SERVICE MANUAL

STEREO CASSETTE TAPE DECK

AL85

ALPINE

Contents

Specifications

Recording System	4 Track, 2 Channel Stereo
Tape Speed	4.76 cm/sec. ±1%
Wow and Flutter	0.03% (JIS WRMS)
Signal to Noise Ratio ("A" Curve WTD, Metal Position, R/P, from 400 Hz 3% Dist. Point)	
Dolby NR Off	54 dB
Dolby B-Type NR On	59 dB
Dolby C-Type NR On	64 dB
Distortion (400 Hz, 0 dB, Metal Position)	2%
Frequency Response by Reference Tape (–25 dB Level, Dolby NR Off)	
Metal (TDK AC-711)	20 Hz to 21 KHz (±3 dB)
CrO_2 (TDK AE-512)	20 Hz to 20 KHz (±3 dB)
FeCr (SONY CS-300)	20 Hz to 20 KHz (±3 dB)
Normal (TDK AC-223)	20 Hz to 20 KHz (±3 dB)
Bias Frequency	105 KHz
Erase Ratio	60 dB (125 Hz)
Crosstalk	60 dB (1 KHz, 0 dB)
Separation	35 dB (1 KHz, 0 dB)
Input Level/Impedance	
Mic	0.8mV/600 ohm
Line	100mV/15K ohm
Output Level/Impedance	
Line	1000mV ±1.5 dB/100K ohm
Headphone	500mV/8 ohm
Fast Forward/Rewind Time (C-60)	85 sec.
Take Up Torque	35 to 60 gcm
Fast Forward/Rewind Torque	70 to 130gcm
Power Consumption	40W
Power Source	110/127/220/240V, AC 50/60 Hz (For Multi-Voltage Model) 120V, AC 60 Hz (For Single-Voltage Model)
Dimensions	435(W) x 126(H) x 347(D) mm
Weight	9.5 Kg

* Specifications and characteristics are subject to change without prior notice.

* Noise reduction system manufactured under licence from Dolby Laboratories Licensing Corporation.
"Dolby and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

Parts Locations and Disassembly Instructions

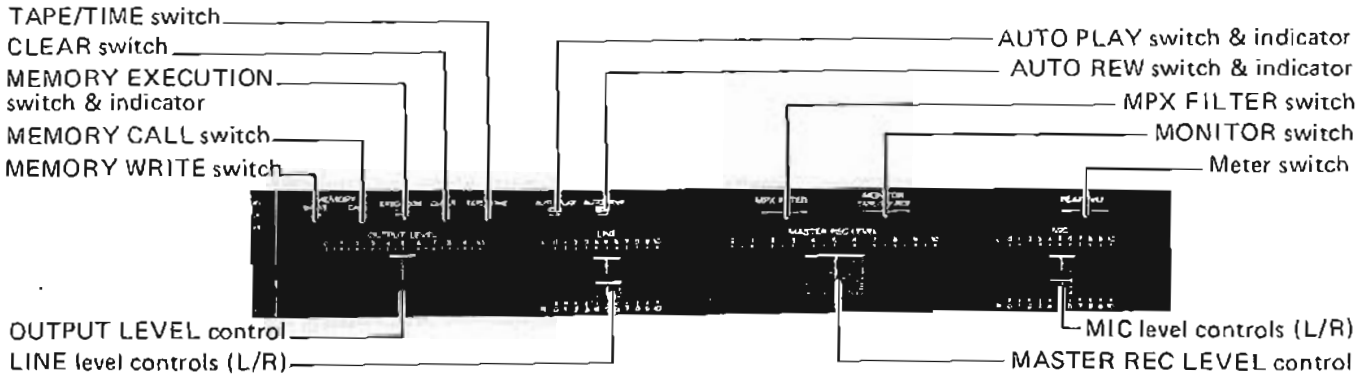


Figure 1

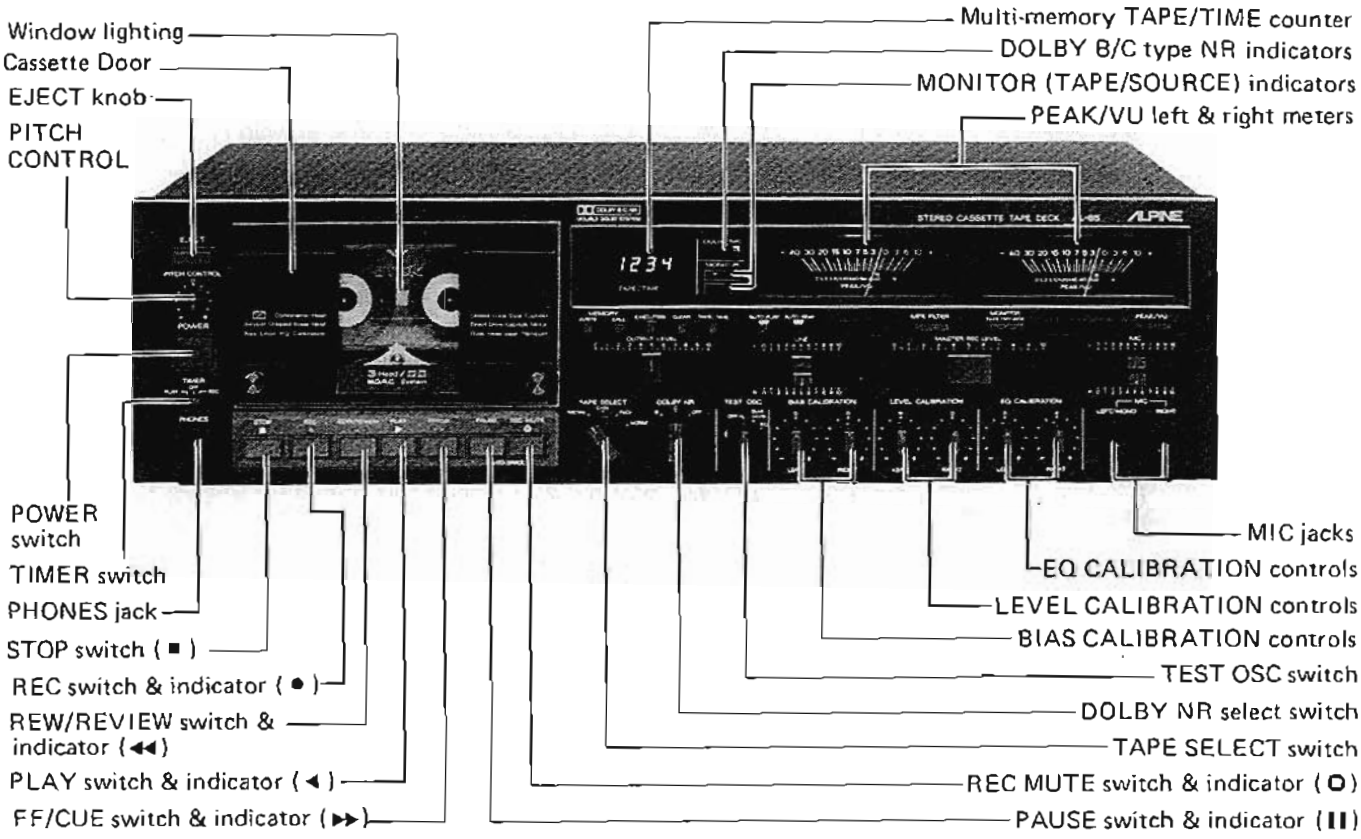


Figure 2

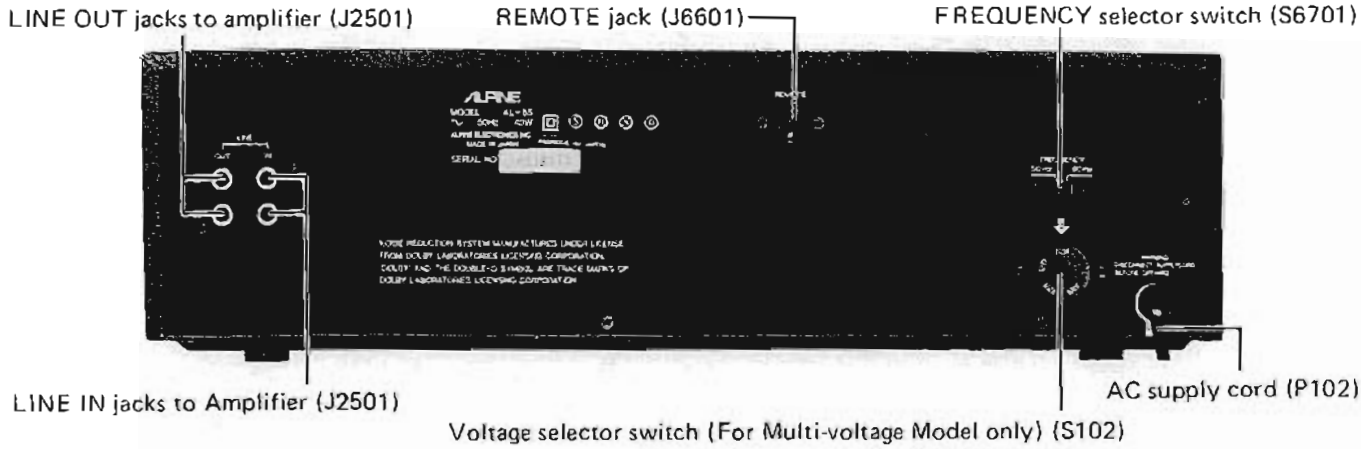


Figure 3

1. Removal of Top Cover
   (1) Remove six screws (A) as shown in Figure 4.
   (2) Remove the top cover backward.

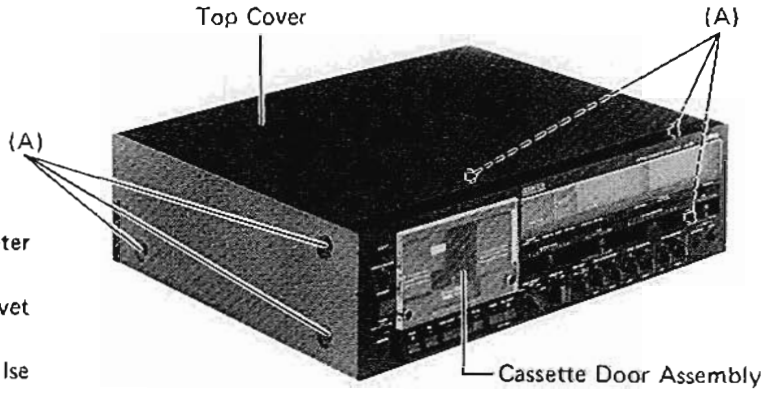


Figure 4

2. Removal of Panel Bracket with Pulse OSC & Meter Sensitivity Control P.C. Boards
   (1) Remove two screws (B) and one push rivet (△) as shown in Figure 5.
   (2) Remove the panel bracket upward with pulse OSC and MSC P.C. Boards.
   (3) Remove four push rivets (凹) as shown in Figure 5.
   (4) Disconnect all connectors from the pulse OSC and MSC P.C. Boards.
3. Removal of Control P.C. Board Assembly
   (1) Remove the push rivet (▲) as shown in Figure 5.
   (2) Disconnect all lead wires and connectors from the P.C. Board.
   (3) Pull out the P.C. Board upward.

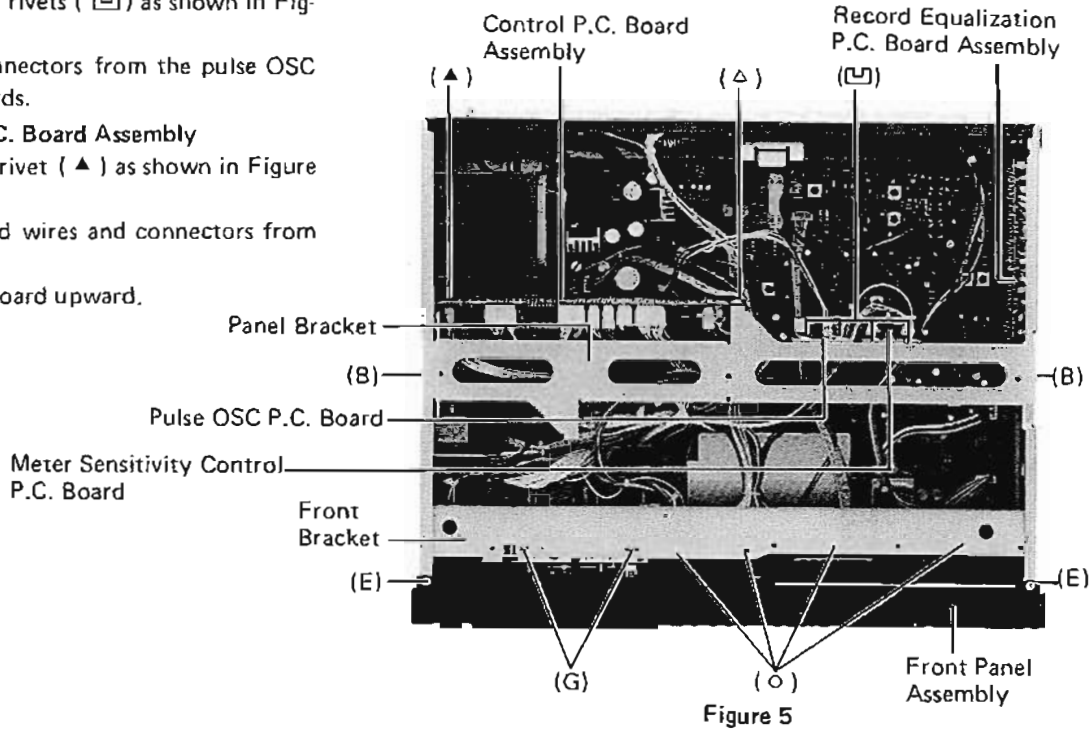


Figure 5

4. Removal of Record Equalization P.C. Board Assembly
   (1) Remove two push rivets (★) as shown in Figure 6.
   (2) Pull out the P.C. Board upward.

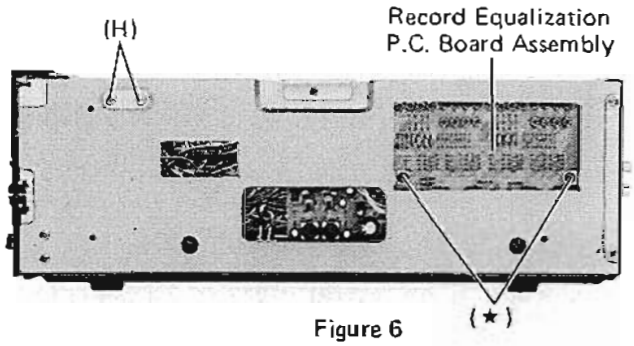


Figure 6

5. Removal of Phono Plate P.C. Board
   (1) Remove two screws (C) as shown in Figure 7.
   (2) Disconnect all connectors from the P.C. Board.

6. Removal of Remote Jack P.C. Board
   (1) Remove two screws (D) as shown in Figure 7.
   (2) Disconnect the 8 pin connector from the control P.C. Board.

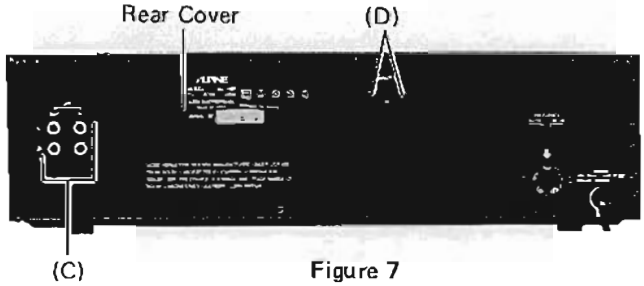


Figure 7

7. Removal of Front Panel Assembly
   (1) Remove two screws (E) as shown in Figure 5.
   (2) Remove four screws (F) as shown in Figure 8.
   (3) Remove the front panel assembly toward you.

8. Removal of Front Bracket
   (1) Remove two screws (G) and four push rivets (○) as shown in Figure 5.
   (2) Remove two screws (H) as shown in Figure 6.
   (3) Remove two screws (I) as shown in Figure 9.
   (4) Remove the front bracket.

9. Removal of Cassette Deck Assembly
   (1) Remove four screws (L) as shown in Figure 11.
   (2) Disconnect all connectors from the P.C. Board.

10. Removal of Cover Bottom and Support Chassis
   (1) Remove five screws (R) as shown in Figure 8 and the cover bottom can be taken off.
   (2) Remove four screws (S) as shown in Figures 9 and 14 and the support chassis can be taken off.

11. Removal of Pitch Control P.C. Board Assembly
   (1) Remove two screws (J) and two push rivets (●) as shown in Figure 9.
   (2) Disconnect three connectors from the P.C. Board.

12. Removal of Power Switch
   (1) Remove two screws (K) as shown in Figure 9.
   (2) Disconnect all wires from power switch.

13. Removal of Timer Switch
   (1) Remove two screws (T) as shown in Figure 10.
   (2) Disconnect all connectors from the P.C. Board.

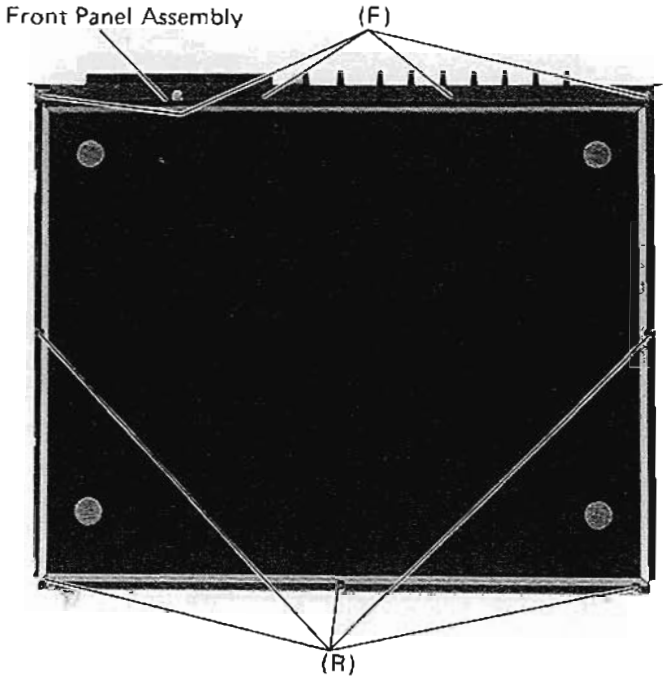


Figure 8

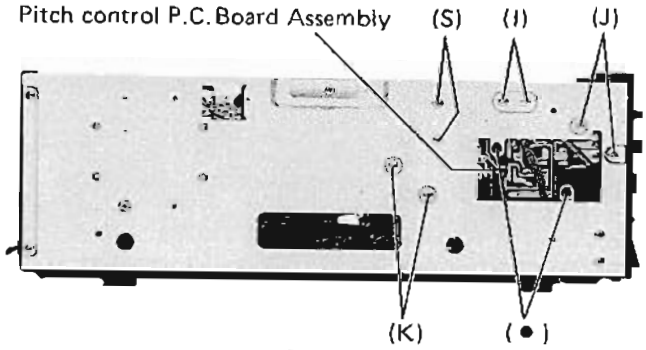


Figure 9

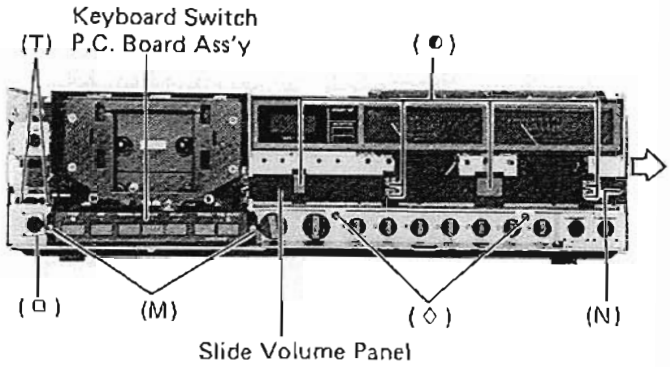


Figure 10

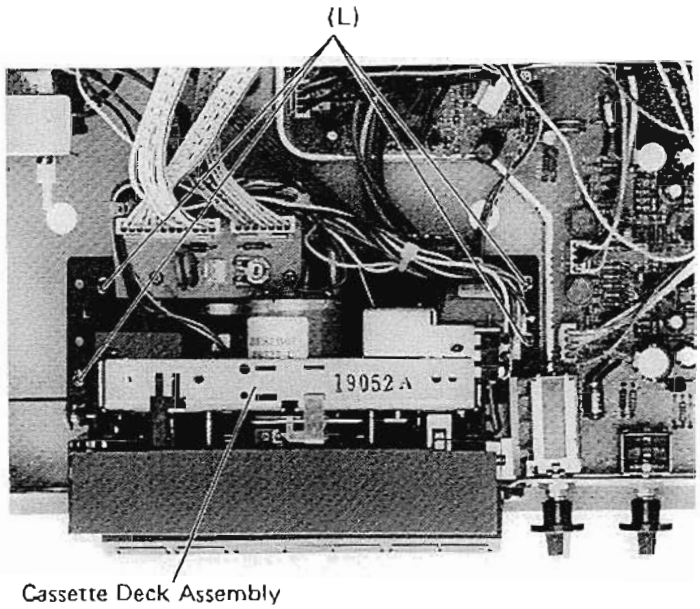


Figure 11

14. Removal of Keyboard Switch P.C. Board Assembly
    (1) Remove two screws (M) as shown in Figure 10.
    (2) Disconnect all connectors from the P.C. Board.

15. Removal of Headphone P.C. Board
    (1) Remove two stoppers (□) as shown in Figure 10.
    (2) Remove the Headphone P.C. Board.

16. Removal of Meter, Volume & Switch Assembly
    (1) Remove two push rivets (◇) as shown in Figure 10.
    (2) Disconnect all connectors from the P.C. Board.
    (3) Removal of Meter
        1) Carefully pull out the meter plate (Q) as shown in Figure 12.
        2) Disconnect all wires from Meter.
    (4) Removal of Lamp P.C. Board.
        Remove the push rivet (◆) as shown in Figure 12.
    (5) Removal of Volume & Switch P.C. Board.
        1) Remove the screw (N) and the slide volume panel in the arrow direction as shown in Figure 10.
        2) Carefully pull out six knobs (◐) as shown in Figure 10.
        3) Remove thirteen screws (P) as shown in Figures 12 and 13.

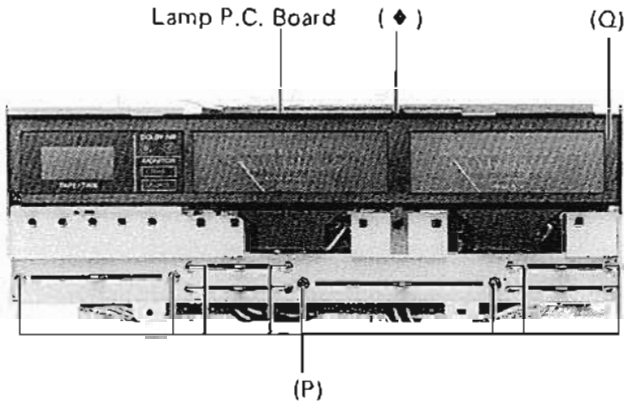


Figure 12

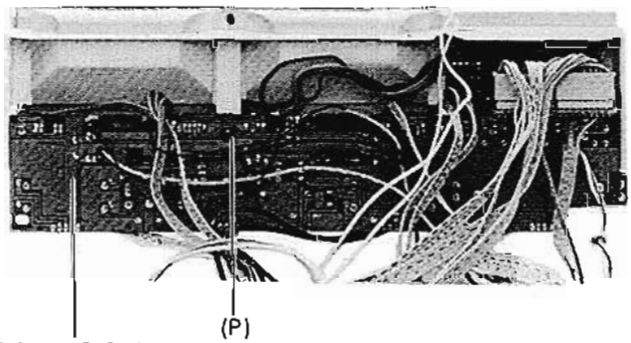


Figure 13

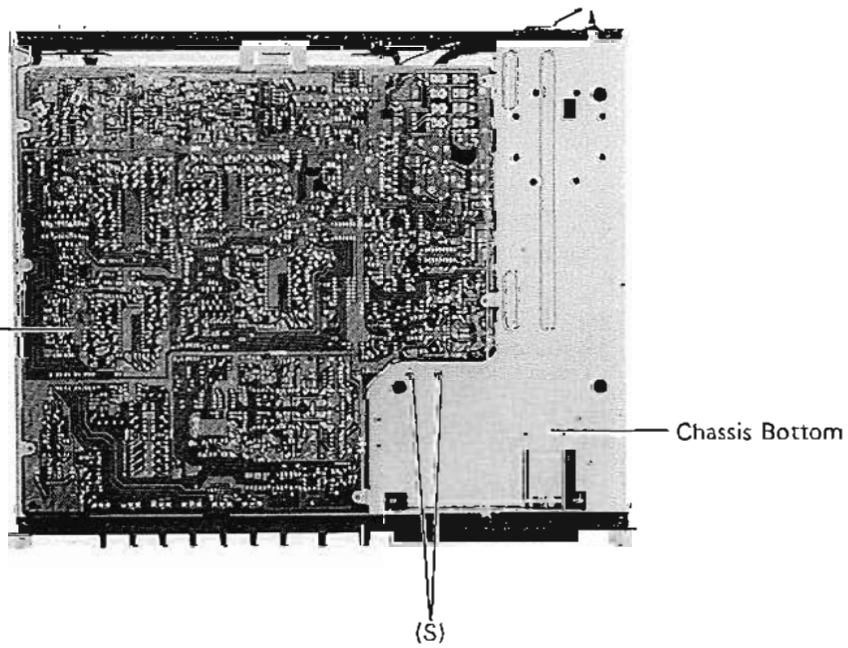


Figure 14

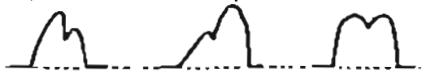
Adjustment Procedures

Notes: (1) Adjustments are proceeded under the following conditions such as switch and volume settings unless otherwise noted.
1. MONITOR switch: TAPE
2. PEAK/VU Left & Right meters: PEAK
3. TAPE SELECT switch: NORM
4. DOLBY NR select switch: OFF
5. PITCH CONTROL: Center
6. BIAS FINE control: Center
7. MIC level controls: Minimum (L/R)
8. OUTPUT LEVEL control: Maximum
9. Other switches: Off position

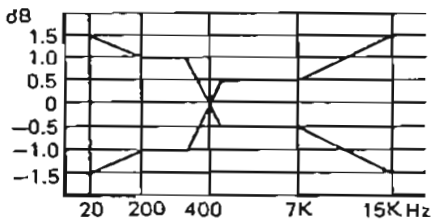
(2) The LINE and REC LEVEL volumes on these adjustments follow as positions in step 11.

Step	Adjustment Items	Mode	Adjustment Parts	Test Points	Connection	Remarks
1	DC Voltage check	STOP			Figure 18	Check voltage at each Test Point. Test Point: TP101 | TP102 | TP103 | TP104 Voltage(V): 27 | 16 | 12 | 22 Test Point: TP105 | TP106 | TP107 Voltage(V): −15 | AC 7 | 15
2	Head Height and Tilt Angle		Screws A, B (Figure 15)			• Measurement Gauge: M-300 1. Head Height (Figure 16) The guide check bar should smoothly pass through the tape guide. 2. Tilt Angle (Figure 17) The guide check bar should stay in parallel with the guide plate or the top of the guide check bar should tilt a little forward you.
3	Tape Guide of Supply Pinch Roller		Screw D (Figure 15)			• Measurement Gauge: M-300 The guide check bar should smoothly pass through the tape guide of supply pinch roller. (Figure 16)
4	Head Azimuth	PLAY	Screw C (Figure 15)	TP3103(L) TP3104(R)	Figure 19	• Test Tape: MTT-114 (10 KHz) The left and right outputs are in-phase and maximum and equal in amplitude. If the azimuth screw movement is too large, readjust the head height and Tilt angle in step 2.
5	Tape Speed	PLAY	VR1	TP3103 or TP3104	Figure 20	• Test Tape: MTT-111 (3,000 Hz) Adjust VR1 to obtain output frequency reading of 3,000 ±10 Hz at TP3103 or TP3104.

Step	Adjustment Items				Connection	Remarks
6	Playback EQ and Peak Point	PLAY	S201 VR251 } L S202 VR252 } R	TP2105(L) TP2106(R)	Figure 21	1. Set unit to playback mode with a blank tape loades. 2. Feed 200 Hz test signal from AF oscillator and adjust oscillator output so that 1V (= 0 dB) output is developed at each test point. Change oscillator frequency to 20 Hz and 7 KHz so that output levels shown below are obtained. Change oscillator frequency to 29 KHz and adjust S201, 202, VR251, 252 to find a peak level so that a peak is developed between 27 KHz and 29 KHz. * To obtain a peak point is easy to rotate VR251, 252 clockwise. Frequency Hz: 20 / 7K / 27K ~ 29K Output dB: +11 / −16.5 / −10.5 3. Check for −16.5 dB output at 7 kHz. 4. Check for −20.5 dB output at 7 KHz when Metal position is selected.
7	Dolby Level	PLAY	VR253(L) VR254(R)	TP3103(L) TP3104(R)	Figure 19	• Test tape: MTT-150 (400 Hz) Adjust to obtain 580mV output at each test point.
8	Input Sensitivity Reference level (Dolby Level)	STOP MONITOR: SOURCE	REC LEVEL VOLUME LINE VOLUME	TP3001(L) TP3002(R)	Figure 22	AF OSC: 400 Hz, 100mV (Dolby level) Input. Adjust to obtain 580mV output at each test point.
9	Level Meter Input	STOP MONITOR: SOURCE	VR453(L) VR454(R)	TP451 TP453 } L TP452 TP454 } R	Figure 23	1. Adjust each the left and right channels independently. 2. AF OSC: 400 Hz, 316mV (Dolby level + 10 dB) Input. Adjust to obtain 1000mV reading between TP451 & TP453 (TP452 & TP454).
10	(1) Level Meter 0dB Reading	STOP MONITOR: SOURCE	VR451(L) VR452(R)	Level Meter	Figure 22	1. AF OSC: 400 Hz, 100mV (Dolby level) Input. Adjust for 0 dB reading on Level Meter. 2. AF OSC: Decrease oscillator output level by 20 dB. Check the level meter pointer indicates −20 dB.

<table>
<tr><th>Step</th><th>Adjustment Items</th><th>Mode</th><th>Adjustment Parts</th><th>Test Points</th><th>Connection</th><th>Remarks</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td>3. AF OSC: Increase oscillator output level by 10 dB from 100mV reference level.
Check the level meter pointer indicates +10 dB.</td></tr>
<tr><td></td><td>(2) TONE OSC Level</td><td>STOP
MONITOR: SOURCE</td><td>VR801 } L
VR803 }
VR802 } R
VR804 }</td><td>Level Meter</td><td>Figure 22</td><td><table><tr><th>TONE SW Position</th><th>BIAS LEVEL</th><th>EQ</th></tr><tr><td></td><td>VR801, 802</td><td>VR803, 804</td></tr></table>• Adjust to obtain level meter pointer indicates 0 dB.</td></tr>
<tr><td>11</td><td>Rec EQ Peaking fo</td><td>REC/PLAY</td><td>L501(L)
L502(R)</td><td>TP515(L)
TP516(R)</td><td>Figure 22</td><td>AF OSC: 28 kHz, 5.6mV (−25 dB) Input.
Adjust to obtain maximum output at each test point.</td></tr>
<tr><td rowspan="3">12</td><td>BIAS
(1) OSC Frequency (ERASE)</td><td>REC/PLAY
T. SELECT: METAL</td><td>T503</td><td>TP501
TP502(G)</td><td rowspan="2">Figure 25</td><td>TEST TAPE: BLANK TAPE
Adjust to obtain frequency reading of 105 kHz at test point. The output level under this condition should be approx. 60 ∿ 70mV (125mA)
* TP513 value approx<table><tr><th>T. Select</th><th>METAL</th><th>CrO_2</th><th>FeCr</th><th>NORM</th></tr><tr><td>V</td><td>12</td><td colspan="3">9</td></tr></table></td></tr>
<tr><td>(2) Bias Current</td><td>REC/PLAY
T.SELECT
METAL</td><td>T501(L)
T502(R)</td><td>TP503(L)
TP504(R)
TP505,
TP506(G)</td><td>1. TEST TAPE: BLANK TAPE
Connect oscilloscope to emitter of Q553 (Q555), Q554 (Q556) and adjust to obtain scope display shown below with maximum amplitude across test points.
 
NG NG OK
Emitter output voltage wave forms of Q553 (Q555), Q554 (Q556)
* (Oscilloscope: 5μs/cm 0.2V/cm Set)</td></tr>
<tr><td>Bias Current Temporarily Setting</td><td>REC/PLAY
<table><tr><td>T. Select</td><td>L, R</td></tr><tr><td>METAL</td><td>VR507, VR508</td></tr><tr><td>CrO_2</td><td>VR505, VR506</td></tr><tr><td>FeCr</td><td>VR503, VR504</td></tr><tr><td>NORM</td><td>VR501, VR502</td></tr></table></td><td></td><td>TP511(L)
TP512(R)</td><td>2. TEST TAPE: BLANK TAPE
Check oscillator frequency set in step 12 (1), and if the frequency has been upset, proceed steps 12 (1) ∿ (2).<table><tr><th>Bias Current</th><th>*Voltage at TP511, 512 approx</th></tr><tr><td>−42 dBv (3.5mA)</td><td>4.5V</td></tr><tr><td>−47 dBv (2.0mA)</td><td>3.0V</td></tr><tr><td>−48.5 dBv (1.7mA)</td><td>2.5V</td></tr><tr><td>−51 dBv (1.3mA)</td><td>2.0V</td></tr></table></td></tr>
</table>

<table>
<tr><th>Step</th><th>Adjustment Items</th><th>Mode</th><th>Adjustment Parts</th><th>Test Points</th><th>Connection</th><th>Remarks</th></tr>
<tr><td></td><td>(3) Bias Trap</td><td>REC/PLAY
T. SELECT:
METAL</td><td>L503, L505 } L
L504, L506 } R</td><td>TP509(L)
TP510(R)</td><td></td><td>1. TEST TAPE: BLANK TAPE
Adjust to obtain minimum amplitude of Bias voltage wave form at each test point.
2. Check oscillator frequency set in step 12 (1), and if the frequency has been upset, readjust the frequency according to steps 12 (1) ∿ (3).</td></tr>
<tr><td>13</td><td>Peak Bias</td><td>REC/PLAY
<table><tr><th colspan="2">T. Select</th><th>L, R</th></tr><tr><td rowspan="2">METAL</td><td>Level</td><td>VR5509, VR5510</td></tr><tr><td>Bias</td><td>VR507, VR508</td></tr><tr><td rowspan="2">CrO_2</td><td>Level</td><td>VR5511, VR5512</td></tr><tr><td>Bias</td><td>VR505, VR506</td></tr><tr><td rowspan="2">FeCr</td><td>Level</td><td>VR5513, VR5514</td></tr><tr><td>Bias</td><td>VR503, VR504</td></tr><tr><td rowspan="2">NORM</td><td>Level</td><td>VR5515, VR5516</td></tr><tr><td>Bias</td><td>VR501, VR502</td></tr></table></td><td></td><td>LINE OUT</td><td>Figure 26</td><td>1. Level
AF OSC: 400 Hz, 5.6mV (−25 dB) from 100mV) Input.
Adjust Level Adjust Volume until record/playback output of 56mV, which is the same level as that of SOURCE, is obtained.
2. Bias
AF OSC: 400Hz, 100mV (Dolby Level) Input.
Adjust Bias Adjust Volume so that Distortion Values shown in table below is obtained.
<table><tr><th>Reference Tape</th><th>AF OSC Level</th><th>Distortion</th><th>Line Out</th></tr><tr><td rowspan="2">AC-711</td><td>5.6mV</td><td>–</td><td>56mV</td></tr><tr><td>100mV</td><td>1.0% (Max. 2.0%)</td><td>approx. 1,000mV</td></tr><tr><td rowspan="2">AE-512</td><td>5.6mV</td><td>–</td><td>56mV</td></tr><tr><td>100mV</td><td>1.4% (Max. 2.0%)</td><td>approx. 1,000mV</td></tr><tr><td rowspan="2">CS-300</td><td>5.6mV</td><td>–</td><td>56mV</td></tr><tr><td>100mV</td><td>1.0% (Max. 2.0%)</td><td>approx. 1,000mV</td></tr><tr><td rowspan="2">AC-223</td><td>5.6mV</td><td>–</td><td>56mV</td></tr><tr><td>100mV</td><td>1.0% (Max. 2.0%)</td><td>approx. 1,000mV</td></tr></table>* If level differences between TAPE and SOURCE positions are observed at −25 dB and 0 dB level alignments, the former should have priority over the latter.
* Confirm LEVEL & BIAS controls are at center click position.</td></tr>
</table>

<table>
<tr><th>Step</th><th>Adjustment Items</th><th>Mode</th><th>Adjustment Parts</th><th>Test Points</th><th>Connection</th><th>Remarks</th></tr>
<tr><td>14</td><td>PB AMP
Bias Trap</td><td>REC/PLAY
T. SELECT:
METAL</td><td>L251, L253 }-L
L252, L254 }-R
L351(L)
L352(R)</td><td>TP2105(L)
TP2106(R)
TP3101(L)
TP3102(R)</td><td>Figure 27</td><td>1. AF OSC: 400 Hz, 56mV (−25 dB from 1V) Input.
If record/playback output signal (wave form) is modulated or superimposed with high frequency signals (Bias signal), adjust for minimum amplitude of the high frequency signals.
2. If level variation is observed at Dolby NR: C position, readjust L351 & L352 for minimum amplitude of scope display at 400 Hz.
* Record/Playback output wave form superimposed with bias signal.
  </td></tr>
<tr><td>15</td><td>Record/Playback Frequency Response</td><td>REC PLAY</td><td></td><td>LINE OUT</td><td>Figure 24</td><td>AF OSC: 56mV (−25 dB from 1V) Input.
 
<Specifications of Record/Playback Frequency Response>
Adjust respective trimming resistor so that record/playback frequency response within the above limits, (referred to 400 Hz) is obtained.</td></tr>
</table>

	Adjustment Parts			
	Reference Frequency 400 Hz L, R	Mid & Hi Frequencies 7 kHz L, R	High Frequency 15 kHz L, R	Reference Tape
T. Select				
Metal	VR5509, VR5510	VR5501, VR5502	VR5517, VR5518	AC-711
CrO2	VR5511, VR5512	VR5503, VR5504	VR5519, VR5520	AE-512
FeCr	VR5513, VR5514	VR5505, VR5506	VR5521, VR5522	CS-300
NORM	VR5515, VR5516	VR5507, VR5508	VR5523, VR5524	AC-223

Procedure (Reference: Source)			
	400 Hz	7 kHz	15 kHz
METAL	0 dB	+0.5 dB	+0.5 dB
CrO_2			
FeCr			
NORM	−0.5 dB	+0.5 dB	+0.5 dB

Step	Adjustment Items	Mode	Adjustment Parts	Test Points	Connection	Remarks
						* A. If the frequency response is out of specifications, try to re-adjust, using following steps: 1. Step 15 2. Steps 2 ∿ 4 3. Step 13 (Try to change bias signal level within a range on which audio output distortion does not exceed maximum limit.) B. If the frequency response is out of specifications over high end, try to repeat step 6.
16	MSC Adj.	REC/PLAY	VR4501 VR4502	LINE OUT LEVEL METER	Figure 24	AF OSC: 400 Hz, 4mV (−28 dB from 100mV) Input. 1. Confirm each output (REC/PLAY LEVEL) of TAPE & SOURCE is −28 dB. 2. Set TONE switch to BIAS LEVEL and adjust to obtain 0 dB on LEVEL METER.

