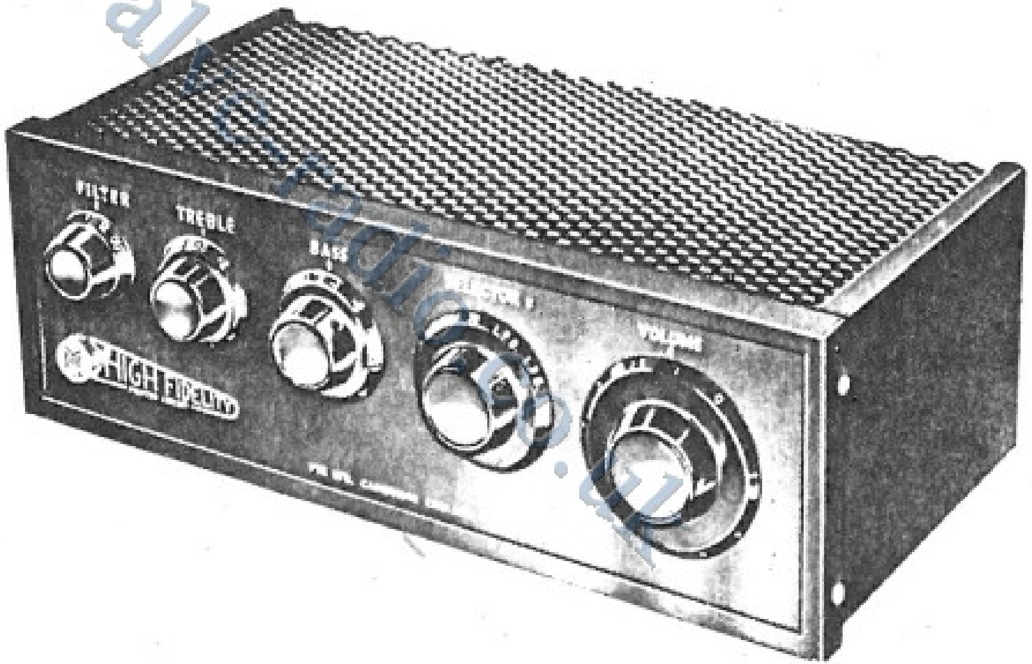
PYE

Mozart



AUDIO

AMPLIFIER

SERIES HF10

TODAYS BEST LOOKING LISTENING

SPECIFICATION

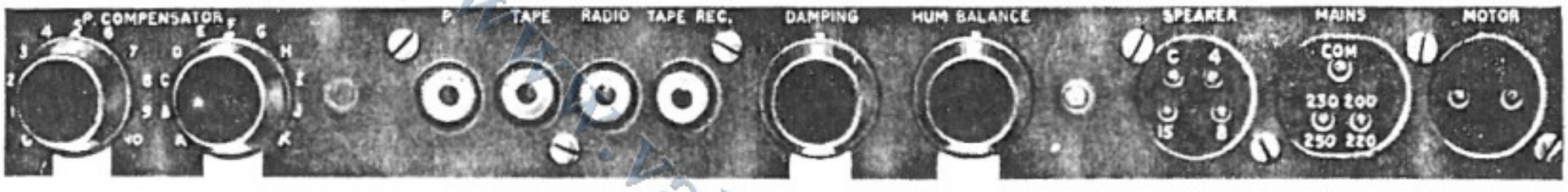
Power Consumption	70 VA.
Output Impedance	4, 8 and 15 ohms.
Noise and Hum	Main amp. —70 dB; Tape, Radio —60 dB; Pick-up —55 dB.
Total Harmonic Distortion	at 1 kc/s, 0·3% at 9 watts.
Max. Power output	10 watts. r.m.s.
Damping Factor	Adjustable from 15 to infinity and negative values.
Sensitivity	Tape—100mV. Radio—100 mV. Pick-up—15, 10, 10 mV respectively for each of the three curves at 1 kc/s. } For 9W output.
Tape Record	55 mV at 9 watts output (unaffected by any controls).
Mains Supply	HF10 & HF10M: 200-220, 230-250V. A.C., 50-60 c.p.s. HF10EM: 117V. A.C., 50-60 c.p.s.
Net Weight	9 lb. (chassis only), 9¾ lb. (with metal cover).
Packed Weight	10 lb. 10 oz. (chassis only), 11 lb. 6 oz. (with metal cover).
Overall Dimensions	Height 3⅜", Width 10½", Depth 5⅛" + ⅝" for knobs at front and rear.
Packed Dimensions	5¼" × 13¼" × 7¾"

