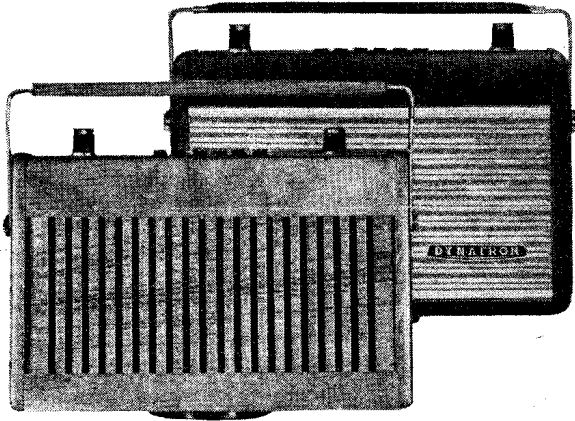


"TRADER" SERVICE SHEET
1798

DYNATRON TP36 & TP37 "Rally"

Battery Operated Transistor Radio Receivers



Above right: Appearance of Dynatron TP36 and (below) Model TP37.

Resistors			Capacitors		
R1	150kΩ	A2	C1	130pF	A2
R2	2.2kΩ	B1	C2	40pF	A2
R3	680kΩ	C1	C3	150pF	B2
R4	180kΩ	B2	C4	290pF	B2
R5	10kΩ	B2	C5	40pF	B2
R6	5.6kΩ	C2	C6a	—	B2
R7	470Ω	B2	C6b	—	B2
R8	1.5kΩ	B2	C7	33pF	B2
R9	22kΩ	C2	C8	390pF	A2
R10	820Ω	B2	C9	40pF	A1
R11	10Ω	C2	C10	220pF	B2
R12	1kΩ	C2	C11	80pF	B2
R13	470Ω	C2	C12	200μF	B2
R14	2.2kΩ	C2	C13	0.02μF	A1
R15	4.7Ω	C2	C14	0.02μF	B1
R16	270kΩ	C1	C15	12.5μF	C1
R17	4.7Ω	C2	C16	0.05μF	B1
R18	15kΩ	C2	C17	12.5μF	C1
RV1	5kΩ	C1	C18	0.01μF	C2
RV2	500Ω	C2	C19	125μF	C2
			C20	80μF	C2
			C21	1,000pF	C2
			C22	125μF	C2
			C23	80μF	B2
			C24	2,000pF	C1
			C25	0.1μF	C1
			C26	5,000pF	B1
			C27	0.1μF	B2

MODULE		
L2a	—	C2
L2b	—	B2
L3	—	B2
L4	—	A1
L5	—	A1
L6†	—	—
Miscellaneous		
S1-S12	—	B1
TDR1	VA1040	C2
† 25Ω loudspeaker.		
Resistors		
Rm1	33kΩ	—
Rm2	6.8kΩ	—
Rm3	820Ω	—
Rm4	100Ω	—
Rm5	56kΩ	—
Rm6	680Ω	—
Rm7	22kΩ	—
Rm8	4.7kΩ	—
Rm9	8.2kΩ	—
Rm10	1kΩ	—
Rm11	180Ω	—
Rm12	470Ω	—
Capacitors		
Cm1	0.047μF	—
Cm2	0.047μF	—
Cm3	—	—
Cm4	—	—
Cm5	4,700pF	—
Cm6	10μF	—
Cm7	0.047μF	—
Cm8	0.047μF	—
Cm9	—	—
Cm10	0.047μF	—
Cm11	1,000pF	—
Coils		
IFT1	—	—
IFT2	—	—
IFT3	—	—
Miscellaneous		
D1	OA90	—

