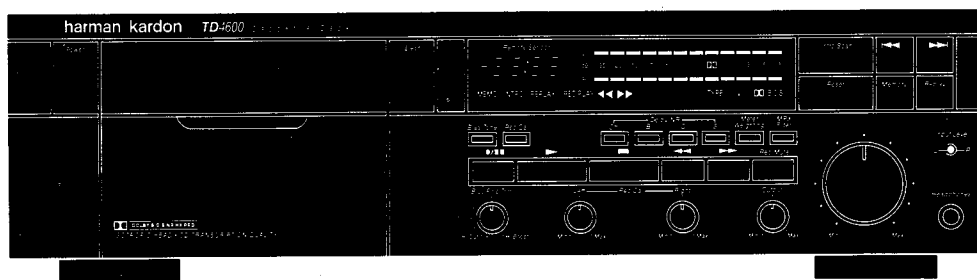


# The Harman Kardon Model TD4600

Manual 164A

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

**harman/kardon**

240 Crossways Park West, Woodbury, N.Y. 11797  
1112-3152164A7 P-119011 2000 Printed in Japan

TD4600

## SPECIFICATIONS

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

## • MECHANICAL SECTION

|                            |             |             |
|----------------------------|-------------|-------------|
| Record/Playback Tape Speed |             |             |
| Drift 4.76cm/sec.          | 0.2%        | ≤2.0%       |
| Wow and Flutter (WTD)      | 0.045%(NAB) | ≤0.1%       |
|                            | 0.07%(CCIR) | ≤0.14%      |
| 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 (Output VR. max.)                       | 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 |

## Dolby S NR

|                                         | Nominal | Limit |
|-----------------------------------------|---------|-------|
| LN                                      | 71dB    |       |
| CrO <sub>2</sub>                        | 74dB    | ≥68dB |
| Metal                                   | 74dB    | ≥68dB |
| Channel Separation                      | 45dB    | ≥35dB |
| Crosstalk                               | 70dB    | ≥60dB |
| Record/Playback Distortion (Input 1kHz) |         |       |
| LN                                      | 0.9%    | ≤2.0% |
| CrO <sub>2</sub>                        | 1.3%    | ≤3.0% |
| Metal                                   | 1.1%    | ≤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 | 30(min)~80(max)mV |
| Input Impedance (Input 1kHz) at Line Input   | 22kΩ | 19(min)~30(max)kΩ |

## • DIMENSIONS(W x H x D)

17-3/8" x 5" x 12-5/8"  
(442 x 126 x 320 mm)  
14.8lbs(6.7kg)

## • WEIGHT

## • POWER SUPPLY

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

## • POWER CONSUMPTION

U.S.A. and Canada models 29W  
International model 31W

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

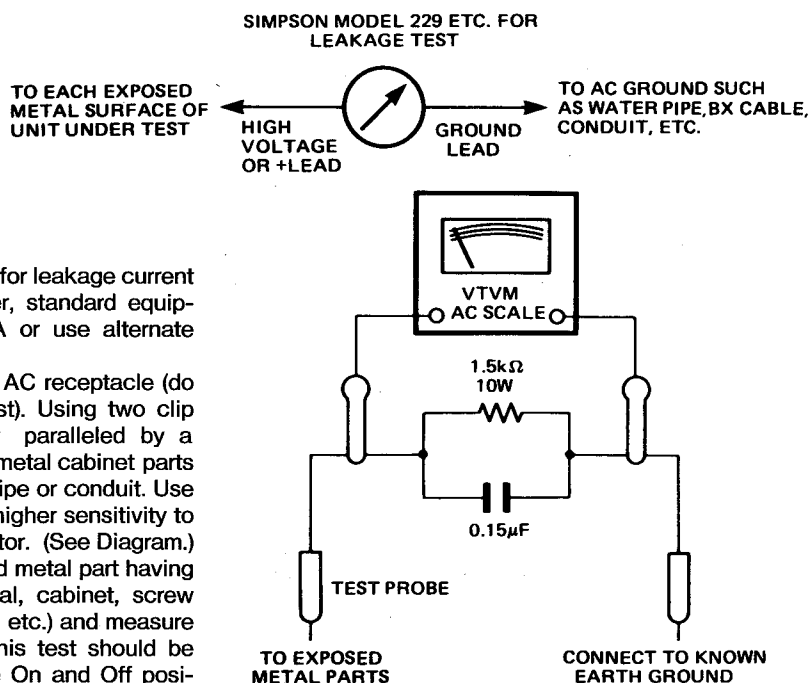
## LEAKAGE TEST (FOR SERVICE ENGINEERS IN THE U.S.A.)

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

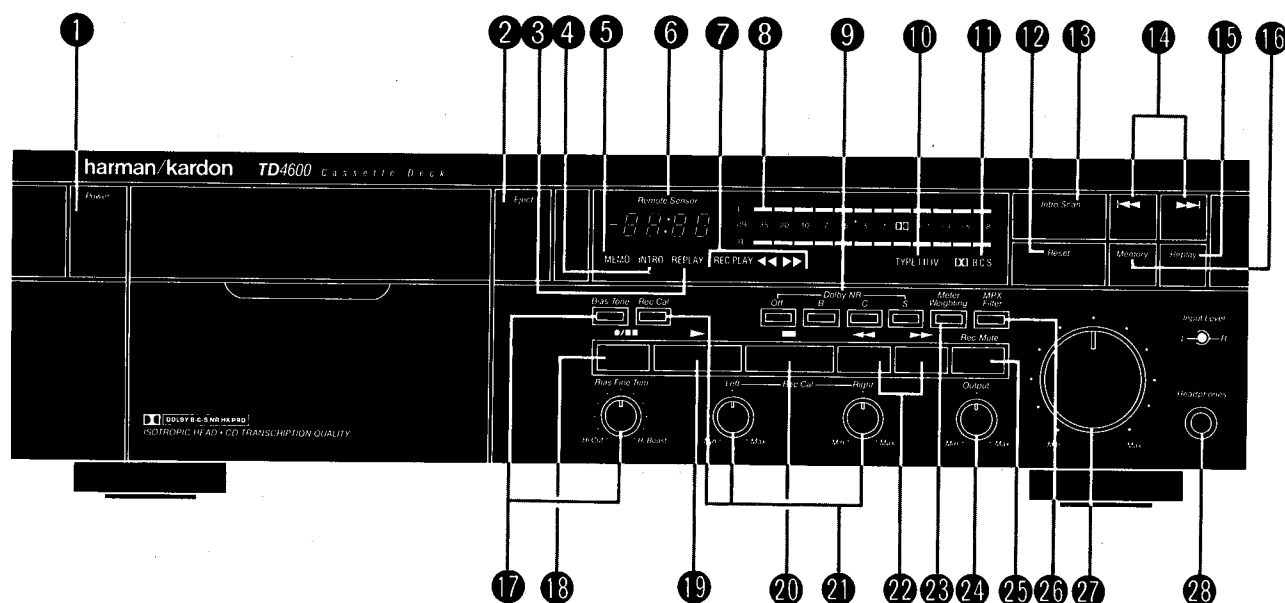
1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the unit.
2. Replace all protective devices such as nonmetallic control knobs, in insulating fishpapers, cabinet backs, or shields, isolation resistor-capacitor 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.



## 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.

**S**

Press to play or record using Dolby S NR.

**10 TYPE I II IV**

Automatically indicates type of tape in use.

**11 DOLBY B C S NR**

Shows if Dolby B, or C or S NR circuits are on.

**12 RESET**

Resets Counter to 00:00.

**13 INTRO SCAN**

Previews each segment on a pre-recorded tape.

**14 SKIP REVERSE/SKIP FORWARD**

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

**15 REPLAY**

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

**16 MEMORY**

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

**17 BIAS TONE/BIAS FINE TRIM**

Adjusts when recording.

**18 RECORD/PAUSE**

Puts cassette deck in Record-ready or Pause mode.

**19 PLAY**

Begins playback or recording.

**20 STOP**

Stops tape transport in any mode.

**21 REC CAL**

Adjusts when recording using Dolby Noise Reduction.

**22 REWIND/FAST FORWARD**

Rapidly rewinds or advances tape.

**23 METER WEIGHTING**

Allows for easy setting of optimum record levels.

**24 OUTPUT**

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

**25 RECORD MUTE**

Inserts blank space when recording.

**26 MPX FILTER**

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

**27 INPUT LEVEL**

Adjusts recording level and balance.

**28 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 13, 14 and 15)****[1] CABINET TOP (133) REMOVAL**

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

**[2] DOLBY NR P. C. BOARD REMOVAL**

1. Disconnect LCN501, LCN502, LCN503 and LCN504.
2. Remove 6 screws (C) and then remove the Dolby NR P. C. Board (PCB-3).

**[3] 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 4 rotary knobs (151), the input level volume knobs (145 and 148) and the nut.
4. Remove the Dolby NR P.C. Board (PCB-3). (Refer to step 2.)
5. Disconnect CN903 from CN803 on the Main P. C. Board (PCB-1).
6. Remove 7 screws (D) .
7. While disconnecting CN801 and CN802, remove the Front Panel Assembly (AA).

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

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

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

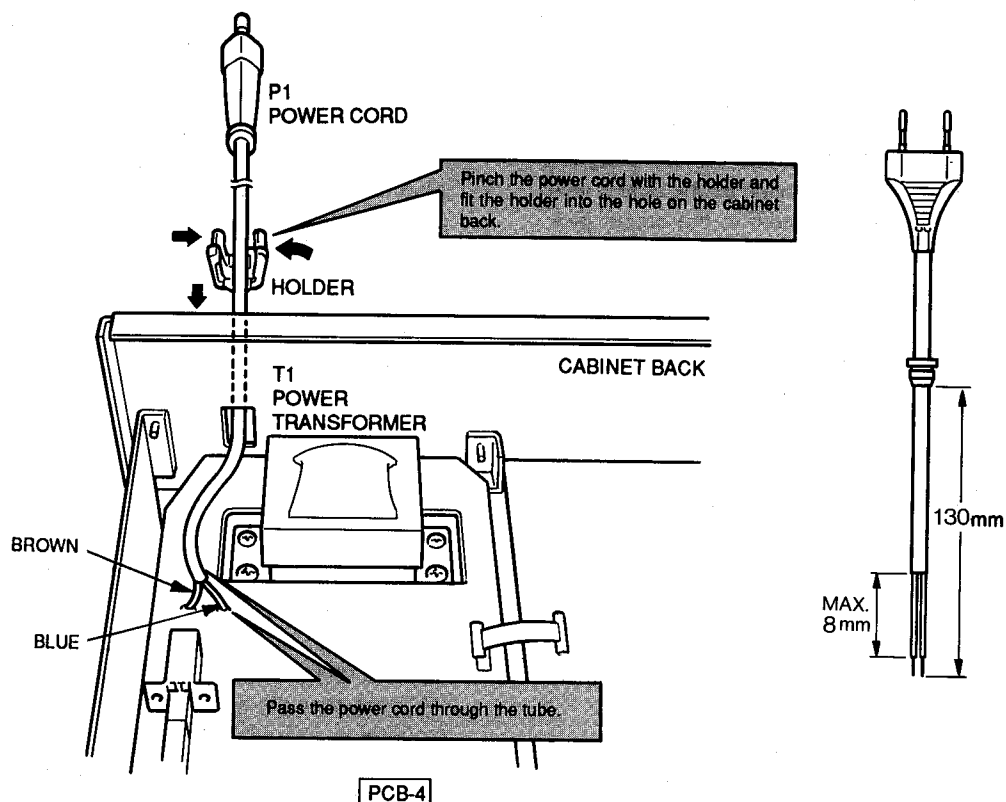
1. Remove the Cabinet Top (133). (Refer to step 1.)
2. Disconnect LCN801, LCN802 and LCN803, then CN301 and CN105 on the Main P. C. Board (PCB-1), connected to the Cassette Tape Recorder Mechanism Assembly.
3. Disconnect CN801, CN802 and CN803 connected to the Front P. C. Board (PCB-2).
4. Disconnect LCN501, LCN502, LCN503 and LCN504 and then remove the Dolby NR P. C. Board (PCB-3).
5. Open the lid of CN101, CN102, CN103 and CN104 on the Power P. C. Board (PCB-4) and then disconnect JL101, JL102, JP103 and JL104.
7. Remove 8 screws (F) and then remove the Main P. C. Board (PCB-1).

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

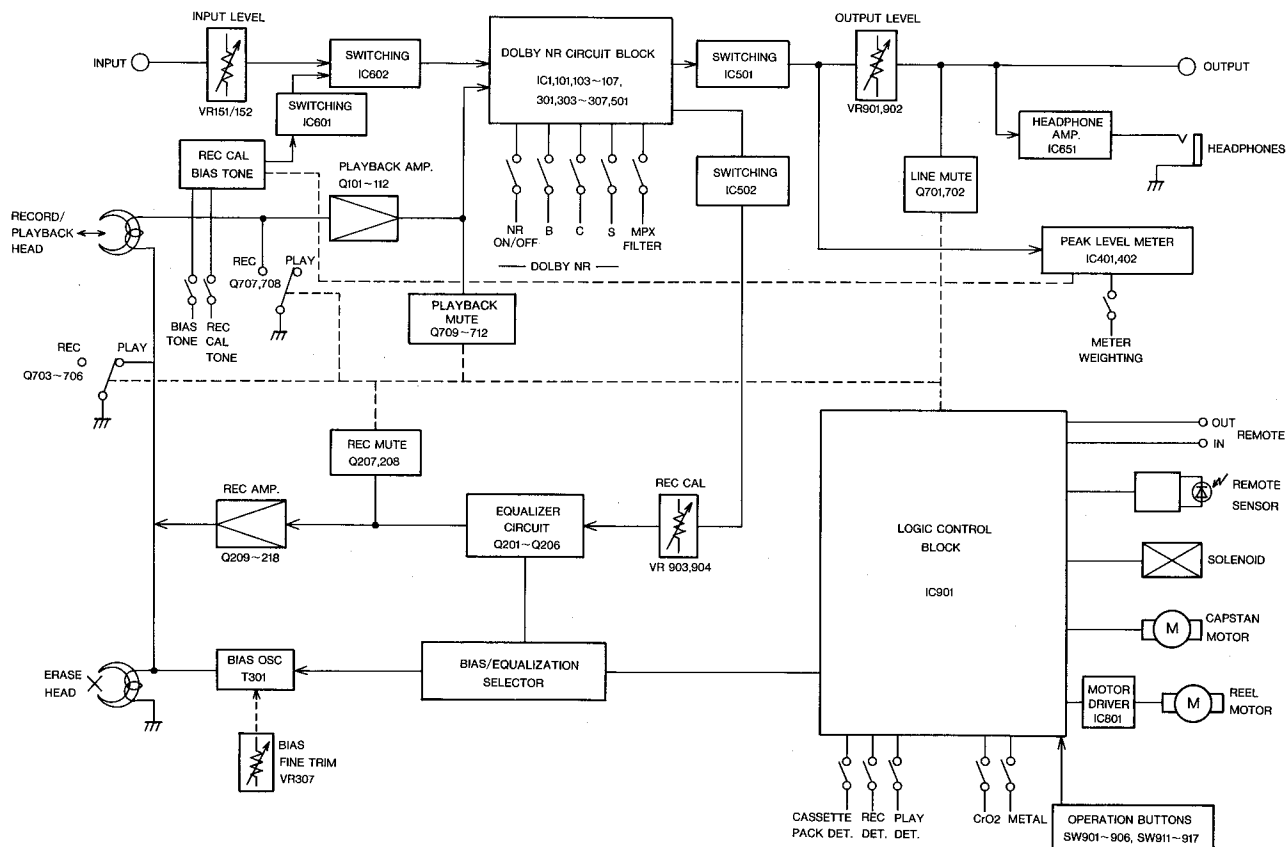
1. Remove the Front Panel Assembly (AA). (Refer to step 2.)
2. Remove 8 screws (G) and 3 screws (H), then remove the Front P. C. Board (PCB-2).
3. Remove the screw (I) and then remove the Headphone P. C. Board (PCB-5).
4. Disconnect LCN501 and then JL101, JL102, JP103 and JL104 from CN101, CN102, CN103 and CN104.
5. Remove 5 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 or 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

Signals that are retrieved by the playback head are amplified by playback amplifiers Q101, Q103, Q105, Q107, Q109, and Q111 (L ch.) and Q102, Q104, Q106, Q108, Q110, and Q112 (R ch.). Then, they are divided into Dolby NR B/C and Dolby NR S types, and sent to the Dolby NR circuit where they are decoded. Signals are sent to the peak level meter circuit via the switching IC501, and their levels are controlled by the output level controller from which they are sent to the output jack. The level controlled signals are simultaneously sent to the headphone amplifier IC651 where they are amplified before being sent to the headphone jack.

### RECORD SIGNAL

Signals that reach the input jack are level controlled by the input level controller. Then, they are sent to pin 8 (L ch.) and pin 4 (R ch.) of the switching IC602, and the combined signals are supplied from pin 9 (L ch.) and pin 3 (R ch.) to the Dolby NR circuit where they are encoded. Signals are switched by the switching IC502, and sent to the equalizer circuit via the recording level controller. Then, they are amplified by recording amplifiers Q209, Q211, Q213, Q215 and Q217 (L ch.) and Q210, Q212, Q214, Q216 and Q218 (R ch.) before being sent to the recording head.

### LOGIC FOR RECORD MODE

When the "REC" button is pressed, pin 27 of IC901 becomes high level and Q709, Q711 (L ch.) and Q710, Q712 (R ch.) turn ON. The input to the Dolby NR circuit 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, Q503 turns ON and Q504 turns OFF to make pin 5 of IC501 high level. Therefore the mode (B/C NR type) is switched to the record mode.

### LOGIC FOR RECORD TO PLAYBACK MODE

When the "STOP", "PAUSE" or "PLAY" button is pressed, 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 record amplifiers are muted.

Also, Q503 turns OFF and Q504 turns ON to make pin 5 of IC501 low level. Therefore the mode (B/C NR type) is switched to the playback mode.

### DOLBY NR CIRCUIT

#### • DOLBY NR B/C TYPE

At the time of playback, signals are sent to pin 29 (L ch.) and pin 2 (R ch.) of the IC501 of the Dolby NR circuit block. After decoding, they are outputted by pin 25 (L ch.) and pin 6 (R ch.).

At the time of recording, signals are sent to pin 30 (L ch.) and pin 1 (R ch.) of the IC501. After encoding, they are outputted from pin 18 (L ch.) and pin 13 (R ch.).

#### • DOLBY NR S TYPE

At the time of playback, signals are sent to pin 41 of the IC103 (L ch.) and IC303 (R ch.), and outputted from pin 37. Then, they are added to pin 2 for low frequency (LF) processing and outputted from pin 43. At the same time, they are added to pin 2 of the IC107 (L ch.) and IC307 (R ch.) via the IC106 (L ch.) and IC306 (R ch.) for high frequency (HF) processing and outputted from pin 43. Signals after LF and HF processing are added to pin 2 of the IC105 (L ch.) and IC305 (R ch.) via the IC101 and IC104 (L ch.) and IC301 and IC304 (R ch.) for low level (LL) processing. Then, they are outputted from pin 43. Signals are added to pin 3 of the IC103 (L ch.) and IC303 (R ch.), outputted from pin 34, added to pin 39, and outputted from pin 37 as the playback signals.

At the time of recording, signals are processed (LF, HF, and LL) as in playback, added to pin 35 of the IC103 (L ch.) and IC303 (R ch.), and outputted from pin 34 as recording signals.

## DOLBY S-TYPE NR TECHNICAL DESCRIPTION

### Circuit Operation

Like all other Dolby noise reduction systems, S-type is complementary, that is, signals are encoded before being recorded, then decoded in a complementary manner during playback. The following discussion will describe the operation of an encoder, but it should be noted that an encoder can be switched to the decode mode in the same manner as an A-type, B-type, C-type, or SR processor.

As with C-type NR, an S-type encoder has two staggered-action compressors, each having a passive main path which is summed with an active side chain, and each of which operates over a different signal level range. The high level stage has three compressors in its sidechain, which are known as the high frequency fixed band (HF/FB), the high frequency sliding band

(HF/SB), and the low frequency fixed band (LF/FB). The low level stage has a high frequency fixed band and a high frequency sliding band. Fixed bands are band limited to provide more compression at frequencies below dominant signals above 6 kHz, which gives less signal modulation in the encoder and less overall noise modulation. The fixed and sliding bands operate together in a technique known as action substitution.

The encoder output is filtered and then fed back to the control paths of each compressor to control compressor action using a technique known as modulation control.

Spectral skewing is provided to reduce sensitivity to very low and high frequency signals. The low frequency spectral skewing network is located at the encoder

input, while high frequency attenuation is provided by two high frequency spectral skewing circuits which are distributed between the low and high level stages to reduce compression ratios at high frequencies. Two stages of antisaturation provide high frequency attenuation at high levels to reduce tape overload.

An S-type encoder adapts its characteristics to the input signal in such a way as to provide the maximum amount of boost at all times, especially at frequencies which are lower or higher than the dominant signal. The overshoot suppression (O/S) circuits used are also designed to allow maximum boost from the compressor. Thus, the least treatment is given to the signal at all times, resulting in a very stable output with little dynamic action. When the signal is decoded, the maximum amount of noise reduction is obtained in the presence of signals, ensuring low noise modulation and a high degree of tolerance to errors in the transmission chain. Up to 24 dB of noise reduction at high frequencies and 10 dB at low frequencies is provided.

### High Level Stage

The high level stage is active for signal levels in the range from -25 dB to Dolby level, and provides up to 12 dB of boost at frequencies above 400 Hz and 10 dB of boost at frequencies below 200 Hz.

The LF/FB is basically a passive low pass filter followed by a variable attenuator, with the amount of attenuation increasing with signal level. The HF/FB is similar, although the variable attenuator follows a high pass filter. The HF/SB is a variable frequency high pass filter whose corner frequency rises with increasing signal level or frequency (as in B and C-type processors). The input of the sliding band is connected in such a way as to provide an output which is the sum of the fixed band output and a signal which is the difference of the HF/FB output and the input signal (action substitution).

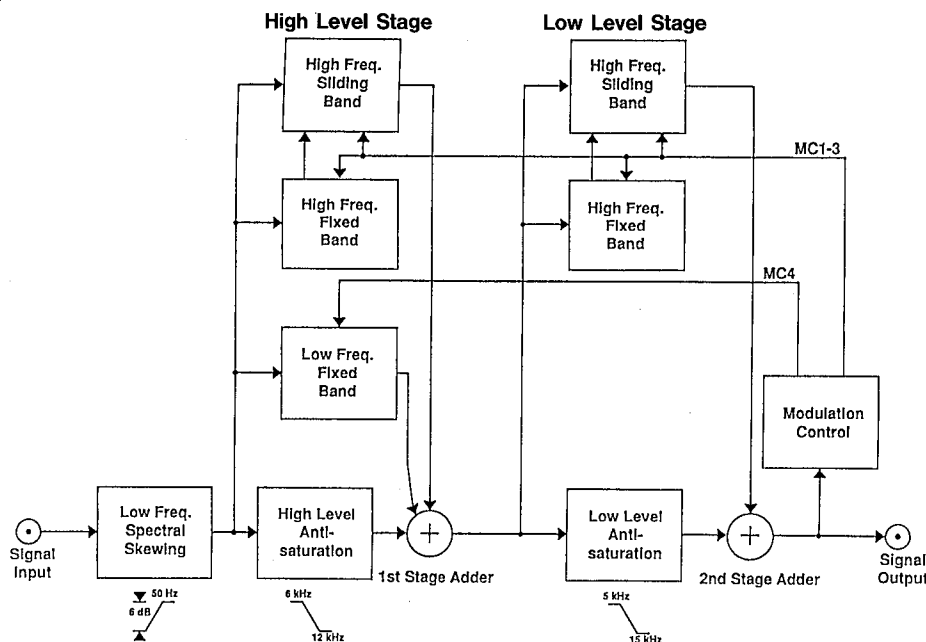
The control signals are derived from the compressor output, which is filtered, rectified, and averaged to produce a smooth control signal. An alternate path is provided to quickly charge the control path under high level transient conditions to suppress overshoots. Modulation controls signals are subtracted from the control path to reduce the control signal and the resultant attenuation under conditions where extra attenuation is not necessary. The final signal is then fed to a nonlinear control law stage which provides the required attenuation versus control voltage characteristics.

### Low Level Stage

The low level stage is active for signal levels from -50 to -25dB. No low frequency signal processing is provided, but in all other respects it is quite similar to the high level stage.

### Modulation Control

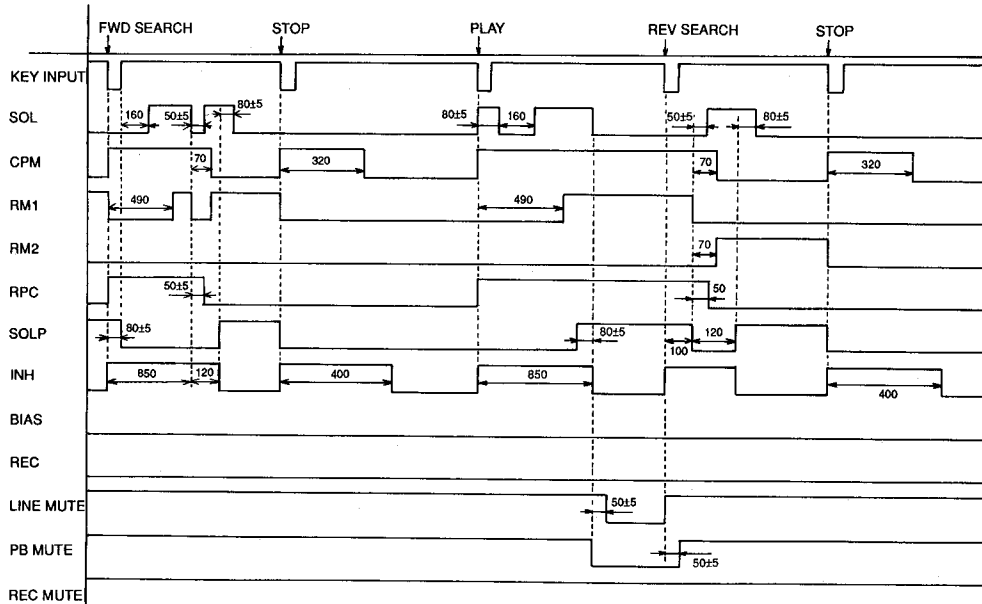
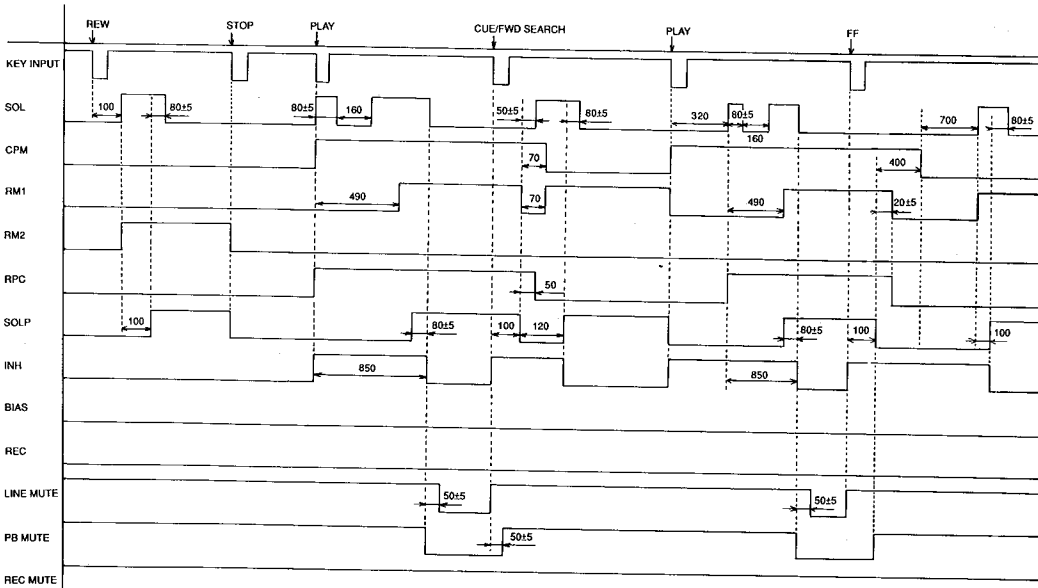
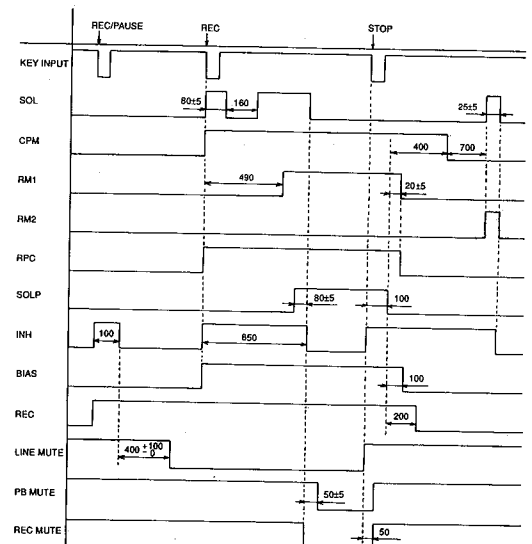
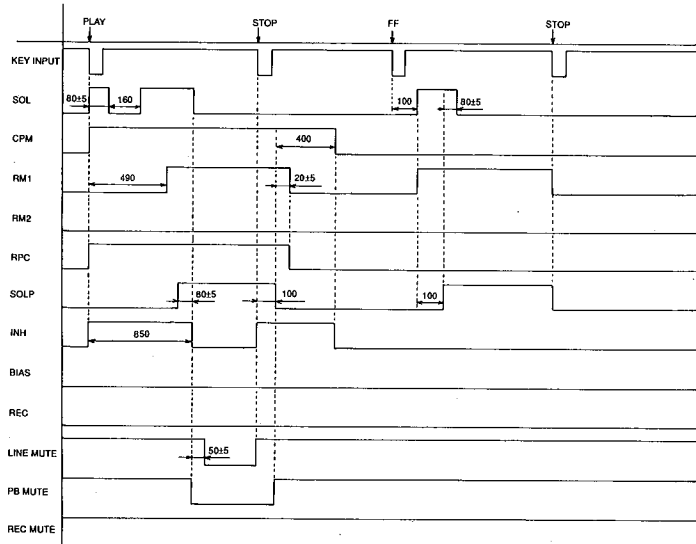
Modulation control is used to prevent unnecessary modulation of the compressors in the presence of high level signals. It is inactive at low levels. The encoder output is fed to the input of the modulation control circuit, where it is split into three frequency bands. The MC1 signal goes through a 3 kHz high pass filter to a full wave rectifier, and is then fed in opposition to the HF/SB control signals. MC2 is created by smoothing the MC1 signal using a 2 msec time constant. This signal is then applied in opposition to the HF/SB overshoot suppression signal. MC3 is low pass filtered at 200 and 400 Hz, full wave rectified, and then fed in opposition to the HF/FB control signals. The LF/FB is controlled by MC4, which first passes through 200 and 400 Hz high pass filters and a full wave rectifier.



S-TYPE ENCODER BLOCK DIAGRAM



## TIMING CHART



## ALIGNMENT PROCEDURES (REFER TO PAGES 16, 17, 18 AND 32)

### 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  
 FastForward .....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.

- 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.

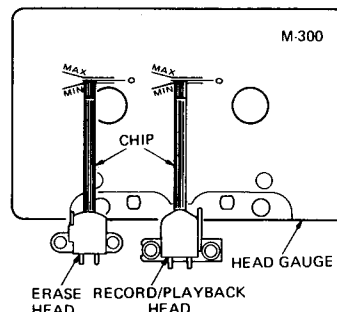


Fig. 2

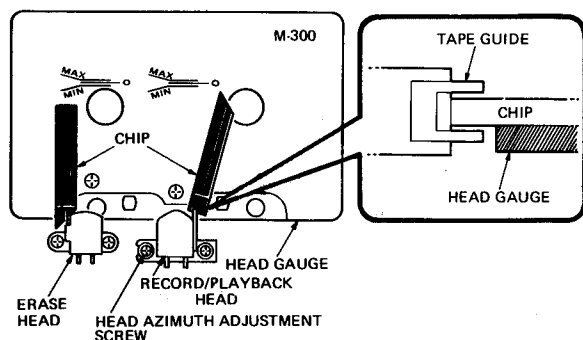


Fig. 1

**ELECTRICAL ADJUSTMENT AND CONFIRMATION****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.

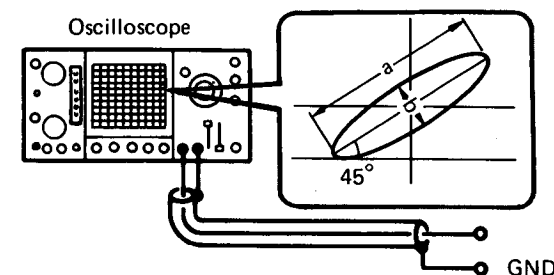
**4. General conditions (unless otherwise noted)**

| 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.

- 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****Dolby S Type NR DC Adjustment**

This adjustment should be performed at 10kHz in record/playback mode.

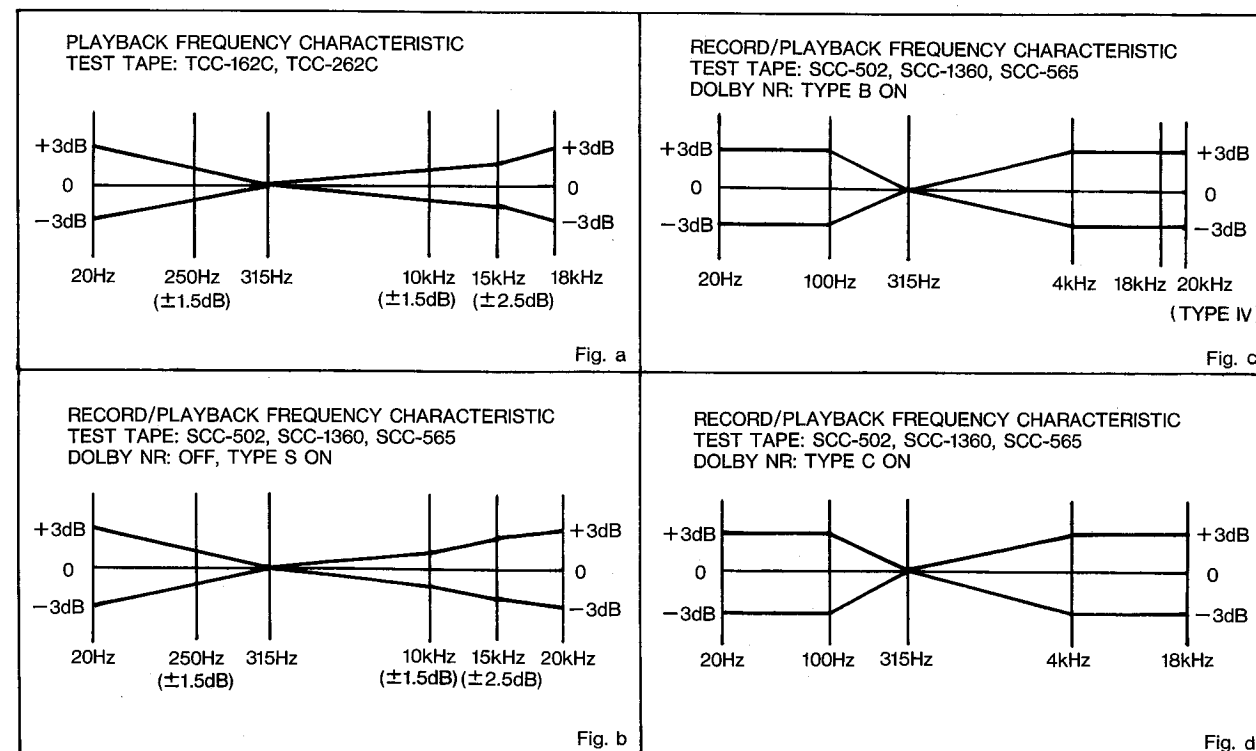
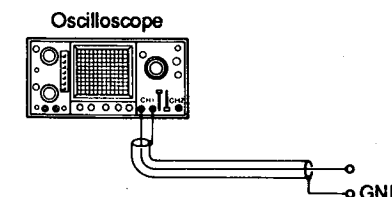
- Apply 30dB below 43.5mV signal to INPUT jack with 100mS On and 1S Off continuously.
  - Connect the oscilloscope to TP1 and GND. Solder an appropriate resistor (1Mohm~6.6Mohm) between TM17 and TM18, so that the fluctuation of DC level becomes below 3mV.
  - Connect the oscilloscope to TP2 and GND. Solder an appropriate resistor between TM5 and TM6 with the same procedure as above.

- Apply 40dB below 43.5mV signal to INPUT jack with 100mS On and 1S Off continuously.
  - Connect the oscilloscope to TP3 and GND. Solder an appropriate resistor (1Mohm~6.6Mohm) between TM25 and TM26, so that the fluctuation of DC level becomes below 3mV.
  - Connect the oscilloscope to TP4 and GND. Solder an appropriate resistor between TM11 and TM13 with the same procedure as above.

**Note:**

In case the Dolby NR P.C. Board can not be adjusted as above, it needs additional resistors between these terminals.

TM15 and TM17  
TM3 and TM5  
TM24 and TM25  
TM11 and TM12



## 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.

- 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.

