BURGOYNE HOLLYWOOD A.C. MAINS 3

CIRCUIT.—The signal from the aerial passes through a Droitwich wave-trap and series aerial condenser, and is inductively coupled to V1, an H.F. pentode.

V1 is inductively coupled to V2, a triode, by an H.F. transformer using reaction in the orthodox manner.

The L.F. output of V2 passes to the output pentode V3 through a resistance capacity network and to the speaker via a matched output transformer.

Mains equipment consists of trans-

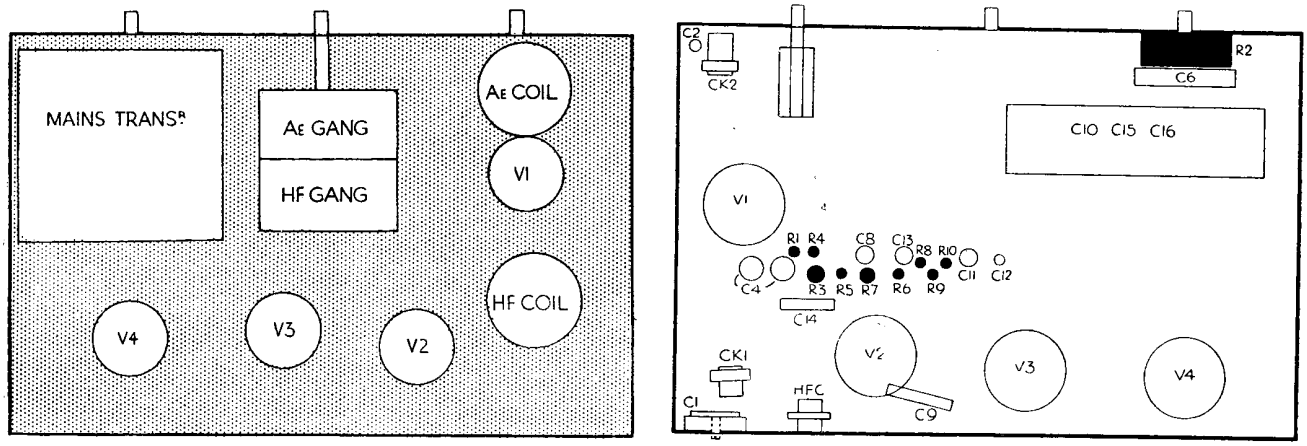
(*Continued on next page.*)

