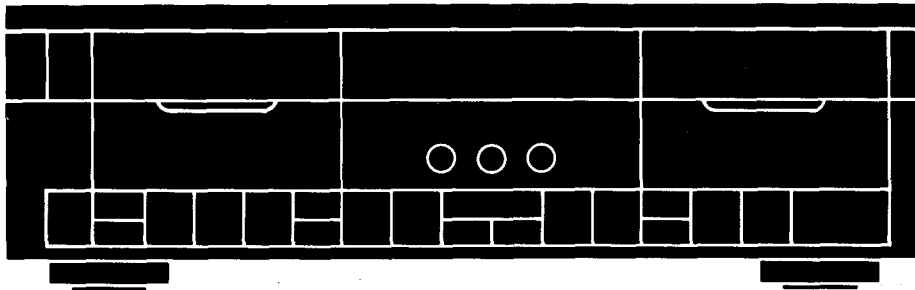


# The Harman Kardon Model DC5300 DUAL CASSETTE DECK

Manual 177A

## Technical Manual



The following marks found in the parts list of this manual identify the models as follows.

- BK : North America area model Black version
- IB : International model Black version
- BB : Australia model Black version

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**harman/kardon**

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240 Crossways Park West, Woodbury, N.Y. 11797  
1112-0010A152 P-129109 2000 Printed in Japan

DC5300

## SPECIFICATIONS

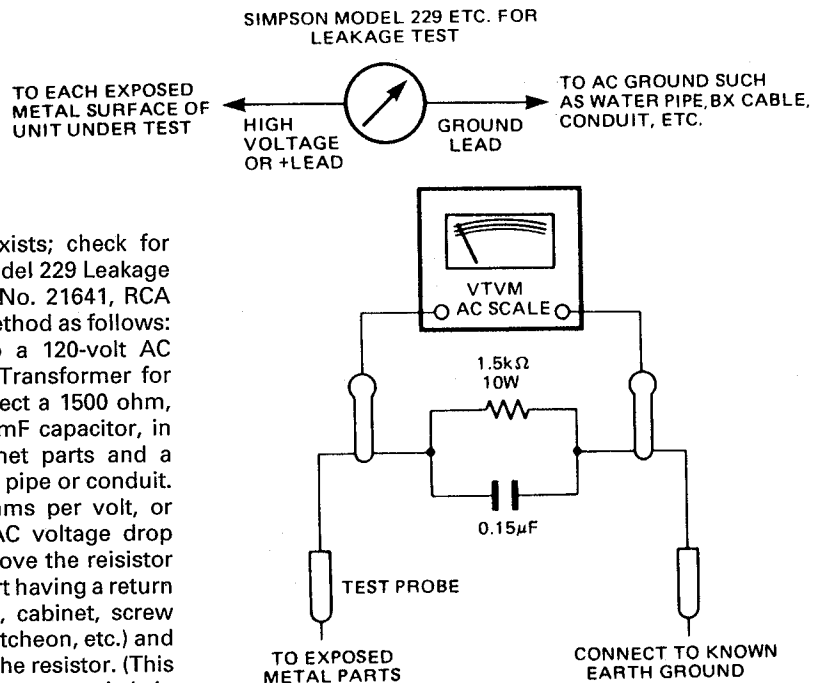
	Nominal	Limit		Nominal	Limit
Track Configuration	4-track 2 Channel Stereo Cassette Deck		Dolby C NR	LN 66 dB CrO <sub>2</sub> 70 dB Metal 70 dB	66 dB 66 dB 66 dB
<b>• MECHANICAL SECTION</b>			Channel Separation	45 dB	35 dB
Record/Playback Tape Speed	0.2% ≤ 2.0%		Crosstalk	70 dB	60 dB
Drift 4.75 cm/sec.	2/1		Record/Playback Distortion (Input 1 kHz)	LN 0.9% CrO <sub>2</sub> 1.3% Metal 1.1%	2.0% 3.0% 2.0%
Heads (Primary/Secondary)	0.05% ≤ 0.1%		MPX Filter Attenuation	at 15 kHz 0.3 dB at 19 kHz 35 dB	1 dB 30 dB
Wow and Flutter	NAB CCIR	0.08%	Erase Ratio (Input 80 Hz)	LN 70 dB Metal 61 dB	60 dB 56 dB
Take Up Torque	50 gr.cm	35 - 70 gr.cm	Input Sensitivity (Input 1 kHz) at Line Input	43 mV	30 - 80 mV
Back Tension	2 gr.cm	2 - 6 gr.cm	Input Impedance (Input 1 kHz) at Line Input	23 kΩ	15 - 25 kΩ
F.FWD Torque	100 gr.cm	70 - 150 gr.cm	<b>• DIMENSIONS (WxHxD)</b>	17-3/8" x 5" x 12-5/8" (443 x 134 x 342) mm	
Rew Torque	100 gr.cm	70 - 150 gr.cm	<b>• WEIGHT</b>	17.2 lbs (7.8 kg)	
F.FWD/Rew Time (C-60 Tape)	85 sec.	≤ 100 sec.	<b>• POWER SUPPLY</b>	U.S.A. and Canada models AC120V, 60 Hz International model AC230V/240V, 50/60 Hz	
<b>• AMPLIFIER SECTION</b>			<b>• POWER CONSUMPTION</b>	U.S.A. and Canada models 29 W International model 31 W	
Record/Playback Frequency	105 kHz ±5 kHz		These specifications are service target specs. Specifications and components are subject to change without notice. Overall performance will be maintained or improved.		
Response (at -3 dB)	LN 20 - 18 kHz CrO <sub>2</sub> 20 - 18 kHz Metal 20 - 18 kHz	20 - 17 kHz 20 - 17 kHz 20 - 17 kHz			
Copy Mode Frequency	620 mV ±1.5 dB				
Response	LN 40 - 16 kHz CrO <sub>2</sub> 40 - 16 kHz Metal 40 - 16 kHz	40 - 15 kHz 40 - 15 kHz 40 - 15 kHz			
Bias Frequency	20 - 18 kHz				
Playback Output	620 mV ±1.5 dB				
Signal-to-Noise Ratio (at Line Input) (Input 1 kHz, 100 mV) IHF-A WTD (at Dolby level)	Dolby NR off	LN 51 dB CrO <sub>2</sub> 54 dB Metal 54 dB			
	Dolby B NR	LN 61 dB CrO <sub>2</sub> 64 dB Metal 64 dB			

## LEAKAGE TEST (FOR SERVICE ENGINEERS IN THE U.S.A)

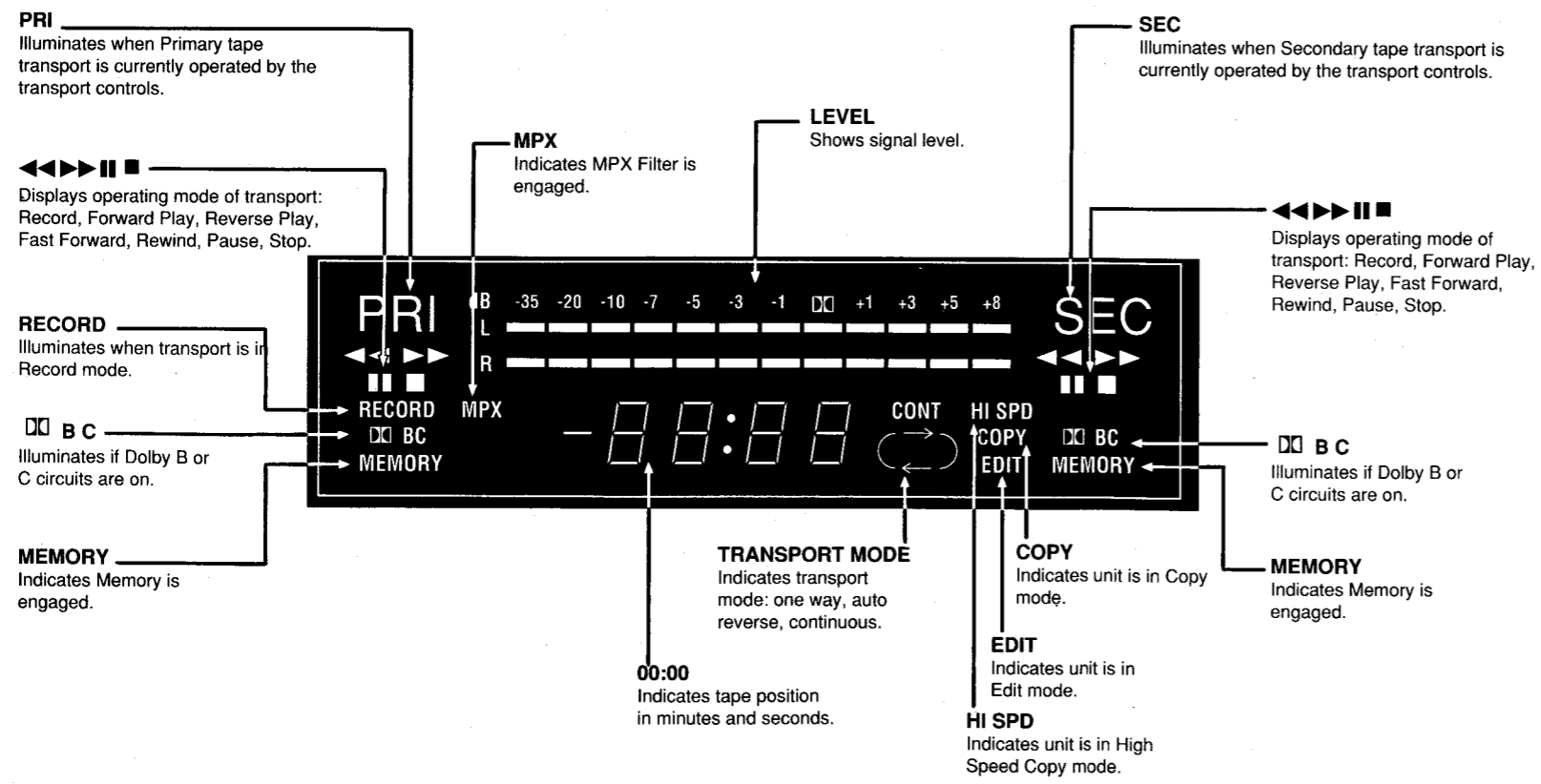
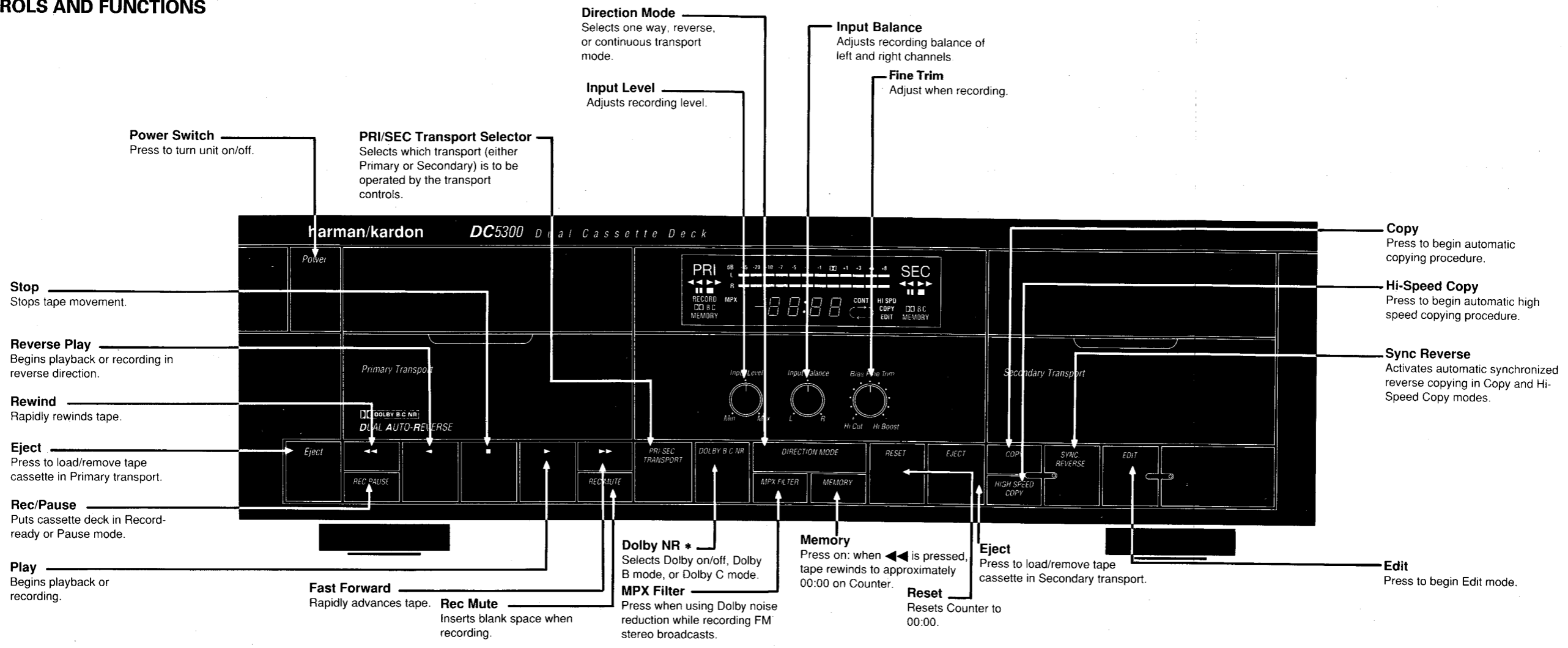
Before returning the unit to the user, perform the following safety checks:


1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the unit.
2. Replace all protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, or shields, isolation resistor/capacitor networks, mechanical insulators, etc.
3. Be sure that no shock hazard exists; check for leakage current using Simpson Model 229 Leakage Tester, standard equipment item No. 21641, RCA Model WT540A or use alternate method as follows: Plug the AC line cord directly into a 120-volt AC receptacle (do not use an Isolation Transformer for this test). Using two clip leads, connect a 1500 ohm, 10-watt resistor paralleled by a 0.15mF capacitor, in series with all exposed metal cabinet parts and a known earth ground, such as a water pipe or conduit. Use a VTVM or VOM with 1000 ohms per volt, or higher sensitivity to measure the AC voltage drop across the resistor. (See Diagram.) Move the resistor connection to each exposed metal part having a return path to the chassis (antenna, metal, cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor. (This test should be performed with the power switch in both the On and Off positions.)

A reading of 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the unit to the owner.



# CONTROLS AND FUNCTIONS

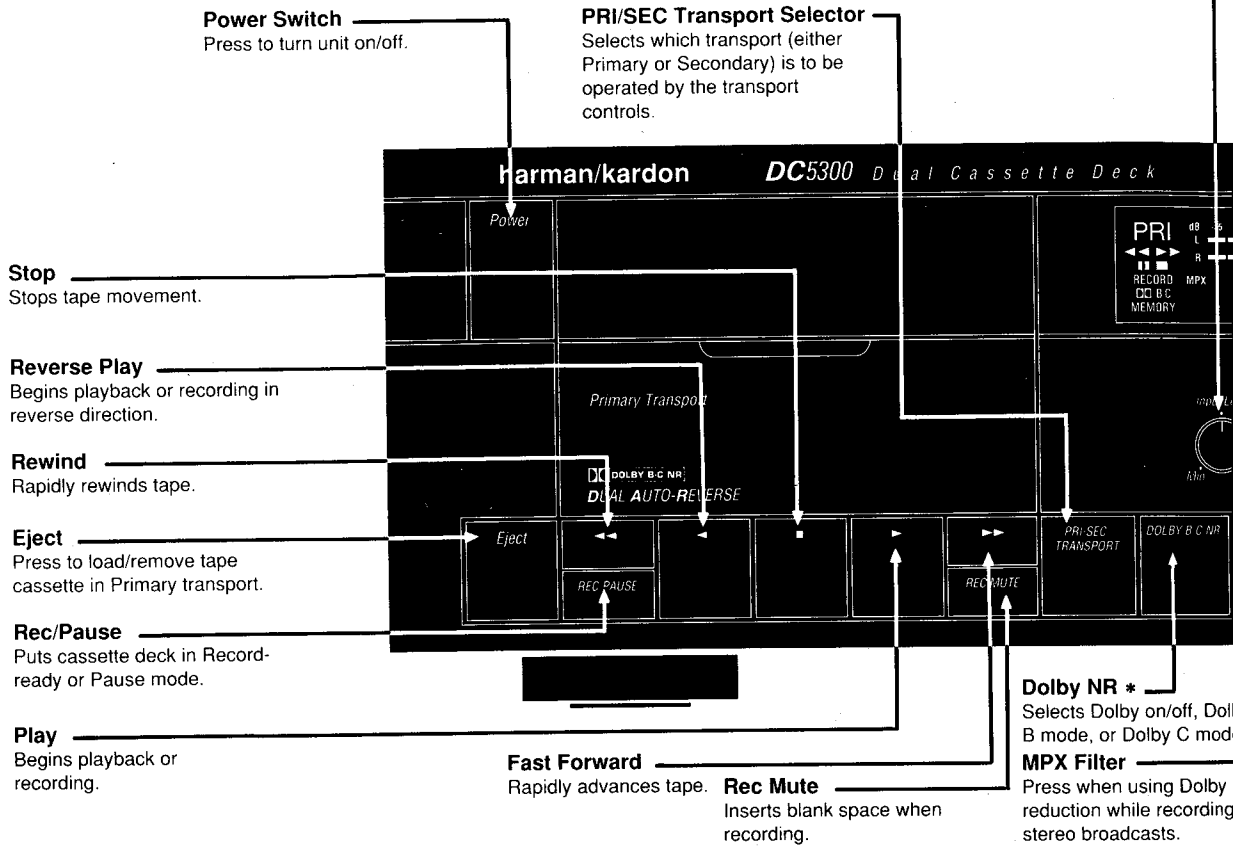


**\* NOTE**  
Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

# CONTROLS AND FUNCTIONS

**Direction Mode**  
Selects one way, reverse, or continuous transport mode.

**Input Level**  
Adjusts recording level.



**PRI**  
Illuminates when Primary tape transport is currently operated by the transport controls.

Displays operating mode of transport: Record, Forward Play, Reverse Play, Fast Forward, Rewind, Pause, Stop.

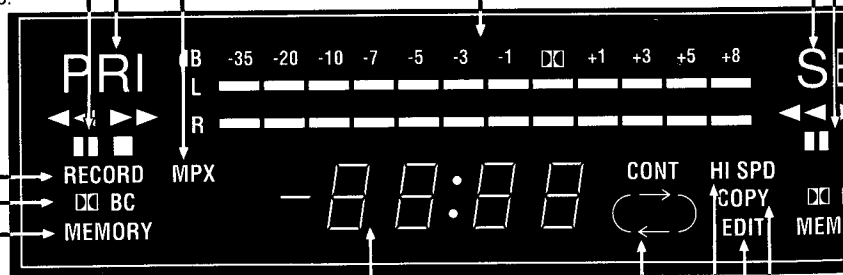
**RECORD**  
Illuminates when transport is in Record mode.

**BC**  
Illuminates if Dolby B or C circuits are on.

**MEMORY**  
Indicates Memory is engaged.

**MPX**  
Indicates MPX Filter is engaged.

**LEVEL**  
Shows signal level.



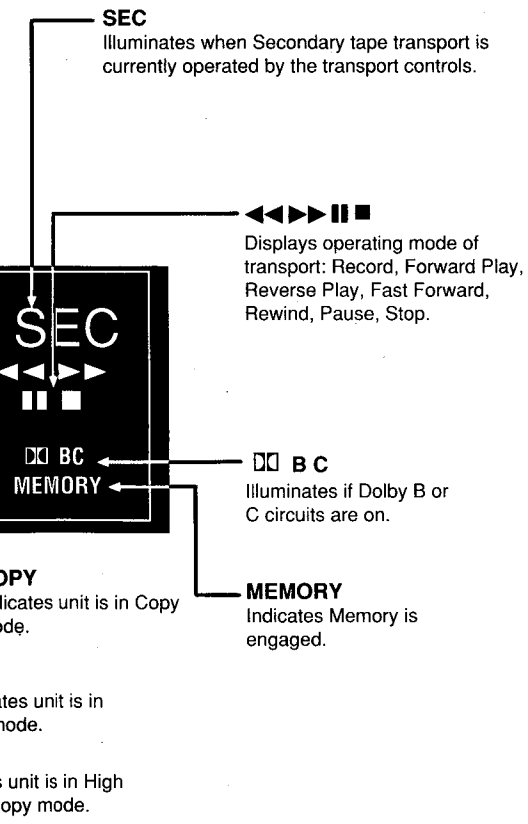
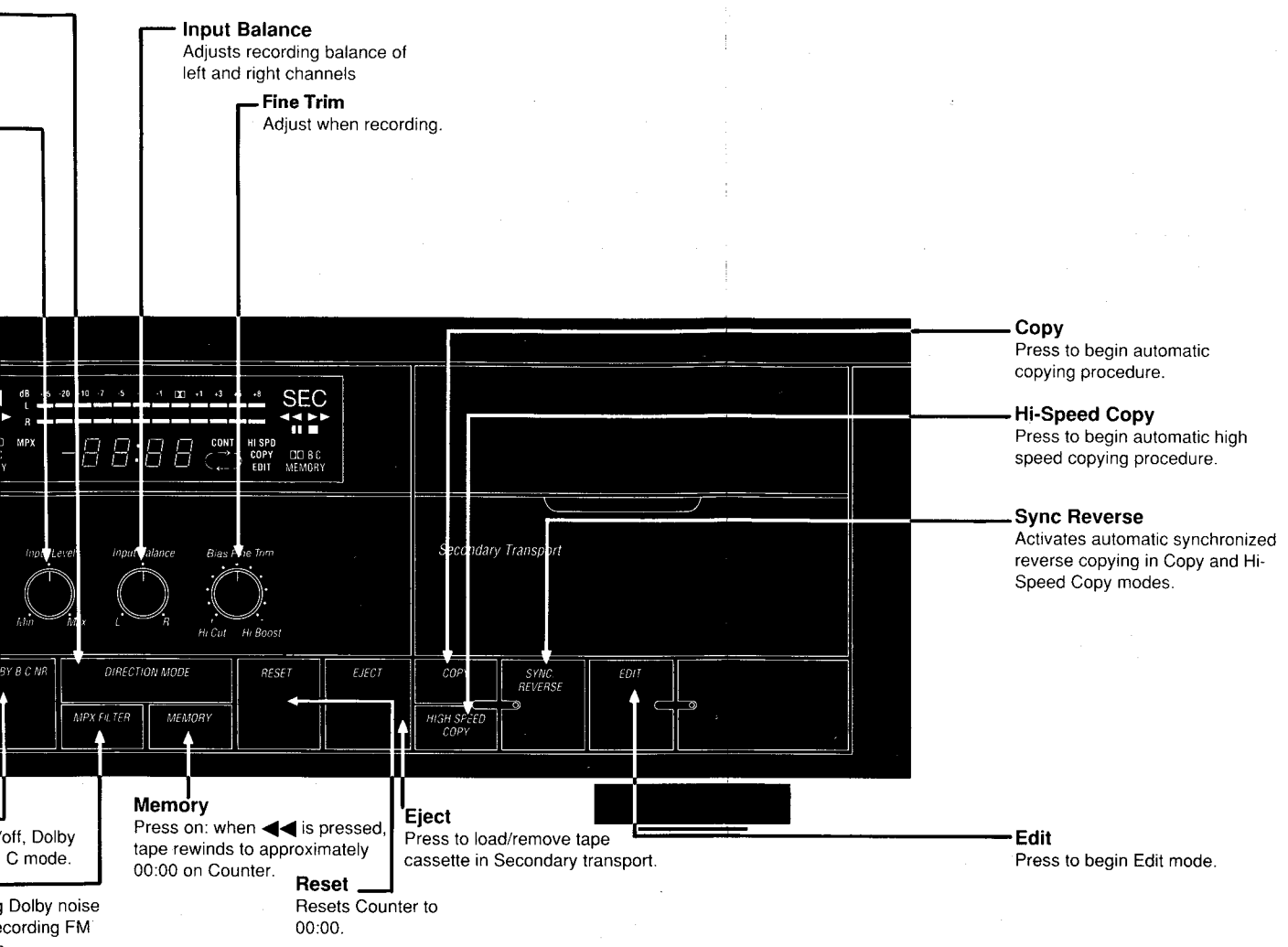
**TRANSPORT MODE**  
Indicates transport mode: one way, auto reverse, continuous.


**00:00**  
Indicates tape position in minutes and seconds.

**COPY**  
Indicates Copy mode.

**EDIT**  
Indicates Edit mode.

**HI SPD**  
Indicates High Speed Copy mode.



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Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

**DISASSEMBLY PROCEDURES (REFER TO PAGE 9, 10 and 11)****1 TOP COVER (133) REMOVAL**

Remove 4 screws (A) and 2 screws (B), and then remove the Top Cover (133).

**2 FRONT PANEL ASSEMBLY (AA) REMOVAL**

1. Remove the Top Cover (133).
2. Disconnect 1 connector (JL901) from (CN904) on the Main P. C. Board (PCB-1).
3. Remove 6 screws (C) and 3 screws (D), and then remove the Front Panel Assembly (AA).
4. If necessary, unsolder the lead wires.

**3 CASSETTE TAPE RECORDER MECHANISM ASSEMBLY (103) REMOVAL**

1. Remove the Front Panel Assembly (AA). (Refer to Step 2.)
2. Disconnect 4 connectors (LCN101/351, LCN801, LCN802 and LCN803) on the Primary Transport P. C. Board (103).
3. Remove 4 screws (E), and then the Cassette Tape Recorder Mechanism Assembly (103).

**4 CASSETTE TAPE PLAYER MECHANISM ASSEMBLY (104) REMOVAL**

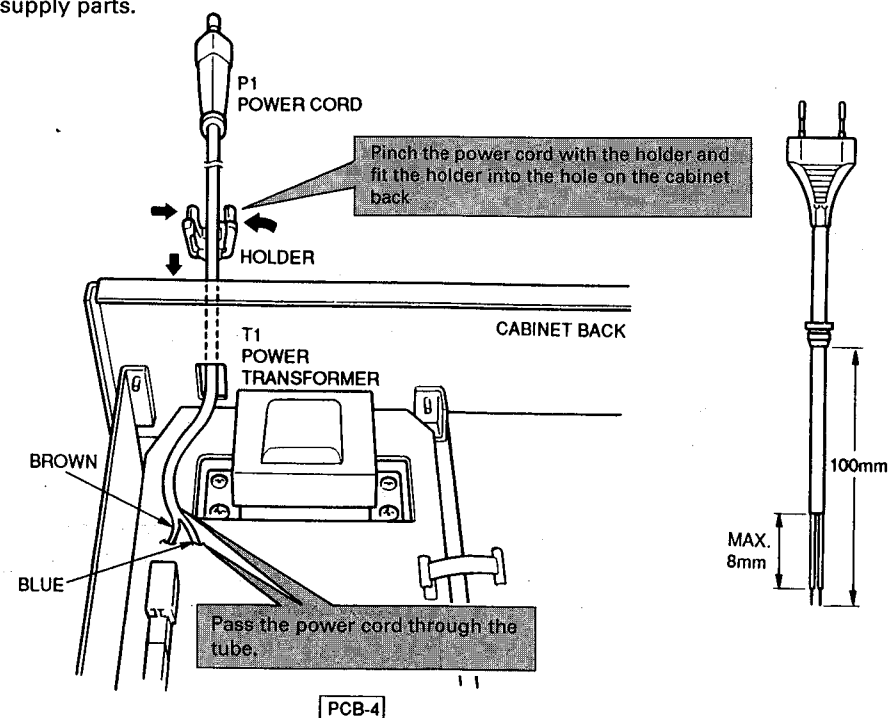
1. Remove the Front Panel Assembly (AA). (Refer to Step 2.)
2. Disconnect 4 connectors (LCN151, LCN806, LCN807 and LCN808) on the Secondary Transport P. C. Board (104).
3. Remove 4 screws (F), and then the Cassette Tape Player Mechanism Assembly (104).

**5 MAIN P. C. BOARD (PCB-1) REMOVAL**

1. Remove the Front Panel Assembly (AA). (Refer to step 2).

**POWER CORD REPLACEMENT (FOR SERVICE ENGINEERS OTHER THAN NORTH AMERICA)**

In order to prevent fire shock hazard when replacing the power cord, follow the Procedure below to replace the part with the standard supply parts.



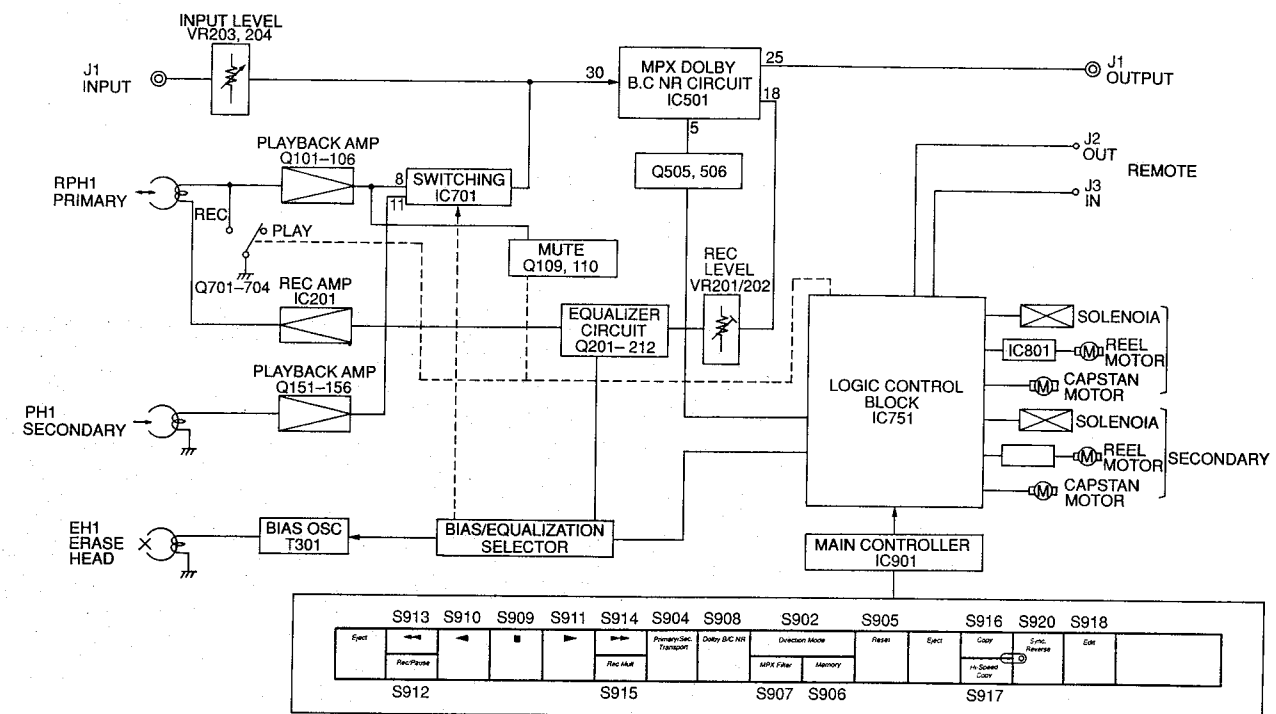
2. Disconnect 4 connectors (LCN151, LCN806, LCN807 and LCN808) on the Secondary Transport P. C. Board (103).
3. Disconnect 4 connectors (LCN101/351, LCN801, LCN802 and LCN803) on the Primary Transport P. C. Board (104).
4. Disconnect 5 Jumper Leads (JL1, JL2, JL3, JL4 and JL5) from 5 connectors (CN805, CN804, CN803, CN802 and CN801) on the Power P. C. Board (PCB-4).
5. Remove 9 screws (G), 1 screw (H) and 2 screws (I) and then remove the Main P. C. Board (PCB-1).

**6 POWER P. C. BOARD (PCB-4) REMOVAL**

1. Remove the Front Panel Assembly (AA). (Refer to step 2).
2. Disconnect 5 Jumper Leads (JL1, JL2, JL3, JL4 and JL5) on the Power P. C. Board (PCB-4).
3. Disconnect 3 connectors (LCN801, LCN802 and LCN803) on the Primary Transport P. C. Board.
4. Remove 5 screws (J) and 4 screws (K), and then remove the Power P. C. Board (PCB-4).

