

AIRPLANE CHARACTERISTICS & PERFORMANCE

BUREAU OF AERONAUTICS, NAVY DEPT.

| COLUMN NUMBER | | | 1 | 2 | | |
|--|---------------------------|-----------------------|--------------|------------------------|--|--|
| LOADING CONDITION | | | SEARCH | SEARCH 2 EXT. TANKS | | |
| GROSS WEIGHT | LBS. | | 14910 | 17167 | | |
| EMPTY WEIGHT SPECIFICATION | LBS. | | 12376 | | | |
| FUEL/OIL | GALS. | | 270/20 | 570/37 | | |
| FIXED GUNS/AMMUNITION | | | NONE | | | |
| FLEXIBLE GUNS/AMMUNITION | | | NONE | | | |
| ENGINE POWER USED FOR PERFORMANCE | | | NORMAL | NORMAL | | |
| WING LOADING | LBS./SQ.FT. | | 37.3 | 42.9 | | |
| POWER LOADING ① | LBS./BHP. | | 7.8 | 9.0 | | |
| V-MAX. SEA LEVEL | KN. | | 257 | 244 | | |
| V-MAX. | KN./FT. | | 289/19100 | 272/18900 | | |
| V-STALL GROSS WEIGHT ② | KN. | | 75.3 | 83.0 | | |
| V-STALL WITHOUT FUEL ② | KN. | | 71.1 | 74.3 | | |
| TIME-TO-CLIMB -10000FT- | MIN. | | 4.1 | 5.2 | | |
| TIME-TO-CLIMB -20000FT- | MIN. | | 9.4 | 12.5 | | |
| SERVICE CEILING | FT. | | 32500 | 29800 | | |
| TAKE-OFF DISTANCE -CALM- | FT. | | 592 | 894 | | |
| TAKE-OFF DISTANCE -15 KN- | FT. | | 379 | 599 | | |
| TAKE-OFF DISTANCE -25 KN- | FT. | | 263 | 433 | | |
| TAKE-OFF DISTANCE -50 FT. OBST. | FT. | | | | | |
| TAKE-OFF TIME | SECONDS | | | | | |
| RATE OF CLIMB -SL- | FT./MIN. | | 2580 | 2050 | | |
| MAX. RANGE / V-AV. ③ | N MI./KN. | | 780/141 | 1435/140 | | |
| RANGE / V-AV -60% NSP-③- | N MI./KN. | | | | | |
| SEARCH RADIUS / V-AV. -20% R- | N MI./KN. | | | | | |
| A.S.W. RADIUS / V-AV. -20% R- | N MI./KN. | | | | | |
| SCOUT RADIUS See Page 2 | N MI. | | | 410 | | |
| COMBAT RADIUS Endurance - see Pg. 2 | HRS | | 4.1 | 8.5 | | |
| ENGINE / PROP. GEAR RATIO WAC. R3350-26W / .4375 | | | | | | |
| ENGINE RATING BHP/RPM/ALT. | MILITARY | NORMAL | TAKE-OFF | | | |
| | 2700/2900/SL-3700 | 2300/2600/56-6200 | 2700/2900/SL | | | |
| | 2100/2600/11500-14500 | 1900/2600/12000-17000 | | | | |
| TANKAGE IN GALLONS | | | OIL | FUEL | OFFENSIVE ARMAMENT | |
| AUX. FIXED | PROTECTED | | | 270 | - None - | |
| | UNPROTECTED | | 37 | | Performance is based on flight tests of XBT2D-1 airplane. | |
| | TOTAL - FIXED INTERNAL | | 37 | 270 | Range, radius and endurance are based on engine specification, normal mixture, fuel consumption data increased | |
| | DROPPABLE Wings - 2 @ 150 | | | 300 | by 15% to conform with past experience. | |
| | DROPPABLE | | | | | |
| TOTAL | | | 37 | 570 | | |
| NOTE | ① BHP AT MAX. CRIT. ALT. | | | | | |
| | ② STALL - WITHOUT POWER | | | | | |
| | ③ AT 1500' ALTITUDE | | | | | |

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Search Condition:

Two MK-51 wing bomb racks with sway bracing ~~added~~. AN/APS-20A radar aboard.

