ORDER NO. AD9209340C8

Service Manual

Digital Compact Cassette Deck

RS-DC10

DIGITAL DCC COMPACT CASSETTE

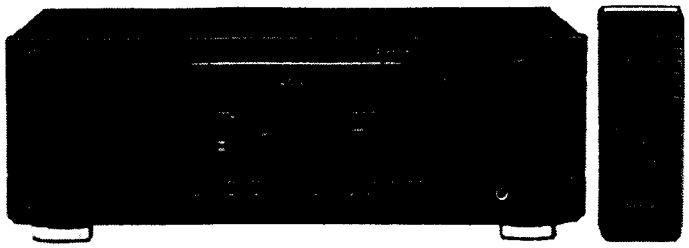
* DOLBY B·C NR

Colour

(K) ... Black Type

Area

Suffix for Model No.	Area	Colour
(EB)	Great Britain.	(K)
(EG)	Germany, Italy and Europe.	
(G)	Asia, Latin America, Middle Near East and Africa.	



*Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.

NEW MECHANISM FOR RS-DC10 (AR350D)

SPECIFICATIONS

■ Digital Recording/Playback

Tape recording system:	Stationary head type DCC
Sampling frequencies	
(Analog input recording):	44.1kHz
(Playback/digital input recording):	48kHz, 44.1kHz, 32kHz (selected automatically)
No. of quantizing bits:	16-bit linear
Audio coding system:	PASC
No. of channels:	2-channel (stereo)
Frequency response:	10Hz–20,000Hz (±0.2dB)
(48kHz sampling frequency):	10Hz–22,000Hz (±0.2dB)
(32kHz sampling frequency):	10Hz–14,500Hz (±0.2dB)
THD	
(Playback):	0.003% or less (1kHz, 0dB)
(Recording/playback):	0.005% or less (1kHz, 0dB)
Dynamic range	
(Playback):	95dB or more (A-weighted)
(Recording/playback):	92dB or more (A-weighted)
S/N ratio	
(Playback):	98dB or more (A-weighted)
(Recording/playback):	92dB or more (A-weighted)
Channel separation	
(Playback):	95dB or more (1kHz)
(Recording/playback):	80dB or more (1kHz)
Wow and flutter:	Below measurable limit

■ Analog Cassette Tape Playback

Deck system:	Analog compact cassette
Track system:	4-track, 2-channel (stereo)
Frequency response (Dolby NR off)	
Normal:	30Hz–15,000Hz ±3dB
CrO_2:	30Hz–16,000Hz ±3dB
Metal:	30Hz–17,000Hz ±3dB
S/N (signal level=250nwb/m, CrO_2 type tape)	
NR off:	56dB (A-weighted)
Dolby B NR on:	65dB (CCIR)
Dolby C NR on:	74dB (CCIR)
Wow and flutter:	0.07% (WRMS) ±0.2% (DIN)

■ Terminals

Analog input	
Input sencitivity:	60mV (–12dB)
Input impedance:	47kΩ
Analog output (Fixed)	
Output level:	500mV (DCC: -12dB)
Maximum output level:	2V (DCC: 0dB)
Output impedance:	440Ω
Variable analog	
Output:	Using remote control
Headphones output	
Maximum level:	30mW+30mW(32Ω load)
Load impedance range:	8–600Ω
Digital input:	Coaxial 75Ω/optical (with select SW)
Digital output:	Coaxial 75Ω/optical (parallel output)

Technics

■ Mechanism

Heads:	20-channel thin film head
Tape drive system:	Single capstan drive (Auto reverse)
Tape drive motors	
Capstan:	DC servo motor
Reel table:	DC motor
Tape speed:	4.76cm/sec. (1-7/8 ips.)
Fast forward and rewind times:	Approx. 100sec. with D-60 cassette tape

■ General

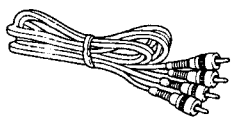
Power consumption:	35W
Power supply:	
For (EG) area:	AC 50/60Hz, 230V
For (EB) area:	AC 50/60Hz, 240V
For (G) area:	AC 50/60Hz, 110V, 120V, 240V, 220V
Dimensions (W×H×D):	430×153×341mm
Weight:	8.3kg

Note:
Specifications are subject to change without notice.
Weight and dimensions are approximate.

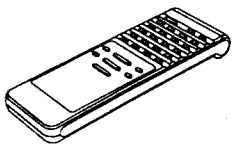
■ CONTENTS

Note: • Refer to the measurement and adjustment of supplement manual (Order No. AD9212389C8).

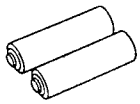
■ ACCESSORIES



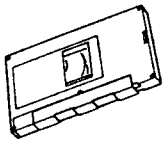
• Stereo connection cable (SFDHM03N02)..... 2 pcs.



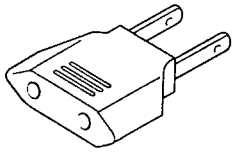
• Remote control transmitter (ZK011D0020)..... 1 pc.



