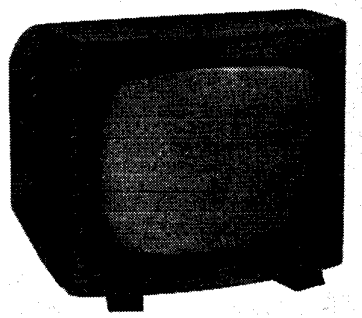
MASTERADIO

T917, T918

Seventeen-valve five-channel televison receiver with 17in. rectangular ion-trap tube giving 14¼ by 10⅝in. picture. Housed in walnut and black table cabinet. The model T918 is a console version. Suitable for 200-250V AC/DC. Manufactured by Masteradio, Ltd., 10-20 Fitzroy Place, London, NW1.



THE receiver incorporates a superheterodyne circuit operating on lower sideband of vision carrier. Channel selection is by retuning aerial, RF and oscillator coils.

RF and frequency-changer stages are common to both vision and sound. Vision interference and sound noise-suppression circuits are employed. EHT is derived from line flyback.

Mains consumption is approximately 170W.

Aerial input circuit is designed for 80ohm twin or coaxial feeder. Where it is not possible to instal an outside aerial, and where signal strength is sufficient, reception can be obtained by use of a mains aerial device provided by C56 C57. When a normal aerial is employed, the fly-lead from junction C56 C57 should be connected to Earth terminal. Feeder is isolated from chassis by C1 C2, R1 being a static drain resistor.

RF stage. Aerial voltage is fed, via C2 and IF filters L1 L2 C3, to tapped aerial coil L3 in grid circuit of RF amplifier V8, the gain of which is determined by **Sensitivity** control R4, which varies cathode voltage. Coupling of V8 to heptode mixer section of V9 is by tuned RF coils L4 L5 C6 and R9.

Oscillator tuned coil L6 goes from triode anode of V9 to grid via C10, with C11 and C12 connected across it. C11 has a negative temperature coefficient, while C12 is of silver mica; the two together stabilise the circuit, preventing oscillator drift. Automatic bias is developed on C10 with R11 as leak.

Vision Channel. A tuned bandpass transformer in V9 mixer anode feeds sound (23.75mc/s) and vision (19.25mc/s) IF's to their respective amplifiers.

First vision IF amplifier V13 is coupled by L9 in grid circuit, the gain of the valve being governed by R19, **Contrast** control, in the cathode. The control grid and cathode circuit is designed to preserve input response curve with change of gain.

Second IF amplifier V14 is coupled to V13 by IFT2, with L14 C16 forming sound IF rejector circuit. L15 L16 L17 comprise a bandpass transformer coupling to diode rectifier V5A, while an adjacent sound channel rejector is made up of L18 C19.

Rectified vision signal at cathode of V5A is DC coupled to grid of video amplifier V15, IF components being filtered by L19 C21. Output from V15 anode goes to CRT cathode via a low-frequency filter R34 C24 and a peaking coil L48.

Interference limiter diode V5B has its cathode connected to video anode, while its anode goes to R27, **Noise Limiter** which, with R26 R28, forms a potential divider network. When R27 is correctly adjusted diode remains at cut-off up to, and just above, peak white. Pulses of greater amplitude than peak white are short-circuited by C22.

Sound Channel. Sound IF signal from V9 anode is fed to grid of V10, first sound amplifier, by L10. Amplified signal voltage at anode is bandpass transformer coupled to second IF amplifier V11 by L32 L33 after which the signal goes to diode V6A via L34 L35 for demodulation.

Audio signal across R52 is fed via R53 C39 through noise suppressor diode V6B. When the cathode of this diode is in the "no signal" condition it is held at a potential determined by the potentiometer R54 R55. If a large negative interference pulse occurs at the anode, the diode becomes non-conducting and the cathode potential falls at a rate governed by the time constant R55 C40. **Volume** control R56 has its slider going to grid of V7, the beam tetrode AF amplifier; and the output from this valve is transformer coupled by OP1 to a 6½in. PM speaker L38.

Sync separator. Video signal at anode V15 goes via R32 C44 to grid of sync separator V16A. Positive sync pulses drive valve into grid current; the negative charge built up on C44 is sufficient to place video signal below cut-off and sync pulses appear at anode.

Frame sync pulses are integrated by R62 C46 in anode circuit of V16A and fed via C47 R67 to grid of triode frame clipper V4A, which operates with low anode voltage to provide short grid base, its grid being positively biased from R64 to give efficient clamping. Negative integrated frame sync pulses cut off V4A and its anode voltage rises to half the full HT line voltage. The sudden increase of current produces a positive triggering voltage on grid of frame scan oscillator V4B, which operates as a grid blocking oscillator with anode to grid back-coupling by L40 L39.

