

NUMBER 104

'TRADER' SERVICE SHEETS

Burgoyne 'Hollywood AC3' 3-VALVE A.C. RECEIVER

When replacing, see that the transformer is on the left and connect as above.

SUITABLE for A.C. mains of 200-250 V, 25-100 c.p.s., the Burgoyne "Hollywood AC3" receiver is fitted with a 3-valve (plus rectifier) chassis using a variable-mu pentode H.F. amplifier, a triode detector and a pentode output valve. Provision is made for a gramophone pick-up, for which there is a third position on the wave-change switch, and a Droitwich rejector can be brought into circuit by means of a second aerial socket.

CIRCUIT DESCRIPTION

Two alternative aerial input connections via fixed series condenser C1 and choke coil L2 on L.W. to coupling coils L3, L4. A2, for normal use, is direct, while A1 includes rejector circuit L1, C13, and is used when interference from Droitwich is experienced.

Single tuned circuit L5, L6, C14 precedes variable-mu pentode H.F. amplifier (V1, Tungram metallised HP4115 or Mullard VP4B). Gain control by variable cathode resistance R4 which varies G.B. applied.

Tuned-secondary transformer coupling by L7, L8, L10, L11 and C17 to triode detector (V2, Tungram metallised HL4 or Mullard 904V) which operates on grid leak system with C5 and R5. Reaction is applied from anode by coil L9 and controlled by variable condenser C16. Anode H.F. filtering by choke L12 and by-pass condenser C7. Provision for connection of gramophone pick-up in grid circuit by switch S6, when G.B. is obtained from cathode resistance R6.

Resistance-capacity coupling by R7, C8 and R9 to pentode output valve (V3, Tungram APP4C or Mullard Pen4VB). Tone correction in anode circuit by fixed condenser C10.

H.T. current is supplied by I.H.C. full-wave rectifying valve (V4, Tungram APV4 or Mullard IW3). Smoothing by speaker field coil L15 and dry electrolytic condensers C11, C12.

DISMANTLING THE SET

Removing Chassis.—If it is necessary to remove the chassis from the cabinet, remove the back (two knurled screws), the three control knobs and the bush

from the wave-change switch. Now remove the knurled securing nut from the mains switch on the side of the cabinet and push the switch through into the inside of the cabinet. Remove the two cleats on the side of the cabinet for the speaker leads (one round-head wood screw for each) and remove the three round-head wood screws from the flange at the back of the chassis, which can now be withdrawn to the extent of the speaker leads. This is sufficient to allow of normal repairs being carried out.

If the chassis is connected to the mains, take care that the switch does not short to the chassis.

When replacing, fix the wave-change switch knob so that the white dot is on the left when the receiver is switched to the medium wave band.

To free the chassis entirely, unsolder the leads on the speaker terminal panel. When replacing, connect as follow, numbering the tags from bottom to top:—1, yellow; 2 and 4 joined together, red; 3, grey. The black lead goes to the frame of the speaker.

Removing Speaker.—To remove the speaker from the cabinet, unsolder the leads to it and remove the nuts from the four bolts holding it to the sub-baffle.

