

"TRADER" SERVICE SHEET
1008

MARCONIPHONE T26A



THREE wavebands and three pre-set stations are provided on a single six-position control in the Marconiphone T26A, a 4-valve (plus rectifier) superhet designed to operate from A.C. mains of 195-255 V, 50-100 c/s. The waveband ranges are 16.5-52 m, 187-557 m and 900-2,000 m.

The ARG27A is an autoradiogram employing a slightly modified T26A chassis.

Release date and original price: T26A, November 1950, £18 18s; ARG27A, August 1950, £50 8s. Purchase tax extra.

CIRCUIT DESCRIPTION

Aerial input via coupling coils L1 (S.W.) and L2 (M.W. and L.W.) to single-tuned circuits comprising L3 (S.W.), L4 (M.W.) and L5 (L.W.) tuned manually by C35 or automatically by pre-set capacitors C32, C33 (M.W.) or C34 (L.W.). An internal plate aerial is fitted.

First valve (V1, Marconi X148) is a triode-heptode, operating as frequency changer with internal coupling. Manual tuning is by C39 and oscillator anode coils L8 (S.W.), L9 (M.W.), L10 (L.W.). Parallel trimming by C36 (S.W.), C37 (M.W.) and C9, C38 (L.W.). Series tracking by C14 (M.W.) and C8, C14 (L.W.).

For automatic tuning, coils L11, L12 (M.W.) or L13 (L.W.) are tuned by C12, adjustments being made by means of the pre-set coil cores.

Second valve (V2, Marconi W148) is a variable-mu R.F. pentode operating as intermediate frequency amplifier with tuned transformer couplings.

Intermediate frequency 465 kc/s.

Diode signal detector is part of double diode triode (V3, Marconi DH149). Audio frequency component in rectified output is developed across diode load resistor R10 and is passed via volume control R13 to grid of triode section. Treble compensation at low-level settings of the volume control is provided by C21. I.F. filtering by C19 and R12. Grid bias is obtained from the H.T. potential divider R7, R17, R20.

Resistance-capacitance coupling between V3 triode and beam pentode output valve (V4, Marconi N148) via R16, C24 and R19. Variable negative feedback via tone control R19 and C23

between V4 and V3 control grid circuits. Fixed tone correction by C26 in V4 anode circuit, and by feedback from T1 secondary winding via R21 to V3 cathode circuit.

H.T. current is supplied by I.H.C. full-wave rectifying valve (V5, Marconi U149). Smoothing by C28, C29 and R27.

