CADET MK. III STEREO AMPLIFIER AND CONTROL UNIT
INSTALLATION AND OPERATION INSTRUCTIONS

We recommend that these Instructions be read fully and carefully before any attempt is made to connect up, or use the equipment.

MAIN AMPLIFIER

(1) Insert the four ECL86 valves in their holders, taking care not to bend the pins and ensuring that they seat correctly.

(2) Set the Mains Voltage Selector to the appropriate supply voltage. When the supply voltage falls between two tappings always use the higher tapping, i.e. Supply Voltage 230V use 240V tap.

(3) Connect the loudspeaker leads to the appropriate pair of terminals on the 6-way terminal strip at the back of the chassis. The two centre terminals, i.e. those marked 'O' may also be used as an EARTH connection.

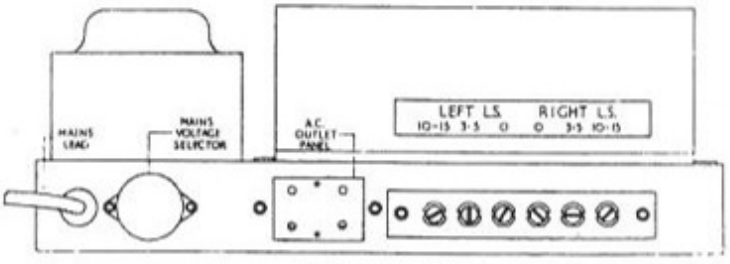
(4) Insert the multi-core connecting lead from the Control Unit into the appropriate socket on the Amplifier chassis.

(5) Connect a suitable 3-pin Mains Plug Top to the 3-core mains lead. GREEN—EARTH. RED—LIVE. BLACK—NEUTRAL.

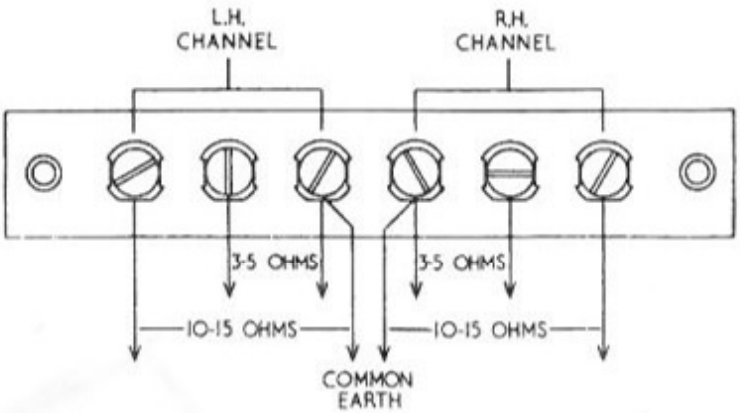
(6) For convenience the A.C. power for a gramophone motor, or other piece of auxiliary equipment, may be taken from the dual A.C. Outlet Socket at the rear of the amplifier chassis. These sockets are 'Live' irrespective of whether the amplifier is switched on or not.

(7) Two fuses are fitted to the amplifier protecting the mains primary and H.T. circuits. If the equipment fails to light up when switched on check the mains fuse for continuity, if the equipment lights up but there is no signal then check the H.T. fuse.
Ratings:— MAINS FUSE 1¼" glass cartridge. 1A anti-surge. (110V range-2A.)
H.T. FUSE 1¼" glass cartridge. ½A anti-surge.

