

**CONFIDENTIAL —**



**SERVICE INFORMATION**



**Model SH.25**  
FOR A.C. & D.C. MAINS

*For the Information of Ekco  
Registered Factors and Registered  
Dealers ONLY*

NOT TO BE COPIED

*or disclosed to any third party*

## GENERAL NOTES

### THE CIRCUIT

The signal is first fed through a band-pass filter consisting of two tuned circuits, the frequency of which is controlled by two sections of the gang condenser. It is then fed to the grid of the first detector, which is negatively biased by a 4000 ohm resistance to act as an anode bend detector. A small pre-set condenser connected between aerial and first detector grid is provided to minimise second channel interference. Even after the wanted signal has been tuned by the input filter, a small signal from an unwanted powerful station may be present. An equal and opposite signal is fed to the grid by the pre-set condenser and cancels the small remaining signal, so that only the wanted signal reaches the grid. The oscillator valve is arranged to generate oscillations at a frequency of 110 Kilocycles above that of the required signal, when it appears at the anode of the first detector. The signal, when it appears at the anode of the first detector, has been mixed with the oscillator frequency to produce the intermediate frequency and rectified. It is then passed to the grid of the variable-mu intermediate valve through an intermediate coupling tuned to 110 Kilocycles. The volume control varies the bias of this valve and reduces the aerial input simultaneously. The signal is fed through another I.F. Transformer to the second detector which is operated as a leaky-grid detector. The anode circuit is provided with a high note filter, consisting of an iron cored choke and two .001 mfd condensers. The intervalve transformer is parallel-fed with a resistance of 50,000 ohms. The auxiliary grid of the pentode is fed direct from the main H.T.+. This gives a stronger high note response compensating for the high note loss sustained in the earlier stages of the receiver.

In addition to the foregoing the following devices are included: —

- (a) **110 K.C. Rejector.** This constitutes an inductance shunted by a condenser to tune to 110 K.C. It is included in the aerial circuit and rejects all signals in the neighbourhood of 110 K.C. (—2700 metres). Several commercial transmitters work on or about this wavelength and would otherwise break through the input filter and cause interference.
- (b) **Local Distant Switch.** This is an arrangement which shunts the I.F. filter primary with a 4,000 ohm resistance at will. In flattening the tuning and reducing the sensitivity of the receiver, it allows full reception of the side bands, thus providing superior quality reproduction of local transmissions.
- (c) **External Loud Speaker Sockets.** These provide a connection across the output transformer primary.
- (d) **Gramophone Pick-up Sockets.** When these sockets are in use the switch is turned to the "Gram" position and the bias on the second detector valve is altered to provide correct working conditions.
- (e) **The Long Wave Pointer** is provided with an adjustment to facilitate calibration on the long wave band.
- (f) **Tone Control Switch.** This is arranged to switch a condenser of .01 mfd. capacity, from the junction of the whistle choke with the feed resistance, to earth thereby lowering the cut-off frequency of the filter.

**IN NO CIRCUMSTANCES MUST ANY ATTEMPT BE MADE TO ALTER THE SETTINGS OF ANY PRE-SET CONDENSERS ON THIS RECEIVER, WITH THE SOLE EXCEPTION OF THE CONDENSER OF WHICH THE CONTROL KNOB CAN BE REACHED THROUGH THE SPECIALLY CUT HOLE IN THE METAL BASEBOARD.**

**INTERFERENCE WITH ANY OTHER CONDENSER WILL CAUSE THE RECEIVER TO LOSE ITS SENSITIVITY AND SELECTIVITY, AND IT WILL THEN HAVE TO BE RE-GANGED ON A SPECIAL OSCILLATOR.**

### TO REMOVE RECEIVER FROM CABINET

Turn the receiver upon its side, when six cheese-head screws will be visible on the bottom of the cabinet, two each side, and two in front. These should be unscrewed (anti-clockwise), and removed.

Stand the receiver upright again and remove the back and knobs. Undo the hexagon nut holding the mains switch, and push switch back into chassis.

Undo the four dome headed bolts holding the metal grille in position, and remove grille. This will shew four countersunk bolts, which should be undone (anti-clockwise) and removed. The cabinet may now be removed by standing it in front of the receiver and pulling it towards you, as the chassis stands upon four rubber feet which lift it well clear of the bench.



