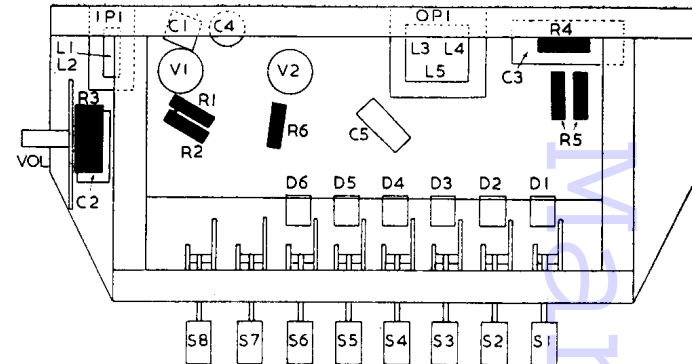
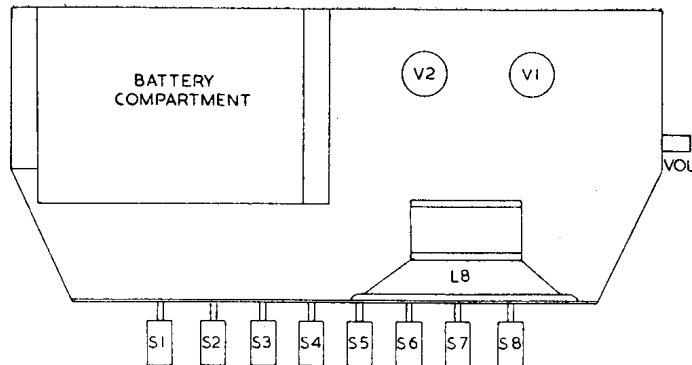
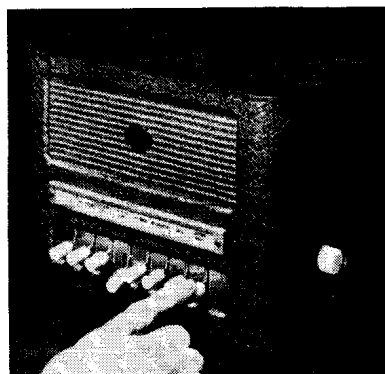


BSR BATTERY TELEMASTER



A loudspeaker inter-communication system for the office, factory, hotel and shop, operating from all-dry batteries. Manufactured by Birmingham Sound Reproducers Ltd., Claremont Street, Old Hill, Staffs.

THE system consists of a master unit with provision for six or twelve extension units. The master unit can call any one, several, or all of the extensions merely by depressing the appropriate extension switches and then pressing the spring-loaded call switch. This causes a clear and distinctive high-pitched note to be emitted at the extension being called.

Any extension can call the master by depressing the spring-loaded switch on the side of the extension unit. This gives a sharp clicking sound on the master unit and in addition the appropriate extension signal lamp above the extension switch is illuminated. If, however, the master is engaged with another extension then the calling note is suppressed and signal lamp will not light up.

Normally when an extension calls the master, the clicking call note is also heard in the extension indicating that the master is free. When the master is engaged this note is not heard at the extension.

"Direct" extension units enable the master to speak to a person without that person having to leave his work. The calling note is loud enough to be heard above local noises such as machines.

"Private" extensions are provided for where the general noise level is much lower. The calling note is quieter and the master cannot overhear any local speech until the extension unit switch is depressed.

The master unit consists of a switch assembly, a loudspeaker-microphone and a two-valve amplifier operated from a 90V HT battery and a 4.5V all-dry LT battery. The amplifier is only switched on

Continued on page 30

RESISTORS

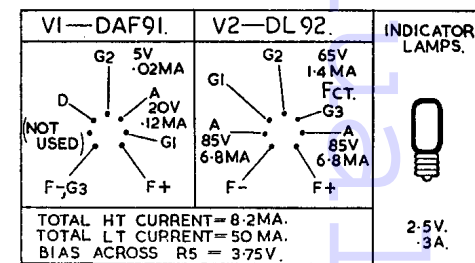
R	Ohms	Watts	C	Capacity	Type
1	3.3M	...	6	.5 Tubular	350V
2	330K	...	7	.5 Tubular	350V
3	1M	...	8	2 Paper	Type 100V
4	150K	Potr.			
5	150K	...			
6	540 (2 x 270)	...			
7	15K	...			
8	10	...			

