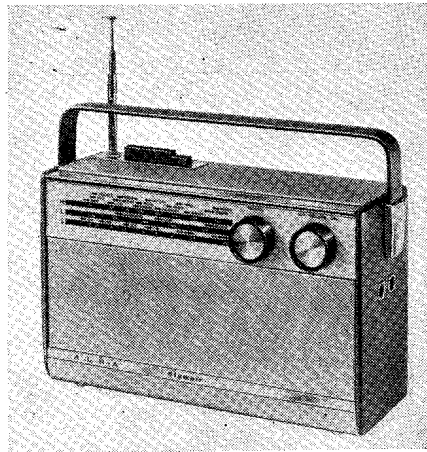


**ERT**

**SERVICE CHART 1564 New Series**



**ALBA 939 'OLYMPIC'**

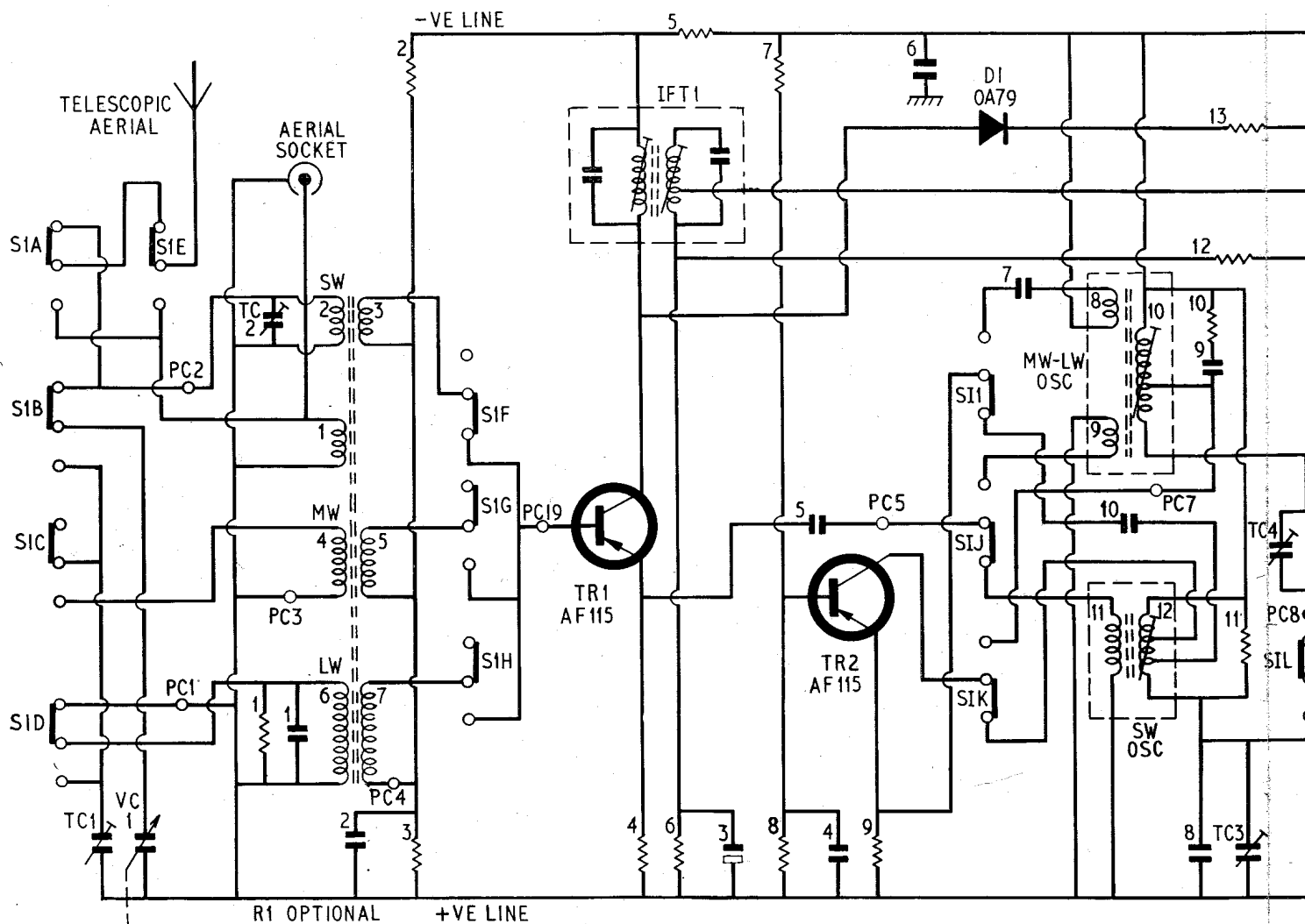
*Additional copies of this chart price 1s. 6d. post free. Payment with order please to ERT, 40 Bowling Green Lane, London EC1*

