Service
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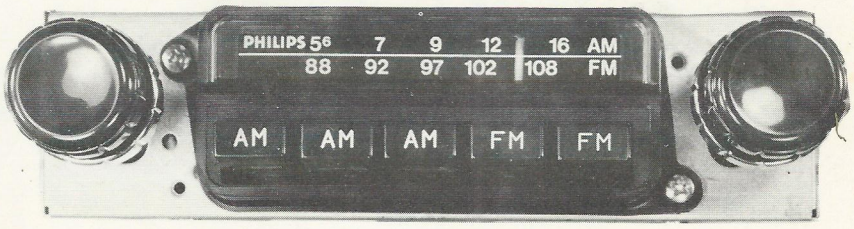


Service Manual

12 V

SPECIFICATIONS

Tuning Range	AM 525 to 1605kHz FM 88 to 108 MHz
Intermediate Frequency	AM 455 kHz FM 10.7 MHz
Power Output	3.5 Watts. RMS (at THD = 10%)
Speaker Impedance	4 ohms
Power Input	12 Volt Negative to Earth
Current	1.0 amp. Max.
Transistors & ICs	7 Transistors 3 IC's 7 Diodes

Subject to modification

4802 725 17008

PHILIPS

BLOCK DIAGRAM

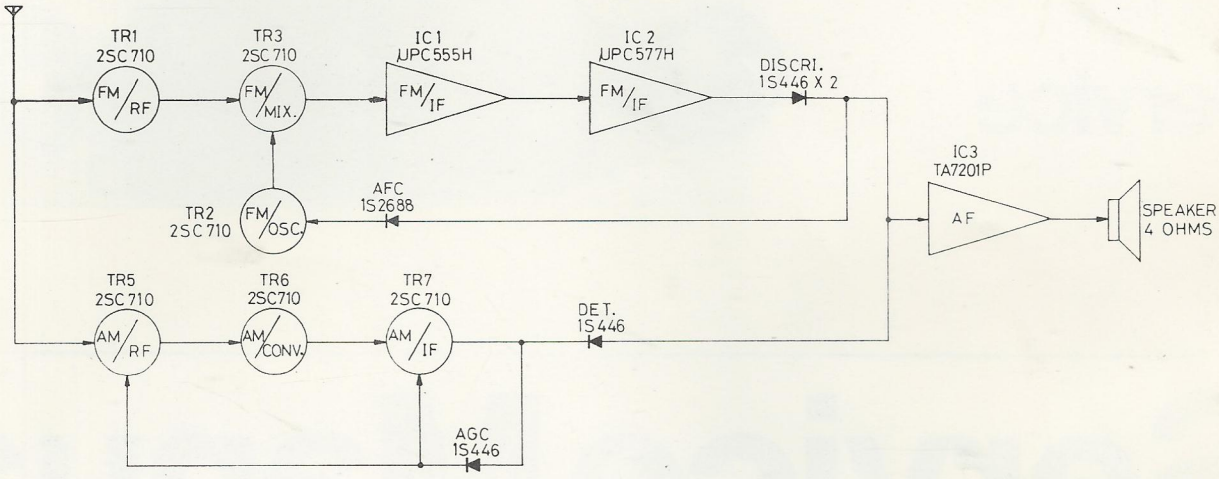


Fig. 1

PARTS LOCATION ON PC BOARD

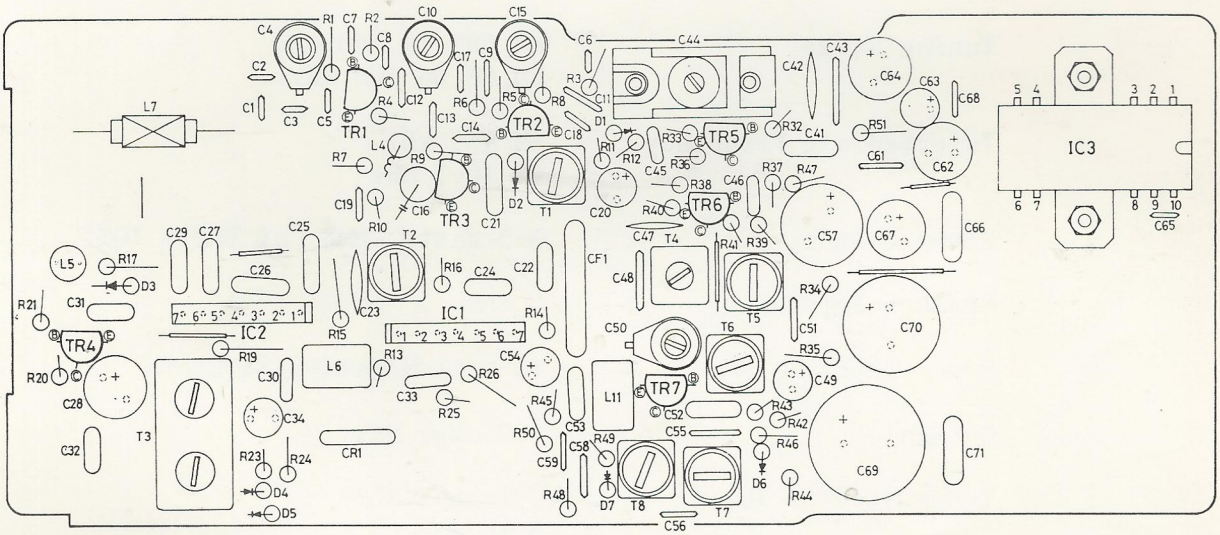


Fig. 2

CHECK POINTS ON PC BOARD

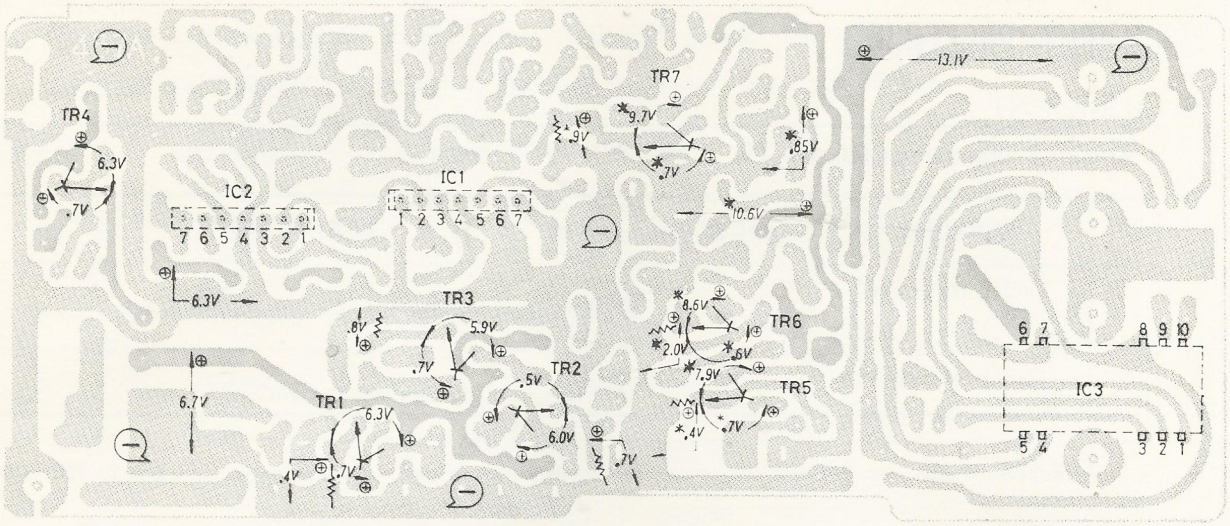


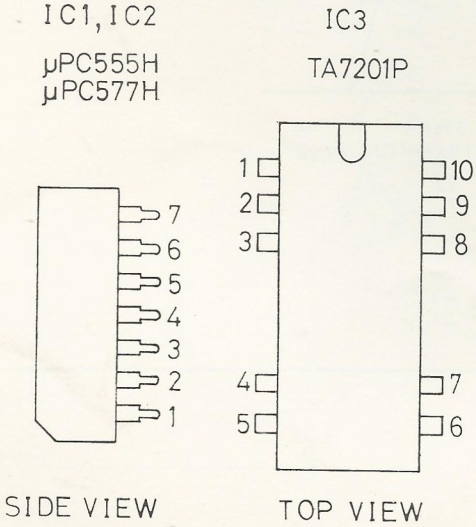
Fig. 5

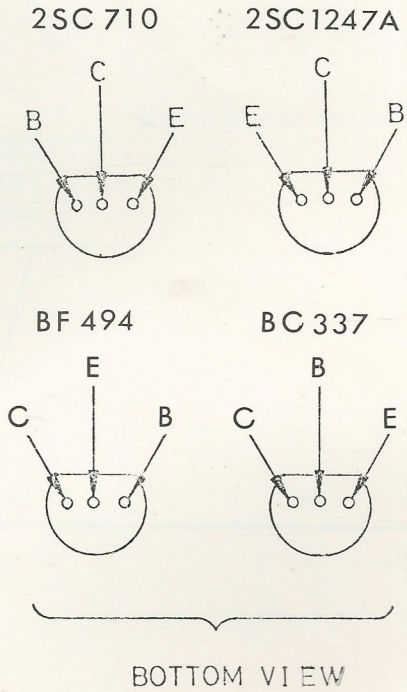
IC \ Pin No.	1	2	3	4	5	6	7	8	9	10