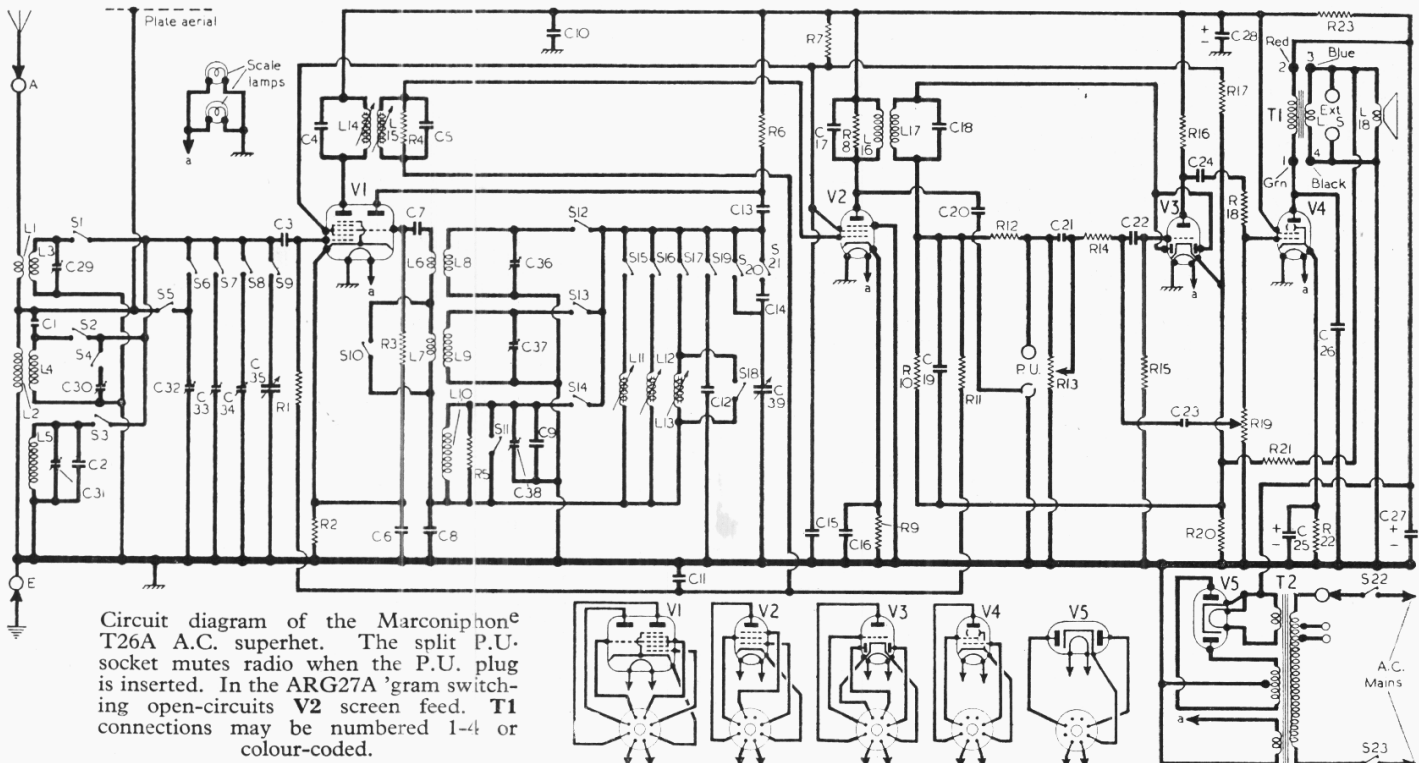
COMPONENTS AND VALUES

RESISTORS		Values	Locations
R1	V1 hex. C.G. ...	680kΩ	F5
R2	V1 G.B. ...	220Ω	G5
R3	V1 osc. C.G. ...	33kΩ	G5
R4	I.F. trans. shunt ...	330kΩ	F5
R5	L.W. osc. shunt ...	39kΩ	G4
R6	Osc. anode feed ...	22kΩ	F5
R7	H.T. decoupling ...	22kΩ	E4
R8	I.F. trans. shunt ...	330kΩ	E5
R9	V2 G.B. ...	330Ω	F5
R10	Diode load ...	470kΩ	E5
R11	A.G.C. decoup. ...	2.2MΩ	E4
R12	I.F. filter ...	100kΩ	E4
R13	Volume control ...	2MΩ	D3
R14	Feed-back stopper ...	220kΩ	D4
R15	V3 C.G. ...	10MΩ	D5
R16	V3 anode load ...	220kΩ	D5
R17	Part V3 G.B. ...	47kΩ	E5
R18	A.F. coupling ...	47kΩ	E4
R19	Tone control ...	500kΩ	E3
R20	V3 G.B. ...	100Ω	E5
R21	Neg. feed-back ...	1kΩ	E5
R22	V4 G.B. ...	330Ω	D4
R23*	H.T. smoothing ...	2kΩ	F4

CAPACITORS		Values	Locations
C1	Aerial coupling ...	5pF	G4
C2	L.W. aerial trim. ...	30pF	G3
C3	V1 C.G. ...	100pF	G4
C4	1st I.F. trans. ...	100pF	B2
C5	tuning ...	180pF	B2
C6	V1 cath. by-pass ...	0.02μF	G5
C7	V1 osc. C.G. ...	100pF	G5
C8	L.W. tracker ...	270pF	A2
C9	L.W. osc. trim. ...	100pF	F3
C10	R.F. by-pass ...	0.05μF	E4
C11	A.G.C. decoup. ...	0.05μF	E4
C12	Pre-set tuning ...	350pF	G4
C13	Osc. anode coup. ...	100pF	G4
C14	M.W., L.W. tracker ...	590pF	G4
C15	H.T. decoupling ...	0.05μF	E5
C16	V2 cath. by-pass ...	0.05μF	F5
C17	2nd I.F. trans. ...	100pF	B2
C18	tuning ...	100pF	B2
C19	I.F. by-pass ...	100pF	E5
C20	Radio muting ...	0.02μF	F5
C21	Tone compensator ...	50pF	E3
C22	A.F. coupling ...	0.01μF	D4
C23	Neg. feed-back ...	40pF	E3
C24	A.F. coupling ...	0.02μF	D4
C25*	V4 cath. by-pass ...	25μF	D3
C26	Tone compensator ...	0.005μF	E4
C27*	H.T. smoothing ...	32μF	E4
C28*	H.T. smoothing ...	32μF	E4
C29†	S.W. aerial trim. ...	—	A1
C30†	M.W. aerial trim. ...	—	A1
C31†	L.W. aerial trim. ...	—	A1
C32†	M.W. pre-set tune ...	—	A2
C33†	M.W. pre-set tune ...	—	A2
C34†	L.W. pre-set tune ...	—	A2
C35†	Aerial tuning ...	—	A1
C36†	S.W. osc. trimmer ...	—	F4
C37†	M.W. osc. trimmer ...	—	B1
C38†	L.W. osc. trimmer ...	—	B1
C39†	Oscillator tuning ...	—	A1