RESISTANCES

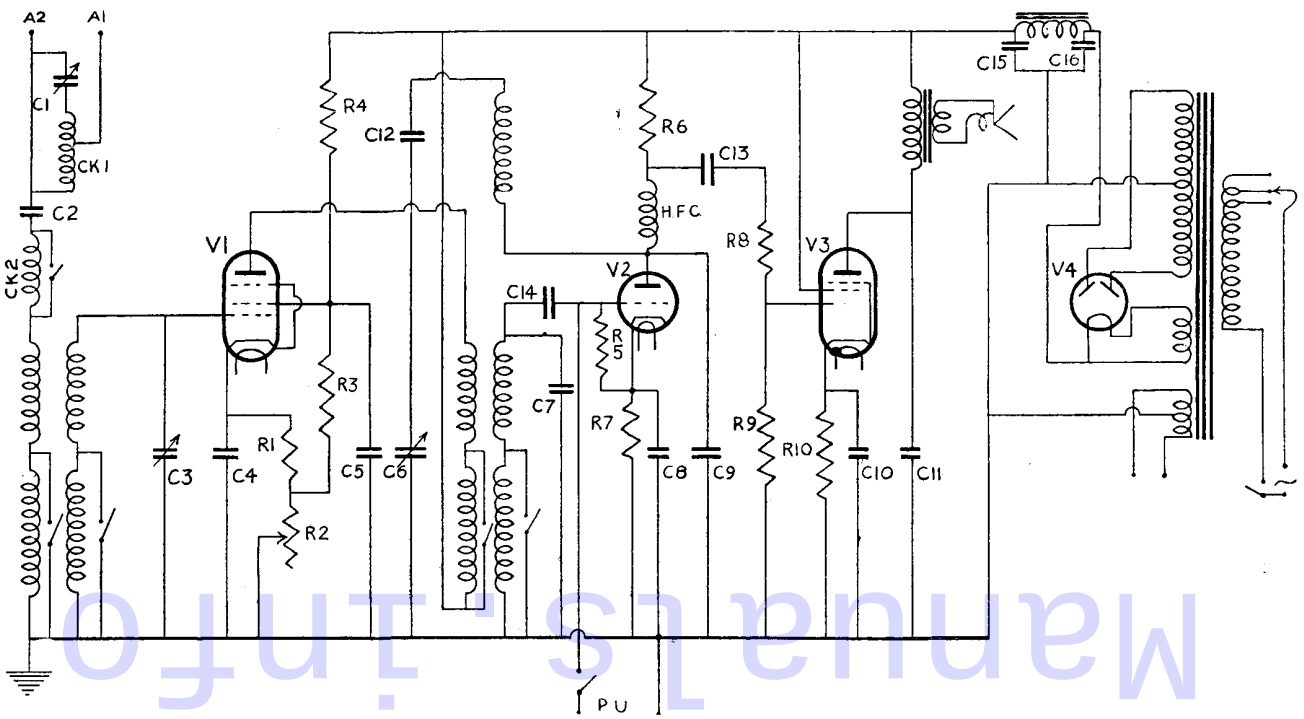
R.	Purpose.	Ohms.
1	V1 cathode bias	200
2	Volume control	5,000
3	V1 bias feed	40,000
4	V1 screen decoupling	10,000
5	V2 grid leak	1 meg.
6	V2 anode decoupling	50,000
7	V2 cathode bias	1,000
8	Grid stopper	50,000
9	Grid stopper	250,000
10	V3 cathode bias	140

CONDENSERS

C.	Purpose.	Mfd.
1	Wave trap	.0002
2	Series aerial	.0001
3	Aerial tuning	.0005
4	V1 cathode by-pass	.1
5	Screen decoupling	.1
6	Reaction	.0005
7	H.F. tuning	.0005
8	V2 cathode by-pass	.1
9	V2 anode decoupling	.0005
10	V3 cathode by-pass	25
11	Pentode compensating	.01
12	Series reaction	.0005
13	L.F. coupling	.1
14	V2 grid	.0001
15	H.T. smoothing	12
16	H.T. smoothing	8



These drawings show the construction of the chassis of the Burgoyne Hollywood A.C.3 receiver. The "tinted" diagram on the left shows the plan view and on the right is the underneath layout.



A "straight" circuit is employed in the Hollywood. Volume is controlled by adjusting the bias on the H.F. valve and reaction is applied by means of a variable condenser.

BURGOYNE HOLLYWOOD A.C.3 (Continued)

former, full-wave indirectly heated rectifier, electrolytic condensers, and speaker field.

Special Notes.—The dial lights are rated at 6 v. .3 amp., and are easily removable by unscrewing.

The Droitwich trap is left in circuit on the medium waves, and is stated to increase sensitivity somewhat at the top end of the band.

Removing Chassis.—Remove the three knobs from front of the cabinet (grub screws) and the three securing screws passing through a flange in the chassis.

Release the speaker leads from the cleats, and the chassis will then slide out of the cabinet far enough for the usual inspection and test.

QUICK TESTS

Quick tests are available on the terminal strip mounted on the speaker. Volts measured between this and the chassis should be:—
Yellow lead, unsmoothed H.T., 380 volts.
Red lead, smoothed H.T., 280 volts.

VALVE READINGS

No signal and no reaction. 200 volt mains.