# Approved Valves for use

## on this Receiver

(D.C. MODEL)

1st Detector	...	Marconi or Osram	DSB
Oscillator	...	" " "	DH
V.M.I.F.	...	" " "	VDS
2nd Detector	...	" " "	DH
Output	...	" " "	DPT

### S.H. 25 D.C. AVERAGE READINGS & CONSTANTS

#### Volume Control

Total resistance 7,200-8,800 ohms  
Residual resistance at maximum setting :  
—98-162 ohms

#### Switch Contacts.,

Resistance of switch contact at any point of the receiver must not exceed 1 ohm.

Loudspeaker Field. 114-125 ohms.

110 K.C. Aerial Filter 9.5 ohms approx.

#### Band Pass Coils

M.W. Primary 2 ohms approx.  
M.W. Secondaries 2.5-3 ohms approx  
L.W. Primary 9-10 ohms approx  
L.W. Secondaries 13-14 ohms approx.

Local-Distant Resistance 4,000 ohms

Gramophone Bias Resistance 475-525 ohms.

#### Oscillator Cathode Resistance

Rated 600 ohms 540-660 ohms

Whistle Choke 340 ohms approx.

#### Intervalve Transformer

Primary 460 ohms approx.  
Secondary 5,000 ohms approx.

#### Oscillator : Anode Coil

M.W. 4.2 ohms approx.  
L.W. 7 ohms approx.

Grid Coil 3.5 ohms approx

#### Output Transformer Primary

Magnavox 400 ohms approx.

#### Intermediate Transformers

Windings are identical 150 ohms approx.

Mains Consumption Input 230v to 220/230 tap : Total mains consumption 285 ma.  
Filament consumption 250 m/a.