Scan waveform is developed across C51 C53. Variation of positive bias to grid of valve by R74 ensures **Frame hold,** while variation of HT to anode through R70 affords control of **Height.**

Frame amplifier V12 has the scan voltage, developed across C51 C53, fed to its grid by C52. After amplification, the output waveform is transformer coupled by L41 L42 to frame deflector coils L43 L44. **Frame linearity** is controlled by R77, which defines the amount of negative feedback from anode via C55 R78 to grid. R82 prevents ringing.

Line sync pulses, developed across R63, are fed by C26 to anode of line scan oscillator V16B. This is operated as a grid blocking oscillator with anode to grid back-coupling by L11 L20. Scan waveform is developed on C27, and the variation of positive bias to the grid by R36 ensures **Line hold.**

Line amplifier beam tetrode V2 has scan voltage, developed on C27, fed to its grid via R39 C28. Output at anode is transformer coupled through LT2 to line deflector coils L30 L31, while **Width** control is provided by a variable inductance L29. Capacitor T1 and resistor R42 on the scanning coil assembly prevent ringing on picture. **Line linearity** is maintained by L22, a variable inductance, which enables the rate of change of inductance with current to be adjusted for optimum linearity.

Booster diode V3 anode fed from separate secondary winding L25 on LT2. During line scan, the constant voltage set up in L25 is applied through V3 L22 and primary L23 to V2 anode and via R43 to first anode of CRT, C29 C30 provide smoothing.

EHT of approximately 14kV for final anode of CRT comes from the rectification by V17 of high voltage surge set up across primary L23 and its overwind L24 when V2 is cut-off. Smoothing is effected by capacity between inner and outer graphite coatings of CRT.

HT comes from V1, which consists of two indirectly heated, full-wave rectifiers, connected in parallel and fed from the mains through surge limiters R83 to R86, and above 200V through tapped voltage dropping resistor R90. Choke-capacity smoothing is provided by L45 C60 C61.

Heaters are series-parallel connected, except for V17, the EHT rectifier, and derive their current from the mains through R89, thermal surge resistor R88, and R87. Mains voltages above 200V are compensated for by R90, which is tapped at 200, 210, 220, 230, 240 and 250V. Heater line is RF decoupled by C58 C59 C63. S1, the on/off switch, is ganged to R56, sound volume control.

Mains input has a 3A fuse in each lead, together with RF chokes L46 L47.

CRT is 17in. tetrode, with ion-trap. Video signal is fed to the cathode and picture **Brilliance** is controlled by R45, which determines the grid voltage. **Focusing** is achieved by means of a permanent magnet.

DISMANTLING

Removal of chassis from cabinet is achieved by first withdrawing the four wood screws securing combined top and back cover; after which the brilliance, volume control, speaker, and deflector coil leads should be unplugged from sockets on chassis, the CRT base connector removed, and the EHT lead detached from final anode.

Withdraw V2, line output, and V3, booster diode. Lay cabinet on its side with brilliance and volume control knobs uppermost. Undo countersunk wood screws securing four cover blocks on underside of cabinet—two of them forming cabinet feet at rear. Support chassis and remove four chassis fixing bolts.

Removal of CRT from cabinet requires that the chassis be withdrawn and the cabinet laid on its side with brilliance and volume controls uppermost. Slacken off screws securing CRT clamping band. These are located in recessed holes near front of cabinet.

Stand cabinet upright on feet, remove the four 4BA fixing nuts on speaker and withdraw speaker from cabinet. Slide ion-trap magnet from tube neck, undo four 2BA nuts securing focus magnet gantry to cabinet and while supporting neck of CRT, remove gantry.

CRT may now be withdrawn from cabinet.

ALIGNMENT PROCEDURE

Apparatus required. Calibrated signal generator covering 15-25mc/s; output meter of 3ohms impedance; 1mA moving coil meter; 500ohm resistor and .005mF capacitor; non-metallic trimming tool.

Before using signal generator, check that chassis is connected to neutral or negative side of mains supply.

IFT1-3 each have three adjustable cores. Remove one of the two outer cores for adjustment of centre core where necessary, as explained below.

Vision. Disconnect R12 from V9B oscillator anode. Connect 1mA meter in series with earthy end of R29 and chassis. Remove top core L18 and adjust L15 L16 bottom core (viewed from top of chassis) until ⅛in. projects. Damp L15 L16 with 500ohms and inject 20mc/s via

Continued overleaf

One of the Most Baffling Faults in Twenty Years!

AN Ekco model 129X recently provided one of the most baffling faults met in over 20 years' servicing. Symptoms were a weak and distorted output, so much so that, at any volume above a whisper, speech was quite unintelligible. In fact, the set exhibited all the signs of very low output valve emission or a bad speaker mismatch due to shorted turns in the output transformer.

