872-A/872

HALF-WAVE MERCURY-VAPOR RECTIFIER

This Type Supersedes RCA Types 872 and 872-A

Filament*	Coated	
Voltage	5.0	a-c volts
Current	7.5	amp.
Maximum Overall Length		8-1/2"
Maximum Diameter		2-5/16"
Bulb		T-18
Cap	Medium Metal, with Insulating Collar	
Base °		Jumbo 4-Large Pin
RCA Socket (Type UT-541-A)		Stock No.9936

Maximum Ratings Are Absolute Values

MAXIMUM RATINGS

Peak Inverse Voltage	
For Supply Frequency up to 150 ~	
Cond.-Mercury Temp. 20° to 60°C #	10000 max. volts
Cond.-Mercury Temp. 20° to 70°C #	5000 max. volts
Peak Plate Current	5 max. amp.
Average Plate Current	1.25 max. amp.
Tube Voltage Drop (Approx.)	10 volts

° Base shell is not connected within the base to either filament lead.
Operation at 40° ±5°C is recommended.
* The filament of the 872-A/872 should be allowed to come up to operating temperature before plate voltage is applied. For average conditions the delay is approximately 30 seconds.

If the plate return of each tube is not connected to the center-tap of the filament-supply winding, the return should be made to that side of the filament to which the cathode shield is connected.

Shielding and *r-f filter circuits* should be isolated from the transmitter as much as possible in order to avoid the detrimental effects of magnetic and electrostatic fields. These fields tend to produce breakdown in the mercury vapor, are detrimental to tube life and make filtering difficult. External shielding should be used when the tubes are in proximity to these external fields. R-f filtering should be used when the tubes are affected by r-f voltages. When shields are used, special attention must be given to adequate ventilation and to the maintenance of normal condensed-mercury temperature.

The table below classifies suitable rectifier circuits for the 872-A/872 and shows their safe maximum input and maximum output operating conditions for a peak inverse voltage of 10000 volts. The values are based on sine-wave input and the use of a suitable choke preceding any condenser in the filter circuit. If the 872-A/872 is to be used under temperature conditions such that the peak inverse voltage is limited to 5000 volts, the a-c input voltage and d-c output voltage values in the table should be multiplied by a factor of 0.5 to give the maximum values for the 5000-volt conditions.

CIRCUIT	MAXIMUM A-C INPUT VOLTS□ (RMS)	APPROX. D-C OUTPUT VOLTS TO FILTER	MAX. D-C OUTPUT CURRENT amperes
SINGLE-PHASE FULL-WAVE (2 tubes) Fig. 1	3535 per tube	3180	2.5
SINGLE-PHASE FULL-WAVE (4 tubes) Fig. 2	7070 total	6360	2.5
THREE-PHASE HALF-WAVE Fig. 3	4080 per leg	4780	3.75
THREE-PHASE DOUBLE-Y PARALLEL Fig. 5	4080 per leg	4780	7.5
THREE-PHASE FULL-WAVE Fig. 5	4080 per leg	9570	3.75

□ For maximum peak inverse voltage of 10000 volts.

