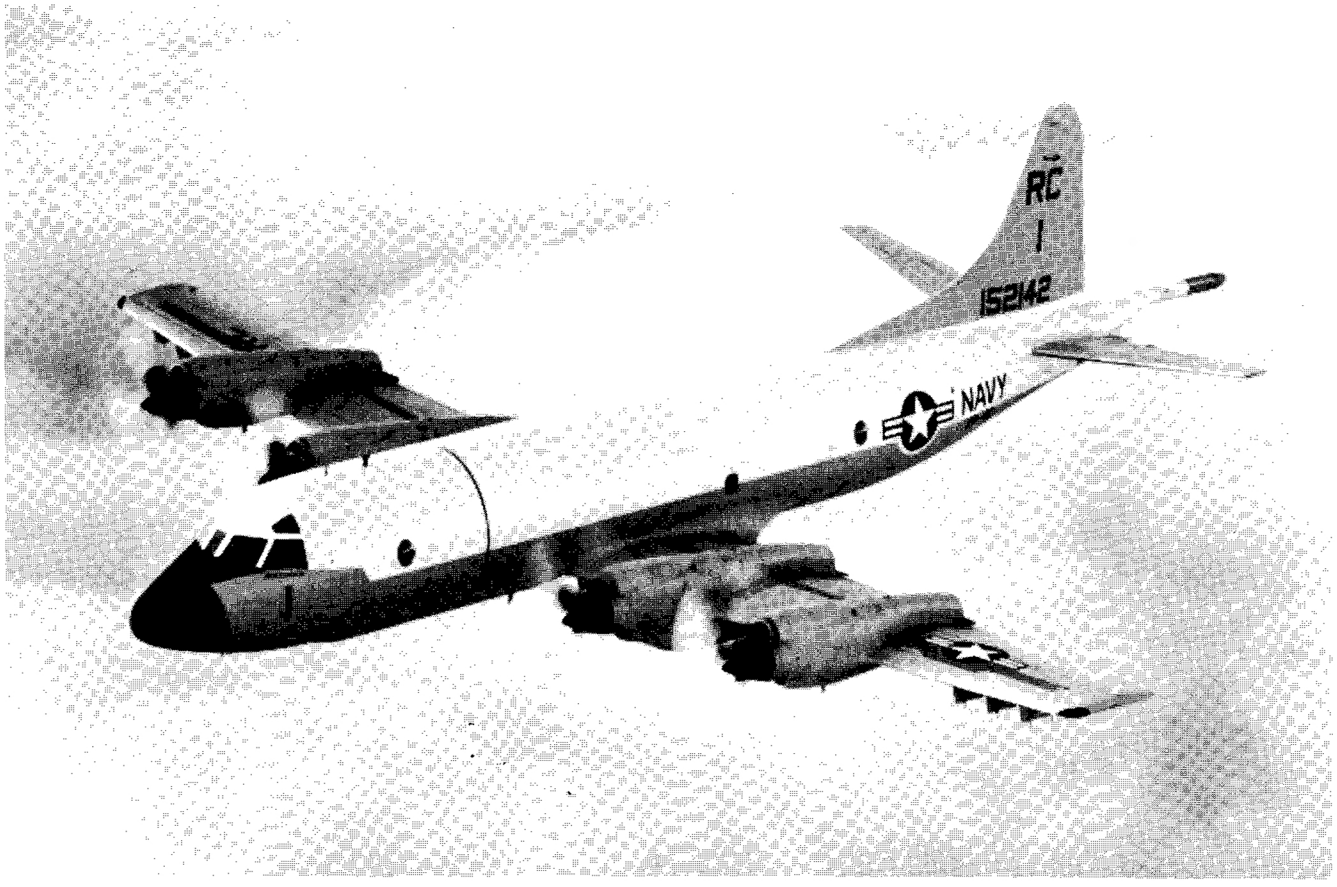
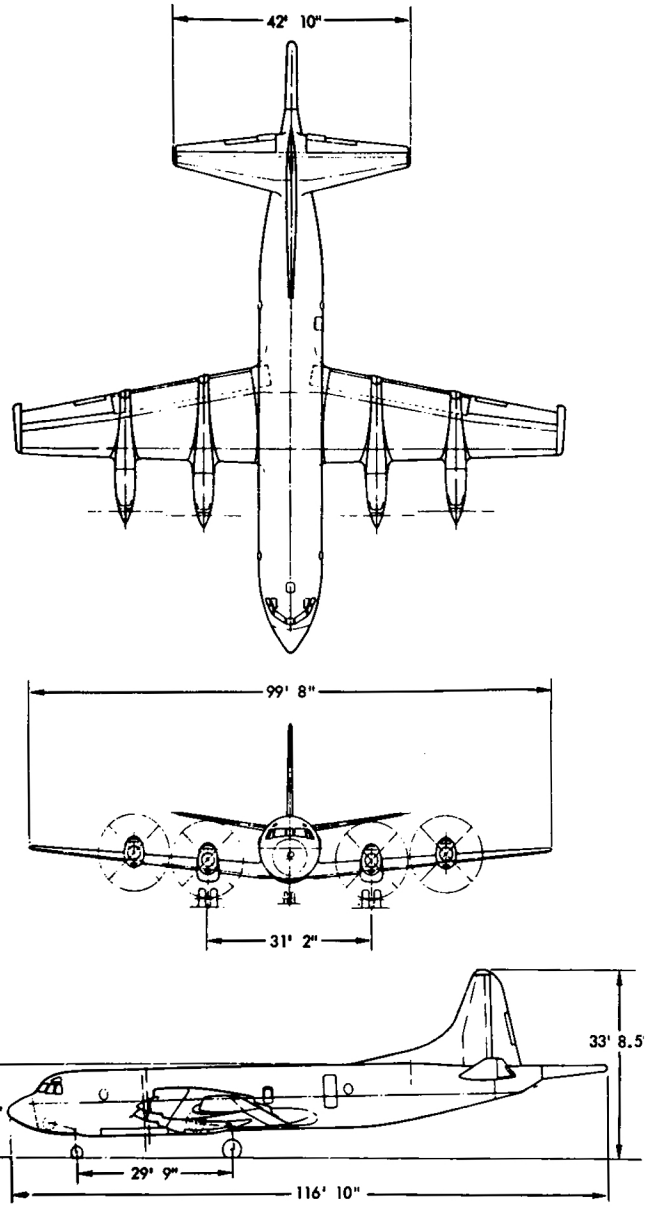


