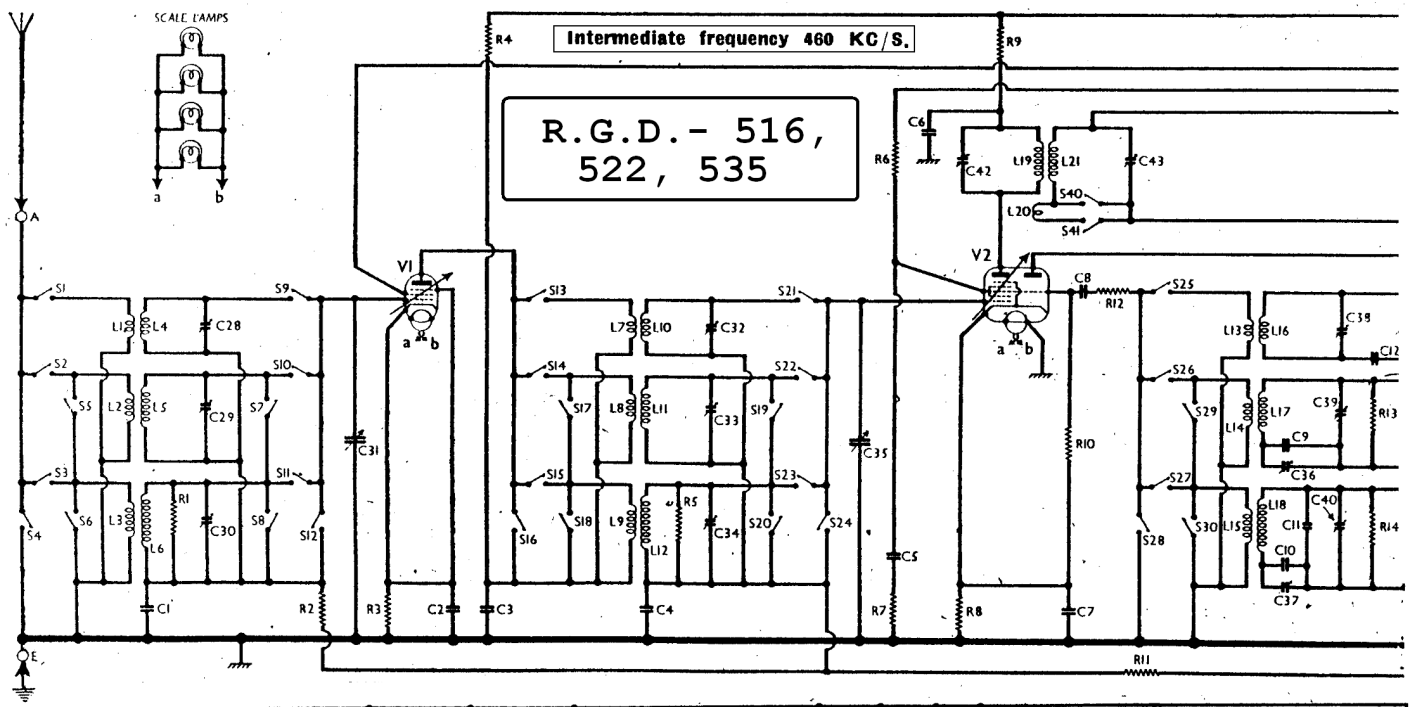


Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 VP4B	245	10·0	210	3·0
V2 AC/TH1	245	2·3	70	6·0
	Oscillator 80	5·9		
V3 VP4B	245	10·0	210	2·5
V4 AC/2 PenDD	255	34·0	265	6·5
V5 UU4	305†	—	—	—
	15	0·1		
T.I. TV4	Target 265	0·1	—	—

† Each anode, AC.

