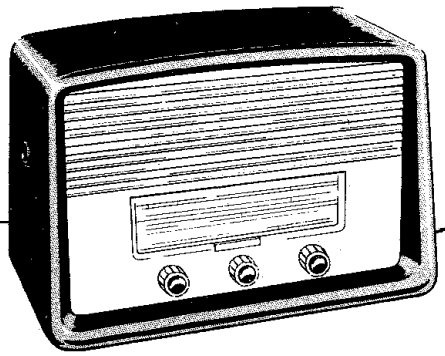
"HIS MASTER'S VOICE"

MODEL 1128

SERVICE MANUAL

6 VALVE A.M.-F.M. TABLE RECEIVER FOR A.C. MAINS



MODEL 1128

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Part No. 95059 Issue 1 June, 1956

SPECIFICATION

Physical

Height	11½ inches)	
Depth	7⅞ inches)	Approx. Overall
Length	16⅝ inches)	
Weight	12½ lbs.	

Mains Supply

A.C. only. 195 - 255 volts, 50-60 c.p.s.

Consumption

60 watts.

Rated Output

1¼ watts.

Intermediate Frequency

470 kc/s (A.M.) and 10.7 Mc/s (F.M.)

Wave Ranges

M.W.	187.5 - 575 metres	(1602 - 522 kc/s)
L.W.	901 - 2026 metres	(333 - 148 kc/s)
F.M.	87.5 - 100 Mc/s	

Scale Lamps & Fuses

Two scale lamps, 6.8 volt 0.3 amp. (tubular shape).
Two mains fuses, 1 amp. (cartridge type).

Valves

V1	B719/ECC85	R.F. amplifier and Frequency Changer (F.M.)
V2	X719/ECH81	I.F. amplifier (F.M.) and Frequency Changer (A.M.)
V3	W719/EF85	I.F. amplifier (F.M. and A.M.)
V4	DH719/EABC80	Ratio Detector (F.M.), Detector and A.G.C. Rectifier (A.M.), and A.F. amplifier (A.M. and F.M.).
V5	N155 (EL85)	Output Amplifier
V6	EZ80	Full Wave Rectifier

Loudspeaker

6½-inch elliptical cone permanent magnet type. The speech coil has an impedance of 5 ohms at 1,000 cycles and a D.C. resistance of 4 ohms.

External Loudspeaker

An additional loudspeaker having a resistance of 3 to 5 ohms may be connected to the Ext. L.S. sockets at the rear of the instrument. Both internal and external loudspeakers may be used together or selected individually.

Pick-Up Sockets

Pick-up sockets are provided for the electrical reproduction of gramophone records or recorded tape.

CIRCUIT DESCRIPTION

R.F. Amplifier and Frequency Changer (F.M.)

V1 is a double triode valve (B719/ECC85) operative on F.M. only. One triode V1A operates as a grounded grid R.F. amplifier, the F.M. aerial being coupled to the cathode circuit via a transformer L1/L2. Output at the anode appears across L3, which is permeability-tuned and mechanically coupled to the main tuning control.

Coupling via C4 is effected to the grid of V1B, which acts as a self oscillating mixer, being tuned to the oscillator frequency by L4.

I.F. output at 10.7 Mc/s appears in transformer IFT1. It is taken via tag 12 on SW1 card 1 to the grid of V2 (X719/ECH81) hexode section which on F.M. acts as an I.F. amplifier, the triode section then being rendered inoperative by earthing its grid (SW1 card 3).

When the receiver is switched to Long, Medium or Gram. position, output from V1B is disconnected at SW1 Card 1; and the A.M. aerial is connected via the appropriate tuned circuits L11/L12/VC1 to the grid of V2 which then acts as a normal triode-hexode mixer stage.

I.F. Amplifier (F.M. and A.M.)

Output from V2 is taken via IFT2 (F.M.) and IFT3 (A.M., 470 kc/s) to V3 (W719/EF85), a steep-slope R.F. pentode acting as I.F. amplifier, thence to the F.M. discriminator circuit IFT5 in cascade with the 470 kc/s transformer IFT4. Tags 1 and 2 on SW1 card 2 short out the primary of IFT2 (F.M.) in the L.W. and M.W. positions. To obviate possible instability due to the steep slope of V3, R13, R16, C28 and C29 form a neutralising bridge circuit in the anode and screen supply.

Ratio Detector (F.M.) Detector and A.G.C. Rectifier (A.M.) and A.F. Amplifier (F.M. & A.M.)

V4, a triple-diode-triode, acts as an unbalanced ratio detector and A.F. amplifier on F.M., and as a signal diode, A.G.C. diode, and A.F. amplifier on A.M. C41 and R24 are the stabilising capacitor and load resistor respectively for F.M.

Output from the discriminator is taken via the de-emphasis filter R18-C36 to tag 6 on SW1 card 2; thence via the volume control RV1 to the grid of the A.F. triode

section. On A.M., the A.F. signals are fed to RV1 via the filter network C38-R21-C39 and tags 7 and 8 on Sw1 on card 2. A.G.C. load resistor on A.M. is R19 + RV1 in parallel; A.G.C. voltage being applied to the grids of V2 and V3.

Output Stage

Signals from the triode section of V4 are applied to the grid of the output stage V5 (N155) via C42 and R25 the output transformer TR1 in its anode being connected either to internal or external speaker as required. C45 and RV2 provide variable tone control.

Heater and H.T. Supplies

H.T. is supplied from the full-wave rectifier V6 (EZ80) and smoothed by C48, C49, C46, R27 and R28. V1 heater is isolated from the following valves by a filter C44-L22.

INSTALLATION

A.M. Aerial

This instrument is fitted internally with a Ferrite Rod aerial for the reception of a selection of stations in the M.W. and L.W. bands.

In difficult reception areas a high external aerial is essential to obtain maximum sensitivity. Erect 60 to 80 feet (including down-lead) as far as possible from buildings and trees. A lightning arrestor or earthing switch should be fitted at the lead-in point.

F.M. Aerial

General In most cases for the best possible performance from this instrument, either an outdoor or an indoor dipole with coaxial feeder should be installed.

In high signal strength and/or low interference areas, satisfactory results may be obtained by using a simple dipole. This can be made from a length of twin moulded mains lead with one end opened apart so that two 2ft.6ins. arms are formed. This "T" shaped arrangement should be installed with "T" arms horizontal, at right angles to the direction of the transmitter and attached to a picture rail or skirting board. Re-siting and/or tilting may be necessary for best results.

