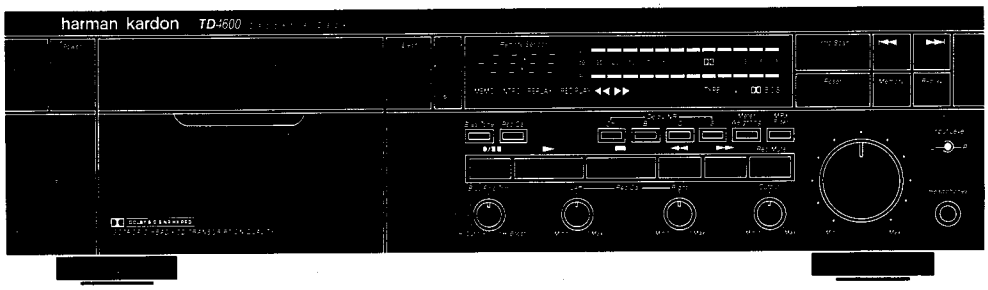
The Harman Kardon
Model TD4600

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

TD4600

harman/kardon

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

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_2	54dB	
Metal	54dB	
Dolby B NR		
LN	61dB	
CrO_2	64dB	≧60dB
Metal	64dB	≧60dB
Dolby C NR		
LN	66dB	
CrO_2	70dB	≧66dB
Metal	70dB	≧66dB
Dolby S NR		
LN	71dB	
CrO_2	74dB	≧68dB
Metal	74dB	≧68dB
Channel Separation	45dB	≧35dB
Crosstalk	70dB	≧60dB
Record/Playback Distortion (Input 1kHz)		
LN	0.9%	≦2.0%
CrO_2	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)	
• WEIGHT	14.8lbs(6.7kg)	
• 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	

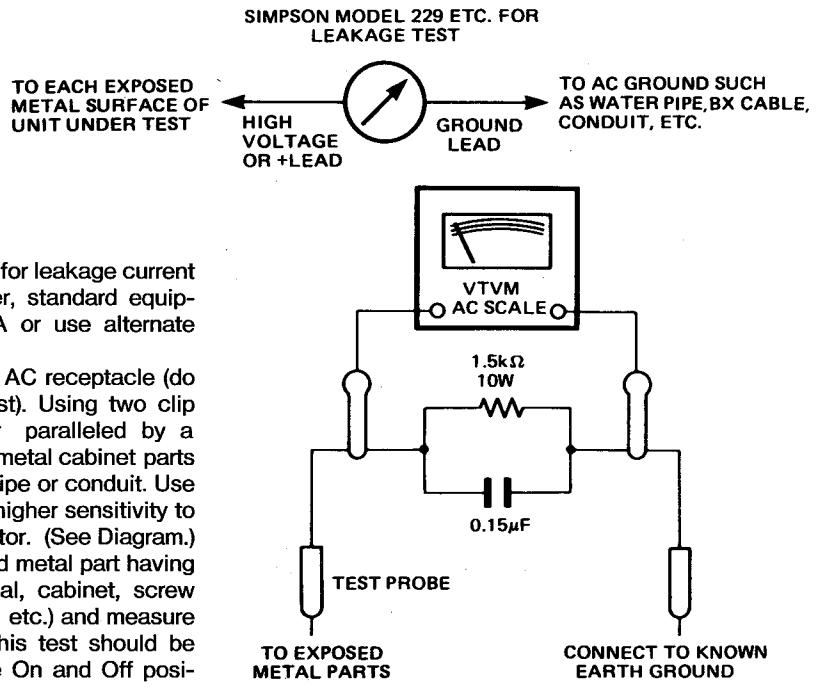
These specifications are service target specs.
Specifications and components are subject to change without notice.
Overall performance will be maintained or improved.

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

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

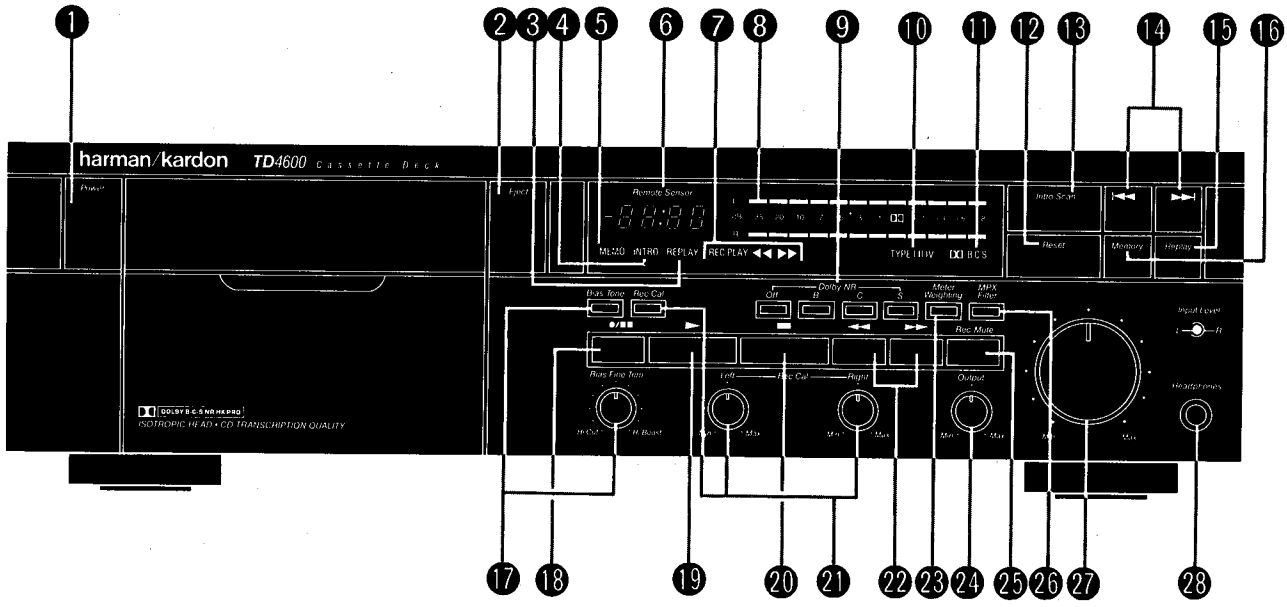
1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the unit.
2. Replace all protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, or shields, isolation resistor-capacitor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

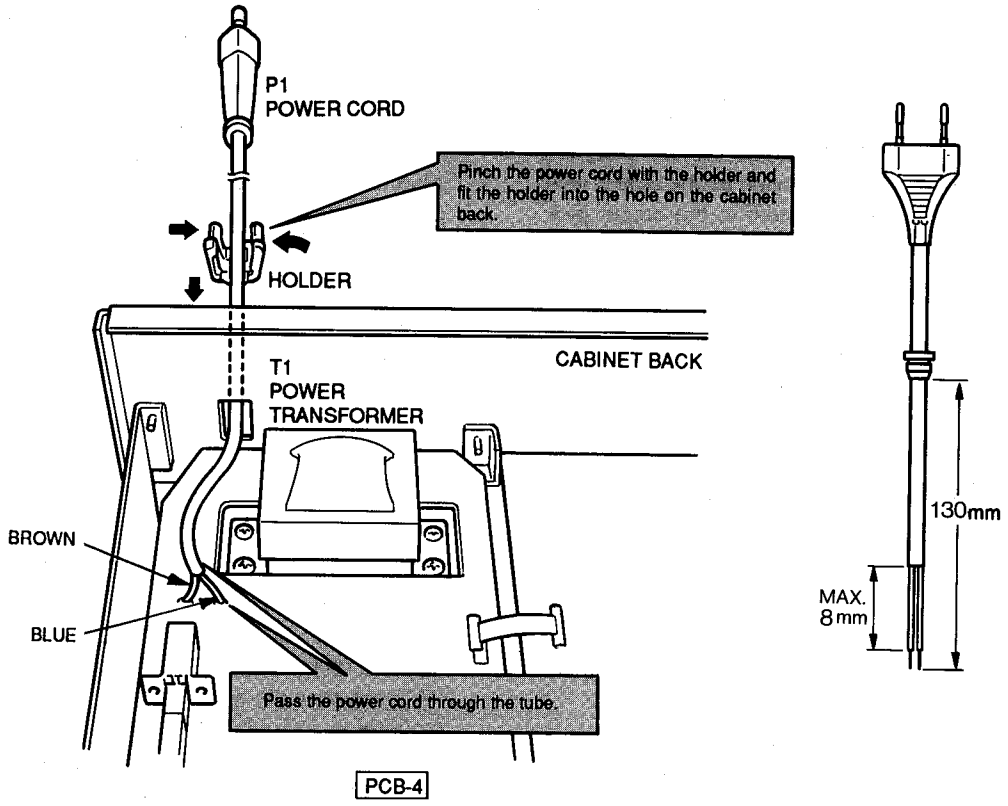
[4] CASSETTE TAPE RECORDER MECHANISM ASSEMBLY REMOVAL
1. Remove the Front Panel Assembly (AA). (Refer to step 2.)
2. Disconnect LCN801, LCN802 and LCN803.
3. Disconnect CN301 and CN105 connected to the Main P. C. Board (PCB-1).
4. Remove the spring (179).
5. Remove 4 screws (E) and then remove the Cassette 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).

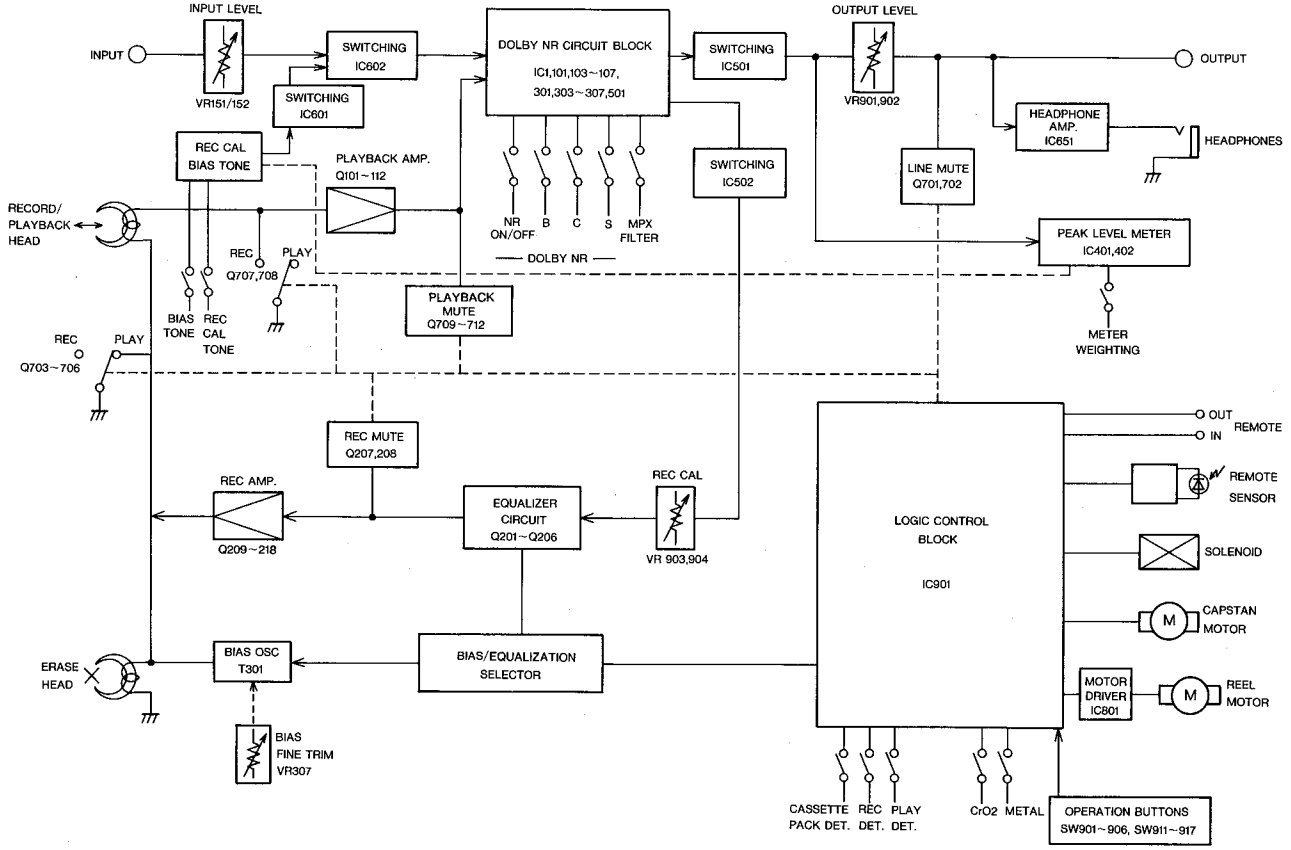
[6] OTHER P. C. BOARDS REMOVAL
1. Remove the Front Panel Assembly (AA). (Refer to step 2.)
2. Remove 8 screws (G) and 3 screws (H), then remove the Front P. C. Board (PCB-2).
3. Remove the screw (I) and then remove the Headphone P. C. Board (PCB-5).
4. Disconnect LCN501 and then JL101, JL102, JP103 and 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 SINGAL

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 freuqency 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 singal 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).

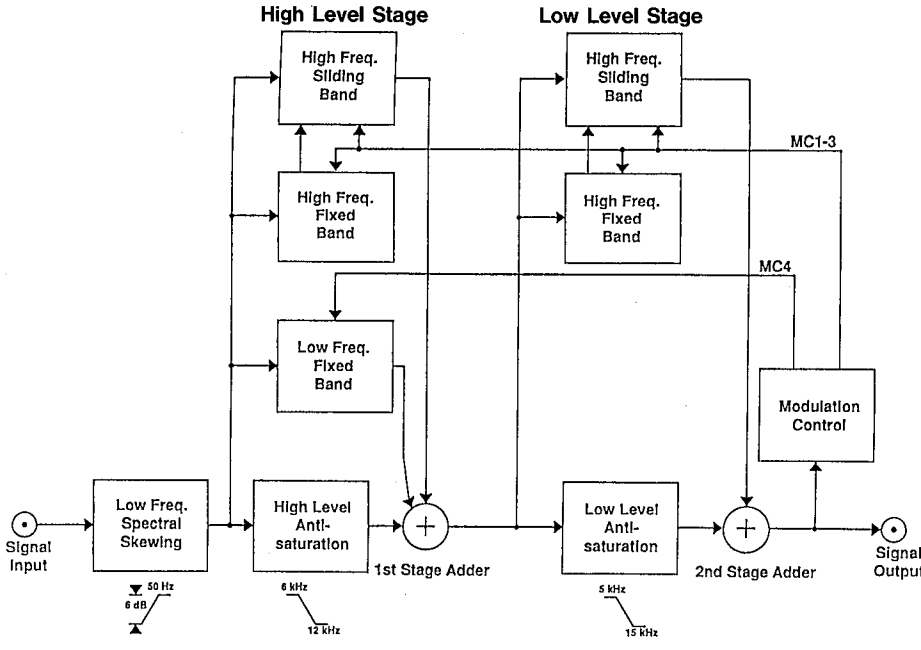
The control signals are derived from the compressor output, which is filtered, rectified, and averaged to produce a smooth control signal. An alternate path is provided to quicky charge the control path under high level transient conditions to suppress overshoots. Modulation controls signals are subtracted 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

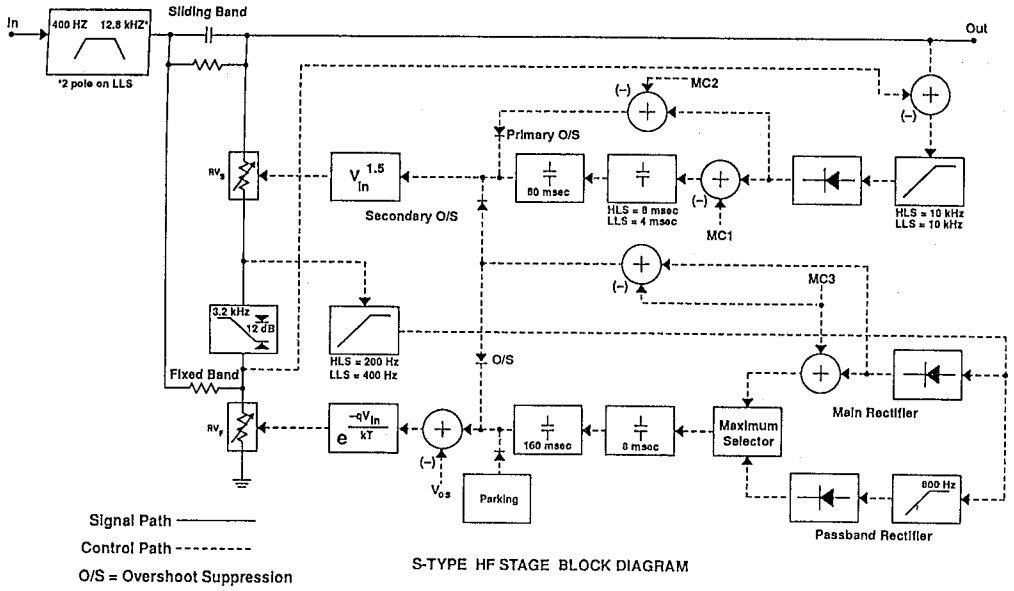
The low level stage is active for signal levels from -50 to -25dB. No low frequency signal processing is provided, but in all other respects it is quite similar to the high level stage.

Modulation Control

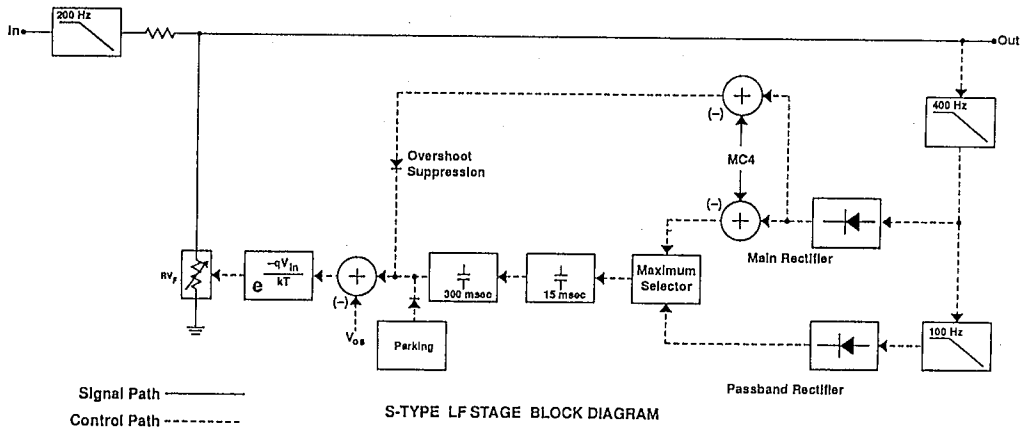
Modulation control is used to prevent unnecessary modulation of the compressors in the presence of high level signals. It is inactive at low levels. The encoder output is fed to the input of the modulation control circuit, where it is split into three frequency bands. The MC1 signal goes through a 3 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.



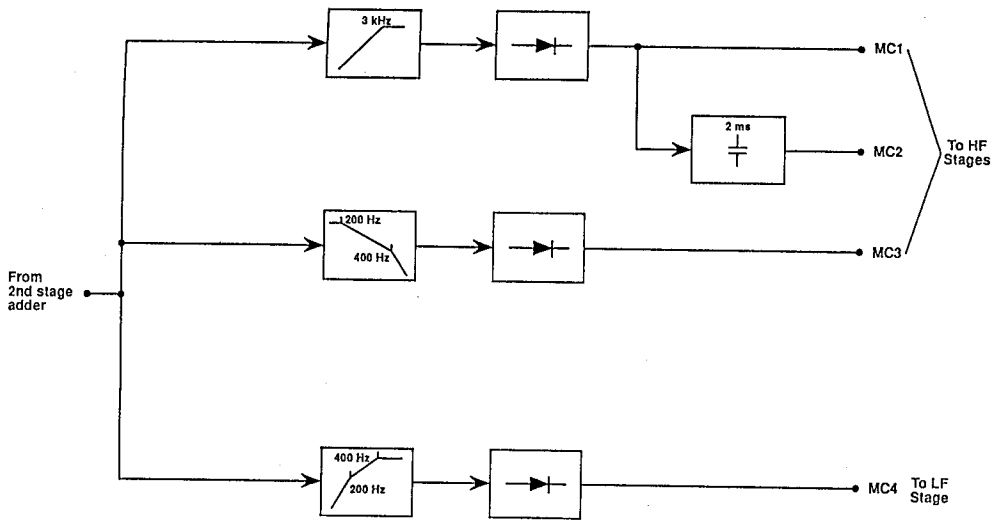
S-TYPE ENCODER BLOCK DIAGRAM



S-TYPE HF STAGE BLOCK DIAGRAM

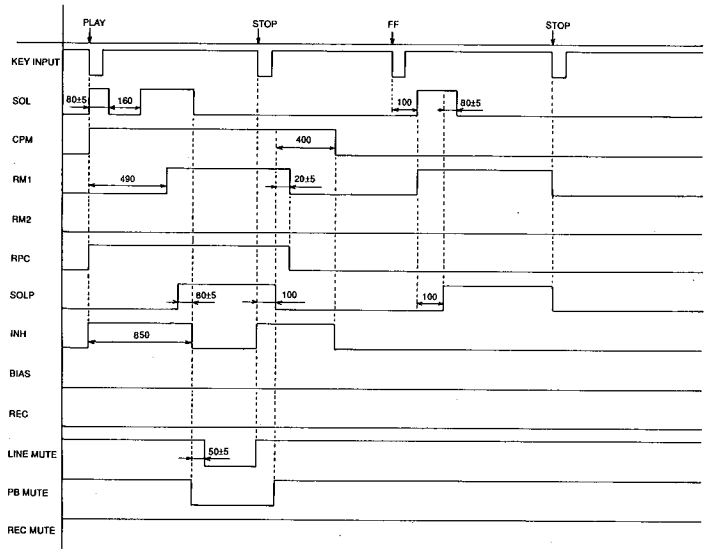


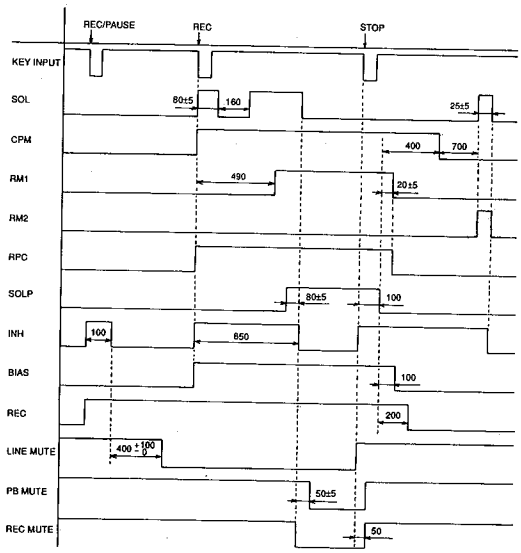
S-TYPE LF STAGE BLOCK DIAGRAM

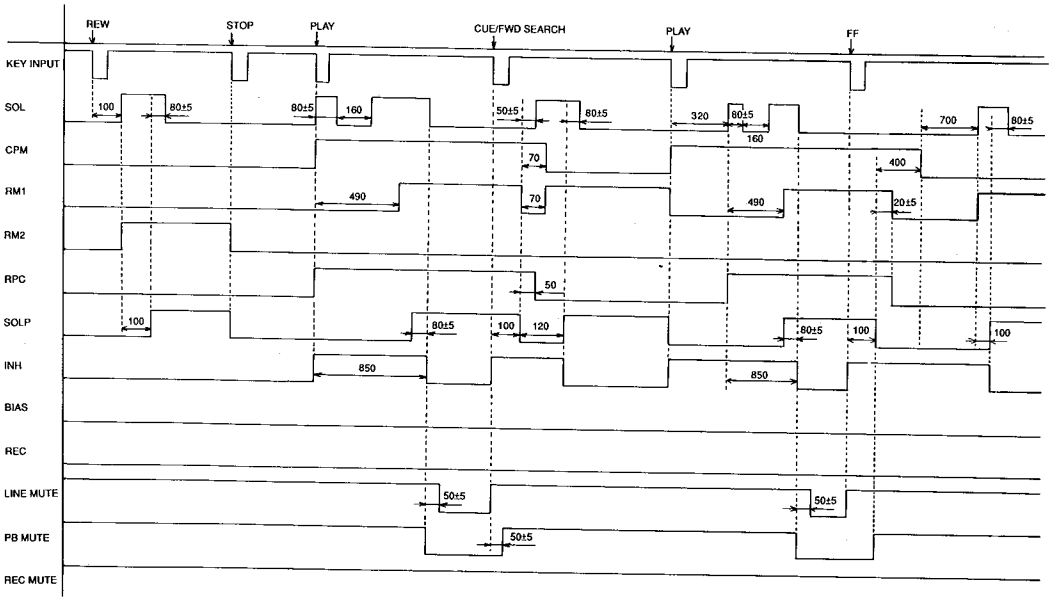


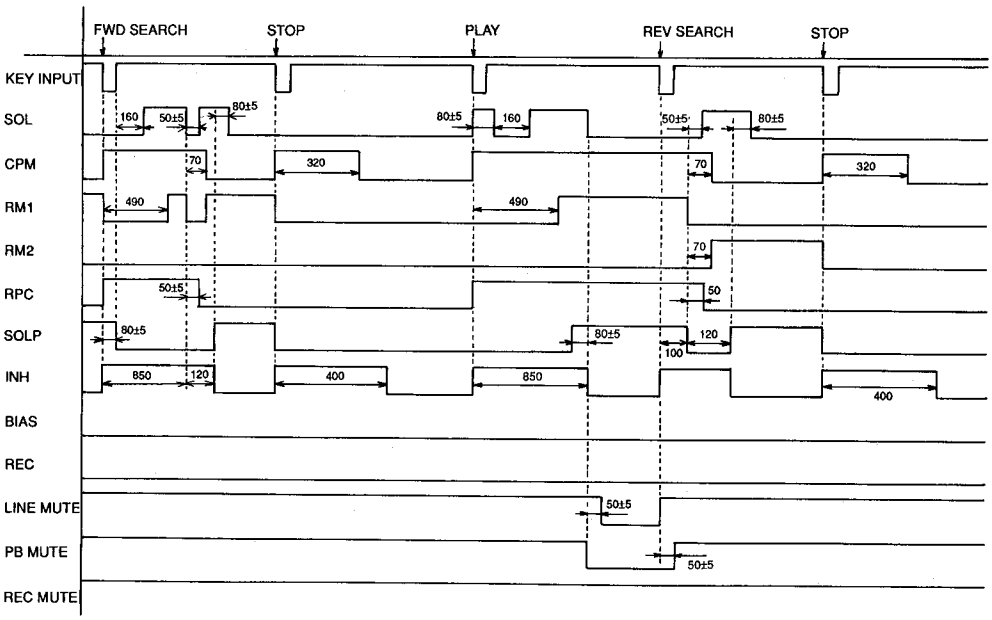
S-TYPE MODULATION CONTROL CIRCUITS BLOCK DIAGRAM

TIMING CHART









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

CASSETTE MECHANISM CONFIRMATION

Make sure to confirm conditons 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.

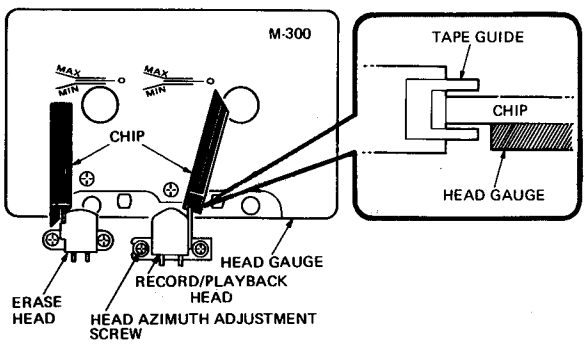


Fig. 1

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

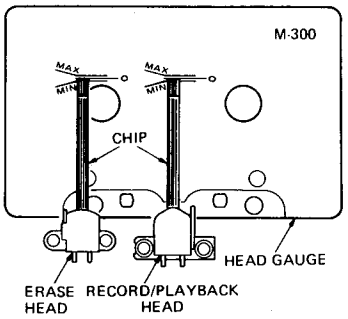


Fig. 2

ELECTRICAL ADJUSTMENT AND CONFIRMATION

1. Before adjustment

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

2. Instruments required

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

3. Test tapes

- Azimuth adjustment .....MTT-114 or TCC-153
- Tape speed adjustment.....MTT-111DN or TCC-112
- Playback output level adjustment ..... MTT-150 or TCC-130
- Music search adjustment.....SCC-1425
- Playback frequency characteristic confirmation .....TCC-1216 or TCC-162C and TCC-262C
- Reference tapes
  - LN SCC-502
  - CrO_2 .....SCC-1360
  - METAL SCC-565

Note:
C-90 differes with C-60 in the thickness and bias is of unequal, so adjust with the tape whose bias in of specified value.

4. General conditions (unless otherwise noted)

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

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

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

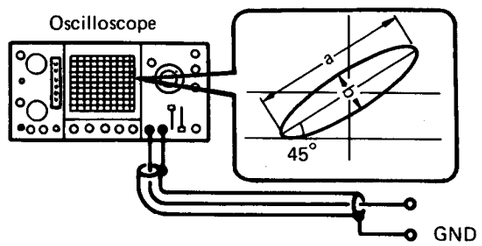


Fig. 3

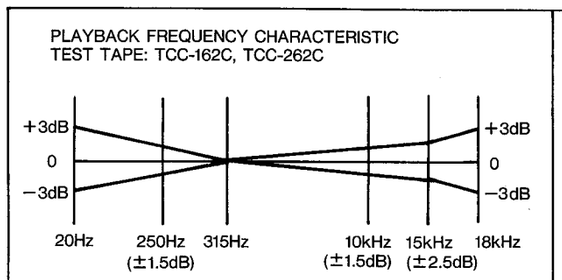


Fig. a

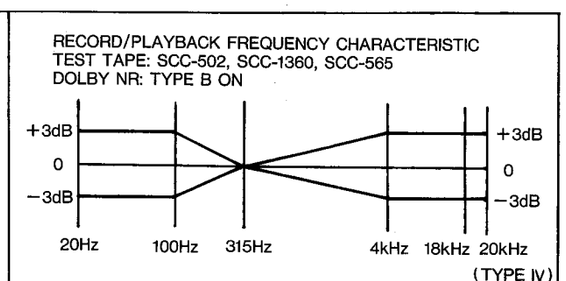


Fig. c

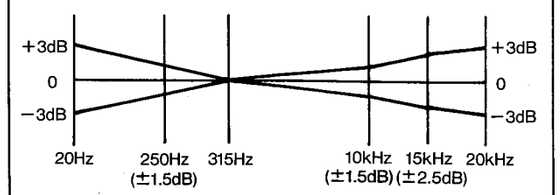


Fig. b

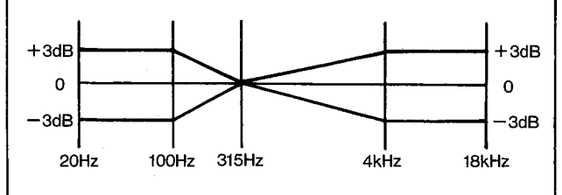
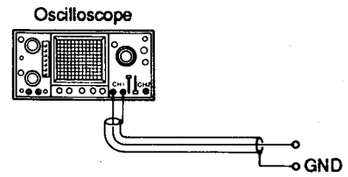


Fig. d

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

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_2 .....SCC-1360
  - METAL SCC-565

Note:
C-90 differes with C-60 in the thickness and bias is of unequal, so adjust with the tape whose bias in of specified value.

4. General conditions (unless otherwise noted)

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

Azimuth Adjustment

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

a) Connect L channel tape out to "X (or V)" and R channel to "Y (or H)". Observe the lissajouss waveform.

b) Set L and R channels to monaural. Adjust vertical and horizontal gain so that the waveform becomes 45 degree.

c) Adjust azimuth so that the measurement of "a" becomes maximum and the measurement of "b" becomes minimum against the 45 degree line.

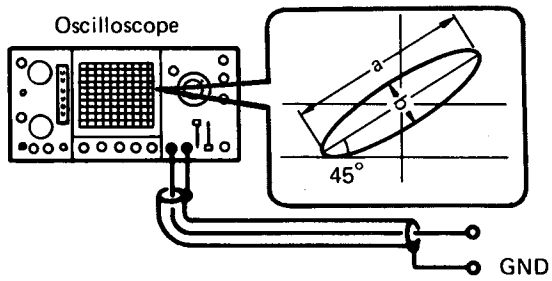


Fig. 3

PLAYBACK FREQUENCY CHARACTERISTIC
TEST TAPE: TCC-162C, TCC-262C

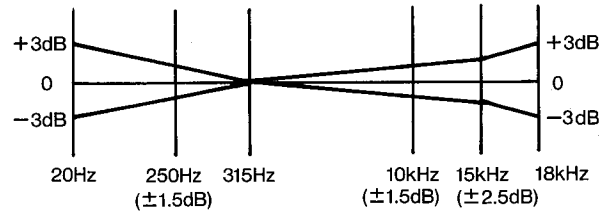


Fig. a

RECORD/PLAYBACK FREQUENCY CHARACTERISTIC
TEST TAPE: SCC-502, SCC-1360, SCC-565
DOLBY NR: TYPE B ON

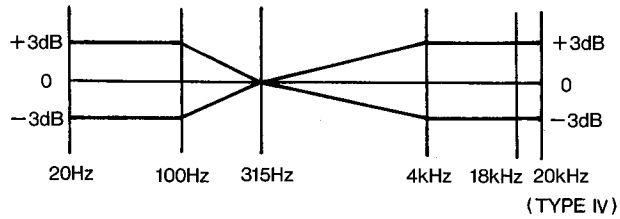


Fig. c

RECORD/PLAYBACK FREQUENCY CHARACTERISTIC
TEST TAPE: SCC-502, SCC-1360, SCC-565
DOLBY NR: OFF, TYPE S ON

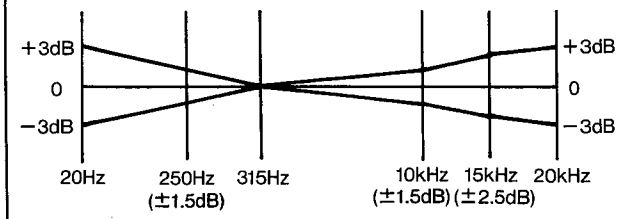


Fig. b

RECORD/PLAYBACK FREQUENCY CHARACTERISTIC
TEST TAPE: SCC-502, SCC-1360, SCC-565
DOLBY NR: TYPE C ON

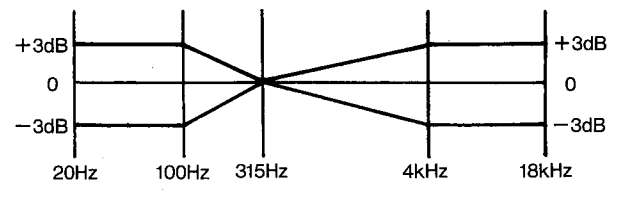


Fig. d

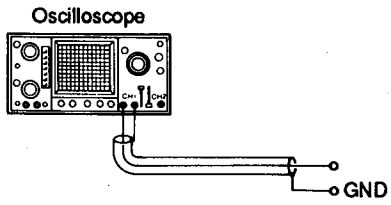
Dolby S Type NR DC Adjustment

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.

