



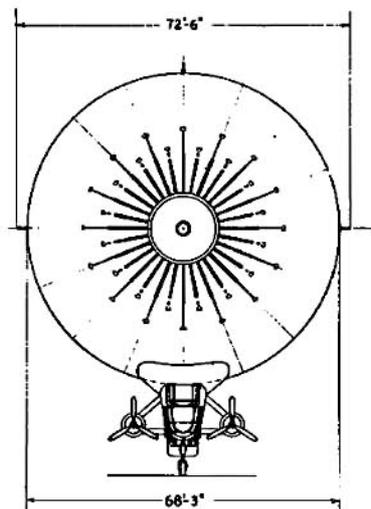
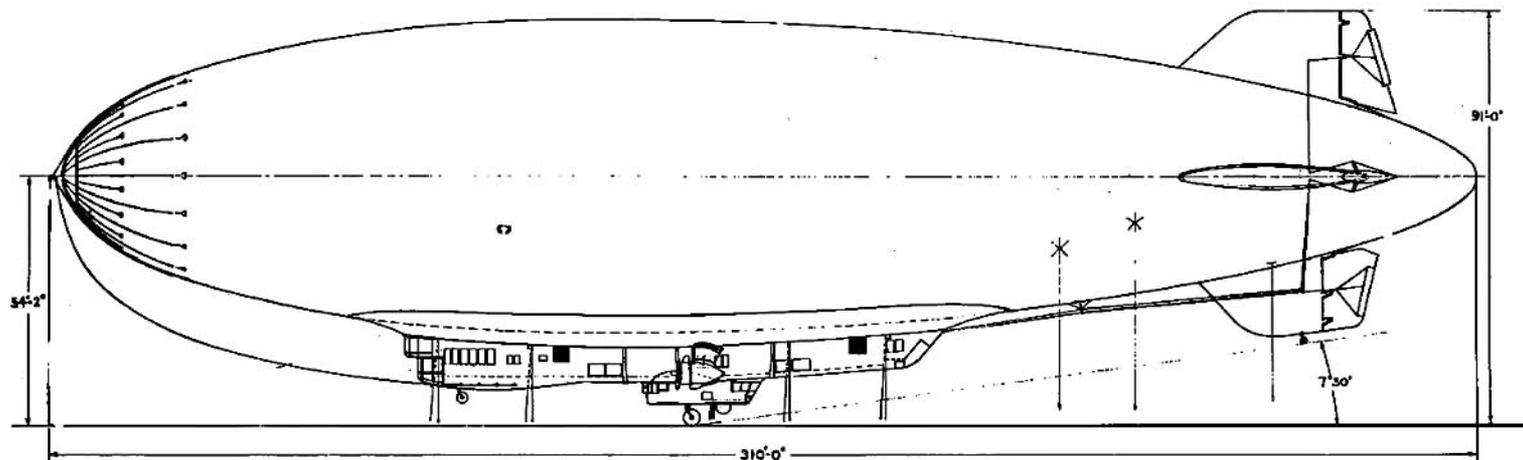
# STANDARD AIRCRAFT CHARACTERISTICS

## ZPM

*ZPM-1 was 725,000 cuft  
ZPM-2-3 & 4 were 647,000 cuft.*

BUREAU OF AERONAUTICS  
NAVY DEPARTMENT

ENVELOPE VOLUME	725,000 CU. FT.
FINENESS RATIO	4.5
BALLONNET VOLUME	203,000 CU. FT.
NUMBER OF BALLONNETS	4
HORIZONTAL EMPENNAGE	1260 SQ. FT.
VERTICAL EMPENNAGE	1188 SQ. FT.



0 10 20 FT  
SCALE

DESCRIPTIVE ARRANGEMENT

**MISSION AND DESCRIPTION**

The mission of the ZPM airship is patrol and anti-submarine warfare, especially patrol and convoy escort in coastal waters, and utility.

Electronic equipment includes radar and MAD for detecting and tracking submarines. The armament comprises bombs and/or depth charges carried within the car, and one machine gun as an anti-personnel weapon.

