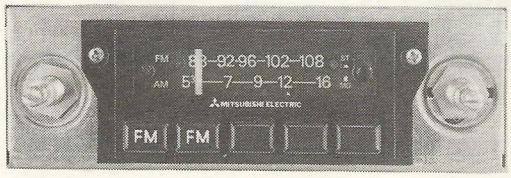
MITSUBISHI

SERVICE MANUAL

AM/FM CAR RADIO

MODEL : AR-2729 SUK-III/SUK-YIII/SEK-III
PART No. : MB141199/MB171776/MB249692

MODEL : AR-2729 SUBK-III/SUBK-YIII
PART No. : MB141198/MB171775



(AR-2729 SUBK-III)

SPECIFICATIONS

Circuit System:
Superheterodyne with RF amplifier

Tuning Range:
FM 88 – 108 MHz
AM 530 – 1605 KHz

Intermediate Frequency:
FM 10.7 MHz
AM 455 KHz

Power Output:
Undistorted 4 W Maximum 6 W

Output impedance:
4Ω

Power Source:
11 V – 16 V Negative ground only

Current Consumption:
MAX. 1.5 A at 13.2 V

IC:
8

Transistors:
4

Diodes:
17

Shaft Distance:
5-1/8″

Size:
W 6-1/2″
H 2″
D 5″

Weights:
2.4 lbs

Antenna and Tuner:

	AR-2729 SUK-III, SUK-YIII SEK-III	AR-2729 SUBK-III, SUBK-YIII
Antenna Type	Pillar	Trank lid
Tuning Capacitance	80 PF	485 PF

* AR-2729 SUBK-III, SUBK-YIII is marked with LA on the upper cover.

MITSUBISHI ELECTRIC SALES AMERICA, INC.

3030 East Victoria Street, Compton, California 90221

ALIGNMENT PROCEDURES

1 AM (IF, RF) Alignment (Power Source Voltage DC 14.4 V)

Procedures	Circuit	Signal generator connection	Signal generator frequency	Radio dial setting	Indicator connection	Adjust	Remarks
1	IF	Fig. 1	455 KHz	High freq. aend stop	Fig. 2	T2~T5	Try to get the maximum voltage and equalize the degree of diminution near ±3 KHz
2							
3							
4	RF	Fig. 3	1630 khz	High freq. end stop	"	VC3	Tune in
5			1400 KHz	1400 KHz	"	VC1, VC2	Adjust VC1, VC2 and get the maximum voltage of the output.
6			600 KHz	600 KHz	"	T1	Turn T1 gradually and find the maximum sensitivity near 600 KHz.
7					"	Repeat procedures 5–6	
8				Low freq. end stop			Check the range of the frequency of the received wave. This is the end of the adjustment.