- IF.** 470kc/s.
- Aerial.** Ferrite rod. External aerial socket.
- Speaker.** 35ohm. 6 x 4in.
- Output.** 800mW.
- Outlet.** For tape recorder.
- Dimensions.** 11 x 6½ x 3in.
- Weight.** 5lb. (including batteries).
- Manufacturer.** Alba (Radio & Television) Ltd.

**SEVEN** transistor battery portable covering long, medium and short wavebands with wavechange and tone control by push buttons.  
**Battery.** Two PP7 or equivalents.

**Consumption.** 13mA (quiescent).  
**Wavebands.** 195-550m, 1100-1900m.  
**Transistors.** AF115 (2), AF117, OC70, OC81D, OC81 (2).  
**Diode.** OA79.

R		1	3		5	7		10	13	11
C	TC1 VC1	TC2	1	2	3	5	6	7	10	8 <sup>9</sup> TC3 TC4
L		1	2 <sup>4</sup> 3		IFT1			8 <sup>11</sup> 10		9 <sup>12</sup> 12



Service department, Tabernacle Street, London EC2. Tel: Clerkenwell 1322.

### DISMANTLING

Turn two retaining clips half a turn inward and remove back of cabinet. Take out batteries. Pull off two front control knobs. Take out two Phillips-head screws securing the drive/control panel to inside of cabinet front (note the shakeproof washers).

Chassis assembly is now free to the limit of the leads to the aerial and tape sockets. These can be unsoldered and the speaker leads unclipped from their tags if required.

In easing out the assembly, see that righthand battery clip does not foul the drive pulley — spring clip back gently with a finger to let the pulley pass. The rubber speaker cushion may tend to hold the chassis due to snug fit; ease it off.

If telescopic aerial is to be removed, take out the Phillips screw (with washer) securing aerial to cabinet base. Pull the aerial upward out of cabinet top. When replacing, see that soldering tag carry-

#### RESISTORS

R1	220K	B1
R2	47K	B2
R3	8K2	B3
R4	680	B3
R5	100	B3
R6	12K	B3
R7	6K8	A2
R8	1K8	B2
R9	1K	B2
R10	1K8	C2
R11	10K	B2
R12	15K	C3
R13	680	B3
R14	1K	C3
R15	330	B3
R16	47K	C3
R17	4K7	B3
R18	100	C3
R19	100	C3
R20	270	C3
R21	330	C3
R22	150	C3
R23	27K	C3
R24	10K	C3
R25	680	C3
R26	10	C2
R27	330	C2
R28	1K2	C2
R29	2K7	C2
R30	56	C2
R31	2K7	C2
R32	56	C2

R33	5	C2
R34	5	C2

#### POTENTIOMETER

VR1	20K
-----	-----

#### CAPACITORS

C1	120pF	B1
C2	47KpF	B2
C3	16mF	B3
C4	47KpF	B2
C5	100KpF	A3
C6	220KpF	B2
C7	22KpF	B2
C8	20pF	B2
C9	100pF	C2
C10	1KpF	A2
C11	260pF	B2
C12	400pF	B2

C13	10pF	B2
C14	10KpF	C3
C15	47KpF	B3
C16	500KpF	B3
C17	250mF	C3
C18	10KpF	C3
C19	6K8pF	C3
C20	8mF	C2
C21	50mF	C3
C22	10KpF	C3
C23	100mF	C2
C24	100mF	C2

