SERVICE MANUAL

Tuner Preamplifier System Remote Control Center

TP-117

Contents

Secifications

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

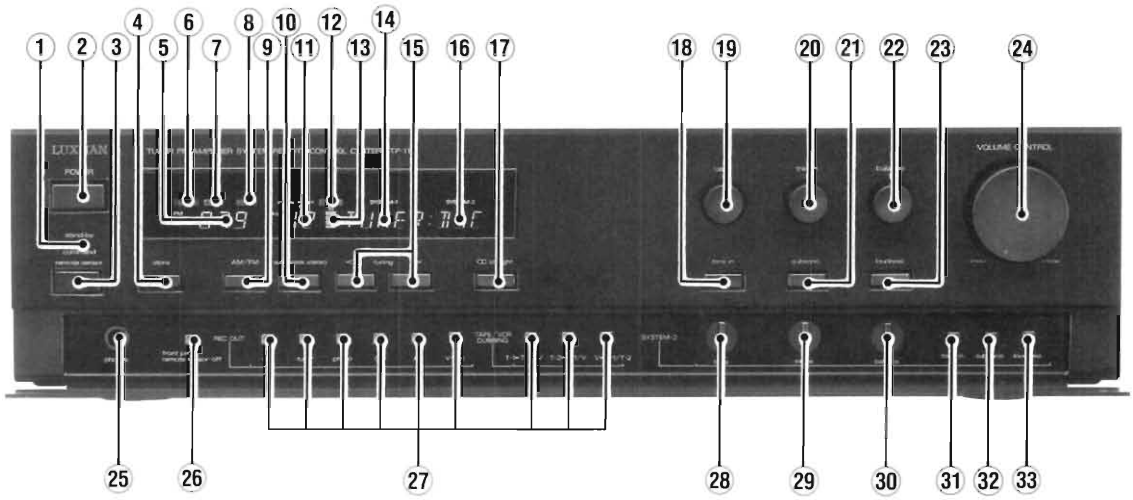
AM Section

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

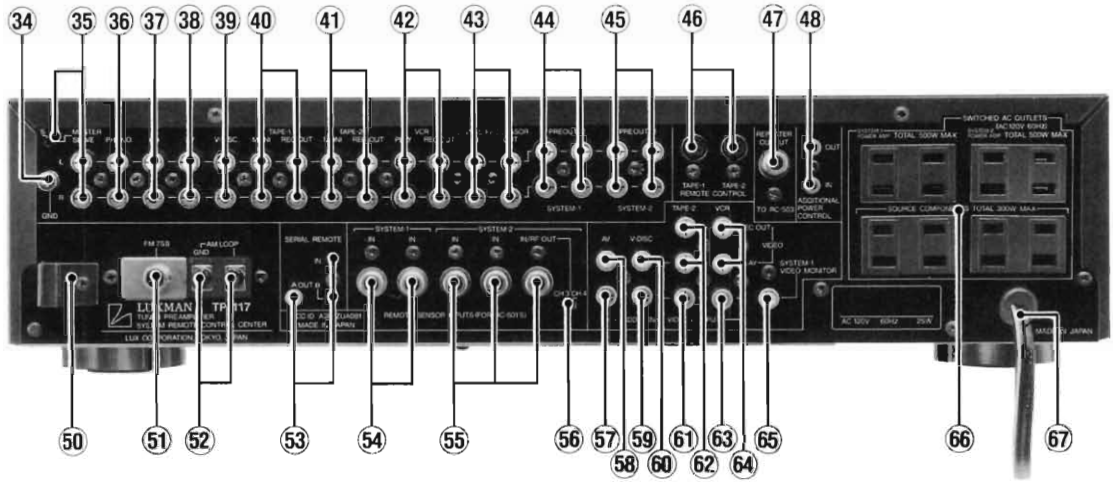
General

Power Requirement ..... AC 120V, 60Hz
Power Comsumption 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
② POWER Button
③ REMOTE SENSOR
④ "store"Button
⑤ Digital Frequency Display
⑥ STEREO Indicator
⑦ AUTO Indicator
⑧ STORE Indicator
⑨ AM/FM Button
⑩ "auto seek-stereo" Button
⑪ AM/FM STATION PRESET Number Indicator
⑫ TUNED Indicator
⑬ SS (signal strength) Indicators
⑭ SYSTEM-1 Function Display
⑮ Tuning Buttons
⑯ SYSTEM-2 Function Display
⑰ CD straight Button
⑱ "tone in" Button
⑲ "bass" Control (System-1)
⑳ "treble" Control (System-1)
㉑ "subsonic" Button (System-1)
㉒ "balance" Control (System-1)
㉓ "loudness" Button (System-1)
㉔ VOLUME CONTROL
㉕ "phones" Jack
㉖ "front panel remote sensor off" Button
㉗ REC OUT and Dubbing Selector Buttons
㉘ "Bass" Control (System-2)
㉙ "treble" Control (System-2)
㉚ "balance" Control (System-2)
㉛ "tone in" Button (System-2)
㉜ "subsonic" Button (System-2)
㉝ "loudness" Button (System-2)



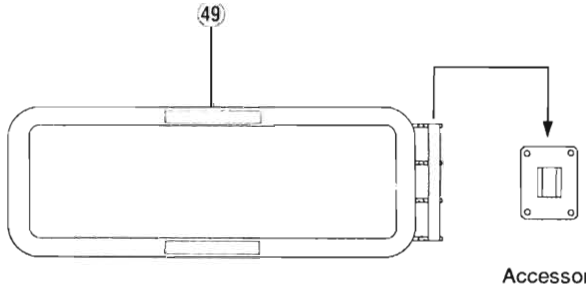


Figure 3.

㉞ GND Terminal
㉟ MASTER/SLAVE Swith and Jacks
㊱ PHONO jacks
㊲ CD Jacks
㊳ AV Jacks
㊴ V-DISC Jacks
㊵ TAPE-1 REC OUT and MONI Jacks
㊶ TAPE-2 REC OUT and MONI Jacks
㊷ VCR (AUDIO) REC OUT and PLAY Jacks
㊸ SIGNAL PROCESSOR IN and OUT Jacks
㊹ PRE-OUT 1 and 2 Jacks (System-1)
㊺ PRE-OUT 1 and 2 jacks (System-2)
㊻ REMOTE CONTROL DIN Jacks for TAPE-1, and TAPE-2
㊼ REPEATER OUTPUT "F"Connector
㊽ ADDITIONAL POWER CONTROL IN and OUT jacks
㊾ AM Loop Antenna
㊿ HOLDER-AM ANTENNA
(51) FM 75Ω Antenna "F" Connector
(52) AM LODP antenna Terminals
(53) SERIAL REMOTE CONTROL IN, OUT A and B Jacks
(54) SYSTEM-1 REMOTE SENSOR INPUTS
(55) SYSTEM-2 REMOTE SENSOR INPUTS
(56) SYSTEM-2 RF OUT CH3 and CH4 SELECT SWITCH
(57) AV ADDITIONAL VIDEO OUTPUT Jack
(58) AV VIDEO PLAY Jack
(59) V-DISC ADDITIONAL VIDEO OUTPUT jack
(60) V-DISC PLAY Jack
(61) TAPE-2 ADDITIONAL VIDEO OUTPUT Jack
(62) TAPE-2 VIDEO REC OUT/PLAY Jacks
(63) VCR ADDITIONAL VIDEO OUTPUT Jack
(64) VCR VIDEO REC OUT/PLAY Jacks
(65) VIDEO MONITOR Jack (System-1)
(66) SWITCHED AC OUTLETS
(67) AC Power Cord

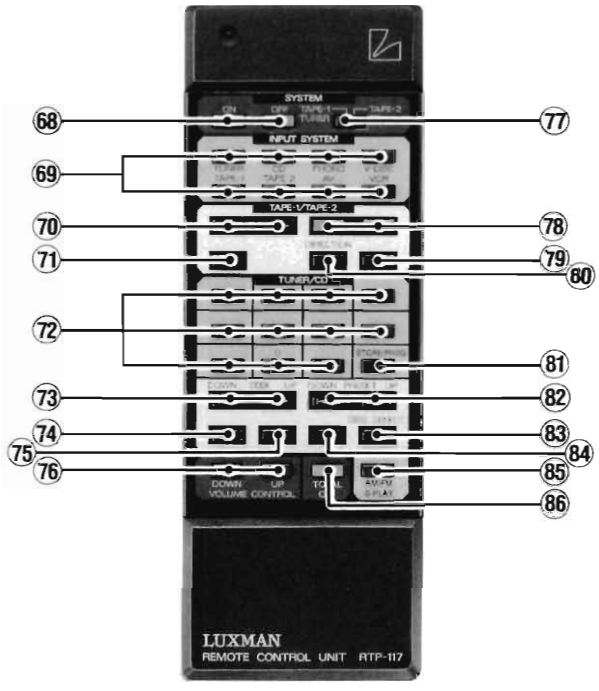


Figure 4

⑱ ON OFF
⑲ INPUT SYSTEM Buttons
⑳ ◄◄/►► (Fast Foward/Rewind) Buttons
㉑ ► (Play) Button
㉒ TUNER/CD Buttons
㉓ ◄◄ DOWN SEEK UP ►► Buttons
㉔ ► (CD Play) Button
㉕ II (CD Pause) Button
㉖ ▼ DOWN ▲ UP VOLUME CONTROL Buttons
㉗ TAPE-1/TUNER, TAPE-2/CD SWITCH
㉘ ● ● (Dual Red Record Buttons)
㉙ ■ (stop) Button
㉚ DIRECTION II (Pause) Button
㉛ STORE/PROG Button
㉜ ⏮ DOWN PRESET UP ⏭ Buttons
㉝ DISC SELECT Button
㉞ ■ (CD Stop) Button
㉟ AM/FM S-PLAY Button
㊱ TOTAL OFF (Red) Button

1. Removal of Top Cover

(1) Remove eight screws marked " ● " as shown in Figure5
(2) Pull out of the top cover in the direction of the arrow as shown in Figure 5.

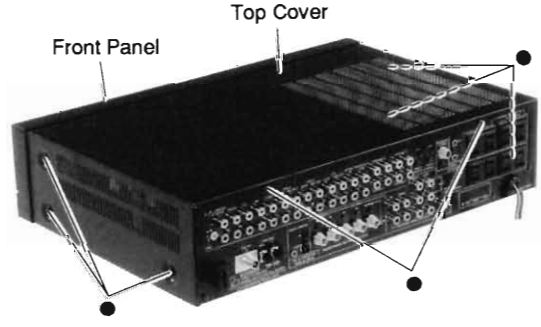


Figure 5

2. Removal of Front Panel

(1) Remove six screws marked " ▲ " as shown in Figure6
(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.

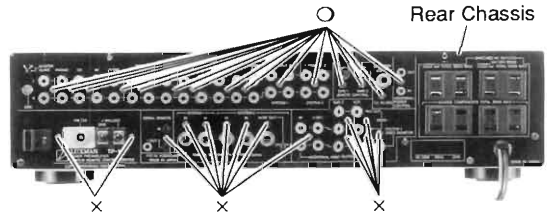


Figure 7.

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.

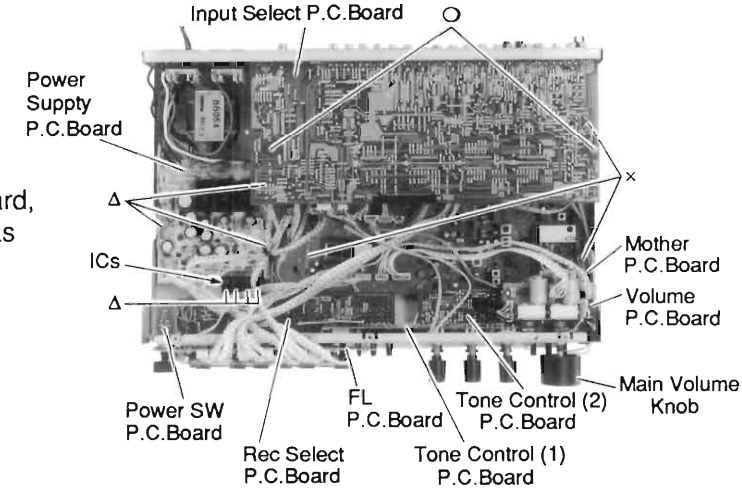


Figure 8

5. Power Supply P.C.Board.

(1) After removal of the Input Select P.C.Baord, remove seven screw marked " Δ " as shwon 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.

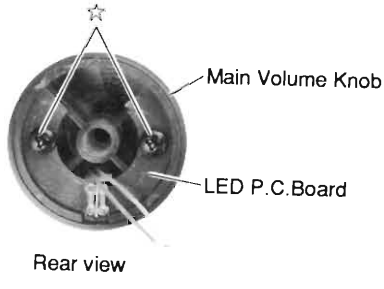


Figure 9.

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 causedamage 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.

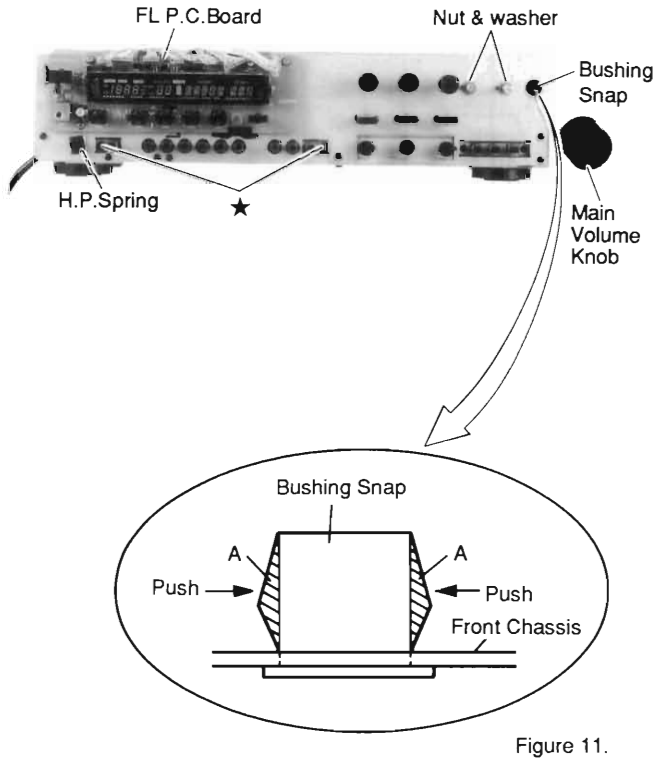


Figure 11.

7. Removal of LED P.C.Board.

(1) After removal of the volume P.C.Board, remove the busing snapas shown in Figure 10, by pushing the point " A " as shown in Figure 11.

(2) Remove two screws marked " ☆ " as shown in Figure 9.

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.

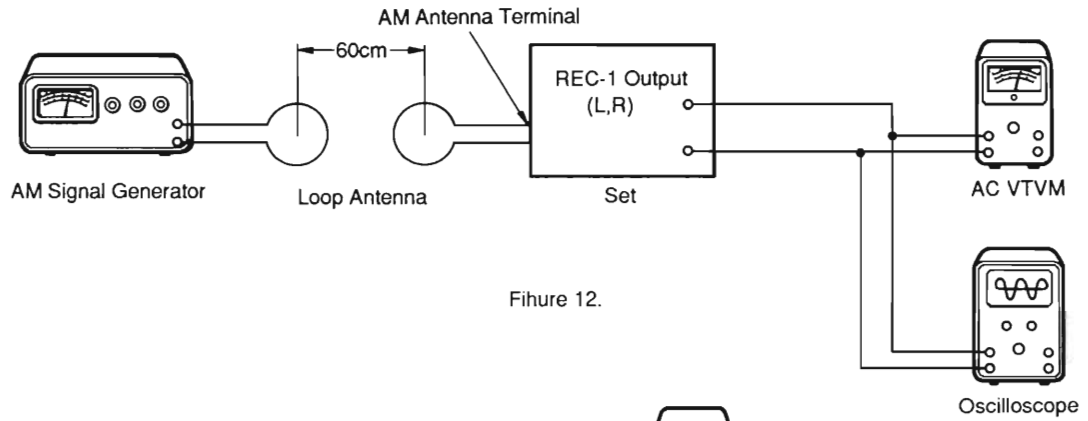
(2) Remove two screws marked " ★ " as shown in Figure 10.

(3) Disconnect all connectors the P.C.Board.

Adjustment Procedures

<AM Section>

(1) connection



Fihure 12.