• Batteries..... 2 pcs.
for remote control transmitter
*〈UM-4, "AAA" (R03)〉



• DCC tape..... 1 pc.
for recording purposes
*(RT-D60E)



• Power plug adaptor
(YJ04001280)
for (G) area only

*These are available on sale route.

■ MAIN FEATURES OF DCC

1. Compatibility with Conventional Analog Format

■ Backward Compatibility

Since every DCC machine can also play analog compact cassettes, DCC is sure to be acceptable to most users. This backward compatibility is particularly attractive in car audio and headphone stereo applications. It saves space since only one machine is needed to play cassettes in either format. There's no need to carry or install separate players for analog and digital.

To provide this compatibility, all DCC machines have bi-directional auto reverse operation, using a unique half digital, half analog head configuration.

■ Mechanical Simplicity

DCC machines use a stationary head configuration, rather than the helical scan rotating head system required for DAT (and VCRs). Except for the head itself, analog tape transports can, for the most part, be used for DCC.

■ Plentiful Musicassettes

DCC has enlisted the support of the world's major record companies. Working with the Philips team, some of them even participated in DCC development.

Whereas there were only a small number of disc titles when the CD first came out, an extremely wide variety and large number of prerecorded titles will be available on DCC from the very first day the format is launched.

In addition, existing 32-times and 64-times high speed tape duplication equipment requires only slight modification to handle dubbing of DCC tapes, so manufacturing costs of prerecorded DCC cassettes promise not to be significantly higher than those of analog prerecorded cassettes.

2. Latest in Digital Technology

■ PASC — Newly Developed Intelligent Coding System

Without PASC, the DCC format could not use a linear-tracking stationary head and ordinary coercivity tape, and therefore would not achieve playback compatibility with analog cassettes. PASC effectively reduces the amount of information that needs to be stored, thereby lessening the storage density requirements of the media and the bit-rate requirements during write/read (recording/playback) operations. You could say that PASC lightens the work load of the transducers (heads) and media (tape) by taking an "intelligent" approach to the coding process.

To understand this difference, let's take a look at linear PCM coding first. Despite the incredible precision and sophistication of linear PCM, it is not designed, nor in fact is it necessary, to consider which data is essential and which is irrelevant. Linear PCM is designed to simply encode all the data presented to it. The result of linear PCM is an output waveform that is physically identical to the input waveform (after anti-aliasing low-pass filtering). All of the measurable information contained in the original input waveform is retained in the reproduced output waveform.

PASC, in contrast, analyzes the input waveform to determine which portions are really needed. Such an approach may appear heretical to audio purists, but it is in fact the basis of many already widely accepted technologies.

PASC — High Efficiency Intelligent Coding

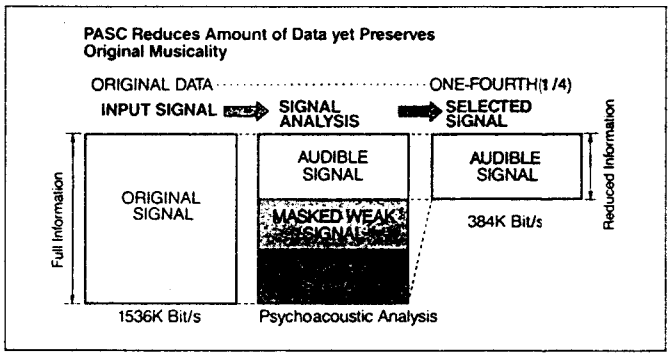


Fig. 1

As shown here PASC simply applies proven psychoacoustic principles, such as the masking effect and hearing threshold, to economize on data. Therefore, instead of reproducing what the original waveform looks like, PASC reproduces what the original waveform sounds like.

Since this is, to a large extent, a value judgment, audio engineers from a major record company were involved in the fine-tuning of PASC to assure the system offered outstanding "musicality."

