



D Y N A T R O N

RADIOGRAM SERVICE MANUAL

**RG25B, RG29B, RG32B, RG38B, RG39A, RG40A, RG41A, RG43, RG44, RG45, HFC1A
HFC1M, HFC2A, HFC2M, TRG10 (Radiogram Section)**

October 1966

RADIOGRAM SERVICE MANUAL

RG25B, RG29B, RG32B, RG38B, RG39A, RG40A, RG41A, RG43, RG44
RG45, HFC1A, HFC1M, HFC2A, HCF2M, TRG10 (Radiogram Section)

This series of fully transistorised radiogramophones incorporates the 4-waveband radio tuner Type T66 for the reception of broadcasts on V.H.F., Short, Medium and Long Wavebands. The internal ferrite aerial has rotational control and a wire aerial is fitted in the cabinet for A.M. reception, with a separate dipole for V.H.F. A socket is provided for a multiplex decoder unit to be plugged in for reception of stereo radio broadcasts. Automatic Frequency control on V.H.F. can be switched in or out.

Loudspeaker systems are acoustically matched for each model. A high fidelity 18/24 series integrated stereo amplifier with controls for input selection, balance, volume, treble, bass and on/off is fitted, and slider switches provide stereo/mono selection, S filter, R filter, loudness control, and there is meter indication for Stereo Balance or V.H.F. tuning. A socket for tape recording and playback to BREMA standards is fitted.

Wavebands

V.H.F. 87-108 Mc/s.

S.W. 18.4-54.5 metres.

M.W. 185-570 metres.

L.W. 1200-2000 metres.

V.H.F. Sensitivity: 3 microvolts for 10 dB signal to noise ratio. Full limiting at 10 microvolts.

Transistors and Diodes

Tuner Type T66

| | | |
|--------|--------|------------------------------------------------|
| VT1 | AF178 | R.F. Amplifier (F.M.). |
| VT2 | AF115 | Mixer (F.M.). |
| VT3 | AF115 | Frequency changer (A.M.) 2nd I.F. Amp. (F.M.). |
| VT4 | AF116 | I.F. Amplifier (A.M.-F.M.). |
| VT5 | AF116 | I.F. Amplifier (A.M.-F.M.). |
| VT6 | AF116 | 1st (F.M.) I.F. |
| D1 | BA102 | A.F.C. Diode |
| D2 | SFD107 | A.M. Detector. |
| D3, D4 | IN542 | F.M. Detector. |

Amplifier Type 18/24

| | | |
|-----------------------|----------|------------------------------------|
| VT1 | NKT 216 | } Complementary pair driver stage. |
| VT2 | NKT 275 | |
| VT3 | NKT 773 | |
| VT4 | NKT 213 | |
| VT5 | NKT 717 | |
| VT6 | NKT 212 | |
| VT7, VT8, NKT 452 | | Class B. Output stage. |
| D1 | NKT 279 | |
| D2 | NKT 279A | |
| D3, D4, D5, D6, LT120 | | |
| D7 | NKT 449 | |
| D8, D9 | 249A30 | |

Loudspeakers

Impedance 3 ohms.

RG 39 A, RG 43 2 × 8 in. dual cone units.

RG 41 A 2 × 8 in. units.

RG 44 2 × 10 in. × 6 in. units.

RG 25 B, RG 38 B 2 × 8 in. plus 2 × 5 in. middle and high frequency units.

RG 29 B, RG 32 B 2 × 10 in. plus 2 × 5 in. middle frequency units plus 2 × 4 in. high frequency units.

RG 40 A, RG 45 2 × 8 in. dual cone units, 2 × 4 in. high frequency units.

Power Output

Models: RG 39A, RG 41 A, RG 43, RG 44. 9 watts R.M.S. per channel.

Models: RG 25 B, RG 29 B, RG 32 B, RG 38 B, RG 40 A, RG 45. 12 watts R.M.S. per channel.

Distortion

Power Amplifier: Less than 1% at full output.

Total Overall: Less than 3% at full output.

Frequency Response

30 c/s-15 Kc/s ± 3dB at full output.

Tone Controls

Bass: 18 dB at 60 c/s.

Treble: 18 dB at 15 Kc/s.

Loudness Switch: +10 dB at 60 c/s below half rotation of volume control.

"S" Filter switch: 8 dB at 10 Kc/s. Roll off from 5 Kc/s reaching 6 dB per octave above 10 Kc/s.

"R" Filter switch: 12 dB at 20 c/s. Roll off from 90 c/s reaching 12 dB per octave above 25 c/s.

Volume: Continuously variable with tone compensation to give 10 dB lift at 60 c/s with control set below half rotation with loudness switch in.

Tape Socket

5-pin D.I.N. (to BREMA Standard).

Recording output level greater than 20 mV 47 K impedance.

Playback input sensitivity 20 mV for full output.

Pick-up Cartridge

Sonotone 9 TA with diamond stylus.

Mains Voltage

200-250V, 50 c/s A.C.

Dial Lamps

12V L.E.S.

Models HFC1A, HFC1M, HFC2A, HFC2M

This series of gramophones incorporates the 18/24 Amplifier giving 12 watts R.M.S. per channel. The Type T66 Tuner is fitted to HFC 2 A and HFC 2 M. Loudspeakers are external units, Type LS 100 incorporating one 6½ in. unit plus one 3½ in. high frequency unit, or Type LS 200 incorporating one 8 in. unit with high-pass filter, and 3½ in. high frequency unit.

Model TRG.10

The radiogramophone section of this model incorporates the 18/24 Amplifier giving 12 watts R.M.S. per channel and a Type T66 Tuner.

Alignment

I.F.-A.M.

(a) Switch to M.W. Inject a 470 Kc/s, 30% modulated signal into base winding of M.W. aerial coil, set tuned to 550 Kc/s.

(b) Adjust in order for maximum output T2, T4 and T6.

R.F.-A.M.

Inject signal via dummy aerial to 'all band' aerial socket.

M.W.

(a) Set band limits to 525 Kc/s and 1620 Kc/s adjusting L8 and C23.

(b) Tune to 650 Kc/s and set M.W. aerial coil to give maximum output.

(c) Tune to 1500 Kc/s and set C24 to give maximum output.

L.W.

Set pointer at 1400 metres and inject 214 Kc/s signal.

Set C21 and L.W. aerial coil to give maximum output.

S.W.

(a) Set band limits to 5.5 Mc/s and 16.25 Mc/s adjusting L10 and C21.

(b) Tune set to 14.5 Mc/s and adjust C26 for maximum output.

(c) Repeat (a) and (b) until no further improvement can be made.

I.F.-V.H.F.

Tune receiver to approximately 92 Mc/s, clear of interfering carriers, and inject a wobulated signal at 10.7 Mc/s to Pin B on Tuner unit.

