

## PHILIPS RADIOPLAYER: MODEL BZ737A

7 Valve Superheterodyne Receiver.

Mains Supply—210-250 volts 50 C/s. A.C.

Wave Ranges—Broadcast 545-1620 Kc/s.

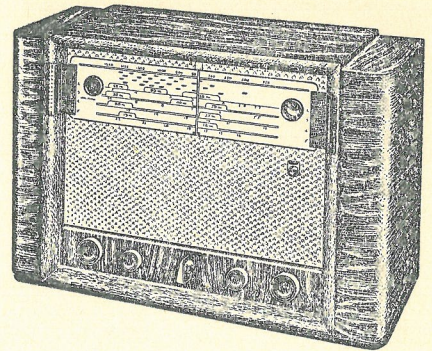
Short Wave I 1.66-5.1 Mc/s.

Short Wave II 5-10.1 Mc/s.

Short Wave III 9.8-15.5 Mc/s.

Short Wave IV 14.9-22.2 Mc/s.

Intermediate Frequency 455 Kc/s.



### REMOVING THE CHASSIS FROM THE CABINET

The bottom cover plate fitted to this model enables the majority of service work to be carried out without removing the chassis from the cabinet. If it is necessary to remove the chassis from the cabinet proceed as follows. Remove the mains plug from the supply.

Remove the five control knobs, by removing the grub screws and sliding the knobs off the shafts. Note that the two smaller knobs have semicircular packing pieces in them which must be correctly replaced in the knob before refitting.

Remove the speaker plug from its socket.

Loosen off the pointer clamping screw and release the drive cable from the pointer.

Remove the wave band indicator by removing the knurled screw, and lifting the assembly off the bracket.

Loosen off the tuning indicator clamp screws, and remove the tube from the mounting bracket.

Remove the four chassis mounting bolts.

The chassis will now slide out of the cabinet, leaving the dial mechanism and loudspeaker in the cabinet.

To replace the chassis reverse the above procedure.

### REMOVAL OF THE DIAL SCALE

To remove the dial scale, slide off the ornamental covers at each end of the scale by pushing them towards the centre of the scale. From behind the baffle board, remove four nuts holding the end assemblies. Pull both ends of the dial scale assembly from the front of the cabinet. The scale may now be released from the end clamping assemblies by loosening off the four nuts. When replacing the dial scale assembly see that the distance between the mounting screws and spacers is such that they clear the cabinet holes without binding, so that no strain is placed on the glass scale. Replace the nuts inside the cabinet baffle and slide the ornamental covers back into position.

To replace the dial lamps, remove the wood screws holding the bakelite mounting plate to the baffle board and withdraw the holder.

To replace the wave band indicator lamp, remove

1. Wave band switch in position .....
2. Turn pointer with tuning knob to the frequency indicated and apply the correct frequency .....
3. Adjust for maximum output .....
4. Turn pointer with tuning knob to frequency indicated and apply the correct frequency .....
5. Adjust for maximum output .....

Repeat the points above until correct calibration and good sensitivity are obtained over each band. When all adjustments are correct seal all trimmers. Adjustment of coil inductances is obtained by moving the loop inside the coil. Note that on Broadcast, SW1, SW2 and SW3 the oscillator frequency is 455 Kc/s. above the signal frequency while on SW4 the oscillator frequency is 455 Kc/s. below the

the thumb screw holding the bakelite mounting plate to the wave band indicator assembly.

### ALIGNMENT OF THE RECEIVER

For the alignment of the receiver the chassis should be mounted in the cabinet.

Switch on the receiver and allow it to warm up for a few minutes.

Turn the tone control in a clockwise direction until the fidelity switch operates, then turn in an anti-clockwise direction until the switch just clicks again so that the intermediate frequency filters are operating in the narrow bandwidth position.

Place the tuning condenser in the maximum capacity position, the wave band switch in number 1—Broadcast position—and the centre switch in the Radio position.

Turn the volume control to the maximum position and apply a signal of 455 Kc/s., modulated 30% through a capacity of 0.01 mfd to the control grid of the ECH81.

Unscrew the adjusting slugs of the intermediate frequency filters almost right out.