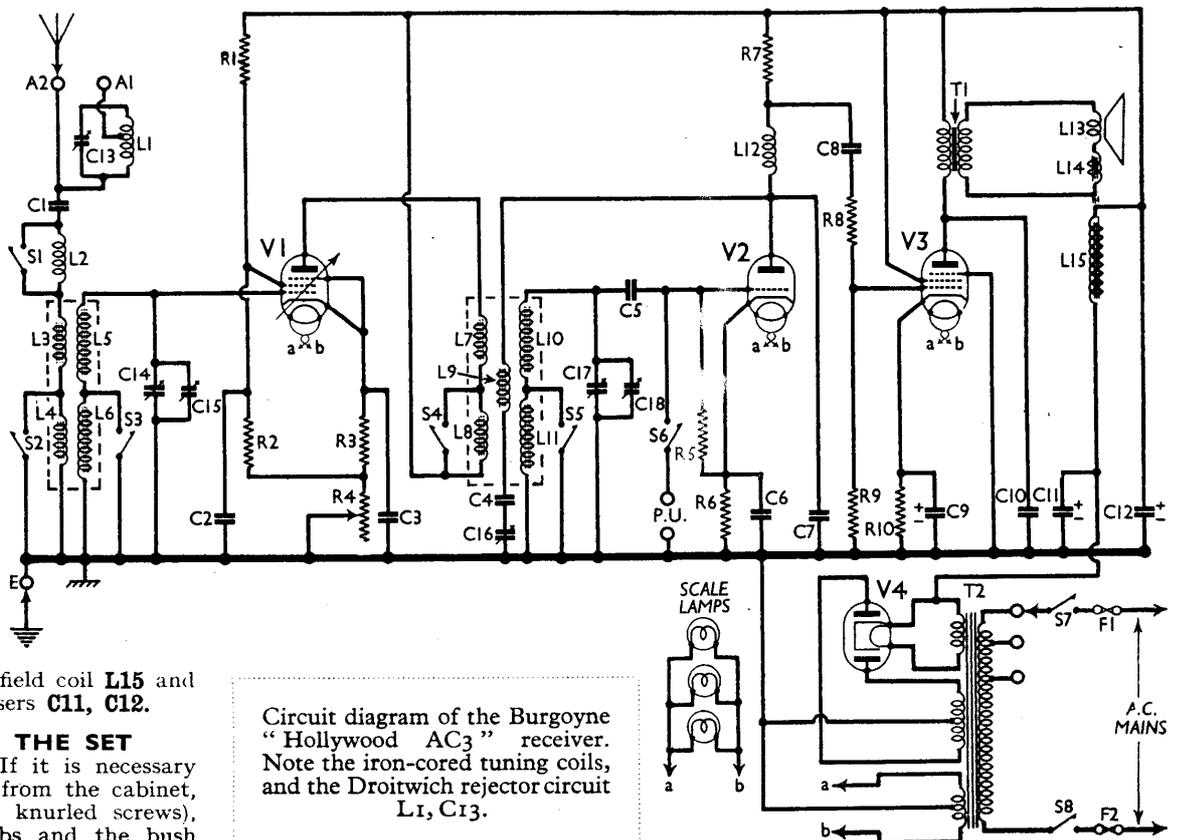
COMPONENTS AND VALUES

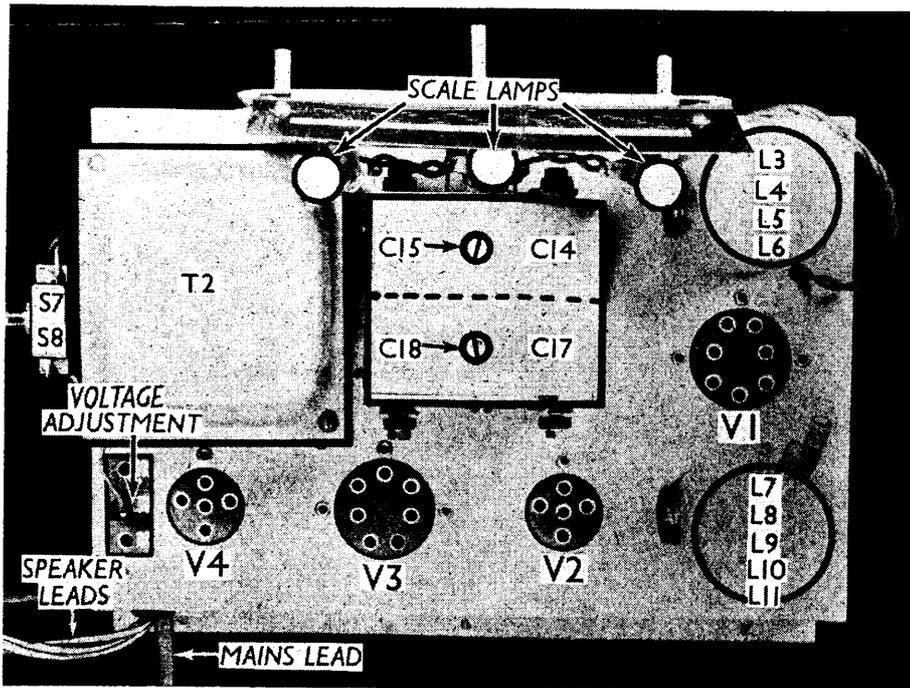
Resistances		Values (ohms)
R1	V1 S.G. potential divider	50,000*
R2	V1 fixed G.B. resistance	40,000
R3	V1 gain control	200
R4	V1 grid leak	5,000
R5	V2 grid leak	1,000,000
R6	V2 G.B. resistance (gram.)	1,000
R7	V2 anode load	50,000
R8	V2 C.G. H.F. stopper	50,000
R9	V3 C.G. resistance	250,000
R10	V3 G.B. resistance	150