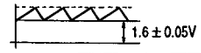
a) Connect the oscilloscope to TP3 and GND. Solder an appropriate resistor (1Mohm~6.6Mohm) between TM25 and TM26, so that the fluctuation of DC level becomes below 3mV.

b) Connect the oscilloscope to TP4 and GND. Solder an appropriate resistor between TM11 and TM13 with the same procedure as above.

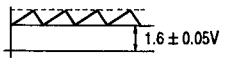
Note:

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

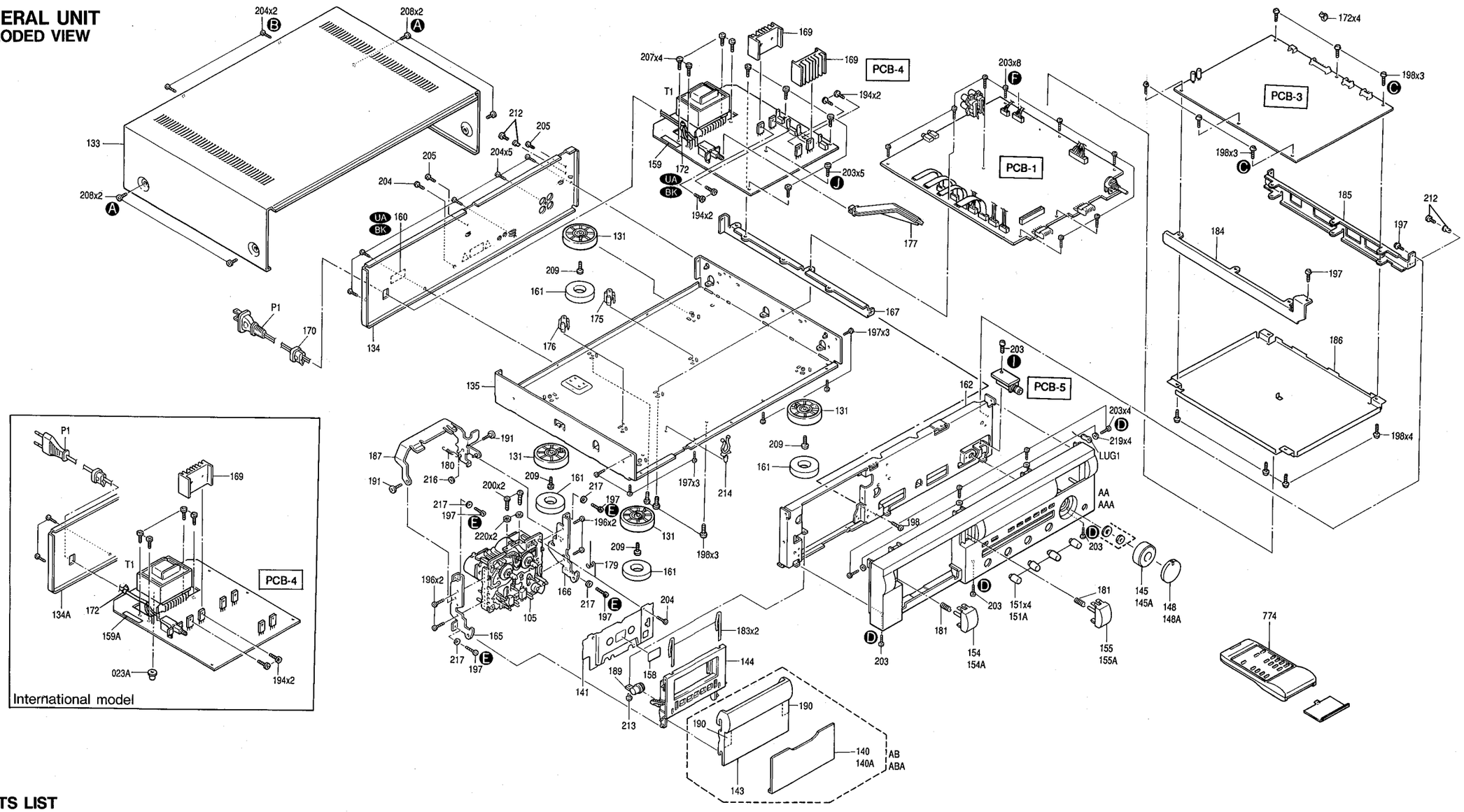
TM15 and TM17
TM3 and TM5
TM24 and TM25
TM11 and TM12

Step		Alignment	Instrument Required	Input Signal	Mode	Test Point	Adjustment	For
1		Azimuth	VTVM Oscilloscope Test tape (MTT-114 or TCC-153)		PB	TP501 (Lch), GND TP502 (Rch), GND or OUTPUT jack	Azimuth screw	Maximum output Refer to "Azimuth Adjustment" on page11.
2		Tape speed	Frequency counter Test tape (MTT-111DN or TCC-112)		PB	TP501 (Lch), GND TP502 (Rch), GND	VR (built in motor)	3000Hz ± 10Hz Adjust at the center of test tape.
3		Playback output level	VTVM Test tape (MTT-150 or TCC-130)		PB	TP501 (Lch), GND TP502 (Rch), GND	VR101 (Lch) VR102 (Rch)	388mV Tape selector is LN position.
4		Playback output level	VTVM Test tape (MTT-150 or TCC-130)		PB	TP501 (Lch), GND TP502 (Rch), GND	VR103 (Lch) VR104 (Rch)	388mV This adjustment should be at Dolby S type NR ON position.
5		Record calibration tone	VTVM		REC/PAUSE Rec. Cal. (SW921) ON	TP501 (Lch), GND TP502 (Rch), GND	VR602	388mV So that the frequency response is around 400Hz.
6		Bias tone	VTVM		REC/PAUSE Bias tone (SW907) ON	TP501 (Lch), GND	VR603	388mV -20dB (39mV about 400Hz)
						TP502 (Rch), GND	VR601	338mV -20dB (39mV about 12.5kHz)
7		Music search	Oscilloscope Test tape (SCC-1425)		FORWARD SEARCH	TP751, GND	VR751	1.6±0.05V 
8		Playback frequency characteristic confirmation	VTVM Test tape (TCC-1216 or TCC-162C and TCC-262C)		PB	TP501 (Lch), GND TP502 (Rch), GND 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 TP102 (Rch), GND	T301	105kHz ± 3kHz Tape selector is METAL position.
10		Dolby HX (Step up)	VTVM		REC	TP101 (Lch), GND TP102 (Rch), GND	L301 L302	Maximum output Tape selector is METAL position. 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 TP202 (Rch), GND	LC201, LC203 LC202, LC204	Minimum output at minimum position of input volume. Tape selector is METAL position.
12	1	Bias level (pre-adjustment)	VTVM		REC	TP101 (Lch), GND TP102 (Rch), GND	VR301 VR302	40mV Tape selector is METAL position.
	2						VR305 VR306	25mV Tape selector is CrO_2 position.
	3						VR303 VR304	15mV Tape selector is LN position.
13		Record level (pre-adjustment)	VTVM Distortion meter Blank tapes CrO_2 SCC-1360 METAL SCC-565 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 TP502 (Rch), GND	VR203, VR204 VR301, VR302	388mV Tape selector is METAL position. Adjust VR301 and VR302 so that the distortion becomes 1.0%~1.4%.
							VR305, VR306 (CrO_2) VR303, VR304 (LN)	388mV Adjust VR305 and VR306 so that the distortion becomes 1.3% (CrO_2). Adjust VR303 and VR304 so that the distortion becomes 1.0% (LN). This confirmation should be at each tape selector position.
14	1	Record/playback equalizer frequency characteristic	VTVM Blank tapes CrO_2 SCC-1360 METAL SCC-565 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. Then adjust with a 20Hz to 30kHz sweep signal.	REC/PB	OUTPUT jack	VR305, VR306 L201, L202 (VR301, VR302)	So that the record/playback frequency response is flat (at least within the range in Fig. b). Tape selector is CrO_2 position.
	2						VR301 VR302	So that the record/playback frequency response is flat (at least within the range in Fig. b). Tape selector is METAL position.
	3						VR305, VR306 L201, L202 (VR301, VR302)	So that the record/playback frequency response is flat (at least within the range in Fig. b). Tape selector is LN position.
15		Record level	VTVM Blank tapes CrO_2 SCC-1360 METAL SCC-565 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 TP502 (Rch), GND	VR203 VR204	388mV Perform adjustment using CrO_2. 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 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 MPX filter ON	TP501 (Lch), GND TP502 (Rch), GND or OUTPUT jack	LC501 LC502	Adjust for -0.3dB at 15kHz and >30dB at 19kHz.
18		Record/playback equalizer frequency characteristic confirmation	VTVM Blank tapes CrO_2 SCC-1360 METAL SCC-565 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. 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. Confirm the record/playback frequency characteristic is within ± 3dB at 20Hz to 20kHz. (Refer to Fig. b, c and d.)

Step	Alignment	Instrument Required	Input Signal	M
1	Azimuth	VTVM Oscilloscope Test tape (MTT-114 or TCC-153)		PB
2	Tape speed	Frequency counter Test tape (MTT-111DN or TCC-112)		PB
3	Playback output level	VTVM Test tape (MTT-150 or TCC-130)		PB
4	Playback output level	VTVM Test tape (MTT-150 or TCC-130)		PB
5	Record calibration tone	VTVM		REC Rec. (SW
6	Bias tone	VTVM		REC Bias (SW
7	Music search	Oscilloscope Test tape (SCC-1425)		FOR SEA
8	Playback frequency characteristic confirmation	VTVM 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 1 12 2 12 3	Bias level (pre-adjustment)	VTVM		REC
13	Record level (pre-adjustment)	VTVM Distortion meter Blank tapes CrO_2 SCC-1360 METAL SCC-565 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 1 14 2 14 3	Record/playback equalizer frequency characteristic	VTVM Blank tapes CrO_2 SCC-1360 METAL SCC-565 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. Then adjust with a 20Hz to 30kHz sweep signal.	REC
15	Record level	VTVM Blank tapes CrO_2 SCC-1360 METAL SCC-565 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.	REC MP ON
18	Record/playback equalizer frequency characteristic confirmation	VTVM Blank tapes CrO_2 SCC-1360 METAL SCC-565 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. Then adjust with a 20Hz to 30kHz sweep signal.	REC

	Mode	Test Point	Adjustment	For
	PB	TP501 (Lch), GND TP502 (Rch), GND or OUTPUT jack	Azimuth screw	Maximum output Refer to "Azimuth Adjustment" on page11.
	PB	TP501 (Lch), GND TP502 (Rch), GND	VR (built in motor)	3000Hz ± 10Hz Adjust at the center of test tape.
	PB	TP501 (Lch), GND TP502 (Rch), GND	VR101 (Lch) VR102 (Rch)	388mV Tape selector is LN position.
	PB	TP501 (Lch), GND TP502 (Rch), GND	VR103 (Lch) VR104 (Rch)	388mV This adjustment should be at Dolby S type NR ON position.
	REC/PAUSE Rec. Cal. (SW921) ON	TP501 (Lch), GND TP502 (Rch), GND	VR602	388mV So that the frequency response is around 400Hz.
	REC/PAUSE Bias tone (SW907) ON	TP501 (Lch), GND	VR603	388mV -20dB (39mV about 400Hz)
		TP502 (Rch), GND	VR601	338mV -20dB (39mV about 12.5kHz)
	FORWARD SEARCH	TP751, GND	VR751	1.6±0.05V 
	PB	TP501 (Lch), GND TP502 (Rch), GND 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 TP102 (Rch), GND	T301	105kHz ± 3kHz Tape selector is METAL position.
	REC	TP101 (Lch), GND TP102 (Rch), GND	L301 L302	Maximum output Tape selector is METAL position. After adjustment for L301 and L302, set bias fine trim (VR301 and VR302) to the center position.
	REC	TP201 (Lch), GND TP202 (Rch), GND	LC201, LC203 LC202, LC204	Minimum output at minimum position of input volume. Tape selector is METAL position.
	REC	TP101 (Lch), GND TP102 (Rch), GND	VR301 VR302	40mV Tape selector is METAL position.
			VR305 VR306	25mV Tape selector is CrO_2 position.
			VR303 VR304	15mV Tape selector is LN position.
that	REC/PB	TP501 (Lch), GND TP502 (Rch), GND	VR203, VR204 VR301, VR302	388mV Tape selector is METAL position. Adjust VR301 and VR302 so that the distortion becomes 1.0%~1.4%.
			VR305, VR306 (CrO_2) VR303, VR304 (LN)	388mV Adjust VR305 and VR306 so that the distortion becomes 1.3% (CrO_2). Adjust VR303 and VR304 so that the distortion becomes 1.0% (LN). This confirmation should be at each tape selector position.
that REC-	REC/PB	OUTPUT jack	VR305, VR306 L201, L202 (VR301, VR302)	So that the record/playback frequency response is flat (at least within the range in Fig. b). Tape selector is CrO_2 position.
			VR301 VR302	So that the record/playback frequency response is flat (at least within the range in Fig. b). Tape selector is METAL position.
			VR305, VR306 L201, L202 (VR301, VR302)	So that the record/playback frequency response is flat (at least within the range in Fig. b). Tape selector is LN position.
	REC/PB	TP501 (Lch), GND TP502 (Rch), GND	VR203 VR204	388mV Perform adjustment using CrO_2. Perform checking only for LN and METAL tapes.
that	REC/PAUSE	PEAK LEVEL METER	VR401 VR402	Confirm peak level meter reads: – 1dB.
JT 8mV.	REC/PAUSE MPX filter ON	TP501 (Lch), GND TP502 (Rch), GND or OUTPUT jack	LC501 LC502	Adjust for -0.3dB at 15kHz and >30dB at 19kHz.
that REC-	REC/PB	OUTPUT jack		Perform checking with Dolby B, C and S NR ON at each tape selector position. Confirm the record/playback frequency characteristic is within ± 3dB at 20Hz to 20kHz. (Refer to Fig. b, c and d.)

GENERAL UNIT
EXPLODED VIEW



International model

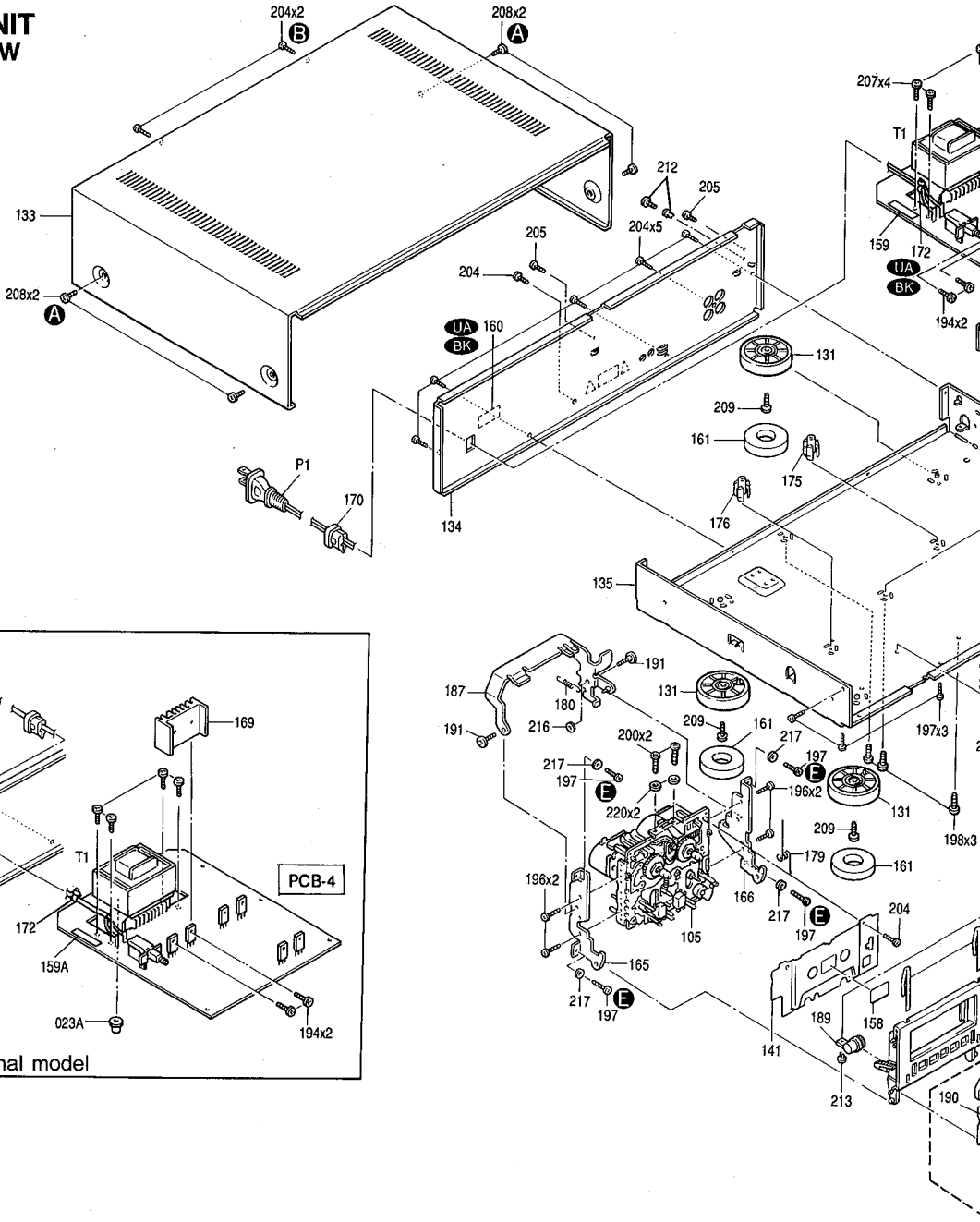
PARTS LIST

Ref. No.	Part No.	Description
AA	A442-TD4600A	FRONT PANEL ASS'Y UA I
AAA	A442-TD4600B	FRONT PANEL ASS'Y BK IB
AB	A532-TD4600A	CASSETTE LID ASS'Y UA I
ABA	A532-TD4600B	CASSETTE LID ASS'Y BK IB
023A	2132-7169	SPACER I IB
105	3112-13706	CASSETTE TAPE RECORDER MECHANISM ASS'Y
131	1319-02301	LEG
133	1414-15902	CABINET, TOP COVER
134	1424-31603	CABINET BACK, REAR UA BK
134A	1424-31607	CABINET BACK, REAR I IB
135	1424-31702	CABINET BACK, BOTTOM
140	1512-06807	PLATE UA I
140A	1512-06803	PLATE BK IB
141	1514-23201	PLATE
143	1532-19501	WINDOW
144	1612-07401	CASSETTE LID
145	1630-04402	ROTARY KNOB UA I
145A	1630-04401	ROTARY KNOB BK IB
148	1630-04502	ROTARY KNOB UA I
148A	1630-04501	ROTARY KNOB BK IB
151	1632-20402	ROTARY KNOB UA I
151A	1632-20401	ROTARY KNOB BK IB
154	1662-58403	PUSH BUTTON UA I
154A	1662-58401	PUSH BUTTON BK IB
155	1662-58404	PUSH BUTTON UA I
155A	1662-58402	PUSH BUTTON BK IB
158	1741-01601	ORNAMENT
159	1756-R011N801	LABEL, FUSE UA BK
159A	1756-R01TS161	LABEL, FUSE I IB
160	1756-CSA	LABEL UA BK
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
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)
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	2411-30Z1	WASHER, PLAIN
220	2411-40Z1	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.

GENERAL UNIT
EXPLODED VIEW

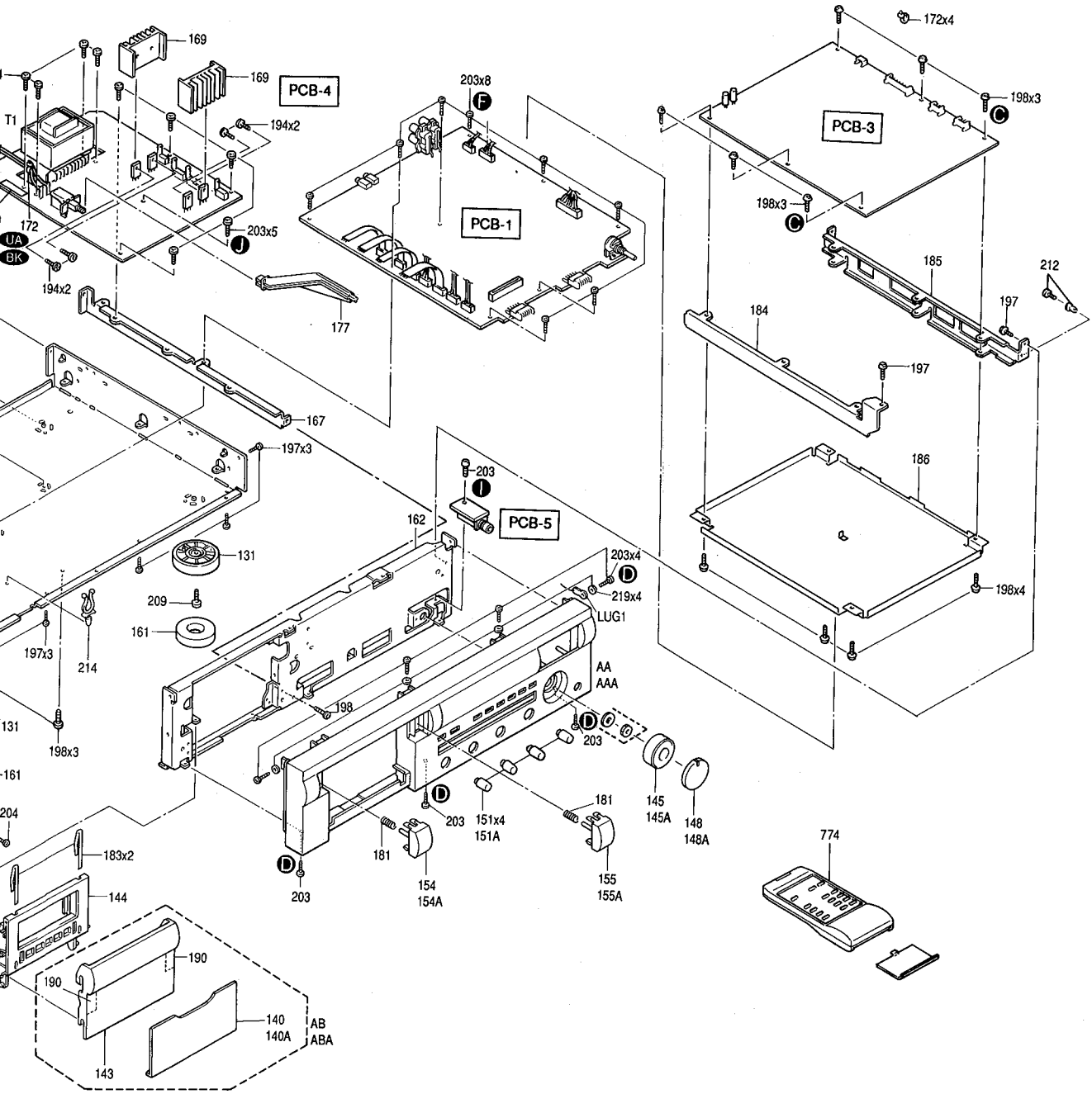


International model

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
AB	A532-TD4600A	CASSETTE LID ASS'Y UA I
ABA	A532-TD4600B	CASSETTE LID ASS'Y BK IB
023A	2132-7169	SPACER I IB
105	3112-13706	CASSETTE TAPE RECORDER MECHANISM ASS'Y
131	1319-02301	LEG
133	1414-15902	CABINET, TOP COVER
134	1424-31603	CABINET BACK, REAR UA BK
134A	1424-31607	CABINET BACK, REAR I IB
135	1424-31702	CABINET BACK, BOTTOM
140	1512-06807	PLATE UA I
140A	1512-06803	PLATE BK IB
141	1514-23201	PLATE
143	1532-19501	WINDOW
144	1612-07401	CASSETTE LID
145	1630-04402	ROTARY KNOB UA I
145A	1630-04401	ROTARY KNOB BK IB
148	1630-04502	ROTARY KNOB UA I
148A	1630-04501	ROTARY KNOB BK IB
151	1632-20402	ROTARY KNOB UA I
151A	1632-20401	ROTARY KNOB BK IB
154	1662-58403	PUSH BUTTON UA I
154A	1662-58401	PUSH BUTTON BK IB
155	1662-58404	PUSH BUTTON UA I
155A	1662-58402	PUSH BUTTON BK IB
158	1741-01601	ORNAMENT
159	1756-R011N801	LABEL, FUSE UA BK
159A	1756-R01TS161	LABEL, FUSE I IB
160	1756-CSA	LABEL UA BK
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

E	F	G	H	I	J



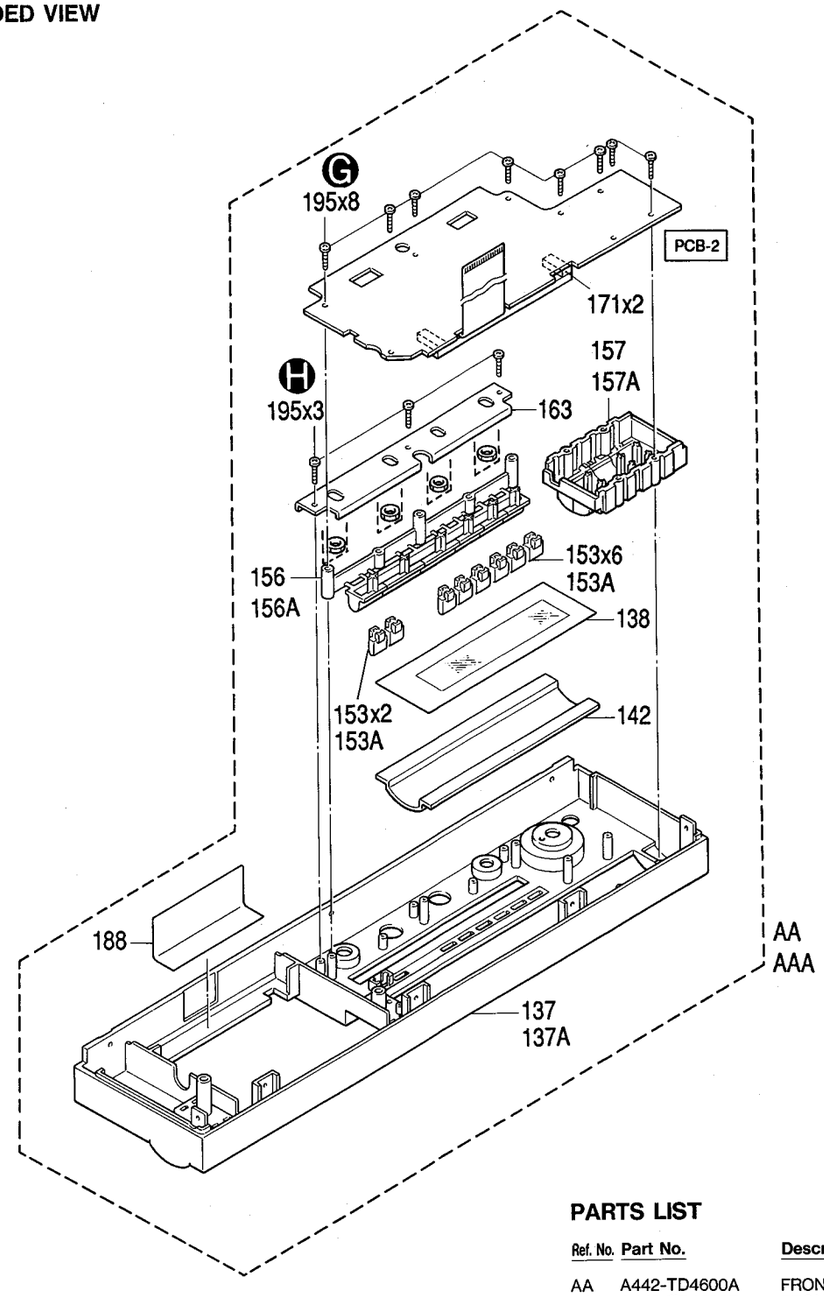
Ref. No.	Part No.	Description
176	2360-7063	BOSS
177	2601-7192	SHAFT
179	2651-047	SPRING
180	2651-11212	SPRING, LEVER
181	2651-2101732	SPRING
183	2652-105	LEAF SPRING
184	2219-8294	METAL FITTING
185	2219-8295	METAL FITTING
186	2216-7190	SHIELD PLATE
187	2672-7044	LEVER
189	2692-016	DAMPER
190	2111-11401	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	2411-30Z1	WASHER, PLAIN
220	2411-40Z1	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

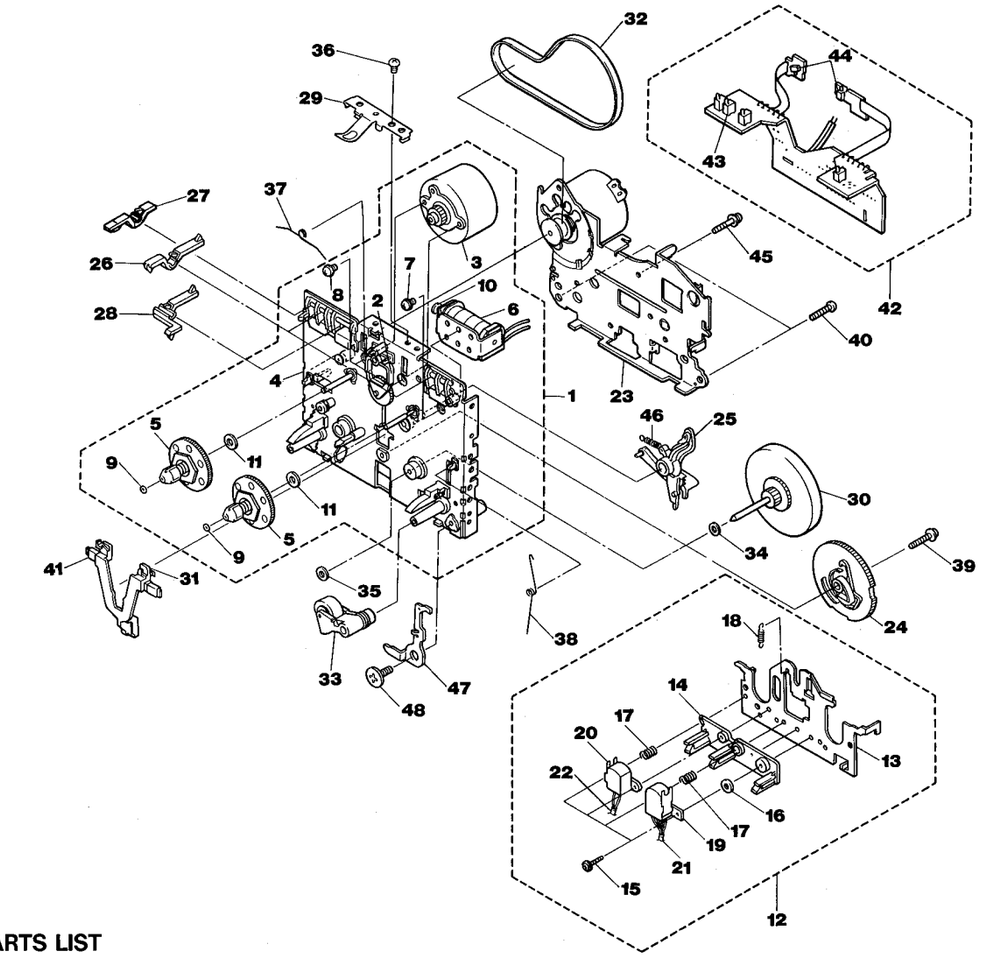


PARTS LIST

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 (2.6×8mm)

