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HALF-WAVE MERCURY-VAPOR RECTIFIER

GENERAL DATA

Electrical:

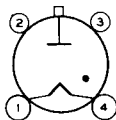
Filament, Coated:

	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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→ **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}		
Fig. 1 Half-Wave Single-Phase In-Phase Operation	7000 \square	3200	0.25	0.8		
	3500 \blacktriangle	1600	0.25	0.4		
	1700*	800	0.5	0.4		
Fig. 2 Full-Wave Single-Phase In-Phase Operation	3500 \square	3200	0.5	1.6		
	1700 \blacktriangle	1600	0.5	0.8		
	800*	800	1	0.8		
Fig. 3 Series Single-Phase In-Phase Operation	7000 \square	6400	0.5	3.2		
	3500 \blacktriangle	3200	0.5	1.6		
	1700*	1600	1	1.6		
Fig. 4 Half-Wave Three-Phase In-Phase Operation	4000 \square	4800	0.75	3.6		
	2000 \blacktriangle	2400	0.75	1.8		
	1000*	1200	1.5	1.8		
Fig. 5 Parallel Three-Phase Quadrature Operation	4000 \square	4800	1.5	7.2		
	2000 \blacktriangle	2400	1.5	3.6		
	1000*	1200	3	3.6		
Fig. 6 Series Three-Phase Quadrature Operation	4000 \square	9600	0.75	7.2		
	2000 \blacktriangle	4800	0.75	3.6		
	1000*	2400	1.5	3.6		
Fig. 7 Half-Wave Four-Phase Quadrature Operation	3500 \square 1700 \blacktriangle 800*	4500 2300 1100	Resis- tive Load	Induc- tive Load	Resis- tive Load	Induc- tive Load
			0.91	1	4.05	4.5
			0.91	1	2.07	2.3
			1.82	2	1.98	2.2
Fig. 8 Half-Wave Six-Phase Quadrature Operation	3500 \square 1700 \blacktriangle 800*	4800 2400 1200	Resis- tive Load	Induc- tive Load	Resis- tive Load	Induc- tive Load
			0.95	1	4.6	4.8
			0.95	1	2.3	2.4
			1.9	2	2.28	2.4

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

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

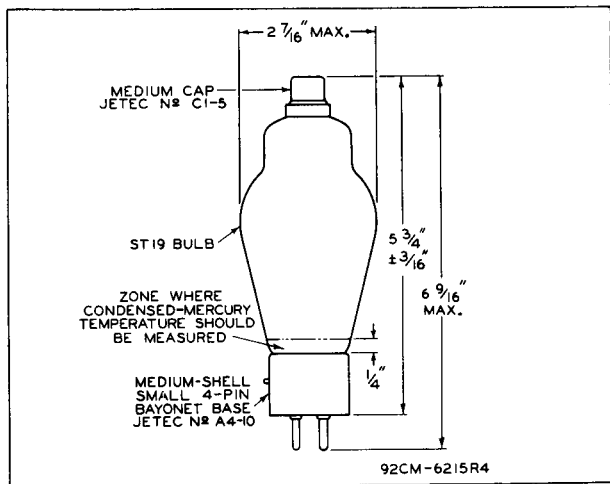
* For maximum peak inverse anode voltage of 2500 volts, and condensed-mercury-temperature range of 20° to 80° C.

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RATE OF RISE OF CONDENSED-MERCURY TEMPERATURE