**7 OTHER P. C. BOARDS REMOVAL**

1. Remove the Front Panel Assembly (AA). (Refer to step 2).
2. Remove 4 screws (L), and then remove the Cont SW-L P. C. Board (PCB-7).
3. Remove 3 screws (M), and then remove the Cont SW-R P. C. Board (PCB-6).
4. Remove 3 Rotary Knobs (146) and 3 screws (N), and then remove the Volume P. C. Board (PCB-2).
5. Remove 7 screws (O), and then remove the Front P. C. Board (PCB-5).

**BLOCK DIAGRAM****CIRCUIT DESCRIPTION****PLAYBACK SIGNAL**

The signal from the playback head (Primary Transport) is amplified by the playback amplifier Q101, Q103 and Q105 (L ch.), and is applied to the pin 29 (L ch.) and 2 (R ch.) of the Dolby NR IC501 (B/C type) through the Switching IC701. Use the same signal for both the secondary transport and the primary transport. Switching of the playback signal from the record mode (external input signal) to the playback mode is performed inside IC501.

IC501 is usually switched to the playback mode. However, the control signal transmitted to the pin 5 of IC501 from IC751 through Q505 and Q506 switches IC501 from the record mode to the playback mode. The input signal to IC501 is output from the pins 25 (Lch.) and 6 (R ch.) and applied to the OUTPUT AMP.

**RECORD SIGNAL**

The signal from the INPUT jack is controlled by the INPUT LEVEL control. It is applied to the pins 30 (L ch.) and 1 (R ch.) of the Dolby NR IC501 (B/C type). Switching of the record signal from the playback mode to the record mode is performed inside IC501. The control signal transmitted to the pin 5 of IC501 from IC751 through Q505 and Q506 switches IC501 from the playback mode to the record mode.

The input signal to the Dolby NR IC is output from the pins 28 (L ch.) and 3 (R ch.) of IC501 and passed through the MPX filter. Then it is input to the pins 27 (Lch.) and 4 (R ch.) and is output from the pins 24 (L ch.) and 7 (R ch.). The encoded signal is input to the pins 23 (L ch.) and 8 (Rch.) and then it is output from the pins 18 (Lch.) and 13 (R ch.). The signal output from IC501 passes through the record equalizer circuit and is amplified by the record amplifier of IC201. The amplified signal is then applied to the recording head after being synthesized by a bias signal.

**MUTING OPERATION**

The signal that mutes the sound produced at switching to recording or playback is applied from IC751 of the logic control block.

When the "STOP" button is pressed, the mute signal output from the pin 22 of IC751 turns ON Q709 (L ch.) and Q710 (R ch.) to short-circuit the output signals of the playback amplifiers for muting. For the purpose of preventing generation of noise at power ON/OFF, the mute signal is output from Q51. The muting is done by short circuiting the output signal with Q709 (L ch.) and Q710 (R ch.) turned ON.

**LOGIC FOR RECORD MODE**

When the "REC" button is pressed, the pin 11 of IC751 becomes high level and Q109 (L ch.) and Q110 (R ch.) turn ON. The input to the Dolby NR IC is muted. Also Q712 and Q713 turn ON and Q711 turns OFF. Therefore Q701, Q703 (L ch.) and Q702, Q704 (R ch.) turn OFF to release the muting of the outputs from the record amplifiers.

Also, Q505 turns ON and Q506 turns OFF to make the pin 5 of IC501 high level. Therefore the mode is switched to the record mode.

**LOGIC FOR RECORD TO PLAYBACK MODE**

When the "STOP", "PAUSE" or "PLAY" button is pressed, the pin 12 of IC751 becomes high level. Q219 turns ON and Q213 (L ch.), Q214 (R ch.) turn ON to mute the inputs to the record amplifiers. Also, Q712 and Q713 turn OFF and Q711 turns ON to turn ON Q701, Q703 (L ch.) and Q702, Q704 (R ch.). Therefore the outputs from the record amplifiers are muted. Also, Q505 turns OFF and Q506 turns ON to make the pin 5 of IC501 low level. Therefore the mode is switched to the playback mode.

**DISASSEMBLY PROCEDURES (REFER TO PAGE 9, 10 and 11)****1 TOP COVER (133) REMOVAL**

Remove 4 screws (A) and 2 screws (B), and then remove the Top Cover(133).

**2 FRONT PANEL ASSEMBLY (AA) REMOVAL**

1. Remove the Top Cover (133).
2. Disconnect 1 connector (JL901) from (CN904) on the Main P. C. Board (PCB-1).
3. Remove 6 screws (C) and 3 screws (D), and then remove the Front Panel Assembly (AA).
4. If necessary, unsolder the lead wires.

**3 CASSETTE TAPE RECORDER MECHANISM ASSEMBLY (103) REMOVAL**

1. Remove the Front Panel Assembly (AA). (Refer to Step 2.)
2. Disconnect 4 connectors (LCN101/351, LCN801, LCN802 and LCN803) on the Primary Transport P. C. Board (103).
3. Remove 4 screws (E), and then the Cassette Tape Recorder Mechanism Assembly (103).

**4 CASSETTE TAPE PLAYER MECHANISM ASSEMBLY (104) REMOVAL**

1. Remove the Front Panel Assembly (AA). (Refer to Step 2.)
2. Disconnect 4 connectors (LCN151, LCN806, LCN807 and LCN808) on the Secondary Transport P. C. Board (104).
3. Remove 4 screws (F), and then the Cassette Tape Player Mechanism Assembly (104).

**5 MAIN P. C. BOARD (PCB-1) REMOVAL**

1. Remove the Front Panel Assembly (AA). (Refer to step 2).

2. Disconnect 4 connectors (LCN151, LCN806, LCN807 and LCN808) on the Secondary Transport P. C. Board (103).
3. Disconnect 4 connectors (LCN101/351, LCN801, LCN802 and LCN803) on the Primary Transport P. C. Board (104).
4. Disconnect 5 Jumper Leads (JL1, JL2, JL3, JL4 and JL5) from 5 connectors (CN805, CN804, CN803, CN802 and CN801) on the Power P. C. Board (PCB-4).
5. Remove 9 screws (G), 1 screw (H) and 2 screws (I) and then remove the Main P. C. Board (PCB-1).

**6 POWER P. C. BOARD (PCB-4) REMOVAL**

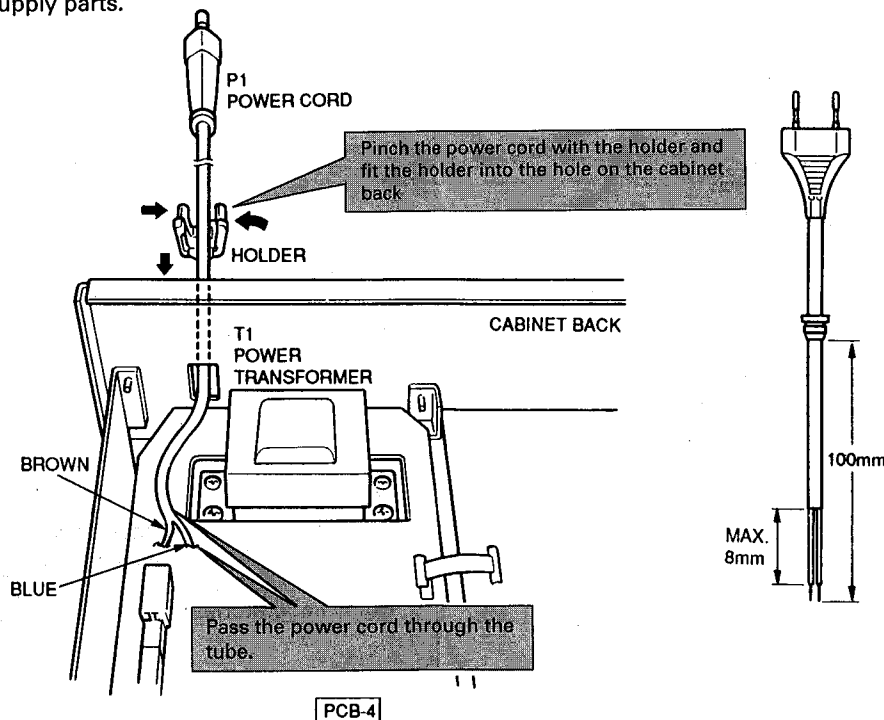
1. Remove the Front Panel Assembly (AA). (Refer to step 2).
2. Disconnect 5 Jumper Leads (JL1, JL2, JL3, JL4 and JL5) on the Power P. C. Board (PCB-4).
3. Disconnect 3 connectors (LCN801, LCN802 and LCN803) on the Primary Transport P. C. Board.
4. Remove 5 screws (J) and 4 screws (K), and then remove the Power P. C. Board (PCB-4).

**7 OTHER P.C. BOARDS REMOVAL**

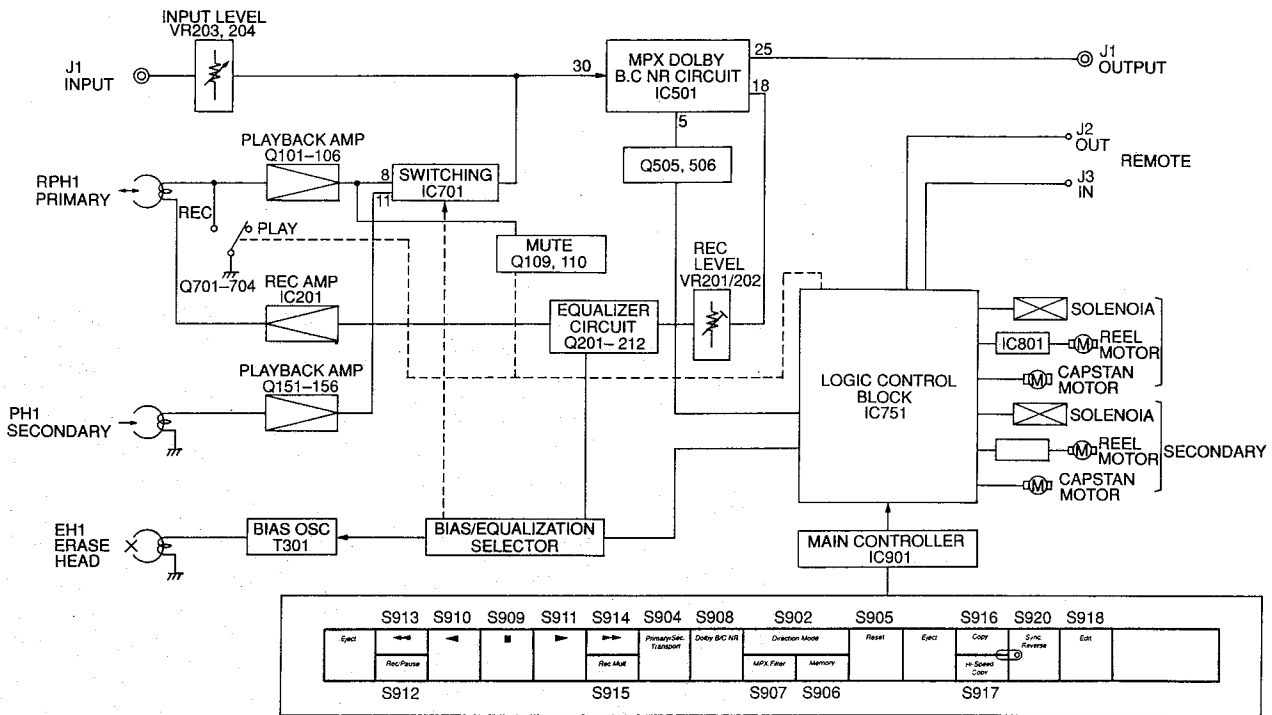
1. Remove the Front Panel Assembly (AA). (Refer to step 2).
2. Remove 4 screws (L), and then remove the Cont SW-L P. C. Board (PCB-7).
3. Remove 3 screws (M), and then remove the Cont SW-R P. C. Board (PCB-6).
4. Remove 3 Rotary Knobs (146) and 3 screws (N), and then remove the Volume P. C. Board (PCB-2).
5. Remove 7 screws (O), and then remove the Front P. C. Board (PCB-5).

**POWER CORD REPLACEMENT (FOR SERVICE ENGINEERS OTHER THAN NORTH AMERICA)**

In order to prevent fire shock hazard when replacing the power cord, follow the Procedure below to replace the part with the standard supply parts.



## BLOCK DIAGRAM



## CIRCUIT DESCRIPTION

### PLAYBACK SIGNAL

The signal from the playback head (Primary Transport) is amplified by the playback amplifier Q101, Q103 and Q105 (L ch.) and Q106 and Q107 (R ch.) of the Dolby NR IC501 (B/C type) through the Switching IC701. Use the same signal for both the secondary transport and the primary transport. Switching of the playback signal from the record mode (external input signal) to the playback mode is performed inside IC501.

IC501 is usually switched to the playback mode. However, the control signal transmitted to the pin 5 of IC501 from IC751 through Q505 and Q506 switches IC501 from the record mode to the playback mode. The input signal to IC501 is output from the pins 25 (Lch.) and 6 (R ch.) and applied to the OUTPUT AMP.

### RECORD SIGNAL

The signal from the INPUT jack is controlled by the INPUT LEVEL control. It is applied to the pins 30 (L ch.) and 1 (R ch.) of the Dolby NR IC501 (B/C type). Switching of the record signal from the playback mode to the record mode is performed inside IC501. The control signal transmitted to the pin 5 of IC501 from IC751 through Q505 and Q506 switches IC501 from the playback mode to the record mode.

The input signal to the Dolby NR IC is output from the pins 28 (L ch.) and 3 (R ch.) of IC501 and passed through the MPX filter. Then it is input to the pins 27 (Lch.) and 4 (R ch.) and is output from the pins 24 (L ch.) and 7 (R ch.). The encoded signal is input to the pins 23 (L ch.) and 8 (Rch.) and then it is output from the pins 18 (Lch.) and 13 (R ch.). The signal output from IC501 passes through the record equalizer circuit and is amplified by the record amplifier of IC201. The amplified signal is then applied to the recording head after being synthesized by a bias signal.

### MUTING OPERATION

The signal that mutes the sound produced at switching to recording or playback is applied from IC751 of the logic control block.

When the "STOP" button is pressed, the mute signal output from the pin 22 of IC751 turns ON Q709 (L ch.) and Q710 (R ch.) to short-circuit the output signals of the playback amplifiers for muting. For the purpose of preventing generation of noise at power ON/OFF, the mute signal is output from Q51. The muting is done by short circuiting the output signal with Q709 (L ch.) and Q710 (R ch.) turned ON.

### LOGIC FOR RECORD MODE

When the "REC" button is pressed, the pin 11 of IC751 becomes high level and Q109 (L ch.) and Q110 (R ch.) turn ON. The input to the Dolby NR IC is muted. Also Q712 and Q713 turn ON and Q711 turns OFF. Therefore Q701, Q703 (L ch.) and Q702, Q704 (R ch.) turn OFF to release the muting of the outputs from the record amplifiers.

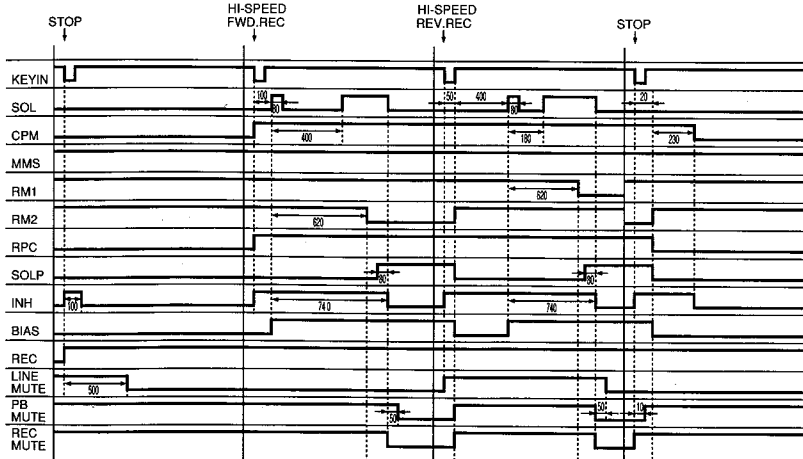
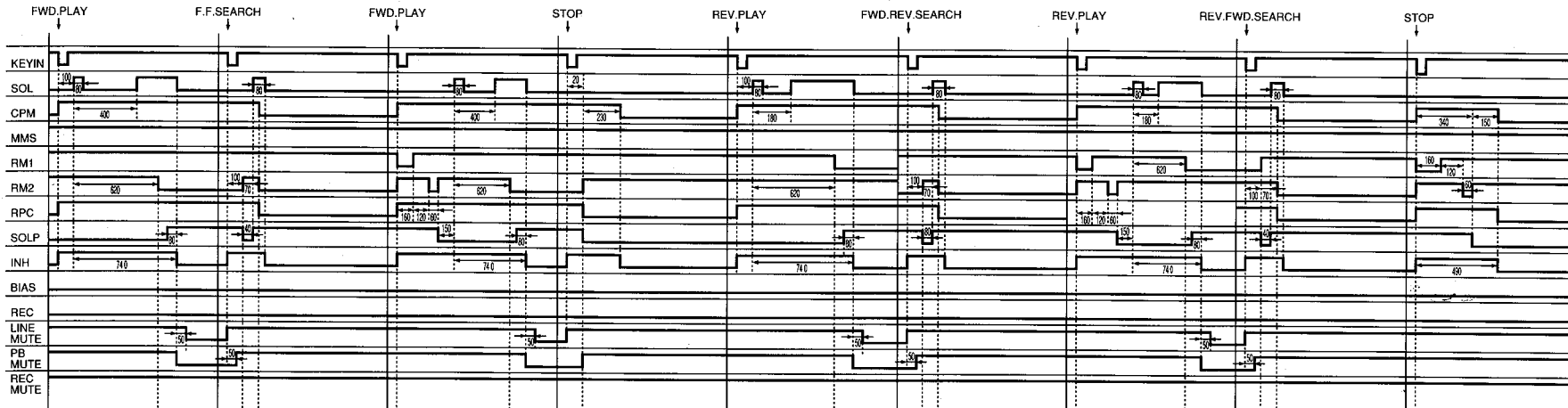
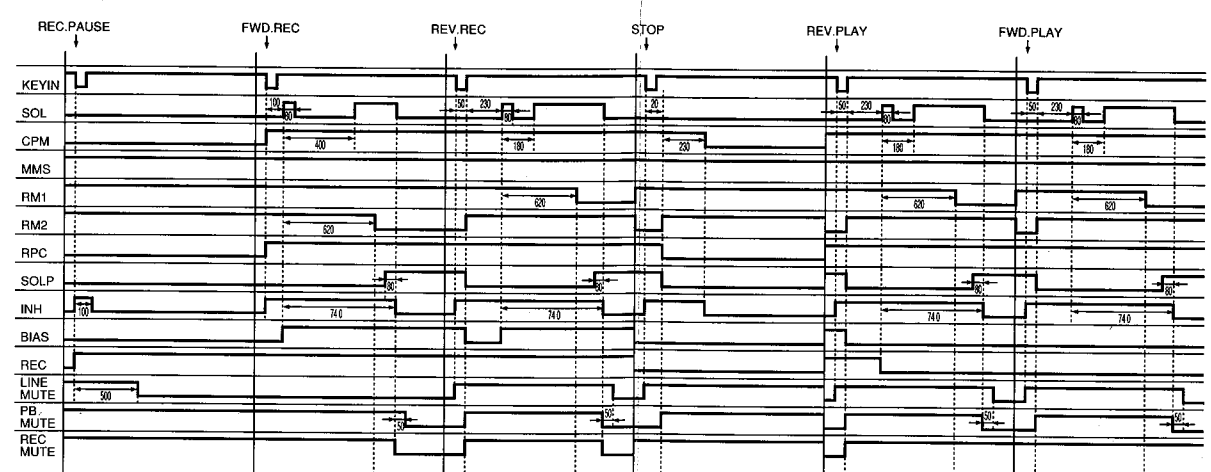
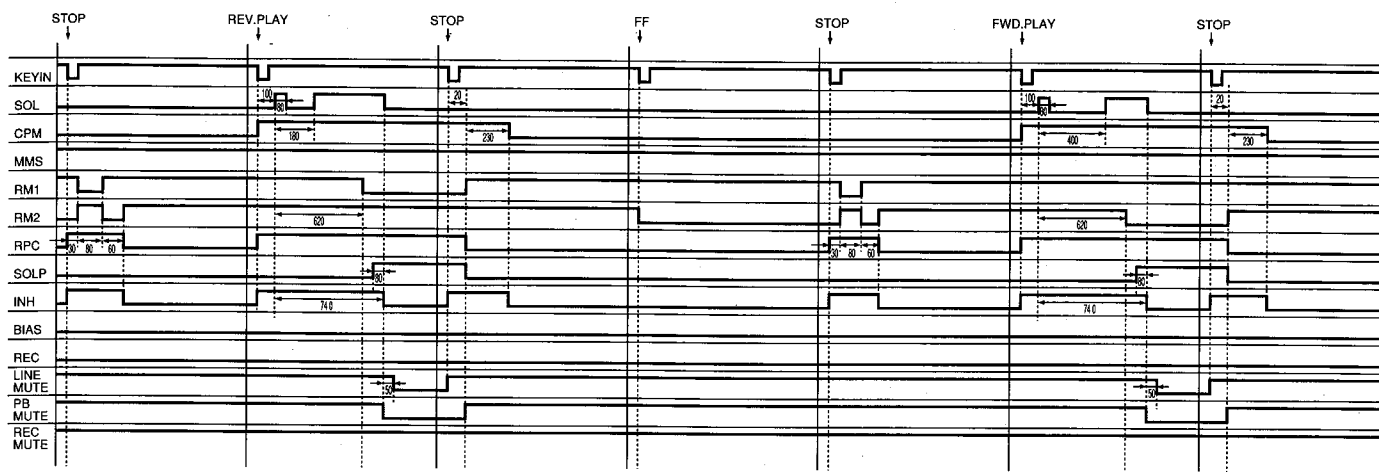
Also, Q505 turns ON and Q506 turns OFF to make the pin 5 of IC501 high level. Therefore the mode is switched to the record mode.

### LOGIC FOR RECORD TO PLAYBACK MODE

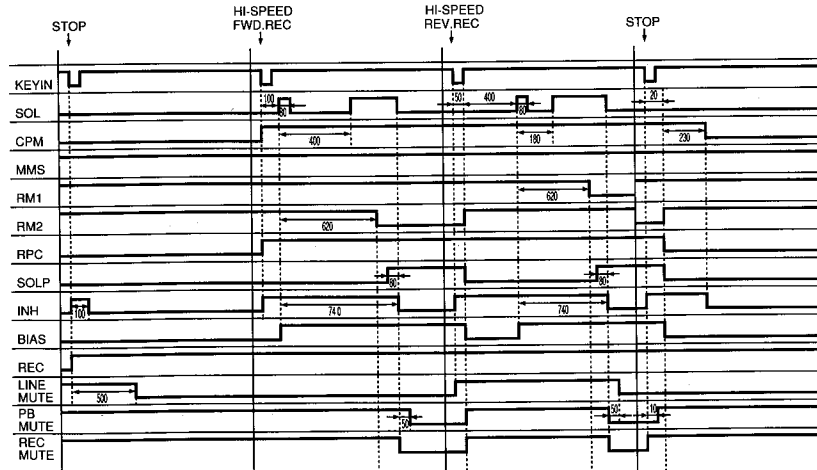
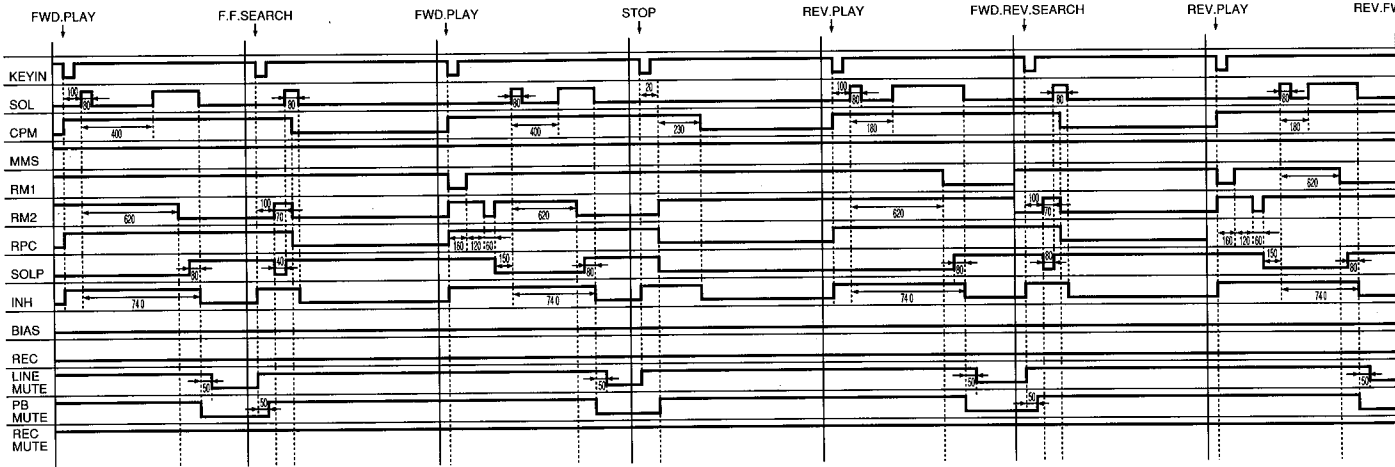
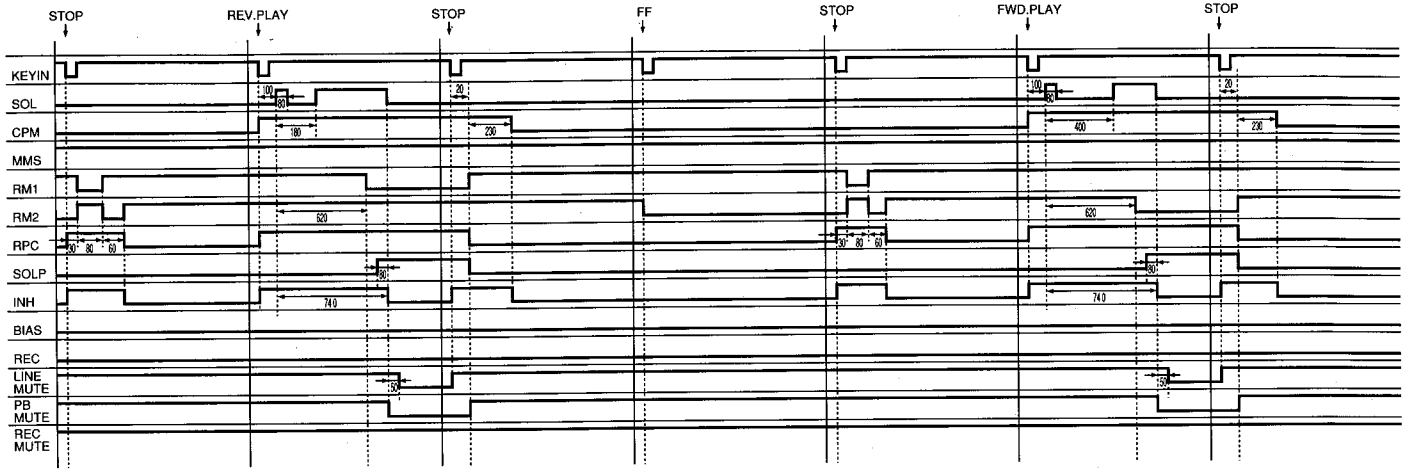
When the "STOP", "PAUSE" or "PLAY" button is pressed, the pin 12 of IC751 becomes high level. Q219 turns ON and Q213 (L ch.), Q214 (R ch.) turn ON to mute the inputs to the record amplifiers. Also, Q712 and Q713 turn OFF and Q711 turns ON to turn ON Q701, Q703 (L ch.) and Q702, Q704 (R ch.). Therefore the outputs from the record amplifiers are muted. Also, Q505 turns OFF and Q506 turns ON to make the pin 5 of IC501 low level. Therefore the mode is switched to the playback mode.

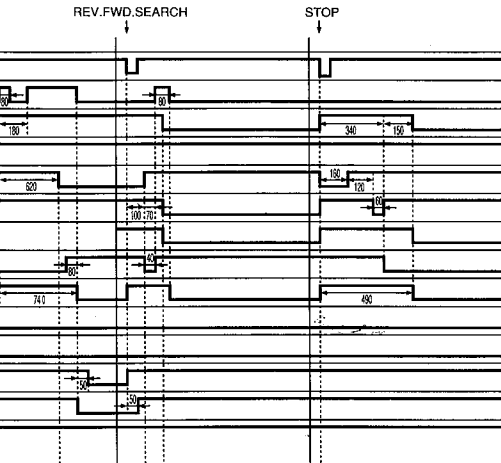
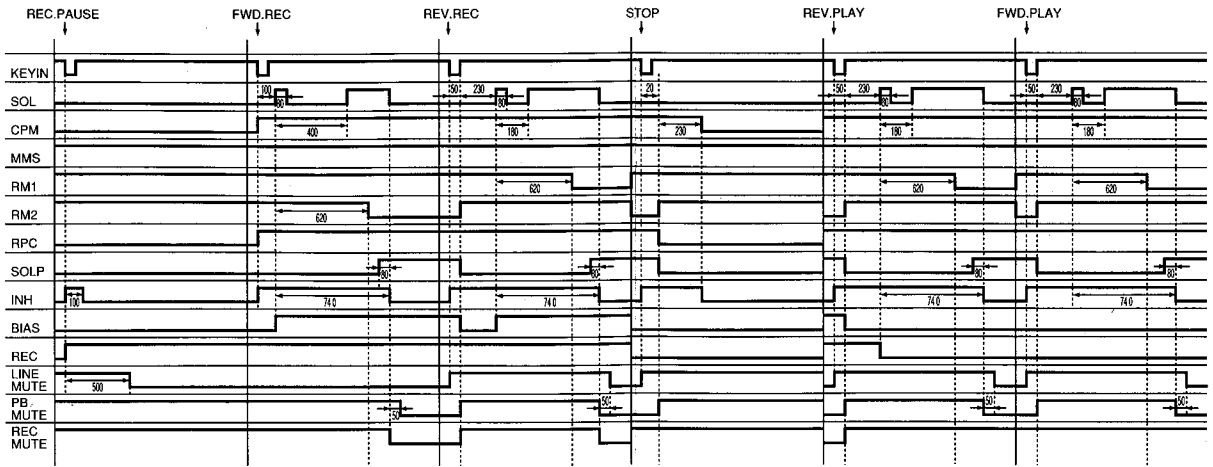


# TIMING CHART



# TIMING CHART





**ALIGNMENT PROCEDURES (REFER TO PAGES 11, 12, 23, 24 AND 25)**

**CASSETTE MECHANISM CONFIRMATION**

Make sure to confirm conditions of the cassette mechanism as follows before adjustment.

**1. Confirmation of erase prevention function**

- The switch should turn ON when a tape with erroneous erase preventive pawl is inserted. (Use a tape which is 0.2 mm smaller than the minimum size of 62.9 mm or a MAZ-0184-C gauge one.)
- When the switch arm is moved back gradually from the ON position, the switch turn OFF.

**2. Confirmation of cassette pack detection function**

- The switch should turn ON when a tape is inserted. (Use a tape whose minimum size is 63.5 mm or a MAZ-0184-C gauge one.)
- When the switch arm is moved back gradually from the ON position, the switch should turn OFF.

**3. Confirmation of eject function**

- The cassette compartment opens smoothly and no abnormal noise should be heard while opening and closing.
- The eject lever opens smoothly without contacting the chassis and damper.
- The eject button can not be pressed during playback.

**4. Confirmation of playback, fast forward and rewind functions**

- The torque used in each of the playback, fast forward and rewind modes should be within specification.

Playback ..... 35 gr.cm – 70 gr.cm  
 Fast Forward ..... 70 gr.cm – 150 gr.cm  
 Rewind ..... 70 gr.cm – 150 gr.cm

- No abnormal noise should be heard during operation in any mode. The solenoid switching sound should not be considered as a noise.

**5. Confirmation of positions of record/playback head and playback head**

- Head height
  - a) Set the M-300 head gauge.
  - b) Set the unit in the playback mode and place the adjustment chip on the head gauge as shown in the Fig. 1.
  - c) The adjustment chip should not contact the tape guide of both record/playback head and playback head.