(a) With C66 and C69 disconnected, connect display input to free end of C66. Adjust secondary of T7 for maximum, then T5, T3, L101, L3 and L4 to produce a symmetrical response centred on 10.7 Mc/s.

(b) Re-connect C66 and C69 and connect display input to Pin 5 on circuit board. Adjust secondary of T7 for symmetrical "S" curve.

R.F.-V.H.F.

(a) Inject a 92 Mc/s signal and set pointer to 92 Mc/s. Tune to obtain signal, and adjust L1 for maximum output.

(b) Inject 102 Mc/s signal and set pointer to 102 Mc/s. Tune C15 to obtain signal, and adjust C7 for maximum output.

(c) Repeat (a) and (b) until no further improvement can be made.

(d) Inject a signal at 92 Mc/s, 30% modulated to Pin B on Tuner unit, and set RV, to give minimum output.

(e) Inject a signal at 10.7 Mc/s, un-modulated to Pin B and set T7 secondary to give a zero reading, measured on a 2.5V meter, between R24 and chassis.

(f) Repeat (d) and (e) until no further improvement can be made.

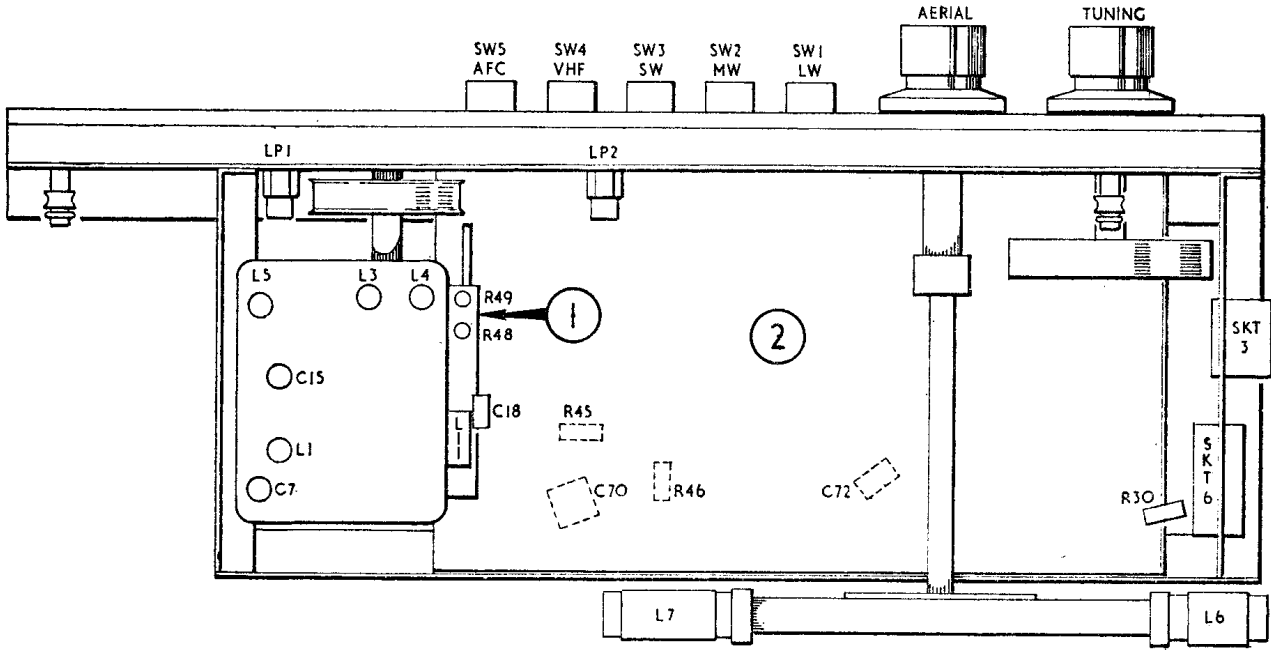
(g) Inject a signal at 10.7 Mc/s with 22.5 Kc/s deviation to pin C and adjust L11 to give minimum output.

To Check AFC Action

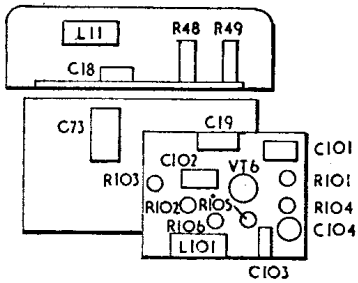
(a) With A.F.C. button "out" tune to 92 Mc/s. With an R.F. input of 30 microvolts, detune until output falls 10 dB. Press A.F.C. button and output should increase to within 1 dB of original level.

(b) Repeat (a) detuning in the opposite direction.