In VERY high signal strength areas either the internal F.M. aerial or a 40-inch length of insulated wire may prove satisfactory. The wire should be routed horizontally and at right angles to the direction of the transmitter. Various positions should be tried and tilting may be necessary for best results.

Local conditions may greatly affect V.H.F./F.M. reception, i.e., heights above sea level, type of building in which the aerial is installed, local surroundings, etc., and these must be considered on installation.

F.M. Aerial Connection - Indoor or Outdoor

(a) When using either an indoor or outdoor dipole aerial with coaxial feeder cable the inner lead must be soldered to the thin pin of the F.M. aerial plug and the braided screening soldered to the thick pin.

(b) When using a length of twin moulded mains lead opened apart at one end to approximately 2ft 6 ins. each arm, the leads at the other end should be soldered one to each pin of the F.M. aerial plug.

(c) When using a 40-inch length of insulated lead, one end must be soldered to the thin pin of the F.M. aerial plug provided.

Internal

To use the internal F.M. aerial, simply insert the 2-pin plug which will be found at the rear of the instrument, into the F.M. aerial socket.

Earth

An efficient earth should be installed. A copper plate or rod buried about three feet in moist ground provides the best earth. Do not use a telephone earth, gas pipe, or hot water pipe as an earth.

Mains Supply

This instrument is adjustable to operate on A.C. mains supplies of 195-255 volts, 50 to 60 cycles. Your mains voltage is best ascertained from the local office of your supply authority.

To adjust, proceed as follows:-

Ensure that the instrument is completely disconnected from the mains supply. Remove the back cover. Connect the Voltage Adjustment lead to the terminal with markings which include that of your supply. For example, if your supply is 220 volts, connect the Voltage Adjustment lead to the terminal marked 216/235.

Final Connections

Make certain that the valves are firmly inserted in their correct positions and the fuses securely held in their clips.

Replace the back cover, insert the A.M. and F.M. aerial plugs, and earth plug, into their respective sockets. Ensure that the loudspeaker plug is inserted into the INT/L.S. position. Connect a suitable plug to the mains lead.

DISMANTLING

An inspection panel is provided beneath the cabinet. For normal servicing operations, removal of this and the card back, will allow access to the majority of the components. The complete chassis can be withdrawn by removing the three front knobs (pull off), tone control knob (P.K. fixing), and the four chassis fixing bolts underneath the cabinet.

Removal of V.H.F. Unit

1. Unsolder the two braided earth connections from main chassis.
2. Unsolder the twisted leads from the F.M. aerial sockets.
3. Unsolder the yellow and black leads from IFT1 tags 3 and 4.
4. Unsolder the green and yellow leads from the gang at SW1 cards 1 and 3.
5. Unsolder the brown and red leads from 4-way tag strip on F.M. Unit.
6. Unsolder the blue, white and yellow leads from TC4, TC5 and L12.
7. Remove drive drum from gang capacitor shaft.
8. Remove three fixing screws from F.M. unit base plate and withdraw unit.

NOTE The routing of the wires should be noted.

F.M. AND A.M. ALIGNMENT

Important Note: - Distortion can result from mis-alignment, especially in the discriminator transformer. When this is thought to be the case, the I.F. stages should be checked for symmetrical response of the bandwidth; but care should be taken first to ensure that the fault does not lie in the A.F. stages.

General

Before commencing re-alignment, always allow about 10 minutes warming-up period. Screen leads must always be used for connecting the test equipment.

If it is found that the cores in the oscillator and I.F. coils have become locked and are unadjustable, they should be freed by the very careful application of one or two drops of high grade penetrating oil. The use of a small brush to direct the oil onto the cores will prevent the oil from spreading. If on the other hand, the cores are excessively free, a length of cotton thread can be screwed into the former with the cores to prevent any movement after adjustment.

When the F.M. I.F. circuits have been aligned, it is recommended that small strips of adhesive tape be placed over the tops and bottoms of the F.M. I.F. transformers. This will eliminate the possibility of mis-adjustment when re-aligning the A.M. I.F. circuits.

Note:- It is recommended that alignment and calibration be carried out with the chassis withdrawn from the cabinet. For this purpose a printed calibration strip will be found affixed to the front of the chassis.

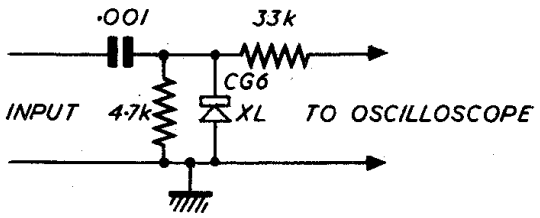
I.F. and Ratio Detector Alignment (F.M.)

Apparatus Required.

Oscilloscope
Sweep Generator
0-500 μA Microammeter
Output Meter, A.C., 10V.

Operations

1. Set gang to minimum capacity; volume control fully clockwise; tone control fully anti-clockwise.
2. Connect oscilloscope (with gain at maximum) to test point "B" via a suitable diode probe as illustrated above.
3. De-tune ratio detector IFT5 by screwing in primary (lower) core approximately 9 turns and unscrewing secondary (upper) core until flush with the end of the former.
4. Inject 10.7 Mc/s deviated ± 300 kc/s into the grid of V2 (pin 2).



DIODE PROBE

5. Adjust L13 and L15 (IFT2) to obtain double humped response curve similar to Fig.1. Separation between the two peaks should not be greater than 200 kc/s.

NOTE An accurate marker pip at 10.7 Mc/s should be injected at the appropriate sweep generator terminals.

6. Screw out primary (lower) core of the ratio detector, IFT5 to obtain a symmetrical curve about 10.7 Mc/s, as in Curve 2.

Connect oscilloscope across Tone Control.

7. Screw in core of L20 until a waveform similar to Fig.3 symmetrical about 10.7 Mc/s is obtained.

8. Connect sweep generator to test point "A". The wobbulator earth return should be connected to the oscillator resistance R3 earth return, and the oscilloscope to Test Point "B" via the diode probe.

9. Tune primary (L6) and secondary (L7) of IFT1 to obtain maximum response and symmetry about 10.7 Mc/s (see curve 3). This should be not less than 180 kc/s wide at 3 dB down.

10. Repeat operations 6 and 7.

R.F. Alignment (F.M.)
Apparatus Required

F.M. Signal Generator, 80-100 Mc/s deviated ± 300 kc/s.

Microammeter (0-500 μA)

Output Meter 0-10V. A.C. type.

Valve Voltmeter.

