WESTERN ELECTRIC 7C22 ELECTRON TUBE

TYPE DESIGNATION REGISTRATION

Reservation No.: 5114 Manufacturers Designation: 429YYQ
Reservation Date: 11/11/44 Data Bureau Designation: 7C22

PUSH-PULL OSCILLATOR

General Characteristics

The 7C22 is a self-contained push-pull triode oscillator unit designed for pulsed operation. The frequency of the oscillator may be varied by mechanical adjustment in unison of the tuning gears at each end of the tube. The cathodes are equipotential oxide coated and the tube is cooled by forced air.

Electrical Data

Heater Voltage *	9 volts
Heater Current	29.5 amperes

* It is desirable to operate the cathodes at as low a temperature as possible consistent with satisfactory tube performance.

Cathode Heating Time	3 minutes
Emission per Cathode	150 amperes
Amplification Factor of Triode Units	22
Maximum Frequency	435 megacycles
Minimum Frequency	390 megacycles
Interelectrode Capacitances	
Grid-Plate	53 to 65 uuf
Grid-Cathode	79 uuf
Plate-Cathode	22 uuf

Mechanical Information

Mounting Position	Any, although cylindrical section vertical is preferred.
Cooling	Forced-air
Maximum Envelope Temperature	130° Centigrade
Net Weight, Approximate	28 pounds

Maximum Ratings, Plate Pulsed, Absolute Values

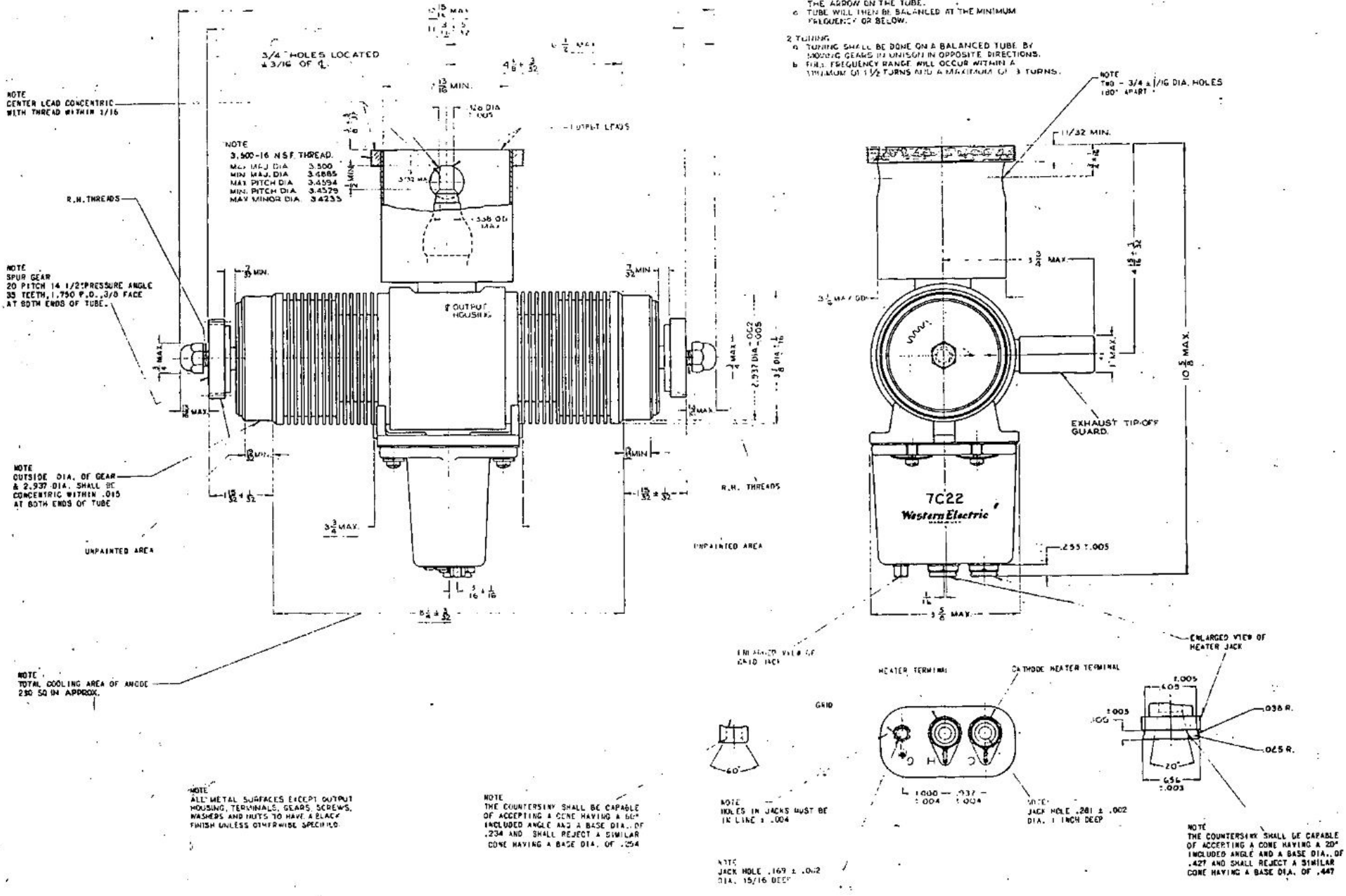
Peak Plate Voltage	20 kilovolts
Peak Plate Current	80 amperes
Peak Power Input	1600 kilowatts
Average Power Input	1800 watts
Average Plate Dissipation	1000 watts
Average Grid Current	8 milliamperes
** Grid Bias (during pulse)	-3 kilovolts
Duty Cycle	.0012
Pulse Duration	6 microseconds