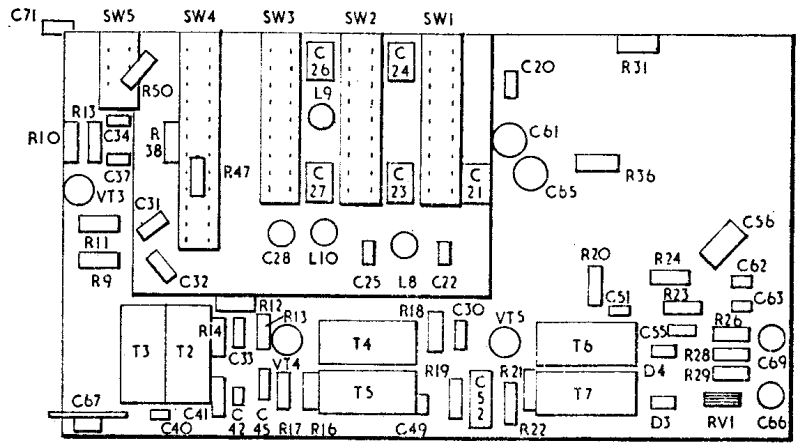
T66 TUNER



TOP VIEW

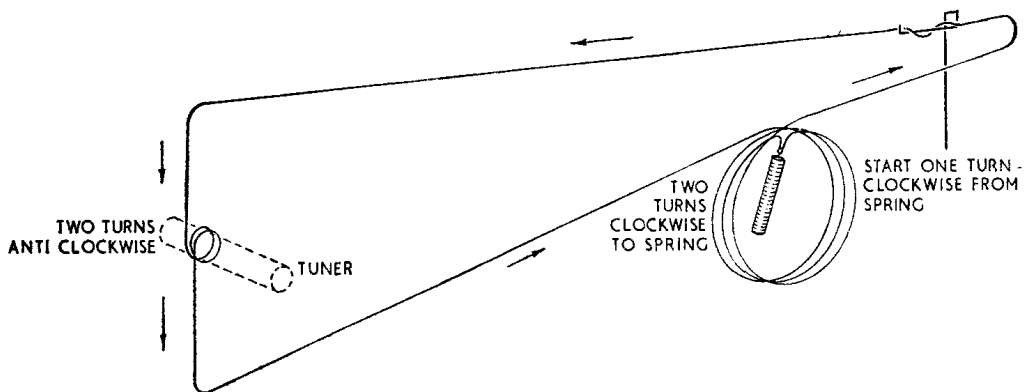


1



2

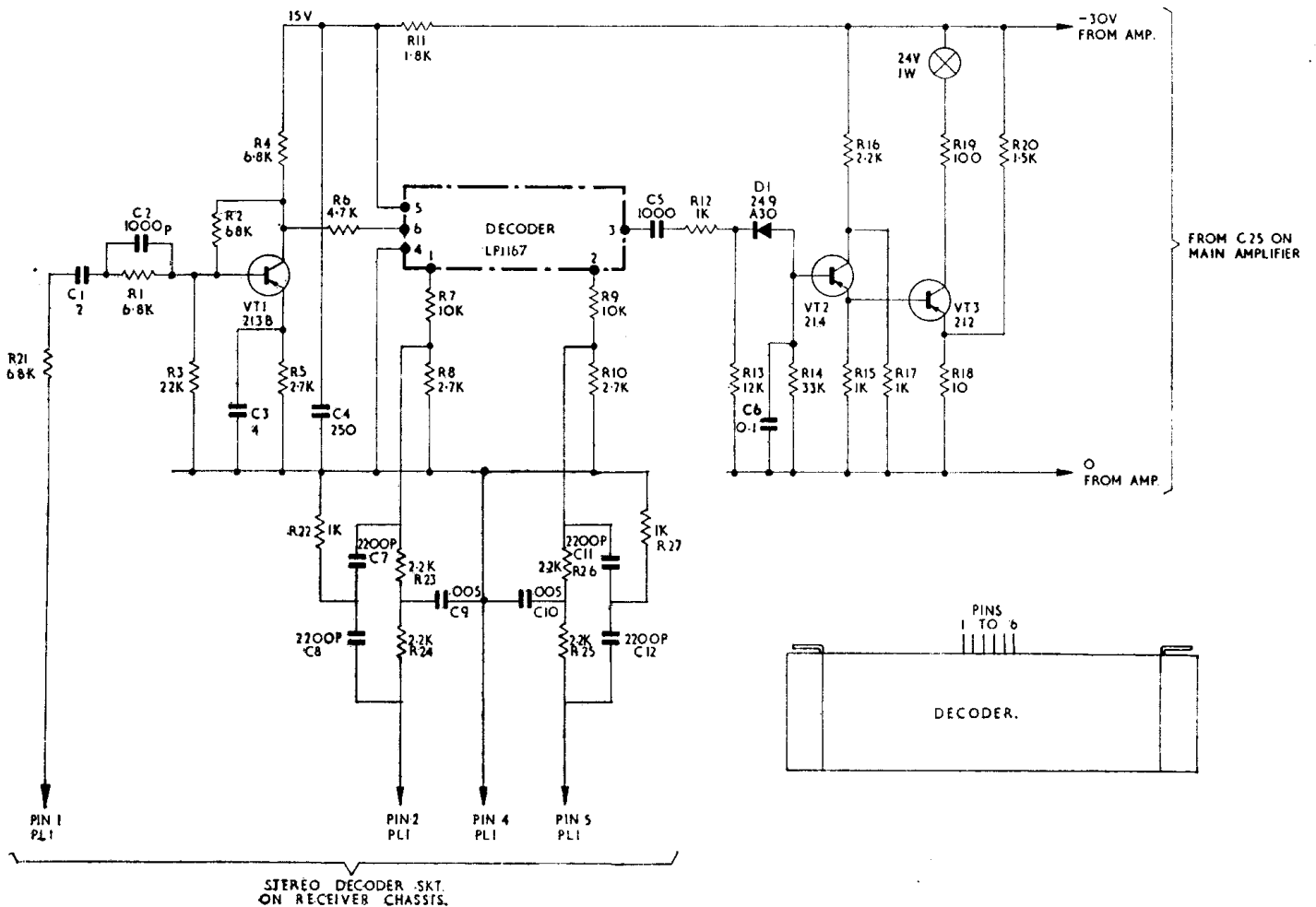
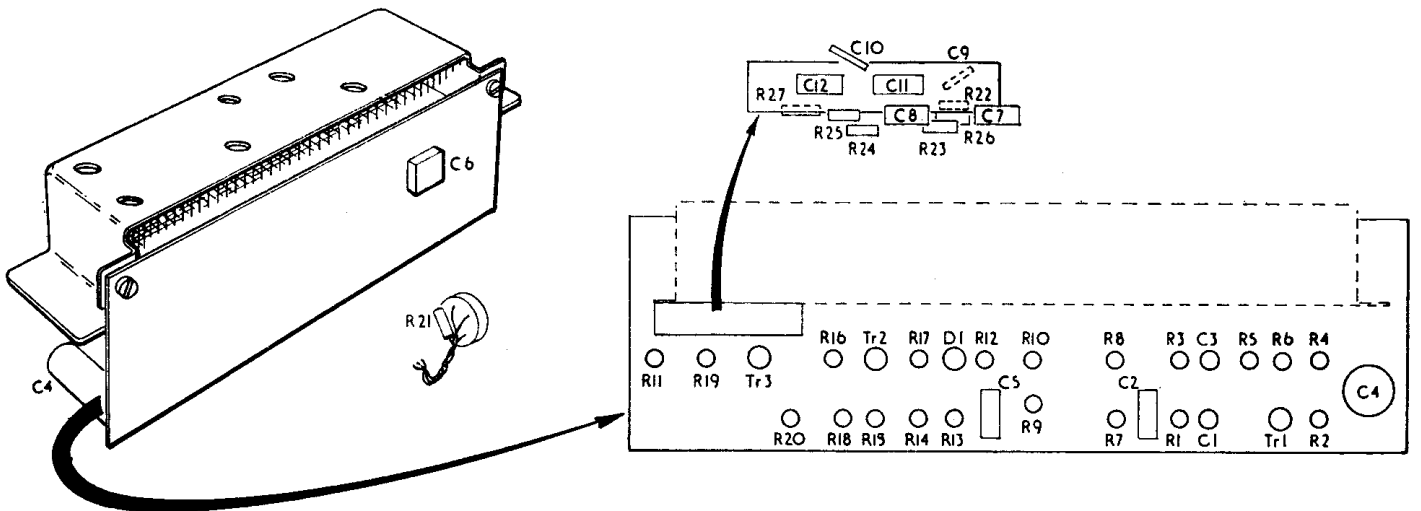
DRIVE CORD