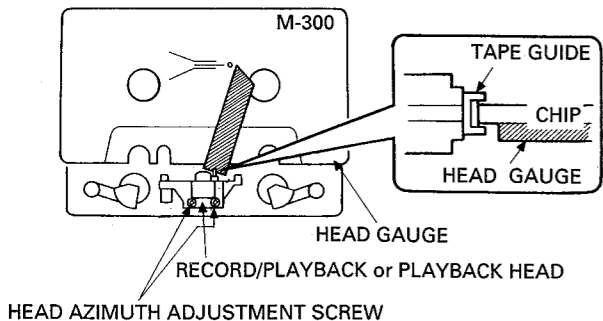


Fig. 1

- Head position
  - a) Set the M-300 head gauge.
  - b) Set the unit in the playback mode and place the adjustment chip on the head gauge as shown in the Fig. 2.
  - c) With both record/playback head and playback head, the adjustment chip should be between MIN and MAX of the M-300 head gauge.

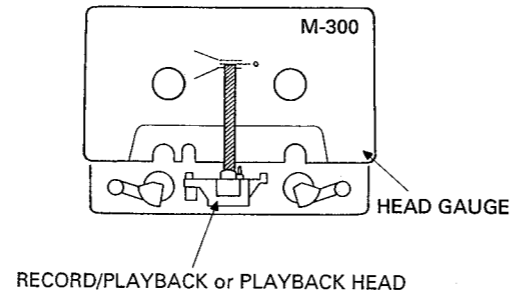


Fig. 2

**ELECTRICAL ADJUSTMENT AND CONFIRMATION**

**1. Before adjustment**

- Before electrical adjustment, make sure that confirmations of the cassette mechanism are all completed.
- After the power switch is pushed on, wait for 10 minutes before measuring to be sure of the most stable operation.
- Since head magnetization, dust accumulations, etc. are likely to introduce errors in the various characteristics, it is very important that the heads are properly demagnetized and cleaned before commencing any adjustment, particularly frequency response and head azimuth adjustment.

**2. Instruments required**

- Low frequency oscillator
- AC VTVM or dual channel AC VTVM
- Oscilloscope
- Wow/flutter meter
- Frequency counter
- Distortion meter

**3. Test tapes**

- Azimuth adjustment ..... MTT-114 or TCC-153
- Tape speed adjustment .... MTT-111DN or TCC-112
- Playback output level adjustment ..... MTT-150 or TCC-130
- Playback frequency characteristic confirmation ..... TCC-1216 or TCC-162C and TCC-262C
- Reference tapes
  - LN ..... SCC-502
  - CrO<sub>2</sub> ..... SCC-1360
  - METAL ..... SCC-565

**Note:**

C-90 differs with C-60 in the thickness and bias is of unequal, so adjust with the tape whose bias in of Specified Value.

**4. General conditions (unless otherwise noted)**

Controls and Switches	Settings
Dolby NR	Off
Input Level	Maximum
MPX Filter	Off
Bias Fine Trim	Center
Input Balance	Center

**Azimuth Adjustment**

When the maximum level point of R channel does not equal that L channel, connect the oscilloscope as shown in Fig. 3 and proceed with azimuth adjustment so that L and R channels are in phase.

- a) Connect L channel tape out to "X (or V)" and R channel to "Y (or H)". Observe the lissajous waveform.
- b) Set L and R channels to monaural. Adjust vertical and horizontal gain so that the waveform becomes 45 degree.
- c) Adjust azimuth so that the measurement of "a" becomes maximum and the measurement of "b" becomes minimum against the 45 degree line.

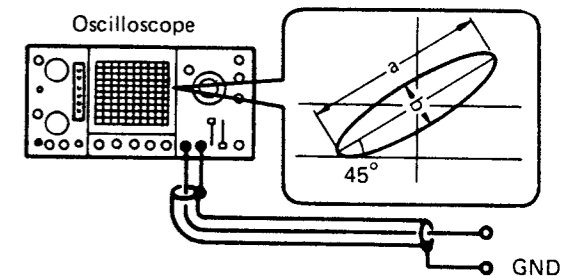
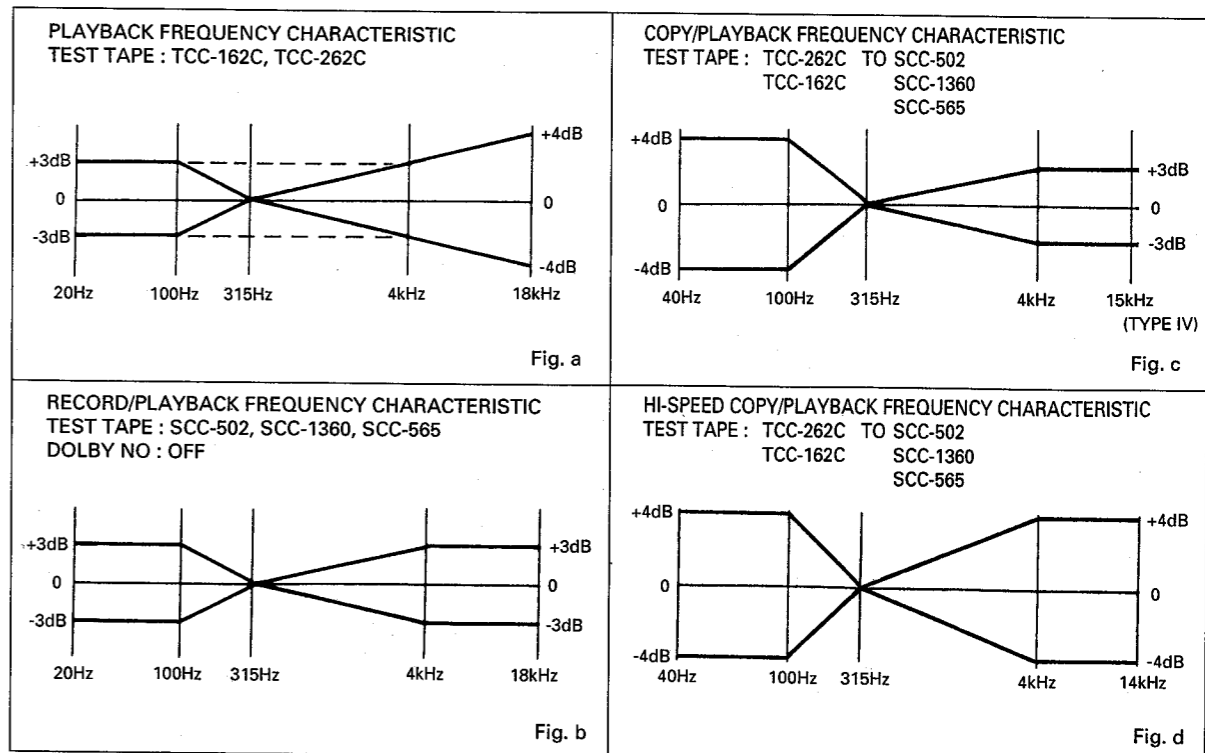


Fig. 3



## ALIGNMENT PROCEDURES (REFER TO PAGES 11, 12, 23, 24 AND 25)

### CASSETTE MECHANISM CONFIRMATION

Make sure to confirm conditions of the cassette mechanism as follows before adjustment.

#### 1. Confirmation of erase prevention function

- The switch should turn ON when a tape with erroneous erase preventive pawl is inserted. (Use a tape which is 0.2 mm smaller than the minimum size of 62.9 mm or a MAZ-0184-C gauge one.)
- When the switch arm is moved back gradually from the ON position, the switch turn OFF.

#### 2. Confirmation of cassette pack detection function

- The switch should turn ON when a tape is inserted. (Use a tape whose minimum size is 63.5 mm or a MAZ-0184-C gauge one.)
- When the switch arm is moved back gradually from the ON position, the switch should turn OFF.

#### 3. Confirmation of eject function

- The cassette compartment opens smoothly and no abnormal noise should be heard while opening and closing.
- The eject lever opens smoothly without contacting the chassis and damper.
- The eject button can not be pressed during playback.

#### 4. Confirmation of playback, fast forward and rewind functions

- The torque used in each of the playback, fast forward and rewind modes should be within specification.

Playback ..... 35 gr.cm – 70 gr.cm

Fast Forward ..... 70 gr.cm – 150 gr.cm

Rewind ..... 70 gr.cm – 150 gr.cm

- No abnormal noise should be heard during operation in any mode. The solenoid switching sound should not be considered as a noise.

#### 5. Confirmation of positions of record/playback head and playback head

- Head height
  - a) Set the M-300 head gauge.
  - b) Set the unit in the playback mode and place the adjustment chip on the head gauge as shown in the Fig. 1.
  - c) The adjustment chip should not contact the tape guide of both record/playback head and playback head.

- Head position

- a) Set the M-300 head gauge.
- b) Set the unit in the playback mode and place the adjustment chip on the head gauge as shown in the Fig. 2.
- c) With both record/playback head and playback head, the adjustment chip should be between MIN and MAX of the M-300 head gauge.

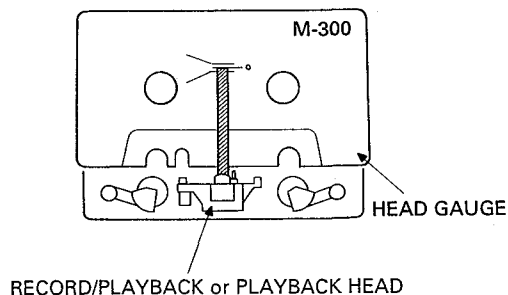


Fig. 2

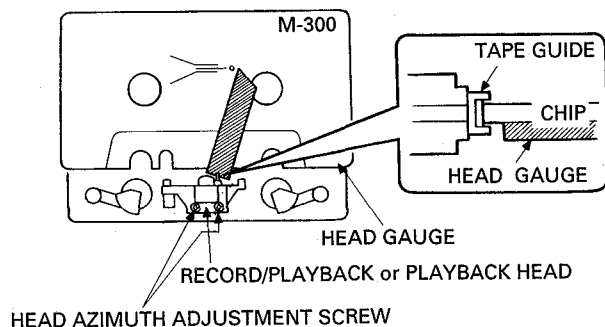


Fig. 1

# ELECTRICAL ADJUSTMENT AND CONFIRMATION

## 1. Before adjustment

- Before electrical adjustment, make sure that confirmations of the cassette mechanism are all completed.
- After the power switch is pushed on, wait for 10 minutes before measuring to be sure of the most stable operation.
- Since head magnetization, dust accumulations, etc. are likely to introduce errors in the various characteristics, it is very important that the heads are properly demagnetized and cleaned before commencing any adjustment, particularly frequency response and head azimuth adjustment.

## 2. Instruments required

- Low frequency oscillator
- AC VTVM or dual channel AC VTVM
- Oscilloscope
- Wow/flutter meter
- Frequency counter
- Distortion meter

## 3. Test tapes

- Azimuth adjustment ..... MTT-114 or TCC-153
- Tape speed adjustment .... MTT-111DN or TCC-112
- Playback output level adjustment ..... MTT-150 or TCC-130
- Playback frequency characteristic confirmation ..... TCC-1216 or TCC-162C and TCC-262C
- Reference tapes  
 LN ..... SCC-502  
 CrO<sub>2</sub> ..... SCC-1360  
 METAL ..... SCC-565

### Note:

C-90 differs with C-60 in the thickness and bias is of unequal, so adjust with the tape whose bias in of Specified Value.

## 4. General conditions (unless otherwise noted)

Controls and Switches	Settings
Dolby NR	Off
Input Level	Maximum
MPX Filter	Off
Bias Fine Trim	Center
Input Balance	Center

### Azimuth Adjustment

When the maximum level point of R channel does not equal that L channel, connect the oscilloscope as shown in Fig. 3 and proceed with azimuth adjustment so that L and R channels are in phase.

- Connect L channel tape out to "X (or V)" and R channel to "Y (or H)". Observe the lissajous waveform.
- Set L and R channels to monaural. Adjust vertical and horizontal gain so that the waveform becomes 45 degree.
- Adjust azimuth so that the measurement of "a" becomes maximum and the measurement of "b" becomes minimum against the 45 degree line.

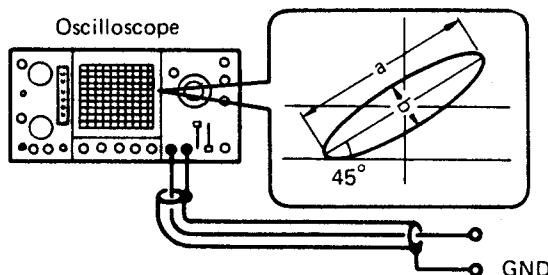
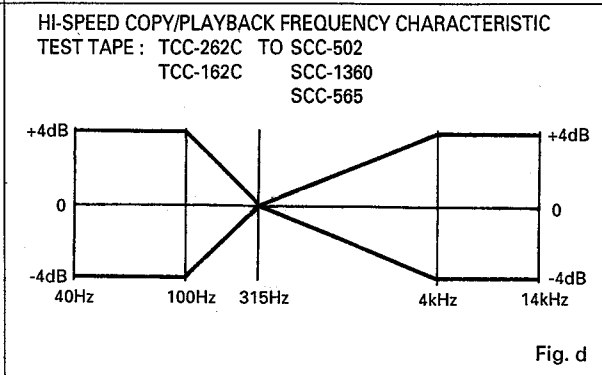
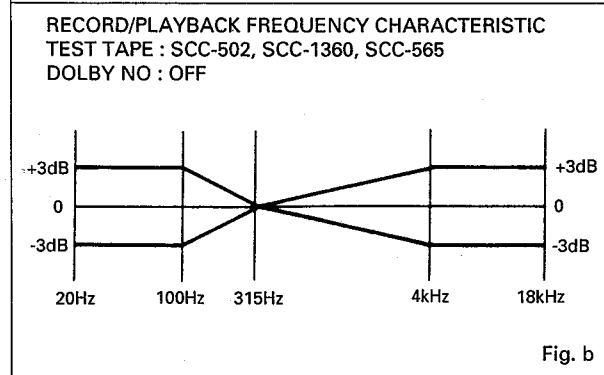
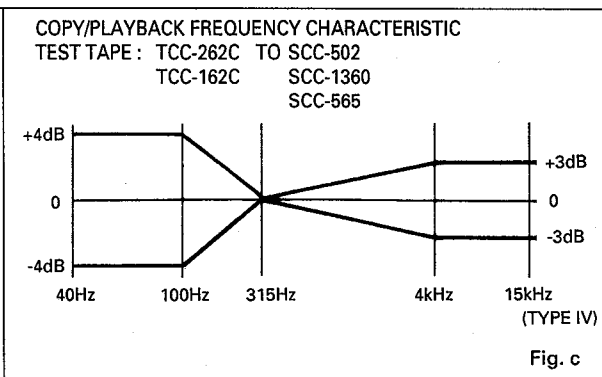
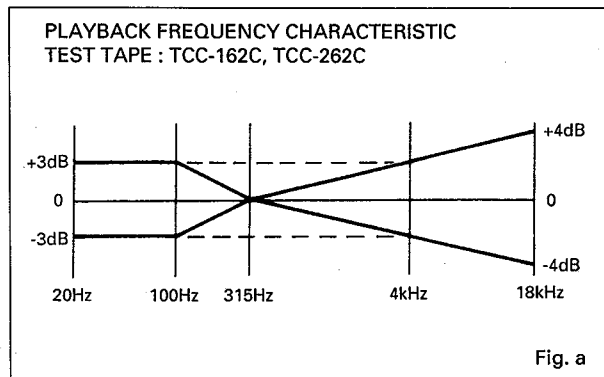


Fig. 3



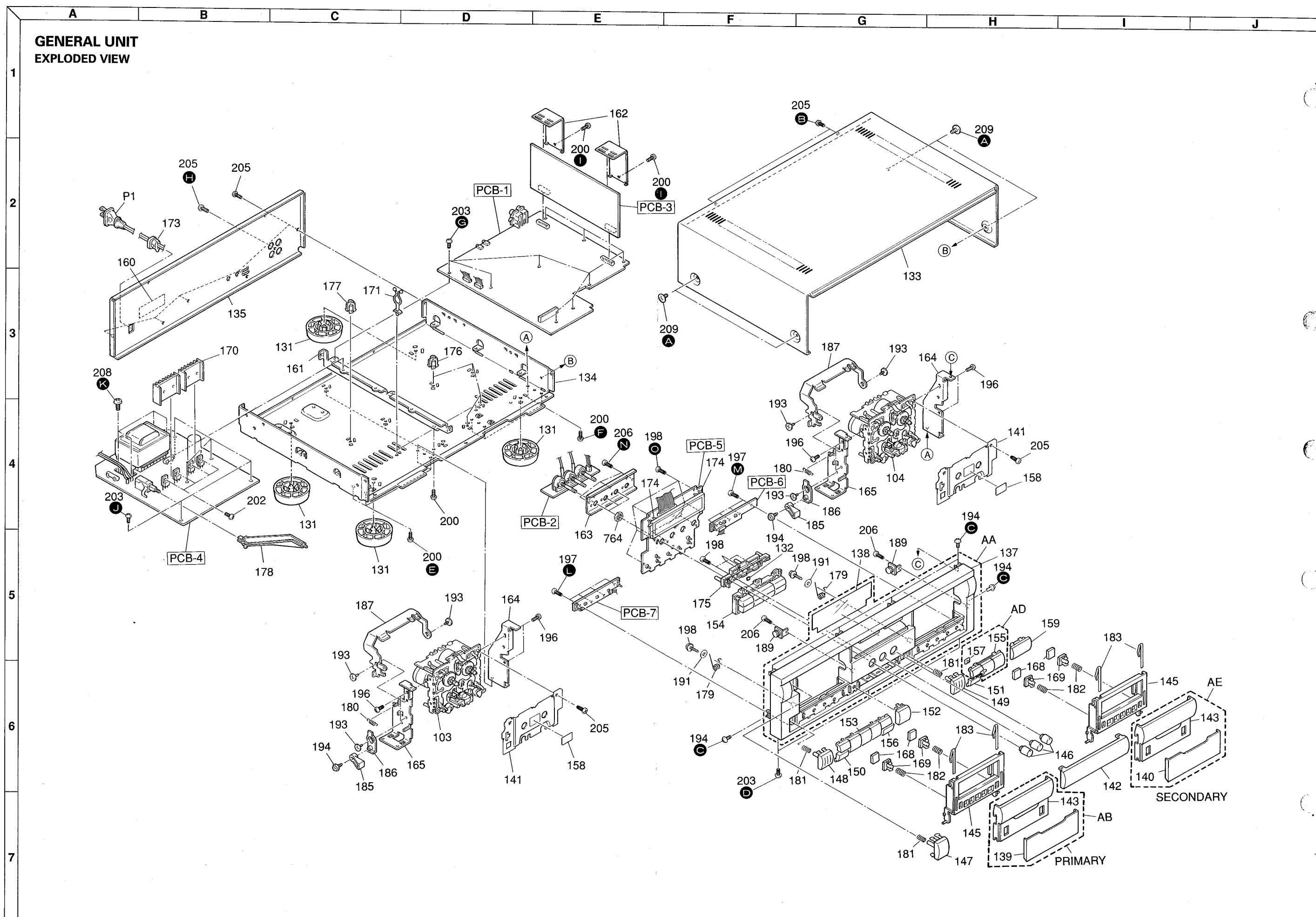
Step	Alignment	Instrument Required	Input Signal	Mode	Test Point	Adjustment	For
1	Primary Deck Quick sensor	VTVM Black tape with leader tape		PB (Primary)	TP809	VR803	Adjust VR803 so the voltage at the test point is 0.62V when the leader tape is running and 200 mV or less in the middle of tape.
2	Secondary Deck Quick sensor	VTVM Black tape with leader tape		PB (Secondary)	TP859	VR853	Adjust VR853 so the voltage at the test point is 0.62V when the leader tape is running and 200 mV or less in the middle of tape.
3	Azimuth	VTVM Oscilloscope Test tape (MTT-114 or TCC-153)		PB	TP501 (L ch), GND TP502 (R ch), GND or OUTPUT jack	Azimuth screw	Maximum output Refer to "Azimuth Adjustment" on page 6.
4	Primary Deck Tape speed (Hi-speed)	Frequency counter Test tape (MTT-111DN or TCC-112)		PB	TP501 (L ch), GND TP502 (R ch), GND	VR801	6020 Hz $\pm$ 20 Hz (TP806 : GND connection) Adjust at the center of test tape.
5	Primary Deck Tape speed (Normal speed)	Frequency counter Test tape (MTT-111DN or TCC-112)		PB	TP501 (L ch), GND TP502 (R ch), GND	VR802	3010 Hz $\pm$ 10 Hz Adjust at the center of test tape.
6	Secondary Deck Tape speed (Hi-speed)	Frequency counter Test tape (MTT-111DN or TCC-112)		PB	TP501 (L ch), GND TP502 (R ch), GND	VR851	6020 Hz $\pm$ 20 Hz (TP856 : GND connection) Adjust at the center of test tape.
7	Secondary Deck Tape speed (Normal speed)	Frequency counter Test tape (MTT-111DN or TCC-112)		PB	TP501 (L ch), GND TP502 (R ch), GND	VR852	3010 Hz $\pm$ 10 Hz Adjust at the center of test tape.
8	Primary Deck Playback output level	VTVM Test tape (MTT-150 or TCC-130)		PB (Primary)	TP501 (L ch), GND TP502 (R ch), GND	VR101 (L ch) VR102 (R ch)	775 mV Tape selector is Normal position. Adjust at Dolby NR off.
9	Secondary Deck Playback output level	VTVM Test tape (MTT-150 or TCC-130)		PB (Secondary)	TP501 (L ch), GND TP502 (R ch), GND	VR157 (L ch) VR158 (R ch)	775 mV Tape selector is Normal position. Adjust at Dolby NR off.
10	Primary Deck Playback frequency characteristic confirmation	VTVM Test tape (TCC-1216 or TCC-162C and TCC-262C)		PB (Primary)	TP501 (L ch), GND TP502 (R ch), GND or OUTPUT jack	VR103 VR104	Adjust VR103 and VR104 so the playback frequency response (1 kHz/18 kHz) is +0.6 ~ 0.7 dB. Refer to Fig. a
11	Secondary Deck Playback frequency characteristic confirmation	VTVM Test tape (TCC-1216 or TCC-162C and TCC-262C)		PB (Secondary)	TP501 (L ch), GND TP502 (R ch), GND or OUTPUT jack	VR153 VR154	Adjust VR153 and VR154 so the playback frequency response (1 kHz/18 kHz) is +0.6 ~ 0.7 dB. Refer to Fig. a
12	Bias frequency confirmation	Frequency counter		REC/PB (Primary)	TP101 (L ch), GND TP102 (R ch), GND	T301	105 kHz $\pm$ 3 kHz Use METAL tape.
13	Bias trap	VTVM		REC/PB (Primary)	TP201 (L ch), GND TP202 (R ch), GND	LC201, LC202	Minimum output Use METAL tape. INPUT VR. minimum
14	Bias level (pre-adjustment)	VTVM		REC/PB (Primary)	TP101 (L ch), GND TP102 (R ch), GND	VR351 VR352	35 mV Test tape is METAL blank tape.
						VR353	20 mV Test tape is CrO <sub>2</sub> blank tape.
						VR354	13 mV Test tape is Normal blank tape.
15	Record level (pre-adjustment)	VTVM Blank tapes METAL SCC-565 CrO <sub>2</sub> SCC-1360 Normal SCC-502	Apply 1 kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 560 mV in REC-PAUSE mode.	REC/PB (Primary)	TP501 (L ch), GND TP502 (R ch), GND	VR201, VR202 VR351, VR352	560 mV Tape selector is METAL position. Adjust VR351 and VR352 so that the distortion becomes 1.0% - 1.4%
						VR353 (CrO <sub>2</sub> ) VR354 (Normal)	560 mV Adjust VR353 so that the distortion becomes 1.3% (CrO <sub>2</sub> ). Adjust VR354 so that the distortion becomes 1.0% (Normal). This confirmation should be at each tape selector position.
16	Record/playback frequency characteristic	VTVM Blank tapes CrO <sub>2</sub> SCC-1360 METAL SCC-565 Normal SCC-502	Apply 1 kHz signal to INPUT jack. The output at TP501 and TP502 are Dolby level -25 dB. Then adjust with a 20 Hz to 30 kHz sweep signal.	REC/PB	OUTPUT jack	VR353 L201, L202 (VR351, VR352)	So that the record/playback frequency response is flat (at least within the range in Fig. b.) Tape selector is CrO <sub>2</sub> position.
						VR351 VR352	So that the record/playback frequency response is flat (at least within the range in Fig. b.) Tape selector is METAL position.
						VR354 L201, L202 (VR351, VR352)	So that the record/playback frequency response is flat (at least within the range in Fig. b.) Tape selector is Normal position.
17	Record level	VTVM Blank tapes CrO <sub>2</sub> SCC-1360 METAL SCC-565 Normal SCC-502	Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 560 mV (1 kHz) in REC-PAUSE mode.	REC/PB	TP501 (L ch), GND TP502 (R ch), GND		560 mV Perform adjustment using CrO <sub>2</sub> . Perform checking only for Normal and METAL tapes.
18	High speed copy frequency characteristic	VTVM Blank tapes CrO <sub>2</sub> SCC-1360 METAL SCC-565 Normal SCC-502 Test tape TCC-185C		High Speed Copy Play	OUTPUT	L203, L204	Load TCC-185C in SEC DECK and SCC-565 in PRI DECK and execute high-speed copying, then play the tape in the PRI DECK. Check that the frequency response of the 14 kHz signal is within $\pm$ 3 dB of that of the 1 kHz signal. If this specification cannot be satisfied, adjust L203 and L204. After adjustment is confirmed, also use the SCC-502 and SCC-1360 tapes to check.
19	High speed copy frequency characteristic	VTVM Blank tapes CrO <sub>2</sub> SCC-1360 METAL SCC-565 Normal SCC-502 Test tape TCC-285C		High Speed Copy Play	OUTPUT	L203, L204	Load TCC-285C in SEC DECK and SCC-565 in PRI DECK and execute high-speed copying, then play the tape in the PRI DECK. Check that the frequency response of the 14 kHz signal is within $\pm$ 3 dB of that of the 1 kHz signal. If this specification cannot be satisfied, adjust L203 and L204. After adjustment is confirmed, also use the SCC-502 and SCC-1360 tapes to check.
20	Meter level	VTVM	Apply 1 kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 1.5 dB below 775 mV.	REC/PAUSE	PEAK LEVEL METER	VR401 VR402	Adjust so the -1 dB segments light.
21	MPX filter characteristic confirmation	VTVM	Apply 19 kHz, 15 kHz and 1 kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 775 mV.	REC/PAUSE MPX filter ON	TP501 (L ch), GND TP502 (R ch), GND or OUTPUT jack	LC501 LC502	Adjust for -0.3 dB at 15 kHz and > 35 dB at 19 kHz

Step	Alignment	Instrument Required	Input Signal	
1	Primary Deck Quick sensor	VTVM Black tape with leader tape		
2	Secondary Deck Quick sensor	VTVM Black tape with leader tape		
3	Azimuth	VTVM Oscilloscope Test tape (MTT-114 or TCC-153)		
4	Primary Deck Tape speed (Hi-speed)	Frequency counter Test tape (MTT-111DN or TCC-112)		
5	Primary Deck Tape speed (Normal speed)	Frequency counter Test tape (MTT-111DN or TCC-112)		
6	Secondary Deck Tape speed (Hi-speed)	Frequency counter Test tape (MTT-111DN or TCC-112)		
7	Secondary Deck Tape speed (Normal speed)	Frequency counter Test tape (MTT-111DN or TCC-112)		
8	Primary Deck Playback output level	VTVM Test tape (MTT-150 or TCC-130)		
9	Secondary Deck Playback output level	VTVM Test tape (MTT-150 or TCC-130)		
10	Primary Deck Playback frequency characteristic confirmation	VTVM Test tape (TCC-1216 or TCC-162C and TCC-262C)		
11	Secondary Deck Playback frequency characteristic confirmation	VTVM Test tape (TCC-1216 or TCC-162C and TCC-262C)		
12	Bias frequency confirmation	Frequency counter		
13	Bias trap	VTVM		
14	1	Bias level (pre-adjustment)	VTVM	
	2			
	3			
15	Record level (pre-adjustment)	VTVM Blank tapes METAL SCC-565 CrO <sub>2</sub> SCC-1360 Normal SCC-502	Apply 1 kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 560 mV in REC-PAUSE mode.	
16	1	Record/playback frequency characteristic	VTVM Blank tapes CrO <sub>2</sub> SCC-1360 METAL SCC-565 Normal SCC-502	Apply 1 kHz signal to INPUT jack. The output at TP501 and TP502 are Dolby level -25 dB. Then adjust with a 20 Hz to 30 kHz sweep signal.
	2			
	3			
17	Record level	VTVM Blank tapes CrO <sub>2</sub> SCC-1360 METAL SCC-565 Normal SCC-502	Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 560 mV (1 kHz) in REC-PAUSE mode.	
18	High speed copy frequency characteristic	VTVM Blank tapes CrO <sub>2</sub> SCC-1360 METAL SCC-565 Normal SCC-502 Test tape TCC-185C		
19	High speed copy frequency characteristic	VTVM Blank tapes CrO <sub>2</sub> SCC-1360 METAL SCC-565 Normal SCC-502 Test tape TCC-285C		
20	Meter level	VTVM	Apply 1 kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 1.5 dB below 775 mV.	
21	MPX filter characteristic confirmation	VTVM	Apply 19 kHz, 15 kHz and 1 kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 775mV.	