Typical Operating Conditions, Plate Pulsed

Peak Plate Voltage	16	kilovolts
** Grid Bias (during pulse)	-2	kilovolts
Average Plate Current	63	milliamperes
Peak Plate Current	63	amperes
Average Grid Current	3	milliamperes
Duty Cycle	.001	
Pulse Duration	3	microseconds
Average Plate Dissipation	450	watts
Average Power Output	550	watts
Peak Power Output	550	kilowatts
Peak Power Input	1000	kilowatts
Peak Efficiency	55%	

** Obtained from combination of cathode resistor and grid resistor. Grid resistors from 200 to 400 ohms, non-inductive, and cathode resistors from 10 to 20 ohms, non-inductive, are recommended.

Note: This tube is obsolete and manufacturing facilites are no longer available.


FREQUENCY ADJUSTMENT
1 BALANCING.
a. TURN EACH GEAR FULLY COUNTERCLOCKWISE.
b. THEN TURN EACH GEAR CLOCKWISE UNTIL THE ARROW ON THE GEAR IS LINED UP FOR THE FIRST TIME WITH THE ARROW ON THE TUBE.
c. TUBE WILL THEN BE BALANCED AT THE MINIMUM FREQUENCY OR BELOW.
2 TUNING.
a. TUNING SHALL BE DONE ON A BALANCED TUBE BY MOVING GEARS IN UNISON IN OPPOSITE DIRECTIONS.
b. FULL FREQUENCY RANGE WILL OCCUR WITHIN A MINIMUM OF 1½ TURNS AND A MAXIMUM OF 3 TURNS.
3/4" HOLES LOCATED ±3/16 OF ℄
NOTE CENTER LEAD CONCENTRIC WITH THREAD WITHIN 3/16
NOTE 3.500-16 N.S.F. THREAD.
MAX MAJ DIA 3.500
MIN MAJ. DIA 3.4885
MAX PITCH DIA 3.4594
MIN. PITCH DIA 3.4529
MAX MINOR DIA 3.4235
OUTPUT LEADS
R.H. THREADS
NOTE SPUR GEAR 20 PITCH 14 1/2° PRESSURE ANGLE 35 TEETH, 1.750 P.D., 3/8 FACE AT BOTH ENDS OF TUBE.
OUTPUT HOUSING
NOTE OUTSIDE DIA. OF GEAR & 2.937 DIA. SHALL BE CONCENTRIC WITHIN .015 AT BOTH ENDS OF TUBE
UNPAINTED AREA
UNPAINTED AREA
NOTE TOTAL COOLING AREA OF ANODE 250 SQ IN APPROX.
NOTE ALL METAL SURFACES EXCEPT OUTPUT HOUSING, TERMINALS, GEARS, SCREWS, WASHERS AND NUTS TO HAVE A BLACK FINISH UNLESS OTHERWISE SPECIFIED.
NOTE THE COUNTERSINK SHALL BE CAPABLE OF ACCEPTING A CONE HAVING A 60° INCLUDED ANGLE AND A BASE DIA. OF .234 AND SHALL REJECT A SIMILAR CONE HAVING A BASE DIA. OF .254
NOTE JACK HOLE .169 ± .002 DIA. 15/16 DEEP
NOTE HOLES IN JACKS MUST BE IN LINE ± .004
NOTE two - 3/4 ± 1/16 DIA. HOLES 180° APART
EXHAUST TIP-OFF GUARD.
7C22
Western Electric
ENLARGED VIEW OF GRID JACK
ENLARGED VIEW OF HEATER JACK
HEATER TERMINAL
CATHODE HEATER TERMINAL
GRID
NOTE JACK HOLE .281 ± .002 DIA. 1 INCH DEEP
NOTE THE COUNTERSINK SHALL BE CAPABLE OF ACCEPTING A CONE HAVING A 20° INCLUDED ANGLE AND A BASE DIA. OF .427 AND SHALL REJECT A SIMILAR CONE HAVING A BASE DIA. OF .447