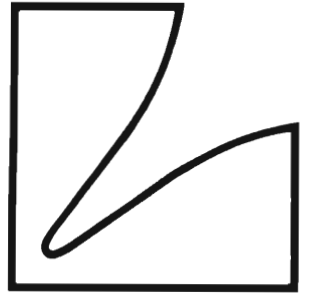


SERVICE MANUAL



Tuner Preamplifier System Remote Control Center **TP-117**



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Specifications

Audio Section

Distortion (20~20KHz, INPUT/CD)	0.01%
Input Impedance	
CD, V-DISC, AV, TAPE1, TAPE2,	
VCR	80K±15ohm
PHONO	47K±10ohm
Frequency Response	
CD, V-DISC, AV	10Hz~100KHz +0.5dB
TAPE1, TAPE2, VCR	10Hz~100KHz -3dB
Signal to Noise Ratio(Input Shorted)	
CD, V-DISC, AV, TAPE1, TAPE2, VCR ..	80dB
PHONO	70dB
Cross Talk (Input Shorted, 10KHz)	
CD, V-DISC, AV, TAPE1, TAPE2, VCR ..	65dB
PHONO	60dB
Loudness (Function-CD)	100Hz+6±1.5dB
	10KHz+4±1.5dB
Tone Control (Function-CD)	100Hz±1.5dB
	10KHz±1.5dB

FM Section

Usable Sensitivity	
(98.1MHz, Mono, 75ohm)	15.3dBf
50dB Quieting Sensitivity	
(98MHz, Stereo, 75ohm)	40.8dBf
S/N Ratio (98MHz, 65.2dBf, Stereo)	68dB
Distortion (98MHz, 65.2dBf, Stereo, 1KHz) ..	0.3%
Stereo Separation	
(98MHz, 65.2dBf, 1KHz)	40dB
Image Rejection (106MHz)	65dB
IF Rejection (90MHz)	85dB
Intermediate Frequency	10.7MHz
Frequency Range	87.9~107.9MHz

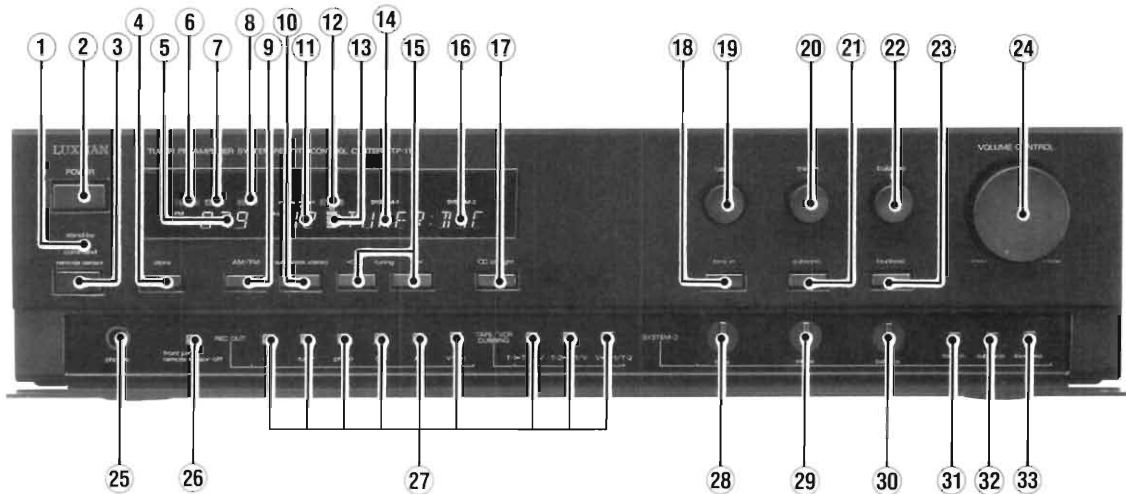
AM Section

Usable Sensitivity (1000KHz)	71.2dBf
S/N Ratio	43dB
Distortion	1.2%
Frequency Response	
(1000KHz, 3dB)	120Hz~1.5KHz
Image Rejection (1400KHz)	35dB
IF Rejection (600KHz)	45dB
Intermediate Frequency	450KHz
Frequency Range	530~1620KHz

General

Power Requirement	AC 120V, 60Hz
Power Consumption	25W
Semiconductors	55ICs, 67Transistors, 2FETs,
	73Diodes, 5Zener Diodes
Dimensions	438(W)x112(H)x327(D) mm
Weight	5.2kg

Parts Locations and Disassembly Instructions



- | | |
|-----------------------------------------|------------------------------------------|
| ① “stand-by/command” Indicator | ⑱ “tone in” Button |
| ② POWER Button | ⑲ “bass” Control (System-1) |
| ③ REMOTE SENSOR | ⑳ “treble” Control (System-1) |
| ④ “store” Button | ㉑ “subsonic” Button (System-1) |
| ⑤ Digital Frequency Display | ㉒ “balance” Control (System-1) |
| ⑥ STEREO Indicator | ㉓ “loudness” Button (System-1) |
| ⑦ AUTO Indicator | ㉔ VOLUME CONTROL |
| ⑧ STORE Indicator | ㉕ “phones” Jack |
| ⑨ AM/FM Button | ㉖ “front panel remote sensor off” Button |
| ⑩ “auto seek-stereo” Button | ㉗ REC OUT and Dubbing Selector Buttons |
| ⑪ AM/FM STATION PRESET Number Indicator | ㉘ “Bass” Control (System-2) |
| ⑫ TUNED Indicator | ㉙ “treble” Control (System-2) |
| ⑬ SS (signal strength) Indicators | ㉚ “balance” Control (System-2) |
| ⑭ SYSTEM-1 Function Display | ㉛ “tone in” Button (System-2) |
| ⑮ Tuning Buttons | ㉜ “subsonic” Button (System-2) |
| ⑯ SYSTEM-2 Function Display | ㉝ “loudness” Button (System-2) |
| ⑰ CD straight Button | |

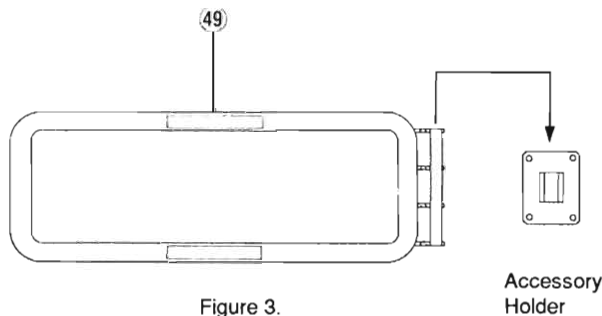
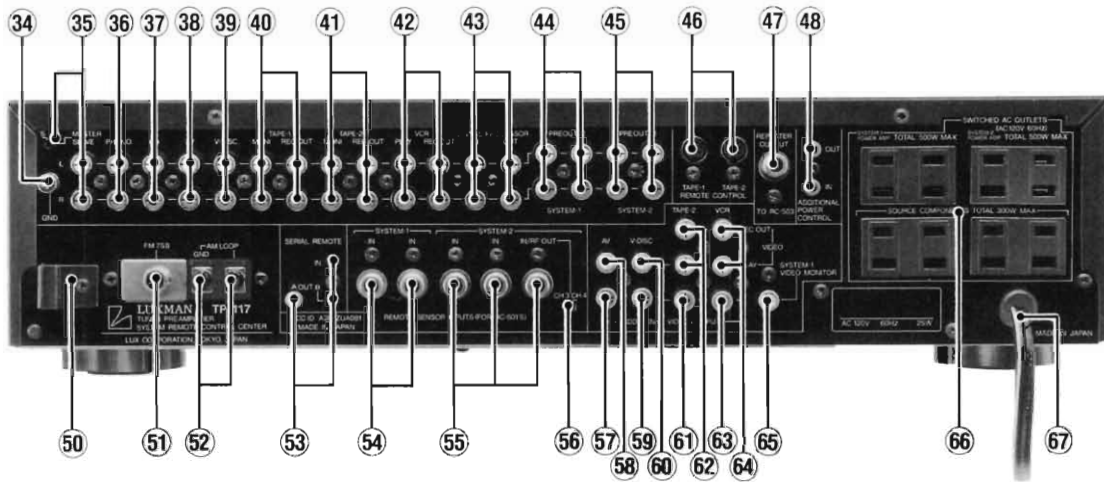


Figure 3.

Accessory Holder

- ③④ GND Terminal
- ③⑤ MASTER/SLAVE Swith and Jacks
- ③⑥ PHONO jacks
- ③⑦ CD Jacks
- ③⑧ AV Jacks
- ③⑨ V-DISC Jacks
- ④⑩ TAPE-1 REC OUT and MONI Jacks
- ④⑪ TAPE-2 REC OUT and MONI Jacks
- ④⑫ VCR (AUDIO) REC OUT and PLAY Jacks
- ④⑬ SIGNAL PROCESSOR IN and OUT Jacks
- ④⑭ PRE-OUT 1 and 2 Jacks (System-1)
- ④⑮ PRE-OUT 1 and 2 jacks (System-2)
- ④⑯ REMOTE CONTROL DIN Jacks for TAPE-1, and TAPE-2
- ④⑰ REPEATER OUTPUT "F"Connector
- ④⑱ ADDITIONAL POWER CONTROL IN and OUT jacks
- ④⑲ AM Loop Antenna
- ⑤⑰ HOLDER-AM ANTENNA
- ⑤⑱ FM 75Ω Antenna "F" Connector
- ⑤⑲ AM LODP antenna Terminals
- ⑤⑳ SERIAL REMOTE CONTROL IN, OUT A and B Jacks
- ⑤⑳ SYSTEM-1 REMOTE SENSOR INPUTS
- ⑤⑳ SYSTEM-2 REMOTE SENSOR INPUTS
- ⑥⑰ SYSTEM-2 RF OUT CH3 and CH4 SELECT SWITCH
- ⑥⑰ AV ADDITIONAL VIDEO OUTPUT Jack
- ⑥⑰ AV VIDEO PLAY Jack
- ⑥⑰ V-DISC ADDITIONAL VIDEO OUTPUT jack
- ⑥⑰ V-DISC PLAY Jack
- ⑥⑰ TAPE-2 ADDITIONAL VIDEO OUTPUT Jack
- ⑥⑰ TAPE-2 VIDEO REC OUT/PLAY Jacks
- ⑥⑰ VCR ADDITIONAL VIDEO OUTPUT Jack
- ⑥⑰ VCR VIDEO REC OUT/PLAY Jacks
- ⑥⑰ VIDEO MONITOR Jack (System-1)
- ⑥⑰ SWITCHED AC OUTLETS
- ⑥⑰ AC Power Cord

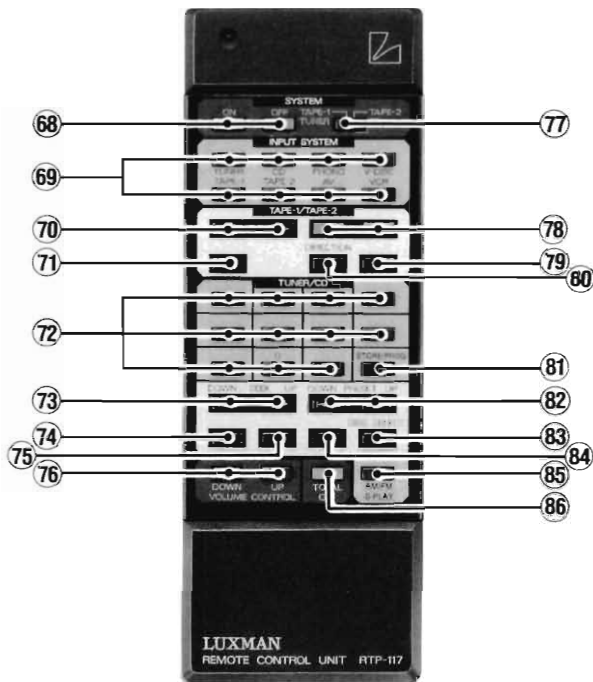


Figure 4

- ⑥8 ON OFF
- ⑥9 INPUT SYSTEM Buttons
- ⑦0 ◀◀/▶▶ (Fast Forward/Rewind) Buttons
- ⑦1 ▶ (Play) Button
- ⑦2 TUNER/CD Buttons
- ⑦3 ◀◀ DOWN SEEK UP ▶▶ Buttons
- ⑦4 ▶ (CD Play) Button
- ⑦5 || (CD Pause) Button
- ⑦6 ▼ DOWN ▲ UP VOLUME CONTROL Buttons
- ⑦7 TAPE-1/TUNER, TAPE-2/CD SWITCH
- ⑦8 ● ● (Dual Red Record Buttons)
- ⑦9 ■ (stop) Button
- ⑧0 DIRECTION || (Pause) Button
- ⑧1 STORE/PROG Button
- ⑧2 ◀◀ DOWN PRESET UP ▶▶ Buttons
- ⑧3 DISC SELECT Button
- ⑧4 ■ (CD Stop) Button
- ⑧5 AM/FM S-PLAY Button
- ⑧6 TOTAL OFF (Red) Button

1. Removal of Top Cover

- (1) Remove eight screws marked “●” as shown in Figure 5
- (2) Pull out of the top cover in the direction of the arrow as shown in Figure 5.

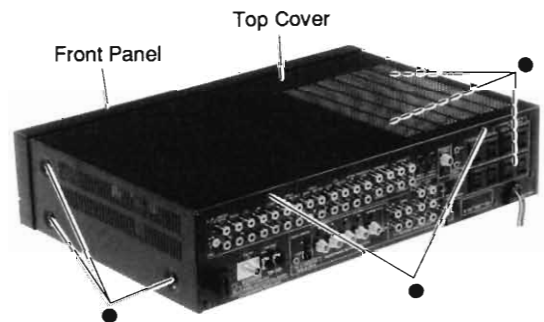


Figure 5

2. Removal of Front Panel

- (1) Remove six screws marked “▲” as shown in Figure 6
- (2) Pull out the front panel.



Figure 6

3. Removal of Input Select P.C.Board.

- (1) After removal of the top cover, remove seventeen screws marked "○" as shown in Figures 7 and 8.
- (2) Disconnect all connectors from the P.C.Board.

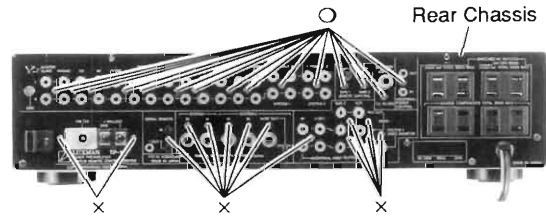


Figure 7.

4. Removal of Mother P.C.Board.

- (1) After removal of the Input Select P.C.Board, remove seventeen screws marked "×" as shown in Figures 7 and 8.
- (2) Disconnect all connectors from the P.C.Board.

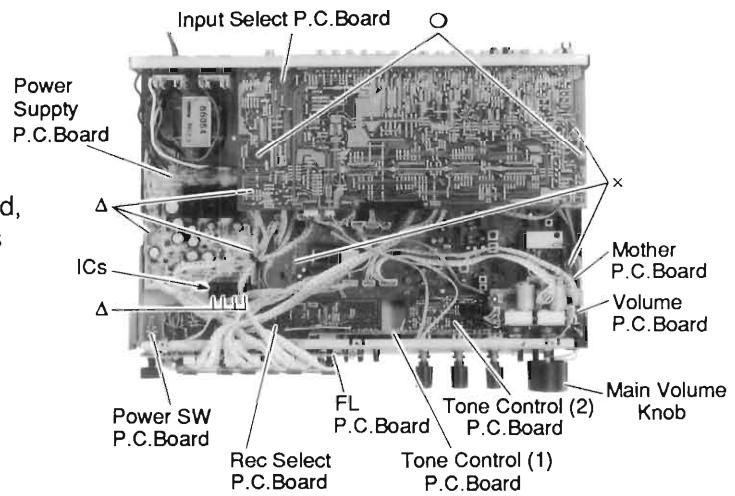


Figure 8

5. Power Supply P.C.Board.

- (1) After removal of the Input Select P.C.Board, remove seven screws marked "△" as shown in Figure 8.

Note: Remove the four screws securing the IC, otherwise the IC may be damaged.

- (2) Disconnect all wires from the P.C.Board.

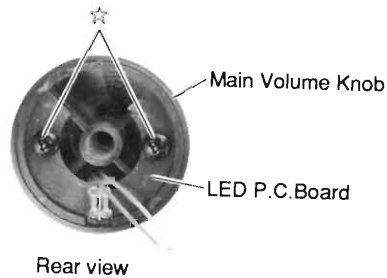


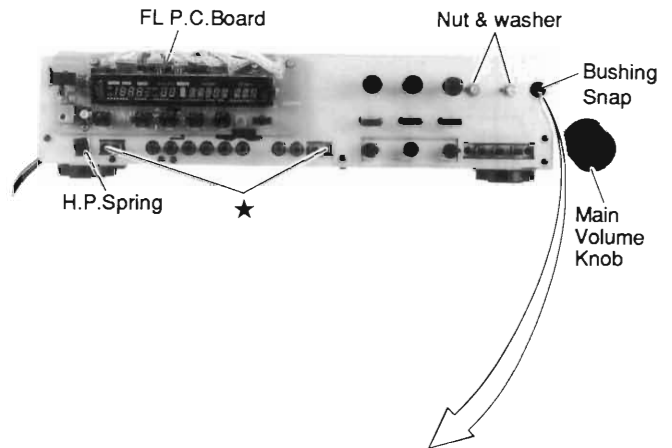
Figure 9.

6. Removal of Volume P.C.Board

- (1) After removal of the top cover and front panel, remove the main volume knob as shown in Figure 8.

Note: Remove the main volume control knob gently as abrupt removal of the knob may cause damage to the wire from the LED board at the back of the knob.

- (2) Remove two nut & washers as shown in Figure 10.
- (3) Disconnect all connectors from the P.C.Board.



7. Removal of LED P.C.Board.

- (1) After removal of the volume P.C.Board, remove the bushing snaps shown in Figure 10, by pushing the point "A" as shown in Figure 11.
- (2) Remove two screws marked "★" as shown in Figure 9.

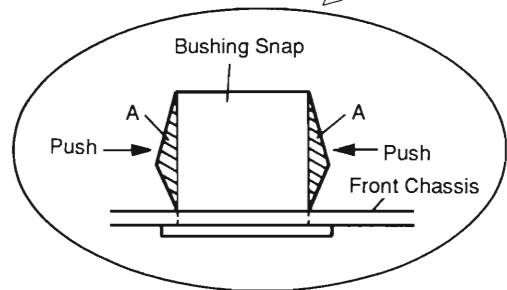


Figure 11.

8. Removal of Rec Select P.C.Board

- (1) After removal of the top cover and front panel, remove the H.P.spring as shown in Figure 10.
- (2) Remove two screws marked "★" as shown in Figure 10.
- (3) Disconnect all connectors the P.C.Board.

Adjustment Procedures

<AM Section>

(1) connection

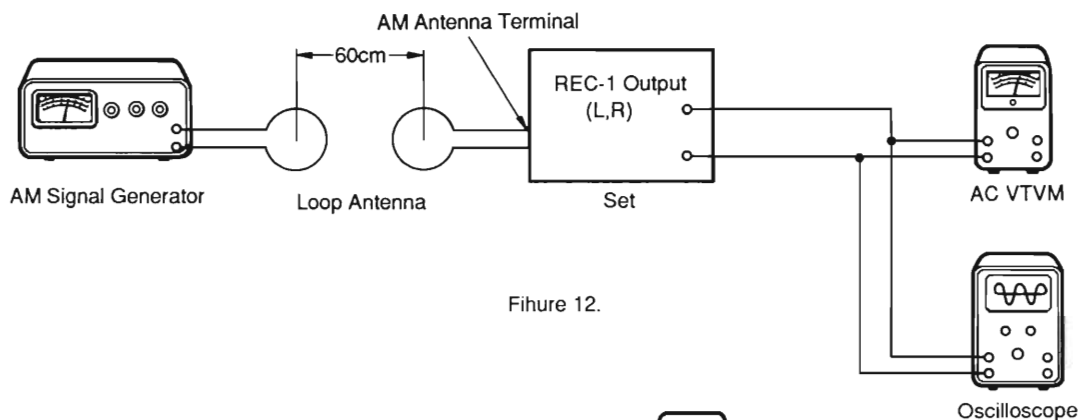


Figure 12.

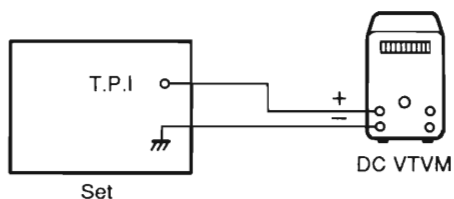


Figure 13.

