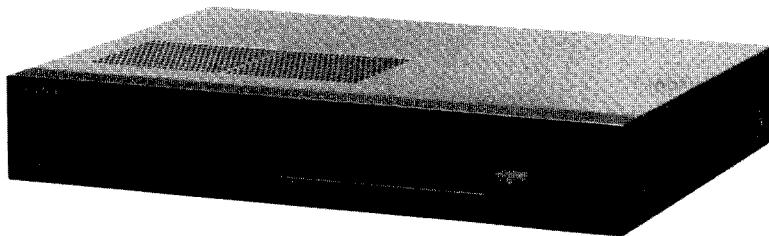


PCM-501ES

SERVICE MANUAL

AEP Model
UK Model
E Model



SPECIFICATIONS

Signal system	Conforms to CCIR television standard, PAL/SECAM (AEP, UK, E model) and NTSC (E model) color
Code format	Conforms to the technical specifications of the EIAJ (standard format using 14-bit or 16-bit quantization)
Number of audio channels	2 channels
Sampling frequency	44.1 kHz
Quantization	14-bit linear quantizing, or 16-bit linear quantizing
Frequency response	5 - 20,000 Hz ± 0.5 dB
Harmonic distortion	Less than 0.007% (14-bit format) Less than 0.005% (16-bit format)
Dynamic range	More than 86 dB (14-bit format) More than 90 dB (16-bit format)
Channel separation	More than 80 dB
Wow and flutter	Below measurable limit
Error correction	Error correction and concealment using CRCC and parity
Emphasis	Pre-emphasis (on recording): fixed at ON De-emphasis (on playback): automatically switched ON or OFF (by detecting pre-emphasis identification code) Time-constant: 50 μ sec, 15 μ sec

Inputs

	Type	Reference input level	Impedance	Minimum input level
LINE IN	Phono	0.24 V (-10 dBs)	50 kilohms	77.5 mV (-20 dBs)
VIDEO IN	Phono	1 Vp-p	75 ohms	—

Outputs

	Type	Reference output level	Load impedance
LINE OUT	Phono	0.24 B (-10 dBs)	More than 10 kilohms
MONITOR OUT	Phono	1 Vp-p	75 ohms
VIDEO OUT	Phono	1 Vp-p	75 ohms
COPY OUT	Phono	1 Vp-p	75 ohms
HEADPHONES	Stereo phone	0.9—0.003 mW Continuously Adjustable	32 ohms

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK **⚠** ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

— Continued on page 2 —

DIGITAL AUDIO PROCESSOR
SONY[®]



AUD

PCM-501ES

General

Power requirements	AEP model: 220 V ac (or 240 V ac adjustable by authorized Sony personnel), 50/60 Hz UK model: 240 V ac (or 220 V ac adjustable by authorized Sony personnel) 50/60 Hz E model: 110, 120, 220 or 240 V ac adjustable. 50/60 Hz
Power consumption	AEP, UK model: 33 W E model: 35 W
Dimensions	Approx. 430 x 80 x 350 mm (w/h/d) (17 x 3 1/4 x 14 1/8 inches)
Weight	including projecting parts and controls 6.0 kg (net) (13 lb 1 oz.) 7.0 kg (in shipping carton) (15 lb 3 oz.)

FEATURES

In conventional analog recording systems, the quality of sound reproduction depends upon the properties of magnetic tape and heads. Even with the latest metal tape it is virtually impossible to bypass the inherent limitations of conventional analog recording, including its limited dynamic range and frequency response, and its associated distortion.

The Pulse Code Modulation (PCM) system ushers in a new era of sound reproduction and offers performance and fidelity far superior to analog systems. In the PCM system, sound levels are converted to a series of binary codes. This information is recorded as digital pulses of equal amplitude. In playback, all that has to be done is to discriminate between the presence and absence of a pulse. The quality of recording and playback is thus not dependent on the characteristics of tape and heads.

The PCM-501ES is the latest and most sophisticated Sony PCM digital audio processor for general audio use. It offers its own built-in power source for convenient operation, and the host of other features outlined below for the ultimate in audio listening pleasure. The PCM-501ES gives you stereo sound reproduction with a wide dynamic range, minimal distortion, low wow and flutter (even lower than the measurable limit), and a flat frequency response. Listening to digital audio sound tapes on your PCM-501ES is just like being in a concert hall.

Compact PCM digital audio processor with modern component design

While several hundred ICs are employed in the digital processing circuitry of conventional digital audio processors, 5 new LSIs help make the PCM-501ES as compact and modern in design as your other audio equipment. The unit also incorporates A/D (analog-to-digital) and D/A (digital-to-analog) converters which are newly developed monolithics. All function to make the PCM-501ES unexcelled in performance and reliability.

Resolution selector for recording and playback with wider dynamic range and less distortion

The PCM-501ES was developed in accordance with the technical specifications of the Electronic Industries Association of Japan (EIAJ), which has adopted the 14-bit and 16-bit linear quantization format. The 16-bit linear quantization format offers a wider dynamic range and less distortion than the 14-bit format. The 14-bit and 16-bit formats can be selected with the REC RESOLUTION (record resolution) selector.

OVC (optimum video condition) control

With the OVC indicator illumination, the VTR error condition caused by a stained head or unstable tape transport can be detected. In line with the output signal of the VTR, the optimum combination of VTR and this unit can be obtained in playback mode.

Easy tracking adjustment for tracking of video heads

The R (right) channel of the peak program meters converts to a tracking meter, allowing for easy and correct tracking adjustment of the video heads.

AUTO PB MUTE (auto playback muting) button provides option of continuous listening

The PCM-501ES features a playback muting system that gives you the option of having dropouts cut out automatically when the muting circuit is switched on. Or, you can simply keep the button released for continuous, uninterrupted listening. Muting also functions at double and triple tape speed.

Extremely accurate error-detection and correction circuits

These keep dropout errors from effecting the quality of sound reproduction.

Convenient record muting function

A highly convenient record muting function allows you to create blank spacing between selections to cut out unwanted talk and commercials.

COPY OUT jack for perfect tape copies

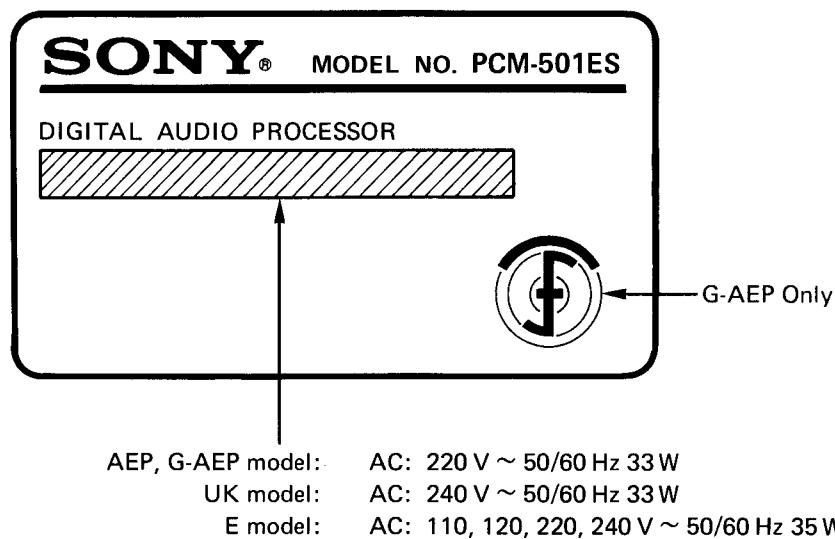
Multi-generation, digital-to-digital tape copy can be performed using the COPY OUT jack on the back of the unit with absolutely no deterioration in signal quality.

Bright, easy-to-read peak program meters

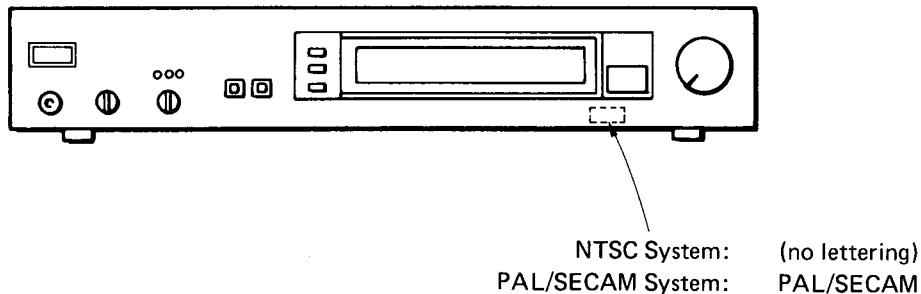
Fluorescent peak program meters provide two types of sound level indication for precision setting of recording and playback levels.

Separate MONITOR OUTPUT jack allows connection with the component TV, such as Sony Profeel series, and other video monitors

There's no need to disconnect your digital audio processor to monitor video tapes and TV. The MONITOR OUTPUT jack on the back of the PCM-501ES allows transmission of video signals whether the PCM unit is switched on or off.

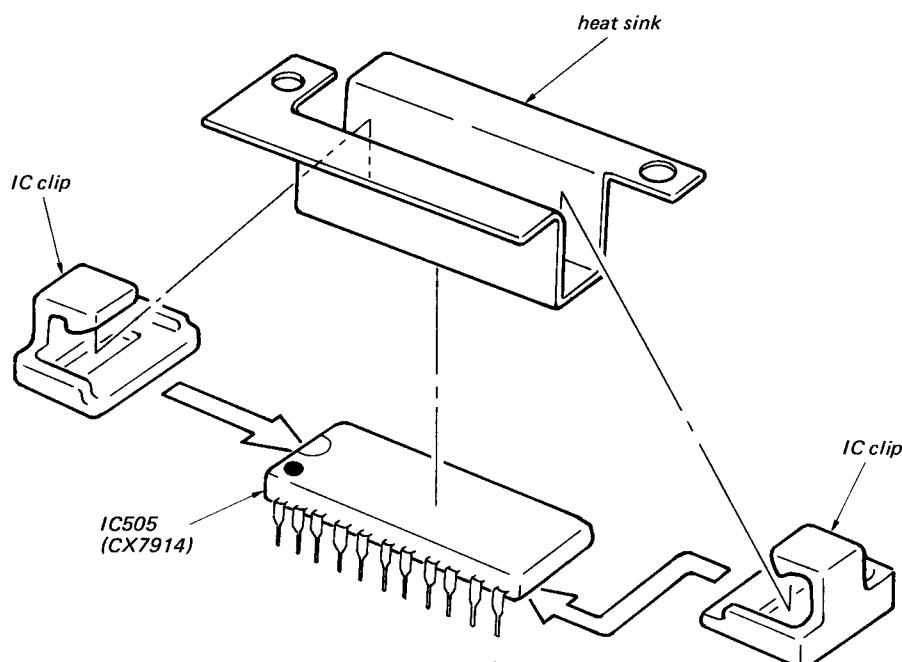
MODEL IDENTIFICATION*— Specification label on jack plate —***SIGNAL SYSTEM IDENTIFICATION**

Front panel



Notes on IC505 Replacement

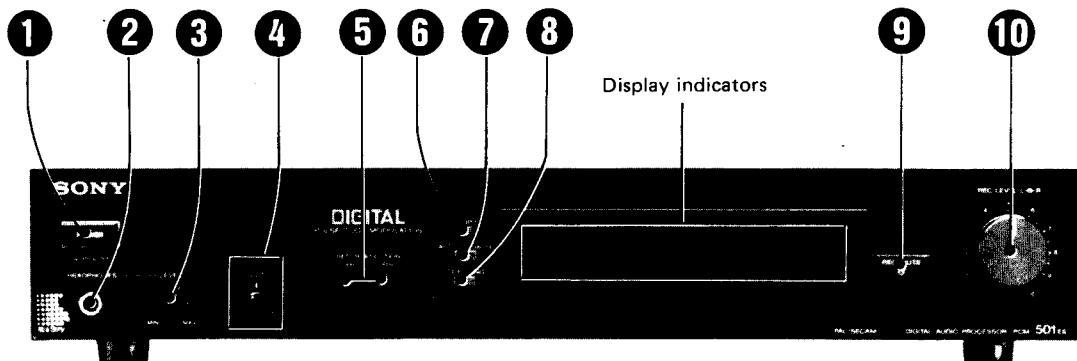
- When replacing IC505, first clean the top of the IC and the bottom of the heat sink with alcohol, then apply an epoxy type adhesive* to the heat sink with IC chip, as shown in the illustration below.



* Epoxy type adhesive: Sony bond SC1000 or other quick drying 2 liquid compound.

LOCATION AND FUNCTION OF CONTROLS

FRONT PANEL



① POWER switch

Press to turn on the power. The peak program meter indicators will illuminate. To turn the power off, press the switch again.

② HEADPHONES jack (stereo phone jack)

Insert the headphones to monitor recording input levels, or to listen to a recording in the playback mode.

③ LEVEL (headphone level) control

Used to adjust the headphone level.

④ OVC (optimum video condition) control and indicators

To adjust the combination of the VTR and this unit, depress the TRACKING button and adjust this control together with the picture control knob of the VTR while watching the OVC indicator illuminations (see "Using the OVC control", page 11).

⑤ REC RESOLUTION (record resolution) selectors

These buttons select the resolution for recording.

For normal operation, keep the 16-BIT button pressed.

14-BIT: for recording in accordance with the technical specifications of the Electronic Industries Association of Japan (EIAJ) which has adopted the 14-bit linear quantization format.

Press this button when the tape recorded with this unit is to be played back using another PCM digital audio processor which conforms to the 14-bit quantization format of the EIAJ.

16-BIT: for recording and playing back in the 16-bit quantization format of the EIAJ. As the 16-bit format offers a wider dynamic range and less distortion than the 14-bit format, normally use the 16-BIT selector setting.

During playback, the proper quantization format is automatically selected for the tape being played.

⑥ COPY (digital tape copy) button

Depress this button for digital-to-digital tape copying using a pair of VTRs and the COPY OUT jack at the rear. The COPY indicator illuminates when the copy switching is activated.

● Be sure to release the COPY button except for digital tape copy. With the button depressed, signals are not transmitted through the VIDEO OUT jack (see "Making Digital Tape Copies", page 12).

⑦ AUTO PB MUTE (auto playback muting) button

The playback muting circuit activates automatically when you depress this button and the AUTO PB MUTE, indicator lights when the muting circuit is functioning. You only need to press and release the button when you want the muting function turned off. The playback muting circuit cuts out sound reproduction when frequent dropouts occur due to mistracking of the heads of the VTR, or scratches and dust on the magnetic tape. If you do not want the sound reproduction cut off, such as with low quality tapes, release the AUTO PB MUTE button so that the AUTO PB MUTE indicator goes off (see "Using the AUTO PB MUTE button", page 11).

⑧ TRACKING button

Depress this button to convert the peak program meters into a tracking meter. Each time the button is switched, the function of the meter changes.

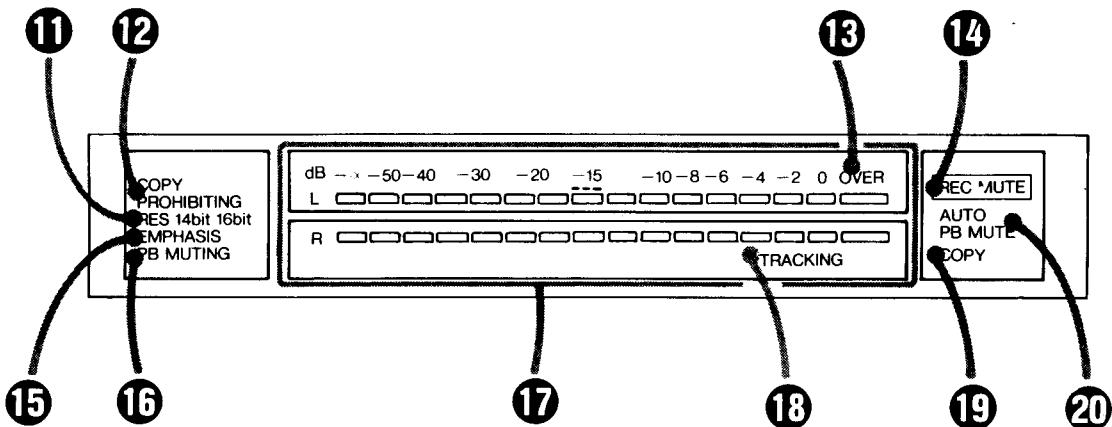
⑨ REC MUTE (record muting) button and indicator

Keep this button depressed to eliminate unwanted material and to create blank spacing between selections when recording. The REC MUTE indicator illuminates while the button is kept pressed, and the level of the recorded signal is reduced to "Zero". While the record muting is operating the video control signal of the VTR is still transmitted to permit proper playback.

⑩ REC LEVEL (record level) control

These controls adjust the recording level. The outer control is for the left channel, and the inner control is for the right channel.

DISPLAY INDICATORS



⑪ RES (resolution) indicator

Displays the resolution (14-bit or 16-bit) of the signal being transmitted to the VIDEO IN jack. During playback, this indicator automatically displays the resolution of the tape being played, regardless of the REC RESOLUTION selector setting.

⑫ COPY PROHIBITNG indicator

When a tape with a tape copy prohibiting code is played back, this indicator will light up to show that a digital tape copy cannot be made.

⑬ OVER indicators

Light up when recording level signals exceed "0" dB to warn that the recording level is too high.

Note : This indicator lights primarily as indication that the LINE IN signal exceeds "0" dB and it will also light during playback when the LINE IN signal exceeds "0" dB. Disregard the "OVER" indication during playback while other equipment is operating.

⑭ REC MUTE (record muting) indicator

Illuminates while the REC MUTE button is depressed.

⑮ EMPHASIS indicator

This model PCM digital processor features an emphasis circuit that automatically activates to improve the signal-to-noise ratio of digital tapes. All tapes which are recorded and later played back on this unit are "emphasized", as are prerecorded tapes featuring emphasis, and tapes recorded on other PCM digital processors using emphasis.

When tapes recorded without emphasis on other digital processors are played on this unit, the EMPHASIS indicator will not illuminate.

⑯ PB MUTING (playback muting) indicator

When the VTR is not transporting the tape at the proper speed, such as at the beginning of tape playback, or when frequent dropouts occur, the PB MUTING indicator lights. Note that as this indicator merely indicates that the muting circuit is investigating dropouts, it lights also when the AUTO PB MUTE button is released (although muting isn't effected in this instance).

⑰ Peak program meter indicators

These fluorescent indicators illuminate to indicate the input level of each channel during recording, and the recorded level during playback. For easy reading, they hold the level of the highest peak while also following the level of transient peaks below the peak. When the TRACKING button is depressed, the lower (R) channel meter converts to a tracking meter that gives the tracking condition of the VTR.

⑱ TRACKING indicator

This indicator illuminates when you depress the TRACKING button to readjust the tracking of the VTR and indicates that the tracking meter is being displayed in place of the peak program meters. The meter indication moves further to the right as tracking improves.

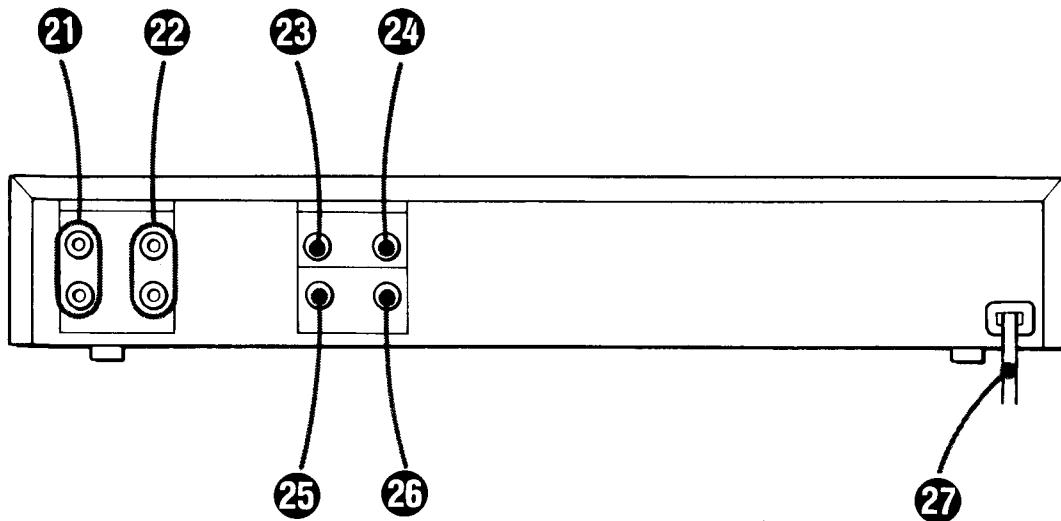
⑲ COPY indicator

Illuminates when the COPY button is depressed.

⑳ AUTO PB MUTE indicator

When the AUTO PB MUTE button is depressed, this indicator illuminates to indicate that the auto muting circuit is activated.

REAR PANEL

**① LINE IN (phono input jacks for audio components)**

Connect these jacks with the tape outputs of an audio amplifier and the LINE OUT jacks of a stereo microphone amplifier.

② LINE OUT (phono output jacks for audio components)

Connect these jacks with the tape inputs of an audio amplifier.

③ VIDEO IN (phono jack)

Connect this jack to the video outputs of a VTR.

④ VIDEO OUT (phono jack)

Connect this jack to the video inputs of a VTR. (Note: the output signal for this jack is cut off when the COPY button is depressed.)

⑤ MONITOR OUT (phono jack)

Connect this jack to the input jack of component TV, such as Sony Profeel series, and other video monitors.

With this jack, the video signal can be monitored on the connected component TV, such as Sony Profeel series, without changing the connection regardless of the POWER switch setting of this unit.

⑥ COPY OUT (phono jack)

For digital tape copying. When making digital tape copies, connect the COPY OUT jack to the VIDEO IN jack of the second VTR and depress the COPY button. VTR 1 will be used to play back the recorded tape and VTR 2 will make the copy.

Note: The COPY OUT jack can also be used for conventional recording of two tapes simultaneously. In this instance, keep the COPY button released.

CAUTION: Only use the COPY OUT jack for digital copying or for simultaneous recording using two VTRs. Never make connections with the COPY OUT jack for normal recording using only one VTR. If the COPY OUT jack is used as a conventional video output, distorted sound reproduction will result.

⑦ Power cord

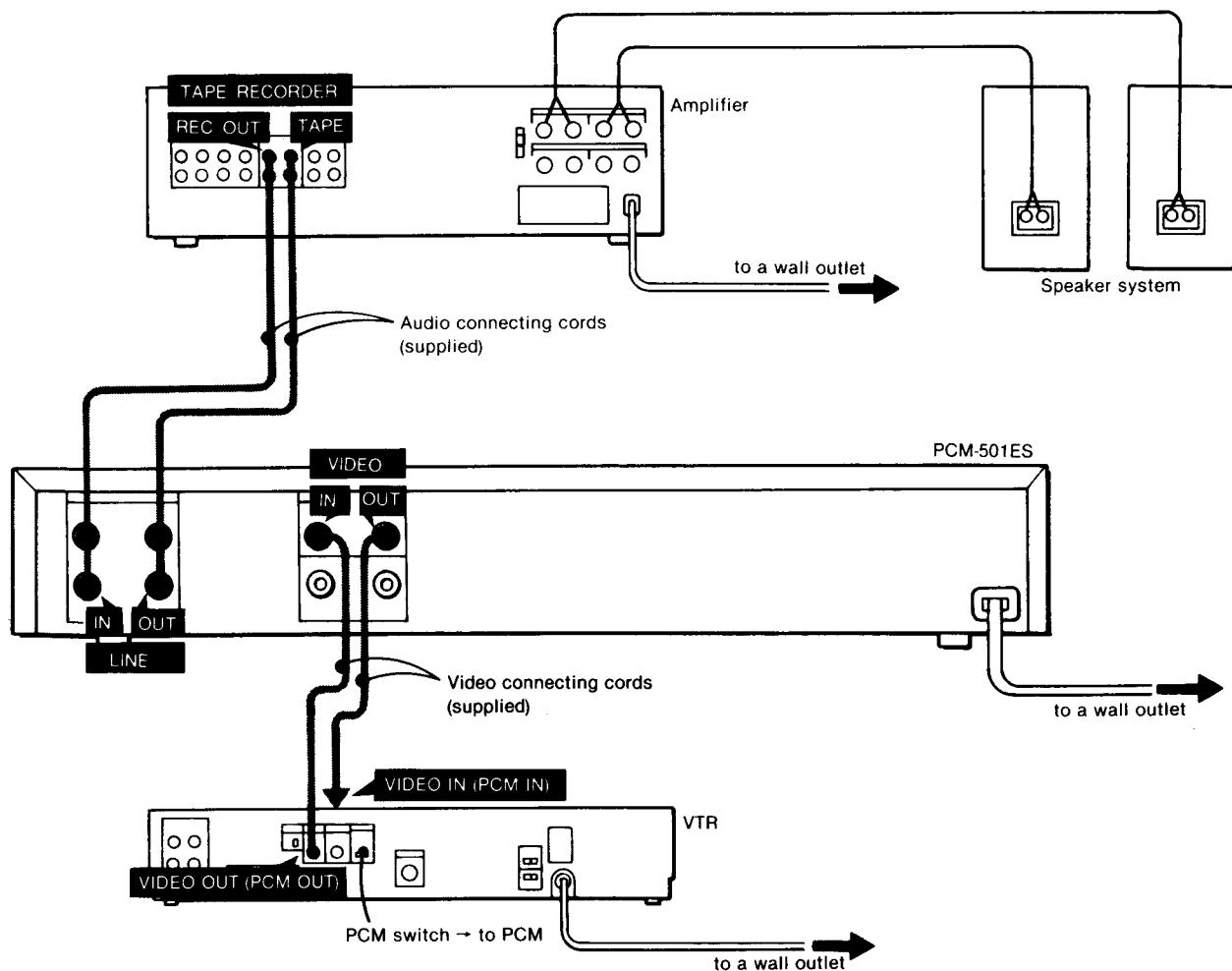
BASIC SYSTEM CONNECTIONS

(with VTR, amplifier and speaker system)

For basic hook up of your PCM-501ES for digital audio recording, connect the unit with a VTR, amplifier and speaker system as diagrammed below. For detailed instructions on connecting the respective components, refer to the instruction manual furnished with each unit.

Proceed in accordance with text as diagrammed:

- Turn off the amplifier before making connections.
- The supplied connecting cords with the red and white plugs are for hook up with audio equipment. (Connect these to the LINE IN/OUT jacks of the PCM unit and the audio component). The cords with yellow plugs are for hook up with the VTR (Connect these between the VIDEO IN/OUT jacks of the PCM and the VTR).
- Be sure to connect the red plug of the audio connecting cord to the right-channel (R) jack and the white plug to the left-channel (L) jack.
- Insert connecting plugs firmly as loose connections may cause hum and noise. Also keep connecting cords away from power cords and speaker cords to avoid hum pick-up, and keep cords away from antenna leads as this could cause both audio and video reception interference.
- For quality digital audio recording, we recommend that you use Sony Betamax models.



