

A.C. SUPPLY OUTFITS

The services shown are the principal ones and are not necessarily the only services for which the outfits are used.

A.C. Outfit.	SERVICE.	Input Voltage D.C. Unless otherwise Stated.	OUTPUT.			REMARKS.
			Single Phase A.C. Unless otherwise stated.			
			K.W.	Volts.	Frequency.	
DWA	Type 406 (Emergency Supply only)	48	1.5	230	50	Single Motor Alternator with Automatic Control Gear which starts the machine upon failure of normal supply. The machine is supplied from a 48volt battery trickle charged from ships D.C. supply.
DWB	Receiver Outfit CAF	24	0.075 (When Patt. W8242 Board A.C. control is used)	230	50	This unit incorporating machine and control gear is available in two forms. One (Patt. W8242) has rotary converter with manual control of output voltage by means of tapped transformer; the other (Patt. W6804) uses motor-alternator with A.V.C.
			OR 0.08 (When Patt. W6804 Board A.C. control is used).	230	50	
DE *	Receivers (Fitted in CRR in older Cruisers)	220	0.8	230	50	Duplicate motor alternators, starters and regulators.
DE *	Receivers (Emergency supply; fitted in second office of older cruisers and above.)	18-24	0.075 (100 V.A. at 0.75pf)	230	50	Single motor alternator.
DH *	Receivers (Aux. Office of older Cruisers and above; main office leaders and below).	(110 or 220 ((18 - 24	0.075 (100 V.A. at 0.75pf)	230	50	Main motor alternators, starters and regulators duplicated, emergency machine (18 - 24 volts input) single.
DJ *	Receivers	(110 or 220 ((18 - 24	0.2 0.075 (100 V.A. at 0.75pf)	230	50	Main motor alternators, starters and regulators, duplicated. Emergency machine single.
DK *	Receivers (emergency supply).	18 - 24	0.075 (100 V.A. at 0.75pf)	230	50	Single motor alternator.
DL *	Receivers (CRR of Cruisers and above)	(110 or 220 ((18 - 24	2.5 0.075 (100 V.A. at 0.75pf)	230	50	Main motor alternators, starters and regulators duplicated. Emergency machine single.
DO	Receivers etc.	110 or 220	0.2	230	50	Single motor alternator. No power board. (Will shortly be fitted with a power board)
DHB *	Receivers	110 or 220	0.8	230	50	Duplicate motor alternators, starters, and regulators
DHC *	Receivers etc. (T.R. of Cruisers and above with C.C.S.)	110 or 220 18 - 24	0.8 0.075 (100 V.A. at 0.75pf)	230	50	Main motor alternators, starters and regulators duplicated. Emergency machine single.

A.C. SUPPLY OUTFITS

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A.C. Outfit	SERVICE	Input Voltage D.C. unless otherwise stated.	O U T P U T.			REMARKS.
			Single Phase A.C. unless otherwise stated.			
			K.W.	Volts	Frequency	
DHD *	Receivers (Second office of Leaders).	110 or 220	0.8	230	50	Single motor alternator.
DJB	FH3, FH4, FM7, FM11, FM12	110 or 220	0.2	230	50	Duplicate motor alternators, starters and regulators.
DLC	Receivers etc. (T.R. of Cruisers and above with C.C.S.)	220 18 - 24	2.5 0.075 (100 V.A. at 0.75pf)	230 230	50 50	Duplicate main motor alternators, starters and regulators. Emergency machine single.
DQB	Receivers etc. FM7, Type 91.	110 or 220	0.8	230	50	Duplicate motor alternators, starters and regulators.
DQC *	Receivers etc. (T.R. of Cruisers and above with C.C.S.)	220	0.8	230	50	Duplicate motor alternators, starters and regulators.
DRB	Receivers etc. FM7.	110 or 220	2.5	230	50	Duplicate motor alternators, starters and regulators.
DRC *	Receivers etc. (T.R. of C.C.S. ships)	220	2.5	230	50	Duplicate motor alternators, starters and regulators.
DRD	Types 87, 88, 89 (in non-C.W.S. ships)	110 or 220	2.5	230	50	Duplicate motor alternators, starters and regulators.
DTE	Type 406 etc.	220	4 (5kVA at 0.8 pf)	230	50	Duplicate motor alternators, starters and regulators.
DTC	Types 87, 88, 89. (in non-C.W.S. ships)	110 or 220	4 (5kVA at 0.8 pf)	230	50	Duplicate motor alternators, starters and regulators.
DTD	Types 87, 88, 89 (in non-C.W.S. Ships)	220	10	230	50	Duplicate motor alternators, hand regulators and starters.
DDD	Receivers etc. (submarines)	110 or 220	0.8	230	50	Duplicate motor alternators, regulators and starters. Both alternators may be loaded simultaneously, but not paralleled. An output of 1.6 kW may therefore be obtained, but machines etc. are then not duplicated.