STANDARD AIRCRAFT CHARACTERISTICS

P-3 B ORION

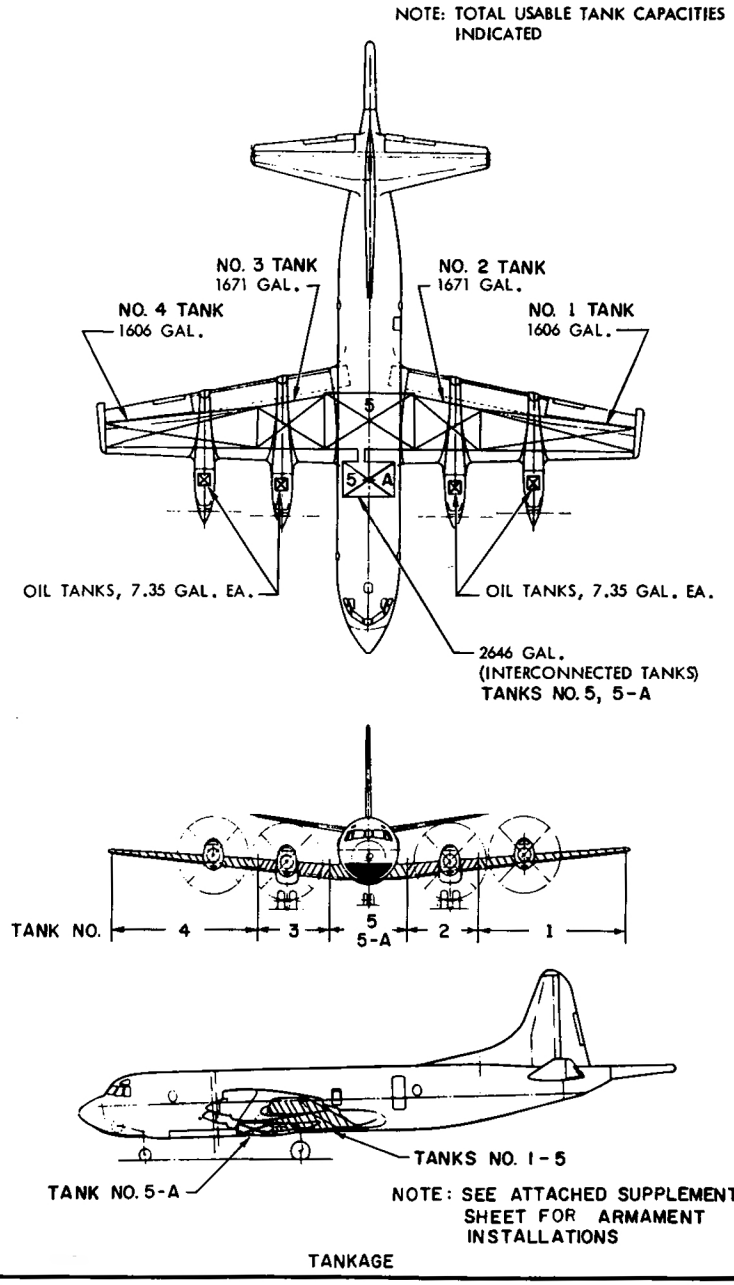
LOCKHEED

NAVAL AIR SYSTEMS COMMAND
NAVY DEPARTMENT



DESCRIPTIVE ARRANGEMENT

NAVAL AIR SYSTEMS COMMAND
NAVY DEPARTMENT



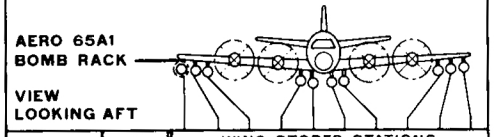
TANKAGE

NAVAL AIR SYSTEMS COMMAND
NAVY DEPARTMENT

WING ARMAMENT STORES

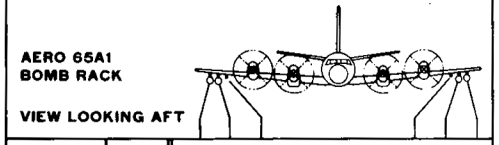
TYPE OF STORE	QTY ⚠1	WING STORES STATIONS 18	17	16	15	14	13	12	11	10	9
5" HVAR	4	○	○							○	○
5" FFAR	16	⊗	⊗							⊗	⊗
TORPEDO	10(9)	○	○	○	○	○	○	○	○	○	○