CAUTION

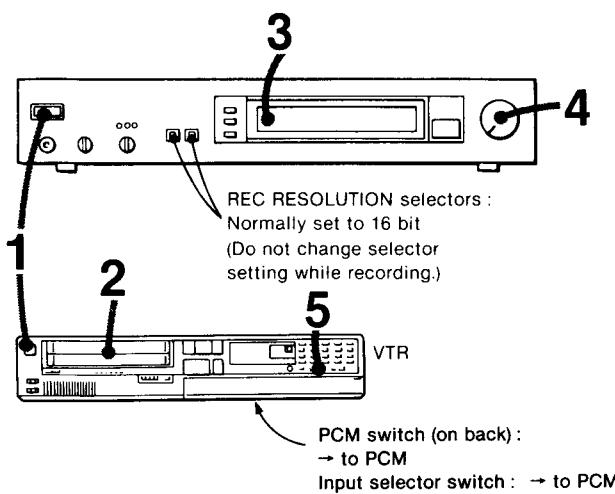
Your speaker system could be damaged if PCM digital tapes are copied at high output with VTR if connections are made to the auxiliary (AUX) or tuner input jacks. Avoid copying in this manner if at all possible; if your set up requires that you make connections in this manner, be sure to record at a low level.

Power cord polarity

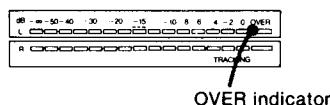
A white mark is visible on the lead of the power cord. This will help to operate the PCM-501ES and the other components of the system "in phase" by aligning the ac power cord polarities with the ac outlet polarities. In most cases, the marked plug of the PCM-501ES power cord should be inserted into the grounded side of the ac outlet.

PCM DIGITAL RECORDING

The basic procedure for PCM digital recording is described below. Follow the numbered sequence. Be sure to refer to the instruction manual supplied with the respective components to ensure quality recording.



- 1 Turn on the power switches.
- 2 Insert a video cassette.
- 3 Check that the PB MUTING indicator does not light.
This could indicate that the tape is damaged. If the PB MUTING indicator lights, replace the tape to ensure quality recording.
- 4 Adjust the sound level for the tape to be recorded.
Adjust the REC LEVEL controls so that the red OVER indicators on the peak program meters do not illuminate at the highest signal level (see "Recording Level Adjustment").



- 5 To record, hold the RECORD button depressed and press the PLAY button.

When the recording is completed, press the STOP button.

With IB video cassettes for PCM digital audio recording :
Use of IB or IBI mode is recommended for PCM recording and playback.

PCM switch :

(Is PCM recording possible with a VTR with no PCM switch?)
When the PCM switch of the VTR is set to ON, the picture compensation circuit, which functions if dropout occurs in playback mode, does not operate.

In this occurs in the normal VTR operation, the video image quality is impaired. However, with PCM, the unit detects only 1 or 0 and compensation is not required.

With this compensation, the data which can still be read with the PCM unit is compensated beforehand, resulting in unnecessary error. When your VTR is equipped with a PCM switch, set it to ON only for PCM playback.

Even with a VTR without a PCM switch, the PCM-501ES can read and compensation error data with its error processing circuit, so there is no problem.

RECORDING LEVEL ADJUSTMENT

The PCM recording system has no reference level, but an absolute maximum value of 0 dB. If all the input signals are recorded under 0 dB, the PCM-501ES assures equal characteristics at any input level. This is why the peak program meters of this unit have no plus indications.

Note that the peak program meters show the pre-emphasized input signal levels. For this reason, it is important to adjust the recording level so that there will be no clipping over 0 dB.

Adjust the recording level with the REC LEVEL controls so that the peak program meters do not deflect over 0 dB.

The red illumination of the OVER indicators warns of an overload during recording. If the indicators illuminate frequently, the recording level is set too high (this will result in overload and distorted recording). As the peak program meters used in this unit are far more sensitive than conventional VU meters, also be careful not to set the recording level too low, as the signal-to-noise ratio will deteriorate. The correct recording level settings vary with the program source you are recording. Generally, adjust the level to about -15 dB.

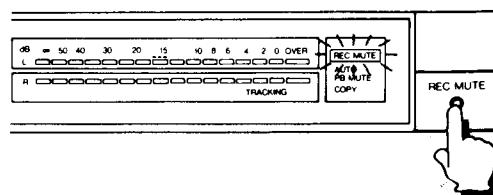
RECORD MUTING

By using the REC MUTE button during recording, you can provide an interspacing in the recording, eliminating unwanted material such as talk and commercials.

To insert a blank

Depress the REC MUTE button for as many seconds as you want the blank segment on the tape to be. The REC MUTE indicator will light. When you release the button, recording will resume.

Note : Although the incoming signal is not recorded on the tape while the record muting function is operating, the signal levels continue to register on the peak program meters and you can monitor the program source through the speakers or headphones.



PCM DIGITAL TAPE PLAYBACK

Normally keep the COPY button released :

The COPY button should be depressed only for digital tape copying. Always press and release the button for conventional recording and playback (conventional recordings cannot be made with the COPY button depressed).

Avoid excessive use of the "PAUSE" button of VTRs :

The PAUSE button of a VTR is highly convenient for video recording and playback. For digital audio tapes, however, extended use of the PAUSE button could damage the tape. When recording or playing digital audio tapes, use the PAUSE button only when needed, and do not leave it ON for extended periods of time. Also note that with certain VTRs the playback muting function does not operate efficiently while the PAUSE button is depressed and noise will be heard.

If the peak program meters do not respond when monitoring a recording :

Check that the VIDEO IN jack of the PCM unit and the VIDEO OUT jack of the VTR are firmly connected.

Although recording is possible if these connections aren't made, you cannot monitor the recording, and the peak program meters will not deflect.

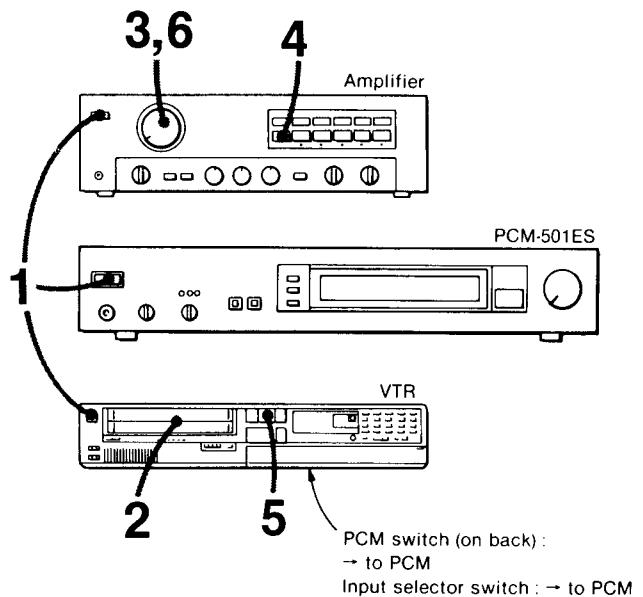
If the record button of the VTR doesn't operate :

Video cassettes incorporate safety tabs just as do audio cassettes and chances are the tabs have been removed. If so, simply cover the slot with a piece of plastic tape (refer to the instruction manual of your VTR for details).

How to make connections for recording two digital tapes simultaneously :

Connect the second VTR to the COPY OUT jack of the PCM unit.

The basic procedure for playback of digital audio tapes with your PCM digital processor and a VTR are described below ; follow the numbered sequence. Refer to the instruction manuals of the respective components to ensure quality playback.



- 1 Turn the POWER switch of each equipment on.
- 2 Insert a recorded video cassette.
- 3 Turn down the amplifier volume.
- 4 Press the TAPE switch (or set the tape monitor switch to TAPE) as indicated in amplifier instruction manual.
- 5 Press the video recorder PLAY button to begin playback.
- 6 Adjust the volume to suit your preference.

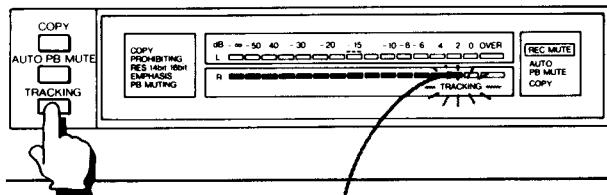
Set the amplifier volume relatively low :

In the PCM system, a wider dynamic range is achieved than with the conventional analog system, and the peaks of high level inputs are recorded with high-fidelity. Also, the noise level is generally very low. If you turn up the volume inadvertently while listening to parts of the tape where no audio signals are present, or while low level inputs are being recorded, the speakers could be damaged when these portions of the tape are played. Take extra care not to inadvertently turn the volume up in the above situations.

ADJUSTING THE TRACKING OF THE VTR

When a video tape recorded on another VTR is played back, dropouts occasionally occur due to mistracking of the video heads. To obtain optimum sound reproduction, adjust the tracking of the VTR as follows.

- 1 Depress the TRACKING button. The TRACKING indicator will illuminate, and the lower peak level meter will convert to a tracking meter.
- 2 Insert the video cassette and set the VTR to the playback mode. After the PB MUTING indicator goes off, adjust the tracking control of the VTR while observing the tracking meter scale on the PCM unit. Adjust the control so that the rightmost indicators illuminate within the permissible range of the tracking meter.



Rightmost indicator within the permissible tracking adjustment range

For details on setting the correct tracking adjustment, refer to the instruction manual furnished with your VTR.

USING THE OVC CONTROL

With the OVC (Optimum Video Condition) control and indicators, the picture control of the VTR can be adjusted to the optimum point to obtain the best combination of the VTR and this unit.

- 1 Depress the TRACKING button (one of the OVC indicators flashes or lights) and adjust the tracking of the VTR.
- 2 Set the OVC control of this unit and the picture control of the VTR to the center positions and monitor the illumination of the OVC indicator. The OVC indicator shows the VTR condition during tape transport as follows.



lights



OVC indicator		
Red	Green	Green
○	○	○
○	○	●
○	○	●
○	●	○
●	○	○
●	○	○

3 Turn the OVC control to the right or left so that the OVC indicator on the right lights up or flashes, or the middle indicator flashes.

4 If the optimum video condition cannot be obtained within the adjustable range of the OVC control, return the OVC control to the center position and turn the picture control of the VTR to the right or left.

5 Repeat step 3. Now the best combination of the VTR and this unit is obtained.

Once the optimum video condition is obtained, it is not necessary to readjust the OVC control even if red OVC indicator sometimes flashes or lights up. The built-in error process circuit functions at that time.

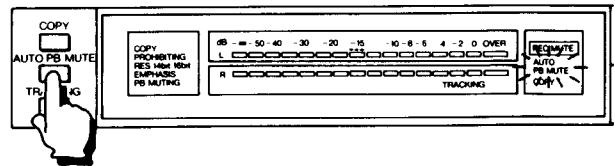
If the red OVC indicator frequently flashes, clean the head or replace the video tape.

Note: The OVC indicator shows the logically counted PCM data condition. Therefore, the VTR condition is checked only with the PCM data and it does not correspond to the video image condition. In general, PCM data error occurrence tends to decrease when no image or dropout compensation is applied.

USING THE AUTO PB MUTE BUTTON

The playback muting circuit activates automatically when you depress the AUTO PB MUTE button. It serves to cut out the faulty sound reproduction that results when frequent dropouts arise due to scratches and dust on the tape, or the sound distortion that occurs when the tape speed varies such as at the beginning of tape playback, during accelerated tape advance, or when you press the pause button.

If the muting circuit activates so often as to make listening unpleasant, adjust the tracking control of the VTR, then press and release the AUTO PB MUTE button. This will permit you to continue listening without interruption, although a certain amount of noise will be reproduced.



Note: With very poor quality or damaged tapes, sound may still be somewhat muted, even if the AUTO PB MUTE button is released. Note that the PB MUTING indicator will also light when the PB MUTING button is released, although in this instance muting is not effected.

IMPORTANT

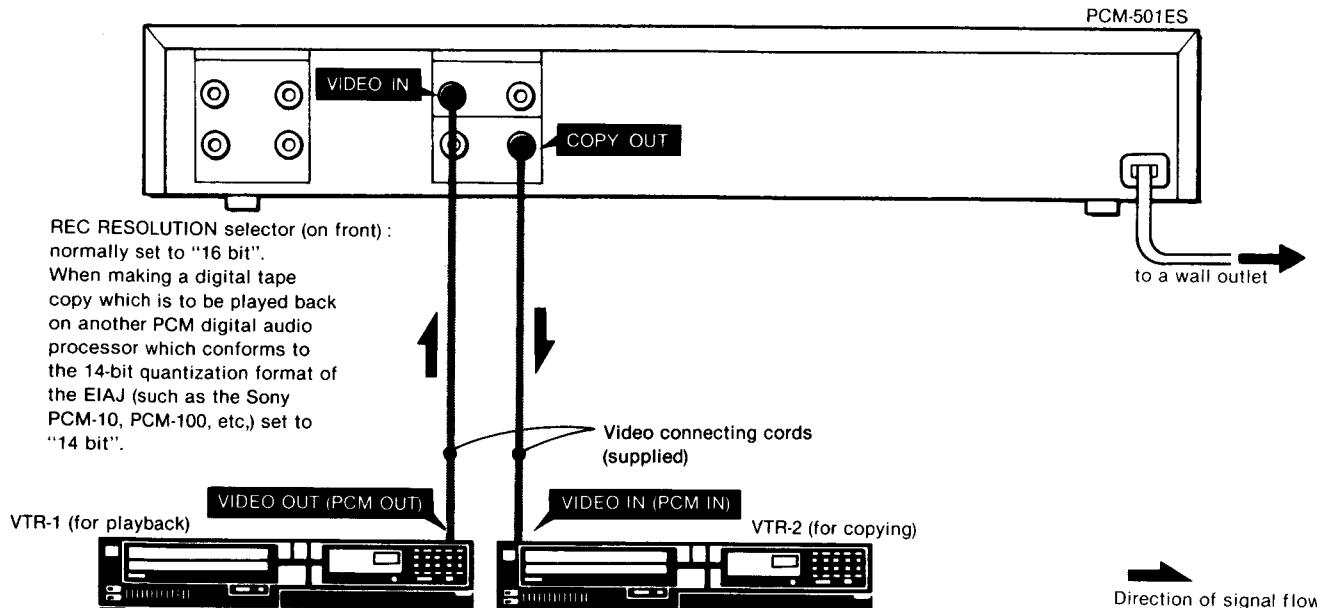
Be extremely careful that you do not mistakenly play a recorded video cassette tape in place of a digital sound tape while using the PCM unit. If you do this and the AUTO PB MUTE button is released, the video data could be misread for PCM data and clicking noise might occur which could damage your speakers. Also, be careful not to mistake a brand new, unrecorded tape for a recorded tape and play it. This could also produce noise detrimental to your speakers.

MAKING DIGITAL TAPE COPIES

Digital tape copies can be made with your PCM digital processor using a pair of VTRs and the COPY OUT jack on the back of the PCM unit.

The high-quality recording characteristics of PCM digital processing, aided by extremely efficient error detection and correction circuits, ensures absolutely no deterioration in sound quality for digital-to-digital copying.

Make the connections as diagrammed below. Be sure that the COPY OUT jack of the PCM unit is connected to the video input of the VTR being used to make the copy (VTR-2). Familiarize yourself with the operating features of both VTRs beforehand to ensure proper copying.



COPYING PROCEDURE

- 1 Turn on the power for all units.
- 2 Insert the recorded tape into the VTR you are using for playback (VTR-1), and a blank tape into the VTR you are using to make the copy (VTR-2).
- 3 Depress the PCM-501ES COPY button (the COPY indicator will light).
- 4 Start playback for VTR-1, and set VTR-2 to record. Copying will begin.

- Noise interference may result if you depress the COPY button while the volume is turned up. Keep the amplifier volume turned down when you press the COPY button.
- When the COPY PROHIBITING indicator is lit on the display panel of the PCM unit, copies cannot be made, even though the COPY button is released.
- Always press and release the COPY button when tape copy has been completed.

Do not worry about the presence of distortion when monitoring digital tape copies :

When digital tape copies are monitored the COPY button is depressed, and sound reproduction through the headphones or speakers may be somewhat distorted. However, the tapes will be copied with no deterioration in signal quality and the distortion will be corrected during normal playback with the COPY button released.

You do not need to adjust the recording level for digital tape copying :

Digital-to-digital tape copies are made at the signal level reaching the COPY OUT jack of the PCM unit during copying. Recording level adjustment isn't necessary.

Digital tapes with a "COPY PROHIBITING" code cannot be copied :

When tapes with a "copy prohibiting" code are played, the COPY PROHIBITING indicator lights on the display of the PCM unit and copies cannot be made.

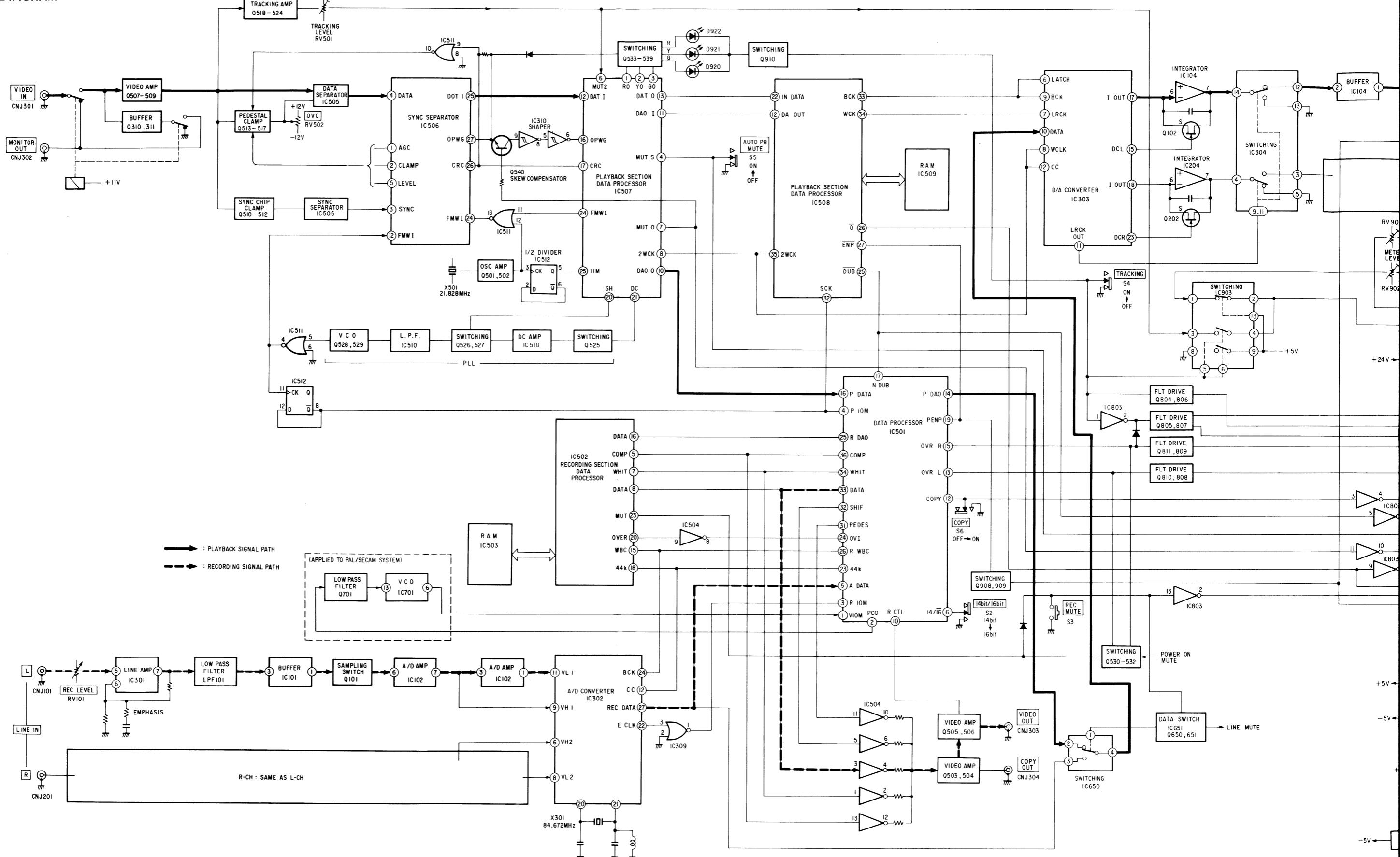
Digital tape copies cannot be made with the COPY button released :

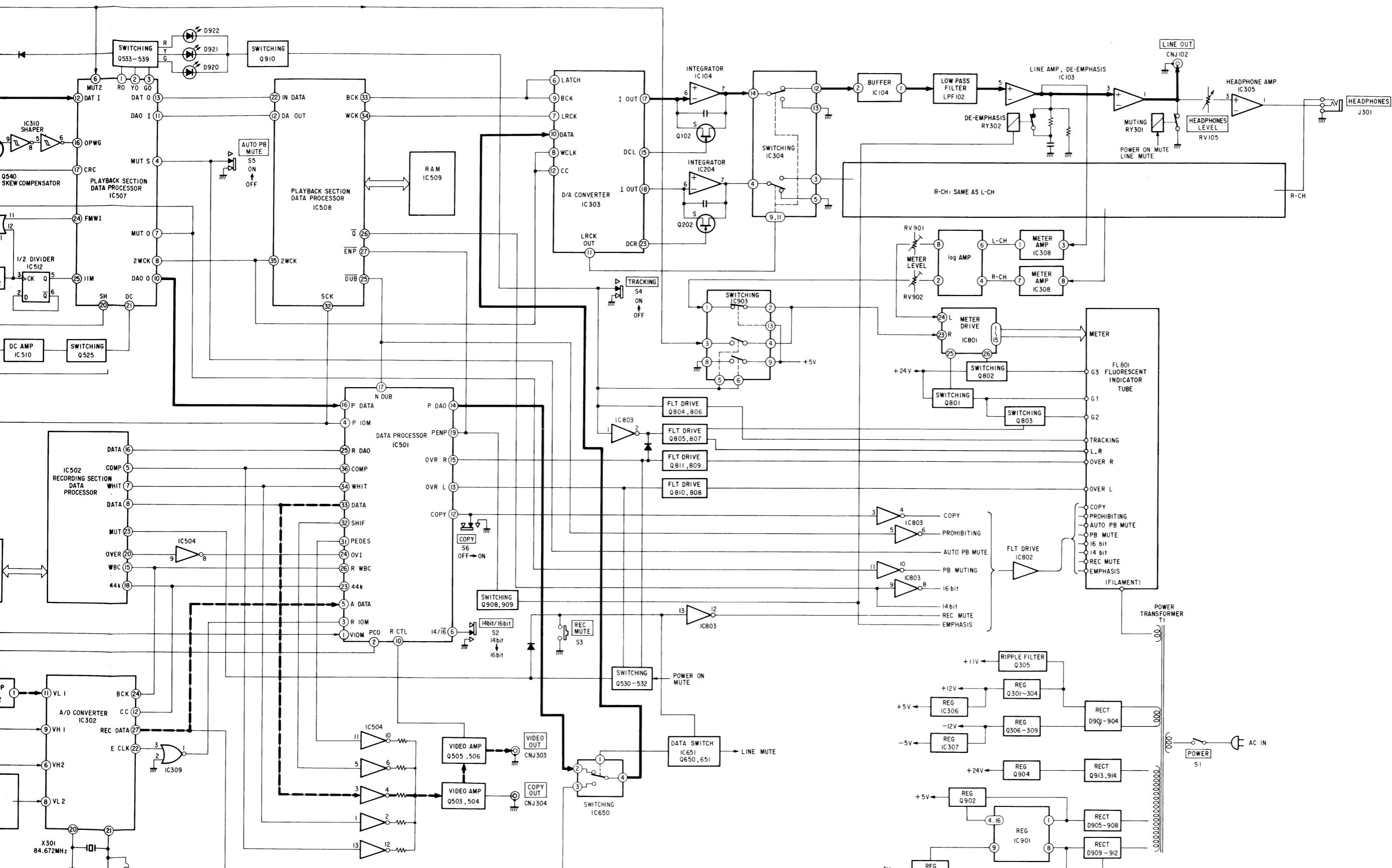
Always depress the COPY button when making digital tape copies and press and release the button after the copies have been made. Do not change the setting of the button during tape copying or during normal recording and playback. Digital-to-digital tape copies cannot be made with the COPY button released.

