

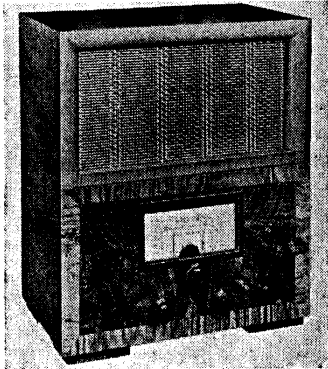
"TRADER" SERVICE SHEET

575

REVISED ISSUE OF SERVICE SHEET No. 167

MARCONIPHONE 375

AND HMV 149



The appearance of the Marconiphone 375 receiver.

THE Marconiphone 375 is a 3-valve 3-band battery TRF receiver. It has three aerial sockets and a Droitwich rejector. The SW range is 18-50 m, and switching is arranged to alter the circuits in each stage for SW operation.

The HMV 149 employs an identical chassis, but it is housed in a different cabinet.

Release date, both models: 1936.

CIRCUIT DESCRIPTION

Aerial input from socket A2 on MW and LW is via series condenser C3, coupling coil L3 and C7 to single tuned circuit L4 (MW), L5 (LW) and C22, which precedes a tetrode RF amplifier (V1, Mar-

coni metallised VS24). Alternative input sockets A1 and A3 include a Droitwich rejector L1, C18, C1 in the aerial lead, while the latter also includes a series resistance R1 for very strong signals. Dual action gain control by R2, which forms with R3, R4 a potentiometer across the GB battery. This varies the damping across L3 at the same time as it varies the GB applied to V1.

On SW, input is via C3, C4 to aperiodic choke L2. S1 is closed, and the gain control R2 is inoperative.

Tuned-anode coupling by L6 (SW), L8 (MW), L9 (LW) and C23 between V1 and tetrode detector valve (V2, Marconi metallised VS24) which operates on the grid leak system with C12, R8. On MW and LW, reaction is applied from anode via L10, and controlled by pre-set condenser C27 and pre-set resistance R7; on SW it is applied via L7 and controlled by variable condenser C28, which forms the SW gain control. RF filtering by C14, R11 and C15.

Parallel-fed transformer coupling by R10, C16 and T1 between V2 and pentode output valve (V3, Marconi PT2), the ratio of T1 being increased to 1:7 on the SW band by switches S13-S15. Fixed tone correction in anode circuit by C17.

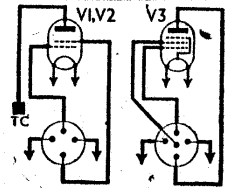
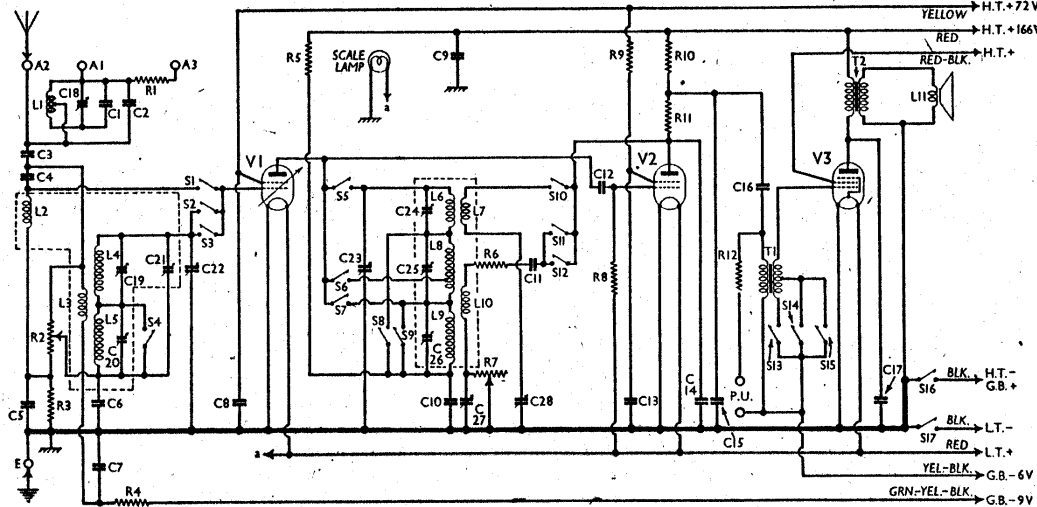
COMPONENTS AND VALUES

RESISTANCES		Values (ohms)
R1	Aerial series resistance ...	10,000
R2	Gain control ...	100,000
R3	V1 fixed GB ...	23,000
R4	V1 CG decoupling ...	1,000
R5	V1 anode HT feed ...	10,000
R6	Reaction damping ...	500
R7	Reaction control resistance ...	3,000
R8	V2 grid leak ...	2,300,000
R9	V2 SG HT feed ...	50,000
R10	V2 anode load ...	50,000
R11	RF stopper ...	10,000
R12	PU series resistance ...	1,000