All voltages, valves and the speaker were found to be correct. Deadlock having been reached it was decided that every single component from the last IF transformer to the speaker would be replaced one at a time, the set being tested each time. This was done without the slightest result! Then both the DDT and output valveholders were changed without result.

Being now thoroughly desperate, the rectifier holder was changed, just to see what happened. The trouble vanished but, on replacing the old holder, it returned. The holder was inspected for flux, solder blobs, etc., and then tested with 500 volts from each pin to every other pin but was quite perfect in every way.

An unused pin is used for a binding post for the grid stopper-grid condenser junction of the output valve circuit. This junction was removed and remade on a small tie-up bar. Results were perfect, except that the set became unstable at near full volume. A .0047 condenser from the output valve grid to earth cured this, and the set has been perfect ever since.

The appearance of the instability when the fault was cleared suggests that the connection on the valveholder must always have been having a damping effect but had become stronger due to some ageing effect in the material.

I cannot think of any satisfactory explanation but I have since had another of these sets in with the same trouble which was cured in the same way. In neither case was there the slightest trace of corrosion or damp.—S.L.H., Paignton.

.005mF at grid V14. Tune middle core L17 for maximum output. Of the two tuning peaks, the correct one will be that where core is nearer to chassis.

Damp L17 (pins 4 and 6); inject 21mc/s and tune L15 L16 (bottom) for maximum output.

Re-insert top core L18; inject 18.25mc/s and adjust for minimum output.

Remove top core L14; adjust bottom core L11 L12 until ¼in. protrudes. Damp with 500ohms; inject 21.5mc/s via .005mF at grid V13, and tune middle core L13 for maximum output. Correct tuning peak is that nearest to chassis.

Damp L13 (pins 4 and 6) tune L11 L12 for maximum output.

Re-insert top core L14; inject 23.25mc/s and adjust for minimum output.

Remove bottom core L10, damp L7 L8 (pins 1 and 6); inject 20.5mc/s and adjust L9 (top) for maximum output on tuning peak nearest to chassis.

Damp L9 (pins 4 and 5); inject 21.6mc/s, and tune middle core L7 L8 for maximum output on second tuning peak as core is screwed in.

Inject 23.25mc/s; re-insert bottom core L10; tune for minimum output on first tuning peak of the two obtained.

Sound IF. Connect output meter across L37 of OP1. Set Volume control at maximum and use Sensitivity control to avoid overloading. Inject 23.25mc/s at V9 grid and adjust bottom core L34 and top core L35 for maximum output on first tuning peak of the two obtainable as cores are screwed in.

Repeat the above operation on L32 L33.

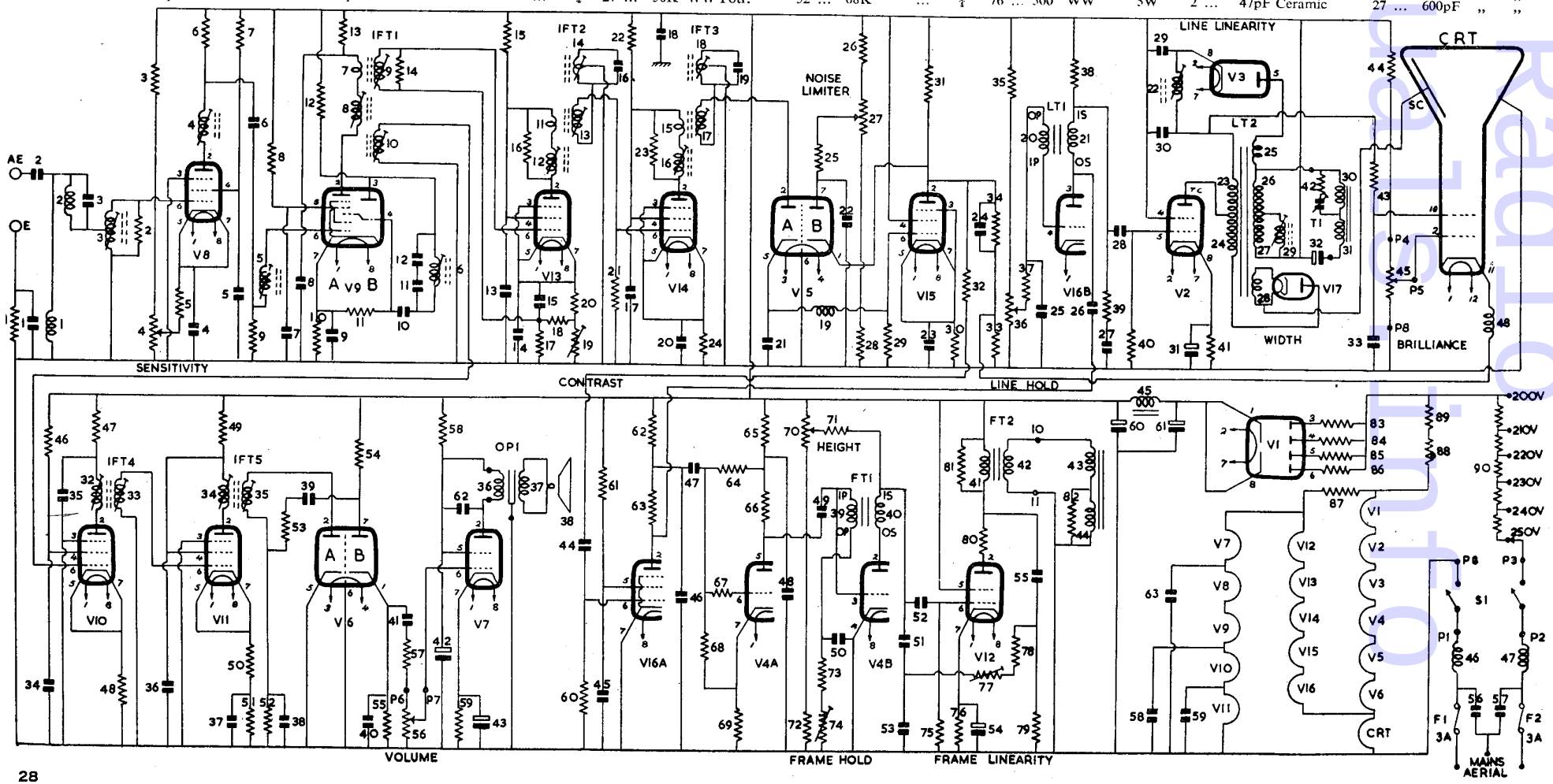
RF and Oscillator. Connect aerial to input terminals and adjust oscillator coil L6 for maximum sound output from transmitted signal, using Sensitivity control R4 to avoid overloading output of V7. Adjust L5 L4 L3 for maximum output on vision, employing Sensitivity and Contrast controls to prevent overloading.

