

STANDARD AIRCRAFT CHARACTERISTICS
WV-1 "CONSTELLATION"
LOCKHEED

Standard Aircraft Characteristics of NAVAR 1335A (REV. 1-55)

POWER PLANT

NO. & MODEL.....4 YR-3350-75
 MFR.....W.A.C.
 SUPERCH. AUGMEN.....1 Stage, 2 Speed
 REDUC. GEAR RATIO.....0.4375
 PROP MFR.....Ham. Std.
 PRO. DES. NO.....ZF17K3-24S
 NO. BLADES/DIA.....3/15" - 1"

RATINGS

| | BHP | RPM | ALT. |
|-------|-------|-------|---------|
| T.O. | 2,500 | 2,800 | 3,100' |
| | 1,900 | 2,600 | 15,700' |
| NORM. | 2,100 | 2,400 | 4,400' |
| | 1,800 | 2,400 | 16,000' |

SFEC. NO. 749-E

ELECTRONICS

UHF.....AN/ARC-28
 VHF.....AN/ARC-1A
 Comm. Trans.....AN/ART-13
 HF Receiver.....AN/ARR-15A
 Liaison Trans. & Rec.....AN/ARC-5
 ADF Receiver.....AN/ARN-7
 Marker Beacon.....AN/ARN-8
 VHF.....AN/ARR-2A
 Altimeter-Low Alt.....AN/APN-1
 Altimeter-High Alt.....SCR-718C
 Loran.....AN/APN-4
 Search Radar.....AN/APS-20A
 Height Finder Radar.....AN/APS-45 (XN)
 CIC Ind. Equip.....AN/APA-56 (XN)
 Grd. Posit. Ind.....AN/APA-57
 Radar Relay Rec.....AN/ARR-27
 IFF.....AN/APX-6, -13A
 RCM Rec.....AN/ARP-4, -9
 Panoramic Adapt.....AN/APA-10, -38
 ELM Direction Finder.....AN/APA-69
 Pulse Analyser.....AN/APA-64A
 RCM Rec.....AN/ARR-5, -7
 Radar Relay Trans.....AN/ART-28
 (Service installed)

MISSION AND DESCRIPTION

The WV-1 airplane is a special search airplane instrumented to perform the functions of a combat information center (CIC), including fighter direction and airborne early warning.

It is a development of the commercial Lockheed "Constellation" model 749 with the addition of complete CIC equipment.

The crew consists of a flight crew of five (pilot, copilot, flight engineer, navigator, radio operator) and ten CIC crew (CIC officer, four control officers, plotter, talker, RCM operator, height finder, radar operator. Provisions are made for carrying a relief crew of sixteen men. Structure is conventional. Modified fowler-type flaps are fitted.

WEIGHTS

| LOADINGS | LBS. | L.F. |
|---------------|---------|------|
| EMPTY..... | 68,111 | |
| BASIC..... | 70,222 | |
| DESIGN..... | 107,000 | 2.5 |
| COMBAT..... | | |
| MAX. T.O..... | 110,000 | 2.4 |
| MAX. LDG..... | 89,500 | |

All weights are actual.

FUEL AND OIL

| NO. TANKS | TOTAL GALS. | LOCATION |
|-----------|-------------|----------|
| 2 | 1,130 | Wing |
| 2 | 3,110 | Wing |
| 2 | 1,580 | Wing |

FUEL GRADE.....100/130
 FUEL SFEC.....AN-F-48

OIL

CAPACITY (Gals.).....216
 GRADE.....1120
 SFEC.....AN-O-8

DIMENSIONS

WING
 AREA.....1,650 Sq. Ft.
 SPAN.....123' - 0"
 M.A.C.....14' - 8"

LENGTH.....97' - 10"
 HEIGHT.....26' - 6"
 TREAD.....28' - 0"
 PROF. GND. CLEARANCE.....2' - 2"