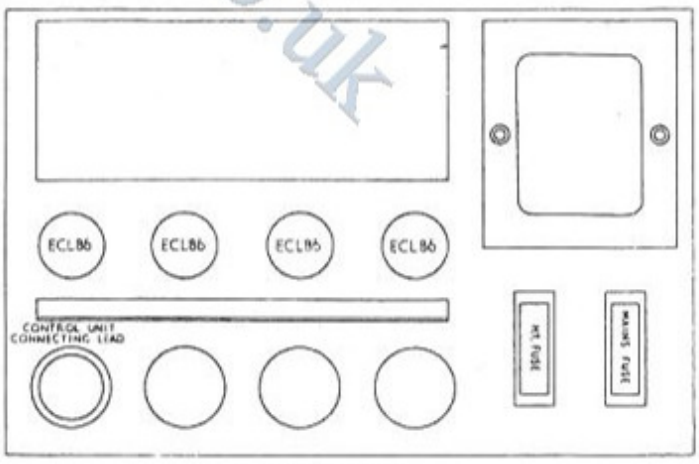
(8) The amplifier is secured in a cabinet by means of three 4 B.A. bolts screwed into the hank bushes on the amplifier chassis from underneath (See Template). In the case of the Integrated Model the case is freestanding and it is simply necessary to ensure that the ventilation grille is not obstructed in any way.



REAR VIEW



LOUDSPEAKER CONNECTIONS



PLAN VIEW

CONTROL UNIT

Method of Mounting. First provide a cut-out in the cabinet as per template. Place the unit in position from the front of the cabinet and secure by means of the two small wood screws provided. Fix the Front Panel in position securing by means of the fixing screw and $\frac{3}{8}$" brass nuts on the bushes of the BALANCE, TREBLE and VOLUME Controls. Secure the four control knobs making sure that the pointers correspond with the appropriate markings on the panel. Any panel thickness can be accommodated.

Input Connections. All input connections are via standard miniature phono sockets located at the rear of the Unit. Good quality low-loss, screened flex with an insulated outer covering must be used for all input connections; the braiding is soldered to the body of the phono plug provided, the centre conductor to the centre pin of the plug.

INPUT	SELECTOR	CHARACTERISTIC	SENSITIVITY	IMPEDANCE
DISC	DISC (SILVER ADAPTOR)	FLAT	65 m/v	2megohm
DISC	DISC (GOLD ADAPTOR)	RIAA	3·8 m/v	68K
TUNER	TUNER	FLAT	100 m/v	470K
TAPE REPLAY	TAPE	FLAT	600 m/v	—

DISC. The Disc Inputs are suitable for either magnetic or ceramic pick-up cartridges. The sensitivity and characteristics of the disc input are determined by the plug-in Pick-up Adaptor used, which should be inserted in the appropriate socket at the side of the Control Unit. Choose the ADAPTOR appropriate to the pick-up being used by reference to the list below. A GOLD and SILVER ADAPTOR are supplied as standard with each Control Unit and will be found to match the majority of magnetic and ceramic cartridges likely to be encountered.

Colour Code *GOLD* (low output magnetic cartridges) suitable for:— DECCA FFSS Series: SHURE M7D, M8D, M44, M55 Series: TANNOY Varitwin MK II: NEAT: EMPIRE 108: GOLDRING 580, 600, 700: EAGLE GOLD M1007G: PHILIPS AG 3021, AG 3401, AG 3402: ADC 660, 770, Point-Four, Point-Four E.

Colour Code *SILVER* (low output ceramic cartridges) suitable for:— BSR C1: DECCA Deram: GARRARD EV26A: N. MIERS C1: SUGDEN SCU1 Series: GOLDRING CS90.

Colour Code *RED* (high output crystal and ceramic cartridges) suitable for:— ELAC KST-102—103—103D—106: ELECTRONIC REPRODUCERS ER60, ER710, ER715: GARRARD GC3: SONOTONE 9TA: GOLDRING CS80, SX10L, CM60.

Colour Code *GREEN* (high output crystal cartridges) suitable for:— BSR SX1M, XIM, FUL-F1 TC8 M: ELECTRONIC REPRODUCERS ER703: GARRARD GC2: GOLDRING MX2L.

Colour Code *ORANGE* (low impedance crystal) suitable for:— PHILLIPS AG-3060—3063—3301—3304—3305—3306—3310.