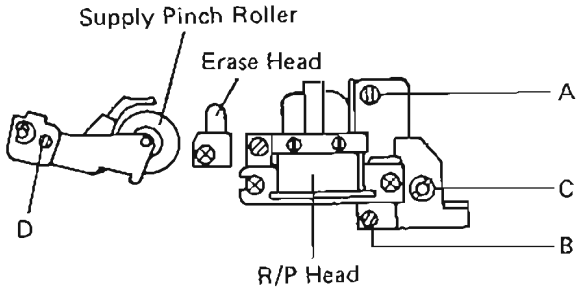


Figure 15

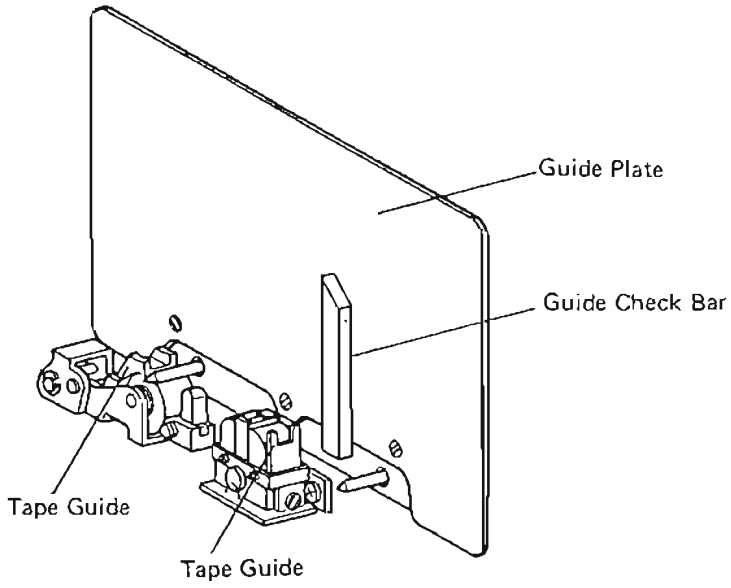


Figure 16

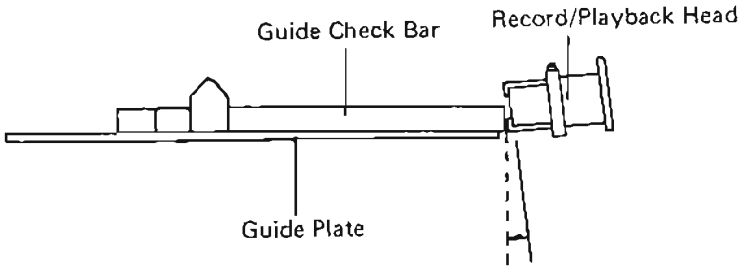


Figure 17

CONNECTION DIAGRAMS

Step	T.P
1	101 ∿ 107

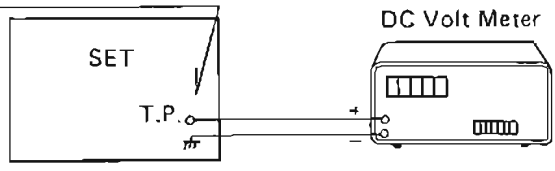


Figure 18

Step	T.P.
4 7	3103, 3104

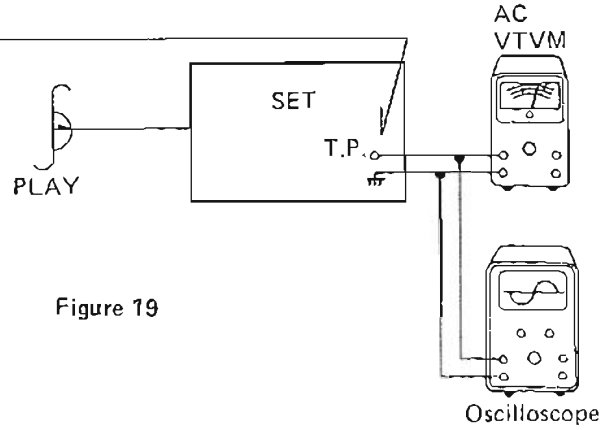


Figure 19

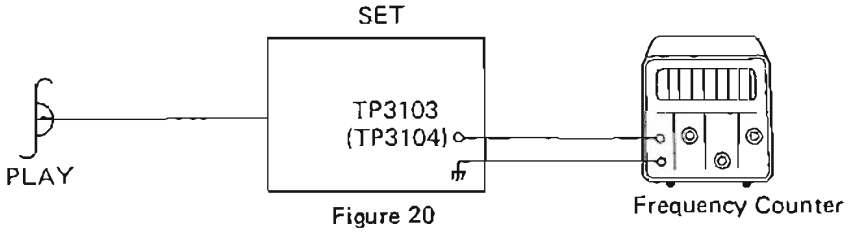


Figure 20

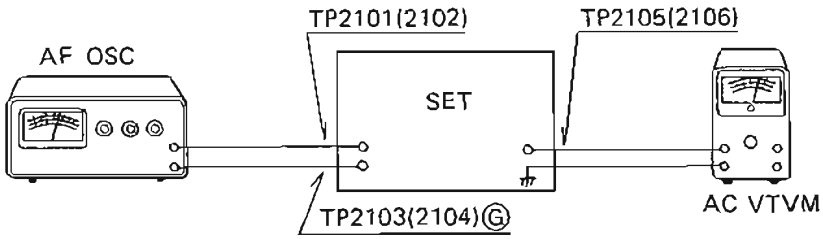


Figure 21

Step	T.P.
8	3001, 3002
10	LEVEL METER
11	515, 516

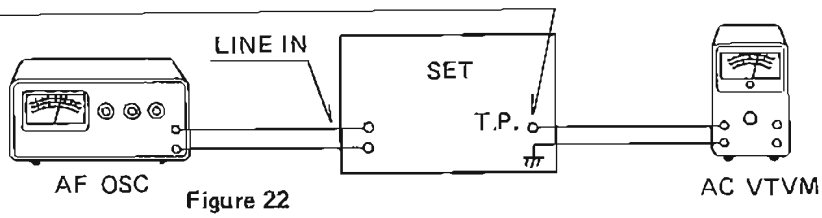


Figure 22

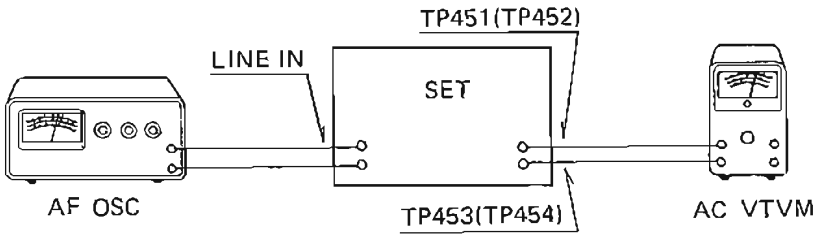


Figure 23

Step	T.P.
15	LINE OUT

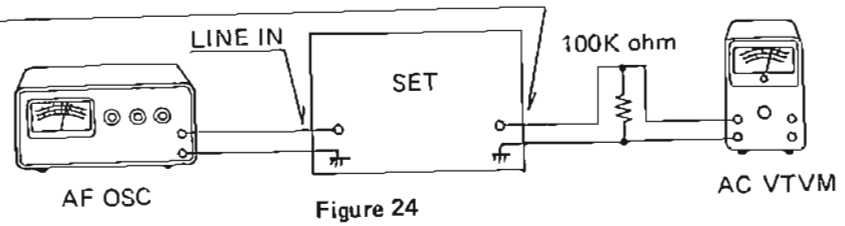


Figure 24

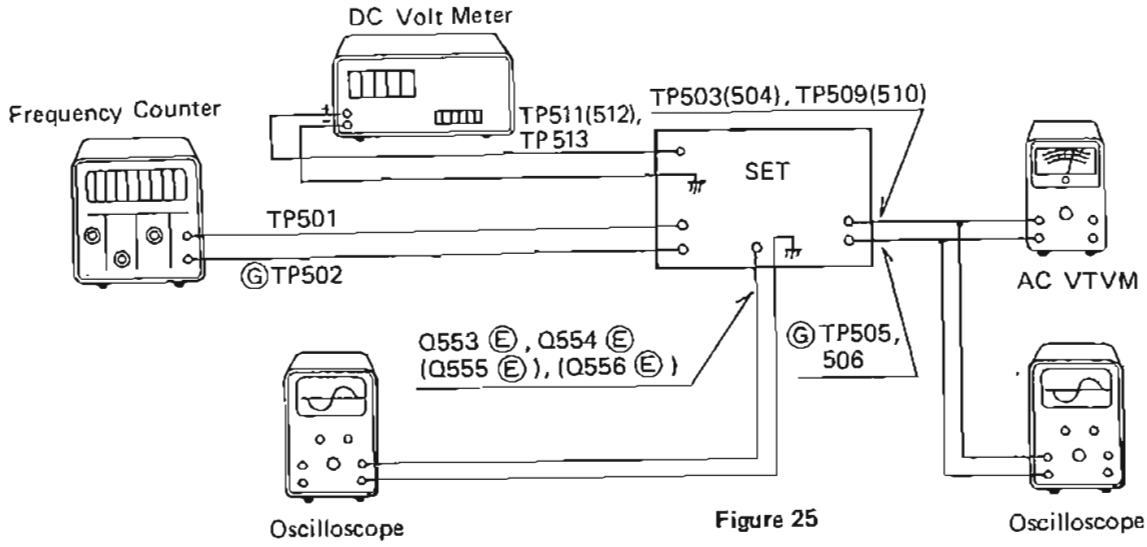


Figure 25

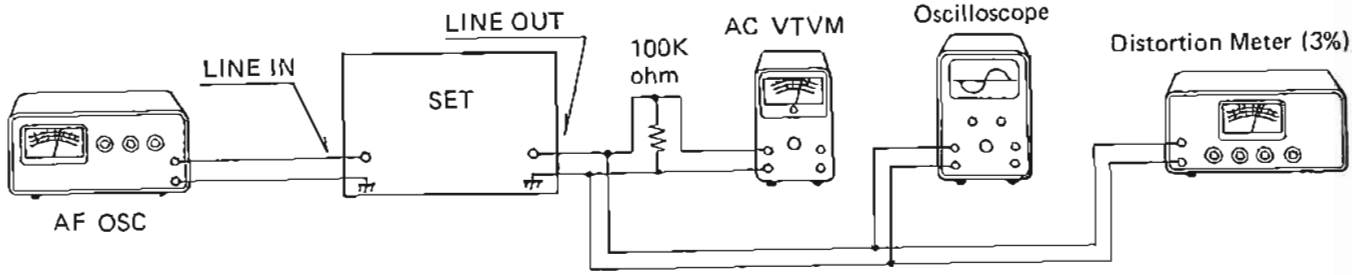


Figure 26

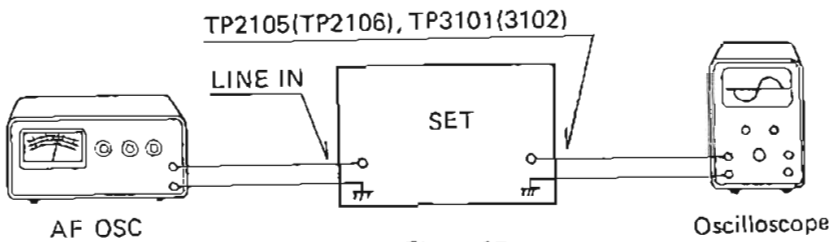
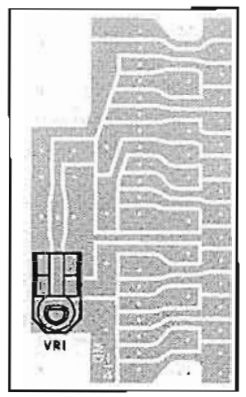
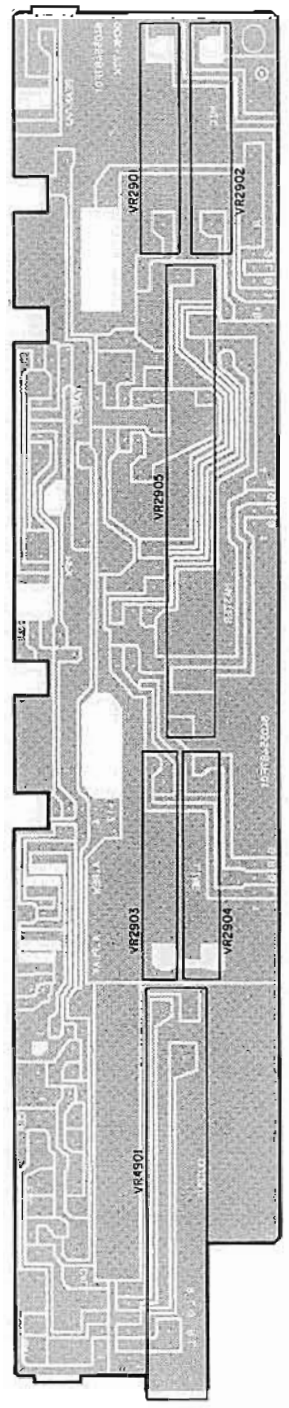


Figure 27

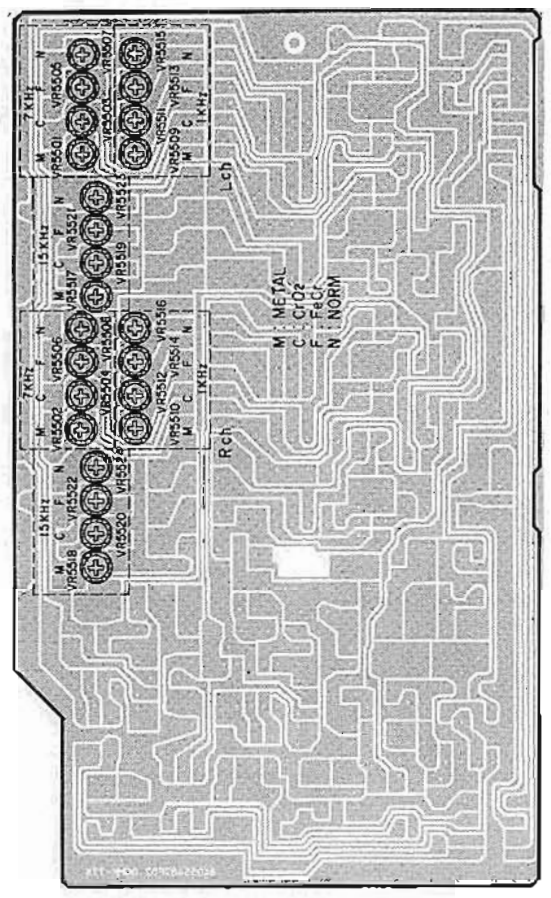
Adjustment Locations



Terminal (Deck) P.C.Board

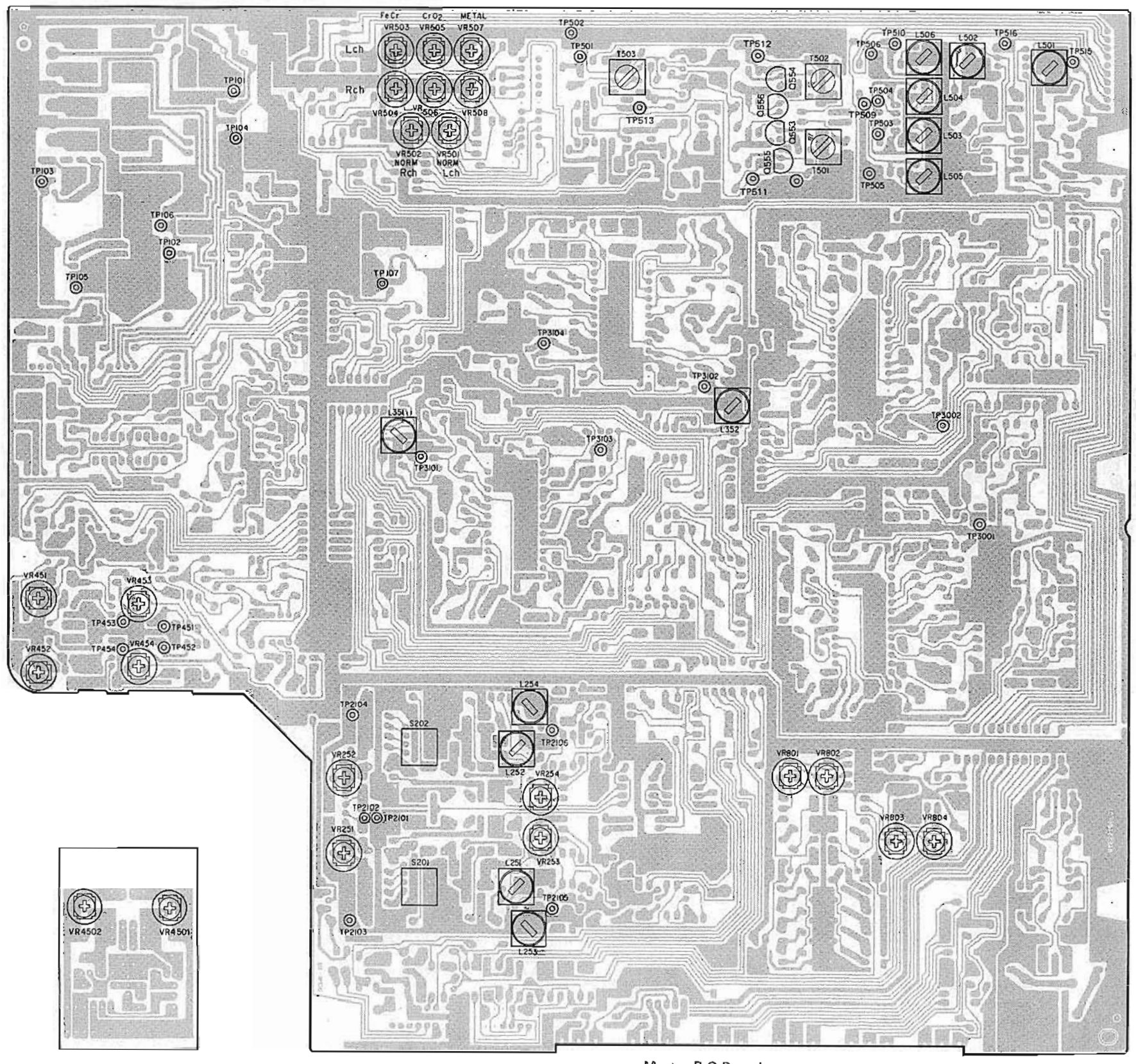


Volume/Switch P.C.Board



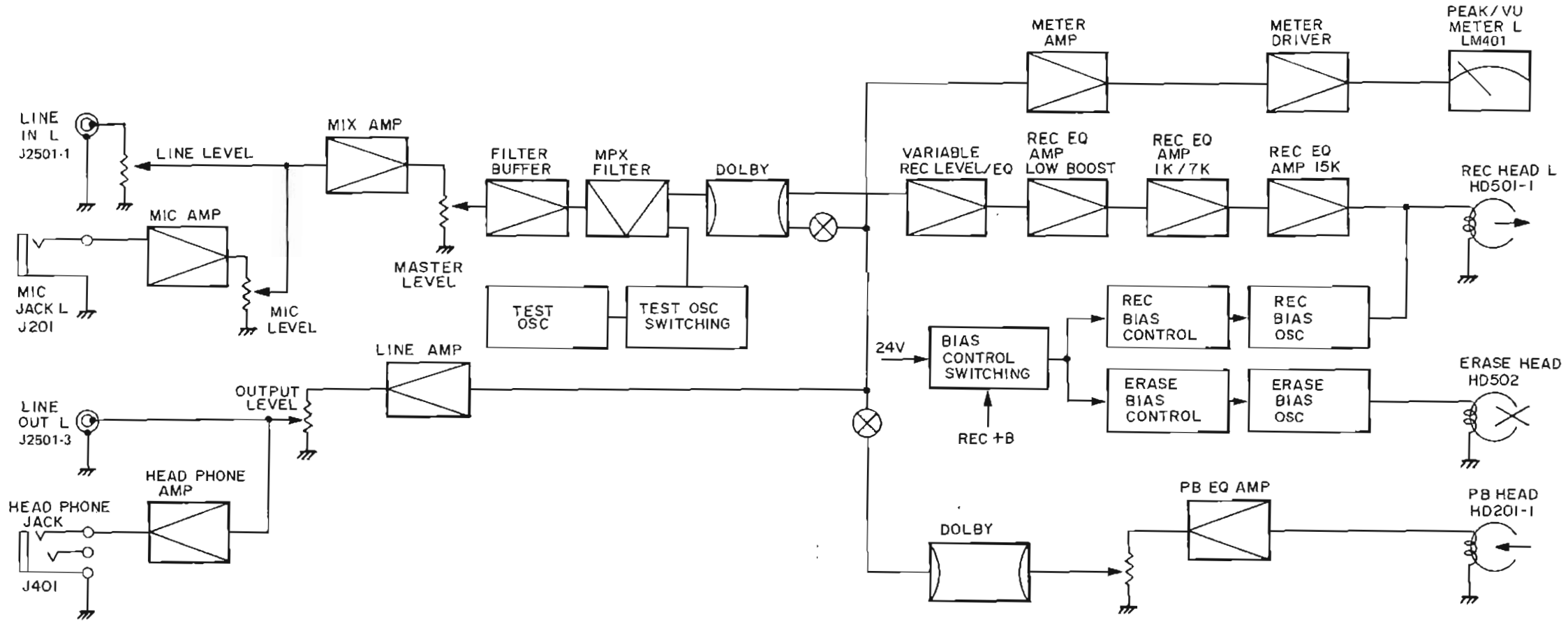
Record EQ P.C.Board

Meter Sensitivity Control P.C.Board



Master P.C.Board

Block Diagram



Replacement of Mechanical Parts

1. Replacement of Cassette Deck Assembly
   (1) Remove the cassette deck assembly according to the item "Parts Locations and Instructions".
   (2) After replacing the cassette deck assembly with a new one, assemble the unit in the reverse way to disassembly.

2. Replacement of Record/Playback and Erase Heads
   (1) Remove the cassette deck assembly according to the item "Parts Locations and Instructions".
   (2) For removal of the record/playback head, remove two screws (A) and disconnect the lead wires from the head P.C. Board as shown in Figure 28. Then remove the record/playback head from the P.C. Board using a soldering iron.
   For removal of the erase head, remove the screw (B) and disconnect the lead wires from the head to take it off as shown in Figure 28.
   (3) After replacing the head(s) with a new one and installing the head in the reverse way to disassembly, adjust head azimuth, height and tilt angle.
   (4) Apply a lock paint on the screws (A, B) after mechanical adjustment and readjust electrical adjustment according to "Adjustment Procedures".

3. Replacement of Reel Belt(s)
   (1) Remove the cassette deck assembly.
   (2) Remove two screws (◎) to take off the dust cover assembly from the cassette deck as shown in Figure 29.
   (3) After replacing the reel belt with a new one, clean it with absolute alcohol and install it in the reverse way to the disassembly.
   (4) After assembling, confirm tape speed and wow/flutter are suitable according to "Adjustment Procedures".

4. Replacement of Pinch Roller Assembly (S)
   (1) Remove the cassette deck assembly.
   (2) Remove the "E" ring to take off the pinch roller assembly (S) as shown in Figure 30.
   (3) After replacing the pinch roller assembly (S) with a new one, clean it with absolute alcohol and assemble it in the reverse way to the disassembly.
   (4) After assembling, confirm tape speed and wow/flutter are suitable according to "Adjustment Procedures".

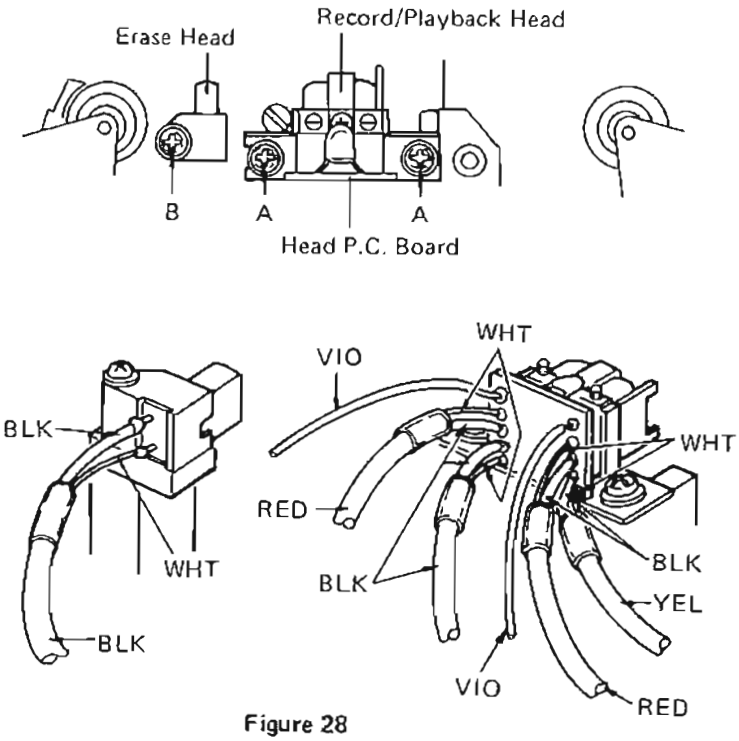


Figure 28

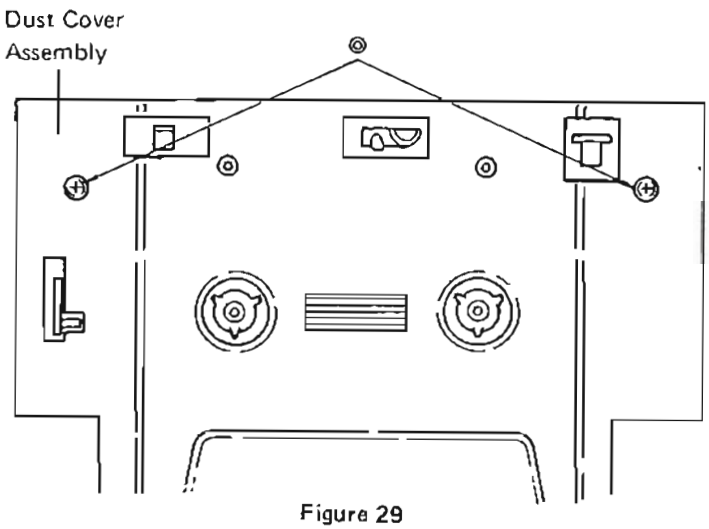


Figure 29

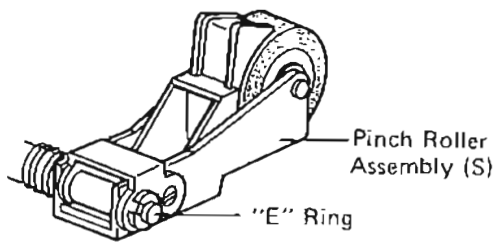


Figure 30

5. Replacement of Pinch Roller Assembly (T)
   (1) Remove the cassette deck assembly and then the dust cover assembly.
   (2) Remove the pull spring and the "E" ring to take off the pinch roller assembly as shown in Figure 31.
   (3) After replacing the pinch roller assembly (T) with a new one, clean it with absolute alcohol and assemble it in the reverse way to the disassembly.
   (4) After assembling, confirm tape speed and wow/flutter are suitable according to "Adjustment Procedures".

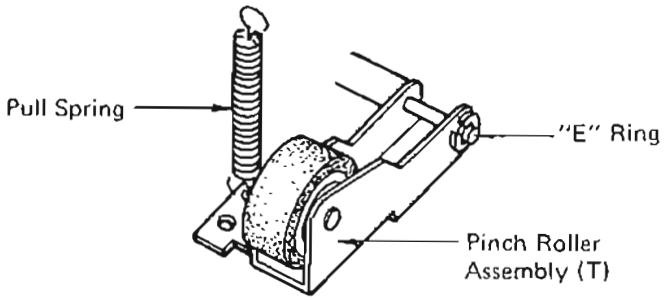


Figure 31

6. Replacement of Pad Motor Assembly
   (1) Remove the cassette deck assembly.
   (2) Remove two screws (●) as shown in Figures 32 and 34.
   (3) Pull out the cam gear, and remove two screws (☆) as shown in Figure 33, and two lead wires (violet, orange) from the terminal P.C. Board to take off the pad motor.
   (4) After replacing the pad motor assembly with a new one, assemble it in the reverse way to disassembly.

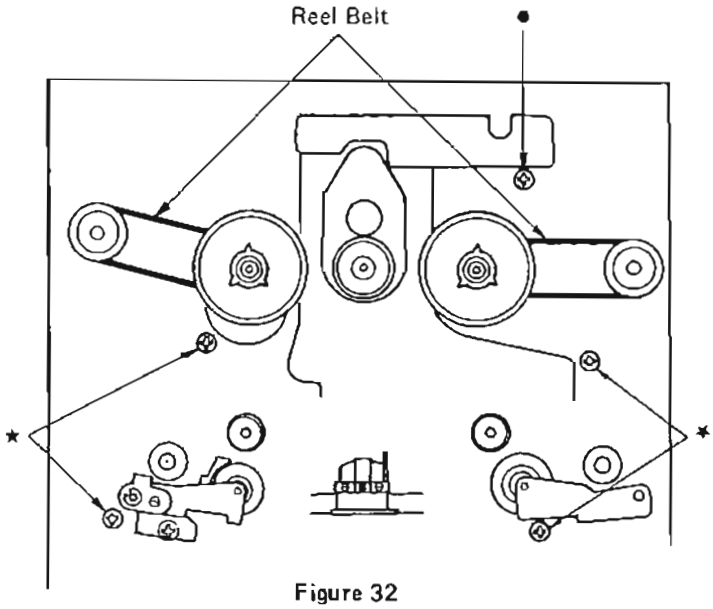


Figure 32

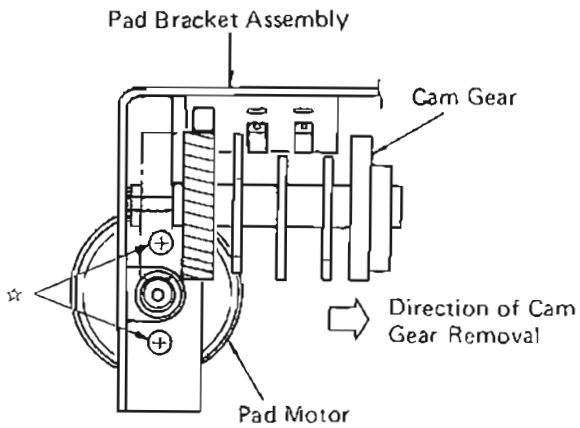


Figure 33

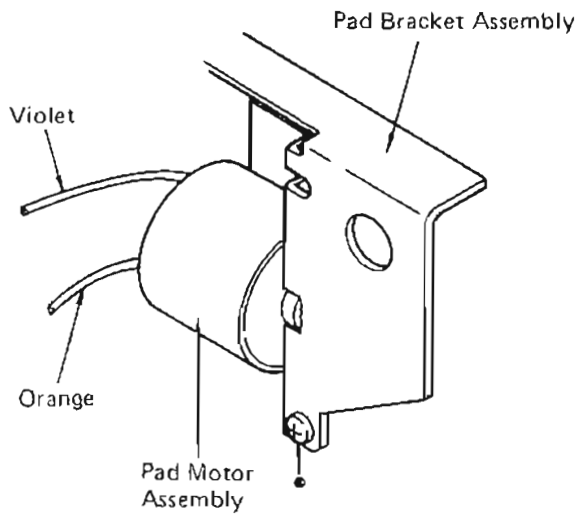


Figure 34

7. Replacement of Reel Motor Assembly
   (1) Remove the cassette deck assembly and then the dust cover assembly.
   (2) Remove four screws (★) to take off the DD motor unit assembly from the cassette deck assembly as shown in Figure 32.
   (3) Remove five screws (◆) from the cassette deck assembly as shown in Figure 35.
   (4) Remove two screws (◇) from the motor bracket as shown in Figure 36 and two lead wires (red, blue) from the terminal P.C. Board.
   (5) After replacing the reel motor assembly with a new one, assemble it in the reverse way to disassembly.
   (6) After assembling, confirm tape speed and wow/flutter are suitable according to "Adjustment Procedures".

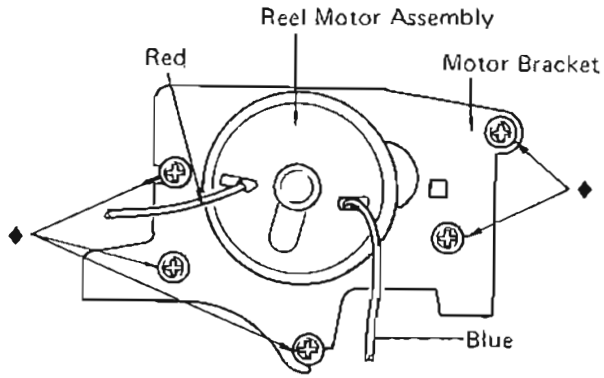


Figure 35

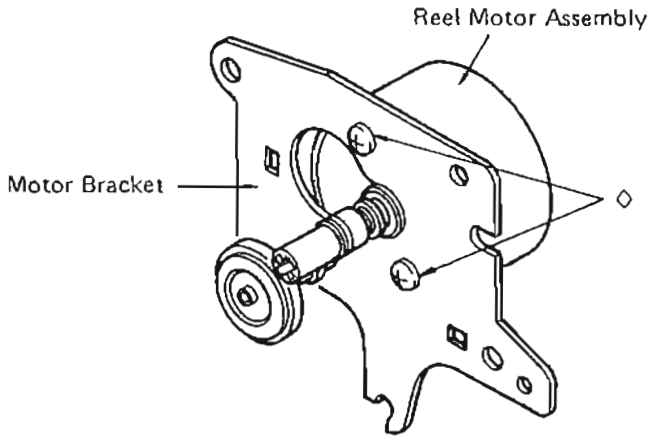


Figure 36

Trouble Shooting Guide

When the tape deck fails to function properly, check following conditions first, then examine it according to the check list below.

1. Are all connections correct?
2. Is this unit properly used as instructed in the manual?
3. Is there any trouble on speakers and amplifiers?

Symptom	Causes	Remedy
• Tape does not run.	• No power supplied. • Cassette door is not properly closed. • PAUSE switch was touched and the deck is in pause mode. • Tape end is reached.	• Check AC supply cord and POWER switch. • Push EJECT knob to check cassette loading and close the cassette door again. • Release the pause mode. • Rewind the tape or turn the cassette over.
• During rewind, the tape stops or goes into playback.	• MEMORY EXECUTION switch is ON.	• Set MEMORY EXECUTION switch to OFF.
• Recording is not possible.	• Tabs for prevention of accidental erasure have been removed. • Connections are improper. • Heads are dirty.	• Cover the tab openings with a piece of adhesive tape. • Check connections. • Perform head cleaning.
• No playback sound.	• During playback, MONITOR switch is set to SOURCE. • OUTPUT LEVEL control is set to minimum. • During recording and pause mode, MONITOR switch is set to TAPE.	• Set MONITOR switch to TAPE. • Adjust for proper level. • Set MONITOR switch to SOURCE.
• Recording or playback operation starts automatically when power is switched on.	• TIMER switch is not set to OFF.	• Set TIMER switch to OFF.
• Input signal does not come in the deck when recording.	• REC LEVEL controls are set to minimum. • Connections between AL-85 and stereo system are incorrect.	• Adjust for proper level. • Check connections and cords.
• Playback sound is husky or left/right sound balance is instable.	• Heads are dirty. • Tape is stretched or warped.	• Perform head cleaning. • Use another tape.
• Excessive tape hiss.	• Heads are magnetized. • Inferior tape with high hiss noise is used. • Heads are dirty. • Setting of DOLBY NR select switch is unsuitable. • Recording level is too low. • MIC level controls are not set to minimum in recording from LINE IN.	• Perform head demagnetizing. • Replace the tape. • Perform head cleaning. • Set the switch to a correct position. • Adjust for proper level. • Set MIC level controls to minimum.

Symptom	Causes	Remedy
• Sound is distorted.	• Recorded sound on the tape itself is distorted. • Recording level is too high. • TAPE SELECT switch is not set to correct position in recording.	• Check by listening to another tape. • Adjust for proper level. • Set TAPE SELECT swtich to correct position.
• Wow/flutter is excessive and sound intermittent.	• Heads, pinch rollers and capstans are dirty. • Tape is wound too tightly or unevenly.	• Perform cleaning of heads and tape transport part. • Wind the tape with fast forward or rewind.
• Loud hum noise is heard during playback.	• Connection cords are not plugged in correctly. • External leakage flux (in inductive fields from amplifier power transformer, etc.) occurs. • Heads are dirty.	• Securely plug in all cords. • Remove inductive sources such as fluorescent lamps, amplifiers, transformers, etc. from the vicinity of the deck. • Perform head cleaning.
• High tone is excessively enhaned.	• DOLBY NR system is not engaged properly. • TAPE SELECT switch is set incorrectly.	• DOLBY NR system as was used in recording must be employed for playback. • Set TAPE SELECT switch to suitable position.
• High tone is weak.	• Heads are dirty. • TAPE SELECT switch is set incorrectly. • Dolby NR system is engaged for playback of a tape which was not recorded with Dolby NR system.	• Perform head cleaning. • Set TAPE SELECT switch to suitable position. • Set COLBY NR select switch to OFF.
• Only timer playback is effective even if the deck is set up for timer recording.	• Tabs for prevention of accidental erasure have been removed.	• Cover the tab openings with a piece of adhesive tape.
• Calibration adjustment is impossible.	• TAPE SELECT switch is set to incorrect position. • Extremely worn-out tape is used. • Heads are dirty.	• Set TAPE SELECT switch to suitable position. • Use the another cassette tape. • Perform head cleaning.
• Counter memory operation can not be performed.	• MEMORY EXECUTION switch is set to OFF.	• Set MEMORY EXECUTION switch to ON.
• TIMER counter does not give correct readings.	• Setting of FREQUENCY select switch is wrong.	• Turn off POWER switch and then set FREQUENCY select switch to the correct position.

