

VIDOR CN222

Three-valve, three-waveband, tuned radio-frequency universal receiver, with separate volume and reaction controls. Suitable for operation from 200-250v, 50-100 cycles AC or 200-250v DC. Marketed by Vidor, Ltd., West Street, Erith, Kent.

ALTERNATIVE aerial inputs are provided, via the aerial trimmer T1 for local reception or direct to the series aerial condenser C1 for distant reception.

On medium and long waves the aerial coupling coil L1 transfers the signal to the grid tuning coils L2 (MW) and L3 (LW), which are tuned by VC1 section of the ganged condenser.

On short waves L1 acts as a high impedance

coupling coil to pass the signals direct to the grid of the variable-mu HF pentode V1. This valve is cathode biased by the fixed resistance R1 and the volume control R3 with additional current flowing through the volume control from the high tension line via R2. The volume control is thus a sensitivity control varying the gain of V1.

From V1 the signals are passed to a tuned anode circuit comprising L4 and L5 tuned by VC2. Reaction is provided by the feed-back coil L6 and controlled by the variable condenser VC3.

On SW the tuning coil is L7 with the reaction coil L8.

The signals are fed to the HF pentode V2, which is employed as a leaky grid detector, R5 and C5 being the grid leak and condenser.

The audio frequency signals from V2 are HF filtered by the choke L9 and condensers C7 and C8.

AF potentials across R7 are capacity coupled by C9 to the grid of the output pentode valve V3 with R9 as the grid stopper and R8 the grid leak. V3 is cathode biased by R10, decoupled by C11.

Pentode tone correction is effected by C12 and the output from V3 is coupled to the energised moving coil loudspeaker by the matching transformer L10, L11. L12 is the speech coil and L13

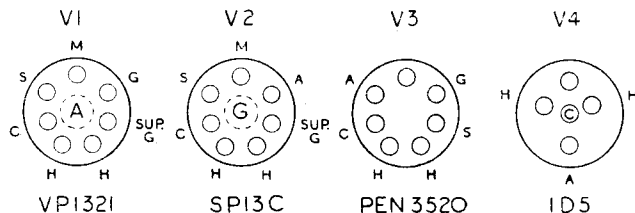
Continued overleaf.

VALVE READINGS

V	Type	Electrode	Volts	mA
1	VP1321	Anode	140	5.4†
		Screen*	140	4.3
		Cathode	1.1	6.9
2	SP13C	Anode	48	5
		Screen	32	15
		Cathode	170	40‡
3	PEN3520	Anode	170	8
		Screen	200	48†
		Cathode	6.6	62
4	ID5	Anode	250	
		Cathode	250	