SECTION 1
OUTLINE

PCM-501ES PCM-501ES

1-1. BLOCK DIAGRAM

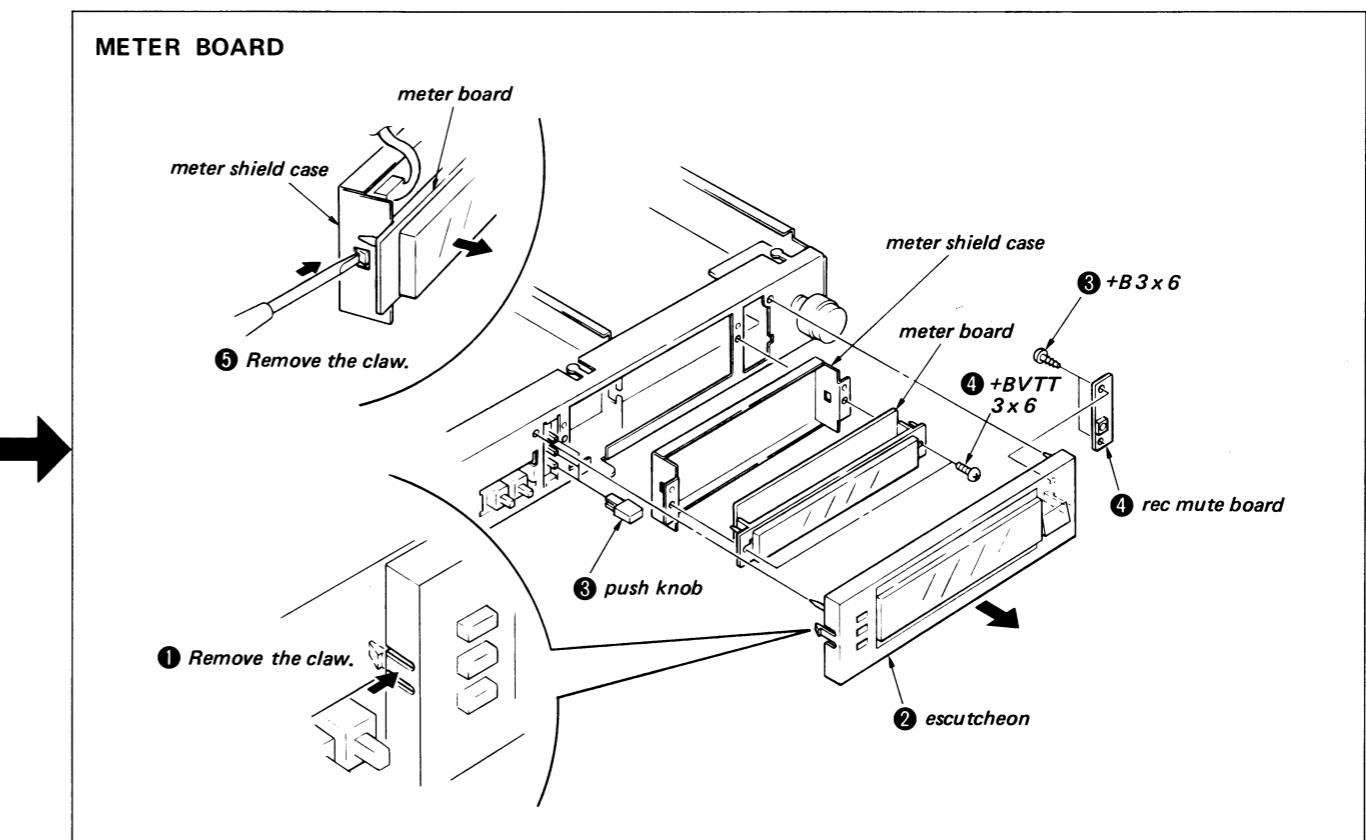
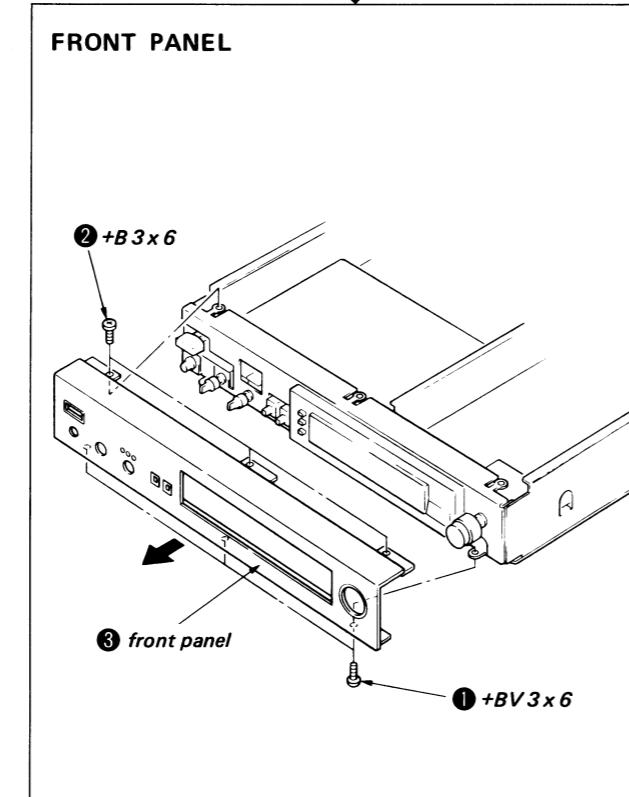
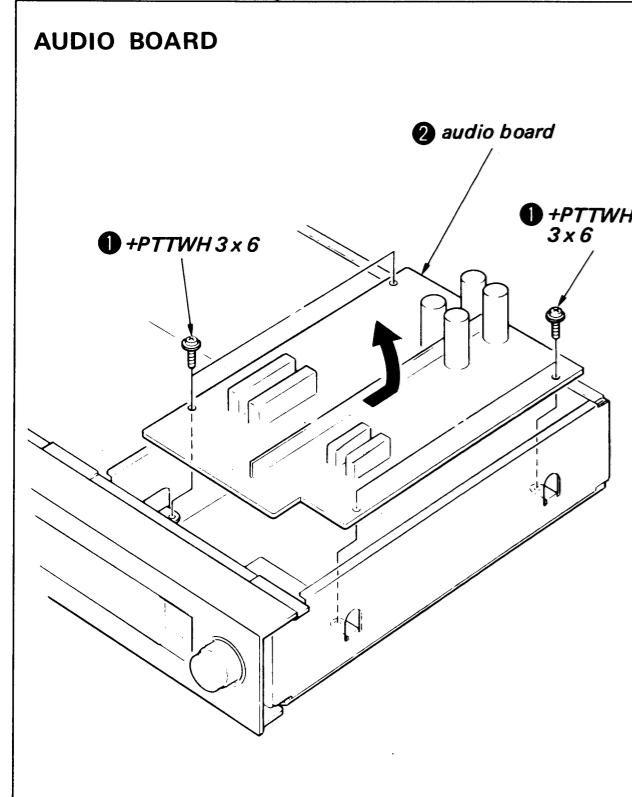
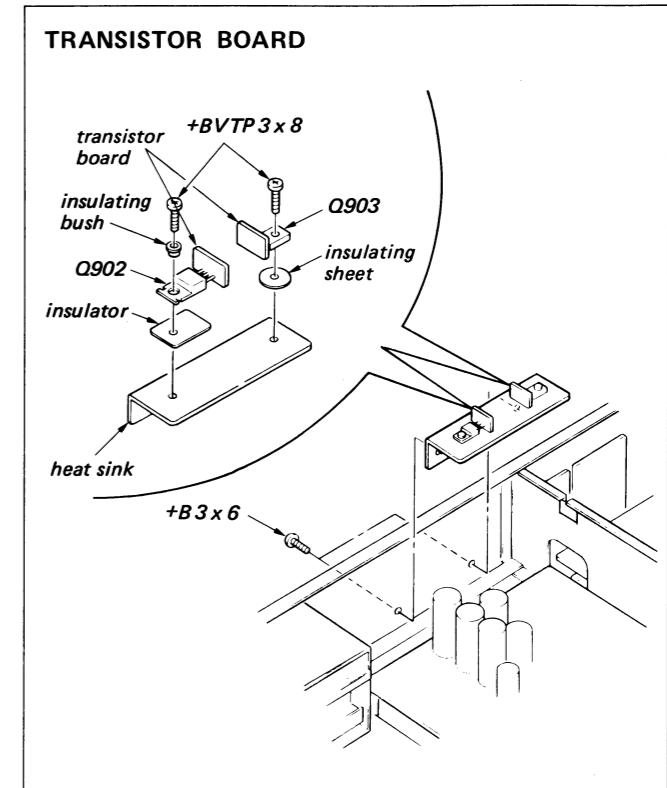
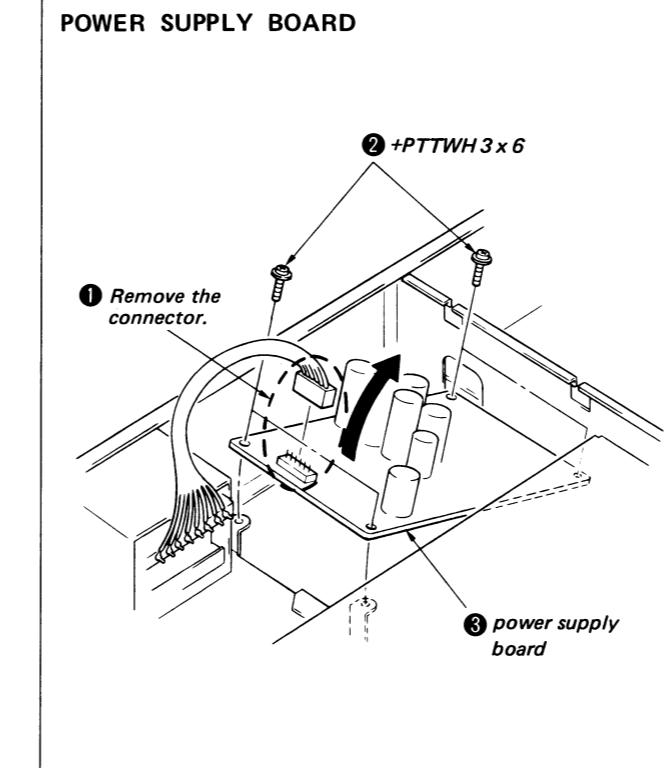
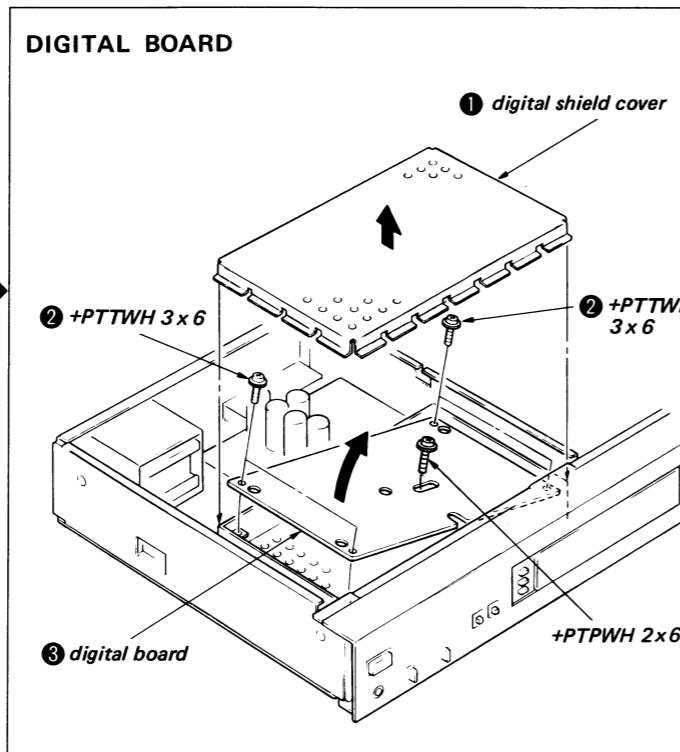




SECTION 2 DISASSEMBLY

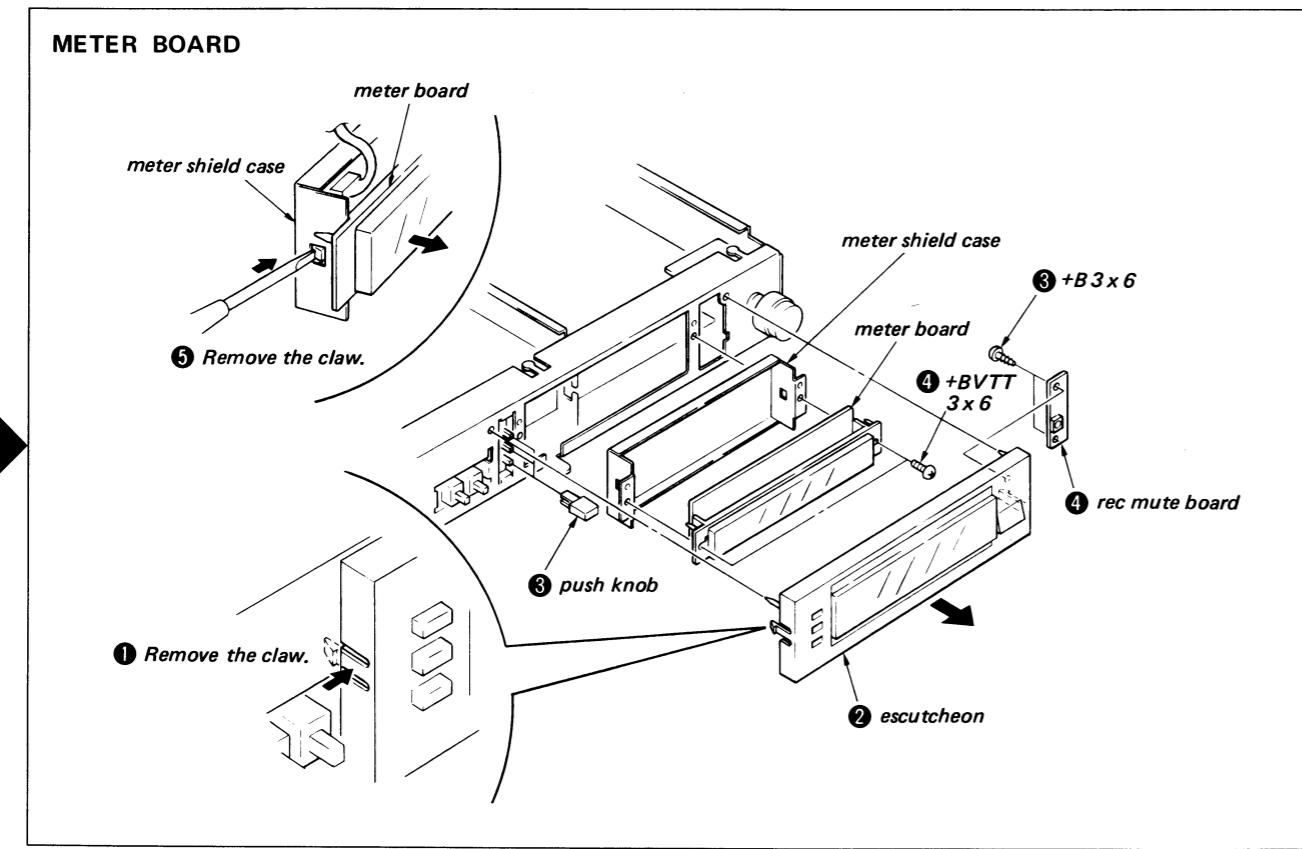
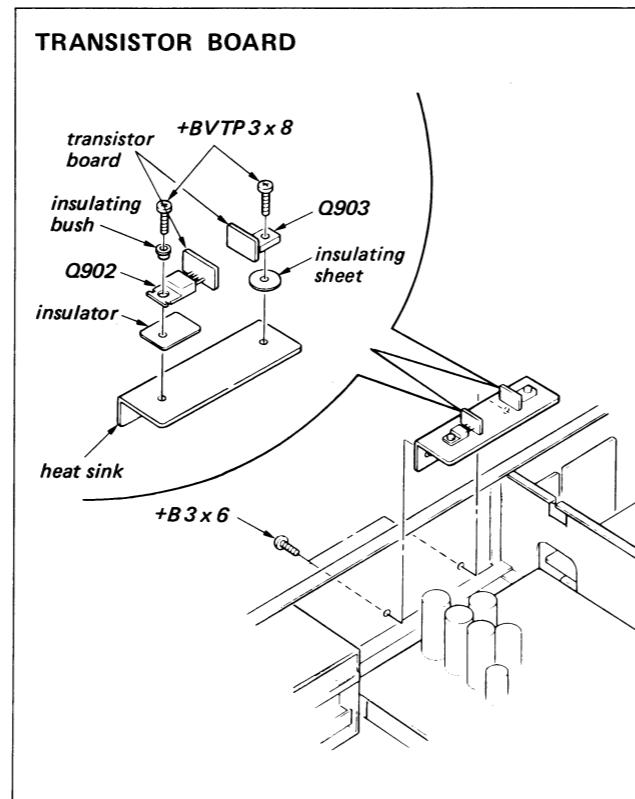
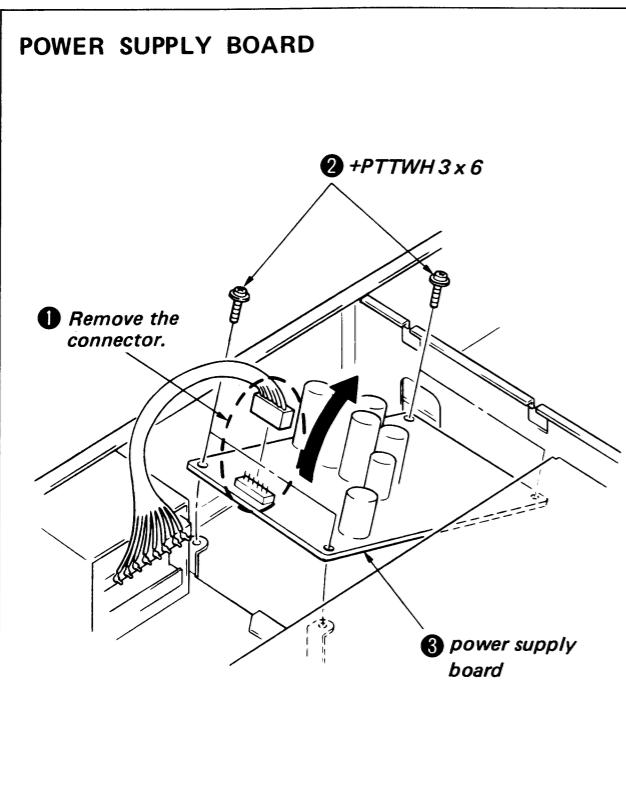
- Follow the disassembly procedure in the numerical order given.

- Remove the case.
- Remove the bottom plate.



SECTION 3

ADJUSTMENTS



- Switch Position

PB MUTING	ON
COPY	OFF
TRACKING	OFF
REC RESOLUTION	16 bit
HEADPHONES LEVEL	MAX
OVC control	center click

- E-E mode: VIDEO-IN and VIDEO-OUT terminals are connected.



- Reference input level

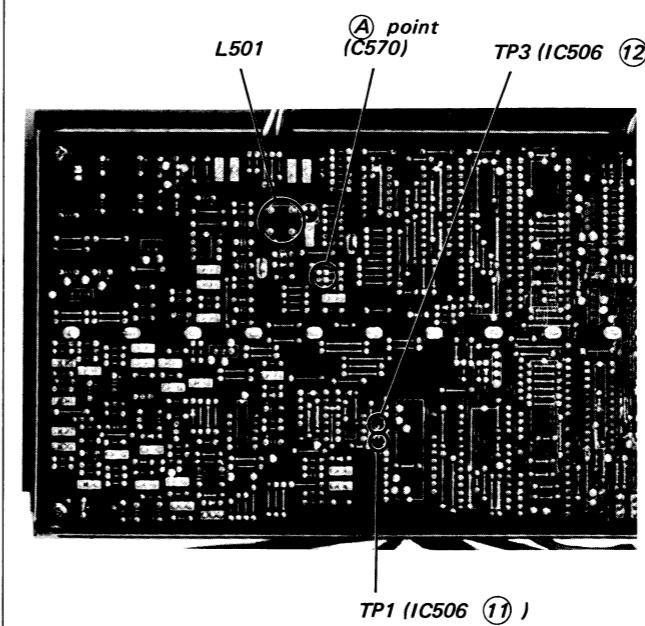
Input terminal	LINE IN	VIDEO IN
Source impedance	10 kΩ	75 Ω
Signal input level	0.24 V (-10 dB)	1 Vp-p

- Reference output level

Output terminal	LINE OUT	VIDEO OUT
Load impedance	47 kΩ	75 Ω
Signal output level	0.24 V (-10 dB)	1 Vp-p

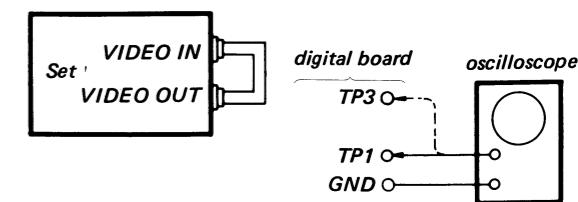
Make an adjustment after turning POWER ON more than half an hour so that the drift by temperature rise is avoided.

Adjustment Location: digital board



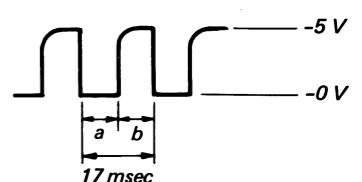
VCO ADJUSTMENT

Procedure:



1. Connect VIDEO-IN and VIDEO-OUT terminals, and connect the oscilloscope to the VCO check point and ground point.

2. Adjust L501 so that duty factor is 50%.

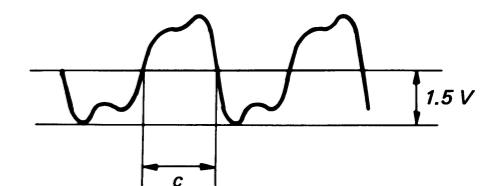


duty factor 50%: $a/b = 1/1$

3. Turn the COPY switch to OFF→ON→OFF and then confirm the duty factor is 50%.

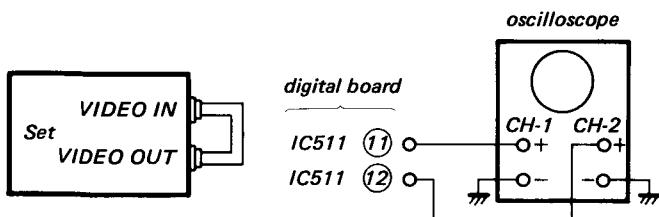
4. Connect the oscilloscope to TP3.

5. Confirm the duty factor is as shown below.

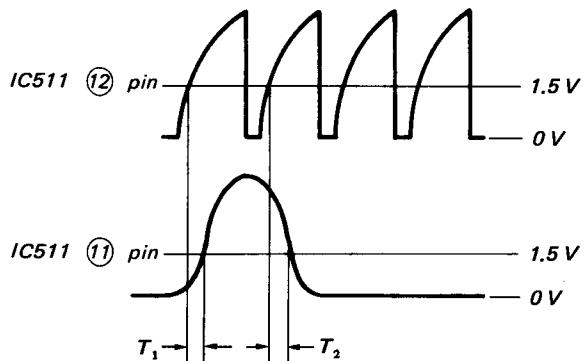


c: less than 0.02μsec.

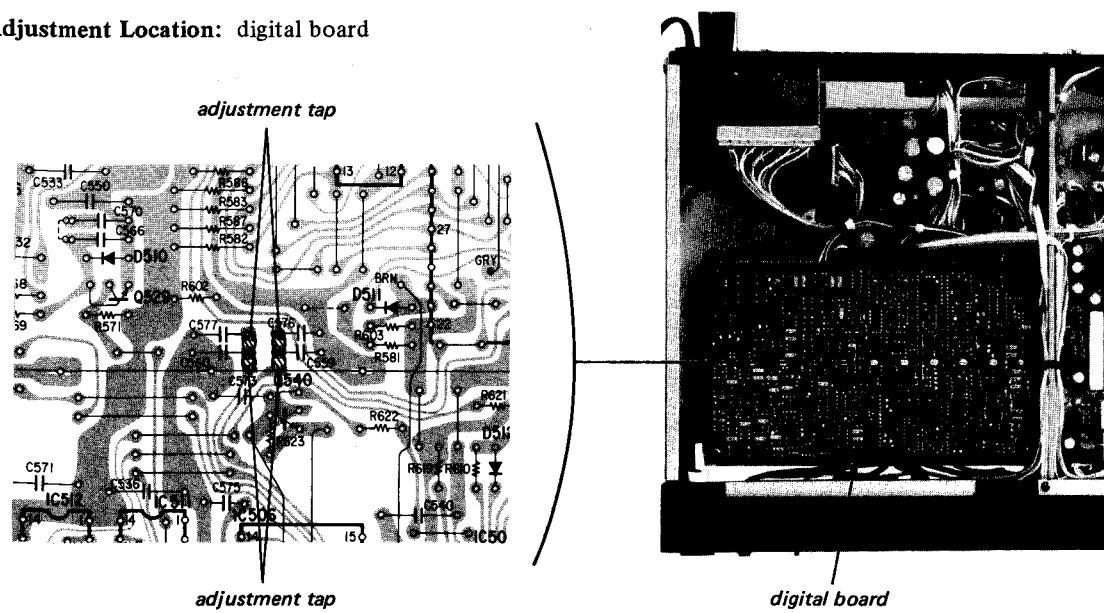
6. If c is 0.02μsec or more, solder the point A.

SKEW ADJUSTMENT**Procedure:**

1. Connect VIDEO-IN and VIDEO-OUT terminals.
2. Connect the oscilloscope to IC511 (11) pin and (12) pin.
3. Solder or unsolder the adjustment taps so that T_1 and T_2 is more than 10nsec.

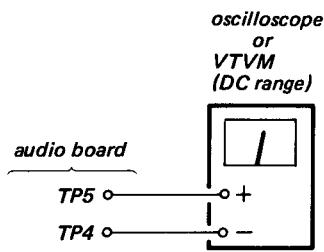
waveform:

T_1 and T_2 : more than 10nsec.

Adjustment Location: digital board

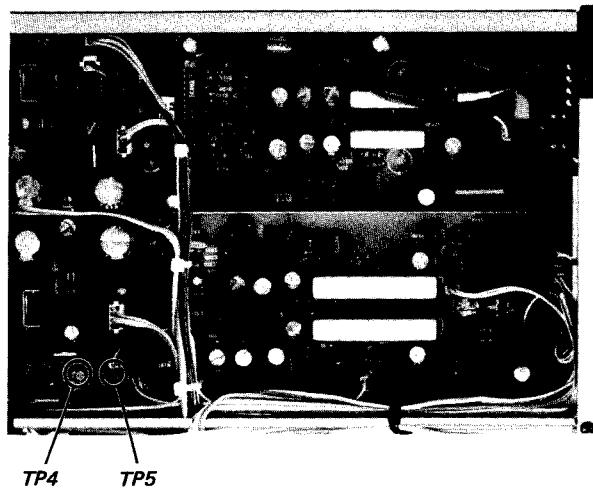
-5 V ADJUSTMENT

Procedure:

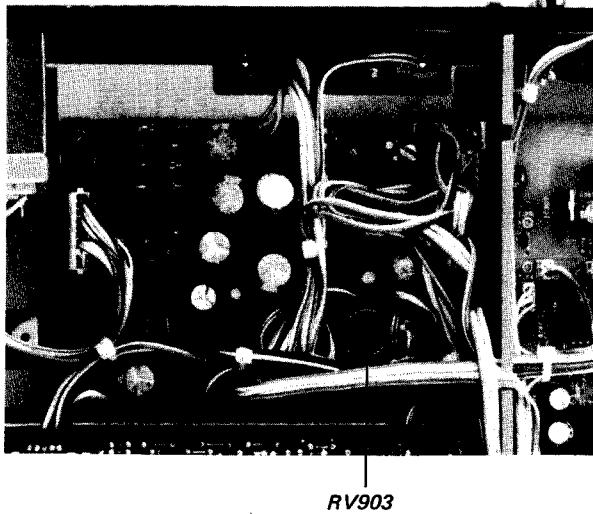


1. Connect the oscilloscope or VTVM (both are DC range) to the TP-4 and TP-5.
2. Adjust the RV903 so that the oscilloscope or VTVM reading are 0 ± 10 mV.

Connecting Point: audio board

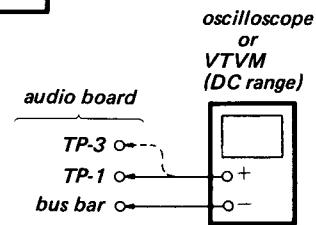
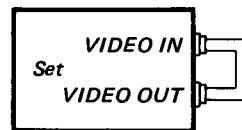


Adjustment Location: power supply board



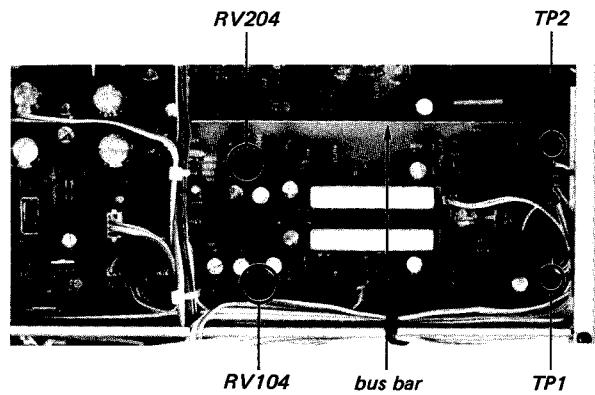
D/A OFFSET ADJUSTMENT

Procedure:

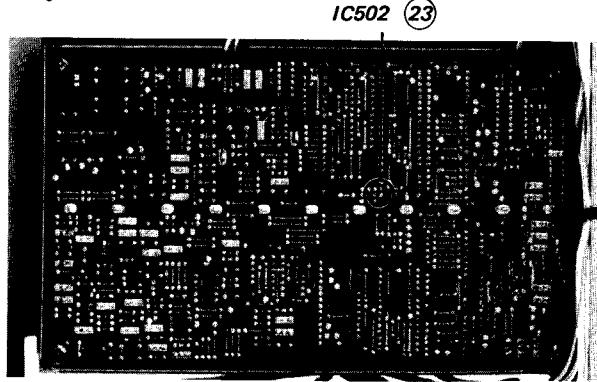


1. Connect the IC502 pin ②③ to the ground. [The no signal data is fed to D/A converter (IC301).]
2. Connect VIDEO-IN and VIDEO-OUT terminals, and connect the oscilloscope or VTVM (both are DC range) to the test point TP-1 (L-CH)/TP-3 (R-CH) and bus bar (ground point).
3. Adjust the RV104 (L-CH)/RV204 (R-CH) so that the oscilloscope or VTVM reading are 0 ± 10 mV.