(2) Control Setting

Power Switch ON
 FM/AM Switch AM
 REC Selector Switch TUNER

Volume Control Minimum Position
 Treble, Bass, Balance
 Control Mech. Center Position
 Others OFF

(3) Adjustment Procedures

Step	Discription	Signal Generator	Dial Control	Adjust Points	Test Poins	Connection	Remarks
1	Vf Adjustment		600KHz	L102	TP1	Figure 13.	Adjust Vf to $2.34 \pm 0.1V$ at L102
			1400KHz	VC102			Adjust Vf to $7.04 \pm 0.1V$ at VC102
2	Sensitivity Adjustment	600KHz 70dB μ (400Hz, 30%)	600KHz	L101	REC-1 Output (L,R)	Figure 12.	Adjust the output to maximum at L101
		1400KHz 70dB μ (400Hz, 30%)	1400KHz	VC101			Adjust the output to maximum at VC101
3	S/N Adjustment	1000KHz 120dB μ (400Hz, 30%)	1000KHz	T901	REC-1 Output (L,R)	Figure 12.	Adjust the output to minimum at T901
4	SIG. Strength & Mute level Adjustment	1000KHz 58dB/m (400Hz, 30%)	1000KHz	VR101 VR102	REC-1 Output (L,R)	Figure 12.	(Auto Seek Stereo Switch set to on.) Adjust the level to 58dB/m at VR101 And adjust the level to 58dB/m at VR102 so that the first segment of SIG:strength light up.

<FM Section>

(1) PAD

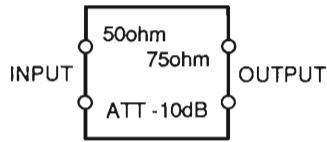


Figure 14.

(2)

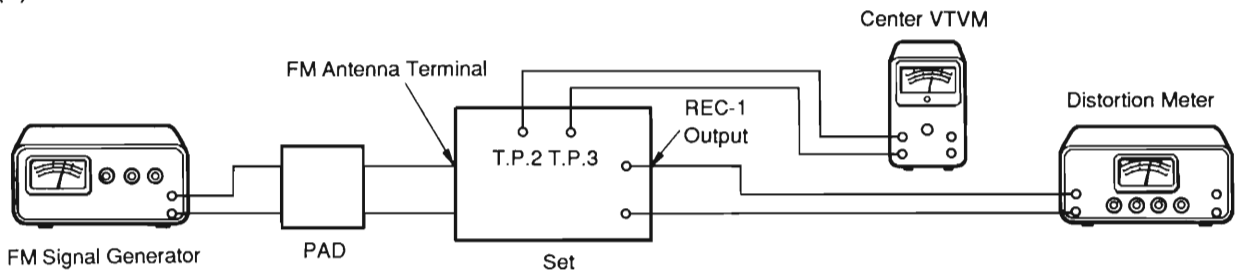


Figure 15.

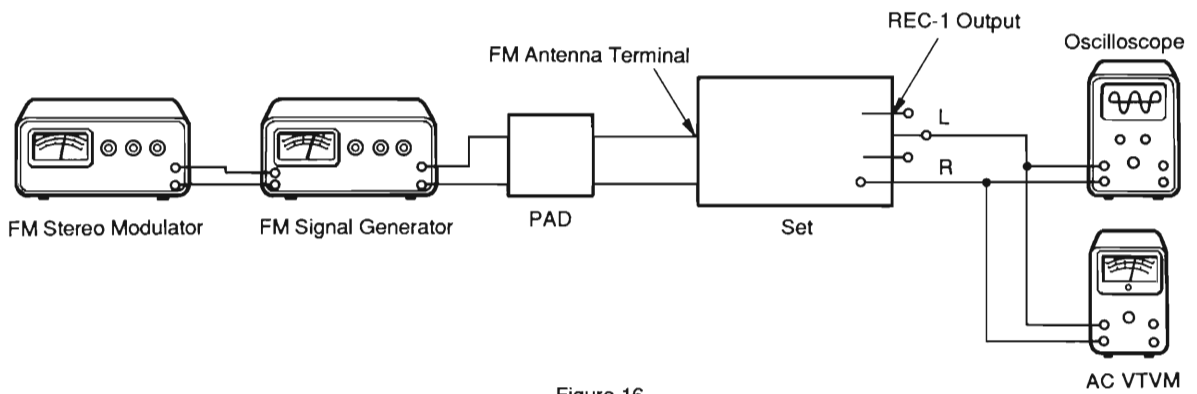


Figure 16.

(3) Control Setting

Power Switch ON
 FM/AM Switch FM
 REC Selector Switch TUNER

Volume Control Minimum Position
 Treble, Bass, Balance
 Control Mech, Center Position
 Others OFF

(4) Adjustment Procedure

Step	Description	Signal Generator	Dial Control	Adjust Points	Test Points	Connection	Remarks
1	IF Adjustment	98.1MHz 65dBf Non Modulation	98.1MHz	L105	TP2 TP3	Figure 15.	Adjust the level to $0 \pm 10\text{mV}$ at L105
2	Mono Distortion Adjustment	98.1MHz 15dB μ 1KHz, 75KHz Deviation	98.1MHz	IF Coil (FE101) L104 L106	REC-1 output (L,R)	Figure 15.	Adjust the distortion to minimum at IF coil, L104 and L106 .
3	Stereo Distortion Adjustment	98.1MHz 65dBf 1KHz, 75KHz Deviation L signal	98.1MHz	L103	REC-1 output (L,R)	Figure 15.	Adjust the distortion to minimum at L103. (Auto seek Stereo Switch set to on.)
4	Separation Adjustment	98.1MHz 65dBf 1KHz, 75KHz Deviation L signal	98.1MHz	VR105	REC-1 output (L,R)	Figure 16.	(Auto seek Stereo Switch set to on.) Adjust VR105 for Rch. output to be minimum and confirm Lch. and Rch. output level difference is more than 40dB.
5	SIG. Strength & Mute level Adjustment	98.1MHz 25dB μ 1KHz, 75KHz Deviation	98.1MHz	VR103 VR104	REC-1 output (L,R)	Figure 16.	(Auto seek Stereo Switch set to on.) Adjust the level to 25dB μ at VR104. And adjust the level to 25dB μ at VR103 so that the first segment of SIG.strength light up.

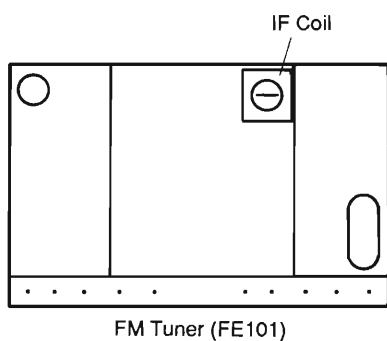
Adjustment Locations

Figure 17.

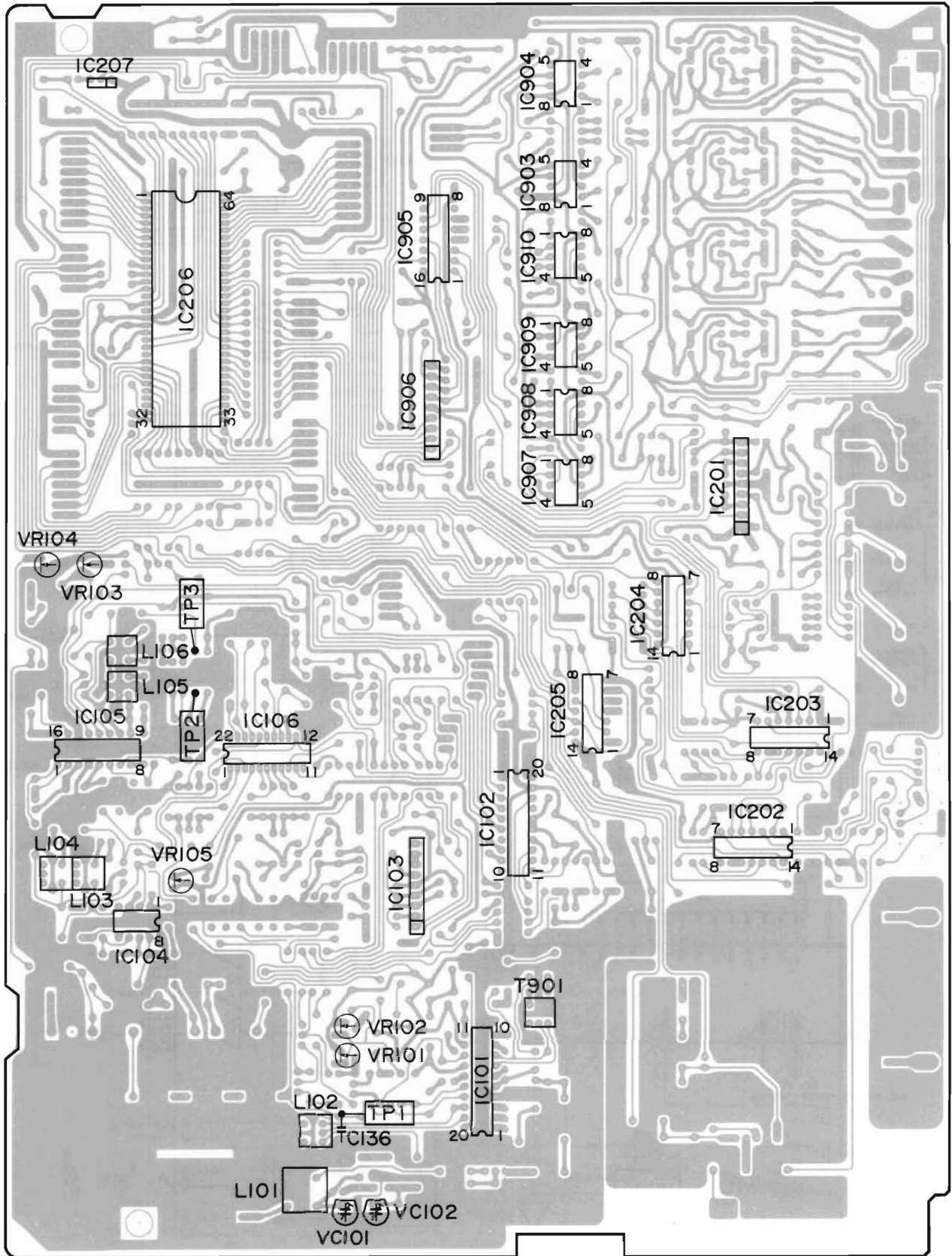
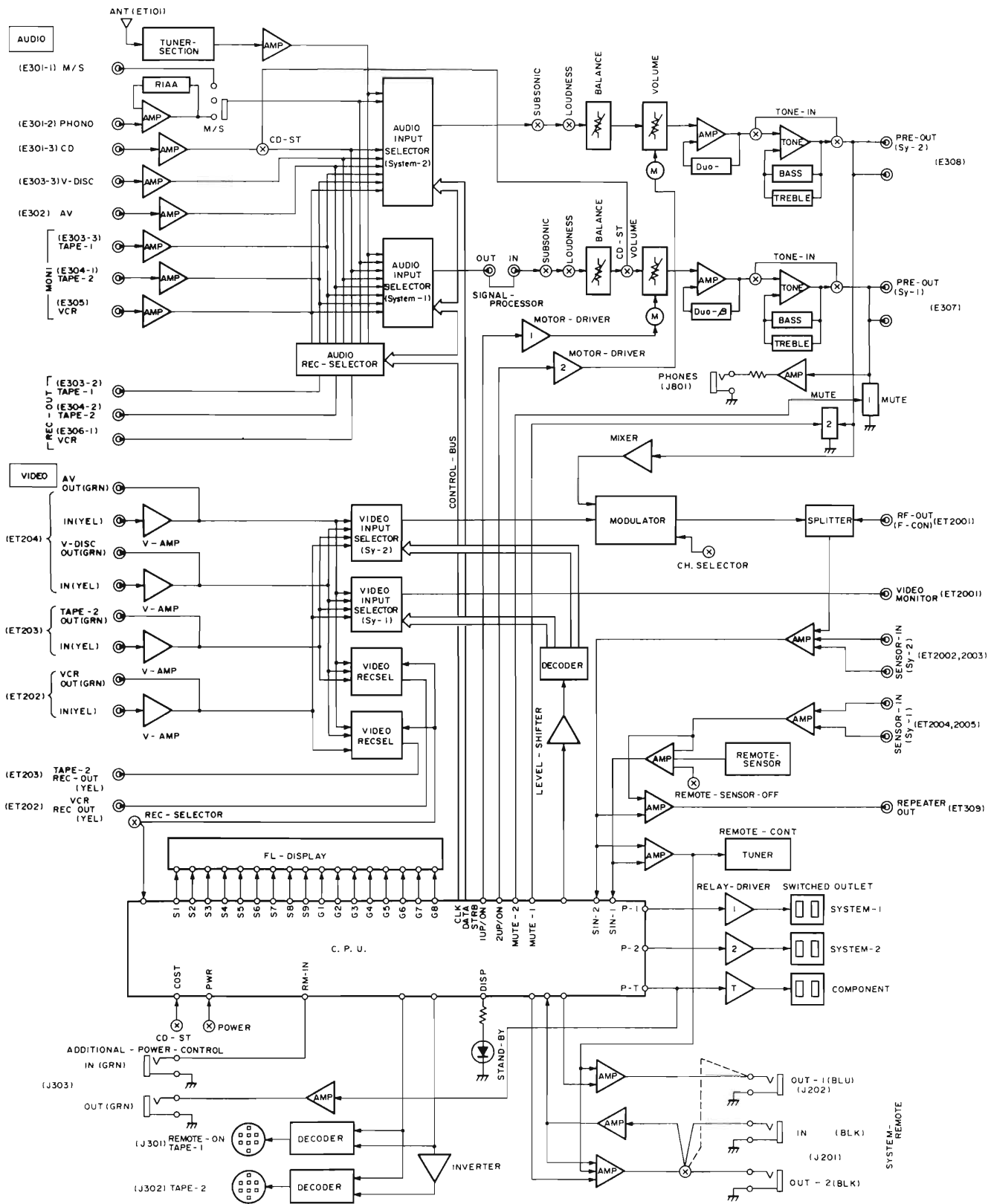
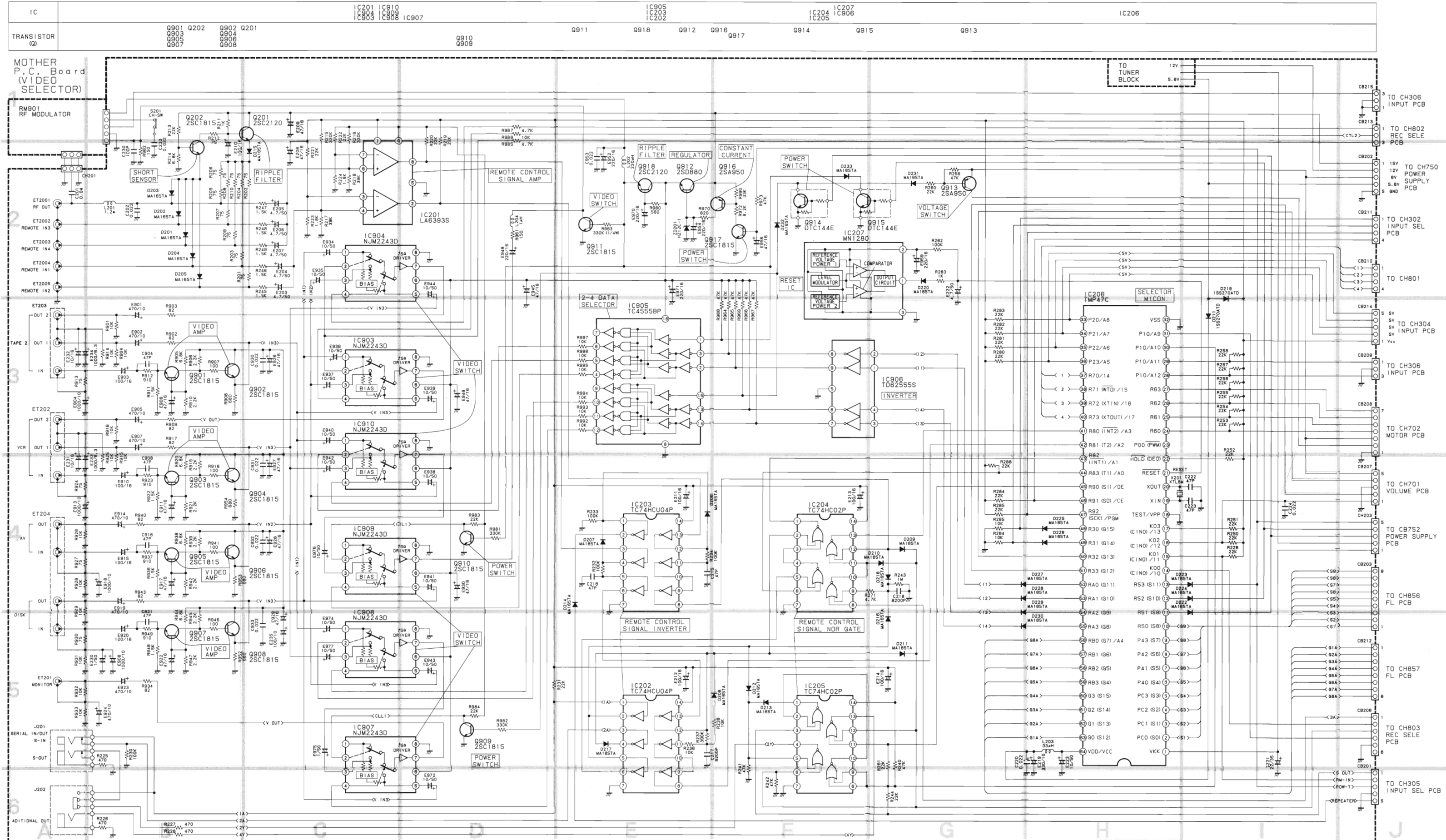


Figure 18. Mother P.C.Board (Component Side)

Block Diagram



Schematic Diagram (1/5)



NOTE
 1. All resistance values are in ohms. K=1,000 M=1,000,000
 2. All capacitance values are in microfarads. P=1,000,000

Voltage Measuring Conditions
 1. Power Supply Voltage : AC120V
 2. Measuring Meter : Digital Multi-volmeter
 3. Measuring Point Reference : Between Ground
 4. Measuring Conditions : No Signal Input
 IC102-106 (41 FM Stereo Received 65dB)
 IC101 (41 AM Received 100dBu V/u)

IC201	IC202	IC203	IC204	IC205	IC207
1	5V	0V	5V	0V	0V
2	5V	5V	0V	0V	4.8V
3	0.35V	5V	5V	0V	4.8V
4	0.5V	0V	0V	0V	5V
5	0V	0V	0V	5V	0V
6	0.5V	0V	0V	5V	0V
7	0.35V	0V	0V	0V	0V
8	5V	0V	0V	5V	0V
9	5V	5V	5V	0V	0V
10	5V	5V	0V	0V	0V
11	0V	0V	0V	0V	0V
12	0V	0V	0V	0V	0V
13	5V	5V	5V	5V	5V
14	5V	5V	5V	5V	5V

IC206	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	-24V	17	5V	33	5V	49	-24V									
2	-24V	18	0V	34	5V	50	5V									
3	-24V	19	—	35	5V	51	5V									
4	-24V	20	—	36	5V	52	5V									
5	-24V	21	5V	37	5V	53	5V									
6	-24V	22	5V	38	5V	54	5V									
7	-24V	23	0V	39	0V	55	5V									
8	-24V	24	0V	40	0V	56	-24V									
9	-24V	25	0V	41	5V	57	-24V									
10	-24V	26	0V	42	0V	58	-24V									
11	5V	27	0V	43	5V	59	-24V									
12	5V	28	0V	44	0V	60	-24V									
13	5V	29	3.4V	45	0V	61	-24V									
14	5V	30	0V	46	0V	62	-24V									
15	5V	31	3.4V	47	0V	63	-24V									
16	5V	32	0V	48	-24V	64	5V									

