WL-6285
L-BAND MAGNETRON

September 12, 1956

The WL-6285 is a very high power magnetron designed for pulse operation at 1310 mc. It is capable of peak power outputs up to 10 megawatts. It has been tested at pulse widths up to 10 microseconds at .0018 duty. This represents the highest obtainable power-duty product for magnetrons.

This magnetron is a fixed frequency tube employing a hole and slot anode with 10 resonators, doubly strapped. It is designed to operate with voltages up to 70kv and with peak anode currents of 350 amperes. The magnetic field required at maximum voltage is approximately 1600 gauss with a proportionally lower field required at lower voltage. Because of the size and weight of the magnet, it is not "packaged" with the tubes. The weight of the magnetron is approximately 60 pounds.

The magnetron operates into 6-1/2" diameter circular waveguide with no pressurizing or gas insulation required. The anode and end covers are water cooled. Forced air cooling is required for the output window.

The cathode is an indirectly heated cermet composed of pressed and sintered thoria and tungsten powder. The cathode heating power required for starting is 4kw. This heater power is reduced during oscillation to 1-3kw depending upon the average anode input power.

The cathode-heater assembly in this magnetron is designed to permit operation of the tube in any mounting position.

The efficiency varies from 40-50% depending upon the particular operating point chosen.

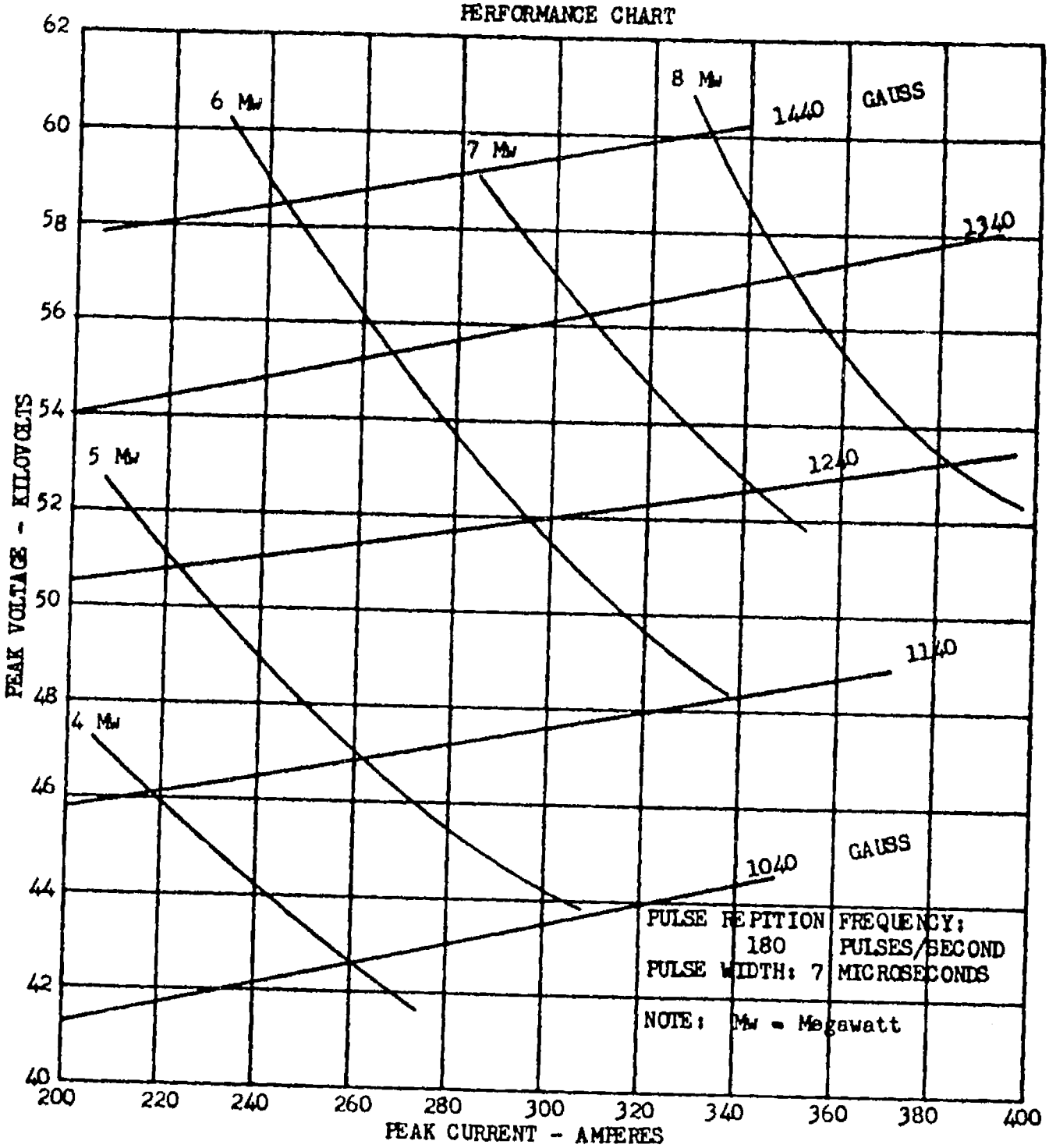
A set of typical operating values are:

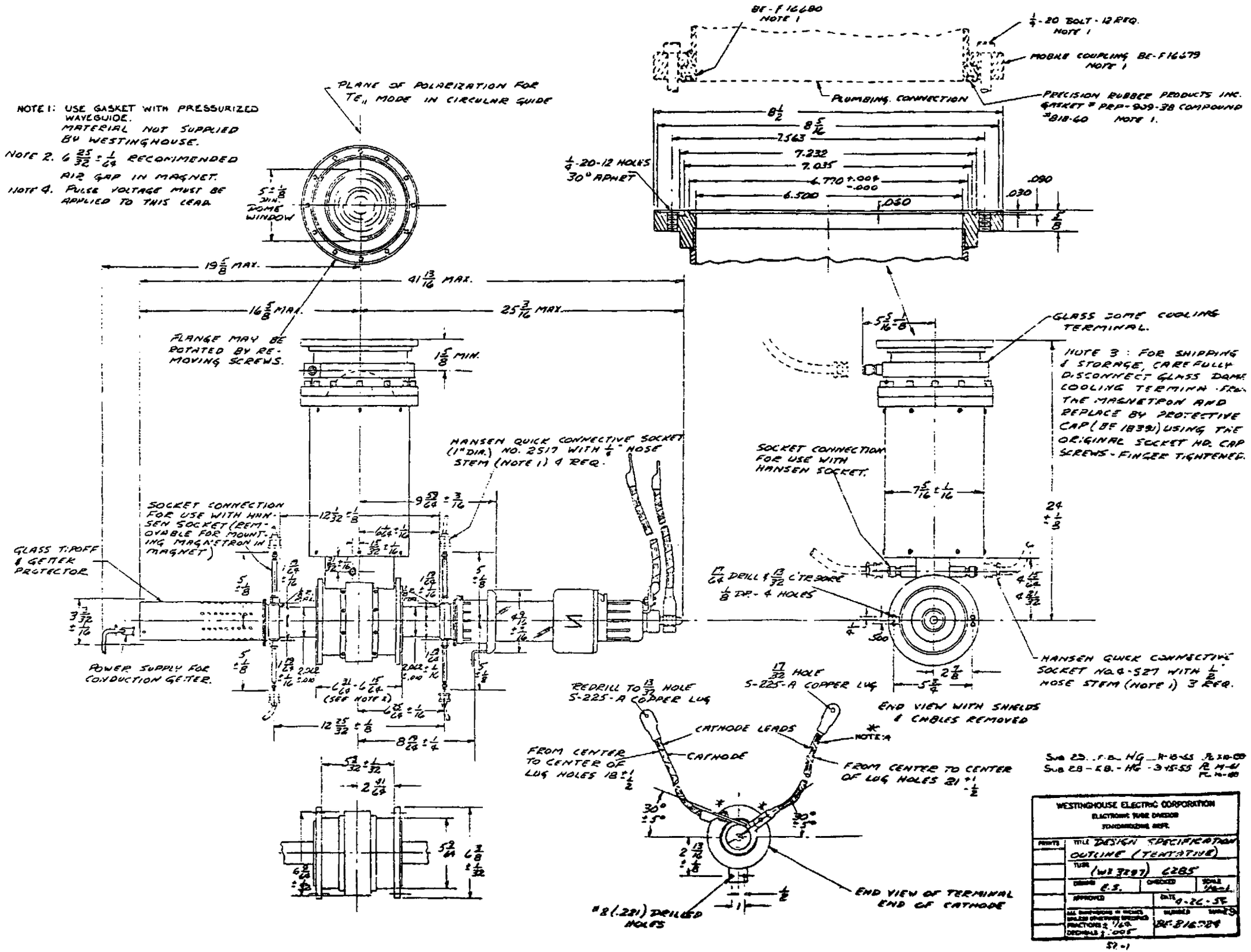
pulse width	7 u sec
repetition rate	180 pulses per second
peak current	280 amperes
peak voltage	56 kilovolts
peak power out	6.5 megawatts
efficiency	43%
magnetic field	1300 gauss
cathode power (oscillating condition)	2.3 kilowatts