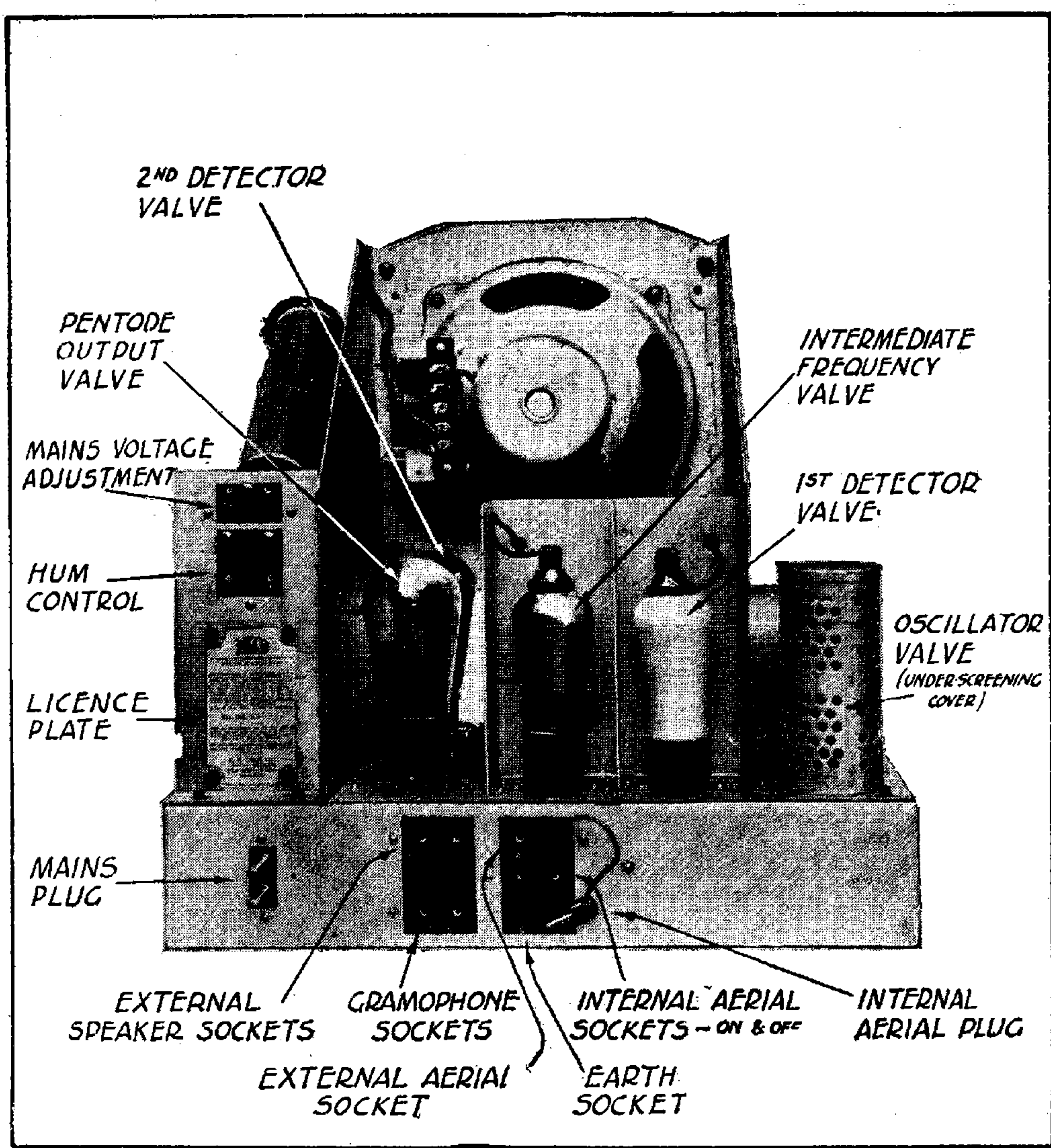
#### H.T. Readings

Pentode Anode	160 volts
Auxiliary Grid	170 "
Second Det : Anode (Radio)	65 "
ditto (Gram)	75 "
Oscillator anode to cathode M/W	22 "
ditto L/W	32 "
1st Det : & I.F. Anodes	130/150 "
" " Screens	55/65 "
" Bias M.W. and L.W.	6 volts—4 "
I.F. Bias (min./max.) Volume Control)	1 volt to 21 "