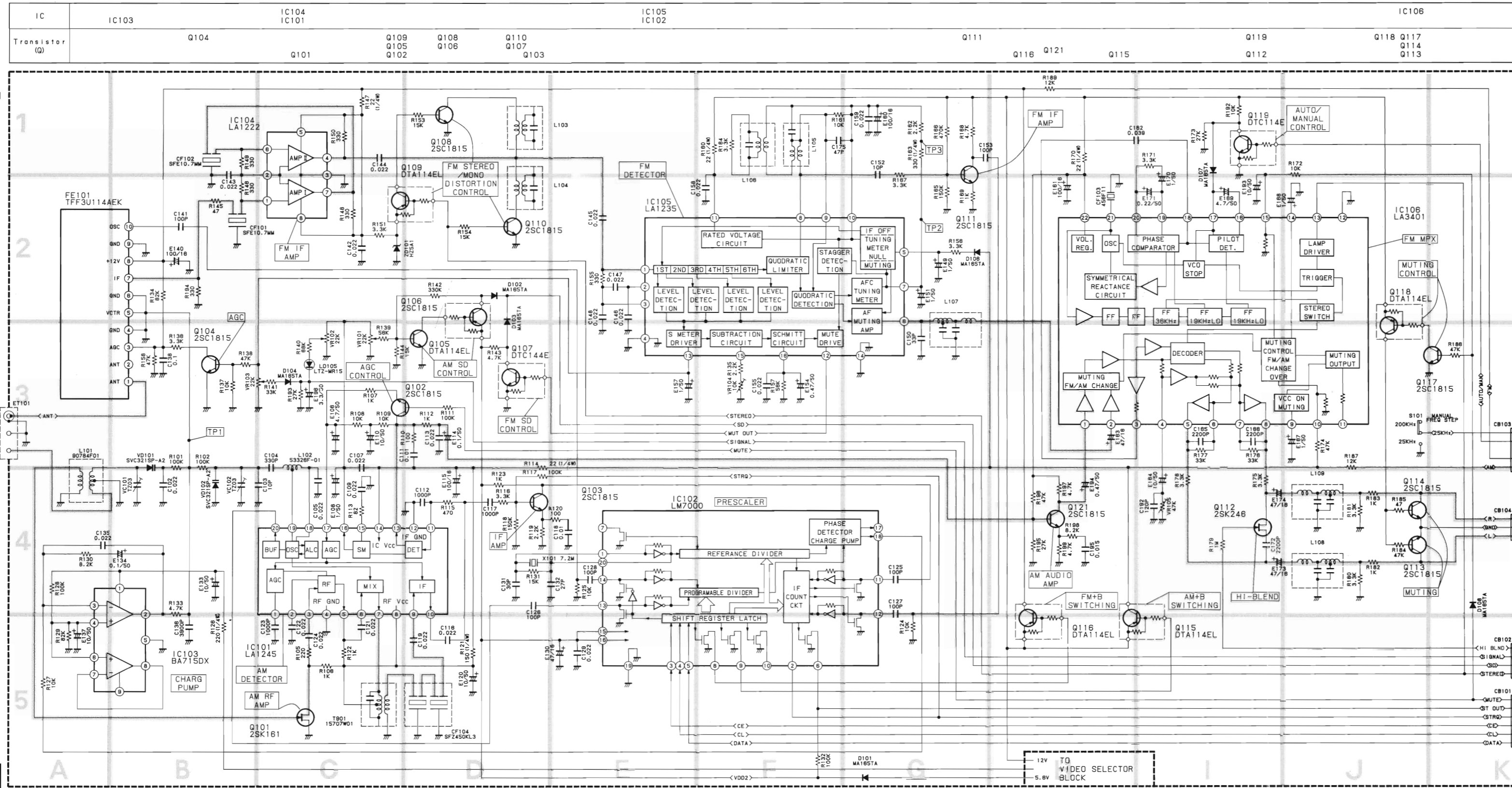
IC903	IC904	IC907	IC908	IC909	IC910
1	0V/8V	0V/8V	0V/8V	0V/8V	0V/8V
2	0V/8V	0V/8V	0V/8V	0V/8V	0V/8V
3	0V/8V	0V/8V	0V/8V	0V/8V	0V/8V
4	6V	6V	6V	6V	6V
5	6V	6V	6V	6V	6V
6	12V	12V	12V	12V	12V
7	6V	6V	6V	6V	6V
8	0V	0V	0V	0V	0V

IC905	1	2	3	4	5	6	7	8
1	12V (0V)	9	0V					
2	12V (0V)	10	12V (0V)					
3	12V (0V)	11	12V (0V)					
4	12V (0V)	12	12V (0V)					
5	12V (0V)	13	12V (0V)					
6	12V (0V)	14	12V (0V)					
7	0V	15	12V (0V)					
8	0V	16	12V					

Q201	E	C	B
Q201	14.2V	15V	14.8V
Q202	3V	15V	3.6V
Q901	2.5V	9V	3.1V
Q902	8.4V	12V	9V
Q903	2.5V	9V	3.1V
Q904	8.4V	12V	9V
Q905	2.5V	9V	3.1V
Q906	8.4V	12V	9V
Q907	2.5V	9V	3.1V
Q908	8.4V	12V	9V
Q909	0V	7.6V	0.6V/0V
Q910	0V	7.6V	0.6V/0V
Q911	0V	0V	0.6V/0V
Q912	12V	15V	12.6V
Q913	0V	6V	5.4V
Q914	0V	5V/0V	3.9V/0V
Q915	0V	5V/0V	3.9V/0V
Q916	15V	15V	14.4V
Q917	0V	0.6V	0.6V
Q918	12V	15V	12.6V

Schematic Diagram (2/5)

MOTHER
P.C. Board
(TUNER)



NOTE
1. All resistance values are in ohms. K=1,000 M=1,000,000
2. All capacitance values are in microfarads. P= $\frac{1}{1,000,000}$

Voltage Measuring Conditions
1. Power Supply Voltage : AC120V
2. Measuring Meter : Digital Multi-volmeter
3. Measuring Point Reference : Between Ground
4. Measuring Conditions : No Signal Input
IC102-106
(At FM Stereo Received 65dB)
IC101 (At AM Received 100dBu V/m)

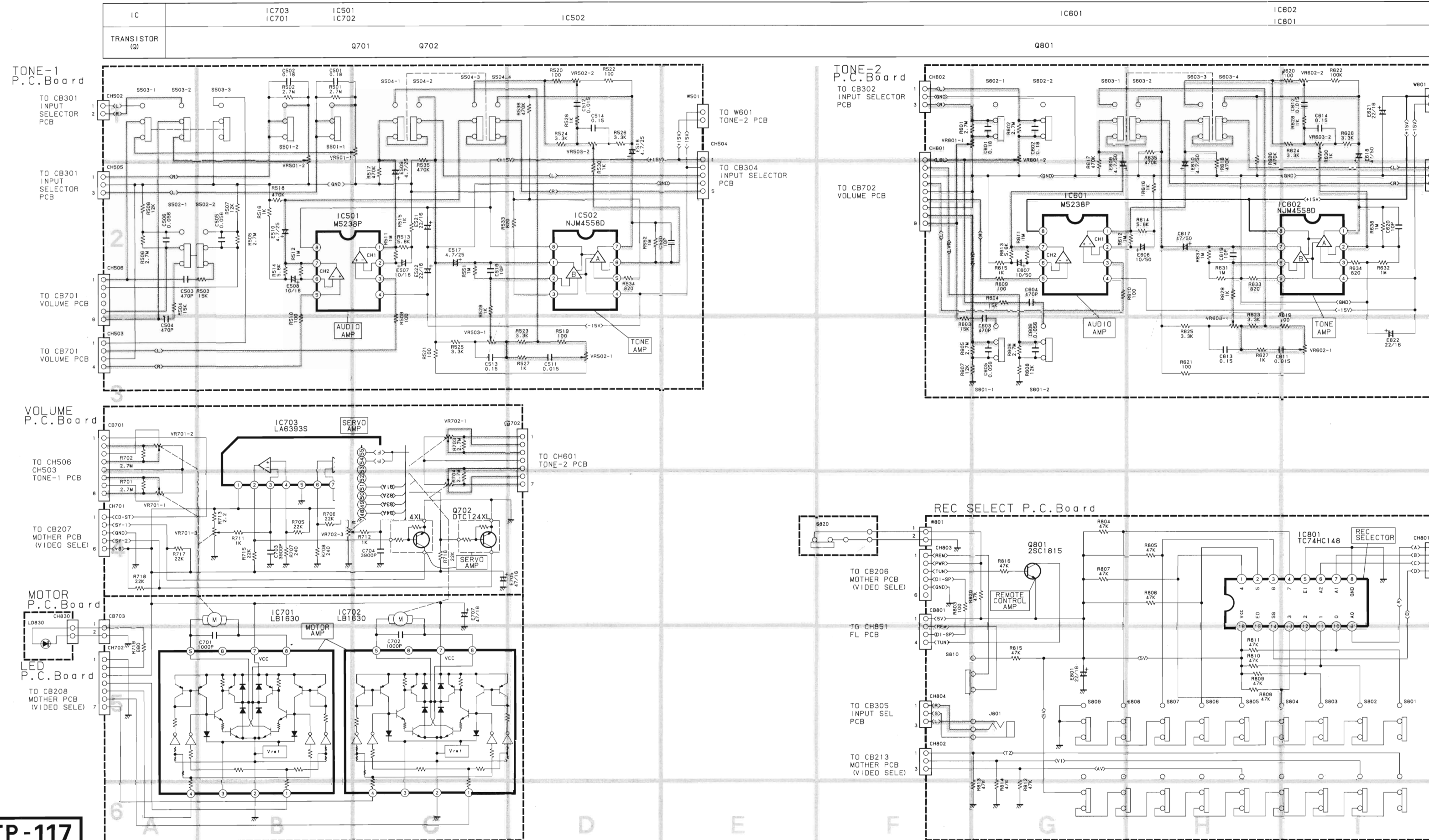
IC101 : AT 100dBuV/m AM RECEIVED
IC102-106 : AT 65dB FM STEREO RECEIVED

	IC101	IC102	IC103	IC104	IC105	IC106
1	5.6V	1.68V	27V	1.33V	2.87V	3.16V
2	2.1V	0V	8.23V	1.33V	2.87V	3.16V
3	2.6V	0V	2V	0V	2.87V	3.2V
4	0V	0V	2V	0.82V	0V	3.18V
5	8.1V	0V	0V	11.5V	0V	3.12V
6	2V	4V	2V	1.33V	6.2V	3.16V
7	8.61V	0.32V	2V	11.5V	6.24V	3.16V
8	8.61V	0.32V	2V	11.5V	6.24V	3.12V
9	2.7V	11.93V	27V	0.82V	6.24V	3.7V
10	7.4V	0V	0V	0V	6.24V	0V
11	0.65V	0V	0V	0V	11.5V	0V
12	0V	0V	0V	0V	0V	0V
13	2.83V	0V	0V	3.3V	0.6V	0V
14	11.1V	4.72V	0V	0V	4.93V	0V
15	1.5V	4.1V	0V	0.62V	0V	0V
16	5.8V	4.1V	0V	3.26V	2.8V	0V
17	2.8V	1V	0V	0V	0V	0V
18	5.65V	2V	0V	2.77V	0V	0V
19	5.65V	0V	0V	0V	2.75V	0V
20	3V	1.68V	0V	0V	2.75V	0V
21	0V	0V	0V	0V	3.4V	0V
22	0V	0V	0V	0V	11.46V	0V

Q	E	C	B	MODE	Condition
Q103	0V	4.8V	0V	AM	In reception mode or non-reception mode.
	2.2V	3.8V	2.85V	AM	Only when receiving signals in AUTO SEEK mode.
Q104	0V	4.8V	0.2V	FM	When receiving no signal.
	0V	0V	0.6V	FM	When receiving signals of more than 80 dBt
Q105	4.8V	0V	4.8V	AM	When receiving no signal.
	4.8V	4.8V	0V	AM	When one or more element(s) of the signal strength meter light.
Q106	0V	4.8V	0.1V	AM	When receiving no signal.
	0V	0V	0.6V	AM	When one or more element(s) of the signal strength meter light.
Q107	0V	4.1V	0V	FM	In reception mode.
	0V	0V	6.24V	FM	When receiving signals of higher than ±100 KHz.
Q108	0V	0V	0V	FM	FM In STEREO reception.
	4.1V	0V	4.5V	FM	FM In MONO reception.
Q109	4.1V	4V	0.6V	FM	FM In STEREO reception.
	0V	0V	0.6V	FM	FM In MONO reception.
Q110	0V	0V	0.4V	FM	FM In STEREO reception.
	0V	0V	0V	FM	FM In MONO reception.
Q111	1.46V	5.15V	2.1V	FM	FM
	0V	0V	0.65V	AM	FM MUTING ON
Q113	0V	0V	0V	AM	FM MUTING OFF
	0V	0V	0.65V	AM	FM MUTING OFF
Q114	0V	0V	0V	AM	FM MUTING OFF
	0V	0V	0V	AM	FM MUTING OFF
Q115	11.95V	11.8V	0V	AM	FM
	11.95V	11.5V	0V	AM	FM MUTING ON
Q117	11.95V	0V	0.65V	AM	FM MUTING OFF
	11.95V	11.92V	0V	AM	FM MUTING OFF
Q118	11.95V	11.92V	0V	AM	FM MUTING ON
	11.95V	0V	11.92V	AM	FM MUTING OFF
Q119	0V	0V	4.55V	AM	FM AUTO
	0V	7.7V	0V	AM	FM MANUAL
Q121	3.5V	8V	4.2V	FM	FM
	3.2V	0V	0V	FM	When three or more elements of the signal strength meter light.
Q112	3.2V	3.6V	0V	FM	When two or less elements of the signal strength meter light.
	3.2V	0V	0V	FM	When three or more elements of the signal strength meter light.

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Schematic Diagram (4/5)



NOTE
 1. All resistance values are in ohms. K=1,000 M=1,000,000
 2. All capacitance values are in microfarads. P=1,000,000

Voltage Measuring Conditions
 1. Power Supply Voltage : AC120V
 2. Measuring Meter : Digital Multi-volmeter
 3. Measuring Point Reference : Between Ground
 4. Measuring Conditions : No Signal Input
 IC102-106 (At FM Stereo Received 65dB)
 IC101 (At AM Received 100dB V/m)

	IC501	IC502
1	0V	0V
2	0V	0V
3	0V	0V
4	-15V	-15V
5	0V	0V
6	0V	0V
7	0V	0V
8	15V	15V

	IC601	IC602
1	0V	0V
2	0V	0V
3	0V	0V
4	-15V	-15V
5	0V	0V
6	0V	0V
7	0V	0V
8	15V	15V

	IC701	IC702	IC703
1	0V	0V	6V
2	0V	0V	—
3	0V	0V	—
4	0V	0V	0.3V
5	0V	0V	0V
6	0V	0V	0.3V
7	6V	6V	—
8	0V	0V	—
9	—	—	6V

	E	C	B
Q701	0V	5V/0V	5V/0V
Q702	0V	5V/0V	5V/0V
Q801	0V	5V/0V	0.6V/0V

Schematic Diagram (5/5)

IC	IC853				IC852										IC851										IC004		IC003		IC002		IC001							
TRANSISTER (Q)	Q853	Q851	Q852	Q854																					Q751		Q752		Q755		Q754		Q756		Q757		Q758	

FL P.C. Board

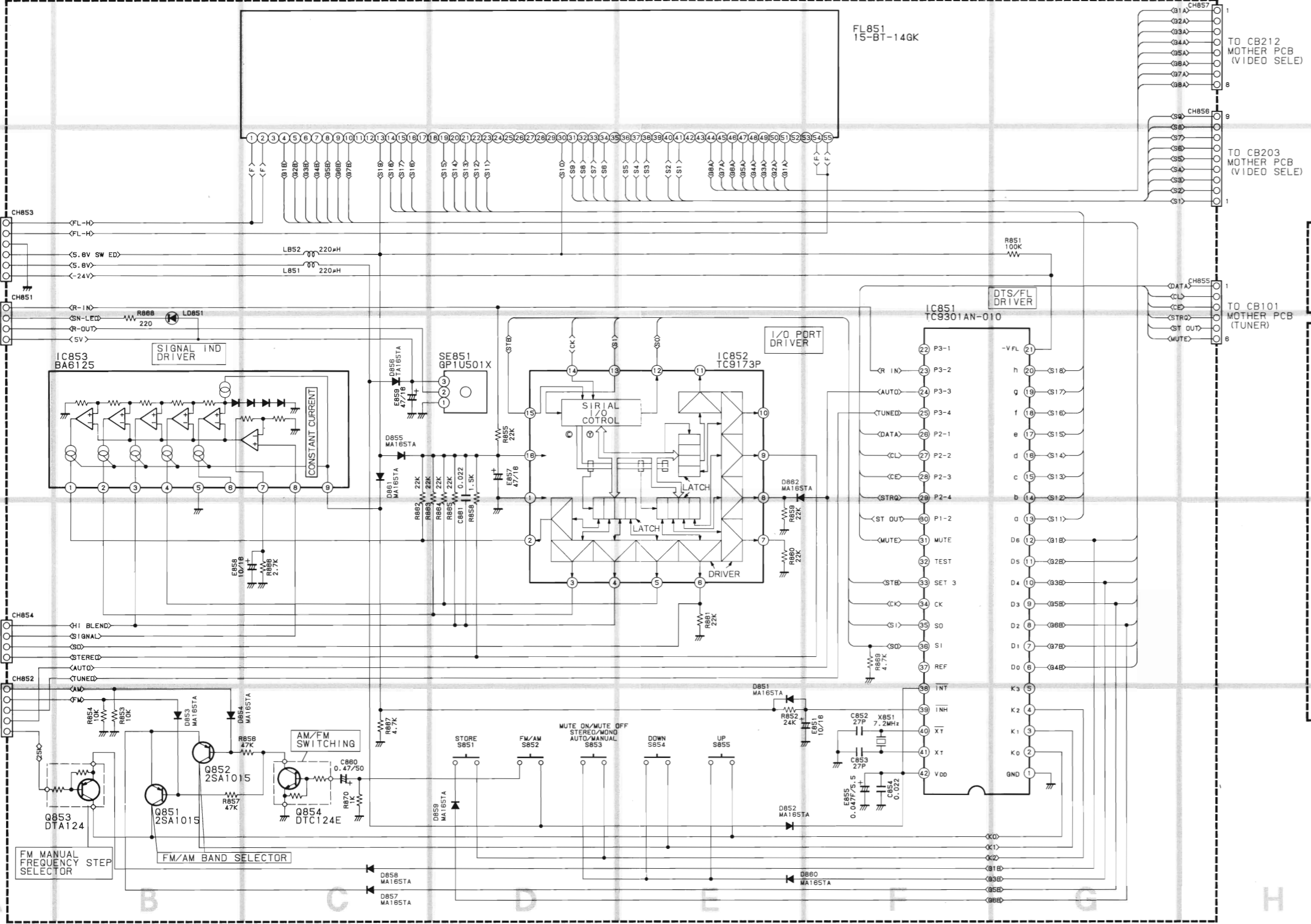
1

2

3

4

5

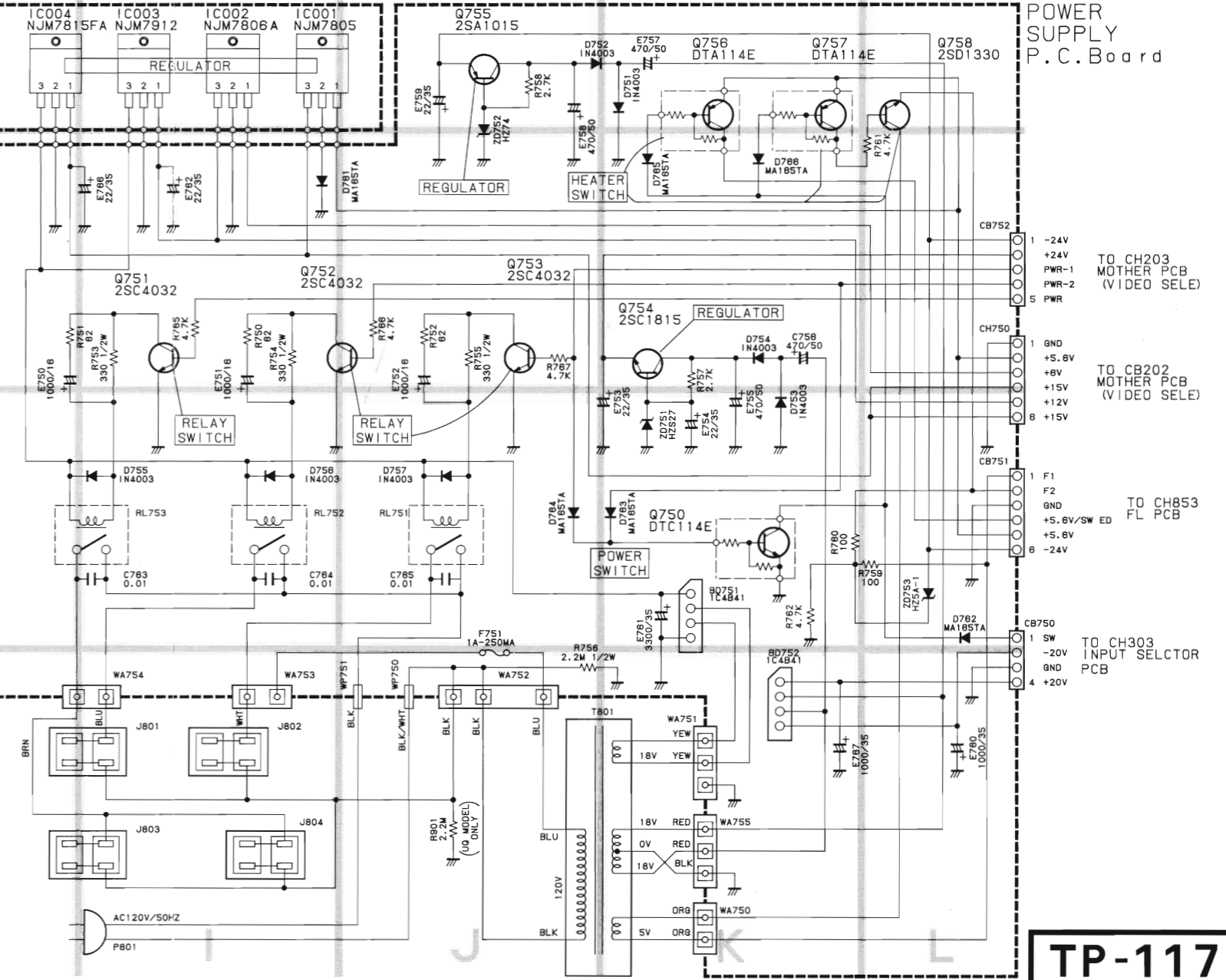


FL851
15-BT-146K

NOTE
1. All resistance values are in ohms, K=1,000 M=1,000,000
2. All capacitance values are in microfarads, P= $\frac{1}{1,000,000}$