CONDENSERS		Values (μF)
C1	Droitwich rejector tuning	0.00035
C2	Aerial series condensers...	0.00023
C3		0.0005
C4		0.000075
C5		0.0005
C6	V1 CG decoupling condensers	0.1
C7	...	0.1
C8	V1 SG decoupling	0.1
C9	HT circuit RF by-pass	0.1
C10	V1 anode decoupling	0.1
C11	Reaction HT isolator	0.0005
C12	V2 CG condenser	0.000075
C13	V2 SG decoupling	0.1
C14	RF by-pass condensers...	0.000035
C15		0.0001
C16	AF coupling to T1	0.1
C17	Fixed tone corrector	0.001
C18†	Droitwich rejector trimmer	—
C19†	Aerial MW trimmer	—
C20†	Aerial LW trimmer	—
C21†	Aerial trimmer ballast	—
C22†	Aerial circuit tuning	—
C23†	V1 anode RF tuning	—
C24†	V1 anode SW trimmer	—
C25†	V1 anode MW trimmer	—
C26†	V1 anode LW trimmer	—
C27†	MW, LW reaction control	—
C28†	SW reaction control	0.0003

† Variable. ‡ Pre-set.

OTHER COMPONENTS		Approx. Values (ohms)
L1	Droitwich rejector coil ...	6.0
L2	Aerial SW choke ...	4.0
L3	Aerial coupling coil ...	7.0
L4	Aerial MW tuning ...	2.0
L5	Aerial LW tuning ...	16.0
L6	V1 anode SW tuning ...	0.1
L7	SW reaction coil ...	0.5
L8	V1 anode MW tuning ...	2.0
L9	V1 anode LW tuning ...	16.5
L10	MW and LW reaction ...	1.5
L11	Speaker speech coil ...	4.0
T1	Intervalve { Pri. ...	200.0
	trans. { Sec. total ...	5,500.0
T2	Output { Pri. ...	1,000.0
	trans. { Sec. ...	0.6
S1-S12	Waveband switches ...	—
S13-S15	T1 ratio switches ...	—
S16	HT circuit switch ...	—
S17	LT circuit switch ...	—



Circuit diagram of the Marconiphone 375 receiver. The circuit arrangement of each stage is considerably modified when switched to the SW band, and a separate gain control is used. The MW and LW reaction controls C27, R7 are pre-set.

**VALVE ANALYSIS**

Valve voltages and currents given in the table below are those measured in our receiver when it was operating with an HT battery reading 175 V overall. The receiver was tuned to the lowest wavelength on the MW band and the gain control was at maximum, but there was no signal input.

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

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 VS24	140	1.6	70	0.5
V2 VS24	70	1.3	40	0.5
V3 FT2	155	2.9	182*	0.5

\* According to mark on valve. Ours was marked "X."

**DISMANTLING THE SET**

**Removing Chassis.**—Remove the five control knobs;

remove the four bolts (with washers and lock-washers) holding the chassis to the bottom of the cabinet. (If four large bolts with red heads are present, they should also be removed. These are transit bolts, and should be removed when the set is installed.)

The chassis may now be withdrawn to the extent of the speaker leads, which is sufficient for most purposes.

**Removing Speaker.**—Remove the two bolts (with washers) holding the supporting batten to the cabinet.

When replacing, the connecting panel should be on the right.

**GENERAL NOTES**

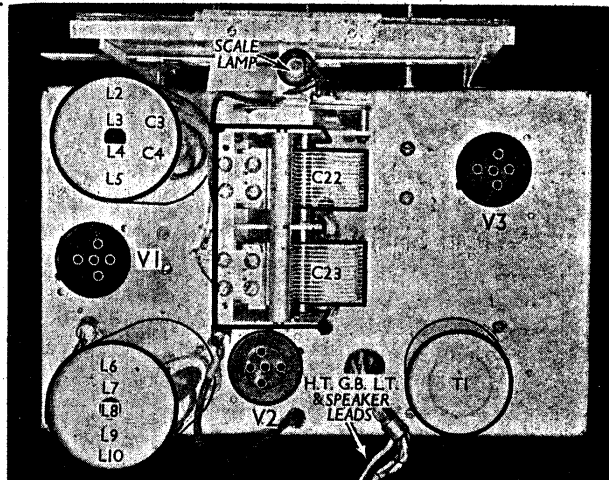
**Switches.**—S1-S15 are the waveband switches, in two ganged rotary units. These are indicated in our under-chassis view, and shown in detail in the diagrams in col. 3. The table (col. 2) gives the switch positions for the three control settings. A dash indicates open, and C closed. S16, S17 are two QMB battery switches, ganged with the gain control R2.

**Scale Lamp.**—This is an Osram MES type, rated at 2 V, 0.1 A. It has a tubular bulb.

**External Speaker.**—There is no provision for this, but one of about 4 Ω resistance could be connected across the connections to the internal speaker speech coil.

**Batteries.**—LT, Exide DFG, 2 V 45 AH glass cell. HT (166 V) and GB (9 V) are combined in a single unit, Marconiphone 550A. This has a common HT-, GB+ socket; separate batteries

Plan view of the chassis. T1 is the intervalve transformer, encased in a metal container. C3 and C4 are housed in the L2-L5 coil unit.



