AM CAR-RADIO 02RN259A

Service
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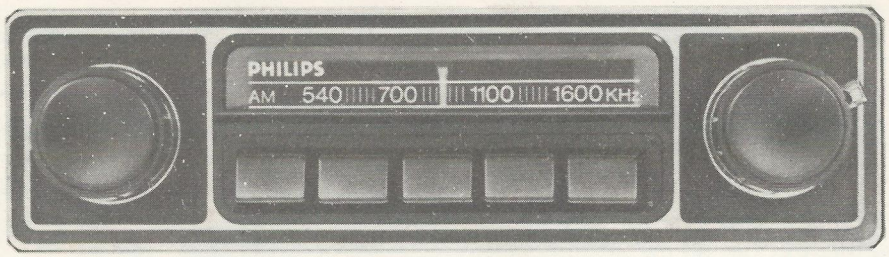
12 V

Service Manual



WARNING:
CONNECT POWER LEAD OF RECEIVER TO POSITIVE BATTERY TERMINAL ONLY. RECEIVER WILL BE DAMAGED IF CONNECTED TO INCORRECT POLARITY.

NOTE:
ADJUST ANTENNA TRIMMER ON CONCLUSION OF INSTALLATION.

PHILIPS CONSUMER PRODUCTS, CAR-RADIO
Subject to modification
3102 305 31691
Printed in Australia.

PHILIPS

ALIGNMENT PROCEDURE

EQUIPMENT

Signal Generator : modulated at 400 Hz

Output Meter : 4 ohm impedance

Generator Series Capacitor : 100 nF (for i.f. alignment)

Dummy Antenna : 100 pF

CONDITIONS

Receiver : top lid removed

Volume control : fully clockwise

Tone Control : fully clockwise

Output Meter : connected to receiver output socket (speaker disconnected).

Output Level : 50 mW

Supply Voltage : maintained at 13.2V. DC.

Polarity : Negative to receiver chassis.
Positive to receiver power lead.

Signal Generator Output : kept to minimum necessary

BROADCAST ALIGNMENT

1. Connect dummy antenna to antenna input socket.
2. Set output meter to 50 mW range, 4 ohm impedance, and connect to receiver output socket (speaker disconnected).

ALIGNMENT

Tracking alignment

STEP	PURPOSE	ADJUST	PROCEDURE
1	Tuning frequency range	T1	510 kHz must be received at left end of dial.
2	Tuning frequency range	C11	1630 kHz must be received at right end of dial.
3	Repeat STEPS 1 to 2.		
4	Tracking	C1, C4	Peak at 1400 kHz.

Remarks :- Always readjust antenna trimmer (C1) with radio installed in car.

IF Frequency : 455 kHz.

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CHECKING SERVICEABLITY OF I.C.

Integrated circuits are inherently reliable devices and can be expected to give long life in normal service. DO NOT, therefore, assume that the IC is responsible for a reported malfunction until you have carried out the following check :-

CAUTION :- Great care must be taken to ensure that the pins of the I.C. are not shorted together or to frame during this check.

- Check current drawn by receiver. With serviceable lamps, reading should be typically 150 mA (with no signal input).
- Turn VOLUME control fully up. When wiper of VOLUME control is touched, corresponding crackles should be heard from speaker.
- Measure d.c. voltage on Pin 1 of I.C. This should be approximately 6 - 7 volts (or half the supply voltage).

If the above checks are satisfactory, I.C. is likely to be serviceable. If there is still doubt, check sensitivity by injecting 5.0 mV audio signal at wiper of VOLUME control.
Power output in 4 ohm load should be approximately 50 milliwatts.

CHANGING FAULTY I.C.

- Apply a soldering iron to each pin of the I.C. in turn, removing as much solder as possible. Carefully note connections and orientation of I.C.
- Withdraw the I.C.
- Fit new I.C., ensuring orientation is correct.
  Solder connection as before, applying heat for minimum time necessary to obtain well-soldered joints.

NOTE :- WARNING !