* Outfits so marked are still in service, but are no longer fitted for new equipment.

MAIN SUPPLY CIRCUITS FOR A.C. SUPPLY OUTFITS.

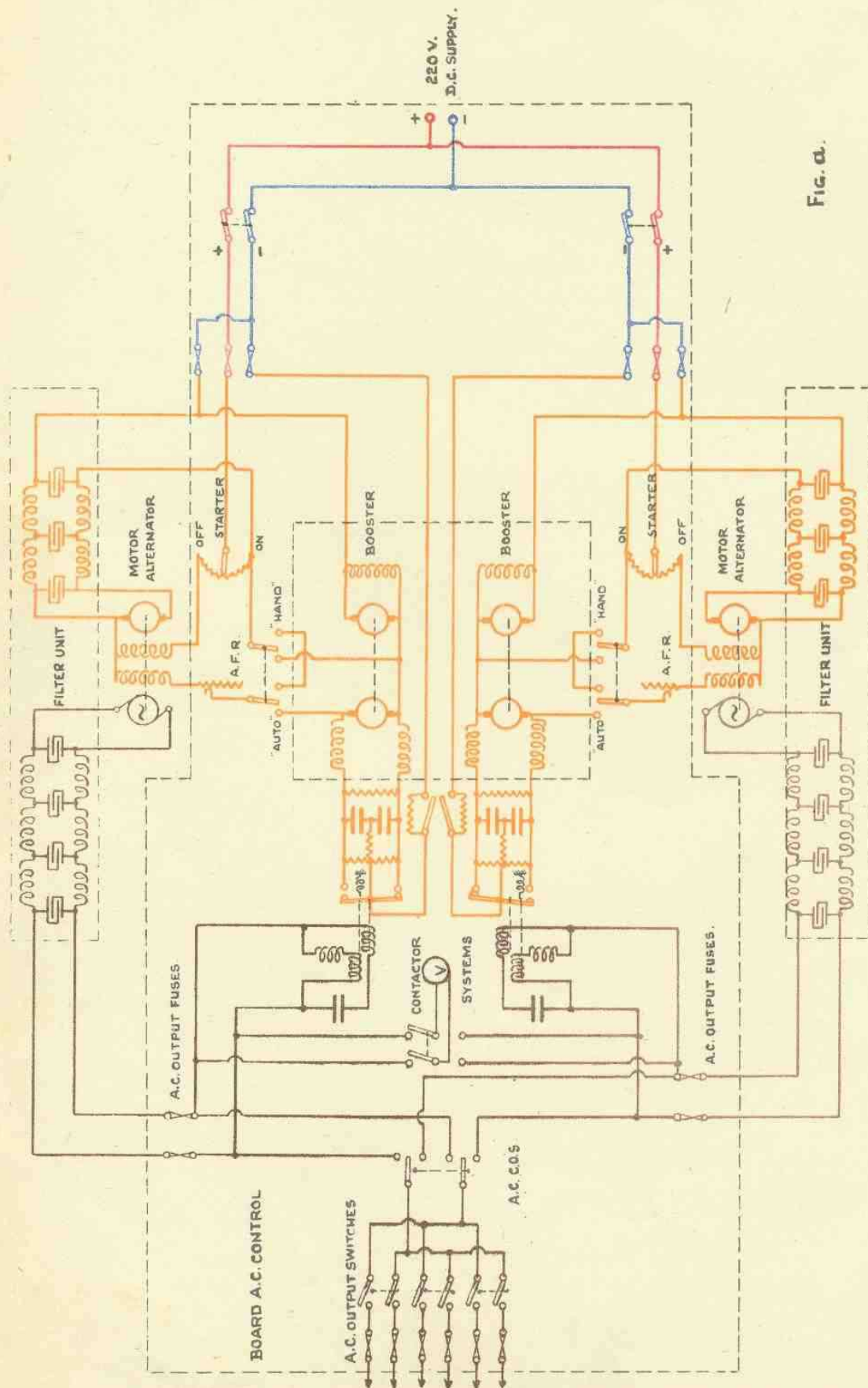


Fig. a.

A C SUPPLY OUTFITS

RECTIFIERS

NE15

Rectifier Units 1204A/B. Pattern 1204A and 1204B rectifier units each comprise a normal full-wave rectifier circuit Design "B" but different stabilising units are used with each rectifier. Both circuits employ gas-gap stabilising tubes, and are provided with plug boards for voltage selection. Pattern 1204A is always used with ALL-WAVE receivers, and Pattern 1204B to supply crystal wavemeter outfits. The multi-electrode tube used as a stabilising device in Pattern 1204B is popularly known as a "Stabilivolt". Its efficiency is such that 10% variations of supply voltage cause only 0.1% fluctuation of output, whilst any variations of load cause only 1-2% fluctuation of output.

Rectifier Circuits. The 230 volt 50 cycle A.C. supply is fed via a double pole switch (48), lamp fuses (49) and safety switch (50) to the primary of the transformer (51). This transformer has two secondary windings which supply, (a) 4 volts for the filament of the NU12 rectifier valve, (b) 500 volts to each anode of the NU12, the centre-tap of this winding being earthed.