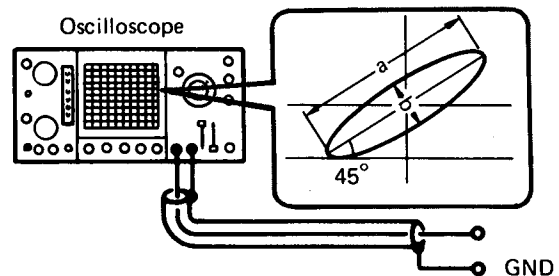
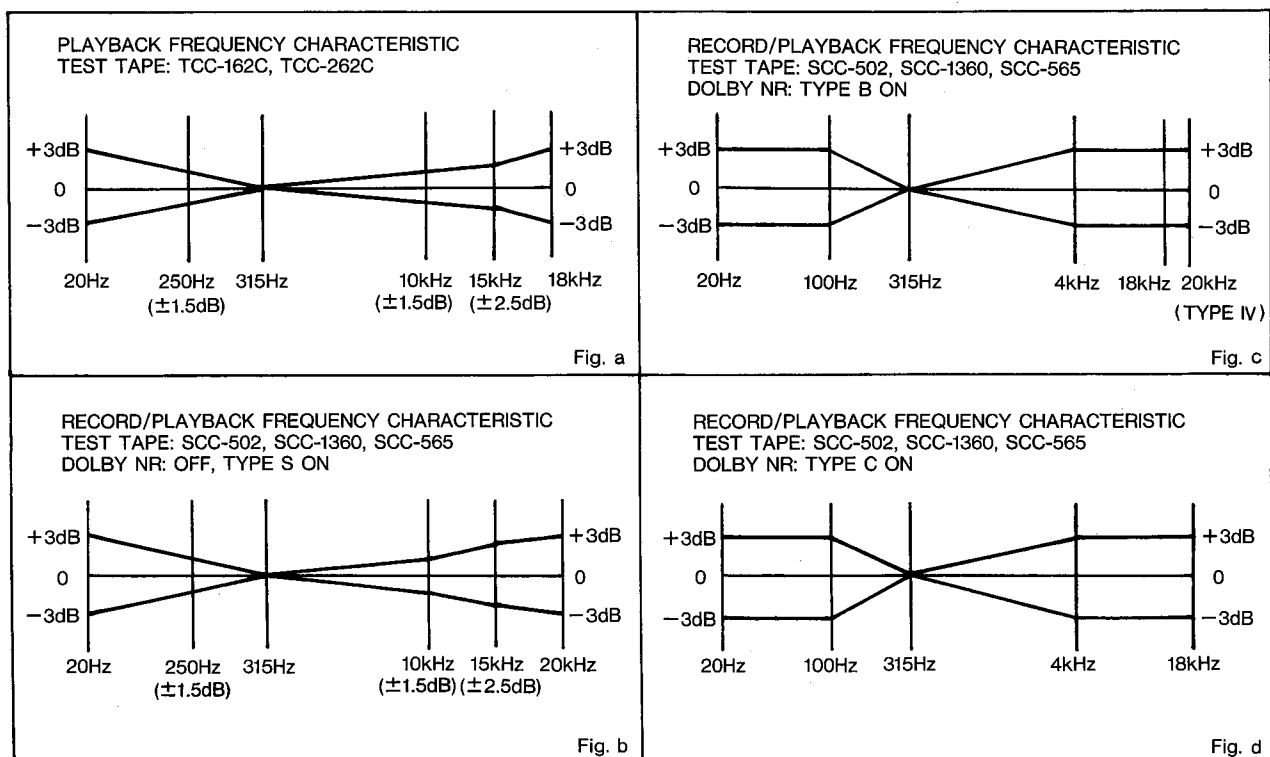


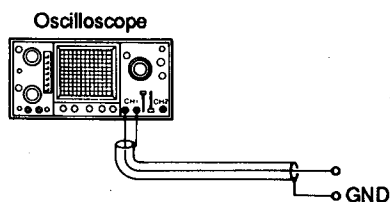
Fig. 3



### Dolby S Type NR DC Adjustment

This adjustment should be performed at 10kHz in record/playback mode.

- ① Apply 30dB below 43.5mV signal to INPUT jack with 100mS On and 1S Off continuously.
  - a) Connect the oscilloscope to TP1 and GND. Solder an appropriate resistor (1Mohm~6.6Mohm) between TM17 and TM18, so that the fluctuation of DC level becomes below 3mV.
  - b) Connect the oscilloscope to TP2 and GND. Solder an appropriate resistor between TM5 and TM6 with the same procedure as above.

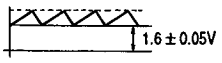


- ② Apply 40dB below 43.5mV signal to INPUT jack with 100mS On and 1S Off continuously.
  - a) Connect the oscilloscope to TP3 and GND. Solder an appropriate resistor (1Mohm~6.6Mohm) between TM25 and TM26, so that the fluctuation of DC level becomes below 3mV.
  - b) Connect the oscilloscope to TP4 and GND. Solder an appropriate resistor between TM11 and TM13 with the same procedure as above.

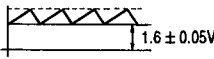
#### Note:

In case the Dolby NR P.C. Board can not be adjusted as above, it needs additional resistors between these terminals.

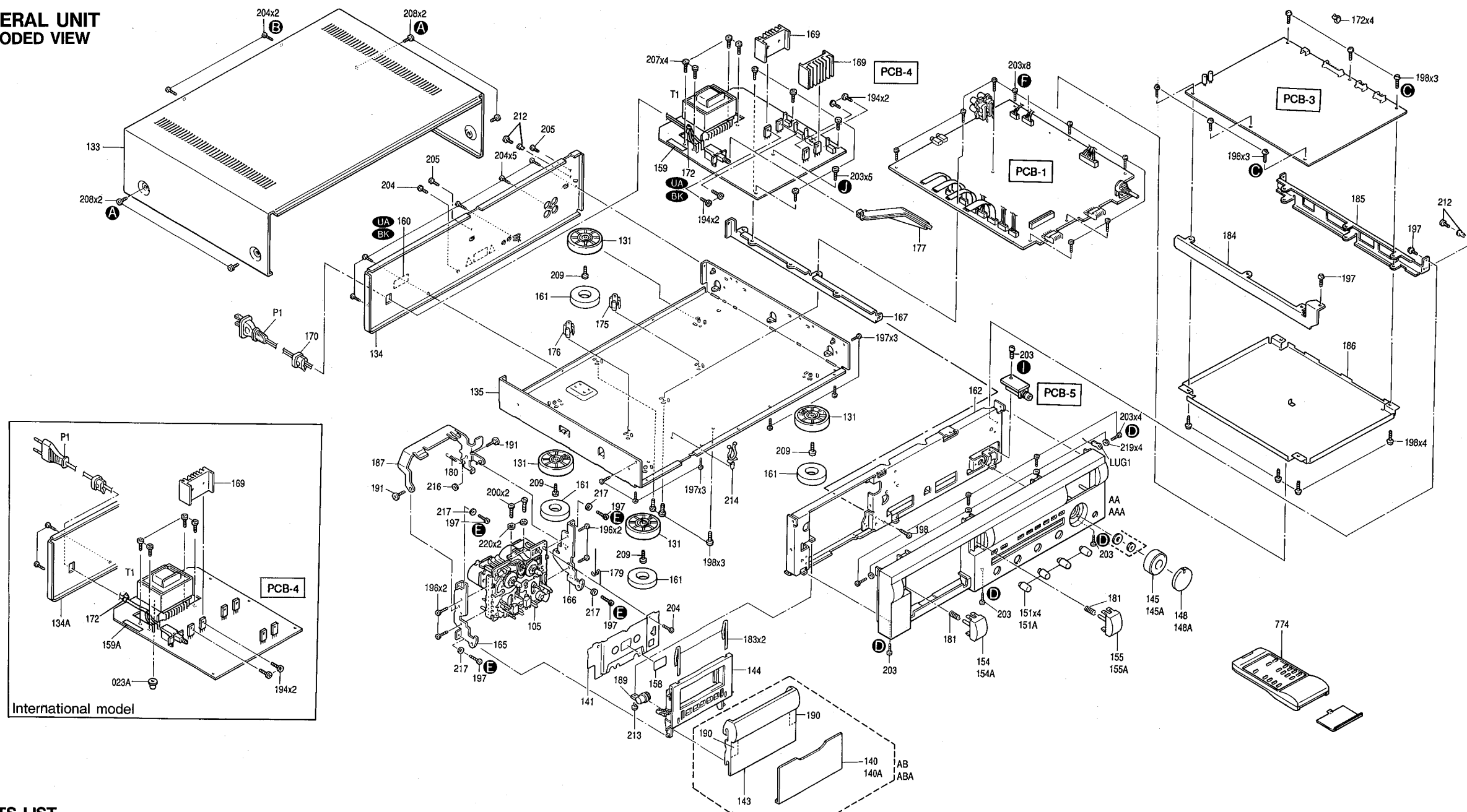
TM15 and TM17  
 TM3 and TM5  
 TM24 and TM25  
 TM11 and TM12

| 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 11.                                                                                                                                                                 |
| 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    | Playback output level                                           | VTVM<br>Test tape (MTT-150 or TCC-130)                                                              |                                                                                                                                                                                       | PB                                   | TP501 (Lch), GND<br>TP502 (Rch), GND                   | VR103 (Lch)<br>VR104 (Rch)                               | 388mV<br>This adjustment should be at Dolby S type NR ON position.                                                                                                                                                          |
| 5    | Record calibration tone                                         | VTVM                                                                                                |                                                                                                                                                                                       | REC/PAUSE<br>Rec. Cal.<br>(SW921) ON | TP501 (Lch), GND<br>TP502 (Rch), GND                   | VR602                                                    | 388mV<br>So that the frequency response is around 400Hz.                                                                                                                                                                    |
| 6    | Bias tone                                                       | VTVM                                                                                                |                                                                                                                                                                                       | REC/PAUSE<br>Bias tone<br>(SW907) ON | TP501 (Lch), GND<br>TP502 (Rch), GND                   | VR603<br>VR601                                           | 388mV -20dB (39mV about 400Hz)<br>338mV -20dB (39mV about 12.5kHz)                                                                                                                                                          |
| 7    | Music search                                                    | Oscilloscope<br>Test tape (SCC-1425)                                                                |                                                                                                                                                                                       | FORWARD<br>SEARCH                    | TP751, GND                                             | VR751                                                    | 1.6 $\pm$ 0.05V                                                                                                                          |
| 8    | 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 resistors of R133 and R134 so that the frequency response is within the range as shown in Fig. a.                                                                                                                  |
| 9    | Bias frequency                                                  | Frequency counter                                                                                   |                                                                                                                                                                                       | REC                                  | TP101 (Lch), GND<br>TP102 (Rch), GND                   | T301                                                     | 105kHz $\pm$ 3kHz<br>Tape selector is METAL position.                                                                                                                                                                       |
| 10   | Dolby HX (Step up)                                              | VTVM                                                                                                |                                                                                                                                                                                       | REC                                  | 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.                                                                      |
| 11   | Bias trap                                                       | VTVM                                                                                                |                                                                                                                                                                                       | REC                                  | TP201 (Lch), GND<br>TP202 (Rch), GND                   | LC201, LC203<br>LC202, LC204                             | Minimum output at minimum position of input volume.<br>Tape selector is METAL position.                                                                                                                                     |
| 12   | Bias level (pre-adjustment)                                     | VTVM                                                                                                |                                                                                                                                                                                       | REC                                  | 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.                                                                                                                                                                                       |
| 13   | Record level (pre-adjustment)                                   | VTVM<br>Distortion meter<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. |
| 14   | 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.                                                                                              |
| 15   | 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.                                                                                                                       |
| 16   | 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.                                                                                                                                                                                      |
| 17   | 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 >30dB at 19kHz.                                                                                                                                                                              |
| 18   | 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 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                                            |                                                          | Perform checking with Dolby B, C and S NR ON at each tape selector position.<br>Confirm the record/playback frequency characteristic is within $\pm$ 3dB at 20Hz to 20kHz. (Refer to Fig. b, c and d.)                      |

| Step | Alignment                                                       | Instrument Required                                                                                 | Input Signal                                                                                                                                                                          | M                   |
|------|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| 1    | Azimuth                                                         | VTVM<br>Oscilloscope<br>Test tape (MTT-114 or TCC-153)                                              |                                                                                                                                                                                       | PB                  |
| 2    | Tape speed                                                      | Frequency counter<br>Test tape (MTT-111DN or TCC-112)                                               |                                                                                                                                                                                       | PB                  |
| 3    | Playback output level                                           | VTVM<br>Test tape (MTT-150 or TCC-130)                                                              |                                                                                                                                                                                       | PB                  |
| 4    | Playback output level                                           | VTVM<br>Test tape (MTT-150 or TCC-130)                                                              |                                                                                                                                                                                       | PB                  |
| 5    | Record calibration tone                                         | VTVM                                                                                                |                                                                                                                                                                                       | REC<br>Rec.<br>(SW) |
| 6    | Bias tone                                                       | VTVM                                                                                                |                                                                                                                                                                                       | REC<br>Bias<br>(SW) |
| 7    | Music search                                                    | Oscilloscope<br>Test tape (SCC-1425)                                                                |                                                                                                                                                                                       | FOR<br>SEA          |
| 8    | Playback frequency characteristic confirmation                  | VTVM<br>Test tape (TCC-1216 or TCC-162C and TCC-262C)                                               |                                                                                                                                                                                       | PB                  |
| 9    | Bias frequency                                                  | Frequency counter                                                                                   |                                                                                                                                                                                       | REC                 |
| 10   | Dolby HX (Step up)                                              | VTVM                                                                                                |                                                                                                                                                                                       | REC                 |
| 11   | Bias trap                                                       | VTVM                                                                                                |                                                                                                                                                                                       | REC                 |
| 12   | Bias level (pre-adjustment)                                     | VTVM                                                                                                |                                                                                                                                                                                       | REC                 |
|      |                                                                 |                                                                                                     |                                                                                                                                                                                       |                     |
|      |                                                                 |                                                                                                     |                                                                                                                                                                                       |                     |
| 13   | Record level (pre-adjustment)                                   | VTVM<br>Distortion meter<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                 |
| 14   | 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                 |
|      |                                                                 |                                                                                                     |                                                                                                                                                                                       |                     |
|      |                                                                 |                                                                                                     |                                                                                                                                                                                       |                     |
| 15   | 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                 |
| 16   | 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                 |
| 17   | 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.                                                               | RE<br>MP<br>ON      |
| 18   | 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 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. | RE                  |

|              | 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 11.                                                                                                                                                                 |
|              | 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.                                                                                                                                                                                      |
|              | PB                                   | TP501 (Lch), GND<br>TP502 (Rch), GND                   | VR103 (Lch)<br>VR104 (Rch)                               | 388mV<br>This adjustment should be at Dolby S type NR ON position.                                                                                                                                                          |
|              | REC/PAUSE<br>Rec. Cal.<br>(SW921) ON | TP501 (Lch), GND<br>TP502 (Rch), GND                   | VR602                                                    | 388mV<br>So that the frequency response is around 400Hz.                                                                                                                                                                    |
|              | REC/PAUSE<br>Bias tone<br>(SW907) ON | TP501 (Lch), GND                                       | VR603                                                    | 388mV -20dB (39mV about 400Hz)                                                                                                                                                                                              |
|              |                                      | TP502 (Rch), GND                                       | VR601                                                    | 338mV -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 resistors of R133 and R134 so that the frequency response is within the range as shown in Fig. a.                                                                                                                  |
|              | REC.                                 | TP101 (Lch), GND<br>TP102 (Rch), GND                   | T301                                                     | 105kHz $\pm$ 3kHz<br>Tape selector is METAL position.                                                                                                                                                                       |
|              | REC                                  | 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                                  | TP201 (Lch), GND<br>TP202 (Rch), GND                   | LC201, LC203<br>LC202, LC204                             | Minimum output at minimum position of input volume.<br>Tape selector is METAL position.                                                                                                                                     |
|              | REC                                  | 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.                                                                                                                                                                                       |
| that         | 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. |
| that<br>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.                                                                                                                       |
| that         | REC/PAUSE                            | PEAK LEVEL METER                                       | VR401<br>VR402                                           | Confirm peak level meter reads: - 1dB.                                                                                                                                                                                      |
| UT<br>8mV.   | 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.                                                                                                                                                                              |
| that<br>REC- | REC/PB                               | OUTPUT jack                                            |                                                          | Perform checking with Dolby B, C and S NR ON at each tape selector position.<br>Confirm the record/playback frequency characteristic is within $\pm$ 3dB at 20Hz to 20kHz. (Refer to Fig. b, c and d.)                      |

# GENERAL UNIT EXPLODED VIEW



## PARTS LIST

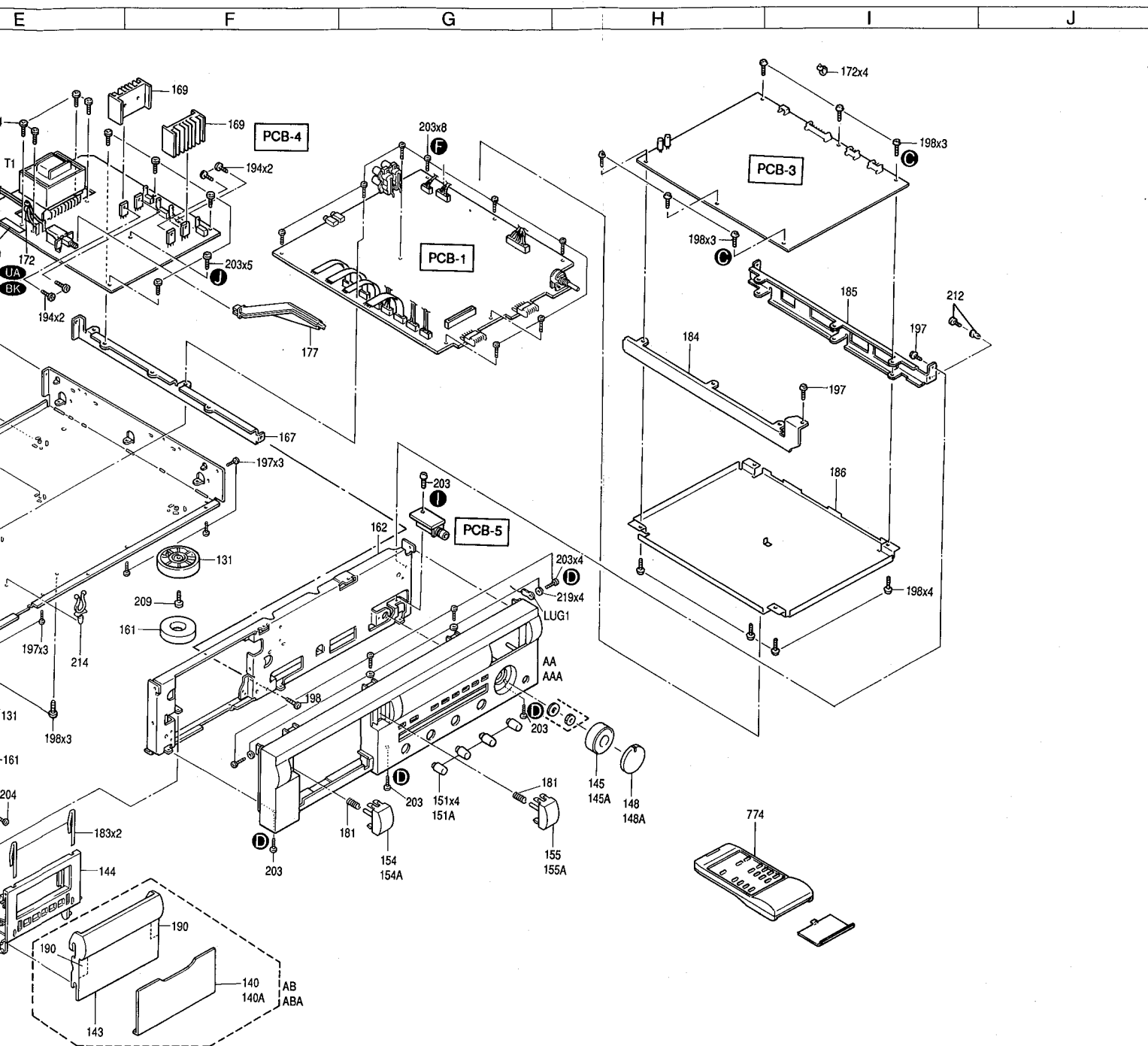
| Ref. No. | Part No.     | Description                            | Ref. No. | Part No.      | Description                     | Ref. No. | Part No.      | Description           | Ref. No. | Part No.      | Description                        |
|----------|--------------|----------------------------------------|----------|---------------|---------------------------------|----------|---------------|-----------------------|----------|---------------|------------------------------------|
| AA       | A442-TD4600A | FRONT PANEL ASS'Y <b>UA</b> <b>I</b>   | 148A     | 1630-04501    | ROTARY KNOB <b>BK</b> <b>IB</b> | 176      | 2360-7063     | BOSS                  | 205      | 2347-R0130084 | SCREW (3×8mm)                      |
| AAA      | A442-TD4600B | FRONT PANEL ASS'Y <b>BK</b> <b>IB</b>  | 151      | 1632-20402    | ROTARY KNOB <b>UA</b> <b>I</b>  | 177      | 2601-7192     | SHAFT                 | 207      | 2347-R0140062 | SCREW (4×6mm)                      |
| AB       | A532-TD4600A | CASSETTE LID ASS'Y <b>UA</b> <b>I</b>  | 151A     | 1632-20401    | ROTARY KNOB <b>BK</b> <b>IB</b> | 179      | 2651-047      | SPRING                | 208      | 2347-R0140064 | SCREW (4×6mm)                      |
| ABA      | A532-TD4600B | CASSETTE LID ASS'Y <b>BK</b> <b>IB</b> | 154      | 1662-58403    | PUSH BUTTON <b>UA</b> <b>I</b>  | 180      | 2651-11212    | SPRING, LEVER         | 209      | 2347-R0140082 | SCREW (4×8mm)                      |
| 023A     | 2132-7169    | SPACER <b>I</b> <b>IB</b>              | 154A     | 1662-58401    | PUSH BUTTON <b>BK</b> <b>IB</b> | 181      | 2651-2101732  | SPRING                | 212      | 2347-3003511  | RIVET, PLASTIC                     |
| 105      | 3112-13706   | CASSETTE TAPE RECORDER MECHANISM ASS'Y | 155      | 1662-58404    | PUSH BUTTON <b>UA</b> <b>I</b>  | 183      | 2652-105      | LEAF SPRING           | 213      | 2459-3005511  | RIVET, PLASTIC                     |
| 131      | 1319-02301   | LEG                                    | 155A     | 1662-58402    | PUSH BUTTON <b>BK</b> <b>IB</b> | 184      | 2219-8294     | METAL FITTING         | 214      | 2240-7049     | HOLDER                             |
| 133      | 1414-15902   | CABINET, TOP COVER                     | 158      | 1741-01601    | ORNAMENT                        | 185      | 2219-8295     | METAL FITTING         | 216      | 2403-303      | WASHER, POLY                       |
| 134      | 1424-31603   | CABINET BACK, REAR <b>UA</b> <b>BK</b> | 159      | 1756-R011N801 | LABEL, FUSE <b>UA</b> <b>BK</b> | 186      | 2216-7190     | SHIELD PLATE          | 217      | 2414-302      | WASHER, TOOTHED                    |
| 134A     | 1424-31607   | CABINET BACK, REAR <b>I</b> <b>IB</b>  | 159A     | 1756-R01TS161 | LABEL, FUSE <b>I</b> <b>IB</b>  | 187      | 2672-7044     | LEVER                 | 219      | 2411-30Z1     | WASHER, PLAIN                      |
| 135      | 1424-31702   | CABINET BACK, BOTTOM                   | 160      | 1756-CSA      | LABEL <b>UA</b> <b>BK</b>       | 189      | 2692-016      | DAMPER                | 220      | 2411-40Z1     | WASHER, PLAIN                      |
| 140      | 1512-06807   | PLATE <b>UA</b> <b>I</b>               | 161      | 2111-244      | FELT                            | 190      | 2111-11401    | FELT, CASSETTE WINDOW | 774      | 6142-02703    | REMOTE CONTROL ASS'Y               |
| 140A     | 1512-06803   | PLATE <b>BK</b> <b>IB</b>              | 162      | 2111-7311     | CHASSIS                         | 191      | 2320-044      | SCREW, SPECIAL        | LUG1     | 4211-5005     | LUG TERMINAL                       |
| 141      | 1514-23201   | PLATE                                  | 165      | 2219-8288     | METAL FITTING                   | 194      | 2327-R0130082 | SCREW (3×8mm)         | △ P1     | 4161-71151    | CORD W/PLUG <b>UA</b> <b>BK</b>    |
| 143      | 1532-19501   | WINDOW                                 | 166      | 2219-8289     | METAL FITTING                   | 196      | 2347-300527   | SCREW                 | △ P1     | 4161-7256     | CORD W/PLUG <b>I</b> <b>IB</b>     |
| 144      | 1612-07401   | CASSETTE LID                           | 167      | 2219-8293     | METAL FITTING                   | 197      | 2347-R0130062 | SCREW (3×6mm)         | △ T1     | 5584-S8301    | XFORMER, POWER <b>UA</b> <b>BK</b> |
| 145      | 1630-04402   | ROTARY KNOB <b>UA</b> <b>I</b>         | 169      | 2222-7281     | HEAT SINK                       | 198      | 2347-R0130062 | SCREW (3×6mm)         | △ T1     | 5584-S8302    | XFORMER, POWER <b>I</b> <b>IB</b>  |
| 145A     | 1630-04401   | ROTARY KNOB <b>BK</b> <b>IB</b>        | 170      | 2240-364      | HOLDER                          | 200      | 2343-300627   | SCREW                 |          |               |                                    |
| 148      | 1630-04502   | ROTARY KNOB <b>UA</b> <b>I</b>         | 172      | 2240-R0101    | HOLDER                          | 203      | 2347-R0130082 | SCREW (3×8mm)         |          |               |                                    |
|          |              |                                        | 175      | 2360-7022     | BOSS                            | 204      | 2347-R0130084 | SCREW (3×8mm)         |          |               |                                    |

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

1  
2  
3  
4  
5  
6  
7



| Ref. No. | Part No.      | Description                                                                                                                                                                             |
|----------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 148A     | 1630-04501    | ROTARY KNOB   |
| 151      | 1632-20402    | ROTARY KNOB   |
| 151A     | 1632-20401    | ROTARY KNOB   |
| 154      | 1662-58403    | PUSH BUTTON   |
| 154A     | 1662-58401    | PUSH BUTTON   |
| 155      | 1662-58404    | PUSH BUTTON   |
| 155A     | 1662-58402    | PUSH BUTTON   |
| 158      | 1741-01601    | ORNAMENT                                                                                                                                                                                |
| 159      | 1756-R011N801 | LABEL, FUSE   |
| 159A     | 1756-R01TS161 | LABEL, FUSE   |
| 160      | 1756-CSA      | LABEL         |
| 161      | 2111-244      | FELT                                                                                                                                                                                    |
| 162      | 2211-7311     | CHASSIS                                                                                                                                                                                 |
| 165      | 2219-8288     | METAL FITTING                                                                                                                                                                           |
| 166      | 2219-8289     | METAL FITTING                                                                                                                                                                           |
| 167      | 2219-8293     | METAL FITTING                                                                                                                                                                           |
| 169      | 2222-7281     | HEAT SINK                                                                                                                                                                               |
| 170      | 2240-364      | HOLDER                                                                                                                                                                                  |
| 172      | 2240-R0101    | HOLDER                                                                                                                                                                                  |
| 175      | 2360-7022     | BOSS                                                                                                                                                                                    |



## Ref. No. Part No.

## Description

|     |               |                       |
|-----|---------------|-----------------------|
| 176 | 2360-7063     | BOSS                  |
| 177 | 2601-7192     | SHAFT                 |
| 179 | 2651-047      | SPRING                |
| 180 | 2651-11212    | SPRING, LEVER         |
| 181 | 2651-2101732  | SPRING                |
| 183 | 2652-105      | LEAF SPRING           |
| 184 | 2219-8294     | METAL FITTING         |
| 185 | 2219-8295     | METAL FITTING         |
| 186 | 2216-7190     | SHIELD PLATE          |
| 187 | 2672-7044     | LEVER                 |
| 189 | 2692-016      | DAMPER                |
| 190 | 2111-11401    | FELT, CASSETTE WINDOW |
| 191 | 2320-044      | SCREW, SPECIAL        |
| 194 | 2327-R0130082 | SCREW (3×8mm)         |
| 196 | 2347-300527   | SCREW                 |
| 197 | 2347-R0130062 | SCREW (3×6mm)         |
| 198 | 2347-R0130062 | SCREW (3×6mm)         |
| 200 | 2343-300627   | SCREW                 |
| 203 | 2347-R0130082 | SCREW (3×8mm)         |
| 204 | 2347-R0130084 | SCREW (3×8mm)         |

## Ref. No. Part No.

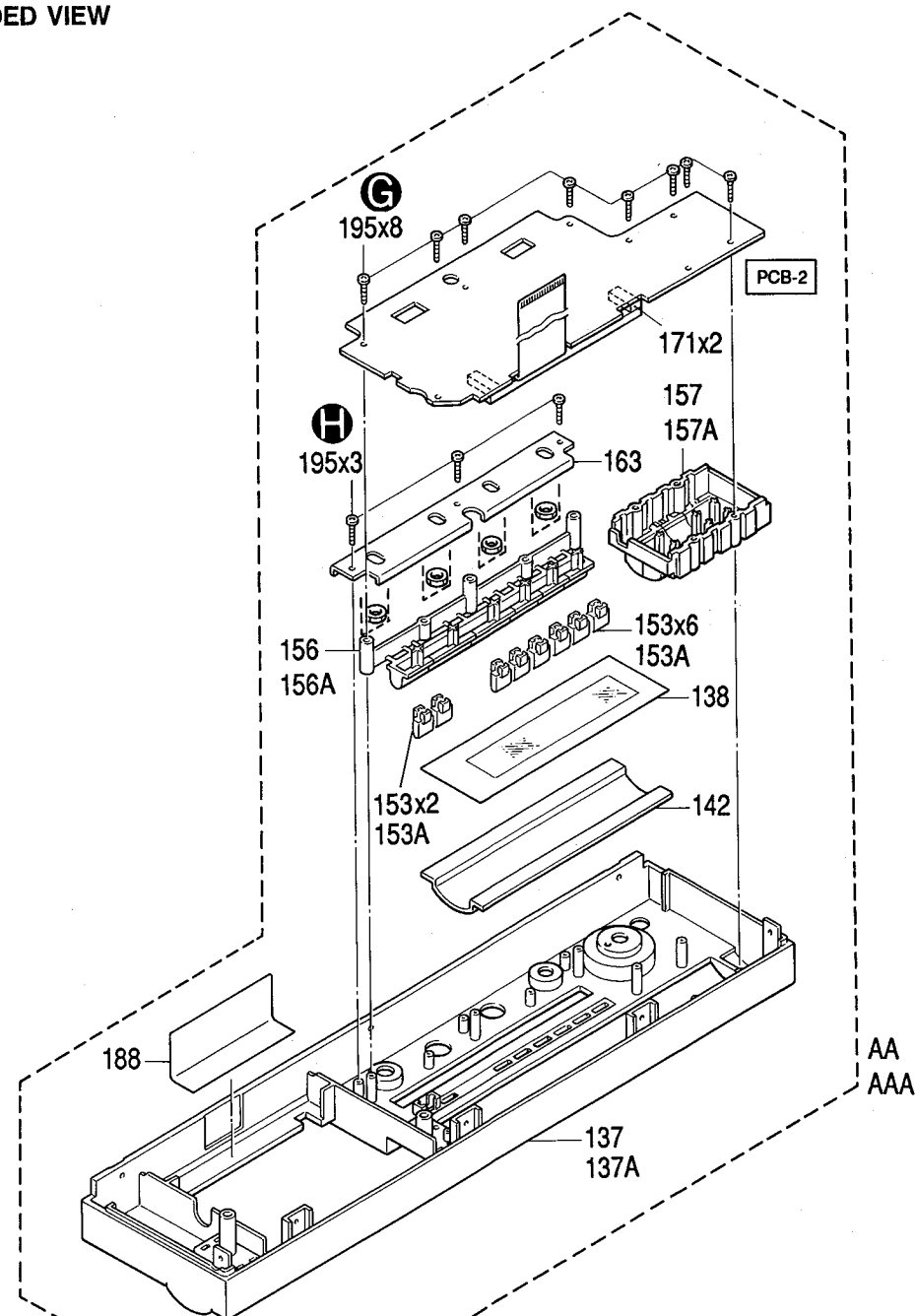
## Description

|      |               |                      |
|------|---------------|----------------------|
| 205  | 2347-R0130084 | SCREW (3×8mm)        |
| 207  | 2347-R0140062 | SCREW (4×6mm)        |
| 208  | 2347-R0140064 | SCREW (4×6mm)        |
| 209  | 2347-R0140082 | SCREW (4×8mm)        |
| 212  | 2347-3003511  | RIVET, PLASTIC       |
| 213  | 2459-3005511  | RIVET, PLASTIC       |
| 214  | 2240-7049     | HOLDER               |
| 216  | 2403-303      | WASHER, POLY         |
| 217  | 2414-302      | WASHER, TOOTHED      |
| 219  | 2411-3021     | WASHER, PLAIN        |
| 220  | 2411-4021     | WASHER, PLAIN        |
| 774  | 6142-02703    | REMOTE CONTROL ASS'Y |
| LUG1 | 4211-5005     | LUG TERMINAL         |
| △P1  | 4161-71151    | CORD W/PLUG UA BK    |
| △P1  | 4161-7256     | CORD W/PLUG I IB     |
| △T1  | 5584-S8301    | XFORMER, POWER UA BK |
| △T1  | 5584-S8302    | XFORMER, POWER I IB  |

## NOTE

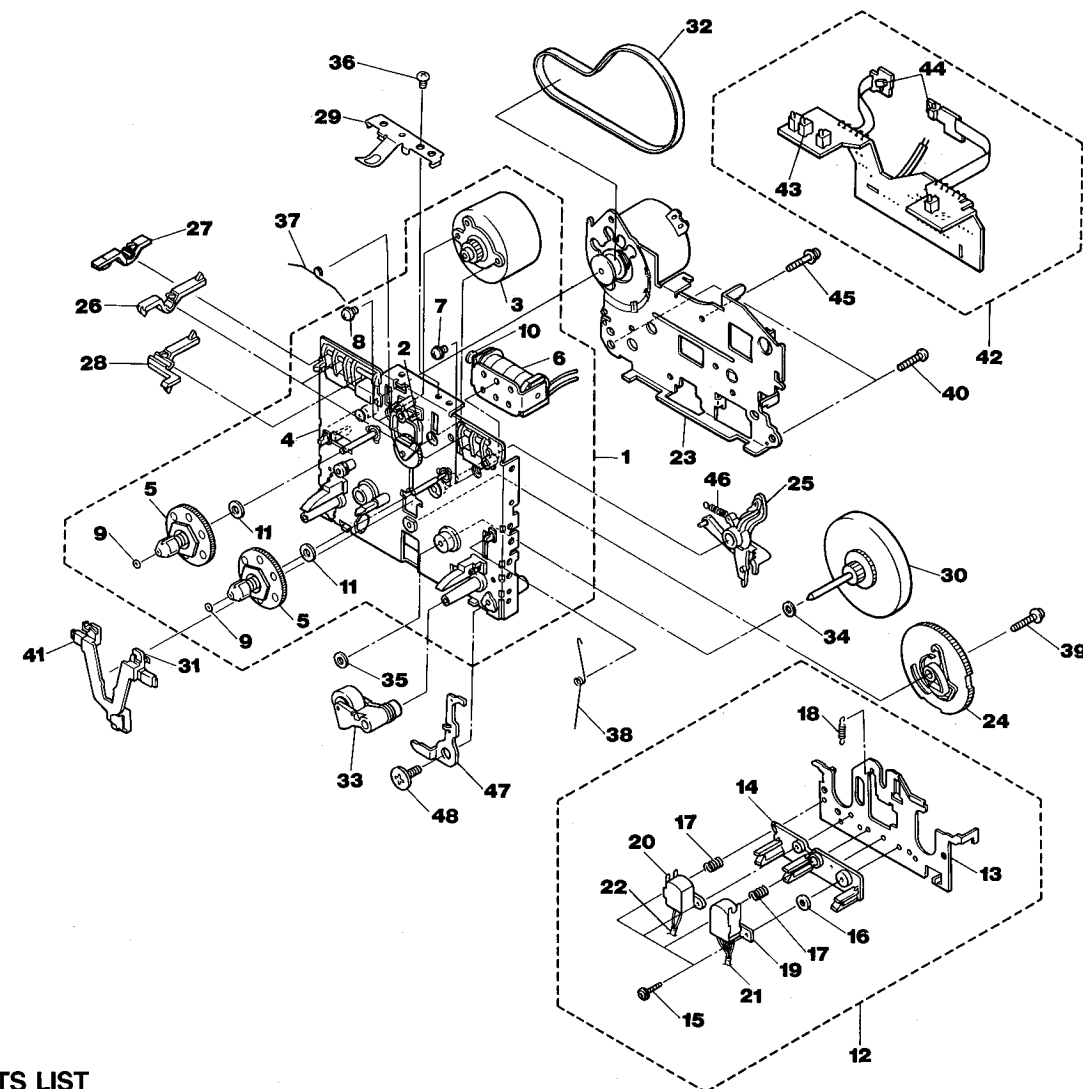
SAFETY RELATED COMPONENT. USE ONLY EXACT REPLACEMENT PART AS SPECIFIED.