The battery lead of this receiver must be connected only to the POSITIVE terminal of a battery.
Connection to incorrect polarity will damage the receiver.
Connect receiver output socket only to 4 ohm load.

CONCISE DATA

Tuning Range : 525 kHz - 1615 kHz.

Intermediate Frequency : 455 kHz.

Supply Voltage : 13.2 volts d.c.

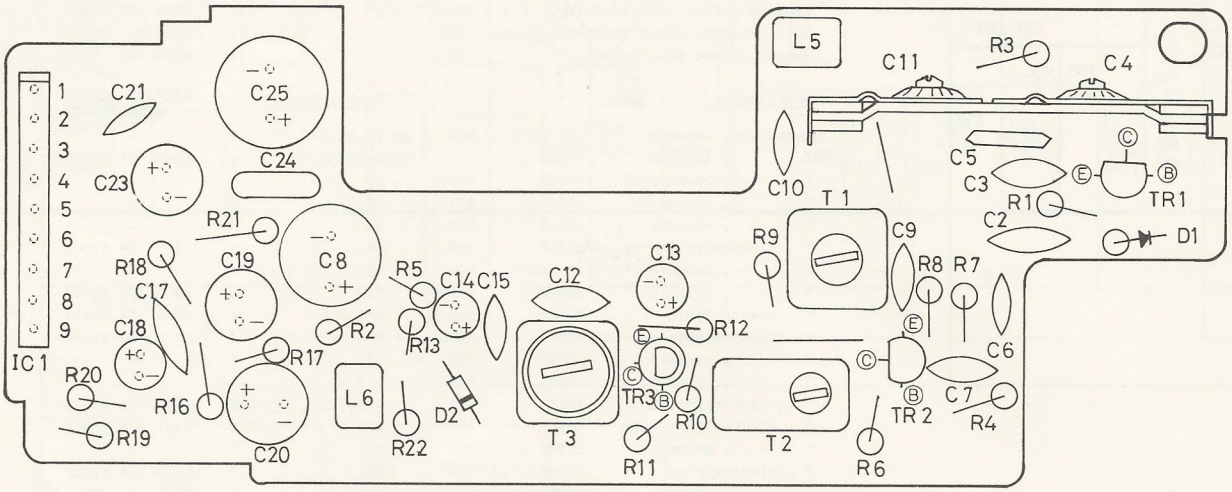
Polarity : Negative-to-chassis (NOT reversible).

Current Consumption : Typically 150 mA (no signal input). including lamp current.

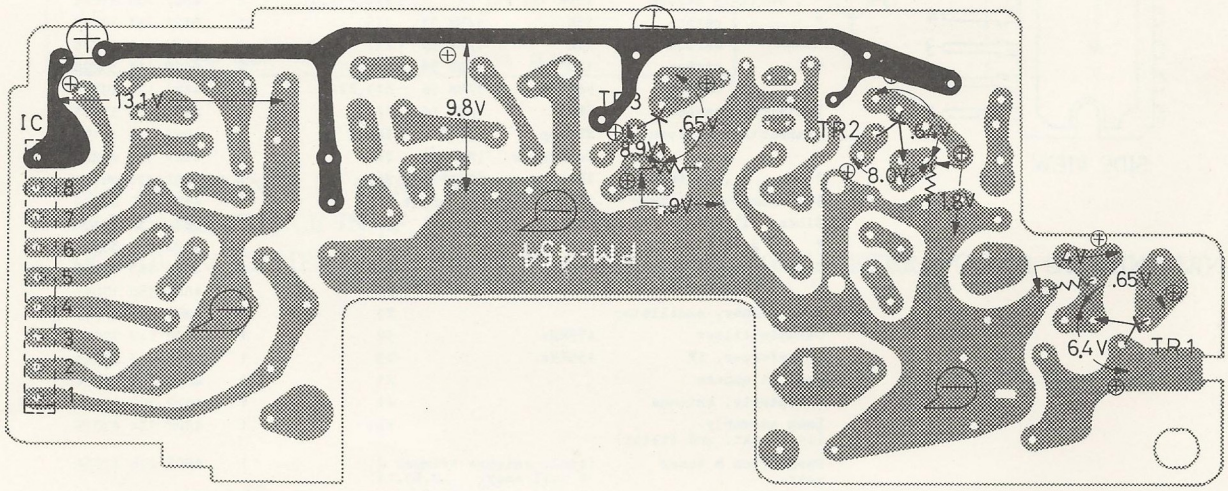
Output Load Impedance : 4 ohm

Metal Screws : ISO Standard Metric.

