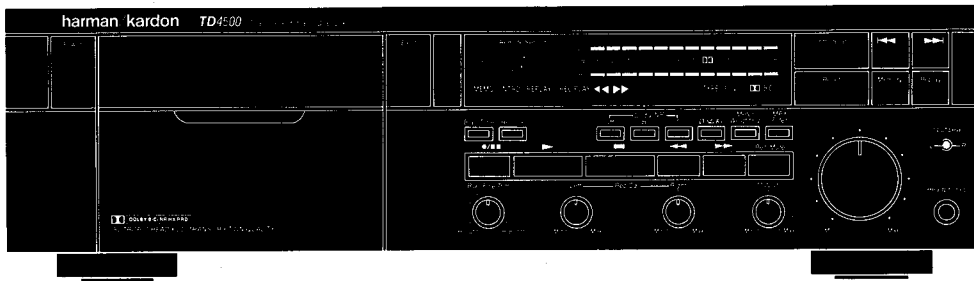


# The Harman Kardon Model TD4500

Manual 163A

## CD TRANSCRIPTION QUALITY CASSETTE DECK

# Technical Manual



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

- UA :North America area model
- BK :North America area Black version
- I :International model
- IB :International model Black version

**harman/kardon**

240 Crossways Park West, Woodbury, N.Y. 11797  
1112-3152163A6 P-119010 2000 Printed in Japan

TD4500

**SPECIFICATIONS**

|                     |                          |       |
|---------------------|--------------------------|-------|
| Track Configuration | Nominal                  | Limit |
|                     | 4-track 2 Channel Stereo |       |
|                     | Cassette Deck            |       |

**• MECHANICAL SECTION**

|                            |                   |             |
|----------------------------|-------------------|-------------|
| Record/Playback Tape Speed |                   |             |
| Drift 4.75cm/sec.          | 0.2% ±2.0%        |             |
| Wow and Flutter            | 0.045%(NAB) ≤0.1% |             |
|                            | 0.07%(CCIR)       |             |
| Take Up Torque             | 50gr.cm           | 35~70gr.cm  |
| Back Tension               | 4gr.cm            | 2~6gr.cm    |
| F.FWD Torque               | 100gr.cm          | 70~150gr.cm |
| REW Torque                 | 100gr.cm          | 70~150gr.cm |
| F.FWD/REW Time (C-60 Tape) | 90sec.            | ≤100sec.    |

**• AMPLIFIER SECTION**

|                                  |                  |            |
|----------------------------------|------------------|------------|
| Bias Frequency                   | 105kHz ±5kHz     |            |
| Playback Output                  | 1150mV ±1.5dB    |            |
| Signal-to-Noise Ratio            |                  |            |
| at Line Input (Input 1kHz,100mV) |                  |            |
| IHF-A WTD at Dolby Level         |                  |            |
| Dolby NR off                     |                  |            |
|                                  | LN               | 51dB       |
|                                  | CrO <sub>2</sub> | 54dB       |
|                                  | Metal            | 54dB       |
| Dolby B NR                       |                  |            |
|                                  | LN               | 61dB       |
|                                  | CrO <sub>2</sub> | 64dB ≥60dB |
|                                  | Metal            | 64dB ≥60dB |
| Dolby C NR                       |                  |            |
|                                  | LN               | 66dB       |
|                                  | CrO <sub>2</sub> | 70dB ≥66dB |
|                                  | Metal            | 70dB ≥66dB |

|   |         |       |
|---|---------|-------|
| Channel Separation                      | Nominal | Limit |
| Crosstalk                               | 45dB    | ≥35dB |
| Record/Playback Distortion (Input 1kHz) | 70dB    | ≥60dB |

|                          |                  |       |       |
|--------------------------|------------------|-------|-------|
|                          | LN               | 0.9%  | ≤2.0% |
|                          | CrO <sub>2</sub> | 1.5%  | ≤3.0% |
|                          | Metal            | 1.3%  | ≤2.0% |
| MPX Filter Attenuation   |                  |       |       |
| at 15kHz                 | 0.3dB            | ≤1dB  |       |
| at 19kHz                 | 35dB             | ≥30dB |       |
| Erase Ratio (Input 80Hz) |                  |       |       |
|                          | LN               | 70dB  | ≥60dB |
|                          | Metal            | 61dB  | ≥56dB |

|  |      |                    |
|--|------|--------------------|
| Input Sensitivity (Input 1kHz) at Line Input | 45mV | 40(min)~100(max)mV |
| Input Impedance (Input 1kHz) at Line Input   | 22kΩ | 19(min)~30(max)kΩ  |

**• DIMENSIONS(WxHxD)** 17-3/8" x 5" x 12-5/8" (442 x 126 x 320 mm)

**• WEIGHT** 13.4lbs(6.1kg)

**• POWER SUPPLY**  
 U.S.A. and Canada models AC120V, 60Hz  
 International model AC220V/240V,50/60Hz

**• POWER CONSUMPTION**  
 U.S.A. and Canada models 28W  
 International model 30W

These specifications are service target specs. Specifications and components are subject to change without notice. Overall performance will be maintained or improved.

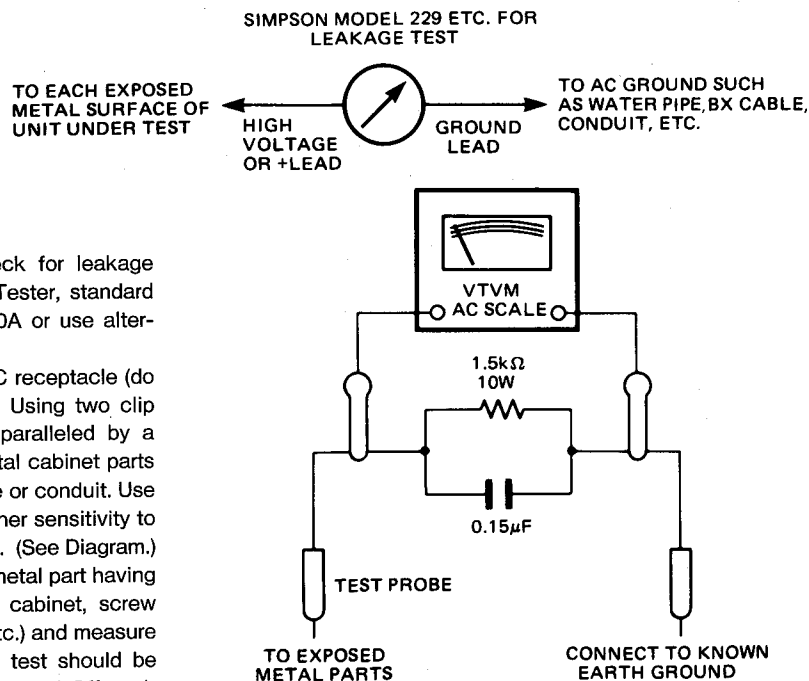
**LEAKAGE TEST (FOR SERVICE ENGINEERS IN THE U.S.A.)**

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:

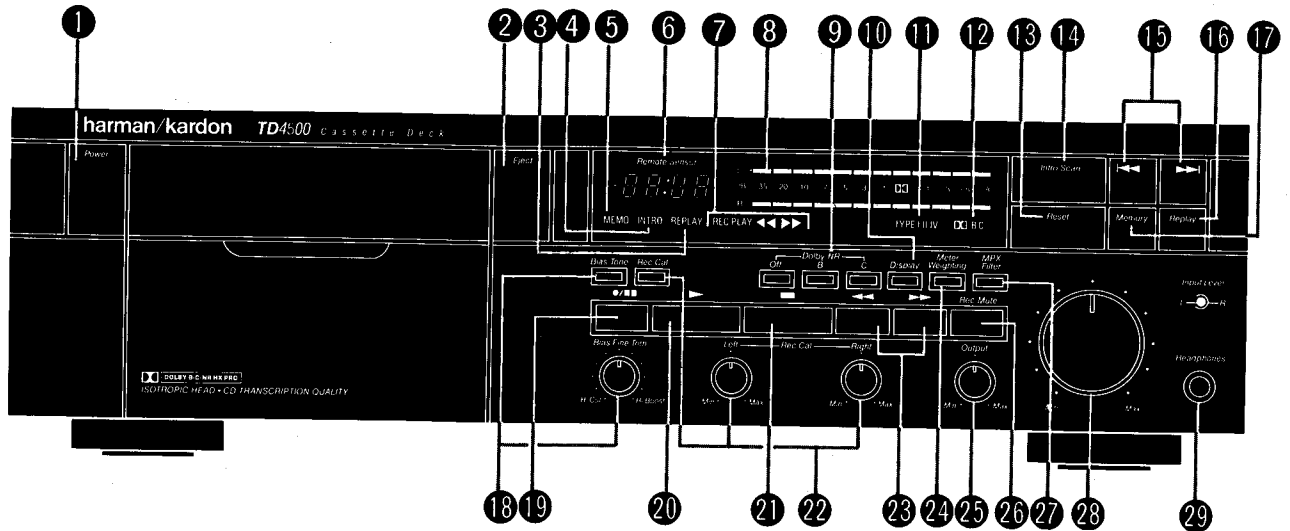
Plug the AC line cord directly into a 120-volt AC receptacle (do not use an Isolation Transformer for this test). Using two clip leads, connect a 1500 ohm, 10-watt resistor paralleled by a 0.15μF capacitor, in series with all exposed metal cabinet parts and a known earth ground, such as a water pipe 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.



TD4500

## CONTROLS AND FUNCTIONS

**1 POWER SWITCH**

Press to turn unit on or off.

**2 EJECT**

Press to load or remove tape cassette.

**3 REPLAY**

Indicates Replay is engaged.

**4 INTRO**

Indicates Intro Scan is engaged.

**5 MEMO**

Indicates Memory is engaged.

**6 COUNTER**

Indicates tape position in minutes and seconds.

**7 REC PLAY ◀▶**

Displays operating mode: Record, Play, Rewind or Fast Forward.

**8 LEVEL METER**

Shows signal level.

**9 DOLBY\*NR**

**OFF**

Press to play or record without Dolby Noise Reduction.

**B**

Press to play or record using Dolby B NR.

**C**

Press to play or record using Dolby C NR.

**10 DISPLAY**

Press to turn display panel on or off.

**11 TYPE I II IV**

Automatically indicates type of tape in use.

**12 DOLBY B C NR**

Shows if Dolby B or C NR circuits are on.

**13 RESET**

Resets Counter to 00:00.

**14 INTRO SCAN**

Previews each segment on a pre-recorded tape.

**15 SKIP REVERSE/SKIP FORWARD**

Locates the start of any desired segment on a pre-recorded tape.

**16 REPLAY**

Press on: when tape reaches end, deck automatically rewinds to start and begins Play.

**17 MEMORY**

Press on: when ◀◀ is pressed, tape rewinds to approximately 00:00 on Counter.

**18 BIAS TONE/BIAS FINE TRIM**

Adjusts when recording.

**19 RECORD/PAUSE**

Puts cassette deck in Record ready or Pause mode.

**20 PLAY**

Begins playback or recording.

**21 STOP**

Stops tape transport in any mode.

**22 REC CAL**

Adjust when recording using Dolby Noise Reduction.

**23 REWIND/FAST FORWARD**

Rapidly rewinds or advances tape.

**24 METER WEIGHTING**

Allows for easy setting of optimum record levels.

**25 OUTPUT**

Adjusts output level to headphones and receiver, pre-amp. or integrated amplifier.

**26 RECORD MUTE**

Inserts blank space when recording.

**27 MPX FILTER**

Press when using Dolby Noise Reduction while recording FM stereo broadcasts.


**28 INPUT LEVEL**

Adjusts recording level and balance.

**29 HEADPHONES**

Insert headphone plug.

**\* NOTE**

Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen. "DOLBY", the double-D symbol  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

**DISASSEMBLY PROCEDURES (REFER TO PAGES 9, 10 and 11)****[1] CABINET TOP (133) REMOVAL**

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

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

1. Remove the Cabinet Top (133). (Refer to step 1.)
2. Remove the Plate with window (140 and 143).
3. Remove 5 rotary knobs (151, 145 and 148) and the nut.
4. Disconnect CN903 from CN803 on the Main P. C. Board (PCB-1).
5. Remove 7 screws (C).
6. While disconnecting CN801 and CN802, remove the Front Panel Assembly (AA).

**[3] CASSETTE TAPE RECORDER MECHANISM ASSEMBLY REMOVAL**

1. Remove the Front Panel Assembly (AA). (Refer to step 2.)
2. Disconnect LCN801, LCN802 and LCN803 on the Cassette Tape Recorder Mechanism Assembly.
3. Disconnect CN301 and CN105 connected to the Main P. C. Board (PCB-1).
4. Remove the spring (179).
5. Remove 4 screws (D) and then remove the Cassette Tape Recorder Mechanism Assembly.

**[4] HEADPHONE P. C. BOARD (PCB-4) REMOVAL**

Remove the screw (E) and then remove the Headphone P. C. Board (PCB-5).

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

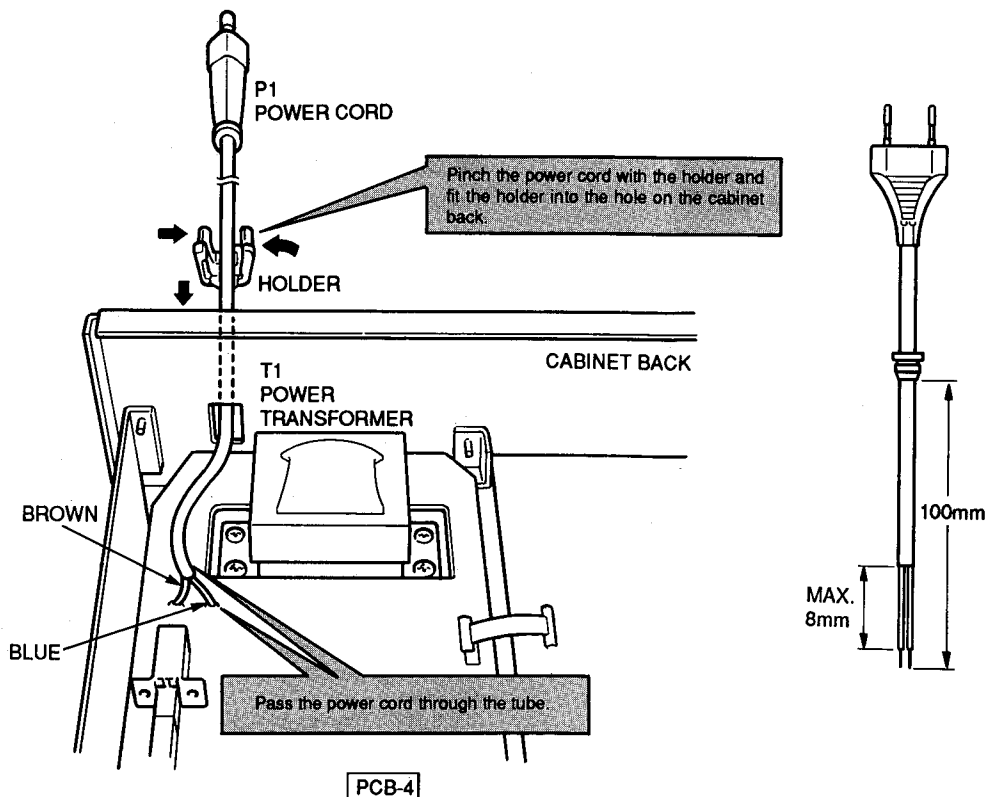
1. Remove the Cabinet Top (133). (Refer to step 1.)
2. Disconnect LCN801, LCN802 and LCN803.
3. Disconnect CN301 and CN105 on the Main P. C. Board (PCB-1), which are connected to the Cassette Tape Recorder Mechanism Assembly.
4. Disconnect CN801, CN802 and CN803 connected to the Front P. C. Board (PCB-2).
5. Open the lid of CN101, CN102, CN103 and CN104 on the Power P. C. Board (PCB-5) and then disconnect JP101, JP102, JP103 and JP104.
6. Remove the screw (F) and the metal fitting (164).
7. Disconnect CN501 and CN502 and then remove the Dolby B/C NR P. C. Board (PCB-3) from the Main P. C. Board (PCB-1).
8. Remove 8 screws (G) and then remove the Main P. C. Board (PCB-1).

**[6] OTHER P. C. BOARDS REMOVAL**

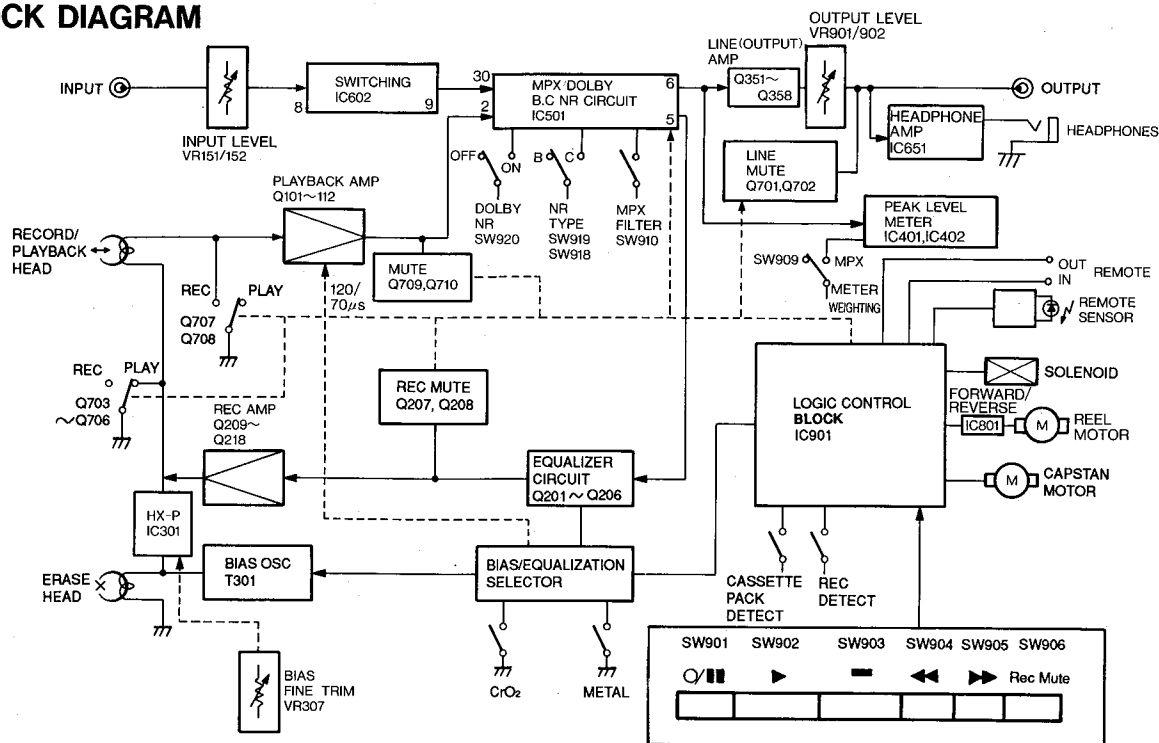
1. Remove the Front Panel Assembly (AA). (Refer to step 2.)
2. Remove 8 screws (H) and 3 screws (I), then remove the Front P. C. Board (PCB-2).
3. Remove 4 screws (J) and then remove the Power P. C. Board (PCB-4). If necessary, disconnect the connectors.

**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 is amplified by the playback amplifier Q101, Q103, Q105, Q107, Q109 and Q111 (L ch.), and is applied to the pins 2 (L ch.) and 29 (R ch.) of the Dolby NR IC501 (B/C type). 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 IC901 through Q505 and Q506 switches IC501 from the record mode to the playback mode. The input signal to IC501 is output from the pins 6 (L ch.) and 25 (R ch.) and applied to the OUTPUT AMP., HEADPHONES jack amplified by the headphone amplifier IC651 and the PEAK LEVEL METER circuit. The characteristics of the playback equalizer are defined by the BIAS/EQUALIZATION switch and are selected and specified in Q113 (L ch.) and Q114 (R ch.)

## RECORD SIGNAL

The signal from the INPUT jack is controlled by the INPUT LEVEL control. It is applied to the pins 8 (L ch.) and 4 (R ch.) of the Switching IC602 and 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 IC901 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 passes through the MPX filter. Then it is input to the pins 27 (L ch.) 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 (R ch.) and then it is output from the pins 18 (L ch.) and 13 (R ch.). The signal output from IC501 passes through the record equalizer circuit and is amplified by the record amplifier of Q209, Q211, Q213, Q215 and Q217

(L ch.), Q210, Q212, Q214, Q216, and Q218 (R ch.). 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 IC901 of the logic control block.

When the "STOP" button is pressed, the mute signal output from the pin 28 of IC901 turns ON Q701 (L ch.) and Q702 (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 Q701 (L ch.) and Q702 (R ch.) turned ON.

## LOGIC FOR RECORD MODE

When the "REC" button is pressed, the pin 27 of IC901 becomes high level and Q709 (L ch.) and Q710 (R ch.) turn ON. The input to the Dolby NR IC is muted. Also Q715 and Q714 turn ON and Q713 turns OFF. Therefore Q703, Q705 (L ch.) and Q704, Q706 (R ch.) turn OFF to release the muting of the outputs from the record amplifiers.

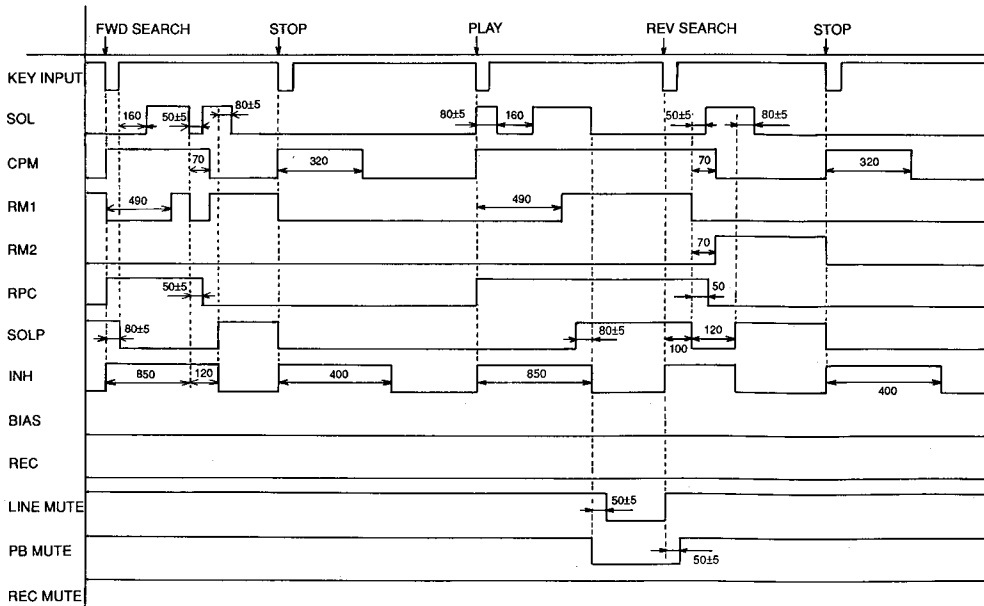
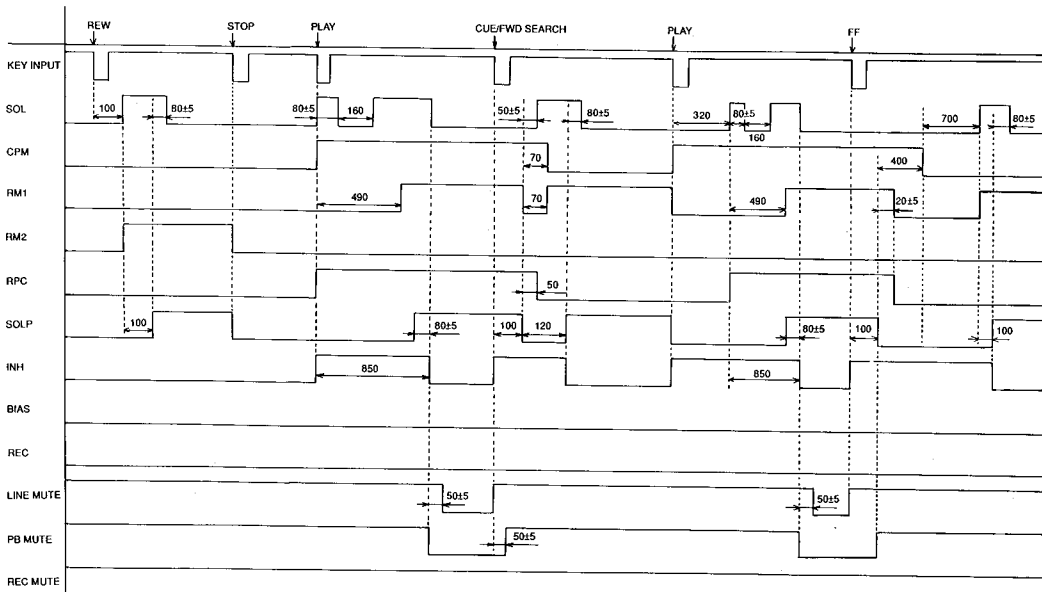
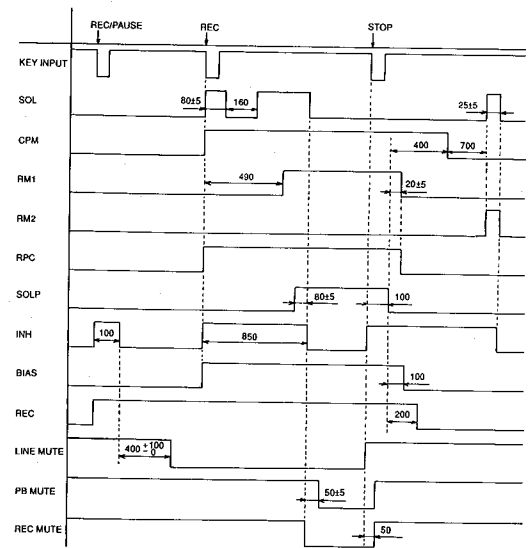
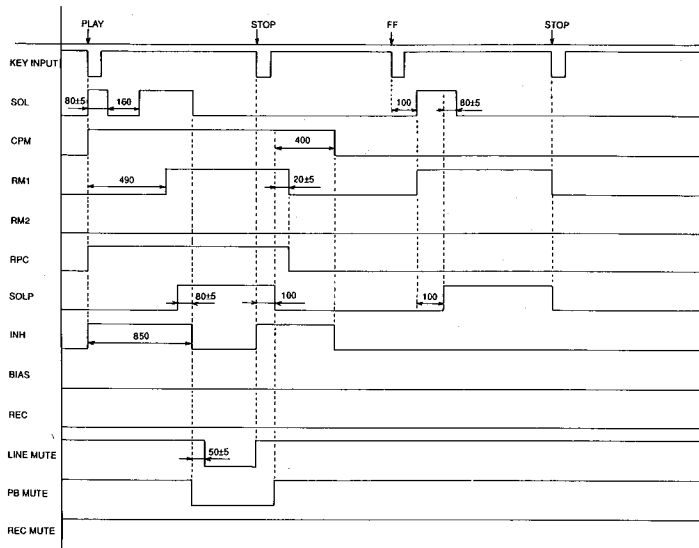
Also, Q505 turns ON and Q506 turns OFF to make the pin 5 of IC501 high level. Therefore the mode is switched to the record mode.

## LOGIC FOR RECORD TO PLAYBACK MODE

When the "STOP", "PAUSE" or "PLAY" button is pressed, the pin 26 of IC901 becomes high level. Q219 turns ON and Q207 (L ch.), Q208 (R ch.) turn ON to mute the inputs to the record amplifiers. Also, Q715 and Q714 turn OFF and Q713 turns ON to turn ON Q703, Q705 (L ch.) and Q704, Q706 (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



**ALIGNMENT PROCEDURES (REFER TO PAGES 12, 13, 21, 22 AND 23)**

**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 0.2mm smaller than the minimum size of 62.9mm or a MAZ-0184-C gauge one.)
- When the switch arm is moved back gradually from the ON position, the switch should 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 63.5mm 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 lock arm 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 .....35gr.cm ~ 70gr.cm
- Fast Forward .....70gr.cm ~ 150gr.cm
- Rewind .....70gr.cm ~ 150gr.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 erase 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 erase head.

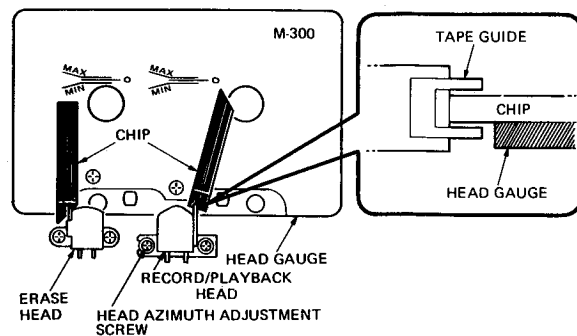


Fig. 1

- 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 erase head, the adjustment chip should be between MIN and MAX of the M-300 head gauge.

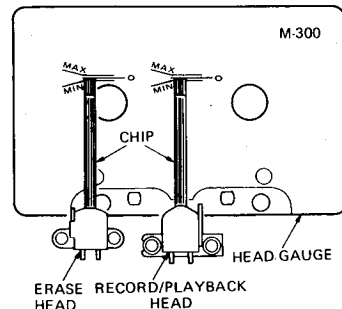


Fig. 2

**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
- Music search adjustment .....SCC-1425
- 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 is 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   |
| 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.

