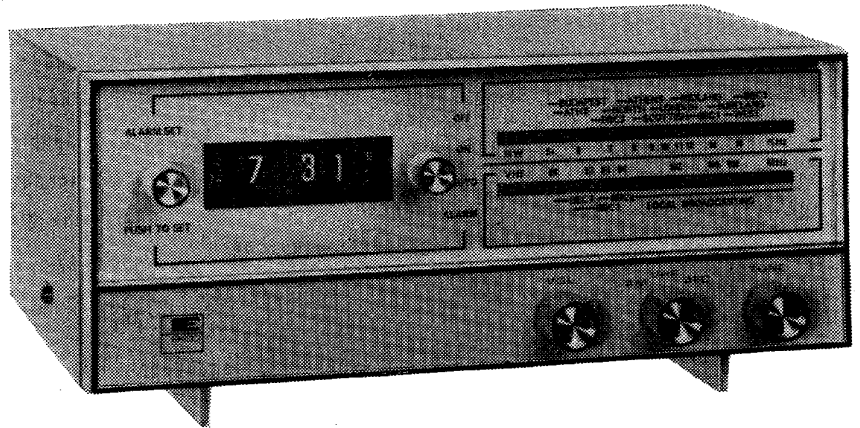




DIGITAL CLOCK RADIO

**Model
A402**



TRIMMING PROCEDURE (A.M.)

Apply a 30% modulated signal as below:-	Set receiver controls to:-	Adjust in order for maximum output:-
1. 470 kHz. to VT6 base via 100nF capacitor.	Volume control at maximum. Check pointer travel. High frequency end of band.	Cores of T5, T3 and T8.
2. 600 kHz. to rod aerial via standard loop.	600 kHz.	Core of L6 and position of L5 on rod.
3. As (2), but 1400 kHz.	1400 kHz.	Trimmers C43 and C39.
4. Repeat (2) and (3), then seal position of L5.		

Note: Loudspeaker impedance is 16Ω.

TRIMMING PROCEDURE (F.M.)

Apply signal as below:-	Set receiver controls to:-	Adjust in order for maximum output:-
1. 10.7 MHz. ± 22.5 kHz. deviation to antenna input.	Volume control at maximum. F.M. Band. Point of no interference.	Cores of T6, T4, T2 and T1.
2. As (1), but A.M. 30% modulation.	As (1).	Core of T7 for minimum output.
3. As (1), but 88 MHz.	88 MHz.	Spacing of L4 and L2.
4. As (1), but 108 MHz.	108 MHz.	Trimmers C17 and C7.
5. Repeat (3) and (4) until no improvement can be obtained.		

