

MARCONIPHONE 562 TRANSPORTABLE

CIRCUIT.—The receiver is intended for operation with its own frame aerial, but an external aerial and earth may be used in conjunction with the internal aerial if desired. A pair of coils provide the coupling between the two circuits.

The input is fed to the grid of V1, an H.F. pentode operating as an H.F. amplifier. This is tuned anode coupled to V2, a heptode frequency changer. When the receiver is switched to the "gram." position the H.T. supply to the oscillator is interrupted.

The signal, converted to the I.F., passes through an I.F. transformer to V3, another H.F. pentode. A further I.F. transformer feeds the demodulating diode of V4, a double diode triode, the volume control of the receiver acting as the diode load. A.V.C. is obtained from the other diode in the usual manner, the coupling condenser being C9 and the delay volts obtained from the bias potentiometer.

V4 is coupled by a parallel-fed transformer to the output valves V5 and V6. These are pentodes operating on the quiescent push-pull system, the output passing via an output transformer to the speaker. Pentode compensators are connected between the anodes and earth.

Battery power is supplied by two Super Power 84-volt H.T. batteries, Marconiphone type B.553, and a 2-volt 42 a.h. accumulator, Exide type N.P.C.6.

Special Notes.—C9, C12 and C13 and R11 are located in the coil can housing I.F.T.2. R23 is mounted on the external aerial sockets and C23 on the speaker panel. R23 was found to have a value

of 15,000 ohms and a further 15,000 ohms resistance took the place of C22.

There are two dial lights located one each side of the dial assembly and mounted in screw-in holders. A coating of beeswax secures the lamps and avoids crackling noises due to the lights working loose. They are rated at 2 volts, .1 amp.

A pair of sockets are provided for a pick-up. A Marconiphone model 25 pick-up is recommended. A 100,000 ohms resistance should be connected across the pick-up for optimum results.

On the bakelite speaker panel will be found numbered terminals for connecting an external speaker. A Marconiphone model 144 is recommended, and this should be connected to the terminals marked 4 and 6.

Chassis Removal.—Remove the back of the cabinet and the control knobs on the



Q.P.P. output is employed in this Marconiphone transportable model 562, which has a 6-valve superhet circuit.

front. The tuning and wave selection knobs are secured by grub screws. Of the combined tone and volume knobs, one is fixed by a grub screw and the other is notched to fit into a slot on the shaft.

Turn the cabinet on its side and remove the four fixing bolts on the base. Also remove the wood shelf by unscrewing the two bolts. The chassis can then be withdrawn.

To obtain access to the bases of the valves, the metal screen covering these must be removed. The screws holding the screen fit into threaded holes.

Circuit Alignment:

