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Under-chassis view. The core adjustments for L5 and the I.F. transformer coils L14, L17, are indicated here. Five more core adjustments and six pre-set capacitor trimmers are shown in the sketch of the tuning assembly at the foot of cols. 1 and 2 overleaf.



C28. Mains aerial connection via capacitor C26, which can be linked to aerial terminal A2.

DISMANTLING THE SET

Removing Chassis.—Remove the two front-panel control knobs (recessed grub screws); from the rear of the cabinet insert a long-bladed screwdriver and slacken the grub screws securing the extension spindles of the remaining control knobs (one on each side of the cabinet) and withdraw the knobs complete with spindles; from the underside of the cabinet remove the four round head bolts (with metal washers); when the chassis and speaker may be withdrawn as a single unit.

COMPONENTS AND VALUES

RESISTORS		Values (ohms)	OTHER COMPONENTS		Approx. Values (ohms)
R1	V1 hept. C.G. resistor	1,000,000	L1	Aerial I.F. rejector coil	6-5
R2	V1 fixed G.E. resistor	270	L2	Aerial S.W. coupling coil	0-2
R3	V1 osc. C.G. resistor	33,000	L3	Aerial M.W. coupling coil	1-6
R4	V1 osc. S.W. stabiliser	1F	L4	M.W. harmonic rejector	1-7
R5	V1 osc. anode H.T. feed	47,000	L5	Aerial S.W. tuning coil	Very low
R6	V1, V2 S.G.'s H.T. feed	25,000	L6	Aerial M.W. tuning coil	2-7
R7	I.F. stopper	47,000	L7	Aerial L.W. tuning coil	16-0
R8	V3 signal diode load	1,000,000	L8	Osc. S.W. reaction coil	0-1
R9	Manual volume control	500,000	L9	Osc. M.W. reaction coil	1-5
R10	V3 triode C.G. stopper	47,000	L10	Osc. L.W. reaction coil	Very low
R11	V3 G.B.; A.V.C. delay	470	L11	Osc. S.W. tuning coil	1-6
R12	V3 triode H.T. decoupling	25,000	L12	Osc. M.W. tuning coil	1-9
R13	V3 triode anode load	47,000	L13	Osc. L.W. tuning coil	6-0
R14	A.V.C. line decoupling	1,000,000	L14	1st I.F. trans. { Pri. ...	15-0
R15	V2 C.G. decoupling	1,000,000	L15	{ Sec. ...	15-0
R16	V3 A.V.C. diode load	470,000	L16	2nd I.F. trans. { Pri. ...	15-0
R17	resistors	470,000	L17	{ Sec. ...	15-0
R18	V4 C.G. resistor	470,000	L18	Speaker speech coil	2-0
R19	V4 C.G. stopper	47,000	L19	H.T. smoothing choke	270-0
R20	V4 G.B. resistor	180	T1	Output trans. { Pri. ...	230-0
R21	Variable tone control	50,000	{ Sec. ...	0-4	
			T2	Mains trans. { Pri., total ...	26-0
			{ Heater sec. ...	0-1	
			{ Rect. heat. sec. ...	0-1	
			S1-S2	Waveband switches	430-0
			S28	Mains switch, ganged R9...	