Adjust in succession, for maximum output (see diagram).

1. Diode coil.
2. EAF42 Plate coil.
3. ECH81 Plate coil.
4. EAF42 Grid coil.

It is essential to follow the above order very carefully, and peak the circuits accurately, to obtain a symmetrical response curve in the wide band position.

Disconnect the coupling condenser from the control grid of ECH81 and connect the signal generator through a standard dummy aerial to the aerial and earth wires of the receiver.

Set the pointer to the reference point where thick lines reduce to narrow at the low frequency end of the Broadcast band.

Apply a modulated R.F. signal and adjust the R.F. circuit as indicated in the following table:—

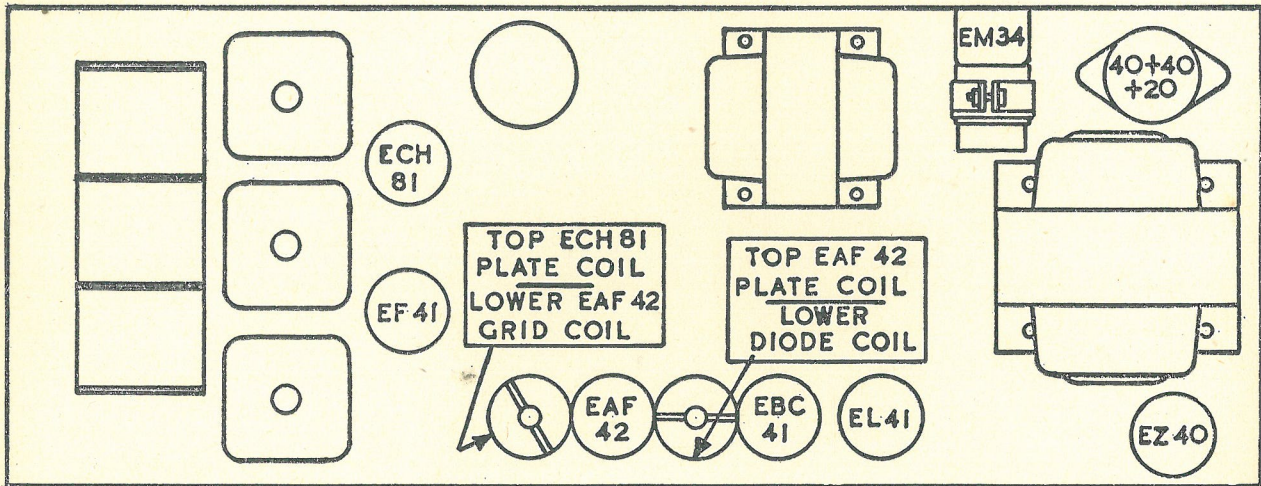
	B.C.	SW1	SW2	SW4	SW3
1. Wave band switch in position .....	600 Kc/s.	1.8 Mc/s.	5.5 Mc/s.	16 Mc/s.	10 Mc/s.
2. Turn pointer with tuning knob to the frequency indicated and apply the correct frequency .....	Padder C34	Padder C35	L11	L9 L2 (Low end)	L10 L2 (High end)
3. Adjust for maximum output .....				L1 „	L1 „
4. Turn pointer with tuning knob to frequency indicated and apply the correct frequency .....	1400 Kc/s.	4.5 Mc/s.	10 Mc/s.	15 Mc/s.	22 Mc/s.
5. Adjust for maximum output .....	C38 Osc C16 Trans C15 Ant	C37 Osc C17 Trans C14 Ant	C39 Osc C11 Trans C9 Ant	C21 Osc C12 Trans C10 Ant	C20 Osc C4 Trans C3 Ant

signal frequency. It is important to remember the above when checking whether the image is on the correct side of the fundamental signal. Maximum sensitivity figures are given below. These are given mainly as a guide, and final sensitivities should if anything be better than the figures quoted. The standard output is 50 milliwatts into a 7 ohm load.