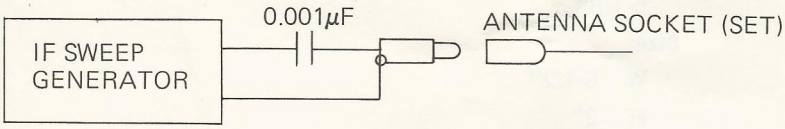


Fig. 1

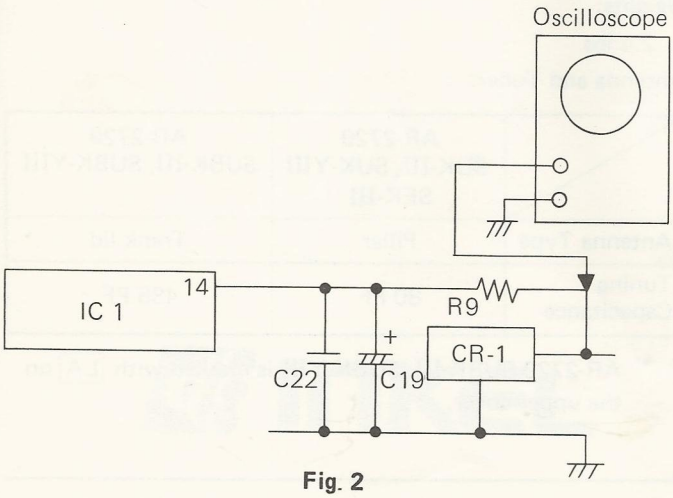


Fig. 2

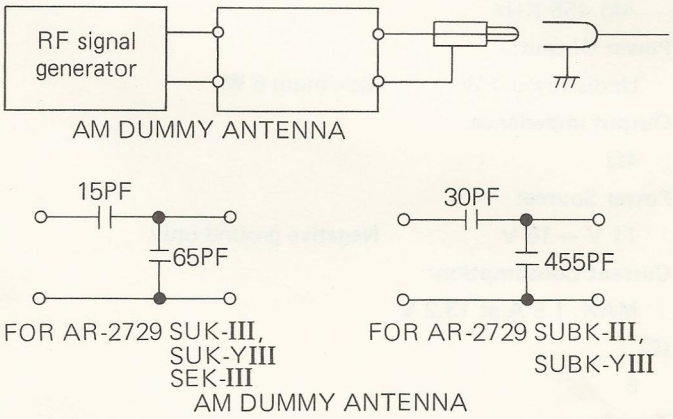


Fig. 3

2 FM Alignment

- Power source voltage DC 14.4 V.

Step	Circuit	Connection		Signal generator frequency	Radio tuning	Adjust	Remarks
		Input	Output				
1	IF	SMG output TP1 thru. 33 PF (Fig. 4)	SMG input TP3	10.7 MHz 40 dB (μV)	High freq. end stop (TP2 and C161 open)	T101 T151, 152 VR151	Center freq. is determined by ceramic filter characteristic
2	Discriminator	SMG output TP1 thru. 33 PF	SMG input TP4	10.7 MHz 40 dB (μV)	High freq. end stop (TP2 connected)	T153	Adjust T153 to make the linear part of the S curve sharp.
3	RF	SSG output, Ant socket thru. dummy antenna (Fig. 4)	AC voltmeter speaker connector	108 MHz	High freq. end stop (C161 connected)	VC103	Maximum reading
4				88 MHz	Low freq. end stop	—	
5				98 MHz	98 MHz	VC101, 102	
6				Repeat steps 3 to 5			
7	MPX		Freq. counter TP5		High freq. end stop	VR202	19.0 ± 0.1 KHz
8	Separation	SSG output Ant socket thru. dummy antenna (Fig. 4)	AC voltmeter speaker connector	98 MHz 1 KHz, 30% mod.	98 MHz	VR201	Maximum separation
9						VR151	Limiting sensitivity 14 ~ 20 dB (μV)

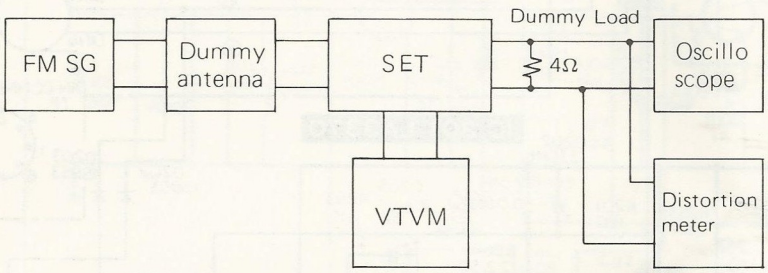
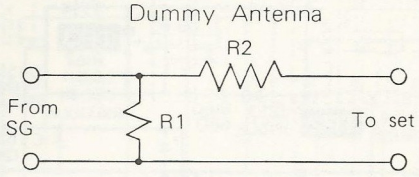