IC 1	5.6V	5.9V	5.6V	—	1.5V	—	1.5V	—	—	—
IC 2	4.4V	1.6V	1.6V	—	5.3V	2.5V	5.3V	—	—	—
IC 3	2.8V	3.3V	1.4V	—	6.6V	13.1V	12V	3.8V	8.0V	1.4V

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.
4. Asterisked voltages are measured with AM-FM selector switch in "AM" position and no asterisked voltages in "FM" position.

IC & TRANSISTOR BASE CONNECTIONS





ALIGNMENT PROCEDURE

AM ALIGNMENT

◎ Tracking alignment (Refer to Fig. 9 for "ADJUST" points.)

STEP	PURPOSE	ADJUST	PROCEDURE
1	Tuning frequency range	T_4	512 kHz must be received at left end of dial.
2	Tuning frequency range	C_{50}	1650 kHz must be received at right end of dial.
3	Repeat STEPS 1 to 2, check the tuning frequency range, which should be within 512 kHz to 1650 kHz.		
4	Tracking	C_{40}, C_{44}	Top volume obtained at 1400 kHz.

Remarks: Always readjust antenna trimmer (C_{40}) with radio installed in car.

FM ALIGNMENT

◎ IF alignment (Refer to Fig. 9 for "ADJUST" points and Fig. 8 and 9 for connection of measuring instruments.)

As connected in Fig. 8, align as follows, observing S-curve on the oscilloscope.

STEP	PURPOSE	ADJUST	PROCEDURE
1	IF circuit	T_1, T_2 T_3 (primary side)	S-curve adjust for full gain and length at linears. (Fig. 7)
2	Detector circuit	T_3 (secondary side)	Keep S-curve straight at the center, and adjust waveform for best symmetry of S-curve against the axis as much as possible. (Fig. 7)
3	Repeat STEPS 1 to 2.		

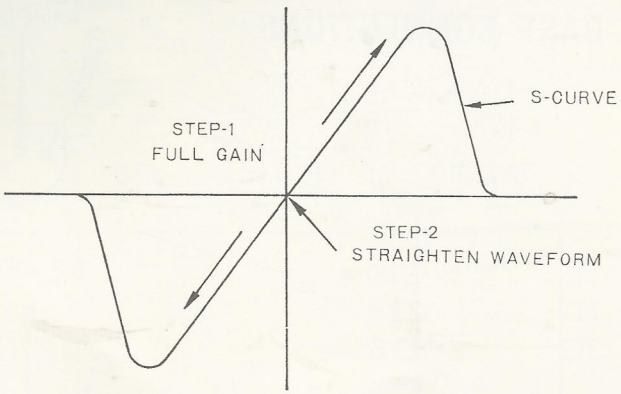


Fig. 7

◎ Tracking alignment (Refer to Fig. 9 for "ADJUST" points. For this alignment, SSG is needed.)
After setting frequency range to the specified frequency, align sensitivity.