CAPACITORS

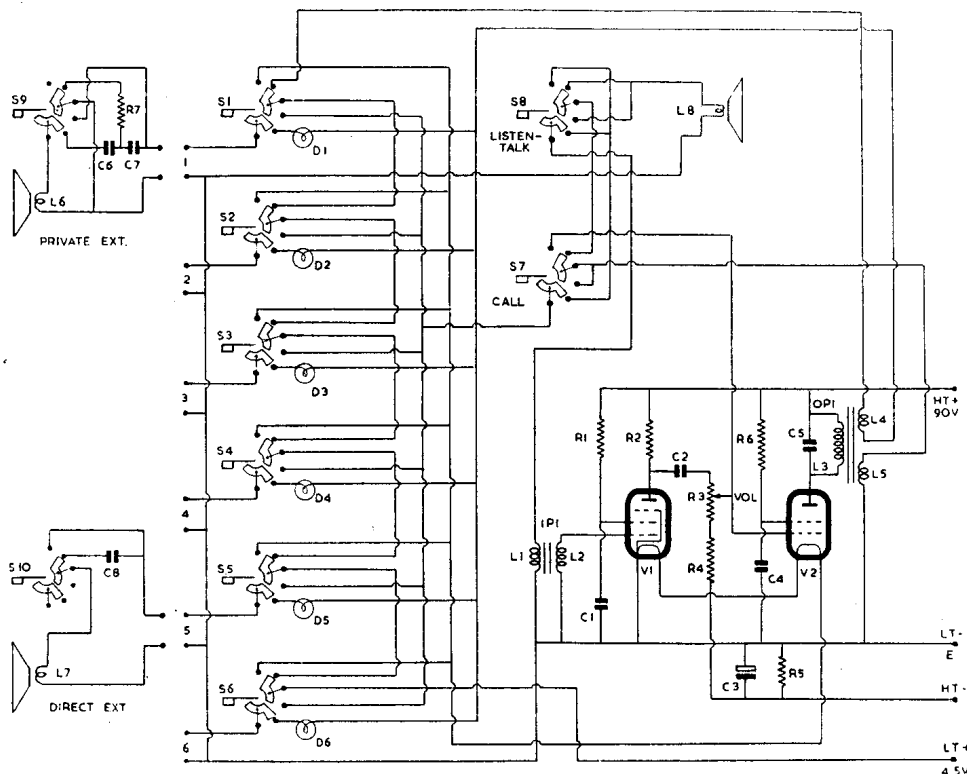
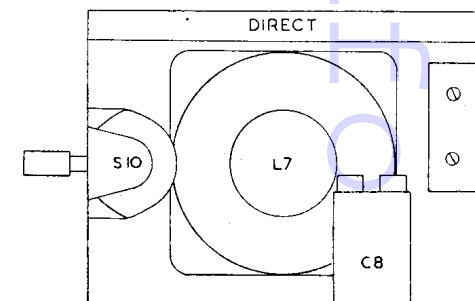
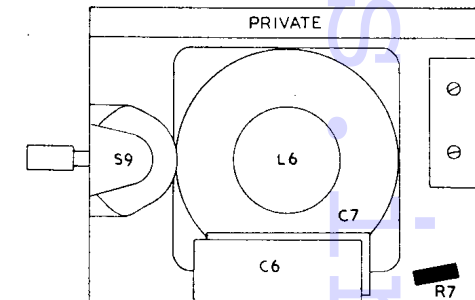
C	Capacity	Type
1	500 pF	Mica
2	.001	Mica
3	25	Electrolytic 25V
4	.1	Tubular 350V
5	.01	Tubular 350V

INDUCTORS

L	Ohms
1	...
2	...
3	...
4	...
5	...
6	...



TOTAL HT CURRENT = 8.2MA.
TOTAL LT CURRENT = 50 MA.
BIAS ACROSS R5 = 3.75V.



BELLING 47A COOKER

Contd. from page 28

Renewal of fuses.—Undo the two screws securing cover plate on lower righthand side panel and remove cover plate to expose fuseholders (Fig. 6).