Adjustment Location: audio board

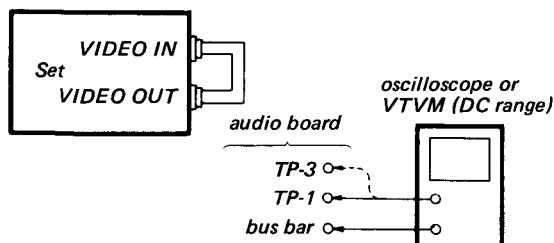


— digital board —

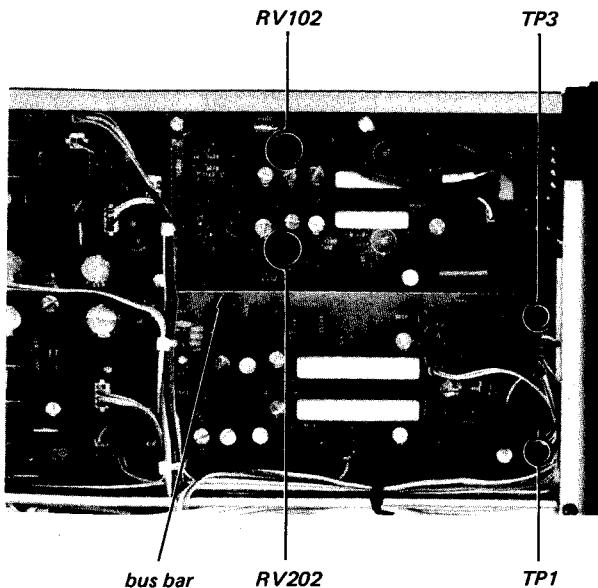


A/D OFFSET ADJUSTMENT

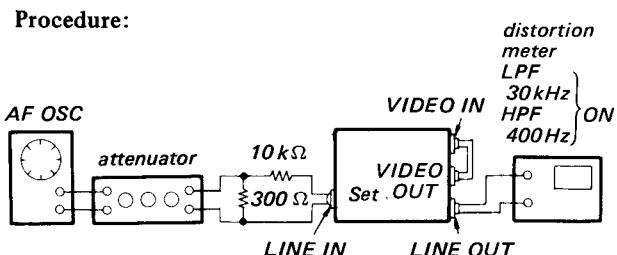
- A/D OFFSET ADJUSTMENT should be made later than that of D/A OFFSET.

Procedure:

1. Connect VIDEO-IN and VIDEO-OUT terminals, and connect the oscilloscope or VTVM (both are DC range) to test point TP-1 (L-CH)/TP-3 (R-CH) and bus bar (ground point).
2. Turn the REC LEVEL control to the minimum (0).
3. Adjust the RV102 (L-CH)/RV202 (R-CH) so that the oscilloscope or VTVM reading are 0 ± 5 mV.

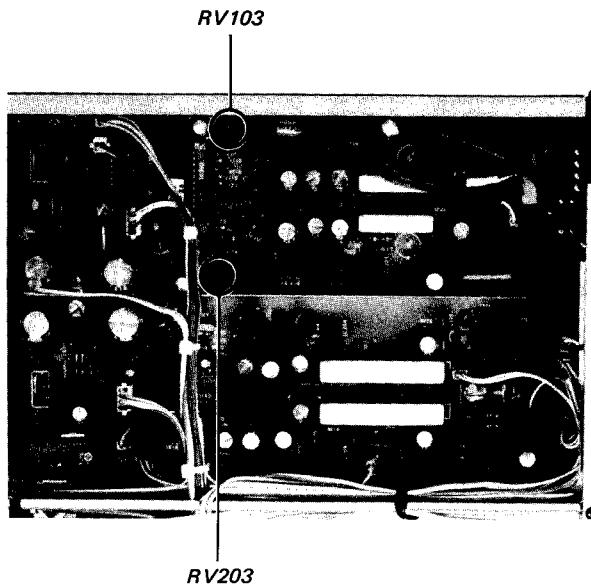
Adjustment Location: audio board**A/D DISTORTION ADJUSTMENT**

- The low distortion AF OSC and the low distortion measurement equipment are needed to make this adjustment.

Procedure:

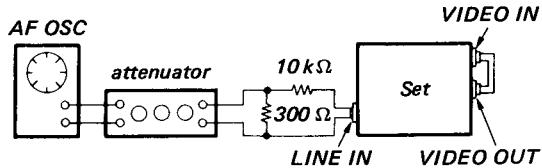
1. Connect VIDEO-IN and VIDEO-OUT terminals.
2. Apply a 1 kHz, 0 dB (0.775 V) signal to LINE-IN and connect the distortion meter to LINE-OUT.
3. Adjust the REC LEVEL control so that OVER of the level meters just light up.
4. Decrease the input signal level from 0.5 to 1 dB with the attenuator, and confirm OVER of that goes out.
5. Adjust the RV103 (L-CH)/RV203 (R-CH) for minimum reading on distortion meter.

specification: less than -85 dB

Adjustment Location: audio board

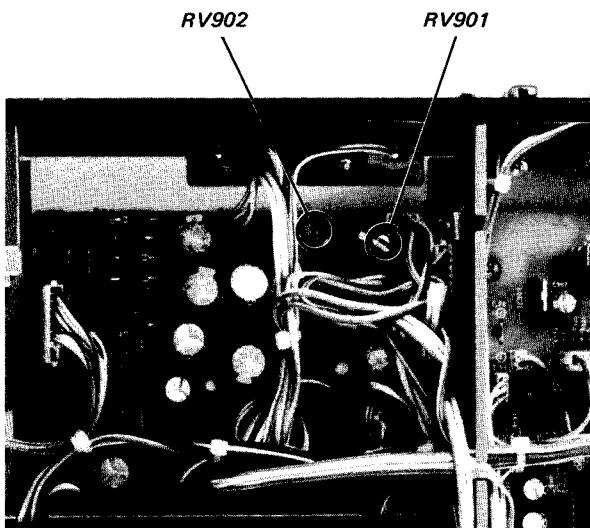
PEAK METER ADJUSTMENT

Procedure:



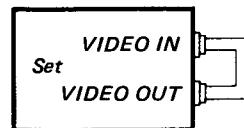
1. Connect VIDEO-IN and VIDEO-OUT terminals.
2. Apply a 1 kHz, 0 dB (0.775 V) signal to the LINE-IN terminals.
3. Adjust the REC LEVEL control so that OVER of the level meters just light up.
4. Decrease the input signal level from 0.5 to 1 dB with the attenuator, and confirm OVER of that goes out.
5. Adjust the RV901 (L-CH)/RV902 (R-CH) so that the level meters just light up 0 dB.

Adjustment Location: power supply board

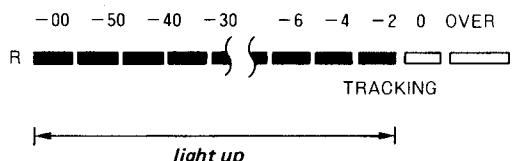


TRACKING LEVEL ADJUSTMENT

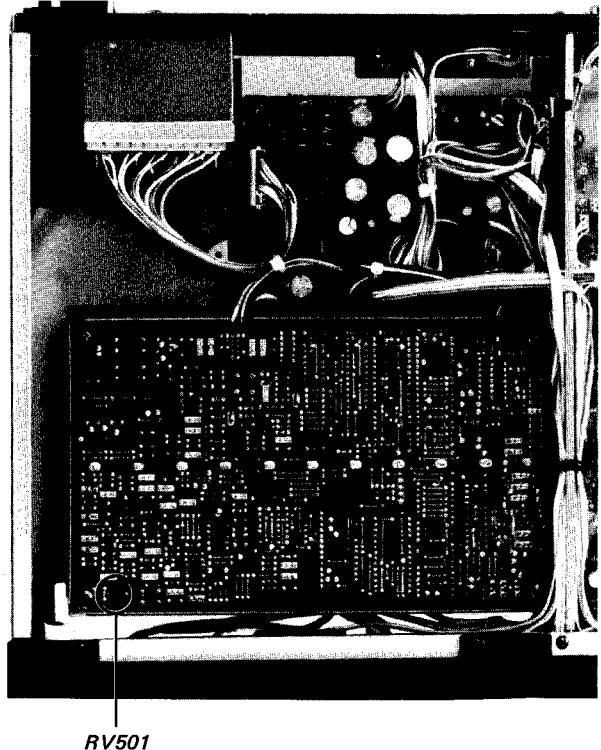
Procedure:



1. Connect VIDEO-IN and VIDEO-OUT terminals.
2. Turn on the TRACKING switch.
3. Confirm the TRACKING indicator illuminates and the level meter illuminates only R-CH.
4. Adjust the RV501 so that the level meter illuminates as shown below.



Adjustment Location: digital board

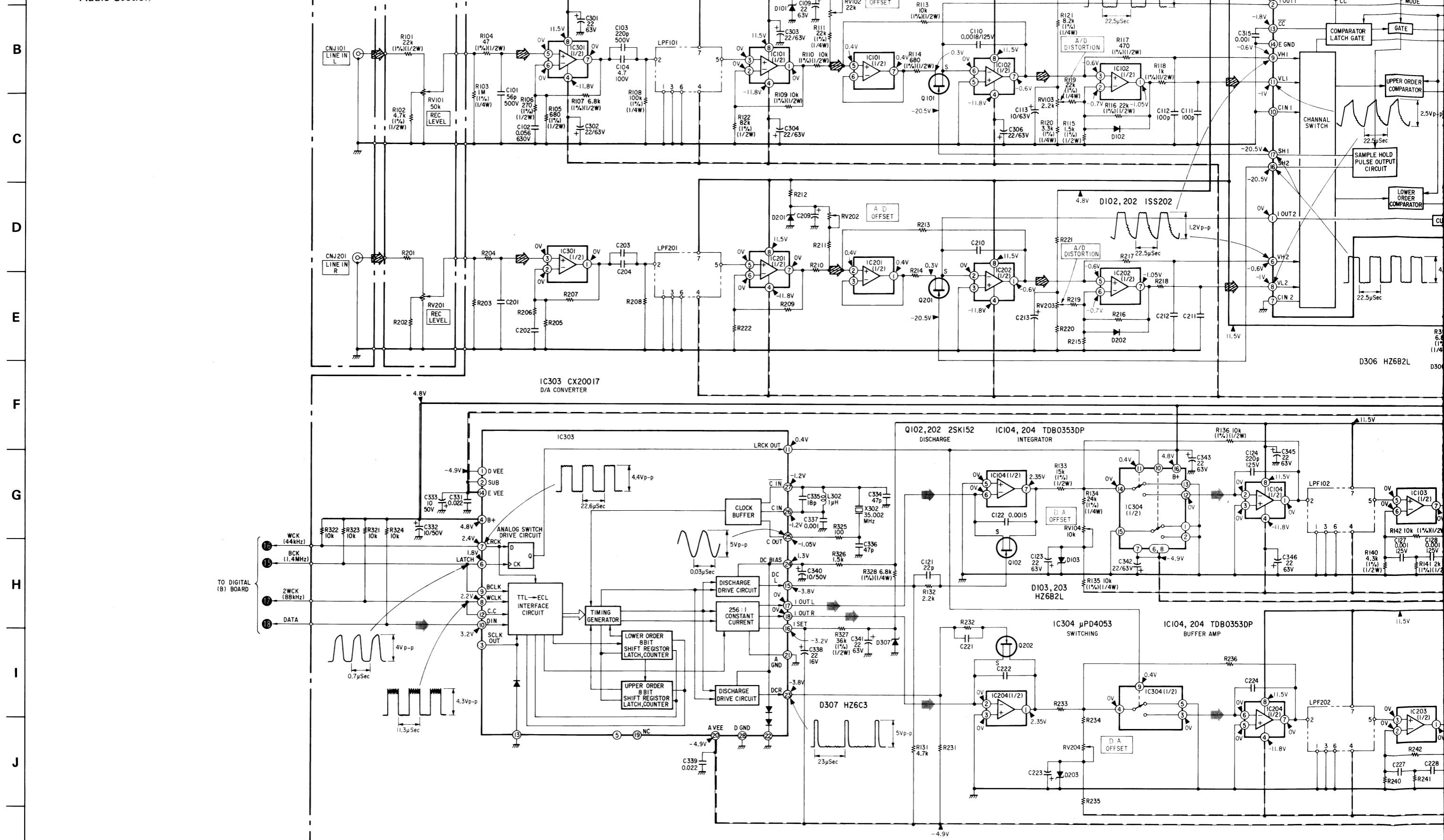


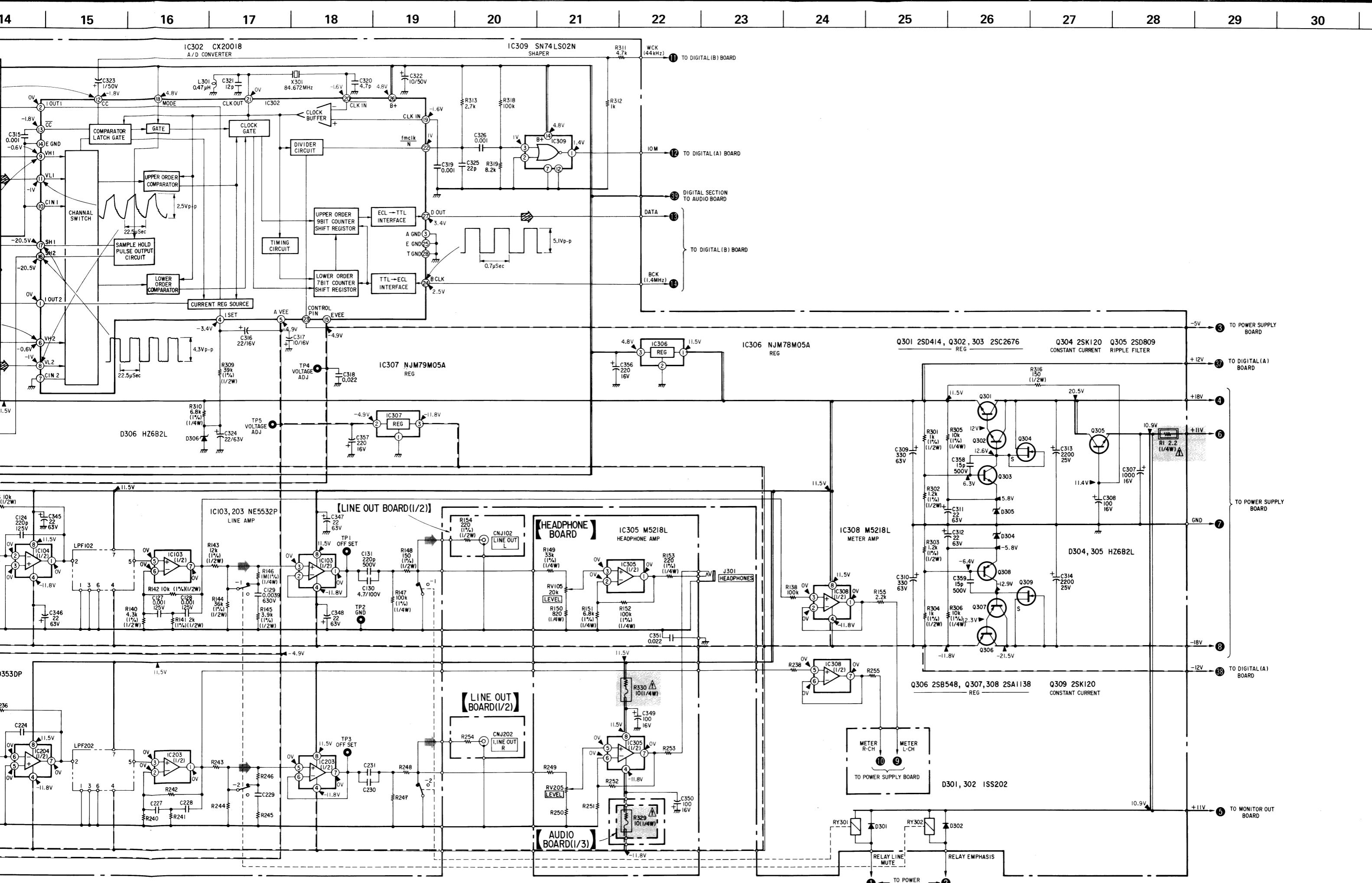
SECTION 4

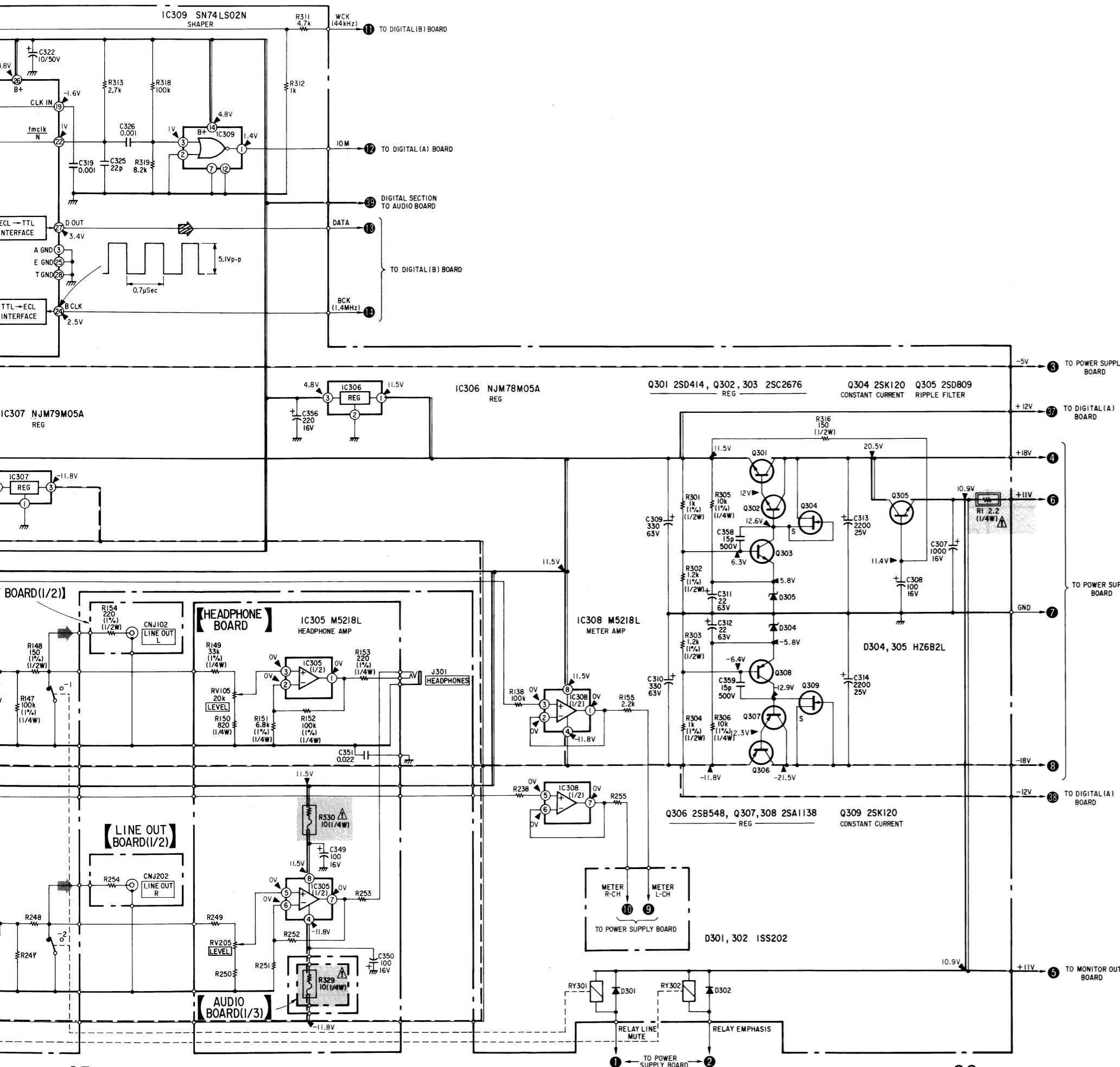
DIAGRAMS

4-1. SCHEMATIC DIAGRAM

— Audio Section —





**Note:**

- All capacitors are in μF unless otherwise noted. pF: μF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
 - : signal path. (playback)
 - : signal path. (recording)
 - : nonflammable resistor.
 - : fusible resistor.
 - : B+ bus.
 - : B+ bus.
 - : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM ($50\text{k}\Omega/\text{V}$).
- Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken to ground in E-E mode by using oscilloscope. Voltage variations may be noted due to normal production tolerances.

Note: Voltages are measured with a VOM ($50\text{k}\Omega/\text{V}$).

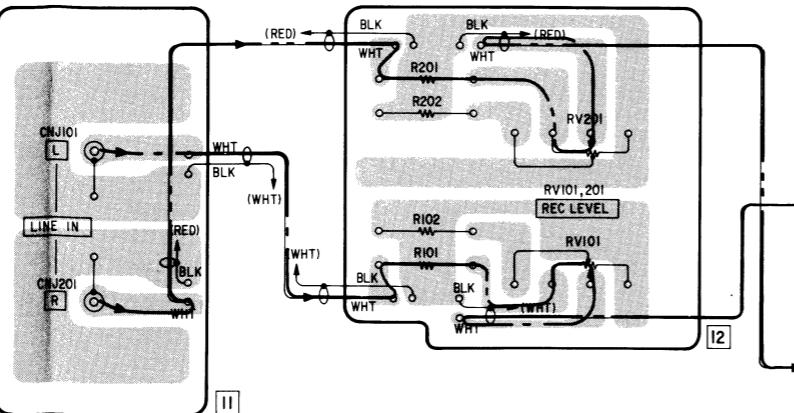
Note: The components identified by shading and mark \triangle are critical for safety. Replace only with part number specified.

4-2. MOUNTING DIAGRAM

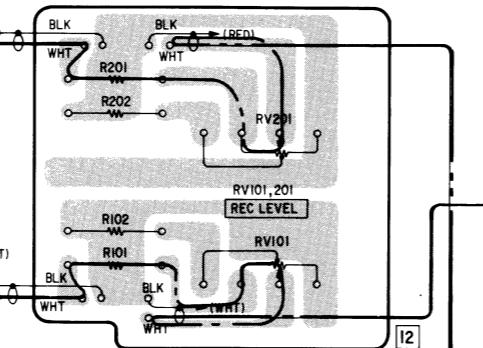
— Audio & Digital Section —

A

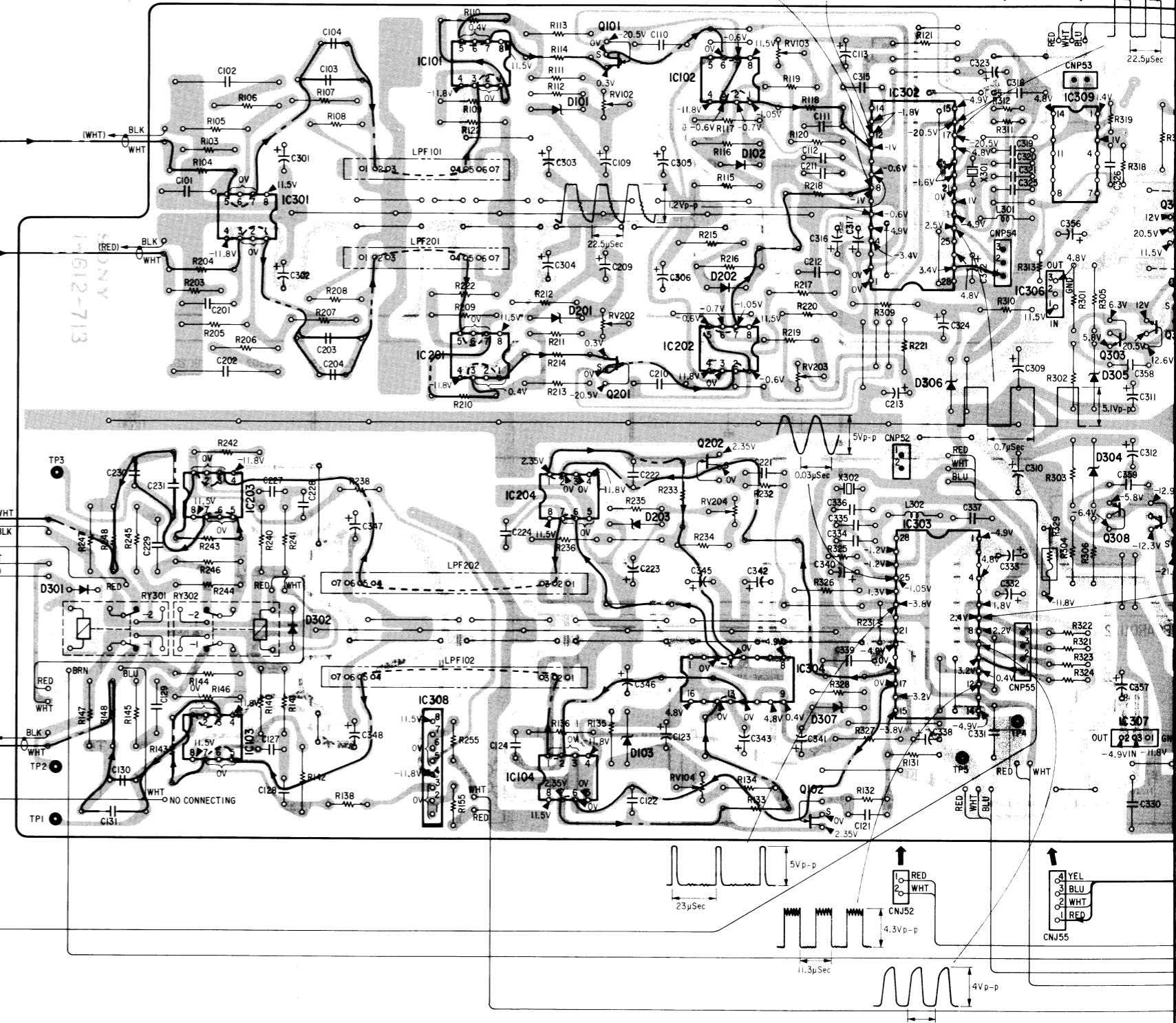
[LINE IN BOARD]



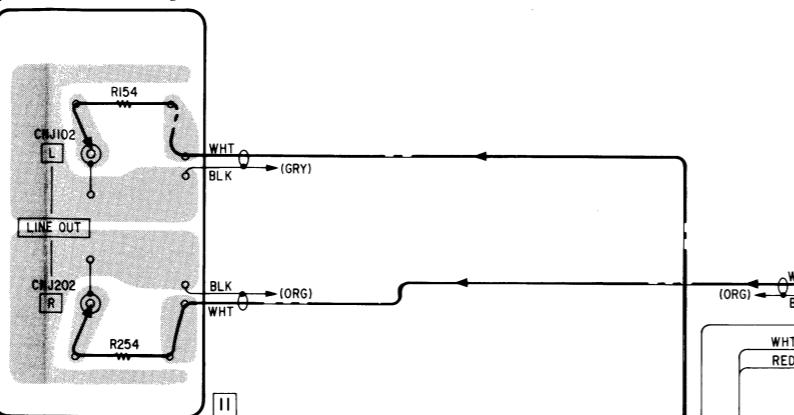
[REC VOL BOARD]