*10,000 Ω with VP4B.

Condensers		Values (μF)
C1	Aerial series condenser	0.0001
C2	V1 S.G. by-pass	0.1
C3	V1 cathode by-pass	0.1
C4	Reaction series condenser	0.0005
C5	V2 grid condenser	0.0001
C6	V2 cathode by-pass	0.1
C7	V2 anode H.F. by-pass	0.0005
C8	L.F. coupling V2 to V3	0.1
C9*	V3 cathode by-pass	25.0
C10	Tone corrector	0.01
C11*	H.T. smoothing	8.0
C12*	H.T. smoothing	12.0
C13†	Droitwich rejector tuning	0.0002
C14†	Aerial circuit tuning	0.0005
C15†	Aerial circuit trimmer	—
C16†	Reaction control	0.0005
C17†	H.F. transformer tuning	0.0005
C18‡	H.F. transformer trimmer	—

* Electrolytic. † Variable. ‡ Pre-set.





Plan view of the chassis. The S7, S8 unit fits on the side of the cabinet.

Other Components		Approx. Values (ohms)
L1	Droitwich rejector coil	31.0
L2	Aerial choke coil	21.0
L3	Aerial coupling coils	0.6
L4		4.6
L5	Aerial tuning coils	2.2
L6		10.5
L7		1.2
L8	H.F. transformer primary	4.8
L9	Reaction coil	2.2
L10	H.F. transformer secondary	2.2
L11		10.5
L12	V2 anode H.F. choke	280.0
L13	Speaker speech coil	1.6
L14	Hum neutralising coil	0.1
L15	Speaker field coil	2,000.0
T1	Speaker input trans. Pri.	770.0
	Sec.	0.25
	Pri. total	27.5
T2	Mains trans. Heater sec.	0.05
	Rect. heat. sec.	0.1
	H.T. sec. total	640.0
S1-S5	Waveband switches	—
S6	Gram. pick-up switch	—
S7, S8	Mains switches	—
F1, F2	Mains circuit fuses	—

VALVE ANALYSIS

Voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 225 V, using the 220-230 V tapping on the mains transformer. The volume control was turned so that the whole of the resistance was out of circuit, but the vanes of the reaction condenser were not fully in mesh, that is, the spindle was turned through an angle of about 90 degrees. There was no signal input.

Voltages were measured on the 1,200 V scale of an Avometer, with chassis as negative.

Valve	Anode Volts	Anode Current (mA)	Screen Volts	Screen Current (mA)
V1 HP4115	270	5.0	92	1.7
V2 HL4	77	4.0	—	—
V3 APP4C	240	41.0	272	5.1
V4 APV4	345†	—	—	—

† Each anode, A.C.

GENERAL NOTES

Switches. — S1 - S5, the waveband switches, and S6, the pick-up switch, are all ganged together in a single unit, seen in the under-chassis view. The table below gives the switch positions for the various control knob settings, O indicating open, and C, closed.

