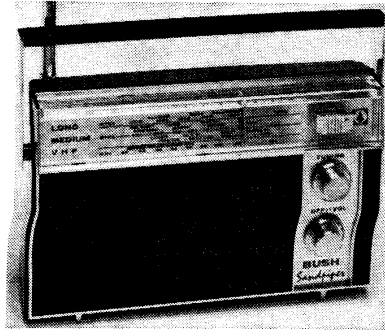


E R T

**SERVICE
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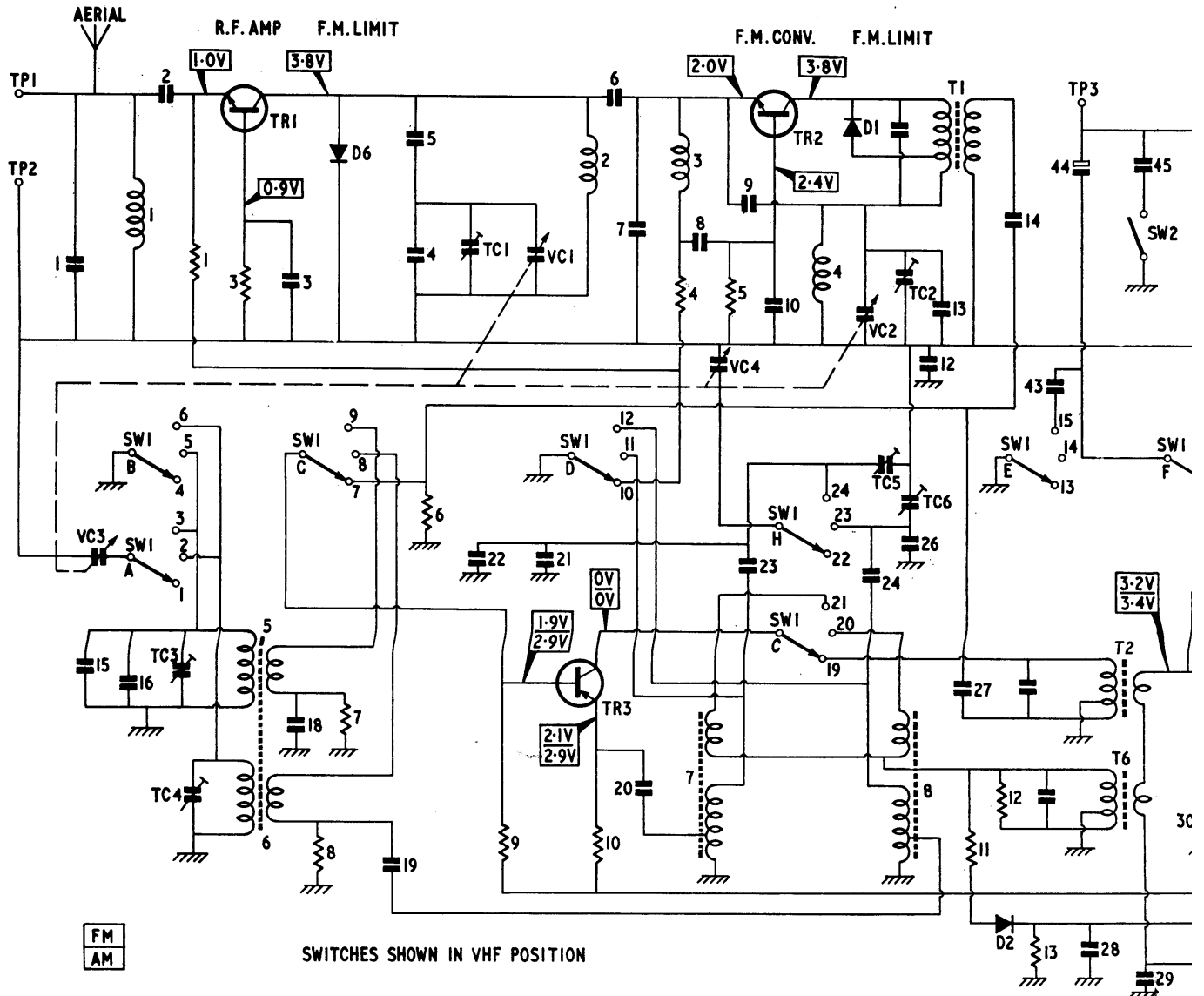


Bush "Sandpiper" battery operated AM/FM personal portable, model VTRI27

BUSH VTRI27 transistor radio

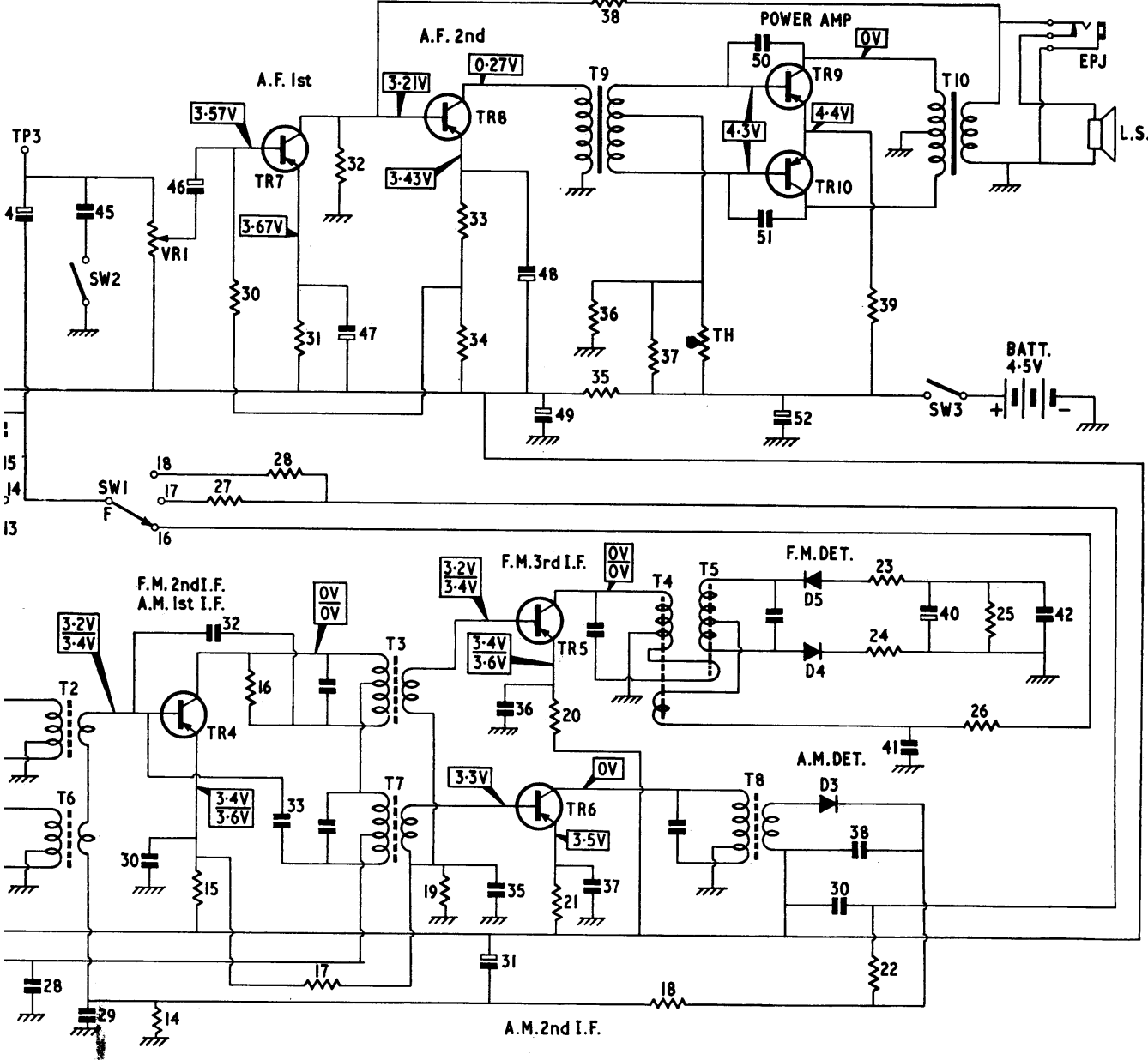
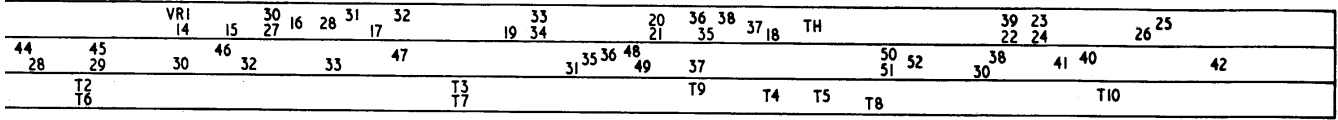
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R	1	3	8	7	6	9	10	4	5	11	12	13																				
C	15	16	TC3	TC4	18	19	4	TC1	22	VC1	21	6	7	20	8	VC4	23	10	VC2	24	TC5	TC2	TC6	26	12	13	27	14	43	44	45	
L	1	5	6	2	3	7	4	8	TI	8	TI	29	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45