1. Connect output meter across speech coil.

2. Set cores on permeability tuning assembly by adjusting brass studding so that the top of the stud is, for the oscillator, 11/32" and for the H.F., 9/32" from the top of the bar.

3. Adjust TC2 so that it is one turn from maximum capacity. Set gang to minimum capacity.

4. Connect valve voltmeter probe to test point 'A' with the earthy end of probe to earth return of R3. Adjust TC3 to give minimum reading. Remove voltmeter lead.

If no valve voltmeter is available, a 0-500 μA microammeter may be inserted in series with the earthy end of R3. Adjust TC3. for a minimum change of grid current when test point 'A' is shorted to V.H.F. chassis.

NOTE:- Correct adjustment of TC3 is essential to prevent oscillator radiation.

5. Set gang to maximum and set pointer to zero. Turn tuning control so that pointer is at 11/32" from zero. Inject an 88 Mc/s signal deviated ± 15 kc/s into the F.M. aerial socket of the receiver and adjust TC2 for maximum reading.

NOTE:- Care must be taken to tune to the main response and not to the spurious side responses.

Correct calibration, if necessary, by re-adjusting the oscillator core. To increase coverage unscrew core; to decrease coverage core must be screwed in.

6. Set the generator to 94.5 Mc/s ± 15 kc/s tune in the signal and adjust TC1 for maximum reading.

7. Check the sensitivity at 98 and 88 Mc/s. Re-position the H.F. core(L3) and re-tune TC1 at 94.5 Mc/s if the sensitivity at 98 and 88 Mc/s is greater than 3 db down relative to that at 94.5 Mc/s.

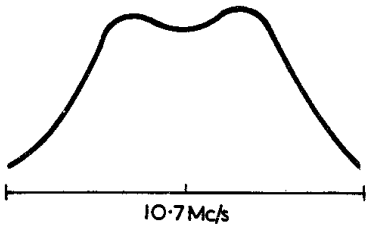


FIG 1.

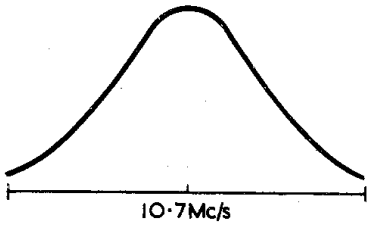


FIG 2.

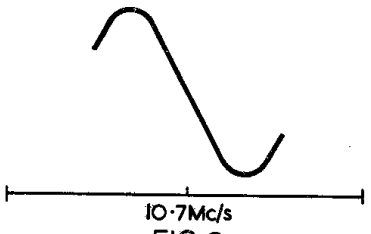


FIG 3.

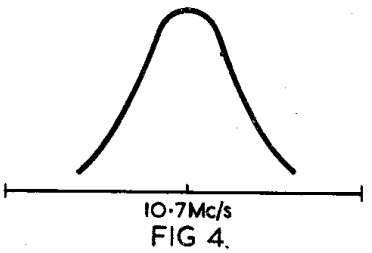


FIG 4.

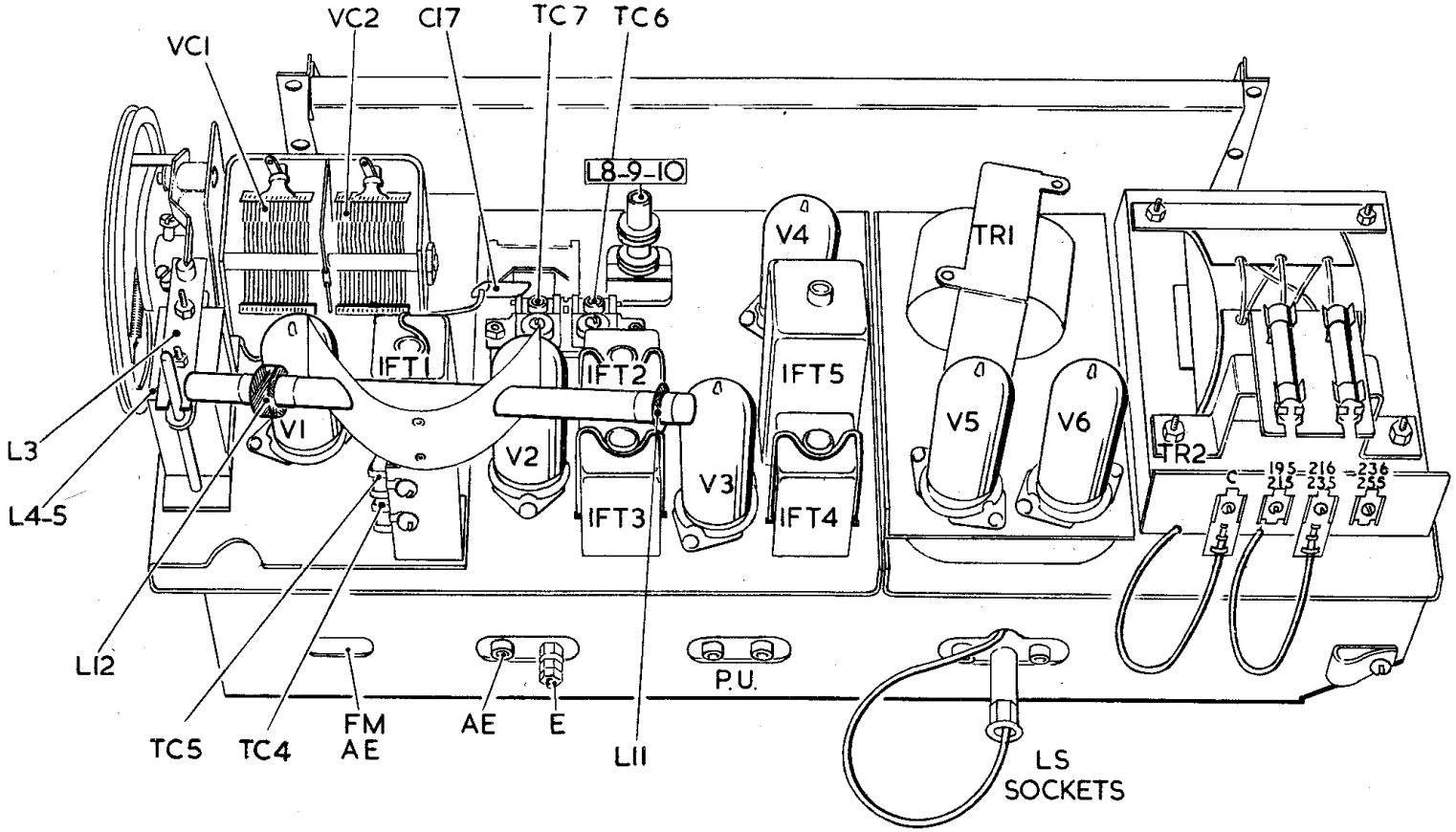
I.F. Alignment (A.M.)