DCC Player/Recorder Block Diagram

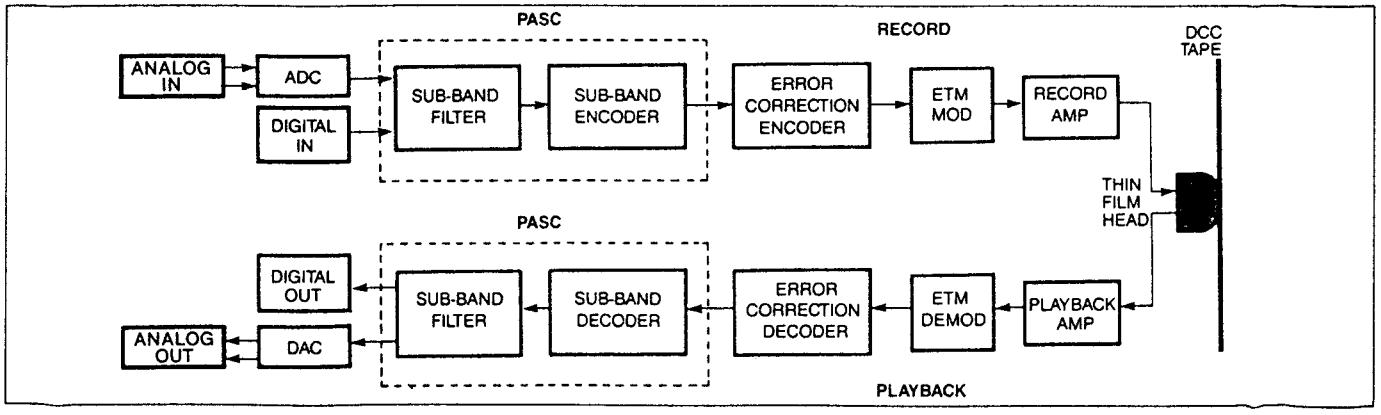


Fig. 2

PASC Encoding Process

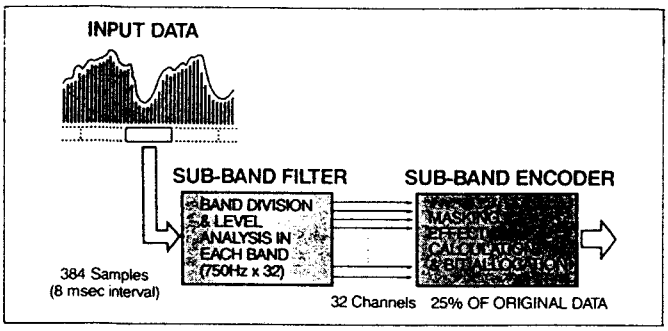


Fig. 3

PASC Decoding Process

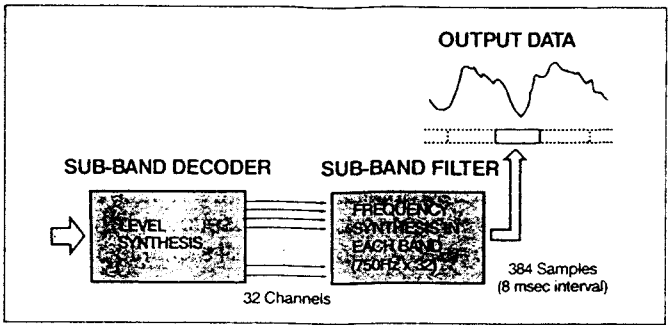


Fig. 4

■ THIN-FILM HEAD AND TRACK DISTRIBUTION

1. Eight Digital Tracks plus One Auxiliary Track

DCC tape is divided into an upper sector (forward) and lower sector (reverse), physically corresponding to side B (reverse) and side A (forward) of an analog tape. Each sector comprises eight tracks for digital audio data and one track for auxiliary data.

Recording lays down tracks 185 microns wide, whereas playback looks at only a 70 micron portion of this width. This means that transport accuracy becomes less critical, the possibility of mistracking is virtually eliminated, and manufacturers can largely use existing analog cassette transport components.

Digital Track Distribution

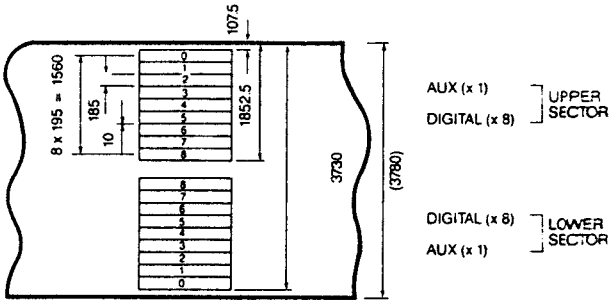


Fig. 5

2. Stationary Thin-Film Head

Along with PASC, this was another key to the development of DCC equipment. To handle its narrow track pitch of 195 microns, DCC uses a precision head fabricated by thin-film technology (related to the lithographic process employed in LSI manufacturing).

For recording, new digital data is simply overwritten so no separate erase facility is provided. For bi-directional operation, head configurations will be: a) turnover type digital 9-track head (upper) and analog 2-track head (lower), or b) fixed-type twin head.