The car is of exceptional length for distribution of the load along the envelope. There are four ballonets instead of the usual two. The normal complement is ten.

**DIMENSIONS**

GAS VOLUME.....725,000 cu. ft  
 BALLONETS.....203,000 cu. ft  
 LENGTH.....310'-0"  
 HEIGHT.....91'-0"  
 WIDTH.....72'-6"  
 MAX. DIA.....68'-4"

**WEIGHTS**

Loadings Lbs.  
 EMPTY.....30,800  
 STAT. LIFT\*.....43,600  
 ST:T. + MAX. DYN  
 LIFT.....46,100

\* 97% inflated at .062 lb/cu. ft.

All weights are actual.

**FUEL AND OIL**

GAL.	NO. TANKS	LOCATION
1000	8	CAR
500	4	CAR, SLIP
500	4	CAR, DUMP

FUEL GRADE.....91/98  
 FUEL SPEC.....AN-F-48

**OIL**

CAPACITY (GALS).....108  
 SPEC.....AN-C-8  
 GRADE.....1120

**ELECTRONICS**

Transmitter.....AN/ART-13  
 HF Trans. ....ATB  
 LF-MF-HF Rec.....ARB  
 Marker Beacon ....AN/ARN-8  
 VHF Homing.....AN/ARR-1  
 VHF Transceiver...AN/APC-1  
 Altimeter.....AN/APN-1  
 Search Radar.....AN/APS-2A  
 IFF.....AN/APX-2  
 Magnetic Detect...AN/ASQ-2C

**POWER PLANT**

NO. & MODEL....(2) R-1340-AN-2  
 MFR .....P.&W.  
 SUPERCH.....1 stage, 1 speed  
 PROP. GEAR RATIO.....0.666  
 PROP. MFR.....Curtiss  
 PROP. DES. NO.....714-1C2-12  
 NO. BL./DIA.....3/12'-0"

**RATINGS**

	Bhp	@ RPM	Alt.
T.O.	600	2250	SL.
NORM.	550	2200	5000'

SPEC. AN-1051

**ORDNANCE**GUNS

No.	Size	Location	Rds.
1	.50 cal	Fwd in car	240

BOMBS

Type	Size	Location	No.
D.B.	325#	In car	8

Max. bomb load.....2600 Lbs.



## PERFORMANCE SUMMARY

LOADING CONDITION		(1) ASW PATROL	(2) ASW PATROL	(3) FERRY	(4) HIGH ALTITUDE
TAKE-OFF WEIGHT	Lbs.	43,500	47,000	47,000	36,700
HEAVINESS	Lbs.	0	3,500	3,500	3,500
BOMBS	Lbs.	2,600	2,600		
SERVICE LOAD	Lbs.	3,100	3,100	3,100	2,500
FUEL & OIL	Lbs.	7,100	10,600	13,200	3,500
MAX. SPEED	Kts.	67.5	67.5	67.5	67.5
PRESSURE HEIGHT	ft.	1,000	1,000	1,000	9,900
TIME TO PRESS. HT.	min.	.8	1.2	1.2	14.0
TAKE-OFF RUN, CALM	ft.	0	1,350	1,350	1,350
PATROL RANGE/SPEED	N.mi./kts.	1420/50	2120/50	2640/50	875/50
PATROL RADIUS/SPEED	N.mi./kts.	570/50	850/50		350/50
ENDURANCE/SPEED	Hrs/kts.	74/35	110/35	138/35	37/35

## NOTES

Performance is based on flight tests of airship XZPM-1.

