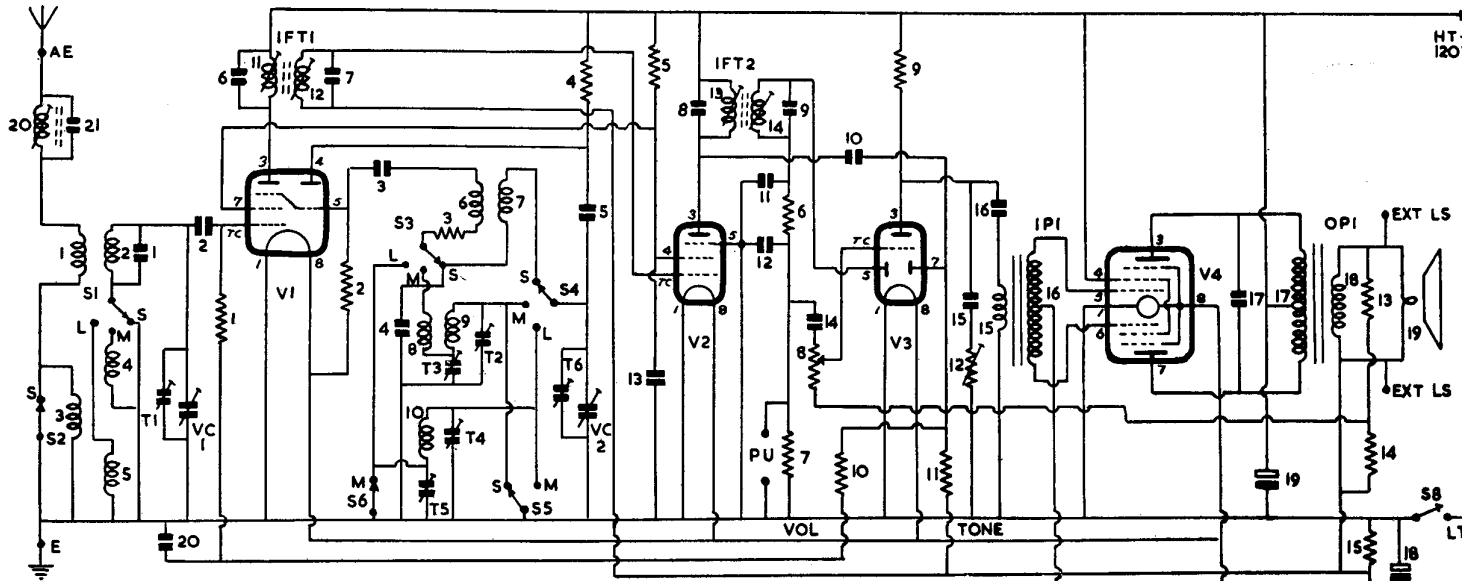
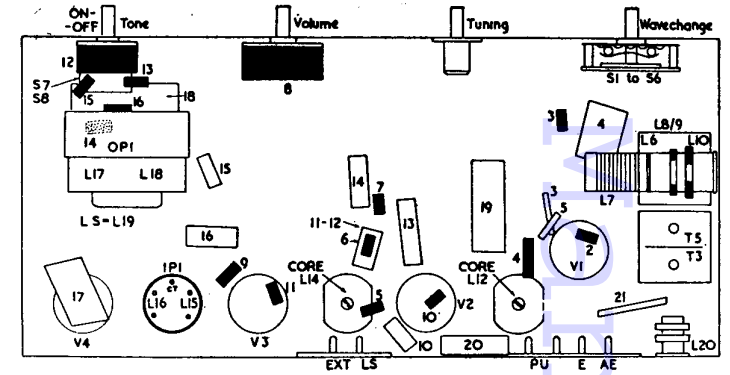
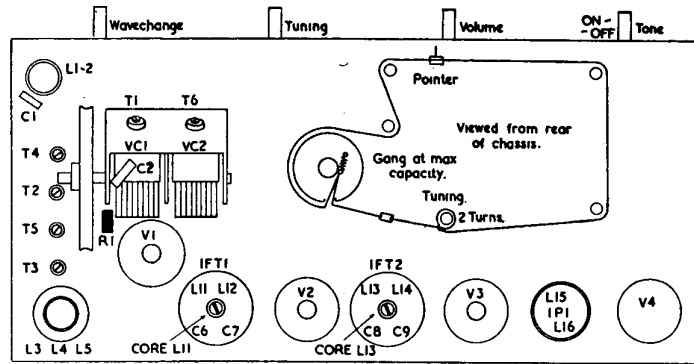
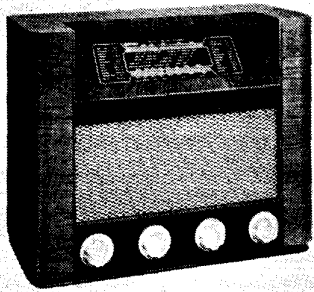