## MAXIMUM SENSITIVITY FIGURES

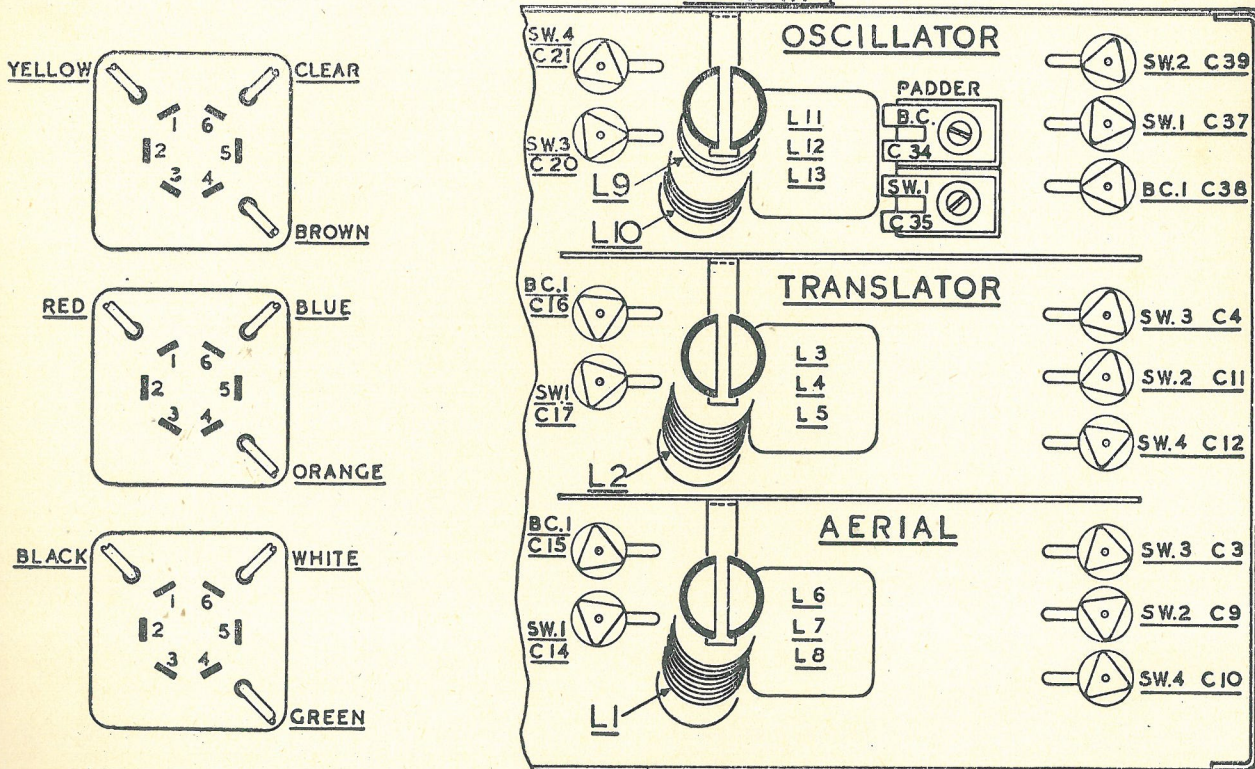
455 Kc/s.	Narrow bandwidth position, signal applied to the control grid of ECH81	25 $\mu$ V
Broadcast	Signal applied via dummy aerial to aerial and earth wires	
SW1	" " " " " " " "	2 $\mu$ V
SW2	" " " " " " " "	3 $\mu$ V
SW3	" " " " " " " "	3 $\mu$ V
SW4	" " " " " " " "	4 $\mu$ V
	" " " " " " " "	4 $\mu$ V