STEP	PURPOSE	ADJUST	PROCEDURE
1	Tuning frequency range	C_{15}	86 MHz must be received at left end of dial.
2	108 MHz must be received at right end of dial.		
3	Tracking	C_4, C_{10}	Top sensitivity obtained at 98 MHz.

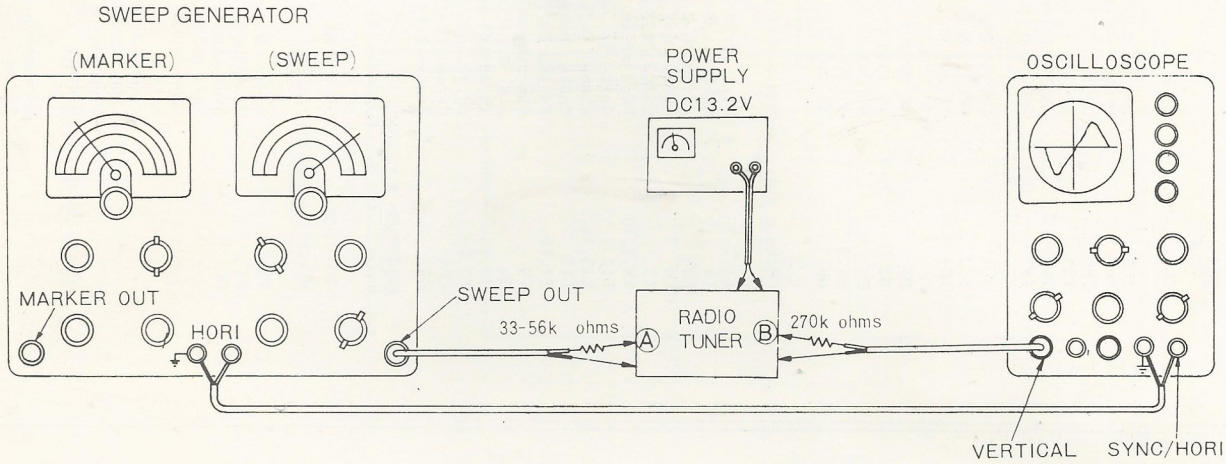


Fig. 8

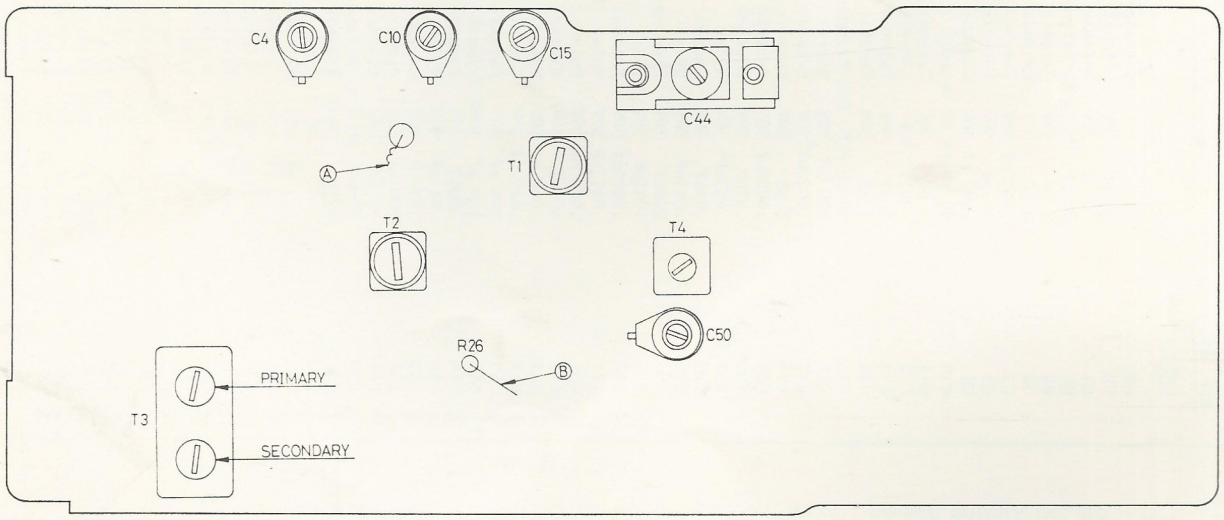


Fig. 9

REPLACEMENT PARTS LIST

REF. NO.	DESCRIPTION	SERVICE CODE
CAPACITORS		
C1	20 pF 50V Ceramic	4822 122 31063
C2	40 pF 50V Ceramic	4822 122 31069
C3	10 pF 50V Ceramic	4822 122 31504
C4	20 pF FM. Ant. Trimmer	4802 125 57026
C5	2 pF 50V Ceramic	4822 122 31036
C6	8 pF 50V Ceramic	4822 122 31052
C7	.0022µF 50V Ceramic	4822 122 30114
C8	10 pF 50V Ceramic	4822 122 31054
C9	.022 µF 50V Ceramic	4822 122 30114
C10	20 pF FM.RF Trimmer	4802 125 57039
C11	3 pF 50V Ceramic	4802 122 47061
C12	.0022 50V Ceramic	4822 122 30114
C13	5 pF 50V Ceramic	4822 122 31045
C14	1 pF 50V Ceramic	4822 122 30104
C15	10 pF F.M. Osc Trimmer	4802 125 57037
C16	300 pF 50V Styrol	4822 122 30055
C17	.0022µF 50V Ceramic	4822 122 30114
C18	8 pF 50V Ceramic	4822 122 31052
C19	.0022µF 50V Ceramic	4822 122 30114
C20	.47µF 50V Electro	4802 124 47065
C21.22	.047µF 50V Mylar	4802 121 47167
C23	.01µF 50V Ceramic	4822 122 30043
C24.27	.047µF 50V Mylar	4802 121 47167
C28	220µF 10V Electro	4802 124 47006
C29	.047µF 50V Mylar	4802 121 47167