ORDNANCE

NONE

PERFORMANCE SUMMARY

| TAKE-OFF LOADING CONDITION | | (1) 5,000 Ft. NORMAL SEARCH | (2) 10,000 Ft. NORMAL SEARCH | (3) 5,000 Ft. SPECIAL SEARCH | (4) 10,000 Ft. SPECIAL SEARCH |
|-----------------------------------|------------|--------------------------------|---------------------------------|---------------------------------|----------------------------------|
| TAKE-OFF WEIGHT | lb. | 107,000 | 107,000 | 110,000 | 110,000 |
| Fuel | lb. | 31,920 | 31,920 | 34,920 | 34,920 |
| Fayload | lb. | -- | -- | -- | -- |
| Wing loading | lb./sq.ft. | 64.8 | 64.8 | 66.6 | 66.6 |
| Stall speed - power-off | kn. | 89.6 | 89.6 | 90.9 | 90.9 |
| Take-off run at S.L. - calm | ft. | 2,190 | 2,190 | 2,350 | 2,350 |
| Take-off run at S.L. kn. wind | ft. | -- | -- | -- | -- |
| Take-off to clear 50 ft. - calm | ft. | 4,440 | 4,440 | 4,810 | 4,810 |
| Max. speed/altitude (A) | kn./ft. | 269/18,800 | 269/18,800 | 267/18,800 | 267/18,800 |
| Rate of climb at S.L. (A) | fpm. | 1,050 | 1,050 | 1,000 | 1,000 |
| Time: S.L. to 10,000 ft. (A) | min. | 11.1 | 11.1 | 11.9 | 11.9 |
| Time: S.L. to 20,000 ft. (A) | min. | 29.5 | 29.5 | 32.5 | 32.5 |
| Service ceiling (100 fpm) (A) | ft. | 22,000 | 22,000 | 21,500 | 21,500 |
| Combat range | n.mi. | 3,055 | 3,050 | 3,270 | 3,240 |
| Average cruising speed | kn. | 172 | 180 | 172 | 186 |
| Cruising altitude(s) | ft. | 5,000 | 10,000 | 5,000 | 10,000 |
| Combat radius | n.mi. | 1,475 | 1,435 | 1,585 | 1,540 |
| Average cruising speed | kn. | 167 | 179 | 168 | 181 |
| | | | | | |
| 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 | lb. | | | | |
| Fuel | lb. | | | | |
| Stall speed - power-off | kn. | | | | |
| Stall speed - with approach power | kn. | | | | |

NOTES

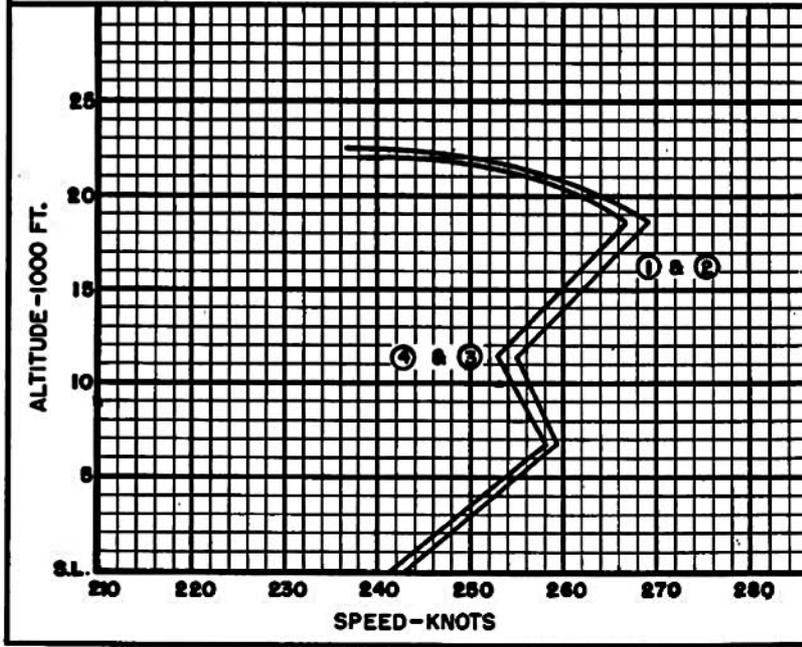
(A) Normal BHP

 Performance is based on flight test data of the model PO-1W airplane. Range and radius are based on flight test fuel consumption increased by 5%.