Colour Code *BLUE* (high output magnetic) suitable for:— EAGLE SILVER M1007F: ELAC MST1, STS222D: LEAK DYNAMIC: ORTOFON SPUGT: SHURE MD5, M65: CONNOISSEUR MK II L.P.

When connecting the pick-up lead on no account should the braiding be earthed to the motor or main amplifier. A solder tag is provided at the rear of the Control Unit for earthing pick-ups having a separate earth wire.

A monaural pick-up should be connected to the left-hand input channel then, with the Stereo/Mono Button 'Out', output will appear at both loudspeakers. With the Stereo/Mono button 'In', output will be obtained at the left-hand loudspeaker only.

When using a compatible stereo pick-up to play a monaural record, the stereo/mono button should be in the 'Out' position, the pick-up outputs will then be connected in parallel and output will again appear at both loudspeakers.

For normal stereo operation, i.e. using a stereo pick-up to play a stereo record the stereo/mono button should be 'In'.

TUNER

Dual radio inputs are provided suitable for the connection of the majority of AM, FM and FM Stereo Multiplex receivers. Output from a monaural receiver should be connected to the left-hand input channel then, with the stereo/mono button 'Out', output will appear at both loudspeakers.

TAPE

A five-way Continental Pattern Panel Socket is provided for the connection of a complete Tape Recorder. The socket includes Record and Replay connections for both channels, numbering conforming to standard DIN practice. All four connections are duplicated at the rear of the unit via miniature phono sockets to facilitate 'built-in' tape installations.
Connections to the Panel Socket are as follows:—

Connections to the Tape Panel Socket are as follows (for socket numbering see circuit diagram):

(1) Tape Replay Channel A.

(2) Earth.

(3) Tape Record Channel A.

(4) Tape Replay Channel B.

(5) Tape Record Channel B.

TO RECORD. Whatever programme source is selected will appear at the RECORD sockets and will be unaffected by VOLUME, TONE or FILTER settings. Recording level will be adjusted by means of the level control on the Tape Recorder. The record signal will be present whether or not the TAPE Button has been depressed. We must emphasise that the record signal is not suitable for feeding direct to tape record heads, a 'Tape Deck' alone is therefore not sufficient and a complete Tape Recorder incorporating a record amplifier and bias oscillator is essential. To mute the loudspeakers while recording, the TAPE Button should be depressed.

TO REPLAY. To replay, the TAPE Button should be depressed and output from the Tape Replay sockets on the Tape Recorder taken to the replay connections on the Control Unit. With Tape Recorders having a separate replay head, monitoring of the recorded signal is possible.

