

STANDARD AIRCRAFT CHARACTERISTICS
PO-2W "SUPER CONSTELLATION"

LOCKHEED

POWER PLANT

NO. & MODEL.....(4) R-3350-34
 MFR.....W.A.C.
 SUPERCH.....1 Stage, 2 Speed
 PROP. GEAR RATIO.....0.4375
 PROP. MFR.....Ham. Std.
 PROP. DES. NO.....6903A
 NO. BL./DIA.....3/15'-2"

RATINGS

Bhp @ Rpm @ Alt.

	Bhp	Rpm	Alt.
T. O.	3,250	2,900	S. L.
NORM.	2,600	2,600	S. L.
	2,650	2,600	6,500'
	2,450	2,600	17,900'

SPEC. NO. N-972A

ORDNANCE

NONE

MISSION AND DESCRIPTION

The PO-2W airplane is a special search and patrol airplane instrumented to perform the functions of an airborne Combat Information Center (CIC), including Fighter Direction and Airborne Early Warning functions. It is a development of the Lockheed "Super Constellation", Model L-1049A. It has Fowler flaps and a pressurized cabin.

The flight crew (5) consists of a pilot, co-pilot, flight engineer, navigator, and radio operator. The basic CIC crew (13) consists of a CIC officer, assistant CICO, four (4) Air Control officers, a height finder operator, Electronic Counter Measure (ECM) operator, radar operator, plotter, talker, and a status board operator. In addition, a technician's test station is provided. Total crew, including technicians and minimum relief crew, is twenty-six (26).

Mock-up date -- December 1951
 Production scheduled to start -- June 1952
 First flight data -- June 1953
 Service use -- late 1953

(All dates estimated)

DIMENSIONS

WING AREA.....1,654 sq. ft.
 SPAN.....123' - 0"
 LENGTH.....116' - 2"
 HEIGHT.....26' - 2"
 TREAD.....28' - 0"
 M.A.C.....14' - 8"

WEIGHTS

Loadings	Lbs.	L.F.
EMPTY.....	81,390.....	
BASIC		
w/tip tanks.....	84,258.....	
w/o tip tanks.....	84,170.....	
DESIGN.....	120,000..	2.50
MAX.T.O.		
w/tip tanks....	145,000..	2.25
w/o tip tanks..	134,000..	2.25
MAX.LAND.....	122,000.....	
All weights are estimated. Max. T.O. weights limited by strength.		

FUEL AND OIL

Gals.	No. Tanks	Location
5,820	6	Wings
1,750	2	Fuselage
1,200	2	Wing, Tip

FUEL GRADE....115/145

FUEL SPEC..MIL-F-5572

OIL

CAPACITY (Gals.).....308
 GRADE.....1100
 SPEC.....MIL-O-6082

ELECTRONICS

UHF.....AN/ARC-27
 HF TRANS.....AN/ART-13
 HF REC.EQUIP..AN/ARR-15, -15A
 HOMING.....AN/ARR-2A
 ALTIMETER.....AN/APN-1, -22
 ALTIMETER.....SCR-718C
 MARKER BEACON.....AN/ARN-12
 LORAN REC.EQUIP..AN/APN-4, -70
 LF REC.....R-23A/ARC-5
 VISUAL OMNI-RANGE..AN/ARN-14A
 A.D.F.....AN/ARN-6
 SEARCH RADAR.....AN/APS-20B
 (See NOTES)

