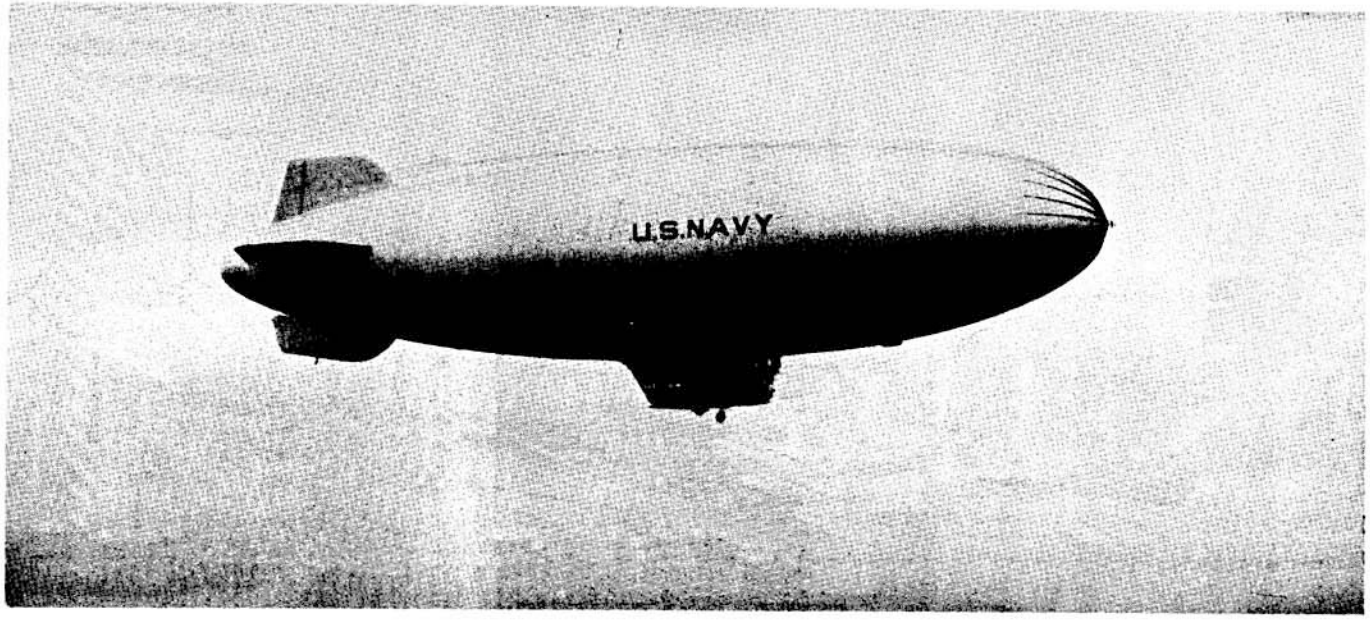
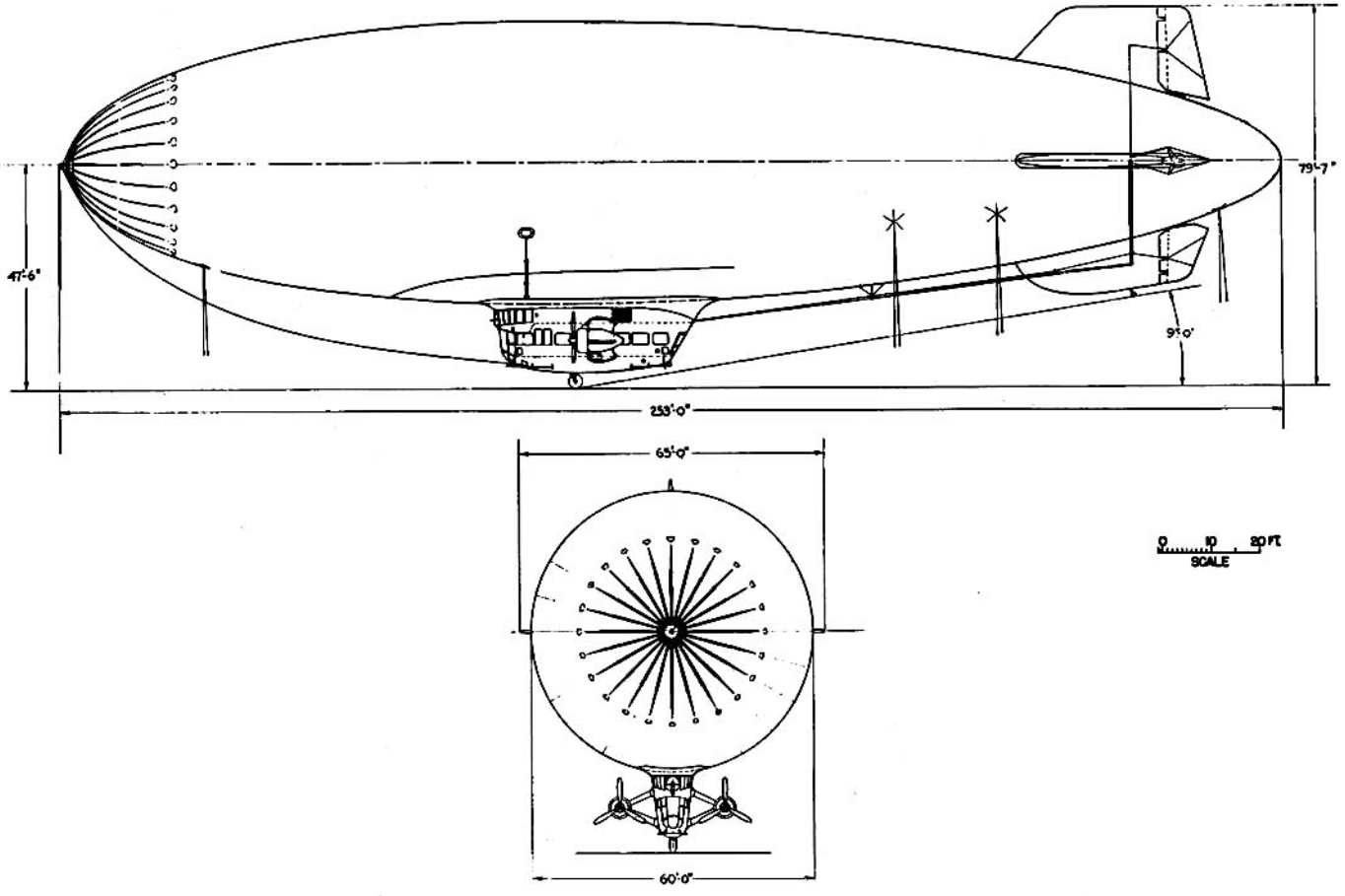