## CHASSIS LAYOUT



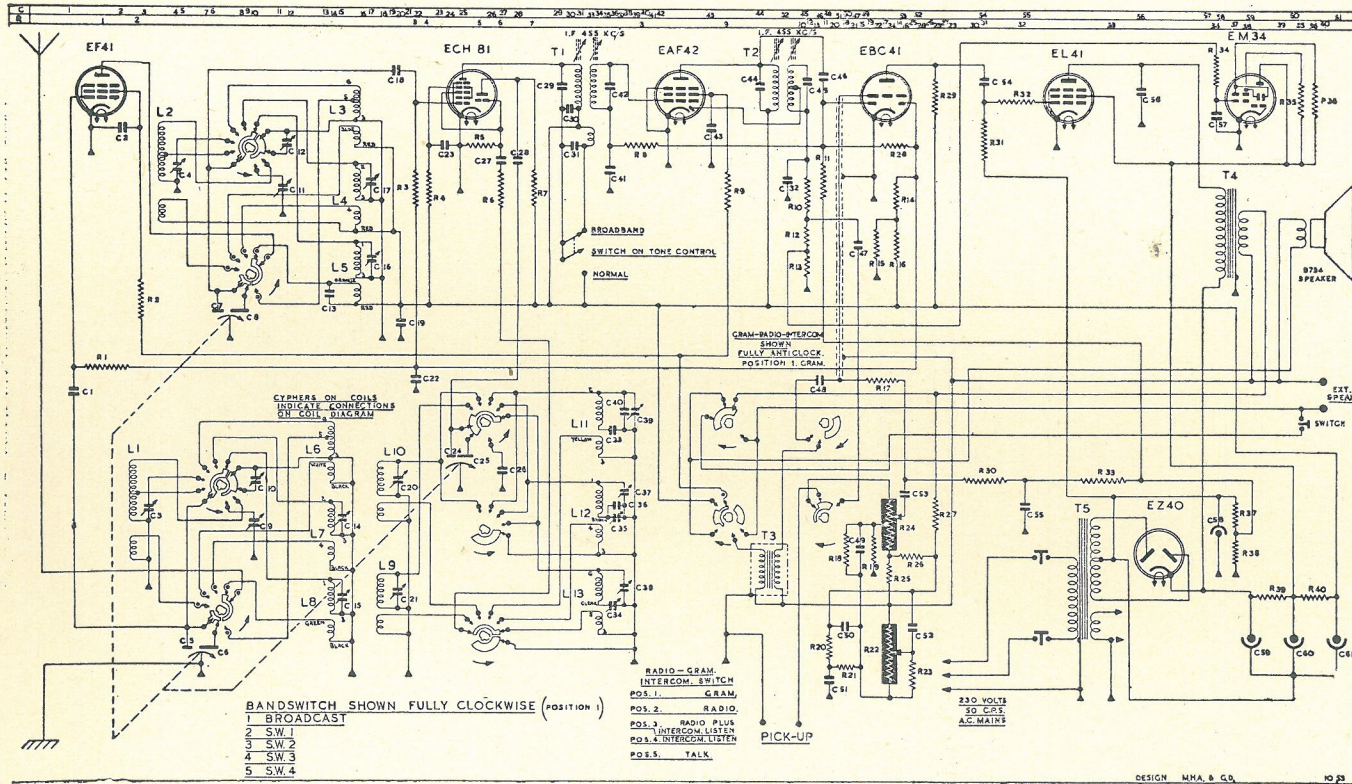
## TRIMMER AND COIL DIAGRAM

SCALE POS. 1	B.C.
2	S.W. 1
3	S.W. 2
4	S.W. 3
5	S.W. 4



10-12-53 K.

# PHILIPS RADIOPLAYER: MODEL BZ737A



## CONDENSER VALUES

- C1 150 mmfd Ceramic
- C2 0.01 mfd 500V. Paper
- C3 3-30 mmfd Air Dielectric Trimmer
- C4 3-30 mmfd Air Dielectric Trimmer
- C5 60.3 mmfd Max. Cap Aerial Small Sect.
- C6 381.9 mmfd Max. Cap Aerial Large Sect.
- C7 60.3 mmfd Max. Cap Translater Small Sect.
- C8 381.9 mmfd Max. Cap Translater Large Sect.
- C9 3-30 mmfd Air Dielectric Trimmer
- C10 3-30 mmfd Air Dielectric Trimmer
- C11 3-30 mmfd Air Dielectric Trimmer
- C12 3-30 mmfd Air Dielectric Trimmer
- C13 100 mmfd Mica
- C14 3-30 mmfd Air Dielectric Trimmer
- C15 3-30 mmfd Air Dielectric Trimmer
- C16 3-30 mmfd Air Dielectric Trimmer
- C17 3-30 mmfd Air Dielectric Trimmer