MODEL HF10: Chassis only. MODEL HF10M & HF10EM: Chassis with metal cover.
MODEL HFP1: HF10 Chassis in Lowboy cabinet.

INSTALLATION

Input Connections

Connections should be made to the appropriate input socket by means of the co-axial plugs supplied. The socket marked "P" is for pick-up (phono). The screen or "earthy" connection should be made to the outer case of the plug.



REAR VIEW OF CHASSIS

Tape Recorder Socket

This connection is to enable a tape recorder (not a tape deck) to be connected to the amplifier at a convenient point for recording on to tape any programme coming through the amplifier. This means that approximately one twentieth of a volt is available from this socket to feed into the recording amplifier, and as the amount is unaffected by volume or tone controls one can listen to the programme being recorded.

Tape Socket

This is for playing back recordings on tape through your Hi-Fi amplifier and loudspeaker without using the existing equivalent parts of the tape recorder.

Motor Socket

Gram. motors or self powered tuners can be fitted from this point and the voltage is at the incoming mains voltage and is unaffected by the amplifier ON/OFF switch.

Earth

Connections to earth can be made from the "C" terminal of the speaker socket or by the green wire of the 3 core mains cable.

Ventilation

Provision must be made for adequate ventilation. Cool air should be permitted to reach the top of the amplifier and a suitable vent provided to carry off the warm air. It should be remembered that whilst the amplifier produces less heat than most other 10W. amplifiers the very compact construction of the unit should not be allowed to tempt one to instal it in very confined spaces.

Mounting in a Cabinet

It is easiest to mount the HF10 from the front of the cabinet so that the front panel will hide any rough edges of the cabinet cut-out (which should be $10\frac{1}{4}'' \times 3\frac{1}{8}''$). The two mounting strips provided should be screwed to the rear of the chassis and attached to a simple batten in the cabinet. This batten is necessary in order to take the weight of the amplifier.

In the case where the unit is mounted from the top of a cabinet, i.e. the front panel is horizontal, it is recommended that the unit is angled slightly by lifting the rear edge of the front panel (that edge where it is marked FILTER TREBLE, etc.). This is easily done by placing two $\frac{1}{4}''$ wide wedges of wood under the $3\frac{1}{8}''$ sides of the panel before it is lowered into position and thus allows heat to escape from the rear edge.

In the case of fitting into extremely small spaces the major cause of heat can be completely removed by operating the EL34 on the end of an extension lead. A simple octal lead is sufficient with a plug and socket, one at either end, and no screened lead is required; up to 1 yd. is satisfactory.

Brackets for mounting without a batten and octal leads for extension are available from your PYE dealer through the HIGH FIDELITY Division.

Hum Balance Adjustment

Hum balance adjustments are best made with the amplifier under actual operating conditions, i.e. pick-up (phono) plugged in, then rotate the control for minimum hum, RV1 on circuit.

DIALOMATIC PICK-UP COMPENSATION

Dialomatic pick-up compensation is an exclusive feature of the Pye Mozart. Pick-ups vary in the amount of output they give and in the load they require—Pye Dialomatic enables you to get the exact matching for your pick-up immediately.