Voltage Chart

- Master P.C. Board

Transistors

Symbol No.	Mode	Emitter	Collector	Base
Q102	P	21.97	26.94	23.12
	R	21.96	26.67	23.11
Q103	P	12.27	14.75	12.95
	R	12.26	14.64	12.94
Q104	P	−15.17	−15.59	−15.55
	R	−15.11	−15.53	−15.55
Q105	P	21.97	0.01	21.30
	R	21.96	21.91	21.93
Q106	P	0.00	0.02	0.72
	R	0.00	21.90	0.03
Q107	P	0.00	0.72	0.01
	R	0.00	0.03	0.68
Q108	P	21.97	0.01	21.95
	R	21.96	21.92	21.31
Q109	P	0.00	21.92	0.01
	R	0.00	0.03	0.67
Q110	P	14.90	21.94	15.55
	R	14.90	21.93	15.54
Q251	P	−0.52	3.97	0.00
	R	−0.52	2.97	0.00
Q252	P	−0.52	3.86	0.00
	R	−0.52	3.85	0.00
Q255	P	12.95	20.28	13.55
	R	12.96	20.28	13.55
Q256	P	13.08	20.26	13.54
	R	13.09	20.24	13.54
Q257	P	0.00	0.00	−14.80
	R	0.00	0.00	−14.74
Q258	P	0.00	0.00	−14.81
	R	0.00	0.00	−14.76
Q259	P	0.00	0.00	−14.90
	R	0.00	0.00	−14.81
Q260	P	0.00	0.00	−14.87
	R	0.00	0.00	−14.80
Q263	P	0.00	21.87	0.01
	R	0.00	21.86	0.01
Q264	P	21.91	−14.84	21.90
	R	21.90	−14.80	21.88
Q301	P	0.01	0.00	−13.69
	R	0.01	0.00	−13.63
Q302	P	0.01	0.00	−13.69
	R	0.01	0.00	−13.63
Q303	P	0.01	0.00	−14.83
	R	0.01	0.00	−14.79
Q304	P	0.01	0.00	−14.84
	R	0.01	0.00	−14.78
Q311	P	3.15	0.00	2.46
	R	3.15	0.00	2.46
Q312	P	0.00	1.24	0.01
	R	0.00	1.24	−0.56
Q313	P	0.00	0.01	0.74
	R	0.00	−0.59	−14.36
Q401	P	10.23	12.28	10.77
	R	10.23	12.27	10.77
Q405	P	0.00	0.00	−14.80
	R	0.00	0.00	−14.70
Q406	P	0.00	0.00	−14.79
	R	0.00	0.00	−14.73
Q453	P	0.01	0.00	0.69
	R	0.01	0.00	0.69
Q454	P	0.01	0.00	0.69
	R	0.01	0.00	0.69
Q455	P	0.01	0.00	0.65
	R	0.01	0.00	0.65
Q456	P	0.01	0.00	0.65
	R	0.01	0.00	0.65
Q457	P	0.01	0.00	−14.48
	R	0.01	0.00	−14.42
Q458	P	0.01	0.00	−14.48
	R	0.01	0.00	−14.42
Q459	P	0.00	11.00	−0.15
	R	0.00	−14.78	−0.26
Q551	P	0.00	0.01	0.23
	R	2.80	19.69	1.62
Q552	P	0.00	0.01	0.24
	R	2.85	19.69	1.67
Q553	P	0.00	0.00	0.03
	R	0.06	1.64	0.12
Q554	P	0.00	0.00	0.03
	R	0.06	1.69	0.11
Q555	P	0.00	0.00	0.02
	R	0.06	1.64	0.04
Q556	P	0.00	0.00	0.02
	R	0.06	1.69	0.07
Q557	P	0.01	0.01	0.01
	R	15.20	21.89	16.37
Q558	P	0.01	0.01	0.01
	R	21.91	15.21	21.83
Q559	P	0.00	0.01	−0.10
	R	0.00	21.82	−0.10
Q560	P	0.00	0.01	0.01
	R	0.20	8.32	0.54
Q561	P	0.00	0.01	0.01
	R	0.19	8.32	0.34
Q801	P	1.23	9.08	1.84
	R	1.23	9.08	1.84
Q802	P	1.21	9.16	1.83
	R	1.21	9.16	1.83
Q803	P	0.01	0.00	0.69
	R	0.01	0.00	0.69
Q804	P	0.01	0.00	0.69
	R	0.01	0.00	0.69
Q805	P	0.01	0.00	0.70
	R	0.01	0.00	0.70
Q806	P	0.01	0.00	0.70
	R	0.01	0.00	0.70
Q3201	P	0.01	0.00	−14.64
	R	0.01	0.00	−14.61
Q3202	P	0.01	0.00	−14.66
	R	0.01	0.00	−14.63

FET's

FET's

Symbol No.	Mode	Source	Drain	Gate
Q253	P	4.21	13.55	3.98
	R	4.20	13.55	3.97
Q254	P	4.13	13.54	3.86
	R	4.13	13.54	3.85

FET's

Symbol No.	Mode	Source	Drain	Gate
Q305	P	0.01	0.01	−0.72
	R	0.01	0.01	−0.72
Q306	P	0.01	0.01	−1.06
	R	0.01	0.01	−1.06
Q351	P	0.01	0.01	−13.12
	R	0.01	0.01	−13.05
Q352	P	0.01	0.01	−0.15
	R	0.01	0.01	−0.13

Symbol No.	Mode	Source	Drain	Gate
Q353	P	0.01	0.01	−13.14
	R	0.01	0.01	−13.05
Q354	P	0.01	0.01	−0.23
	R	0.01	0.01	−0.21
Q407	P	−14.80	−14.80	−14.80
	R	−14.73	−14.73	−14.73

IC's

Symbol No.	IC201		IC301		IC302		IC303		IC304		IC305	
Pin No. \ Mode	P	R	P	R	P	R	P	R	P	R	P	R
1	10.41	10.41	7.48	7.48	7.47	7.47	–	–	–	–	10.60	10.59
2	10.55	10.55	7.53	7.53	7.51	7.51	7.51	7.51	7.50	7.50	10.60	10.59
3	10.43	10.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.49	10.49
4	0.00	0.00	–	–	–	–	7.47	7.47	7.46	7.46	0.00	0.00
5	10.43	10.43	7.51	7.51	7.50	7.50	7.50	7.50	7.49	7.49	10.42	10.41
6	10.55	10.55	7.51	7.51	7.49	7.49	7.49	7.49	7.48	7.48	10.53	10.53
7	10.41	10.41	7.51	7.51	7.50	7.50	7.66	7.66	7.58	7.58	10.53	10.53
8	20.70	20.69	7.51	7.51	7.50	7.50	7.50	7.50	7.49	7.49	21.14	21.13
9			7.52	7.52	7.52	7.52	7.48	7.48	7.51	7.51		
10			0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02		
11			0.92	0.92	0.92	0.92	0.95	0.95	0.95	0.95		
12			0.84	0.84	0.85	0.85	0.87	0.87	0.87	0.87		
13			0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02		
14			6.70	6.70	6.73	6.73	–	–	–	–		
15			7.93	7.93	7.97	7.97	8.00	8.00	8.08	8.08		
16			7.62	7.62	7.58	7.58	7.43	7.43	7.52	7.52		
17			7.63	7.63	7.59	7.59	7.43	7.43	7.52	7.52		
18			7.51	7.51	7.50	7.50	7.50	7.50	7.49	7.49		
19			7.55	7.55	7.52	7.52	7.53	7.53	7.49	7.49		
20			0.94	0.94	0.95	0.95	0.95	0.95	0.94	0.94		
21			0.93	0.93	0.94	0.94	0.95	0.95	0.94	0.94		
22			7.52	7.52	7.52	7.52	7.69	7.69	7.60	7.60		
23			7.52	7.52	7.52	7.52	7.70	7.70	7.60	7.60		
24			7.55	7.55	7.56	7.56	7.74	7.74	7.64	7.64		
25			7.55	7.55	7.56	7.56	7.74	7.74	7.64	7.64		
26			5.81	5.81	5.82	5.82	0.00	0.00	0.00	0.00		
27			3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15		
28			14.92	14.92	14.92	14.92	14.92	14.92	14.92	14.92		

Symbol No.	IC401		IC402		IC403		IC404		IC405		IC501	
Pin No. \ Mode	P	R	P	R	P	R	P	R	P	R	P	R
1	10.69	10.69	10.53	10.52	1.29	1.29	1.29	1.29	8.62	8.62	10.61	10.61
2	10.68	10.67	10.54	10.53	0.00	0.00	0.00	0.00	0.14	0.14	10.61	10.61
3	10.58	10.57	10.42	10.42	0.01	0.01	0.00	0.00	2.45	2.45	10.50	10.49
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.62	8.62	0.00	0.00
5	10.57	10.57	10.63	10.63	0.00	0.00	0.00	0.00	0.00	0.00	10.53	10.53
6	10.67	10.66	10.74	10.73	5.20	5.20	5.29	5.29	8.62	8.62	10.64	10.64
7	10.68	10.67	10.74	10.73	10.24	10.24	10.24	10.24	2.45	2.45	10.64	10.63
8	21.33	21.31	21.31	21.30	5.01	5.01	5.02	5.02	0.15	0.15	21.15	21.14
9					1.28	1.28	1.29	1.29	17.26	17.26		

• Volume/Switch P.C. Board

IC

Symbol No.	IC2901	
Pin No. \ Mode	P	R
1	10.62	10.61
2	10.62	10.61
3	10.49	10.48
4	0.00	0.00
5	10.49	10.48
6	10.62	10.61
7	10.62	10.61
8	21.13	21.12

• Record EQ P.C. Board

FET's

Symbol No.	Mode	Source	Drain	Gate
Q5501	P	10.53	10.53	−14.76
	R	10.53	10.53	−14.72
Q5502	P	10.61	10.61	−14.76
	R	10.61	10.61	−14.70
Q5503	P	10.55	10.55	−14.74
	R	10.55	10.55	−14.68
Q5504	P	10.62	10.62	−14.75
	R	10.62	10.62	−14.68
Q5505	P	10.56	10.56	−14.73
	R	10.56	10.56	−14.67
Q5506	P	10.62	10.62	−14.76
	R	10.62	10.62	−14.70
Q5507	P	10.57	10.57	0.05
	R	10.57	10.57	0.05
Q5508	P	10.63	10.63	0.05
	R	10.63	10.63	0.05
Q5509	P	10.55	10.55	−14.75
	R	10.55	10.55	−14.69
Q5510	P	10.69	10.69	−14.73
	R	10.69	10.69	−14.67
Q5511	P	10.64	10.64	−14.58
	R	10.64	10.64	−14.52
Q5512	P	10.68	10.68	−14.58
	R	10.68	10.68	−14.53
Q5513	P	10.62	10.62	−14.64
	R	10.62	10.62	−14.58
Q5514	P	10.70	10.70	−14.79
	R	10.70	10.70	−14.74
Q5515	P	10.64	10.64	0.05
	R	10.64	10.64	0.05
Q5516	P	10.69	10.69	0.05
	R	10.69	10.69	0.05

Transistors

Symbol No.	Mode	Emitter	Collector	Base
Q5517	P	0.00	0.00	0.71
	R	0.00	0.00	−14.70
Q5518	P	0.00	0.00	0.71
	R	0.00	0.00	−14.70
Q5519	P	0.00	0.00	0.71
	R	0.00	0.00	−14.70
Q5520	P	0.00	0.00	0.71
	R	0.00	0.00	−14.70

IC's

Symbol No.	IC5501		IC5502	
Pin No. \ Mode	P	R	P	R
1	10.57	10.56	10.64	10.63
2	10.57	10.56	10.64	10.63
3	10.45	10.44	10.51	10.50
4	0.00	0.00	0.00	0.00
5	10.43	10.43	10.56	10.55
6	10.56	10.55	10.69	10.68
7	10.56	10.55	10.69	10.68
8	21.16	21.14	21.26	21.25

• Mechanism Control P.C. Board

Transistors

Symbol No.	Mode	Stop	Pause	Play	Play → Pause	FF	Rew	Rec/ Pause	Rec/ Play	Rec/ Play → Pause	Cue	Review	Auto Space
Q6001	Emitter	23.64	23.64	23.64	23.64	23.64	23.64	23.64	23.64	23.64	23.64	23.64	23.64
	Collector	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
	Base	23.67	23.67	23.67	23.67	23.67	23.67	23.67	23.67	23.67	23.67	23.67	23.67

Symbol No.	Mode	Stop	Pause	Play	Play → Pause	FF	Rew	Rec/ Pause	Rec/ Play	Rec/ Play → Pause	Cue	Review	Auto Space
Q6002	Emitter	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69
	Collector	13.96	13.96	13.96	13.96	13.96	13.96	13.96	13.96	13.96	13.96	13.96	13.96
	Base	23.67	23.67	23.67	23.67	23.67	23.67	23.67	23.67	23.67	23.67	23.67	23.67
Q6003	Emitter	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69	23.69
	Collector	13.96	13.96	23.68	13.96	13.96	13.96	13.96	23.68	13.96	13.96	13.96	23.67
	Base	23.67	23.67	23.04	23.67	23.67	23.67	23.67	23.04	23.67	23.67	23.67	23.02
Q6004	Emitter	14.11	14.11	14.11	14.11	14.11	14.11	14.11	14.11	14.11	14.11	14.11	14.11
	Collector	13.65	13.65	13.65	13.65	13.65	13.65	13.65	13.65	13.65	13.65	13.65	13.65
	Base	14.09	14.09	14.09	14.09	14.09	14.09	14.09	14.09	14.09	14.09	14.09	14.09
Q6005	Emitter	23.67	23.67	23.67	23.67	23.67	23.67	23.67	23.67	23.67	23.67	23.67	23.67
	Collector	26.74	26.74	26.74	26.74	26.74	26.74	26.74	26.74	26.74	26.74	26.74	26.74
	Base	24.24	24.24	24.24	24.24	24.24	24.24	24.24	24.24	24.24	24.24	24.24	24.24
Q6006	Emitter	9.17	9.17	4.74	5.03	8.88	8.86	9.17	4.74	5.04	8.88	8.86	4.74
	Collector	12.35	12.35	12.29	12.33	12.29	12.26	12.32	12.26	12.31	12.28	12.24	12.25
	Base	9.57	9.57	5.39	5.39	9.55	9.55	9.56	5.39	5.39	9.55	9.55	5.39
Q6007	Emitter	9.17	9.17	4.74	5.03	8.88	8.86	9.17	4.74	5.04	8.88	8.86	4.74
	Collector	9.18	9.18	3.98	5.04	8.12	0.79	9.18	3.98	5.04	8.12	0.79	3.98
	Base	9.18	9.18	3.35	5.05	7.44	8.23	9.19	3.33	5.05	7.44	8.23	3.35
Q6008	Emitter	9.17	9.17	4.74	5.03	8.88	8.86	9.17	4.74	5.04	8.88	8.86	4.74
	Collector	9.18	9.18	0.76	5.03	0.76	8.09	9.19	0.76	5.03	0.76	8.09	0.76
	Base	9.19	9.19	4.14	5.04	8.28	7.41	9.20	4.14	5.04	8.28	7.41	4.14
Q6009	Emitter	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Collector	9.17	9.17	3.98	5.04	8.11	0.79	9.17	3.98	5.04	8.11	0.79	3.98
	Base	0.01	0.01	0.01	0.01	0.01	1.46	0.01	0.01	0.01	0.01	1.46	0.01
Q6010	Emitter	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Collector	9.17	9.17	0.75	5.04	0.76	8.06	9.17	0.75	5.04	0.76	8.06	0.75
	Base	0.01	0.01	1.44	0.01	1.45	0.01	0.01	1.44	0.01	1.45	0.01	1.44
Q6011	Emitter	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Collector	6.63	6.63	0.06	0.06	6.62	6.63	6.63	0.06	0.06	6.62	6.63	0.06
	Base	0.01	0.01	0.72	0.72	0.02	0.02	0.01	0.72	0.72	0.02	0.02	0.72
Q6012	Emitter	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Collector	0.01	0.01	0.72	0.72	0.02	0.02	0.01	0.72	0.72	0.02	0.02	0.72
	Base	0.01	0.01	0.02	0.02	0.69	0.70	0.01	0.01	0.01	0.69	0.70	0.01
Q6013	Emitter	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16
	Collector	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16
	Base	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16
Q6014	Emitter	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16
	Collector	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16
	Base	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16
Q6015	Emitter	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Collector	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13
	Base	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Q6016	Emitter	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
	Collector	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13	9.13
	Base	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Q6017	Emitter	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16	9.16
	Collector	14.73	14.73	14.73	14.73	14.73	14.73	14.73	14.73	14.73	14.73	14.73	14.73
	Base	9.53	9.53	9.53	9.53	9.53	9.53	9.53	9.53	9.53	9.53	9.53	9.53
Q6018	Emitter	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Collector	12.33	12.33	12.33	12.33	12.33	12.33	12.33	12.33	12.33	12.33	12.33	12.33
	Base	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Q6019	Emitter	21.97	21.97	21.97	21.97	21.97	21.97	21.97	21.97	21.97	21.97	21.97	21.97
	Collector	21.96	21.96	21.96	21.96	21.96	21.96	21.96	−14.74	21.96	21.96	21.96	21.96
	Base	21.30	21.30	21.30	21.30	21.30	21.30	21.30	21.94	21.30	21.30	21.30	21.30
Q6020	Emitter	21.97	21.97	21.97	21.97	21.97	21.97	21.97	21.97	21.97	21.97	21.97	21.97
	Collector	21.95	21.95	−14.74	21.95	21.95	21.95	21.95	−14.74	21.95	−14.74	−14.74	21.95
	Base	21.30	21.30	21.95	21.30	21.30	21.30	21.30	21.95	21.30	21.95	21.95	21.30
Q6021	Emitter	21.97	21.97	21.97	21.97	21.97	21.97	21.97	21.97	21.97	21.97	21.97	21.97
	Collector	−14.70	−14.70	−14.70	−14.70	−14.70	−14.70	−14.70	−14.70	−14.70	−14.70	−14.70	−14.70
	Base	21.95	21.95	21.95	21.95	21.95	21.95	21.95	21.95	21.95	21.95	21.95	21.95
Q6023	Emitter	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13	10.13
	Collector	14.47	14.47	14.47	14.47	14.47	14.47	14.47	14.47	14.47	14.47	14.47	14.47
	Base	10.70	10.70	10.70	10.70	10.70	10.70	10.70	10.70	10.70	10.70	10.70	10.70

IC's

Symbol No.	IC6001											
Pin No. \ Mode	Stop	Pause	Play	Play → Pause	FF	Rew	Rec/ Pause	Rec/ Play	Rec/ Play → Pause	Cue	Review	Auto Space
1	*1											
2	0.01	0.01	9.72	0.01	9.73	0.02	0.01	9.72	0.02	9.73	0.02	9.72
3	0.01	0.01	0.02	0.01	0.02	9.74	0.01	0.02	0.01	0.02	9.14	0.02
4	0.01	0.01	9.96	9.98	0.02	0.02	0.02	9.97	9.97	9.97	9.96	9.96
5	*2											
6	10.00	10.00	0.03	9.99	9.99	9.99	9.99	0.03	9.99	0.03	0.04	9.97
7	10.01	10.01	9.99	9.99	9.99	9.99	9.99	0.03	9.99	9.99	9.99	9.99
8	0.01	0.01	0.01	0.01	0101	0.01	0.01	0.01	0.01	0.01	0.01	F
9	—											
10	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03
11	0.01	0.01	0.02	0.02	0.02	0.02	0.01	0.02	0.02	0.02	0.02	0.02
12	0.01	0.01	0.02	0.01	0.02	0.02	9.93	9.93	9.93	0.02	0.02	9.91
13	10.11	10.11	A 10Vp-p	10.11	A 10Vp-p	A 10Vp-p	10.11	A 10Vp-p	10.11	A 10Vp-p	A 10Vp-p	A 10Vp-p
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	C 2Vp-p	C 2Vp-p	C 2Vp-p	C 2Vp-p	C 2Vp-p	C 2Vp-p	C 2Vp-p	C 2Vp-p	C 2Vp-p	C 2Vp-p	C 2Vp-p	C 2Vp-p
19	C 8Vp-p	C 8Vp-p	C 8Vp-p	C 8Vp-p	C 8Vp-p	C 8Vp-p	C 8Vp-p	C 8Vp-p	C 8Vp-p	C 8Vp-p	C 8Vp-p	C 8Vp-p
20	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11
21	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11
22	0.22	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06
23	10.06	10.06	10.06	10.06	0.22	10.06	10.06	10.06	10.06	0.22	10.06	10.06
24	10.06	10.06	10.06	10.06	10.06	0.22	10.06	10.06	10.06	10.06	0.22	10.06
25	10.06	10.06	0.22	10.06	10.06	10.06	10.06	0.22	10.06	0.22	0.22	10.06
26	10.06	0.22	10.06	0.22	10.06	10.06	0.22	10.06	0.22	10.06	10.06	10.06
27	10.06	10.06	10.06	10.06	10.06	10.06	0.22	0.22	10.06	10.06	10.06	10.06
28	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	0.22
29	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06
30	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
31	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
32	—											
33	—											
34	—											
35	—											
36	0.01	9.62	0.02	9.61	0.02	0.02	9.62	0.02	9.62	9.61	9.61	0.02
37	0.01	0.01	8.75	0.01	0.02	0.02	0.01	8.75	0.02	0.02	0.02	8.75
38	0.01	0.01	0.02	0.02	9.63	0.02	0.02	0.02	0.02	9.63	0.02	0.02
39	0.01	0.01	0.02	0.02	0.02	9.44	0.02	0.02	0.02	0.02	9.44	0.02
40	—											
41	—											
42	*1											

Symbol No.	IC6002											
Pin No. \ Mode	Stop	Pause	Play	Play → Pause	FF	Rew	Rec/ Pause	Rec/ Play	Rec/ Play → Pause	Cue	Review	Auto Space
1	–											
2	–											
3	–											
4	–											
5	–											
6	–											
7	–											
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	–											
10	–											
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	–											
14	–											
15	–											
16	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11

Symbol No.	IC6003											
Pin No. \ Mode	Stop	Pause	Play	Play → Pause	FF	Rew	Rec/ Pause	Rec/ Play	Rec/ Play → Pause	Cue	Review	Auto Space
1	AC1.51	AC1.51	AC1.51	AC1.51	AC1.51	AC1.51	AC1.51	AC1.51	AC1.51	AC1.51	AC1.51	AC1.51
2	2.21	2.21	A 1.8Vp-p	2.21	A 1.8Vp-p	A 1.8Vp-p	2.21	A 1.8Vp-p	2.21	A 1.8Vp-p	A 1.8Vp-p	A 1.8Vp-p
3	0.01	0.01	8.73	0.01	0.01	0.01	0.01	8.73	0.01	0.01	0.01	8.73
4	0.01	0.01	0.01	0.01	0.01	9.43	0.01	0.01	0.01	0.01	9.43	0.01
5	–											
6	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	–											
10	23.48	23.48	23.48	23.48	23.48	23.48	23.48	23.48	23.48	23.48	23.48	23.48
11	23.48	23.48	23.48	23.48	23.48	23.48	23.48	23.48	23.48	23.48	23.48	23.48
12	–											
13	23.39	23.39	23.39	23.39	23.39	0.02	23.39	23.39	23.39	23.39	0.02	23.39
14	23.50	23.50	0.02	23.50	23.50	23.50	23.50	0.02	23.50	23.50	23.50	0.02
15	0.05	0.05	A 21Vp-p	0.05	A 21Vp-p	A 21Vp-p	0.05	A 21Vp-p	0.05	A 21Vp-p	A 21Vp-p	A 21Vp-p
16	D	D	D	D	D	D	D	D	D	D	D	D

Symbol No.	IC6004											
Pin No. \ Mode	Stop	Pause	Play	Play → Pause	FF	Rew	Rec/ Pause	Rec/ Play	Rec/ Play → Pause	Cue	Review	Auto Space
1	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
2	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
3	0.01	0.01	0.02	0.02	0.02	0.02	9.91	9.91	9.91	0.02	0.02	9.90
4	0.01	0.01	0.02	0.02	0.02	9.45	0.02	0.02	0.02	0.02	9.45	0.02
5	0.01	0.01	0.02	0.02	9.63	0.02	0.02	0.02	0.02	9.63	0.02	0.02
6	0.01	0.01	8.74	0.02	0.02	0.02	0.02	8.74	0.02	0.02	0.02	8.74
7	0.01	9.62	0.02	9.61	0.02	0.02	9.62	0.02	9.62	9.62	9.62	0.02
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	–											
10	10.90	0.11	10.89	0.11	10.90	10.90	0.11	10.90	0.11	0.11	0.11	10.90
11	10.78	10.78	0.14	10.78	10.78	10.78	10.78	0.14	10.78	10.78	10.78	0.14
12	10.75	10.75	10.75	10.75	0.13	10.75	10.75	10.75	10.75	0.13	10.75	10.75
13	10.75	10.75	10.75	10.75	10.75	0.14	10.75	10.75	10.75	10.75	0.14	10.75
14	10.99	10.99	10.99	10.99	10.99	10.99	0.12	0.12	0.12	10.99	10.99	0.12
15	10.95	10.89	10.89	10.89	10.89	10.89	10.89	10.89	10.89	10.89	10.89	8 10Vp-p
16	10.74	10.74	10.74	10.74	10.74	10.74	10.74	10.74	10.74	10.74	10.74	10.74

Symbol No.	IC6005											
Mode / Pin No.	Stop	Pause	Play	Play → Pause	FF	Rew	Rec/ Pause	Rec/ Play	Rec/ Play → Pause	Cue	Review	Auto Space
1	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
2	9.71	9.71	A 10Vp-p	9.71	A 10Vp-p	A 10Vp-p	9.71	A 10Vp-p	9.71	A 10Vp-p	A 10Vp-p	A 10Vp-p
3	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11	10.11
4	8.8 or 0	8.8 or 0	A 8Vp-p	8.8 or 0	A 8Vp-p	A 8Vp-p	8.8 or 0	A 8Vp-p	8.8 or 0	A 8Vp-p	A 8Vp-p	A 8Vp-p
5	4.76 or 1.89	4.76 or 1.89	E	4.76 or 1.89	E	E	4.76 or 1.89	E	4.76 or 1.89	E	E	E
6	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02	3.02
7	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60
8	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59
9	–											
10	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59	2.59
11	–											
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	–											
14	–											

Symbol No.	IC6006											
Mode / Pin No.	Stop	Pause	Play	Play → Pause	FF	Rew	Rec/ Pause	Rec/ Play	Rec/ Play → Pause	Cue	Review	Auto Space
1	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12
6	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12
7	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02	10.02
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12
13	–											
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12
16	–											

Symbol No.	IC6007											
Mode / Pin No.	Stop	Pause	Play	Play → Pause	FF	Rew	Rec/ Pause	Rec/ Play	Rec/ Play → Pause	Cue	Review	Auto Space
1	9.41	9.41	9.41	9.41	9.41	9.41	9.41	0.01	9.41	9.41	9.41	9.41
2	9.41	9.41	0.01	9.41	9.41	9.41	9.41	0.01	9.41	0.01	0.01	9.38
3	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
4	–											
5	–											
6	–											
7	–											
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	–											
10	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06	10.06
11	10.07	10.07	10.07	10.07	10.07	0.22	10.07	10.07	10.07	10.07	0.22	10.07
12	–											
13	10.07	10.07	10.07	10.07	10.07	10.07	10.07	10.07	10.07	10.07	10.07	10.07
14	21.91	21.91	21.91	21.91	21.91	21.91	21.91	21.91	21.91	21.91	21.91	21.91
15	0.04	0.04	21.91	0.04	0.04	0.04	0.04	21.91	0.04	21.91	21.91	0.04
16	0.04	0.04	0.04	0.04	0.04	0.04	0.04	21.90	0.04	0.04	0.04	0.04

• Pulse OSC P.C. Board

Symbol No.	IC6351											
Mode / Pin No.	Stop	Pause	Play	Play → Pause	FF	Rew	Rec/ Pause	Rec/ Play	Rec/ Play → Pause	Cue	Review	Auto Space
1	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12	10.12
2	0.01	0.01	10.12	0.01	10.12	0.01	0.01	10.12	0.01	10.12	0.01	10.12
3	9.96	9.96	0.56	9.96	0.56	9.96	9.96	0.56	9.96	0.56	9.96	0.56
4	9.96	9.96	A 10Vp-p	9.96	A 10Vp-p	9.96	9.96	A 10Vp-p	9.96	A 10Vp-p	9.96	A 10Vp-p
5	0.01	0.01	A 9.5Vp-p	0.01	A 9.5Vp-p	0.01	0.01	A 9.5Vp-p	0.01	A 9.5Vp-p	0.01	A 9.5Vp-p
6	0.01	0.01	A 10Vp-p	0.01	A 10Vp-p	0.01	0.01	A 10Vp-p	0.01	A 10Vp-p	0.01	A 10Vp-p
7	9.96	9.96	A 10Vp-p	9.96	A 10Vp-p	9.96	9.96	A 10Vp-p	9.96	A 10Vp-p	9.96	A 10Vp-p
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	4.73	4.73	4.73	4.73	4.73	4.73	4.73	4.73	4.73	4.73	4.73	4.73
10	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p
11	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p
12	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p	A 10Vp-p
13	–											
14	A 0.5Vp-p	A 0.5Vp-p	A 5Vp-p	A 0.5Vp-p	A 5Vp-p	A 0.5Vp-p	A 0.5Vp-p	A 5Vp-p	A 0.5Vp-p	A 5Vp-p	A 0.5Vp-p	A 5Vp-p
15	9.96	9.96	A 10Vp-p	9.96	A 10Vp-p	9.96	9.96	A 10Vp-p	9.96	A 10Vp-p	9.96	A 10Vp-p
16	–											

• Pitch Control P.C. Board

Transistor/FET's

Symbol No.	Mode	Stop	Pause	Play	Play → Pause	FF	Rew	Rec/ Pause	Rec/ Play	Rec/ Play → Pause	Cue	Review	Auto Space
Q6301	Emitter	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Collector	–											
	Base	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Q6501	Source	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81
	Drain	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81
	Gate	−11.1	−11.1	−11.1	−11.1	−11.1	−11.1	0.00	0.00	0.00	−11.1	−11.1	0.00
Q6502	Source	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81
	Drain	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81	2.81
	Gate	0.00	0.00	0.00	0.00	0.00	0.00	−11.1	−11.1	−11.1	0.00	0.00	−11.1

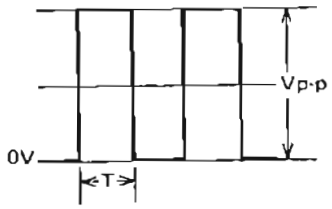
IC

Symbol No.	IC6501											
Mode / Pin No.	Stop	Pause	Play	Play → Pause	FF	Rew	Rec/ Pause	Rec/ Play	Rec/ Play → Pause	Cue	Review	Auto Space
1	−11.56	−11.56	−11.56	−11.56	−11.56	−11.56	12.25	12.25	12.25	−11.56	−11.56	12.25
2	2.34	2.34	2.34	2.34	2.34	2.34	2.34	2.34	2.34	2.34	2.34	2.34
3	0.01	0.01	0.01	0.01	0.01	0.01	9.10	9.10	9.10	0.01	0.01	9.10
4	−12.94	−12.94	−12.94	−12.94	−12.94	−12.94	−12.94	−12.94	−12.94	−12.94	−12.94	−12.94
5	2.34	2.34	2.34	2.34	2.34	2.34	2.34	2.34	2.34	2.34	2.34	2.34
6	0.01	0.01	0.01	0.01	0.01	0.01	9.10	9.10	9.10	0.01	0.01	9.10
7	12.27	12.27	12.27	12.27	12.27	12.27	−11.58	−11.58	−11.58	12.27	12.27	−11.58
8	12.89	12.89	12.89	12.89	12.89	12.89	12.89	12.89	12.89	12.89	12.89	12.89

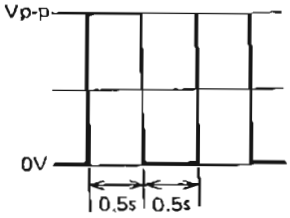
• Meter Sensitivity Control P.C. Board

Transistors

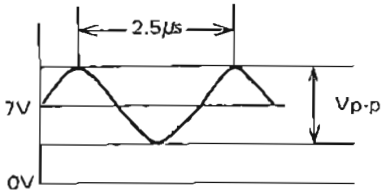
Symbol No.	Mode	Emitter	Collector	Base
Q4501	P	0.02	0.00	0.01
	R	0.02	0.00	−0.01
Q4502	P	0.02	0.00	0.01
	R	0.02	0.00	−0.03
Q4503	P	0.00	0.01	−0.06
	R	0.00	−0.05	−0.07



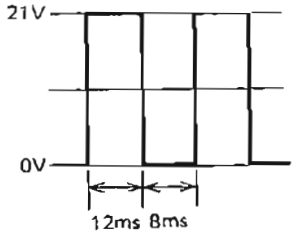
A



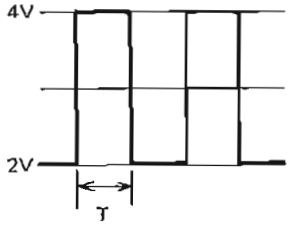
B



C



D



E

Note: In Figs. A and E, period T varies as amount of tape wound changes.

NOTE [※1]
ASSIST MOTOR DRIVEN MODE
(Head Base is being moved)
UP: STOP → PLAY
DOWN: PLAY → STOP

Symbol No.	Pin No.	UP	DOWN
Q6013	E	9.16	9.16
	C	8.40	7.45
	B	7.45	8.40
Q6014	E	9.16	9.16
	C	0.81	8.26
	B	8.34	7.46
Q6015	E	0.00	0.00
	C	0.79	8.24
	B	1.52	0.00
Q6016	E	0.00	0.00
	C	8.22	0.80
	B	0.00	1.53
IC6001	①	0.01	9.86
IC6001	㊷	9.86	0.01

NOTE [※2]
TAPE RUN → STOP
(Electromagnetic Brake Operation Mode)

Symbol No.	Pin No.	TAPE RUN →STOP
Q6018	E	0.00
	C	0.95
	B	1.64
IC6001	⑤	9.86

NOTE [3]
POWER ON/OFF MUTE

Symbol No.	Pin No.	POWER ON/OFF
IC6001	㉚	10.00
IC6006	④	10.00
IC6007	③	9.31
	⑭	0.00
Q6021	E	21.95
	C	21.95
	B	20.94

NOTE [4]
EXECUTION PULSE MUTE

Symbol No.	Pin No.	STOP → PLAY	PLAY → STOP
Q6301	E	0.00	
	C	0.00	
	B	0.72	−0.6

NOTE [5]
COUNTER TAPE → TIME
SWITCHING MODE

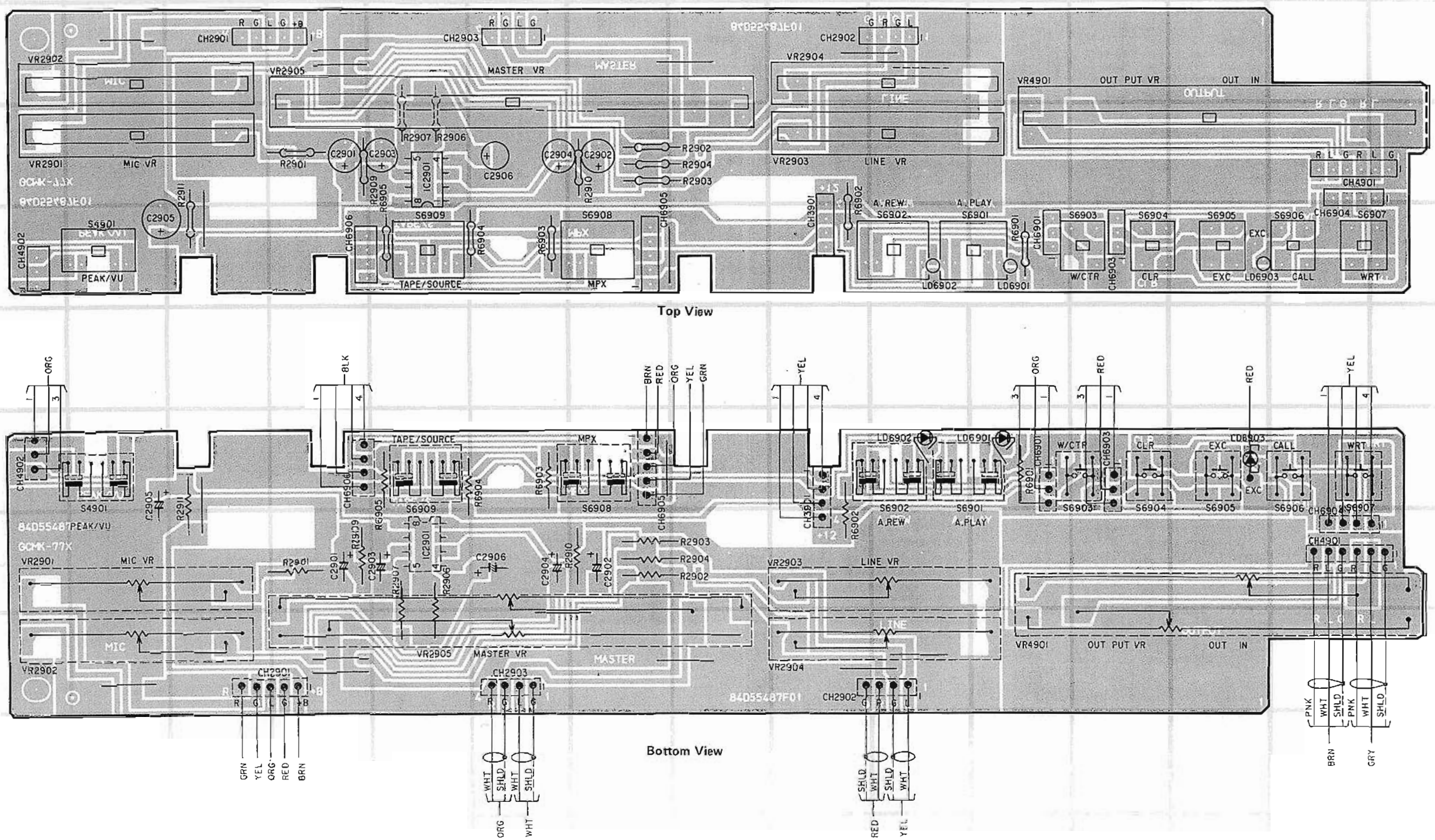
Symbol No.	Pin No.	TIME
IC6001	⑪	10.12
IC6003	⑧	10.12
	⑪	0.00
Q6001	E	21.95
	C	21.95
	B	20.90