CIRCUITS FOR HOT-CATHODE MERCURY-VAPOR RECTIFIER TUBES

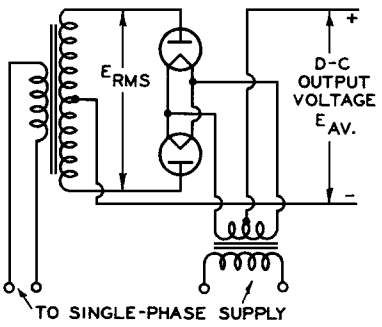

FIG. 1

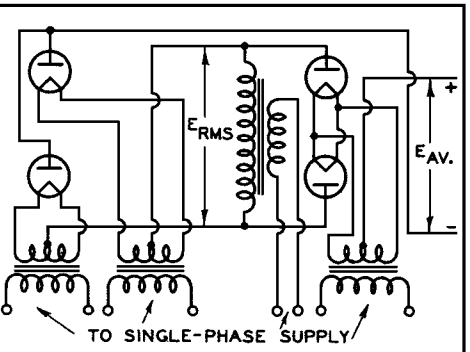

FIG. 2

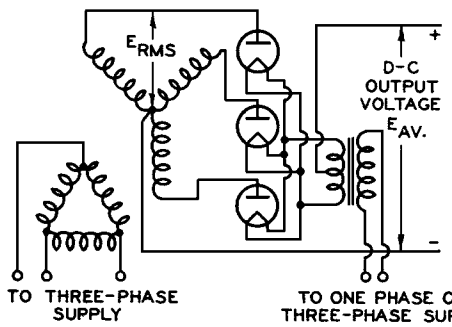

FIG. 3

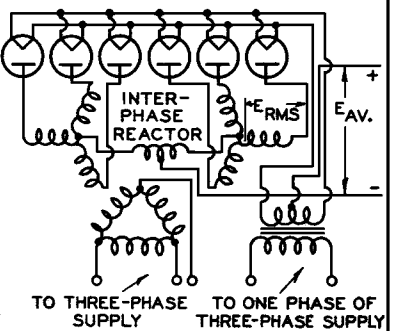

FIG. 4

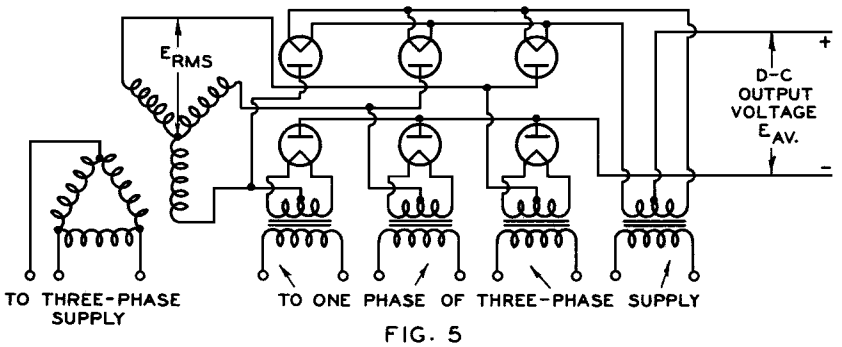

FIG. 5

FIGURE	CIRCUIT	$E_{AVERAGE}$	$E_{INVERSE}$	$I_{AVERAGE}$
1	SINGLE-PHASE FULL-WAVE (2 TUBES)	$0.318\,E_{MAXIMUM}$ $0.450\,E_{RMS}$	$3.14\,E_{AVERAGE}$	$0.636\,I_{MAXIMUM}$
2	SINGLE-PHASE FULL-WAVE (4 TUBES)	$0.636\,E_{MAXIMUM}$ $0.900\,E_{RMS}$	$1.57\,E_{AVERAGE}$	$0.636\,I_{MAXIMUM}$
3	THREE-PHASE HALF-WAVE	$0.827\,E_{MAXIMUM}$ $1.170\,E_{RMS}$	$2.09\,E_{AVERAGE}$	$0.827\,I_{MAXIMUM}$
4	THREE-PHASE DOUBLE-Y PARALLEL	$0.827\,E_{MAXIMUM}$ $1.170\,E_{RMS}$	$2.09\,E_{AVERAGE}$	$1.91\,I_{MAXIMUM}$
5	THREE-PHASE FULL-WAVE	$1.65\,E_{MAXIMUM}$ $2.34\,E_{RMS}$	$1.045\,E_{AVERAGE}$	$0.955\,I_{MAXIMUM}$

CONDITIONS ASSUMED :-

(1) SINE-WAVE SUPPLY (2) BALANCED PHASE VOLTAGES (3) ZERO TUBE DROP (4) PURE RESISTANCE LOAD (5) NO FILTER USED

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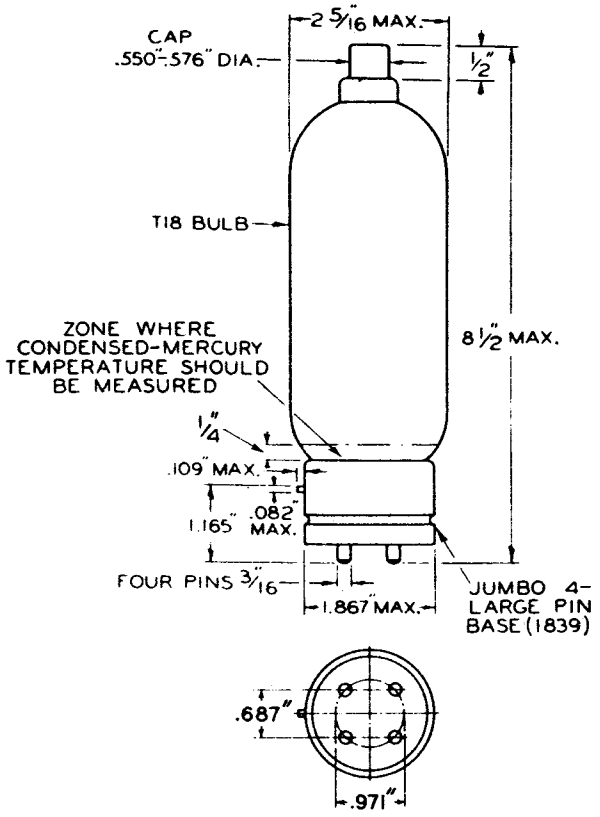


BOTTOM VIEW OF BASE

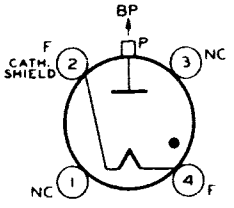
92C-6396

TUBE MOUNTING POSITION

VERTICAL: Base down.
HORIZONTAL: No.

BOTTOM VIEW OF SOCKET CONNECTIONS

Pin 1 – No Connection
Pin 2 – Filament, Cathode Shield
Pin 3 – No Connection
Pin 4 – Filament
Cap – Plate
● – Gas Type Tube



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RCA RADIOTRON DIVISION
RCA MANUFACTURING COMPANY, INC.

TENTATIVE DATA 2