RESISTORS			CAPACITORS					
Code No.	Value	Part No.	Code No.	Value	Description	Tol. ±%	Volts	Part No.
R1	2K2	110.61116	C1	30p	Ceramic	10		122.47043
R2	2K2	110.61116	C2	1n	Ceramic	10		122.47084
R3	220K	110.61169	C3	30p	Ceramic	10		122.47043
R4	2K2	110.61116	C4	1n	Ceramic	10		122.47084
R5	150K	110.61165	C5	20p	Ceramic	10		122.47047
R6	100K	110.61161	C6		Gang			
R6A	1K2	110.61109	C7		Trimmer			125.47007
R7	470	110.61098	C8	20n	Ceramic	+80-20		122.47016
R8	100	110.61081	C9	5p	Ceramic	10		122.47002
R9	150K	110.61165	C10	30p	Ceramic	10		122.47043
R10	5K6	110.61127	C11	300p	Ceramic	10		122.47051
R11	5K6	110.61127	C12	5p	Ceramic	10		122.47002
R12	1K	110.61107	C13	1n	Ceramic	10		122.47084
R13	5K6	110.61127	C14	10p	Ceramic	10		122.47003
R14	1K	110.61107	C16		Gang			
R15	47K	110.61152	C17		Trimmer			125.47007
R16	15K	110.61138	C18	20n	Ceramic	+80-20		122.47016
R17	7K5	110.60131	C19	10n	Ceramic	+80-20		122.47042
R18	330	110.61094	C20	200μ	Electrolytic		10	PS 40085
R19	10K	110.61134	C21	20n	Ceramic	+80-20		122.47016
R20	470	110.61098	C22	200p	Ceramic	10		PN 20006
R21	1K	110.61107	C23	20n	Ceramic	+80-20		122.47016
R22	1K	110.61107	C25	20n	Ceramic	+80-20		122.47016
R23	5K6	110.61127	C26	30μ	Electrolytic		6	PS 28505
R24	5K6	110.61127	C27	10n	Ceramic	+80-20		122.47042
R25	330K	PL 37011	C28	10n	Ceramic	+80-20		122.47042
R26	2M2	111.37054	C29	20n	Ceramic	+80-20		122.47016
R27	2K2	110.61116	C30	2p	Ceramic	10		122.47058
R28	120K	110.61163	C31	20n	Ceramic	+80-20		122.47016
R29	27K	110.61145	C32	1μ	Electrolytic		6	PS 13050
R30	3K3	110.61121	C33	10μ	Electrolytic		6	PS 23116
R31	33K	110.61147	C34	200p	Ceramic	10		PN 20006
R32	100K	110.61161	C35	200p	Ceramic	10		PN 20006
R33	27K	110.61145	C36	10n	Ceramic	+80-20		122.47042
R34	1K	110.61107	C37	1μ	Electrolytic		6	PS 13050
R35	220	110.61089	C38		Gang			
R36	330	110.61094	C39		Trimmer			125.47007
R37	Thermistor; STD-20	116.37007	C40	10n	Ceramic	+80-20		122.47042
R38	1K5	110.61112	C41	10n	Ceramic	+80-20		122.47042
R39	1K5	110.61112	C42		Gang			
R40	330	110.61094	C43		Trimmer			125.47007
R41	Thermistor; STD-20	116.37007	C44	20n	Ceramic	+80-20		122.47016
R42	4.7	116.60003	C45	1μ	Electrolytic		6	PS 13050
R43	4.7	116.60003	C46	30μ	Electrolytic		6	PS 28505
R44	4.7	116.60003	C47	30μ	Electrolytic		6	PS 28505
			C48	200μ	Electrolytic		10	PS 40085
			C49	5n	Ceramic	10		122.47008
			C50	500μ	Electrolytic		10	PS 46101
			C51	500μ	Electrolytic		10	PS 46101
			C52	1000μ	Electrolytic		15	124.20417

All resistors are 1/8 watt 10%.

INDUCTORS

Code No.	Description	Part No.
L1	F.M. Aerial	157.47025
L2	F.M. R.F.	157.47026
L3	F.M. Oscillator	157.47027
L4	F.M. I.F. Trap	156.27008
L5	A.M. Ferrite Rod Assy.	158.17005
L6	A.M. Oscillator	153.17011

