

# McMICHAEL DUPLEX TRANSPORTABLE

**Circuit.**—The H.F. valve, 215S.G. (V1), is preceded by the frame aerial, of which the long-wave section is short circuited for use on the M.W. band. Bias is obtained by taking the grid leak to a tapping on a potentiometer across the G.B. section of the battery, and the screen potential is taken from the low H.T. end of the decoupling resistance of the first L.F. valve.

Coupling to the next valve is by H.F. choke and condenser filter. Volume is controlled by a variable resistance in series with the positive lead to this valve.

The detector valve, HL2 (V2), operates as a leaky grid detector with swinging coil reaction. The grid leak is connected to the centre tap of a potentiometer across the L.T. Coupling to the next valve is by parallel-fed transformer, and a resistance, R6, is included in the circuit to act as an H.F. stopper.

The first L.F. valve, HL2 (V3), has the gramophone jack connected in its grid circuit and an additional H.F. stopper. Another parallel-fed transformer couples V3 to the next valve.

The driver valve, 215P (V4), is used in the conventional way, and is coupled to the output Class B valve, 240B (V5), by a typical driver transformer.

The anode circuits of V5 are stabilised by condensers between the anodes and H.T.+, and tone compensation is provided by a condenser and resistance in series between the anodes. The H.T. battery is by-passed by an 8 mfd. electrolytic condenser.

Both H.T.— and L.T.+ are broken by the switch.

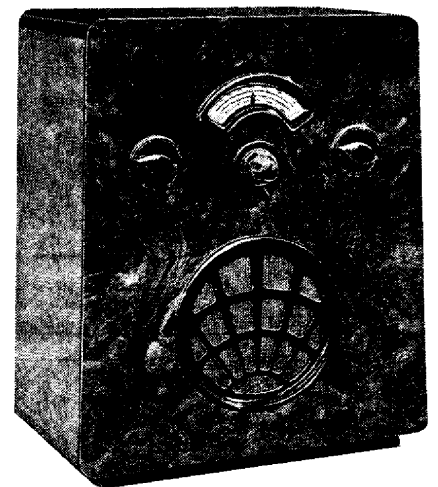
**Special Notes.**—The H.T. battery is a special Grosvenor type SR490DL. Connections are: H.T.+, 99 volts; G.B.—, —6 volts.

**Quick Tests.**—These consist in taking valve readings and observing the plops, and by connecting a P.U. to test from V5.

**Removing Chassis.**—Remove tuning knobs (grub screw) and wave-change switch lever. There is no need to remove the volume or reaction knobs.

Remove the four hexagonal screws at the ends of the valve compartment and the wooden chuck clamping the bottom of the battery compartment.

Remove the six screws from the board at



A five-valve Class B battery receiver the Duplex Transportable by McMichael Radio Ltd. is completely self-contained.

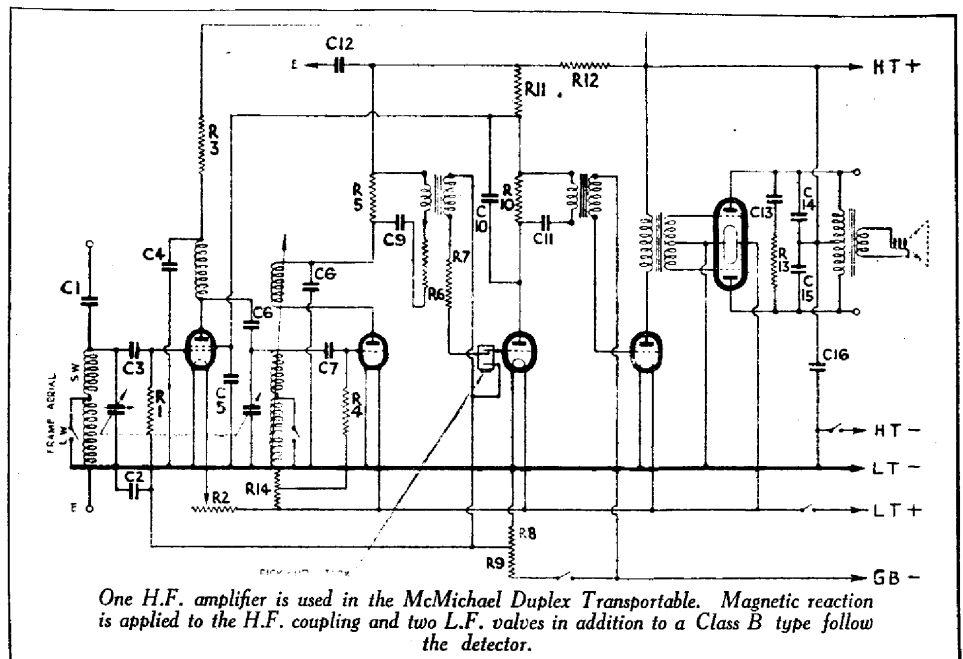
the back of the latter, and unsolder the L.S. leads. (There is no need to mark these as the order of connection is the same as that on the L.S. transformer.)