WINDING DETAILS SHOWN FROM REAR WITH GANG OPEN

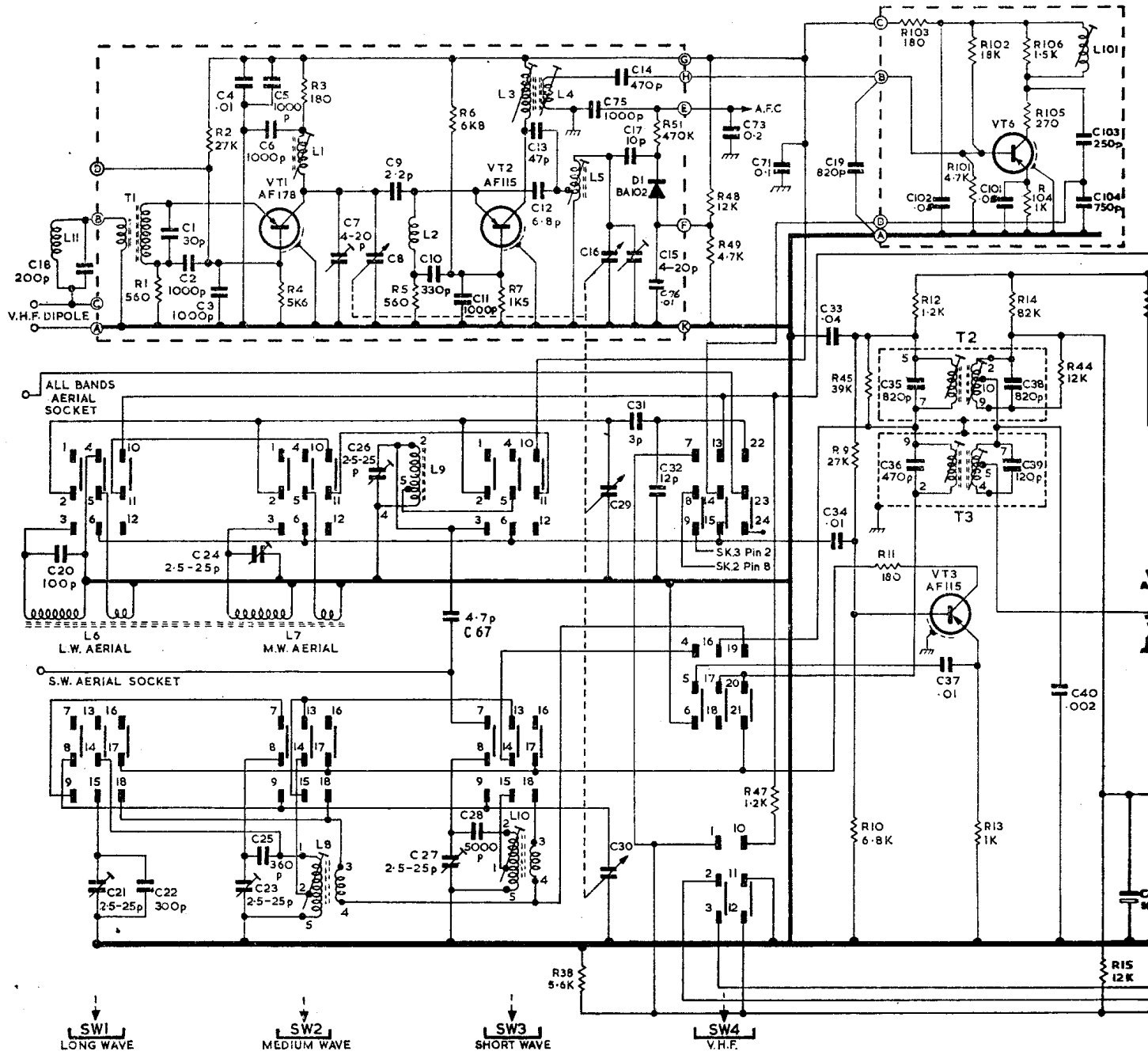
STEREO DECODER

A stereo decoder unit can be used with all models covered by this manual. A suffix 'D' indicates that the decoder is already fitted. The decoder is available as a kit type SD2 with fitting instructions.