CASSETTE TAPE RECORDER MECHANISM

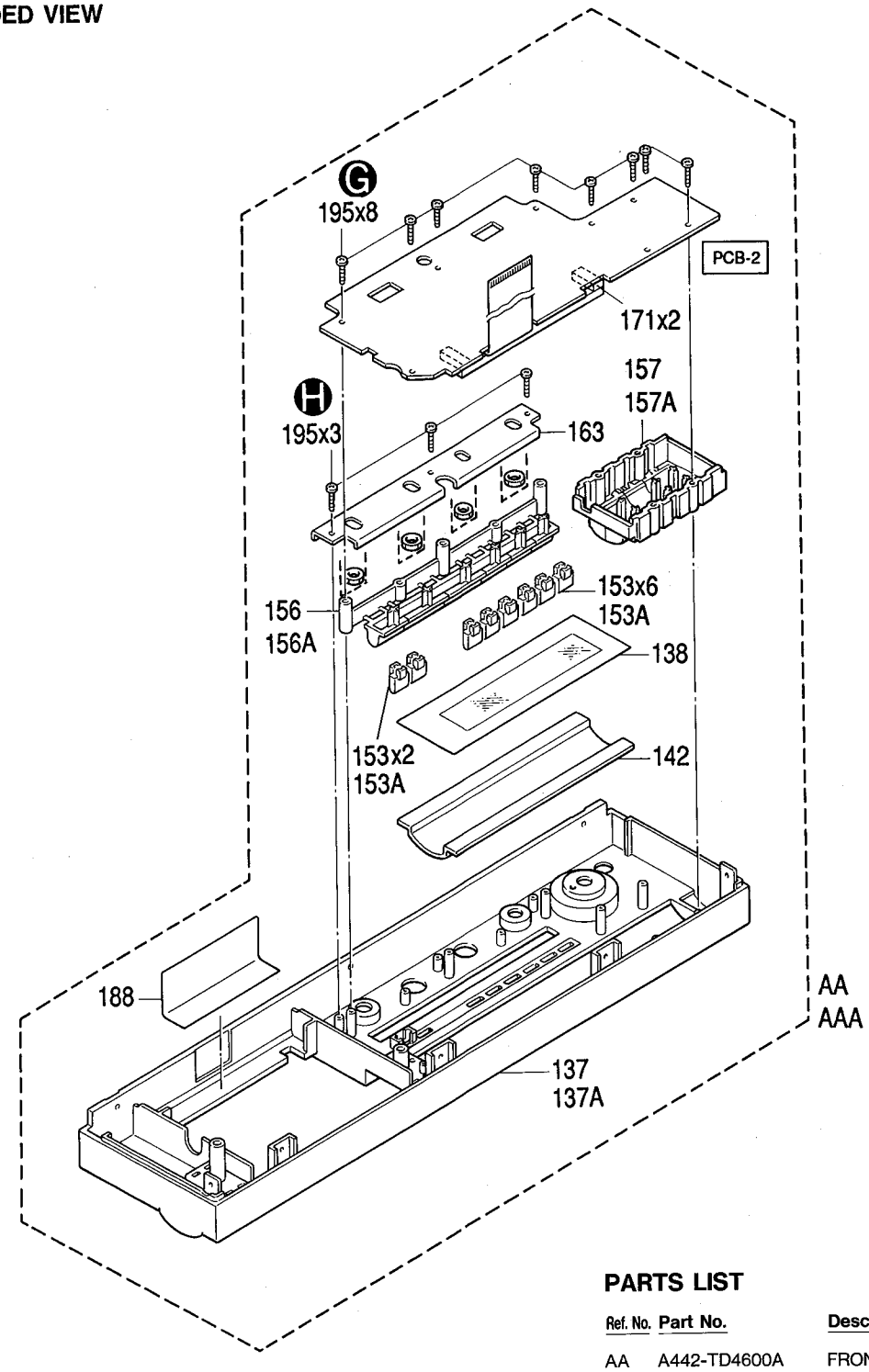
EXPLODED VIEW



PARTS LIST

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

EXPLODED VIEW



PARTS LIST

Ref. No.	Part No.	Description
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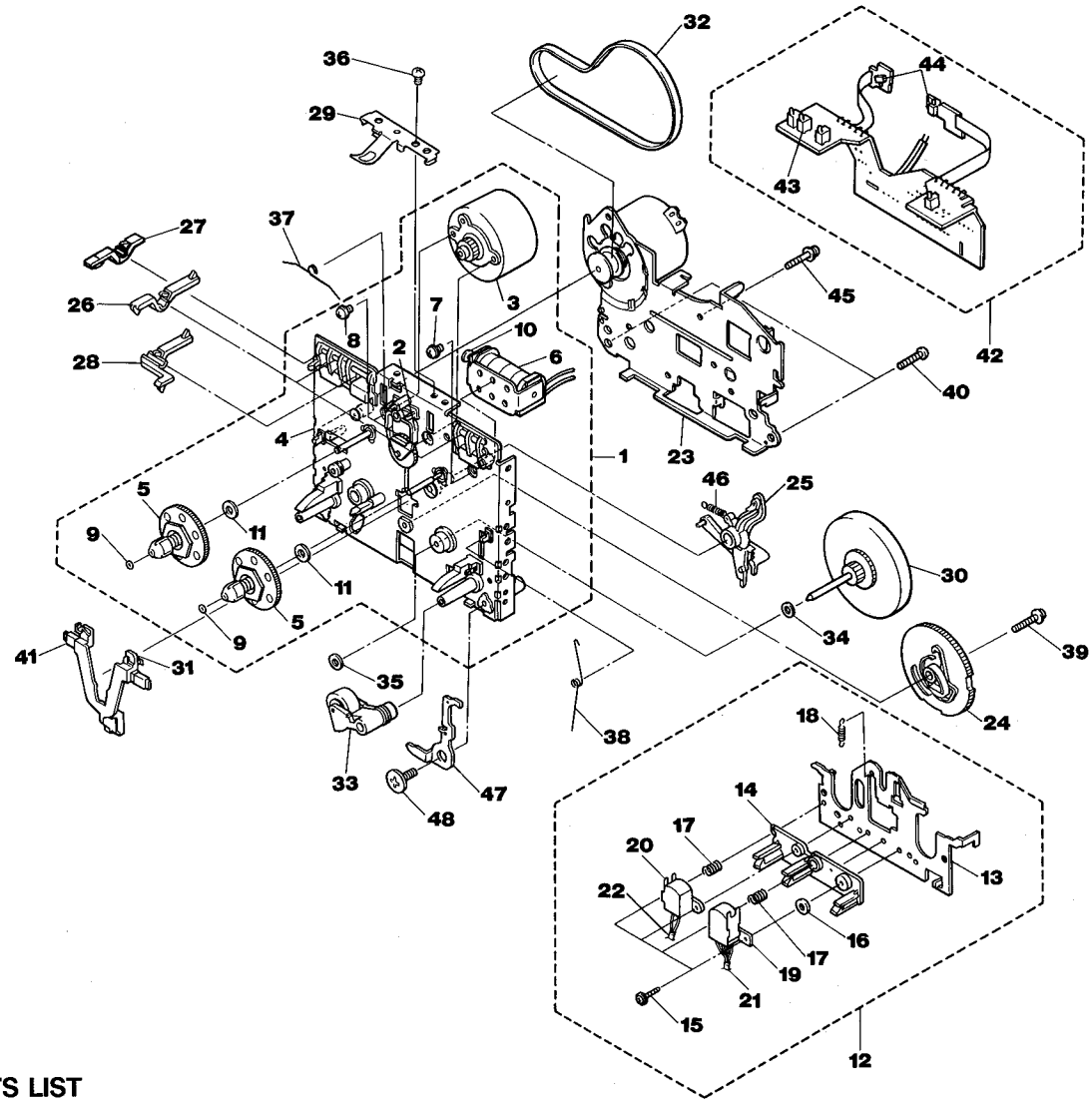
156	1662-58502	PUSH BUTTON (UA) (I)
156A	1662-58501	PUSH BUTTON (BK) (IB)
157	1662-52204	PUSH BUTTON (UA) (I)
157A	1662-52203	PUSH BUTTON (BK) (IB)
163	2219-8284	METAL FITTING
171	2240-7370	HOLDER
188	2216-7195	SHIELD PLATE
195	2347-R0126082	SCREW (2.6×8mm)

CASSETTE TAPE RECORDER MECHANISM

EXPLODED VIEW



PARTS LIST

Ref. No.	Part No.	Description
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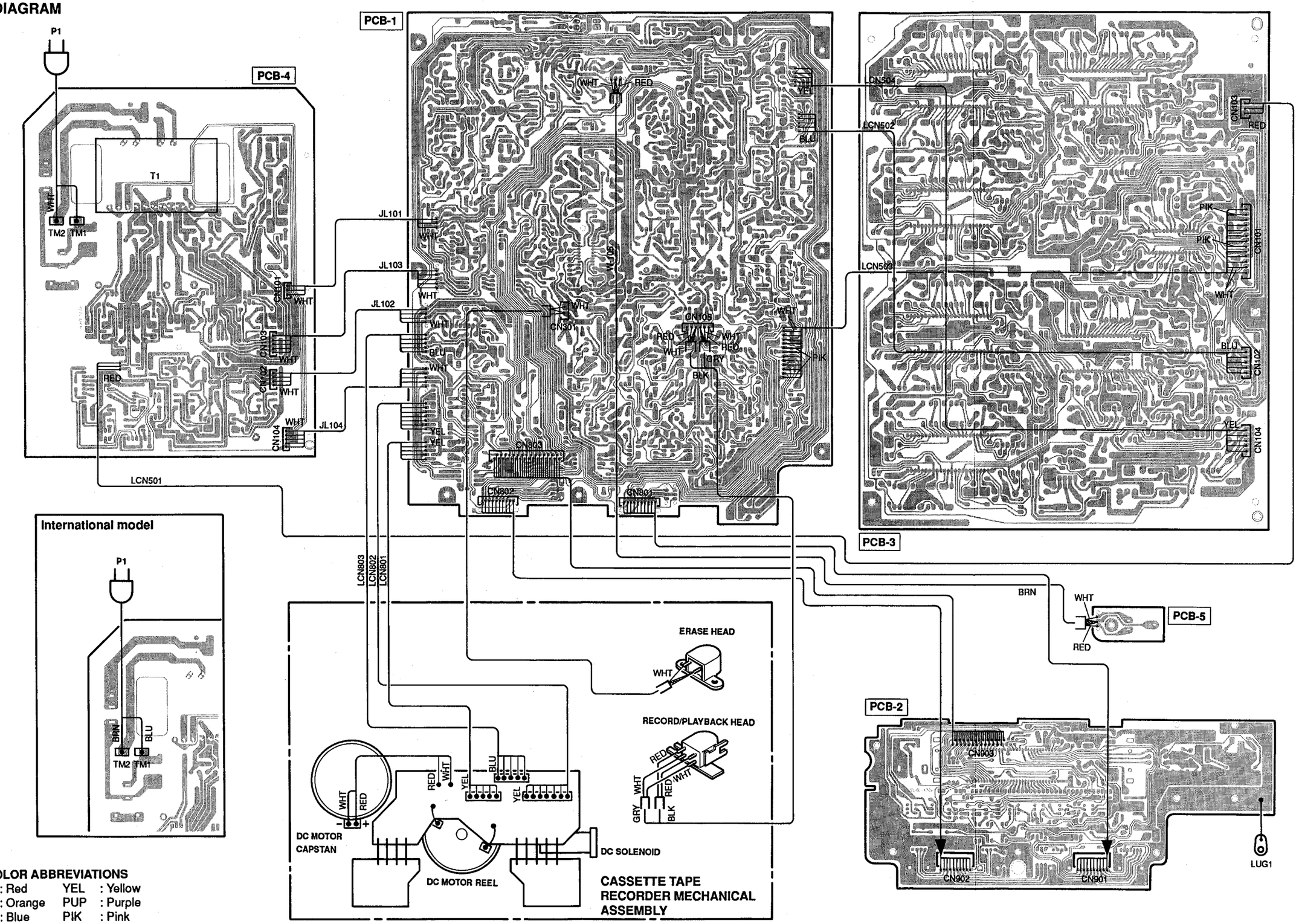
17	FK21U-11	SPRING, AZIMUTH
18	FK22L-11A	HEAD BASE SPRING
19	FU18K-13	REC/PB HEAD
20	FU192-11	ERASE HEAD
21	WH50S-06	WIRE CONNECTOR
22	WH42S-00	WIRE CONNECTOR
23	F525-185	CAPSTAN MOTOR ASS'Y
24	FD39C-54	CAM GEAR

Ref. No.	Part No.	Description
25	FD38M-22	PLAY ARM ASS'Y
26	FD38S-21	SWITCH ARM, REC
27	FD38T-12B	SWITCH ARM, PACK
28	FD38U-12	SWITCH ARM, METAL
29	FC40N-32	SPRING, CASSETTE
30	FR19V-22C	FLYWHEEL ASS'Y
31	FD36H-12	HOLD LEVER
32	FF16K-11	MAIN BELT
33	FR20L-21A	PINCH ROLLER
34	FJ111-30	NON-METAL WASHER (2.6 x 0.25 mm)
35	FJ141-11A	OIL SEAL (2.4 x 0.25 mm)
36	KG194-11	SCREW (3.0 x 5 mm)
37	FK22E-11	HOLD SPRING
38	FK22V-15	EJECT PREVENTION SPRING
39	UG17L-11	SCREW (2 x 15 mm)
40	UG12H-14	SCREW (2.6 x 8 mm)
41	FF16N-13	RUBBER BRAKE
42	F567-381	RELAY P. C. BOARD ASS'Y
43	UE16E-11	PUSH SWITCH
44	AZ15S-00	LEAF SWITCH
45	UG17H-11	SCREW (2.6 x 23.5 mm)
46	FK22G-14	PLAY ARM SPRING
47	FC39M-68	EJECT PREVENTION ARM
48	UG15S-11A	SCREW (7.7mm)

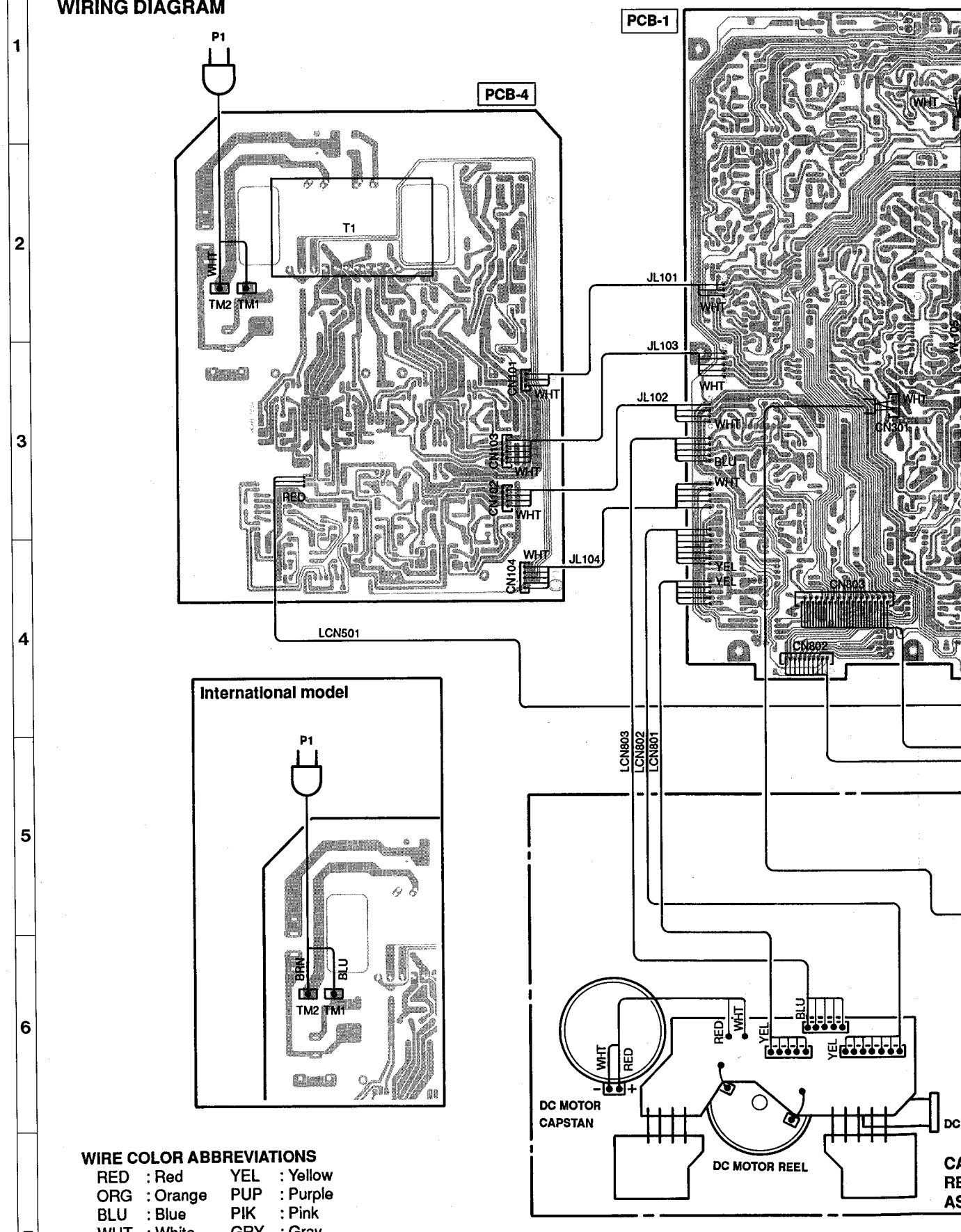
WIRING DIAGRAM



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		

WIRING DIAGRAM



WIRE COLOR ABBREVIATIONS

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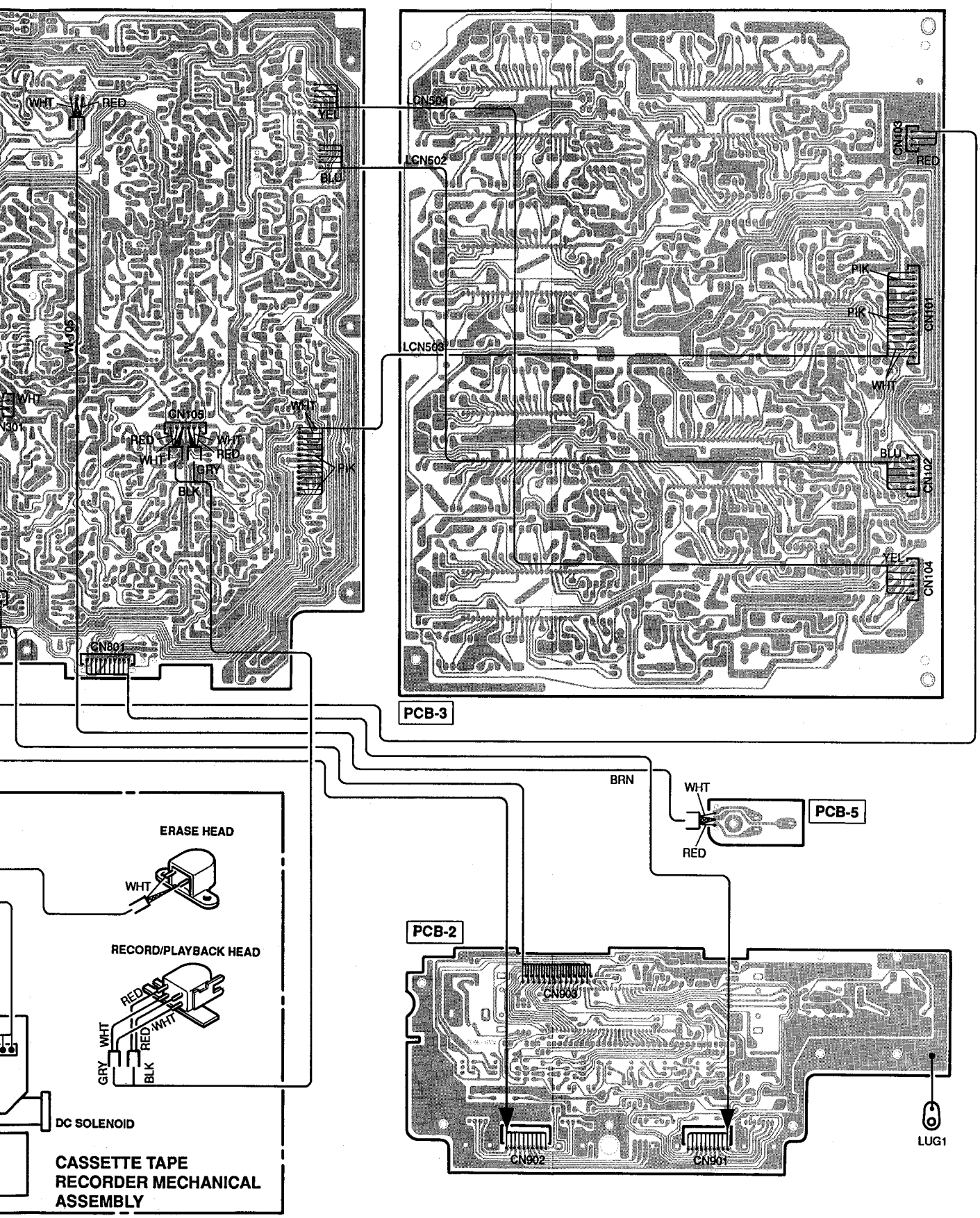
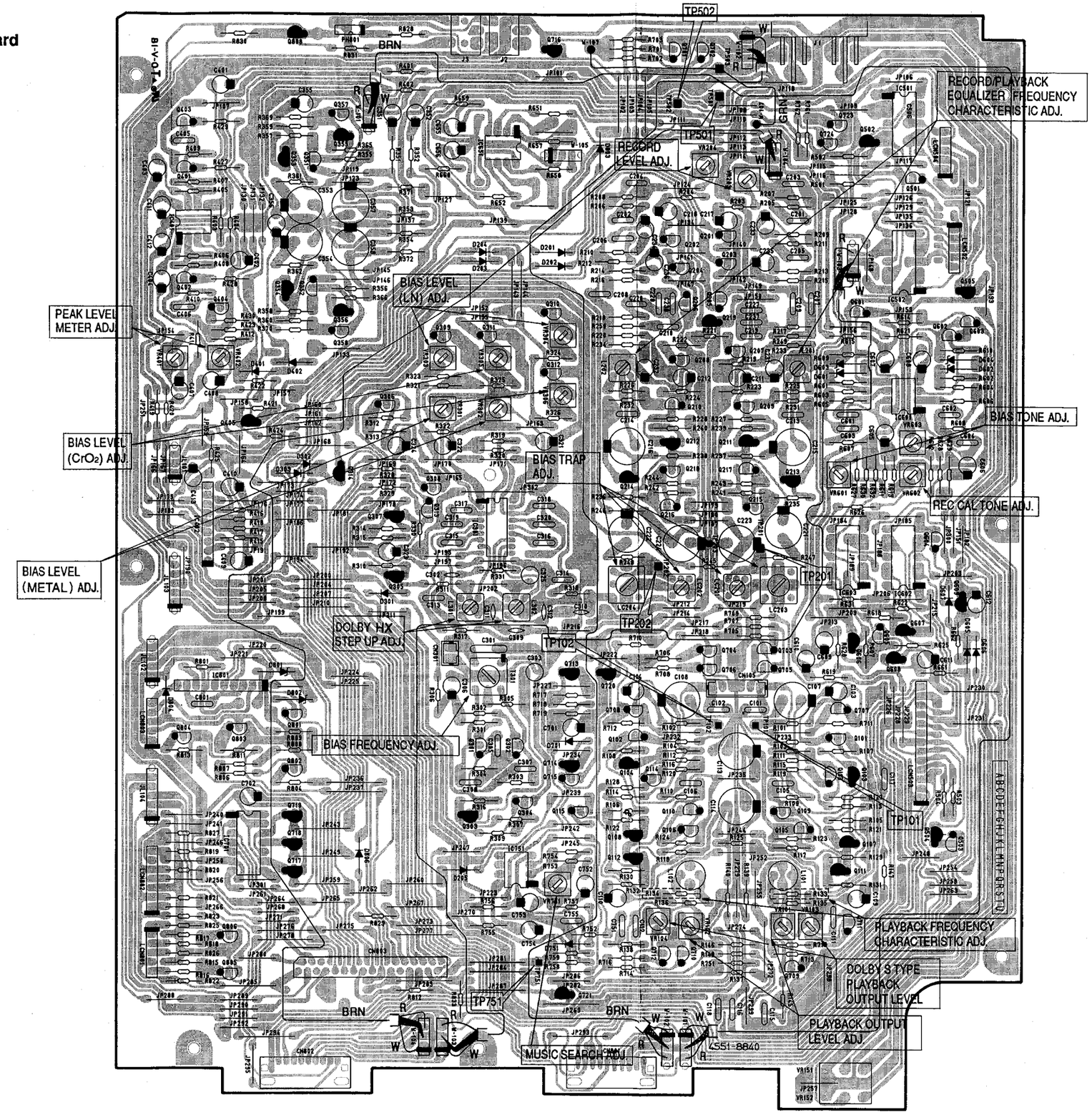
E	F	G	H	I	J

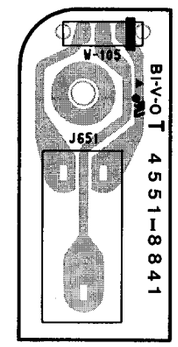

WHT
RED
YEL
BLU
LCN504
LCN502
LCN503
CN103
RED
PIK
PIK
CN101
WHT
BLU
CN102
YEL
CN104
CN105
RED
WHT
WHT
RED
GRY
BLK
PIK
WHT
CN801
PCB-3
BRN
WHT
RED
PCB-5
ERASE HEAD
WHT
RECORD/PLAYBACK HEAD
RED
WHT
RED
WHT
GRY
BLK
DC SOLENOID
CASSETTE TAPE
RECORDER MECHANICAL
ASSEMBLY
PCB-2
CN900
CN902
CN901
LUG1

P. C. BOARDS (1)

PCB-1 Main P. C. Board



PCB-5 Headphone P. C. Board

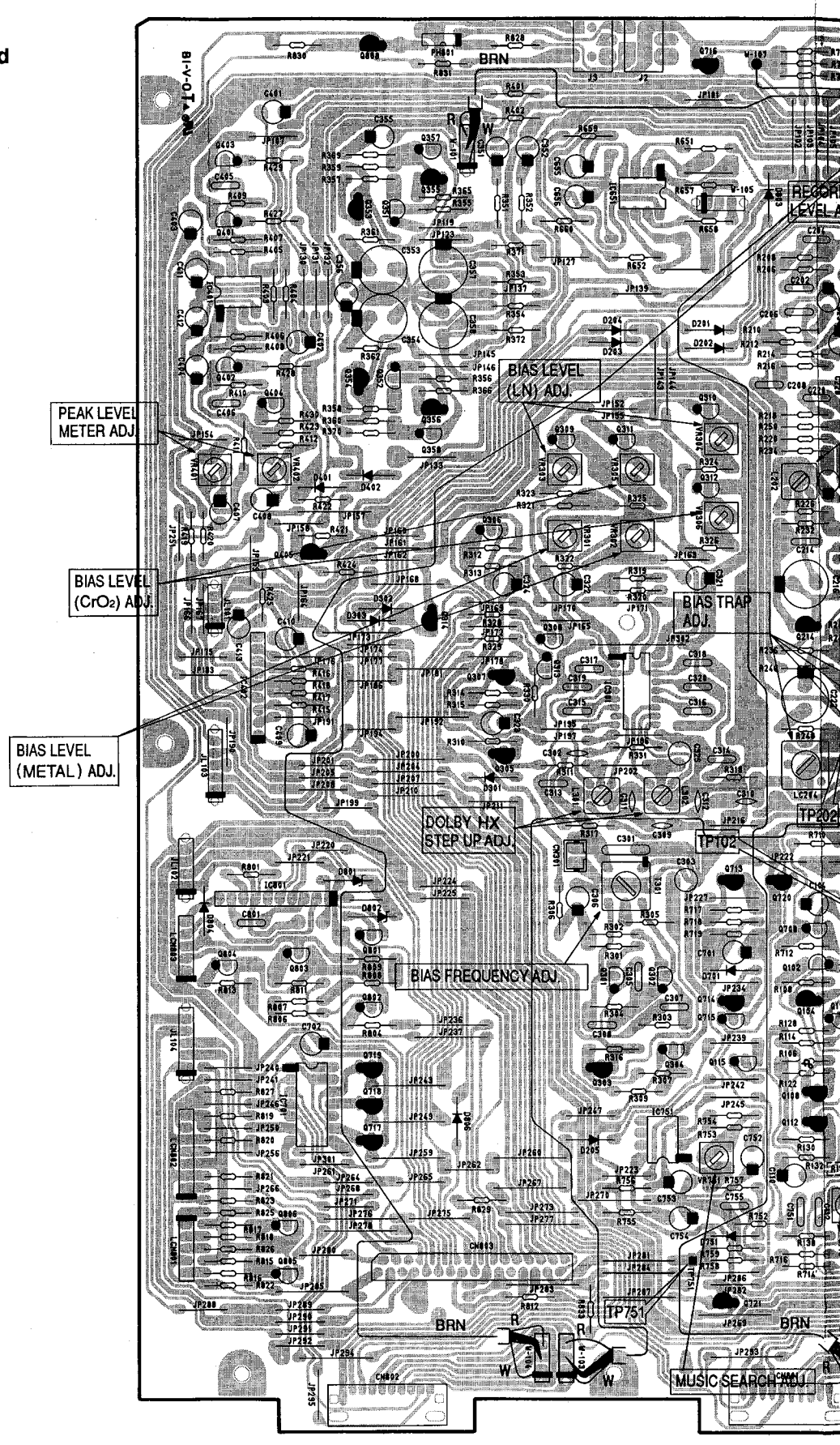


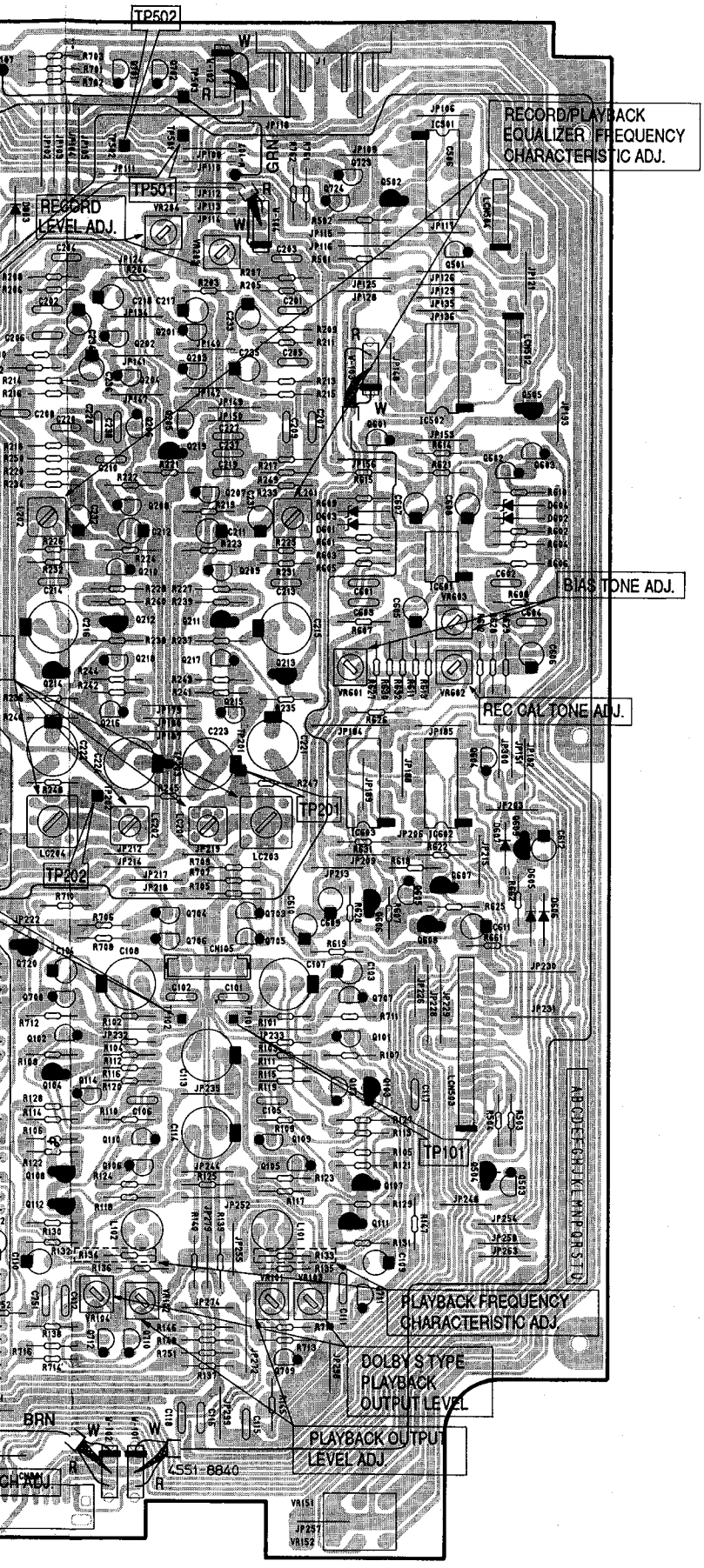
WIRE COLOR ABBREVIATIONS

R	: Red
W	: White
BRN	: Brown

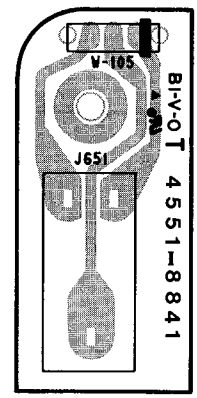
P. C. BOARDS (1)

PCB-1 Main P. C. Board





PCB-5 Headphone P. C. Board



WIRE COLOR ABBREVIATIONS

R	: Red
W	: White
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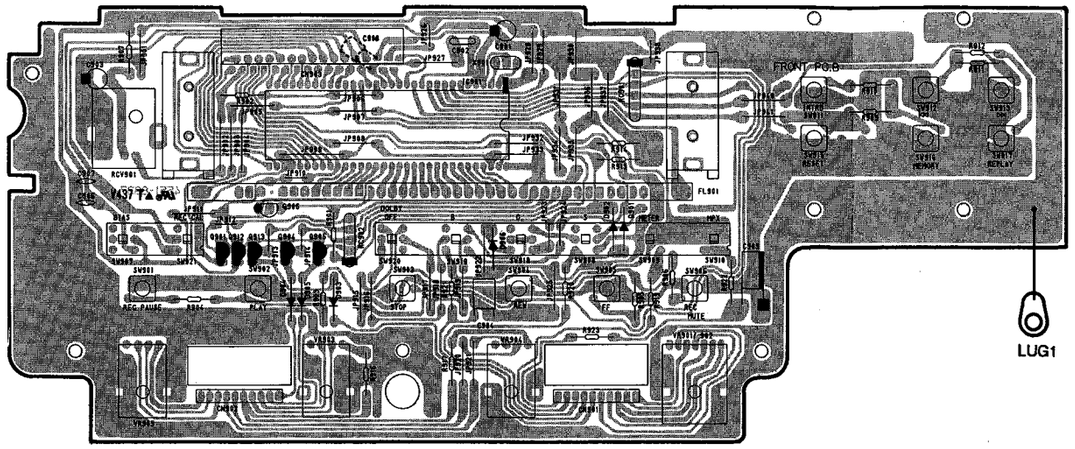
P. C. BOARDS (2)