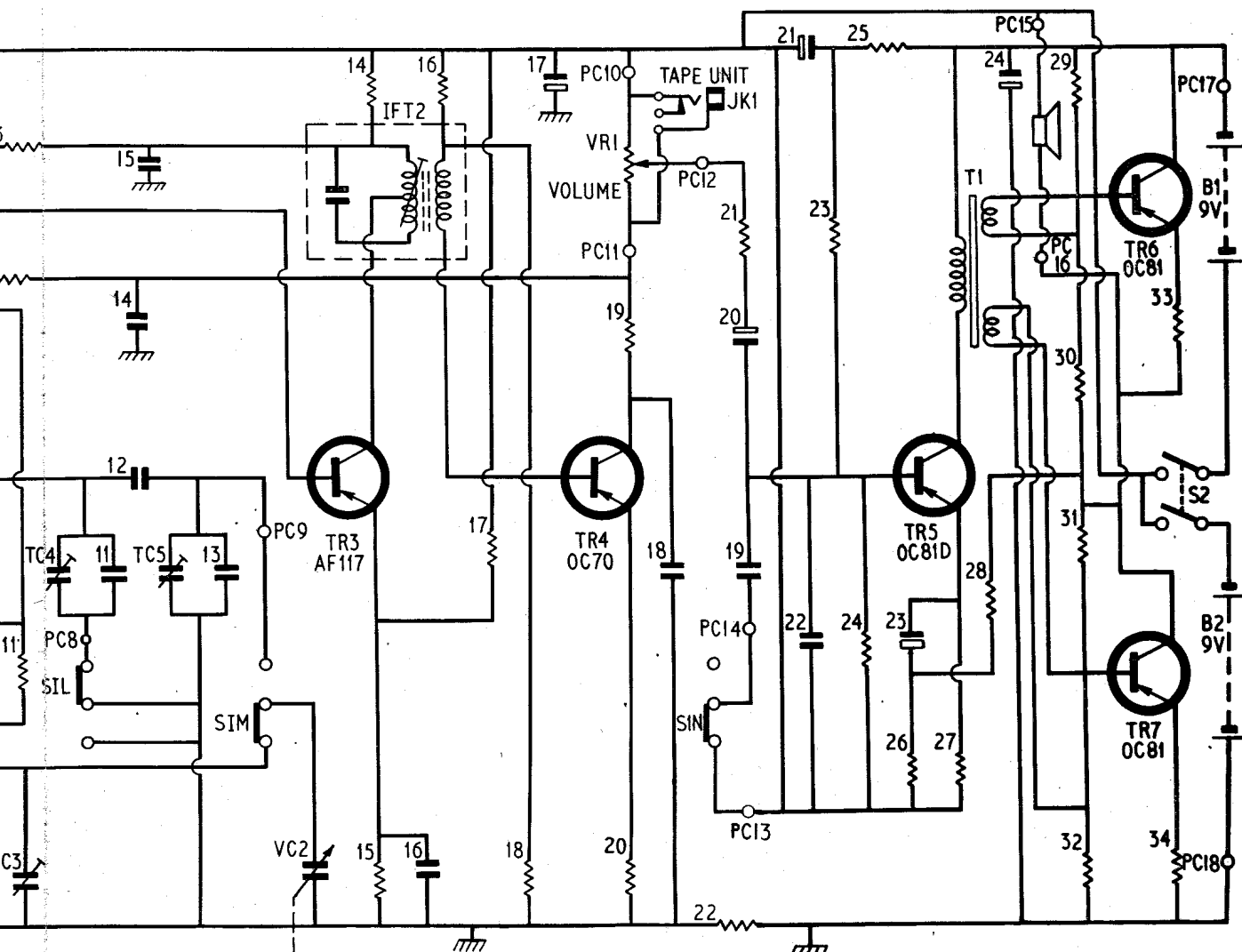
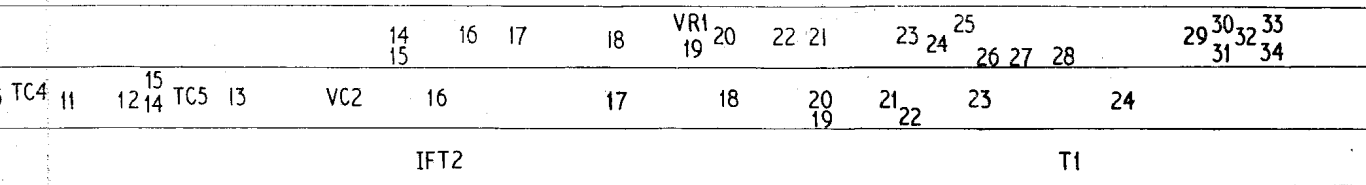
#### TRIMMERS

TC1	3-40pF	B1
TC2	3-40pF	B2
TC3	3-40pF	B2
TC4	3-40pF	B2
TC5	3-40pF	B2

#### TRANSISTOR VOLTAGES

Readings with 20,000ohms/volt meter (Avo 8). Voltages are negative in respect of chassis except where indicated otherwise.

