

PCM-701ES

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model



SPECIFICATIONS

Signal system	Conforms to CCIR television standard, PAL, SECAM color (PAL/SECAM system) or Conforms to EIA television standard, NTSC color (NTSC system)
Code format	Conforms to the technical specifications of the EIAJ (standard format using 14-bit quantization), or 16-bit quantization format
Number of audio channels	2 channels
Sampling frequency	44.1 kHz (PAL/SECAM system) 44.056 kHz (NTSC system)
Quantization	14-bit linear quantizing, or 16-bit linear quantizing
Frequency response	10 - 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	-10 dB*	50 kilohms	77.5 mV (-20 dB)
VIDEO IN	Phono	1 Vp-p	75 ohms	—

Outputs


	Type	Reference output level	Load impedance
LINE OUT	Phono	-10 dB	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	-24 to -48 dB Attenuation: 5 steps (24, 18, 12, 6 and 0 dB)	Accepts low impedance headphones.

— Continued on page 2 —

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.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE  SUR LES DIAGRAMMES SCHEMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.



DIGITAL AUDIO PROCESSOR
SONY®

AUD

General

Power requirements AEP model: 220 V ac (240 V ac adjustable by authorized Sony personnel, 50/60 Hz)
 UK model: 240 V ac (220 V ac adjustable by authorized Sony personnel, 50 Hz)
 US, Canadian model: 120 V ac, 60 Hz

Power consumption 40 W

Dimensions Approx. 430 × 80 × 375 mm (w/h/d)
 (17 × 3¹/₄ × 14⁷/₈ inches)
 including projecting parts and controls

Weight 8.5 kg. (net)
 (18 lb. 12 oz.)
 9.5 kg. (in shipping carton)
 (21 lb.)

0 dB = 0.775 V

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-701ES 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-701ES 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-701ES is just like being in a concert hall.

Compact PCM digital audio processor with modern component design

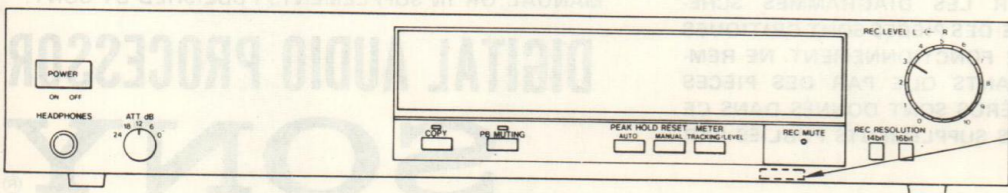
While several hundred ICs are employed in the digital processing circuitry of conventional digital audio processors, 3 new LSIs help make the PCM-701ES as compact and modern in design as your other audio equipment. The unit also incorporates A/D (analog-to-digital) and D/A (digital-to-analog) converters which are newly developed monolithics. All function to make the PCM-701ES unexcelled in performance and reliability.

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

The PCM-701ES was developed in accordance with the technical specifications of the Electronic Industries Association of Japan (EIAJ), which has adopted the 14-bit linear quantization format. In addition, the unit has the capability of recording and playback in accordance with the 16-bit linear quantization format which 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.

SIGNAL SYSTEM IDENTIFICATION

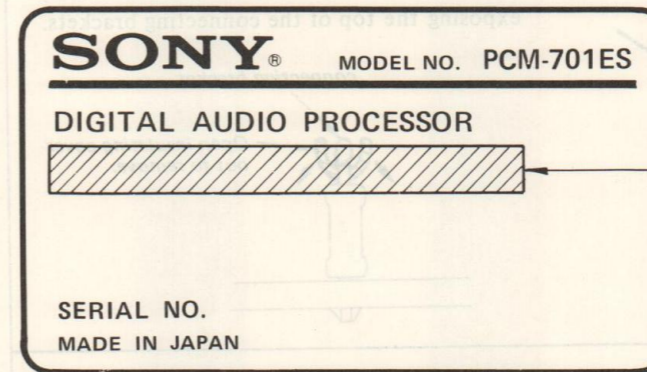
Front panel



NTSC System: (no lettering)
 PAL/SECAM System: PAL/SECAM

MODEL IDENTIFICATION

Specification Label



US, Canadian model: AC 120 V 60 Hz 40 W
 AEP model: AC 220 V ~50/60 Hz 40 W
 UK model: AC 240 V ~50/60 Hz 40 W

SAFETY CHECK-OUT (US Model)

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
 Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

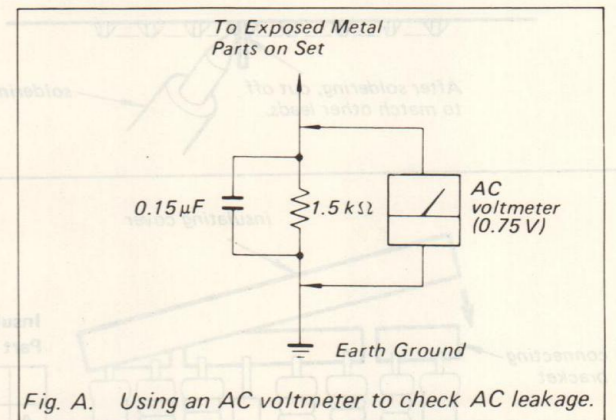
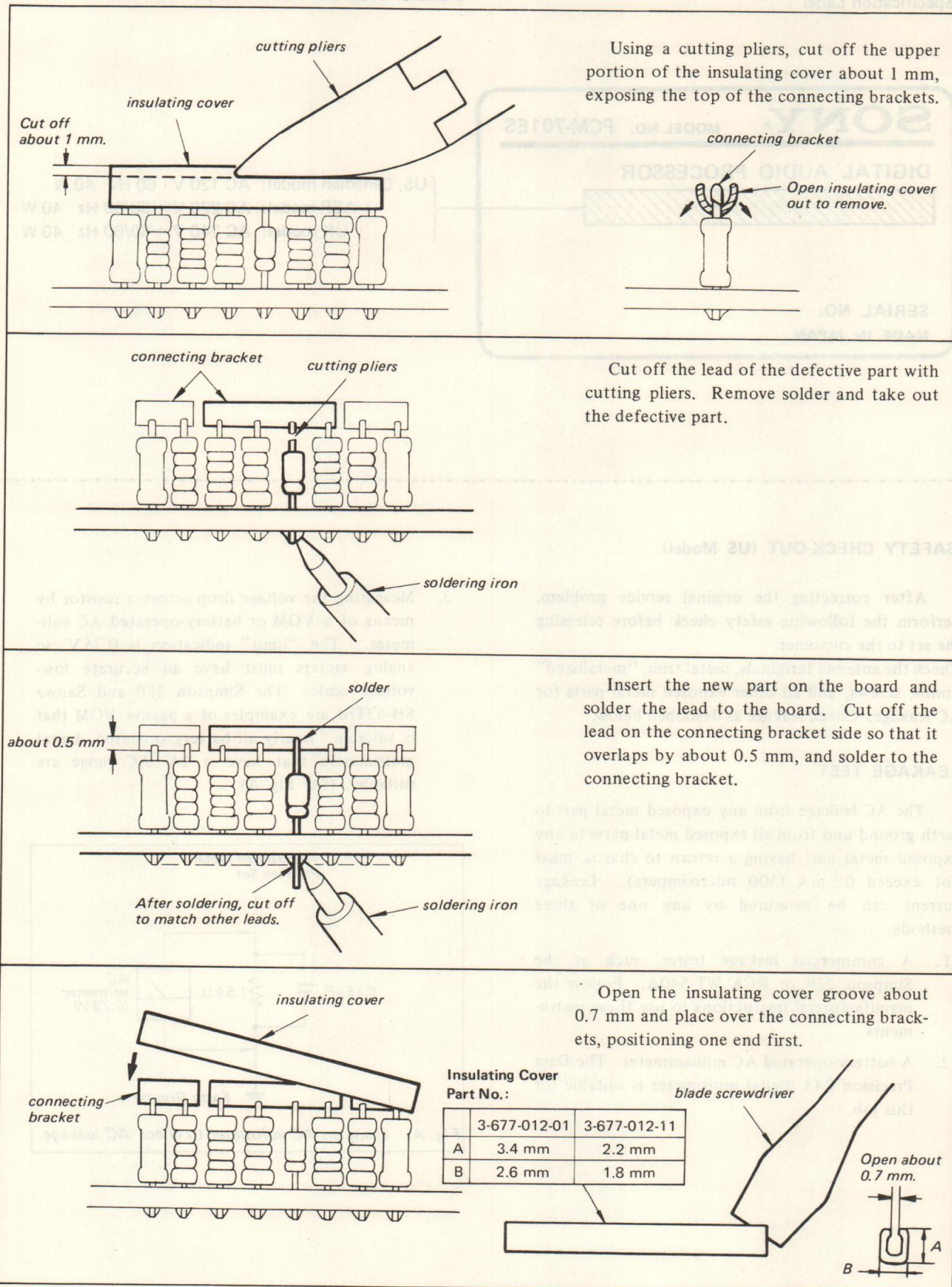


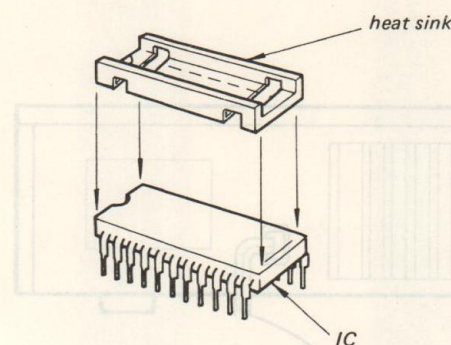
Fig. A. Using an AC voltmeter to check AC leakage.

REPAIR METHOD FOR HYBRID CIRCUIT BLOCK



Notes on IC505 Replacement

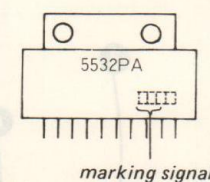
- When replacing IC505, first clean the top of the IC and the bottom of the heat sink with alcohol, then apply an epoxy type adhesive* to the heat sink with IC chip, as shown in the illustration below.



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

Notes on IC401 Replacement

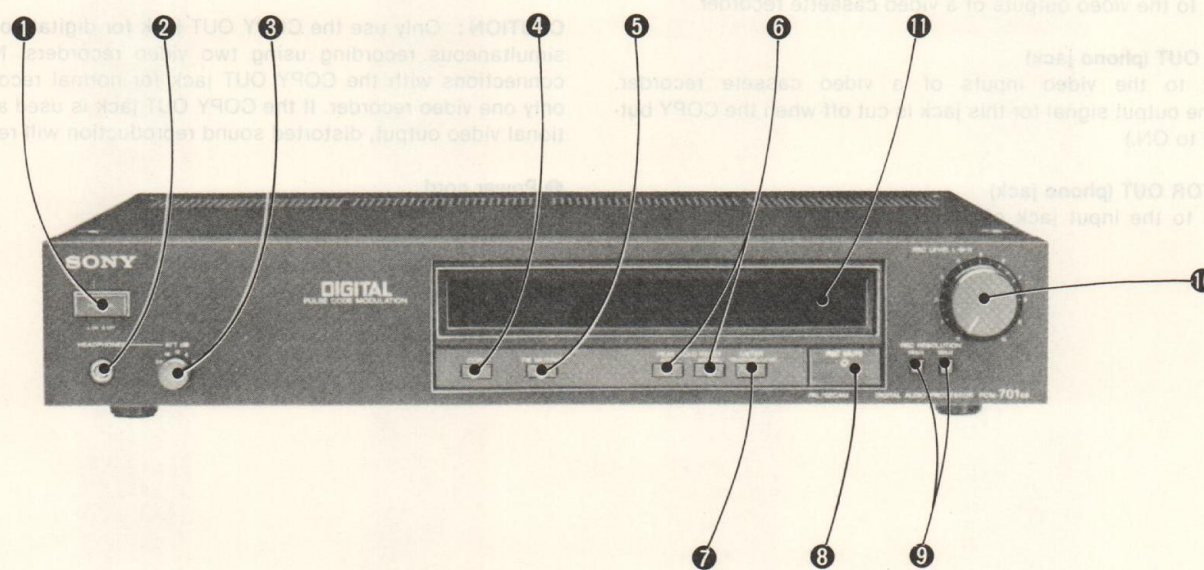
- When replacing IC401 (NJM5332P-A), add or delete C401, 402 depending on the marking signal of IC as shown below.



When the marking signal is "20", add C401, 402 (mounting).
When the marking signal is "25", delete C401, 402.

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 ATT (headphone attenuation) control

5-step volume adjustment for headphone listening.

4 COPY (digital tape copy) button

Set this button to ON for digital-to-digital tape copying using a pair of video recorders and the COPY OUT jack at the rear. An indicator illuminates above the button when the copy switching is activated.

● Be sure to set the copy button to OFF except for digital tape copy. With the button set to ON, signals are not transmitted through the VIDEO OUT jack (see "Digital Tape Copy", page 14).

5 PB MUTING (playback muting) button

The playback muting circuit activates automatically when you turn on the unit, and an indicator lights above the button when the muting circuit is functioning. You only need to press the playback muting 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 video recorder, or scratches and dust on the magnetic tape. If you do not want the sound reproduction cut off, such as with low quality tapes, set the PB Muting button to OFF (see "Using the PB MUTING button", page 13).

6 PEAK HOLD RESET buttons

The PCM-701ES peak program meters feature two types of peak level indications.

When the AUTO button is pressed: successive peaks are held for approximately 1.7 seconds, except when a higher peak occurs before 1.7 seconds have elapsed, in which case the peak is immediately indicated. This mode of peak level indication is activated automatically when the power is turned on.

When the MANUAL button is pressed: the peak level will be held on the scale until a higher peak occurs, in which case the latter peak is held. To reset the peak held on the meter, just press the manual button. This method of peak input is useful when you want to know both the highest peak on a tape or disc, or when you want to know both the highest peak as well as intermittent peak input levels for live recording.

7 METER selector button

Press this button to convert the peak program meters into a tracking meter. Each time the selector is pressed, the function of the meter changes. When the power is turned on initially, the peak program meters function automatically.

8 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 held depressed, and the level of the recorded signal is reduced to "Zero". While the record muting is operating, the video control signal of the video recorder is still transmitted to permit proper playback.

9 REC RESOLUTION (record resolution) selectors

These buttons select the resolution for recording.

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. 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 (see page 22 for details on 14-bit and 16-bit formats). During playback, the proper quantization format is automatically selected for the tape being played.

10 REC LEVEL (recording level) controls

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

① Display indications

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.

COPY PROHIBITING 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.

PB MUTING (playback muting) indicator

When the video cassette recorder 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 PB MUTING button is set to OFF (although muting isn't effected in this instance).

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.

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.

REC MUTE (record muting) indicator

Illuminates while the REC MUTE button is depressed.

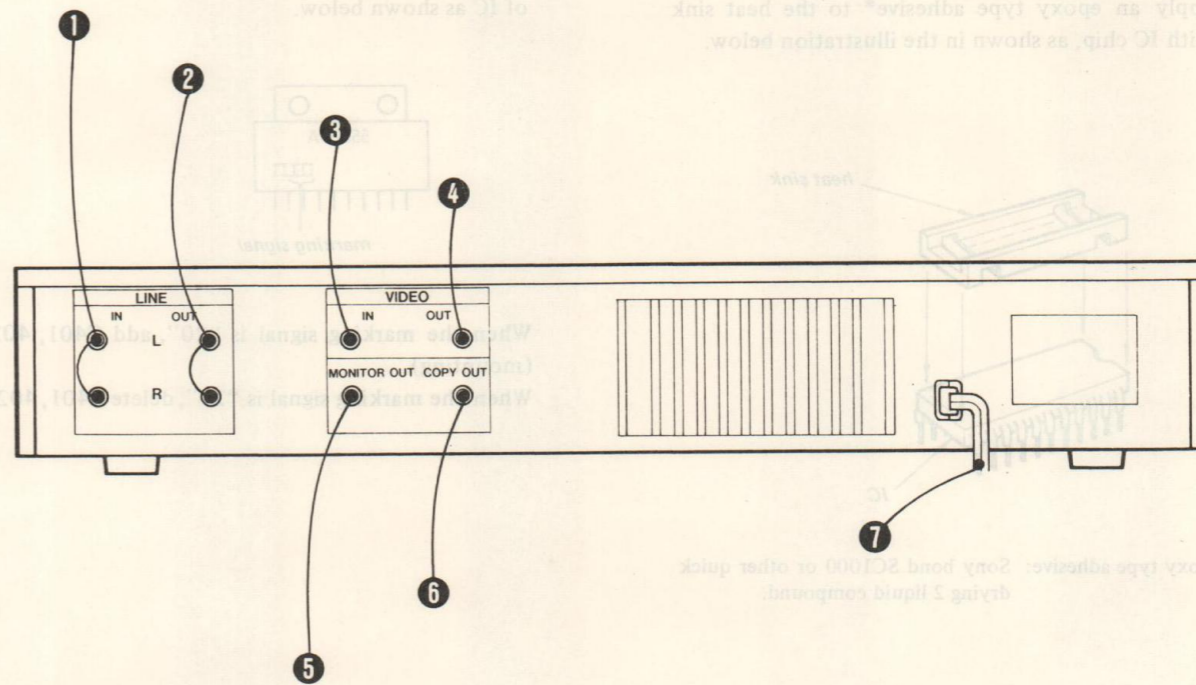
TRACKING indicator

This indicator illuminates when you press the METER selector to readjust the tracking of the video recorder 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.

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 meter selector is pressed, the lower (R) channel meter converts to a tracking meter that gives the tracking condition of the video recorder.

REAR PANEL



- ① LINE IN (phono input jacks for audio components)**
Connects 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)**
Connects with the tape inputs of an audio amplifier.
- ③ VIDEO IN (phono jack)**
Connects to the video outputs of a video cassette recorder.
- ④ VIDEO OUT (phono jack)**
Connects to the video inputs of a video cassette recorder. (Note: the output signal for this jack is cut off when the COPY button is set to ON.)
- ⑤ MONITOR OUT (phono jack)**
Connects to the input jack of Sony Profeel type and other video monitors.

- 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 video recorder and set the COPY button to ON. VTR 1 will be used to playback 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, leave the COPY button set to off.