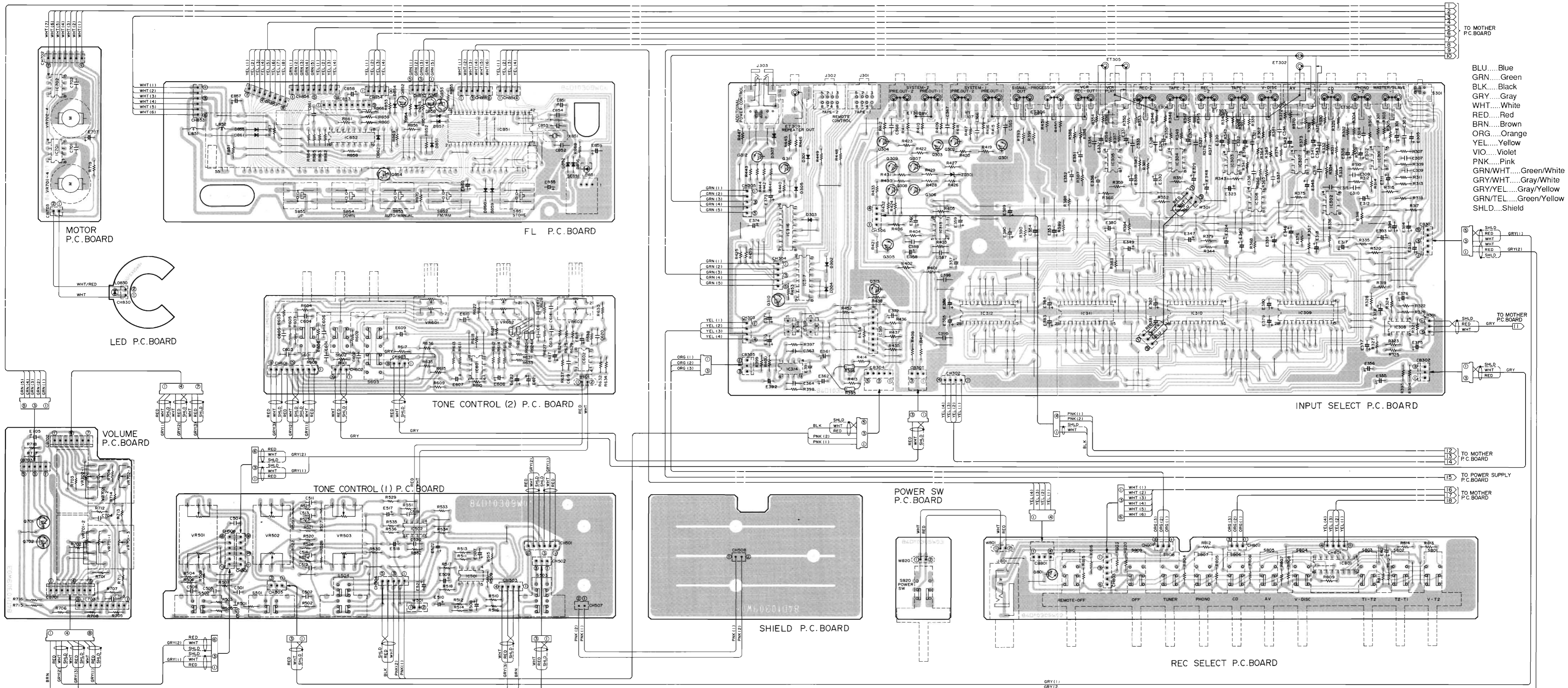
Voltage Measuring Conditions:
1. Power Supply Voltage : AC 120V
2. Measuring Meter : Digital Multi-volmeter
3. Measuring Point Reference : Between Ground
4. Measuring Conditions : No Signal Input
IC102-106 (At FM Stereo Received 65dB)
IC101 (At AM Received 100dB V/m)

	IC001	IC002	IC003	IC004
1	5.6V	6V	12V	15V
2	0.6V	0V	0V	0V
3	15V	12V	20V	20V



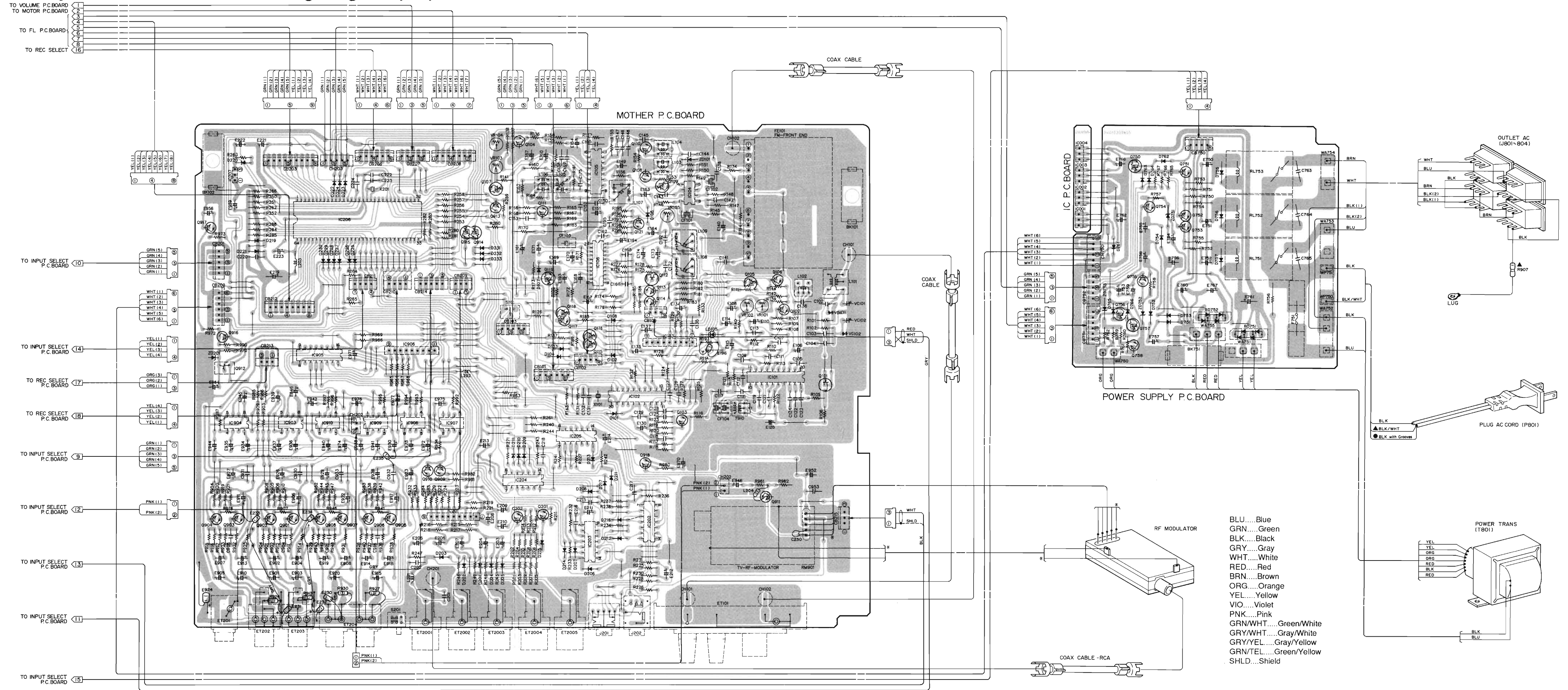
TP-117

Parts Layout on P.C.Boards and Wiring Diagram (1/2)



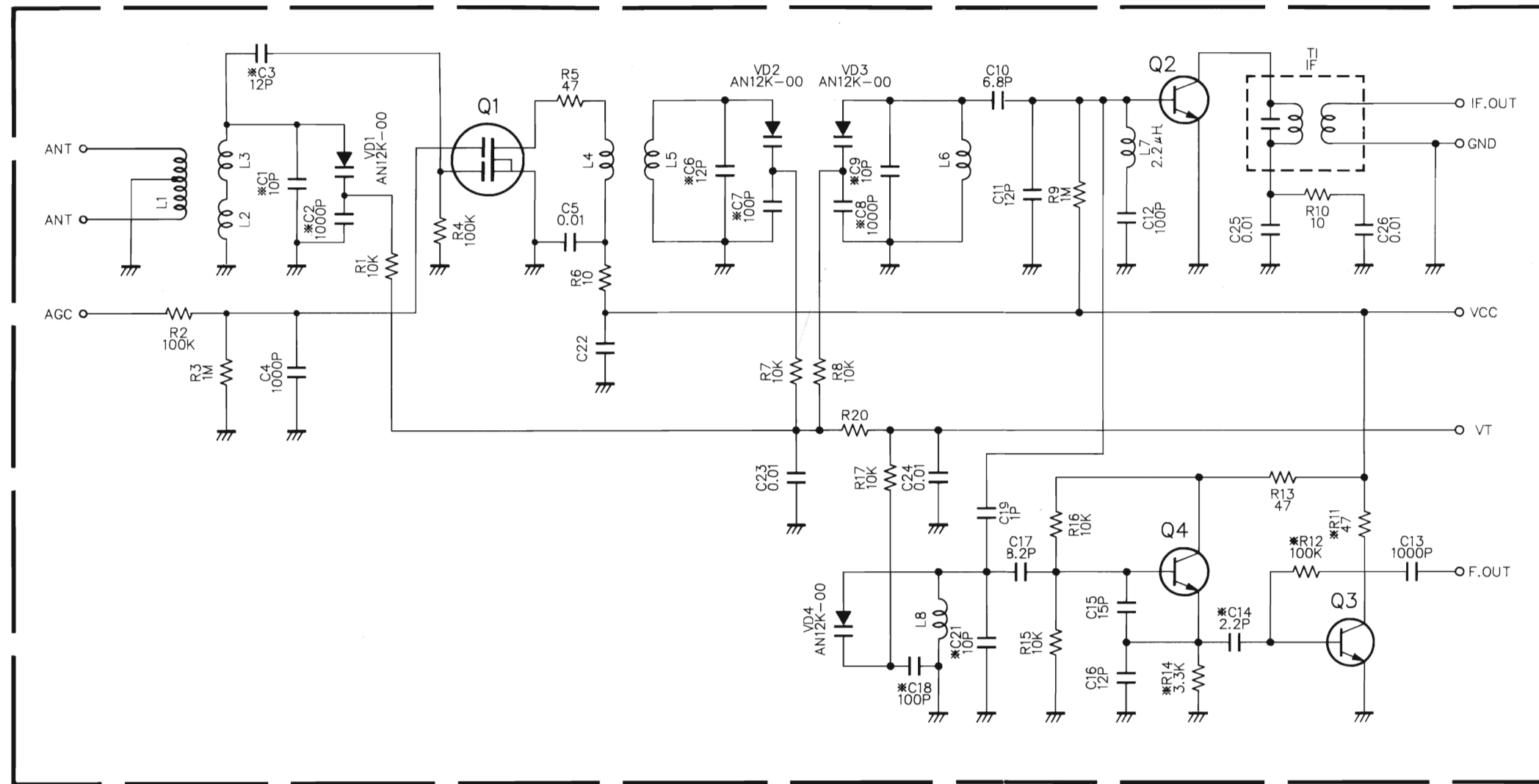
- BLU.....Blue
- GRN.....Green
- BLK.....Black
- GRY.....Gray
- WHT.....White
- RED.....Red
- BRN.....Brown
- ORG.....Orange
- YEL.....Yellow
- VIO.....Violet
- PNK.....Pink
- GRN/WHT.....Green/White
- GRY/WHT.....Gray/White
- GRY/YEL.....Gray/Yellow
- GRN/YEL.....Green/Yellow
- SHLD.....Shield

Parts Layout on P.C.Board and Wiring Diagram (2/2)



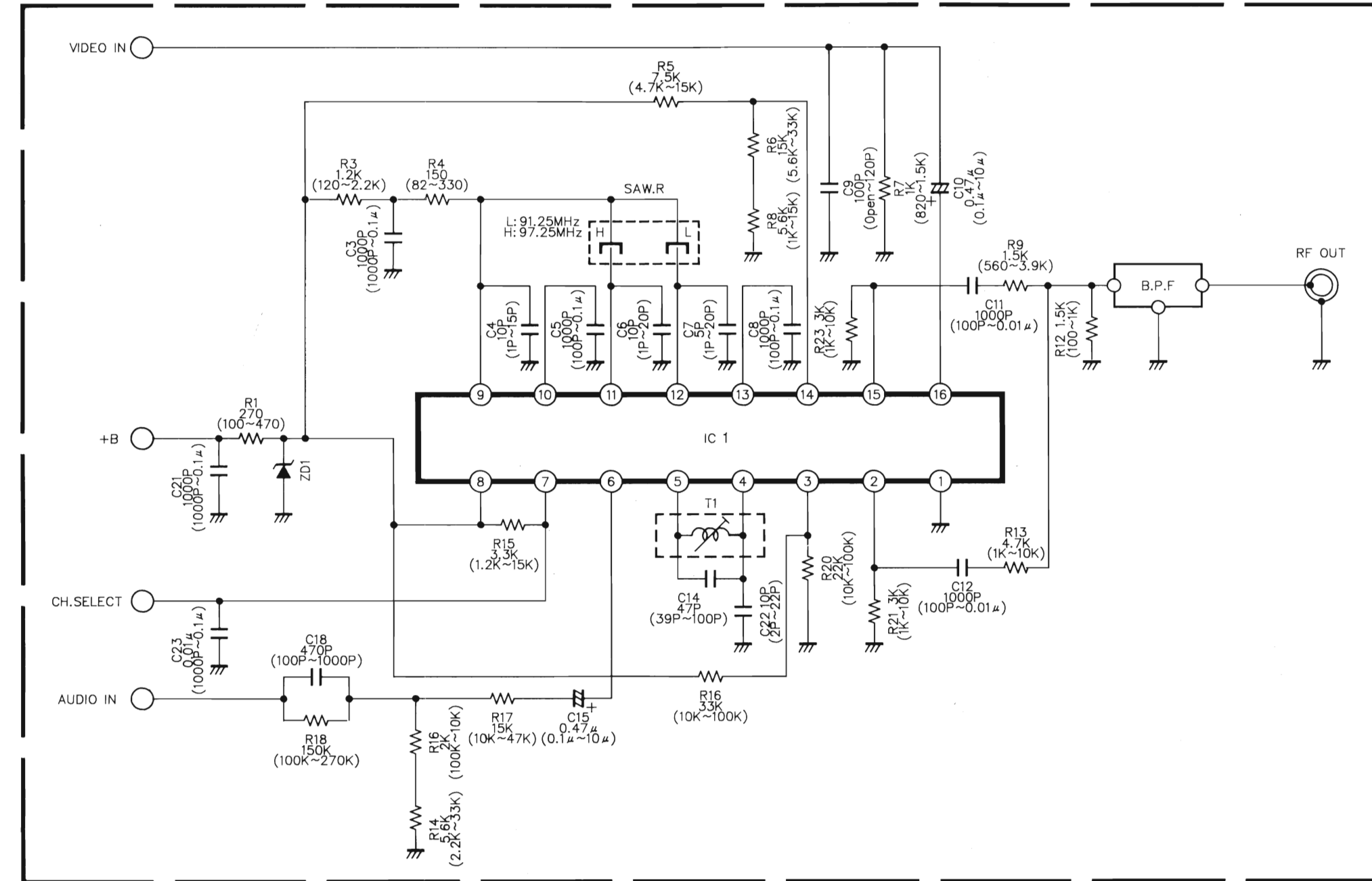
- BLU.....Blue
- GRN.....Green
- BLK.....Black
- GRY.....Gray
- WHT.....White
- RED.....Red
- BRN.....Brown
- ORG.....Orange
- YEL.....Yellow
- VIO.....Violet
- PNK.....Pink
- GRN/WHT.....Green/White
- GRY/WHT.....Gray/White
- GRY/YEL.....Gray/Yellow
- GRN/YEL.....Green/Yellow
- SHLD.....Shield

Schematic Diagram (FM Tuner)



NOTE: Parts marked "*" are for adjustment.

Schematic Diagram (RF Modulator)



Electrical Parts List

Resistor: Carbon resistors under 1/8 watts are not mentioned in the parts list, please confirm them by schematic diagram.

Capacitor: μ F-microfarads, pF-picofarads

Abbreviations			
CAP.-Capacitor	CER.-Ceramic		
CP.-Chip	ELY.-Electrolytic		
LED.-Light Emitting Diode	MIC.-Mica		
MO.-Metal Oxide Film	MYL.-Mylar		
PP.-Polypropylene	SOL.-Solid		
TAN.-Tantalum	ZEN.-Zener		
Symbol No.	Part No.	Description	
Mother P.C. Board			
IC's			
IC101	51T53323F01	LA1245	
IC102	51T84660F01	LM7000	
IC103	51T57565F01	BA715DX	
IC104	51T50040F01	LA1222	
IC105	51T51095F01	LA1235	
IC106	51T72226F01	LA3401	
IC201	51T72008F01	LA6393S	
IC202	51T80475F01	TC74HCU04P	
IC203	51T80475F01	TC74HCU04P	
IC204	51T84056F01	TC74HC02P	
IC205	51T84056F01	TC74HC02P	
IC206	51T95005F01	TMP47C	
IC207	51T72309F03	MN1280	
IC903	51T10824W01	NJM2243D	
IC904	51T10824W01	NJM2243D	
IC905	51T10823W01	TC4555BC	
IC906	51T10822W01	TD62555S	
IC907	51T10824W01	NJM2243D	
IC908	51T10824W01	NJM2243D	
IC909	51T10824W01	NJM2243D	
IC910	51T10824W01	NJM2243D	
Transistors			
Q101	48T47512F03	FET. 2SK161	
Q102	48S43525F02	2SC1815	
Q103	48S43525F02	2SC1815	
Q104	48S43525F02	2SC1815	
Q105	48T82762F02	DTA114EL	

Symbol No.	Part No.	Description		
Q106	48S43525F02	2SC1815		
Q107	48T81715F11	DTC144E		
Q108	48S43525F02	2SC1815		
Q109	48T82762F02	DTA114EL		
Q110	48S43525F02	2SC1815		
Q111	48S43525F02	2SC1815		
Q112	48T66948F01	FET. 2SK246		
Q113	48S43525F02	2SC1815		
Q114	48S43525F02	2SC1815		
Q115	48T82762F02	DTA114EL		
Q116	48T82762F02	DTA114EL		
Q117	48S43525F02	2SC1815		
Q118	48T82762F02	DTA114EL		
Q119	48T81715F16	DTC114E		
Q121	48S43525F02	2SC1815		
Q201	48T43015U01	2SC2120		
Q202	48S43525F02	2SC1815		
Q901	48S43525F02	2SC1815		
Q902	48S43525F02	2SC1815		
Q903	48S43525F02	2SC1815		
Q904	48S43525F02	2SC1815		
Q905	48S43525F02	2SC1815		
Q906	48S43525F02	2SC1815		
Q907	48S43525F02	2SC1815		
Q908	48S43525F02	2SC1815		
Q909	48S43525F02	2SC1815		
Q910	48S43525F02	2SC1815		
Q911	48S43525F02	2SC1815		
Q912	48T42620F02	2SD880		
Q913	48T43526F02	2SA950		
Q914	48T81715F11	DTC144E		
Q915	48T81715F11	DTC144E		
Q916	48T43526F02	2SA950		
Q917	48S43525F02	2SC1815		
Q918	48T43015U01	2SC2120		
Diodes				
D101	48T44813F01	MA165TA		
D102	48T44813F01	MA165TA		
D103	48T44813F01	MA165TA		
D104	48T44813F01	MA165TA		
D106	48T44813F01	MA165TA		
D107	48T44813F01	MA165TA		
D108	48T44813F01	MA165TA		
D201	48T44813F01	MA165TA		
D202	48T44813F01	MA165TA		
D203	48T44813F01	MA165TA		