RESISTORS

R	Ohms	Watts
1	470K	½
2	4.7K	½
3	220K	½
4	20K WW Potr.	
5	150	½
6	3.3K	½
7	10K	½
8	27K	½
9	4.7K	½
10	180	½
11	100K	½
12	15K	½
13	3.3K	½
14	4.7K	½
15	2.2K	½
16	15K	½
17	100K	½
18	3.3K	½
19	20K WW Potr.	
20	100	½
21	3.3K	½
22	2.2K	½
23	15K	½
24	100	½
25	100K	½
26	27K	½
27	50K WW Potr.	
28	22K	½
29	4.7K	½
30	270	½
31	8.2K	½
32	10K	½
33	150K or 220K	½
34	68K	½
35	68K	½
36	50K WW Potr.	
37	620K	½
38	100K	½
39	4.7K	½
40	1M	½
41	100	½
42	8.2K	½
43	470K	½
44	47K	½
45	30K WW Potr.	
46	100K	½
47	3.3K	½
48	150	½
49	1K	½
50	68	½
51	150	½
52	68K	½
53	22K	½
54	1M	½
55	2.2M	½
56	500K Potr. with Dp Switch	
57	33K	½
58	1K	1W
59	270	½
60	1M	½
61	470K	½
62	22K	½
63	47K	½
64	220K	½
65	220K	½
66	100K	½
67	470K	½
68	150K	½
69	8.2K	½
70	50K WW Potr.	
71	220K	½
72	47K	½
73	820K	½
74	500K Potr.	
75	1M	½
76	500 WW	5W
77	50K WW Potr.	
78	15K	½
79	120K or 68K	½
80	68	½
81	47K	½
82	470	½
83	68	½
84	68	½
85	68	½
86	68	½
87	210 Mains Dropper	
88	CZ6 Brimistor	
89	27 Mains Dropper	
90	80 (Tapped 16, 32, 48, 64)	