The left hand control (marked 0—10) is the lower half of a potential divider, its own value being a maximum of 100 kΩ at position 10, RV6 on circuit. The right hand control (marked A—K) is the upper half of the divider network and has a maximum value of 100 kΩ at position A, RV7 on circuit.

The pick-up is connected across both controls in series (each is a two terminal variable resistance), and the feed to the amplifier is taken at the junction. The correct positioning for some of the world's best known pick-ups is given below:—

Pick-ups on the British Market	Compensation settings
Acos 'Black Shadow'	3 ... G
Acos Hi-G	2 ... A
Collaro Studio 'O'	2 ... A
Collaro Studio 'P'	3 ... C
Collaro 'Transcription'	3 ... F
Ronette TX88	3 ... K
Ronette BF40 (stereo)	3 ... K
Connoisseur MK2	4 ... K
Elac Miratwin	3 ... I
E.M.I. Unipivot Type 17AE (with Transformer)	4 ... E
E.V. Power Point	3 ... A
Garrard (with Transformer)	10 ... K
Golding 500 & 600	6 ... K
Leak with Transformer	3 ... H
Lowther	2 ... K
Ortofon 'C' with Transformer 384	4 ... K
Philips Magnetodynamic N.G.5400	5 ... I
R.C.A.	4 ... E
Tannoy Variable reluctance	10 ... K
Garrard GC8	3 ... A

Pick-ups on the U.S. Market	Compensation settings
Angel Unipivot Model 17A	4 ... E
Fairchild	4 ... K
E.S.L. Concert or Standard Series Cartridge (with 200 ohm Transformer)	3 ... K
Fentone	3 ... I
G.E. Vari-Reluctance	4 ... K
Pickering 220, 240, 260	3 ... K
Pickering 'Fluxvalve'	5 ... K
Sonotone	3 ... G
Weathers FM (connect to Magnetic socket)	4 ... K

If normal listening is found to result with the VOLUME at less than 3, reduce the numbered compensation setting.

Damping Adjustment

Infinite damping is achieved when the mark on the "Damping" control is approximately upright. To get positive values of damping, turn the knob to the right and to get negative values of damping. turn the knob to the left, RV2 on circuit.
As a general guide for the bookcase type of loudspeaker the setting should be fully anti-clockwise and for more expensive speakers the setting should be in the upright position.

Loudspeaker Connection

One speaker wire must always be connected to the "C" (common) socket and the other to the socket appropriate to the impedance of your loudspeaker system.

Voltage Adjustment

The mains voltage ranges covered by the mains transformer are 200-220 volts, 230-250 volts, A.C., 50-60 c.p.s. One Overseas model incorporates a 117V transformer. The adjusting plug which contains a 1 amp. fuse should be inserted in the socket marked with the correct range for your supply voltage. The fuse in the 117V version is 2 amp.

OPERATING INSTRUCTIONS

To get the best results from your Pye Mozart it is important that you understand the function of the various controls and this is set out below.

On/Off Switch

This is operated by depressing the PYE sign on the front panel which will be illuminated when 'ON'.

Filter

This switch controls a steep cut filter giving attenuation above the frequency marked, i.e. above 4 kc/s, 7 kc/s or 12 kc/s.

Treble

A continuously variable control providing a maximum boost of 12 dB and a maximum cut of 15 dB at 15 kc/s. Whilst the markings are arbitrary and are only meant for reference, the L. is the level position of the control.

Bass

As with the Treble control this is continuously variable providing a maximum boost of 12 dB and a maximum cut of 15 dB at 40 c.p.s.

Selector

This is a five position switch providing selection of Radio or Tape and three record equalisation positions. "T" and "R" are two independent inputs for a Tape recorder and powered Radio tuner. "78"—78 r.p.m. recordings should be played from this position which provides the latest coarse groove (B.S. 1928-1955) replay characteristics. "LP.O."—This position gives the old COL. L.P. characteristic and thus should be used for the majority of 33 r.p.m. and 45 r.p.m. recordings over two years old. "LP.N."—This position is for all new 33 and 45 r.p.m. recordings and has the latest fine groove characteristic (B.S. 1928-1955 and R.I.A.A.).