Symbol No.	Part No.	Description		
D204	48T44813F01	MA165TA		
D205	48T44813F01	MA165TA		
D206	48T44813F01	MA165TA		
D207	48T44813F01	MA165TA		
D208	48T44813F01	MA165TA		
D209	48T44813F01	MA165TA		
D210	48T44813F01	MA165TA		
D211	48T44813F01	MA165TA		
D212	48T44813F01	MA165TA		
D213	48T44813F01	MA165TA		
D214	48T44813F01	MA165TA		
D215	48T44813F01	MA165TA		
D216	48T44813F01	MA165TA		
D217	48T44813F01	MA165TA		
D218	48T44813F01	MA165TA		
D219	48T84758F01	1SS270ATD		
D220	48T44813F01	MA165TA		
D221	48T84758F01	1SS270ATD		
D222	48T44813F01	MA165TA		
D223	48T44813F01	MA165TA		
D224	48T44813F01	MA165TA		
D225	48T44813F01	MA165TA		
D226	48T44813F01	MA165TA		
D227	48T44813F01	MA165TA		
D228	48T44813F01	MA165TA		
D229	48T44813F01	MA165TA		
D230	48T44813F01	MA165TA		
D231	48T44813F01	MA165TA		
D232	48T44813F01	MA165TA		
D233	48T44813F01	MA165TA		
VD101	48T52826F01	VRT. SVC321SP		
VD102	48T52826F01	VRT. SVC321SP		
ZD101	48T52739F25	ZEN., HZ5A1		
ZD201	48T52740F07	ZEN., HC12C1		
LD105	48T70935F01	LED, LTZ-MR15 T-77AX		
Coils				
L101	24T90784F01	Trans. MW ANT.		
L102	24T53326F01	Trans. AM OSC.		
L103	24T84602F01	IFT. 10.7MHZ FOR FM		
L104	24T84602F01	IFT. 10.7MHZ FOR FM		
L105	24T74167F01	IFT. FM N 1ST		
L106	24T74168F02	IFT. FM N 2ND		
L107	91T68037F01	Filter. ANTI BIRDY		
L108	91T66943F01	Filter. MPX		
L109	91T66943F01	Filter. MPX		
L201	24T58149F02	Inductor. 1.2mH		

Symbol No.	Part No.	Description		
L202	24T50508F38	Inductor. 220 μ H		
L203	24T50508F26	Inductor. 22 μ H		
L204	24T50508F10	Inductor. 1 μ H		
L901	24T15707W01	IFT. AM FOR SFZ450KL		
Jack/Plate				
J201	09T10810W02	Jack. HSJ0913-01-167 (ADIT-OUT)		
J202	09T10815W01	Jack. HSJ1002-01-1010 (SERIAL I/O)		
ET101	09T10839W01	TML. ANT F-TYPE SCR-2 (FM/AM ANT)		
ET201	09T84775F03	Plate. PH RA-B YEL AU (VIDEO MONITOR)		
ET202	09T10807W02	Plate. Phono T-5904 (VCR)		
ET203	09T10807W02	Plate. Phono T-5904 (TAPE-2)		
ET204	09T61714F05	Plate. Phono T-5858 (AV/V-DISC)		
ET2001	09T10811W01	CONN-F. T-5945A (RF-OUT)		
ET2002	09T10811W01	CONN-F. T-5945A (REM/IN6-3)		
ET2003	09T10811W01	CONN-F. T-5945A (REM/IN4)		
ET2004	09T10811W01	CONN-F. T-5945A (REM/IN1)		
ET2005	09T10811W01	CONN-F. T-5945A (REM/IN2)		
Switches				
S101	40T72576F01	Slide. SSSS21 (FM STEP 200K \leftrightarrow 25K)		
S201	40T68056F01	SSJ-322 (B) (CH3/CH4)		
Filter				
CF101	91T51130F01	CER., SPE10.7 MM		
CF102	91T51130F01	CER., SPE10.7 MM		
CF103	91T68469F03	CER., LOCK 456F11		
CF104	91T15706W01	AM SFZ450KL3		
Crystal				
X101	48T84663F01	7.2MHz NDK		
X201	48T81871F01	6.00MHz		

Symbol No.	Part No.	Description			Symbol No.	Part No.	Description		
Capacitors					C148	08S65480F62	CER..	0.022 μ F	
C102	08S65480F62	CER..	0.022 μ F		E149	23T00138L45	ELY..	1 μ F/50V	
C103	08S65480F13	CER..	10pF		C150	08S65480F25	CER..	33pF	
C104	08S65480F43	CER..	330pF		E151	23T00138L45	ELY..	1 μ F/50V	
C105	08S65480F62	CER..	0.022 μ F		C152	08S65480F13	CER..	10pF	
E106	23T00138L48	ELY..	4.7 μ F/50V		C153	08S65480F37	CER..	100pF	
C107	08S65480F62	CER..	0.022 μ F		E154	23S57007F04	ELY..	0.47 μ F/50V	
E108	23T00138L45	ELY..	1 μ F/50V		C155	08S65480F62	CER..	0.022 μ F	
C109	08S65480F62	CER..	0.022 μ F		E157	23T00138L45	ELY..	1 μ F/50V	
E110	23T00138L49	ELY..	10 μ F/50V		C158	08S65480F62	CER..	0.022 μ F	
C111	08T57851F01	TF..	0.01 μ F		C159	08S65480F62	CER..	0.022 μ F	
C112	08S65480F49	CER..	1000pF		E160	23T00149L25	ELY..	100 μ F/16V	
C113	08S65480F62	CER..	0.022 μ F		E161	23T00149L25	ELY..	100 μ F/16V	
E114	23S57007F01	ELY..	0.1 μ F/50V		C162	08T57851F08	TF..	0.039 μ F	
E115	23T00149L25	ELY..	100 μ F/16V		E163	23T00149L23	ELY..	47 μ F/16V	
C116	08S65480F62	CER..	0.022 μ F		E164	23T00138L49	ELY..	10 μ F/50V	
C117	08S65480F49	CER..	1000pF		C165	08T52448F21	PP..	2200pF	
C118	08S65480F61	CER..	0.01 μ F		C166	08T52448F21	PP..	2200pF	
C119	08S65480F62	CER..	0.022 μ F		E167	23T00138L45	ELY..	1 μ F/50V	
E120	23T00138L49	ELY..	10 μ F/50V		E168	23T00138L45	ELY..	1 μ F/50V	
C121	08S65480F62	CER..	0.022 μ F		E169	23T00138L48	ELY..	4.7 μ F/50V	
C122	08S65480F62	CER..	0.022 μ F		E170	23T00138L45	ELY..	1 μ F/50V	
C123	08S65480F49	CER..	1000pF		E171	23S57007F02	ELY..	0.22 μ F/50V	
C124	08S65480F62	CER..	0.022 μ F		C172	08T52448F21	PP..	2200pF	
C125	08S65480F37	CER..	100pF		E173	23T00149L23	ELY..	47 μ F/16V	
C126	08S65480F37	CER..	100pF		E174	23T00149L23	ELY..	47 μ F/16V	
C127	08S65480F37	CER..	100pF		C175	21C41701J72	CER..	47pF	
C128	08S65480F37	CER..	100pF		C192	08S65480F38	CER..	120pF	
C129	08S65480F62	CER..	0.022 μ F		E193	23T00138L49	ELY..	10 μ F/50V	
E130	23T00149L23	ELY..	47 μ F/16V		E194	23S57007F04	ELY..	0.47 μ F/50V	
C131	08S65480F24	CER..	30pF		C195	08T57851F03	PF..	0.015 μ F	
C132	08S65480F23	CER..	27pF		E196	23S57422F07	ELY..	3.3 μ F/50V	
E133	23T00138L49	ELY..	10 μ F/50V		C201	08S40805F22	CER..	0.04 μ F	
E134	23S57007F01	ELY..	0.1 μ F/50V		C202	08S65480F62	CER..	0.022 μ F	
C135	08S65480F62	CER..	0.022 μ F		E203	23T00138L48	ELY..	4.7 μ F/50V	
C136	08S65480F56	CER..	3900pF		E204	23T00138L48	ELY..	4.7 μ F/50V	
E137	23T00138L49	ELY..	10 μ F/50V		E205	23T00138L48	ELY..	4.7 μ F/50V	
C138	08S65480F63	CER..	0.1 μ F		E206	23T00138L48	ELY..	4.7 μ F/50V	
E140	23T00149L25	ELY..	100 μ F/16V		E207	23T00138L48	ELY..	4.7 μ F/50V	
C141	08S65480F37	CER..	100pF		E208	23T00149L23	ELY..	47 μ F/16V	
C142	08S65480F62	CER..	0.022 μ F		E209	23T00149L23	ELY..	47 μ F/16V	
C143	08S65480F62	CER..	0.022 μ F		E210	23T00149L25	ELY..	100 μ F/16V	
C144	08S65480F62	CER..	0.022 μ F		E211	23T00149L25	ELY..	100 μ F/16V	
C145	08S65480F62	CER..	0.022 μ F		E212	23T00149L25	ELY..	100 μ F/16V	
C146	08S65480F62	CER..	0.022 μ F		E213	23T00149L25	ELY..	100 μ F/16V	
C147	08S65480F62	CER..	0.022 μ F						

Symbol No.	Part No.	Description		Symbol No.	Part No.	Description		
E214	23T00149L25	ELY.. 100 μ F/16V		E926	23T00149L23	ELY.. 47 μ F/16V		
C215	08S65480F29	CER.. 47pF		E927	23T00149L23	ELY.. 47 μ F/16V		
C216	08S65480F29	CER.. 47pF		E928	23T00149L23	ELY.. 47 μ F/16V		
C217	08S65480F60	CER.. 8200pF		E929	23T00149L23	ELY.. 47 μ F/16V		
C218	08S65480F60	CER.. 8200pF		C930	08S65480F62	CER.. 0.022 μ F		
E219	23T00134L23	ELY.. 3300 μ F/10V		E930	23T00149L23	ELY.. 47 μ F/16V		
C220	08S65480F62	CER.. 0.022 μ F		C931	08S65480F62	CER.. 0.022 μ F		
E221	23T00149L43	ELY.. 22 μ F/35V		C932	08S65480F62	CER.. 0.022 μ F		
C222	08S65480F29	CER.. 47pF		C933	08S65480F62	CER.. 0.022 μ F		
E222	23T00138L48	ELY.. 4.7 μ F/50V		E934	23T00138L49	ELY.. 10 μ F/50V		
C223	08S65480F29	CER.. 47pF		E935	23T00138L49	ELY.. 10 μ F/50V		
E223	23T00138L49	ELY.. 10 μ F/50V		E936	23T00138L49	ELY.. 10 μ F/50V		
C224	08S65480F62	CER.. 0.022 μ F		E937	23T00138L49	ELY.. 10 μ F/50V		
C230	08S65480F37	CER.. 100pF		E938	23T00138L49	ELY.. 10 μ F/50V		
E230	23T57421F05	ELY.. 1 μ F/50V		E939	23T00138L49	ELY.. 10 μ F/50V		
E231	23T57421F09	ELY.. 10 μ F/16V		E940	23T00138L49	ELY.. 10 μ F/50V		
E232	23T57421F09	ELY.. 10 μ F/16V		E941	23T00138L49	ELY.. 10 μ F/50V		
C233	08T52714F17	CER.. 0.022 μ F		E942	23T00138L49	ELY.. 10 μ F/50V		
E233	23T00149L17	ELY.. 1000 μ F/6.3V		E944	23T00138L49	ELY.. 10 μ F/50V		
E234	23T00149L17	ELY.. 1000 μ F/6.3V		E945	23T00149L23	ELY.. 47 μ F/16V		
E235	23T43247F21	ELY.. 100 μ F/10V		E946	23T00149L23	ELY.. 47 μ F/16V		
E901	23T00149L16	ELY.. 470 μ F/10V		E948	23T00149L26	ELY.. 220 μ F/16V		
E902	23T00149L16	ELY.. 470 μ F/10V		E952	23T00149L26	ELY.. 220 μ F/16V		
E903	23T00149L25	ELY.. 100 μ F/16V		C953	08S65480F62	CER.. 0.022 μ F		
C904	08S65480F29	CER.. 47pF		E954	23T00149L26	ELY.. 220 μ F/16V		
E904	23T00149L17	ELY.. 1000 μ F/10V		E956	23T00149L23	ELY.. 47 μ F/16V		
E905	23T00149L16	ELY.. 470 μ F/10V		E959	23T00149L26	ELY.. 220 μ F/16V		
E906	23T43427F14	ELY.. 47 μ F/16V		E970	23T00149L26	ELY.. 220 μ F/16V		
E907	23T00149L16	ELY.. 470 μ F/10V		E971	23T00149L26	ELY.. 220 μ F/16V		
C908	08S65480F29	CER.. 47pF		E972	23T00138L49	ELY.. 10 μ F/50V		
E908	23T00149L17	ELY.. 1000 μ F/10V		E973	23T00138L49	ELY.. 10 μ F/50V		
E910	23T00149L25	ELY.. 100 μ F/16V		E974	23T00138L49	ELY.. 10 μ F/50V		
E911	23T43427F14	ELY.. 47 μ F/16V		E975	23T00138L49	ELY.. 10 μ F/50V		
E913	23T00149L17	ELY.. 1000 μ F/10V		E976	23T00138L49	ELY.. 10 μ F/50V		
E914	23T00149L16	ELY.. 470 μ F/10V		E977	23T00138L49	ELY.. 10 μ F/50V		
E915	23T00149L25	ELY.. 100 μ F/16V		VC101	20T47503F02	Trimmer. TZ03 (RED)		
C916	08S65480F29	CER.. 47pF		VC102	20T47503F02	Trimmer. TZ03 (RED)		
E917	23T00149L23	ELY.. 47 μ F/16V		Resistors				
E918	23T00149L17	ELY.. 1000 μ F/10V		VR101	18T74439F15	SOL.Variable 22K ohm KICK (AM MUTE)		
E919	23T00149L16	ELY.. 470 μ F/10V		VR102	18T74439F15	SOL.Variable 22K ohm KICK (AM SIGNAL)		
E920	23T00149L25	ELY.. 100 μ F/16V		VR103	18T74439F15	SOL.Variable 22K ohm KICK (FM SIGNAL)		
C921	08S65480F29	CER.. 47pF		VR104	18T74439F13	SOL.Variable 10K ohm KICK (FM MUTE)		
E922	23T00149L23	ELY.. 47 μ F/16V		VR105	18T74439F17	SOL.Variable 47K ohm KICK (ST-SEPARATION)		
E923	23T00149L16	ELY.. 470 μ F/10V						
E924	23T00149L16	ELY.. 470 μ F/10V						

Symbol No.	Part No.	Description		
Input Selector P.C.Board				
IC's				
IC301	51T00038L01	M5220P		
IC302	51T80136F01	M5238P		
IC303	51T52383F01	NJM4558D		
IC304	51T52383F01	NJM4558D		
IC305	51T52383F01	NJM4558D		
IC306	51T80136F01	M5238P		
IC307	51T52383F01	NJM4558D		
IC308	51T52383F01	NJM4558D		
IC309	51T10818W01	TC9163		
IC310	51T10818W01	TC9163		
IC311	51T10817W01	TC9162		
IC312	51T10817W01	TC9162		
IC313	51T52383F01	NJM4558D		
IC314	51T81896F01	M5216P		
IC315	51T80994F01	M5230L		
IC316	51T81716F01	HD74145		
IC317	51T81716F01	HD74145		
IC318	51T82394F01	NJM7815FA		
IC319	51T82395F01	NJM7915FA		
Transistors				
Q301	48T57305F04	2SD1302		
Q302	48T57305F04	2SD1302		
Q303	48T57305F04	2SD1302		
Q304	48T57305F04	2SD1302		
Q305	48T57305F04	2SD1302		
Q306	48T51118F01	2SA1015		
Q307	48T51118F01	2SA1015		
Q308	48S43525F02	2SC1815		
Q309	48S43525F02	2SC1815		
Q310	48T81715F11	DTC144E		
Q311	48T51118F01	2SA1015		
Q312	48S43525F02	2SC1815		
Q313	48S43525F02	2SC1815		
Diodes				
D301	48T44813F01	MA165TA		
D302	48T44813F01	MA165TA		
D303	48T44813F01	MA165TA		
D304	48T44813F01	MA165TA		
D305	48T44813F01	MA165TA		
D307	48T44813F01	MA165TA		
ZD301	48T52741F03	ZEN.. 11A6A-2		

Symbol No.	Part No.	Description		
Jack/Plate				
J301	09T10608W01	Socket. TCS7927-18201 (REM CONTROL)		
J302	09T10808W01	Socket. TCS7927-18201 (TAPE-1, TAPE-2)		
J303	09T10809W01	Jack. HSJ1001-01-026 (REPEATER OUTPUT)		
ET301	09T81364F02	Plate. Phono T-6078 (MASTER/SLAVE.PHONO.CD)		
ET302	09T10804W01	Plate. Phono T-6030(AV)		
ET303	09T81364F02	Plate. Phono T-6078 (V-DISC.TAPE-1 REC OUT. MONI)		
ET304	09T10805W01	Plate. Phono T-6005 (TAPE-2 REC OUT. MONI)		
ET305	09T10804W01	Plate. Phono T-6030 (VCR. PLAY)		
ET306	09T81364F02	Plate. Phono T-6078 (VCR REC OUT. SIGNAL IN. PROCESSOR OUT)		
ET307	09T61714F04	Plate. Phono T-5858-AL (SYSTEM-1 PREOUT 1.2)		
ET308	09T61714F04	Plate. Phono T-5858-AL (SYSTEM-2 PREOUT 1.2)		
ET309	09T10811W01	CONN-F. T-5945A (REPEATER OUTPUT)		
Switch				
S301	40T68056F01	SSJ-322(B) (S→M)		
Capacitors				
E301	23T00138L48	ELY.. 4.7 μF/50V		
E302	23T00138L48	ELY.. 4.7 μF/50V		
C303	08S65480F37	CER.. 100pF		
C304	08S65480F37	CER.. 100pF		
E305	23T00149L14	ELY.. 220 μF/10V		
E306	23T00149L14	ELY.. 220 μF/10V		
C307	08T57851F10	TF.. 0.056 μF		
C308	08T57851F10	TF.. 0.056 μF		
C309	08T57851F03	PF.. 0.015 μF		
C310	08T57851F03	PF.. 0.015 μF		
E311	23T00138L48	ELY.. 4.7 μF/50V		
E312	23T00138L48	ELY.. 4.7 μF/50V		
E313	23T00138L48	ELY.. 4.7 μF/50V		
E314	23T00138L48	ELY.. 4.7 μF/50V		
C315	08S65480F37	CER.. 100pF		