1. Set the wavechange switch to M.W., the volume and tone controls fully clockwise, and the gang capacitor to minimum capacity (plates fully disengaged).

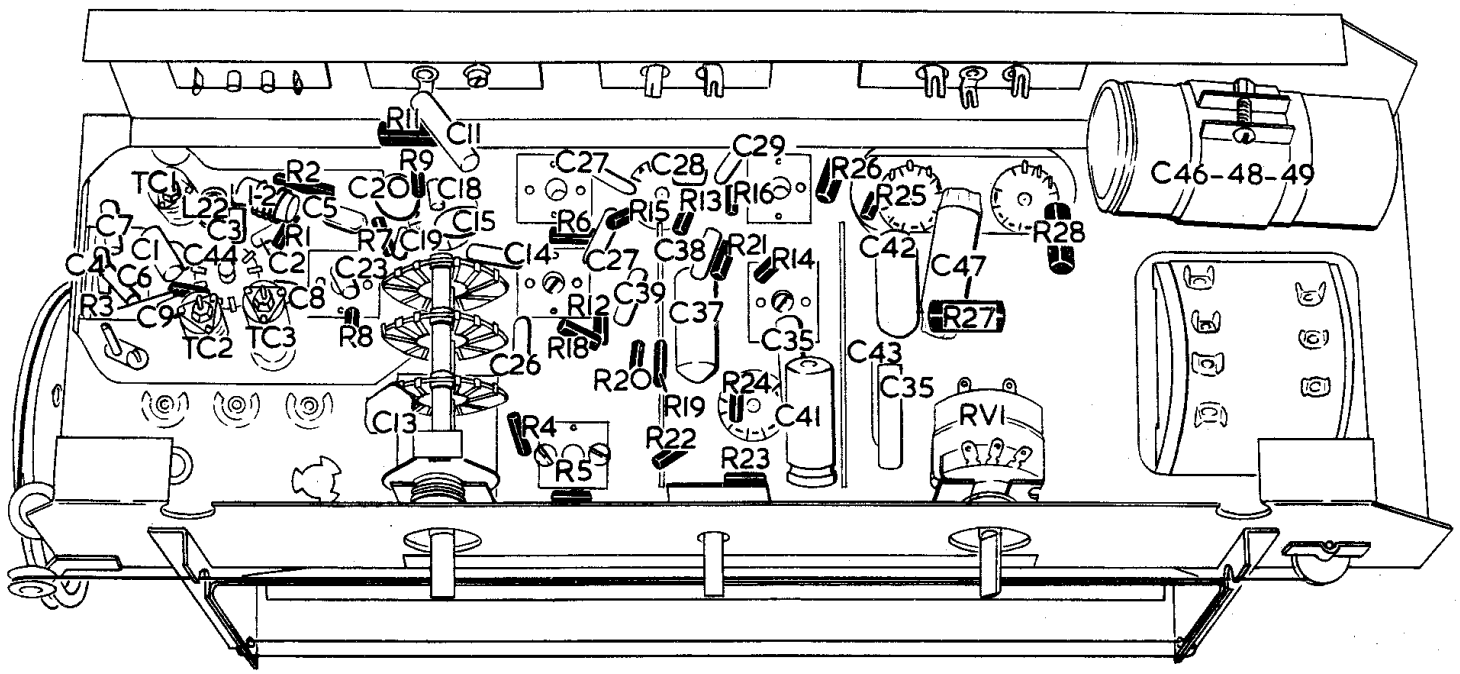
2. Connect an output meter across the loudspeaker terminals.

3. Inject a modulated signal at 470 kc/s into the control grid (pin 2) of V2 (ECH81).

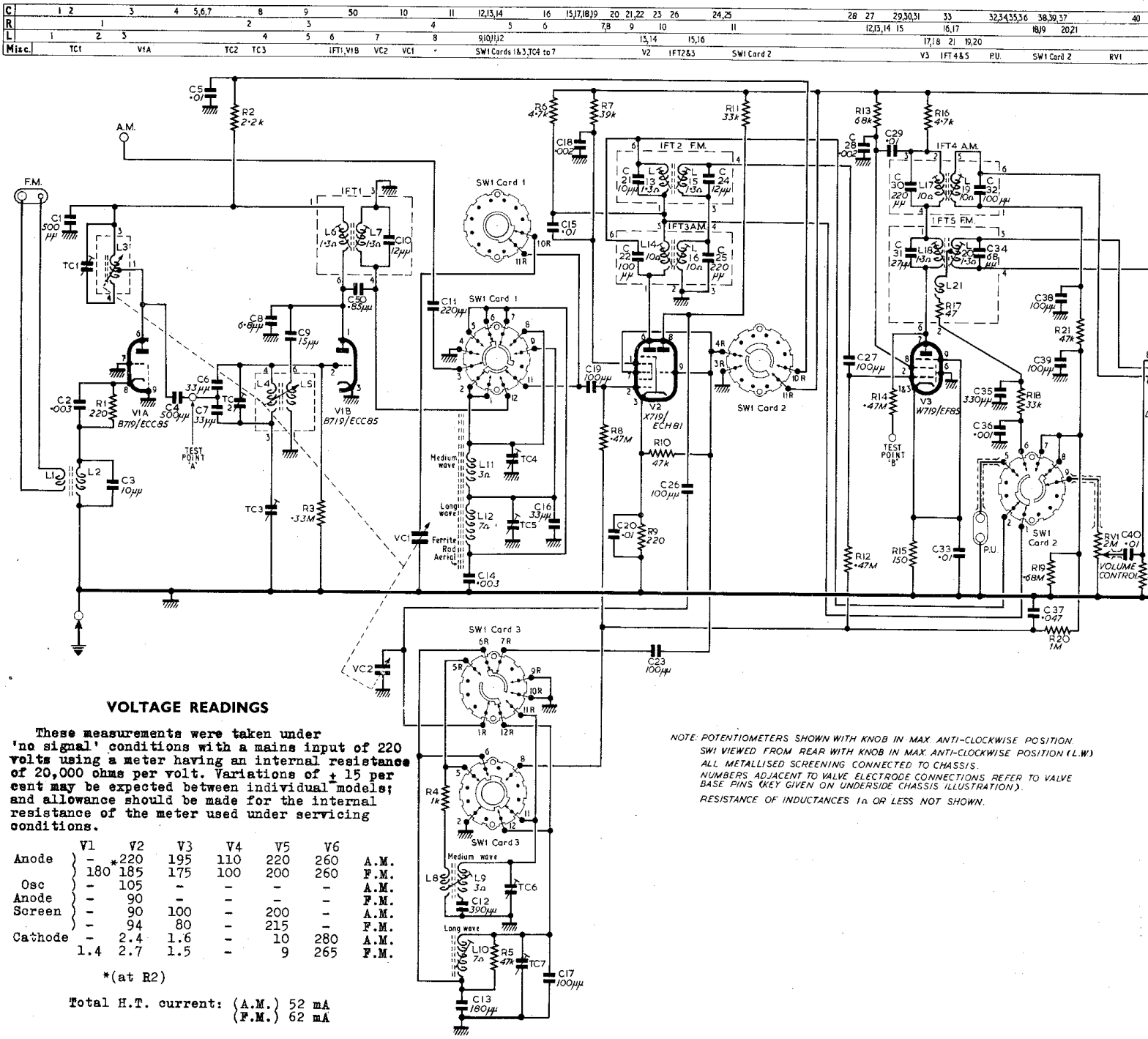
4. Adjust cores of L19, L17, L16 and L14, in that order, for maximum output.