DCC Thin-Film Head Structure

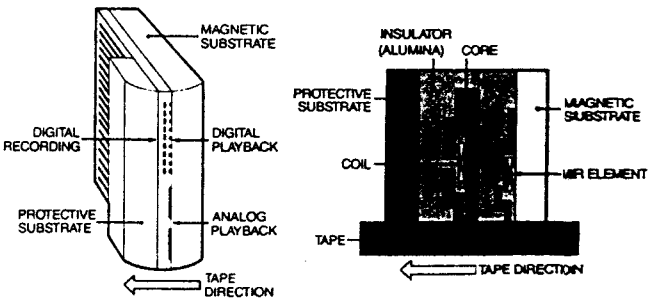


Fig. 6

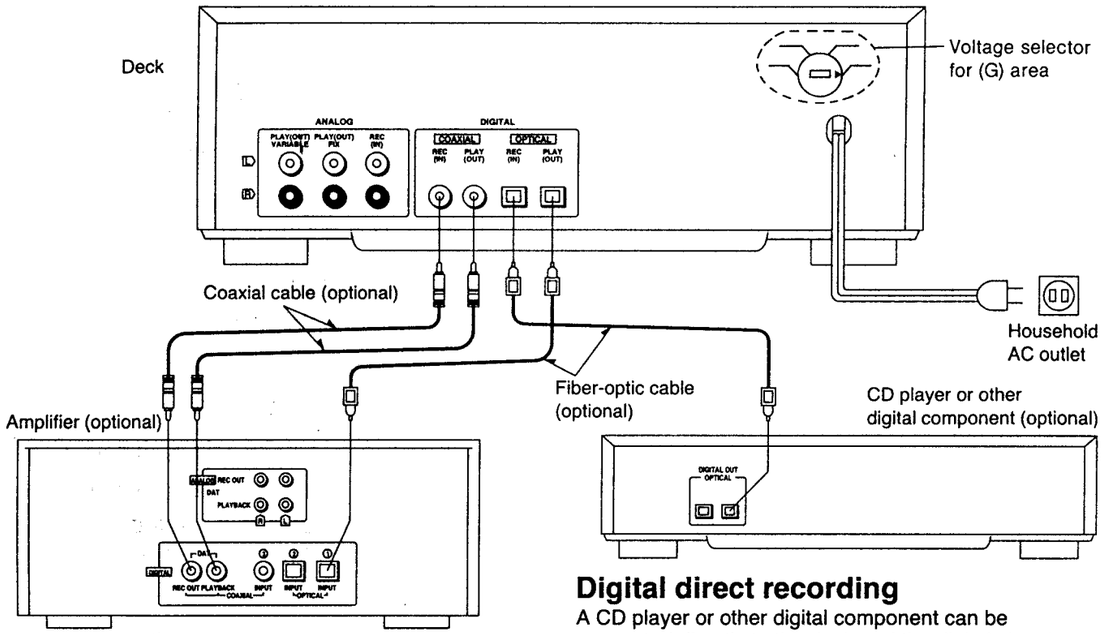
■ CONNECTIONS

Be sure to turn off the power to all the components before proceeding to connect them.
Connect the power cable only after all the other connections have been performed.

An example of the connections is given below.
For further details, consult the Operating Instructions of the components involved as well.

Digital connections

There are two ways to perform the digital connections: either connect a digital amplifier to the deck or connect another digital component directly to the deck.



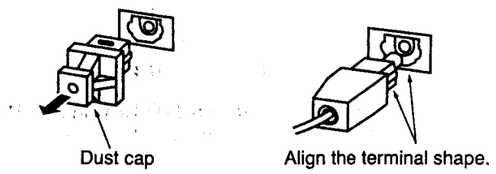
Digital direct recording

A CD player or other digital component can be connected directly to the deck and the digital signals of that component can be recorded without further ado. (See "SCMS" on pages 11 and 12.)

About Optical Fiber Cables

To connect optical fiber cables

① Remove the dust cap from the terminal. ② Connect the cable.



Do not attempt to bend optical fiber cables at severe angles.
Be sure that connections are made securely.

Store the dust cap securely, and replace it whenever cables are not connected to the terminals. If dust is allowed to enter the terminal connector, signal errors may result.

About OPTICAL connector

When the optical connectors are used, electrical signals are converted into light signals for transmission between units, making the signals impervious to adverse effects from external noise. This form of connection thus allows the highest quality of digital audio signal transmission.

■ CAUTION FOR AC MAINS LEAD

FOR (EB) area only

For your safety, please read the following text carefully.

This appliance is supplied with a moulded three pin mains plug for your safety and convenience.
A 5-ampere fuse is fitted in this plug.
Should the fuse need to be replaced please ensure that the replacement fuse has a rating of 5-ampere and that it is approved by ASTA or BSI to BS1362.
Check for the ASTA mark ◈ or the BSI mark ♡ on the body of the fuse.

If the plug contains a removable fuse cover you must ensure that it is refitted when the fuse is replaced.
If you lose the fuse cover the plug must not be used until a replacement cover is obtained.
A replacement fuse cover can be purchased from your local dealer.

CAUTION!
IF THE FITTED MOULDED PLUG IS UNSUITABLE FOR THE SOCKET OUTLET IN YOUR HOME THEN THE FUSE SHOULD BE REMOVED AND THE PLUG CUT OFF AND DISPOSED OF SAFELY.
THERE IS A DANGER OF SEVERE ELECTRICAL SHOCK IF THE CUT OFF PLUG IS INSERTED INTO ANY 13-AMPERE SOCKET.

If a new plug is to be fitted please observe the wiring code as shown below.
If in any doubt please consult a qualified electrician.

IMPORTANT

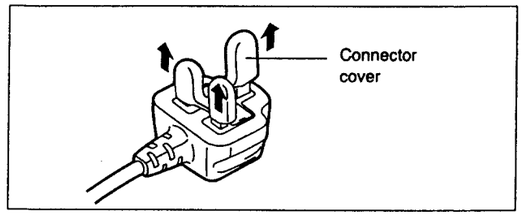
The wires in this mains lead are coloured in accordance with the following code:
Blue: Neutral
Brown: Live
As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
The wire which is coloured BLUE must be connected to the terminal in the plug which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal in the plug which is marked with the letter L or coloured RED.

Under no circumstances should either of these wires be connected to the earth terminal of the three pin plug marked with the letter E or the Earth Symbol ⏚.