	Mode	Test Point	Adjustment	For
	PB (Primary)	TP809	VR803	Adjust VR803 so the voltage at the test point is 0.62V when the leader tape is running and 200 mV or less in the middle of tape.
	PB (Secondary)	TP859	VR853	Adjust VR853 so the voltage at the test point is 0.62V when the leader tape is running and 200 mV or less in the middle of tape.
	PB	TP501 (L ch), GND TP502 (R ch), GND or OUTPUT jack	Azimuth screw	Maximum output Refer to "Azimuth Adjustment" on page 6.
	PB	TP501 (L ch), GND TP502 (R ch), GND	VR801	6020 Hz $\pm$ 20 Hz (TP806 : GND connection) Adjust at the center of test tape.
	PB	TP501 (L ch), GND TP502 (R ch), GND	VR802	3010 Hz $\pm$ 10 Hz Adjust at the center of test tape.
	PB	TP501 (L ch), GND TP502 (R ch), GND	VR851	6020 Hz $\pm$ 20 Hz (TP856 : GND connection) Adjust at the center of test tape.
	PB	TP501 (L ch), GND TP502 (R ch), GND	VR852	3010 Hz $\pm$ 10 Hz Adjust at the center of test tape.
	PB (Primary)	TP501 (L ch), GND TP502 (R ch), GND	VR101 (L ch) VR102 (R ch)	775 mV Tape selector is Normal position. Adjust at Dolby NR off.
	PB (Secondary)	TP501 (L ch), GND TP502 (R ch), GND	VR157 (L ch) VR158 (R ch)	775 mV Tape selector is Normal position. Adjust at Dolby NR off.
	PB (Primary)	TP501 (L ch), GND TP502 (R ch), GND or OUTPUT jack	VR103 VR104	Adjust VR103 and VR104 so the playback frequency response (1 kHz/18 kHz) is +0.6 ~ 0.7 dB. Refer to Fig. a
	PB (Secondary)	TP501 (L ch), GND TP502 (R ch), GND or OUTPUT jack	VR153 VR154	Adjust VR153 and VR154 so the playback frequency response (1 kHz/18 kHz) is +0.6 ~ 0.7 dB. Refer to Fig. a
	REC/PB (Primary)	TP101 (L ch), GND TP102 (R ch), GND	T301	105 kHz $\pm$ 3 kHz Use METAL tape.
	REC/PB (Primary)	TP201 (L ch), GND TP202 (R ch), GND	LC201, LC202	Minimum output Use METAL tape. INPUT VR. minimum
	REC/PB (Primary)	TP101 (L ch), GND TP102 (R ch), GND	VR351 VR352	35 mV Test tape is METAL blank tape.
VR353			20 mV Test tape is CrO <sub>2</sub> blank tape.	
VR354			13 mV Test tape is Normal blank tape.	
LEVEL knob 0 mV in	REC/PB (Primary)	TP501 (L ch), GND TP502 (R ch), GND	VR201, VR202 VR351, VR352	560 mV Tape selector is METAL position. Adjust VR351 and VR352 so that the distortion becomes 1.0% - 1.4%
			VR353 (CrO <sub>2</sub> ) VR354 (Normal)	560 mV Adjust VR353 so that the distortion becomes 1.3% (CrO <sub>2</sub> ). Adjust VR354 so that the distortion becomes 1.0% (Normal). This confirmation should be at each tape selector position.
at TP501 al.	REC/PB	OUTPUT jack	VR353 L201, L202 (VR351, VR352)	So that the record/playback frequency response is flat (at least within the range in Fig. b.) Tape selector is CrO <sub>2</sub> position.
			VR351 VR352	So that the record/playback frequency response is flat (at least within the range in Fig. b.) Tape selector is METAL position.
			VR354 L201, L202 (VR351, VR352)	So that the record/playback frequency response is flat (at least within the range in Fig. b.) Tape selector is Normal position.
02 to GND e.	REC/PB	TP501 (L ch), GND TP502 (R ch), GND		560 mV Perform adjustment using CrO <sub>2</sub> . Perform checking only for Normal and METAL tapes.
	High Speed Copy Play	OUTPUT	L203, L204	Load TCC-185C in SEC DECK and SCC-565 in PRI DECK and execute high-speed copying, then play the tape in the PRI DECK. Check that the frequency response of the 14 kHz signal is within $\pm$ 3 dB of that of the 1 kHz signal. If this specification cannot be satisfied, adjust L203 and L204. After adjustment is confirmed, also use the SCC-502 and SCC-1360 tapes to check.
	High Speed Copy Play	OUTPUT	L203, L204	Load TCC-285C in SEC DECK and SCC-565 in PRI DECK and execute high-speed copying, then play the tape in the PRI DECK. Check that the frequency response of the 14 kHz signal is within $\pm$ 3 dB of that of the 1 kHz signal. If this specification cannot be satisfied, adjust L203 and L204. After adjustment is confirmed, also use the SCC-502 and SCC-1360 tapes to check.
LEVEL knob dB below	REC/PAUSE	PEAK LEVEL METER	VR401 VR402	Adjust so the -1 dB segments light.
T jack. 02 to GND	REC/PAUSE MPX filter ON	TP501 (L ch), GND TP502 (R ch), GND or OUTPUT jack	LC501 LC502	Adjust for -0.3 dB at 15 kHz and > 35 dB at 19 kHz

GENERAL UNIT  
EXPLODED VIEW



A B C D E

# GENERAL UNIT EXPLODED VIEW

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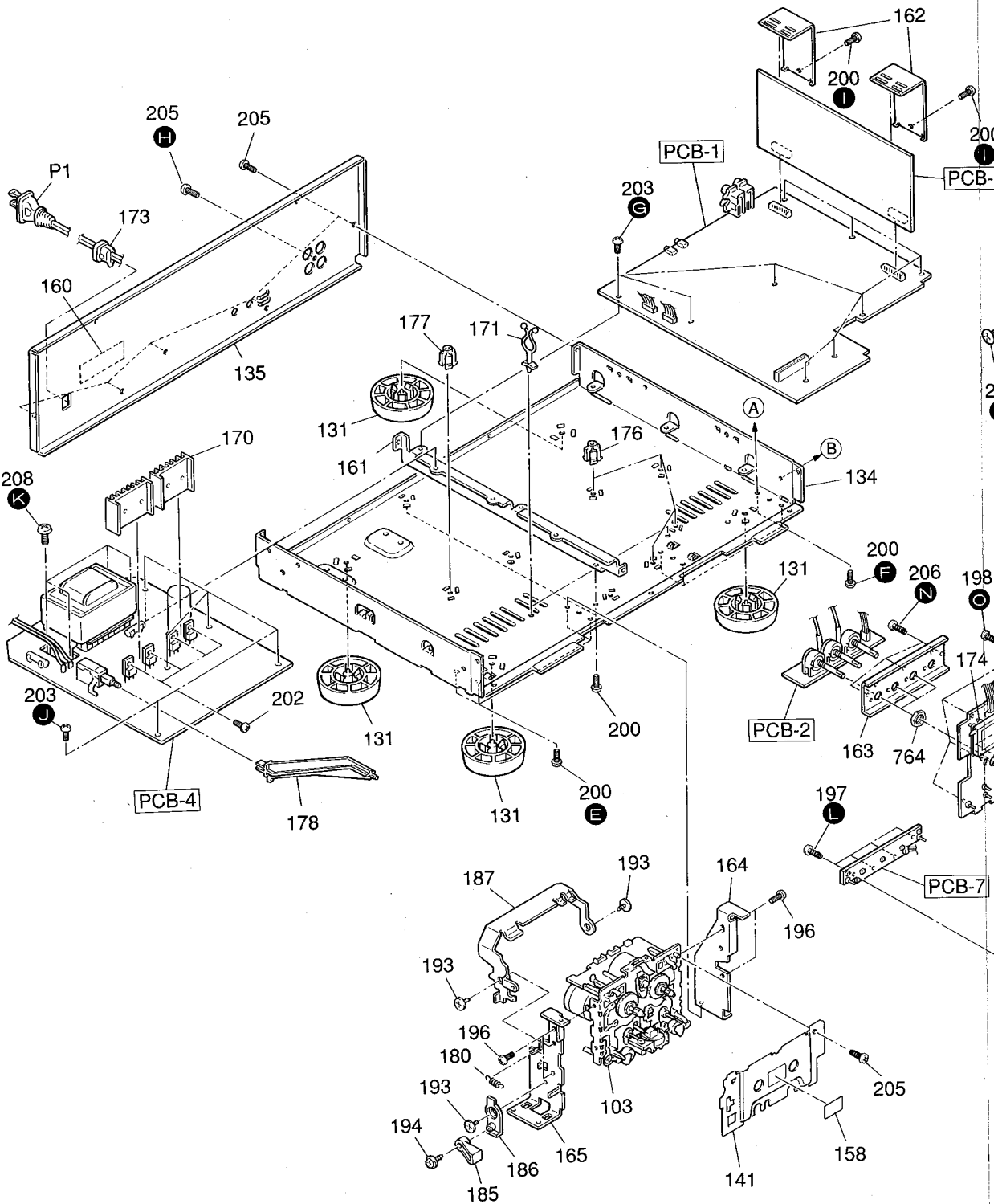
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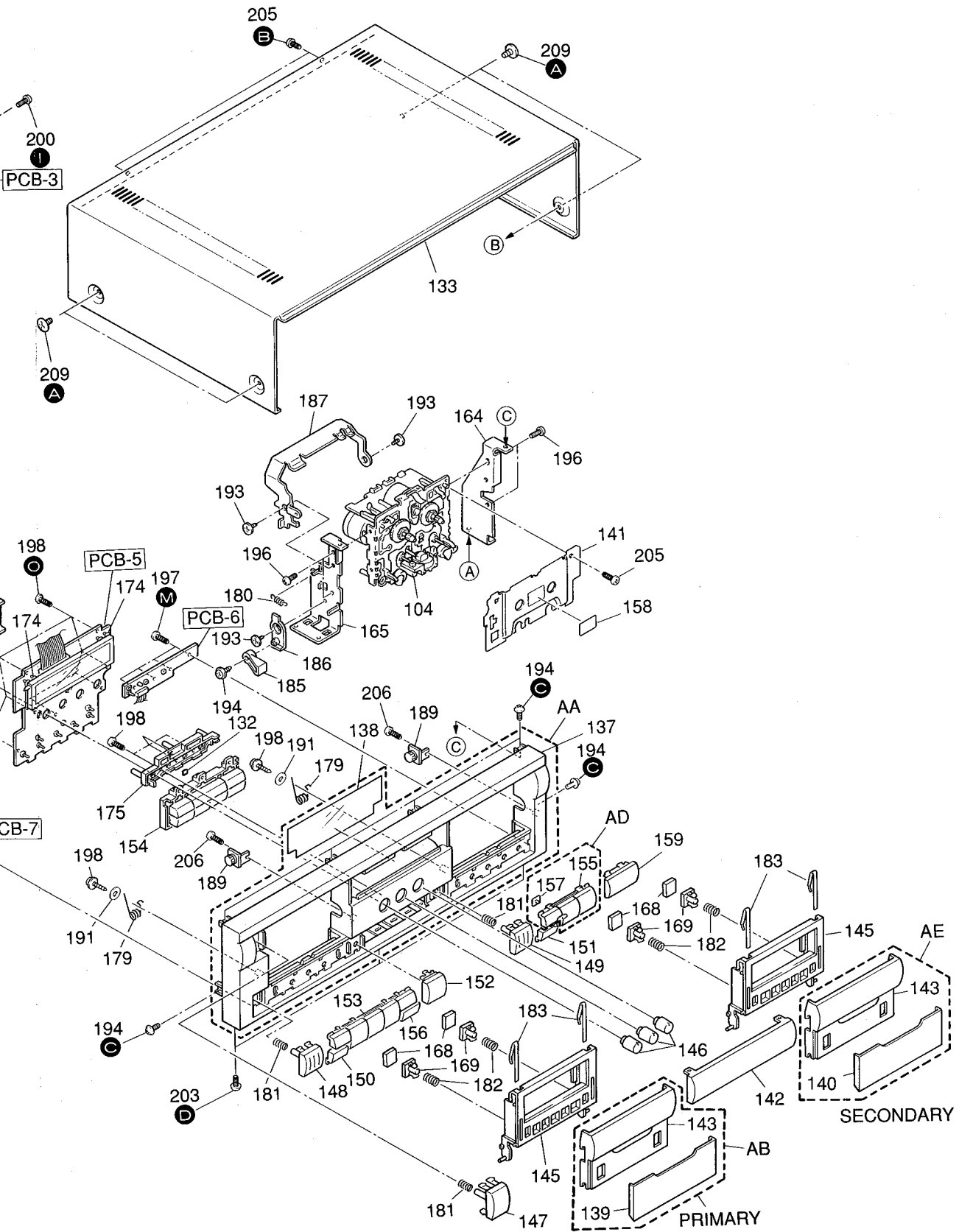
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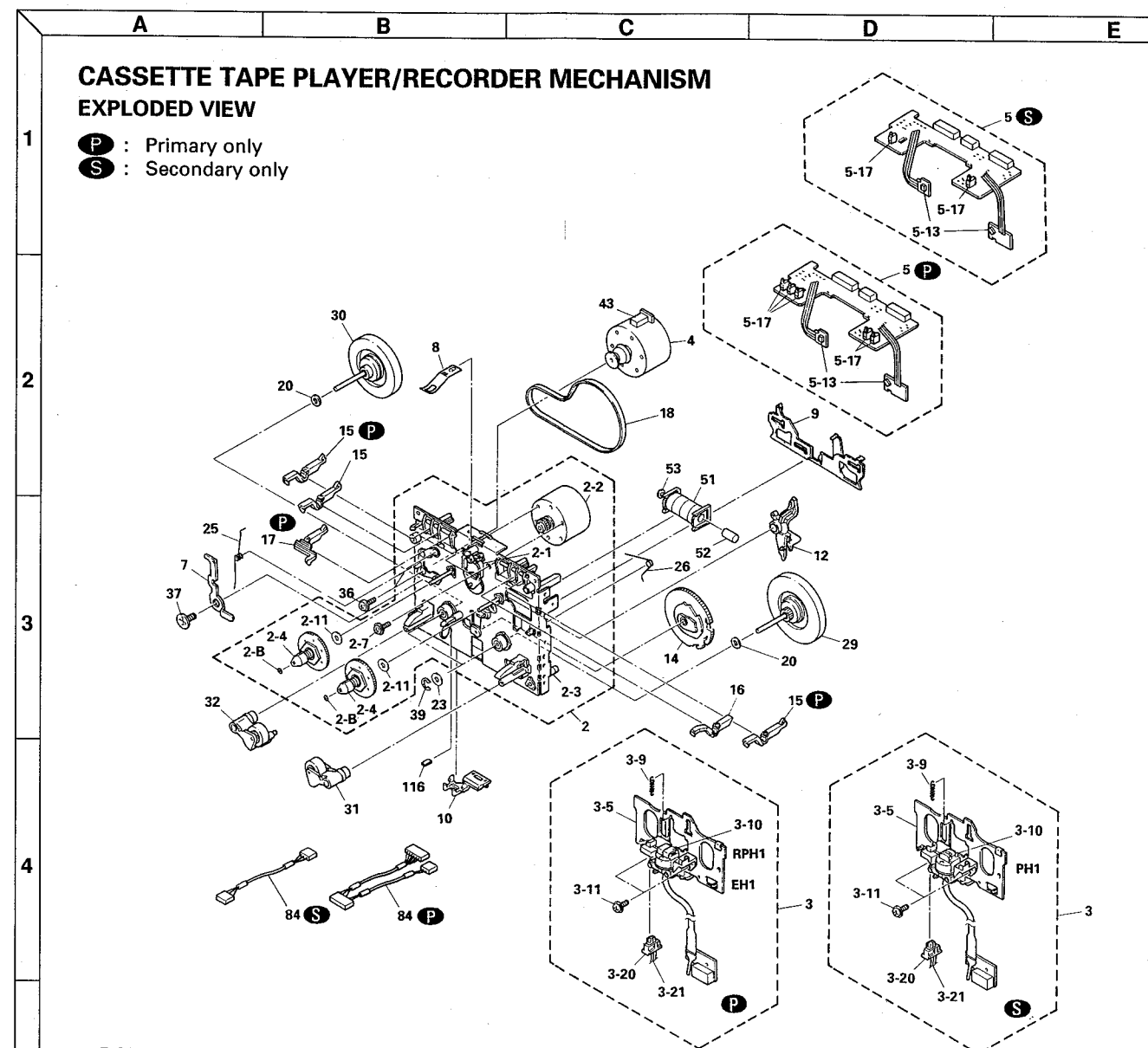
**GENERAL UNIT PARTS LIST**

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
AA	A442-DC5300B	FRONT PANEL ASSEMBLY	167	2216-7197	SHIELD PLATE
AB	A532-DC5300B	WINDOW ASSEMBLY, PRI	168	2114-87143	BUSHING (x6)
AD	A662-DC5300B	PUSH BUTTON ASSEMBLY	169	2240-7371	HOLDER (x4)
AE	A532-DC5300F	WINDOW ASSEMBLY, SEC	170	2222-7281	HEAT SINK (x2)
103	3112-15903	REC BLOCK ASSEMBLY, PRI	171	2240-7050	HOLDER (x2)
104	3112-15904	REC BLOCK ASSEMBLY, SEC	172	2240-R0101	HOLDER (x5)
131	1319-03301	LEG (x4)	173	2240-364	HOLDER
132	1751-19702	LABEL	174	2240-7387	HOLDER (x2)
133	1414-16701	TOP COVER	175	2240-7391	HOLDER
134	1424-34201	CABINET BOTTOM	176	2360-7022	BOSS, SPE (x4)
135	1424-34301	CABI BACK <b>BK</b>	177	2360-7063	BOSS, SPE
135	1424-34304	CABI BACK <b>IB</b> <b>BB</b>	178	2601-7199	SHAFT
136	1751-22201	LABEL, WINDOW	179	2651-059	SPRING (x2)
137	1442-26801	PANEL, FRONT	180	2651-11212	SPRING (x2)
138	1511-22101	PLATE, DISPLAY	181	2651-2101732	SPRING (x3)
139	1512-07501	PLATE, CASS. LID (PRI)	182	2651-2101735	SPRING (x4)
140	1512-07502	PLATE, CASS. LID (SEC)	183	2652-105	LEAF SPRING (x4)
141	1514-23501	PLATE, MECHA (x2)	185	2672-7051	LEVER (x2)
142	1532-20901	WINDOW, DISPLAY	186	2672-7052	LEVER (x2)
143	1532-21001	WINDOW, CASS. LID (x2)	187	2672-7053	LEVER (x2)
145	1612-07801	CASS. LID (x2)	189	2692-015	DAMPER (x2)
146	1632-20401	ROTARY KNOB (x3)	191	2401-0216	WASHER, METAL (x2)
147	1662-58401	PUSH BUTTON, POWER	193	2320-044	SCREW, SPF+ (x6)
148	1662-65001	PUSH BUTTON, EJECT L	194	2340-7009	SCREW, SPF T+ (x8)
149	1662-65101	PUSH BUTTON, EJECT R	196	2347-260527	SCREW, BND T+ (2.6x5mm) (x8)
150	1662-65201	PUSH BUTTON, REC/PAUSE	197	2347-260626	SCREW, BND T+ (2.6x6mm) (x8)
151	1662-65301	PUSH BUTTON, HIGH SPEED COPY	198	2347-R0126122	SCREW, BND T+ (2.6x12mm) (x13)
152	1662-65401	PUSH BUTTON, TRANSPORT	200	2347-R0130062	SCREW, BND T+ (3x6mm) (x13)
153	1662-65501	PUSH BUTTON, CASS. L	202	2347-R0130082	SCREW, BND T+ (3x8mm) (x4)
154	1662-65601	PUSH BUTTON, CENTER	203	2347-R0130082	SCREW, BND T+ (3x8mm) (x17)
155	1662-65701	PUSH BUTTON, CASS. R	205	2347-R0130084	SCREW, BND T+ (3x8mm) (x10)
156	1662-66301	PUSH BUTTON, REC MUTE	206	2347-R0130122	SCREW, BND T+ (3x12mm) (x5)
157	1732-08201	INDICATOR	208	2347-R0140062	SCREW, BND T+ (4x6mm) (x4)
158	1741-01601	ORNAMENT (x2)	209	2347-R0140064	SCREW, BND T+ (4x6mm) (x4)
159	1742-08101	ORNAMENT, CASS. R	764	2440-62	NUT, SPE (x3)
160	1756-CSA	LABEL <b>BK</b>	△ P1	4161-71151	CORD W/PLUG <b>BK</b>
161	2219-8293	METAL FITTG, CENTER PCB	△ P1	4161-7256	CORD W/PLUG <b>IB</b>
162	2219-8323	METAL FITTG, DOLBY PCB (x2)	△ P1	4161-04100	CORD W/PLUG <b>BB</b>
163	2219-8324	METAL FITTG, VR HOLD			
164	2219-8325	METAL FITTG, MECHA R (x2)			
165	2210-8326	METAL FITTG, MECHA L (x2)			

NOTE:  
 △ SAFETY RELATED COMPONENT. USE ONLY EXACT REPLACEMENT PART AS SPECIFIED.

**CASSETTE TAPE PLAYER/RECORDER MECHANISM EXPLODED VIEW**

**P** : Primary only  
**S** : Secondary only



**PARTS LIST**

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
2	F511-496	CHASSIS BLK	10	FD45H-15	LEAD HOLDER
2-1	F517-049	IDLER BLK	12	FD45G-12	PLAY ARM
2-2	F564-280	MTR REEL BLK	14	FD45B-15	CAM GEAR (3R)
2-3	F612-168	CHASSIS BASE BLK	15	FD44T-14	SWITCH ARM, REC
2-4	F623-037	REEL BASE BLK	16	FD44Y-12	SWITCH ARM(R), PACK
2-7	FG156-11A	SCREW 2.6x6.4 ZN	17	FD44V-12	SWITCH ARM(L), METAL <b>P</b>
2-8	FJ111-17	WASHER 1.7x0.25	18	FF17G-21, 31	MAIN BELT
2-11	UJ12V-11	WASHER 2.1x0.25T	20	FJ111-30	WASHER 2.6x0.25
3	F513-550	PLATE HD BLK <b>P</b>	23	FJ111-14	WASHER 2.6x0.5
3	F513-619	PLATE HD BLK <b>S</b>	25	FK28M-15	EJECT PREVENTION SPRING (L)
3-5	FC52E-36	HEAD BASE	26	FK28R-11	SLIDE SPRING
3-9	FK26N-14	HB SP	29	FR23B-11	FLYWHEEL ASS'Y (ZDC)
3-10	FU17M-61	HADKH5560B <b>P</b> R/P HEAD	30	FR22K-13	FLYWHEEL ASS'Y (RVS)
3-10	FU17W-61	HADKH2516B <b>S</b> P HEAD	31	FR20L-21A	PINCH ROLLER ASS'Y(R)
3-11	UG19D-11	SCREW TT 2.0x5 ZN	32	FR20M-22	PINCH ROLLER ASS'Y(L)
3-20	AZ13P-00	SPI-320BC	36	FG114-14	SCREW 2.6x5 ZN
3-21	WG50M-03A	QS LEAD WIRE	37	UG15S-11A	SCREW
4	F525-256	MTR MAIN BLK	39	UG13U-15	E RING
5	F567-404	PCB CONTROL BLK <b>P</b>	43	FF17C-12	HOLDER CUSHION(L)
5	F567-405	PCB CONTROL BLK <b>S</b>	51	F765-263	SOLENOID BLK
5-1	F743-065	PCB BASE BLK	52	FL39H-12A	FIXED BAR
5-13	AZ15S-00	GP2S04B	53	FL39K-12	PLANGER
5-17	UE16E-11	PUSH SWITCH	84	WH52P-66	WIRE CONNECTOR (R/P) <b>P</b>
7	FC39L-70	EJECT PREVENTION ARM(L)	84	WH52N-04A	WIRE CONNECTOR (PB) <b>S</b>
8	FC52H-12	SPRING CASSETTE	116	UT11R-11	REFLECTION PLATE
9	FC52F-15	SLIDE PLATE			

# GENERAL UNIT PARTS LIST

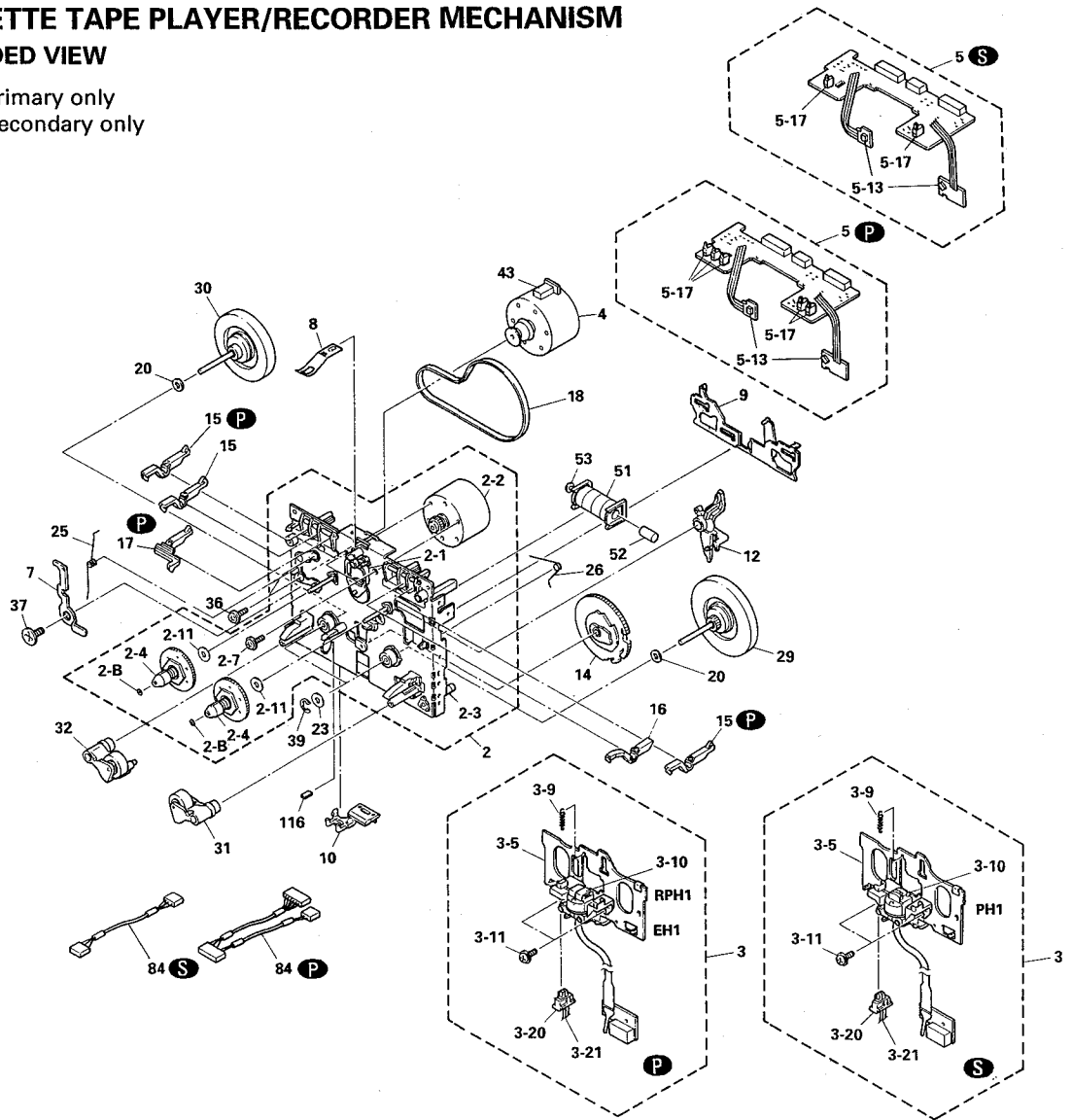
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
AA	A442-DC5300B	FRONT PANEL ASSEMBLY	167	2216-7197	SHIELD PLATE
AB	A532-DC5300B	WINDOW ASSEMBLY, PRI	168	2114-87143	BUSHING (x6)
AD	A662-DC5300B	PUSH BUTTON ASSEMBLY	169	2240-7371	HOLDER (x4)
AE	A532-DC5300F	WINDOW ASSEMBLY, SEC	170	2222-7281	HEAT SINK (x2)
103	3112-15903	REC BLOCK ASSEMBLY, PRI	171	2240-7050	HOLDER (x2)
104	3112-15904	REC BLOCK ASSEMBLY, SEC	172	2240-R0101	HOLDER (x5)
131	1319-03301	LEG (x4)	173	2240-364	HOLDER
132	1751-19702	LABEL	174	2240-7387	HOLDER (x2)
133	1414-16701	TOP COVER	175	2240-7391	HOLDER
134	1424-34201	CABINET BOTTOM	176	2360-7022	BOSS, SPE (x4)
135	1424-34301	CABI BACK <b>BK</b>	177	2360-7063	BOSS, SPE
135	1424-34304	CABI BACK <b>IB</b> <b>BB</b>	178	2601-7199	SHAFT
136	1751-22201	LABEL, WINDOW	179	2651-059	SPRING (x2)
137	1442-26801	PANEL, FRONT	180	2651-11212	SPRING (x2)
138	1511-22101	PLATE, DISPLAY	181	2651-2101732	SPRING (x3)
139	1512-07501	PLATE, CASS. LID (PRI)	182	2651-2101735	SPRING (x4)
140	1512-07502	PLATE, CASS. LID (SEC)	183	2652-105	LEAF SPRING (x4)
141	1514-23501	PLATE, MECHA (x2)	185	2672-7051	LEVER (x2)
142	1532-20901	WINDOW, DISPLAY	186	2672-7052	LEVER (x2)
143	1532-21001	WINDOW, CASS. LID (x2)	187	2672-7053	LEVER (x2)
145	1612-07801	CASS. LID (x2)	189	2692-015	DAMPER (x2)
146	1632-20401	ROTARY KNOB (x3)	191	2401-0216	WASHER, METAL (x2)
147	1662-58401	PUSH BUTTON, POWER	193	2320-044	SCREW, SPF+ (x6)
148	1662-65001	PUSH BUTTON, EJECT L	194	2340-7009	SCREW, SPF T+ (x8)
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**CASSETTE TAPE PLAYER/RECORDER MECHANISM  
EXPLODED VIEW**

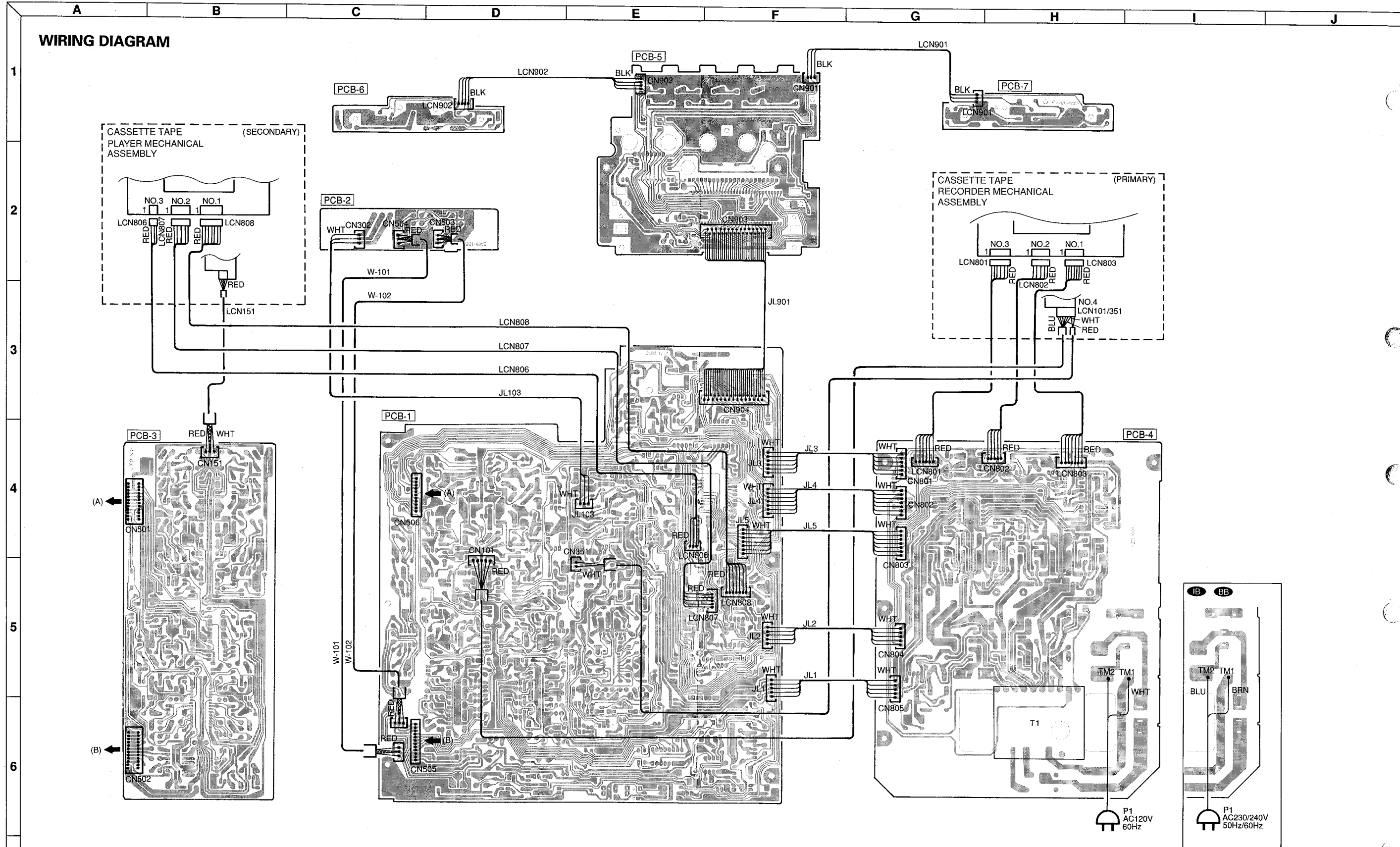
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2-2	F564-280	MTR REEL BLK	14	FD45B-15	CAM GEAR (3R)
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2-11	UJ12V-11	WASHER 2.1x0.25T	20	FJ111-30	WASHER 2.6x0.25
3	F513-550	PLATE HD BLK (P)	23	FJ111-14	WASHER 2.6x0.5
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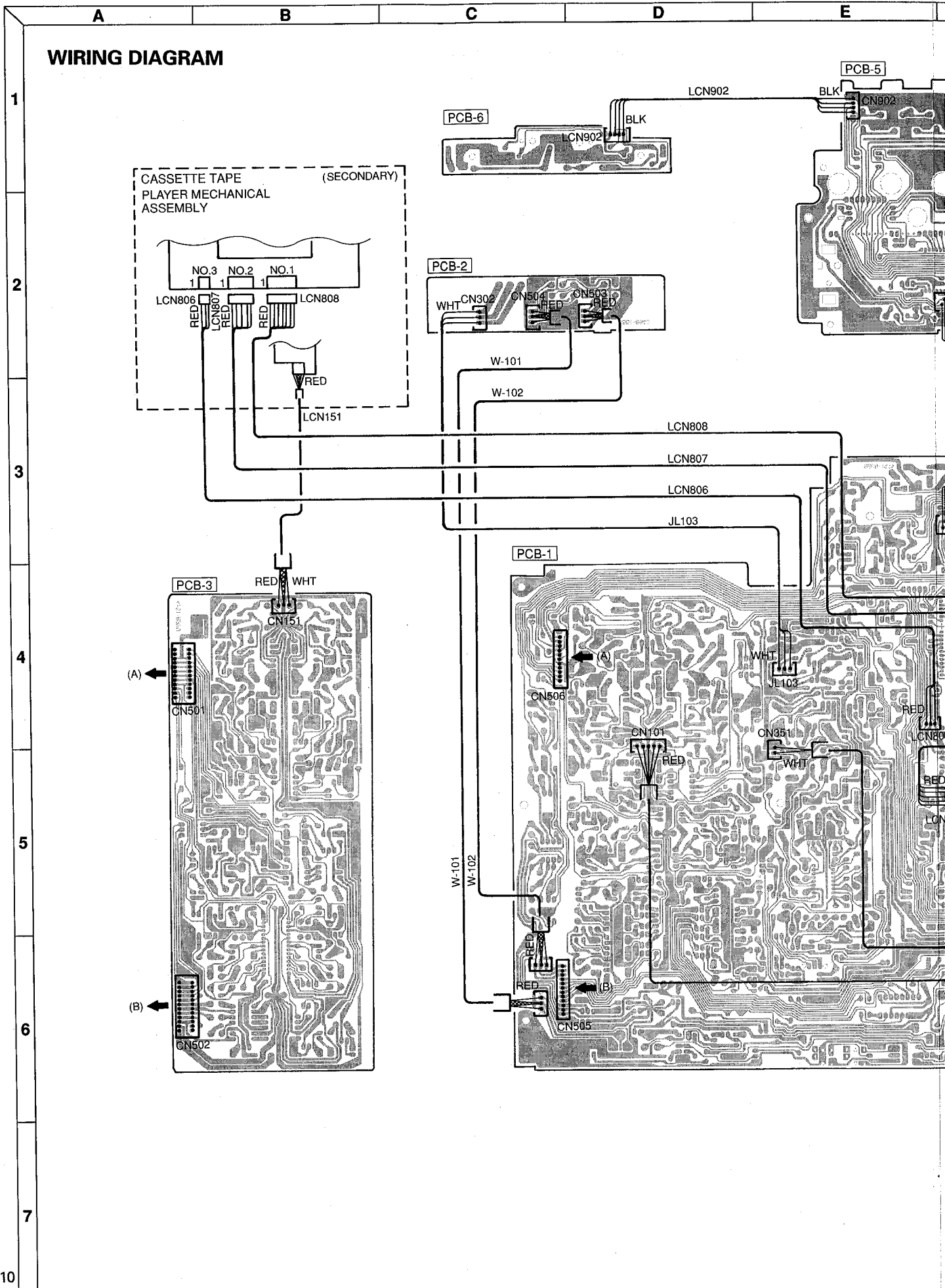
WIRING DIAGRAM