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

- ⑦ Power cord**

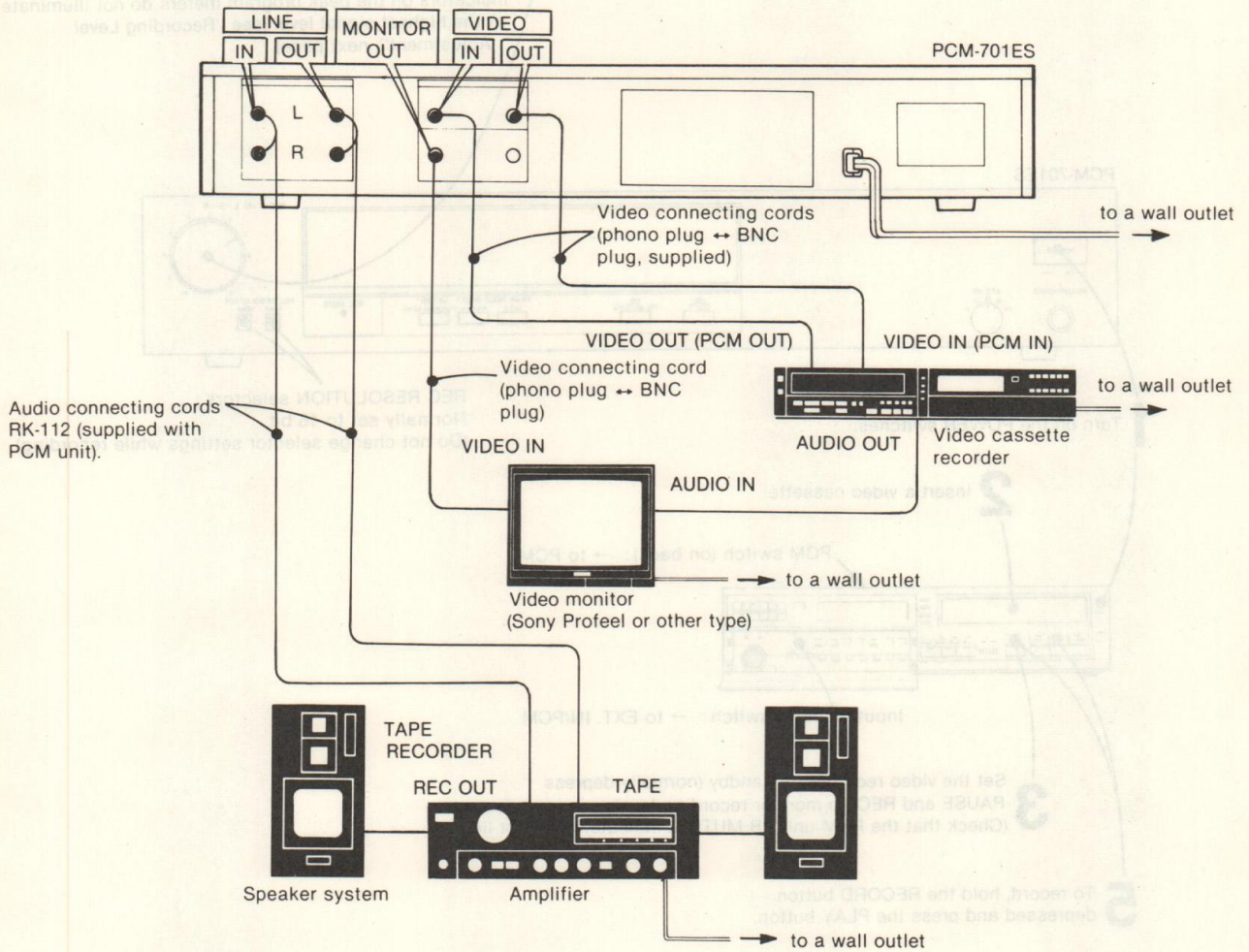
CONNECTIONS FOR USING A VIDEO CASSETTE RECORDER FOR VIDEO MONITORING WITHOUT DISCONNECTING THE PCM UNIT

One video cassette recorder can be used for both PCM digital sound reproduction and television or video tape monitoring without requiring that the PCM-701ES digital processor be disconnected or that a separate switch box be used.

Make the connections as diagrammed below.

When using this set up for PCM applications only: Set the POWER switch of the monitor unit to OFF.

For video tape/T.V. monitoring: Set the POWER switch of the PCM unit to OFF.

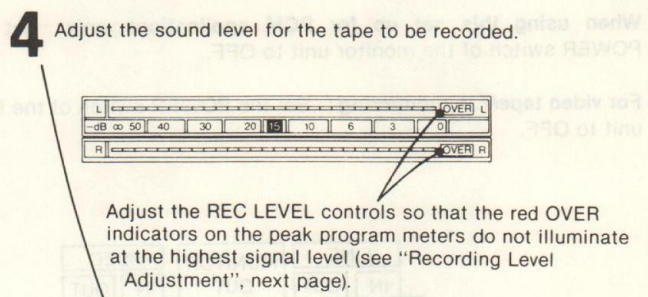


The AUDIO OUT connector of the video recorder can also be connected to the AUX inputs of the amplifier.

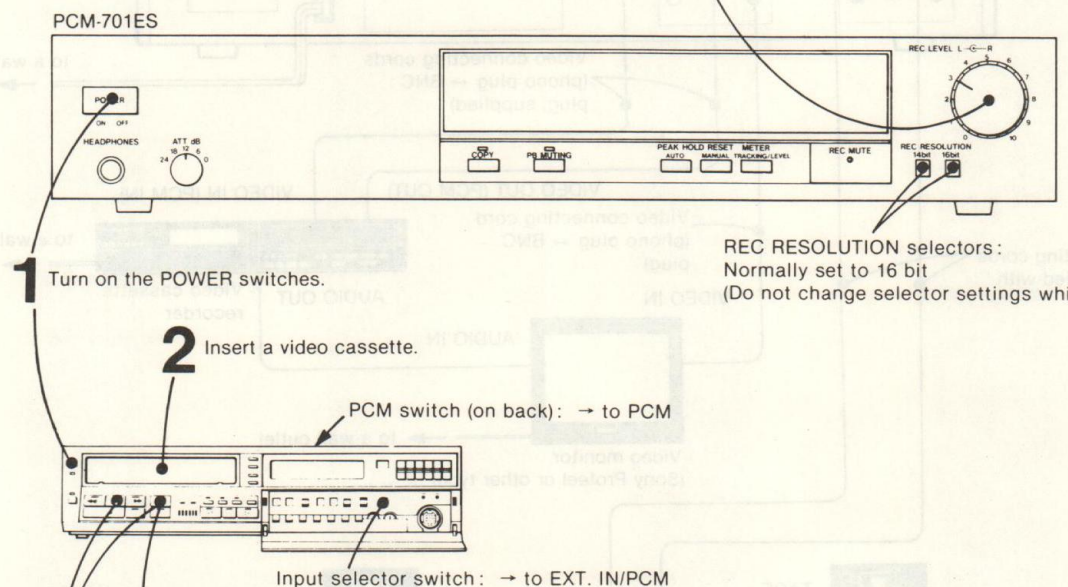
PCM DIGITAL RECORDING

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.

CONNECTIONS FOR USING A VIDEO CASSETTE RECORDER FOR VIDEO MONITORING WITHOUT DISCONNECTING THE PCM UNIT
One video cassette recorder can be used for both PCM sound reproduction and television or video tape monitoring requiring that the PCM-FUTURES digital processor be disconnected. Make the connections as diagrammed below.



4 Adjust the sound level for the tape to be recorded.



1 Turn on the POWER switches.

2 Insert a video cassette.

3 Set the video recorder to standby (normally depress PAUSE and REC) to monitor recording levels. (Check that the PCM unit PB MUTING indicator does not light*)

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

When the recording is completed, press the STOP button.

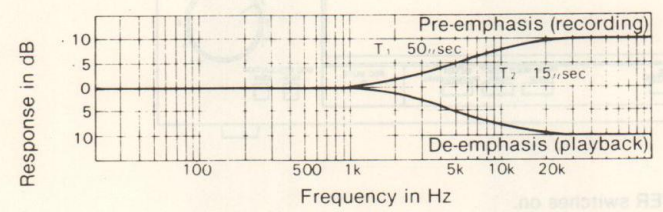
Video cassettes for PCM digital audio recording :
For digital audio recording, use L-type video cassette tapes numbered "L-500" or below (i.e. L-500, L-250, L-125, etc.).

* This could indicate that the tape is damaged. If the PB MUTING indicator lights, replace the tape to ensure quality recording.

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-701ES 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 (see the diagram below). 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.

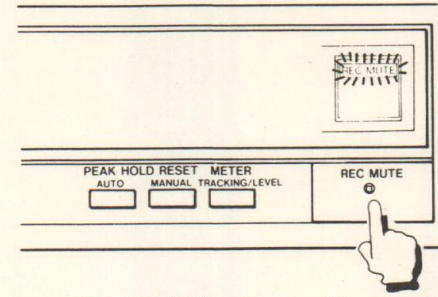
RECORD MUTING

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.



Hold the button depressed for as long as you want the blank segment on the tape to be.

Normally Set the COPY Button to OFF :

The COPY button should be set to ON only for digital tape copying. Always set the button to OFF for conventional recording and playback (conventional recordings cannot be made with the COPY button set to ON).

Avoid excessive use of the "PAUSE" button of video cassette recorders

The PAUSE button of a video cassette recorder 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 video cassette recorders 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 video recorder 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 video cassette recorder doesn't operate :

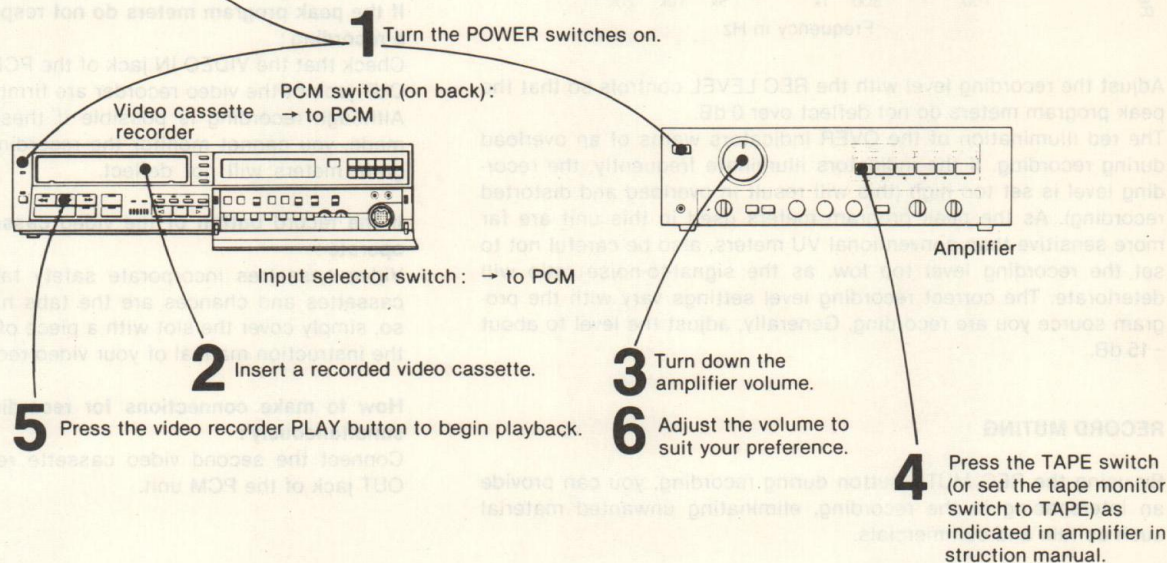
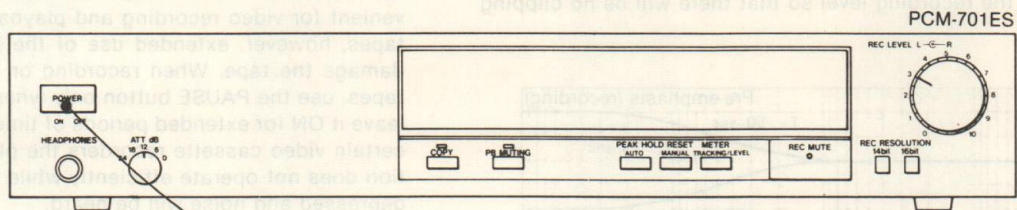
Video cassettes incorporate safety tabs just as do audio cassettes and chances are the tabs have been removed. If so, simply cover the slot with a piece of plastic tape (refer to the instruction manual of your video recorder for details).

How to make connections for recording two digital tapes simultaneously :

Connect the second video cassette recorder to the COPY OUT jack of the PCM unit.

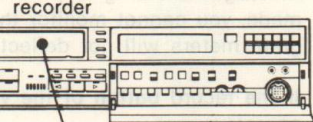
PCM DIGITAL TAPE PLAYBACK

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



1 Turn the POWER switches on.

PCM switch (on back):
→ to PCM



Input selector switch: → to PCM

2 Insert a recorded video cassette.

3 Turn down the amplifier volume.

6 Adjust the volume to suit your preference.

4 Press the TAPE switch (or set the tape monitor switch to TAPE) as indicated in amplifier in struction manual.

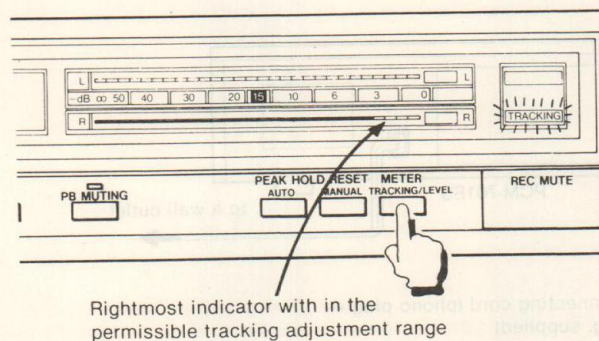
Set the amplifier volume relatively low :

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 VIDEO CASSETTE RECORDER

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

- 1 Press the METER selector. 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 video cassette recorder to the playback mode. After the PB MUTING indicator goes off, adjust the tracking control of the video recorder 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.

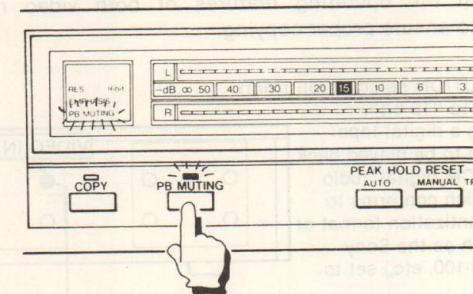


Rightmost indicator with in the permissible tracking adjustment range

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

USING THE PB MUTING BUTTON

The playback muting circuit activates automatically when you turn on the PCM unit. 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 video recorder, then set the PB MUTING button to OFF. 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 PM MUTING button is set to OFF. Note that the PB MUTING indicator will also light when the PB MUTING button is set to OFF, 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 PB MUTING button is set to OFF, 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

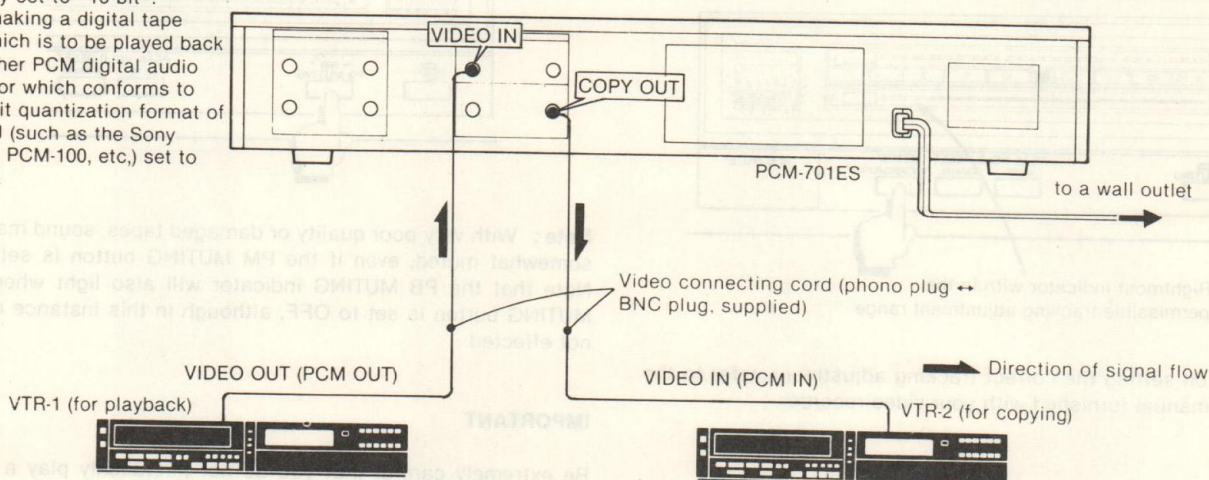
Digital tape copies can be made with your PCM digital processor using a pair of video cassette recorders and the COPY OUT jack on the back of the PCM unit.

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 video recorder being used to make the copy (VTR-2). Familiarize yourself with the operating features of both video recorders beforehand to ensure proper copying.

REC RESOLUTION selector (on front):

normally set to "16 bit".
When making a digital tape copy which is to be played back on another PCM digital audio processor which conforms to the 14-bit quantization format of the EIAJ (such as the Sony PCM-10, PCM-100, etc.) set to "14 bit".



COPYING PROCEDURE

- 1 Turn on the power for all units.
- 2 Insert the recorded tape into the video recorder you are using for playback (VTR-1), and a blank tape into the video recorder you are using to make the copy (VTR-2).
- 3 Set the PCM-701ES COPY button to ON (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 press 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 set to ON.

- Always set the COPY button to OFF 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 set to ON, 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 set to OFF.