(Continued on opposite page.)

VALVE READINGS				
[V.C. max.]				
Valve.	Type.	Electrode.	Volts.	Ma.
1	215 S.G. ...	anode ...	98	1.5
		screen ...	35	
2	HL2 ...	anode ...	50	.5
3	HL2 ...	anode ...	30	.5
4	215P ...	anode ...	100	3.5
5	240B ...	each anode	100	1

RESISTANCES		
R.	Purpose.	Ohms.
1	V1 grid leak ...	.5 meg.
2	V1 rheostat ...	20
3	V1 anode decoupling ...	2,000
4	V2 grid leak ...	2 meg.
5	V2 anode coupling ...	30,000
6	H.F. stopper in transformer feed ...	20,000
7	H.F. stopper in V3 grid circuit ...	.5 meg.
8	Bias ptr. for V1 and V3 ...	400
9	Bias ptr. for V1 and V3 ...	2,000
10	V3 anode coupling ...	30,000
11	Decoupling V3 anode and voltage dropping to V1 screen.	50,000
12	Voltage dropping to V2 and V3	10,000
13	Tone compensating circuit in V5 anodes.	10,000
14	Potentiometer across L.T.	250+250

CONDENSERS		
C.	Purpose.	Mfd.
1	Series aerial ...	.00003
2	Decoupling V1 grid ...	.25
3	V1 grid ...	.001
4	Decoupling V1 anode ...	1
5	V1 screen ...	1
6	H.F. feed to tuned grid coil ...	.001
7	V2 grid ...	.0002
8	V2 anode by-pass ...	.001
9	L.F. feed to transformer I ...	.5
10	V3 anode by-pass (to H.T.) ...	.001
11	L.F. feed to transformer II ...	.5
12	Decoupling H.T. to V2 and V3	1
13	Tone compensating circuit V5 anodes.	.002
14	Stabilising V5 anode ...	.002
15	Stabilising V5 anode ...	.002
16	Across H.T. ...	8 el.



One H.F. amplifier is used in the McMichael Duplex Transportable. Magnetic reaction is applied to the H.F. coupling and two L.F. valves in addition to a Class B type follow the detector.

### McMICHAEL DUPLEX TRANSPORTABLE (Cont.)

Lift out the chassis complete with the frame aerial.

**General Notes.**—To reach valve holders remove screen by undoing three screws from flange and four wood screws.

The lay-out and general wiring plan are obvious, and the only component that requires special mention is the H.F. coil assembly, which contains the H.F. coils, the H.F. choke, with C6, C7 and C8.

If any fault is traced definitely to this section, the complete container must be removed.

Removing H.F. coil container:—Unsolder the four leads from the earthing tag and the remaining leads from their other ends. To loosen the lead to R5 and C9 ease back the sistoflex to reveal the joint.

Undo the four screws on the back of the

screen behind the valves and, if the container will not clear the leads to the frame aerial unsolder these from the frame aerial tags. The container can then be eased out.

To reach the components, undo the four corner screws from the front and two at the end.

The condensers inside are C6 and C7, together alongside the coil, and C8 at the end.