C30	.0022µF 50V Ceramic	4822 122 30114
C31,32	.047 µF 50V Mylar	4802 121 47167
C33	.022 µF 50V Mylar	4802 121 47163
C34	10 µF 16V Electro	4802 124 47044
C41	.047 µF 50V Mylar	4802 121 47167
C42	.047 µF 25V Ceramic	4802 122 47054
C43	390 pF 50V Ceramic	4802 122 47088
C44	150 pF AMRF Trimmer	4802 125 57032
C45	.0047 50V Ceramic	4822 122 30128
C46	.01 µF 50V Mylar	4802 121 47158
C47	.01 µF 50V Ceramic	4822 122 30043
C48	200 pF 50V Ceramic	4802 122 47112
C49	10 µF 16V Electro	4802 124 47044
C50	50 pF AM Osc. Trimmer	4802 125 57038
C51	8 pF 50 V Ceramic	4822 120 21052
C52,53	.047 µF 50 V Mylar	4802 121 47167
C54	4.7 µF 25V Electro	4802 124 47034
C55	200 pF 50V Ceramic	4822 122 30094
C56	10 pF 50V Ceramic	4822 122 31504
C57	220 µF 10V Electro	4802 124 47018
C58	.0022 µF 50V Ceramic	4822 122 30114
C59	.01 µF 50V Mylar	4802 121 47158
C60	.1 µF 12V Ceramic	4802 122 47055
C61	.0022 µF 50V Ceramic	4822 122 30114
C62	1 µF 50V Electro	4802 124 47037
C63	47 µF 6.3V Electro	4802 124 47061
C64	220 µF 10V Electro	4802 124 47006
C65	40 pF 50V Ceramic	4822 122 31069
C66	.068 µF 50V Mylar	4802 121 47169
C67	100 µF 10V Electro	4802 124 47002
C68	200 pF 50V Ceramic	4822 122 30094
C69	1000 µF 16V Electro	4802 124 47051
C70	470 µF 16V Electro	4802 124 47024
C71	.068 50V Mylar	4802 121 47169
C72,73	1000 pF Feed Thru	4822 122 70022