TOPSIDE CHASSIS VIEW



UNDERSIDE CHASSIS VIEW



VOLTAGE READINGS

These measurements were taken under 'no signal' conditions with a mains input of 220 volts using a meter having an internal resistance of 20,000 ohms per volt. Variations of ± 15 per cent may be expected between individual models; and allowance should be made for the internal resistance of the meter used under servicing conditions.

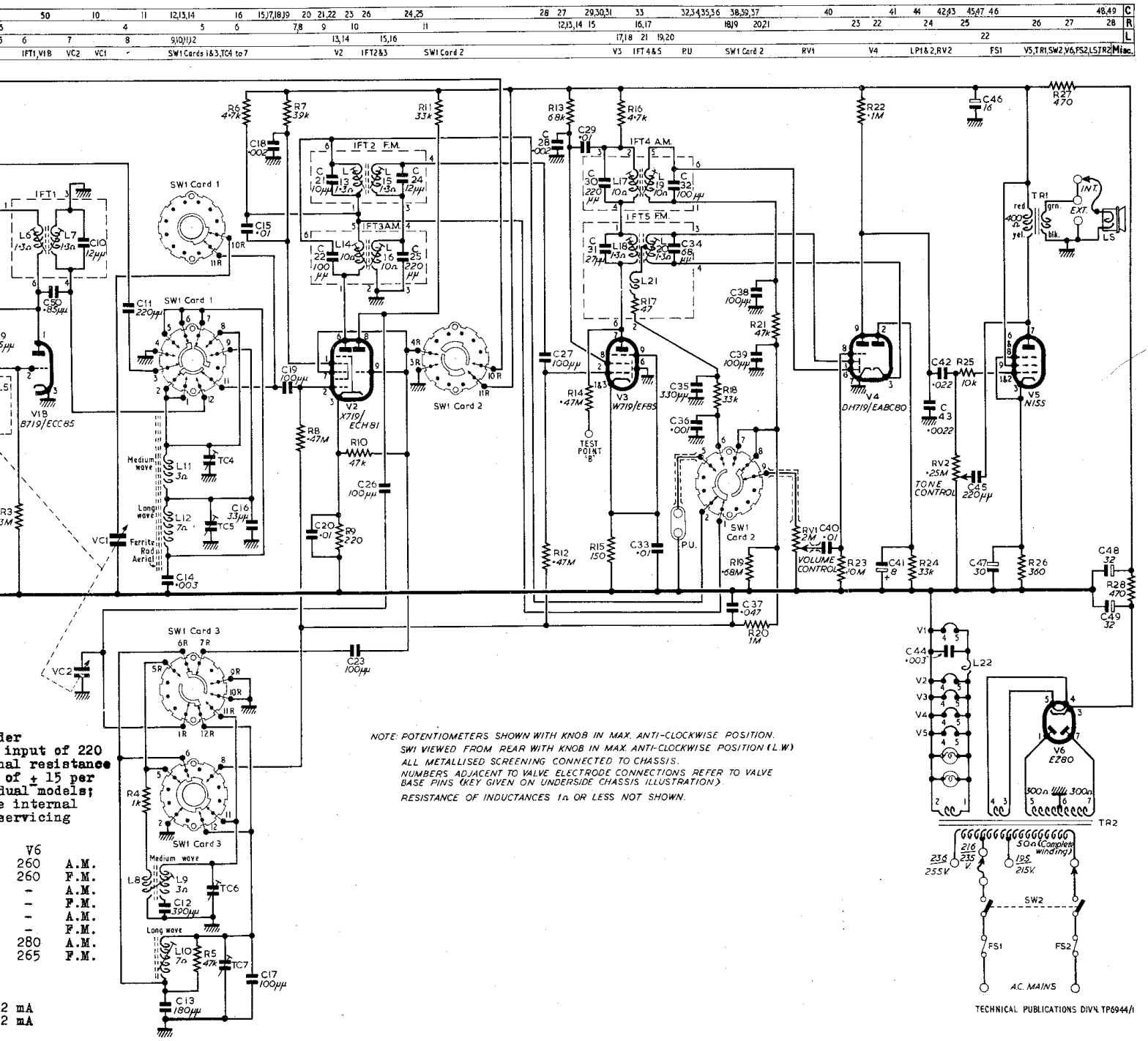
	V1	V2	V3	V4	V5	V6	
Anode	-	*220	195	110	220	260	A.M.
	180	185	175	100	200	260	F.M.
Osc	-	105	-	-	-	-	A.M.
Anode	-	90	-	-	-	-	F.M.
Screen	-	90	100	-	200	-	A.M.
	-	94	80	-	215	-	F.M.
Cathode	-	2.4	1.6	-	10	280	A.M.
	1.4	2.7	1.5	-	9	265	F.M.

*(at R2)

Total H.T. current: (A.M.) 52 mA
(F.M.) 62 mA

NOTE: POTENTIOMETERS SHOWN WITH KNOB IN MAX. ANTI-CLOCKWISE POSITION.
SW1 VIEWED FROM REAR WITH KNOB IN MAX. ANTI-CLOCKWISE POSITION (L.W)
ALL METALLISED SCREENING CONNECTED TO CHASSIS.
NUMBERS ADJACENT TO VALVE ELECTRODE CONNECTIONS REFER TO VALVE BASE PINS (KEY GIVEN ON UNDERSIDE CHASSIS ILLUSTRATION).
RESISTANCE OF INDUCTANCES 1Ω OR LESS NOT SHOWN.