# STRAD 516



Four-valve three-waveband battery-operated superhet housed in walnut veneered table cabinet. Sockets for aerial, earth, high resistance magnetic or crystal pickup and low impedance extension speaker. For use with standard 120 volt HT battery and 2 volt accumulator. Manufactured by R.M. Electric, Ltd., Team Valley, Gateshead 11.

Circuit description and alignment instructions, see page 2

## RESISTORS

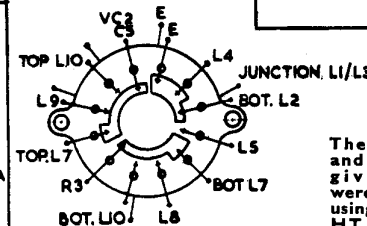
R	Ohms	Watts
1	1.2M	...
2	47K	...
3	50	...
4	22K	...
5	68K	...
6	47K	...
7	470K	...
8	1M	Potr.
9	47K	...
10	2.2M	...
11	1.2M	...
12	500K, Potr.	with DP switch
13	10K	...
14	3.9K	...
15	150	...
16	680	...

C	Capacity	Type
11	100pF	Silver Mica
12	100pF	Silver Mica
13	.01	Tubular 500V
14	.01	Tubular 500V
15	.04	Tubular 150V
16	.1	Tubular 150V
17	2400pF	Silver Mica
18	25	Electrolytic 25V
19	4	Electrolytic 200V
20	.01	Tubular 500V
21	560pF	Silver Mica

## CAPACITORS

C	Capacity	Type
1	22pF	Tub. Ceramic
2	100pF	Tub. Ceramic
3	560pF	Silver Mica
4	3200pF	Silver Mica
5	100pF	Tub. Ceramic
6	120pF	Silver Mica
7	120pF	Silver Mica
8	120pF	Silver Mica
9	120pF	Silver Mica
10	10pF	Silver Mica
11	11	5000 Centre tapped
12	11	900 Centre tapped
13	11	Very low
14	11	Very low
15	11	Very low
16	700	Very low
17	2.5	Very low
18	2.5	Very low
19	2.5	Very low
20	3.5	Very low

VI - TP25	V2 - VP23	V3 - HL23DD	V4 - QP25
At 62V 2.25MA Gt G3 Ap 112V .35MA M G2 48V .7MA F F TC GI	112V .9MA G2 48V .2MA G3 M A 2 F F TC GI	D2 (SIG) M A .82 .5MA F F TC G	G2 113V .85MA G 1(A) G 1(B) A (B) A (B) 110V 2.45MA F F TC GI
Total HT Current 10.5MA		LT Current 500MA	Bias Volts Across R15/16 = 7.7V



The voltages and currents given here were measured using a 120V HT battery, not a 136V unit of the type necessary to fit the cabinet space

## TRICITY COOKER

a quadrant stop plate the outer edge of which bears up against a friction spring clamped under nut of one of grill-chamber fixing bolts.

The 10½ by 8 in. grill boiler is an interspaced twin element type controlled by a three-heat switch. Spirals are supported on ceramic rods located in ceramic end spacer blocks. Element assembly is retained in position on underside of its cast iron top plate by an earthed nickel finished protective grid (Fig. 3). An aluminium deflector plate is provided to slide under grill (Fig. 3).

The 6¼ in. plate is a twin element, enclosed type controlled by a three-heat switch.

Both grill-boiler and 6¼ in. plate are of the plug-in type fitted with wire lifting handles and it conforms to EDA/BEAMA interchangeability standards. Plates rest on adjustable height and levelling screws.

Storage cabinet is a pressed steel unit designed to match the cooker cabinet. It is assembled from separate panels bolted together and fitted with drop-down type door, the latter being held closed by spring catch. Exterior of side panels and door are ivory, vitreous enamelled, whilst rear, top and bottom plates and whole of interior are finished in dark blue vitreous enamel.

### ELECTRICAL SYSTEM

Mains input cable is fed through a rubber bushed hole at top of rear panel and is connected to the input terminals mounted on bracket on underside of grill-chamber platform (Fig. 6). Live lead is taken direct to the Master Control switch at top of control panel, whence it is switched through to oven, grill-boiler, hotplate control switches according to its setting. Oven pilot light is connected across a low resistance coil in neutral side of oven element circuit. Earth pins of the two plug sockets and frame of cooker are connected to earthing terminal adjacent to mains input terminals.

