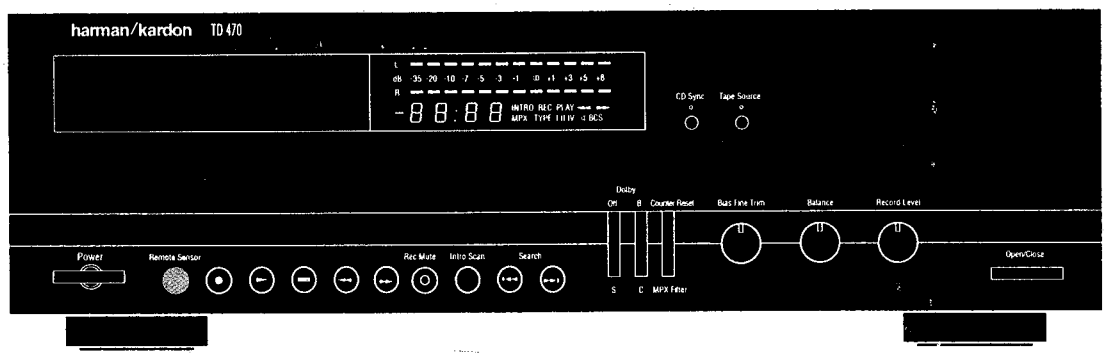
The Harman Kardon
Model TD470

Manual B

3 HEAD CD TRANSCRIPTION QUALITY CASSETTE DECK

TD470

Technical Manual



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

BK : North America area model Black version

IB : International model Black version

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harman/kardon

80 Crossways Park West, Woodbury, N. Y. 11797

1112-TD470 P-9611 1200 Printed in KOREA.

SPECIFICATIONS

Track Configuration: 4-track 2 Channel Stereo Cassette Deck

• MECHANICAL SECTION

	Nominal	Limit
Record/Playback Tape Speed Drift 4.75cm/sec.	0.2%	≦1.0%
Wow and Flutter(WTD)	0.035%(NAB)	≦0.09%
	0.06%(CCIR)	≦0.12%
Take Up Torque	40gr.cm	35~70gr.cm
Back Tension	4gr.cm	2~6gr.cm
F.FWD Torque	110gr.cm	70~160gr.cm
REW Torgue	110gr.cm	70~160gr.cm
F.FWD/REW Time (C-60 Tape)	70sec.	≦100sec.

• AMPLIFIER SECTION

Bias Frequency		105kHz±2kHz	
Playback Output(10KΩ)		640mV±1.5dB	
Signal-to-Noise Ratio at Line input (input 1kHz, 100mV) IHF-A WTD at Dolby Level (WTD)			
Dolby NR off	LN	51dB	
	CrO_2	54dB	
	Metal	54dB	
Dolby B/C NR	LN	69dB	
	CrO_2	72dB	≧66dB
	Metal	72dB	≧66dB
Dolby S NR	LN	72dB	
	CrO_2	75dB	≧68dB
	Metal	75dB	≧68dB

	Nominal	Limit
Channel Separation	45dB	≧35dB
Crosstalk	63dB	≧58dB
Record/Playback Distortion (input 1kHz)		
LN	0.6%	≦1.2%
CrO_2	1.3%	≦2.0%
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×H×D)	17-3/8"×5"×12-5/8" (442×126×320mm)	
• WEIGHT	11.9 Lbs (5.4kg)	
• POWER SUPPLY		
U.S.A. and Canada models	AC120V, 60Hz	
International models	AC230V/240V, 50/60Hz	
• POWER CONSUMPTION		
U.S.A. and Canada models	23W	
International models	23W	

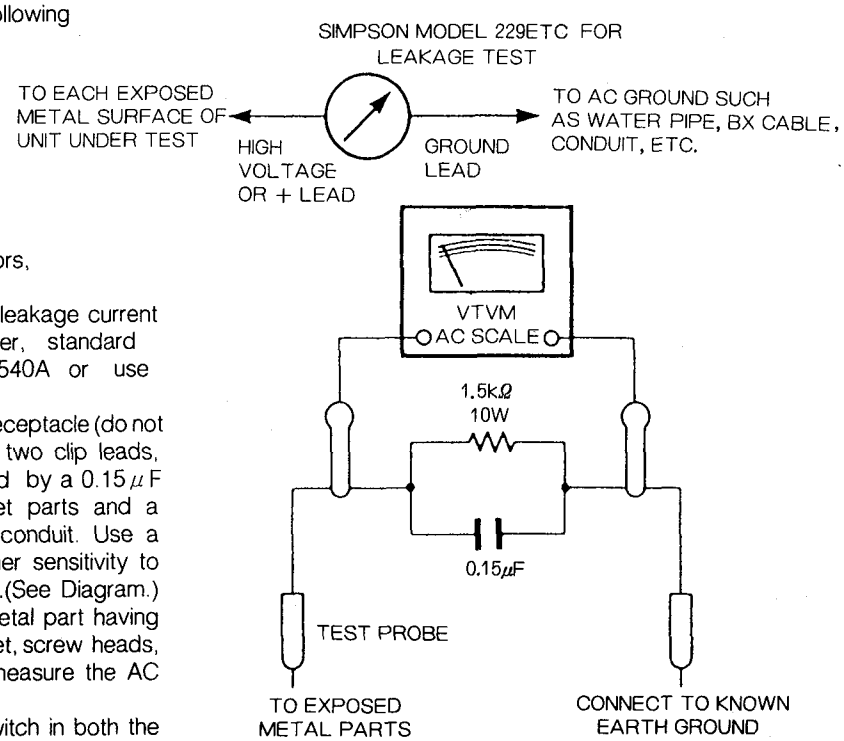
These specifications are service target specs.
Specifications and components are subject to change without notice.
Overall performance will be maintained or improved.

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 flshpapers, 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 1500ohm, 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.

DISASSEMBLY PROCEDURES (PAGE 18)

[1] CABINET TOP (25) REMOVAL

Remove 4 screws(E) and 1screw(D),then remove the Cabinet Top(25).

[2] FRONT PANEL ASSEMBLY(AA) REMOVAL

1. Remove the Cabinet Top(25).
2. Disconnect connectors (WA801,WA809,WA601,WA827, WA828,WA30A, WA30B,CN801) connected to the Main P.C.Board(PCB1,PCB2).
3. Remove 4 screws(A) and 4 screws(B), then remove the Front Panel Assembly(AA).

[3] CASSETTE TAPE RECORDER MECHANISM ASSEMBLY (DD) REMOVAL

Disconnect connectors (WA401, WA402, WA403, WA404, WA408, WA409) connected to the Main P.C.Board(PCB1).

2. Remove the Door Cover (22).
3. Remove the 4 screws (D), and then remove the Cassette Tape Recorder Mechanism Assembly(DD).

[4] DOLBY S P.C.BOARD (PCB-7) REMOVAL

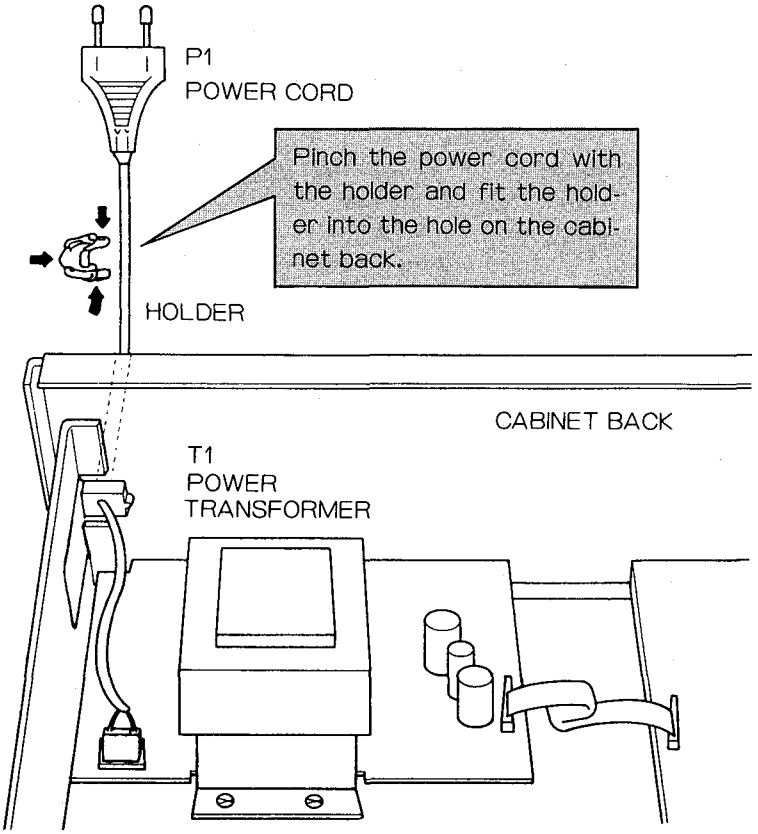
1. Disconnect connectors(CN703,CN704) on the Dolby S P.C.Board (PCB-7).
2. Remove the 4 screws(B).

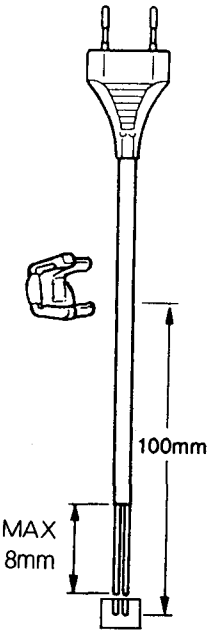
[5] MAIN P.C.BOARD (PCB-1) REMOVAL

1. Remove the Front Panel Assembly (AA). (Refer to step 2.)
2. Remove the Dolby S P.C.Board (PCB-7). (Refer to step 4.)
3. Remove the Frame center (33).
4. Remove Main P.C.Board and then remove 4 screws (B) and 1 screw (F).

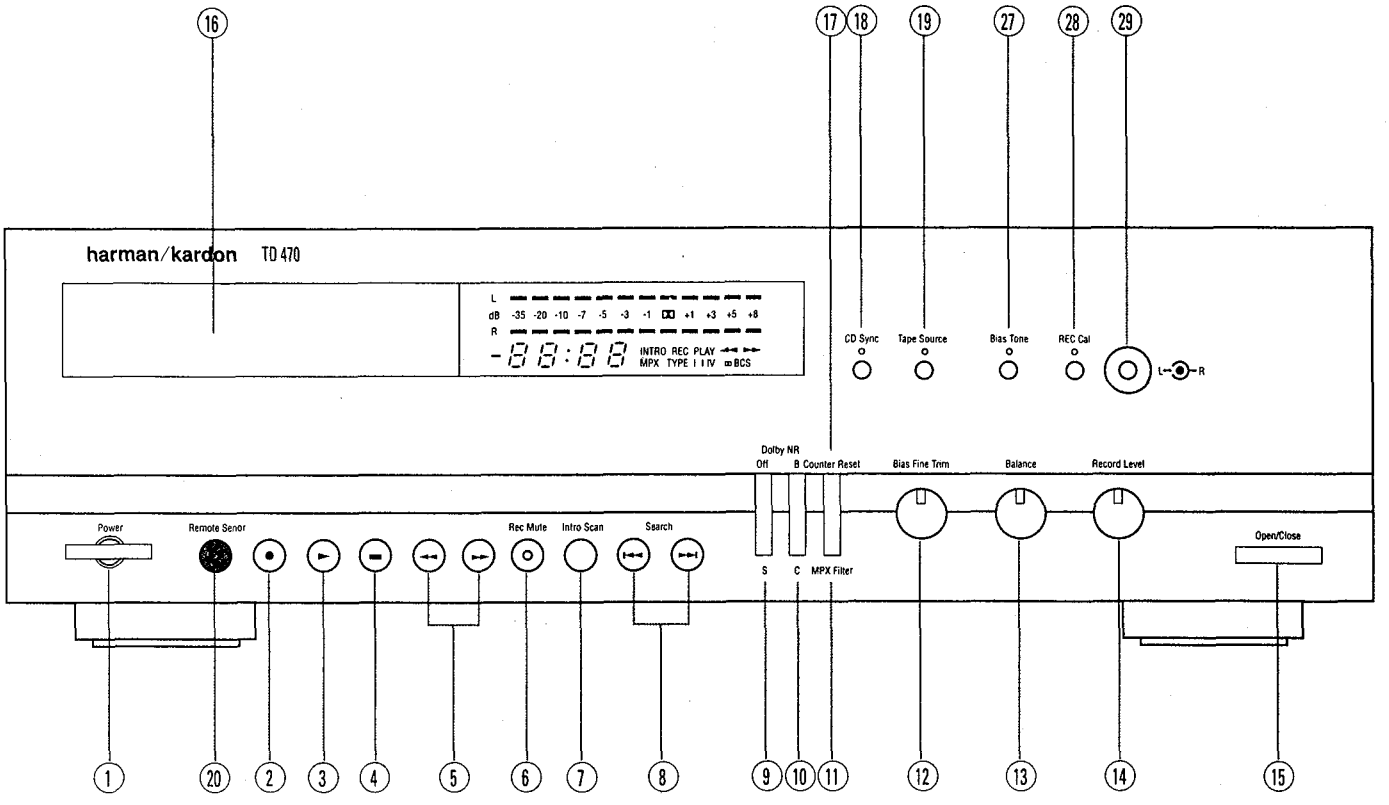
POWER CORD REPLACEMENT (FOR SERVICE ENGINEERS OTHER THAN NORTH AMERICA)

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.





CONTROLS AND FUNCTIONS



1. Power Switch
Press to turn unit on/off.

2. Record/Pause
Puts cassette deck in Record ready or pause mode.

3. Play
Begins playback or recording.

4. Stop
Stops tape transport in any mode.

5. Rewind/Fast Forward
Rapidly rewinds/advances tape.

6. Record Mute
Inserts blank space when recording.

7. Intro Scan
Previews each segment on a pre-recorded tape.

8. Search Forward and Reverse
Locates the start of any desired segment on a pre-recorded tape

9. Dolby NR
Activates Dolby Noise Reduction circuitry for playing or recording tapes.

10. B/C
Selects Dolby B or Dolby C Noise Reduction.

11. MPX Filter
Press when recording FM stereo broadcasts using Dolby noise reduction.

12. Bias Fine Trim
Adjust when recording

13. Balance
Adjusts balance between left and right channels when recording.

14. Record Level
Adjusts recording level.

15. Open/Close
Press to load/remove tape cassette.

16. Cassette Compartment/Drawer

17. Counter Reset
Resets Tape Counter to 00:00.

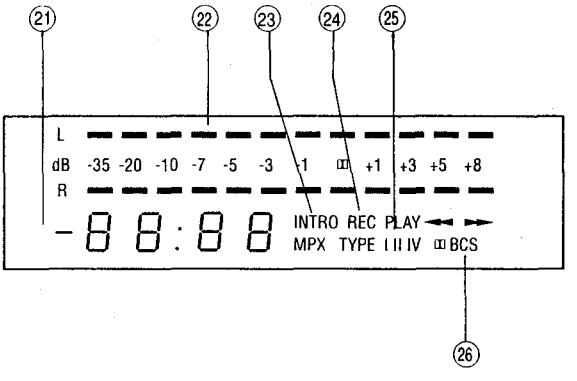
18. CD Sync
Engage when synchronizing recording with a Harman Kardon CD Player.

19. Tape Source
Selects between the signal recorded on the tape and the input source signal. When "Tape" is selected the indicator above the button will light.

20. Remote IR Sensor
Receives the remote control signals.

21. Counter
Indicates tape position in minutes and seconds.

22. Level
Shows signal level.



23. Intro
Indicates Intro Scan is engaged.

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

25. TYPE I II IV
Automatically indicates type of tape in use.

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

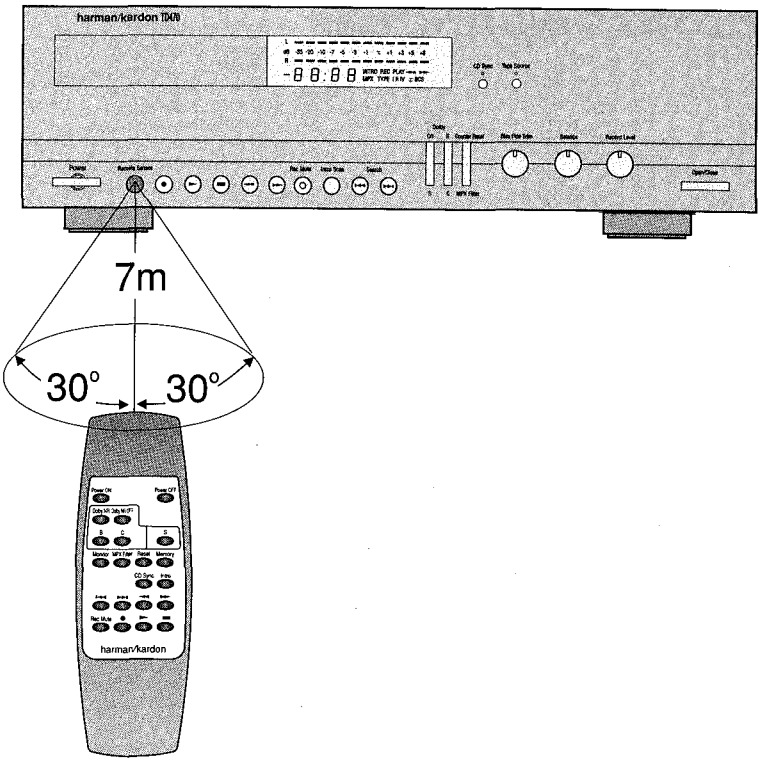
27. Bias Tone
Adjust when recording.

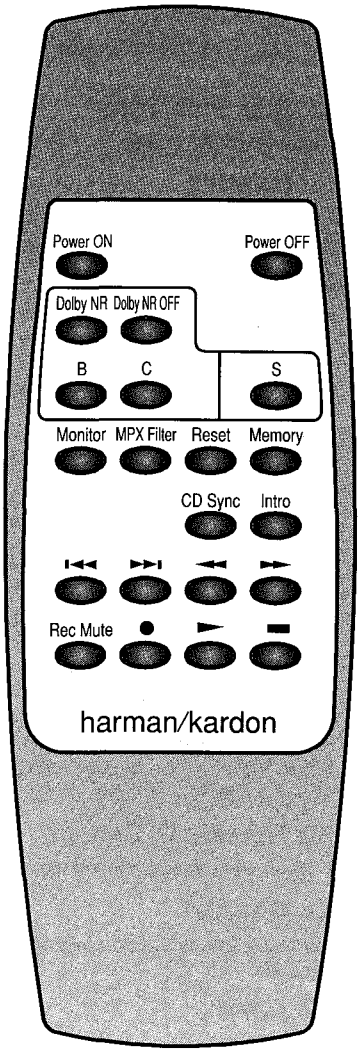
28. REC Cal
Push when recording using Dolby Noise Reduction.

29. REC Cal Volume
Adjust when recording using Dolby Noise Reduction.

Remote Control

The keys on the remote control function in the same way as the keys on the front panel of the cassette deck (please see the previous page for the function of each key). This remote control operates within a distance of 7 meters while directly in front of the unit and at an angle of up to 30 degrees. Strong fluorescent lighting or sunlight in the room may shorten this range, as will dust or dirt which may accumulate on the remote control lens or the front panel remote sensor. Also, avoid blocking the line of sight between the cassette deck and the remote control. The remote control is powered by two AA batteries, included in the carton. When the batteries weaken, replace both of them at the same time. If the remote control will be unused for a long period of time, remove the batteries to prevent damage from corrosion.





Inserting a Tape

1. Check cassette tape for excessive slack. If necessary, insert a pencil into one of the cassette hubs and rotate to take up the slack.

2. Press Open/Close.

3. Insert cassette, tape side toward rear of unit, and close compartment door.

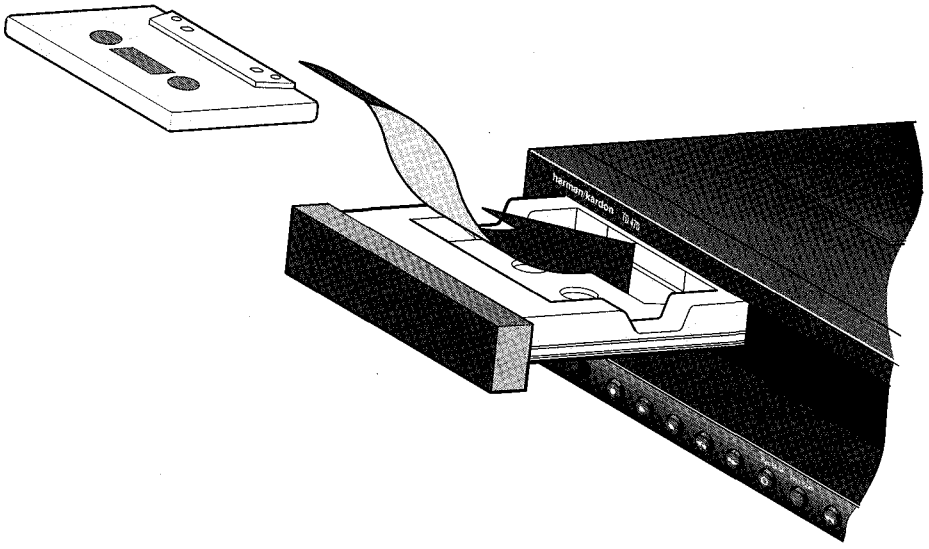
Playing a Tape

1. If tape was recorded with Dolby Noise Reduction, press Dolby NR button. DD and "B," "C," or "S" will appear on the display panel. Choose B, C or S NR by pressing the B/C button or S button.

2. Press ► to begin play.

To skip to the beginning of the previous track, press |◄◄ again quickly before the present track begins playing.

2. Using the Counter. The Linear Time Counter indicates approximate tape position in minutes and seconds. Press Counter Reset at the start of a cassette to identify any desired point on the tape. (Elapsed time is maintained in Fast Forward and Rewind). When counter is reset to 00:00 at the beginning of a cassette, the approximate time remaining can be determined by subtracting the counter reading from the total tape time. The Linear Timer Counter accuracy is typically within 1 minute of the tape's actual running time.



Previewing a Tape

1. Press Intro Scan. Cassette deck locates the beginning of recorded material and plays for 15 seconds. Tape is then advanced to the beginning of each successive recorded segment, or track, playing for 15 seconds before automatically advancing to the next track.

2. To stop Intro Scan, press ■. Or, press ► during any 15-second play segment, and tape will continue to play.

Locating Places on a Tape

1. To move quickly to the beginning of any desired selection, use the Search Reverse and Search Forward buttons (|◄◄ and ►►| at the lower center of the deck).

Recording a Tape

1. Set the Bias Fine Trim knob to the middle position or previously determined proper position for the tape (refer to following section for details).

2. Press the Dolby NR button to turn Dolby NR circuitry on/off, and press Dolby NR button to select Dolby B, C, or S NR as follows:

a. To record a tape without Dolby Noise Reduction, press the Dolby NR off button.

b. To record a tape with Dolby Noise Reduction, press the Dolby B, C or S NR button.

c. When recording with Dolby Noise Reduction, consider the equipment on which you will play your tape. If playback equipment is not equipped with Dolby NR, turn the Dolby NR switch off. If it is equipped with Dolby NR, determine which types it has and select among them. Some users may find that recordings made with Dolby S NR sound equally good when played back with Dolby B NR.

3. If you are recording an FM stereo broadcast using Dolby B, C or S NR, turn on MPX Filter; otherwise, turn the MPX Filter off.

4. Press ●. ("REC" will flash on and off on display panel).

5. Play one of the louder segments of the material to be recorded.

6. Check the signal levels indicated by the bars marked L and R on the display. If levels are constantly unequal, turn the Balance knob left or right to correct the imbalance.

7. Check the Display Panel to determine the tape Type (I, II or IV), and set Input Level accordingly:

a. For Types I and II, the loudest material should illuminate the colored bars at +1 or +3dB;

b. For Type IV, the loudest material should illuminate the bars at +3 or +5dB.

8. Return to the beginning of the material to be recorded.

9. Press ► to begin recording. (REC will be continuously displayed).

10. At end of material to be recorded:

a. Press ■ (Stop); or

b. Press Rec Mute. This records 4 seconds of silence on the tape and returns the deck to Record. Press ► to continue recording.

11. Press the "Tape Source" button if you would like to hear the actual signal recorded on the tape. The indicator lights when it is set for the signal on the tape.

Bias Fine Trim

Bias Fine Trim enables you to obtain optimal wide band recordings by adjusting the deck's bias setting to the specific tape you are using.

Setting Procedures

1. Turn off Dolby NR and MPX Filter.

2. Set the Bias Fine Trim at center.

3. Set the L-R knobs at center.

4. Open the Cassette Drawer and place a cassette in the compartment and close.

5. Press [●] (Rec/Pause) Button and Tape Source Button. Be sure that the indicator above the Tape Source Button turns on (green light). Then press [►] (Play) Button to put the deck into Recording Mode.

6. Wait for a few seconds, then press and hold the Bias Tone Button. While holding the Bias Tone Button, adjust the Bias Fine Trim knob so that the levels for Left and Right Channels become equal.

7. Release the Bias Tone Button, then press the [●] (Rec/Pause) Button, and proceed to the next step to adjust Record Calibration.

Record Calibration

Rec Cal enables you to obtain more accurate recordings using Dolby Noise Reduction, by adjusting the deck's recording circuitry to match the playback sensitivity of the specific tape you are using.

Setting Procedures

1. Be sure the Green Indicator above the Tape Source Button is still on. (If it's not on, press the Tape Source Button again to turn it on.)

2. Press [►] (Play) Button to put the deck into recording mode.

3. Press and hold Rec Cal Button. While the Rec Cal Button is held pressed, turn the L knob to adjust the Left Channel level indicator to light up to DD mark and turn the R knob to adjust the Right Channel level indicator to light up to the same DD mark.

4. Release the Rec Cal Button, and press and hold the Bias Tone Button again to check the Indicator levels are still equal between Left Channel and Right Channel. If not, adjust the Bias Fine Trim while the Bias Tone Button is held pressed as described in Step 6 of the Bias Fine Trim Setting Procedures.

5. Release the Bias Tone Button, and press and hold the Rec Cal Button again to make sure the levels are still calibrated to DD mark on both channels.

6. It is advisable that you note the positions of these knobs for your future reference. You can save time at your next recording using the same brand and type of cassette.

7. Press [◄◄] (Rewind) Button to rewind the tape back to the beginning of the tape or where you started. Now you are all set and ready to make recordings.

Recording Using the CD Sync Feature

To use the CD Sync feature first be sure that the TD470 is correctly connected through its rear panel Remote Out jacks to the Remote In jacks on a Harman Kardon CD player.

Once connected, the cassette deck will control the PLAY, PAUSE, and STOP functions of your Harman Kardon CD player. To activate the CD Sync function, press the CD Sync button on the front panel of the TD470. The green LED will illuminate.

NOTE: Anytime the STOP button on the cassette deck is pressed the CD Sync function will turn off automatically.

To Record an Entire Disc

First make sure that you have selected the CD input on your Pre-Amp, Amplifier or Receiver. Set record and bias levels.

Put the CD Player in the STOP mode. To begin recording push the CD Sync button. The cassette deck will begin recording as the CD player begins to play the disc.

To Record a Selected CD Track or a Pre-programmed Sequence of Tracks

Preset the track to be recorded or program the CD player as you normally would, and press the CD Sync button on the cassette deck.

NOTE: Pressing the PLAY, STOP, or PAUSE buttons on the CD player will have no effect on the operation of the cassette deck.

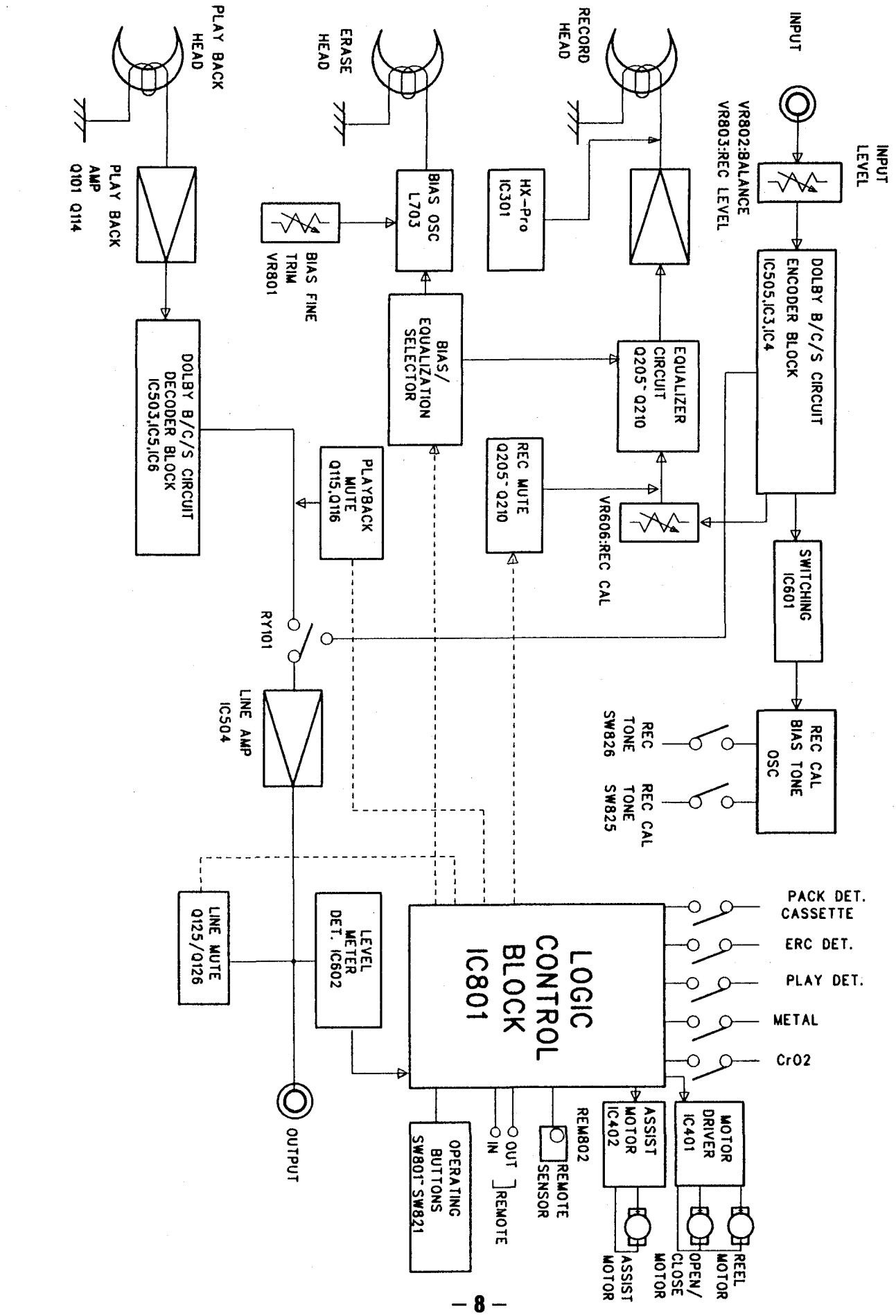
Rec/Pause

When in the CD Sync Mode, when REC/PAUSE button on the cassette deck is pressed, the CD player will automatically pause. When the PLAY button on the cassette deck is subsequently pressed, the CD player will resume playing as the cassette deck resumes recording.

Stop

When you are finished recording, press the STOP ■ button on the cassette deck. The CD player will also stop. Pressing the STOP button will also de-activate the CD Sync mode.

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 level meter DET.circuit(IC402).

RECORD SIGNAL

Signals that reach the input jack are level controlled by the input level controller. Then, they are divided into recording and record monitoring signals and sent to the Dolby NR circuit. After being encoded in the Dolby NR circuit, the recording signals are switched by the Dolby IC (IC505) and sent to the equalizer circuit via the Rec Cal controller. The record monitoring signals are decoded by the Dolby NR circuit and then processed in the same manner as the playing signals. After the equalizer circuit, the recording signals are amplified by a recording amplifier consisting of IC201 before being sent to the recording head.

DOLBY NR CIRCUIT

The Dolby NR circuit has two blocks, one for processing the playing signals and another for processing the recording signals. The block for the playing signals decodes the record monitoring signals.

PLAYING SIGNALS PROCESSING BLOCK

• Dolby NR B/C type

The playing signals are supplied to pin27 (L-ch) and pin2 (R-ch) of IC503. After decoding, they are sent to pin22 (L-ch) and pin7 (R-ch).

• Dolby NR S type

The playing signals are supplied to pin 9 (L-ch) IC5 and IC6.

RECORDING SIGNALS PROCESSING BLOCK

• Dolby NR B/C type

The recording signals are suppllied to pin26 (L-ch.) and pin3 of the IC505 in the Dolby NR circuit. After encoding, they are sent out from pin18 (L-ch.) and 11.

MUTING OPERATION

The signal that mutes the sound produced at switching to recording or playback is applied from IC801 of the logic control block. When the "STOP" button is pressed, the mute signal output from pin43 of IC801 turns ON Q125 (R-ch.) and Q126 (R-ch.) to short-circuit the output signals of the playback amplifiers for muting. ON/OFF, the mute signal is output from Q513. The muting is done by short circuiting the output signal with Q125(R-ch.) and Q126 turned ON.

LOGIC FOR RECORD MODE

Pressing the "REC" button puts pin44 of the IC801 in the "high" level. This causes the Q115, and Q116 (R-ch.) to go on muting signals reaching the Q129(REC MUTE) goes off at the same time, the Q203 (L-ch.) and Q204 are turned off. This cancels muting of the signals going to the recording amplifier so that the recording signals are allowed to reach the recording head.

SWITCHING FROM RECORD MODE TO PLAYBACK MODE IN LOGIC

When the "STOP","PAUSE" or "PLAY" button is pressed, the pin 45 of IC801 becomes high level. Q129 turns ON and Q203(L-ch.), Q204 turn ON to mute the inputs to the record amplifiers.

DOLBY NR S-TYPE 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 swiched to the decode mode in the same manner as an A-type, B-type, C-type, or SR processor.

As with C-type NR, an S-type encoder has two staggered-action compressors, each having a passive main path which is summed with an active side chain, and each of which operates over a different signal level range. The high level stage has three compressors in its sidechain, which are known as the high frequency fixed band (HF/FB), the high frequency sliding band (HF/SB), and the low frequency fixed band (LF/FB). The low level stage has a high frequency fixed band and a high frequency sliding band. Fixed bands are band limited to provide more compression at frequencies below dominant signals above 6 kHz, which gives less signal modulation in the encoder and less overall noise modulation. The fixed and sliding bands operate together in a technique known as action substitution.

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

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

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

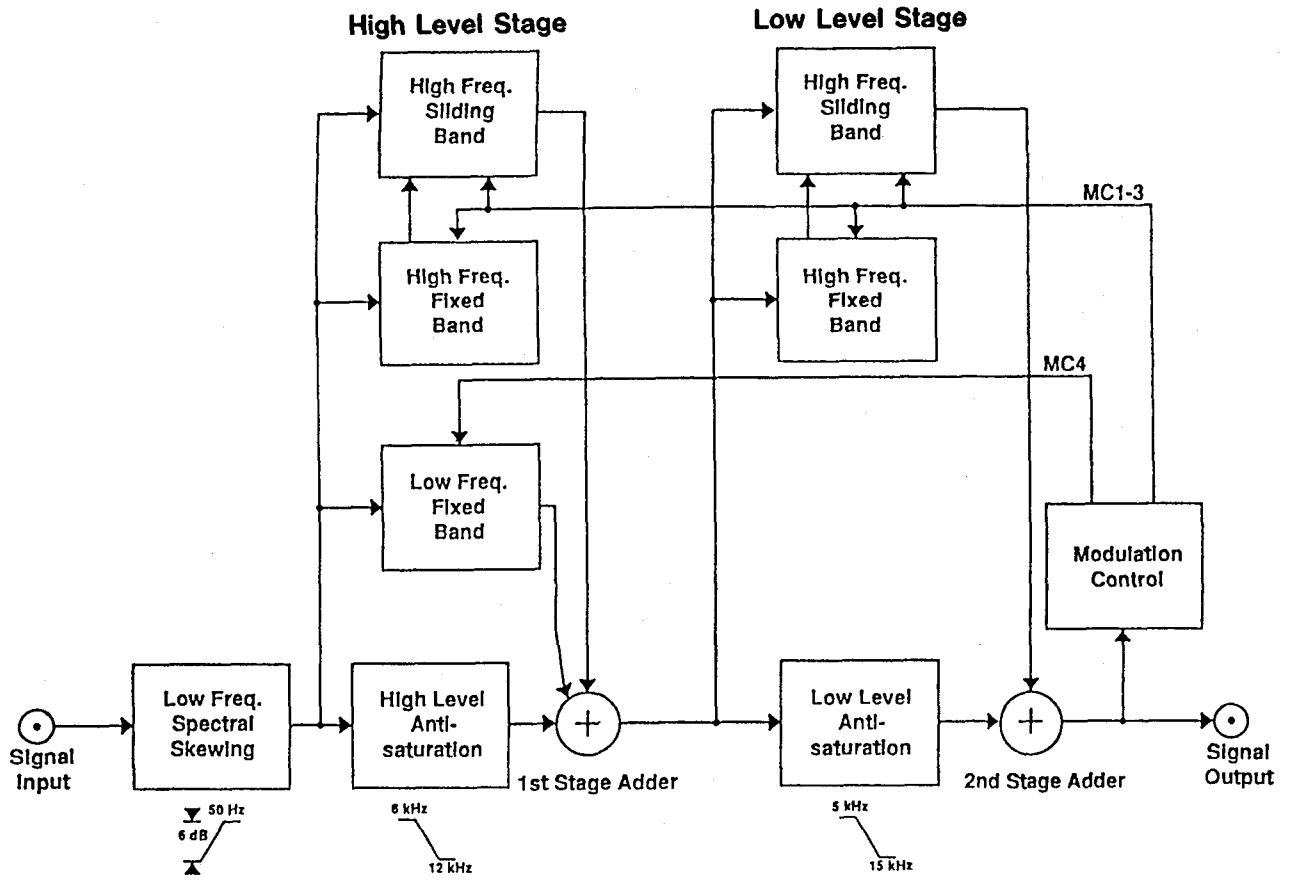
The control signals are derived from the compressor output, which is filtered, and averaged to produce a smooth control signal. An alternate path is provided to quickly charge the control path under high level transient conditions to suppress overshoots. Modulation controls signals are subtracted from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

Low Level Stage

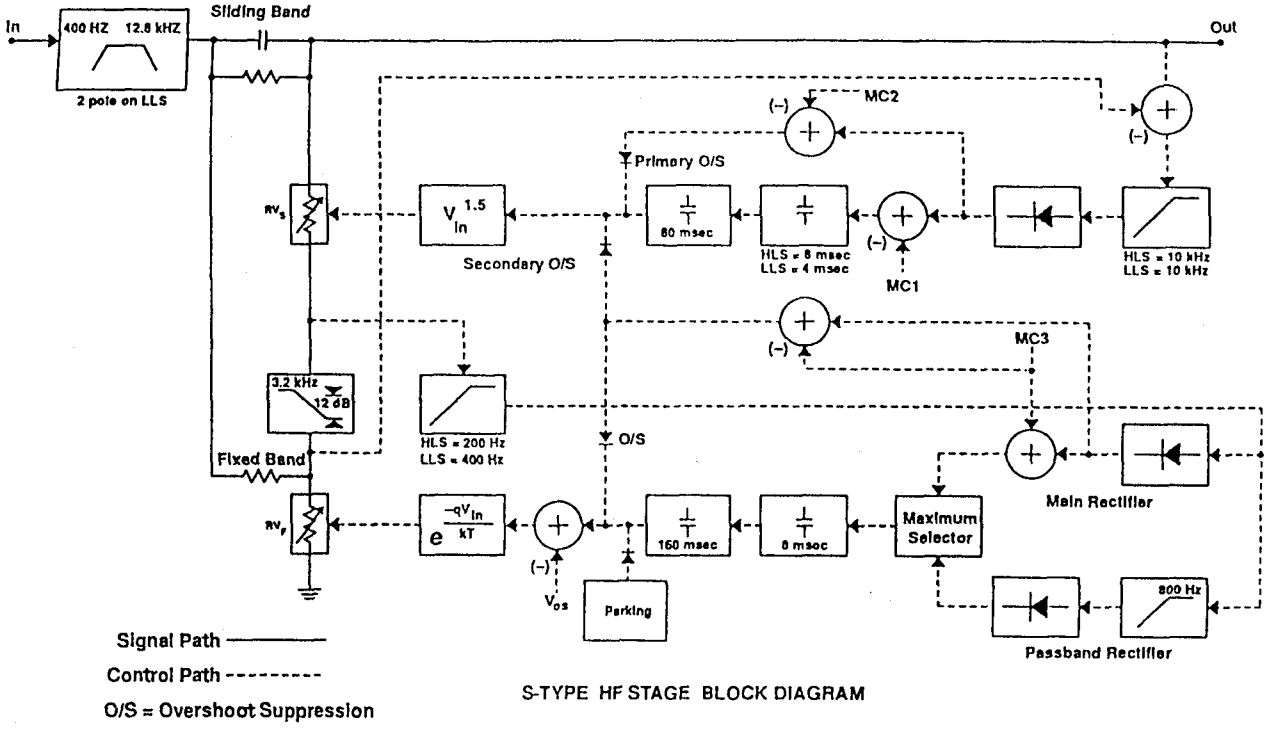
The low level stage is active for signal levels from –50 to –25 dB. No low frequency signal processing is provided, but in all other respects it is quite similar to the high level stage.

Modulation Control

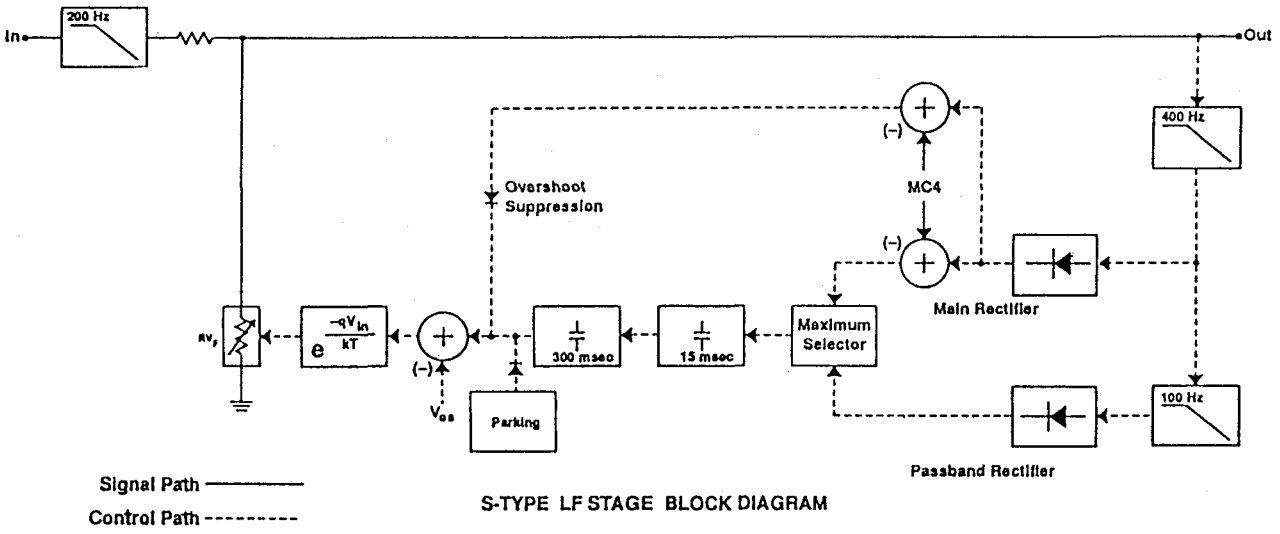
Modulation control is used to prevent unnecessary modulation of the compressors in the presence of high level signals. It is inactive at low levels. The encoder output is fed to the input of the modulation control circuit, where it is split into three frequency bands. The MC1 signal goes through a 3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



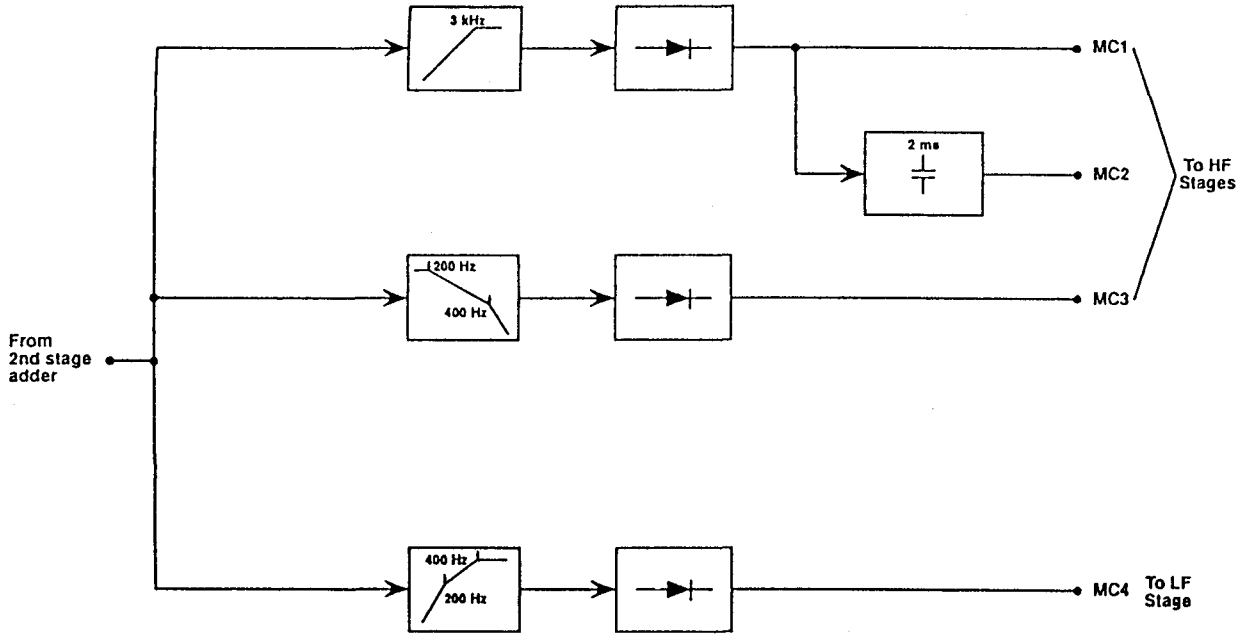
S-TYPE ENCODER BLOCK DIAGRAM



S-TYPE HF STAGE BLOCK DIAGRAM



S-TYPE LF STAGE BLOCK DIAGRAM



S-TYPE MODULATION CONTROL CIRCUITS BLOCK DIAGRAM

ALIGNMENT PROCEDURES

■ CASSETTE MECHANISM CONFIRMATION

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

1. Confirmation of erase prevention function
   - The switch should turn ON when a tape with erroneous erase preventive tab is inserted.(Use a tape which is 0. 2mm smaller than the minimum size of 62.9mm or 63. 9mm or a MAZ-0184-C gauge one.)
   - When the switch arm is moved back gradually from the ON position, the switch should turn OFF.

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

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

4. Confirmation of playback, fast forward and rewind functions
   - The torque used in each of the playback, fast forward and rewind modes should be within specification.
     Playback ·····35gr.cm~70gr.cm
     Fast Forward ·····70gr.cm~160gr.cm
     Rewind·····70gr.cm~160gr.cm
   - No abnormal noise should be heard during operation in any mode.

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.

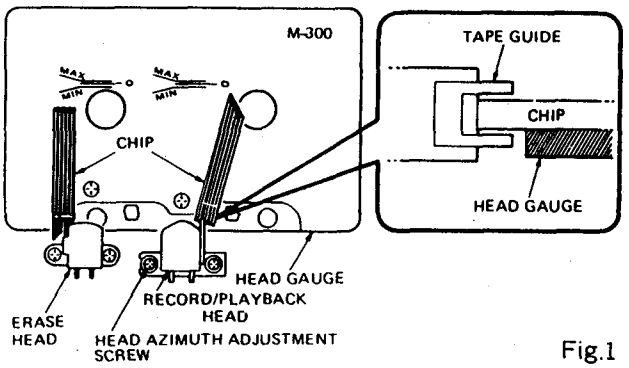


Fig.1

   - 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 show 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.

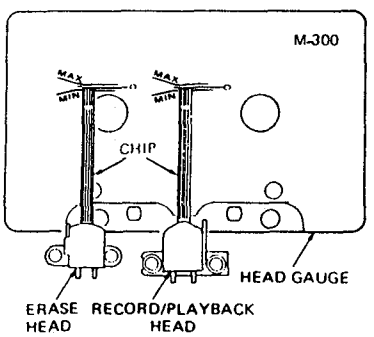


Fig.2

■ 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-154
- Tape speed adjustment·····MTT-111DN OR TCC-112
- Playback output level adjustment
  ·····TCC-130 or MTT-150
- Playback frequency characteristic confirmation
  ····· TCC-162B and TCC-262B
- Music search adjustment ·····SCC-1425
- Reference tapes

LN·····AC224
CrO_2 ·····AC513
METAL ·····AC712

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

4. General conditions (unless otherwise noted)

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

Azimuth Adjustment

When the maximum level point of R channel does not equal that of 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 R channels to monaural. Adjust vertical and horizontal gain so that the waveform becomes 45 degrees.
c) Adjust azimuth so that the measurement of "a" becomes maximum and the measurement of "b" becomes minimum against the 45 degree line.