NOTE [6]
COUNTER EXECUTION ON

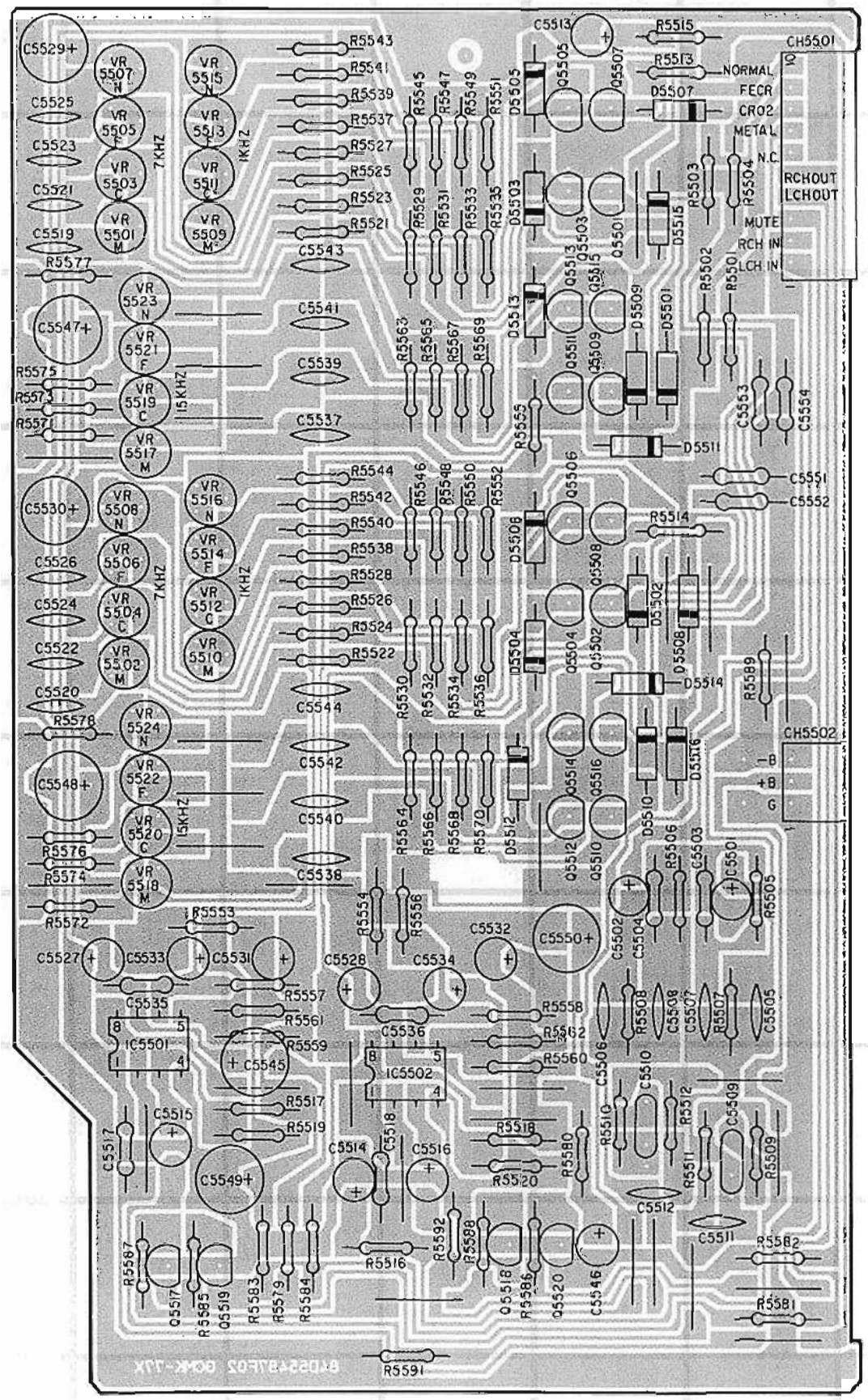
Symbol No.	Pin No.	ON
IC6001	⑩	10.12
IC6004	①	10.12
	⑩	0.11