Gang

- C18 150 mmfd Ceramic
- C19 0.01 mfd 500V. Paper
- C20 3-30 mmfd Air Dielectric Trimmer
- C21 3-30 mmfd Air Dielectric Trimmer
- C22 0.05 mfd 500V. Paper
- C23 0.01 mfd 500V. Paper
- C24 120.6 mmfd Max. Cap Osc. Small Sect.
- C25 321.6 mmfd Max. Cap Osc. Large Sect.
- C26 50 mmfd Ceramic Special
- C27 80 mmfd Silver Mica
- C28 100 mmfd Silver Mica
- C29 115 mmfd In I.F. Transformer
- C30 1500 mmfd Silver Mica
- C31 1500 mmfd Silver Mica
- C32 80 mmfd Silver Mica
- C33 0.007 mfd Silver Mica 2 1/2%
- C34 150-750 mmfd Variable Padder
- C35 150-750 mmfd Variable Padder
- C36 0.0012 mfd Mica 2 1/2%
- C37 3-30 mmfd Air Dielectric Trimmer
- C38 3-30 mmfd Air Dielectric Trimmer

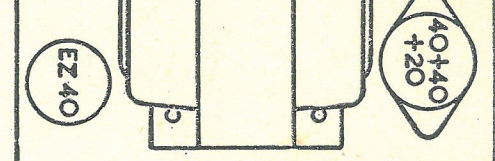
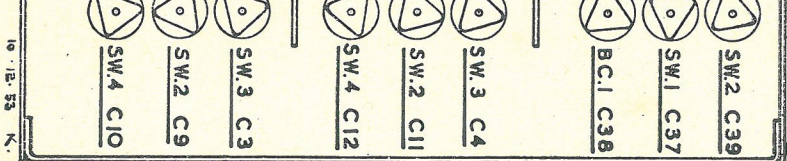
Gang

- C39 3-30 mmfd Air Dielectric Trimmer
- C40 47 mmfd Ceramic
- C41 0.05 mfd 500V. Paper
- C42 230 mmfd In I.F. Transformer
- C43 0.01 mfd 500V. Paper
- C44 110 mmfd in I.F. Transformer
- C45 110 mmfd In I.F. Transformer
- C46 10 mmfd Ceramic
- C47 0.005 mfd 350V. Paper
- C48 0.001 mfd 500V. Paper
- C49 0.02 mfd 500V. Paper
- C50 400 mmfd Mica
- C51 0.01 mfd 500V. Paper
- C52 0.01 mfd 500V. Paper
- C53 0.01 mfd 500V. Paper
- C54 0.01 mfd 500V. Paper
- C55 0.25 mfd 400V. Paper
- C56 0.005 mfd 750V. Paper
- C57 0.05 mfd 500V. Paper
- C58 100 mfd 12V. Electrolytic
- C59 40 mfd 350V.
- C60 40 mfd 350V.
- C61 20 mfd 350V.