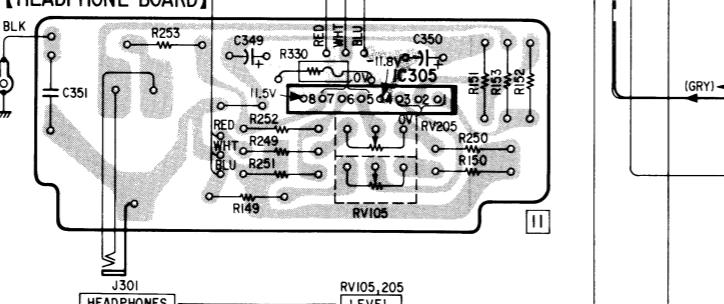
[AUDIO BOARD]



[LINE OUT BOARD]

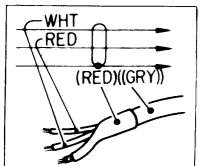


[HEADPHONE BOARD]



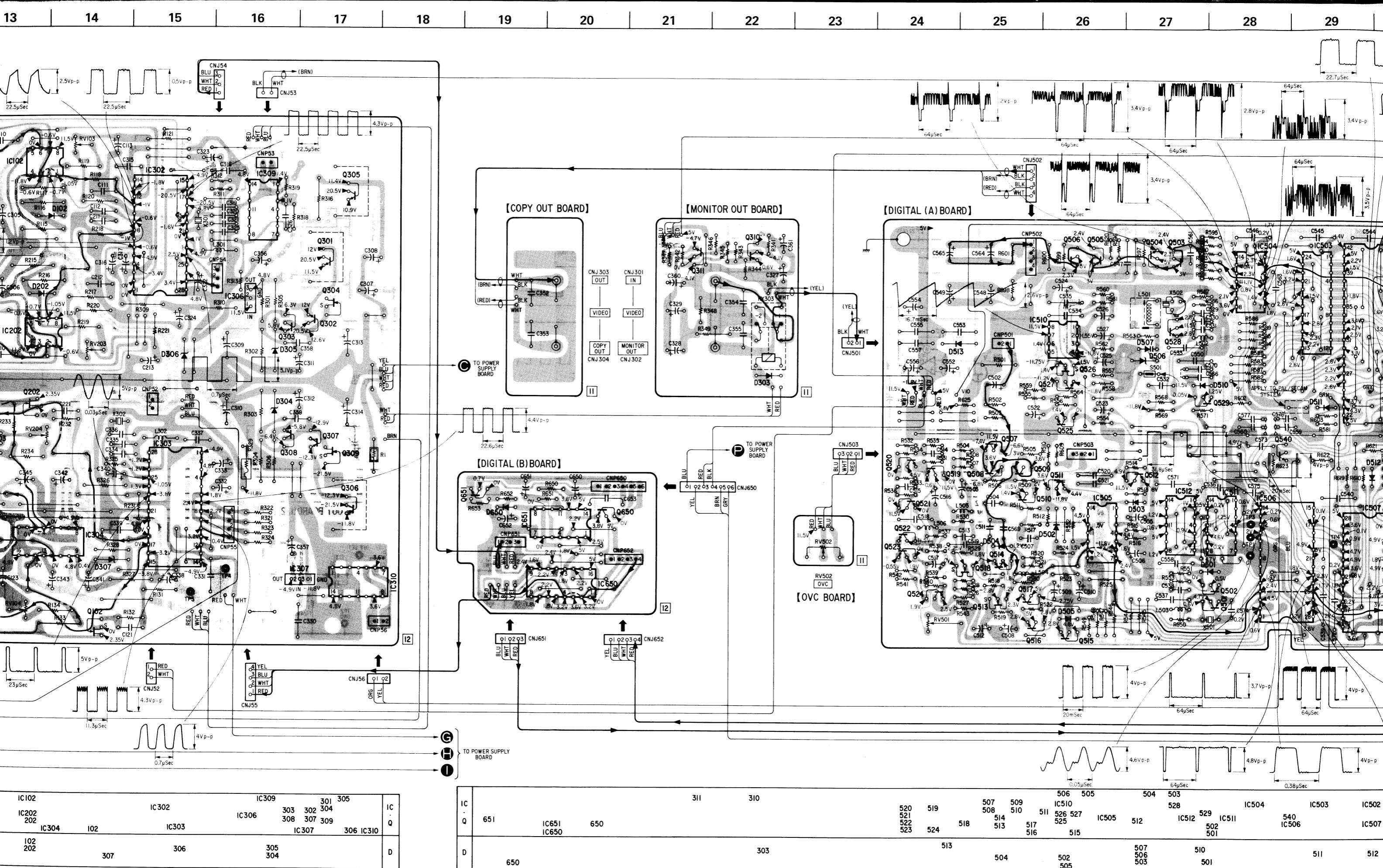
Note:

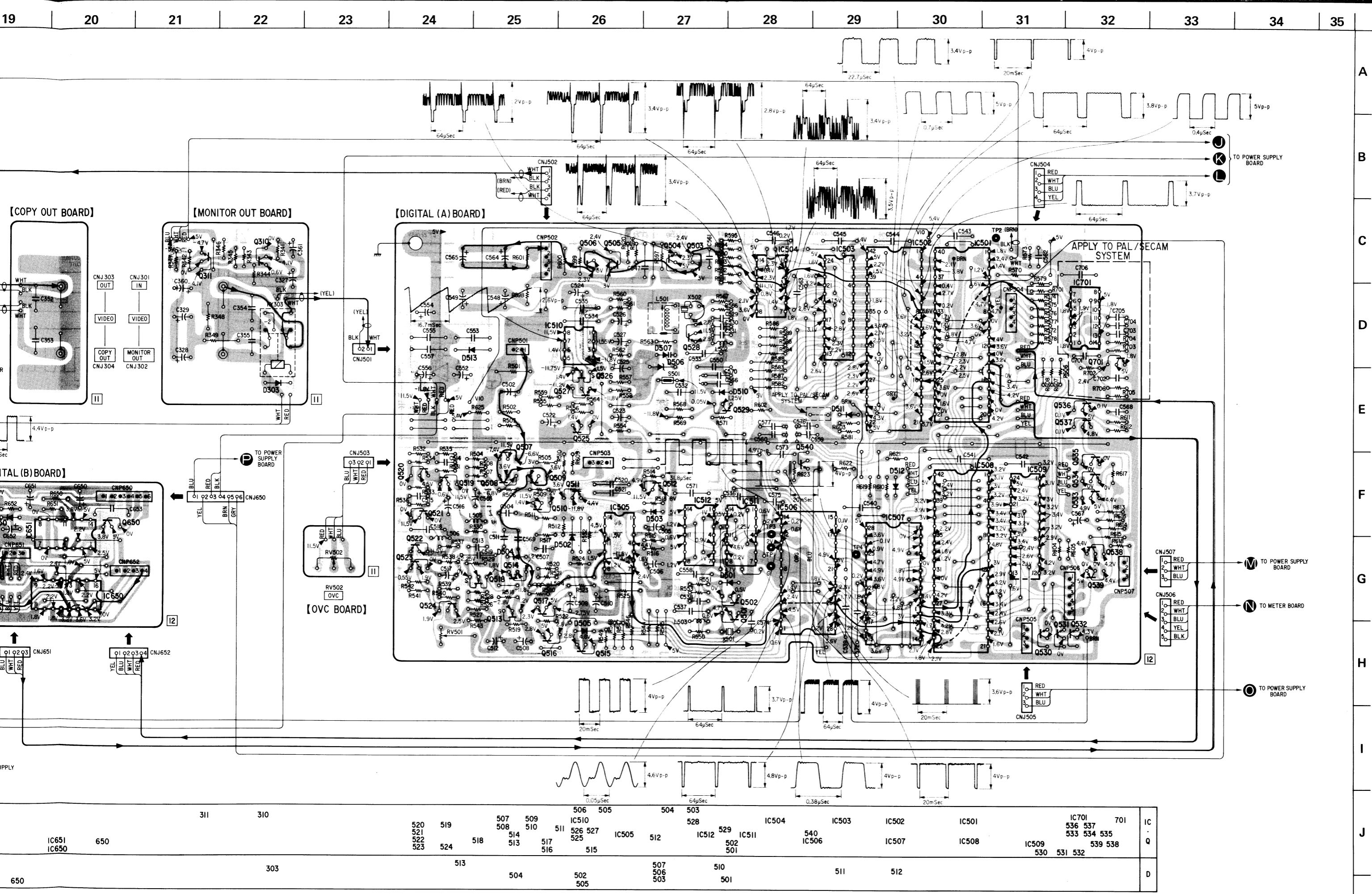
- Color code of sleeving over the end of the jacket.



- ○ : parts extracted from the component side.
- ● : parts extracted from the conductor side.
- [] : indicates side identified with part number.
- → : signal path
- → : L-CH signal path
- → : R-CH signal path
- : B+ pattern

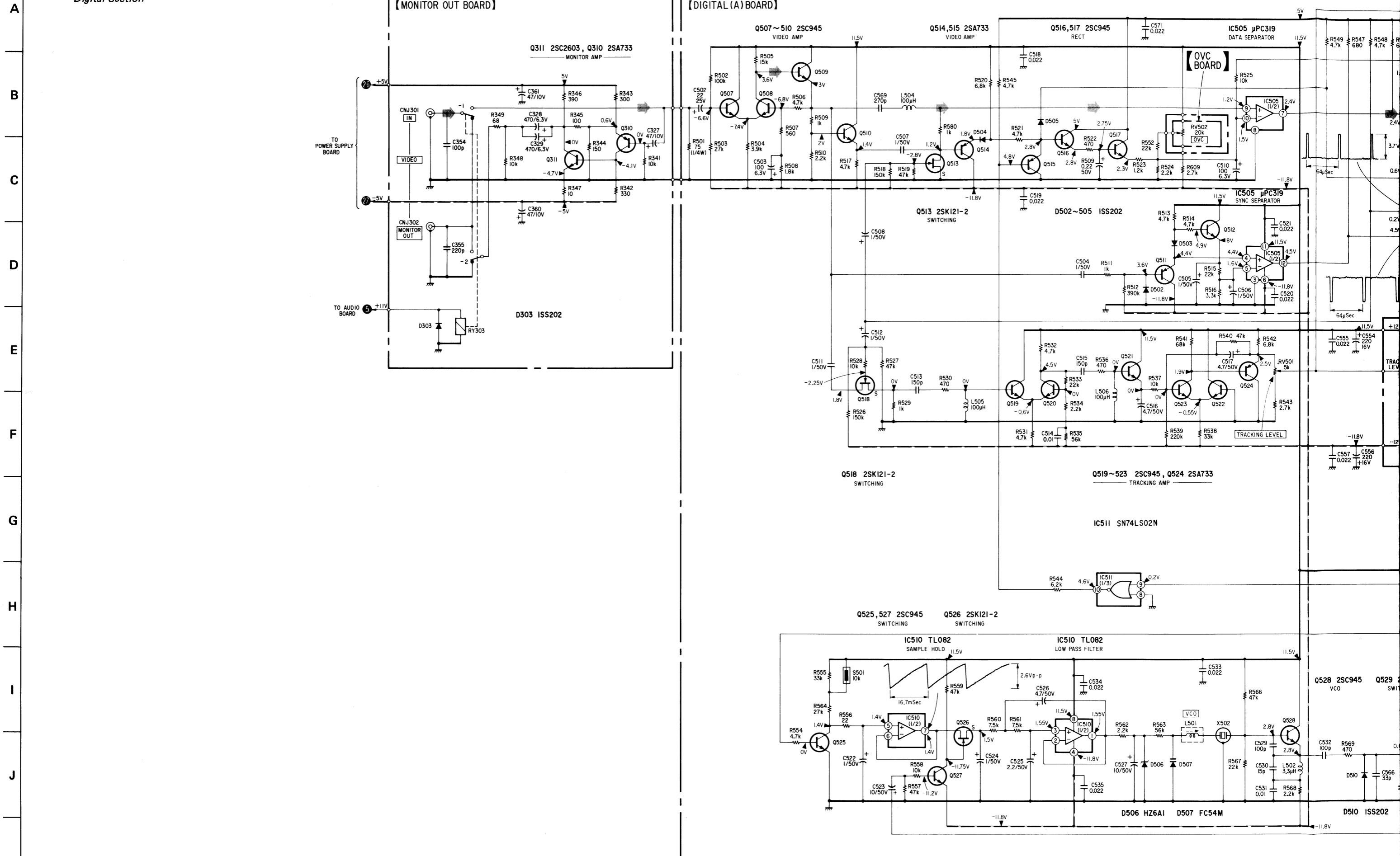
IC Q	IC305	IC301	IC101	I01	IC102	IC302	IC309
D	IC203 IC103	IC201 IC308	IC204 201 IC104	I01 201	IC202 202	IC304 I02	IC306 303 308 307 304
	301	302	101 201	203 103	102 202	307	306 305 304