V.	Type.	Electrode.	Volts.	M.a.
1	Mullard VP4B (7) (met.)	anode ..	275	5
		aux. grid	215	.2
2	Mullard 904V (5) (met.)	anode ..	110	3.3
3	Mullard Pen. 4VB (7)	anode ..	250	40
		aux. grid	275	4.6
4	Micromesh R3 (4)	filament..	380	—

CIRCUIT ALIGNMENT NOTES

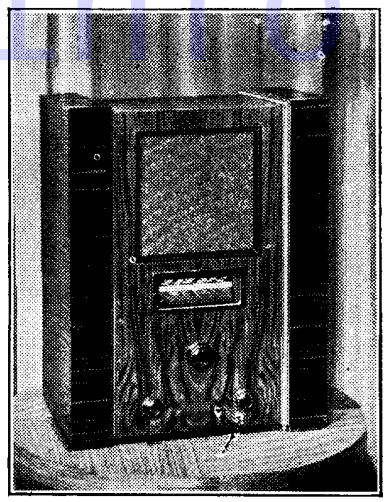
Adjustment of Droitwich Filter.—Tune receiver to Droitwich transmission and adjust C1, which is accessible through a hole in the back of the chassis, for minimum response.

Medium-wave Band.—Connect modulated oscillator to aerial and earth terminals and output meter across speaker terminals.

Tune modulated oscillator and receiver to 200 metres, and adjust the aerial and H.F. trimmers, which are on the gang condenser, for maximum response.

Tune set and oscillator to 500 metres and readjust trimmers for maximum response.

Long-wave Band.—No further adjustment should be necessary



The Hollywood, a representative "straight" A.C.3 receiver, is made by Burgoyne Wireless (1930), Ltd. A refinement is a Droitwich filter included in the aerial circuit.

Clearing Speaker Gaps

Dust can be removed from the gap of a speaker fairly easily, either by blowing or by using a piece of stiff card.

Iron filings in the gap of a permanent-magnet speaker present, however, a somewhat more difficult problem. It is usually necessary to use some adhesive material which will "hold" the particles as they are drawn away.

A thin strip of plasticine will invariably be found effective.

BURGOYNE AC3 SERIES

Three-valve, plus rectifier, two waveband tuned-radio-frequency receiver for operation from AC mains of 200 240 v. Provision is made for connecting a high resistance pickup but sockets are not provided for an extra loudspeaker. A low resistance speaker of 1.6 ohms DC resistance could be connected across the moving-coil of the internal speaker. Marketed by Burgoyne Wireless (1930), Ltd.

THE AC3 chassis is fitted in all Hollywood models. Radiograms and table-grams may be marked either "Fury Star" or AC Radiogram. In some cases these instruments incorporate a universal type chassis. This review concerns only the AC series.

Aerial input may be injected either *via* A1 socket which connects to a Droitwich rejector circuit comprising L1 and TC3, or the input can be taken *via* A2 to the aerial coupling coils L3 (MW), L4 (LW).

C1 is the aerial condenser; L2 is in circuit on long waves only and is a choke for suppression of medium wave interference on the lower end of the LW band.

Grid coils L5, L6 are tuned by VC1 section of the ganged condenser, and the signals are fed direct to the variable-mu pentode V1. R1, R2 comprise the screen-grid potential divider decoupled by C2; and the bleeder current is taken to HT negative and chassis *via* the volume control R4. This controls the gain on V1 by varying the cathode bias and thence, of course, the grid bias. R3 is the fixed cathode bias for V1 decoupled by C3.

A tuned secondary high-frequency transformer comprising L7, L10 (MW) and L8, L11 (LW) transfers the signals from V1 to the grid of V2 which operates as a leaky grid detector. C5 is the grid condenser and R5 the grid leak.

The valve is permanently biased by R6, decoupled by C6, for use as an audio amplifier when a high resistance pickup is connected to the pickup sockets.