REF.NO.	DESCRIPTION	SERVICE CODE
TRANSISTORS, IC's & DIODES		
TR1	2SC710.B (Use BF494)	5322 130 44195
TR2.3	2SC710.C (Use BF494)	5322 130 44195
TR4	2SC1247-A-VS	4802 130 47155
TR5	2SC710-D (Use BF494)	5322 130 44195
TR6	2SC710-C (Use BF494)	5322 130 44195
TR7	2SC710-D (Use BF494)	5322 130 44195
IC1	UPC555 H-F	4802 209 87117
IC2	UPC577 H-F	4802 209 87118
IC3	TA7201 P	4802 209 87059
D1	1S 2688-B	4802 130 37155
D2	1S 1555 (Use 0A626200)	4802 130 37033
D3	MZ 207-1 (Zener)	4822 130 30339
D4.5	1S 446-D	4822 130 30281
D6.7	1S 446	4822 130 30281
COILS & TRANSFORMERS		
L1.2.3	Part of FM Tuner Assy.	
L4	Choke .74 µH	4802 158 17077
L5	Choke 6.2 µH	4802 158 17103
L6	Choke 6.2 µH	4802 153 17106
L7	Choke 6.2 µH	4802 157 57046
L8.9.10	Part of AM. Tuner Assy.	
L11	Coil. AM. Osc. 6.2 µH	4802 153 17106
L13.14	Choke .74 µH	4802 158 17077
L15	Choke Filter 3 mH	4802 152 27033
T1.T2	FM.1F. 10.7 MHz	4802 153 57056
T3	Discriminator 10.7 MHz	4802 153 57057
T4	A.M. Oscillator	4802 156 27084
T5.T6	AM.1F.455 kHz	4802 153 17166
T7.T8	AM.1F. 455kHz	4802 153 17176
CF1	Ceramic Filter 455kHz	4802 242 77007
CR1	Module Assy. FM. Detector	4802 209 87106
RESISTORS & CONTROL		
Note ; All Resistors are Standard Values and Tolerances unless specified otherwise		
VR1.2.S2	10k + 10k + Switch	4802 102 27071
MISCELLANEOUS ELECTRICAL		
F1	Fuse. 2 amp.	4802 253 47005
J1	Receptacle Antenna	4802 267 17013
PL1	Dial Lamp	4822 134 40301
-	Fuse Holder	4802 256 47001
-	Lamp Socket	4802 255 27008
	Filter (Lamp)	4802 480 37017
	Tuner Assembly (Includes Coils, C40 Trimmer, AM/FM Switch)	4802 210 17082
	Line Filter	4802 158 17106
MISCELLANEOUS MECHANICAL		
	Escutcheon & Dialplate Assy.	4802 459 47073
	Pointer	4802 450 87092
	Knob. Rear	4802 413 47143
	Knob. Front	4802 413 47144
	Nut 9mm (Control Shaft)	4802 505 17016
	Washer 9mm	4802 532 17014