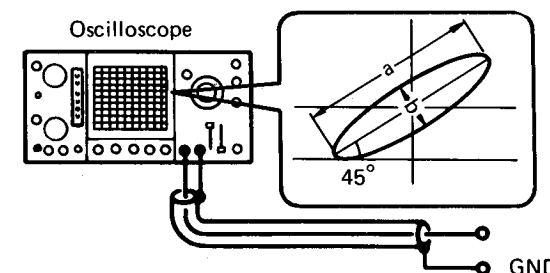
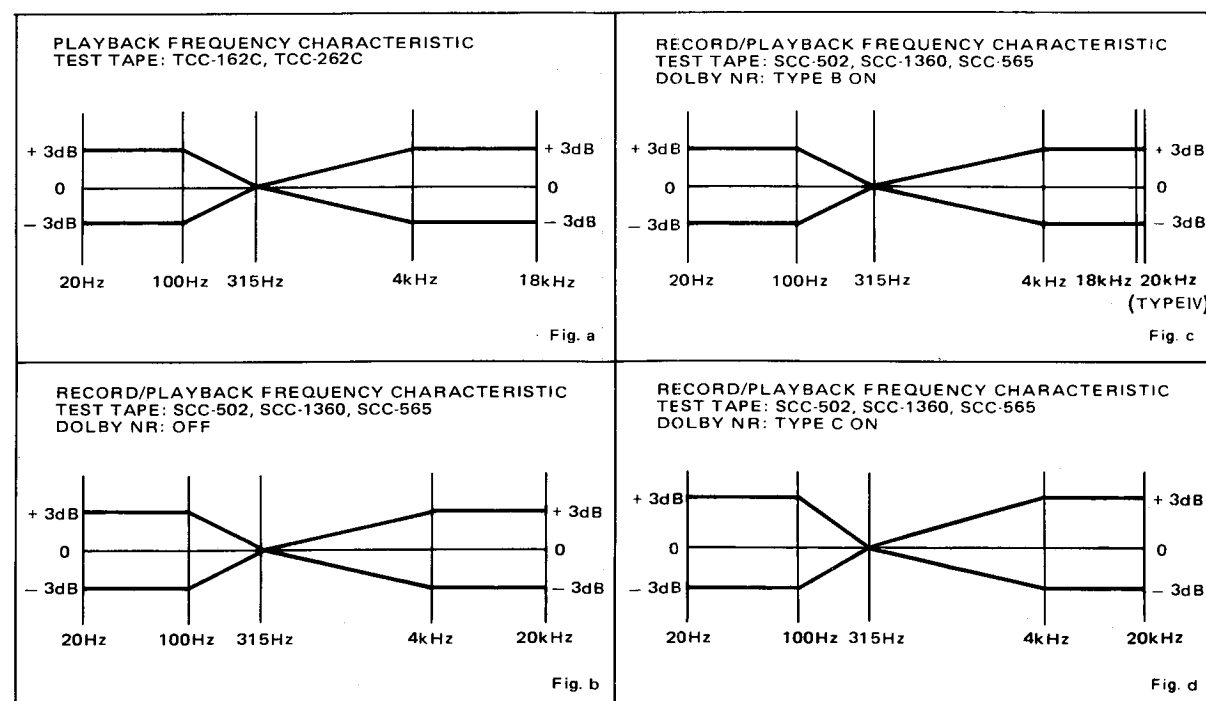


Fig. 3



## ALIGNMENT PROCEDURES (REFER TO PAGES 12, 13, 21, 22 AND 23)

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- 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 erase head, the adjustment chip should be between MIN and MAX of the M-300 head gauge.

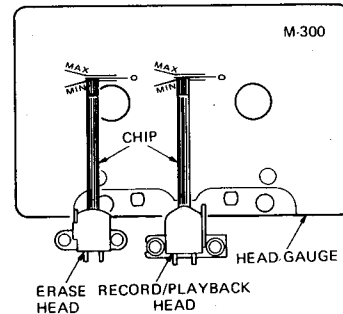


Fig. 2

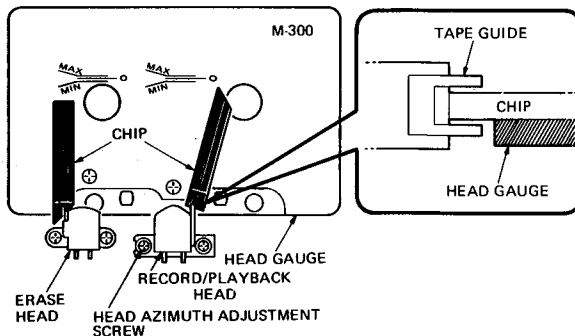


Fig. 1



**ELECTRICAL ADJUSTMENT AND CONFIRMATION**

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- Playback output level adjustment .....  
MTT-150 or TCC-130
- Music search adjustment.....SCC-1425
- 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   |
| 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.

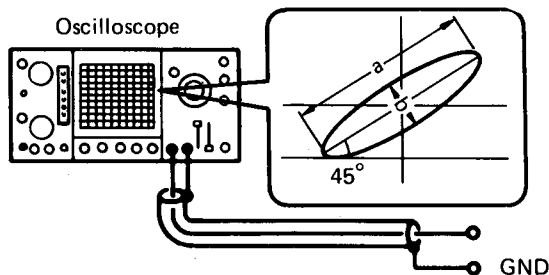
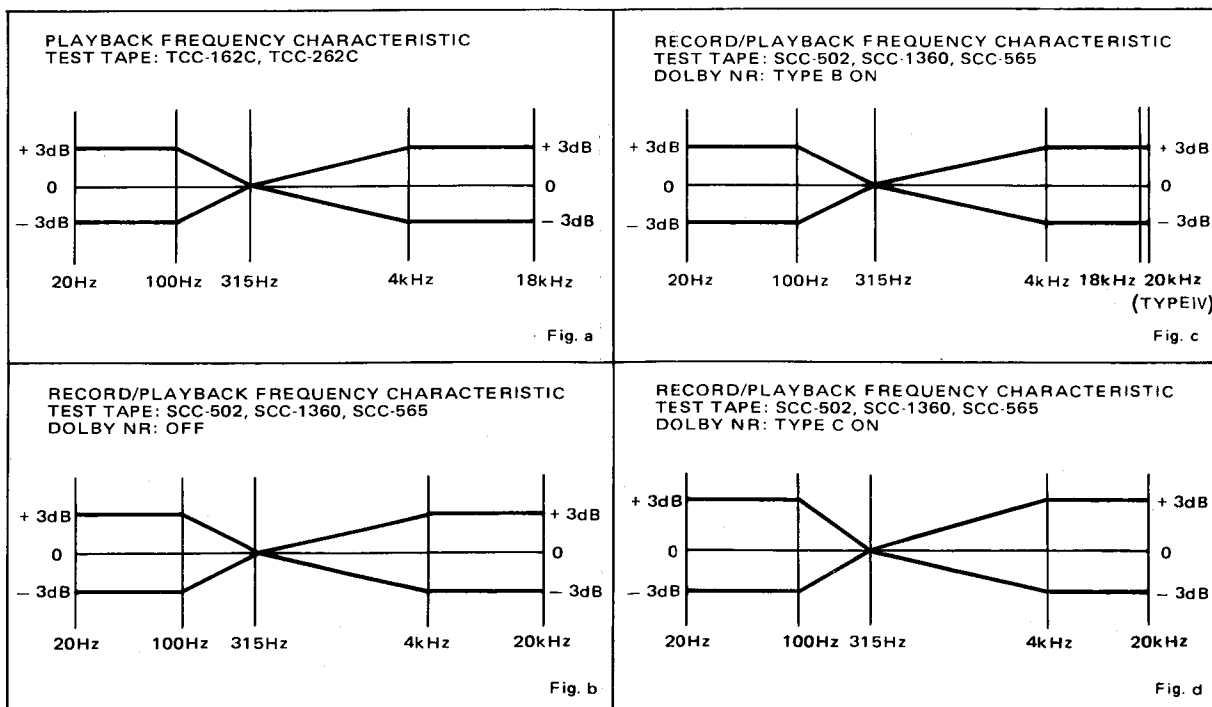


Fig. 3

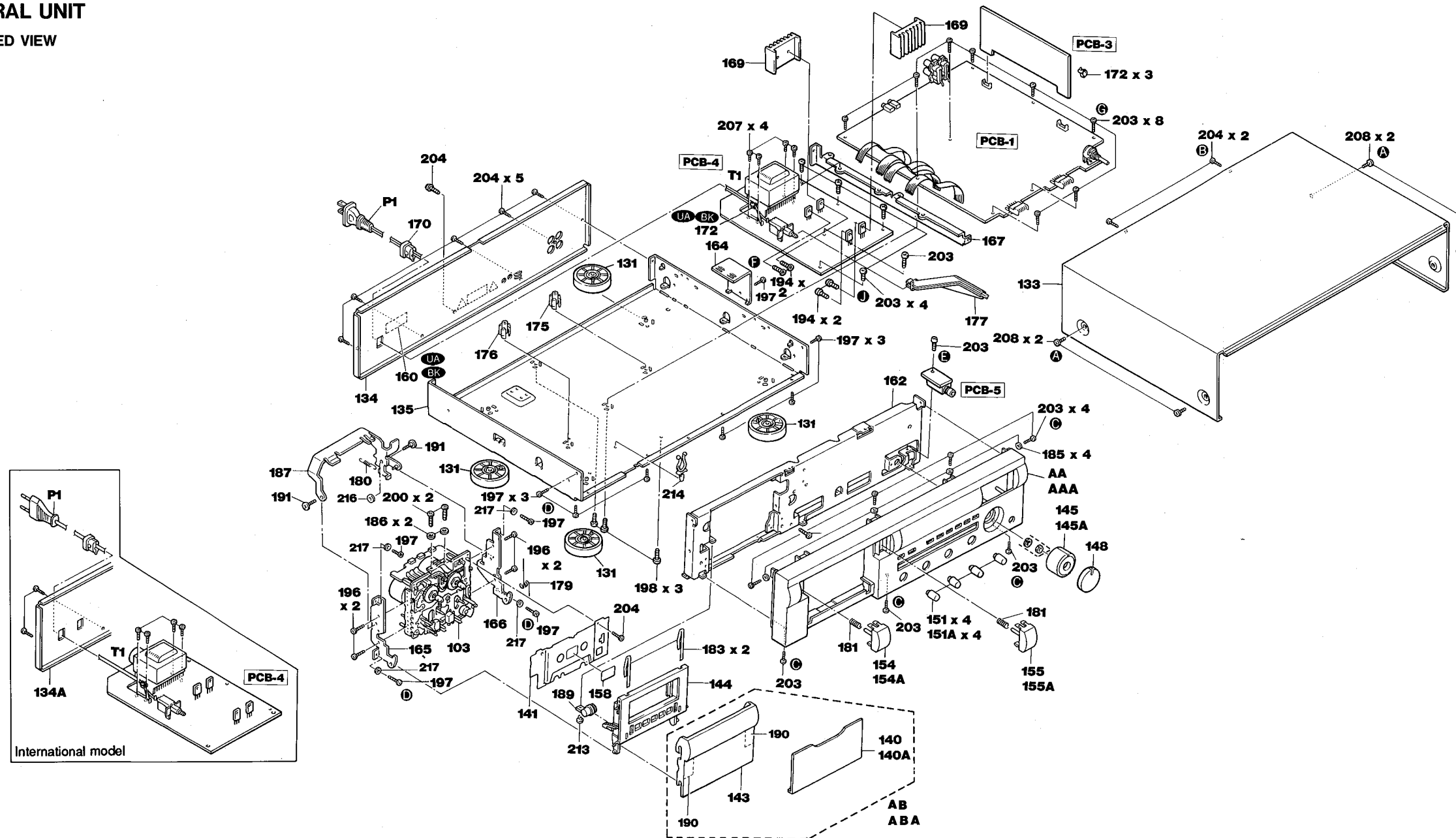


| Step | Alignment   | Instrument Required   | Input Signal   | Mode                                 | Test Point   | Adjustment   | For   |
|------|---|---|--|--------------------------------------|--|--|---|
| 1    | Azimuth   | VTVM<br>Oscilloscope<br>Test tape (MTT-114 or TCC-153)                          |  | PB                                   | TP501 (Lch), GND<br>TP502 (Rch), GND<br>or OUTPUT jack | Azimuth screw  | Maximum output<br>Refer to "Azimuth Adjustment" on page 7.  |
| 2    | Tape speed  | Frequency counter<br>Test tape (MTT-111DN or TCC-112)                           |  | PB                                   | TP501 (Lch), GND<br>TP502 (Rch), GND                   | VR (built in motor)                                      | 3000Hz $\pm$ 10Hz<br>Adjust at the center of test tape.   |
| 3    | Playback output level   | VTVM<br>Test tape (MTT-150 or TCC-130)  |  | PB                                   | TP501 (Lch), GND<br>TP502 (Rch), GND                   | VR101 (Lch)<br>VR102 (Rch)                               | 388mV<br>Tape selector is LN position.  |
| 4    | Record calibration tone   |   |  | REC/PAUSE<br>Rec. Cal.<br>(SW921) ON | TP501 (Lch), GND<br>TP502 (Rch), GND                   | VR602  | 388mV   |
| 5    | Bias tone   |   |  | REC/PAUSE<br>Bias tone<br>(SW907) ON | TP501 (Lch), GND<br>TP502 (Rch), GND                   | VR603<br>VR601   | 388mV -20dB (39mV about 400Hz)<br>388mV -20dB (39mV about 12.5kHz)  |
| 6    | Music search  | Oscilloscope<br>Test tape (SCC-1425)  |  | FORWARD<br>SEARCH                    | TP751, GND   | VR751  | 1.6 $\pm$ 0.05V   |
| 7    | Playback frequency characteristic confirmation                  | VTVM<br>Test tape (TCC-1216 or TCC-162C and TCC-262C)                           |  | PB                                   | TP501 (Lch), GND<br>TP502 (Rch), GND<br>or OUTPUT jack | R133, R134   | Unsolder a resistor of R133 or R134 so that the frequency response is within the range as shown in Fig. a.  |
| 8    | Bias frequency confirmation                                     | Frequency counter   |  | REC/PB                               | TP101 (Lch), GND<br>TP102 (Rch), GND                   | T301   | 105kHz $\pm$ 3kHz<br>Tape selector is METAL position.   |
| 9    | Dolby HX PRO  |   |  | REC/PB                               | TP101 (Lch), GND<br>TP102 (Rch), GND                   | L301<br>L302   | Maximum output<br>Tape selector is METAL position.<br>After adjustment for L301 and L302, set bias fine trim (VR301 and VR302) to the center position.  |
| 10   | Bias trap   | VTVM  |  | REC/PB                               | TP201 (Lch), GND<br>TP202 (Rch), GND                   | LC201, LC202<br>LC203, LC204                             | Minimum output<br>Tape selector is METAL position.  |
| 11   | Bias level (pre-adjustment)                                     | VTVM  |  | REC/PB                               | TP101 (Lch), GND<br>TP102 (Rch), GND                   | VR301<br>VR302   | 40mV<br>Tape selector is METAL position.  |
|      |   |   |  |                                      |  | VR305<br>VR306   | 25mV<br>Tape selector is CrO <sub>2</sub> position.   |
|      |   |   |  |                                      |  | VR303<br>VR304   | 15mV<br>Tape selector is LN position.   |
| 12   | Record level (pre-adjustment)                                   | VTVM<br>Blank tapes<br>CrO <sub>2</sub> SCC-1360<br>METAL SCC-565<br>LN SCC-502 | Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 388mV in REC-PAUSE mode.   | REC/PB                               | TP501 (Lch), GND<br>TP502 (Rch), GND                   | VR203, VR204<br>VR301, VR302                             | 388mV<br>Tape selector is METAL position.<br>Adjust VR301 and VR302 so that the distortion becomes 1.0%~1.4%  |
|      |   |   |  |                                      |  | VR305, VR306<br>(CrO <sub>2</sub> )<br>VR303, VR304 (LN) | 388mV<br>Adjust VR305 and VR306 so that the distortion becomes 1.3% (CrO <sub>2</sub> ).<br>Adjust VR303 and VR304 so that the distortion becomes 1.0% (LN).<br>This confirmation should be at each tape selector position. |
| 13   | Record/playback equalizer frequency characteristic              | VTVM<br>Blank tapes<br>CrO <sub>2</sub> SCC-1360<br>METAL SCC-565<br>LN SCC-502 | Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 25dB below 388mV in REC-PAUSE mode.<br>Then adjust with a 20Hz to 30kHz sweep signal.  | REC/PB                               | OUTPUT jack  | VR305, VR306<br>L201, L202<br>(VR301, VR302)             | So that the record/playback frequency response is flat (at least within the range in Fig. b).<br>Tape selector is CrO <sub>2</sub> position.  |
|      |   |   |  |                                      |  | VR301<br>VR302   | So that the record/playback frequency response is flat (at least within the range in Fig. b).<br>Tape selector is METAL position.   |
|      |   |   |  |                                      |  | VR305, VR306<br>L201, L202<br>(VR301, VR302)             | So that the record/playback frequency response is flat (at least within the range in Fig. b).<br>Tape selector is LN position.  |
| 14   | Record level  | VTVM<br>Blank tapes<br>CrO <sub>2</sub> SCC-1360<br>METAL SCC-565<br>LN SCC-502 | Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 388mV in REC-PAUSE mode.  | REC/PB                               | TP501 (Lch), GND<br>TP502 (Rch), GND                   | VR203<br>VR204   | 388mV<br>Perform adjustment using CrO <sub>2</sub> .<br>Perform checking only for LN and METAL tapes.   |
| 15   | Meter level   | VTVM  | Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 1.5dB below 388mV.   | REC/PAUSE                            | PEAK LEVEL METER                                       | VR401<br>VR402   | Confirm peak level meter reads: - 1dB.  |
| 16   | MPX filter characteristic confirmation                          | VTVM  | Apply 19kHz, 15kHz and 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 388mV.  | REC/PAUSE<br>MPX filter<br>ON        | TP501 (Lch), GND<br>TP502 (Rch), GND<br>or OUTPUT jack | LC501<br>LC502   | Adjust for -0.3dB at 15kHz and >90dB at 19kHz.  |
| 17   | Record/playback equalizer frequency characteristic confirmation | VTVM<br>Blank tapes<br>CrO <sub>2</sub> SCC-1360<br>METAL SCC-565<br>LN SCC-502 | Apply 400Hz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 25dB below 388mV in REC-PAUSE mode.<br>Then adjust with a 20Hz to 30kHz sweep signal. | REC/PB                               | OUTPUT jack  |  | Perform checking with Dolby B and C NR ON at each tape selector position.<br>Confirm the record/playback frequency characteristic is within $\pm$ 3dB at 20Hz to 20kHz.   |

| Step | Alignment   | Instrument Required   | Input Signal   |   |
|------|---|---|--|---|
| 1    | Azimuth   | VTVM<br>Oscilloscope<br>Test tape (MTT-114 or TCC-153)                          |  |   |
| 2    | Tape speed  | Frequency counter<br>Test tape (MTT-111DN or TCC-112)                           |  |   |
| 3    | Playback output level                                 | VTVM<br>Test tape (MTT-150 or TCC-130)  |  |   |
| 4    | Record calibration tone                               |   |  |   |
| 5    | Bias tone   |   |  |   |
| 6    | Music search  | Oscilloscope<br>Test tape (SCC-1425)  |  |   |
| 7    | Playback frequency characteristic confirmation        | VTVM<br>Test tape (TCC-1216 or TCC-162C and TCC-262C)                           |  |   |
| 8    | Bias frequency confirmation                           | Frequency counter   |  |   |
| 9    | Dolby HX PRO  |   |  |   |
| 10   | Bias trap   | VTVM  |  |   |
| 11   | Bias level (pre-adjustment)                           | VTVM  |  |   |
|      |   |   |  | 1 |
|      |   |   |  | 2 |
| 12   | Record level (pre-adjustment)                         | VTVM<br>Blank tapes<br>CrO <sub>2</sub> SCC-1360<br>METAL SCC-565<br>LN SCC-502 | Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 388mV in REC-PAUSE mode.   |   |
|      |   |   |  | 1 |
|      |   |   |  | 2 |
| 13   | Record/playback equalizer frequency characteristic    | VTVM<br>Blank tapes<br>CrO <sub>2</sub> SCC-1360<br>METAL SCC-565<br>LN SCC-502 | Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 25dB below 388mV in REC-PAUSE mode.<br>Then adjust with a 20Hz to 30kHz sweep signal.  |   |
|      |   |   |  | 1 |
|      |   |   |  | 2 |
| 14   | Record level  | VTVM<br>Blank tapes<br>CrO <sub>2</sub> SCC-1360<br>METAL SCC-565<br>LN SCC-502 | Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 388mV in REC-PAUSE mode.  |   |
|      |   |   |  | 1 |
|      |   |   |  | 2 |
| 15   | Meter level   | VTVM  | Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 1.5dB below 388mV.   |   |
| 16   | MPX filter characteristic confirmation                | VTVM  | Apply 19kHz, 15kHz and 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 388mV.  |   |
| 17   | Record/playback equalizer characteristic confirmation | VTVM<br>Blank tapes<br>CrO <sub>2</sub> SCC-1360<br>METAL SCC-565<br>LN SCC-502 | Apply 400Hz signal to INPUT jack. Set INPUT LEVEL knob so that TP501 and TP502 to GND voltage is 25dB below 388mV in REC-PAUSE mode.<br>Then adjust with a 20Hz to 30kHz sweep signal. |   |

|                    | Mode                                 | Test Point   | Adjustment   | For   |
|--------------------|--------------------------------------|--|--|---|
|                    | PB                                   | TP501 (Lch), GND<br>TP502 (Rch), GND<br>or OUTPUT jack | Azimuth screw  | Maximum output<br>Refer to "Azimuth Adjustment" on page 7.  |
|                    | PB                                   | TP501 (Lch), GND<br>TP502 (Rch), GND                   | VR (built in motor)                                      | 3000Hz $\pm$ 10Hz<br>Adjust at the center of test tape.   |
|                    | PB                                   | TP501 (Lch), GND<br>TP502 (Rch), GND                   | VR101 (Lch)<br>VR102 (Rch)                               | 388mV<br>Tape selector is LN position.  |
|                    | REC/PAUSE<br>Rec. Cal.<br>(SW921) ON | TP501 (Lch), GND<br>TP502 (Rch), GND                   | VR602  | 388mV   |
|                    | REC/PAUSE<br>Bias tone<br>(SW907) ON | TP501 (Lch), GND                                       | VR603  | 388mV -20dB (39mV about 400Hz)  |
|                    |                                      | TP502 (Rch), GND                                       | VR601  | 388mV -20dB (39mV about 12.5kHz)  |
|                    | FORWARD<br>SEARCH                    | TP751, GND   | VR751  | 1.6 $\pm$ 0.05V   |
|                    | PB                                   | TP501 (Lch), GND<br>TP502 (Rch), GND<br>or OUTPUT jack | R133, R134   | Unsolder a resistor of R133 or R134 so that the frequency response is within the range as shown in Fig. a.  |
|                    | REC/PB                               | TP101 (Lch), GND<br>TP102 (Rch), GND                   | T301   | 105kHz $\pm$ 3kHz<br>Tape selector is METAL position.   |
|                    | REC/PB                               | TP101 (Lch), GND<br>TP102 (Rch), GND                   | L301<br>L302   | Maximum output<br>Tape selector is METAL position.<br>After adjustment for L301 and L302, set bias fine trim (VR301 and VR302) to the center position.  |
|                    | REC/PB                               | TP201 (Lch), GND<br>TP202 (Rch), GND                   | LC201, LC202<br>LC203, LC204                             | Minimum output<br>Tape selector is METAL position.  |
|                    | REC/PB                               | TP101 (Lch), GND<br>TP102 (Rch), GND                   | VR301<br>VR302   | 40mV<br>Tape selector is METAL position.  |
|                    |                                      |  | VR305<br>VR306   | 25mV<br>Tape selector is CrO <sub>2</sub> position.   |
|                    |                                      |  | VR303<br>VR304   | 15mV<br>Tape selector is LN position.   |
| so that<br>SE      | REC/PB                               | TP501 (Lch), GND<br>TP502 (Rch), GND                   | VR203, VR204<br>VR301, VR302                             | 388mV<br>Tape selector is METAL position.<br>Adjust VR301 and VR302 so that the distortion becomes 1.0% - 1.4%  |
|                    |                                      |  | VR305, VR306<br>(CrO <sub>2</sub> )<br>VR303, VR304 (LN) | 388mV<br>Adjust VR305 and VR306 so that the distortion becomes 1.3% (CrO <sub>2</sub> ).<br>Adjust VR303 and VR304 so that the distortion becomes 1.0% (LN).<br>This confirmation should be at each tape selector position. |
| so that<br>in REC- | REC/PB                               | OUTPUT jack  | VR305, VR306<br>L201, L202<br>(VR301, VR302)             | So that the record/playback frequency response is flat (at least within the range in Fig. b).<br>Tape selector is CrO <sub>2</sub> position.  |
|                    |                                      |  | VR301<br>VR302   | So that the record/playback frequency response is flat (at least within the range in Fig. b).<br>Tape selector is METAL position.   |
|                    |                                      |  | VR305, VR306<br>L201, L202<br>(VR301, VR302)             | So that the record/playback frequency response is flat (at least within the range in Fig. b).<br>Tape selector is LN position.  |
|                    | REC/PB                               | TP501 (Lch), GND<br>TP502 (Rch), GND                   | VR203<br>VR204   | 388mV<br>Perform adjustment using CrO <sub>2</sub> .<br>Perform checking only for LN and METAL tapes.   |
| so that            | REC/PAUSE                            | PEAK LEVEL METER                                       | VR401<br>VR402   | Confirm peak level meter reads: - 1dB.  |
| INPUT<br>388mV.    | REC/PAUSE<br>MPX filter<br>-ON       | TP501 (Lch), GND<br>TP502 (Rch), GND<br>or OUTPUT jack | LC501<br>LC502   | Adjust for -0.3dB at 15kHz and >30dB at 19kHz.  |
| so that<br>in REC- | REC/PB                               | OUTPUT jack  |  | Perform checking with Dolby B and C NR ON at each tape selector position.<br>Confirm the record/playback frequency characteristic is within $\pm$ 3dB at 20Hz to 20kHz.   |

**GENERAL UNIT**  
EXPLODED VIEW



**PARTS LIST**

| Ref. No. | Part No.     | Description                             | Ref. No. | Part No.   | Description          | Ref. No. | Part No.      | Description    | Ref. No. | Part No.      | Description            |
|----------|--------------|---|----------|------------|----------------------|----------|---------------|----------------|----------|---------------|------------------------|
| AA       | A442-TD4500A | FRONT PANEL ASS'Y UA I                  | 148      | 1630-04502 | ROTARY KNOB UA I     | 175      | 2360-7022     | BOSS           | 204      | 2347-R0130084 | SCREW (3X8mm)          |
| AAA      | A442-TD4500B | FRONT PANEL ASS'Y BK IB BB              | 148A     | 1630-04501 | ROTARY KNOB BK IB BB | 176      | 2360-7063     | BOSS           | 207      | 2347-R0140062 | SCREW (4X6mm)          |
| AB       | A512-TD4500A | CASSETTE LID ASS'Y UA I                 | 151      | 1632-20402 | ROTARY KNOB UA I     | 177      | 2601-7192     | SHAFT          | 208      | 2347-R0140064 | SCREW (4X6mm)          |
| ABA      | A512-TD4500B | CASSETTE LID ASS'Y BK IB BB             | 151A     | 1632-20401 | ROTARY KNOB BK IB BB | 179      | 2651-047      | SPRING         | 213      | 2459-3005511  | RIVET, PLASTIC         |
| 103      | 3112-13706   | CASSETTE TAPE RECORDER MECHANICAL ASS'Y | 154      | 1662-58403 | PUSH BUTTON UA I     | 180      | 2651-11212    | SPRING, LEVER  | 214      | 2240-7049     | HOLDER                 |
| 131      | 1319-03301   | LEG                                     | 154A     | 1662-58401 | PUSH BUTTON BK IB BB | 181      | 2651-2101732  | SPRING         | 216      | 2403-303      | WASHER, POLY           |
| 133      | 1414-15901   | CABINET, TOP COVER                      | 155      | 1662-58404 | PUSH BUTTON UA I     | 183      | 2652-105      | LEAF SPRING    | 217      | 2414-302      | WASHER                 |
| 134      | 1424-31609   | CABINET BACK, REAR UA BK                | 155A     | 1662-58402 | PUSH BUTTON BK IB BB | 185      | 2411-30Z1     | WASHER, PLAIN  | △ P1     | 4161-71151    | CORD W/PLUG UA BK      |
| 134A     | 1424-31610   | CABINET BACK, REAR UA I                 | 158      | 1741-01601 | ORNAMENT             | 186      | 2411-40Z1     | WASHER, PLAIN  | △ P1     | 4161-7256     | CORD W/PLUG I IB       |
| 135      | 1424-31801   | CABINET BACK, BOTTOM UA I               | 160      | 1756-CSA   | LABEL UA BK          | 187      | 2672-7044     | LEVER          | △ P1     | 4161-04100    | CORD W/PLUG BB         |
| 140      | 1512-06806   | PLATE UA I                              | 162      | 2211-7311  | CHASSIS              | 189      | 2692-016      | DAMPER         | △ T1     | 5584-S8501    | XFORMER, POWER UA BK   |
| 140A     | 1512-06802   | PLATE BK IB BB                          | 164      | 2219-8285  | METAL FITTING        | 191      | 2320-044      | SCREW, SPECIAL | △ T1     | 5584-S8202    | XFORMER, POWER I IB BB |
| 141      | 1514-23201   | PLATE                                   | 165      | 2219-8288  | METAL FITTING        | 194      | 2327-R0130082 | SCREW (3X8mm)  |          |               |                        |
| 143      | 1532-19501   | WINDOW                                  | 166      | 2219-8289  | METAL FITTING        | 196      | 2347-300527   | SCREW          |          |               |                        |
| 144      | 1612-07401   | CASSETTE LID                            | 167      | 2219-8293  | METAL FITTING        | 197      | 2347-R0130062 | SCREW (3X6mm)  |          |               |                        |
| 145      | 1630-04402   | ROTARY KNOB UA I                        | 169      | 2222-7281  | HEAT SINK            | 198      | 2347-R0130062 | SCREW (3X6mm)  |          |               |                        |
| 145A     | 1630-04401   | ROTARY KNOB BK IB BB                    | 170      | 2240-364   | HOLDER               | 200      | 2343-300627   | SCREW          |          |               |                        |
|          |              |   | 172      | 2240-R0101 | HOLDER               | 203      | 2347-R0130082 | SCREW (3X8mm)  |          |               |                        |