Parts Layout on P.C. Boards

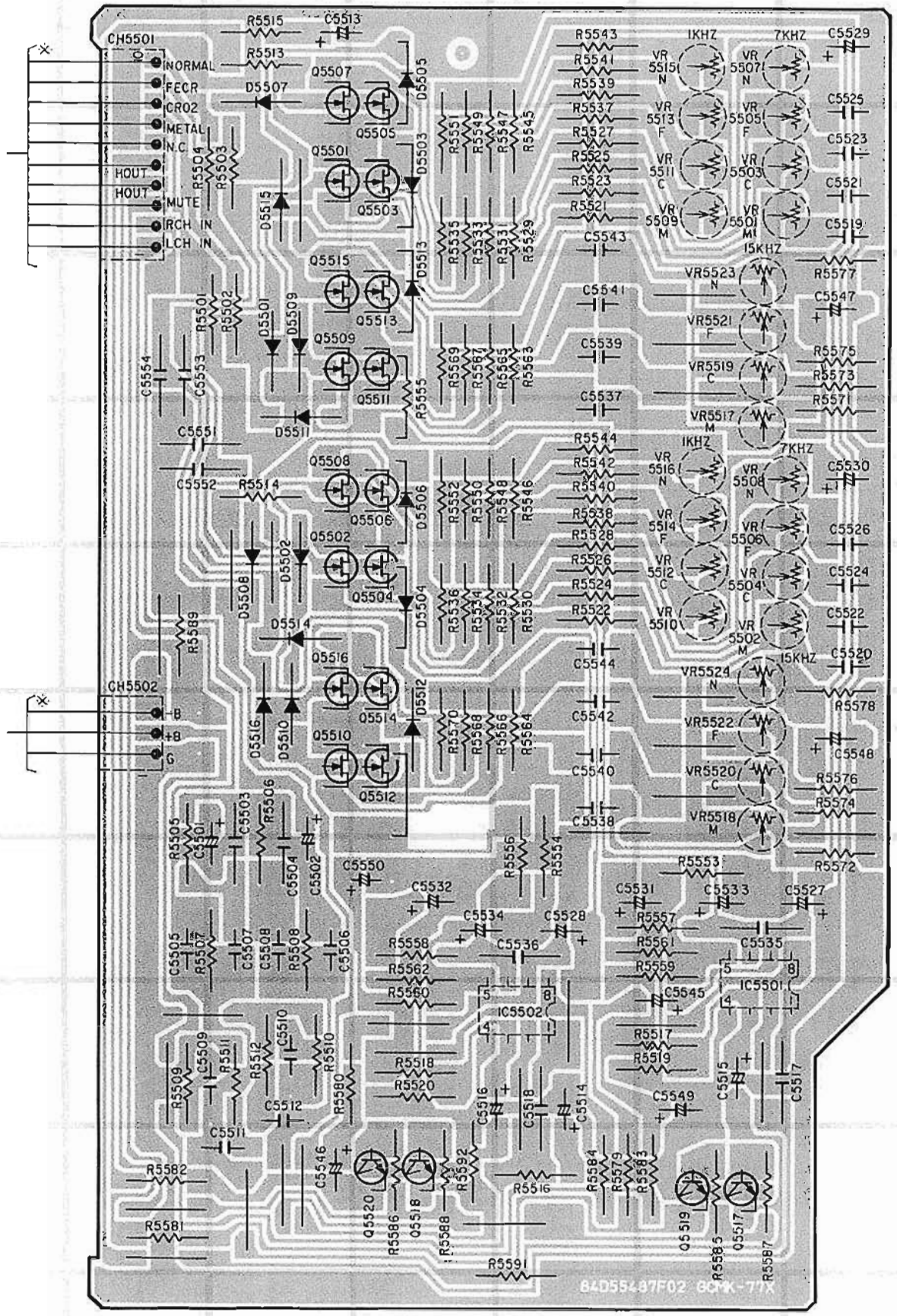
- Volume/Switch P.C. Board



- Record EQ P.C. Board

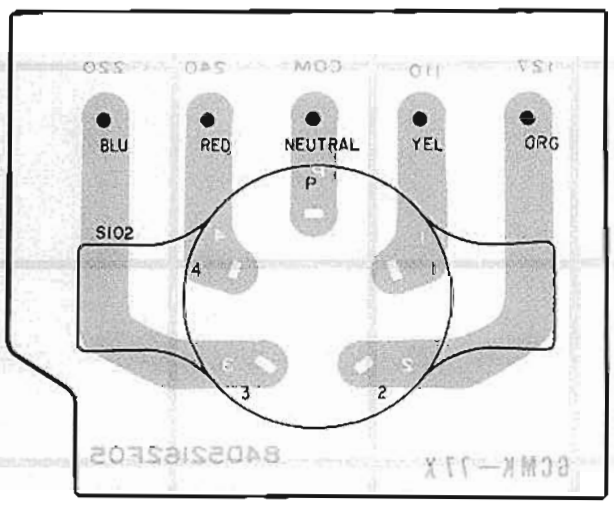


Top View

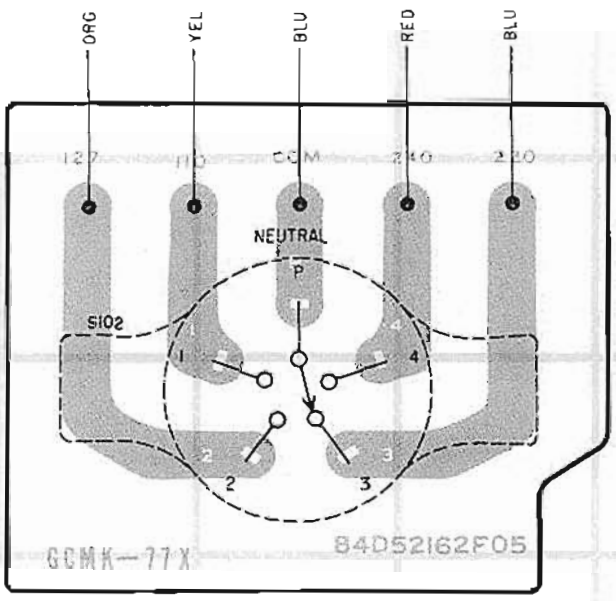


Bottom View

- Volt Select Switch P.C. Board

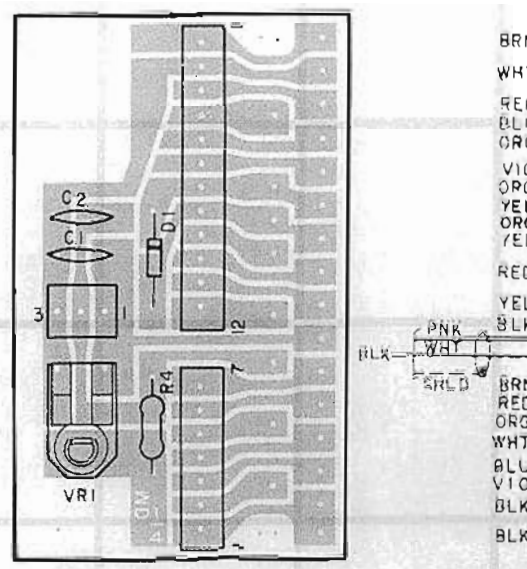


Top View



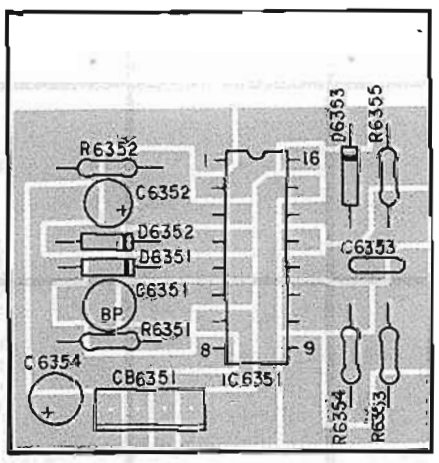
Bottom View

- Terminal P.C. Board

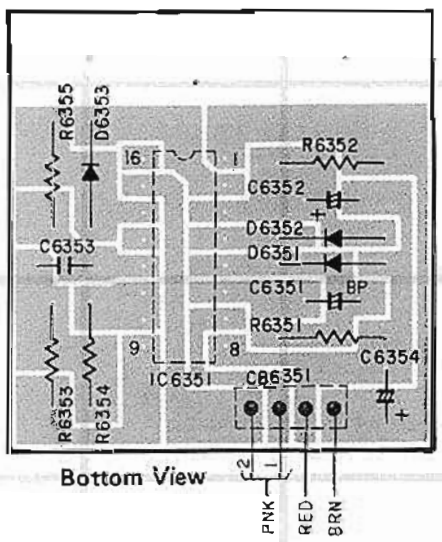


Top View

- Pulse OSC P.C. Board

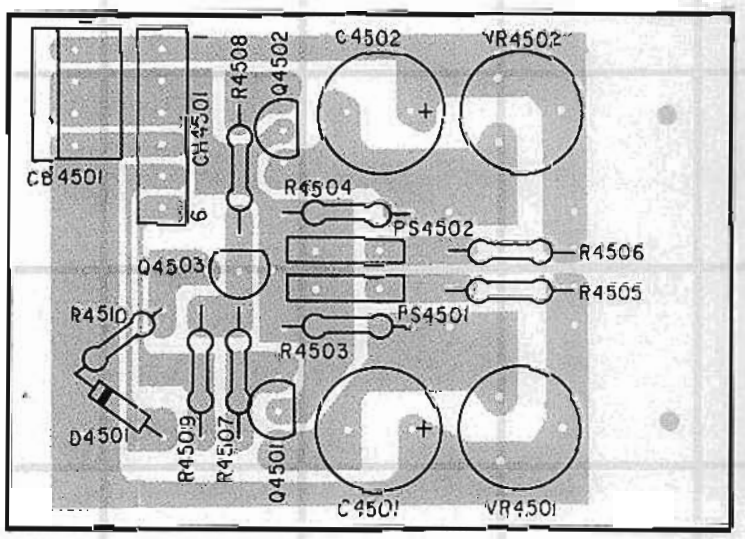


Top View



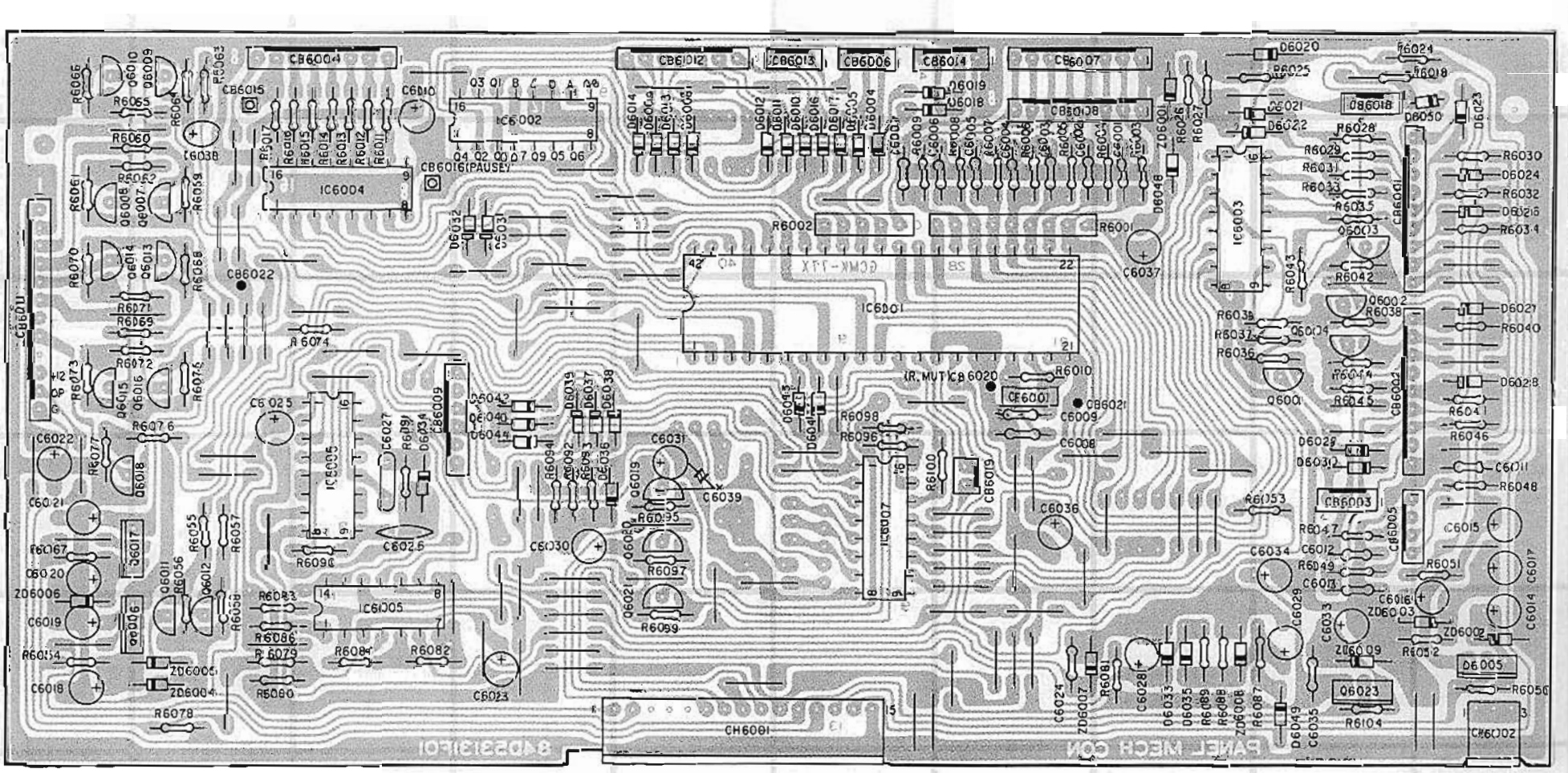
Bottom View

- Meter Sensitivity Control P.C. Board

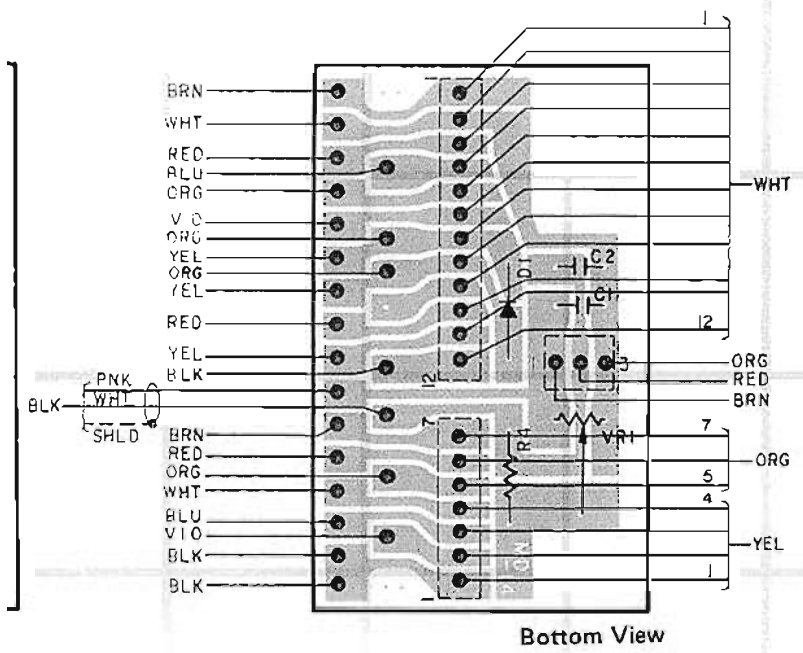


Top View

- Mechanism Control P.C. Board

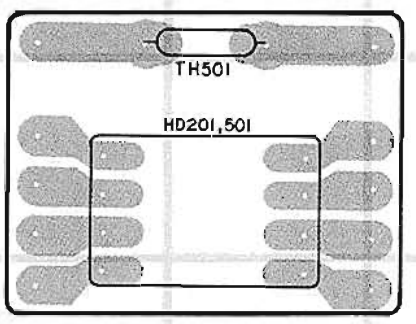


Top View

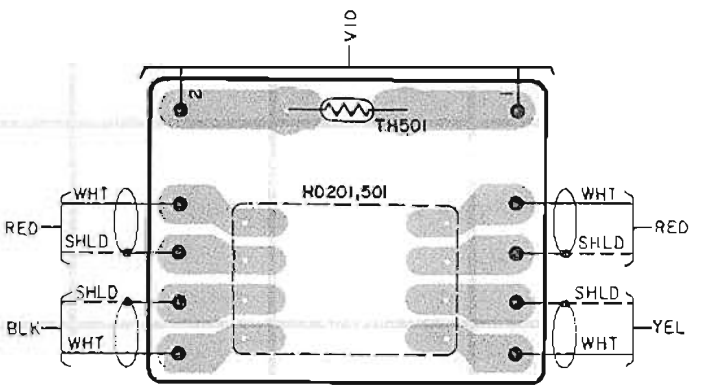


Bottom View

- Head P.C. Board

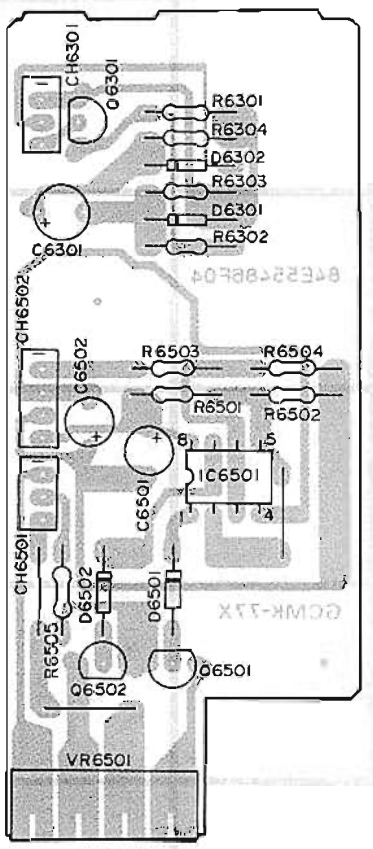


Top View

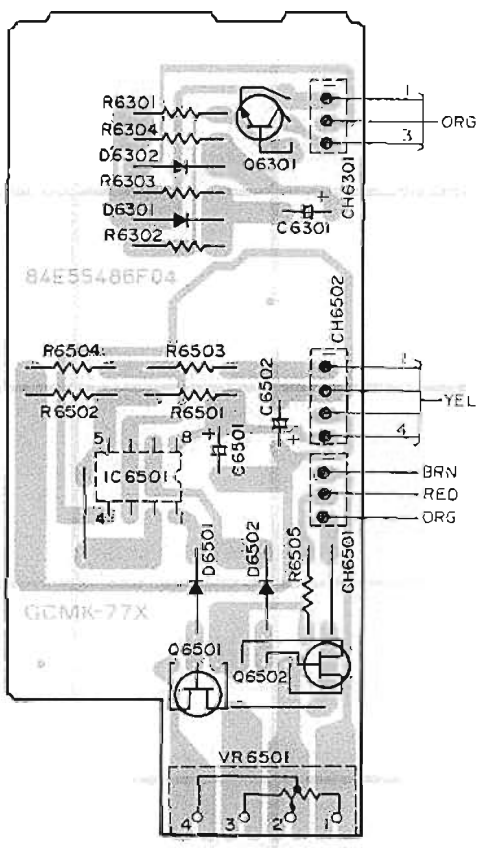


Bottom View

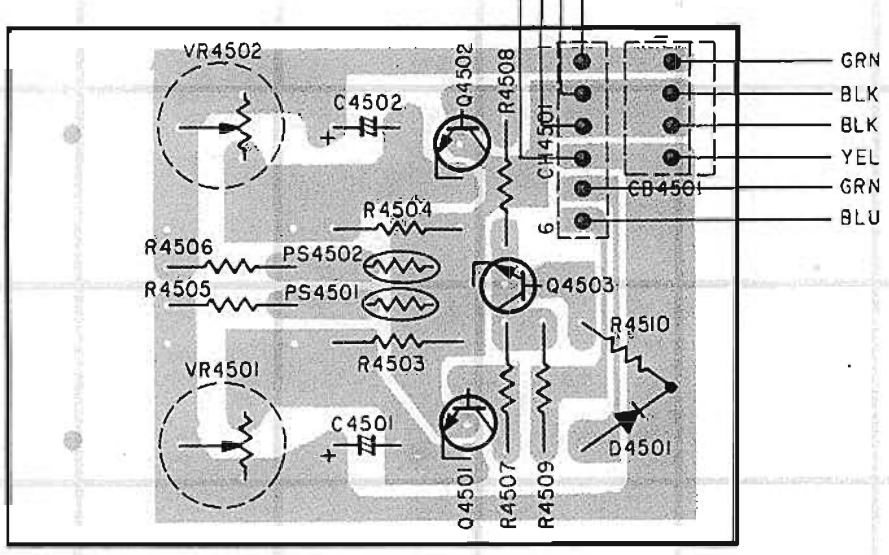
- Pitch Control P.C. Board



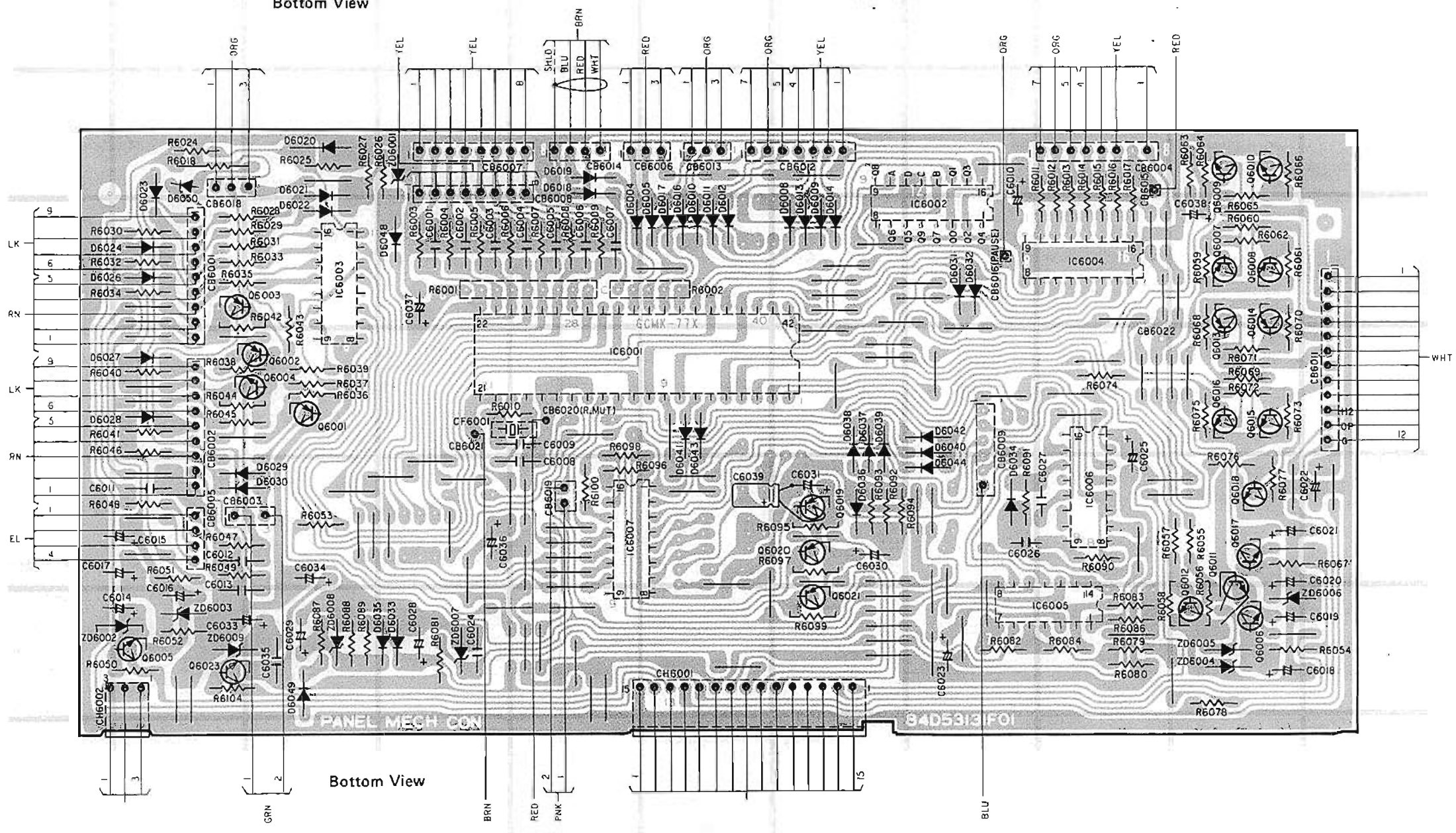
Top View



Bottom View

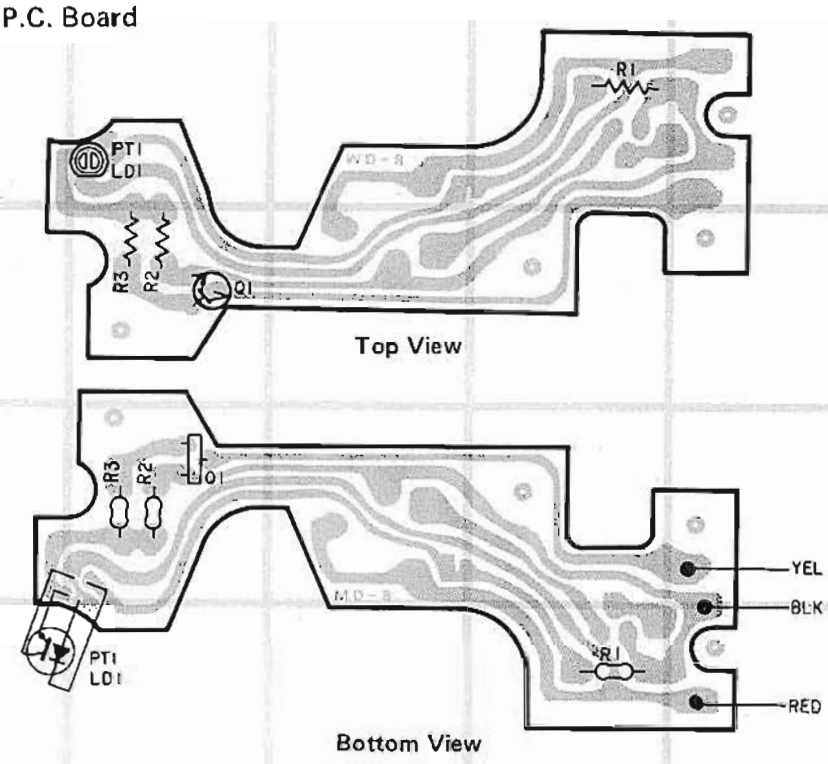


Bottom View



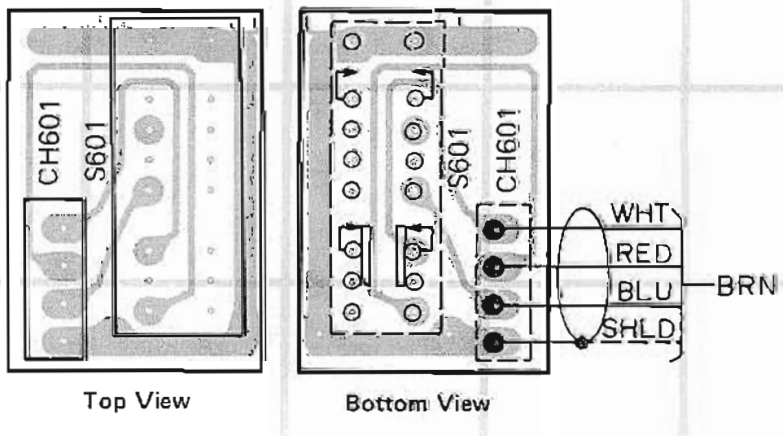
Bottom View

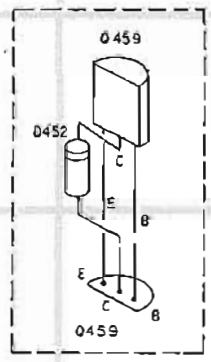
- Sensor P.C. Board



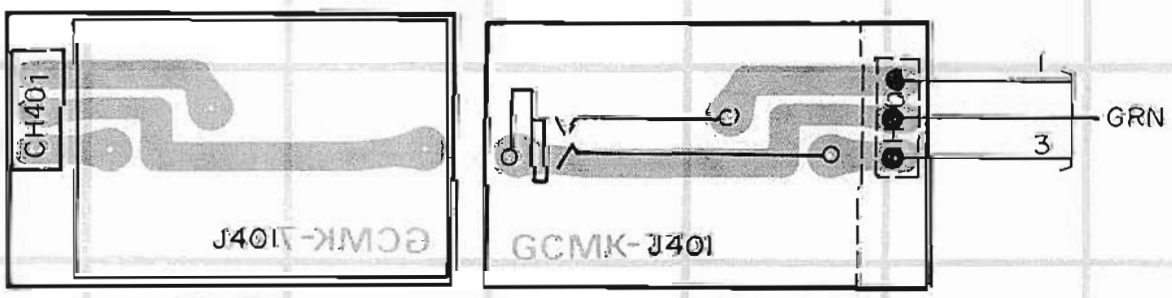
- Cassette LED P.C. Board

- Timer Switch P.C. Board

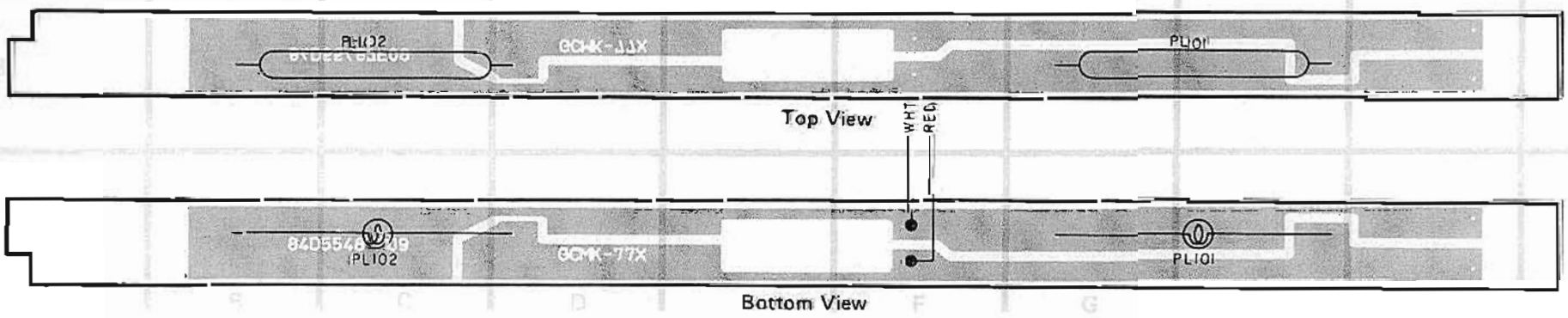




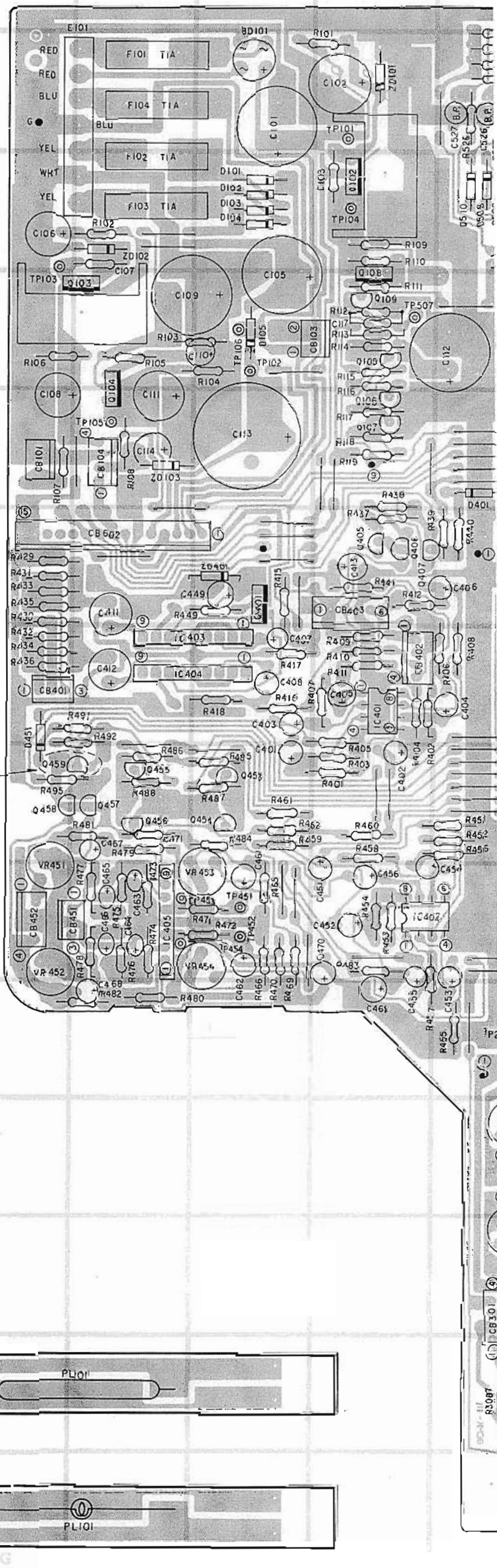
- Headphone P.C. Board

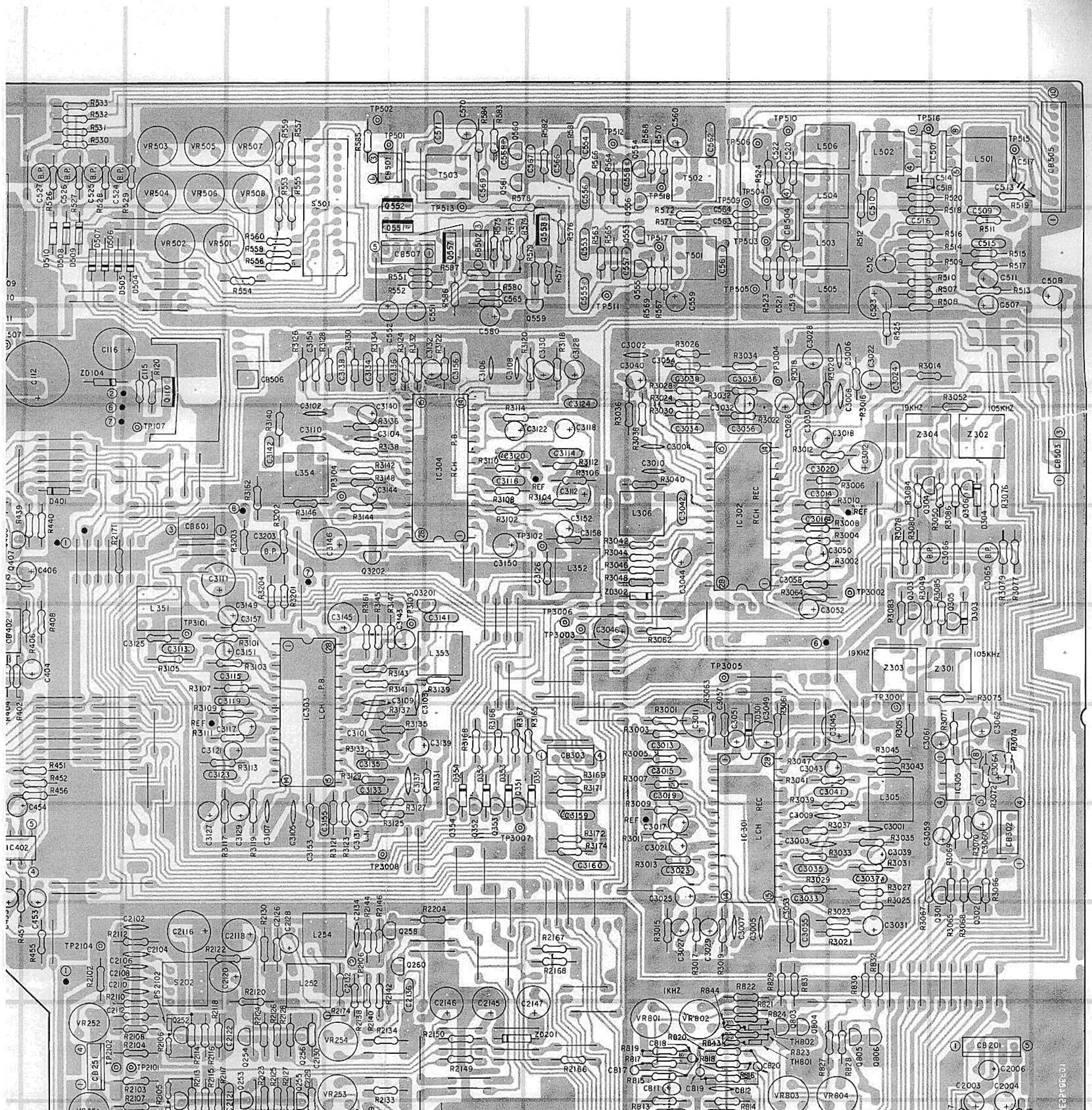


- Lamp P.C. Board

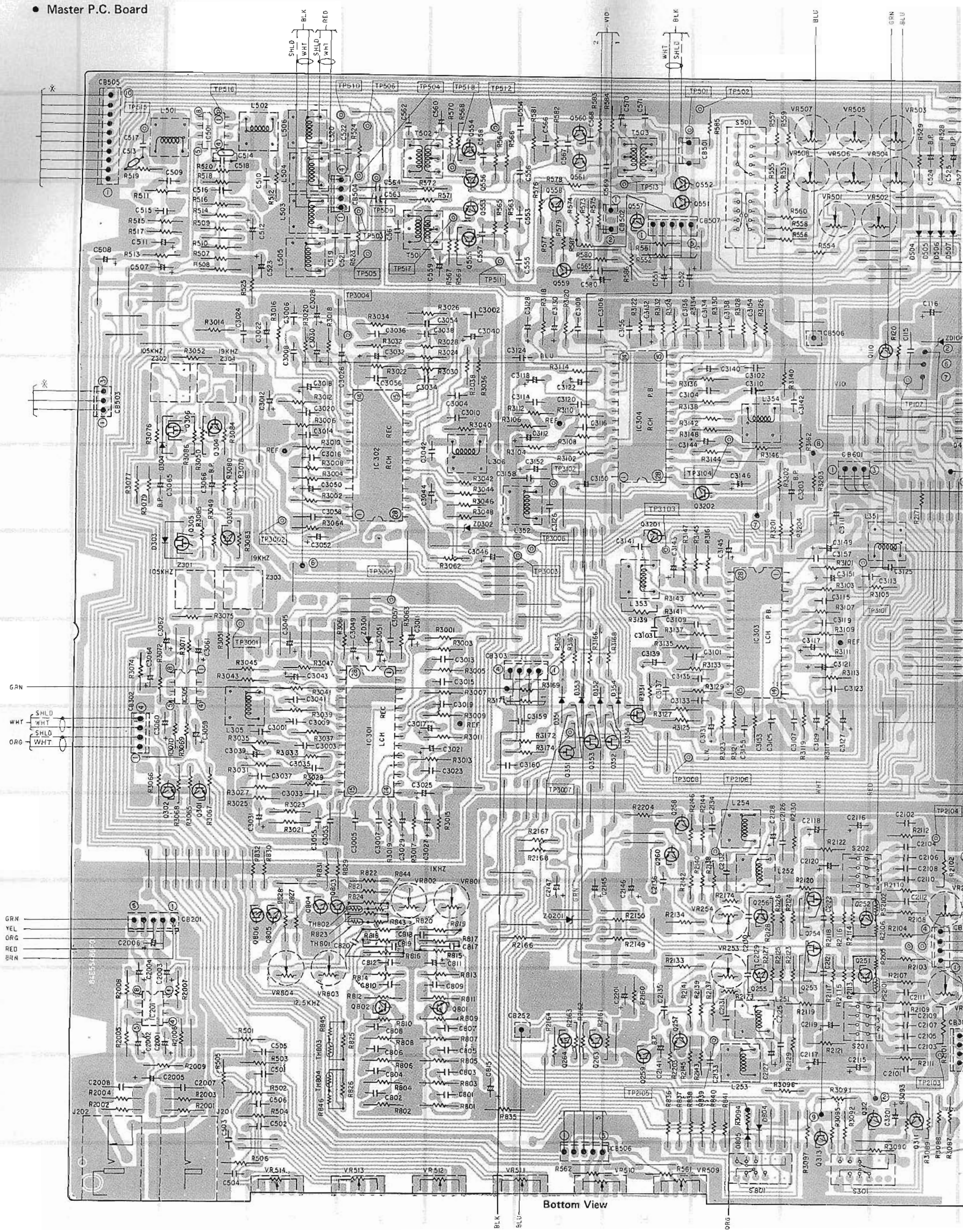


- Master P.C. Board

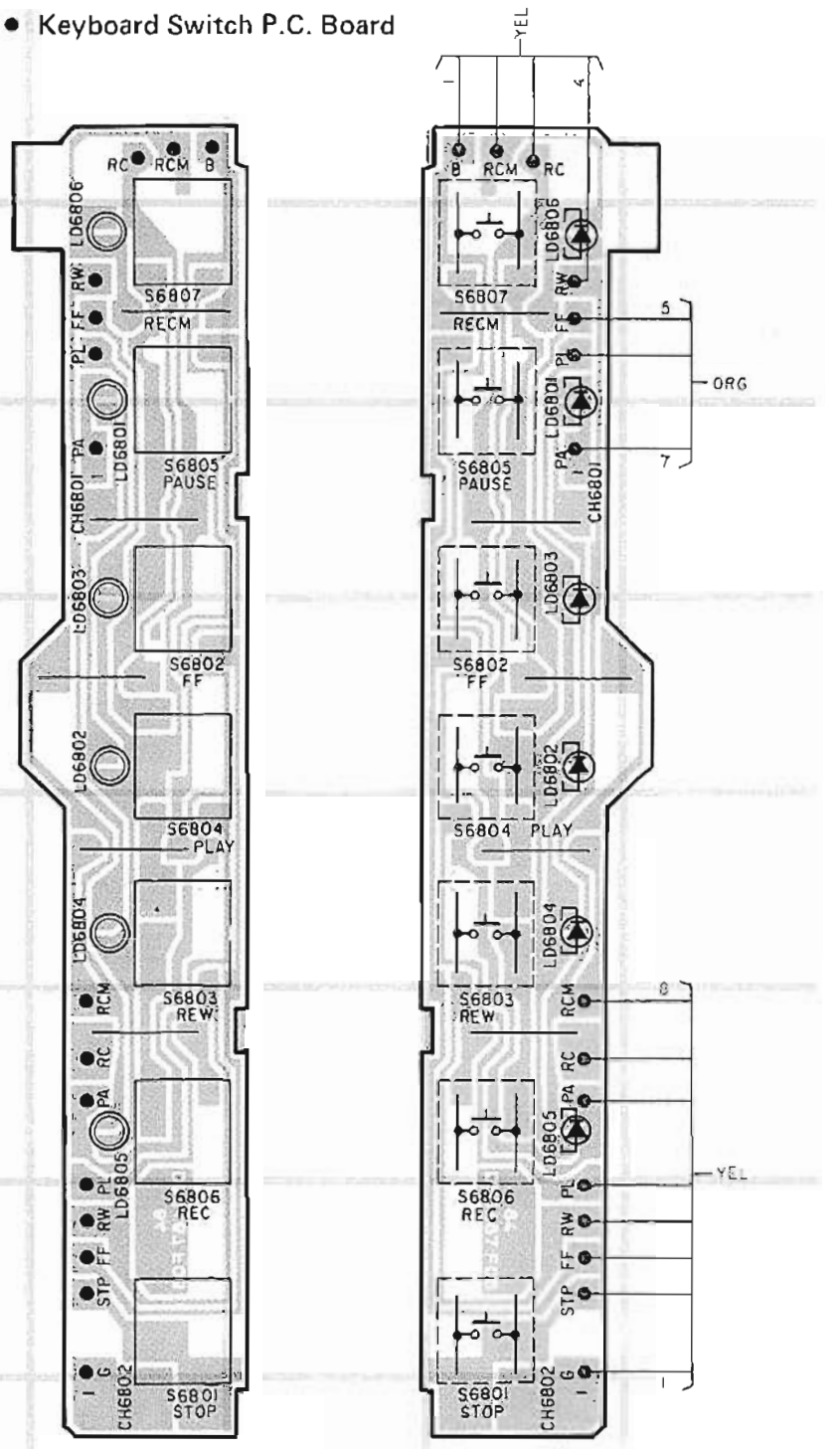



IC301 LCH REC
IC302 RCH REC
IC303 LCH P.B.
IC304 RCH P.B.
IC305
IC201
IC501
IC402
S501
S201
S202
S301
S801
T501
T502
T503
L501
L502
L503
L504
L505
L506
L251
L252
L253
L254
L305
L306
L351
L352
L353
L354
Z301
Z302
Z303
Z304
19KHZ
105KHZ
1KHZ
12.5KHZ
VR501
VR502
VR503
VR504
VR505
VR506
VR507
VR508
VR509
VR510
VR511
VR512
VR513
VR514
VR251
VR252
VR253
VR254
VR801
VR802
VR803
VR804
CB201
CB251
CB252
CB301
CB302
CB303
CB501
CB502
CB503
CB504
CB505
CB506
CB507
CB601
J201
J202
TH801
TH802
TH803
TH804
REF
K
L
M
N
O
P
Q
R
S
T
U
Top View

- Master P.C. Board



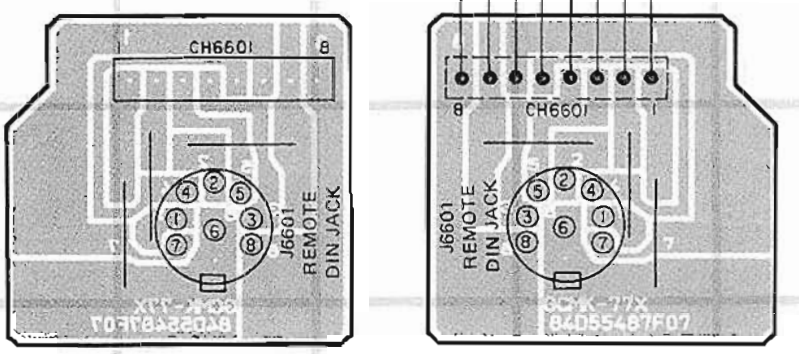
• Keyboard Switch P.C. Board



Top View

Bottom View

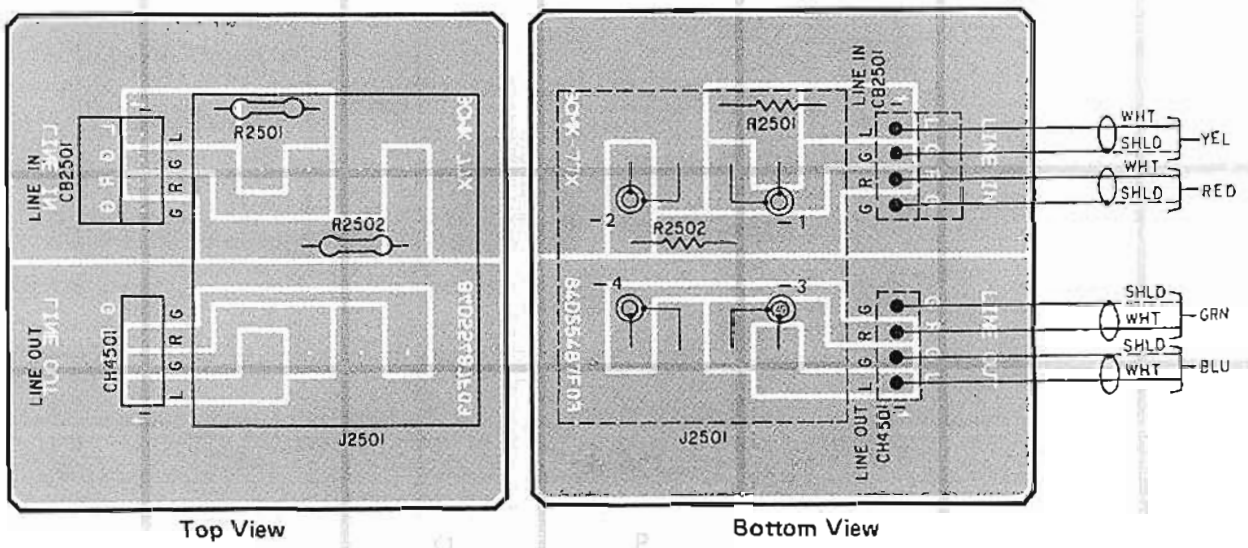
• Remote DIN Jack P.C. Board



Top View

Bottom View

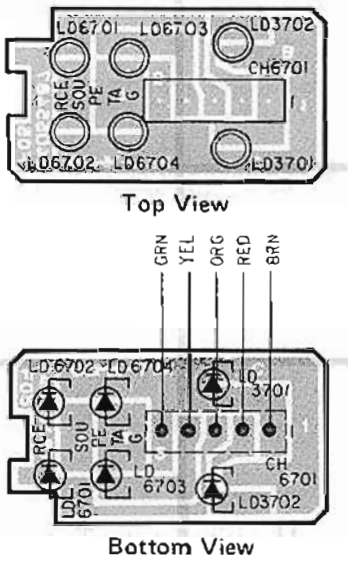
• Phono Plate P.C. Board



Top View

Bottom View

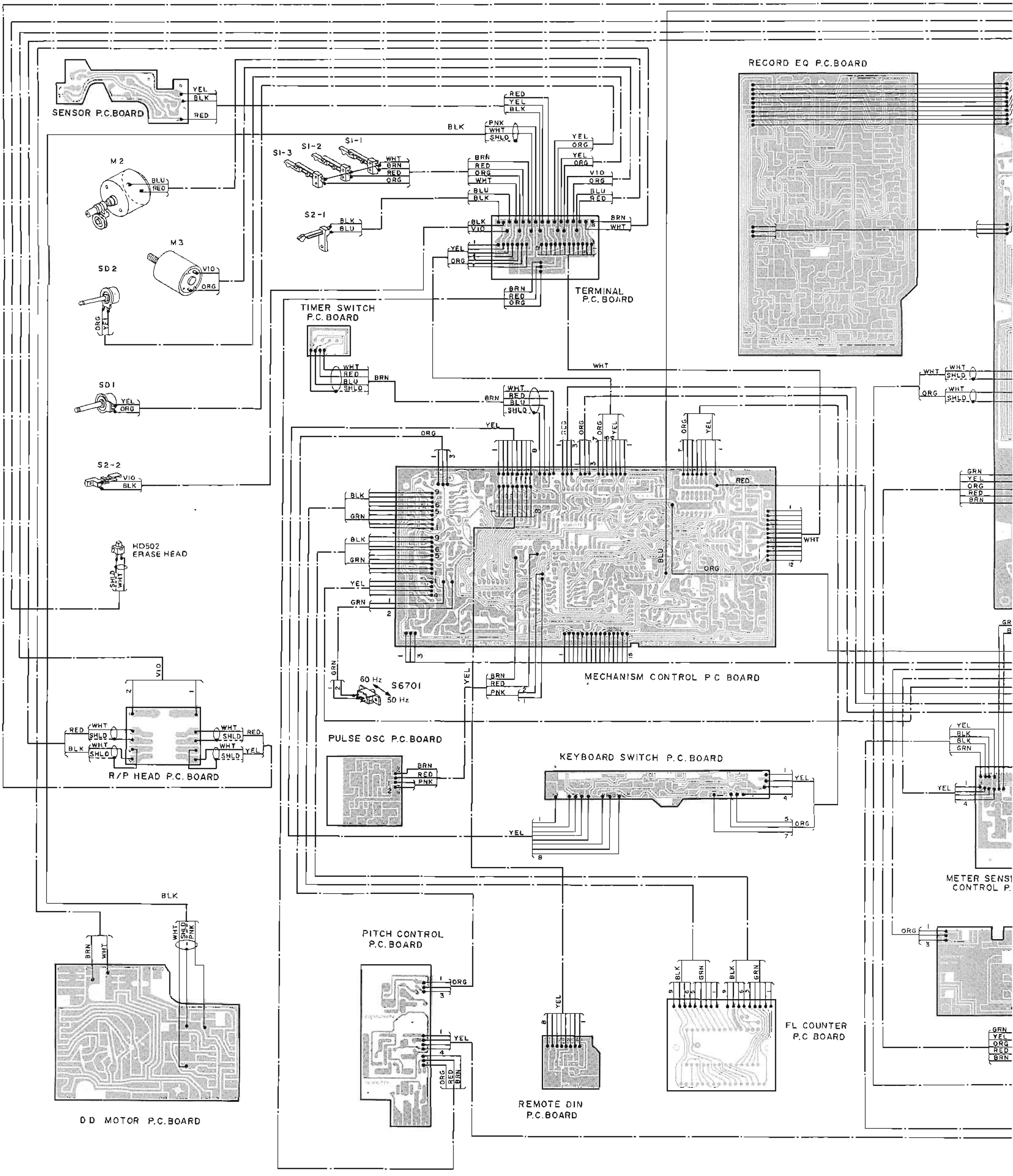
• LED P.C. Board

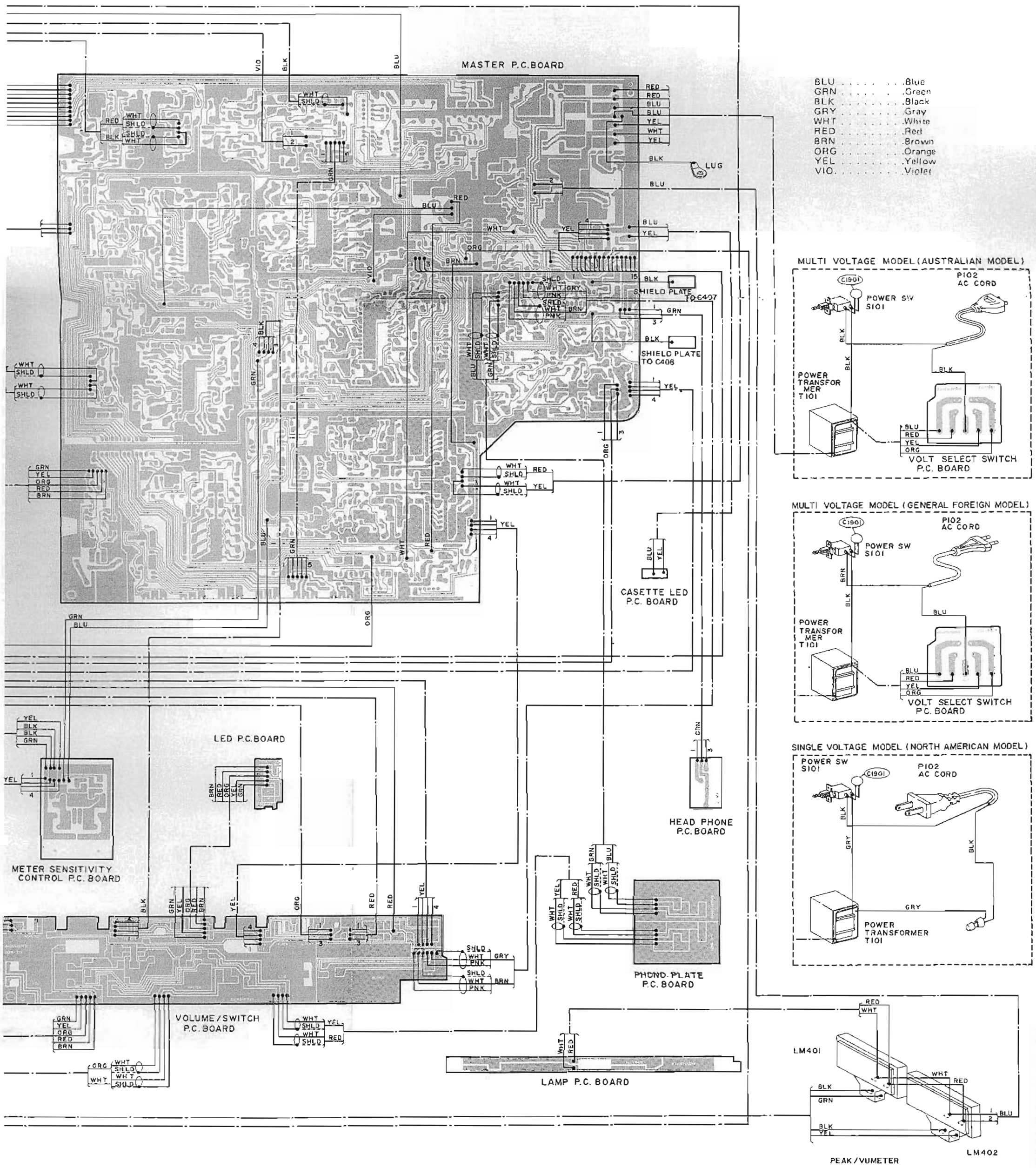


Top View

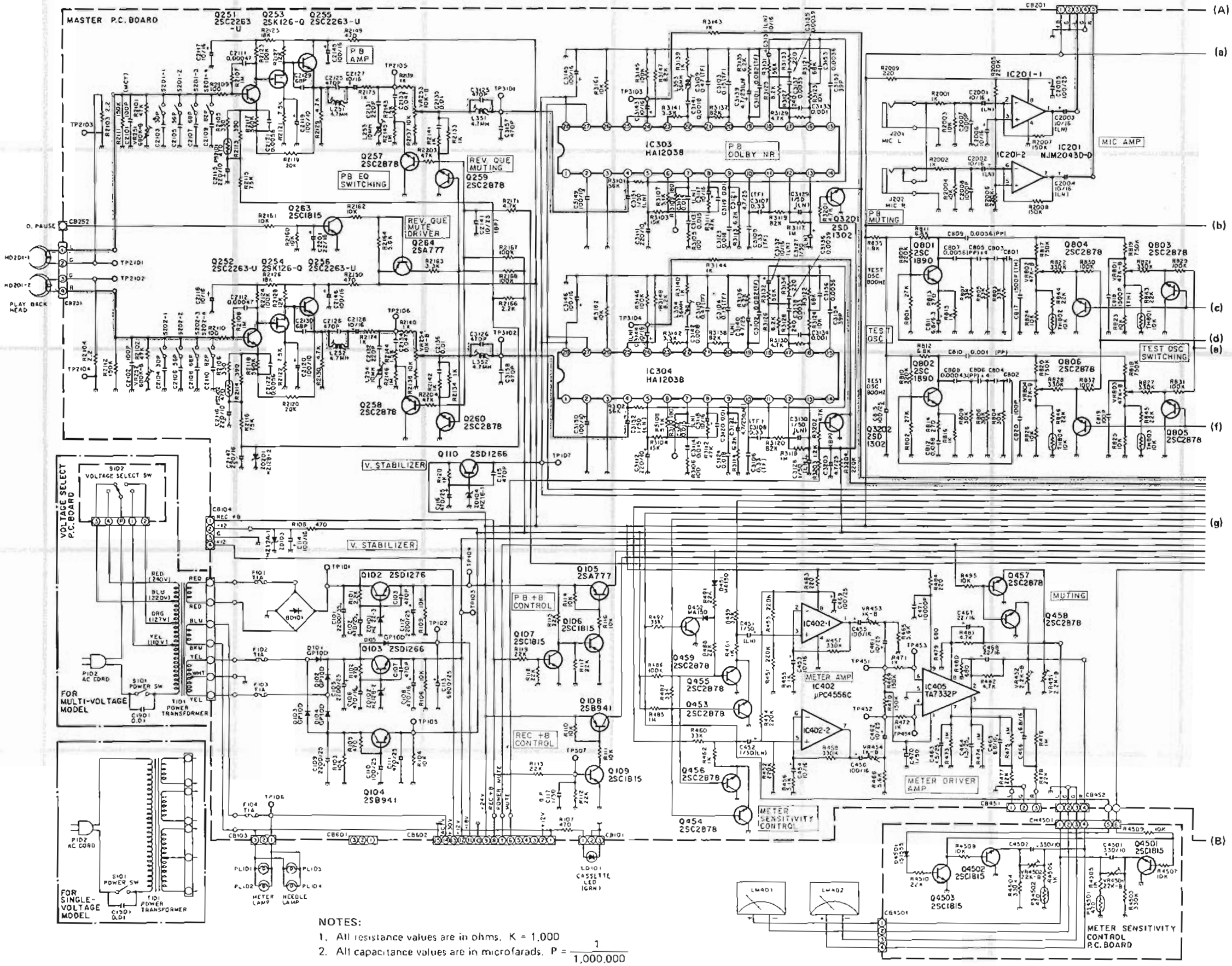
Bottom View

Wiring Diagram




MASTER P.C.BOARD
BLU . . . . . .Blue
GRN . . . . . .Green
BLK . . . . . .Black
GRY . . . . . .Gray
WHT . . . . . .White
RED . . . . . .Red
BRN . . . . . .Brown
ORG . . . . . .Orange
YEL . . . . . .Yellow
VIO. . . . . .Violet
MULTI VOLTAGE MODEL (AUSTRALIAN MODEL)
C1901
P102
AC CORD
POWER SW
S101
POWER
TRANSFOR
MER
T101
VOLT SELECT SWITCH
P.C. BOARD
MULTI VOLTAGE MODEL (GENERAL FOREIGN MODEL)
C1901
P102
AC CORD
POWER SW
S101
POWER
TRANSFOR
MER
T101
VOLT SELECT SWITCH
P.C. BOARD
SINGLE VOLTAGE MODEL (NORTH AMERICAN MODEL)
POWER SW
S101
C1901
P102
AC CORD
POWER
TRANSFORMER
T101
SHIELD PLATE
TO C407
SHIELD PLATE
TO C408
LUG
CASETTE LED
P.C. BOARD
LED P.C.BOARD
METER SENSITIVITY
CONTROL P.C. BOARD
VOLUME/SWITCH
P.C. BOARD
HEAD PHONE
P.C. BOARD
PHOND PLATE
P.C. BOARD
LAMP P.C. BOARD
LM401
LM402
PEAK/VUMETER

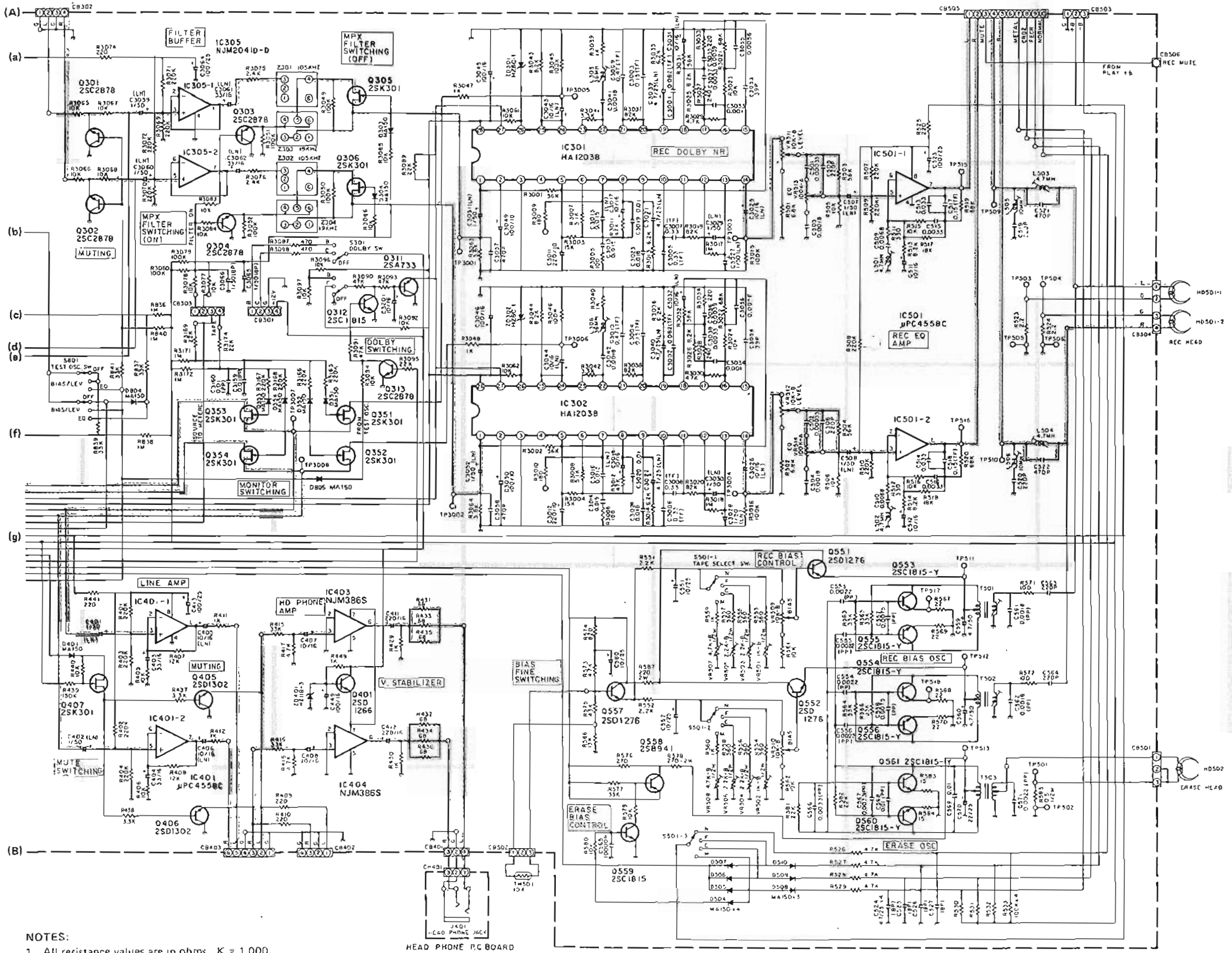
Schematic Diagram (1/3-A)



NOTES:

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

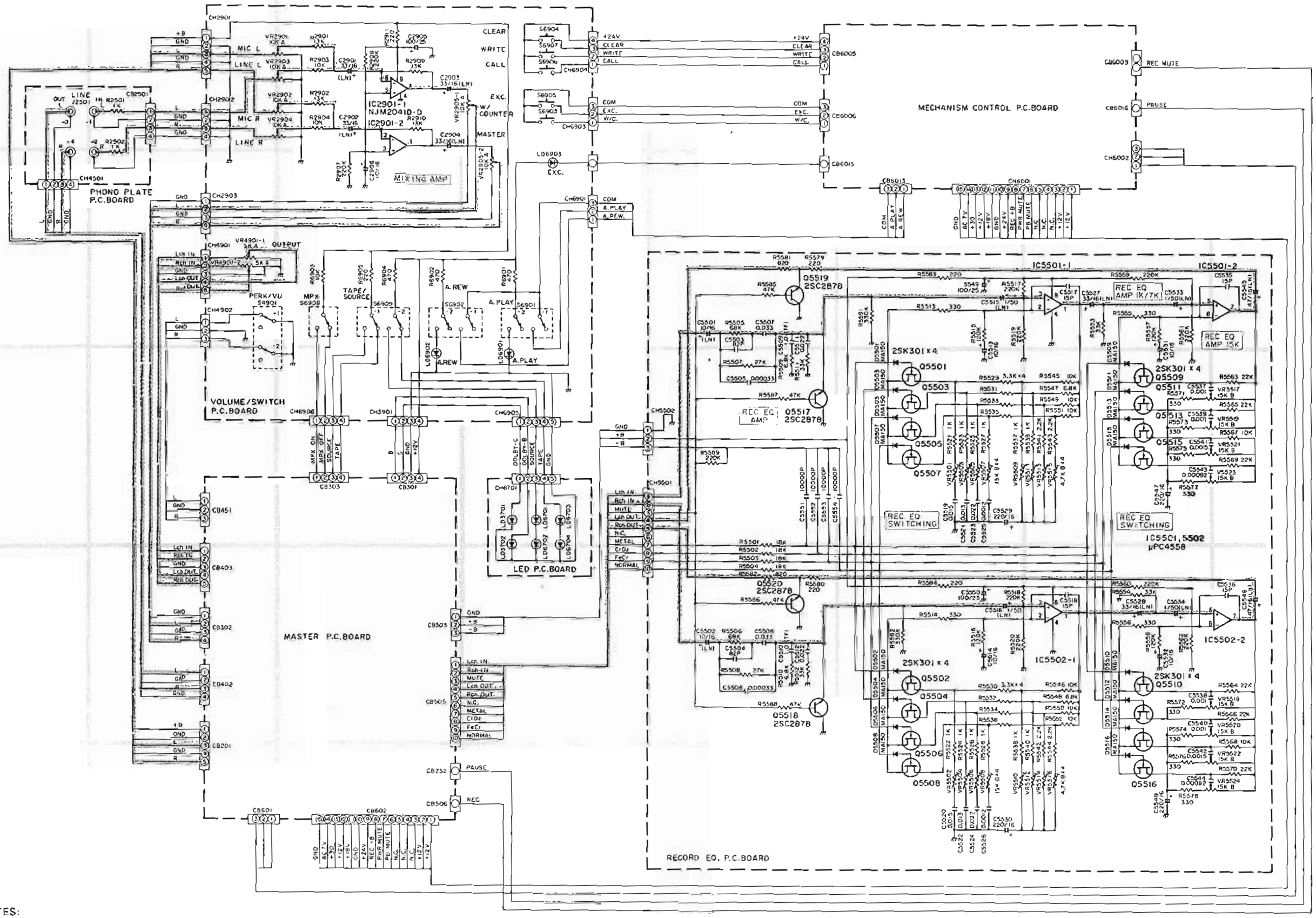
Schematic Diagram (1/3-B)



NOTES:

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

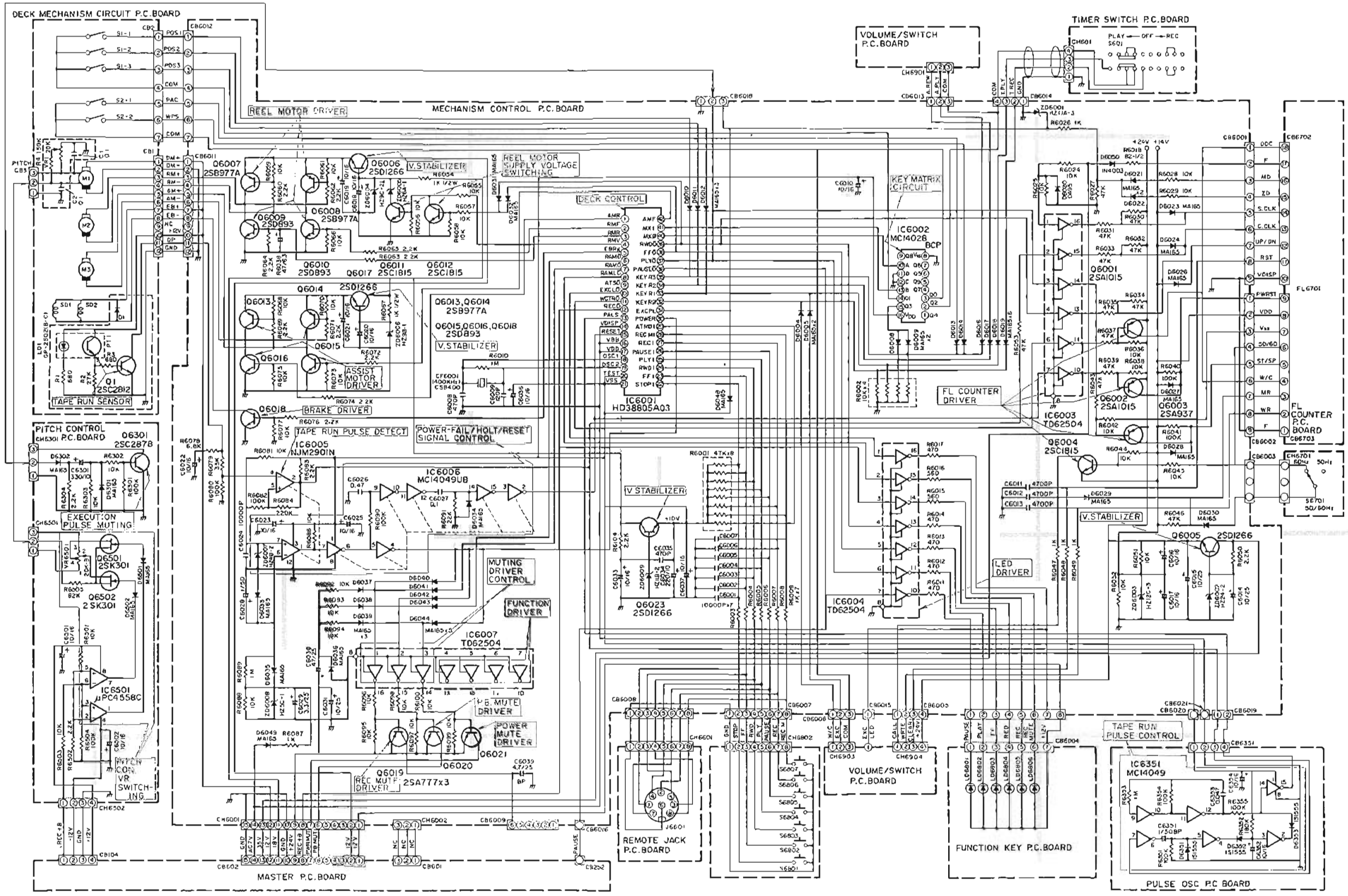
Schematic Diagram (2/3)



NOTES:

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

Schematic Diagram (3/3)



NOTES:

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

Electrical Parts List

Resistors (All resistors are carbon film, ¼W, ±5% unless otherwise noted.)
uF = microfarads, pF = picofarads