Switch	M.W.	L.W.	Gram.
S1	C	O	O
S2	C	O	O
S3	C	O	O
S4	C	O	C
S5	C	O	C
S6	O	O	C

S7 and S8 are the two Q.M.B. mains switches, in a single unit, mounted at the side of the cabinet.

Coils.—L1, L2 and L12 are multi-layer coils mounted beneath the chassis. L3-L6 and L7-L11 are in two screened units on the chassis deck.

Scale Lamps.—There are three of these, connected in parallel. They are all of the M.E.S. type, and are marked "6 V." 6.3 V, 0.3 A types would be suitable.

External Speaker.—There is no provision on the chassis for this, but a high resistance type could be connected across the primary of T1.

Condensers C9, C11, C12.—These are three dry electrolytic types in a single unit beneath the chassis, having a common negative (black) lead. The positive of C9 (25 μF) is the green lead, that of C11 (8 μF) the yellow lead, and that of C12 (12 μF) the red lead.

Condenser C16, Resistance R4.—The reaction condenser and gain control are ganged together.

L1, C13.—These form the Droitwich rejector. L1 may not be centre-tapped in some chassis.

Resistance R10.—This may be 140 O.

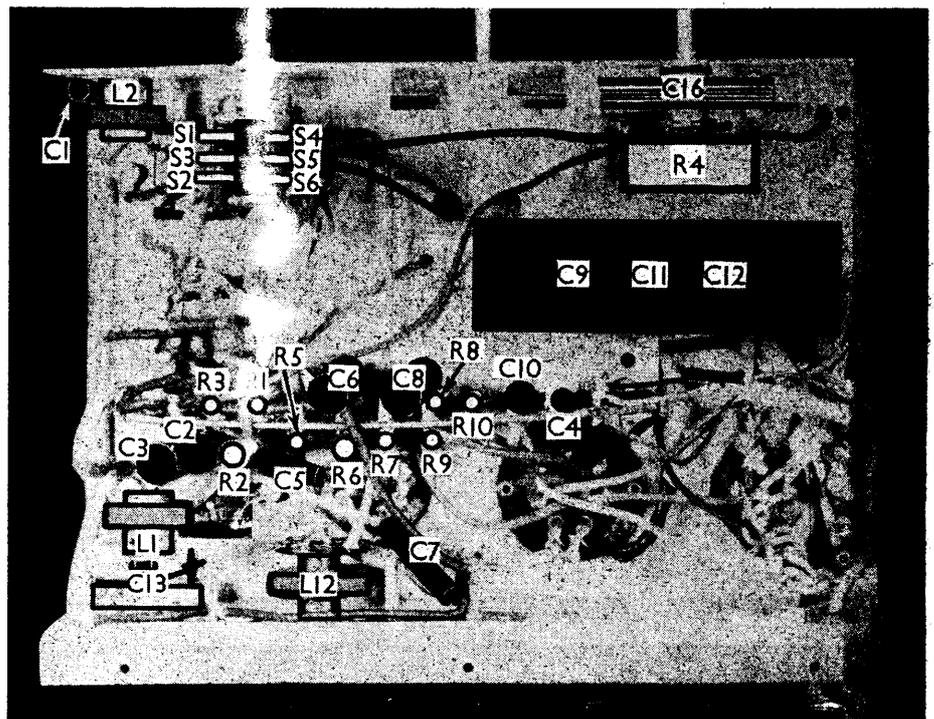
Resistance R1.—This is 50,000 O in our chassis, which employs Tungstram valves. Where Mullard valves are used, R1 becomes 10,000 O.

Valve V1.—If a Mullard VP4B is used, the top cap connection is the control grid, and not the anode as in the Tungstram HP4115. Hence the two valves are not interchangeable unless the wiring is suitably modified.

Valve V3.—Note that the Mullard Pen4VB has its suppressor grid connected internally, and not to Pin 1 as in the Tungstram APP4C.

Condenser C2.—This may be returned to cathode of V1, instead of to chassis.

Fuses F1, F2.—These are two 2 A glass tubular types, fitted in the special mains plug.



Under-chassis view. C13 is adjusted from the rear of the chassis.