Volume Control

This merely controls the amount of signal going through the amplifier and has no effect on the frequency response. At low volume level, therefore, it will generally be found desirable to increase the amount of Bass.

SERVICING

To gain access to the printed circuit itself, the metal chassis holding the two transformers and metal rectifier can be removed completely leaving behind all other components and metalwork attached to the printed circuit.

(1) Remove the 5 self tapping screws along the top rear edge of the metal chassis (3 are just under the EL34).

(2) Remove the two pairs of screws immediately behind the front panel at the extreme edges.

(3) Remove the screw situated between the hum balance and damping controls which holds the EL34 valve support.

(4) Disconnect all connections to output and main transformers. Disconnect the four rectifier connections from the panel and the two mains switch connections. Swing the valve support back and pull the chassis apart.

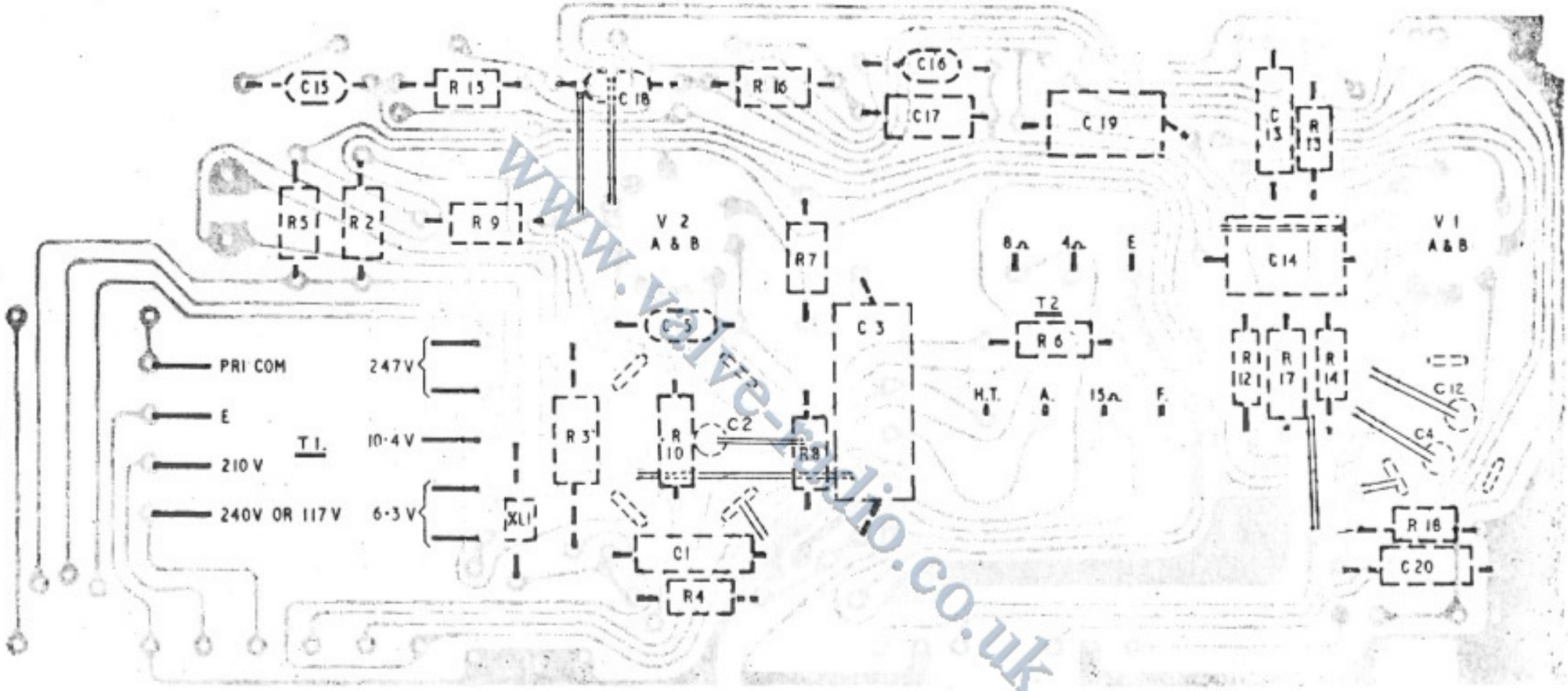
Note 1.