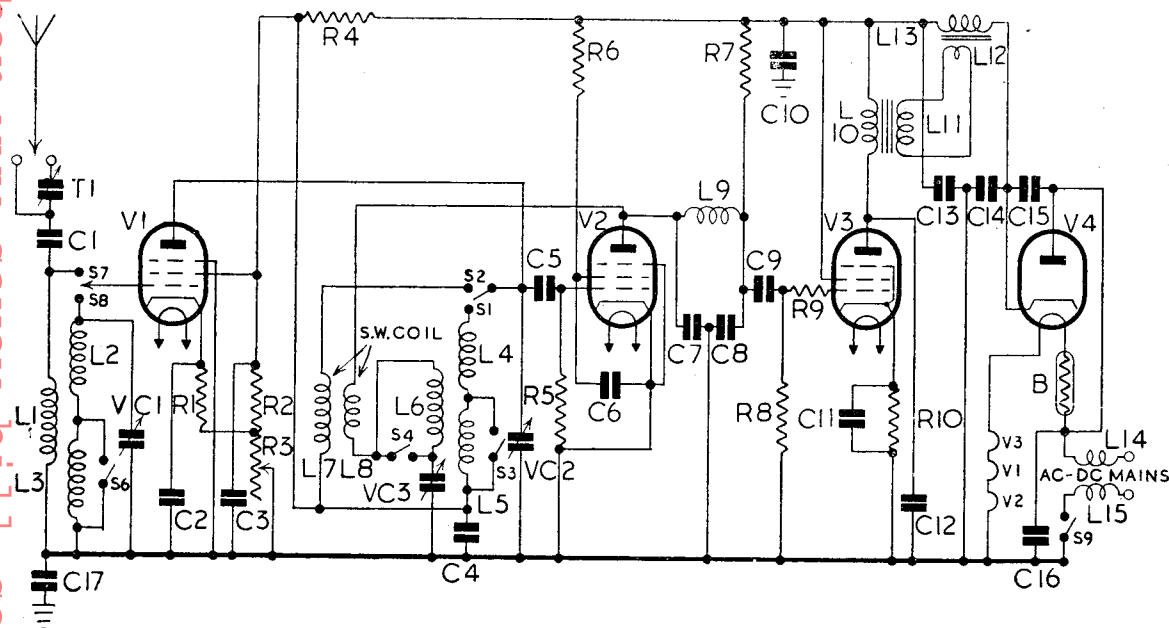
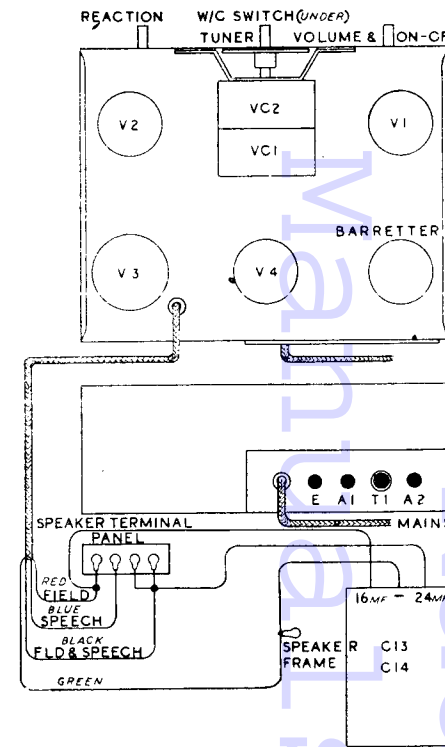
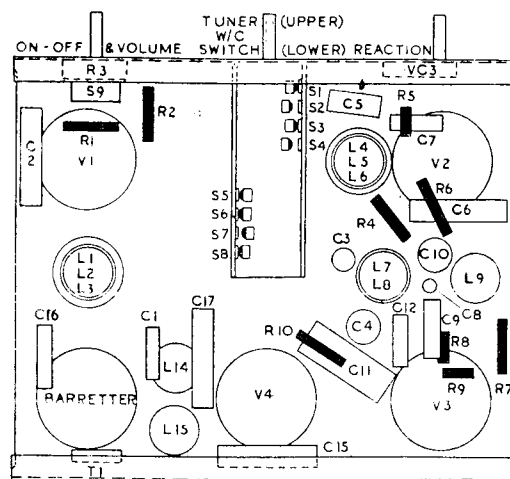
* Including drain through R2, R3.

† Varies with setting of R3.



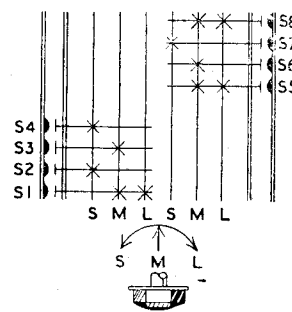
(Above): Details of the underside of the chassis and (right) drawings which show the general arrangement and identify speaker connections.

(Left): Valve bases as seen with valves inverted and with pins coded to show electrode connections.



SWITCH DIAGRAM

X = CONTACTS CLOSED



This is a straight three receiver plus half-wave rectifier for operation from AC or DC supplies and is a good example of conventional design. Wave-switching sequence is given by the diagram above.

CAPACITORS

C	Mfd	C	Mfd
1	.0005	10	.5
2	.1	11	25
3	.1	12	.005
4	.8	13	24
5	.0001	14	16
6	.1	15	.02
7	.0001	16	.01
8	.0002	17	.02
9	.01		

RESISTORS

R	Ohms	R	Ohms
1	150	6	750,000
2	50,000	7	250,000
3	10,000	8	250,000
4	5,000	9	100,000
5	1 meg	10	150

WINDINGS

L	Ohms	L	Ohms
1	3.7	9	165
2	2.2	10	700
3	22	11	.5
4	2.2	12	2.4
5	22	13	820
6	3.7	14	6
7	.05	15	6
8	.25		

EKCO A21—Continued

both small tags while the other end is fitted over the hook in the drive wheel.