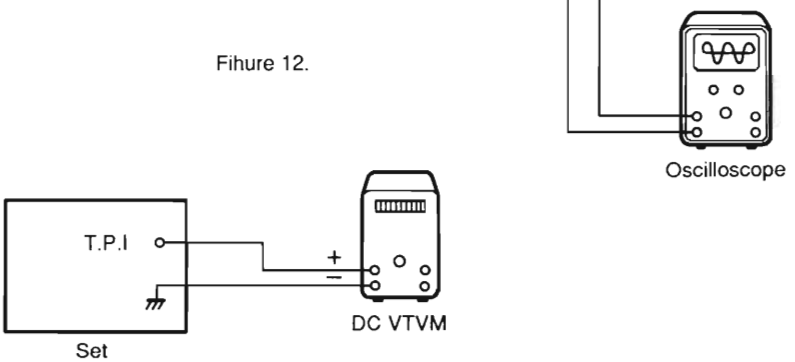


Figure 13.

(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±0.1V at L102
			1400KHz	VC102			Adjust Vf to 7.04±0.1V at VC102
2	Sensitivity Adjustment	600KHz 70dBμ (400Hz, 30%)	600KHz	L101	REC-1 Output (L,R)	Figure 12.	Adjust the output to maximum at L101
		1400KHz 70dBμ (400Hz, 30%)	1400KHz	VC101			Adjust the output to maximim at VC101
3	S/N Adjustment	1000KHz 120dBμ (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

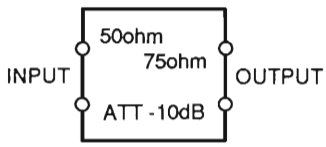


Figure 14.

(2)

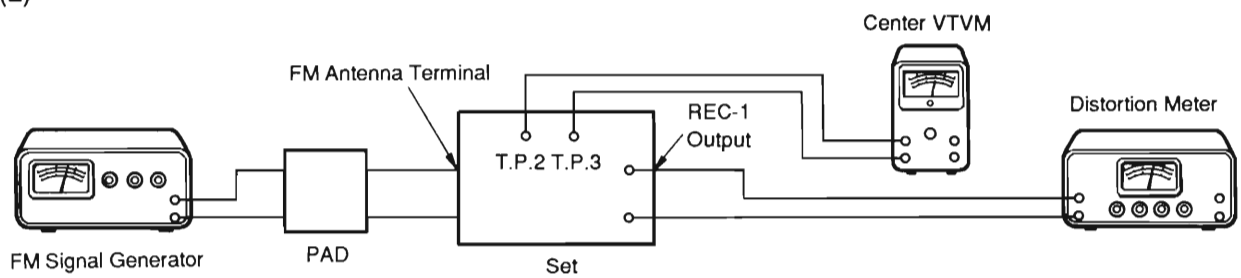


Figure 15.

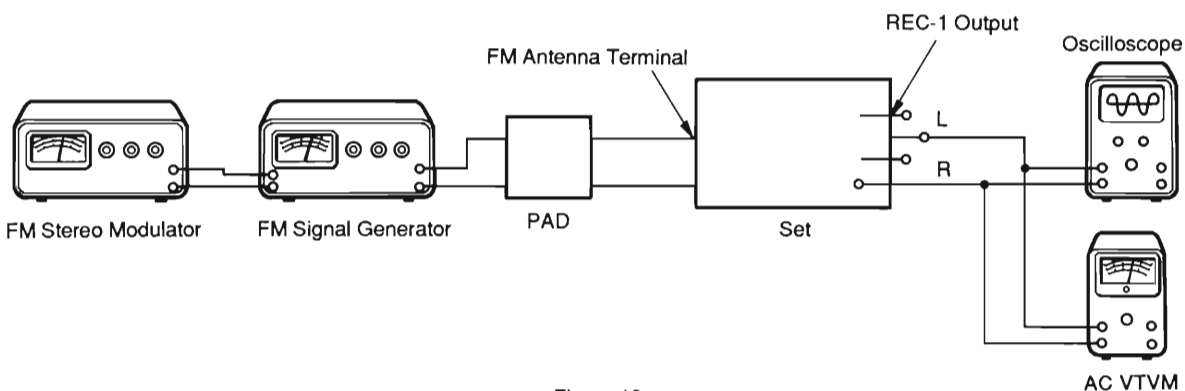


Figure 16.

(3) Control Setting

Power Switch	ON
FM/AM Switch	FM
REC Selector Switch	TUNER
Volume Control	Minimum Position
Treble, Bass, Blance Control	Mech, Center Position
Others	OFF

(4)Adjustment Procedure

Step	Discription	Signal Generator	Dial Control	Adjust Points	Test Poins	Connection	Remarks
1	IF Adjustment	98.1MHz 65dBf Non Modula-tion	98.1MHz	L105	TP2 TP3	Figure 15.	Adjust the level to 0±10mV at L105
2	Mono Distortion Adjustment	98.1MHz 15dBμ 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 Setero 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. Stength & Mute level Adjustment	98.1MHz 25dBμ 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 25dBμ at VR104. And adjust the level to 25dBμ at VR103 so that the first segment of SIG.strength light up.

Adjustment Locations

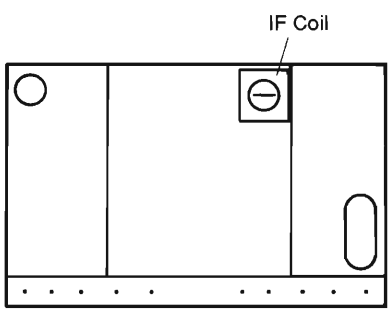


Figure 17.

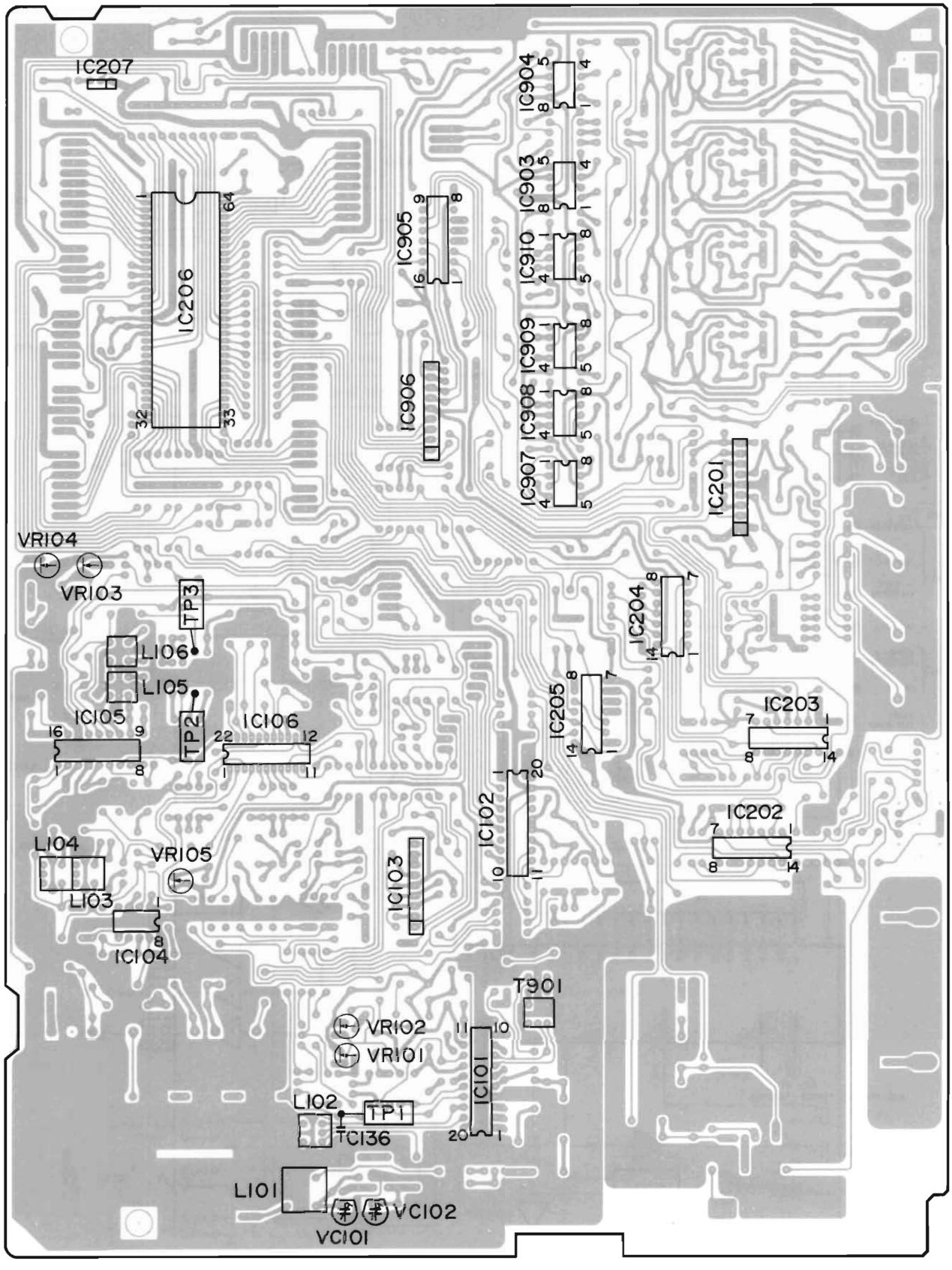
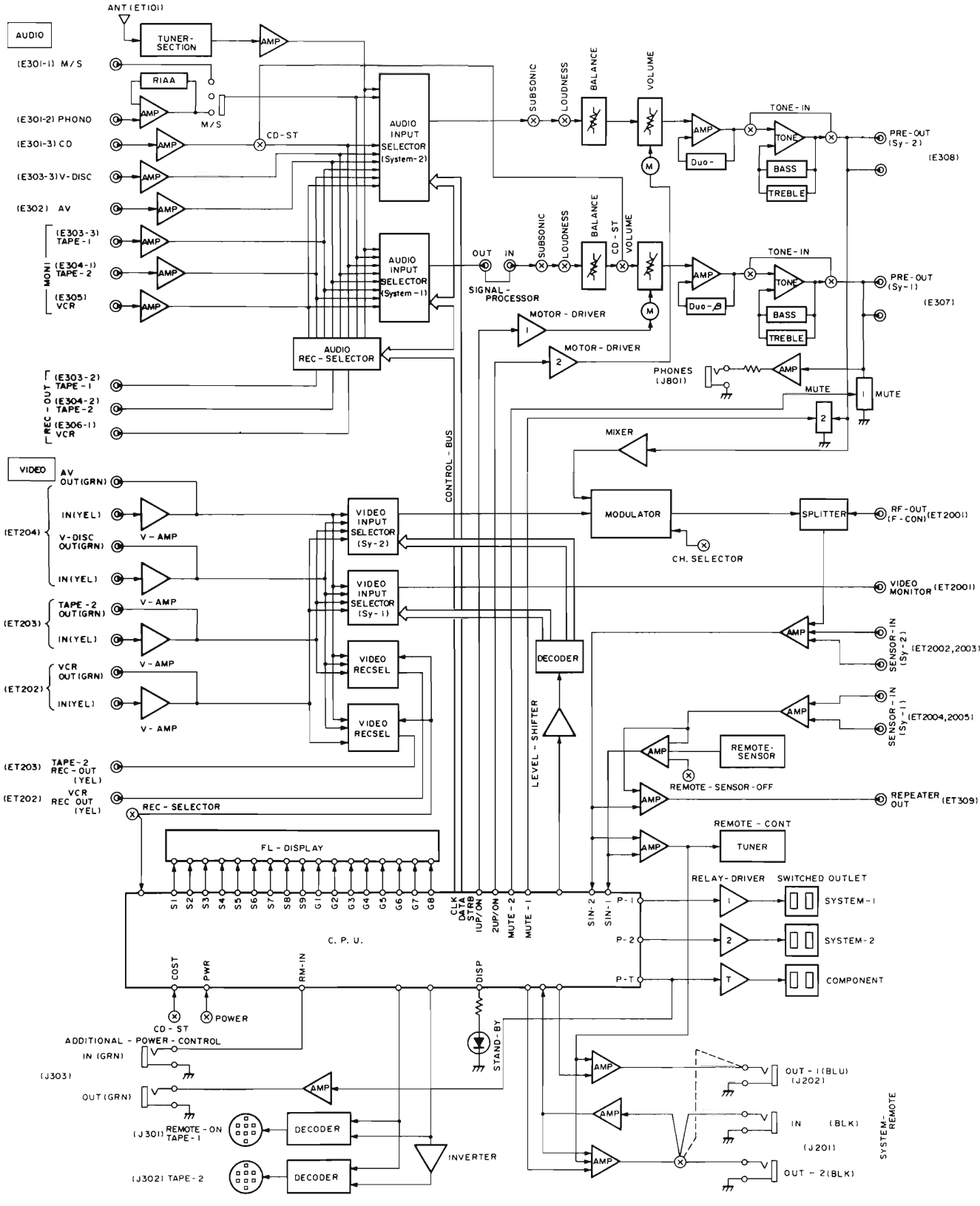


Figure 18. Mother P.C.Board (Component Side)

Block Diagram



Schematic Diagram (1/5)

IC	IC201 IC810 IC804 IC808 IC803 IC808 IC907	IC905 IC203 IC202	IC204 IC907 IC205	IC206
TRANSISTOR (Ω)	Q901 Q202 Q903 Q905 Q907 / Q902 Q201 Q904 Q906 Q908 / Q910 Q909	Q911 / Q918 / Q912 / Q916 Q917	Q914	Q915 / Q913

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-voltmeter
3. Measuring Point Reference : Between Ground
4. Measuring Conditions : No Signal Input
   IC102-106 (At FM Stereo Received 65dBf)
   IC101 (At AM Received 100dBμ V/m)

MOTHER P.C. Board (VIDEO SELECTOR)

RM901 RF MODULATOR

SHORT SENSOR

RIPPLE FILTER

REGULATOR

CONSTANT CURRENT

POWER SWITCH

VOLTAGE SWITCH

VIDEO SWITCH

REMOTE CONTROL SIGNAL AMP

RESET IC

2-4 DATA SELECTOR

REMOTE CONTROL SIGNAL INVERTER

REMOTE CONTROL SIGNAL NOR GATE

TO TUNER BLOCK

TO CH308 INPUT PCB

TO CH802 REC SELE PCB

TO CH750 POWER SUPPLY PCB

TO CH302 INPUT SEL PCB

TO CH801

TO CH304 INPUT PCB

TO CH306 INPUT PCB

TO CH702 MOTOR PCB

TO CH701 VOLUME PCB

TO CB7S2 POWER SUPPLY PCB

TO CH856 FL PCB

TO CH857 FL PCB

TO CH803 REC SELE PCB

TO CH305 INPUT SEL PCB

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

IC206

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	—	—	—	—	—	—
2	0V/8V	0V/8V	0V/8V	0V/8V	0V/8V	0V/8V
3	0V/8V	0V/8V	0V/8V	0V/8V	0V/8V	0V/8V
4	6V	6V	6V	6V	6V	6V
5	6V	6V	6V	6V	6V	6V
6	12V	12V	12V	12V	12V	12V
7	6V	6V	6V	6V	6V	6V
8	0V	0V	0V	0V	0V	0V

IC905

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

IC906

1	5V (0V)
2	5V (0V)
3	5V (0V)
4	5V (0V)
5	0V
6	12V (0V)
7	12V (0V)
8	12V (0V)
9	12V (0V)