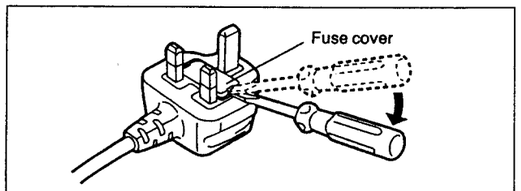
Before use

Remove the connector cover as follows.

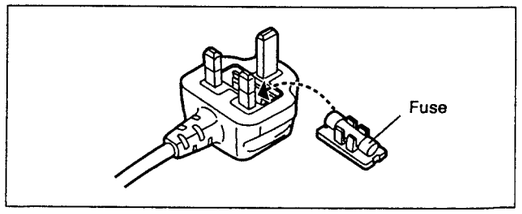


How to replace the fuse

1. Remove the fuse cover with a screwdriver.



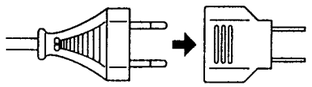
2. Replace the fuse and attach the fuse cover.



FOR (G) area only

Be sure to disconnect the mains cord before adjusting the voltage selector.
Use a minus (−) screwdriver to set the voltage selector (on the rear panel) to the voltage setting for the area in which the unit will be used.
(If the power supply in your area is 117 V or 120 V, set to the "127 V" position.)
Note that this unit will be seriously damaged if this setting is not made correctly. (There is no voltage selector for some countries; the correct voltage is already set.)

If the power plug will not fit your Household AC outlet, use the power plug adaptor (included).



■ SUGGESTIONS FOR SAFETY

■ Use a standard AC wall outlet

1. **Use from an AC power source of high voltage, such as that used for an air conditioner, is very dangerous.**
   A fire might be caused by such a connection.
2. **A DC power source cannot be used.**
   Be sure to check the power source carefully, especially on a ship or other place where DC is used.

■ Grasp the plug when disconnecting the power supply cord

1. **Wet hands are dangerous.**
   A dangerous electric shock may result if the plug is touched by wet hands.
2. **Never place heavy items on top of the power supply cord, nor force it to bend sharply.**

■ Place the unit where it will be well ventilated

Place this unit at least 10 cm (4") away from wall surfaces, etc.
Be careful that curtains and similar materials do not obstruct the ventilation holes.

■ Avoid places such as the following:

In direct sunlight or in other places where the temperature is high.
In places where there is excessive vibration or humidity.
Such conditions might damage the cabinet and/or other component parts and thereby shorten the unit's service life.

■ Be sure to place the unit on a flat, level surface.

If the surface is inclined, a malfunction may result.

■ Never attempt to repair nor reconstruct this unit

A serious electric shock might occur if this unit is repaired, disassembled or reconstructed by unauthorized persons, or if the internal parts are accidentally touched.

■ Take particular care if children are present

Never permit children to put anything, especially metal, inside this unit. A serious electric shock or malfunction could occur if articles such as coins, needles, screwdrivers, etc. are inserted through the ventilation holes, etc. of this unit.

■ If water is spilled on the unit

Be extremely careful if water is spilled on the unit, because a fire or serious electric shock might occur. Immediately disconnect the power cord plug, and consult with your dealer.

■ Avoid spray-type insecticides

Insecticides might cause cracks or "cloudiness" in the cabinet and plastic parts of this unit. The gas used in such sprays might, moreover, be ignited suddenly.

■ Never use alcohol or paint thinner

These and similar chemicals should never be used, because they might cause flaking or cloudiness of the cabinet finish.

■ Disconnect the power supply cord if the unit will not be used for a long time

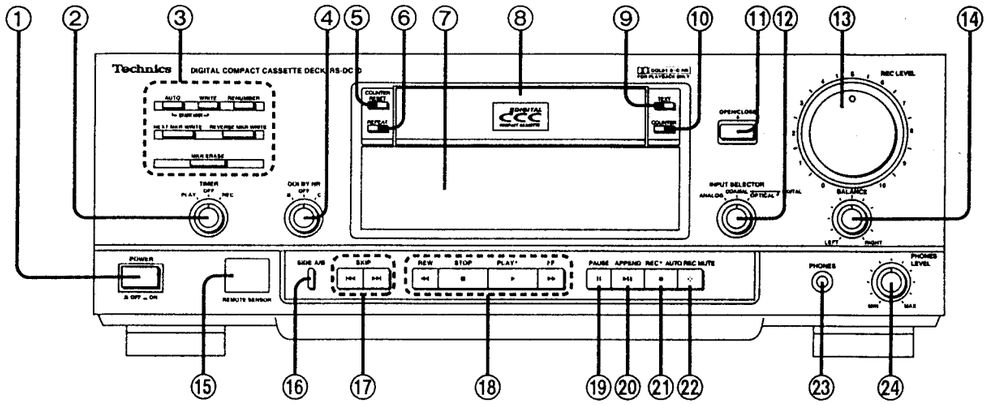
If the unit is left for a long time with the power ON, this not only will shorten its useful operation life, but also may cause other trouble.