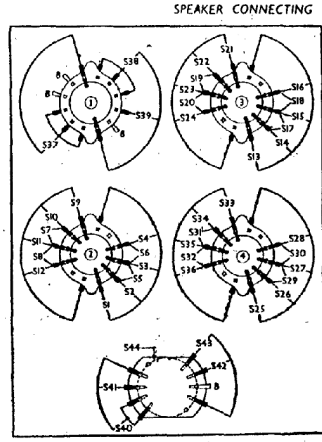
COMPONENTS AND VALUES

	CONDENSERS	Values (μF)
C1	V1 CG decoupling	0·04
C2	V1 cathode by-pass	0·1
C3	V1 anode decoupling	0·1
C4	V2 hept. CG decoupling	0·04
C5	V2 SG decoupling	0·04
C6	V2 hept. anode decoupling	0·1
C7	V2 cathode by-pass	0·1
C8	V2 osc. CG condenser	0·0001
C9	Osc. circ. MW fixed tracker	0·000485
C10	Osc. circ. LW fixed tracker	0·00011
C11	Osc. circ. LW fixed trimmer	0·000025
C12	Osc. circ. SW tracker	0·003
C13	AVC line decoupling	0·002
C14	V2 osc. anode coupling	0·0001
C15	V3 and T.I. CG decoupling	0·04
C16	V1, V3 SG's decoupling	0·1
C17	V3 anode decoupling	0·1
C18	V3 cathode by-pass	0·1
C19	LF by-pass	0·0002
C20*	V4 cathode by-pass	20·0
C21	Coupling to V4 AVC diode	0·00005
C22	AF coupling to V4 CG	0·004
C23	Tone control condensers	0·04
C24		0·02
C25	Fixed tone corrector	0·001
C26*	HT smoothing condensers	8·0
C27*		16·0
C28‡	Aerial SW trimmer	0·000025
C29‡	Aerial MW trimmer	0·00005
C30‡	Aerial LW trimmer	0·00005
C31‡	Aerial circuit tuning	—
C32‡	RF trans. SW trimmer	0·000014
C33‡	RF trans. MW trimmer	0·00005
C34‡	RF trans. LW trimmer	0·00005
C35†	RF trans. sec. tuning	—
C36‡	Osc. circuit MW tracker	0·00005
C37‡	Osc. circuit LW tracker	0·00005
C38‡	Osc. circuit SW trimmer	0·000014
C39‡	Osc. circuit MW trimmer	0·00005
C40‡	Osc. circuit LW trimmer	0·00005
C41†	Oscillator circuit tuning	—
C42‡	1st IF trans. pri. tuning	—
C43‡	1st IF trans. sec. tuning	—
C44‡	2nd IF trans. pri. tuning	—
C45‡	2nd IF trans. sec. tuning	—

* Electrolytic. † Variable. ‡ Pre-set.

	RESISTANCES	Values (ohms)
R1	Aerial LW damping	250,000
R2	V1 CG decoupling	100,000
R3	V1 fixed GB resistance	200
R4	V1 anode HT feed	2,000
R5	RF trans LW damping	250,000
R6	V2 SG HT feed	25,000
R7	V2 SG stabiliser	0·76
R8	V2 heptode fixed GB	160
R9	V2 hept. anode HT feed	5,000
R10	V2 triode CG resistance	50,000
R11	AVC line decoupling	100,000
R12	Osc. reaction stabiliser	100
R13	Osc. circuit MW damping	25,000
R14	Osc. circuit LW damping	50,000
R15	V2 osc. anode HT feed	40,000
R16	V1, V3 SG's HT feed	10,000
R17	V3 anode HT feed	2,000
R18	V3 fixed GB resistance	200
R19	IF stopper	100,000
R20	Manual volume control	500,000
R21	V4 pent. CG resistance	1,000,000
R22	V4 pent. anode stopper	60
R23	Tone control resistances	5,000
R24		2,000
R25	V4 fixed GB and AVC delay resistances	140
R26		400
R27	V4 AVC diode load resistances	500,000
R28		200,000
R29	V3 and T.I. CG's decoupling	1,000,000
R30	AVC line decoupling	1,000,000
R31	T.I. anode HT feed	2,000,000

	OTHER COMPONENTS	Approx. Values (ohms)
L1	Aerial SW coupling	2·0
L2	Aerial MW coupling	30·0
L3	Aerial LW coupling	70·0
L4	Aerial SW tuning	Very low
L5	Aerial MW tuning	4·5
L6	Aerial LW tuning	20·0
L7	RF trans. SW pri.	4·0
L8	RF trans. MW pri.	1·0
L9	RF trans. LW pri.	1·5
L10	RF trans. SW sec.	Very low
L11	RF trans. MW sec.	5·0
L12	RF trans. LW sec.	20·0
L13	Osc. SW reaction	0·2
L14	Osc. MW reaction	1·0
L15	Osc. LW reaction	2·5
L16	Osc. circ. SW tuning	Very low
L17	Osc. circ. MW tuning	3·0
L18	Osc. circ. LW tuning	9·0
L19	1st IF trans. Pri.	4·0
L20	1st IF trans. Coupling	0·2
L21	1st IF trans. Sec.	8·0
L22	2nd IF trans. Pri.	4·0
L23	2nd IF trans. Sec.	4·0
L24	Speaker speech coil	2·0
L25	Hum neutralising coil	0·3
L26	Speaker field coil	1,000·0
T1	Speaker input trans. Pri.	280·0
	Speaker input trans. Sec.	0·3
T2	Mains trans. Pri., total	19·0
	Mains trans. Heater sec.	0·05
	Mains trans. Rectheat. sec.	0·1
	Mains trans. HT sec., total	280·0
F1	Mains fuse, 1A	—
S1–S36	Waveband switches	—
S37–S39	Radio/gram change switches	—
S40, S41	Variable selectivity switches	—
S42, S43	Tone control switches	—
S44	Mains switch, ganged S40–S43	—



Diagrams of the five switch units, viewed in the directions of the arrows in the under-chassis view.