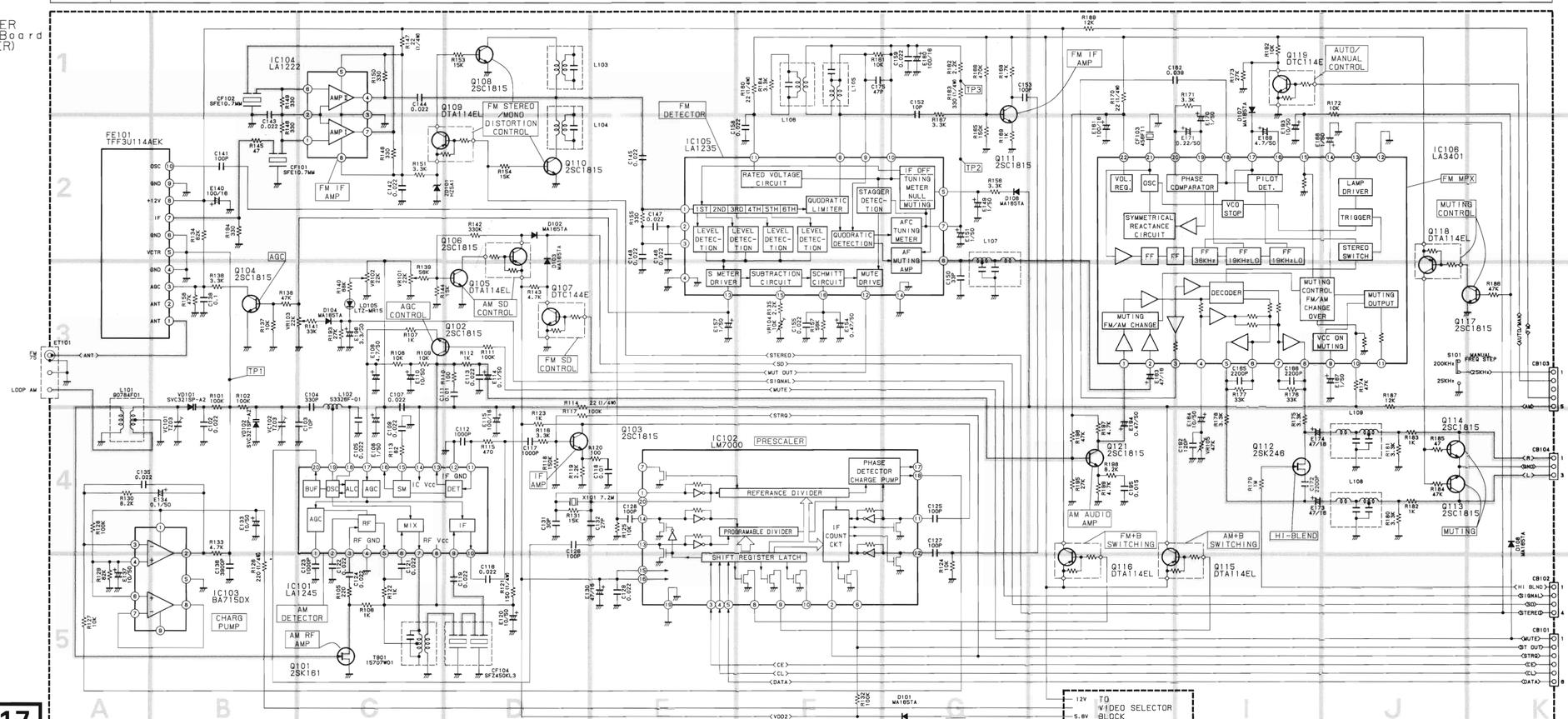
	E	C	B
Q201	14.2V	15V	14.8V
Q202	3V	15V	3.6V
Q901	2.5V	9V	3.1V
Q902	8.4V	12V	9V
Q903	2.5V	9V	3.1V
Q904	8.4V	12V	9V
Q905	2.5V	9V	3.1V
Q906	8.4V	12V	9V
Q907	2.5V	9V	3.1V
Q908	8.4V	12V	9V
Q909	0V	7.6V	0.6V/0V
Q910	0V	7.6V	0.6V/0V
Q911	0V	0V	0.6V/0V
Q912	12V	15V	12.6V
Q913	0V	6V	5.4V
Q914	0V	5V/0V	3.9V/0V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

TP-117

Schematic Diagram (2/5)

IC	IC103	IC104 IC101	IC105 IC102	IC106
Transistor (Q)	Q104	Q109 Q105 Q102 / Q108 Q106 / Q110 Q107 Q103 / Q101	Q111 / Q116 Q121 Q115	Q119 Q112 / Q118 Q117 Q114 Q113

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-voltmeter
3. Measuring Point Reference : Between Ground
4. Measuring Conditions : No Signal Input
IC102-106
(At FM Stereo Received 65dBf)
IC101 (At AM Received 100dBμ V/m)

IC101 : AT 100dBμV/m AM RECEIVED
IC102-106 : AT 65dBf FM STEREO RECEIVED

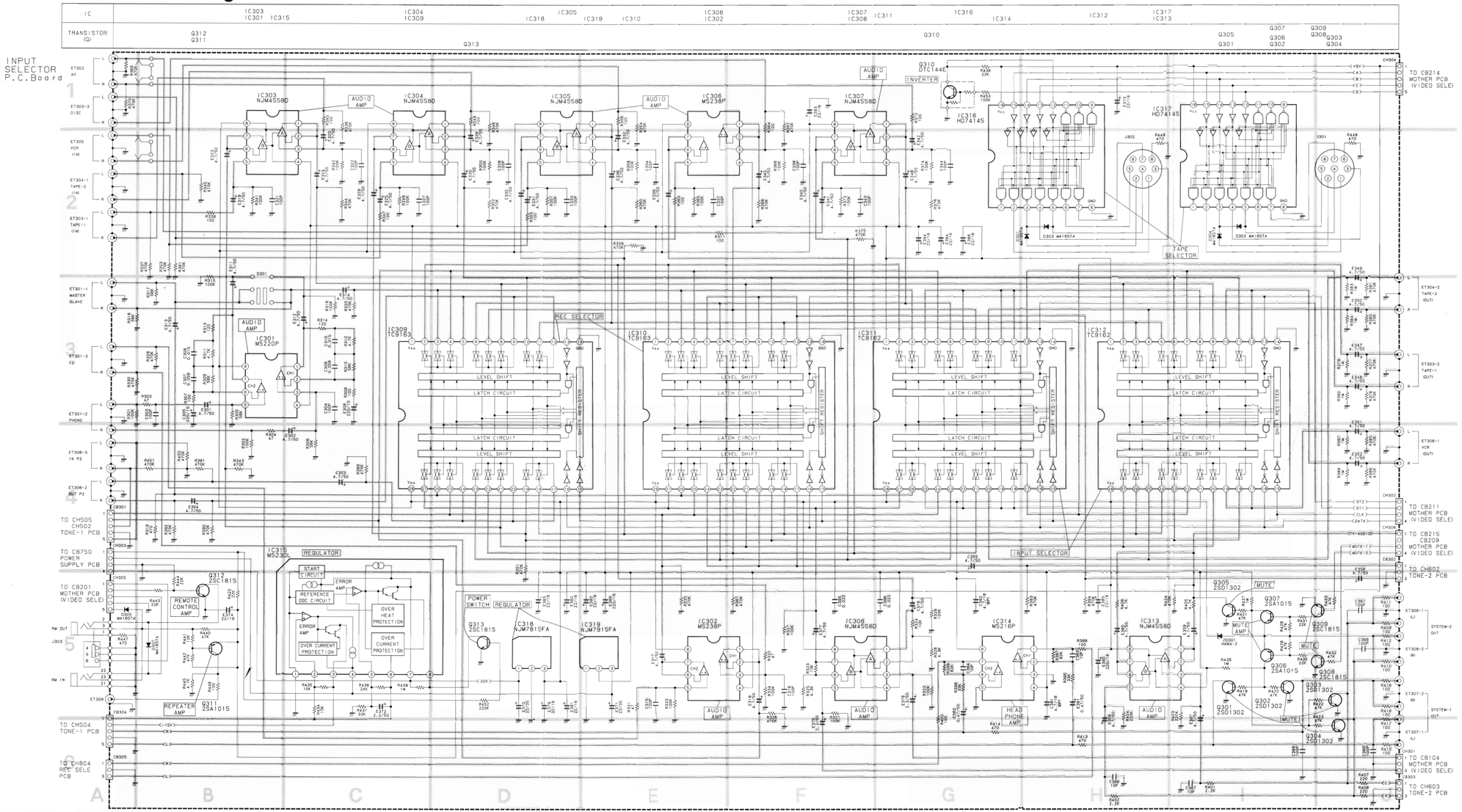
	IC101	IC102	IC103	IC104	IC105	IC106
1	5.6V	1.68V	27V	1.33V	2.87V	3.16V
2	2.1V	0V	8.23V	1.33V	2.87V	3.16V
3	2.6V	0V	2V	0V	2.87V	3.2V
4	0V	0V	2V	0.82V	0V	3.18V
5	8.1V	0V	0V	11.5V	0V	3.12V
6	2V	4V	2V	1.33V	6.2V	3.16V
7	8.61V	——	2V	0.82V	6.25V	3.16V
8	8.61V	0.32V	2V	11.5V	6.24V	3.12V
9	2.7V	11.93V	27V		6.24V	3.7V
10	7.4V	——			6.24V	0V
11	0.65V	0V			11.5V	——
12	0V	0V			0V	0V
13	2.83V	0V			3.3V	0.6V
14	11.1V	2.72V			0V	4.93V
15	1.5V	4.1V			0.62V	0V
16	5.8V	4.1V			3.26V	2.8V
17	2.8V	1V				0V
18	5.65V	2V				2.77V
19	5.65V	0V				2.75V
20	3V	1.68V				2.75V
21						3.4V
22						11.46V

	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 dBf
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 sinal 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 sinal 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	
Q109	0V	0V	0.65V		FM	In STEREO reception.
	4.1V	0V	4.5V		FM	In MONO reception.
Q110	4.1V	4V	0.6V		FM	In STEREO reception.
	0V	0V	0.6V		FM	In MONO reception.
Q111	0V	0V	0.4V		FM	In STEREO reception.
	1.46V	5.15V	2.1V		FM	
Q113	0V	0V	0.65V	AM	FM	MUTING ON
	0V	0V	0V	AM	FM	MUTING OFF
Q114	0V	0V	0.65V	AM	FM	MUTING ON
	0V	0V	0V	AM	FM	MUTING OFF
Q115	11.95V	11.8V	0V	AM		
Q116	11.95V	11.5V	0V		FM	
Q117	11.95V	0V	0.65V	AM	FM	MUTING ON
	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	

	S	G	D			
Q112	3.2V	0V	0V		FM	When three or more elements of the signal strength meter light.
	3.2V	3.6V	0V		FM	When two or less elements of the signal strength meter light.

TP-117

Schematic Diagram (3/5)



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-voltmeter
3. Measuring Point Reference : Between Ground
4. Measuring Conditions : No Signal Input
(IC102-106 At FM Stereo Received 65dBF)
(IC101 At AM Received 100dBμ V/m)

	IC301	IC302	IC303	IC304	IC305	IC306	IC307	IC308
1	0V	0V	0V	0V	0V	0V	0V	0V
2	0V	0V	0V	0V	0V	0V	0V	0V
3	0V	0V	0V	0V	0V	0V	0V	0V
4	-15V	-15V	-15V	-15V	-15V	-15V	-15V	-15V
5	0V	0V	0V	0V	0V	0V	0V	0V
6	0V	0V	0V	0V	0V	0V	0V	0V
7	0V	0V	0V	0V	0V	0V	0V	0V
8	15V	15V	15V	15V	15V	15V	15V	15V

	IC309	IC310	IC311	IC312
1	-15V	-15V	-15V	-15V
*2	0V	0V	0V	0V
3	0V	0V	0V	0V
4	0V	0V	0V	0V
5	0V	0V	0V	0V
6	0V	0V	0V	0V
7	0V	0V	0V	0V
8	0V	0V	0V	0V
9	0V	0V	0V	0V
10	0V	0V	0V	0V
11	0V	0V	0V	0V
12	0V	0V	0V	0V
13	0V	0V	0V	0V
14	0V	0V	0V	0V
15	0V	0V	0V	0V
16	0V	0V	0V	0V
17	0V	0V	0V	0V
18	0V	0V	0V	0V
19	0V	0V	0V	0V
20	0V	0V	0V	0V
21	0V	0V	0V	0V
22	0V	0V	0V	0V
23	0V	0V	0V	0V
24	0V	0V	0V	0V
25	0V	0V	0V	0V
26	0V	0V	0V	0V
27	0V	0V	0V	0V
28	15V	15V	15V	15V

	IC313	IC314	IC315
1	0V	0V	0V
2	0V	0V	0V
3	0V	0V	-15V
4	-15V	-15V	-1V
5	0V	0V	1.7V
6	0V	0V	15V
7	0V	0V	1V
8	15V	15V	6.5V

	IC316	IC317
1	0V	0V
2	0V	0V
3	0V	0V
4	0V	0V
5	0V	0V
6	0V	0V
7	0V	0V
8	0V	0V
9	0V	0V
10	0V	0V
11	0V	0V
12	0V	4V
13	4.5V	4.5V
14	4.5V	4.5V
15	4.5V	4.5V
16	5V	5V

	IC318	IC319
1	20V	0V
2	0V	-20V
3	15V	-15V

	E	C	B
Q301	0V	0V	-10V
Q302	0V	0V	-10V
Q303	0V	0V	-10V
Q304	0V	0V	-10V
Q305	0V	0V	-10V/5V
Q306	0V	15V	0V
Q307	15V	-13V	15V
Q308	0V	15V	0V
Q309	15V	-13V	15V
Q310	0V	5V/0V	0V/0.8V
Q311	5V	0V	5V
Q312	0V	0V	0.6V
Q313	0V	6.5V	0.6V

TP-117

Schematic Diagram (4/5)

IC	IC703 IC701	IC501 IC702	IC502	IC601	IC602 IC801
TRANSISTOR (Q)	Q701	Q702		Q801	

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

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

TONE-1 P.C.Board

TO CB301 INPUT SELECTOR PCB

TO CB301 INPUT SELECTOR PCB

TO CB701 VOLUME PCB

TO CB701 VOLUME PCB

TO W801 TONE-2 PCB

TO CB304 INPUT SELECTOR PCB

IC501 M5238P

IC502 NJM4558D

AUDIO AMP

TONE AMP

TONE-2 P.C.Board

TO CB302 INPUT SELECTOR PCB

TO CB702 VOLUME PCB

TO W501 TONE-1 PCB

TO CB303 INPUT SELECTOR PCB

IC801 M5238P

IC802 NJM4558D

AUDIO AMP

TONE AMP

VOLUME P.C.Board

TO CH506 CH503 TONE-1 PCB

TO CB207 MOTHER PCB (VIDEO SELE)

IC703 LA6393S

SERVO AMP

TO CH601 TONE-2 PCB

Q702 DTC124XL

4XL

SERVO AMP

MOTOR P.C.Board

LED P.C.Board

TO CB208 MOTHER PCB (VIDEO SELE)

IC701 LB1630

IC702 LB1630

MOTOR AMP

REC SELECT P.C.Board

TO CB206 MOTHER PCB (VIDEO SELE)

TO CH851 FL PCB

TO CB305 INPUT SEL PCB

TO CB213 MOTHER PCB (VIDEO SELE)

Q801 2SC1815

REMOTE CONTROL AMP

IC801 TC74HC148

REC SELECTOR

TO CB210 MOTHER PCB (VIDEO SELE)

TP-117

Schematic Diagram (5/5)

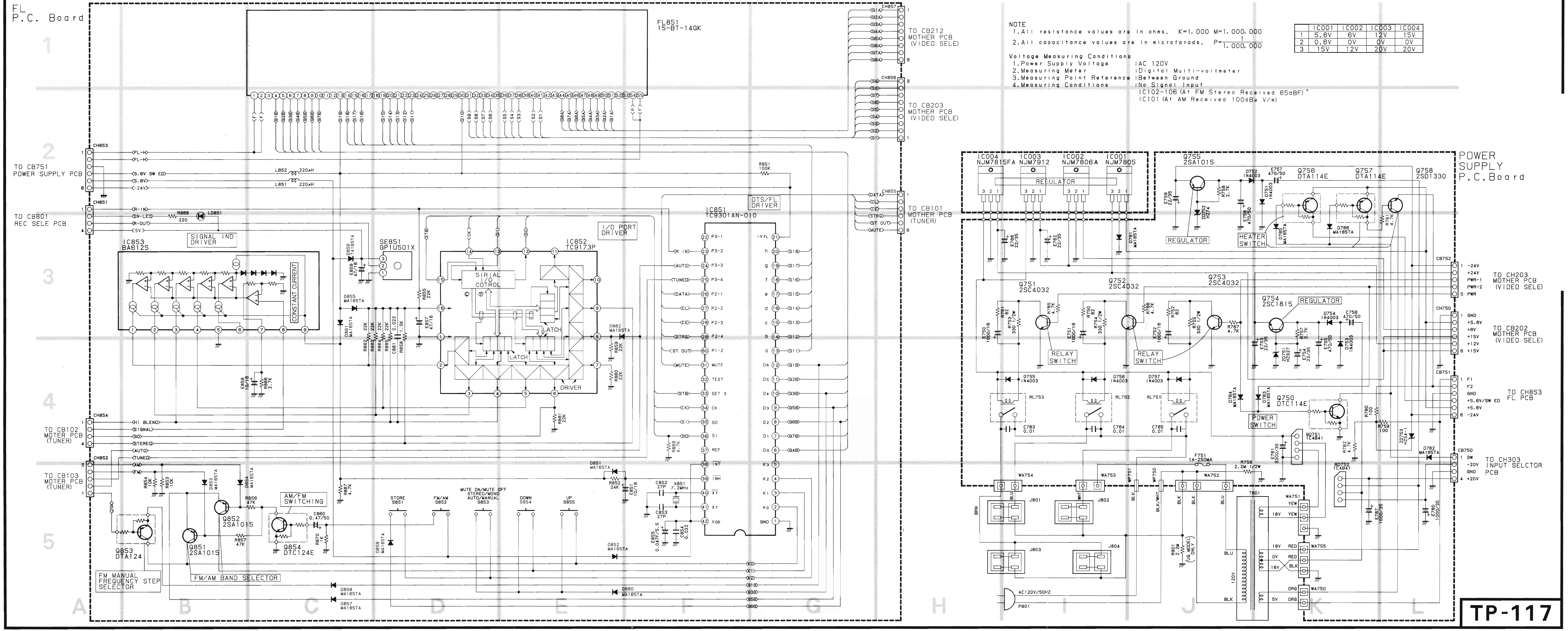
IC	IC853	IC852	IC851	IC004	IC003	IC002	IC001