## EXPLODED VIEW



## PARTS LIST

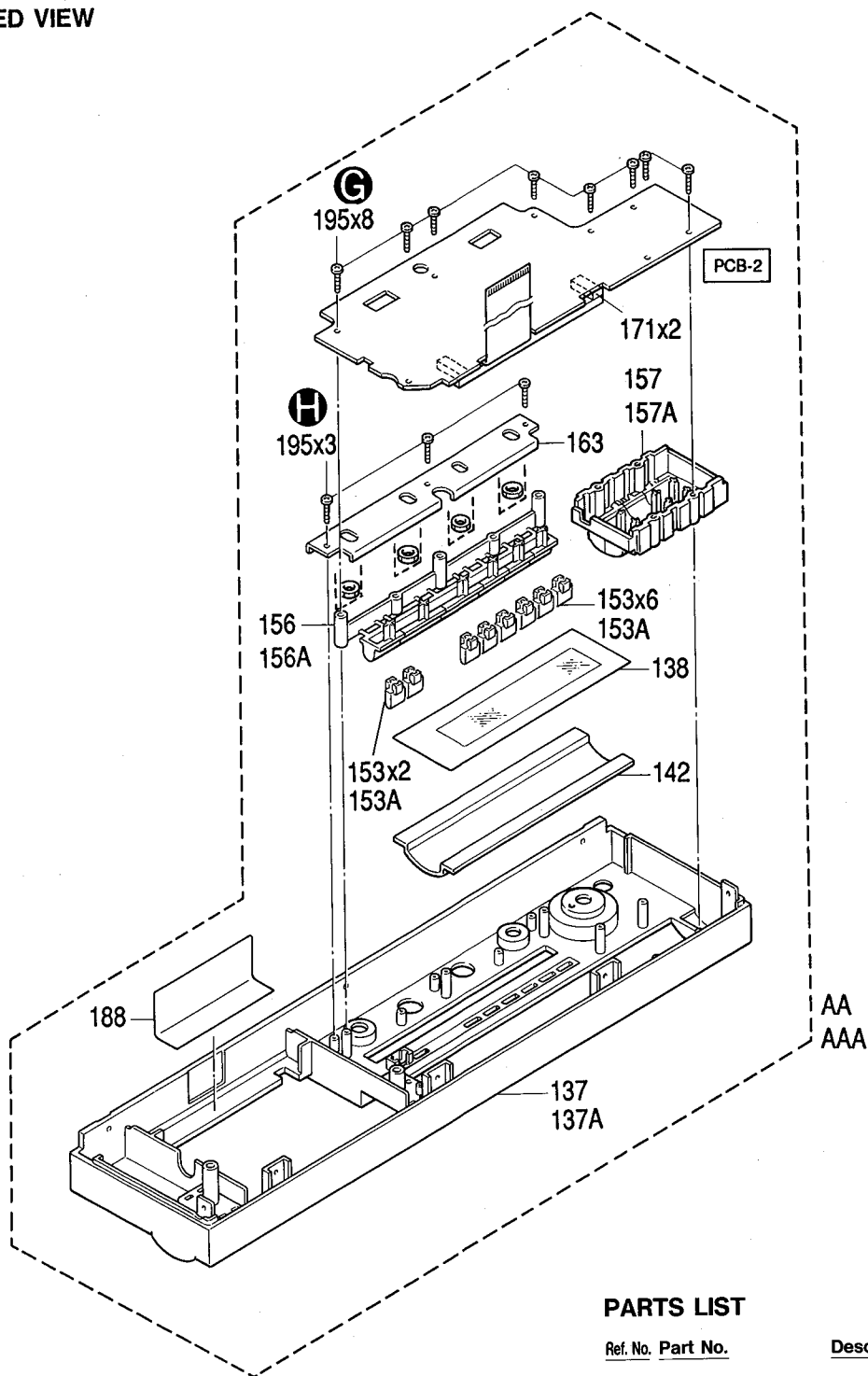
| Ref. No. | Part No.      | Description             |
|----------|---------------|-------------------------|
| AA       | A442-TD4600A  | FRONT PANEL ASS'Y UA I  |
| AAA      | A442-TD4600B  | FRONT PANEL ASS'Y BK IB |
| 137      | 1442-24409    | PANEL UA I              |
| 137A     | 1442-24403    | PANEL BK IB             |
| 138      | 1511-19807    | PLATE                   |
| 142      | 1532-17505    | WINDOW                  |
| 153      | 1662-52303    | PUSH BUTTON UA I        |
| 153A     | 1662-52301    | PUSH BUTTON BK IB       |
| 156      | 1662-58502    | PUSH BUTTON UA I        |
| 156A     | 1662-58501    | PUSH BUTTON BK IB       |
| 157      | 1662-52204    | PUSH BUTTON UA I        |
| 157A     | 1662-52203    | PUSH BUTTON BK IB       |
| 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)                    |

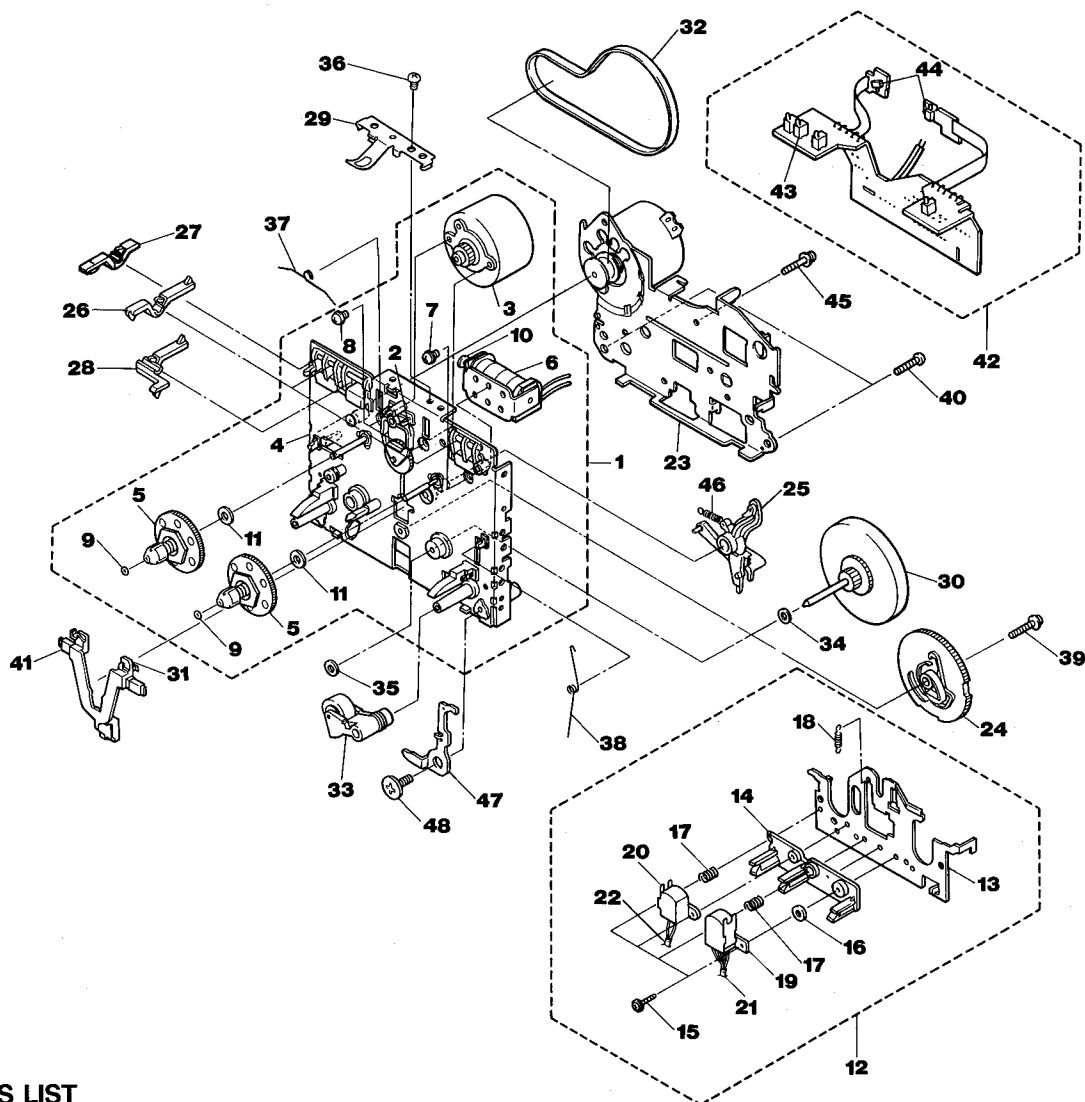
## EXPLODED VIEW



## PARTS LIST

| Ref. No. | Part No.      | Description             |
|----------|---------------|-------------------------|
| AA       | A442-TD4600A  | FRONT PANEL ASS'Y UA I  |
| AAA      | A442-TD4600B  | FRONT PANEL ASS'Y BK IB |
| 137      | 1442-24409    | PANEL UA I              |
| 137A     | 1442-24403    | PANEL BK IB             |
| 138      | 1511-19807    | PLATE                   |
| 142      | 1532-17505    | WINDOW                  |
| 153      | 1662-52303    | PUSH BUTTON UA I        |
| 153A     | 1662-52301    | PUSH BUTTON BK IB       |
| 156      | 1662-58502    | PUSH BUTTON UA I        |
| 156A     | 1662-58501    | PUSH BUTTON BK IB       |
| 157      | 1662-52204    | PUSH BUTTON UA I        |
| 157A     | 1662-52203    | PUSH BUTTON BK IB       |
| 163      | 2219-8284     | METAL FITTING           |
| 171      | 2240-7370     | HOLDER                  |
| 188      | 2216-7195     | SHIELD PLATE            |
| 195      | 2347-R0126082 | SCREW (2.6×8mm)         |

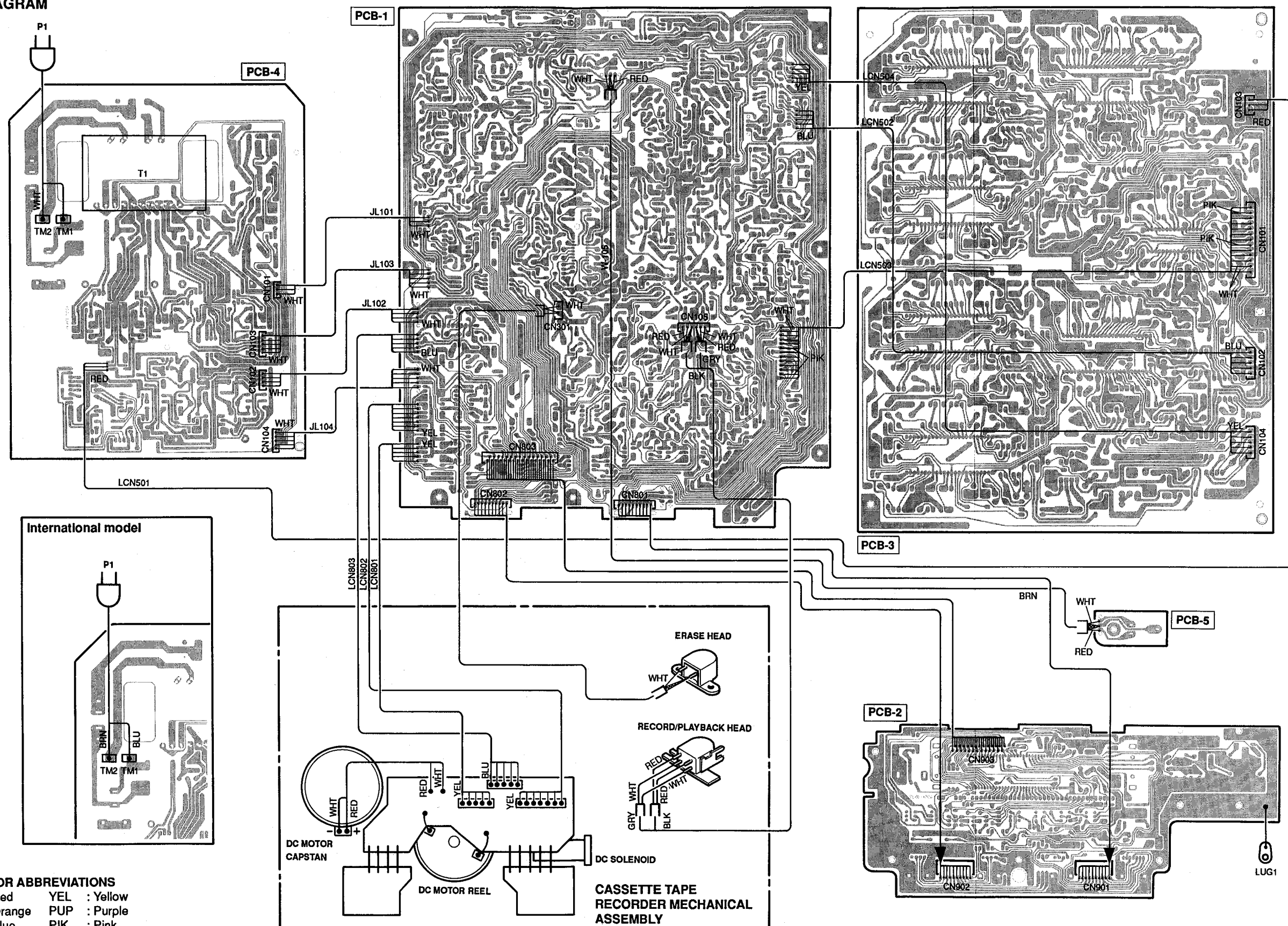
# CASSETTE TAPE RECORDER MECHANISM EXPLODED VIEW



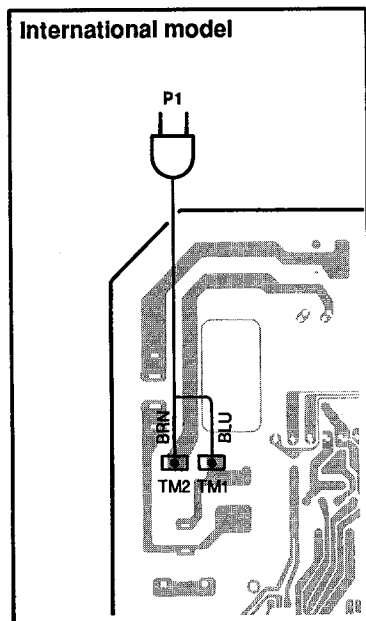
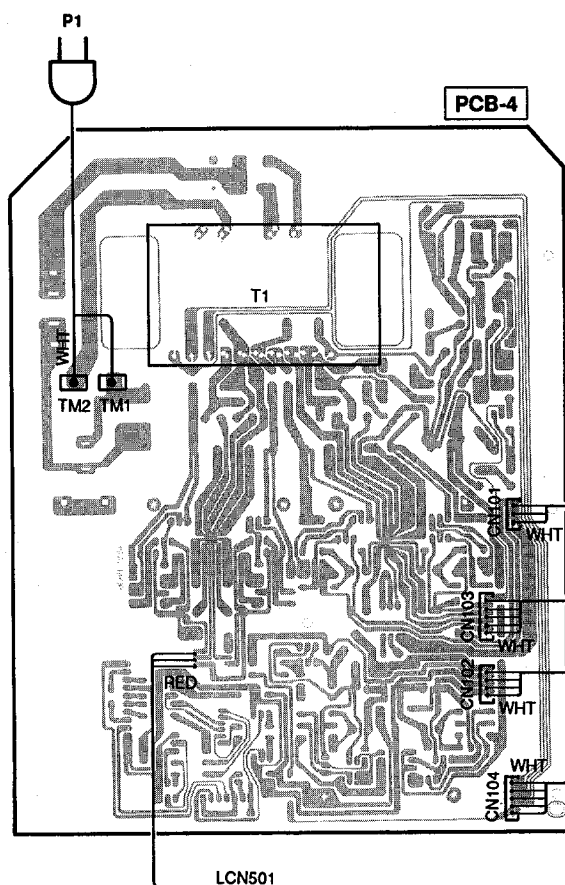
## PARTS LIST