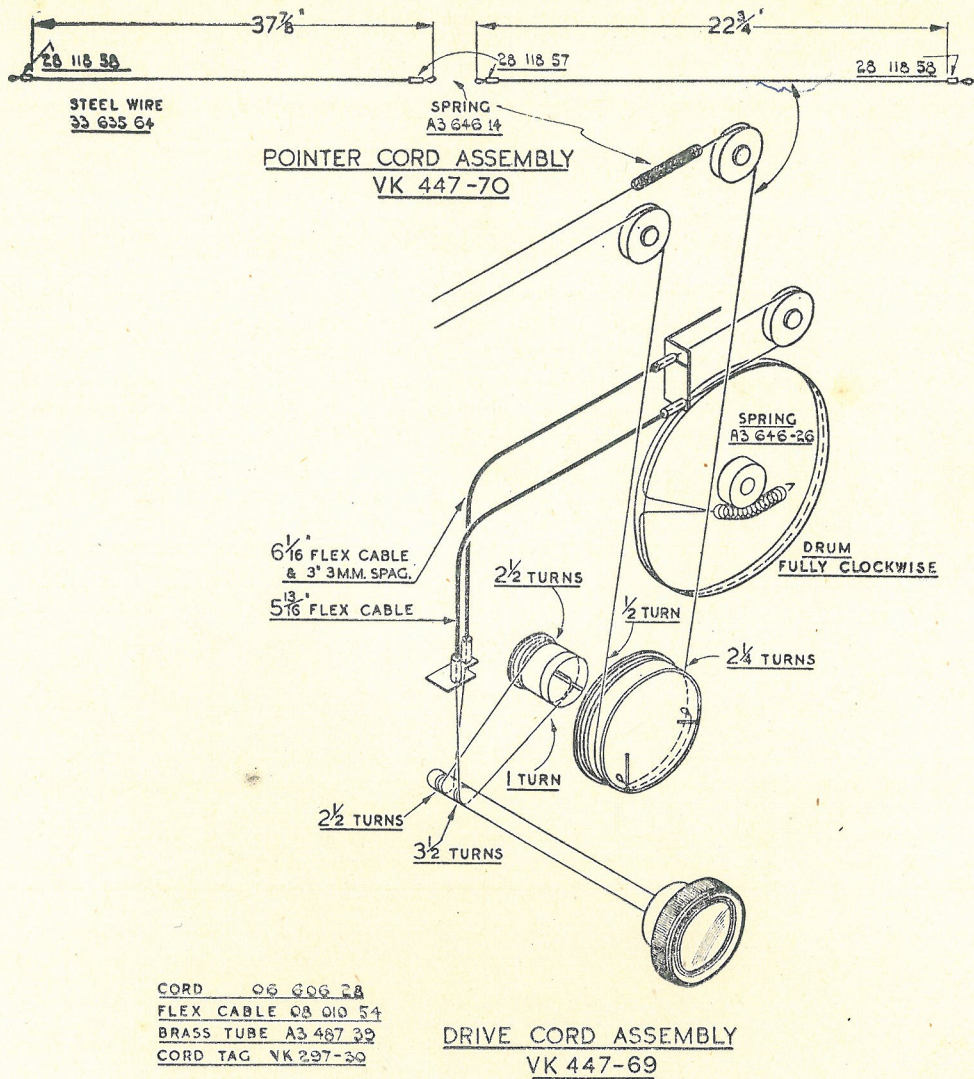
Triple Electrolytic

## RESISTOR VALUES

- R1 470K 1/2W. Carbon
- R2 100K 1/2W. Carbon
- R3 470K 1/2W. Carbon
- R4 25K 1W. Carbon
- R5 47K 1/2W. Carbon
- R6 100 ohm 1/2W. Carbon
- R7 33K 1W. Carbon
- R8 1 Meg. 1/2W. Carbon
- R9 100K 1/2W. Carbon
- R10 68K 1/2W. Carbon
- R11 1 Meg. 1/2W. Carbon
- R12 150K 1/2W. Carbon
- R13 150K 1/2W. Carbon
- R14 10 Meg. 1/2W. Carbon
- R15 100K 1/2W. Carbon
- R16 470K 1/2W. Carbon
- R17 100K 1/2W. Carbon
- R18 220K 1/2W. Carbon
- R19 47K 1/2W. Carbon
- R20 7500 ohm 1/2W. Carbon
- R21 47K 1/2W. Carbon
- R22 0.5 Meg. Tone Control and Special I.F. Switch
- R23 470K 1/2W. Carbon
- R24 0.65 + 2 Meg. Volume Control and Switch
- R25 27 ohm 1/2W. Carbon
- R26 27 ohm 1/2W. Carbon
- R27 330 ohm 1/2W. Carbon
- R28 1 Meg. 1/2W. Carbon
- R29 100K 1/2W. Carbon
- R30 2.2 Meg. 1/2W. Carbon
- R31 680K 1/2W. Carbon
- R32 10K 1/2W. Carbon
- R33 330K 1/2W. Carbon
- R34 470K 1/2W. Carbon
- R35 1 Meg. 1/2W. Carbon
- R36 1 Meg. 1/2W. Carbon
- R37 75 ohm 1W. Carbon
- R38 25 ohm 1/2W. Carbon
- R39 500 ohm 4W. Wire Wound
- R40 1800 ohm 4W. Carbon
- L1 Band 4 & 5 Aerial Coil VK-469-61
- L2 Band 4 & 5 Transl. Coil VK-473-17
- L3 Band 3 Translater Coil
- L4 Band 2 Translater Coil VK-473-16
- L5 Band 1 B.C. Transl. Coil
- L6 Band 3 Aerial Coil
- L7 Band 2 Aerial Coil VK-469-60
- L8 Band 1 B.C. Aerial Coil
- L9 Band 5 Oscillator Coil
- L10 Band 4 Oscillator Coil VK-471-41
- L11 Band 3 Oscillator Coil
- L12 Band 2 Oscillator Coil VK-471-40
- L13 Band 1 B.C. Osc. Coil
- T1 Special I.F. Transformer A3-122-38
- T2 I.F. Transformer VK-476-36
- T3 Intercom. Input Trans. Assy. VK-660-00
- T4 Output Transformer VK-670-88
- T5 Power Transformer VK-630-76