■ If trouble occurs

If, during operation, the sound is interrupted or indicators no longer illuminate, or if an abnormal odour or smoke is detected, immediately disconnect the power cord plug, and contact with your dealer or an Authorized Service Center.

■ LOCATION OF CONTROLS

Control section



① **Power switch (POWER)**

② **Timer switch (TIMER)**
Use this when a timer from an audio store has been connected to start playback or recording at a particular time.

③ **Marker control section**
AUTO START MKR:
For setting the start marker's writing mode to automatic or manual.
START MKR WRITE:
For writing the start marker manually.
RENUMBER:
For renumbering the track sequence when correcting the track numbers.
NEXT MKR WRITE:
For writing the next marker which automatically activates playback from the start of the reverse side.
REVERSE MKR WRITE:
For writing the reverse marker which automatically reverses the tape side from A to B.
MKR ERASE:
For erasing written markers.

④ **Dolby NR selector (DOLBY NR)**
This can be set to Dolby B, C or OFF, depending on which Dolby position, if any, was used for the recording on the analog cassette tape which is to be played back.

⑤ **Counter reset button (COUNTER RESET)**
Use this to return the tape counter to "0000".

⑥ **Repeat mode selector button (REPEAT)**
Use this to switch to the repeat play mode.

⑦ **Display section**
(See page 7 for details.)

⑧ **Cassette tray**

⑨ **Text information selector button (TEXT)**
Use this to select what is to be displayed—the title of the track now being played, etc.

⑩ **Counter selector button (COUNTER)**
Use this to select the tape counter's display mode.

⑪ **Cassette tray open/close button (OPEN/CLOSE)**
Use this to open or close the cassette tray.

⑫ **Input selector (INPUT SELECTOR)**
Use this to select the analog (ANALOG)/digital input (COAXIAL/OPTICAL).

⑬ **Recording level control (REC LEVEL)**
Use this to adjust the recording level when analog input signals are being recorded.

⑭ **Balance control (BALANCE)**
Use this to adjust the balance between the left and right channels when analog input signals are being recorded.

⑮ **Remote control sensor (REMOTE SENSOR)**

⑯ **Tape travel selector button (SIDE A/B)**
Use this to select the direction in which the tape is to travel.

⑰ **Skip buttons (SKIP |◀◀ / ▶▶|)**
Use these to skip to the track you want to hear.

⑱ **Basic control section**
Rewind button (REW ◀◀)
Stop button (STOP ■)
Play button and indicator (PLAY ▶)
Fast forward button (FF ▶▶)

⑲ **Pause button (PAUSE ❚❚)**

⑳ **Append recording button (APPEND ▶❚❚)**
Use this to search for the end of the recorded section on the tape where more material is to be appended, and set the deck to the recording standby mode.

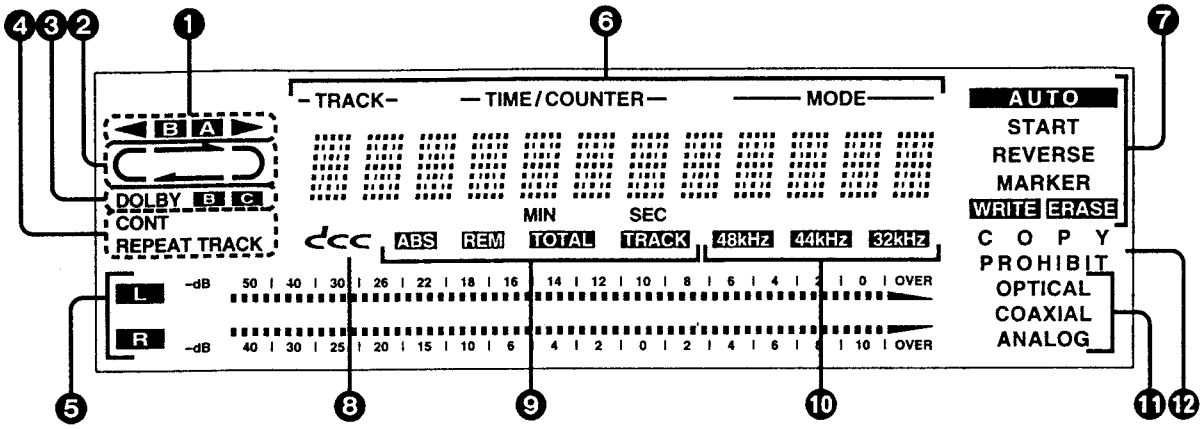
㉑ **Record button and indicator (REC ●)**

㉒ **Recording mute button (AUTO REC MUTE ○)**
Use this to create unrecorded blanks between tracks on the tape.

㉓ **Headphones jack (PHONES)**

㉔ **Headphone volume control (PHONES LEVEL)**

Display section



❶ Tape travel direction indicators (◄ B / A ►)
These indicator the direction in which the tape is traveling.
(The B / A display appears only when a DCC tape is used.)

❷ Reverse mode indicator
This indicates the reverse mode.
(For analog cassette tapes only)

❸ Dolby NR indicators (DOLBY B C)
These indicate the type of Dolby noise reduction which has been selected. When both of these indicators are off, it means that neither type of Dolby noise reduction has been selected.