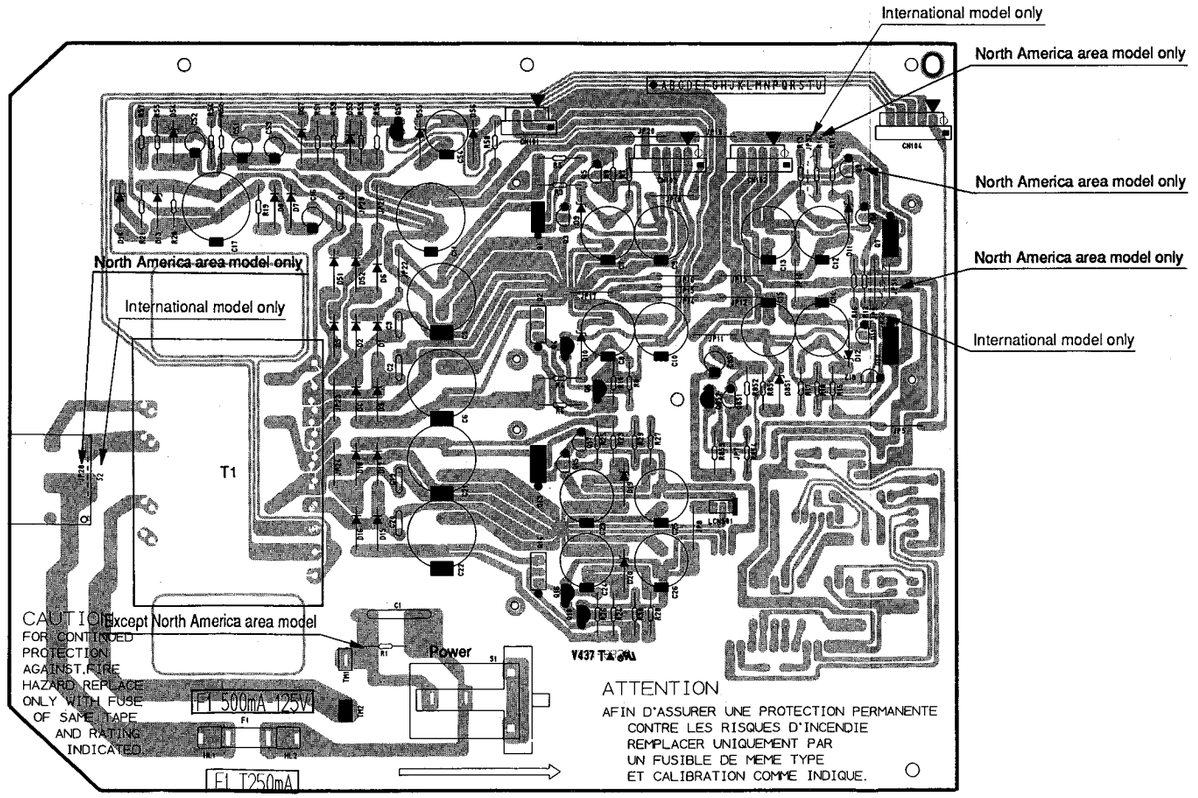


PCB-2

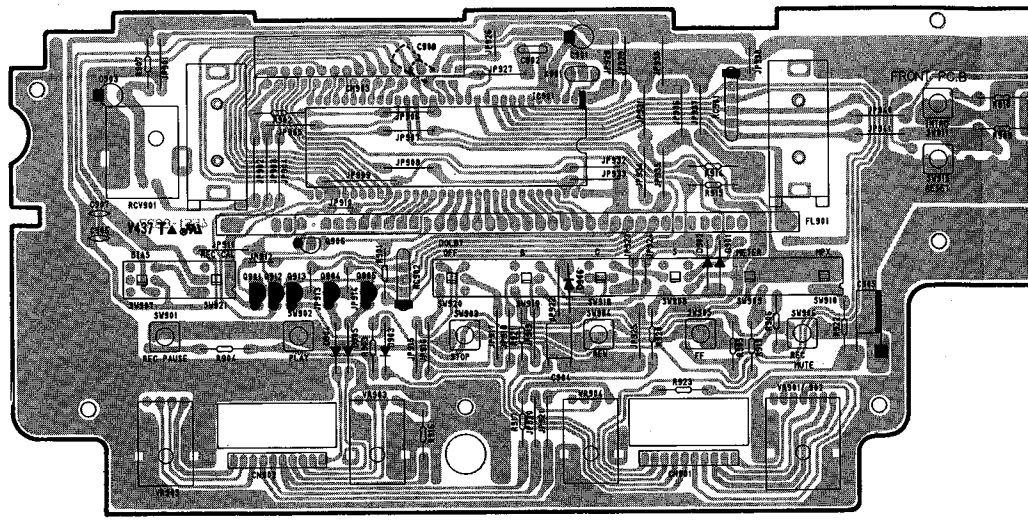
Front P. C. Board

PCB-4

Power P. C. Board

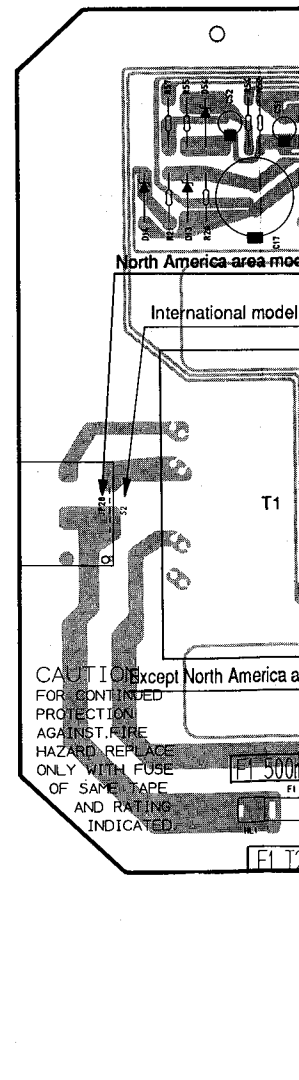


P. C. BOARDS (2)

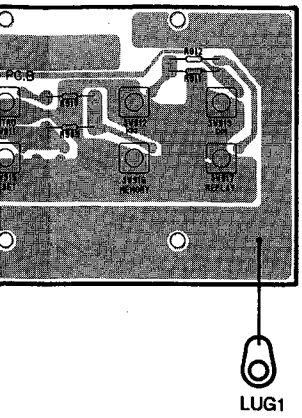


PCB-4

Power P. C. Board



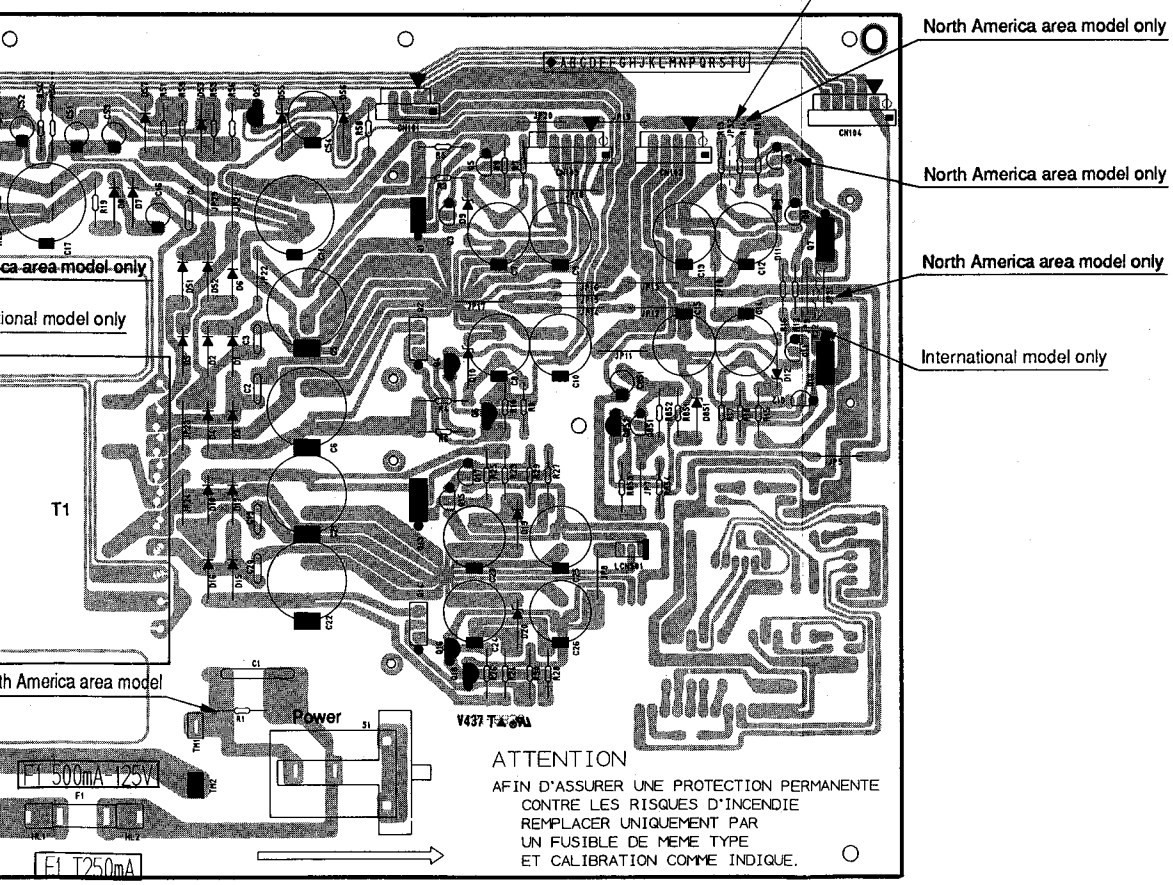
E | F | G | H | I | J



LUG1

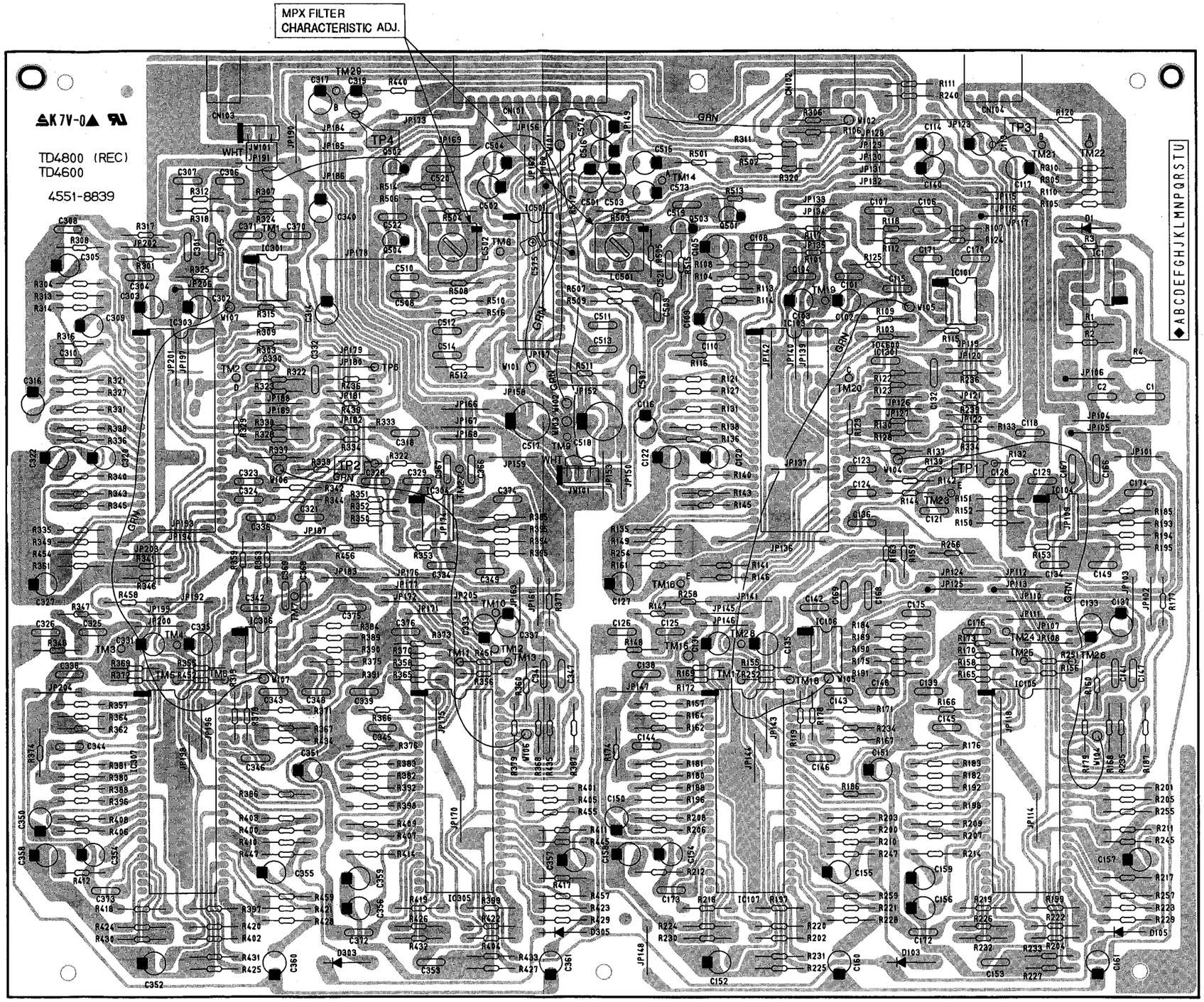
PCB-2

Front P. C. Board



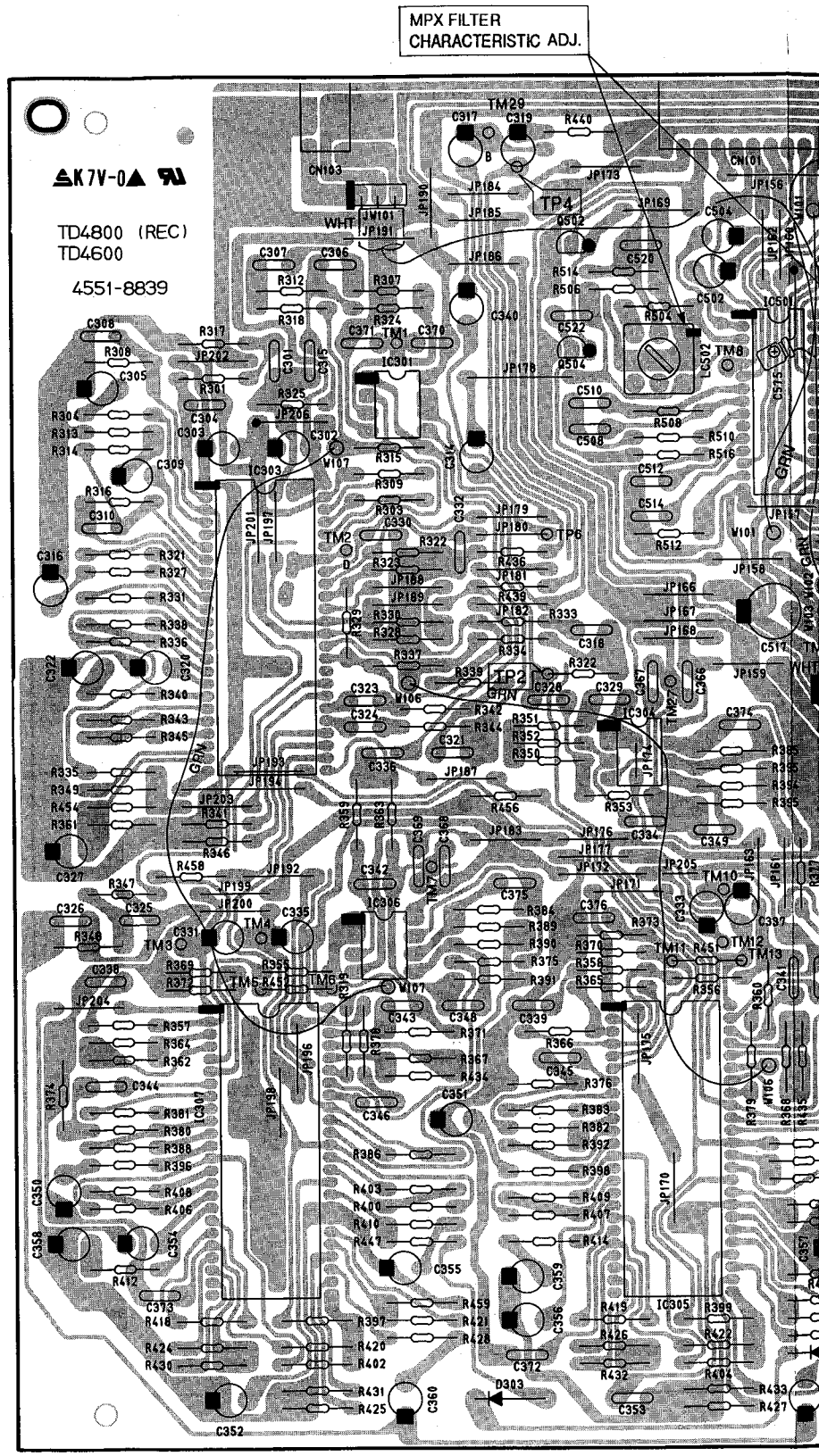
P. C. BOARDS (3)

PCB-3 Dolby NR P. C. Board

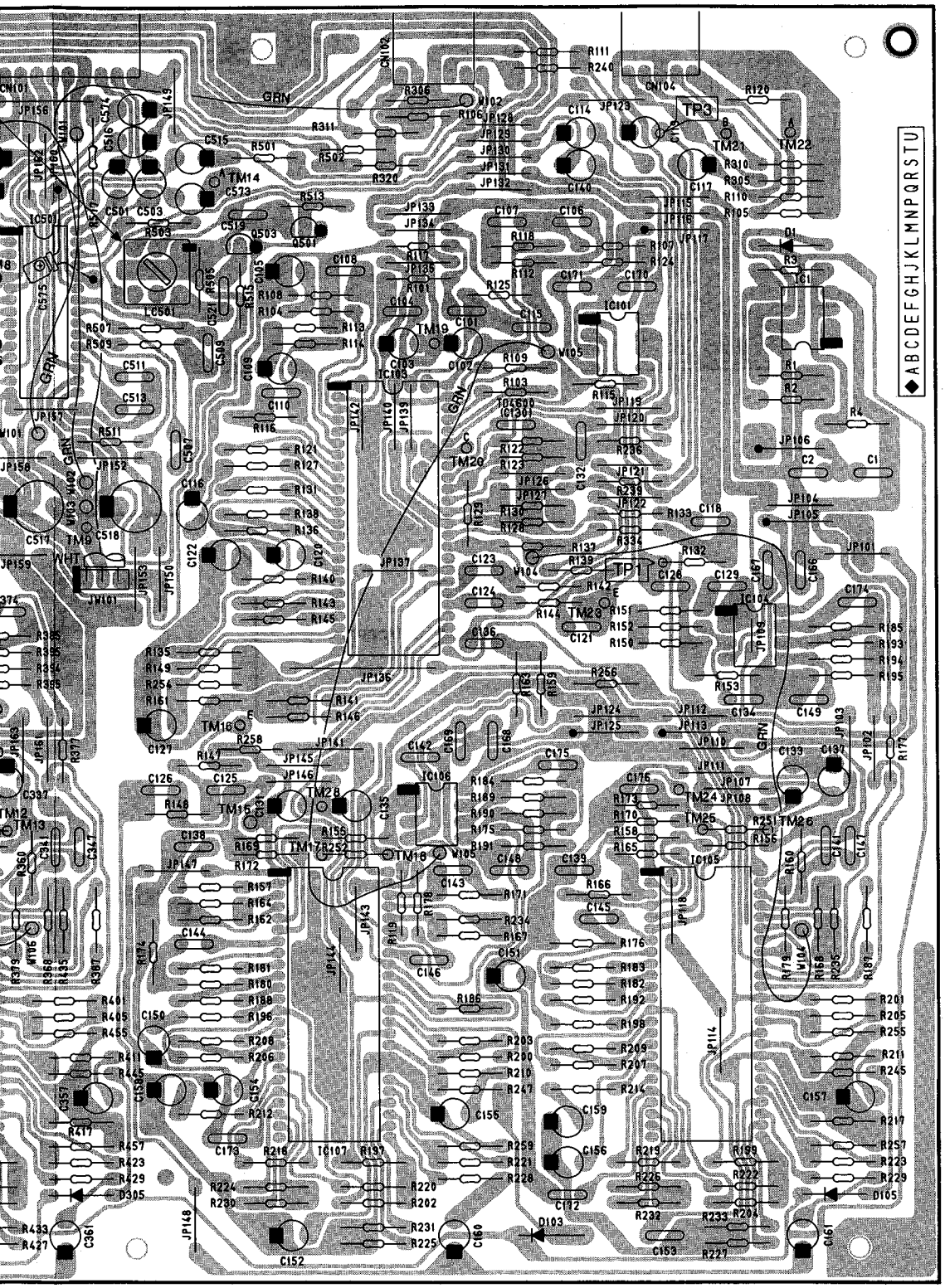


P. C. BOARDS (3)

PCB-3 Dolby NR P. C. Board



	F	G	H	I	J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TP3
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TM10
TM11
TM12
TM13
TM14
TM15
TM16
TM17
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TM19
TM20
TM21
TM22
TM23
TM24
TM25
TM26
TM27
TM28
IC101
IC102
IC103
IC104
IC105
IC106
IC107
IC108
IC501
D1
D103
D105
D305
Q501
Q503
CN101
CN102
CN103
CN104
JW101
JW111

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 10μ/16V
415	C104	5345-106C0951	CAP,MINI ELE 10μ/16V
423	C105	5359-8225851	CAP,PPP 8200P
423	C106	5359-8225851	CAP,PPP 8200P
416	C107	5345-337A0952	CAP,MINI ELE 330μ/6.3V
416	C108	5345-337A0952	CAP,MINI ELE 330μ/6.3V
415	C109	5345-106C0951	CAP,MINI ELE 10μ/16V
415	C110	5345-106C0951	CAP,MINI ELE 10μ/16V
424	C111	5359-1825851	CAP,PPP 1800P
424	C112	5359-1825851	CAP,PPP 1800P
420	C113	5345-477C041	CAP,MINI ELE 470μ/16V
420	C114	5345-477C041	CAP,MINI ELE 470μ/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 .033μ
486	C206	5359-S010J333	CAP,PPP .033μ
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 1μ/50V
476	C212	5345-105F0951	CAP,MINI ELE 1μ/50V
491	C213	5359-S010J123	CAP,PPP .012μ
491	C214	5359-S010J123	CAP,PPP .012μ
477	C215	5345-476D0951	CAP,MINI ELE 47μ/25V
477	C216	5345-476D0951	CAP,MINI ELE 47μ/25V
482	C217	5345-225F0951	CAP,MINI ELE 2.2μ/50V
482	C218	5345-225F0951	CAP,MINI ELE 2.2μ/50V
478	C219	5359-S010J102	CAP,PPP 1000P
478	C220	5359-S010J102	CAP,PPP 1000P
480	C221	5345-227B0952	CAP,MINI ELE 220μ/10V
480	C222	5345-227B0952	CAP,MINI ELE 220μ/10V
481	C223	5345-227C041	CAP,MINI ELE 220μ/16V
481	C224	5345-227C041	CAP,MINI ELE 220μ/16V
489	C227	5359-S010J472	CAP,PPP 4700P
489	C228	5359-S010J472	CAP,PPP 4700P
479	C231	5359-105F0951	CAP,MINI ELE 1μ/50V
479	C232	5359-105F0951	CAP,MINI ELE 1μ/50V
483	C233	5345-684F0951	CAP,MINI ELE .68μ/50V
483	C234	5345-684F0951	CAP,MINI ELE .68μ/50V
475	C235	5345-224F0951	CAP,MINI ELE .22μ/50V
475	C236	5345-224F0951	CAP,MINI ELE .22μ/50V
490	C237	5359-S010J222	CAP,PPP 2200P
490	C238	5359-S010J222	CAP,PPP 2200P
547	C301	5354-S040K123	CAP,MYL .012μ
556	C302	5361-100J434	CAP,CER 10P
542	C303	5342-106D041	CAP,ELE BP 10μ/25V
551	C305	5359-S010J682	CAP,PPP .6800P
543	C306	5345-106F041	CAP,MINI ELE 10μ/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 .1μ
548	C316	5354-104593	CAP,MYL .1μ
553	C317	5359-S010J103	CAP,PPP .01μ
553	C318	5359-S010J103	CAP,PPP .01μ
554	C319	5359-S010J223	CAP,PPP .022μ
554	C320	5359-S010J223	CAP,PPP .022μ
543	C321	5345-106F041	CAP,MINI ELE 10μ/50V
543	C322	5345-106F041	CAP,MINI ELE 10μ/50V
543	C323	5345-106F041	CAP,MINI ELE 10μ/50V
543	C324	5345-106F041	CAP,MINI ELE 10μ/50V
542	C325	5342-106D041	CAP,ELE BP 10μ/25V
914	C351	5345-225F0951	CAP,MINI ELE 2.2μ/50V
914	C352	5345-225F0951	CAP,MINI ELE 2.2μ/50V
916	C353	5345-107B0951	CAP,MINI ELE 100μ/10V
916	C354	5345-107B0951	CAP,MINI ELE 100μ/10V
916	C355	5345-107B0951	CAP,MINI ELE 100μ/10V
916	C356	5345-107B0951	CAP,MINI ELE 100μ/10V
917	C357	5345-227C041	CAP,MINI ELE 220μ/16V
917	C358	5345-227C041	CAP,MINI ELE 220μ/16V
714	C401	5345-105F041	CAP,MINI ELE 1μ/50V
714	C402	5345-105F041	CAP,MINI ELE 1μ/50V
712	C403	5345-475F041	CAP,MINI ELE 4.7μ/50V
712	C404	5345-475F041	CAP,MINI ELE 4.7μ/50V
716	C405	5359-S010J222	CAP,PPP 2200P
716	C406	5359-S010J222	CAP,PPP 2200P
712	C407	5345-475F041	CAP,MINI ELE 4.7μ/50V
712	C408	5345-475F041	CAP,MINI ELE 4.7μ/50V
712	C409	5345-475F041	CAP,MINI ELE 4.7μ/50V
712	C410	5345-475F041	CAP,MINI ELE 4.7μ/50V
715	C411	5345-226D041	CAP,MINI ELE 22μ/25V
715	C412	5345-226D041	CAP,MINI ELE 22μ/25V
713	C413	5345-476C041	CAP,MINI ELE 47μ/16V
952	C601	5354-393J1HM	CAP,MYL .039μ
953	C602	5359-S010J122	CAP,PPP 1200P
952	C603	5354-393J1HM	CAP,MYL .039μ
953	C604	5359-S010J122	CAP,PPP 1200P
955	C605	5345-105F041	CAP,MINI ELE 1μ/50V
955	C606	5345-105F041	CAP,MINI ELE 1μ/50V
956	C607	5345-476D041	CAP,MINI ELE 47μ/25V
956	C608	5345-476D041	CAP,MINI ELE 47μ/25V
956	C609	5345-476D041	CAP,MINI ELE 47μ/25V
956	C610	5345-476D041	CAP,MINI ELE 47μ/25V
954	C611	5345-106C041	CAP,MINI ELE 10μ/16V
954	C612	5345-106C041	CAP,MINI ELE 10μ/16V
934	C655	5345-476D041	CAP,MINI ELE 47μ/25V
934	C656	5345-476D041	CAP,MINI ELE 47μ/25V
683	C701	5345-106F041	CAP,MINI ELE 10μ/50V
683	C702	5345-106F041	CAP,MINI ELE 10μ/50V
893	C751	5354-473J1HM	CAP,MYL .047μ
891	C752	5345-476D041	CAP,MINI ELE 47μ/25V
891	C753	5345-476D041	CAP,MINI ELE 47μ/25V
891	C754	5345-476D041	CAP,MINI ELE 47μ/25V
894	C755	5359-S010J822	CAP,PPP 8200P
867	C801	5359-S010J103	CAP,PPP .01μ
		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

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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

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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

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968	R628	5135-153522	RES,CBN 1/2P 15K
970	R629	5135-471522	RES,CBN 1/2P 470
970	R630	5135-471522	RES,CBN 1/2P 470
961	R631	5135-102522	RES,CBN 1/2P 1K
961	R632	5135-102522	RES,CBN 1/2P 1K
937	R651	5135-103522	RES,CBN 1/2P 10K
937	R652	5135-103522	RES,CBN 1/2P 10K
940	R657	5135-101522	RES,CBN 1/2P 100
940	R658	5135-101522	RES,CBN 1/2P 100
936	R659	5135-100522	RES,CBN 1/2P 10
936	R660	5135-100522	RES,CBN 1/2P 10
957	R661	5135-472522	RES,CBN 1/2P 4.7K
957	R662	5135-472522	RES,CBN 1/2P 4.7K
692	R701	5135-222522	RES,CBN 1/2P 2.2K
692	R702	5135-222522	RES,CBN 1/2P 2.2K
693	R703	5135-104522	RES,CBN 1/2P 100K
687	R705	5135-103522	RES,CBN 1/2P 10K
687	R706	5135-103522	RES,CBN 1/2P 10K
689	R707	5135-392522	RES,CBN 1/2P 3.9K
689	R708	5135-392522	RES,CBN 1/2P 3.9K
687	R709	5135-103522	RES,CBN 1/2P 10K
687	R710	5135-103522	RES,CBN 1/2P 10K
690	R711	5135-223522	RES,CBN 1/2P 22K
690	R712	5135-223522	RES,CBN 1/2P 22K
687	R713	5135-103522	RES,CBN 1/2P 10K
687	R714	5135-103522	RES,CBN 1/2P 10K
687	R715	5135-103522	RES,CBN 1/2P 10K
687	R716	5135-103522	RES,CBN 1/2P 10K
691	R717	5135-222522	RES,CBN 1/2P 2.2K
687	R718	5135-103522	RES,CBN 1/2P 10K
687	R719	5135-103522	RES,CBN 1/2P 10K
901	R751	5135-563522	RES,CBN 1/2P 56K
898	R752	5135-104522	RES,CBN 1/2P 100K
899	R753	5135-331522	RES,CBN 1/2P 330
897	R754	5135-103522	RES,CBN 1/2P 10K
899	R755	5135-331522	RES,CBN 1/2P 330
899	R756	5135-331522	RES,CBN 1/2P 330
902	R757	5135-332522	RES,CBN 1/2P 3.3K
898	R758	5135-104522	RES,CBN 1/2P 100K
903	R759	5135-471522	RES,CBN 1/2P 470
904	R761	5135-222522	RES,CBN 1/2P 2.2K
904	R762	5135-222522	RES,CBN 1/2P 2.2K
871	⚠R801	5102-1005116	RES,FUSE 10
872	R804	5135-103522	RES,CBN 1/2P 10K
873	R806	5135-5R6522	RES,CBN 1/2P 5.6
873	R807	5135-5R6522	RES,CBN 1/2P 5.6
873	R808	5135-5R6522	RES,CBN 1/2P 5.6
873	R809	5135-5R6522	RES,CBN 1/2P 5.6
872	R811	5135-103522	RES,CBN 1/2P 10K
880	R812	5135-102522	RES,CBN 1/2P 1K
872	R813	5135-103522	RES,CBN 1/2P 10K
876	R815	5135-223522	RES,CBN 1/2P 22K
876	R816	5135-223522	RES,CBN 1/2P 22K
876	R817	5135-223522	RES,CBN 1/2P 22K
876	R818	5135-223522	RES,CBN 1/2P 22K
869	R819	5135-473522	RES,CBN 1/2P 47K
869	R820	5135-473522	RES,CBN 1/2P 47K
869	R821	5135-473522	RES,CBN 1/2P 47K
869	R822	5135-473522	RES,CBN 1/2P 47K
869	R823	5135-473522	RES,CBN 1/2P 47K
874	R825	5135-471522	RES,CBN 1/2P 470
874	R826	5135-471522	RES,CBN 1/2P 470
869	R827	5135-473522	RES,CBN 1/2P 47K
875	R828	5135-331522	RES,CBN 1/2P 330
880	R829	5135-102522	RES,CBN 1/2P 1K
868	R830	5135-392522	RES,CBN 1/2P 3.9K
870	R831	5135-470522	RES,CBN 1/2P 47
880	R833	5135-102522	RES,CBN 1/2P 1K
		INTEGRATED CIRCUITS	
521	IC301	5653-μ1297CA	IC,LINEAR
701	IC401	5652-NJM4558D	IC,MONO
702	IC402	5653-BA6138	IC,LINEAR
641	IC501	5654-TC4066BP	IC,DIGITAL
641	IC502	5654-TC4066BP	IC,DIGITAL
941	IC601	5652-NJM4558D	IC,MONO
942	IC602	5654-TC4066BP	IC,DIGITAL
942	IC603	5654-TC4066BP	IC,DIGITAL
931	IC651	5653-NJM4565D	IC,LINEAR
671	IC701	5654-TC4011BP	IC,DIGITAL
881	IC751	5652-NJM4558D	IC,MONO
851	IC801	5653-BA6229	IC,LINEAR
		TRANSISTORS	
402	Q101	5613-2320L(F)	XISTOR,NPN R
402	Q102	5613-2320L(F)	XISTOR,NPN R
401	Q103	5611-999L(F)	XISTOR,PNP R
401	Q104	5611-999L(F)	XISTOR,PNP R
402	Q105	5613-2320L(F)	XISTOR,NPN R
402	Q106	5613-2320L(F)	XISTOR,NPN R
401	Q107	5611-999L(F)	XISTOR,PNP R
401	Q108	5611-999L(F)	XISTOR,PNP R
402	Q109	5613-2320L(F)	XISTOR,NPN R
402	Q110	5613-2320L(F)	XISTOR,NPN R
401	Q111	5611-999L(F)	XISTOR,PNP R
401	Q112	5611-999L(F)	XISTOR,PNP R
403	Q113	5616-2SK246GR	FET,N-CH
403	Q114	5616-2SK246GR	FET,N-CH
404	Q115	5613-UN4214	XISTOR,NPN R
463	Q201	5613-UN4214	XISTOR,NPN R
463	Q202	5613-UN4214	XISTOR,NPN R
463	Q203	5613-UN4214	XISTOR,NPN R
463	Q204	5613-UN4214	XISTOR,NPN R
463	Q205	5613-UN4214	XISTOR,NPN R
463	Q206	5613-UN4214	XISTOR,NPN R
464	Q207	5614-1450(T)	XISTOR,NPN A
464	Q208	5614-1450(T)	XISTOR,NPN A
461	Q209	5613-2320L(F)	XISTOR,NPN R
461	Q210	5613-2320L(F)	XISTOR,NPN R
462	Q211	5611-999L(F)	XISTOR,PNP R
462	Q212	5611-999L(F)	XISTOR,PNP R
462	Q213	5611-999L(F)	XISTOR,PNP R
462	Q214	5611-999L(F)	XISTOR,PNP R
461	Q215	5613-2320L(F)	XISTOR,NPN R
461	Q216	5613-2320L(F)	XISTOR,NPN R
461	Q217	5613-2320L(F)	XISTOR,NPN R
461	Q218	5613-2320L(F)	XISTOR,NPN R
465	Q219	5611-UN4114	XISTOR,PNP R
525	Q301	5613-2320(F)	XISTOR,NPN R
525	Q302	5613-2320(F)	XISTOR,NPN R
527	Q303	5611-1309A(R)	XISTOR,PNP R
523	Q304	5613-UN4214	XISTOR,NPN R
526	Q305	5611-950(Y)	XISTOR,PNP R
522	Q306	5613-2120(Y)	XISTOR,NPN R
526	Q307	5611-950(Y)	XISTOR,PNP R
522	Q308	5613-2120(Y)	XISTOR,NPN R
524	Q309	5613-UN4214	XISTOR,NPN R
524	Q310	5613-UN4214	XISTOR,NPN R
524	Q311	5613-UN4214	XISTOR,NPN R
524	Q312	5613-UN4214	XISTOR,NPN R
523	Q313	5613-UN4214	XISTOR,NPN R
528	Q314	5611-UN4114	XISTOR,PNP R
911	Q351	5613-2320L(F)	XISTOR,NPN R
911	Q352	5613-2320L(F)	XISTOR,NPN R
912	Q353	5611-999L(F)	XISTOR,PNP R
912	Q354	5611-999L(F)	XISTOR,PNP R
912	Q355	5611-999L(F)	XISTOR,PNP R
912	Q356	5611-999L(F)	XISTOR,PNP R
913	Q357	5616-2SK246BL	FET,N-CH
913	Q358	5616-2SK246BL	FET,N-CH
705	Q401	5613-3311A(R)	XISTOR,NPN R
705	Q402	5613-3311A(R)	XISTOR,NPN R
705	Q403	5613-3311A(R)	XISTOR,NPN R
705	Q404	5613-3311A(R)	XISTOR,NPN R
704	Q405	5611-999(F)	XISTOR,PNP R
643	Q501	5613-UN4214	XISTOR,NPN R
644	Q502	5611-UN4114	XISTOR,PNP R
643	Q503	5613-UN4214	XISTOR,NPN R
644	Q504	5611-UN4114	XISTOR,PNP R
644	Q505	5611-UN4114	XISTOR,PNP R
944	Q601	5613-UN4214	XISTOR,NPN R
944	Q602	5613-UN4214	XISTOR,NPN R
944	Q603	5613-UN4214	XISTOR,NPN R
944	Q604	5613-UN4214	XISTOR,NPN R
944	Q605	5613-UN4214	XISTOR,NPN R
943	Q606	5611-UN4114	XISTOR,PNP R
943	Q607	5611-UN4114	XISTOR,PNP R
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 10μ/25V
834	C902	5359-S010J103	CAP,PPP .01μ
832	C903	5345-476D041	CAP,MINI ELE 47μ/25V
831	C904	5342-106C041	CAP,ELE BP 10μ/16V
835	C905	5345-106D041	CAP,MINI ELE 10μ/25V
848	C906	5361-102KB	CAP,CER 1000P
848	C907	5361-102KB	CAP,CER 1000P
843	C908	5359-S010J103	CAP,PPP .01μ
		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
		INTEGRATED CIRCUIT	
821	IC901	5654-MN18787F	IC,DIGITAL
		TRANSISTORS	
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
		DIODES	
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
		CONTROLS	
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
		MISCELLANEOUS	
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

