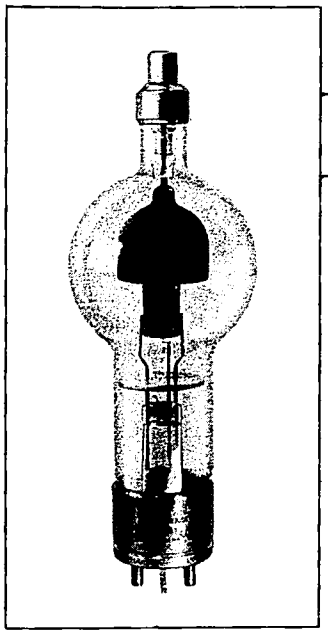
Jan. 27, 1943

WL Form SP-21
New Information

RMA Release #: 321

WL-881



Westinghouse

RADIO TRANSMITTING TUBE

MERCURY VAPOR RECTIFIER

GENERAL CHARACTERISTICS

No. of Electrodes	2
Cathode*** Indirectly Heated Type	
Voltage (a-c.)	5 volts
Current (approx.)	9.5 amps
Heating Time** (Typical)	60 secs.
Tube Drop	
Maximum	20 volts
Minimum	5 volts
Net Weight (approx.)	24 oz.
Shipping Weight (approx.)	6 lbs.
Installation and Operation	TD-93-A
Application	TD-94

MAXIMUM RATINGS

Peak Inv. Anode Voltage (150 cycles and below)	10,000 volts	15,000 volts
Condensed Mercury Temp. Range	30°—60° C.	30°—40° C.
Type of Cooling	Natural	Forced Air*
Instantaneous Anode Current (25–150 cycles)	15 amps.	15 amps.
Average (or D-c.) Anode Current	5 amps.	5 amps.
Maximum Average Time	30 secs.	30 secs.
Surge Anode Current	100 amps.	100 amps.
Maximum Time of Surge	0.1 second	0.1 second

Notes

* Approximately 50—150 C.F.M.

** Minimum before applying anode volts. Sufficient preheating time to bring the tube within the required operating temperature range is always necessary.

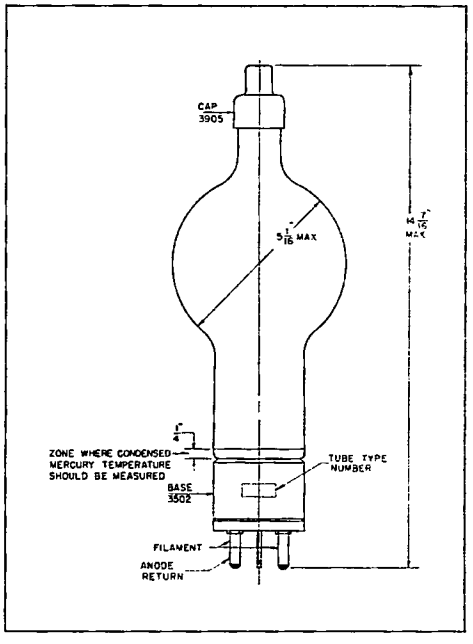
*** The anode return should be made to the cathode pin adjacent to the letter "C" stamped on the edge of the base.

For Typical Operating Conditions, etc., see reverse side.

GENERAL INFORMATION

The WL-881 incorporates several features of advanced design. Its extremely moderate cathode power of 47.5 watts is utilized so economically that two tubes in single phase full wave can deliver almost 50 Kw. of DC. It uses a uni-potential cathode of new design that gives current ratings ordinarily obtained only with quadrature operation. No additional quadrature rating is shown for the WL-881.

The WL-881 should not be subjected to shock either in handling, transporting or mounting. The condensed mercury temperature should be in the stated range before high voltage is applied. When the tube has been in transportation, or out of service for a long period the usual time delay should be increased and the plate voltage applied in steps should arc back be evident. A thermometer attached with a small dab of putty to the glass at the point indicated on the Outline diagram is satisfactory. Where the tubes are not forced—air cooled, they should be mounted in free air; and in any case the tubes should not be subjected to strong R-F or electrostatic fields. The typical operating conditions shown on the reverse side are maximum, and current and/or voltage rating may be used at a value less than maximum.