PERFORMANCE SUMMARY

TAKE-OFF LOADING CONDITION		(1) SEARCH Crew - 26	(2) SEARCH 2 - 600 Gal. Tip Tanks Crew - 28		
TAKE-OFF WEIGHT	lb.	134,000	145,000		
Fuel Internal/External	lb.	43,170/-	45,420/7,200		
Payload	lb.	--	--		
Wing loading	lb./sq.ft.	82.0	87.7		
Stall speed - power-off	kn.	100.5	104.5		
Take-off run at S.L. - calm	ft.	3,150	3,750		
Take-off run at S.L. kn. wind	ft.	--	--		
Take-off to clear 50 ft. - calm	ft.	4,750	5,650		
Max. speed/altitude (1)	kn./ft.	279/20,600	272/20,600		
Rate of climb at S.L. (1)	fpm	910	780		
Time: S.L. to 10,000 ft. (1)	min.	12.1	14.2		
Time: S.L. to 20,000 ft. (1)	min.	31.3	38.5		
Service ceiling (100 fpm) (1)	ft.	22,400	21,000		
Combat range	n.mi.	3,190	3,720		
Average cruising speed	kn.	194	194		
Cruising altitude(s)	ft.	10,000	10,000		
Combat radius	n.mi.	--	--		
Average cruising speed	kn.	--	--		
Time-On-Station SL/10,000/20,000	hrs.	8.8/8.0/5.8	12.0/10.8/8.1		
COMBAT LOADING CONDITION					
COMBAT WEIGHT	lb.				
Engine power					
Fuel	lb.				
Combat speed/combat altitude	kn./ft.				
Rate of climb/combat altitude	fpm/ft.				
Combat ceiling (500 fpm)	ft.				
Rate of climb at S.L.	fpm				
Max. speed at S.L.	kn.				
Max. speed/altitude	kn./ft.				
LANDING WEIGHT					
LANDING WEIGHT	lb.	93,480	95,130		
Fuel	lb.	2,650	2,750		
Stall speed - power-off	kn.	84.0	84.6		
Stall speed - with approach power	kn.	79.0	79.6		