MINE LOADING-WING



DESIGNATION	QTY. ⚠1	WING STORES STATIONS 18	17	16	15	14	13	12	11	10	9
MK 50 MK 53	10 (9)	○	○	○	○	○	○	○	○	○	○
MK 36 MK 52	8 (7)		○	○	○	○	○	○	○	○	
MK 25 MK 39 MK 55 MK 56	6 (5)			○	○	○	○	○	○		

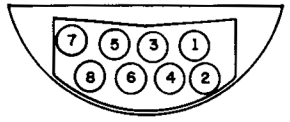
MISSILE LOADING-WING



STORE TYPE	QTY	WING STORES STATIONS 18	17	16	15	14	13	12	11	10	9
AGM-12B	4	○	○							○	○

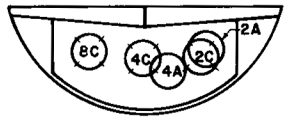
NAVAL AIR SYSTEMS COMMAND
NAVY DEPARTMENT

TORPEDO LOADING, BOMB BAY

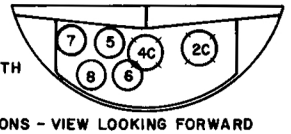


STORES STATIONS - VIEW LOOKING FORWARD

DEPTH BOMB LOADING, BOMB BAY



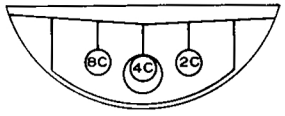
DEPTH BOMB CONFIG.



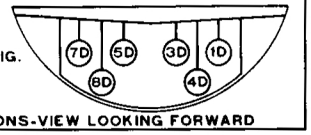
TORPEDO AND DEPTH BOMB CONFIG.

STORES STATIONS - VIEW LOOKING FORWARD

MINE LOADING. BOMB BAY



1000/2000 LB. MINE CONFIG.



500LB. MINE CONFIG.

STORES STATIONS-VIEW LOOKING FORWARD

NOTE: NUMBERS SHOWN ARE STORES LOADING STATIONS. LOADING SEQUENCE AND OTHER DETAILS ARE SHOWN ON BOMB BAY DECALS.

POWER PLANT

NO. AND MODEL	(4) T56-A-14
MANUFACTURER	Allison
SPECIFICATION	No. 670, 20 Dec. 1963
PROPELLER MFGR.	Ham.Std.
NO. BLADES/DIA.	4/13.5 Ft.
PROPELLER NO.	54H60-77/A7121B-2
PROPELLER GEAR RATIO	1:13.54
PROPELLER SPEC	1845A

RATINGS

RATING	ESHP	EXHAUST THRUST	RPM
T.O.	4910	797	13,820
Military	4680	781	13,820
Normal	4365	760	13,820

ELECTRONICS

ASW EQUIPMENT

Tactical Display	AN/ASA-16
Magnetic Anomoly Detector (MAD)	AN/ASQ-10A
Dual Radar.....	AN/APS-80A(V)
Radar Display.....	AN/APA-125A
Trail Detector.....	AN/ASR-3
Sonobuoy Signal Receiver (2)...	AN/ARR-52A(V)
Sonobuoy Indicator.....	AN/AQA-1
Sonobuoy Indicator (Jezebel)...	AN/AQA-5
Sonobuoy Recorder (Julie).....	AN/ASA-20B
UHF Direction Finder.....	AN/ARA-25A
ECM Direction Finder.....	AN/ALD-2B
ECM Signal Analyzer.....	AN/ULA-2
Magnetic Distortion Recorder...	RO-32/ASQ
Ground Speed & Bearing Computer	AN/ASA-50
On Top Position Indicator.....	R-1047/A
Intervalometer.....	TD-441/A
Bearing-Distance-Heading Ind.(3)	BDHI (1D663)
Maneuver Monitor.....	MX-2230( )/ASQ

COMMUNICATIONS EQUIPMENT

UH Transceivers (2).....	AN/ARC-94
UHF Transceivers (2).....	AN/ARC-51A
IFF Recognition.....	AN/APX-7
Transponder Set.....	AN/APX-6B
Video Decoder.....	KY-364/APX
Interphone (Plus 9 Speakers)...	AN/AIC-22(V)
Teletype Adapter.....	CV-1053/ARC
Teletypewriter.....	TT-264/AG
Tape Recorder (Comm).....	AN/UNH-6
HF Couplers (2).....	Collins 490T-1
VHF Nav/Comm System.....	Bendix 22

--- Continued on NOTES page.