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 :

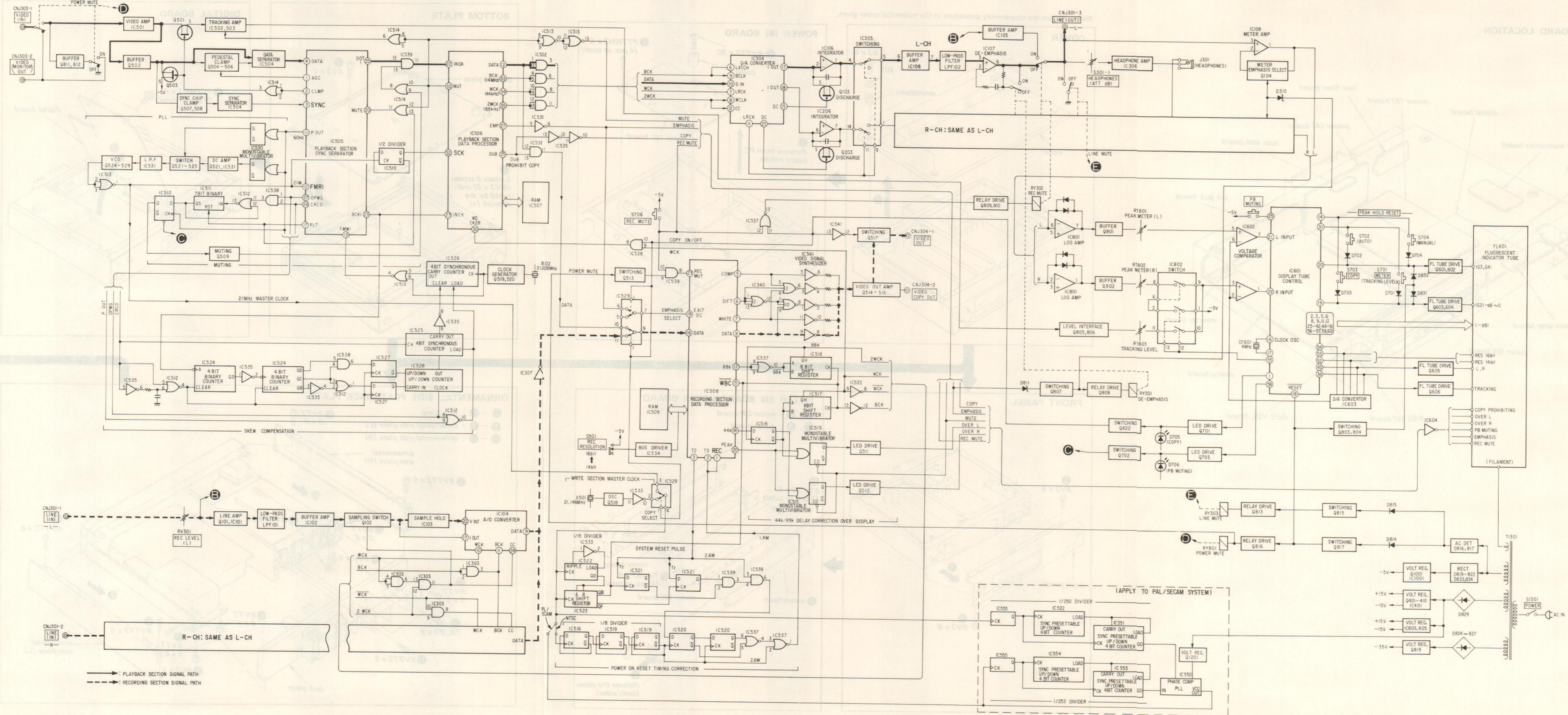
When tapes with a "copy prohibiting" code are played, the COPY PROHIBITING indicator lights on the display of the PCM unit and copies cannot be made.

Digital tape copies cannot be made with the COPY button set to OFF :

Always set the COPY button to ON when making digital tape copies and set the button to OFF after the copies have been made. Do not change the setting of the button during tape copy or during normal recording and playback. Digital-to-digital tape copies cannot be made with the COPY button set to OFF.

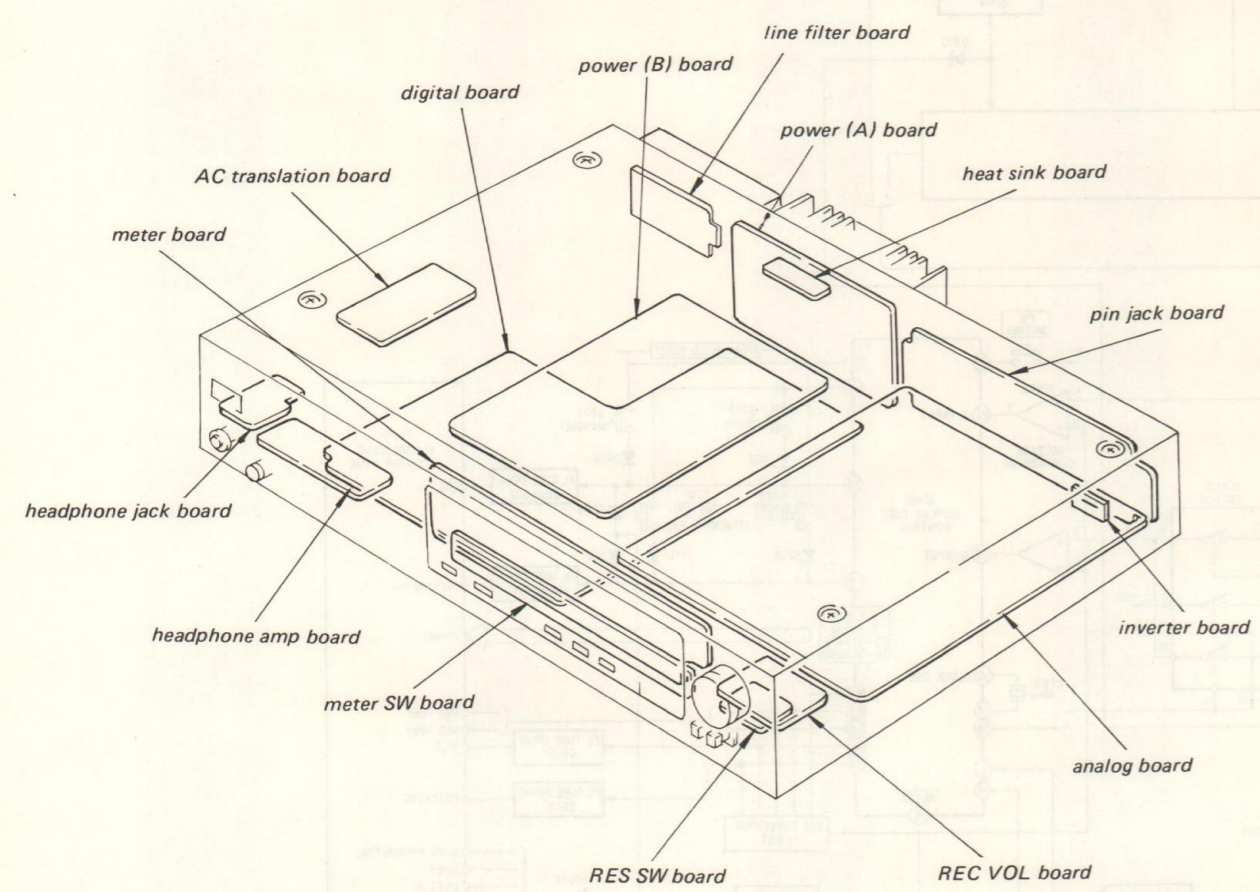
SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM

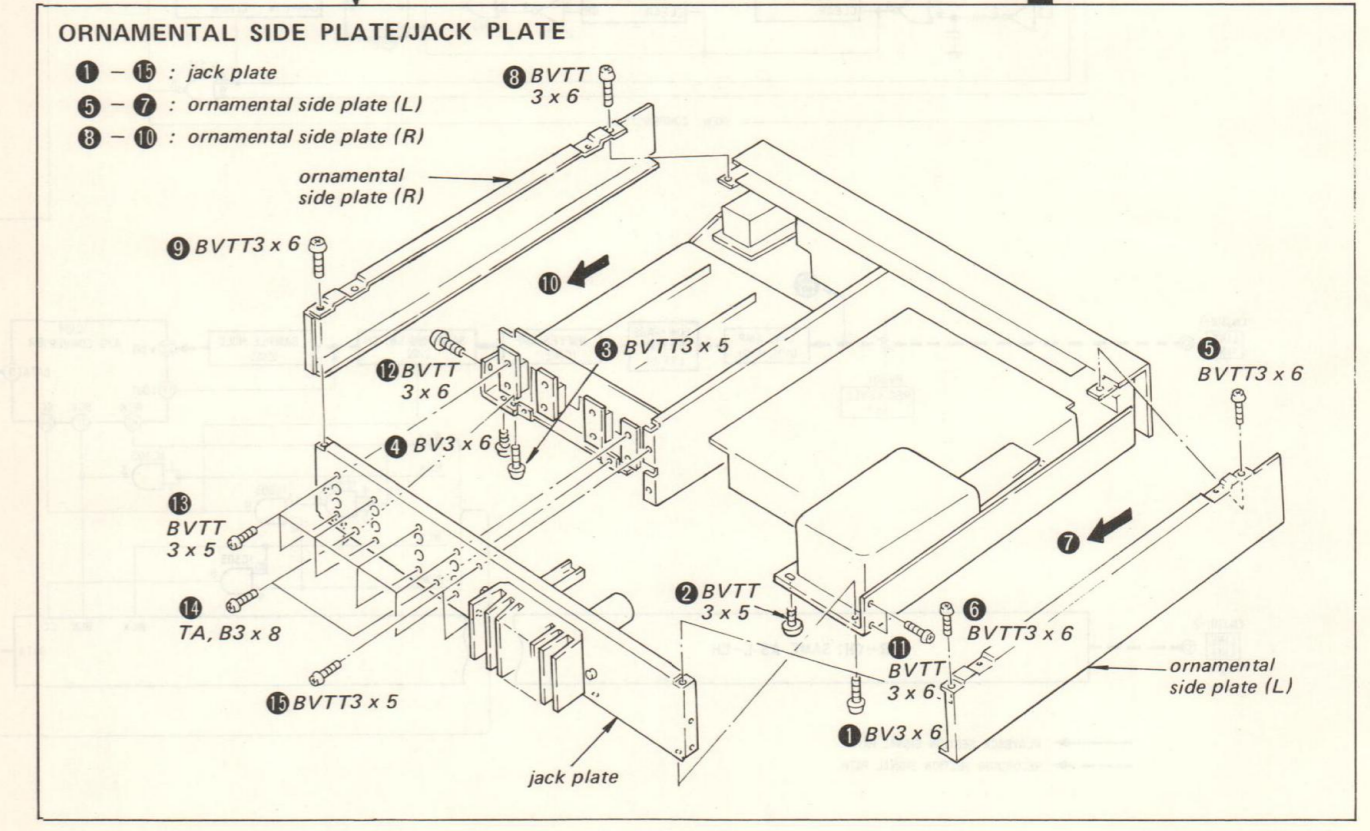
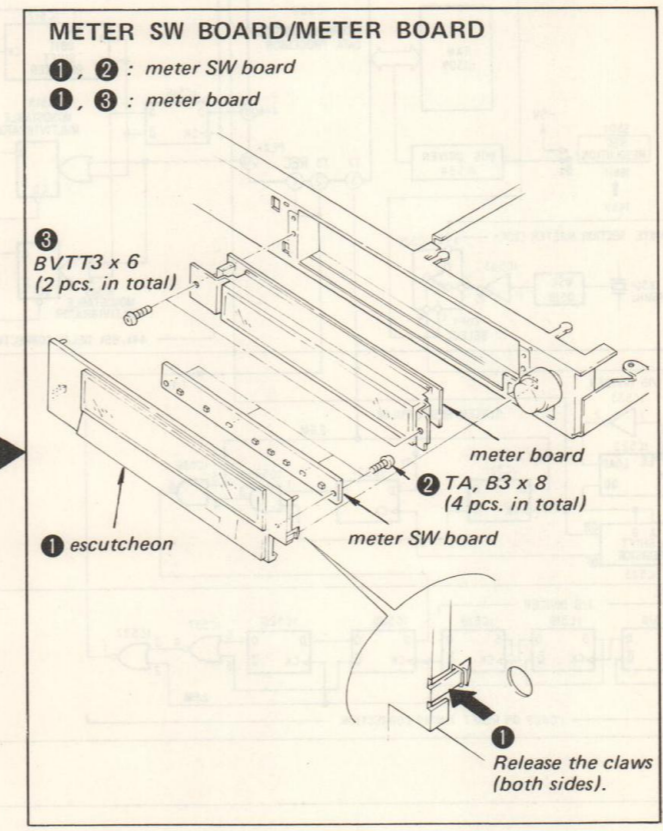
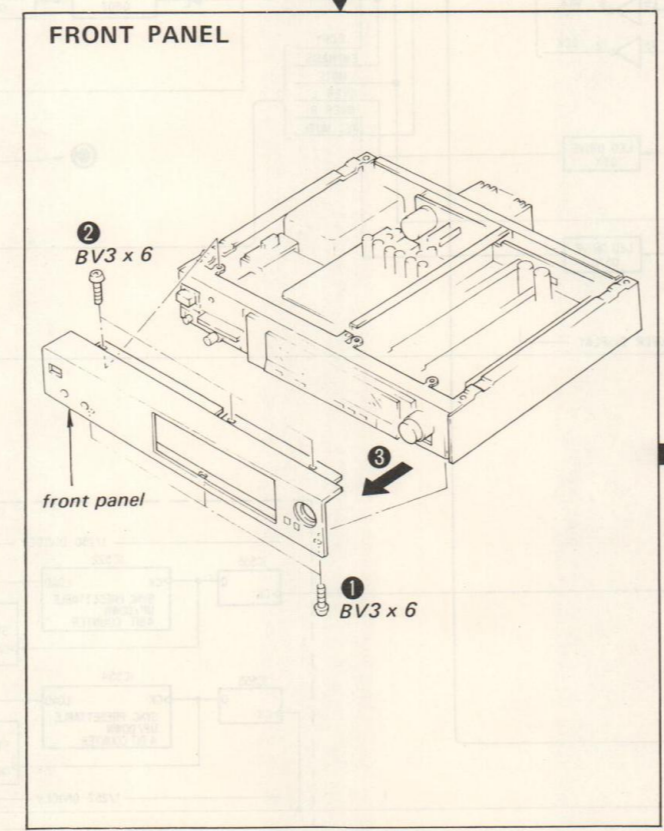
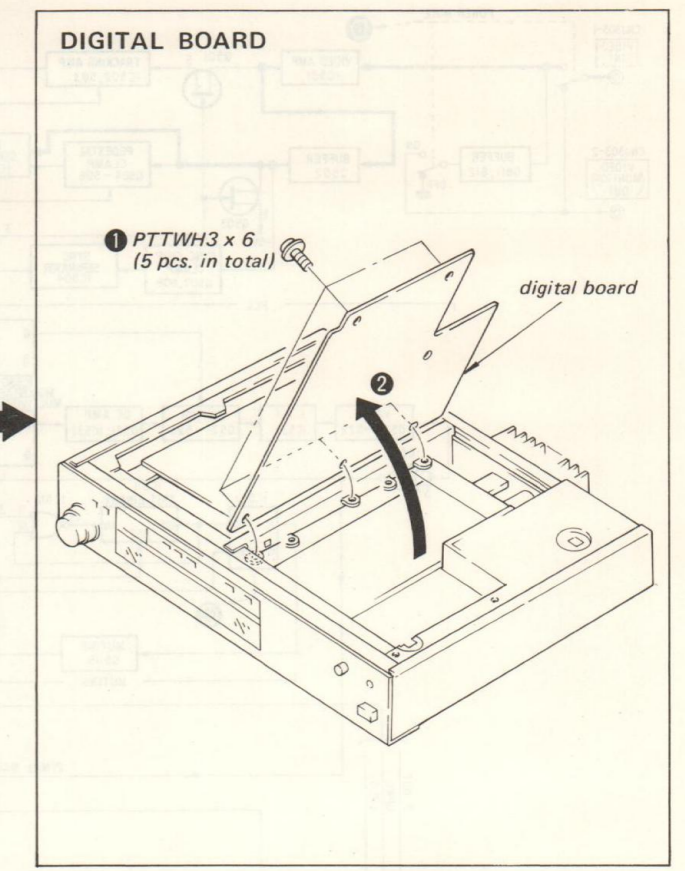
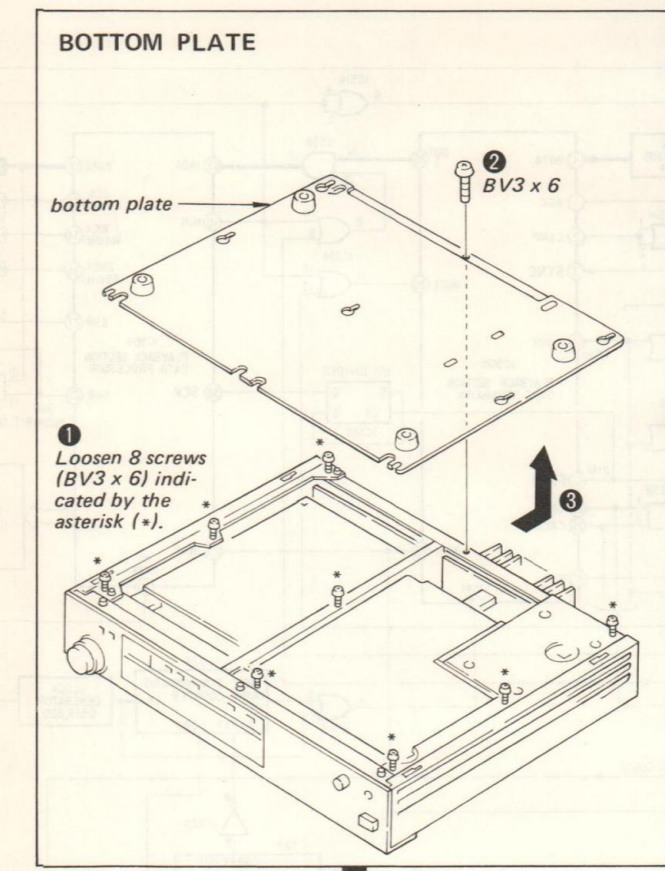
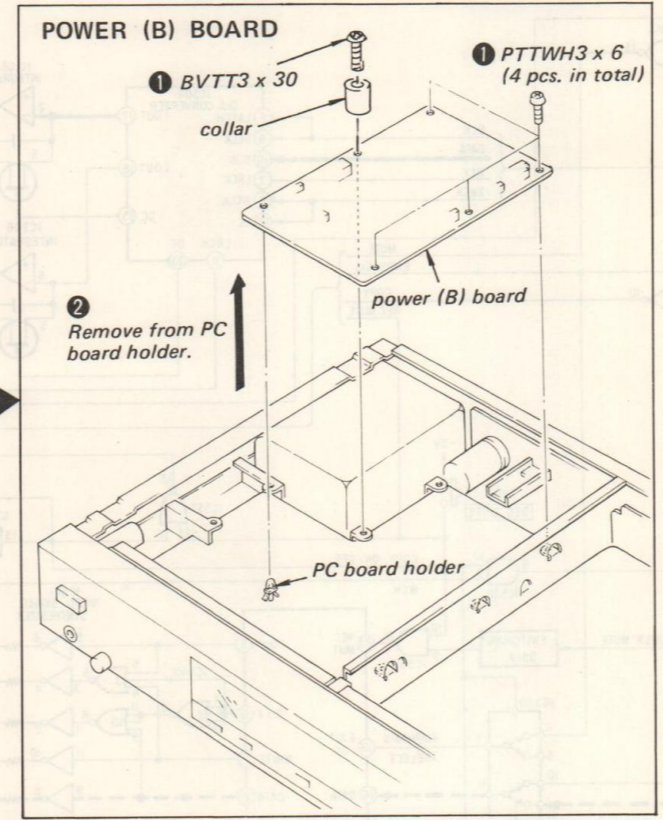
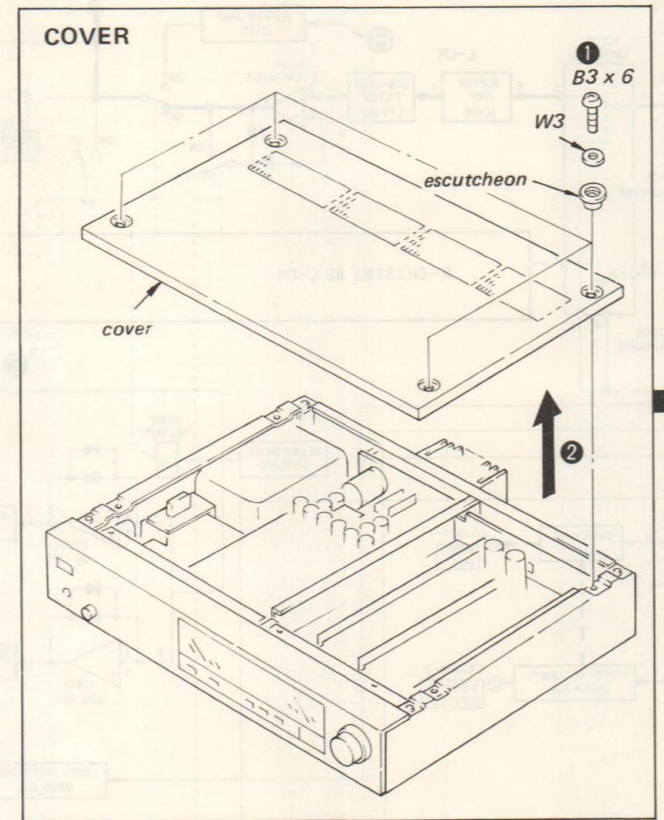