CIRCUIT DIAGRAM OF H.M.V. MODEL 1128



der
input of 220
nal resistance
of ± 15 per
dual models;
e internal
ervicing

V6	
260	A.M.
260	F.M.
–	A.M.
–	F.M.
–	A.M.
–	F.M.
280	A.M.
265	F.M.

2 mA
2 mA

CIRCUIT DIAGRAM OF H.M.V. MODEL 1128

R.F. Alignment (A.M.)

Inject signal into A.M. aerial and earth sockets.

Medium Wave

Set wavechange switch to M.W. and Volume and Tone controls fully clockwise.

Op. No.	Set Gang	Set Generator kc/s	Operation
1	Gang Max.	522	Adjust L8/L9 for maximum output
2	Gang Min.	1602	Adjust TC6 for maximum output
3			Repeat operations 1 and 2
4	$1\frac{15}{32}$	588	Adjust L11 for maximum output
5	$9\frac{15}{16}$	1427	Adjust TC4 for maximum output
6			Repeat operations 4 and 5

Figures in the second column refer to the calibration strip affixed to the front of the chassis. They are read from right to left.

Long Wave

Controls as before but with wavechange switch to L.W.

Op No.	Set Gang	Set Generator kc/s	Operation
1	Gang Max.	146	Adjust L10 for maximum output
2	Gang Min.	333	Adjust TC7 for maximum output
3			Repeat operations 1 and 2
4	1 3/32	162	Adjust L12 for maximum output *
5	4 5/8	300	Adjust TC5 for maximum output
6			Repeat operations 1 and 2

* **NOTE** L11 and L12 are adjusted by sliding along the Ferrite rod. They will normally be set about $\frac{3}{4}$ inch from either end.

CALIBRATION

Upon replacing the receiver in its cabinet, check the calibration at about the centre of the wave scale on each waveband. Adjust pointer to provide a compromise if necessary.

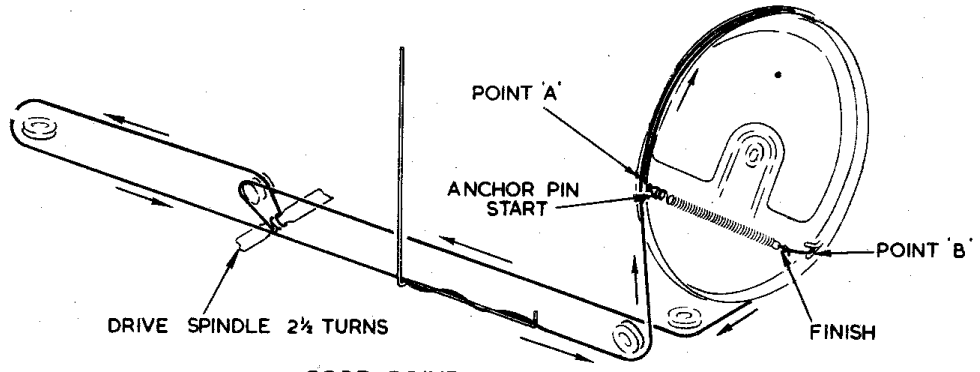
TUNING CAPACITOR & CORD DRIVE

Use only the specified 6370 x 0012 nylon cord. Approximately 50 inches of cord is used.

To replace cord, proceed as follows:-

1. Form a loop at one end of the cord.
2. Attach loop to anchor pin and pass the other end of the cord through the hole (point "A") in the periphery of the drum.
3. Wind cord round pulleys and tuning spindle (2⅛ turns) in the direction shown by the arrows.
4. Pass the cord through the hole (point "B") in the periphery of the drum and attach it to one end of the tension spring.
5. Attach the free end of spring to one of anchor tags.
6. Shellac knots to prevent slipping.

Approximately 24 inches of 6370 x 0012 nylon cord is used for the pointer steady guide. Tension of this guide is maintained by the spring attached to the cord, as shown in the illustration.



CORD DRIVE

SPARE PARTS LIST

REF.	DESCRIPTION		PART No.
Capacitors			
C1	500 µµF	± 5% 500V	38475C
C2	3000 µµF	− 20% + 80% 300V	38125A
C3	10 µF	± 5% 750V	38133A
C4	500 µµF	+ 50% − 25% 350V	38130G
C5	101 µF	± 20% 500V	38109B
C6	33 µµF	± 5% 750V	38133D
C7	33 µµF	± 5% 750V	38117D
C8	6.8 µµF	± 10% 500V	38133XZ
C9	15 µµF	± 5% 750V	38133B
C10	12 µµF	± 5% 750V	See IFT1
C11	222 µµF	± 20% 750V	38117DJ
C12	390 µµF	± 2% 350V	38001VM
C13	180 µµF	± 2% 350V	38000VE
C14	.003 µF	+ 20% + 50% 350V	3813DC
C15	.01 µF	− 20% + 80% 500V	38109B
C16	33 µµF	± 5% 350V	38004D
C17	100 µµF	± 2% 350V	38004TF
C18	.002 µF	± 20% 350V	38122A
C19	100 µµF	± 20% 350V	38117DG
C20	.01 µF	− 20% + 80% 500V	38109B
C21	10 µµF	± 5% 750V	See IFT2
C22	100 µµF		See IFT3
C23	100 µµF	± 20% 750V	38117DG
C24	12 µµF	± 5% 750V	See IFT2
C25	220 µµF		See IFT3
C26	100 µµF	± 20% 750V	38117DG
C27	100 µµF	± 20% 750V	38117DG
C28	.002 µF	± 20% 350V	38122A
C29	.01 µF	− 20% + 80% 500V	38109B
C30	220 µµF		See IFT4
C31	27 µµF		See IFT5
C32	100 µµF		See IFT4
C33	.01 µF	− 20% + 80% 500V	38109B
C34	68 µµF		See IFT5
C35	330 µµF	± 20% 750V	38117DK
C36	.001 µF	± 20% 350V	38216DN
C37	.047 µF	± 20% 450V	38210DY
C38	100 µµF	± 20% 750V	38117DG
C39	100 µµF	± 20% 750V	38117DG
C40	.01 µF	− 20% + 80% 500V	38109B
C41	8 µF	50V	38406A
C42	.022 µF	± 20% 350V	38217DW
C43	.0022 µF	± 20% 350V	38216DQ
C44	.003 µF	− 20% + 80% 350V	38125A
C45	220 µµF	± 20% 750V	38117DJ
C46	16 µF		
C48	32 µF	350V	38150N
C49	32 µF		
C47	30 µF	15V	38175C
C50	.85 µµF		92057A
Trimmers			
TC1	3 − 30 µµF		30480A
TC2	3 − 30 µµF		30480A
TC3	3 − 30 µµF		30480A
TC4	4 − 30 µµF		37245B
TC5	4 − 30 µµF		37245B
TC6	4 − 30 µµF		32668A
TC7	4 − 30 µµF		
Resistors			
R1	220 Ω	± 20%	33362DJ