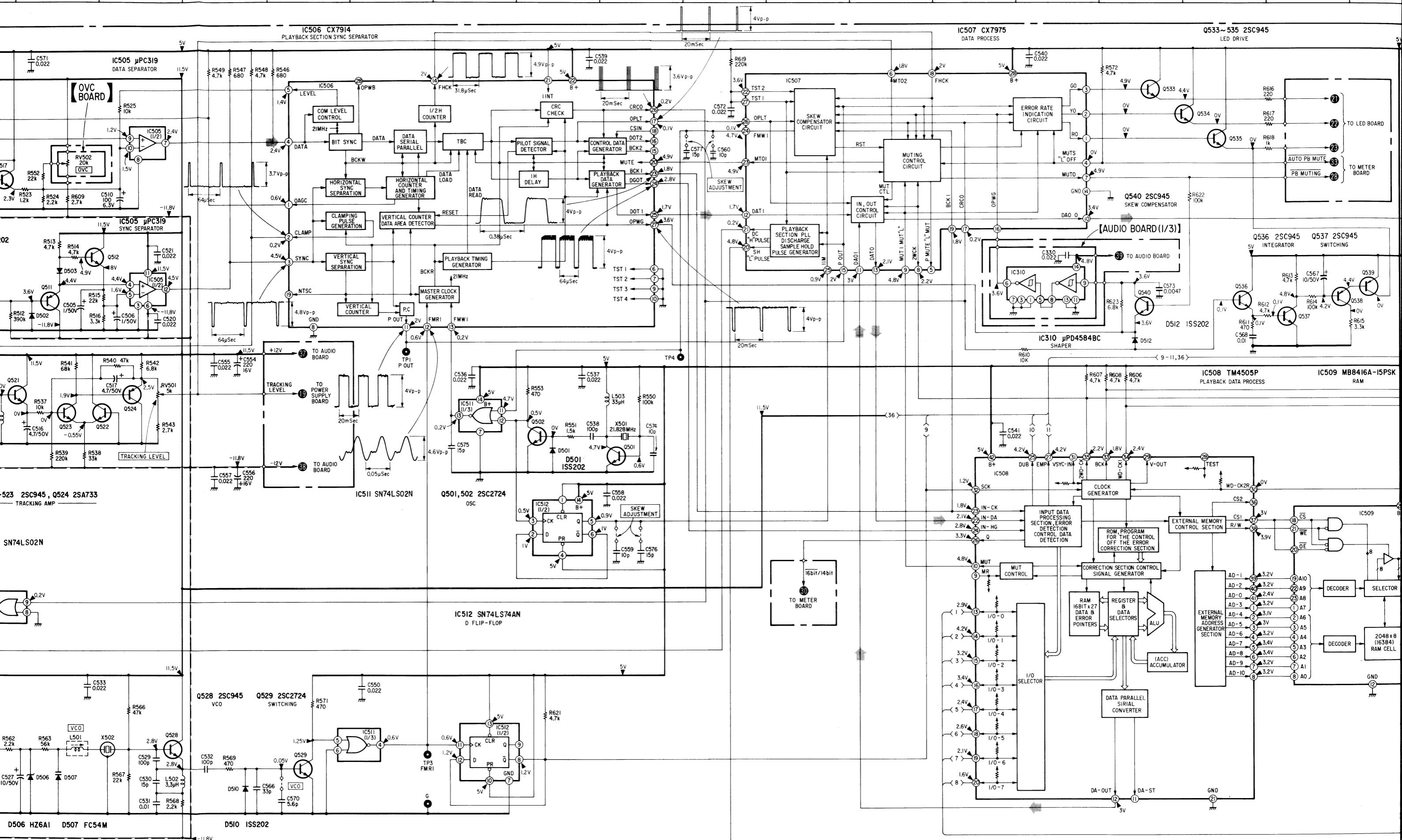


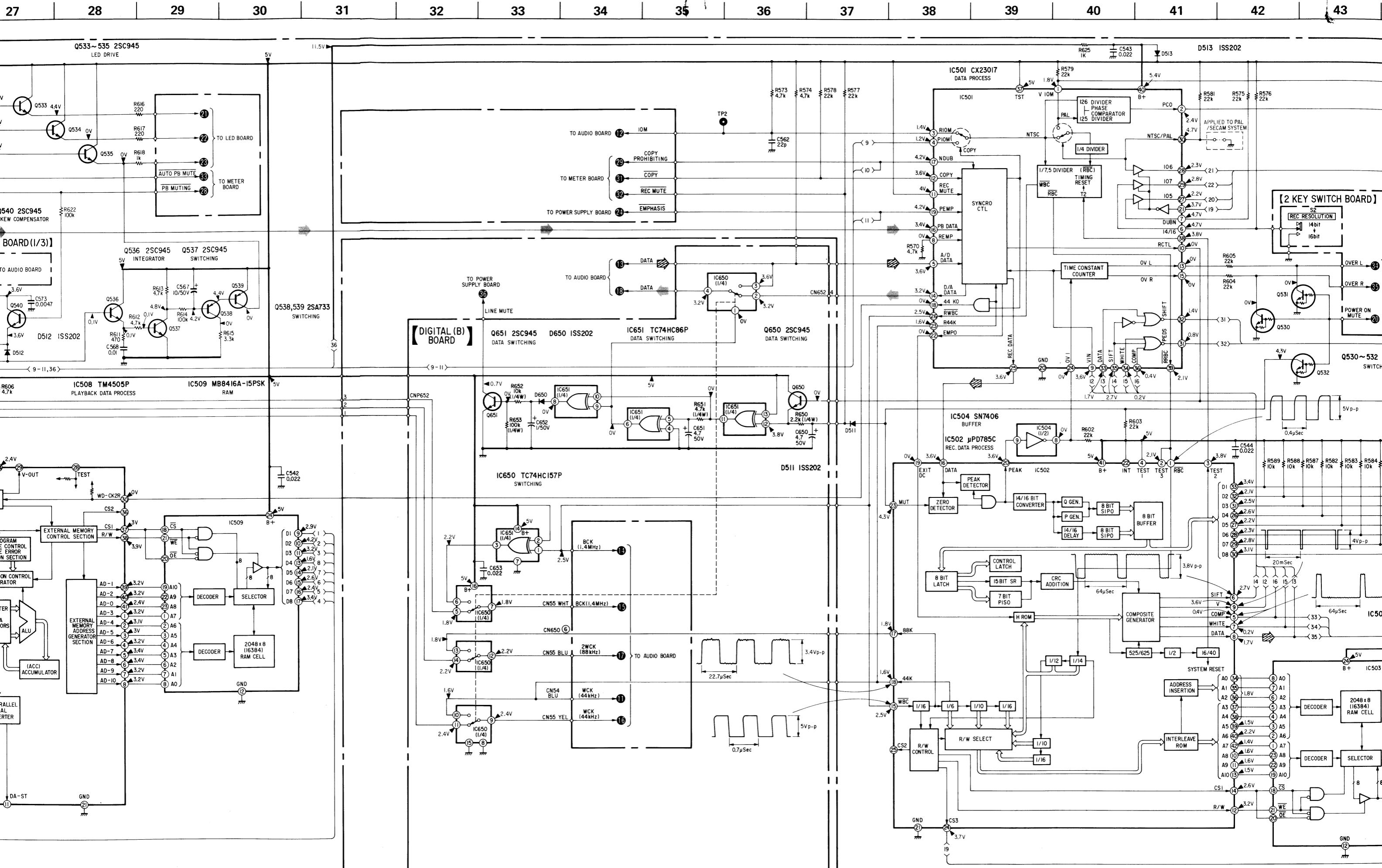


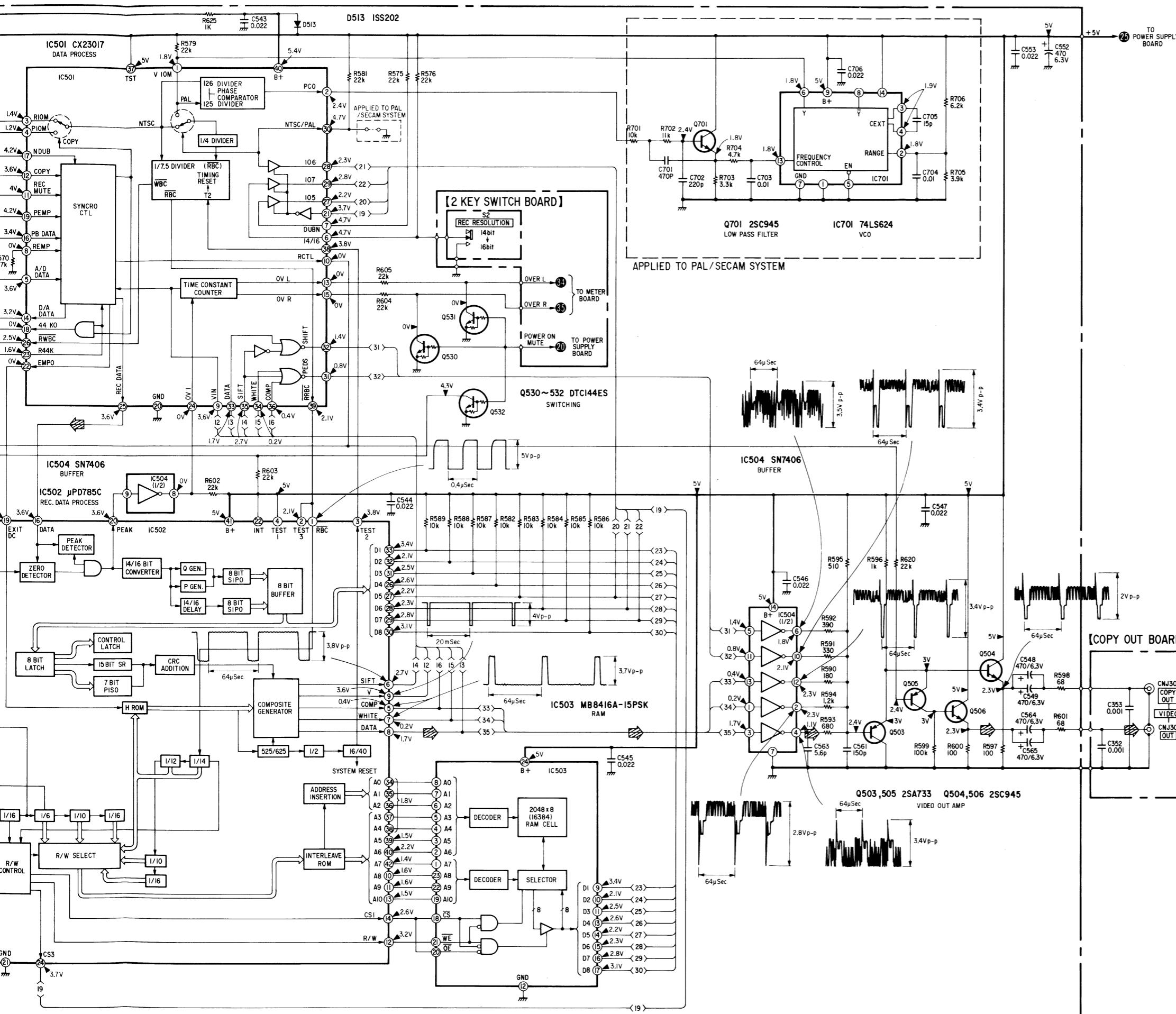
4-3. SCHEMATIC DIAGRAM

— Digital Section —







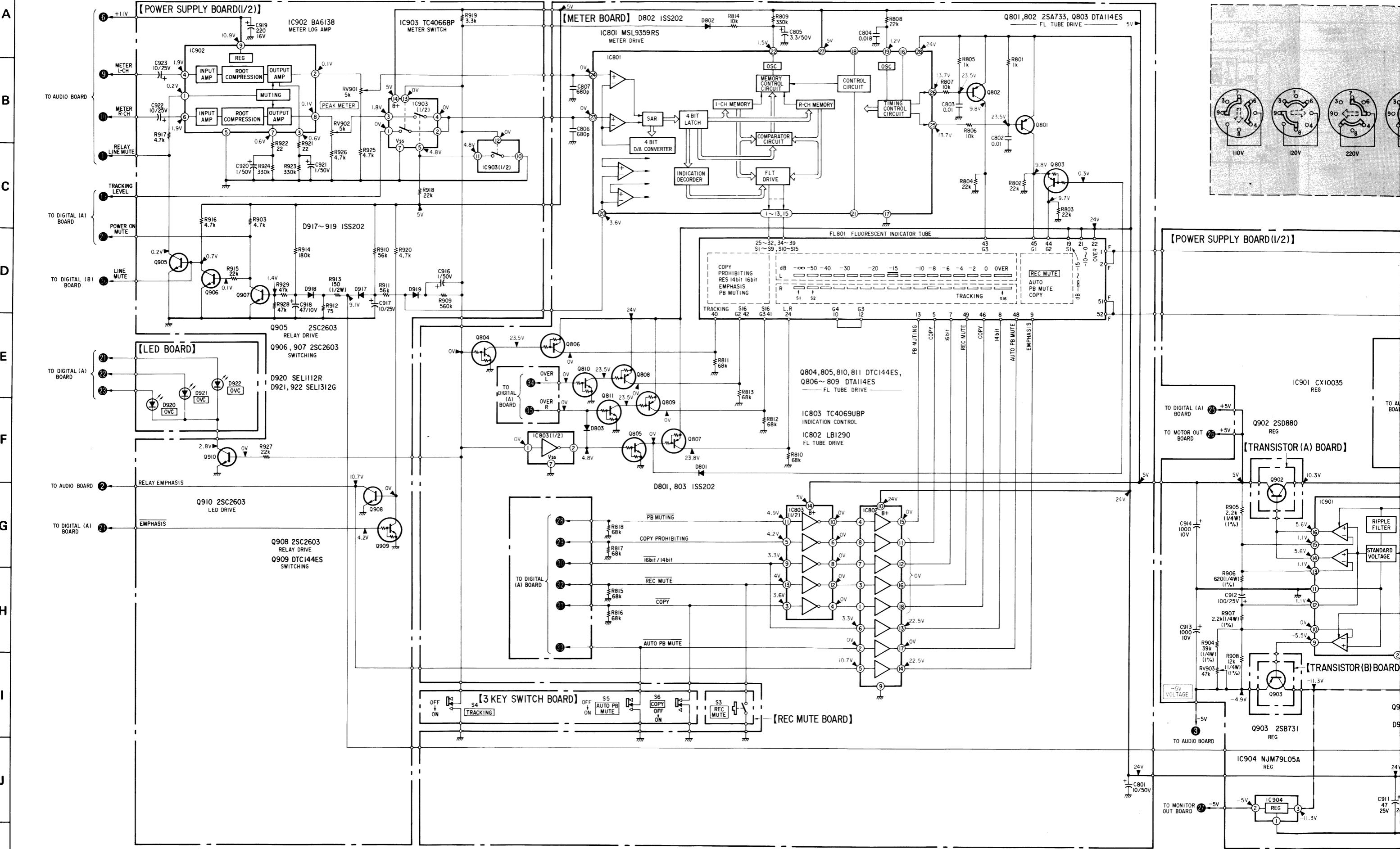
**Note:**

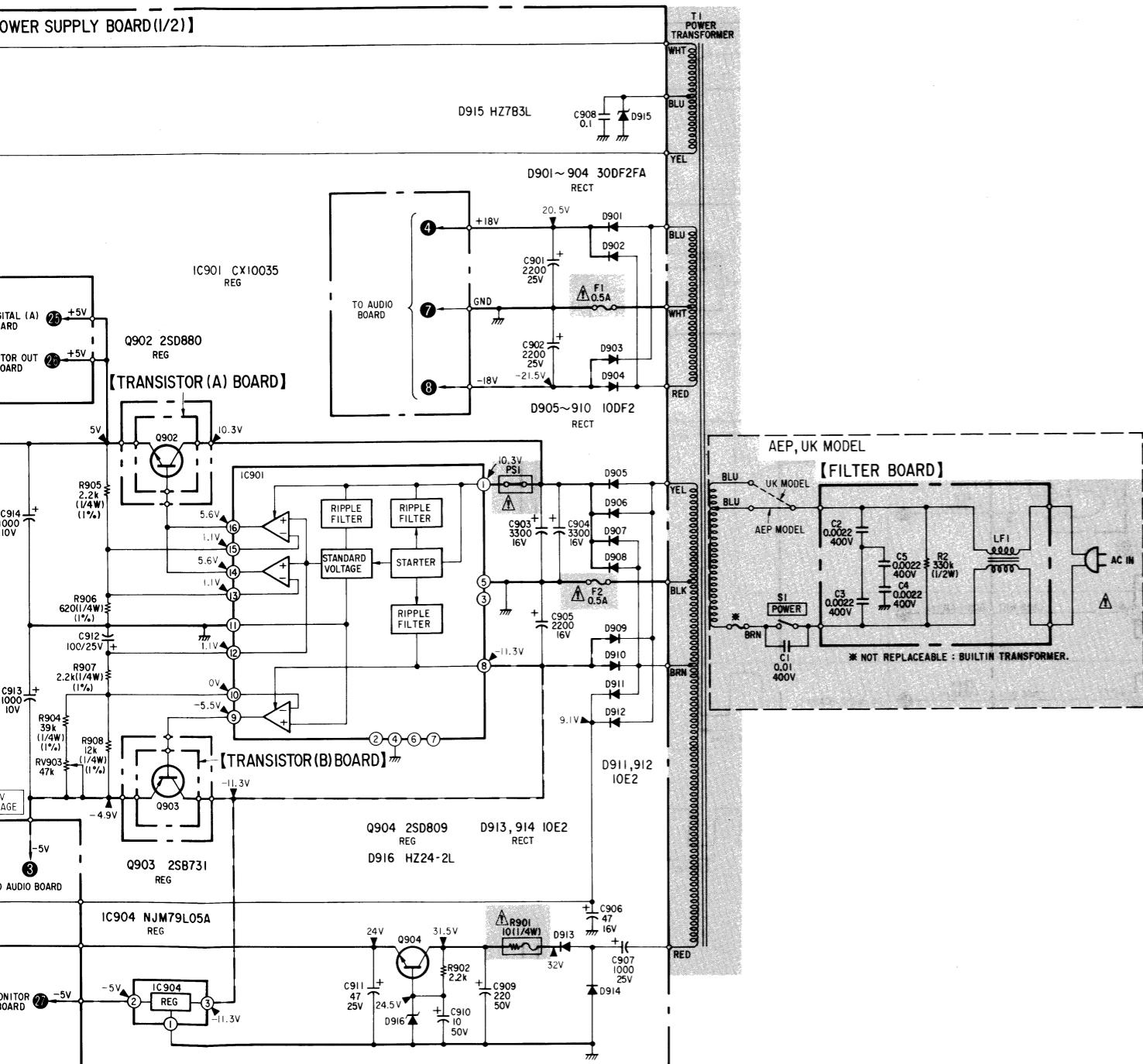
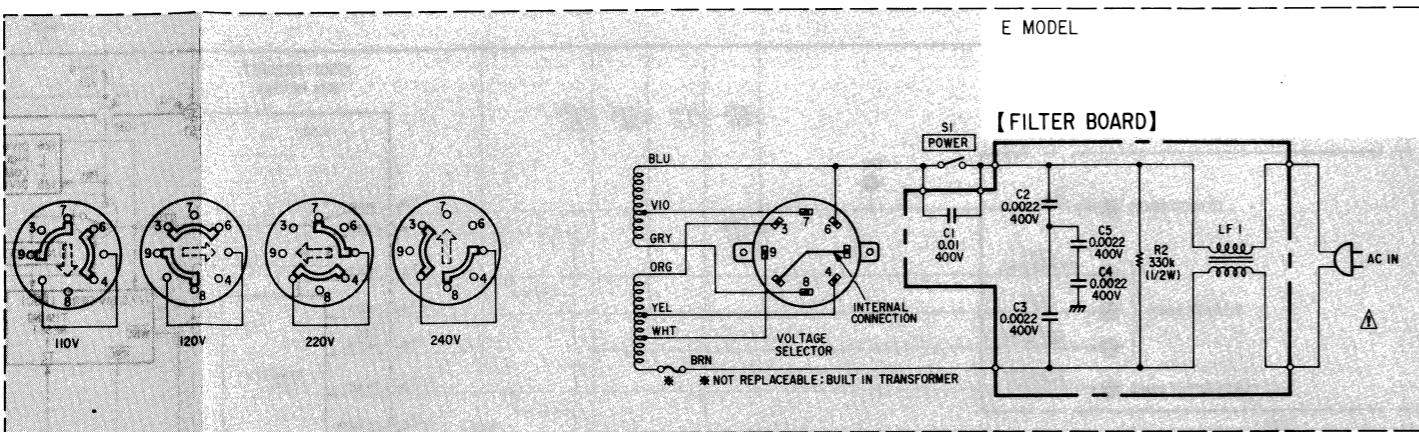
- All capacitors are in μF unless otherwise noted. pF : μF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
- : signal path. (playback)
- : signal path. (recording)
- : B+ bus.
- - - : B- bus.
- : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (50 kΩ/V).
- Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken to ground in E-E mode by using oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Switch

Ref. No.	Switch	Position
S2	REC RESOLUTION	14 bit

Note: Voltages are measured with a VOM (50kΩ/V).

4-4. SCHEMATIC DIAGRAM — Power Supply Section —

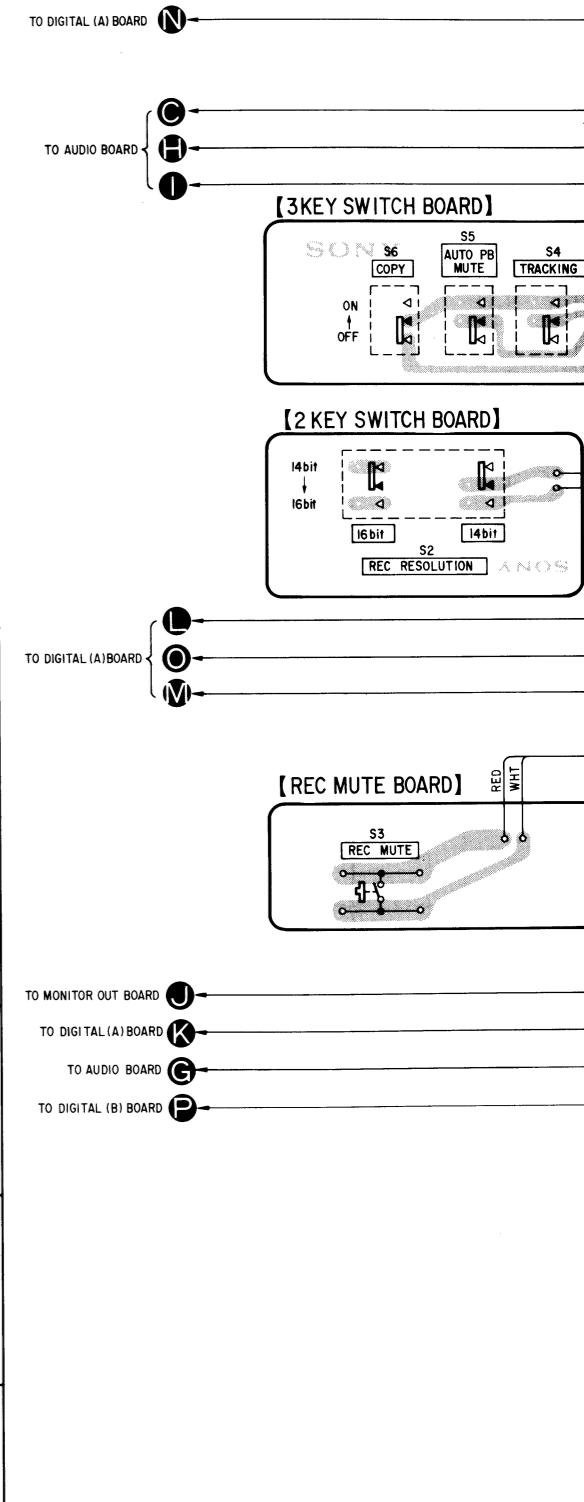




A
B
C
D
E
F
G
H
I
J
K

4-5. MOUNTING DIAGRAM

— Power Supply Section —



Note:

- All capacitors are in μF unless otherwise noted. pF: $\mu\mu\text{F}$ 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $1/4\text{W}$ or less unless otherwise specified.
- : fusible resistor.
- : B+ bus.
- - - : B- bus.
- : adjustment for repair.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal conditions with a VOM (50 $\text{k}\Omega/\text{V}$).
- Voltage variations may be noted due to normal production tolerances.
- Switches

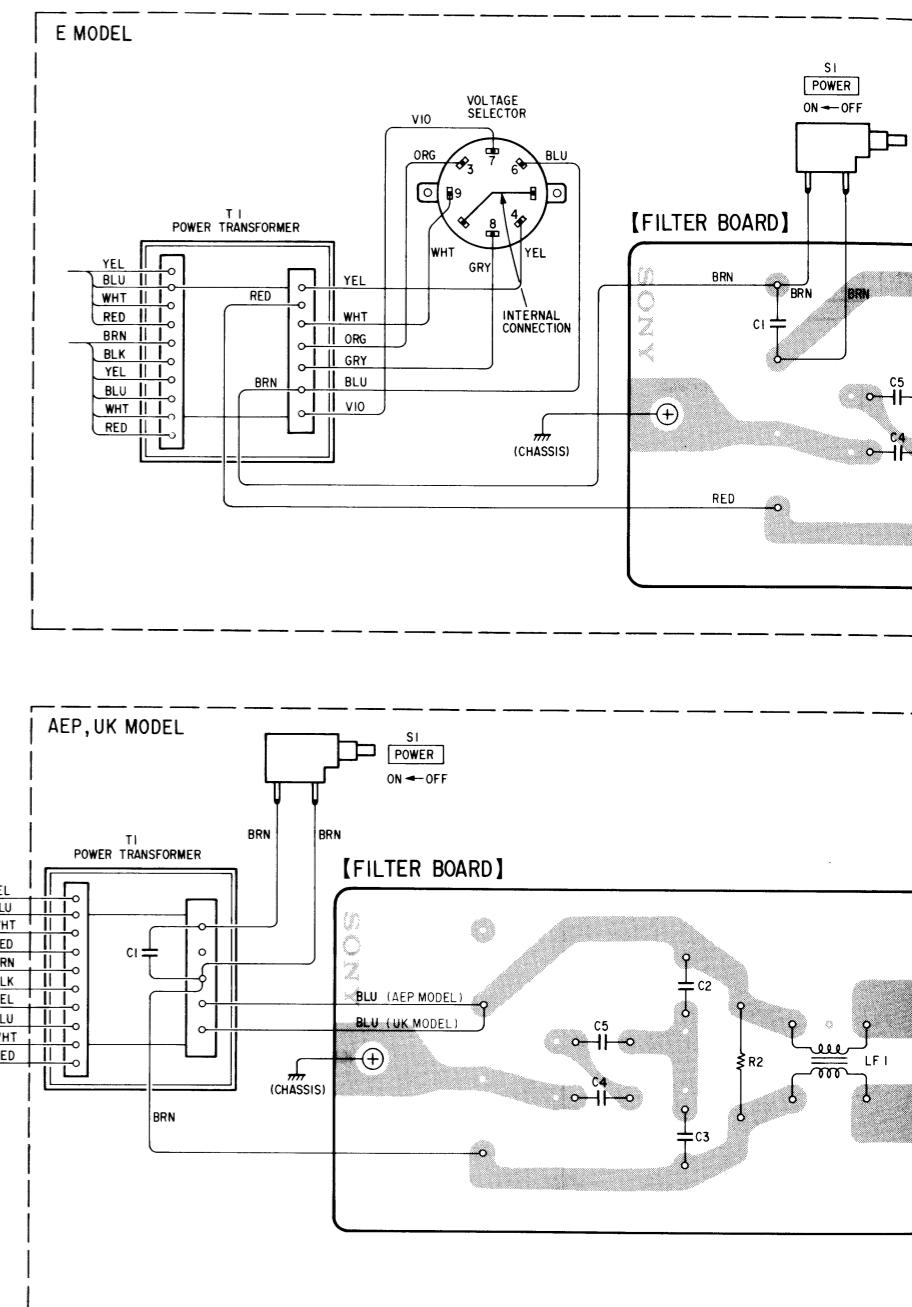
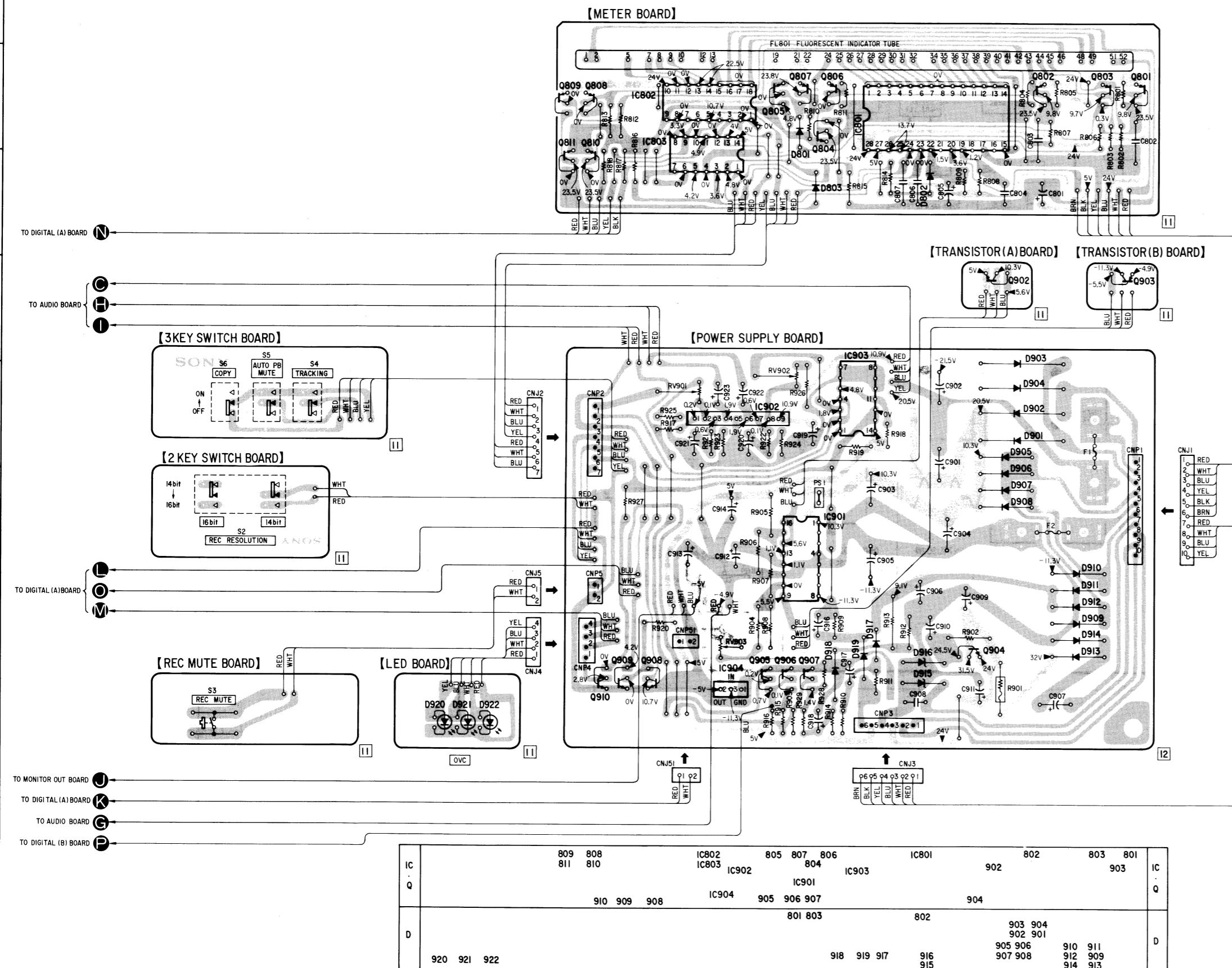
Ref. No.	Switch	Position
S1	POWER	OFF
S3	REC MUTE	OFF
S4	TRACKING	OFF
S5	AUTO PB MUTE	OFF
S6	COPY	OFF

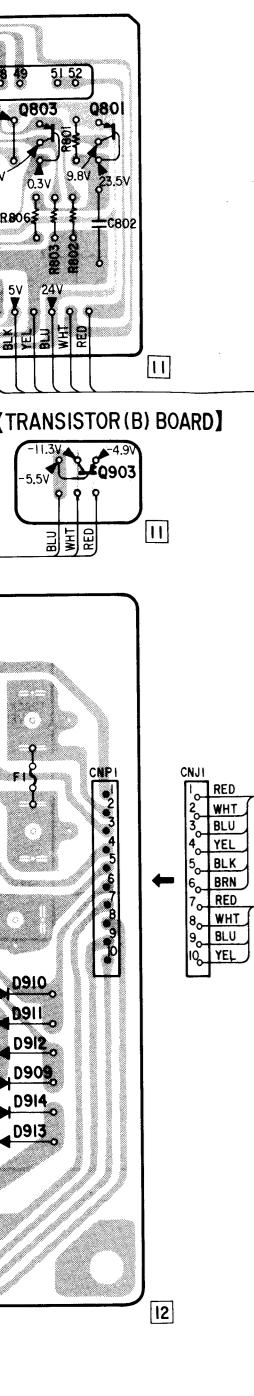
Note: Voltages are measured with a VOM (50 $\text{k}\Omega/\text{V}$).

Note: The components identified by shading and mark are critical for safety. Replace only with part number specified.

4-5. MOUNTING DIAGRAM

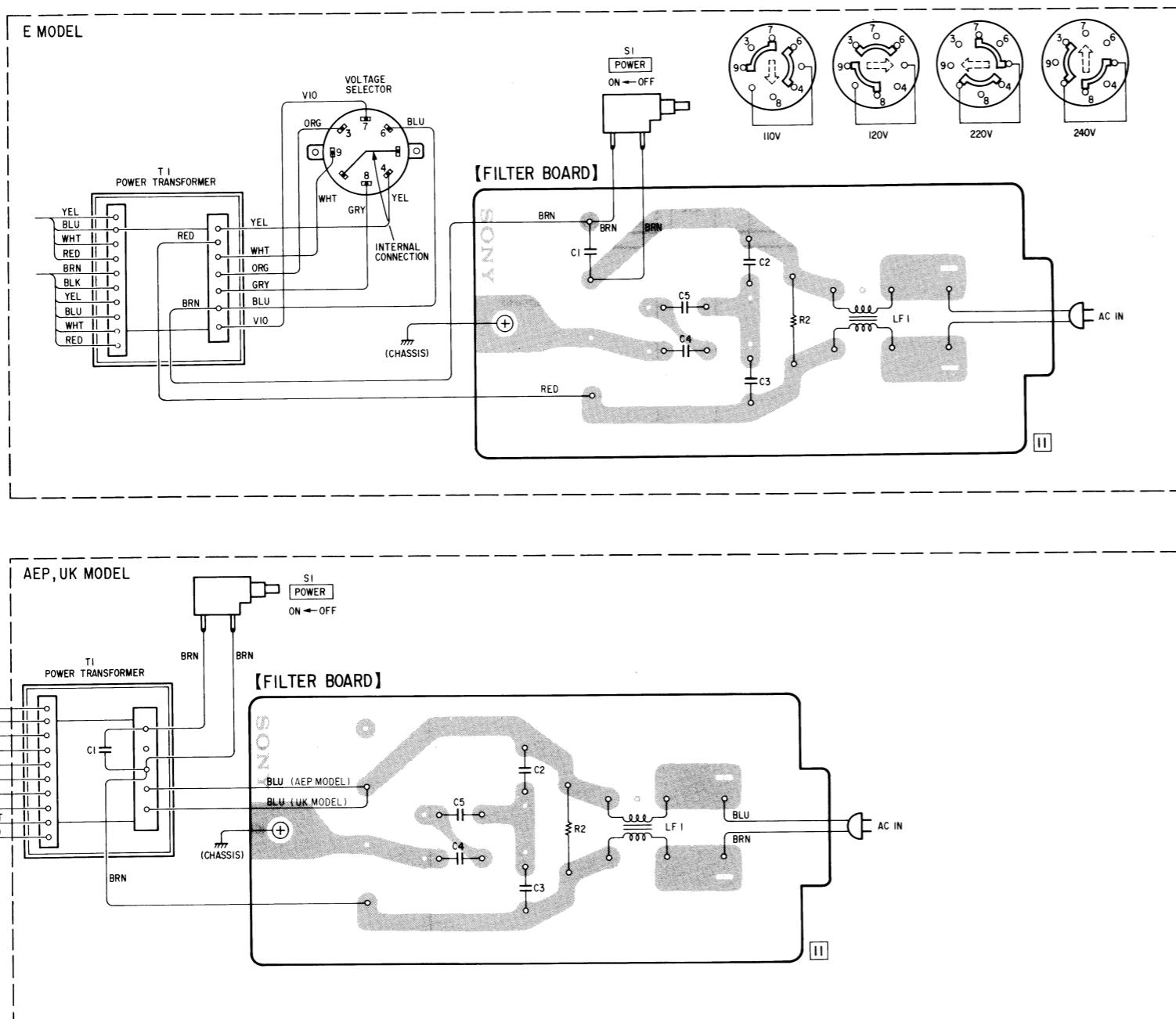
— Power Supply Section —





803	801	IC
903		Q

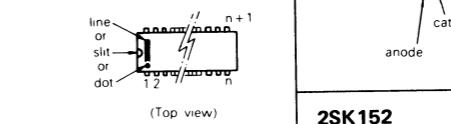
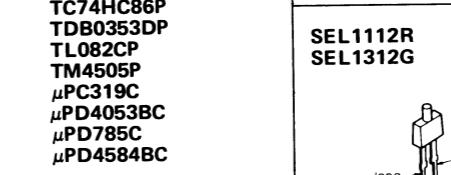
0	911	D
12	909	
14	913	



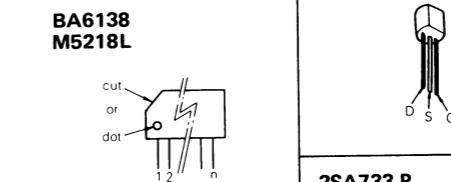
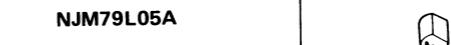
● Semiconductor Lead Layouts

CX7914
CX7975
CX10035
CX20017
CX20018
CX23017
LB1290
MB8416A-12P-SK
MSL9359RS
NE5532P
SN7406N
SN74ALS02N
SN74LS02N
SN74LS74AN
SN74LS624N
TC4066BP
TC4069UBP
TC40H157P
TC74HC86P
TDB0353DP
TL082CP
TM4505P
 μ PC319C
 μ PD4053BC
 μ PD785C
 μ PD4584BC

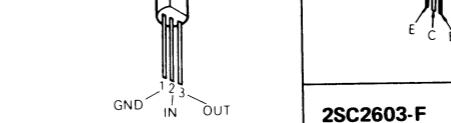
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10DF2
30DF2
1SS119
1SS202-1
HZ6A-1
HZ6B2L
HZ6C3L
HZ7B3L
HZ24-2L



(Top view)

BA6138
M5218L

2SA733-P



NJM79L05A



NJM78M05A

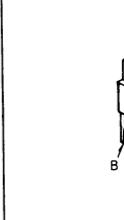
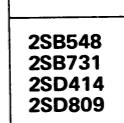
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DTC144ES

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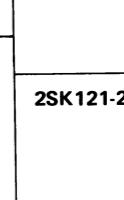


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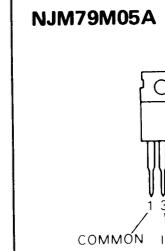
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2SA1138
2SC2676