SECTION 2
DISASSEMBLY

1-2. CIRCUIT BOARD LOCATION



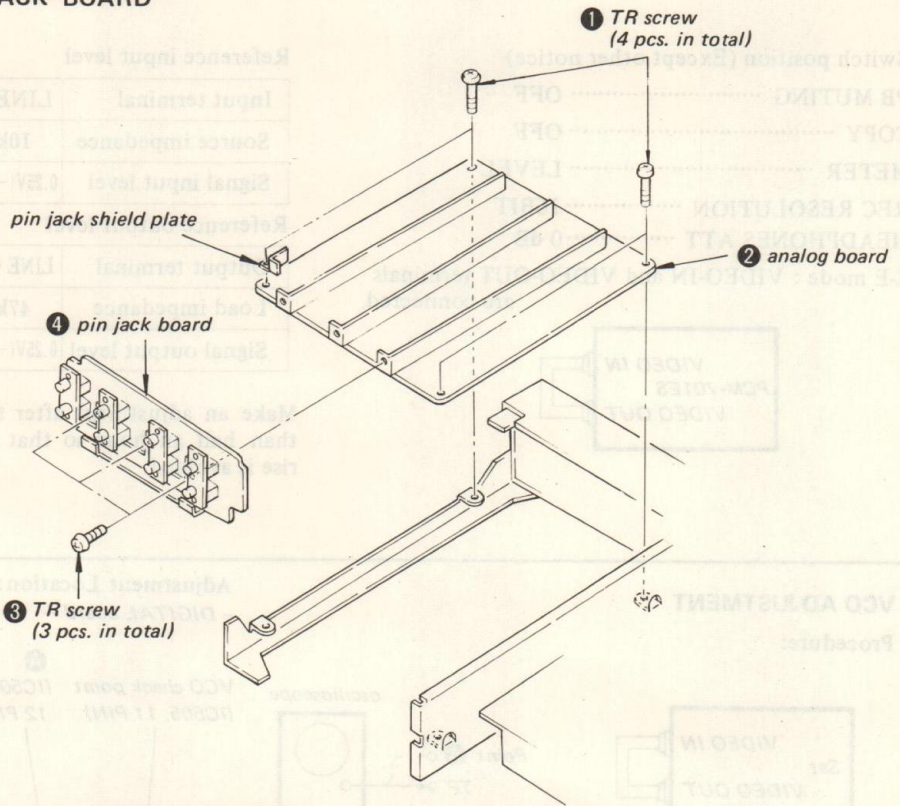
Note: Follow the disassembly procedure in the numerical order given.



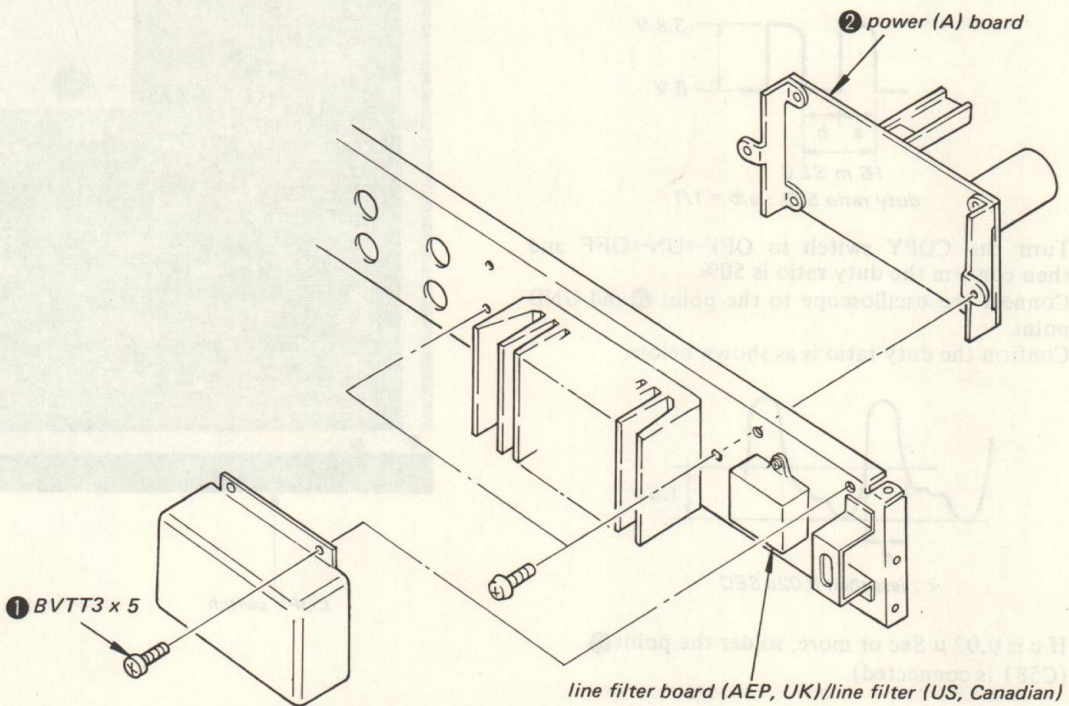
SECTION 3
ELECTRICAL ADJUSTMENTS

ANALOG BOARD/PIN JACK BOARD

- ①, ② : analog board
- ③, ④ : pin jack board

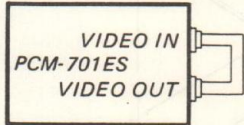


**POWER (A) BOARD
LINE FILTER BOARD (AEP, UK)/LINE FILTER (US, Canadian)**



SECTION 3 ELECTRICAL ADJUSTMENTS

- Switch position (Except other notice)
- PB MUTING OFF
- COPY OFF
- METER LEVEL
- REC RESOLUTION 16BIT
- HEADPHONES ATT 0 dB
- E-E mode : VIDEO-IN and VIDEO-OUT terminals are connected.



Reference input level

Input terminal	LINE IN	VIDEO IN
Source impedance	10kΩ	75Ω
Signal input level	0.25V(-10dB)	1 V

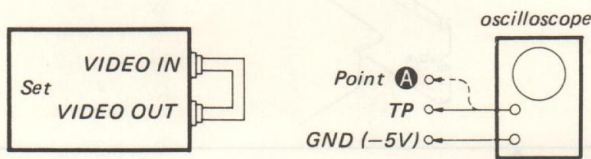
Reference output level

Output terminal	LINE OUT	VIDEO OUT
Load impedance	47kΩ	75Ω
Signal output level	0.25V(-10dB)	1 V

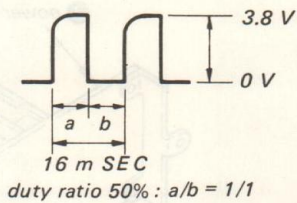
Make an adjustment after turning POWER ON more than half an hour so that the drift by temperature rise is avoided.

VCO ADJUSTMENT

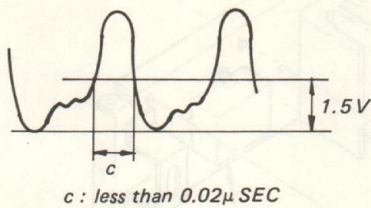
Procedure:



1. Connect VIDEO IN and VIDEO terminals (E-E mode).
2. Connect the oscilloscope to the VCO check point and GND point.
3. Adjust L505 so that duty ratio is 50%.



4. Turn the COPY switch to OFF→ON→OFF and then confirm the duty ratio is 50%.
5. Connect the oscilloscope to the point A and GND point.
6. Confirm the duty ratio is as shown below.

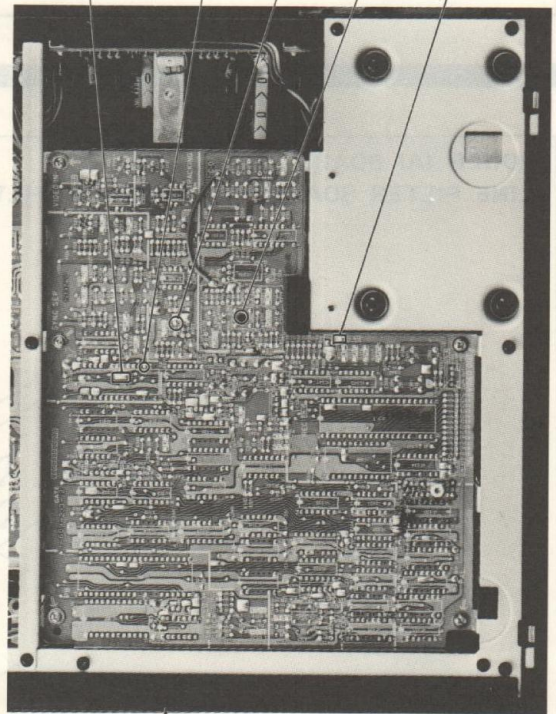


7. If c is 0.02 μ Sec or more, solder the point B (C581 is connected).

Adjustment Location:

— DIGITAL board —

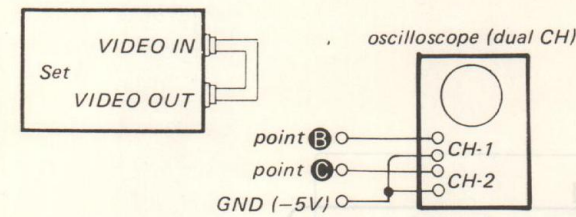
VCO check point (IC505, 11 PIN) A (IC505, 12 PIN) B (C581) L505 GND point (-5 V)



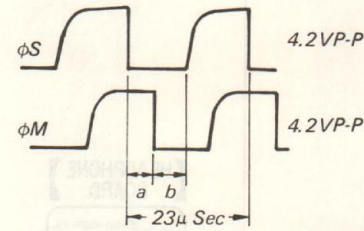
COPY switch

PAL CLOCK ADJUSTMENT (Only PAL/SECAM system)

Procedure :

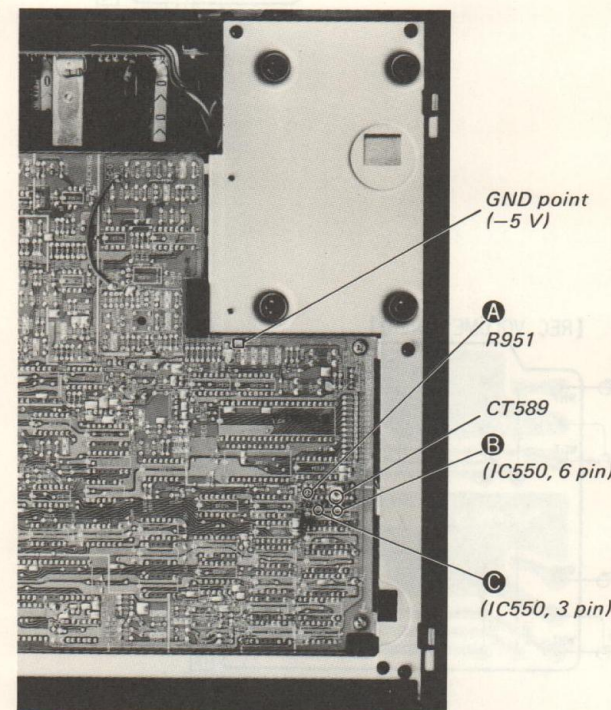


1. Connect VIDEO IN and VIDEO OUT terminals (E-E mode).
2. Solder the point A (R951 is connected).
3. Connect the oscilloscope to the point B (IC550, 6 pin) and point C (IC550, 3 pin).
4. Adjust CT589 so that the phase difference is 90° .



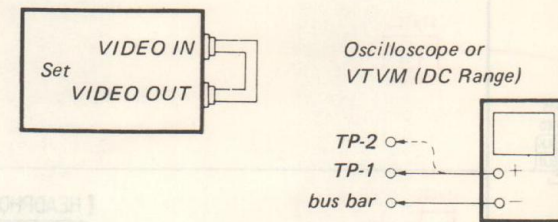
5. Unsolder the point A (R951)

Adjustment Location :
- DIGITAL board -



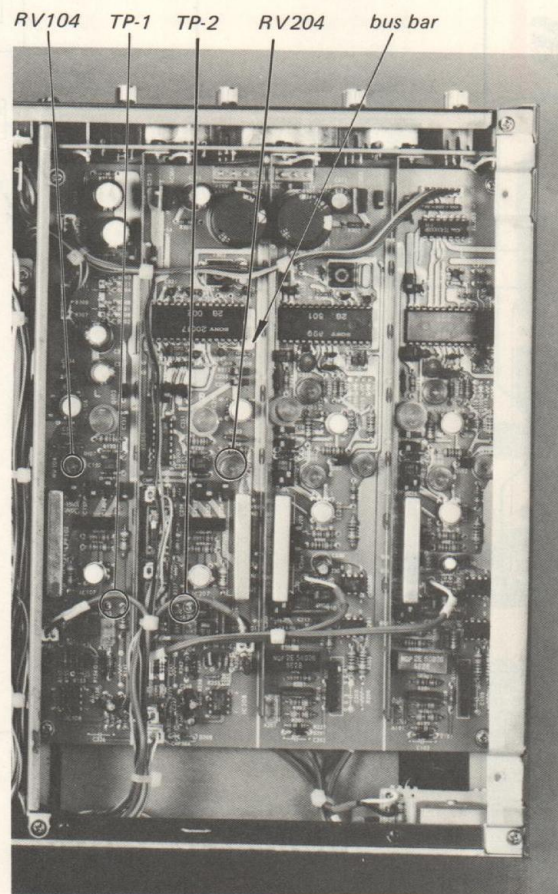
D/A OFFSET ADJUSTMENT

Procedure :



1. Connect VIDEO-IN and VIDEO-OUT terminals (E-E MODE).
2. Connect the oscilloscope or VTVM (DC Range) to the test point TP-1 (L-CH)/TP-2 (R-CH) and the bus bar (earth point).
3. Adjust RV104 (L-CH)/RV204 (R-CH) with pressing the REC MUTE button for 0 ± 10 mV (DC) reading on oscilloscope or VTVM.