| 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

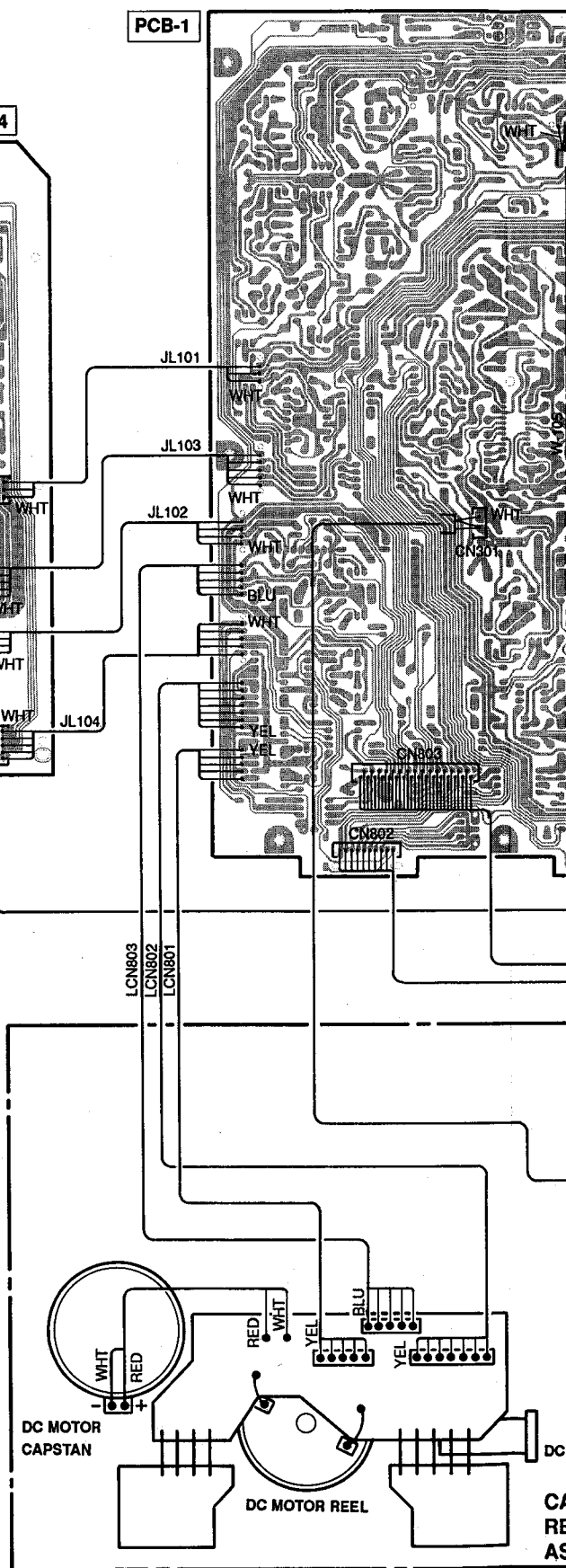


# WIRING DIAGRAM

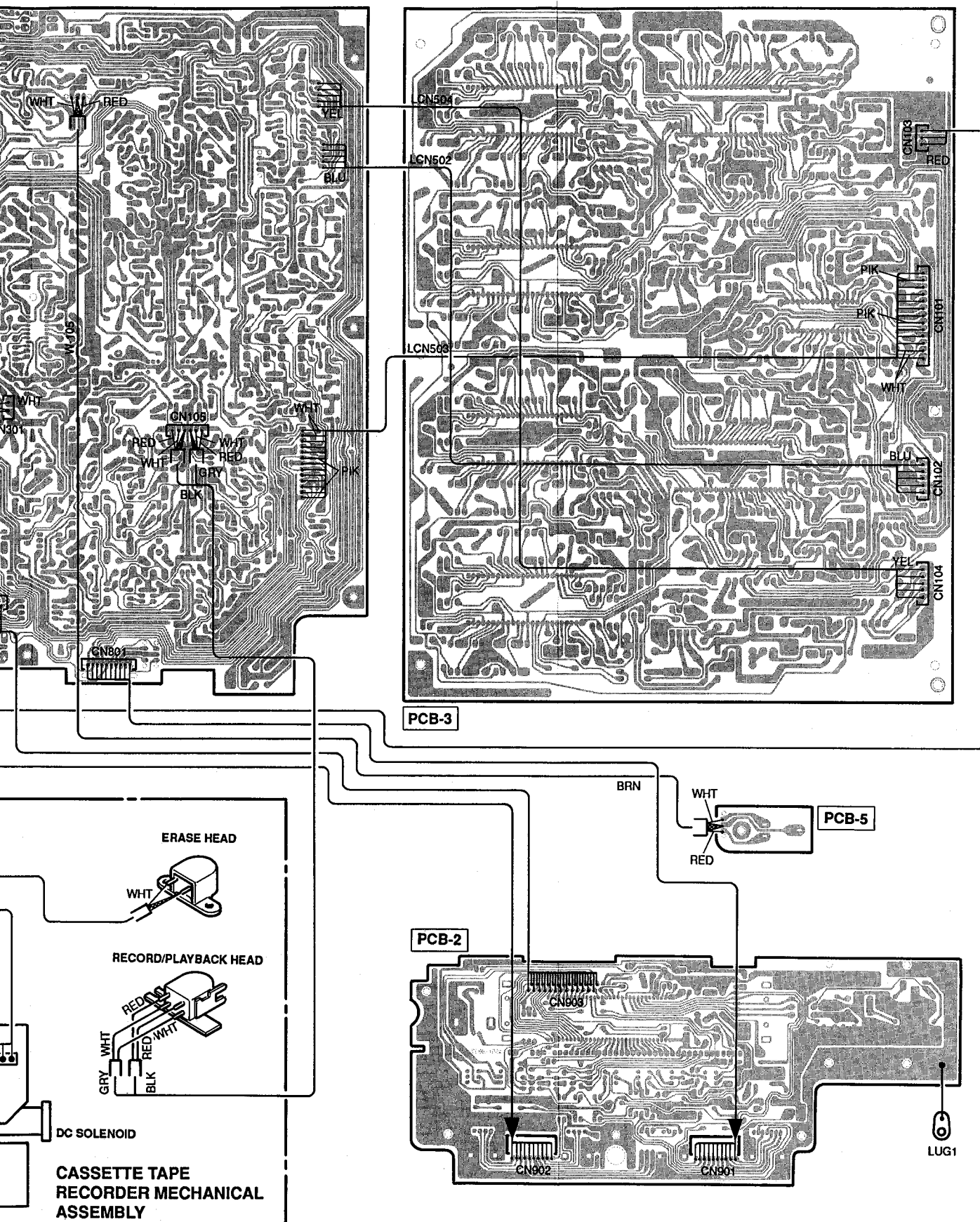


## WIRE COLOR ABBREVIATIONS

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

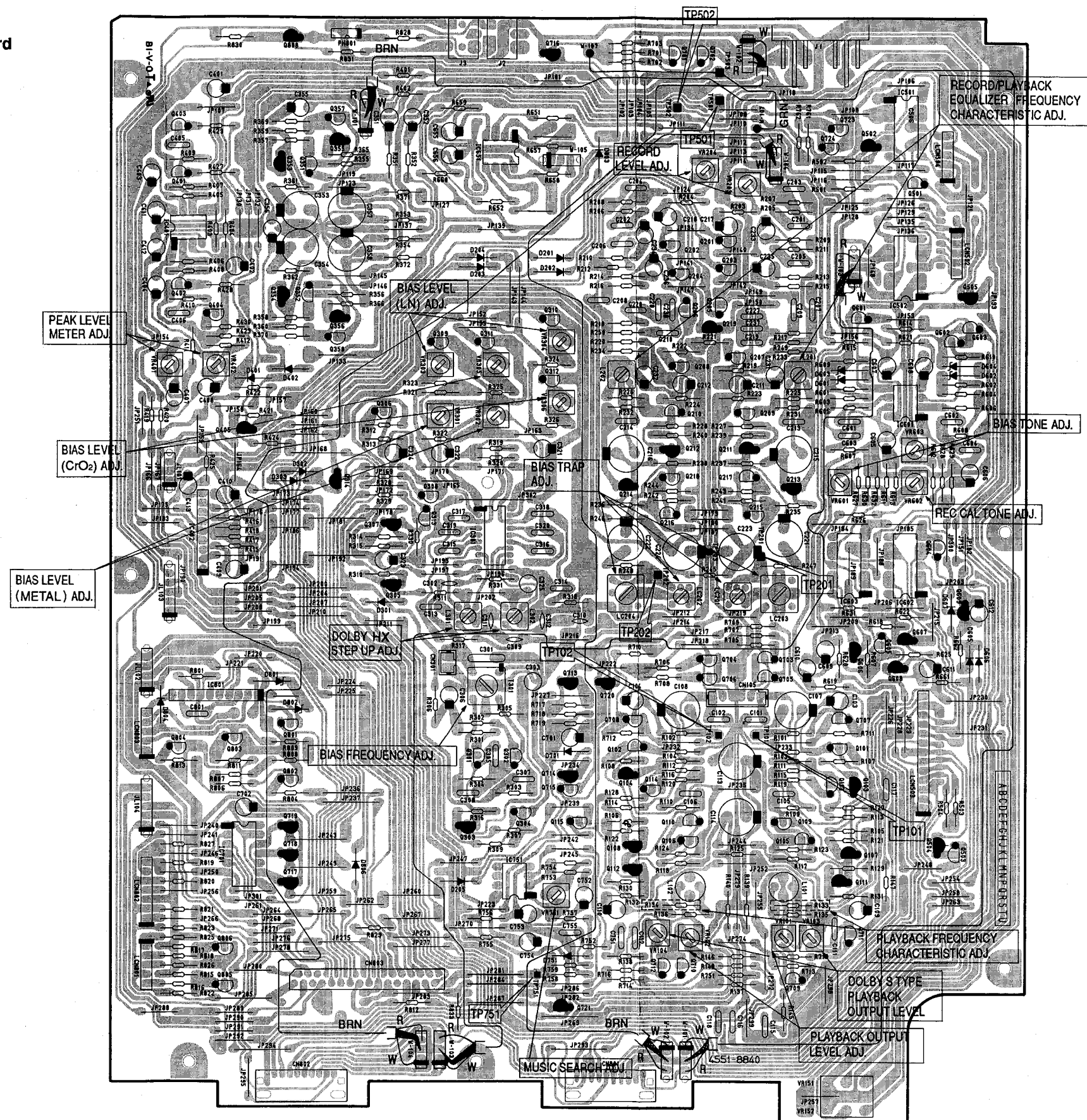


E F G H I J

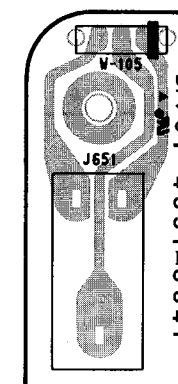


## P. C. BOARDS (1)

PCB-1 Main P. C. Board



PCB-5 Headphone P. C. Board

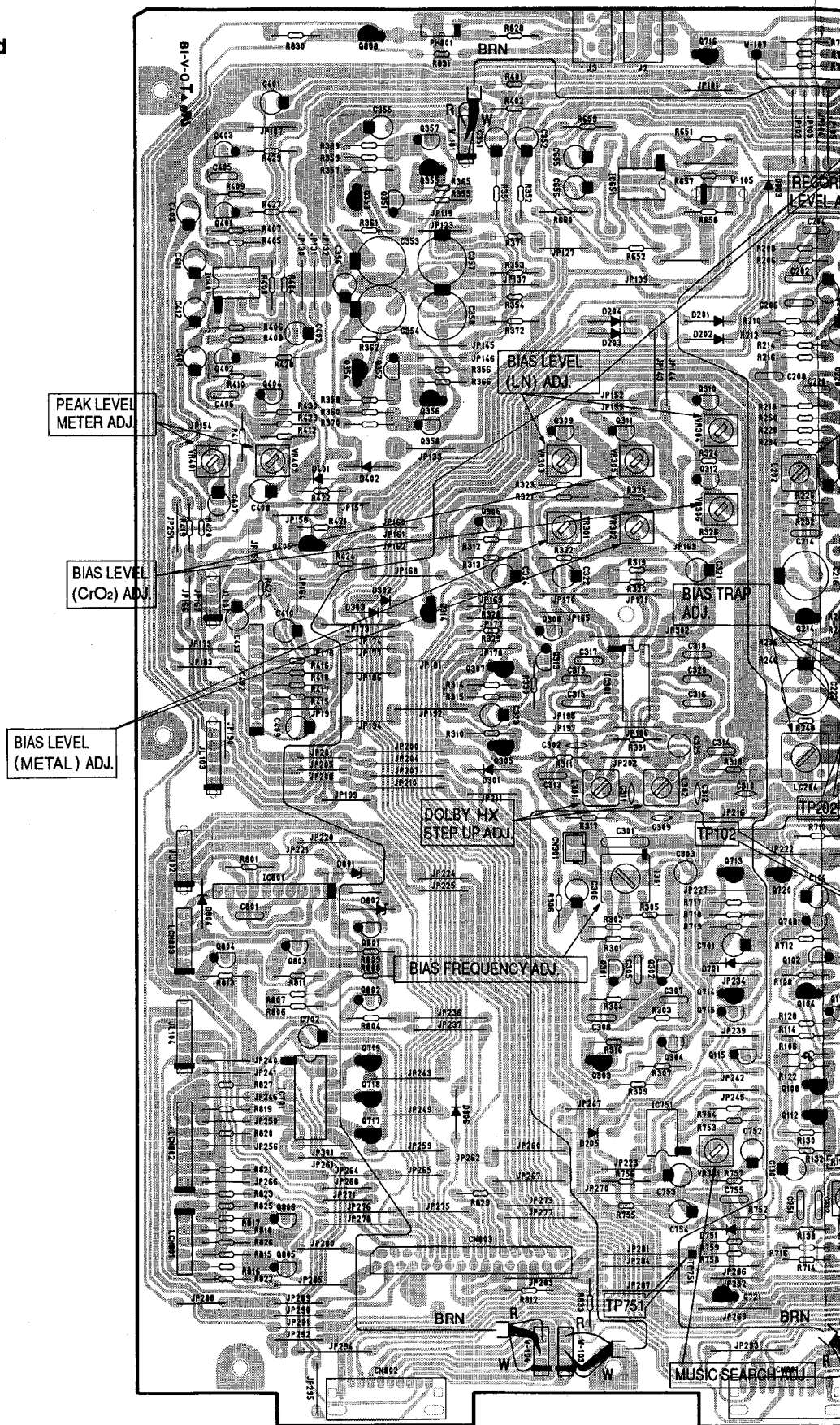


## WIRE COLOR ABBREVIATIONS

R : Red  
W : White  
BRN : Brown

**PCB-1 Main P. C. Board**

**PCB-1 Main P. C. Board**



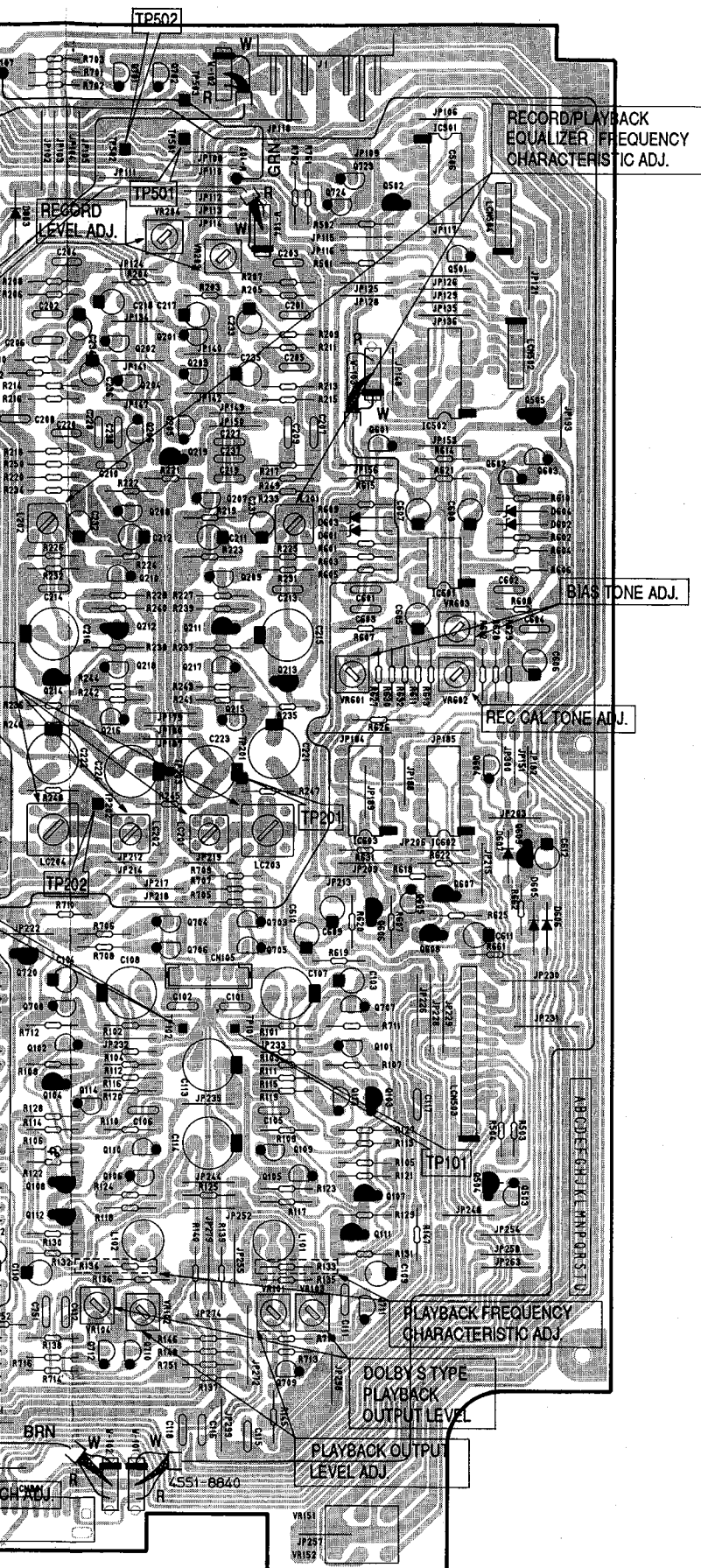
F

G

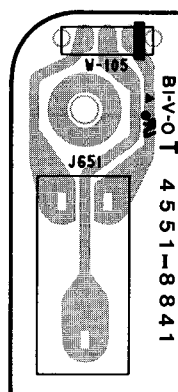
H

I

J



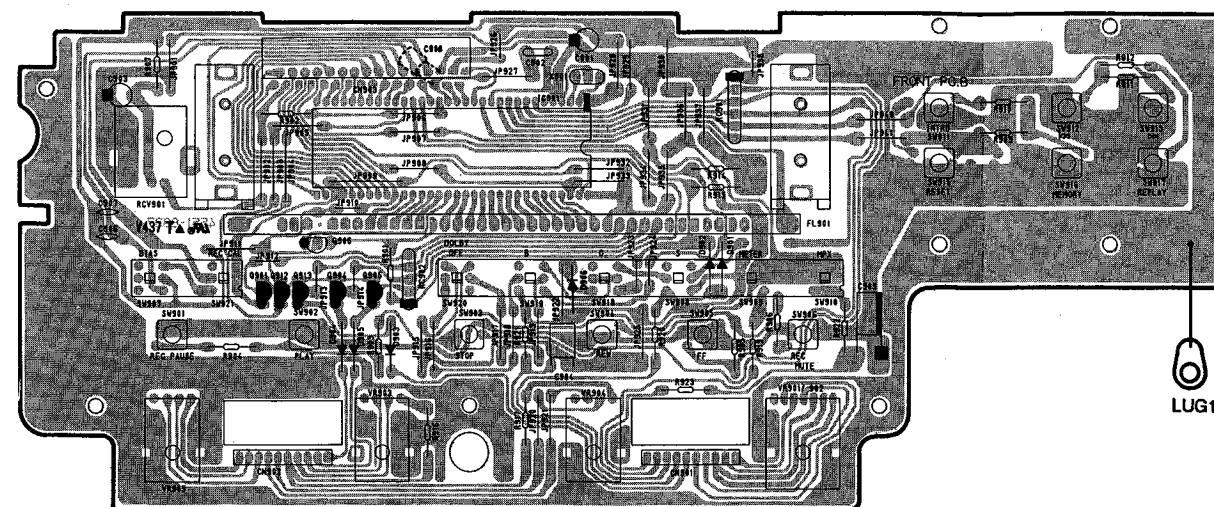
**PCB-5** Headphone P. C. Board



#### WIRE COLOR ABBREVIATIONS

R : Red  
 W : White  
 BRN : Brown

P. C. BOARDS (2)

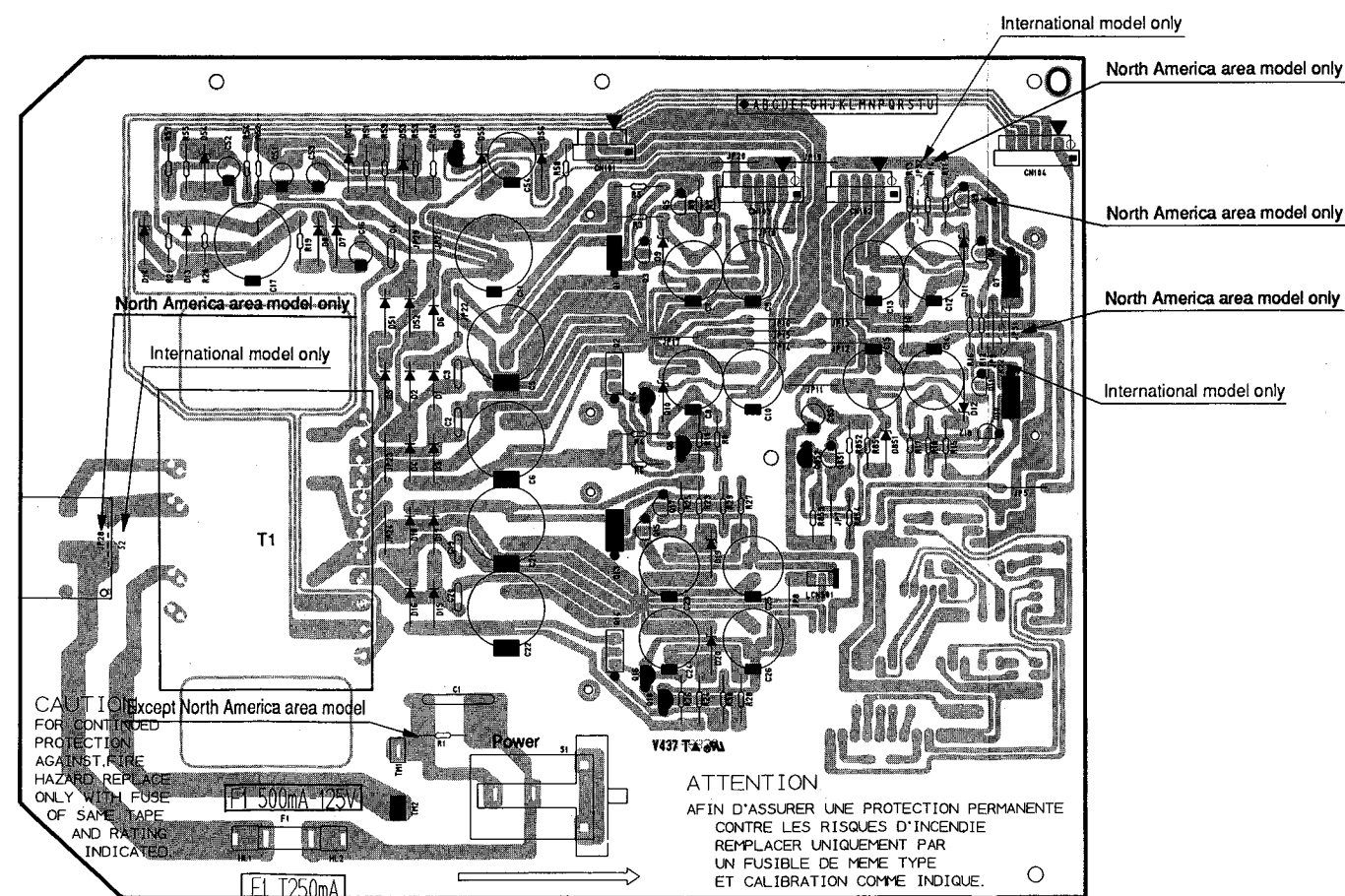


PCB-2

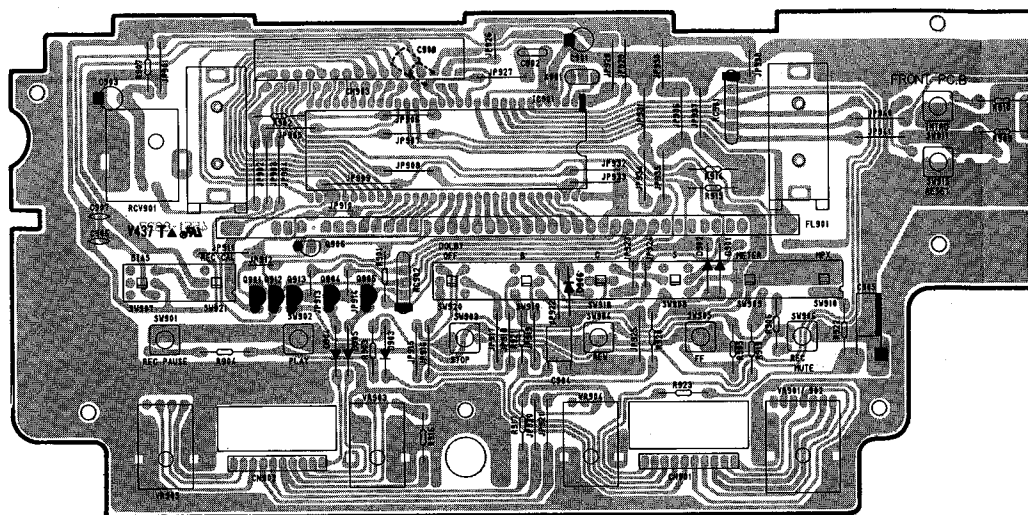
Front P. C. Board

PCB-4

Power P. C. Board

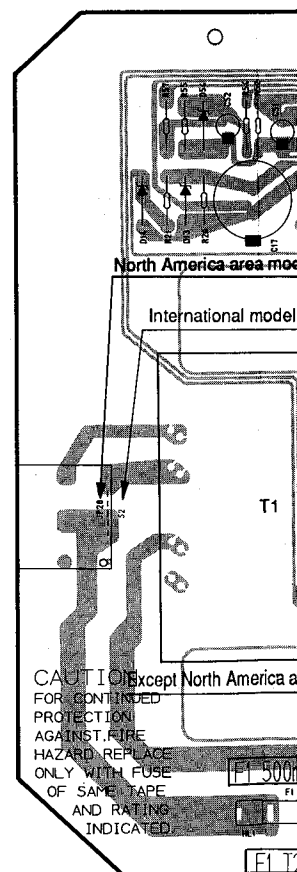


# P. C. BOARDS (2)

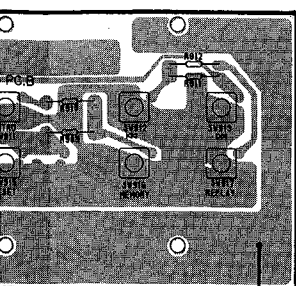


PCB-4

Power P. C. Board



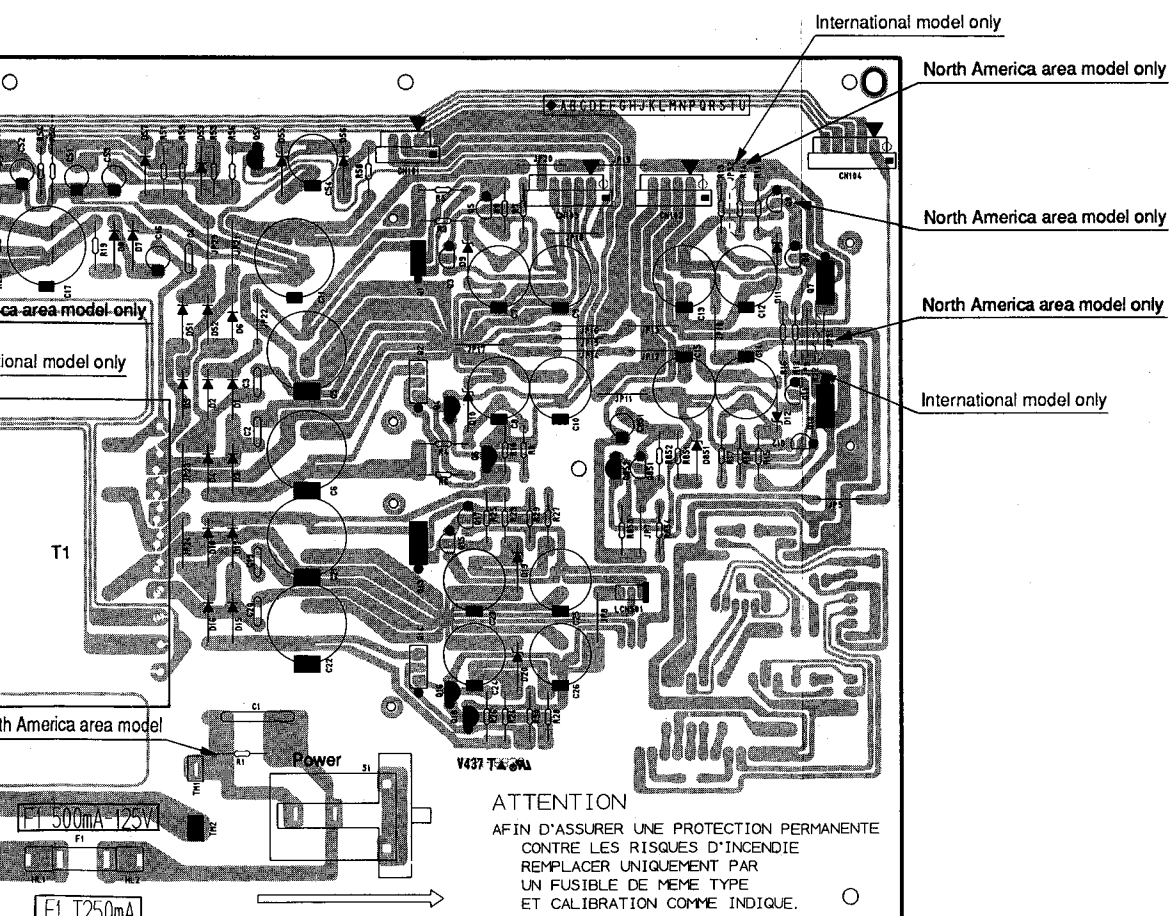
|   |   |   |   |   |   |
|---|---|---|---|---|---|
| E | F | G | H | I | J |
|---|---|---|---|---|---|



LUG1

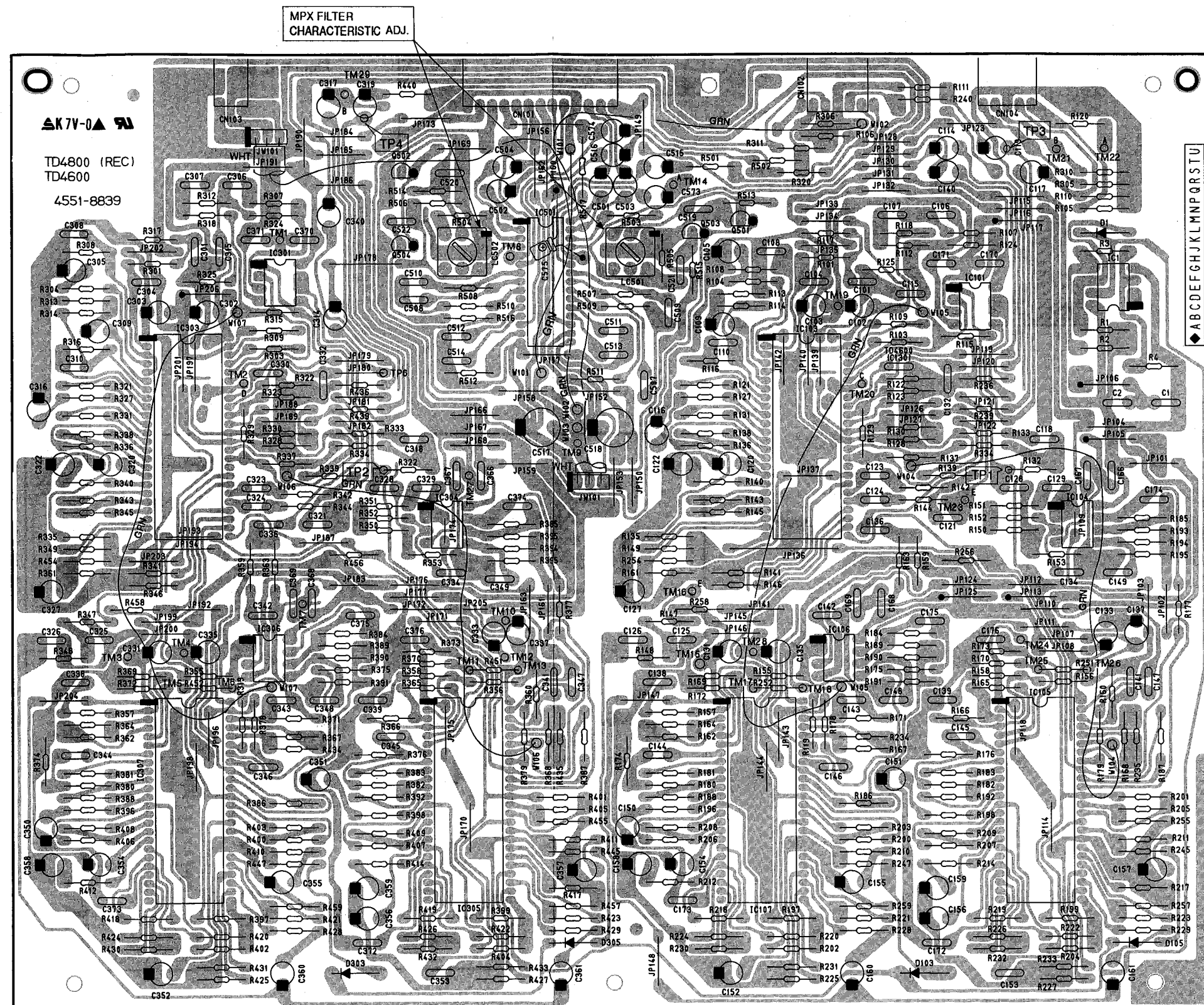
PCB-2

Front P. C. Board



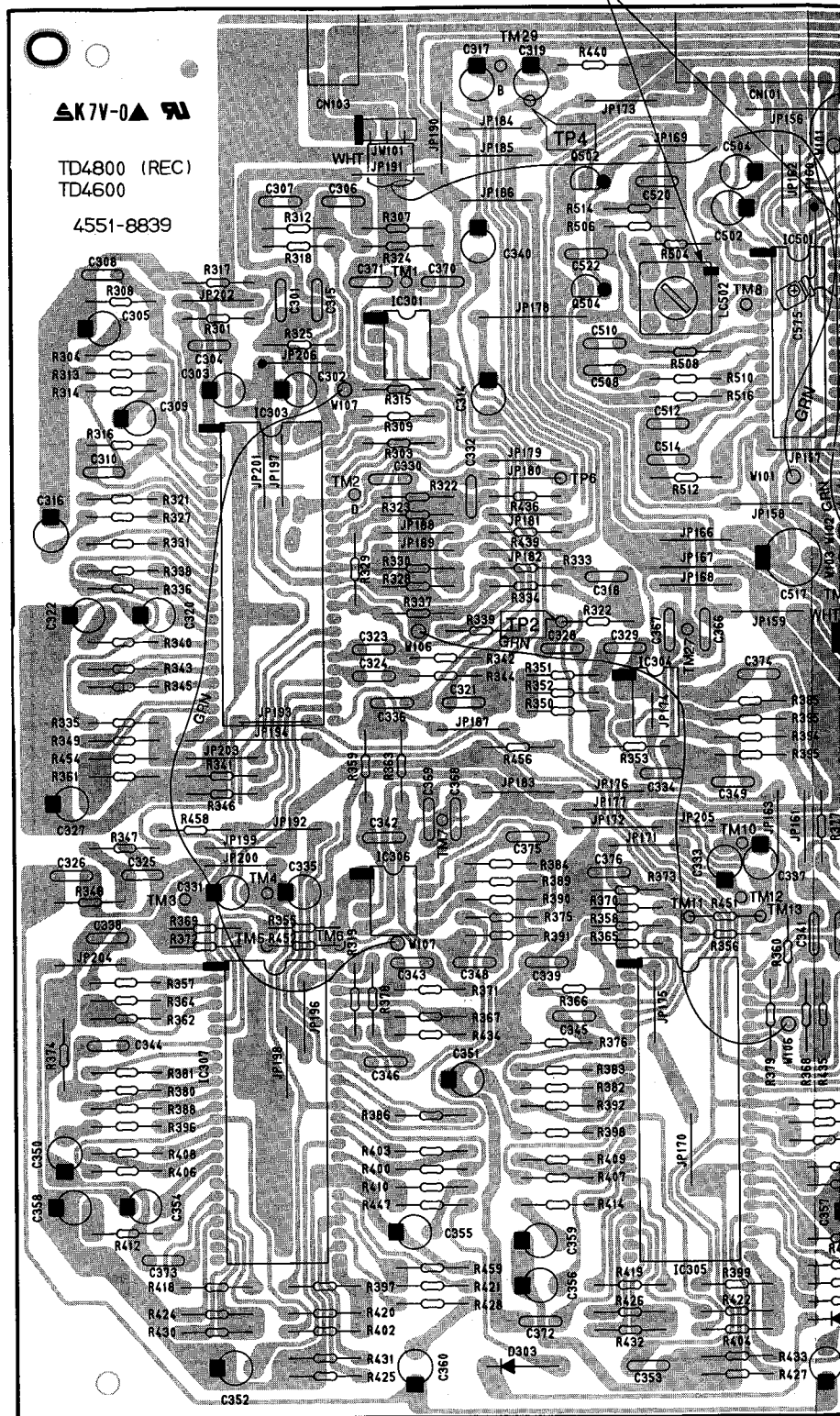
## P. C. BOARDS (3)

PCB-3 Dolby NR P. C. Board



# E

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

MPX FILTER  
CHARACTERISTIC ADJ.

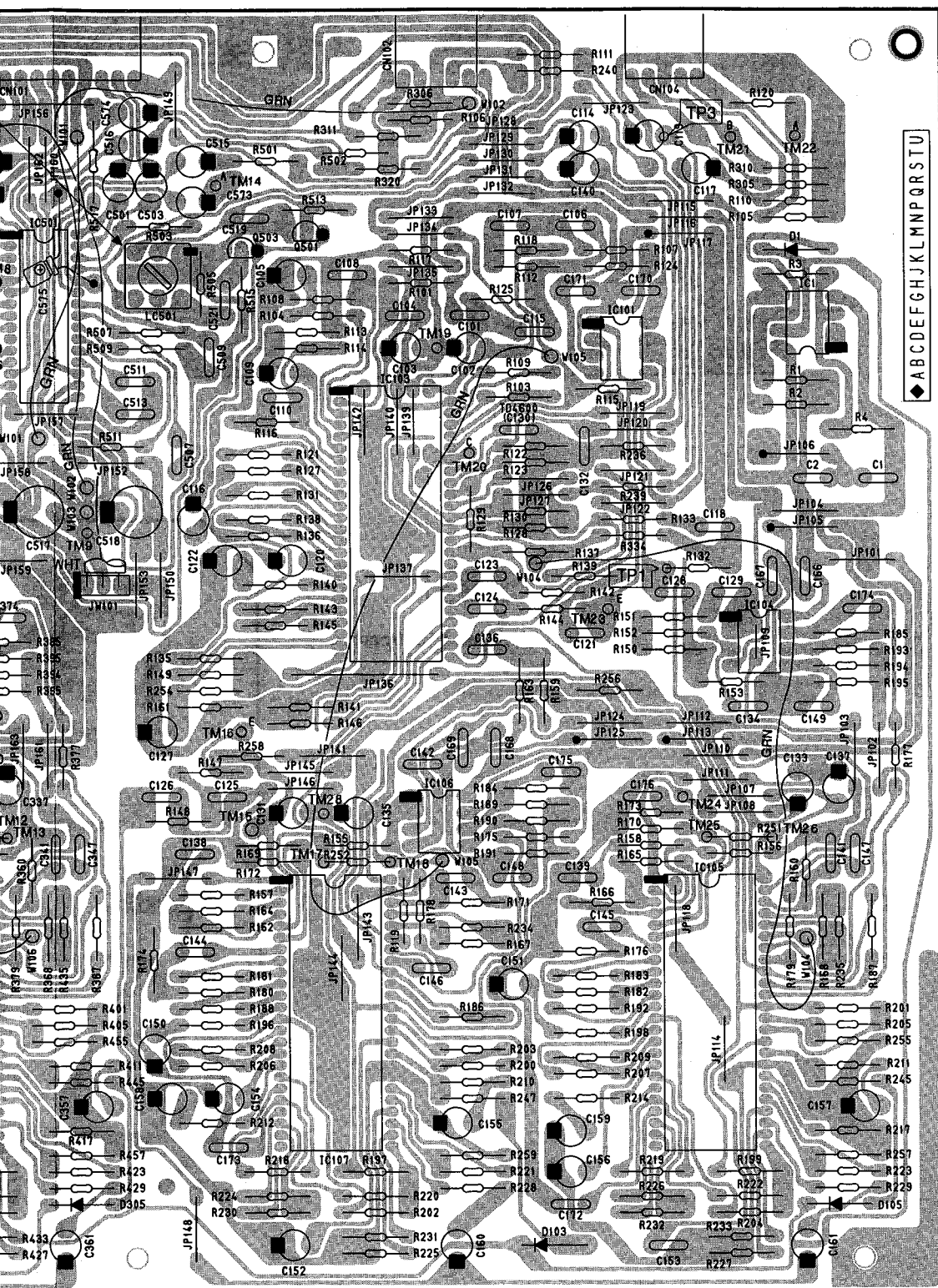
F

G

H

I

J



## ELECTRICAL PARTS LIST

Ser. No. Ref. No. Part No.

Description

## 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                |
| 425 | C117 | 5359-1225851  | CAP,PPP 1200P                |
| 425 | C118 | 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-S010J333 | CAP,PPP .033 $\mu$           |
| 486 | C206 | 5359-S010J333 | CAP,PPP .033 $\mu$           |
| 487 | C207 | 5359-S010J562 | CAP,PPP 5600P                |
| 487 | C208 | 5359-S010J562 | CAP,PPP 5600P                |
| 488 | C209 | 5359-S010J472 | CAP,PPP 4700P                |
| 488 | C210 | 5359-S010J472 | CAP,PPP 4700P                |
| 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 | 5345-476D0951 | CAP,MINI ELE 47 $\mu$ /25V   |
| 477 | C216 | 5345-476D0951 | CAP,MINI ELE 47 $\mu$ /25V   |
| 482 | C217 | 5345-225F0951 | CAP,MINI ELE 2.2 $\mu$ /50V  |
| 482 | C218 | 5345-225F0951 | CAP,MINI ELE 2.2 $\mu$ /50V  |
| 478 | C219 | 5359-S010J102 | CAP,PPP 1000P                |
| 478 | C220 | 5359-S010J102 | CAP,PPP 1000P                |
| 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  |
| 489 | C227 | 5359-S010J472 | CAP,PPP 4700P                |
| 489 | C228 | 5359-S010J472 | CAP,PPP 4700P                |
| 479 | C231 | 5359-105F0951 | CAP,MINI ELE 1 $\mu$ /50V    |
| 479 | C232 | 5359-105F0951 | CAP,MINI ELE 1 $\mu$ /50V    |
| 483 | C233 | 5345-684F0951 | CAP,MINI ELE .68 $\mu$ /50V  |
| 483 | C234 | 5345-684F0951 | CAP,MINI ELE .68 $\mu$ /50V  |
| 475 | C235 | 5345-224F0951 | CAP,MINI ELE .22 $\mu$ /50V  |
| 475 | C236 | 5345-224F0951 | CAP,MINI ELE .22 $\mu$ /50V  |
| 490 | C237 | 5359-S010J222 | CAP,PPP 2200P                |
| 490 | C238 | 5359-S010J222 | CAP,PPP 2200P                |
| 547 | C301 | 5354-S040K123 | CAP,MYL .012 $\mu$           |
| 556 | C302 | 5361-100J434  | CAP,CER 10P                  |
| 542 | C303 | 5342-106D041  | CAP,ELE BP 10 $\mu$ /25V     |
| 551 | C305 | 5359-S010J682 | CAP,PPP .6800P               |
| 543 | C306 | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V   |
| 552 | C307 | 5359-S010J152 | CAP,PPP 1500P                |
| 552 | C308 | 5359-S010J152 | CAP,PPP 1500P                |
| 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 | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V   |
| 543 | C322 | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V   |
| 543 | C323 | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V   |
| 543 | C324 | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V   |

Ser. No. Ref. No. Part No.

Description

|     |      |               |                             |
|-----|------|---------------|-----------------------------|
| 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 |
| 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  |
| 952 | C601 | 5354-393J1H1M | CAP,MYL .039 $\mu$          |
| 953 | C602 | 5359-S010J122 | CAP,PPP 1200P               |
| 952 | C603 | 5354-393J1H1M | 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 | 5345-476D041  | CAP,MINI ELE 47 $\mu$ /25V  |
| 956 | C608 | 5345-476D041  | CAP,MINI ELE 47 $\mu$ /25V  |
| 956 | C609 | 5345-476D041  | CAP,MINI ELE 47 $\mu$ /25V  |
| 956 | C610 | 5345-476D041  | CAP,MINI ELE 47 $\mu$ /25V  |
| 954 | C611 | 5345-106C041  | CAP,MINI ELE 10 $\mu$ /16V  |
| 954 | C612 | 5345-106C041  | CAP,MINI ELE 10 $\mu$ /16V  |
| 934 | C655 | 5345-476D041  | CAP,MINI ELE 47 $\mu$ /25V  |
| 934 | C656 | 5345-476D041  | CAP,MINI ELE 47 $\mu$ /25V  |
| 683 | C701 | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V  |
| 683 | C702 | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V  |
| 893 | C751 | 5354-473J1H1M | CAP,MYL .047 $\mu$          |
| 891 | C752 | 5345-476D041  | CAP,MINI ELE 47 $\mu$ /25V  |
| 891 | C753 | 5345-476D041  | CAP,MINI ELE 47 $\mu$ /25V  |
| 891 | C754 | 5345-476D041  | CAP,MINI ELE 47 $\mu$ /25V  |
| 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 | 5135-151522 | RES,CBN 1/2P 150  |
| 445 | R122 | 5135-151522 | RES,CBN 1/2P 150  |
| 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 | 5135-151522 | RES,CBN 1/2P 150  |
| 450 | R132 | 5135-151522 | RES,CBN 1/2P 150  |
| 451 | R133 | 5135-101522 | RES,CBN 1/2P 100  |
| 451 | R134 | 5135-101522 | RES,CBN 1/2P 100  |

## Ser. No. Ref. No. Part No.

|     |       |              |                   |
|-----|-------|--------------|-------------------|
| 451 | R135  | 5135-101522  | RES,CBN 1/2P 100  |
| 451 | R136  | 5135-101522  | RES,CBN 1/2P 100  |
| 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   |
| 454 | R147  | 5135-102522  | RES,CBN 1/2P 1K   |
| 454 | R148  | 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  | 5135-472522  | RES,CBN 1/2P 4.7K |
| 500 | R210  | 5135-472522  | RES,CBN 1/2P 4.7K |
| 501 | R211  | 5135-222522  | RES,CBN 1/2P 2.2K |
| 501 | R212  | 5135-222522  | RES,CBN 1/2P 2.2K |
| 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  |
| 505 | R217  | 5135-471522  | RES,CBN 1/2P 470  |
| 505 | R218  | 5135-471522  | RES,CBN 1/2P 470  |
| 504 | R219  | 5135-222522  | RES,CBN 1/2P 2.2K |
| 504 | 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  |
| 514 | R233  | 5135-272522  | RES,CBN 1/2P 2.7K |
| 514 | 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  | 5135-6R8522  | RES,CBN 1/2P 6.8  |
| 561 | R302  | 5135-6R8522  | RES,CBN 1/2P 6.8  |
| 563 | R303  | 5135-184522  | RES,CBN 1/2P 180K |
| 563 | R304  | 5135-184522  | RES,CBN 1/2P 180K |
| 569 | R305  | 5135-470522  | RES,CBN 1/2P 47   |
| 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  |

## Ser. No. Ref. No. Part No.

|     |      |             |                   |
|-----|------|-------------|-------------------|
| 574 | R325 | 5135-561522 | RES,CBN 1/2P 560  |
| 574 | R326 | 5135-561522 | RES,CBN 1/2P 560  |
| 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  |
| 578 | R331 | 5135-104522 | RES,CBN 1/2P 100K |
| 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   |
| 722 | 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 |
| 648 | R501 | 5135-473522 | RES,CBN 1/2P 47K  |
| 648 | R502 | 5135-473522 | RES,CBN 1/2P 47K  |
| 647 | R503 | 5135-103522 | RES,CBN 1/2P 10K  |
| 647 | R504 | 5135-103522 | RES,CBN 1/2P 10K  |
| 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 | 5135-393522 | RES,CBN 1/2P 39K  |
| 966 | R612 | 5135-333522 | RES,CBN 1/2P 33K  |
| 964 | 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 | 5135-103522 | RES,CBN 1/2P 10K  |
| 968 | R627 | 5135-153522 | RES,CBN 1/2P 15K  |

| Ser. No.                   | Ref. No. | Part No.      | Description       | Ser. No.           | Ref. No. | Part No.      | Description  |
|----------------------------|----------|---------------|-------------------|--------------------|----------|---------------|--------------|
| 968                        | R628     | 5135-153522   | RES,CBN 1/2P 15K  | 671                | IC701    | 5654-TC4011BP | IC,DIGITAL   |
| 970                        | R629     | 5135-471522   | RES,CBN 1/2P 470  | 881                | IC751    | 5652-NJM4558D | IC,MONO      |
| 970                        | R630     | 5135-471522   | RES,CBN 1/2P 470  | 851                | IC801    | 5653-BA6229   | IC,LINEAR    |
| 961                        | R631     | 5135-102522   | RES,CBN 1/2P 1K   | <b>TRANSISTORS</b> |          |               |              |
| 961                        | R632     | 5135-102522   | RES,CBN 1/2P 1K   | 402                | Q101     | 5613-2320L(F) | XISTOR,NPN R |
| 937                        | R651     | 5135-103522   | RES,CBN 1/2P 10K  | 402                | Q102     | 5613-2320L(F) | XISTOR,NPN R |
| 937                        | R652     | 5135-103522   | RES,CBN 1/2P 10K  | 401                | Q103     | 5611-999L(F)  | XISTOR,PNP R |
| 940                        | R657     | 5135-101522   | RES,CBN 1/2P 100  | 401                | Q104     | 5611-999L(F)  | XISTOR,PNP R |
| 940                        | R658     | 5135-101522   | RES,CBN 1/2P 100  | 402                | Q105     | 5613-2320L(F) | XISTOR,NPN R |
| 936                        | R659     | 5135-100522   | RES,CBN 1/2P 10   | 402                | Q106     | 5613-2320L(F) | XISTOR,NPN R |
| 936                        | R660     | 5135-100522   | RES,CBN 1/2P 10   | 401                | Q107     | 5611-999L(F)  | XISTOR,PNP R |
| 957                        | R661     | 5135-472522   | RES,CBN 1/2P 4.7K | 401                | Q108     | 5611-999L(F)  | XISTOR,PNP R |
| 957                        | R662     | 5135-472522   | RES,CBN 1/2P 4.7K | 402                | Q109     | 5613-2320L(F) | XISTOR,NPN R |
| 692                        | R701     | 5135-222522   | RES,CBN 1/2P 2.2K | 402                | Q110     | 5613-2320L(F) | XISTOR,NPN R |
| 692                        | R702     | 5135-222522   | RES,CBN 1/2P 2.2K | 401                | Q111     | 5611-999L(F)  | XISTOR,PNP R |
| 693                        | R703     | 5135-104522   | RES,CBN 1/2P 100K | 401                | Q112     | 5611-999L(F)  | XISTOR,PNP R |
| 687                        | R705     | 5135-103522   | RES,CBN 1/2P 10K  | 403                | Q113     | 5616-2SK246GR | FET,N-CH     |
| 687                        | R706     | 5135-103522   | RES,CBN 1/2P 10K  | 403                | Q114     | 5616-2SK246GR | FET,N-CH     |
| 689                        | R707     | 5135-392522   | RES,CBN 1/2P 3.9K | 404                | Q115     | 5613-UN4214   | XISTOR,NPN R |
| 689                        | R708     | 5135-392522   | RES,CBN 1/2P 3.9K | 463                | Q201     | 5613-UN4214   | XISTOR,NPN R |
| 687                        | R709     | 5135-103522   | RES,CBN 1/2P 10K  | 463                | Q202     | 5613-UN4214   | XISTOR,NPN R |
| 687                        | R710     | 5135-103522   | RES,CBN 1/2P 10K  | 463                | Q203     | 5613-UN4214   | XISTOR,NPN R |
| 690                        | R711     | 5135-223522   | RES,CBN 1/2P 22K  | 463                | Q204     | 5613-UN4214   | XISTOR,NPN R |
| 690                        | R712     | 5135-223522   | RES,CBN 1/2P 22K  | 463                | Q205     | 5613-UN4214   | XISTOR,NPN R |
| 687                        | R713     | 5135-103522   | RES,CBN 1/2P 10K  | 463                | Q206     | 5613-UN4214   | XISTOR,NPN R |
| 687                        | R714     | 5135-103522   | RES,CBN 1/2P 10K  | 464                | Q207     | 5614-1450(T)  | XISTOR,NPN A |
| 687                        | R715     | 5135-103522   | RES,CBN 1/2P 10K  | 464                | Q208     | 5614-1450(T)  | XISTOR,NPN A |
| 687                        | R716     | 5135-103522   | RES,CBN 1/2P 10K  | 461                | Q209     | 5613-2320L(F) | XISTOR,NPN R |
| 691                        | R717     | 5135-222522   | RES,CBN 1/2P 2.2K | 461                | Q210     | 5613-2320L(F) | XISTOR,NPN R |
| 687                        | R718     | 5135-103522   | RES,CBN 1/2P 10K  | 462                | Q211     | 5611-999L(F)  | XISTOR,PNP R |
| 687                        | R719     | 5135-103522   | RES,CBN 1/2P 10K  | 462                | Q212     | 5611-999L(F)  | XISTOR,PNP R |
| 901                        | R751     | 5135-563522   | RES,CBN 1/2P 56K  | 462                | Q213     | 5611-999L(F)  | XISTOR,PNP R |
| 898                        | R752     | 5135-104522   | RES,CBN 1/2P 100K | 462                | Q214     | 5611-999L(F)  | XISTOR,PNP R |
| 899                        | R753     | 5135-331522   | RES,CBN 1/2P 330  | 461                | Q215     | 5613-2320L(F) | XISTOR,NPN R |
| 897                        | R754     | 5135-103522   | RES,CBN 1/2P 10K  | 461                | Q216     | 5613-2320L(F) | XISTOR,NPN R |
| 899                        | R755     | 5135-331522   | RES,CBN 1/2P 330  | 461                | Q217     | 5613-2320L(F) | XISTOR,NPN R |
| 899                        | R756     | 5135-331522   | RES,CBN 1/2P 330  | 461                | Q218     | 5613-2320L(F) | XISTOR,NPN R |
| 902                        | R757     | 5135-332522   | RES,CBN 1/2P 3.3K | 465                | Q219     | 5611-UN4114   | XISTOR,PNP R |
| 898                        | R758     | 5135-104522   | RES,CBN 1/2P 100K | 525                | Q301     | 5613-2320(F)  | XISTOR,NPN R |
| 903                        | R759     | 5135-471522   | RES,CBN 1/2P 470  | 525                | Q302     | 5613-2320(F)  | XISTOR,NPN R |
| 904                        | R761     | 5135-222522   | RES,CBN 1/2P 2.2K | 527                | Q303     | 5611-1309A(R) | XISTOR,PNP R |
| 904                        | R762     | 5135-222522   | RES,CBN 1/2P 2.2K | 523                | Q304     | 5613-UN4214   | XISTOR,NPN R |
| 871                        | ▲ R801   | 5102-1005116  | RES,FUSE 10       | 526                | Q305     | 5611-950(Y)   | XISTOR,PNP R |
| 872                        | R804     | 5135-103522   | RES,CBN 1/2P 10K  | 522                | Q306     | 5613-2120(Y)  | XISTOR,NPN R |
| 873                        | R806     | 5135-5R6522   | RES,CBN 1/2P 5.6  | 526                | Q307     | 5611-950(Y)   | XISTOR,PNP R |
| 873                        | R807     | 5135-5R6522   | RES,CBN 1/2P 5.6  | 522                | Q308     | 5613-2120(Y)  | XISTOR,NPN R |
| 873                        | R808     | 5135-5R6522   | RES,CBN 1/2P 5.6  | 524                | Q309     | 5613-UN4214   | XISTOR,NPN R |
| 873                        | R809     | 5135-5R6522   | RES,CBN 1/2P 5.6  | 524                | Q310     | 5613-UN4214   | XISTOR,NPN R |
| 872                        | R811     | 5135-103522   | RES,CBN 1/2P 10K  | 524                | Q311     | 5613-UN4214   | XISTOR,NPN R |
| 880                        | R812     | 5135-102522   | RES,CBN 1/2P 1K   | 524                | Q312     | 5613-UN4214   | XISTOR,NPN R |
| 872                        | R813     | 5135-103522   | RES,CBN 1/2P 10K  | 523                | Q313     | 5613-UN4214   | XISTOR,NPN R |
| 876                        | R815     | 5135-223522   | RES,CBN 1/2P 22K  | 528                | Q314     | 5611-UN4114   | XISTOR,PNP R |
| 876                        | R816     | 5135-223522   | RES,CBN 1/2P 22K  | 911                | Q351     | 5613-2320L(F) | XISTOR,NPN R |
| 876                        | R817     | 5135-223522   | RES,CBN 1/2P 22K  | 911                | Q352     | 5613-2320L(F) | XISTOR,NPN R |
| 876                        | R818     | 5135-223522   | RES,CBN 1/2P 22K  | 912                | Q353     | 5611-999L(F)  | XISTOR,PNP R |
| 869                        | R819     | 5135-473522   | RES,CBN 1/2P 47K  | 912                | Q354     | 5611-999L(F)  | XISTOR,PNP R |
| 869                        | R820     | 5135-473522   | RES,CBN 1/2P 47K  | 912                | Q355     | 5611-999L(F)  | XISTOR,PNP R |
| 869                        | R821     | 5135-473522   | RES,CBN 1/2P 47K  | 912                | Q356     | 5611-999L(F)  | XISTOR,PNP R |
| 869                        | R822     | 5135-473522   | RES,CBN 1/2P 47K  | 913                | Q357     | 5616-2SK246BL | FET,N-CH     |
| 869                        | R823     | 5135-473522   | RES,CBN 1/2P 47K  | 913                | Q358     | 5616-2SK246BL | FET,N-CH     |
| 874                        | R825     | 5135-471522   | RES,CBN 1/2P 470  | 705                | Q401     | 5613-3311A(R) | XISTOR,NPN R |
| 874                        | R826     | 5135-471522   | RES,CBN 1/2P 470  | 705                | Q402     | 5613-3311A(R) | XISTOR,NPN R |
| 869                        | R827     | 5135-473522   | RES,CBN 1/2P 47K  | 705                | Q403     | 5613-3311A(R) | XISTOR,NPN R |
| 875                        | R828     | 5135-331522   | RES,CBN 1/2P 330  | 705                | Q404     | 5613-3311A(R) | XISTOR,NPN R |
| 880                        | R829     | 5135-102522   | RES,CBN 1/2P 1K   | 704                | Q405     | 5611-999(F)   | XISTOR,PNP R |
| 868                        | R830     | 5135-392522   | RES,CBN 1/2P 3.9K | 643                | Q501     | 5613-UN4214   | XISTOR,NPN R |
| 870                        | R831     | 5135-470522   | RES,CBN 1/2P 47   | 644                | Q502     | 5611-UN4114   | XISTOR,PNP R |
| 880                        | R833     | 5135-102522   | RES,CBN 1/2P 1K   | 643                | Q503     | 5613-UN4214   | XISTOR,NPN R |
| <b>INTEGRATED CIRCUITS</b> |          |               |                   | 644                | Q504     | 5611-UN4114   | XISTOR,PNP R |
| 521                        | IC301    | 5653-μ1297CA  | IC,LINEAR         | 644                | Q505     | 5611-UN4114   | XISTOR,PNP R |
| 701                        | IC401    | 5652-NJM4558D | IC,MONO           | 944                | Q601     | 5613-UN4214   | XISTOR,NPN R |
| 702                        | IC402    | 5653-BA6138   | IC,LINEAR         | 944                | Q602     | 5613-UN4214   | XISTOR,NPN R |
| 641                        | IC501    | 5654-TC4066BP | IC,DIGITAL        | 944                | Q603     | 5613-UN4214   | XISTOR,NPN R |
| 641                        | IC502    | 5654-TC4066BP | IC,DIGITAL        | 944                | Q604     | 5613-UN4214   | XISTOR,NPN R |
| 941                        | IC601    | 5652-NJM4558D | IC,MONO           | 944                | Q605     | 5613-UN4214   | XISTOR,NPN R |
| 942                        | IC602    | 5654-TC4066BP | IC,DIGITAL        | 943                | Q606     | 5611-UN4114   | XISTOR,PNP R |
| 942                        | IC603    | 5654-TC4066BP | IC,DIGITAL        | 943                | Q607     | 5611-UN4114   | XISTOR,PNP R |
| 931                        | IC651    | 5653-NJM4565D | IC,LINEAR         | 943                | Q608     | 5611-UN4114   | XISTOR,PNP R |

| Ser. No. | Ref. No. | Part No.      | Description  |
|----------|----------|---------------|--------------|
| 943      | Q609     | 5611-UN4114   | XISTOR,PNP R |
| 673      | Q701     | 5613-2878(B)  | XISTOR,NPN R |
| 673      | Q702     | 5613-2878(B)  | XISTOR,NPN R |
| 672      | Q703     | 5613-2240(BL) | XISTOR,NPN R |
| 672      | Q704     | 5613-2240(BL) | XISTOR,NPN R |
| 672      | Q705     | 5613-2240(BL) | XISTOR,NPN R |
| 672      | Q706     | 5613-2240(BL) | XISTOR,NPN R |
| 677      | Q707     | 5614-1450(T)  | XISTOR,NPN A |
| 677      | Q708     | 5614-1450(T)  | XISTOR,NPN A |
| 677      | Q709     | 5614-1450(T)  | XISTOR,NPN A |
| 677      | Q710     | 5614-1450(T)  | XISTOR,NPN A |
| 677      | Q711     | 5614-1450(T)  | XISTOR,NPN A |
| 677      | Q712     | 5614-1450(T)  | XISTOR,NPN A |
| 675      | Q713     | 5611-970(BL)  | XISTOR,PNP R |
| 676      | Q714     | 5611-UN4114   | XISTOR,PNP R |
| 674      | Q715     | 5613-UN4214   | XISTOR,NPN R |
| 676      | Q716     | 5611-UN4114   | XISTOR,PNP R |
| 676      | Q717     | 5611-UN4114   | XISTOR,PNP R |
| 676      | Q718     | 5611-UN4114   | XISTOR,PNP R |
| 676      | Q719     | 5611-UN4114   | XISTOR,PNP R |
| 676      | Q720     | 5611-UN4114   | XISTOR,PNP R |
| 676      | Q721     | 5611-UN4114   | XISTOR,PNP R |
| 673      | Q723     | 5611-2878(B)  | XISTOR,NPN R |
| 673      | Q724     | 5611-2878(B)  | XISTOR,NPN R |
| 857      | Q801     | 5613-UN4214   | XISTOR,NPN R |
| 855      | Q802     | 5613-2925(T)  | XISTOR,NPN R |
| 855      | Q803     | 5613-2925(T)  | XISTOR,NPN R |
| 855      | Q804     | 5613-2925(T)  | XISTOR,NPN R |
| 852      | Q805     | 5613-3311A(R) | XISTOR,NPN R |
| 852      | Q806     | 5613-3311A(R) | XISTOR,NPN R |
| 853      | Q808     | 5611-RN2201   | XISTOR,PNP R |