PARTS LOCATION ON PC BOARD



CHECK POINTS ON PC BOARD



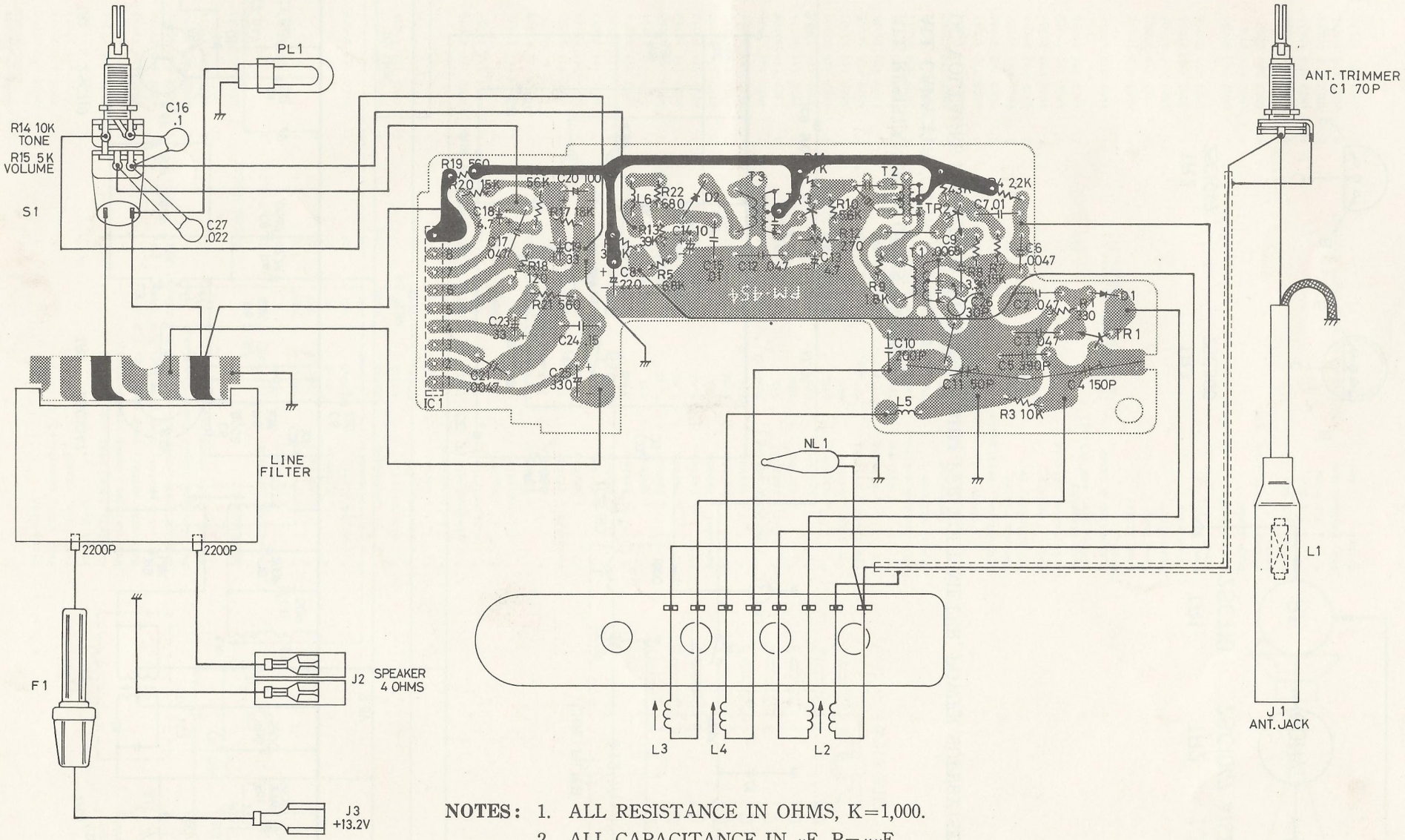
Pin No.	1	2	3	4	5	6	7	8	9
IC_1	6.4V	—	7.5V	10.5V	6.3V	—	4.9V	11.5V	13.1V