L12 enables filtering to be effected *via* C7 to keep HF out of the LF circuits. The reaction control, VC3, operates in conjunction with the reaction winding L9 and condenser C4. VC3 is ganged with R4.

Audio signals are resistance capacity coupled by R7 and C8 to the grid of the output pentode V3. R8 and R9 form a potentiometer from which a percentage of the signal is fed to V3.

The output valve is cathode biased by R10 decoupled by C9 and a permanent degree of tone correction is effected by C10.

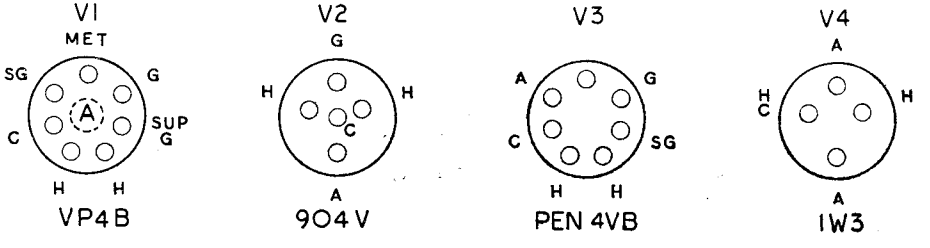
An output transformer L13, L14 couples V3 to the energised moving-coil loudspeaker in which L15 is the speech coil, L16 the hum-bucking coil and L17 the field winding.

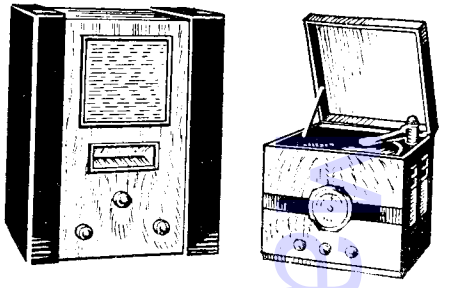
(Continued overleaf)

VALVE READINGS

V	*Type*	*Electrode*	*Volts*	*Mas.*
1	VP4B Mullard or HP4115 Tungsram	Anode	280	5
		Screen	*115	1.7
2	904V Mullard, or HL4 Tungsram	Anode	80	4
3	PEN4VB Mullard or APP4C Tungsram	Anode	270	41
		Screen	290	5
4	IW3 Mullard or APV4, APV4200 Tungsram, or R3 Brimar	Heater	420	DC

V2, V3, V4 alternatives are interchangeable. V1 must be replaced by type found in model.
Pilot lamps: 6.2v, .3 amps MES.
* With volume control at minimum.





The AC3 chassis is employed in both the "Hollywood" table model (left) and the Tablegram (right.)

RESISTORS

R	*Ohms*	*R*	*Ohms*
1*	50,000	6	1,000
2	40,000	7	50,000
3	200	8	50,000
4	5,000	9	250,000
5	1 meg.	10†	150