Transistor Table

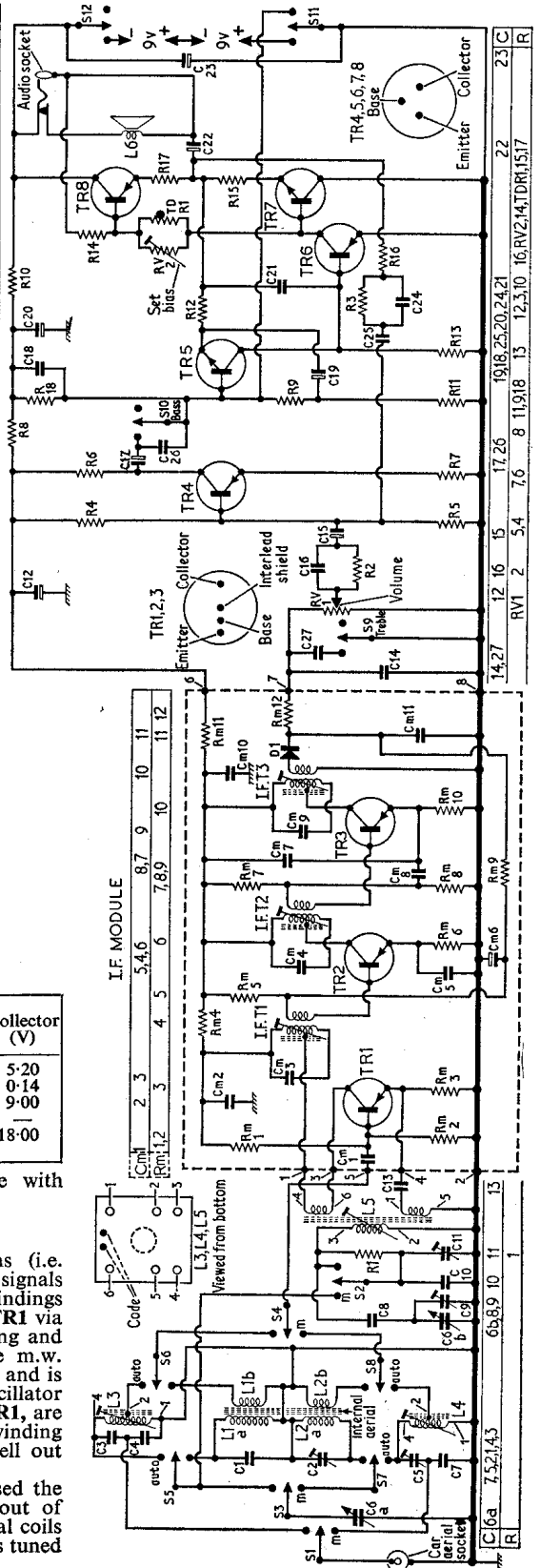
Transistor	Emitter (V)	Base (V)	Collector (V)
TR4	NKT275P	0.24	0.30
TR5	NKT775	8.90	8.40
TR6	NKT272A	—	0.14
TR7	NKT773	9.00	9.00
TR8	NKT271A	9.00	9.2

Avometer. All readings are negative with respect to chassis.