The output from the rectifier valve is shunted by a reservoir electrolytic condenser (52) and is smoothed by means of a low pass filter of chokes (53)(54)(55) and condensers (56)(57)(58). A resistance lamp (59) is connected between chokes (53) and (54) and may be cut out by means of a link (73). Following the smoothing circuit are two resistance lamps (60)(61), one or both of which are used according to outputs required.

Pattern 1204A Rectifier comprises :

- 1 - NU12 Valve, rectifier.
- 2 - NS1 Valves, stabilisers.
- 2 - 25 watt 240 volt lamps.
- 1 - 60 watt 230 volt lamp.

Stabiliser unit Pattern 2339 (fitted in 1204A) (Fig. 1). This stabiliser consists of two identical circuits each capable of providing 70, 140, 210 and 280 volts output by inserting a plug in the appropriate socket of plug board (72). Each circuit employs an NS1 gas-gap tube (4)(5) connected across the H.T. supply in series with one of the resistance lamps (60)(61).

When a single output is required, the gas-gap "Q" (5) and resistance lamp "X" (61) are removed, the link "A" (74) is set to position "I" and the first voltage dropping lamp "Z" (59) is changed, as shown in Table I.

If the rectifier unit is required to supply grid bias the H.T. negative is isolated from earth by removing link (75); on all other occasions the H.T. negative is earthed.

TABLE I.

PATTERN 1204A RECTIFIER UNIT, DESIGN "B".

D.C. Output.	H.T. Terminal.	Link Position.		Tube Socket.		Lamp Holder.		
		A	B	P	Q	X	Y	Z
Single output, 70, 140, 210 or 280 V., 0-65 mA.	H.T. + 1	1	1	NS1	EMPTY	EMPTY	240V. 25W.	240V. 25W.
Double output, 70, 140, 210 or 280 V., 0-65 mA. each output.	H.T. + 1 or H.T. + 2	2	1	NS1	NS1	240V 25W	240V. 25W.	230V. 60W.