CAPACITORS

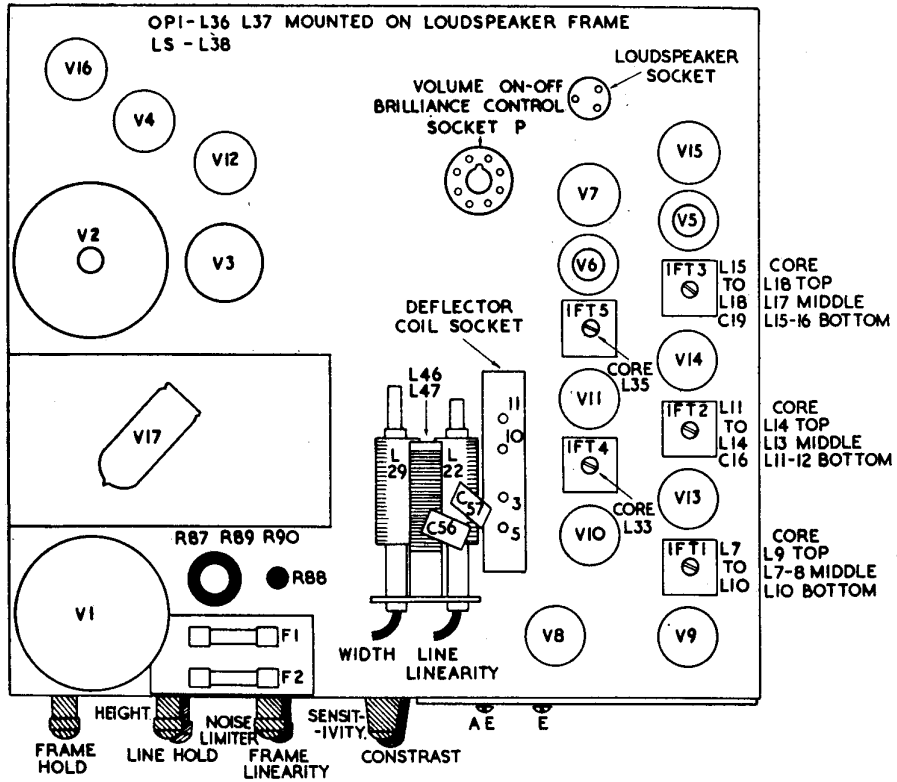
C	Capacity	Type
1	1000pF	Ceramic
2	47pF	Ceramic
3	100pF	Silver Mica
4	100pF	Ceramic
5	1000pF	,,
6	1000pF	,,
7	1000pF	,,
8	1000pF	,,
9	1000pF	,,
10	47pF	,,
11	68pF	,,
12	25pF	Silver Mica
13	1000pF	Ceramic
14	1000pF	,,
15	1000pF	,,
16	150pF	Silver Mica
17	.01	Tubular 500V
18	.01	Tubular 500V
19	150pF	Silver Mica
20	1000pF	Ceramic
21	3pF	,,
22	.05	Tubular 350V
23	.002	Tubular 500V
24	.1	Tubular 350V
25	320pF	Silver Mica
26	15pF	,, ,,
27	600pF	,, ,,