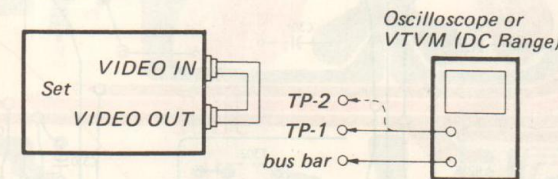
Adjustment Location :
- ANALOG board -



A/D OFFSET ADJUSTMENT

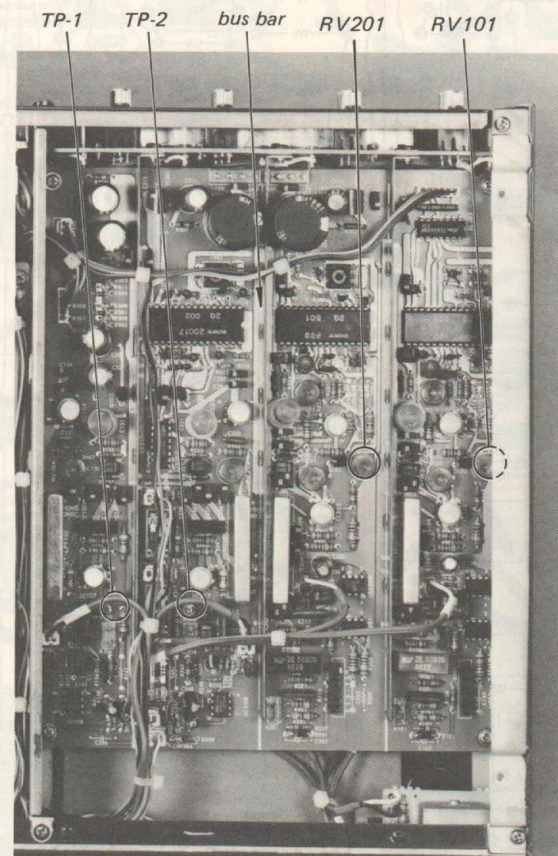
A/D OFFSET ADJUSTMENT should be made later than that of D/A OFFSET

Procedure :



1. Connect VIDEO-IN and VIDEO-OUT TERMINALS (E-E MODE).
2. Connect the oscilloscope or VTVM (DC Range) to the test point TP-1 (L-CH), TP-2 (R-CH), and the bus bar (earth point).
3. Turn the REC LEVEL knobs to the minimum (0).
4. Adjust RV101 (L-CH)/RV201 (R-CH) for -10 ± 5 mV (DC) reading on oscilloscope or VTVM.

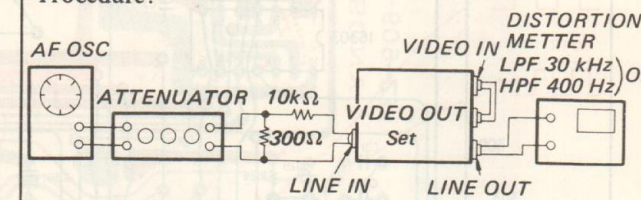
Adjustment Location :
- ANALOG board -



A/D DISTORTION ADJUSTMENT

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

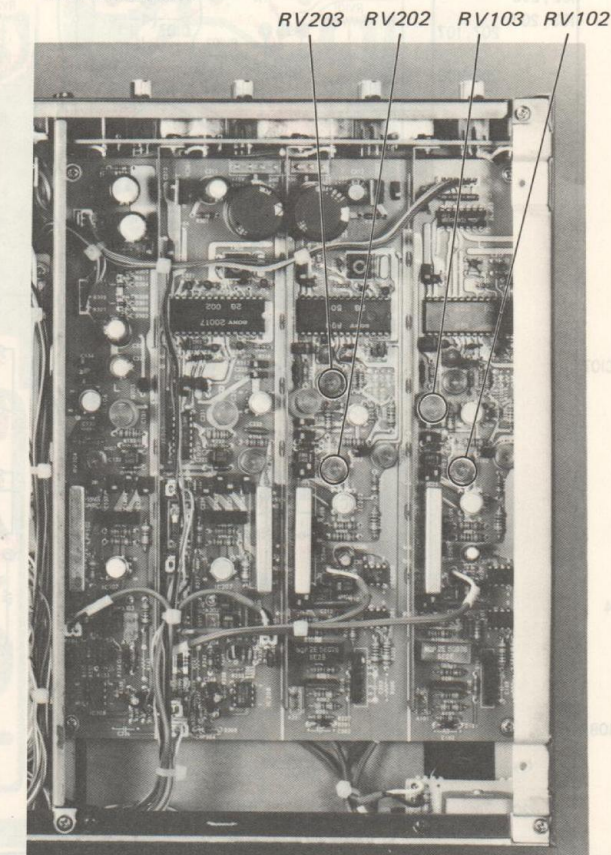
Procedure :



1. Connect VIDEO-IN and VIDEO-OUT terminals (E-E mode).
2. Apply a 1 kHz, 0 dB (0.775V) to the LINE IN terminals.
3. Adjust the REC LEVEL knobs 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 RV102, 103 (L-CH)/RV202, 203 (R-CH) for minimum reading on distortion meter.

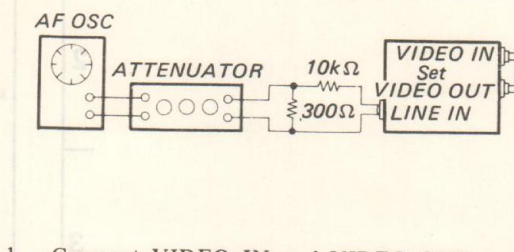
reference data
distortion less than -85 dB

Adjustment Location :
- ANALOG board -



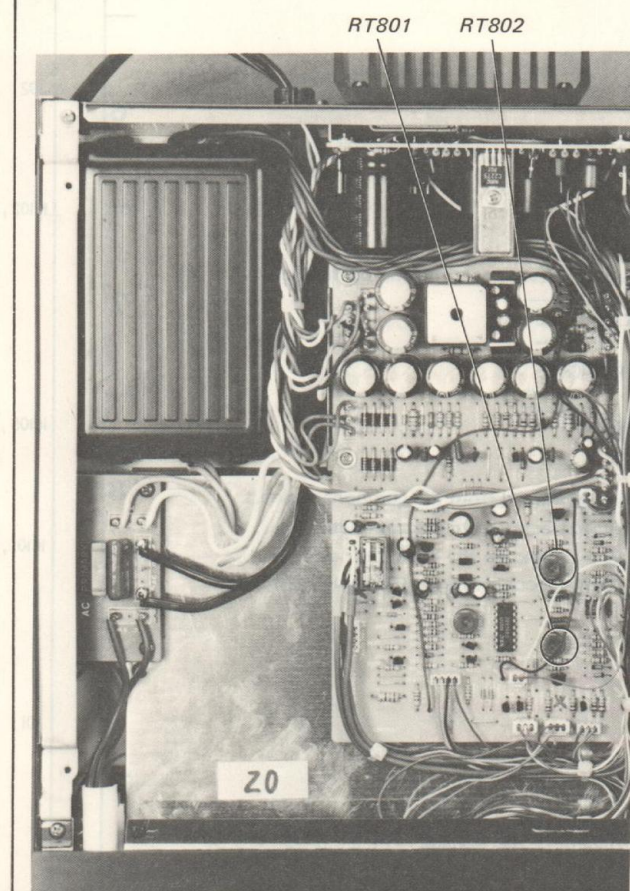
PEAK METER ADJUSTMENT

Procedure :



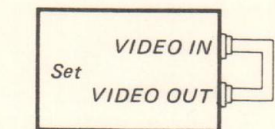
1. Connect VIDEO IN and VIDEO OUT terminals (E-E mode).
2. Apply a 1kHz, 0dB (0.775V) to the LINE IN terminals.
3. Adjust the REC LEVEL knobs so that OVER of the level meters just light up.
4. Decrease the input signal level from 0.5 to 1dB with the attenuator, and confirm OVER of that goes out.
5. Adjust RT801 (L-CH)/RT802 (R-CH) so that the level meters just illuminate 0 dB.

Adjustment Location :
- POWER SUPPLY board -

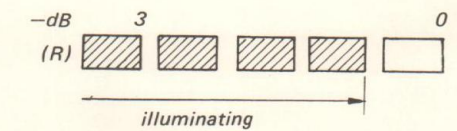


TRACKING LEVEL ADJUSTMENT

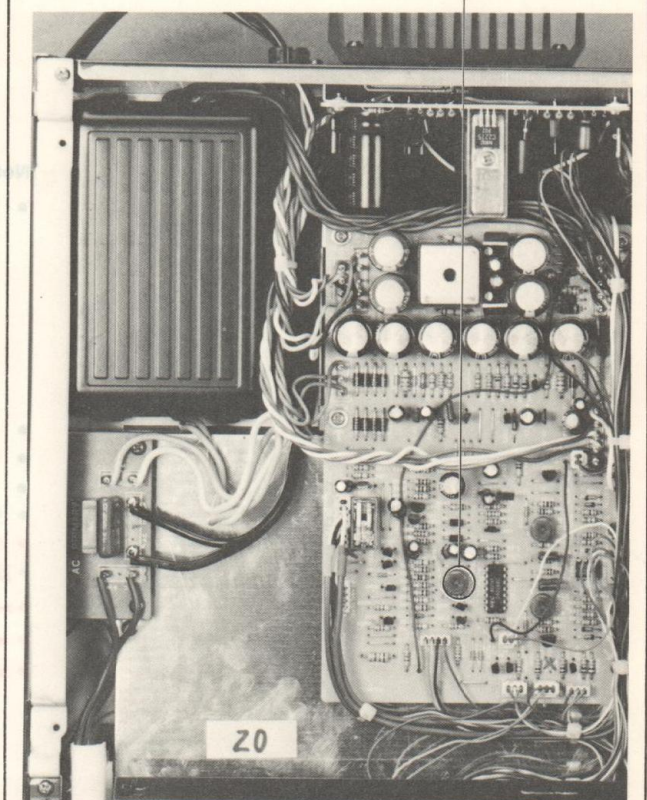
Procedure :



1. Connect VIDEO IN and VIDEO OUT terminal (E-E mode).
2. Press the METER selector button.
3. Confirm the TRACKING indicator illuminates and the level meter illuminates only R-CH.
4. Adjust RT803 so that the level meter illuminates as shown below.



Adjustment Location :
- POWER (B) board -



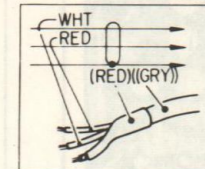
SECTION 4
DIAGRAMS

4-1. MOUNTING DIAGRAM
— ANALOG SECTION —

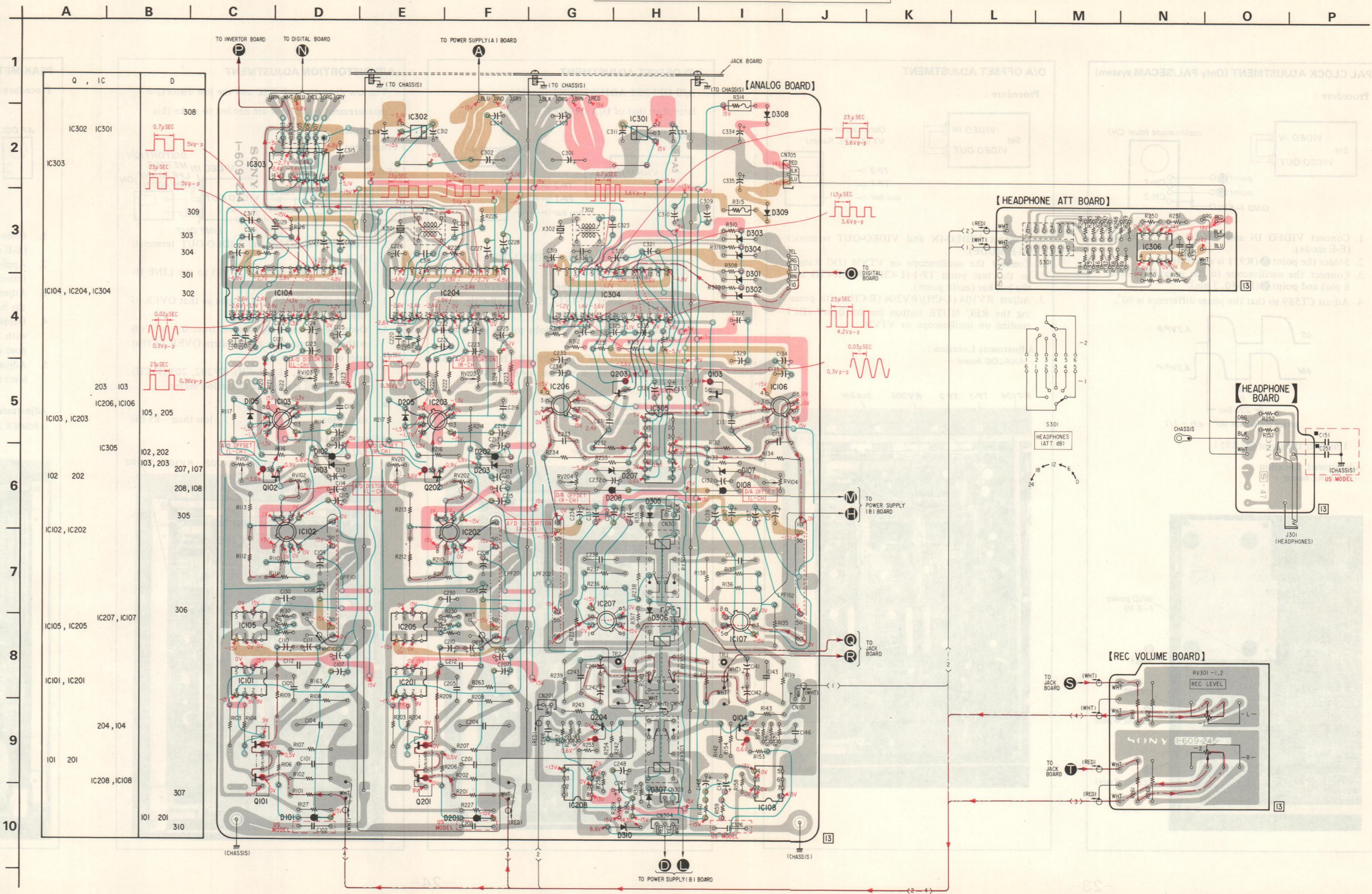
- Semiconductor Lead Layouts: See page 42.
- Circuit Board Location: See page 18.

Note:

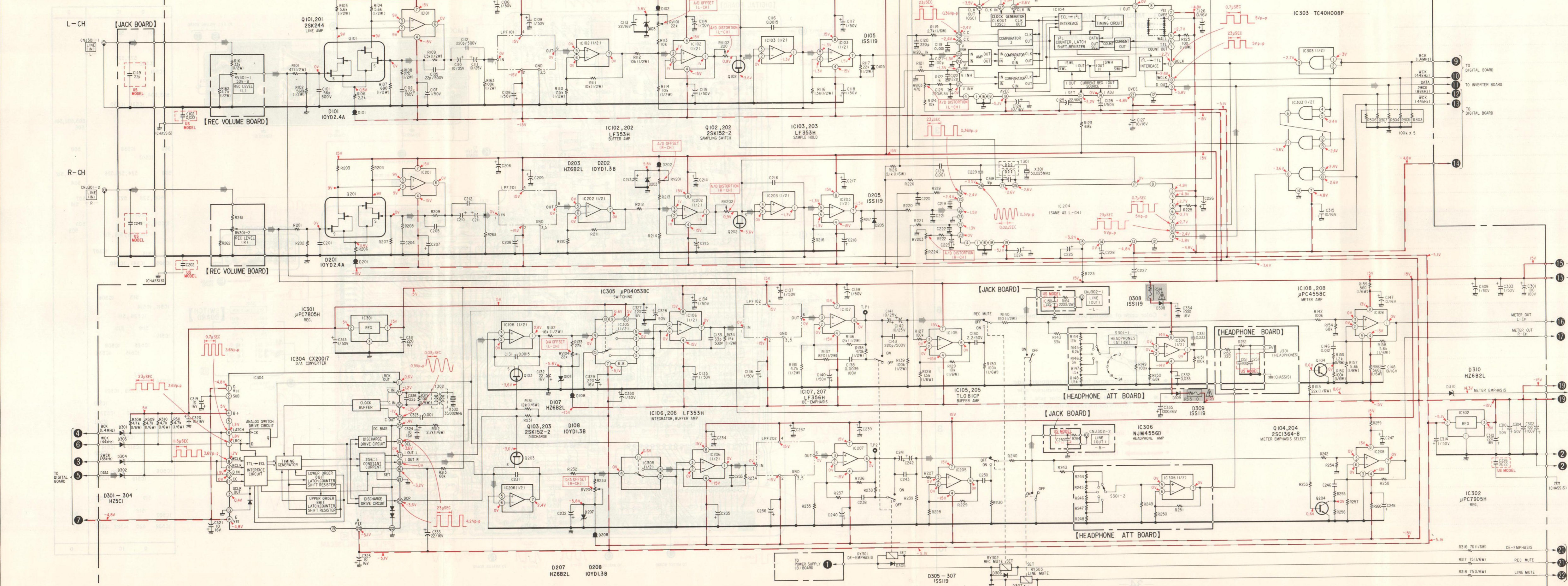
- Color code of sleeving over the end of the jacket.



