866-A

HALF-WAVE MERCURY-VAPOR RECTIFIER

GENERAL DATA

Electrical:

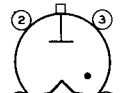
Filament, Coated:

	Min.	*Av.*	*Max.*	
Voltage	2.38	2.5	2.62	ac volts
Current at 2.5 volts	–	5	5.4	amp
Heating time at rated voltage	15	–	–	sec
Peak Tube Voltage Drop (Approx.)	–	15	–	volts

Mechanical:

Operating Position	Vertical, base down
Maximum Overall Length	6-9/16"
Maximum Seated Length	5-3/4" ± 3/16"
Maximum Diameter	2-7/16"
Weight (Approx.)	3 oz
Bulb	ST19
Cap	Medium (JETEC No.C1-5)
Socket	Johnson No.123-209, or equivalent
Base	Medium-Shell Small 4-Pin with Bayonet (JETEC No.A4-10)
Basing Designation for BOTTOM VIEW	4P

Pin 1 – Filament
Pin 2 – No Connection
Pin 3 – No Connection



Pin 4 – Filament, Cathode Shield
Cap – Anode

Temperature Control:

Heating—When the ambient temperature is so low that the normal rise of condensed-mercury temperature above the ambient temperature will not bring the condensed-mercury temperature up to the minimum value of the operating ranges specified under ***Maximum Ratings***, some form of heat-conserving enclosure or auxiliary heater will be required.

Cooling—When the operating conditions are such that the maximum value of the operating condensed-mercury-temperature range is exceeded, provision should be made for forced-air cooling sufficient to prevent exceeding the maximum value.

Temperature Rise of Condensed Mercury to Equilibrium Above Ambient Temperature (Approx.):

No load*	26	°C
Full load▲	33	°C

* With 2.38 volts rms on filament, and no heat-conserving enclosure.

▲ With 2.62 volts rms on filament, average anode current = 0.5 ampere, and no heat-conserving enclosure.

← Indicates a change.

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RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

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Maximum Ratings, *Absolute Values: For supply frequency of 60 cps*

	Operating Condensed-Mercury-Temperature Range● 20° to 80° C	20° to 70° C	20° to 60° C	
PEAK INVERSE ANODE VOLTAGE. .	2500 max.	5000 max.	10000 max.	volts
ANODE CURRENT:				
Peak	2 max.	1 max.	1 max.	amp
Average#	0.5 max.	0.25 max.	0.25 max.	amp
Fault, for duration of 0.1 second maximum. . . .	20 max.	20 max.	20 max.	amp

● Operation at 40° ± 5° C is recommended.

Averaged over any interval of 30 seconds maximum.

OPERATING CONSIDERATIONS

Shields and rf filter circuits should be provided for the 866-A if it is subjected to extraneous high-frequency fields during operation. These fields tend to produce breakdown effects in mercury vapor and are detrimental to tube life and performance. When shields are used, special attention must be given to providing adequate ventilation and to maintaining normal condensed-mercury temperature. Rf filters are employed to prevent damage caused by rf currents which might otherwise be fed back into the rectifier tubes.

→ Indicates a change.

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For Circuit Figures, see Front of this Section