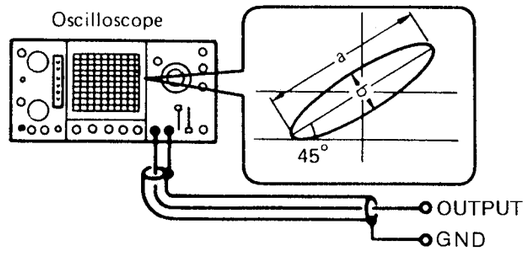


Fig.3

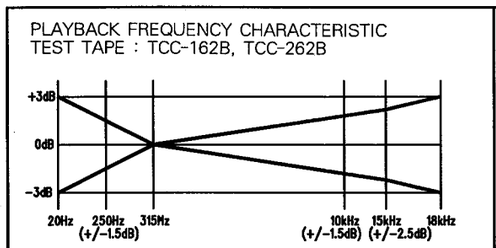


Fig.A

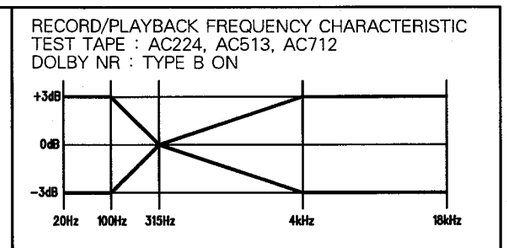


Fig.C

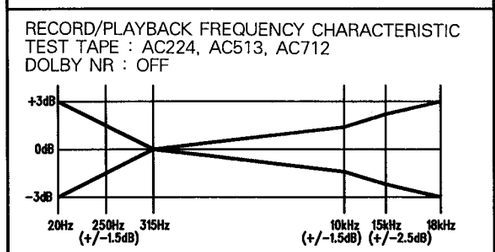


Fig.B

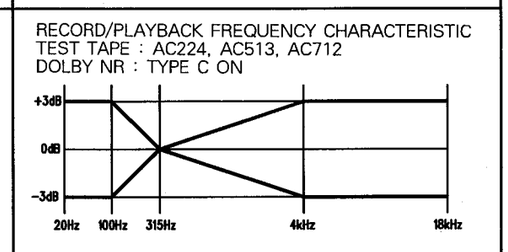
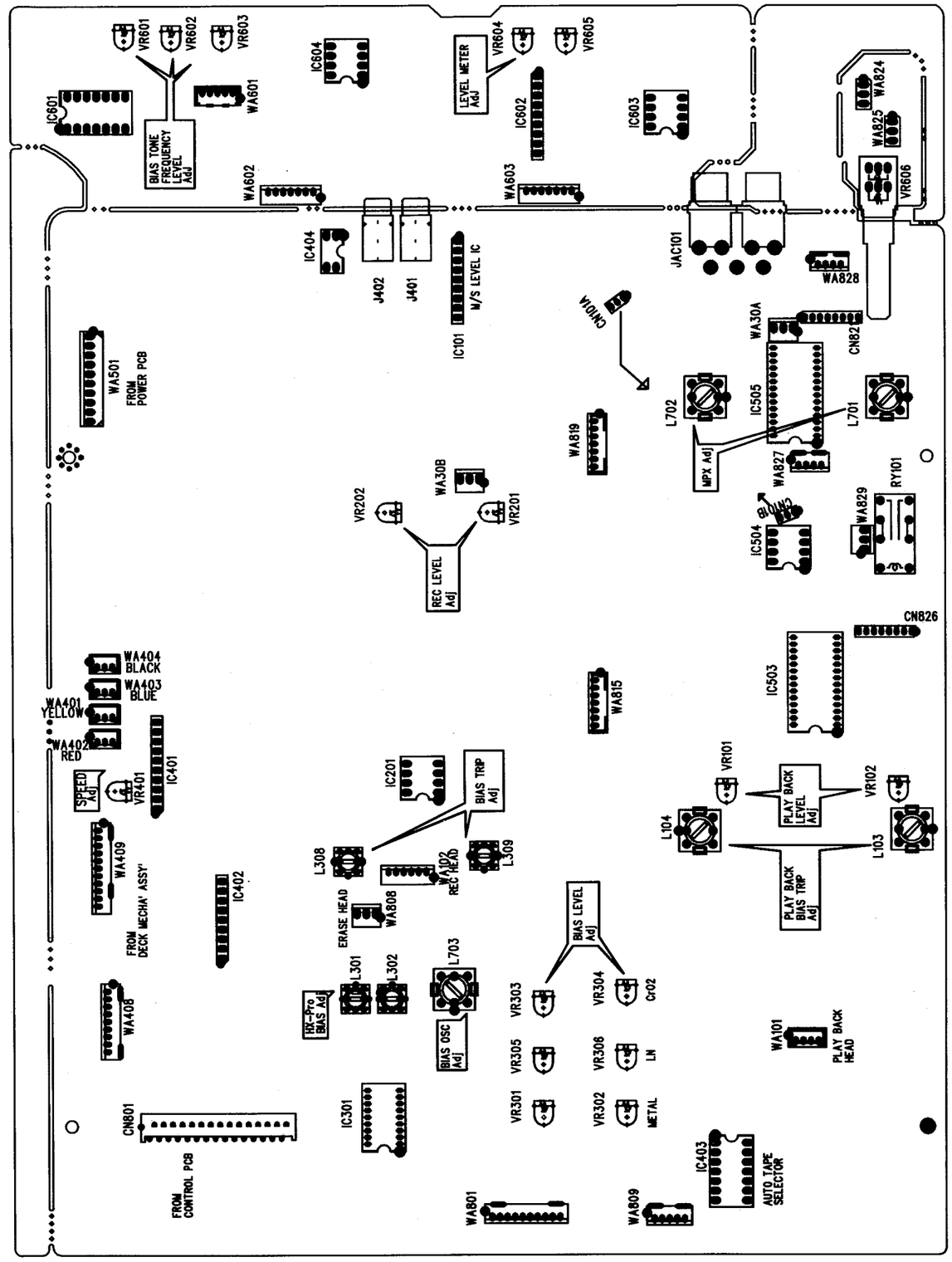


Fig.D

ALIGNMENT PROCEDURE



■ ELECTRICAL ADJUSTMENT AND CONFIRMATION

1. Before adjustment

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- After the power switch is pushed on, wait for 10 minutes before measuring to be sure of the most stable operation.
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- Oscilloscope
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- Frequency counter
- Distortion meter

3. Test tapes

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- Tape speed adjustment·····MTT-111DN OR TCC-112
- Playback output level adjustment
  ·····TCC-130 or MTT-150
- Playback frequency characteristic confirmation
  ····· TCC-162B and TCC-262B
- Music search adjustment ·····SCC-1425
- Reference tapes

  LN·····AC224

  CrO_2 ·····AC513

  METAL ·····AC712

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

4. General conditions (unless otherwise noted)

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

Azimuth Adjustment

When the maximum level point of R channel does not equal that of 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 R channels to monaural. Adjust vertical and horizontal gain so that the waveform becomes 45 degrees.

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

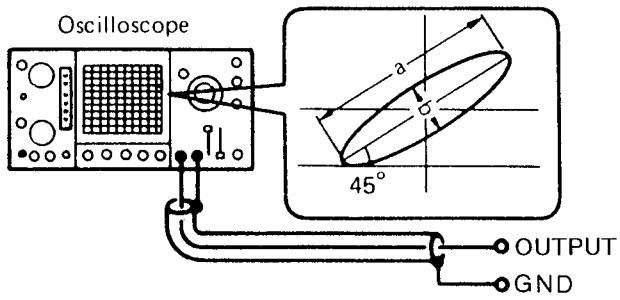


Fig.3

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

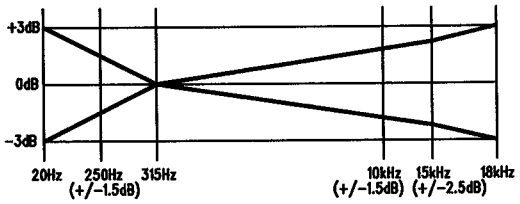


Fig.A

RECORD/PLAYBACK FREQUENCY CHARACTERISTIC
TEST TAPE : AC224, AC513, AC712
DOLBY NR : TYPE B ON

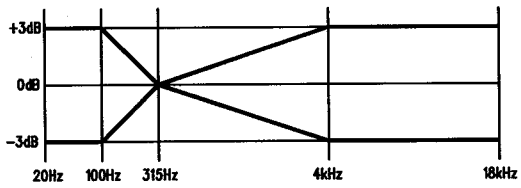


Fig.C

RECORD/PLAYBACK FREQUENCY CHARACTERISTIC
TEST TAPE : AC224, AC513, AC712
DOLBY NR : OFF

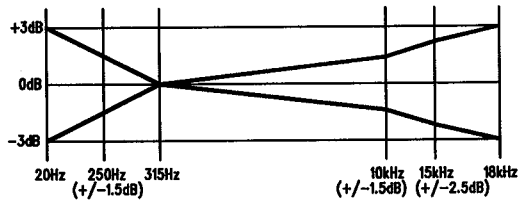


Fig.B

RECORD/PLAYBACK FREQUENCY CHARACTERISTIC
TEST TAPE : AC224, AC513, AC712
DOLBY NR : TYPE C ON

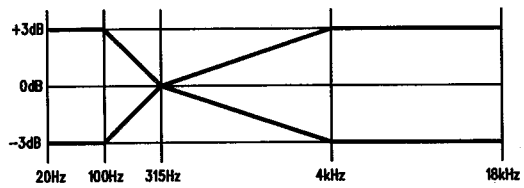
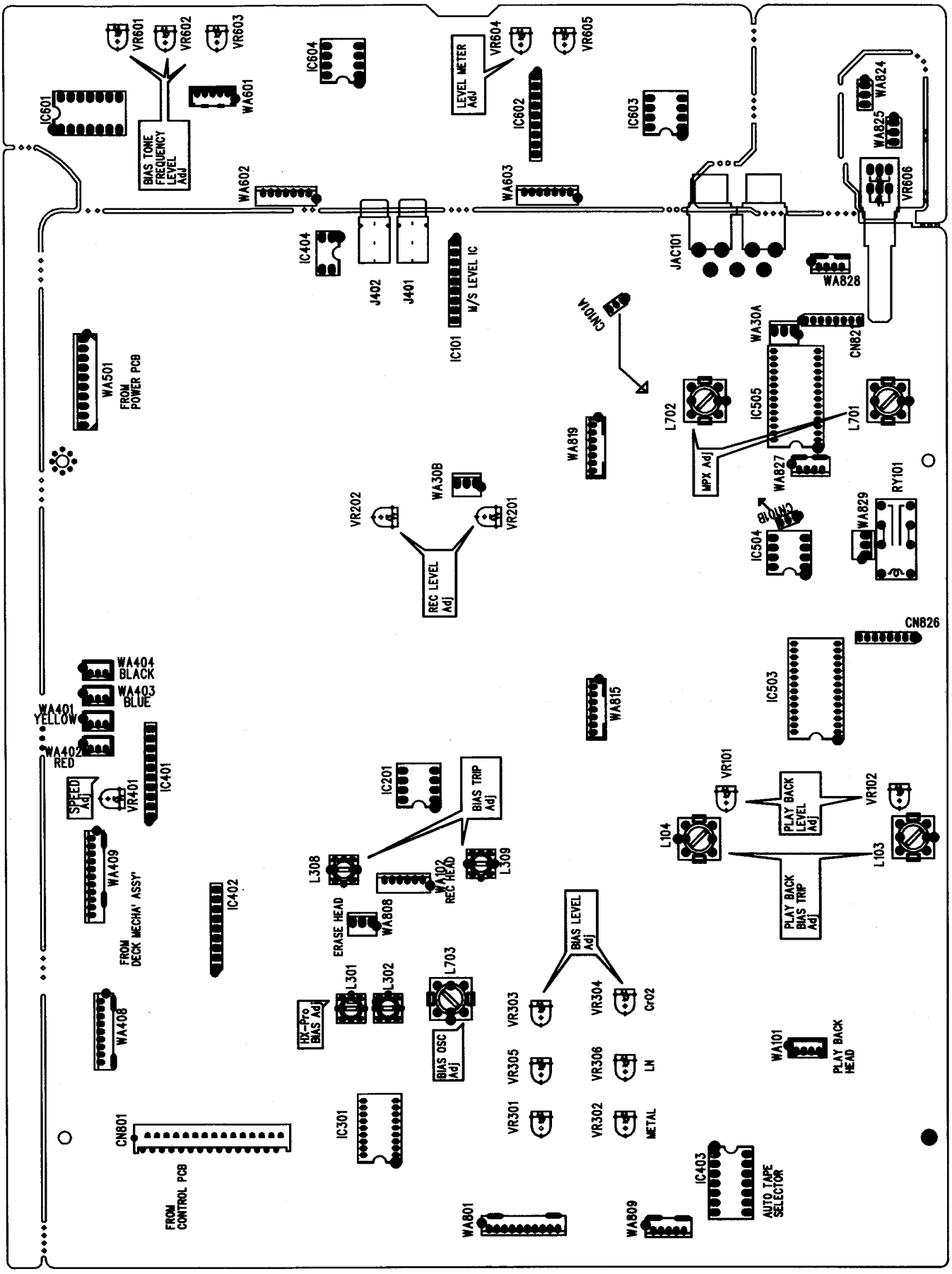


Fig.D

ALIGNMENT PROCEDURE



ALIGNMENT PROCEDURE

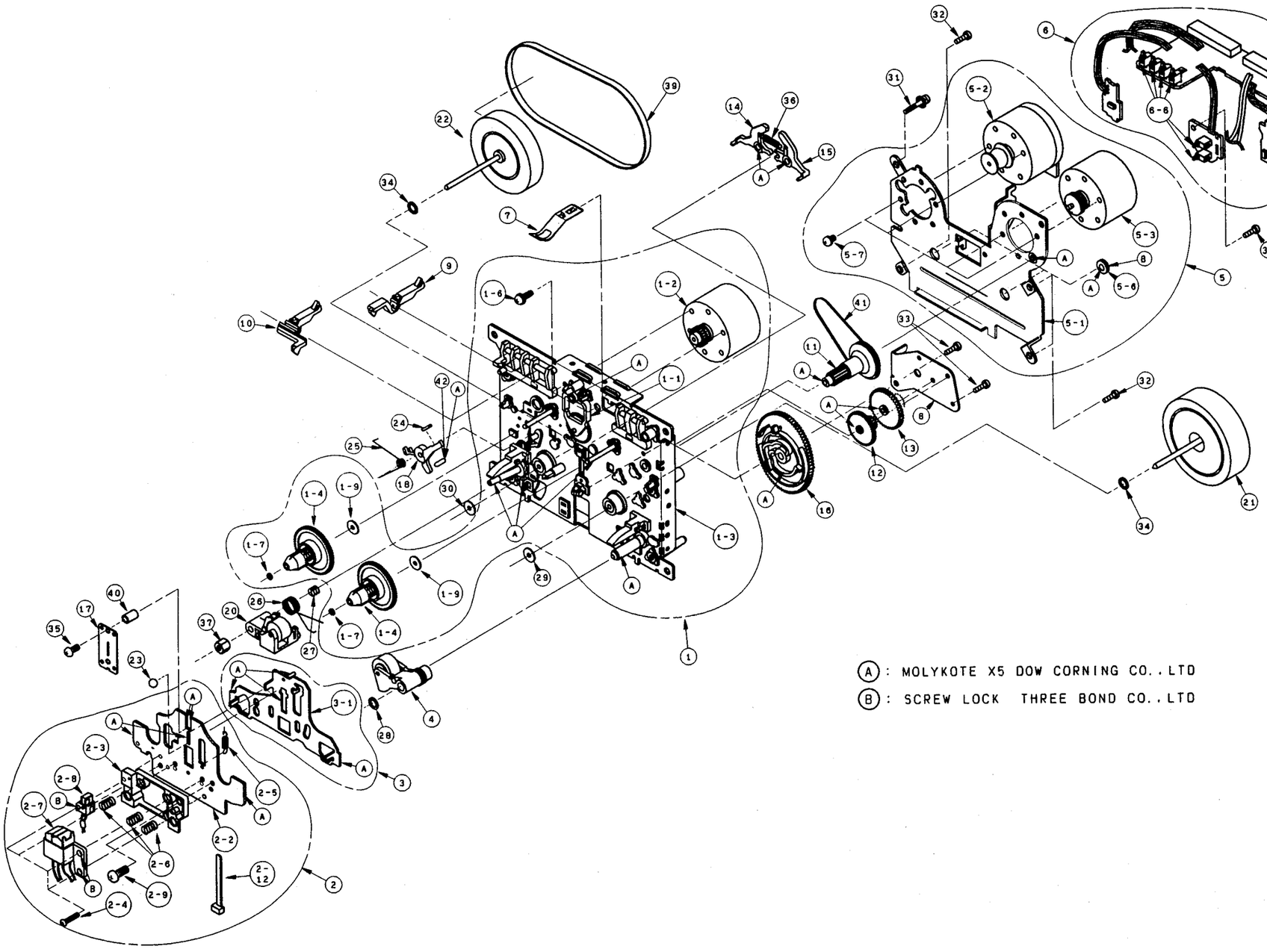
Step	Alignment	Instrument Required	Input Signal	Mode	Test point	Adjustment (on page 15)	For
1	Azimuth	VTVM, Oscilloscope Test tape (TCC-154)		PB	OUTPUT jack	Azimuth screw	Maximum output Refer to "Azimuth Adjustment" on page
2	Tape speed	Frequency counter Test tape (TCC-112)		PB	OUTPUT jack	VR401	3000Hz ±10Hz Adjust at the center of test tape.
3	Playback Output level	VTVM Test tape(TCC-130)		PB	IC503,11PIN(L-ch) 18PIN(R-ch)	VR101 (L-ch) VR102 (R-ch)	388mV
4	Playback frequency characteristic confirmation	VTVM, Test Tape (TCC-162B, TCC-262B)		PB	OUTPUT jack		So that the frequency response is within the range as shown in Fig. A.
5	Bias frequency confirmation	Frequency counter		REC	WA808	L703	105kHz± 1kHz Tape selector is METAL position 15.
6	Dolby HX PRO	VTVM		REC	WA808	L301, L302	Tape selector is METAL position. So that the bias level is maximum.
7	Bias trip	VTVM		REC	OUTPUT jack	L104 (L-ch) L103 (R-ch)	minimum output Tape selector is METAL position.
8-1	Bias level (pre-adjustment)	VTVM		REC	WA808	VR303, VR304	~ 8.93V, Tape selector is CrO_2 position.
8-2						VR301, VR302	~ 18.9V, Tape selector is METAL position.
8-3						VR305, VR306	~ 6.51V, Tape selector is LN position.
9	Record level (pre-adjustrnent)	VTVM Blank Tapes CrO_2 (AC-513) METAL (AC-712) LN (AC-224)	Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that Pin11, Pin18 (IC505) to GND voltage is 388mV in REC-PAUSE mode.	REC /PB	IC505,11PIN (L-ch) 18PIN (R-ch)		388mV Tape selector is CrO_2 position. Adjust VR303 and VR304 so that the distortion becomes 1.0%
							Adjust VR303 and VR304 so that the distortion becomes 1.0% Adjust VR303 and VR304 so that the distortion becomes 1.0% This confirmation should be at each tape selector position.
10-1	Record/Playback equalizer frequency characteristic	VTVM Blank Tapes CrO_2 (AC-513) METAL (AC-712) LN (AC-224)	Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that Pin11, Pin18 (IC505) to GND voltage is below 388mV in REC-PAUSE mode. Then adjust with a 20Hz to 30kHz sweep signal.	REC /PB	OUTPUT jack		So that the record/playback frequency response is flat (at least within the range in Fig. B). Tape selector is CrO_2 position.
10-2							So that the record/playback frequency response is flat (at least within the range in Fig. B). Tape selector is METAL position.
10-3							So that the record/playback frequency response is flat (at least within the range in Fig. B). Tape selector is LN position.
11	Record level	Blank Tapes CrO_2 (AC-513) METAL (AC-712) LN (AC-224)	Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that Pin11, Pin18 (IC505) to GND voltage is 388mV in REC-PAUSE mode.	REC /PB	IC505,11PIN (L-ch) 18PIN(R-ch)	VR201, VR202	388mV Perform adjustment using CrO_2. Perform checking only for LN and METAL tapes.
12	Record/Playback equalizer frequency characteristic confirmation	Blank Tapes CrO_2 (AC-513) METAL (AC-712) LN (AC-224)	Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that Pin11, Pin18 (IC505) to GND voltage is below 388mV in REC-PAUSE mode. Then adjust with a 20Hz to 30kHz sweep signal.	REC /PB	OUTPUT jack		Perform checking with DolbyB, C and S NR ON at each tape selector position. Confirm the record/playback frequency characteristic is within ±3dB at 20Hz to 19kHz.
13	Meter level	VTVM	Apply 1kHz signal to INPUT LEVEL Knob so that Pin11, Pin18 (IC505) to GND voltage is 1.5dB below 388mV.	REC/ PAUSE	PEAK LEVEL METER	VR604, VR605	Adjust VR604 and VR605 so that the peak level meter reads: -1dB.
14	MPX filter characteristic confimation	VTVM	Apply 19kHz, 15kHz and 1kHz signal to INPUT LEVEL Knob so that Pin11, Pin18 (IC505) to GND Voltage is 388mV.	REC/ PAUSE	IC505,11PIN (L-ch) 18PIN(R-ch)	L701, L702	MPX filter is ON position. Confirm the attenuation level at 15kHz and 19kHz within specification.
15	Rec cal tone	VTVM	Apply 1kHz signal to INPUT LEVEL knob so that Pin11, Pin18 (IC505) to GND voltage is 388mV in REC-PAUSE mode.	REC/ PAUSE	IC505,11PIN (L-ch) 18PIN(R-ch)	VR603	When press and hold the REC CAL, adjust VR603 so that the output level of Pin11, Pin18(IC505) is 388mV.
16	Bias tone	VTVM	Apply 1kHz signal to INPUT LEVEL knob so that Pin11, Pin18 (IC505) to GND voltage is 388mV-20dB in REC-PAUSE mode.	REC/ PAUSE	IC505,11PIN (L-ch) 18PIN(R-ch)	VR602	When press and hold the REC CAL, adjust VR602 so that the output level of Pin11, Pin18(IC505) is 388mV.
			Apply 1kHz signal to INPUT LEVEL knob so that Pin11, Pin18 (IC505) to GND voltage is 388mV-20dB in REC-PAUSE mode.		IC505,11PIN (L-ch) 18PIN(R-ch)	VR601	When press and hold the REC CAL, adjust VR601 so that the output level of Pin11, Pin18(IC505) is 388mV.

ALIGNMENT PROCEDURE

Step	Allgnment	Instrument Required	Input Signal	Mode	
1	Azimuth	VTVM, Oscilloscope Test tape (TCC-154)		PB	OU jac
2	Tape speed	Frequency counter Test tape (TCC-112)		PB	OU jac
3	Playback Output level	VTVM Test tape(TCC-130)		PB	IC
4	Playback frequency characteristic confirmation	VTVM, Test Tape (TCC-162B, TCC-262B)		PB	OU jac
5	Bias frequency confirmation	Frequency counter		REC	W
6	Dolby HX PRO	VTVM		REC	W
7	Bias trip	VTVM		REC	OU jac
8 (1, 2, 3)	Bias level (pre-adjustment)	VTVM		REC	W
9	Record level (pre-adjustrnent)	VTVM Blank Tapes CrO_2 (AC-513) METAL (AC-712) LN (AC-224)	Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that Pin11, Pin18 (IC505) to GND voltage is 388mV in REC-PAUSE mode.	REC /PB	IC
10 (1, 2, 3)	Record/Playback equalizer frequency characteristic	VTVM Blank Tapes CrO_2 (AC-513) METAL (AC-712) LN (AC-224)	Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that Pin11, Pin18 (IC505) to GND voltage is below 388mV in REC-PAUSE mode. Then adjust with a 20Hz to 30kHz sweep signal.	REC /PB	O ja
11	Record level	Blank Tapes CrO_2 (AC-513) METAL (AC-712) LN (AC-224)	Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that Pin11, Pin18 (IC505) to GND voltage is 388mV in REC-PAUSE mode.	REC /PB	IC
12	Record/Playback equalizer frequency characteristic confirmation	Blank Tapes CrO_2 (AC-513) METAL (AC-712) LN (AC-224)	Apply 1kHz signal to INPUT jack. Set INPUT LEVEL knob so that Pin11, Pin18 (IC505) to GND voltage is below 388mV in REC-PAUSE mode. Then adjust with a 20Hz to 30kHz sweep signal.	REC /PB	O ja
13	Meter level	VTVM	Apply 1kHz signal to INPUT LEVEL Knob so that Pin11, Pin18 (IC505) to GND voltage is 1.5dB below 388mV.	REC/ PAUSE	P
14	MPX filter characteristic confimation	VTVM	Apply 19kHz, 15kHz and 1kHz signal to INPUT LEVEL Knob so that Pin11, Pin18 (IC505) to GND Voltage is 388mV.	REC/ PAUSE	IC
15	Rec cal tone	VTVM	Apply 1kHz signal to INPUT LEVEL knob so that Pin11, Pin18 (IC505) to GND voltage is 388mV in REC-PAUSE mode.	REC/ PAUSE	IC
16	Bias tone	VTVM	Apply 1kHz signal to INPUT LEVEL knob so that Pin11, Pin18 (IC505) to GND voltage is 388mV-20dB in REC-PAUSE mode. Apply 1kHz signal to INPUT LEVEL knob so that Pin11, Pin18 (IC505) to GND voltage is 388mV-20dB in REC-PAUSE mode.	REC/ PAUSE	IC IC

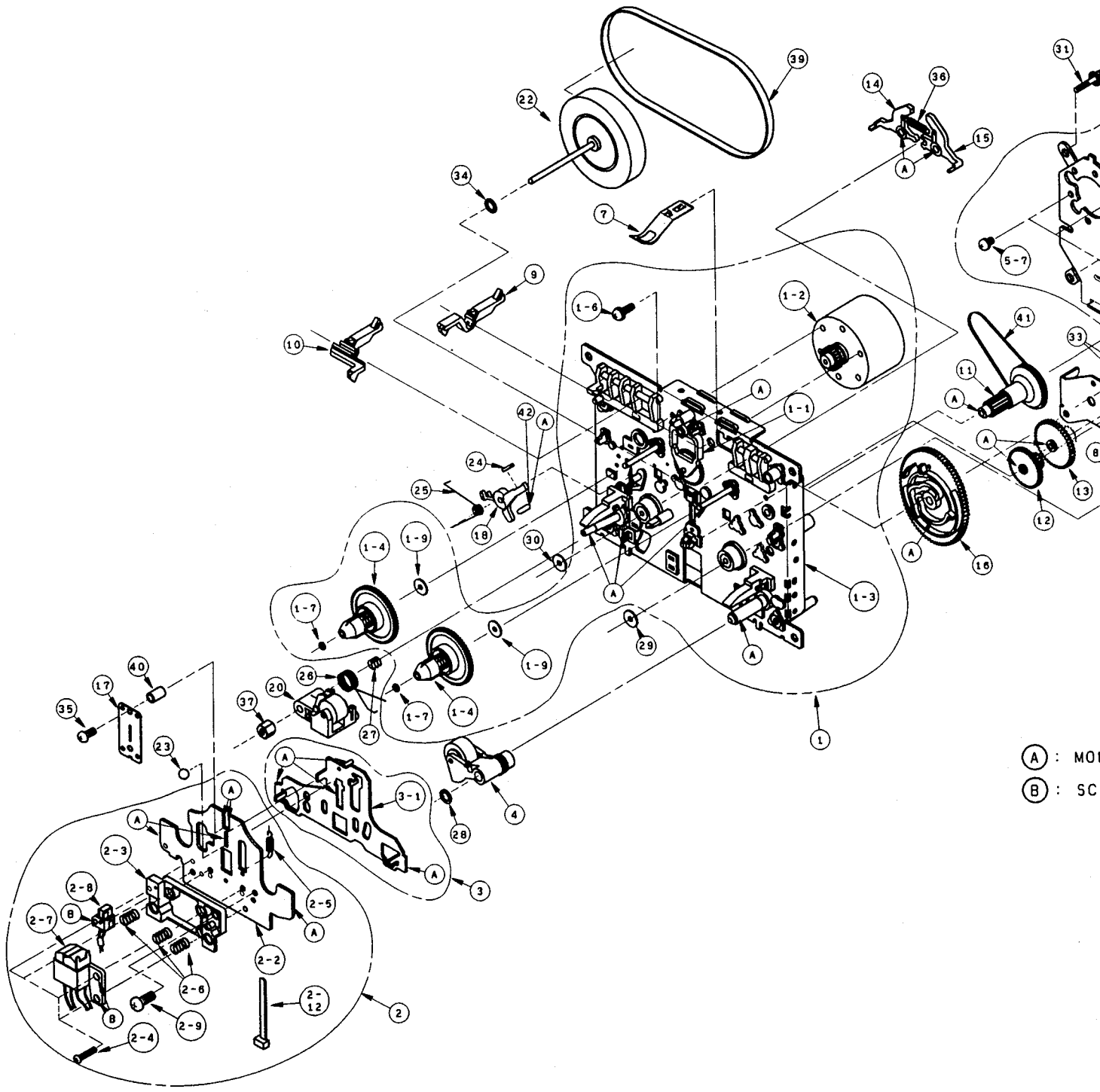
Mode	Test point	Adjustment { on page 15 }	For
PB	OUTPUT jack	Azimuth screw	Maximum output Refer to "Azimuth Adjustment" on page
PB	OUTPUT jack	VR401	3000Hz ±10Hz Adjust at the center of test tape.
PB	IC503,11PIN(L-ch) 18PIN(R-ch)	VR101 (L-ch) VR102 (R-ch)	388mV
PB	OUTPUT jack		So that the frequency response is within the range as shown in Fig. A.
REC	WA808	L703	105kHz± 1kHz Tape selector is METAL position 15.
REC	WA808	L301, L302	Tape selector is METAL position. So that the bias level is maximum.
REC	OUTPUT jack	L104 (L-ch) L103 (R-ch)	minimum output Tape selector is METAL position.
REC	WA808	VR303, VR304	~ 8.93V, Tape selector is CrO_2 position.
		VR301, VR302	~ 18.9V, Tape selector is METAL position.
		VR305, VR306	~ 6.51V, Tape selector is LN position.
REC /PB	IC505,11PIN (L-ch) 18PIN (R-ch)		388mV Tape selector is CrO_2 position. Adjust VR303 and VR304 so that the distortion becomes 1.0%
			Adjust VR303 and VR304 so that the distortion becomes 1.0% Adjust VR303 and VR304 so that the distortion becomes 1.0% This confirmation should be at each tape selector position.
REC /PB	OUTPUT jack		So that the record/playback frequency response is flat (at least within the range in Fig. B). Tape selector is CrO_2 position.
			So that the record/playback frequency response is flat (at least within the range in Fig. B). Tape selector is METAL position.
			So that the record/playback frequency response is flat (at least within the range in Fig. B). Tape selector is LN position.
REC /PB	IC505,11PIN (L-ch) 18PIN(R-ch)	VR201, VR202	388mV Perform adjustment using CrO_2. Perform checking only for LN and METAL tapes.
REC /PB	OUTPUT jack		Perform checking with DolbyB, C and S NR ON at each tape selector position. Confirm the record/playback frequency characteristic is within ±3dB at 20Hz to 19kHz.
REC/ PAUSE	PEAK LEVEL METER	VR604, VR605	Adjust VR604 and VR605 so that the peak level meter reads: -1dB.
REC/ PAUSE	IC505,11PIN (L-ch) 18PIN(R-ch)	L701, L702	MPX filter is ON position. Confirm the attenuation level at 15kHz and 19kHz within specification.
REC/ PAUSE	IC505,11PIN (L-ch) 18PIN(R-ch)	VR603	When press and hold the REC CAL, adjust VR603 so that the output level of Pin11, Pin18(IC505) is 388mV.
REC/ PAUSE	IC505,11PIN (L-ch) 18PIN(R-ch)	VR602	When press and hold the REC CAL, adjust VR602 so that the output level of Pin11, Pin18(IC505) is 388mV.
	IC505,11PIN (L-ch) 18PIN(R-ch)	VR601	When press and hold the REC CAL, adjust VR601 so that the output level of Pin11, Pin18(IC505) is 388mV.

CASSETTE DECK MECHANICAL ASSEMBLY
EXPLODED VIEW

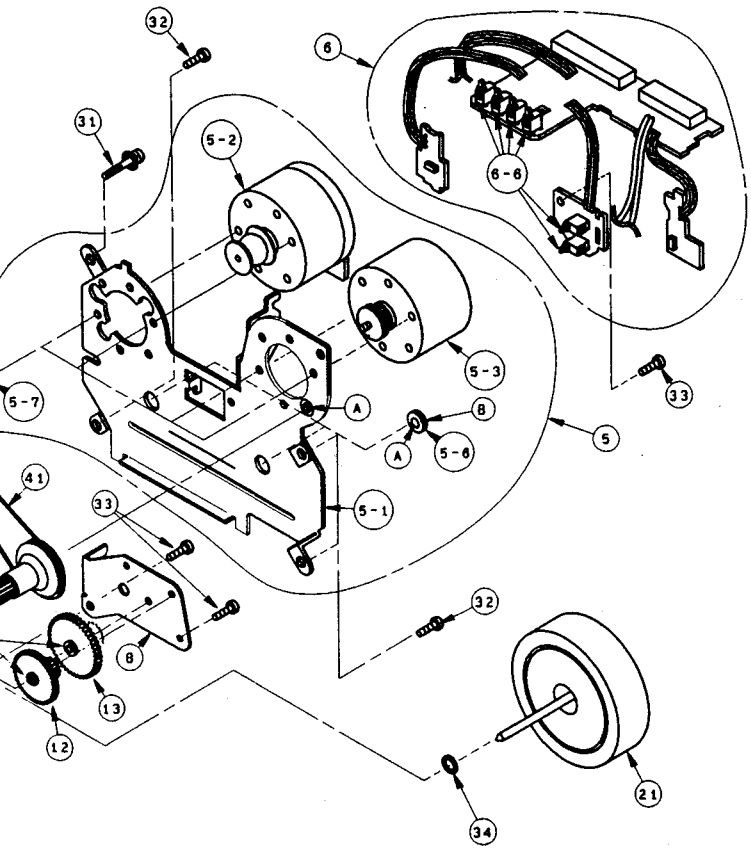


NO	PARTS NO.	NAME	Q.TY	OBJECT OF REPAIR PARTS	MIN ORDER UNIT	NOTE
1	F511-567	CHASSIS BLX	1			
1- 1	F517-053	IDLER BLK	1			
1- 2	F564-302	MTR REEL BLK	1	REPAIR	50	
1- 3	F612-174	CHASSIS BASE BLK	1			
1-,4	F623-076	REEL BASE BLK	2			
1- 6	UG14C-13	SCREW 2.6×10 ZN	2			
1- 7	FJ111-17	WASHER 1.7×0.25	2			
1- 9	UJ12V-11	W POLY 2.1×0.25	2			
2	F513-756	PLATE HD BLK	1	REPAIR	50	POLY SLIDER
2- 2	FC57D-14	HD BASE D	1			
2- 3	FD49L-14	HD SPACER D	1			
2- 4	FG140-26	2.0×8	4			SCREW
2- 5	FK30W-11	HD BASE SP	1			
2- 6	FK30Y-11	AZIMUTH SP H	3			
2- 7	FU19Y-12	H-2371-4105	1			
2- 8	FU19W-11	H3311-2102	1			
2- 9	KG194-29	TT 2.6×5 ZH	2			SCREW
3	F512-122	PLATE BASE BLK	1	REPAIR	50	
4	FR20L-22	PINCH ROLLER ASSY	1	REPAIR	50	
5	F525-313	MTE MAIN BLK	1	REPAIR	50	PINCH ROLLER
5- 1	FC57F-15	F/W BKT H	1			
5- 2	FW16B-11	MMI-6H2LWK	1			
5- 3	FW15C-11	MMN-6F4RB82	1			
5- 6	FM177-22	SCREW	2			
5- 7	UG11S-14	SW 2.6×3.5	4			SCREW
6	F567-467	PCB CONTROL BLK	1	REPAIR	50	
6- 6	UE16E-11	PUSH SWITCH	6			
			2			
7	FC52H-13	PON-SPRING	1			
8	FC57H-11	PCB BKT H	1			
9	FD44T-14	REC LEVER	3			
10	FD44V-12	LEVER	1			
11	FD48Y-21	GEAR A	1			
12	FD49A-11	GEAR B	1			
13	FD49B-11	GEAR C	1			
14	FD49C-11	BRAKE L	1			
15	FD49D-12	BRAKE R	1			
16	FD48W-12	CAM GEAR H	1			
17	FC57G-12	SPRING H	1			SPRING
18	FD49E-15	B.T ARM	1			
20	FR23F-11	ASSY PINCH ROLLER	1	REPAIR	100	PINCH ROLLER
21	FR230-21	ASSY F/W AH K	1			
22	FR23E-11	ASSY F/W S	1			
23	MM113-11	1/16 BALL	1			
24	FZLLY-12	FELT H	1			
25	FK31A-11	B.T SP	1			
26	FK26S-14	PINCH ROLLSP(L)	1			SPRING
27	FK26V-11	H ASSIST SP	1			H ASSIST SPRING
28	FJ123-22	3.5×0.25	1			POLY SLIDER
29	FJ141-11A	2.4×0.25	1			WASHER
30	FJ141-14A	2.15×0.25	1			WASHER
31	UG19G-11	M2.6×25 ZN	1			SCREW
32	UG12H-14	2.6×8 ZN	3			SCREW
33	UG12H-11	2.6×6 ZN	3			SCREW
34	FJ111-30	2.6×0.25	2			WASHER
35	UG22B-11	TT 2.0×7 ZH	1			SCREW
36	FK20R-21	SP	1			SPRING
37	UG20L-12	NET	1			
39	FF16M-31	BELT	1	REPAIR	100	
40	FL42C-11	SPACER	1			
41	FF18R-11	BELT	1	REPAIR	100	
42	FL42N-11	B.T ARM SHAFT				

CASSETTE DECK MECHANICAL ASSEMBLY
EXPLODED VIEW



F	G	H	I	J

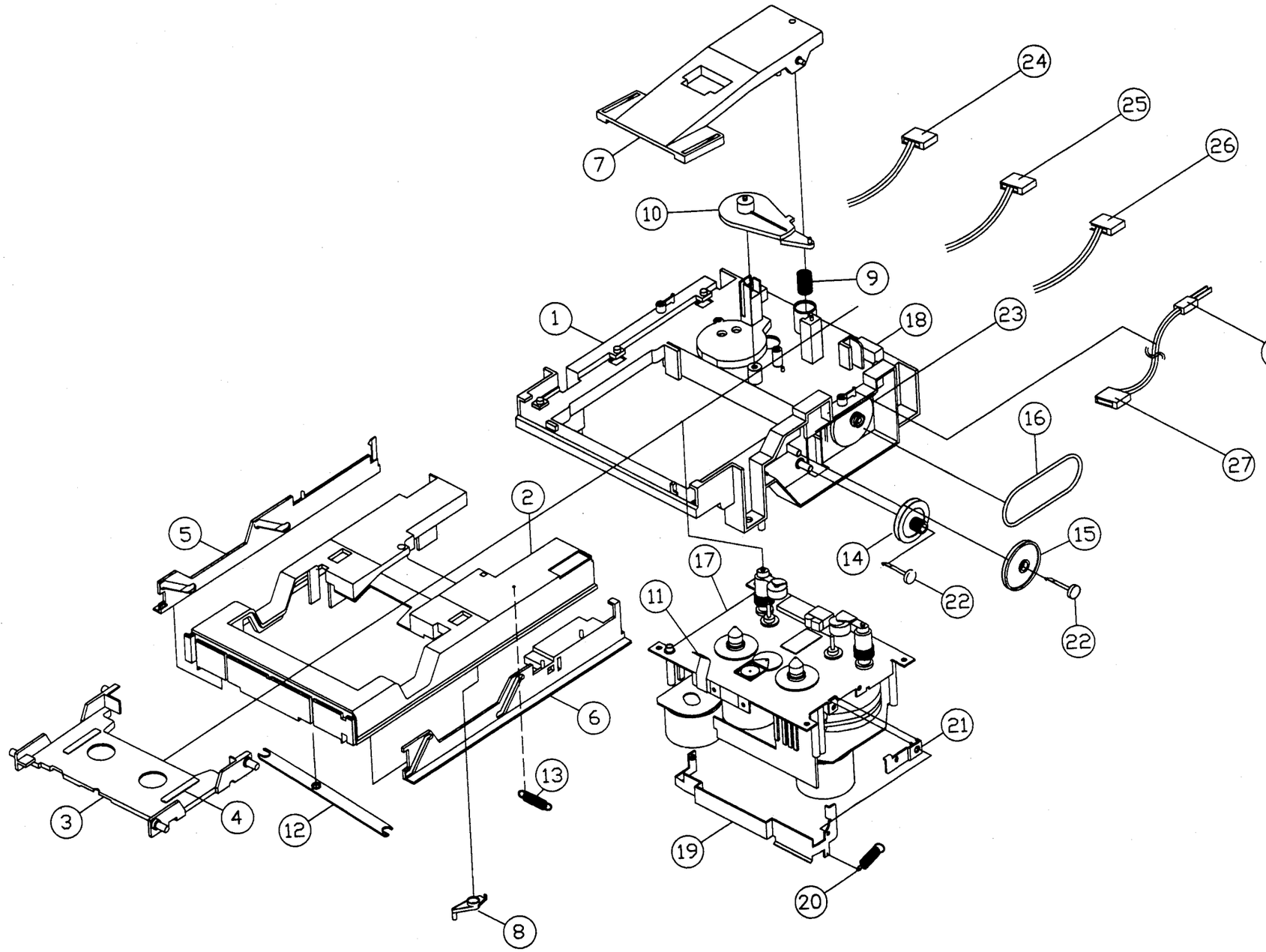


Ⓐ : MOLYKOTE X5 DOW CORNING CO.. LTD

Ⓑ : SCREW LOCK THREE BOND CO.. LTD

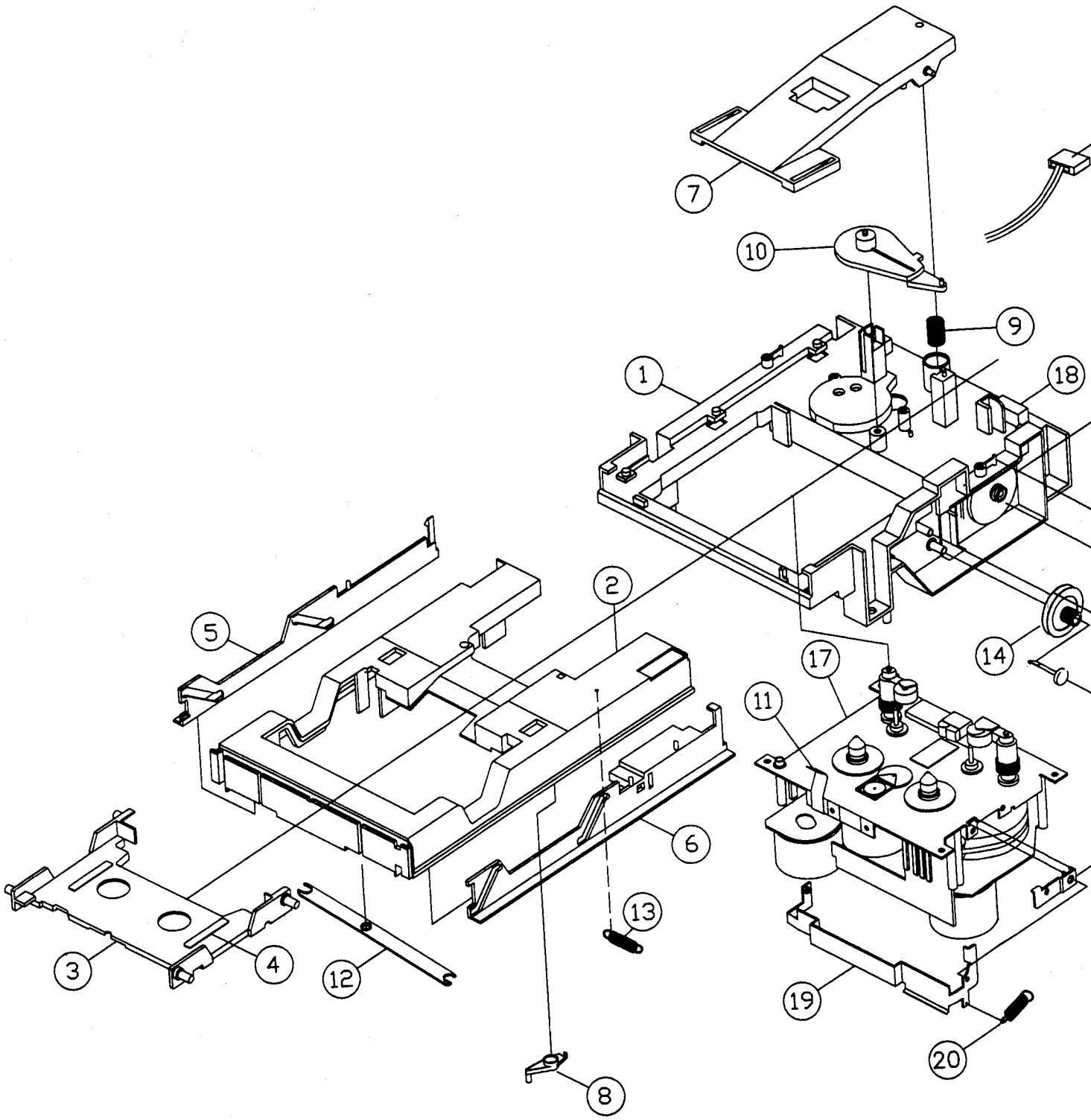
NO	PARTS NO.	NAME	Q.TY	OBJECT OF REPAIR PARTS	MIN ORDER UNIT	NOTE
1	F511-567	CHASSIS BLK	1			
1- 1	F517-053	IDLER BLK	1			
1- 2	F564-302	MTR REEL BLK	1	REPAIR	50	
1- 3	F612-174	CHASSIS BASE BLK	1			
1- 4	F623-076	REEL BASE BLK	2			
1- 6	UG14C-13	SCREW 2.6×10 ZN	2			
1- 7	FJ111-17	WASHER 1.7×0.25	2			
1- 9	UJ12V-11	W POLY 2.1×0.25	2			
2	F513-756	PLATE HD BLK	1	REPAIR	50	POLY SLIDER
2- 2	FC57D-14	HD BASE D	1			
2- 3	FD49L-14	HD SPACER D	1			
2- 4	FG140-26	2.0×8	4			SCREW
2- 5	FK30W-11	HD BASE SP	1			
2- 6	FK30Y-11	AZIMUTH SP H	3			
2- 7	FU19Y-12	H-2371-4105	1			
2- 8	FU19W-11	H3311-2102	1			
2- 9	KG194-29	TT 2.6×5 ZH	2			SCREW
3	F512-122	PLATE BASE BLK	1	REPAIR	50	
4	FR20L-22	PINCH ROLLER ASSY	1	REPAIR	50	
5	F525-313	MTE MAIN BLK	1	REPAIR	50	PINCH ROLLER
5- 1	FC57F-15	F/W BKT H	1			
5- 2	FW16B-11	MMI-6H2LWK	1			
5- 3	FW15C-11	MMN-6F4RB82	1			
5- 6	FM177-22	SCREW	2			
5- 7	UG11S-14	SW 2.6×3.5	4			SCREW
6	F567-467	PCB CONTROL BLK	1	REPAIR	50	
6- 6	UE16E-11	PUSH SWITCH	6			
			2			
7	FC52H-13	PON-SPRING	1			
8	FC57H-11	PCB BKT H	1			
9	FD44T-14	REC LEVER	3			
10	FD44V-12	LEVER	1			
11	FD48Y-21	GEAR A	1			
12	FD49A-11	GEAR B	1			
13	FD49B-11	GEAR C	1			
14	FD49C-11	BRAKE L	1			
15	FD49D-12	BRAKE R	1			
16	FD48W-12	CAM GEAR H	1			
17	FC57G-12	SPRING H	1			SPRING
18	FD49E-15	B.T ARM	1			
20	FR23F-11	ASSY PINCH ROLLER	1	REPAIR	100	PINCH ROLLER
21	FR230-21	ASSY F/W AH K	1			
22	FR23E-11	ASSY F/W S	1			
23	MM113-11	1/16 BALL	1			
24	FZLLY-12	FELT H	1			
25	FK31A-11	B.T SP	1			
26	FK26S-14	PINCH ROLLSP(L)	1			SPRING
27	FK26V-11	H ASSIST SP	1			H ASSIST SPRING
28	FJ123-22	3.5×0.25	1			POLY SLIDER
29	FJ141-11A	2.4×0.25	1			WASHER
30	FJ141-14A	2.15×0.25	1			WASHER
31	UG19G-11	M2.6×25 ZN	1			SCREW
32	UG12H-14	2.6×8 ZN	3			SCREW
33	UG12H-11	2.6×6 ZN	3			SCREW
34	FJ111-30	2.6×0.25	2			WASHER
35	UG22B-11	TT 2.0×7 ZH	1			SCREW
36	FK20R-21	SP	1			SPRING
37	UG20L-12	NET	1			
39	FF16M-31	BELT	1	REPAIR	100	
40	FL42C-11	SPACER	1			
41	FF18R-11	BELT	1	REPAIR	100	
42	FL42N-11	B.T ARM SHAFT				