Practical Scouting Radius Formula (Special Problem) Condition (2).

Radius is $1/3$ of distance in climb and cruise at 8000 ft. at cruise speed of 150 kn. Fuel for 20 minute warm-up, 1 minute T.O., and normal rated power climb to 8000 ft. used at start of flight. Fuel allowance for 60 minutes at V. for max. range at 1500 ft. for rendezvous, landing and reserve carried entire distance. External tanks carried entire distance.

Practical Endurance Formula - Conditions (1) and (2)

Endurance at 8000 ft. altitude at cruise speed of 150 kn. Fuel for 20 minute warm-up, 1 minute T.O., and normal rated power climb to 8000 ft. used at start of flight. Fuel allowance for 30 minutes at V. for max. range at 1500 ft. for rendezvous, landing and reserve carried entire distance. External tanks carried entire distance.

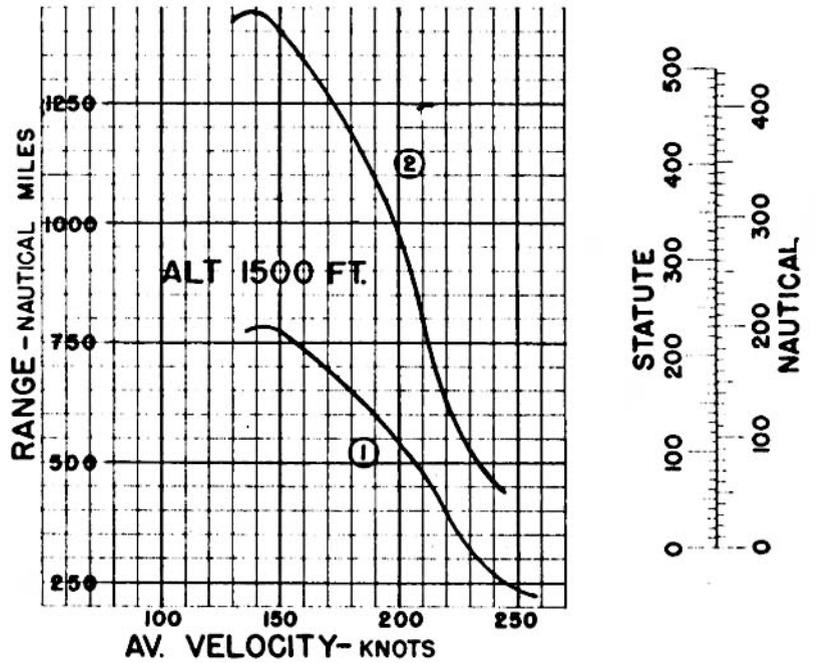
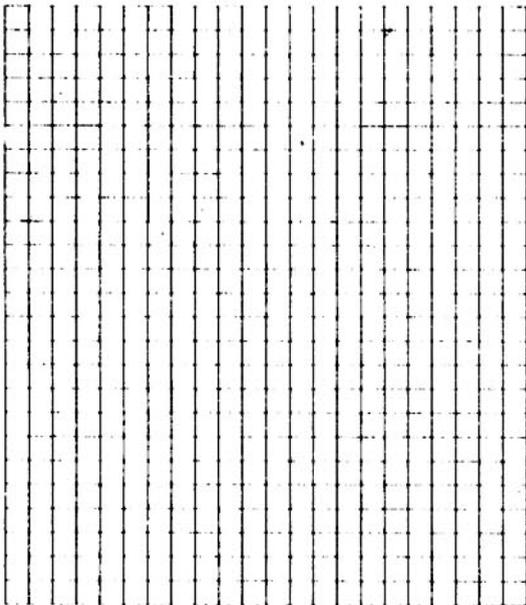
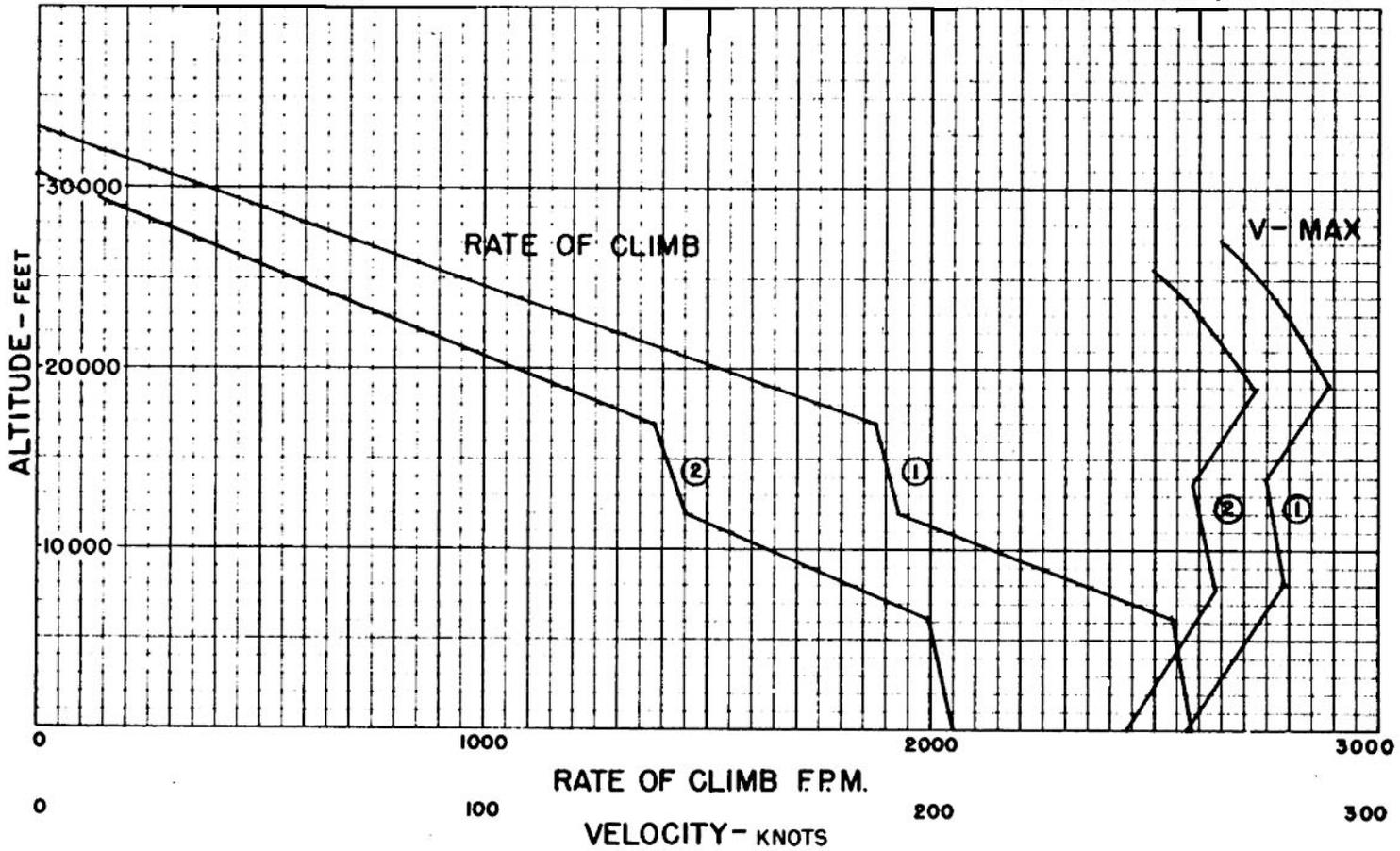
Minimum engine power and speed of 580 HP and 1100 rpm, respectively, has a slight effect on the range and endurance of Condition 1. The effect on endurance results from slightly more fuel required for reserve.

Spotting:

200 ft. length is required to spot 20 planes on the 96 ft. wide deck immediately aft of the forward ramp on CV-9 Class carriers.

The AD-2W airplane differs from the scout version of the AD-2 airplane in external configuration as follows:

- (1) Guns are removed.
- (2) AN/APS-20A radar is added.
- (3) The after portion of the canopy has been extended by a fairing which includes an air scoop.
- (4) Addition of four external antennae.



○ LOADING CONDITION COLUMN NUMBER