**DIODES**

|     |      |               |             |
|-----|------|---------------|-------------|
| 467 | D201 | 5631-1S2473   | DIODE,DET   |
| 467 | D202 | 5631-1S2473   | DIODE,DET   |
| 467 | D203 | 5631-1S2473   | DIODE,DET   |
| 467 | D204 | 5631-1S2473   | DIODE,DET   |
| 467 | D205 | 5631-1S2473   | DIODE,DET   |
| 529 | D301 | 5631-1S2473   | DIODE,DET   |
| 529 | D302 | 5631-1S2473   | DIODE,DET   |
| 529 | D303 | 5631-1S2473   | DIODE,DET   |
| 707 | D401 | 5631-1S2473   | DIODE,DET   |
| 707 | D402 | 5631-1S2473   | DIODE,DET   |
| 946 | D601 | 5635-RD5R1EB2 | DIODE,ZENER |
| 946 | D602 | 5635-RD5R1EB2 | DIODE,ZENER |
| 946 | D603 | 5635-RD5R1EB2 | DIODE,ZENER |
| 946 | D604 | 5635-RD5R1EB2 | DIODE,ZENER |
| 947 | D605 | 5631-1S2473   | DIODE,DET   |
| 947 | D606 | 5631-1S2473   | DIODE,DET   |
| 947 | D607 | 5631-1S2473   | DIODE,DET   |
| 679 | D701 | 5631-1S2473   | DIODE,DET   |
| 883 | D751 | 5631-1S2473   | DIODE,DET   |
| 860 | D801 | 5635-HZ7C3    | DIODE,ZENER |
| 859 | D802 | 5635-HZ5C2    | DIODE,ZENER |
| 863 | D803 | 5631-1S2473   | DIODE,DET   |
| 862 | D804 | 5632-S5566B   | DIODE,RECT  |
| 863 | D806 | 5631-1S2473   | DIODE,DET   |

**COILS**

|     |      |               |             |
|-----|------|---------------|-------------|
| 409 | L101 | 5995-S200J273 | COIL W/CORE |
| 409 | L102 | 5995-S200J273 | COIL W/CORE |
| 469 | L201 | 5932-11504    | COIL CASE,7 |
| 469 | L202 | 5932-11504    | COIL CASE,7 |
| 532 | L301 | 5932-11401    | COIL CASE,7 |
| 532 | L302 | 5932-11401    | COIL CASE,7 |

**CONTROLS**

|     |       |               |                  |
|-----|-------|---------------|------------------|
| 411 | VR101 | 5101-5031934  | RES,SEMI FIX 50K |
| 411 | VR102 | 5101-5031934  | RES,SEMI FIX 50K |
| 411 | VR103 | 5101-5031934  | RES,SEMI FIX 50K |
| 411 | VR104 | 5101-5031934  | RES,SEMI FIX 50K |
| 738 | VR151 | 5113-S1101503 | RES,V CBN 16 50K |
| 738 | VR152 | 5113-S1101503 | RES,V CBN 16 50K |
| 473 | VR203 | 5101-20201934 | RES,SEMI FIX 2K  |
| 473 | VR204 | 5101-20201934 | RES,SEMI FIX 2K  |
| 535 | VR301 | 5101-20301934 | RES,SEMI FIX 20K |
| 535 | VR302 | 5101-20301934 | RES,SEMI FIX 20K |
| 537 | VR303 | 5101-20201934 | RES,SEMI FIX 2K  |
| 537 | VR304 | 5101-20201934 | RES,SEMI FIX 2K  |

|     |       |               |                   |
|-----|-------|---------------|-------------------|
| 536 | VR305 | 5101-50201934 | RES,SEMI FIX 5K   |
| 536 | VR306 | 5101-50201934 | RES,SEMI FIX 5K   |
| 709 | VR401 | 5101-20301934 | RES,SEMI FIX 20K  |
| 709 | VR402 | 5101-20301934 | RES,SEMI FIX 20K  |
| 949 | VR601 | 5101-50201934 | RES,SEMI FIX 5K   |
| 949 | VR602 | 5101-50201934 | RES,SEMI FIX 5K   |
| 949 | VR603 | 5101-50201934 | RES,SEMI FIX 5K   |
| 885 | VR751 | 5101-10401934 | RES,SEMI FIX 100K |

**MISCELLANEOUS**

|     |        |               |               |
|-----|--------|---------------|---------------|
| 782 | △J1    | 4484-46       | PIN JACK,4P   |
| 781 | J2     | 4451-00184    | JACK,1P       |
| 781 | J3     | 4451-00184    | JACK,1P       |
| 792 | JL101  | 4242-R0503800 | JUMPER LEAD   |
| 793 | JL102  | 4242-R0504800 | JUMPER LEAD   |
| 794 | JL103  | 4242-R0505800 | JUMPER LEAD   |
| 795 | JL104  | 4242-R0505800 | JUMPER LEAD   |
| 471 | LC201  | 5214-13802    | LC COMPOSITE  |
| 471 | LC202  | 5214-13802    | LC COMPOSITE  |
| 470 | LC203  | 5214-13901    | LC COMPOSITE  |
| 470 | LC204  | 5214-13901    | LC COMPOSITE  |
| 533 | T301   | 5923-10202    | OSC COIL,10   |
| 858 | PH801  | 5624-ON3161   | PHOTO COUPLR  |
| 776 | TP101  | 4214-132      | TERMINAL      |
| 776 | TP102  | 4214-132      | TERMINAL      |
| 776 | TP201  | 4214-132      | TERMINAL      |
| 776 | TP202  | 4214-132      | TERMINAL      |
| 776 | TP203  | 4214-132      | TERMINAL      |
| 776 | TP501  | 4214-132      | TERMINAL      |
| 776 | TP502  | 4214-132      | TERMINAL      |
| 776 | TP503  | 4214-132      | TERMINAL      |
| 776 | TP751  | 4214-132      | TERMINAL      |
| 808 | CN105  | 4443-0601102  | CONNECTOR     |
| 809 | CN301  | 4443-0201102  | CONNECTOR     |
| 814 | CN801  | 4443-00501010 | CONNECTOR     |
| 814 | CN802  | 4443-00501010 | CONNECTOR     |
| 812 | CN803  | 4443-05501032 | CONNECTOR     |
| 816 | LCN502 | 4163-01318005 | CONNECTOR W/W |
| 817 | LCN503 | 4163-01321013 | CONNECTOR W/W |
| 818 | LCN504 | 4163-01326005 | CONNECTOR W/W |
| 797 | LCN801 | 4163-01301005 | CONNECTOR W/W |
| 798 | LCN802 | 4163-01325007 | CONNECTOR W/W |
| 799 | LCN803 | 4163-01322005 | CONNECTOR W/W |

**PCB-2 FRONT P. C. BOARD****CAPACITORS**

|     |      |               |                            |
|-----|------|---------------|----------------------------|
| 833 | C901 | 5345-106D041  | CAP,MINI ELE 10 $\mu$ /25V |
| 834 | C902 | 5359-S010J103 | CAP,PPP .01 $\mu$          |
| 832 | C903 | 5345-476D041  | CAP,MINI ELE 47 $\mu$ /25V |
| 831 | C904 | 5342-106C041  | CAP,ELE BP 10 $\mu$ /16V   |
| 835 | C905 | 5345-106D041  | CAP,MINI ELE 10 $\mu$ /25V |
| 848 | C906 | 5361-102KB    | CAP,CER 1000P              |
| 848 | C907 | 5361-102KB    | CAP,CER 1000P              |
| 843 | C908 | 5359-S010J103 | CAP,PPP .01 $\mu$          |

**RESISTORS**

|     |      |             |                   |
|-----|------|-------------|-------------------|
| 841 | R901 | 5135-104522 | RES,CBN 1/2P 100K |
| 837 | R902 | 5135-102522 | RES,CBN 1/2P 1K   |
| 838 | R903 | 5135-183522 | RES,CBN 1/2P 18K  |
| 839 | R904 | 5135-273522 | RES,CBN 1/2P 27K  |
| 838 | R905 | 5135-183522 | RES,CBN 1/2P 18K  |
| 839 | R906 | 5135-273522 | RES,CBN 1/2P 27K  |
| 842 | R907 | 5135-101522 | RES,CBN 1/2P 100  |
| 838 | R909 | 5135-183522 | RES,CBN 1/2P 18K  |
| 839 | R910 | 5135-273522 | RES,CBN 1/2P 27K  |
| 838 | R911 | 5135-183522 | RES,CBN 1/2P 18K  |
| 839 | R912 | 5135-273522 | RES,CBN 1/2P 27K  |
| 836 | R914 | 5135-473522 | RES,CBN 1/2P 47K  |
| 836 | R915 | 5135-473522 | RES,CBN 1/2P 47K  |
| 840 | R916 | 5135-822522 | RES,CBN 1/2P 8.2K |
| 840 | R917 | 5135-822522 | RES,CBN 1/2P 8.2K |
| 837 | R919 | 5135-102522 | RES,CBN 1/2P 1K   |
| 837 | R920 | 5135-102522 | RES,CBN 1/2P 1K   |
| 837 | R921 | 5135-102522 | RES,CBN 1/2P 1K   |
| 837 | R922 | 5135-102522 | RES,CBN 1/2P 1K   |
| 837 | R923 | 5135-102522 | RES,CBN 1/2P 1K   |

| Ser. No.                  | Ref. No.  | Part No.      | Description  |
|---------------------------|-----------|---------------|--------------|
| <b>INTEGRATED CIRCUIT</b> |           |               |              |
| 821                       | IC901     | 5654-MN18787F | IC,DIGITAL   |
| <b>TRANSISTORS</b>        |           |               |              |
| 823                       | Q901      | 5611-UN4114   | XISTOR,PNP R |
| 823                       | Q902      | 5611-UN4114   | XISTOR,PNP R |
| 823                       | Q903      | 5611-UN4114   | XISTOR,PNP R |
| 823                       | Q904      | 5611-UN4114   | XISTOR,PNP R |
| 823                       | Q905      | 5611-UN4114   | XISTOR,PNP R |
| 824                       | Q906      | 5613-3311A(R) | XISTOR,NPN R |
| <b>DIODES</b>             |           |               |              |
| 830                       | D901      | 5631-1S2473   | DIODE,DET    |
| 830                       | D902      | 5631-1S2473   | DIODE,DET    |
| 829                       | D903      | 5631-1S2473   | DIODE,DET    |
| 829                       | D904      | 5631-1S2473   | DIODE,DET    |
| 829                       | D905      | 5631-1S2473   | DIODE,DET    |
| 829                       | D906      | 5631-1S2473   | DIODE,DET    |
| <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 |
| <b>MISCELLANEOUS</b>      |           |               |              |
| 827                       | X901      | 5693-FC4004A4 | OSC,CER      |
| 758                       | FL901     | 5722-050      | TUBE DISPLAY |
| 845                       | RC901     | 5212-S0305273 | R COMPOSITE  |
| 846                       | RC902     | 5212-S0304104 | R COMPOSITE  |
| 825                       | RCV901    | 6143-00802    | RECEIV BLOCK |
| 813                       | CN901     | 4443-00401010 | CONNECTOR    |
| 813                       | CN902     | 4443-00401010 | CONNECTOR    |
| 810                       | CN903     | 4443-05401032 | CONNECTOR    |
| 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-S0113612 | PUSH SWITCH  |
| 734                       | SW909     | 4431-S0113612 | PUSH SWITCH  |
| 734                       | SW910     | 4431-S0113612 | 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-S0113612 | PUSH SWITCH  |
| 734                       | SW919     | 4431-S0113612 | PUSH SWITCH  |
| 734                       | SW920     | 4431-S0113612 | PUSH SWITCH  |
| 733                       | SW921     | 4431-S0114204 | PUSH SWITCH  |

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

|                   |      |               |                             |
|-------------------|------|---------------|-----------------------------|
| <b>CAPACITORS</b> |      |               |                             |
| 445               | C1   | 5354-104593   | CAP,MYL .1 $\mu$            |
| 445               | C2   | 5354-104593   | CAP,MYL .1 $\mu$            |
| 447               | C101 | 5354-104593   | CAP,MYL .1 $\mu$            |
| 455               | C102 | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V  |
| 455               | C103 | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V  |
| 431               | C104 | 5359-S010J103 | CAP,PPP .01 $\mu$           |
| 458               | C105 | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  |
| 432               | C106 | 5359-S010J332 | CAP,PPP 3300P               |
| 432               | C107 | 5359-S010J332 | CAP,PPP 3300P               |
| 443               | C108 | 5354-473J1HM  | CAP,MYL .047 $\mu$          |
| 435               | C110 | 5359-S010J153 | CAP,PPP .015 $\mu$          |
| 453               | C111 | 5353-010934   | CAP,MCA 1P                  |
| 459               | C114 | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  |
| 449               | C115 | 5354-334593   | CAP,MYL .33 $\mu$           |
| 458               | C116 | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  |
| 457               | C117 | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  |
| 434               | C118 | 5359-S010J682 | CAP,PPP 6800P               |
| 457               | C119 | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  |
| 460               | C120 | 5345-224F0951 | CAP,MINI ELE .22 $\mu$ /50V |
| 446               | C121 | 5354-104593   | CAP,MYL .1 $\mu$            |

| Ser. No. | Ref. No. | Part No.      | Description                 |
|----------|----------|---------------|-----------------------------|
| 462      | C122     | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V   |
| 435      | C123     | 5359-S010J153 | CAP,PPP .015 $\mu$          |
| 433      | C124     | 5359-S010J332 | CAP,PPP 3300P               |
| 446      | C125     | 5354-104593   | CAP,MYL .1 $\mu$            |
| 443      | C126     | 5354-473J1HM  | CAP,MYL .047 $\mu$          |
| 463      | C127     | 5345-474F0951 | CAP,MINI ELE .47 $\mu$ /50V |
| 446      | C128     | 5354-104593   | CAP,MYL .1 $\mu$            |
| 433      | C129     | 5359-S010J332 | CAP,PPP 3300P               |
| 436      | C130     | 5359-1015851  | CAP,PPP 100P                |
| 455      | C131     | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V  |
| 436      | C132     | 5359-1015851  | CAP,PPP 100P                |
| 455      | C133     | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V  |
| 437      | C134     | 5359-S010J471 | CAP,PPP 470P                |
| 455      | C135     | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V  |
| 446      | C136     | 5354-104593   | CAP,MYL .1 $\mu$            |
| 455      | C137     | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V  |
| 439      | C138     | 5359-S010J472 | CAP,PPP 4700P               |
| 439      | C139     | 5359-S010J472 | CAP,PPP 4700P               |
| 459      | C140     | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  |
| 440      | C141     | 5359-S010J681 | CAP,PPP 680P                |
| 437      | C142     | 5359-S010J471 | CAP,PPP 470P                |
| 441      | C143     | 5359-S010J102 | CAP,PPP 1000P               |
| 444      | C144     | 5354-474593   | CAP,MYL .47 $\mu$           |
| 444      | C145     | 5354-474593   | CAP,MYL .47 $\mu$           |
| 442      | C146     | 5359-S010J223 | CAP,PPP .022 $\mu$          |
| 442      | C147     | 5359-S010J223 | CAP,PPP .022 $\mu$          |
| 438      | C148     | 5359-S010J471 | CAP,PPP 470P                |
| 438      | C149     | 5359-S010J471 | CAP,PPP 470P                |
| 464      | C150     | 5345-104F0951 | CAP,MINI ELE .1 $\mu$ /50V  |
| 464      | C151     | 5345-104F0951 | CAP,MINI ELE .1 $\mu$ /50V  |
| 464      | C152     | 5345-104F0951 | CAP,MINI ELE .1 $\mu$ /50V  |
| 443      | C153     | 5354-473J1HM  | CAP,MYL .047 $\mu$          |
| 464      | C154     | 5345-104F0951 | CAP,MINI ELE .1 $\mu$ /50V  |
| 460      | C155     | 5345-224F0951 | CAP,MINI ELE .22 $\mu$ /50V |
| 464      | C156     | 5345-104F0951 | CAP,MINI ELE .1 $\mu$ /50V  |
| 460      | C157     | 5345-224F0951 | CAP,MINI ELE .22 $\mu$ /50V |
| 463      | C158     | 5345-474F0951 | CAP,MINI ELE .47 $\mu$ /50V |
| 463      | C159     | 5345-474F0951 | CAP,MINI ELE .47 $\mu$ /50V |
| 462      | C160     | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V   |
| 462      | C161     | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V   |
| 447      | C166     | 5354-104593   | CAP,MYL .1 $\mu$            |
| 447      | C167     | 5354-104593   | CAP,MYL .1 $\mu$            |
| 447      | C168     | 5354-104593   | CAP,MYL .1 $\mu$            |
| 447      | C169     | 5354-104593   | CAP,MYL .1 $\mu$            |
| 447      | C170     | 5354-104593   | CAP,MYL .1 $\mu$            |
| 447      | C171     | 5354-104593   | CAP,MYL .1 $\mu$            |
| 447      | C172     | 5354-104593   | CAP,MYL .1 $\mu$            |
| 447      | C173     | 5354-104593   | CAP,MYL .1 $\mu$            |
| 452      | C174     | 5353-220534   | CAP,MCA 22P                 |
| 452      | C175     | 5353-220534   | CAP,MCA 22P                 |
| 452      | C176     | 5353-220534   | CAP,MCA 22P                 |
| 448      | C301     | 5354-104593   | CAP,MYL .1 $\mu$            |
| 456      | C302     | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V  |
| 456      | C303     | 5345-106F041  | CAP,MINI ELE 10 $\mu$ /50V  |
| 431      | C304     | 5359-S010J103 | CAP,PPP .01 $\mu$           |
| 458      | C305     | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  |
| 432      | C306     | 5359-S010J332 | CAP,PPP 3300P               |
| 432      | C307     | 5359-S010J332 | CAP,PPP 3300P               |
| 443      | C308     | 5354-473J1HM  | CAP,MYL .047 $\mu$          |
| 458      | C309     | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  |
| 435      | C310     | 5359-S010J153 | CAP,PPP .015 $\mu$          |
| 453      | C311     | 5353-010934   | CAP,MCA 1P                  |
| 459      | C314     | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  |
| 449      | C315     | 5354-334593   | CAP,MYL .33 $\mu$           |
| 458      | C316     | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  |
| 457      | C317     | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  |
| 434      | C318     | 5359-S010J682 | CAP,PPP 6800P               |
| 457      | C319     | 5345-106C0951 | CAP,MINI ELE 10 $\mu$ /16V  |
| 461      | C320     | 5345-224F0951 | CAP,MINI ELE .22 $\mu$ /50V |
| 446      | C321     | 5354-104593   | CAP,MYL .1 $\mu$            |
| 462      | C322     | 5345-105F0951 | CAP,MINI ELE 1 $\mu$ /50V   |
| 435      | C323     | 5359-S010J153 | CAP,PPP .015 $\mu$          |
| 433      | C324     | 5359-S010J332 | CAP,PPP 3300P               |
| 446      | C325     | 5354-104593   | CAP,MYL .1 $\mu$            |
| 443      | C326     | 5354-473J1HM  | CAP,MYL .047 $\mu$          |
| 463      | C327     | 5345-474F0951 | CAP,MINI ELE .47 $\mu$ /50V |
| 446      | C328     | 5354-104593   | CAP,MYL .1 $\mu$            |
| 433      | C329     | 5359-S010J332 | CAP,PPP 3300P               |
| 436      | C330     | 5359-1015851  | CAP,PPP 100P                |

24

| Ser. No. | Ref. No. | Part No.      | Description       | Ser. No. | Ref. No. | Part No.      | Description       |
|----------|----------|---------------|-------------------|----------|----------|---------------|-------------------|
| 554      | R191     | 5174-S010F332 | RES,MTL 1/2 3.3K  | 508      | R327     | 5135-912522   | RES,CBN 1/2P 9.1K |
| 504      | R192     | 5135-223522   | RES,CBN 1/2P 22K  | 547      | R328     | 5135-471522   | RES,CBN 1/2P 470  |
| 516      | R193     | 5135-433522   | RES,CBN 1/2P 43K  | 509      | R329     | 5135-153522   | RES,CBN 1/2P 15K  |
| 524      | R194     | 5135-183522   | RES,CBN 1/2P 18K  | 498      | R330     | 5135-392522   | RES,CBN 1/2P 3.9K |
| 565      | R195     | 5174-S010F622 | RES,MTL 1/2 6.2K  | 502      | R331     | 5135-473522   | RES,CBN 1/2P 47K  |
| 533      | R196     | 5135-202522   | RES,CBN 1/2P 2K   | 561      | R332     | 5174-S010F302 | RES,MTL 1/2 3K    |
| 546      | R197     | 5135-274522   | RES,CBN 1/2P 270K | 568      | R333     | 5174-S010F132 | RES,MTL 1/2 1.3K  |
| 533      | R198     | 5135-202522   | RES,CBN 1/2P 2K   | 562      | R334     | 5174-S010F183 | RES,MTL 1/2 18K   |
| 545      | R199     | 5135-754522   | RES,CBN 1/2P 750K | 510      | R335     | 5135-204522   | RES,CBN 1/2P 200K |
| 499      | R200     | 5135-393522   | RES,CBN 1/2P 39K  | 511      | R336     | 5135-623522   | RES,CBN 1/2P 62K  |
| 534      | R201     | 5135-913522   | RES,CBN 1/2P 91K  | 562      | R337     | 5174-S010F183 | RES,MTL 1/2 18K   |
| 536      | R202     | 5135-154522   | RES,CBN 1/2P 150K | 512      | R338     | 5135-432522   | RES,CBN 1/2P 4.3K |
| 523      | R203     | 5135-103522   | RES,CBN 1/2P 10K  | 513      | R339     | 5135-512522   | RES,CBN 1/2P 5.1K |
| 537      | R204     | 5135-624522   | RES,CBN 1/2P 620K | 514      | R340     | 5135-330522   | RES,CBN 1/2P 33   |
| 504      | R205     | 5135-223522   | RES,CBN 1/2P 22K  | 515      | R341     | 5135-243522   | RES,CBN 1/2P 24K  |
| 502      | R206     | 5135-473522   | RES,CBN 1/2P 47K  | 516      | R342     | 5135-433522   | RES,CBN 1/2P 43K  |
| 510      | R207     | 5135-204522   | RES,CBN 1/2P 200K | 518      | R343     | 5135-303522   | RES,CBN 1/2P 30K  |
| 522      | R208     | 5135-133522   | RES,CBN 1/2P 13K  | 519      | R344     | 5135-163522   | RES,CBN 1/2P 16K  |
| 538      | R209     | 5135-203522   | RES,CBN 1/2P 20K  | 521      | R345     | 5135-752522   | RES,CBN 1/2P 7.5K |
| 539      | R210     | 5135-470522   | RES,CBN 1/2P 47   | 522      | R346     | 5135-133522   | RES,CBN 1/2P 13K  |
| 539      | R211     | 5135-470522   | RES,CBN 1/2P 47   | 523      | R347     | 5135-103522   | RES,CBN 1/2P 10K  |
| 514      | R212     | 5135-330522   | RES,CBN 1/2P 33   | 524      | R348     | 5135-183522   | RES,CBN 1/2P 18K  |
| 514      | R214     | 5135-330522   | RES,CBN 1/2P 33   | 518      | R349     | 5135-303522   | RES,CBN 1/2P 30K  |
| 522      | R217     | 5135-133522   | RES,CBN 1/2P 13K  | 562      | R350     | 5174-S010F183 | RES,MTL 1/2 18K   |
| 499      | R218     | 5135-393522   | RES,CBN 1/2P 39K  | 553      | R351     | 5174-S010F102 | RES,MTL 1/2 1K    |
| 493      | R219     | 5135-104522   | RES,CBN 1/2P 100K | 563      | R352     | 5174-S010F392 | RES,MTL 1/2 3.9K  |
| 499      | R220     | 5135-393522   | RES,CBN 1/2P 39K  | 563      | R353     | 5174-S010F392 | RES,MTL 1/2 3.9K  |
| 520      | R221     | 5135-752522   | RES,CBN 1/2P 7.5K | 496      | R355     | 5135-822522   | RES,CBN 1/2P 8.2K |
| 535      | R222     | 5135-333522   | RES,CBN 1/2P 33K  | 496      | R356     | 5135-822522   | RES,CBN 1/2P 8.2K |
| 520      | R223     | 5135-752522   | RES,CBN 1/2P 7.5K | 525      | R357     | 5135-272522   | RES,CBN 1/2P 2.7K |
| 517      | R224     | 5135-303522   | RES,CBN 1/2P 30K  | 525      | R358     | 5135-272522   | RES,CBN 1/2P 2.7K |
| 540      | R225     | 5135-914522   | RES,CBN 1/2P 910K | 564      | R359     | 5174-S010F273 | RES,MTL 1/2 27K   |
| 517      | R226     | 5135-303522   | RES,CBN 1/2P 30K  | 526      | R360     | 5135-125522   | RES,CBN 1/2P 1.2M |
| 540      | R227     | 5135-914522   | RES,CBN 1/2P 910K | 503      | R361     | 5135-223522   | RES,CBN 1/2P 22K  |
| 515      | R228     | 5135-243522   | RES,CBN 1/2P 24K  | 569      | R362     | 5174-S010F683 | RES,MTL 1/2 68K   |
| 541      | R229     | 5135-363522   | RES,CBN 1/2P 36K  | 563      | R363     | 5174-S010F392 | RES,MTL 1/2 3.9K  |
| 542      | R230     | 5135-622522   | RES,CBN 1/2P 6.2K | 565      | R364     | 5174-S010F622 | RES,MTL 1/2 6.2K  |
| 573      | R231     | 5174-S010F243 | RES,MTL 1/2 24K   | 566      | R365     | 5174-S010F912 | RES,MTL 1/2 9.1K  |
| 495      | R232     | 5135-822522   | RES,CBN 1/2P 8.2K | 570      | R366     | 5174-S010F244 | RES,MTL 1/2 240K  |
| 573      | R233     | 5174-S010F243 | RES,MTL 1/2 24K   | 565      | R367     | 5174-S010F622 | RES,MTL 1/2 6.2K  |
| 544      | R234     | 5135-683522   | RES,CBN 1/2P 68K  | 566      | R368     | 5174-S010F912 | RES,MTL 1/2 9.1K  |
| 536      | R235     | 5135-154522   | RES,CBN 1/2P 150K | 567      | R369     | 5174-S010F362 | RES,MTL 1/2 3.6K  |
| 505      | R236     | 5135-223522   | RES,CBN 1/2P 22K  | 571      | R370     | 5174-S010F512 | RES,MTL 1/2 5.1K  |
| 543      | R239     | 5135-101522   | RES,CBN 1/2P 100  | 527      | R371     | 5135-824522   | RES,CBN 1/2P 820K |
| 543      | R240     | 5135-101522   | RES,CBN 1/2P 100  | 528      | R372     | 5135-563522   | RES,CBN 1/2P 56K  |
| 507      | R245     | 5135-102522   | RES,CBN 1/2P 1K   | 497      | R373     | 5135-823522   | RES,CBN 1/2P 82K  |
| 507      | R247     | 5135-102522   | RES,CBN 1/2P 1K   | 529      | R374     | 5135-911522   | RES,CBN 1/2P 910  |
| 577      | R251     | 5135-105522   | RES,CBN 1/2P 1M   | 572      | R375     | 5174-S010F562 | RES,MTL 1/2 5.6K  |
| 577      | R252     | 5135-105522   | RES,CBN 1/2P 1M   | 529      | R376     | 5135-911522   | RES,CBN 1/2P 910  |
| 520      | R254     | 5135-752522   | RES,CBN 1/2P 7.5K | 552      | R377     | 5174-S010F103 | RES,MTL 1/2 10K   |
| 499      | R255     | 5135-393522   | RES,CBN 1/2P 39K  | 529      | R378     | 5135-911522   | RES,CBN 1/2P 910  |
| 574      | R256     | 5174-S010F274 | RES,MTL 1/2 270K  | 530      | R379     | 5135-122522   | RES,CBN 1/2P 1.2K |
| 564      | R257     | 5174-S010F273 | RES,MTL 1/2 27K   | 508      | R380     | 5135-912522   | RES,CBN 1/2P 9.1K |
| 575      | R258     | 5174-S010F184 | RES,MTL 1/2 180K  | 500      | R381     | 5135-393522   | RES,CBN 1/2P 39K  |
| 576      | R259     | 5174-S010F473 | RES,MTL 1/2 47K   | 508      | R382     | 5135-912522   | RES,CBN 1/2P 9.1K |
| 555      | R301     | 5174-S010F753 | RES,MTL 1/2 75K   | 493      | R383     | 5135-104522   | RES,CBN 1/2P 100K |
| 556      | R303     | 5174-S010F822 | RES,MTL 1/2 8.2K  | 511      | R384     | 5135-623522   | RES,CBN 1/2P 62K  |
| 494      | R304     | 5135-362522   | RES,CBN 1/2P 3.6K | 511      | R385     | 5135-623522   | RES,CBN 1/2P 62K  |
| 492      | R305     | 5135-104522   | RES,CBN 1/2P 100K | 518      | R386     | 5135-303522   | RES,CBN 1/2P 30K  |
| 492      | R306     | 5135-104522   | RES,CBN 1/2P 100K | 531      | R387     | 5135-753522   | RES,CBN 1/2P 75K  |
| 557      | R307     | 5174-S010F112 | RES,MTL 1/4 1.1K  | 503      | R388     | 5135-223522   | RES,CBN 1/2P 22K  |
| 496      | R308     | 5135-822522   | RES,CBN 1/2P 8.2K | 532      | R389     | 5135-513522   | RES,CBN 1/2P 51K  |
| 497      | R309     | 5135-823522   | RES,CBN 1/2P 82K  | 504      | R390     | 5135-223522   | RES,CBN 1/2P 22K  |
| 492      | R310     | 5135-104522   | RES,CBN 1/2P 100K | 554      | R391     | 5174-S010F332 | RES,MTL 1/2 3.3K  |
| 492      | R311     | 5135-104522   | RES,CBN 1/2P 100K | 504      | R392     | 5135-223522   | RES,CBN 1/2P 22K  |
| 554      | R312     | 5174-S010F332 | RES,MTL 1/2 3.3K  | 516      | R393     | 5135-433522   | RES,CBN 1/2P 43K  |
| 498      | R313     | 5135-392522   | RES,CBN 1/2P 3.9K | 524      | R394     | 5135-183522   | RES,CBN 1/2P 18K  |
| 500      | R314     | 5135-393522   | RES,CBN 1/2P 39K  | 565      | R395     | 5174-S010F622 | RES,MTL 1/2 6.2K  |
| 558      | R315     | 5174-S010F113 | RES,MTL 1/2 11K   | 533      | R396     | 5135-202522   | RES,CBN 1/2P 2K   |
| 492      | R316     | 5135-104522   | RES,CBN 1/2P 100K | 546      | R397     | 5135-274522   | RES,CBN 1/2P 270K |
| 559      | R317     | 5174-S010F433 | RES,MTL 1/2 43K   | 533      | R398     | 5135-202522   | RES,CBN 1/2P 2K   |
| 560      | R318     | 5174-S010F752 | RES,MTL 1/2 7.5K  | 545      | R399     | 5135-754522   | RES,CBN 1/2P 750K |
| 501      | R319     | 5135-222522   | RES,CBN 1/2P 2.2K | 500      | R400     | 5135-393522   | RES,CBN 1/2P 39K  |
| 543      | R320     | 5135-221522   | RES,CBN 1/2P 220  | 534      | R401     | 5135-913522   | RES,CBN 1/2P 91K  |
| 502      | R321     | 5135-473522   | RES,CBN 1/2P 47K  | 536      | R402     | 5135-154522   | RES,CBN 1/2P 150K |
| 503      | R322     | 5135-223522   | RES,CBN 1/2P 22K  | 523      | R403     | 5135-103522   | RES,CBN 1/2P 10K  |
| 506      | R323     | 5135-102522   | RES,CBN 1/2P 1K   | 537      | R404     | 5135-624522   | RES,CBN 1/2P 620K |
| 552      | R324     | 5174-S010F103 | RES,MTL 1/2 10K   | 504      | R405     | 5135-223522   | RES,CBN 1/2P 22K  |
| 556      | R325     | 5174-S010F822 | RES,MTL 1/2 8.2K  | 502      | R406     | 5135-473522   | RES,CBN 1/2P 47K  |

| Ser. No. | Ref. No. | Part No.      | Description       |
|----------|----------|---------------|-------------------|
| 510      | R407     | 5135-204522   | RES,CBN 1/2P 200K |
| 522      | R408     | 5135-133522   | RES,CBN 1/2P 13K  |
| 538      | R409     | 5135-203522   | RES,CBN 1/2P 20K  |
| 539      | R410     | 5135-470522   | RES,CBN 1/2P 47   |
| 539      | R411     | 5135-470522   | RES,CBN 1/2P 47   |
| 514      | R412     | 5135-330522   | RES,CBN 1/2P 33   |
| 514      | R414     | 5135-330522   | RES,CBN 1/2P 33   |
| 522      | R417     | 5135-133522   | RES,CBN 1/2P 13K  |
| 500      | R418     | 5135-393522   | RES,CBN 1/2P 39K  |
| 493      | R419     | 5135-104522   | RES,CBN 1/2P 100K |
| 500      | R420     | 5135-393522   | RES,CBN 1/2P 39K  |
| 521      | R421     | 5135-752522   | RES,CBN 1/2P 7.5K |
| 535      | R422     | 5135-333522   | RES,CBN 1/2P 33K  |
| 521      | R423     | 5135-752522   | RES,CBN 1/2P 7.5K |
| 518      | R424     | 5135-303522   | RES,CBN 1/2P 30K  |
| 540      | R425     | 5135-914522   | RES,CBN 1/2P 910K |
| 518      | R426     | 5135-303522   | RES,CBN 1/2P 30K  |
| 540      | R427     | 5135-914522   | RES,CBN 1/2P 910K |
| 515      | R428     | 5135-243522   | RES,CBN 1/2P 24K  |
| 541      | R429     | 5135-363522   | RES,CBN 1/2P 36K  |
| 542      | R430     | 5135-622522   | RES,CBN 1/2P 6.2K |
| 573      | R431     | 5174-S010F243 | RES,MTL 1/2 24K   |
| 496      | R432     | 5135-822522   | RES,CBN 1/2P 8.2K |
| 573      | R433     | 5174-S010F243 | RES,MTL 1/2 24K   |
| 544      | R434     | 5135-683522   | RES,CBN 1/2P 68K  |
| 536      | R435     | 5135-154522   | RES,CBN 1/2P 150K |
| 505      | R436     | 5135-223522   | RES,CBN 1/2P 22K  |
| 543      | R439     | 5135-221522   | RES,CBN 1/2P 220  |
| 543      | R440     | 5135-221522   | RES,CBN 1/2P 220  |
| 507      | R445     | 5135-102522   | RES,CBN 1/2P 1K   |
| 507      | R447     | 5135-102522   | RES,CBN 1/2P 1K   |
| 577      | R451     | 5135-105522   | RES,CBN 1/2P 1M   |
| 577      | R452     | 5135-105522   | RES,CBN 1/2P 1M   |
| 521      | R454     | 5135-752522   | RES,CBN 1/2P 7.5K |
| 500      | R455     | 5135-393522   | RES,CBN 1/2P 39K  |
| 574      | R456     | 5174-S010F274 | RES,MTL 1/2 270K  |
| 564      | R457     | 5174-S010F273 | RES,MTL 1/2 27K   |
| 575      | R458     | 5174-S010F184 | RES,MTL 1/2 180K  |
| 576      | R459     | 5174-S010F473 | RES,MTL 1/2 47K   |
| 543      | R501     | 5135-221522   | RES,CBN 1/2P 220  |
| 543      | R502     | 5135-221522   | RES,CBN 1/2P 220  |
| 424      | R503     | 5135-332522   | RES,CBN 1/2P 3.3K |
| 424      | R504     | 5135-332522   | RES,CBN 1/2P 3.3K |
| 425      | R505     | 5135-822522   | RES,CBN 1/2P 8.2K |
| 425      | R506     | 5135-822522   | RES,CBN 1/2P 8.2K |
| 419      | R507     | 5174-S010F243 | RES,MTL 1/2 24K   |
| 419      | R508     | 5174-S010F243 | RES,MTL 1/2 24K   |
| 420      | R509     | 5174-S010F561 | RES,MTL 1/2 560   |
| 420      | R510     | 5174-S010F561 | RES,MTL 1/2 560   |
| 426      | R511     | 5135-102522   | RES,CBN 1/2P 1K   |
| 421      | R512     | 5174-S010F273 | RES,MTL 1/2 27K   |
| 428      | R513     | 5135-105522   | RES,CBN 1/2P 1M   |
| 428      | R514     | 5135-105522   | RES,CBN 1/2P 1M   |
| 428      | R515     | 5135-105522   | RES,CBN 1/2P 1M   |
| 428      | R516     | 5135-105522   | RES,CBN 1/2P 1M   |
| 422      | R517     | 5135-472522   | RES,CBN 1/2P 4.7K |