		CAPACITORS	
445	C1	5354-104593	CAP,MYL .1μ
445	C2	5354-104593	CAP,MYL .1μ
447	C101	5354-104593	CAP,MYL .1μ
455	C102	5345-106F041	CAP,MINI ELE 10μ/50V
455	C103	5345-106F041	CAP,MINI ELE 10μ/50V
431	C104	5359-S010J103	CAP,PPP .01μ
458	C105	5345-106C0951	CAP,MINI ELE 10μ/16V
432	C106	5359-S010J332	CAP,PPP 3300P
432	C107	5359-S010J332	CAP,PPP 3300P
443	C108	5354-473J1HM	CAP,MYL .047μ
435	C110	5359-S010J153	CAP,PPP .015μ
453	C111	5353-010934	CAP,MCA 1P
459	C114	5345-106C0951	CAP,MINI ELE 10μ/16V
449	C115	5354-334593	CAP,MYL .33μ
458	C116	5345-106C0951	CAP,MINI ELE 10μ/16V
457	C117	5345-106C0951	CAP,MINI ELE 10μ/16V
434	C118	5359-S010J682	CAP,PPP 6800P
457	C119	5345-106C0951	CAP,MINI ELE 10μ/16V
460	C120	5345-224F0951	CAP,MINI ELE .22μ/50V
446	C121	5354-104593	CAP,MYL .1μ
462	C122	5345-105F0951	CAP,MINI ELE 1μ/50V
435	C123	5359-S010J153	CAP,PPP .015μ
433	C124	5359-S010J332	CAP,PPP 3300P
446	C125	5354-104593	CAP,MYL .1μ
443	C126	5354-473J1HM	CAP,MYL .047μ
463	C127	5345-474F0951	CAP,MINI ELE .47μ/50V
446	C128	5354-104593	CAP,MYL .1μ
433	C129	5359-S010J332	CAP,PPP 3300P
436	C130	5359-1015851	CAP,PPP 100P
455	C131	5345-106F041	CAP,MINI ELE 10μ/50V
436	C132	5359-1015851	CAP,PPP 100P
455	C133	5345-106F041	CAP,MINI ELE 10μ/50V
437	C134	5359-S010J471	CAP,PPP 470P
455	C135	5345-106F041	CAP,MINI ELE 10μ/50V
446	C136	5354-104593	CAP,MYL .1μ
455	C137	5345-106F041	CAP,MINI ELE 10μ/50V
439	C138	5359-S010J472	CAP,PPP 4700P
439	C139	5359-S010J472	CAP,PPP 4700P
459	C140	5345-106C0951	CAP,MINI ELE 10μ/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 .47μ
444	C145	5354-474593	CAP,MYL .47μ
442	C146	5359-S010J223	CAP,PPP .022μ
442	C147	5359-S010J223	CAP,PPP .022μ
438	C148	5359-S010J471	CAP,PPP 470P
438	C149	5359-S010J471	CAP,PPP 470P
464	C150	5345-104F0951	CAP,MINI ELE .1μ/50V
464	C151	5345-104F0951	CAP,MINI ELE .1μ/50V
464	C152	5345-104F0951	CAP,MINI ELE .1μ/50V
443	C153	5354-473J1HM	CAP,MYL .047μ
464	C154	5345-104F0951	CAP,MINI ELE .1μ/50V
460	C155	5345-224F0951	CAP,MINI ELE .22μ/50V
464	C156	5345-104F0951	CAP,MINI ELE .1μ/50V
460	C157	5345-224F0951	CAP,MINI ELE .22μ/50V
463	C158	5345-474F0951	CAP,MINI ELE .47μ/50V
463	C159	5345-474F0951	CAP,MINI ELE .47μ/50V
462	C160	5345-105F0951	CAP,MINI ELE 1μ/50V
462	C161	5345-105F0951	CAP,MINI ELE 1μ/50V
447	C166	5354-104593	CAP,MYL .1μ
447	C167	5354-104593	CAP,MYL .1μ
447	C168	5354-104593	CAP,MYL .1μ
447	C169	5354-104593	CAP,MYL .1μ
447	C170	5354-104593	CAP,MYL .1μ
447	C171	5354-104593	CAP,MYL .1μ
447	C172	5354-104593	CAP,MYL .1μ
447	C173	5354-104593	CAP,MYL .1μ
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 .1μ
456	C302	5345-106F041	CAP,MINI ELE 10μ/50V
456	C303	5345-106F041	CAP,MINI ELE 10μ/50V
431	C304	5359-S010J103	CAP,PPP .01μ
458	C305	5345-106C0951	CAP,MINI ELE 10μ/16V
432	C306	5359-S010J332	CAP,PPP 3300P
432	C307	5359-S010J332	CAP,PPP 3300P
443	C308	5354-473J1HM	CAP,MYL .047μ
458	C309	5345-106C0951	CAP,MINI ELE 10μ/16V
435	C310	5359-S010J153	CAP,PPP .015μ
453	C311	5353-010934	CAP,MCA 1P
459	C314	5345-106C0951	CAP,MINI ELE 10μ/16V
449	C315	5354-334593	CAP,MYL .33μ
458	C316	5345-106C0951	CAP,MINI ELE 10μ/16V
457	C317	5345-106C0951	CAP,MINI ELE 10μ/16V
434	C318	5359-S010J682	CAP,PPP 6800P
457	C319	5345-106C0951	CAP,MINI ELE 10μ/16V
461	C320	5345-224F0951	CAP,MINI ELE .22μ/50V
446	C321	5354-104593	CAP,MYL .1μ
462	C322	5345-105F0951	CAP,MINI ELE 1μ/50V
435	C323	5359-S010J153	CAP,PPP .015μ
433	C324	5359-S010J332	CAP,PPP 3300P
446	C325	5354-104593	CAP,MYL .1μ
443	C326	5354-473J1HM	CAP,MYL .047μ
463	C327	5345-474F0951	CAP,MINI ELE .47μ/50V
446	C328	5354-104593	CAP,MYL .1μ
433	C329	5359-S010J332	CAP,PPP 3300P
436	C330	5359-1015851	CAP,PPP 100P

Ser. No.	Ref. No.	Part No.	Description
456	C331	5345-106F041	CAP,MINI ELE 10μ/50V
436	C332	5359-1015851	CAP,PPP 100P
456	C333	5345-106F041	CAP,MINI ELE 10μ/50V
437	C334	5359-S010J471	CAP,PPP 470P
456	C335	5345-106F041	CAP,MINI ELE 10μ/50V
446	C336	5354-104593	CAP,MYL .1μ
456	C337	5345-106F041	CAP,MINI ELE 10μ/50V
439	C338	5359-S010J472	CAP,PPP 4700P
439	C339	5359-S010J472	CAP,PPP 4700P
459	C340	5345-106C0951	CAP,MINI ELE 10μ/16V
440	C341	5359-S010J681	CAP,PPP 680P
437	C342	5359-S010J471	CAP,PPP 470P
441	C343	5359-S010J102	CAP,PPP 1000P
444	C344	5354-474593	CAP,MYL .47μ
444	C345	5354-474593	CAP,MYL .47μ
442	C346	5359-S010J223	CAP,PPP .022μ
442	C347	5359-S010J223	CAP,PPP .022μ
438	C348	5359-S010J471	CAP,PPP 470P
438	C349	5359-S010J471	CAP,PPP 470P
465	C350	5345-104F0951	CAP,MINI ELE .1μ/50V
465	C351	5345-104F0951	CAP,MINI ELE .1μ/50V
465	C352	5345-104F0951	CAP,MINI ELE .1μ/50V
443	C353	5354-473J1HM	CAP,MYL .047μ
465	C354	5345-104F0951	CAP,MINI ELE .1μ/50V
461	C355	5345-224F0951	CAP,MINI ELE .22μ/50V
465	C356	5345-104F0951	CAP,MINI ELE .1μ/50V
461	C357	5345-224F0951	CAP,MINI ELE .22μ/50V
463	C358	5345-474F0951	CAP,MINI ELE .47μ/50V
463	C359	5345-474F0951	CAP,MINI ELE .47μ/50V
462	C360	5345-105F0951	CAP,MINI ELE 1μ/50V
462	C361	5345-105F0951	CAP,MINI ELE 1μ/50V
448	C366	5354-104593	CAP,MYL .1μ
448	C367	5354-104593	CAP,MYL .1μ
448	C368	5354-104593	CAP,MYL .1μ
448	C369	5354-104593	CAP,MYL .1μ
448	C370	5354-104593	CAP,MYL .1μ
448	C371	5354-104593	CAP,MYL .1μ
448	C372	5354-104593	CAP,MYL .1μ
448	C373	5354-104593	CAP,MYL .1μ
452	C374	5353-220534	CAP,MCA 22P
452	C375	5353-220534	CAP,MCA 22P
452	C376	5353-220534	CAP,MCA 22P
407	C501	5345-105F0951	CAP,MINI ELE 1μ/50V
407	C502	5345-105F0951	CAP,MINI ELE 1μ/50V
407	C503	5345-105F0951	CAP,MINI ELE 1μ/50V
407	C504	5345-105F0951	CAP,MINI ELE 1μ/50V
415	C507	5359-S010J222	CAP,PPP 2200P
415	C508	5359-S010J222	CAP,PPP 2200P
415	C509	5359-S010J222	CAP,PPP 2200P
415	C510	5359-S010J222	CAP,PPP 2200P
411	C511	5354-564593	CAP,MYL .56μ
411	C512	5354-564593	CAP,MYL .56μ
412	C513	5354-334593	CAP,MYL .33μ
412	C514	5354-334593	CAP,MYL .33μ
408	C515	5345-106C0951	CAP,MINI ELE 10μ/16V
408	C516	5345-106C0951	CAP,MINI ELE 10μ/16V
409	C517	5345-227C041	CAP,MINI ELE 220μ/16V
409	C518	5345-227C041	CAP,MINI ELE 220μ/16V
416	C519	5359-S010J182	CAP,PPP 1800P
416	C520	5359-S010J182	CAP,PPP 1800P
415	C521	5359-S010J222	CAP,PPP 2200P
415	C522	5359-S010J222	CAP,PPP 2200P
408	C573	5345-106C0951	CAP,MINI ELE 10μ/16V
408	C574	5345-106C0951	CAP,MINI ELE 10μ/16V
410	C575	5345-476C041	CAP,MINI ELE 47μ/16V
		RESISTORS	
493	R1	5135-104522	RES,CBN 1/2P 100K
552	R2	5174-S010F103	RES,MTL 1/2 10K
551	R3	5174-S010F112	RES,MTL 1/2 1.1K
567	R4	5174-S010F362	RES,MTL 1/2 3.6K
555	R101	5174-S010F753	RES,MTL 1/2 75K
556	R103	5174-S010F822	RES,MTL 1/2 8.2K
494	R104	5135-362522	RES,CBN 1/2P 3.6K
492	R105	5135-104522	RES,CBN 1/2P 100K
492	R106	5135-104522	RES,CBN 1/2P 100K
557	R107	5174-S010F112	RES,MTL 1/4 1.1K
495	R108	5135-822522	RES,CBN 1/2P 8.2K
497	R109	5135-823522	RES,CBN 1/2P 82K
492	R110	5135-104522	RES,CBN 1/2P 100K
492	R111	5135-104522	RES,CBN 1/2P 100K
554	R112	5174-S010F332	RES,MTL 1/2 3.3K
498	R113	5135-392522	RES,CBN 1/2P 3.9K
499	R114	5135-393522	RES,CBN 1/2P 39K
558	R115	5174-S010F113	RES,MTL 1/2 11K
492	R116	5135-104522	RES,CBN 1/2P 100K
559	R117	5174-S010F433	RES,MTL 1/2 43K
560	R118	5174-S010F752	RES,MTL 1/2 7.5K
501	R119	5135-222522	RES,CBN 1/2P 2.2K
543	R120	5135-221522	RES,CBN 1/2P 220
502	R121	5135-473522	RES,CBN 1/2P 47K
503	R122	5135-223522	RES,CBN 1/2P 22K
506	R123	5135-102522	RES,CBN 1/2P 1K
552	R124	5174-S010F103	RES,MTL 1/2 10K
556	R125	5174-S010F822	RES,MTL 1/2 8.2K
508	R127	5135-912522	RES,CBN 1/2P 9.1K
547	R128	5135-471522	RES,CBN 1/2P 470
509	R129	5135-153522	RES,CBN 1/2P 15K
498	R130	5135-392522	RES,CBN 1/2P 3.9K
502	R131	5135-473522	RES,CBN 1/2P 47K
561	R132	5174-S010F302	RES,MTL 1/2 3K
568	R133	5174-S010F132	RES,MTL 1/2 1.3K
562	R134	5174-S010F183	RES,MTL 1/2 18K
510	R135	5135-204522	RES,CBN 1/2P 200K
511	R136	5135-623522	RES,CBN 1/2P 62K
562	R137	5174-S010F183	RES,MTL 1/2 18K
512	R138	5135-432522	RES,CBN 1/2P 4.3K
513	R139	5135-512522	RES,CBN 1/2P 5.1K
514	R140	5135-330522	RES,CBN 1/2P 33
515	R141	5135-243522	RES,CBN 1/2P 24K
516	R142	5135-433522	RES,CBN 1/2P 43K
517	R143	5135-303522	RES,CBN 1/2P 30K
519	R144	5135-163522	RES,CBN 1/2P 16K
520	R145	5135-752522	RES,CBN 1/2P 7.5K
522	R146	5135-133522	RES,CBN 1/2P 13K
523	R147	5135-103522	RES,CBN 1/2P 10K
524	R148	5135-183522	RES,CBN 1/2P 18K
517	R149	5135-303522	RES,CBN 1/2P 30K
562	R150	5174-S010F183	RES,MTL 1/2 18K
553	R151	5174-S010F102	RES,MTL 1/2 1K
563	R152	5174-S010F392	RES,MTL 1/2 3.9K
563	R153	5174-S010F392	RES,MTL 1/2 3.9K
495	R155	5135-822522	RES,CBN 1/2P 8.2K
495	R156	5135-822522	RES,CBN 1/2P 8.2K
525	R157	5135-272522	RES,CBN 1/2P 2.7K
525	R158	5135-272522	RES,CBN 1/2P 2.7K
564	R159	5174-S010F273	RES,MTL 1/2 27K
526	R160	5135-125522	RES,CBN 1/2P 1.2M
503	R161	5135-223522	RES,CBN 1/2P 22K
569	R162	5174-S010F683	RES,MTL 1/2 68K
563	R163	5174-S010F392	RES,MTL 1/2 3.9K
565	R164	5174-S010F622	RES,MTL 1/2 6.2K
566	R165	5174-S010F912	RES,MTL 1/2 9.1K
570	R166	5174-S010F244	RES,MTL 1/2 240K
565	R167	5174-S010F622	RES,MTL 1/2 6.2K
566	R168	5174-S010F912	RES,MTL 1/2 9.1K
567	R169	5174-S010F362	RES,MTL 1/2 3.6K
571	R170	5174-S010F512	RES,MTL 1/2 5.1K
527	R171	5135-824522	RES,CBN 1/2P 820K
528	R172	5135-563522	RES,CBN 1/2P 56K
497	R173	5135-823522	RES,CBN 1/2P 82K
529	R174	5135-911522	RES,CBN 1/2P 910
572	R175	5174-S010F562	RES,MTL 1/2 5.6K
529	R176	5135-911522	RES,CBN 1/2P 910
552	R177	5174-S010F103	RES,MTL 1/2 10K
529	R178	5135-911522	RES,CBN 1/2P 910
530	R179	5135-122522	RES,CBN 1/2P 1.2K
508	R180	5135-912522	RES,CBN 1/2P 9.1K
499	R181	5135-393522	RES,CBN 1/2P 39K
508	R182	5135-912522	RES,CBN 1/2P 9.1K
493	R183	5135-104522	RES,CBN 1/2P 100K
511	R184	5135-623522	RES,CBN 1/2P 62K
511	R185	5135-623522	RES,CBN 1/2P 62K
517	R186	5135-303522	RES,CBN 1/2P 30K
531	R187	5135-753522	RES,CBN 1/2P 75K
503	R188	5135-223522	RES,CBN 1/2P 22K
532	R189	5135-513522	RES,CBN 1/2P 51K
504	R190	5135-223522	RES,CBN 1/2P 22K

Ser. No.	Ref. No.	Part No.	Description
554	R191	5174-S010F332	RES,MTL 1/2 3.3K
504	R192	5135-223522	RES,CBN 1/2P 22K
516	R193	5135-433522	RES,CBN 1/2P 43K
524	R194	5135-183522	RES,CBN 1/2P 18K
565	R195	5174-S010F622	RES,MTL 1/2 6.2K
533	R196	5135-202522	RES,CBN 1/2P 2K
546	R197	5135-274522	RES,CBN 1/2P 270K
533	R198	5135-202522	RES,CBN 1/2P 2K
545	R199	5135-754522	RES,CBN 1/2P 750K
499	R200	5135-393522	RES,CBN 1/2P 39K
534	R201	5135-913522	RES,CBN 1/2P 91K
536	R202	5135-154522	RES,CBN 1/2P 150K
523	R203	5135-103522	RES,CBN 1/2P 10K
537	R204	5135-624522	RES,CBN 1/2P 620K
504	R205	5135-223522	RES,CBN 1/2P 22K
502	R206	5135-473522	RES,CBN 1/2P 47K
510	R207	5135-204522	RES,CBN 1/2P 200K
522	R208	5135-133522	RES,CBN 1/2P 13K
538	R209	5135-203522	RES,CBN 1/2P 20K
539	R210	5135-470522	RES,CBN 1/2P 47
539	R211	5135-470522	RES,CBN 1/2P 47
514	R212	5135-330522	RES,CBN 1/2P 33
514	R214	5135-330522	RES,CBN 1/2P 33
522	R217	5135-133522	RES,CBN 1/2P 13K
499	R218	5135-393522	RES,CBN 1/2P 39K
493	R219	5135-104522	RES,CBN 1/2P 100K
499	R220	5135-393522	RES,CBN 1/2P 39K
520	R221	5135-752522	RES,CBN 1/2P 7.5K
535	R222	5135-333522	RES,CBN 1/2P 33K
520	R223	5135-752522	RES,CBN 1/2P 7.5K
517	R224	5135-303522	RES,CBN 1/2P 30K
540	R225	5135-914522	RES,CBN 1/2P 910K
517	R226	5135-303522	RES,CBN 1/2P 30K
540	R227	5135-914522	RES,CBN 1/2P 910K
515	R228	5135-243522	RES,CBN 1/2P 24K
541	R229	5135-363522	RES,CBN 1/2P 36K
542	R230	5135-622522	RES,CBN 1/2P 6.2K
573	R231	5174-S010F243	RES,MTL 1/2 24K
495	R232	5135-822522	RES,CBN 1/2P 8.2K
573	R233	5174-S010F243	RES,MTL 1/2 24K
544	R234	5135-683522	RES,CBN 1/2P 68K
536	R235	5135-154522	RES,CBN 1/2P 150K
505	R236	5135-223522	RES,CBN 1/2P 22K
543	R239	5135-101522	RES,CBN 1/2P 100
543	R240	5135-101522	RES,CBN 1/2P 100
507	R245	5135-102522	RES,CBN 1/2P 1K
507	R247	5135-102522	RES,CBN 1/2P 1K
577	R251	5135-105522	RES,CBN 1/2P 1M
577	R252	5135-105522	RES,CBN 1/2P 1M
520	R254	5135-752522	RES,CBN 1/2P 7.5K
499	R255	5135-393522	RES,CBN 1/2P 39K
574	R256	5174-S010F274	RES,MTL 1/2 270K
564	R257	5174-S010F273	RES,MTL 1/2 27K
575	R258	5174-S010F184	RES,MTL 1/2 180K
576	R259	5174-S010F473	RES,MTL 1/2 47K
555	R301	5174-S010F753	RES,MTL 1/2 75K
556	R303	5174-S010F822	RES,MTL 1/2 8.2K
494	R304	5135-362522	RES,CBN 1/2P 3.6K
492	R305	5135-104522	RES,CBN 1/2P 100K
492	R306	5135-104522	RES,CBN 1/2P 100K
557	R307	5174-S010F112	RES,MTL 1/4 1.1K
496	R308	5135-822522	RES,CBN 1/2P 8.2K
497	R309	5135-823522	RES,CBN 1/2P 82K
492	R310	5135-104522	RES,CBN 1/2P 100K
492	R311	5135-104522	RES,CBN 1/2P 100K
554	R312	5174-S010F332	RES,MTL 1/2 3.3K
498	R313	5135-392522	RES,CBN 1/2P 3.9K
500	R314	5135-393522	RES,CBN 1/2P 39K
558	R315	5174-S010F113	RES,MTL 1/2 11K
492	R316	5135-104522	RES,CBN 1/2P 100K
559	R317	5174-S010F433	RES,MTL 1/2 43K
560	R318	5174-S010F752	RES,MTL 1/2 7.5K
501	R319	5135-222522	RES,CBN 1/2P 2.2K
543	R320	5135-221522	RES,CBN 1/2P 220
502	R321	5135-473522	RES,CBN 1/2P 47K
503	R322	5135-223522	RES,CBN 1/2P 22K
506	R323	5135-102522	RES,CBN 1/2P 1K
552	R324	5174-S010F103	RES,MTL 1/2 10K
556	R325	5174-S010F822	RES,MTL 1/2 8.2K
508	R327	5135-912522	RES,CBN 1/2P 9.1K
547	R328	5135-471522	RES,CBN 1/2P 470
509	R329	5135-153522	RES,CBN 1/2P 15K
498	R330	5135-392522	RES,CBN 1/2P 3.9K
502	R331	5135-473522	RES,CBN 1/2P 47K
561	R332	5174-S010F302	RES,MTL 1/2 3K
568	R333	5174-S010F132	RES,MTL 1/2 1.3K
562	R334	5174-S010F183	RES,MTL 1/2 18K
510	R335	5135-204522	RES,CBN 1/2P 200K
511	R336	5135-623522	RES,CBN 1/2P 62K
562	R337	5174-S010F183	RES,MTL 1/2 18K
512	R338	5135-432522	RES,CBN 1/2P 4.3K
513	R339	5135-512522	RES,CBN 1/2P 5.1K
514	R340	5135-330522	RES,CBN 1/2P 33
515	R341	5135-243522	RES,CBN 1/2P 24K
516	R342	5135-433522	RES,CBN 1/2P 43K
518	R343	5135-303522	RES,CBN 1/2P 30K
519	R344	5135-163522	RES,CBN 1/2P 16K
521	R345	5135-752522	RES,CBN 1/2P 7.5K
522	R346	5135-133522	RES,CBN 1/2P 13K
523	R347	5135-103522	RES,CBN 1/2P 10K
524	R348	5135-183522	RES,CBN 1/2P 18K
518	R349	5135-303522	RES,CBN 1/2P 30K
562	R350	5174-S010F183	RES,MTL 1/2 18K
553	R351	5174-S010F102	RES,MTL 1/2 1K
563	R352	5174-S010F392	RES,MTL 1/2 3.9K
563	R353	5174-S010F392	RES,MTL 1/2 3.9K
496	R355	5135-822522	RES,CBN 1/2P 8.2K
496	R356	5135-822522	RES,CBN 1/2P 8.2K
525	R357	5135-272522	RES,CBN 1/2P 2.7K
525	R358	5135-272522	RES,CBN 1/2P 2.7K
564	R359	5174-S010F273	RES,MTL 1/2 27K
526	R360	5135-125522	RES,CBN 1/2P 1.2M
503	R361	5135-223522	RES,CBN 1/2P 22K
569	R362	5174-S010F683	RES,MTL 1/2 68K
563	R363	5174-S010F392	RES,MTL 1/2 3.9K
565	R364	5174-S010F622	RES,MTL 1/2 6.2K
566	R365	5174-S010F912	RES,MTL 1/2 9.1K
570	R366	5174-S010F244	RES,MTL 1/2 240K
565	R367	5174-S010F622	RES,MTL 1/2 6.2K
566	R368	5174-S010F912	RES,MTL 1/2 9.1K
567	R369	5174-S010F362	RES,MTL 1/2 3.6K
571	R370	5174-S010F512	RES,MTL 1/2 5.1K
527	R371	5135-824522	RES,CBN 1/2P 820K
528	R372	5135-563522	RES,CBN 1/2P 56K
497	R373	5135-823522	RES,CBN 1/2P 82K
529	R374	5135-911522	RES,CBN 1/2P 910
572	R375	5174-S010F562	RES,MTL 1/2 5.6K
529	R376	5135-911522	RES,CBN 1/2P 910
552	R377	5174-S010F103	RES,MTL 1/2 10K
529	R378	5135-911522	RES,CBN 1/2P 910
530	R379	5135-122522	RES,CBN 1/2P 1.2K
508	R380	5135-912522	RES,CBN 1/2P 9.1K
500	R381	5135-393522	RES,CBN 1/2P 39K
508	R382	5135-912522	RES,CBN 1/2P 9.1K
493	R383	5135-104522	RES,CBN 1/2P 100K
511	R384	5135-623522	RES,CBN 1/2P 62K
511	R385	5135-623522	RES,CBN 1/2P 62K
518	R386	5135-303522	RES,CBN 1/2P 30K
531	R387	5135-753522	RES,CBN 1/2P 75K
503	R388	5135-223522	RES,CBN 1/2P 22K
532	R389	5135-513522	RES,CBN 1/2P 51K
504	R390	5135-223522	RES,CBN 1/2P 22K
554	R391	5174-S010F332	RES,MTL 1/2 3.3K
504	R392	5135-223522	RES,CBN 1/2P 22K
516	R393	5135-433522	RES,CBN 1/2P 43K
524	R394	5135-183522	RES,CBN 1/2P 18K
565	R395	5174-S010F622	RES,MTL 1/2 6.2K
533	R396	5135-202522	RES,CBN 1/2P 2K
546	R397	5135-274522	RES,CBN 1/2P 270K
533	R398	5135-202522	RES,CBN 1/2P 2K
545	R399	5135-754522	RES,CBN 1/2P 750K
500	R400	5135-393522	RES,CBN 1/2P 39K
534	R401	5135-913522	RES,CBN 1/2P 91K
536	R402	5135-154522	RES,CBN 1/2P 150K
523	R403	5135-103522	RES,CBN 1/2P 10K
537	R404	5135-624522	RES,CBN 1/2P 620K
504	R405	5135-223522	RES,CBN 1/2P 22K
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
		DIODES	
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
		MISCELLANEOUS	
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 I 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 I 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 (UA) (BK)
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 (I) (IB)
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 (UA) (BK)
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 (UA) (BK)
755A	⚠F1	5732-161030	FUSE (I) (IB)
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 (I) (IB)
601	⚠T1	5584-S8301	XFORMER,POWER (UA) (BK)
601A	⚠T1	5584-S8302	XFORMER,POWER (I) (IB)
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

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

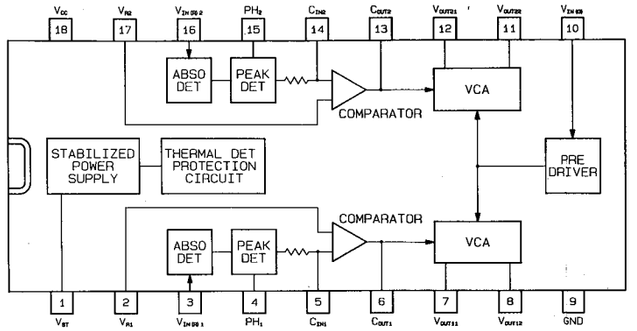
		CHASSIS MISCELLANEOUS	
759	LUG1	4211-5005	LUG TERMINAL
761	⚠P1	4161-71151	CORD W/PLUG (UA) (BK)
761A	⚠P1	4161-7256	CORD W/PLUG (I) (IB)
791		4242-S0232131	JUMPER LEAD
		PACKAGE PARTS LIST	
021A		1756-06303	LABEL (I) (IB)
022A		1756-03124	LABEL (I) (IB)
106		1111-J30325	OWNER GUIDE (UA) (BK)
106A		1111-J30326	OWNER GUIDE (I) (IB)
107		1113-717004	OWNER CARD (UA) (BK)
111		1119-047	ATTACH SHEET, GUARANTY (UA) (BK)
112		1119-0137	ATTACH SHEET,SERVICE STATION GUIDE (UA) (BK)
113		1119-01201	ATTACH SHEET, SAFETY (UA) (BK)
115		1221-28009	CARTON BOX (UA) (I)
115A		1221-28003	CARTON BOX (BK) (IB)
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: μPC1297CA
Dolby HX Pro



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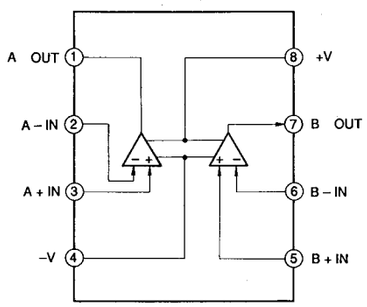
OP-Amp.



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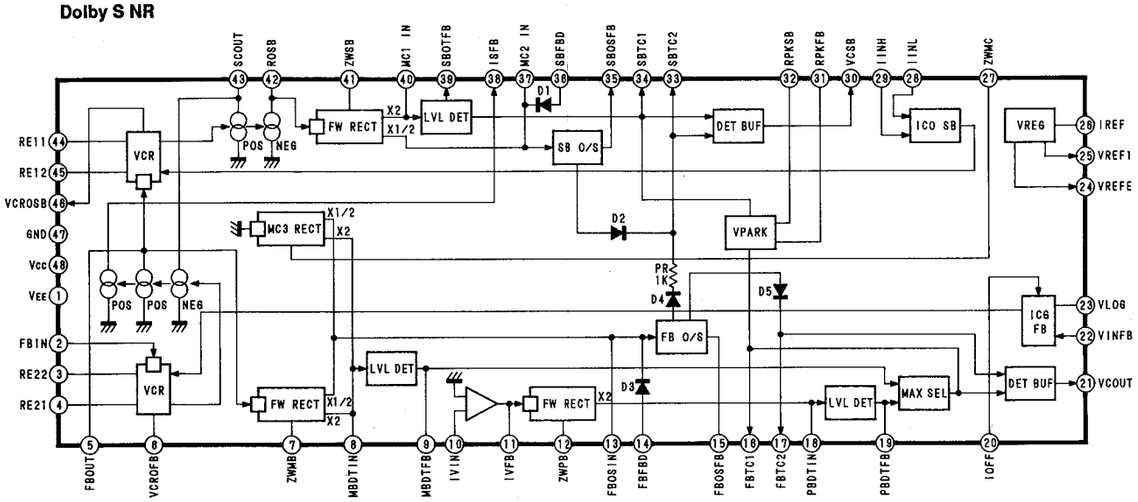
Dolby S NR



IC103, 303
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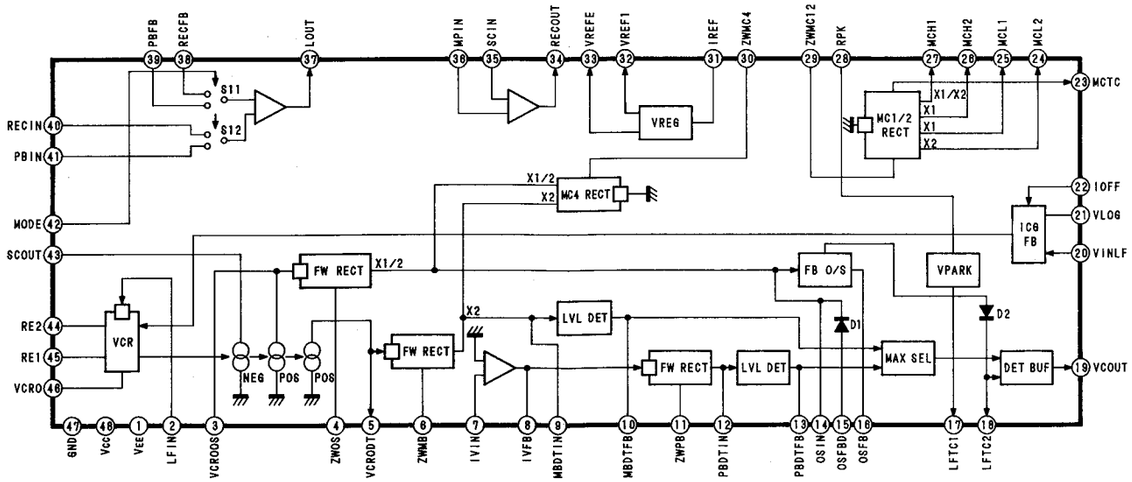
Dolby S NR



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 (UA) (BK)
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 (I) (IB)
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 (UA) (BK)
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 (UA) (BK)
755A	⚠F1	5732-161030	FUSE (I) (IB)
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 (I) (IB)
601	⚠T1	5584-S8301	XFORMER,POWER (UA) (BK)
601A	⚠T1	5584-S8302	XFORMER,POWER (I) (IB)
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

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

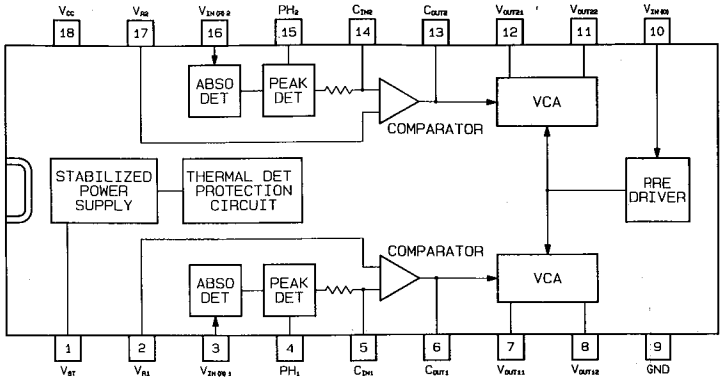
		CHASSIS MISCELLANEOUS	
759	LUG1	4211-5005	LUG TERMINAL
761	⚠P1	4161-71151	CORD W/PLUG (UA) (BK)
761A	⚠P1	4161-7256	CORD W/PLUG (I) (IB)
791		4242-S0232131	JUMPER LEAD
		PACKAGE PARTS LIST	
021A		1756-06303	LABEL (I) (IB)
022A		1756-03124	LABEL (I) (IB)
106		1111-J30325	OWNER GUIDE (UA) (BK)
106A		1111-J30326	OWNER GUIDE (I) (IB)
107		1113-717004	OWNER CARD (UA) (BK)
111		1119-047	ATTACH SHEET, GUARANTY (UA) (BK)
112		1119-0137	ATTACH SHEET,SERVICE STATION GUIDE (UA) (BK)
113		1119-01201	ATTACH SHEET, SAFETY (UA) (BK)
115		1221-28009	CARTON BOX (UA) (I)
115A		1221-28003	CARTON BOX (BK) (IB)
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

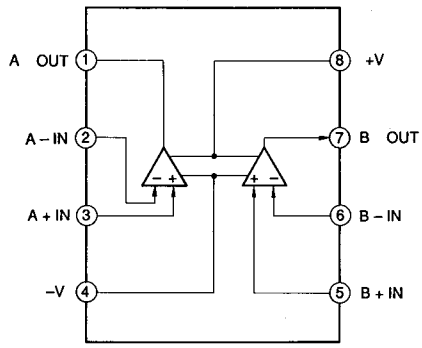
⚠ SAFETY RELATED COMPONENT. USE ONLY EXACT REPLACEMENT PART AS SPECIFIED.