Fig. 4



Open circuit R1: —— R2: 25Ω

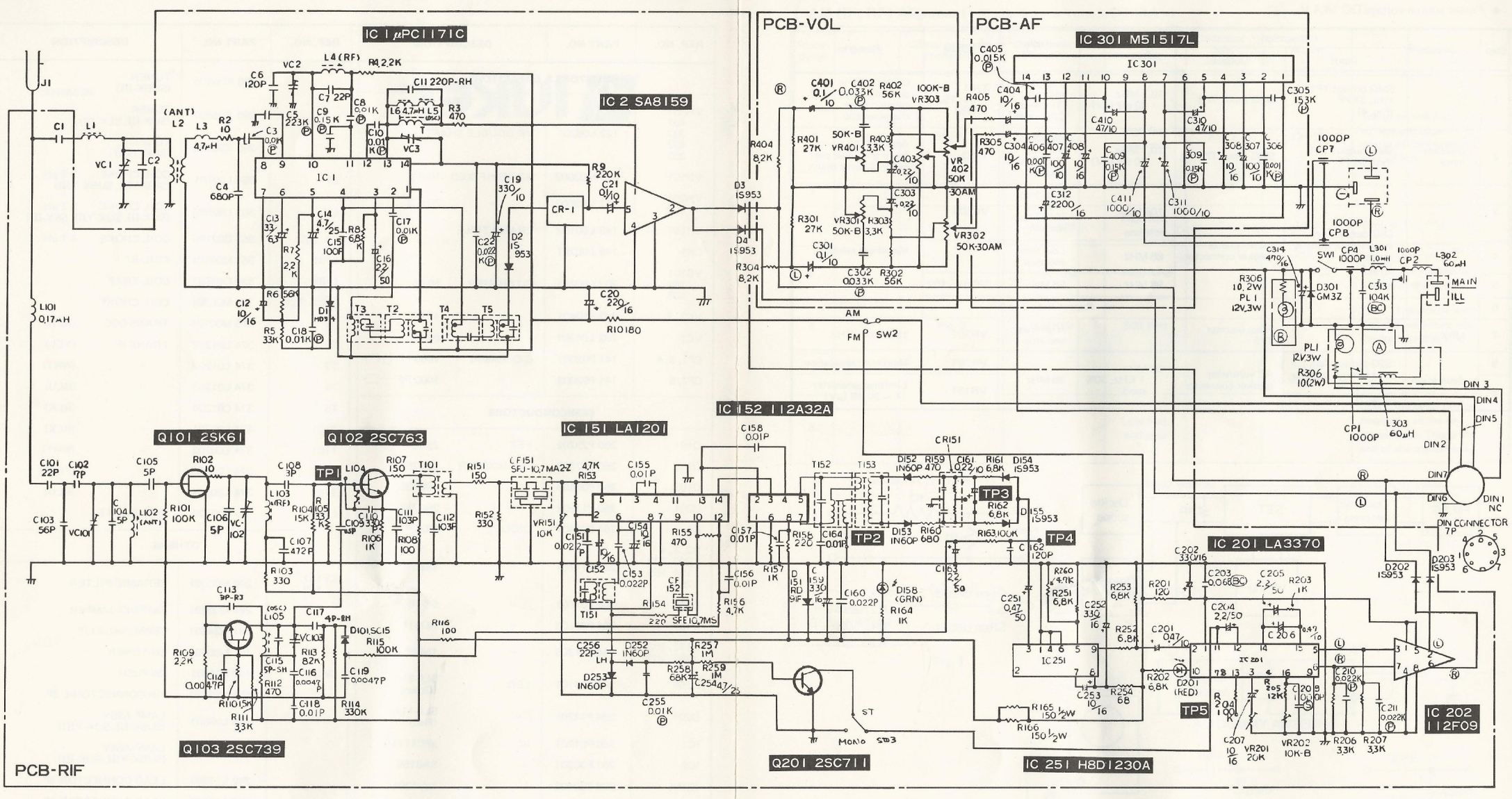
Close circuit R1: 50Ω R2: 25Ω

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
RESISTORS & CAPACITORS			
VR301 401 302 402 303	122 L06205	VR DOUBLE SHAFT	
VR151	127 M03002	VR-SEMIFIXED	10 KΩ
VR201 202	127 M03003	"	20 KΩ
CR151	149 L00102	CR MULTIPLE	
CR1	149 L00201	"	
VC101 102 103	202 L00301	C-TRIMMER	10 PF
VC2, 3	202 P10401	"	48 PF
VC1	202 L01301	"	80 PF
CP1, 2, 4	141 P02001	C-CERAMIC	1000 PF
CP7, 8	141 P02003	"	1000 PF
SEMICONDUCTORS			
Q101	260 P23702	FET	2SK61
Q102	260 P17603	TRANSISTOR	2SC763
Q103	260 P05403	"	2SC738
Q201	260 P17502	"	2SC711
D1	264 P00401	DIODE	MD-34
D2, 3, 4 202, 203 154, 155 251	264 P11701	"	1S953
D101	264 P07501	"	SC-15
D151	264 P21103	"	RD91F
D152, 153 252, 253	264 P01306	"	1N60P
D158	264 P14101	LED	SLP-214P (Green)
D201	264 P14301	"	SLP-114B (Red)
IC1	266 P01201	IC	μPC1171C
IC2	267 P30301	"	SA8159
IC151	266 P30402	"	LA-1201
IC152	267 P30502	"	IL-001
IC301	266 P35101	"	M51517L
IC201	266 P78901	"	LA-3370
IC202	267 P71103	"	SAF089
IC251	267 P71002	"	NC8201
TRANSFORMERS & COILS			
	295 K06604	TUNER (SUBK-YIII)	
	295 K06605	TUNER (SUBK-III)	
	295 K06607	TUNER (SUK-III, SEK-III)	
	295 K06606	TUNER (SUK-YIII)	
L1	351 L00101	COIL CHOKE (SUBK-III, SUBK-YIII)	3.2 μH
L1	351 L00103	COIL CHOKE (SUK-III, SUK-YIII, SEK-III)	5.2 μH
L3, L6	351 D02103	COIL CHOKE	4.7 μH
L101	361 M00101	COIL-RF	
L104	320 D04601	COIL-TRAP	
L302, 303	351 M00201	COIL CHOKE	
T1	373 M00101	TRANS-OSC	(RED)
T2	374 L01202	TRANS-IF	(YEL)
T3	374 L01201	"	(WHT)
T4	374 L01203	"	(BLU)
T5	374 C01204	"	(BLK)
T101	374 L00201	"	(BLK)
T151	374 L00202	"	(WHT)
T152	374 L00603	"	(PINK)
T153	374 L00604	"	(BLU)
L301	351 P00108	COIL CHOKE	
OTHERS			