No.	Type	Function	B	E	C
1	AF115	Mixer	1.0	0.8	7.0
2	AF115	Oscillator	1.5	1.4	7.0
3	AF117	IF amplifier	1.6	1.4	6.2
4	OC70	Det/amplifier	very low	very low	3.6
5	OC81D	Driver	9.0	9.0	15.0
6	OC81	Output	7.2	7.4	15.5
7	OC81	Output	+1.2	+1.0	7.2



ing the lead to the wavechange switch from base of aerial is replaced.

**CIRCUIT DESCRIPTION**

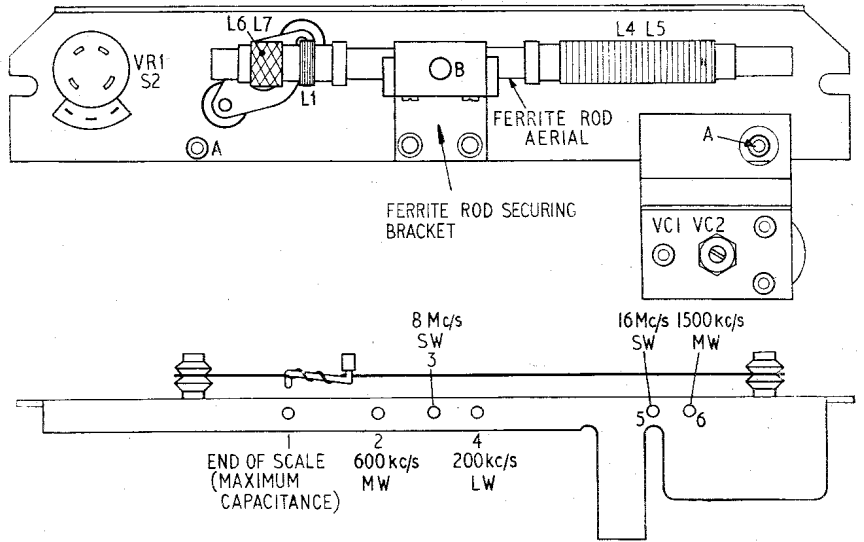
Medium and long wave signals are coupled from rod aerial by L4/5 and L6/7 respectively to base of mixer transistor TR1. The aerial coils are variably tuned by VC1 on gang capacitor, with trimmer TC1 used on medium waves and extra capacitance C1 on long waves. Signals from an external aerial are coupled in by L1.

On short waves the telescopic aerial is employed, wavechange switch bringing in transformer L2/3, primary of which is trimmed by TC2.

Separate oscillator TR2 oscillates due to feedback from collector to emitter via L8, C7, L10. L10 is tuned by gang section VC2 and C9, with C12, C13 and TC5 in use on MW, and C11, TC4 on LW.