CIRCUIT DESCRIPTION

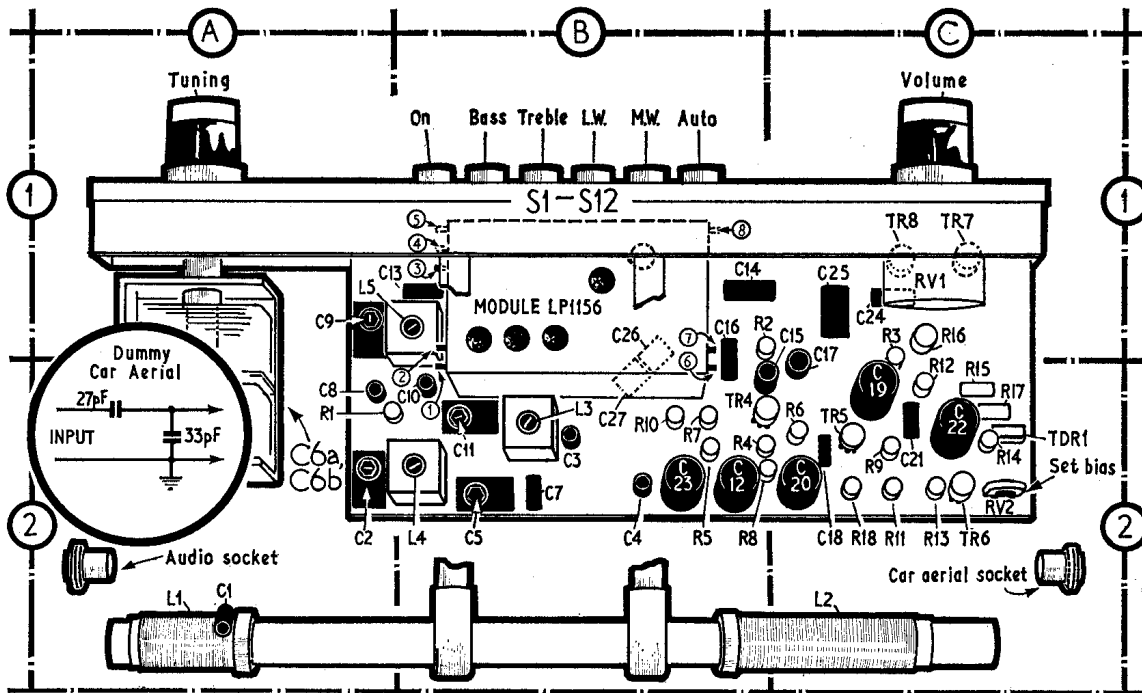
Under normal reception conditions (i.e. with the "Auto" button not depressed) signals are induced into the ferrite rod aerial windings L1a, L2a, and coupled to the base of TR1 via L1b, L2b. L1a is the l.w. aerial winding and is tuned by C1 and C6a. When the m.w. button is depressed, L2a is switched in and is tuned by C2 and C6a, also the l.w. oscillator components C10 and C11, isolated by R1, are switched in parallel with the long wave winding L1a to shift its resonant frequency well out of the m.w. band.

When the "Auto" button is depressed the ferrite rod aerial coils are switched out of circuit and separate m.w. and l.w. aerial coils are switched in by S5-S8. On l.w., L3 is tuned (Continued overleaf col. 1)



TRANSISTOR ANALYSIS

Voltages given in the table in col. 2 were taken from information supplied by the manufacturers and were measured on a model 8



General appearance of the receiver as seen from the rear, with the case removed.

Dismantling. — To remove chassis from case, pull off the loud-speaker connections and those to the earphone socket. Remove control knobs and lift off tuning scale. Undo the two screws located at either end of the scale back plate. The chassis may now be eased out of the case.

Circuit Description—continued

by C3, C4 and C6a, on m.w. L4 is tuned by C5, C7 and C6a. Signals are coupled via taps on L3 or L4 to the base of TR1 the mixer/oscillator.

Oscillator coil L5 is also external to the i.f. module, suitable connections being provided on the module for the connection of the secondary and tertiary windings of L5. This produces collector/emitter feedback causing oscillation in L5, the frequency of which is determined on m.w. by C8, C6b and C9, and on l.w. by C8, C6b, C9, C10 and C11.

The i.f. output appearing at the collector of TR1 is fed to the i.f. amplifiers TR2, TR3 and after amplification, to the demodulator diode D1.

A.f. output from D1 is filtered by Cm11 and Rm12 and emerges from the module at tag 7, after which it is further filtered by C14 and fed to the volume control RV1. C27/S9 are connected in parallel with the volume control and provide press-button treble cut. Audio from the volume control is fed via R2/C16 and C15 to the base of TR4. Frequency selective negative feedback is also applied to TR4 via C25, R3, C24 and R16, giving bass boost. C9/S10 in the coupling between TR4/TR5 provide press-button bass cut.

