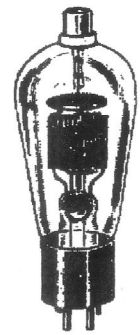
The single-phase half-wave circuit of Figure 1 is not very popular due to the fact that the ripple is of greater magnitude and being of lower frequency than other systems is more difficult to filter. With choke input, the DC voltage will be approximately .45 that of the r.m.s. voltage E. Figure 2 illustrates the full-wave single-phase circuit which every amateur is familiar with. Figure 3 is identical in nature with Figure 2, except that four tubes (more if desired) are used to obtain higher current output. The resistors shown in the plate circuits of these tubes are very essential; otherwise one tube will generally take most of the load with the natural result that the tube life is greatly decreased; a drop of about six volts across these resistors will insure stability. Figure 4 shows a bridge circuit with four tubes, its advantage is that high DC voltages can be secured without expensive (high peak inverse voltage) tubes and with low voltage transformers. For full-wave rectification the DC voltage can be increased by using the entire secondary output of the plate transformer, in fact, the voltage will be exactly doubled; of course, this halves the current output due to the transformer current carrying limitations. Figures 5 and 6 are similar to that of Figure 2, except that they apply to three-phase circuits. In the circuit of Figure 5, each tube carries current for one-third cycle. The circuit of Figure 6 is very commonly employed in high power transmitters where three-phase power is available due to the high DC output voltage attained. This circuit has the added advantage that the ripple frequency is high, being six times the supply frequency, allowing simple filtering.

Figure No.	Transformer Volts E	DC Output Volts at Input to Filter	DC Output Current in Amperes
1	.7 x Inv. Pk. Vtg.	.45 x E	.33 x Pk. Plate
2	.35 x Inv. Pk. Vtg.	.9 x E	.66 x Pk. Plate
3	.35 x Inv. Pk. Vtg.	.9 x E	1.32 x Pk. Plate
4	.7 x Inv. Pk. Vtg.	.9 x E	.66 x Pk. Plate
5	.43 x Inv. Pk. Vtg.	1.12 x E	.83 x Pk. Plate
6	.54 x Inv. Pk. Vtg.	2.25 x E	1.0 x Pk. Plate



866-A

HALF-WAVE MERCURY VAPOR RECTIFIER

$1.50

There are more Taylor 866/866-A Tubes in use than any other brand.

Taylor 866-A uses the famous Taylor multi-strand filament which has twice the usual emitting surface. The ceramic insulator between the plate cap and the glass gives increased voltage breakdown protection.

GENERAL CHARACTERISTICS

Filament Volts.....2.5
Filament Current, amps.....5.0

Overall Dimensions

Maximum Height, inches.....6¼
Maximum Diameter, inches.....2⅛

UX 4 Prong Base

Max. Peak Inverse Voltage
Condensed Mercury Temperature 20° to 60° C, volts.....10,000
Condensed Mercury Temperature 20° to 70° C, volts.....5,000
Max. Peak Plate Current, amps.....1.0
Max. Average Plate Current, amps.....0.25

TYPICAL CIRCUIT—MAXIMUM CONDITIONS

	R.M.S. Input Volts	Max. D.C. Output Volts	Max. D.C. Output Amps.
Single phase full wave (2 tubes).....	3530	3180	0.5
Single phase bridge (4 tubes).....	7060	6360	0.5
Three phase half wave (3 tubes).....	4080	4780	0.75
Three phase paralled double Y (6 tubes)	4080	4780	1.5
Three phase full wave (6 tubes).....	4080	9560	0.75

Special Note

In transit mercury in tube splatters over filament—therefore when first placing this tube into operation filament should be lighted for fully 15 minutes to allow mercury to condense to bottom of bulb.

STANDARD RECTIFIER CIRCUITS

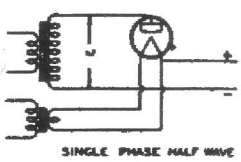


FIG. 1

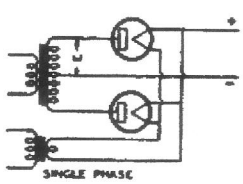


FIG 2

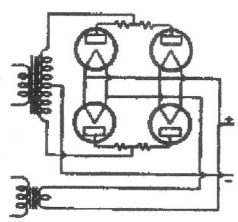


FIG. 3

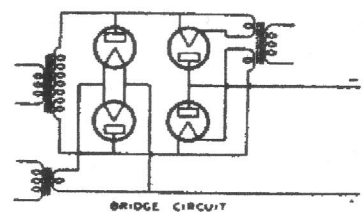


FIG 4

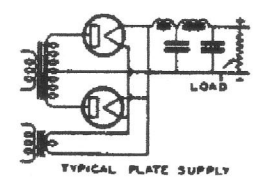


FIG 7

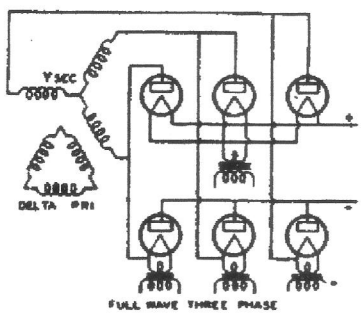


FIG 6

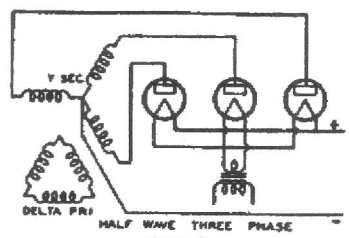


FIG. 5

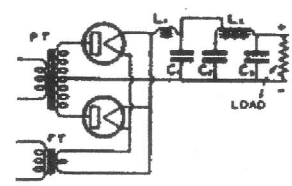


FIG. 9

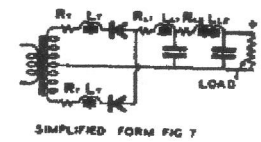


FIG. 8