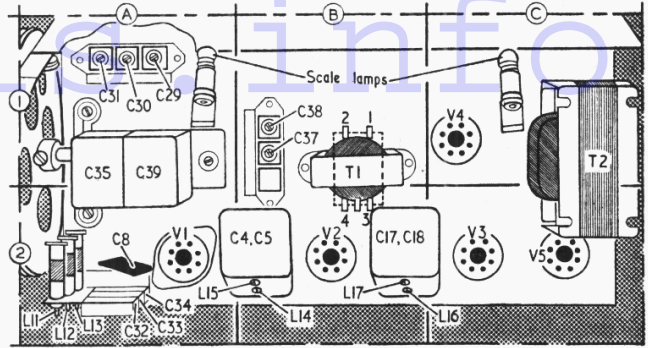
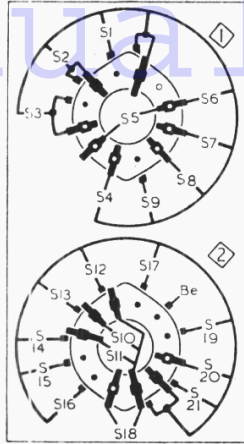
* Two resistors 1k + 1kΩ in series.

*Electrolytic. † Variable. ‡Pre-set.



Circuit diagram of the Marconiphone T26A A.C. superhet. The split P.U. socket mutes radio when the P.U. plug is inserted. In the ARG27A 'gram switching open-circuits V2 screen feed. T1 connections may be numbered 1-4 or colour-coded.

OTHER COMPONENTS		Approx. Values (ohms)	Locations.
L1	Aerial coupling coils	0.2	F3
L2		130.0	G3
L3		0.1	F3
L4		2.7	G3
L5		25.0	G3
L6	Oscillator reaction coils	0.4	F4
L7		2.4	G4
L8	Oscillator tuning coils	0.1	F4
L9		2.8	G4
L10		6.5	G4
L11	M.W. pre-set oscillator coils	2.0	A2
L12		2.5	A2
L13	L.W. osc. pre-set	5.0	A2
L14	1st I.F. trans.	Pri. 6.0	B2
L15		Sec. 4.0	B2
L16	2nd I.F. trans.	Pri. 6.0	B2
L17		Sec. 4.0	B2
L18	Speech coil	2.5	—
T1	Primary	350.0	B1
	Secondary	0.6	—
	Primary, total	40.0	C1
T2	H.T. sec., total	380.0	—
	Rect. heat. sec.	0.4	—
	Heater sec.	0.1	—
S1-S21	Waveband switches	—	G4
S22, S23	Mains sw., g'd R13	—	D3



Above: Waveband switch diagrams and plan view.
Below: Switch table.

Switch	S.W.	M.W.	L.W.	3	2	1
S1	C	—	—	—	—	—
S2	—	C	—	—	—	—
S3	—	—	C	—	—	—
S4	—	C	—	—	—	—
S5	C	—	—	—	—	—
S6	—	—	—	C	—	—
S7	—	—	—	—	C	—
S8	—	—	—	—	—	C
S9	C	C	—	—	—	C
S10	C	—	—	—	C	C
S11	C	—	—	—	C	C
S12	C	—	—	—	C	C
S13	—	C	—	—	—	C
S14	—	—	C	—	—	C
S15	—	—	—	C	—	C
S16	—	—	—	—	C	C
S17	—	—	—	—	—	C
S18	C	C	—	—	C	C
S19	—	—	—	C	—	C
S20	C	—	—	—	C	C
S21	—	C	C	—	—	—

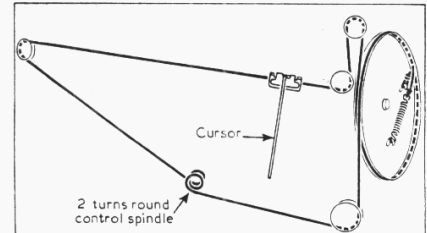
trimming point on scale, feed in a 300 kc/s (1,000m) signal and adjust C38 (B1) and C31 (A1) for maximum output. Repeat these adjustments.

Pre-set Stations.—A signal generator may be used to set these adjustments roughly, but they should be subsequently adjusted on the stations they are intended to receive. The trimmers and core adjustments for the pre-set stations are accessible through apertures in the back cover. A trimming tool is provided for the core adjustments and is fitted to the rear cabinet member on the right of the voltage adjustment panel.

Numbering from the fully clockwise position of the waveband control, the pre-set station coverages are as follows: 1, 1,250-2,000m; 2, 390-560m; 3, 194-350m. Then follow L.W., M.W. and S.W. manual settings.