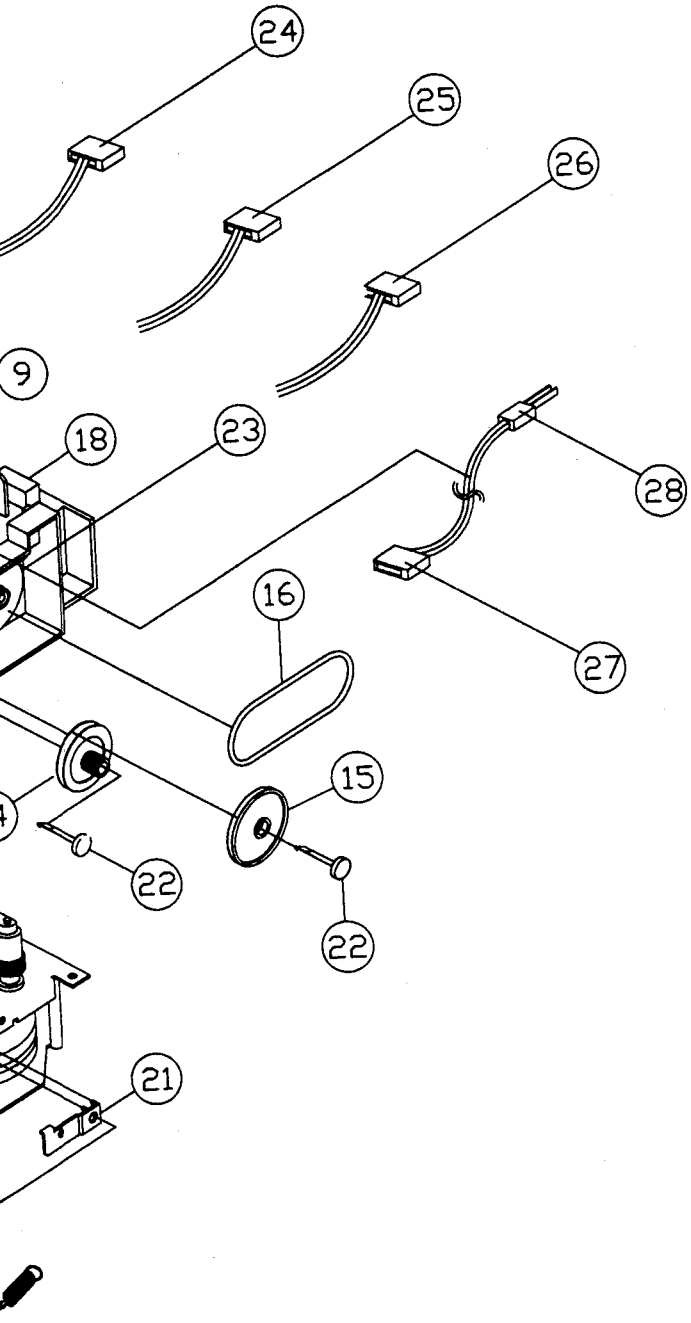
EXPLODED VIEW OF THE CASSETTE



NO.	PARTS NAME	PARTS NO.	MATERIAL	Q'TY
1	BASE MECHANISM	3-324-126-01	ABS BLACK	1
2	TRAY DECK	3-324-127-02	ABS BLACK	1
3	TAPE GUIDER	3-324-128-01	ABS GRAY	1
4	FELT TAPE	3-324-129-01	FELT	2
5	GUIDER (L), SIDE	3-324-130-01	ABS BLACK	1
6	GUIDER (R), SIDE	3-324-131-01	ABS BLACK	1
7	HOLDER TRAY	3-617-412-01	ABS(BLACK)+GE 10%	1
8	CAM HOLDER TRAY	3-324-133-01	POM (WHITE)	1
9	SPRING HOLDER	3-324-134-01	SUS304WPB PI0.2 TCS	1
10	STOPPER RACK	3-324-135-01	POM (WHITE)	1
11	SPRING CASSETTE	3-331-901-01-1	MM-100LM DENON	1
12	BRK'T SLIDE	3-324-137-01	SECC T1.2	1
13	SPRING STOPPER	3-324-136-01	SUS304WPB, PI0.2 TCS	1
14	GEAR PULLEY	3-324-139-01	POM (WHITE)	1
15	GEAR DUAL	3-324-141-01	POM (WHITE)	1
16	BELT D-MECHA'	3-324-142-01	CR	1
17	DECK MECHA ASS'Y	2-216-207-01	CMAH3Z ALPS	1
18	MICRO SW	2-198-153-01-1	MLS-1AU SHINMEI	2
19	BRK'T ASS'Y. D-MECHA	A-328-153-01	ASS'Y	1
20	SPRING . MECHA	3-324-143-02	SUS304WPB P10.4, L=20.4	1
21	BRK'T (B)	3-328-109-01	SECC T1.0	1
22	RIVET LOCKING	3-324-149-01	POM (WHITE)	2
23	MOTOR	2-148-161-01	MATSUSHITA MMN-6E6RC8P	1
24	CONNECTOT ASS'Y	2-159-7F2-01	RED	1
25	CONNECTOT ASS'Y	2-159-7F0-01	2P 200M/M BLACK	1
26	CONNECTOT ASS'Y	2-159-7E9-01	2P 200M/M BLUE	1
27	CONNECTOT ASS'Y	2-159-7F1-01	2P 300M/M YELLOW	1
28	LEAF SWITCH	2-196-997-01-1	LSA-119J 20V 1A	1

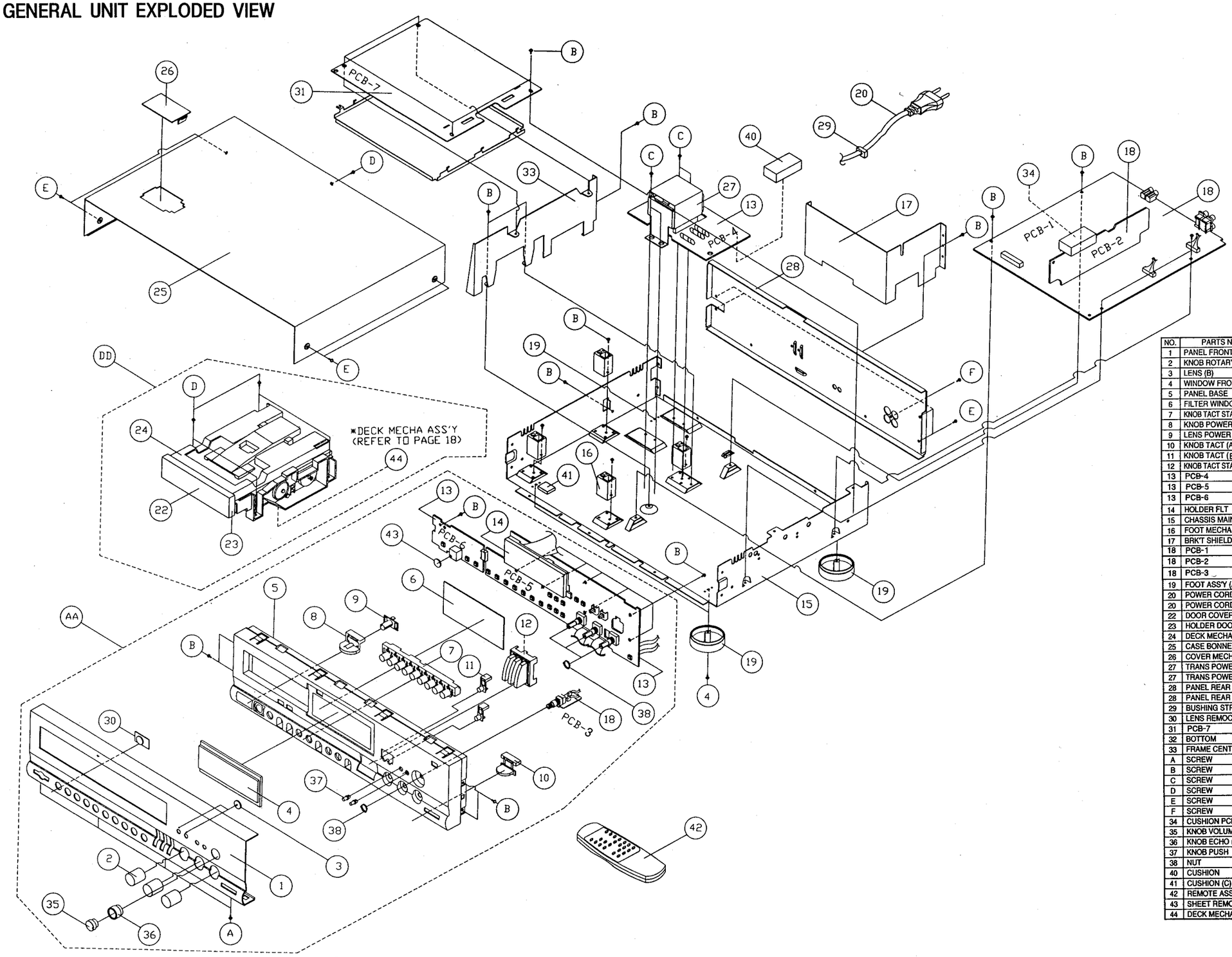
EXPLODED VIEW OF THE CASSETTE





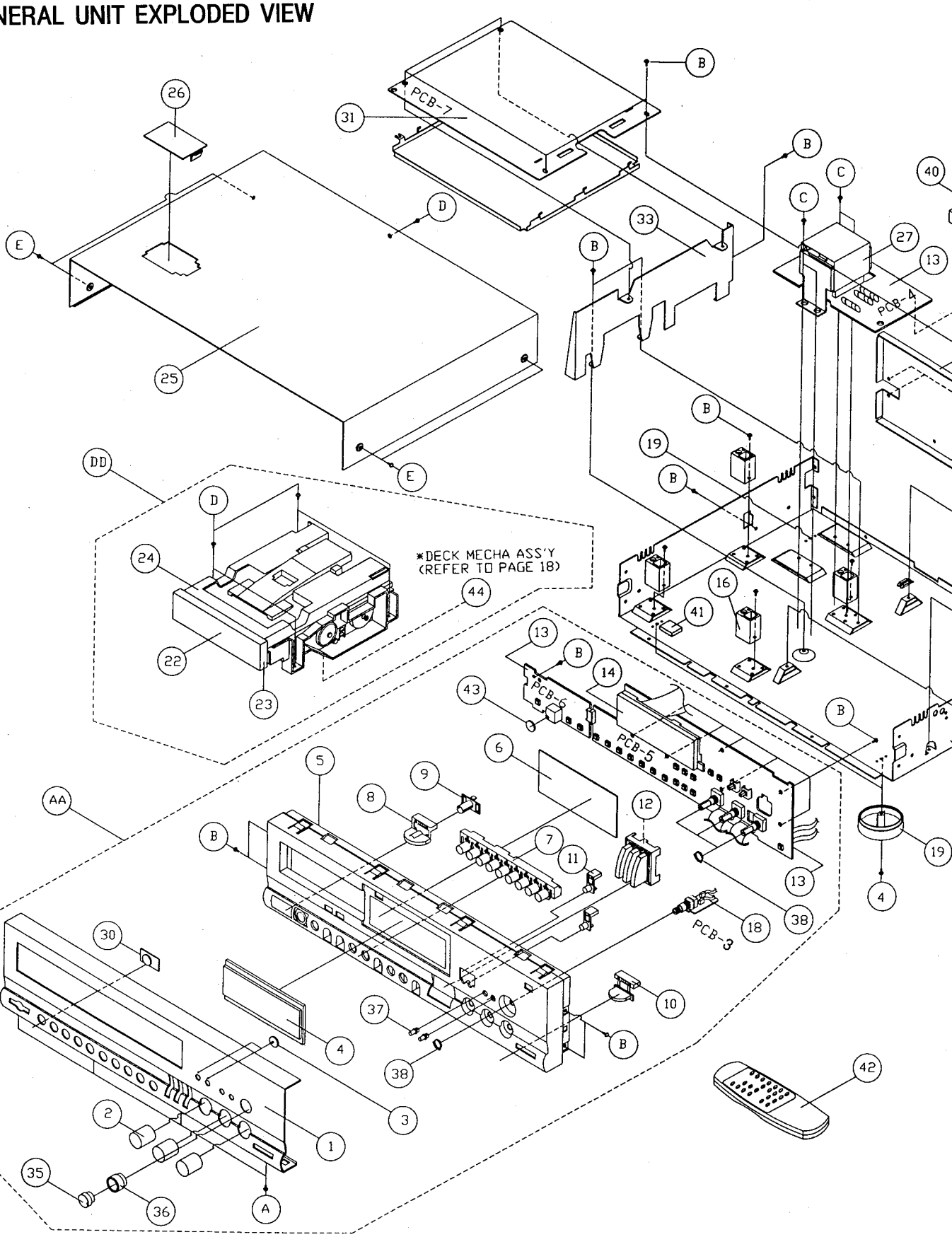
NO.	PARTS NAME	PARTS NO.	MATERIAL	Q'TY
1	BASE MECHANISM	3-324-126-01	ABS BLACK	1
2	TRAY DECK	3-324-127-02	ABS BLACK	1
3	TAPE GUIDER	3-324-128-01	ABS GRAY	1
4	FELT TAPE	3-324-129-01	FELT	2
5	GUIDER (L), SIDE	3-324-130-01	ABS BLACK	1
6	GUIDER (R), SIDE	3-324-131-01	ABS BLACK	1
7	HOLDER TRAY	3-617-412-01	ABS(BLACK)+GE 10%	1
8	CAM HOLDER TRAY	3-324-133-01	POM (WHITE)	1
9	SPRING HOLDER	3-324-134-01	SUS304WPB P10.2 TCS	1
10	STOPPER RACK	3-324-135-01	POM (WHITE)	1
11	SPRING CASSETTE	3-331-901-01-1	MM-100LM DENON	1
12	BRK'T SLIDE	3-324-137-01	SECC T1.2	1
13	SPRING STOPPER	3-324-136-01	SUS304WPB, P10.2 TCS	1
14	GEAR PULLEY	3-324-139-01	POM (WHITE)	1
15	GEAR DUAL	3-324-141-01	POM (WHITE)	1
16	BELT D-MECHA'	3-324-142-01	CR	1
17	DECK MECHA ASS'Y	2-216-207-01	CMAH3Z ALPS	1
18	MICRO SW	2-198-153-01-1	MLS-1AU SHINMEI	2
19	BRK'T ASS'Y. D-MECHA	A-328-153-01	ASS'Y	1
20	SPRING . MECHA	3-324-143-02	SUS304WPB P10.4, L=20.4	1
21	BRK'T (B)	3-328-109-01	SECC T1.0	1
22	RIVET LOCKING	3-324-149-01	POM (WHITE)	2
23	MOTOR	2-148-161-01	MATSUSHITA MMN-6E6RC8P	1
24	CONNECTOT ASS'Y	2-159-7F2-01	RED	1
25	CONNECTOT ASS'Y	2-159-7F0-01	2P 200M/M BLACK	1
26	CONNECTOT ASS'Y	2-159-7E9-01	2P 200M/M BLUE	1
27	CONNECTOT ASS'Y	2-159-7F1-01	2P 300M/M YELLOW	1
28	LEAF SWITCH	2-196-997-01-1	LSA-119J 20V 1A	1

GENERAL UNIT EXPLODED VIEW

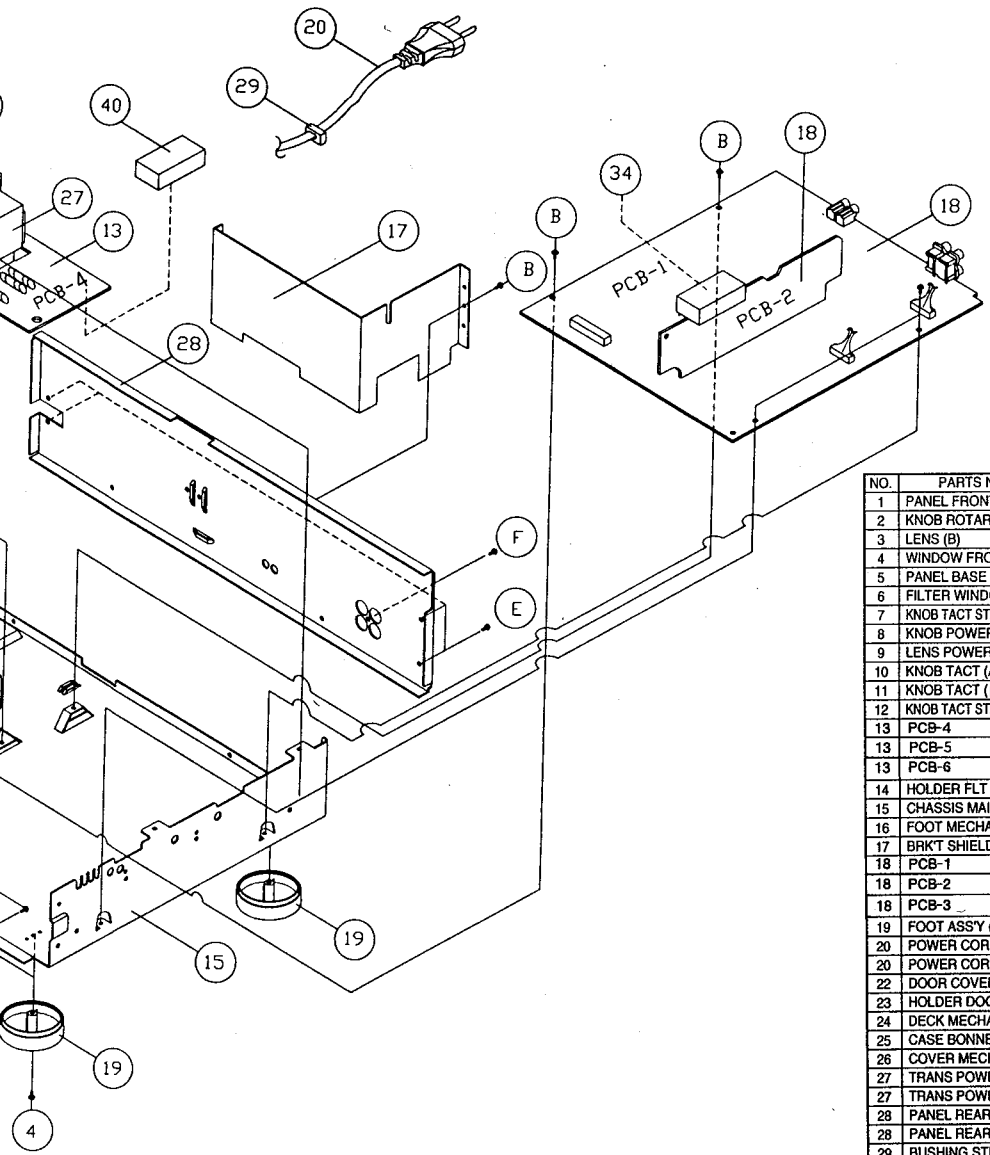


NO.	PARTS NAME	PARTS NO.	MATERIAL	REMARK	Q'TY
1	PANEL FRONT	3-328-101-04	A6063-T5(AL)	A, B	1
2	KNOB ROTARY	3-328-010-01	ABS	A, B	3
3	LENS (B)	3-320-610-01	PMMA 60N	A, B	2
4	WINDOW FRONT	3-327-004-01	ACRYL	A, B	1
5	PANEL BASE	3-327-003-16	ABS	A, B	1
6	FILTER WINDOW	3-328-107-01	PVC t0.5	A, B	1
7	KNOB TACT STATION(A)	3-327-008-22	ABS	A, B	1
8	KNOB POWER	3-327-005-11	ABS	A, B	1
9	LENS POWER	3-327-006-01	K-RESIN	A, B	1
10	KNOB TACT (A)	3-327-011-11	ABS	A, B	1
11	KNOB TACT (B)	3-327-007-11	ABS	A, B	1
12	KNOB TACT STATION(B)	3-327-009-11	ABS	A, B	2
13	PCB-4	2-170-956-11	POWER P.C BOARD	A, B	1
13	PCB-5	2-170-956-01	CONTROL P.C BOARD	A, B	1
13	PCB-6	2-170-956-11	REMOTE P.C BOARD	A, B	1
14	HOLDER FLT	3-327-015-02	ABS 730	A, B	1
15	CHASSIS MAIN	3-327-021-02	SECC t1.0	A, B	1
16	FOOT MECHA	3-327-016-01	ABS	A, B	1
17	BRK'T SHIELD	3-327-019-01	SECC t1.0	A, B	4
18	PCB-1	2-170-955-01	MAIN P.C BOARD	A, B	1
18	PCB-2	2-170-955-11	REC CAL OSC P.C BOARD	A, B	1
18	PCB-3	2-170-955-21	REC CAL VOLUME P.C BOARD	A, B	1
19	FOOT ASS'Y (A)	3-327-017-01	ABS+TPR GOLD	A, B	1
20	POWER CORD	2-211-138-01	TD-470/GXAG	A	1 IB
20	POWER CORD	2-211-139-01	TD-470/KYAG	B	1 BK
22	DOOR COVER	3-327-013-01	A6063-T5(AL)	A, B	1
23	HOLDER DOOR	3-327-014-01	ABS	A, B	1
24	DECK MECHA ASS'Y	A-328-113-01	ALPS MECHA+ LOADING	A, B	1
25	CASE BONNET	3-327-023-01	SECC t0.6+PVC t0.2	A, B	1
26	COVER MECHA	3-327-027-01	ABS	A, B	1
27	TRANS POWER	2-131-567-01	TD-470/GXAG	A	1 IB
27	TRANS POWER	2-131-568-01	TD-470/KYAG	B	1 BK
28	PANEL REAR	3-328-102-01	SECC t0.8 (TD-470/GXAG)	A	1
28	PANEL REAR	3-328-202-01	SECC t0.8 (TD-470/KYAG)	B	1
29	BUSHING STRAIN R	8-201-120-01	NYLON 66	A, B	1
30	LENS REMOCON	3-327-905-01	ACRYL	A, B	1
31	PCB-7	2-170-912-01	DOLBY S P.C BOARD	A, B	1
32	BOTTOM	3-328-106-01	SPTE t0.4	A, B	1
33	FRAME CENTER	3-328-105-01	SECC t0.1	A, B	1
A	SCREW	7-999-171-01	PBT 30 PO 60 FZK	A, B	4
B	SCREW	7-764-408-01	VBZ 30 PO 80 FZK	A, B	30
C	SCREW	7-768-406-01	VBZ 40 PO 60 FZK	A, B	4
D	SCREW	7-768-408-01	VBZ 40 PO 80 FZK	A, B	4
E	SCREW	7-348-408-01	ATZ 40 PO 80 FZK	A, B	4
F	SCREW	7-764-410-01	VBZ 30 PO 100 FZK	A, B	1
34	CUSHION PCB	3-327-038-01	SBR 50×25×14(M/M)	A, B	1
35	KNOB VOLUME	3-328-209-01	ABS	A, B	1
36	KNOB ECHO (B)	3-328-210-01	ABS	A, B	1
37	KNOB PUSH	3-328-208-01	ABS	A, B	2
38	NUT	7-116-070-02		A, B	4
40	CUSHION	7-711-606-01	EVA	A, B	1
41	CUSHION (C)	3-616-422-01	EVA	A, B	1
42	REMOTE ASS'Y	A-327-9C0-01		A, B	1
43	SHEET REMOCON	3-224-306-01	PCV T0.5	A, B	1
44	DECK MECHA ASS'Y	2-216-207-01	CMAH3Z	A, B	1

GENERAL UNIT EXPLODED VIEW



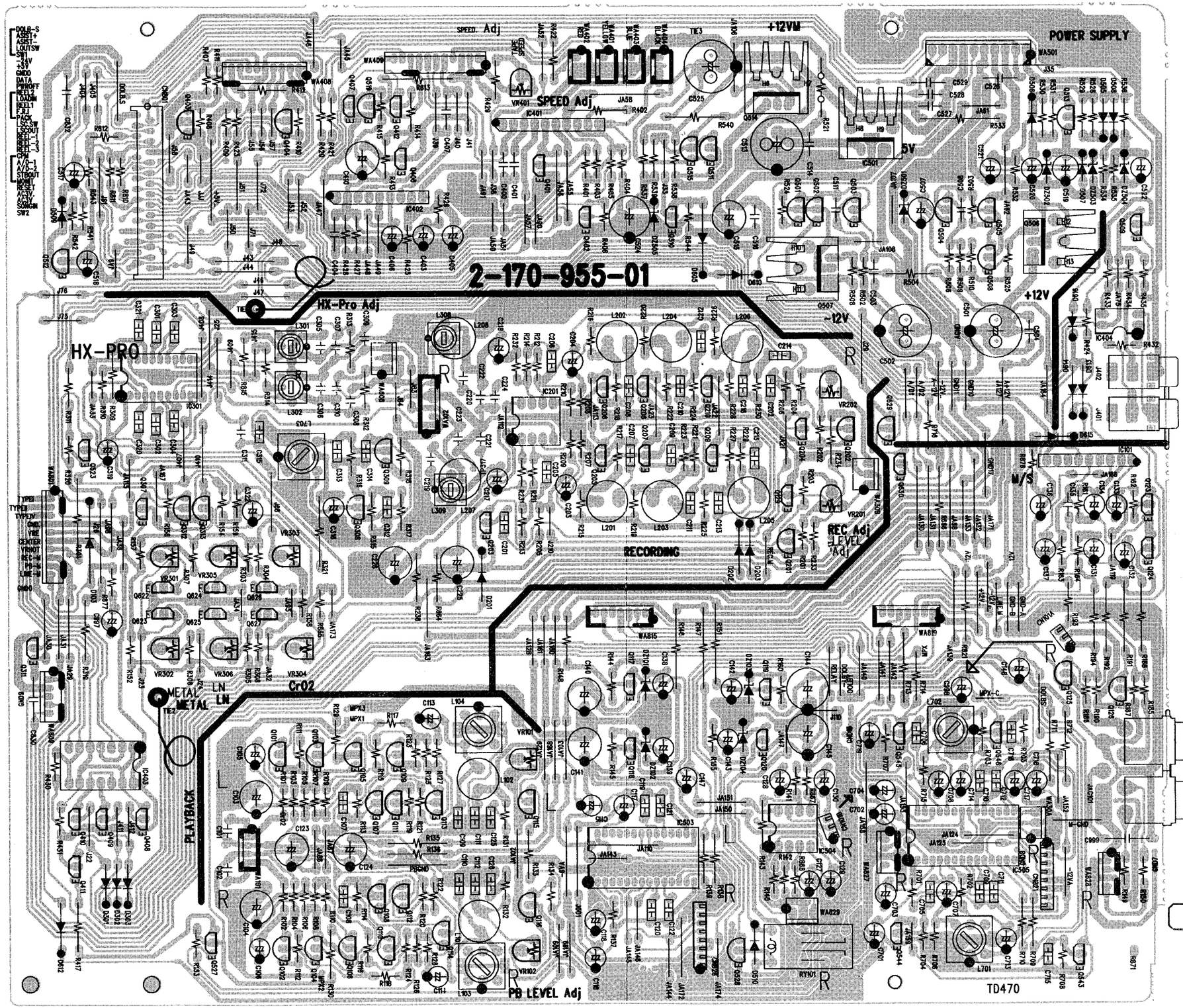
	F	G	H	I	J	



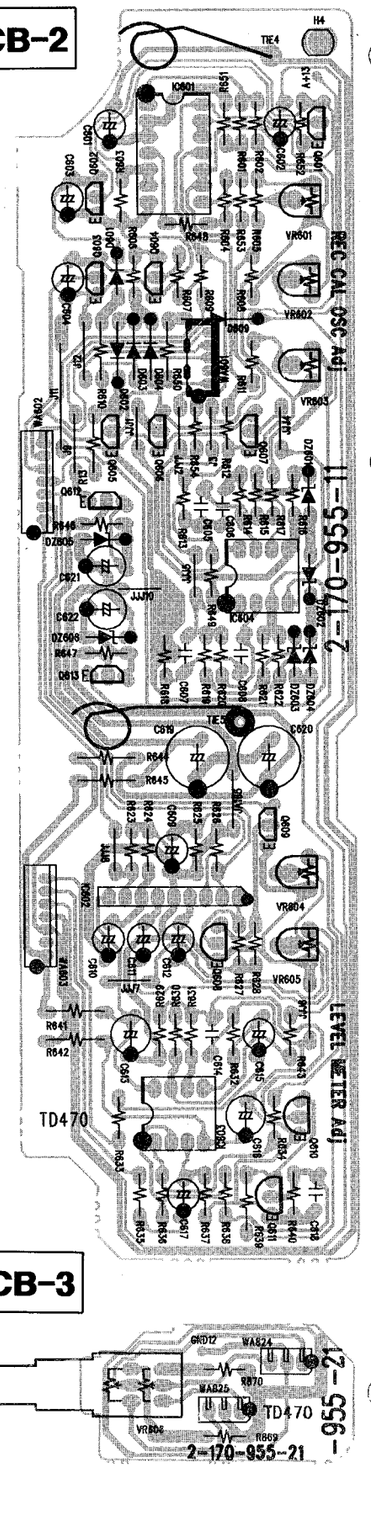
NO.	PARTS NAME	PARTS NO.	MATERIAL	REMARK	QTY	
1	PANEL FRONT	3-328-101-04	A6063-T5(AL)	A, B	1	
2	KNOB ROTARY	3-328-010-01	ABS	A, B	3	
3	LENS (B)	3-320-610-01	PMMA 60N	A, B	2	
4	WINDOW FRONT	3-327-004-01	ACRYL	A, B	1	
5	PANEL BASE	3-327-003-16	ABS	A, B	1	
6	FILTER WINDOW	3-328-107-01	PVC t0.5	A, B	1	
7	KNOB TACT STATION(A)	3-327-008-22	ABS	A, B	1	
8	KNOB POWER	3-327-005-11	ABS	A, B	1	
9	LENS POWER	3-327-006-01	K-RESIN	A, B	1	
10	KNOB TACT (A)	3-327-011-11	ABS	A, B	1	
11	KNOB TACT (B)	3-327-007-11	ABS	A, B	1	
12	KNOB TACT STATION(B)	3-327-009-11	ABS	A, B	2	
13	PCB-4	2-170-956-11	POWER P.C BOARD	A, B	1	
13	PCB-5	2-170-956-01	CONTROL P.C BOARD	A, B	1	
13	PCB-6	2-170-956-11	REMOTE P.C BOARD	A, B	1	
14	HOLDER FLT	3-327-015-02	ABS 730	A, B	1	
15	CHASSIS MAIN	3-327-021-02	SECC t1.0	A, B	1	
16	FOOT MECHA	3-327-016-01	ABS	A, B	1	
17	BRK'T SHIELD	3-327-019-01	SECC t1.0	A, B	4	
18	PCB-1	2-170-955-01	MAIN P.C BOARD	A, B	1	
18	PCB-2	2-170-955-11	REC CAL OSC P.C BOARD	A, B	1	
18	PCB-3	2-170-955-21	REC CAL VOLUME P.C BOARD	A, B	1	
19	FOOT ASS'Y (A)	3-327-017-01	ABS+TPR GOLD	A, B	1	
20	POWER CORD	2-211-138-01	TD-470/GXAG	A	4	IB
20	POWER CORD	2-211-139-01	TD-470/KYAG	B	1	BK
22	DOOR COVER	3-327-013-01	A6063-T5(AL)	A, B	1	
23	HOLDER DOOR	3-327-014-01	ABS	A, B	1	
24	DECK MECHA ASS'Y	A-328-113-01	ALPS MECHA+ LOADING	A, B	1	
25	CASE BONNET	3-327-023-01	SECC t0.6+PVC t0.2	A, B	1	
26	COVER MECHA	3-327-027-01	ABS	A, B	1	
27	TRANS POWER	2-131-567-01	TD-470/GXAG	A	1	IB
27	TRANS POWER	2-131-568-01	TD-470/KYAG	B	1	BK
28	PANEL REAR	3-328-102-01	SECC t0.8 (TD-470/GXAG)	A	1	
28	PANEL REAR	3-328-202-01	SECC t0.8 (TD-470/KYAG)	B	1	
29	BUSHING STRAIN R	8-201-120-01	NYLON 66	A, B	1	
30	LENS REMOCON	3-327-905-01	ACRYL	A, B	1	
31	PCB-7	2-170-912-01	DOLBY S P.C BOARD	A, B	1	
32	BOTTOM	3-328-106-01	SPTE t0.4	A, B	1	
33	FRAME CENTER	3-328-105-01	SECC t0.1	A, B	1	
A	SCREW	7-999-171-01	PBT 30 PO 60 FZK	A, B	4	
B	SCREW	7-764-408-01	VBZ 30 PO 80 FZK	A, B	30	
C	SCREW	7-768-406-01	VBZ 40 PO 60 FZK	A, B	4	
D	SCREW	7-768-408-01	VBZ 40 PO 80 FZK	A, B	4	
E	SCREW	7-348-408-01	ATZ 40 PO 80 FZK	A, B	4	
F	SCREW	7-764-410-01	VBZ 30 PO 100 FZK	A, B	1	
34	CUSHION PCB	3-327-038-01	SBR 50×25×14(M/M)	A, B	1	
35	KNOB VOLUME	3-328-209-01	ABS	A, B	1	
36	KNOB ECHO (B)	3-328-210-01	ABS	A, B	1	
37	KNOB PUSH	3-328-208-01	ABS	A, B	2	
38	NUT	7-116-070-02		A, B	4	
40	CUSHION	7-711-606-01	EVA	A, B	1	
41	CUSHION (C)	3-616-422-01	EVA	A, B	1	
42	REMOTE ASS'Y	A-327-9C0-01		A, B	1	
43	SHEET REMOCON	3-224-306-01	PCV T0.5	A, B	1	
44	DECK MECHA ASS'Y	2-216-207-01	CMAH3Z	A, B	1	

MAIN P.C. BOARD

PCB-1



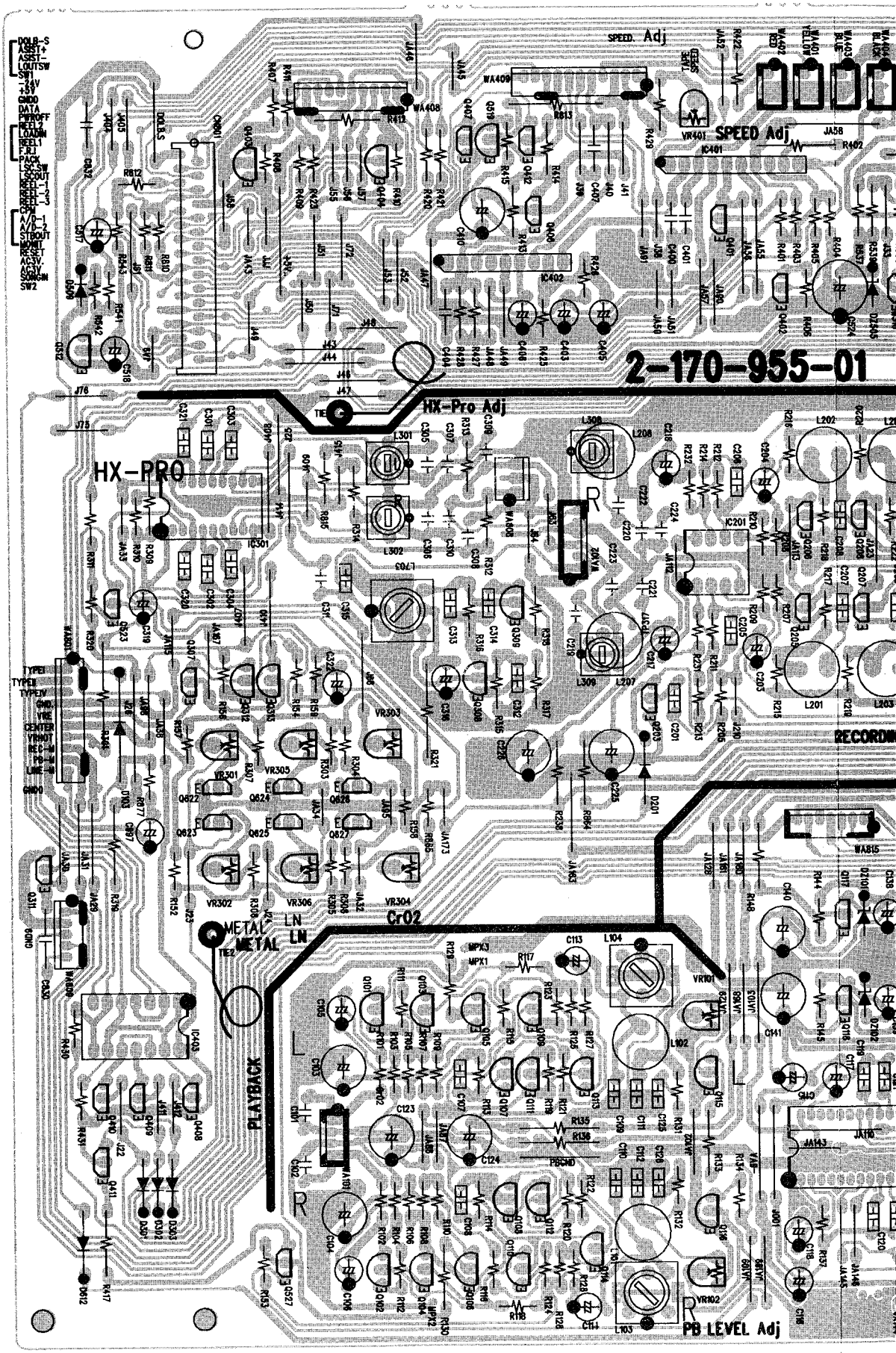
PCB-2

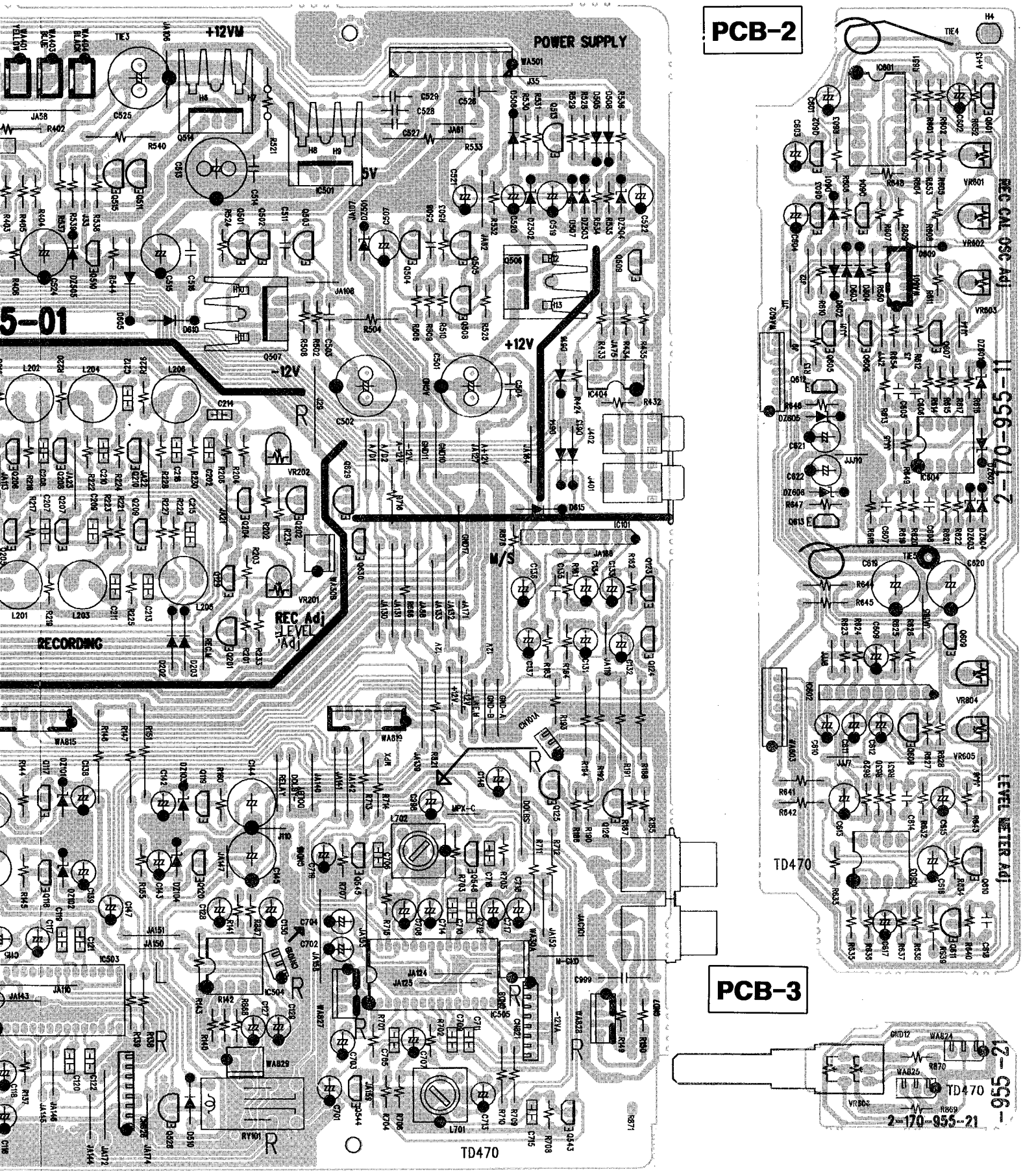


PCB-3

MAIN P.C. BOARD

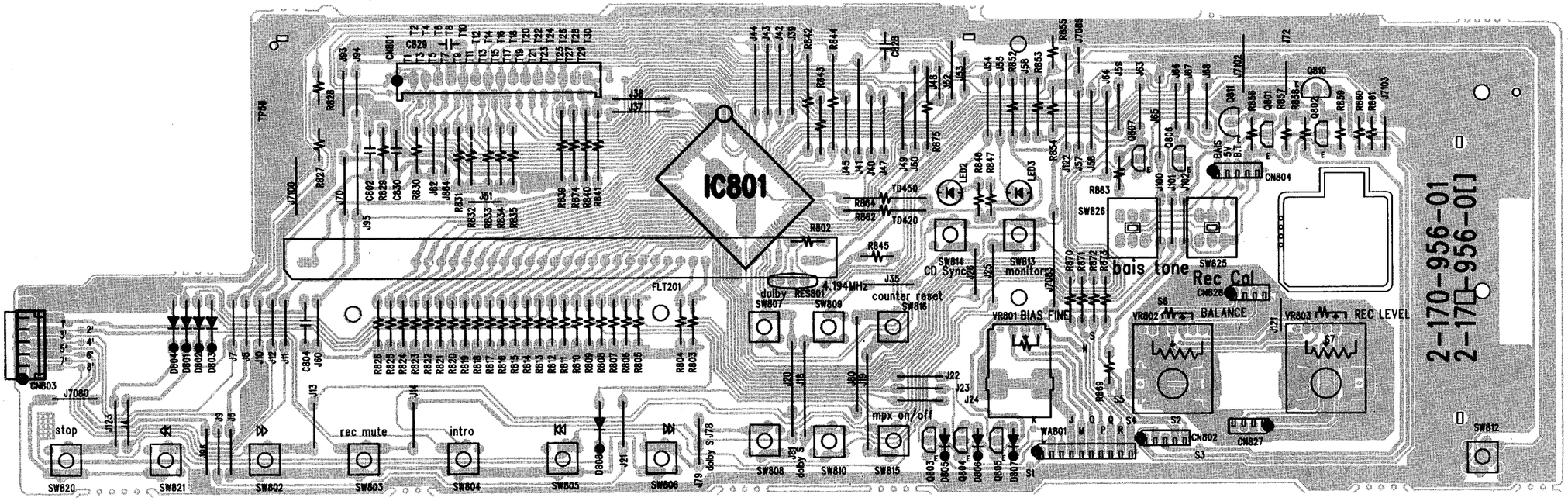
PCB-1



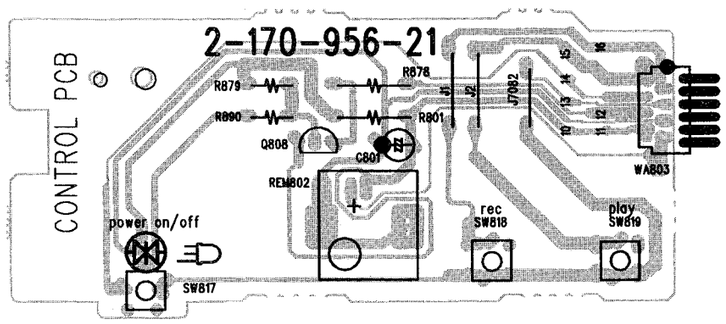

PCB-2
PCB-3
POWER SUPPLY
+12VM
5V
+12V
-12V
M/S
RECORDING
REC Adj
LEVEL Adj
REC CAL OSC Adj
LEVEL METER Adj
TD470
2-170-955-11
2-170-955-21
— 19 —