AC SUPPLY OUTFITS RECTIFIERS

RECTIFIER PATTERN 1204A/B

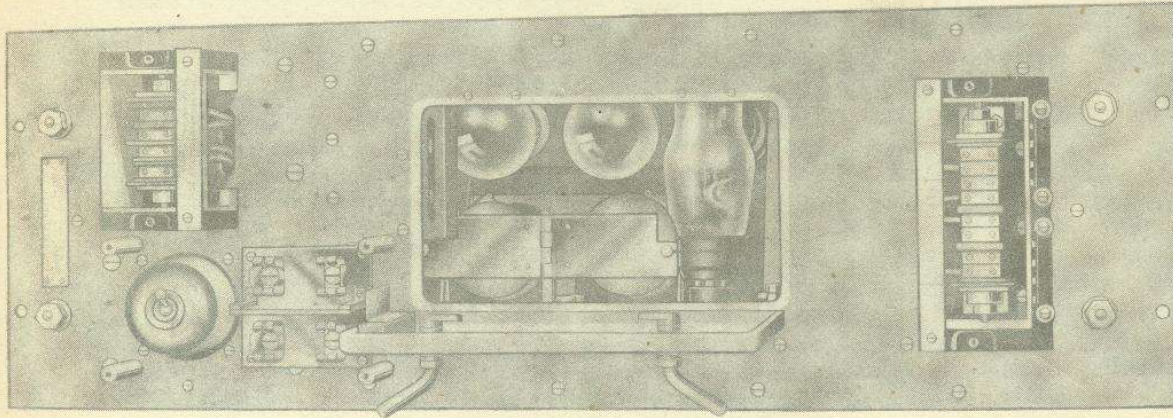


FIG. k.

RECTIFIER UNIT PATTERN 1204A WITH PATTERN 2339 STABILISER UNIT

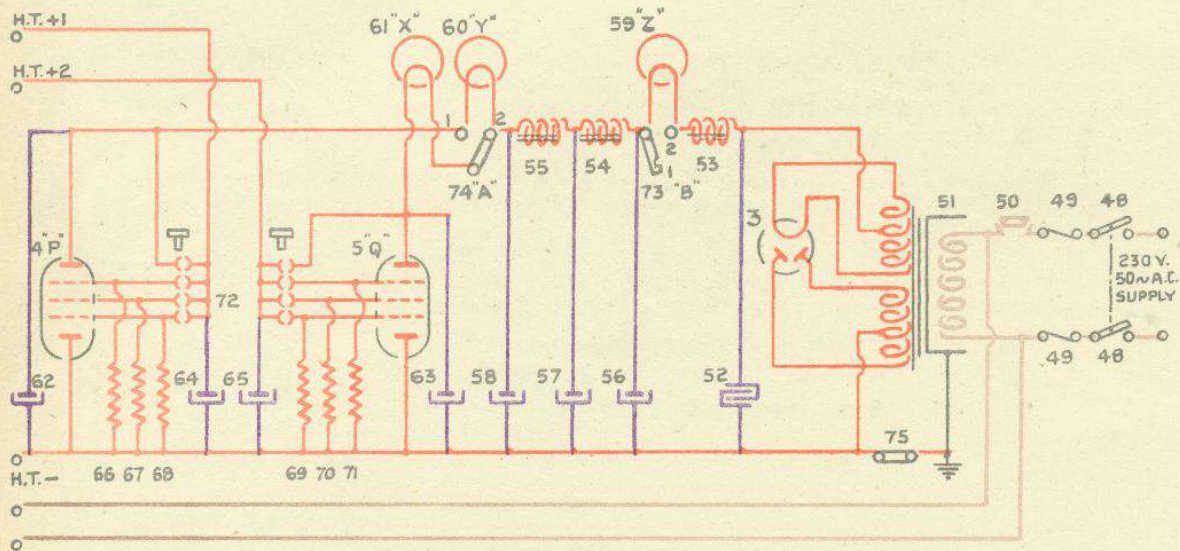


FIG. l.