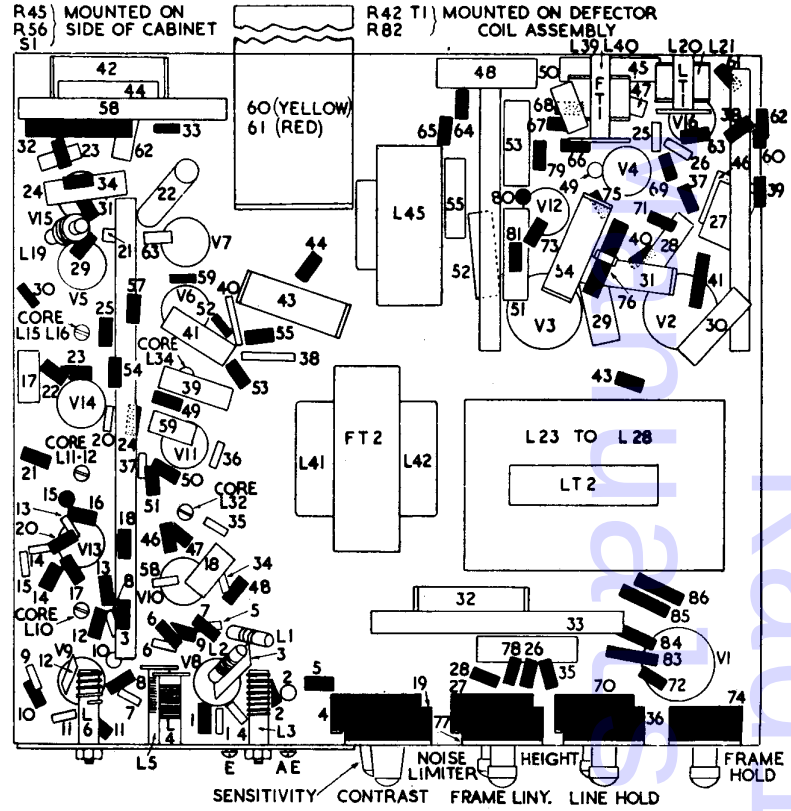


C	Capacity	Type
28	.02 Tubular	500V
29	.07 Tubular	350V
30	.07 Tubular	350V
31	50 Electrolytic	12V
32	50 Electrolytic	12V
33	.1 Tubular	350V
34	1000pF Ceramic	
35	1000pF ,,	
36	2200pF ,,	
37	1000pF ,,	
38	30pF Silver Mica	
39	.05 Tubular	350V
40	320pF Silver Mica	
41	.05 Tubular	350V
42	.8 Electrolytic	200V
43	50 Electrolytic	12V
44	.1 Tubular	350V
45	.1 Tubular	350V
46	600pF Silver Mica	
47	.001 Tubular	500V
48	.1 Tubular	350V
49	47pF Ceramic	
50	.01 Tubular	500V
51	.05 ,,	350V
52	.1 ,,	350V
53	.05 ,,	350V
54	50 Electrolytic	12V
55	.05 Tubular	350V
56	25pF Silver Mica	
57	25pF Silver Mica	
58	1000pF Ceramic	
59	.01 Tubular	500V
60	250 Electrolytic	
61	60 Electrolytic 275V	
62	.01 Tubular	500V
63	1000pF Ceramic	

INDUCTORS

L	Ohms
1-6	Very Low
7	.5
8	.5
9	.25
10	.3
11	.3
12	.3
13	.25
14	.25
15	.4
16	.4
17	.4
18	.4
19	5.5
20	80
21	38
22	8.5
23	32
24	10000
25	3.25
26	3.5
27	2
28	Very Low
29	8
30-31	16
32	.4
33	.4
34	.5
35	.5
36	375
37	.5
38	2.5
39	225
40	115
41	500
42	9.5
43	52
44	52
45	58
46-47	Very Low
48	8

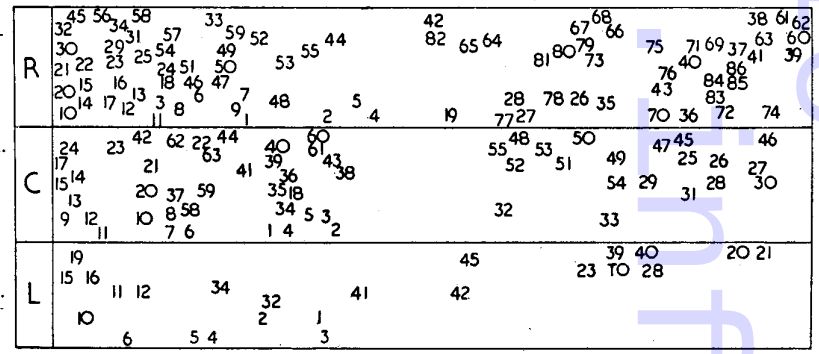


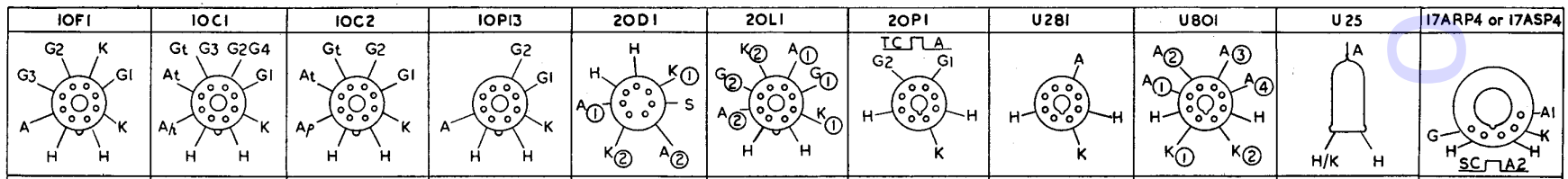


VOLTAGE READINGS

V	Type	A	G2	K	Remarks
1	U801	190 RMS each anode	—	190	
2	20P1	No reading	175	10	
3	U281	No reading	—	370	
4 A	20L1	15	—	1.6	
4 B	20L1	70	—	0	
5 A	20D1	—	—	—	
5 B	20D1	25–75	—		R27 Min–Max.
6 A	20D1	—	—	—	
6 B	20D1	30	—	30	
7	10P13	140	150	7.2	
8	10F1	175	165	1.5–4.5	R4 Max–Min.
9 A	10C1	165	80	2.2	
9 B	10C1	56	—		
10	10F1	160	65	.8	
11	10F1	170	170	1.65	
12	10P13	165	175	10.5	
13	10F1	165	165	1–42	R19 Max–Min.
14	10F1	148	148	1.25	
15	10F1	100	175	3	
16 A	10C2	110	40	0	
16 B	10C2	70	—		
17	U25	—	—	14kV	
CRT	17ARP4 or 17ASP4	14kV	120	50V	Grid 0–65 R45 Min–Max.

Total HT current = 220mA.
Total mains current = 640mA.