- ○ : parts extracted from the component side.
- ● : parts extracted from the conductor side.
- ■ : part mounted on the conductor side.
- ○ : pattern connection on the component side.
- ● : B + pattern
- ■ : B - pattern
- — : signal path
- — : L-CH signal path
- — : R-CH signal path



4-2. SCHEMATIC DIAGRAM
- ANALOG SECTION -



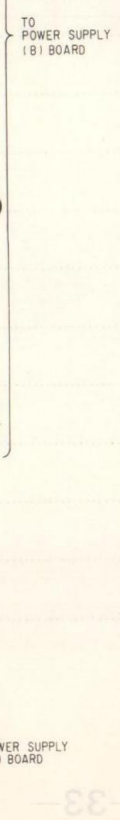
- Note:**
- Components for right channel have same values as for left channel. Reference numbers are coded from 200.
 - All capacitors are in μF unless otherwise noted. pF : μF 50WV or less are not indicated except for electrolytics and tantalums.
 - All resistors are in ohms, $\frac{1}{2}$ W unless otherwise noted. $\text{k}\Omega$: 1000 Ω , $\text{M}\Omega$: 1000 $\text{k}\Omega$.
 - : fusible resistor.
 - : panel designation.
 - : adjustment for repair.
 - : B+ bus.
 - : B- bus.
 - Voltages are dc with respect to ground unless otherwise noted.
 - Readings are taken under no-signal (E-E mode) conditions with a VOM (50 $\text{k}\Omega/\text{V}$).
 - Voltage/waveform are measured with a wide-band oscilloscope.
 - : signal path
 - : switch

Ref. No.	Switch	Position
S301	HEADPHONES (ATT dB)	0 dB

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

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

Note: Les composants identifiés par un trame et une marque sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

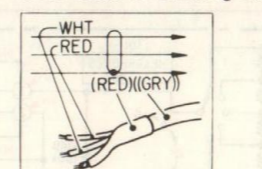


1
2
3
4
5
6
7
8
9
10

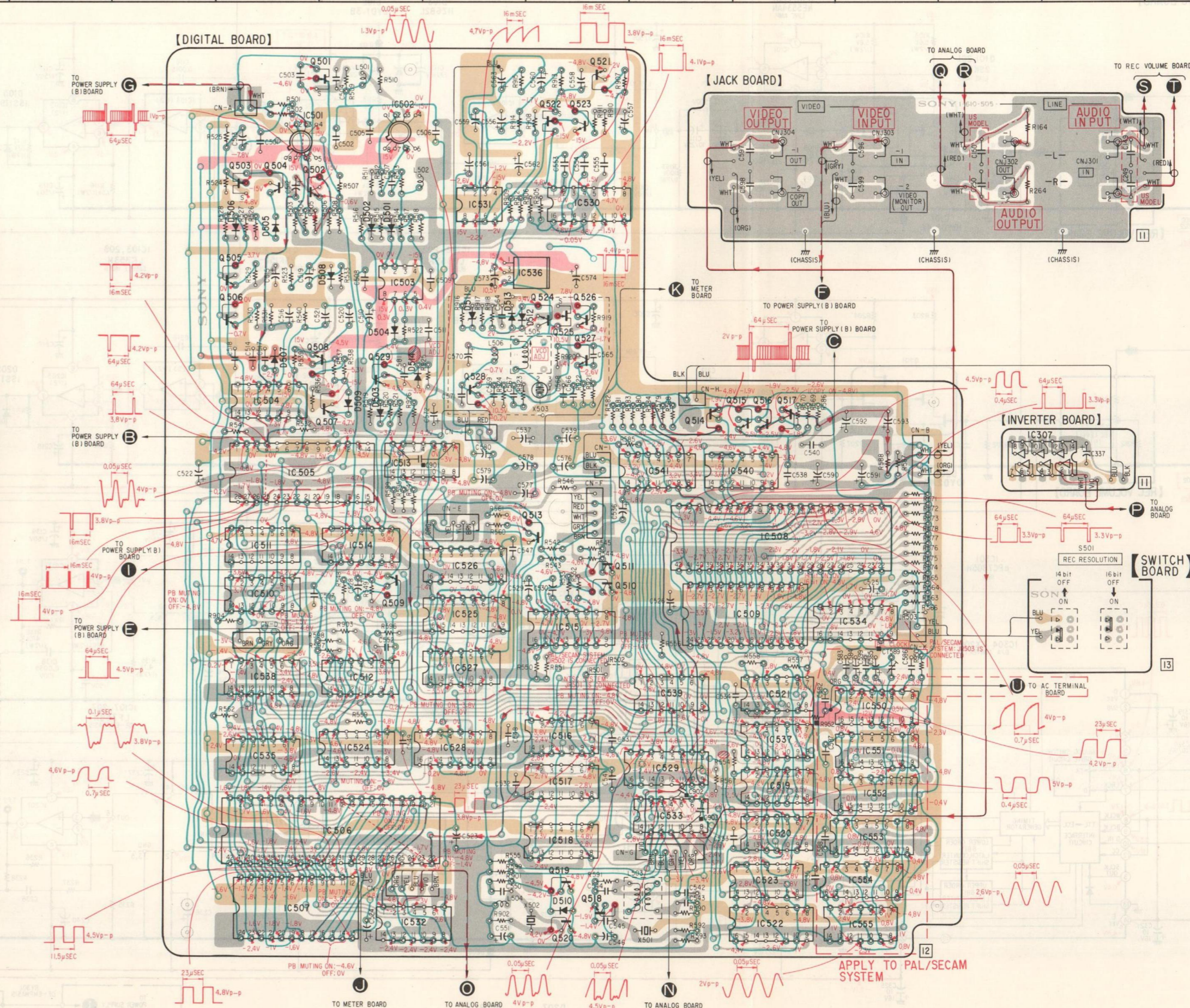
MEMO

- 4-3. MOUNTING DIAGRAM
 - DIGITAL BOARD -
 • Semiconductor Lead Layouts: See page 42.
 • Circuit Board Location: See page 18.

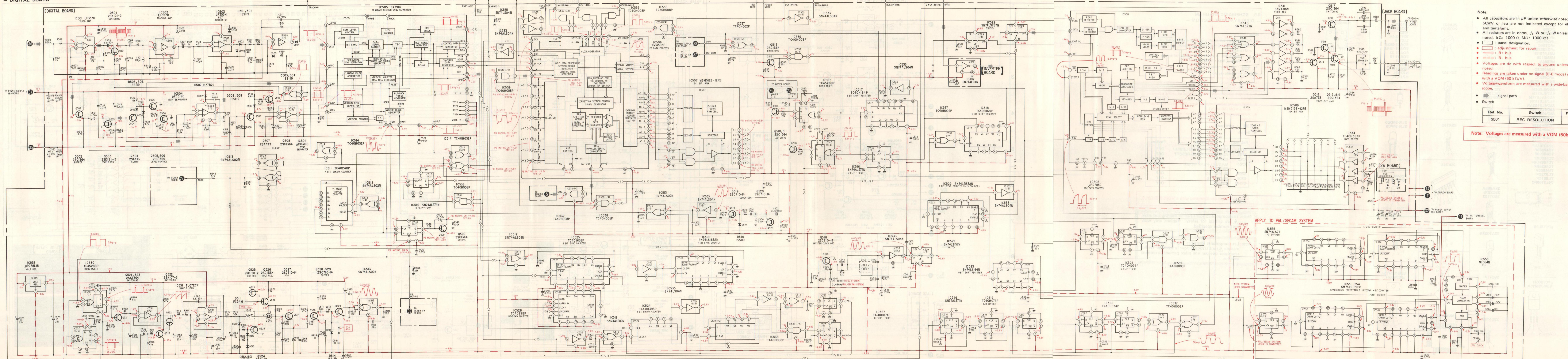
Note:
 • Color code of sleeving over the end of the jacket.



- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : part mounted on the conductor side.
- (with blue line) : pattern connection on the component side.
- (with red line) : B + pattern
- (with brown line) : B - pattern
- (with red line) : signal path
- (with blue line) : L-CH signal path
- (with brown line) : R-CH signal path



Q	IC	D
501	521	
IC502	522, 523	
503, 504, 502	IC531, IC530	
		505, 502, 501, 506
505	IC536	508
	IC503	
506	524, 525, 526	511, 513, 512, 504
		507, 514
508, 529	527	509
IC504, 507	528	509
	514, 515, 516, 517	503
IC513	IC307	
IC505	IC541, IC540	
	513	IC508
IC511, IC514	IC526, 511	
IC510	509, 510	
	IC525, IC509	
	IC515, IC534	
IC527		
IC538	IC512	
	IC539, IC521	
		IC550
	IC516, IC537	
IC524, IC528	IC551	
IC535		
	IC529	
	IC517, IC519	
	IC552	
IC506	IC520	
	IC518, IC553	
		519, IC523, IC554
IC507	518	510
IC532	520, IC522, IC555	

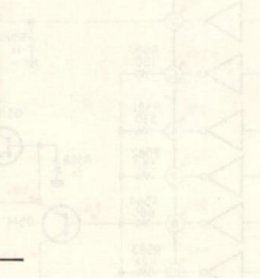
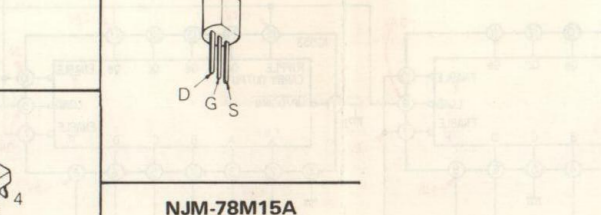
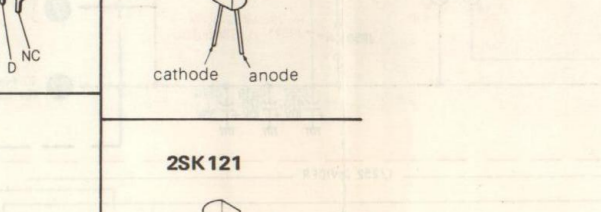
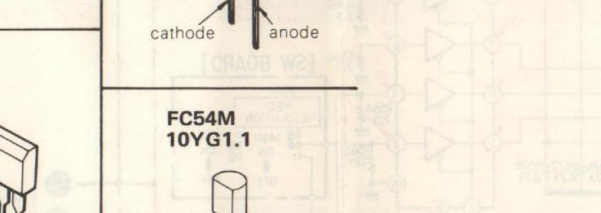
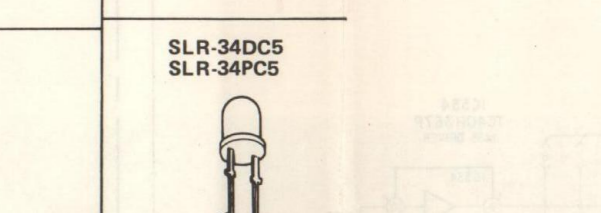
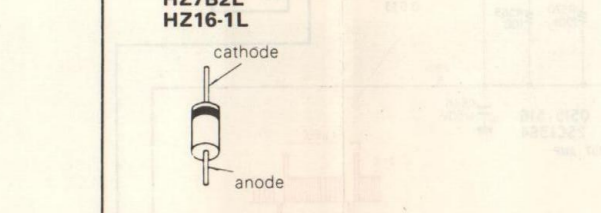
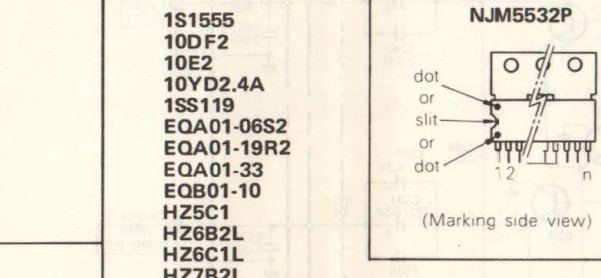
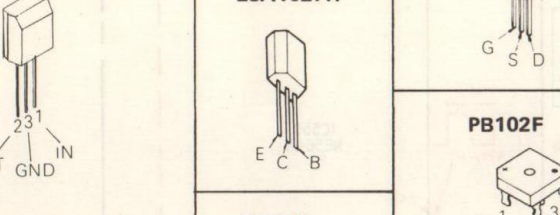
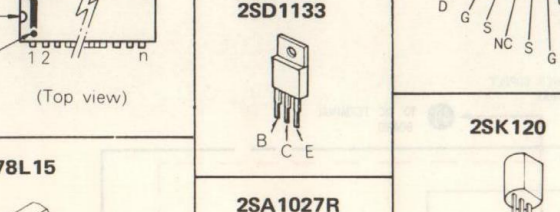
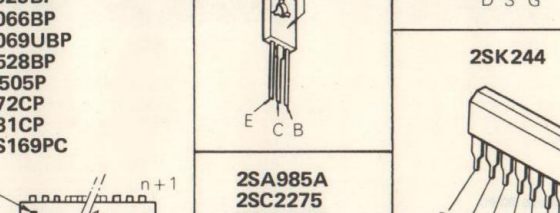
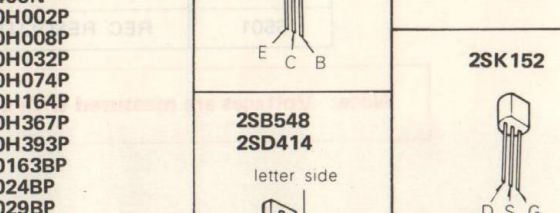
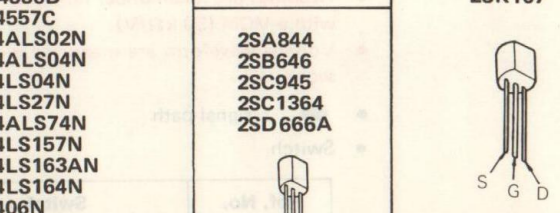
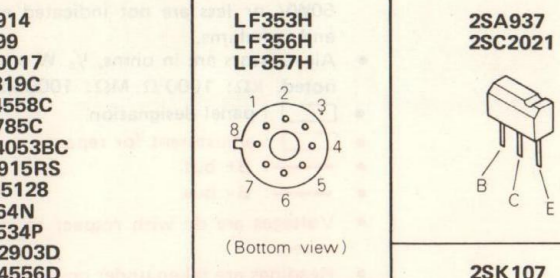


- Note:**
- All capacitors are in μF unless otherwise noted. $\text{pF} = \mu\text{F} \times 1000$.
 - All resistors are in ohms, $\frac{1}{2}$ W or $\frac{1}{4}$ W unless otherwise noted. $\text{k}\Omega = 1000 \Omega$, $\text{M}\Omega = 1000 \text{k}\Omega$.
 - \square : panel designation.
 - \square : adjustment for repair.
 - \square : B+ bus.
 - \square : B- bus.
 - Voltages are dc with respect to ground unless otherwise noted.
 - Readings are taken under no-signal (E-E mode) conditions with a VOM (50 $\text{k}\Omega/\text{V}$).
 - Voltage/waveform are measured with a wide-band oscilloscope.
 - \rightarrow : signal path
 - \square : Switch

Ref. No.	Switch	Position
S501	REC RESOLUTION	14 bit

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

● Semiconductor Lead Layouts



4-5. SCHEMATIC DIAGRAM - DISPLAY/POWER SECTION -

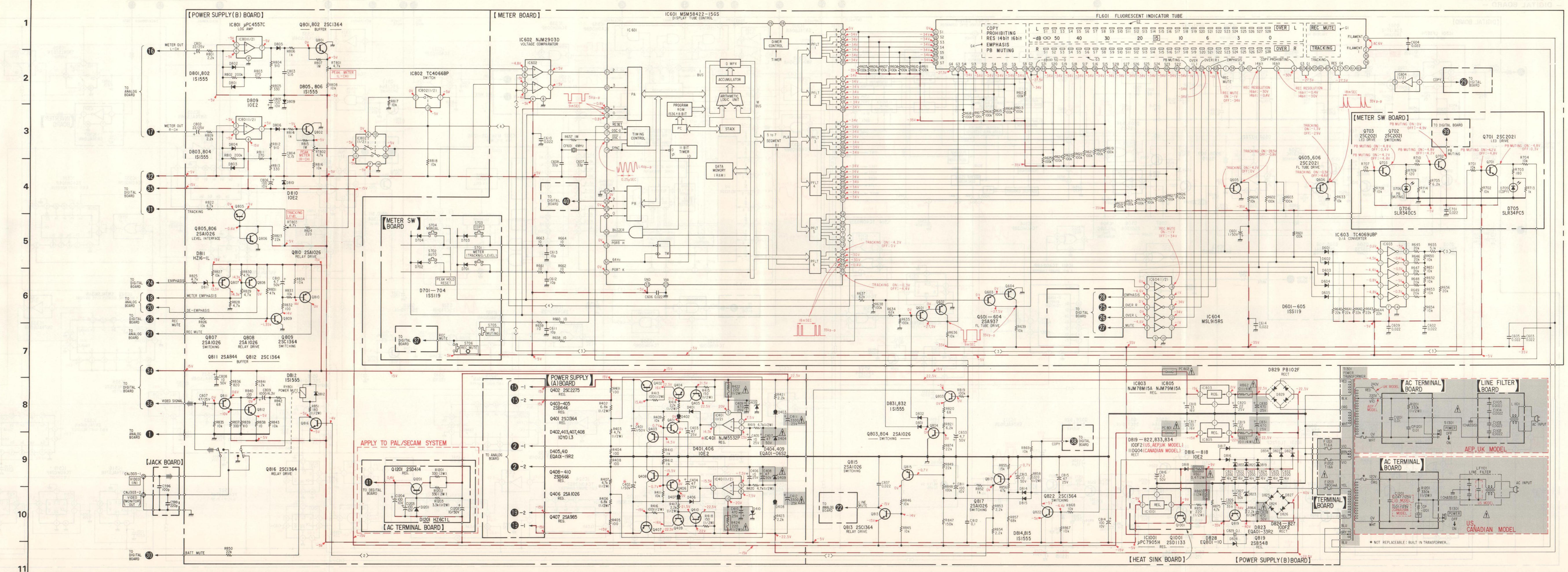
- Note:
- All capacitors are in μF unless otherwise noted, pF : μF
 - 50WV or less are not indicated except for electrolytics and tantalums.
 - All resistors are in ohms, %W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
 - : nonflammable resistor.
 - : fusible resistor.
 - : adjustment for repair.
 - B+ bus.
 - B- bus.
 - Voltagess are dc with respect to ground unless otherwise noted.
 - Readings are taken under no-signal (E-E mode) conditions with a VOM (50 kΩ/V).
 - Voltage/waveform are measured with a wide-band oscilloscope.
 - : signal path
 - Switch