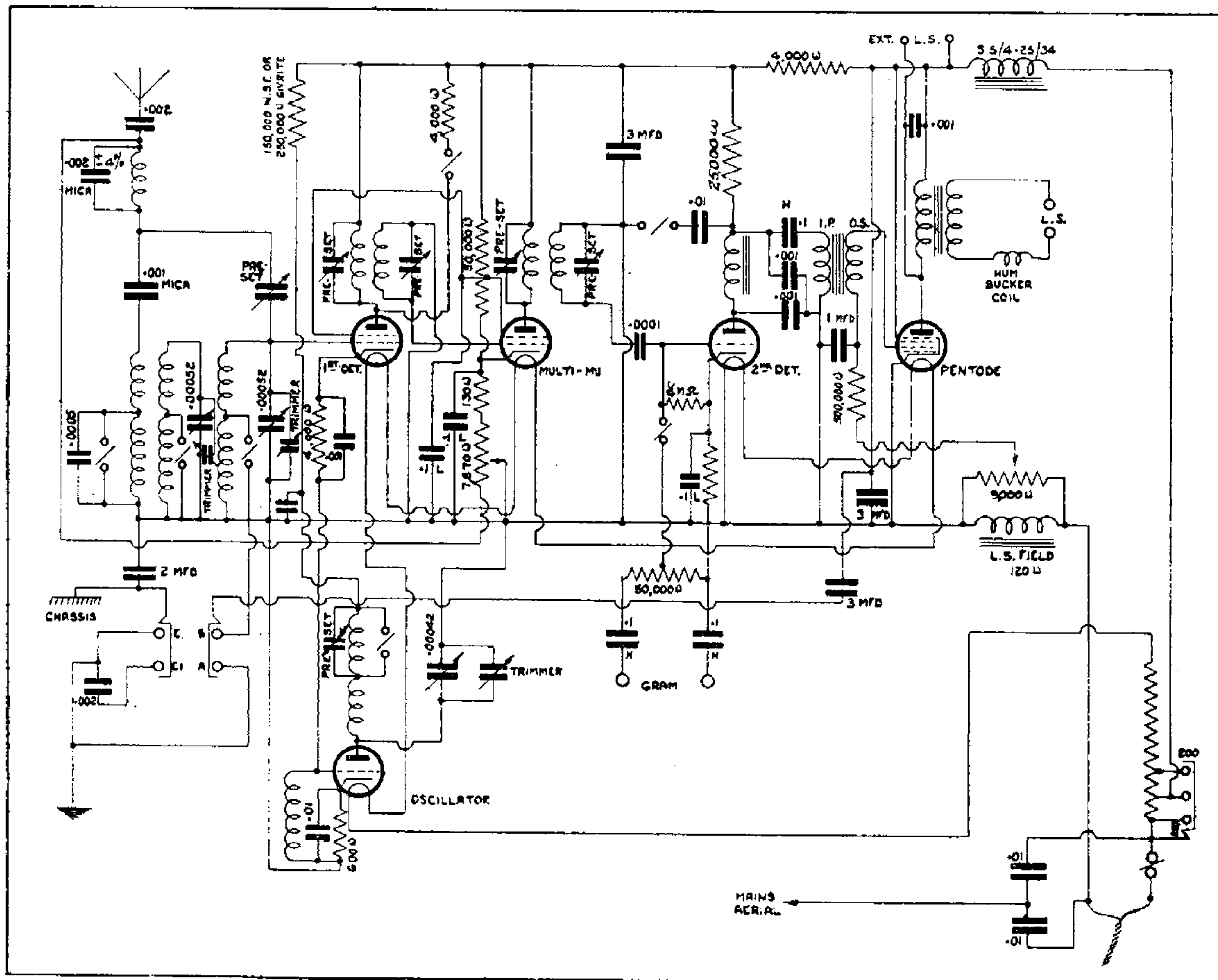
#### Grid Bias

Pentode	10.0 volts
Gramophone	2.0 "
Oscillator M/W	1.1 "
" L/W	0.7 "

All anode voltages measured from H.T. negative, and not chassis.