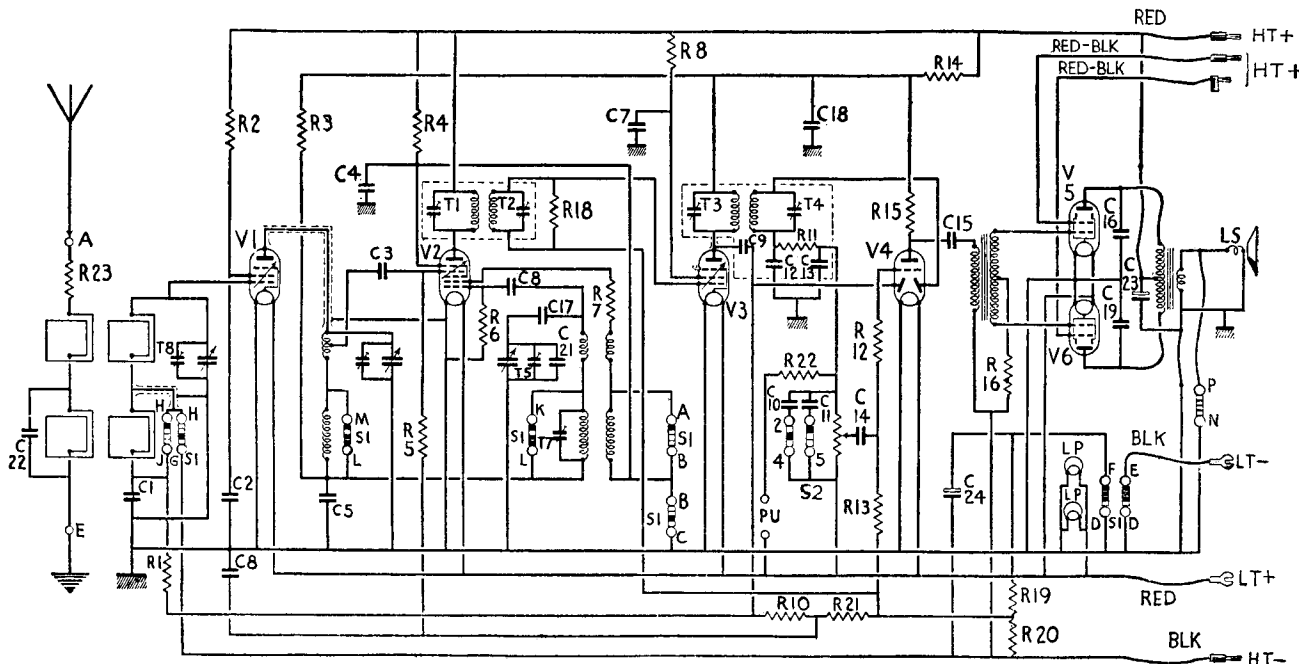
Notes

I.F. Circuits.—Connect an output meter across the primary of the speaker transformer using the terminals 1 and 3 or terminals 4 and 6 if an A.C. voltmeter is

VALVE READINGS

No Signal. Volume maximum. New Batteries.
1,000 ohms per volt meter.

V.	Type.	Electrode.	Volts.	Ma.
1	All Marconi W21 met (4) ..	Anode ..	115	3.
		Screen ..	80	1.2
2	X21 met. (7) ..	Anode ..	180	.4
		Screen ..	86	1.3
		Osc. ..	85	In-access.
3	W21 met. (4)	Anode ..	112	2.1
		Screen ..	84	.4
4	HD 22 met. (5)	Anode ..	117	1.
5	KT2 (5) ..	Anode ..	160	1.
		Screen ..	143	.2
6	KT2 (5) ..	Anode ..	160	1.
		Screen ..	143	.2



Alternative connections for an external aerial and earth are provided, although a frame is built into the receiver. The superhet circuit has an H.F. stage in front of the frequency changer.

used. Connect a service oscillator to the top grid cap of V2 via a .1 condenser and chassis. Switch the receiver to medium waves and turn the volume control to maximum. Turn the tone control fully anti-clockwise and short circuit the oscillator section.

Tune the oscillator to 126.5 kcs. and adjust T1 and T3 for maximum.

Tune the oscillator to 121.5 kcs. and adjust T2 and T4 for maximum, reducing the input from the oscillator as the circuits come into line to render the A.V.C. inoperative.

Sweep the oscillator through the band 120 to 128 kcs. and examine the response in the output meter. If a symmetrical curve around 124 kcs. is obtained the circuits are correctly aligned. If the response at 126.5 kcs. is more than 10 per cent. greater than at 121.5 kcs. adjust T4. If the reverse is the case, adjust T3 until a perfect bandpass curve is obtained.

Signal Circuits.—Disconnect the frame aerials from the outer frame aerial terminals on the chassis and connect a 500,000 ohms resistance across the terminals. Feed the oscillator between the terminals but leave the output meter connected as

before, feeding only sufficient input from the service oscillator to obtain definite peaks in the output meter.

Medium Waves.—Turn the gang to the minimum capacity position and inject a signal of 197 metres (1,523 kcs.) and adjust T5 for maximum.

Set the oscillator to 200 metres (1,500 kcs.) and the pointer of the receiver to the same wavelength. Adjust T6 for maximum, simultaneously rocking the gang to ensure optimum results.

Repeat both operations to check correctness of settings.

Long Waves.—Set the oscillator to 1,000 metres (300 kcs.) and set the pointer of the receiver to the same wavelength. Adjust T7 for maximum simultaneously rocking the gang.

Frame Aerial Trimming.—Reassemble the chassis in the cabinet, removing the temporary resistance and service oscillator and reconnecting the frame aerial. Set the wavelength pointer to 350 metres and tune the oscillator to the same wavelength. Inject the signal from the oscillator into receiver by connecting a wire to the output of the oscillator and coupling it to the frame aerial.

Adjust T8 for maximum.

RESISTANCES

R.	Purpose.	Ohms.
1	V1 A.V.C. decoupling ..	1 meg.
2	V1 screen decoupling ..	5,000
3	V1 anode decoupling ..	1,000
4	V2 screen and osc. anode decoupling ..	50,000
5	V2 A.V.C. decoupling ..	500,000
6	Osc. grid leak ..	50,000
7	Regeneration modifier ..	1,000
8	V3 screen decoupling ..	50,000
10	A.V.C. diode load (part) ..	1 meg.
11	H.F. filter ..	100,000
12	V4 grid stopper ..	100,000
13	V4 grid leak ..	2-3 meg.
14	H.T. feed to anodes of V1, V2, V3 and V4 ..	5,000
15	V4 anode load ..	50,000
16	VQ.P.P. grid return resistance ..	230,000
18	I.F.T.1 secondary shunt ..	230,000
19	Bias pot. (part) ..	130
20	Bias pot. (part) ..	530
21	A.V.C. diode load (part) ..	1 meg.
22	P.U. series resistance ..	500,000
23	Series aerial ..	1,000
V.R.1	Volume control and demodulating diode load ..	250,000