CONTROL P.C. BOARD

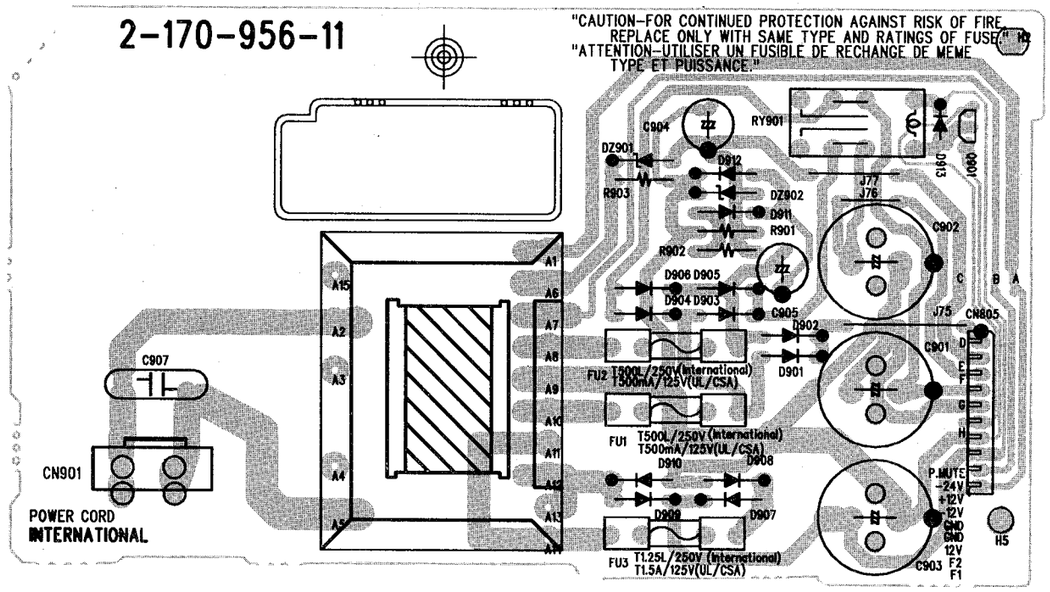
PCB-5



PCB-6

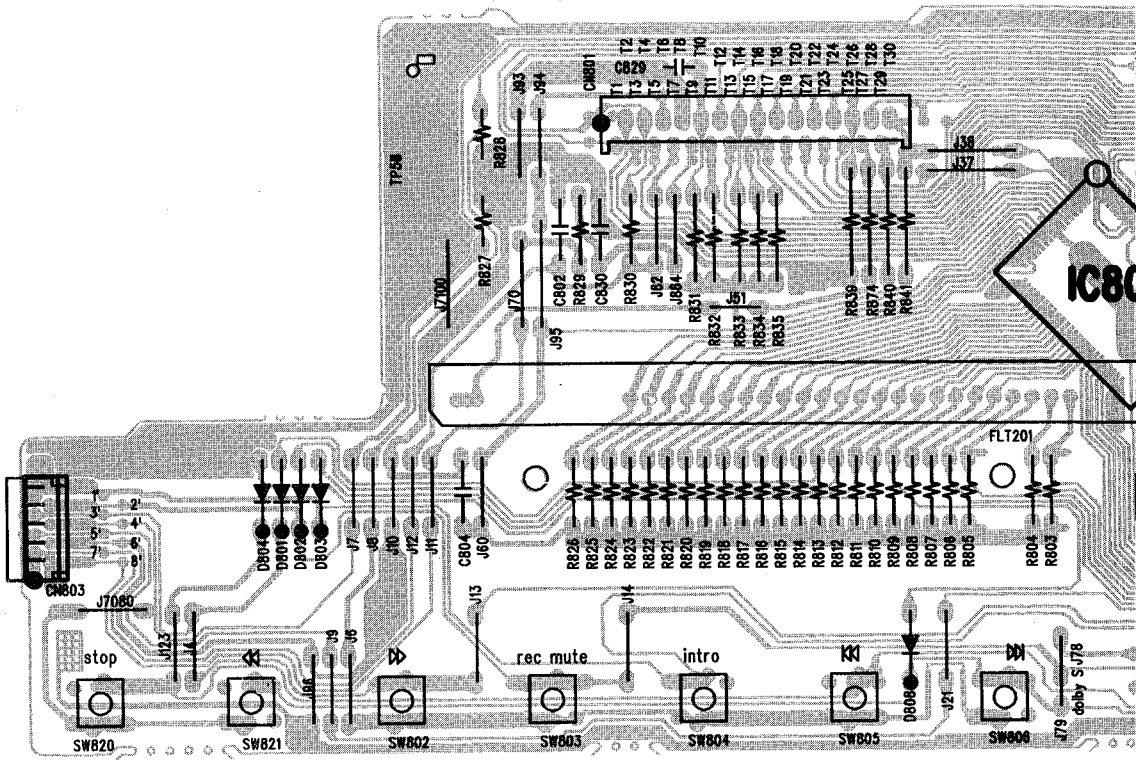


PCB-4

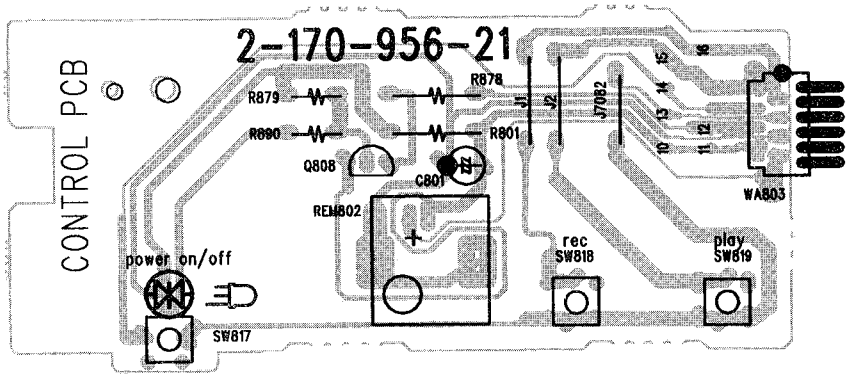


CONTROL P.C. BOARD

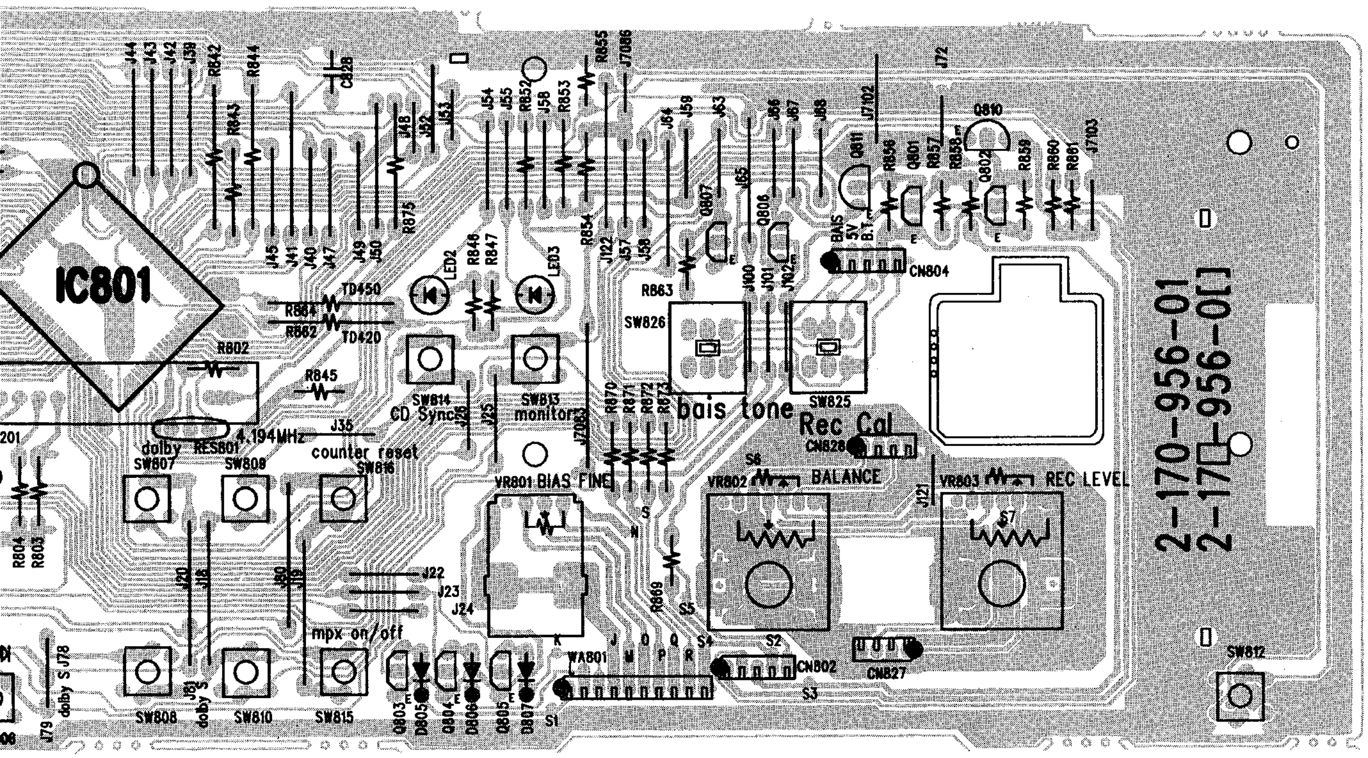
PCB-5



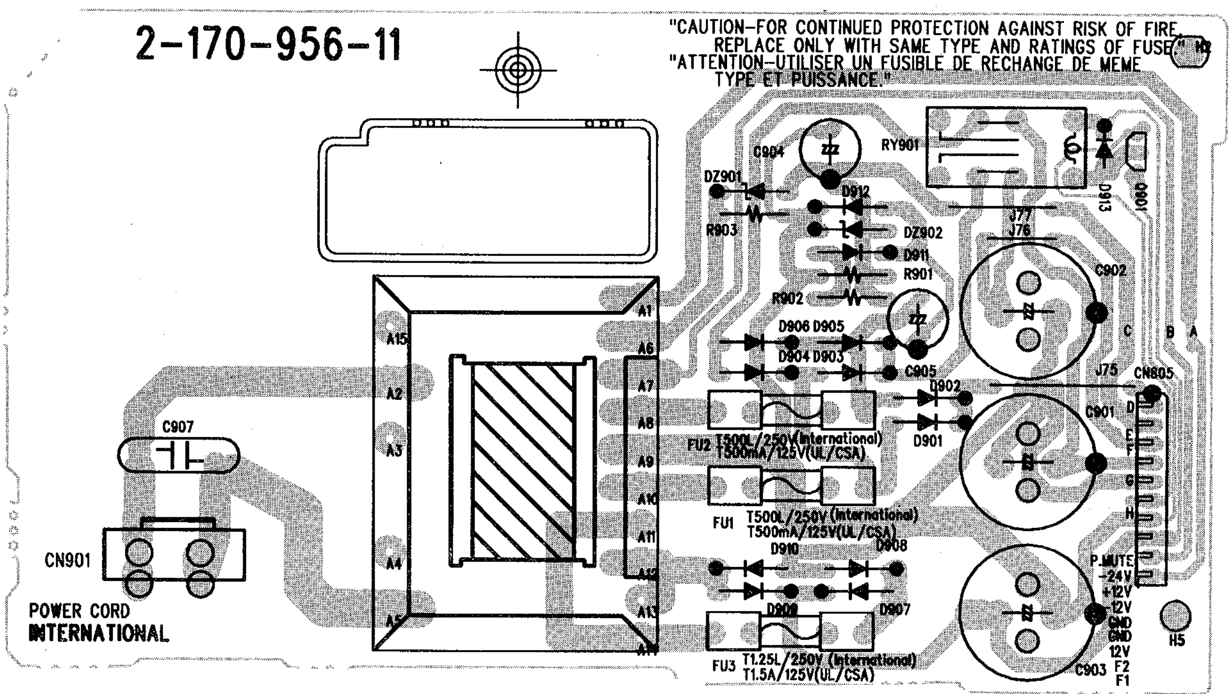
PCB-6



F	G	H	I	J

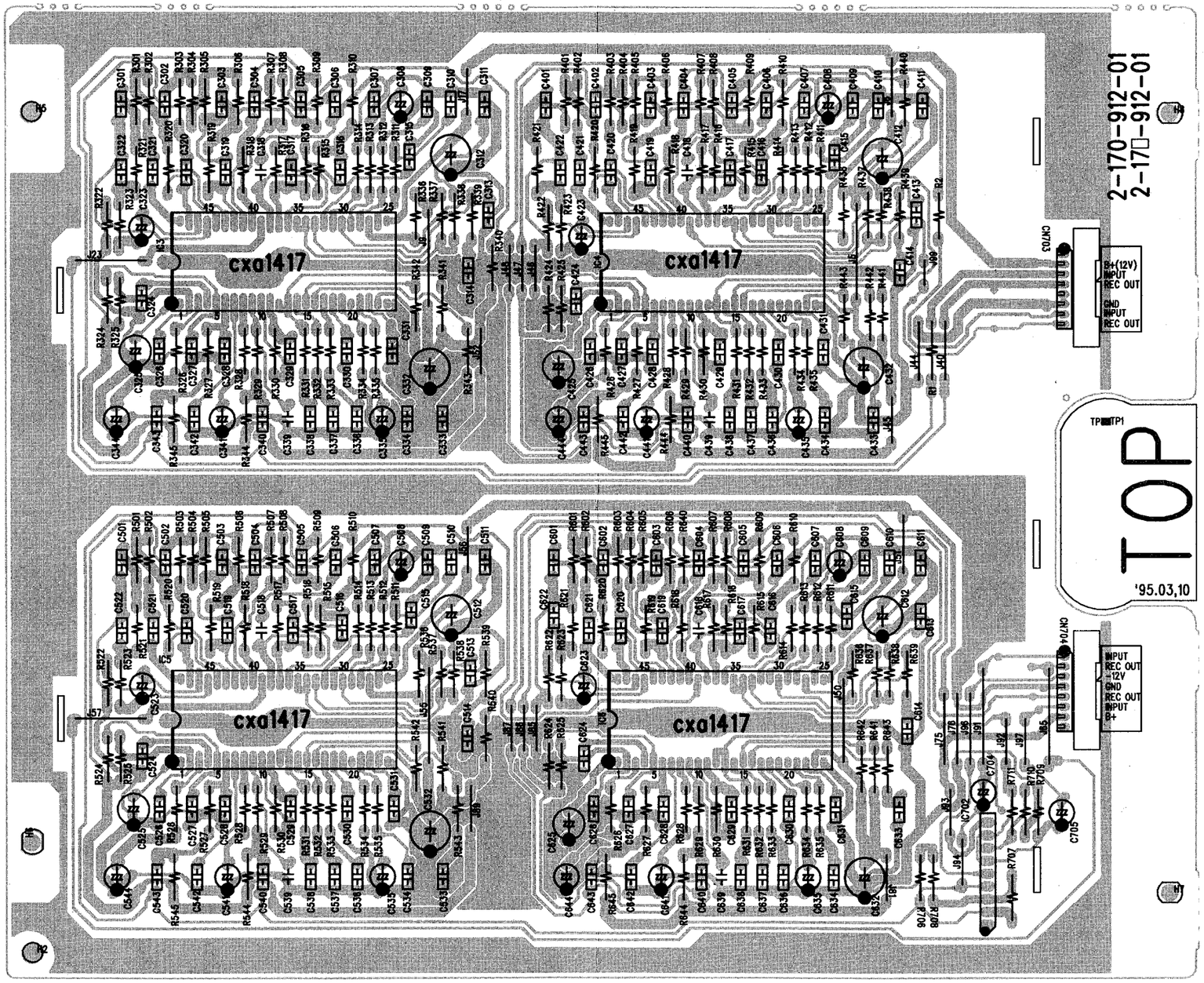

IC801
CD Sync
monitor
bais tone
Rec Cal
dolby
4.194MHz
counter reset
VR801 BIAS FINE
VR802 BALANCE
VR803 REC LEVEL
mpx on/off
2-170-956-01
2-170-956-0

PCB-4


2-170-956-11
"CAUTION-FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATINGS OF FUSE."
"ATTENTION-UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE ET PUISSANCE."
FU2 T500L/250V(International) T500mA/125V(UL/CSA)
FU1 T500L/250V(International) T500mA/125V(UL/CSA)
FU3 T1.25L/250V (International) T1.5A/125V(UL/CSA)
CN901
POWER CORD
INTERNATIONAL
P.MUTE
-24V
+12V
-12V
GND
GND
12V
F2
F1

DOLBY S P.C. BOARD

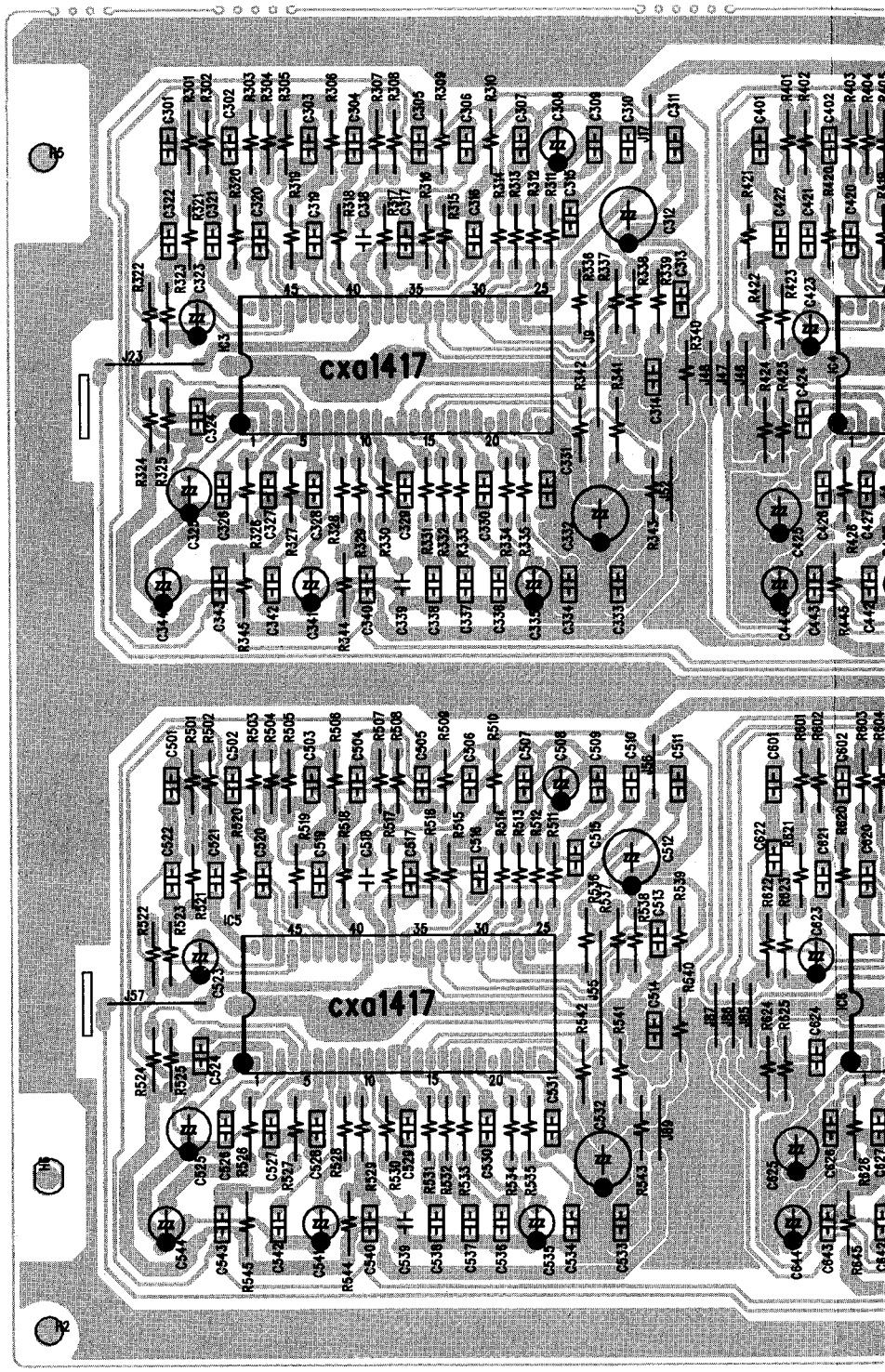
PCB-7



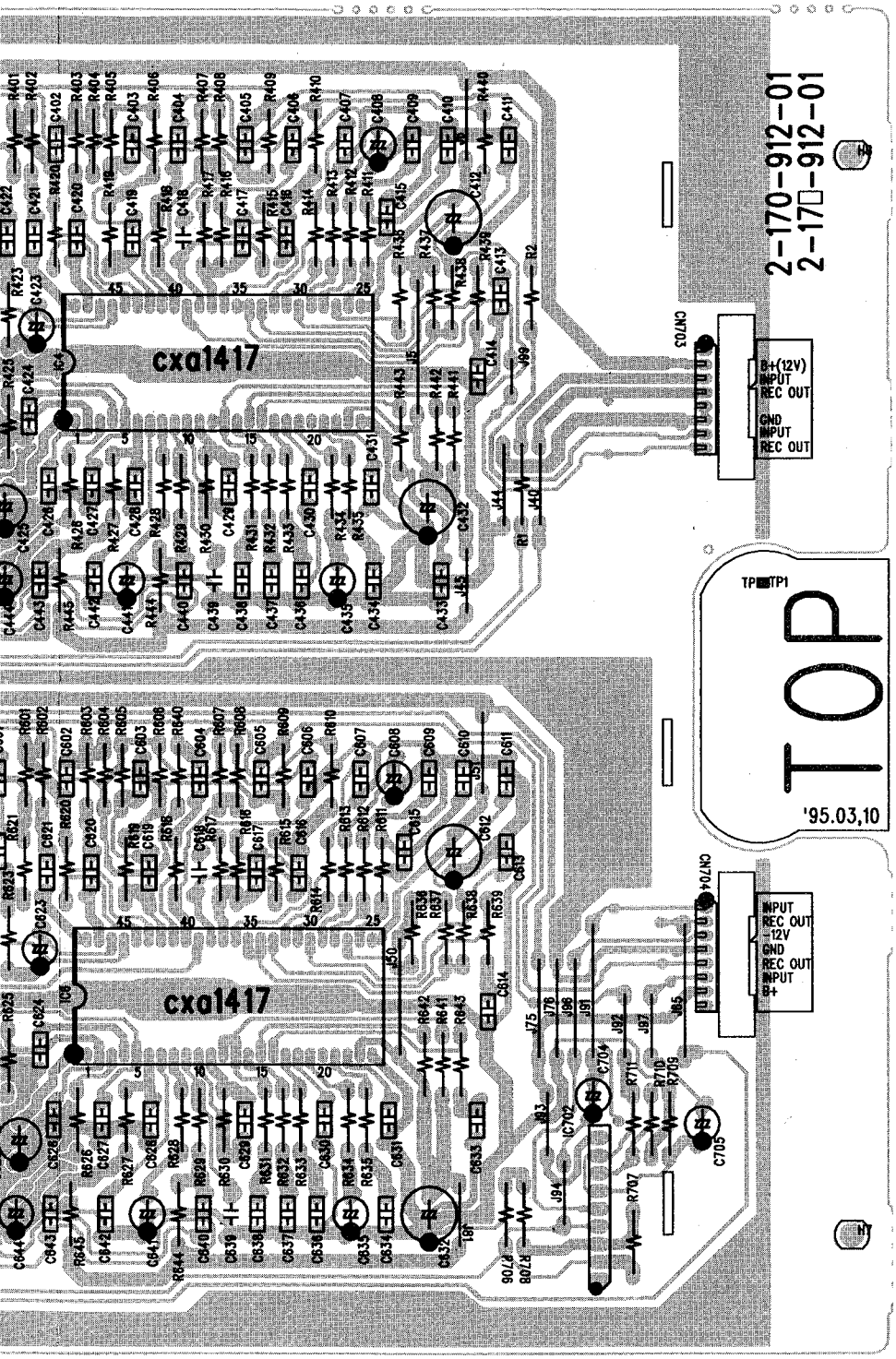
A	B	C	D	E
1				
2				
3				
4				
5				
6				
7				

DOLBY S P.C. BOARD

PCB-7



F	G	H	I	J	


2-170-912-01
2-17□-912-01
TOP
'95.03,10
cxa1417
cxa1417
CN703
B+(12V)
INPUT
REC OUT
GND
INPUT
REC OUT
CN704
INPUT
REC OUT
12V
GND
REC OUT
INPUT
B+
TP1
TP1

ELECTRICAL PARTS LIST

Ref.No.	Part No.	Description
	PCB-1 MAIN P.C. BOARD	
	CAPACITORS	
C101	1-886-221-45	CCDSL 220P
C102	1-886-221-45	CCDSL 220P
C103	1-413-331-65	CEA 330/16V
C104	1-413-331-65	CEA 330/16V
C105	1-415-220-65	CEA 22/35V
C106	1-415-220-65	CEA 22/35V
C107	1-506-882-45	CQMA 0.0082uF/50V
C108	1-506-882-45	CQMA 0.0082uF/50V
C109	1-506-222-45	CQMA 0.0022uF/50V
C110	1-506-222-45	CQMA 0.0022uF/50V
C111	1-506-392-45	CQMA 0.0039uF/50V
C112	1-506-392-45	CQMA 0.0039uF/50V
C113	1-415-220-65	CEA 22/35V
C114	1-415-220-65	CEA 22/35V
C117	1-415-220-65	CEA 22/35V
C118	1-415-220-65	CEA 22/35V
C119	1-506-104-45	CQMA 0.1uF/50V
C120	1-506-104-45	CQMA 0.1uF/50V
C121	1-506-683-45	CQMA 0.068uF/50V
C122	1-506-683-45	CQMA 0.068uF/50V
C123	1-412-471-65	CEA 470/25V
C124	1-412-471-65	CEA 470/25V
C127	1-414-339-65	CEA 3.3/25V
C128	1-414-339-65	CEA 3.3/25V
C129	1-415-100-65	CEA 10/35V
C130	1-415-100-65	CEA 10/35V
C131	1-416-108-65	CEA 0.1/50V
C132	1-416-108-65	CEA 0.1/50V
C133	1-416-108-65	CEA 0.1/50V
C134	1-416-108-65	CEA 0.1/50V
C135	1-9A3-473-64	AXL 0.047uF/25V
C136	1-414-470-65	CEA 47/25V
C137	1-416-478-65	CEA 0.47/50V
C138	1-414-470-65	CEA 47/25V
C139	1-414-470-65	CEA 47/25V
C140	1-413-331-65	CEA 330/16V
C141	1-413-331-65	CEA 330/16V
C142	1-414-470-65	CEA 47/25V
C143	1-414-470-65	CEA 47/25V
C144	1-413-331-65	CEA 330/16V
C145	1-413-331-65	CEA 330/16V
C147	1-414-330-65	CEA 33/25V
C148	1-415-220-65	CEA 22/35V
C201	1-506-332-45	CQMA 0.0033uF/50V
C202	1-506-332-45	CQMA 0.0033uF/50V
C203	1-415-100-65	CEA 10/35V
C204	1-415-100-65	CEA 10/35V
C205	1-506-683-45	CQMA 0.068uF/50V
C206	1-506-683-45	CQMA 0.068uF/50V
C207	1-506-153-45	CQMA 0.015uF/50V
C208	1-506-153-45	CQMA 0.015uF/50V
C209	1-506-333-45	CQMA 0.033uF/50V
C210	1-506-333-45	CQMA 0.033uF/50V
C211	1-506-203-45	CQMA 0.020uF/50V
C212	1-506-203-45	CQMA 0.020uF/50V
C213	1-506-203-45	CQMA 0.020uF/50V
C214	1-506-203-45	CQMA 0.020uF/50V
C215	1-506-223-45	CQMA 0.022uF/50V
C216	1-506-223-45	CQMA 0.022uF/50V
C217	1-416-220-65	CEA 22/50V
C218	1-416-220-65	CEA 22/50V
C221	1-886-561-45	CCDSL 560P
C221	1-886-561-45	CCDSL 560P
C225	1-414-101-65	CEA 100/25V
C226	1-414-101-65	CEA 100/25V
C301	1-506-223-45	CQMA 0.022uF/50V
C302	1-506-223-45	CQMA 0.022uF/50V
C303	1-506-473-45	CQMA 0.047uF/50V

Ref.No.	Part No.	Description
C304	1-506-473-45	CQMA 0.047uF/50V
C305	1-886-471-45	CCDSL 470P
C306	1-886-471-45	CCDSL 470P
C307	1-886-561-45	CCDSL 560P
C308	1-886-561-45	CCDSL 560P
C309	1-886-101-45	CCDSL 100P
C310	1-886-101-45	CCDSL 100P
C311	1-88F-100-15	CCDSL 10P/500V
C312	1-506-222-45	CQMA 0.0022uF/50V
C313	1-506-222-45	CQMA 0.0022uF/50V
C314	1-506-682-45	CQMA 0.0068uF/50V
C315	1-506-103-45	CQMA 0.010uF/50V
C316	1-415-100-65	CEA 10/35V
C319	1-414-470-65	CEA 47/25V
C320	1-506-103-45	CQMA 0.010uF/50V
C321	1-506-103-45	CQMA 0.010uF/50V
C322	1-414-101-65	CEA 100/25
C400	1-9A3-104-64	AXL 0.1uF/25V
C401	1-9A3-104-64	AXL 0.1uF/25V
C403	1-415-100-65	CEA 10/35V
C404	1-9A3-473-64	AXL 0.047uF/25V
C405	1-415-100-65	CEA 10/35V
C406	1-415-100-65	CEA 10/35V
C407	1-9A3-104-64	AXL 0.1uF/25V
C410	1-413-331-65	CEA 330/16V
C501	1-415-102-67	CEA 1000/35
C502	1-415-102-67	CEA 1000/35
C503	1-9A3-104-64	AXL 0.1uF/25V
C504	1-9A3-104-64	AXL 0.1uF/25V
C507	1-414-101-65	CEA 100/25
C508	1-9A3-473-64	AXL 0.047uF/25V
C511	1-9A3-473-64	AXL 0.047uF/25V
C513	1-415-102-67	CEA 1000/35
C514	1-9A3-104-64	AXL 0.1uF/25V
C515	1-414-470-65	CEA 47/25V
C516	1-9A3-104-64	AXL 0.1uF/25V
C517	1-416-479-65	CEA 4.7/50V
C518	1-416-229-65	CEA 2.2/50V
C519	1-9A3-104-64	AXL 0.1uF/25V
C519	1-414-101-65	CEA 100/25
C520	1-415-220-65	CEA 22/35V
C521	1-414-470-65	CEA 47/25V
C522	1-415-100-65	CEA 10/35V
C524	1-413-471-67	CEA 470/16V
C525	1-415-102-67	CEA 1000/35
C526	1-9A3-473-64	AXL 0.047uF/25V
C527	1-9A3-473-64	AXL 0.047uF/25V
C528	1-9A3-473-64	AXL 0.047uF/25V
C529	1-9A3-473-64	AXL 0.047uF/25V
C701	1-415-100-65	CEA 10/35V
C702	1-415-100-65	CEA 10/35V
C703	1-415-100-65	CEA 10/35V
C704	1-415-100-65	CEA 10/35V
C705	1-506-222-45	CQMA 0.0022uF/50V
C706	1-506-222-45	CQMA 0.0022uF/50V
C707	1-415-100-65	CEA 10/35V
C708	1-415-100-65	CEA 10/35V
C709	1-506-104-45	CQMA 0.1uF/50V
C710	1-506-104-45	CQMA 0.1uF/50V
C711	1-506-683-45	CQMA 0.068uF/50V
C712	1-414-470-65	CEA 47/25V
C713	1-415-100-65	CEA 10/35V
C714	1-415-100-65	CEA 10/35V
C715	1-506-222-45	CQMA 0.0022uF/50V
C716	1-506-222-45	CQMA 0.0022uF/50V
C717	1-414-470-65	CEA 47/25V
C719	1-415-220-65	CEA 22/35V
C830	1-9A3-473-64	AXL 0.047uF/25V
C832	1-9A3-473-64	AXL 0.047uF/25V
C997	1-416-479-65	CEA 4.7/50V
C998	1-416-479-65	CEA 4.7/50V
C999	1-9A3-104-64	AXL 0.1uF/25V

RESISTORS

Ref.No.	Part No.	Description
R13	1-118-102-25	C.F.R 1K,1/8W
R101	1-118-470-25	C.F.R 47,1/8W
R102	1-118-470-25	C.F.R 47,1/8W
R103	1-118-823-25	C.F.R 82K,1/8W
R104	1-118-823-25	C.F.R 82K,1/8W
R105	1-118-151-25	C.F.R 150,1/8W
R106	1-118-151-25	C.F.R 150,1/8W
R107	1-118-153-25	C.F.R 15K,1/8W
R108	1-118-153-25	C.F.R 15K,1/8W
R109	1-118-363-25	C.F.R 36K,1/8W
R110	1-118-363-25	C.F.R 36K,1/8W
R111	1-118-470-25	C.F.R 47,1/8W
R112	1-118-470-25	C.F.R 47,1/8W
R113	1-118-364-25	C.F.R 360K,1/8W
R114	1-118-364-25	C.F.R 360K,1/8W
R115	1-118-124-25	C.F.R 120K,1/8W
R116	1-118-124-25	C.F.R 120K,1/8W
R117	1-118-272-25	C.F.R 2.7K,1/8W
R118	1-118-272-25	C.F.R 2.7K,1/8W
R119	1-118-272-25	C.F.R 2.7K,1/8W
R120	1-118-272-25	C.F.R 2.7K,1/8W
R121	1-118-473-25	C.F.R 47K,1/8W
R122	1-118-473-25	C.F.R 47K,1/8W
R123	1-118-331-25	C.F.R 330,1/8W
R124	1-118-331-25	C.F.R 330,1/8W
R125	1-118-332-25	C.F.R 3.3,1/8W
R126	1-118-332-25	C.F.R 3.3,1/8W
R127	1-118-332-25	C.F.R 3.3,1/8W
R128	1-118-332-25	C.F.R 3.3,1/8W
R129	1-118-105-25	C.F.R 1M,1/8W
R130	1-118-105-25	C.F.R 1M,1/8W
R133	1-114-103-25	C.F.R 10K,1/4W
R134	1-118-103-25	C.F.R 10K,1/8W
R135	1-114-470-25	C.F.R 47,1/4W
R136	1-114-470-25	C.F.R 47,1/4W
R137	1-118-203-25	C.F.R 20K,1/8W
R138	1-118-102-25	C.F.R 1K,1/8W
R139	1-118-102-25	C.F.R 1K,1/8W
R140	1-118-182-25	C.F.R 1.8K,1/8W
R141	1-118-182-25	C.F.R 1.8K,1/8W
R142	1-118-182-25	C.F.R 1.8K,1/8W
R143	1-118-182-25	C.F.R 1.8K,1/8W
R144	1-118-102-25	C.F.R 1K,1/8W
R145	1-118-102-25	C.F.R 1K,1/8W
R146	1-114-100-25	C.F.R 10,1/4W
R147	1-114-100-25	C.F.R 10,1/4W
R148	1-114-100-25	C.F.R 10,1/4W
R149	1-114-102-25	C.F.R 1K,1/4W
R150	1-114-102-25	C.F.R 1K,1/4W
R151	1-114-100-25	C.F.R 10,1/4W
R152	1-118-471-25	C.F.R 470,1/8W
R153	1-118-473-25	C.F.R 47K,1/8W
R154	1-118-822-25	C.F.R 8.2K,1/8W
R155	1-118-102-25	C.F.R 1K,1/8W
R156	1-118-392-25	C.F.R 3.9K,1/8W
R157	1-118-471-25	C.F.R 470,1/8W
R158	1-118-332-25	C.F.R 3.3,1/8W
R159	1-118-122-25	C.F.R 1.2K,1/8W
R160	1-118-102-25	C.F.R 1K,1/8W
R161	1-118-564-25	C.F.R 560K,1/8W
R162	1-118-331-25	C.F.R 330,1/8W
R163	1-118-681-25	C.F.R 680,1/8W
R164	1-118-822-25	C.F.R 8.2K,1/8W
R185	1-118-222-25	C.F.R 2.2K,1/8W
R186	1-118-222-25	C.F.R 2.2K,1/8W
R187	1-118-104-25	C.F.R 100K,1/8W
R188	1-114-822-25	C.F.R 8.2K,1/4W
R190	1-118-104-25	C.F.R 100K,1/8W
R191	1-114-272-25	C.F.R 2.7K,1/4W
R192	1-114-272-25	C.F.R 2.7K,1/4W
R193	1-114-202-25	C.F.R 2K,1/4W
R194	1-114-202-25	C.F.R 2K,1/4W
R201	1-118-181-25	C.F.R 180,1/8W
R202	1-118-181-25	C.F.R 180,1/8W
R203	1-118-682-25	C.F.R 6.8K,1/8W
R204	1-118-682-25	C.F.R 6.8K,1/8W
R205	1-118-153-25	C.F.R 15K,1/8W
R206	1-118-153-25	C.F.R 15K,1/8W
R207	1-118-473-25	C.F.R 47K,1/8W
R208	1-118-473-25	C.F.R 47K,1/8W
R209	1-114-562-25	C.F.R 5.6K,1/4W
R210	1-114-562-25	C.F.R 5.6K,1/4W
R211	1-118-124-25	C.F.R 120K,1/8W
R212	1-118-124-25	C.F.R 120K,1/8W
R213	1-118-333-25	C.F.R 33K,1/8W
R214	1-118-333-25	C.F.R 33K,1/8W
R215	1-118-221-25	C.F.R 220,1/8W
R216	1-118-221-25	C.F.R 220,1/8W
R217	1-118-432-25	C.F.R 4.3K,1/8W
R218	1-118-432-25	C.F.R 4.3K,1/8W
R219	1-118-151-25	C.F.R 150,1/8W
R220	1-118-151-25	C.F.R 150,1/8W
R221	1-118-242-25	C.F.R 2.4K,1/8W
R222	1-118-242-25	C.F.R 2.4K,1/8W
R223	1-114-103-25	C.F.R 10K,1/4W
R224	1-114-103-25	C.F.R 10K,1/4W
R225	1-118-101-25	C.F.R 100,1/8W
R226	1-118-101-25	C.F.R 100,1/8W
R227	1-118-182-25	C.F.R 1.8K,1/8W
R228	1-118-182-25	C.F.R 1.8K,1/8W
R229	1-118-103-25	C.F.R 10K,1/8W
R230	1-118-103-25	C.F.R 10K,1/8W
R233	1-118-103-25	C.F.R 10K,1/8W
R234	1-114-103-25	C.F.R 10K,1/4W
R238	1-114-100-25	C.F.R 10,1/4W
R301	1-114-822-25	C.F.R 8.2K,1/4W
R303	1-118-750-25	C.F.R 75,1/8W
R304	1-118-331-25	C.F.R 330,1/8W
R305	1-118-750-25	C.F.R 75,1/8W
R306	1-118-330-25	C.F.R 33,1/8W
R307	1-118-330-25	C.F.R 33,1/8W
R308	1-118-331-25	C.F.R 330,1/8W
R309	1-118-154-25	C.F.R 150K,1/8W
R310	1-118-154-25	C.F.R 150K,1/8W
R311	1-114-010-25	C.F.R 1,1/4W
R312	1-118-154-25	C.F.R 150K,1/8W
R313	1-118-154-25	C.F.R 150K,1/8W
R314	1-114-479-25	C.F.R 4.7,1/4W
R315	1-118-393-25	C.F.R 33K,1/8W
R316	1-118-393-25	C.F.R 33K,1/8W
R317	1-114-399-25	C.F.R 3.9,1/4W
R318	1-114-399-25	C.F.R 3.9,1/4W
R319	1-114-103-25	C.F.R 10K,1/4W
R320	1-118-103-25	C.F.R 10K,1/8W
R321	1-114-479-25	C.F.R 4.7,1/4W
R401	1-118-182-25	C.F.R 1.8K,1/8W
R402	1-141-100-23	M.O.R 10,1W
R403	1-118-362-25	C.F.R 3.6K,1/8W
R404	1-118-392-25	C.F.R 3.9K,1/8W
R405	1-118-202-25	C.F.R 2K,1/8W
R406	1-118-104-25	C.F.R 100K,1/8W
R407	1-118-473-25	C.F.R 47K,1/8W
R408	1-118-473-25	C.F.R 47K,1/8W
R409	1-118-473-25	C.F.R 47K,1/8W
R410	1-118-473-25	C.F.R 47K,1/8W
R411	1-118-222-25	C.F.R 2.2K,1/8W
R412	1-118-222-25	C.F.R 2.2K,1/8W
R413	1-118-223-25	C.F.R 22K,1/8W
R414	1-118-182-25	C.F.R 1.8K,1/8W
R415	1-118-103-25	C.F.R 10K,1/8W
R417	1-114-102-25	C.F.R 1K,1/4W
R420	1-114-102-25	C.F.R 1K,1/4W
R421	1-114-102-25	C.F.R 1K,1/4W
R422	1-114-102-25	C.F.R 1K,1/4W
R423	1-118-473-25	C.F.R 47K,1/8W
R424	1-118-473-25	C.F.R 47K,1/8W
R425	1-118-332-25	C.F.R 3.3,1/8W
R426	1-118-122-25	C.F.R 1.2K,1/8W
R427	1-114-220-25	C.F.R 22,1/4W

Ref.No.	Part No.	Description
R428	1-114-220-25	C.F.R 22,1/4W
R429	1-114-133-25	C.F.R 13K,1/4W
R430	1-118-223-25	C.F.R 22K,1/8W
R431	1-118-223-25	C.F.R 22K,1/8W
R432	1-118-181-25	C.F.R 180,1/8W
R433	1-118-473-25	C.F.R 47K,1/8W
R434	1-118-470-25	C.F.R 47,1/8W
R435	1-118-392-25	C.F.R 3.9K,1/8W
R502	1-118-132-25	C.F.R 1.3K,1/8W
R503	1-118-221-25	C.F.R 220,1/8W
R504	1-118-152-25	C.F.R 1.5K,1/8W
R506	1-118-152-25	C.F.R 1.5K,1/8W
R508	1-118-222-25	C.F.R 2.2K,1/8W
R509	1-118-331-25	C.F.R 330,1/8W
R510	1-118-222-25	C.F.R 2.2K,1/8W
R521	1-141-101-23	M.O.R 100,1W
R524	1-118-221-25	C.F.R 220,1/8W
R525	1-118-222-25	C.F.R 2.2K,1/8W
R528	1-114-331-25	C.F.R 330,1/4W
R529	1-114-331-25	C.F.R 330,1/4W
R530	1-118-105-25	C.F.R 1M,1/8W
R531	1-118-121-25	C.F.R 120,1/8W
R532	1-118-222-25	C.F.R 2.2K,1/8W
R533	1-118-182-25	C.F.R 1.8K,1/8W
R534	1-118-102-25	C.F.R 1K,1/8W
R535	1-118-102-25	C.F.R 1K,1/8W
R536	1-114-103-25	C.F.R 10K,1/4W
R537	1-114-122-25	C.F.R 1.2K,1/4W
R538	1-114-471-25	C.F.R 470,1/4W
R539	1-114-101-25	C.F.R 100,1/4W
R540	1-141-010-23	M.O.R 1,1W
R541	1-118-103-25	C.F.R 10K,1/8W
R542	1-118-103-25	C.F.R 10K,1/8W
R543	1-118-103-25	C.F.R 10K,1/8W
R544	1-118-103-25	C.F.R 10K,1/8W
R666	1-114-102-25	C.F.R 1K,1/4W
R701	1-118-203-25	C.F.R 20K,1/8W
R703	1-118-332-25	C.F.R 3.3,1/8W
R704	1-118-105-25	C.F.R 1M,1/8W
R705	1-118-105-25	C.F.R 1M,1/8W
R706	1-118-682-25	C.F.R 6.8K,1/8W
R707	1-118-105-25	C.F.R 1M,1/8W
R708	1-118-105-25	C.F.R 1M,1/8W
R709	1-114-102-25	C.F.R 1K,1/4W
R710	1-114-102-25	C.F.R 1K,1/4W
R711	1-114-100-25	C.F.R 10,1/4W
R712	1-114-100-25	C.F.R 10,1/4W
R713	1-114-102-25	C.F.R 1K,1/4W
R714	1-114-102-25	C.F.R 1K,1/4W
R705	1-118-682-25	C.F.R 6.8K,1/8W
R716	1-118-223-25	C.F.R 22K,1/8W
R810	1-118-473-25	C.F.R 47K,1/8W
R811	1-118-473-25	C.F.R 47K,1/8W
R812	1-118-473-25	C.F.R 47K,1/8W
R813	1-114-121-25	C.F.R 120,1/4W
R815	1-114-479-25	C.F.R 4.7,1/4W
R821	1-114-102-25	C.F.R 1K,1/4W
R864	1-114-100-25	C.F.R 10,1/4W
R865	1-118-332-25	C.F.R 3.3,1/8W
R867	1-118-104-25	C.F.R 100K,1/8W
R868	1-118-104-25	C.F.R 100K,1/8W
R869	1-118-562-25	C.F.R 5.6K,1/8W
R870	1-118-562-25	C.F.R 5.6K,1/8W
R871	1-114-479-25	C.F.R 4.7,1/4W
R876	1-118-102-25	C.F.R 1K,1/8W
R877	1-118-102-25	C.F.R 1K,1/8W

INTEGRATED CIRCUITS

IC101	2-441-313-72	IC,LA2000 OR BA335 LEVEL-S
IC201	2-442-220-54-1	IC,UPC4570C OP AMP
IC301	2-442-241-54-1	IC,UPC1297CA HX-PRO
IC401	2-441-267-71	IC,KA8306 OR BA6238A MOTOR-D
IC402	2-442-153-75-1	IC,TA7291S MOTOR-D
IC403	2-440-808-31	IC,GD4011B QUAD NAND GATE
IC404	2-441-723-74-1	IC,LTV817 OR PC817 POTO-C
IC501	2-441-218-71	IC,KA7805 OR MC7805 +5V REG.
IC503	2-440-435-74-1	IC.CXA1563S DOLBY B.C
IC504	2-441-520-41-1	IC.NJM4558DD OP AMP
IC505	2-440-435-74-1	IC.CXA1563S DOLBY B.C

Ref.No.	Part No.	Description

TRANSISTORS

Q101	2-402-180-35	2SC1571G
Q102	2-402-180-35	2SC1571G
Q103	2-400-157-35	2SA929G
Q104	2-400-157-35	2SA929G
Q105	2-404-111-35-1	2SK246GR
Q106	2-404-111-35-1	2SK246GR
Q107	2-402-180-35	2SC1571G
Q108	2-402-180-35	2SC1571G
Q109	2-400-157-35	2SA929G
Q110	2-400-157-35	2SA929G
Q111	2-402-180-35	2SC1571G
Q112	2-402-180-35	2SC1571G
Q113	2-400-157-35	2SA929G
Q114	2-400-157-35	2SA929G
Q115	2-402-127-25-1	2SC2878B
Q116	2-402-127-25-1	2SC2878B
Q117	2-402-116-15	KTC3205A
Q118	2-400-140-25	KTA1273A
Q119	2-402-116-15	KTC3205A
Q120	2-400-140-25	KTA1273A
Q123	2-406-104-15	KRC103M
Q124	2-406-106-15	KRA103M
Q125	2-402-127-25-1	2SC2878B
Q126	2-402-127-25-1	2SC2878B
Q129	2-406-104-15	KRA103M
Q201	2-403-155-25	KTD1302B
Q202	2-403-155-25	KTD1302B
Q203	2-406-104-15	KRC103M
Q204	2-406-104-15	KRC103M
Q205	2-406-104-15	KRC103M
Q206	2-406-104-15	KRC103M
Q207	2-406-104-15	KRC103M
Q208	2-406-104-15	KRC103M
Q209	2-406-104-15	KRC103M
Q210	2-406-104-15	KRC103M
Q307	2-402-116-15	KTC3205A
Q308	2-402-111-35	KRC31981GR
Q309	2-402-111-35	KRC31981GR
Q311	2-406-104-15	KRC103M
Q312	2-402-111-35	KRC31981GR
Q313	2-402-111-35	KRC31981GR
Q401	2-406-104-15	KRC103M
Q402	2-406-104-15	KRC103M
Q403	2-402-111-35	KRC31981GR
Q404	2-402-111-35	KRC31981GR
Q406	2-400-140-25	KTA1273A
Q407	2-406-104-15	KRC103M
Q408	2-406-106-15	KRA103M
Q409	2-406-106-15	KRA103M
Q410	2-406-106-15	KRA103M
Q411	2-406-104-15	KRC103M
Q412	2-406-104-15	KRC103M
Q501	2-404-111-35-1	2SK246GR
Q502	2-400-118-35	KRA1266GR
Q503	2-400-118-35	KRA1266GR
Q504	2-402-111-35	KRC31981GR
Q505	2-404-111-35-1	2SK246GR
Q506	2-402-153-21	KTD2058Y
Q507	2-401-112-21	KTB1366B
Q508	2-402-111-35	KRC31981GR
Q509	2-406-106-15	KRA103M
Q510	2-406-104-15	KRC103M
Q511	2-402-111-35	KRC31981GR
Q512	2-402-111-35	KRC31981GR
Q513	2-400-118-35	KRA1266GR
Q514	2-401-112-21	KTB1366B
Q515	2-402-111-35	KRC31981GR
Q519	2-402-111-35	KRC31981GR
Q523	2-400-140-25	KTA1273A
Q527	2-406-104-15	KRC103M
Q528	2-402-111-35	KRC31981GR
Q543	2-406-129-15	KRC107M
Q544	2-406-129-15	KRC107M
Q545	2-406-129-15	KRC107M
Q546	2-406-129-15	KRC107M

Ref.No.	Part No.	Description
Q622	2-406-104-15	KRC103M
Q623	2-406-104-15	KRC103M
Q624	2-406-104-15	KRC103M
Q625	2-406-104-15	KRC103M
Q626	2-406-104-15	KRC103M
Q627	2-406-104-15	KRC103M
Q629	2-406-107-15	KSR2001
Q630	2-406-104-15	KRC103M

DIODES

DZ101	2-421-068-45	UZ-6.8B OR 1N754A
DZ102	2-421-068-45	UZ-6.8B OR 1N754A
DZ103	2-421-068-45	UZ-6.8B OR 1N754A
DZ104	2-421-068-45	UZ-6.8B OR 1N754A
D103	2-414-299-95	1N4148M OR 1SS133
D201	2-414-299-95	1N4148M OR 1SS133
D202	2-414-299-95	1N4148M OR 1SS133
D203	2-414-299-95	1N4148M OR 1SS133
D302	2-414-299-95	1N4148M OR 1SS133
D303	2-414-299-95	1N4148M OR 1SS133
DZ501	2-421-062-35	UZ-6.2B OR 1N753A
DZ502	2-421-082-45	UZ-8.2B OR 1N756A
DZ503	2-421-160-35	UZ-16B OR 1N966B
DZ504	2-421-047-35	UZ-4.7B OR 1N750A
DZ505	2-421-128-85-1	HZ12B2LTA
D505	2-414-299-95	1N4148M OR 1SS133
D506	2-414-299-95	1N4148M OR 1SS133
D507	2-414-299-95	1N4148M OR 1SS133
D508	2-414-299-95	1N4148M OR 1SS133
D509	2-414-299-95	1N4148M OR 1SS133
D510	2-414-299-95	1N4148M OR 1SS133
D605	2-414-299-95	1N4148M OR 1SS133
D610	2-414-299-95	1N4148M OR 1SS133
D612	2-414-299-95	1N4148M OR 1SS133
D613	2-414-299-95	1N4148M OR 1SS133
D614	2-414-299-95	1N4148M OR 1SS133
D615	2-414-299-95	1N4148M OR 1SS133

COILS

L101	2-129-387-01	22mH,10%
L102	2-129-387-01	22mH,10%
L103	2-129-303-01	M-10L,TRIP
L104	2-129-303-01	M-10L,TRIP
L201	1-011-472-21-1	RC875,4.7mH,10%
L202	1-011-472-21-1	RC875,4.7mH,10%
L203	1-011-332-21-1	RC875,3.3mH,10%
L204	1-011-332-21-1	RC875,3.3mH,10%
L205	1-011-222-21-1	RC875,2.2mH,10%
L206	1-011-222-21-1	RC875,2.2mH,10%
L207	2-129-261-01	NTH-061-0
L2078	2-129-261-01	NTH-061-0
L301	2-129-497-01	HX-PRO BAIS
L302	2-129-497-01	HX-PRO BAIS
L303	2-129-496-01	105kHz,BAIS
L701	2-129-498-01	FB-10 MPX
L702	2-129-498-01	FB-10 MPX

CONTROLS

VR101	2-512-223-01	22K,SEMI FIX RES
VR102	2-512-223-01	22K,SEMI FIX RES
VR305	2-512-471-01	470,SEMI FIX RES
VR306	2-512-471-01	470,SEMI FIX RES
VR201	2-512-472-01	4.7K,SEMI FIX RES
VR202	2-512-472-01	4.7K,SEMI FIX RES
VR301	2-512-103-01	10K,SEMI FIX RES
VR302	2-512-103-01	10K,SEMI FIX RES
VR303	2-512-103-01	10K,SEMI FIX RES
VR304	2-512-103-01	10K,SEMI FIX RES
VR401	2-512-472-01	4.7K,SEMI FIX RES

Ref.No.	Part No.	Description

MISCELLANEOUS

001	2-170-955-01	PCB, MAIN HB
014	JAC101 2-155-664-01	RCA4P,JW-4104R
015	J401 2-155-675-01	HTJ-035-12
015	J402 2-155-675-01	HTJ-035-12
016	3-327-032-02	HEAT SINK,AL
050	CN101 2-159-7W7-01	P=2,3PIN,JST
047	WA30A 2-168-122-01	P=2.5,3PIN,NKC-022-0
047	WA30B 2-168-122-01	P=2.5,3PIN,NKC-022-0
038	WA408 2-168-502-01	P=2,9PIN,53014-0910
039	WA409 2-168-504-01	P=2,11PIN,53014-1110
040	WA401 2-168-252-01	FKN1039-A,P=2,3PIN
040	WA402 2-168-252-01	FKN1039-A,P=2,3PIN
040	WA403 2-168-252-01	FKN1039-A,P=2,3PIN
040	WA404 2-168-252-01	FKN1039-A,P=2,3PIN
041	WA801 2-168-503-01	P=2,10PIN,53014-1010
042	CN801 2-168-307-01	C.C SOCKET,30PIN
043	WA501 2-168-531-01	P=2.5,10PIN,5267-10A
044	WA102 2-168-263-01	FKN1042-A,P=2,6PIN
045	WA101 2-168-253-01	P=2,4PIN,LOCK
	WA808 2-168-122-01	P=2.5,3PIN,NKC-022-0
	WA809 2-168-498-01	P=2,5PIN,53014-0510
	WA815 2-168-390-01	P=2,7PIN,52257-0710
	WA819 2-168-390-01	P=2,7PIN,52257-0710
	WA821 2-159-8A8-01	8PIN,L=150mm
	WA826 2-159-8A8-01	8PIN,L=150mm
	WA827 2-168-497-01	P=2,4PIN,53014-0410
	WA828 2-168-497-01	P=2,4PIN,53014-0410
	RY101 2-140-211-02-1	RSA-12 OR RZ12

Ref.No.	Part No.	Description

PCB-2 REC CAL OSC/LEVEL METER P.C.BOARD

CAPACITORS

C601	1-416-109-65	CEA	1/50V
C602	1-416-109-65	CEA	1/50V
C603	1-416-109-65	CEA	1/50V
C604	1-416-109-65	CEA	1/50V
C607	1-506-393-45	CQMA	0.039uF/50V
C608	1-506-393-45	CQMA	0.039uF/50V
C609	1-416-479-65	CEA	4.7/50V
C610	1-416-479-65	CEA	4.7/50V
C611	1-416-109-65	CEA	1/50V
C612	1-416-109-65	CEA	1/50V
C613	1-415-220-65	CEA	22/35V
C614	1-506-242-45	CQMA	0.0024uF/50V
C615	1-415-220-65	CEA	22/35V
C616	1-415-220-65	CEA	22/35V
C617	1-416-109-65	CEA	1/50V
C618	1-506-242-45	CQMA	2400P
C619	1-414-101-65	CEA	100/25
C620	1-414-101-65	CEA	100/25
C621	1-414-470-65	CEA	47/25V
C622	1-414-470-65	CEA	47/25V

RESISTORS

R601	1-118-472-25	C.F.R	4.7K,1/8W
R602	1-118-683-25	C.F.R	68K,1/8W
R603	1-118-473-25	C.F.R	47K,1/8W
R604	1-118-153-25	C.F.R	15K,1/8W
R605	1-118-753-25	C.F.R	75K,1/8W
R606	1-118-223-25	C.F.R	22K,1/8W
R608	1-118-104-25	C.F.R	100K,1/8W
R609	1-118-472-25	C.F.R	4.7K,1/8W
R610	1-118-472-25	C.F.R	4.7K,1/8W
R611	1-118-683-25	C.F.R	68K,1/8W
R612	1-118-472-25	C.F.R	4.7K,1/8W