MISSION AND DESCRIPTION

The Lockheed P-3B is designed to detect, locate and destroy enemy submarines and cargo vessels. Additional mission capabilities include the following: barrier patrol, convoy escort, hold down, hunter/killer operations, area search, mining enemy waters, reconnaissance and surveillance operations, and in-flight area coordination at a scene of action.

The P-3B bomb bay located in the bottom of the forward fuselage is 80 inches wide, 34.5 inches deep and 154 inches long. It is equipped with store suspension pylons designed to carry and release ASW stores including torpedoes, depth bombs, mines and nuclear weapons.

The P-3B is equipped with ten external store pylons mounted beneath the wing, five pylons on either side of the airplane centerline. These pylons are used to ferry and release torpedoes and mines. Rocket pods as well as missiles can be mounted on the two outermost pylons of each wing. A searchlight can be carried on the right wing.

DEVELOPMENT

FIRST FLIGHT WITH T56-A-10W ENGINES	30 MARCH 1961
FLEET SERVICE WITH T56-A-10W ENGINES	13 AUGUST 1962
FIRST FLIGHT WITH T56-A-14 ENGINES	24 SEPTEMBER 1965
FLEET SERVICE WITH T56-A-14 ENGINES	1 JANUARY 1966

DIMENSIONS

WING:	
Area.....	1300 Sq.Ft.
Span	99 Ft. 8 In.
M.A.C.	168.7 In.
LENGTH	116 Ft. 10 In.
HEIGHT	33 Ft. 8.5 In.
TREAD	31 Ft. 2 In.
PROP. GRD. CLEARANCE	21.75 In.

WEIGHTS

LOADINGS	LBS.	L.F.
Empty	61,491	-
Design	135,000	3.0,-1.0
Combat	107,966	3.0,-1.0
Max. Take-Off, Normal	133,500	-
Max. Take-Off, Overload	142,000	2.5,-0.8
Max. Landing - Design	103,880	2.0,-0
- Emergency	135,000	-

FUEL AND OIL

NO.TANKS	GALS.*	LOCATION
2	3212	Wing (Outboard)
2	3342	Wing (Inboard)
1	2646	Center and Fuselage Aux.
Total	9200	

FUEL GRADE JP-5
FUEL SPEC MIL-F-5624C
* Total usable fuel.

OIL

Total Usable Capacity (Gals) 21
Spec MIL-L-7808C

ORDNANCE

STATIONS	PAYLOAD
9 & 18	500 lb class store
10 & 17	1000 lb class store
11 & 16	2000 lb class store
12 & 15	2000 lb class store
13 & 14	2000 lb class store
Internal	Limited by size of stores

PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION			① ASW BASIC MISSION 4 MK-46 + 1 MK-101	③ MAXIMUM INTERNAL 4 MK-46 + 2 MK-101	⑤ MINELAYING MISSION 11 MK-36	⑦ - OVERLOAD - MINELAYING MISSION 11 MK-36	⑨ FERRY RANGE MISSION
TAKE-OFF WEIGHT		lb.	132,990	133,500	133,500	140,337	127,963
Fuel internal/external (JP-5)		lb./lb.	62,560/—	59,991/—	55,723/—	62,560/—	62,560/—
Payload		lb.	5,527	8,606	12,550 (C)	12,550 (C)	500
Wing loading		lb./sq. ft.	102.3	102.7	102.7	108.0	98.4
Stall speed—power-off		kn.	120	121	121	124	118
Take-off run at S.L.— calm	(A)	ft.	4090	4130	4130	4645	3725
Take-off run at S.L.— 25 kn. wind		ft.	—	—	—	—	—
Take-off to clear 50 ft.— calm	(A)	ft.	5360	5410	5525	6200	4910
Max. speed/altitude	(B)	kn./ft.	394/9800	394/9700	350/9700	347/7300	396/11,200
Rate of climb at S.L.	(B)	fpm.	2130	2110	1900	1720	2270
Time: S.L. to 10,000 ft.	(B)	min.	5.8	5.9	6.5	7.1	5.5
Time: S.L. to 20,000 ft.	(B)	min.	16.4	16.5	21.4	23.9	14.7
Service ceiling (100 fpm)	(B)	ft.	26,300	26,200	23,100	21,500	27,500
Combat range		n.mi.	3790	3640	3410	3738	4880
Average cruising speed		kn.	288	292	309	309	332
Cruising altitude(s)		ft.	15,000	15,000	21,500/30,000	19,600/30,000	26,000/30,000
Combat radius/mission time		n.mi./hr.	1450/13.2	1360/12.5	1650/11.1	1850/12.3	-
Average cruising speed		kn.	288	290	300	303	-
Search time/altitude		hr./ft.	3.0/1500	3.0/1500	-	-	-
Search speed		kn.	198.5	200	-	-	-
COMBAT LOADING CONDITION			② STORES RETAINED	④ STORES RETAINED	⑥ MINES EXPENDED	⑧ MINES EXPENDED	
COMBAT WEIGHT		lb.	107,966	109,534	98,661	102,763	-
Engine power			MILITARY	MILITARY	MILITARY	MILITARY	-
Fuel		lb.	37,536	36,025	33,434	37,536	-
Combat speed/combat altitude		kn./ft.	379/1500	379/1500	365/SEA LEVEL	364/SEA LEVEL	-
Rate of climb/combat altitude		fpm/ft.	2940/1500	2890/1500	3305/SEA LEVEL	3150/SEA LEVEL	-
Combat ceiling (500 fpm)		ft.	29,000	28,600	30,900	29,800	-
Rate of climb at S.L.		fpm.	2950	2900	3305	3150	-
Max. speed at S.L.		kn.	374	374	365	364	-
Max. speed/altitude		kn./ft.	412/14,600	411/14,400	402/15,200	401/15,000	-
LANDING WEIGHT		lb.	74,824	77,794	69,258	69,601	69,773
Fuel		lb.	4,394	4,285	4,031	4,374	4,370
Stall speed—power-off/approach power		kn./kn.	84/78	85/79	80/75	81/76	81/76
Landing distance-ground roll/over 50 ft. obst.		ft./ft.	1380/2050	1440/2120	1270/1905	1280/1915	1285/1920