SERVICE CASEBOOK

"I am a wiser man now." Whenever you think that as you complete another repair, the job was probably worth a Casebook item. Tell the tale, one side of paper only, and post to ELECTRICAL AND RADIO TRADING, 189 *High Holborn, London, WC1.*

CORD DRIVES

USUALLY the control spindle drive to condenser drum gives trouble by slipping on the very thin shaft. To deal with this I keep a sample packet of belt grip compound with my drive cord. This compound being made for the job gives a better grip than the usual beeswax.—E. C.

FERGUSON 99IT

THE fuse had blown. Customer had replaced his spare as per instruction booklet. This had been OK for an evening, but went the next evening.

A check in customer's home failed to show why. Put another fuse in, gave a half-hour soak test. Everything was OK. Customer brought set in next day—the fuse had gone again.

Suspected the rectifiers, PZ82, but they were OK on Mullard valve tester. I put in another fuse (this was getting monotonous) and after a short time this went. I put in a 5A to give myself a chance to hear any splutter next time.

It spluttered. Also I managed to see the surge resistor in the cathode of one of the PZ82's get hot. Checked the appropriate rectifier in the tester, where it failed to show any short, but a 500V Wee Megger put across cathode and anode showed up an intermittent cathode/anode short.—H. H.

GEC BC5050

THE set motor-boated intermittently unless tuned to a strong signal. This was obviously owing to HF feedback—the strong signal stabilising the set by giving greater AVC bias. Removal of FC increased instability, caused by oscillation of IF amplifier.

The decoupling condensers and all related components proved to be OK and voltage readings were normal.

Pin 6 of the IF valve base is used as a tag point for the AVC line, which is decoupled at this point by a .05mF condenser. This is taken to earth via valve base pins 8, 1, 2 and 5.

This apparently "dead" wire has HF on it until reaching chassis and it was this that excited the valve.

Taking the decoupling condenser to a separate earth cured the fault.—CHAS. A. WILKINSON, Cheshunt.

KB HF60W

SEVERE fold-over came on intermittently after the set had been on five minutes or more, the fold-over being at the bottom of the picture.

After checking the various linearity components, it was found that the 220pF feed-back condenser C87 (KB service chart) was leaky, feeding a slight positive voltage to the grid of the 6BW6 vertical output valve.

Replacing this put everything in order.—H. HENSON, Wincanton.

KB HF60W

CAME in with complaint that the vertical hold was very critical, in fact, it was nearly impossible to get the picture to hold. This pointed to lack of frame sync pulses.

A look at service chart showed that sync pulses were taken off via integrating circuit from the anode of sync separator valve but a check on all the components failed to show any faulty unit, neither did we find any fault in the sync separator.

Must be the sync coupling condenser we thought, value 220pF, but that was OK.

Only one thing left: check the blocking osc transformer. Ohmeter readings showed a slight discrepancy in values to those given in the service chart. Not having a replacement on hand I coupled up an LF transformer. Result a solid lock. New transformer from KB and everything was OK—H. HENSON, Wincanton.

PHILIPS 206X15

A PHILIPS 206X15 radio would give whistles all over the dial. The IF coil cans and the smoothing condensers were found to be loose on chassis. The cans and condensers were fitted with clips and wired direct to chassis.

The radio worked all right with aerial connected but when working on plate aerial it would still whistle. The speaker frame was earthed and a 20,000ohm resistor connected between plate aerial tag on chassis and earth tag. Radio then worked perfectly.—WILF LEAVER, Bishop Auckland.

PYE V4

THIS model failed after being in use only two hours. Complaint was "No Picture." Quick check showed that there was no EHT.

As no "line whistle" could be heard it was thought that the line timebase had ceased to function. However, the various HT voltages were found to be present but low. A check at F3 (on ELECTRICAL AND RADIO TRADING service sheet) showed 150V instead of the 198V as stated. PZ81 came under suspicion but this proved satisfactory on the valve tester. Next check was the line output PL81, this was down in emission. Perhaps there was a reason for this ?

I put valve back in circuit and checked around the pins. Yes, there was the cause, positive voltage on the control grid causing the valve to go "down."

Checked C98 (ELECTRICAL AND RADIO TRADING Chart) for leak by disconnecting from grid stopper R126. It was still there. Only one to check now was C102, 27pF. That was it.

A 30pF was the nearest replacement I could get but this value proved satisfactory. After replacing PL81 set worked OK.—H. HENSON, Wincanton.

SOBELL 121C

ON three occasions these models developed the same fault which, in one case, caused rather a mess.

The EHT to the CRT is fed through a 470K ½W resistor. Owing to the nearness of the line output screening can, sparking occurs in some cases. Eventually the picture loses brightness.

The fault lies in the above resistor going o/c, the EHT jumping the gap. This developes heat. On upturning one model for a look underneath, the melted wax poured forth causing the mess mentioned.