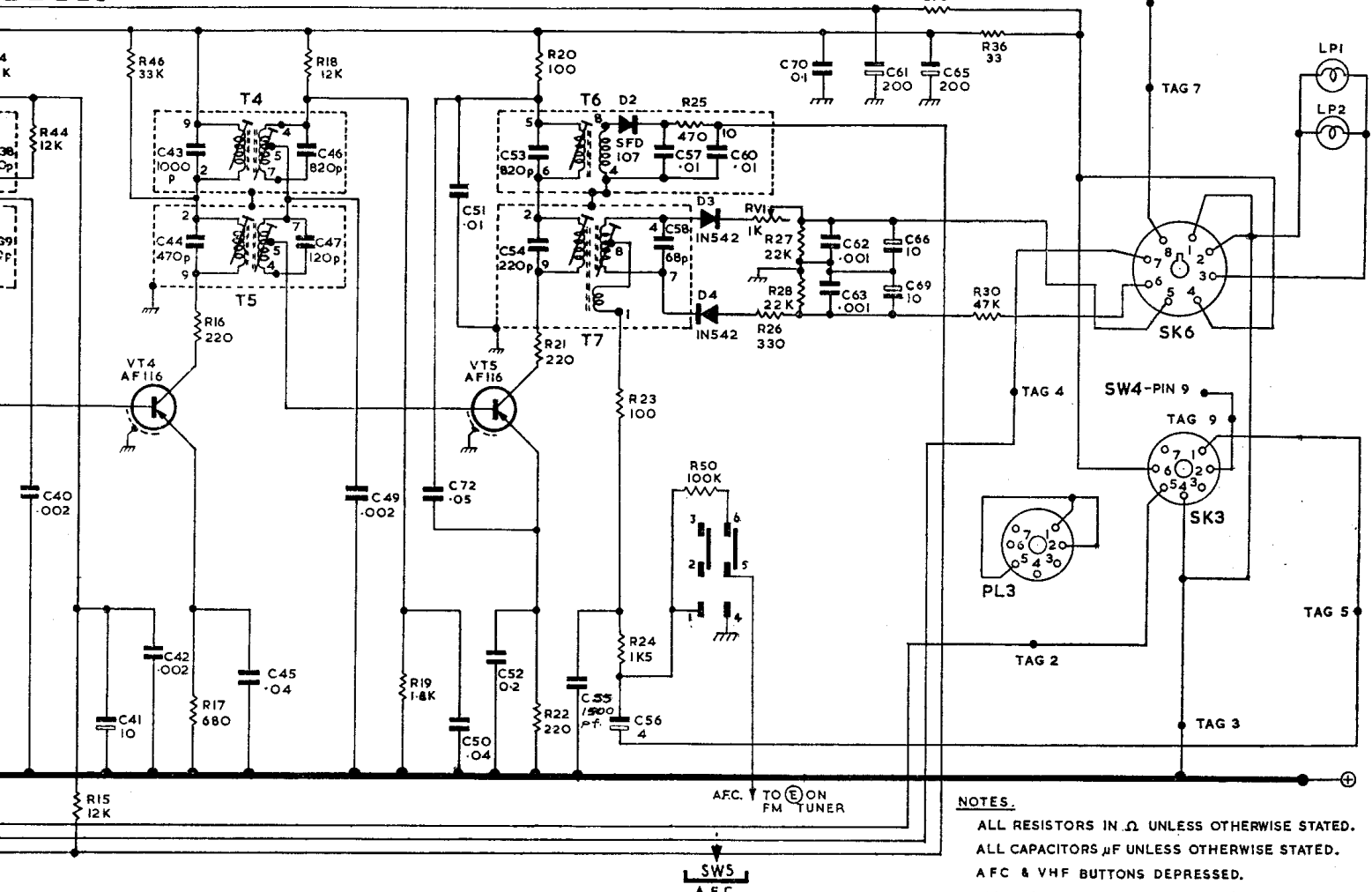
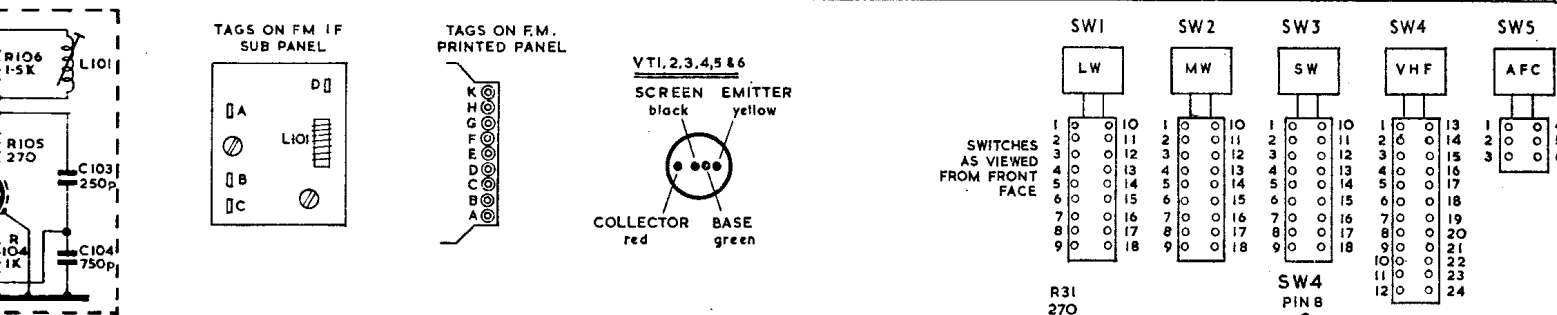
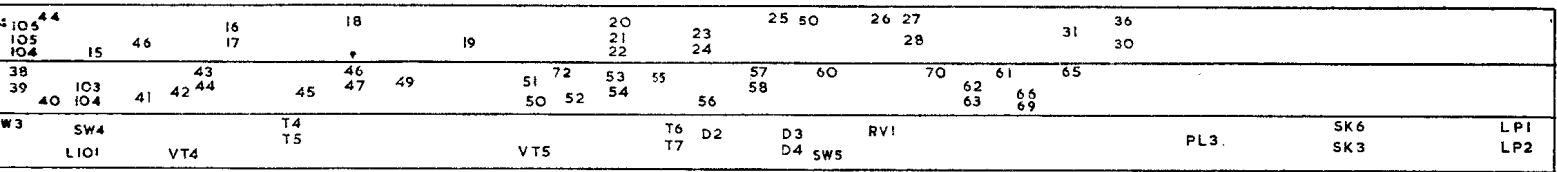


T66 TUNER

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------|-----|----|----|-----|-----|----|----|-----|----|----|-----|-----|-----|----|-----|----|----|-----|-----|-----|------|----|----|----|----|----|----|----|
| R | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 51 | 48 | 45 | 12 | 102 | 14 | 105 | 44 | 46 | | | | | | | | | | | |
| C | 18 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 |
| MISC. | L11 | L6 | T1 | SW1 | VT1 | L7 | L8 | SW2 | L2 | L9 | VT2 | L10 | L5 | D1 | SW4 | T2 | T3 | VT3 | SW3 | SW4 | L101 | | | | | | | |