To undo the coil it is necessary to release the reaction spindle by undoing the grub screw in the hole in the reaction coil former.

When assembling the receiver remember to take the S.G. anode lead through the hole.

When the unit is complete slip it carefully into position and push the S.G. anode lead through the rubber washer in the valve compartment screen. Replace the four holding screws and reconnect the leads.

These are:—Lead from wave-change switch

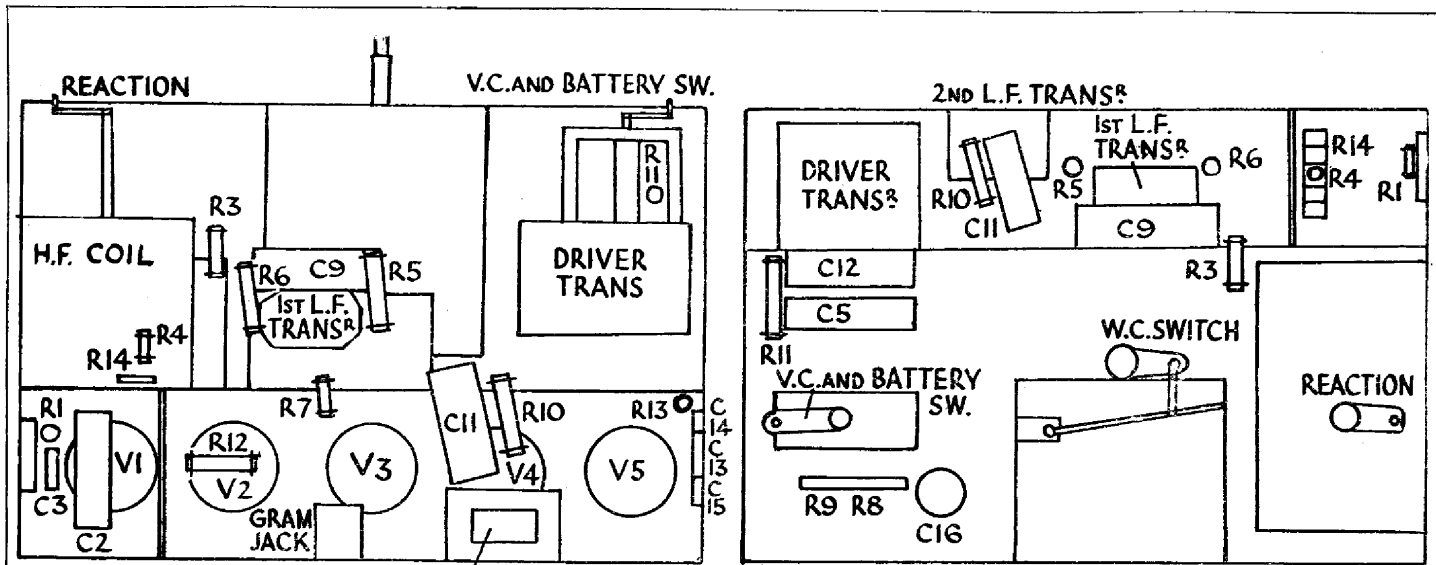
to centre tag on frame aerial, lead from tuning condenser to other end of M.W. winding.

Front, counting from top:—

- (1) to front switch.
  - (2) red, to C4 (1 mfd. next to compartment).
  - (3) to stator tag of front tuning condenser.
  - (4) to E earth tag.
- Underneath (counting from front):—
- (1) red, to V2 anode.
  - (2) to junction of R5 and C9.
  - (3) to junction of R4 and V2 grid lead.

**Replacing Chassis.**—Replace screen underneath valve deck (see that VC and reaction levers are in correct positions to engage in the controls). Lift chassis carefully into cabinet. Replace holding screws with guiding templates. Resolder speaker leads in same order as on transformer and replace the panel at the back of the battery compartment.

Replace the wooden chuck on the bottom of the cabinet.



Left is a view from underneath the chassis of the McMichael Duplex Transportable and right is a view from the front. The latter is given upside down which is the most convenient position in which to place the chassis.