**CIRCUIT ALIGNMENT**

With the gang at minimum, the pointer should be horizontal. The 800 m mark on the scale should be exactly 1/16 in. above the pointer. If it is not, the scale should be adjusted.

**MW.**—Connect signal generator to A2 and E sockets, and switch set to MW. Turn C27 to minimum, R7 midway between minimum and maximum, and gain control to maximum. Tune to 250 m on scale, feed in a 250 m (1,200 KC/S) signal, and adjust C19 and C25 for maximum output. Tune to 200 m on scale, and adjust C27 to a point just short of oscillation while rocking the gang between 200 m and 250 m. Tune to 350 m on scale, and adjust R7 for maximum output short of oscillation. Reaction over the entire scale.

**LW.**—Switch set to LW, tune to 1,500 m on scale, feed in a 1,500 m (200 KC/S) signal, and adjust C20 and C28 for maximum output.

If a peak cannot be obtained on MW

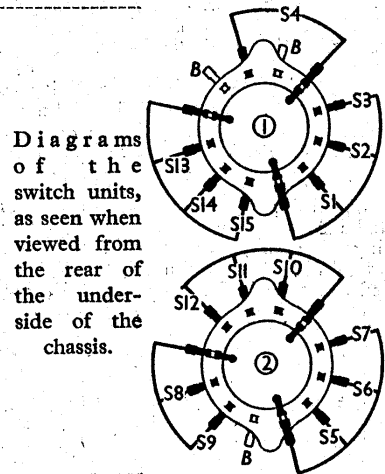
could be used if a second (GB+) lead were connected to the existing HT-, GB+ lead.

**Battery Leads and Voltages.**—Black lead, spade tag, LT-; red lead, spade tag, LT+ 2 V. Black lead and plug, HT-, GB+; yellow lead and plug, HT+ 72 V; red/black lead and plug,

Switch Table

Switch	SW	MW	LW
S1	○	—	—
S2	—	—	—
S3	—	—	○
S4	—	○	—
S5	○	—	—
S6	—	○	—
S7	—	—	○
S8	○	—	—
S9	—	○	—
S10	○	—	—
S11	—	○	—
S12	—	—	○
S13	○	—	—
S14	—	○	—
S15	—	—	○

according to marking on V3 (screen current should be 0.5 mA); red lead and plug, HT+ 166 V. Yellow/black lead and plug, GB- 6 V; green/yellow lead and plug, GB- 9 V.



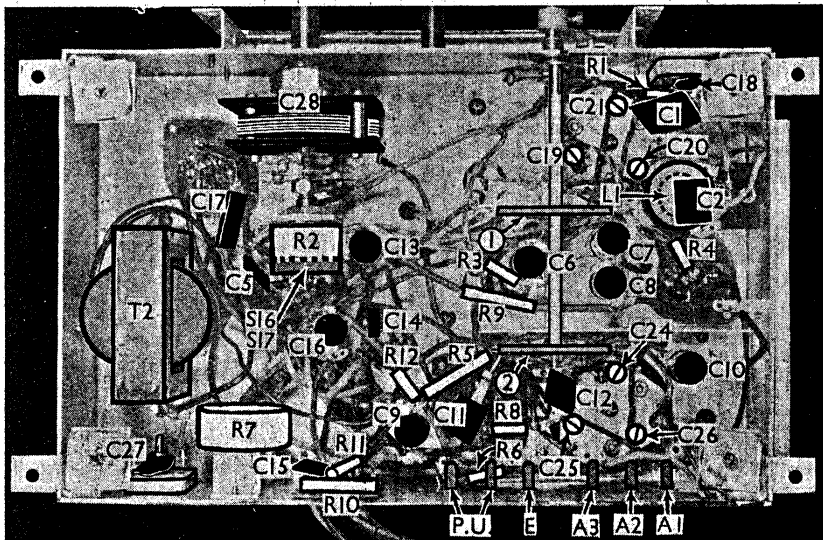
Diagrams of the switch units, as seen when viewed from the rear of the underside of the chassis.

or LW, C21 must be adjusted. If C19 or C20 is fully unscrewed and C25 or C26 is nearly at maximum, unscrew C21 and re-gang throughout. If C19, C20 are near maximum, and C25, C26 are near minimum, screw up C21 and re-gang.

**Droitwich Reflector.**—Connect signal generator to A1 and E sockets, feed in a 1,500 m (200 KC/S) signal, and adjust C18 for minimum output.

**SW.**—Connect signal generator via a 400 Ω resistance to A2 and E sockets, tune to 18 m on scale, feed in an 18 m (16.85 MC/S) signal, and adjust C24 for maximum output.

**Pre-set Reaction.**—To adjust the reaction controls without re-ganging the receiver, connect the usual aerial and earth, turn the gain control to maximum, and adjust C27 while tuning between 200 m and 250 m, and R7 while tuning from 250 m upwards, including LW.



Under-chassis view. The switch units are indicated here, and shown in detail in the diagrams in col. 3. C27 and R7 are the pre-set MW and LW reaction controls.