Symbol No.	Part No.	Description
Master P.C. Board		
IC's		
IC201	51T52153F01	NJM2043D-D
IC301	51T52160F01	HA12038-01
IC302	51T52160F01	HA12038-01
IC303	51T52160F01	HA12038-01
IC304	51T52160F01	HA12038-01
IC305	51T52155F01	NJM2041D-D
IC401	51S43471U02	μPC4558C
IC402	51T51173F01	μPC4556C
IC403	51T57856F01	NJM386S
IC404	51T57856F01	NJM386S
IC405	51T47740F01	TA7332P
IC501	51S43471U02	μPC4558C
Transistors		
Q102	48T56029F01	2SD1276-P, Q
Q103	48T56031F01	2SD1266-P, Q
Q104	48T56030F01	2SB941-P, Q
Q105	48T41197U04	2SA777-S
or	48T41197U03	2SA777-R
Q106	48S43525F05	2SC1815-Y, GR
or	48S44578J01	2SC945L-P
Q107	48S43525F05	2SC1815-Y, GR
or	48S44578J01	2SC945L-P
Q108	48T56030F01	2SB941-P, Q
Q109	48S43525F05	2SC1815-Y, GR
or	48S44578J01	2SC945L-P
Q110	48T56031F01	2SD1266-P, Q
Q251	48T41195U04	2SC2263-U
Q252	48T41195U04	2SC2263-U
Q253	48S42539U01	FET, 2SK128Q
Q254	48S42539U01	FET, 2SK128Q
Q255	48T41195U04	2SC2263-U
Q256	48T41195U04	2SC2263-U
Q257	48T51878F01	2SC2878A, B
Q258	48T51878F01	2SC2878A, B
Q259	48T51878F01	2SC2878A, B
Q260	48T51878F01	2SC2878A, B
Q263	48S43525F05	2SC1815-Y, GR
or	48S44578J01	2SC945L-P

Symbol No.	Part No.	Description
Q264	48T41197U04	2SA777-S
or	48T41197U03	2SA777-R
Q301	48T51878F01	2SC2878A, B
Q302	48T51878F01	2SC2878A, B
Q303	48T51878F01	2SC2878A, B
Q304	48T51878F01	2SC2878A, B
Q305	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q306	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q311	48T40081T03	2SA733P
or	48T51118F01	2SA1015-Y
Q312	48S43525F05	2SC1815-Y, GR
or	48S44578J01	2SC945L-P
Q313	48T51878F01	2SC2878A, B
Q351	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q352	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q353	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q354	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q401	48T56031F01	2SD1266-P, Q
Q405	48T57305F01	2SD1302-S, T
Q406	48T57305F01	2SD1302-S, T
Q407	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q453	48T51878F01	2SC2878A, B
Q454	48T51878F01	2SC2878A, B
Q455	48T51878F01	2SC2878A, B
Q456	48T51878F01	2SC2878A, B
Q457	48T51878F01	2SC2878A, B
Q458	48T51878F01	2SC2878A, B
Q459	48T51878F01	2SC2878A, B
Q551	48T56029F01	2SD1276-P, Q
Q552	48T56029F01	2SD1276-P, Q
Q553	48S43525F02	2SC1815-Y
Q554	48S43525F02	2SC1815-Y
Q555	48S43525F02	2SC1815-Y
Q556	48S43525F02	2SC1815-Y

Symbol No.	Part No.	Description
Q557	48T56029F01	2SD1276-P, Q
Q558	48T56030F01	2SB941-P, Q
Q559	48S43525F05	2SC1815-Y, GR
or	48S44578J01	2SC945L-P
Q560	48S43525F02	2SC1815-Y
Q561	48S43525F02	2SC1815-Y
Q801	48S43394P01	2SC1890E, F
Q802	48S43394P01	2SC1890E, F
Q803	48T51878F01	2SC2878A, B
Q804	48T51878F01	2SC2878A, B
Q805	48T51878F01	2SC2878A, B
Q806	48T51878F01	2SC2878A, B
Q3201	48T57305F01	2SD1302-S, T
Q3202	48T57305F01	2SD1302-S, T
Diodes		
D101	48T55186F01	GP10D
D102	48T55186F01	GP10D
D103	48T55186F01	GP10D
D104	48T55186F01	GP10D
D105	48T55186F01	GP10D
D303	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D304	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D351	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D352	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D353	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D354	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D401	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D451	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D452	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D504	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D505	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D506	48T51582F01	MA-150
or	48T51881F01	DS442-BT

Symbol No.	Part No.	Description
D507	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D508	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D509	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D510	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D804	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D805	48T51582F01	MA150
or	48T51881F01	DS442-BT
BD101	48T50629F01	Bridge, WL-02
ZD101	48T52739F90	Zener, HZ22-3
ZD102	48T52739F74	Zener, HZ12B-2
ZD103	48T52739F70	Zener, HZ12A-1
ZD104	48T52739F79	Zener, HZ16-1
ZD201	48T52739F74	Zener, HZ12B-2
ZD301	48T52739F40	Zener, HZ6C-1
ZD302	48T52739F40	Zener, HZ6C-1
ZD401	48T52739F66	Zener, HZ11B-3
Fuses		
F101	65T42077U16	T-1A
or	65T44312F15	ELU 1A
F102	65T42077U16	T-1A
or	65T44312F15	ELU 1A
F103	65T42077U16	T-1A
or	65T44312F15	ELU 1A
F104	65T42077U16	T-1A
or	65T44312F15	ELU 1A
Coils		
L251	24T51914F01	Trap, 4.7mH
L252	24T51914F01	Trap, 4.7mH
L253	24T51914F02	Trap, 10mH
L254	24T51914F02	Trap, 10mH
L305	24T52159F01	Inductor, 36mH
L306	24T52159F01	Inductor, 36mH
L351	24T51914F01	Trap, 4.7mH
L352	24T51914F01	Trap, 4.7mH
L353	24T52159F01	Inductor, 36mH
L354	24T52159F01	Inductor, 36mH

Symbol No.	Part No.	Description
L501	24T51914F01	Trap, 4.7mH
L502	24T51914F01	Trap, 4.7mH
L503	24T51914F01	Trap, 4.7mH
L504	24T51914F01	Trap, 4.7mH
L505	24T51914F02	Trap, 10mH
L506	24T51914F02	Trap, 10mH
Jacks & Filters		
J201	09T52845F11	M1658 AVCA (Mic Jack)
J202	09T52845F11	M1658 AVCA (Mic Jack)
Z301	91T44717P01	Filter, MPX 105B
Z302	91T44717P01	Filter, MPX 105B
Z303	91T44717P02	Filter, MPX 19B
Z304	91T44717P02	Filter, MPX 19B
Posistor & Thermistor		
PS2101	48T56034F01	Posistor 470 ohm
PS2102	48T56034F01	Posistor 470 ohm
TH801	48S42931U34	10K ohm
TH802	48S42931U34	10K ohm
TH803	48S42931U34	10K ohm
TH804	48S42931U34	10K ohm
Switches & Transformer		
S201	40T52528F01	4P SGK 1042
S202	40T52528F01	4P SGK 1042
S501	40T56475F01	Slide, SSR (Tape Select)
T501	25T56004F01	Trans, OSC
T502	25T56004F01	Trans, OSC
T503	25T56004F01	Trans, OSC

Symbol No.	Part No.	Description
Capacitors		
C101	23S41198U73	Electrolytic 2200 uF/35V
C102	23S41198U57	Electrolytic 470 uF/25V
C103	08S44505P45	Ceramic 470 pF
C105	23S41198U72	Electrolytic 2200 uF/25V
C106	23S41198U56	Electrolytic 470 uF/16V
C107	08S44505P45	Ceramic 470 pF
C108	23S41198U56	Electrolytic 470 uF/16V
C109	23S41198U72	Electrolytic 2200 uF/25V
C110	23S40657F21	Electrolytic 100 uF/25V
C111	23S41198U57	Electrolytic 470 uF/25V
C112	23S41198U72	Electrolytic 2200 uF/25V
C113	23T58450F01	Electrolytic 6800 uF/25V
C114	23S40657F14	Electrolytic 100 uF/16V
C115	08S44505P45	Ceramic 470 pF
C116	23S41198U57	Electrolytic 470 uF/25V
C117	23T41366F40	Electrolytic (B.P) 1 uF/50V
C401	23T42478F24	Electrolytic 1 uF/50V
C402	23T42478F24	Electrolytic 1 uF/50V
C403	23S40657F12	Electrolytic 33 uF/16V
C404	23S40657F12	Electrolytic 33 uF/16V
C405	23T42478F05	Electrolytic 10 uF/16V
C406	23T42478F05	Electrolytic 10 uF/16V
C407	23S40657F10	Electrolytic 10 uF/16V
C408	23S40657F10	Electrolytic 10 uF/16V
C411	23S41198U41	Electrolytic 220 uF/16V
C412	23S41198U41	Electrolytic 220 uF/16V
C413	23S40657F21	Electrolytic 100 uF/25V
C449	23S40657F14	Electrolytic 100 uF/16V
C451	23T42478F24	Electrolytic 1 uF/50V
C452	23T42478F24	Electrolytic 1 uF/50V
C453	23S40657F10	Electrolytic 10 uF/16V
C454	23S40657F10	Electrolytic 10 uF/16V
C455	23S40657F14	Electrolytic 100 uF/16V
C456	23S40657F14	Electrolytic 100 uF/16V
C461	23S40657F17	Electrolytic 10 uF/25V
C462	23S40657F17	Electrolytic 10 uF/25V
C463	23S41059P09	Tantalum 1.5 uF/25V
C464	23S41059P09	Tantalum 1.5 uF/25V
C465	23S41059P22	Tantalum 6.8 uF/16V
C466	23S41059P22	Tantalum 6.8 uF/16V
C467	23S40657F11	Electrolytic 22 uF/16V
C468	23S40657F11	Electrolytic 22 uF/16V
C469	23S40657F21	Electrolytic 100 uF/25V
C470	23S40657F28	Electrolytic 1 uF/50V
C471	08S44505P61	Ceramic 10000 pF

Symbol No.	Part No.	Description
C501	08T52448F01	Polypropylene 0.00033 uF
C502	08T52448F01	Polypropylene 0.00033 uF
C503	08T52448F19	Polypropylene 0.0018 uF
C504	08T52448F19	Polypropylene 0.0018 uF
C505	08T42081U09	Polyethylene 220 pF
C506	08T42081U09	Polyethylene 220 pF
C507	23T42478F24	Electrolytic 1 uF/50V
C508	23T42478F24	Electrolytic 1 uF/50V
C509	08T52448F33	Polypropylene 0.0068 uF
C510	08T52448F33	Polypropylene 0.0068 uF
C511	23S40657F10	Electrolytic 10 uF/16V
C512	23S40657F10	Electrolytic 10 uF/16V
C513	08S44503P19	Mylar 0.033 uF
C514	08S44503P19	Mylar 0.033 uF
C515	08T52448F25	Polypropylene 0.0033 uF
C516	08T52448F25	Polypropylene 0.0033 uF
C517	08T57851F15	T.F. 0.15 uF
C518	08T57851F15	T.F. 0.15 uF
C519	08S44505P41	Ceramic 220 pF
C520	08S44505P41	Ceramic 220 pF
C521	08S44505P45	Ceramic 470 pF
C522	08S44505P45	Ceramic 470 pF
C523	23S40657F21	Electrolytic 100 uF/25V
C524	23T42477F09	Electrolytic (B.P) 4.7 uF/25V
C525	23T42477F09	Electrolytic (B.P) 4.7 uF/25V
C526	23T42477F09	Electrolytic 4.7 uF/25V
C527	23T42477F09	Electrolytic 4.7 uF/25V
C551	23S40657F17	Electrolytic 10 uF/25V
C552	23S40657F17	Electrolytic 10 uF/25V
C553	08T52448F21	Polypropylene 0.0022 uF
C554	08T52448F21	Polypropylene 0.0022 uF
C555	08T52448F21	Polypropylene 0.0022 uF
C556	08T52448F21	Polypropylene 0.0022 uF
C557	08T52448F34	Polypropylene 0.0075 uF
C558	08T52448F34	Polypropylene 0.0075 uF
C559	23S40657F31	Electrolytic 4.7 uF/50V
C560	23S40657F31	Electrolytic 4.7 uF/50V
C561	08T52448F19	Polypropylene 0.0018 uF
C562	08T52448F19	Polypropylene 0.0018 uF
C563	08S44505P41	Ceramic 220 pF
C564	08S44505P41	Ceramic 220 pF
C565	08S44505P61	Ceramic 10000 pF
C566	08T52448F25	Polypropylene 0.0033 uF
C567	08T52448F25	Polypropylene 0.0033 uF
C568	08T52448F37	Polypropylene 0.01 uF

Symbol No.	Part No.	Description
C569	08T52448F37	Polypropylene 0.01 uF
C570	23S40657F18	Electrolytic 22 uF/25V
C571	08T52448F21	Polypropylene 0.0022 uF
C580	23S40657F17	Electrolytic 10 uF/25V
C801	08T52448F31	Polypropylene 0.0056 uF
C802	08T52448F04	Polypropylene 0.00043 uF
C803	08T52448F31	Polypropylene 0.0056 uF
C804	08T52448F04	Polypropylene 0.00043 uF
C805	08T52448F31	Polypropylene 0.0056 uF
C806	08T52448F04	Polypropylene 0.00043 uF
C807	08T52448F31	Polypropylene 0.0056 uF
C808	08T52448F04	Polypropylene 0.00043 uF
C809	08T52448F31	Polypropylene 0.0056 uF
C810	08T52448F13	Polypropylene 0.001 uF
C811	23S41059P21	Tantalum 6.8 uF/6.3V
C812	08T57851F11	T.F. 0.068 uF
C815	23S40657F21	Electrolytic 100 uF/25V
C817	08T42081U29	Polyethylene 1500 pF
C818	08T42081U29	Polyethylene 1500 pF
C819	08T42081U01	Polyethylene 100 pF
C820	08T42081U01	Polyethylene 100 pF
C2001	23T42478F05	Electrolytic 10 uF/16V
C2002	23T42478F05	Electrolytic 10 uF/16V
C2003	23T42478F05	Electrolytic 10 uF/16V
C2004	23T42478F05	Electrolytic 10 uF/16V
C2005	23S40657F21	Electrolytic 100 uF/25V
C2006	23S40657F10	Electrolytic 10 uF/16V
C2007	08S44505P49	Ceramic 1000 pF
C2008	08S44505P49	Ceramic 1000 pF
C2101	08T55119F34	Mica 100 pF
C2102	08T55119F34	Mica 100 pF
C2103	08T55119F18	Mica 30 pF
C2104	08T55119F18	Mica 30 pF
C2105	08T55119F28	Mica 56 pF
C2106	08T55119F28	Mica 56 pF
C2107	08T55119F30	Mica 68 pF
C2108	08T55119F30	Mica 68 pF
C2109	08T55119F32	Mica 82 pF
C2110	08T55119F32	Mica 82 pF
C2111	08T55119F54	Mica 470 pF
C2112	08T55119F54	Mica 470 pF
C2115	23S40657F09	Electrolytic 220 uF/10V
C2116	23S40657F09	Electrolytic 220 uF/10V
C2117	23T42478F05	Electrolytic 10 uF/16V
C2118	23T42478F05	Electrolytic 10 uF/16V

Symbol No.	Part No.	Description
C2119	23S40657F08	Electrolytic 100 uF/10V
C2120	23S40657F08	Electrolytic 100 uF/10V
C2121	08T52448F31	Polypropylene 0.0056 uF
C2122	08T52448F31	Polypropylene 0.0056 uF
C2125	08S44505P45	Ceramic 470 pF
C2126	08S44505P45	Ceramic 470 pF
C2127	23T42478F05	Electrolytic 10 uF/16V
C2128	23T42478F05	Electrolytic 10 uF/16V
C2129	08S44505P33	Ceramic 68 pF
C2130	08S44505P33	Ceramic 68 pF
C2131	08S44505P41	Ceramic 220 pF
C2132	08S44505P41	Ceramic 220 pF
C2133	08T57851F09	T.F. 0.047 uF
C2134	08T57851F09	T.F. 0.047 uF
C2135	08T52448F37	Polypropylene 0.01 uF
C2136	08T52448F37	Polypropylene 0.01 uF
C2141	23T42477F11	Electrolytic (B.P) 10 uF/25V
C2145	23S40657F14	Electrolytic 100 uF/16V
C2146	23S40657F14	Electrolytic 100 uF/16V
C2147	23S40657F52	Electrolytic 220 uF/16V
C2201	23S40657F11	Electrolytic 22 uF/16V
C3001	08T57851F12	T.F. 0.082 uF
C3002	08T57851F12	T.F. 0.082 uF
C3003	08T57851F15	T.F. 0.15 uF
C3004	08T57851F15	T.F. 0.15 uF
C3005	08T57851F19	T.F. 0.33 uF
C3006	08T57851F19	T.F. 0.33 uF
C3007	08T57851F19	T.F. 0.33 uF
C3008	08T57851F19	T.F. 0.33 uF
C3009	08T50579F21	T.F. 0.47 uF
C3010	08T50579F21	T.F. 0.47 uF
C3011	23S40657F09	Electrolytic 220 uF/10V
C3012	23S40657F09	Electrolytic 220 uF/10V
C3013	08T52448F41	Polypropylene 0.015 uF
C3014	08T52448F41	Polypropylene 0.015 uF
C3015	08T52448F41	Polypropylene 0.015 uF
C3016	08T52448F41	Polypropylene 0.015 uF
C3017	23T42478F05	Electrolytic 10 uF/16V
C3018	23T42478F05	Electrolytic 10 uF/16V
C3019	08T52448F37	Polypropylene 0.01 uF
C3020	08T52448F37	Polypropylene 0.01 uF
C3021	23T42478F09	Electrolytic 4.7 uF/25V
C3022	23T42478F09	Electrolytic 4.7 uF/25V
C3023	08T52448F43	Polypropylene 0.018 uF
C3024	08T52448F43	Polypropylene 0.018 uF

Symbol No.	Part No.	Description
C3025	23T42478F05	Electrolytic 10 uF/16V
C3026	23T42478F05	Electrolytic 10 uF/16V
C3027	23T42478F24	Electrolytic 1 uF/50V
C3028	23T42478F24	Electrolytic 1 uF/50V
C3029	23T42478F24	Electrolytic 1 uF/50V
C3030	23T42478F24	Electrolytic 1 uF/50V
C3031	23T42478F05	Electrolytic 10 uF/16V
C3032	23T42478F05	Electrolytic 10 uF/16V
C3033	08T52448F13	Polypropylene 0.001 uF
C3034	08T52448F13	Polypropylene 0.001 uF
C3035	08T52448F27	Polypropylene 0.0039 uF
C3036	08T52448F27	Polypropylene 0.0039 uF
C3037	08T52448F25	Polypropylene 0.0033 uF
C3038	08T52448F25	Polypropylene 0.0033 uF
C3039	23T42478F09	Electrolytic 4.7 uF/25V
C3040	23T42478F09	Electrolytic 4.7 uF/25V
C3041	08T52448F19	Polypropylene 0.0018 uF
C3042	08T52448F19	Polypropylene 0.0018 uF
C3043	23T42478F05	Electrolytic 10 uF/16V
C3044	23T42478F05	Electrolytic 10 uF/16V
C3045	23S40657F14	Electrolytic 100 uF/16V
C3046	23S40657F14	Electrolytic 100 uF/16V
C3049	23S40657F08	Electrolytic 100 uF/10V
C3050	23S40657F08	Electrolytic 100 uF/10V
C3051	23T42478F24	Electrolytic 1 uF/50V
C3052	23T42478F24	Electrolytic 1 uF/50V
C3053	08S44505P27	Ceramic 39 pF
C3054	08S44505P27	Ceramic 39 pF
C3055	08T52448F31	Polypropylene 0.0056 uF
C3056	08T52448F31	Polypropylene 0.0056 uF
C3057	08S44505P45	Ceramic 470 pF
C3058	08S44505P45	Ceramic 470 pF
C3059	23T42478F24	Electrolytic 1 uF/50V
C3060	23T42478F24	Electrolytic 1 uF/50V
C3061	23T42478F07	Electrolytic 33 uF/16V
C3062	23T42478F07	Electrolytic 33 uF/16V
C3064	23S40657F21	Electrolytic 100 uF/25V
C3065	23T42477F16	Electrolytic (B.P) 1 uF/50V
C3066	23T42477F16	Electrolytic (B.P) 1 uF/50V
C3101	08T57851F12	T.F. 0.082 uF
C3102	08T57851F12	T.F. 0.082 uF
C3103	08T57851F15	T.F. 0.15 uF
C3104	08T57851F15	T.F. 0.15 uF
C3105	08T57851F19	T.F. 0.33 uF
C3106	08T57851F19	T.F. 0.33 uF

Symbol No.	Part No.	Description
C3107	08T57851F19	T.F. 0.33 uF
C3108	08T57851F19	T.F. 0.33 uF
C3109	08T50579F21	T.F. 0.47 uF
C3110	08T50579F21	T.F. 0.47 uF
C3111	23T43707U04	Electrolytic 220 uF/10V
C3112	23S40657F09	Electrolytic 220 uF/10V
C3113	08T52448F41	Polypropylene 0.015 uF
C3114	08T52448F41	Polypropylene 0.015 uF
C3115	08T52448F41	Polypropylene 0.015 uF
C3116	08T52448F41	Polypropylene 0.015 uF
C3117	23T42478F05	Electrolytic 10 uF/16V
C3118	23T42478F05	Electrolytic 10 uF/16V
C3119	08T52448F37	Polypropylene 0.01 uF
C3120	08T52448F37	Polypropylene 0.01 uF
C3121	23T42478F09	Electrolytic 4.7 uF/25V
C3122	23T42478F09	Electrolytic 4.7 uF/25V
C3123	08T52448F43	Polypropylene 0.018 uF
C3124	08T52448F43	Polypropylene 0.018 uF
C3125	08S44505P45	Ceramic 470 pF
C3126	08S44505P45	Ceramic 470 pF
C3127	23T42478F24	Electrolytic 1 uF/50V
C3128	23T42478F24	Electrolytic 1 uF/50V
C3129	23T42478F24	Electrolytic 1 uF/50V
C3130	23T42478F24	Electrolytic 1 uF/50V
C3131	23T42478F05	Electrolytic 10 uF/16V
C3132	23T42478F05	Electrolytic 10 uF/16V
C3133	08T52448F13	Polypropylene 0.001 uF
C3134	08T52448F13	Polypropylene 0.001 uF
C3135	08T52448F27	Polypropylene 0.0039 uF
C3136	08T52448F27	Polypropylene 0.0039 uF
C3137	08T52448F25	Polypropylene 0.0033 uF
C3138	08T52448F25	Polypropylene 0.0033 uF
C3139	23T42478F09	Electrolytic 4.7 uF/25V
C3140	23T42478F09	Electrolytic 4.7 uF/25V
C3141	08T52448F19	Polypropylene 0.0018 uF
C3142	08T52448F19	Polypropylene 0.0018 uF
C3143	23T42478F05	Electrolytic 10 uF/16V
C3144	23T42478F05	Electrolytic 10 uF/16V
C3145	23S40657F14	Electrolytic 100 uF/16V
C3146	23S40657F14	Electrolytic 100 uF/16V
C3149	23S40657F08	Electrolytic 100 uF/10V
C3150	23S40657F08	Electrolytic 100 uF/10V
C3151	23T42478F24	Electrolytic 1 uF/50V
C3152	23T42478F24	Electrolytic 1 uF/50V
C3153	08S44505P27	Ceramic 39 pF
C3154	08S44505P27	Ceramic 39 pF
C3155	08T52448F31	Polypropylene 0.0056 uF
C3156	08T52448F31	Polypropylene 0.0056 uF
C3157	08S44505P45	Ceramic 470 pF
C3158	08S44505P45	Ceramic 470 pF
C3159	08T52448F37	Polypropylene 0.01 uF
C3160	08T52448F37	Polypropylene 0.01 uF
C3201	23S40657F10	Electrolytic 10 uF/16V
C3203	23T42477F09	Electrolytic (B.P) 4.7 uF/25V

Resistors

R101	06S44593P73	2.2K ohm
R102	06S44593P57	470 ohm
R103	06S44593P89	10K ohm
R104	06S44593P89	10K ohm
R105	06S44593P57	470 ohm
R106	06S44593P89	10K ohm
R107	06S44593P57	470 ohm
R108	06S44593P57	470 ohm
R109	06S44593P89	10K ohm
R110	06S44593P89	10K ohm
R111	06S44593P89	10K ohm
R112	06S41802P48	22K ohm
R113	06S44593P97	22K ohm
R114	06S44593P89	10K ohm
R115	06S44593P97	22K ohm
R116	06S44593P89	10K ohm
R117	06S44593P97	22K ohm
R118	06S44593P97	22K ohm
R119	06S44593P97	22K ohm
R120	06S44593P65	1K ohm
R401	06S40106T22	220K ohm
R402	06S40106T22	220K ohm
R403	06S40106T22	220K ohm
R404	06S40106T22	220K ohm
R405	06S44593P89	10K ohm
R406	06S44593P89	10K ohm
R407	06S44593P91	12K ohm
R408	06S44593P91	12K ohm
R409	06S44593P49	220 ohm
R410	06S44593P49	220 ohm

Symbol No.	Part No.	Description
R411	06S44593P65	1K ohm
R412	06S44593P65	1K ohm
R415	06S44594P02	33K ohm
R416	06S44594P02	33K ohm
R417	06S44593P81	4.7K ohm
R418	06S44593P81	4.7K ohm
R429	06S44593P65	1K ohm
R430	06S44593P65	1K ohm
R431	06S44593P37	68 ohm
R432	06S44593P37	68 ohm
R433	06S44593P37	68 ohm
R434	06S44593P37	68 ohm
R435	06S44593P37	68 ohm
R436	06S44593P37	68 ohm
R437	06S44593P77	3.3K ohm
R438	06S44593P77	3.3K ohm
R439	06S44594P18	150K ohm
R440	06S44593P89	10K ohm
R441	06S44593P49	220 ohm
R449	06S44593P65	1K ohm
R451	06S44594P22	220K ohm
R452	06S44594P22	220K ohm
R453	06S44594P22	220K ohm
R454	06S44594P22	220K ohm
R455	06S44593P82	5.1K ohm
R456	06S44593P82	5.1K ohm
R457	06S44594P26	330K ohm
R458	06S44594P26	330K ohm
R459	06S44594P02	33K ohm
R460	06S44594P02	33K ohm
R461	06S44593P65	1K ohm
R462	06S44593P65	1K ohm
R465	06S44593P83	5.6K ohm
R466	06S44593P83	5.6K ohm
R469	06S44594P18	150K ohm
R470	06S44594P18	150K ohm
R471	06S44593P65	1K ohm
R472	06S44593P65	1K ohm
R473	06S44594P38	1M ohm
R474	06S44594P38	1M ohm
R475	06S44594P38	1M ohm
R476	06S44594P38	1M ohm
R477	06S44593P97	22K ohm
R478	06S44593P97	22K ohm
R479	06S44593P61	680 ohm

Symbol No.	Part No.	Description
R480	06S44593P61	680 ohm
R481	06S44593P81	4.7K ohm
R482	06S44593P81	4.7K ohm
R483	06S44593P49	220 ohm
R484	06S44593P49	220 ohm
R485	06S44594P38	1M ohm
R486	06S44594P14	100K ohm
R487	06S44594P02	33K ohm
R488	06S44593P97	22K ohm
R491	06S44593P97	22K ohm
R492	06S44594P02	33K ohm
R495	06S44593P89	10K ohm
R501	06S44593P85	6.8K ohm
R502	06S44593P85	6.8K ohm
R503	06S44594P08	56K ohm
R504	06S44594P08	56K ohm
R505	06S44593P89	10K ohm
R506	06S44593P89	10K ohm
R507	06S44594P22	220K ohm
R508	06S44594P22	220K ohm
R509	06S44594P22	220K ohm
R510	06S44594P22	220K ohm
R511	06S44593P53	330 ohm
R512	06S44593P53	330 ohm
R513	06S44593P87	8.2K ohm
R514	06S44593P87	8.2K ohm
R515	06S44593P89	10K ohm
R516	06S44593P89	10K ohm
R517	06S44593P95	18K ohm
R518	06S44593P95	18K ohm
R519	06S44594P10	68K ohm
R520	06S44594P10	68K ohm
R523	06S44593P01	2.2 ohm
R524	06S44593P01	2.2 ohm
R525	06S44593P49	220 ohm
R526	06S44593P81	4.7K ohm
R527	06S44593P81	4.7K ohm
R528	06S44593P81	4.7K ohm
R529	06S44593P81	4.7K ohm
R530	06S44594P14	100K ohm
R531	06S44594P14	100K ohm
R532	06S44594P14	100K ohm
R533	06S44594P14	100K ohm
R551	06S44593P73	2.2K ohm
R552	06S44593P73	2.2K ohm

Symbol No.	Part No.	Description	
R553	06S44593P59		560 ohm
R554	06S44593P59		560 ohm
R555	06S44593P59		560 ohm
R556	06S44593P59		560 ohm
R557	06S44593P59		560 ohm
R558	06S44593P59		560 ohm
R559	06S44593P65		1K ohm
R560	06S44593P65		1K ohm
R561	06S44593P89		10K ohm
R562	06S44593P89		10K ohm
R563	06S44594P02		33K ohm
R564	06S44594P02		33K ohm
R565	06S44594P02		33K ohm
R566	06S44594P02		33K ohm
R567	06S44593P25		22 ohm
R568	06S44593P25		22 ohm
R569	06S44593P25		22 ohm
R570	06S44593P25		22 ohm
R571	06S44593P41		100 ohm
R572	06S44593P41		100 ohm
R573	06S44593P81		4.7K ohm
R574	06S44593P63		820 ohm
R575	06S44594P05		43K ohm
R576	06S44593P51		270 ohm
R577	06S44594P02		33K ohm
R578	06T55179F51	Metal Film	270 ohm, 2W
R579	06S44593P89		10K ohm
R580	06S44593P89		10K ohm
R581	06S44593P97		22K ohm
R582	06S44593P97		22K ohm
R583	06S44593P21		15 ohm
R584	06S44593P21		15 ohm
R585	06C43205J01	Metal Film	0.5 ohm ½W
R586	06S44593P92		13K ohm
R587	06T55179F49	Metal Film	220 ohm 2W
R801	06S44593P99		27K ohm
R802	06S44593P99		27K ohm
R803	06S44594P02		33K ohm
R804	06S44594P01		30K ohm
R805	06S44594P02		33K ohm
R806	06S44594P01		30K ohm
R807	06S44594P02		33K ohm
R808	06S44594P01		30K ohm
R809	06S44594P22		220K ohm
R810	06S44594P22		220K ohm
R811	06S44593P85		6.8K ohm

Symbol No.	Part No.	Description
R812	06S44593P85	6.8K ohm
R813	06S44593P51	270 ohm
R814	06S44593P51	270 ohm
R815	06S41802P32	1K ohm
R816	06S41802P32	1K ohm
R817	06S40108T35	750K ohm
R818	06S40108T35	750K ohm
R819	06S40108T35	750K ohm
R820	06S40108T35	750K ohm
R821	06S44594P26	330K ohm
R822	06S44594P26	330K ohm
R823	06S41802P44	10K ohm
R824	06S41802P44	10K ohm
R825	06S41802P44	10K ohm
R826	06S41802P44	10K ohm
R827	06S44594P26	330K ohm
R828	06S44594P26	330K ohm
R829	06S44594P14	100K ohm
R830	06S44594P14	100K ohm
R831	06S44594P14	100K ohm
R832	06S44594P14	100K ohm
R835	06S44593P71	1.8K ohm
R836	06S44594P38	1M ohm
R837	06S44594P02	33K ohm
R838	06S44594P38	1M ohm
R839	06S44594P02	33K ohm
R840	06S44594P38	1M ohm
R841	06S44594P02	33K ohm
R843	06S41802P48	22K ohm
R844	06S41802P48	22K ohm
R845	06S41802P48	22K ohm
R846	06S41802P48	22K ohm
R2001	06S44593P65	1K ohm
R2002	06S44593P65	1K ohm
R2003	06S44593P89	10K ohm
R2004	06S44593P89	10K ohm
R2005	06S40106T22	220K ohm
R2006	06S40106T22	220K ohm
R2007	06S44594P18	150K ohm
R2008	06S44594P18	150K ohm
R2009	06S44593P49	220 ohm
R2101	06S44594P06	47K ohm
R2102	06S44594P06	47K ohm
R2103	06S44593P01	2.2 ohm
R2104	06S44593P01	2.2 ohm

Symbol No.	Part No.	Description
R2105	06S41801P26	330 ohm
R2106	06S41801P26	330 ohm
R2107	06S40106T38	1M ohm
R2108	06S40106T38	1M ohm
R2109	06S44593P41	100 ohm
R2110	06S44593P41	100 ohm
R2111	06S40106T18	150K ohm
R2112	06S40106T18	150K ohm
R2113	06S41801P27	390 ohm
R2114	06S41801P27	390 ohm
R2115	06S44594P11	75K ohm
R2116	06S44594P11	75K ohm
R2117	06S40106T32	560K ohm
R2118	06S40106T32	560K ohm
R2119	06S44593P96	20K ohm
R2120	06S44593P96	20K ohm
R2121	06S44593P86	7.5K ohm
R2122	06S44593P86	7.5K ohm
R2123	06S40106T14	100K ohm
R2124	06S40106T14	100K ohm
R2125	06S44593P95	18K ohm
R2126	06S44593P95	18K ohm
R2127	06S44593P91	12K ohm
R2128	06S44593P91	12K ohm
R2129	06S44593P81	4.7K ohm
R2130	06S44593P81	4.7K ohm
R2133	06S44593P65	1K ohm
R2134	06S44593P65	1K ohm
R2137	06S44593P89	10K ohm
R2138	06S44593P89	10K ohm
R2139	06S44593P65	1K ohm
R2140	06S44593P65	1K ohm
R2141	06S44593P65	1K ohm
R2142	06S44593P65	1K ohm
R2143	06S44593P69	1.5K ohm
R2144	06S44593P69	1.5K ohm
R2145	06S44594P38	1M ohm
R2146	06S44594P38	1M ohm
R2149	06S44593P57	470 ohm
R2150	06S44593P57	470 ohm
R2160	06S44593P89	10K ohm
R2161	06S44593P89	10K ohm
R2162	06S44593P89	10K ohm
R2163	06S44593P77	3.3K ohm
R2164	06S44593P83	5.6K ohm

Symbol No.	Part No.	Description
R2166	06S44593P73	2.2K ohm
R2167	06S44594P14	100K ohm
R2168	06S44594P14	100K ohm
R2171	06S44593P81	4.7K ohm
R2173	06S41801P32	1K ohm
R2174	06S41801P32	1K ohm
R2203	06S44594P06	47K ohm
R2204	06S44594P06	47K ohm
R3001	06S40106T08	56K ohm
R3002	06S40106T08	56K ohm
R3003	06S44593P93	15K ohm
R3004	06S44593P93	15K ohm
R3005	06S44593P41	100 ohm
R3006	06S44593P41	100 ohm
R3007	06S44593P82	5.1K ohm
R3008	06S44593P82	5.1K ohm
R3009	06S44593P47	180 ohm
R3010	06S44593P47	180 ohm
R3011	06S44594P06	47K ohm
R3012	06S44594P06	47K ohm
R3013	06S44593P84	6.2K ohm
R3014	06S44593P84	6.2K ohm
R3015	06S44594P14	100K ohm
R3016	06S44594P14	100K ohm
R3017	06S44594P38	1M ohm
R3018	06S44594P38	1M ohm
R3019	06S44594P12	82K ohm
R3020	06S44594P12	82K ohm
R3021	06S44594P10	68K ohm
R3022	06S44594P10	68K ohm
R3023	06S44593P89	10K ohm
R3024	06S44593P89	10K ohm
R3025	06S44593P87	8.2K ohm
R3026	06S44593P87	8.2K ohm
R3027	06S44593P50	240 ohm
R3028	06S44593P50	240 ohm
R3029	06S44593P81	4.7K ohm
R3030	06S44593P81	4.7K ohm
R3031	06S44594P08	56K ohm
R3032	06S44594P08	56K ohm
R3033	06S44593P49	220 ohm
R3034	06S44593P49	220 ohm
R3035	06S44593P84	6.2K ohm
R3036	06S44593P84	6.2K ohm
R3037	06S44594P12	82K ohm

Symbol No.	Part No.	Description
R3038	06S44594P12	82K ohm
R3039	06S44593P65	1K ohm
R3040	06S44593P65	1K ohm
R3041	06S44593P77	3.3K ohm
R3042	06S44593P77	3.3K ohm
R3043	06S44593P87	8.2K ohm
R3044	06S44593P87	8.2K ohm
R3045	06S44594P14	100K ohm
R3046	06S44594P14	100K ohm
R3047	06S44593P65	1K ohm
R3048	06S44593P65	1K ohm
R3049	06S44594P14	100K ohm
R3050	06S44594P14	100K ohm
R3051	06S44594P14	100K ohm
R3052	06S44594P14	100K ohm
R3061	06S44593P89	10K ohm
R3062	06S44593P89	10K ohm
R3063	06S44593P83	5.6K ohm
R3064	06S44593P83	5.6K ohm
R3065	06S44593P89	10K ohm
R3066	06S44593P89	10K ohm
R3067	06S44593P89	10K ohm
R3068	06S44593P89	10K ohm
R3069	06S40106T22	220K ohm
R3070	06S40106T22	220K ohm
R3071	06S40106T22	220K ohm
R3072	06S40106T22	220K ohm
R3074	06S44593P49	220 ohm
R3075	06S44593P74	2.4K ohm
R3076	06S44593P74	2.4K ohm
R3077	06S44593P89	10K ohm
R3078	06S44593P89	10K ohm
R3079	06S44594P14	100K ohm
R3080	06S44594P14	100K ohm
R3083	06S44593P89	10K ohm
R3084	06S44593P89	10K ohm
R3085	06S44593P89	10K ohm
R3086	06S44593P89	10K ohm
R3087	06S44593P57	470 ohm
R3088	06S44593P57	470 ohm
R3089	06S44593P97	22K ohm
R3090	06S44594P06	47K ohm
R3091	06S44594P06	47K ohm
R3092	06S44593P89	10K ohm
R3093	06S44594P06	47K ohm

Symbol No.	Part No.	Description
R3094	06S44593P89	10K ohm
R3095	06S44593P97	22K ohm
R3096	06S44593P89	10K ohm
R3097	06S44593P89	10K ohm
R3101	06S40106T08	56K ohm
R3102	06S40106T08	56K ohm
R3103	06S44593P93	15K ohm
R3104	06S44593P93	15K ohm
R3105	06S44593P41	100 ohm
R3106	06S44593P41	100 ohm
R3107	06S44593P82	5.1K ohm
R3108	06S44593P82	5.1K ohm
R3109	06S44593P47	180 ohm
R3110	06S44593P47	180 ohm
R3111	06S44594P06	47K ohm
R3112	06S44594P06	47K ohm
R3113	06S44593P84	6.2K ohm
R3114	06S44593P84	6.2K ohm
R3117	06S44594P38	1M ohm
R3118	06S44594P38	1M ohm
R3119	06S44594P12	82K ohm
R3120	06S44594P12	82K ohm
R3121	06S44594P10	68K ohm
R3122	06S44594P10	68K ohm
R3123	06S44593P89	10K ohm
R3124	06S44593P89	10K ohm
R3125	06S44593P87	8.2K ohm
R3126	06S44593P87	8.2K ohm
R3127	06S44593P50	240 ohm
R3128	06S44593P50	240 ohm
R3129	06S44593P81	4.7K ohm
R3130	06S44593P81	4.7K ohm
R3131	06S44594P08	56K ohm
R3132	06S44594P08	56K ohm
R3133	06S44593P49	220 ohm
R3134	06S44593P49	220 ohm
R3135	06S44593P84	6.2K ohm
R3136	06S44593P84	6.2K ohm
R3137	06S44594P12	82K ohm
R3138	06S44594P12	82K ohm
R3139	06S44593P65	1K ohm
R3140	06S44593P65	1K ohm
R3141	06S44593P77	3.3K ohm
R3142	06S44593P77	3.3K ohm
R3143	06S44593P65	1K ohm