Switch	Position 1	Position 2	Position 3
S40	—	o	o
S41	o	o	—
S42	—	o	—
S43	—	—	o

Switch Table

Switch	Gram	LW	MW	SW
S1	—	—	o	o
S2	—	—	o	—
S3	o	—	—	—
S4	—	—	o	o
S5	—	—	o	o
S6	—	—	o	o
S7	—	o	—	—
S8	—	o	—	—
S9	—	o	—	—
S10	o	—	o	—
S11	—	—	o	—
S12	—	—	o	—
S13	—	o	—	—
S14	—	o	—	—
S15	—	o	—	—
S16	o	—	o	—
S17	—	—	o	—
S18	—	—	o	—
S19	—	—	o	—
S20	—	—	o	—
S21	—	—	o	—
S22	—	—	o	—
S23	—	o	—	—
S24	—	—	o	—
S25	—	—	o	—
S26	—	—	o	—
S27	o	—	o	—
S28	—	—	o	—
S29	—	—	o	—
S30	—	—	o	—
S31	—	—	o	—
S32	—	—	o	—
S33	—	—	o	—
S34	—	—	o	—
S35	o	—	o	—
S36	o	—	o	—
S37	o	—	o	o
S38	o	—	o	o
S39	o	—	o	o

R.G.D. - 516, 522, 535

535 MODIFICATIONS

In the 535 autoradiogram, the pick-up output is fed into the grid circuit of **V3**, which then operates as an AF amplifier. The screen grid acts as a triode anode, **R16** as the AF load resistance, and **C16** as the AF coupling condenser.

The lead from **S40-S41** is broken before it reaches **C15**, and one bank of an additional switch unit is inserted, closing on the three radio positions of the main control with which it is ganged. In the gram position, **S40, S41** lead is switched to the upper pick-up socket, the lower socket being connected directly to chassis. A 100,000 Ω resistance is shunted across the sockets. The pick-up is thus included in **V3** control grid circuit.

The moving contact in the second bank of the new switch unit is connected to the earthy side of **C16**, which is disconnected from chassis. In the three radio positions it is returned via the switch to chassis, but in the radio position it is connected to the outer tag of **S39**, shown connected to the upper pick-up socket in our circuit diagram. Thus it is handed on via **R20** and **C22** to the output valve **V4**. In addition, a 50 μF, 12 V electrolytic condenser is shunted across **V3** cathode by-pass condenser **C18**.

CIRCUIT ALIGNMENT

IF Stages.—Switch set to MW or LW, turn the gang to minimum, the volume control at or near to maximum, and the selectivity (tone) control to maximum selectivity (position 2). This last condition is very important. Connect signal generator leads to control grid (top cap) of **V3**, via LW dummy aerial, and chassis, feed in a 460 KC/S (652 m) signal, and adjust **C45** and **C44** for maximum output.

Transfer signal generator lead from **V3** top cap to control grid (top cap) of **V2**, via the same dummy aerial, and adjust **C43** and **C42** for maximum output. Readjust **C44** and **C45**, and then all four trimmers, until no improvement can be obtained.

RF and Oscillator Stages.—See that the scale fits squarely in its frame. The three alignment dots should lie on a vertical line up the centre of the scale panel, and the centre dot (in the "G" of RGD) should be truly concentric with the pointer fixing screw. The scale can be adjusted after the four clamping screws have been slackened. With the gang at maximum, the pointer should be vertical. Transfer signal generator leads, via a suitable dummy aerial, to **A** and **E** sockets.

LW.—Switch set to LW, tune to 800 m (195 m on MW scale, at last division marked), feed in a strong 800 m (375 KC/S) signal, and adjust **C40** until the signal is indicated in the output. Reduce signal generator output and readjust **C40** carefully. Adjust **C30** and **C34** for maximum output, and then repeat these adjustments until no improvement results.

Tune to 2,000 m on scale, feed in a 2,000 m (150 KC/S) signal, and adjust **C37** for maximum output while rocking the gang for optimum results. Now readjust **C40** at 800 m and **C37** at 2,000 m, checking **C40** finally when no improvement can be obtained.

MW.—Switch set to MW, tune to 220 m on scale, feed in a 220 m (1,360 KC/S) signal, and adjust **C39**, then **C33** and **C29**, for maximum output. Feed in a 550 m (546 KC/S) signal, tune it in, and adjust **C36** for maximum output while rocking the gang for optimum results. Readjust **C39** at 220 m and **C36** at 550 m, finally adjusting **C39** when no improvement can be obtained.

SW.—Switch set to SW, tune to 16.5 m (last point marked on left-hand SW scale), feed in a 16.5 m (18.2 MC/S) signal, and adjust **C38** until two settings are found to give an output indication. It is important to identify these positions and select that involving the lesser trimmer capacity. Adjust **C38** accurately, then **C32** and **C28**, for maximum output. If double-humped tuning is observed when adjusting **C32**, this is due to "pulling," and can be eliminated by setting **C32** at the minimum point between the humps, and then readjusting **C38** slightly for maximum output. It may be necessary to repeat the adjustments several times before the effect disappears. Finally, feed in a strong 16.5 m signal, and check that its image is received at about 17:4 m on the scale. Check calibration at 50 m (6 MC/S), where it should be accurate within ± 1 per cent.

Under no circumstances should the end vanes of the gang sections be adjusted.