MITSUBISHI

SERVICE MANUAL

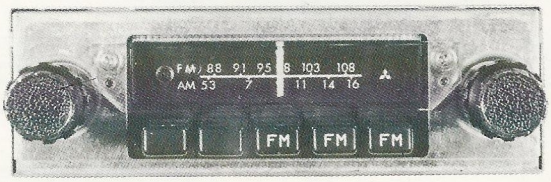
AM/FM CAR RADIO

MODEL : AR-2774SE-II

PART No. : MB 141194

MODEL : AR-2774SU-II/SUB-II

PART No. : MB 141196/141195



SPECIFICATIONS

Circuit System:
Superheterodyne with RF amplifier

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

Intermediate Frequency:
FM 10.7 MHz
AM 262.5 KHz

Power Output:
Undistorted 4W Maximum 6W

Output impedance:
4Ω

Power Source:
11V ~ 16V Negative ground only

Current Consumption:
0.16 ~ 0.8A at 13.2V

IC:
2

Transistors:
4

Diodes:
5

Shaft Distance:
5-1/8″

Size:
W 6-1/2″
H 2″
D 5″

Weights:
2.9 lb

Antenna and Tuner:

Item \ Model	AR-2774SE-II, SU-II	AR-2774SUB-II
Antenna Type	Pillar	Trunk lid
Tuning Capacitance	80 PF	485 PF

AR-2774SUB-II is marked with [LA] on the upper cover.

MITSUBISHI ELECTRIC CORPORATION

Head Office : 2-3 Marunouchi 2-Chome, Chiyodaku, Tokyo, Japan Cable Address : MELCO TOKYO

ALIGNMENT PROCEDURES

1. AM SECTION

Procedures	Circuit	Signal generator connection	Signal generator frequency	Radio dial setting	Indicator connection	Adjust	Remarks
1	IF circuit	Fig. 1	262.5 KHz (400 Hz Mod.)	Point of noninterference near 1600 KHz	Fig. 2	T_2, T_4	Try to equalize the degree of diminution near ±3 KHz
2						T_1	
3						Repeat procedures 1 – 2	
4	Oscillation circuit and RF circuit	Fig. 3	1630 KHz	High freq. end stop	"	VC_3	Tune in
5			510 KHz	Low freq. end stop	"	T_3	Tune in
6					"	Repeat procedures 4 – 5	
7			1400 KHz	1400 KHz		VC_2 VC_1	Adjust VC_1, VC_2 and get the maximum voltage of the output.
8			600 KHz	600 KHz	"	T_3	Turn T_3 gradually and find the maximum sensitivity near 600 KHz.
9					"	Repeat procedures 7 – 8	Check the range of the frequency of the received wave. This is the end of the adjustment.