CF151 152	296 M00501	CERAMIC-FILTER	
	291 M00201	TAPPING-JAMPER	
	591 M24601	TERMINAL-CLIP	
	431 M00601	SW-TUNER	
SW3	432 L01301	SW-PUSH	
	452 M01201	PIN-CONNECTOR-L 3P	
	253 L00801	LAMP-ASSY (SUBK-III, SUK-YIII)	
	253 L00805	LAMP-ASSY (SUBK-YIII, SUK-III)	
	242 L11201	LEAD CONNECTOR-3P	
	242 L11207	LEAD CONNECTOR-3P	
	242 L28001	LEAD CONNECTOR-3P (Shield Wire)	
	449 L00501	SOCKET MPX	
	449 L02501	SOCKET ANT	
	459 M01101	DIN-5P SHORT PLUG	
	452 L04201	CONNECTOR	

SCHEMATIC DIAGRAM

MODEL : AR-2729SUK-III, SUK-YIII, SUBK-III, SUBK-YIII, SEK-III



APPLICATION

	C1	C2	L1	LAMP CIRCUIT
SUBK-III, SUBK-YIII	820PF	22PF	3.2μH	A
SUK-III, SUK-YIII	680PF	–	5.2μH	A
SEK-III	680PF	–	5.2μH	B

NOTICE:

1. Indication
   - All resistors are ohms unless otherwise specified. (K = 10^3 ohm, M = 10^6 ohm).
   - All capacitors are microfarads unless otherwise specified. (P = 10^{-6} microfarad)
2. Resistors
   - Kinds: Carbon resistor: No mark
     Solid resistor: (S) mark
     Printed resistor: (~) mark
     Tip resistor: (W) mark
   - Wattage: No indication = 1/4W. Other wattage will be indicated.
   - Tolerance

Mark	Tolerance
J	±5%
K	±10%

3. Capacitors
   - Types: Ceramic condenser: No mark
     Semiconductor ceramic condenser: (BC) mark
     Polyester film condenser: (P) mark
     Styrol condenser: (S) mark
     Tantalic condenser: (T) mark
     Aluminum electrolytic condenser: (Al) mark
     Tip condenser: (W) mark
   - Tolerance

Mark	Tolerance	Mark	Tolerance
C	±0.25PF	M	±20%
D	±0.5PF	Z	+80% −20%
J	±5%	No mark	+100% −0
K	±10%		

4. Voltage Measurements
   Voltage measurment made with D.C. voltmeter (20 KΩ/V DC) to chassis ground with no signal input (Source voltage 14.4V).
5. This circuit is subject to change for improvement without notice.