Removal of oven elements.—Open oven door (and inner glass door if fitted) to full extent. Remove oven shelves, etc. Raise pivoted stop at top of each side of oven door opening. Grasp

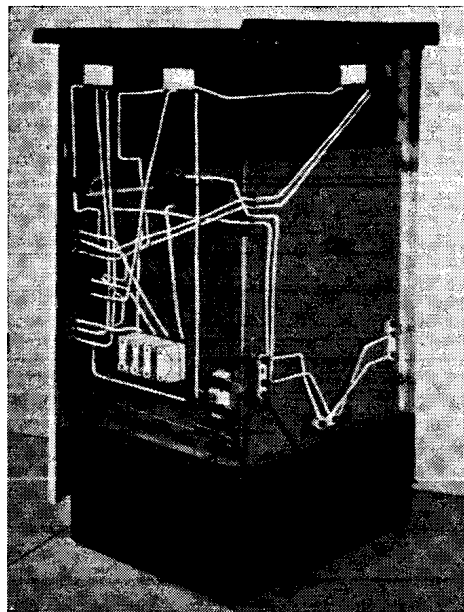


Fig. 7—With side and rear panels removed, all wiring, switches and thermostat are accessible

interior oven firmly and withdraw. A strong pull may be needed at first as outlet tube at rear of oven fits into a sprung socket (Fig. 4).

Elements are withdrawn by sliding towards front of cooker and then lifting clear of locating studs. Element positions are embossed on clamping strip around ceramic plug-pin block. Side elements are interchangeable but bottom element (500W) must always be replaced in its correct position.

Renewal of oven pilot lamp.—Pull off heat control knob. Remove lampholder from retaining clips by lifting bottom (wire) end first and withdrawing it downwards. Renew 3.5V bulb, replace holder in clips and replace control knob.

Access to wiring.—Remove the two screws at rear edge of righthand side panel and lift away panel. Undo the two screws at top of rear panel and lift off panel from bottom anchoring pins. All wiring is now accessible (Fig. 7).

Removal of thermostat.—Remove righthand side panel as described above. Remove wires to thermostat terminals. Loosen screw at each end of coupling rod from spindle slot.

Undo grub screw on flange behind thermostat head and carefully withdraw thermostat from oven. When replacing thermostat set indicator knob and thermostat pointer to 300 deg. F. before tightening up coupler screws. Test for accuracy with a thermometer in the oven and adjust if necessary.

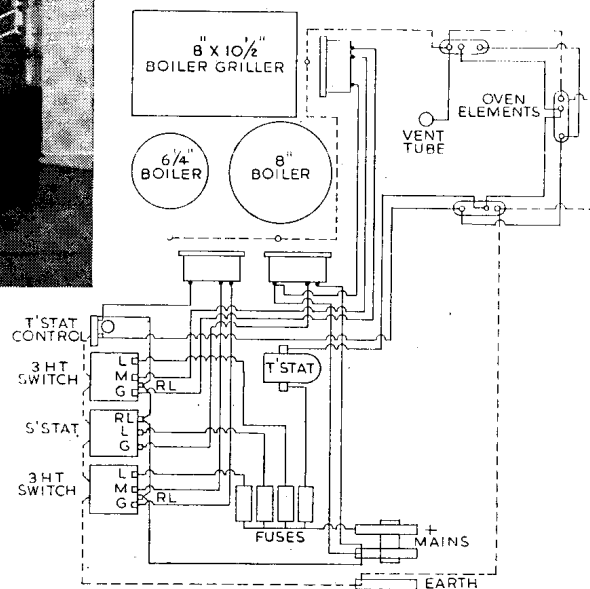


Fig. 8—Theoretical diagram of Belling 47A cooker

BATTERY TELEMETER

Contd. from page 29

when the master is connected through to any of the extensions.

The extension units each consist of a loudspeaker-microphone with a switch for calling the master. In the "Private" type extension this switch has to be operated when speaking.

Amplifier circuit.—Input signal from either extension or master unit is coupled by transformer IP1 to g1 of V1. Screen (g2) voltage is obtained from R1 and decoupled by C1. Suppressor (g3) is internally connected to negative side of filament. R2 is anode load resistor.

Signal at anode V1 is fed by C2 through volume control R3 to g1 of output pentode V2. R4 is fitted to give a correct minimum volume level for speech to be heard. Negative bias for g1 of V2

is developed across R5 in the negative HT lead to chassis and is fed through R3, R4 to grid. C3 is bias decoupling capacitor. Screen (g2) voltage is obtained from R6 and decoupled by C4.

Primary L3 of output matching transformer OP1 is in the anode circuit. Secondary L5 feeds signal to either extension or master unit speakers.

When master call switch S7 is depressed L5 is coupled back to g1 of V2 to produce LF oscillation, which is reproduced in extension being called. Auxiliary secondary L4 is connected in the master unit extension signal lamp circuit.

When an extension calls the master the appropriate signal lamp is connected through L4 and extension speaker to the 4.5 volt LT battery and is thus illuminated.