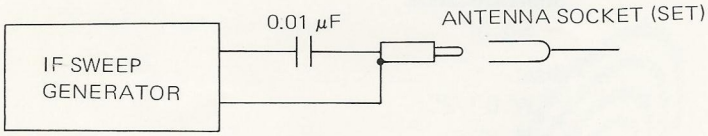


Fig. 1

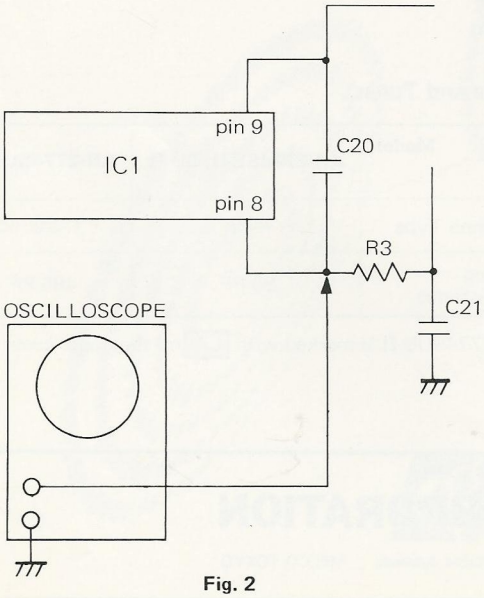


Fig. 2

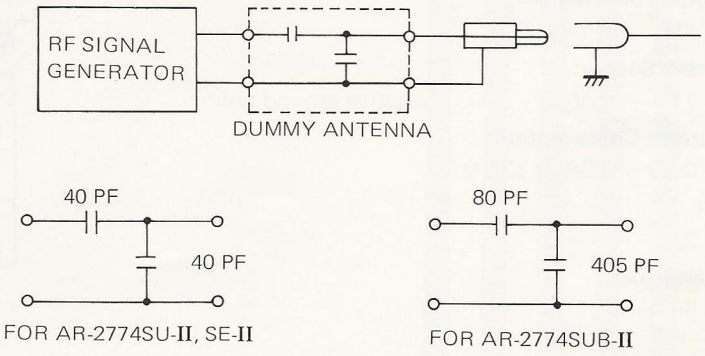


Fig. 3

2. FM SECTION

1) IF & Discriminator Adjustment

Step	Adjusting Circuit	Connections		Frequency	Position of tuning dial	Adjustment	VTVM, Scope & Distortion meter
		Output	Input				
1	IF	Fig. 4	Connect Scope to IC152 (Pin 13)	Sweep generator 10.7 MHz 40 dB (μV) ~50 dB (μV) output	98 MHz	T101	Maximum wave
2	Discriminator	Fig. 5	Fig. 6	98 MHz 400 Hz 100% modulation 20 dB (μV) output	98 MHz	T151	VTVM voltage 0 ± 80 mV
3				98 MHz 400 Hz 100% modulation 60 dB (μV) output	98 MHz	T152	Minimum distortion

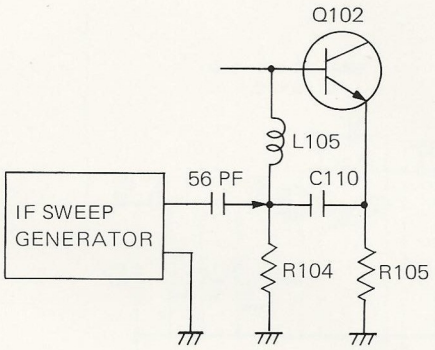


Fig. 4

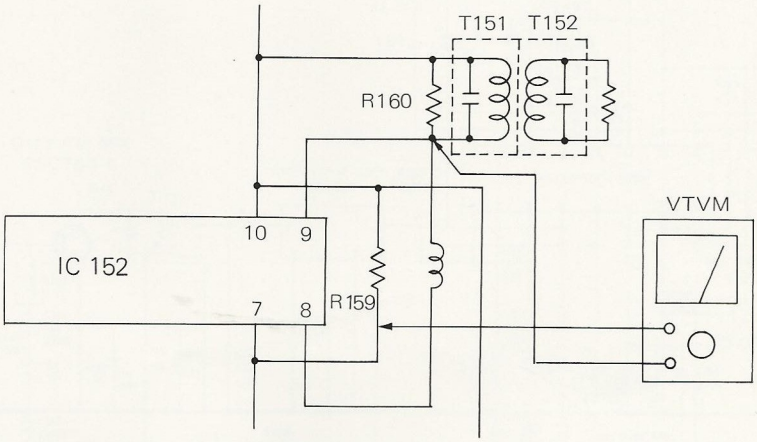


Fig. 6

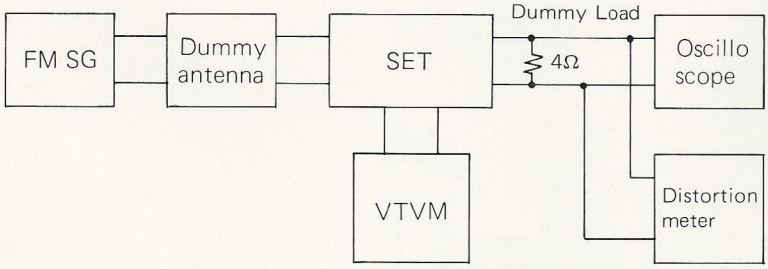
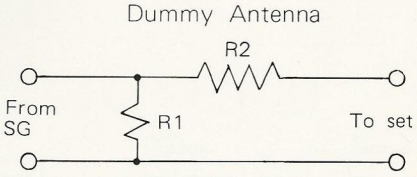