STANDARD AIRCRAFT CHARACTERISTICS
ZP2K

BUREAU OF AERONAUTICS
NAVY DEPARTMENT

ENVELOPE VOLUME	456,000 CU.FT.
FINENESS RATIO	4.17
BALLONET VOLUME	119,500 CU.FT.
NUMBER OF BALLONETS	2
HORIZONTAL EMPENNAGE	992 SQ.FT.
VERTICAL EMPENNAGE	815 SQ.FT.



DESCRIPTIVE ARRANGEMENT

MISSION AND DESCRIPTION

The ZP2K airship for patrol and anti-submarine warfare is the modernized version to which it is intended that all ZPK airships will ultimately be converted. The modification includes completely new electronic equipment, Curtiss electric propellers, a Sperry A-12 automatic pilot, overhead slip tanks, and minor changes to improve the military efficiency. The power plant and armament remain unchanged, and the normal crew is eight.

WEIGHTS

Loadings	Lbs.
EMPTY	21,600
STAT. LIFT*	27,400
STAT. + MAX. DYN. LIFT	29,400

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

All weights actual.

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.....SPA-9-200
NO. BL./DIA..... 3/12'-6"

RATINGS

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

SPEC. AN-1051

NOTE:
Power is limited by limiting speed of 67.5 kts. to 470 BHP per engine.

FUEL AND OIL

GAL.	NO. TANKS	LOCATION
500	4	CAR
250	2	CAR:dump
250	2	CAR:drop

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

OIL

CAPACITY (GALS).....52
SPEC.....AN-O-8
GRADE.....1120

ORDNANCE

GUNS

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

BOMBS

Type	Size	Location	No.
D.B.	650#	External	2
Mine	Mk.24	External	2
Bomb	Mk.52	Internal	8

Normal Bomb Load.....1300 Lbs.
Max. Bomb Load.....2000 Lbs.