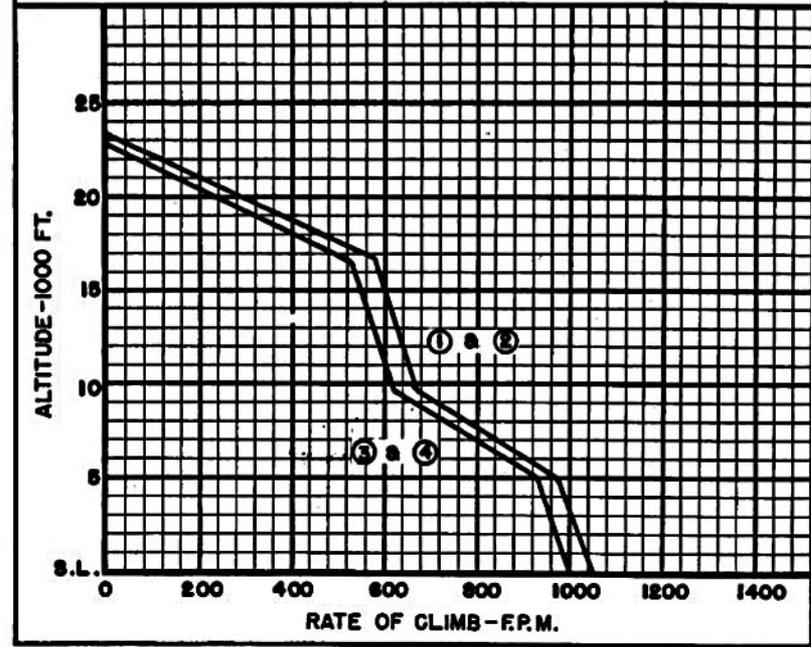
Reason for Reissue: New radius problem and additional flight test data.

Standard Aircraft Characteristics NAVALER 1332E (Rev. 1-55)