TRANSISTER (Q)	Q853	Q851	Q852	Q854	Q751	Q752	Q755	Q753	Q754	Q756	Q750	Q757	Q758

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-voltmeter
3. Measuring Point Reference : Between Ground
4. Measuring Conditions : No Signal Input
IC102-106 (At FM Stereo Received 65dBF)
IC101 (At AM Received 100dBμ V/m)

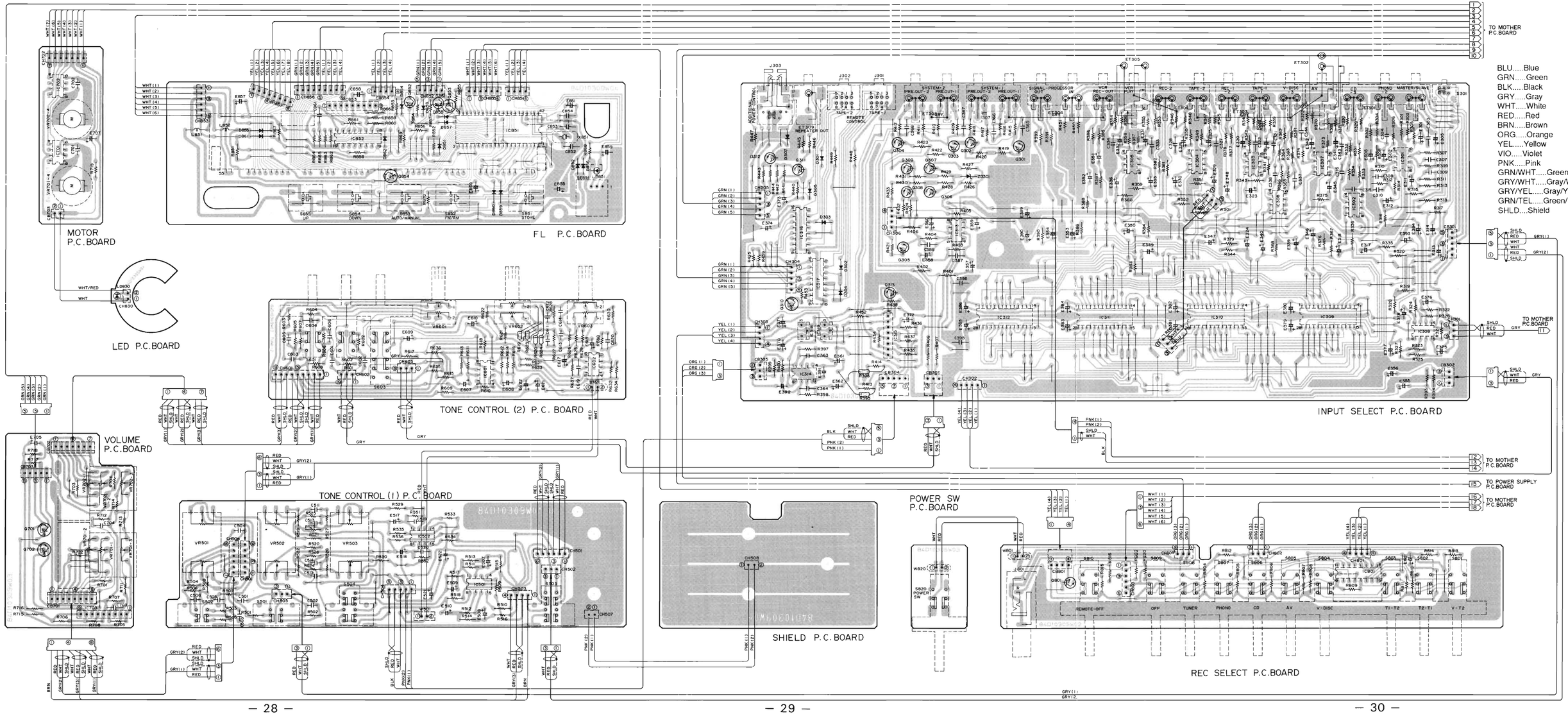
	IC001	IC002	IC003	IC004
1	5.6V	6V	12V	15V
2	0.6V	0V	0V	0V
3	15V	12V	20V	20V



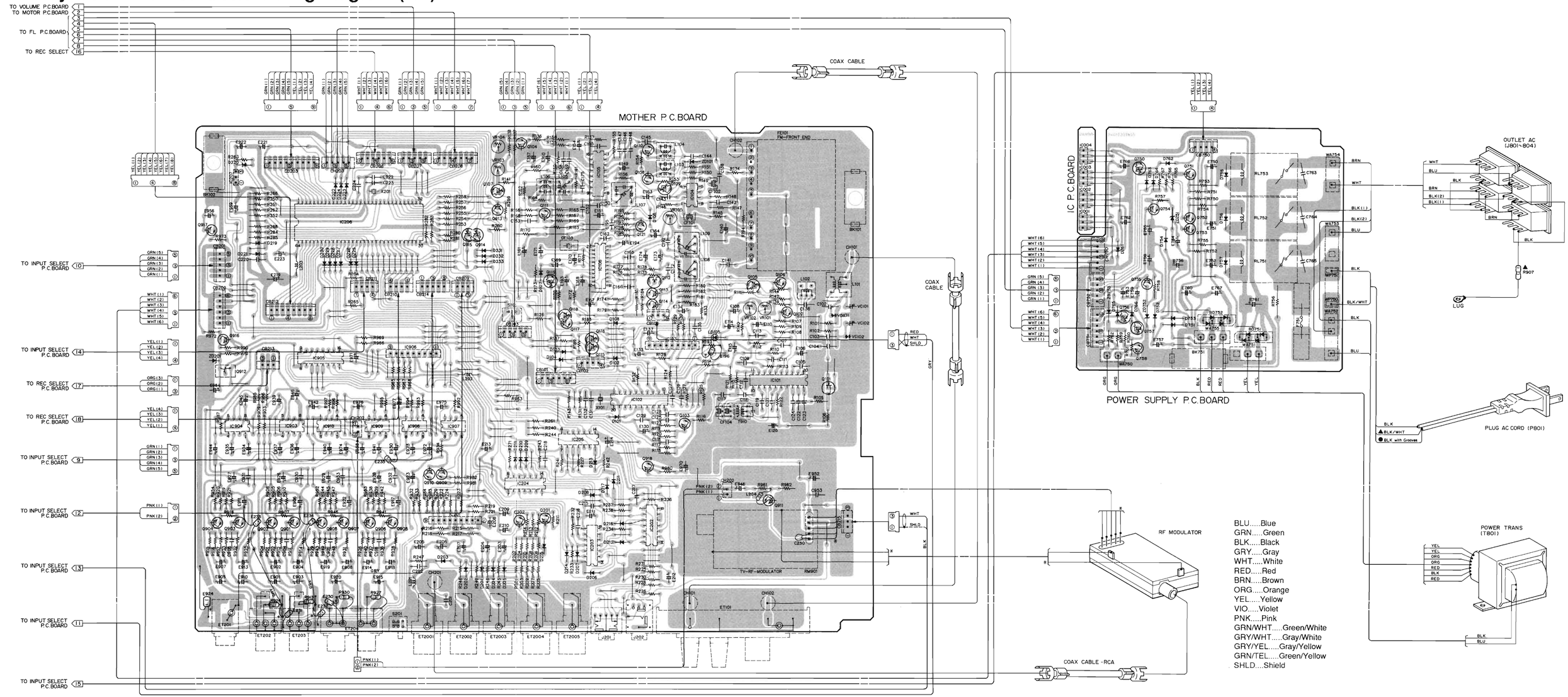
TP-117

TP-117 TP-117

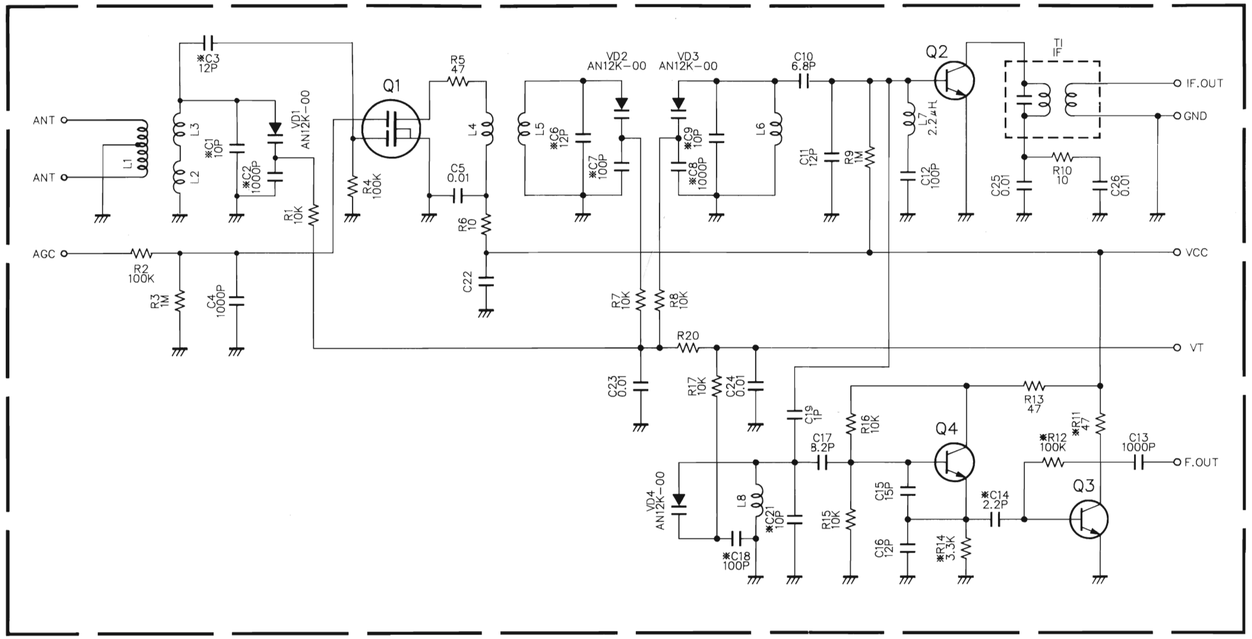
Parts Layout on P.C.Boards and Wiring Diagram (1/2)



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

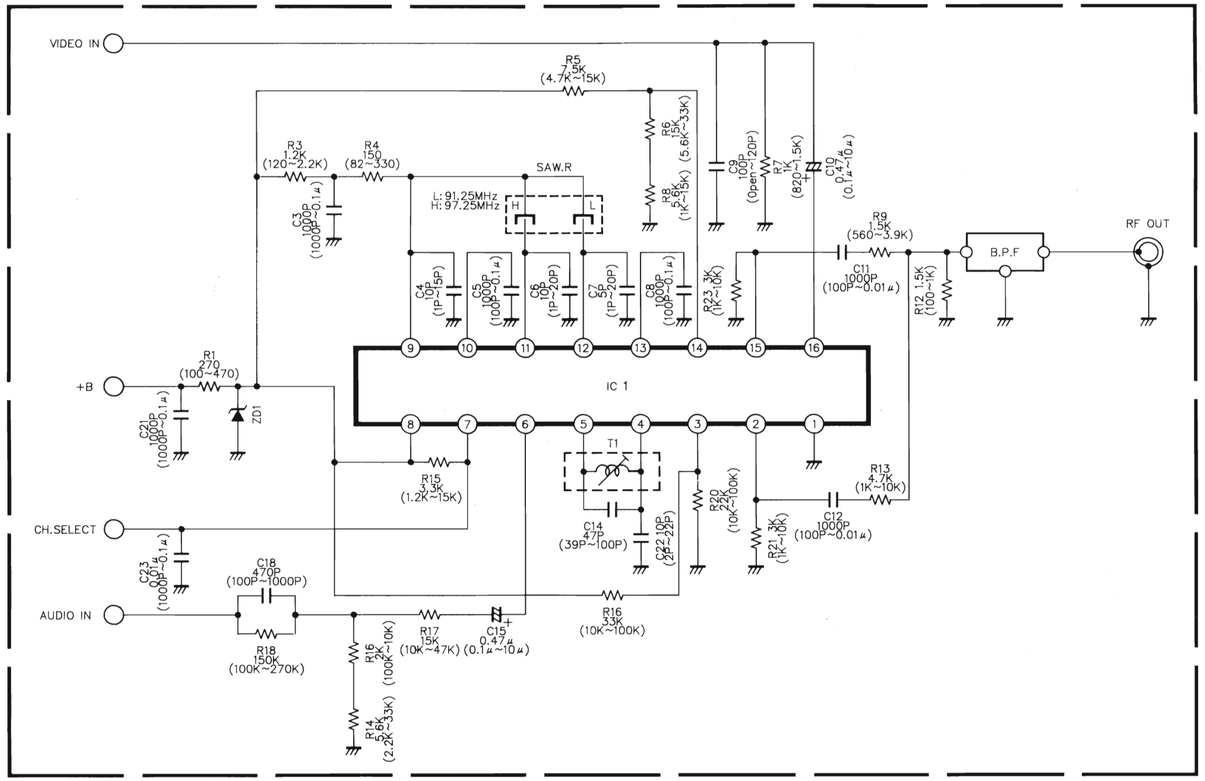


Schematic Diagram (FM Tuner)



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: μF-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
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. 10.7MHA FOR FM		
L104	24T84602F01	IFT. 10.7MHA 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 μH		
L203	24T50508F26	Inductor. 22μH		
L204	24T50508F10	Inductor. 1 μH		
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 ↔ 25K)		
S201	40T68056F01	SSJ-322(B)(CH3/CH4)		
Filter				
CF101	91T51130F01	CER.. SFE10.7 MM		
CF102	91T51130F01	CER.. SFE10.7 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		
Capacitors				
C102	08S65480F62	CER..	0.022μF	
C103	08S65480F13	CER..	10pF	
C104	08S65480F43	CER..	330pF	
C105	08S65480F62	CER..	0.022μF	
E106	23T00138L48	ELY..	4.7μF/50V	
C107	08S65480F62	CER..	0.022μF	
E108	23T00138L45	ELY..	1μF/50V	
C109	08S65480F62	CER..	0.022μF	
E110	23T00138L49	ELY..	10μF/50V	
C111	08T57851F01	TF..	0.01μF	
C112	08S65480F49	CER..	1000pF	
C113	08S65480F62	CER..	0.022μF	
E114	23S57007F01	ELY..	0.1μF/50V	
E115	23T00149L25	ELY..	100μF/16V	
C116	08S65480F62	CER..	0.022μF	
C117	08S65480F49	CER..	1000pF	
C118	08S65480F61	CER..	0.01μF	
C119	08S65480F62	CER..	0.022μF	
E120	23T00138L49	ELY..	10μF/50V	
C121	08S65480F62	CER..	0.022μF	
C122	08S65480F62	CER..	0.022μF	
C123	08S65480F49	CER..	1000pF	
C124	08S65480F62	CER..	0.022μF	
C125	08S65480F37	CER..	100pF	
C126	08S65480F37	CER..	100pF	
C127	08S65480F37	CER..	100pF	
C128	08S65480F37	CER..	100pF	
C129	08S65480F62	CER..	0.022μF	
E130	23T00149L23	ELY..	47μF/16V	
C131	08S65480F24	CER..	30pF	
C132	08S65480F23	CER..	27pF	
E133	23T00138L49	ELY..	10 μF/50V	
E134	23S57007F01	ELY..	0.1μF/50V	
C135	08S65480F62	CER..	0.022μF	
C136	08S65480F56	CER..	3900pF	
E137	23T00138L49	ELY..	10 μF/50V	
C138	08S65480F63	CER..	0.1μF	
E140	23T00149L25	ELY..	100μF/16V	
C141	08S65480F37	CER..	100pF	
C142	08S65480F62	CER..	0.022μF	
C143	08S65480F62	CER..	0.022μF	
C144	08S65480F62	CER..	0.022μF	
C145	08S65480F62	CER..	0.022μF	
C146	08S65480F62	CER..	0.022μF	
C147	08S65480F62	CER..	0.022μF	