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

# GENERAL UNIT

## EXPLODED VIEW

1

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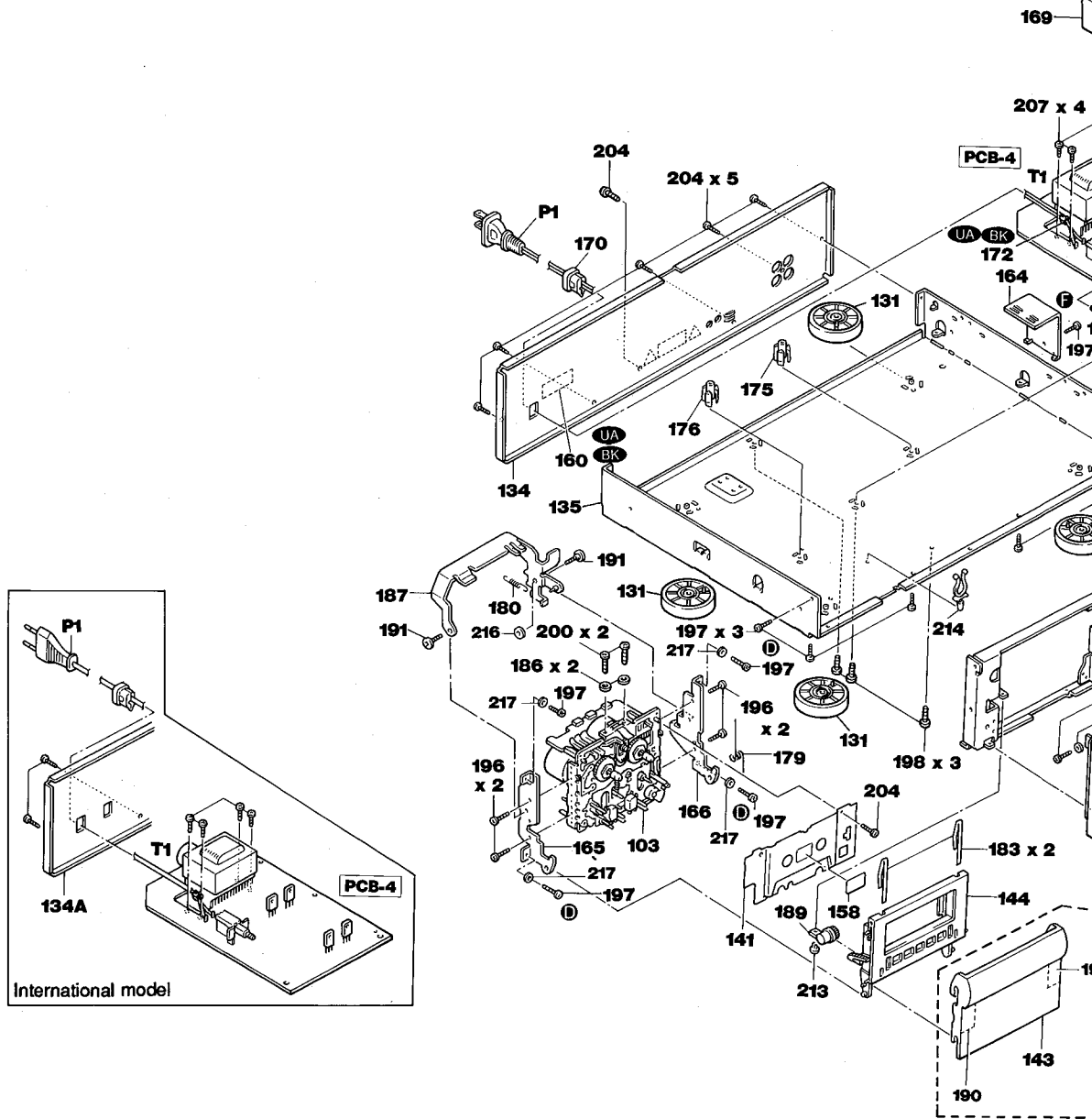
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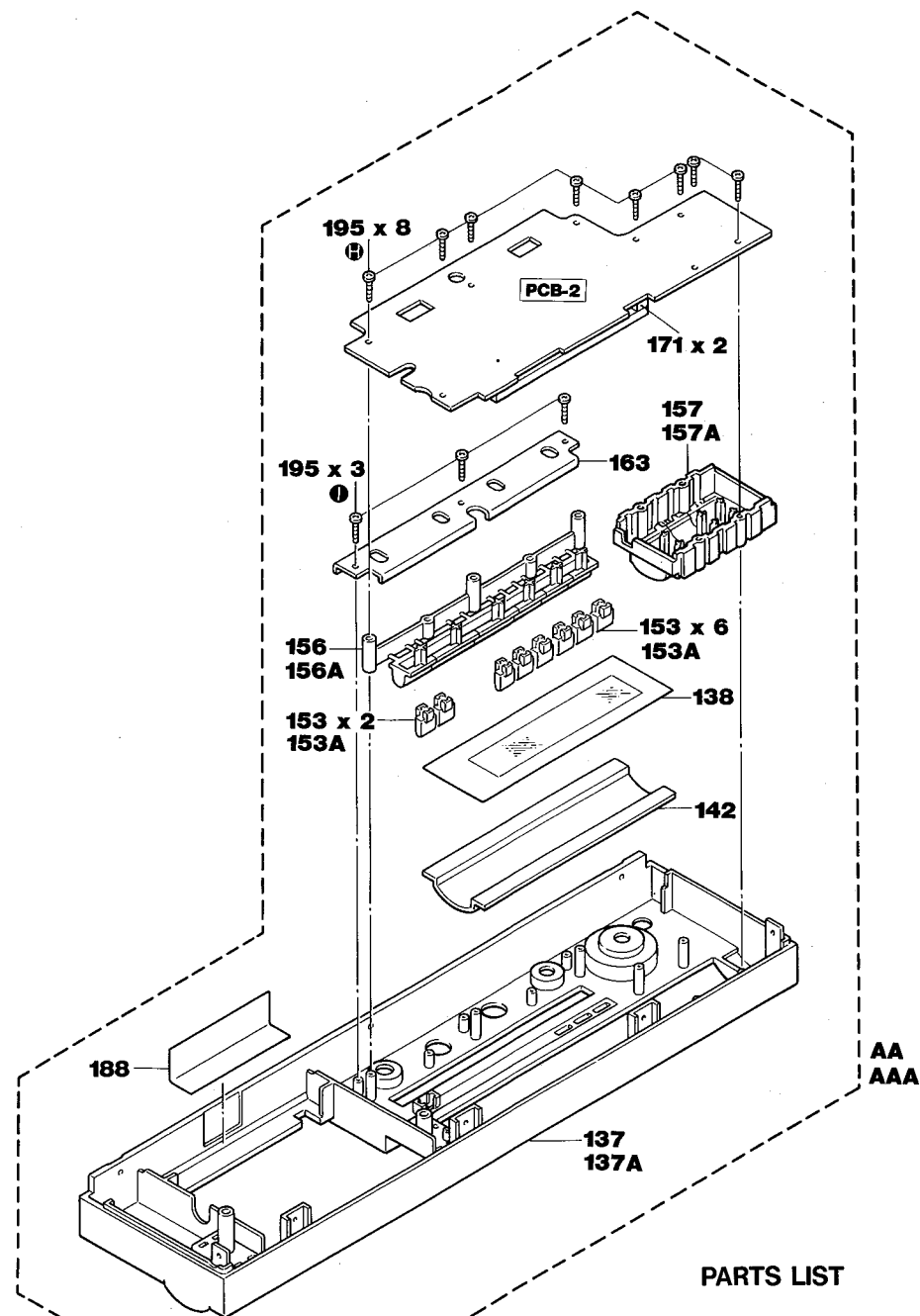


### PARTS LIST

| Ref. No. | Part No.     | Description                             | Ref. No. | Part No.   | Description          |
|----------|--------------|---|----------|------------|----------------------|
| AA       | A442-TD4500A | FRONT PANEL ASS'Y UA I                  | 148      | 1630-04502 | ROTARY KNOB UA I     |
| AAA      | A442-TD4500B | FRONT PANEL ASS'Y BK IB BB              | 148A     | 1630-04501 | ROTARY KNOB BK IB BB |
| AB       | A512-TD4500A | CASSETTE LID ASS'Y UA I                 | 151      | 1632-20402 | ROTARY KNOB UA I     |
| ABA      | A512-TD4500B | CASSETTE LID ASS'Y BK IB BB             | 151A     | 1632-20401 | ROTARY KNOB BK IB BB |
| 103      | 3112-13706   | CASSETTE TAPE RECORDER MECHANICAL ASS'Y | 154      | 1662-58403 | PUSH BUTTON UA I     |
| 131      | 1319-03301   | LEG                                     | 154A     | 1662-58401 | PUSH BUTTON UA IB BB |
| 133      | 1414-15901   | CABINET, TOP COVER                      | 155      | 1662-58404 | PUSH BUTTON BK I     |
| 134      | 1424-31609   | CABINET BACK, REAR UA BK                | 155A     | 1662-58402 | PUSH BUTTON BK IB BB |
| 134A     | 1424-31610   | CABINET BACK, REAR I IB BB              | 158      | 1741-01601 | ORNAMENT             |
| 135      | 1424-31801   | CABINET BACK, BOTTOM                    | 160      | 1756-CSA   | LABEL UA BK          |
| 140      | 1512-06806   | PLATE UA I                              | 162      | 2211-7311  | CHASSIS              |
| 140A     | 1512-06802   | PLATE BK IB BB                          | 164      | 2219-8285  | METAL FITTING        |
| 141      | 1514-23201   | PLATE                                   | 165      | 2219-8288  | METAL FITTING        |
| 143      | 1532-19501   | WINDOW                                  | 166      | 2219-8289  | METAL FITTING        |
| 144      | 1612-07401   | CASSETTE LID                            | 167      | 2219-8293  | METAL FITTING        |
| 145      | 1630-04402   | ROTARY KNOB UA I                        | 169      | 2222-7281  | HEAT SINK            |
| 145A     | 1630-04401   | ROTARY KNOB BK IB BB                    | 170      | 2240-364   | HOLDER               |
|          |              |   | 172      | 2240-R0101 | HOLDER               |



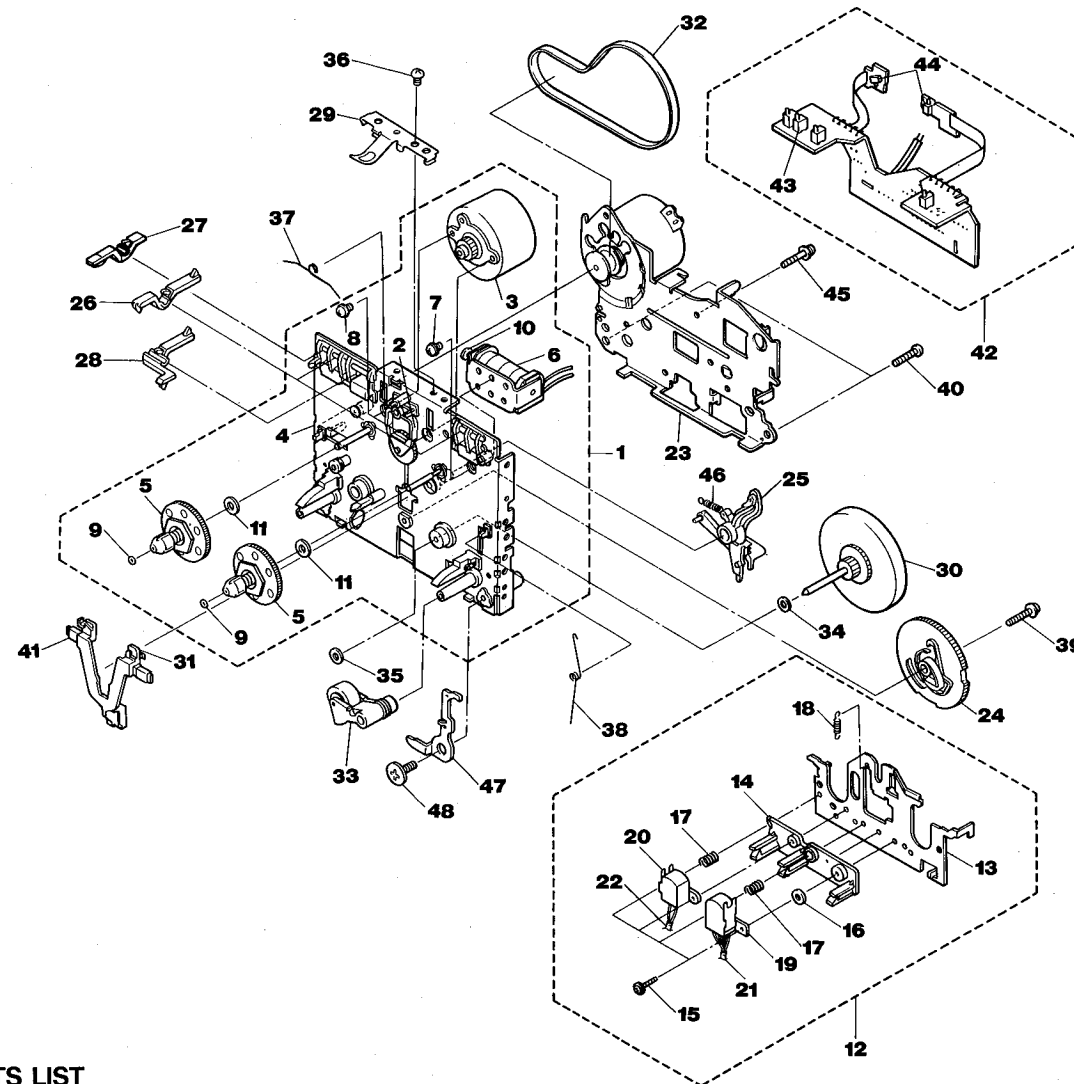
EXPLODED VIEW



PARTS LIST

| Ref. No. | Part No.      | Description                |
|----------|---------------|----------------------------|
| AA       | A442-TD4500A  | FRONT PANEL ASS'Y UA I     |
| AAA      | A442-TD4500B  | FRONT PANEL ASS'Y BK IB BB |
| 137      | 1442- 24408   | PANEL UA I                 |
| 137A     | 1442- 24405   | PANEL BK IB BB             |
| 138      | 1511-19807    | PLATE                      |
| 142      | 1532- 17505   | WINDOW                     |
| 153      | 1662- 52303   | PUSH BUTTON UA I           |
| 153A     | 1662- 52301   | PUSH BUTTON BK IB BB       |
| 156      | 1662- 58502   | PUSH BUTTON UA I           |
| 156A     | 1662-58501    | PUSH BUTTON BK IB BB       |
| 157      | 1662- 52204   | PUSH BUTTON UA I           |
| 157A     | 1662- 52203   | PUSH BUTTON BK IB BB       |
| 163      | 2219-8284     | METAL FITTING              |
| 171      | 2240-7370     | HOLDER                     |
| 188      | 2216-7195     | SHIELD PLATE               |
| 195      | 2347-R0126082 | SCREW (2.6X8mm)            |

CASSETTE TAPE RECORDER MECHANISM EXPLODED VIEW



PARTS LIST

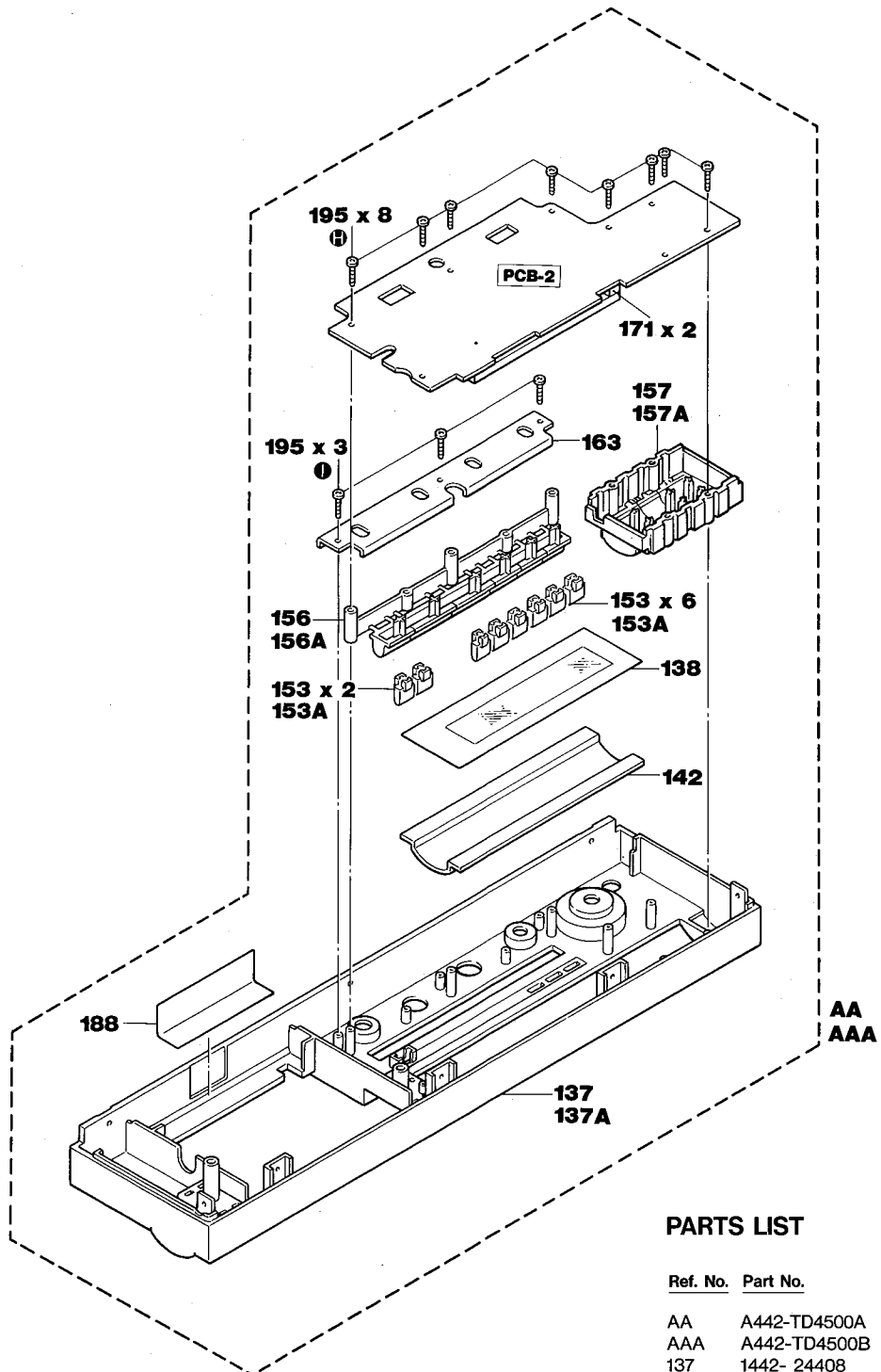
| Ref. No. | Part No.  | Description                      | Ref. No. | Part No.  | Description                      |
|----------|-----------|----------------------------------|----------|-----------|----------------------------------|
| 1        | F511-454  | CHASSIS ASS'Y                    | 25       | FD38M-22  | PLAY ARM ASS'Y                   |
| 2        | F517-049  | IDLER ASS'Y                      | 26       | FD38S-21  | SWITCH ARM, REC                  |
| 3        | F564-258  | REEL MOTOR                       | 27       | FD38T-12B | SWITCH ARM, PACK                 |
| 4        | F612-109  | CHASSIS BASE ASS'Y               | 28       | FD38U-12  | SWITCH ARM, METAL                |
| 5        | F623-037  | REEL BASE ASS'Y                  | 29       | FC40N-32  | SPRING, CASSETTE                 |
| 6        | F765-252  | SOLENOID ASS'Y                   | 30       | FR19V-22C | FLYWHEEL ASS'Y                   |
| 7        | FG114-15  | SCREW (2.6 x 4 mm)               | 31       | FD36H-12  | HOLD LEVER                       |
| 8        | FG114-20  | SCREW (2.6 x 6 mm)               | 32       | FF16K-11  | MAIN BELT                        |
| 9        | FJ111-17  | NON-METAL WASHER (1.7 x 0.25 mm) | 33       | FR20L-21A | PINCH ROLLER                     |
| 10       | PL366-11  | PLUNGER                          | 34       | FJ111-30  | NON-METAL WASHER (2.6 x 0.25 mm) |
| 11       | UJ12V-11  | NON-METAL WASHER (2.1 x 0.25 mm) | 35       | FJ141-11A | OIL SEAL (2.4 x 0.25 mm)         |
| 12       | F513-604  | PLATE HEAD ASS'Y                 | 36       | KG194-11  | SCREW (3.0 x 5 mm)               |
| 13       | FC38N-D4  | HEAD BASE                        | 37       | FK22E-11  | HOLD SPRING                      |
| 14       | FD33C-11  | HEAD SPACER                      | 38       | FK22V-15  | EJECT PREVENTION SPRING          |
| 15       | FG137-18  | SCREW (2 x 9 mm)                 | 39       | UG17L-11  | SCREW (2 x 15 mm)                |
| 16       | FJ111-18  | NON-METAL WASHER (2.1 x 0.25mm)  | 40       | UG12H-14  | SCREW (2.6 x 8 mm)               |
| 17       | FK21U-11  | SPRING, AZIMUTH                  | 41       | FF16N-13  | RUBBER BRAKE                     |
| 18       | FK22L-11A | HEAD BASE SPRING                 | 42       | F567-381  | RELAY P. C. BOARD ASS'Y          |
| 19       | FU18K-13  | REC/PB HEAD                      | 43       | UE16E-11  | PUSH SWITCH                      |
| 20       | FU192-11  | ERASE HEAD                       | 44       | AZ15S-00  | LEAF SWITCH                      |
| 21       | WH50S-06  | WIRE CONNECTOR                   | 45       | UG17H-11  | SCREW (2.6 x 23.5 mm)            |
| 22       | WH42S-00  | WIRE CONNECTOR                   | 46       | FK22G-14  | PLAY ARM SPRING                  |
| 23       | F525-185  | CAPSTAN MOTOR ASS'Y              | 47       | FC39M-68  | EJECT PREVENTION ARM             |
| 24       | FD39C-54  | CAM GEAR                         | 48       | UG15S-11A | SCREW (7.7mm)                    |



A B C D E

EXPLODED VIEW

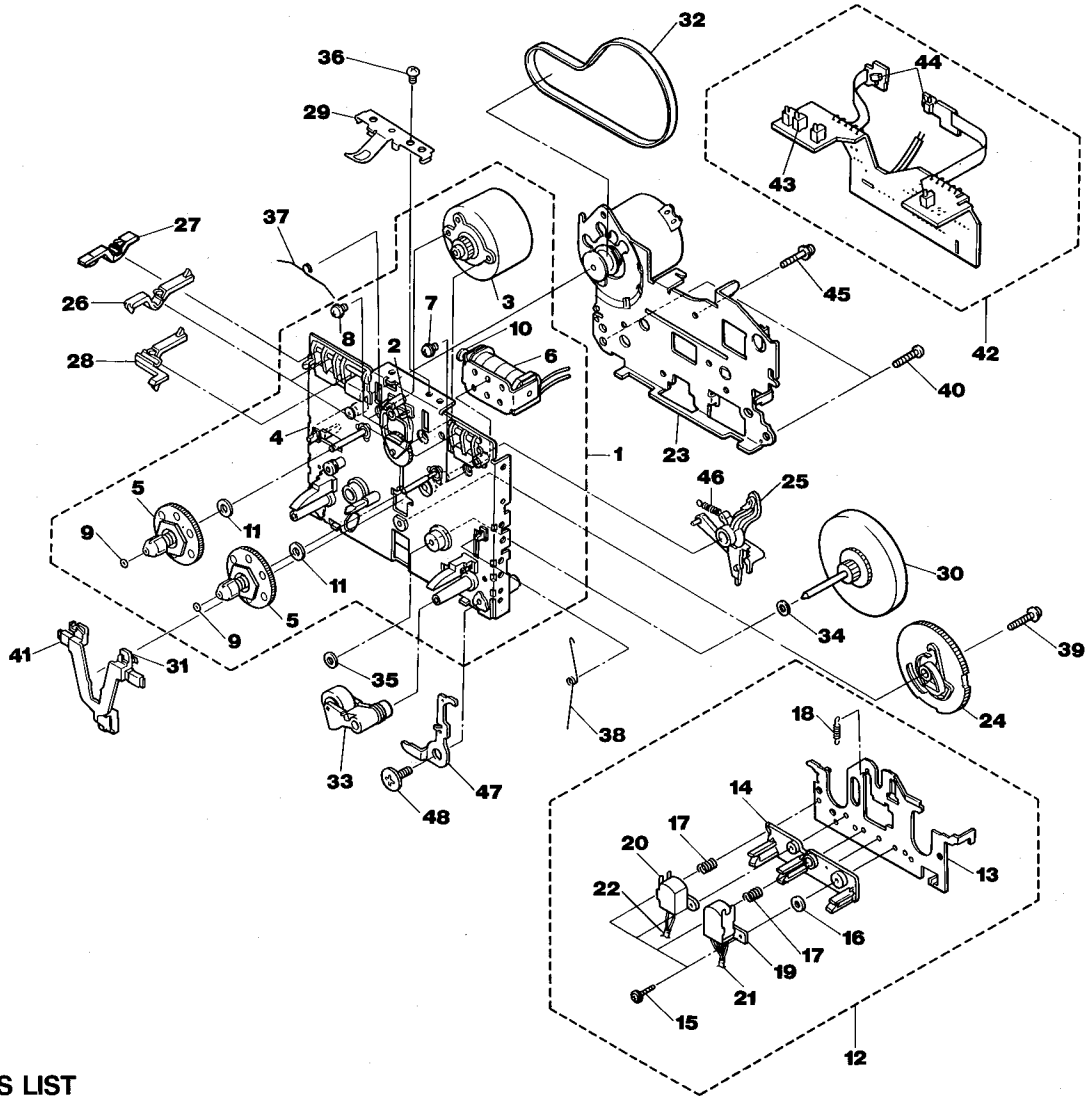
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PARTS LIST

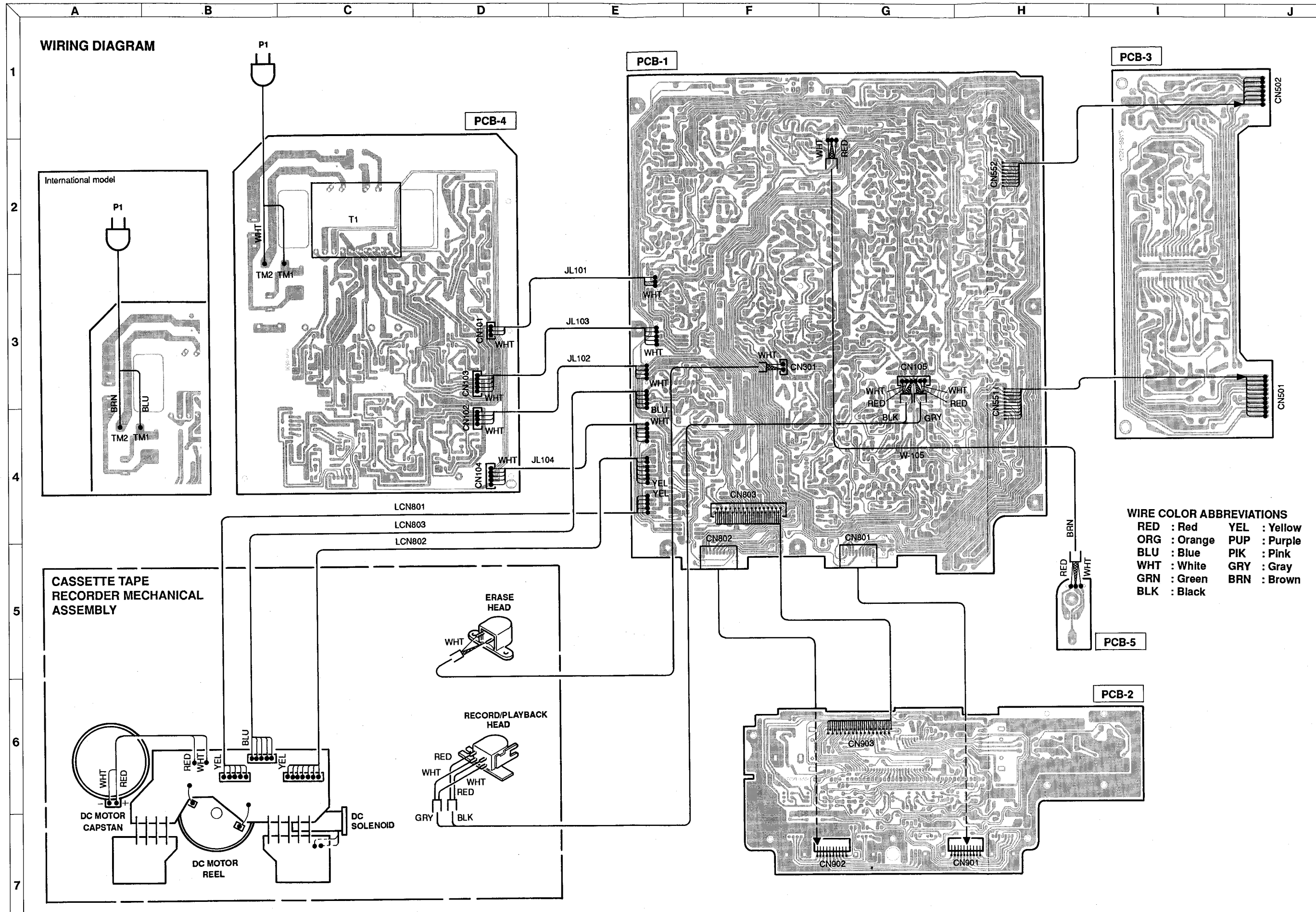
| Ref. No. | Part No.      | Description                |
|----------|---------------|----------------------------|
| AA       | A442-TD4500A  | FRONT PANEL ASS'Y UA I     |
| AAA      | A442-TD4500B  | FRONT PANEL ASS'Y BK IB BB |
| 137      | 1442- 24408   | PANEL UA I                 |
| 137A     | 1442- 24405   | PANEL BK IB BB             |
| 138      | 1511-19807    | PLATE                      |
| 142      | 1532- 17505   | WINDOW                     |
| 153      | 1662- 52303   | PUSH BUTTON UA I           |
| 153A     | 1662- 52301   | PUSH BUTTON BK IB BB       |
| 156      | 1662- 58502   | PUSH BUTTON UA I           |
| 156A     | 1662-58501    | PUSH BUTTON BK IB BB       |
| 157      | 1662- 52204   | PUSH BUTTON UA I           |
| 157A     | 1662- 52203   | PUSH BUTTON BK IB BB       |
| 163      | 2219-8284     | METAL FITTING              |
| 171      | 2240-7370     | HOLDER                     |
| 188      | 2216-7195     | SHIELD PLATE               |
| 195      | 2347-F0126082 | SCREW (2.6X8mm)            |