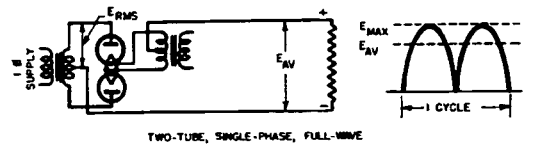


WL-881

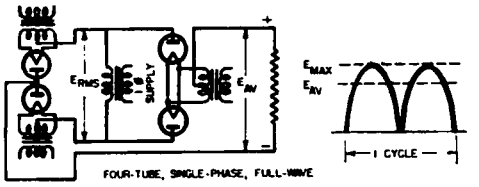
Westinghouse

RADIO TRANSMITTING TUBE

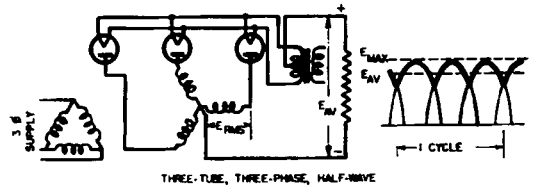
TYPICAL RECTIFIERS



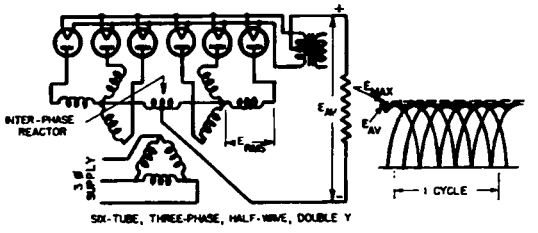
TWO-TUBE, SINGLE-PHASE, FULL-WAVE



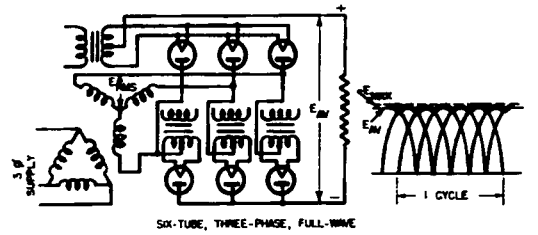
FOUR-TUBE, SINGLE-PHASE, FULL-WAVE



THREE-TUBE, THREE-PHASE, HALF-WAVE



SIX-TUBE, THREE-PHASE, HALF-WAVE, DOUBLE Y



SIX-TUBE, THREE-PHASE, FULL-WAVE

MERCURY VAPOR RECTIFIER
Current & Voltage Relations

Typical Operating Conditions

E_{AV}	E_{INV}	I_{AV}	TEMP. RANGE	E R.M.S.	D.C. TO FILTER	MAX. D.C. AMPS. OUTPUT
.636 E_{max} .900 E_{rms}	3.14 E_{av}	.636 I_{max}	30-60	3540	3180	10
			30-40	5300	4770	10
.636 E_{max} .90 E_{rms}	1.57 E_{av}	.636 I_{max}	30-60	7070	6360	10
			30-40	10,600	9540	10
.827 E_{max} 1.17 E_{rms}	2.09 E_{av}	.827 I_{max}	30-60	4180	4780	15
			30-40	6120	7170	15
.827 E_{max} 1.17 E_{rms}	2.09 E_{av}	1.91 I_{max}	30-60	4080	4780	30
			30-40	6120	7170	30
1.65 E_{max} 2.34 E_{rms}	1.05 E_{av}	.955 I_{max}	30-60	4080	9560	15
			30-40	6120	14,340	15

NOTES

The typical operating conditions above are based on the maximum ratings as shown on the first page. They also assume ideal conditions, which include: D-c, voltage is output of tubes—no filter considered; no tube voltage drop; pure resistance load; balanced phase voltages (for 3 phase); and Sine Wave a-c. supply. In the case of the 6 tube, 3 phase, half-wave double Y circuit, the wave-form and typical voltages apply only at full rated load. When lower load conditions prevail, the voltage must be reduced, reaching a maximum reduction of 15% at no load.

In the above tables and circuits, E_{av} refers to d-c. output volts, E_{inv} is the peak inverse voltage on each tube, I_{av} the d-c. output current. E_{rms} is transformer secondary voltage as shown on circuit. E_{max} should not be confused with E_{inv}; E_{max} is the peak of the output wave as shown. I_{max} is the peak current per tube.

WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY
Special Products Department
BLOOMFIELD, NEW JERSEY

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