Ref.No.	Part No.	Description
R613	1-118-102-25	C.F.R 1K,1/8W
R614	1-118-104-25	C.F.R 100K,1/8W
R615	1-118-472-25	C.F.R 4.7K,1/8W
R616	1-118-393-25	C.F.R 33K,1/8W
R617	1-118-104-25	C.F.R 100K,1/8W
R618	1-118-102-25	C.F.R 1K,1/8W
R619	1-118-562-25	C.F.R 5.6K,1/8W
R620	1-118-823-25	C.F.R 82K,1/8W
R621	1-118-393-25	C.F.R 33K,1/8W
R622	1-118-122-25	C.F.R 1.2K,1/8W
R623	1-118-103-25	C.F.R 10K,1/8W
R624	1-118-334-25	C.F.R 330K,1/8W
R625	1-118-334-25	C.F.R 330K,1/8W
R626	1-118-103-25	C.F.R 10K,1/8W
R627	1-118-223-25	C.F.R 22K,1/8W
R628	1-118-223-25	C.F.R 22K,1/8W
R629	1-118-303-25	C.F.R 30K,1/8W
R630	1-118-104-25	C.F.R 100K,1/8W
R631	1-118-222-25	C.F.R 2.2K,1/8W
R632	1-118-104-25	C.F.R 100K,1/8W
R633	1-118-272-25	C.F.R 2.7K,1/8W
R634	1-118-102-25	C.F.R 1K,1/8W
R635	1-118-272-25	C.F.R 2.7K,1/8W
R636	1-118-104-25	C.F.R 100K,1/8W
R637	1-118-104-25	C.F.R 100K,1/8W
R638	1-118-222-25	C.F.R 2.2K,1/8W
R639	1-114-103-25	C.F.R 10K,1/4W
R640	1-118-303-25	C.F.R 30K,1/8W
R641	1-141-101-25	C.F.R 100,1/4W
R642	1-141-101-25	C.F.R 100,1/4W
R643	1-118-102-25	C.F.R 1K,1/8W
R644	1-118-470-25	C.F.R 47,1/8W
R645	1-118-470-25	C.F.R 47,1/8W
R646	1-118-102-25	C.F.R 1K,1/8W
R647	1-118-102-25	C.F.R 1K,1/8W
R648	1-118-153-25	C.F.R 15K,1/8W
R649	1-118-122-25	C.F.R 1.2K,1/8W
R650	1-118-102-25	C.F.R 1K,1/8W
R651	1-118-472-25	C.F.R 4.7K,1/8W
R652	1-118-473-25	C.F.R 47K,1/8W
R653	1-118-472-25	C.F.R 4.7K,1/8W
R654	1-118-103-25	C.F.R 10K,1/8W

INTEGRATED CIRCUITS

IC601	2-440-807-31	IC,GD4066B S/W
IC602	2-440-330-63-1	IC,BA6138 LEVEL METER
IC603	2-441-520-41=1	IC.NJM4558DD OP AMP
IC604	2-441-520-41-1	IC.NJM4558DD OP AMP

TRANSISTORS

Q601	2-406-106-15	KRA103M
Q602	2-406-104-15	KRC103M
Q603	2-406-104-15	KRC103M
Q604	2-406-104-15	KRC103M
Q605	2-406-104-15	KRC103M
Q606	2-406-104-15	KRC103M
Q607	2-406-104-15	KRC103M
Q608	2-402-111-35	KRC31981GR
Q609	2-406-104-15	KRC103M
Q610	2-402-111-35	KRC31981GR
Q611	2-402-111-35	KRC31981GR
Q612	2-402-116-15	KTC3205A
Q613	2-400-140-25	KTA1273A

DIODES

D601	2-414-299-95	1N4148M OR 1SS133
DZ601	2-421-047-35	UZ-4.7B OR 1N750A
DZ602	2-421-047-35	UZ-4.7B OR 1N750A
DZ603	2-421-047-35	UZ-4.7B OR 1N750A
DZ604	2-421-047-35	UZ-4.7B OR 1N750A
D602	2-414-299-95	1N4148M OR 1SS133
D603	2-414-299-95	1N4148M OR 1SS133

Ref.No.	Part No.	Description
D604	2-414-299-95	1N4148M OR 1SS133
DZ605	2-421-062-35	UZ-6.2B OR 1N753A
DZ606	2-421-062-35	UZ-6.2B OR 1N753A
D609	2-414-299-95	1N4148M OR 1SS133

CONTROLS

VR601	2-512-103-01	10K,SEMI FIX RES
VR602	2-512-103-01	10K,SEMI FIX RES
VR603	2-512-103-01	10K,SEMI FIX RES
VR604	2-512-103-01	10K,SEMI FIX RES
VR605	2-512-103-01	10K,SEMI FIX RES

MISCELLANEOUS

WA601	2-168-498-01	P=2,5PIN,53014-0510
WA602	2-168-383-01	P=2,7PIN,53178-0710
WA603	2-168-383-01	P=2,7PIN,53178-0710

Ref.No.	Part No.	Description

PCB-3 REC CAL VOLUME P.C. BOARD

RESISTORS

R231	1-118-822-25	C.F.R 8.2K,1/8W
R232	1-118-822-25	C.F.R 8.2K,1/8W

CONTROLS

VR606	2-501-3C7-01	5KB,ROUND VR

MISCELLANEOUS

WA824	2-159-643-01	3PIN,L=300mm
WA825	2-159-890-01	3PIN,L=350mm

Ref.No.	Part No.	Description

PCB-4 POWER P.C. BOARD

CAPACITORS

C901	1-414-222-67	CEA	2200/25V
C902	1-414-472-67	CEA	4700/25V
C903	1-414-472-67	CEA	4700/25V
C904	1-414-221-67	CEA	220/25V
C905	1-414-471-67	CEA	470/25V
C907	1-998-205-01	CER	DA7170,103Z/250V

RESISTORS

R891	1-118-102-25	C.F.R	1K,1/8W
R903	1-114-223-25	C.F.R	22K,1/4W
R902	1-114-221-25	C.F.R	220,1/4W

TRANSISTORS

Q901	2-406-104-15	KRC103M

Ref.No.	Part No.	Description
	DIODES	
D901	2-413-571-65-1	1N4002L,1A/100V
DZ901	2-421-062-45	UZ-6.2B OR 1N753A
DZ902	2-421-240-45	UZ-24B OR 1N970A
D902	2-413-571-65-1	1N4002L,1A/100V
D903	2-413-571-65-1	1N4002L,1A/100V
D904	2-413-571-65-1	1N4002L,1A/100V
D905	2-413-571-65-1	1N4002L,1A/100V
D906	2-413-571-65-1	1N4002L,1A/100V
D907	2-413-571-65-1	1N4002L,1A/100V
D908	2-413-571-65-1	1N4002L,1A/100V
D909	2-413-571-65-1	1N4002L,1A/100V
D910	2-413-571-65-1	1N4002L,1A/100V
D911	2-414-299-95	1N4148M OR 1SS133
D912	2-414-299-95	1N4148M OR 1SS133
D913	2-414-299-95	1N4148M OR 1SS133
	MISCELLANEOUS	
CN805	2-159-8A6-01	P=2.5,10PIN,L=100mm
IB 023	2-131-567-01	AC230V,50Hz,P-TRANS
BK 023	2-131-568-01	AC120V,60Hz,P-TRANS
IB 023A	2-211-138-01	POWER CORD 2.5A/250V SEMKO
BK	2-211-139-01	POWER CORD SPT-2,UL/CSA
	2-159-710-01	P=1.25,30PIN,C-CABLE
FU1	2-999-114-01	HOLDER FUSE,PBSP-H,0.3T
FU2	2-999-114-01	HOLDER FUSE,PBSP-H,0.3T
FU3	2-999-114-01	HOLDER FUSE,PBSP-H,0.3T
FU4	2-999-114-01	HOLDER FUSE,PBSP-H,0.3T
FU5	2-999-114-01	HOLDER FUSE,PBSP-H,0.3T
FU6	2-999-114-01	HOLDER FUSE,PBSP-H,0.3T
RY901	2-140-114-02-1	RSA-24 OR RZ24

Ref.No.	Part No.	Description

PCB-5 CONTROL P.C. BOARD

	CAPACITORS	
C802	1-9A6-104-64	AXL 0.1uF/50V
C828	1-9A6-104-64	AXL 0.1uF/50V
C829	1-9A6-104-64	AXL 0.1uF/50V
C830	1-9A3-122-64	AXL 1200PF/16V
C835	1-9A6-104-64	AXL 0.1uF/50V
	RESISTORS	
R42	1-118-103-25	C.F.R 10K,1/8W
R43	1-118-103-25	C.F.R 10K,1/8W
R44	1-118-103-25	C.F.R 10K,1/8W
R59	1-118-103-25	C.F.R 10K,1/8W
R801	1-118-331-25	C.F.R 330,1/8W
R802	1-118-105-25	C.F.R 1M,1/8W
R803	1-118-104-25	C.F.R 100K,1/8W
R804	1-118-104-25	C.F.R 100K,1/8W
R805	1-118-104-25	C.F.R 100K,1/8W
R806	1-118-104-25	C.F.R 100K,1/8W
R809	1-118-104-25	C.F.R 100K,1/8W
R810	1-118-104-25	C.F.R 100K,1/8W
R811	1-118-104-25	C.F.R 100K,1/8W
R812	1-118-104-25	C.F.R 100K,1/8W
R813	1-118-104-25	C.F.R 100K,1/8W
R827	1-118-104-25	C.F.R 100K,1/8W
R828	1-118-104-25	C.F.R 100K,1/8W
R829	1-118-102-25	C.F.R 1K,1/8W
R830	1-118-423-25	C.F.R 47K,1/8W
R831	1-118-423-25	C.F.R 47K,1/8W
R832	1-118-423-25	C.F.R 47K,1/8W
R833	1-118-423-25	C.F.R 47K,1/8W
R834	1-118-423-25	C.F.R 47K,1/8W
R835	1-118-423-25	C.F.R 47K,1/8W
R839	1-118-104-25	C.F.R 100K,1/8W
R840	1-118-104-25	C.F.R 100K,1/8W
R841	1-118-423-25	C.F.R 47K,1/8W
R842	1-118-222-25	C.F.R 2.2K,1/8W
R843	1-118-222-25	C.F.R 2.2K,1/8W
R844	1-118-222-25	C.F.R 2.2K,1/8W
R845	1-118-183-25	C.F.R 18K,1/8W

Ref.No.	Part No.	Description
R846	1-118-181-25	C.F.R 180,1/8W
R847	1-118-181-25	C.F.R 180,1/8W
R851	1-118-104-25	C.F.R 100K,1/8W
R853	1-118-104-25	C.F.R 100K,1/8W
R854	1-118-104-25	C.F.R 100K,1/8W
R855	1-118-103-25	C.F.R 10K,1/8W
R856	1-118-104-25	C.F.R 100K,1/8W
R857	1-118-103-25	C.F.R 10K,1/8W
R858	1-118-123-25	C.F.R 12K,1/8W
R859	1-118-104-25	C.F.R 100K,1/8W
R861	1-118-104-25	C.F.R 100K,1/8W
R862	1-118-423-25	C.F.R 47K,1/8W
R864	1-118-423-25	C.F.R 47K,1/8W
R869	1-118-102-25	C.F.R 1K,1/8W
R870	1-118-102-25	C.F.R 1K,1/8W
R871	1-118-102-25	C.F.R 1K,1/8W
R872	1-118-102-25	C.F.R 1K,1/8W
R873	1-118-102-25	C.F.R 1K,1/8W
R874	1-114-129-25	C.F.R 1.2,1/4W
R875	1-114-129-25	C.F.R 1.2,1/4W
	INTEGRATED CIRCUITS	
IC801	2-600-183-01-1	IC,LE1065,CPU
	TRANSISTORS	
Q801	2-406-104-15	KRC103M
Q802	2-406-104-15	KRC103M
Q803	2-406-106-15	KRA103M
Q804	2-406-106-15	KRA103M
Q805	2-406-106-15	KRA103M
Q806	2-406-106-15	KRA103M
Q807	2-406-106-15	KRA103M
Q810	2-406-107-15	KSR2001
Q811	2-406-107-15	KSR2001
	DIODES	
D801	2-414-299-95	1N4148M OR 1SS133
D802	2-414-299-95	1N4148M OR 1SS133
D803	2-414-299-95	1N4148M OR 1SS133
D804	2-414-299-95	1N4148M OR 1SS133
D805	2-414-299-95	1N4148M OR 1SS133
D806	2-414-299-95	1N4148M OR 1SS133
D807	2-414-299-95	1N4148M OR 1SS133
D808	2-414-299-95	1N4148M OR 1SS133
	CONTROLS	
VR801	2-501-387-01	5KB,ROUND,RK11K
VR802	2-501-377-01	100KMN,ROUND,RK14K
VR803	2-501-3A8-01	50KA x 2,ROUND,RK14K
	MISCELLANEOUS	
	2-170-956-01	PCB,CONTROL,V0B
RES801	2-138-186-01-1	FCR4.19MHz,MCT3
FLT801	2-143-262-01-1	CM1298D
CN801	2-168-289-01	30PIN,FPC WAFER
CN802	2-159-8A7-01	P=2,5PIN,L=100mm
CN804	2-159-7H3-01	P=2,5PIN,L=200mm,JST
CN827	2-159-7Y2-01	P=2,4PIN,L=300mm
CN828	2-159-7Y4-01	P=2,4PIN,L=350mm
CN901	2-168-574-01	P=7.96,2PIN
WA801	2-159-7N0-01	P=2,10PIN,L=100mm
WA803	2-168-573-01-1	8PIN,TRC-X08P-A2
SW802	2-208-157-01	TACT SW,KPT-1115AM
SW803	2-208-157-01	TACT SW,KPT-1115AM
SW804	2-208-157-01	TACT SW,KPT-1115AM
SW805	2-208-157-01	TACT SW,KPT-1115AM
SW806	2-208-157-01	TACT SW,KPT-1115AM

Ref.No.	Part No.	Description
SW807	2-208-157-01	TACT SW,KPT-1115AM
SW808	2-208-157-01	TACT SW,KPT-1115AM
SW809	2-208-157-01	TACT SW,KPT-1115AM
SW810	2-208-157-01	TACT SW,KPT-1115AM
SW812	2-208-157-01	TACT SW,KPT-1115AM
SW813	2-208-157-01	TACT SW,KPT-1115AM
SW814	2-208-157-01	TACT SW,KPT-1115AM
SW815	2-208-157-01	TACT SW,KPT-1115AM
SW816	2-208-157-01	TACT SW,KPT-1115AM
SW820	2-208-157-01	TACT SW,KPT-1115AM
SW821	2-208-157-01	TACT SW,KPT-1115AM
SW825	2-202-2338-01	SPEA12,ALPS,1KEY
LED802	2-419-473-45	R34MC N49,GREEN
LED803	2-419-473-45	R34MC N49,GREEN

Ref.No.	Part No.	Description

PCB-6 REMOTE CONTROL P.C. BOARD

CAPACITORS

C801	1-413-470-65	CEA 47/16V

RESISTORS

R801	1-118-331-25	C.F.R 330.1/8W
R878	1-118-472-25	C.F.R 4.7K,1/8W
R890	1-118-181-25	C.F.R 180.1/8W

TRANSISTORS

Q808	2-400-118-35	KTA1266GR

MISCELLANEOUS

CN803	2-168-572-01-1	8PIN,TRC-X08X-A2
SW817	2-208-157-01	TACT SW,KPT-1115AM
SW818	2-208-157-01	TACT SW,KPT-1115AM
SW819	2-208-157-01	TACT SW,KPT-1115AM
LED801	2-419-963-31	2COLOR,SPR39MVW3
REM801	2-125-826-01-1	IRM8410B-A

Ret.No.	Part No.	Description

PCB-7 DOLBY S P.C. BOARD

CONTROLS

C301	1-506-104-45	CQMA 0.1uF/50V
C302	1-506-104-45	CQMA 0.1uF/50V
C303	1-506-182-45	CQMA 0.0018uF/50V
C304	1-506-393-45	CQMA 0.039uF/50V
C305	1-506-104-45	CQMA 0.1uF/50V
C306	1-506-182-45	CQMA 0.0018uF/50V
C307	1-667-224-45	0.22uF/63V,5%
C308	1-416-478-65	CEA 0.47/50V
C309	1-506-823-45	CQMA 0.082uF/50V
C310	1-667-334-45	0.33uF/63V,5%
C311	1-506-822-45	CQMA 0.0082uF/50V
C312	1-413-470-65	CEA 47/16V
C313	1-506-104-45	CQMA 0.1uF/50V
C314	1-506-153-45	CQMA 0.015uF/50V
C315	1-506-473-45	CQMA 0.047uF/50V
C316	1-506-222-45	CQMA 0.0022uF/50V
C317	1-506-102-45	CQMA 0.001uF/50V
C318	1-886-471-45	CCDSL 470P
C319	1-506-182-45	CQMA 0.0018uF/50V
C320	1-506-183-45	CQMA 0.018uF/50V
C321	1-506-182-45	CQMA 0.0018uF/50V
C322	1-506-223-45	CQMA 0.022uF/50V
C323	1-416-478-65	CEA 0.47/50V
C324	1-667-224-45	0.22uF/63V,5%
C325	1-413-220-65	CEA 22/16V
C326	1-506-104-45	CQMA 0.1uF/50V

Ref.No.	Part No.	Description
C327	1-506-183-45	CQMA 0.018uF/50V
C328	1-506-223-45	CQMA 0.022uF/50V
C329	1-506-102-45	CQMA 0.001uF/50V
C330	1-506-104-45	CQMA 0.1uF/50V
C331	1-506-104-45	CQMA 0.1uF/50V
C332	1-413-470-65	CEA 47/16V
C333	1-506-823-45	CQMA 82000P
C334	1-667-224-45	0.22uF/63V,5%
C335	1-416-478-65	CEA 0.47/50V
C336	1-506-153-45	CQMA 0.015uF/50V
C337	1-667-224-45	0.22uF/63V,5%
C338	1-506-822-45	CQMA 0.0082uF/50V
C339	1-886-681-45	CCDSL 680P
C340	1-506-393-45	CQMA 0.039uF/50V
C341	1-416-010-65	CEA 1/50V
C342	1-667-224-45	0.22uF/63V,5%
C343	1-506-104-45	CQMA 0.1uF/50V
C344	1-413-100-65	CEA 10/16V
C401	1-506-104-45	CQMA 0.1uF
C402	1-506-104-45	CQMA 0.1uF
C403	1-506-182-45	CQMA 0.0018uF/50V
C404	1-506-393-45	CQMA 0.039uF/50V
C405	1-506-104-45	CQMA 0.1uF/50V
C406	1-506-182-45	CQMA 0.0018uF/50V
C407	1-667-224-45	0.22uF/63V,5%
C408	1-416-478-65	CEA 0.47/50V
C409	1-506-823-45	CQMA 0.083uF/50V
C410	1-667-334-45	0.33uF/63V,5%
C411	1-506-822-45	CQMA 0.0082uF/50V
C412	1-413-470-65	CEA 47/16V
C413	1-506-104-45	CQMA 0.1V
C414	1-506-153-45	CQMA 0.015uF/50V
C415	1-506-473-45	CQMA 0.047uF/50V
C416	1-506-222-45	CQMA 0.0022uF/50V
C417	1-506-102-45	CQMA 0.001uF/50V
C418	1-886-471-45	CCDSL 470P
C419	1-506-182-45	CQMA 0.0018uF/50V
C420	1-506-183-45	CQMA 0.018uF/50V
C421	1-506-182-45	CQMA 0.0018uF/50V
C422	1-506-223-45	CQMA 0.022uF/50V
C423	1-416-478-65	CEA 0.47/50V
C424	1-667-224-45	0.22uF/63V,5%
C425	1-413-470-65	CEA 47/16V
C426	1-506-104-45	CQMA 0.1uF/50V
C427	1-506-183-45	CQMA 0.018uF/50V
C428	1-506-223-45	CQMA 0.022uF/50V
C429	1-506-102-45	CQMA 0.001uF/50V
C430	1-506-104-45	CQMA 0.1uF/50V
C431	1-506-104-45	CQMA 0.1uF/50V
C432	1-413-470-65	CEA 47/16V
C433	1-506-823-45	CQMA 0.082uF/50V
C434	1-667-224-45	0.22uF/63V,5%
C435	1-416-478-65	CEA 0.47/50V
C436	1-506-153-45	CQMA 0.015uF/50V
C437	1-667-224-45	0.22uF/63V,5%
C438	1-506-822-45	CQMA 0.0082uF/50V
C439	1-886-681-45	CCDSL 680P
C440	1-506-393-45	CQMA 0.039uF/50V
C441	1-416-010-65	CEA 1/50V
C442	1-667-224-45	0.22uF/63V,5%
C443	1-506-104-45	CQMA 0.1uF/50V
C444	1-413-100-65	CEA 10/16V
C501	1-506-104-45	CQMA 0.1uF/50V
C502	1-506-104-45	CQMA 0.1uF/50V
C503	1-506-182-45	CQMA 0.0018uF/50V
C504	1-506-393-45	CQMA 0.039uF/50V
C505	1-506-104-45	CQMA 0.1uF/50V
C506	1-506-182-45	CQMA 0.0018uF/50V
C507	1-667-224-45	0.22uF/63V,5%
C508	1-416-478-65	CEA 0.47/50V
C509	1-506-823-45	CQMA 0.082uF/50V
C510	1-667-334-45	0.33uF/63V,5%
C511	1-506-822-45	CQMA 0.0082uF/50V
C512	1-413-470-65	CEA 47/16V

Ref.No.	Part No.	Description
C513	1-506-104-45	CQMA 0.1uF/50V
C514	1-506-153-45	CQMA 0.015uF/50V
C515	1-506-473-45	CQMA 0.047uF/50V
C516	1-506-222-45	CQMA 0.002uF/50V
C517	1-506-102-45	CQMA 0.001uF/50V
C518	1-886-471-45	CCDSL 470P
C519	1-506-182-45	CQMA 0.0018uF/50V
C520	1-506-183-45	CQMA 0.018uF/50V
C521	1-506-182-45	CQMA 0.0018uF/50V
C522	1-506-223-45	CQMA 0.022uF/50V
C523	1-416-478-65	CEA 0.47/50V
C524	1-667-224-45	0.22uF/63V,5%
C525	1-413-470-65	CEA 47/16V
C526	1-506-104-45	CQMA 0.1uF/50V
C527	1-506-183-45	CQMA 0.018uF/50V
C528	1-506-223-45	CQMA 0.022uF/50V
C529	1-506-102-45	CQMA 0.001uF/50V
C530	1-506-104-45	CQMA 0.1uF/50V
C531	1-506-104-45	CQMA 0.1uF/50V
C532	1-413-470-65	CEA 47/16V
C533	1-506-823-45	CQMA 0.082uF/50V
C534	1-667-224-45	0.22uF/63V,5%
C535	1-416-478-65	CEA 0.47/50V
C536	1-506-153-45	CQMA 0.015uF/50V
C537	1-667-224-45	0.22uF/63V,5%
C538	1-506-822-45	CQMA 0.0082uF/50V
C539	1-886-681-45	CCDSL 680P
C540	1-506-393-45	CQMA 0.039uF/50V
C541	1-416-010-65	CEA 1/50V
C542	1-667-224-45	0.22uF/63V,5%
C543	1-506-104-45	CQMA 0.1uF/50V
C544	1-413-100-65	CEA 10/16V
C601	1-506-104-45	CQMA 0.1uF/50V
C602	1-506-104-45	CQMA 0.1uF/50V
C603	1-506-182-45	CQMA 0.0018uF/50V
C604	1-506-393-45	CQMA 0.039uF/50V
C605	1-506-104-45	CQMA 0.1uF/50V
C606	1-506-182-45	CQMA 0.0018uF/50V
C607	1-667-224-45	0.22uF/63V,5%
C608	1-416-478-65	CEA 0.47/50V
C609	1-506-823-45	CQMA 0.082uF/50V
C610	1-667-334-45	0.33uF/63V,5%
C611	1-506-822-45	CQMA 0.0082uF/50V
C612	1-413-470-65	CEA 47/16V
C613	1-506-104-45	CQMA 0.1uF/50V
C614	1-506-153-45	CQMA 0.015uF/50V
C615	1-506-473-45	CQMA 0.047uF/50V
C616	1-506-222-45	CQMA 0.0022uF/50V
C617	1-506-102-45	CQMA 0.001uF/50V
C618	1-886-471-45	CCDSL 470P
C619	1-506-182-45	CQMA 0.0018uF/50V
C620	1-506-183-45	CQMA 0.018uF/50V
C621	1-506-182-45	CQMA 0.0018uF/50V
C622	1-506-223-45	CQMA 0.022uF/50V
C623	1-416-478-65	CEA 0.47/50V
C624	1-667-224-45	0.22uF/63V,5%
C625	1-413-470-65	CEA 47/16V
C626	1-506-104-45	CQMA 0.1uF/50V
C627	1-506-183-45	CQMA 0.018uF/50V
C628	1-506-223-45	CQMA 0.022uF/50V
C629	1-506-102-45	CQMA 0.001uF/50V
C630	1-506-104-45	CQMA 0.1uF/50V
C631	1-506-104-45	CQMA 0.1uF/50V
C632	1-413-470-65	CEA 47/16V
C633	1-506-823-45	CQMA 0.082uF/50V
C634	1-667-224-45	0.22uF/63V,5%
C635	1-416-478-65	CEA 0.47/50V
C636	1-506-153-45	CQMA 0.015uF/50V
C637	1-667-224-45	0.22uF/63V,5%
C638	1-506-822-45	CQMA 0.0082uF/50V
C369	1-886-681-45	CCDSL 680P
C640	1-506-393-45	CQMA 0.039uF/50V
C641	1-416-010-65	CEA 1/50V
C642	1-667-224-45	0.22uF/63V,5%
C643	1-506-104-45	CQMA 0.1uF/50V
C644	1-413-100-65	CEA 10/16V

Ref.No.	Part No.	Description
	RESISTORS	
R301	1-234-113-55	M.F.R CRB25,11K,1/4W
R302	1-234-303-55	M.F.R CRB25,30K,1/4W
R303	1-114-363-25	C.F.R 36K,1/4W
R304	1-114-512-25	C.F.R 5.1K,1/4W
R305	1-234-242-55	M.F.R CRB25,2.4K,1/4W
R306	1-234-163-55	M.F.R CRB25,16K,1/4W
R307	1-114-683-25	C.F.R 68K,1/4W
R308	1-234-512-55	M.F.R CRB25,5.1K,1/4W
R309	1-234-273-55	M.F.R CRB25,27K,1/4W
R310	1-234-822-55	M.F.R CRB25,8.2K,1/4W
R311	1-114-122-25	C.F.R 1.2K,1/4W
R312	1-114-242-25	C.F.R 2.4K,1/4W
R313	1-114-330-25	C.F.R 33,1/4W
R314	1-114-470-25	C.F.R 47,1/4W
R315	1-234-133-55	M.F.R CRB25,13K,1/4W
R316	1-114-152-25	C.F.R 1.5K,1/4W
R317	1-234-824-55	M.F.R CRB25,820K,1/4W
R318	1-234-113-55	M.F.R CRB25,11K,1/4W
R319	1-234-512-55	M.F.R CRB25,5.1K,1/4W
R320	1-114-203-25	C.F.R 20K,1/4W
R321	1-234-303-55	M.F.R CRB25,30K,1/4W
R322	1-234-243-55	M.F.R CRB25,24K,1/4W
R323	1-234-303-55	M.F.R CRB25,30K,1/4W
R324	1-114-113-25	C.F.R 11K,1/4W
R325	1-234-163-55	M.F.R CRB25,16K,1/4W
R326	1-114-822-25	C.F.R 8.2K,1/4W
R327	1-234-393-55	M.F.R CRB25,39K,1/4W
R329	1-234-183-55	M.F.R CRB25,18K,1/4W
R330	1-234-824-55	M.F.R CRB25,820K,1/4W
R331	1-234-162-55	M.F.R CRB25,1.6K,1/4W
R332	1-234-182-55	M.F.R CRB25,1.8K,1/4W
R333	1-234-132-55	M.F.R CRB25,1.3K,1/4W
R334	1-114-330-25	C.F.R 33,1/4W
R335	1-114-470-25	C.F.R 47,1/4W
R336	1-114-472-25	C.F.R 4.7K,1/4W
R337	1-234-512-55	M.F.R CRB25,5.1K,1/4W
R338	1-234-162-55	M.F.R CRB25,1.6K,1/4W
R339	1-114-182-25	C.F.R 1.8K,1/4W
R340	1-234-103-55	M.F.R CRB25,10K,1/4W
R341	1-234-512-55	M.F.R CRB25,5.1K,1/4W
R342	1-114-472-25	C.F.R 4.7K,1/4W
R343	1-114-242-25	C.F.R 2.4K,1/4W
R344	1-234-103-55	M.F.R CRB25,10K,1/4W
R345	1-234-393-55	M.F.R CRB25,39K,1/4W
R401	1-234-113-55	M.F.R CRB25,11K,1/4W
R402	1-234-303-55	M.F.R CRB25,30K,1/4W
R403	1-114-363-25	C.F.R 36K,1/4W
R404	1-114-512-25	C.F.R 5.1K,1/4W
R405	1-234-242-55	M.F.R CRB25,2.4K,1/4W
R406	1-234-163-55	M.F.R CRB25,16K,1/4W
R407	1-114-683-25	C.F.R 68K,1/4W
R408	1-234-512-55	M.F.R CRB25,5.1K,1/4W
R409	1-234-273-55	M.F.R CRB25,27K,1/4W
R410	1-234-822-55	M.F.R CRB25,8.2K,1/4W
R411	1-114-122-25	C.F.R 1.2K,1/4W
R412	1-114-242-25	C.F.R 2.4K,1/4W
R413	1-114-330-25	C.F.R 33,1/4W
R414	1-114-470-25	C.F.R 47,1/4W
R415	1-234-133-55	M.F.R CRB25,13K,1/4W
R416	1-234-824-55	M.F.R CRB25,820K,1/4W
R417	1-114-152-25	C.F.R 1.5K,1/4W
R418	1-234-113-55	M.F.R CRB25,11K,1/4W
R419	1-234-512-55	M.F.R CRB25,5.1K,1/4W
R420	1-114-203-25	C.F.R 20K,1/4W
R421	1-234-303-55	M.F.R CRB25,30K,1/4W
R422	1-234-243-55	M.F.R CRB25,24K,1/4W
R423	1-234-303-55	M.F.R CRB25,30K,1/4W
R424	1-114-113-25	C.F.R 11K,1/4W
R425	1-234-163-55	M.F.R CRB25,16K,1/4W
R426	1-114-822-25	C.F.R 8.2K,1/4W
R427	1-234-393-55	M.F.R CRB25,39K,1/4W
R429	1-234-183-55	M.F.R CRB25,18K,1/4W
R430	1-234-824-55	M.F.R CRB25,820K,1/4W
R431	1-234-162-55	M.F.R CRB25,1.6K,1/4W
R432	1-234-182-55	M.F.R CRB25,1.8K,1/4W
R433	1-234-132-55	M.F.R CRB25,1.3K,1/4W
R434	1-114-330-25	C.F.R 33,1/4W

Ref.No:	Part No.	Description
R435	1-114-470-25	C.F.R 47,1/4W
R436	1-114-472-25	C.F.R 4.7K,1/4W
R437	1-234-512-55	M.F.R CRB25,5.1K,1/4W
R438	1-234-162-55	M.F.R CRB25,1.6K,1/4W
R439	1-114-182-25	C.F.R 1.8K,1/4W
R440	1-234-103-55	M.F.R CRB25,10K,1/4W
R441	1-234-512-55	M.F.R CRB25,5.1K,1/4W
R442	1-114-472-25	C.F.R 4.7K,1/4W
R443	1-114-242-25	C.F.R 2.4K,1/4W
R444	1-234-103-55	M.F.R CRB25,10K,1/4W
R445	1-234-393-55	M.F.R CRB25,39K,1/4W
R501	1-234-113-55	M.F.R CRB25,11K,1/4W
R502	1-234-303-55	M.F.R CRB25,30K,1/4W
R503	1-114-363-25	C.F.R 36K,1/4W
R504	1-114-512-25	C.F.R 5.1K,1/4W
R505	1-234-242-55	M.F.R CRB25,2.4K,1/4W
R506	1-234-163-55	M.F.R CRB25,16K,1/4W
R507	1-114-683-25	C.F.R 68K,1/4W
R508	1-234-512-55	M.F.R CRB25,5.1K,1/4W
R509	1-234-273-55	M.F.R CRB25,27K,1/4W
R510	1-234-822-55	M.F.R CRB25,8.2K,1/4W
R511	1-114-122-25	C.F.R 1.2K,1/4W
R512	1-114-242-25	C.F.R 2.4K,1/4W
R513	1-114-330-25	C.F.R 33,1/4W
R514	1-114-470-25	C.F.R 47,1/4W
R515	1-234-133-55	M.F.R CRB25,13K,1/4W
R516	1-114-152-25	C.F.R 1.5K,1/4W
R517	1-234-824-55	M.F.R CRB25,820K,1/4W
R518	1-234-113-55	M.F.R CRB25,11K,1/4W
R519	1-234-512-55	M.F.R CRB25,5.1K,1/4W
R520	1-114-203-25	C.F.R 20K,1/4W
R521	1-234-303-55	M.F.R CRB25,30K,1/4W
R522	1-234-243-55	M.F.R CRB25,24K,1/4W
R523	1-234-303-55	M.F.R CRB25,30K,1/4W
R524	1-114-113-25	C.F.R 11K,1/4W
R525	1-234-163-55	M.F.R CRB25,16K,1/4W
R526	1-114-822-25	C.F.R 8.2K,1/4W
R527	1-234-393-55	M.F.R CRB25,39K,1/4W
R529	1-234-183-55	M.F.R CRB25,18K,1/4W
R530	1-234-824-55	M.F.R CRB25,820K,1/4W
R531	1-234-162-55	M.F.R CRB25,1.6K,1/4W
R533	1-234-132-55	M.F.R CRB25,1.3K,1/4W
R534	1-114-330-25	C.F.R 33,1/4W
R535	1-114-470-25	C.F.R 47,1/4W
R536	1-114-472-25	C.F.R 4.7K,1/4W
R537	1-234-512-55	M.F.R CRB25,5.1K,1/4W
R538	1-234-162-55	M.F.R CRB25,1.6K,1/4W
R539	1-114-182-25	C.F.R 1.8K,1/4W
R540	1-234-103-55	M.F.R CRB25,10K,1/4W
R541	1-234-512-55	M.F.R CRB25,5.1K,1/4W
R542	1-114-472-25	C.F.R 4.7K,1/4W
R543	1-114-242-25	C.F.R 2.4K,1/4W
R544	1-234-103-55	M.F.R CRB25,10K,1/4W
R545	1-234-393-55	M.F.R CRB25,39K,1/4W
R601	1-234-113-55	M.F.R CRB25,11K,1/4W
R602	1-234-303-55	M.F.R CRB25,30K,1/4W
R603	1-114-363-25	C.F.R 36K,1/4W
R604	1-114-512-25	C.F.R 5.1K,1/4W
R605	1-234-242-55	M.F.R CRB25,2.4K,1/4W
R606	1-234-163-55	M.F.R CRB25,16K,1/4W
R607	1-114-683-25	C.F.R 68K,1/4W
R608	1-234-512-55	M.F.R CRB25,5.1K,1/4W
R609	1-234-273-55	M.F.R CRB25,27K,1/4W
R610	1-234-822-55	M.F.R CRB25,8.2K,1/4W
R611	1-114-122-25	C.F.R 1.2K,1/4W
R612	1-114-242-25	C.F.R 2.4K,1/4W
R613	1-114-330-25	C.F.R 33,1/4W
R614	1-114-470-25	C.F.R 47,1/4W
R615	1-234-133-55	M.F.R CRB25,13K,1/4W
R616	1-234-824-55	M.F.R CRB25,820K,1/4W

Ref.No.	Part No.	Description
R617	1-114-152-25	C.F.R 1.5K,1/4W
R618	1-234-113-55	M.F.R CRB25,11K,1/4W
R619	1-234-512-55	M.F.R CRB25,5.1K,1/4W
R620	1-114-203-25	C.F.R 20K,1/4W
R621	1-234-303-55	M.F.R CRB25,30K,1/4W
R622	1-234-243-55	M.F.R CRB25,24K,1/4W
R623	1-234-303-55	M.F.R CRB25,30K,1/4W
R624	1-114-113-25	C.F.R 11K,1/4W
R625	1-234-163-55	M.F.R CRB25,16K,1/4W
R626	1-114-822-25	C.F.R 8.2K,1/4W
R627	1-234-393-55	M.F.R CRB25,39K,1/4W
R629	1-234-183-55	M.F.R CRB25,18K,1/4W
R630	1-234-824-55	M.F.R CRB25,820K,1/4W
R631	1-234-162-55	M.F.R CRB25,1.6K,1/4W
R632	1-234-182-55	M.F.R CRB25,1.8K,1/4W
R633	1-234-132-55	M.F.R CRB25,1.3K,1/4W
R634	1-114-330-25	C.F.R 33,1/4W
R635	1-114-470-25	C.F.R 47,1/4W
R636	1-114-472-25	C.F.R 4.7K,1/4W
R637	1-234-512-55	M.F.R CRB25,5.1K,1/4W
R638	1-234-162-55	M.F.R CRB25,1.6K,1/4W
R639	1-114-182-25	C.F.R 1.8K,1/4W
R640	1-234-103-55	M.F.R CRB25,10K,1/4W
R641	1-234-512-55	M.F.R CRB25,5.1K,1/4W
R642	1-114-472-25	C.F.R 4.7K,1/4W
R643	1-114-242-25	C.F.R 2.4K,1/4W
R644	1-234-103-55	M.F.R CRB25,10K,1/4W
R645	1-234-393-55	M.F.R CRB25,39K,1/4W

INTEGRATED CIRCUITS

IC3	2-440-436-74-1	DOLBY S IC,CXA1417S
IC4	2-440-436-74-1	DOLBY S IC,CXA1417S
IC5	2-440-436-74-1	DOLBY S IC,CXA1417S
IC6	2-440-436-74-1	DOLBY S IC,CXA1417S

MISCELLANEOUS

	2-170-912-01	PCB, DOLBY S
CN703	2-168-501-01	P=2,8PIN,53014-0810
CN704	2-168-501-01	P=2,8PIN,53014-0810

ABBREVIATIONS IN PARTS LIST

CAPACITORS

CEA : ALUMINUM ELECTROLYTIC CAPACITORS

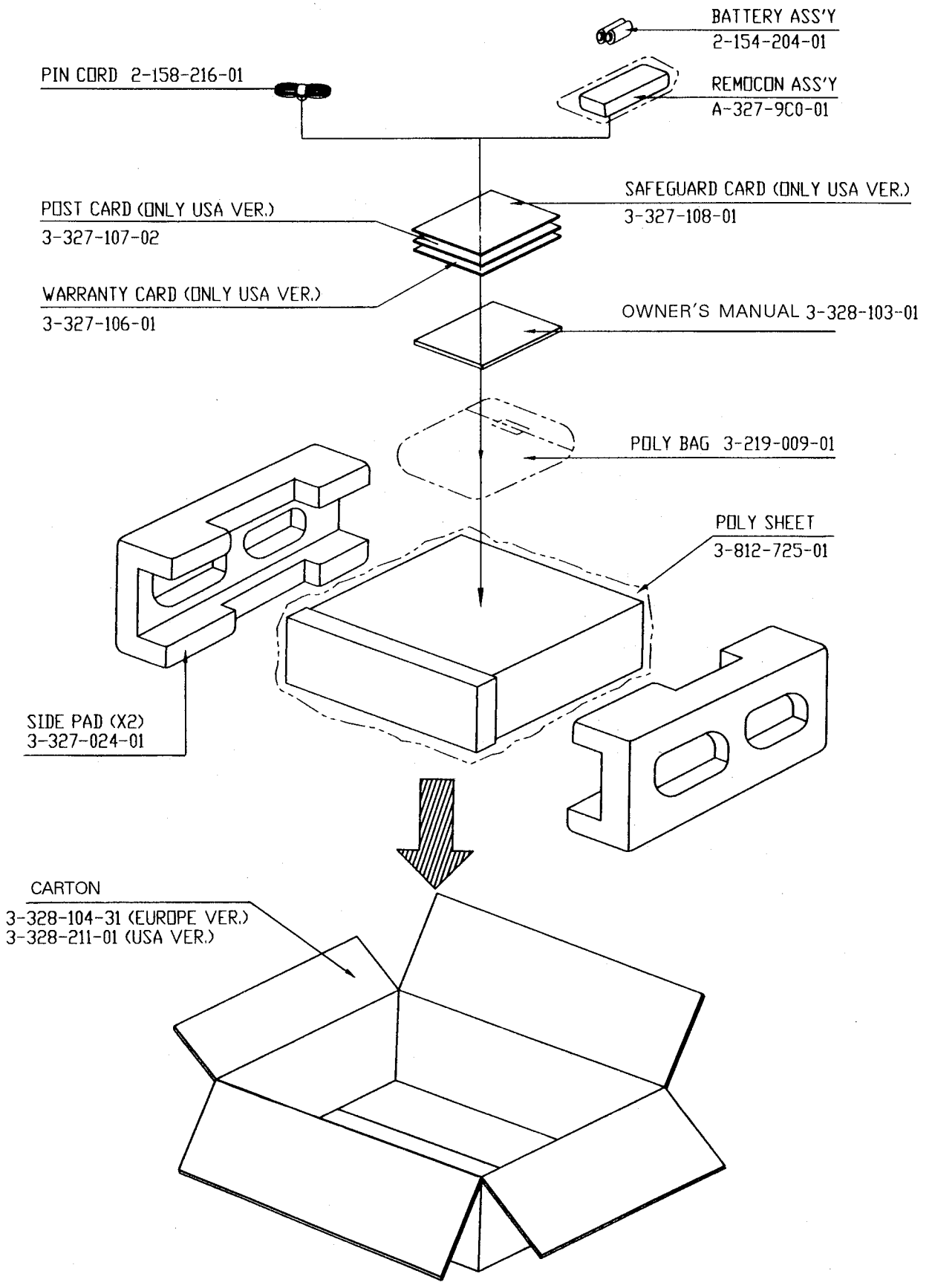
RESISTORS

C · F · R : CABON FIXED RESISTOR 10K : 10K Ohm
M · F · R : METAL FIXED RESISTOR 2.2 : 2.2 Ohm

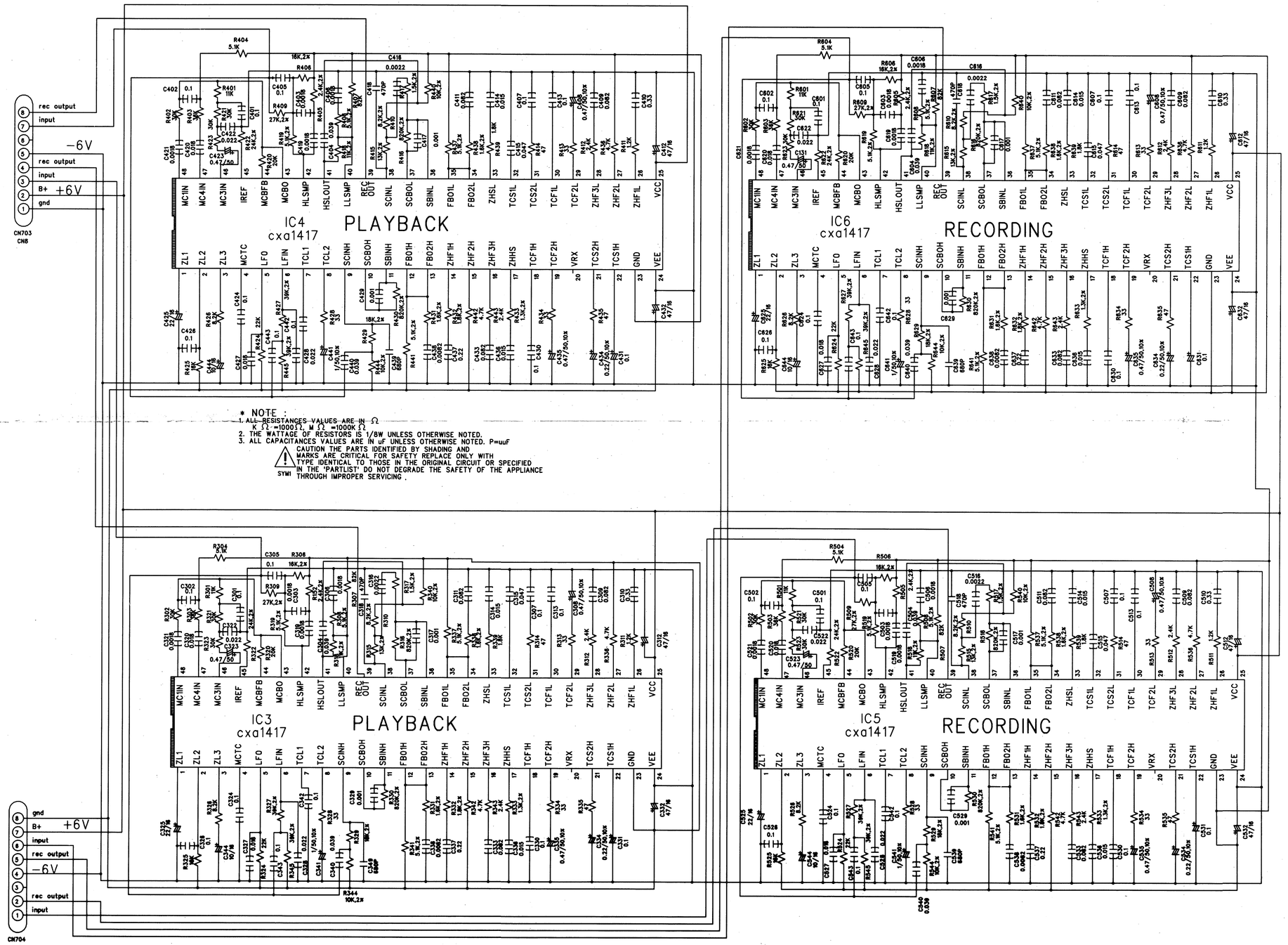
NOTE

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

PACKING DRAWING



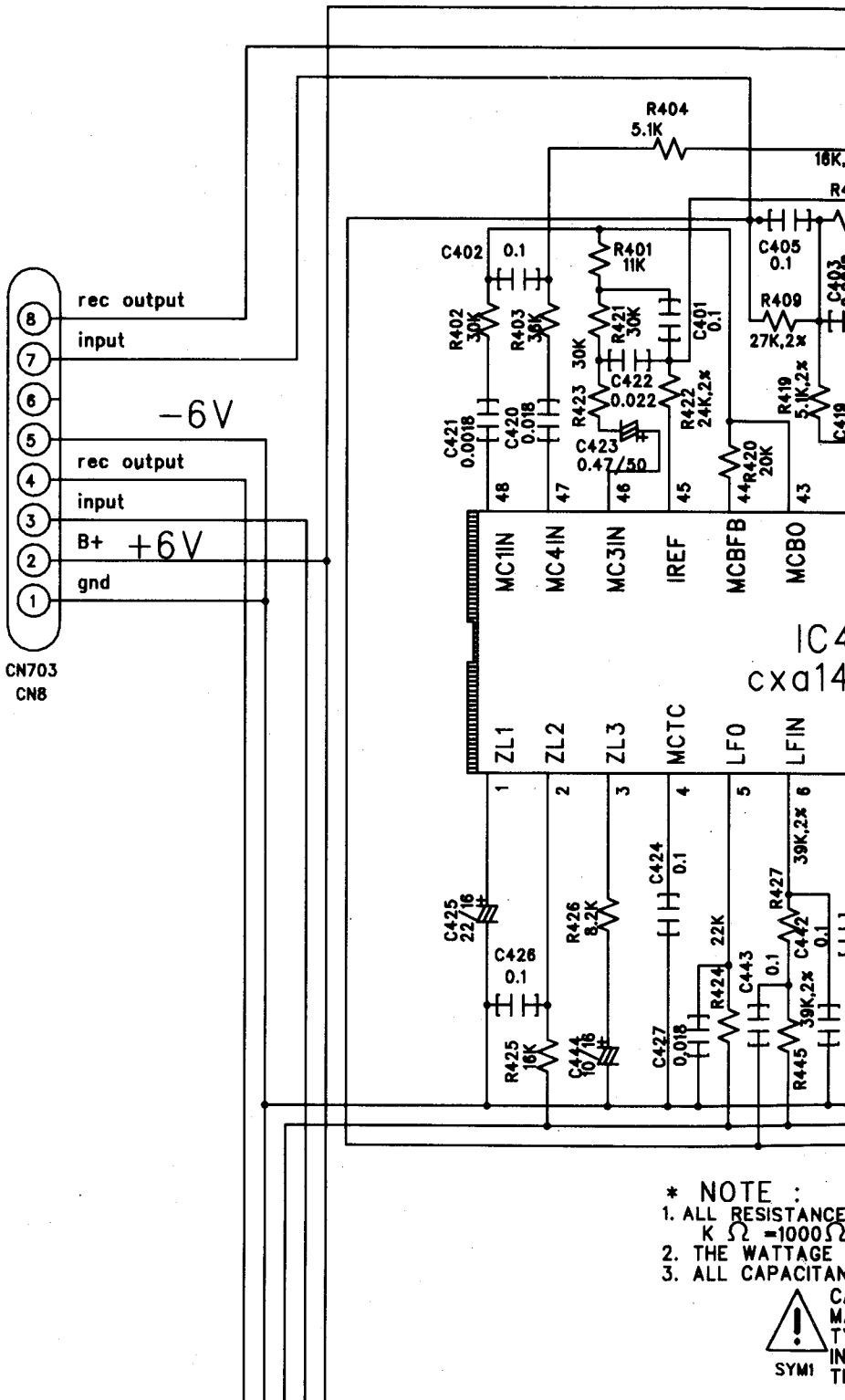
SCHEMATIC DIAGRAM
DOLBY S SCHEMATIC



* NOTE :
1. ALL RESISTANCES VALUES ARE IN Ω
K Ω =1000 Ω, M Ω =1000K Ω
2. THE WATTAGE OF RESISTORS IS 1/8W UNLESS OTHERWISE NOTED.
3. ALL CAPACITANCES VALUES ARE IN uF UNLESS OTHERWISE NOTED. P=uuF