With the gang fully open the pointer should coincide with the datum line. Any slight error not exceeding a half an inch either way can be corrected by loosening the drive wheel on the gang shaft and moving until the pointer is correct. Tighten grub screws on the drive wheel.

ALIGNMENT INSTRUCTIONS

Apply Signal as Below.	Tune Receiver to (metres)	Adjust in Order stated for Max. Output.
(1) 477 KC between V1 grid and chassis via .02 mfd condenser, leaving existing lead connected	MW 560	T23, T27, T26, T25
(2) 477 KC between aerial and earth	MW 560	T1 for min.
(3) 15 MC between aerial and earth via dummy aerial	SW 20	T24
(4) As in (3)	SW 21.4	This is the "image" signal and is useful for checking calibration with (3)
(5) 1,200 KC between aerial and earth via dummy aerial	MW 250	T22, T19
(6) 1,304 KC as in (5)	MW 230	T12
(7) 15 MC as in (3)	SW 20	T2
(8) 230.8 KC via an LW dummy aerial	LW 1,300	T23, T3
(9) 176.5 KC as in (8)	LW 1,700	T20, T6

Use of an output meter in parallel with speech coil is strongly recommended. An AC 0-100v meter of the universal type, not less than 20,000 ohms resistance, is suitable.

Pointer should coincide with 560 metres when the gang is fully meshed.

Turn volume and tone controls fully clockwise before trimming.

PUSH-BUTTON ADJUSTMENT

Remove escutcheon and detach trimming tool which is clipped to the back. Each button has its associated trimmer and coil immediately above and below it. Coverages are: button (1), 1430-1986 metres; (2) 1160-1640 metres; (3) 342-560 metres; (4) 267-450 metres; (5) 200-308 metres. Buttons are numbered left to right when facing front of receiver.

Fully unscrew the lower screw of button to be set. Turn volume to max. and wavechange to push-buttons (white). Press required button. Slowly rotate lower screw clockwise until desired station is received. Adjust upper screw to max. Adjust both for max. shadow on tuning indicator.

GEC 4650—Continued

Screen voltage for V2 is fed from R11 and R17 decoupled at the electrode by C13.

IFT2 primary consists of iron-dust coil L11 and trimmer T11. Secondary, L12, and trimmer T12, feed the signal to the detector and, via C15, to the AVC diode.

Signal diode load is R14; R13 and C16 provide IF filtering. C17 passes the AF voltages to the volume control R16 and hence to the triode grid. PU terminals are connected across R16.

AVC diode load is R15, a delay being obtained from R26. Cathode bias for V3 is provided by R19 decoupled by C20. Amplified AF voltages appear across the triode anode load R18. C19 provides fixed tone control and further IF filtering. Coupling to the output valve V4 is by C21 and C22 in parallel with R21. The latter two components are short circuited on SW by S7 to increase the overall sensitivity.

R20 is the usual grid resistor, R23 and C23 being fixed tone control. R24 provides cathode bias and negative current feedback is obtained by omitting the by-pass condenser. Screen supply is via a series resistance R22 which is not decoupled.

Output transformer primary L13 has C24 in parallel for treble cut and to even out the response. Provision is made for external speaker of the low impedance type by connections at the rear. The set speaker is of the permanent magnet type. Variable tone control is effected by C25 and R25.

Models BC4650 and BC4650L are identical with the exception of the mains transformer voltage range. The 320-0-320V winding L17 has its centre tap returned to earth via R26 to provide standing bias for V1 and V2. The 6.5V heater and dial light winding L19 is earthed on one side. A 5V rectifier heater winding L18 is used. Smoothing is accomplished by condenser input filter C27, choke L16 and C26.

DRIVE WIRE REPLACEMENT

Before the wire drive can be replaced it is necessary to remove the pointer, speaker and baffle. Place chassis with controls facing the operator, fully disengage gang condenser, move pointer drive wheel so that fixing screw at rear is at 9 o'clock as in diagram (see page iv).