Symbol No.	Part No.	Description		
C148	08S65480F62	CER..	0.022μF	
E149	23T00138L45	ELY..	1μF/50V	
C150	08S65480F25	CER..	33pF	
E151	23T00138L45	ELY..	1μF/50V	
C152	08S65480F13	CER..	10pF	
C153	08S65480F37	CER..	100pF	
E154	23S57007F04	ELY..	0.47μF/50V	
C155	08S65480F62	CER..	0.022μF	
E157	23T00138L45	ELY..	1μF/50V	
C158	08S65480F62	CER..	0.022μF	
C159	08S65480F62	CER..	0.022μF	
E160	23T00149L25	ELY..	100μF/16V	
E161	23T00149L25	ELY..	100μF/16V	
C162	08T57851F08	TF..	0.039μF	
E163	23T00149L23	ELY..	47μF/16V	
E164	23T00138L49	ELY..	10μF/50V	
C165	08T52448F21	PP..	2200pF	
C166	08T52448F21	PP..	2200pF	
E167	23T00138L45	ELY..	1μF/50V	
E168	23T00138L45	ELY..	1μF/50V	
E169	23T00138L48	ELY..	4.7μF/50V	
E170	23T00138L45	ELY..	1μF/50V	
E171	23S57007F02	ELY..	0.22μF/50V	
C172	08T52448F21	PP..	2200pF	
E173	23T00149L23	ELY..	47μF/16V	
E174	23T00149L23	ELY..	47μF/16V	
C175	21C41701J72	CER..	47pF	
C192	08S65480F38	CER..	120pF	
E193	23T00138L49	ELY..	10μF/50V	
E194	23S57007F04	ELY..	0.47μF/50V	
C195	08T57851F03	PF..	0.015μF	
E196	23S57422F07	ELY..	3.3μF/50V	
C201	08S40805F22	CER..	0.04μF	
C202	08S65480F62	CER..	0.022μF	
E203	23T00138L48	ELY..	4.7μF/50V	
E204	23T00138L48	ELY..	4.7μF/50V	
E205	23T00138L48	ELY..	4.7μF/50V	
E206	23T00138L48	ELY..	4.7μF/50V	
E207	23T00138L48	ELY..	4.7μF/50V	
E208	23T00149L23	ELY..	47 μF/16V	
E209	23T00149L23	ELY..	47 μF/16V	
E210	23T00149L25	ELY..	100μF/16V	
E211	23T00149L25	ELY..	100μF/16V	
E212	23T00149L25	ELY..	100μF/16V	
E213	23T00149L25	ELY..	100μF/16V	

Symbol No.	Part No.	Description		
E214	23T00149L25	ELY.. 100μF/16V		
C215	08S65480F29	CER.. 47pF		
C216	08S65480F29	CER.. 47pF		
C217	08S65480F60	CER.. 8200pF		
C218	08S65480F60	CER.. 8200pF		
E219	23T00134L23	ELY.. 3300μF/10V		
C220	08S65480F62	CER.. 0.022μF		
E221	23T00149L43	ELY.. 22μF/35V		
C222	08S65480F29	CER.. 47pF		
E222	23T00138L48	ELY.. 4.7μF/50V		
C223	08S65480F29	CER.. 47pF		
E223	23T00138L49	ELY.. 10μF/50V		
C224	08S65480F62	CER.. 0.022μF		
C230	08S65480F37	CER.. 100pF		
E230	23T57421F05	ELY.. 1μF/50V		
E231	23T57421F09	ELY.. 10μF/16V		
E232	23T57421F09	ELY.. 10μF/16V		
C233	08T52714F17	CER.. 0.022μF		
E233	23T00149L17	ELY.. 1000μF/6.3V		
E234	23T00149L17	ELY.. 1000μF/6.3V		
E235	23T43247F21	ELY.. 100μF/10V		
E901	23T00149L16	ELY.. 470μF/10V		
E902	23T00149L16	ELY.. 470μF/10V		
E903	23T00149L25	ELY.. 100μF/16V		
C904	08S65480F29	CER.. 47pF		
E904	23T00149L17	ELY.. 1000μF/10V		
E905	23T00149L16	ELY.. 470μF/10V		
E906	23T43427F14	ELY.. 47μF/16V		
E907	23T00149L16	ELY.. 470μF/10V		
C908	08S65480F29	CER.. 47pF		
E908	23T00149L17	ELY.. 1000μF/10V		
E910	23T00149L25	ELY.. 100μF/16V		
E911	23T43427F14	ELY.. 47μF/16V		
E913	23T00149L17	ELY.. 1000μF/10V		
E914	23T00149L16	ELY.. 470μF/10V		
E915	23T00149L25	ELY.. 100μF/16V		
C916	08S65480F29	CER.. 47pF		
E917	23T00149L23	ELY.. 47μF/16V		
E918	23T00149L17	ELY.. 1000μF/10V		
E919	23T00149L16	ELY.. 470μF/10V		
E920	23T00149L25	ELY.. 100μF/16V		
C921	08S65480F29	CER.. 47pF		
E922	23T00149L23	ELY.. 47μF/16V		
E923	23T00149L16	ELY.. 470μF/10V		
E924	23T00149L16	ELY.. 470μF/10V		

Symbol No.	Part No.	Description		
E926	23T00149L23	ELY.. 47μF/16V		
E927	23T00149L23	ELY.. 47μF/16V		
E928	23T00149L23	ELY.. 47μF/16V		
E929	23T00149L23	ELY.. 47μF/16V		
C930	08S65480F62	CER.. 0.022μF		
E930	23T00149L23	ELY.. 47μF/16V		
C931	08S65480F62	CER.. 0.022μF		
C932	08S65480F62	CER.. 0.022μF		
C933	08S65480F62	CER.. 0.022μF		
E934	23T00138L49	ELY.. 10μF/50V		
E935	23T00138L49	ELY.. 10μF/50V		
E936	23T00138L49	ELY.. 10μF/50V		
E937	23T00138L49	ELY.. 10μF/50V		
E938	23T00138L49	ELY.. 10μF/50V		
E939	23T00138L49	ELY.. 10μF/50V		
E940	23T00138L49	ELY.. 10μF/50V		
E941	23T00138L49	ELY.. 10μF/50V		
E942	23T00138L49	ELY.. 10μF/50V		
E944	23T00138L49	ELY.. 10μF/50V		
E945	23T00149L23	ELY.. 47μF/16V		
E946	23T00149L23	ELY.. 47μF/16V		
E948	23T00149L26	ELY.. 220μF/16V		
E952	23T00149L26	ELY.. 220μF/16V		
C953	08S65480F62	CER.. 0.022μF		
E954	23T00149L26	ELY.. 220μF/16V		
E956	23T00149L23	ELY.. 47μF/16V		
E959	23T00149L26	ELY.. 220μF/16V		
E970	23T00149L26	ELY.. 220μF/16V		
E971	23T00149L26	ELY.. 220μF/16V		
E972	23T00138L49	ELY.. 10μF/50V		
E973	23T00138L49	ELY.. 10μF/50V		
E974	23T00138L49	ELY.. 10μF/50V		
E975	23T00138L49	ELY.. 10μF/50V		
E976	23T00138L49	ELY.. 10μF/50V		
E977	23T00138L49	ELY.. 10μF/50V		
VC101	20T47503F02	Trimmer. TZ03(RED)		
VC102	20T47503F02	Trimmer. TZ03(RED)		
Resistors				
VR101	18T74439F15	SOL.Variable 22K ohm KICK (AM MUTE)		
VR102	18T74439F15	SOL.Variable 22K ohm KICK (AM SIGNAL)		
VR103	18T74439F15	SOL.Variable 22K ohm KICK (FM SIGNAL)		
VR104	18T74439F13	SOL.Variable 10K ohm KICK (FM MUTE)		
VR105	18T74439F17	SOL.Variable 47K ohm KICK (ST-SEPARATION)		

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., HA6A-2

Symbol No.	Part No.	Description
Jack/Plate		
J301	09T10808W01	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/SLALE,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	40T88056F01	SSJ-322(B)(S↔M)
Capacitors		
E301	23T00138L48	ELY.. 4.7μF/50V
E302	23T00138L48	ELY.. 4.7μF/50V
C303	08S65480F37	CER.. 100pF
C304	08S65480F37	CER.. 100pF
E305	23T00149L14	ELY.. 220μF/10V
E306	23T00149L14	ELY.. 220μF/10V
C307	08T57851F10	TF.. 0.056μF
C308	08T57851F10	TF.. 0.056μF
C309	08T57851F03	PF.. 0.015μF
C310	08T57851F03	PF.. 0.015μF
E311	23T00138L48	ELY.. 4.7μF/50V
E312	23T00138L48	ELY.. 4.7μF/50V
E313	23T00138L48	ELY.. 4.7μF/50V
E314	23T00138L48	ELY.. 4.7μF/50V
C315	08S65480F37	CER.. 100pF

Symbol No.	Part No.	Description		
C316	08S65480F37	CER..	100pF	
E317	23T00138L48	ELY..	4.7μF/50V	
E318	23T00138L48	ELY..	4.7μF/50V	
E319	23T00138L48	ELY..	4.7μF/50V	
E320	23T00138L48	ELY..	4.7μF/50V	
C321	08S65480F37	CER..	100pF	
C322	08S65480F37	CER..	100pF	
E323	23T00138L48	ELY..	4.7μF/50V	
E324	23T00138L48	ELY..	4.7μF/50V	
E325	23T00138L48	ELY..	4.7μF/50V	
E326	23T00138L48	ELY..	4.7μF/50V	
C327	08S65480F37	CER..	100pF	
C328	08S65480F37	CER..	100pF	
E329	23T00138L48	ELY..	4.7μF/50V	
E330	23T00138L48	ELY..	4.7μF/50V	
E331	23T00138L48	ELY..	4.7μF/50V	
E332	23T00138L48	ELY..	4.7μF/50V	
C333	08S65480F37	CER..	100pF	
C334	08S65480F37	CER..	100pF	
E335	23T00138L48	ELY..	4.7μF/50V	
E336	23T00138L48	ELY..	4.7μF/50V	
C337	08S65480F37	CER..	100pF	
C338	08S65480F37	CER..	100pF	
E339	23T00138L48	ELY..	4.7μF/50V	
E340	23T00138L48	ELY..	4.7μF/50V	
E341	23T00138L48	ELY..	4.7μF/50V	
E342	23T00138L48	ELY..	4.7μF/50V	
C343	08S65480F37	CER..	100pF	
C344	08S65480F37	CER..	100pF	
E345	23T00138L48	ELY..	4.7μF/50V	
E346	23T00138L48	ELY..	4.7μF/50V	
E347	23T00138L48	ELY..	4.7μF/50V	
E348	23T00138L48	ELY..	4.7μF/50V	
E349	23T00138L48	ELY..	4.7μF/50V	
E350	23T00138L48	ELY..	4.7μF/50V	
E351	23T00138L48	ELY..	4.7μF/50V	
E352	23T00138L48	ELY..	4.7μF/50V	
E353	23T00138L48	ELY..	4.7μF/50V	
E354	23T00138L48	ELY..	4.7μF/50V	
E355	23T00138L48	ELY..	4.7μF/50V	
E356	23T00138L48	ELY..	4.7μF/50V	
E357	23T00138L48	ELY..	4.7μF/50V	
E358	23T00138L48	ELY..	4.7μF/50V	
E359	23T00138L48	ELY..	4.7μF/50V	
E360	23T00138L48	ELY..	4.7μF/50V	

Symbol No.	Part No.	Description		
E361	23S57007F04	ELY..	0.47μF/50V	
E362	23S57007F04	ELY..	0.47μF/50V	
C363	08S65480F13	CER..	10pF	
C364	08S65480F13	CER..	10pF	
C365	08S65480F37	CER..	100pF	
C366	08S65480F37	CER..	100pF	
C367	08S65480F37	CER..	100pF	
C368	08S65480F37	CER..	100pF	
E370	23T00149L43	ELY..	22μF/35V	
E371	23T00149L43	ELY..	22μF/35V	
E372	23T00138L46	ELY..	2.2μF/50V	
E373	23T00149L21	ELY..	22μF/16V	
E374	23T00149L21	ELY..	22μF/16V	
E375	23T00138L46	ELY..	2.2μF/50V	
E376	23T00138L46	ELY..	2.2μF/50V	
E377	23T00138L48	ELY..	4.7μF/50V	
E378	23T00138L48	ELY..	4.7μF/50V	
E379	23T00149L21	ELY..	22μF/16V	
E380	23T00149L21	ELY..	22μF/16V	
E381	23T00149L21	ELY..	22μF/16V	
E382	23T00149L21	ELY..	22μF/16V	
E383	23T00149L21	ELY..	22μF/16V	
E384	23T00149L21	ELY..	22μF/16V	
E385	23T00149L21	ELY..	22μF/16V	
E386	23T00149L21	ELY..	22μF/16V	
C387	08S65480F13	CER..	10pF	
C388	08S65480F13	CER..	10pF	
E389	23T00149L26	ELY..	220μF/16V	
E390	23T00149L26	ELY..	220μF/16V	
E391	23T42477F39	ELY..	47μF/16V	
E392	23T42477F39	ELY..	47μF/16V	
E393	23T00149L21	ELY..	22μF/16V	
E394	23T00149L21	ELY..	22μF/16V	
C395	08S65480F62	CER..	0.022μF	
C396	08S65480F62	CER..	0.022μF	

Power Supply P.C.Board

Transistors

Q750	48T81715F16	DTC114E		
Q751	48T82761F01	2SC4032		
Q752	48T82761F01	2SC4032		
Q753	48T82761F01	2SC4032		
Q754	48S43525F02	2SC1815		
Q755	48T51118F01	2SA1015		
Q756	48T81715F05	DTA114E		
Q757	48T81715F05	DTA114E		
Q758	48T57337F03	2SD1330		

Symbol No.	Part No.	Description		
Diodes				
D751	48S40477U01	IN4003		
D752	48S40477U01	IN4003		
D753	48S40477U01	IN4003		
D754	48S40477U01	IN4003		
D755	48S40477U01	IN4003		
D756	48S40477U01	IN4003		
D757	48S40477U01	IN4003		
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.. 1000μF/16V		
E751	23T00149L29	ELY.. 1000μF/16V		
E752	23T00149L29	ELY.. 1000μF/16V		
E753	23T00149L43	ELY.. 22μF/35V		
E754	23T00149L43	ELY.. 22μF/35V		
E755	23T00134L74	ELY.. 470μF/50V		
E756	23T00134L74	ELY.. 470μF/50V		
E757	23T00134L74	ELY.. 470μF/50V		
E758	23T00134L74	ELY.. 470μF/50V		
E759	23T00149L43	ELY.. 22μF/35V		
E760	23T00134L59	ELY.. 1000μF/35V		
E761	23T00134L61	ELY.. 3300μF/35V		
E762	23T00149L43	ELY.. 22μF/35V		
C763	08T57437F09	CER.. 0.01μF		
C764	08T57437F09	CER.. 0.01μF		
C765	08T57437F09	CER.. 0.01μF		
E766	23T00149L43	ELY.. 22μF/35V		
E767	23T00134L59	ELY.. 1000μF/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.. 0.18μF		
C502	08T57851F16	TF.. 0.18μF		
C503	08T52448F05	PP.. 470pF		
C504	08T52448F05	PP.. 470pF		
C505	08T80227F22	TF.. 0.056μF		
C506	08T80227F22	TF.. 0.056μF		
E507	23S57007F09	ELY.. 10μF/16V		
E508	23S57007F09	ELY.. 10μF/16V		
E509	23S57007F08	ELY.. 4.7μF/25V		
E510	23S57007F08	ELY.. 4.7μF/25V		
C511	08T80227F15	TF.. 0.015μF		
C512	08T80227F15	TF.. 0.015μF		
C513	08T57851F15	TF.. 0.15μF		
C514	08T57851F15	TF.. 0.15μF		
E517	23S57007F08	ELY.. 4.7μF/25V		
E518	23S57007F08	ELY.. 4.7μF/25V		
C519	08S65480F13	CER.. 10pF		
C520	08S65480F13	CER.. 10pF		
E521	23S57007F11	ELY.. 22μF/16V		
E522	23S57007F11	ELY.. 22μF/16V		
Resistors				
VR501	18T71728F02	Volume, 250K ohm MN. K162AOAR3C(BALANCE)		
VR502	18T71725F02	Volume, 20K ohmx2 K162AOAR2C(TREBLE)		
VR503	18T71725F02	Volume, 20K ohmx2 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 IN)		
Capacitors				
C601	08T57851F16	TF.. 0.18μF		
C602	08T57851F16	TF.. 0.18μF		
C603	08S65480F45	CER.. 470pF		
C604	08S65480F45	CER.. 470pF		
C605	08T80227F22	TF.. 0.056μF		
C606	08T80227F22	TF.. 0.056μF		
E607	23T00138L49	ELY.. 10μF/50V		
E608	23T00138L49	ELY.. 10μF/50V		
E609	23T00138L48	ELY.. 4.7μF/50V		
E610	23T00138L48	ELY.. 4.7μF/50V		
C611	08T80227F15	TF.. 0.015μF		
C612	08T80227F15	TF.. 0.015μF		
C613	08T57851F15	TF.. 0.15μF		
C614	08T57851F15	TF.. 0.15μF		
E617	23T00138L48	ELY.. 4.7μF/50V		
E618	23T00138L48	ELY.. 4.7μF/50V		
C619	08S65480F13	CER.. 10pF		
C620	08S65480F13	CER.. 10pF		
E621	23T00149L21	ELY.. 22μF/16V		
E622	23T00149L21	ELY.. 22μF/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▶T-1/T-2)		
S802	40T10796W01	PUSH. SPUL102 (T▶T-1/V)		
S803	40T10796W01	PUSH. SPUL102 (T-1▶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.. 22μF/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 220μH
L852	24T50508F38	Inductor 220μH
Sensor		
SE851	51T10816W01	GP1U501X
Crystal		
X851	48T84663F01	7.2MHz NDK