NOTES

PERFORMANCE BASIS: Calculated data based on flight test of T56-A-10W engine.

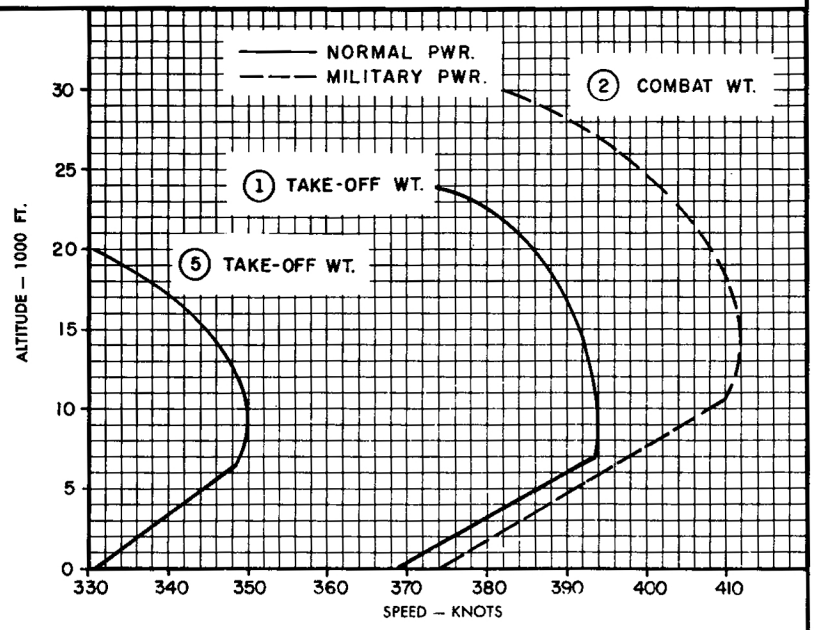
RANGE AND/OR RADIUS: Based on calculated fuel consumption data increased by 5 percent.

(A) TAKE-OFF RATED POWER

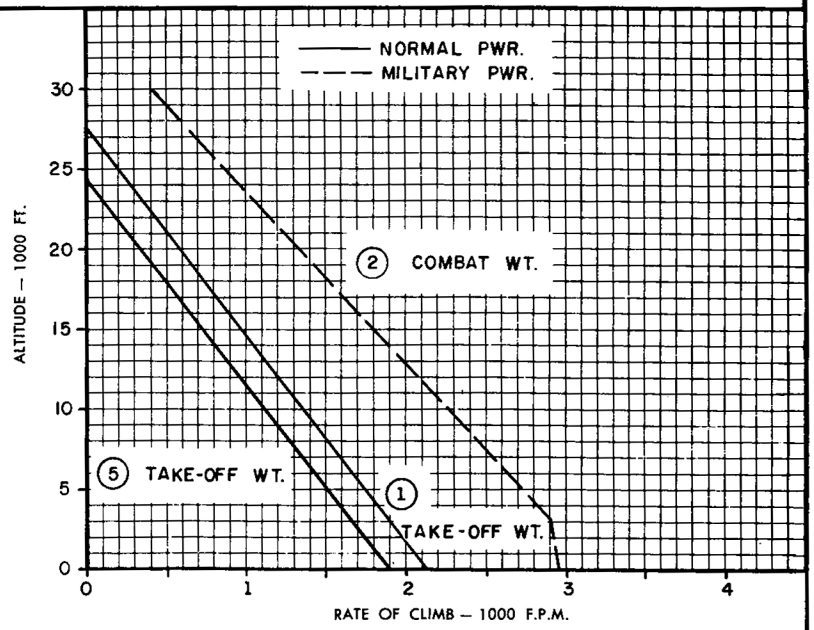
(B) NORMAL RATED POWER.

(C) 8 MK-36 MINES MOUNTED EXTERNALLY.