If an individual component needs replacing it is not necessary to take the amplifier apart. The component should be clipped off leaving an $\frac{1}{8}$" of its connecting wire which is then bent over and forms a connecting point for the new component.

Note 2.

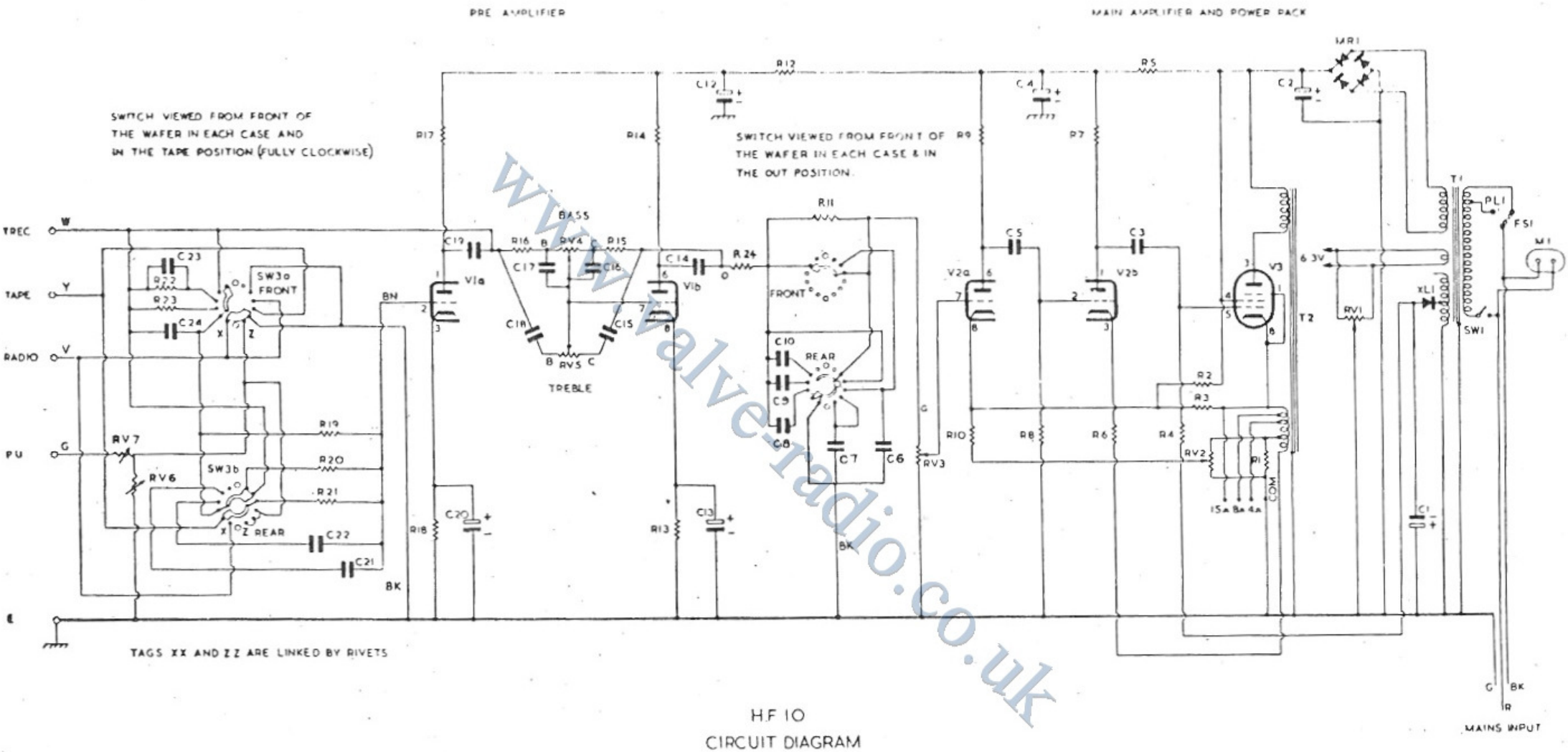
Should any of the front panel controls (excluding BASS and TREBLE) require attention, the five front panel knobs should be pulled off and the nuts holding the front panel removed thus allowing the control in question to be removed from its slot.
The FILTER and SELECTOR switches are on sufficiently long leads to allow examination without disconnection. The BASS and TREBLE controls can be removed merely by taking off knob and nut and taking control out backwards.