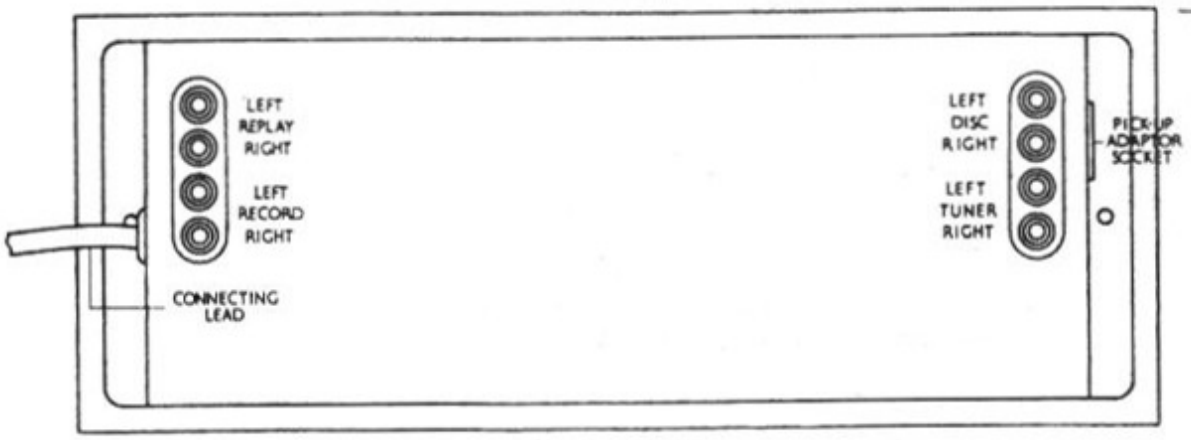
AVOIDING HUM

With no inputs connected the unit will be found to have a very low noise level; if there is any substantial increase in hum level when the pick-up or other piece of auxiliary equipment is connected, then this indicates incorrect assembly and/or wiring of the auxiliary equipment concerned. When trouble from hum is experienced the following points should be checked.

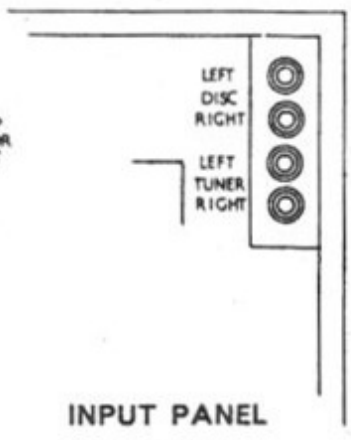
(1) The mains transformer on the amplifier should be located at least 18" away from magnetic pick-ups and tape heads, otherwise induced hum may result.

(2) Check the screening of the pick-up lead; on no account should the braiding be earthed to the amplifier or the motor, or allowed to touch the motor plate, metal pick-up arms, etc. It will automatically be earthed at the input socket when the lead is plugged in.

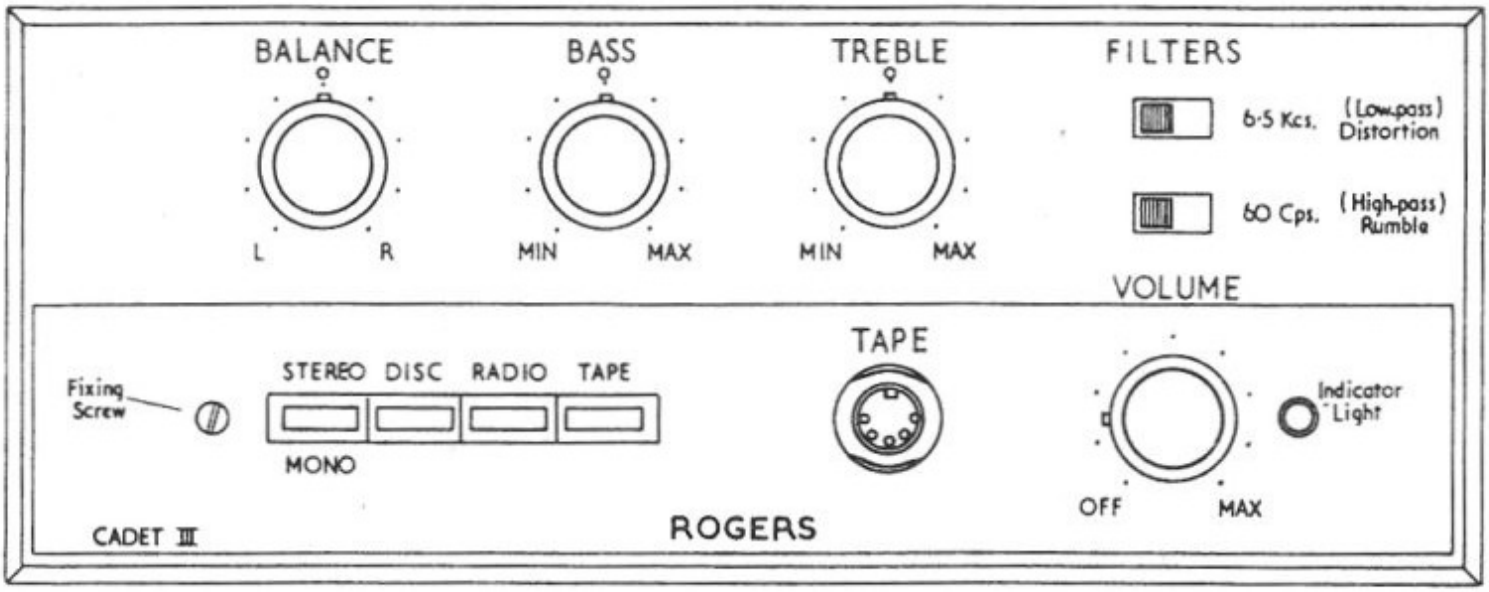
(3) The gramophone motor should be earthed to the main amplifier by means of the terminal provided.