WIRING ON PC BOARD

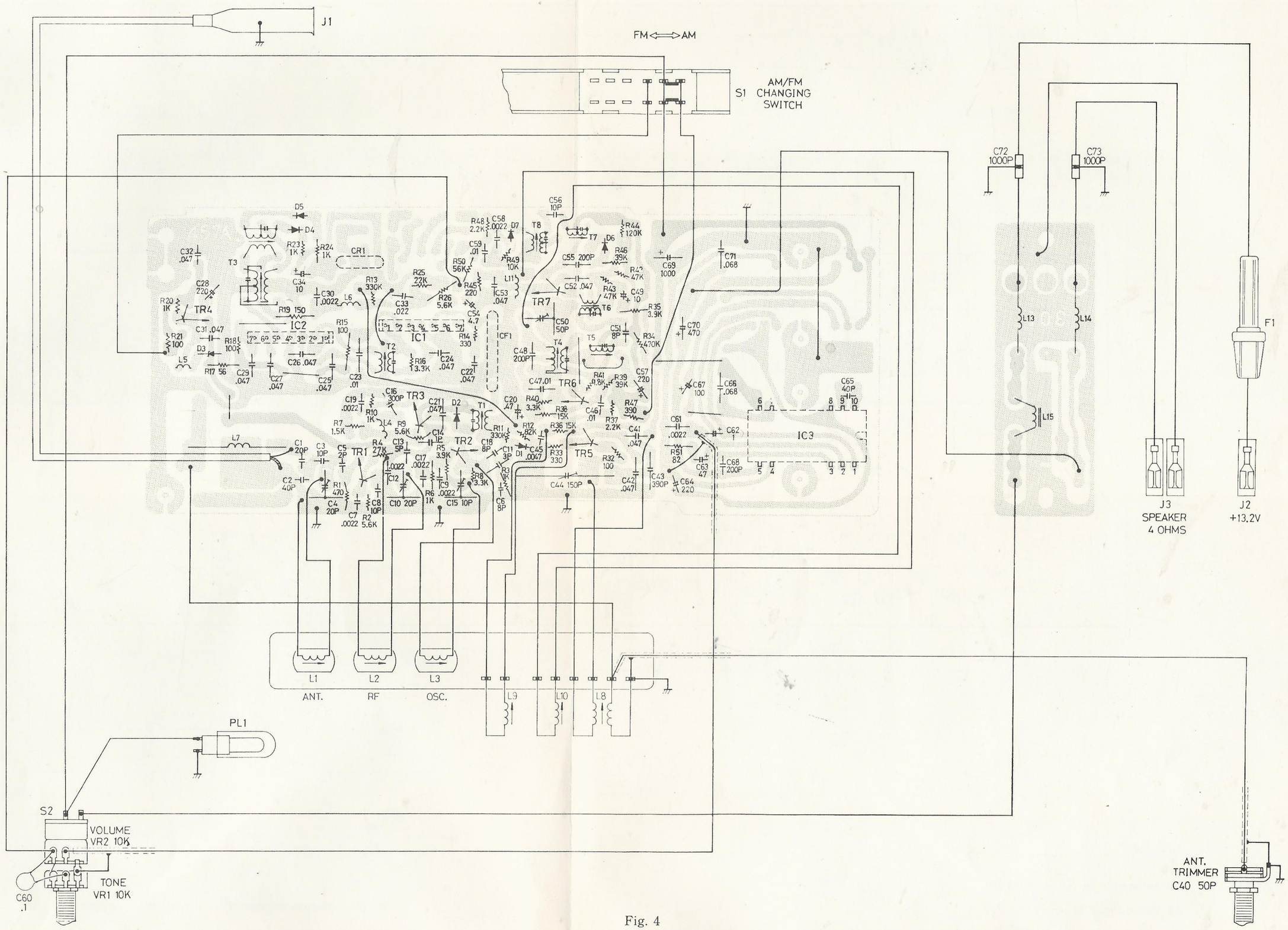


Fig. 4

NOTES: 1. All resistance in ohms, K=1,000.

