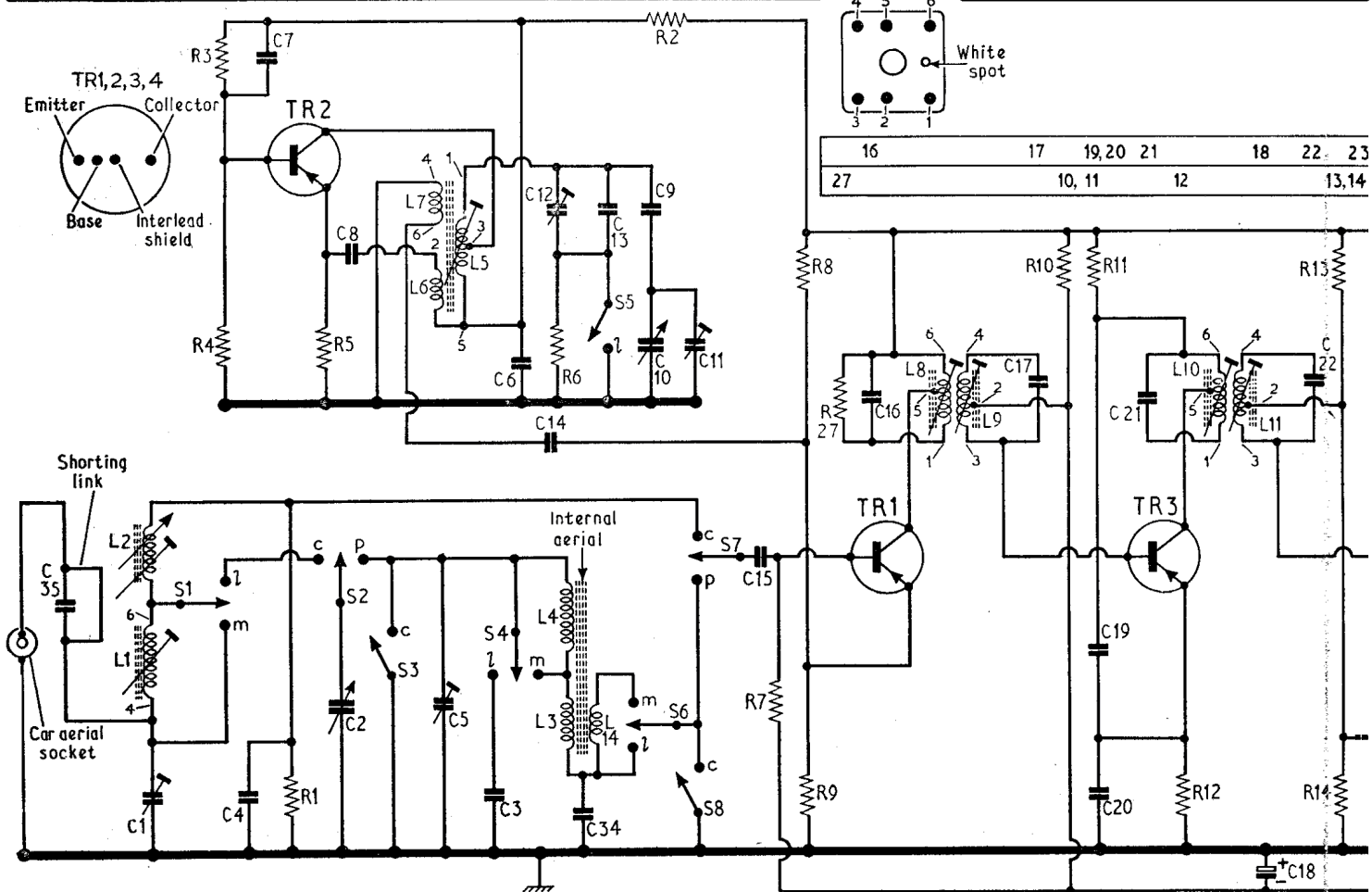
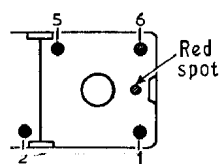