GENERAL NOTES

Switches.—S1-S21 are the waveband and pre-set station switches, ganged in two rotary units. These are indicated in our under-chassis view, and shown in detail in the diagram inset beside our plan view of the chassis. The table below them gives the switch positions for the six control settings, starting from the fully anti-clockwise position of the control. A dash indicates open, and C, closed.



Sketch of the tuning drive system.

Scale Lamps.—6.5 V, 0.3 A, small clear spherical bulb, M.E.S. base.

External Speaker.—Impedance about 5Ω.

Drive Cord Replacement.—6 feet of flax fishing line is ample for this purpose, and it should be run as shown in our sketch, where it is viewed from the front right-hand corner with the gang at maximum capacitance. In some cases there may be a fifth pulley at the bottom left-hand corner.

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating from 230V A.C. mains, with the voltage adjustment set appropriately.

Valve voltages were measured with an Avo Electronic Testmeter and as it draws no appreciable current, allowance must be made for the current drawn by other meters. Chassis was the negative connection.

Values	Anode		Screen		Cath.
	V	mA	V	mA	V
V1 X148	260 165	2.2 4.0	96	3.6	2.2
V2 W148					
V3 DH149	135	0.55	—	—	0.28
V4 N148	300	32.0	260	4.0	12.5
V5 U149	280†	—	—	—	310.0

†A.C., each anode.

DISMANTLING THE SET

The majority of the under-chassis components can be made accessible by removing the cabinet base cover (four wood screws).

Removing Chassis.—Unsolder leads from speech coil tags on speaker; release plate aerial lead from wood screw on left-hand side (viewed from rear) of cabinet; remove four control knobs (pull-off); remove four 2BA chassis bolts and withdraw chassis.

When replacing, the black speaker lead should go to the top speech coil tag.

CIRCUIT ALIGNMENT

In order to make the following adjustments easily accessible, the chassis should be removed from the cabinet.

I.F. Stages.—Switch set to M.W., turn the volume control and gang to maximum, and the tone control fully anti-clockwise. Connect the output of the signal generator, via a 0.1μF capacitor in the "live" lead, to control grid (pin 6) of V2 and chassis. Feed in a 465 kc/s (645.16m) signal and adjust the cores of L17, L16 (location reference B2) for maximum output. Transfer signal generator leads to control grid (pin 6) of V1 and chassis. Adjust the cores of L15, L14 (B2) for maximum output. Repeat these adjustments.

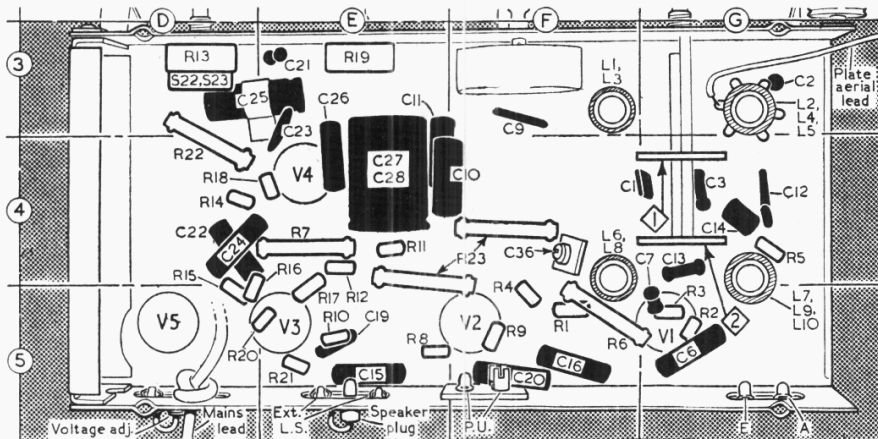
R.F. and Oscillator Stages.—As the tuning scale remains fixed in the cabinet when the chassis is withdrawn, reference should be made to the substitute scale printed on the side of the tuning drum. This scale is marked to show the trimming frequencies for the three bands, readings being taken against the end of the

pointer which is mounted on top of the gang. Check that with the gang at maximum capacitance the cursor coincides with line at the L.F. end of the substitute scale.

S.W.—Switch set to S.W. and tune to the 18 Mc/s trimming point on the substitute scale. Transfer signal generator leads, via a dummy aerial, to A and E sockets, feed in an 18.0 Mc/s (16.67m) signal and adjust C36 (F4) and C29 (A1) for maximum output. Repeat these adjustments.

M.W.—Switch set to M.W., tune to 1,300 kc/s trimming point on scale, feed in a 1,300 kc/s (230.5m) signal and adjust C37 (B1) and C30 (A1) for maximum output. Repeat these adjustments.

L.W.—Switch set to L.W., tune to 300 kc/s



Underside view of the chassis. Waveband switch diagrams 1, 2 are at the head of col. 2.