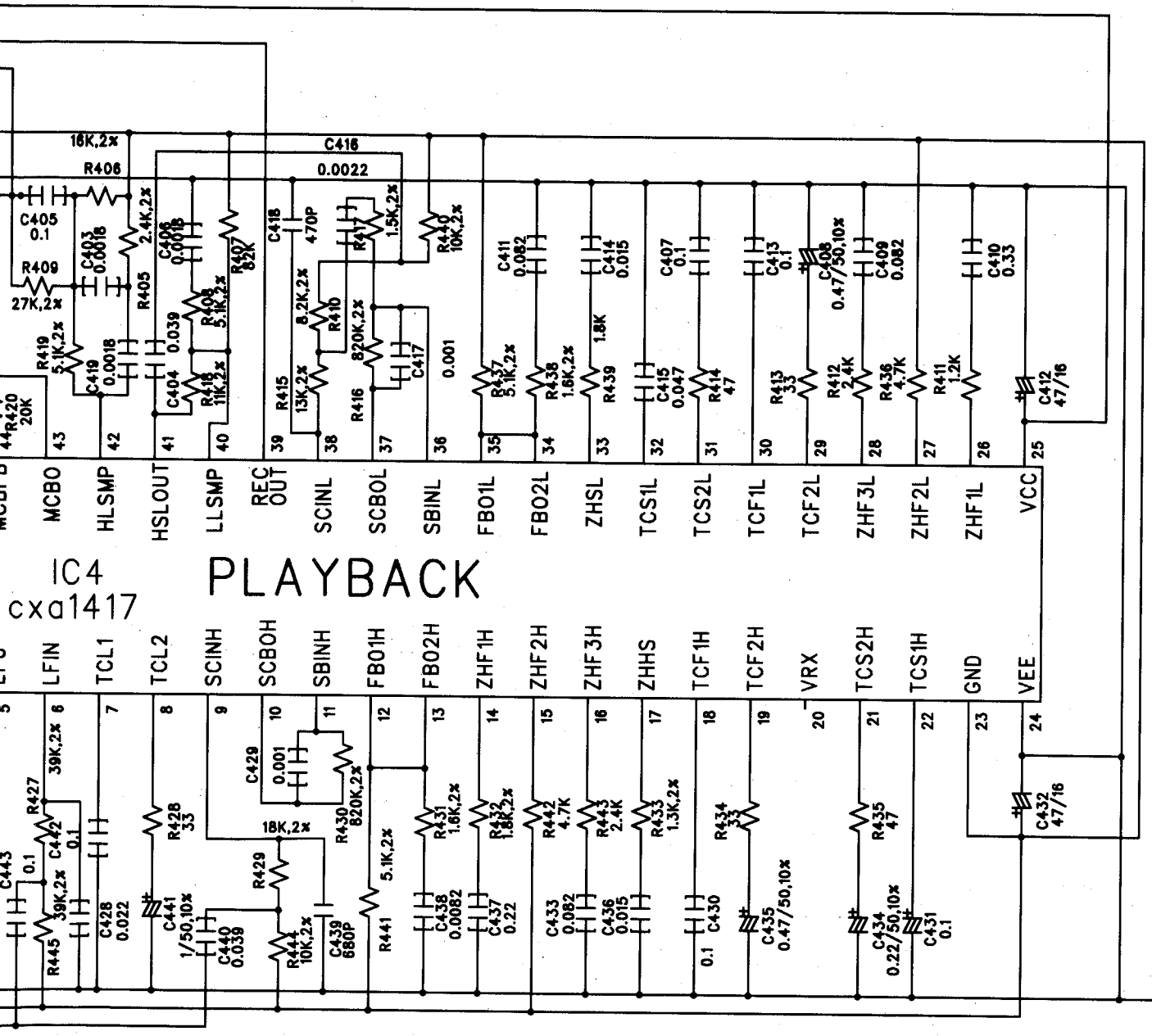
⚠ CAUTION THE PARTS IDENTIFIED BY SHADING AND MARKS ARE CRITICAL FOR SAFETY REPLACE ONLY WITH TYPE IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT OR SPECIFIED IN THE 'PARTLIST' DO NOT DEGRADE THE SAFETY OF THE APPLIANCE THROUGH IMPROPER SERVICING .
SYM1

SCHEMATIC DIAGRAM
DOLBY S SCHEMATIC



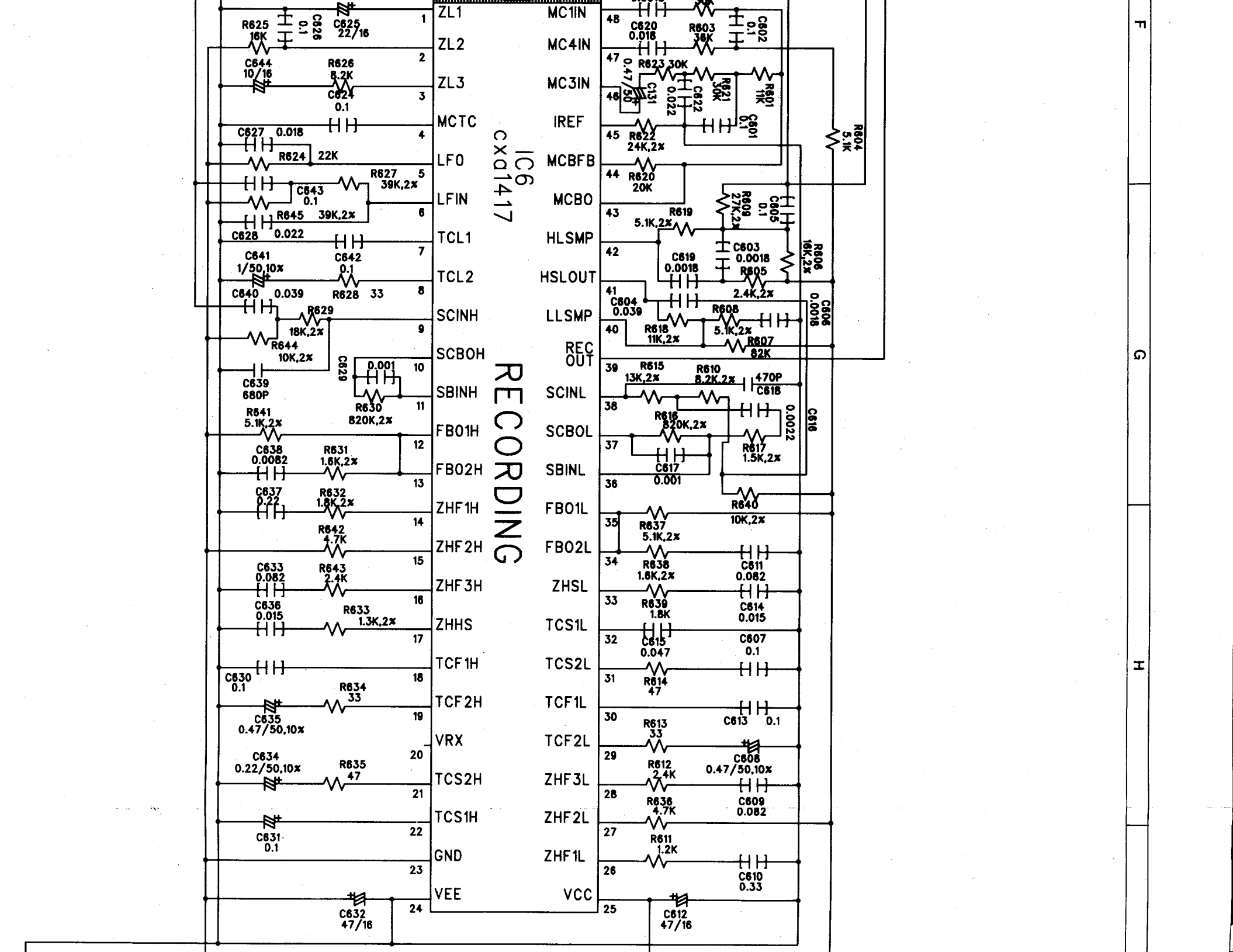
* NOTE :
1. ALL RESISTANCE
K Ω =1000Ω
2. THE WATTAGE
3. ALL CAPACITAN

SYM1



NOTE :
RESISTANCES VALUES ARE IN Ω
K Ω =1000Ω, M Ω =1000K Ω
WATTAGE OF RESISTORS IS 1/8W UNLESS OTHERWISE NOTED.
CAPACITANCES VALUES ARE IN uF UNLESS OTHERWISE NOTED. P=uuF

SYM1 CAUTION THE PARTS IDENTIFIED BY SHADING AND MARKS ARE CRITICAL FOR SAFETY REPLACE ONLY WITH TYPE IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT OR SPECIFIED IN THE 'PARTLIST' DO NOT DEGRADE THE SAFETY OF THE APPLIANCE THROUGH IMPROPER SERVICING .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cxa1417
RECORDING
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ZL2
ZL3
MCTC
LFO
LFIN
TCL1
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SCINH
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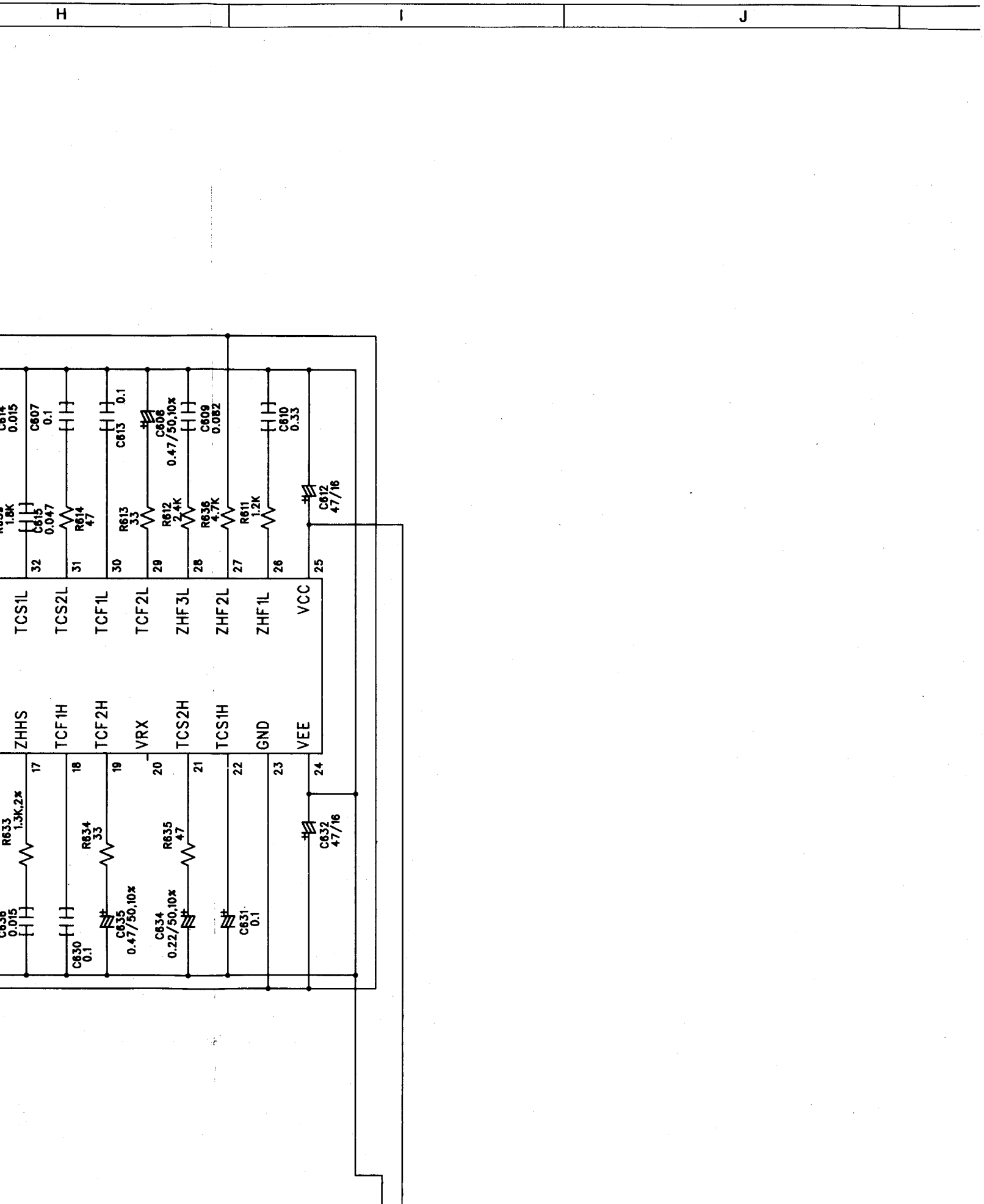
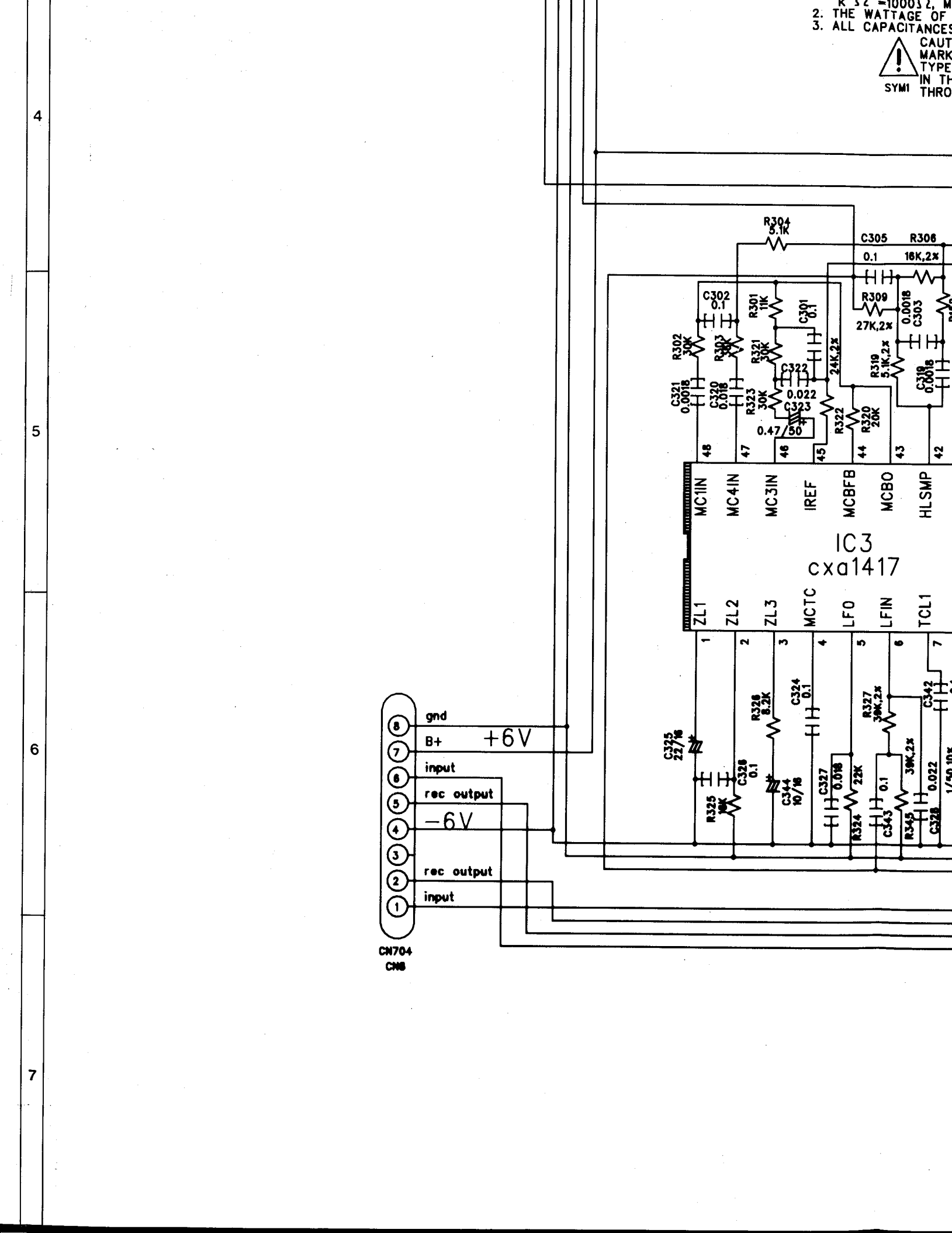
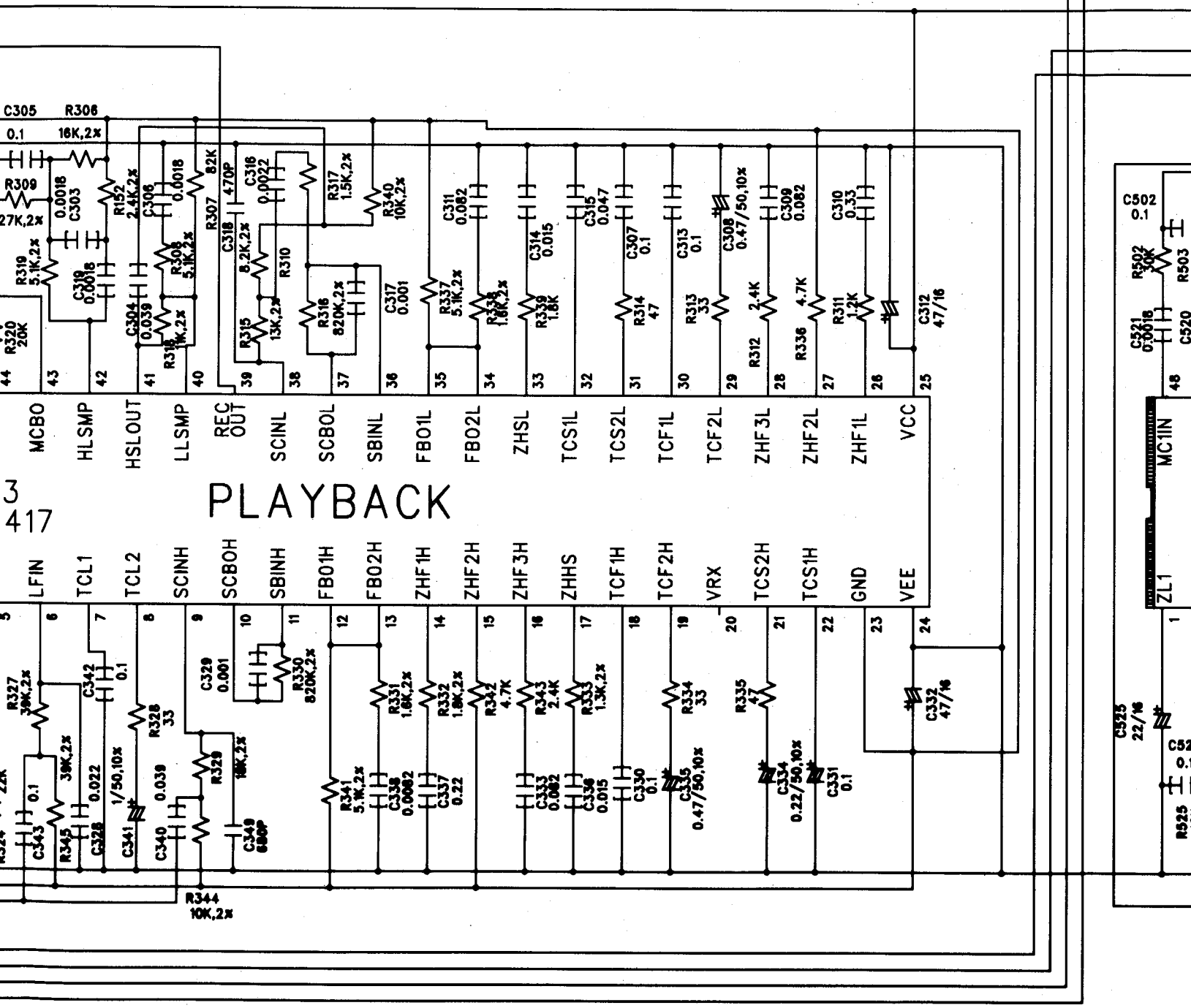
SBINH
FB01H
FB02H
ZHF1H
ZHF2H
ZHF3H
ZHHS
TCF1H
TCF2H
VRX
TCS2H
TCS1H
GND
VEE
MC1IN
MC4IN
MC3IN
IREF
MCBFB
MCBO
HLSMP
HSLOUT
LLSMP
REC OUT
SCINL
SCBOL
SBINL
FB01L
FB02L
ZHSL
TCS1L
TCS2L
TCF1L
TCF2L
ZHF3L
ZHF2L
ZHF1L
VCC
R625 16K
C626 0.1
C625 22/16
C644 10/16
R626 8.2K
C624 0.1
C627 0.018
R624 22K
R627 39K,2%
C643 0.1
R645 39K,2%
C628 0.022
C641 1/50,10%
C642 0.1
C640 0.039
R628 33
R629 18K,2%
R644 10K,2%
C639 680P
C629 0.001
R630 820K,2%
R641 5.1K,2%
C638 0.0082
R631 1.6K,2%
C637 0.22
R632 1.8K,2%
R642 4.7K
C633 0.082
R643 2.4K
C636 0.015
R633 1.3K,2%
C630 0.1
R634 33
C635 0.47/50,10%
C634 0.22/50,10%
R635 47
C631 0.1
C632 47/16
C620 0.018
R603 36K
C602 0.1
R623 30K
C131 0.47/50
C622 0.022
R621 30K
R601 11K
C601 0.1
R622 24K,2%
R620 20K
R604 5.1K
R609 27K,2%
C605 0.1
R619 5.1K,2%
C603 0.0018
C619 0.0018
R605 2.4K,2%
R606 16K,2%
C604 0.039
R608 5.1K,2%
R618 11K,2%
R607 82K
C606 0.0018
R615 13K,2%
R610 8.2K,2%
470P C618
R616 820K,2%
C616 0.0022
R617 1.5K,2%
C617 0.001
R640 10K,2%
R637 5.1K,2%
R638 1.6K,2%
C611 0.082
R639 1.8K
C614 0.015
C615 0.047
C607 0.1
R614 47
C613 0.1
R613 33
C608 0.47/50,10%
R612 2.4K
R636 4.7K
C609 0.082
R611 1.2K
C610 0.33
C612 47/16
F
G
H

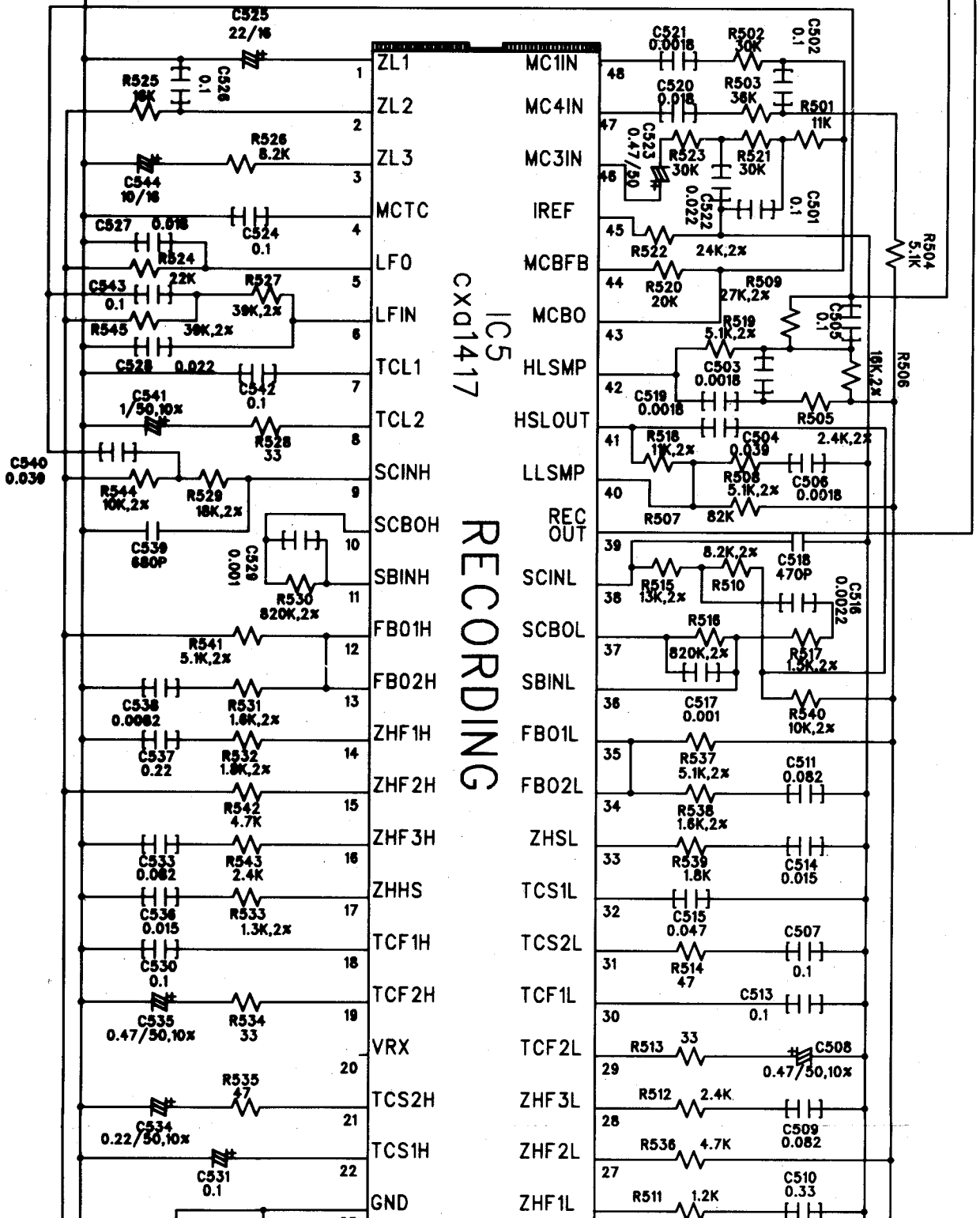

H
I
J
C614 0.015
C607 0.1
C613 0.1
C608 0.47/50,10%
C609 0.082
C610 0.33
C612 47/16
R615 1.8K
R614 47
R613 33
R612 2.4K
R636 4.7K
R611 1.2K
TCS1L
TCS2L
TCF1L
TCF2L
ZHF3L
ZHF2L
ZHF1L
VCC
32
31
30
29
28
27
26
25
C636 0.015
C630 0.1
C635 0.47/50,10%
C634 0.22/50,10%
C631 0.1
C632 47/16
R633 1.3K,2%
R634 33
R635 47
ZHHS
TCF1H
TCF2H
VRX
TCS2H
TCS1H
GND
VEE
17
18
19
20
21
22
23
24

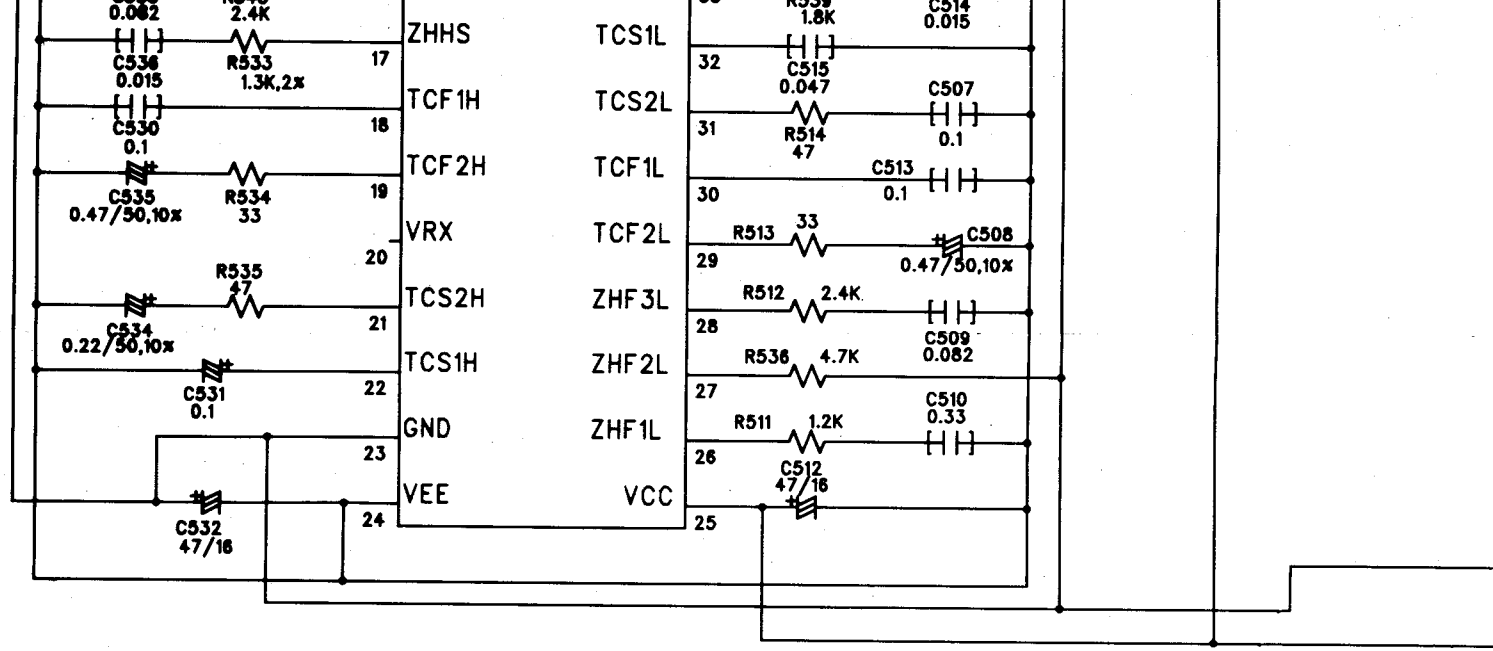

2. THE WATTAGE OF
3. ALL CAPACITANCES
SYM1
R304 5.1K
C305 0.1
R306 16K,2%
R309 27K,2%
C303 0.0018
C319 0.0018
R319 5.1K,2%
R320 20K
R322 24K,2%
C322 0.022
C323 0.47/50
R323 30K
C320 0.018
C321 0.0018
R321 30K
C301 0.1
R301 11K
C302 0.1
R302 30K
R303 30K
MC1IN
MC4IN
MC3IN
IREF
MCBFB
MCBO
HLSMP
IC3
cxa1417
ZL1
ZL2
ZL3
MCTC
LFO
LFIN
TCL1
C325 22/16
R328 8.2K
C324 0.1
R327 39K,2%
C342
C326 0.1
C344 10/16
C327 0.018
R325
R324 22K
C343 0.1
R345 39K,2%
C328 0.022
gnd
B+
+6V
input
rec output
-6V
rec output
input
CN704
CN8

Ω =1000Ω, M Ω =1000KΩ
WATTAGE OF RESISTORS IS 1/8W UNLESS OTHERWISE NOTED.
CAPACITANCES VALUES ARE IN uF UNLESS OTHERWISE NOTED. P=uuF

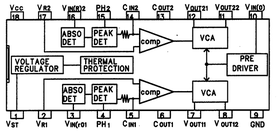
SYM1 CAUTION THE PARTS IDENTIFIED BY SHADING AND MARKS ARE CRITICAL FOR SAFETY REPLACE ONLY WITH TYPE IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT OR SPECIFIED IN THE 'PARTLIST' DO NOT DEGRADE THE SAFETY OF THE APPLIANCE THROUGH IMPROPER SERVICING .



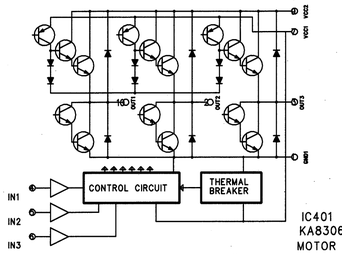

IC5
CXA1417
RECORDING
ZL1
ZL2
ZL3
MCTC
LFO
LFIN
TCL1
TCL2
SCINH
SCBOH
SBINH
FB01H
FB02H
ZHF1H
ZHF2H
ZHF3H
ZHHS
TCF1H
TCF2H
VRX
TCS2H
TCS1H
GND
MC1IN
MC4IN
MC3IN
IREF
MCBFB
MCBO
HLSMP
HSLOUT
LLSMP
REC OUT
SCINL
SCBOL
SBINL
FB01L
FB02L
ZHSL
TCS1L
TCS2L
TCF1L
TCF2L
ZHF3L
ZHF2L
ZHF1L
C525 22/16
R525 18K
C526 0.1
R526 8.2K
C544 10/16
C527 0.018
C524 0.1
R524 22K
C543 0.1
R527 39K,2%
R545 39K,2%
C528 0.022
C542 0.1
C541 1/50,10%
R528 33
C540 0.039
R544 10K,2%
R529 18K,2%
C539 680P
C529 0.001
R530 820K,2%
R541 5.1K,2%
C538 0.0082
R531 1.6K,2%
C537 0.22
R532 1.8K,2%
R542 4.7K
C533 0.082
R543 2.4K
C536 0.015
R533 1.3K,2%
C530 0.1
C535 0.47/50,10%
R534 33
R535 47
C534 0.22/50,10%
C531 0.1
C521 0.0018
R502 30K
C502 0.1
C520 0.018
R503 36K
R501 11K
C523 0.47/50
R523 30K
R521 30K
C522 0.022
C501 0.1
R522 24K,2%
R504 5.1K
R520 20K
R509 27K,2%
C505 0.1
R519 5.1K,2%
C503 0.0018
C519 0.0018
R505 18K,2%
R506
R518 11K,2%
C504 0.039
R508 5.1K,2%
C506 0.0018
R507 82K
2.4K,2%
8.2K,2%
R515 13K,2%
R510
C518 470P
C516 0.0022
R516 820K,2%
R517 1.5K,2%
C517 0.001
R540 10K,2%
R537 5.1K,2%
C511 0.082
R538 1.6K,2%
R539 1.8K
C514 0.015
C515 0.047
R514 47
C507 0.1
C513 0.1
R513 33
C508 0.47/50,10%
R512 2.4K
C509 0.082
R536 4.7K
C510 0.33
R511 1.2K


0.082
2.4K
C536
0.015
R533
1.3K,2%
C530
0.1
C535
0.47/50,10%
R534
33
R535
47
C534
0.22/50,10%
C531
0.1
C532
47/16
ZHHS
17
TCF1H
18
TCF2H
19
VRX
20
TCS2H
21
TCS1H
22
GND
23
VEE
24
TCS1L
TCS2L
TCF1L
TCF2L
ZHF3L
ZHF2L
ZHF1L
VCC
32
31
30
29
28
27
26
25
1.8K
C514
0.015
C515
0.047
R514
47
C507
0.1
C513
0.1
R513
33
C508
0.47/50,10%
R512
2.4K
C509
0.082
R536
4.7K
C510
0.33
R511
1.2K
C512
47/16

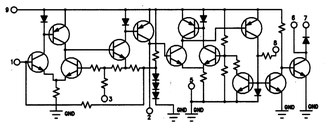
SCHEMATIC DIAGRAM (MAIN)



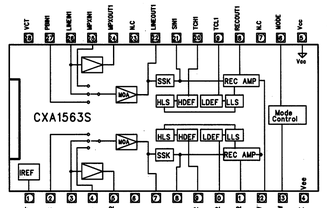
IC301
upc1297CA
INTEGRATED CIRCUIT FOR DOLBY HX PRO SYSTEM



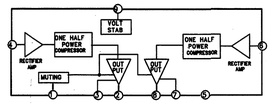
IC401
KA8306
MOTOR DRIVE CIRCUIT



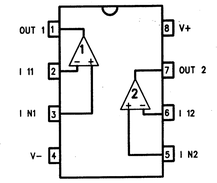
IC101
LA2000 or BA335
MUSIC SEARCH CIRCUIT



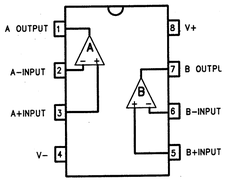
IC503,IC505 INTEGRATED CIRCUIT FOR DOLBY NR



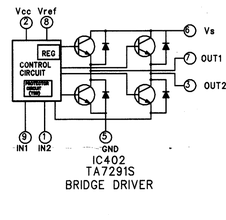
IC602
BA6138A



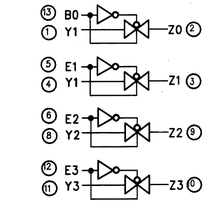
IC201
uPC4570
DUAL OPERATIONAL AMPLIFIER



IC504,603,604
NJM4558
DUAL OPERATIONAL AMPLIFIER

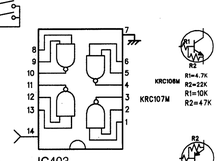


IC402
TA7291S
BRIDGE DRIVER



Vdd = Pin 14
Vss = Pin 7
= PIN NUMBERS

IC601
GD4066
QUAD BILATERAL SWITCHES

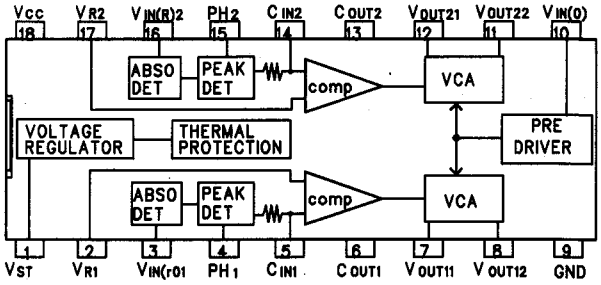


IC403
GD4011
QUAD NAND GATE

⏚ :CERAMIC CAPACITOR

⏚ : MYLAR CAPACITOR

SCHEMATIC DIAGRAM (MAIN)



IC301
upc1297CA
INTEGRATED CIRCUIT FOR DOLBY HX PRO SYSTEM

IN1
IN2
IN3

PB AMP

Q115,Q116 : PB MUTE
VR101,VR102 : PB LEVEL adj
Q411,Q527 : 120u/70u SELECT

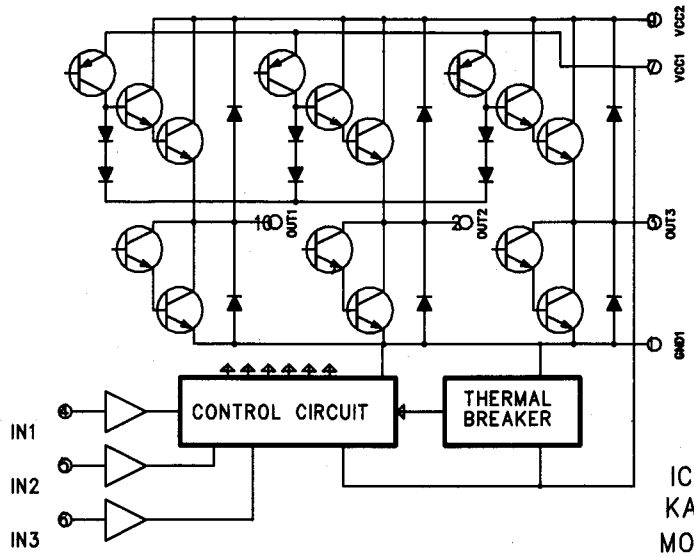
PB L-CH
PB R-CH
WA101

ERASE
RP L-CH
RP R-CH
E-HEAD
GND
L-HEAD
R-HEAD
TP201
TP202
WA102

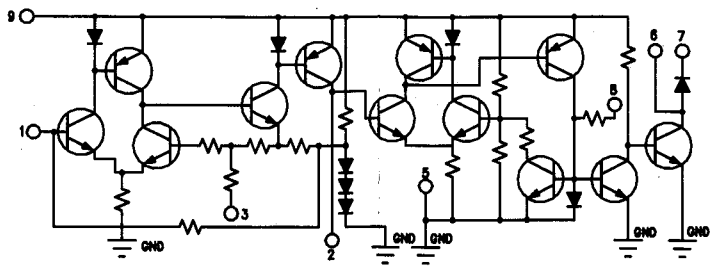
WA5
WA809
REC(EN/DE)
BIAS
A9.1V
DOLBY OFF/B/C