REAR VIEW



INPUT PANEL
CASE MODEL



CONTROL FACILITIES

INPUT SELECTOR

Four-way Push-button Switch Unit. Provides for selection of DISC, RADIO AND TAPE REPLAY. Left-hand button marked STEREO/MONO enables function to be selected, operates on DISC and RADIO inputs only. With button 'IN', stereo operation is obtained; with the button 'OUT" mono operation will be obtained, i.e. a mono signal fed into the left-hand input will appear at both loudspeakers, the right-hand input is isolated on RADIO input.

VOLUME

Dual ganged control affecting overall volume from all inputs. Has no effect on the 'Tape Record' Output. Incorporates ON/OFF switch in fully anti-clockwise position. Dial light adjacent to the Volume Control indicates when the equipment is 'ON'. On-off switch fitted with switch click-suppressors.

BASS and TREBLE

Continuously variable ganged controls employing modified Baxendall circuit. Optimum settings depend on programme material, room acoustics and personal taste. It is therefore impossible to give 'recommended settings'; a start should be made with both controls at mid position. It should not be attempted to employ a high degree of bass boost at high volume levels.

BALANCE

A vernier control having sufficient range of control (9DB) to compensate for inequalities in recordings, etc. Operates on DISC and RADIO Inputs only.

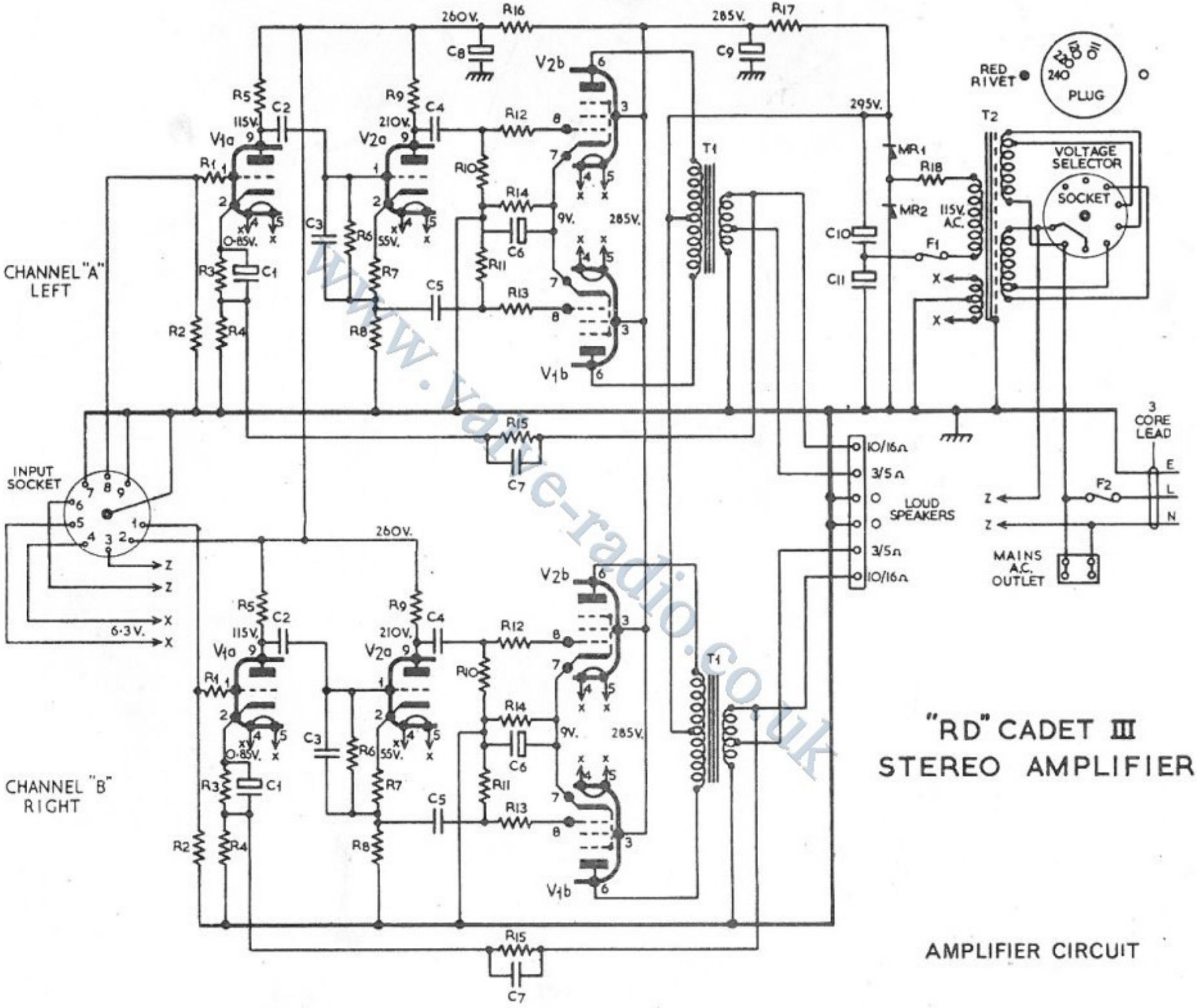
FILTERS

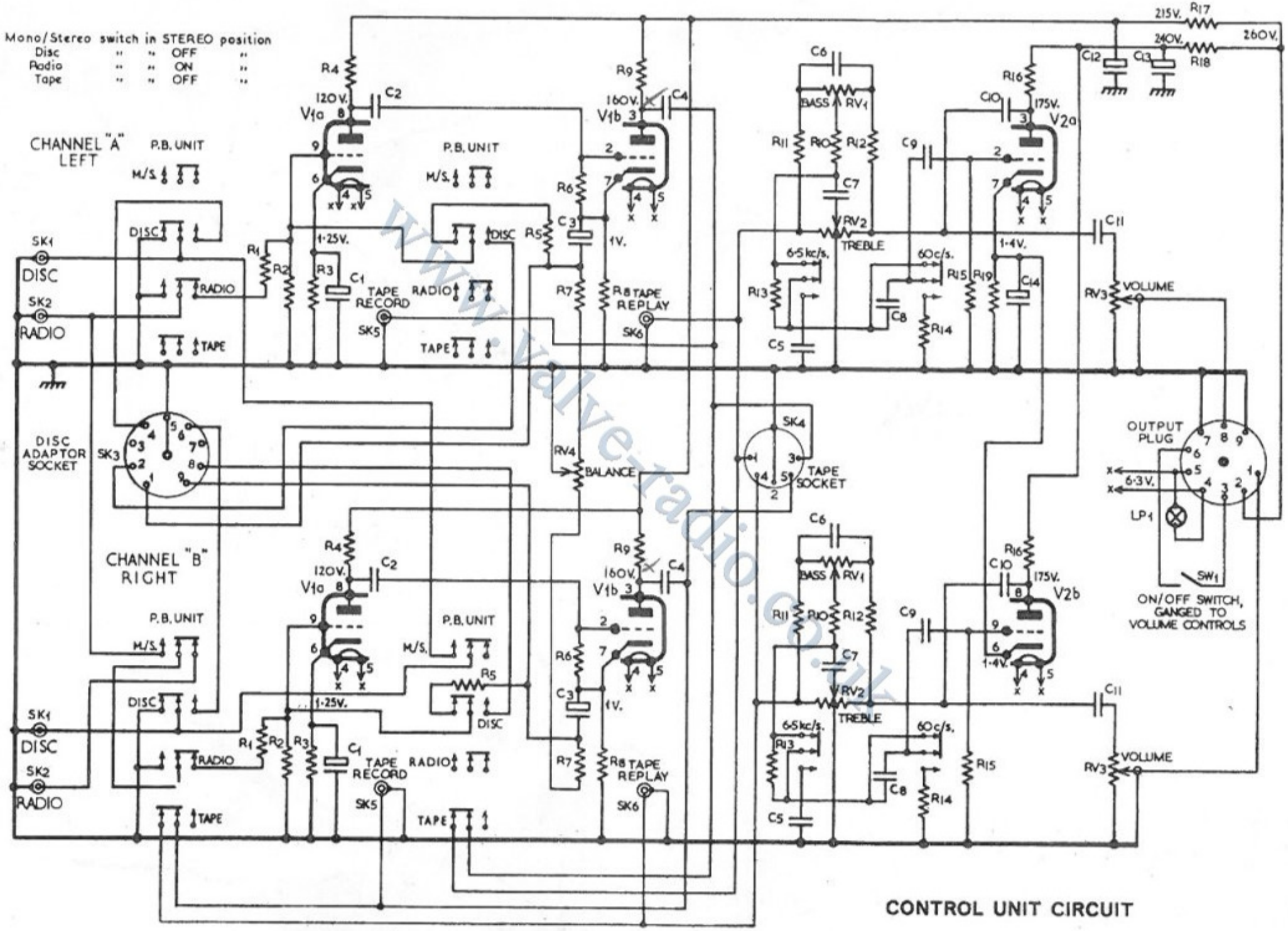
Switched High-pass Filter operating at 60cps used to reduce rumble which may be experienced when using other than transcription quality motor units.

Switched Low-pass Filter operating at 6·5kcs used to reduce distortion which may be experienced with poor programme material, I.e. worn records, bad radio transmissions, etc.