Symbol No.	Part No.	Description
Capacitors		
E851	23S57007F09	ELY.. 10μF/16V
C852	08S65480F23	CER.. 27pF
C853	08S65480F23	CER.. 27pF
C854	08S65480F62	CER.. 0.022μF
E855	23T62939F02	ELY.. 0.047μF/5.5V
E857	23S57007F15	ELY.. 47μF/16V
E858	23S57007F09	ELY.. 10μF/16V
E859	23S57007F15	ELY.. 47μF/16V
E860	23S57007F04	ELY.. 0.47μF/50V
C861	08S65480F62	CER.. 0.022μF
Volume P.C.Board		
IC		
IC703	51T72008F01	LA6393S
Transistors		
Q701	48T82763F07	DTC124XL
Q702	48T82763F07	DTC124XL
Capacitors		
C703	08S65480F56	CER.. 3900pF
C704	08S65480F56	CER.. 3900pF
E705	23T00149L23	ELY.. 47μF/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.. 47μF/16V

Cabinet Assembly Parts List

Symbol No.	Part No.	Description
		Miscelaneous
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)
FL851	65T15189W01	FL.Display
LD830	48T66616F02	LED, SLR-54VR5(RED)
▲ R901	06D40802G44	Resistor,FC., 2.2Mohm1/2W

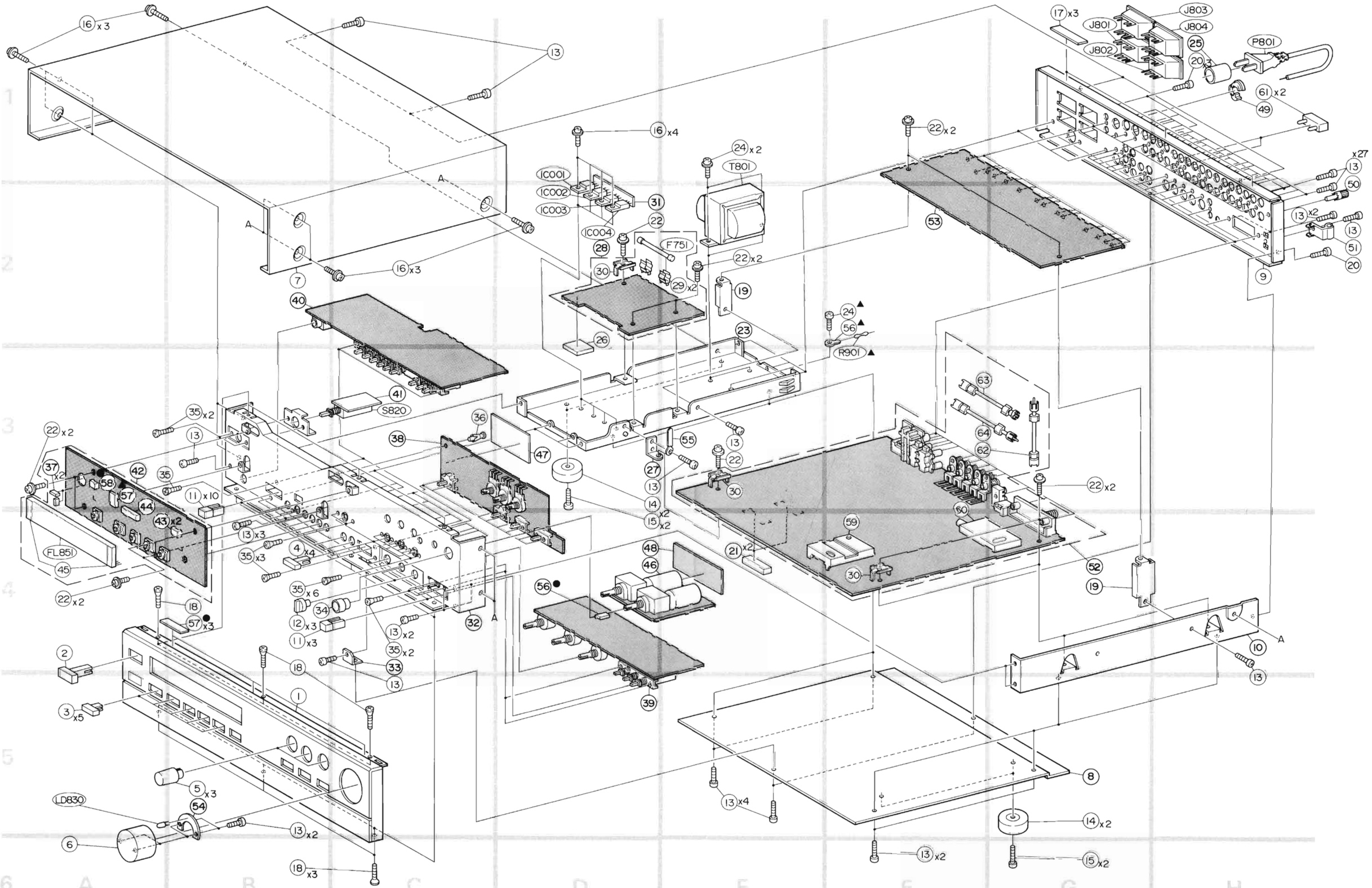
Note: ● ; For North American model only (UZ)
▲ : For Canadian model only (UQ) Others ; Common

Note:The parts without part numbers are not supplied.

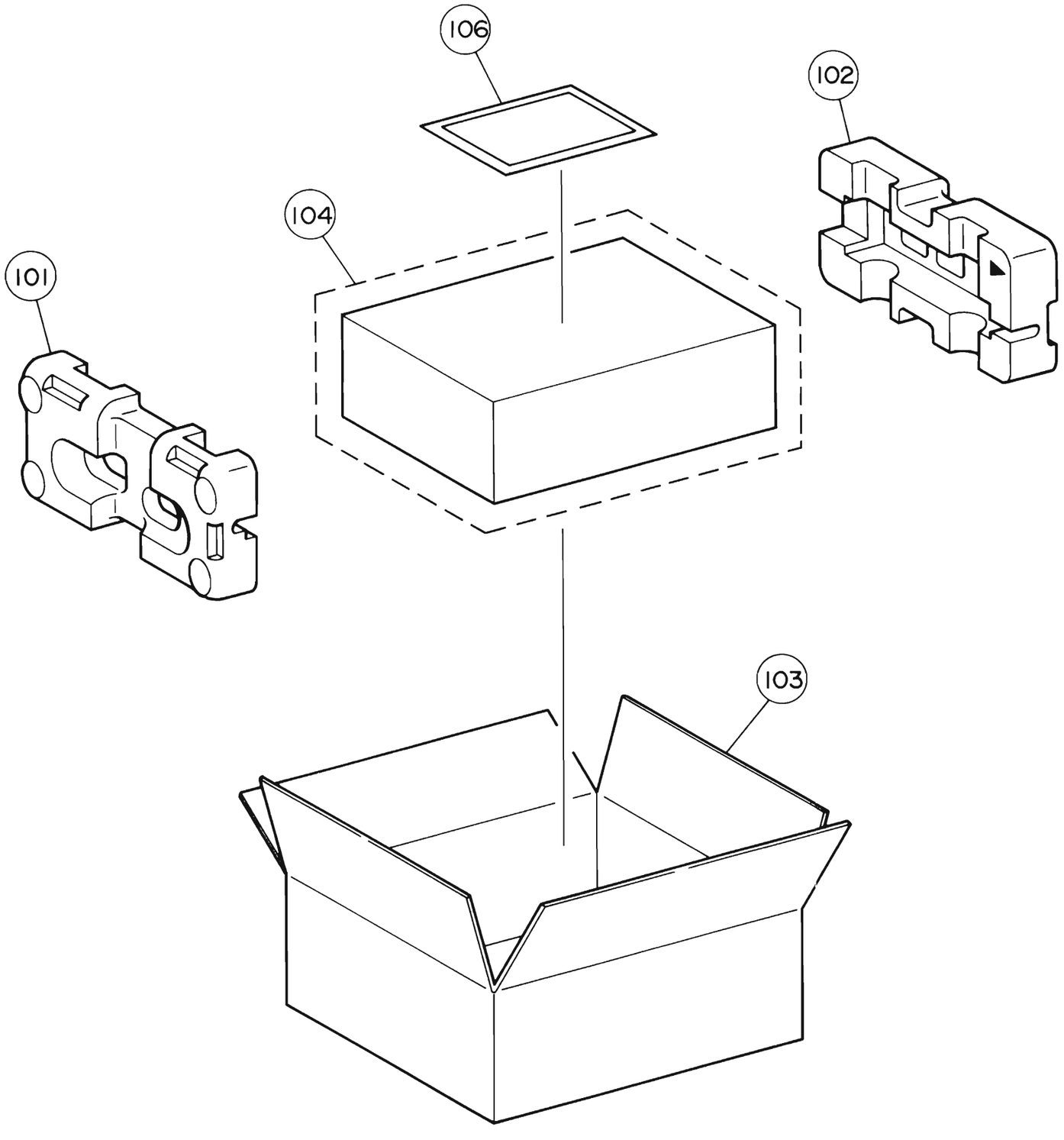
Symbol No.	IN-dex	Part No.	Description
1	5-B	01V11800W41	Assy., Front Panel
2	4-A	36A94152F01	Knob, Push Power
3	5-A	36A10656W01	Knob, Tact
4	4-B	36A10657W01	Knob, Push SW
5	5-B	36A10658W01	Knob, Rotary Tone
6	6-A	36B10659W01	Knob, Main Volume
7	2-B	15C10671W02	Cover, Top
9	2-H	15D10670W01	Cover, Rear
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	14S58462F25	Insulator, Cover
▲ 57	3-A	75S72374F53	Cushion, Rubber
59	4-F	77T84597F03	F/E, TFPG 3U114A
60	4-F	77T71185F01	RF, MOD MAB2X483
61	1-H	09T95168F01	Plug, Jamper 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

Exploded View (Cabinet)



Packing Methord View



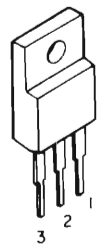
Packing Assembly Parts List

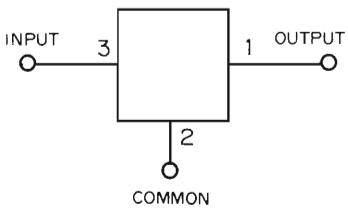
Symbol No.	Part No.	Description
101	56D10678W01	Tray, Packing
102	56D10678W02	Tray, Packing
103	56S10005W08	Carton, Packing
104	56B40442T08	Packing, Front Frame
105	56B40230G08	Sack, Poly 280X150-03-SL
● 106-1	68P96552F02	Owners, Manual TP-117UZ
▲ 106-1	68P96552F03	Owners, Manual TP-117UQ
106-2	01T82091F03	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)
▲ : For Canadian model only (UQ) Others ; Common