10 12 53 K.



### REPLACING THE POINTER DRIVE CORD

It is necessary when replacing the gang drive cord to remove the pointer drive cable drum. This is done by removing the pointer cable from the drum, removing the three fixing screws and sliding the drum forward. Attach the spring A3-646-26 securely to the drum, and turn the gang to the maximum capacity position.

The small bakelite driving drum has a slot across the rim with two small grooves to position the cord VK-447-69. Under the slot is a round hole into which the brass tube on the cord is fitted, with the long end (27 5/8") of the cord towards the rear of the drum.

With the slot at the top of the drum the back cord is passed round the drum two and a half turns in an anti-clockwise direction towards the front of the drum. The front cord is passed round the drum approximately one and a quarter turns in a clockwise direction. A small piece of sellotape placed over the turns and drum will assist in keeping the cord in place while further threading operations are carried out.

The back cord is next fed over the drive shaft in an anti-clockwise direction for two and a half turns towards the chassis, and the flex cable 6 1/16" is fitted into the right-hand cable socket on the chassis bracket, and the upper cable socket on the tuning condenser pulley bracket. This end of the cord is then fed round the pulley on to the tuning condenser drum in an anti-clockwise direction, through the slot in the drum, and the cord tag fixed over the end of the spring. The tuning condenser should now be opened slightly to take up the slack in the cord, without placing any tension on the small driving drum. The front cord of the driving drum is next fed under the drive shaft in a clockwise direction for three and a half turns towards the front of the shaft, and the flex cable (5 13/16") is fitted into the left-hand cable socket on the chassis bracket, and the lower socket on the tuning condenser bracket. This cord is now placed

round the tuning condenser drum on the front edge in a clockwise direction.

Remove the sellotape from the small driving drum and with a pair of pliers expand the spring, at the same time taking up the slack in the free end of the cord, until it can be continued round the gang drum, and passed through the slot in the gang drum, and the tag placed over the end of the spring.

Release the spring and see that the cord is positioned on the drive shaft in such a way that it does not bind in the chassis bearing and close up any gaps between adjacent turns. Turn the drive shaft a few times so that the tension is equalised over the cord.

Turn the tuning condenser to the maximum capacity position and replace the pointer driving drum so that the longest slot in the rim of the drum is approximately at the seven o'clock position.

Replace the pointer drive cable as follows: Turn the tuning condenser to the minimum capacity position. Place the smaller brass clamp (28-118-58) of the 22 1/4" length of the cable assembly VK-447-70 in the longest slot in the rim of the pointer driving drum. The cable is then passed round the drum for approximately one-third of a turn in an anti-clockwise direction and over the top right-hand pulley on the gantry. Turn the tuning condenser to maximum capacity by means of the tuning shaft, keeping tension on the cable feeding on to the driving drum. The 37 7/8" length of cable is next fed along the length of the gantry, over the left-hand pulley, then over the idler pulley, and on to the driving drum at approximately the 10 o'clock position. Stretch the spring slightly so that the cable can be placed round the drum in an anti-clockwise direction and the brass clamp fitted into the slot at approximately 3 o'clock position on the rim of the driving drum. The cables should now be adjusted on the drum so that they do not cross and the rear cable should progress towards the front of the rim when it is taking up cable.