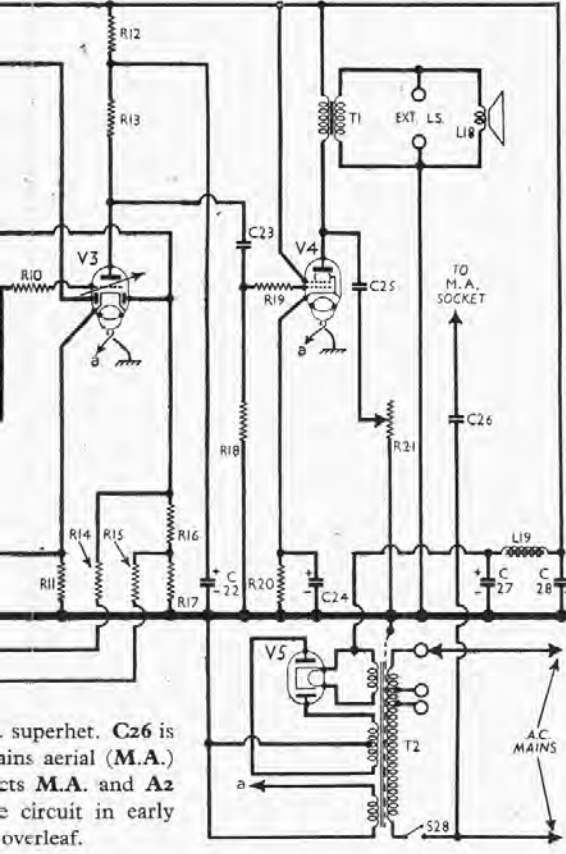
CAPACITORS

	Values (µF)
C1	Aerial series ... 0-00005
C2	I.F. rejector tuning ... 0-0005
C3	V1 hept. C.G. capacitor ... 0-0005
C4	A.V.C. line decoupling ... 0-1
C5	1st I.F. transformer fixed tuning capacitors ... 0-00015
C6	{ 0-00015
C7	V1 cathode by-pass ... 0-1
C8	V1 osc. C.G. capacitor ... 0-0001
C9	Osc. M.W. fixed tracker ... 0-00056
C10	Osc. L.W. fixed tracker ... 0-00015
C11	Osc. L.W. fixed trimmer ... 0-000082
C12	V1 osc. anode coupling ... 0-0001
C13	V2 C.G. decoupling ... 0-1
C14	V1, V2, S.G.'s decoupling ... 0-1
C15	2nd I.F. transformer fixed tuning capacitors ... 0-00015
C16	{ 0-00015
C17	I.F. by-pass capacitors ... 0-0001
C18	{ 0-0001
C19*	V3 cathode by-pass ... 50-0
C20	V3 A.V.C. diode coupling ... 0-0001
C21	A.F. coupling capacitor ... 0-1
C22*	V3 triode H.T. decoupling ... 4-0
C23	A.F. coupling to V1 C.G. ... 0-1
C24*	V4 cathode by-pass ... 50-0
C25	Part variable tone control ... 0-05
C26	Mains aerial coupling ... 0-00005
C27*	H.T. smoothing capacitor ... 16-0
C28*	{ 16-0
C29†	Aerial circ. S.W. trimmer ... 0-00007
C30†	Aerial circ. M.W. trimmer ... 0-00007
C31†	Aerial circ. L.W. trimmer ... 0-00007
C32†	Aerial circuit tuning ... 0-00007
C33†	Osc. circ. S.W. trimmer ... 0-00007
C34†	Osc. circ. M.W. trimmer ... 0-00007
C35†	Osc. circ. L.W. trimmer ... 0-00097
C36†	Oscillator circuit tuning ... 0-00097