- WIRE COLOR ABBREVIATIONS
- |              |              |
|--------------|--------------|
| REC : Red    | YEL : Yellow |
| ORG : Orange | PUP : Purple |
| BLU : Blue   | PIK : Pink   |
| WHT : White  | BRN : Brown  |
| BLK : Black  |              |



WIRING DIAGRAM



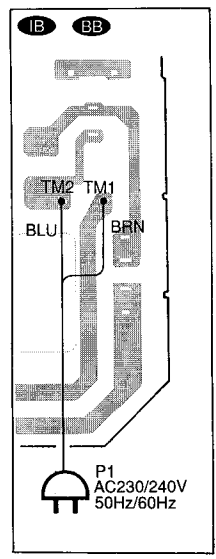
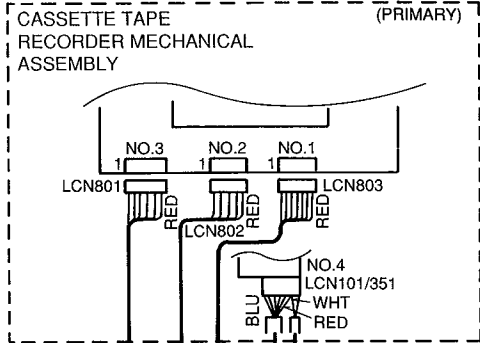
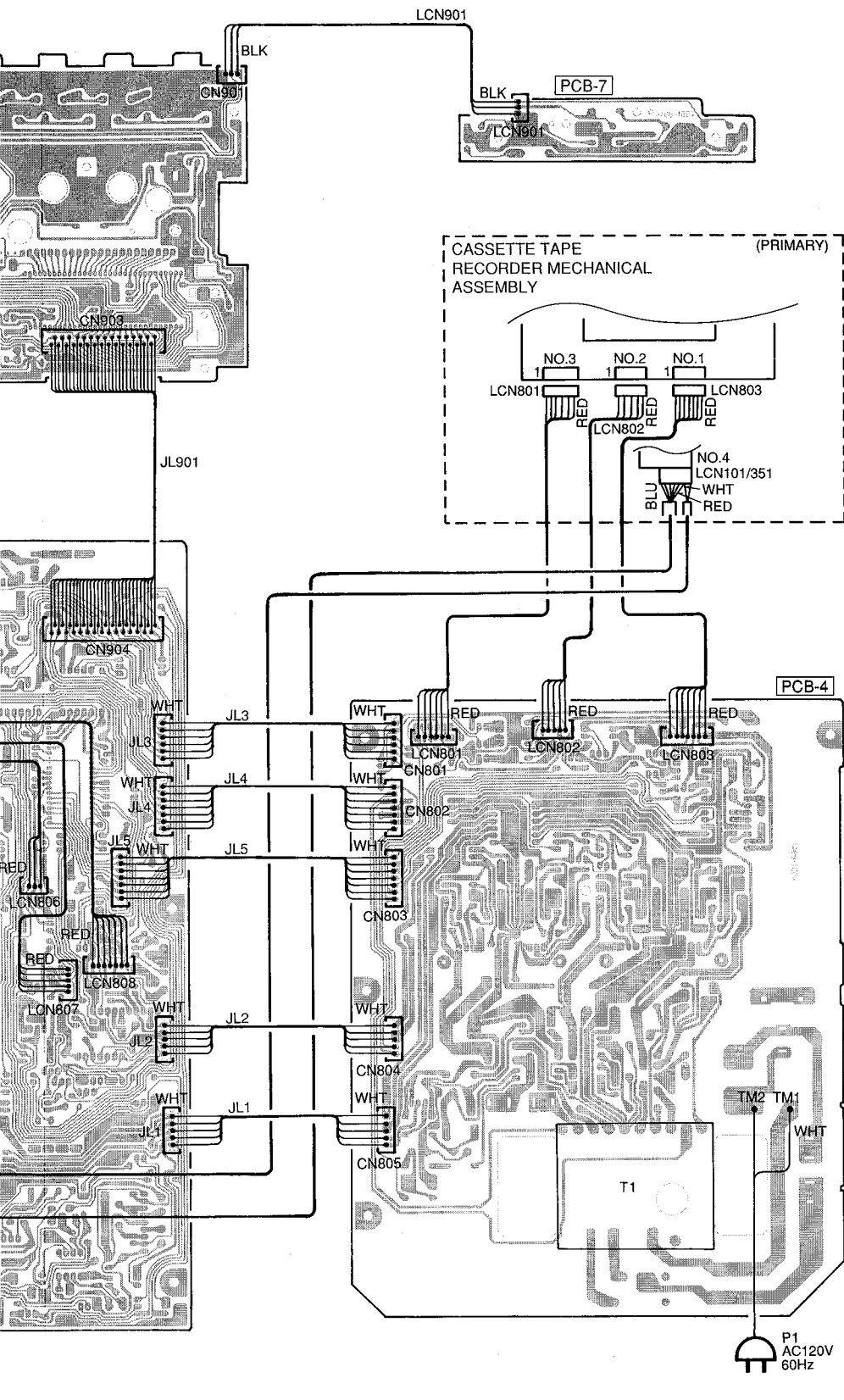
F

G

H

I

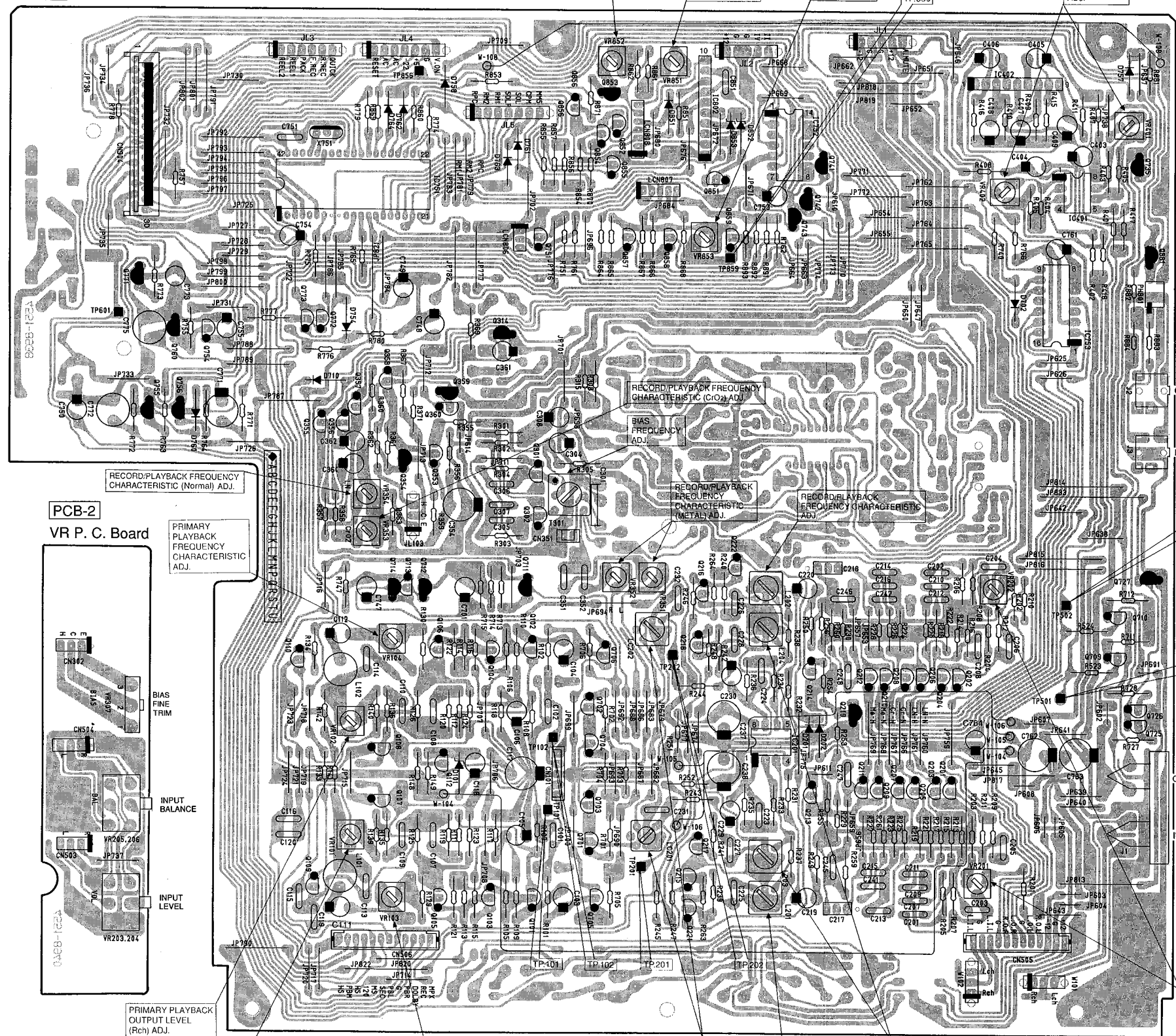
J



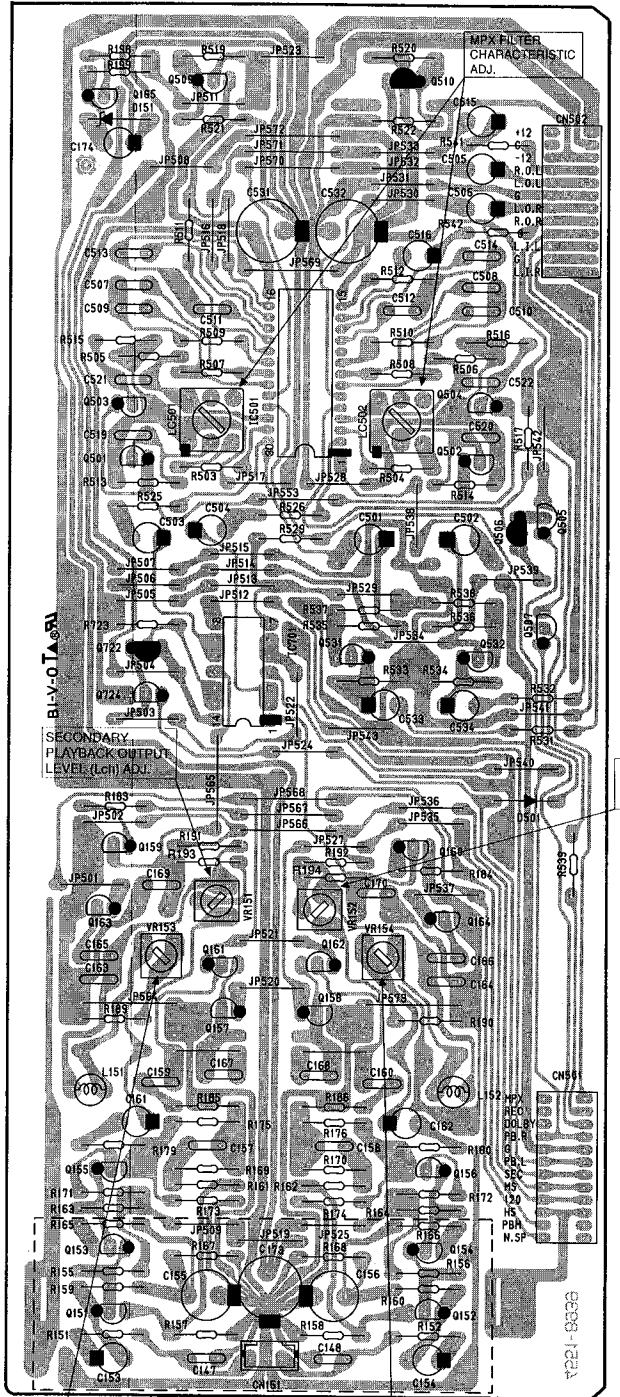
- WIRE COLOR ABBREVIATIONS**
- REC : Red
  - ORG : Orange
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P. C. BOARD (1)

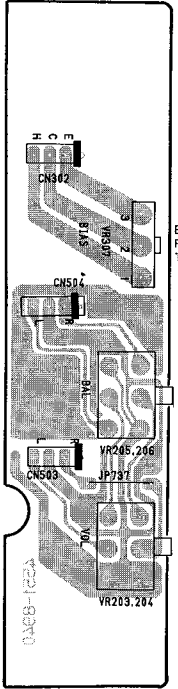
PCB-1 Main P. C. Board



PCB-3 Dolby P. C. Board

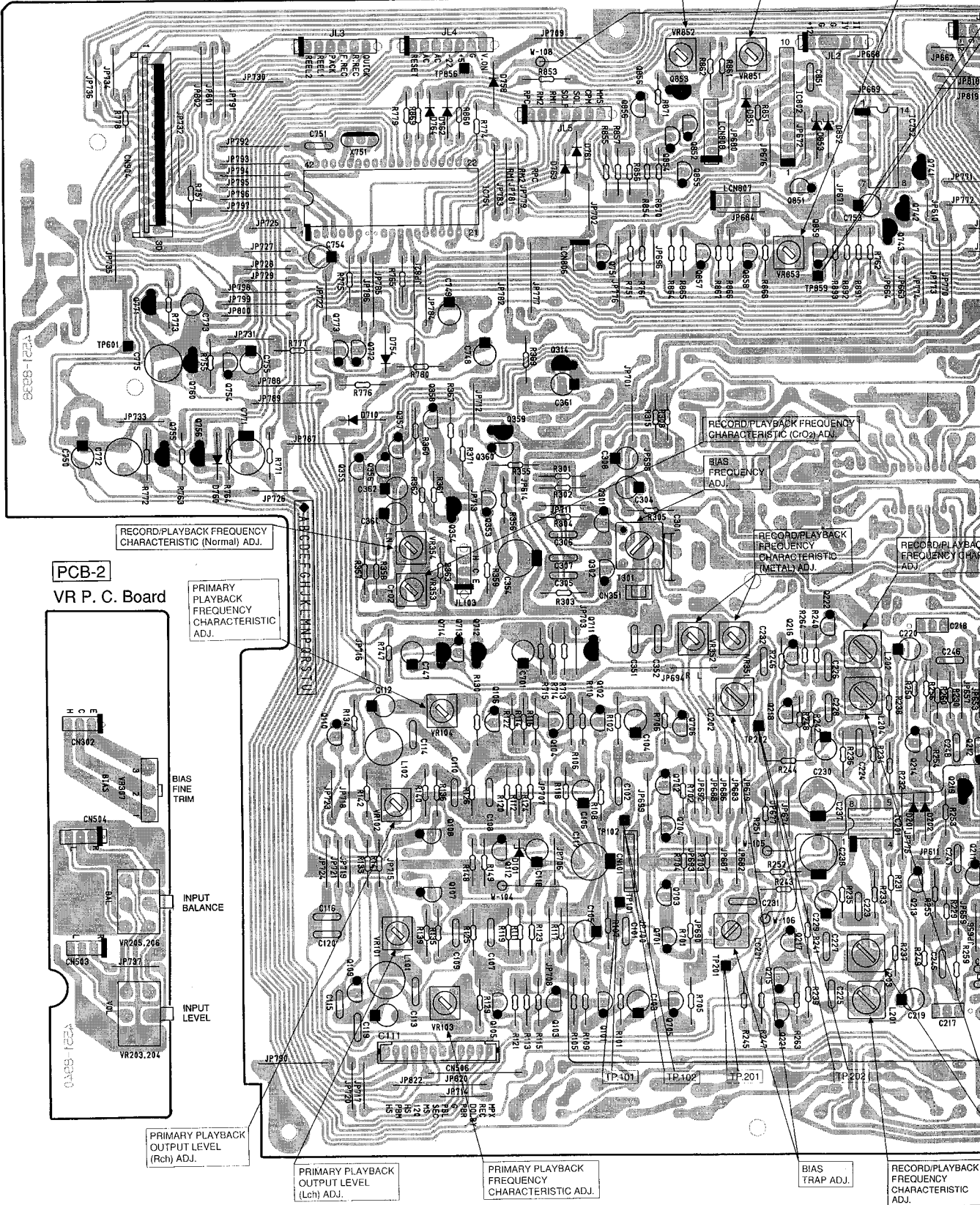


PCB-2 VR P. C. Board



# P. C. BOARD (1)

PCB-1 Main P. C. Board

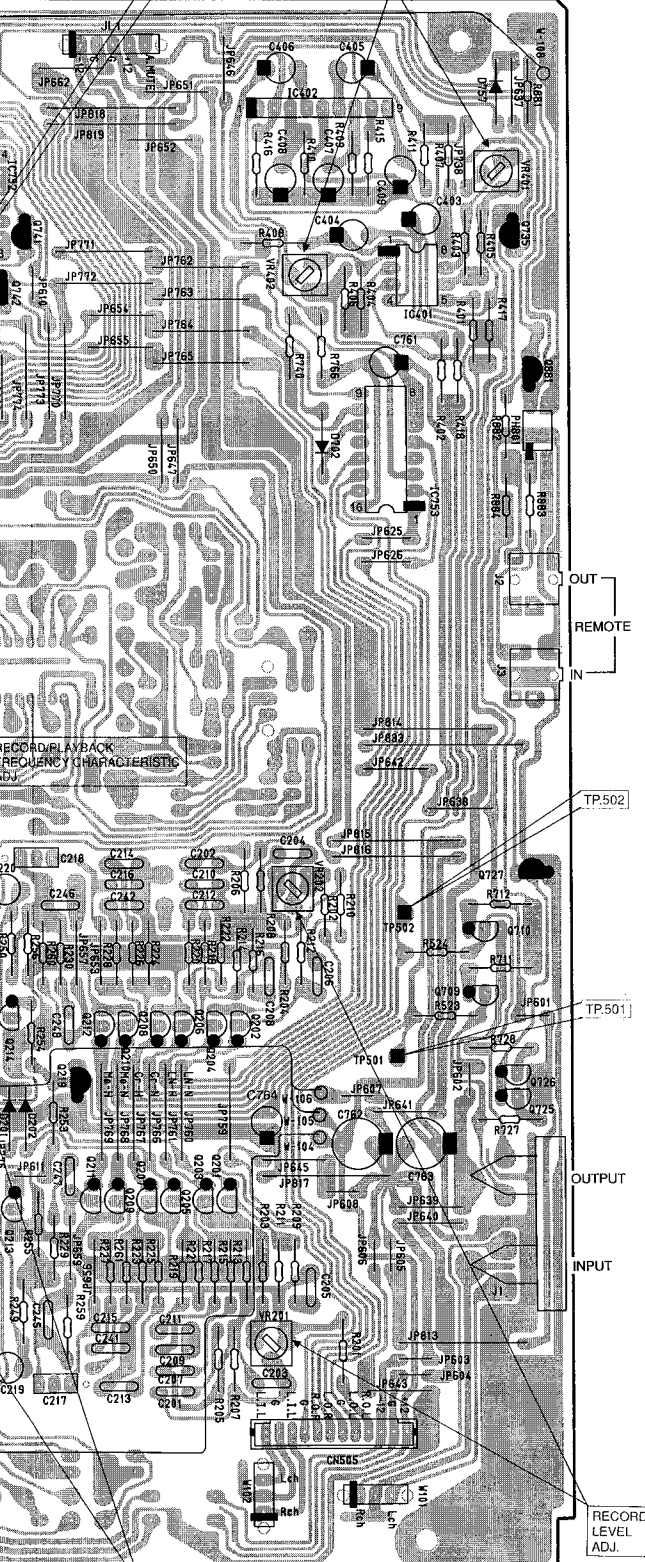


F G H I J

SECONDARY QUICK SENSOR ADJ.

TP.859

METER LEVEL ADJ.



RECORD/PLAYBACK FREQUENCY CHARACTERISTIC ADJ.

TP.502

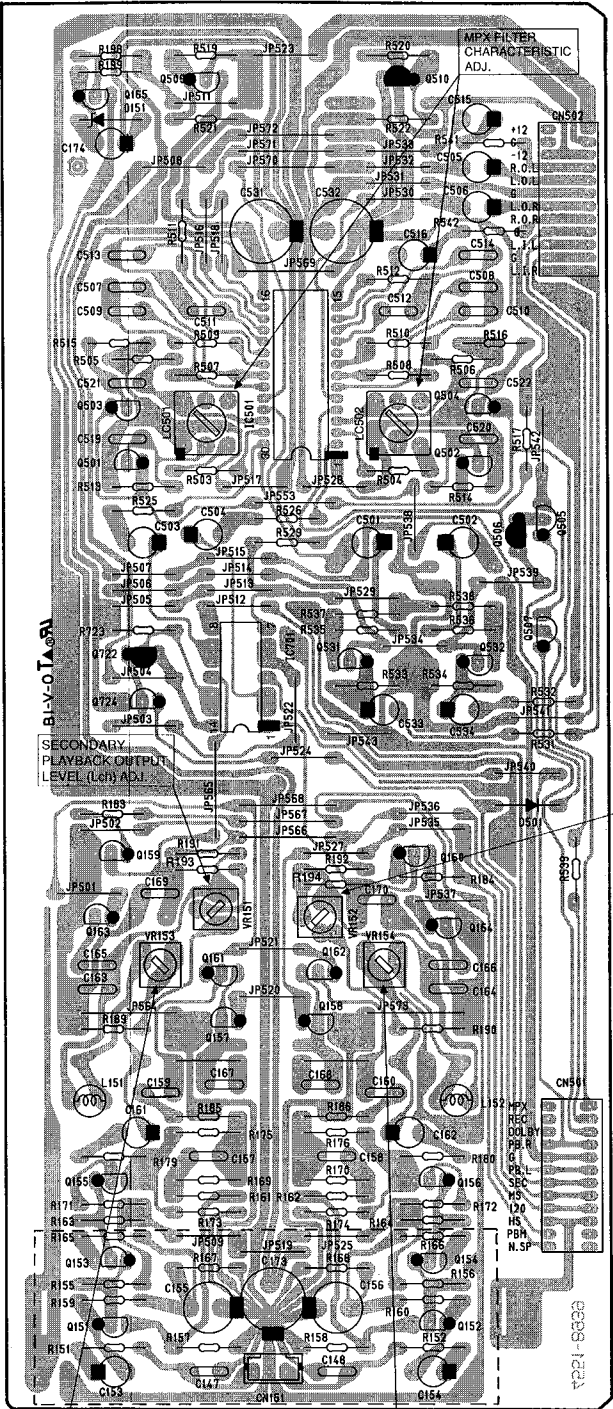
OUT  
REMOTE  
IN

RECORD/PLAYBACK FREQUENCY CHARACTERISTIC ADJ.

HIGH SPEED COPY FREQUENCY CHARACTERISTIC ADJ.

RECORD LEVEL ADJ.

PCB-3 Dolby P. C. Board



B.L.V. 0.1A 0.1R

SECONDARY PLAYBACK OUTPUT LEVEL (Rch) ADJ.

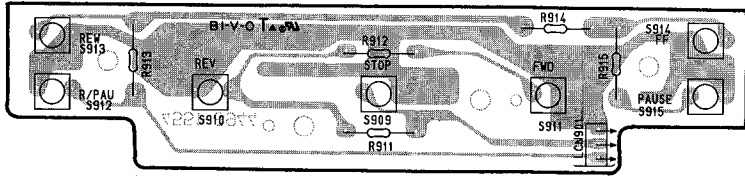
SECONDARY PLAYBACK FREQUENCY CHARACTERISTIC ADJ.

SECONDARY PLAYBACK FREQUENCY CHARACTERISTIC ADJ.