Internal mains wiring is carried out in flame-proof insulated 14SWG copper wire and earth wiring with bare 14SWG tinned copper wire.

### MAINTENANCE

Before any maintenance is attempted the cooker should be unplugged from power socket. Where cookers are not fitted with Master Control switch, make quite sure wall switch is off.

**Removal of plate and grill boiler.** Remove splash-plate and release hob by pressing plunger (centre front) then raise front slightly and ease backwards and off (Fig. 2). Withdraw plates by grasping handle and opposite side and lifting—keeping plates horizontal.

**Renewal of oven pilot lamp.** Remove oven thermostat control knob by loosening grub screw. Pull off red Bakelite cover and withdraw lamp-holder from slotted bracket. Renew the 3.5V .3A MES bulb and replace in reverse order.

**Removal of oven elements.** First remove oven shelves and then withdraw side plates. These are best removed by gripping firmly with fingers through cut-outs and then pulling bottom outwards towards centre of oven (Fig. 4). Next remove back plate by placing fingers under bottom outer edges and pulling bottom forward sufficiently to grip plate firmly—then with plate still at an angle withdraw it out of oven. Finally lift out bottom plate. Disconnect leads from element terminals

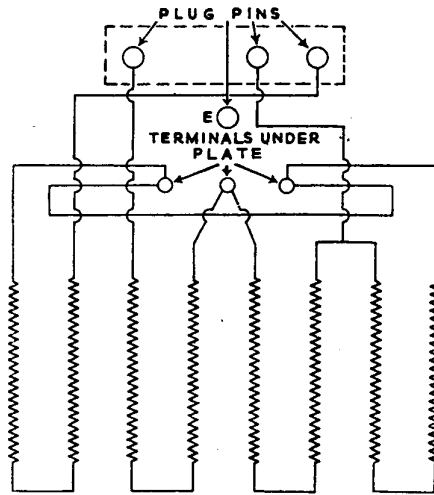


Fig. 7—This diagram shows connections of grill-boiler element

and undo and remove locking and clamp nuts on all four element fixing screws. Elements are now free to be withdrawn from bottom of oven. Remove faulty spiral, clean out ducts in former and also nuts and washers of terminal screws. Fit new spirals (obtainable only from Tricity) and re-assemble in reverse order. When replacing bottom plate of oven, check to see that its rear is resting on the two brackets.

**Renewal of grill-boiler spiral.** Unscrew earth pin on underside of casing. Lift off aluminium cover and remove protective grid. Disconnect connecting leads from the three plug-pins and withdraw element assembly from casing. Remove cotter pins from two rods holding spacer blocks and spiral support rods. Dismantle whole assembly and thoroughly clean.

Obtain new spiral (four required in all) and carefully divide each into halves by opening out coils at appropriate point. Place support rods through centre of spirals (one through each half) and then re-assemble former with spirals side by side and with all terminating wires protruding through terminal block end. Slots are provided at each end of support rods to allow spiral wire to be positioned so that it can feed centrally out through end slots in spacing blocks. Reconnect appropriate terminating wires to terminals as shown on diagram (Fig. 7) and insert ceramic beads over long terminating wires and connect same to plug pins. Replace protective grid, cover plate and earth pin.

**Adjustment of grill-boiler or hotplate.** Adjustable screws on which these rest should be set so that top surface of plates are approximately ¼ in. above surface of hob.

**Adjustment of oven door catch.** Remove splash-plate, hob, and lefthand side panel. If door does not keep closed then trouble may be due to weak or broken plunger spring. If so remove end nut of plunger and renew spring. If door is difficult to close then plunger nut should be screwed home to retract plunger and give smoother action.

**Spares.** When ordering spare parts quote the type and serial number of the Cooker.

## STRAD 516—Continued from p. 6

**A**ERIAL signal is fed through IF filter L20 C21 to series connected aerial coupling coils L1 (SW) L3 (MW, LW). When wavechange switch is placed in SW position then L3 is shorted out by S2. Inductively coupled grid coils L4 (MW) L5 (LW) are switched by S1 through L2 (SW) to aerial tuning capacitor VC1 and thence coupled by C2 to gl of triode-pentode frequency changer V1. No MW or LW aerial trimmers are provided. T1 with C1 being employed as SW trimmer. AVC and a standing bias, decoupled by R10 C20, is fed through R1 to gl of V1. Screen (g2) voltage is obtained from R5 decoupling being given by C13. Primary L11 C6 of IFT1 is in the pentode anode circuit.