REF.	DESCRIPTION		PART No.
R2	2.2 kΩ	± 10%	33363BQ
R3	.33 MΩ	± 20%	33362ED
R4	1 kΩ	± 20%	33362DN
R5	47 kΩ	± 20%	33362DY
R6	4.7 kΩ	± 20%	33362DS
R7	39 kΩ	± 10%	33362QC
R8	.47 MΩ	± 20%	33362EE
R9	220 Ω	± 10%	33362BJ
R10	47. kΩ	± 20%	33362DY
R11	33 kΩ	± 20%	33363DX
R12	.47 MΩ	± 20%	33362EE
R13	68 kΩ	± 10%	33362BZ
R14	.47 MΩ	± 20%	33362EE
R15	150 Ω	± 10%	33362BH
R16	4.7 kΩ	± 20%	33362DS
R17	47 kΩ	± 20%	33362DY
R18	33 kΩ	± 20%	33362DX
R19	.68 MΩ	± 10%	33362BZ
R20	1 MΩ	± 20%	33362EG
R21	47 kΩ	± 20%	33362DY
R22	.1 MΩ	± 20%	33362EA
R23	10 MΩ	± 20%	33362EN
R24	33 kΩ	± 20%	33362DX
R25	10 kΩ	± 20%	33362DU
R26	360 Ω	± 5%	33360DU
R27	470 Ω	± 5%	37874L
R28	470 Ω	± 5%	37874L

Inductors

L1) L2)	Aerial Coil	94457A
L3	H.F. Coil	93010D
L4) L5)	Osc. Coil	93010C
L6 L7 L8) L9)	Primary) Secondary) See IFT1	
	M.W. AE Coil	92770B

REF.	DESCRIPTION	PART No.
L10	L.W. AE Coil	92770D
L11 L12	M.W. Osc Coil) L.W. Osc Coil)	93004K
L13	Primary	See IFT2
L14	Primary	See IFT3
L15	Secondary	See IFT2
L16	Secondary	See IFT3
L17	Primary	See IFT4
L18	Primary	See IFT5
L19	Secondary	See IFT4
L20	Secondary	See IFT5
L21	Tertiary	See IFT5
L22	Heater Choke	92645A

Transformers

IFT1	1st IF Transformer	93004E
IFT2	2nd IF Transformer	93004G
IFT3	3rd IF Transformer	93004N
IFT4	4th IF Transformer	93004N
IFT5	5th IF Transformer	46551AM
TR1	Output Transformer	44455U
TR2	Mains Transformer	44390N

Miscellaneous

SW1	Wavechange Switch	94296A
SW2	Mains ON/OFF Switch	See VR2
F1	Fuse 1 amp	38825D
F2	Fuse 1 amp	38825D
VC1 VC2	Gang Capacitor	94295A
RV1	Volume Control 2 MΩ	37942MF
RV2	Tone Control .25 MΩ	37962N

LATER INFORMATION & MODIFICATIONS

Note: In certain later models it may be found that C44 has been omitted to give improved I.F. stability.

Printed A.F. Panel

Some Models No.1128 will be found to incorporate a printed circuit panel mounting the output and H.T. rectifier valves together with a number of conveniently grouped components. In these models the circuitry remains unaltered. The only change from the servicing point of view is that in the printed circuit version certain components previously located beneath the chassis are now mounted on the upper side of the printed circuit panel. A key to the location of these components is given in Fig.1.

Fig.2. shows that part of the existing Model No. 1128 circuit comprised in the printed panel.

For servicing hints, reference should be made to Technical Data: "Printed Circuits, Introductory Notes and Servicing Hints", Part No. 95067.