FC54M



NJM79M05A

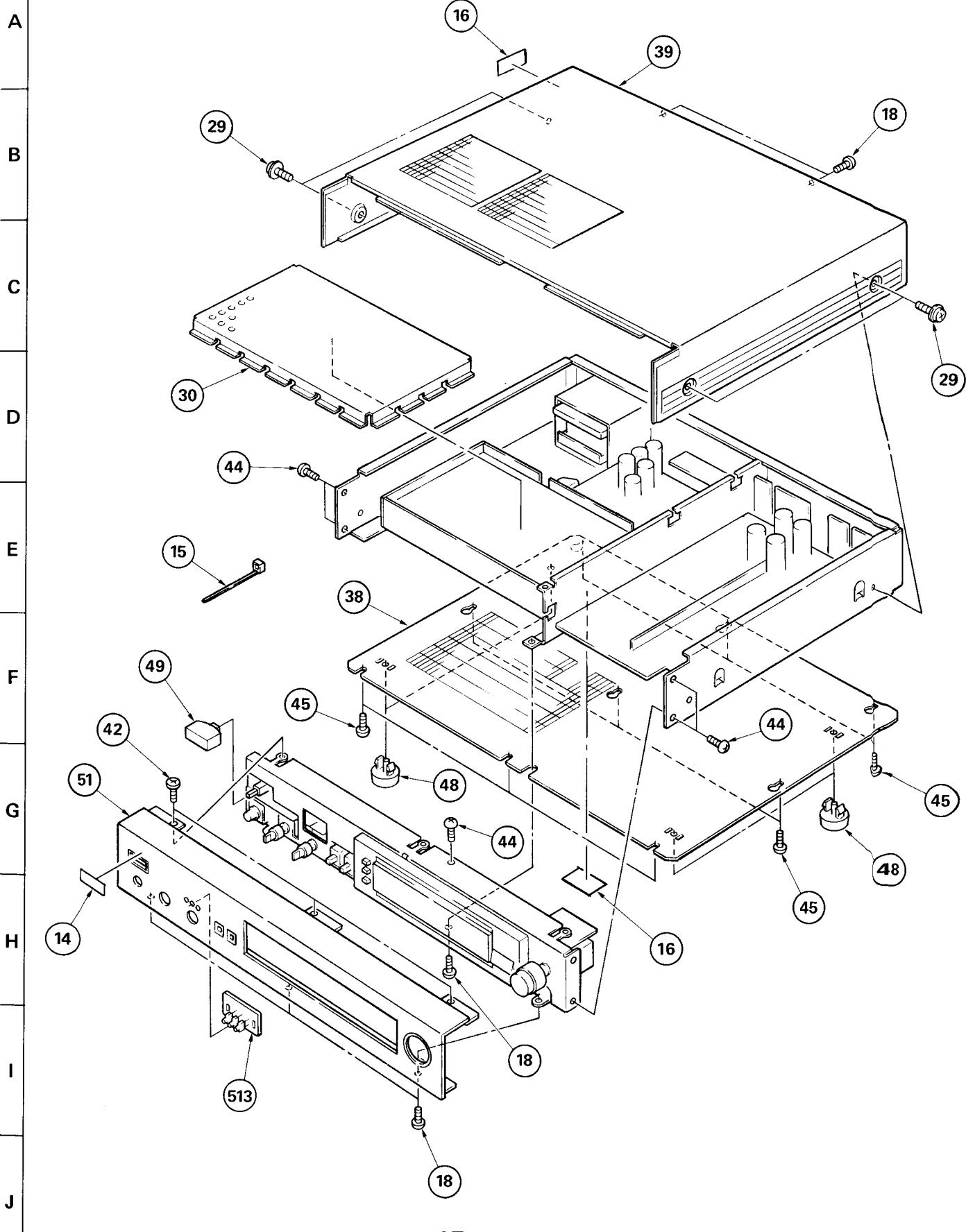


NJM79M05A

SECTION 5
EXPLODED VIEWS AND PARTS LIST

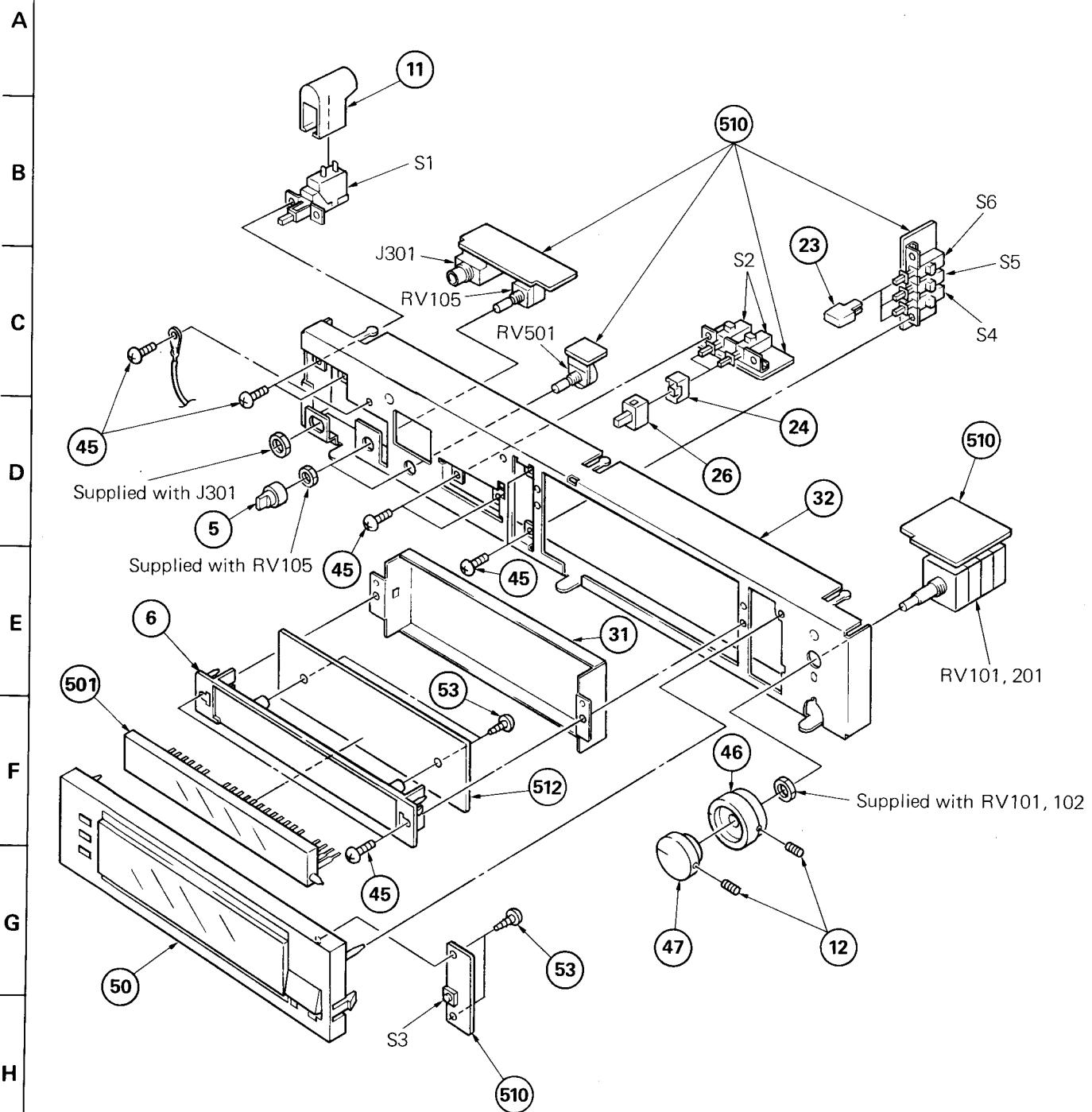
1 2 3 4 5 6 7 8

5-1.



1 2 3 4 5 6 7 8

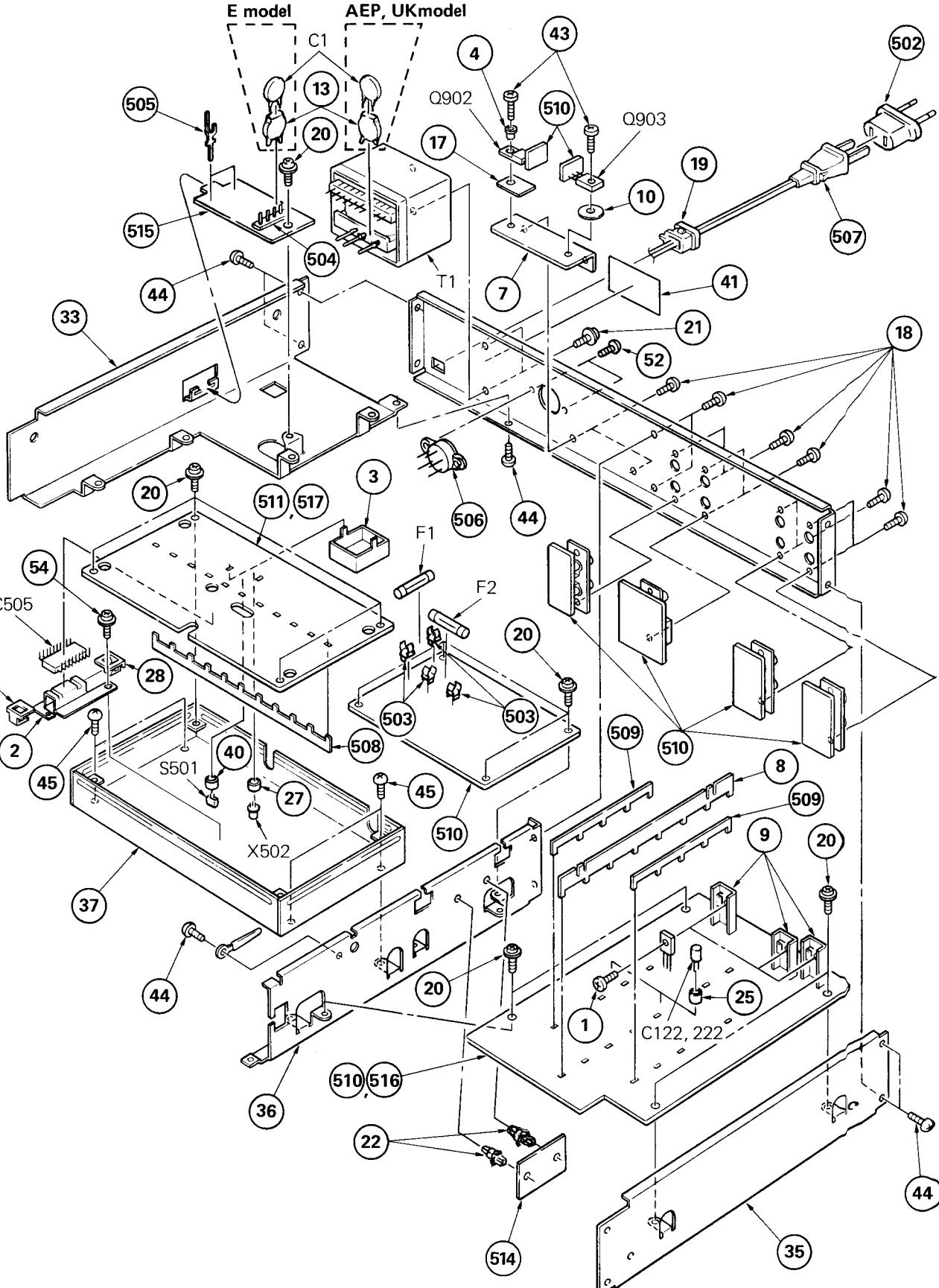
5-2.



1 2 3 4 5 6 7 8

5-3.

A



B

C

D

E

F

G

H

I

J

GENERAL SECTION			GENERAL SECTION		
No.	Part No.	Description	No.	Part No.	Description
1	2-259-121-00	SCREW, TR	42	7-682-547-09	SCREW +B 3X6
2	4-906-029-01	HEAT SINK, IC	43	7-682-548-09	SCREW +B 3X8
3	*2-362-376-00	CASE (2), SHIELD, VCO	44	7-685-872-09	SCREW +BVTT 3X8 (S)
4	2-371-561-00	BUSHING (P), INSULATING	45	7-685-871-01	SCREW +BVTT 3X6 (S)
5	3-304-929-11	KNOB, HEADPHONE	46	X-3304-909-0	KNOB (RIGHT) ASSY, REC
6	*3-304-938-00	HOLDER, FL TUBE	47	X-3304-910-0	KNOB (LEFT) ASSY, REC
7	*3-311-545-00	HEAT SINK	48	X-4864-303-0	FOOT ASSY
8	*3-311-617-01	REINFORCEMENT, PCB	49	X-4881-408-0	KNOB ASSY, POWER
9	*3-312-615-11	HEAT SINK	50	X-4906-002-1	ESCUcheon ASSY
10	3-572-365-11	SHEET, INSULATING (A)	51	X-4906-003-1	(NTSC).....FRONT PANEL ASSY
11	3-575-524-00	COVER, POWER SWITCH	51	X-4906-004-1	(PAL/SECAM)...FRONT PANEL ASSY
12	3-701-506-01	SET SCREW, DOUBLE POINT 3X4	52	7-621-775-20	(E)...SCREW +B 2.6X5
13	4-875-455-01	COVER, CAPACITOR	53	7-685-545-14	SCREW +BTP 3X6
14	*3-701-690-01	(UK)...LABEL (MADE IN JAPAN)	54	7-687-204-11	SCREW +PTPWH 2X6
15	3-701-748-00	CLAMP			
16	*3-703-079-21	(E)...LABEL, CAUTION (BACK)			
17	3-703-037-00	INSULATOR, TO-220			
18	3-703-108-21	SCREW +BV 3X6, S TIGHT			
19	3-703-244-00	BUSHING, CORD			
20	3-703-249-01	SCREW, S TIGHT, +PTTWH 3X6			
21	3-703-249-11	SCREW, S TIGHT, +PTTWH 3X6			
22	*3-703-353-01	SUPPORT, PC BOARD			
23	4-845-120-21	KNOB, PUSH			
24	4-864-307-00	RING			
25	*4-886-504-00	SPACER	101	1-551-734-11	CORD, CONNECTION (RK- 74A)
26	4-886-509-00	KNOB, PUSH	102	1-556-464-00	CORD, CONNECTION
27	4-886-543-00	TUBE, CUSHION	103	3-536-825-00	BAG, PROTECTING
28	4-886-557-00	CLIP (B), IC	104	3-701-630-00	BAG, POLYETHYLENE
29	4-889-321-31	SCREW	105	3-703-710-41	STICKER, SONY SYMBOL (12)
30	*4-906-003-01	COVER, DIGITAL SHIELD	106	3-773-581-11	MANUAL, INSTRUCTION
31	*4-906-006-01	CASE, SHIELD, METER	107	4-906-019-01	CUSHION (LEFT), LOWER
32	*4-906-007-01	CHASSIS, AMPLIFIER	108	4-906-020-01	CUSHION (RIGHT), LOWER
33	*4-906-008-01	PLATE, SHIELD, LEFT	109	4-906-021-01	CUSHION (LEFT), UPPER
34	4-906-009-01	(AEP,UK)....PLATE, JACK	110	4-906-022-01	CUSHION (RIGHT), UPPER
34	4-906-009-11	(E).....PLATE, JACK			
35	*4-906-011-01	PLATE, SIDE, RIGHT			
36	*4-906-012-01	PLATE, RELAY			
37	*4-906-013-01	CASE, SHIELD, DIGITAL			
38	*4-906-015-01	PLATE, BOTTOM			
39	4-906-016-01	CASE			
40	*4-906-025-01	RUBBER, SPACER			
41	*4-906-026-01	(G-AEP)...LABEL, MODEL NUMBER(AE1)			
41	*4-906-026-11	(AEP)....LABEL, MODEL NUMBER(AE4)			
41	*4-906-027-01	(UK).....LABEL, MODEL NUMBER(UK)			
41	*4-906-028-01	(E).....LABEL, MODEL NUMBER(E2/E3)			

NOTE:

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- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

All capacitors are in μ F. Common capacitors are omitted. Refer to the following lists for their part numbers.
MF: μ F, PF: μ PF.

COILS

MMH : mH, UH : μ H

SEMICONDUCTORS

In each case, U : μ , for example:
UA...: μ A..., UPA...: μ PA...,
UPC...: μ PC,
UPD...: μ PD...

ELECTRICAL PARTS

Ref. No.	Part No.	Description
501	1-519-320-11	INDICATOR TUBE, FLUORESCENT
502	△ 1-526-555-00	(E)...AC PLUG ADAPTOR
503	1-533-131-00	HOLDER, FUSE
504	*1-535-141-00	BASE POST 19MM (10MM PITCH) 4P
505	1-535-416-00	TERMINAL
506	△ 1-552-963-11	(E)...SWITCH, POWER VOLTAGE SELECT
507	△ 1-555-795-00	(AEP)...CORD, POWER
507	△ 1-556-035-00	(UK)...CORD, POWER
507	△ 1-556-091-00	(E)...CORD, POWER
508	*1-560-242-41	BUS BAR 11P
509	*1-560-242-71	BUS BAR 6P
510	*1-612-713-11	PC BOARD, AUDIO
511	*1-612-714-11	PC BOARD, DIGITAL
512	*1-612-715-11	PC BOARD, METER
513	*1-612-765-11	PC BOARD, LED
514	*1-613-177-12	PC BOARD, DIGITAL (B)
515	*1-613-471-11	PC BOARD, FILTER
516	*A-4335-339-A	MOUNTED PCB, AUDIO
517	*A-4335-314-A	(NTSC).....MOUNTED PCB, DIGITAL
517	*A-4335-340-A	(PAL/SECAM)....MOUNTED PCB, DIGITAL
C1	△ 1-161-744-00	CAP, CERAMIC 1000PF FZ
C2	△ 1-161-734-00	CERAMIC 0.0022MF 20% 400V
C3	△ 1-161-734-00	CERAMIC 0.0022MF 20% 400V
C4	△ 1-161-734-00	CERAMIC 0.0022MF 20% 400V
C5	△ 1-161-734-00	CERAMIC 0.0022MF 20% 400V
C101	1-107-165-00	MICA 56PF 5% 500V
C102	1-130-205-00	FILM 0.056MF 2% 630V
C103	1-107-310-00	MICA 220PF 5% 500V
C104	1-124-334-00	ELECT 4.7MF 20% 100V
C109	1-123-371-00	ELECT 22MF 20% 63V
C110	1-104-255-11	POLYSTYRENE 0.0018MF 5% 125V
C111	1-162-037-00	CERAMIC 100PF 5% 50V
C112	1-162-037-00	CERAMIC 100PF 5% 50V
C113	1-123-370-00	ELECT 10MF 20% 63V
C121	1-162-021-00	CERAMIC 22PF 5% 50V
C122	1-104-230-00	POLYSTYRENE 0.0015MF 5% 50V
C123	1-123-371-00	ELECT 22MF 20% 63V
C124	1-104-233-00	POLYSTYRENE 220PF 5% 125V
C127	1-104-240-00	POLYSTYRENE 0.001MF 5% 125V
C128	1-104-240-00	POLYSTYRENE 0.001MF 5% 125V
C129	1-130-163-00	FILM 0.0039MF 2% 630V
C130	1-124-334-00	ELECT 4.7MF 20% 100V
C131	1-107-310-00	MICA 220PF 5% 500V
C301	1-123-371-00	ELECT 22MF 20% 63V
C302	1-123-371-00	ELECT 22MF 20% 63V
C303	1-123-371-00	ELECT 22MF 20% 63V

ELECTRICAL PARTS

Ref. No.	Part No.	Description			
C304	1-123-371-00	ELECT 22MF 20% 63V			
C305	1-123-371-00	ELECT 22MF 20% 63V			
C306	1-123-371-00	ELECT 22MF 20% 63V			
C307	1-123-324-00	ELECT 1000MF 20% 16V			
C308	1-123-333-00	ELECT 100MF 20% 16V			
C309	1-123-390-00	ELECT 330MF 20% 63V			
C310	1-123-390-00	ELECT 330MF 20% 63V			
C311	1-123-371-00	ELECT 22MF 20% 63V			
C312	1-123-371-00	ELECT 22MF 20% 63V			
C313	1-123-338-00	ELECT 2200MF 20% 25V			
C314	1-123-338-00	ELECT 2200MF 20% 25V			
C315	1-162-110-00	CERAMIC 0.001MF 10% 50V			
C316	1-131-520-00	TANTALUM 22MF 20% 16V			
C317	1-131-371-00	TANTALUM 10MF 20% 16V			
C318	1-161-494-00	CERAMIC 0.022MF 30% 25V			
C319	1-162-110-00	CERAMIC 0.001MF 10% 50V			
C320	1-162-040-00	CERAMIC 4.7PF 10% 50V			
C321	1-162-046-00	CERAMIC 12PF 5% 50V			
C322	1-123-384-00	ELECT 10MF 20% 50V			
C323	1-123-380-00	ELECT 1MF 20% 50V			
C324	1-123-371-00	ELECT 22MF 20% 63V			
C325	1-162-021-00	CERAMIC 22PF 5% 50V			
C326	1-162-110-00	CERAMIC 0.001MF 10% 50V			
C327	1-123-306-00	ELECT 47MF 20% 10V			
C328	1-123-298-00	ELECT 470MF 20% 6.3V			
C329	1-123-298-00	ELECT 470MF 20% 6.3V			
C330	1-161-494-00	CERAMIC 0.022MF 30% 25V			
C331	1-161-494-00	CERAMIC 0.022MF 30% 25V			
C332	1-123-384-00	ELECT 10MF 20% 50V			
C333	1-123-384-00	ELECT 10MF 20% 50V			
C334	1-162-029-00	CERAMIC 47PF 5% 50V			
C335	1-162-050-00	CERAMIC 18PF 5% 50V			
C336	1-162-029-00	CERAMIC 47PF 5% 50V			
C337	1-162-110-00	CERAMIC 0.001MF 10% 50V			
C338	1-131-520-00	TANTALUM 22MF 20% 16V			
C339	1-161-494-00	CERAMIC 0.022MF 30% 25V			
C340	1-123-384-00	ELECT 10MF 20% 50V			
C341	1-123-371-00	ELECT 22MF 20% 63V			
C342	1-123-371-00	ELECT 22MF 20% 63V			
C343	1-123-371-00	ELECT 22MF 20% 63V			
C345	1-123-371-00	ELECT 22MF 20% 63V			
C346	1-123-371-00	ELECT 22MF 20% 63V			
C347	1-123-371-00	ELECT 22MF 20% 63V			
C348	1-123-371-00	ELECT 22MF 20% 63V			
C349	1-123-333-00	ELECT 100MF 20% 16V			
C350	1-123-333-00	ELECT 100MF 20% 16V			

NOTE:

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- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:

All capacitors are in μF . Common capacitors are omitted. Refer to the following lists for their part numbers.
MF: μF , PF: $\mu\mu\text{F}$.

COILS

MMH : mH , UH : μH

SEMICONDUCTORS

In each case, U : μ , for example:
UA...: μA ..., UPA...: μPA ..., UPC...: μPC ,
UPD...: μPD ...

The components identified by shading and mark △ are critical for safety. Replace only with part number specified.

ELECTRICAL PARTS

Ref. No.	Part No.	Description				
C351	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C352	1-162-110-00	CERAMIC	0.001MF	10%	50V	
C353	1-162-110-00	CERAMIC	0.001MF	10%	50V	
C354	1-162-037-00	CERAMIC	100PF	5%	50V	
C355	1-162-102-00	CERAMIC	220PF	10%	50V	
C356	1-123-321-00	ELECT	220MF	20%	16V	
C357	1-123-321-00	ELECT	220MF	20%	16V	
C358	1-107-311-00	MICA	15PF	5%	500V	
C359	1-107-311-00	MICA	15PF	5%	500V	
C360	1-123-306-00	ELECT	47MF	20%	10V	
C361	1-123-306-00	ELECT	47MF	20%	10V	
C502	1-123-330-00	ELECT	22MF	20%	25V	
C503	1-123-307-00	ELECT	100MF	20%	6.3V	
C504	1-123-228-00	ELECT	1MF	20%	50V	
C505	1-123-380-00	ELECT	1MF	20%	50V	
C506	1-123-380-00	ELECT	1MF	20%	50V	
C507	1-123-228-00	ELECT	1MF	20%	50V	
C508	1-123-380-00	ELECT	1MF	20%	50V	
C509	1-123-447-00	ELECT	0.22MF	20%	50V	
C510	1-123-307-00	ELECT	100MF	20%	6.3V	
C511	1-123-228-00	ELECT	1MF	20%	50V	
C512	1-123-380-00	ELECT	1MF	20%	50V	
C513	1-162-284-31	CERAMIC	150PF	10%	50V	
C514	1-162-306-31	CERAMIC	0.01MF	20%	16V	
C515	1-162-284-31	CERAMIC	150PF	10%	50V	
C516	1-123-369-00	ELECT	4.7MF	20%	50V	
C517	1-123-369-00	ELECT	4.7MF	20%	50V	
C518	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C519	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C520	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C521	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C522	1-123-380-00	ELECT	1MF	20%	50V	
C523	1-123-356-00	ELECT	10MF	20%	50V	
C524	1-123-380-00	ELECT	1MF	20%	50V	
C525	1-123-381-00	ELECT	2.2MF	20%	50V	
C526	1-123-369-00	ELECT	4.7MF	20%	50V	
C527	1-123-356-00	ELECT	10MF	20%	50V	
C529	1-162-282-31	CERAMIC	100PF	10%	50V	
C530	1-162-203-31	CERAMIC	15PF	5%	50V	
C531	1-162-306-31	CERAMIC	0.01MF	20%	16V	
C532	1-162-282-31	CERAMIC	100PF	10%	50V	
C533	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C534	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C535	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C536	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C537	1-161-494-00	CERAMIC	0.022MF	30%	25V	

ELECTRICAL PARTS

Ref. No.	Part No.	Description				
C538	1-162-282-31	CERAMIC	100PF	10%	50V	
C539	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C540	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C541	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C542	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C543	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C544	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C545	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C546	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C547	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C548	1-123-298-00	ELECT	470MF	20%	6.3V	
C549	1-123-298-00	ELECT	470MF	20%	6.3V	
C550	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C552	1-123-298-00	ELECT	470MF	20%	6.3V	
C553	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C554	1-123-321-00	ELECT	220MF	20%	16V	
C555	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C556	1-123-321-00	ELECT	220MF	20%	16V	
C557	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C558	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C559	1-162-199-31	CERAMIC	10PF	5%	50V	
C560	1-162-199-31	CERAMIC	10PF	5%	50V	
C561	1-162-284-31	CERAMIC	150PF	10%	50V	
C562	1-162-207-31	CERAMIC	22PF	5%	50V	
C563	1-162-196-31	CERAMIC	5.6PF	10%	50V	
C564	1-123-298-00	ELECT	470MF	20%	6.3V	
C565	1-123-298-00	ELECT	470MF	20%	6.3V	
C566	1-162-211-31	CERAMIC	33PF	5%	50V	
C567	1-123-356-00	ELECT	10MF	20%	50V	
C568	1-162-306-31	CERAMIC	0.01MF	20%	16V	
C569	1-162-287-31	CERAMIC	270PF	10%	50V	
C570	1-162-196-31	CERAMIC	5.6PF	10%	50V	
C571	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C572	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C573	1-162-304-31	CERAMIC	0.0047MF	20%	16V	
C574	1-162-199-31	CERAMIC	10PF	5%	50V	
C575	1-162-203-31	CERAMIC	15PF	5%	50V	
C576	1-162-203-31	CERAMIC	15PF	5%	50V	
C577	1-162-203-31	CERAMIC	15PF	5%	50V	
C650	1-123-369-00	ELECT	4.7MF	20%	50V	
C651	1-123-369-00	ELECT	4.7MF	20%	50V	
C652	1-123-380-00	ELECT	1MF	20%	50V	
C653	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C701	1-162-106-00	(PAL/SECAM)..CERAMIC	470PF	10%	50V	
C702	1-162-286-31	(PAL/SECAM)..CERAMIC	220PF	10%	50V	
C703	1-162-306-31	(PAL/SECAM)..CERAMIC	0.01MF	20%	16V	

NOTE:

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CAPACITORS:

- All capacitors are in μF . Common capacitors are omitted. Refer to the following lists for their part numbers.
- MF: μF , PF: $\mu\mu\text{F}$.