Fig. 5



Open circuit	R1: ——
	R2: 25Ω
Close circuit	R1: 75Ω
	R2: 62.5Ω

2) RF Adjustment

Step	Adjusting Circuit	Connection		Frequency	Position of tuning dial	Adjustment	Remarks
		Output	Input				
1	Oscillation	Fig. 5	Fig. 6	86.5 MHz	Low freq. end stop High freq. end stop	VC103	Tuning range 88 ~ 108 MHz
2	RF amp.			98 MHz	98 MHz	VC101 VC102	Maximum output

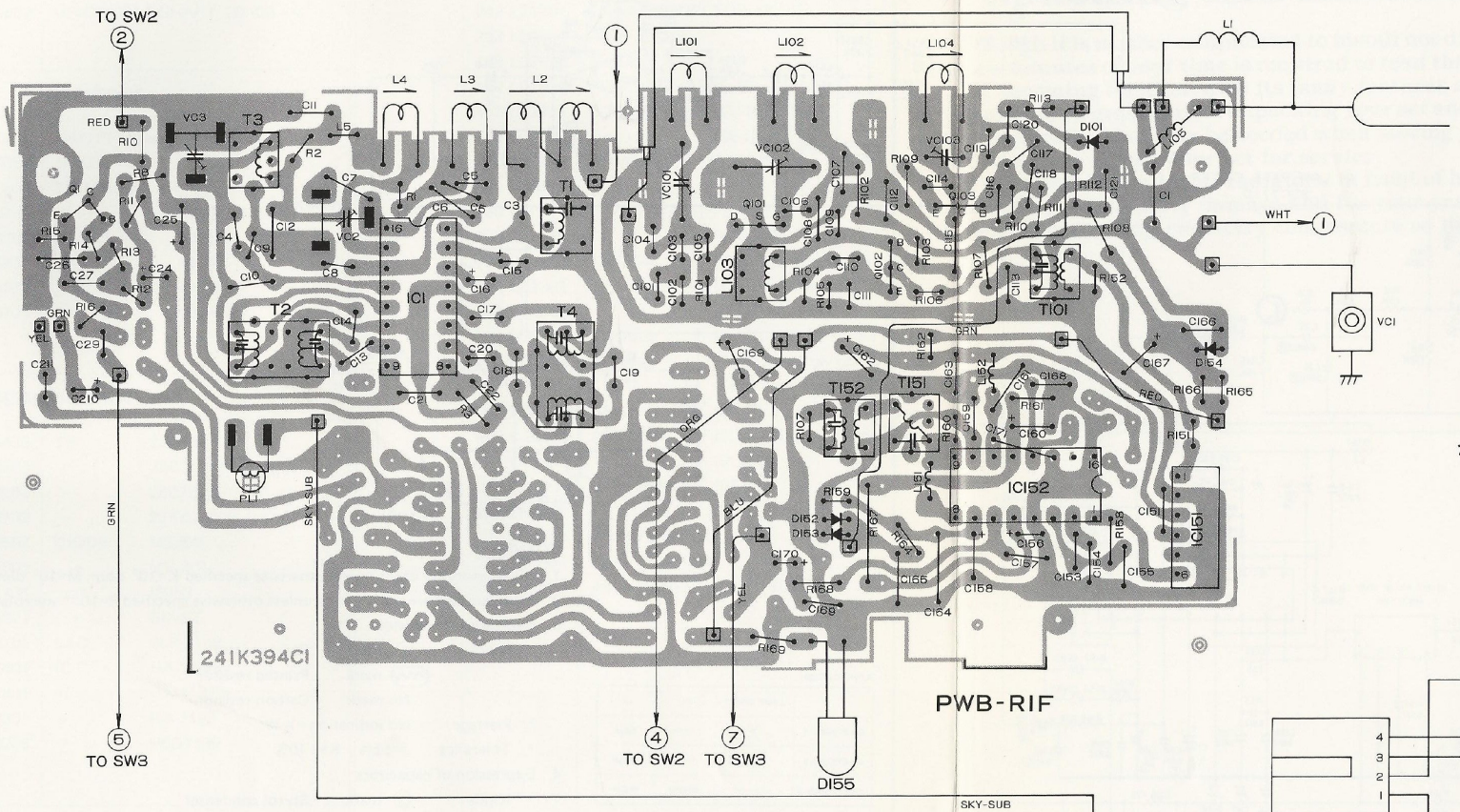
PARTS LIST

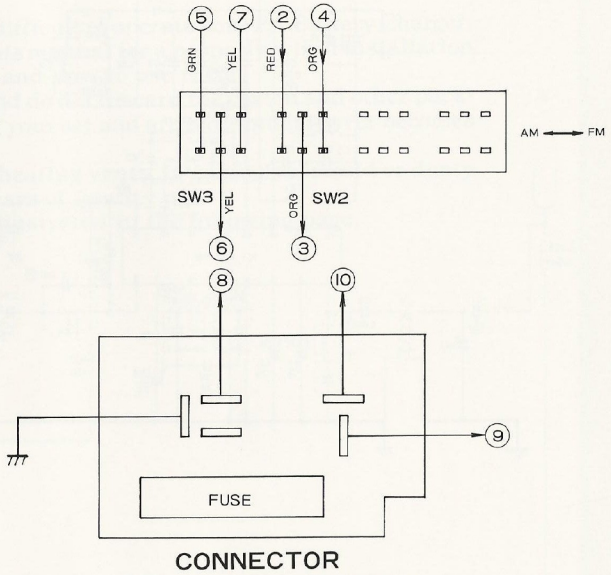
REF. No.	PART No.	DESCRIPTION
RESISTORS		
VR451, 452	122 L06602	VR-DOUBLE SHAFT 30 KΩ x 2
CAPACITORS		
CP4	141 P02001	1000 PF Lead through type
2, 5, 6	141 P02003	1000 PF "
VC103	202 L00301	TRIMMER
1	202 L00701	" (SU-II, SUB-II)
1	202 L00702	" (SE-II)
2, 3	202 P10401	" 48 PF
102	202 P10702	" 20 PF
101	202 P10703	" 10 PF
SEMICONDUCTORS		
Q103	260 P05403	TR 2SC738-C
1	260 P17503	" 2SC711-D
102	260 P17603	" 2SC763-C
101	260 P23702	" 2SK61-O
D154	264 P02502	DIODE MZ208
101	264 P05502	" MV-201
152, 153	264 P11701	" IS953
351	264 P13201	" GM-3Z
155	264 P14101	LED SLP-214B
IC451	266 P32401	IC HA-1366W
152	266 P32801	" HA-1137W
1	266 P33301	" HA-1199
151	267 P30206	" H8D1199
TRANSFORMERS AND COILS		
	295 K05201	TUNER (SU-II, SE-II)
	295 K05202	" (SUB-II)
L103	320 D04601	COIL TRAP
5	351 D02102	COIL CHOKE
1	351 L00101	" (SUB-II)
1	351 L00103	" (SU-II, SE-II)
352, 353	351 M00201	"
152	351 M00602	"
151	351 M00901	COIL IF
351	351 P00108	TRANS CHOKE
105	361 M00101	COIL RF
T3	373 M00201	TRANS OSC
101	374 L00201	TRANS IF
2	374 L00901	"
4	374 L00902	"
151	374 L01101	"
152	374 L01102	"
1	374 M00401	"