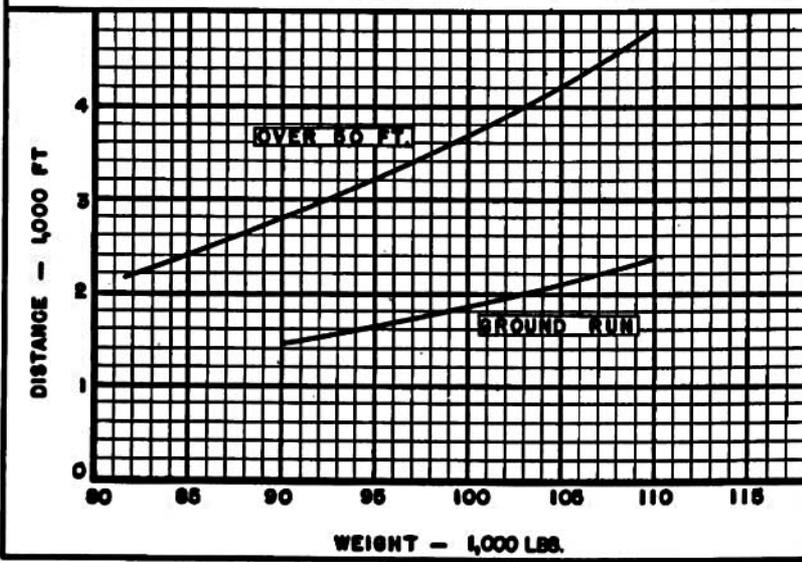
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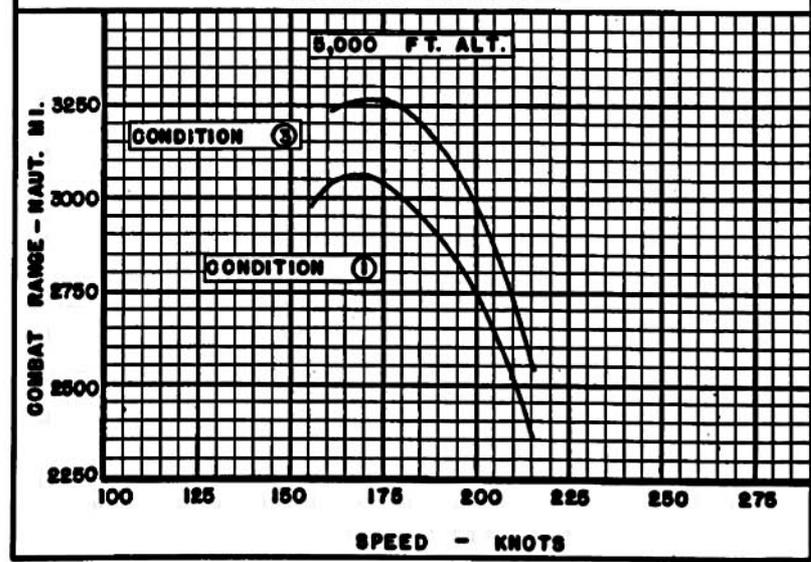
CLIMB



TAKE-OFF



COMBAT RANGE



○ LOADING CONDITION COLUMN NUMBER

NOTES

RADIUS PROBLEM: SEARCH

1. Fuel allowance for starting engines, take-off, and accelerate-to-climb speed is POUNDS of fuel used in 10 minutes with normal power at sea level.
2. Climb on course to the cruise altitude noted on the performance summary sheet for the particular landing.
3. Cruise to remote base at speeds for long range at CRUISE ALTITUDE.
4. Land at remote Sea Level base.
5. Fuel allowance for restarting engines, take-off from remote base and accelerate to climb speed is the same as 1.
6. Climb on course to the cruise altitude noted on the performance summary sheet for the particular loading. (Same as cruise-out)
7. Cruise to home base at speeds for long range at CRUISE ALTITUDE.
8. Fuel allowance for reserve and landing.
 - (a) 5 percent of the initial fuel
 - (b) 30 minutes at speed for LONG RANGE at Sea Level.

3 - ENGINE PERFORMANCE IS AS FOLLOWS:

- a. Dead engine propeller windmilling, gear down, flaps in T.O. position, T.O. power

W = 110,000 lbs., R/C at S.L. = 150 ft./min.
 W = 107,000 lbs., R/C at S.L. = 205 ft./min.
 W = 77,000 lbs., R/C at S.L. = 700 ft./min.
 W = 107,000 lbs., Service Ceiling = 4,500 ft.

- b. Dead engine propeller windmilling, gear up, flaps in T.O. position, T.O. power

W = 110,000 lbs., R/C at S.L. = 410 ft./min.
 W = 107,000 lbs., R/C at S.L. = 460 ft./min.
 W = 77,000 lbs., R/C at S.L. = 980 ft./min.
 W = 107,000 lbs., Service Ceiling = 8,200 ft.

- c. Dead engine propeller feathered, gear up, flaps in T.O. position, T.O. power

W = 110,000 lbs., R/C at S.L. = 515 ft./min.
 W = 107,000 lbs., R/C at S.L. = 560 ft./min.
 W = 77,000 lbs., R/C at S.L. = 1,060 ft./min.

- d. Dead engine propeller feathered, gear up, flaps in T.O. position, neto power

W = 107,000 lbs., Service Ceiling = 8,600 ft.