C	35	1	4, 7	2, 8	5	3	6	14,12,34,13	9,10	11	15
R		3, 4	1	5			6		2		7, 8, 9

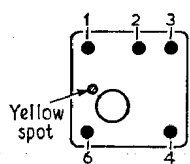
# ULTRA - 6116



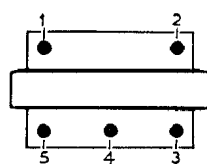
I and I.F.T 2



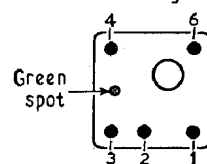
I.F.T 3



T1

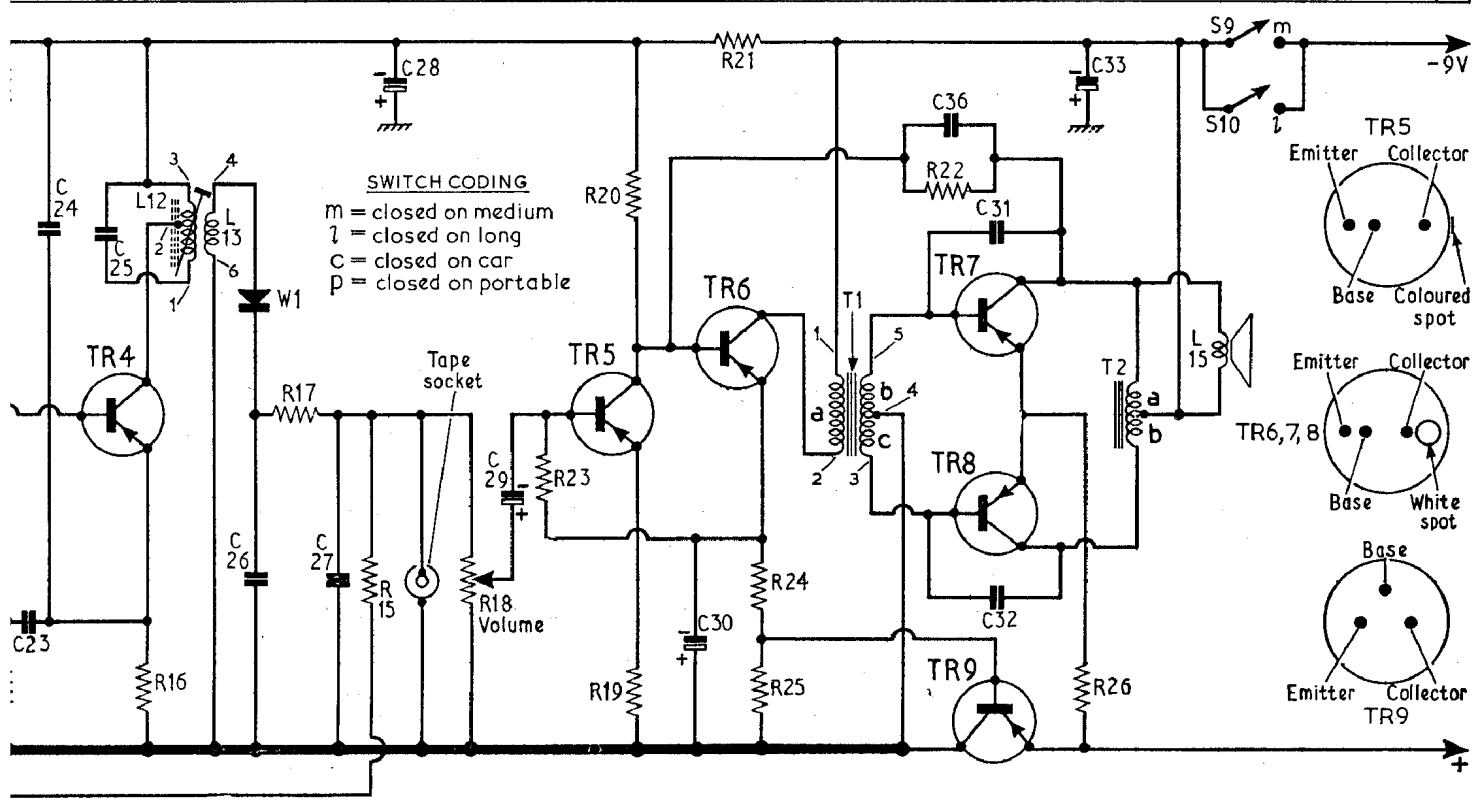


L.W. loading coil (L1)

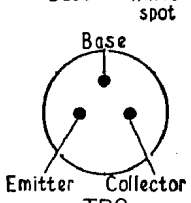
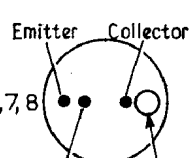
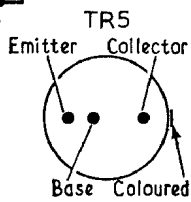


Pin connections viewed from copper side of printed boards

23,24	25	26	27	28	29	30	36	31,32	33	C
14	16	17	15	18	23	19,20	21,24,25	22	26	R



**SWITCH CODING**  
 m = closed on medium  
 l = closed on long  
 c = closed on car  
 p = closed on portable



Resistors			Capacitors		
R1	56kΩ	A3	C1	140pF	B2
R2	1.2kΩ	D2	C2	393pF	B2
R3	3.9kΩ	D2	C3	100pF	C2