PRINTED CIRCUIT BOARD (Pattern Side)

MODEL : AR-2729SUK-Ⅲ, SUK-YⅢ, SUBK-Ⅲ, SUBK-YⅢ, SEK-Ⅲ

A B C D E F G H I J K

1 2 3 4 5 6 7

PCB-RIF

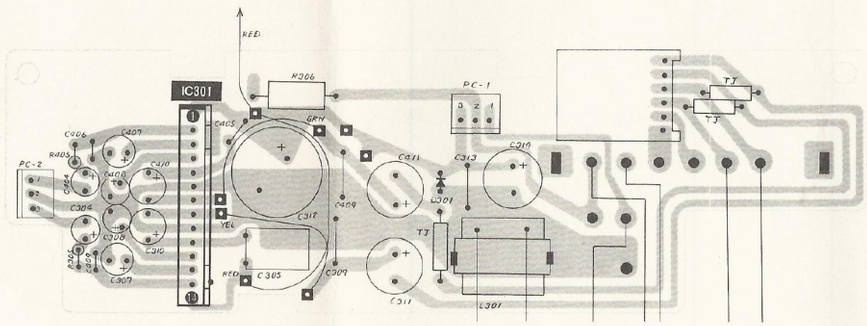
REF. No.	INDEX
IC	
IC 1	F-5
IC 2	E-5
IC 151	J-5
IC 152	J-6
IC 201	G-6
IC 202	F-6
IC 251	H-6
TRANSISTOR	
Q 102	H-5
Q 103	I-5
Q 201	H-7
Q 501	H-5
DIODE	
D 3	E-6
D 4	E-6
D 101	J-4
D 151	I-6
D 152	I-7
D 153	J-7
D 154	I-6
D 155	I-7
D 156	H-6
D 157	H-6
D 158	I-7
D 202	F-6
D 203	F-6
D 252	J-6
D 253	J-6
COIL	
L 1	J-4
L 2	G-4
L 3	G-5
L 4	F-4
L 5	G-4
L 6	G-5

REF. No.	INDEX
L 101	H-4
L 102	H-4
L 103	I-5
L 104	H-5
L 105	I-5
TRANSFORMER	
T 1	G-5
T 2	F-6
T 3	F-6
T 4	E-5
T 5	E-5
T 101	I-5
T 151	J-6
T 152	J-6
T 153	J-6
CONDENSER	
C 1	J-4
C 2	
C 3	G-5
C 4	G-5
C 5	G-6
C 6	F-5
C 7	G-5
C 8	G-5
C 9	G-6
C 10	G-5
C 11	G-5
C 12	F-4
C 13	F-5
C 14	F-5
C 15	F-5
C 16	F-5
C 17	F-5
C 18	F-4
C 19	G-5
C 20	E-4
C 21	E-5
C 22	G-5
C 101	H-5
C 102	H-5

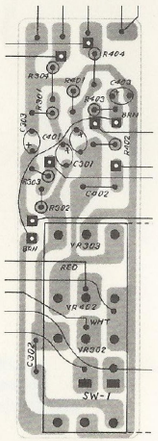
REF. No.	INDEX
C 103	H-5
C 104	H-5
C 105	H-5
C 106	I-5
C 107	I-5
C 108	I-5
C 109	I-5
C 110	H-5
C 111	H-5
C 112	I-5
C 113	I-5
C 114	I-5
C 115	I-4
C 116	I-5
C 117	I-4
C 118	I-5
C 119	J-4
C 151	J-5
C 152	J-5
C 153	J-5
C 154	J-5
C 155	J-5
C 156	J-6
C 157	I-6
C 158	J-6
C 159	I-6
C 160	H-6
C 161	I-7
C 162	I-7
C 163	I-6
C 164	I-6
C 201	G-6
C 202	G-6
C 203	H-6
C 204	G-7
C 205	G-7
C 206	G-7
C 207	G-6
C 208	G-6
C 209	H-7
C 210	F-6
C 251	I-7
C 252	H-6
C 253	H-6
C 254	J-7
C 255	J-6

REF. No.	INDEX
C 256	J-6
C 257	G-6
VC	
VC 2	F-5
VC 3	G-5
VC 101	H-4
VC 102	I-4
VC 103	I-4
RESISTOR	
R 2	G-5
R 3	E-4
R 4	F-4
R 5	F-4
R 6	F-4
R 7	F-5
R 8	F-5
R 9	E-5
R 10	E-4
R 101	H-4
R 102	I-5
R 103	I-5
R 104	I-5
R 105	H-5
R 106	H-5
R 107	I-5
R 108	I-5
R 109	I-5
R 110	I-5
R 111	I-5
R 112	I-5
R 113	J-4
R 114	J-4
R 115	J-4
R 116	J-5
R 151	J-5
R 152	J-5
R 153	J-5
R 154	J-6
R 155	J-5
R 156	J-5