# CASSETTE TAPE RECORDER MECHANISM EXPLODED VIEW



## PARTS LIST

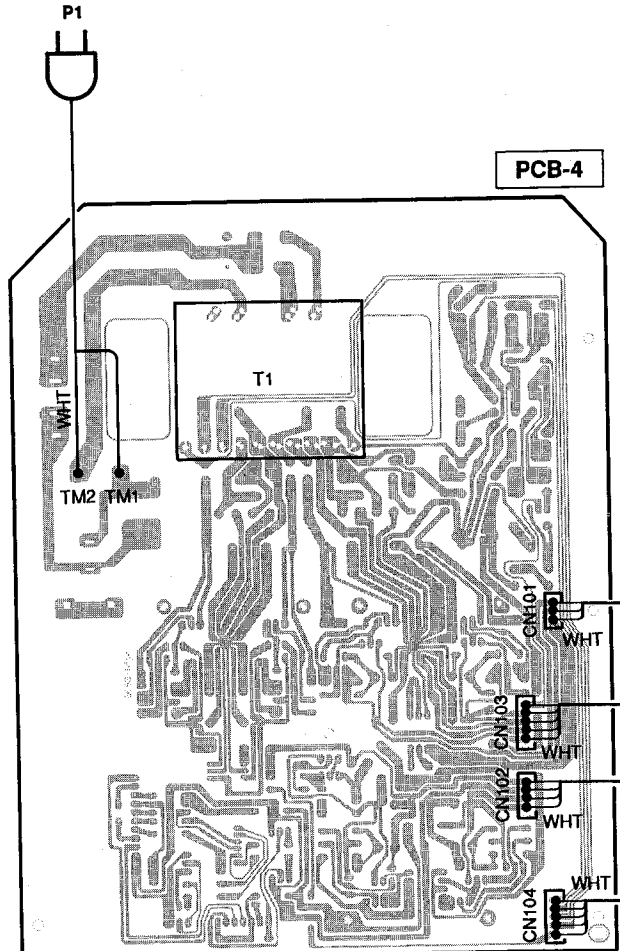
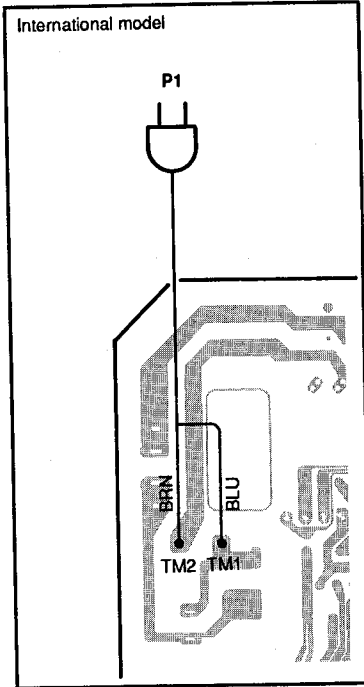
| Ref. No. | Part No.  | Description                      | Ref. No. | Part No.  | Description                      |
|----------|-----------|----------------------------------|----------|-----------|----------------------------------|
| 1        | F511-454  | CHASSIS ASS'Y                    | 25       | FD38M-22  | PLAY ARM ASS'Y                   |
| 2        | F517-049  | IDLER ASS'Y                      | 26       | FD38S-21  | SWITCH ARM, REC                  |
| 3        | F564-258  | REEL MOTOR                       | 27       | FD38T-12B | SWITCH ARM, PACK                 |
| 4        | F612-109  | CHASSIS BASE ASS'Y               | 28       | FD38U-12  | SWITCH ARM, METAL                |
| 5        | F623-037  | REEL BASE ASS'Y                  | 29       | FC40N-32  | SPRING, CASSETTE                 |
| 6        | F765-252  | SOLENOID ASS'Y                   | 30       | FR19V-22C | FLYWHEEL ASS'Y                   |
| 7        | FG114-15  | SCREW (2.6 x 4 mm)               | 31       | FD36H-12  | HOLD LEVER                       |
| 8        | FG114-20  | SCREW (2.6 x 6 mm)               | 32       | FF16K-11  | MAIN BELT                        |
| 9        | FJ111-17  | NON-METAL WASHER (1.7 x 0.25 mm) | 33       | FR20L-21A | PINCH ROLLER                     |
| 10       | PL366-11  | PLUNGER                          | 34       | FJ111-30  | NON-METAL WASHER (2.6 x 0.25 mm) |
| 11       | UJ12V-11  | NON-METAL WASHER (2.1 x 0.25 mm) | 35       | FJ141-11A | OIL SEAL (2.4 x 0.25 mm)         |
| 12       | F513-604  | PLATE HEAD ASS'Y                 | 36       | KG194-11  | SCREW (3.0 x 5 mm)               |
| 13       | FC38N-D4  | HEAD BASE                        | 37       | FK22E-11  | HOLD SPRING                      |
| 14       | FD33C-11  | HEAD SPACER                      | 38       | FK22V-15  | EJECT PREVENTION SPRING          |
| 15       | FG137-18  | SCREW (2 x 9 mm)                 | 39       | UG17L-11  | SCREW (2 x 15 mm)                |
| 16       | FJ111-18  | NON-METAL WASHER (2.1 x 0.25mm)  | 40       | UG12H-14  | SCREW (2.6 x 8 mm)               |
| 17       | FK21U-11  | SPRING, AZIMUTH                  | 41       | FF16N-13  | RUBBER BRAKE                     |
| 18       | FK22L-11A | HEAD BASE SPRING                 | 42       | F567-381  | RELAY P. C. BOARD ASS'Y          |
| 19       | FU18K-13  | REC/PB HEAD                      | 43       | UE16E-11  | PUSH SWITCH                      |
| 20       | FU192-11  | ERASE HEAD                       | 44       | AZ15S-00  | LEAF SWITCH                      |
| 21       | WH50S-06  | WIRE CONNECTOR                   | 45       | UG17H-11  | SCREW (2.6 x 23.5 mm)            |
| 22       | WH42S-00  | WIRE CONNECTOR                   | 46       | FK22G-14  | PLAY ARM SPRING                  |
| 23       | F525-185  | CAPSTAN MOTOR ASS'Y              | 47       | FC39M-68  | EJECT PREVENTION ARM             |
| 24       | FD39C-54  | CAM GEAR                         | 48       | UG15S-11A | SCREW (7.7mm)                    |



# WIRING DIAGRAM

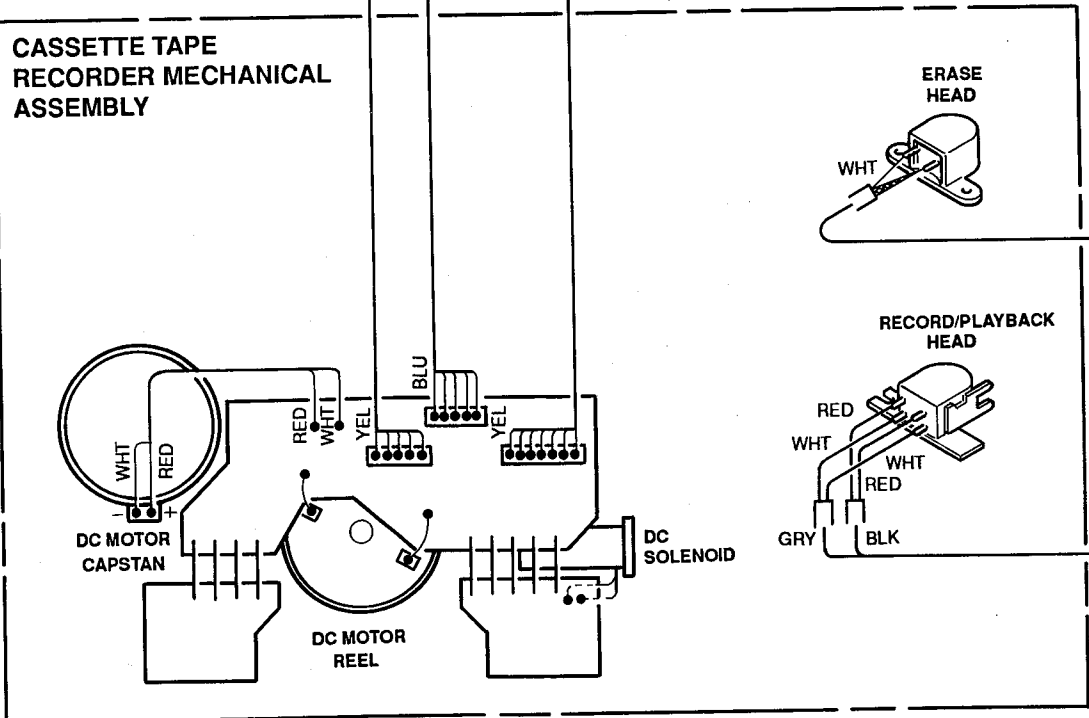
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LCN801  
LCN803  
LCN802

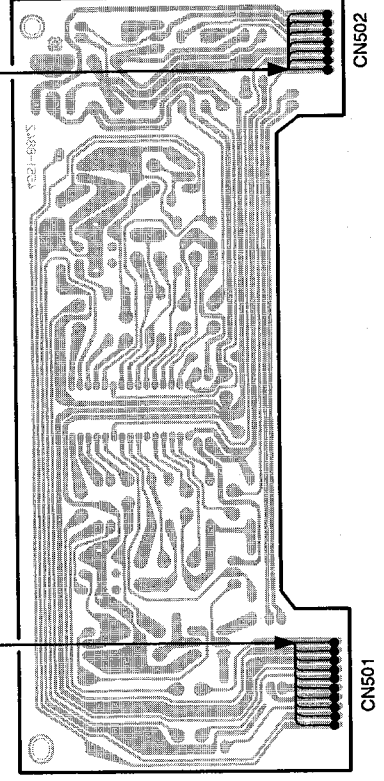
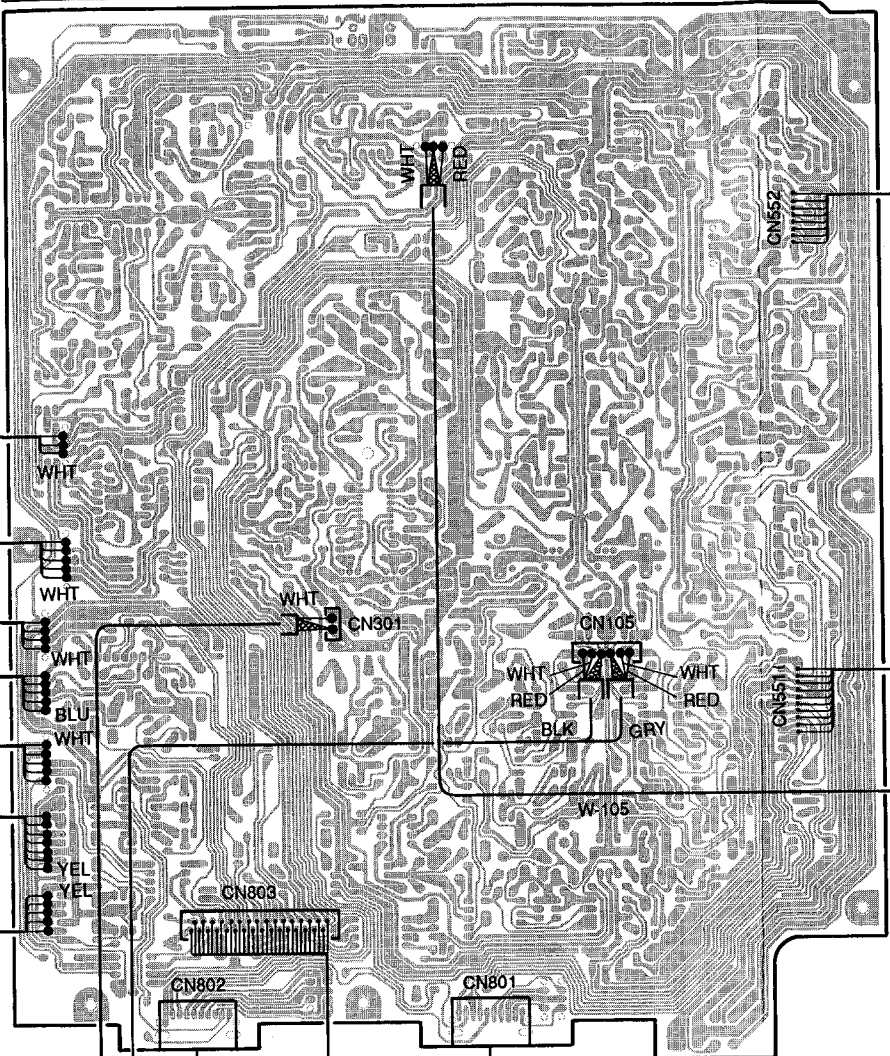
## CASSETTE TAPE RECORDER MECHANICAL ASSEMBLY



E F G H I J

PCB-1

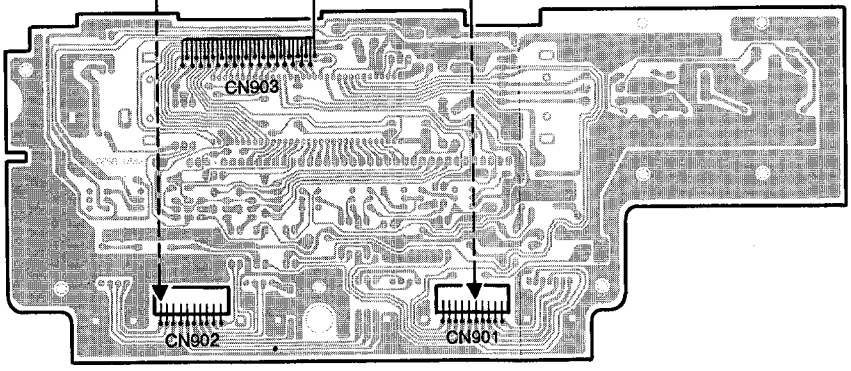
PCB-3



PCB-5

- WIRE COLOR ABBREVIATIONS**
- |              |              |
|--------------|--------------|
| RED : Red    | YEL : Yellow |
| ORG : Orange | PUP : Purple |
| BLU : Blue   | PIK : Pink   |
| WHT : White  | GRY : Gray   |
| GRN : Green  | BRN : Brown  |
| BLK : Black  |              |

PCB-2



A B C D E F G H I J

P. C. BOARDS (1)

PCB-1 Main P. C. Board

BIAS LEVEL & RECORD/PLAYBACK EQUALIZER FREQUENCY CHARACTERISTIC ADJ. (LN)

PEAK LEVEL METER ADJ.

BIAS LEVEL & RECORD/PLAYBACK EQUALIZER FREQUENCY CHARACTERISTIC ADJ. (CrO<sub>2</sub>)

BIAS LEVEL & RECORD/PLAYBACK EQUALIZER FREQUENCY CHARACTERISTIC ADJ. (METAL)

DOLBY HX STEP UP ADJ.

BIAS FREQUENCY ADJ.

RECORD LEVEL ADJ.

RECORD/PLAYBACK EQUALIZER FREQUENCY CHARACTERISTIC ADJ.

BIAS TONE ADJ.

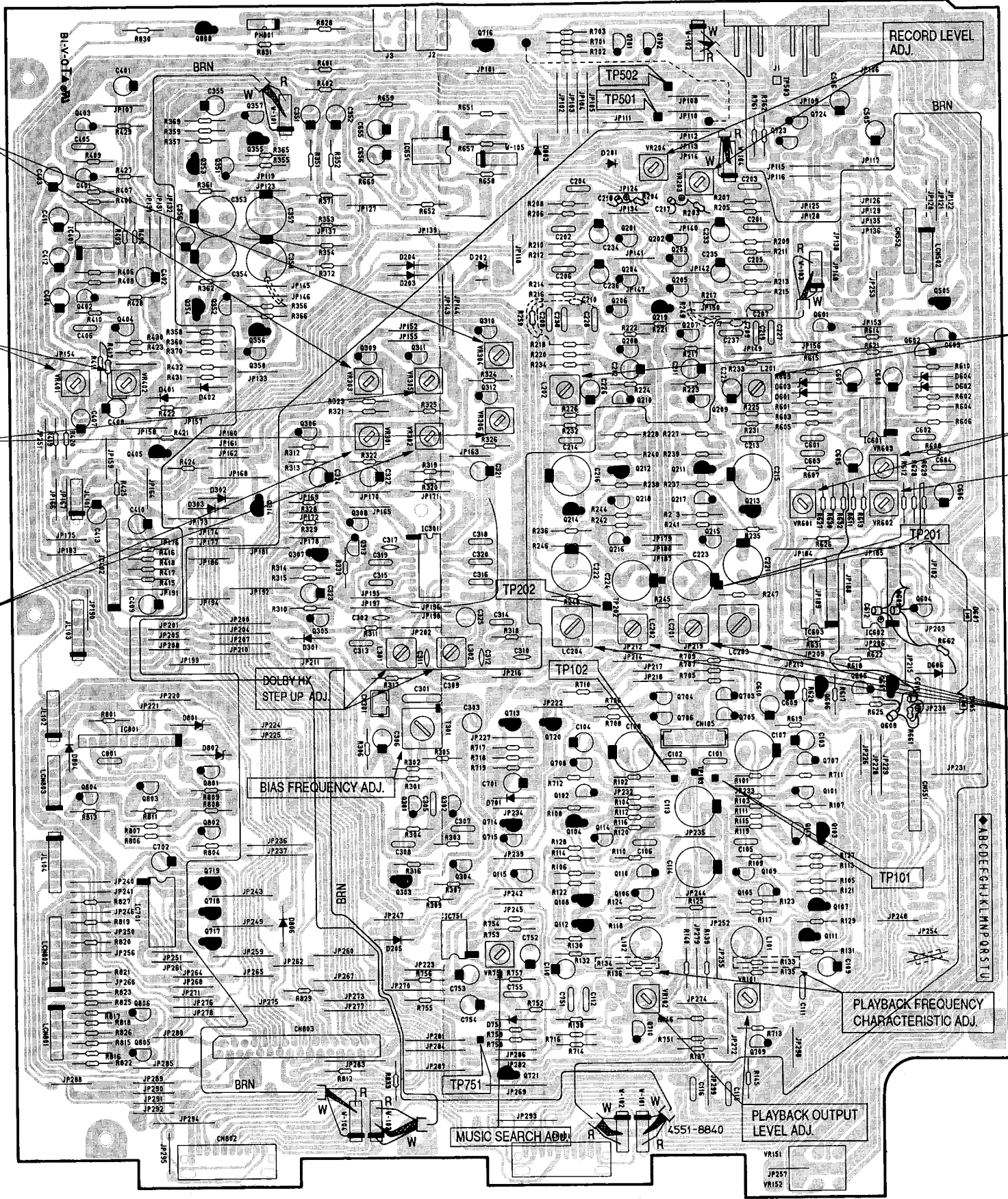
REC CAL TONE ADJ.

BIAS TRAP ADJ.

PLAYBACK FREQUENCY CHARACTERISTIC ADJ.

PLAYBACK OUTPUT LEVEL ADJ.

MUSIC SEARCH ADJ.



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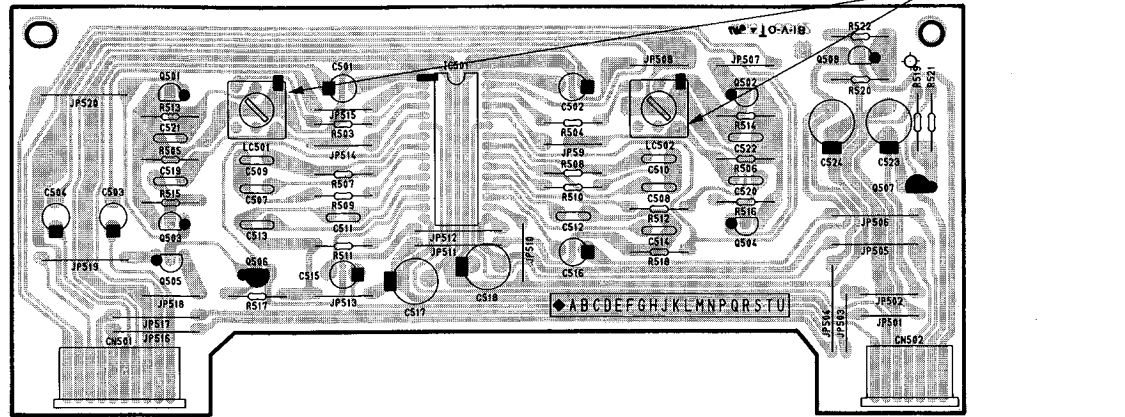




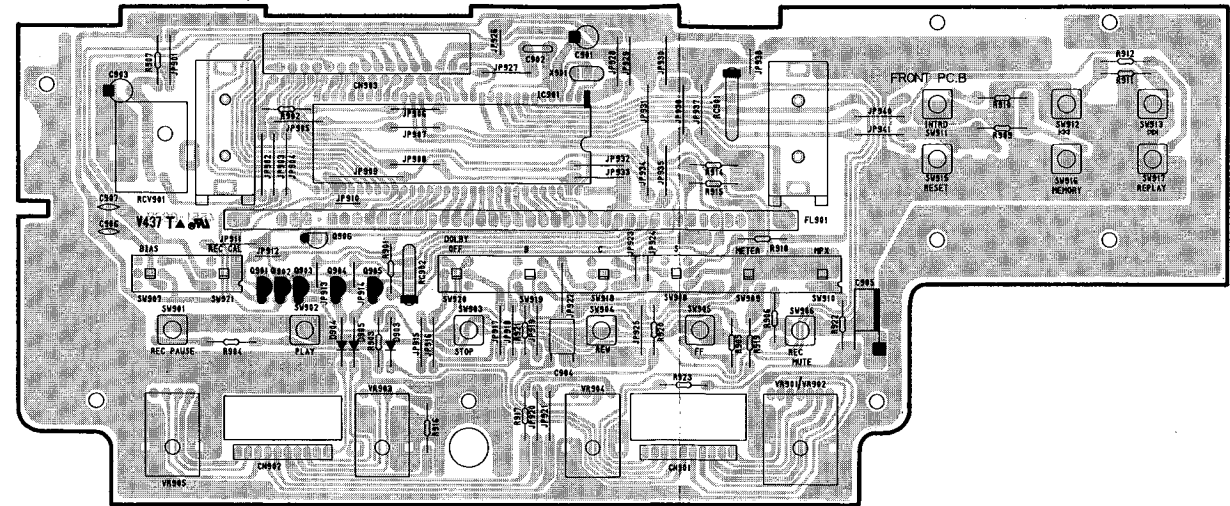


P. C. BOARDS (2)

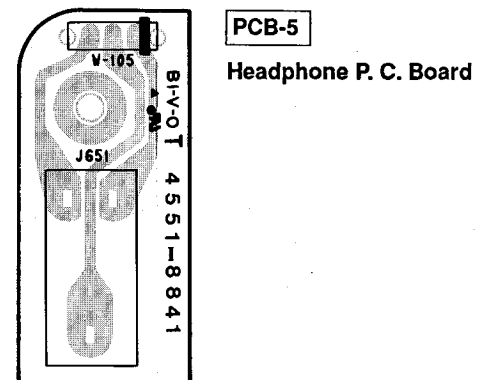
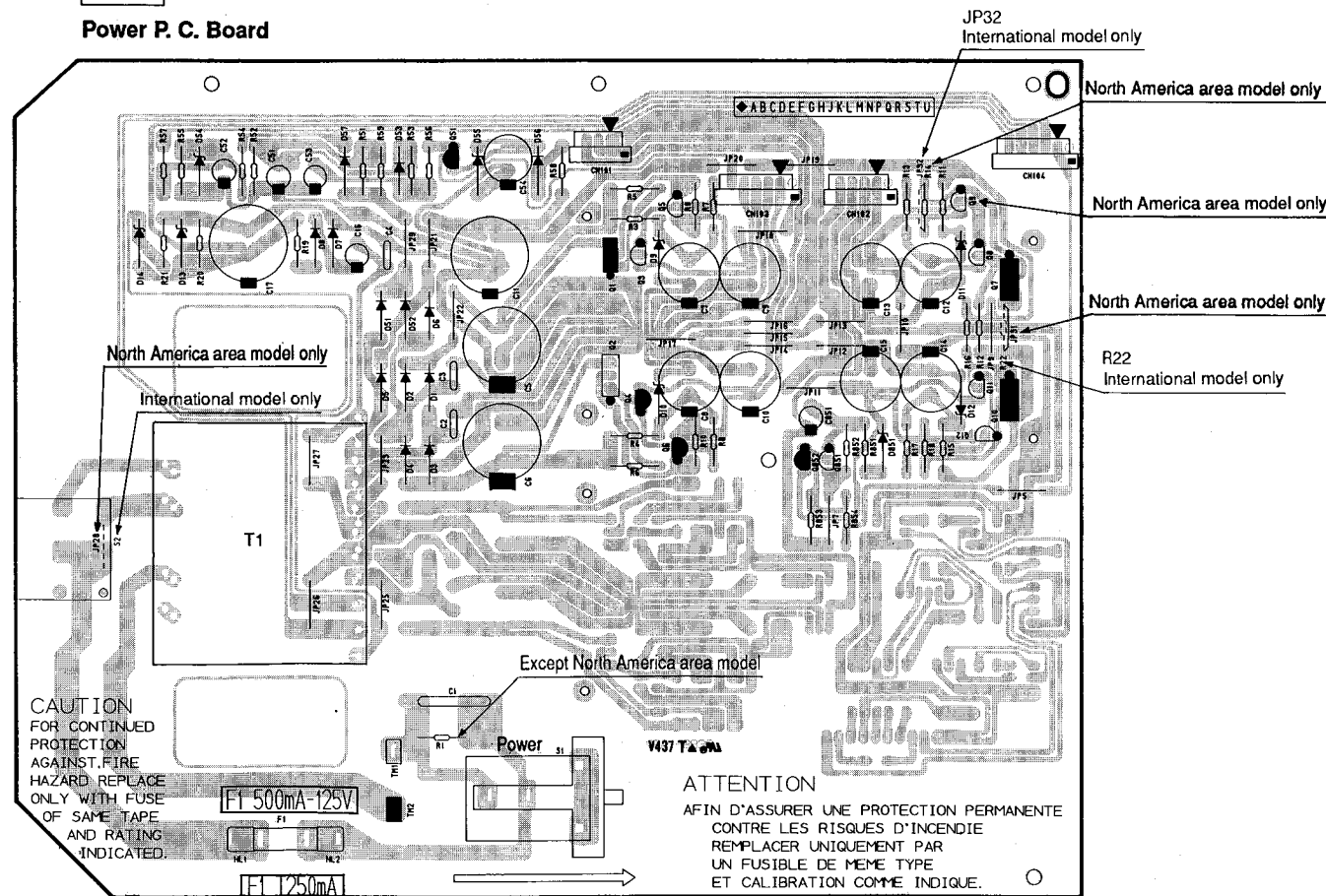
**PCB-3**  
Dolby B/C NR P. C. Board



**PCB-2**  
Front P. C. Board



**PCB-4**  
Power P. C. Board



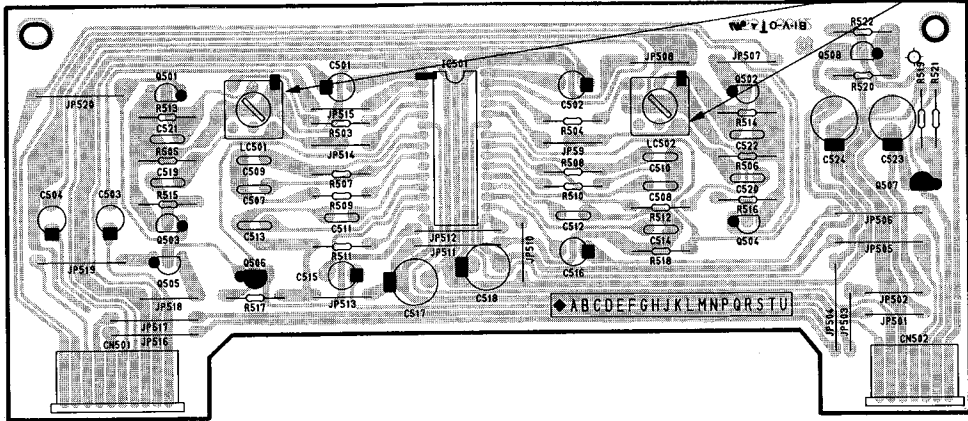
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**P. C. BOARDS (2)**

**PCB-3**

**Dolby B/C NR P. C. Board**

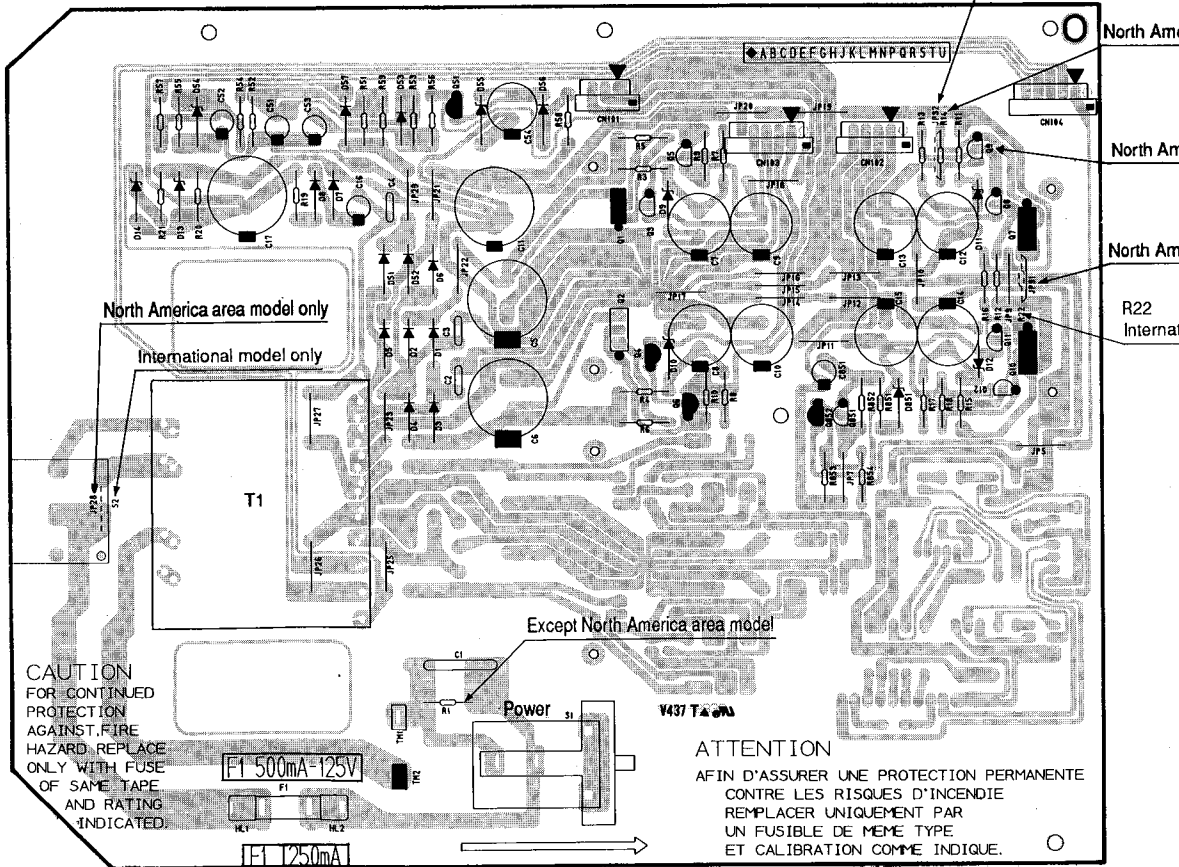
MPX FILTER  
CHARACTERISTIC ADJ.