**INTEGRATED CIRCUITS**

|     |       |               |            |
|-----|-------|---------------|------------|
| 472 | IC1   | 5652-NJM4558D | IC, MONO   |
| 473 | IC101 | 5652-TA75072P | IC, MONO   |
| 477 | IC103 | 5653-CXA1416  | IC, LINEAR |
| 473 | IC104 | 5652-TA75072P | IC, MONO   |
| 476 | IC105 | 5653-CXA1415  | IC, LINEAR |
| 473 | IC106 | 5652-TA75072P | IC, MONO   |
| 476 | IC107 | 5653-CXA1415  | IC, LINEAR |
| 474 | IC301 | 5652-TA75072P | IC, MONO   |
| 477 | IC303 | 5653-CXA1416  | IC, LINEAR |
| 474 | IC304 | 5652-TA75072P | IC, MONO   |
| 476 | IC305 | 5653-CXA1415  | IC, LINEAR |
| 474 | IC306 | 5652-TA75072P | IC, MONO   |
| 476 | IC307 | 5653-CXA1415  | IC, LINEAR |
| 401 | IC501 | 5653-CXA1332S | IC, LINEAR |

**TRANSISTORS**

|     |      |             |              |
|-----|------|-------------|--------------|
| 403 | Q501 | 5613-UN4214 | XISTOR,NPN R |
| 403 | Q502 | 5613-UN4214 | XISTOR,NPN R |
| 403 | Q503 | 5613-UN4214 | XISTOR,NPN R |
| 403 | Q504 | 5613-UN4214 | XISTOR,NPN R |

| Ser. No.             | Ref. No. | Part No.      | Description  |
|----------------------|----------|---------------|--------------|
| <b>DIODES</b>        |          |               |              |
| 470                  | D1       | 5631-1S2473   | DIODE,DET    |
| 470                  | D103     | 5631-1S2473   | DIODE,DET    |
| 470                  | D105     | 5631-1S2473   | DIODE,DET    |
| 470                  | D303     | 5631-1S2473   | DIODE,DET    |
| 470                  | D305     | 5631-1S2473   | DIODE,DET    |
| <b>MISCELLANEOUS</b> |          |               |              |
| 429                  | JW101    | 4242-R0303161 | JUMPER LEAD  |
| 405                  | LC501    | 5214-13701    | LC COMPOSITE |
| 405                  | LC502    | 5214-13701    | LC COMPOSITE |
| 590                  | TM1      | 4214-132      | TERMINAL     |
| 590                  | TM2      | 4214-132      | TERMINAL     |
| 590                  | TM3      | 4214-132      | TERMINAL     |
| 590                  | TM4      | 4214-132      | TERMINAL     |
| 590                  | TM5      | 4214-132      | TERMINAL     |
| 590                  | TM6      | 4214-132      | TERMINAL     |
| 590                  | TM7      | 4214-132      | TERMINAL     |
| 590                  | TM8      | 4214-132      | TERMINAL     |
| 590                  | TM9      | 4214-132      | TERMINAL     |
| 590                  | TM10     | 4214-132      | TERMINAL     |
| 590                  | TM11     | 4214-132      | TERMINAL     |
| 590                  | TM12     | 4214-132      | TERMINAL     |
| 590                  | TM13     | 4214-132      | TERMINAL     |
| 590                  | TM14     | 4214-132      | TERMINAL     |
| 590                  | TM15     | 4214-132      | TERMINAL     |
| 590                  | TM16     | 4214-132      | TERMINAL     |
| 590                  | TM17     | 4214-132      | TERMINAL     |
| 590                  | TM18     | 4214-132      | TERMINAL     |
| 590                  | TM19     | 4214-132      | TERMINAL     |
| 590                  | TM20     | 4214-132      | TERMINAL     |
| 590                  | TM21     | 4214-132      | TERMINAL     |
| 480                  | CN101    | 4443-06101013 | CONNECTOR    |
| 481                  | CN102    | 4443-06101005 | CONNECTOR    |
| 482                  | CN103    | 4443-0301141  | CONNECTOR    |
| 481                  | CN104    | 4443-06101005 | CONNECTOR    |
| 578                  |          | 5135-125522   | RES,CBN 1/2P |
| 579                  |          | 5135-155522   | RES,CBN 1/2P |
| 580                  |          | 5135-185522   | RES,CBN 1/2P |
| 581                  |          | 5135-225522   | RES,CBN 1/2P |
| 582                  |          | 5135-275522   | RES,CBN 1/2P |
| 583                  |          | 5135-335522   | RES,CBN 1/2P |

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

|      |      |               |                        |
|------|------|---------------|------------------------|
| 615  | △C1  | 5352-S010M103 | CAP,MTL .01μ UA BK     |
| 615A | △C1  | 5352-1030961  | CAP,MTL .01μ IB        |
| 616  | C2   | 5352-S060K104 | CAP,MTL .1μ            |
| 616  | C3   | 5352-S060K104 | CAP,MTL .1μ            |
| 616  | C4   | 5352-S060K104 | CAP,MTL .1μ            |
| 603  | C5   | 5345-228D041  | CAP,MINI ELE 2200μ/25V |
| 603  | C6   | 5345-228D041  | CAP,MINI ELE 2200μ/25V |
| 604  | C7   | 5345-227C041  | CAP,MINI ELE 220μ/16V  |
| 604  | C8   | 5345-227C041  | CAP,MINI ELE 220μ/16V  |
| 605  | C9   | 5345-108C041  | CAP,MINI ELE 1000μ/16V |
| 605  | C10  | 5345-108C041  | CAP,MINI ELE 1000μ/16V |
| 607  | C11  | 5345-478D0962 | CAP,MINI ELE 4700μ/25V |
| 604  | C12  | 5345-227C041  | CAP,MINI ELE 220μ/16V  |
| 605  | C13  | 5345-108C041  | CAP,MINI ELE 1000μ/16V |
| 604  | C14  | 5345-227C041  | CAP,MINI ELE 220μ/16V  |
| 610  | C15  | 5345-108B041  | CAP,MINI ELE 1000μ/10V |
| 606  | C16  | 5345-226F041  | CAP,MINI ELE 22μ/50V   |
| 609  | C17  | 5345-477E041  | CAP,MINI ELE 470μ/35V  |
| 616  | C19  | 5352-S060K104 | CAP,MTL .1μ            |
| 616  | C20  | 5352-S060K104 | CAP,MTL .1μ            |
| 602  | C21  | 5345-228C041  | CAP,MINI ELE 2200μ/16V |
| 602  | C22  | 5345-228C041  | CAP,MINI ELE 2200μ/16V |
| 604  | C23  | 5345-227C041  | CAP,MINI ELE 220μ/16V  |
| 604  | C24  | 5345-227C041  | CAP,MINI ELE 220μ/16V  |
| 608  | C25  | 5345-108B041  | CAP,MINI ELE 1000μ/10V |
| 608  | C26  | 5345-108B041  | CAP,MINI ELE 1000μ/10V |
| 684  | C51  | 5345-226D041  | CAP,MINI ELE 22μ/25V   |
| 685  | C52  | 5345-106F041  | CAP,MINI ELE 10μ/50V   |
| 685  | C53  | 5345-106F041  | CAP,MINI ELE 10μ/50V   |
| 686  | C54  | 5345-107D041  | CAP,MINI ELE 100μ/25V  |
| 865  | C851 | 5345-107B041  | CAP,MINI ELE 100μ/10V  |

**RESISTORS**

|      |     |             |                      |
|------|-----|-------------|----------------------|
| 042A | △R1 | 5135-335522 | RES,CBN 1/2P 3.3M IB |
|------|-----|-------------|----------------------|

| Ser. No. | Ref. No. | Part No.     | Description                  |
|----------|----------|--------------|------------------------------|
| 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 <b>UA BK</b> |
| 619      | R15      | 5135-152522  | RES,CBN 1/2P 1.5K            |
| 620      | R16      | 5135-471522  | RES,CBN 1/2P 470             |
| 630      | 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     | R22      | 5102-1R05116 | RES,FUSE 1 <b>I IB</b>       |
| 619      | R23      | 5135-152522  | RES,CBN 1/2P 1.5K            |
| 619      | R24      | 5135-152522  | RES,CBN 1/2P 1.5K            |
| 620      | R25      | 5135-471522  | RES,CBN 1/2P 470             |
| 620      | R26      | 5135-471522  | RES,CBN 1/2P 470             |
| 621      | R27      | 5135-101522  | RES,CBN 1/2P 100             |
| 621      | R28      | 5135-101522  | RES,CBN 1/2P 100             |
| 636      | R29      | 5135-4R7522  | RES,CBN 1/2P 4.7             |
| 636      | R30      | 5135-4R7522  | RES,CBN 1/2P 4.7             |
| 699      | R51      | 5135-331522  | RES,CBN 1/2P 330             |
| 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 1/2 470              |
| 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              |
| 587 | Q3   | 5613-2320(F)  | XISTOR,NPN R              |
| 585 | Q4   | 5611-999(F)   | XISTOR,PNP R              |
| 587 | Q5   | 5613-2320(F)  | XISTOR,NPN R              |
| 585 | Q6   | 5611-999(F)   | XISTOR,PNP R              |
| 581 | Q7   | 5612-941(P)   | XISTOR,PNP A              |
| 587 | Q8   | 5613-2320(F)  | XISTOR,NPN R              |
| 586 | Q9   | 5613-2320(F)  | XISTOR,NPN R              |
| 581 | Q10  | 5612-941(P)   | XISTOR,PNP A <b>UA BK</b> |
| 587 | Q11  | 5613-2320(F)  | XISTOR,NPN R              |
| 587 | Q12  | 5613-2320(F)  | XISTOR,NPN R              |
| 581 | Q13  | 5612-941(P)   | XISTOR,PNP A              |
| 582 | Q14  | 5614-1266(P)  | XISTOR,NPN A              |
| 587 | Q15  | 5613-2320(F)  | XISTOR,NPN R              |
| 585 | Q16  | 5611-999(F)   | XISTOR,PNP R              |
| 587 | Q17  | 5613-2320(F)  | XISTOR,NPN R              |
| 585 | Q18  | 5611-999(F)   | XISTOR,PNP 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

|     |     |               |             |
|-----|-----|---------------|-------------|
| 590 | D1  | 5632-S5566B   | DIODE,RECT  |
| 590 | D2  | 5632-S5566B   | DIODE,RECT  |
| 590 | D3  | 5632-S5566B   | DIODE,RECT  |
| 590 | D4  | 5632-S5566B   | DIODE,RECT  |
| 590 | D5  | 5632-S5566B   | DIODE,RECT  |
| 590 | 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 |
| 589 | D15 | 5632-S5566B   | DIODE,RECT  |
| 589 | D16 | 5632-S5566B   | DIODE,RECT  |
| 589 | D17 | 5632-S5566B   | DIODE,RECT  |
| 589 | D18 | 5632-S5566B   | DIODE,RECT  |
| 595 | D19 | 5635-HZ6C1L   | DIODE,ZENER |
| 595 | D20 | 5635-HZ6C1L   | DIODE,ZENER |

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

|      |        |               |                            |
|------|--------|---------------|----------------------------|
| 755  | AF1    | 5732-801031   | FUSE <b>UA BK</b>          |
| 755A | AF1    | 5732-161030   | FUSE <b>I IB</b>           |
| 754  | HL1    | 4472-04501    | FUSE HOLDER                |
| 754  | HL2    | 4472-04501    | FUSE HOLDER                |
| 731  | AS1    | 4433-00202    | PUSH SWITCH, POWER         |
| 041A | ASW2   | 4411-1047111  | ROTARY SWITCH <b>I IB</b>  |
| 601  | AT1    | 5584-S8301    | XFORMER,POWER <b>UA BK</b> |
| 601A | AT1    | 5584-S8302    | XFORMER,POWER <b>I IB</b>  |
| 777  | TM1    | 4214-122      | TERMINAL                   |
| 777  | TM2    | 4214-122      | TERMINAL                   |
| 805  | CN101  | 4443-030185   | CONNECTOR                  |
| 806  | CN102  | 4443-040185   | CONNECTOR                  |
| 807  | CN103  | 4443-050185   | CONNECTOR                  |
| 807  | CN104  | 4443-050185   | CONNECTOR                  |
| 815  | LCN501 | 4163-S0203501 | CONNECTOR W/W              |

**MISCELLANEOUS**

PCB-5 HEAD PHONE P. C. BOARD

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

**ABBREVIATIONS IN PARTS LIST**

**CAPACITORS**  
CAP,MINI ELE :Electrolytic  
CAP, CER :Ceramic  
CAP, PPP :Polypropylene  
CAP, MYL :Mylar  
CAP, MTL :Metal  
CAP, MCA :Mica  
CAP, MINI BP:Bipolar  
CAP, ELE BP:Electrolytic Bipolar  
CAP, STY :Polystyrene Film  
CAP, SPE :Special  
CAP, TAN :Tantalum

470μ :470μF  
6800p :6800pF  
.047μ :0.047μF

**RESISTORS**  
RES, CBN 1/6P:Carbon 1/6W  
RES, FUSE :Fuse  
RES, CEM 5P:Cement 5W  
RES, MTL 1P :Metal 1W  
2.2K :2.2kΩ  
220 :220Ω

**TRANSISTORS**  
XISTOR :Transistor  
FET :Field Effect Transistor

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

**CHASSIS MISCELLANEOUS**

|      |      |               |                          |
|------|------|---------------|--------------------------|
| 759  | LUG1 | 4211-5005     | LUG TERMINAL             |
| 761  | AP1  | 4161-71151    | CORD W/PLUG <b>UA BK</b> |
| 761A | AP1  | 4161-7256     | CORD W/PLUG <b>I IB</b>  |
| 791  |      | 4242-S0232131 | JUMPER LEAD              |

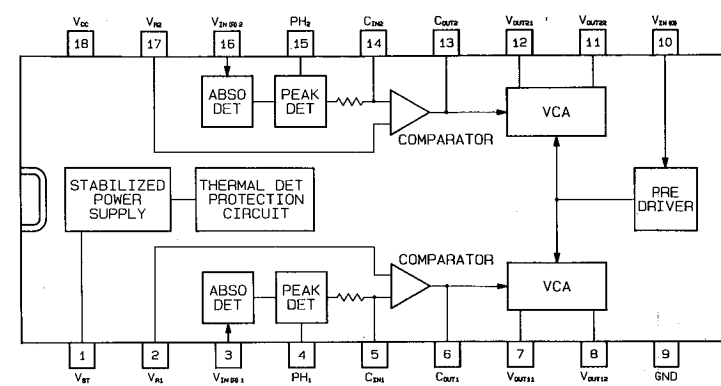
**PACKAGE PARTS LIST**

|      |               |                                     |
|------|---------------|-------------------------------------|
| 021A | 1756-06303    | LABEL <b>I IB</b>                   |
| 022A | 1756-03124    | LABEL <b>I IB</b>                   |
| 106  | 1111-J30325   | OWNER GUIDE <b>UA BK</b>            |
| 106A | 1111-J30326   | OWNER GUIDE <b>I IB</b>             |
| 107  | 1113-717004   | OWNER CARD <b>UA BK</b>             |
| 111  | 1119-047      | ATTACH SHEET, GUARANTY <b>UA BK</b> |
| 112  | 1119-0137     | ATTACH SHEET, SERVICE               |
|      |               | STATION GUIDE <b>UA BK</b>          |
| 113  | 1119-01201    | ATTACH SHEET, SAFETY <b>UA BK</b>   |
| 115  | 1221-28009    | CARTON BOX <b>UA BK</b>             |
| 115A | 1221-28003    | CARTON BOX <b>UA BK</b>             |
| 116  | 1222-7362     | CUSHION <b>I IB</b>                 |
| 117  | 1222-7369     | CUSHION                             |
| 119  | 1223-R0220055 | SOFT SHEET, SET FRONT               |
| 120  | 1223-00403012 | SOFT SHEET, CASSETTE LID            |
| 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                        |

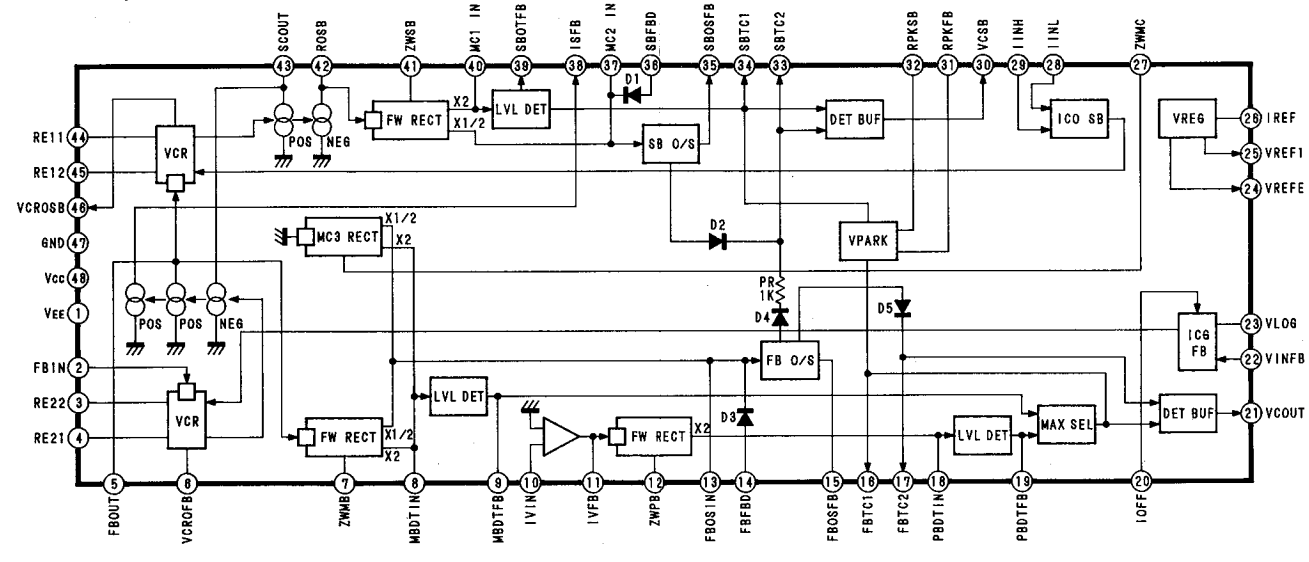
**NOTE**  
⚠ SAFETY RELATED COMPONENT. USE ONLY EXACT REPLACEMENT PART AS SPECIFIED.

IC BLOCK DIAGRAM

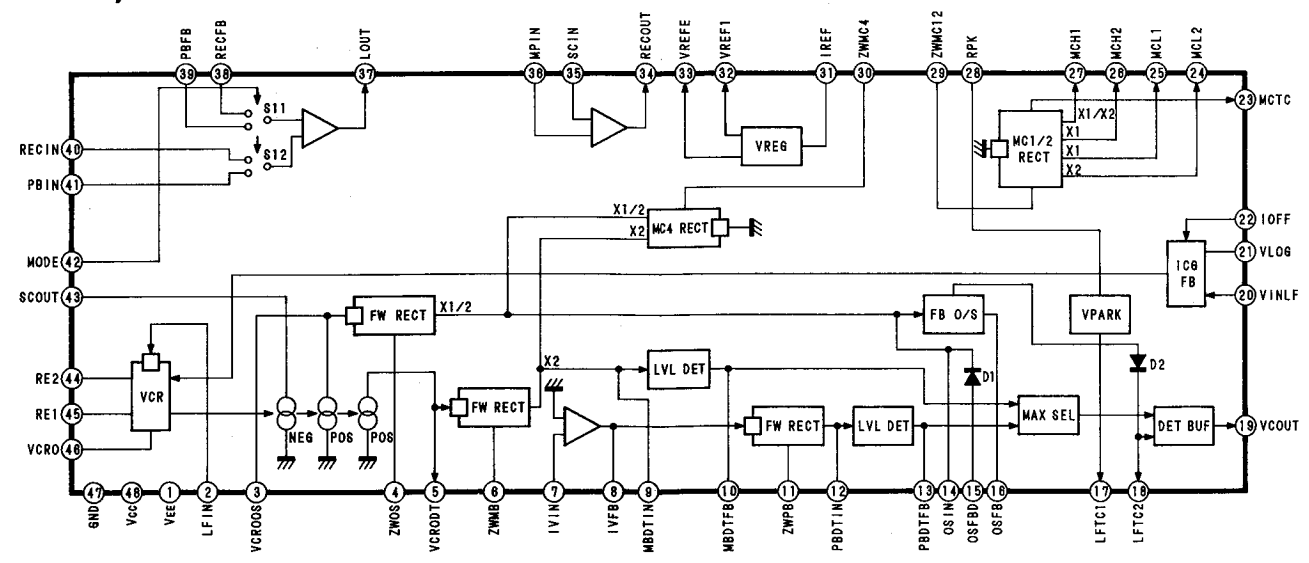
IC301: μPC1297CA  
Dolby HX Pro



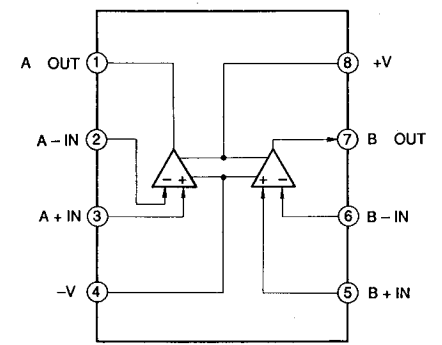
IC105, 107, 305, 307  
CXA1415  
Dolby S NR



IC103, 303  
CXA1416  
Dolby S NR



IC1, 401, 601, 751  
NJM4558D  
OP-Amp.



| Ser. No. | Ref. No. | Part No.     | Description                  |
|----------|----------|--------------|------------------------------|
| 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 <b>UA BK</b> |
| 619      | R15      | 5135-152522  | RES,CBN 1/2P 1.5K            |
| 620      | R16      | 5135-471522  | RES,CBN 1/2P 470             |
| 630      | △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     | △R22     | 5102-1R05116 | RES,FUSE 1 <b>I IB</b>       |
| 619      | R23      | 5135-152522  | RES,CBN 1/2P 1.5K            |
| 619      | R24      | 5135-152522  | RES,CBN 1/2P 1.5K            |
| 620      | R25      | 5135-471522  | RES,CBN 1/2P 470             |
| 620      | R26      | 5135-471522  | RES,CBN 1/2P 470             |
| 621      | R27      | 5135-101522  | RES,CBN 1/2P 100             |
| 621      | R28      | 5135-101522  | RES,CBN 1/2P 100             |
| 636      | R29      | 5135-4R7522  | RES,CBN 1/2P 4.7             |
| 636      | R30      | 5135-4R7522  | RES,CBN 1/2P 4.7             |
| 699      | R51      | 5135-331522  | RES,CBN 1/2P 330             |
| 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              |
| 587 | Q3   | 5613-2320(F)  | XISTOR,NPN R              |
| 585 | Q4   | 5611-999(F)   | XISTOR,PNP R              |
| 587 | Q5   | 5613-2320(F)  | XISTOR,NPN R              |
| 585 | Q6   | 5611-999(F)   | XISTOR,PNP R              |
| 581 | Q7   | 5612-941(P)   | XISTOR,PNP A              |
| 587 | Q8   | 5613-2320(F)  | XISTOR,NPN R              |
| 586 | Q9   | 5613-2320(F)  | XISTOR,NPN R <b>UA BK</b> |
| 581 | Q10  | 5612-941(P)   | XISTOR,PNP A              |
| 587 | Q11  | 5613-2320(F)  | XISTOR,NPN R              |
| 587 | Q12  | 5613-2320(F)  | XISTOR,NPN R              |
| 581 | Q13  | 5612-941(P)   | XISTOR,PNP A              |
| 582 | Q14  | 5614-1266(P)  | XISTOR,NPN A              |
| 587 | Q15  | 5613-2320(F)  | XISTOR,NPN R              |
| 585 | Q16  | 5611-999(F)   | XISTOR,PNP R              |
| 587 | Q17  | 5613-2320(F)  | XISTOR,NPN R              |
| 585 | Q18  | 5611-999(F)   | XISTOR,PNP 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

|     |      |               |             |
|-----|------|---------------|-------------|
| 590 | △D1  | 5632-S5566B   | DIODE,RECT  |
| 590 | △D2  | 5632-S5566B   | DIODE,RECT  |
| 590 | △D3  | 5632-S5566B   | DIODE,RECT  |
| 590 | △D4  | 5632-S5566B   | DIODE,RECT  |
| 590 | D5   | 5632-S5566B   | DIODE,RECT  |
| 590 | 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 |
| 589 | △D15 | 5632-S5566B   | DIODE,RECT  |
| 589 | △D16 | 5632-S5566B   | DIODE,RECT  |
| 589 | △D17 | 5632-S5566B   | DIODE,RECT  |
| 589 | △D18 | 5632-S5566B   | DIODE,RECT  |
| 595 | D19  | 5635-HZ6C1L   | DIODE,ZENER |
| 595 | D20  | 5635-HZ6C1L   | DIODE,ZENER |

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

#### MISCELLANEOUS

|      |        |               |                            |
|------|--------|---------------|----------------------------|
| 755  | △F1    | 5732-801031   | FUSE <b>UA BK</b>          |
| 755A | △F1    | 5732-161030   | FUSE <b>I IB</b>           |
| 754  | △HL1   | 4472-04501    | FUSE HOLDER                |
| 754  | △HL2   | 4472-04501    | FUSE HOLDER                |
| 731  | △S1    | 4433-00202    | PUSH SWITCH, POWER         |
| 041A | △SW2   | 4411-1047111  | ROTARY SWITCH <b>I IB</b>  |
| 601  | △T1    | 5584-S8301    | XFORMER,POWER <b>UA BK</b> |
| 601A | △T1    | 5584-S8302    | XFORMER,POWER <b>I IB</b>  |
| 777  | TM1    | 4214-122      | TERMINAL                   |
| 777  | TM2    | 4214-122      | TERMINAL                   |
| 805  | CN101  | 4443-030185   | CONNECTOR                  |
| 806  | CN102  | 4443-040185   | CONNECTOR                  |
| 807  | CN103  | 4443-050185   | CONNECTOR                  |
| 807  | CN104  | 4443-050185   | CONNECTOR                  |
| 815  | LCN501 | 4163-S0203501 | CONNECTOR W/W              |

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

#### MISCELLANEOUS

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

#### 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     |               |              |
| CAP, SPE      | :Special              |               |              |
| CAP, TAN      | :Tantalum             |               |              |
| 470μ          | :470μF                |               |              |
| 6800p         | :6800pF               |               |              |
| .047μ         | :0.047μF              |               |              |

#### TRANSISTORS

|        |                          |
|--------|--------------------------|
| XISTOR | :Transistor              |
| FET    | :Field Effect Transistor |

#### CONTROLS

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

#### CHASSIS MISCELLANEOUS

|      |      |               |                          |
|------|------|---------------|--------------------------|
| 759  | LUG1 | 4211-5005     | LUG TERMINAL             |
| 761  | △P1  | 4161-71151    | CORD W/PLUG <b>UA BK</b> |
| 761A | △P1  | 4161-7256     | CORD W/PLUG <b>I IB</b>  |
| 791  |      | 4242-S0232131 | JUMPER LEAD              |

#### PACKAGE PARTS LIST

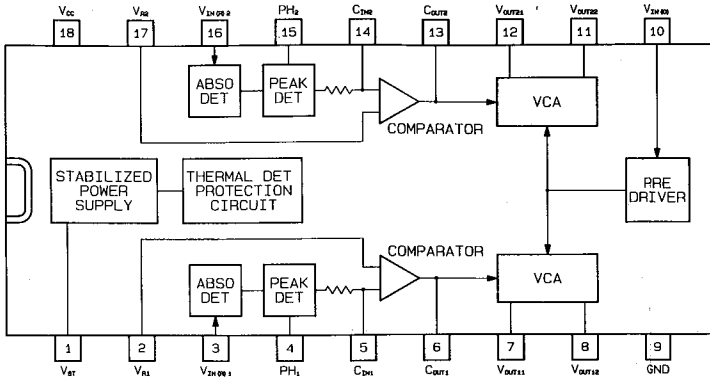
|      |               |                                     |
|------|---------------|-------------------------------------|
| 021A | 1756-06303    | LABEL <b>I IB</b>                   |
| 022A | 1756-03124    | LABEL <b>I IB</b>                   |
| 106  | 1111-J30325   | OWNER GUIDE <b>UA BK</b>            |
| 106A | 1111-J30326   | OWNER GUIDE <b>I IB</b>             |
| 107  | 1113-717004   | OWNER CARD <b>UA BK</b>             |
| 111  | 1119-047      | ATTACH SHEET, GUARANTY <b>UA BK</b> |
| 112  | 1119-0137     | ATTACH SHEET, SERVICE               |
|      |               | STATION GUIDE <b>UA BK</b>          |
| 113  | 1119-01201    | ATTACH SHEET, SAFETY <b>UA BK</b>   |
| 115  | 1221-28009    | CARTON BOX <b>UA I</b>              |
| 115A | 1221-28003    | CARTON BOX <b>BK IB</b>             |
| 116  | 1222-7362     | CUSHION                             |
| 117  | 1222-7369     | CUSHION                             |
| 119  | 1223-R0220055 | SOFT SHEET, SET FRONT               |
| 120  | 1223-00403012 | SOFT SHEET, CASSETTE LID            |
| 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                        |

#### NOTE

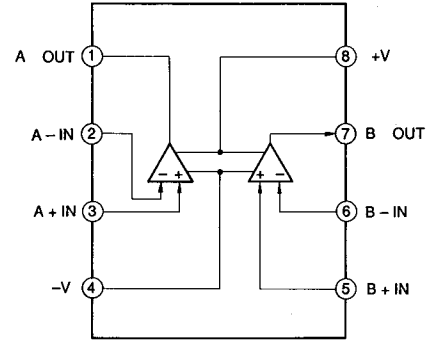
⚠ SAFETY RELATED COMPONENT. USE ONLY EXACT REPLACEMENT PART AS SPECIFIED.

# IC BLOCK DIAGRAM

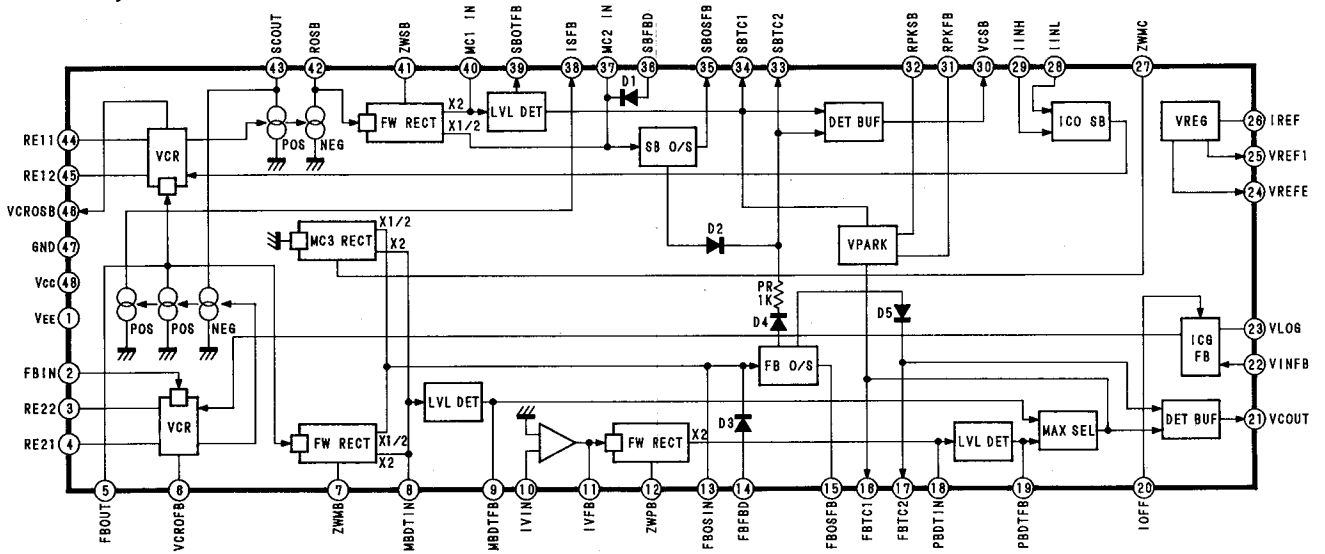
IC301:  $\mu$ PC1297CA  
Dolby HX Pro



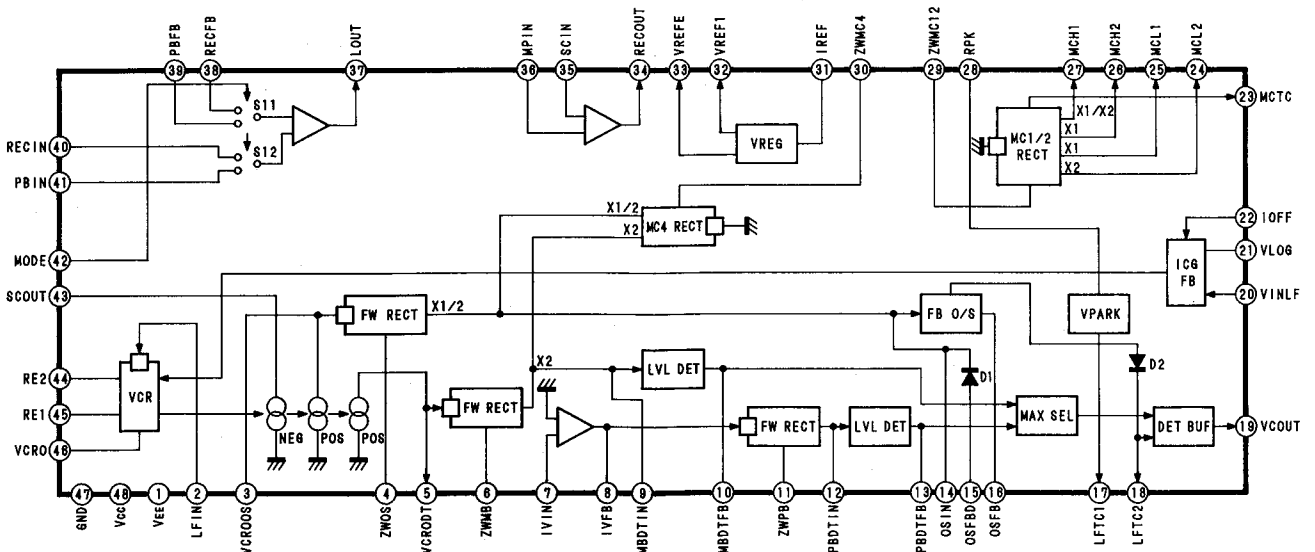
IC1, 401, 601, 751  
NJM4558D  
OP-Amp.



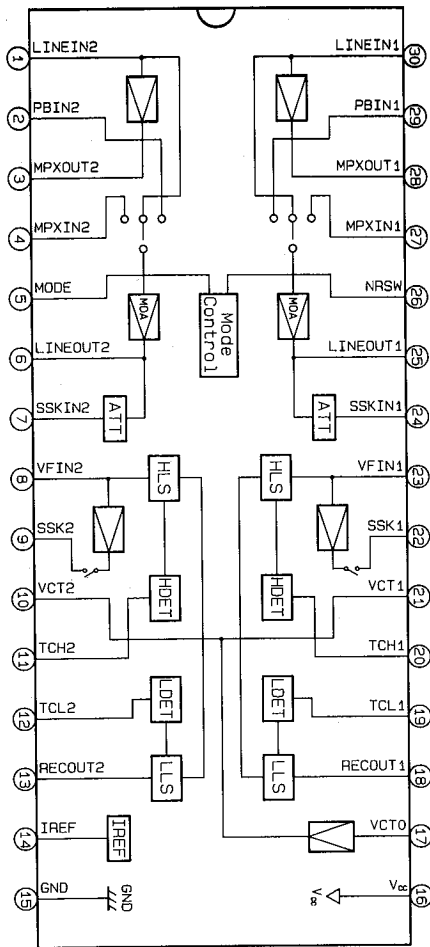
IC105, 107, 305, 307  
CXA1415  
Dolby S NR



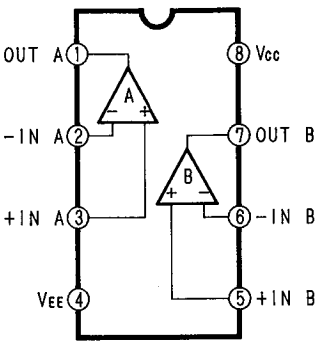
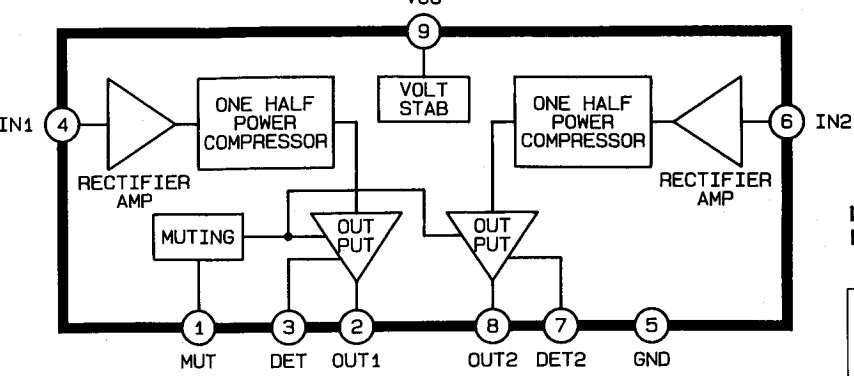
IC103, 303  
CXA1416  
Dolby S NR



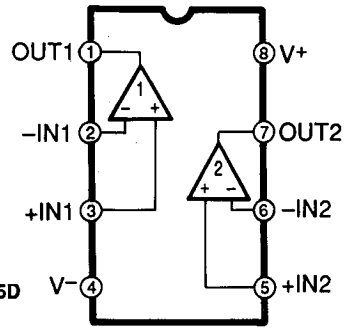
IC501: CXA1332S  
Dolby B/C NR



IC402: BA6138  
Signal Level Meter

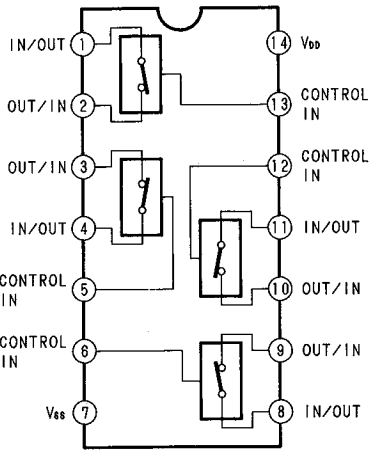


IC101, 104, 106,  
IC302, 304, 306  
TA75072P  
Dual OP-Amp.