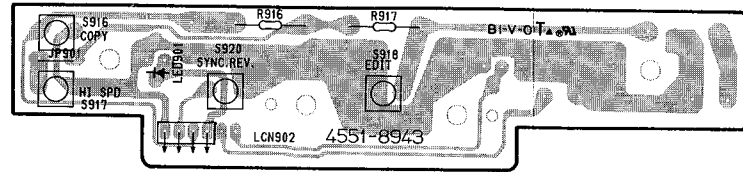
A B C D E F G H I J

P. C. BOARD (2)

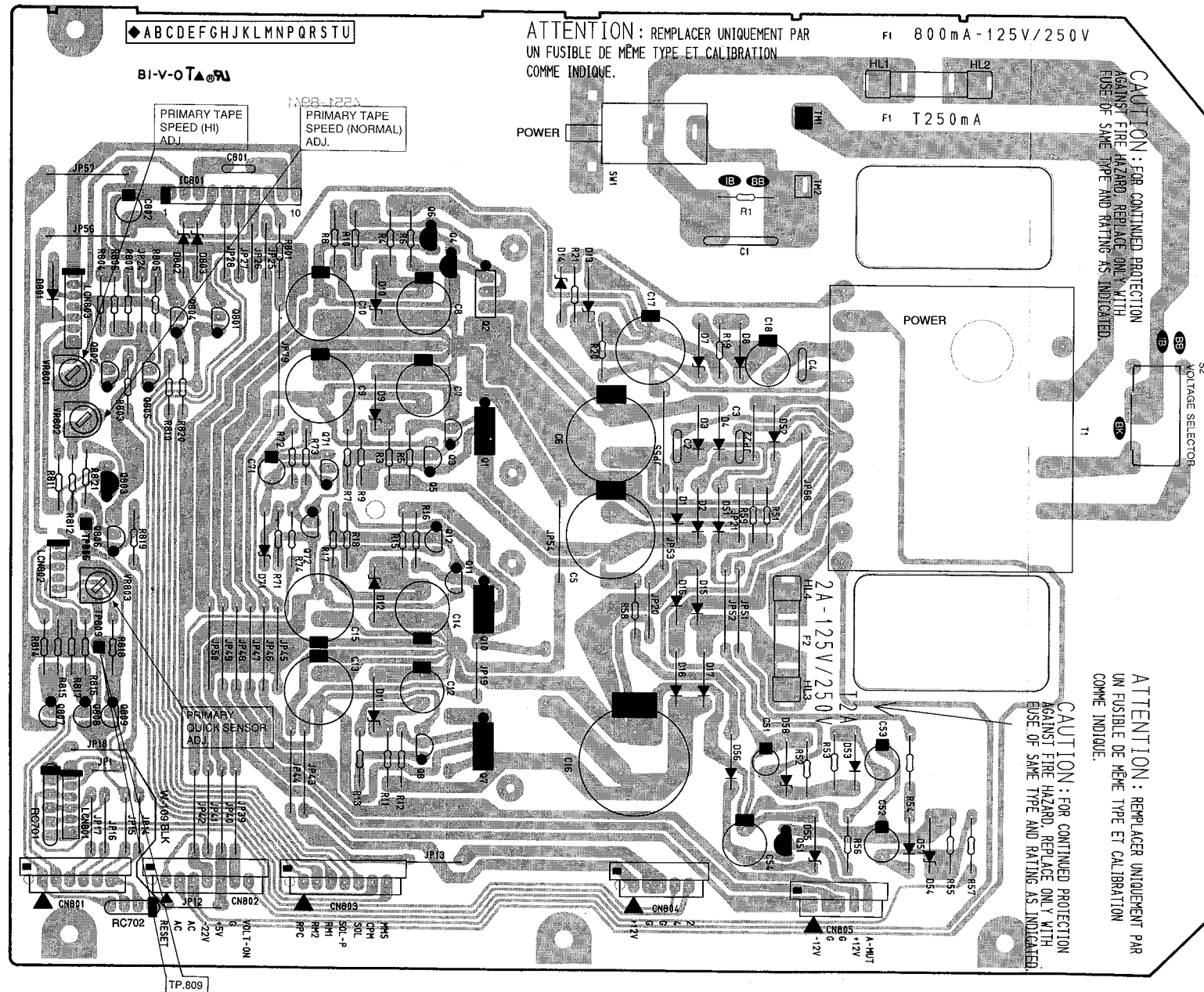
PCB-7 Cont SW-L P. C. Board



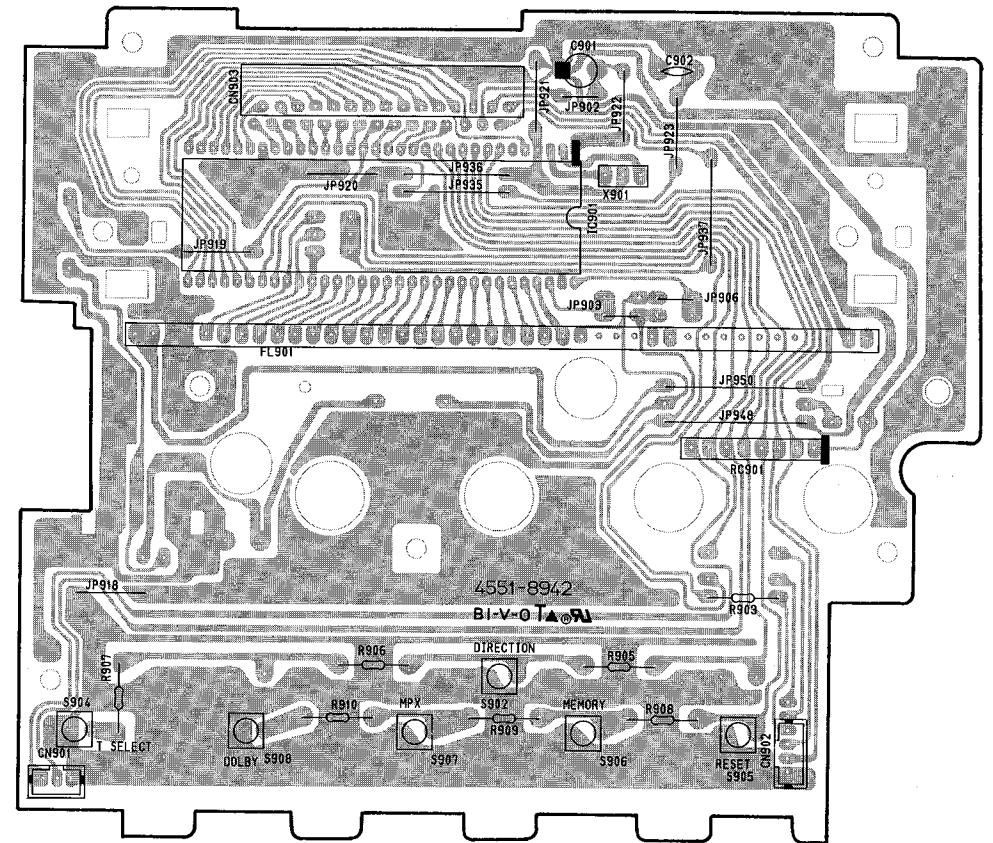
PCB-6 Cont SW-R P. C. Board



PCB-4 Power P. C. Board

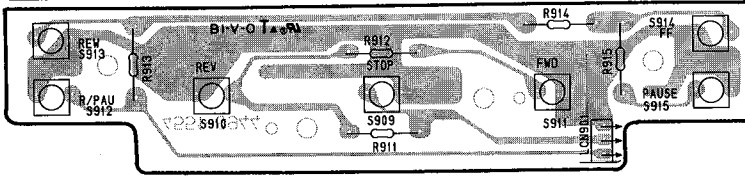


PCB-5 Front P. C. Board

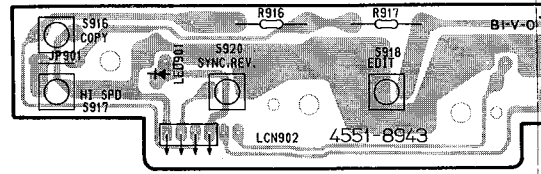


P. C. BOARD (2)

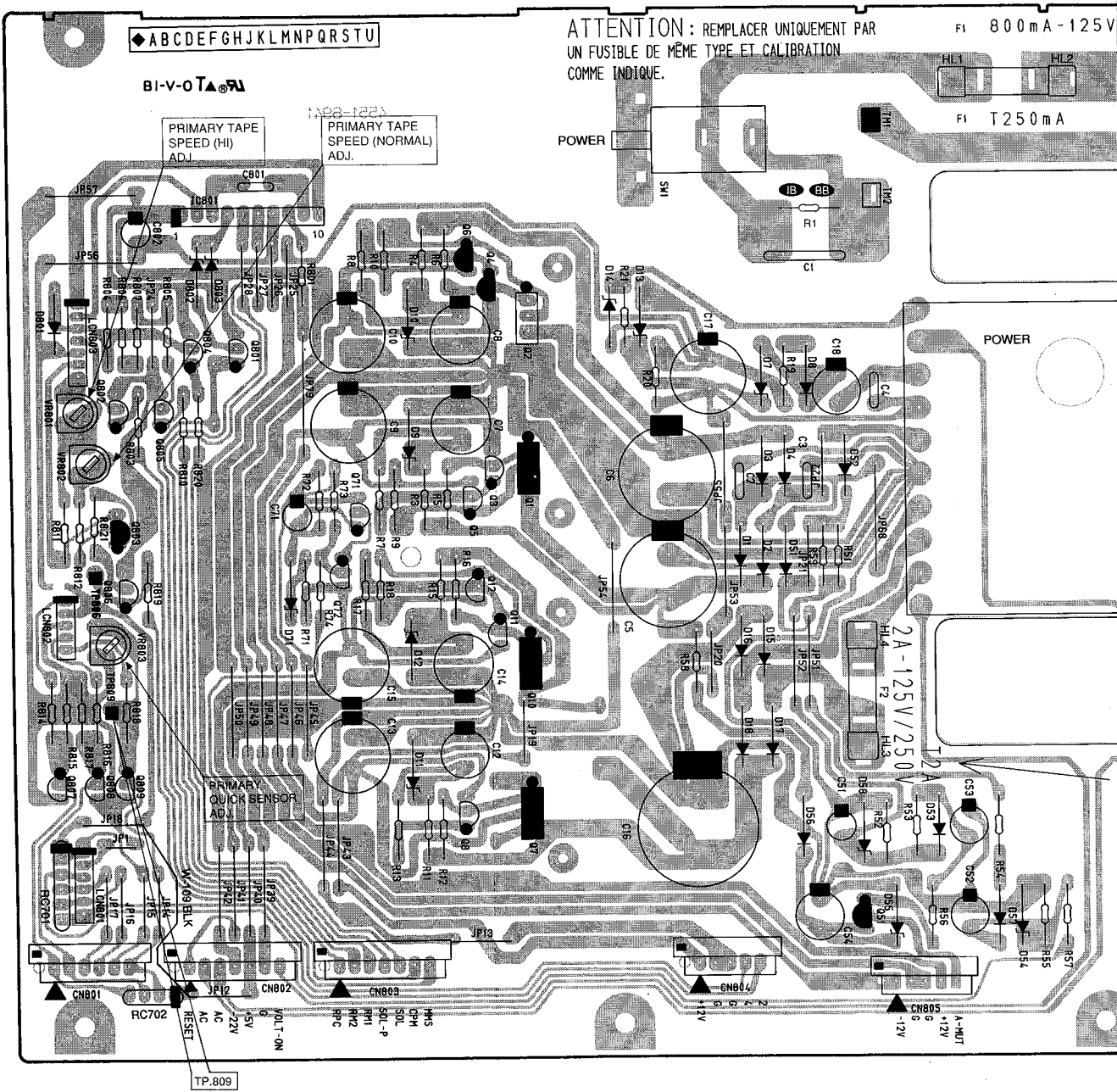
PCB-7 Cont SW-L P. C. Board



PCB-6 Cont SW-R P. C. Board



PCB-4 Power P. C. Board



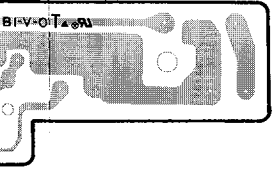
F

G

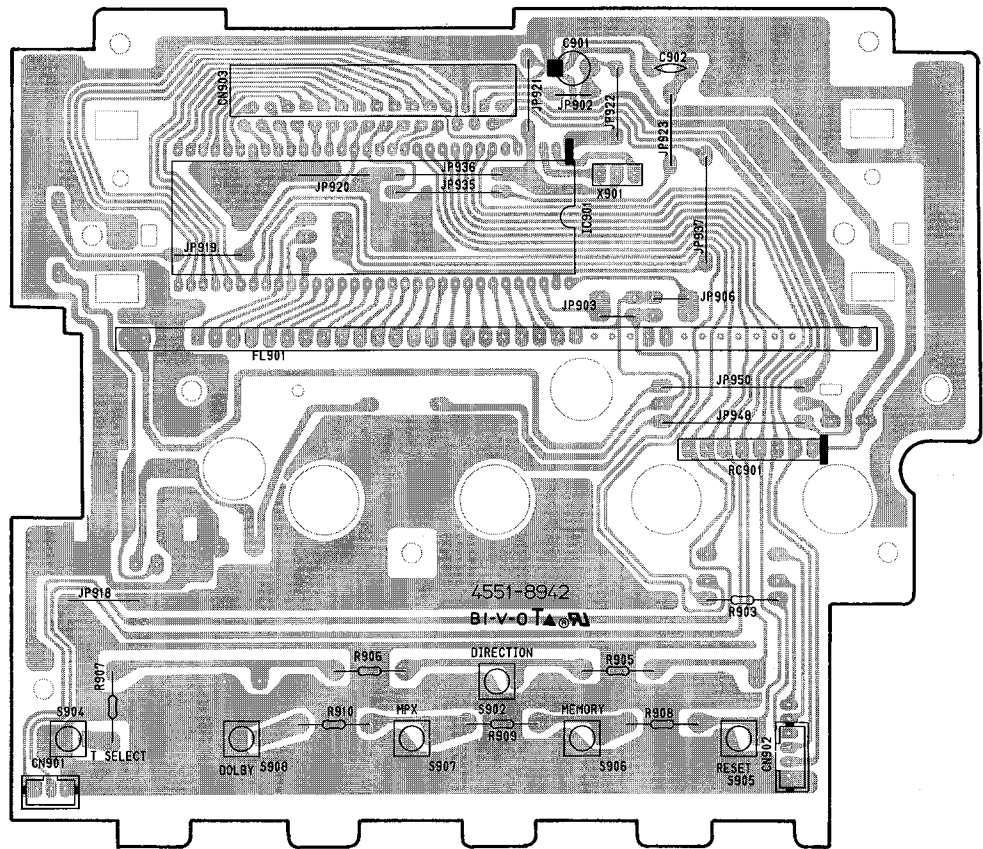
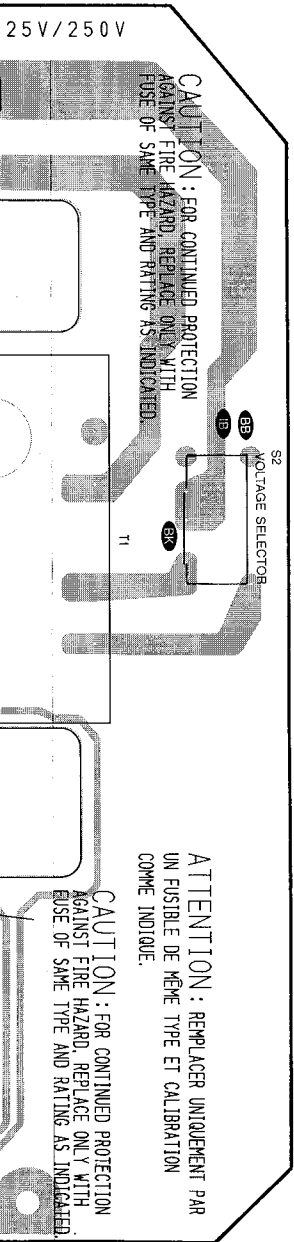
H

I

J



PCB-5 Front P. C. Board















Ser. No.	Ref. No.	Part No.	Description
856	Q804	5613-2925(T)	XISTOR, NPN R
856	Q805	5613-2925(T)	XISTOR, NPN R
857	Q806	5613-1740S(S)	XISTOR, NPN R
857	Q807	5613-1740S(S)	XISTOR, NPN R
857	Q808	5613-1740S(S)	XISTOR, NPN R
859	Q809	5613-2320(F)	XISTOR, NPN R
<b>DIODES</b>			
550	△ D1	5632-S5566B	DIODE, RECT
550	△ D2	5632-S5566B	DIODE, RECT
550	△ D3	5632-S5566B	DIODE, RECT
550	△ D4	5632-S5566B	DIODE, RECT
550	△ D7	5632-S5566B	DIODE, RECT
550	△ D8	5632-S5566B	DIODE, RECT
554	D9	5635-HZ12B2L	DIODE, ZENER
554	D10	5635-HZ12B2L	DIODE, ZENER
554	D11	5635-HZ12B2L	DIODE, ZENER
555	D12	5635-HZ6B2L	DIODE, ZENER
556	D13	5635-HZ22-2L	DIODE, ZENER
557	D14	5635-RD5R1EB3	DIODE, ZENER
550	△ D15	5632-S5566B	DIODE, RECT
550	△ D16	5632-S5566B	DIODE, RECT
550	△ D17	5632-S5566B	DIODE, RECT
550	△ D18	5632-S5566B	DIODE, RECT
550	△ D51	5632-S5566B	DIODE, RECT
550	△ D52	5632-S5566B	DIODE, RECT
559	D53	5631-1S2473	DIODE, DET
563	D54	5635-RD5R1EB2	DIODE, ZENER
565	D55	5635-HZ11A2L	DIODE, ZENER
550	D56	5632-S5566B	DIODE, RECT
550	D57	5632-S5566B	DIODE, RECT
564	D58	5635-HZ16-2L	DIODE, ZENER
566	D71	5635-HZ3B2	DIODE, ZENER
864	D801	5632-S5566B	DIODE, RECT
862	D802	5635-HZ5C2	DIODE, ZENER
861	D803	5635-HZ7C3L	DIODE, ZENER
<b>TRANSFORMERS</b>			
569	△ T1	5584-S9401	XFORMER, POWER <b>BK</b>
569B	△ T1	5584-S9402	XFORMER, POWER <b>IB BB</b>
<b>CONTROLS</b>			
868	VR801	5101-S0801103	RES, SEMI FIX 10K
868	VR802	5101-S0801103	RES, SEMI FIX 10K
869	VR803	5101-S0801502	RES, SEMI FIX 5K
<b>MISCELLANEOUS</b>			
797	CN801	4443-060185	CONNECTOR
798	CN802	4443-070185	CONNECTOR
798	CN803	4443-070185	CONNECTOR
796	CN804	4443-050185	CONNECTOR
796	CN805	4443-050185	CONNECTOR
603	△ F1	5732-801031	FUSE <b>BK</b>
603B	△ F1	5732-251030	FUSE <b>IB BB</b>
604	△ F2	5732-202031	FUSE <b>BK</b>
604B	△ F2	5732-202030	FUSE <b>IB BB</b>
601	△ HL1	4472-04501	HOLDER, FUSE
601	△ HL2	4472-04501	HOLDER, FUSE
601	△ HL3	4472-04501	HOLDER, FUSE
601	△ HL4	4472-04501	HOLDER, FUSE
803	LCN801	4163-S0206151	CONNECTOR W/W
802	LCN802	4163-S0205151	CONNECTOR W/W
804	LCN803	4163-S0207151	CONNECTOR W/W
871	RC701	5212-S0305473	R COMPOSITE
872	RC702	5212-S0303473	R COMPOSITE
751	△ SW1	4433-01301	SWITCH, PU-PW
041B	△ SW2	4411-00501102	SWITCH, ROTARY <b>IB BB</b>
786	TM1	4214-122	TERMINAL
786	TM2	4214-122	TERMINAL
785	TP806	4214-132	TERMINAL
785	TP809	4214-132	TERMINAL

Ser. No.	Ref. No.	Part No.	Description
<b>PCB-5 FRONT P. C. BOARD</b>			
<b>CAPACITORS</b>			
835	C901	5345-106D0356	CAP, MINI ELE 10μ/25V
837	C902	5359-S010J103	CAP, PPP.01μ
<b>RESISTORS</b>			
841	R903	5135-221522	RES, CBN 1/2P 220
842	R905	5135-472522	RES, CBN 1/2P 4.7K
843	R906	5135-682522	RES, CBN 1/2P 6.8K
844	R907	5135-183522	RES, CBN 1/2P 18K
842	R908	5135-472522	RES, CBN 1/2P 4.7K
843	R909	5135-682522	RES, CBN 1/2P 6.8K
844	R910	5135-183522	RES, CBN 1/2P 18K
<b>INTEGRATED CIRCUIT</b>			
829	IC901	5654-MN187167	IC, DIGITAL
<b>MISCELLANEOUS</b>			
789	CN901	4443-0301140	CONNECTOR
790	CN902	4443-0401140	CONNECTOR
794	CN903	4443-05401030	CONNECTOR
771	FL901	5722-058	TUBE DISPLAY
839	RC901	5212-S0307123	R COMPOSITE
753	S902	4437-01202	SWITCH, PU-TC
753	S904	4437-01202	SWITCH, PU-TC
753	S905	4437-01202	SWITCH, PU-TC
753	S906	4437-01202	SWITCH, PU-TC
753	S907	4437-01202	SWITCH, PU-TC
753	S908	4437-01202	SWITCH, PU-TC
833	X901	5693-CST4MGW	OSC, CER

<b>PCB-6 CONT SW-R P. C. BOARD</b>			
<b>RESISTORS</b>			
848	R916	5135-472522	RES, CBN 1/2P 4.7K
849	R917	5135-682522	RES, CBN 1/2P 6.8K
<b>MISCELLANEOUS</b>			
809	LCN902	4163-S0104800	CONNECTOR W/W
830	LED901	5637-SEL2410E	LED
757	S916	4437-01201	SWITCH, PU-TC
759	S917	4437-01202	SWITCH, PU-TC
757	S918	4437-01201	SWITCH, PU-TC
757	S920	4437-01201	SWITCH, PU-TC

<b>PCB-7 CONT SW-L P. C. BOARD</b>			
<b>RESISTORS</b>			
845	R911	5135-472522	RES, CBN 1/2P 4.7K
846	R912	5135-682522	RES, CBN 1/2P 6.8K
845	R913	5135-472522	RES, CBN 1/2P 4.7K
846	R914	5135-682522	RES, CBN 1/2P 6.8K
847	R915	5135-183522	RES, CBN 1/2P 18K
<b>MISCELLANEOUS</b>			
808	LCN901	4163-S0103800	CONNECTOR W/W
754	S909	4437-01201	SWITCH, PU-TC
754	S910	4437-01201	SWITCH, PU-TC
754	S911	4437-01201	SWITCH, PU-TC
756	S912	4437-01202	SWITCH, PU-TC
754	S913	4437-01201	SWITCH, PU-TC
754	S914	4437-01201	SWITCH, PU-TC
756	S915	4437-01202	SWITCH, PU-TC

**Ser. No. Ref. No. Part No. Description**

### ABBREVIATIONS IN PARTS LIST

#### CAPACITORS

CAP, MINI ELE : Electrolytic  
 CAP, CER : Ceramic  
 CAP, PPP : Polypropylene  
 CAP, MYL : Mylar  
 CAP, MCA : Mica  
     470 $\mu$  : 470 $\mu$ F  
     6800P : 6800PF  
     .047 $\mu$  : 0.047 $\mu$ F

#### RESISTORS

RES, CBN 1/6P : Carbon 1/6W  
     2.2K : 2.2k $\Omega$   
     220 : 220 $\Omega$   
 RES, FUSE : Fuse  
 RES, CEM 5P : Cement 5W  
 REC, MTL 1P : Metal 1W

#### TRANSISTORS

XISTOR : Transistor  
 FET : Field Effect Transistor

#### CONTROLS

RES, V CBN : Variable Carbon Resistor  
 RES, SEMI FIX : Semi - fixed Resistors

#### CHASSIS MISCELLANEOUS

772	$\Delta$ P1	4161-71151	CORD W/PLUG <b>BK</b>
772B	$\Delta$ P1	4161-7256	CORD W/PLUG <b>IB</b>
772C	$\Delta$ P1	4161-04100	CORD W/PLUG <b>BB</b>
773		4161-71184	CORD W/PLUG, RCA TYPE (ACCESSORY) (x2)
788	LUG1	4211-4	LUG, CABINET FRONT
788	LUG2	4211-4	LUG, CABINET FRONT

#### PACKAGE PARTS LIST

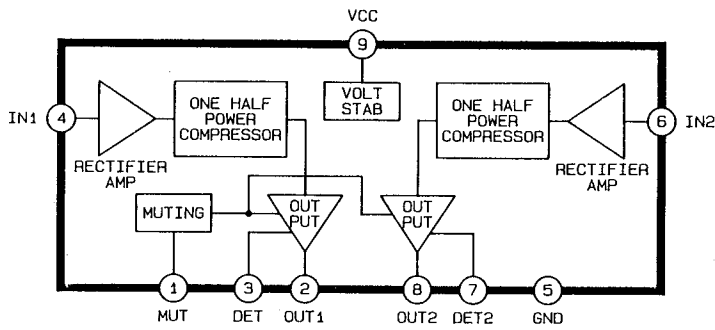
021B	1756-03108	LABEL (x2) <b>IB</b>
021C	1756-03111	LABEL (x2) <b>BB</b>
022B	1756-06303	LABEL <b>IB</b> <b>BB</b>
023C	1756-08501	LABEL 240V <b>BB</b>
024C	1111-J30319	OWNER GUIDE 240V CAUTION <b>BB</b>
109	1111-J30355	OWNER GUIDE <b>BK</b> <b>BB</b>
109B	1111-J30356	OWNER GUIDE <b>IB</b>
110	1113-02501	OWNER CARD <b>BK</b>
112	1116-03801	WARRANTY CARD <b>BK</b>
113	1119-04501	ATTACH SHEET, SERVICE STATION <b>BK</b>
114	1119-01201	ATTACH SHEET, SAFETY <b>BK</b>
117A	1221-30201	CARTON BOX <b>BK</b> <b>IB</b> <b>BB</b>
118	1222-7384	CUSHION, R
119	1222-7385	CUSHION, L
121	1223-R0220055	SOFT SHEET, SET FRONT
122	1223-00403012	SOFT SHEET, CASS. LID
123	1241-R0160600	POLYETHY BAG, SET
124	1241-R0123350	POLYETHY BAG, OG

#### NOTE:

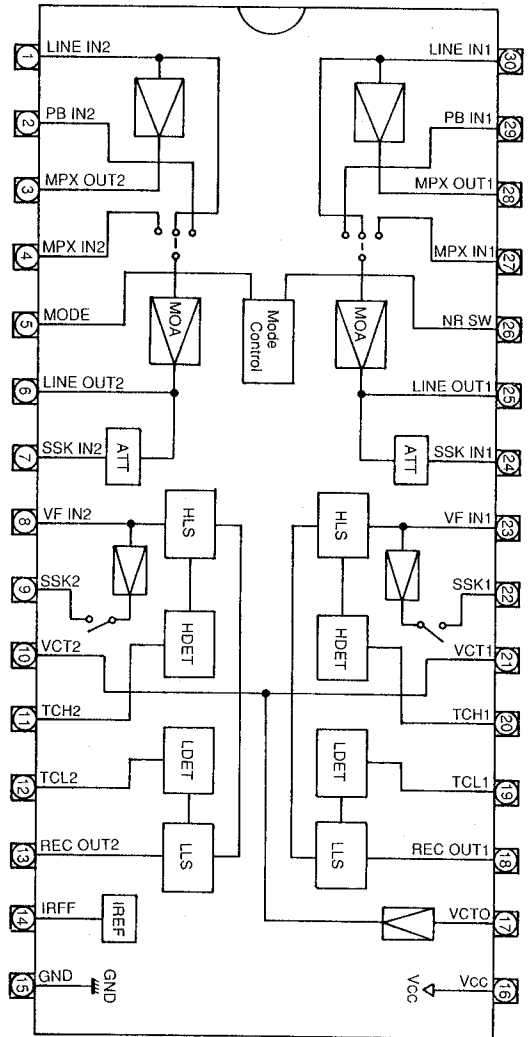
$\Delta$  SAFETY RELATED COMPONENT. USE ONLY EXACT REPLACEMENT PART AS SPECIFIED.

IC BLOCK DIAGRAM

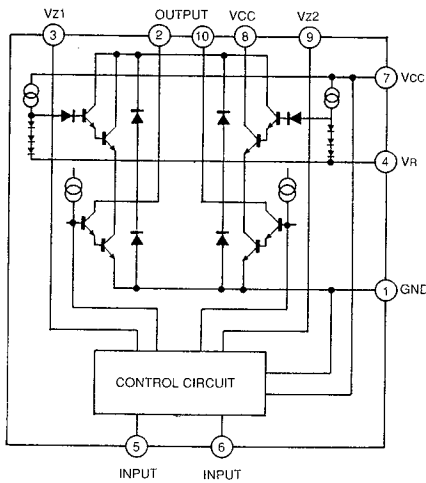
IC402 : BA6138  
Signal Level Meter



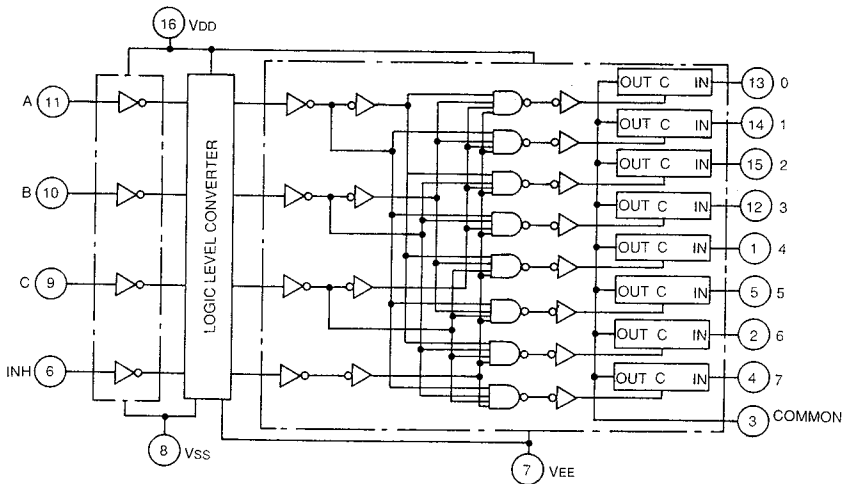
IC501 : CXA1330S  
Dolby B/C NR



IC801, 802 : BA6229  
Motor Driver

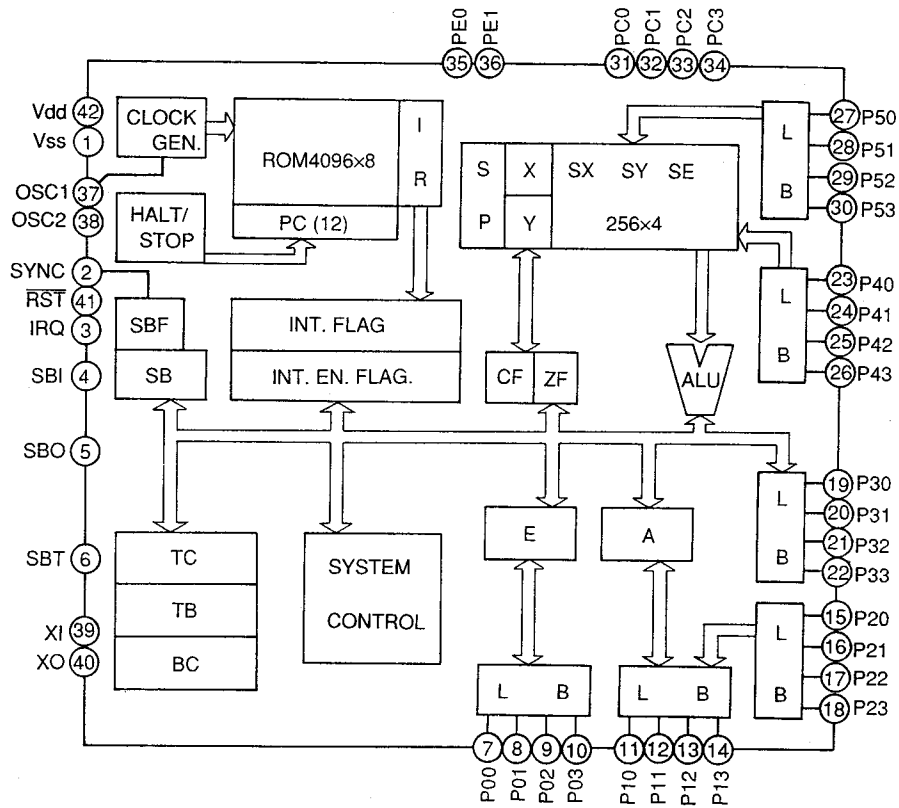


IC753 : TC4051BP





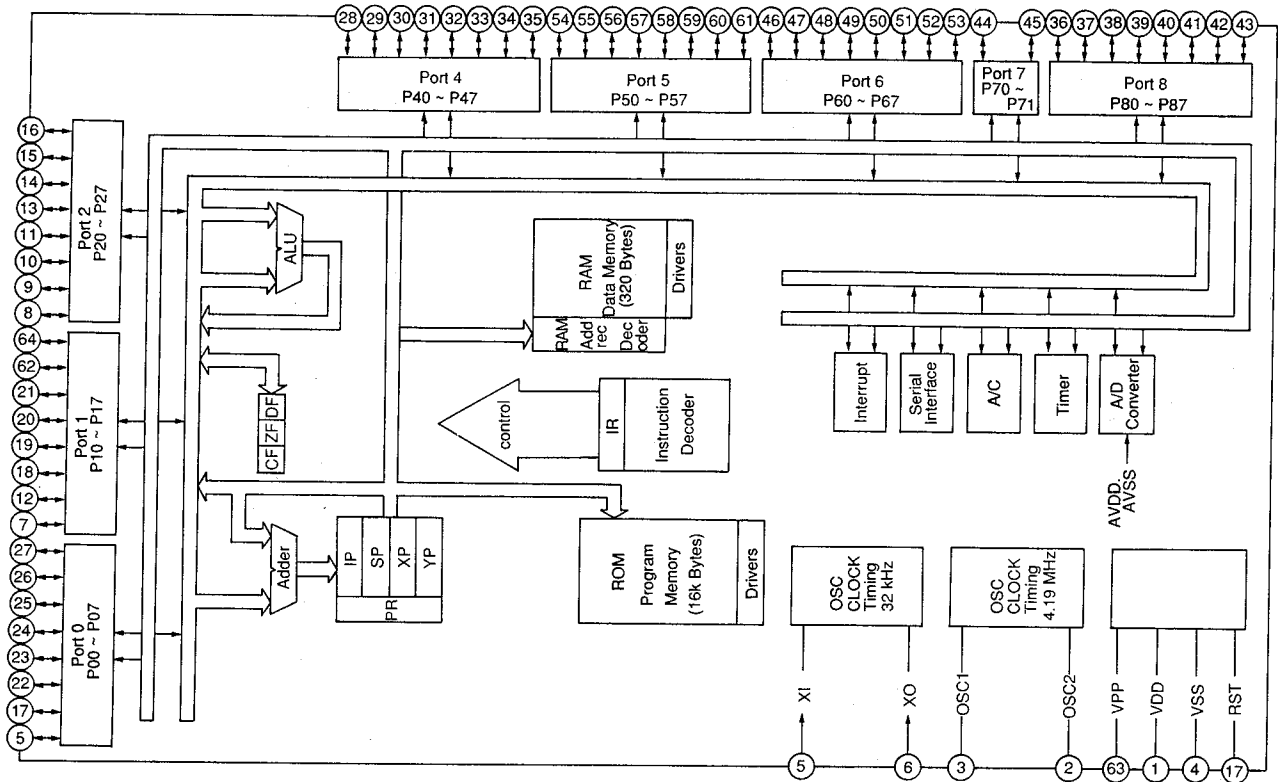
IC751 : MN15542  
Logic Control Block



TERMINAL FUNCTIONS

NO.	Name	Functional Name	I/O	Description	NO.	Name	Functional Name	I/O	Description
1	Vss	Vss		GND	22	P33	LINE MUTE	0	Line mute output
2	SYNC			Not used	23	P40	SEC-RPC	0	SEC reel motor drive
3	IRQ	STB IN	I	STB input from MAIN					voltage change-over
4	SBI	DATA IN	I	Data input from MAIN	24	P41	SEC-RM2	0	SEC reel motor reverse
5									drive output
6	SBT	CLK IN/OUT	I/O	Clock input/output for data communication with SUB	25	P42	SEC-RM1	0	SEC reel motor forward
7	P00	SEC-RE MUTE	0	SEC playback mute output					drive output
8	P01	SEC-REC MUTE	0	SEC REC mute output	26	P43	SEC-SOLP	0	SEC solenoid retaining
9	P02	SEC-REC	0	SEC REC change-over output					output
10	P03	SEC-BIAS	0	SEC bias drive output	27	P50	SEC-SOL	0	SEC solenoid trigger
11	P10	PRO-PB MUTE	0	PRI playback mute output					output
12	P11	PRI-REC MUTE	0	PRI recording mute output	28	P51	SEC-CPM	0	SEC capstan motor drive
13	P12	PRI-REC	0	PRI recording mute change-over					output
14	P13	PRI-BIAS	0	PRI bias drive output	29	P52	SEC-MMS	0	SEC capstan motor rpm
15	P20	PRI-RPC	0	PRI reel motor drive voltage change-over					change-over
16	P21	PRI-RM2	0	PRI reel motor reverse drive output	30	P53	HI SPD	0	EQ change-over at high-speed copy
17	P22	PRI-RM2	0	PRI reel motor forward DRIVE output	31	PC0	PRI-DOLBY C	0	PRI Dolby C drive output
18	P23	PRI-SOLP	0	PRI solenoid retaining power	32	PC1	PRI-DOLBY B	0	PRI Dobby B drive output
19	P30	PRI-SOL	0	PRI solenoid trigger output	33	PC2	PRI-MPX	0	PRI MPX filter drive output
20	P31	PRI-CPM	0	PRI capstan motor drive output	34	PC3	SEC-DOLBY C	0	SEC Dolby C drive output
21	P32	PRI-MMS	0	PRI capstan motor rpm change-over	35	PE0	SEC-DOLBY B	0	SEC Dolby B drive output
					36	PE1	BUSY OUT	0	
					37	OSC1	OSC1		Ceramic resonator connection
					38	OSC2	OSC2		Transmitting frequency : 4.0 MHz
					39	X1			Not used
					40	X0			Not used
					41	RST	RESET	I	Reset
					42	Vdd	Vdd		5V DC power connection