COILS

- MMH : mH, UH : μH

SEMICONDUCTORS

- In each case, U : μ , for example:
UA...: $\mu\text{A}\dots$, UPA...: $\mu\text{PA}\dots$,
UPC...: μPC ,
UPD...: $\mu\text{PD}\dots$

ELECTRICAL PARTS

Ref. No.	Part No.	Description					
C704	1-162-306-31	(PAL/SECAM)..CERAMIC	0.01MF	20%	16V		
C705	1-162-203-31	(PAL/SECAM)..CERAMIC	15PF	5%	50V		
C706	1-161-494-00	(PAL/SECAM)..CERAMIC	0.022MF	30%	25V		
C801	1-123-356-00	ELECT	10MF	20%	50V		
C802	1-161-330-00	CERAMIC	0.01MF	30%	25V		
C803	1-161-330-00	CERAMIC	0.01MF	30%	25V		
C804	1-136-156-00	FILM	0.018MF	5%	50V		
C805	1-123-382-00	ELECT	3.3MF	20%	50V		
C806	1-162-108-00	CERAMIC	680PF	10%	50V		
C807	1-162-108-00	CERAMIC	680PF	10%	50V		
C901	1-123-338-00	ELECT	2200MF	20%	25V		
C902	1-123-338-00	ELECT	2200MF	20%	25V		
C903	1-123-326-00	ELECT	3300MF	20%	16V		
C904	1-123-326-00	ELECT	3300MF	20%	16V		
C905	1-123-325-00	ELECT	2200MF	20%	16V		
C906	1-123-332-00	ELECT	47MF	20%	16V		
C907	1-123-337-00	ELECT	1000MF	20%	25V		
C908	1-136-165-00	FILM	0.1MF	5%	50V		
C909	1-123-361-00	ELECT	220MF	20%	50V		
C910	1-123-356-00	ELECT	10MF	20%	50V		
C911	1-123-332-00	ELECT	47MF	20%	25V		
C912	1-123-333-00	ELECT	100MF	20%	25V		
C913	1-123-311-00	ELECT	1000MF	20%	10V		
C914	1-123-311-00	ELECT	1000MF	20%	10V		
C916	1-123-380-00	ELECT	1MF	20%	50V		
C917	1-123-356-00	ELECT	10MF	20%	25V		
C918	1-123-306-00	ELECT	47MF	20%	10V		
C919	1-123-321-00	ELECT	220MF	20%	16V		
C920	1-123-380-00	ELECT	1MF	20%	50V		
C921	1-123-380-00	ELECT	1MF	20%	50V		
C922	1-123-356-00	ELECT	10MF	20%	25V		
C923	1-123-356-00	ELECT	10MF	20%	25V		
CNJ101	1-507-898-11	JACK, PIN 2P (LINE IN L-CH)					
CNJ102	1-507-898-11	JACK, PIN 2P (LINE OUT L-CH)					
CNJ201	1-507-898-11	JACK, PIN 2P (LINE IN R-CH)					
CNJ202	1-507-898-11	JACK, PIN 2P (LINE OUT R-CH)					
CNJ301	1-507-898-21	JACK, PIN 2P (VIDEO IN)					
CNJ302	1-507-898-21	JACK, PIN 2P (MONITOR OUT)					
CNJ303	1-507-898-21	JACK, PIN 2P (VIDEO OUT)					
CNJ304	1-507-898-21	JACK, PIN 2P (COPY OUT)					
CNP1	*1-560-066-00	PIN, CONNECTOR 10P					
CNP2	*1-560-338-00	PIN, CONNECTOR 7P					
CNP3	*1-560-064-00	PIN, CONNECTOR 6P					
CNP4	*1-560-062-00	PIN, CONNECTOR 4P					
CNP5	*1-560-060-00	PIN, CONNECTOR 2P					
CNP51	*1-560-060-00	PIN, CONNECTOR 2P					

ELECTRICAL PARTS

Ref. No.	Part No.	Description
CNP52	*1-560-060-00	PIN, CONNECTOR 2P
CNP53	*1-560-060-00	PIN, CONNECTOR 2P
CNP54	*1-560-061-00	PIN, CONNECTOR 3P
CNP55	*1-560-062-00	PIN, CONNECTOR 4P
CNP56	*1-560-060-00	PIN, CONNECTOR 2P
CNP501	*1-560-060-00	PIN, CONNECTOR 2P
CNP502	*1-560-062-00	PIN, CONNECTOR 4P
CNP503	*1-560-061-00	PIN, CONNECTOR 3P
CNP504	*1-560-062-00	PIN, CONNECTOR 4P
CNP505	*1-560-061-00	PIN, CONNECTOR 3P
CNP506	*1-560-063-00	PIN, CONNECTOR 5P
CNP507	*1-560-061-00	PIN, CONNECTOR 3P
CNP650	*1-560-064-00	PIN, CONNECTOR 6P
CNP651	*1-560-061-00	PIN, CONNECTOR 3P
CNP652	*1-560-062-00	PIN, CONNECTOR 4P
D101	8-719-910-65	DIODE HZ6B2L
D102	8-719-911-19	DIODE 1SS119
D103	8-719-910-65	DIODE HZ6B2L
D201	8-719-910-65	DIODE HZ6B2L
D202	8-719-911-19	DIODE 1SS119
D203	8-719-910-65	DIODE HZ6B2L
D301	8-719-911-19	DIODE 1SS119
D302	8-719-911-19	DIODE 1SS119
D303	8-719-911-19	DIODE 1SS119
D304	8-719-910-65	DIODE HZ6B2L
D305	8-719-910-65	DIODE HZ6B2L
D306	8-719-910-65	DIODE HZ6B2L
D307	8-719-910-69	DIODE HZ6C3L
D501	8-719-911-19	DIODE 1SS119
D502	8-719-911-19	DIODE 1SS119
D503	8-719-911-19	DIODE 1SS119
D504	8-719-911-19	DIODE 1SS119
D505	8-719-911-19	DIODE 1SS119
D506	8-719-992-61	DIODE HZ6A1
D507	8-719-915-43	DIODE FC54M
D510	8-719-911-19	DIODE 1SS119
D511	8-719-911-19	DIODE 1SS119
D512	8-719-911-19	DIODE 1SS119
D513	8-719-911-19	DIODE 1SS119
D650	8-719-911-19	DIODE 1SS119
D801	8-719-107-94	DIODE 1SS202-1
D802	8-719-107-94	DIODE 1SS202-1
D803	8-719-107-94	DIODE 1SS202-1
D901	8-719-230-02	DIODE 30DF2
D902	8-719-230-02	DIODE 30DF2

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UPC... : μPC ,
UPD... : μPD ...

ELECTRICAL PARTS

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D903	8-719-230-02	DIODE 30DF2
D904	8-719-230-02	DIODE 30DF2
D905	8-719-210-12	DIODE 10DF2
D906	8-719-210-12	DIODE 10DF2
D907	8-719-210-12	DIODE 10DF2
D908	8-719-210-12	DIODE 10DF2
D909	8-719-210-12	DIODE 10DF2
D910	8-719-210-12	DIODE 10DF2
D911	8-719-200-02	DIODE 10E-2
D912	8-719-200-02	DIODE 10E-2
D913	8-719-200-02	DIODE 10E-2
D914	8-719-200-02	DIODE 10E-2
D915	8-719-910-76	DIODE HZ783L
D916	8-719-910-42	DIODE HZ24-2L
D917	8-719-107-94	DIODE 1SS202-1
D918	8-719-107-94	DIODE 1SS202-1
D919	8-719-107-94	DIODE 1SS202-1
D920	8-719-311-12	DIODE SEL1112R(LED)
D921	8-719-313-12	DIODE SEL1312G(LED)
D922	8-719-313-12	DIODE SEL1312G(LED)
F1	A.1-532-279-00	FUSE, TIME-LAG(500mA)
F2	A.1-532-215-00	FUSE, TIME-LAG(800mA)
IC101	8-759-910-77	IC LF353N/GLEA312
IC102	8-759-910-75	IC TDB0353DP
IC103	8-759-900-72	IC NE5532P
IC104	8-759-910-75	IC TDB0353DP
IC201	8-759-910-77	IC LF353N/GLEA312
IC202	8-759-910-75	IC TDB0353DP
IC203	8-759-900-72	IC NE5532P
IC204	8-759-910-75	IC TDB0353DP
IC301	8-759-910-75	IC TDB0353DP
IC302	8-752-001-80	IC CX20018
IC303	8-752-001-70	IC CX20017
IC304	8-759-140-53	IC UPD4053BC
IC305	8-759-600-02	IC M5218L
IC306	8-759-700-11	IC NJM78M05A
IC307	8-759-700-20	IC NJM79M05A
IC308	8-759-600-02	IC M5218L
IC309	8-759-900-02	IC SN74LS02N
IC310	8-759-145-84	IC UPD4584BC
IC501	8-759-102-72	IC CX23017
IC502	8-759-178-50	IC UPD785C
IC503	8-759-911-92	IC MB8416A-12P-SK
IC504	8-759-974-06	IC SN7406N
IC505	8-759-103-19	IC UPC319C
IC506	8-759-979-14	IC CX-7914

ELECTRICAL PARTS

Ref. No.	Part No.	Description
IC507	8-759-102-73	IC CX-7975
IC508	8-759-245-05	IC TM4505P
IC509	8-759-911-92	IC MB8416A-12P-SK
IC510	8-759-990-82	IC TL082CP
IC511	8-759-900-67	IC SN74ALS02N
IC512	8-759-900-74	IC SN74LS74AN
IC650	8-759-202-27	IC TC74HC157P
IC651	8-759-202-24	IC TC74HC86P
IC701	8-759-906-24	(PAL/SECAM)...IC SN74LS624N
IC801	8-759-904-72	IC MSL9359RS
IC802	8-759-812-90	IC LB1290
IC803	8-759-240-69	IC TC4069UBP
IC901	8-759-700-47	IC CX10035
IC902	8-759-961-38	IC BA6138
IC903	8-759-240-66	IC TC4066BP
IC904	8-759-700-65	IC NJM79L05A
J301	1-507-659-00	JACK (HEADPHONES)
L301	1-408-902-21	MICRO INDUCTOR 0.47UH
L302	1-408-551-00	MICRO INDUCTOR 1UH
L501	1-459-379-00	COIL (WITH CORE)
L502	1-410-015-21	MICRO INDUCTOR 3.3UH
L503	1-410-027-21	MICRO INDUCTOR 33UH
L504	1-410-033-21	MICRO INDUCTOR 100UH
L505	1-410-033-21	MICRO INDUCTOR 100UH
L506	1-410-033-21	MICRO INDUCTOR 100UH
LDF101	1-464-343-11	FILTER UNIT, LOW PASS
LDF102	1-464-299-00	FILTER UNIT, LOW PASS
LDF201	1-464-343-11	FILTER UNIT, LOW PASS
LDF202	1-464-299-00	FILTER UNIT, LOW PASS
LF1	A.1-421-340-00	LINE FILTER
PS1	A.1-532-605-00	LINK, IC
Q101	8-769-162-00	TRANSISTOR 2SK152-2
Q102	8-769-162-00	TRANSISTOR 2SK152-2
Q201	8-769-162-00	TRANSISTOR 2SK152-2
Q202	8-769-162-00	TRANSISTOR 2SK152-2
Q301	8-729-141-43	TRANSISTOR 2SD414
Q302	8-729-167-62	TRANSISTOR 2SC2676
Q303	8-729-167-62	TRANSISTOR 2SC2676
Q304	8-769-112-00	TRANSISTOR 2SK120-2
Q305	8-729-180-93	TRANSISTOR 2SD809
Q306	8-729-154-83	TRANSISTOR 2SB548
Q307	8-729-113-82	TRANSISTOR 2SA1138
Q308	8-729-113-82	TRANSISTOR 2SA1138

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MF: μF , PF: $\mu\mu F$.

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SEMICONDUCTORS

- In each case, U : μ , for example:
UA...: μA ..., UPA...: μPA ..., UPC...: μPC ,
UPD...: μPD ...

The components identified by shading and mark Δ are critical for safety. Replace only with part number specified.

PCM-501ES PCM-501ES

ELECTRICAL PARTS			ELECTRICAL PARTS			ELECTRICAL PARTS			ELECTRICAL PARTS					
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description			
Q309	8-729-112-00	TRANSISTOR 2SK120-2	Q701	8-729-206-33	(PAL/SECAM)...TRANSISTOR 2SC2603-F	R131	1-247-847-00	CARBON	4.7K	5%	1/6W			
Q310	8-729-173-37	TRANSISTOR 2SA733-P	Q801	8-729-173-37	TRANSISTOR 2SA733-P	R132	1-247-839-00	CARBON	2.2K	5%	1/6W			
Q311	8-729-606-33	TRANSISTOR 2SC2603-F	Q802	8-729-173-37	TRANSISTOR 2SA733-P	R133	1-214-892-00	METAL	15K	1%	1/2W			
Q501	8-729-672-43	TRANSISTOR 2SC2724	Q803	8-729-900-61	TRANSISTOR DTA114ES	R134	1-214-762-00	METAL	24K	1%	1/4W			
Q502	8-729-672-43	TRANSISTOR 2SC2724	Q804	8-729-900-89	TRANSISTOR DTC144ES	R135	1-214-753-00	METAL	10K	1%	1/4W			
Q503	8-729-173-37	TRANSISTOR 2SA733-P	Q805	8-729-900-89	TRANSISTOR DTC144ES	R136	1-214-888-00	METAL	10K	1%	1/2W			
Q504	8-729-606-33	TRANSISTOR 2SC2603-F	Q806	8-729-900-61	TRANSISTOR DTA114ES	R138	1-247-879-00	CARBON	100K	5%	1/6W			
Q505	8-729-173-37	TRANSISTOR 2SA733-P	Q807	8-729-900-61	TRANSISTOR DTA114ES	R140	1-214-879-00	METAL	4.3K	1%	1/2W			
Q506	8-729-606-33	TRANSISTOR 2SC2603-F	Q808	8-729-900-61	TRANSISTOR DTA114ES	R141	1-214-871-00	METAL	2K	1%	1/2W			
Q507	8-729-606-33	TRANSISTOR 2SC2603-F	Q809	8-729-900-61	TRANSISTOR DTA114ES	R142	1-214-888-00	METAL	10K	1%	1/2W			
Q508	8-729-606-33	TRANSISTOR 2SC2603-F	Q810	8-729-900-89	TRANSISTOR DTC144ES	R143	1-214-890-00	METAL	12K	1%	1/2W			
Q509	8-729-606-33	TRANSISTOR 2SC2603-F	Q811	8-729-900-89	TRANSISTOR DTC144ES	R144	1-214-902-00	METAL	36K	1%	1/2W			
Q510	8-729-606-33	TRANSISTOR 2SC2603-F	Q902	8-729-288-02	TRANSISTOR 2SD880	R145	1-214-878-00	METAL	3.9K	1%	1/2W			
Q511	8-729-173-37	TRANSISTOR 2SA733-P	Q903	8-729-173-13	TRANSISTOR 2SB731	R146	1-214-964-00	METAL	1M	1%	1/4W			
Q512	8-729-606-33	TRANSISTOR 2SC2603-F	Q904	8-729-180-93	TRANSISTOR 2SD809	R147	1-214-777-00	METAL	100K	1%	1/4W			
Q513	8-769-132-00	TRANSISTOR 2SK121-2	Q905	8-729-606-33	TRANSISTOR 2SC2603-F	R148	1-214-844-00	METAL	150	1%	1/2W			
Q514	8-729-173-37	TRANSISTOR 2SA733-P	Q906	8-729-606-33	TRANSISTOR 2SC2603-F	R149	1-214-765-00	METAL	33K	1%	1/4W			
Q515	8-729-173-37	TRANSISTOR 2SA733-P	Q907	8-729-606-33	TRANSISTOR 2SC2603-F	R150	1-247-129-00	CARBON	820	5%	1/4W			
Q516	8-729-606-33	TRANSISTOR 2SC2603-F	Q908	8-729-606-33	TRANSISTOR 2SC2603-F	R151	1-214-749-00	METAL	6.8K	1%	1/4W			
Q517	8-729-606-33	TRANSISTOR 2SC2603-F	Q909	8-729-900-89	TRANSISTOR DTC144ES	R152	1-214-777-00	METAL	100K	1%	1/4W			
Q518	8-769-132-00	TRANSISTOR 2SK121-2	Q910	8-729-606-33	TRANSISTOR 2SC2603-F	R153	1-214-713-00	METAL	220	1%	1/4W			
Q519	8-729-606-33	TRANSISTOR 2SC2603-F	R1 A-1-202-850-00	SOLID	2.2	1/4W F	R154	1-214-848-00	METAL	220	1%	1/2W		
Q520	8-729-606-33	TRANSISTOR 2SC2603-F	R2 A-1-244-933-00	CARBON	330K	5%	1/2W	R155	1-247-839-00	CARBON	2.2K	5%	1/6W	
Q521	8-729-606-33	TRANSISTOR 2SC2603-F	R101	1-214-897-00	METAL	22K	1%	1/2W	R301	1-214-864-00	METAL	1K	1%	1/2W
Q522	8-729-606-33	TRANSISTOR 2SC2603-F	R102	1-214-880-00	METAL	4.7K	1%	1/2W	R302	1-214-866-00	METAL	1.2K	1%	1/2W
Q523	8-729-606-33	TRANSISTOR 2SC2603-F	R103	1-214-964-00	METAL	1M	1%	1/4W	R303	1-214-866-00	METAL	1.2K	1%	1/2W
Q524	8-729-173-37	TRANSISTOR 2SA733-P	R104	1-214-832-00	METAL	47	1%	1/2W	R304	1-214-864-00	METAL	1K	1%	1/2W
Q525	8-729-606-33	TRANSISTOR 2SC2603-F	R105	1-214-860-00	METAL	680	1%	1/2W	R305	1-214-753-00	METAL	10K	1%	1/4W
Q526	8-769-132-00	TRANSISTOR 2SK121-2	R106	1-214-850-00	METAL	270	1%	1/2W	R306	1-214-753-00	METAL	10K	1%	1/4W
Q527	8-729-606-33	TRANSISTOR 2SC2603-F	R107	1-214-884-00	METAL	6.8K	1%	1/2W	R309	1-214-903-00	METAL	39K	1%	1/2W
Q528	8-729-606-33	TRANSISTOR 2SC2603-F	R108	1-214-777-00	METAL	100K	1%	1/4W	R310	1-214-749-00	METAL	6.8K	1%	1/4W
Q529	8-729-672-43	TRANSISTOR 2SC2724	R109	1-214-888-00	METAL	10K	1%	1/2W	R311	1-247-847-00	CARBON	4.7K	5%	1/6W
Q530	8-729-900-89	TRANSISTOR DTC144ES	R110	1-214-888-00	METAL	10K	1%	1/2W	R312	1-247-831-00	CARBON	1K	5%	1/6W
Q531	8-729-900-89	TRANSISTOR DTC144ES	R111	1-214-761-00	METAL	22K	1%	1/4W	R313	1-247-841-00	CARBON	2.7K	5%	1/6W
Q532	8-729-900-89	TRANSISTOR DTC144ES	R112	1-214-753-00	METAL	10K	1%	1/4W	R316	1-247-220-00	CARBON	150	5%	1/2W
Q533	8-729-606-33	TRANSISTOR 2SC2603-F	R113	1-214-888-00	METAL	10K	1%	1/2W	R318	1-247-879-00	CARBON	100K	5%	1/6W
Q534	8-729-606-33	TRANSISTOR 2SC2603-F	R114	1-214-860-00	METAL	680	1%	1/2W	R319	1-247-853-00	CARBON	8.2K	5%	1/6W
Q535	8-729-606-33	TRANSISTOR 2SC2603-F	R115	1-214-868-00	METAL	1.5K	1%	1/2W	R321	1-247-855-00	CARBON	10K	5%	1/6W
Q536	8-729-606-33	TRANSISTOR 2SC2603-F	R116	1-214-897-00	METAL	22K	1%	1/2W	R322	1-247-855-00	CARBON	10K	5%	1/6W
Q537	8-729-606-33	TRANSISTOR 2SC2603-F	R117	1-214-856-00	METAL	470	1%	1/2W	R323	1-247-855-00	CARBON	10K	5%	1/6W
Q538	8-729-173-37	TRANSISTOR 2SA733-P	R118	1-214-864-00	METAL	1K	1%	1/2W	R324	1-247-855-00	CARBON	10K	5%	1/6W
Q539	8-729-173-37	TRANSISTOR 2SA733-P	R119	1-214-761-00	METAL	22K	1%	1/4W	R325	1-247-807-00	CARBON	100	5%	1/6W
Q540	8-729-606-33	TRANSISTOR 2SC2603-F	R120	1-214-741-00	METAL	3.3K	1%	1/4W	R326	1-247-835-00	CARBON	1.5K	5%	1/6W
Q650	8-729-606-33	TRANSISTOR 2SC2603-F	R121	1-214-751-00	METAL	8.2K	1%	1/4W	R327	1-214-902-00	METAL	36K	1%	1/2W
Q651	8-729-606-33	TRANSISTOR 2SC2603-F	R122	1-214-911-00	METAL	82K	1%	1/2W	R328	1-214-749-00	METAL	6.8K	1%	1/4W

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UA... : $\mu\text{A}\dots$, UPA... : $\mu\text{PA}\dots$, UPC... : μPC ,
UPD

PCM-501ES PCM-501ES

ELECTRICAL PARTS			ELECTRICAL PARTS			ELECTRICAL PARTS			ELECTRICAL PARTS		
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
R535	1-247-873-00	CARBON	56K	5%	1/6W	R581	1-247-863-00	CARBON	22K	5%	1/6W
R536	1-247-823-00	CARBON	470	5%	1/6W	R582	1-247-855-00	CARBON	10K	5%	1/6W
R537	1-247-855-00	CARBON	10K	5%	1/6W	R583	1-247-855-00	CARBON	10K	5%	1/6W
R538	1-247-867-00	CARBON	33K	5%	1/6W	R584	1-247-855-00	CARBON	10K	5%	1/6W
R539	1-247-887-00	CARBON	220K	5%	1/6W	R585	1-247-855-00	CARBON	10K	5%	1/6W
R540	1-247-871-00	CARBON	47K	5%	1/6W	R586	1-247-855-00	CARBON	10K	5%	1/6W
R541	1-247-875-00	CARBON	68K	5%	1/6W	R587	1-247-855-00	CARBON	10K	5%	1/6W
R542	1-247-851-00	CARBON	6.8K	5%	1/6W	R588	1-247-855-00	CARBON	10K	5%	1/6W
R543	1-247-841-00	CARBON	2.7K	5%	1/6W	R589	1-247-855-00	CARBON	10K	5%	1/6W
R544	1-247-850-00	CARBON	6.2K	5%	1/6W	R590	1-247-813-00	CARBON	180	5%	1/6W
R545	1-247-847-00	CARBON	4.7K	5%	1/6W	R591	1-247-819-00	CARBON	330	5%	1/6W
R546	1-247-827-00	CARBON	680	5%	1/6W	R592	1-247-821-00	CARBON	390	5%	1/6W
R547	1-247-827-00	CARBON	680	5%	1/6W	R593	1-247-827-00	CARBON	680	5%	1/6W
R548	1-247-847-00	CARBON	4.7K	5%	1/6W	R594	1-247-833-00	CARBON	1.2K	5%	1/6W
R549	1-247-847-00	CARBON	4.7K	5%	1/6W	R595	1-247-824-00	CARBON	510	5%	1/6W
R550	1-247-879-00	CARBON	100K	5%	1/6W	R596	1-247-831-00	CARBON	1K	5%	1/6W
R551	1-247-835-00	CARBON	1.5K	5%	1/6W	R597	1-247-807-00	CARBON	100	5%	1/6W
R552	1-247-863-00	CARBON	22K	5%	1/6W	R598	1-247-803-00	CARBON	68	5%	1/6W
R553	1-247-823-00	CARBON	470	5%	1/6W	R599	1-247-879-00	CARBON	100K	5%	1/6W
R554	1-247-847-00	CARBON	4.7K	5%	1/6W	R600	1-247-807-00	CARBON	100	5%	1/6W
R555	1-247-867-00	CARBON	33K	5%	1/6W	R601	1-247-803-00	CARBON	68	5%	1/6W
R556	1-247-791-00	CARBON	22	5%	1/6W	R602	1-247-863-00	CARBON	22K	5%	1/6W
R557	1-247-871-00	CARBON	47K	5%	1/6W	R603	1-247-863-00	CARBON	22K	5%	1/6W
R558	1-247-855-00	CARBON	10K	5%	1/6W	R604	1-247-863-00	CARBON	22K	5%	1/6W
R559	1-247-871-00	CARBON	47K	5%	1/6W	R605	1-247-863-00	CARBON	22K	5%	1/6W
R560	1-247-852-00	CARBON	7.5K	5%	1/6W	R606	1-247-847-00	CARBON	4.7K	5%	1/6W
R561	1-247-852-00	CARBON	7.5K	5%	1/6W	R607	1-247-847-00	CARBON	4.7K	5%	1/6W
R562	1-247-839-00	CARBON	2.2K	5%	1/6W	R608	1-247-847-00	CARBON	4.7K	5%	1/6W
R563	1-247-873-00	CARBON	56K	5%	1/6W	R609	1-247-841-00	CARBON	2.7K	5%	1/6W
R564	1-247-865-00	CARBON	27K	5%	1/6W	R610	1-247-855-00	CARBON	10K	5%	1/6W
R566	1-247-871-00	CARBON	47K	5%	1/6W	R611	1-247-823-00	CARBON	470	5%	1/6W
R567	1-247-863-00	CARBON	22K	5%	1/6W	R612	1-247-847-00	CARBON	4.7K	5%	1/6W
R568	1-247-839-00	CARBON	2.2K	5%	1/6W	R613	1-247-847-00	CARBON	4.7K	5%	1/6W
R569	1-247-823-00	CARBON	470	5%	1/6W	R614	1-247-879-00	CARBON	100K	5%	1/6W
R570	1-247-847-00	CARBON	4.7K	5%	1/6W	R615	1-247-843-00	CARBON	3.3K	5%	1/6W
R571	1-247-823-00	CARBON	470	5%	1/6W	R616	1-247-815-00	CARBON	220	5%	1/6W
R572	1-247-847-00	CARBON	4.7K	5%	1/6W	R617	1-247-815-00	CARBON	220	5%	1/6W
R573	1-247-847-00	CARBON	4.7K	5%	1/6W	R618	1-247-831-00	CARBON	1K	5%	1/6W
R574	1-247-847-00	CARBON	4.7K	5%	1/6W	R619	1-247-887-00	CARBON	220K	5%	1/6W
R575	1-247-863-00	CARBON	22K	5%	1/6W	R620	1-247-863-00	CARBON	22K	5%	1/6W
R576	1-247-863-00	CARBON	22K	5%	1/6W	R621	1-247-847-00	CARBON	4.7K	5%	1/6W
R577	1-247-863-00	CARBON	22K	5%	1/6W	R622	1-247-879-00	CARBON	100K	5%	1/6W
R578	1-247-863-00	CARBON	22K	5%	1/6W	R623	1-247-851-00	CARBON	6.8K	5%	1/6W
R579	1-247-863-00	CARBON	22K	5%	1/6W	R625	1-247-831-00	CARBON	1K	5%	1/6W
R580	1-247-831-00	CARBON	1K	5%	1/6W	R650	1-246-481-00	CARBON	2.2K	5%	1/4W
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- NOTE:**
- The mechanical parts with no reference number in the exploded views are not supplied.
 - Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
 - If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
All capacitors are in μF . Common capacitors are omitted. Refer to the following lists for their part numbers.
COILS
MMH : mH, UH : μH

SEMICONDUTORS
In each case, U : μ , for example:
UA...: $\mu\text{A}\dots$, UPA...: $\mu\text{PA}\dots$,
UPC...: μPC ,
UPD...: $\mu\text{PD}\dots$

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In each case, U : μ , for example:
UA...: $\mu\text{A}\dots$, UPA...: $\mu\text{PA}\dots$, UPC...: μPC ,
UPD...: $\mu\text{PD}\dots$

The components identified by shading and mark **A** are critical for safety. Replace only with part number specified.

Sony Corporation