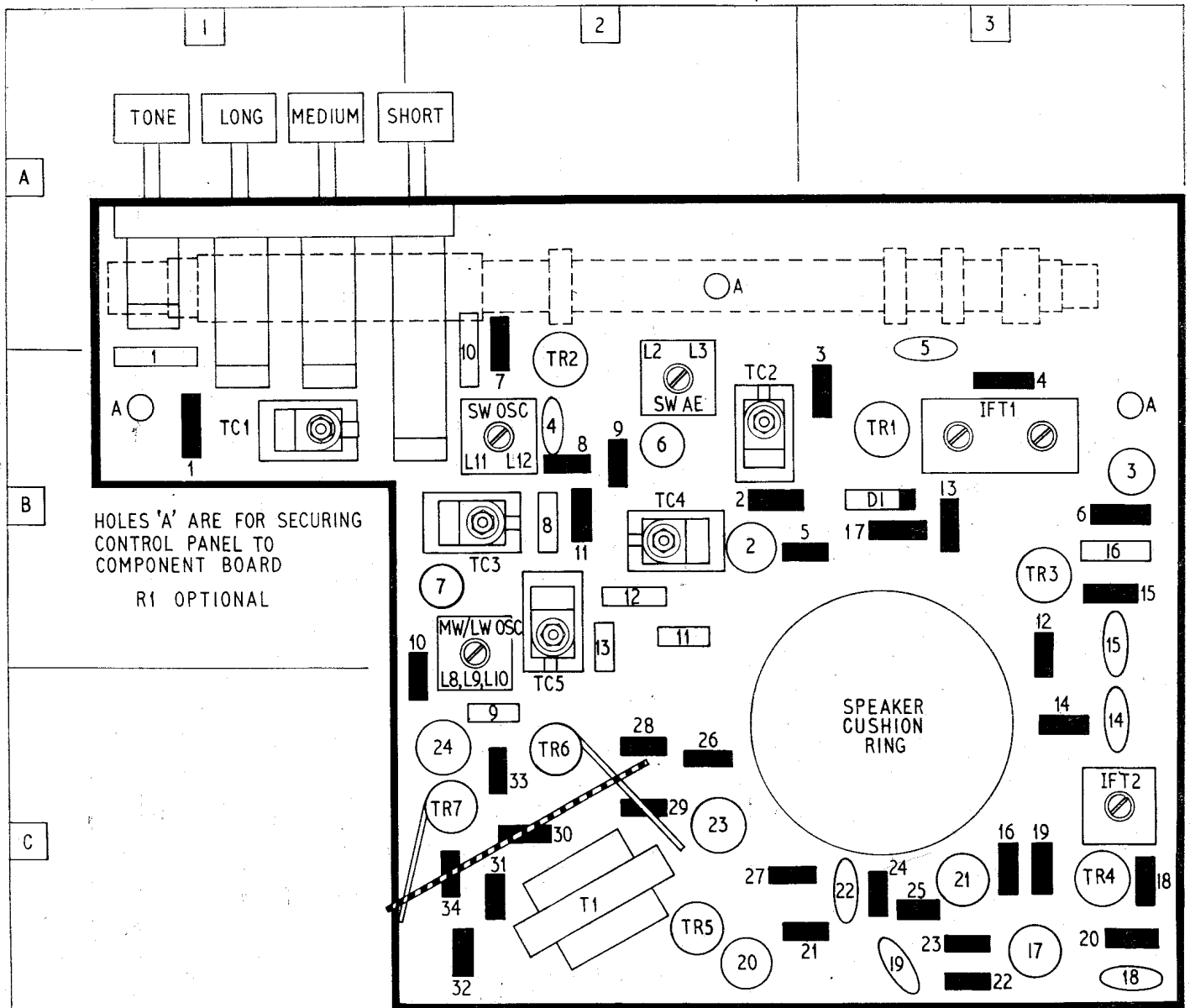
For SW, separate oscillator transformer L11/12 is switched in, L11 providing coupling and L12 being tuned by VC2 with C8 and TC3.

Oscillator voltage is injected to mixer emitter through L9 on MW/LW and C5 on SW. IF signal at 470 kc/s is amplified by TR3 and detected and amplified by TR4.



Bias for automatic gain control is taken from junction VR1 and R19 in the collector circuit and fed back through R12 to base of TR3. Diode D1 is also used to provide variable damping of IFT1 primary on strong signals.

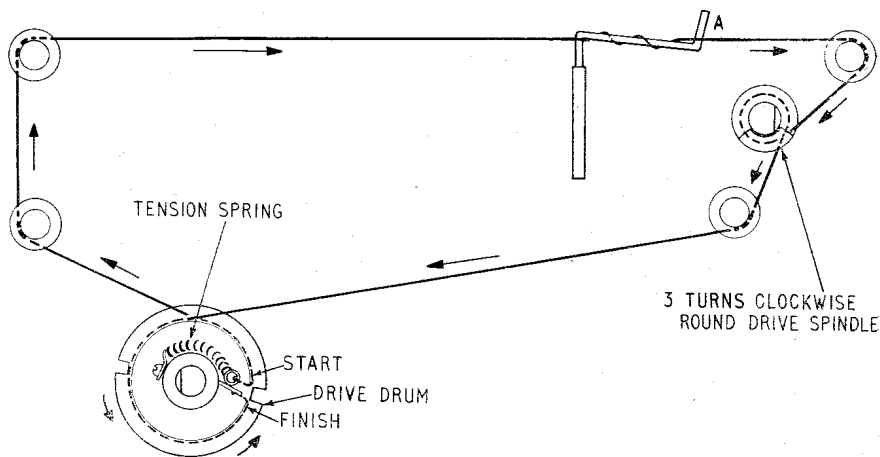
Audio signal passes from volume control VR1 and R21 C20 to TR5. Switch S1N controls C19 for "top" cut. Jack socket for feeding a tape recorder is connected across VR1 but not controlled by the slider position.



Drive transistor TR5 is biased by a combination of the negative potential applied to the base via R23 R24 and the volt drop across R27, the "return" being via low-value R26.

Phase-splitting transformer T1 supplies anti-phase signals to the output pair TR6 TR7, which operate in single-ended Class B push-pull, the speaker forming the common load. Forward bias is provided by R29-R32. Negative feedback occurs through the connection to R26 in TR5 circuit.