DIMENSIONS

GAS VOLUME.....456,000 cu. ft
BALLONETS.....119,000 cu. ft
LENGTH.....253'-0"
HEIGHT.....79'-7"
WIDTH.....65'-0"
MAX. DIA.....60'-0"

ELECTRONICS

Transmitter.....AN/ART-13
Receiver.....R23/ARC-5
Receiver.....AN/ARC-15
Loran.....R65/APN-9
Navig. Rec.....R8/ARN-8
Compass.....AN/ARN-7
Rec.-Trans.....RT7/APN-1
Receiver.....R156/ARR
Search Radar.....AN/APS-33
IFF.....AN/APX-2
Magnetic Detect....AN/ASQ-2C

PERFORMANCE SUMMARY

LOADING CONDITION		(1) PATROL	(2) PATROL	(3) FERRY	(4) HIGH ALTITUDE
TAKE-OFF WEIGHT	Lbs.	27,400	29,400	29,400	24,800
HEAVINESS	Lbs.	0	2,000	2,000	2,000
USEFUL LOAD	Lbs.	5,800	7,800	8,400	3,800
BOMBS	Lbs.	1,300	1,300	0	0
SERVICE LOAD	Lbs.	2,450	2,450	2,300	1,800
FUEL AND OIL	Lbs.	2,050	4,050	6,100	2,000
MAX. SPEED	Kts.	67.5	67.5	67.5	67.5
PRESSURE HEIGHT	Ft.	1,000	1,000	1,000	7,200
TIME TO PRESS. HT.	min.	.8	1.0	1.0	8.0
TAKE-OFF RUN, CALM	Ft.	0	850	850	850
PATROL RANGE/SPEED	N.mi./kts.	635/50	1260/50	1900/50	830/50
PATROL RADIUS/SPEED	N.mi./kts.	255/50	505/50		330/50
ENDURANCE/SPEED	Hrs/Kts.	26/35	51/35	78/35	24/35

NOTES

Performance is based on flight tests of K-93 airship.

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

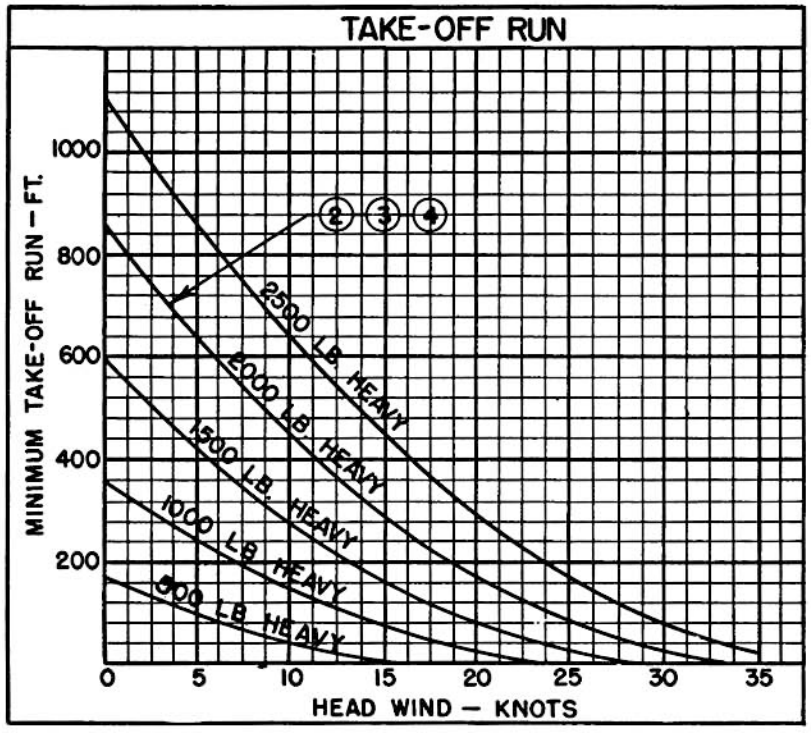
Patrol radius is 40% of patrol range.

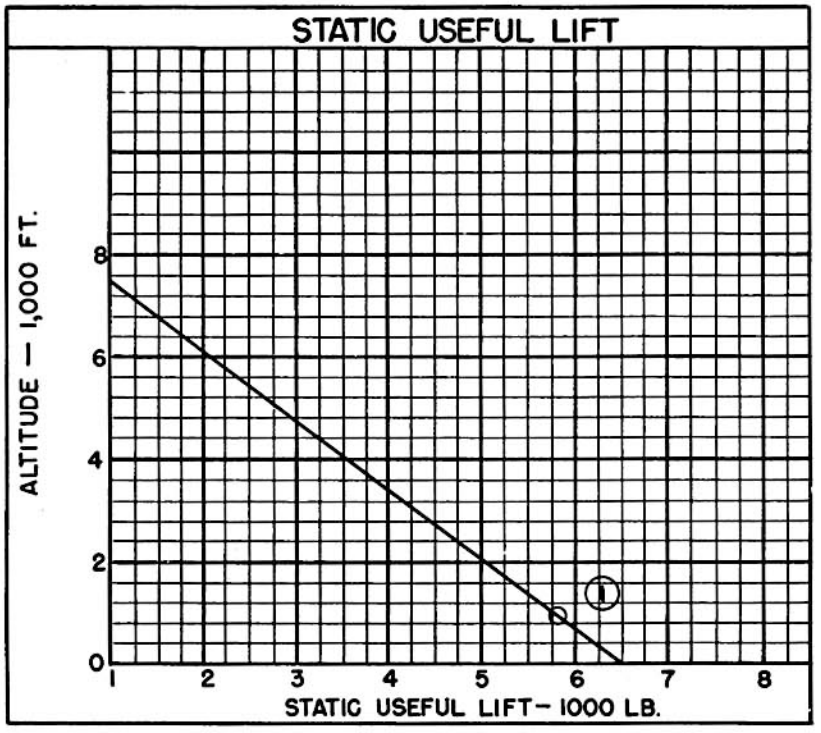
Performance is based on inflation with helium lifting .062 lb/cu.ft. at sea level. Gas fullness at sea level is 97.1% for 1000 ft. pressure height and 80.6% for 7200 ft.