Symbol No.	Part No.	Description			Symbol No.	Part No.	Description		
C316	08S65480F37	CER. 100pF			E361	23S57007F04	ELY. 0.47 μ F/50V		
E317	23T00138L48	ELY. 4.7 μ F/50V			E362	23S57007F04	ELY. 0.47 μ F/50V		
E318	23T00138L48	ELY. 4.7 μ F/50V			C363	08S65480F13	CER. 10pF		
E319	23T00138L48	ELY. 4.7 μ F/50V			C364	08S65480F13	CER. 10pF		
E320	23T00138L48	ELY. 4.7 μ F/50V			C365	08S65480F37	CER. 100pF		
C321	08S65480F37	CER. 100pF			C366	08S65480F37	CER. 100pF		
C322	08S65480F37	CER. 100pF			C367	08S65480F37	CER. 100pF		
E323	23T00138L48	ELY. 4.7 μ F/50V			C368	08S65480F37	CER. 100pF		
E324	23T00138L48	ELY. 4.7 μ F/50V			E370	23T00149L43	ELY. 22 μ F/35V		
E325	23T00138L48	ELY. 4.7 μ F/50V			E371	23T00149L43	ELY. 22 μ F/35V		
E326	23T00138L48	ELY. 4.7 μ F/50V			E372	23T00138L46	ELY. 2.2 μ F/50V		
C327	08S65480F37	CER. 100pF			E373	23T00149L21	ELY. 22 μ F/16V		
C328	08S65480F37	CER. 100pF			E374	23T00149L21	ELY. 22 μ F/16V		
E329	23T00138L48	ELY. 4.7 μ F/50V			E375	23T00138L46	ELY. 2.2 μ F/50V		
E330	23T00138L48	ELY. 4.7 μ F/50V			E376	23T00138L46	ELY. 2.2 μ F/50V		
E331	23T00138L48	ELY. 4.7 μ F/50V			E377	23T00138L48	ELY. 4.7 μ F/50V		
E332	23T00138L48	ELY. 4.7 μ F/50V			E378	23T00138L48	ELY. 4.7 μ F/50V		
C333	08S65480F37	CER. 100pF			E379	23T00149L21	ELY. 22 μ F/16V		
C334	08S65480F37	CER. 100pF			E380	23T00149L21	ELY. 22 μ F/16V		
E335	23T00138L48	ELY. 4.7 μ F/50V			E381	23T00149L21	ELY. 22 μ F/16V		
E336	23T00138L48	ELY. 4.7 μ F/50V			E382	23T00149L21	ELY. 22 μ F/16V		
C337	08S65480F37	CER. 100pF			E383	23T00149L21	ELY. 22 μ F/16V		
C338	08S65480F37	CER. 100pF			E384	23T00149L21	ELY. 22 μ F/16V		
E339	23T00138L48	ELY. 4.7 μ F/50V			E385	23T00149L21	ELY. 22 μ F/16V		
E340	23T00138L48	ELY. 4.7 μ F/50V			E386	23T00149L21	ELY. 22 μ F/16V		
E341	23T00138L48	ELY. 4.7 μ F/50V			C387	08S65480F13	CER. 10pF		
E342	23T00138L48	ELY. 4.7 μ F/50V			C388	08S65480F13	CER. 10pF		
C343	08S65480F37	CER. 100pF			E389	23T00149L26	ELY. 220 μ F/16V		
C344	08S65480F37	CER. 100pF			E390	23T00149L26	ELY. 220 μ F/16V		
E345	23T00138L48	ELY. 4.7 μ F/50V			E391	23T42477F39	ELY. 47 μ F/16V		
E346	23T00138L48	ELY. 4.7 μ F/50V			E392	23T42477F39	ELY. 47 μ F/16V		
E347	23T00138L48	ELY. 4.7 μ F/50V			E393	23T00149L21	ELY. 22 μ F/16V		
E348	23T00138L48	ELY. 4.7 μ F/50V			E394	23T00149L21	ELY. 22 μ F/16V		
E349	23T00138L48	ELY. 4.7 μ F/50V			C395	08S65480F62	CER. 0.022 μ F		
E350	23T00138L48	ELY. 4.7 μ F/50V			C396	08S65480F62	CER. 0.022 μ F		
E351	23T00138L48	ELY. 4.7 μ F/50V			Power Supply P.C.Board				
E352	23T00138L48	ELY. 4.7 μ F/50V			Transistors				
E353	23T00138L48	ELY. 4.7 μ F/50V			Q750	48T81715F16	DTC114E		
E354	23T00138L48	ELY. 4.7 μ F/50V			Q751	48T82761F01	2SC4032		
E355	23T00138L48	ELY. 4.7 μ F/50V			Q752	48T82761F01	2SC4032		
E356	23T00138L48	ELY. 4.7 μ F/50V			Q753	48T82761F01	2SC4032		
E357	23T00138L48	ELY. 4.7 μ F/50V			Q754	48S43525F02	2SC1815		
E358	23T00138L48	ELY. 4.7 μ F/50V			Q755	48T51118F01	2SA1015		
E359	23T00138L48	ELY. 4.7 μ F/50V			Q756	48T81715F05	DTA114E		
E360	23T00138L48	ELY. 4.7 μ F/50V			Q757	48T81715F05	DTA114E		
					Q758	48T57337F03	2SD1330		

Symbol No.	Part No.	Description		
Diodes				
D751	48S40477U01	1N4003		
D752	48S40477U01	1N4003		
D753	48S40477U01	1N4003		
D754	48S40477U01	1N4003		
D755	48S40477U01	1N4003		
D756	48S40477U01	1N4003		
D757	48S40477U01	1N4003		
D761	48T44813F01	MA165TA		
D762	48T44813F01	MA165TA		
D763	48T44813F01	MA165TA		
D764	48T44813F01	MA165TA		
D765	48T44813F01	MA165TA		
D766	48T44813F01	MA165TA		
BD751	48T61415F02	BRGE 1D4B41		
BD752	48T61415F02	BRGE 1D4B41		
ZD751	48T52739F95	ZEN.. HZ27-2		
ZD752	48T52739F91	ZEN.. HZ24-1		
ZD753	48T52739F25	ZEN.. HZ5A-1		
Relay				
RL751	80T55299F01	G4W1112P-1001M		
RL752	80T55299F01	G4W1112P-1001M		
RL753	80T55299F01	G4W1112P-1001M		
Capacitors				
E750	23T00149L29	ELY.. 1000 μ F/16V		
E751	23T00149L29	ELY.. 1000 μ F/16V		
E752	23T00149L29	ELY.. 1000 μ F/16V		
E753	23T00149L43	ELY.. 22 μ F/35V		
E754	23T00149L43	ELY.. 22 μ F/35V		
E755	23T00134L74	ELY.. 470 μ F/50V		
E756	23T00134L74	ELY.. 470 μ F/50V		
E757	23T00134L74	ELY.. 470 μ F/50V		
E758	23T00134L74	ELY.. 470 μ F/50V		
E759	23T00149L43	ELY.. 22 μ F/35V		
E760	23T00134L59	ELY.. 1000 μ F/35V		
E761	23T00134L61	ELY.. 3300 μ F/35V		
E762	23T00149L43	ELY.. 22 μ F/35V		
C763	08T57437F09	CER.. 0.01 μ F		
C764	08T57437F09	CER.. 0.01 μ F		
C765	08T57437F09	CER.. 0.01 μ F		
E766	23T00149L43	ELY.. 22 μ F/35V		
E767	23T00134L59	ELY.. 1000 μ F/35V		

Symbol No.	Part No.	Description		
Resistors				
R753	06T55175F53	MF.. 330 ohm 1/2W		
R754	06T55175F53	MF.. 330 ohm 1/2W		
R755	06T55175F53	MF.. 330 ohm 1/2W		
R756	06D40802G44	FC.. 2.2M ohm 1/2W		
Tone Control 1 P.C.Board				
IC's				
IC501	51T80136F01	M5238P		
IC502	51T52383F01	NJM4558D		
Switches				
S501	40T72462F01	PUSH-1KEY SPEC(LOUDNESS)		
S502	40T72462F01	PUSH-1KEY SPEC(SUB SONIC)		
S503	40T71731F01	PUSH-1KEY SPEC (CD STRAIGHT)		
S504	40T71731F01	PUSH-1KEY SPEC(TONE IN)		
Capacitors				
C501	08T57851F16	TF.. 0.18 μ F		
C502	08T57851F16	TF.. 0.18 μ F		
C503	08T52448F05	PP.. 470pF		
C504	08T52448F05	PP.. 470pF		
C505	08T80227F22	TF.. 0.056 μ F		
C506	08T80227F22	TF.. 0.056 μ F		
E507	23S57007F09	ELY.. 10 μ F/16V		
E508	23S57007F09	ELY.. 10 μ F/16V		
E509	23S57007F08	ELY.. 4.7 μ F/25V		
E510	23S57007F08	ELY.. 4.7 μ F/25V		
C511	08T80227F15	TF.. 0.015 μ F		
C512	08T80227F15	TF.. 0.015 μ F		
C513	08T57851F15	TF.. 0.15 μ F		
C514	08T57851F15	TF.. 0.15 μ F		
E517	23S57007F08	ELY.. 4.7 μ F/25V		
E518	23S57007F08	ELY.. 4.7 μ F/25V		
C519	08S65480F13	CER.. 10pF		
C520	08S65480F13	CER.. 10pF		
E521	23S57007F11	ELY.. 22 μ F/16V		
E522	23S57007F11	ELY.. 22 μ F/16V		
Resistors				
VR501	18T71728F02	Volume, 250K ohm MN. K162AOAR3C(BALANCE)		
VR502	18T71725F02	Volume, 20K ohm x2 K162AOAR2C(TREBLE)		
VR503	18T71725F02	Volume, 20K ohm x2 K162AOAR2C(BASS)		

Symbol No.	Part No.	Description		
Tone Control 2 P.C.Board				
IC's				
IC601	51T80136F01	M5238P		
IC602	51T52383F01	NJM4558D		
Switches				
S601	40T10795W01	PUSH. SPUL32 (LOUDNESS)		
S602	40T10795W01	PUSH. SPUL32 (SUB SONIC)		
S603	40T10795W01	PUSH. SPUL32 (TONE 1N)		
Capacitors				
C601	08T57851F16	TF..	0.18 μ F	
C602	08T57851F16	TF..	0.18 μ F	
C603	08S65480F45	CER..	470pF	
C604	08S65480F45	CER..	470pF	
C605	08T80227F22	TF..	0.056 μ F	
C606	08T80227F22	TF..	0.056 μ F	
E607	23T00138L49	ELY..	10 μ F/50V	
E608	23T00138L49	ELY..	10 μ F/50V	
E609	23T00138L48	ELY..	4.7 μ F/50V	
E610	23T00138L48	ELY..	4.7 μ F/50V	
C611	08T80227F15	TF..	0.015 μ F	
C612	08T80227F15	TF..	0.015 μ F	
C613	08T57851F15	TF..	0.15 μ F	
C614	08T57851F15	TF..	0.15 μ F	
E617	23T00138L48	ELY..	4.7 μ F/50V	
E618	23T00138L48	ELY..	4.7 μ F/50V	
C619	08S65480F13	CER..	10pF	
C620	08S65480F13	CER..	10pF	
E621	23T00149L21	ELY..	22 μ F/16V	
E622	23T00149L21	ELY..	22 μ F/16V	
Resistors				
VR601	18T10798W01	Volume. RK163120-250K ohm MN (BALANCE)		
VR602	18T10799W01	Volume. RK163120-20K ohm BB (TREBLE)		
VR603	18T10799W01	Volume. RK163120-20K ohm BB (BASS)		

Symbol No.	Part No.	Description		
Rec Selector P.C.Board				
IC				
IC801	51T10819W01	TC74HC148		
Transistor				
Q801	48S43525F02	2SC1815		
Jack				
J801	09T56010F02	Head-Phone M1669		
Switches				
S801	40T10796W01	PUSH. SPUL102 (V \blacktriangleright T-1/T-2)		
S802	40T10796W01	PUSH. SPUL102 (T \blacktriangleright T-1/V)		
S803	40T10796W01	PUSH. SPUL102 (T-1 \blacktriangleright T-2/V)		
S804	40T10796W01	PUSH. SPUL102 (V-DISC)		
S805	40T10796W01	PUSH. SPUL102 (AV)		
S806	40T10796W01	PUSH. SPUL102 (CD)		
S807	40T10796W01	PUSH. SPUL102 (PHONE)		
S808	40T10796W01	PUSH. SPUL102 (TUNER)		
S809	40T10796W01	PUSH. SPUL102 (OFF)		
S810	40T10796W01	PUSH. SPUL102 (REMOTE OFF)		
Capacitor				
E801	23T00149L21	ELY..	22 μ F/16V	
Power Switch P.C.Board				
Switch				
S820	40T84038F01	SPUL (POWER)		
FL P.C.Board				
IC's				
IC851	51T95228F01	DTS TC9301AN		
IC852	51T84658F01	TC9173P		
IC853	51T51086F01	BA6125		

Symbol No.	Part No.	Description		
Transistors				
Q851	48T51118F01	2SA1015		
Q852	48T51118F01	2SA1015		
Q853	48T81715F03	DTA124E		
Q854	48T81715F13	DTC124E		
Diodes				
D851	48T44813F01	MA165TA		
D852	48T44813F01	MA165TA		
D853	48T44813F01	MA165TA		
D854	48T44813F01	MA165TA		
D855	48T44813F01	MA165TA		
D856	48T44813F01	MA165TA		
D857	48T44813F01	MA165TA		
D858	48T44813F01	MA165TA		
D859	48T44813F01	MA165TA		
D860	48T44813F01	MA165TA		
D861	48T44813F01	MA165TA		
D862	48T44813F01	MA165TA		
LD851	48T10857W01	LED, GL5PRB(RED)		
Switches				
S851	40T52952F01	KHC10903 (STORE)		
S852	40T52952F01	KHC10903 (FM/AM)		
S853	40T52952F01	KHC10903 (AUTO SEEK STEREO)		
S854	40T52952F01	KHC10903 (DOWN)		
S855	40T52952F01	KHC10903 (UP)		
Coils				
L851	24T50508F38	Inductor 220 μ H		
L852	24T50508F38	Inductor 220 μ H		
Sensor				
SE851	51T10816W01	GPIU501X		
Crystal				
X851	48T84663F01	7.2MHz NDK		

Symbol No.	Part No.	Description		
Capacitors				
E851	23S57007F09	ELY.. 10 μ F/16V		
C852	08S65480F23	CER.. 27pF		
C853	08S65480F23	CER.. 27pF		
C854	08S65480F62	CER.. 0.022 μ F		
E855	23T62939F02	ELY.. 0.047 μ F/5.5V		
E857	23S57007F15	ELY.. 47 μ F/16V		
E858	23S57007F09	ELY.. 10 μ F/16V		
E859	23S57007F15	ELY.. 47 μ F/16V		
E860	23S57007F04	ELY.. 0.47 μ F/50V		
C861	08S65480F62	CER.. 0.022 μ F		
Volume P.C.Board				
IC				
IC703	51T72008F01	LA6393S		
Transistors				
Q701	48T82763F07	DTC124XL		
Q702	48T82763F07	DTC124XL		
Capacitors				
C703	08S65480F56	CER.. 3000pF		
C704	08S65480F56	CER.. 3000pF		
E705	23T00149L23	ELY.. 47 μ F/16V		
Resistors				
VR701	18T10803W01	Volume, RK16313MA (VOLUME)		
VR702	18T10803W02	Volume, RK16313MA (VOLUME)		
Motor P.C.Board				
IC's				
IC701	51T10821W01	LB1630		
IC702	51T10821W01	LB1630		
Capacitors				
C701	08S65480F49	CER.. 1000pF		
C702	08S65480F49	CER.. 1000pF		
C707	23T00149L23	ELY.. 47 μ F/16V		

Cabinet Assembly Parts List

Note: The parts without part numbers are not supplied.

Symbol No.	Part No.	Description		
Miscellaneous				
	J801	09T66965F02	Outlet, AC	
	J802	09T66965F02	Outlet, AC	
	J803	09T66965F02	Outlet, AC	
	J804	09T66965F02	Outlet, AC	
●	P801	28T66838F01	Plug, AC Cord	
▲	P801	28T55335F03	Plug, AC Cord	
	T801	25T10813W01	Trans. Power	
	F751	65T52486F33	Fuse, 1A	
	IC001	51T80338F01	IC, NJM7805	
	IC002	51T15121W01	IC, NJM7806FA	
	IC003	51T80340F01	IC, NJM7812	
	IC004	51T82394F01	IC, NJM7851FA	
	S820	40T84038F01	Switch, SPUL (POWER)	
	PL851	65T15189W01	FL, Display	
	LD830	48T66616F02	LED, SLR-54VR5 (RED)	
▲	R901	06D40802G44	Resistor, FC., 2.2Mohm1/2W	

Symbol No.	IN- dex	Part No.	Description		
	1	5-B	01V11800W41	Assy., Front Panel	
	2	4-A	36A94152F01	Knob, Push Power	
	3	5-A	36A10656W01	Knob, Tact	
	4	4-B	36A10657W01	Knob, Push SW	
	5	5-B	36A10658W01	Knob, Rotary Tone	
	6	6-A	36B10659W01	Knob, Main Volume	
	7	2-B	15C10671W02	Cover, Top	
	9	2-H	15D10670W01	Cover, Rear	
	11		36A10660W01	Knob, Push SW	
	12	4-B	36A10661W01	Knob, Rotary Tone	
	13		03S71031F04	Screw, Bind (M3X8)	
	14		75A96563F02	Pad, Trannleg	
	15		03S44205G52	Screw, Pan (M4X14)	
	16		03S40036U11	Screw, Pan (M3X8)	
	17	1-G	14S53018F42	Insulator	
	18		03S44205G50	Screw, Countersink (M3X6)	
	20		03S81717F01	Screw, Round (M3X6)	
	22		03S40018G02	Screw, Tapping (M3X8)	
	24		03S40036U12	Screw, Pan (M4X6)	
	29	2-E	09T51960F01	Holder, Fuse	
	30		29T84161F04	Bracket, Earth	
	34	4-B	43T10929W01	Snap, Bush	
	35		03S43997P42	Screw, Countersink (M3X5)	
	36	3-C	05B41635J03	Rivet, Push	
	45	4-A	14S53017F67	Insulator, Cover	
	49	1-H	43B41625J05	Stopper, Cord	
	50	1-I	29T66964F01	Terminal, GND	
	51	2-I	55T84676F01	Lock, Antenna Holder	
●	57	4-B	14S58462P25	Insulator, Cover	
▲	57	3-A	75S72374F53	Cushion, Rubber	
	59	4-F	77T84597F03	F/E, TFFG 3U114A	
	60	4-F	77T71185F01	RF, MOD MAB2X483	
	61	1-H	09T95168F01	Plug, Jumper P2170	
	62	3-F	01T84592F04	Assy., Coax. Cable RCA	
	63	3-F	01T84592F05	Assy., Coax. Board-In 250	
	64	3-F	01T84592F06	Assy., Coax. Board-In 350	

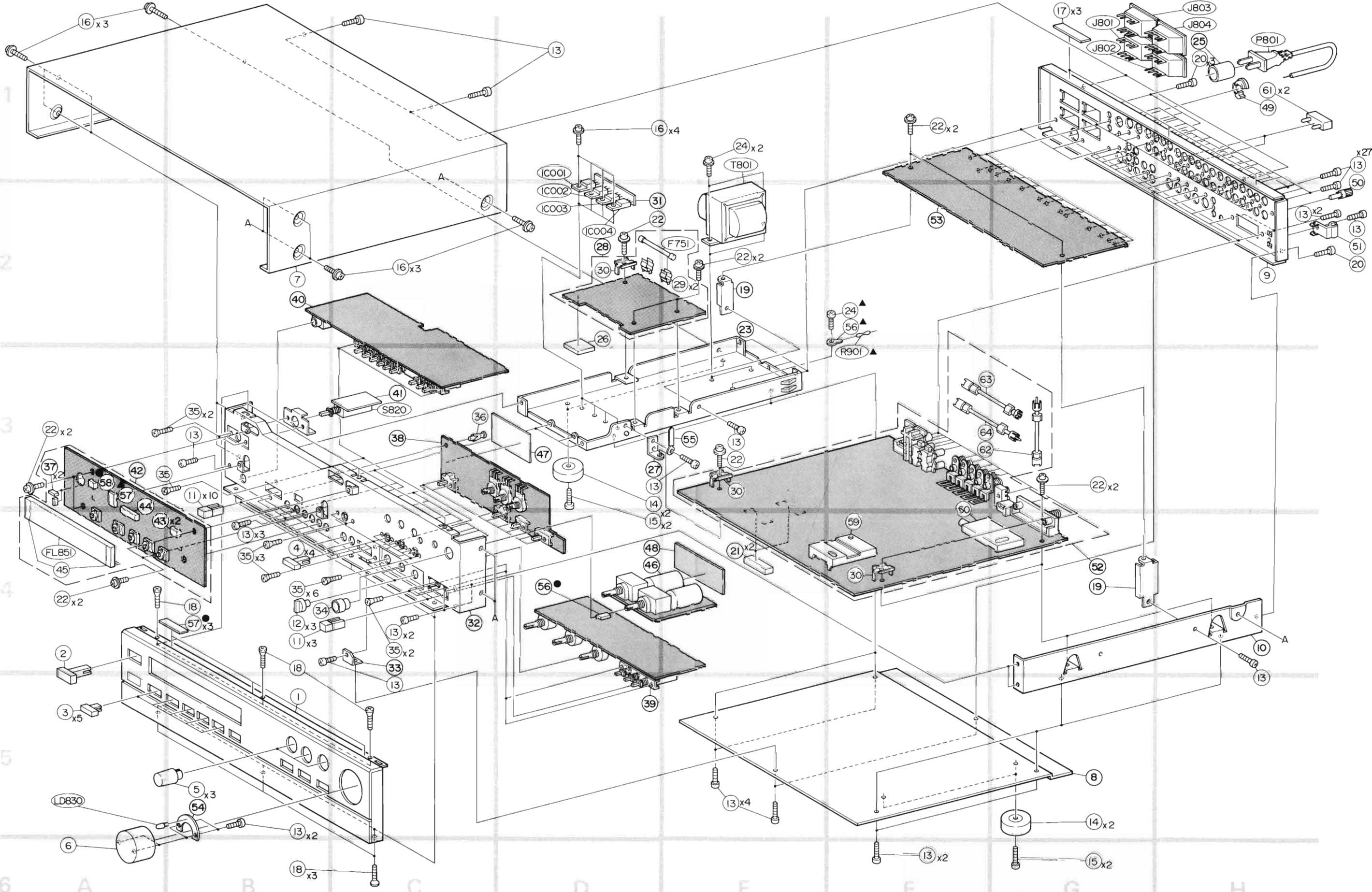
Note: ● : For North American model only (UZ)