A resistor placed at the CRT end of the EHT lead seems to have cured the trouble—T. PARKER, Methil, Fife.

EKCO TS46

AN Ecko TS46 was sent in for repair with a vision defect—bright lines on the top part of the picture similar to frame flyback lines.

On checking the frame timebase it was found that the amplitude of the frame scan was a little below normal. As the lower part of the picture was free from trouble the frame oscillator, a T41 thyratron, was suspected for erratic operation due to ageing.

Replacing this valve cleared the fault and restored the output of the frame timebase to normal.—K. D., Ramsgate.

EMI PREWAR SETS

LOUD clicks or crackles when set is switched on from cold. No trouble while listening and may not recur that day.

In almost every case this is due to ageing electrolytic condensers. It seems they may arc over while the voltage is high due to directly-heated U50 rectifier starting to work before the other valves.

Another crackle may be due to the 2-3W resistors, which are sometimes wire-wound but which look like carbon types.—E. C.

EVER READY MODEL K PORTABLE

THIS model has been giving trouble on LW recently. In each case this has been due to failure of the LW fixed padder. C3 in chart, this is given as 200pF but proves to 150pF.—E. C.

MARCONI VC73 DA

THE effect was similar to sound break through. It also occurred when sound was low, and the edges of bright objects appeared ragged.

Re-alignment was tried and valves replaced with no effect.

The signal from the detector was shorted out, and the fault was still there, indicating it came in at a later stage.

It was eventually found that the frame output valve KT33C was microphonic and the slightest vibration caused the unsteady picture.

Three new KT33C's were tried and all were the same. I then mounted a valveholder on an old valve base using sponge rubber (from an old car radio vibrator) to raise the holder about one inch above the base, and connected the holder contacts to the base pins with flexible wire.

This cured the fault and the set works perfectly with the old valve, and the adaptor can be plugged-in without disturbing any wiring.—L. B., Morecambe.

HEATER-CATHODE LEAKS

MURPHY are supplying to their dealers a low-capacity isolating transformer for use with 2V CR tubes that have developed a cathode-heater S/C or leak. The *Murphy News* says (speaking of cathode-modulated sets):—

"Unfortunately, heater-to-cathode breakdowns are generally of a very intermittent nature and the symptoms displayed vary according to the state of intermittency. Often the picture will be broken into bands of good and bad definition; sometimes these bands will be stationary, but generally they will move rapidly up and down the screen. The displacement of the bad definition portions gives a symptom similar to the line pulling which can be produced from a number of other causes, but when coupled with the bands of bad definition, the engineer should not be misled into looking for the trouble in other parts of the circuit.

"In receivers such as the V200A or V210, the symptoms produced by a heater-to-cathode short circuit can be reproduced quite simply by producing a short circuit artificially, and it will be seen that the leak or short circuit causes a serious loss of definition and there is also a tendency for the picture to move to the right due to the mutilation of the sync pulses."

SMOKE CAUSES LOW GAIN

A MURPHY A 170 was involved but the trouble might occur in most sets. Fault was weakness, most noticeable on M and LW. Usual tests localised cause to aerial coil circuit.

Suspected shorted turns on coil but was proved wrong. Faulty gang condensor insulation in parallel with coil was causing trouble. Washing well with switch cleaner restored signal to normal.

It was found when recasing in cabinet that this was covered with a thin black film. Inquiries showed set was used near a smoking fire. The carbon deposit had fallen on the gang condenser ceramic insulators. —E. C.

MURPHY V176C

A MURPHY V176C would function correctly except that when switched off a bright spot would appear on the screen. As this set has special circuits for blacking out the screen when switching OFF to protect the rather expensive 15in. CRT, attention was given to these.

When switching OFF the cathode is disconnected from the brightness control and left connected to a tap on the EHT discharge circuit and this discharge path had become o/c between the cathode tap and positive end, leaving the cathode tied down to negative HT.

That part of the discharge path between the cathode tap and HT positive consists of seven 10meg. 1.5W carbon resistors in series and one of these was o/c and three others had changed in value to between 20 and 100meg. None showed any sign of defects and the change of value was due to structural alteration in composition.—K. D. Ramsgate.

VIDOR CN4216

THIS model came in because of distortion on sound followed by very low volume after a few minutes, the vision being OK.

V's 8, 9, 10, associated components and voltages were tested found to be correct. While thinking that out I idly moved V9 and suddenly volume came on full ! V9 pins and socket were cleaned and set switched on again hopefully, but no better.

V9 was again moved and sound could be made to come and go as required. Also C38 (ELECTRICAL AND RADIO TRADING Manual) moved too. It was measured on the C/R bridge and found to be OK, but when pulled it became o/c. On replacing C38 everything was fine.—T. PARKER, Methil, Fife.