IC BLOCK DIAGRAM

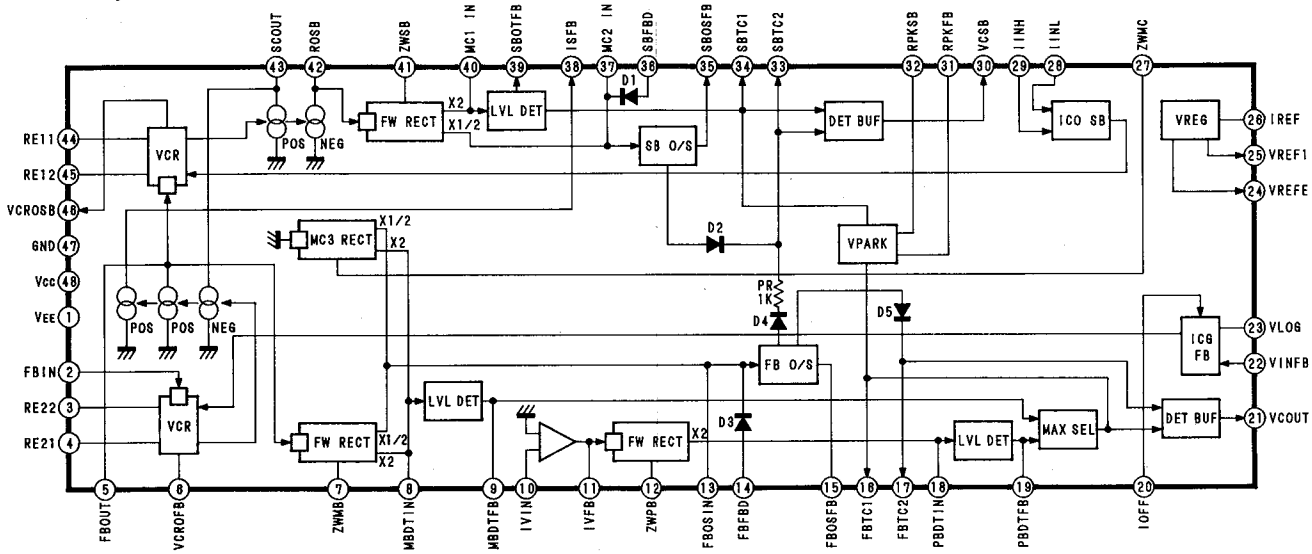
IC301: μPC1297CA
Dolby HX Pro



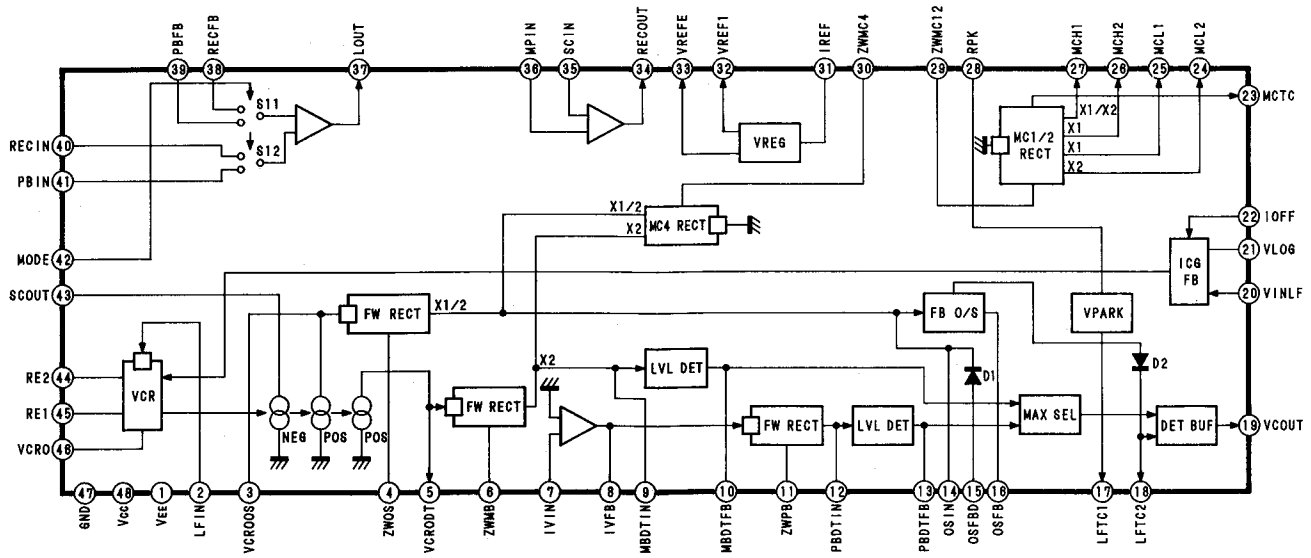
IC1, 401, 601, 751
NJM4558D
OP-Amp.



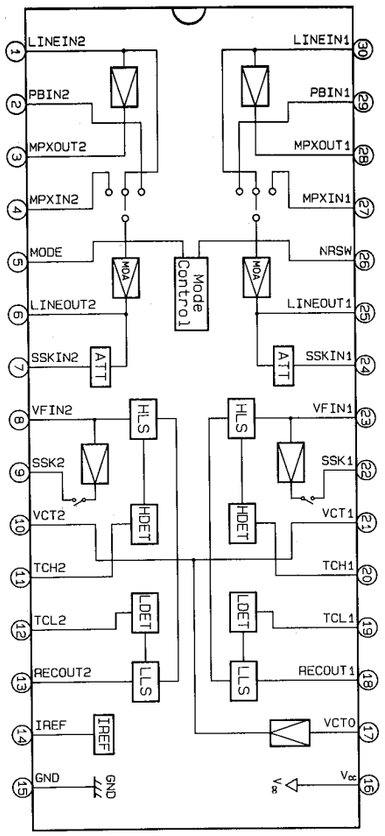
IC105, 107, 305, 307
CXA1415
Dolby S NR



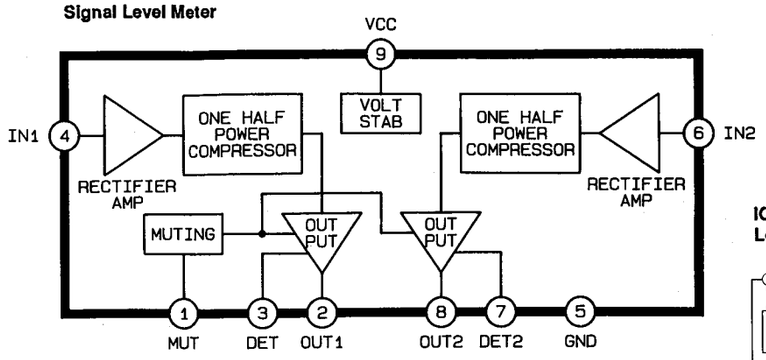
IC103, 303
CXA1416
Dolby S NR

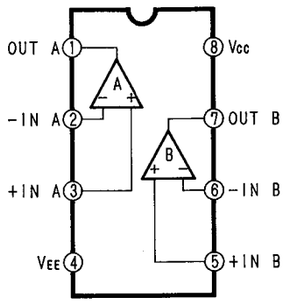


IC501: CXA1332S
Dolby B/C NR

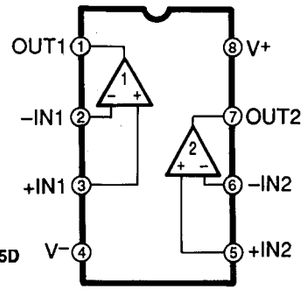


IC402: BA6138
Signal Level Meter



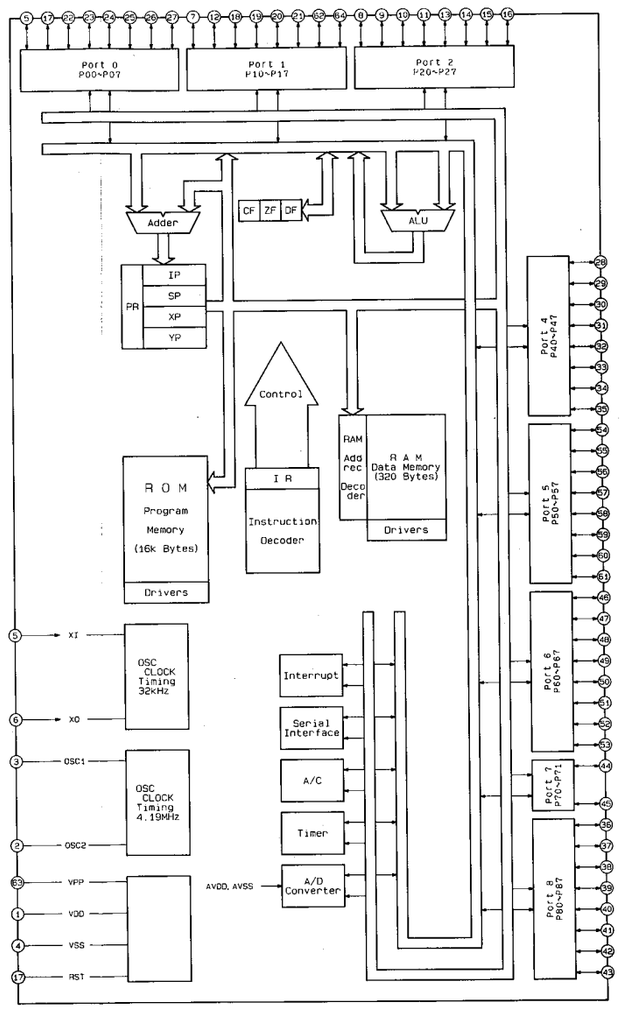


IC101, 104, 106,
IC302, 304, 306
TA75072P
Dual OP-Amp.

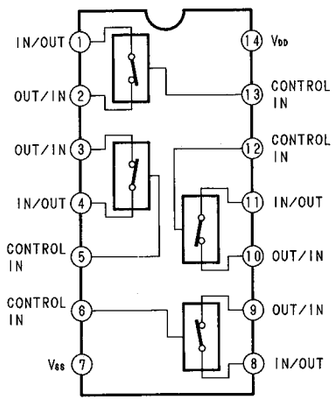


IC651: NJM4565D
Dual OP-Amp.

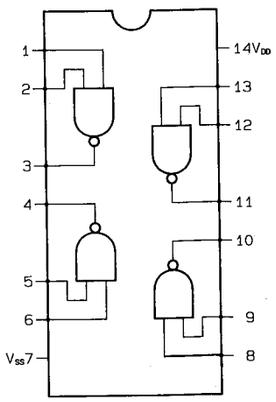
IC901: MN18787F
Logic Controller



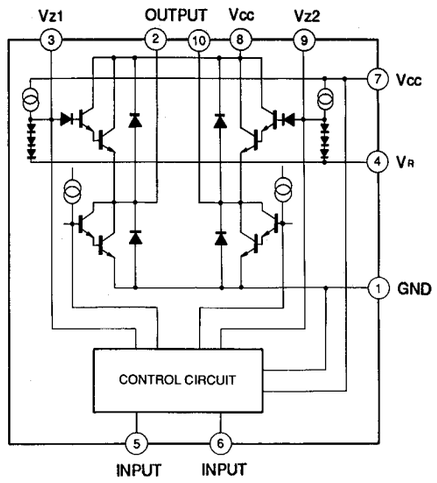
IC501, 502, 602, 603
TC4066BP
Bilateral Switch



IC701: TC4011BP
2-Inch NAND Gate



IC801: BA6229
Motor Driver

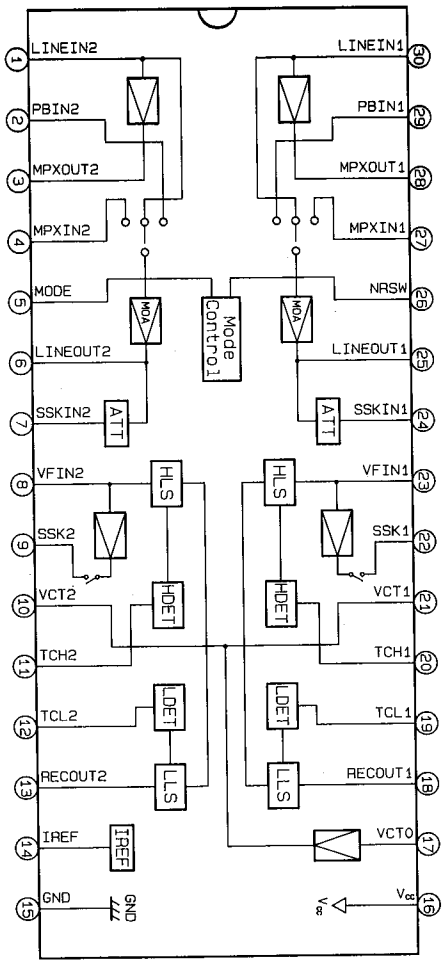


TERMINAL FUNCTIONS

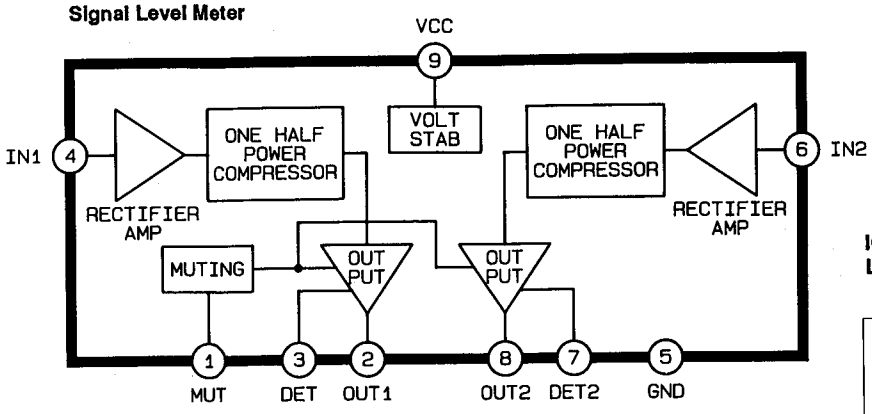
Pin No.	Port name	Function name	I/O	Outline of functions
5	P06	XI	I	Initial setting switch. Hight level=ON
6	XO	XO	O	
7	P17	AVdd	I	D/A converter standard voltage(DC 5V).
8	P27	AD7	I	Key input terminal.
9	P26	AD6	I	Key input terminal.
10	P25	AD5	I	Key input terminal.
11	P24	AD4	I	Key input terminal.
12	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.

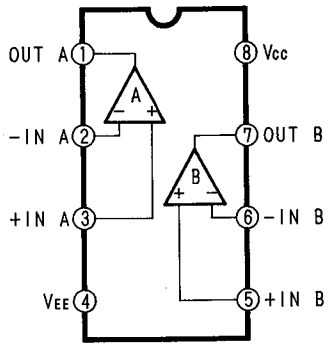
NOTE: Low level=0V
High level=5.1V

IC501: CXA1332S
Dolby B/C NR

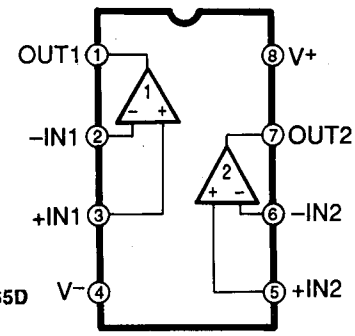


IC402: BA6138
Signal Level Meter



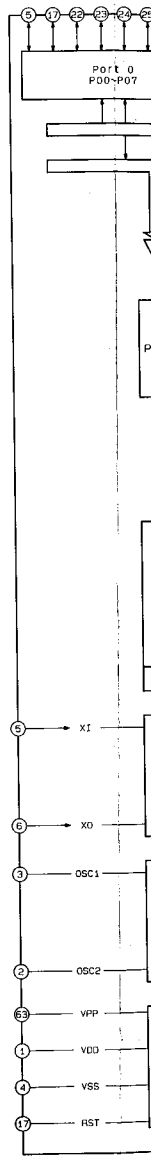


IC101, 104, 106,
IC302, 304, 306
TA75072P
Dual OP-Amp.

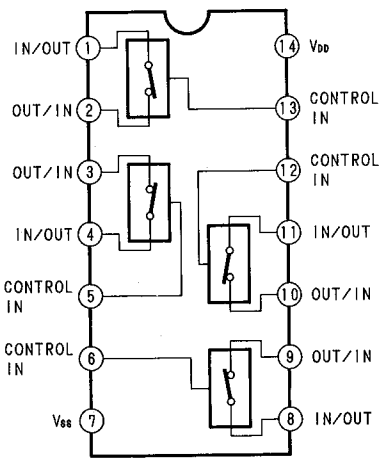


IC651: NJM4565D
Dual OP-Amp.

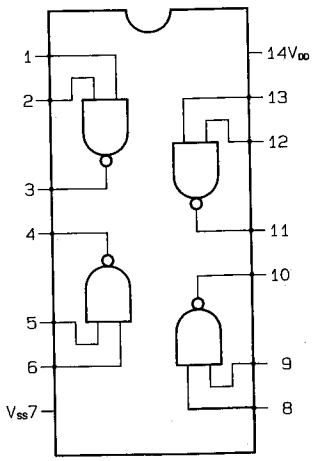
IC901: MN1878
Logic Controlle



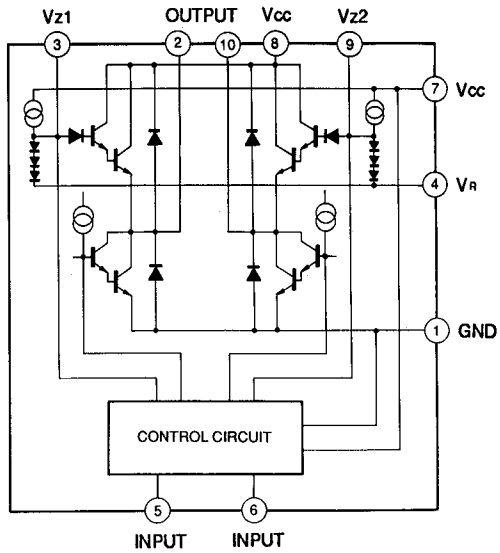
IC501, 502, 602, 603
TC4066BP
Bilateral Switch



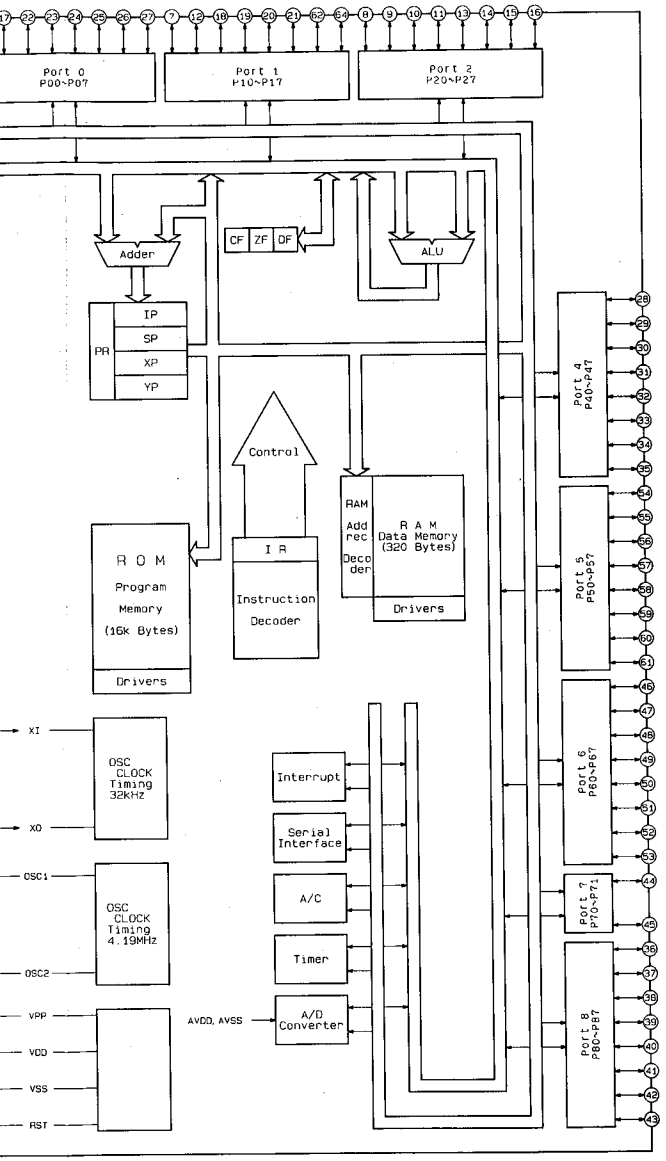
IC701: TC4011BP
2-inch NAND Gate



IC801: BA6229
Motor Driver



91: MN18787F
ic Controller



TERMINAL FUNCTIONS

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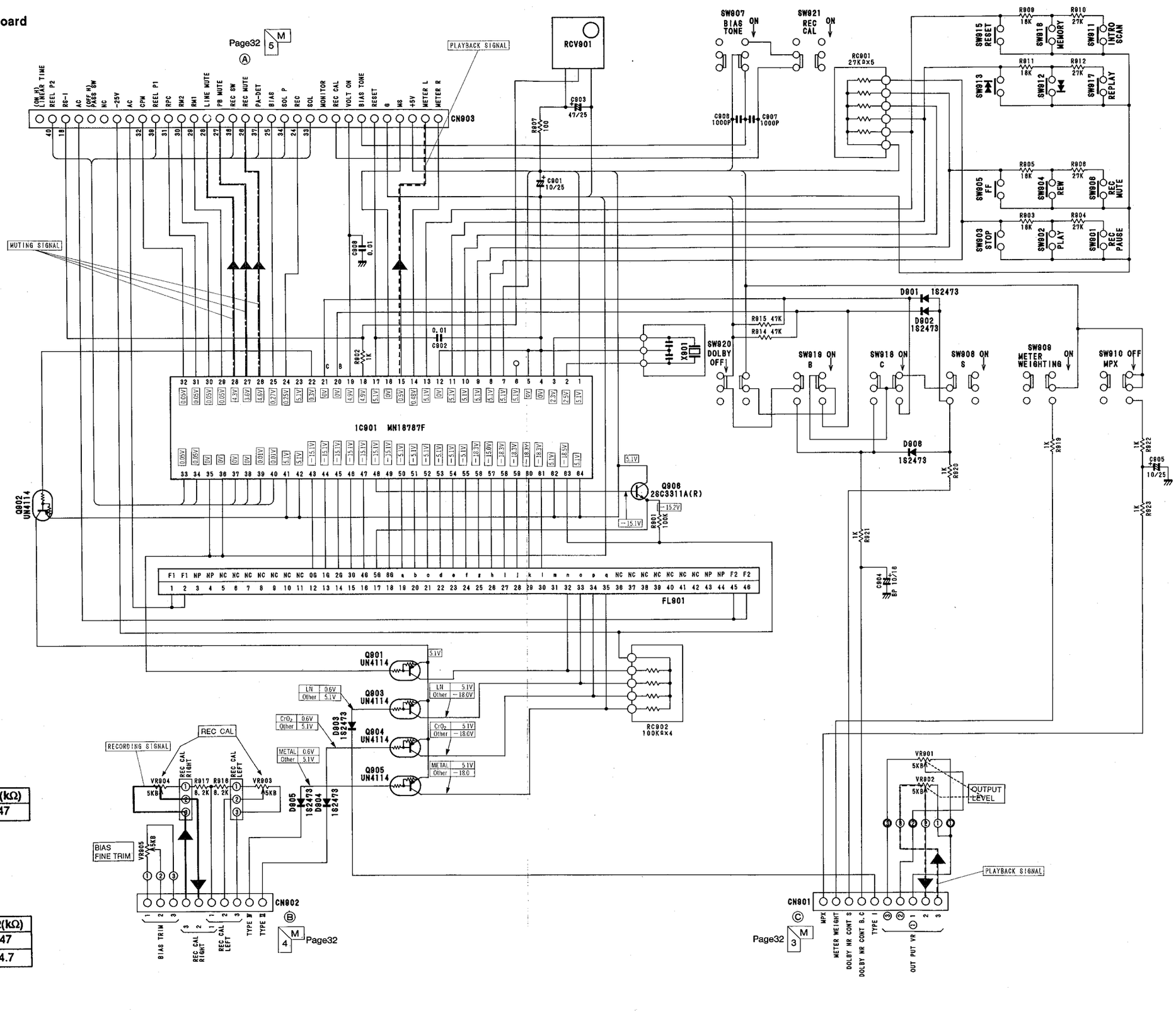
9	P26	AD6	I	Key input terminal.
10	P25	AD5	I	Key input terminal.
11	P24	AD4	I	Key input terminal.
12	P16	AVss		GND terminal.
13	P23	AD3	I	Key input terminal.
14	P22	AD2	I	A/D input port for LEVEL METER indication.
15	P21	AD1	I	A/D input port for LEVEL METER indication.
16	P20	AD0	I	A/D input port for 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

SCHEMATIC DIAGRAM (1)

PCB-2 Front P. C. Board

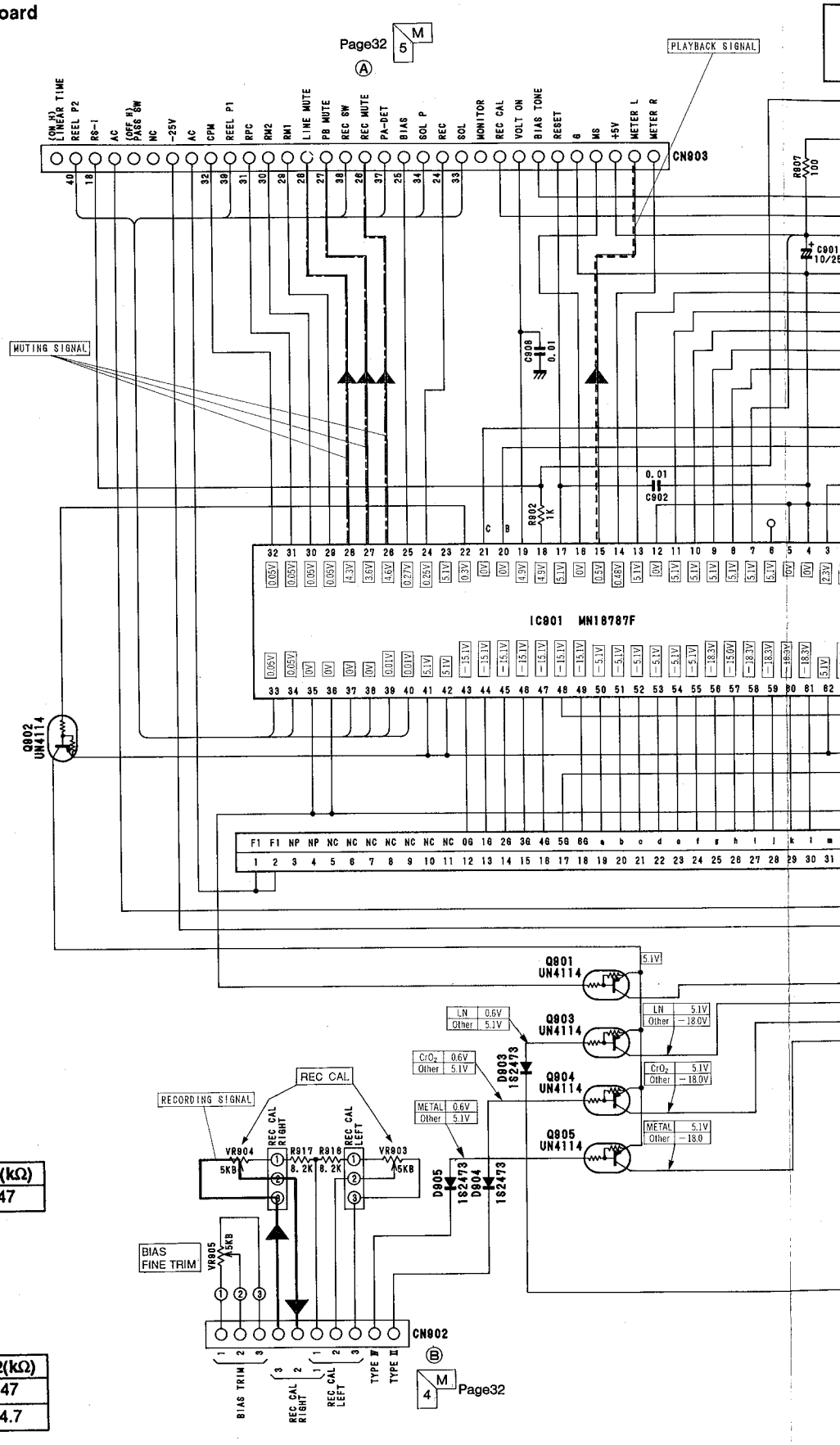


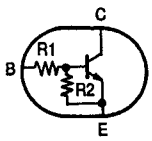
Type	R1(kΩ)	R2(kΩ)
UN4214	10	47

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

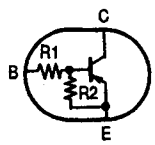
SCHEMATIC DIAGRAM (1)

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

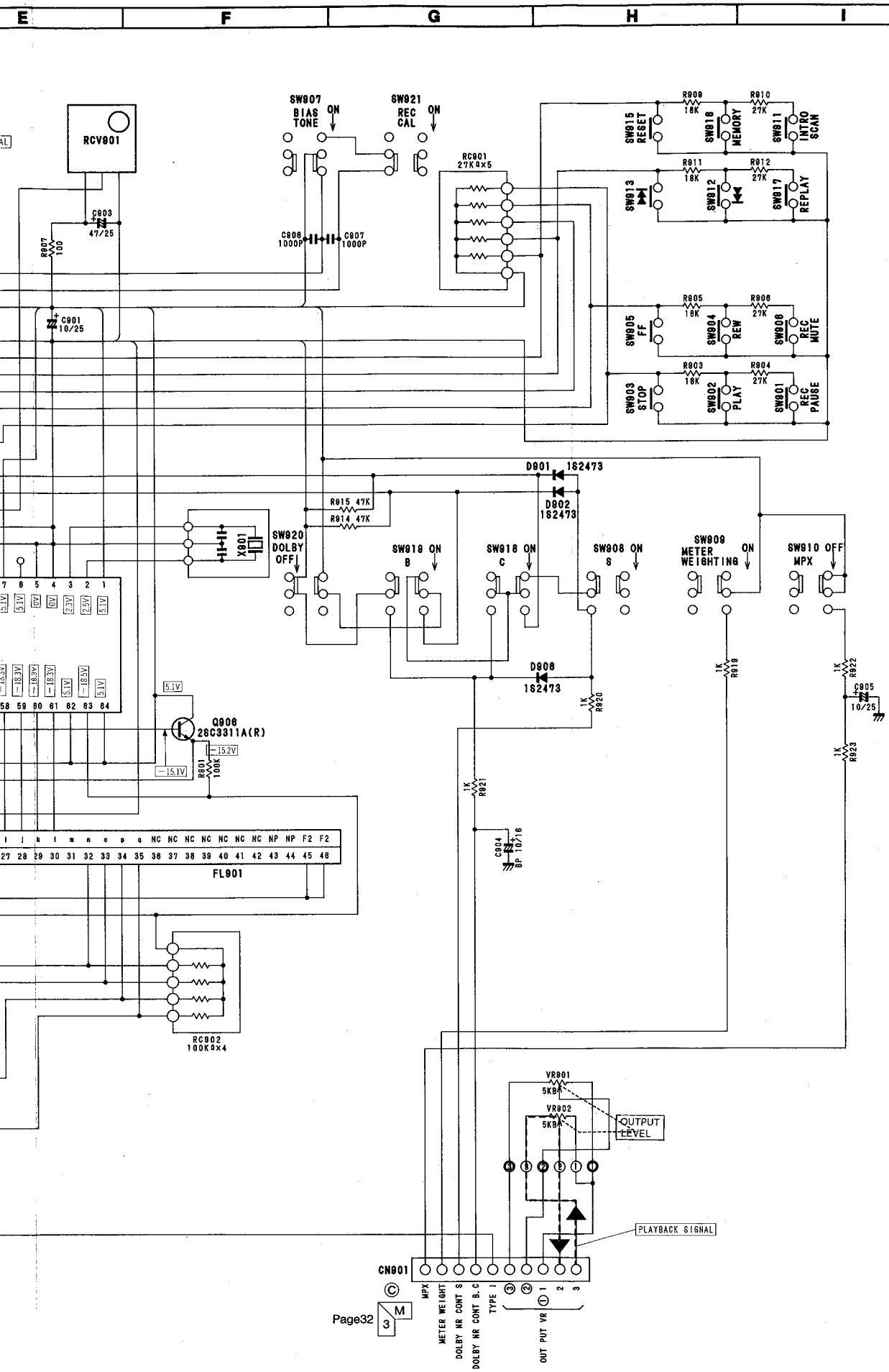




Type	R1(kΩ)	R2(kΩ)
UN4214	10	47

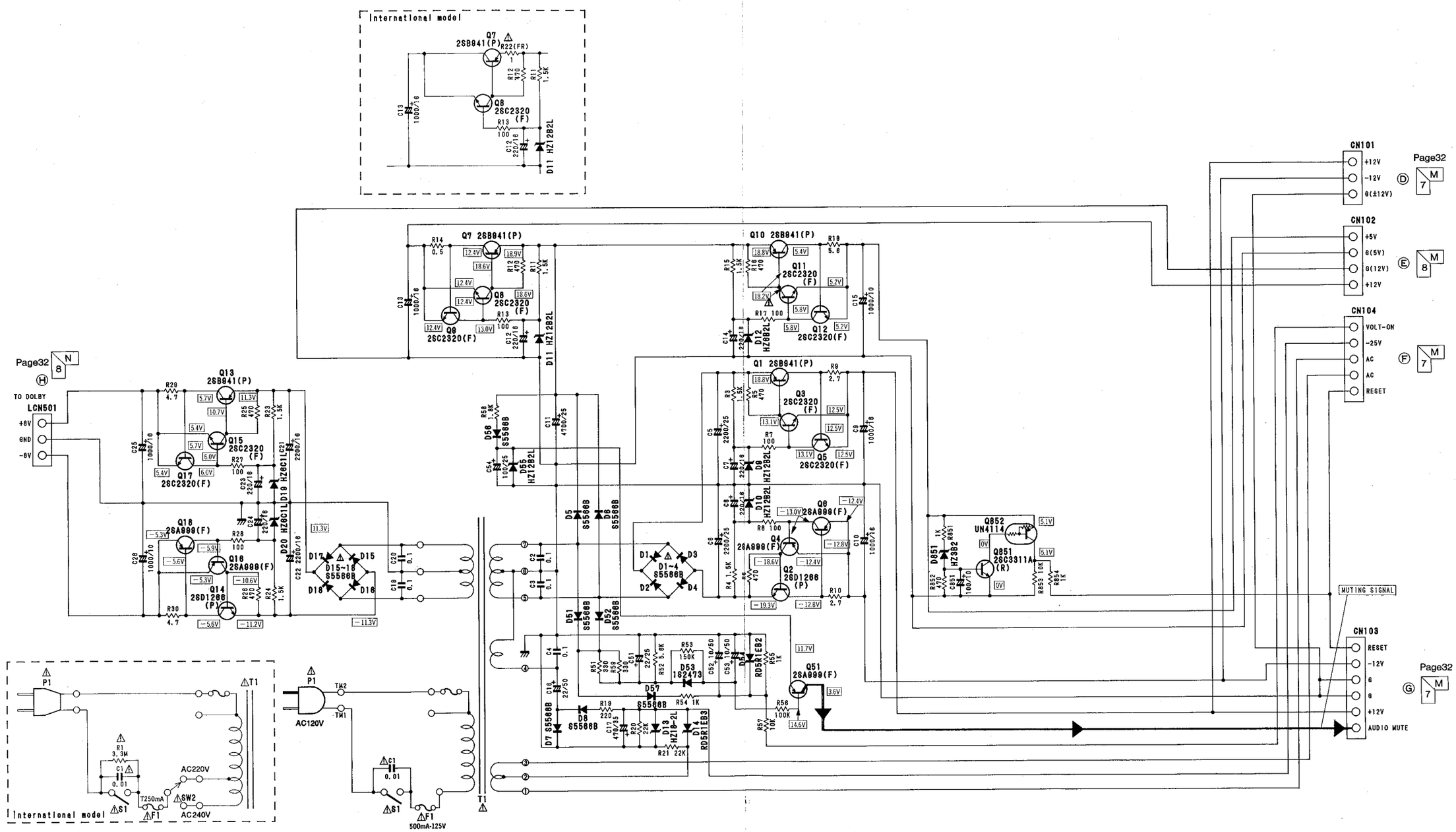


Type	R1(kΩ)	R2(kΩ)
UN4114	10	47
RN2201	4.7	4.7


E
F
G
H
I
J
RCV901
SW907 BIAS TONE ON
SW921 REC CAL ON
RC901 27K0x5
C803 47/25
R907 100
C908 1000P
C907 1000P
C901 10/25
SW915 RESET
R909 18K
SW916 MEMORY
R910 27K
SW911 INTRO SCAN
SW913
R911 18K
SW912
R912 27K
SW917 REPLAY
SW905 FF
R905 18K
SW904 REW
R906 27K
SW906 REC MUTE
SW903 STOP
R903 18K
SW902 PLAY
R904 27K
SW901 REC PAUSE
D901 1S2473
D902 1S2473
R915 47K
R914 47K
X901
SW920 DOLBY OFF
SW919 ON B
SW918 ON C
SW908 ON S
SW909 METER WEIGHTING ON
SW910 OFF MPX
D906 1S2473
R920 1K
R919 1K
R922 1K
C905 10/25
R923 1K
R921 1K
C904 BP 10/16
Q906 2SC3311A(R)
R901 100K
FL901
RC902 100K0x4
VR901 5KBA
VR902 5KBA
OUTPUT LEVEL
PLAYBACK SIGNAL
CN901
MPX
METER WEIGHT
DOLBY NR CONT S
DOLBY NR CONT B. C
TYPE I
OUT PUT VR
Page32 M 3