▲ : For Canadian model only (UQ) Others : Common

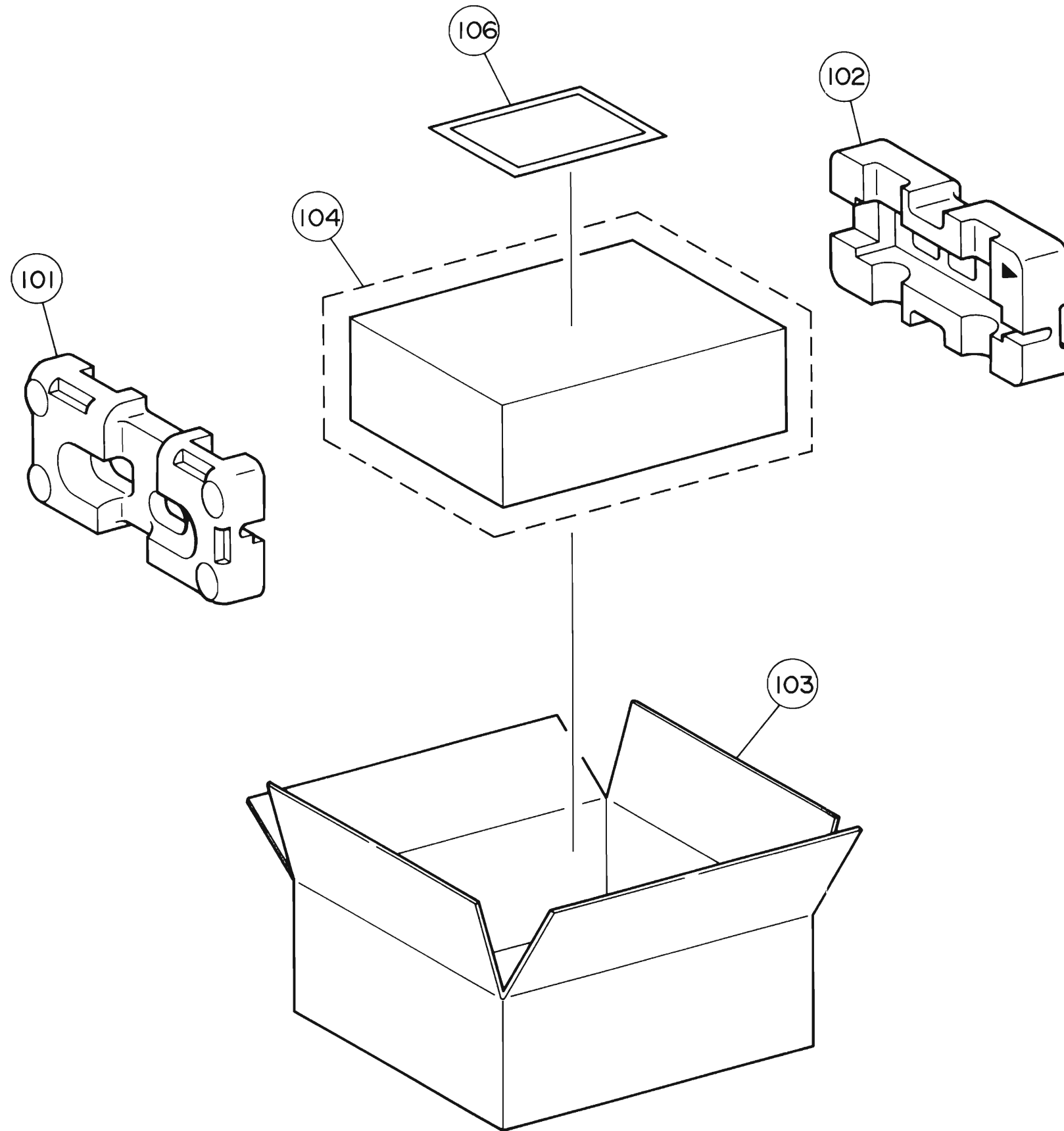
Note: ● : For North American model only (UZ)

▲ : For Canadian model only (UQ) Others : Common

Exploded View (Cabinet)



Packing Method View



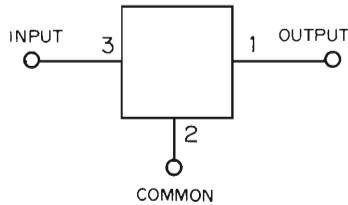
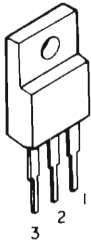
Packing Assembly Parts List

Symbol No.	Part No.	Description		
101	56D10678W01	Tray, Packing		
102	56D10678W02	Tray, Packing		
103	56S10005W08	Carton, Packing		
104	56B40442T08	Packing, Front Frame		
105	56B40230G08	Sack, Poly 280X150-03-SL		
● 106-1	68P96552F02	Owners, Manual TP-117UZ		
▲ 106-1	68P96552F03	Owners, Manual TP-117UQ		
106-2	01T82091F03	Assy., Mini Cord 150cm		
106-3	01T15620W01	Assy., Mini-ST Cord		
106-4	01T15621W01	Assy., RCA Cord (Gold)		
106-5	01T10825W01	Cord, DIN-8P		
106-6	01T10812W01	Remocon, PTP-117		
106-7	60T58064F01	Battery, SUM-3"FUJI"		
106-8	85T84674F03	Antenna, AM, W.Holder		
106-9	85T90254F02	Antenna, FM-U • 75		
106-10	28T84675F02	Plug, F-Type(FM)300		

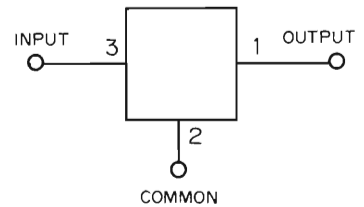
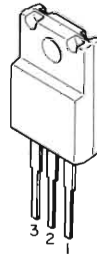
Note: ● : For North American model only (UZ)
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Seimi-Conductor Lead Identifications

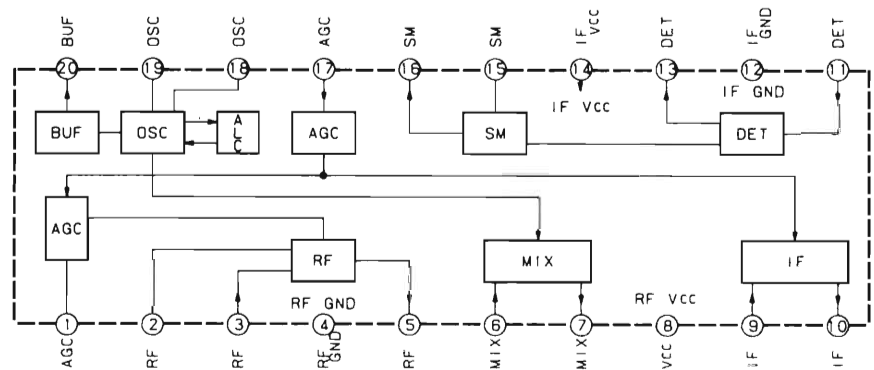
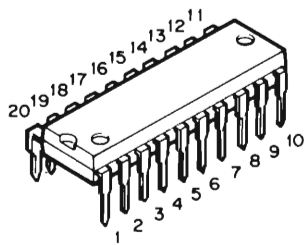
NJM 7806A: IC002



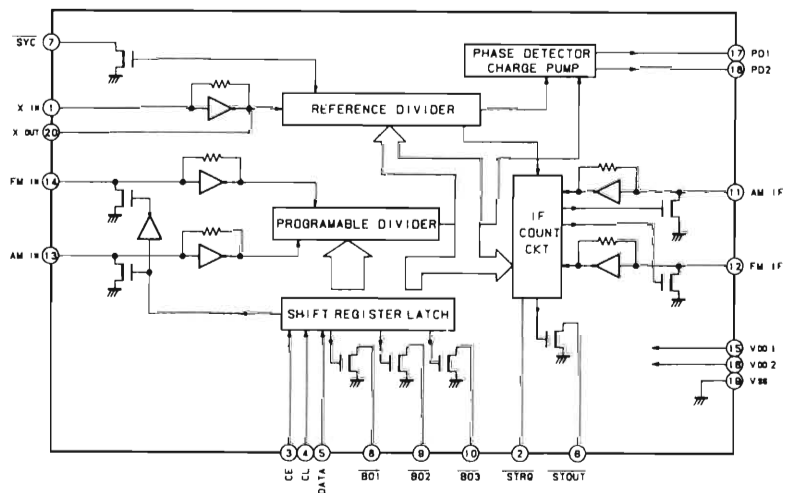
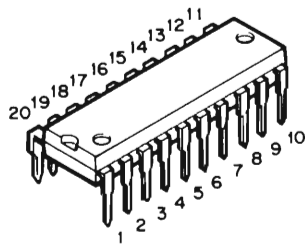
NJM7812: IC003
NJM7805: IC001



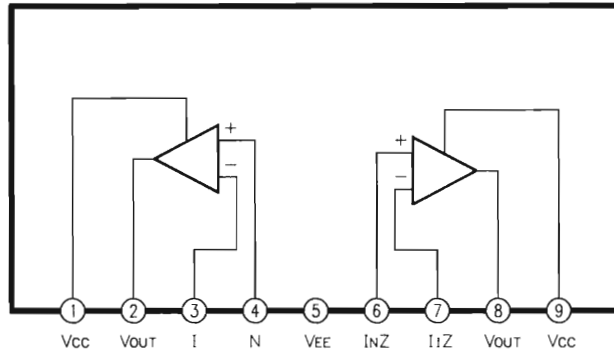
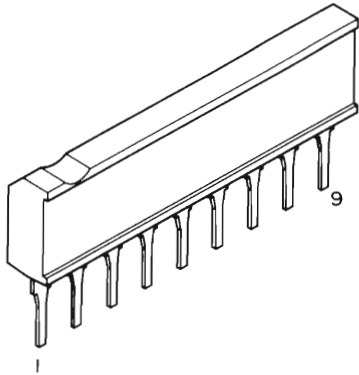
LA1245: IC101



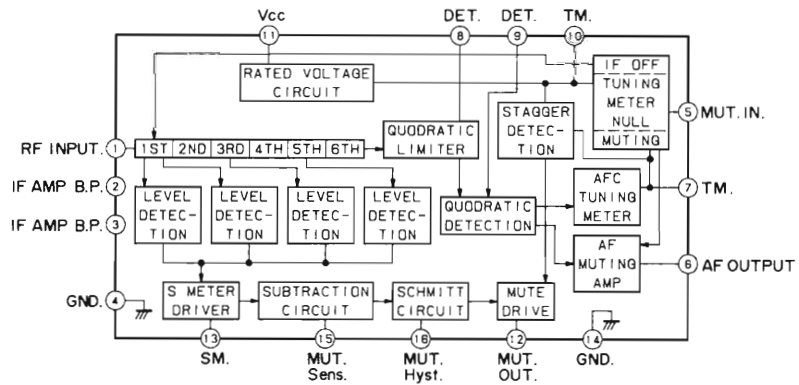
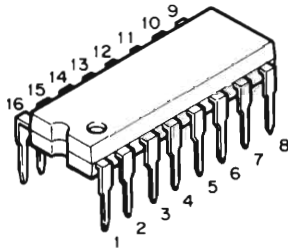
LM7000: IC102



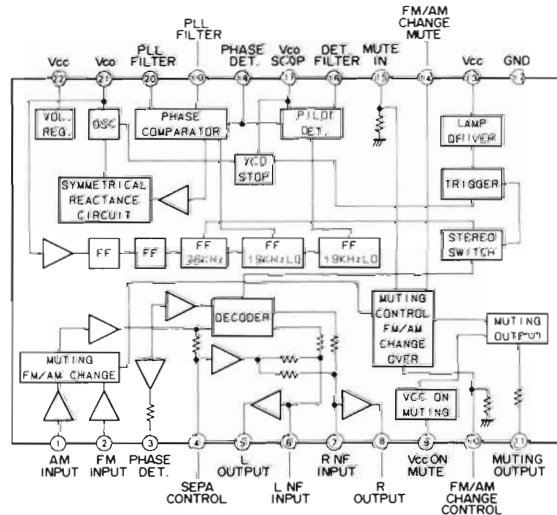
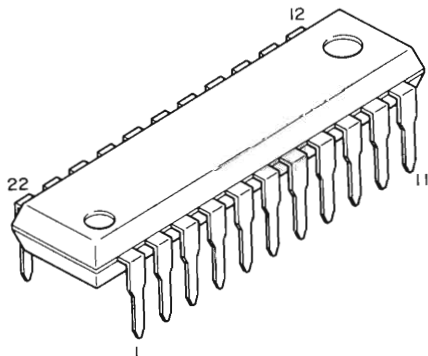
BA715DX: IC103



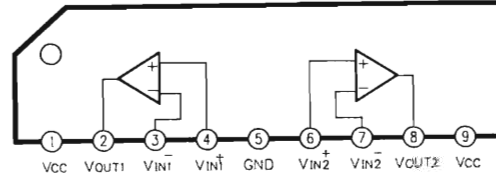
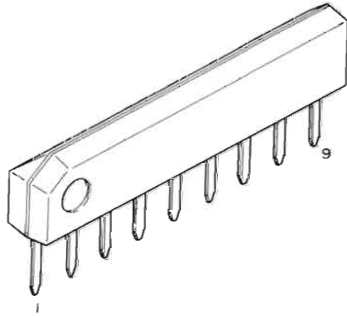
LA1235: IC105



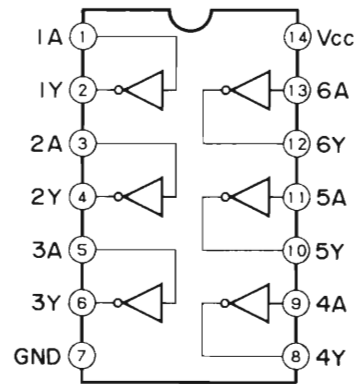
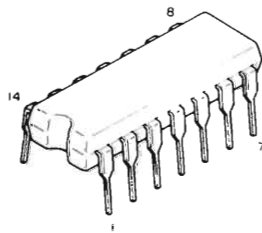
LA3401: IC106



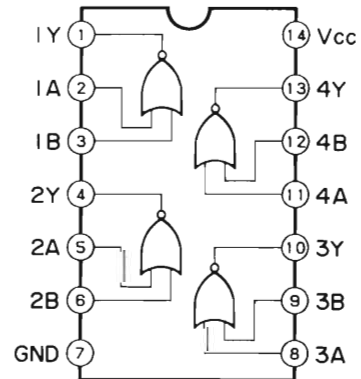
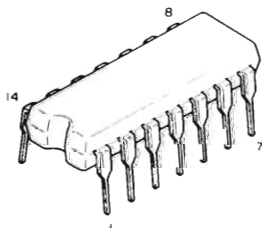
LA6393S: IC201,703



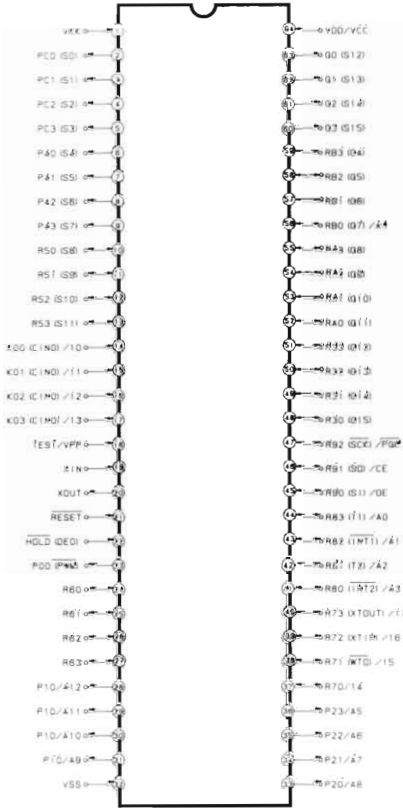
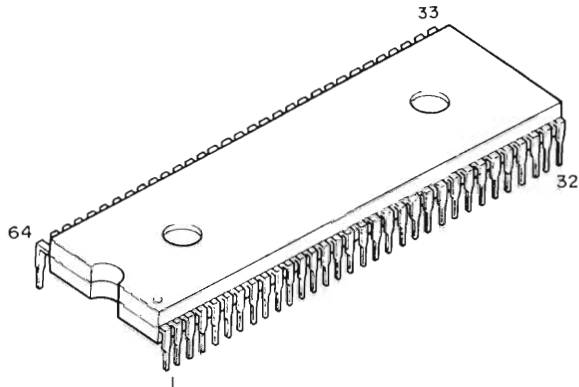
TC74HCU04P: IC202,203



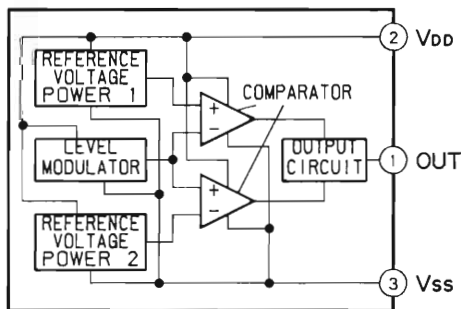
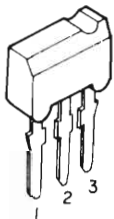
TC74HC02P: IC204,205



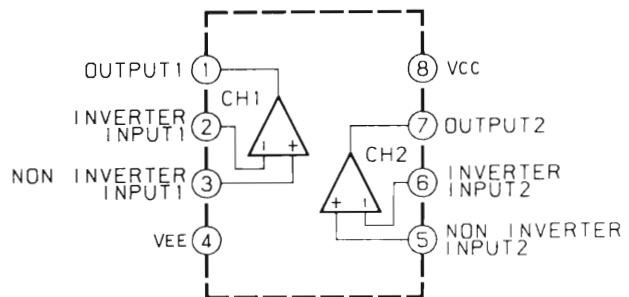
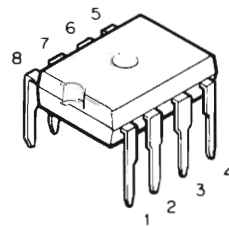
TMP47C: IC206



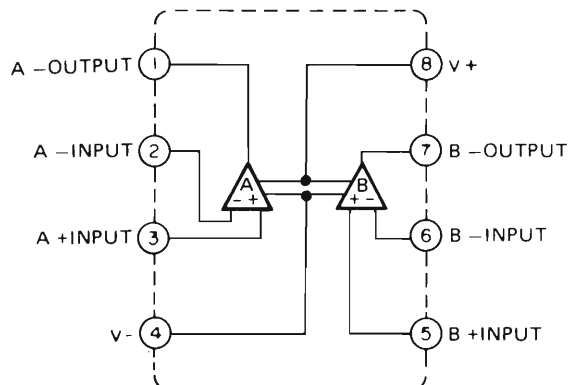
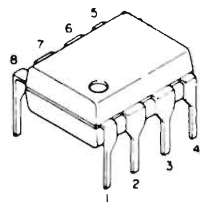
MN1280: IC207



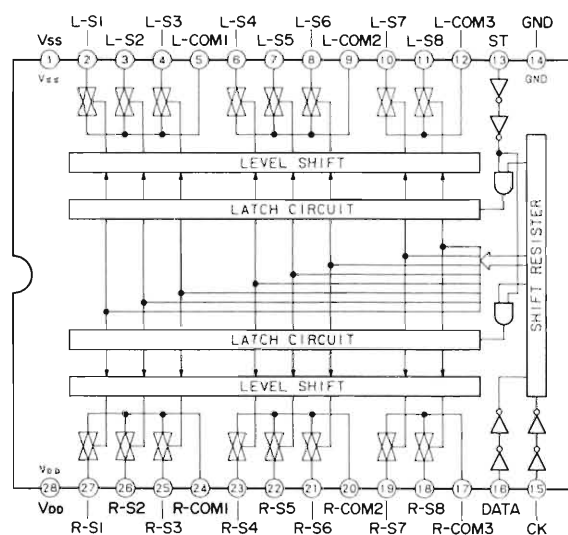
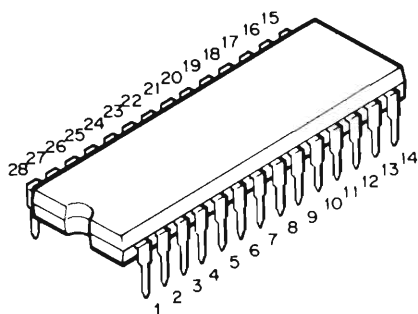
M5220P: IC301
 M5216P: IC314
 M5238P: IC302,306,501,601