2. All capacitance in μF, P=$\mu\mu$F.

SCHEMATIC

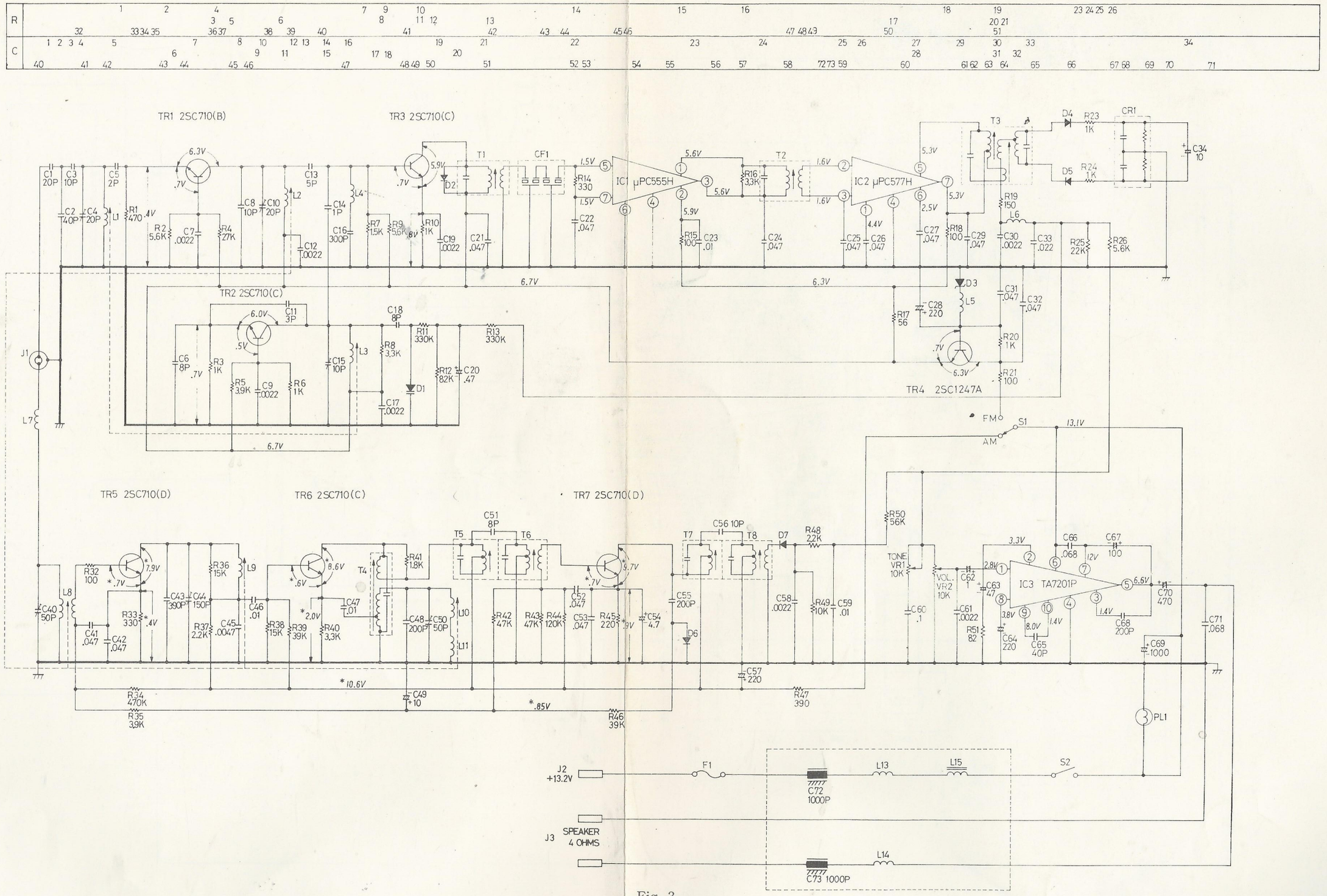


Fig. 3

NOTES:

1. All resistance in ohms, K=1,000.
2. All capacitance in μF, P=μμF.
3. DC voltages measured with 25,000 ohm per volt meter, power supply set at +13.2 VDC, no signal input.
4. Asterisked voltages are measured with AM-FM selector switch in "AM" position and no asterisked voltages in "FM" position.
5. IC pin voltages measured with respect to chassis.