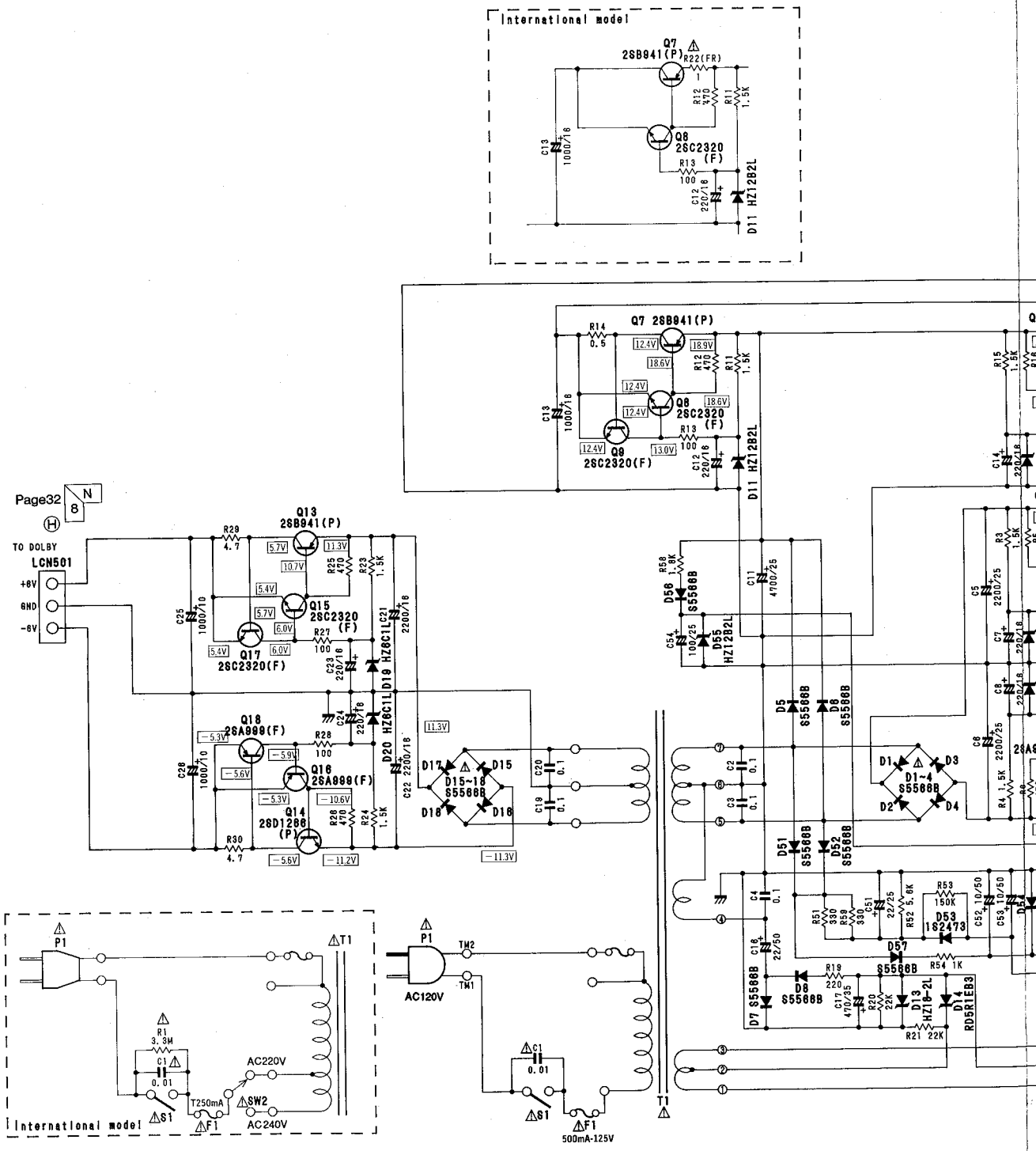
SCHEMATIC DIAGRAM (2)

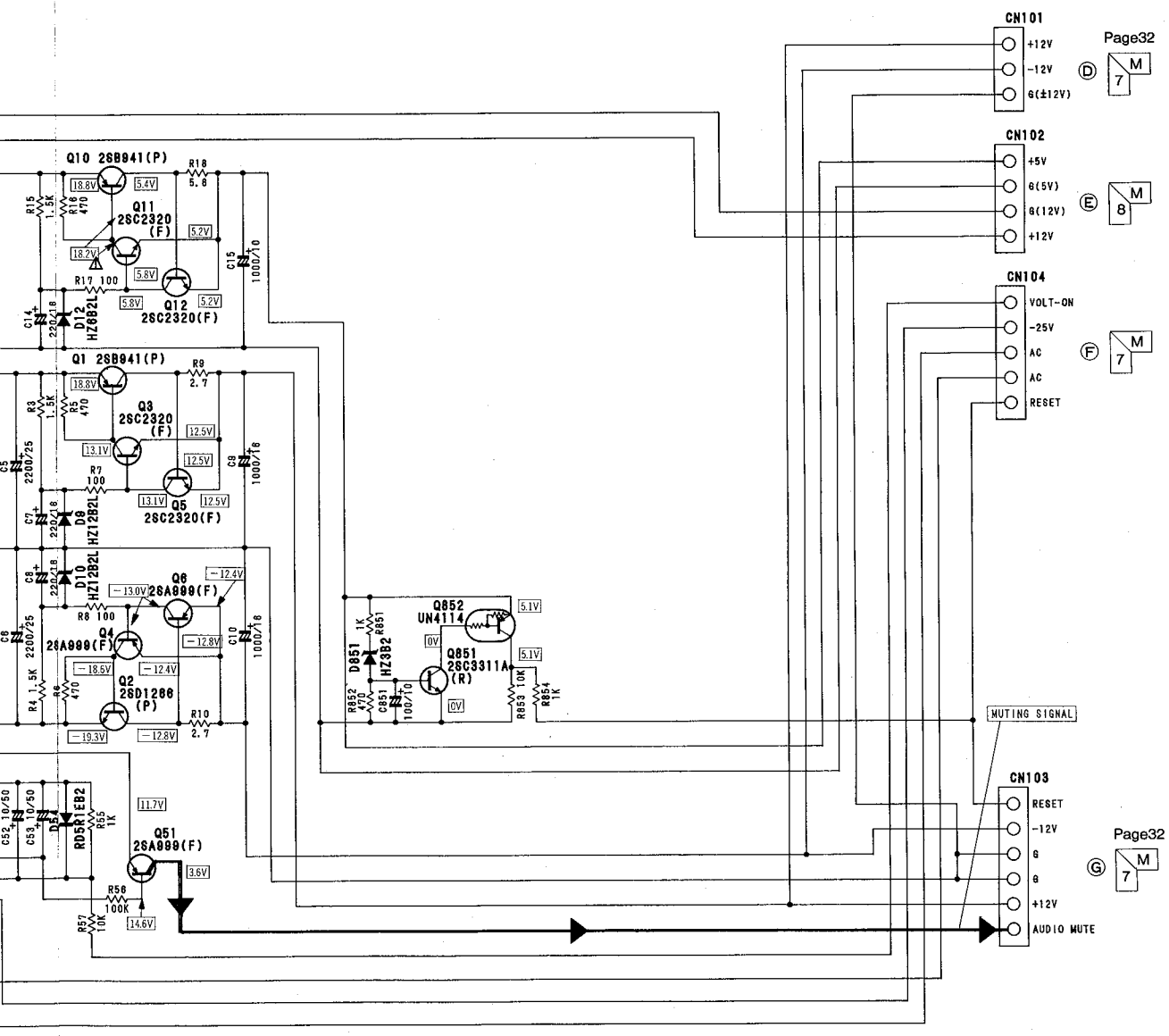
PCB-4 Power P. C. Board



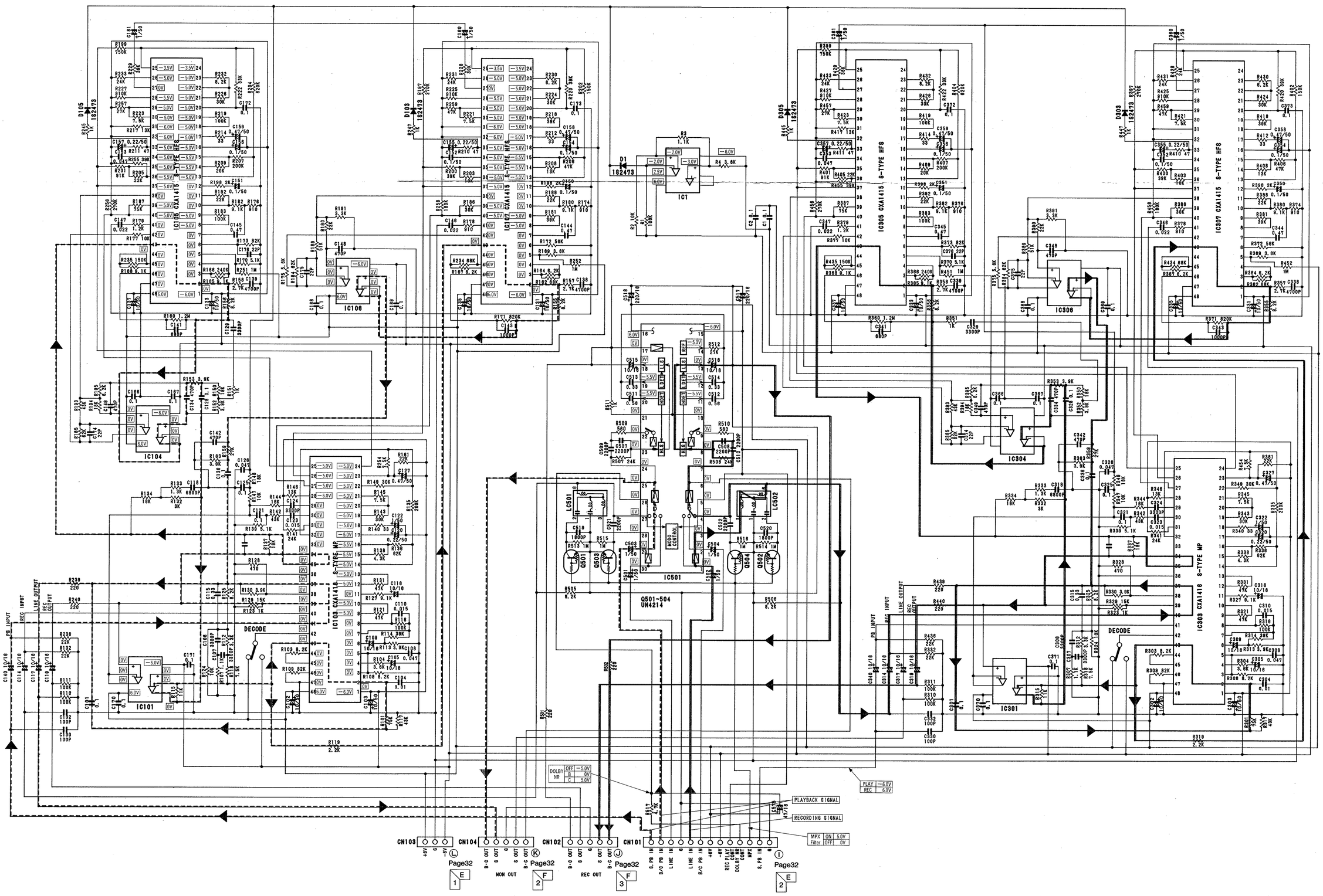
SCHEMATIC DIAGRAM (2)

PCB-4 Power P. C. Board

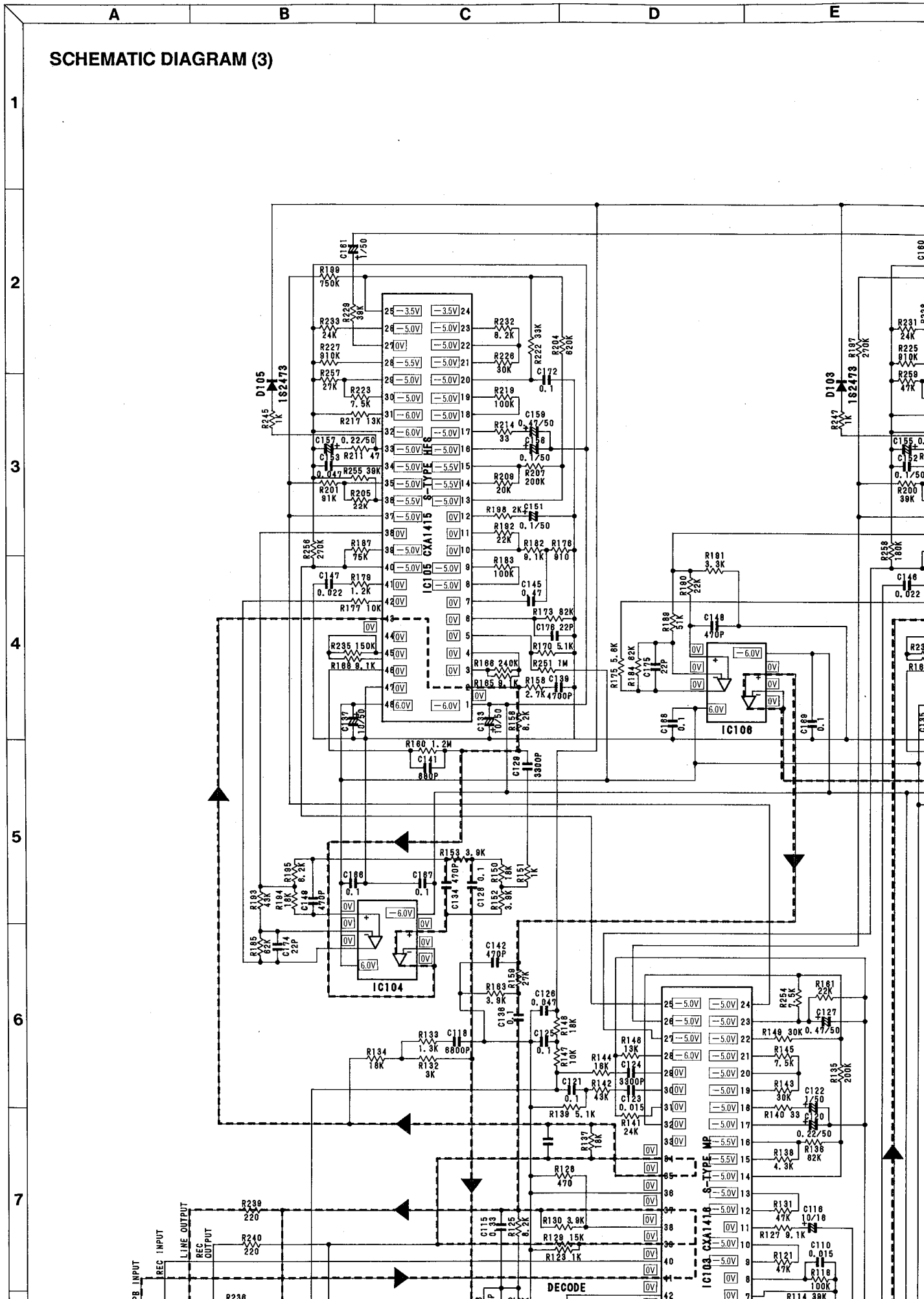


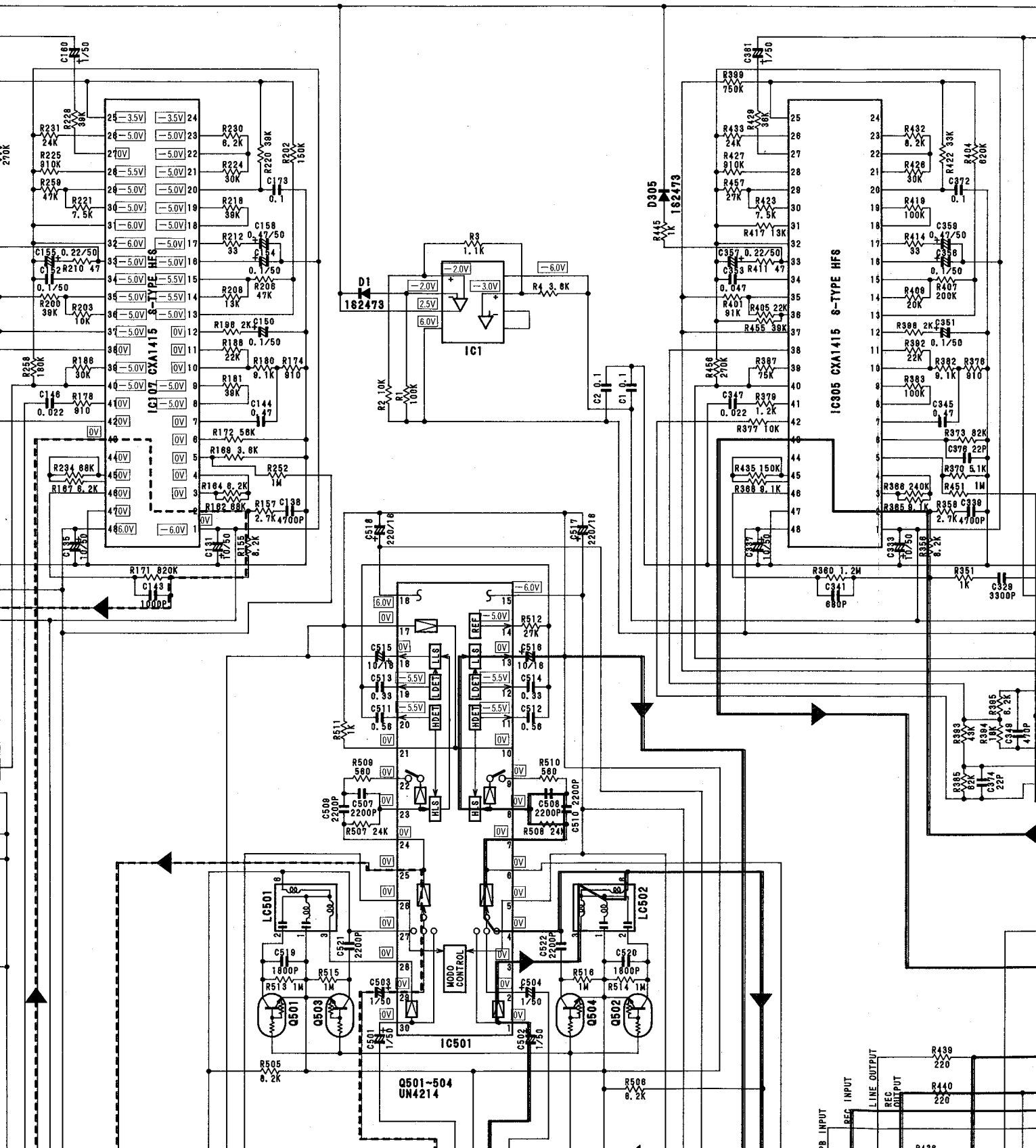

CN101
+12V
-12V
G(±12V)
Page32
M 7
CN102
+5V
G(5V)
G(12V)
+12V
M 8
CN104
VOLT-ON
-25V
AC
AC
RESET
M 7
MUTING SIGNAL
CN103
RESET
-12V
G
G
+12V
AUDIO MUTE
Page32
M 7
Q10 2SB941(P)
Q11 2SC2320 (F)
Q12 2SC2320(F)
D12 HZ6B2L
Q1 2SB941(P)
Q3 2SC2320 (F)
Q5 2SC2320(F)
D9 HZ12B2L
D10 HZ12B2L
Q6 2SA999(F)
Q4 2SA999(F)
Q2 2SD1266 (P)
Q852 UN4114
Q851 2SC3311A (R)
D851 HZ3B2
Q51 2SA999(F)
RD5R1EB2

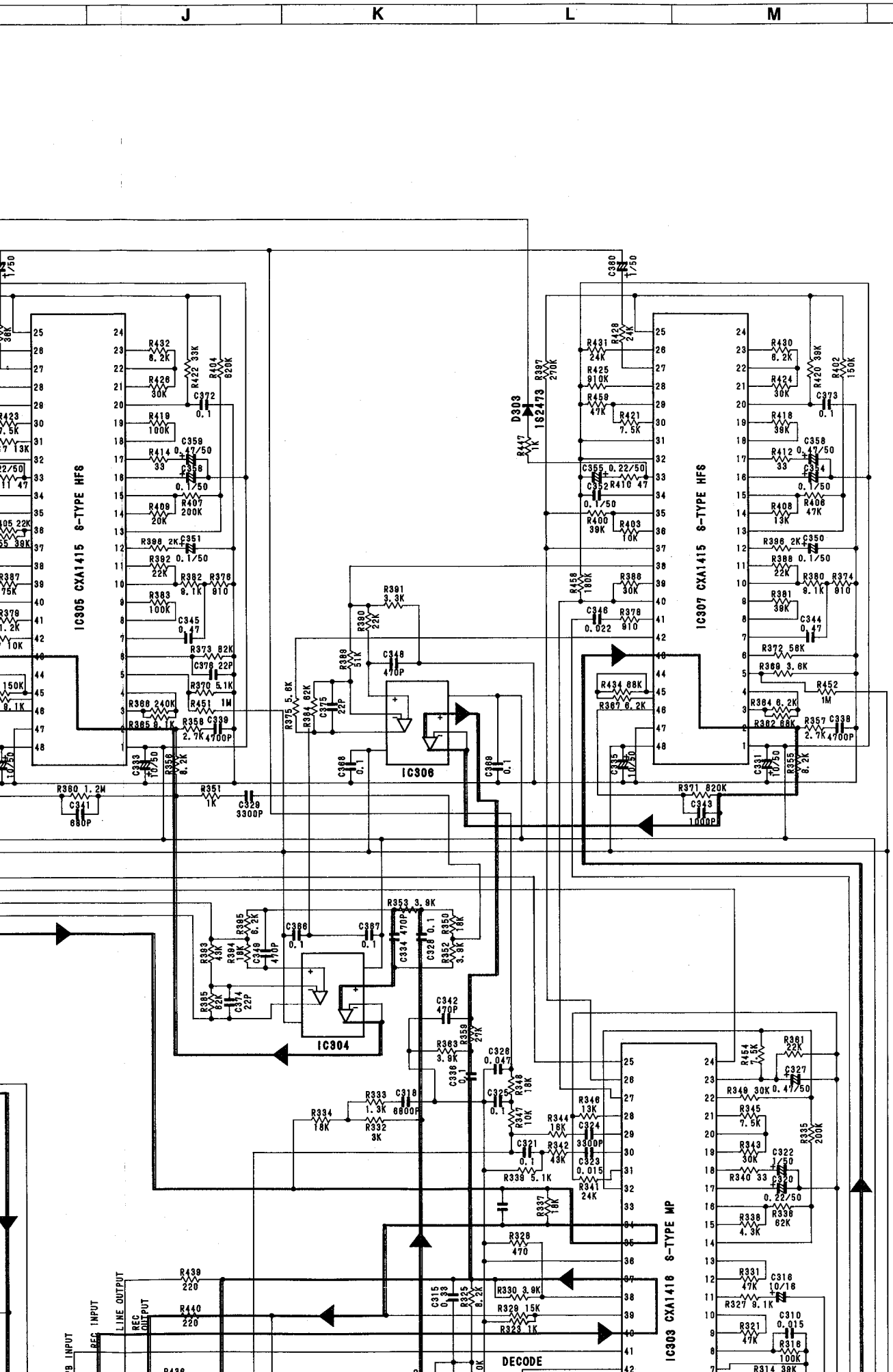
SCHEMATIC DIAGRAM (3)

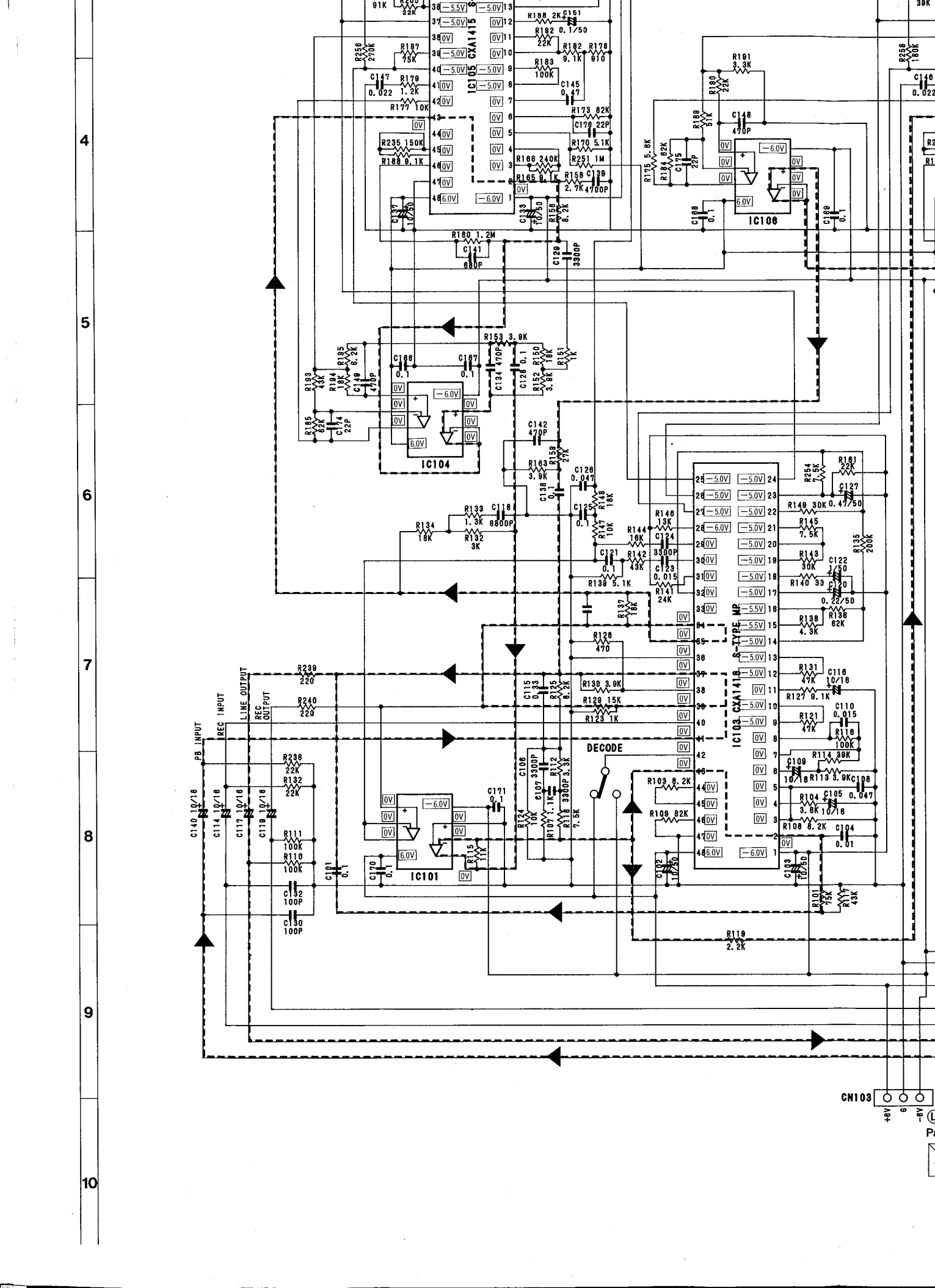


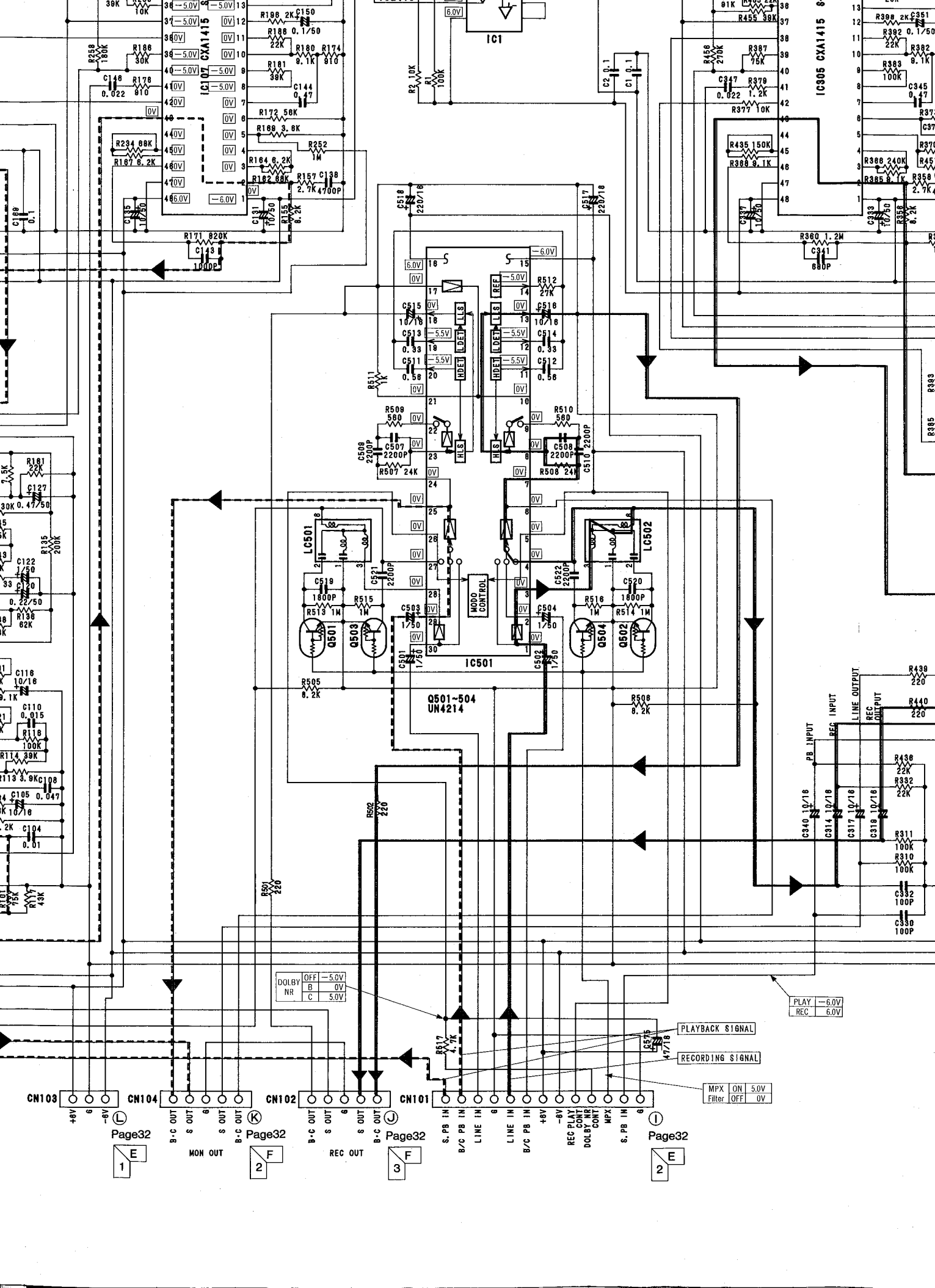
SCHEMATIC DIAGRAM (3)

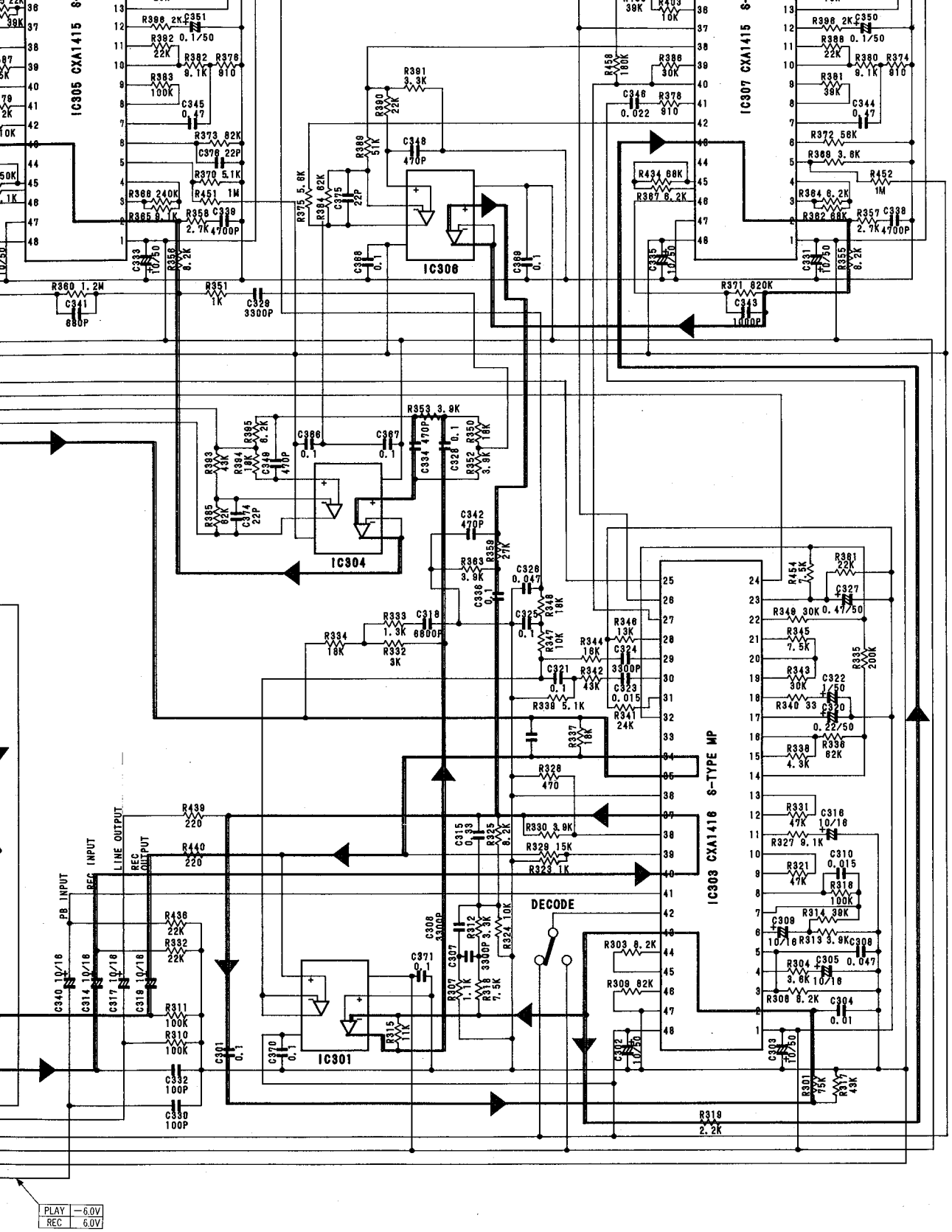



F
G
H
I
J
IC107 CXA1415 8-TYPE HFS
IC305 CXA1415 8-TYPE HFS
IC1
IC501
Q501~504
UN4214
MODO CONTROL
D1
1S2473
D305
1S2473
LINE OUTPUT
REC INPUT
REC OUTPUT
REC INPUT