VALVE ANALYSIS

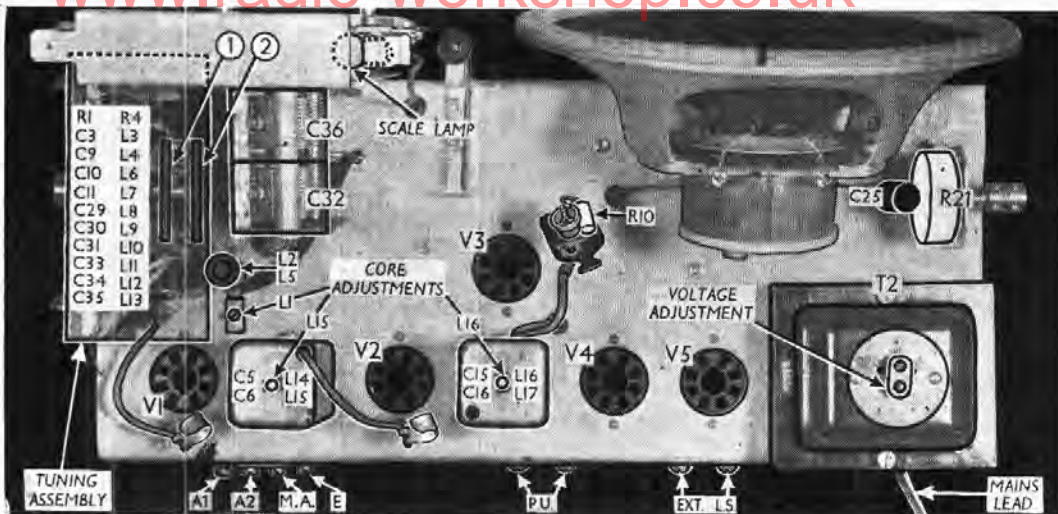
Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 229V, using the 220-230V tapping on the mains transformer. The receiver was tuned to the lowest wavelength on the M.W. band, and the volume control was at maximum, but there was no signal input. Voltages were measured on the 400V scale of a model 7 Avometer, chassis being the negative connection.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 TH41	272	1-0	87	0-8
	76	3-6		
V2 VP41	272	4-6	87	1-1
V3 HL42DD	67	2-7		
V4 PEN45	262	41-0	272	0-4
V5 U6	267†			



* Electrolytic. † Variable. ‡ Preset. † Each anode, A.C.

Plan view of the chassis. All the components contained in the tuning assembly are listed here in two columns but their positions are shown in the left-hand sketch of the tuning assembly at the foot of cols. 1 and 2. Detailed diagrams of the two waveband switch units, drawn as seen in the same sketch, are given at the top of col. 1.



screws are slackened. Transfer "live" signal generator lead to top cap of V1.

M.W.—With set still switched to M.W., tune to 550 m on scale, feed in a 550 m (545 kc/s) signal, and adjust the core of L12 for maximum output. Tune to 200 m on scale, feed in a 200 m (1,500 kc/s) signal, and adjust C34 for maximum output. Repeat these adjustments until correct calibration is maintained.

L.W.—Switch set to L.W., tune to 2,000 m on scale, feed in a 2,000 m (1,500 kc/s) signal, and adjust the core of L13 for maximum output. Tune to 1,000 m on scale, feed in a 1,000 m (300 kc/s) signal, and adjust C35 for maximum output. Repeat these adjustments until correct calibration is maintained.

S.W.—Switch set to S.W., tune to 50 m on scale, feed in a 50 m (6 Mc/s) signal, and adjust the core of L11 for maximum

output. Repeat these adjustments until no increase in sensitivity can be obtained.

L.W.—Switch set to L.W., tune to 2,000 m on scale, feed in a 2,000 m signal, and adjust the core of L7 for maximum output. Tune to 1,000 m on scale, feed in a 1,000 m signal, and adjust C31 for maximum output. Repeat these adjustments until no increase in sensitivity can be obtained.

S.W.—Switch set to S.W., tune to 40 m on scale, feed in a 40 m (7.5 Mc/s) signal, and adjust the core of L5 for maximum output. Tune to 16 m on scale, feed in a 16 m (18.75 Mc/s) signal and adjust C29 for maximum output, choosing the peak involving the greater trimmer capacitance. Repeat these adjustments until no increase in sensitivity can be obtained. Finally, seal all adjustments with a cellulose fixative.

adjust C30 for maximum output. Repeat these adjustments until no increase in sensitivity can be obtained.

The cord goes anti-clockwise for nearly a complete circle round the drum and enters the groove slot. Inside the drum, it is tied to a tag (it is like a 4BA soldering tag) and the tag ring is slipped on to the anchor tag in the drum face. A more convenient fit is obtained if the tag goes on to the anchor before the spring.