NOTES: 1. DC VOLTAGES MEASURED WITH 25,000 OHM PER VOLT METER, POWER SUPPLY SET AT +13.2 VDC, NO SIGNAL INPUT.

2. ⊕ DENOTES POSITIVE POLARITY OF THE TESTER.

3. IC PIN VOLTAGES MEASURED WITH RESPECT TO CHASSIS.

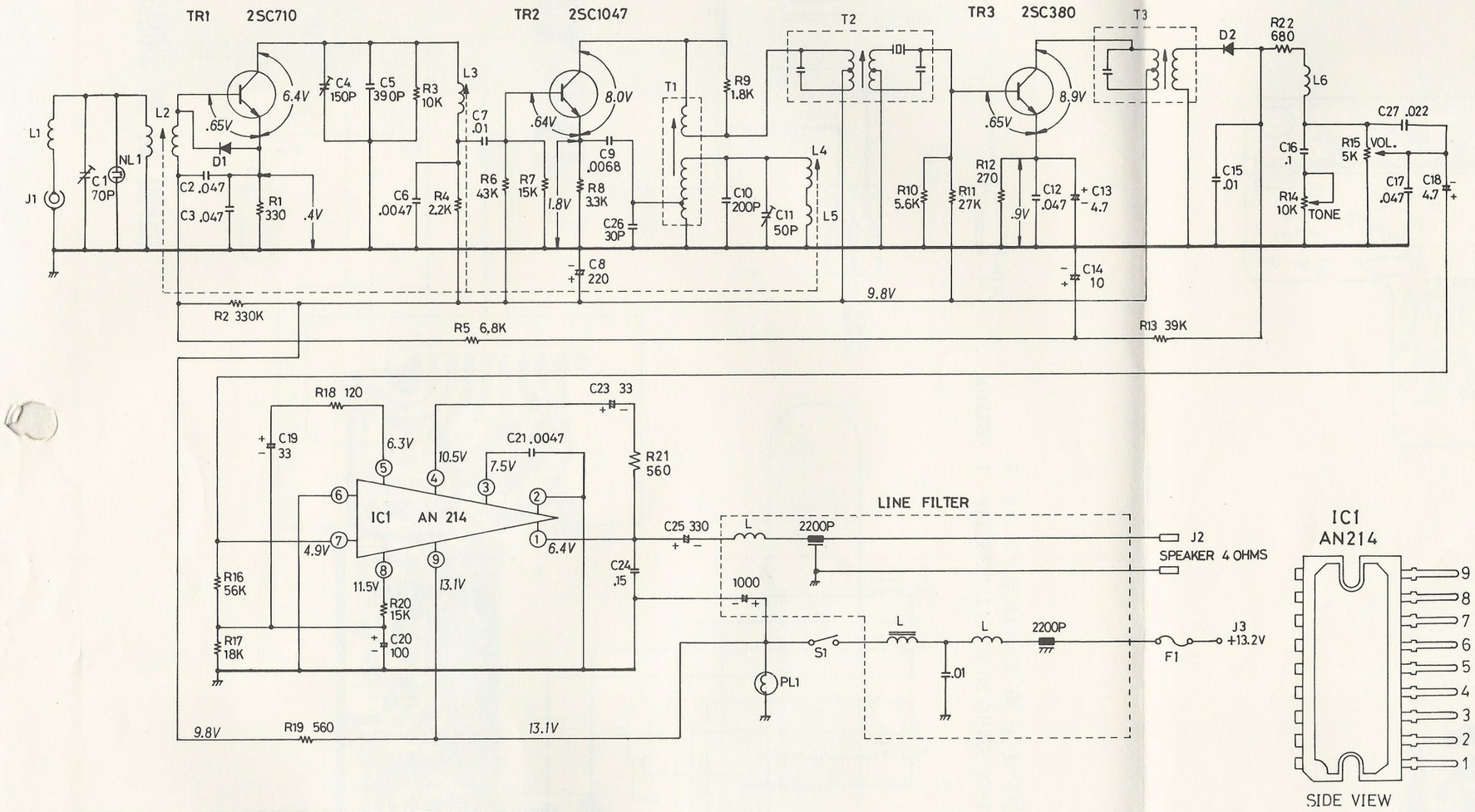
WIRING ON PC BOARD



NOTES: 1. ALL RESISTANCE IN OHMS, K=1,000.

2. ALL CAPACITANCE IN μF, P=$\mu\mu$F.

SCHEMATIC DIAGRAM



NOTES: 1. ALL RESISTANCE IN OHMS, K=1,000.
2. ALL CAPACITANCE IN μF, P=$\mu\mu$F.
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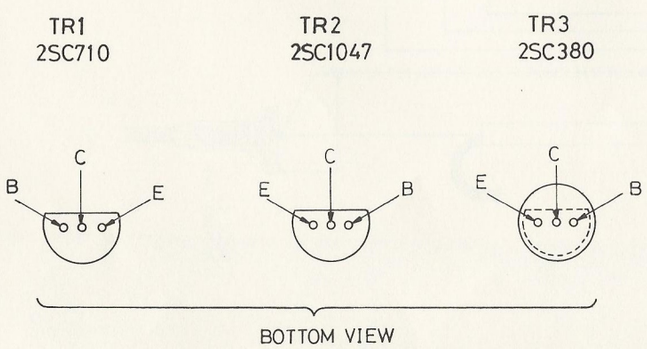