RESISTORS		CAPACITORS		RESISTORS		CAPACITORS	
R1	1K5	A2	R21	560	B1	C22	60pF
R3	150	A1	R22	470	B1	C23	100pF
R4	3K3	B2	R23	470	A2	C24	300pF
R5	270K	B1	R24	470	A1	C26	7pF
R6	4K7	A1	R25	1K	B1	C27	3pF
R7	10K	A1	R26	1K	A1	C28	40KpF
R8	12K	A1	R27	2K7	B1	C29	20KpF
R9	4K7	A1	R28	12K	B1	C30	40KpF
R10	2K2	A1	R30	4K7	B1	C31	4.7μF
R11	2K7	A1	R31	390	B1	C32	2pF
R12	180K	A1	R32	4K7	B1	C33	3pF
R13	1K	A1	R33	150	B1	C35	40KpF
R14	47K	B1	R34	270	B1	C36	20KpF
R15	820	A1	R35	82	A1	C37	40KpF
R16	27K	—	R36	3K3	A2	C38	10KpF
R17	2K7	A1	R37	270	A2	C39	10KpF
R18	8K2	B1	R38	68K	A1	C40	4.7μF
R19	27K	A1	R39	2.2	A1	C41	10KpF
R20	220	B1	VR1	10K	B1	C42	10KpF
					B1	C43	5KpF

RESISTORS		CAPACITORS		
C44	4.7μF	A1	TC1	—
C45	100KμF	A1	TC2	—
C46	4.7μF	B1	TC3	—
C47	33μF	B1	TC4	—
C48	470μF	B1	TC5	—
C49	470μF	B1	TC6	—
C50	20KpF			
C51	20KpF			
C52	220μF			



BUSH MODEL VTR127 is a battery operated AM/FM personal portable radio incorporating ten transistors and six semiconductor diodes.

Batteries. 4.5V. Three type HP11 cells or equivalent.

Consumption. Quiescent current: AM 10mA. FM 13mA.

Wavebands. LW 970-2140m (310-140kHz), MW 187-595m (1604-505kHz), VMF/FM 87.3-104.5MHz.

Transistors. TR1 VHF RF amplifier 2SC461A, TR2 VHF mixer/oscillator 2SC535B, TR3 AM mixer/oscillator FM first IF amplifier 2SA350A, TR4 first AM second FM IF amplifier 2SA350A, TR5 FM third IF amplifier 2SA234B, TR6 AM second IF amplifier 2SA353A, TR7 AF amplifier 2SB75B, TR8 audio driver 2SB75B, TR9 and TR10 push pull output pair each 2SB77C.

Diodes. D1 FM limiter IN34A, D2 AM AGC IN34A, D3 AM detector IN34A, D4 and D5 FM detector each IN60, D6 FM limiter IN34A.

Thermistor. TH1.

IF AM 470kHz, FM 10.7MHz.

Aerials AM internal ferrite rod assembly; FM telescopic rod.

Speaker. Elliptical 5 x 3in. Impedance 8ohm.

Output. 220mW.

Outlet. Miniature jack for 20-1000ohm impedance earphone.

Dimensions. 5 1/2 x 8 1/2 x 2 3/8 in. (140 x 224 x 66mm).

Weight. 2lb. 4oz. (1.02kg).

Price. £17.50

Manufacturer. Rank Bush Murphy Ltd.

Service department. Drayton Road, Boreham Wood, Herts. Tel: 01-953 6151. Telex: 262741, Cables: Rankboom Boreham Wood.

SERVICE NOTES

The following list of components have values to suit receiver characteristics and may differ from values given in the component table: C4, C5, C13, C15, C16, C21, C22, R12, R26, R27 and R28.

ALIGNMENT

Equipment required. An RF signal generator capable of being amplitude modulated 30 per cent at 400Hz, or frequency modulated at 1kHz (deviation ±25kHz) as necessary, an 8ohm impedance output meter, an RF coupling coil, an FM sweep generator, a CRO (oscilloscope) and a 75 ohm matching pad.

AM IF. Set tone control to high and volume control to maximum. Terminate output meter in a miniature jack plug and insert plug into earphone jack. Maintain an audio output of approximately 50mW by attenuating input signal, thereby avoiding AGC action masking alignment peaks.

Terminate signal generator in an RF

coupling coil and loosely couple to ferrite rod aerial assembly.