Finally, attach the cursor bar lightly to the two outer (vertical) strands of the cord, and

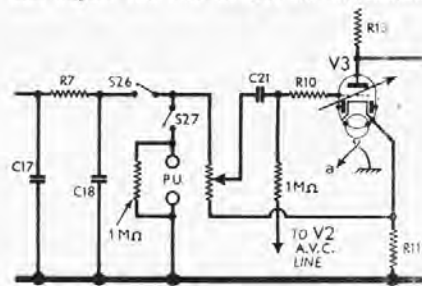


Diagram showing the diode circuit used in early chassis, when the volume control acted as the signal diode load resistor. The triode section is controlled from the A.V.C. line.

output. Tune to 16 m on scale, feed in a 16 m (18.75 Mc/s) signal and adjust C33 for maximum output, choosing the peak involving the lesser trimmer capacitance. Repeat these adjustments until satisfactory calibration is obtained.

R.F. Stages.—Transfer "live" signal generator lead to A2 socket.

M.W.—Switch set to M.W., tune to 500 m on scale, feed in a 500 m (600 kc/s) signal, and adjust the core of L6 for maximum output. Tune to 230 m on scale, feed in a 230 m (1,300 kc/s) signal, and

DRIVE CORD REPLACEMENT

Fifty inches of Cutty Hunk twine, "Swan" brand Grade O, of tubular cross-section, non-stretching and with a breaking strain of 30lb, is used for the drive cord. Replacement lengths can be obtained from the manufacturers of the receiver.

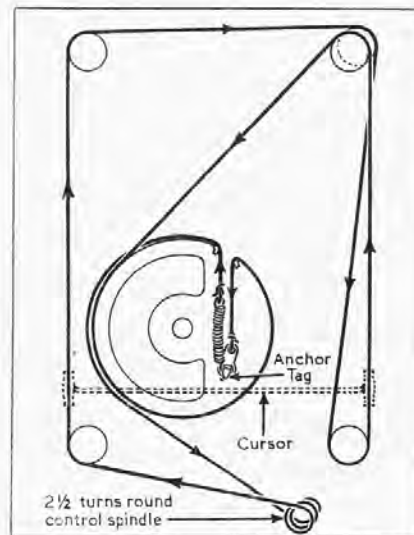
To obtain access to the drive system, the transparent plastic scale panel and its black backing plate must be removed, and before this can be done, the light mask, which forms a box-like cover at the top of the assembly and the scale lamp, must be removed (two round-head set-screws with lock-washers at the back of the assembly).

Warning.—When removing the light mask, do not remove its fixing screws; they need only be slackened, and the mask can be lifted off. If they are removed, and the scale is also removed, the drive cord suspension will collapse.

Having tightened these two screws, remove the four round-head set-screws (with lock-washers) holding the four corner-clamps to the scale panel, then lift away the scale and ease out the backing plate from behind the cursor bar (if in position). The drive system is then exposed as depicted in the sketch in col. 6, where it is drawn as seen from the front of the chassis when the gang is at maximum.

To fit the cord, tie one end securely to one end of the tension spring, and pass the free end of the cord through the groove slot in the rim of the drive drum, so that the spring is inside the drum, and hook the free end of the spring to the anchor tag.

Run the cord anti-clockwise round the drum for about half a turn, then under the control spindle, round the spindle waist 2½ turns, under the left-hand bottom pulley, over the top left



Sketch of the cord drive tuning drive system, drawn as seen from the front of the chassis when the gang is at maximum. Both ends of the cord are anchored to the same tag.

slide it approximately to where we show it in our sketch. Then, after replacing the scale fittings, check that the gang is at maximum, slide bar to a level position and see that it registers with the top of the black margin at the bottom of the scale panel, then pinch up the clamps firmly to the cord.