**PCB-4**

**Power P. C. Board**

JP32  
International model only





## ELECTRICAL PARTS LIST

| Ser.No.                       | Ref.No. | Part No.      | Description                  | Ser.No. | Ref.No. | Part No.      | Description                 | Ser.No. | Ref.No. | Part No.     | Description       | Ser.No. | Ref.No. | Part No.    | Description       |
|-------------------------------|---------|---------------|------------------------------|---------|---------|---------------|-----------------------------|---------|---------|--------------|-------------------|---------|---------|-------------|-------------------|
| <b>PCB-1 MAIN P. C. BOARD</b> |         |               |                              |         |         |               |                             |         |         |              |                   |         |         |             |                   |
| <b>CAPACITORS</b>             |         |               |                              |         |         |               |                             |         |         |              |                   |         |         |             |                   |
| 427                           | C101    | 5359-4715851  | CAP,PPP 470P                 | 916     | C354    | 5345-107B0951 | CAP,MINI ELE 100 $\mu$ /10V | 451     | R136    | 5135-221522  | RES,CBN 1/2P 220  | 575     | R328    | 5135-471522 | RES,CBN 1/2P 470  |
| 427                           | C102    | 5359-4715851  | CAP,PPP 470P                 | 916     | C355    | 5345-107B0951 | CAP,MINI ELE 100 $\mu$ /10V | 453     | R137    | 5135-104522  | RES,CBN 1/2P 100K | 576     | R329    | 5135-123522 | RES,CBN 1/2P 12K  |
| 415                           | C103    | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V   | 916     | C356    | 5345-107B0951 | CAP,MINI ELE 100 $\mu$ /10V | 453     | R138    | 5135-104522  | RES,CBN 1/2P 100K | 576     | R330    | 5135-123522 | RES,CBN 1/2P 12K  |
| 415                           | C104    | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V   | 917     | C357    | 5345-227C041  | CAP,MINI ELE 220 $\mu$ /16V | 431     | R139    | 5135-121522  | RES,CBN 1/2P 120  | 919     | R351    | 5135-102522 | RES,CBN 1/2P 1K   |
| 423                           | C105    | 5359-8225851  | CAP,PPP 8200P                | 917     | C358    | 5345-227C041  | CAP,MINI ELE 220 $\mu$ /16V | 431     | R140    | 5135-121522  | RES,CBN 1/2P 120  | 919     | R352    | 5135-102522 | RES,CBN 1/2P 1K   |
| 423                           | C106    | 5359-8225851  | CAP,PPP 8200P                | 714     | C401    | 5345-105F041  | CAP,MINI ELE 1 $\mu$ /50V   | 454     | R145    | 5135-102522  | RES,CBN 1/2P 1K   | 920     | R353    | 5135-473522 | RES,CBN 1/2P 47K  |
| 416                           | C107    | 5345-337A0952 | CAP,MINI ELE 330 $\mu$ /6.3V | 714     | C402    | 5345-105F041  | CAP,MINI ELE 1 $\mu$ /50V   | 454     | R146    | 5135-102522  | RES,CBN 1/2P 1K   | 920     | R354    | 5135-473522 | RES,CBN 1/2P 47K  |
| 416                           | C108    | 5345-337A0952 | CAP,MINI ELE 330 $\mu$ /6.3V | 712     | C403    | 5345-475F041  | CAP,MINI ELE 4.7 $\mu$ /50V | 497     | R203    | 5135-222522  | RES,CBN 1/2P 2.2K | 921     | R355    | 5135-182522 | RES,CBN 1/2P 1.8K |
| 415                           | C109    | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V   | 712     | C404    | 5345-475F041  | CAP,MINI ELE 4.7 $\mu$ /50V | 497     | R204    | 5135-222522  | RES,CBN 1/2P 2.2K | 921     | R356    | 5135-182522 | RES,CBN 1/2P 1.8K |
| 415                           | C110    | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V   | 712     | C406    | 5359-S010J222 | CAP,PPP 2200P               | 498     | R205    | 5135-104522  | RES,CBN 1/2P 100K | 922     | R357    | 5135-101522 | RES,CBN 1/2P 100  |
| 424                           | C111    | 5359-1825851  | CAP,PPP 1800P                | 716     | C406    | 5359-S010J222 | CAP,PPP 2200P               | 498     | R206    | 5135-104522  | RES,CBN 1/2P 100K | 922     | R358    | 5135-101522 | RES,CBN 1/2P 100  |
| 424                           | C112    | 5359-1825851  | CAP,PPP 1800P                | 716     | C406    | 5359-S010J222 | CAP,PPP 2200P               | 499     | R207    | 5135-223522  | RES,CBN 1/2P 22K  | 923     | R359    | 5135-622522 | RES,CBN 1/2P 6.2K |
| 420                           | C113    | 5345-477C041  | CAP,MINI ELE 470 $\mu$ /16V  | 712     | C407    | 5345-475F041  | CAP,MINI ELE 4.7 $\mu$ /50V | 499     | R208    | 5135-223522  | RES,CBN 1/2P 22K  | 923     | R360    | 5135-622522 | RES,CBN 1/2P 6.2K |
| 420                           | C114    | 5345-477C041  | CAP,MINI ELE 470 $\mu$ /16V  | 712     | C408    | 5345-475F041  | CAP,MINI ELE 4.7 $\mu$ /50V | 500     | R209    | 5135-392522  | RES,CBN 1/2P 3.9K | 924     | R361    | 5135-272522 | RES,CBN 1/2P 2.7K |
| 425                           | C115    | 5359-1225851  | CAP,PPP 1200P                | 712     | C409    | 5345-475F041  | CAP,MINI ELE 4.7 $\mu$ /50V | 500     | R210    | 5135-392522  | RES,CBN 1/2P 3.9K | 924     | R362    | 5135-272522 | RES,CBN 1/2P 2.7K |
| 425                           | C116    | 5359-1225851  | CAP,PPP 1200P                | 712     | C410    | 5345-475F041  | CAP,MINI ELE 4.7 $\mu$ /50V | 501     | R211    | 5135-272522  | RES,CBN 1/2P 2.7K | 922     | R365    | 5135-101522 | RES,CBN 1/2P 100  |
| 485                           | C201    | 5359-S010J152 | CAP,PPP 1500P                | 715     | C411    | 5345-226D041  | CAP,MINI ELE 22 $\mu$ /25V  | 501     | R212    | 5135-272522  | RES,CBN 1/2P 2.7K | 922     | R366    | 5135-101522 | RES,CBN 1/2P 100  |
| 485                           | C202    | 5359-S010J152 | CAP,PPP 1500P                | 715     | C412    | 5345-226D041  | CAP,MINI ELE 22 $\mu$ /25V  | 502     | R213    | 5135-183522  | RES,CBN 1/2P 18K  | 926     | R369    | 5135-331522 | RES,CBN 1/2P 330  |
| 484                           | C203    | 5359-S010J122 | CAP,PPP 1200P                | 715     | C413    | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  | 502     | R214    | 5135-183522  | RES,CBN 1/2P 18K  | 926     | R370    | 5135-331522 | RES,CBN 1/2P 330  |
| 484                           | C204    | 5359-S010J122 | CAP,PPP 1200P                | 650     | C505    | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  | 503     | R215    | 5135-123522  | RES,CBN 1/2P 12K  | 927     | R371    | 5135-220522 | RES,CBN 1/2P 22   |
| 486                           | C205    | 5359-S010J273 | CAP,PPP 0.027                | 650     | C506    | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  | 503     | R216    | 5135-123522  | RES,CBN 1/2P 12K  | 927     | R372    | 5135-220522 | RES,CBN 1/2P 22   |
| 486                           | C206    | 5359-S010J273 | CAP,PPP 0.027                | 952     | C601    | 5354-393J1HM  | CAP,MYL .039 $\mu$          | 504     | R217    | 5135-471522  | RES,CBN 1/2P 470  | 719     | R401    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 487                           | C207    | 5359-S010J562 | CAP,PPP 5600P                | 953     | C602    | 5359-S010J122 | CAP,PPP 1200P               | 504     | R218    | 5135-471522  | RES,CBN 1/2P 470  | 719     | R402    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 487                           | C208    | 5359-S010J562 | CAP,PPP 5600P                | 952     | C603    | 5354-393J1HM  | CAP,MYL .039 $\mu$          | 505     | R219    | 5135-222522  | RES,CBN 1/2P 2.2K | 720     | R403    | 5135-103522 | RES,CBN 1/2P 10K  |
| 488                           | C209    | 5359-S010J222 | CAP,PPP 2200P                | 953     | C604    | 5359-S010J122 | CAP,PPP 1200P               | 505     | R220    | 5135-222522  | RES,CBN 1/2P 2.2K | 720     | R404    | 5135-103522 | RES,CBN 1/2P 10K  |
| 488                           | C210    | 5359-S010J222 | CAP,PPP 2200P                | 955     | C605    | 5345-105F041  | CAP,MINI ELE 1 $\mu$ /50V   | 506     | R221    | 5135-472522  | RES,CBN 1/2P 4.7K | 721     | R405    | 5135-104522 | RES,CBN 1/2P 100K |
| 476                           | C211    | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V    | 955     | C606    | 5345-105F041  | CAP,MINI ELE 1 $\mu$ /50V   | 506     | R222    | 5135-472522  | RES,CBN 1/2P 4.7K | 721     | R406    | 5135-104522 | RES,CBN 1/2P 100K |
| 476                           | C212    | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V    | 956     | C607    | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  | 507     | R223    | 5135-104522  | RES,CBN 1/2P 100K | 723     | R407    | 5135-222522 | RES,CBN 1/2P 2.2K |
| 491                           | C213    | 5359-S010J123 | CAP,PPP .012 $\mu$           | 956     | C608    | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  | 507     | R224    | 5135-104522  | RES,CBN 1/2P 100K | 723     | R408    | 5135-222522 | RES,CBN 1/2P 2.2K |
| 491                           | C214    | 5359-S010J123 | CAP,PPP .012 $\mu$           | 956     | C609    | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  | 507     | R225    | 5135-104522  | RES,CBN 1/2P 100K | 724     | R409    | 5135-273522 | RES,CBN 1/2P 27K  |
| 477                           | C215    | 5345-476C0951 | CAP,MINI ELE 47 $\mu$ /16V   | 956     | C610    | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  | 508     | R226    | 5135-181522  | RES,CBN 1/2P 180  | 724     | R410    | 5135-273522 | RES,CBN 1/2P 27K  |
| 477                           | C216    | 5345-476C0951 | CAP,MINI ELE 47 $\mu$ /16V   | 956     | C611    | 5345-106C041  | CAP,MINI ELE 10 $\mu$ /16V  | 510     | R227    | 5135-122522  | RES,CBN 1/2P 1.2K | 725     | R411    | 5135-223522 | RES,CBN 1/2P 22K  |
| 482                           | C217    | 5345-225F0951 | CAP,MINI ELE 2.2 $\mu$ /50V  | 934     | C612    | 5345-106C041  | CAP,MINI ELE 10 $\mu$ /16V  | 510     | R228    | 5135-122522  | RES,CBN 1/2P 1.2K | 725     | R412    | 5135-223522 | RES,CBN 1/2P 22K  |
| 482                           | C218    | 5345-225F0951 | CAP,MINI ELE 2.2 $\mu$ /50V  | 934     | C655    | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  | 509     | R231    | 5135-821522  | RES,CBN 1/2P 820  | 726     | R415    | 5135-334522 | RES,CBN 1/2P 330K |
| 480                           | C221    | 5345-227B0952 | CAP,MINI ELE 220 $\mu$ /10V  | 934     | C656    | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  | 509     | R232    | 5135-821522  | RES,CBN 1/2P 820  | 726     | R416    | 5135-334522 | RES,CBN 1/2P 330K |
| 480                           | C222    | 5345-227B0952 | CAP,MINI ELE 220 $\mu$ /10V  | 683     | C701    | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V  | 515     | R233    | 5135-272522  | RES,CBN 1/2P 2.7K | 720     | R417    | 5135-103522 | RES,CBN 1/2P 10K  |
| 481                           | C223    | 5345-227C041  | CAP,MINI ELE 220 $\mu$ /16V  | 683     | C702    | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V  | 515     | R234    | 5135-272522  | RES,CBN 1/2P 2.7K | 720     | R418    | 5135-103522 | RES,CBN 1/2P 10K  |
| 481                           | C224    | 5345-227C041  | CAP,MINI ELE 220 $\mu$ /16V  | 893     | C751    | 5354-473J1HM  | CAP,MYL .047 $\mu$          | 510     | R235    | 5135-122522  | RES,CBN 1/2P 1.2K | 727     | R419    | 5135-331522 | RES,CBN 1/2P 330  |
| 479                           | C225    | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V    | 891     | C752    | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  | 510     | R236    | 5135-122522  | RES,CBN 1/2P 1.2K | 727     | R420    | 5135-331522 | RES,CBN 1/2P 330  |
| 479                           | C226    | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V    | 891     | C753    | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  | 512     | R237    | 5135-104522  | RES,CBN 1/2P 100K | 723     | R421    | 5135-222522 | RES,CBN 1/2P 2.2K |
| 489                           | C227    | 5359-S010J472 | CAP,PPP 4700P                | 894     | C754    | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  | 512     | R238    | 5135-104522  | RES,CBN 1/2P 100K | 719     | R422    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 489                           | C228    | 5359-S010J472 | CAP,PPP 4700P                | 867     | C801    | 5359-S010J103 | CAP,PPP .01 $\mu$           | 513     | R239    | 5135-151522  | RES,CBN 1/2P 150  | 719     | R423    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 483                           | C233    | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V    | 434     | R101    | 5135-470522   | RES,CBN 1/2P 47             | 516     | R241    | 5135-820522  | RES,CBN 1/2P 82   | 730     | R425    | 5135-100522 | RES,CBN 1/2P 10   |
| 483                           | C234    | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V    | 434     | R102    | 5135-470522   | RES,CBN 1/2P 47             | 516     | R242    | 5135-820522  | RES,CBN 1/2P 82   | 719     | R427    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 475                           | C235    | 5345-104F0951 | CAP,MINI ELE 0.1 $\mu$ /50V  | 435     | R103    | 5135-124522   | RES,CBN 1/2P 120K           | 495     | R243    | 5135-473522  | RES,CBN 1/2P 47K  | 719     | R428    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 475                           | C236    | 5345-104F0951 | CAP,MINI ELE 0.1 $\mu$ /50V  | 435     | R104    | 5135-124522   | RES,CBN 1/2P 120K           | 495     | R244    | 5135-473522  | RES,CBN 1/2P 47K  | 719     | R429    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 490                           | C237    | 5359-S010J222 | CAP,PPP 2200P                | 436     | R105    | 5135-272522   | RES,CBN 1/2P 2.7K           | 493     | R245    | 5102-1014715 | RES,FUSE 100      | 719     | R430    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 490                           | C238    | 5359-S010J222 | CAP,PPP 2200P                | 436     | R106    | 5135-272522   | RES,CBN 1/2P 2.7K           | 493     | R246    | 5102-1014715 | RES,FUSE 100      | 729     | R431    | 5135-334522 | RES,CBN 1/2P 330K |
| 547                           | C301    | 5354-S040K103 | CAP,MYL .01 $\mu$            | 437     | R107    | 5135-470522   | RES,CBN 1/2P 47             | 517     | R247    | 5135-331522  | RES,CBN 1/2P 330  | 729     | R432    | 5135-334522 | RES,CBN 1/2P 330K |
| 556                           | C302    | 5361-100J434  | CAP,CER 10P                  | 437     | R108    | 5135-470522   | RES,CBN 1/2P 47             | 517     | R248    | 5135-331522  | RES,CBN 1/2P 330  | 958     | R601    | 5135-393522 | RES,CBN 1/2P 39K  |
| 542                           | C303    | 5342-106D041  | CAP,ELE BP 10 $\mu$ /25V     | 438     | R109    | 5135-394522   | RES,CBN 1/2P 390K           | 518     | R249    | 5135-153522  | RES,CBN 1/2P 15K  | 958     | R602    | 5135-393522 | RES,CBN 1/2P 39K  |
| 551                           | C305    | 5359-S010J153 | CAP,PPP .015 $\mu$           | 438     | R110    | 5135-394522   | RES,CBN 1/2P 390K           | 518     | R250    | 5135-153522  | RES,CBN 1/2P 15K  | 959     | R603    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 543                           | C306    | 5345-106E041  | CAP,MINI ELE 10 $\mu$ /35V   | 439     | R111    | 5135-820522   | RES,CBN 1/2P 82             | 561     | R301    | 5135-5R6522  | RES,CBN 1/2P 5.6  | 959     | R604    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 552                           | C307    | 5359-S010J332 |                              |         |         |               |                             |         |         |              |                   |         |         |             |                   |

## ELECTRICAL PARTS LIST

| Ser.No. | Ref.No. | Part No. | Description |
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## PCB-1 MAIN P. C. BOARD

## CAPACITORS

|     |      |               |                              |
|-----|------|---------------|------------------------------|
| 427 | C101 | 5359-4715851  | CAP,PPP 470P                 |
| 427 | C102 | 5359-4715851  | CAP,PPP 470P                 |
| 415 | C103 | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V   |
| 415 | C104 | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V   |
| 423 | C105 | 5359-8225851  | CAP,PPP 8200P                |
| 423 | C106 | 5359-8225851  | CAP,PPP 8200P                |
| 416 | C107 | 5345-337A0952 | CAP,MINI ELE 330 $\mu$ /6.3V |
| 416 | C108 | 5345-337A0952 | CAP,MINI ELE 330 $\mu$ /6.3V |
| 415 | C109 | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V   |
| 415 | C110 | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V   |
| 424 | C111 | 5359-1825851  | CAP,PPP 1800P                |
| 424 | C112 | 5359-1825851  | CAP,PPP 1800P                |
| 420 | C113 | 5345-477C041  | CAP,MINI ELE 470 $\mu$ /16V  |
| 420 | C114 | 5345-477C041  | CAP,MINI ELE 470 $\mu$ /16V  |
| 425 | C115 | 5359-1225851  | CAP,PPP 1200P                |
| 425 | C116 | 5359-1225851  | CAP,PPP 1200P                |
| 485 | C201 | 5359-S010J152 | CAP,PPP 1500P                |
| 485 | C202 | 5359-S010J152 | CAP,PPP 1500P                |
| 484 | C203 | 5359-S010J122 | CAP,PPP 1200P                |
| 484 | C204 | 5359-S010J122 | CAP,PPP 1200P                |
| 486 | C205 | 5359-S010J273 | CAP,PPP 0.027                |
| 486 | C206 | 5359-S010J273 | CAP,PPP 0.027                |
| 487 | C207 | 5359-S010J562 | CAP,PPP 5600P                |
| 487 | C208 | 5359-S010J562 | CAP,PPP 5600P                |
| 488 | C209 | 5359-S010J222 | CAP,PPP 2200P                |
| 488 | C210 | 5359-S010J222 | CAP,PPP 2200P                |
| 476 | C211 | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V    |
| 476 | C212 | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V    |
| 491 | C213 | 5359-S010J123 | CAP,PPP .012 $\mu$           |
| 491 | C214 | 5359-S010J123 | CAP,PPP .012 $\mu$           |
| 477 | C215 | 5345-476C0951 | CAP,MINI ELE 47 $\mu$ /16V   |
| 477 | C216 | 5345-476C0951 | CAP,MINI ELE 47 $\mu$ /16V   |
| 482 | C217 | 5345-225F0951 | CAP,MINI ELE 2.2 $\mu$ /50V  |
| 482 | C218 | 5345-225F0951 | CAP,MINI ELE 2.2 $\mu$ /50V  |
| 480 | C221 | 5345-227B0952 | CAP,MINI ELE 220 $\mu$ /10V  |
| 480 | C222 | 5345-227B0952 | CAP,MINI ELE 220 $\mu$ /10V  |
| 481 | C223 | 5345-227C041  | CAP,MINI ELE 220 $\mu$ /16V  |
| 481 | C224 | 5345-227C041  | CAP,MINI ELE 220 $\mu$ /16V  |
| 479 | C225 | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V    |
| 479 | C226 | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V    |
| 489 | C227 | 5359-S010J472 | CAP,PPP 4700P                |
| 489 | C228 | 5359-S010J472 | CAP,PPP 4700P                |
| 483 | C233 | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V    |
| 483 | C234 | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V    |
| 475 | C235 | 5345-104F0951 | CAP,MINI ELE 0.1 $\mu$ /50V  |
| 475 | C236 | 5345-104F0951 | CAP,MINI ELE 0.1 $\mu$ /50V  |
| 490 | C237 | 5359-S010J222 | CAP,PPP 2200P                |
| 490 | C238 | 5359-S010J222 | CAP,PPP 2200P                |
| 547 | C301 | 5354-S040K103 | CAP,MYL .01 $\mu$            |
| 556 | C302 | 5361-100J434  | CAP,CER 10P                  |
| 542 | C303 | 5342-106D041  | CAP,ELE BP 10 $\mu$ /25V     |
| 551 | C305 | 5359-S010J153 | CAP,PPP .015 $\mu$           |
| 543 | C306 | 5345-106E041  | CAP,MINI ELE 10 $\mu$ /35V   |
| 552 | C307 | 5359-S010J332 | CAP,PPP 3300P                |
| 552 | C308 | 5359-S010J332 | CAP,PPP 3300P                |
| 557 | C309 | 5361-1010423  | CAP,CER 100P                 |
| 557 | C310 | 5361-1010423  | CAP,CER 100P                 |
| 558 | C311 | 5361-4710423  | CAP,CER 470P                 |
| 558 | C312 | 5361-4710423  | CAP,CER 470P                 |
| 559 | C313 | 5359-S010J561 | CAP,PPP 560P                 |
| 559 | C314 | 5359-S010J561 | CAP,PPP 560P                 |
| 548 | C315 | 5354-104593   | CAP,MYL .1 $\mu$             |
| 548 | C316 | 5354-104593   | CAP,MYL .1 $\mu$             |
| 553 | C317 | 5359-S010J103 | CAP,PPP .01 $\mu$            |
| 553 | C318 | 5359-S010J103 | CAP,PPP .01 $\mu$            |
| 554 | C319 | 5359-S010J223 | CAP,PPP .022 $\mu$           |
| 554 | C320 | 5359-S010J223 | CAP,PPP .022 $\mu$           |
| 543 | C321 | 5345-106E041  | CAP,MINI ELE 10 $\mu$ /35V   |
| 543 | C322 | 5345-106E041  | CAP,MINI ELE 10 $\mu$ /35V   |
| 543 | C323 | 5345-106E041  | CAP,MINI ELE 10 $\mu$ /35V   |
| 543 | C324 | 5345-106E041  | CAP,MINI ELE 10 $\mu$ /35V   |
| 542 | C325 | 5342-106D041  | CAP,ELE BP 10 $\mu$ /25V     |
| 914 | C351 | 5345-225F0951 | CAP,MINI ELE 2.2 $\mu$ /50V  |
| 914 | C352 | 5345-225F0951 | CAP,MINI ELE 2.2 $\mu$ /50V  |
| 916 | C353 | 5345-107B0951 | CAP,MINI ELE 100 $\mu$ /10V  |

| Ser.No. | Ref.No. | Part No. | Description |
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|     |      |               |                             |
|-----|------|---------------|-----------------------------|
| 916 | C354 | 5345-107B0951 | CAP,MINI ELE 100 $\mu$ /10V |
| 916 | C355 | 5345-107B0951 | CAP,MINI ELE 100 $\mu$ /10V |
| 916 | C356 | 5345-107B0951 | CAP,MINI ELE 100 $\mu$ /10V |
| 917 | C357 | 5345-227C041  | CAP,MINI ELE 220 $\mu$ /16V |
| 917 | C358 | 5345-227C041  | CAP,MINI ELE 220 $\mu$ /16V |
| 714 | C401 | 5345-105F041  | CAP,MINI ELE 1 $\mu$ /50V   |
| 714 | C402 | 5345-105F041  | CAP,MINI ELE 1 $\mu$ /50V   |
| 712 | C403 | 5345-475F041  | CAP,MINI ELE 4.7 $\mu$ /50V |
| 712 | C404 | 5345-475F041  | CAP,MINI ELE 4.7 $\mu$ /50V |
| 716 | C405 | 5359-S010J222 | CAP,PPP 2200P               |
| 716 | C406 | 5359-S010J222 | CAP,PPP 2200P               |
| 712 | C407 | 5345-475F041  | CAP,MINI ELE 4.7 $\mu$ /50V |
| 712 | C408 | 5345-475F041  | CAP,MINI ELE 4.7 $\mu$ /50V |
| 712 | C409 | 5345-475F041  | CAP,MINI ELE 4.7 $\mu$ /50V |
| 712 | C410 | 5345-475F041  | CAP,MINI ELE 4.7 $\mu$ /50V |
| 715 | C411 | 5345-226D041  | CAP,MINI ELE 22 $\mu$ /25V  |
| 715 | C412 | 5345-226D041  | CAP,MINI ELE 22 $\mu$ /25V  |
| 713 | C413 | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  |
| 650 | C505 | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  |
| 650 | C506 | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  |
| 952 | C601 | 5354-393J1HM  | CAP,MYL .039 $\mu$          |
| 953 | C602 | 5359-S010J122 | CAP,PPP 1200P               |
| 952 | C603 | 5354-393J1HM  | CAP,MYL .039 $\mu$          |
| 953 | C604 | 5359-S010J122 | CAP,PPP 1200P               |
| 955 | C605 | 5345-105F041  | CAP,MINI ELE 1 $\mu$ /50V   |
| 955 | C606 | 5345-105F041  | CAP,MINI ELE 1 $\mu$ /50V   |
| 956 | C607 | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  |
| 956 | C608 | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  |
| 956 | C609 | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  |
| 956 | C610 | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  |
|     | C611 | 5345-106C041  | CAP,MINI ELE 10 $\mu$ /16V  |
|     | C612 | 5345-106C041  | CAP,MINI ELE 10 $\mu$ /16V  |
| 934 | C655 | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  |
| 934 | C656 | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  |
| 683 | C701 | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V  |
| 683 | C702 | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V  |
| 893 | C751 | 5354-473J1HM  | CAP,MYL .047 $\mu$          |
| 891 | C752 | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  |
| 891 | C753 | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  |
| 891 | C754 | 5345-476C041  | CAP,MINI ELE 47 $\mu$ /16V  |
| 894 | C755 | 5359-S010J822 | CAP,PPP 8200P               |
| 867 | C801 | 5359-S010J103 | CAP,PPP .01 $\mu$           |