Switch receiver to MW and rotate tuning gang to maximum capacitance. Feed in a 470kHz AM signal and adjust T6, T7 and T8 in that order for maximum output.

AM RF. With test equipment connect as for IF alignment switch receiver to LW. Rotate tuning gang to maximum capacitance and feed in a 140kHz AM signal. Adjust L7 for maximum output.

Rotate tuning gang to minimum capacitance and feed in a 310kHz AM signal. Adjust TC5 for maximum output.

Repeat these adjustments until frequency range is correct.

Tune receiver to 1740m and feed in a 175kHz AM signal. Adjust position of L5 on ferrite rod for maximum output.

Tune receiver to 1200m and feed in a

250kHz AM signal. Adjust TC3 for maximum output.

Repeat these adjustment until calibration is correct.

Switch receiver to MW, rotate tuning gang to maximum capacitance then feed in a 505kHz AM signal. Adjust L8 for maximum output.

Rotate tuning gang to minimum capacitance and feed in a 1650kHz AM signal. Adjust TC6 for maximum output.

Repeat these adjustments until frequency range is correct.

Tune receiver to 500m and feed in a 600kHz AM signal. Adjust position of L6 on ferrite rod for maximum output.

Tune receiver to 214m and feed in a 1400kHz AM signal. Adjust TC4 for maximum output.

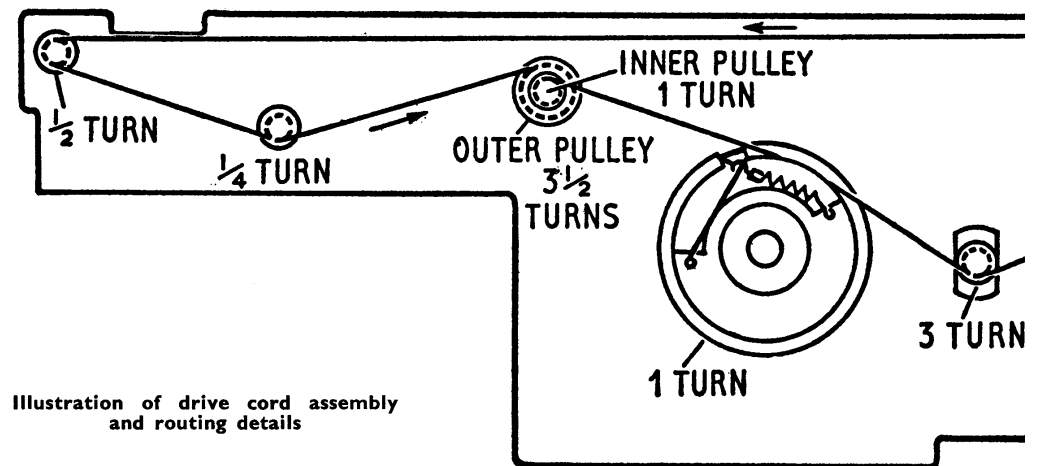
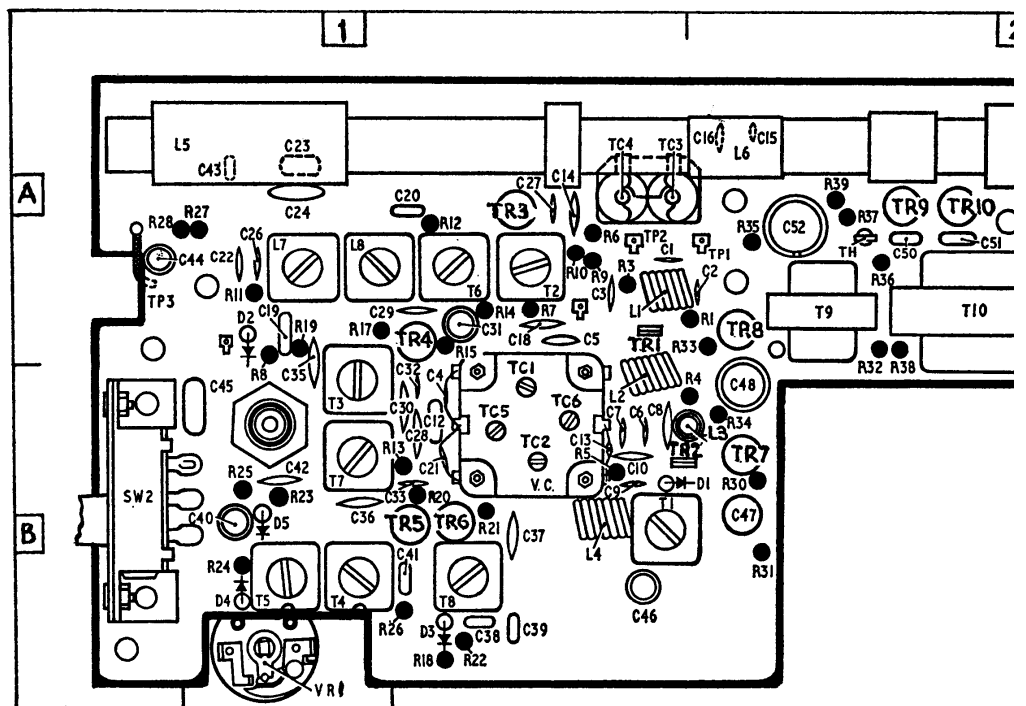