RECTIFIER UNIT PATTERN 1204B WITH PATTERN 2357 STABILISER UNIT

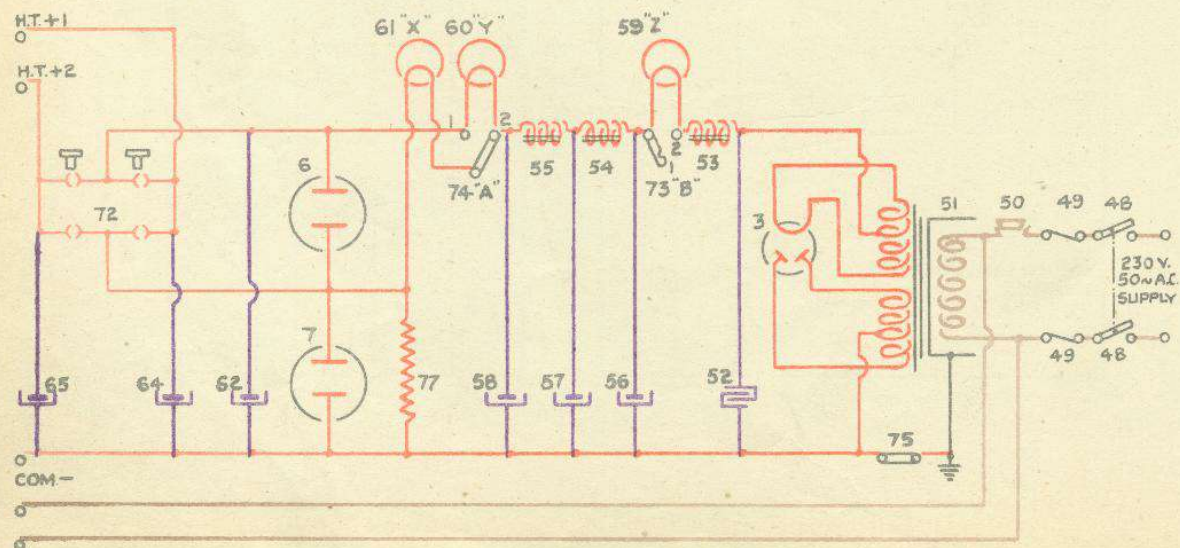


FIG. m.

AC SUPPLY OUTFITS RECTIFIERS

NE17

Pattern 1204B rectifier comprises :

- 1 - Rectifying valve NU12
- 2 - Stabilising valves NS2
- 3 - 25 watt, 240 volt lamps
- 2 - 40 watt, 220 volt lamps

Stabiliser unit pattern 2357 (fitted in 1204B) (Fig. m). This unit is arranged to supply one or two D.C. outputs each at 100 or 200 volts. The two output circuits may be connected across both NS2's or across one NS2 only, giving 200 volts or 100 volts respectively.

When one or two 100 volt outputs not exceeding 65 milliamps are required, one NS2 (7) is used in series with two resistance lamps (60)(61), the unused NS2 (6) being removed. The resistance lamps are varied according to the output required as shown in Table II.

If the unit is required to supply grid bias, the link (75) must be removed; on all other occasions the H.T. is earthed.

TABLE II.
PATTERN 1204B RECTIFIER UNIT, DESIGN "B".

D.C. Output.	H.T. Terminal.	Link Position.		Tube Socket.		Lamp Holder.		
		A	B	P	Q	X	Y	Z
100V. 0-65 mA.	H.T. + 1 and/or H.T. + 2.	1	1	EMPTY	NS2	240V 25W	240V 25W	240V 25W
100V. and/or 200V. 0-65 mA. TOTAL CURRENT	According to Voltage Selector.	2	1	NS2	NS2	EMPTY	240V 25W	240V 25W
100V. and/or 200V. 65-130 mA. TOTAL CURRENT	According to Voltage Selector.	2	1	NS2	NS2	EMPTY	220V 40W	220V 40W

Rectifier Units W186 and W187, Design "D & E". W186 rectifier unit has been designed for H.T. and L.T. supply to receivers other than all wave receivers, and is very similar in design to rectifier unit Pattern 5294, except that an NS2 gas-gap stabiliser unit is used in place of a triode valve. (Fig. n).

The functions of the transformer windings of rectifier unit W186 are identical to rectifier unit 5294, but with a W187 winding "A" of the mains transformer is NOT used and the components numbered (23) to (36) in (Fig. m) are omitted, therefore W186 and W187 are identical with the exception of the D.C. filament supply, which is removed from W187.