Chassis of the Ekco 5 valve Super Heterodyne Receiver for D.C. mains

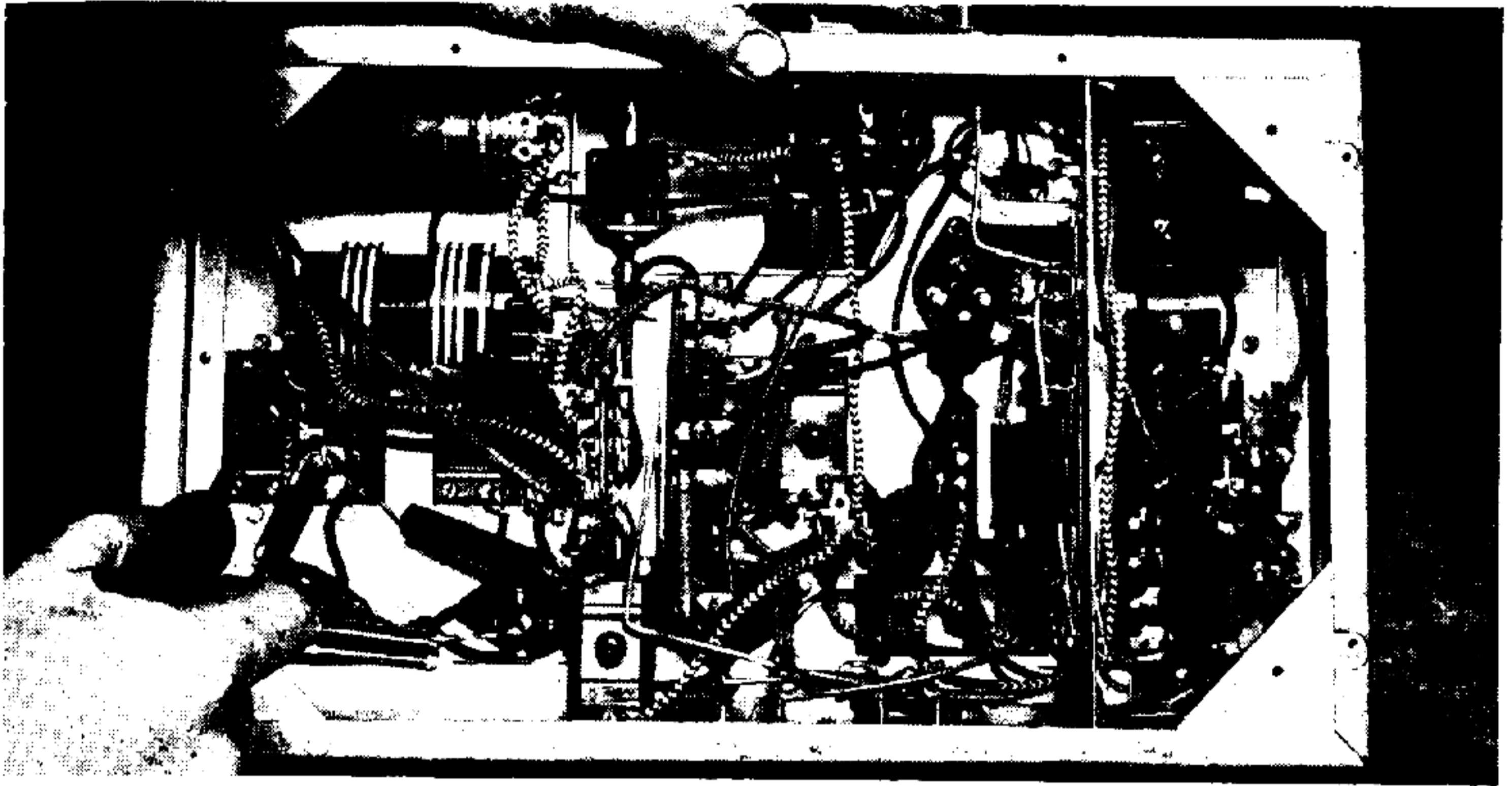


# PRICE LIST OF SPARES OF MODEL SH.25

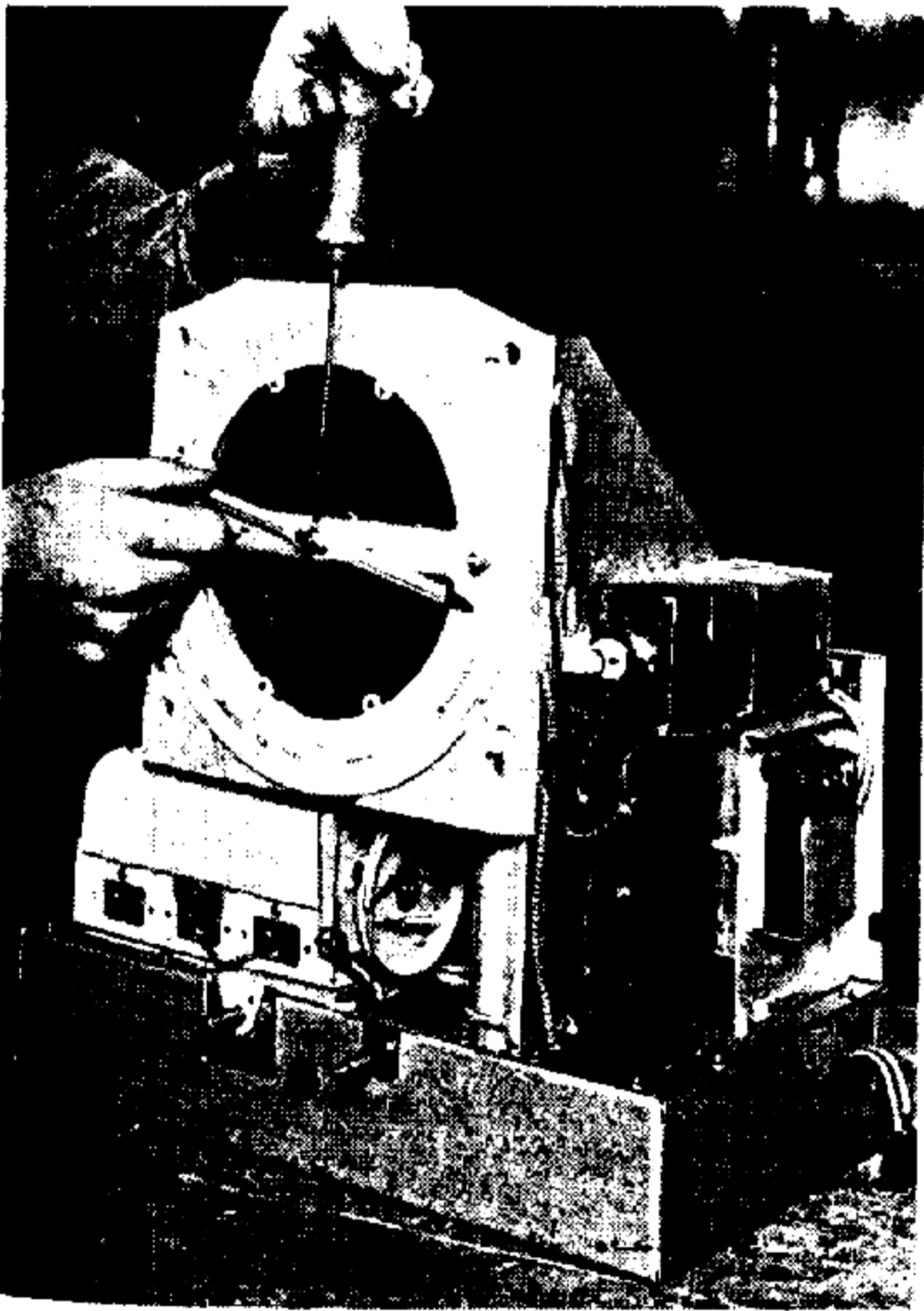
COMPONENT	PART NO.	PRICE
<b>CHOKES</b>		
Filter	CP2550	4/6
High Frequency		3/6
Low Frequency	CP2705	10/6
Whistle	CP2532	7/-
<b>COILS.</b>		
Band Pass Medium Wave	CP2588	5/6
Band Pass Long Wave	CP2587	5/6
I.F. 1st Stage	CP2545	5/6
I.F. 2nd. Stage	CP2546	5/6
Oscillator	CP2558	5/6
<b>CONDENSERS</b>		
<b>Block.</b>		
AC Large	T8	14/-
DC Small	T8	8/-
AC or DC	B14B or T14B	10/6
<b>Electrolytic.</b>		
T.C.C.	P2073	12/6
<b>Fixed.</b>		
.0001 T.C.C.		9d.
.0002 ..		9d.
.0003 ..		9d.
.0005 ..		9d.
.004 ..		9d.
.1N.I. ..		1/-
<b>KNOBS.</b>		
Per Set		5/-
<b>LEADS.</b>		
Mains		3/6