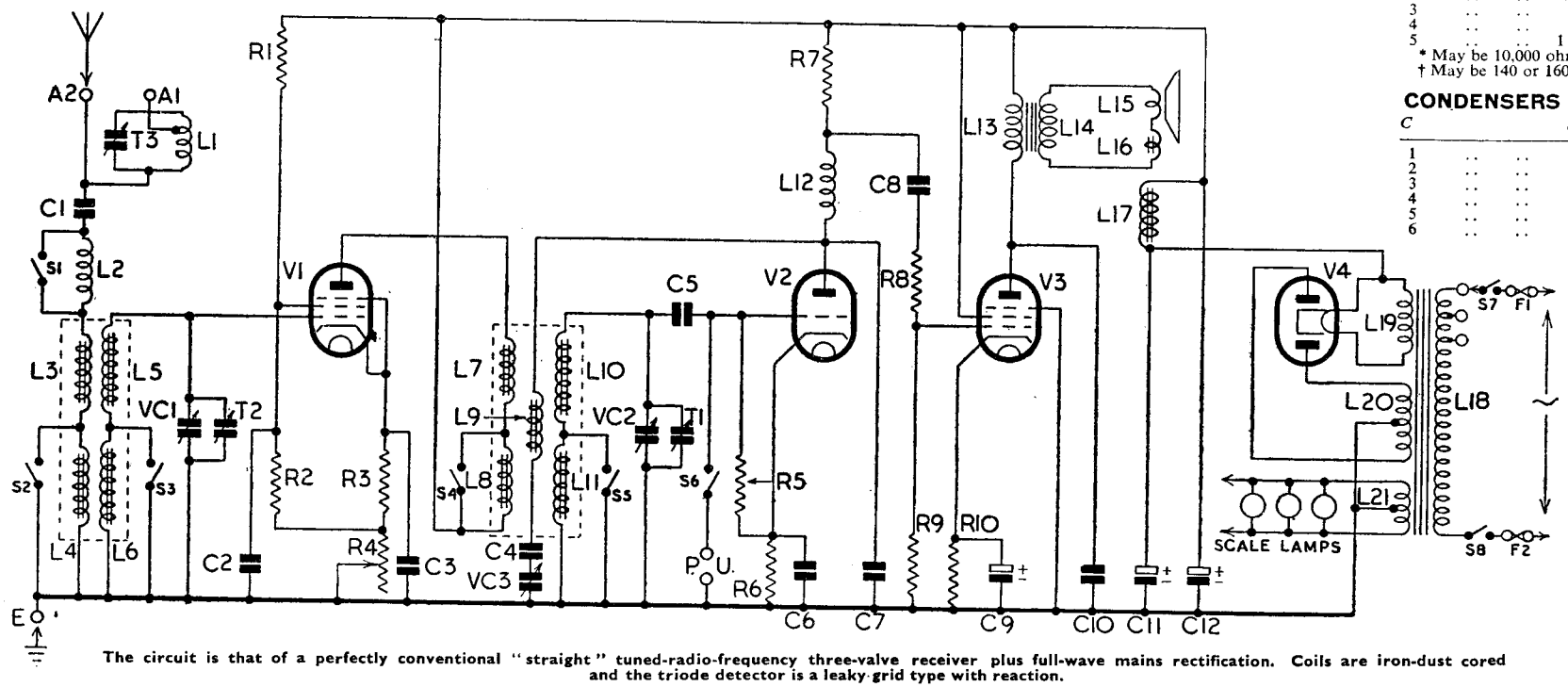
* May be 10,000 ohms.
† May be 140 or 160 ohms.

CONDENSERS

C	*Mfds*	*C*	*Mfds.*
1	.0001	7	.0005
2	.1	8	.1
3	.1	9	25
4	.0005	10	.01
5	.0001	11	8
6	.1	12	12

WINDINGS

L	*Ohms.*
1	31
2	21
3	.6
4	4.6
5	2.2
6	10.5
7	1.2
8	4.8
9	2.2
10	2.2
11	10.5
12	280
13	770
14	.25
15	1.6
16	.1
17	2,000
18 (total)	27.5
19	.1
20 (total)	640
21	.05



The circuit is that of a perfectly conventional "straight" tuned-radio-frequency three-valve receiver plus full-wave mains rectification. Coils are iron-dust cored and the triode detector is a leaky-grid type with reaction.

BURGOYNE AC3 SERIES

Continued

High tension supply is obtained from the full-wave rectifying valve V4, and smoothing is effected by L17, C11 and C12. Two one-amp. fuses are incorporated in the special two-pin plug fitted to the mains lead.