MISCELLANEOUS

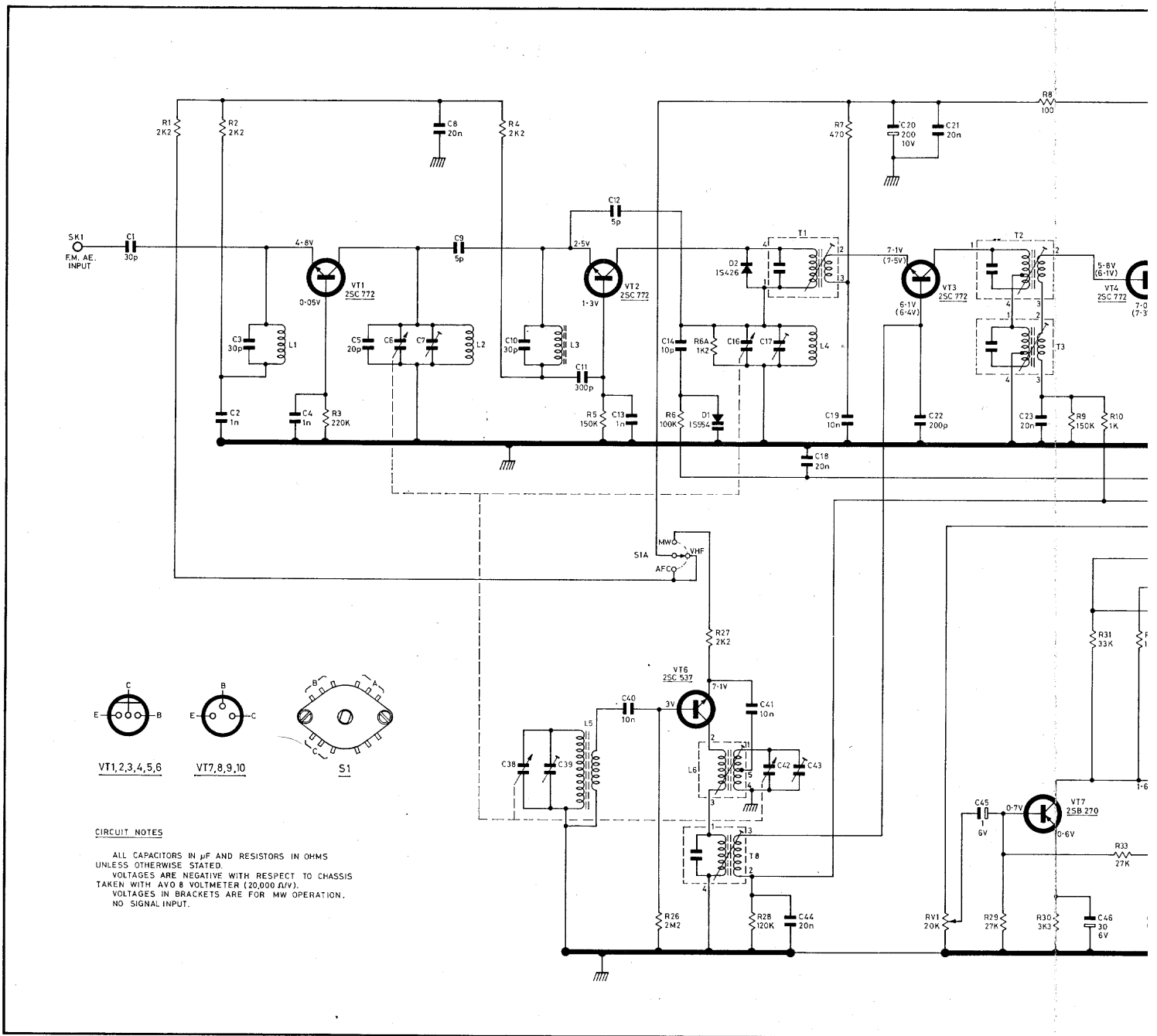
Code No.	Description	Part No.
RV1	Volume Control; 20K	101.37024
S1A-D	Selector Switch	273.57002
LS	Loudspeaker; 3" dia. 16 ohm	240.37006
LP1, LP2	Indicator Lamp; 6 volt	134.47003
LP1, LP2	Indicator Lamp; 9 volt	134.47097
SK2	Socket; Earpiece	267.37003
	Rod Aerial Support	256.97007
	Shaft; Tuning	535.77007
	Pointer	450.87017
	Drive Drum	528.47006
	Spring	A3.09948
	Pulley	528.87011
	Drive Cord	K299ZZ/938
	Mains Lead; 2-core	323.30002
	Lead Grip	466.87024
	Chassis Mounting Plate	464.77012
	Panel Mounting Bracket	404.27036
	Panel Mounting Stud	535.87018