HF10 COMPONENT IDENTIFICATION



The components R11, R24 and C6 to 10 are mounted on the FILTER switch S.W.2
The components R19 to 23 and C21 to 24 are mounted on the SELECTOR switch S.W.3.
The rectifier MR1 is situated behind the FILTER switch.

CIRCUIT DIAGRAM OF HF10 AMPLIFIER



H.F.10
CIRCUIT DIAGRAM

CIRCUIT ANALYSIS

Mains Consumption 70 VA.
A.F. Output 9-10 Watts.

	Valve Function	Type	Ek	Ik	Ea	Ia	E on H.T. end of Anode Load
V1A	Record Compensation and Amp. ...	ECC83	0·9V	0·2mA	75V	0·2mA	160V
V1B	Tone Control and Amplifier		0·9V	0·2mA	75V	0·2mA	160V
V2A	Amplifier (Main Amplifier)	ECC83	0·9V	0·5mA	90V	0·5mA	185V
V2B	Driver (Main Amplifier)	ECC83	0·7V	0·6mA	90V	0·6mA	185V
V3	Output (Main Amplifier)	EL34	13·7V*	115mA	255V	100mA	270V
MR1	Contact Cooled Power Rectiner ...	18RD/2281	270V	116·5mA	247V A.C. Input		
XL1	Bias Diode	GEX34	10·4V A.C. Input — 13·7V D.C. Output				

NOTE:—a. Voltages are for a mean A.C. input into the selected tapping.
b. *This voltage is only relative to the negative side of C1.
c. All D.C. voltages are taken with a 20,000 ohm per volt meter.
d. There are some early manufacture ECC83 valves that are not suitable in V1 position due to excessive microphony.

COMPONENTS LIST (continued)

TRANSFORMERS

	Specification	No.
T1	Transformer Mains (Home)	9077018
T1	Transformer Mains (Export)	9077020
T2	Transformer Output	9077019