<b>MOTORS.</b>		
Gramophone RG25 AC		£2/10/-
<b>PLUGS.</b>		
Red or Black	CP1643	2d.
<b>RESISTANCES.</b>		
Mains DC	CP6288	7/6
1 Megohm New type	P2071	1/-
2 Megohm New type	---	1/-
600 ohm	---	1/-
2800 ohm Carbon with clip	---	9d.
500000 ohm Carbon SH25		
AC	---	1/-
25000 ohm Carbon or		
N.S.F. SH25 AC	---	9d.
250000 ohm Carbon SH25		
AC	---	1/-
100000 ohm Carbon SH25		1/-
4000 ohm N.S.F. SH25		9d.
50000 ohm Carbon SH25		9d.
1000 ohm Carbon SH25		9d.
Volume Control 8000 ohms		
SH.25	P2616	7/6d.
<b>SPEAKERS</b>		
Complete AC		35/-
Complete DC		35/-
<b>SWITCHES.</b>		
Nickel or Oxy. Mains Snap	P1538	1/9d.
<b>TRANSFORMERS</b>		
Intervalve	CP2531	10/6d.
Mains	CP2538	30/-

PRICES SHEWN ABOVE ARE SUBJECT TO 30% DISCOUNT TO EKCO REGISTERED FACTORS  
AND DEALERS ONLY.