The effect of the Filters will be most apparent when using wide range associated equipment and listening to first-class programme materials with Tone Controls level or at boost settings. The effect of the Filters will be masked when Tone Controls are at cut settings, when associated equipment has restricted frequency range, or when listening to poor programme material.

Both Filters are 'IN' when the slide switches are moved to the right.





CONTROL UNIT CIRCUIT

COMPONENT VALUES

AMPLIFIER

Resistors	Value	Tolerance	Rating	Type
R1	4·7K	10%	¼ watt	Carbon
R2	1megohm	10%	¼ watt	Carbon
R3	1·2K	10%	¼ watt	Carbon
R4	220ohms	5%	½ watt	High Stability
R5	220K	10%	¼ watt	Carbon
R6	1megohm	10%	¼ watt	Carbon
R7	1K	10%	¼ watt	Carbon
R8	47K	5%	¼ watt	Carbon
R9	47K	5%	¼ watt	Carbon
R10	470K	10%	¼ watt	Carbon
R11	470K	10%	¼ watt	Carbon
R12	22K	10%	¼ watt	Carbon
R13	22K	10%	¼ watt	Carbon
R14	130ohms	5%	1 watt	Carbon
R15	6·8K	5%	½ watt	High Stability
R16	5·6K	10%	1 watt	Carbon
R17	470ohms	10%	1 watt	Carbon
R18	2·2ohms	10%	4 watt	Wire Wound