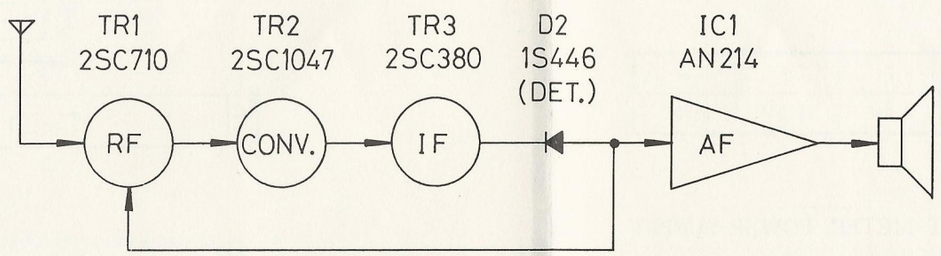

	Qty.	Service Spares Code Number
Escutcheon	1	4802 459 47053
Rear knob, non-winged	1	4802 413 97111
Rear knob, winged	1	4802 411 57013
Front knob	2	4802 413 47098
Bracket, tuner rear mounting	1	4802 404 27022
Nut, hexagon, tuner rear mounting	1	4802 505 17021
Bolt with washer, rear mounting, 6 x 16mm	1	4822 502 11132
Bolt with washer, rear mounting, 5 x 10mm	1	4822 502 10794
Tapping screw, rear mounting, 5 x 20mm	1	4822 502 30056
Nut, hexagon, tuner front mounting, 9mm	4	4802 505 17016
Washer, front mounting, 9mm	4	4802 532 17014