Symbol No.	Part No.	Description	
R3144	06S44593P65		1K ohm
R3145	06S44594P14		100K ohm
R3146	06S44594P14		100K ohm
R3147	06S44593P87		8.2K ohm
R3148	06S44593P87		8.2K ohm
R3161	06S44593P89		10K ohm
R3162	06S44593P89		10K ohm
R3165	06S44594P22		220K ohm
R3166	06S44594P22		220K ohm
R3167	06S44594P22		220K ohm
R3168	06S44594P22		220K ohm
R3169	06S44593P97		22K ohm
R3171	06S44594P38		1M ohm
R3172	06S44594P38		1M ohm
R3174	06S44593P97		22K ohm
R3201	06S44593P81		4.7K ohm
R3202	06S44593P81		4.7K ohm
R3203	06S44593P67		1.2K ohm
R3204	06S44594P22		220K ohm
VR251	18B44064J06	Variable	680K ohm-½W
VR252	18B44064J06	Variable	680K ohm-½W
VR253	18C41732G06	Variable	10K ohm-B
VR254	18C41732G06	Variable	10K ohm-B
VR451	18B44064J08	Variable	2.2K ohm-½W
VR452	18B44064J08	Variable	2.2K ohm-½W
VR453	18C41732G07	Variable	1K ohm-B
VR454	18C41732G07	Variable	1K ohm-B
VR501	18C41732G07	Variable	1K ohm-B
VR502	18C41732G07	Variable	1K ohm-B
VR503	18B44064J08	Variable	2.2K ohm-½W
VR504	18B44064J08	Variable	2.2K ohm-½W
VR505	18B44064J08	Variable	2.2K ohm-½W
VR506	18B44064J08	Variable	2.2K ohm-½W
VR507	18B44064J02	Variable	4.7K ohm-½W
VR508	18B44064J02	Variable	4.7K ohm-½W
VR801	18C41732G09	Variable	47K ohm-B
VR802	18C41732G09	Variable	47K ohm-B
VR803	18C41732G09	Variable	47K ohm-B
VR804	18C41732G09	Variable	47K ohm-B

Symbol No.	Part No.	Description	
Volume/Switch P.C. Board			
IC			
IC2901	51T52155F01	NJM2041D-D	
Switches			
S4901	40T52408F01	SUT110 (PEAK/VU)	
S6901	40T52408F01	SUT110 (A/PLAY)	
S6902	40T52408F01	SUT110 (A/REW)	
S6903	40T51411F02	TACT (W/COUNTER)	
S6904	40T51411F02	TACT (CLEAR)	
S6905	40T51411F02	TACT (EXC)	
S6906	40T51411F02	TACT (CALL)	
S6907	40T51411F02	TACT (WRITE)	
S6908	40T52408F01	SUT110	
S6909	40T52408F01	SUT110	
Capacitors			
C2901	23S40657F12	Electrolytic	33 uF/16V
C2902	23S40657F12	Electrolytic	33 uF/16V
C2903	23S40657F12	Electrolytic	33 uF/16V
C2904	23S40657F12	Electrolytic	33 uF/16V
C2905	23S40657F21	Electrolytic	100 uF/25V
C2906	23S40657F10	Electrolytic	10 uF/16V
Resistors			
R2901	06S44593P92		13K ohm
R2902	06S44593P92		13K ohm
R2903	06S44593P89		10K ohm
R2904	06S44593P89		10K ohm
R2906	06S40106T22		220K ohm
R2907	06S40106T22		220K ohm
R2909	06S44593P92		13K ohm
R2910	06S44593P92		13K ohm
R2911	06S44593P49		220 ohm
R6901	06S44593P57		470 ohm

Symbol No.	Part No.	Description
R6902	06S44593P57	470 ohm
R6903	06S44593P89	10K ohm
R6904	06S44593P57	470 ohm
R6905	06S44593P49	220 ohm
VR2901	18T52409F01	Variable S3013G 10K ohm
VR2902	18T52409F01	Variable S3013G 10K ohm
VR2903	18T52409F01	Variable S3013G 10K ohm
VR2904	18T52409F01	Variable S3013G 10K ohm
VR2905	18T52410F01	Variable S6023G 10K ohm x 2
VR4901	18T55506F01	Variable 4523 5K ohm x 2

Record EQ P.C. Board

IC's		
IC5501	51S43471U02	μPC4558C
IC5502	51S43471U02	μPC4558C
Transistors		
Q5501	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q5502	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q5503	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q5504	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q5505	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q5506	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q5507	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q5508	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q5509	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q5510	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q5511	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q5512	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q5513	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q5514	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q5515	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q5516	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q5517	48T51878F01	2SC2878A, B
Q5518	48T51878F01	2SC2878A, B
Q5519	48T51878F01	2SC2878A, B
Q5520	48T51878F01	2SC2878A, B
Diodes		
D5501	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D5502	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D5503	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D5504	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D5505	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D5506	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D5507	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D5508	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D5509	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D5510	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D5511	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D5512	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D5513	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D5514	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D5515	48T51582F01	MA-150
or	48T51881F01	DS442-BT
D5516	48T51582F01	MA-150
or	48T51881F01	DS442-BT

Symbol No.	Part No.	Description
Capacitors		
C5501	23T42478F05	Electrolytic (L.N) 10 uF/16V
C5502	23T42478F05	Electrolytic (L.N) 10 uF/16V
C5503	08S44505P35	Ceramic 82 pF
C5504	08S44505P35	Ceramic 82 pF
C5505	08T52448F01	Polypropylene 0.00033 uF
C5506	08T52448F01	Polypropylene 0.00033 uF
C5507	08T52448F49	Polypropylene 0.033 uF
C5508	08T52448F49	Polypropylene 0.033 uF
C5509	08T50579F25	T.F. 1 uF
C5510	08T50579F25	T.F. 1 uF
C5511	08T52448F45	Polypropylene 0.022 uF
C5512	08T52448F45	Polypropylene 0.022 uF
C5513	23S40657F10	Electrolytic 10 uF/16V
C5514	23S40657F10	Electrolytic 10 uF/16V
C5515	23T42478F24	Electrolytic (L.N) 1 uF/50V
C5516	23T42478F24	Electrolytic (L.N) 1 uF/50V
C5517	08S44505P17	Ceramic 15 pF
C5518	08S44505P17	Ceramic 15 pF
C5519	08T52448F41	Polypropylene 0.015 uF
C5520	08T52448F41	Polypropylene 0.015 uF
C5521	08T52448F40	Polypropylene 0.013 uF
C5522	08T52448F40	Polypropylene 0.013 uF
C5523	08T52448F45	Polypropylene 0.022 uF
C5524	08T52448F45	Polypropylene 0.022 uF
C5525	08T52448F15	Polypropylene 0.0012 uF
C5526	08T52448F15	Polypropylene 0.0012 uF
C5527	23T42478F07	Electrolytic (L.N) 33 uF/16V
C5528	23T42478F07	Electrolytic (L.N) 33 uF/16V
C5529	23S40657F52	Electrolytic 220 uF/16V
C5530	23B44780P17	Electrolytic 220 uF/16V
C5531	23S40657F10	Electrolytic 10 uF/16V
C5532	23S40657F10	Electrolytic 10 uF/16V
C5533	23T42478F24	Electrolytic (L.N) 1 uF/50V
C5534	23T42478F24	Electrolytic (L.N) 1 uF/50V
C5535	08S44505P17	Ceramic 15 pF
C5536	08S44505P17	Ceramic 15 pF
C5537	08T52448F13	Polypropylene 0.001 uF
C5538	08T52448F13	Polypropylene 0.001 uF
C5539	08T52448F13	Polypropylene 0.001 uF
C5540	08T52448F13	Polypropylene 0.001 uF
C5541	08T52448F17	Polypropylene 0.0015 uF
C5542	08T52448F17	Polypropylene 0.0015 uF
C5543	08T52448F11	Polypropylene 0.00082 uF
C5544	08T52448F11	Polypropylene 0.00082 uF
C5545	23T42478F08	Electrolytic (L.N) 47 uF/16V
C5546	23T42478F08	Electrolytic (L.N) 47 uF/16V
C5547	23B44780P17	Electrolytic 220 uF/16V
C5548	23S40657F52	Electrolytic 220 uF/16V
C5549	23S40657F21	Electrolytic 100 uF/25V
C5550	23S41198U35	Electrolytic 100 uF/25V
C5551	08S44505P61	Ceramic 10000 pF
C5552	08S44505P61	Ceramic 10000 pF
C5553	08S44505P61	Ceramic 10000 pF
C5554	08S44505P61	Ceramic 10000 pF
Resistors		
R5501	06S44593P95	18K ohm
R5502	06S44593P95	18K ohm
R5503	06S44593P95	18K ohm
R5504	06S44593P95	18K ohm
R5505	06S44594P10	68K ohm
R5506	06S44594P10	68K ohm
R5507	06S44593P99	27K ohm
R5508	06S44593P99	27K ohm
R5509	06S44593P85	6.8K ohm
R5510	06S44593P85	6.8K ohm
R5511	06S44594P02	33K ohm
R5512	06S44594P02	33K ohm
R5513	06S44593P53	330 ohm
R5514	06S44593P53	330 ohm
R5515	06S44594P16	120K ohm
R5516	06S44594P16	120K ohm
R5517	06S40106T22	220K ohm
R5518	06S40106T22	220K ohm
R5519	06S40106T22	220K ohm
R5520	06S40106T22	220K ohm
R5521	06S44593P65	1K ohm
R5522	06S44593P65	1K ohm
R5523	06S44593P65	1K ohm
R5524	06S44593P65	1K ohm
R5525	06S44593P65	1K ohm
R5526	06S44593P65	1K ohm
R5527	06S44593P65	1K ohm
R5528	06S44593P65	1K ohm
R5529	06S44593P77	3.3K ohm
R5530	06S44593P77	3.3K ohm

Symbol No.	Part No.	Description
R5531	06S44593P77	3.3K ohm
R5532	06S44593P77	3.3K ohm
R5533	06S44593P77	3.3K ohm
R5534	06S44593P77	3.3K ohm
R5535	06S44593P77	3.3K ohm
R5536	06S44593P77	3.3K ohm
R5537	06S44593P65	1K ohm
R5538	06S44593P65	1K ohm
R5539	06S44593P65	1K ohm
R5540	06S44593P65	1K ohm
R5541	06S44593P73	2.2K ohm
R5542	06S44593P73	2.2K ohm
R5543	06S44593P73	2.2K ohm
R5544	06S44593P73	2.2K ohm
R5545	06S44593P89	10K ohm
R5546	06S44593P89	10K ohm
R5547	06S44593P85	6.8K ohm
R5548	06S44593P85	6.8K ohm
R5549	06S44593P89	10K ohm
R5550	06S44593P89	10K ohm
R5551	06S44593P89	10K ohm
R5552	06S44593P89	10K ohm
R5553	06S44594P02	33K ohm
R5554	06S44594P02	33K ohm
R5555	06S44593P53	330 ohm
R5556	06S44593P53	330 ohm
R5557	06S44594P16	120K ohm
R5558	06S44594P16	120K ohm
R5559	06S40106T22	220K ohm
R5560	06S40106T22	220K ohm
R5561	06S40106T22	220K ohm
R5562	06S40106T22	220K ohm
R5563	06S44593P97	22K ohm
R5564	06S44593P97	22K ohm
R5565	06S44593P97	22K ohm
R5566	06S44593P97	22K ohm
R5567	06S44593P89	10K ohm
R5568	06S44593P89	10K ohm
R5569	06S44593P97	22K ohm
R5570	06S44593P97	22K ohm
R5571	06S44593P53	330 ohm
R5572	06S44593P53	330 ohm
R5573	06S44593P53	330 ohm
R5574	06S44593P53	330 ohm
R5575	06S44593P53	330 ohm

Symbol No.	Part No.	Description
R5576	06S44593P53	330 ohm
R5577	06S44593P53	330 ohm
R5578	06S44593P53	330 ohm
R5579	06S44593P49	220 ohm
R5580	06S44593P49	220 ohm
R5581	06S44593P63	820 ohm
R5582	06S44593P63	820 ohm
R5583	06S44593P49	220 ohm
R5584	06S44593P49	220 ohm
R5585	06S44594P06	47K ohm
R5586	06S44594P06	47K ohm
R5587	06S44594P06	47K ohm
R5588	06S44594P06	47K ohm
R5589	06S40106T22	220K ohm
R5591	06S41802P62	330K ohm
R5592	06S41802P62	330K ohm
VR5501	18T45040F14	Variable 15K ohm 0.3W
VR5502	18T45040F14	Variable 15K ohm 0.3W
VR5503	18T45040F14	Variable 15K ohm 0.3W
VR5504	18T45040F14	Variable 15K ohm 0.3W
VR5505	18T45040F14	Variable 15K ohm 0.3W
VR5506	18T45040F14	Variable 15K ohm 0.3W
VR5507	18T45040F14	Variable 15K ohm 0.3W
VR5508	18T45040F14	Variable 15K ohm 0.3W
VR5509	18T45040F11	Variable 4.7K ohm 0.3W
VR5510	18T45040F11	Variable 4.7K ohm 0.3W
VR5511	18T45040F11	Variable 4.7K ohm 0.3W
VR5512	18T45040F11	Variable 4.7K ohm 0.3W
VR5513	18T45040F11	Variable 4.7K ohm 0.3W
VR5514	18T45040F11	Variable 4.7K ohm 0.3W
VR5515	18T45040F11	Variable 4.7K ohm 0.3W
VR5516	18T45040F11	Variable 4.7K ohm 0.3W
VR5517	18T45040F14	Variable 15K ohm 0.3W
VR5518	18T45040F14	Variable 15K ohm 0.3W
VR5519	18T45040F14	Variable 15K ohm 0.3W
VR5520	18T45040F14	Variable 15K ohm 0.3W
VR5521	18T45040F14	Variable 15K ohm 0.3W
VR5522	18T45040F14	Variable 15K ohm 0.3W
VR5523	18T45040F14	Variable 15K ohm 0.3W
VR5524	18T45040F14	Variable 15K ohm 0.3W

Symbol No.	Part No.	Description
Mechanism Control P.C. Board		
IC's		
IC6001	51T51994F01	HD38805A03
IC6002	51T51782F01	MC14028BCP
IC6003	51T52158F01	TD62504
IC6004	51T52158F01	TD62504
IC6005	51T52154F01	NJM2901N
IC6006	51T51781F01	MC14049UB
IC6007	51T52158F01	TD62504
Transistors		
Q6001	48T51118F01	2SA1015-Y
Q6002	48T51118F01	2SA1015-Y
Q6003	48T51089F01	2SA937-Q, R
Q6004	48S43525F05	2SC1815-Y, GR
Q6005	48T56031F01	2SD1266-P, Q
Q6006	48T56031F01	2SD1266-P, Q
Q6007	48T56032F01	2SB977A
Q6008	48T56032F01	2SB977A
Q6009	48T41365F01	2SD893-P
or	48T41365F02	2SD893-Q
Q6010	48T41365F01	2SD893-P
or	48T41365F02	2SD893-Q
Q6011	48S43525F05	2SC1815-Y, GR
Q6012	48S43525F05	2SC1815-Y, GR
Q6013	48T56032F01	2SB977A
Q6014	48T56032F01	2SB977A
Q6015	48T41365F01	2SD893-P
or	48T41365F02	2SD893-Q
Q6016	48T41365F01	2SD893-P
or	48T41365F02	2SD893-Q
Q6017	48T56031F01	2SD1266-P, Q
Q6018	48T41365F01	2SD893-P
or	48T41365F02	2SD893-Q
Q6019	48T41197U03	2SA777-R
or	48T41197U04	2SA777-S
Q6020	48T41197U03	2SA777-R
or	48T41197U04	2SA777-S
Q6021	48T41197U03	2SA777-R
or	48T41197U04	2SA777-S
Q6023	48T56031F01	2SD1266-P, Q

Symbol No.	Part No.	Description
Diodes		
D6004	48T44813F01	MA165TA
or	48T58583F01	SS176
D6005	48T44813F01	MA165TA
or	48T58583F01	SS176
D6008	48T44813F01	MA165TA
or	48T58583F01	SS176
D6009	48T44813F01	MA165TA
or	48T58583F01	SS176
D6010	48T44813F01	MA165TA
or	48T58583F01	SS176
D6011	48T44813F01	MA165TA
or	48T58583F01	SS176
D6012	48T44813F01	MA165TA
or	48T58583F01	SS176
D6013	48T44813F01	MA165TA
or	48T58583F01	SS176
D6014	48T44813F01	MA165TA
or	48T58583F01	SS176
D6016	48T44813F01	MA165TA
or	48T58583F01	SS176
D6017	48T44813F01	MA165TA
or	48T58583F01	SS176
D6018	48T44813F01	MA165TA
or	48T58583F01	SS176
D6019	48T44813F01	MA165TA
or	48T58583F01	SS176
D6020	48T43982F01	0A95
D6021	48T44813F01	MA165TA
or	48T58583F01	SS176
D6022	48T44813F01	MA165TA
or	48T58583F01	SS176
D6023	48T44813F01	MA165TA
or	48T58583F01	SS176
D6024	48T44813F01	MA165TA
or	48T58583F01	SS176
D6026	48T44813F01	MA165TA
or	48T58583F01	SS176
D6027	48T44813F01	MA165TA
or	48T58583F01	SS176

Symbol No.	Part No.	Description
D6028	48T44813F01	MA165TA
or	48T58583F01	SS176
D6029	48T44813F01	MA165TA
or	48T58583F01	SS176
D6030	48T44813F01	MA165TA
or	48T58583F01	SS176
D6031	48T44813F01	MA165TA
or	48T58583F01	SS176
D6032	48T44813F01	MA165TA
or	48T58583F01	SS176
D6033	48T44813F01	MA165TA
or	48T58583F01	SS176
D6034	48T44813F01	MA165TA
or	48T58583F01	SS176
D6035	48T44813F01	MA165TA
or	48T58583F01	SS176
D6036	48T44813F01	MA165TA
or	48T58583F01	SS176
D6037	48T44813F01	MA165TA
or	48T58583F01	SS176
D6038	48T44813F01	MA165TA
or	48T58583F01	SS176
D6039	48T44813F01	MA165TA
or	48T58583F01	SS176
D6040	48T44813F01	MA165TA
or	48T58583F01	SS176
D6041	48T44813F01	MA165TA
or	48T58583F01	SS176
D6042	48T44813F01	MA165TA
or	48T58583F01	SS176
D6043	48T44813F01	MA165TA
or	48T58583F01	SS176
D6044	48T44813F01	MA165TA
or	48T58583F01	SS176
D6048	48T44813F01	MA165TA
or	48T58583F01	SS176
D6049	48T44813F01	MA165TA
or	48T58583F01	SS176
D6050	48S40477U01	1N4003
ZD6001	48T40150U54	Zener, HZ11A-3
or	48T40732F40	Zener, RD10E-B3
ZD6002	48T40150U86	Zener, HZ24-2
or	48T40732F69	Zener, RD24E-B4
ZD6003	48T40150U69	Zener, HZ12C-3
or	48T40732F51	Zener, RD15E-B2
ZD6004	48T40059U26	Zener, HZ9C-2L
or	48T40732F38	Zener, RD10E-B1

Symbol No.	Part No.	Description
ZD6005	48T40150U28	Zener, HZ6A-1
or	48T40732F20	Zener, RD5.6E-B1
ZD6006	48T40150U49	Zener, HZ9B-1
or	48T40732F35	Zener, RD9.1E-B1
ZD6007	48T40150U14	Zener, HZ4B-2
or	48T40732F10	Zener, RD3.9E-B2
ZD6008	48T40150U25	Zener, HZ5C-1
or	48T40732F17	Zener, RD5.1E-B1
ZD6009	48T40150U56	Zener, HZ11B-2
or	48T40732F42	Zener, RD11E-B2
Filter		
CF6001	91T52156F01	CSB 400P (400 KHz)
Capacitors		
C6001	08T55260F61	Ceramic 10000 pF
C6002	08T55260F61	Ceramic 10000 pF
C6003	08T55260F61	Ceramic 10000 pF
C6004	08T55260F61	Ceramic 10000 pF
C6005	08T55260F61	Ceramic 10000 pF
C6006	08T55260F61	Ceramic 10000 pF
C6007	08T55260F61	Ceramic 10000 pF
C6008	08T55260F45	Ceramic 470 pF
C6009	08T55260F38	Ceramic 120 pF
C6010	23S40657F10	Electrolytic 10 uF/16V
C6011	08T55260F58	Ceramic 4700 pF
C6012	08T55260F58	Ceramic 4700 pF
C6013	08T55260F58	Ceramic 4700 pF
C6014	23S40657F17	Electrolytic 10 uF/25V
C6015	23S40657F17	Electrolytic 10 uF/25V
C6016	23S40657F10	Electrolytic 10 uF/16V
C6017	23S40657F10	Electrolytic 10 uF/16V
C6018	23S40657F10	Electrolytic 10 uF/16V
C6019	23S40657F10	Electrolytic 10 uF/16V
C6020	23S40657F10	Electrolytic 10 uF/16V
C6021	23S40657F10	Electrolytic 10 uF/16V
C6022	23S40657F10	Electrolytic 10 uF/16V
C6023	23S40657F10	Electrolytic 10 uF/16V
C6024	08T55260F61	Ceramic 10000 pF
C6025	23S40657F10	Electrolytic 10 uF/16V

Symbol No.	Part No.	Description
C6026	08T50579F21	T.F. 0.47 uF
C6027	08S40656F25	Mylar 0.1 uF
C6028	23T42478F24	Electrolytic 1 uF/50V
C6029	23S40657F15	Electrolytic 3.3 uF/25V
C6030	23T40475U27	Electrolytic (RB) 47 uF/25V
C6031	23S40657F17	Electrolytic 10 uF/25V
C6033	23S40657F10	Electrolytic 10 uF/16V
C6034	23S40657F09	Electrolytic 220 uF/10V
C6035	08T55260F45	Ceramic 470 pF
C6036	23S40657F10	Electrolytic 10 uF/16V
C6037	23S40657F10	Electrolytic 10 uF/16V
C6038	23S41059P34	Tantalum 47 uF/6.3V
C6039	23T41366F25	Electrolytic (B.P) 4.7 uF/25V
Resistors (All resistors are carbon film, 1/6W, ±5% unless otherwise noted.)		
R6001	51T52333F01	Array, 47K ohm x 8
R6002	51T52333F02	Array, 10K ohm x 4
R6003	06S55065F65	1K ohm
R6004	06S55065F65	1K ohm
R6005	06S55065F65	1K ohm
R6006	06S55065F65	1K ohm
R6007	06S55065F65	1K ohm
R6008	06S55065F65	1K ohm
R6009	06S55065F65	1K ohm
R6010	06S55066F38	1M ohm
R6011	06S55065F57	470 ohm
R6012	06S55065F57	470 ohm
R6013	06S55065F57	470 ohm
R6014	06S55065F57	470 ohm
R6015	06S55065F59	560 ohm
R6016	06S55065F59	560 ohm
R6017	06S55065F57	470 ohm
R6018	06T51015F19	82 ohm ½W
R6024	06S55065F89	10K ohm
R6025	06S55065F89	10K ohm
R6026	06S55065F65	1K ohm
R6027	06S55066F06	47K ohm
R6028	06S55065F89	10K ohm
R6029	06S55065F89	10K ohm
R6030	06S55066F06	47K ohm

Symbol No.	Part No.	Description
R6031	06S55066F06	47K ohm
R6032	06S55066F06	47K ohm
R6033	06S55066F06	47K ohm
R6034	06S55066F06	47K ohm
R6035	06S55066F06	47K ohm
R6036	06S55065F89	10K ohm
R6037	06S55066F06	47K ohm
R6038	06S55065F89	10K ohm
R6039	06S55066F06	47K ohm
R6040	06S55066F14	100K ohm
R6041	06S55066F14	100K ohm
R6042	06S55065F89	10K ohm
R6043	06S55066F06	47K ohm
R6044	06S55065F89	10K ohm
R6045	06S55065F89	10K ohm
R6046	06S55066F06	47K ohm
R6047	06S55065F65	1K ohm
R6048	06S55065F65	1K ohm
R6049	06S55065F65	1K ohm
R6050	06S55065F73	2.2K ohm
R6051	06S55065F89	10K ohm
R6052	06S55065F89	10K ohm
R6053	06S55066F06	47K ohm
R6054	06D44744G32	1K ohm ½W
R6055	06S55065F89	10K ohm
R6056	06S55065F89	10K ohm
R6057	06S55065F89	10K ohm
R6058	06S55065F89	10K ohm
R6059	06S55065F89	10K ohm
R6060	06S55065F73	2.2K ohm
R6061	06S55065F89	10K ohm
R6062	06S55065F73	2.2K ohm
R6063	06S55065F73	2.2K ohm
R6064	06S55065F73	2.2K ohm
R6065	06S55065F73	2.2K ohm
R6066	06S55065F89	10K ohm
R6067	06D44744G32	1K ohm ½W
R6068	06S55065F89	10K ohm
R6069	06S55065F73	2.2K ohm
R6070	06S55065F89	10K ohm
R6071	06S55065F73	2.2K ohm
R6072	06S55065F73	2.2K ohm
R6073	06S55065F89	10K ohm
R6074	06S55065F73	2.2K ohm
R6075	06S55065F89	10K ohm

Symbol No.	Part No.	Description
R6076	06S55065F73	2.2K ohm
R6077	06S55065F89	10K ohm
R6078	06S55065F85	6.8K ohm
R6079	06S55066F02	33K ohm
R6080	06S55066F14	100K ohm
R6081	06S55065F89	10K ohm
R6082	06S55066F14	100K ohm
R6083	06S55065F73	2.2K ohm
R6084	06S55066F22	220K ohm
R6086	06S55065F89	10K ohm
R6087	06S55065F65	1K ohm
R6088	06S55065F89	10K ohm
R6089	06S55066F38	1M ohm
R6090	06S55066F14	100K ohm
R6091	06S55065F97	22K ohm
R6092	06S55065F89	10K ohm
R6093	06S55065F89	10K ohm
R6094	06S55065F89	10K ohm
R6095	06S55065F89	10K ohm
R6096	06S55065F89	10K ohm
R6097	06S55065F89	10K ohm
R6098	06S55065F89	10K ohm
R6099	06S55065F89	10K ohm
R6100	06S55065F89	10K ohm
R6104	06S55065F73	2.2K ohm

Pulse OSC P.C. Board

Symbol No.	Part No.	Description
IC/Diodes		
IC6351	51T51781F01	IC, MC14049UB
D6351	48T43189F01	1S1555
or	48T51881F01	DS442-BT
D6352	48T43189F01	1S1555
or	48T51881F01	DS442-BT
D6353	48T43189F01	1S1555
or	48T51881F01	DS442-BT
Capacitors		
C6351	23T42477F16	Electrolytic (B.P) 1 uF/50V
C6352	23S40657F10	Electrolytic 10 uF/16V
C6353	08S40656F21	Mylar 0.047 uF
C6354	23S40657F10	Electrolytic 10 uF/16V

Symbol No.	Part No.	Description
Resistors		
R6351	06S44594P14	100K ohm
R6352	06S44594P20	180K ohm
R6353	06S44594P38	1M ohm
R6354	06S44594P14	100K ohm
R6355	06S44594P14	100K ohm

Pitch Control P.C. Board

Symbol No.	Part No.	Description
IC/Transistors		
IC6501	51S43471U02	IC, μPC4558C
Q6301	48T51878F01	2SC2878A, B
Q6501	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Q6502	48T52122F01	FET, 2SK301R
or	48T52122F02	FET, 2SK301Q
Diodes		
D6301	48T51582F01	MA-150
D6302	48T51582F01	MA-150
D6501	48T51582F01	MA-150
D6502	48T51582F01	MA-150
Capacitors		
C6301	23S40657F51	Electrolytic 330 uF/10V
C6501	23S40657F10	Electrolytic 10 uF/16V
C6502	23S40657F10	Electrolytic 10 uF/16V
Resistors		
R6301	06S44594P14	100K ohm
R6302	06S44593P89	10K ohm
R6303	06S44593P89	10K ohm
R6304	06S44593P73	2.2K ohm
R6501	06S44593P89	10K ohm
R6502	06S44593P73	2.2K ohm
R6503	06S44593P89	10K ohm
R6504	06S44594P14	100K ohm
R6505	06S44594P12	82K ohm

Symbol No.	Part No.	Description
Meter Sensitivity Control P.C. Board		
Transistors		
Q4501	48S43525F04	2SC1815GR
or	48S44578J01	2SC945LP
Q4502	48S43525F04	2SC1815GR
or	48S44578J01	2SC945LP
Q4503	48S43525F04	2SC1815GR
or	48S44578J01	2SC945LP
Diode/Posistors		
D4501	48S134816	1S1555
PS4501	48T56034F01	Posistor 470
PS4502	48T56034F01	Posistor 470
Capacitors		
C4501	23S41198U47	Electrolytic 330 uF/10V
or	23B44780P04	Electrolytic 330 uF/16V
C4502	23S41198U47	Electrolytic 330 uF/10V
or	23B44780P04	Electrolytic 330 uF/16V
Resistors		
R4503	06S41801P62	330K ohm
R4504	06S41801P62	330K ohm
R4505	06S41801P32	1K ohm
R4506	06S41801P32	1K ohm
R4507	06S41801P44	10K ohm
R4508	06S41801P44	10K ohm
R4509	06S41801P44	10K ohm
R4510	06S41801P48	22K ohm
VR4501	18C41732G08	Variable 22K ohm – B
VR4502	18C41732G08	Variable 22K ohm – B

Symbol No.	Part No.	Description
Keyboard Switch P.C. Board		
LEDs		
LD6801	48T52608F01	YEL TLUY 163 (PAUSE)
LD6802	48T52606F01	GRN TLUG 163 (PLAY)
LD6803	48T52606F01	GRN TLUG 163 (FF)
LD6804	48T52606F01	GRN TLUG 163 (REW)
LD6805	48T52607F01	RED TLS 163 (REC)
LD6806	48T52607F01	RED TLS 163 (REC-MUTE)
Switches		
S6801	40T44505F01	STOP
S6802	40T44505F01	FF
S6803	40T44505F01	REW
S6804	40T44505F01	PLAY
S6805	40T44505F01	PAUSE
S6806	40T44505F01	REC
S6807	40T44505F01	REC-MUTE
Miscellaneous		
C1901	08T57437F09	Capacitor. DE7150 FZ 0.01 uF
D1	48E00114S01	Diode, S52778
FL6701	65T47743F01	Counter, FL
HD201, HD501	88E00113S01	Head, R/P Combination
HD502	88T52095F01	Head, Erase
J401	09T52845F12	Jack, M1658 AYCA (HEAD PHONE)
J2501	09T52570F02	Plate, Phono 4P
J6601	09T53104F01	Socket, Din 8P (REMOTE)
LD1, PT1	48E00217S01	LED, SENSOR
LD101	48T52606F01	LED, GRN TLUG 163 (CASSETTE)
LD3701	48T52609F01	LED, ORG TLO 163 (DOLBY-C)
LD3702	48T52606F01	LED, GRN TLUG 163 (DOLBY-B)
LD6701	48T52607F01	LED, RED TLS 163 (SOURCE)
LD6702	48T52607F01	LED, RED TLS 163 (SOURCE)

Symbol No.		Part No.	Description
LD6703		48T52606F01	LED, GRN TLUG 163 (TAPE)
LD6704		48T52606F01	LED, GRN TLUG 163 (TAPE)
LD6901		48T58301F01	LED, ORG TLUG 153 (A/PLAY)
LD6902		48T58301F01	LED, ORG TLUG 153 (A/REW)
LD6903		48T58301F01	LED, ORG TLUG 153 (EXC)
LM401		72T50769F01	Meter, Level (L) (Included PL101)
LM402		72T50769F01	Meter, Leverl (R) (included PL102)
M1		59E00038S01	Assembly, DD Motor Unit
M2		59E00060S01	Assembly, Reel Motor
M3		59E00035S01	Assembly, PAD Motor
P102	○	28T50179F03	Plug, AC Cord
	△	28T45338F01	Plug, AC Cord
	■	28T40916U01	Plug, AC Cord
PL103		65T56033F01	Lamp, Pilot 8V-300mA
PL104		65G56033F01	Lamp, Pilot 8V-300mA
R2501		06S44593P65	Resistor, C.F. 1K ohm ¼W
R2502		06S44593P65	Resistor, C.F. 1K ohm ¼W
S1-1		40E00037S01	Switch, Leaf
S1-2		40E00037S01	Switch, Leaf
S1-3		40E00037S01	Switch, Leaf
S2-1		40E00053S01	Switch, Leaf
S2-2		40E00054S01	Switch, Leaf
S101	●	40T45561F02	Switch, Power (SDL1P)
	■	40T47454F01	Switch, Power (SDL1P)
S102	●	40T55015F01	Switch, Volt Select
S301		40T55496F01	Switch, Rotary SBU 1023 (DOLBY-NR)
S601		40T55489F01	Switch, Slide SSA (TIMER)
S801		40T55496F01	Switch, Rotary SBU 1023 (TEST OSC)
S6701		40T50262F01	Switch, Slide (50/60 Hz)
SD1		25E00032S01	Coil, Reel
SD2		25E00032S01	Coil, Reel
T101	●	25T55498F01	Trans, Power
	■	25T57621F01	Trans, Power
TH501		48E00121S01	Thermistor

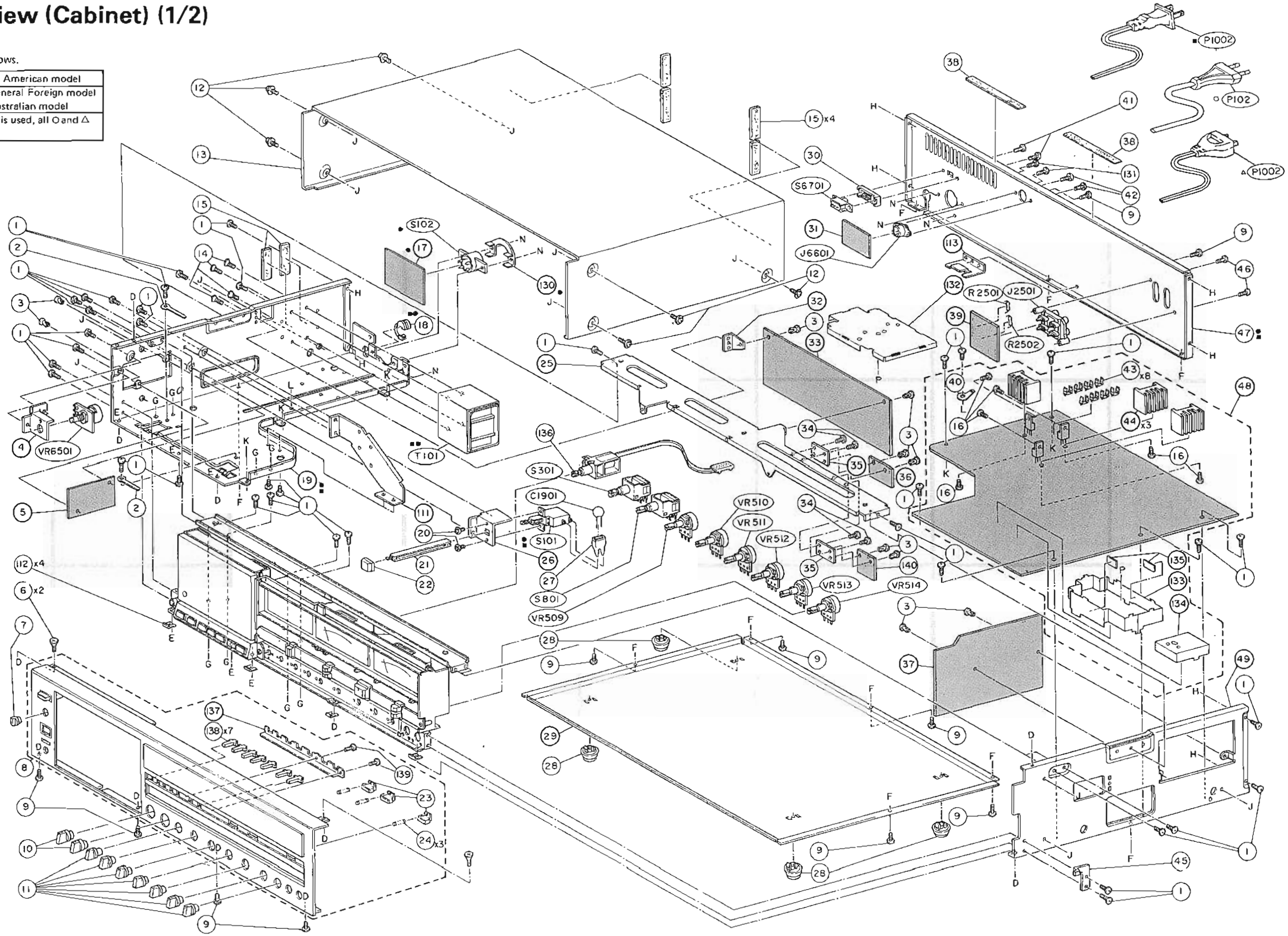
Symbol No.	Part No.	Description
VR1	18E00116S01	Resistor, Variable, 20K ohm
VR509	18T58058F01	Volume, Rotary 10K ohm-B (BIAS)
VR510	18T58058F01	Volume, Rotary 10K ohm-B (BIAS)
VR511	18T58058F01	Volume, Rotary 10K ohm-B (LEVEL)
VR512	18T58058F01	Volume, Rotary 10K ohm-B (LEVEL)
VR513	18T55494F01	Volume, Rotary 100K ohm-A (EQ)
VR514	18T55494F01	Volume, Rotary 100K ohm-A (EQ)
VR6501	18T52411F02	Volume, Rotary K161 20K ohm-B (PITCH CONTROL)

● : For multi-voltage model only [○ : General foreign model, △ : Australian model], ■ : For single voltage model only [North American model] Others: Common,

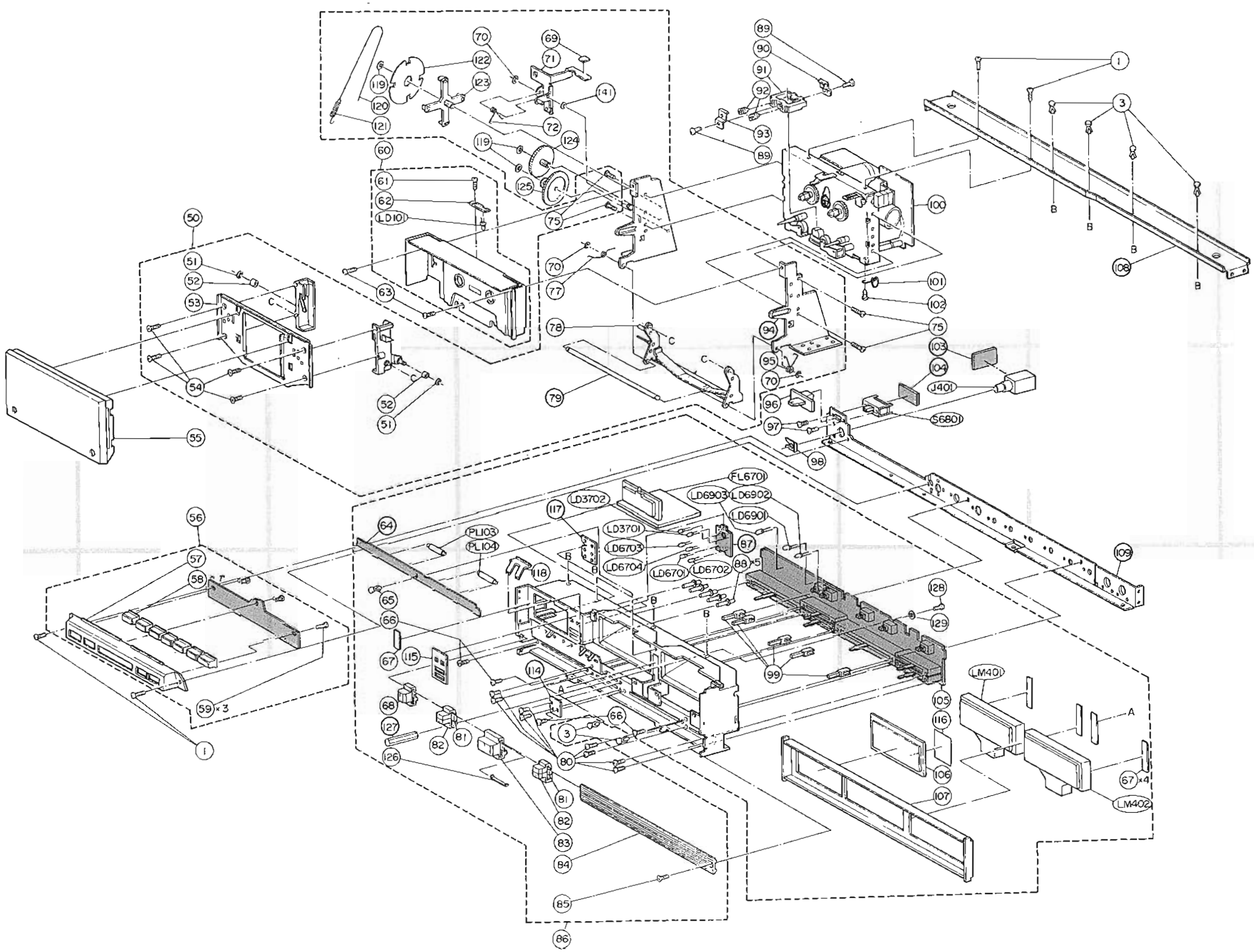
Exploded View (Cabinet) (1/2)

Note: Symbol marks as follows.