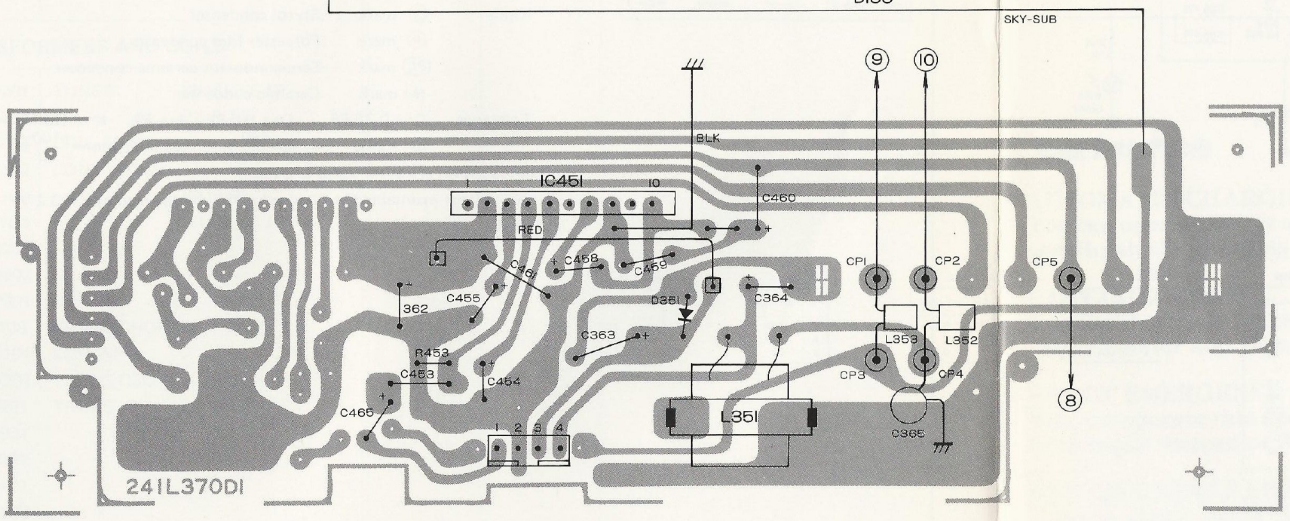
REF. No.	PART No.	DESCRIPTION
OTHERS		
	242 L21201	LEAD CONNECTOR-4P
	253 L00801	ASSY LAMP
	449 L02501	SOCKET ANT
	452 L01604	PIN CONNECTOR-4P
	452 L02901	CONNECTOR (SU-II, SUB-II)
	452 L02902	" (SE-II)
	480 P32206	SPEAKER P-1303
	480 P34603	"
	480 P61304	" PO-1509D
	480 P61306	" PO-1509F
	704 D91802	KNOB-A (SE-II for arrow colt)
	704 L01302	" (SE-II for champ)
	704 L03201	" (SU-II, SUB-II)
	704 L03301	KNOB-B (SU-II, SUB-II)
	704 M01902	" (SE-II for arrow colt)
	704 M22301	" (SE-II for champ)
	707 L04503	DIAL (SE-II)
	923 K23002	ASSY PWB RIF (SU-II, SE-II)
	923 K23003	" (SUB-II)
	923 K23201	ASSY PWB AF (SE-II)
	923 K23202	" (SU-II, SUB-II)
	923 L40103	ASSY PWB VOL
	986 L01401	ASSY POINTER
	943 L31808	ASSY PANEL (SU-II, SUB-II)