## RESISTORS

|     |      |             |                   |
|-----|------|-------------|-------------------|
| 434 | R101 | 5135-470522 | RES,CBN 1/2P 47   |
| 434 | R102 | 5135-470522 | RES,CBN 1/2P 47   |
| 435 | R103 | 5135-124522 | RES,CBN 1/2P 120K |
| 435 | R104 | 5135-124522 | RES,CBN 1/2P 120K |
| 436 | R105 | 5135-272522 | RES,CBN 1/2P 2.7K |
| 436 | R106 | 5135-272522 | RES,CBN 1/2P 2.7K |
| 437 | R107 | 5135-470522 | RES,CBN 1/2P 47   |
| 437 | R108 | 5135-470522 | RES,CBN 1/2P 47   |
| 438 | R109 | 5135-394522 | RES,CBN 1/2P 390K |
| 438 | R110 | 5135-394522 | RES,CBN 1/2P 390K |
| 439 | R111 | 5135-820522 | RES,CBN 1/2P 82   |
| 439 | R112 | 5135-820522 | RES,CBN 1/2P 82   |
| 441 | R113 | 5135-124522 | RES,CBN 1/2P 120K |
| 441 | R114 | 5135-124522 | RES,CBN 1/2P 120K |
| 442 | R115 | 5135-153522 | RES,CBN 1/2P 15K  |
| 442 | R116 | 5135-153522 | RES,CBN 1/2P 15K  |
| 443 | R117 | 5135-473522 | RES,CBN 1/2P 47K  |
| 443 | R118 | 5135-473522 | RES,CBN 1/2P 47K  |
| 444 | R119 | 5135-203522 | RES,CBN 1/2P 20K  |
| 444 | R120 | 5135-203522 | RES,CBN 1/2P 20K  |
| 445 | R121 | 5135-271522 | RES,CBN 1/2P 270  |
| 445 | R122 | 5135-271522 | RES,CBN 1/2P 270  |
| 446 | R123 | 5135-820522 | RES,CBN 1/2P 82   |
| 446 | R124 | 5135-820522 | RES,CBN 1/2P 82   |
| 447 | R125 | 5135-473522 | RES,CBN 1/2P 47K  |
| 448 | R127 | 5135-105522 | RES,CBN 1/2P 1M   |
| 448 | R128 | 5135-105522 | RES,CBN 1/2P 1M   |
| 449 | R129 | 5135-332522 | RES,CBN 1/2P 3.3K |
| 449 | R130 | 5135-332522 | RES,CBN 1/2P 3.3K |
| 450 | R131 | 5135-471522 | RES,CBN 1/2P 470  |
| 450 | R132 | 5135-471522 | RES,CBN 1/2P 470  |
| 451 | R133 | 5135-221522 | RES,CBN 1/2P 220  |
| 451 | R134 | 5135-221522 | RES,CBN 1/2P 220  |
| 451 | R135 | 5135-221522 | RES,CBN 1/2P 220  |

| Ser.No. | Ref.No. | Part No.     | Description       |
|---------|---------|--------------|-------------------|
| 451     | R136    | 5135-221522  | RES,CBN 1/2P 220  |
| 453     | R137    | 5135-104522  | RES,CBN 1/2P 100K |
| 453     | R138    | 5135-104522  | RES,CBN 1/2P 100K |
| 431     | R139    | 5135-121522  | RES,CBN 1/2P 120  |
| 431     | R140    | 5135-121522  | RES,CBN 1/2P 120  |
| 454     | R145    | 5135-102522  | RES,CBN 1/2P 1K   |
| 454     | R146    | 5135-102522  | RES,CBN 1/2P 1K   |
| 497     | R203    | 5135-222522  | RES,CBN 1/2P 2.2K |
| 497     | R204    | 5135-222522  | RES,CBN 1/2P 2.2K |
| 498     | R205    | 5135-104522  | RES,CBN 1/2P 100K |
| 498     | R206    | 5135-104522  | RES,CBN 1/2P 100K |
| 499     | R207    | 5135-223522  | RES,CBN 1/2P 22K  |
| 499     | R208    | 5135-223522  | RES,CBN 1/2P 22K  |
| 500     | R209    | 5135-392522  | RES,CBN 1/2P 3.9K |
| 500     | R210    | 5135-392522  | RES,CBN 1/2P 3.9K |
| 501     | R211    | 5135-272522  | RES,CBN 1/2P 2.7K |
| 501     | R212    | 5135-272522  | RES,CBN 1/2P 2.7K |
| 502     | R213    | 5135-183522  | RES,CBN 1/2P 18K  |
| 502     | R214    | 5135-183522  | RES,CBN 1/2P 18K  |
| 503     | R215    | 5135-123522  | RES,CBN 1/2P 12K  |
| 503     | R216    | 5135-123522  | RES,CBN 1/2P 12K  |
| 504     | R217    | 5135-471522  | RES,CBN 1/2P 470  |
| 504     | R218    | 5135-471522  | RES,CBN 1/2P 470  |
| 505     | R219    | 5135-222522  | RES,CBN 1/2P 2.2K |
| 505     | R220    | 5135-222522  | RES,CBN 1/2P 2.2K |
| 506     | R221    | 5135-472522  | RES,CBN 1/2P 4.7K |
| 506     | R222    | 5135-472522  | RES,CBN 1/2P 4.7K |
| 507     | R223    | 5135-104522  | RES,CBN 1/2P 100K |
| 507     | R224    | 5135-104522  | RES,CBN 1/2P 100K |
| 508     | R225    | 5135-181522  | RES,CBN 1/2P 180  |
| 508     | R226    | 5135-181522  | RES,CBN 1/2P 180  |
| 510     | R227    | 5135-122522  | RES,CBN 1/2P 1.2K |
| 510     | R228    | 5135-122522  | RES,CBN 1/2P 1.2K |
| 509     | R231    | 5135-821522  | RES,CBN 1/2P 820  |
| 509     | R232    | 5135-821522  | RES,CBN 1/2P 820  |
| 515     | R233    | 5135-272522  | RES,CBN 1/2P 2.7K |
| 515     | R234    | 5135-272522  | RES,CBN 1/2P 2.7K |
| 510     | R235    | 5135-122522  | RES,CBN 1/2P 1.2K |
| 510     | R236    | 5135-122522  | RES,CBN 1/2P 1.2K |
| 512     | R237    | 5135-104522  | RES,CBN 1/2P 100K |
| 512     | R238    | 5135-104522  | RES,CBN 1/2P 100K |
| 513     | R239    | 5135-151522  | RES,CBN 1/2P 150  |
| 513     | R240    | 5135-151522  | RES,CBN 1/2P 150  |
| 516     | R241    | 5135-820522  | RES,CBN 1/2P 82   |
| 516     | R242    | 5135-820522  | RES,CBN 1/2P 82   |
| 495     | R243    | 5135-473522  | RES,CBN 1/2P 47K  |
| 495     | R244    | 5135-473522  | RES,CBN 1/2P 47K  |
| 493     | △ R245  | 5102-1014715 | RES,FUSE 100      |
| 493     | △ R246  | 5102-1014715 | RES,FUSE 100      |
| 517     | R247    | 5135-331522  | RES,CBN 1/2P 330  |
| 517     | R248    | 5135-331522  | RES,CBN 1/2P 330  |
| 518     | R249    | 5135-153522  | RES,CBN 1/2P 15K  |
| 518     | R250    | 5135-153522  | RES,CBN 1/2P 15K  |
| 561     | R301    | 5135-5R6522  | RES,CBN 1/2P 5.6  |
| 561     | R302    | 5135-5R6522  | RES,CBN 1/2P 5.6  |
| 563     | R303    | 5135-333522  | RES,CBN 1/2P 33K  |
| 563     | R304    | 5135-333522  | RES,CBN 1/2P 33K  |
| 569     | R305    | 5135-820522  | RES,CBN 1/2P 82   |
| 538     | △ R306  | 5102-6804715 | RES,FUSE 68       |
| 564     | R307    | 5135-103522  | RES,CBN 1/2P 10K  |
| 564     | R309    | 5135-103522  | RES,CBN 1/2P 10K  |
| 565     | R310    | 5135-473522  | RES,CBN 1/2P 47K  |
| 562     | R311    | 5135-220522  | RES,CBN 1/2P 22   |
| 566     | R312    | 5135-472522  | RES,CBN 1/2P 4.7K |
| 567     | R313    | 5135-822522  | RES,CBN 1/2P 8.2K |
| 566     | R314    | 5135-472522  | RES,CBN 1/2P 4.7K |
| 567     | R315    | 5135-822522  | RES,CBN 1/2P 8.2K |
| 564     | R316    | 5135-103522  | RES,CBN 1/2P 10K  |
| 568     | R317    | 5135-154522  | RES,CBN 1/2P 150K |
| 568     | R318    | 5135-154522  | RES,CBN 1/2P 150K |
| 571     | R319    | 5135-333522  | RES,CBN 1/2P 33K  |
| 571     | R320    | 5135-333522  | RES,CBN 1/2P 33K  |
| 572     | R321    | 5135-102522  | RES,CBN 1/2P 1K   |
| 572     | R322    | 5135-102522  | RES,CBN 1/2P 1K   |
| 577     | R323    | 5135-121522  | RES,CBN 1/2P 120  |
| 577     | R324    | 5135-121522  | RES,CBN 1/2P 120  |
| 574     | R325    | 5135-561522  | RES,CBN 1/2P 560  |
| 574     | R326    | 5135-561522  | RES,CBN 1/2P 560  |

| Ser.No. | Ref.No. | Part No.    | Description       |
|---------|---------|-------------|-------------------|
| 575     | R328    | 5135-471522 | RES,CBN 1/2P 470  |
| 576     | R329    | 5135-123522 | RES,CBN 1/2P 12K  |
| 576     | R330    | 5135-123522 | RES,CBN 1/2P 12K  |
| 919     | R351    | 5135-102522 | RES,CBN 1/2P 1K   |
| 919     | R352    | 5135-102522 | RES,CBN 1/2P 1K   |
| 920     | R353    | 5135-473522 | RES,CBN 1/2P 47K  |
| 920     | R354    | 5135-473522 | RES,CBN 1/2P 47K  |
| 921     | R355    | 5135-182522 | RES,CBN 1/2P 1.8K |
| 921     | R356    | 5135-182522 | RES,CBN 1/2P 1.8K |
| 922     | R357    | 5135-101522 | RES,CBN 1/2P 100  |
| 922     | R358    | 5135-101522 | RES,CBN 1/2P 100  |
| 923     | R359    | 5135-622522 | RES,CBN 1/2P 6.2K |
| 923     | R360    | 5135-622522 | RES,CBN 1/2P 6.2K |
| 924     | R361    | 5135-272522 | RES,CBN 1/2P 2.7K |
| 924     | R362    | 5135-272522 | RES,CBN 1/2P 2.7K |
| 922     | R365    | 5135-101522 | RES,CBN 1/2P 100  |
| 922     | R366    | 5135-101522 | RES,CBN 1/2P 100  |
| 926     | R369    | 5135-331522 | RES,CBN 1/2P 330  |
| 926     | R370    | 5135-331522 | RES,CBN 1/2P 330  |
| 927     | R371    | 5135-220522 | RES,CBN 1/2P 22   |
| 927     | R372    | 5135-220522 | RES,CBN 1/2P 22   |
| 719     | R401    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 719     | R402    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 720     | R403    | 5135-103522 | RES,CBN 1/2P 10K  |
| 720     | R404    | 5135-103522 | RES,CBN 1/2P 10K  |
| 721     | R405    | 5135-104522 | RES,CBN 1/2P 100K |
| 721     | R406    | 5135-104522 | RES,CBN 1/2P 100K |
| 723     | R407    | 5135-222522 | RES,CBN 1/2P 2.2K |
| 723     | R408    | 5135-222522 | RES,CBN 1/2P 2.2K |
| 724     | R409    | 5135-273522 | RES,CBN 1/2P 27K  |
| 724     | R410    | 5135-273522 | RES,CBN 1/2P 27K  |
| 725     | R411    | 5135-223522 | RES,CBN 1/2P 22K  |
| 725     | R412    | 5135-223522 | RES,CBN 1/2P 22K  |
| 726     | R415    | 5135-334522 | RES,CBN 1/2P 330K |
| 726     | R416    | 5135-334522 | RES,CBN 1/2P 330K |
| 720     | R417    | 5135-103522 | RES,CBN 1/2P 10K  |
| 720     | R418    | 5135-103522 | RES,CBN 1/2P 10K  |
| 727     | R419    | 5135-331522 | RES,CBN 1/2P 330  |
| 727     | R420    | 5135-331522 | RES,CBN 1/2P 330  |
| 723     | R421    | 5135-222522 | RES,CBN 1/2P 2.2K |
| 719     | R422    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 719     | R423    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 728     | R424    | 5135-102522 | RES,CBN 1/2P 1K   |
| 730     | R425    | 5135-100522 | RES,CBN 1/2P 10   |
| 719     | R427    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 719     | R428    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 719     | R429    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 719     | R430    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 729     | R431    | 5135-334522 | RES,CBN 1/2P 330K |
| 729     | R432    | 5135-334522 | RES,CBN 1/2P 330K |
| 958     | R601    | 5135-393522 | RES,CBN 1/2P 39K  |
| 958     | R602    | 5135-393522 | RES,CBN 1/2P 39K  |
| 959     | R603    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 959     | R604    | 5135-472522 | RES,CBN 1/2P 4.7K |
| 960     | R605    | 5135-104522 | RES,CBN 1/2P 100K |
| 960     | R606    | 5135-104522 | RES,CBN 1/2P 100K |
| 961     | R607    | 5135-102522 | RES,CBN 1/2P 1K   |
| 961     | R608    | 5135-102522 | RES,CBN 1/2P 1K   |
| 962     | R609    | 5135-122522 | RES,CBN 1/2P 1.2K |
| 962     | R610    | 5135-122522 | RES,CBN 1/2P 1.2K |
| 963     | R611    | 5135-103522 | RES,CBN 1/2P 10K  |
| 963     | R612    | 5135-103522 | RES,CBN 1/2P 10K  |
| 963     | R613    | 5135-103522 | RES,CBN 1/2P 10K  |
| 965     | R614    | 5135-103522 | RES,CBN 1/2P 10K  |
| 967     | R615    | 5135-220522 | RES,CBN 1/2P 22   |
| 969     | R617    | 5135-473522 | RES,CBN 1/2P 47K  |
| 969     | R618    | 5135-473522 | RES,CBN 1/2P 47K  |
| 967     | R619    | 5135-220522 | RES,CBN 1/2P 22   |
| 967     | R620    | 5135-220522 | RES,CBN 1/2P 22   |
| 967     | R621    | 5135-220522 | RES,CBN 1/2P 22   |
| 969     | R622    | 5135-473522 | RES,CBN 1/2P 47K  |
| 969     | R625    | 5135-473522 | RES,CBN 1/2P 47K  |
| 964     | R626    | 5135-153522 | RES,CBN 1/2P 15K  |
| 964     | R627    | 5135-153522 | RES,CBN 1/2P 15K  |
| 964     | R628    | 5135-153522 | RES,CBN 1/2P 15K  |
| 970     | R629    | 5135-471522 | RES,CBN 1/2P 470  |
| 970     | R630    | 5135-471522 | RES,CBN 1/2P 470  |
| 961     | R631    | 5135-102522 | RES,CBN 1/2P 1K   |







| Ser.No.         | Ref.No.   | Part No.      | Description  |
|-----------------|-----------|---------------|--------------|
| <b>CONTROLS</b> |           |               |              |
| 742             | VR901/902 | 5109-S0305502 | RES,V CBN 5K |
| 746             | VR903     | 5109-S0402502 | RES,V CBN 5K |
| 746             | VR904     | 5109-S0402502 | RES,V CBN 5K |
| 746             | VR905     | 5109-S0402502 | RES,V CBN 5K |
| 825             | RCV901    | 6143-00802    | RECEIV BLOCK |

| Ser.No.              | Ref.No. | Part No.      | Description  |
|----------------------|---------|---------------|--------------|
| <b>MISCELLANEOUS</b> |         |               |              |
| 813                  | CN901   | 4443-00401010 | CONNECTOR    |
| 813                  | CN902   | 4443-00401010 | CONNECTOR    |
| 810                  | CN903   | 4443-05401032 | CONNECTOR    |
| 827                  | X901    | 5693-FC4004A4 | OSC,CER      |
| 758                  | FL901   | 5722-050      | TUBE DISPLAY |
| 845                  | RC901   | 5212-S0305273 | R COMPOSITE  |
| 846                  | RC902   | 5212-S0304104 | R COMPOSITE  |
| 735                  | SW901   | 4437-00604    | PUSH SWITCH  |
| 735                  | SW902   | 4437-00604    | PUSH SWITCH  |
| 735                  | SW903   | 4437-00604    | PUSH SWITCH  |
| 735                  | SW904   | 4437-00604    | PUSH SWITCH  |
| 735                  | SW905   | 4437-00604    | PUSH SWITCH  |
| 735                  | SW906   | 4437-00604    | PUSH SWITCH  |
| 733                  | SW907   | 4431-S0114204 | PUSH SWITCH  |
| 734                  | SW908   | 4431-S0116612 | PUSH SWITCH  |
| 734                  | SW909   | 4431-S0116612 | PUSH SWITCH  |
| 734                  | SW910   | 4431-S0116612 | PUSH SWITCH  |
| 735                  | SW911   | 4437-00604    | PUSH SWITCH  |
| 735                  | SW912   | 4437-00604    | PUSH SWITCH  |
| 735                  | SW913   | 4437-00604    | PUSH SWITCH  |
| 735                  | SW915   | 4437-00604    | PUSH SWITCH  |
| 735                  | SW916   | 4437-00604    | PUSH SWITCH  |
| 735                  | SW917   | 4437-00604    | PUSH SWITCH  |
| 734                  | SW918   | 4431-S0116612 | PUSH SWITCH  |
| 734                  | SW919   | 4431-S0116612 | PUSH SWITCH  |
| 734                  | SW920   | 4431-S0116612 | PUSH SWITCH  |
| 733                  | SW921   | 4431-S0114204 | PUSH SWITCH  |

**PCB-3 DOLBY B/C NR P. C. BOARD**

| Ser.No.           | Ref.No. | Part No.      | Description                 |
|-------------------|---------|---------------|-----------------------------|
| <b>CAPACITORS</b> |         |               |                             |
| 649               | C501    | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V   |
| 649               | C502    | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V   |
| 649               | C503    | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V   |
| 649               | C504    | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V   |
| 657               | C507    | 5359-S010J222 | CAP,PPP 2200P               |
| 657               | C508    | 5359-S010J222 | CAP,PPP 2200P               |
| 657               | C509    | 5359-S010J222 | CAP,PPP 2200P               |
| 657               | C510    | 5359-S010J222 | CAP,PPP 2200P               |
| 655               | C511    | 5354-564593   | CAP,MYL .56 $\mu$           |
| 655               | C512    | 5354-564593   | CAP,MYL .56 $\mu$           |
| 656               | C513    | 5354-334593   | CAP,MYL .33 $\mu$           |
| 656               | C514    | 5354-334593   | CAP,MYL .33 $\mu$           |
| 651               | C515    | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  |
| 651               | C516    | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  |
| 652               | C517    | 5345-227B041  | CAP,MINI ELE 220 $\mu$ /10V |
| 652               | C518    | 5345-227B041  | CAP,MINI ELE 220 $\mu$ /10V |
| 657               | C519    | 5359-S010J222 | CAP,PPP 2200P               |
| 657               | C520    | 5359-S010J222 | CAP,PPP 2200P               |
| 658               | C521    | 5359-S010J182 | CAP,PPP 1800P               |
| 658               | C522    | 5359-S010J182 | CAP,PPP 1800P               |
| 653               | C523    | 5345-107C041  | CAP,MINI ELE 100 $\mu$ /16V |
| 653               | C524    | 5345-107C041  | CAP,MINI ELE 100 $\mu$ /16V |

| Ser.No.          | Ref.No. | Part No.    | Description       |
|------------------|---------|-------------|-------------------|
| <b>RESISTORS</b> |         |             |                   |
| 666              | R503    | 5135-332522 | RES,CBN 1/2P 3.3K |
| 666              | R504    | 5135-332522 | RES,CBN 1/2P 3.3K |
| 659              | R505    | 5135-822522 | RES,CBN 1/2P 8.2K |
| 659              | R506    | 5135-822522 | RES,CBN 1/2P 8.2K |
| 662              | R507    | 5174-243381 | RES,MTL 1/4 24K   |
| 662              | R508    | 5174-243381 | RES,MTL 1/4 24K   |
| 663              | R509    | 5174-561381 | RES,MTL 1/4 560   |
| 663              | R510    | 5174-561381 | RES,MTL 1/4 560   |
| 664              | R511    | 5174-273381 | RES,MTL 1/4 27K   |
| 670              | R512    | 5135-102522 | RES,CBN 1/2P 1K   |
| 669              | R513    | 5135-105522 | RES,CBN 1/2P 1M   |
| 669              | R514    | 5135-105522 | RES,CBN 1/2P 1M   |
| 669              | R515    | 5135-105522 | RES,CBN 1/2P 1M   |

| Ser.No. | Ref.No. | Part No.    | Description       |
|---------|---------|-------------|-------------------|
| 669     | R516    | 5135-105522 | RES,CBN 1/2P 1M   |
| 668     | R517    | 5135-223522 | RES,CBN 1/2P 22K  |
| 665     | R518    | 5135-123522 | RES,CBN 1/2P 12K  |
| 661     | R519    | 5135-682522 | RES,CBN 1/2P 6.8K |
| 661     | R520    | 5135-682522 | RES,CBN 1/2P 6.8K |
| 660     | R521    | 5135-562522 | RES,CBN 1/2P 5.6K |
| 660     | R522    | 5135-562522 | RES,CBN 1/2P 5.6K |

| Ser.No.                   | Ref.No. | Part No.      | Description |
|---------------------------|---------|---------------|-------------|
| <b>INTEGRATED CIRCUIT</b> |         |               |             |
| 641                       | IC501   | 5653-CXA1332S | IC,LINEAR   |

| Ser.No.            | Ref.No. | Part No.     | Description  |
|--------------------|---------|--------------|--------------|
| <b>TRANSISTORS</b> |         |              |              |
| 643                | Q501    | 5613-UN4214  | XISTOR,NPN R |
| 643                | Q502    | 5613-UN4214  | XISTOR,NPN R |
| 643                | Q503    | 5613-UN4214  | XISTOR,NPN R |
| 643                | Q504    | 5613-UN4214  | XISTOR,NPN R |
| 643                | Q505    | 5613-UN4214  | XISTOR,NPN R |
| 642                | Q506    | 5611-UN4114  | XISTOR,PNP R |
| 644                | Q507    | 5611-950(Y)  | XISTOR,PNP R |
| 645                | Q508    | 5613-2120(Y) | XISTOR,NPN R |

| Ser.No.              | Ref.No. | Part No.      | Description  |
|----------------------|---------|---------------|--------------|
| <b>MISCELLANEOUS</b> |         |               |              |
| 816                  | CN501   | 4443-04401010 | CONNECTOR    |
| 817                  | CN502   | 4443-04401007 | CONNECTOR    |
| 647                  | LC501   | 5214-13701    | LC COMPOSITE |
| 647                  | LC502   | 5214-13701    | LC COMPOSITE |

**PCB-4 POWER P. C. BOARD**

| Ser.No.           | Ref.No.     | Part No.      | Description   |
|-------------------|-------------|---------------|---|
| <b>CAPACITORS</b> |             |               |   |
| 615               | $\Delta$ C1 | 5352-S010M103 | CAP,MTL .01 $\mu$ <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">UA BK</span>   |
| 615A              | $\Delta$ C1 | 5352-1030961  | CAP,MTL .01 $\mu$ <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">I IB BB</span> |
| 616               | C2          | 5352-S060K104 | CAP,MTL .1 $\mu$  |
| 616               | C3          | 5352-S060K104 | CAP,MTL .1 $\mu$  |
| 616               | C4          | 5352-S060K104 | CAP,MTL .1 $\mu$  |
| 603               | C5          | 5345-228D041  | CAP,MINI ELE 2200 $\mu$ /25V  |
| 603               | C6          | 5345-228D041  | CAP,MINI ELE 2200 $\mu$ /25V  |
| 604               | C7          | 5345-227C041  | CAP,MINI ELE 220 $\mu$ /16V   |
| 604               | C8          | 5345-227C041  | CAP,MINI ELE 220 $\mu$ /16V   |
| 605               | C9          | 5345-108C041  | CAP,MINI ELE 1000 $\mu$ /16V  |
| 605               | C10         | 5345-108C041  | CAP,MINI ELE 1000 $\mu$ /16V  |
| 607               | C11         | 5345-478D0962 | CAP,MINI ELE 4700 $\mu$ /25V  |
| 604               | C12         | 5345-227C041  | CAP,MINI ELE 220 $\mu$ /16V   |
| 605               | C13         | 5345-108C041  | CAP,MINI ELE 1000 $\mu$ /16V  |
| 604               | C14         | 5345-227C041  | CAP,MINI ELE 220 $\mu$ /16V   |
| 605               | C15         | 5345-108C041  | CAP,MINI ELE 1000 $\mu$ /16V  |
| 606               | C16         | 5345-226F041  | CAP,MINI ELE 22 $\mu$ /50V  |
| 609               | C17         | 5345-477E041  | CAP,MINI ELE 470 $\mu$ /35V   |
| 684               | C51         | 5345-226D041  | CAP,MINI ELE 22 $\mu$ /25V  |
| 685               | C52         | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V  |
| 685               | C53         | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V  |
| 686               | C54         | 5345-107D041  | CAP,MINI ELE 100 $\mu$ /25V   |
| 865               | C851        | 5345-107B041  | CAP,MINI ELE 100 $\mu$ /10V   |

| Ser.No.          | Ref.No.      | Part No.     | Description   |
|------------------|--------------|--------------|---|
| <b>RESISTORS</b> |              |              |   |
| 042A             | R1           | 5135-335522  | RES,CBN 1/2P 3.3M <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">I IB BB</span> |
| 619              | R3           | 5135-152522  | RES,CBN 1/2P 1.5K   |
| 619              | R4           | 5135-152522  | RES,CBN 1/2P 1.5K   |
| 620              | R5           | 5135-471522  | RES,CBN 1/2P 470  |
| 620              | R6           | 5135-471522  | RES,CBN 1/2P 470  |
| 621              | R7           | 5135-101522  | RES,CBN 1/2P 100  |
| 621              | R8           | 5135-101522  | RES,CBN 1/2P 100  |
| 622              | R9           | 5135-2R7522  | RES,CBN 1/2P 2.7  |
| 622              | R10          | 5135-2R7522  | RES,CBN 1/2P 2.7  |
| 619              | R11          | 5135-152522  | RES,CBN 1/2P 1.5K   |
| 620              | R12          | 5135-471522  | RES,CBN 1/2P 470  |
| 621              | R13          | 5135-101522  | RES,CBN 1/2P 100  |
| 623              | R14          | 5135-0R5522  | RES,CBN 1/2P .5 <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">UA BK</span>     |
| 619              | R15          | 5135-152522  | RES,CBN 1/2P 1.5K   |
| 620              | R16          | 5135-471522  | RES,CBN 1/2P 470  |
| 629              | $\Delta$ R17 | 5102-1014715 | RES,FUSE 100  |
| 624              | R18          | 5135-5R6522  | RES,CBN 1/2P 5.6  |
| 626              | R19          | 5135-221522  | RES,CBN 1/2P 220  |
| 625              | R20          | 5135-223522  | RES,CBN 1/2P 22K  |
| 625              | R21          | 5135-223522  | RES,CBN 1/2P 22K  |
| 043A             | $\Delta$ R22 | 5102-1R05116 | RES,FUSE 1 <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">I IB BB</span>        |
| 699              | R51          | 5135-331522  | RES,CBN 1/2P 330  |

| Ser.No. | Ref.No. | Part No.    | Description       |
|---------|---------|-------------|-------------------|
| 697     | R52     | 5135-562522 | RES,CBN 1/2P 5.6K |
| 696     | R53     | 5135-154522 | RES,CBN 1/2P 150K |
| 700     | R54     | 5135-102522 | RES,CBN 1/2P 1K   |
| 700     | R55     | 5135-102522 | RES,CBN 1/2P 1K   |
| 695     | R56     | 5135-104522 | RES,CBN 1/2P 100K |
| 694     | R57     | 5135-103522 | RES,CBN 1/2P 10K  |
| 698     | R58     | 5135-182522 | RES,CBN 1/2P 1.8K |
| 699     | R59     | 5135-331522 | RES,CBN 1/2P 330  |
| 877     | R851    | 5135-102522 | RES,CBN 1/2P 1K   |
| 878     | R852    | 5135-471522 | RES,CBN 1/2P 470  |
| 879     | R853    | 5135-103522 | RES,CBN 1/2P 10K  |
| 877     | R854    | 5135-102522 | RES,CBN 1/2P 1K   |

**TRANSISTORS**

|     |      |               |              |
|-----|------|---------------|--------------|
| 581 | Q1   | 5612-941(P)   | XISTOR,PNP A |
| 582 | Q2   | 5614-1266(P)  | XISTOR,NPN A |
| 586 | Q3   | 5613-2320(F)  | XISTOR,NPN R |
| 585 | Q4   | 5611-999(F)   | XISTOR,PNP R |
| 586 | Q5   | 5613-2320(F)  | XISTOR,NPN R |
| 585 | Q6   | 5611-999(F)   | XISTOR,PNP R |
| 581 | Q7   | 5612-941(P)   | XISTOR,PNP A |
| 586 | Q8   | 5613-2320(F)  | XISTOR,NPN R |
| 587 | Q9   | 5613-2320(F)  | XISTOR,NPN R |
| 581 | Q10  | 5612-941(P)   | XISTOR,PNP A |
| 586 | Q11  | 5613-2320(F)  | XISTOR,NPN R |
| 586 | Q12  | 5613-2320(F)  | XISTOR,NPN R |
| 678 | Q51  | 5611-999(F)   | XISTOR,PNP R |
| 854 | Q851 | 5613-3311A(R) | XISTOR,NPN R |
| 856 | Q852 | 5611-UN4114   | XISTOR,PNP R |

**DIODES**

|     |      |               |             |
|-----|------|---------------|-------------|
| 589 | D1   | 5632-S5566B   | DIODE,RECT  |
| 589 | D2   | 5632-S5566B   | DIODE,RECT  |
| 589 | D3   | 5632-S5566B   | DIODE,RECT  |
| 589 | D4   | 5632-S5566B   | DIODE,RECT  |
| 589 | D5   | 5632-S5566B   | DIODE,RECT  |
| 589 | D6   | 5632-S5566B   | DIODE,RECT  |
| 590 | D7   | 5632-S5566B   | DIODE,RECT  |
| 590 | D8   | 5632-S5566B   | DIODE,RECT  |
| 591 | D9   | 5635-HZ12B2L  | DIODE,ZENER |
| 591 | D10  | 5635-HZ12B2L  | DIODE,ZENER |
| 591 | D11  | 5635-HZ12B2L  | DIODE,ZENER |
| 592 | D12  | 5635-HZ6B2L   | DIODE,ZENER |
| 593 | D13  | 5635-HZ18-2L  | DIODE,ZENER |
| 594 | D14  | 5635-RD5R1EB3 | DIODE,ZENER |
| 864 | D51  | 5632-S5566B   | DIODE,RECT  |
| 864 | D52  | 5632-S5566B   | DIODE,RECT  |
| 680 | D53  | 5631-1S2473   | DIODE,DET   |
| 682 | D54  | 5635-RD5R1EB2 | DIODE,ZENER |
| 681 | D55  | 5635-RD12EB2  | DIODE,ZENER |
| 864 | D56  | 5632-S5566B   | DIODE,RECT  |
| 864 | D57  | 5632-S5566B   | DIODE,RECT  |
| 861 | D851 | 5635-HZ3B2    | DIODE,ZENER |

**TRANSFORMERS**

|      |     |            |               |
|------|-----|------------|---------------|
| 601  | △T1 | 5584-S8501 | XFORMER,POWER |
| 601A | △T1 | 5584-S8502 | XFORMER,POWER |

**MISCELLANEOUS**

|      |       |              |                   |
|------|-------|--------------|-------------------|
| 755  | △F1   | 5732-501031  | FUSE              |
| 755A | △F1   | 5732-251030  | FUSE              |
| 731  | △S1   | 4433-00202   | PUSH SWITCH,POWER |
| 041A | △S2   | 4411-1047111 | ROTARY SWITCH     |
| 805  | CN101 | 4443-030185  | CONNECTOR         |
| 806  | CN102 | 4443-040185  | CONNECTOR         |
| 807  | CN103 | 4443-050185  | CONNECTOR         |
| 807  | CN104 | 4443-050185  | CONNECTOR         |
| 754  | △HL1  | 4472-04501   | FUSE HOLDER       |
| 754  | △HL2  | 4472-04501   | FUSE HOLDER       |
| 777  | TM1   | 4214-122     | TERMINAL          |
| 777  | TM2   | 4214-122     | TERMINAL          |

| Ser.No. | Ref.No. | Part No. | Description |
|---------|---------|----------|-------------|
|---------|---------|----------|-------------|

**ABBREVIATIONS IN PARTS LIST**

| CAPACITORS   |                       | RESISTORS    |                          |
|--------------|-----------------------|--------------|--------------------------|
| CAP,MINI ELE | :Electrolytic         | RES,CBN 1/6P | :Carbon 1/6W             |
| CAP,CER      | :Ceramic              | RES,FUSE     | :Fuse                    |
| CAP,PPP      | :Polypropylene        | RES,CEM 5P   | :Cement 5W               |
| CAP,MYL      | :Mylar                | RES,MTL 1P   | :Metal 1W                |
| CAP,MTL      | :Metal                | 2.2K         | :2.2KΩ                   |
| CAP,MCA      | :Mica                 | 220          | :220Ω                    |
| CAP,MINI BP  | :Bipolar              |              |                          |
| CAP,ELE BP   | :Electrolytic Bipolar |              |                          |
| CAP,STY      | :Polystyrene Film     | XISTOR       | :Transistor              |
| CAP,SPE      | :Special              | FET          | :Field Effect Transistor |
| CAP,TAN      | :Tantalum             |              |                          |
| 470μ         | :470μF                |              |                          |
| 6800p        | :6800pF               |              |                          |
| .047μ        | :0.047μF              |              |                          |

**CHASSIS MISCELLANEOUS**

|      |     |               |             |
|------|-----|---------------|-------------|
| 761  | △P1 | 4161-71151    | CORD W/PLUG |
| 761A | △P1 | 4161-7256     | CORD W/PLUG |
| 761D | △P1 | 4161-04100    | CORD W/PLUG |
| 791  |     | 4242-S0232131 | JUMPER LEAD |

**PACKAGE PARTS LIST**

|      |               |                          |
|------|---------------|--------------------------|
| 021A | 1756-06303    | LABEL                    |
| 022A | 1756-03124    | LABEL                    |
| 022D | 1756-03111    | LABEL                    |
| 023D | 1756-08501    | LABEL                    |
| 024D | 1111-J30319   | OWNER GUIDE              |
| 106  | 1111-J30325   | OWNER GUIDE              |
| 106A | 1111-J30326   | OWNER GUIDE              |
| 107  | 1113-717004   | OWNER CARD               |
| 111  | 1119-047      | ATTACH SHEET,GUARANTY    |
| 112  | 1119-0137     | ATTACH SHEET,SERVICE     |
|      |               | STATION GUIDE            |
| 113  | 1119-01201    | ATTACH SHEET,SAFETY      |
| 115  | 1221-28008    | CARTON BOX               |
| 115A | 1221-28005    | CARTON BOX               |
| 116  | 1222-7362     | CUSHION                  |
| 117  | 1222-7365     | CUSHION                  |
| 119  | 1223-R0220055 | SOFT SHEET,SET FRONT     |
| 123  | 1241-R0160600 | POLYETHY BAG,SET         |
| 124  | 1241-R0123350 | POLYETHY BAG,OWNER GUIDE |
| 762  | 4161-71184    | CORD W/PLUG,RCA TYPE     |
| 773  | 4191-0355     | BATTERY,DRY              |
| 774  | 6142-02703    | REMOTE CONTROL ASSEMBLY  |

**NOTE**

SAFETY RELATED COMPONENT USE ONLY EXACT REPLACEMENT PART AS SPECIFIED.