CONDENSERS

C.	Purpose.	Mfd.
1	V1 A.V.C. decoupling ..	.1
2	V1 screen decoupling ..	.1
3	V2 grid coupling ..	.0001
4	V2 screen and osc. anode decoupling ..	.1
5	V1 anode decoupling ..	.5
6	Oscillator grid ..	.0001
7	V3 screen decoupling ..	.1
8	V2 A.V.C. decoupling ..	.1
9	A.V.C. diode coupling ..	.0001
10	Tone control ..	.001
11	Tone control ..	.0035
12	H.F. bypass ..	.0001
13	H.F. bypass ..	.0001
14	L.F. coupling ..	.01
15	L.F. coupling ..	.1
16	Pentode compensator ..	.005
17	Osc. fixed padder ..	.00285
18	V4 anode decoupling ..	.1
19	Pentode compensator ..	.005
21	Osc. fixed trimmer ..	.000015
22	L/W aerial coupling coil shunt ..	.0023
23	H.T. reservoir ..	50.
24	Bias shunt ..	4.

Marconiphone 562 on Test

MODEL 562.—Standard model for battery operation requiring two 84-volt H.T. batteries of super capacity, Marconiphone type B.553, and an Exide type NPC6 2-volt accumulator. Price, 15½ gns.

DESCRIPTION.—A six-valve battery operated portable superhet, having two wave ranges.

FEATURES.—Full-vision dial marked with name and wave calibration. Controls for tuning, combined wave selection and on-off switch and combined tone and volume. Sockets for external speaker and pick-up and also for connecting an external aerial and earth.

LOADING.—H.T., 12 ma.; L.T., 1.02 amp.

Selectivity and Sensitivity

MEDIUM WAVES (200-550 metres).—Excellent gain with a reasonable background considering that the set is a portable model. Sensitivity is well maintained. Selectivity adequate, being helped to some extent by the directional frame. Only one bad second channel, which is general with an open frame near the local station.

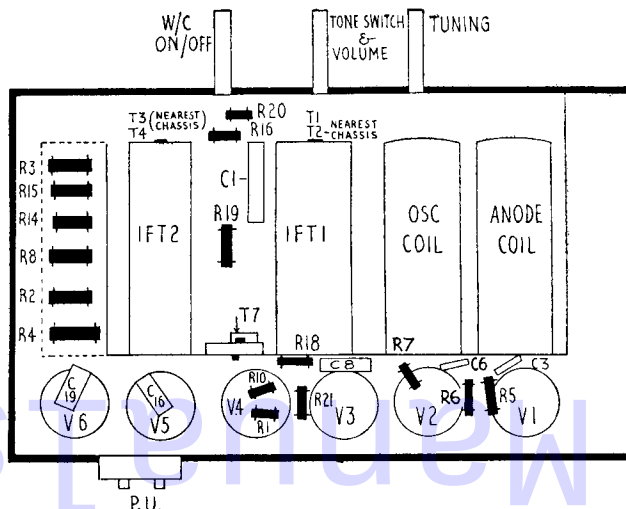
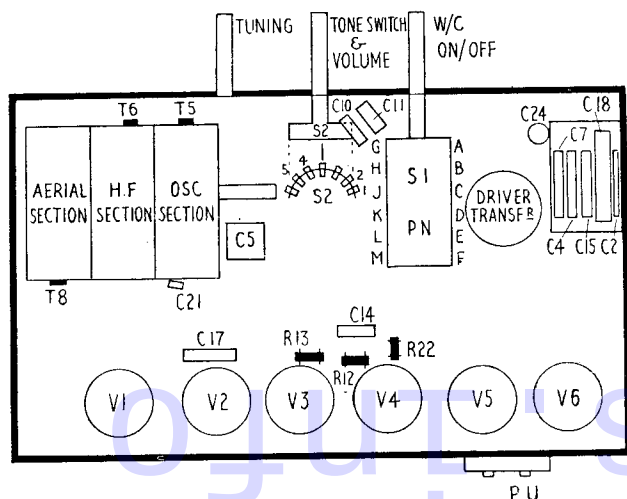
LONG WAVES (850-2,000 metres).—Very good gain and selectivity. All main stations easily received in daylight.

Acoustic Output

Exceptionally good tone, far in advance of the usual portable battery set. Well balanced, with very good low-note radiation and good top. Speech full and forward.

Replacement Condensers

TWO exact condenser replacements for the Marconiphone 562 are available from A. H. Hunt, Ltd., of Garratt Lane, Wandsworth, London S.W.18. These are: for C24, unit number 2,996, price 2s.; for C23, unit 2,915, 1s. 9d.



Left is the surface view of the Marconiphone 562 transportable chassis which has a particularly clean layout. A metal screen is employed to cover the valve bases. Right, the underside view, shows the disposition of the various components.