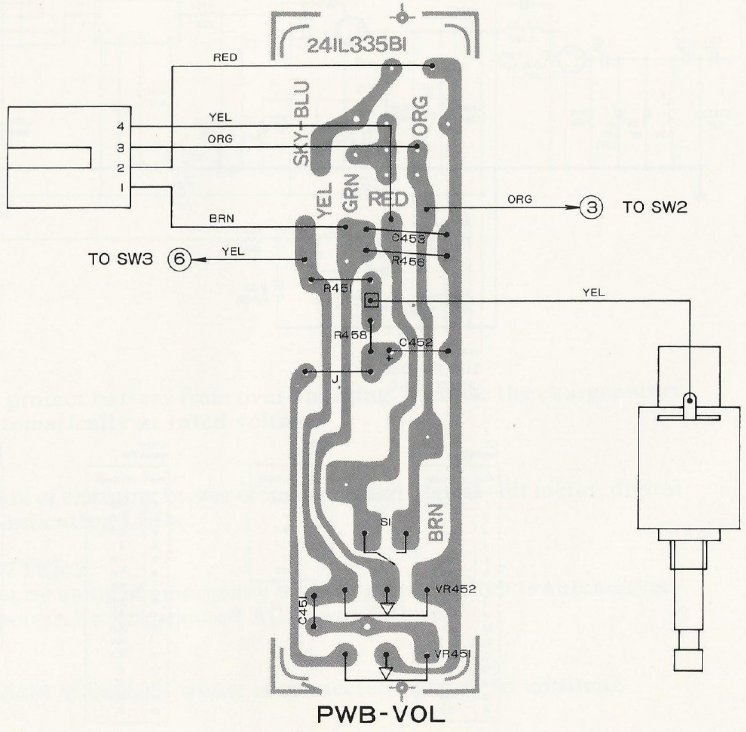
PRINTED CIRCUIT BOARD AND WIRING DIAGRAM (Printed Side)