❹ Repeat mode indicators (CONT REPEAT/REPEAT TRACK)
CONT REPEAT:
All tracks are repeated.
REPEAT TRACK:
The track being played is repeated.
(For DCC tapes only)

❺ Level meters
These indicate the input levels during recording and the levels recorded on the tape during playback.
When a DCC tape is used, the values at the top are displayed; when an analog cassette is used, the values at the bottom are displayed.

❻ Text information/counter display section
When a prerecorded DCC music tape is played back, text information relating to what is being played appears on the display.
Track number display (TRACK):
This indicates the number of the track which is being played back or recorded.
Timer/counter display (TIME/COUNTER):
This indicates how many minutes and seconds of the track which is being played back or recorded have elapsed or it shows the tape counter display.
Mode display (MODE):
This indicates the operating mode which is currently established.

❼ Marker indicator section
Start marker automatic indicator (AUTO):
This lights when the start marker is set to the automatic writing mode.
Start marker indicator (START):
This lights when the start marker has been written manually or when the start marker position is reached.
Reverse marker indicator (REVERSE):
This lights when the reverse marker has been written or when the reverse marker position is reached.
Marker indicator (MARKER):
This lights when any of the marker positions is reached.
Marker write indicator (WRITE):
This lights while a marker is being written.
Marker erase indicator (ERASE):
This lights while a marker is being erased.

❽ DCC indicator (dcc)
This lights only when a DCC tape is being used.

❾ Counter display indicators (ABS, REM, TOTAL, TRACK)
The indicator corresponding to the setting of the COUNTER selector button is selected as follows.

ABS	: Absolute time display
REM	: Time remaining on one side of the tape
REM TOTAL	: Total time remaining on the tape
TRACK	: Elapsed time of track now being played.

❿ Sampling frequency indicators (48kHz, 44kHz, 32kHz)
These indicate the sampling frequency during the playback or recording of digital signals.
(For DCC tapes only)

⓫ Input indicator section
The indicators listed below light up when the INPUT selector has been set to the corresponding positions.
Optical input indicator (OPTICAL)
Coaxial input indicator (COAXIAL)
Analog input indicator (ANALOG)

⓬ Digital copy prohibit indicator (COPY PROHIBIT)
This lights when a copy prohibit signal is included among the source signals when digital input signals are supplied.

■ABOUT DCC TAPE

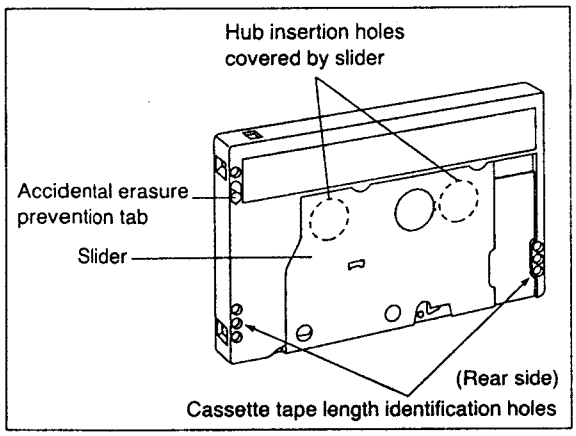
Types of tapes which can be used

The types of tapes described below can be used with this deck.
Digital compact cassette tapes (DCC)
There are two types of DCC tapes.

1. Prerecorded DCC music tapes available in stores: For playback only
2. DCC tapes for recording

Conventional analog cassette tapes: For playback only (Analog compact cassette tapes)

DCC tapes for recording

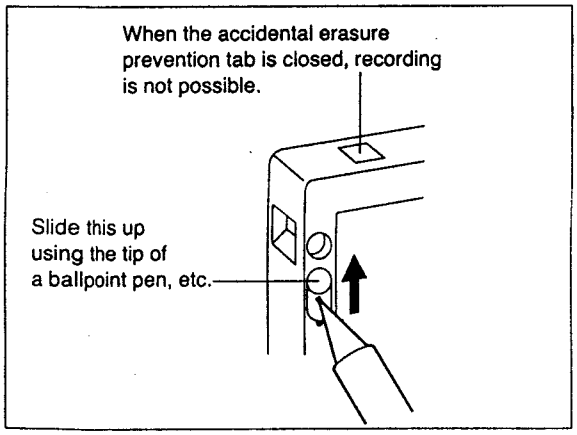


Unlike analog cassette tapes, DCC tapes are completely sealed, and their tape and hub holes are protected by a slider.
This design ensures that, except when the cassette is loaded, dust and foreign particles will not enter the cassette housing and cause dropouts (digital signal losses) which are the main cause of deterioration in the quality of digital recordings.