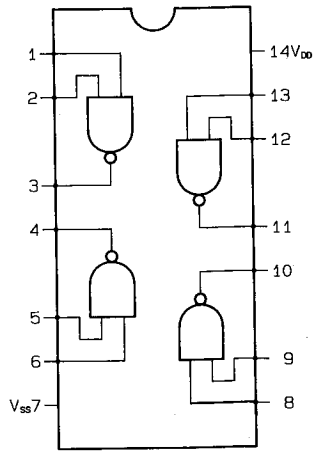


IC651: NJM4565D  
Dual OP-Amp.

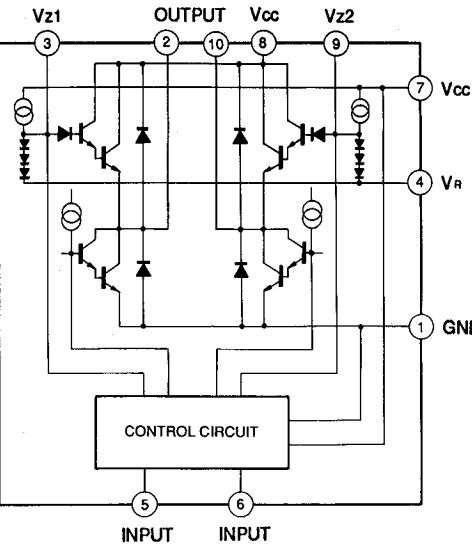
IC501, 502, 602, 603  
TC4066BP  
Bilateral Switch



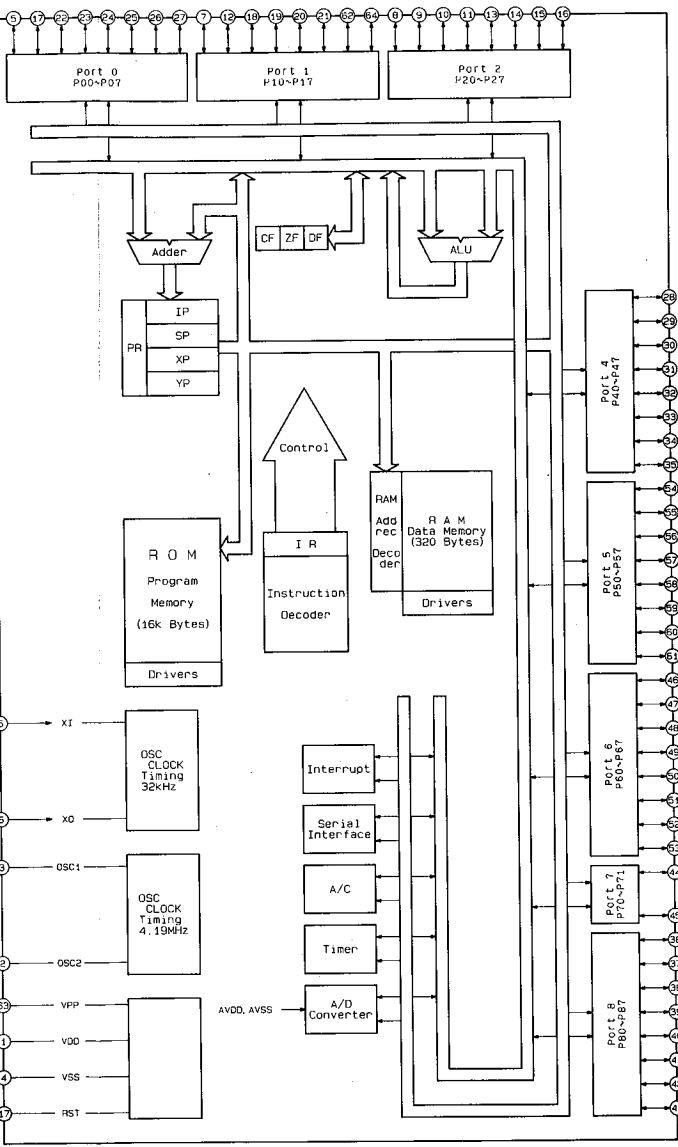
IC701: TC4011BP  
2-Inch NAND Gate



IC801: BA6229  
Motor Driver



IC901: MN18787F  
Logic Controller

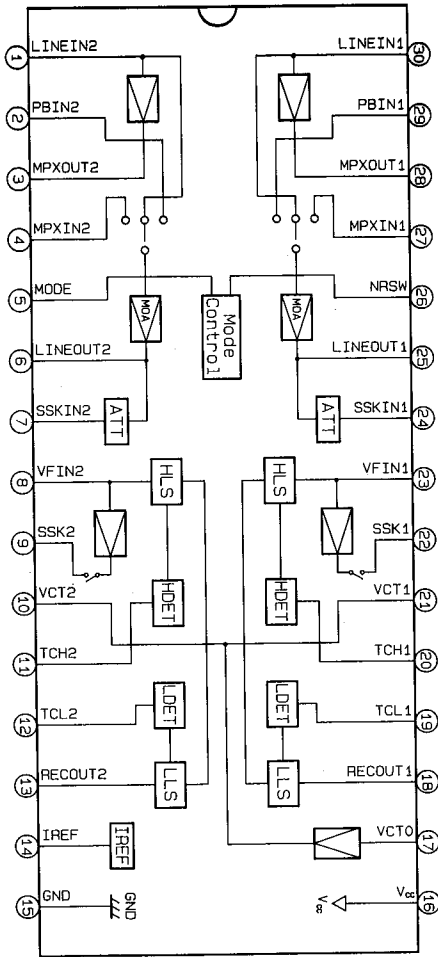


TERMINAL FUNCTIONS

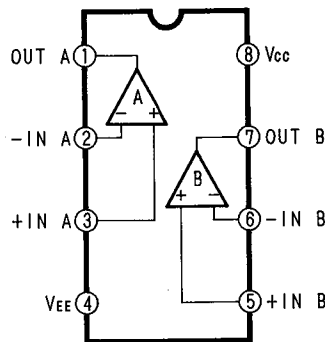
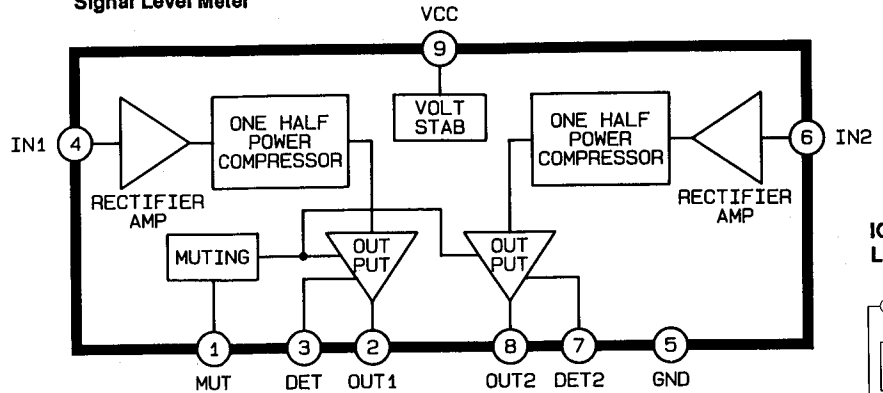
| Pin No. | Port name | Function name | I/O | Outline of functions                                       |
|---------|-----------|---------------|-----|------------------------------------------------------------|
| 5       | P06       | XI            | I   | Initial setting switch. High level=ON                      |
| 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          |     | 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

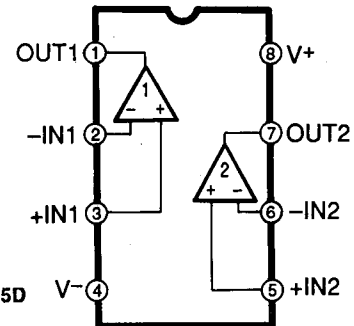
**IC501: CXA1332S**  
Dolby B/C NR



**IC402: BA6138**  
Signal Level Meter

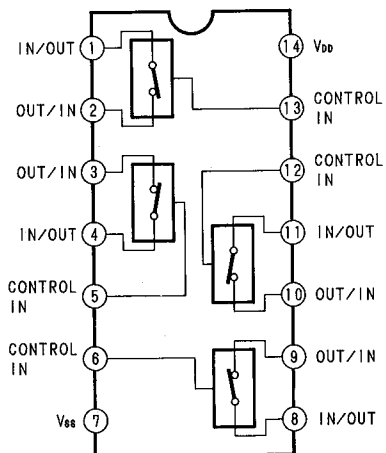


**IC101, 104, 106,  
IC302, 304, 306  
TA75072P**  
Dual OP-Amp.

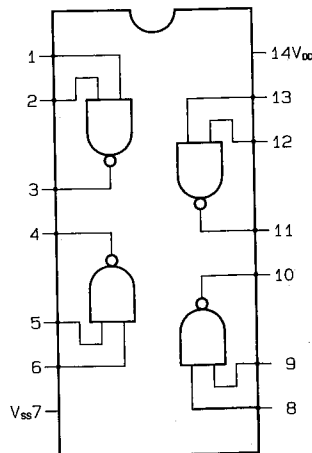


**IC651: NJM4565D**  
Dual OP-Amp.

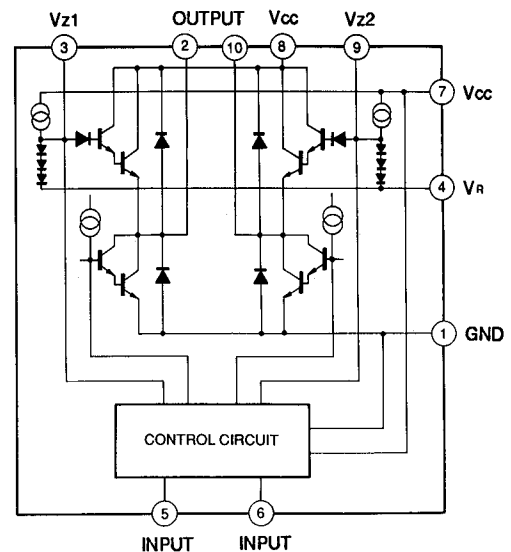
**IC501, 502, 602, 603  
TC4066BP**  
Bilateral Switch



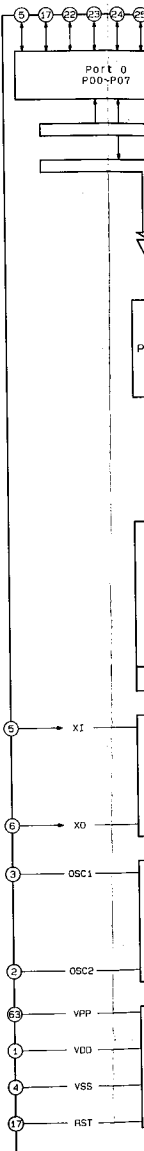
**IC701: TC4011BP**  
2-Inch NAND Gate



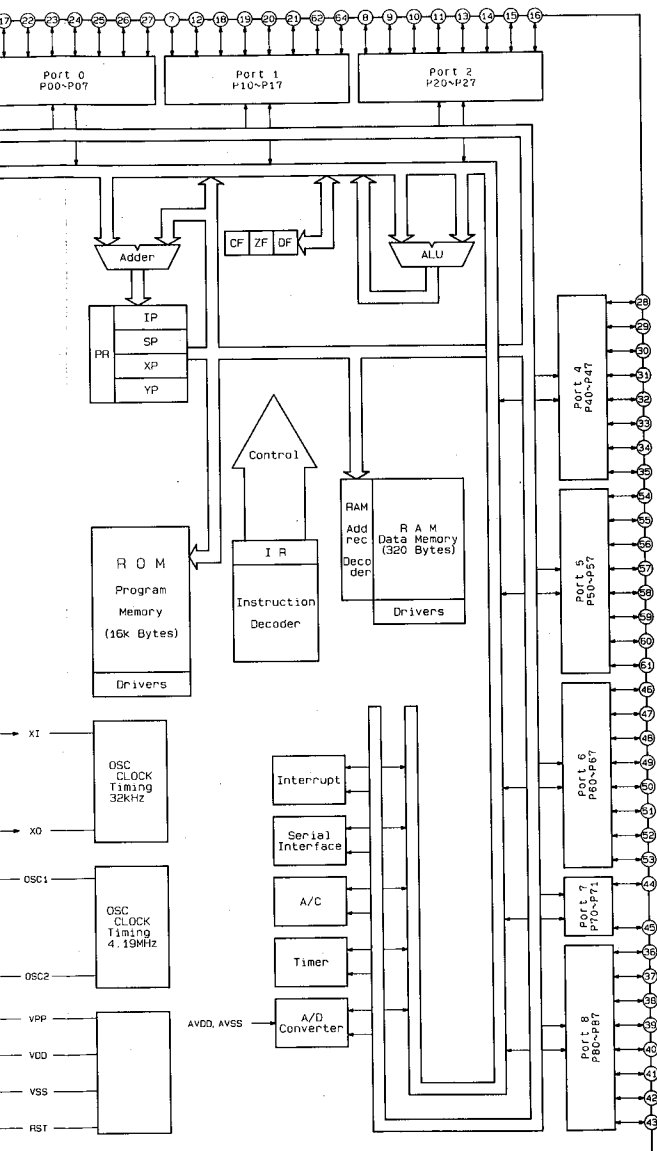
**IC801: BA6229**  
Motor Driver



**IC901: MN1878**  
Logic Controller



01: MN18787F  
ic Controller

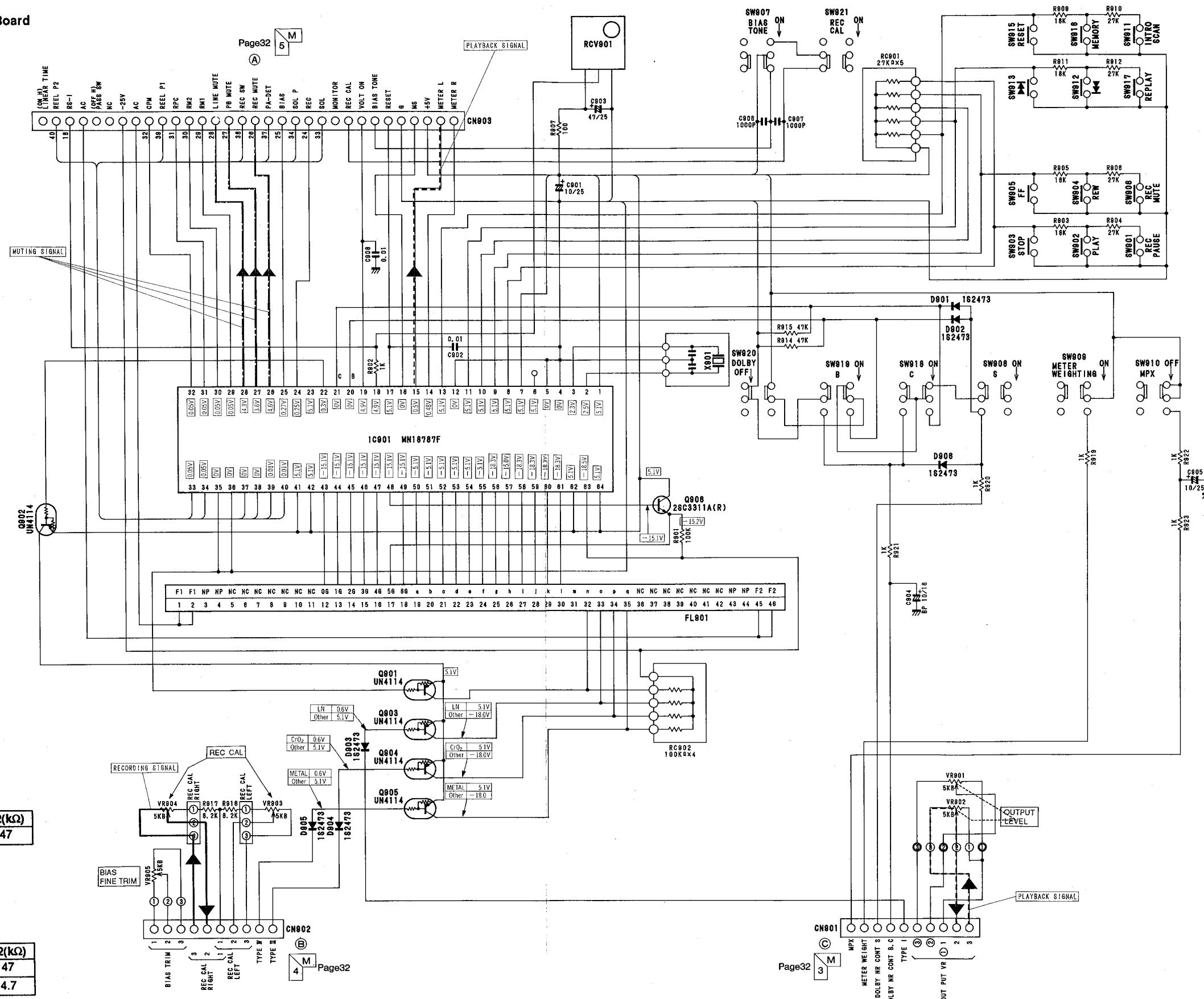


## TERMINAL FUNCTIONS

| 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          |     | 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

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

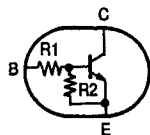
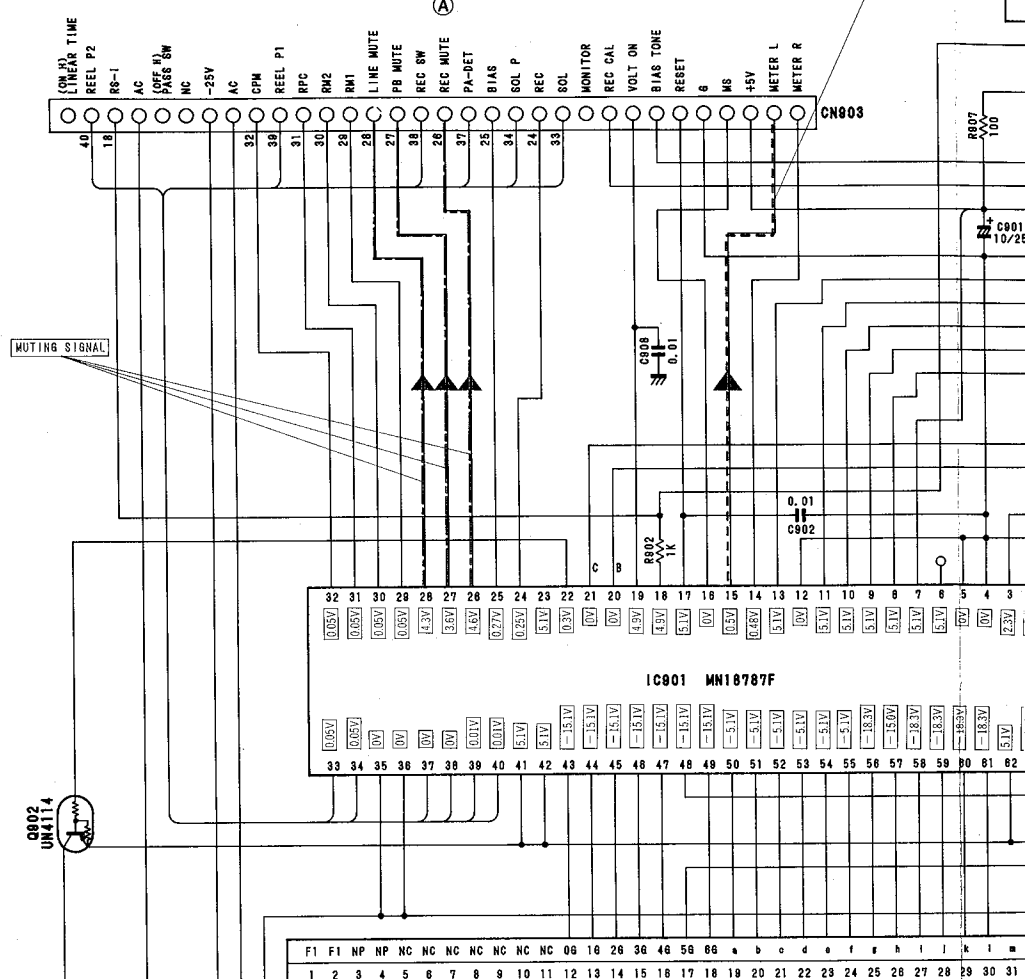


**PCB-2** Front P. C. Board

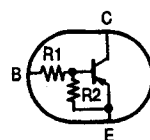
Page32

5 M

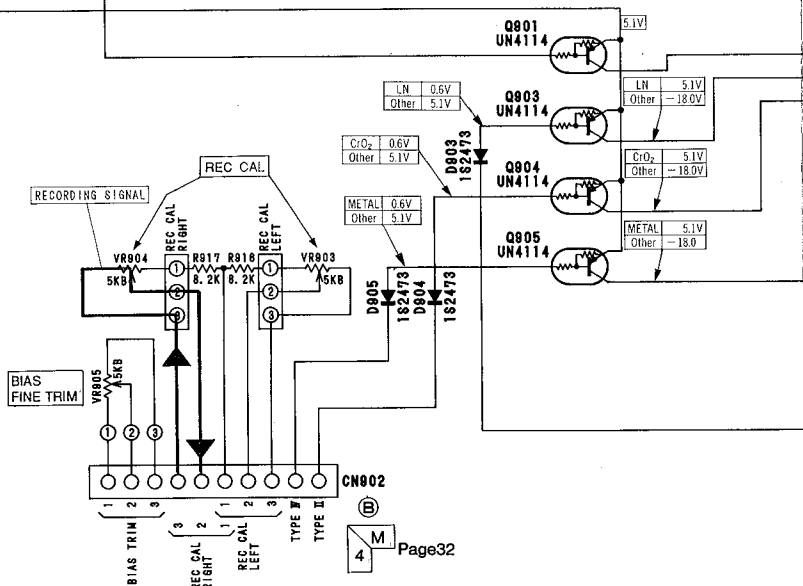
PLAYBACK SIGNAL



| Type   | R1(k $\Omega$ ) | R2(k $\Omega$ ) |
|--------|-----------------|-----------------|
| UN4214 | 10              | 47              |

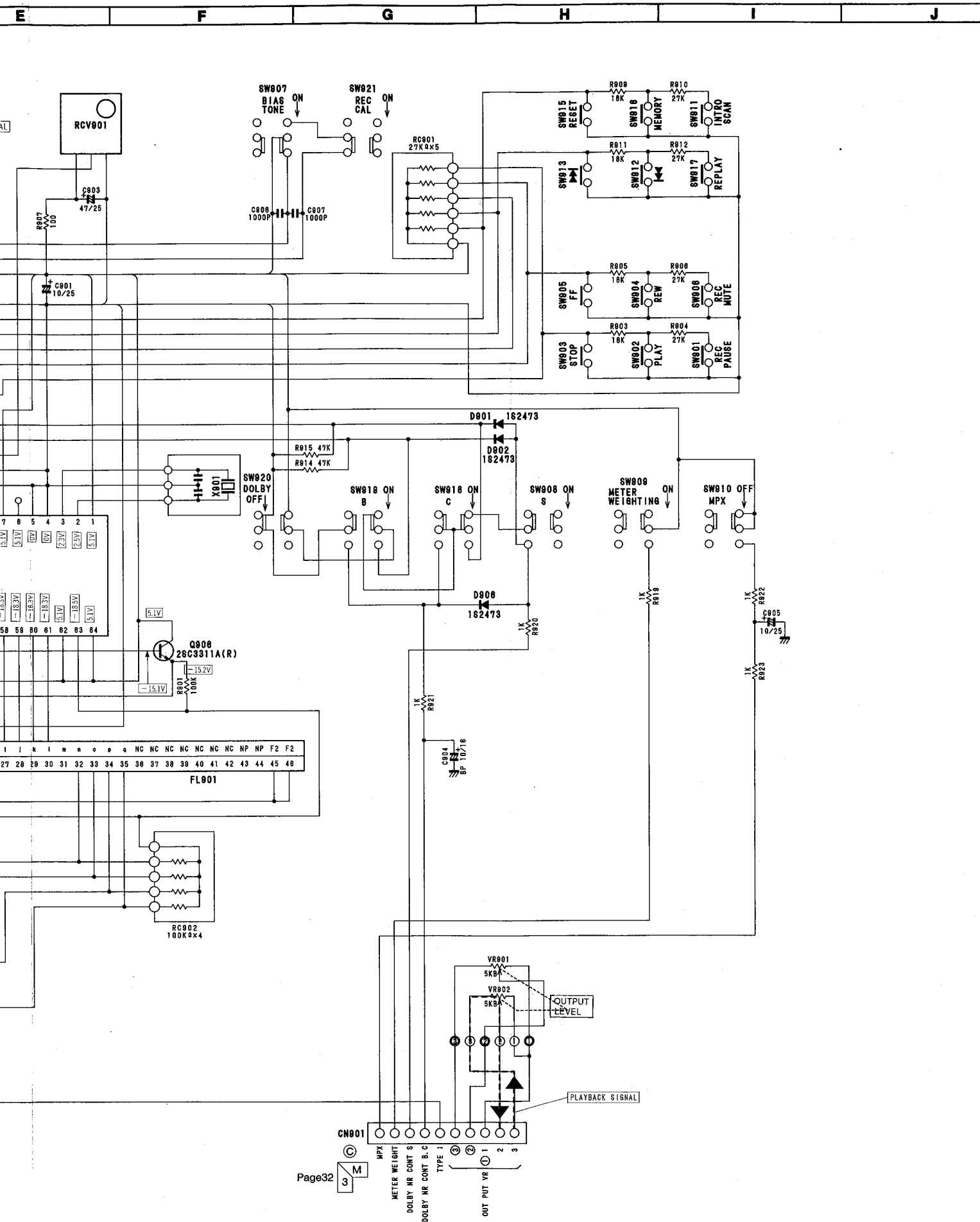


| Type   | R1(k $\Omega$ ) | R2(k $\Omega$ ) |
|--------|-----------------|-----------------|
| UN4114 | 10              | 47              |
| RN2201 | 4.7             | 4.7             |

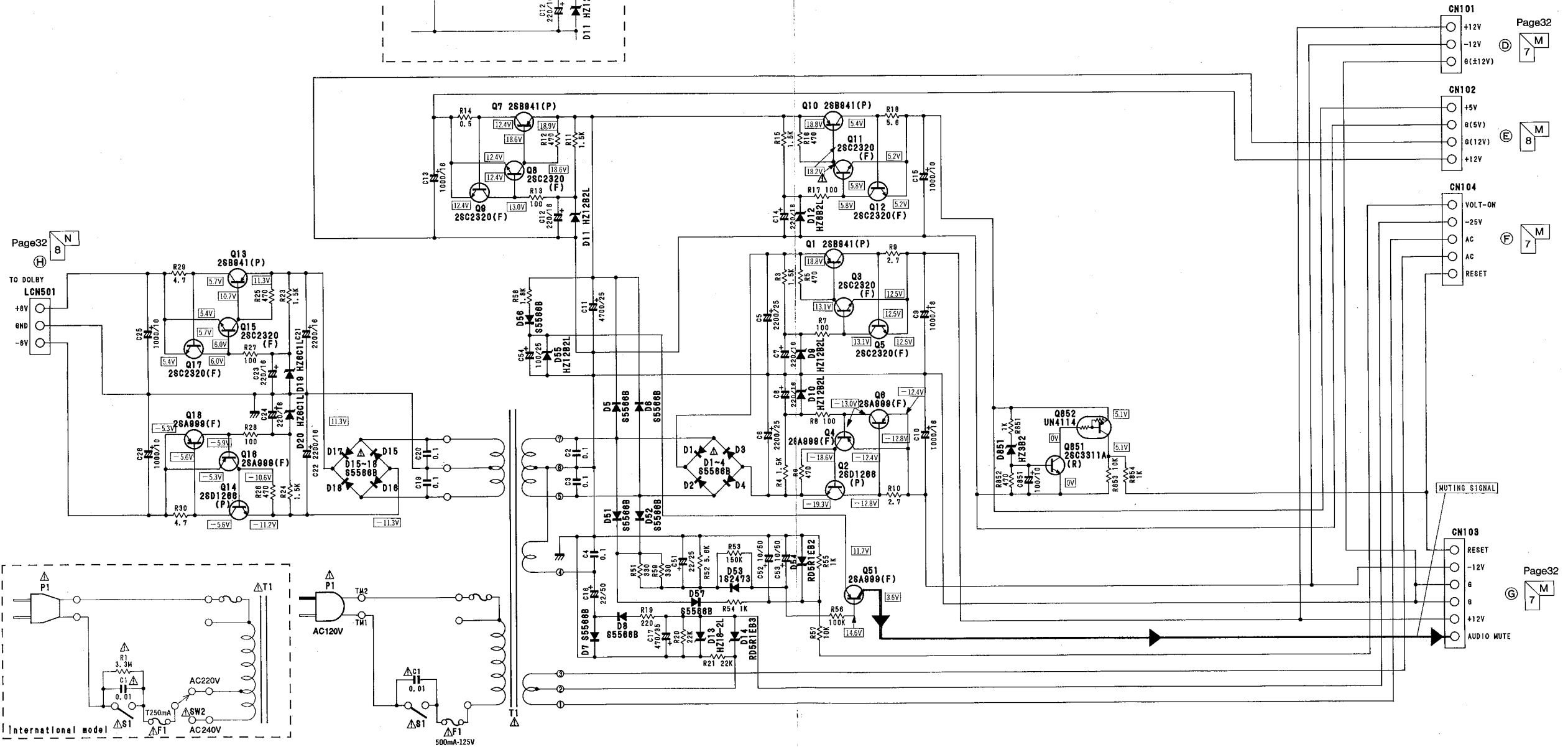


ⓑ

 Page 32



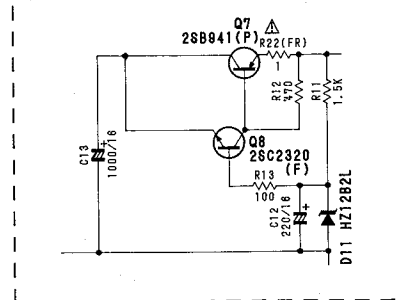
## PCB-4 | Power P. C. Board



## SCHEMATIC DIAGRAM (2)

PCB-4 Power P. C. Board

International model



Page32

N

H

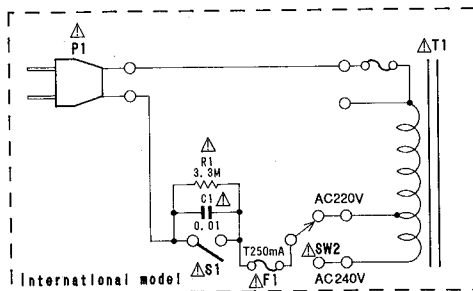
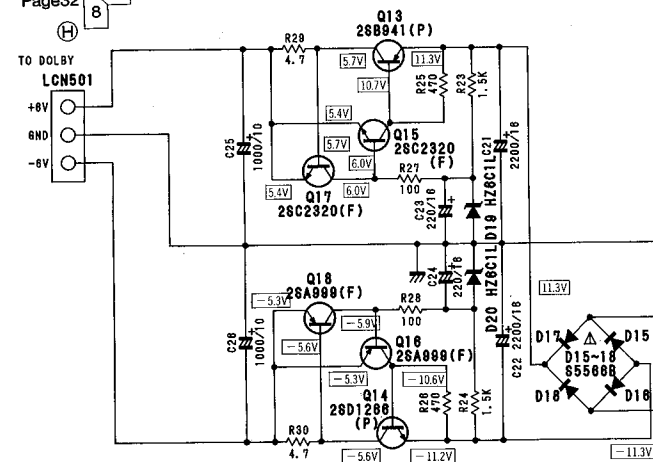
TO DOLBY

