

Transformers

This does not apply, of course, to amateur transmitter plate transformers which are usually already rated for intermittent service.

Filament Supply

Except for tubes designed for battery operation, the filaments or heaters of vacuum tubes used in both transmitters and receivers are universally operated on alternating current obtained from the power line through a step-down transformer delivering a secondary voltage equal to the rated voltage of the tubes used. The transformer should be designed to carry the current taken by the number of tubes which may be con-

nected in parallel across it. The filament or heater transformer generally is center-tapped, to provide a balanced circuit for eliminating hum.

For medium- and high-power r.f. stages of transmitters, and for high-power audio stages, it is desirable to use a separate filament transformer for each section of the transmitter, installed near the tube sockets. This avoids the necessity for abnormally large wires to carry the total filament current for all stages without appreciable voltage drop. Maintenance of rated filament voltage is highly important, especially with thoriated-filament tubes, since under- or over-voltage may reduce filament life.

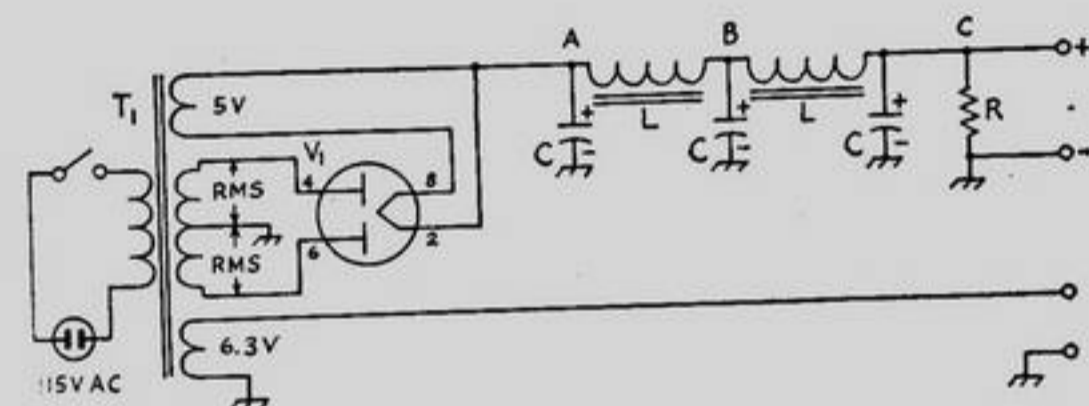


Fig. 12-14—Typical a.c. power supply circuit for receivers, exciters, or low-power transmitters. Representative values will be found in Table 12-11. The 5-volt winding of T_1 should have a current rating of at least 2 amp. for types 5Y3-GT and 5V4-GA, and 3 amp. for 5U4-GB.

TYPICAL POWER SUPPLIES

Figs. 12-14 and 12-15 show typical power-supply circuits. Fig. 12-14 is for use with transformers commonly listed as broadcast or television re-

placement power transformers. In addition to the high-voltage winding for plate supply, these transformers have windings that supply filament

TABLE 12-11

Capacitor-Input Power Supplies

T_1 Rating	V_1 Tube Type	C		L		R		Approximate Full-load d.c. Volts at			Approximate Ripple % at			Approx. Output Useful Volts Output Bleeder Ma.*		
		uf.	Volts	H.	Ohms	Ohms	Watts	A	B	C	A	B	C			
450	40	5Y3-GT	8	600	8	400	90K	5	375	360	345	2.5	0.08	0.002	450	36
450	40	5V4-GA	8	600	8	400	90K	5	410	395	375	2.5	0.08	0.002	450	36
700	90	5Y3-GT	8	600	10	225	46K	10	370	350	330	6	0.1	0.002	460	82
700	90	5V4-GA	8	600	10	225	46K	10	410	390	370	6	0.1	0.002	460	82
750	150	5U4-GB	8	700	8	145	25K	10	375	350	330	9	0.2	0.006	500	136
750	150	5V4-GA	8	700	8	145	25K	10	425	400	380	9	0.2	0.006	500	136
800	200	5U4-GB	8	700	8	120	22K	20	375	350	325	12	0.3	0.008	550	184

Choke-Input Power Supplies

450	40	5Y3-GT	8	450	15	420	18K	10	—	240	225	—	0.8	0.01	265	25
450	40	5V4-GA	8	450	15	420	18K	10	—	255	240	—	0.8	0.01	280	25
700	90	5Y3-GT	8	450	10	225	11K	10	—	240	220	—	1.25	0.02	250	68
700	90	5V4-GA	8	450	10	225	11K	10	—	270	250	—	1.25	0.02	280	68
750	150	5Y3-GT	8	450	12	150	13K	20	—	265	245	—	1	0.015	325	125
750	150	5V4-GA	8	450	12	150	13K	20	—	280	260	—	1	0.015	340	125
800	200	5U4-GB	8	450	12	140	14K	20	—	275	250	—	1	0.015	350	175

* Balance of transformer current capacity consumed by bleeder resistor.