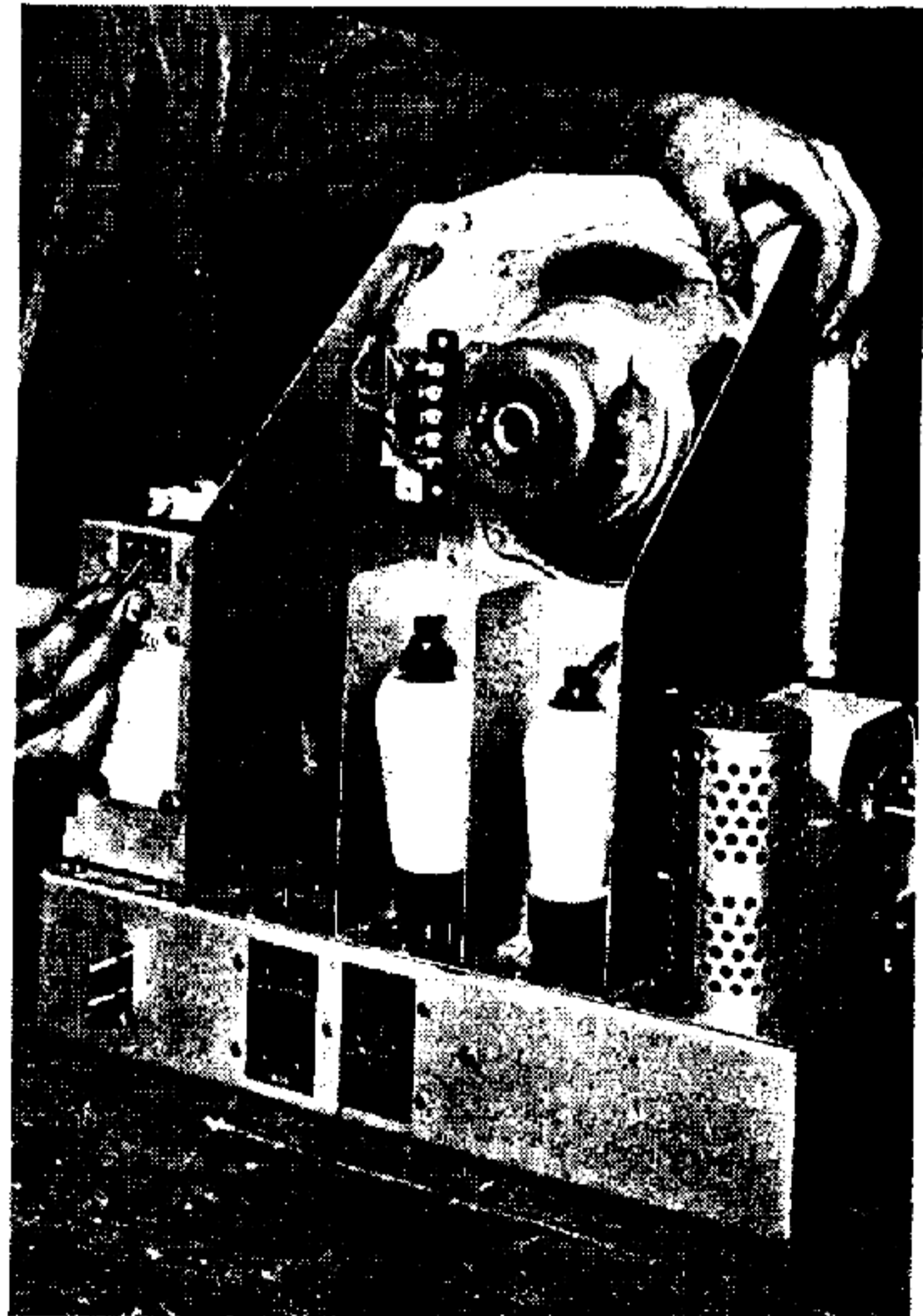


*Fig. 28.*—SETTING THE PRE-SET CONDENSER OF THE S.H.25 RECEIVER.  
This photograph also shows the general appearance of the base.



*Fig. 29.*—SHOWING THE METHOD OF TIGHTENING THE POINTER INDICATOR OF THE S.H.25 RECEIVER.

It will be seen that two screws are provided for this purpose. The pointer is held firm while these screws are tightened up.



*Fig. 30.*—SETTING THE MAINS CONTACT SCREW TO UNIT SUPPLY VOLTAGE.

\*This is the method employed in all Ekco receivers. Three variations in voltage are provided, *i.e.*, 200-210, 220-230, and 240-250, and the screw is inserted in whichever voltage is required.