CIRCUIT	MAX. TRANS. SEC. VOLTS (RMS) E	APPROX. DC OUTPUT VOLTS TO FILTER E_{av}	MAX. DC OUTPUT AMPERES I_{av}		MAX. DC OUTPUT KW TO FILTER P_{dc}	
			Resistive Load	*Inductive Load*	*Resistive Load*	*Inductive Load*
Fig. 1 **Half-Wave** **Single-Phase** In-Phase Operation	7000□	3200	0.25		0.8	
	3500▲	1600	0.25		0.4	
	1700*	800	0.5		0.4	
Fig. 2 **Full-Wave** **Single-Phase** In-Phase Operation	3500□	3200	0.5		1.6	
	1700▲	1600	0.5		0.8	
	800*	800	1		0.8	
Fig. 3 **Series** **Single-Phase** In-Phase Operation	7000□	6400	0.5		3.2	
	3500▲	3200	0.5		1.6	
	1700*	1600	1		1.6	
Fig. 4 **Half-Wave** **Three-Phase** In-Phase Operation	4000□	4800	0.75		3.6	
	2000▲	2400	0.75		1.8	
	1000*	1200	1.5		1.8	
Fig. 5 **Parallel** **Three-Phase** Quadrature Operation	4000□	4800	1.5		7.2	
	2000▲	2400	1.5		3.6	
	1000*	1200	3		3.6	
Fig. 6 **Series** **Three-Phase** Quadrature Operation	4000□	9600	0.75		7.2	
	2000▲	4800	0.75		3.6	
	1000*	2400	1.5		3.6	
Fig. 7 **Half-Wave** **Four-Phase** Quadrature Operation	3500□	4500	0.91	1	4.05	4.5
	1700▲	2300	0.91	1	2.07	2.3
	800*	1100	1.82	2	1.98	2.2
Fig. 8 **Half-Wave** **Six-Phase** Quadrature Operation	3500□	4800	0.95	1	4.6	4.8
	1700▲	2400	0.95	1	2.3	2.4
	800*	1200	1.9	2	2.28	2.4

□ For maximum peak inverse anode voltage of 10000 volts, and condensed-mercury-temperature range of 20° to 60° C.

▲ For maximum peak inverse anode voltage of 5000 volts, and condensed-mercury-temperature range of 20° to 70° C.

* For maximum peak inverse anode voltage of 2500 volts, and condensed-mercury-temperature range of 20° to 80° C.

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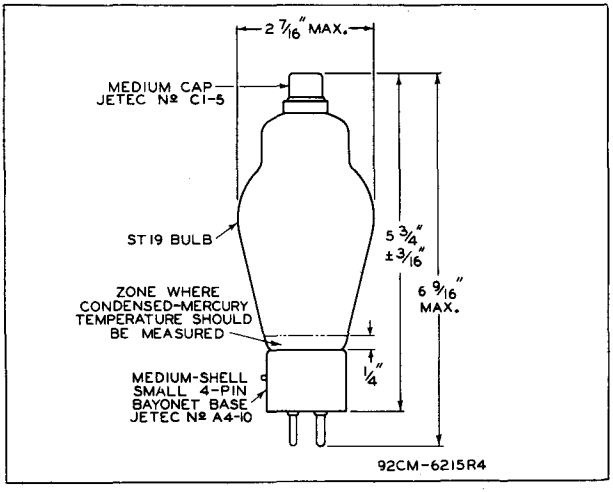
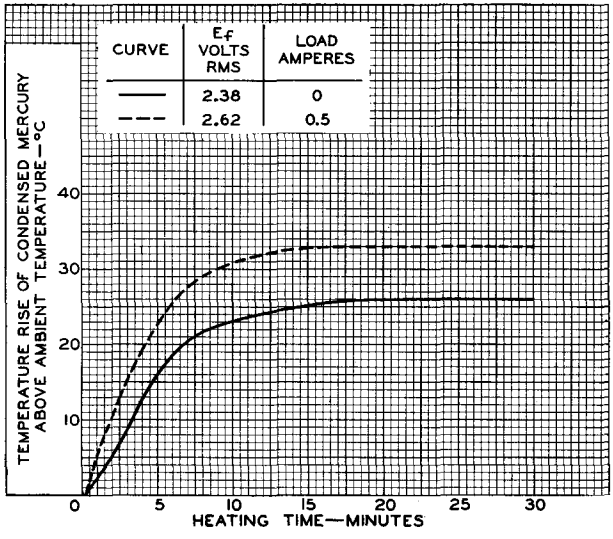


RATE OF RISE OF CONDENSED-MERCURY TEMPERATURE



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