A performance chart is shown on the next page for a typical tube.

from JEDEC release #3798, Aug. 13, 1962

WL-6285


PERFORMANCE CHART
PEAK VOLTAGE - KILOVOLTS
PEAK CURRENT - AMPERES
62
60
58
56
54
52
50
48
46
44
42
40
200
220
240
260
280
300
320
340
360
380
400
6 Mw
7 Mw
8 Mw
5 Mw
4 Mw
1440
1340
1240
1140
1040
GAUSS
GAUSS
PULSE REPITION FREQUENCY: 180 PULSES/SECOND
PULSE WIDTH: 7 MICROSECONDS
NOTE: Mw = Megawatt


NOTE 1: USE GASKET WITH PRESSURIZED WAVEGUIDE. MATERIAL NOT SUPPLIED BY WESTINGHOUSE.
NOTE 2. 6 25/32 ± 1/64 RECOMMENDED AIR GAP IN MAGNET.
NOTE 4. PULSE VOLTAGE MUST BE APPLIED TO THIS LEAD.
PLANE OF POLARIZATION FOR TE11 MODE IN CIRCULAR GUIDE
5 ± 1/8 DIA. DOME WINDOW
19 5/8 MAX.
41 13/16 MAX.
16 5/8 MAX.
25 3/16 MAX.
FLANGE MAY BE ROTATED BY REMOVING SCREWS.
1 5/8 MIN.
HANSEN QUICK CONNECTIVE SOCKET (1" DIA.) NO. 2517 WITH 1/4" NOSE STEM (NOTE 1) 4 REQ.
SOCKET CONNECTION FOR USE WITH HANSEN SOCKET (REMOVABLE FOR MOUNTING MAGNETRON IN MAGNET)
GLASS TIPOFF & GETTER PROTECTOR
POWER SUPPLY FOR CONDUCTION GETTER.
(SEE NOTE 2)
REDRILL TO 13/32 HOLE S-225-A COPPER LUG
CATHODE LEADS
CATHODE
FROM CENTER TO CENTER OF LUG HOLES 18 ± 1/2
#8 (.221) DRILLED HOLES
17/32 HOLE S-225-A COPPER LUG
NOTE A
FROM CENTER TO CENTER OF LUG HOLES 21 +1 -1/2
END VIEW OF TERMINAL END OF CATHODE
BE-F 16680 NOTE 1
1/4-20 BOLT - 12 REQ. NOTE 1
MOBILE COUPLING BE-F 16679 NOTE 1
PLUMBING CONNECTION
PRECISION RUBBER PRODUCTS INC. GASKET # PRP-939-38 COMPOUND #818-60 NOTE 1.
1/4-20-12 HOLES 30° APART
8 1/2
8 5/16
7.563
7.232
7.035
6.710 +.004 -.000
6.500
.050
.080
.030
5/8
GLASS DOME COOLING TERMINAL.
NOTE 3: FOR SHIPPING & STORAGE, CAREFULLY DISCONNECT GLASS DOME COOLING TERMINAL FROM THE MAGNETRON AND REPLACE BY PROTECTIVE CAP (BE 18391) USING THE ORIGINAL SOCKET HD. CAP SCREWS - FINGER TIGHTENED.
SOCKET CONNECTION FOR USE WITH HANSEN SOCKET.
7 5/16 ± 1/16
24 ± 1/8
17/64 DRILL & 13/32 C'TERBORE 1/8 DP. - 4 HOLES
HANSEN QUICK CONNECTIVE SOCKET NO. 4-527 WITH 1/2" NOSE STEM (NOTE 1) 3 REQ.
END VIEW WITH SHIELDS & CABLES REMOVED
WESTINGHOUSE ELECTRIC CORPORATION
ELECTRONIC TUBE DIVISION
STANDARDIZING DEPT.
TITLE DESIGN SPECIFICATION OUTLINE (TENTATIVE)
TUBE (WL 3297) 6285
DRAWN E.S.
CHECKED
SCALE 1/16=1
APPROVED
DATE 4-26-58
NUMBER BE-816284
SHEET 1
FRACTIONS ± 1/64
DECIMALS ± .005
Sub 23 - F.B. - HG 11-18-55
Sub 28 - F.B. - HG - 3-15-55
S7-1