AC SUPPLY OUTFITS RECTIFIERS

RECTIFIER UNIT PATTERN W186

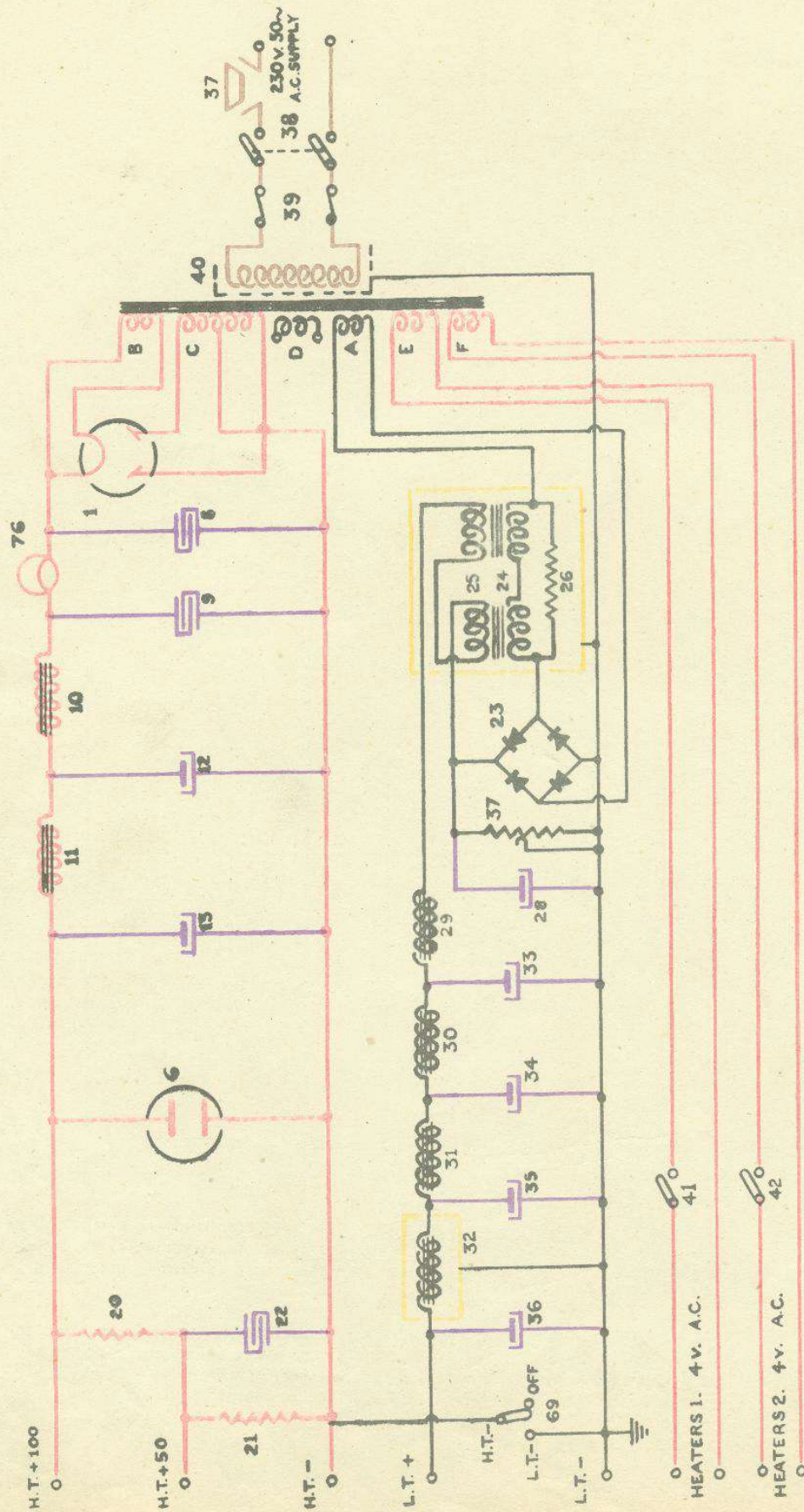


FIG. 7.