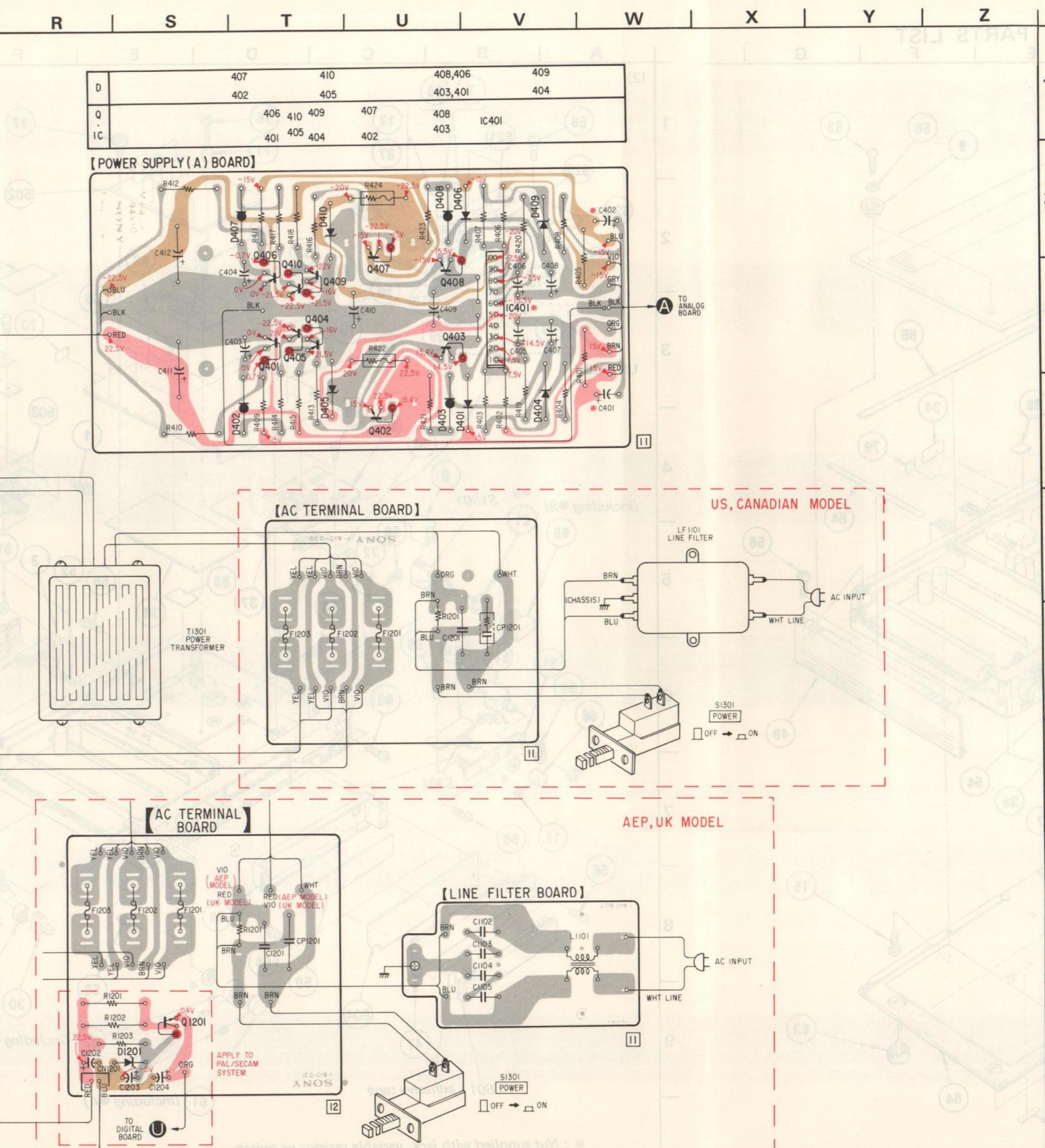
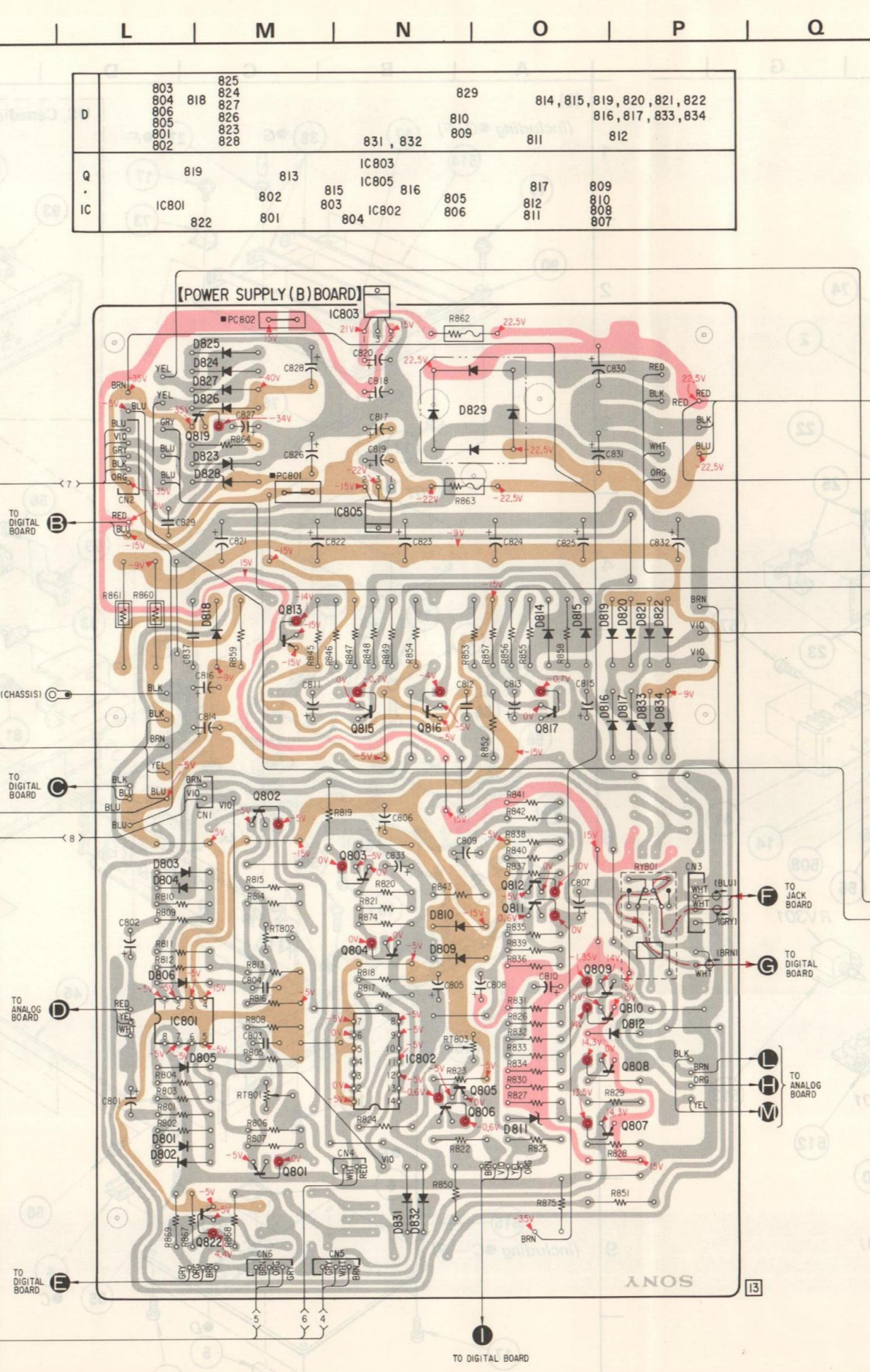
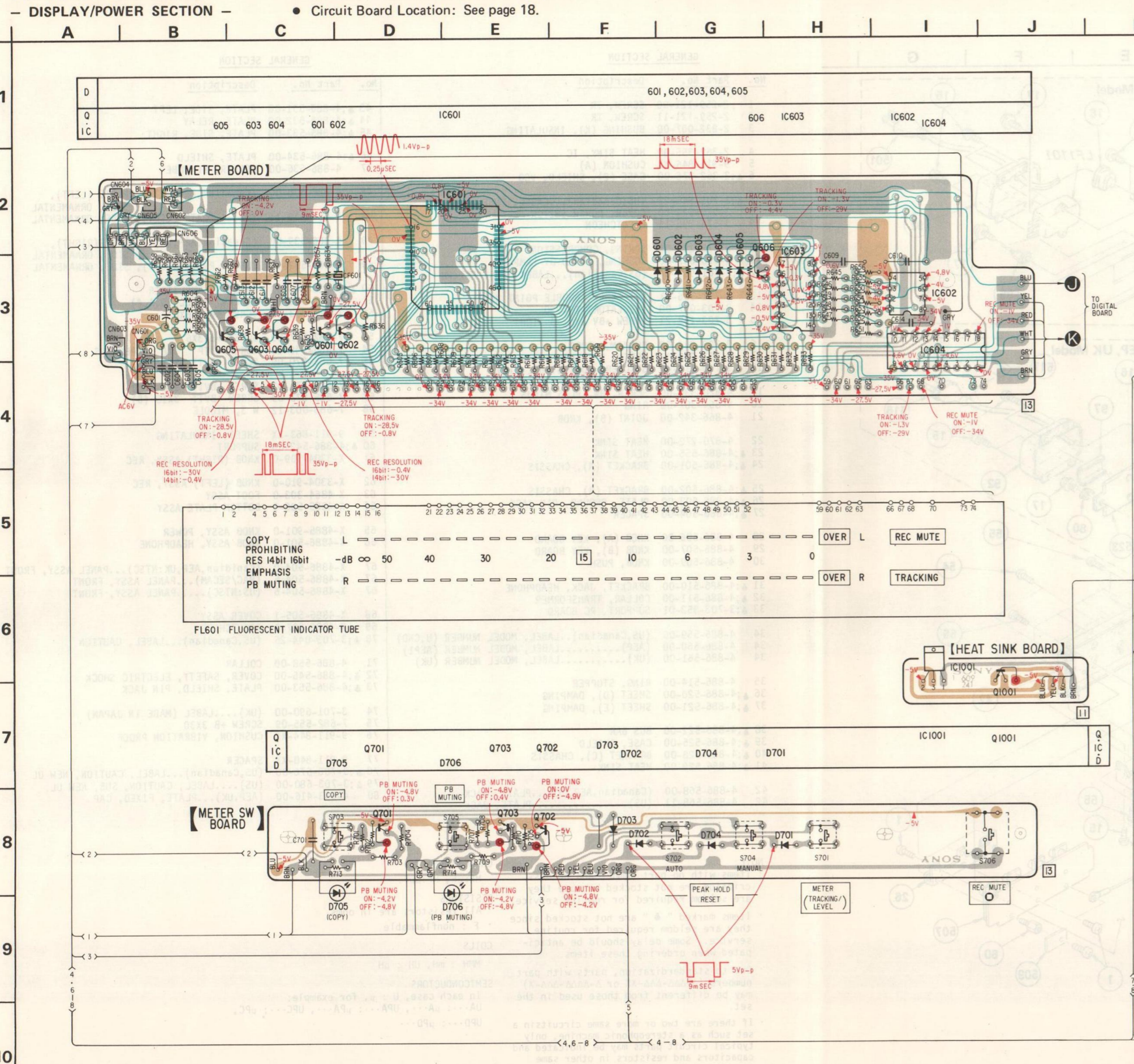
Ref. No.	Switch	Position
S701	METER (TRACKING LABEL)	OFF
S702	AUTO-PEAK HOLD RESET	OFF
S703	COPY	OFF
S704	MANUAL-PEAK HOLD	OFF
S705	RESETTING	OFF
S706	REC MUTE	OFF
S1310	POWER	OFF

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

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

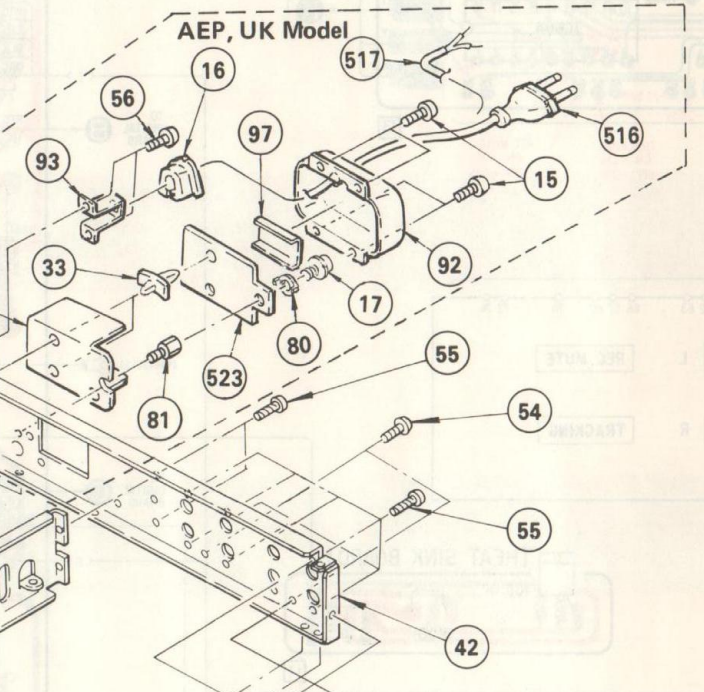
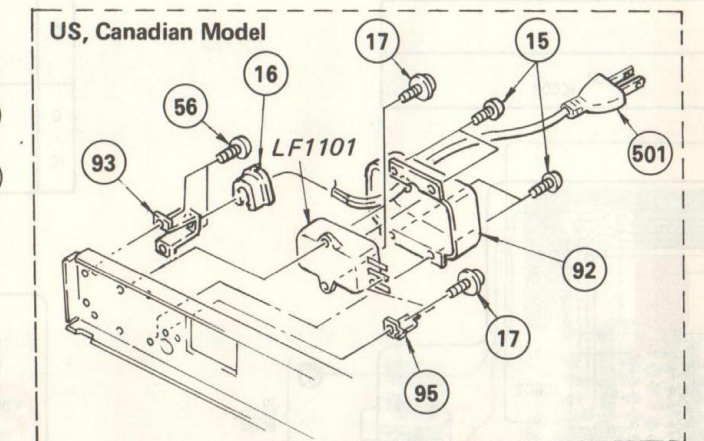
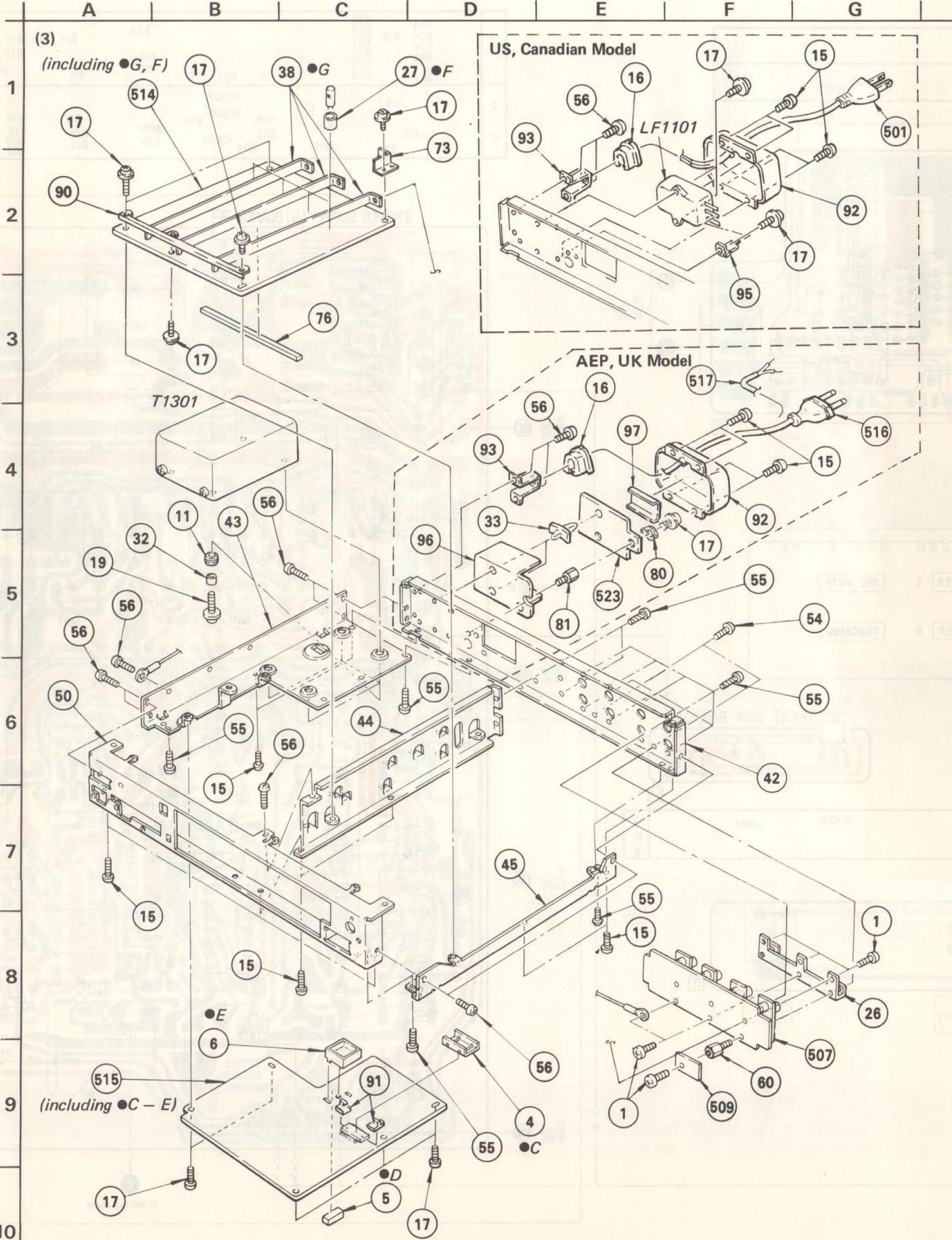
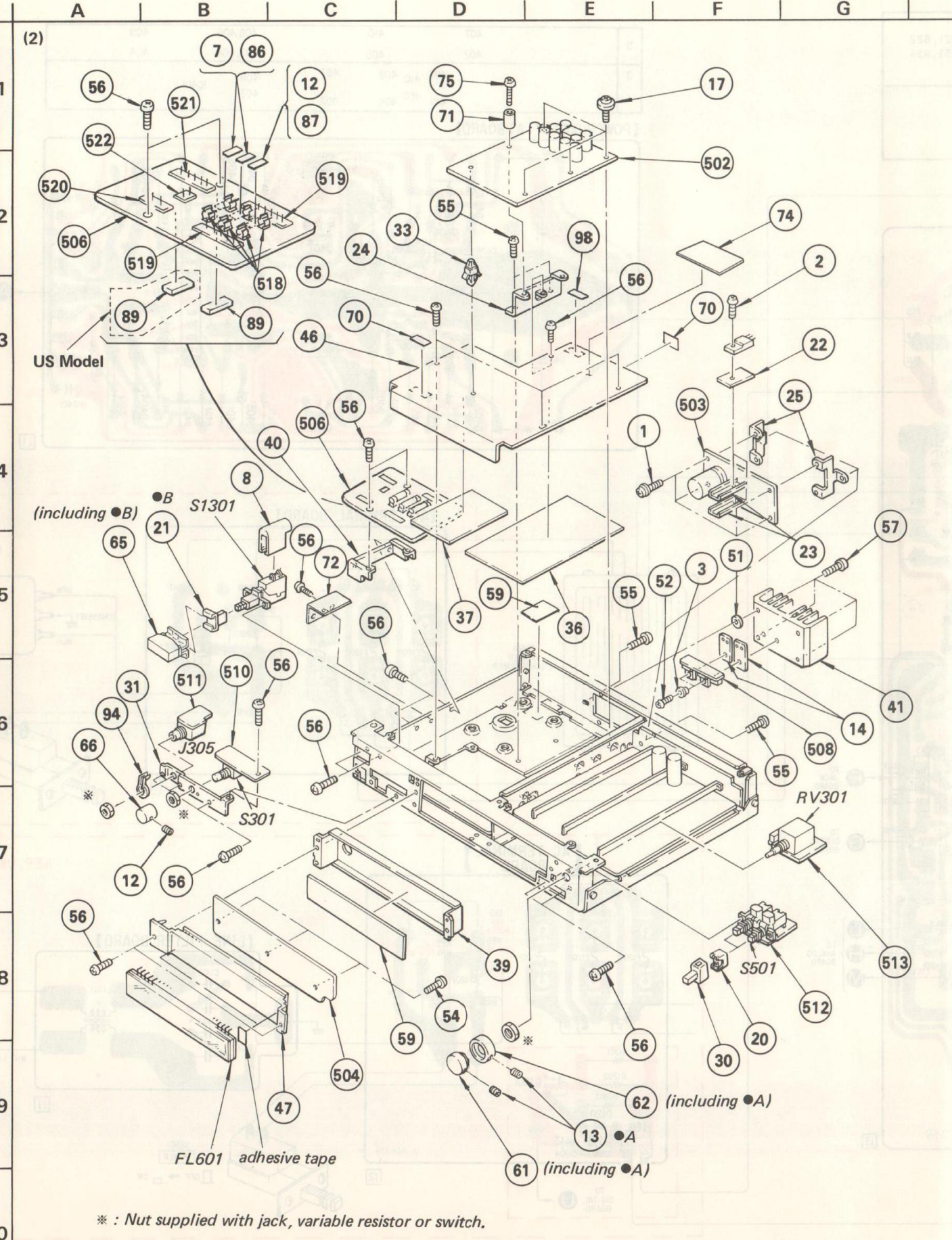
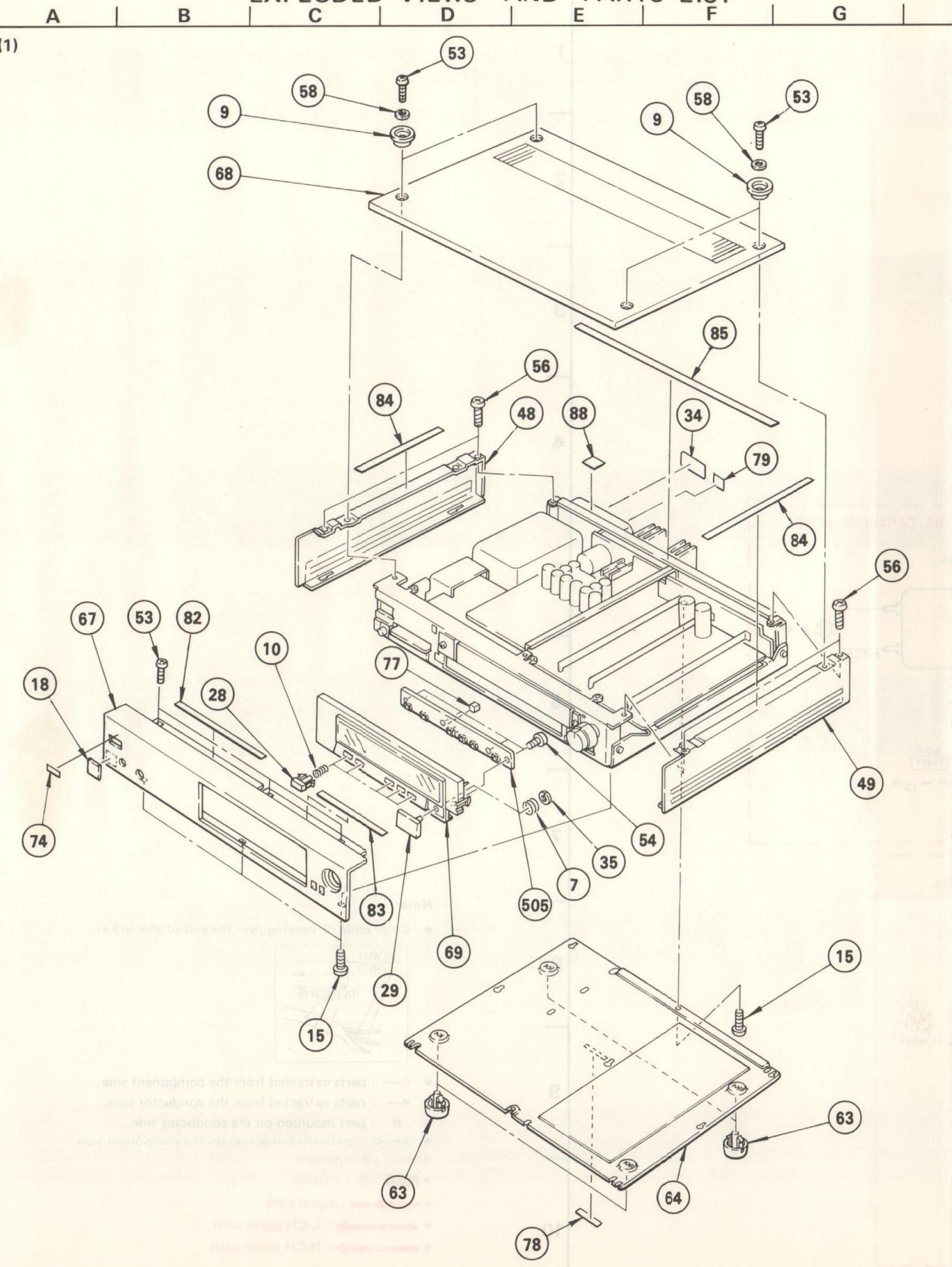
Note: Les composants identifiés par un trame et une marque A sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.





