

### BURGOYNE CLASS B THREE (Cont.)

**Quick Tests.**—Touch socket labelled "gram" and if a loud whistle is heard the trouble lies in the aerial circuit.

**Removing the Chassis.**—Turn dial to low reading, as there is danger of damaging it when sliding the chassis out. Disconnect batteries. Undo the knobs (grub screw). Un-

(Continued in column 3.)

#### VALVE READINGS

With 120v H.T. and GB-1 = 1.5 v, GB-2 = 3v.

Valve.	Connection.	Volts.	M.A.
V1 H2 ...	anode	82	1.2
V2 L2 ...	anode	118	2.4
V3 PD 220 ...	anode	120*	1 each
Set current ...			5.6

\* As the resistance of the primary of the output transformer is only 225 ohms, each section the voltage drop below that of the HT+ tapping is negligible.

#### CONDENSERS

C.	Purpose.	Mfd.
1	Series aerial (long aerial) ...	.0005
2	Series aerial (medium aerial) ...	.0003
3	Semi variable (medium aerial) ...	.0003max
4	Tuning condenser ...	.0005
5	Reaction condenser ...	.0005
6	V1 grid condenser ...	.0003
7	Filter feed to L.F. transformer	1
8	Across H.T. battery ...	.1
9	Tone compensation V3 ...	.01
10	Tone compensation V3 ...	.01

In our model an additional condenser (not shown in diagrams) was connected between the anode of V1 and earth.

#### RESISTANCES

R.	Purpose.	Ohms.
1	V1 grid leak ...	2 meg.
2	Filter coupling to L.F. transformer.	30,000
3	Across L.F. transformer secondary.	250,000
4	V3 tone compensation ...	5,000
5	V3 tone compensation ...	5,000
—	L.F. transformer primary	600
—	L.F. transformer secondary	10,500
—	Driver transformer primary	350
—	Driver transformer secondary	550 each
—	Output transformer primary	225 each
—		half
—		half

The aerial coil in the Burgoyne Class B Three has the long wave section interposed between the two sections of the medium wave winding and the aerial lead includes a variable selectivity control.

(Continued from column 1.)

screw the lock nut on the condenser spindle. Remove speaker plugs from the sockets.

Remove two screws on back plate. (In some cases two additional screws will be found about 2½ inches from the back and at opposite sides of the chassis.)

Slide chassis out.

**General Notes.**—As the L.F. transformer is filter-fed, it is unlikely that the primary will ever be burnt out, and as the output transformer is substantial, this should not give any trouble.

It is immaterial which way round the L.S. plugs are inserted as long as the red one is in the middle socket.

**Replacing the Chassis.**—Slide chassis into position. Insert two screws in back plate. Replace lock nut on condenser spindle and replace the knobs.

## COSSOR'S 635 MAINS SUPERHET

**Circuit.**—The first detector, a variable-mu H.F. pentode MVS/Pen (V1), is preceded by a band-pass aerial tuner. The seven-pin type valve is used, and the suppressor grid is connected to the oscillator coil. As a separate oscillator valve is used, the primary of the first I.F. transformer is connected straight into the anode circuit.

The oscillator valve, 41MP (V2), is employed in the conventional manner, the oscillator tuning condenser being of the same type as the band-pass. Extra padding condensers are required.

The I.F. valve, MVS/Pen (V3), has the variable resistance (V.C.) in common with the first detector in its cathode circuit. It is coupled to the second detector by the second I.F. band-pass transformer (frequency 134 Kc.).

The second detector, MSG/HA (V4), works as an anode bend S.G. detector, and its resistance coupled to the output valve.

The output valve, MP/Pen (V5), has a variable resistance in series with a fixed condenser (R15, C25) across its grid circuit, acting as a variable tone control. This obviates the necessity for tone compensation in the anode circuit.

Rectification is by full-wave 442 BU, and

#### VALVE READINGS

V.C. max. and no signal.

Valve.	Connections.	Volts.	M.A.
V1 MVS/Pen ...	anode	220	2
	aux. grid	*85-125	5-2
V2 41MP ...	anode	*50-90	6-10
V3 MVS/Pen ...	anode	220	3
	aux. grid	85-125	—
V4 MSG/HA ...	anode	110	.1
	screen	50	—
V5 MP/Pen ...	anode	200	30
	aux. grid	200	6

\* The voltages and currents of V1 and V2 vary according to the position of the tuning.

the L.S. field is used for smoothing in the H.T. + lead with two 8 mfd. electrolytic condensers.

**Special Notes.**—The MVS1 Pen valves have seven-pin bases, the connections to which are, clockwise and looking from underneath:—Heaters, together at one end; cathode; auxiliary grid; metal coating; control grid; suppressor grid. Anode is at top of bulb.

In both V1 and V3 the metal coatings are earthed, and in V3 the suppressor grid is connected to the cathode.