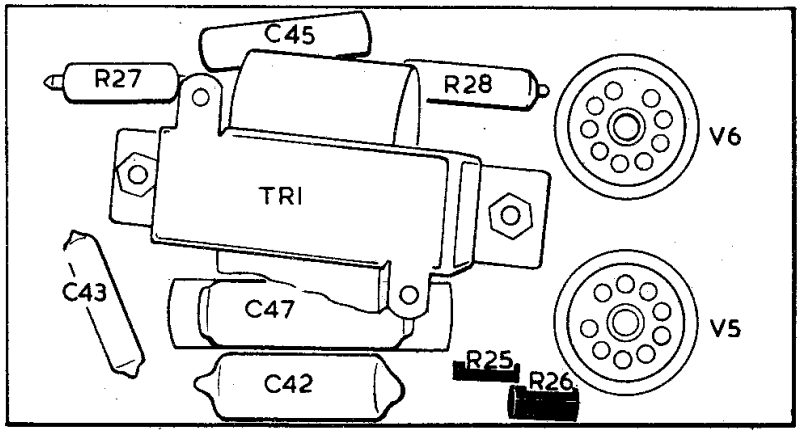


FIG. 1

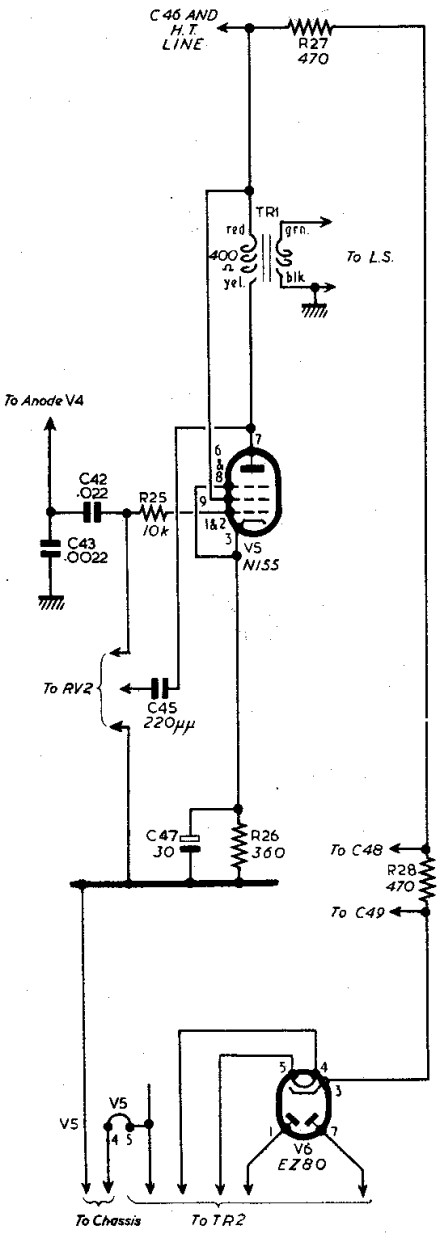


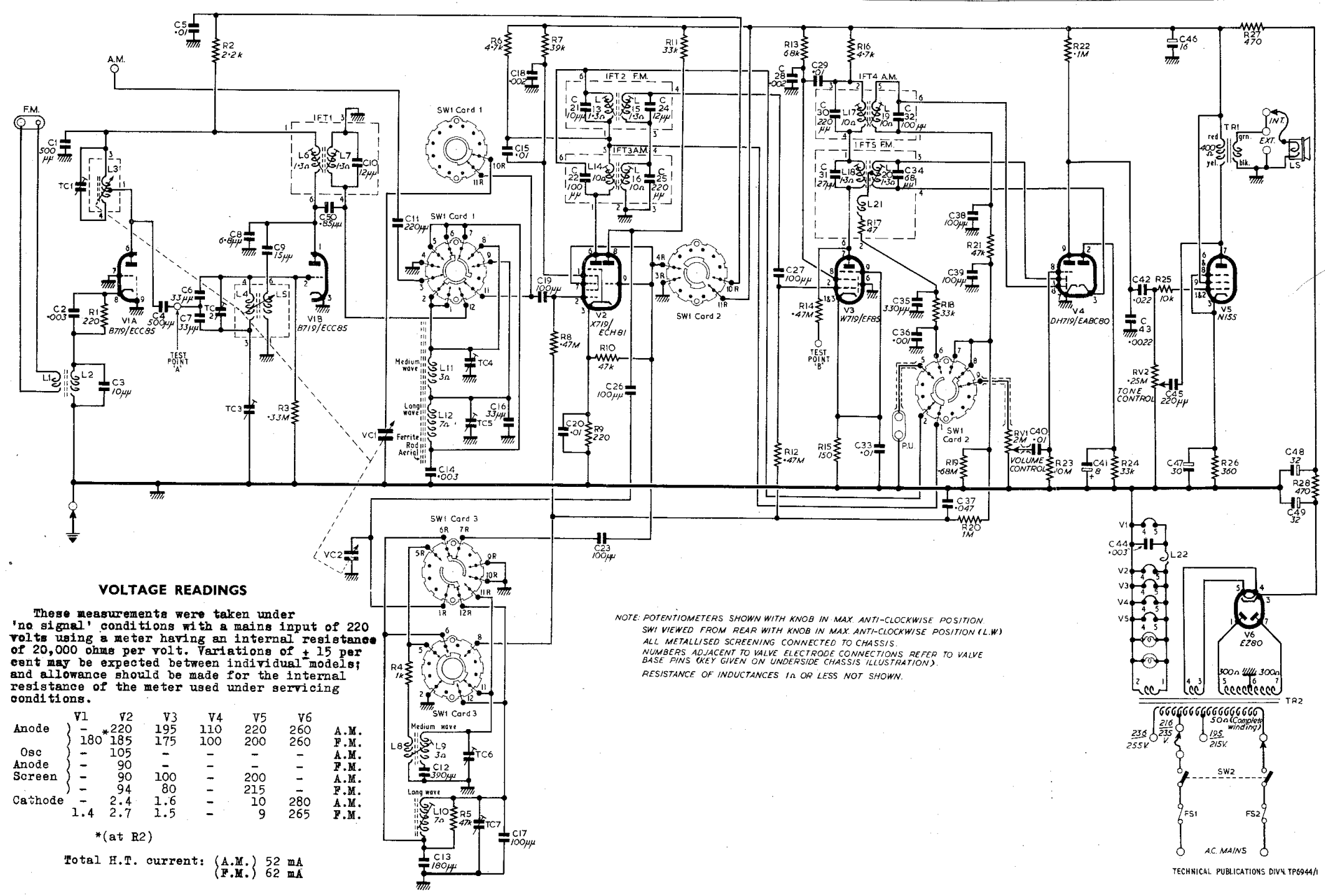
FIG. 2

✱ CORRECTION

Service Manual Model 1619FM, page 5. Value of C38 should read 0·1 μF, NOT ·01 μF as shown; value of mains aerial isolating capacitor should read 47 μμF (750 V.D.C., Part No. 38106DE).

✱ Please correct your Service Manual Part No. 49586/1 NOW.

Part No. 49586/1/ST **Issue 1**



VOLTAGE READINGS

These measurements were taken under 'no signal' conditions with a mains input of 220 volts using a meter having an internal resistance of 20,000 ohms per volt. Variations of ± 15 per cent may be expected between individual models; and allowance should be made for the internal resistance of the meter used under servicing conditions.

	V1	V2	V3	V4	V5	V6	
Anode	-	*220	195	110	220	260	A.M.
	180	185	175	100	200	260	F.M.
Osc	-	105	-	-	-	-	A.M.
Anode	-	90	-	-	-	-	F.M.
Screen	-	90	100	-	200	-	A.M.
	-	94	80	-	215	-	F.M.
Cathode	-	2.4	1.6	-	10	280	A.M.
	1.4	2.7	1.5	-	9	265	F.M.

*(at R2)

Total H.T. current: (A.M.) 52 mA
(F.M.) 62 mA

NOTE: POTENTIOMETERS SHOWN WITH KNOB IN MAX. ANTI-CLOCKWISE POSITION
SW1 VIEWED FROM REAR WITH KNOB IN MAX. ANTI-CLOCKWISE POSITION (L.W.)
ALL METALLISED SCREENING CONNECTED TO CHASSIS.
NUMBERS ADJACENT TO VALVE ELECTRODE CONNECTIONS REFER TO VALVE BASE PINS (KEY GIVEN ON UNDERSIDE CHASSIS ILLUSTRATION).
RESISTANCE OF INDUCTANCES 1n OR LESS NOT SHOWN.