MUSIC SEARCH IC
IC101
LA2000

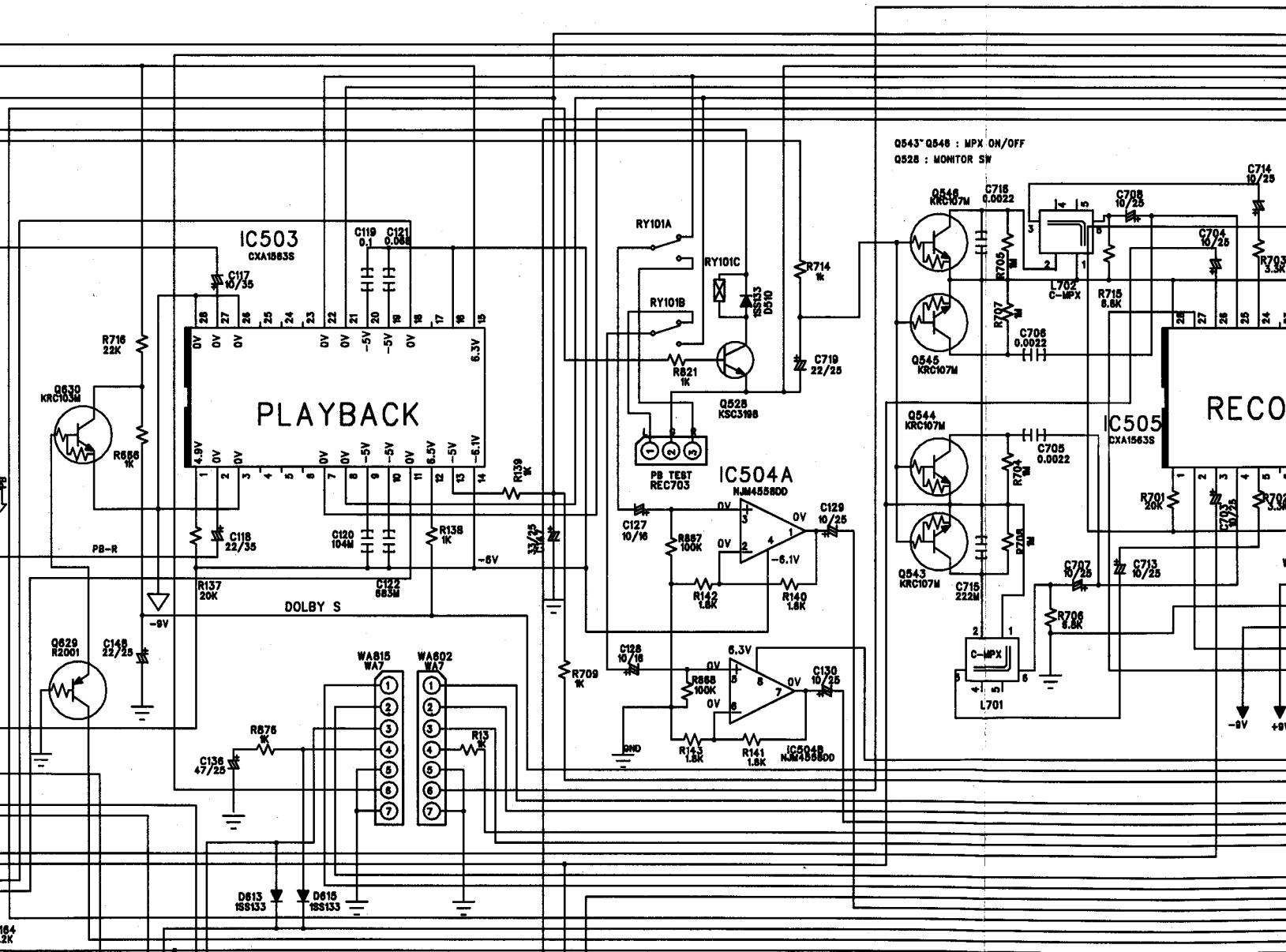
REC

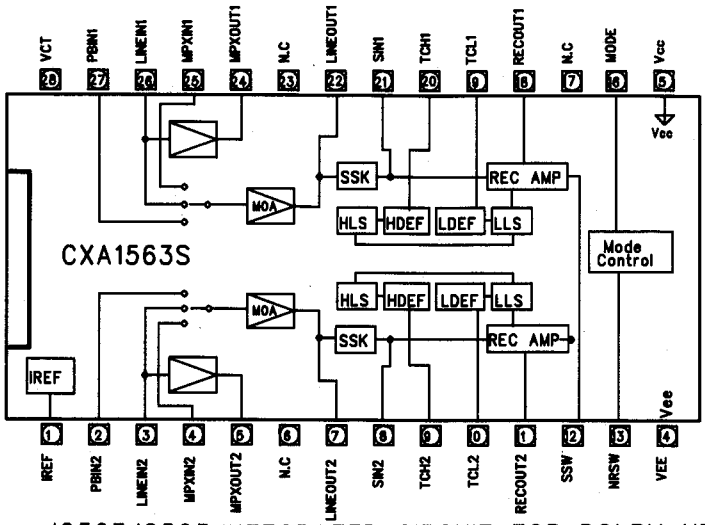


IC401
KA8306
MOTOR DRIVE CIRCUIT

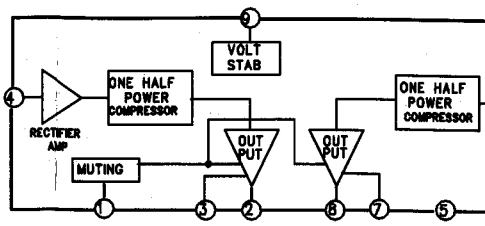


IC101
LA2000 or BA335
MUSIC SEARCH CIRCUIT

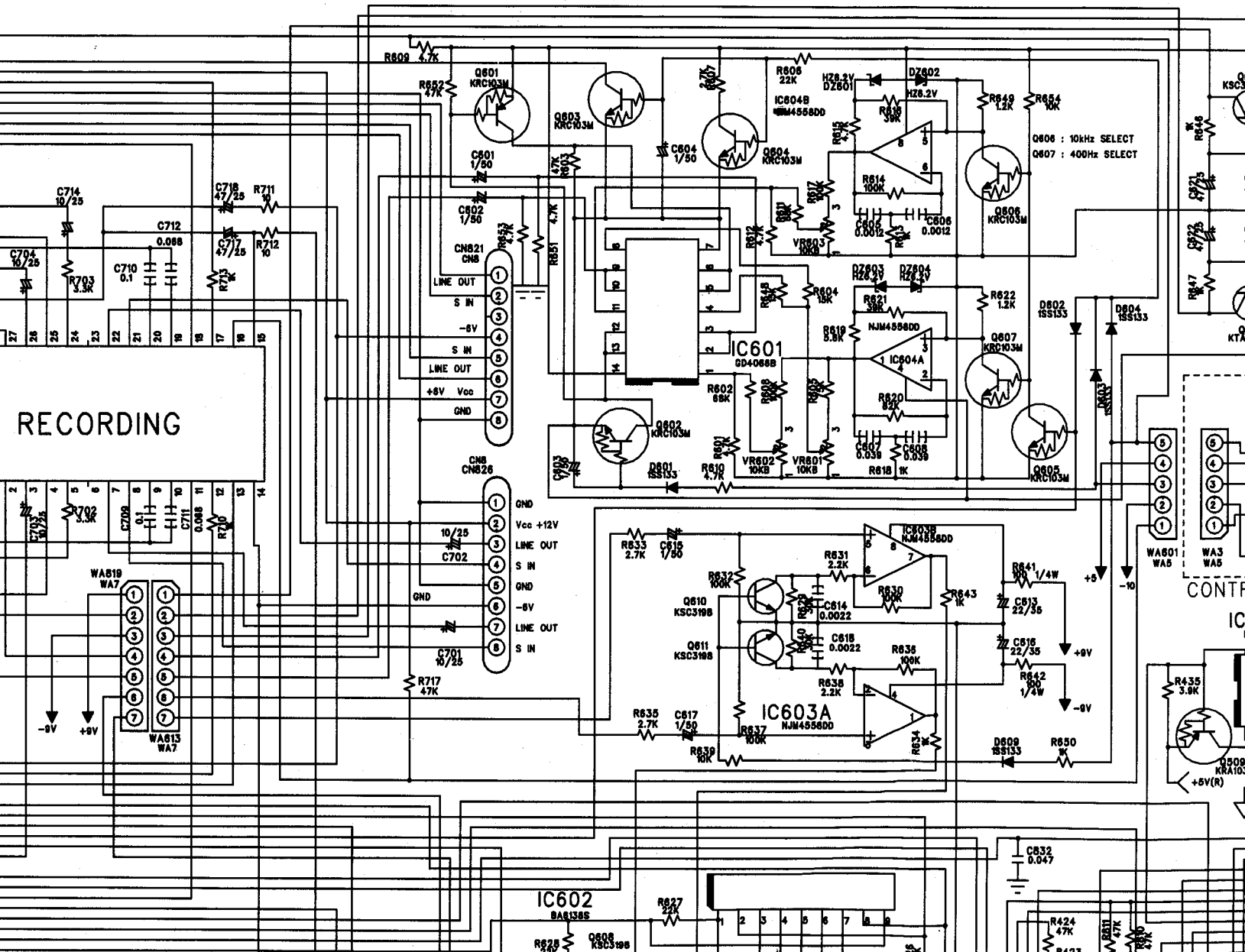


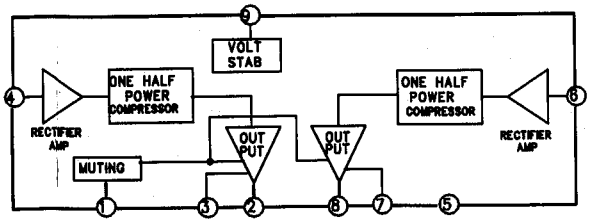


IC503,IC505 INTEGRATED CIRCUIT FOR DOLBY NR

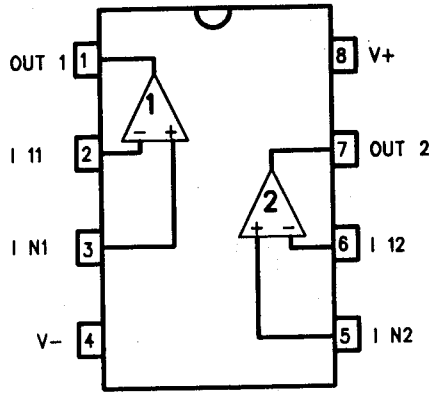


IC602
BA6138A

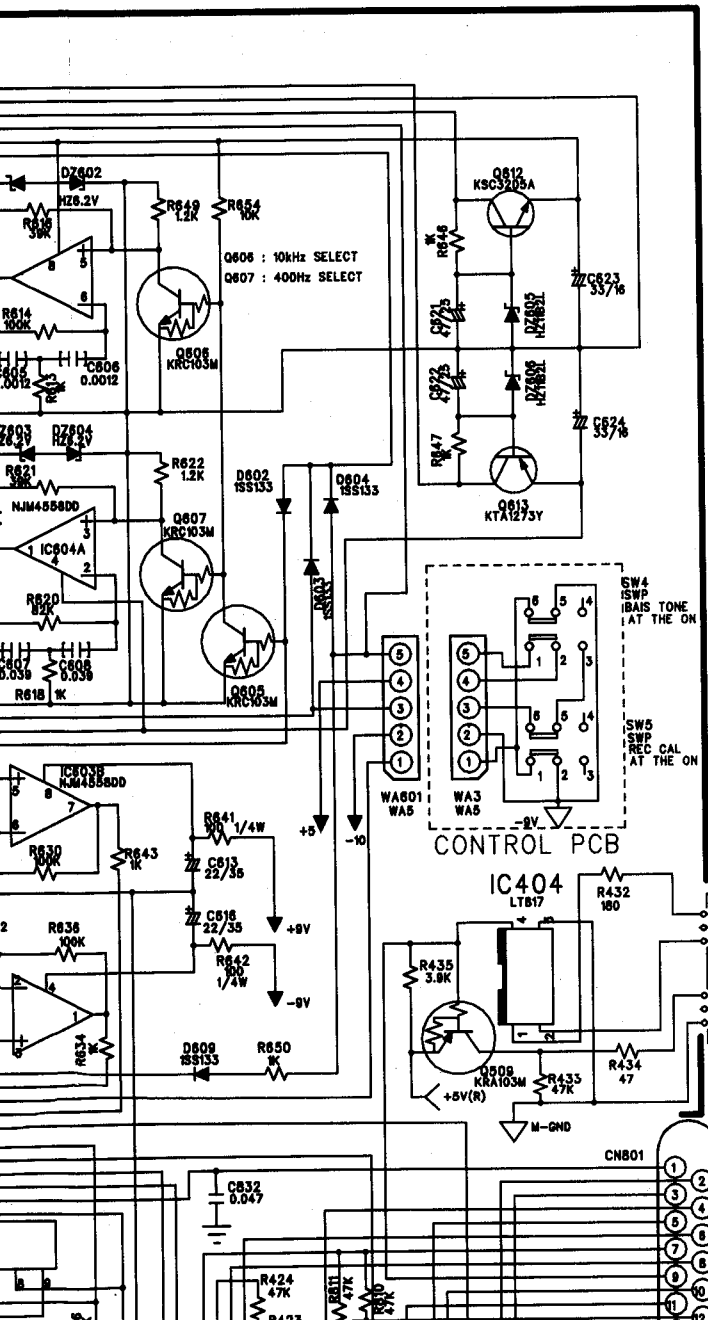


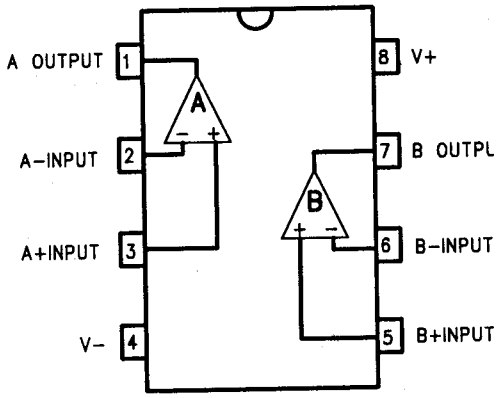


IC602
BA6138A

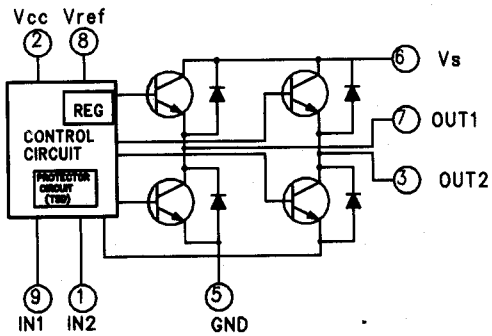


IC201
uPC4570
DUAL OPERATIONAL
AMPLIFIER

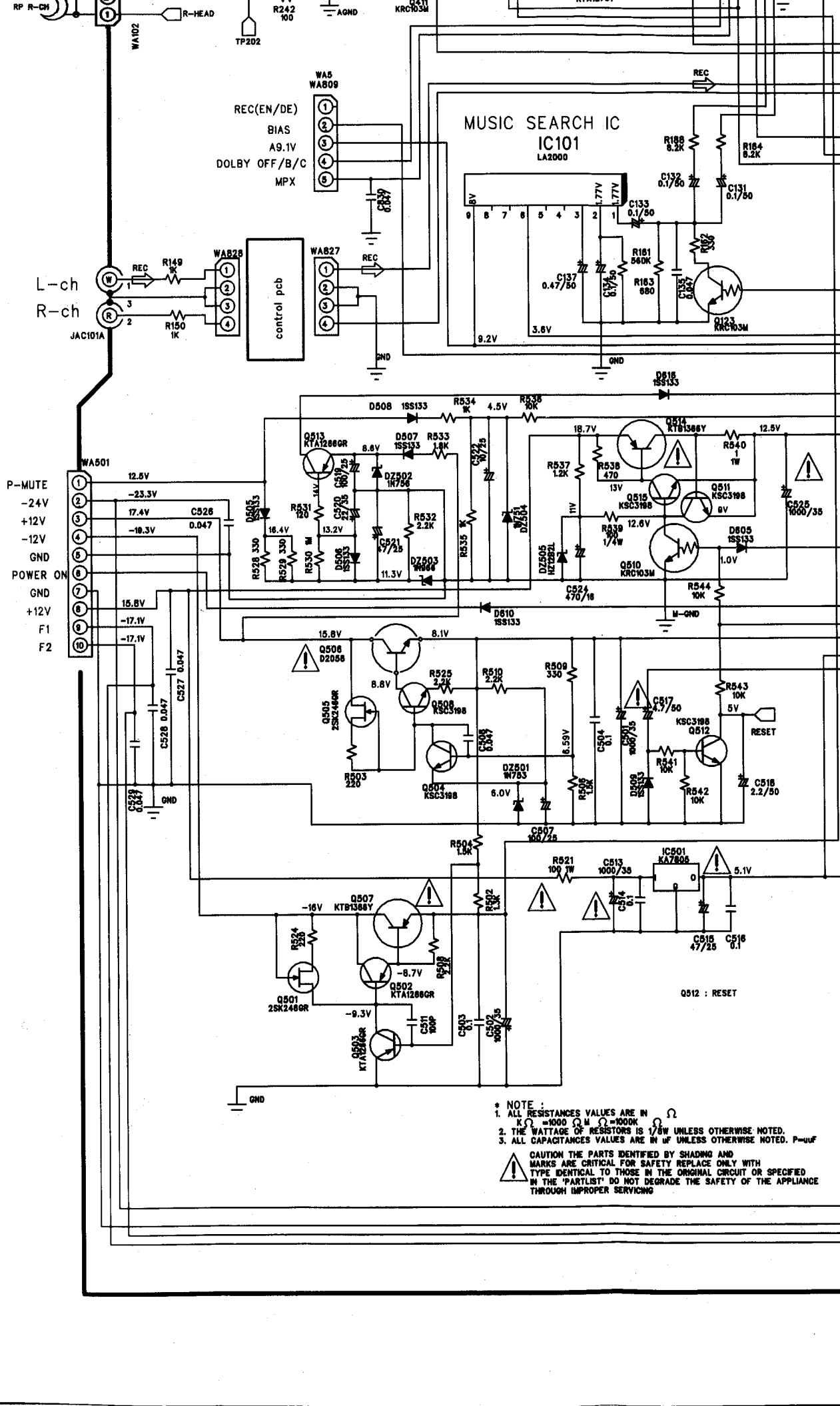


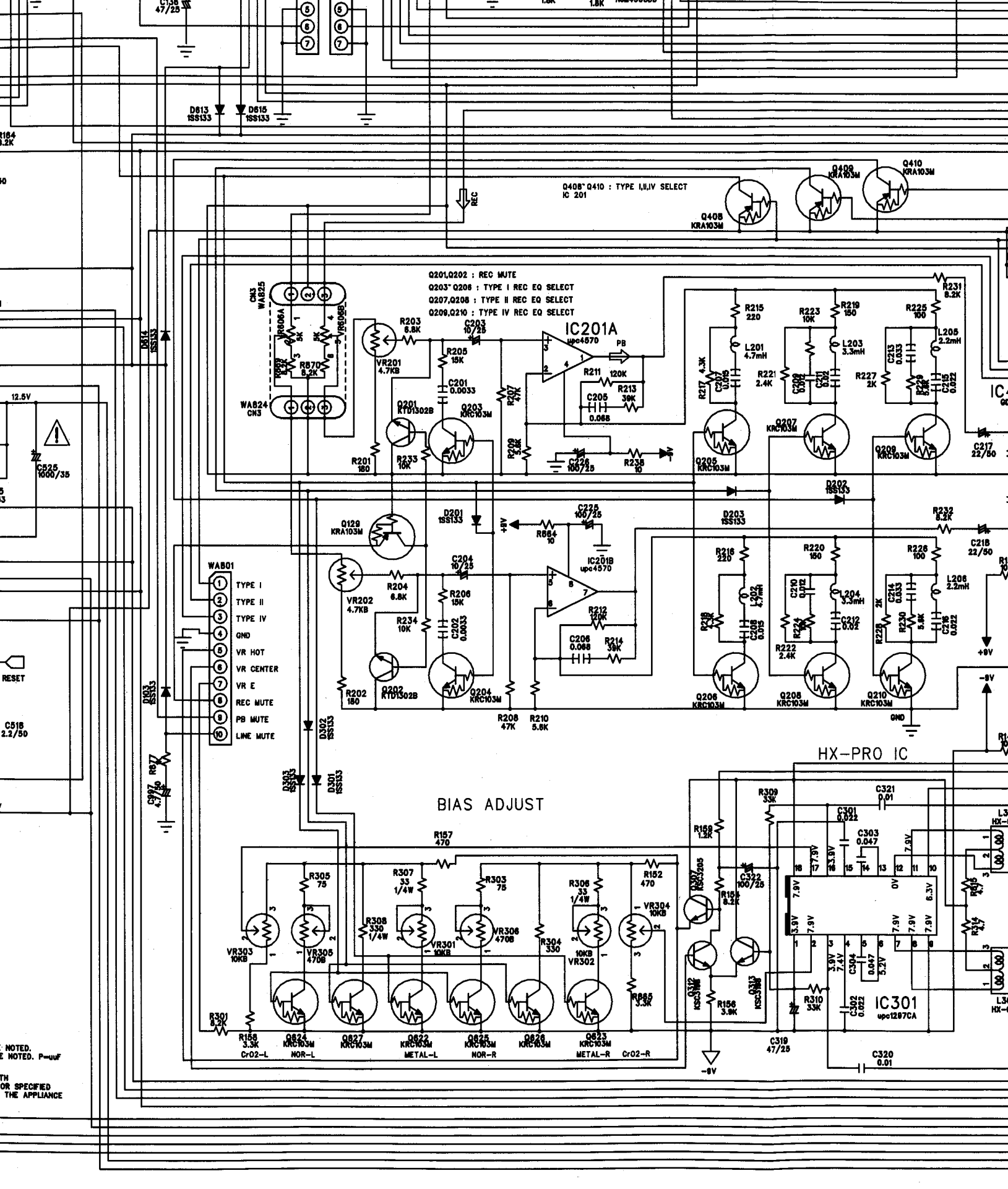


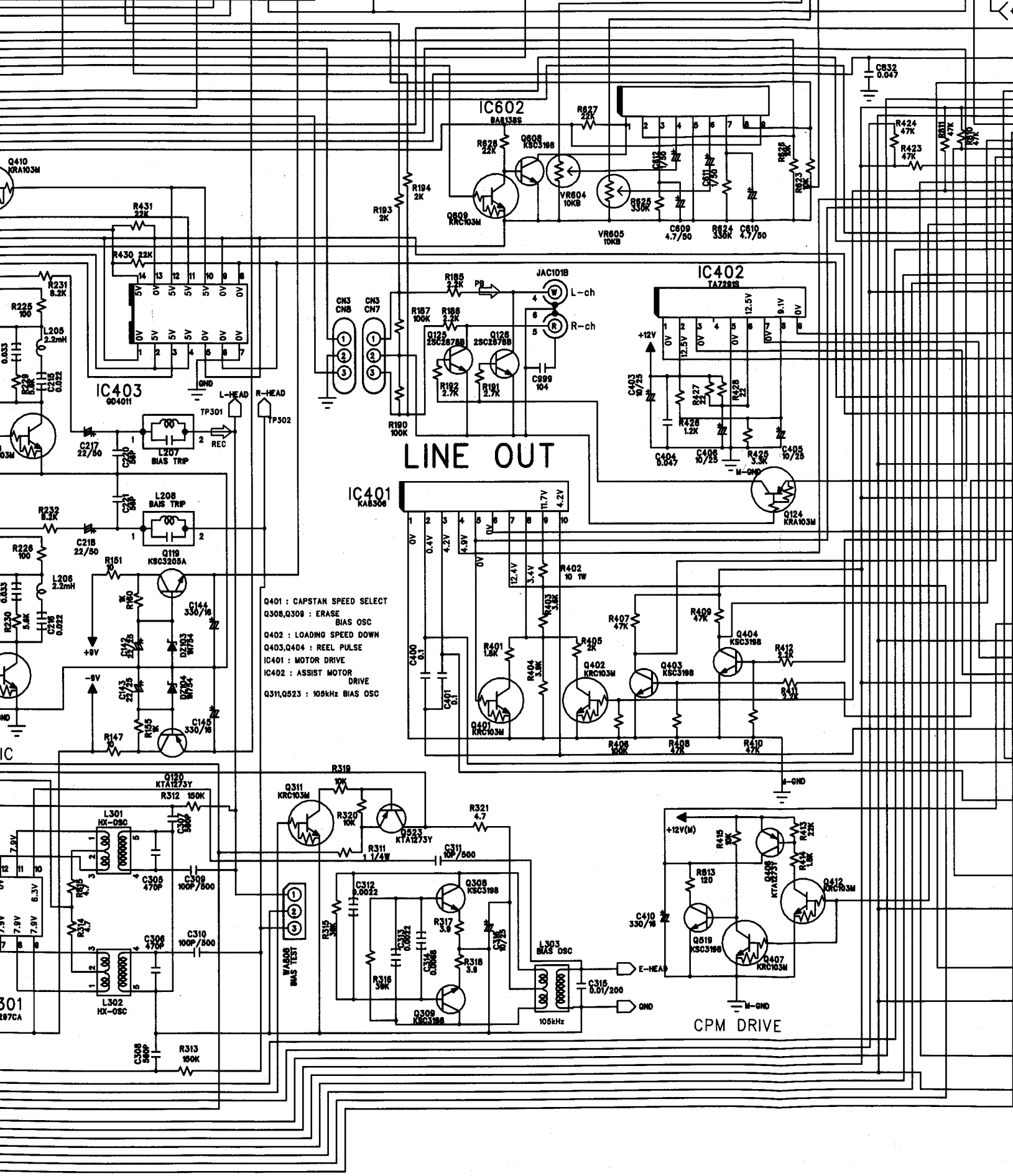
IC504,603,604
NJM4558
DUAL OPERATIONAL
AMPLIFIER

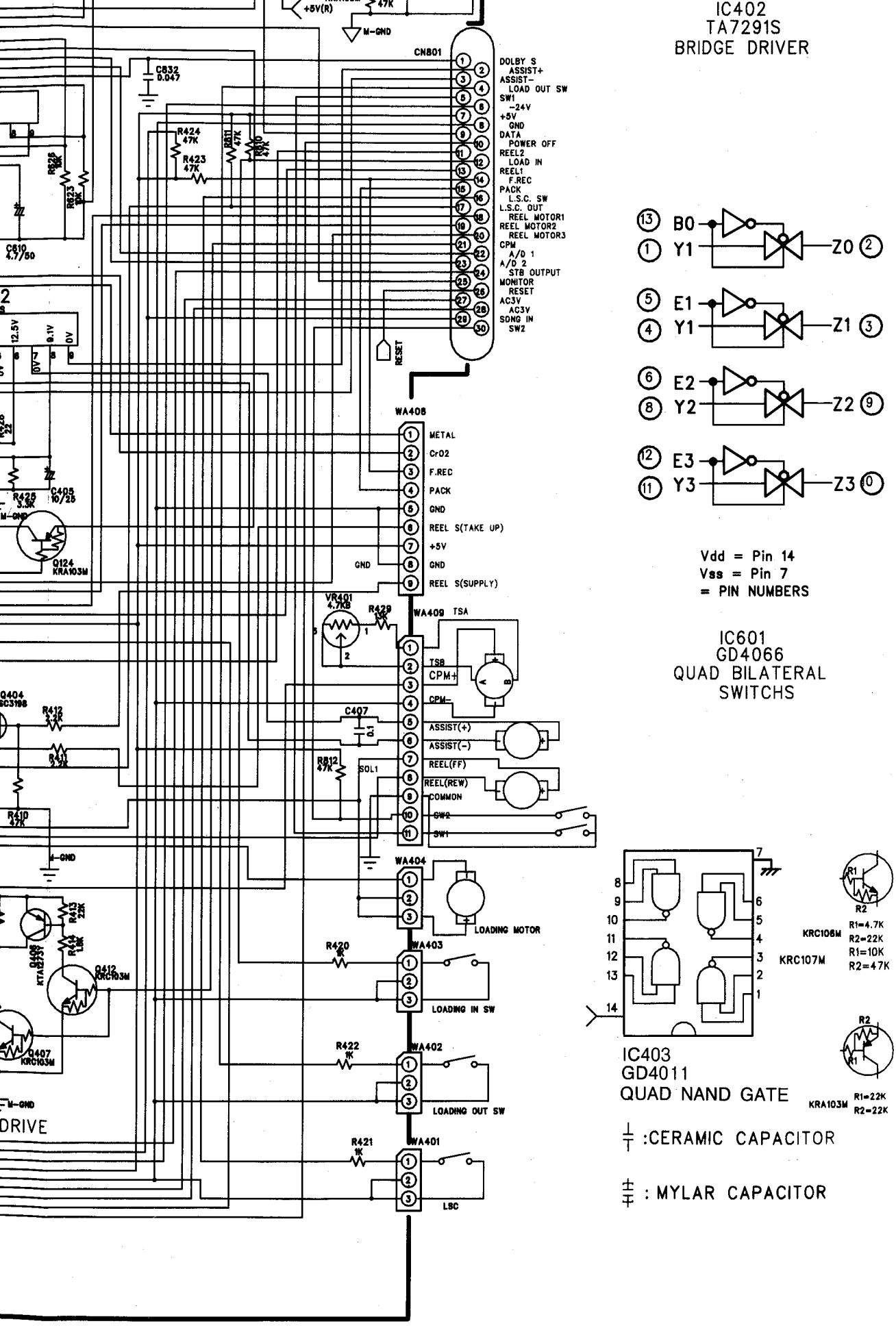


IC402
TA7291S
BRIDGE DRIVER


MUSIC SEARCH IC
IC101
LA2000
control pcb
WA501
WA5
WA809
WA827
WA828
WA102
JAC101A
TP202
L-ch
R-ch
P-MUTE
-24V
+12V
-12V
GND
POWER ON
GND
+12V
F1
F2
REC(EN/DE)
BIAS
A9.1V
DOLBY OFF/B/C
MPX
RP R-CH
R-HEAD
AGND
M-GND
Q512 : RESET
* NOTE :
1. ALL RESISTANCES VALUES ARE IN Ω
KΩ =1000 Ω M Ω =1000K Ω
2. THE WATTAGE OF RESISTORS IS 1/8W UNLESS OTHERWISE NOTED.
3. ALL CAPACITANCES VALUES ARE IN uF UNLESS OTHERWISE NOTED. P=uuF
CAUTION THE PARTS IDENTIFIED BY SHADING AND
MARKS ARE CRITICAL FOR SAFETY REPLACE ONLY WITH
TYPE IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT OR SPECIFIED
IN THE 'PARTLIST' DO NOT DEGRADE THE SAFETY OF THE APPLIANCE
THROUGH IMPROPER SERVICING


Q408~Q410 : TYPE I,II,IV SELECT
IC 201
Q201,Q202 : REC MUTE
Q203~Q206 : TYPE I REC EQ SELECT
Q207,Q208 : TYPE II REC EQ SELECT
Q209,Q210 : TYPE IV REC EQ SELECT
IC201A
IC201B
WA801
TYPE I
TYPE II
TYPE IV
GND
VR HOT
VR CENTER
VR E
REC MUTE
PB MUTE
LINE MUTE
HX-PRO IC
BIAS ADJUST
IC301
CrO2-L
NOR-L
METAL-L
NOR-R
METAL-R
CrO2-R


IC602
BA6138S
IC402
TA7291S
IC403
6D4011
IC401
KA8306
LINE OUT
CPM DRIVE
Q401 : CAPSTAN SPEED SELECT
Q308,Q309 : ERASE BIAS OSC
Q402 : LOADING SPEED DOWN
Q403,Q404 : REEL PULSE
IC401 : MOTOR DRIVE
IC402 : ASSIST MOTOR DRIVE
Q311,Q523 : 105kHz BIAS OSC
L-HEAD
R-HEAD
TP301
TP302
REC
E-HEAD
GND
M-GND
105kHz



IC402
TA7291S
BRIDGE DRIVER

Vdd = Pin 14
Vss = Pin 7
= PIN NUMBERS

IC601
GD4066
QUAD BILATERAL
SWITCHS

IC403
GD4011
QUAD NAND GATE

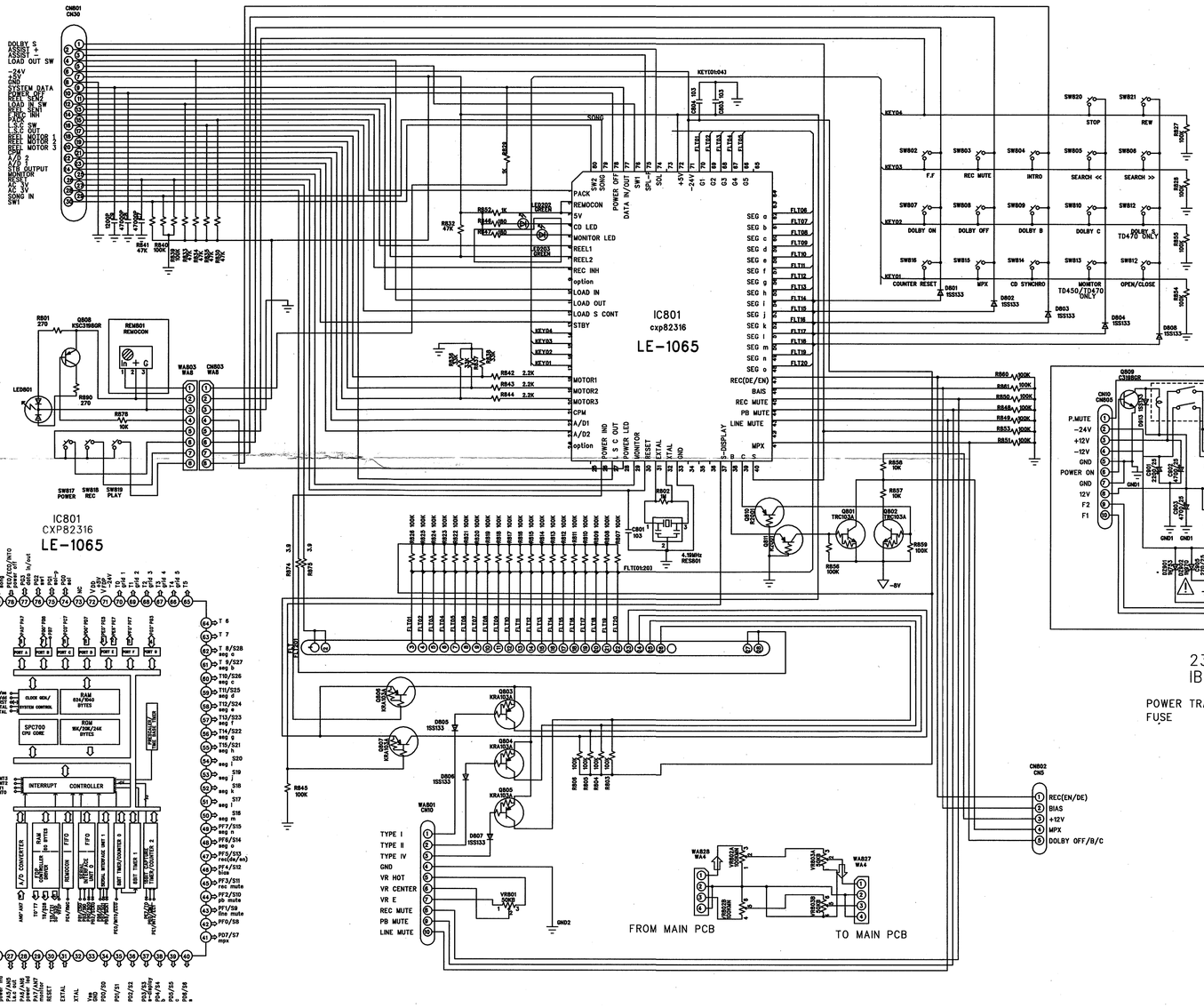
KRC106M R1=4.7K R2=22K
KRC107M R1=10K R2=4.7K

KRA103M R1=22K R2=22K

⊣⊢ :CERAMIC CAPACITOR

⊣⊢ : MYLAR CAPACITOR

SCHEMATIC DIAGRAM (CONTROL)



TERMINAL FUNCTIONS (IC801, LE-1065)

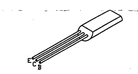
Pin No.	Port name	Function name	I/O	Outline functions
1	PE3	PACK	I	Pack detection terminal
6	PE0	REEL1	I	REEL sense
7	PB1	REEL2	I	REEL sense
14	PC0	AD7	I	Key input terminal.
15	PC1	AD6	I	Key input terminal.
16	PC2	AD5	I	Key input terminal.
17	PC3	AD4	I	Key input terminal.
33		Vss		GND terminal.
10	PB4	LOAD IN	I	Load IN switch detection(Loading Mecha)
11	PB5	LOAD OUT	I	Load out switch detection(Loading Mecha)
12	PB6	L.S.Control	I	Reel motor speed control
13	PB7	STBY	I	POWER ON/OFF(POWER ON = L)
30		Reset	I	Reset input.
18~20	PC4~6	Motor 1~3	I	Reel, open/close Motor control output.
22	PA0	A/D1	I	A/D input Port for LEVEL METER indication
23	PA1	A/D2	I	A/D input Port for LEVEL METER indication
26	PA4	POWER IND	O	High level on stand-by or display off and after power off.
29	PA7	MONITOR	O	High on MONITOR mode, Low level on SOURCE mode.(TD450, TD470)
47	PF5	REC	O	REC/PLAY switching terminal. High level on REC.
46	PF4	BIAS	O	BIAS control terminal. High level=BIAS ON
45	PF3	REC MUTE	O	Recording amp. muting terminal. High level=MUTING ON
44	PF2	PB MUTE	O	Playback amp. muting terminal. High level=MUTING ON
43	PF1	LINE MUTE	O	Line muting terminal. High level=MUTING ON
41	PD7		O	MPX ON, OFF
74	PC0	SOL	O	Solenoid control.
12	PB6	L.S.Control	O	Reel motor power control. High level=power down
21	PC7	CPM	O	Capstan motor control.

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

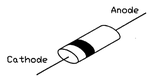
(15K) : North America area model
(1B) : International model Black version

POWER TRANS; 2-131-567-01
FUSE ; FU1 : T500L/250V
FU2 : T500L/250V
FU3 : T1.25L/250V

PIN CONNECTION DIAGRAM OF TRANSISTORS AND DIODES

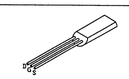


Q115, 116, 125, 126 : C2878
Q629, 810, 811 : R2001
Q201, 202 : D1302
Q502, 503, 513, 808 : A1266
Q308, 309, 312, 313, 403, 404, 504, 508, 511, 512, 515, 519, 528, 608, 610, 611 : C3198
Q101, 102, 107, 108, 111, 112 : C1571
Q103, 104, 109, 110, 113, 114 : A929

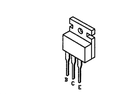


DZ504, 601 ~ 604 : UZ 4.7B / 1N750A
DZ501, 605, 606, 901 : UZ 6.2B / 1N753A
DZ101 ~ 104 : UZ 6.8B / 1N754A
DZ502 : UZ 8.2B / 1N756A
DZ503 : UZ16B / 1N966B
DZ505 : HZ12B2LTA
DZ902 : UZ 24B / 1N970B

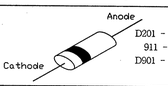
Q123, 203 ~ 210, 311, 401, 402, 407, 411, 412, 510, 527, 602, ~ 607, 609, 622 ~ 627, 630, 801, 802, 901 : C103
Q124, 129, 408, 409, 410, 509, 601, 803 ~ 807 : A103
Q543 ~ 546 : C107



Q501, 505, 105, 106 : K246

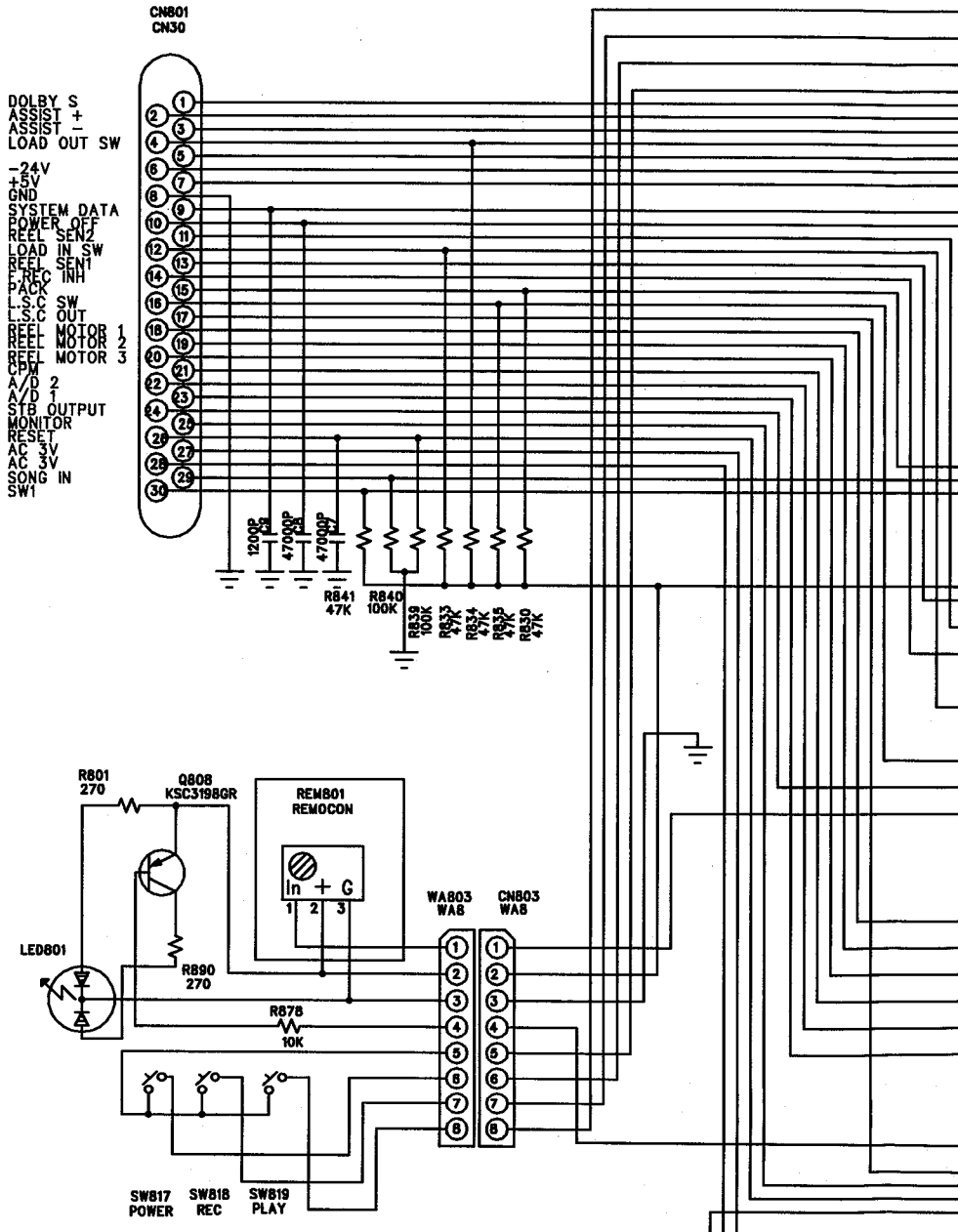


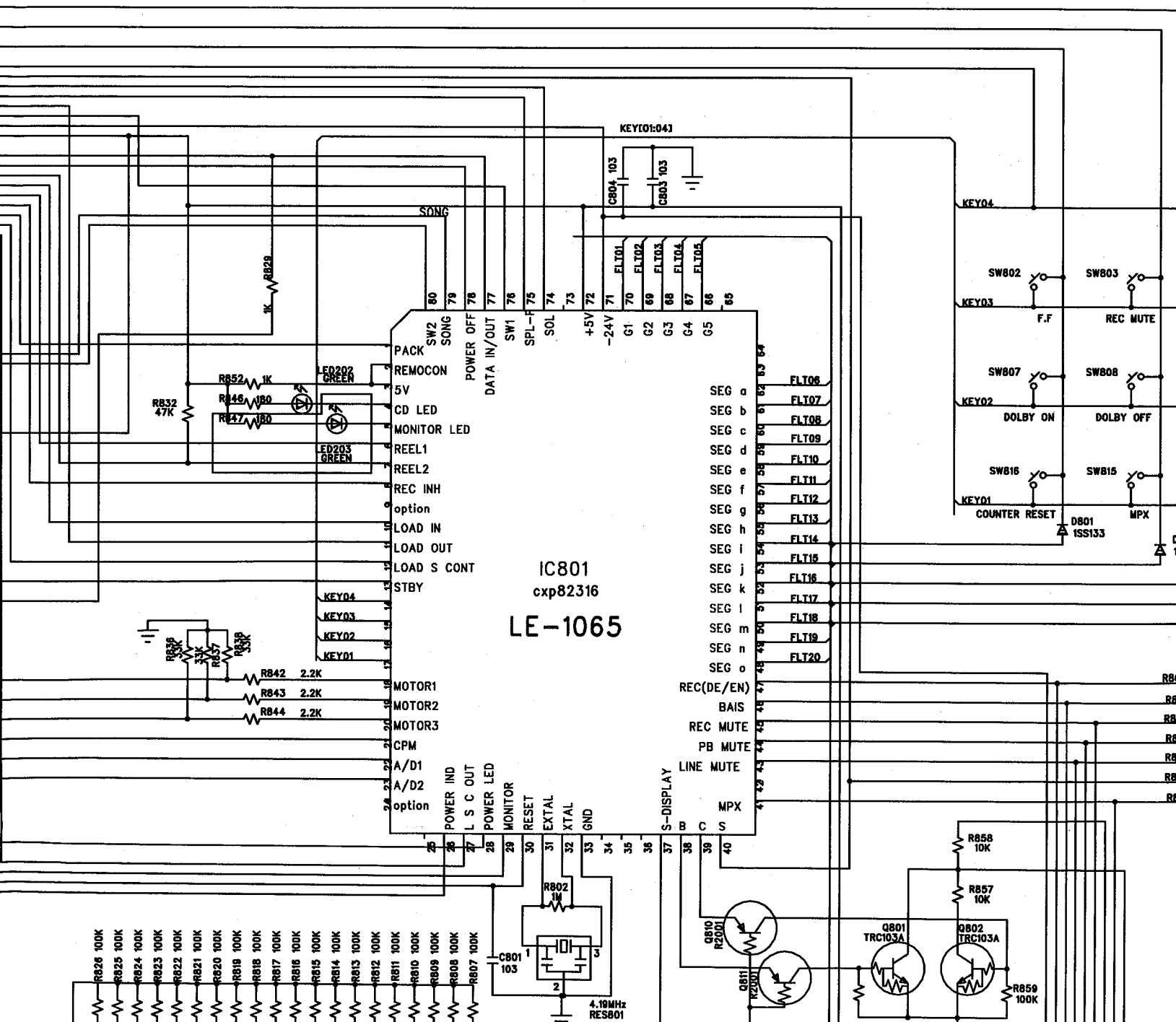
Q507, 514 : B1366
Q506 : D2058



D201 ~ 203, 301 ~ 303, 103, 505 ~ 510, 601 ~ 615, 801 ~ 808, 911 ~ 913 : 1N4148M / 1SS133
D901 ~ 910 : 1N4002

SCHEMATIC DIAGRAM (CONTROL)




IC801
cxp82316
LE-1065
KEY[01:04]
SONG
PACK
REMOCON
5V
CD LED
MONITOR LED
REEL1
REEL2
REC INH
option
LOAD IN
LOAD OUT
LOAD S CONT
STBY
KEY04
KEY03
KEY02
KEY01
MOTOR1
MOTOR2
MOTOR3
CPM
A/D1
A/D2
option
SEG a
SEG b
SEG c
SEG d
SEG e
SEG f
SEG g
SEG h
SEG i
SEG j
SEG k
SEG l
SEG m
SEG n
SEG o
REC(DE/EN)
BAIS
REC MUTE
PB MUTE
LINE MUTE
MPX
POWER IND
L S C OUT
POWER LED
MONITOR
RESET
EXTAL
XTAL
GND
S-DISPLAY
B C S
SW2 SONG POWER OFF DATA IN/OUT SW1 SPL-F SOL +5V -24V G1 G2 G3 G4 G5
FLT01 FLT02 FLT03 FLT04 FLT05 FLT06 FLT07 FLT08 FLT09 FLT10 FLT11 FLT12 FLT13 FLT14 FLT15 FLT16 FLT17 FLT18 FLT19 FLT20
SW802 F.F
SW803 REC MUTE
SW807 DOLBY ON
SW808 DOLBY OFF
SW816 COUNTER RESET
SW815 MPX
D801 1SS133
LED202 GREEN
LED203 GREEN
R832 47K
R829 1K
R852 1K
R846 180
R847 180
R842 2.2K
R843 2.2K
R844 2.2K
R836 33K
R837 33K
R838 33K
R802 1M
C801 103
4.19MHz RES801
C804 103
C803 103
R858 10K
R857 10K
Q810 R2001
Q811 R2001
Q801 TRC103A
Q802 TRC103A
R859 100K
R826 100K
R825 100K
R824 100K
R823 100K
R822 100K
R821 100K
R820 100K
R819 100K
R818 100K
R817 100K
R816 100K
R815 100K
R814 100K
R813 100K
R812 100K
R811 100K
R810 100K
R809 100K
R808 100K
R807 100K

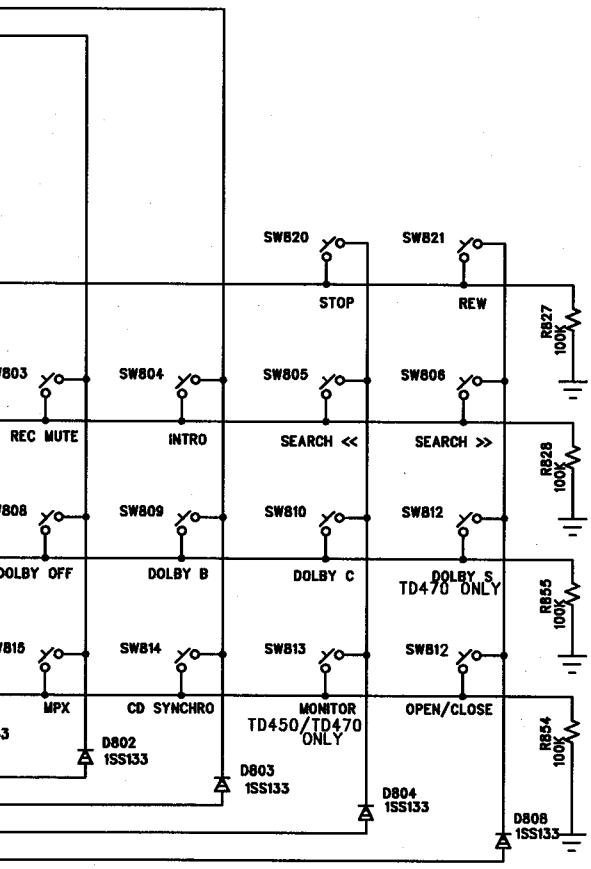
TERMINAL FUNCTIONS (IC801, LE-1065)

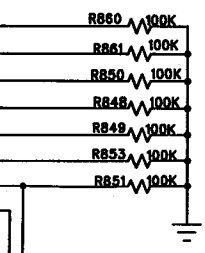
Pin No.	Port name	Function name	I/O	Outline function
1	PE3	PACK	I	Pack detection terminal
6	PE0	REEL1	I	REEL sense
7	PB1	REEL2	I	REEL sense
14	PC0	AD7	I	Key input terminal.
15	PC1	AD6	I	Key input terminal.
16	PC2	AD5	I	Key input terminal.
17	PC3	AD4	I	Key input terminal.
33		Vss		GND terminal.
10	PB4	LOAD IN	I	Load IN switch detection(Loading Mech
11	PB5	LOAD OUT	I	Load out switch detection(Loading Me
12	PB6	L.S.Control	I	Reel motor speed control
13	PB7	STBY	I	POWER ON/OFF(POWER ON = L)
30		Reset	I	Reset input.
18~20	PC4~6	Motor 1~3	I	Reel, open/close Motor control output.
22	PA0	A/D1	I	A/D input Port for LEVEL METER indic
23	PA1	A/D2	I	A/D input Port for LEVEL METER indic
26	PA4	POWER IND	O	High level on stand-by or display off an
29	PA7	MONITOR	O	High on MONITOR mode. Low level on SOURC
47	PF5	REC	O	REC/PLAY switching terminal. High leve
46	PF4	BIAS	O	BIAS control terminal. High level=BIAS
45	PF3	REC MUTE	O	Recording amp. muting terminal. High lev
44	PF2	PB MUTE	O	Playback amp. muting terminal. High leve
43	PF1	LINE MUTE	O	Line muting terminal. High level=MUTING
41	PD7		O	MPX ON, OFF
74	PG0	SOL	O	Solenoid control.
12	PB6	L.S.Control	O	Reel motor power control. High level=p
21	PC7	CPM	O	Capstan motor control.

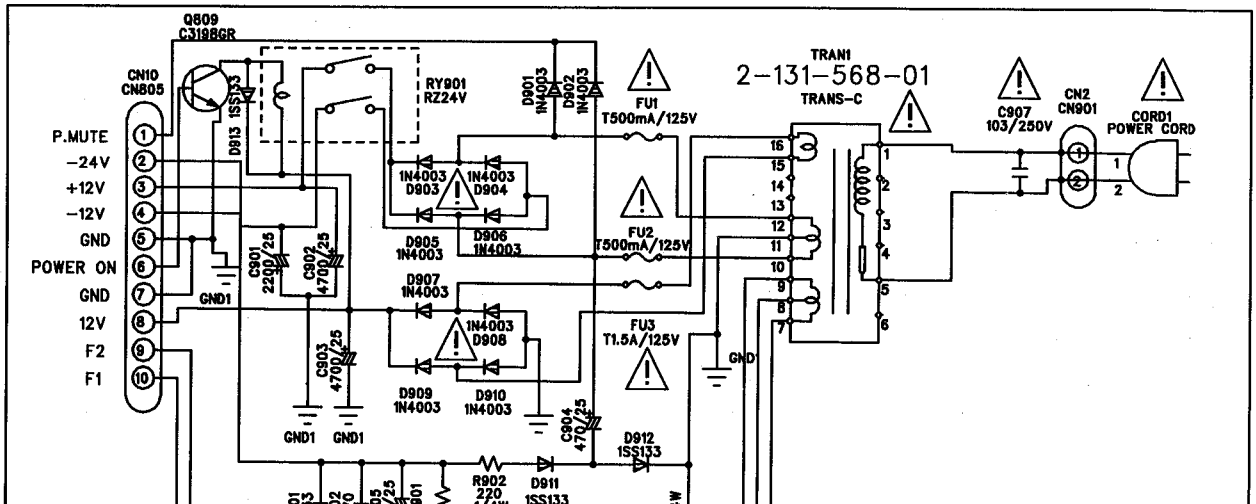
NOTE : Low level=0V
High level=5.1V

BK : North America area model

IB : International model Black version







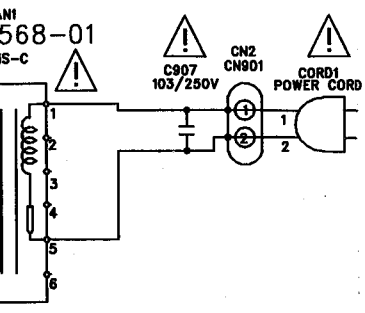
H	I	J	

)1, LE-1065)

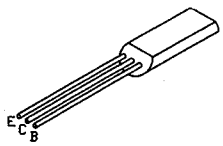
n name	I/O	Outline functions
	I	Pack detection terminal
	I	REEL sense ⎍⎍⎍
	I	REEL sense ⎍⎍⎍
	I	Key input terminal.
	I	Key input terminal.
	I	Key input terminal.
	I	Key input terminal.
		GND terminal.
IN	I	Load IN switch detection(Loading Mecha)
OUT	I	Load out switch detection(Loading Mecha)
ntrol	I	Reel motor speed control
	I	POWER ON/OFF(POWER ON = L)
	I	Reset input. ⎍
1~3	I	Reel, open/close Motor control output.
	I	A/D input Port for LEVEL METER indication
	O	A/D input Port for LEVEL METER indication
R IND	O	High level on stand-by or display off and after power off.
OR	O	High on MONITOR mode. Low level on SOURCE mode.(TD450, TD470)
	O	REC/PLAY switching terminal. High level on REC.
	O	BIAS control terminal. High level=BIAS ON
MUTE	O	Recording amp. muting terminal. High level=MUTING ON
UTE	O	Playback amp. muting terminal. High level=MUTING ON
MUTE	O	Line muting terminal. High level=MUTING ON
	O	MPX ON, OFF
	O	Solenoid control.
ntrol	O	Reel motor power control. High level=power down
	O	Capstan motor control.