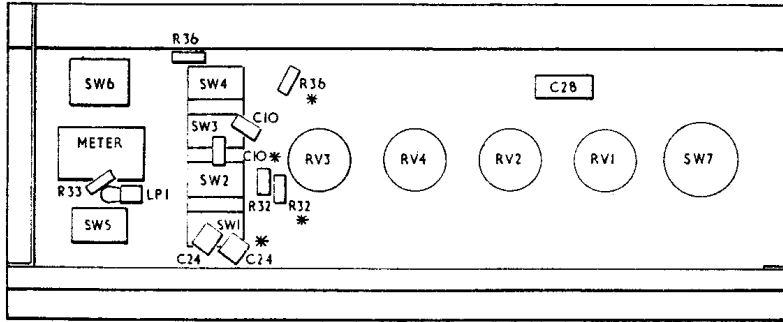
TUNER CIRCUIT



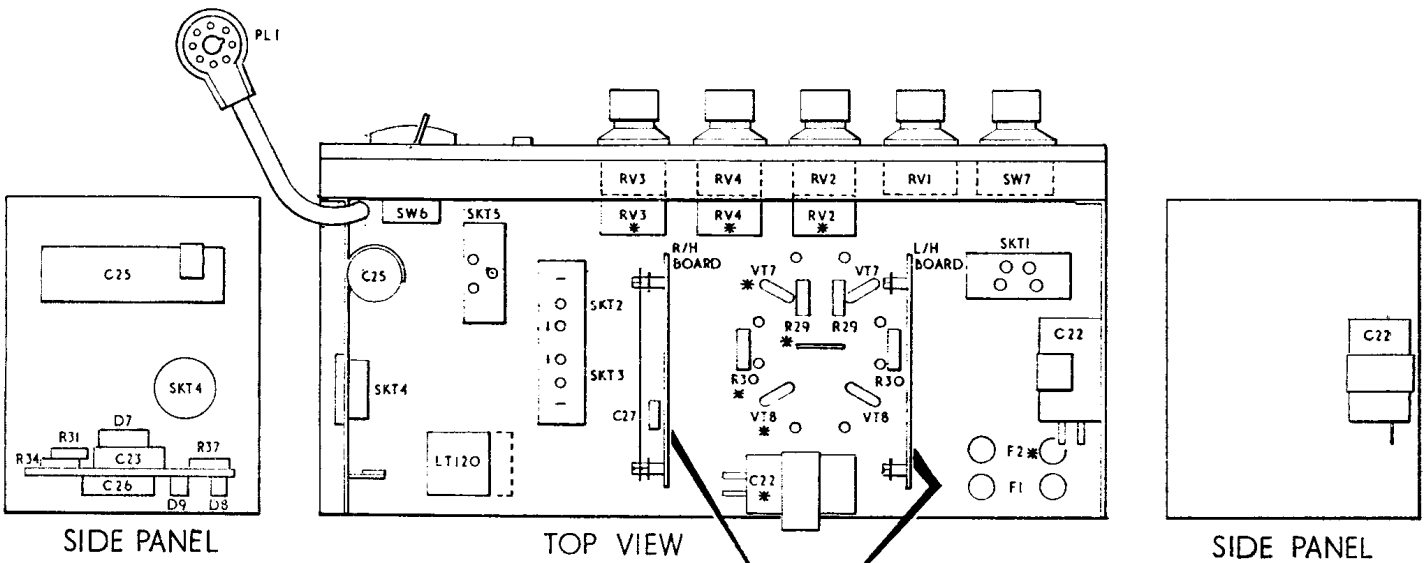
NOTES.

- ALL RESISTORS IN Ω UNLESS OTHERWISE STATED.
- ALL CAPACITORS μ F UNLESS OTHERWISE STATED.
- AFC & VHF BUTTONS DEPRESSED.
- ALL VOLTAGES NEGATIVE WITH RESPECT TO CHASSIS.
- VOLTAGES ON TRANSISTORS TAKEN WITH MODEL 8 ON 10V RANGE.
- GANG FULLY MESHED AND RECEIVER SWITCHED TO V.H.F.

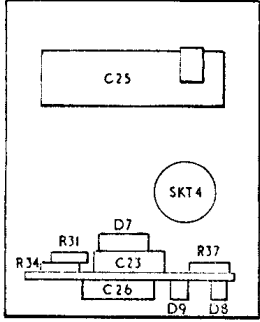
18/24 AMPLIFIER



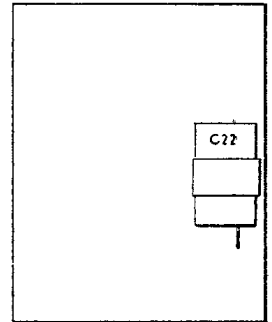
REAR VIEW



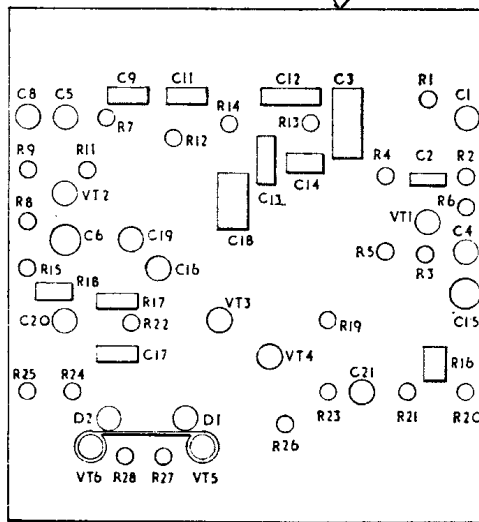
TOP VIEW



SIDE PANEL



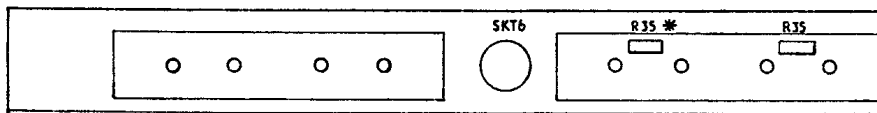
SIDE PANEL



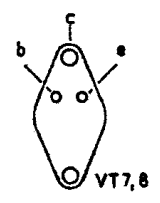
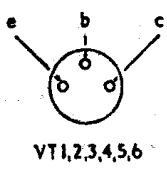
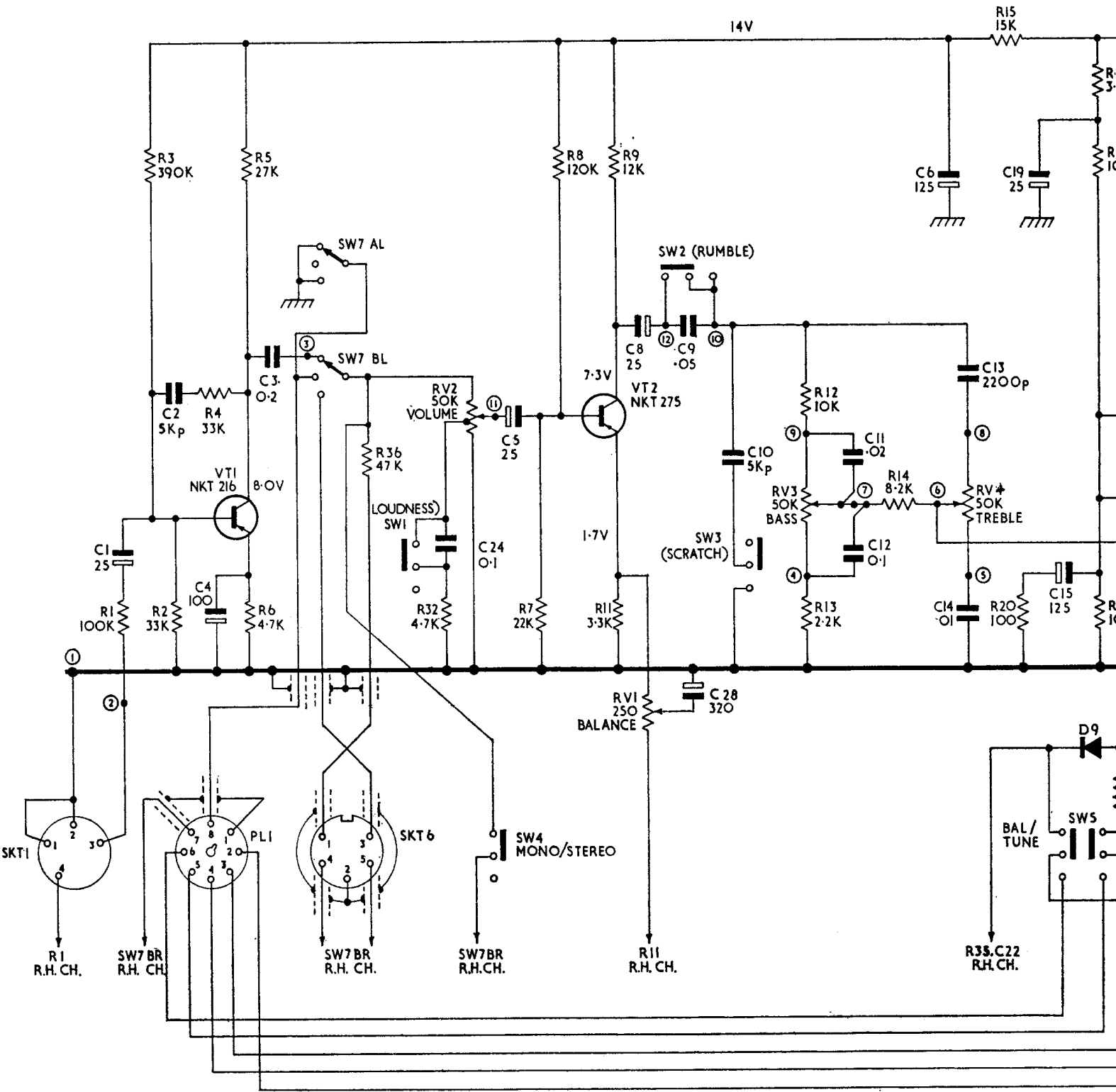
PRINTBOARD