Full voltage from the centre-tapped battery is applied to the output stage, with RF, IF and detector stages fed from one half, and the driver from the other half to equalise the drain. Decoupling of supply is by C24 and by R25 C21.



Pointer A should coincide with calibration hole 1 with gang fully meshed. Drive cord is taken  $1\frac{1}{2}$  turns anticlockwise round drum and terminated through brass clamp

## ALIGNMENT

For alignment the complete chassis assembly must be removed. As the scale remains in the cabinet, use is made of calibration markers provided as small holes along the top of the drive/control panel.

Connect output meter, 35ohm impedance, across speaker leads and set to 100mW range. During alignment, limit the input so that output is 50mW.

**IF.** Switch to LW, turn gang to fully open position and volume control to maximum. Connect signal generator across aerial section of tuning gang (white lead) and inject 470kc/s 30 per cent modulated and trim cores of IFT2 and IFT1 for maximum. Repeat, using reduced input, for optimum results.

For sensitivity check, this signal can be injected via 100KpF capacitor to transistor bases, receiver tuned to 1mc/s. For 50mW output, input signal should not need to be greater than 60mV at TR4, 200 microvolts at TR3 or 11 microvolts at TR2. With generator as well as set tuned to 1mc/s, input of 7 microvolts should give 50mW output.

**Medium waves.** Inject test signal via a transmitting loop about 12in. from, and coaxial with, the aerial coils. See that with gang fully meshed, the scale pointer extension coincides with end calibration mark 1.

Switch to MW, tune to calibration mark 2, inject 600kc/s and trim osc. core L10 for maximum output. Slide MW aerial coil L4 along ferrite rod for maximum.

Tune set to calibration point 6, inject 1500kc/s and adjust osc. trimmer TC5 and aerial trimmer TC1 for maximum. Repeat all MW operations.

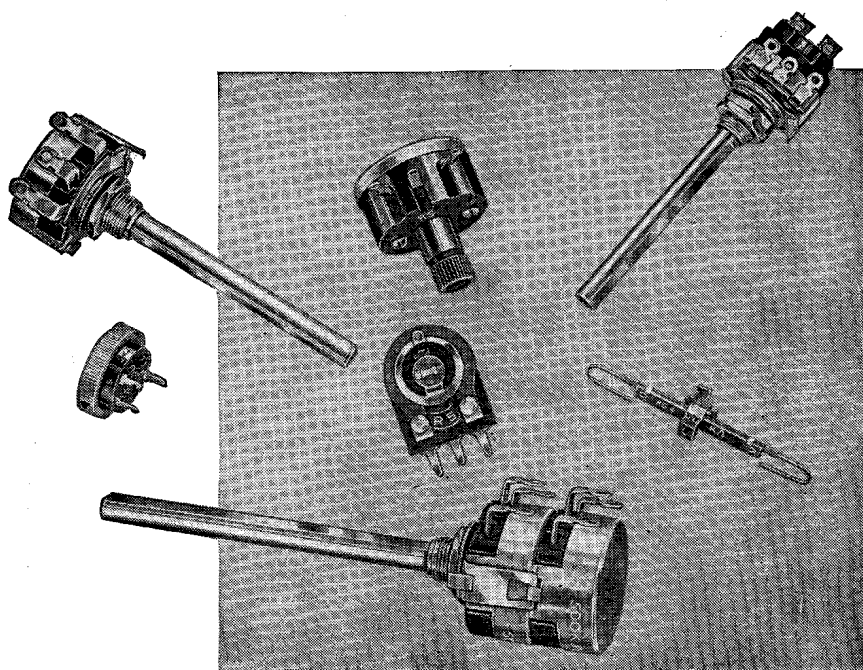
**Long waves.** Switch to LW and tune to cal. mark 4. Inject 200kc/s and adjust TC4 and slide aerial coil L6/7 along rod for maximum. Repeat.

**Short waves.** Switch to SW, connect signal generator to telescopic aerial input tag (aerial disconnected) via 14pF capacitor. Tune set to cal. mark 3, inject 8mc/s and adjust osc. core L12 and aerial core L2/3 (accessible from foil side of board) for maximum.

Tune set to cal. mark 5, inject 16mc/s and adjust TC3 for maximum, using the outer peak. To check, screw trimmer in to find inner peak, then return to outer peak.

Adjust aerial trimmer TC2 a little at a time, retuning the gang each time, until no further improvement is obtained. Repeat the SW adjustments.

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