Fasten one end of the wire under front securing screw (now at 8 o'clock) on tuning drive wheel, pass around groove in an anti-clockwise direction for a half-turn and then direct to and over the pointer drive wheel.

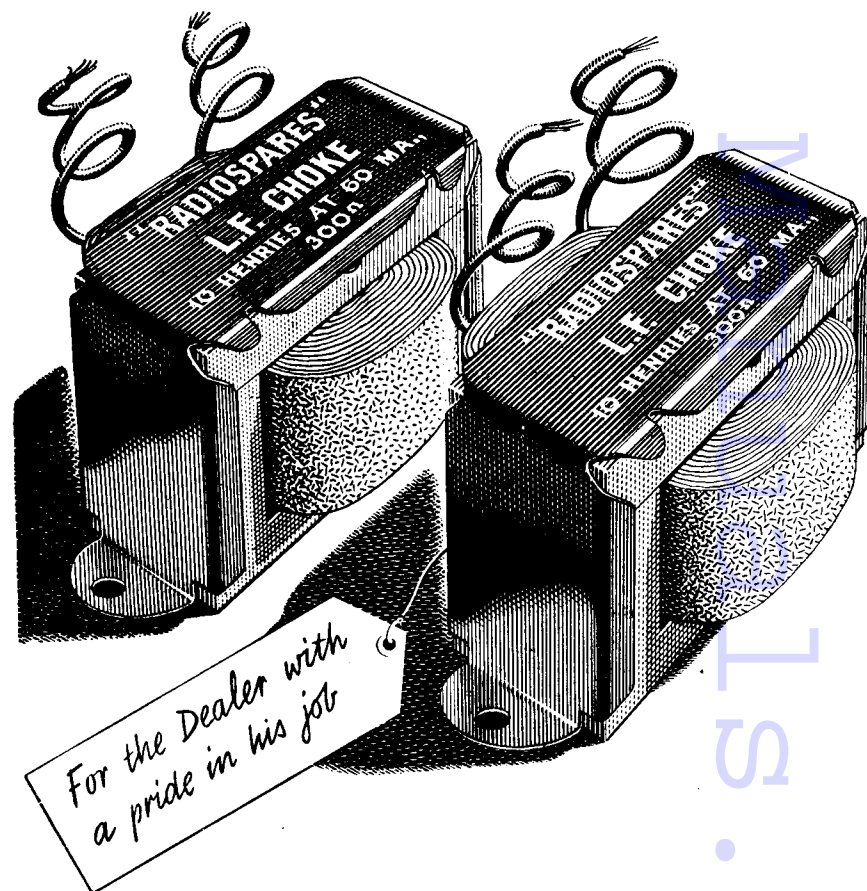
After making slightly more than a complete turn anti-clockwise, the wire is looped around the locating screw on the back of the pointer wheel and secured. Continuing in the groove in the same direction the wire is passed under the tuning drive wheel and along the groove in an anti-clockwise direction terminating under the head of the screw fixed at 10 o'clock on the rear of the wheel.

VIDOR CN222—Continued

the field winding which also acts as a smoothing choke.

On AC supplies high tension is derived from the mains via the half-wave rectifier V4 whose heater is in series with the other valve heaters in the usual way across the mains input.

Chokes L14 and L15 are provided for HF filtering.



We present our range of L.F. (Smoothing) Chokes. They are guaranteed quality components with the following general characteristics. WINDINGS: paper-interleaved, wax-impregnated. LAMINATIONS: high-mu alloy steel. OVERALL HEIGHT: 2 in. OVERALL WIDTH: 2 $\frac{3}{4}$ in. (fixing centres: 3 $\frac{1}{8}$ in.). OVERALL DEPTH: 1 $\frac{7}{8}$ in. (Stack only: 1 $\frac{1}{8}$ in.). They are available in two distinct types. (1) INDUCTANCE: 10 Henries, capacity: 60 M/a. RESISTANCE: 300 Ω . (2) INDUCTANCE: 40 Henries, capacity: 30 M/a. RESISTANCE: 1250 Ω . The price of both types is 6/9 each net trade; and they are obtained only direct from

Radiospares Ltd.

44 BIRCHINGTON ROAD, LONDON, N.W.6. TEL: MAIDA VALE 9386-7