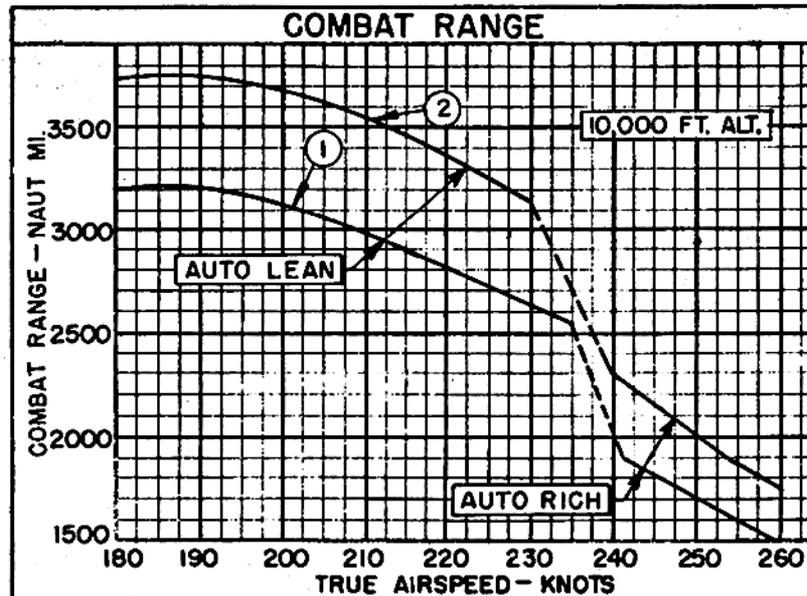
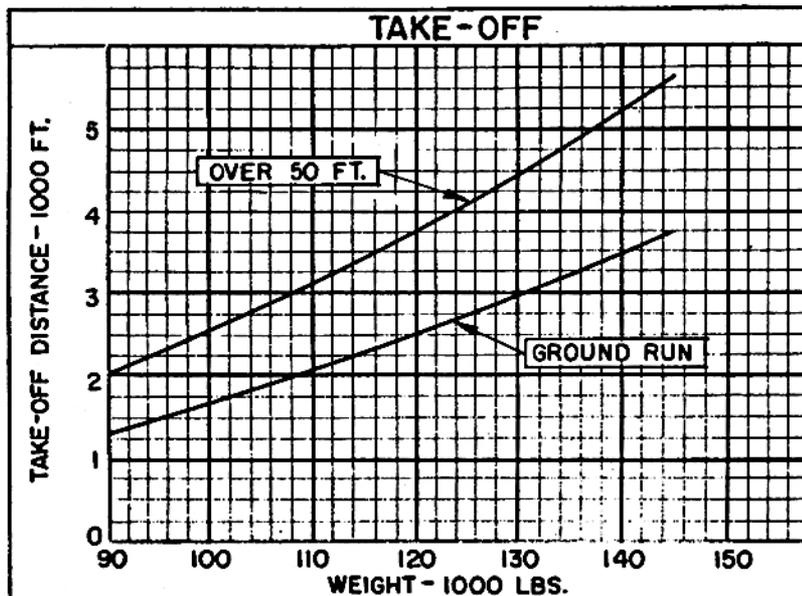
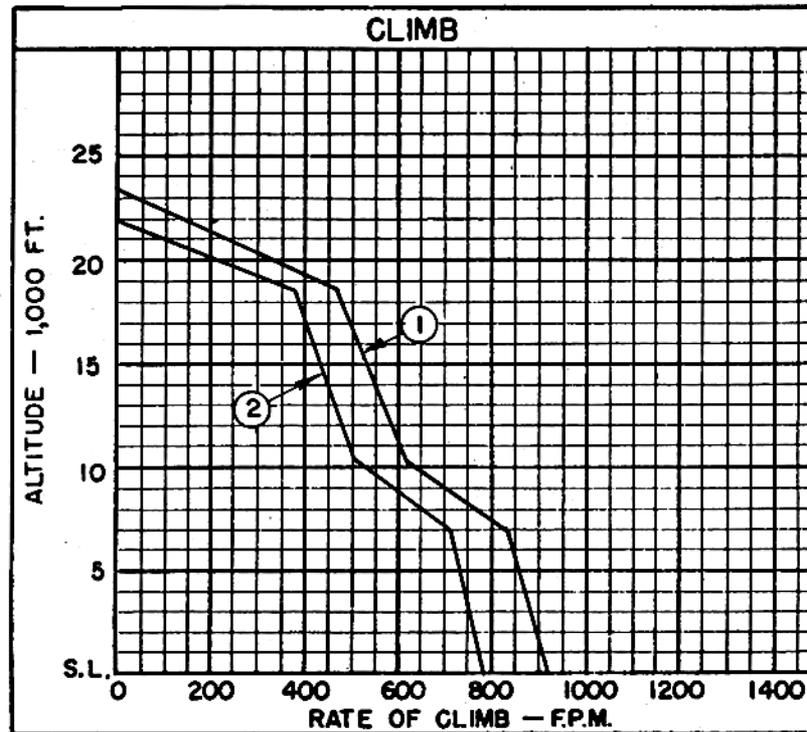
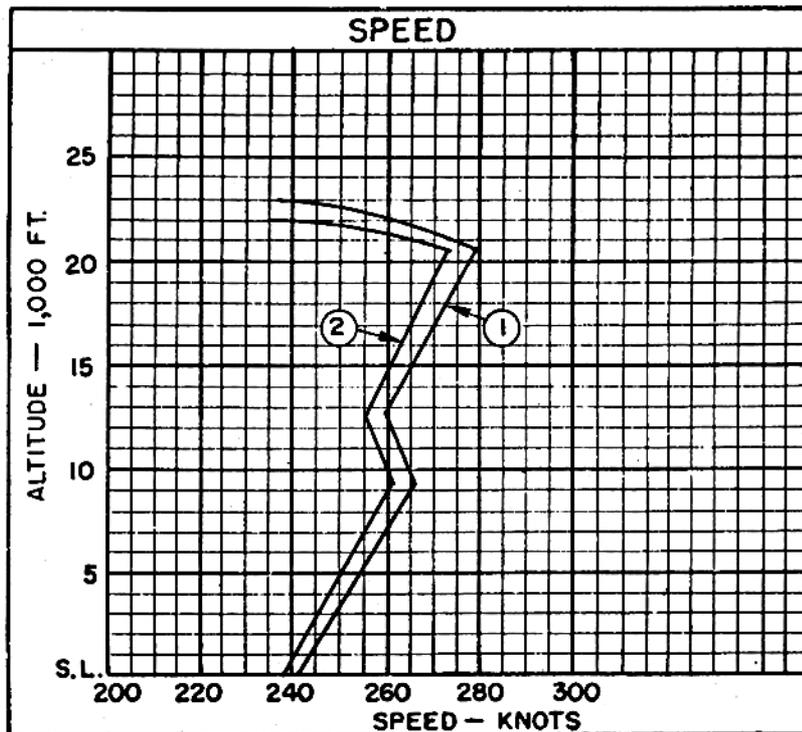
NOTES

(1) Normal Power

Performance is based on flight test of PO-1W airplane.