el

version

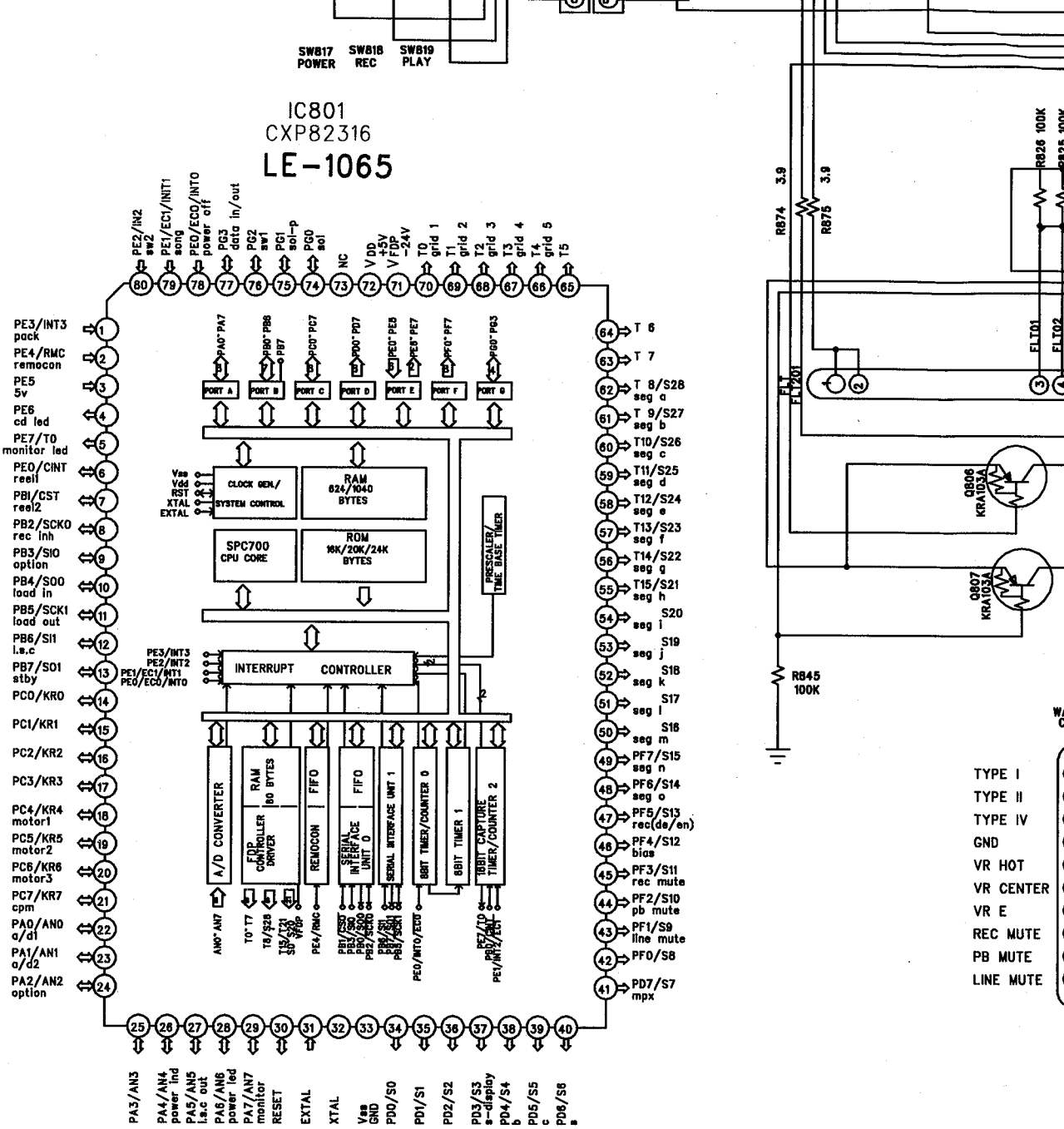


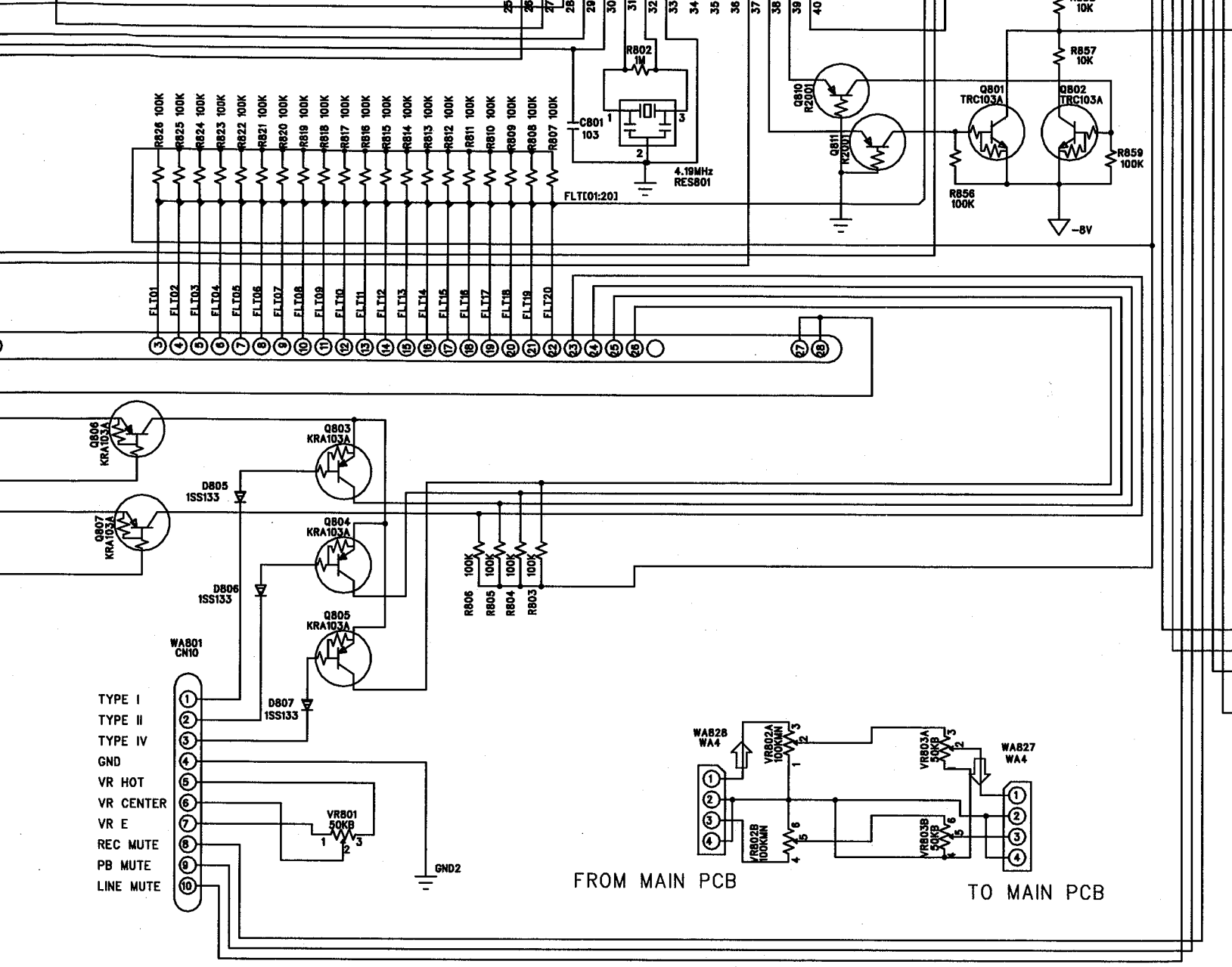
PIN CONNECTION DIAGRAM OF TRANSISTORS AND DIODES

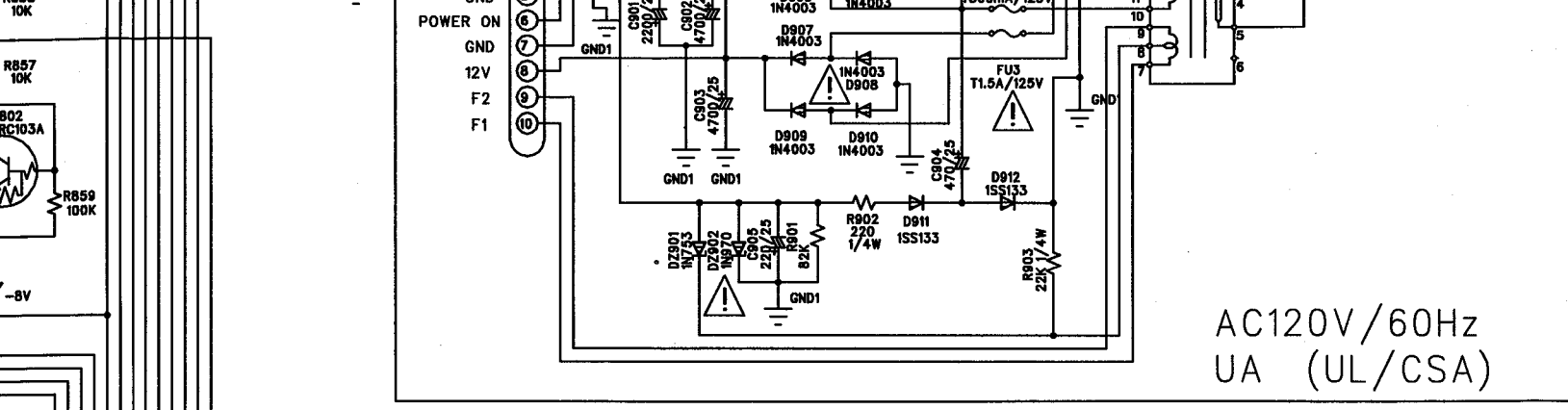


Q115, 116, 125, 126 : C2878
Q629, 810, 811 : R2001
Q201, 202 : D1302
Q502, 503, 513, 808 : A1266
Q308, 309, 312, 313, 403, 404, 504, 508, 511, 512, 515, 519, 528, 608, 610, 611 : C3198
Q101, 102, 107, 108, 111, 112 : C1571
Q103, 104, 109, 110, 113, 114 : A929

DZ504, 601 ~ 604 : UZ 4.7B / 1N750A


SW817 POWER
SW818 REC
SW819 PLAY
IC801
CXP82316
LE-1065
PE2/IN2 sw2
PE1/EC1/INT1 song
PE0/ECO/INT0 power off
PG3 data in/out
PG2 sw1
PG1 sol-p
PG0 sol
NC
VDD +5V
VFDP -24V
T0 grid 1
T1 grid 2
T2 grid 3
T3 grid 4
T4 grid 5
T5
PE3/INT3 pack
PE4/RMC remocon
PE5 5v
PE6 cd led
PE7/T0 monitor led
PE0/CINT reel1
PB1/CST reel2
PB2/SCK0 rec inh
PB3/SI0 option
PB4/SO0 load in
PB5/SCK1 load out
PB6/SI1 i.s.c
PB7/SO1 stby
PC0/KR0
PC1/KR1
PC2/KR2
PC3/KR3
PC4/KR4 motor1
PC5/KR5 motor2
PC6/KR6 motor3
PC7/KR7 cpm
PA0/AN0 a/d1
PA1/AN1 a/d2
PA2/AN2 option
PORT A
PORT B
PORT C
PORT D
PORT E
PORT F
PORT G
CLOCK GEN./ SYSTEM CONTROL
RAM 624/1040 BYTES
SPC700 CPU CORE
ROM 16K/20K/24K BYTES
PRESCALER/ TIME BASE TIMER
INTERRUPT CONTROLLER
A/D CONVERTER
RAM 80 BYTES
FDP CONTROLLER DRIVER
REMOCON
FIFO
SERIAL INTERFACE UNIT 0
SERIAL INTERFACE UNIT 1
8BIT TIMER/COUNTER 0
8BIT TIMER 1
16BIT CAPTURE TIMER/COUNTER 2
T 6
T 7
T 8/S28 seg d
T 9/S27 seg b
T10/S26 seg c
T11/S25 seg d
T12/S24 seg e
T13/S23 seg f
T14/S22 seg g
T15/S21 seg h
S20 seg i
S19 seg j
S18 seg k
S17 seg l
S16 seg m
PF7/S15 seg n
PF6/S14 seg o
PF5/S13 rec(de/en)
PF4/S12 bias
PF3/S11 rec mute
PF2/S10 pb mute
PF1/S9 line mute
PF0/S8
PD7/S7 mpx
PA3/AN3
PA4/AN4 power ind
PA5/AN5 i.s.c out
PA6/AN6 power led
PA7/AN7 monitor
RESET
EXTAL
XTAL
Vss GND
PD0/S0
PD1/S1
PD2/S2
PD3/S3 e-display
PD4/S4 b
PD5/S5 c
PD6/S8 a
R874 3.9
R875 3.9
R826 100K
R845 100K
Q806 KRA103A
Q807 KRA103A
TYPE I
TYPE II
TYPE IV
GND
VR HOT
VR CENTER
VR E
REC MUTE
PB MUTE
LINE MUTE

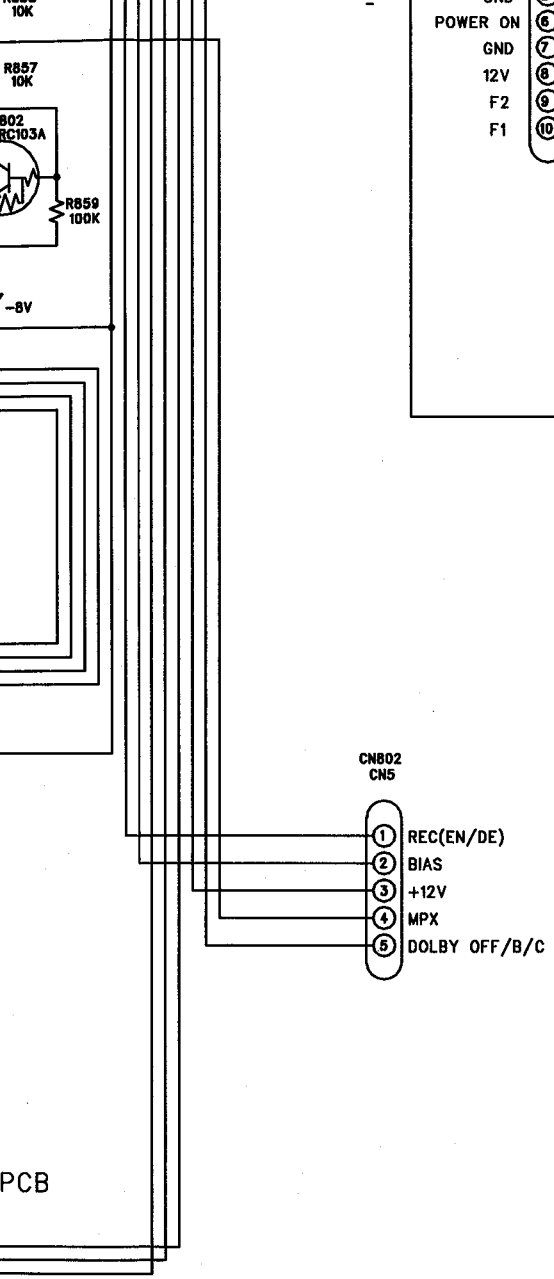

R826 100K
R825 100K
R824 100K
R823 100K
R822 100K
R821 100K
R820 100K
R819 100K
R818 100K
R817 100K
R816 100K
R815 100K
R814 100K
R813 100K
R812 100K
R811 100K
R810 100K
R809 100K
R808 100K
R807 100K
R802 1M
C801 103
4.19MHz RES801
FLT[01:20]
Q810 R2001
Q811 R2001
Q801 TRC103A
Q802 TRC103A
R857 10K
R859 100K
R856 100K
-8V
FLT01 FLT02 FLT03 FLT04 FLT05 FLT06 FLT07 FLT08 FLT09 FLT10 FLT11 FLT12 FLT13 FLT14 FLT15 FLT16 FLT17 FLT18 FLT19 FLT20
Q806 KRA103A
Q807 KRA103A
Q803 KRA103A
Q804 KRA103A
Q805 KRA103A
D805 1SS133
D806 1SS133
D807 1SS133
R806 100K
R805 100K
R804 100K
R803 100K
WA801 CN10
TYPE I
TYPE II
TYPE IV
GND
VR HOT
VR CENTER
VR E
REC MUTE
PB MUTE
LINE MUTE
VR801 50KB
GND2
WA828 WA4
VR802A 100KMIN
VR802B 100KMIN
VR803A 50KB
VR803B 50KB
WA827 WA4
FROM MAIN PCB
TO MAIN PCB



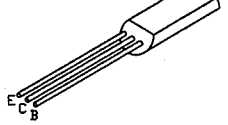
AC120V/60Hz
UA (UL/CSA)

230V/50Hz
IB (INTERNATIONAL)

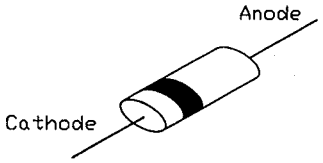
POWER TRANS; 2-131-567-01
FUSE ; FU1 : T500L/250V
FU2 : T500L/250V
FU3 : T1.25L/250V



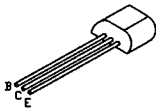
AC120V/60Hz
UA (UL/CSA)



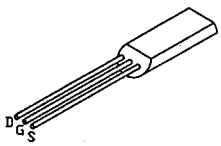
Q201, 202 : D1302
Q502, 503, 513, 808 : A1266
Q308, 309, 312, 313, 403, 404, 504, 508, 511, 512, 515, 519, 528, 608, 610, 611 : C3198
Q101, 102, 107, 108, 111, 112 : C1571
Q103, 104, 109, 110, 113, 114 : A929



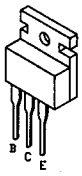
DZ504, 601 - 604 : UZ 4.7B / 1N750A
DZ501, 605, 606, 901 : UZ 6.2B / 1N753A
DZ101 - 104 : UZ 6.8B / 1N754A
DZ502 : UZ 8.2B / 1N756A
DZ503 : UZ16B / 1N966B
DZ505 : HZ12B2LTA
DZ902 : UZ 24B / 1N970B



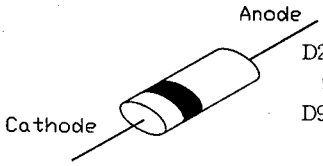
Q123, 203 - 210, 311, 401, 402, 407, 411, 412, 510, 527, 602, - 607, 609, 622 - 627, 630, 801, 802, 901 : C103
Q124, 129, 408, 409, 410, 509, 601, 803 - 807 : A103
Q543 - 546 : C107



Q501, 505, 105, 106 : K246

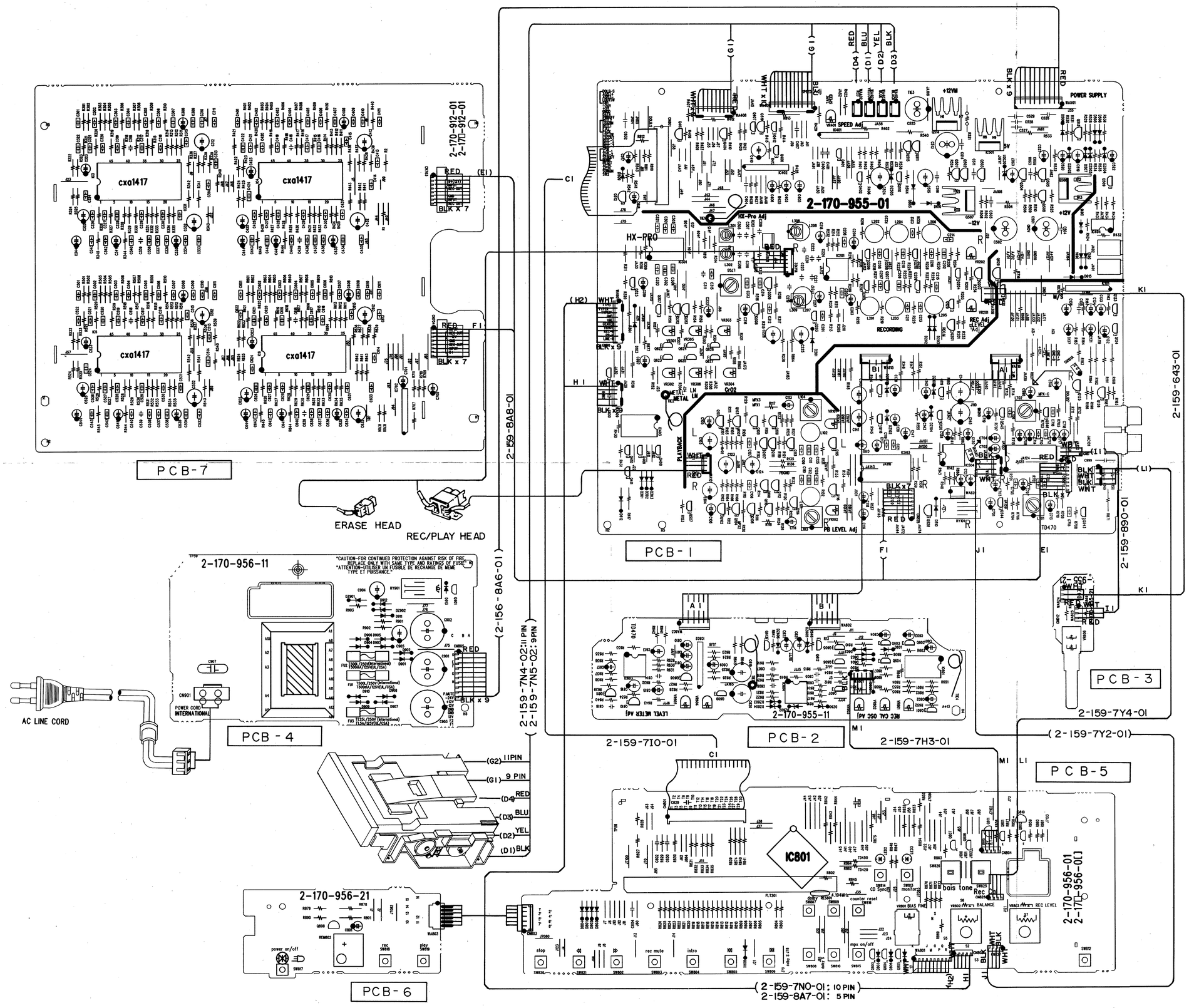


Q507, 514 : B1366
Q506 : D2058



D201 - 203, 301 - 303, 103, 505 - 510, 601 - 615, 801 - 808, 911 - 913 : 1N4148M / 1SS133
D901 - 910 : 1N4002

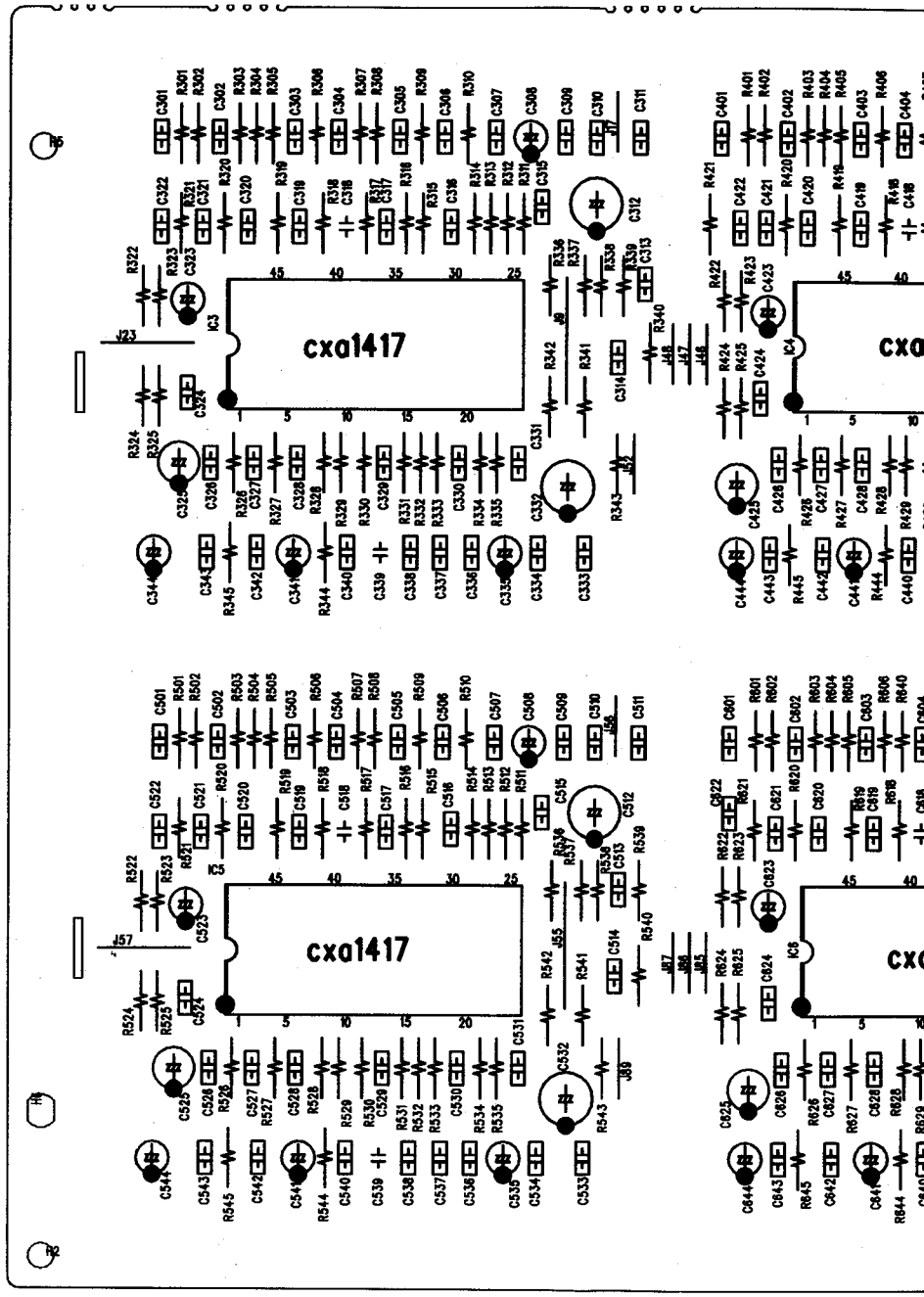
SCHEMATIC DIAGRAM (1)



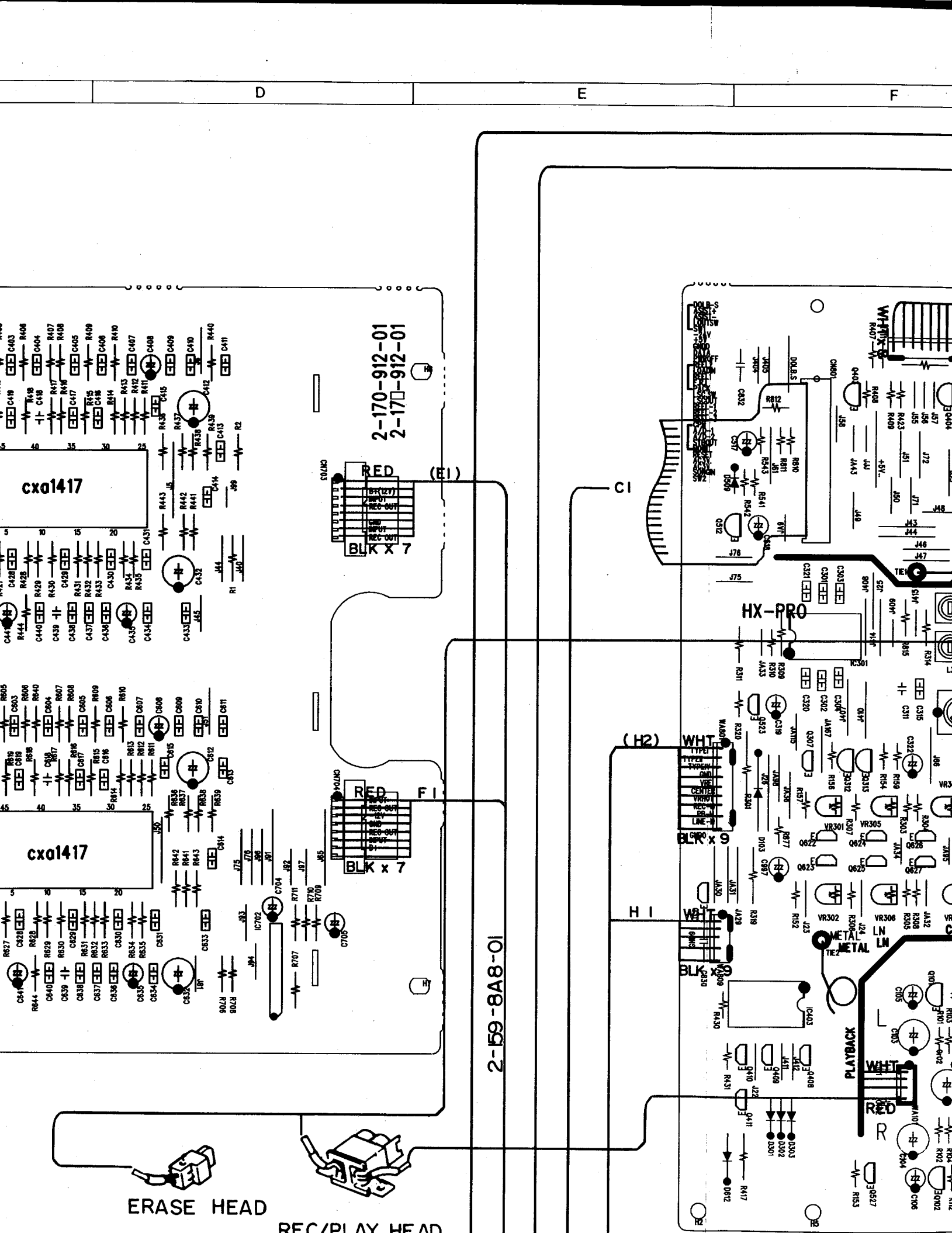
A | B | C

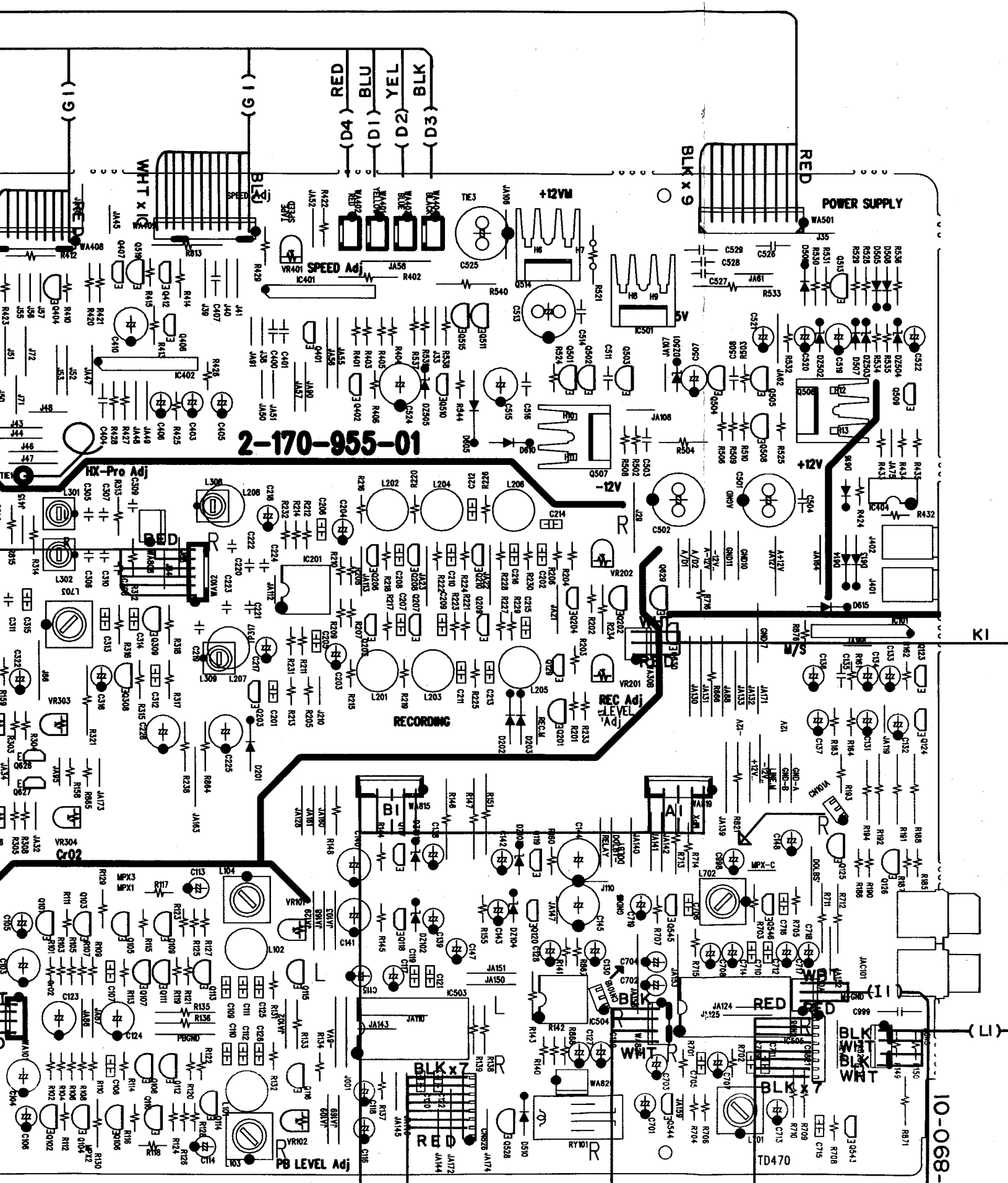
1 | 2 | 3 | 4

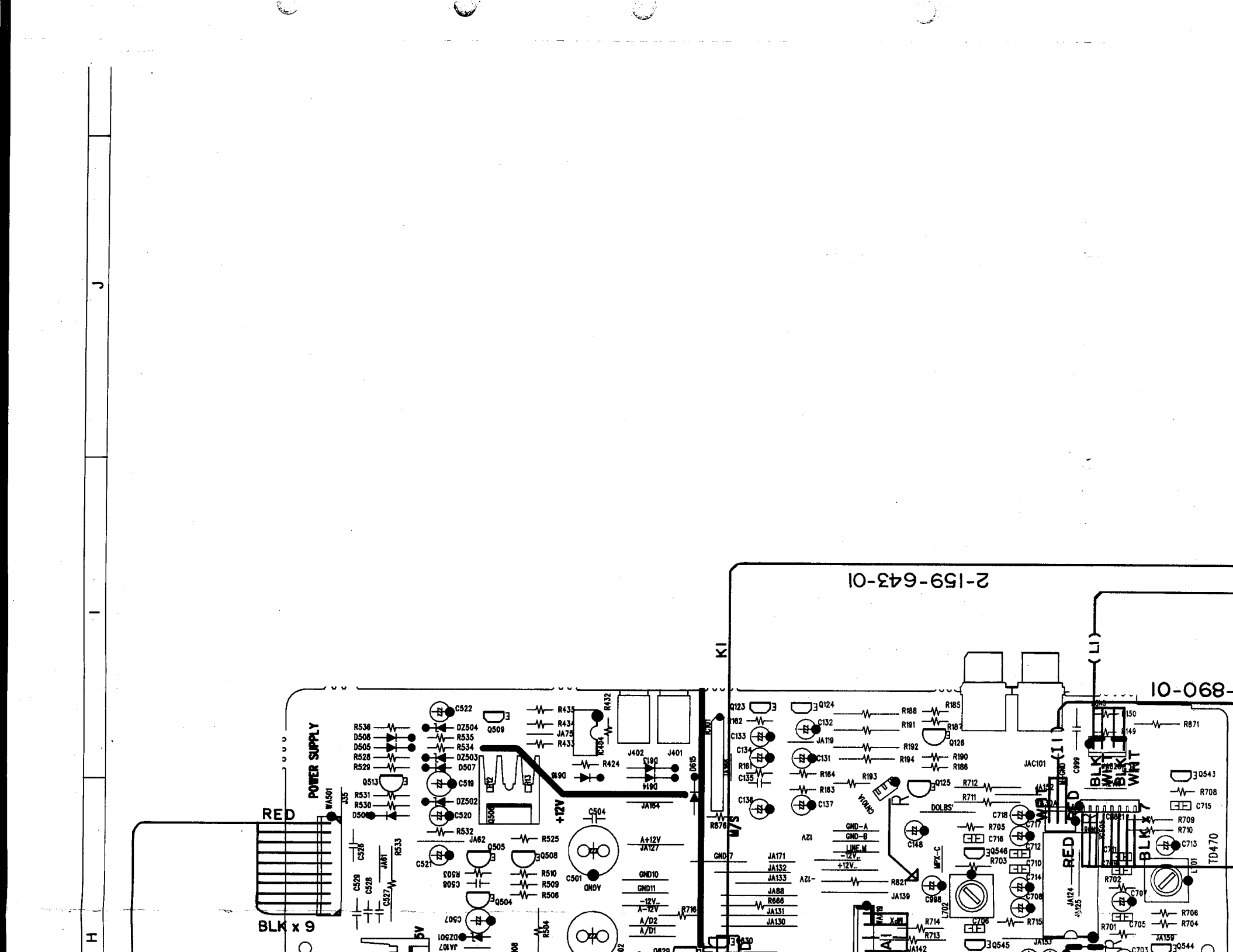
SCHEMATIC DIAGRAM (1)



PCB-7


D
E
F
cxa1417
cxa1417
2-170-912-01
2-17□-912-01
RED
(E1)
BLK X 7
RED
F1
BLK x 7
2-159-8A8-01
C1
HX-PRO
IC301
(H2)
WHT
BLK x 9
H1
WHT
BLK x 9
METAL
METAL
PLAYBACK
WHT
RED
ERASE HEAD
REC/PLAY HEAD


G
H
2-170-955-01
POWER SUPPLY
SPEED Adj
HX-Pro Adj
REC Adj
LEVEL Adj
PB LEVEL Adj
RECORDING
TD470
RED
BLU
YEL
BLK
WHT x 10
BLK x 9
BLK x 7
WHT
+12VM
+12V
-12V
5V


2-159-643-01
10-068-
POWER SUPPLY
RED
BLK x 9
BLK
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+12V
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A+12V
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A/D1
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GND-B
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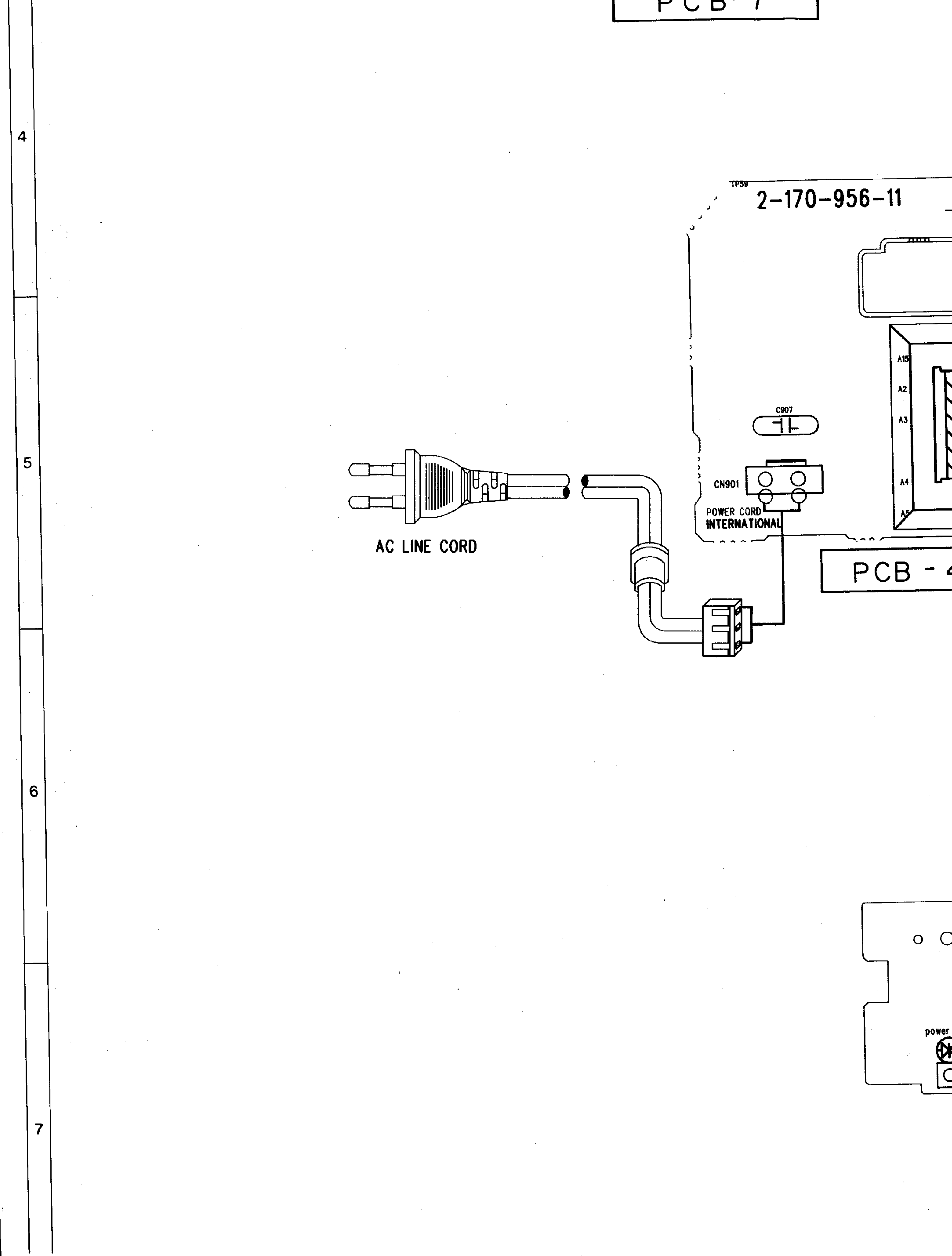
PCB-7
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6
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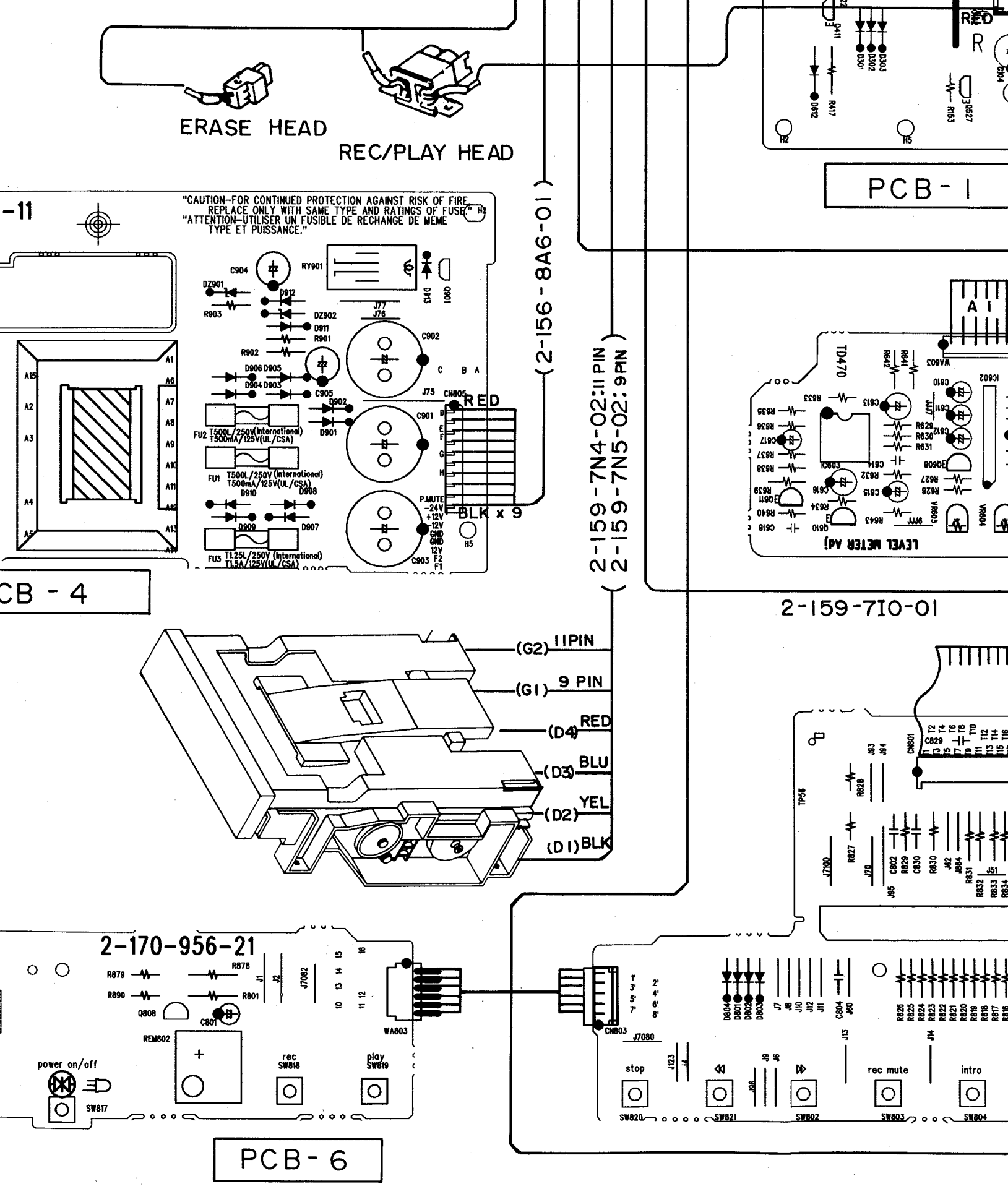
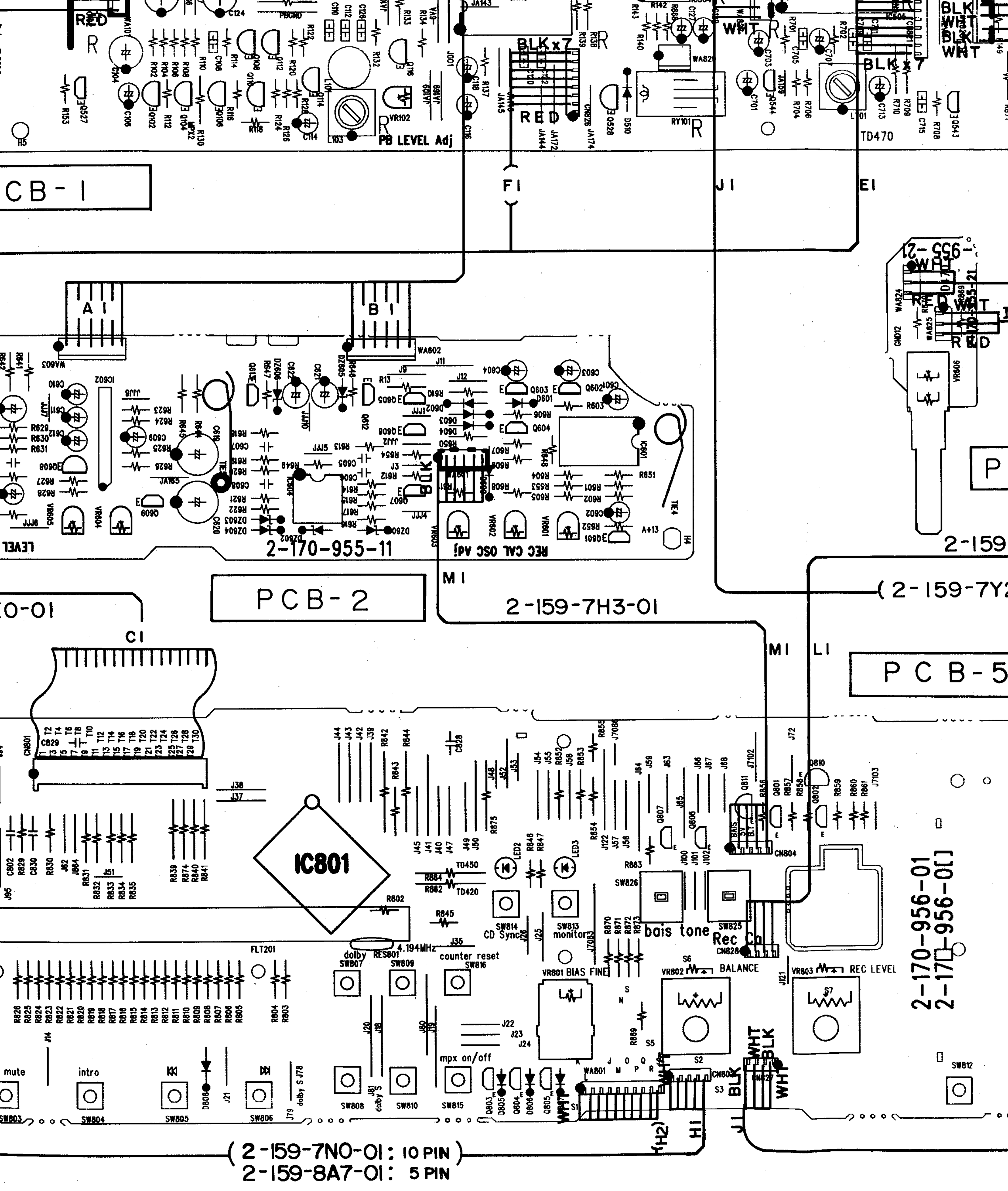
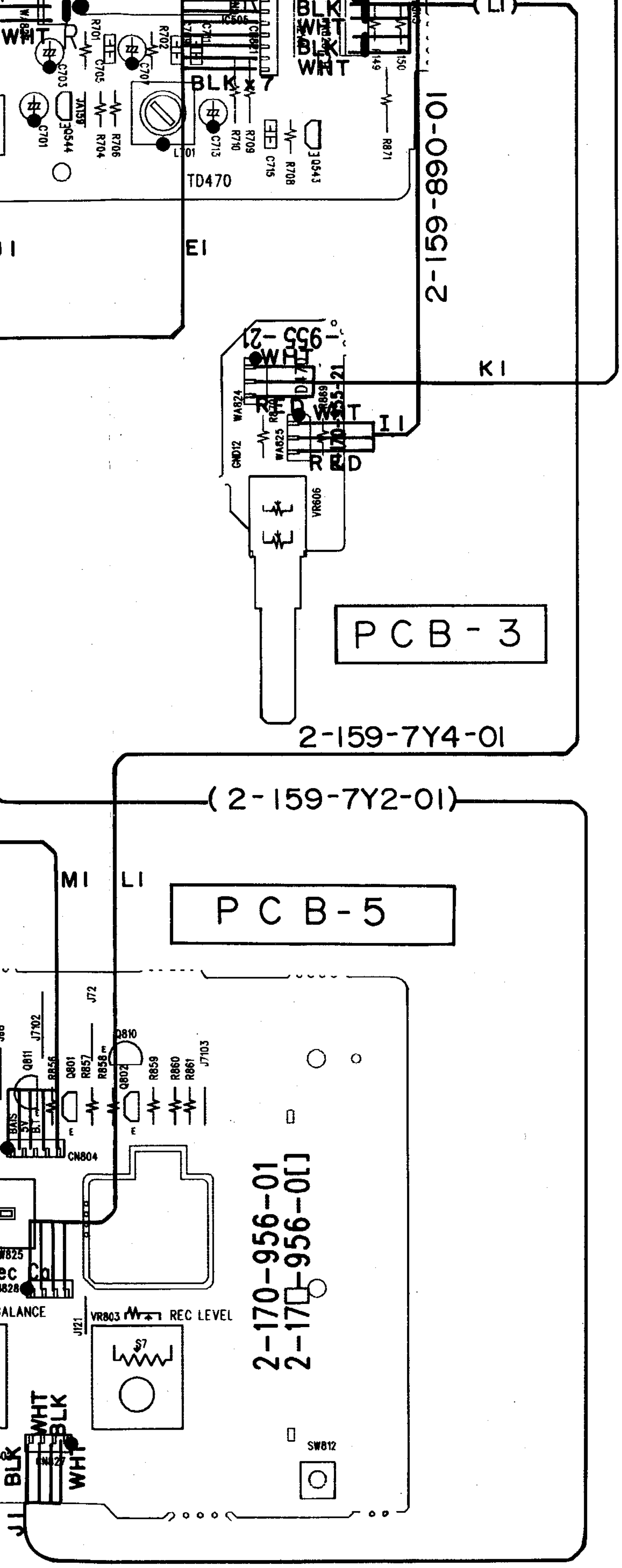
TP59
2-170-956-11
A15
A2
A3
A4
A5
C907
CN901
POWER CORD
INTERNATIONAL
AC LINE CORD
PCB-4
power


ERASE HEAD
REC/PLAY HEAD
PCB - 1
"CAUTION-FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATINGS OF FUSE."
"ATTENTION-UTILISER UN FUSIBLE DE RECHANGE DE MEME TYPE ET PUISSANCE."
(2-156-8A6-01)
(2-159-7N4-02:11 PIN)
(2-159-7N5-02: 9PIN)
RED
BLK x 9
PCB - 4
2-159-710-01
(G2) 11PIN
(G1) 9 PIN
(D4) RED
(D3) BLU
(D2) YEL
(D1) BLK
2-170-956-21
power on/off
rec
play
stop
rec mute
intro
PCB - 6



PCB-1
PCB-2
PCB-5
PB LEVEL Adj
REC CAL OSC Adj
2-170-955-11
2-159-7H3-01
(2-159-7Y2
IC801
bais tone
Rec Cal
counter reset
CD Sync
monitor
dolby
mpx on/off
mute
intro
VR801 BIAS FINE
VR802 BALANCE
VR803 REC LEVEL
2-170-956-01
(2-159-7NO-01 : 10 PIN
2-159-8A7-01 : 5 PIN)


PCB-3
2-159-890-01
2-159-7Y4-01
TD470
E1
K1
I1
BLK
WHT
RED
VR606
PCB-5
(2-159-7Y2-01)
M1
L1
2-170-956-01
REC LEVEL
VR803
SW812
CN804
BALANCE