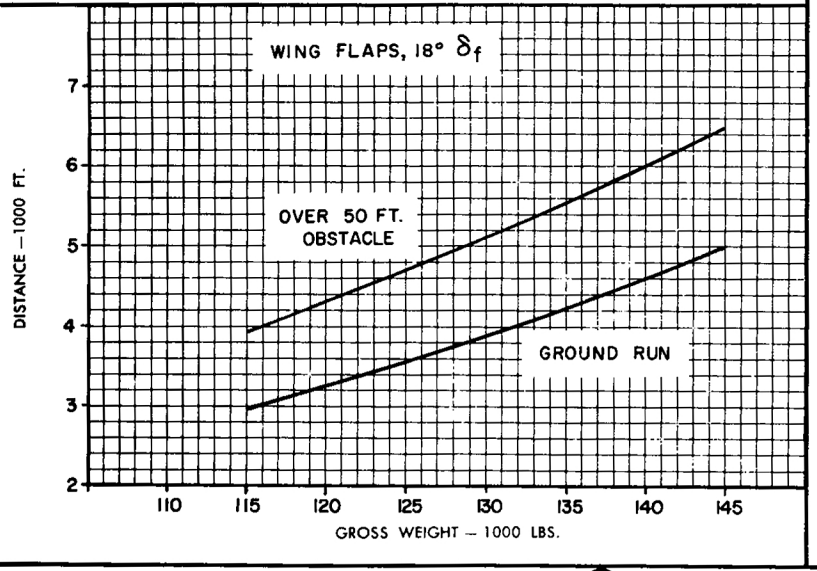
SPEED



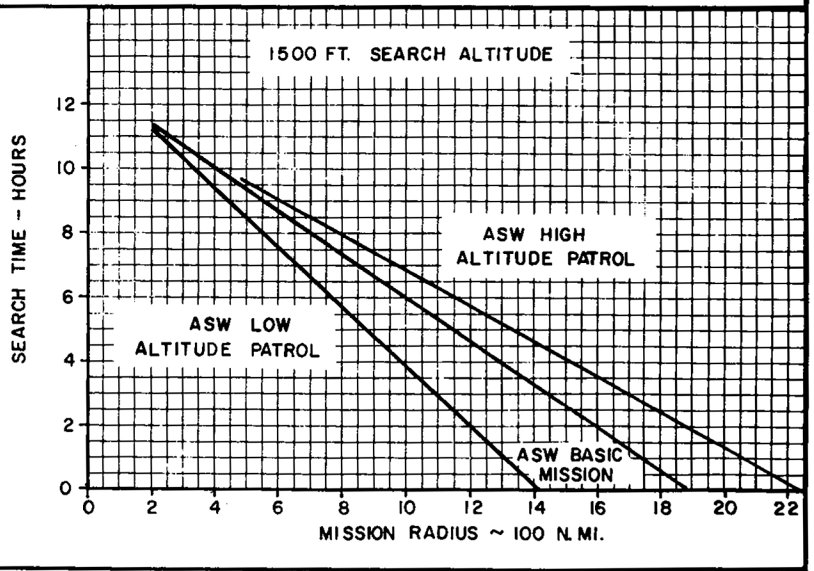
CLIMB



TAKE-OFF



SEARCH TIME



(○) LOADING CONDITION COLUMN NUMBER

MISSION SUMMARY — ALTERNATE LOADINGS

STORE LOADING	T.O.G.W.	BASIC MISSION (15,000 FT. CRUISE; 3 HR. SEARCH AT 1,500 FT.)		LOW ALTITUDE PATROL (1,500 FT. CRUISE; 1 HR. SEARCH AT 1,500 FT.)		HIGH ALTITUDE PATROL (25,000 FT. CRUISE; 3 HR. SEARCH AT 1,500 FT.)		CONTACT INVESTIGATION (25,000 FT. CRUISE; 15,000 FT. NRP; 8 HR. SEARCH AT 1,500 FT.)		MINELAYING (30,000 FT. MAX. CRUISE ALT.; 1,500 FT. SEA LEVEL; RELEASE MINES)	
		COMBAT RADIUS n. mi.	MISSION TIME hr.	COMBAT RADIUS n. mi.	MISSION TIME hr.	COMBAT RADIUS n. mi.	MISSION TIME hr.	COMBAT RADIUS n. mi.	MISSION TIME hr.	COMBAT RADIUS n. mi.	MISSION TIME hr.
(1) BASIC 4 MK-46 + 1 MK-101 INTERNAL NO EXTERNAL STORES	132,990	1450	13.2	1310	11.2	1685	13.7	720	12.3	–	–
(11) MINELAYER MISSION 7 MK-25 6 MK-25 EXTERNAL	133,500	–	–	–	–	–	–	–	–	1610	10.8
(12) MAXIMUM 4 MK-46 + 2 MK-101 INTERNAL 10 MK-46 EXTERNAL	133,500	1050	10.6	–	–	–	–	–	–	–	–
(13) 16 MK-50 MINES 6 MK-50U INTERNAL 10 MK-50F EXTERNAL	133,500	–	–	–	–	–	–	–	–	1780	11.8
○											
○											
○											
○											
○											

NOTES

NOTES

ELECTRONICS (Cont'd.)