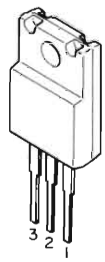
Seimi-Conductor Lead Indentifications

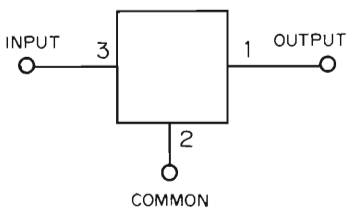
NJM 7806A: IC002



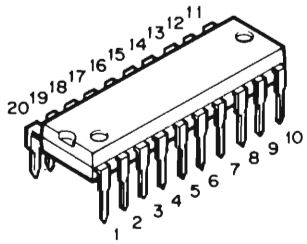


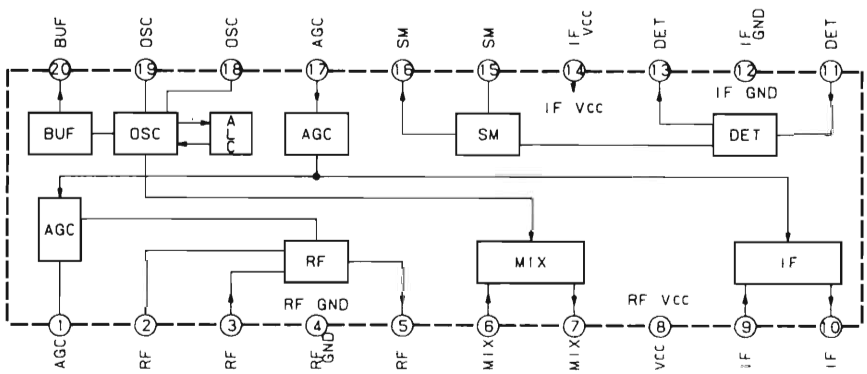
NJM7812: IC003
NJM7805: IC001



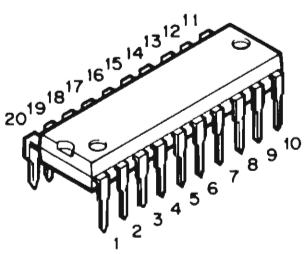


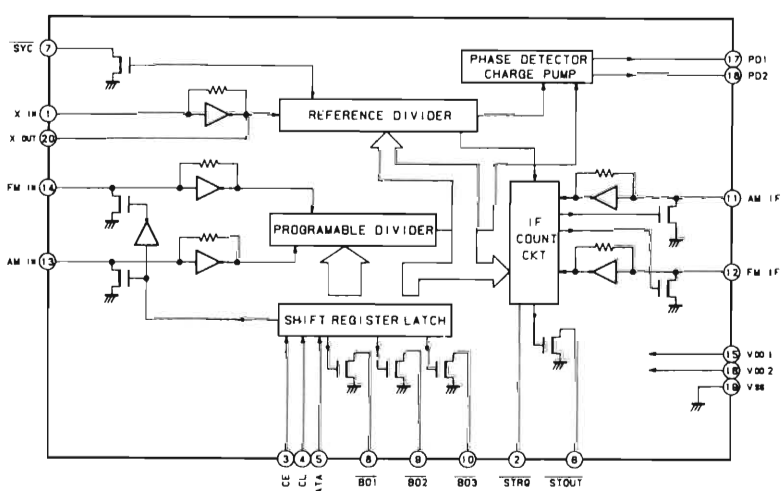
LA1245: IC101



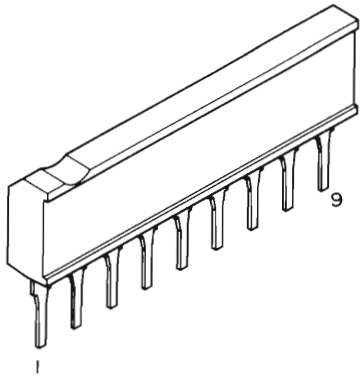


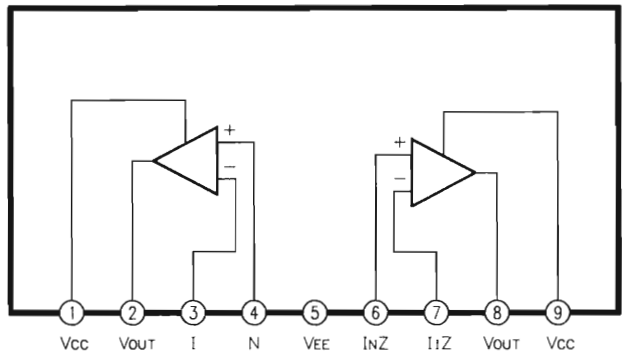
LM7000: IC102



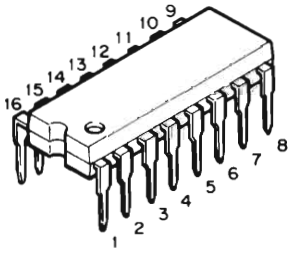


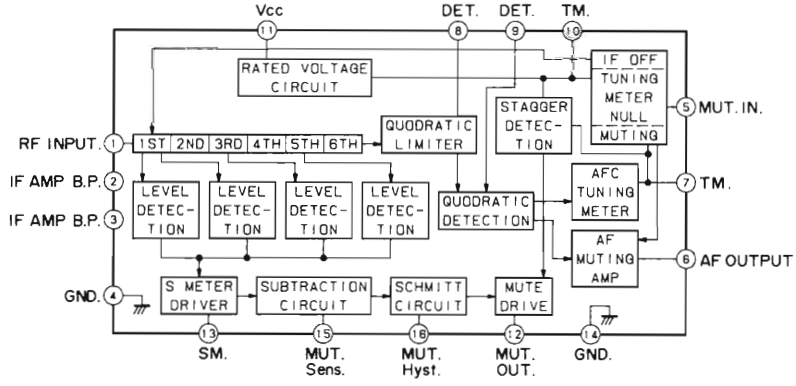
BA715DX: IC103



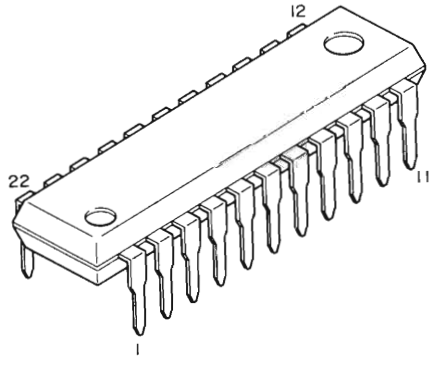


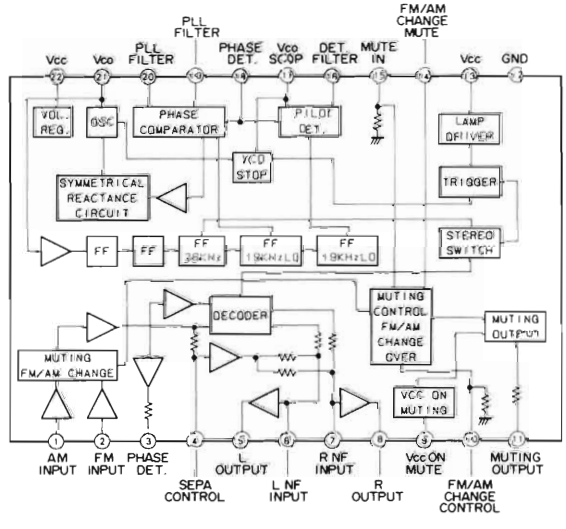
LA1235: IC105



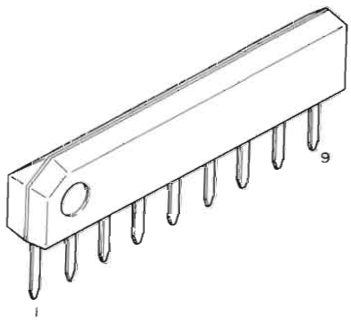


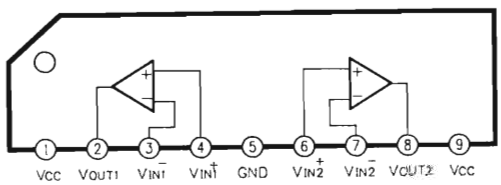
LA3401: IC106



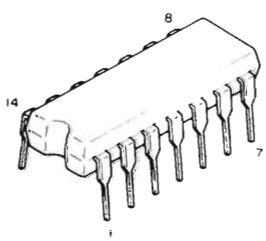


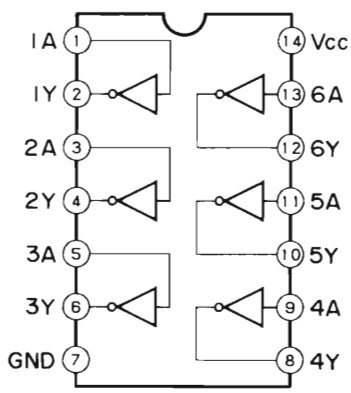
LA6393S: IC201,703



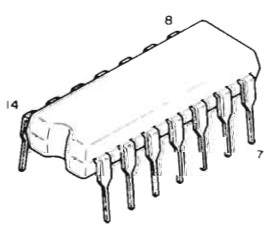


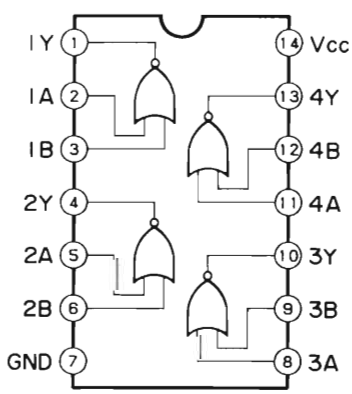
TC74HCU04P: IC202,203



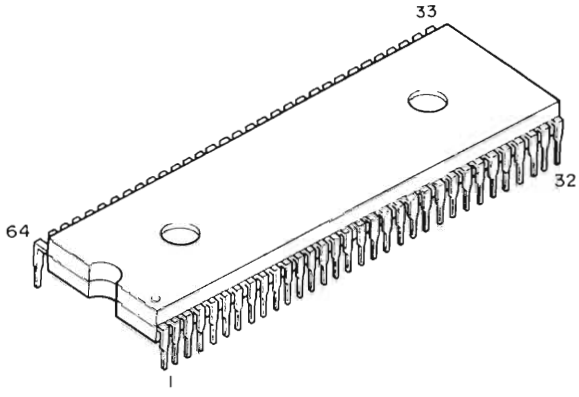


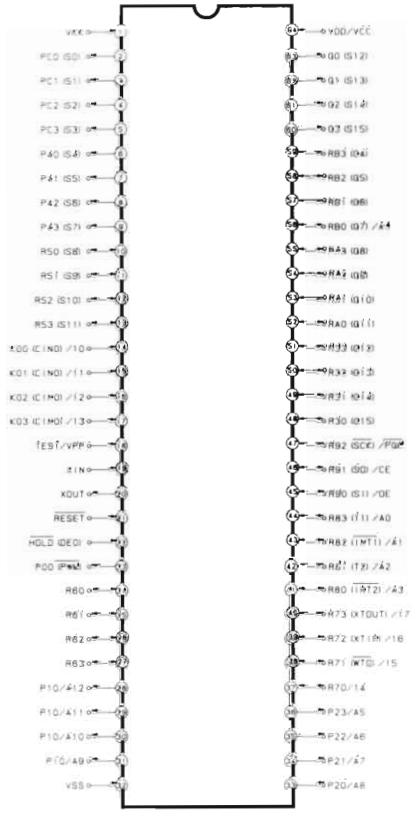
TC74HC02P: IC204,205



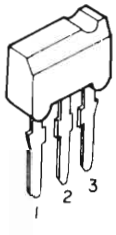


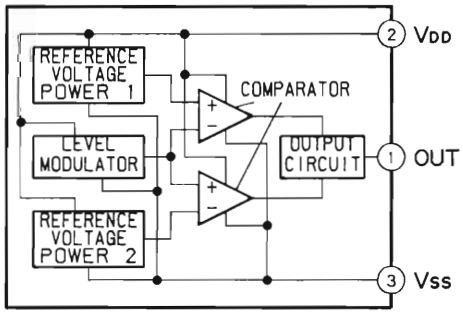
TMP47C: IC206



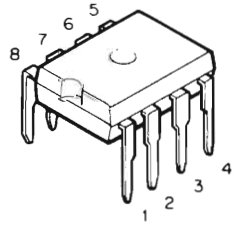


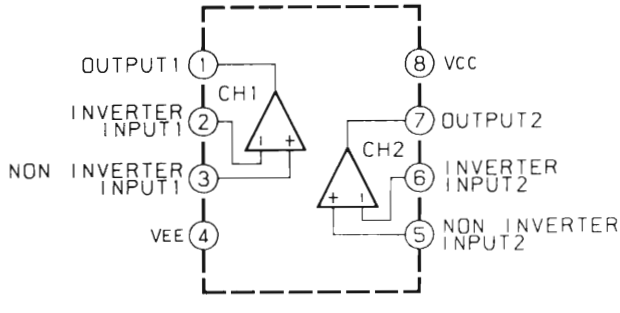
MN1280: IC207



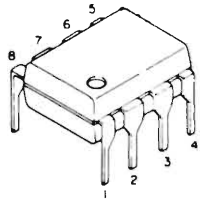


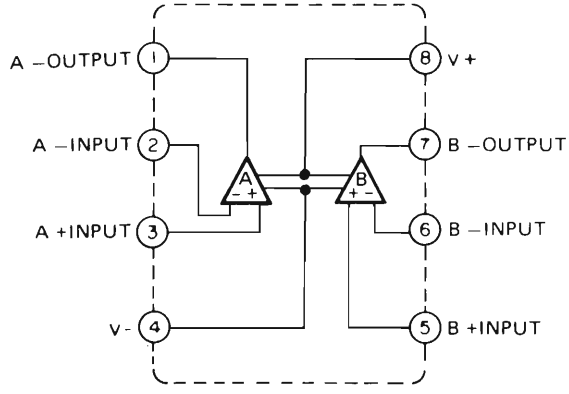
M5220P: IC301
M5216P: IC314
M5238P: IC302,306,501,601



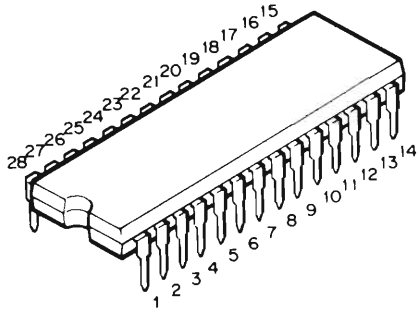


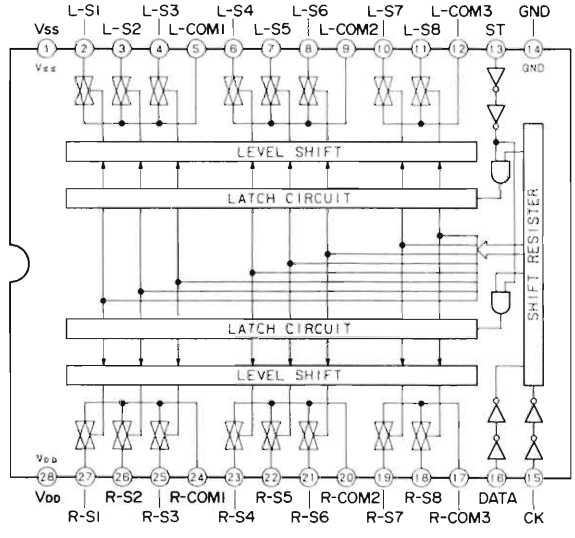
NJM4558D: IC303,304,305,307,308,313
IC502,602