R4	1.2kΩ	D2	C4	2,000pF	C2
R5	1kΩ	C2	C5	40pF	C1
R6	120kΩ	C2			
R7	4.7kΩ	B2			
R8	22kΩ	C2			
R9	680Ω	C2			
R10	56kΩ	B2			
R11	470Ω	C3			
R12	680Ω	C3			
R13	22kΩ	B3			
R14	4.7kΩ	C3			
R15	8.2kΩ	B3			
R16	1kΩ	C3			
R17	470Ω	B4			
R18	5kΩ	B1			
R19	820Ω	D2			
R20	6.8kΩ	D3			
R21	180Ω	D2			
R22	390kΩ	D3			
R23	18kΩ	D3			
R24	470Ω	D3			
R25	12Ω	D3			
R26	4.7Ω	D3			
R27 <sup>1</sup>	47kΩ	C2			

Coils*		
L1	12.75	A3
L2	3.5	A2
L3	2.0	D4

Transformers*		
T1	{ a 160.0	
	{ b 35.0	
	{ c 35.0	
T2	{ a 1.6	
	{ b 1.8	

Miscellaneous		
S1-S10	—	
W1	OA90	

Transistor Table

Transistor	Emitter (V)	Base (V)
TR1	AF117 ..	0.75†
TR2	AF117 ..	1.01
TR3	AF117 ..	0.8
TR4	AF117 ..	0.96
TR5*	OC71 ..	0.8
TR6*	OC81D ..	1.34
TR7, TR8*	OC81 ..	0.13
TR9	AC169 ..	—

\* TR5 may be AC155, TR6 AC113. TR7 and TR8 AC154.  
† Oscillator stopped.