Capacitors	Value	Rating	Type	Tolerance
C1	40mfd	16V	Electrolytic	—
C2	·022mfd	400V	Polyester	10%
C3	400pf	350V	Polystyrene	10%
C4	·1mfd	400V	Polyester	10%
C5	·1mfd	400V	Polyester	10%
C6	40mfd	16V	Electrolytic	—
C7	680pf	350V	Polystyrene	10%
C8	16mfd	350V	Electrolytic	—
C9	16mfd	350V	Electrolytic	—
C10	100mfd	275V	Electrolytic	—
C11	100mfd	275V	Electrolytic	—

Valves
V1 a/b ECL86
V2 a/b ECL86

Silicon Rectifiers
MR1/MR2 BY114

Fuses
F1 ½A. 1¼" glass cartridge pattern. Anti-surge.
F2 1A. 1¼" glass cartridge pattern. Anti-surge.
(110V Range 2A.)

CONTROL UNIT

Resistors	Value	Tolerance	Rating	Type
R1	470K	5%	½ watt	High Stability
R2	820K	5%	½ watt	High Stability
R3	2·2K	5%	½ watt	High Stability
R4	220K	5%	½ watt	High Stability
R5	33K	5%	½ watt	High Stability
R6	8·2megohm	10%	¼ watt	Carbon
R7	270 ohms	5%	½ watt	High Stability
R8	2·2K	5%	½ watt	High Stability
R9	100K	10%	¼ watt	Carbon
R10	470K	10%	¼ watt	Carbon
R11	100K	10%	¼ watt	Carbon
R12	100K	10%	¼ watt	Carbon
R13	330K	10%	¼ watt	Carbon
R14	270K	10%	¼ watt	Carbon
R15	270K	10%	¼ watt	Carbon
R16	100K	10%	¼ watt	Carbon
R17	22K	10%	¼ watt	Carbon
R18	10K	10%	½ watt	Carbon
R19	1K	5%	½ watt	High Stability

Capacitors	Value	Rating	Type	Tolerance
C1	40mfd	16V	Electrolytic	—
C2	·022mfd	400V	Polyester	10%
C3	40mfd	16V	Electrolytic	—
C4	·1mfd	400V	Polyester	10%
C5	400pf	400V	Polystyrene	10%
C6	4700pf	400V	Polyester	10%
C7	100pf	400V	Polystyrene	5%
C8	1200pf	125V	Polystyrene	5%
C9	1500pf	125V	Polystyrene	5%
C10	·1mfd	400V	Polyester	10
C11	·047mfd	160V	Polyester	20%
C12	16mfd	350V	Electrolytic	—%
C13	16mfd	350V	Electrolytic	—
C14	100mfd	4V	Electrolytic	—

Potentiometers

RV1	Dual 1 megohm	LIN
RV2	Dual 500K	LIN Centre Tapped
RV3	Dual 250K	LOG + Switch
RV4	Dual 1K	LIN

Dial Bulb
LP1 8V. 1W. L.E.S.

Valves
V1 a/b ECC 807
V2 a/b ECC 807

IMPORTANT: Save the carton together with all fittings in case it may be necessary to return the unit for service. If this does prove necessary, great care should be taken in packing so as to minimise the possibility of damage being sustained in transit. Any transit damage resulting from inadequate packing will not be covered by our Guarantee nor will it be covered by the Carriers. Where possible we recommend that equipment be returned by Passenger Train at Company's Risk.

ROGERS DEVELOPMENTS (ELECTRONICS) LTD.

'RODEVCO WORKS' 4/14 BARMESTON ROAD CATFORD LONDON S.E.6 ENGLAND

Printed by Bowen & Court Ltd., 8/9 East Harding St., E.C.4