Magnetic Detector (MAD)	AN/ASQ-10
Interphone System	AN/AIC-15(V)
Maneuver Monitor	MK-2230
Direction Finder (UHF/SHF, BCN)	AN/ALD-2
Transmitter (VHF)	(1) BENDIX TA-21A
Receiver (VHF)	(2) BENDIX RA-21A
Display Indicator	AN/ASA-16
Pulse Analyzer	AN/ULA-2
Indicator	AN/AQA-3A, or -4(V)
Ground Track Plotter	PT-396
General Purpose Indicator	AN/APA-125A
Submarine Detector	AN/ASR-3
Radar	AN/APS-80
Plotting Board	OA-1768/ASA-13
Recorder	AN/ASA-20
Indicator	AN/AQA-3A
Tape Recorder	(2) AN/USH-6
AHRS	AN/ASN-37
Searchlight	AN/AVQ-2C
Auto Pilot	PB-20
Sono. Homing Rec.	R-1047/A
Nav. Computer	Doppler/Air Mass Comp.
Navigation System	LITTON LN/2C with AN/APN-122

ORDNANCE

The MK-101 depth bomb is also called a "Lulu" in this document.

PERFORMANCE SUMMARY (Cont'd.)

MISSION	LOADING	TAKE-OFF WT. (LBS)	TAKE-OFF FUEL (LBS)	COMBAT RADIUS MISSION				COMBAT RANGE MISSION	
				RADIUS (N.MI.)	MISSION TIME (HR.)	SEARCH TIME (HR.)	SEARCH ALTITUDE (FT)	RANGE (N.MI.)	AVG. CRUISE SPEED (KN)
ASW BASIC	(4) MK-44 & (2) Lulus	127,500	58,568	1345	11.87	3.0	1500	3600	310
ASW LOW ALTITUDE PATROL	(4) MK-44 & (2) Lulus	127,500	58,568	1210	9.54	1.0	1500	2640	285
ASW HIGH ALTITUDE PATROL	(4) MK-44 & (2) Lulus	127,500	58,568	1560	12.44	3.0	1500	4260	338

STORE LOADING

	9 & 18	10 & 17	11 & 16	12 & 15	13 & 14	INTERNAL	
BOMBS AND PRACTICE BOMBS	- - - - - - - - - A/A37B-3 PMBR with MK-76 or MK-106 Practice Bombs	- - - - - - - - - A/A37B-3 PMBR with MK-76 or MK-106 Practice Bombs	- - - - - - - - - A/37B-3 PMBR with MK-76 or MK-106 Practice Bombs	- - - - - - - - - A/A37B PMBR with MK-76 or MK-106 Practice Bombs	- - - - - - - - - A/A37B-3 PMBR with MK-76 or MK-106 Practice Bombs	(8) AN-M30A1 (8) AN-M57A1 (4) AN-M64A1 (8) MK-81 (8) MK-82 (8) MK-86 (8) MK-87 (8) MK-15 (4) MK-23 -	
MISCELLANEOUS		-	(1) Search Light Pod (C)	-	-	-	

NOTES: (A) Only individual station maximum capabilities are listed. Combinations of stores could result in interference between stores.

(B) 6 MK-5, MK-6 or MK-24 Parachute Flares are mounted on the A/A37B-3 PMBR or A/A37B-1 MBR.

(C) Station 16 Only.

NOTES

ASW PROBLEM

(Basic Mission)

WARM-UP, TAXI, TAKE-OFF: 5 minutes with normal power at sea level

CLIMB: With normal power to 15,000 feet

CRUISE-OUT: At 15,000 feet at the speed for maximum range.

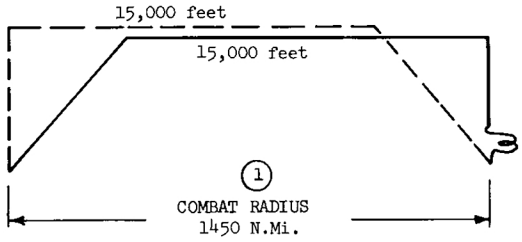
DESCEND: To 1500 feet - No fuel is used; No distance is gained

SEARCH: At 1500 feet for 3 hours at the speed for maximum (L/D).

CLIMB: With normal power to 15,000 feet.

CRUISE-IN: At 15,000 feet at the speed for maximum range.

RESERVE: 5% of the initial fuel load plus an amount corresponding to 20 minutes of flight at maximum (L/D) at sea level.



ASW PROBLEM

(Low Altitude Patrol)

WARM-UP, TAXI, TAKE-OFF: 5 minutes with normal power at sea level

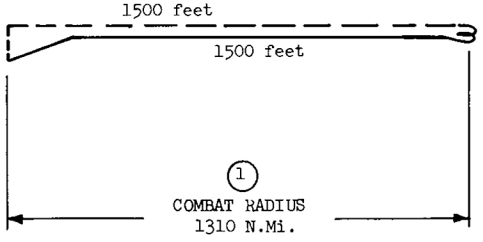
CLIMB: With normal power to 1,500 feet

CRUISE OUT: At 1,500 feet at the speed for maximum range.