VALVES

	Type	No.
V1	ECC83	860319
V2	ECC83	860319
V3	EL34	860472

COMPONENTS LIST

CONDENSERS

	Specification	Volts	±	No.
C1	1 μF Electrolytic	25	20%	667846
C2	100 μF Electrolytic	350		667845
C3	0·1 μF Tubular	350	20%	669123
C4 & C12	16+16 μF Electrolytic	350		667495
C5	2000 pF Tubular Ceramic Hi-K ...		10%	652097
C6	25 pF Tubular Ceramic Hi-K		10%	653252
C7	75 pF Tubular Ceramic Hi-K		10%	653253
C8	400 pF Tubular Ceramic Hi-K		10%	653254
C9	600 pF Tubular Ceramic Hi-K		10%	653255
C10	1,000 pF Tubular Ceramic Hi-K ...		10%	653256
C13	50 μF Electrolytic	6	20%	667810
C14	0·05 μF Tubular	350	20%	669122
C15	360 pF Tubular Ceramic Hi-K ...		10%	653152
C16	2000 pF Tubular Ceramic Hi-K ...		10%	652097
C17	0·015 μF Tubular	150	10%	669393
C18	5000 pF Tubular Ceramic Hi-K ...		10%	9065019
C19	0·05 μF Tubular	350	20%	669122
C20	50 μF Electrolytic	6	20%	667810
C21	50 pF Tubular Ceramic Hi-K		10%	653181
C22	100 pF Tubular Ceramic Hi-K ...		10%	651419
C23	200 pF Tubular Ceramic Hi-K ...		10%	653171
C24	150 pF Tubular Ceramic Hi-K ...		10%	660875

RESISTORS

	Ohms	Watts	±	No.
R1	Printed Circuit (Part of)			
R2	22 meg.	½	10%	674589
R3	56,000 Hi-Stab.	½	5%	673624
R4	470,000	½	10%	670550
R5	56,000	½	10%	670539
R6	1,200	½	10%	670519
R7	150,000	½	10%	670544
R8	2·2 meg.	½	10%	670558
R9	180,000	½	10%	670545
R10	1,800	½	10%	670521
R11	120,000	½	10%	670543
R12	56,000	½	10%	670539
R13	4,700	½	10%	670526
R14	390,000	½	10%	670549
R15	220,000	½	10%	670546
R16	22,000	½	10%	670534
R17	390,000 Hi-Stab.	½	5%	673639
R18	4,700	½	10%	670526
R19	1 meg.	½	10%	670554
R20	180,000	½	10%	670545
R21	270,000	½	10%	670547
R22	10 meg.	½	10%	672257
R23	15 meg.	½	10%	672841
R24	10,000	½	10%	670530

POTENTIOMETERS

	Specification	No.
RV1	1K Ohms Linear—Hum Balance Control	9081006
RV2	1K Ohms Linear—Damping Control	9081006
RV3	500K Ohms Log—Volume Control	9081003
RV4	2 Megohms Inverse Log—Bass Control	9081004
RV5	1 Megohms Inverse Log—Treble Control	9081005
RV6	100K Ohms Linear—Compensator Control	9081007
RV7	100K Ohms Linear—Compensator Control	9081007

CIRCUIT AMENDMENTS:-

In later production models the following replacement condensers have been used:

C2	667993
C4 & C12	667994

MISCELLANEOUS

	Item	No.
M1	Plug 2-Pin Moulded	700580
XL1	Crystal Rectifier, Type GEX34	704522
MR1	Rectifier, Contact-cooled 18RD, 2-2-8-1	707812
LP1	Lamp, 6·3V, ·11 Amp.	704578
PL1	Plug/Fuse 1 Amp. for 200V working	9070021
FS1	Plug/Fuse 2 Amp. for 117V working	9070022
SW1	Switch, On/Off	9083006
SW2	Filter Switch Assembly	9073011
*SW3	Selector Switch Assembly	9073012
	Filter Knob Assembly	9073005
	Treble Knob Assembly	9073006
	Bass Knob Assembly	9073007
	Selector Knob Assembly	9073008
	Volume Knob Assembly	9073009
	Front Panel Assembly	9070002
	Pot. Control Knob	9055000
	Push-Button Knob	9055001

*The Filter and Selector Switch Assemblies are supplied complete with their associated components, e.g., Part No. 9073011 comprises SW2, C6, C7, C8, C9, C10, R11 and R24. Part No. 9073012 comprises SW3, C21, C22, C23, C24, R19, R20, R21, R22 and R23.

For Transformers and Valves see Page 10.