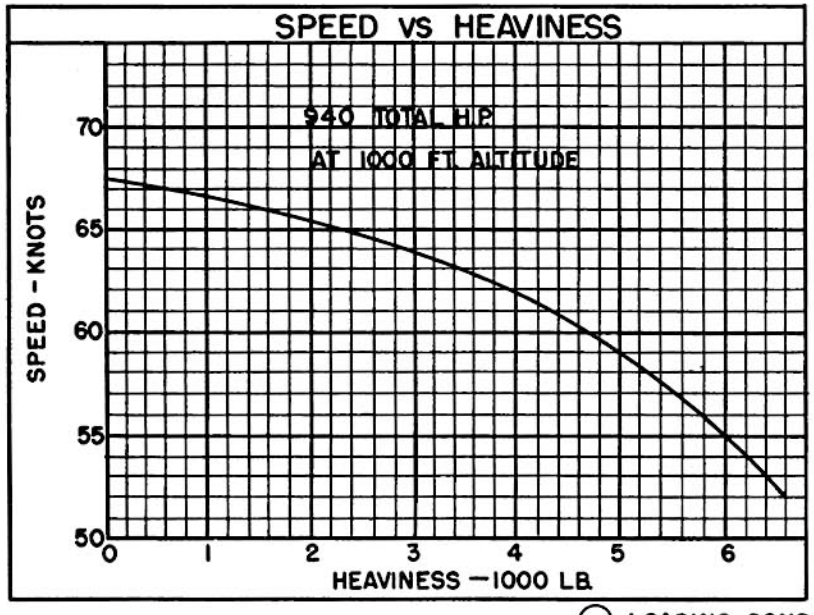
Pressure height is defined as the altitude at which an airship is fully inflated upon rising from sea level without valving gas.

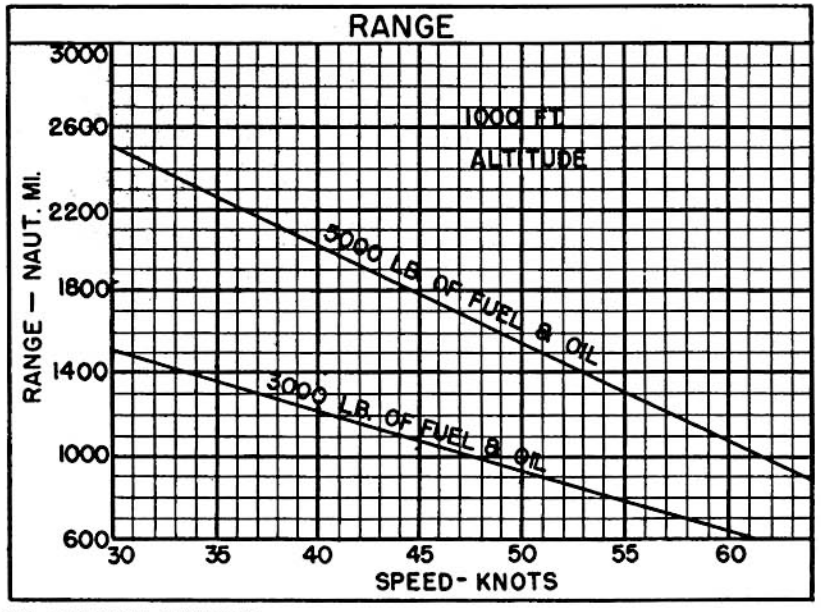
In order to avoid overloading the landing gear, ZP2K airships shall not be taken-off with a static heaviness greater than 2000 lbs. for normal operation.

Limitations of speed based on conditions of static heaviness, gas pressure, and roughness of the air, are presented in Technical Order 39-45 dated 16 April 1945.









◯ 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 useful 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.