Range and time-on-station are based on engine specification fuel consumption data increased by 5%.

Time-on-station endurance speeds used for the time-on-station problem are minimum speeds for satisfactory flying characteristics and are higher than the maximum endurance speeds.



○ LOADING CONDITION COLUMN NUMBER

Standard Air Craft Characteristics NAVALP 1335E (REV. 2-50)

NOTES

In order not to exceed the limit maneuver load factor of 2.25, the maximum take-off weight when operating without tip tanks is limited to 134,000 pounds. Full internal fuel cannot be carried for this condition.

Three engine rate-of-climb at sea level, on normal rated power, as follows:

<u>Gross Weight, lbs.</u>	<u>Rate-of-Climb, ft/min.</u>
134,000	570
145,000	410

TIME-ON-STATION PROBLEM

SEA LEVEL STATION

WARM-UP, TAXI, TAKE-OFF: 10 minutes at normal power

CLIMB: on course to 10,000 feet at normal power

CRUISE-OUT: Vmax. range at 10,000 feet. Climb + Cruise-out = 1,000 nautical miles

DESCENT: let down to sea level. No credit taken for distance covered in descent

TIME-ON-STATION: () hours at sea level at minimum practical operating speed

CLIMB: on course to 10,000 feet at normal power

CRUISE-BACK: Vmax. range at 10,000 feet. Climb + Cruise-back = 1,000 nautical miles

RESERVE: 2 hours at Vmax. range at 1,500 feet

10,000 FT. STATION

WARM-UP, TAXI, TAKE-OFF: 10 minutes at normal power

CLIMB: on course to 10,000 feet at normal power

CRUISE-OUT: Vmax. range at 10,000 feet. Climb + Cruise-out = 1,000 nautical miles

TIME-ON-STATION: () hours at 10,000 feet at minimum practical operating speed

CRUISE-BACK: Vmax. range at 10,000 feet for 1,000 nautical miles

RESERVE: 2 hours at Vmax. range at 1,500 feet

20,000 FT. STATION

WARM-UP, TAXI, TAKE-OFF: 10 minutes at normal power

CLIMB: on course to 10,000 feet at normal power.

CRUISE-OUT: Vmax. range at 10,000 feet. Climb from sea level to 10,000 feet + Cruise-out + Climb from 10,000 feet to 20,000 feet = 1,000 nautical miles

CLIMB: on course from 10,000 feet to 20,000 feet at normal power

TIME-ON-STATION: () hours at 20,000 feet at minimum practical operating speed

DESCENT: let down to 10,000 feet. No credit taken for distance covered in descent

CRUISE-BACK: Vmax. range at 10,000 feet for 1,000 nautical miles

RESERVE: 2 hours at Vmax. range at 1,500 feet

ELECTRONICS (Continued)

ECM REC.....AN/APR-9B

ECM D.F.....AN/APA-69

ECM REC.....AN/ARR-7

PANORAMIC ADAPTER.....AN/APA-10

ECM REC.....AN/APR-4

PANORAMIC ADAPTER.....AN/APA-38

GRD. POSITION IND.....AN/APA-57

RADAR RELAY REC.....AN/ARR-27A

IFF.....AN/APX-6

CIC INDICATING EQUIP.....AN/APA-56

RADAR HEIGHT FINDER.....AN/APS-45

RADAR RELAY TRANS.....AN/ART-28

Planned Service Installation:

HOMING.....AN/ARN-21

(to replace AN/ARR-2A)

GLIDE SLOPE REC.....AN/ARN-18

DME.....AN/APN-34

UHF D.F.....AN/ARA-25

MOVING TARGET IND.....(AMTI)

ECM PULSE ANALYZER.....AN/APA-74

IFF.....AN/APX-7