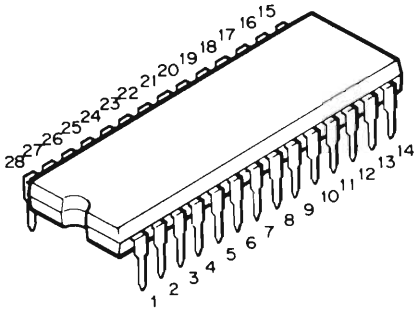


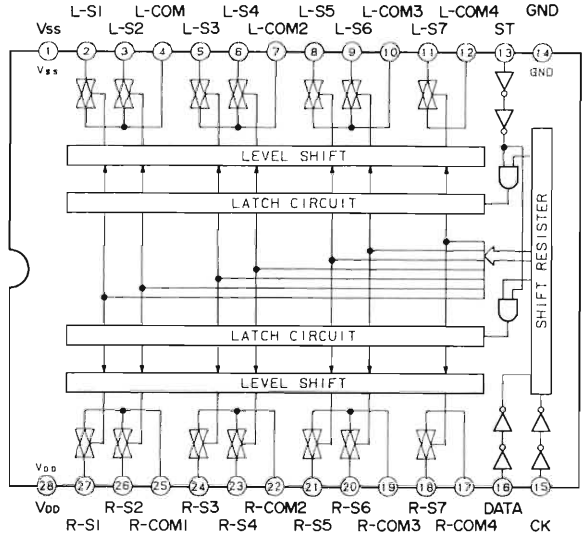
TC9163: IC309,310



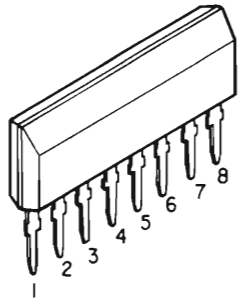


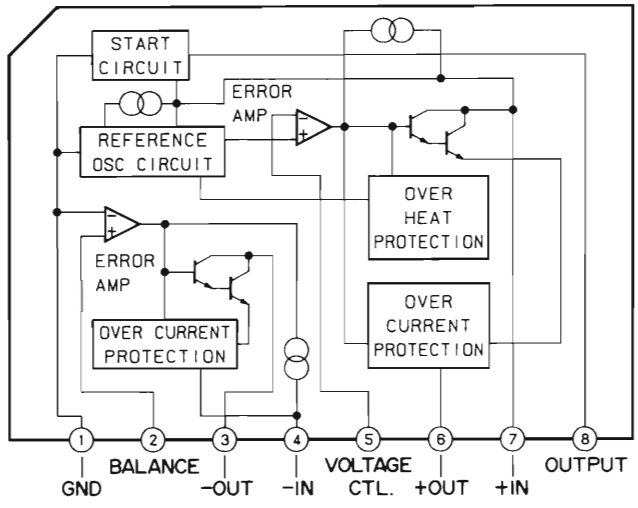
TC9162: IC311,312



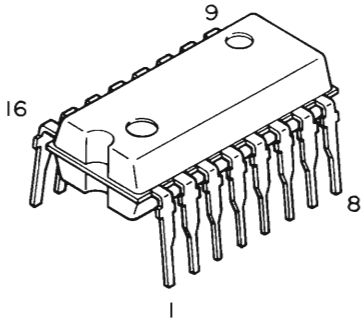


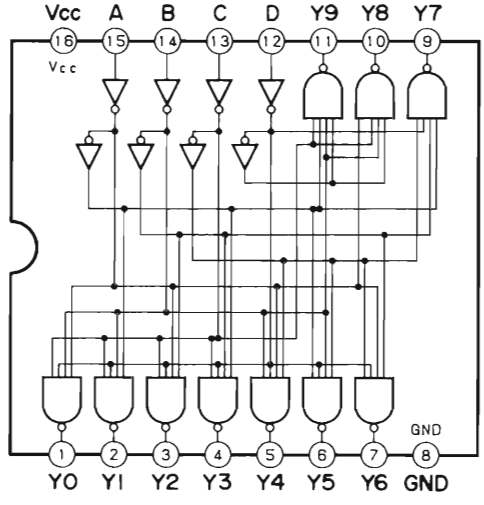
M5230L: IC315



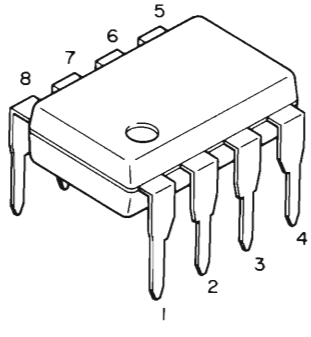


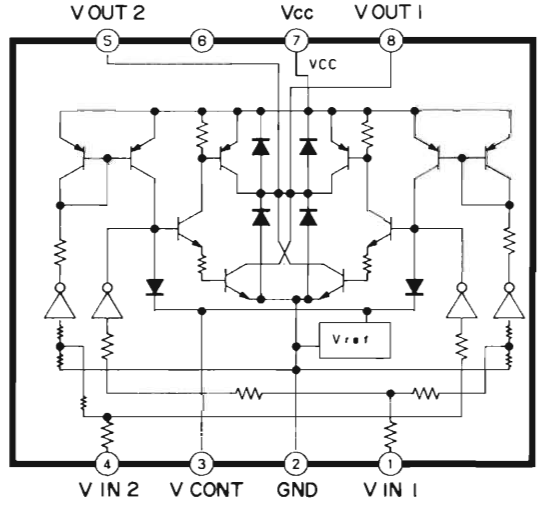
HD74145: IC316,317



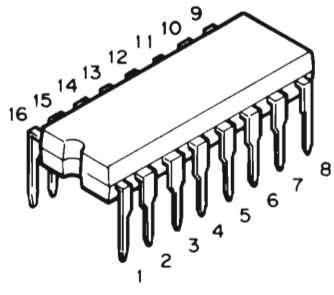


LB1630: IC701,702

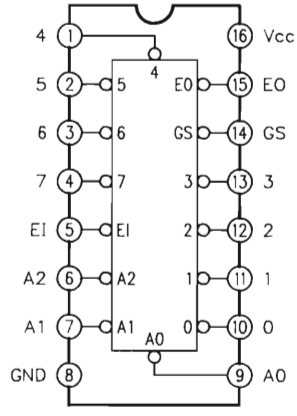




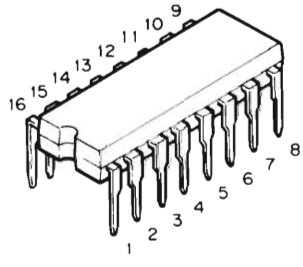
TC74HC148: IC801

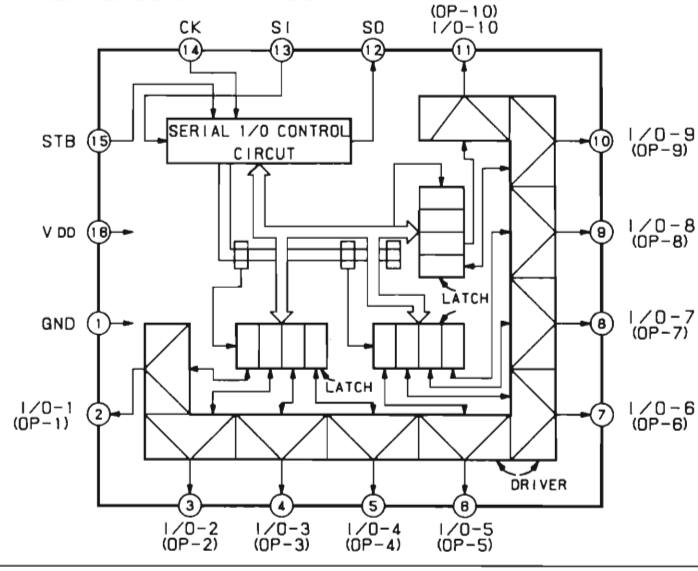


IC801

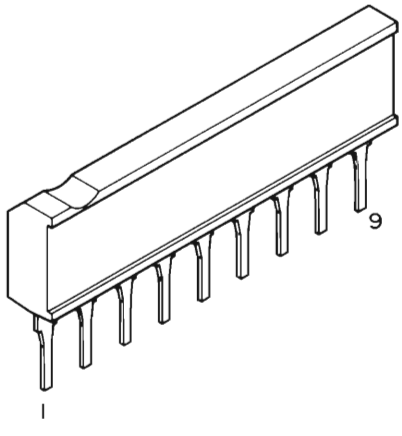


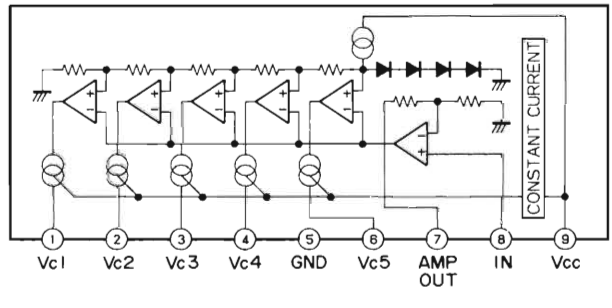
TC9173P: IC852



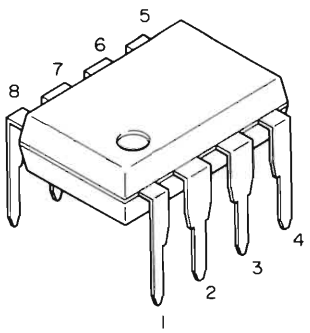


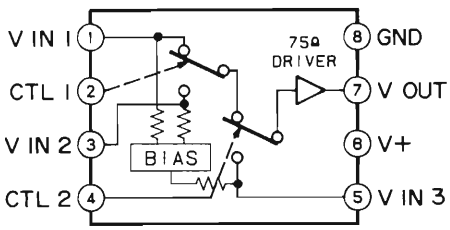
BA6125: IC853



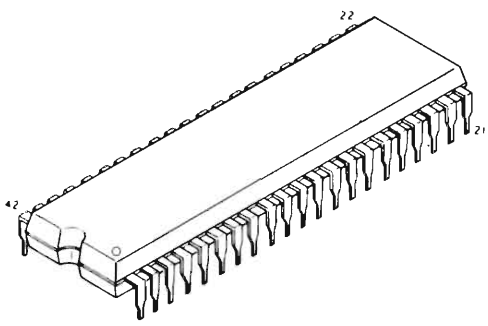


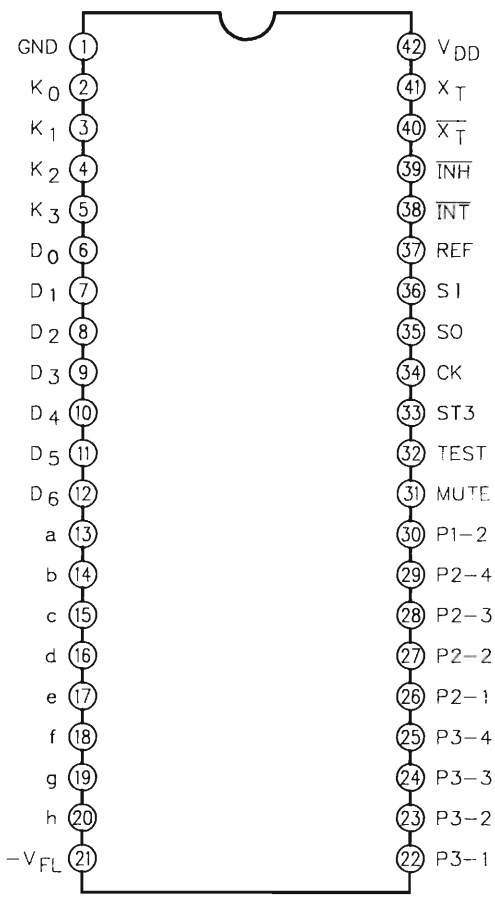
NJM2243D: IC903,904,907,908,909,910



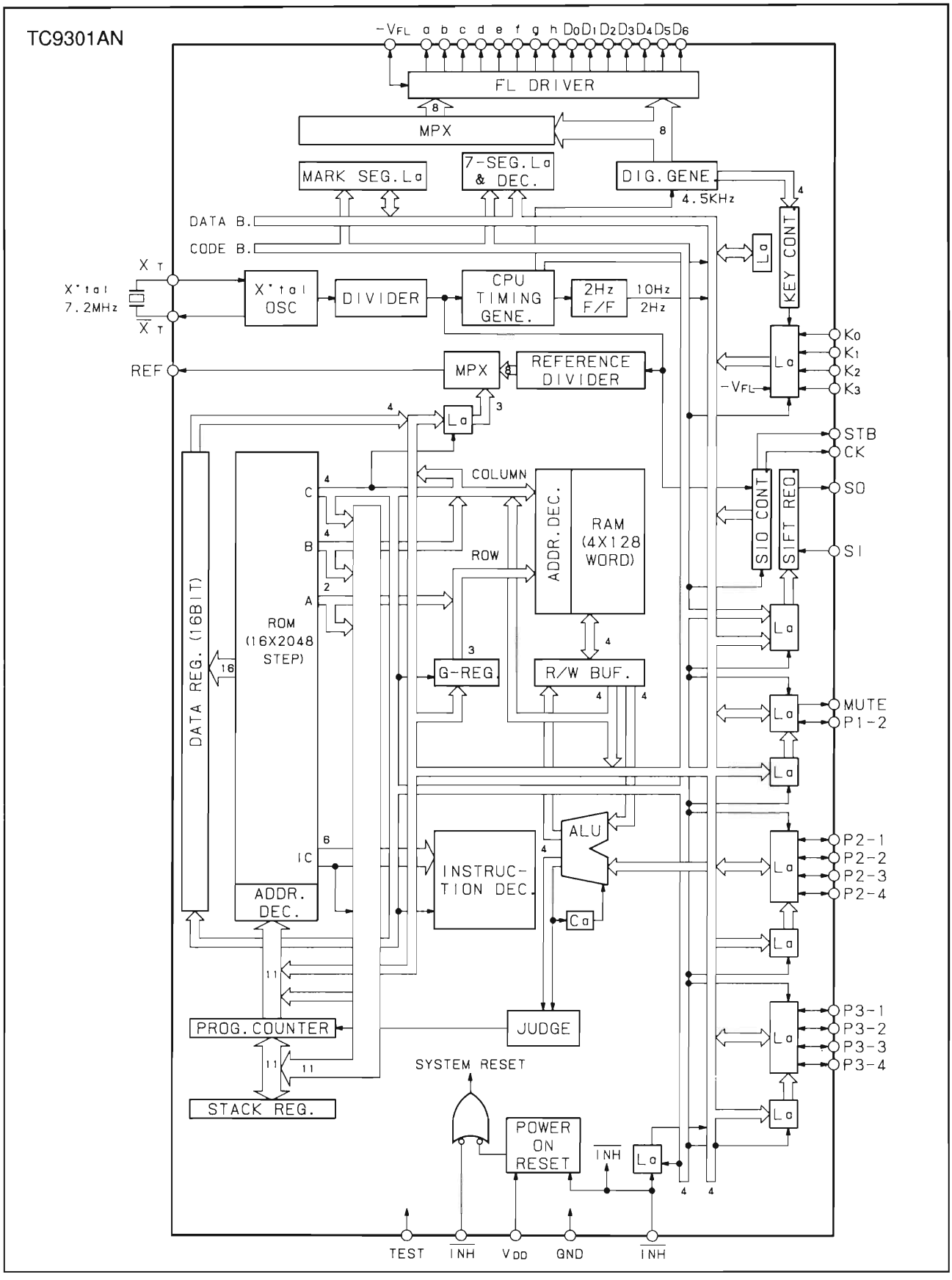


TC9301AN: IC851

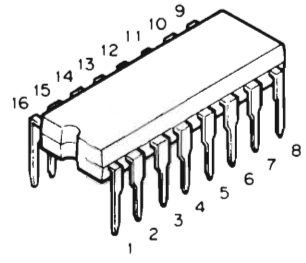


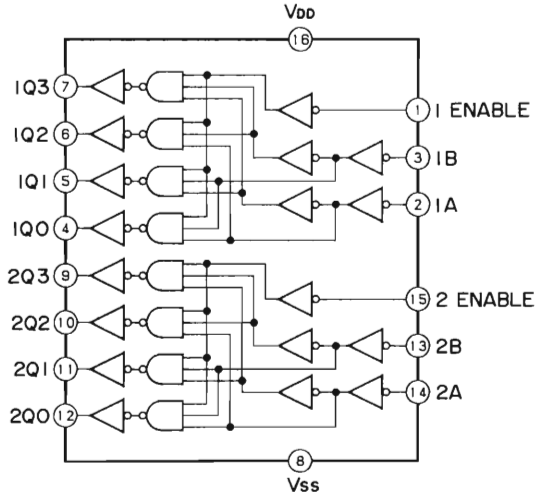


TC9301AN

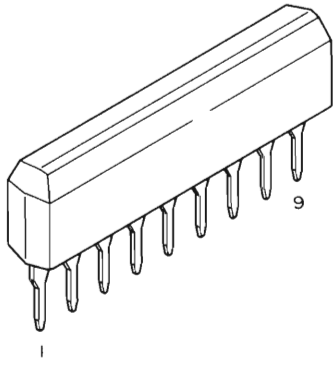

-VFL a b c d e f g h D0 D1 D2 D3 D4 D5 D6
FL DRIVER
MPX
MARK SEG. La
7-SEG. La & DEC.
DIG. GENE.
4.5KHz
DATA B.
CODE B.
KEY CONT
La
XT
X'tal 7.2MHz
X'tal OSC
DIVIDER
CPU TIMING GENE.
2Hz F/F
10Hz
2Hz
K0
K1
K2
K3
-VFL
REF
MPX
REFERENCE DIVIDER
STB
CK
SO
SI
COLUMN
ROW
ADDR. DEC.
RAM (4X128 WORD)
SIO CONT
SIFT REG.
DATA REG. (16BIT)
ROM (16X2048 STEP)
G-REG.
R/W BUF.
MUTE
P1-2
ALU
INSTRUC-TION DEC.
P2-1
P2-2
P2-3
P2-4
Ca
PROG. COUNTER
JUDGE
P3-1
P3-2
P3-3
P3-4
SYSTEM RESET
STACK REG.
POWER ON RESET
INH
TEST
VDD
GND

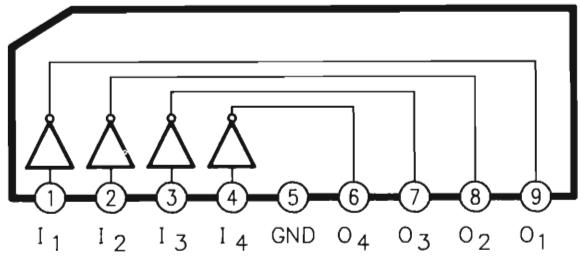
TC4555BP: IC905



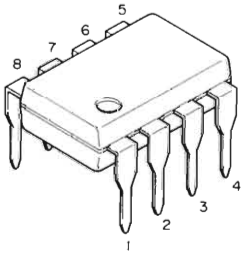


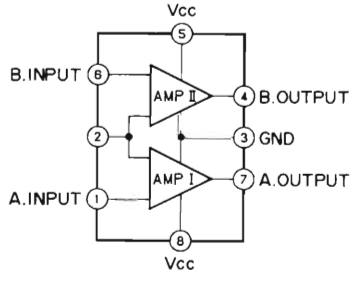
TD62555S: IC906



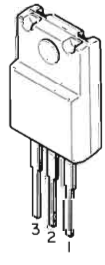


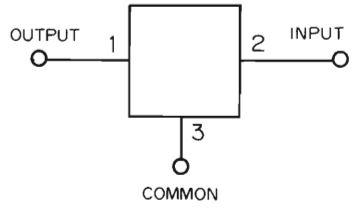
LA1222: IC104



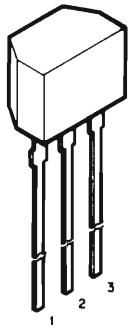


NJM7915FA: IC319
NJM7815FA: IC004, 318



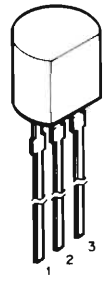


2SK161: Q101



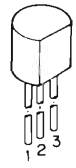
1. Drain
2. Source
3. Gate

2SK246: Q112



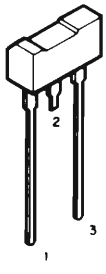
1. Source
2. Gate
3. Drain

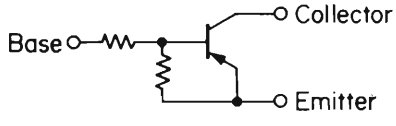
2SC1815: Q102,103,104,106,108,110,111,114,117,121,202,308,309,312,
Q313,754,801,901,902,903,904,905,906,907,908,909,910,911,917
2SC2120: Q201,918
2SD1302: Q301,302,303,304,305
2SA1015: Q306,307,311,755,851,852
2SA950: Q913,916



1. Emitter
2. Collector
3. Base

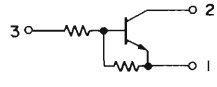
DTA114EL: Q105,109,115,116,118

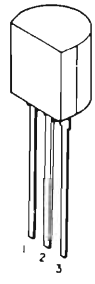




1. Emitter
2. Collector
3. Base

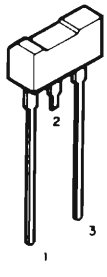
DTC144E: Q107,310,914,915
DTC114E: Q119,750
DTC124E: Q854

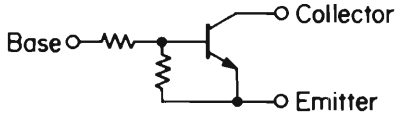




1. Emitter
2. Collector
3. Base

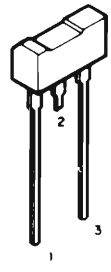
DTC124XL: Q701,702





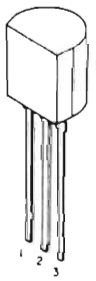
1. Emitter
2. Collector
3. Base

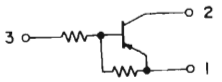
2SC4032: Q751,752,753



1. Emitter
2. Collector
3. Base

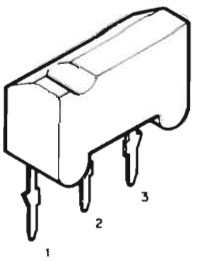
DTA114E: Q756,757
DTA124E: Q853





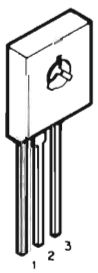
1. Emitter
2. Collector
3. Base

2SD1330: Q758



1. Emitter
2. Collector
3. Base

2SD880: Q912



1. Emitter
2. Collector
3. Base

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