NOTE COMPONENTS MARKED WITH * ARE THOSE WHICH APPEAR IN THE RIGHT HAND CHANNEL ONLY.

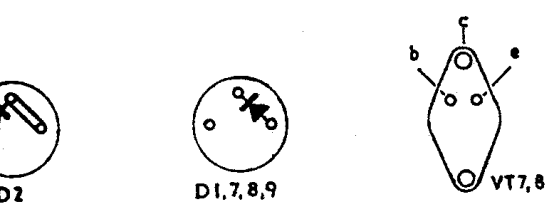
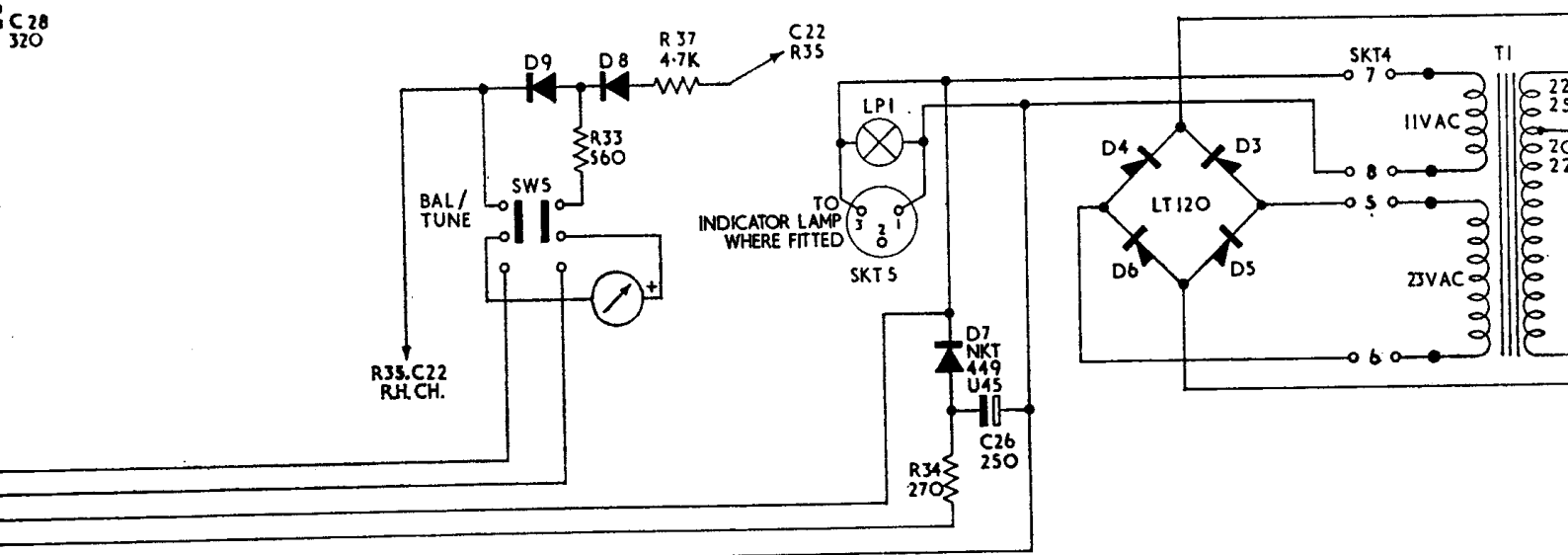
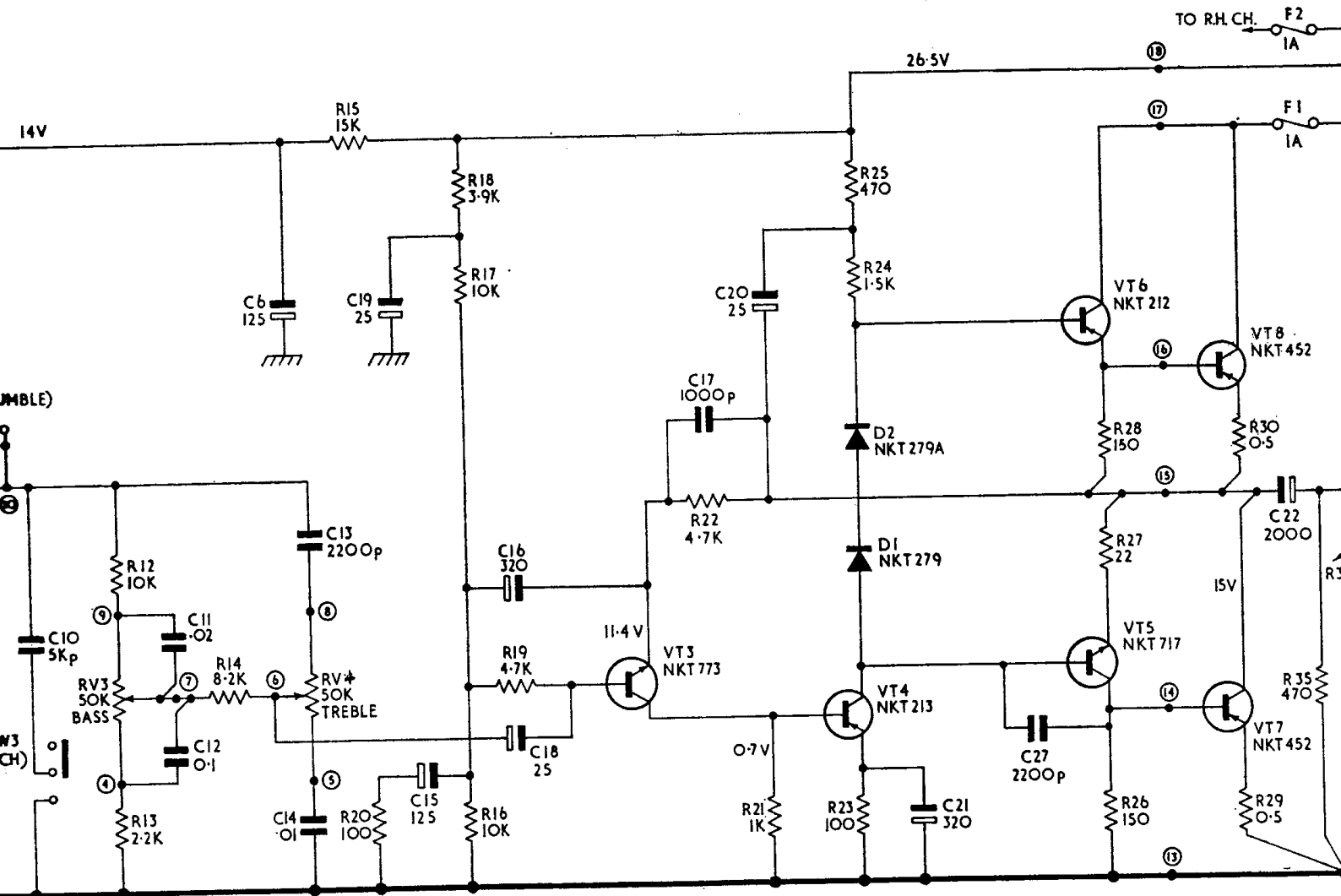
REAR VIEW OF SOCKET PANEL