■ : Single voltage	North American model
● : Multi-voltage	O : General Foreign model Δ : Australian model
When only the mark " ● " is used, all O and Δ marks are included.	



Exploded View (Cabinet) (2/2)



Cabinet Assembly Parts List

Symbol No.		Index	Part No.	Description
1			03A44642J03	Screw, Bind (M3 x 5)
2			29A41233G01	Lug
3			05B41635J02	Rivet, Push
4		3-A	※	Bracket, Volume
5		3-A	※	Assembly, Pitch Control P.C. Board
6		4-A	03S44205G16	Screw, Countersink (M3 x 6)
7		4-A	36A47129F04	Knob, Bias
8		5-A	01V56500F05	Assembly, Front Panel
9			03S44205G38	Screw, Bind (Black) (M3 x 6)
10		5-A	36A55397F01	Knob, Control
11		5-A	36A56005F01	Knob, Control
12			03S40036U01	Screw, Pan (M4 x 8)
13		1-B	15D52135F01	Cover, Top
14		2-B	03S52360F14	Screw, Countersink (M4 x 8)
15			75A42565P21	Cushion, Rubber
16		3-H	03A44642J01	Screw, Bind (M3 x 6)
17	●	2-D	※	P.C. Board, Volt Select
18	●	2-D	43B41625J02	Support, Cord
	■	2-D	43B41625J01	Support, Cord
19	●	3-C	※	Chassis, Bottom
	■	3-C	※	Chassis, Bottom
20		3-D	03C40014G09	Screw, W/Washer (M3 x 5)
21		4-D	45A50705F01	Lever, Power Switch
22		4-D	36A45460F04	Knob, Power
23		5-D	36A47373F02	Knob, Push (L)
24		5-D	41A41324F01	Spring, Push
25		2-D	※	Bracket, Panel
26		4-D	※	Bracket, Switch
27		4-D	43T53136F01	Bush, Cap
28			75A51145F01	Pad, 1023
29		4-D	※	Cover, Bottom
30		1-F	43A44685F01	Spacer, Switch
31		2-F	※	P.C. Board, Remote Din Jack
32		2-F	※	Bracket, Panel (L)
33		2-F	※	Assembly, Control P.C. Board
34			03S44205G01	Screw, Pan (M3 x 6)
35			※	Bracket, Panel
36		3-F	※	Assembly, Pulse OSC P.C. Board
37		4-F	※	Assembly, Record EQ P.C. Board
38			75B44632G04	Pad Cushion
39		2-G	※	P.C. Board, Phono Plate
40		3-G	29A41814G01	Lug
41		1-H	03S43997P88	Screw, Bind (M2 x 6)
42		2-H	03S40011G91	Screw, Bind (M2.6 x 5)
43		2-H	09T45548F01	Holder, Fuse
44		3-H	※	Heat Sink, Transistor
45		5-H	41A57347F01	Spring, Earth
46		2-H	03S40012G41	Screw, Tapping (M3 x 8)
47	●	2-H	15D55398F01	Cover, Rear
	■	2-H	15D55398F02	Cover, Rear
48		3-H	※	Assembly, Master P.C. Board
49		4-H	※	Chassis, Side
50		2-B	01V61200F74	Assembly, Cassette Bracket
51			04C42091G12	Ring "E" (M1.2)
52			43A60304F01	Sleeve Holder
53		2-B	07B50711F01	Bracket, Cassette
54		3-B	03S40012G48	Screw, Tapping (M3 x 6)
55		3-B	01V56500F06	Assembly, Door
56		3-B	01V56400F97	Assembly, Key Board Switch
57		4-B	07C55402F01	Frame, Control A
58		4-B	36A50729F01	Knob, Cassette Control
59		4-B	03S40012G46	Screw, Tapping (M2 x 6)
60		2-C	01V58400F49	Assembly, Dust Cover
61		2-C	03S40012G58	Screw, Tapping (M2 x 5)
62		2-C	84D55487F08	P.C. Board, LED
63		2-C	03S44205G34	Screw, Pan (M2.6 x 5)
64		3-C	※	P.C. Board, Lamp
65		4-C	05B41635J03	Rivet, Push
66			03S40011G99	Screw, Bind (M3 x 5)
67			75A56279F01	Cushion, Meter
68		4-C	36A55396F01	Knob, Slide Volume
69		1-D	14S53017F88	Insulator, Cover
70			04C42091G04	Ring "E" (M3)
71		1-D	45B50732F01	Lever, Lock
72		1-D	41A50738F01	Spring, Lock
75			03A43852J02	Screw, Pan (M2.5 x 5)
77		2-D	41A50740F01	Spring, C Lever
78		2-D	45B50707F01	Lever, Cassette
79		3-D	※	Shaft, Deck
80		5-D	03S43997P33	Screw, Bind (M2 x 6)
81			36A52101F01	Knob, Slide (L)
82			36A52102F01	Knob, Slide (R)

NOTE: ※ The parts whose parts numbers are not entered will not be supplied.

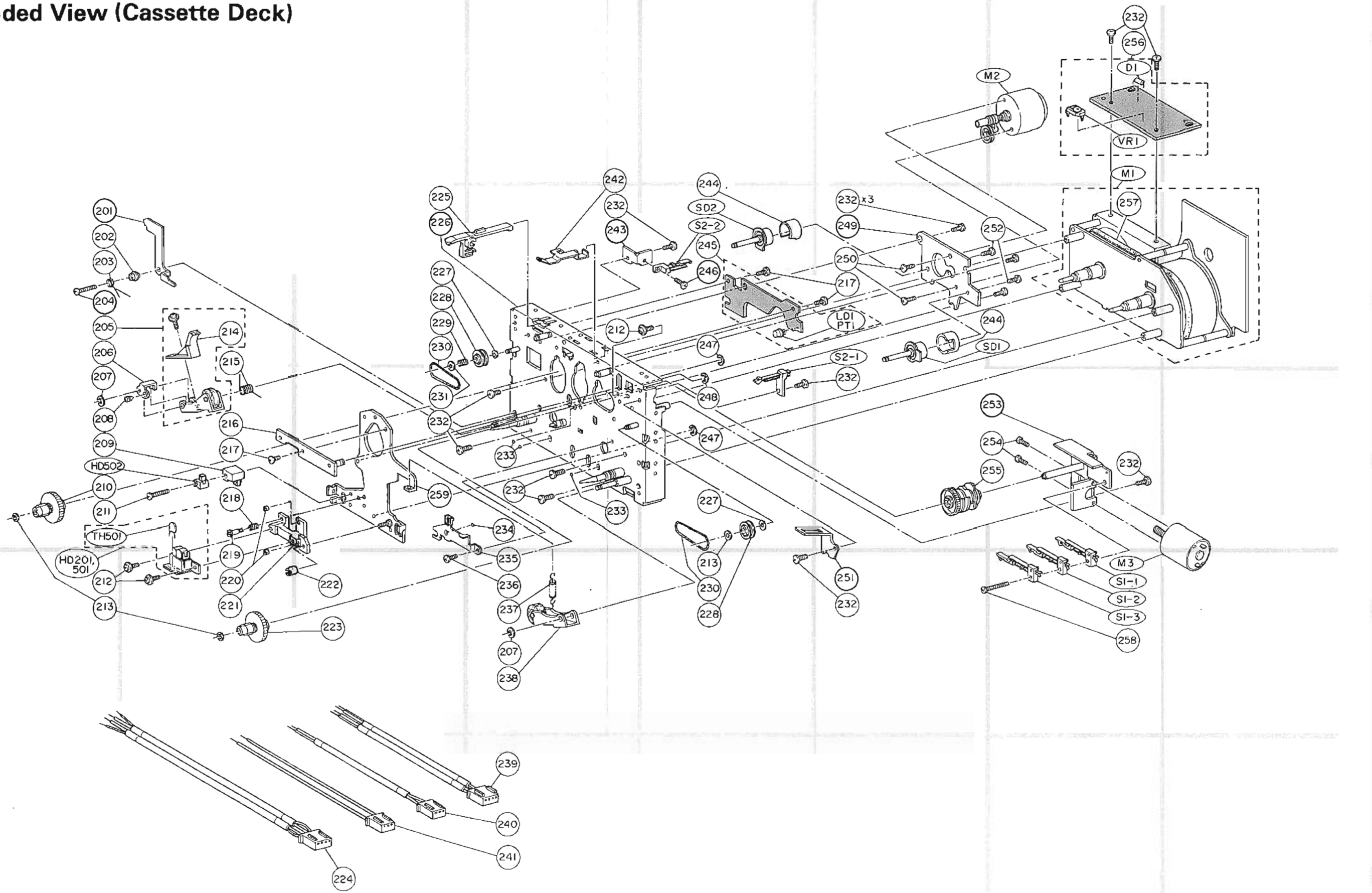
● : For multi-voltage model only (○ : General foreign model, △ : Australian model), ■ : For single voltage model only (North American model) Others: Common

Symbol No.		Index	Part No.	Description
83		5-D	36A52099F01	Knob, Slide
84		5-D	64A55406F01	Panel, Slide Volume
85		5-D	03S40012G78	Screw, Tapping (M2 x 6)
86		5-D	01V56400F92	Assembly, Meter-Volume/Switch
87		3-E	※	P.C. Board, LED
88		4-E	45A55404F01	Lever, Push
89		2-E	03S52360F16	Screw, Pan (M1.7 x 1.5)
90		1-E	45A57432F01	Arm, Lifter
91		1-E	07A57431F01	Frame, Lifter
92		1-E	03S42155U04	Screw, Set Slotted (M2 x 4)
93		1-E	45A57432F02	Arm, Lifter
94		3-E	※	Bracket, Deck (R)
95		3-E	41A57485F01	Spring, Dumper
96		3-E	36A55392F01	Knob, Slide Switch
97		3-E	03C40014G06	Screw, W/Washer (M2.6 x 5)
98		3-E	41A57612F01	Spring, Jack
99		4-E	45A50724F01	Lever, Push Switch
100		2-F	81T52096F01	Deck, Cassette (FR87E010)
101		2-F	42A44230U01	Lug, Wrap Through
102		2-F	03S44205G43	Screw, Bind (M2.6 x 4)
103		3-F	※	P.C. Board, Head Phone
104		3-F	※	P.C. Board, Timer Switch
105		4-F	01V56400F94	Assembly, Volume/Switch P.C. Board
106		5-F	61B55407F01	Lens, Indicator
107		5-F	64B55395F01	Plate, Meter
108		2-G	※	Bracket, Front
109		4-G	※	Chassis, Front
111		3-D	※	Support, Chassis
112		4-A	43A57348F01	Spacer, Panel
113		2-G	※	Bracket, Panel
114		4-D	※	Shield, Meter Volume
115		4-C	75A58134F01	Cushion, LED
116		4-F	14S58462F01	Insulator, Cover
117		3-D	※	Support, LED
118		4-D	14B60028F01	Insulator, Rubber
119			04A41345P01	Washer, Lock (M1.2)
120		1-C	30S43803G05	Dial, Cord (180)
121		1-C	41A60285F01	Spring, Damper
122		1-D	49A52922F02	Wheel, Damper
123		1-D	44A53019F01	Gear, Damper C
124		1-D	44A52924F01	Gear, Damper B
125			44A52923F01	Gear, Damper A
126		5-C	41A58416F01	Spring, Knob
127		4-C	※	Shaft, Stopper
128		4-F	03S40011G93	Screw, Bind (M3 x 8)
129		4-F	04S40075G13	Washer, Polyslider (M3.1)
130	●	2-D	※	Frame, Switch
131	●	2-D	03S44205G24	Screw, Pan (M3 x 12)
132		2-G	※	Shield, Pre-Amp
133		4-H	※	Shield, Pre-Amp
134		4-H	※	Shield, OSC
135		3-H	※	Insulator
136		3-D	40T55497F01	Switch, Rotary Flex
137		4-B	※	Bracket, Switch
138		4-B	36A56006F01	Knob, Push
139		5-D	03S40012G01	Screw, Tapping (M3 x 5)
140		4-F	※	Assembly, Meter Sensitivity Control P.C. Board
141		1-D	04S40075G18	Washer, Polyslider (M4.1)

NOTE: ※ The parts whose parts numbers are not entered will not be supplied.

● : For multi-voltage model only (○ : General foreign model, △ : Australian model), ■ : For single voltage model only (North American model) Others: Common

Exploded View (Cassette Deck)



Cassette Deck Assembly Parts List

Symbol No.	Index	Part No.	Description
201	2-A	※	Lock, Lever
202	2-A	43E00049S01	Spacer
203	2-A	41E00050S01	Spring, Pull
204	2-A	※	Screw, Pan (M2.5 x 10)
205	2-A	01E00044S01	Assembly, Pinch Roller (S)
206	2-A	07E00047S01	Support, Pinch Roller
207		04C42091G05	Ring, "E" (M2)
208	3-A	03E00109S02	Screw, SET (–) (M2 x 3)
209	3-A	46E00026S01	Block, Erase Head
210	3-A	49E00040S01	Reel, Supply
211	3-A	03E00027S01	Screw, W/Washer (M2 x 20)
212		03C40014G07	Screw, W/Washer (M2 x 4)
213		04E00062S02	Washer
214	2-B	43E00194S01	Guide, Tape
215	2-B	41E00046S01	Spring, Pinch Roller
216	3-B	01E00020S01	Assembly, Connection Bracket
217		03E00108S01	Screw, Pan (M2.5 x 4)
218	3-B	41E00022S01	Spring, Adjustment
219	4-B	03E00023S01	Screw
220	4-B	03E00109S01	Screw, SET (–) (M2 x 4)
221	4-B	46E00021S01	Block, R/P Head
222	4-C	02E00024S01	Nut
223	4-C	49E00039S01	Reel, Take-up
224	5-C	01E00056S01	Cable, Connector (Rec) 4P
225	2-C	45E00052S01	Lever, Record
226	2-C	※	Assembly, Chassis Rivet
227		04E00062S03	Washer
228		49E00041S01	Pulley
229	2-C	41E00061S01	Spring, Pull
230		42E00042S01	Belt, Reel
231	3-C	04E00062S01	Washer, Flat
232		03A43852J02	Screw, Pan (M2.5 x 5)
233		43E00028S01	Ball, Steel (M2)
234	3-D	43E00028S02	Ball, Steel (M3)
235	4-D	41E00029S01	Spring, Head Base
236	4-D	03S40011G21	Screw, Pan (M3 x 4)
237	4-D	41E00045S01	Spring, Pull
238	4-D	01E00043S01	Assembly, Pinch Roller (T)
239	5-D	01E00057S01	Cable, Connector (P.B) 4P
240	5-D	01E00058S01	Cable, Connector (E) 3P

Symbol No.	Index	Part No.	Description
241	5-D	01E00059S01	Cable, Connector (Thermistor) 3P
242	1-D	41E00033S01	Spring, Cassette Guide
243	2-D	※	Bracket, Leaf Switch
244		15E00031S01	Case, Reel
245	2-E	01E00018S01	Assembly, Sensor P.C. Board (Included R1, R2, R3, Q1)
246	2-E	※	Screw, Pan (M2.5 x 6)
247		04C42091G04	Ring, "E" (M3)
248	3-E	04C42091G11	Ring, "E" (M2.5)
249	2-F	※	Bracket, Motor
250	2-F	03S43997P36	Screw, Bind (M2.6 x 3)
251	4-F	※	Guide, Bracket
252	2-G	03E00110S01	Screw, Bind (M2.3 x 4)
253	3-G	※	Assembly, Pad Bracket
254	3-G	03E00111S01	Screw, Pan (M2 x 3)
255	3-G	44E00036S01	Cam, Gear
256	1-G	01E00055S01	Assembly, Terminal P.C. Board (Included C1, C2, R4)
257	2-G	42E00112S01	Belt
258	4-G	03E00108S03	Screw, Pan (M2.5 x 20)
259	3-C	01E00019S01	Assembly, Head Base Rivet

NOTE: ※ The parts whose parts numbers are not entered will not be supplied.

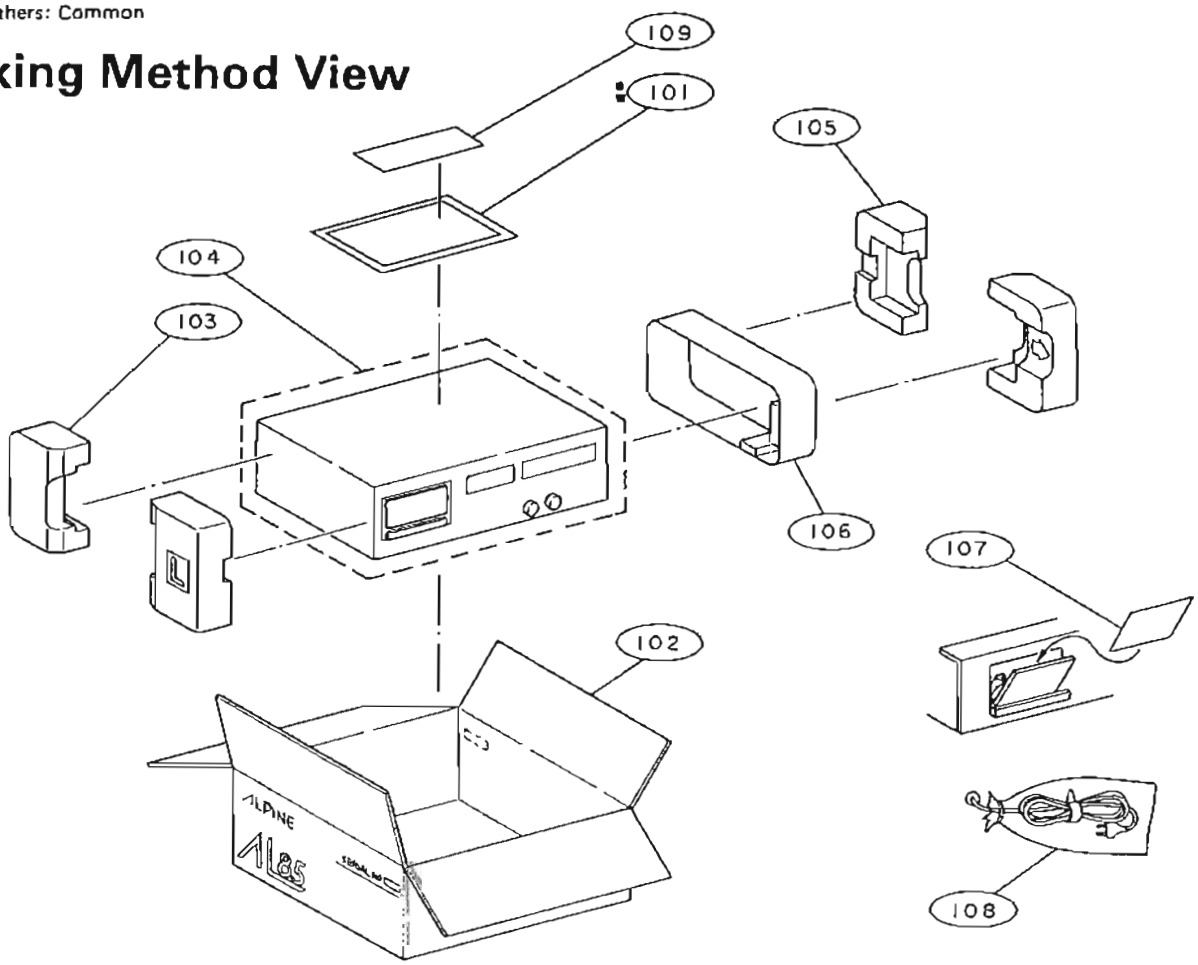
Packing Assembly Parts List

Symbol No.		Part No.	Description
101	○	01V56500F08	Assembly, Pamphlet
	△	01V56500F08	Assembly, Pamphlet
	■	01V58700F80	Assembly, Pamphlet
101-1		※	Sack, Polyethylene
101-2		68P52551F70	Manual, Owner's
101-3		68P55888F47	Manual, Illustration
101-4		28T55189F01	Plug, Audio Cable
101-5	■	68P44370P57	Carc, Warranty
102		56C53420F11	Carton, Packing
103		56D57776F01	Tray, Packing (L)
104		56B40442T07	Front Frame, Packing
105		56D57776F02	Tray, Packing (R)
106		56A57698F01	Belt, Packing
107		56B40442T11	Front Frame, Packing
108		56B40230G08	Sack, Polyethylene
109		54B58675F01	Card, BK

Symbol No.		Part No.	Description
Labels			
		54A61179F01	BK (Card, BK)
		54B42124G01	Serial No. (Carton Packing)
		54B42124G01	Serial No. (Card, BK)
	■	54A57559F01	Caution (Side L)
	■	54A57559F02	Caution (Bottom Cover)
	■	54A44553G01	CSA (Rear Cover)

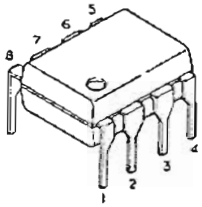
Note: ※ The parts whose parts numbers are not entered will not be supplied.
●: For multi-voltage model only [○: General foreign model, △: Australian model,), ■: For single voltage model only [North American model] Others: Common

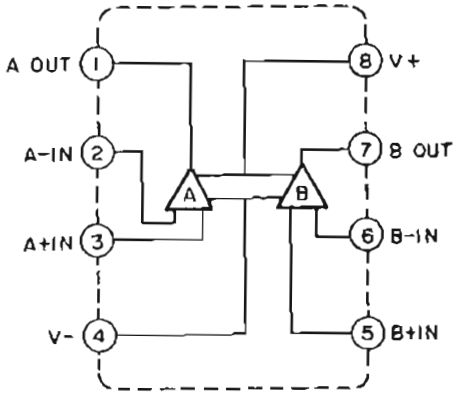
Packing Method View



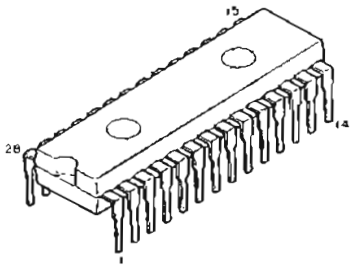
Semi-Conductor Lead Identifications

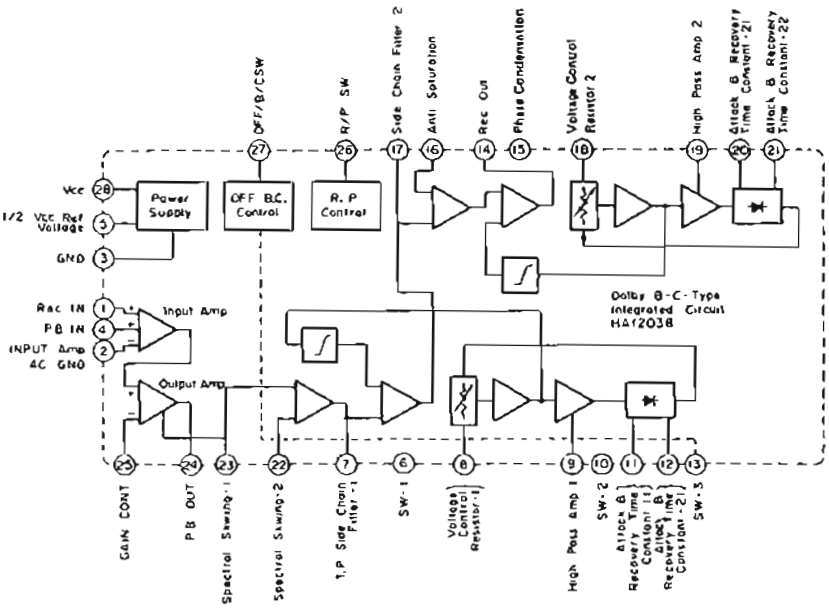
NJM2043D-D: IC201
NJM2041D-D: IC305, 2901



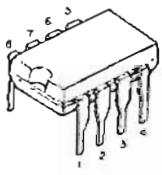


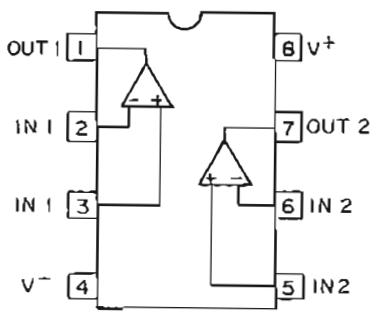
HA12038-01: IC301 ∿ 304



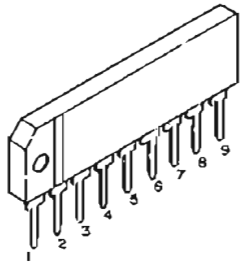


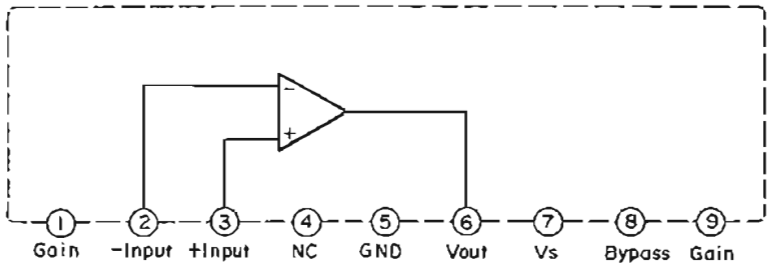
μPC4558C: IC401, 501, 5501, 5502, 6501
μPC4556C: IC402



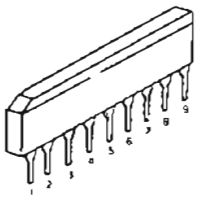


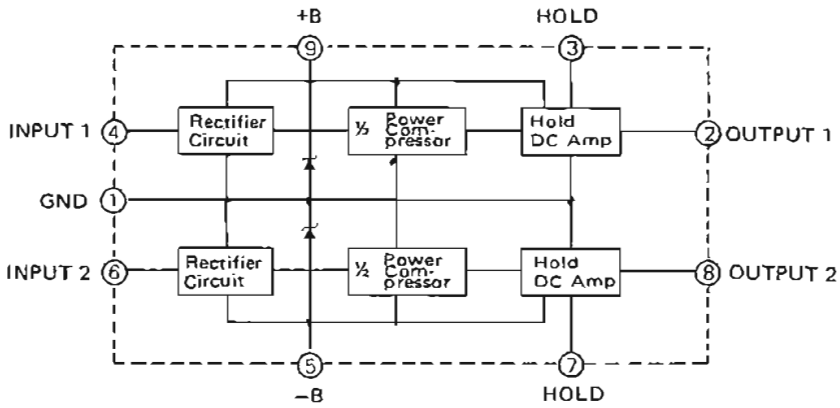
NJM386S: IC403, 404



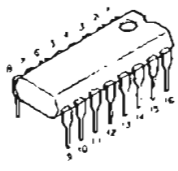


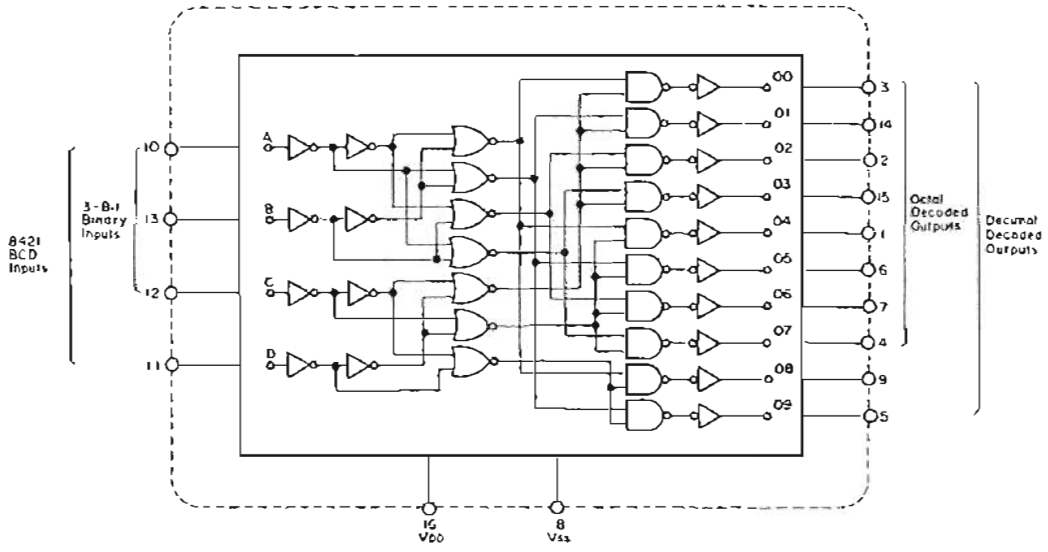
TA7332P: IC405



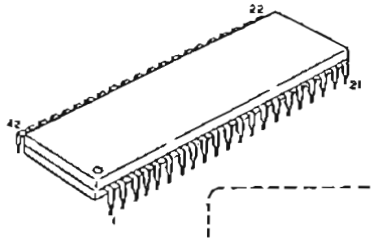


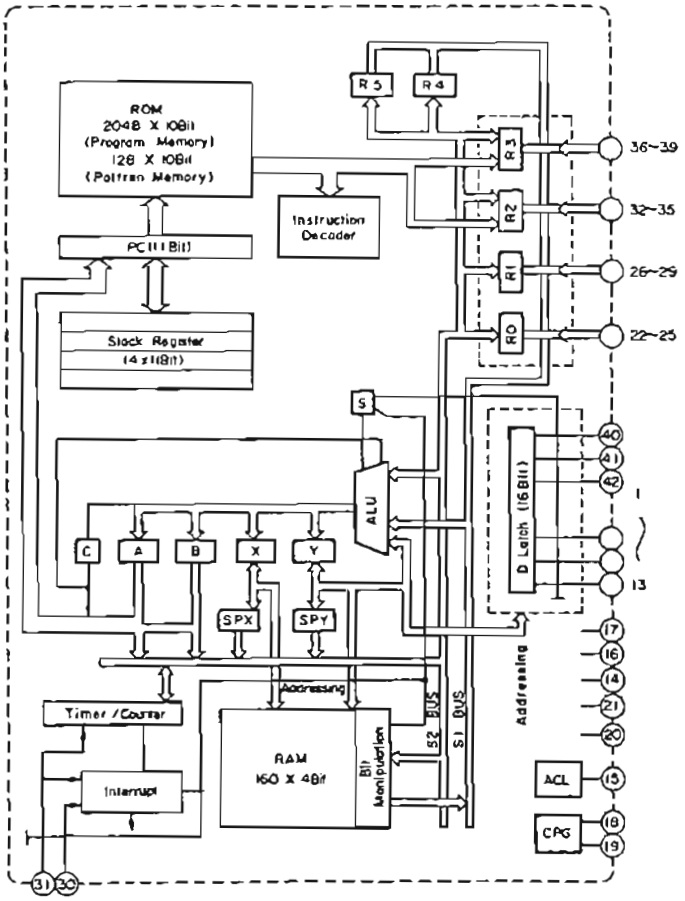
MC14028BCP: IC6002





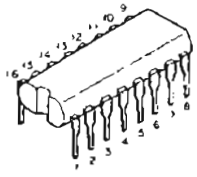
HD38805A03: IC6001

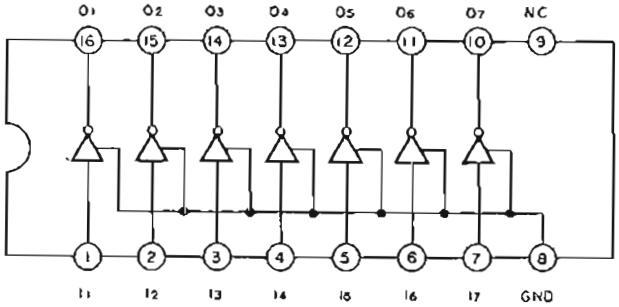




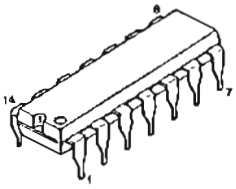
Pin No.	Code	Description
1	AMR	ASSIST MOTOR REVERSE
2	RMF	REEL MOTOR FORWARD
3	RMR	REEL MOTOR REVERSE
4	RMV	REEL MOTOR VOLTAGE
5	EBRK	ELECTROMAGNETIC BRAKE
6	PAMO	PLAY AMP MUTE OUT
7	RAMO	RECORD AMP MUTE OUT
8	RAMLO	RECORD AMP MUTE LED OUT
9	ATSO	AUTO TEST STOP OUT
10	EXCLO	EXECUTION LED OUT
11	WCTRO	WATCH COUNTER OUT
12	RECO	REC OUT
13	PALS	PULSE IN
14	VDISP	GND
15	RESET	
16	VBB	GND
17	VDD	
18	OSC1	
19	OSC2	
20	TEST	
21	Vss	
22	STOP I	FUNCTION KEY
23	FF I	
24	RWD I	
25	PLY I	
26	PAUSE I	
27	REC I	REC IN
28	REC M I	REC MUTE IN
29	ATMD I	AUTO TEST MODE IN (REC EQ TEST IN)
30	POWER	POWER ON OFF IN
31	EXCPL	EXECUTION PULSE IN
32	KEY R0	KEY MATRIX RETURN
33	KEY R1	
34	KEY R2	
35	KEY R3	
36	PAUSE O	PAUSE OUT
37	PLAY O	PLAY OUT
38	FF O	FF OUT
39	RWD O	REW OUT
40	MX0	MATRIX STROBE LINE 0
41	MX1	MATRIX STROBE LINE 1
42	AMF	ASSIST MOTOR FORWARD

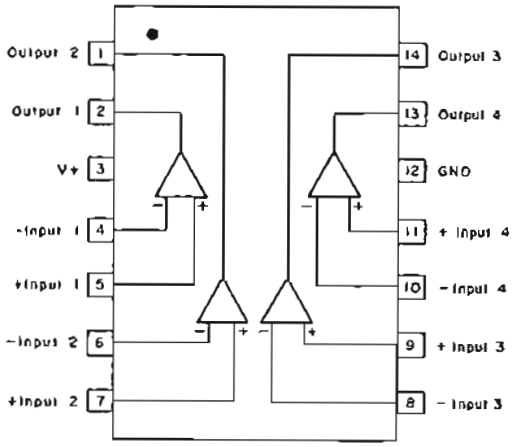
TD62504: IC6003, 6004, 6007



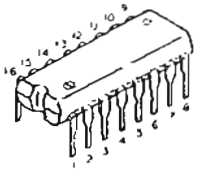


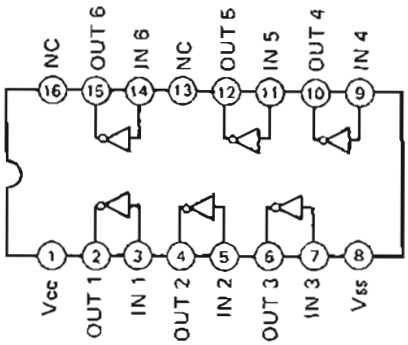
NJM2901N: IC6005



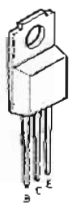


MC14049UB: IC6006, 6351



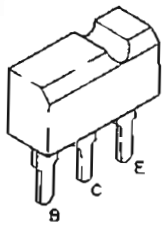


2SD1276: Q102, 551, 552, 557
2SD1266: Q103, 110, 401, 6005, 6006, 6017, 6023
2SB941: Q104, 108, 558



2SK128: Q253, 254

2SC1815: Q106, 107, 109, 263, 312, 553 ∿ 556, Q 559 ∿ 561, 4501 ∿ 4503, 6004, 6011, 6012
2SC945: Q106, 107, 109, 263, 312, 559, 4501 ∿ 4503
2SC2263: Q251, 252, 255, 256
2SC2878: Q257 ∿ 260, 301 ∿ 304, 313, 453 ∿ 459, Q 803 ∿ 806, 5517 ∿ 5520, 6301
2SA733: Q311
2SA1015: Q311, 6001, 6002
2SD1302: Q405, 406, 3201, 3202
2SC1890: Q801, 802
2SB977: Q6007, 6008, 6013, 6014
2SD893: Q6009, 6010, 6015, 6016, 6018

2SK301: Q305, 306, 351 ∼ 354, 407, 5501 ∼ 5516, 6501, 6502 	2SA937: Q6003 	2SA777: Q105, 264, 6019 ∼ 6021 

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