## CIRCUIT ALIGNMENT

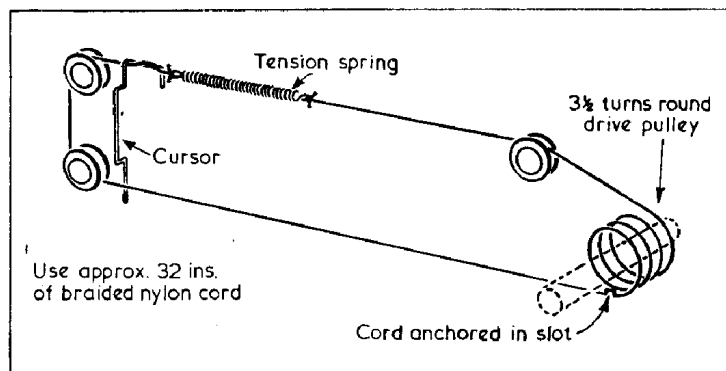
**Equipment Required.**—An a.m. signal generator 30 per cent modulated; an audio output meter with an impedance of 30-40Ω, or alternatively a model 8 Avometer set to its 2.5V a.c. range; two capacitors (18pF and 60pF) to be formed into a dummy aerial; a 0.1μF capacitor and a length of insulated wire for use as an r.f. coupling loop.

During alignment the signal input level should be adjusted to maintain the audio-output from the receiver at 50mW to prevent a.g.c. action.

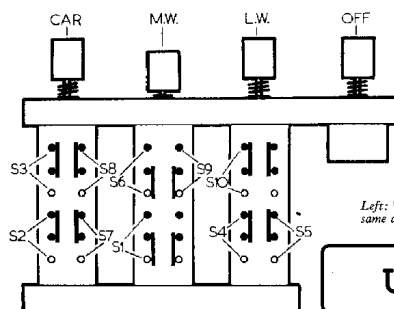
- 1.—Connect the signal generator via the 0.1μF capacitor across the tuning gang aerial section C2. Connect the audio output meter in place of the loudspeaker, or the Avometer switched to 2.5V a.c. range, in parallel with the loudspeaker. Turn the volume control.
- 2.—Switch receiver to "portable" m.w. and turn the tuning gang to maximum. Feed in a 475kc/s signal and adjust L12, L11, L10, L9 and L8 in that order for maximum output.
- 3.—With the tuning gang at maximum, check that the cursor coincides with the "set zero" mark at the l.f. end of the scale aperture. Adjust if necessary by sliding the cursor along the drive cord. Connect the signal generator to the r.f. coupling loop and loosely couple the loop to the ferrite rod aerial.
- 4.—Tune receiver to the 200m mark on scale. Feed in a 1,500kc/s signal and adjust C11 and C5 for maximum output.
- 5.—Tune receiver to the 500m mark. Feed in a 600kc/s signal and adjust L5 and L3 for maximum output.
- 6.—Switch receiver to l.w. and tune to the l.w. calibration mark near 1,400m. Feed in a 220kc/s signal and adjust C12 and L4 for maximum output.
- 7.—Switch receiver to "car" m.w. and set L2 adjusting screw so that an equal amount of thread appears either side of its moulded support. Connect the signal generator to the car aerial socket via a dummy aerial comprising the 18pF capacitor in series with the signal generator output followed by the 60pF capacitor shunted across the aerial socket.

- 8.—Tune receiver to the 500m mark on scale. Feed in a 600kc/s signal and adjust C1 for maximum output.
- 9.—Tune receiver to the 200m mark. Feed in a 1,500kc/s signal and adjust L2 adjusting screw for maximum output.
- 10.—Switch receiver to "car" l.w. and tune to the l.w. mark on scale. Feed in a 220kc/s signal and adjust L1 for maximum output.

Note: When the back cover is refitted, medium and longwave aerial coils L3 and L4 will become detuned by the effect of the electrostatic screen fitted to the back cover. To counteract this effect they should be readjusted as follows: Switch receiver to "portable" m.w. and slide L3 slightly inwards along the ferrite rod, then re-check the output level with the back cover in position. Repeat until the output level returns to maximum with the back cover in position. Switch to l.w. and use the same procedure for L4.



Above: Scale drive assembly seen from the chassis top right with the tuning gang fully closed



Left: Wasteband and car switch assembly when viewed from the same angle as in the general view of the chassis opposite, with the individual switch tags keyed

ULTRA - 6116