IC901 : MN187167  
Main Controller



TERMINAL FUNCTIONS

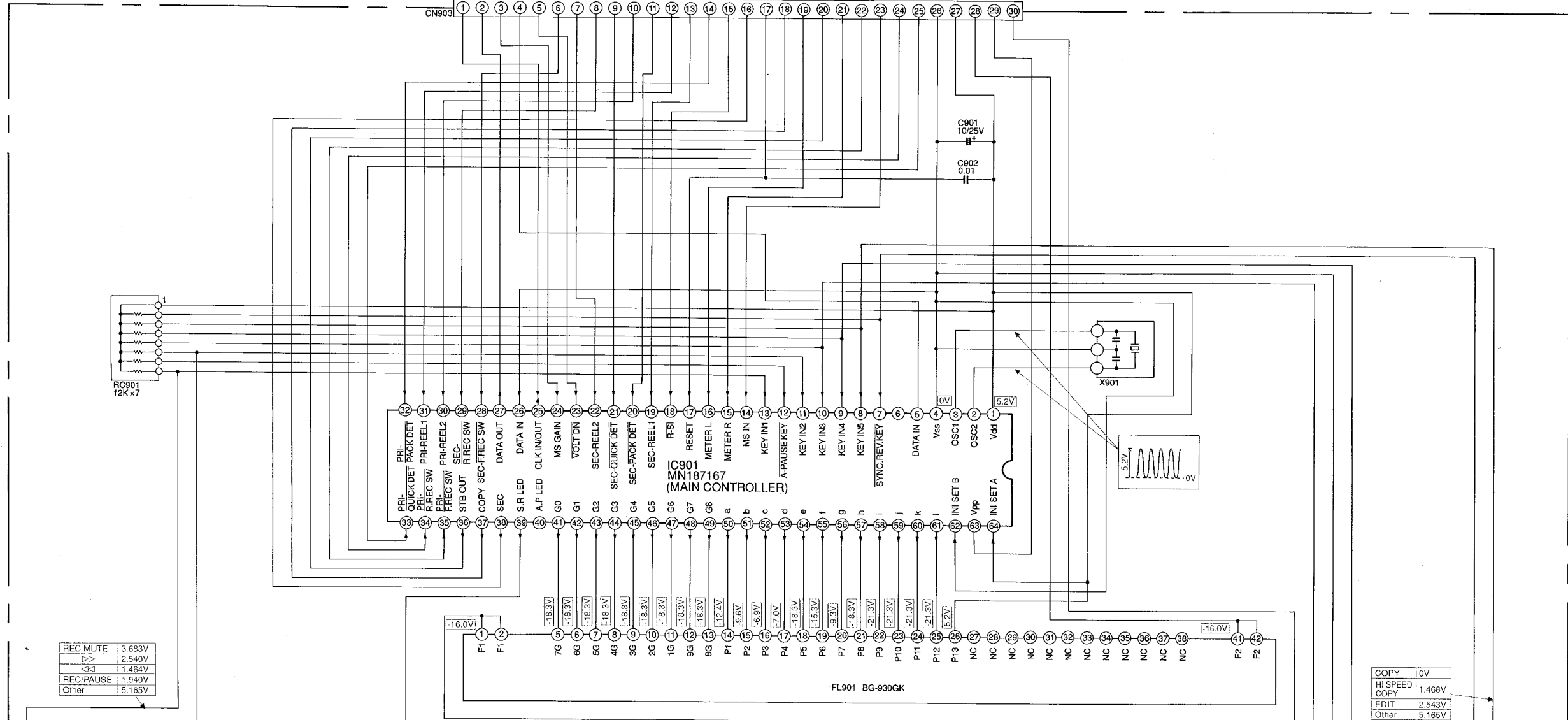
NO.	Name	Functional Name	I/O	Description	NO.	Name	Functional Name	I/O	Description	NO.	Name	Functional Name	I/O	Description
1	Vdd	Vdd		5V DC power supply	22	P05	R-SI	I	Remote control input	39	P84	S. R. LED	O	H when SYNC. REVERSE LED is on
2	OSC	OSC OUT		Ceramic resonator connection Transmitting frequency : 4.0 MHz	23	P04	VOLT-DN	I	Power OFF detection ; L when OFF	40	P83	A. P. LED	O	H when AUTO PAUSE LED is on
3	OSC	OSC IN			24	P03	MS GAIN	I	MS amplifier gain control ; H when the gain is small	41	P82	G0	O	FL display grid drive output
4	Vss	Vss		GND	25	P02	CLK IN/OUT	I/O	Clock input/output terminal for data communication with SUB	42	P81	G1	O	FL display anode drive output
5	P06	BUSY IN	I	BUSY IN	26	P01	DATA IN	I	Serial data input from SUB	43	P80	G2	O	
6	X0			Not used	27	P00	DATA OUT	O	Serial data output to SUB	44	P71	G3	O	
7	P17	SYNC. REV. KEY	I	SYNC. REVERSE key input	28	P47	SEC-F. REC	I	SEC tape front hook detection ; L when REC enabled	45	P70	G4	O	
12	P16	A-PAUSE KEY	I	AUTO PAUSE key input	29	P46	SEC-R. REC	I	SEC tape rear hook detection	46	P67	G5	O	
8	AD7	KEY IN 5	I	Key input	30	P45	PRI-REEL 2	I	PRI right reel pulse input	47	P66	G6	O	
9	AD6	KEY IN 4	I	Judging which key has been pressed by DC	31	P44	PRI-REEL 1	I	PRI left reel pulse input	48	P65	G7	O	
10	AD5	KEY IN 3	I	voltage detection with an A/D converter	32	P43	PRI-PACK DET	I	PRI pack detection	49	P64	G8	O	
11	AD4	KEY IN 2	I		A/D input port for MS detection	33	P42	PRI-QUICK DET	I	PRI quick photo detection	50	P63	a	O
13	AD3	KEY IN 1	I	Level meter right channel input	34	P41	PRI-R. REC	I	PRI tape rear hook detection	51	P62	b	O	
14	AD2	MS IN	I		Level meter left channel input	35	P40	PRI-F. REC	I	PRI tape front hook detection	52	P61	c	O
15	AD1	METER R	I	Reset	36	P87	STB OUT	O	STB output to SUB	53	P60	d	O	
16	AD0	METER L	I	SEC right reel pulse input	37	P86	COPY	O	H when copying from SEC to PRI	54	P57	e	O	
17	RST	RESET	I	SEC left reel pulse input	38	P85	SEC	O	Voice output to LINE OUT and MS amplifier: H when SEC output and L when PRI output	55	P56	f	O	
18	P15	SEC-REEL 2	I	SEC pack detection ; L when a cassette is present					56	P55	g	O		
19	P14	SEC-REEL 1	I						57	P54	h	O		
20	P13	SEC-PACK DET	I						58	P53	i	O		
21	P12	SEC-QUICK DET	I						59	P52	j	O		
									60	P51	k	O		
									61	P50	l	O		
									62	P11	INI SET B	I	Initial setting SW B connection	
									63	Vpp	Vpp		Negative voltage load terminal for FL	
									64	P10	INI SET A		Initial setting SW A connection	

# SCHEMATIC DIAGRAM (1)

- NOTES:
1. ALL RESISTANCES VALUES ARE IN  $\Omega$ .  
k $\Omega$  = 1000 $\Omega$ , M $\Omega$  = 1000k $\Omega$ .
  2. THE WATTAGE OF RESISTORS IS 1/2W UNLESS OTHERWISE NOTED.
  3. ALL CAPACITANCES VALUES ARE IN  $\mu$ F UNLESS OTHERWISE NOTED. P =  $\mu$  $\mu$ F.
  4. V : DC VOLTAGE AT NO SIGNAL.

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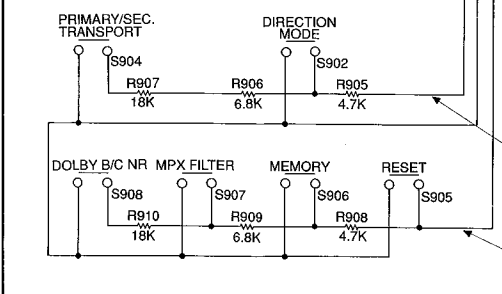
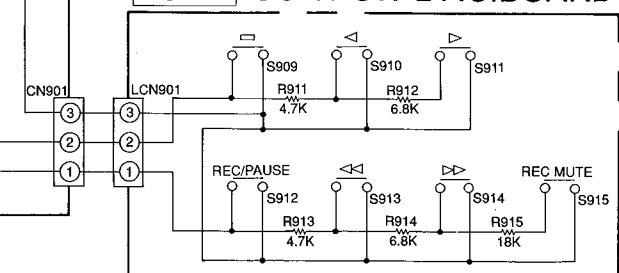
## PCB-5 FRONT P. C. BOARD



REC MUTE	3.683V
▶▶	2.540V
<<	1.464V
REC/PAUSE	1.940V
Other	5.165V

COPY	0V
HI SPEED	1.468V
COPY	2.543V
EDIT	2.543V
Other	5.165V

## PCB-7 CONT SW-L P.C. BOARD



DIRECTION MODE	1.460V
PRIMARY/SEC TRANSPORT	3.682V
Other	5.165V
RESET	0V
MEMORY	1.465V
MPX FILTER	2.538V
DOLBY B/C NR	3.692V
Other	5.165V

SYNC REVERSE	0V
Other	5.165V

# SCHEMATIC DIAGRAM (1)

## NOTES:

1. ALL RESISTANCES VALUES ARE IN  $\Omega$ .  
k $\Omega$  = 1000 $\Omega$ , M $\Omega$  = 1000k $\Omega$ .
2. THE WATTAGE OF RESISTORS IS 1/2W UNLESS OTHERWISE NOTED.

## OTHERWISE NOTED.

3. ALL CAPACITANCES VALUES ARE IN  $\mu$ F UNLESS OTHERWISE NOTED. P =  $\mu$ F.
4. V : DC VOLTAGE AT NO SIGNAL.

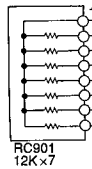
### PCB-5 FRONT P. C. BOARD

Page 25



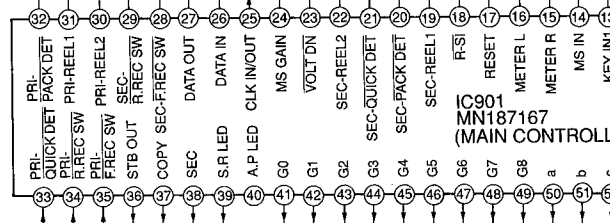
- 1 CLK IN/OUT
- 2 DATA OUT
- 3 MS GAIN
- 4 BUSY IN
- 5 VOLT DN
- 6 SEC-F.REC SW
- 7 SEC-REEL2
- 8 SEC-R.REC SW
- 9 SEC-QUICK DET
- 10 PRI-REEL2
- 11 SEC-PACK DET
- 12 PRI-REEL1
- 13 SEC-REEL1
- 14 PRI-PACK DET
- 15 R-SI
- 16 SEC
- 17 RESET

CN903



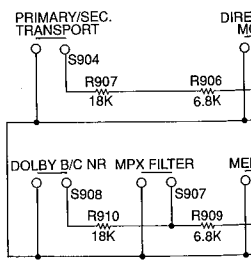
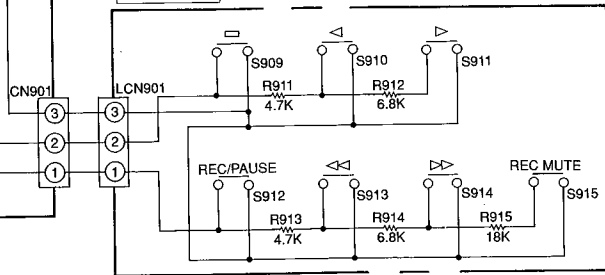
REC MUTE	3.683V
$\triangleright$	2.540V
$\triangleleft$	1.464V
REC/PAUSE	1.940V
Other	5.165V

$\triangleright$	2.540V
$\triangleleft$	1.470V
$\square$	0V
Other	5.165V

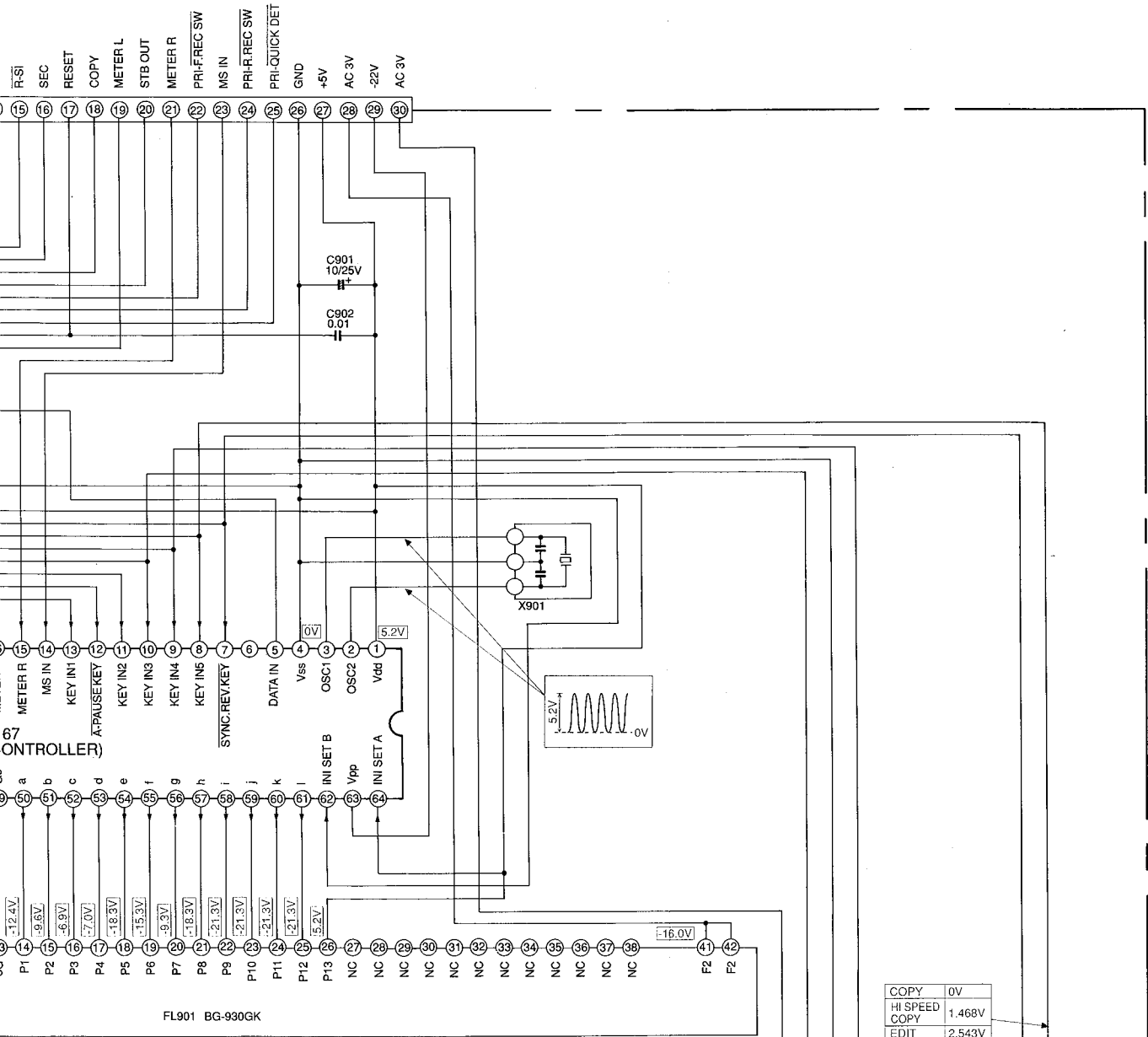


R903  
220

### PCB-7 CONT SW-L P.C. BOARD



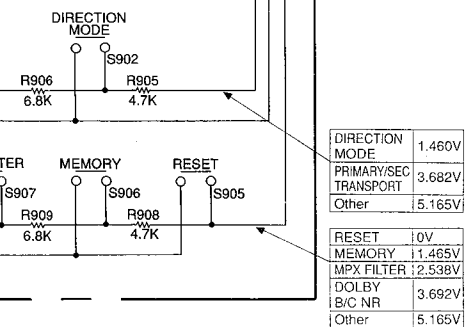
F G H I J



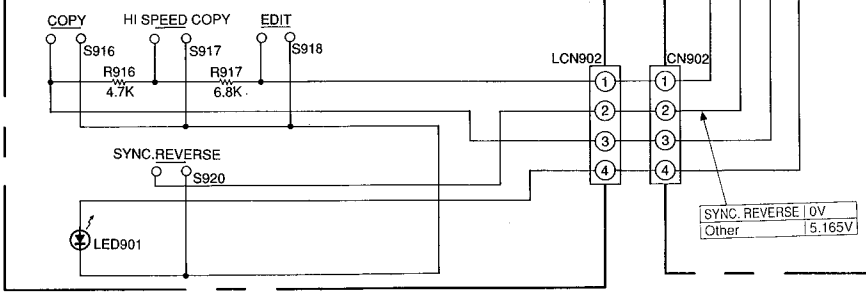
FL901 BG-930GK

COPY	0V
HI SPEED COPY	1.468V
EDIT	2.543V
Other	5.165V

**PCB-6 CONT SW-R P.C.BOARD**



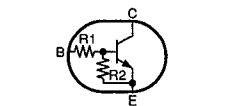
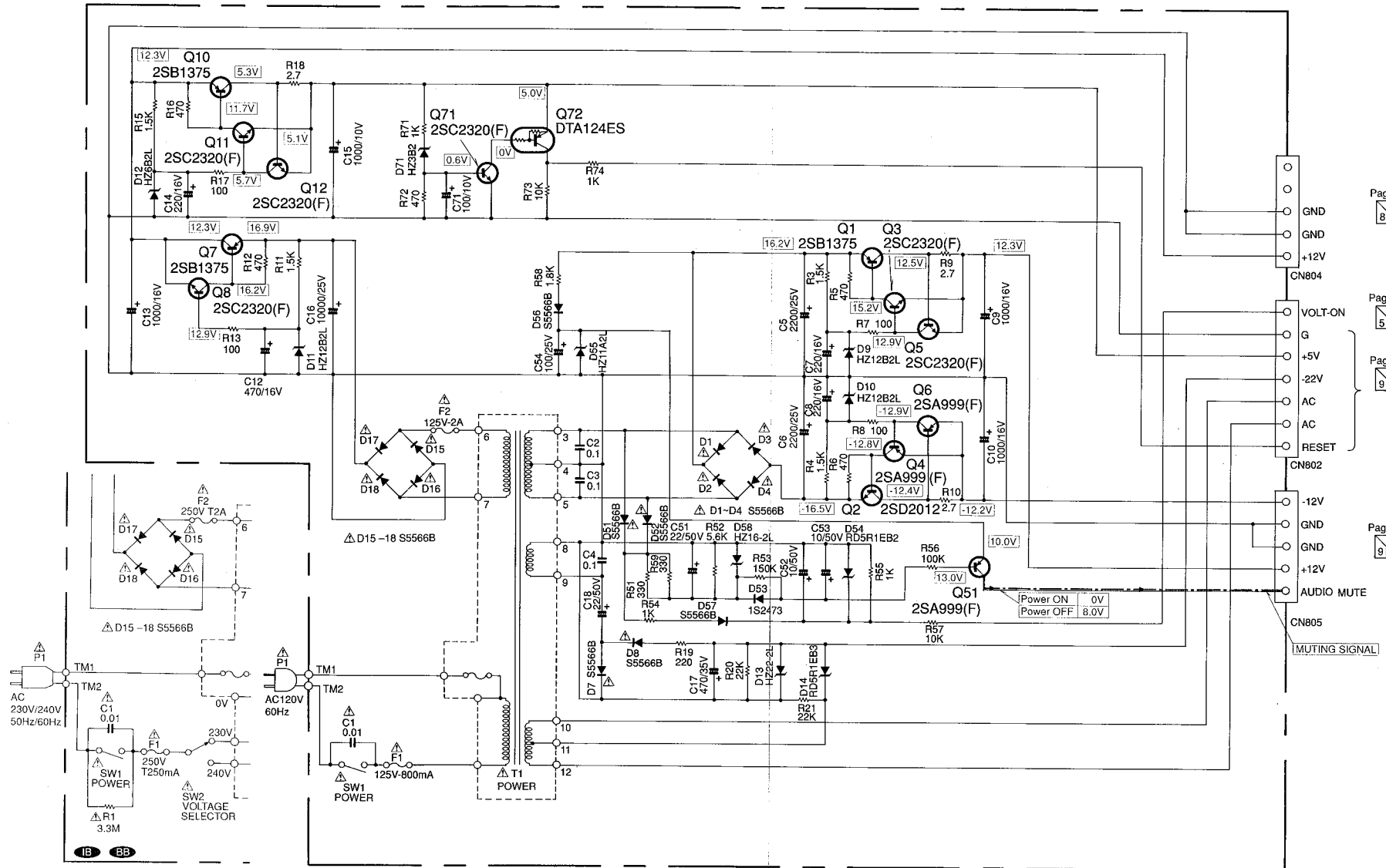
DIRECTION MODE	1.460V
PRIMARY/SEC TRANSPORT	3.682V
Other	5.165V
RESET	10V
MEMORY	11.465V
MPX FILTER	12.538V
DOLBY	3.692V
B/C NR	3.692V
Other	5.165V



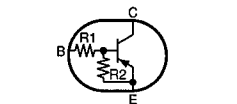
SYNC REVERSE	10V
Other	5.165V

SCHEMATIC DIAGRAM (2)

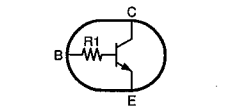
PCB-4 POWER P. C. BOARD (1/2)



Type	R1	R2
DTC114YS	10K	47K
DTC124ES	22K	22K



Type	R1	R2
DTA114YS	10K	47K
DTA124ES	22K	22K
DTA143ES	4.7K	4.7K



Type	R1
DTC114TS	10K

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1

2

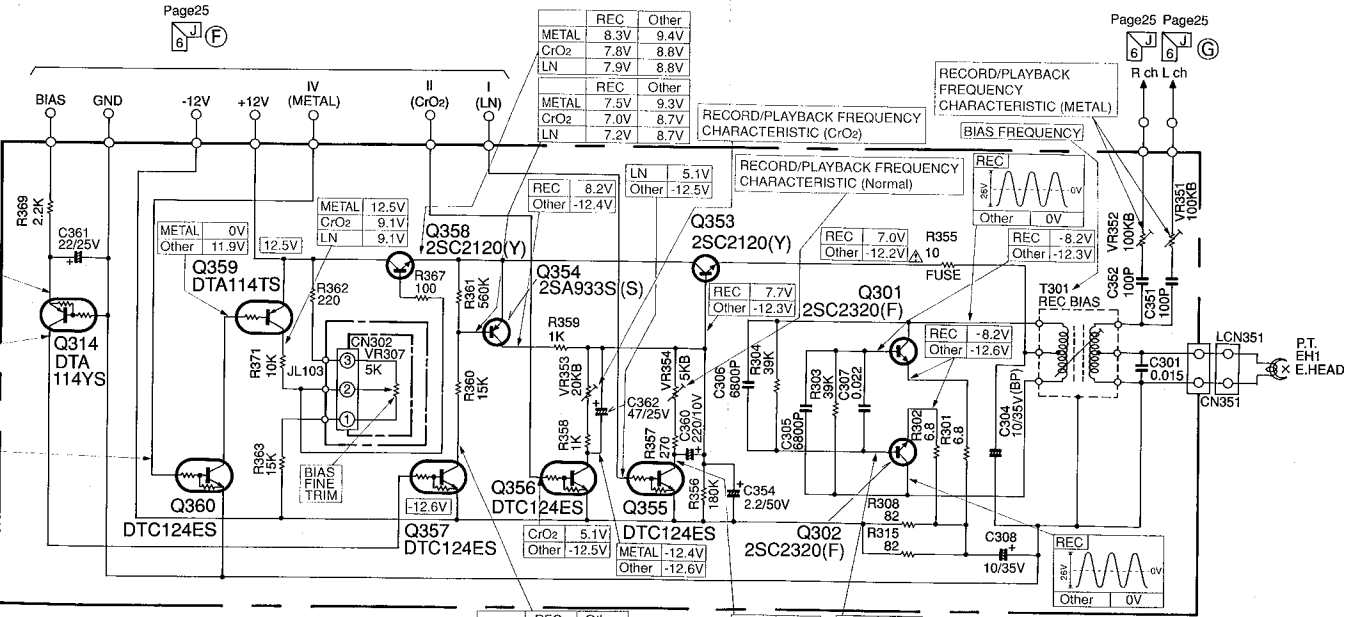
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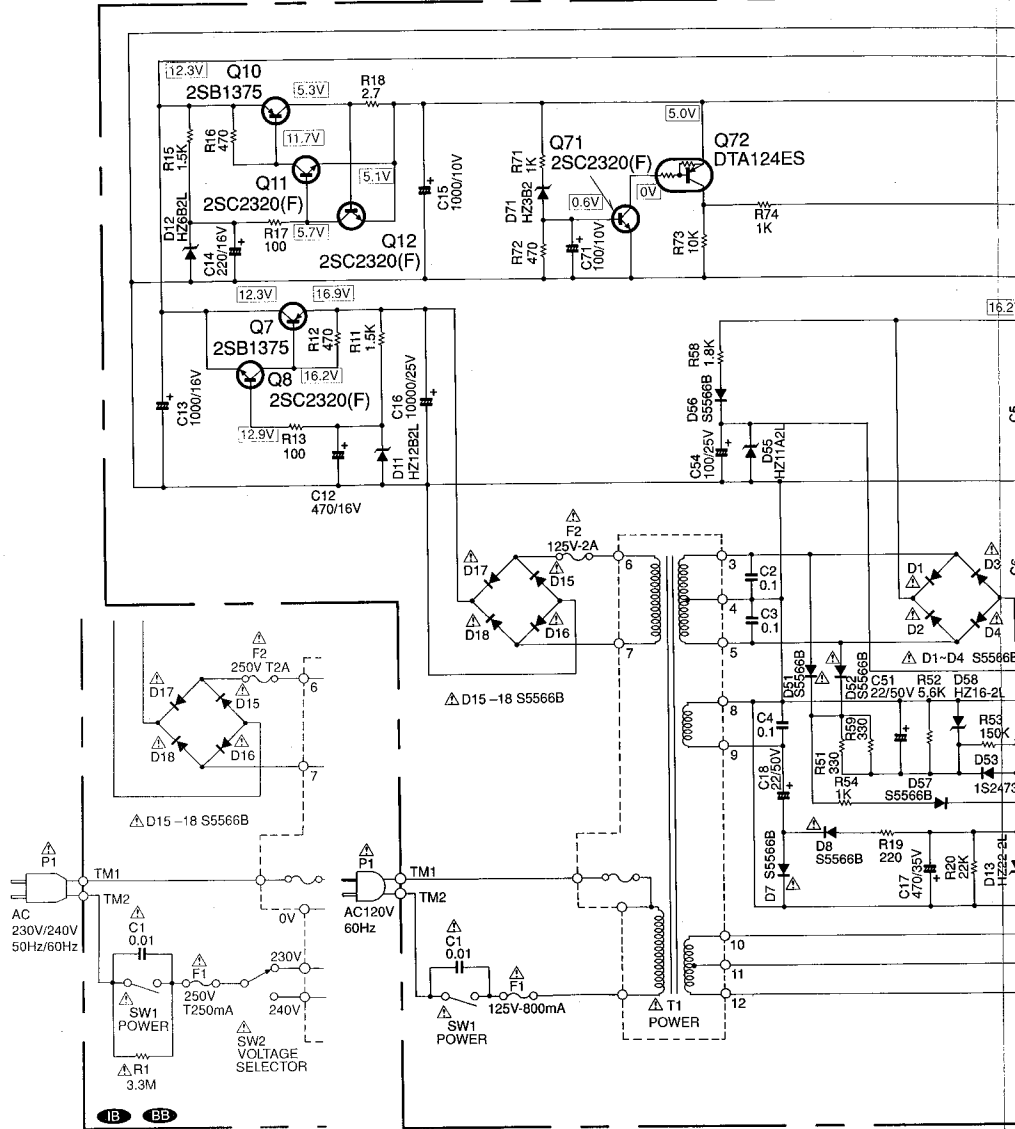
PCB-1 MAIN P. C. BOARD (2/2)

	REC	Other
METAL	-12.5V	9.3V
CrO2	-12.5V	8.7V
LN	-12.5V	8.7V

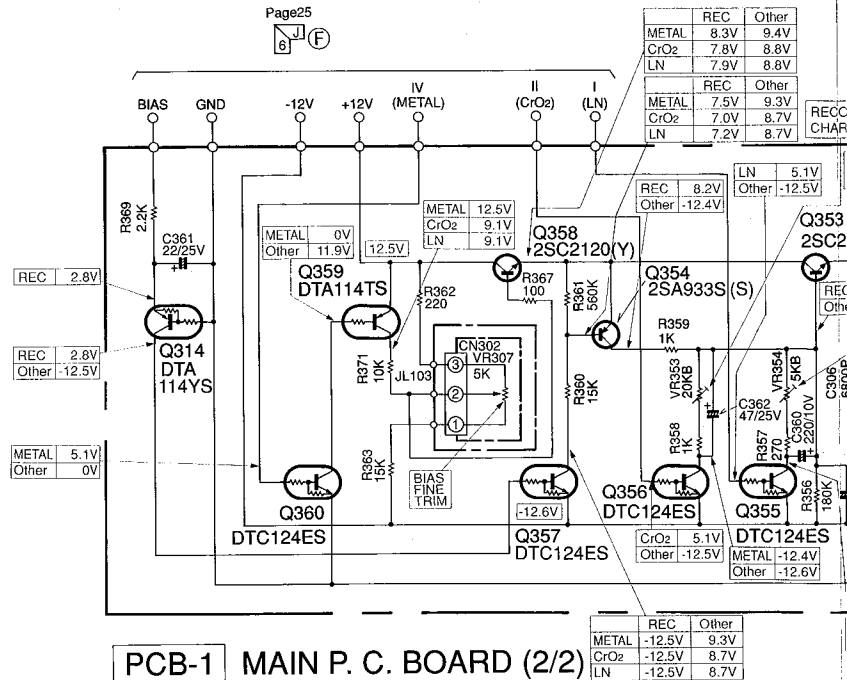
	METAL	REC	Other
	-12.4V	-8.3V	-12.3V
	-12.6V		

SCHEMATIC DIAGRAM (2)

PCB-4 POWER P. C. BOARD (1/2)



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PCB-1 MAIN P. C. BOARD (2/2)

	REC	Other
METAL	8.3V	9.4V
CrO <sub>2</sub>	7.8V	8.8V
LN	7.9V	8.8V
	REC	Other
METAL	7.5V	9.3V
CrO <sub>2</sub>	7.0V	8.7V
LN	7.2V	8.7V

	REC	Other
METAL	12.5V	11.9V
CrO <sub>2</sub>	9.1V	9.1V
LN	9.1V	9.1V

	REC	Other
METAL	5.1V	0V
CrO <sub>2</sub>	5.1V	0V
LN	5.1V	0V

	REC	Other
METAL	2.8V	2.8V
CrO <sub>2</sub>	2.8V	12.5V
LN	2.8V	12.5V

	REC	Other
METAL	-12.5V	9.3V
CrO <sub>2</sub>	-12.5V	8.7V
LN	-12.5V	8.7V

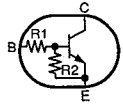
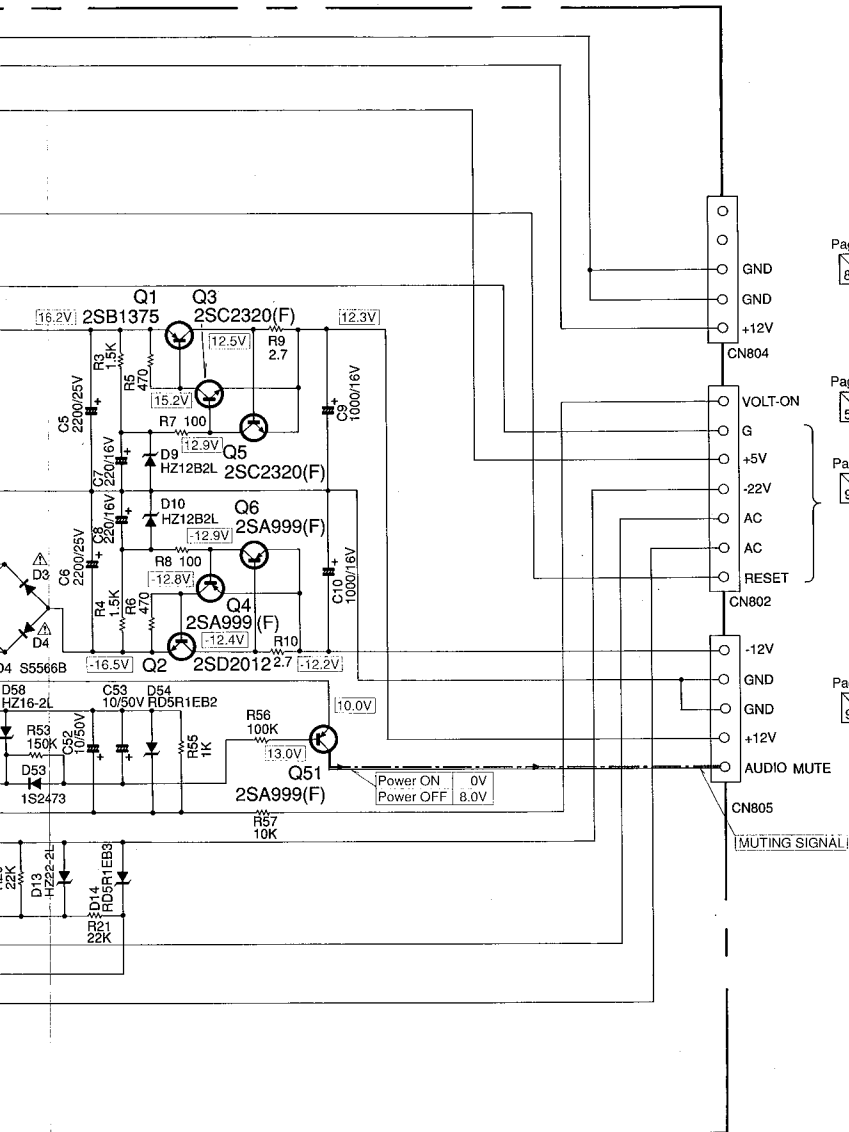
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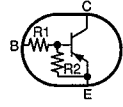
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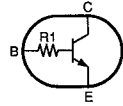
J