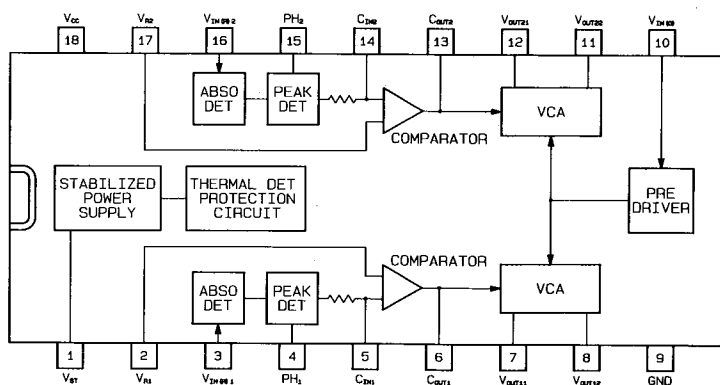
**PCB-5 HEAD PHONE P. C. BOARD**

**MISCELLANEOUS**

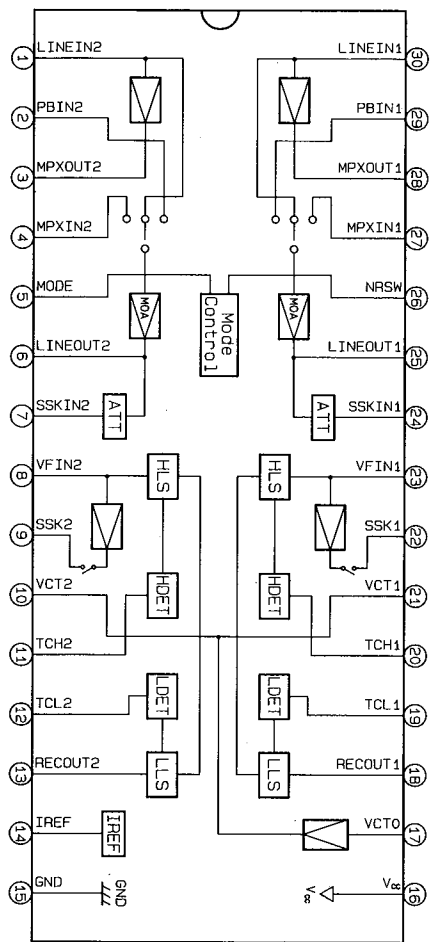
|     |      |            |         |
|-----|------|------------|---------|
| 751 | J651 | 4451-51501 | JACK,1P |
|-----|------|------------|---------|

IC BLOCK DIAGRAM

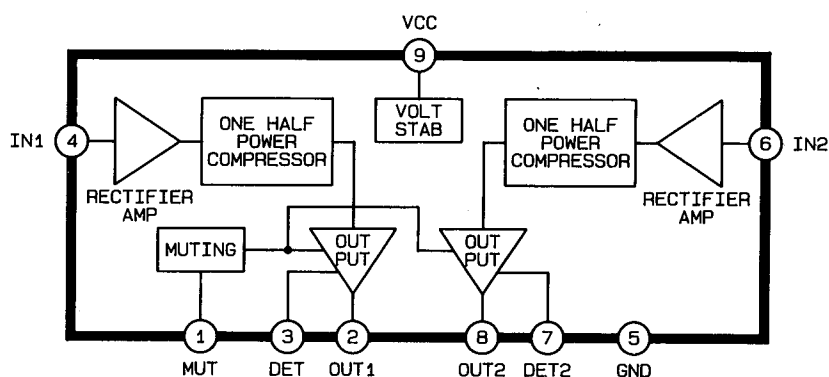
IC301 : $\mu$ PC1297CA  
Dolby HX Pro



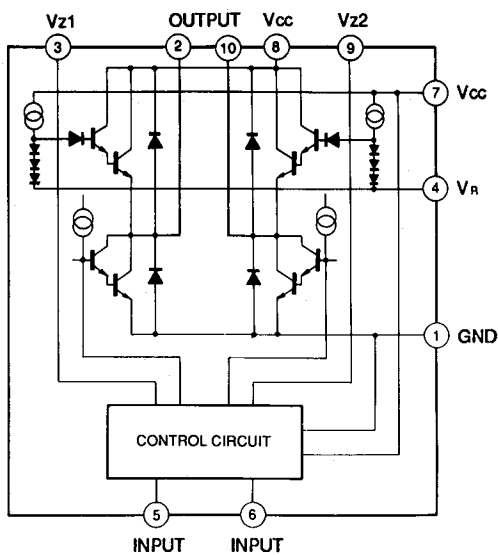
IC501 :CXA1332S  
Dolby B/C NR



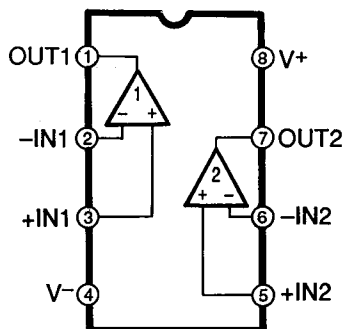
IC402 :BA6138  
Signal Level Meter



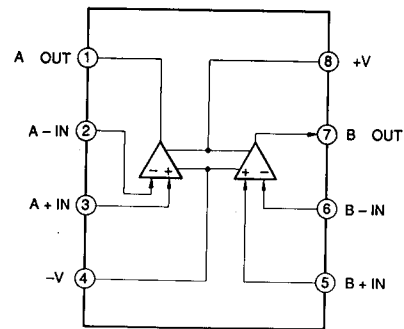
IC801 :BA6229  
Motor Driver



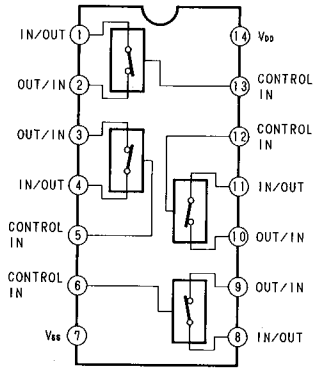
IC651 :NJM4565D  
OP-Amp.



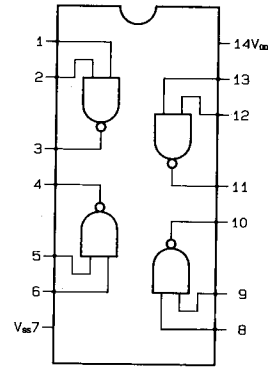
IC401,601,751 :NJM4558D  
OP-Amp.



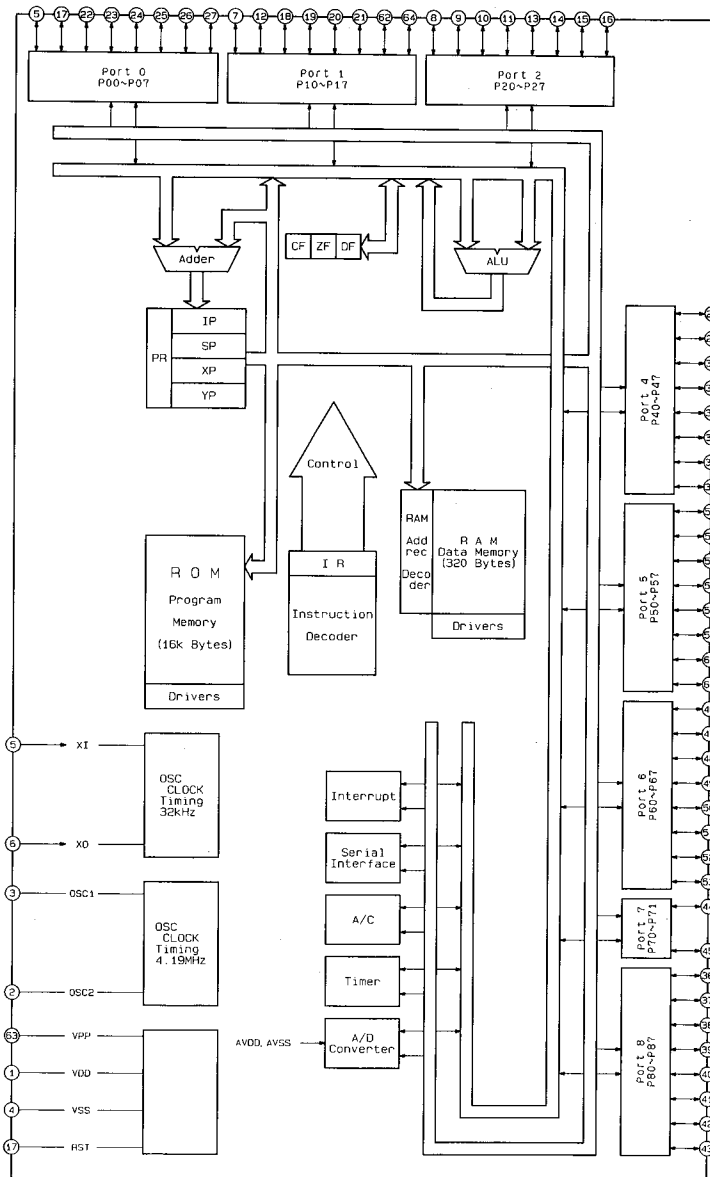
IC602,603 :TC4066BP  
Bilateral Switch



IC701 :TC4011BP  
2-inch NAND Gate



IC901 :MN18787F  
Logic Controller



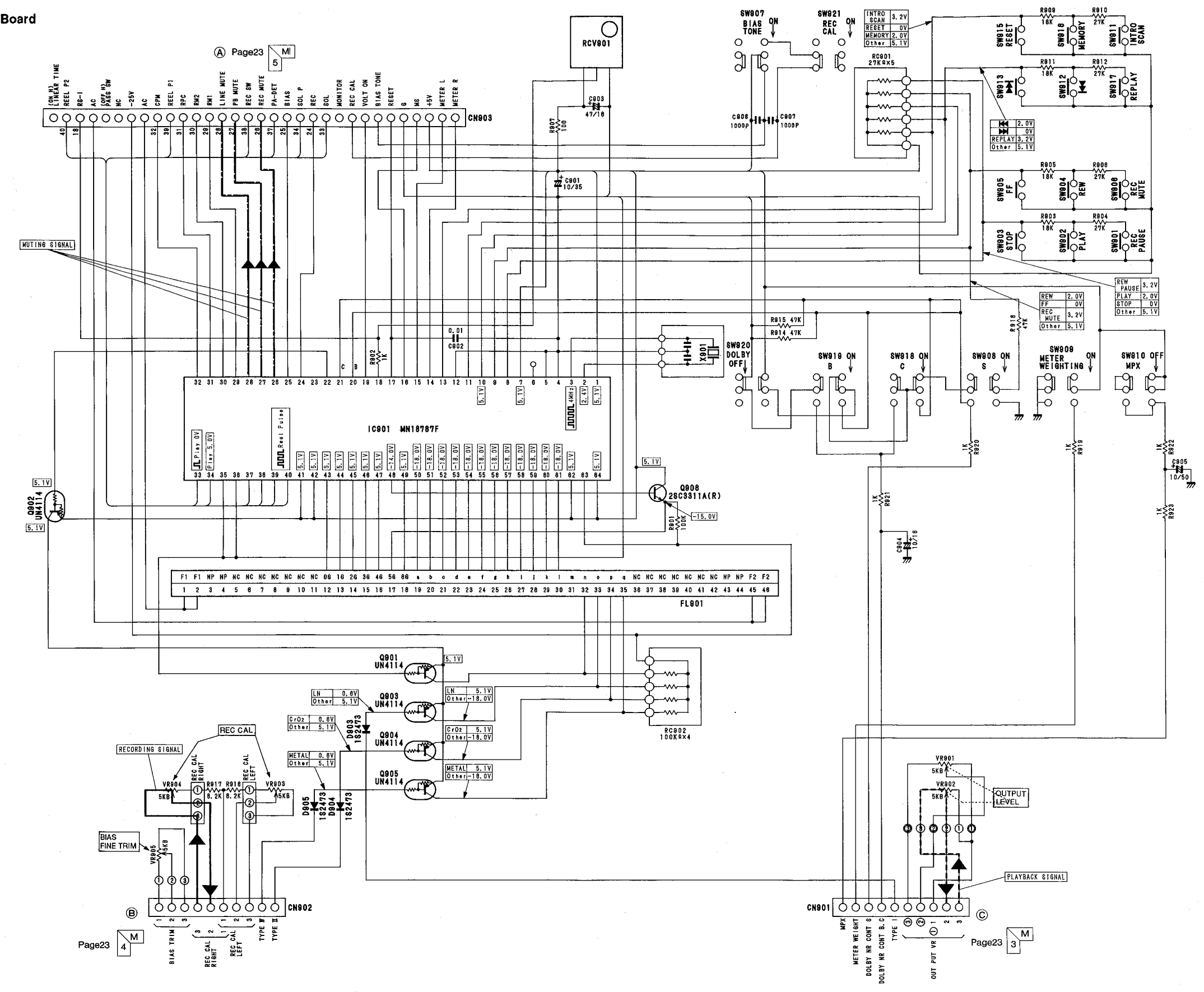
TERMINAL FUNCTIONS

| Pin No. | Port name | Function name | I/O | Outline of functions                                       |
|---------|-----------|---------------|-----|--|
| 5       | P06       | XI            | I   | Initial setting switch. High level=ON                      |
| 6       | XO        | XO            | O   |  |
| 7       | P17       | AVdd          | I   | D/A converter standard voltage(DC 5V).                     |
| 8       | P27       | AD7           | I   | Key input terminal.  |
| 9       | P26       | AD6           | I   | Key input terminal.  |
| 10      | P25       | AD5           | I   | Key input terminal.  |
| 11      | P24       | AD4           | I   | Key input terminal.  |
| 12      | P16       | AVss          | I   | GND terminal.  |
| 13      | P23       | AD3           | I   | Key input terminal.  |
| 14      | P22       | AD2           | I   | A/D input port for LEVEL METER indication.                 |
| 15      | P21       | AD1           | I   | A/D input port for LEVEL METER indication.                 |
| 16      | P20       | AD0           | I   | A/D input port for music search.                           |
| 17      | P07       | RST           | I   | Reset input.   |
| 18      | 1RQ1      | R-SI          | I   | Remote control input.                                      |
| 19      | 1RQf      | VOLT DN       | I   | Power on/off detection terminal. Low level=OFF             |
| 20      | P13       | DOLBY-B       | I   | Input port to switch DOLBY display.                        |
| 21      | P12       | DOLBY-C       | I   | Input port to switch DOLBY display.                        |
| 22      | P05       | IND.CONT      | O   | High level on stand-by or display off and after power off. |
| 23      | P04       | MONITOR       | O   | High level on MONITOR mode. Low level on SOURCE mode.      |
| 24      | P03       | REC           | O   | REC/PLAY switching terminal. High level on REC.            |
| 25      | P02       | BIAS          | O   | BIAS control terminal. High level=BIAS ON                  |
| 26      | P01       | REC MUTE      | O   | Recording amp. muting terminal. High level=MUTING ON       |
| 27      | P00       | PB MUTE       | O   | Playback amp. muting terminal. High level=MUTING ON        |
| 28      | P47       | LINE MUTE     | O   | Line muting terminal. High level=MUTING ON                 |
| 29      | P46       | RM1           | O   | Reel motor control. High level=active                      |
| 30      | P45       | RM2           | O   | Reel motor control. High level=active                      |
| 31      | P44       | RPC           | O   | Reel motor power control. High level=power down            |
| 32      | P43       | CPM           | O   | Capstan motor control.                                     |

NOTE: Low level=0V  
High level=5.1V

# SCHEMATIC DIAGRAM (1)

PCB-2 Front P. C. Board



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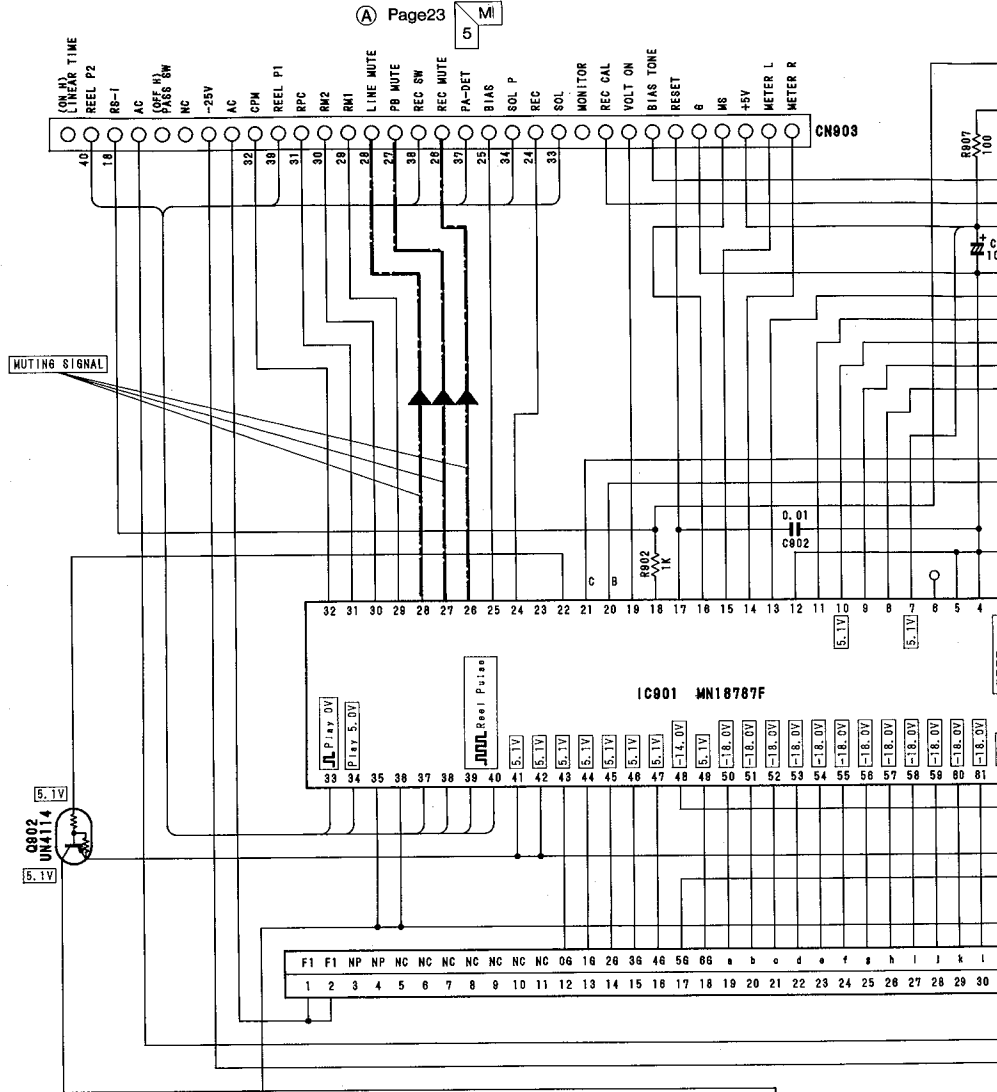
Page23

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# SCHEMATIC DIAGRAM (1)

PCB-2 Front P. C. Board

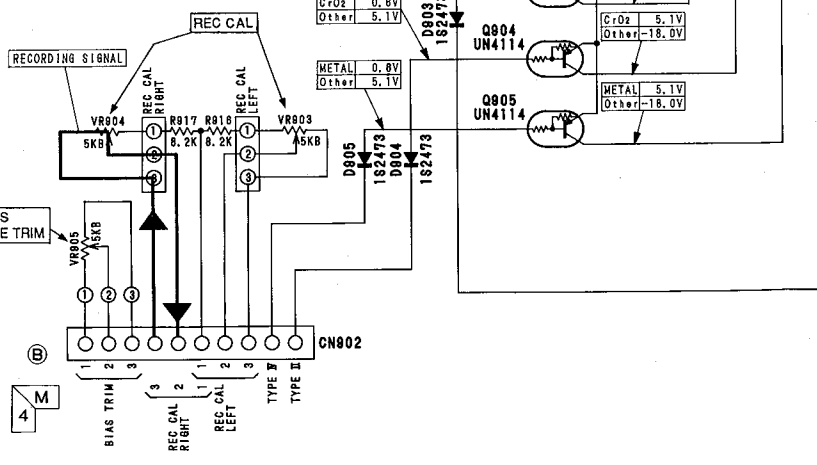
(A) Page23



MUTING SIGNAL

Q802 UN4114  
5.1V  
5.1V

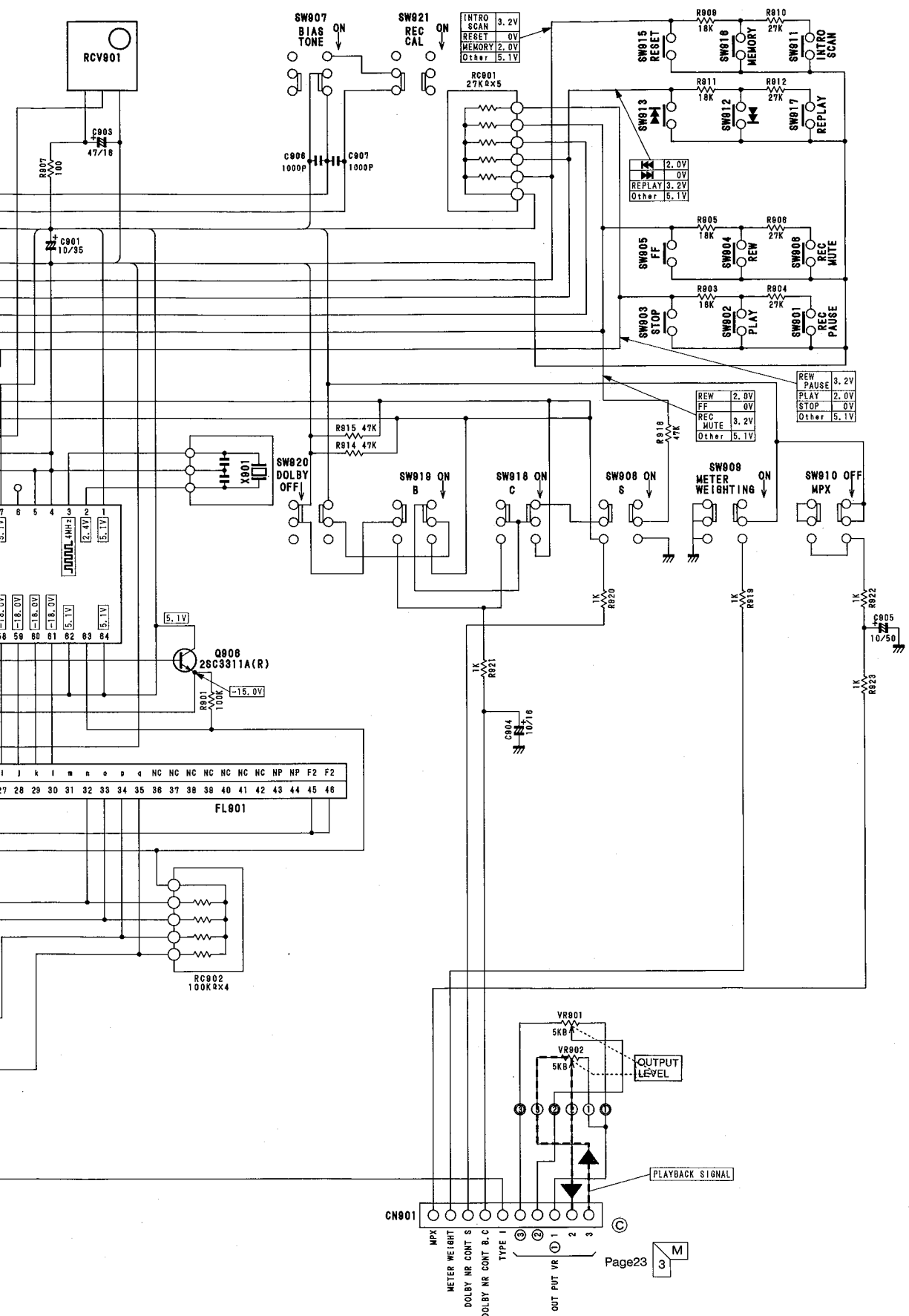
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|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|---|---|---|--|
| F1 | F1 | NP | NP | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | 06 | 16 | 26 | 36 | 46 | 56 | 66 | a  | b  | c  | d  | e  | f  | g  | h  | i | j | k | l |  |
| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |   |   |   |   |  |



Page23

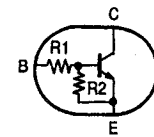
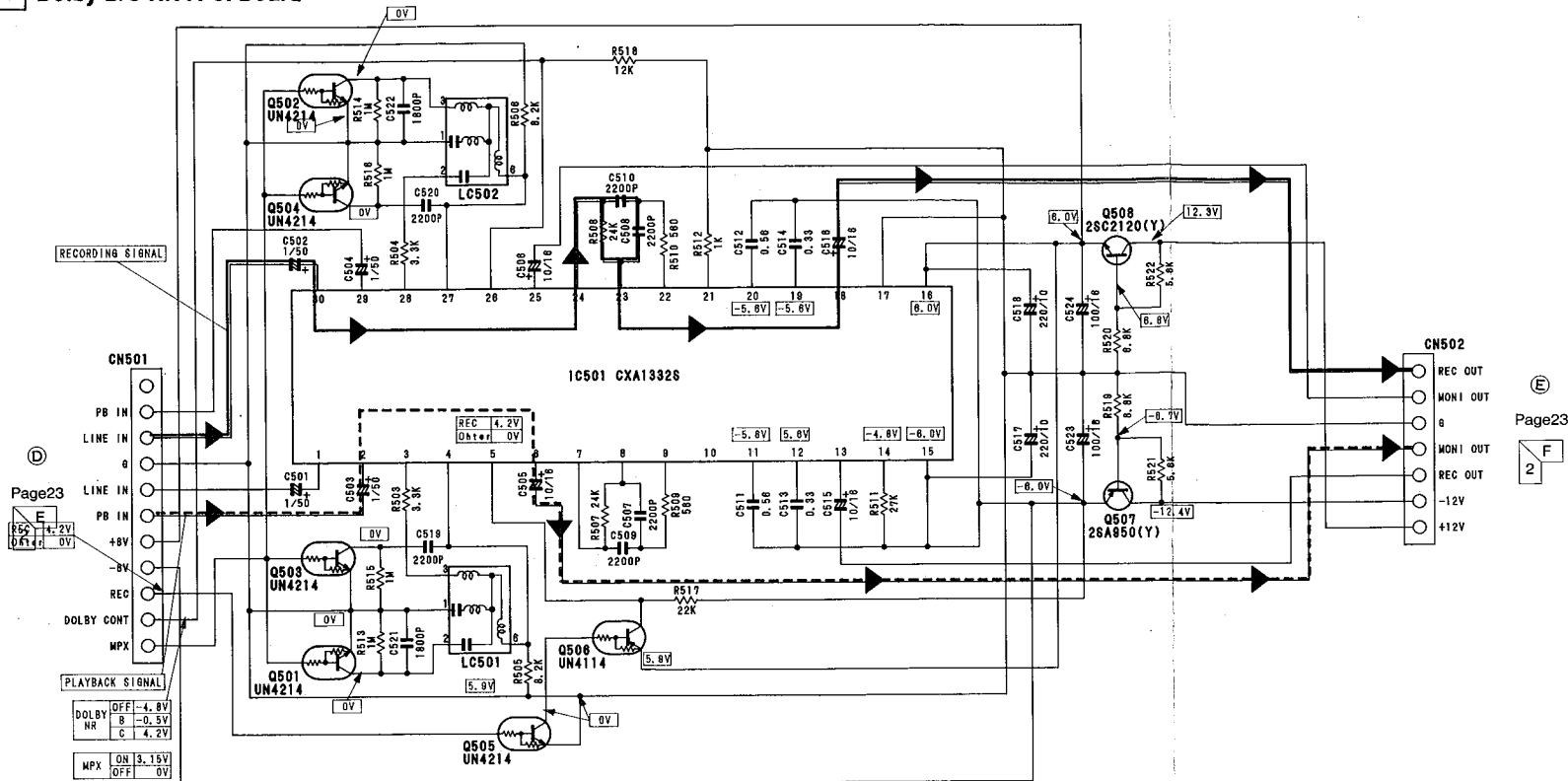
(B)

E F G H I J

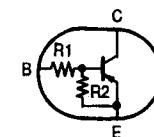


SCHMATIC DIAGRAM (2)

PCB-3 Dolby B/C NR P. C. Board



| Type   | R1(kΩ) | R2(kΩ) |
|--------|--------|--------|
| UN4214 | 10     | 47     |

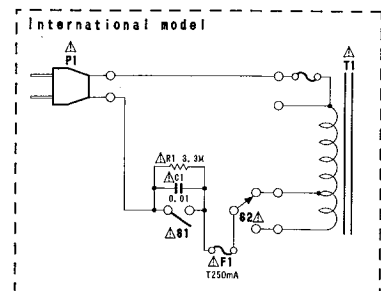
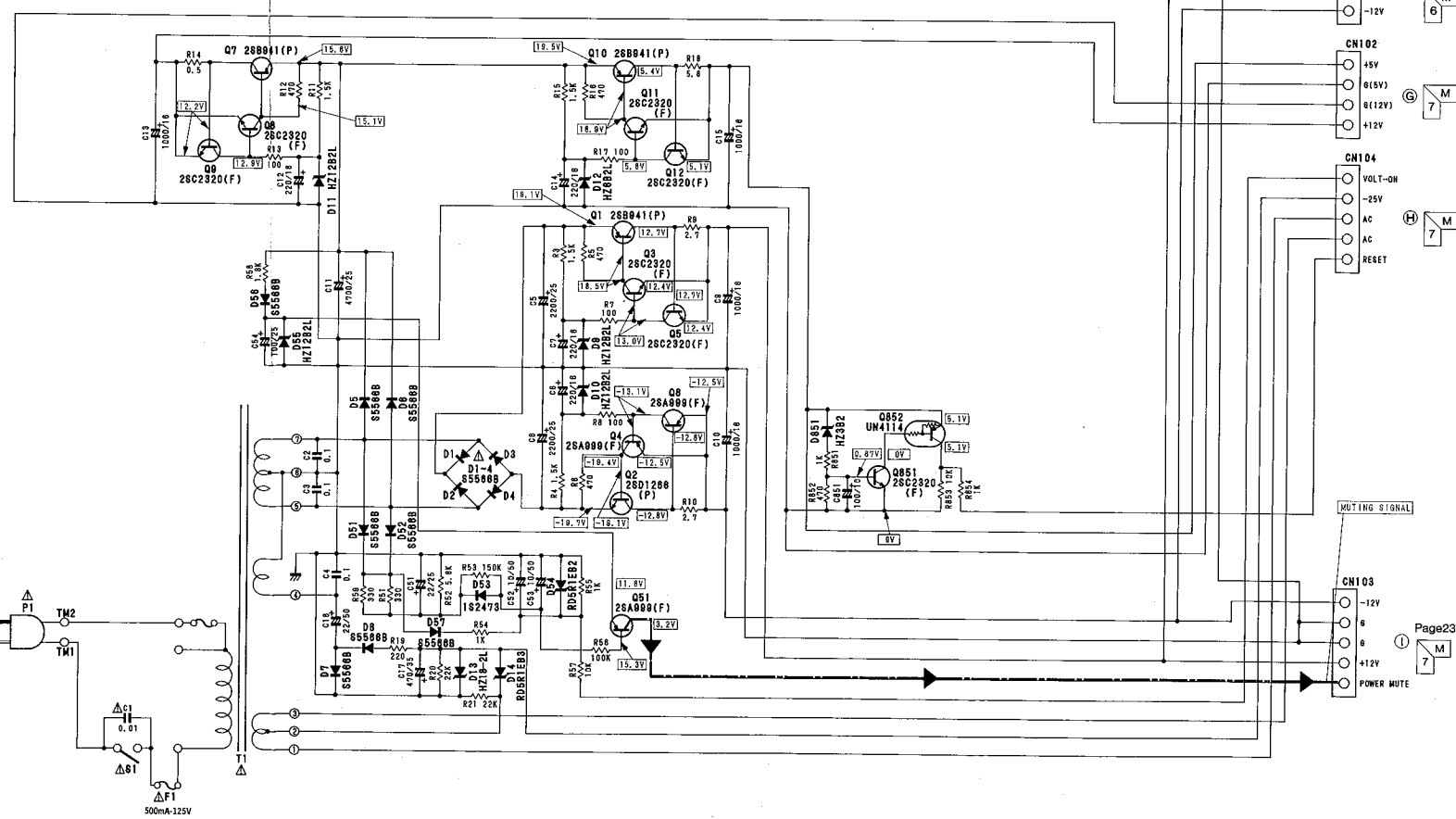
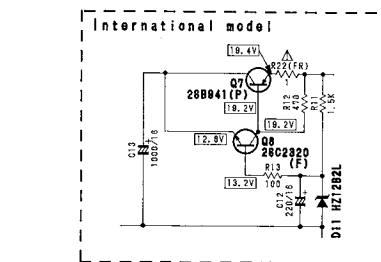


| Type   | R1(kΩ) | R2(kΩ) |
|--------|--------|--------|
| UN4114 | 10     | 47     |
| RN2201 | 4.7    | 4.7    |

NOTE:

1. ALL RESISTANCES VALUES ARE IN Ω.
2. THE WATTAGE OF RESISTORS IS 1/4W UNLESS OTHERWISE NOTED.
3. ALL CAPACITANCES VALUE ARE IN μF UNLESS OTHERWISE NOTED. P=μF.
4. ...V : DC VOLTAGE AT NO SIGNAL UNLESS OTHERWISE NOTED.
5. SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS, THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.