MODEL AR-2774 SU-II、SUB-II、SE-II

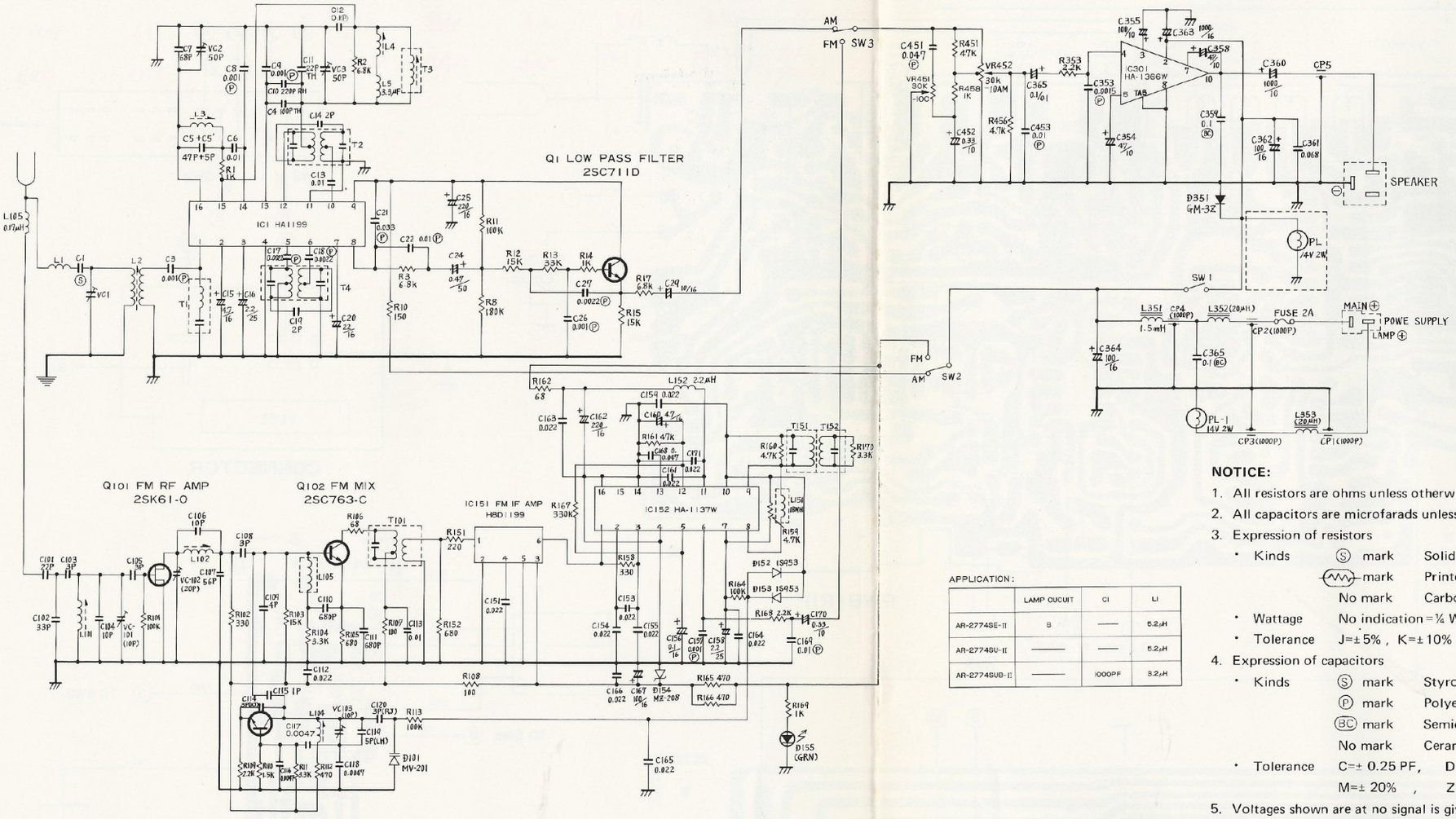








SCHEMATIC DIAGRAM
MODEL AR-2774 SU-II, SUB-II, SE-II



NOTICE:

1. All resistors are ohms unless otherwise specified $K=10^3$ ohm, $M=10^6$ ohm.
2. All capacitors are microfarads unless otherwise specified $P=10^{-6}$ microfarad.
3. Expression of resistors
   - Kinds
     - Ⓢ mark — Solid resistor
     - ⊸∿⊸ mark — Printed resistor
     - No mark — Carbon resistor
   - Wattage — No indication = ¼ W
   - Tolerance — J=± 5%, K=± 10%
4. Expression of capacitors
   - Kinds
     - Ⓢ mark — Styrol condenser
     - Ⓟ mark — Polyester film condenser
     - ⒷⒸ mark — Semiconductor ceramic condenser
     - No mark — Ceramic condenser
   - Tolerance — C=± 0.25 PF, D=± 0.5 PF, J=± 5%, K=± 10%
     M=± 20%, $Z=^{+80}_{-20}$ %, No indication $=^{+100}_{-0}$ %
5. Voltages shown are at no signal is given.
6. Sypply voltage maintained at rated value for voltage readings. (13.2 V)
7. OTHERS

APPLICATION:

	LAMP CUCUIT	CI	LI
AR-2774SE-II	B	—	5.2μH
AR-2774SU-II	—	—	5.2μH
AR-2774SUB-II	—	1000PF	3.2μH

IC1 HA1199

PIN	VOLTAGE
1	1.8V
2	1.0
3	0.2
4	0
5	5.5
6	0.8
7	1.6
8	1.8
9	11.0
10	2.0
11	0
12	9.4
13	3.5
14	1.4
15	10.0
16	8.2

IC151 HBD1199

PIN	VOLTAGE
1	2.0V
2	0
3	9.0
4	1.0
5	0
6	2.0

IC152 HA1137W

PIN	VOLTAGE
1	2.0V
2	2.0
3	2.0
4	0
5	1.5
6	5.5
7	5.5
8	5.5
9	5.5
10	5.5
11	9.0
12	3.2
13	0.1
14	0
15	5.0
16	0

IC301 HA1366W

PIN	VOLTAGE
1	0 V
2	12.0
3	7.8
4	0
5	1.3
6	1.3
7	12.0
8	0
9	0
10	1.2

Q1 2SC711-D

PIN	VOLTAGE
C	5.6V
B	4.0
E	10.0

Q101 2SK61-O

PIN	VOLTAGE
D	6.5V
S	0
G	0

Q102 2SC763-C

PIN	VOLTAGE
C	7.2V
B	1.4
E	0.7

Q103 2SC738-C

PIN	VOLTAGE
C	7.0V
B	2.3
E	2.2