The pick-up jack is connected to the grid of V4 through the secondary of the second I.F. transformer.

An H.F. stopper is included in the second detector anode circuit R13, with C22 and C23 as by-pass condensers.

#### CONDENSERS

C.	Purpose.	Mfd.
4	Mains aerial ...	.0001
5	Aerial series condenser ...	.0003
6	Aerial coil coupling (inside container).	.000014
7	L.W. padding condenser (inside 2nd band-pass).	.000023
8	Band-pass coupling ...	.1
9	V1 cathode ...	.1
11	Padding condenser L.W. on oscillator.	.000675
12	Tracking condenser on oscillator	.00145
13	Decoupling reaction coil ...	.1
18	V3 cathode ...	.1
19	Aux. grids of V1 and V3 ...	.1
20	Screen V4 ...	.1
21	V4 cathode, electrolytic (12 volt working).	50 el.
22	By-pass anode V4 ...	.0002
23	By-pass anode V4 ...	.0002
24	L.F. coupling, V4, V5 ...	.01
25	Tone control circuit ...	.002
26	V5 cathode ...	50 el.
27	Smoothing electrolytic	8 el.
28	Smoothing electrolytic	8 el.

**Quick Tests.**—Voltages between terminals on L.S. transformer and chassis:—

Inner terminal (R) ...	200 volts.
Middle terminal (Y) ...	220 volts.
Outer terminal (B) ...	350 volts.
Anode V1 and chassis, V.C. max.—	220 volts.
Anode V3 and chassis ...	220 volts.

**Removing Chassis.**—Remove knobs (grub screw). Remove three screws from underneath cabinet. Lift chassis out.

**General Notes.**—The connections for the leads from the mains transformer are:—

From smallest bobbin (end): Green leads to set filaments; (inner): Yellow leads to rectifier filament.

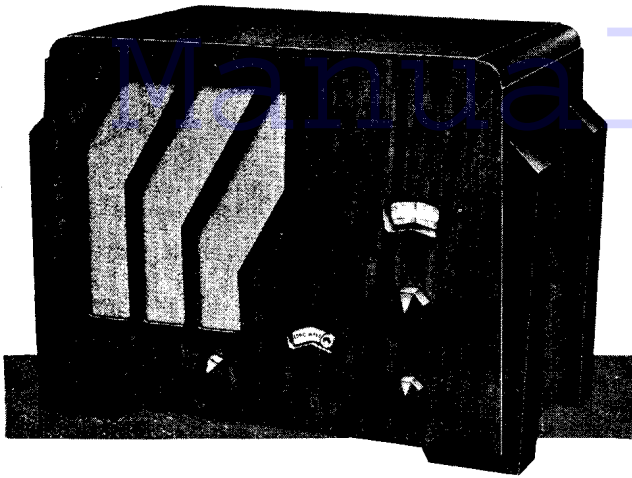
Middle bobbin: Green leads to rectifier anodes; red leads and black leads to earth.

The switch has wiping contacts, but should

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#### RESISTANCES

R.	Purpose.	Ohms.
1	Volume control ...	4,000 var.
2	Across band pass condenser ...	2 meg.
3	Aux. grids ptr. V1 and V3 ...	20,000
4	Osc. valve V2 ...	20,000
5	Lower part of aux. grid ptr. ...	25,000
6	V1 fixed bias resistor ...	450
7	Across padding tracking condensers, C11, C13.	20,000
8	V3 fixed bias resistor ...	350
9	Part of bias resistor V4 cathode	300
10	Part of bias resistor V4 cathode (shorted on gram).	300
11	Top of S.G. ptr. V4 ...	40,000
12	Lower part of S.G. ptr. V4 ...	12,000
13	H.F. stopper ...	50,000
14	L.F. coupling resistance ...	.25 meg.
15	Tone control, grid V5 ...	.25 meg. var.
16	H.F. stopper, grid V5 ...	.1 meg.
17	Grid leak V5 ...	.5 meg.
18	V5 cathode bias ...	300
—	L.S. field (Y to B) ...	2,000
—	Output transformer primary (Y to R).	360



Above is the Cosmor 635 Superhet, and on the right are the chassis layouts. Below is the circuit.

(Continued from previous page.)

those on the oscillator coil require special attention, remove the two screws holding the resistance and condenser panel and ease the latter back to allow a tape or duster to be inserted.

As with other superhets, the ganging of the oscillator and band-pass circuits should not be attempted without special equipment, but as tracking condensers C11 and C12 are used on the oscillator coil, the trimmer C10 (sealed) can be adjusted when tuning on the long-wave band indicates that the tracking is wrong on that waveband.

This control merely trims condenser C11, and does not affect the medium wave-band ganging.

**Replacing the Chassis.**—Lay chassis inside cabinet.

Replace three screws underneath.  
Replace control knobs.