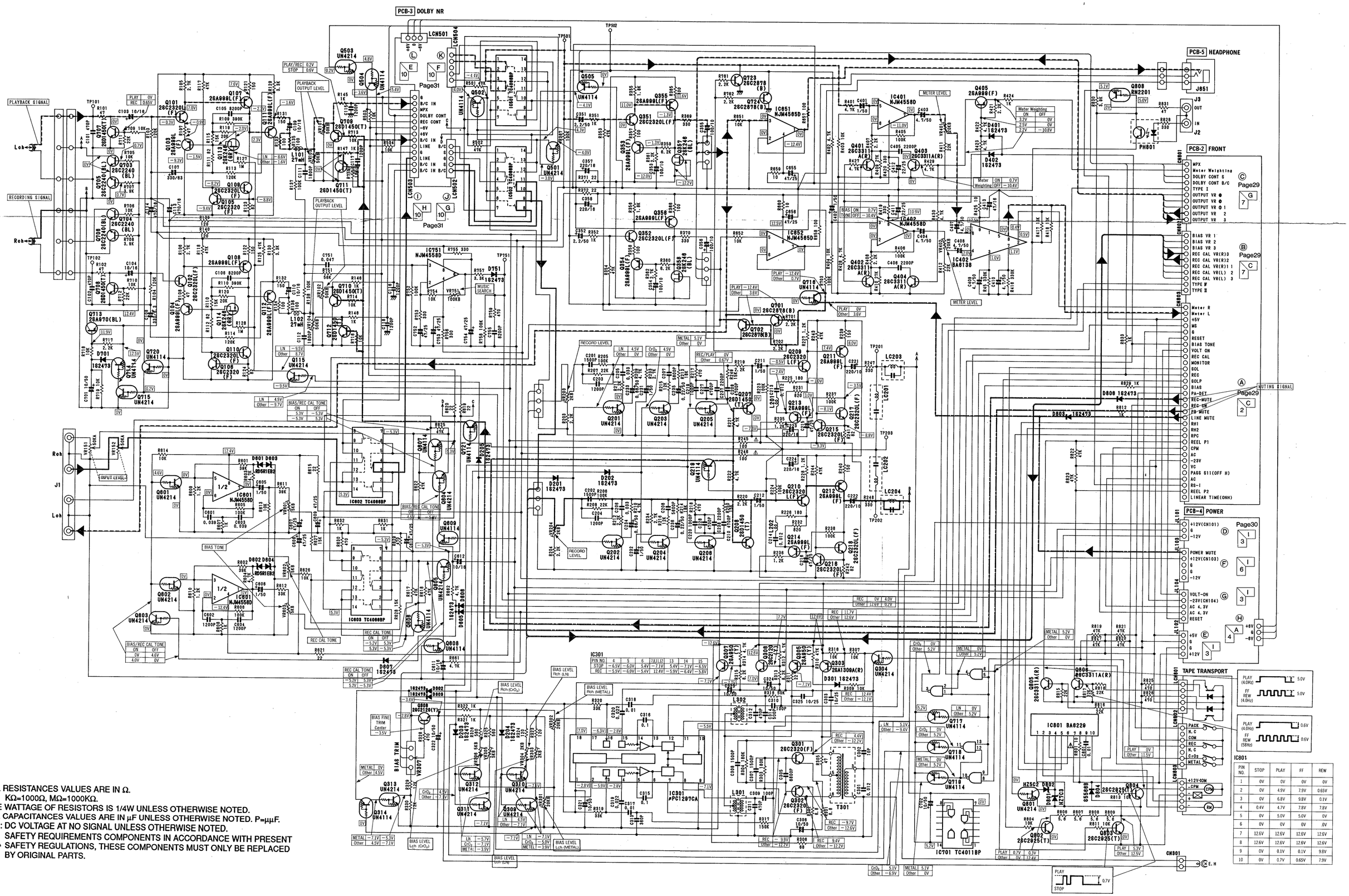

J
K
L
M
N
IC305 CXA1415 8-TYPE HF8
IC307 CXA1415 8-TYPE HF8
IC306
IC304
IC303 CXA1418 8-TYPE MP
D303
1S2473
DECODE
LINE OUTPUT
REC OUTPUT
REC INPUT


IC105 CXA1415
IC106
IC104
IC101
IC103 CXA1418
S-TYPE MP
DECODE
LINE OUTPUT
REC OUTPUT
REC INPUT
PB INPUT
CN103
+8V
6
-8V


IC1
IC305 CXA1415
IC107 CXA1415
IC501
LC501
LC502
Q501
Q502
Q503
Q504
Q501~504
UN4214
MODE CONTROL
REF
L.S
L.DET
H.DET
H.S
R511 1K
R512 27K
R508 560
R510 560
C509 2200P
C507 2200P
C508 2200P
C510 2200P
R507 24K
R508 24K
C513 0.33
C511 0.56
C514 0.33
C512 0.56
C515 10/16
C516 10/16
C518 220/16
C517 220/16
C519 1800P
C520 1800P
C521 2200P
C522 2200P
R513 1M
R514 1M
R515 1M
R516 1M
C503 1/50
C504 1/50
C501 1/50
C502 1/50
R505 8.2K
R506 8.2K
R502 220
R501 220
R517 4.7K
C575 47/16
DOLBY NR
OFF −5.0V
B 0V
C 5.0V
PLAY −6.0V
REC 6.0V
PLAYBACK SIGNAL
RECORDING SIGNAL
MPX ON 5.0V
Filter OFF 0V
CN103
CN104
CN102
CN101
+8V
−8V
B·C OUT
S OUT
MON OUT
REC OUT
S. PB IN
B/C PB IN
LINE IN
REC PLAY CONT
DOLBY NR CONT
MPX
Page32
PB INPUT
REC INPUT
LINE OUTPUT
REC OUTPUT
R439 220
R440 220
R436 22K
R332 22K
R311 100K
R310 100K
C332 100P
C330 100P
C340 10/16
C314 10/16
C317 10/16
C318 10/16


IC305 CXA1415 8-
IC307 CXA1415 8-
IC306
IC304
IC303 CXA1416 8-TYPE MP
IC301
DECODE
LINE OUTPUT
REC OUTPUT
REC INPUT
PB INPUT
PLAY −6.0V
REC 6.0V

SCHEMATIC DIAGRAM (4)



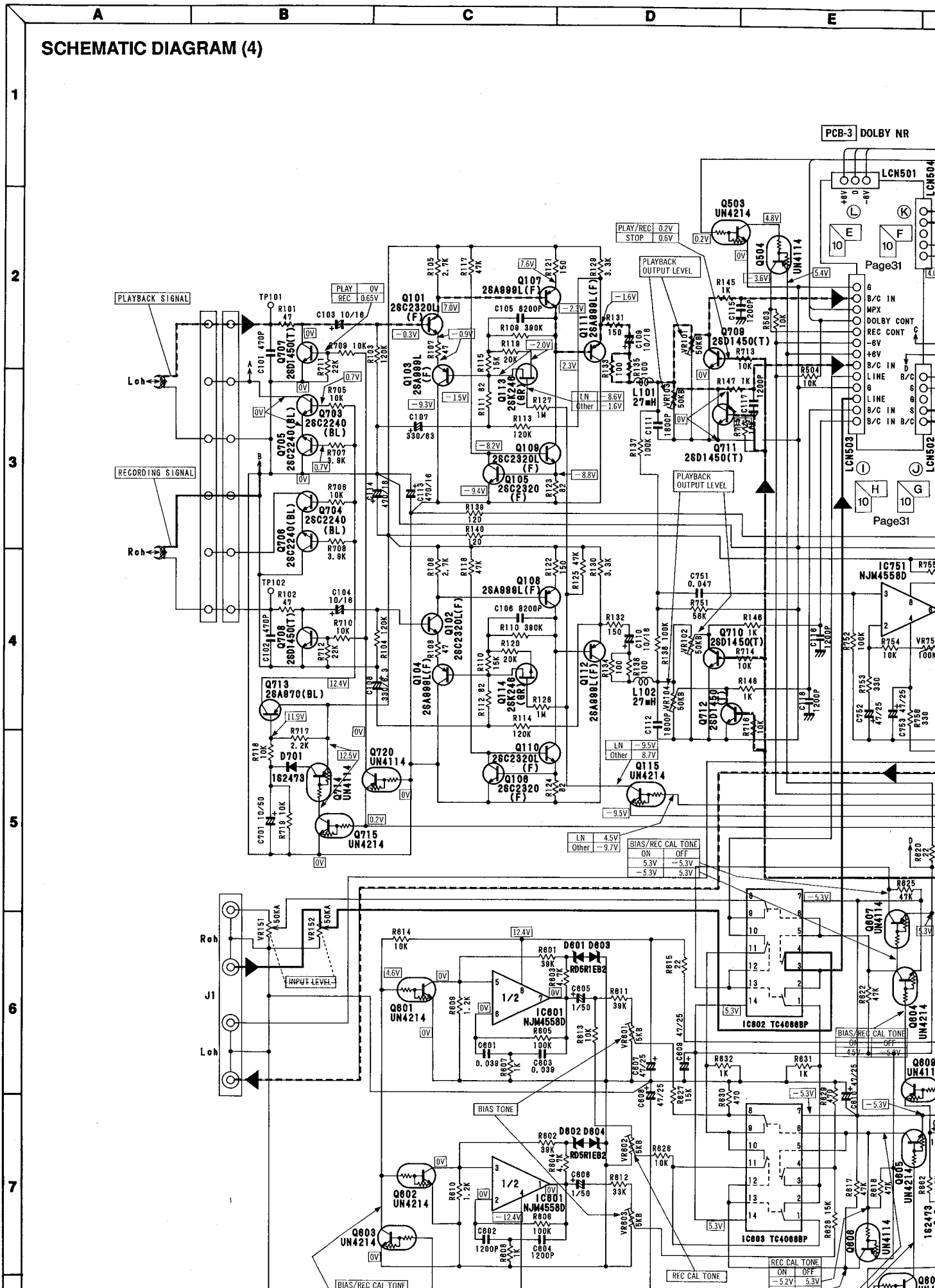
NOTE:

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

IC801

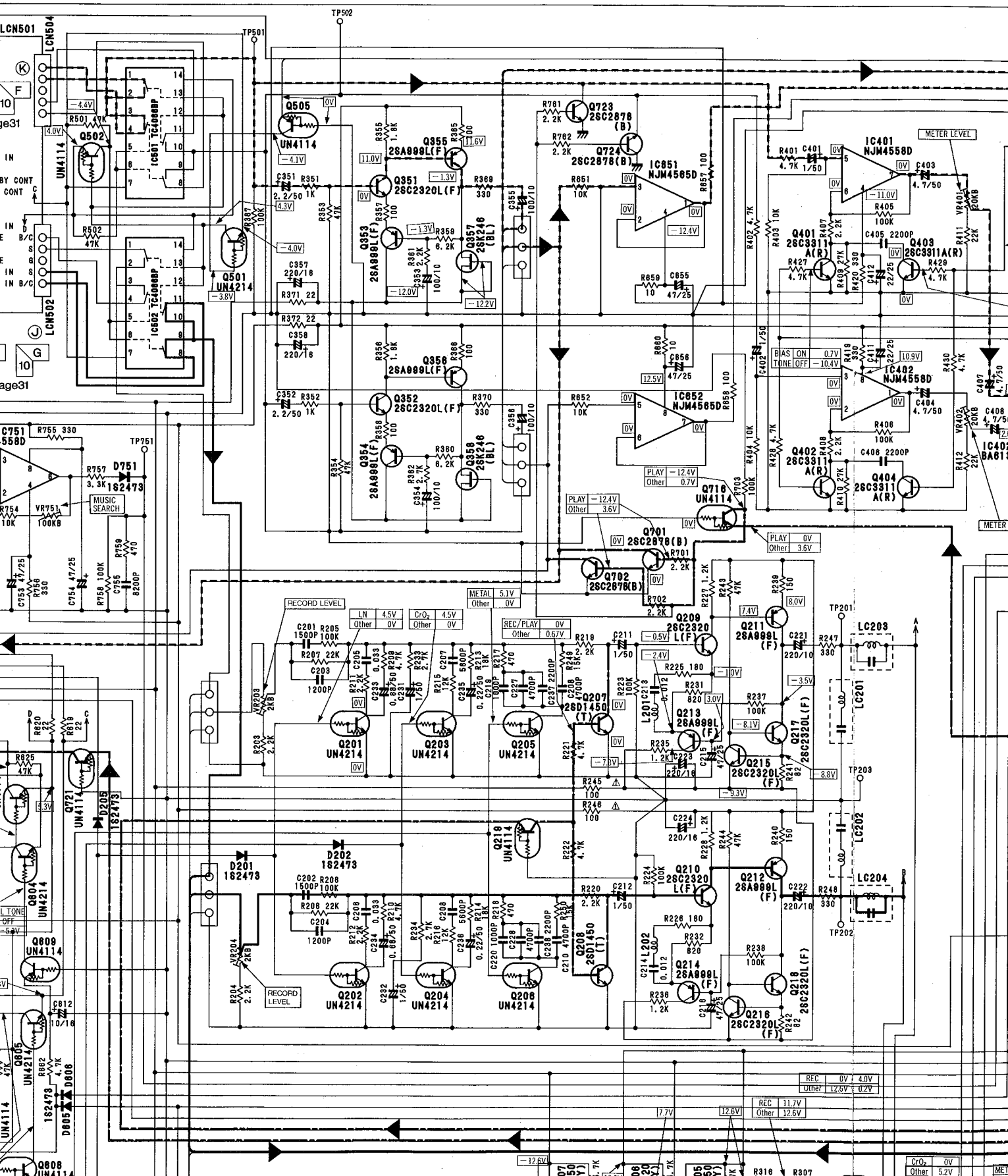
PIN NO.	STOP	PLAY	FF	REW
1	0V	0V	0V	0V
2	0V	4.9V	7.9V	0.65V
3	0V	6.8V	9.8V	0.1V
4	0.4V	4.7V	7.8V	7.8V
5	0V	5.0V	5.0V	0V
6	0V	0V	0V	.0V
7	12.6V	12.6V	12.6V	12.6V
8	12.6V	12.6V	12.6V	12.6V
9	0V	0.1V	0.1V	9.8V
10	0V	0.7V	0.65V	7.9V

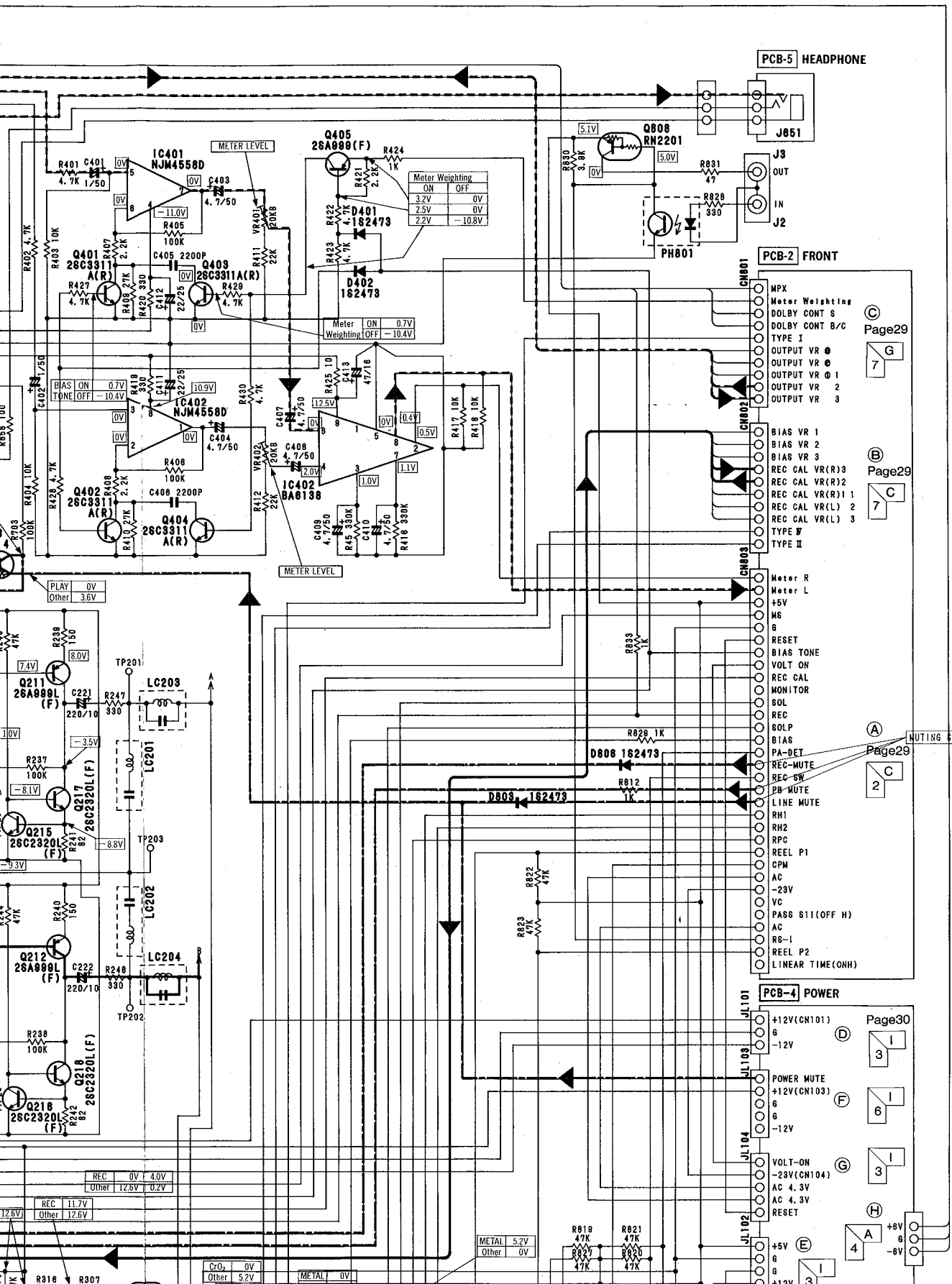
SCHEMATIC DIAGRAM (4)

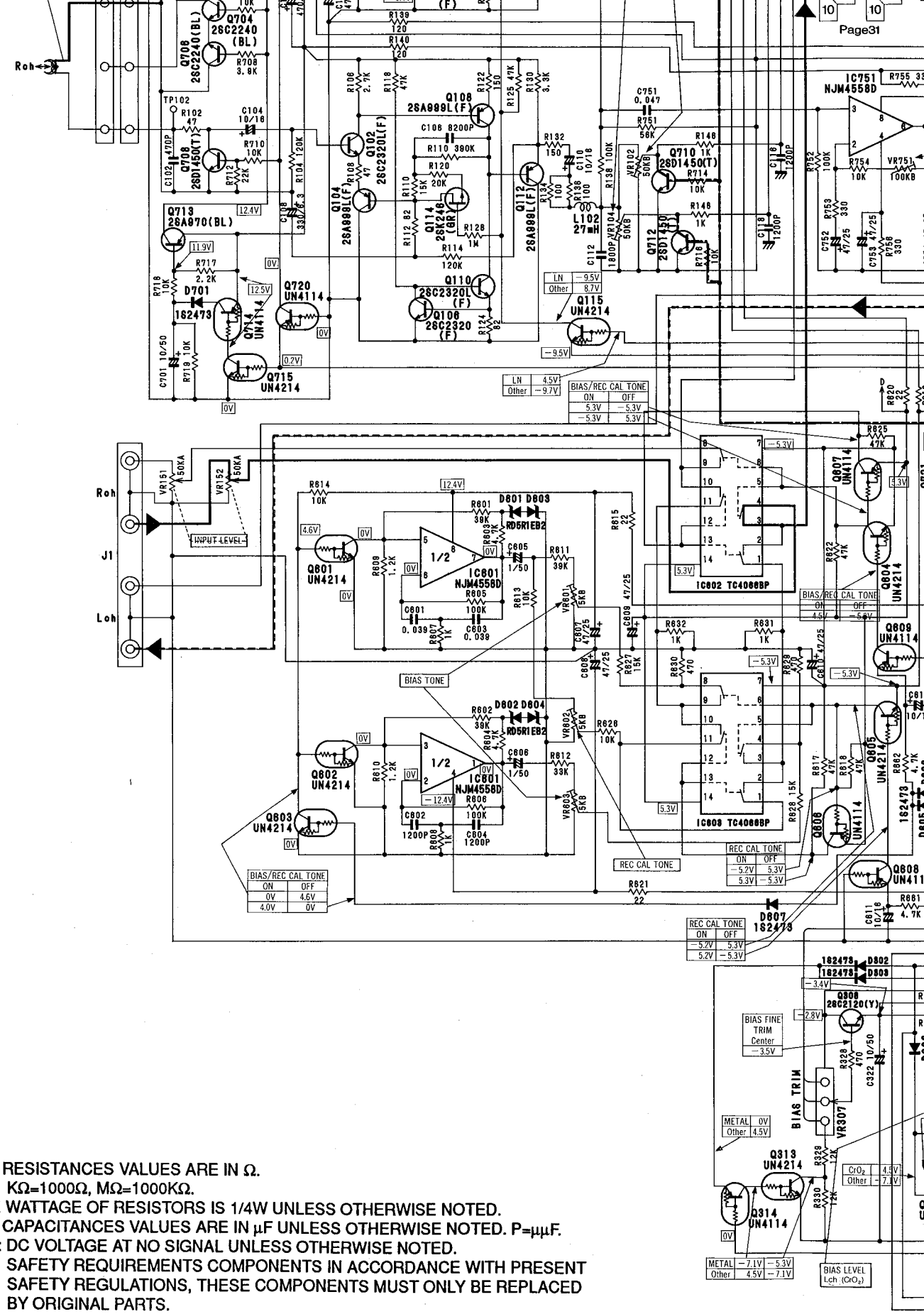


F G H I J

BY NR

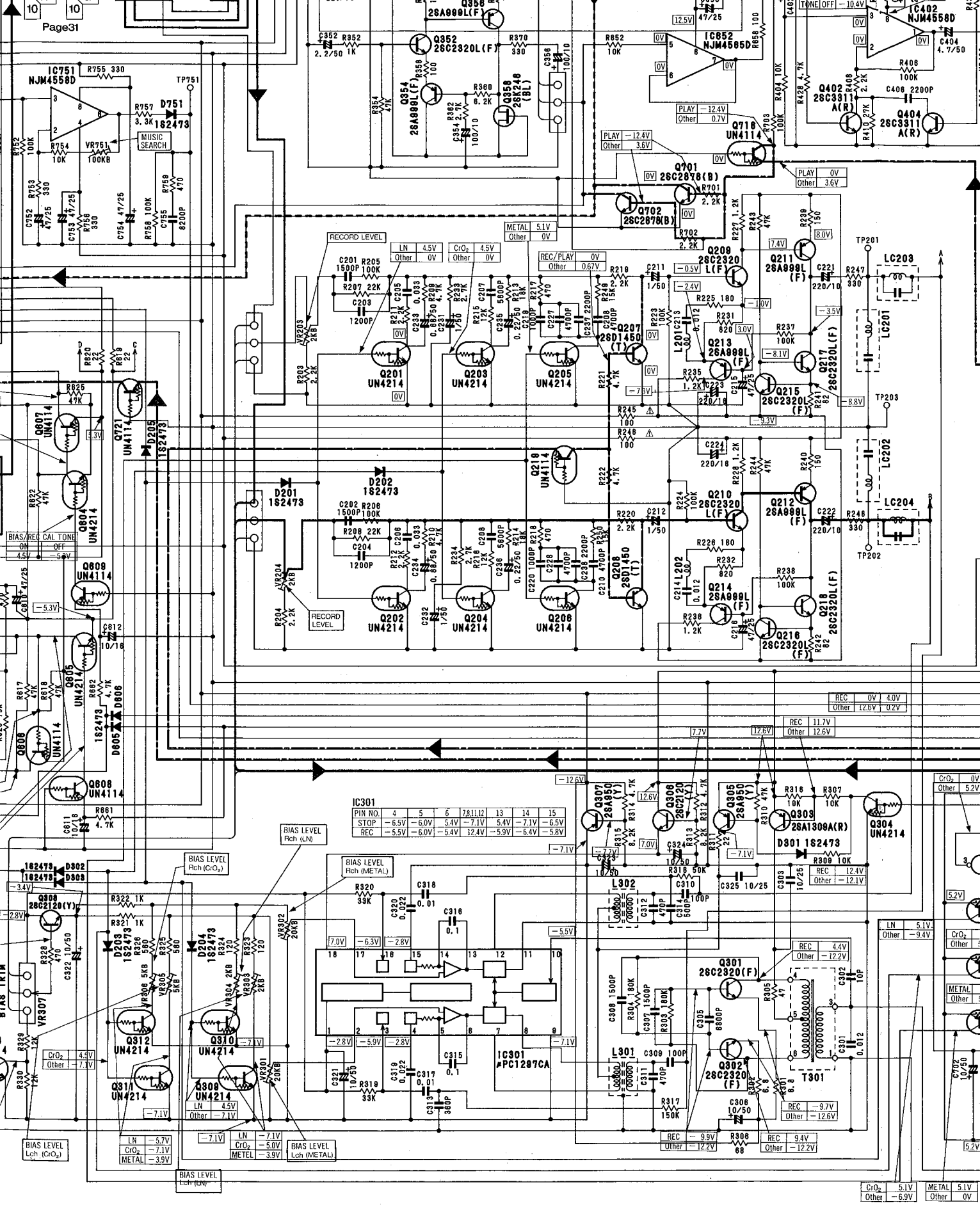

TP502
TP501
LCN501
LCN504
LCN502
IC501 TC4066BP
IC502 TC4066BP
Q505
UN4114
Q502
UN4114
Q501
UN4214
Q355
2SA999L(F
Q351
2SC2320L(F)
Q353
2SA999L(F)
Q357
2SK246
(BL)
Q356
2SA999L(F
Q352
2SC2320L(F)
Q354
2SA999L(F)
Q358
2SK246
(BL)
Q723
2SC2878
(B)
Q724
2SC2878(B)
IC851
NJM4565D
IC852
NJM4565D
IC401
NJM4558D
IC402
NJM4558D
Q401
2SC3311
A(R)
Q403
2SC3311A(R)
Q402
2SC3311
A(R)
Q404
2SC3311
A(R)
METER LEVEL
METER
BIAS ON 0.7V
TONE OFF −10.4V
PLAY −12.4V
Other 0.7V
Q716
UN4114
Q701
2SC2878(B)
Q702
2SC2878(B)
PLAY −12.4V
Other 3.6V
PLAY 0V
Other 3.6V
D751
1S2473
MUSIC
SEARCH
VR751
100KB
RECORD LEVEL
LN 4.5V
Other 0V
CrO2 4.5V
Other 0V
REC/PLAY 0V
Other 0.67V
METAL 5.1V
Other 0V
Q201
UN4214
Q203
UN4214
Q205
UN4214
Q207
2SD1450
(T)
Q209
2SC2320
L(F)
Q211
2SA999L
(F)
Q213
2SA999L
(F)
Q215
2SC2320L
(F)
Q217
2SC2320L(F)
Q202
UN4214
Q204
UN4214
Q206
UN4214
Q208
2SD1450
(T)
Q210
2SC2320
L(F)
Q212
2SA999L
(F)
Q214
2SA999L
(F)
Q216
2SC2320L
(F)
Q218
2SC2320L(F)
Q218
UN4114
D201
1S2473
D202
1S2473
D205
1S2473
LC201
LC202
LC203
LC204
TP201
TP202
TP203
REC 0V 4.0V
Other 12.6V 0.2V
REC 11.7V
Other 12.6V
CrO2 0V
Other 5.2V

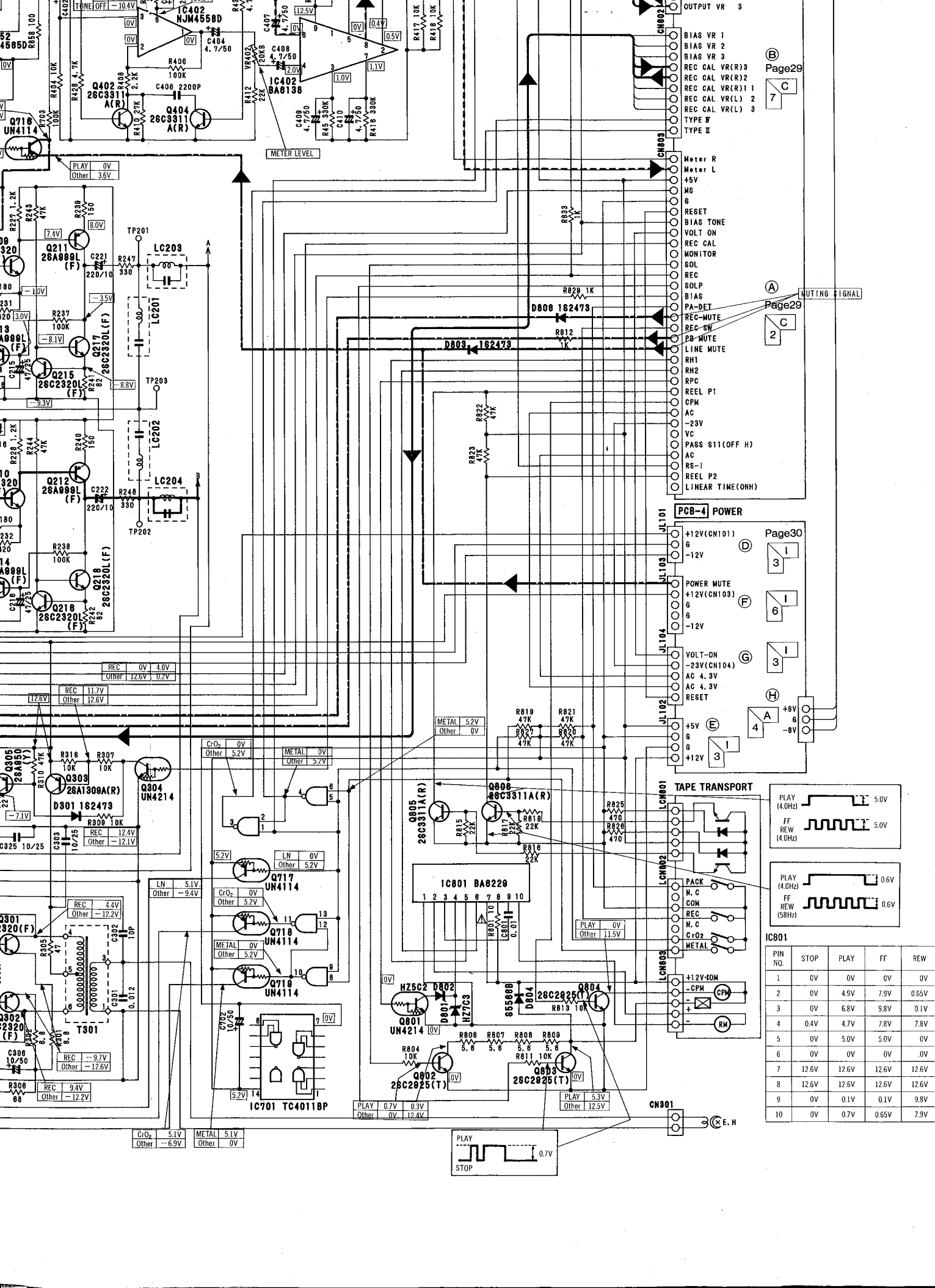

PCB-5 HEADPHONE
J851
J3
OUT
IN
J2
Q808
RN2201
PH801
PCB-2 FRONT
CN801
MPX
Meter Weighting
DOLBY CONT S
DOLBY CONT B/C
TYPE I
OUTPUT VR
OUTPUT VR
OUTPUT VR
OUTPUT VR
OUTPUT VR 2
OUTPUT VR 3
CN802
BIAS VR 1
BIAS VR 2
BIAS VR 3
REC CAL VR(R)3
REC CAL VR(R)2
REC CAL VR(R)1
REC CAL VR(L) 2
REC CAL VR(L) 3
TYPE
TYPE II
CN803
Meter R
Meter L
+5V
MS
G
RESET
BIAS TONE
VOLT ON
REC CAL
MONITOR
SOL
REC
SOLP
BIAS
PA-DET
REC-MUTE
REC SW
PB MUTE
LINE MUTE
RH1
RH2
RPC
REEL P1
CPW
AC
-23V
VC
PASS S11(OFF H)
AC
RS-I
REEL P2
LINEAR TIME(ONH)
MUTING SIGNAL
Page29
Page29
Page29
Page30
PCB-4 POWER
JL101
+12V(CN101)
G
-12V
JL103
POWER MUTE
+12V(CN103)
G
G
-12V
JL104
VOLT-ON
-23V(CN104)
AC 4.3V
AC 4.3V
RESET
JL102
+5V
G
G
+6V
G
-6V
METER LEVEL
IC401 NJM4558D
IC402 NJM4558D
IC402 BA6138
Q405 2SA999(F)
D401 1S2473
D402 1S2473
D806 1S2473
D803 1S2473
Meter Weighting
ON OFF
3.2V 0V
2.5V 0V
2.2V −10.8V
Meter Weighting ON 0.7V
OFF −10.4V
BIAS ON 0.7V
TONE OFF −10.4V
PLAY 0V
Other 3.6V
REC 0V 4.0V
Other 12.6V 0.2V
REC 11.7V
Other 12.6V
METAL 5.2V
Other 0V
CrO2 0V
Other 5.2V
METAL 0V
Q211 2SA999L(F)
Q212 2SA999L(F)
Q215 2SC2320L(F)
Q216 2SC2320L(F)
Q217 2SC2320L(F)
Q218 2SC2320L(F)
LC201
LC202
LC203
LC204
TP201
TP202
TP203



NOTE:

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


Page31
IC751 NJM4558D
IC852 NJM4565D
IC402 NJM4558D
MUSIC SEARCH
RECORD LEVEL
BIAS/REC CAL TONE
BIAS LEVEL Rch (LN)
BIAS LEVEL Rch (CrO2)
BIAS LEVEL Rch (METAL)
IC301
PIN NO. 4 5 6 7,8,11,12 13 14 15
STOP −6.5V −6.0V 5.4V −7.1V 5.4V −7.1V −6.5V
REC −5.5V −6.0V −5.4V 12.4V −5.9V −6.4V −5.8V
IC301 μPC1287CA
LC203
LC201
LC202
LC204
T301



IC801

PIN NO.	STOP	PLAY	FF	REW
1	0V	0V	0V	0V
2	0V	4.9V	7.9V	0.65V
3	0V	6.8V	9.8V	0.1V
4	0.4V	4.7V	7.8V	7.8V
5	0V	5.0V	5.0V	0V
6	0V	0V	0V	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