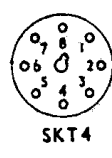
18/24 AMPLIFIER



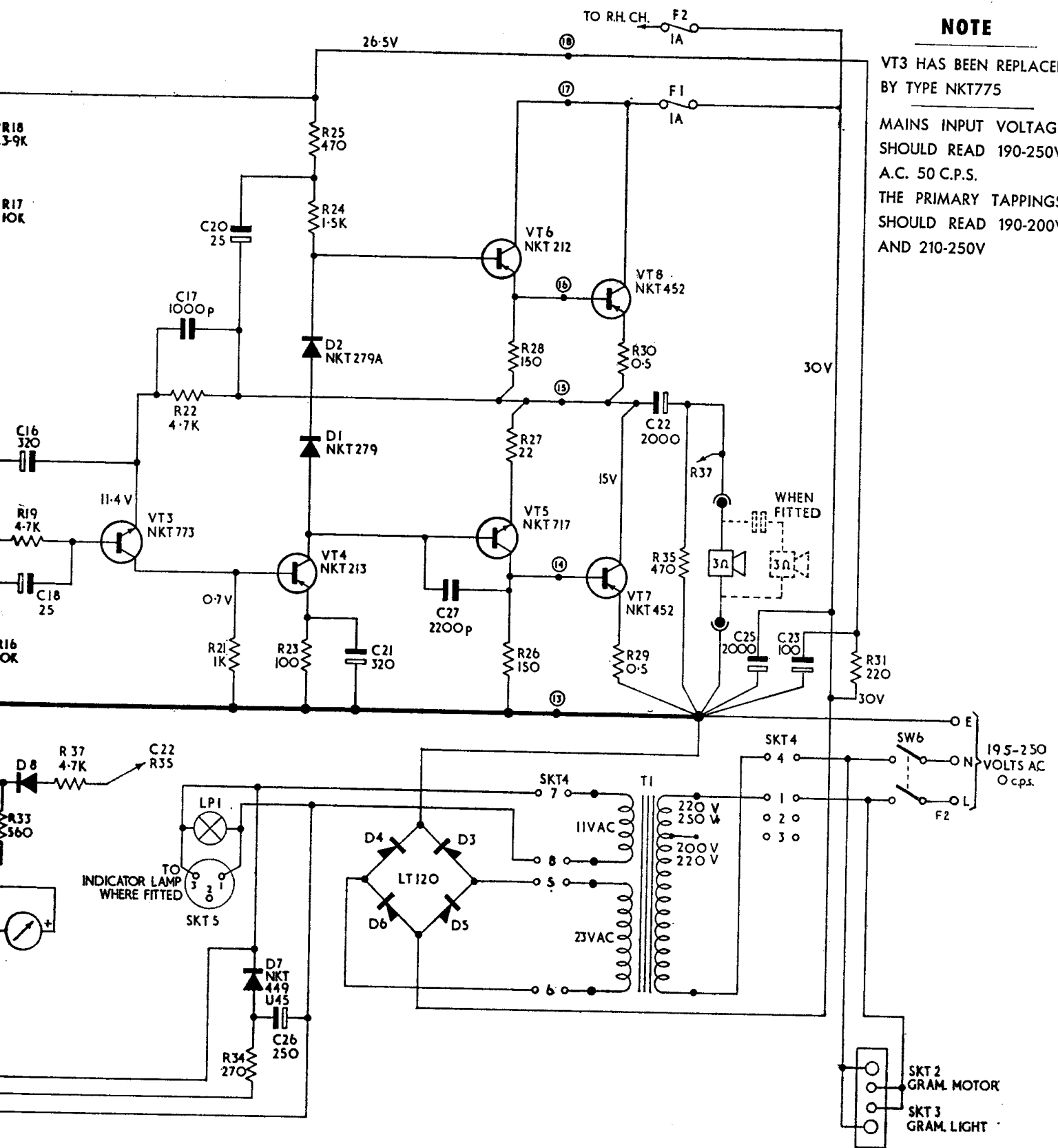
18/24 AMPLIFIER CIRCUIT



NOTES
 LEFT HAND CHANNEL ONLY IS SHOWN IN FULL.
 FIGURES THUS \circ REFER TO PIN NUMBERS ON A9-12 BOARD.
 ALL VOLTAGES TAKEN WITH 'AVO 8' (20K Ω /V) UNDER NO SIGNAL CONDITIONS
 240V.A.C. INPUT



IFIER CIRCUIT



NOTE

VT3 HAS BEEN REPLACED BY TYPE NKT775
 MAINS INPUT VOLTAGE SHOULD READ 190-250V A.C. 50 C.P.S.
 THE PRIMARY TAPPINGS SHOULD READ 190-200V AND 210-250V

NOTES

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 FIGURES THUS ○ REFER TO PIN NUMBERS ON A9-12 BOARD.
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 240V.A.C. INPUT