SEARCH: At 1,500 feet for 1 hour at the speed for maximum (L/D)

CRUISE-IN: At 1,500 feet at the speed for maximum range.

RESERVE: 5% of the initial fuel load plus an amount corresponding to 20 minutes of flight at maximum (L/D) at sea level.



ASW PROBLEM

(High Altitude Patrol)

WARM-UP, TAXI, TAKE-OFF: 5 minutes with normal power at sea level

CLIMB: With normal power to cruise ceiling

CRUISE-OUT: Cruise-climb to 25,000 feet. Then, speed for maximum range at 25,000 feet.

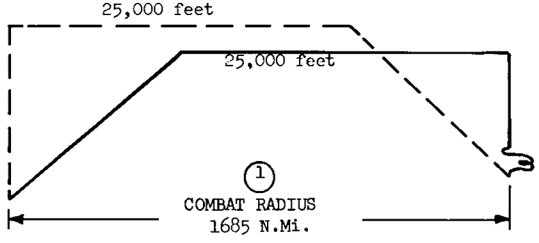
DESCEND: To 1,500 feet - No fuel is used; no distance is gained.

SEARCH: At 1,500 feet for 3 hours at the speed for maximum (L/D).

CLIMB: With normal power to 25,000 feet.

CRUISE-IN: At 25,000 feet at the speed for maximum range

RESERVE: 5% of the initial fuel load plus an amount corresponding to 20 minutes of flight at maximum (L/D) at sea level.



◯ **LOADING CONDITION COLUMN NUMBER**

NOTES

ASW PROBLEM

(Contact Investigation)

WARM-UP, TAXI, TAKE-OFF: 5 minutes with normal power at sea level

CLIMB: With normal power to 15,000 feet

CRUISE-OUT: At 15,000 feet at normal rated power

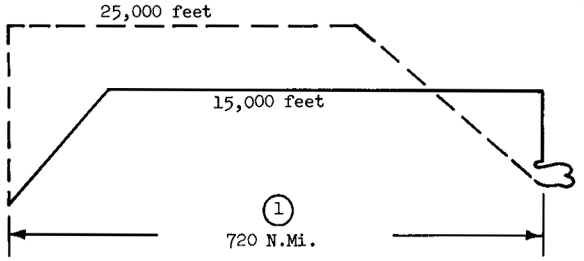
DESCEND: To 1500 feet - No fuel is used; no distance is gained

SEARCH: At 1500 feet for 8 hours at the speed for maximum (L/D)

CLIMB: With normal power to 25,000 feet

CRUISE-IN: At 25,000 feet at the speed for maximum range

RESERVE: 5% of the initial fuel load plus an amount corresponding to 20 minutes of flight at maximum (L/D) at sea level.



MINELAYER PROBLEM

(Minelaying Mission)

WARM-UP, TAXI, TAKE-OFF: 5 minutes with normal power at sea level

CLIMB: With normal power to cruise ceiling

CRUISE-CLIMB: At cruise ceiling at the speed for maximum range.

DESCEND: To 1500 feet - no fuel is used; no distance is gained

PENETRATION: Cruise 200 nautical miles at 1500 feet at the speed for maximum range

DESCEND: To sea level - no fuel is used; no distance is gained

ATTACK: With military power 50 nautical miles at sea level

RELEASE MINES:

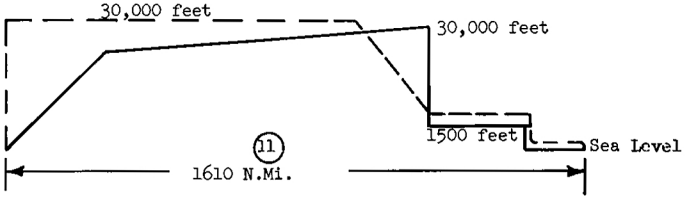
ESCAPE: With military power 50 nautical miles at sea level

CLIMB: With normal power to 1500 feet.

AREA DEPARTURE: Cruise 200 nautical miles at 1500 feet at the speed for maximum range

CLIMB: With normal power to 30,000 feet

CRUISE-BACK: At 30,000 feet at the speed for maximum range



○ LOADING CONDITION COLUMN NUMBER

NOTES

ELECTRONICS (CONTD.)

NAVIGATION EQUIPMENT

Inertial Navigation System ...	AN/ASN-42
Doppler Navigation System	AN/APN-153A(V)
Doppler-Air Mass Computer	AN/ASA-47
AHRS	AN/ASN-50
LORAN	AN/APN-70
TACAN	AN/ARN-52(V)
Radio Compass	DF-202 *
Marker Beacon Receiver	AN/ARN-32
Radar Altimeter	AN/APN-141(V)
Ground Track Plotter	PT-396/AS
True Airspeed Computer	A/A24G-9
Autopilot	PB-20N
Radar Altitude Warning System.	AN/APQ-107
Tactical Plot Board	(OA-1768A)/ASA-13A

* (BUNO 153414 thru 153428 only).

◯ LOADING CONDITION COLUMN NUMBER