Description			Symbol Number		Service Spares Code Number
Capacitor, ceramic	.047uF	50V	C2,C3,C12,C17	4	-
" , trimmer	150pF		C4,C11	2	4802 125 57007
" , ceramic	390pF	500V	C5	1	-
" , ceramic	.0047uF	50V	C6,C21	2	-
" , ceramic	.01uF	50V	C7	1	-
" , electrolytic	220uF	10V	C8	1	4802 124 47006
" , ceramic	.0068uF	50V	C9	1	-
" , ceramic	200pF	500V	C10	1	4802 122 47047
" , electrolytic	4.7uF	25V	C13,C18	2	4802 124 47034
" , electrolytic	10uF	16V	C14	1	4802 124 47044
" , ceramic	.01uF	25V	C15	1	-
" , ceramic	.1uF	12V	C16	1	-
" , electrolytic	33uF	10V	C19,C23	2	4802 124 47013
" , electrolytic	100uF	10V	C20	1	4802 124 47002
" , mylar	.15uF	50V	C24	1	-
" , electrolytic	330uF	16V	C25	1	4802 124 47022
" , ceramic	30pF	500V	C26	1	4802 122 47048
" , ceramic	.022uF	50V	C27	1	-
Resistor , carbon	330	1/8W 5%	R1	1	4822 111 30328
" , carbon	330K	1/8W 5%	R2	1	4822 111 30257
" , carbon	10K	1/8W 5%	R3	1	4822 111 30273
" , carbon	2.2K	1/8W 5%	R4	1	4822 111 30265
" , carbon	6.8K	1/8W 5%	R5	1	4822 111 30314
" , carbon	43K	1/8W 5%	R6	1	5322 111 30294
" , carbon	3.3K	1/8W 5%	R8	1	4822 111 30263
" , carbon	1.8K	1/8W 5%	R9	1	4822 111 30266
" , carbon	5.6K	1/8W 5%	R10	1	4822 111 30313
Resistor , carbon	27K	1/8W 5%	R11	1	5322 111 30278
" , carbon	270K	1/8W 5%	R12	1	5322 111 30256
" , carbon	39K	1/8W 5%	R13	1	5322 111 30281
" , variable carbon	Tone 1K, Vol 5K		R14,R15,S1	1	4802 102 47045
" , carbon	56K	1/8W 5%	R16	1	5322 111 30289
" , carbon	18K	1/8W 5%	R17	1	4822 111 30276
" , carbon	120	1/8W 5%	R18	1	5322 111 30298
" , carbon	560	1/8W 5%	R19,R21	2	4822 111 30309
Resistor , carbon	680	1/2W 5%	R22		4822 110 53103
Transistor, silicon	RF amp.	(BF494)	TR1	1	4822 130 44195
" , silicon	Converter	(BF198)	TR2	1	4822 130 41025
" , silicon	IF amp.	(BF173)	TR3	1	4822 130 40511
IC, linear-monolithic	Audio driver & output		ICI	1	4802 209 87019
Diode, silicon	Bias of TR1 (BA114)		D1	1	4822 130 30189
" , germanium	AGC & detector (OA91)		D2	1	4822 130 30281
Coil , oscillator series	6.2uH		L2	1	4802 153 17106
" , choke	1mH		L6	1	4802 158 17041
Transformer, oscillator			T1	1	4802 142 67009
Ceramic filter	455KHz		T2	1	4802 242 77002
Transformer, IF	455KHz		T3	1	4802 153 27014
Fuse, 1 ampere			F1	1	4802 253 47004
Receptacle, antenna			J1	1	4802 320 17018
Lamp assembly (incl. skt. and filter)			PL1	1	4802 134 47039
Pushbutton & tuner assy.	(incl. antenna trimmer C1 & coil assy. L2,L3,L4)			1	4802 210 17054
Line filter				1	4802 152 27026
Neon lamp				1	4822 134 20016
Fuseholder				1	4802 256 47001
Power plug				1	4802 268 27006
Nose piece (incl. dial glass)				1	4802 459 57006
Dial pointer				1	4802 450 87051
Back plate				1	4802 421 27001
Bracket, pilot lamp assy.				1	4802 404 27021
Screw, 3 x 4mm				3	4822 502 11022
" , 3 x 6mm				16	4822 502 10657
" , 3 x 10mm				2	4822 502 10673
Nut, hexagon 9mm	(Vol. and tone shaft fixing)			2	4802 505 17016
Washer 9mm	(Volume)			2	4802 532 17014