Illustration of drive cord assembly and routing details

Below: Component layout diagram and alignment plan



Repeat these adjustments until calibration is correct.

FM IF. Connect FM sweep generator to TP1 and CRO to TP3.

Switch receiver to VHF/FM and rotate tuning gang to minimum capacitance.

Feed in a frequency sweep centred on 10.7MHz. Adjust T1, T2, T3, T4 and T5 for a maximum symmetrical response about 10.7MHz.

Disconnect sweep generator and CRO.

FM RF. Connect FM signal generator to TP1 via 75ohm matching pad and the audio output meter as for AM alignment.

Tune receiver to 87MHz and feed in an 87MHz FM signal. Adjust L4 for maximum output.

Tune receiver to 104.5 and feed in a 104.5MHz FM signal. Adjust TC2 for maximum output.

Repeat these adjustments until frequency range is correct.

Tune receiver to 88MHz and feed in an 88MHz FM signal. Adjust L2 for maximum output

Tune receiver to 104MHz and in a 104MHz FM signal. Adjust TC1 for maximum output.

Repeat these adjustments until calibration is correct.

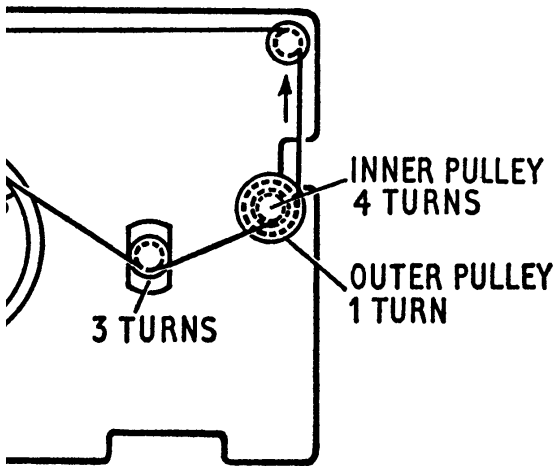
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KNOW ALL THE ANSWERS

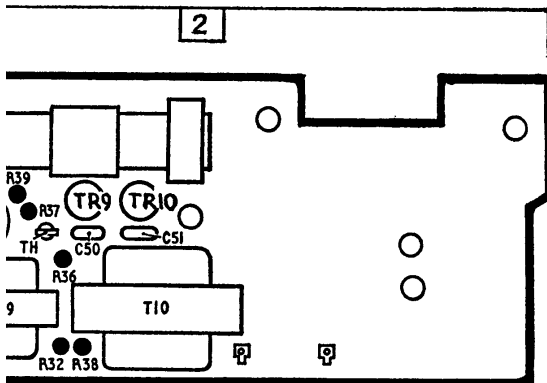
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1 alignment plan



Service Notes

Range:

Over 2500 Components—from an Anti-Surge Fuse to a Zener Diode.

Frequency:

Regular calls by Representatives at specified times.

Input:

Daily orders by telephone, telex or post.

Output:

Orders filled and despatched same day from stock.

Stability:

Quality rigorously controlled and backed by 12 months' guarantee.

Bias:

In favour of service and satisfaction.

Product Focus

Have you ever felt the need for an odd meter to carry out some special test job? The answer to such requirements may well lie in Radiospares MR20 series of meters. The standard scale is marked 0-3, 0-10. Basic sensitivities of 1mA or 100µA f.s.d., precision series resistors and current shunts, desk stands and all other accessories are available from stock. But perhaps most valuable is the spare blank scale provided, on which you can draw your own special scale. Or even simpler, dry transfers are available to facilitate this process!

Full details may be obtained from:—

Radiospares, P.O. Box 427, 13-17 Epworth St., London, EC2P 2HA. Telephone: 01-253 7501. Telex: 262341. Telegrams: Radosperes London.