**Oscillator** is triode section of V1 connected in a shunt-fed tuned anode circuit. Anode coils L7 (SW) L9 (MW) L10 (LW) which are trimmed by T6 T2 T4 and padded by C8 T3 T5 respectively, are switched by S4 to oscillator tuning capacitor VC2 and coupled by C5 to oscillator anode (at) of V1 of which R4 is the load. When wavechange switch is placed in SW position then MW tuned circuit is shorted to chassis by S5. Similarly in MW position the LW tuned circuit and padder T5 are shorted to chassis by S5 S6.

The LW and MW reaction voltages, which are developed across T5 and L8 respectively, are switched by S3 through limiter R3 and SW reaction coil L6 and coupled by C3 to oscillator grid. Automatic bias for grid is developed on C3 with R2 as leak resistor. In SW position of S3 bottom end of L6 is connected through R3 to bottom of SW tuned anode coil L7.

**IF amplifier** operates at 465 kc/s. Secondary L12 C7 of IFT1 feeds signal, and a standing bias voltage obtained from junction R15, R16 in negative HT return to chassis, to gl of IF amplifier V2. Screen (g2) voltage is obtained, in common with that of V1, from R5 decoupling being provided by C13.

Suppressor grid (g3) is earthed to chassis. Primary L13 C8 of IFT2 is in the anode circuit.

**Signal rectifier**—secondary L14, C9 of IFT2 feeds IF signal to one of diodes of V3. R7 is diode load and R6 C11 C12 form an IF filter.

**Pickup**—sockets are provided for connection of a high resistance magnetic or crystal type pickup. Signal from pickup is applied across diode load R7. To prevent radio breakthrough aerial should be disconnected when pickup is in use. Pickup must be unplugged when receiver is used for radio reception.

**AVC**—signal at anode of IF amplifier. V2 is fed by C10 to second diode of V3. The diode load resistor R11 is returned to chassis through R15 of HT negative biasing network R15 R16 in order to provide a delay voltage. AVC decoupled by R10 C20 is fed through R1 to control grid of frequency changer V1.

**AF amplifier**—rectified signal developed across diode load R7 is fed by C14 to volume control R8 in grid circuit of triode AF amplifier section of V3. Negative feedback from secondary L18 of LS output matching transformer OPI is potentially divided by R13, R14 and fed through volume control R8 to triode grid V3. Grid is also negatively biased by connecting bottom end of feedback circuit to junction of R15 R16.

R9 is anode load and C15 with R12 gives variable too cut tone control.

**Output stage**—signal at anode of V3 is fed by C16 to primary L15 of push-pull driver transformer IP1 the secondary L16 of which being centre-tapped and returned to earth via biasing network R15, R16 provides opposite phased signals and negative bias for grids of double-pentode output amplifier V4, which is employed in a quiescent push-pull output circuit. Screens are internally strapped together and fed direct from HT line. Suppressor grids are also internally strapped and connected to positive side of filament. Output signal at anodes is transformer fed by OPI to a 6½ in. PM loudspeaker L19.

Negative feedback derived from secondary L18 of OPI is potentially divided by R13 R14 and fed to grid V3. Sockets are fitted on L18 for connection of a low impedance extension speaker.

HT is provided by a standard type 136½ volt battery such as Ever Ready "Portable 75." Negative bias for grids V1-4 is obtained from R15 R16 decoupled by C18 in HT return to chassis. HT battery is decoupled by C19.

LT of 2 volts for the parallel connected filament of V1-4 is provided by any standard 2V accumulator. S7 S8 which are ganged to tone control spindle and connected in HT and filament negative leads function as receiver on/off switch.

### TRIMMING INSTRUCTIONS

Apply signal as stated below	Tune receiver to	Trim in order stated for maximum output
(1) 465 Kc/s to gl of V1 via .01 capacitor	MW band with gang at minimum capacity	Coils L11, L12, L13, L14
(2) With gang at maximum capacity check to see that dial pointer coincides with calibration mark on dial plate		
(3) 17.64 Mc/s to aerial socket via dummy aerial	17 metres	T1, T6
(4) 1.5 Mc/s, as above ...	200 metres	T2
(5) 375 Kc/s, as above ...	522 metres	T3. Repeat (4) and (5)
(6) 300 Kc/s, as above	1000 metres	T4
(7) 150 Kc/s, as above	2000 metres	T5. Repeat (6) and (7)

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