Type	R1	R2
DTC114YS	10K	47K
DTC124ES	22K	22K



Type	R1	R2
DTA114YS	10K	47K
DTA124ES	22K	22K
DTA143ES	4.7K	4.7K



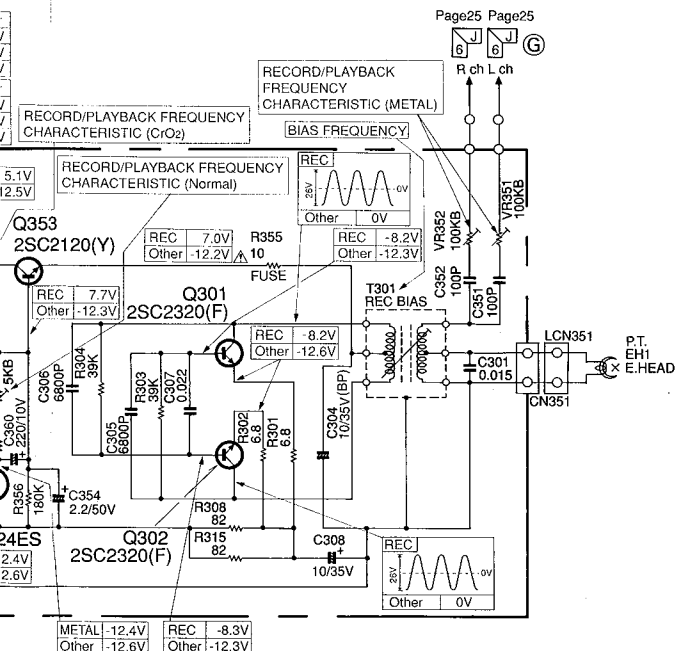
Type	R1
DTC114TS	10K

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RECORD/PLAYBACK FREQUENCY CHARACTERISTIC (METAL)

RECORD/PLAYBACK FREQUENCY CHARACTERISTIC (CrO2)

RECORD/PLAYBACK FREQUENCY CHARACTERISTIC (Normal)

RECORD/PLAYBACK FREQUENCY CHARACTERISTIC (Normal)

RECORD/PLAYBACK FREQUENCY CHARACTERISTIC (Normal)

RECORD/PLAYBACK FREQUENCY CHARACTERISTIC (Normal)

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RECORD/PLAYBACK FREQUENCY CHARACTERISTIC (Normal)

RECORD/PLAYBACK FREQUENCY CHARACTERISTIC (Normal)

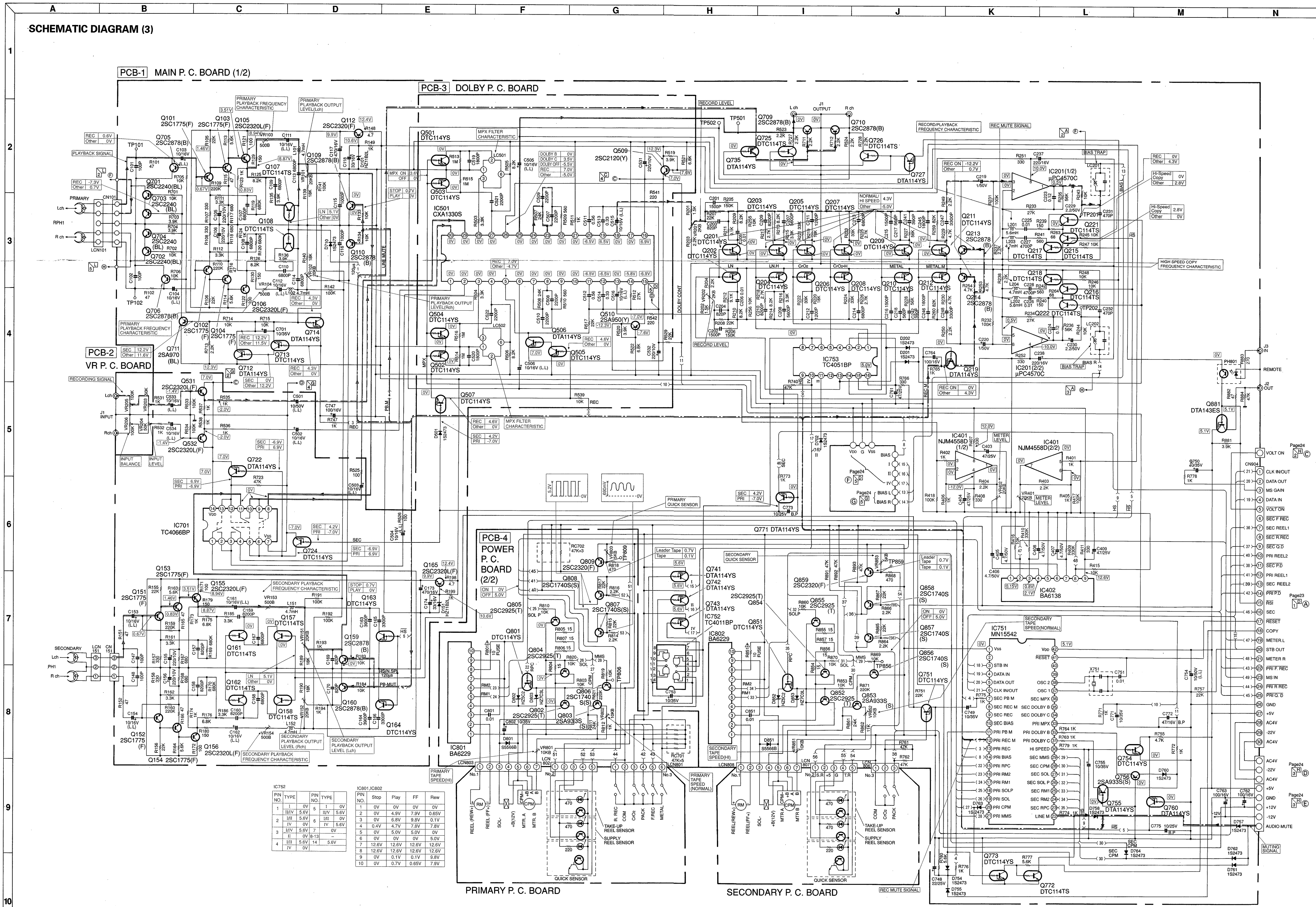
RECORD/PLAYBACK FREQUENCY CHARACTERISTIC (Normal)

RECORD/PLAYBACK FREQUENCY CHARACTERISTIC (Normal)

METAL	-12.4V	REC	-8.3V
Other	-12.6V	Other	-12.3V



SCHEMATIC DIAGRAM (3)

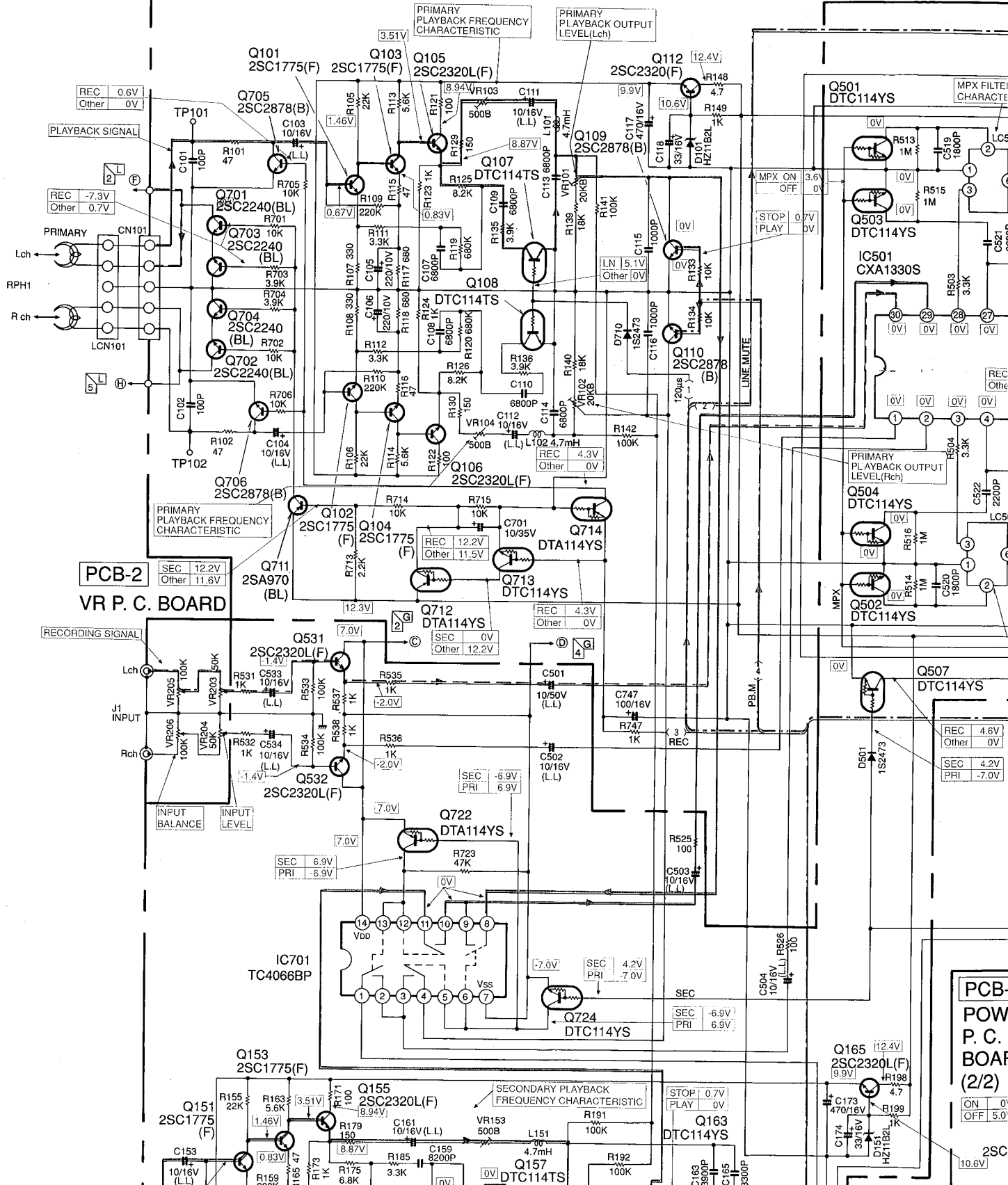


IC752				IC801, IC902				
PIN NO.	TYPE	PIN NO.	TYPE	NO.	Stop	Play	FF	Rew
1	I	0V	0V	1	0V	0V	0V	0V
2	IV	5.6V	IV	2	0V	4.9V	7.9V	0.65V
3	IV	5.6V	IV	3	0V	5.8V	9.8V	0.1V
4	IV	5.6V	IV	4	0.4V	4.7V	7.8V	7.8V
5	IV	5.6V	7	0V	0V	5.0V	5.0V	0V
6	IV	5.6V	14	5.6V	6	0V	0V	5.0V
7	IV	5.6V	14	5.6V	7	12.6V	12.6V	12.6V
8	IV	5.6V	14	5.6V	8	12.6V	12.6V	12.6V
9	IV	5.6V	14	5.6V	9	0V	0.1V	9.8V
10	IV	5.6V	14	5.6V	10	0V	0.7V	0.65V

# SCHEMATIC DIAGRAM (3)

## PCB-1 MAIN P. C. BOARD (1/2)

## PCB-3 DOLBY P. C.



## PCB-2 VR P. C. BOARD

## PCB-4 POW P. C. BOARD (2/2)

F

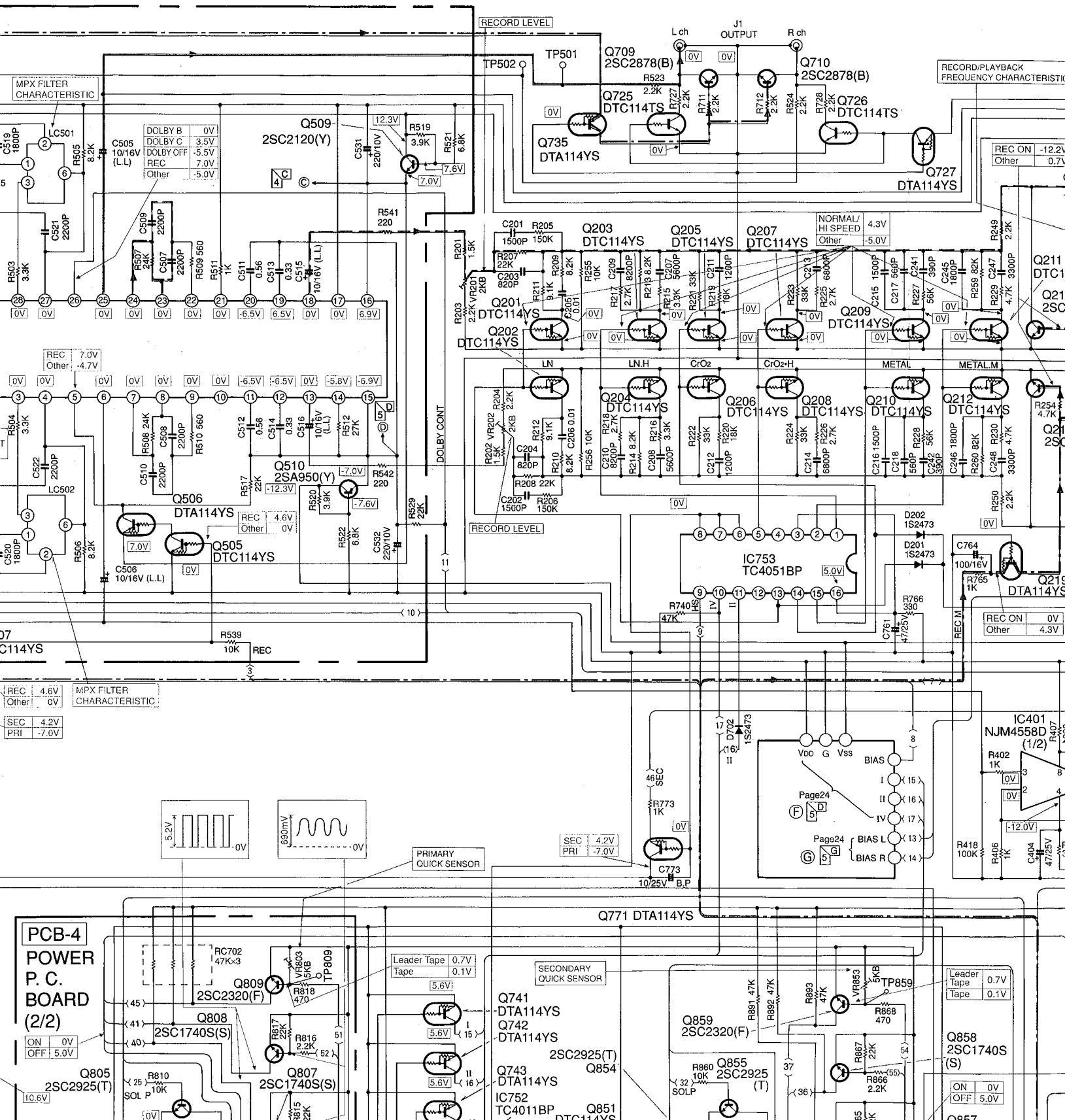
G

H

I

J

BY P. C. BOARD



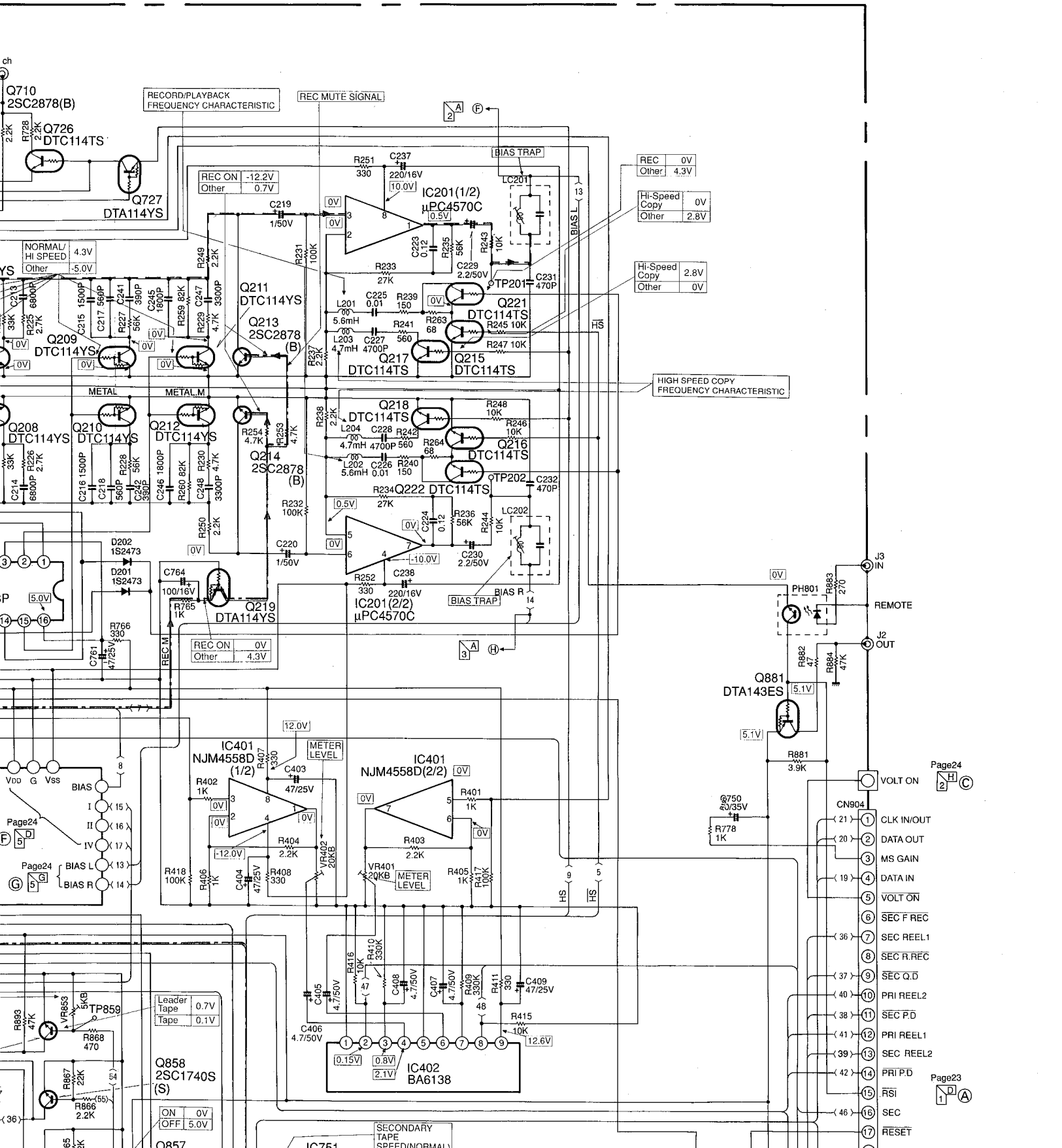
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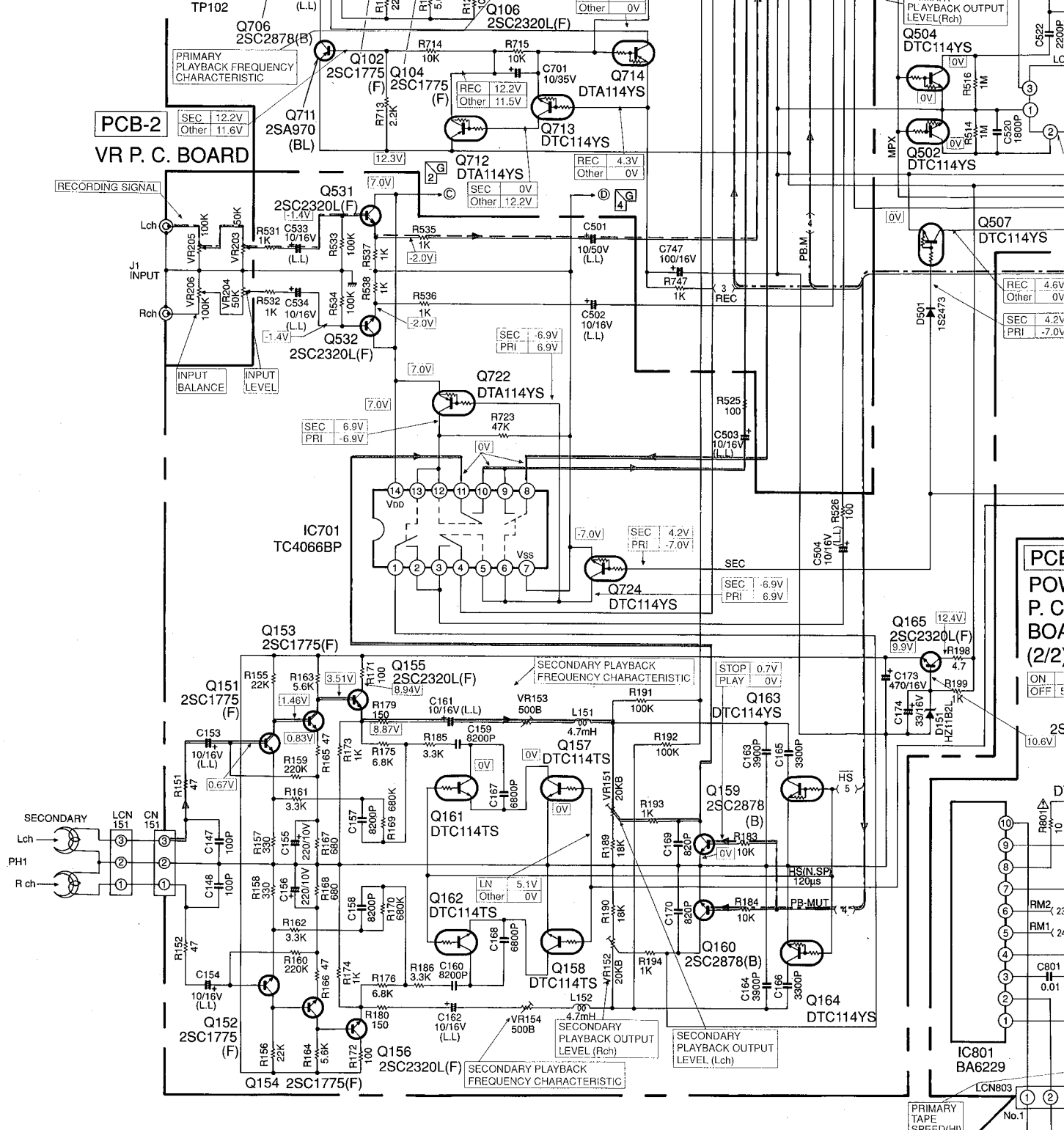
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N



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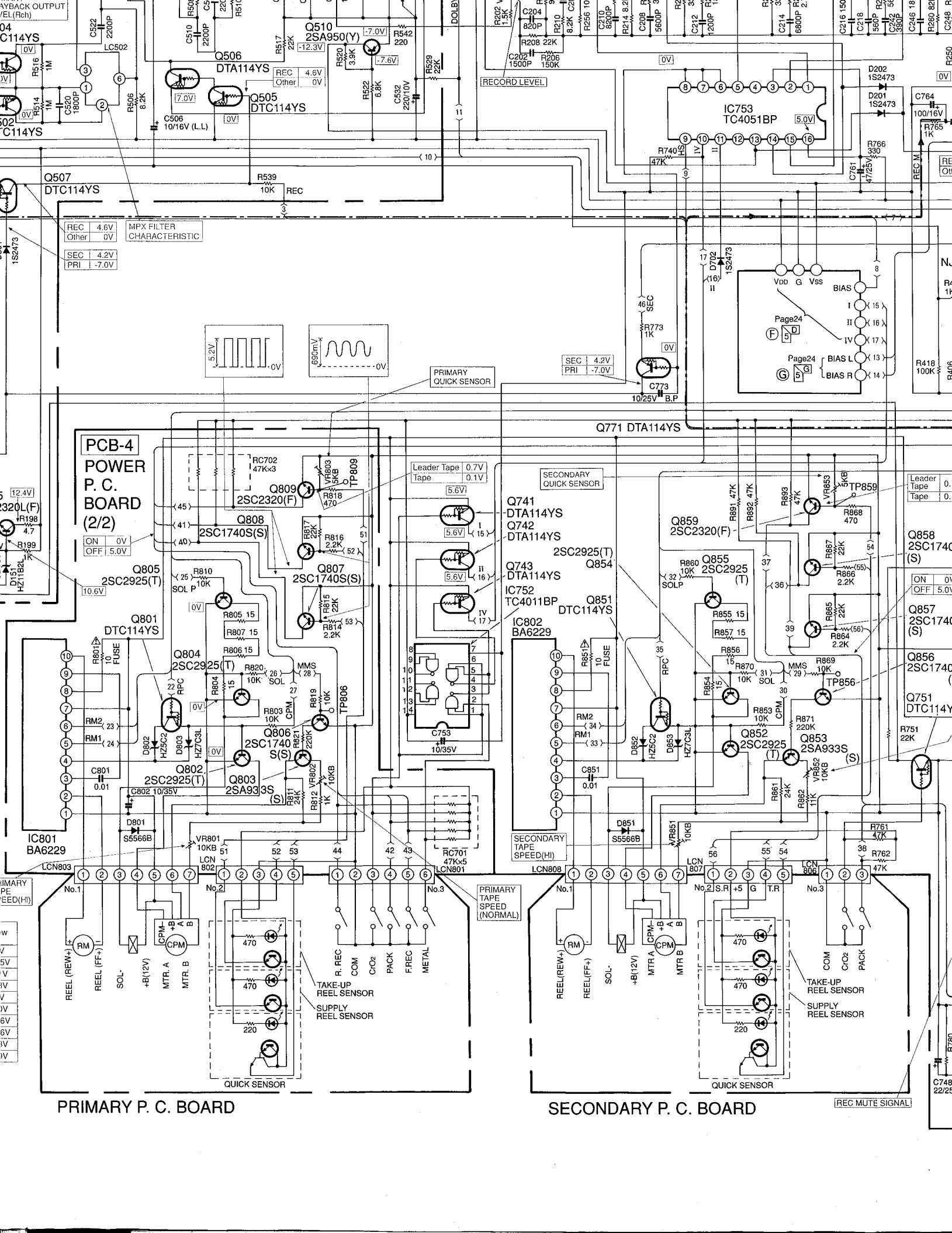
IC752

PIN NO.	TYPE	0V	PIN NO.	TYPE	0V
1	I	0V	5	I/IV	5.6V
2	II/IV	5.6V	6	I/II	0V
3	IV	0V	7	IV	5.6V
4	I/IV	5.6V	8-13	-	-
5	II	0V	14	-	5.6V
6	I/II	5.6V			
7	IV	0V			

IC801, IC802

PIN NO.	Stop	Play	FF	Rew
1	0V	0V	0V	0V
2	0V	4.9V	7.9V	0.65V
3	0V	6.8V	9.8V	0.1V
4	0.4V	4.7V	7.8V	7.8V
5	0V	5.0V	5.0V	0V
6	0V	0V	0V	5.0V
7	12.6V	12.6V	12.6V	12.6V
8	12.6V	12.6V	12.6V	12.6V
9	0V	0.1V	0.1V	9.8V
10	0V	0.7V	0.65V	7.9V

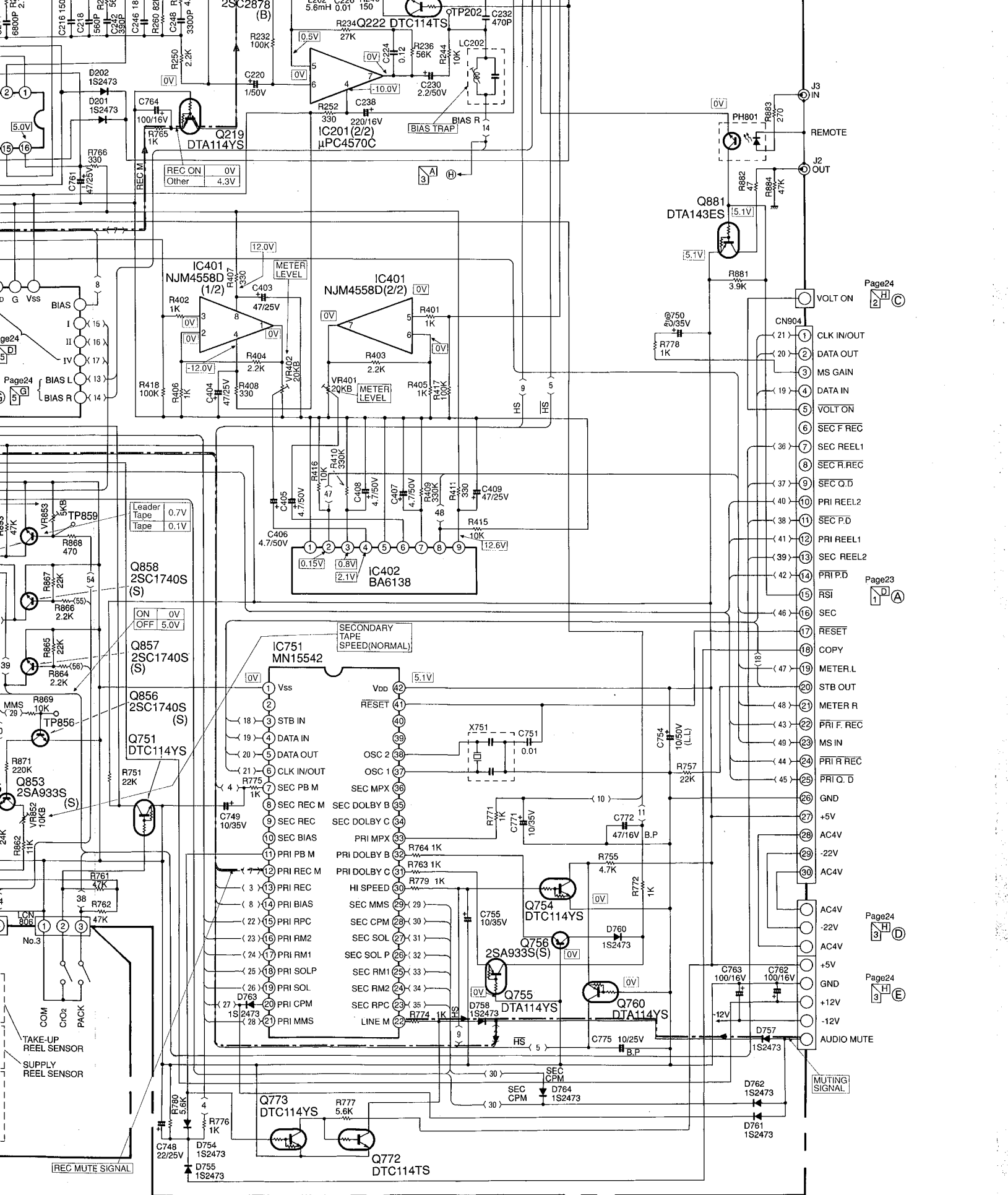
PRIMARY



PRIMARY P.C. BOARD

SECONDARY P.C. BOARD

REC MUTE SIGNAL



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