SECTION 5

EXPLODED VIEWS AND PARTS LIST



GENERAL SECTION

No.	Part No.	Description
1	2-259-121-00	SCREW, TR
2	2-259-121-11	SCREW, TR
3	2-832-007-00	BUSHING (K), INSULATING
4	2-362-355-00	HEAT SINK, IC
5	9-911-846-XX	CUSHION (A)
6	2-362-376-00	CASE (2), SHIELD, VCO
7	3-701-946-22	(US,Canadian)...LABEL, FUSE
8	3-575-524-00	COVER, POWER SWITCH
9	3-576-298-11	ESCUTCHEON
10	3-578-221-00	SPRING, COMPRESSION
11	3-630-837-00	BUSHING, STAND BY LAMP
12	3-701-946-34	(US,Canadian)...LABEL, FUSE RATING
13	3-701-506-01	SET SCREW, DOUBLE POINT 3X4
14	3-703-037-00	INSULATOR, T0-220
15	3-703-108-21	SCREW +BV 3X6, S TIGHT
16	3-703-244-00	BUSHING, CORD
17	3-703-249-01	SCREW, S TIGHT, +PTWH 3X6
18	3-703-710-41	STICKER, SONY SYMBOL (12)
19	4-820-330-00	SCREW, BW, PLUS MINUS
20	4-864-307-00	RING
21	4-866-342-00	JOINT (B), KNOB
22	4-870-272-00	HEAT SINK
23	4-886-555-00	HEAT SINK
24	4-886-501-00	BRACKET (A), CHASSIS
25	4-886-502-00	BRACKET (B), CHASSIS
26	4-886-503-00	PLATE, GROUND, PIN JACK
27	4-886-504-00	SPACER
28	4-886-506-00	KNOB (A), KEY BOARD
29	4-886-507-00	KNOB (B), KEY BOARD
30	4-886-509-00	KNOB, PUSH
31	4-886-510-00	BRACKET, JACK, HEADPHONE
32	4-886-511-00	COLLAR, TRANSFORMER
33	3-703-353-01	SUPPORT, PC BOARD
34	4-886-559-00	(US,Canadian)...LABEL, MODEL NUMBER (U,CND)
34	4-886-560-00	(AEP)...LABEL, MODEL NUMBER (AEP1)
34	4-886-561-00	(UK)...LABEL, MODEL NUMBER (UK)
35	4-886-514-00	RING, STOPPER
36	4-886-520-00	SHEET (D), DAMPING
37	4-886-521-00	SHEET (E), DAMPING
38	4-886-522-00	BUS BAR
39	4-886-525-00	CASE, SHIELD
40	4-886-528-00	BRACKET (C), CHASSIS
41	4-886-529-00	HEAT SINK
42	4-886-568-00	(Canadian,AEP,UK)...PLATE, JACK
42	4-886-568-11	(US)...PLATE, JACK

GENERAL SECTION

No.	Part No.	Description
43	4-886-531-00	PLATE, SIDE, LEFT
44	4-886-532-00	PLATE, RELAY
45	4-886-533-00	PLATE, SIDE, RIGHT
46	4-886-534-00	PLATE, SHIELD
47	4-886-536-00	HOLDER, FL TUBE
48	4-886-538-00	(Canadian,AEP,UK)...PLATE (LEFT), SIDE, ORNAMENTAL
48	4-886-538-11	(US)...PLATE (LEFT), SIDE, ORNAMENTAL
49	4-886-539-00	(Canadian,AEP,UK)...PLATE (RIGHT), SIDE, ORNAMENTAL
49	4-886-539-11	(US)...PLATE (RIGHT), SIDE, ORNAMENTAL
50	4-886-540-00	CHASSIS, AMPLIFIER
51	2-045-013-31	WASHER, PANEL (DIA.4)
52	7-621-773-95	SCREW +B 2.6X6
53	7-682-547-09	SCREW +B 3X6
54	7-685-546-19	SCREW +BTP 3X8 TYPE2 N-S
55	7-685-870-09	SCREW +BVTT 3X5 (S)
56	7-685-871-01	SCREW +BVTT 3X6 (S)
57	7-685-873-09	SCREW +BVTT 3X10 (S)
58	7-688-003-12	W 3, MIDDLE
59	9-911-863-XX	SHEET, INSULATING
60	4-886-542-00	SUPPORT
61	X-3304-909-0	KNOB (RIGHT) ASSY, REC
62	X-3304-910-0	KNOB (LEFT) ASSY, REC
63	X-4884-303-0	FOOT ASSY
64	X-4885-506-1	BOTTOM PLATE ASSY
65	X-4885-901-0	KNOB ASSY, POWER
66	X-4886-501-0	KNOB ASSY, HEADPHONE
67	X-4886-504-0	(Canadian,AEP,UK:NTSC)...PANEL ASSY, FRONT
67	X-4886-504-5	(PAC/SECAM)...PANEL ASSY, FRONT
67	X-4886-504-6	(US:NTSC)...PANEL ASSY, FRONT
68	X-4886-505-1	COVER ASSY
69	X-4886-507-1	ESCUTCHEON
70	3-703-044-26	(US,Canadian)...LABEL, CAUTION
71	4-886-558-00	COLLAR
72	4-886-545-00	COVER, SAFETY, ELECTRIC SHOCK
73	4-886-553-00	PLATE, SHIELD, PIN JACK
74	3-701-690-00	(UK)...LABEL (MADE IN JAPAN)
75	7-682-555-09	SCREW +B 3X30
76	9-911-844-XX	CUSHION, VIBRATION PROOF
77	9-911-840-XX	SPACER
78	3-703-678-00	(US,Canadian)...LABEL, CAUTION, NEW UL
79	3-703-680-00	(US)...LABEL, CAUTION, SUB, NEW UL
80	4-843-416-00	(AEP,UK)...PLATE, FIXED, CAP

NOTE:
 · Items with no part number and no description are not stocked because they are seldom required for routine service.
 · Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
 · Due to standardization, parts with part numbers (▲-△△△-△△△-XX or ▲-△△△-△△△-X) may be different from those used in the set.
 · 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:
 MF: μF, PF: μPF.
 RESISTORS
 · All resistors are in ohms.
 · F : nonflammable
 COILS
 · MMH : mH, UH : μH
 SEMICONDUCTORS
 In each case, U : μ, for example:
 UA : μA, UPA : μPA, UPC : μPC,
 UPD : μPD

ELECTRICAL PARTS

Table with 6 columns: Ref.No., Part No., Description, and three columns for tolerance and voltage/rating. Includes parts C317 through C514.

ELECTRICAL PARTS

Table with 6 columns: Ref.No., Part No., Description, and three columns for tolerance and voltage/rating. Includes parts C515 through C559.

ELECTRICAL PARTS

Table with 6 columns: Ref.No., Part No., Description, and three columns for tolerance and voltage/rating. Includes parts C560 through C606.

ELECTRICAL PARTS

Table with 6 columns: Ref.No., Part No., Description, and three columns for tolerance and voltage/rating. Includes parts C607 through C901.

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
Items marked "▲" are not stocked since they are seldom required for routine service.
Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
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:

MF:μF, PF:μuF.

RESISTORS

- All resistors are in ohms.
F: nonflammable

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.

Les composants identifiés par une trame et une marque ▲ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
Items marked "▲" are not stocked since they are seldom required for routine service.
Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
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:

MF:μF, PF:μuF.

RESISTORS

- All resistors are in ohms.
F: nonflammable

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.

Les composants identifiés par une trame et une marque ▲ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Table with 4 columns: Ref.No., Part No., Description, and other details. Includes parts like C902, C903, C1102, etc.

ELECTRICAL PARTS

Table with 4 columns: Ref.No., Part No., Description, and other details. Includes parts like D304, D305, D306, etc.

ELECTRICAL PARTS

Table with 4 columns: Ref.No., Part No., Description, and other details. Includes parts like D804, D805, D806, etc.

ELECTRICAL PARTS

Table with 4 columns: Ref.No., Part No., Description, and other details. Includes parts like IC104, IC105, IC106, etc.

ELECTRICAL PARTS

Table with 4 columns: Ref.No., Part No., Description, and other details. Includes parts like IC525, IC526, IC527, etc.

ELECTRICAL PARTS

Table with 4 columns: Ref.No., Part No., Description, and other details. Includes parts like AL1101, ALF1101, ALF1101, etc.

NOTE:

Items with no part number and no description are not stocked because they are seldom required for routine service. Items marked with a diamond symbol are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items. Due to standardization, parts with part numbers (delta-delta-delta-delta-XX or delta-delta-delta-delta-X) may be different from those used in the set. 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:

MF:µF, PF:µµF. RESISTORS All resistors are in ohms. F: nonflammable. 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 A are critical for safety. Replace only with part number specified. Les composants identifiés par une trame et une marque A sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

NOTE:

Items with no part number and no description are not stocked because they are seldom required for routine service. Items marked with a diamond symbol are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items. Due to standardization, parts with part numbers (delta-delta-delta-delta-XX or delta-delta-delta-delta-X) may be different from those used in the set. 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:

MF:µF, PF:µµF. RESISTORS All resistors are in ohms. F: nonflammable. 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 A are critical for safety. Replace only with part number specified. Les composants identifiés par une trame et une marque A sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

NOTE:

Items with no part number and no description are not stocked because they are seldom required for routine service. Items marked with a diamond symbol are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items. Due to standardization, parts with part numbers (delta-delta-delta-delta-XX or delta-delta-delta-delta-X) may be different from those used in the set. 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:

MF:µF, PF:µµF. RESISTORS All resistors are in ohms. F: nonflammable. 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 A are critical for safety. Replace only with part number specified. Les composants identifiés par une trame et une marque A sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Table with columns: Ref.No., Part No., Description. Rows include R915, R916, R917, R918, R919, R920, R921, R922, R923, R924, R925, R926, R950, R951, R952, R1201, RT801, RT802, RT803, RV101, RV102, RV103, RV104, RV201, RV202, RV203, RV204, RV301, RY301, RY302, RY303, RY801.

ELECTRICAL PARTS

Table with columns: Ref.No., Part No., Description. Rows include S301, S501, S701, S702, S703, S704, S705, S706, S1301A, T301, T302, T1301A, W1, W2, W3, W4, W5, X301, X302, X501, X502, X503.

NOTE:
Items with no part number and no description are not stocked because they are seldom required for routine service.
Items marked "▲" are not stocked since they are seldom required for routine service.
Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
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:
MF: μF, PF: μμF.
RESISTORS
All resistors are in ohms.
F : nonflammable
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.
Les composants identifiés par une trame et une marque ▲ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL PARTS

Table with columns: Ref.No., Part No., Description. Rows include R801, R802, R803, R804, R805, R806, R807, R808, R809, R810, R811, R812, R813, R814, R815, R816, R817, R818, R819, R820, R821, R822, R823, R824, R825, R826, R827, R828, R829, R830, R831, R832, R833, R834, R835, R836, R837, R838, R839, R840, R841, R842, R843, R844, R845, R846, R847, R848, R849, R850, R851, R852, R853, R854, R855, R856, R857, R858, R859, R860, R861, R862, R863, R864, R865, R866, R867, R868, R869, R870, R871, R872, R873, R874, R875, R876, R877, R878, R879, R880, R881, R882, R883, R884, R885, R886, R887, R888, R889, R890, R891, R892, R893, R894, R895, R896, R897, R898, R899, R900, R901, R902, R903, R904, R905, R906, R907, R908, R909, R910, R911, R912, R913, R914, R915, R916, R917, R918, R919, R920, R921, R922, R923, R924, R925, R926, R927, R928, R929, R930, R931, R932, R933, R934, R935, R936, R937, R938, R939, R940, R941, R942, R943, R944, R945, R946, R947, R948, R949, R950, R951, R952, R953, R954, R955, R956, R957, R958, R959, R960, R961, R962, R963, R964, R965, R966, R967, R968, R969, R970, R971, R972, R973, R974, R975, R976, R977, R978, R979, R980, R981, R982, R983, R984, R985, R986, R987, R988, R989, R990, R991, R992, R993, R994, R995, R996, R997, R998, R999, R1000.

ELECTRICAL PARTS

Table with columns: Ref.No., Part No., Description. Rows include R978, R979, R980, R981, R982, R983, R984, R985, R986, R987, R988, R989, R990, R991, R992, R993, R994, R995, R996, R997, R998, R999, R1000.

NOTE:
Items with no part number and no description are not stocked because they are seldom required for routine service.
Items marked "▲" are not stocked since they are seldom required for routine service.
Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
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.