REF. No.	INDEX
R 157	I-6
R 158	J-6
R 159	I-6
R 160	I-7
R 161	I-6
R 162	I-7
R 163	I-6
R 164	I-7
R 165	H-6
R 166	H-6
R 201	H-6
R 202	F-6
R 203	G-6
R 204	G-7
R 205	H-7
R 206	F-6
R 251	H-6
R 252	H-6
R 253	H-6
R 254	H-6
R 255	I-6
R 256	
R 257	I-7
R 258	J-7
R 259	H-7
R 260	H-6
VR	
VR 201	G-6
VR 202	H-7
VR 151	J-5
OTHERS	
CF 151	J-5
CF 152	J-6
CR	
CR 1	E-5
CR 151	I-7



PCB-AF



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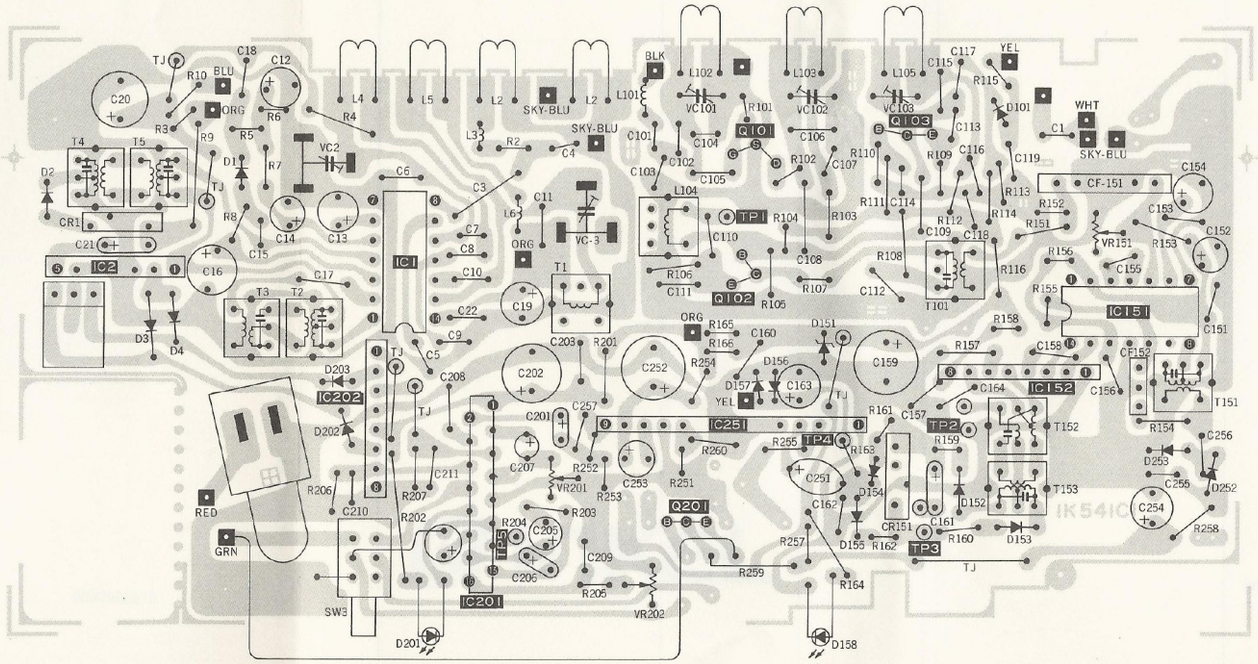

PCB-RIF

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
	MECHANICAL				
	590 K13704	UPPER COVER			
	590 L55101	SHIELD CASE			
	591 M63001	HEAT SINK			
	704 M19701	KNOB-ST			
	704 M24301	" (SEK-III)			
	704 L06103	TUNER BUTTON (FM Orange)			
	704 L06104	TUNER BUTTON (FM White)			
	704 M18201	TUNER BUTTON (AM)			
	531 L01005	SHAFT TUNER			
	768 M10101	BACK PLATE			
	768 L02801	POINTER			
	943 L41905	ASSY PANEL (SUBK-YIII, SUK-YIII)			
	943 L41908	ASSY PANEL (SUBK-III, SUK-III)			
	707 L04909	DIAL (SEK-III)			