DIODES

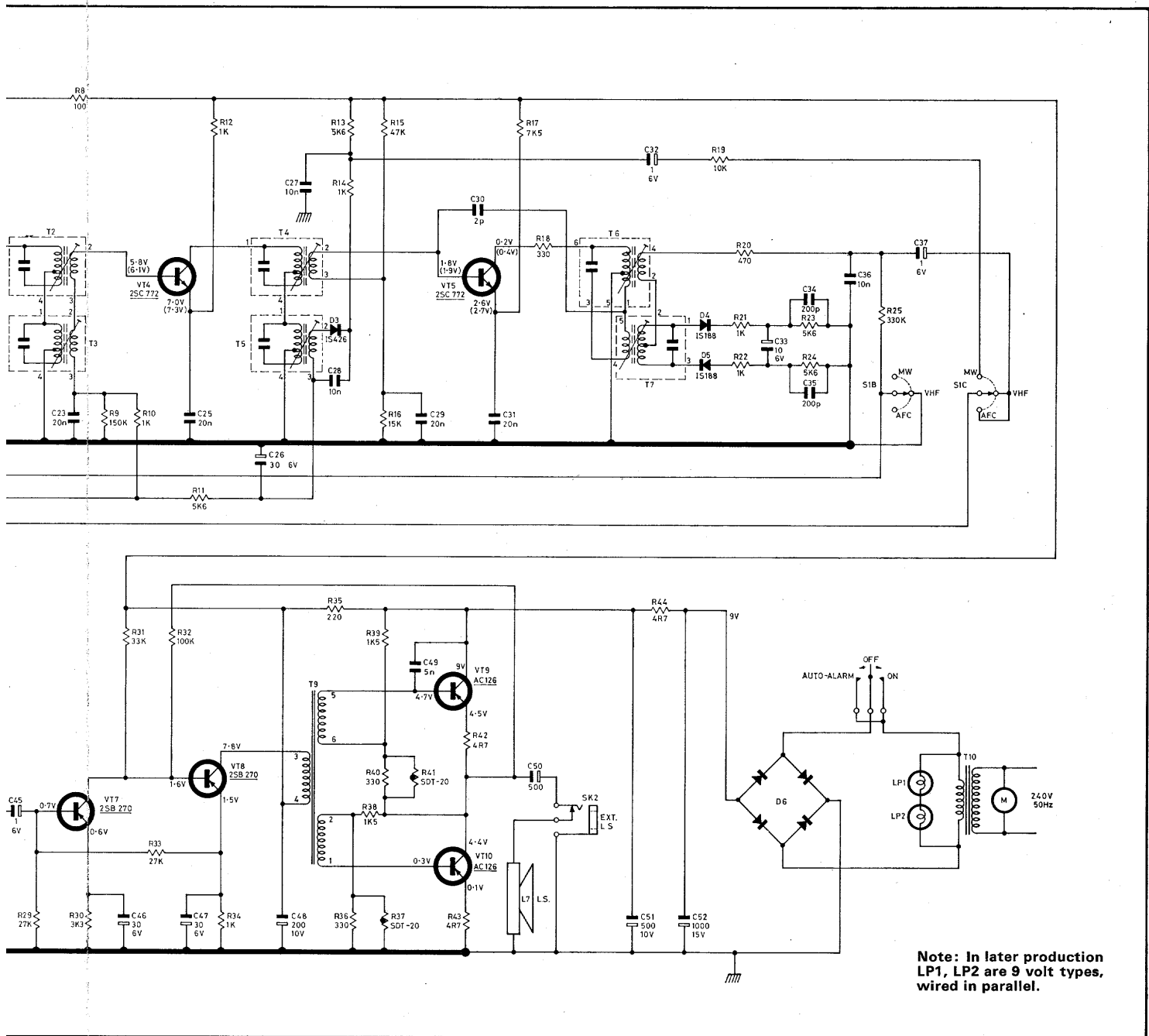
Code No.	Description	Part No.
D1	Varicap	1S 554
D2	Overload	1S 426G
D3	A. M. Detector	1S 426G
D4	F. M. Detector	1S 188FM
D5	F. M. Detector	1S 188FM
D6	Mains Rectifier; 10B-2-B1W	130.57006