After amplification by TR5 signals are d.c. coupled to TR6, the driver transistor, and appear in the base circuits of the complementary symmetry output transistors TR7, TR8.

L6, the 25Ω loudspeaker, forms the load impedance.

CIRCUIT ALIGNMENT

Equipment Required.—An a.m. signal generator; an audio output meter with an impedance to match 25Ω; an r.f. coupling loop and suitable trimming tools.

Note: As the circuits in the module are pre-aligned, they should not require adjustment. The manufacturers recommend that the module should be returned to their service depot in the event of component or transistor failure which might cause mal-alignment.

The r.f. circuits should be aligned in the following manner:

- 1.—Switch on signal generator and allow to warm up.
- 2.—Connect the output of signal generator to r.f. coupling loop and place it, with its axis parallel to the ferrite rod aerial, about

- 15in away from the receiver.
- 3.—Switch on receiver and switch to m.w. Set tuning gang to maximum.
- 4.—Connect the audio output meter in place of the loudspeaker.
- 5.—Feed in a 525kc/s signal and adjust L5 for maximum output.
- 6.—Turn tuning gang to minimum and feed in a 1,560kc/s signal, adjust C9 for maximum output.
- 7.—Repeat operations 5 and 6 until no further improvement can be obtained.
- 8.—Feed in a 560kc/s signal and tune receiver to this signal. Adjust L2, by sliding it along the ferrite rod, for maximum output.
- 9.—Feed in a 1,500 kc/s signal and tune

- 17.—Feed in a 1,500kc/s signal and adjust C5 for maximum output.
- 18.—Repeat operations 16 and 17 until no further improvement can be obtained.
- 19.—Switch to l.w. and tune receiver to the 1,600m calibration point.
- 20.—Feed in a 187kc/s signal and adjust L3 for maximum output.

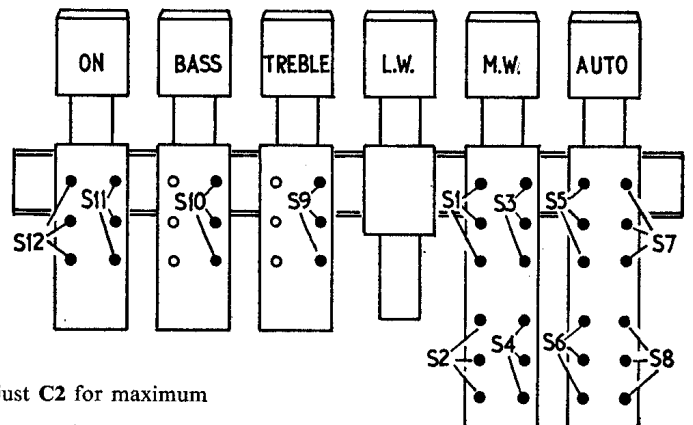
GENERAL NOTES

Adjustment of RV2.—To adjust RV2, check that both batteries read at least 9V, turn volume control to minimum and unsolder the collector lead of TR7. Connect a model 8 Avometer (switched to 10mA range) between TR7 collector lead and chassis.

Switch on and adjust RV2 for a reading of 4mA. Disconnect meter and resolder TR7 collector lead.

Right: Switch diagram as seen from the rear of the receiver.

Lower right: Drive cord assembly shown with the tuning gang at maximum.



- receiver to signal. Adjust C2 for maximum output.
- 10.—Repeat operations 8 and 9 until no further improvement can be obtained.
- 11.—Switch to l.w. and tune to the 1,600m calibration point.
- 12.—Feed in a 187kc/s signal and adjust C11 for maximum output.
- 13.—Adjust L1 for maximum output by sliding it along the ferrite rod.
- 14.—Check calibration on both m.w. and l.w.
- 15.—Depress m.w. and "Auto" buttons together. Replace the coupling loop with a dummy car aerial (see diagram) and insert into car aerial socket.
- 16.—Feed in a 560kc/s signal and tune receiver to this signal. Adjust L4 for maximum output.