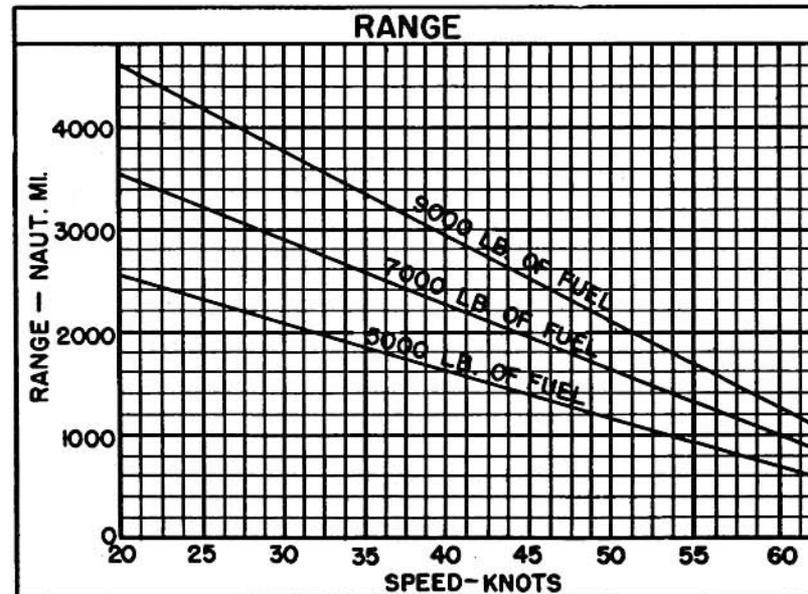
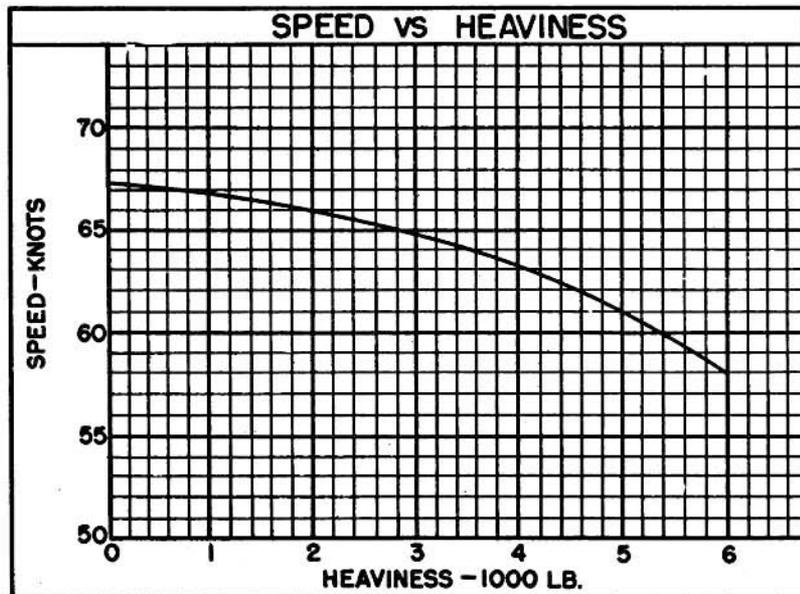
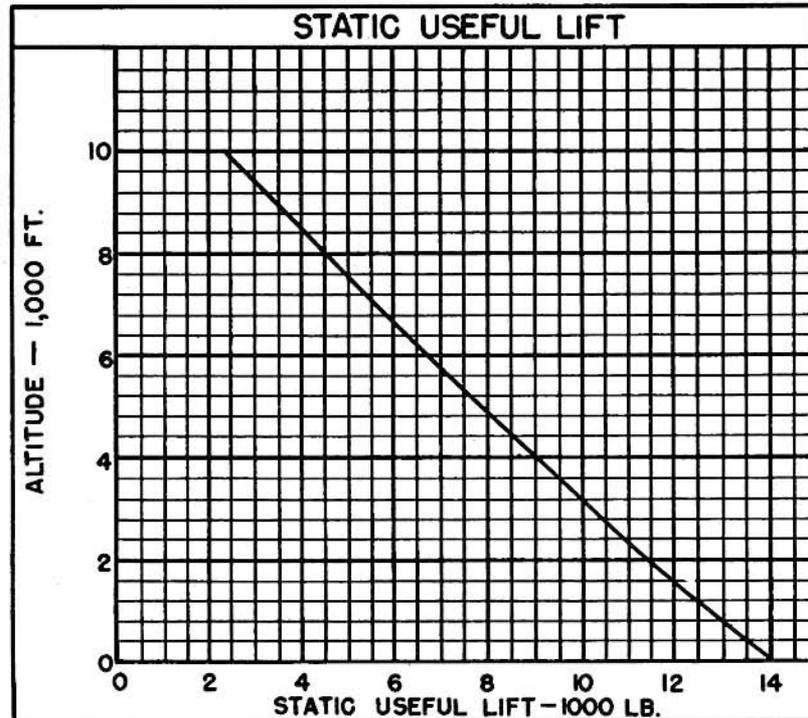
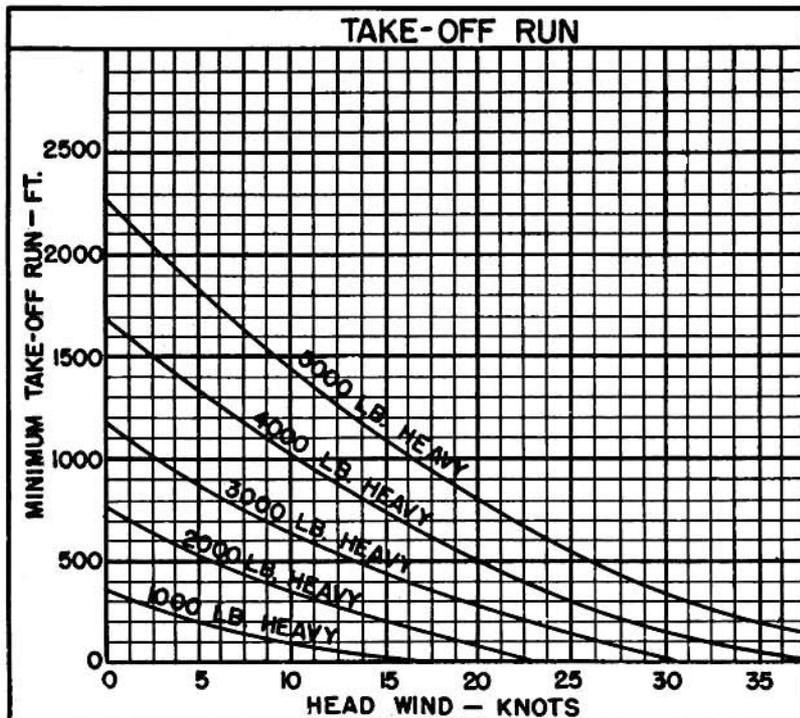
Range, radius and endurance are based on flight test fuel consumption increased by 5%.

Patrol radius is 40% of patrol range.

Performance is based upon inflation with helium, lifting .062 lb/cu.ft. at sea level.

Fullness at sea level is 97.1% for 1000 ft. pressure height, and 74.1% for 9900 ft.

Pressure height is defined as the maximum altitude to which the airship can rise in a standard atmosphere, in a given loading condition, without valving helium.



○ LOADING CONDITION COLUMN NUMBER

# NOTES

All figures for lift of the airship are based upon inflation with helium lifting .062 lb. per cu. ft. at sea level in the standard N.A.C.A. atmosphere.

The static lift in flight is independent of altitude and temperature so long as helium is not valved and there is no superheat (i.e. the air and gas are at equal temperatures).

The gross and usefull lifts of the fully inflated airship diminish with altitude in the standard atmosphere at the rate of approximately 3% of the gross lift per 1000 feet.

In the absence of superheat the lift of the fully inflated airship at a given altitude varies inversely as the air temperature at the rate of approximately 1% of the gross lift per 5° F.

In all conditions of inflation, so long as gas is not valved, the lift varies directly with the superheat at approximately 1% per 5° F. The lift of the fully inflated airship is not, however, increased by rising gas temperature unless the altitude is reduced as necessary to avoid loss of gas by valving.