LCN501

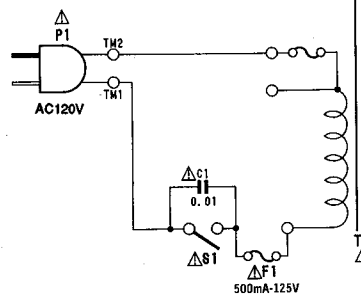
+8V

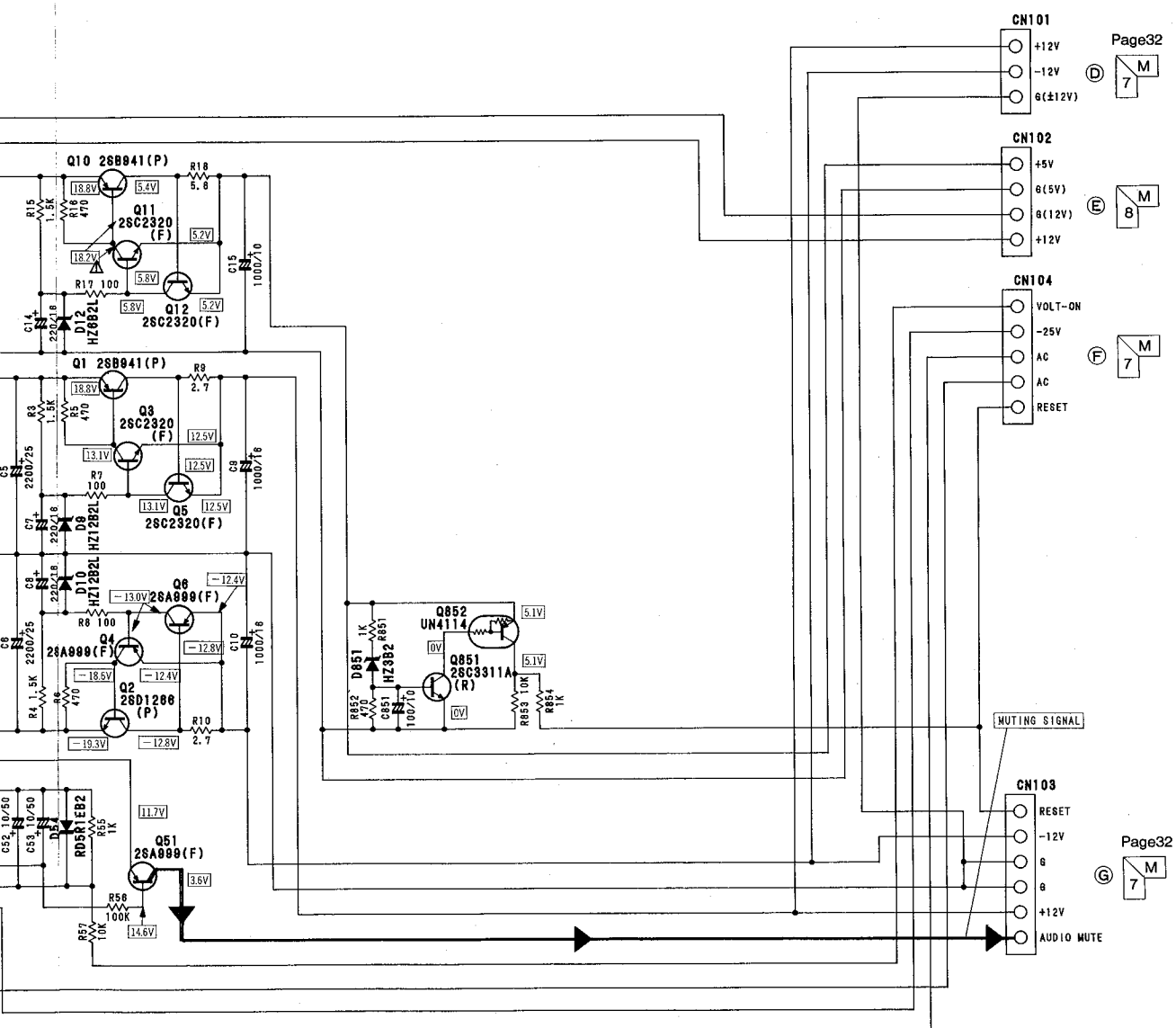
GND

-8V



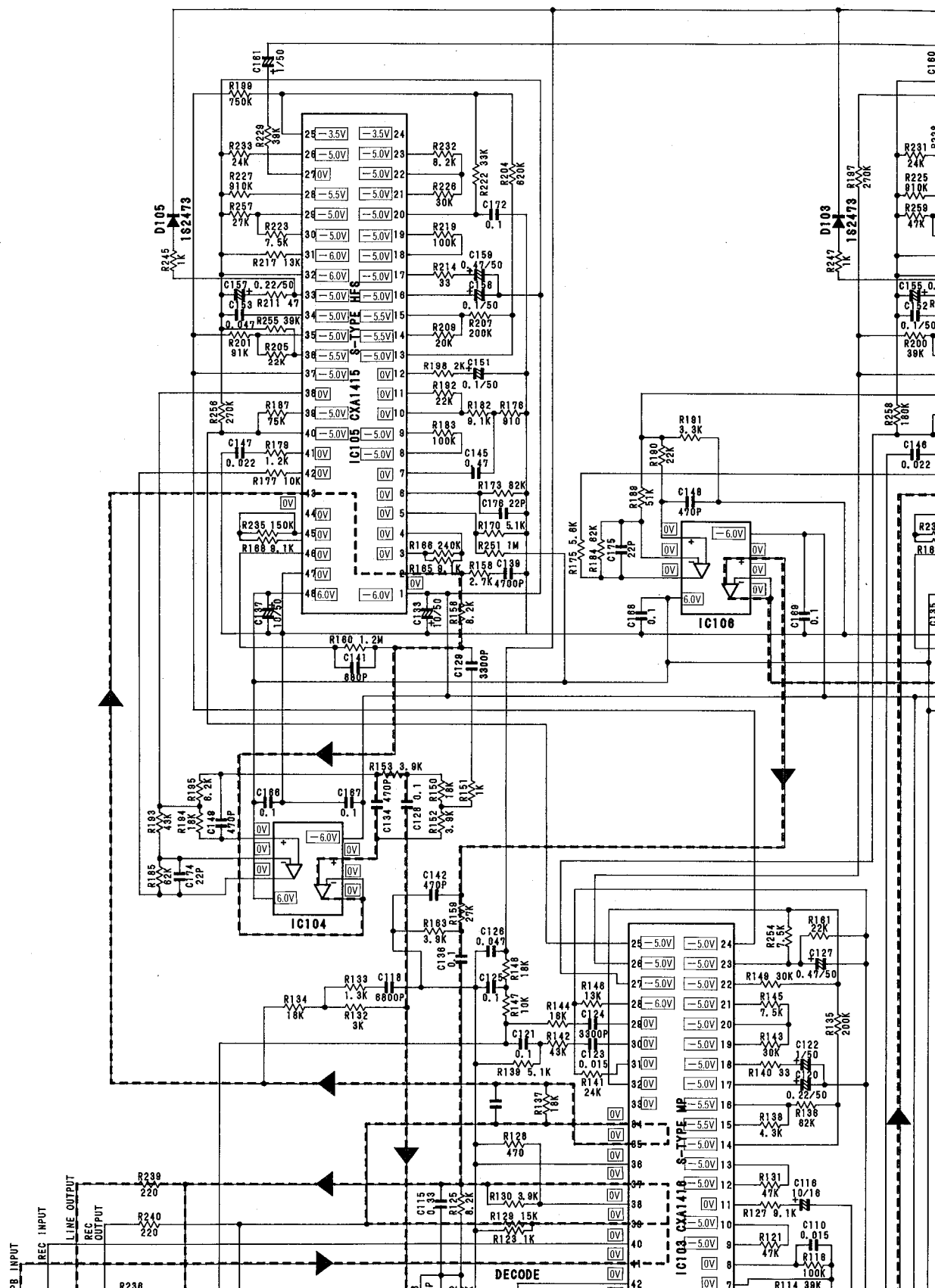
International model

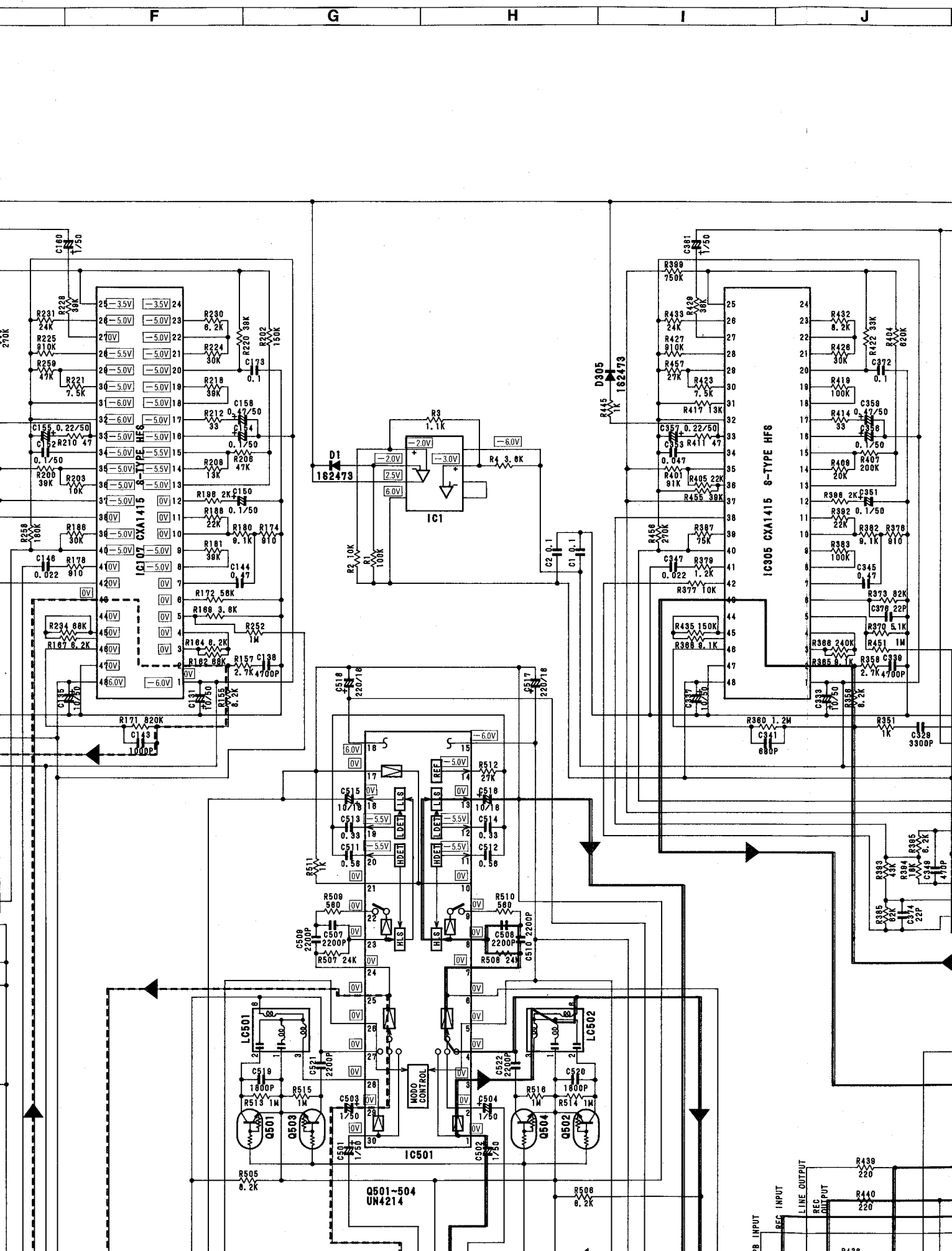


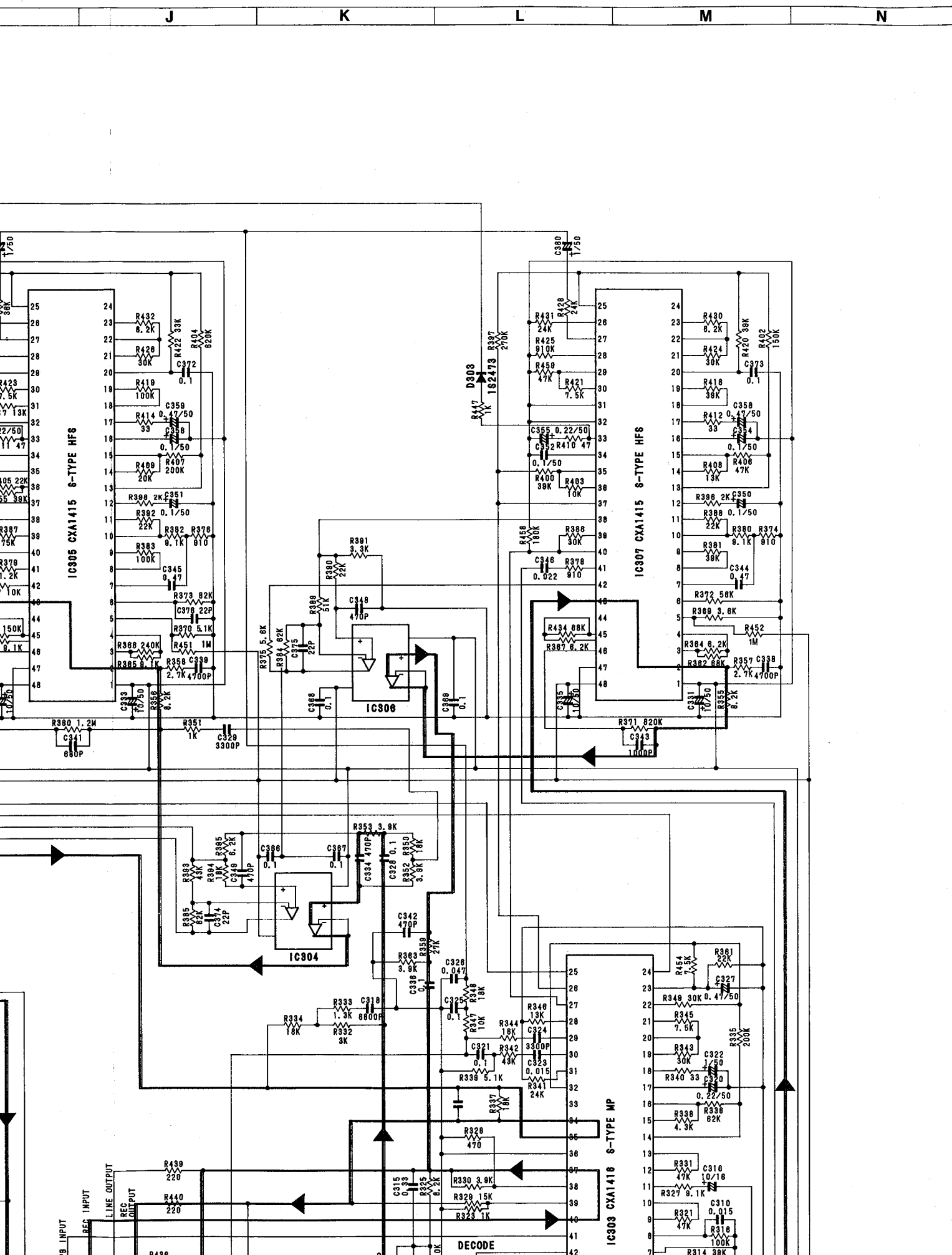


|    |  |
|----|--|
| 1  |  |
| 2  |  |
| 3  |  |
| 4  |  |
| 5  |  |
| 6  |  |
| 7  |  |
| 8  |  |
| 9  |  |
| 10 |  |

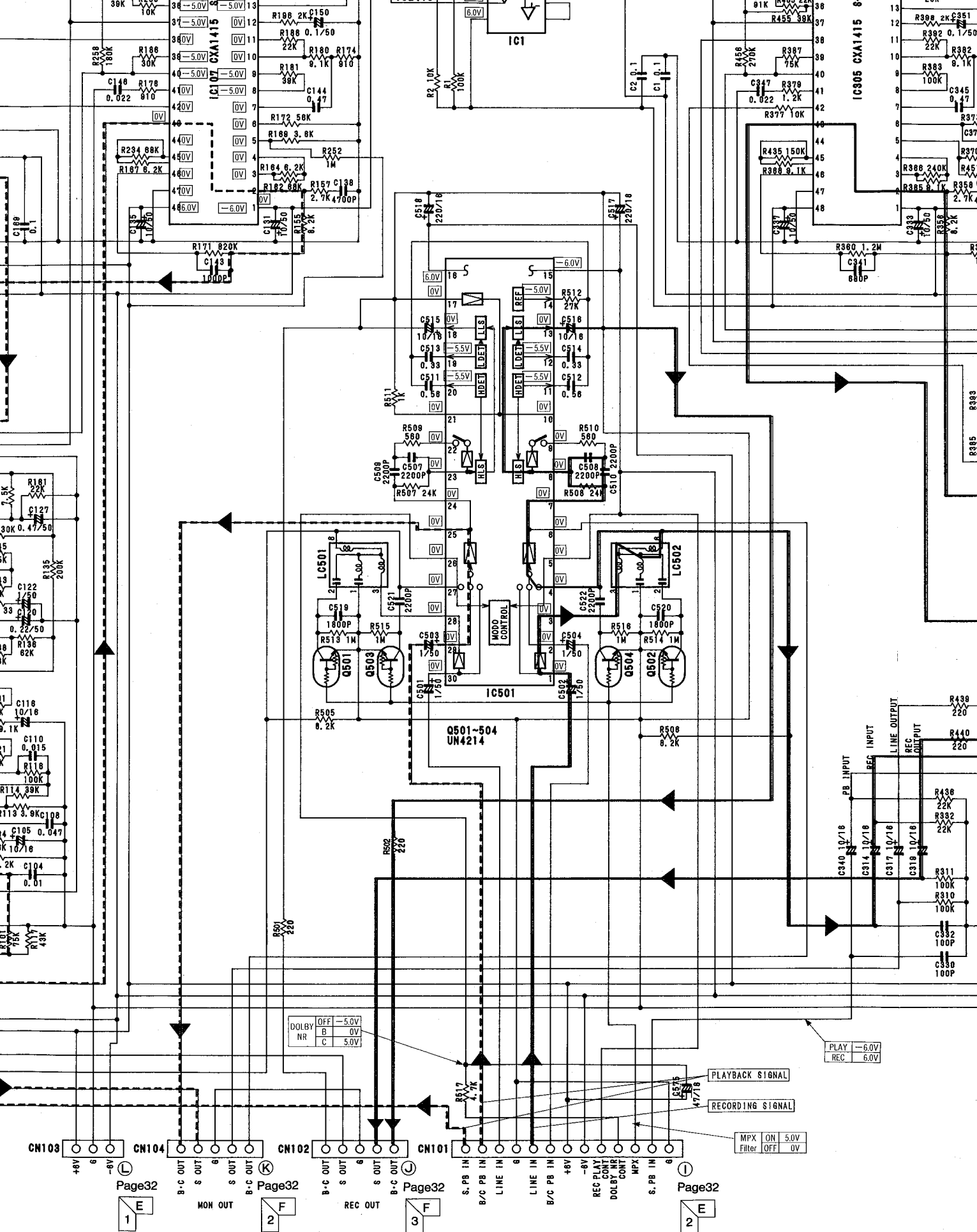
# SCHEMATIC DIAGRAM (3)











DOLBY OFF -5.0V  
B 0V  
NR C 5.0V

PLAY -6.0V  
REC 6.0V

PLAYBACK SIGNAL  
RECORDING SIGNAL

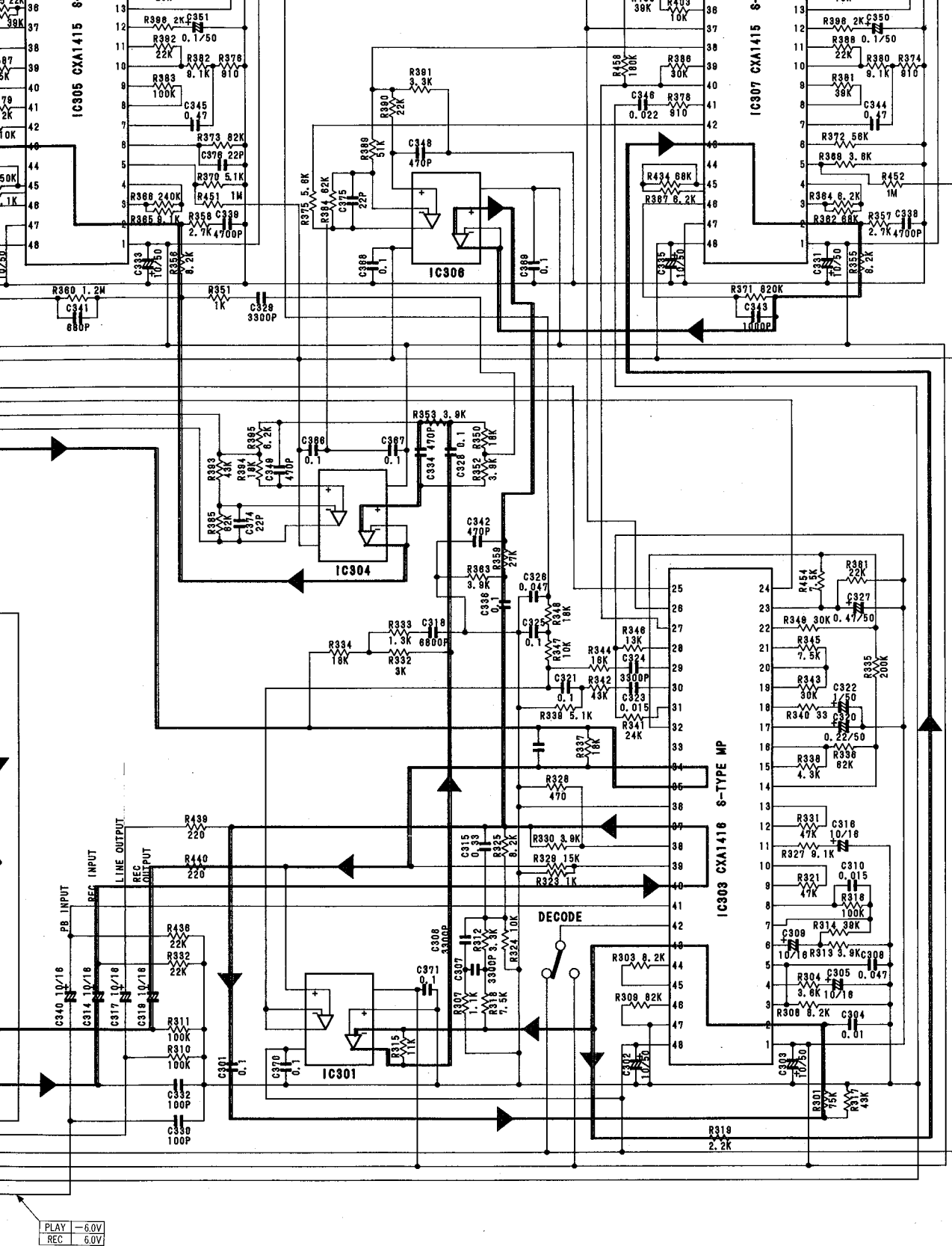
MPX ON 5.0V  
Filter OFF 0V

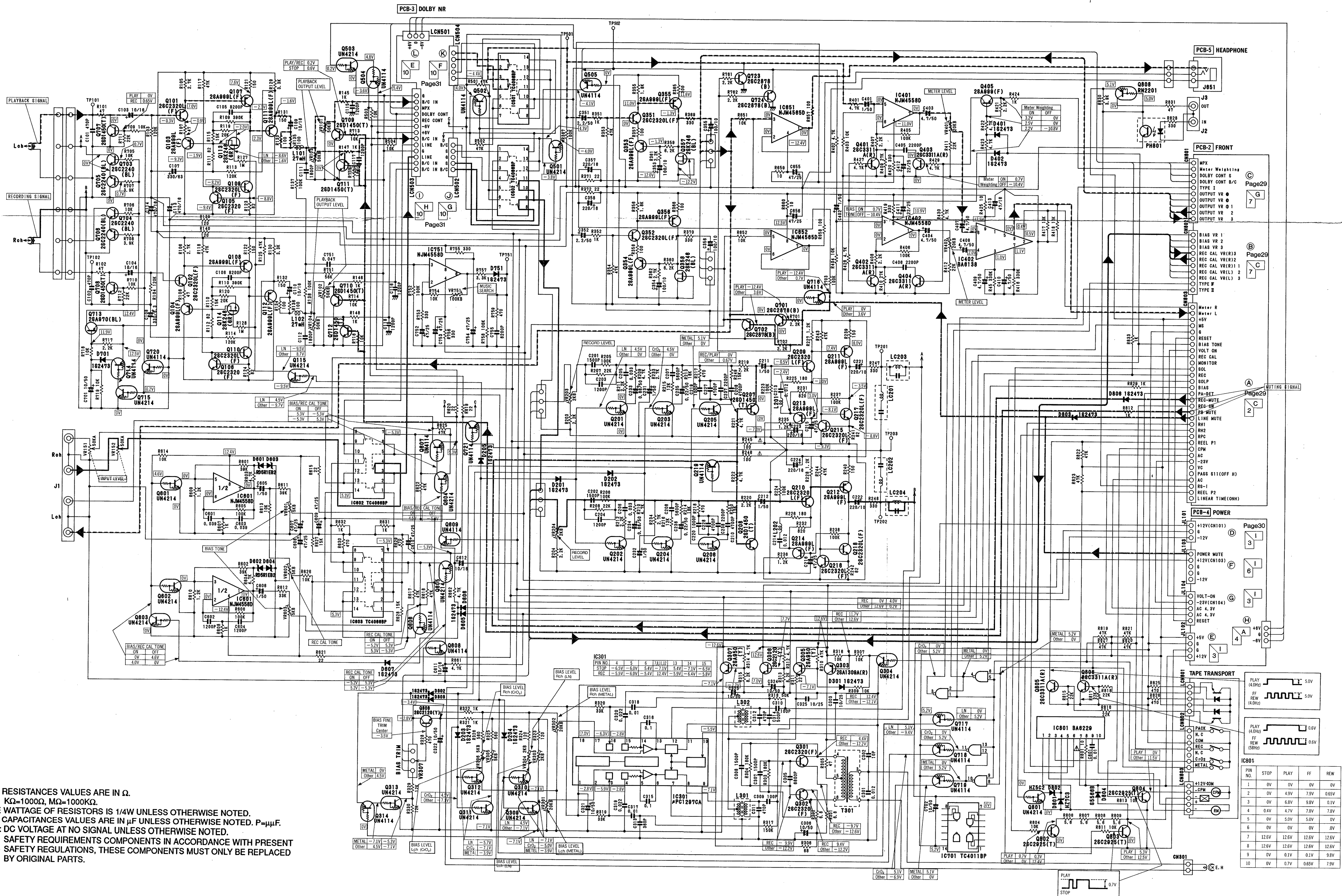
Page32  
1

Page32  
2

Page32  
3

Page32  
4



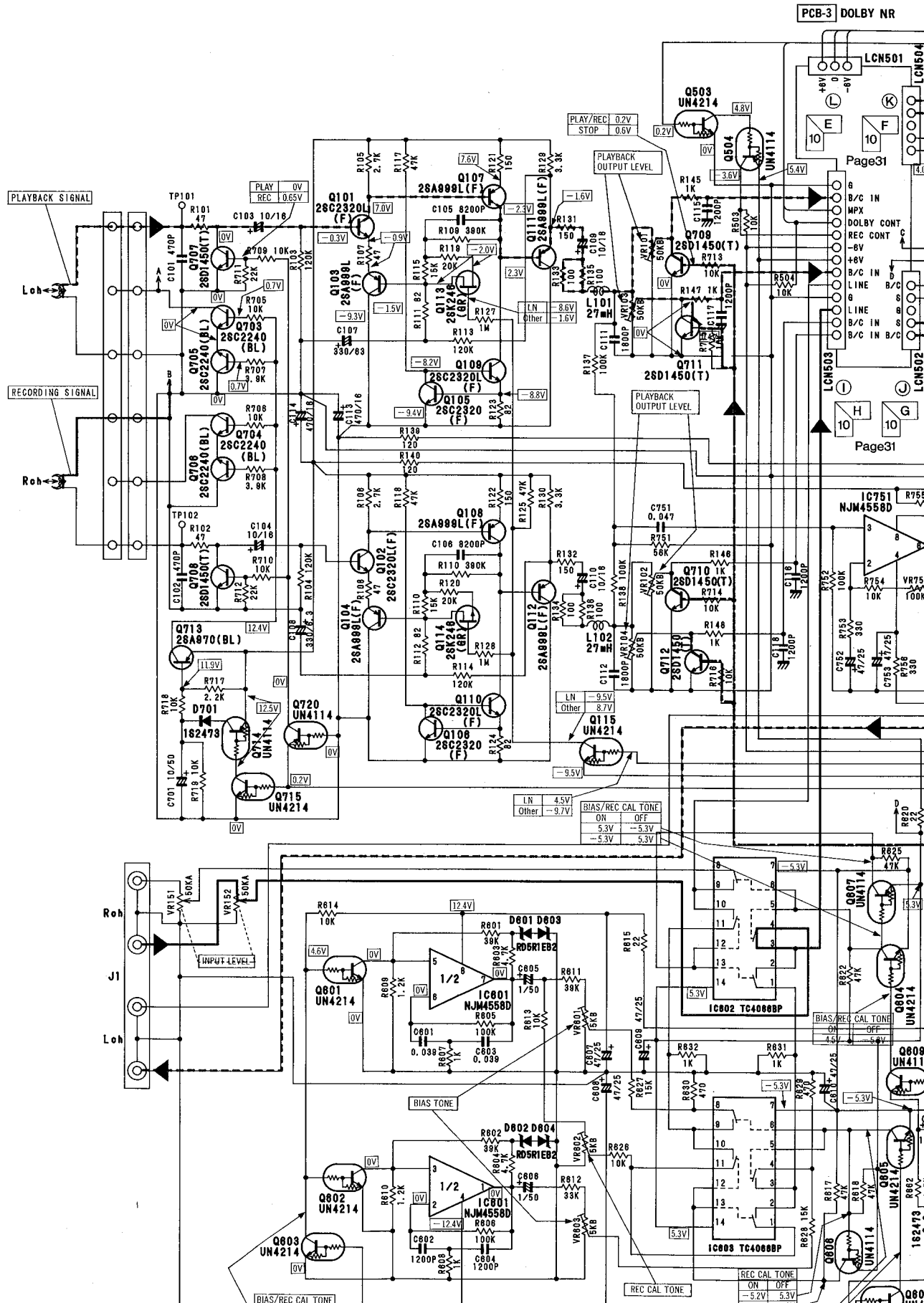


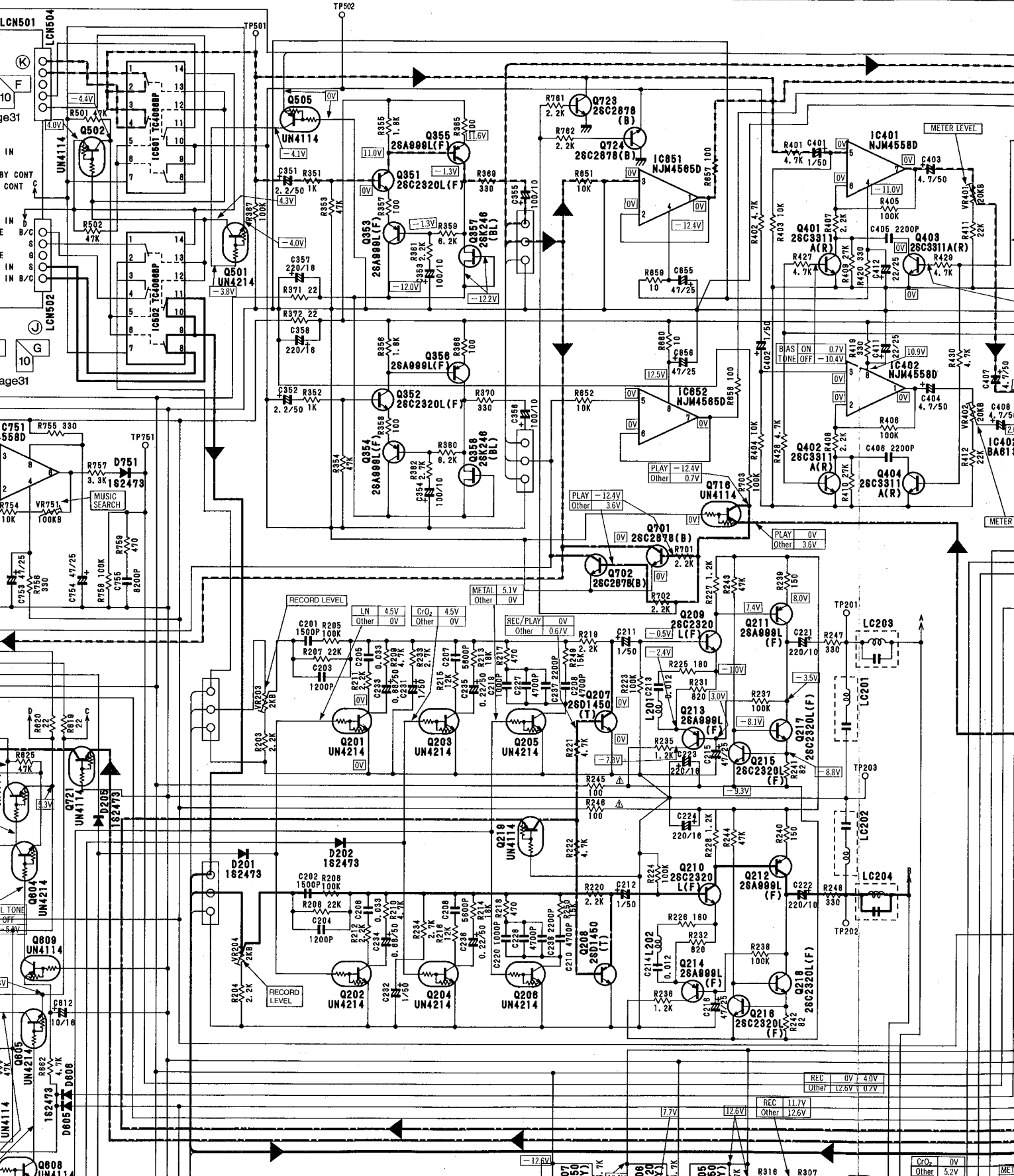
**NOTE:**

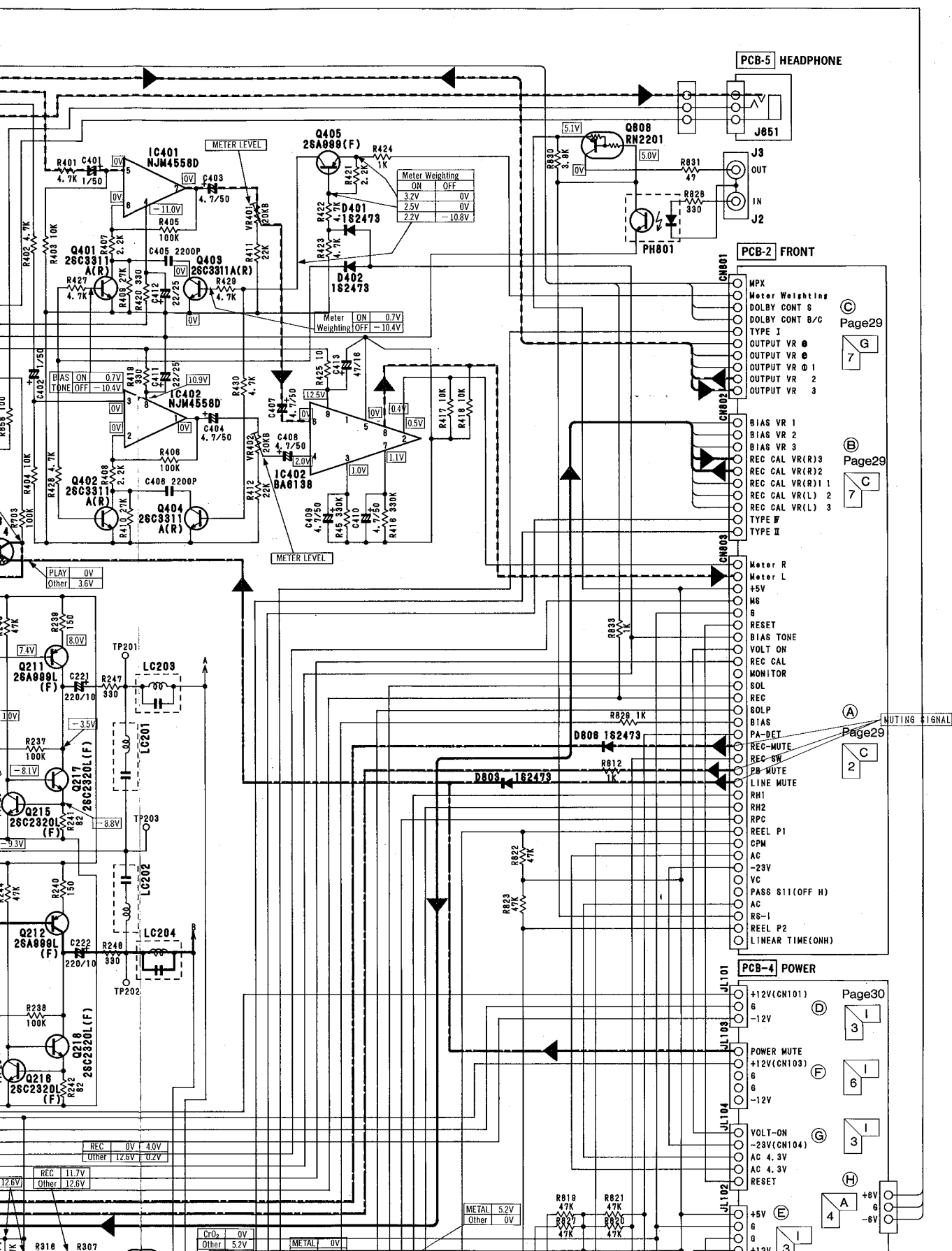
1. ALL RESISTANCES VALUES ARE IN  $\Omega$ .  
 $K\Omega=1000\Omega$ ,  $M\Omega=1000K\Omega$ .
2. THE WATTAGE OF RESISTORS IS 1/4W UNLESS OTHERWISE NOTED.
3. ALL CAPACITANCES VALUES ARE IN  $\mu F$  UNLESS OTHERWISE NOTED.  $P=\mu\mu F$ .
4. ... V : DC VOLTAGE AT NO SIGNAL UNLESS OTHERWISE NOTED.
5.  SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS, THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.

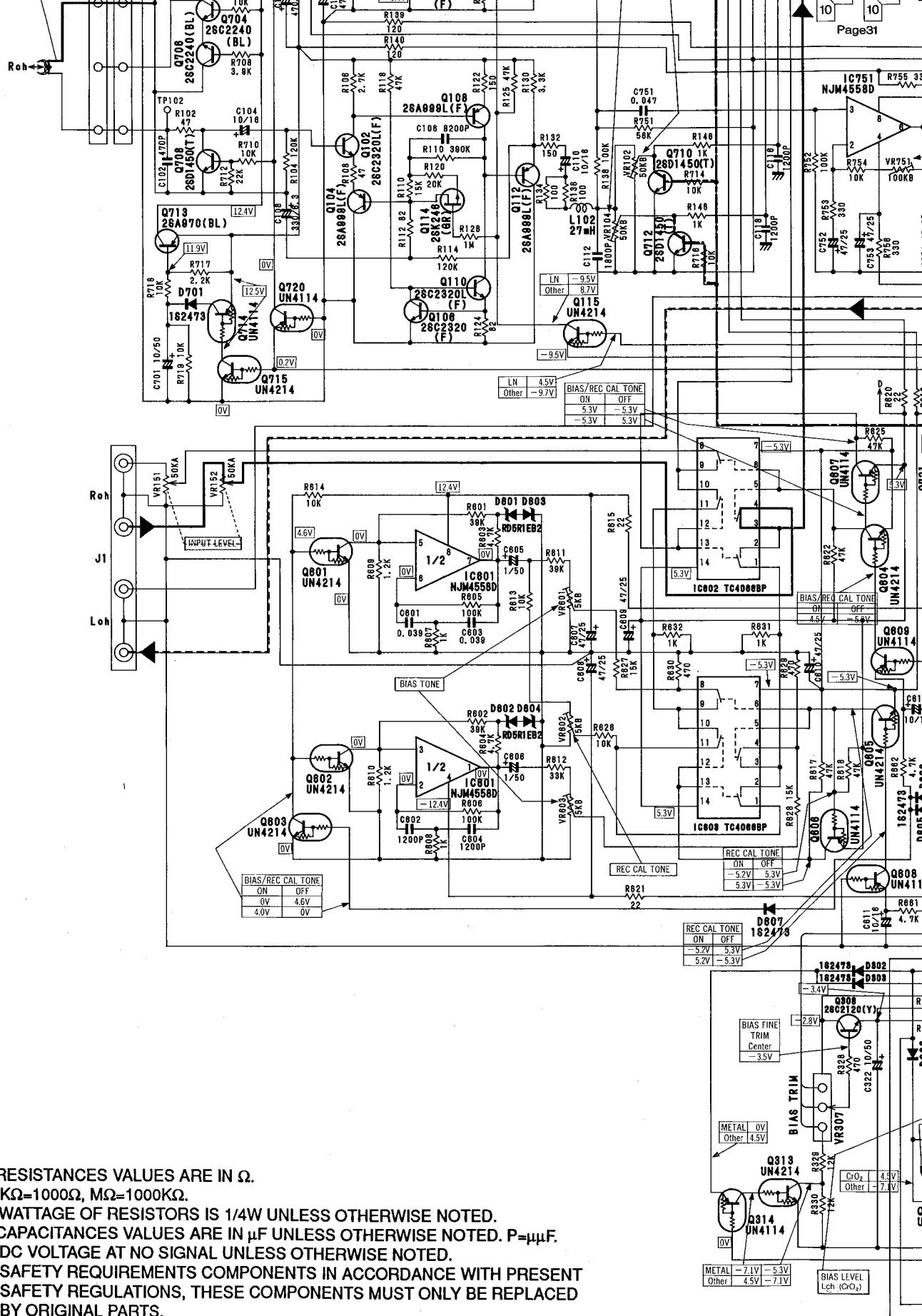
| IC801   | STOP  | PLAY  | FF    | REW   |
|---------|-------|-------|-------|-------|
| Pin No. |       |       |       |       |
| 1       | 0V    | 0V    | 0V    | 0V    |
| 2       | 0V    | 4.9V  | 7.9V  | 0.65V |
| 3       | 0V    | 6.8V  | 9.8V  | 0.1V  |
| 4       | 0.4V  | 4.7V  | 7.8V  | 7.8V  |
| 5       | 0V    | 5.0V  | 5.0V  | 0V    |
| 6       | 0V    | 0V    | 0V    | 0V    |
| 7       | 12.6V | 12.6V | 12.6V | 12.6V |
| 8       | 12.6V | 12.6V | 12.6V | 12.6V |
| 9       | 0V    | 0.1V  | 0.1V  | 9.8V  |
| 10      | 0V    | 0.7V  | 0.65V | 7.9V  |

**SCHEMATIC DIAGRAM (4)**







**NOTE:**

1. ALL RESISTANCES VALUES ARE IN  $\Omega$ .  
 $K\Omega=1000\Omega$ ,  $M\Omega=1000K\Omega$ .
2. THE WATTAGE 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.
5.  SAFETY REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS, THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.