## VOLTAGE TABLE

All readings taken with a primary input of 230 volts 50 C/s. A.C. Full load primary current 250 ma.  
 Primary power 50 watts.  
 Voltage across R37 + R38 = 100 ohms — 6.5 volts.  
 Voltage across R38 = 25 ohms — 1.65 volts.

VALVE	FUNCTION	FILAMENT	CATHODE	SCREEN	PLATE
EF41	Pentode—R.F. Signal Amplifier .....	6.2	—	50	195
ECH81	Triode — oscillator, Hexode — frequency changer .....	6.2	—	75	195 Hexode 65 Triode
EAF42	Pentode — Intermediate frequency amplifier — Diode — Demodulator .....	6.2	—	60	195
EBC41	Diodes—A.V.C., Triode—Audio voltage amplifier .....	6.2	—	—	130
EL41	Pentode—Power output .....	6.2	—	240	250
EZ40	Fullwave rectifier .....	6.2	260	—	A.C. 240 per plate
EM34	Tuning indicator—dual sensitivity	6.2	—	Target 240	30 per plate

The above voltages are measured between the points indicated and chassis with a meter having a resistance of 20,000 ohms per volt on D.C. ranges and 1000 ohms per volt on A.C. ranges.

Variations up to +5% are permissible. Wave band switch in the position BROADCAST and tuning condenser at maximum capacity.

## COIL AND TRANSFORMER RESISTANCES

VK-469-60	L8 B.C. AERIAL	Primary	36 ohms
		Secondary	4.4 ohms
		Primary	0.5 ohms
VK-469-61	L7 SW1 AERIAL	Secondary	0.465 ohms
		Primary	0.33 ohms
		Secondary	0.125 ohms
VK-469-61	L6 SW2 AERIAL	Tap	0.53 ohms
		Primary	0.23 ohms
		Secondary	0.043 ohms
VK-473-16	L5 B.C. TRANSLATOR	Tap	0.0275 ohms
		Primary	80 ohms
		Secondary	4.4 ohms
VK-473-16	L4 SW1 TRANSLATOR	Primary	0.5 ohms
		Secondary	0.465 ohms
		Primary	1.3 ohms
VK-473-17	L3 SW2 TRANSLATOR	Secondary	0.125 ohms
		Tap	0.055 ohms
		Primary	0.34 ohms
VK-471-40	L2 SW4 and SW5 TRANSLATOR	Secondary	0.043 ohms
		Tap	0.0275 ohms
		Tuned	4 ohms
VK-471-40	L13 B.C. OSCILLATOR	Feedback	1.1 ohms
		Tuned	0.242 ohms
		Feedback	0.7 ohms
VK-471-41	L12 SW1 OSCILLATOR	Tuned	0.034 ohms
		Feedback	0.35 ohms
		Tuned	0.031 ohms
VK-471-41	L11 SW2 OSCILLATOR	Feedback	0.35 ohms
		Tuned	0.022 ohms
		Feedback	0.28 ohms
VK-476-36	L10 SW3 OSCILLATOR	Primary	7.4 ohms
		Secondary	4.5 ohms
		Coupling	0.5 ohms
VK-660-00	L9 SW4 OSCILLATOR	Each winding	7.25 ohms
		Tap	4.4 ohms
		Primary	0.22 ohms
VK-670-88	T1 Intermediate frequency filter	Secondary	2.75 ohms
		Primary	170 ohms
		Secondary	0.4 ohms
VK-603-76	T2 Intermediate frequency filter	Primary	17.5 ohms
		Secondary	83 ohms } 160 ohms
		Filament	77 ohms } ohms
VK-603-76	T3 Audio input transformer	Secondary	0.065 ohms
		Primary	
		Secondary	
VK-603-76	T4 Audio output transformer	Primary	
		Secondary	
		Filament	
VK-603-76	Power transformer	Primary	
		Secondary	
		Filament	