CASING

Description	Part No.
Cabinet	425.27002
Escutcheon	460.17037
Tuning Scale	333.47004
Control Panel	454.17103
Clock Panel	459.57015
Stud for Clock	535.87014
Speaker Clamp	404.27034
Escutcheon Clamp	404.27035
Knob; Clock	413.37018
Knob Insert; Clock (red line)	413.77011
Knob Insert; Clock (plain)	413.77012
Knob Radio	413.37019
Knob Insert; Radio (red line)	413.77013
Knob Insert; Radio (plain)	413.77014
Digital Clock Mechanism	349.47001
Lampholder	255.27002



TRANSFORMERS			TRANSISTORS		
Code No.	Description	Part No.	Code No.	Description	Type
T1	1st. F.M. I.F.	153.57008	VT1	F.M. R.F.	2SC 772CK
T2	2nd. F.M. I.F.	153.57008	VT2	F.M. Mixer	2SC 772CK
T3	2nd. A.M. I.F.	153.17013	VT3	I.F. Amplifier	2SC 772DK
T4	3rd. F.M. I.F.	153.57008	VT4	I.F. Amplifier	2SC 772DK
T5	3rd. A.M. I.F.	153.17014	VT5	I.F. Amplifier	2SC 772DK
T6	4th. F.M. I.F.	153.57011	VT6	A.M. Oscillator and F.M. I.F. Amplifier	2SC 537
T7	5th. F.M. I.F.	153.57012	VT7	Audio Amplifier	2SB 270
T8	1st. A.M. I.F.	153.17012	VT8	Driver	2SB 270
T9	Driver	142.47006	VT9	Output Pair	AC 126
T10	Mains	145.37005	VT10		



Note: In later production LP1, LP2 are 9 volt types, wired in parallel.

All orders by telephone or post should be directed to:—

COMBINED ELECTRONIC SERVICES LIMITED

604 PURLEY WAY · WADDON · CROYDON · CR9 4DR

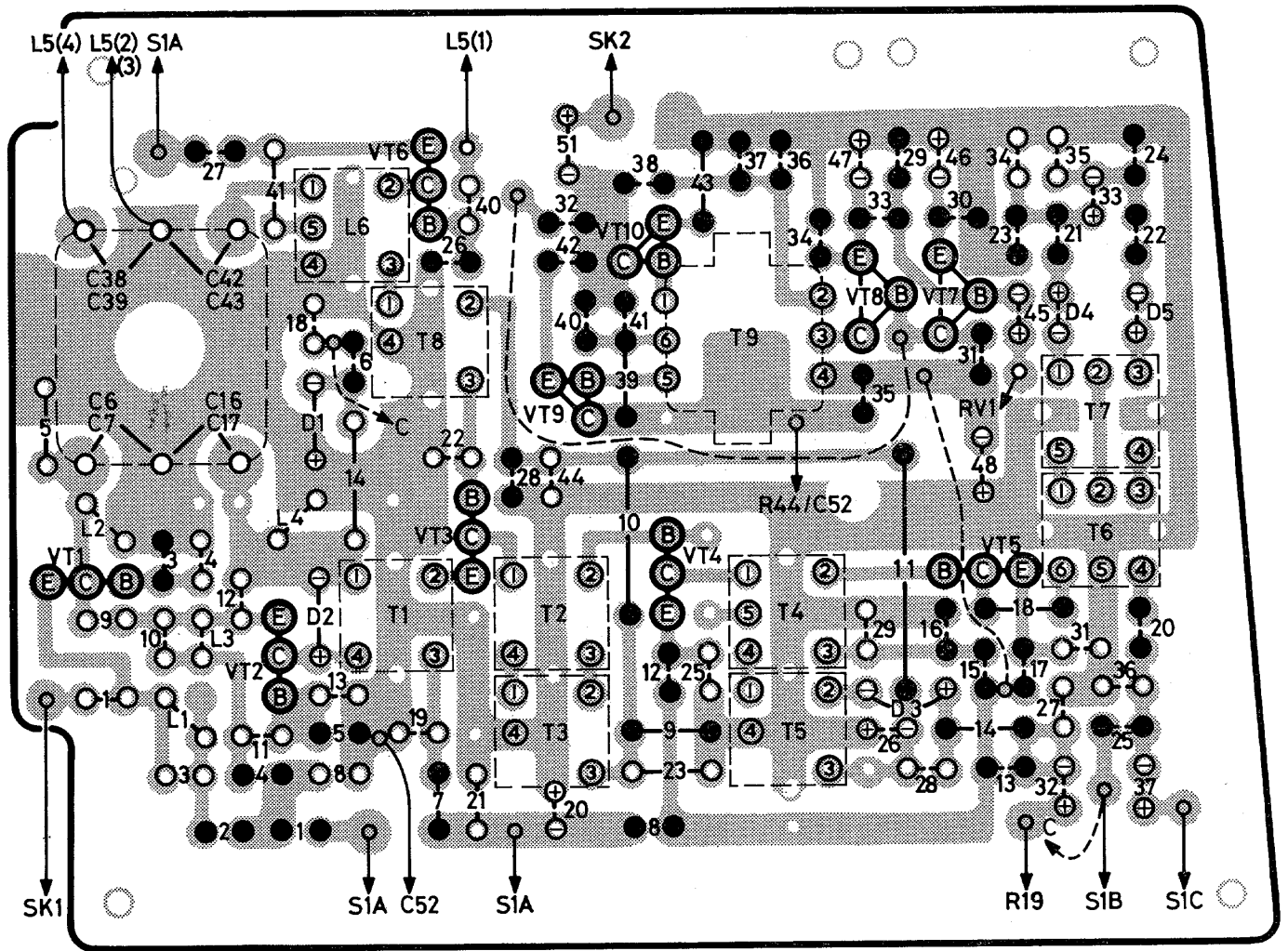
TELEPHONES:

Spare part orders: 01-686 3831

After business hours: Recorded messages on both lines

General service enquiries; 01-686 7722

Telex 262308



Power Supply: 240 volts 50 Hz. A.C.

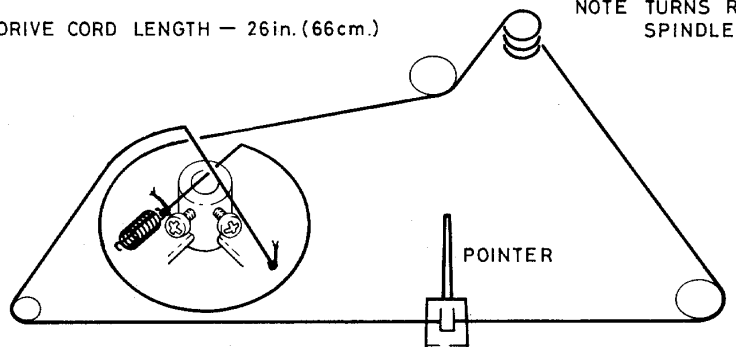
Waveband Coverage: A.M. 525-1650 kHz.
F.M. 88-108 MHz.

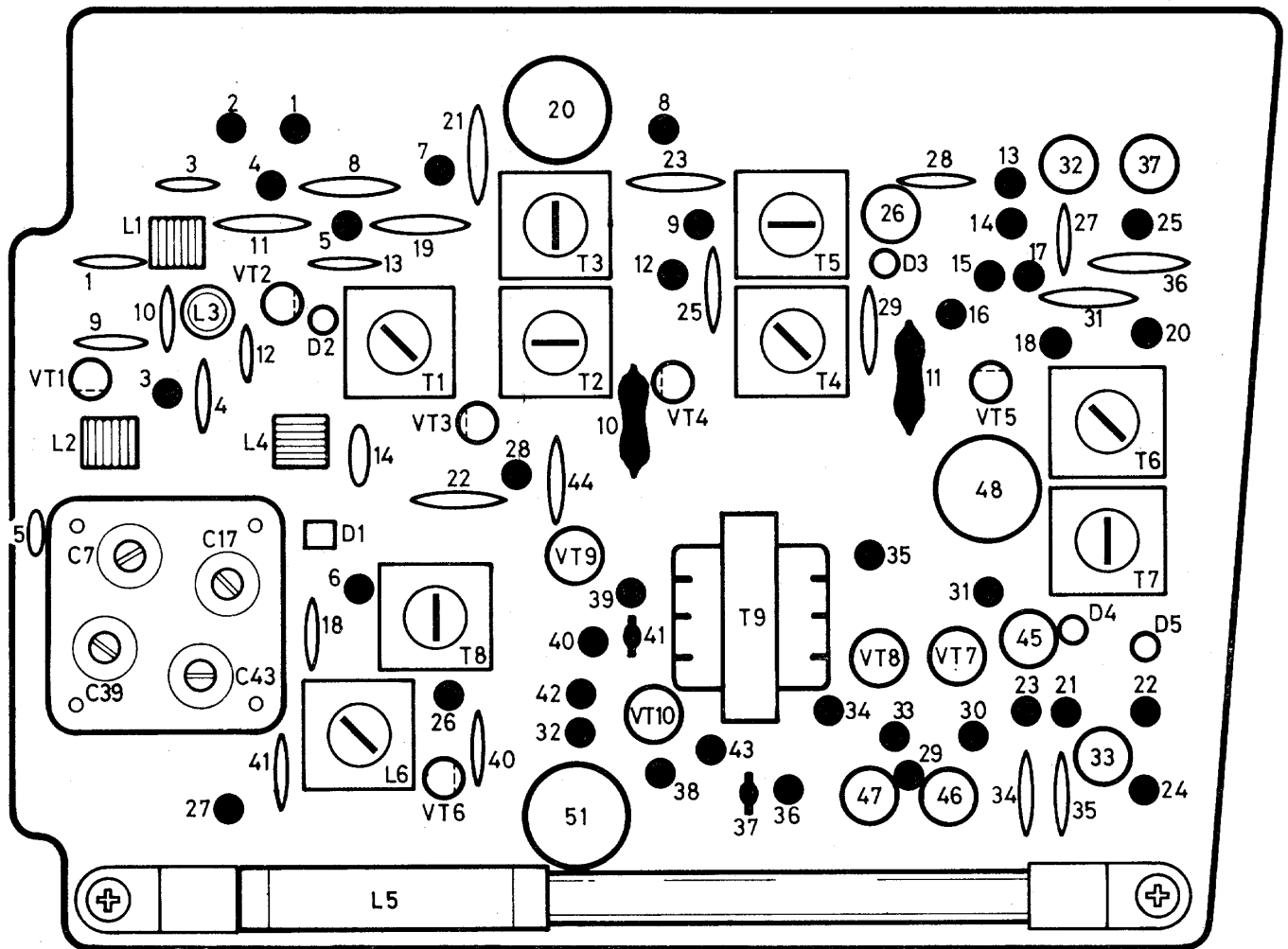
Output: 300mW

Output Impedance: 16 ohms

DRIVE CORD LENGTH - 26in. (66cm.)

NOTE TURNS ROUND SPINDLE





NOTES

To Remove Chassis Assembly:

1. Extract 3 screws at front underside and 1 recessed screw at rear (top right) of case.
2. Remove knurled nut at left-hand side to release ear-phone socket.
3. Prise front panel away from bottom edge of case and lift out complete chassis assembly as far as mains and aerial leads will permit.
It may be found necessary to insert a pen-knife blade between case and top of front panel to release three locating lugs on rear edge of panel.
4. Unsolder mains lead and disconnect aerial lead from its socket.

To Replace Indicator Lamps:

Pull off the two small control knobs and remove four fixing screws on the clock mechanism mounting plate. Then carefully open up the lampholder by thumb pressure to enable the lamps to be withdrawn.

Clock Mechanism:

If it should become necessary to return this mechanism for repair or replacement, first remove and retain the tagstrip complete with rectifier, resistor, capacitors and indicator lamps.

Receiver Chassis:

The print panel can be separated from its front plate by slackening off the two drive drum grub screws and removing screw in each corner of panel.