As the extension call switch is intermittently depressed when calling the master the interrupted current through L4 causes a blip to be heard in both master speaker L8 and extension unit speaker.

OPERATION

Master calling private extension No. 1.

Switch S1 is depressed connecting live side of extension No. 1 through to call switch S7. When S7 is held down to call the extension, L5 is coupled back to g1 of V2. The resultant oscillatory note produced in V2 is fed through S7, S1, C7, C6 to extension speaker L6.

When S7 is released the master speaker L8 is connected to output of amplifier, and No. 1 extension line to input of amplifier; the master is then ready to receive an answering call from the extension.

Extension No. 1 talking to master.

Extension No. 1 being a private type of exten-

sion, it is necessary for switch S9 to be depressed whilst talking. S9 disconnects R7, C6, C7 and connects speaker L6 direct through to line which is already switched to input of amplifier. Thus L6 acts as a microphone and feeds signal to amplifier, the output of which is applied to L8 in the master unit operating as a loudspeaker.

Master talking to extension No. 1.

S8 in master unit is held down in "talk" position connecting L8 to input of amplifier and extension No. 1 line to output of amplifier. Thus L8 in master acts as a microphone and feeds signal to input of amplifier, the output of which is fed to extension speaker L6.

Extension No. 1 calling master.

Switch S9 is depressed intermittently, causing pulses of DC from filament battery to pass through D1 and light it and also to pass through L4, L6, L8, causing a blip to be heard on both extension and master unit speakers. If the master is engaged with another extension then that extension switch (S2 to S6) will break the DC circuit and no blip will be heard and signal lamp will not light up.

FAULTS

If speech becomes unintelligible check amplifier HT and LT batteries and renew if necessary. HT of 90V is obtained from a Vidor L5512 battery and LT of 4.5V from a Vidor V.0008 battery.

To remove chassis from cabinet for servicing, first take off back panel and unscrew rubber feet. Remove volume control knob and withdraw chassis. To give access to underneath of chassis remove the line terminal strip secured to cross members of bottom chassis.

HINTS FROM THE SERVICE CASEBOOK

DEFECTIVE DEFLECTION

NO line deflection, i.e. vertical white line only. In one receiver having this fault, the coupling capacitor from the anode of the sync. amplifier to the junction of the grid stopper and input load resistor of the line saw-tooth generator (T41) broke down and placed a positive bias on the grid of the thyatron. The grid resistor of the thyatron in question appeared to be underrated, as it was of 1/10th watt type and could not deal adequately with the overload current caused by the combination of the HT bleed and grid currents. The capacitor and the burnt-out open circuit resistor were replaced and the set was then found to function perfectly.

The symptom of this fault is very common and can also be caused by defective line-generator and amplifier valves. It could also be caused by an open circuit on the primary or secondary of the line-output transformer, or the breakdown in the insulation thereof, or to a breakdown in leaky coupling capacitors or open circuit resistors. In the case of the line output transformer, it is possible to get an intermittent line-scan due to faulty insulation on the primary to frame of the line-output transformer.—K.W.K.

EKCO TELEVISION TSC 30

SYMPTOM: weak signals on fringe area. The set had been working satisfactorily in London, being only a mile or two from Alexandra Palace. When brought to the fringe area, a normal pre-stage amplifier was fitted, but the set was not up to standard. A thorough check was made of all compon-

ents in the RF stage but everything was apparently correct.

At this stage I made a visit to Radiolympia and in conversation with an Ekco engineer was tipped to check the value of all .0005 de-coupling condensers. On testing and replacing some of these the set was brought up to standard.—T.W.

HMV TELEVISION 1805

SYMPTOM: intermittent distortion on sound. Distortion is possible, and indeed usual due to an internal short in one of the Z77 valves but when this occurs the short is usually permanent. The intermittent fault is more difficult to diagnose but, in nearly every case, has been due to one of the .001 decoupling condensers in the RF unit going O/C.

As there are several of these condensers the slower method, I find, is the quicker in the end, and that is to take each condenser separately and leave it on the bridge for thorough test.—T.W.

PYE D16T

The complaint with this set was that at certain settings of either the brightness or contrast controls a rapid "jitter" of the picture was observed. On close examination it was seen that the jitter was in both the line and frame directions and adjustment of either brightness or contrast controls above and below the particular settings where the jitter was observed cured the trouble.

Extensive tests were carried out with decoupling on both the line and frame time base circuits, the sync separator and HT smoothing but with no luck, until eventually the cathode-ray tube was changed. This immediately cured the fault.—M.J.