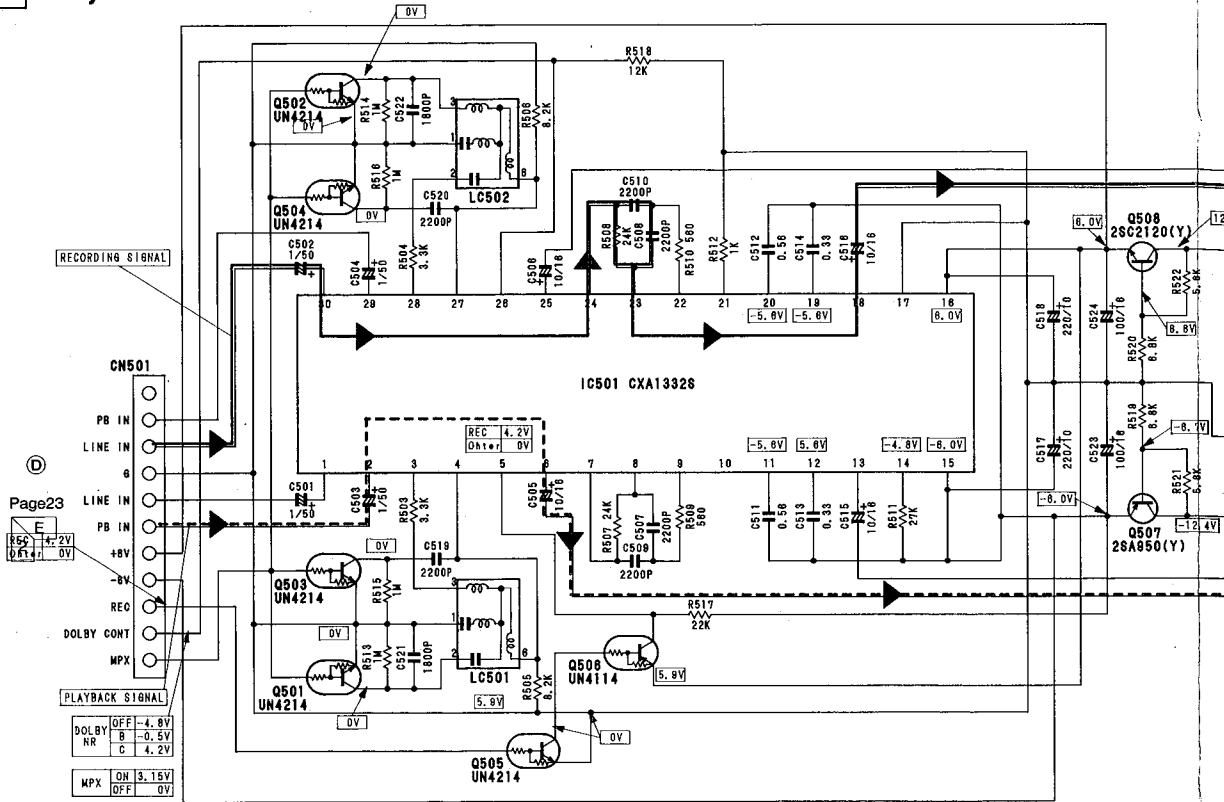
PCB-4 Power P. C. Board



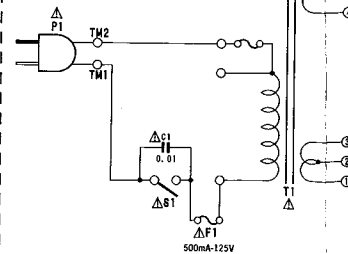
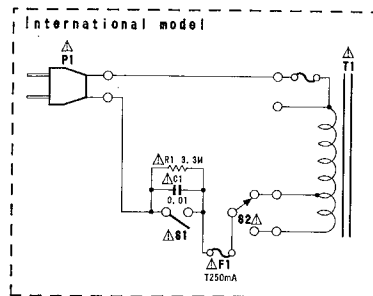
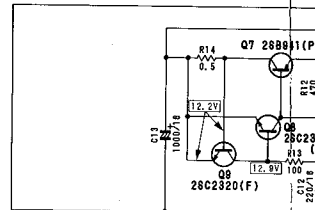
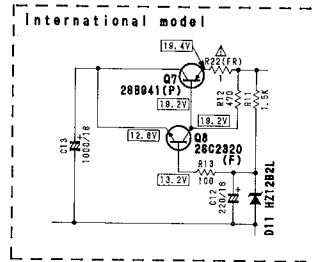


**SCHEMATIC DIAGRAM (2)**

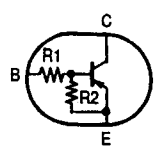
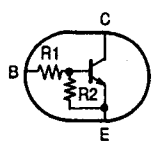
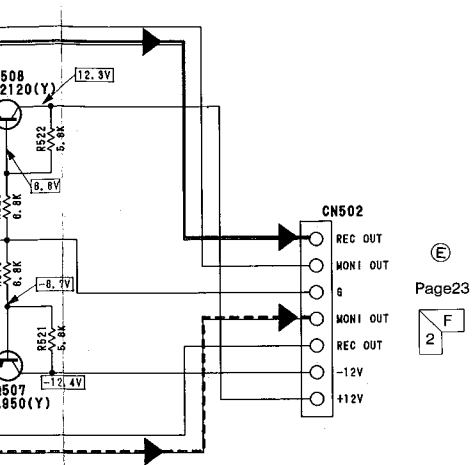
**PCB-3** Dolby B/C NR P. C. Board



Page23  
E  
1.2V  
0.614 0V



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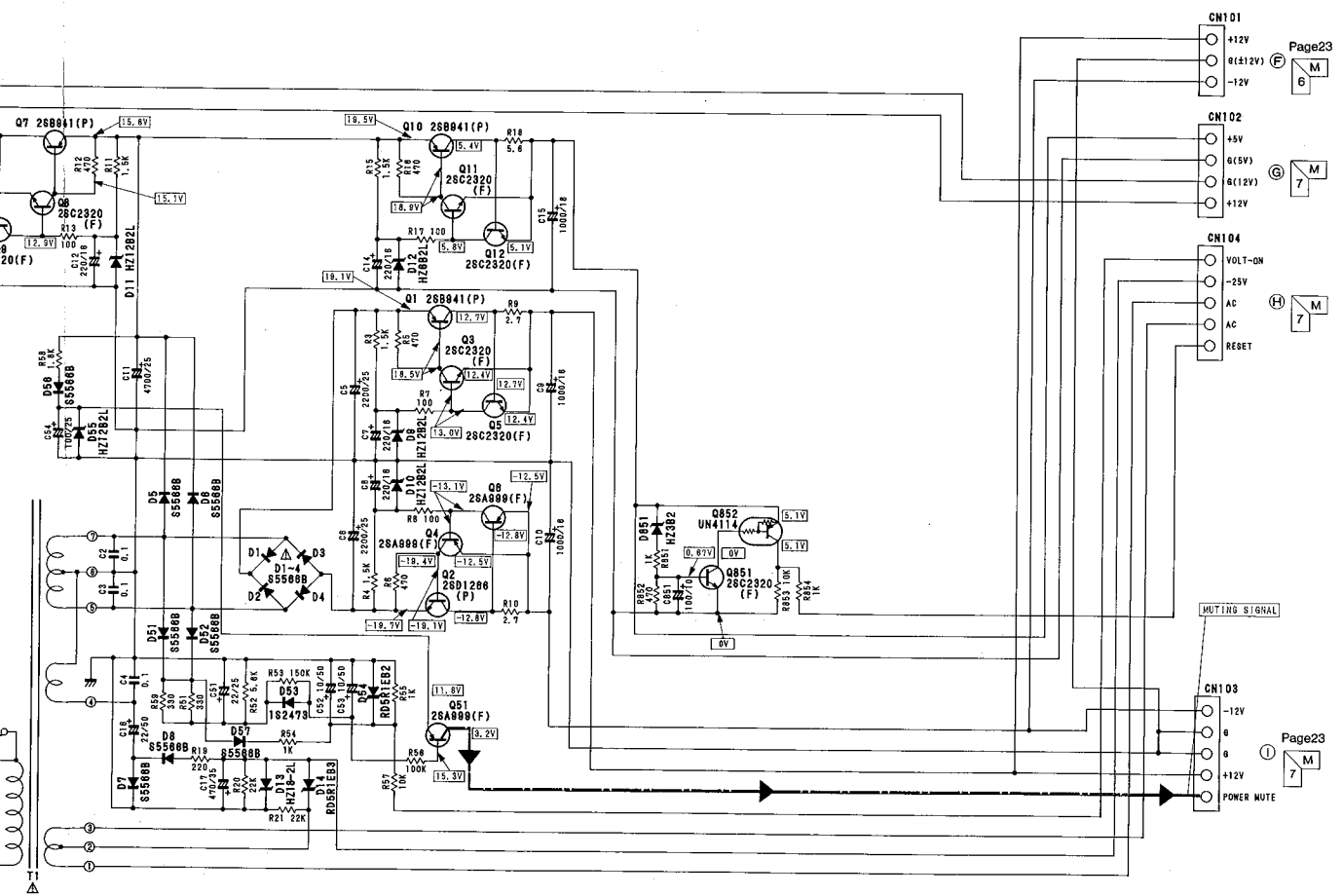
| Type   | R1(kΩ) | R2(kΩ) |
|--------|--------|--------|
| UN4214 | 10     | 47     |

| Type   | R1(kΩ) | R2(kΩ) |
|--------|--------|--------|
| UN4114 | 10     | 47     |
| RN2201 | 4.7    | 4.7    |

**NOTE:**

1. ALL RESISTANCES VALUES ARE IN Ω.  
KΩ=1000Ω, MΩ=1000KΩ.
2. THE WATTAGE OF RESISTORS IS 1/4W UNLESS OTHERWISE NOTED.
3. ALL CAPACITANCES VALUE ARE IN µF UNLESS OTHERWISE NOTED. P=µµF.
4. ...V : DC VOLTAGE AT NO SIGNAL UNLESS OTHERWISE NOTED.
5. SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS, THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.

**PCB-4 Power P. C. Board**



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②

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⑥

⑦ M

⑦ M

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⑦





F

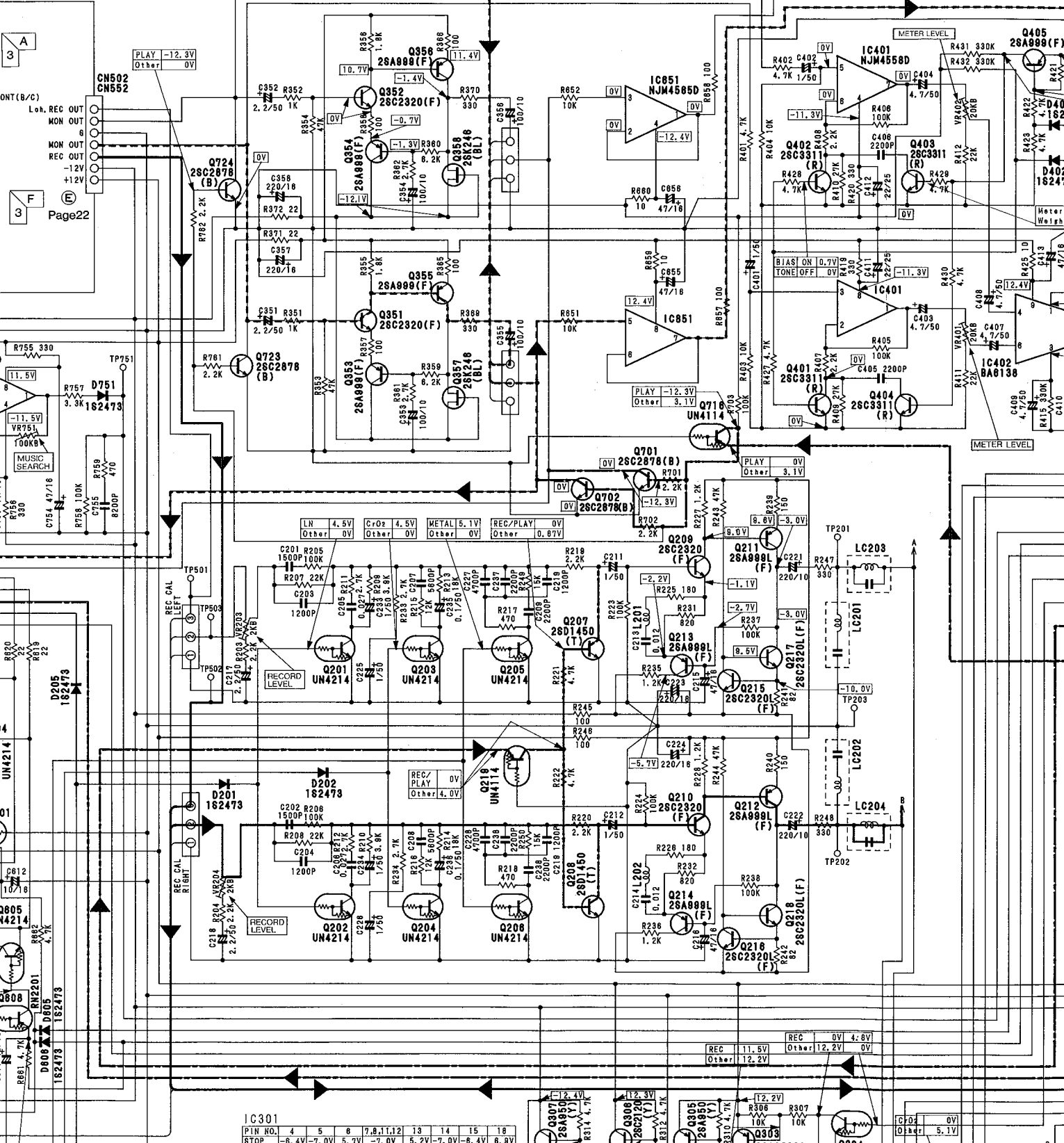
G

H

I

J

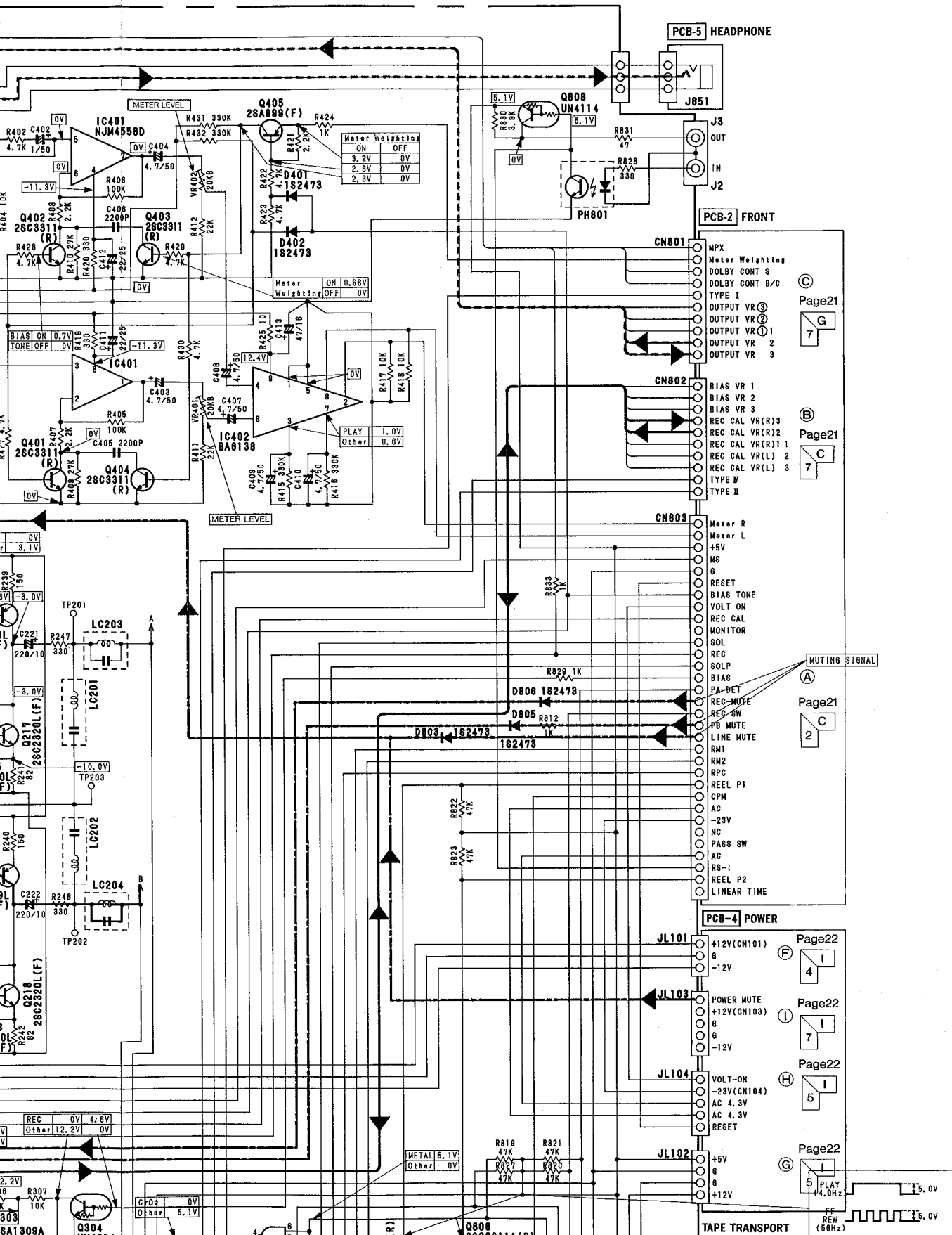
OLBY B/C NR



| IC301 | 1     | 2     | 3    | 4     | 5    | 6     | 7,8,11,12 | 9,10 | 13 | 14 | 15 | 16 |
|-------|-------|-------|------|-------|------|-------|-----------|------|----|----|----|----|
| STOP  | -6.4V | -7.0V | 5.7V | -7.0V | 5.2V | -7.0V | -8.4V     | 6.9V |    |    |    |    |

|       |       |       |       |      |
|-------|-------|-------|-------|------|
| REC   | 11.5V | REC   | 0V    | 4.6V |
| Other | 12.2V | Other | 12.2V | 0V   |

|       |      |
|-------|------|
| IC302 | 0V   |
| Other | 5.1V |



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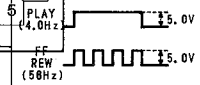
Page 21  
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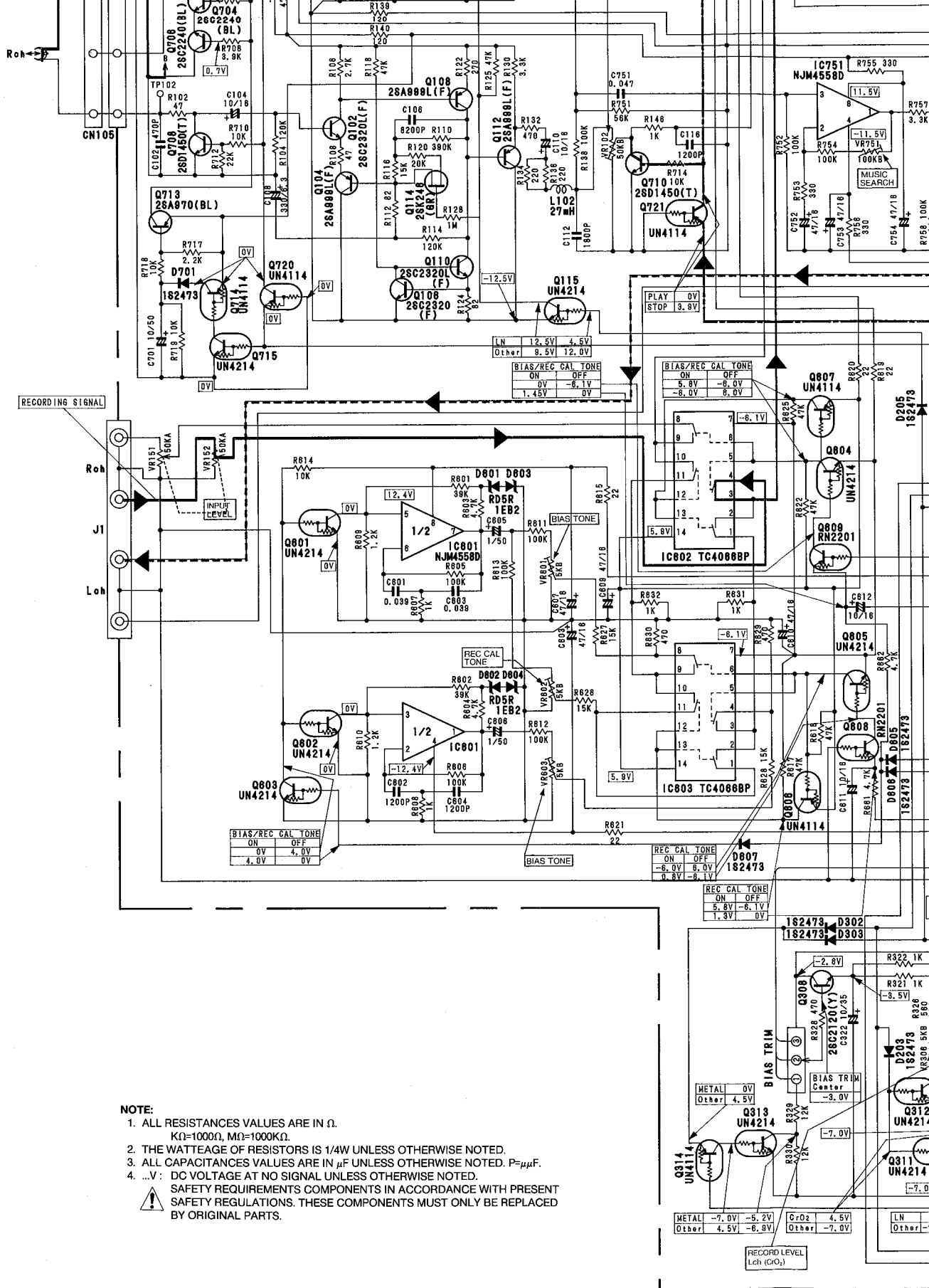
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**NOTE:**

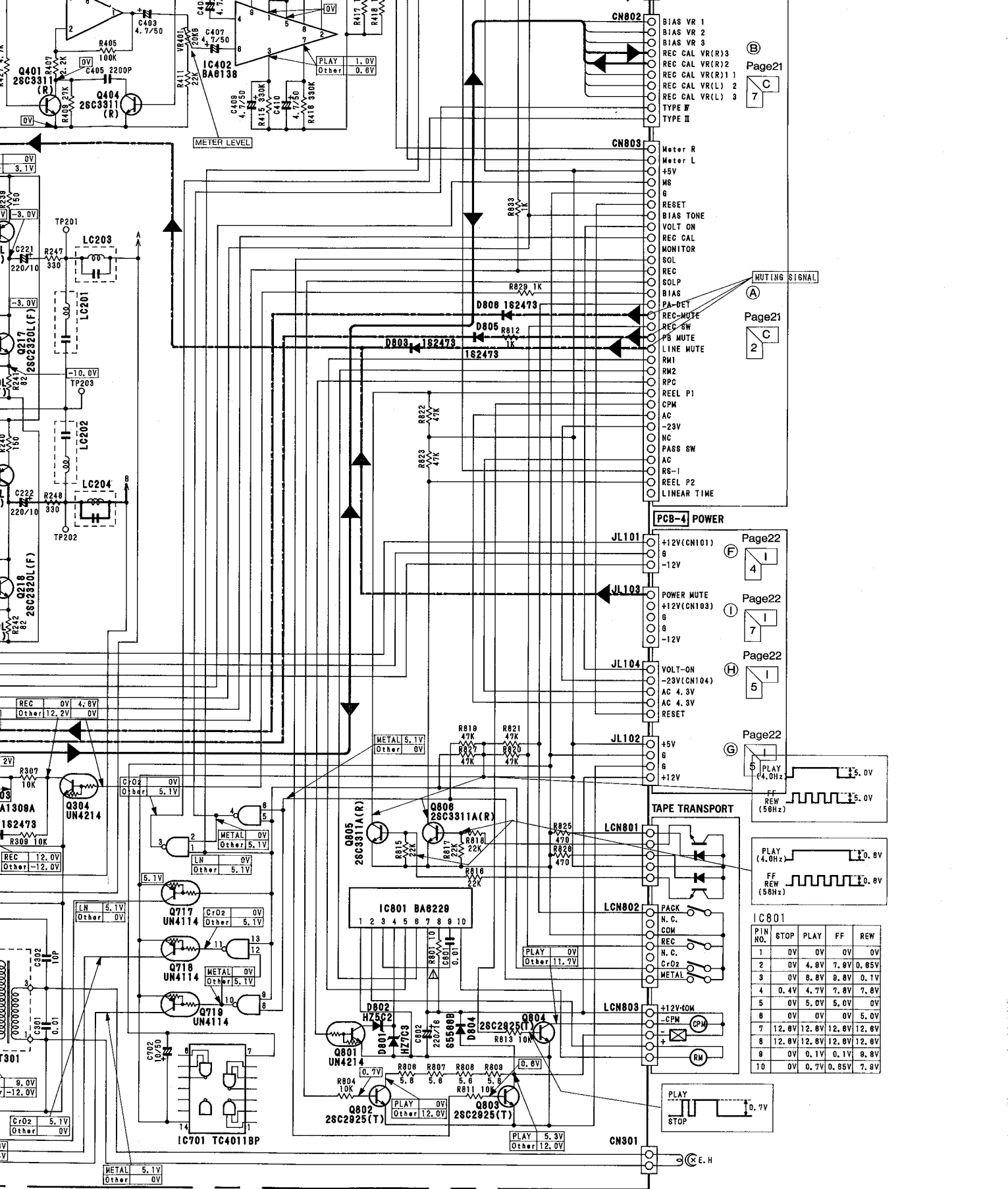
1. ALL RESISTANCES VALUES ARE IN  $\Omega$ .  
K $\Omega$ =1000 $\Omega$ , M $\Omega$ =1000K $\Omega$ .
2. THE WATTEAGE OF RESISTORS IS 1/4W UNLESS OTHERWISE NOTED.
3. ALL CAPACITANCES VALUES ARE IN  $\mu$ F UNLESS OTHERWISE NOTED. P= $\mu$ F.
4. ...V: DC VOLTAGE AT NO SIGNAL UNLESS OTHERWISE NOTED.



SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS. THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.







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| PIN NO. | STOP  | PLAY  | FF    | REW   |
|---------|-------|-------|-------|-------|
| 1       | 0V    | 0V    | 0V    | 0V    |
| 2       | 0V    | 4.8V  | 7.8V  | 0.85V |
| 3       | 0V    | 6.8V  | 0.8V  | 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       | 12.8V | 12.6V | 12.8V | 12.8V |
| 8       | 12.8V | 12.6V | 12.8V | 12.8V |
| 9       | 0V    | 0.1V  | 0.1V  | 8.8V  |
| 10      | 0V    | 0.7V  | 0.85V | 7.8V  |

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