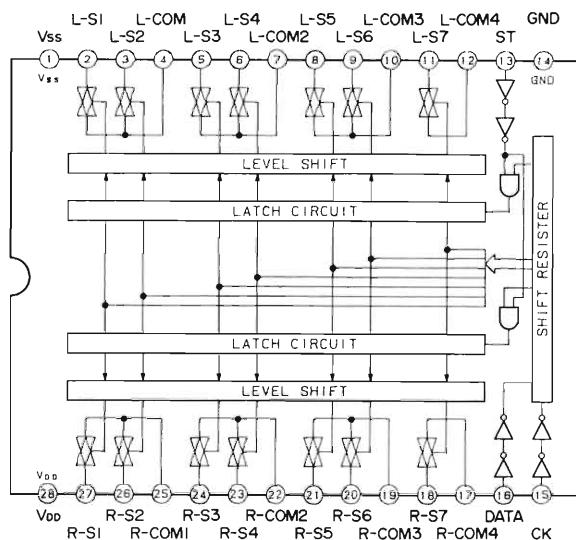
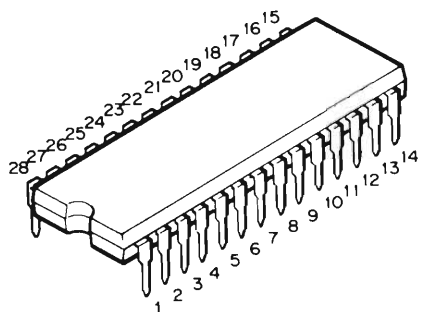
NJM4558D: IC303,304,305,307,308,313
IC502,602



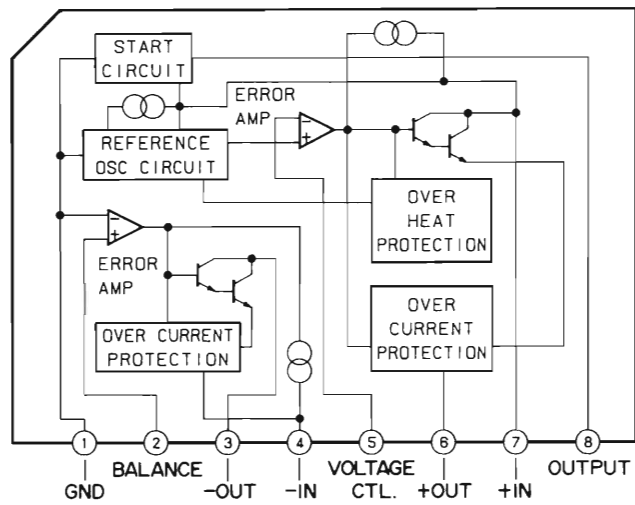
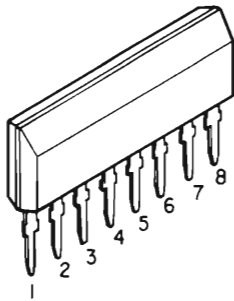
TC9163: IC309,310



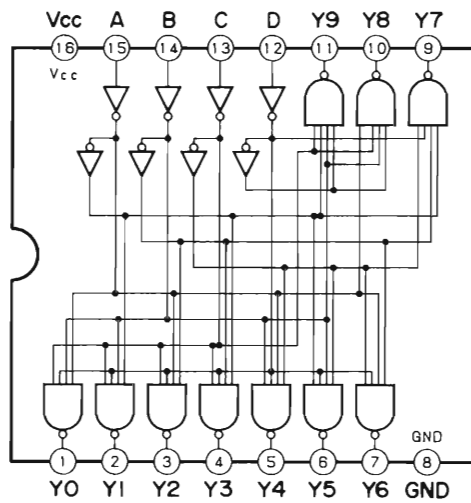
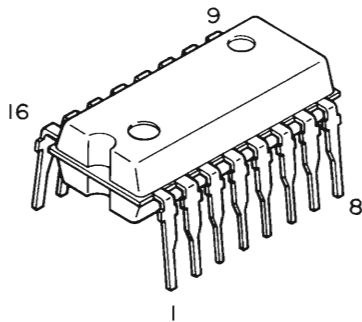
TC9162: IC311,312



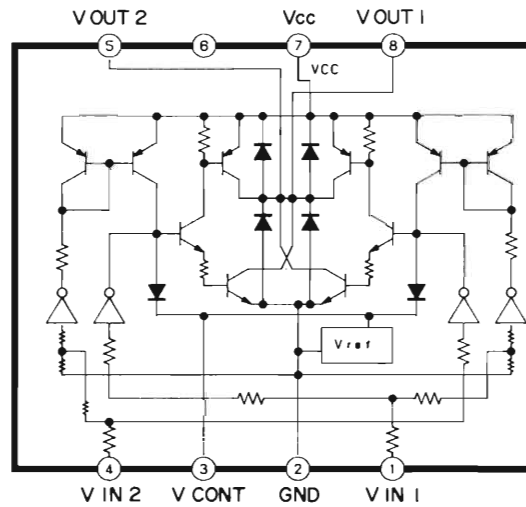
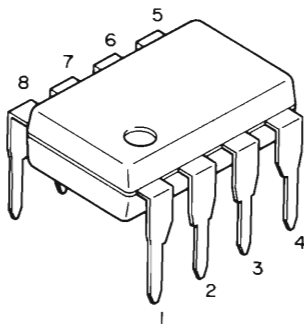
M5230L: IC315



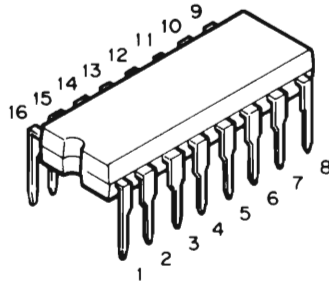
HD74145: IC316,317



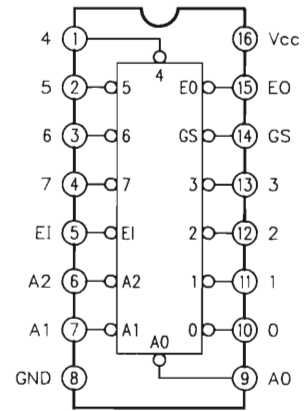
LB1630: IC701,702



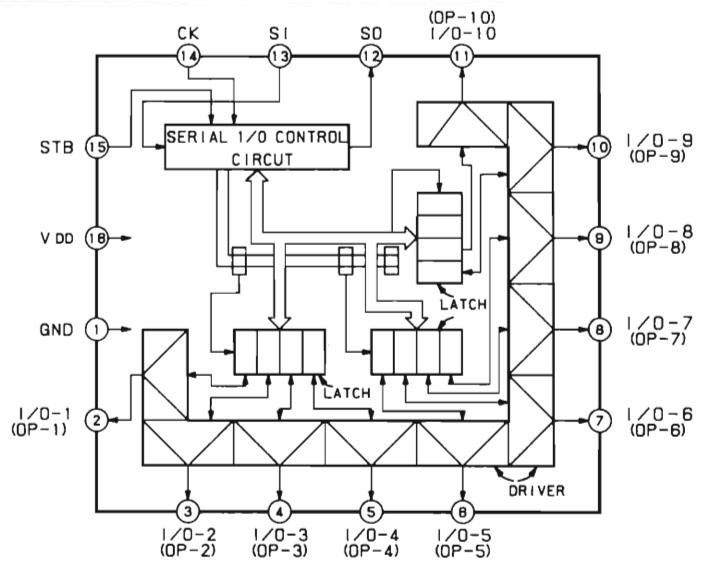
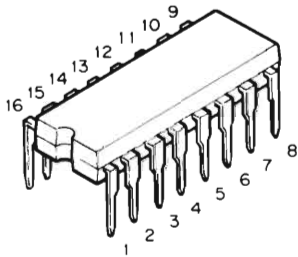
TC74HC148: IC801



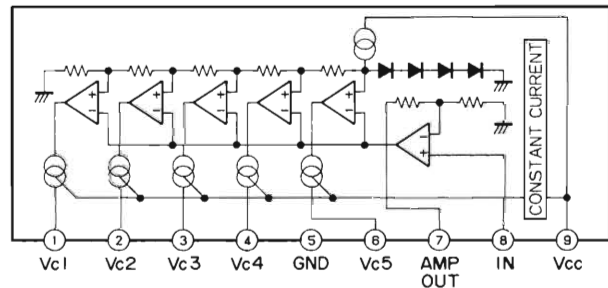
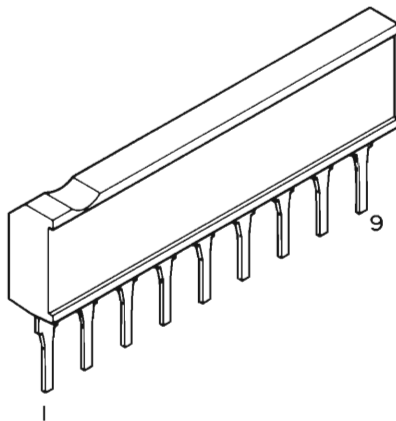
IC801



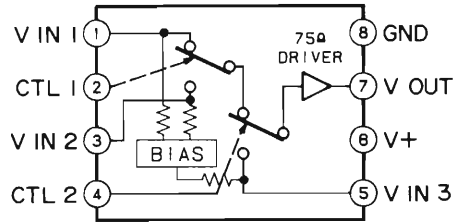
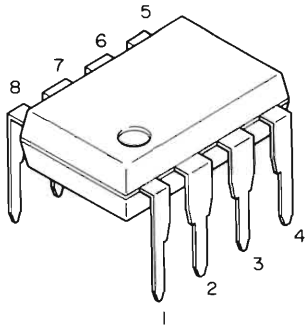
TC9173P: IC852



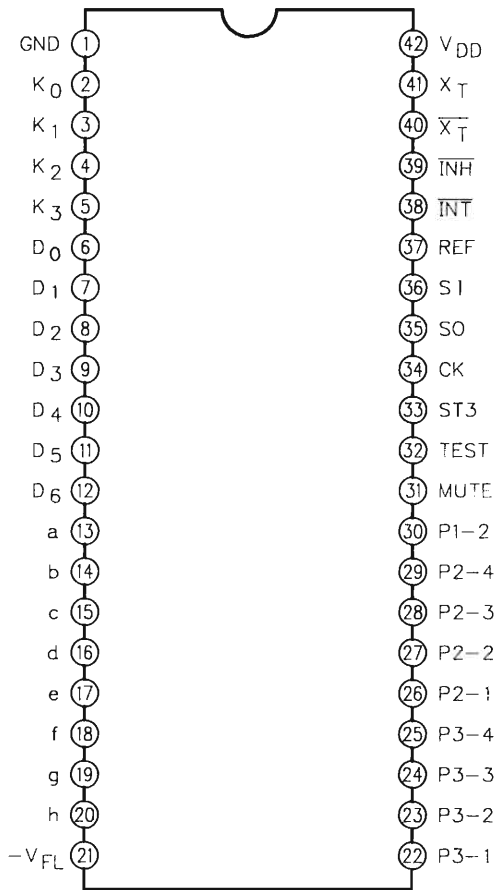
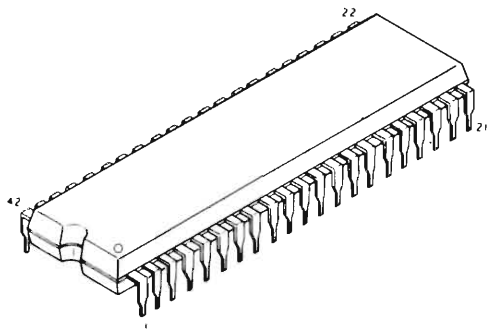
BA6125: IC853

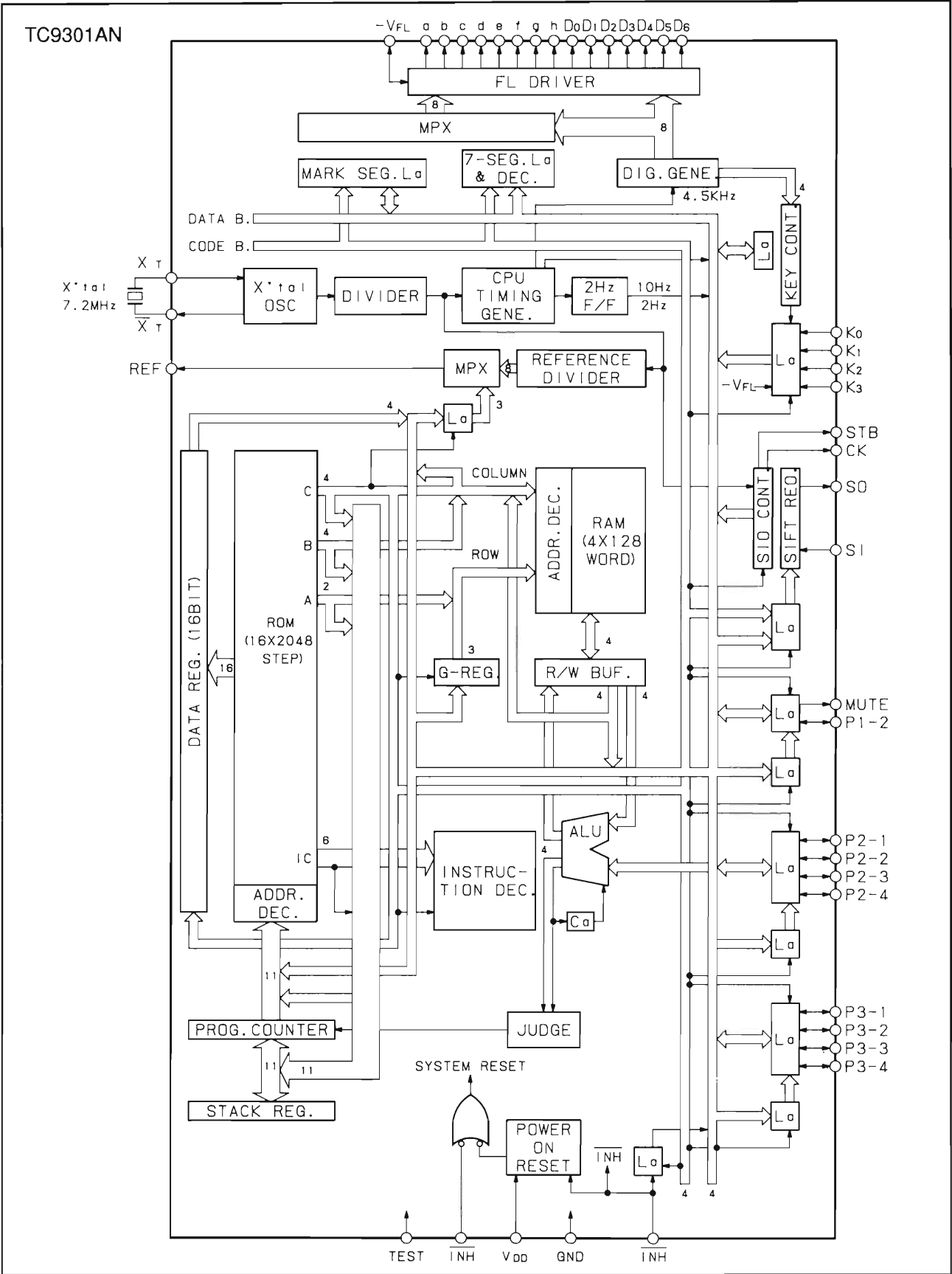


NJM2243D: IC903,904,907,908,909,910

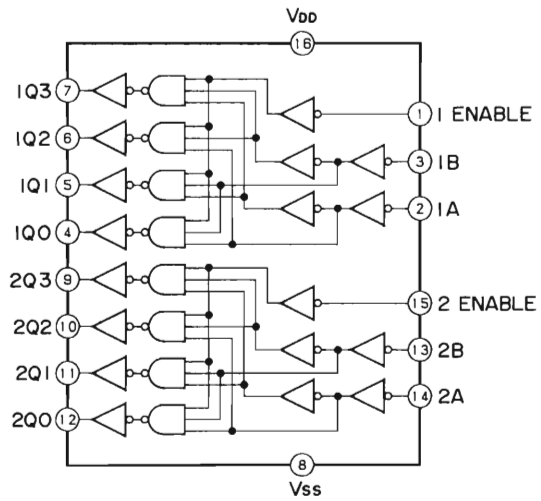
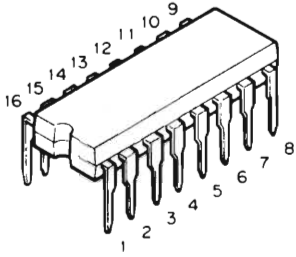


TC9301AN: IC851

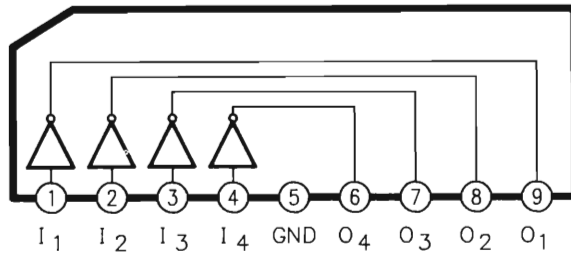
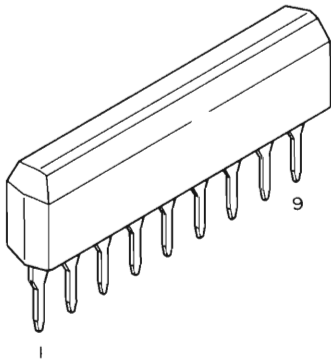




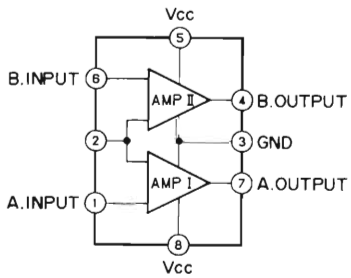
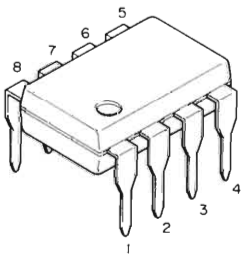
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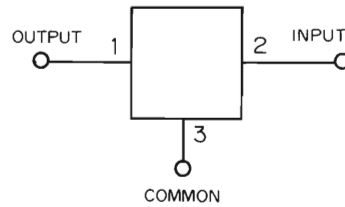
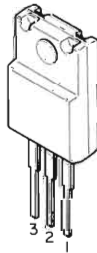
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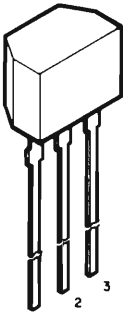


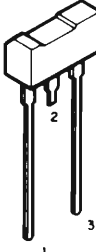
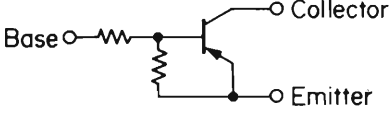
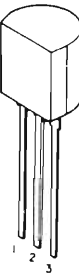
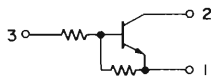
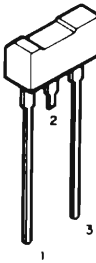
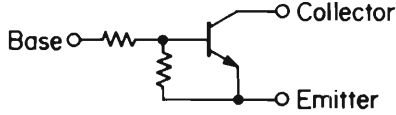
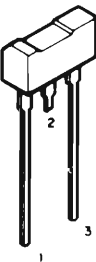


LA1222: IC104

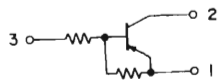
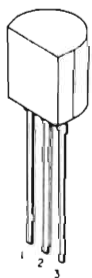


NJM7915FA: IC319
NJM7815FA: IC004, 318



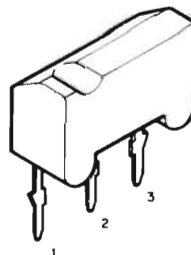
<p>2SK161: Q101</p>  <p>1. Drain 2. Source 3. Gate</p>	<p>2SK246: Q112</p>  <p>1. Source 2. Gate 3. Drain</p>
<p>2SC1815: Q102,103,104,106,108,110,111,114,117,121,202,308,309,312, Q313,754,801,901,902,903,904,905,906,907,908,909,910,911,917 2SC2120: Q201,918 2SD1302: Q301,302,303,304,305 2SA1015: Q306,307,311,755,851,852 2SA950: Q913,916</p>  <p>1. Emitter 2. Collector 3. Base</p>	
<p>DTA114EL: Q105,109,115,116,118</p>   <p>1. Emitter 2. Collector 3. Base</p>	<p>DTC144E: Q107,310,914,915 DTC114E: Q119,750 DTC124E: Q854</p>   <p>1. Emitter 2. Collector 3. Base</p>
<p>DTC124XL: Q701,702</p>   <p>1. Emitter 2. Collector 3. Base</p>	<p>2SC4032: Q751,752,753</p>  <p>1. Emitter 2. Collector 3. Base</p>

DTA114E: Q756,757
DTA124E: Q853



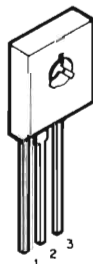
- 1. Emitter
- 2. Collector
- 3. Base

2SD1330: Q758



- 1. Emitter
- 2. Collector
- 3. Base

2SD880: Q912



- 1. Emitter
- 2. Collector
- 3. Base



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