GANGING

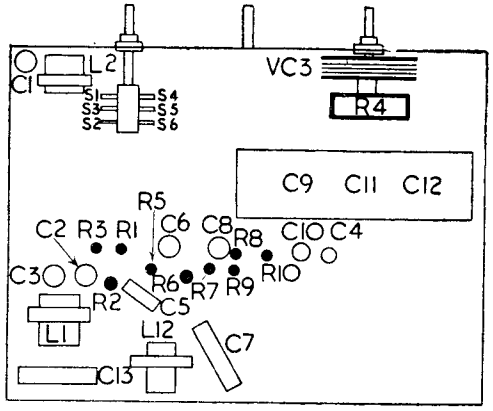
Calibration. Adjust the tuning condenser to its electrical maximum. This will occur when the edges of the moving vanes are flush with the edges of the fixed vanes. This condition does not correspond with the mechanical maximum movement of the fixed vanes, and it may, therefore, be necessary to remove the condenser cover so as to adjust the condenser to its electrical maximum.

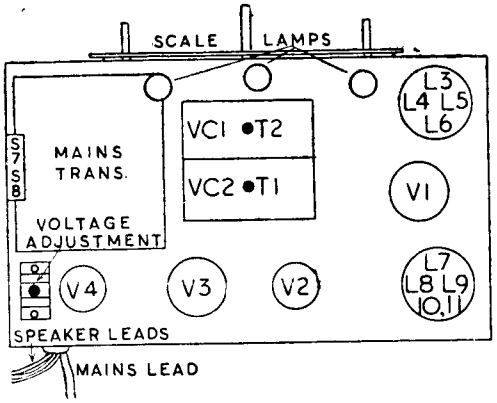
When this has been done, adjust the pointer to approximately 1/16th of an inch to the right of the 550 m. mark in the case of the Hollywood models, and the reverse end of the pointer to the 200 m. mark in the case of the AC Gramophone and Tablegram.

Replace condenser cover and tune receiver to 200 m. on the scale with the instrument switched to MW. Inject a 200 m. signal *via* the aerial and earth sockets, and adjust T1 and T2 for maximum output, using slight, but not critical, reaction.

The ganging should hold over both MW and LW bands.

Droitwich Filter Adjustment. Switch receiver to LW and tune it to 1500 m. Inject a 1500 m. signal *via* A1 aerial socket and adjust T3 at the back of the chassis for *minimum* output.





These two drawings identify all the components on the Burgoyne AC3 chassis, resistors being shown in solid black to speed location. There are only two trimmers, located on the gang, and a long-wave filter tuner T3.

Replanning Battery Charging Department

DEALERS who are reorganising after the standstill of war years and, perhaps remedying the effects of bomb damage, should consider whether this is the time to effect improvements in arrangements for battery charging.

A separate charging room is desirable if the work to be done amounts to a reasonable quantity; in any event, the charging section should be removed to a part of the service shop well away from repair benches and receiver racks. This makes for safety, easier working, and reduces the possibility of corrosive fumes affecting instruments and sets.

It is necessary to take note of requirements imposed by your insurance company.

In an outdoor shed a concrete floor is very suitable. Indoors, floorboards may be covered with asbestos sheeting which, in ordinary times, can be covered with thin rubber available in large sheets like linoleum.

Rubber is not affected by acid and is easily washed down.

The same treatment can be applied to bench tops, although various other coverings may be used according to circumstances. Marble tops from old washstands may be used with the gaps filled with cement, plaster of Paris or a preparation such as Alabastine.

A plate-glass covering is excellent or, of course, lead. What must be avoided is any surface that will gradually soak up acid.

Unless the room can be well ventilated by door and window both giving to the open air, ventilation is a problem. If the natural air flow is frequently going to carry fumes into the rest of the building, the only satisfactory arrangement is an extractor fan system.

With such a system it may be considered better to dispense with open charging benches and to use a series of racks made of asbestos sheeting and forming compartments communicating with the extractor fan. The racks should have glass bottoms and be fitted with busbars for connections.

Provision must be made for a sink and for containers of acid and distilled water. If cells are going to be overhauled, a small workbench and a cupboard are also necessary.

Last, but not least, the charger itself must be mounted in an accessible and light, well ventilated, situation. It should not be mounted over a bench on which cells are charging.