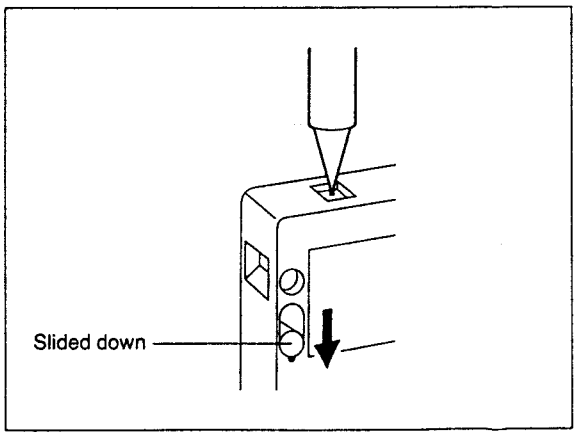
DCC tapes for recording come in lengths of 45, 60 and 90 minutes.

Tampering with the cassette tape length identification holes in any way can cause malfunctioning.

Safeguarding against the accidental erasure of a valuable recording



Recorded tapes that you want to keep can be protected by sliding the accidental erasure prevention tab on the rear side of the cassette to the "up" position shown in the diagram. It will then be impossible to record on the tape, thus protecting important recordings from accidental erasure.



To re-record
Return the accidental erasure prevention tab to its indented (open) position.

Handling precautions

Do not open the cassette's slider to pull the tape out or touch it.
Take care not to drop the cassette, hit it or subject it to strong vibration.
The cassette cannot be turned over and used.

Storage precautions

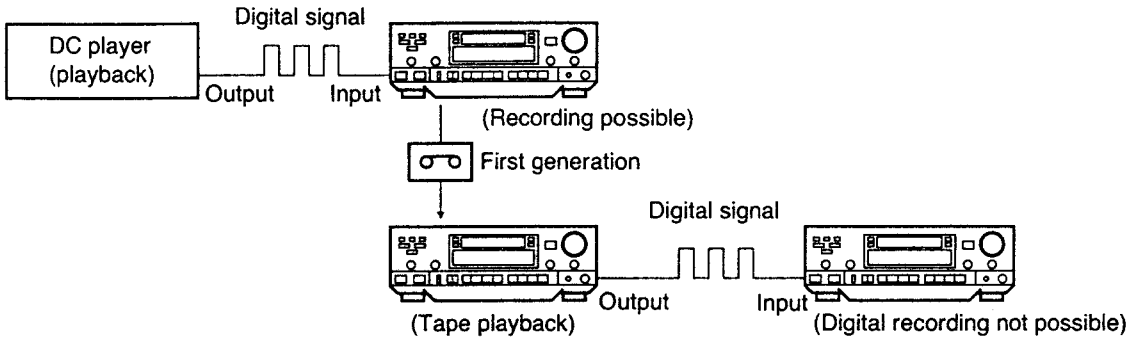
Replace the cassette in its case and store away.
Do not place or store tapes in the following places:

1. Where it is very hot (over 35°C) or very humid (over 80%)
2. Where there are strong magnetic fields (near speakers or on top of a TV set, etc.)
3. Where the tapes will be exposed to direct sunlight

■ SCMS (SERIAL-COPY-MANAGEMENT-SYSTEM)

This unit is equipped with SCMS (Serial Copy Management System). SCMS is a system which allows digital-signal copying of CDs and commercial music DCC tapes only for one "generation". The DCC tape thus recorded cannot be used as a master tape to produce further generations (serial copies) of the first digital copy. The accompanying illustrations describe the ways in which recording is possible from each kind of source.

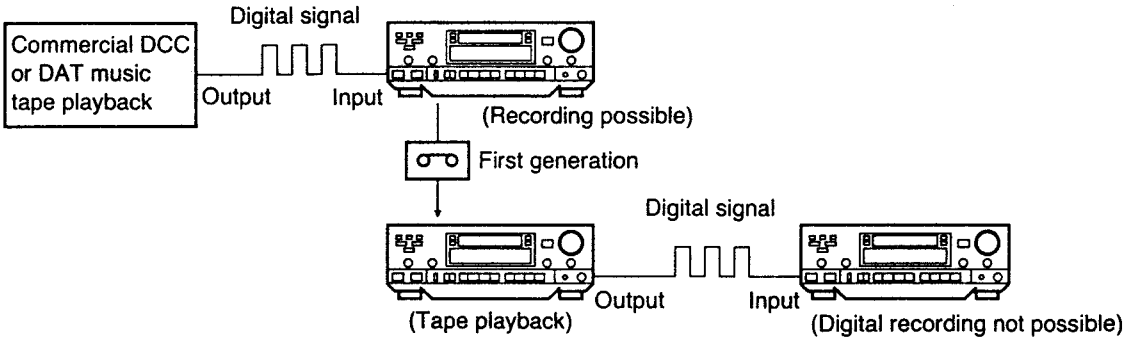
1 DCC tapes recorded digitally from CDs



Digital-signal recording from a CD can be performed only for the first generation of DCC tape. The DCC tape thus recorded (1st generation) cannot be used as a master to make further digital copies (serial copies).

Digital signals from a CD player recorded on a DAT cannot be recorded in their original form from the DAT tape onto a digital compact cassette tape in their original form. Similarly, digital signals from a CD player recorded onto a DCC in their original form cannot be recorded from the DCC tape onto a digital audio tape in their original form. In other words, SCMS restricts the recording of digital signals even when different digital recording equipment such as DAT and DCC are used in combination.

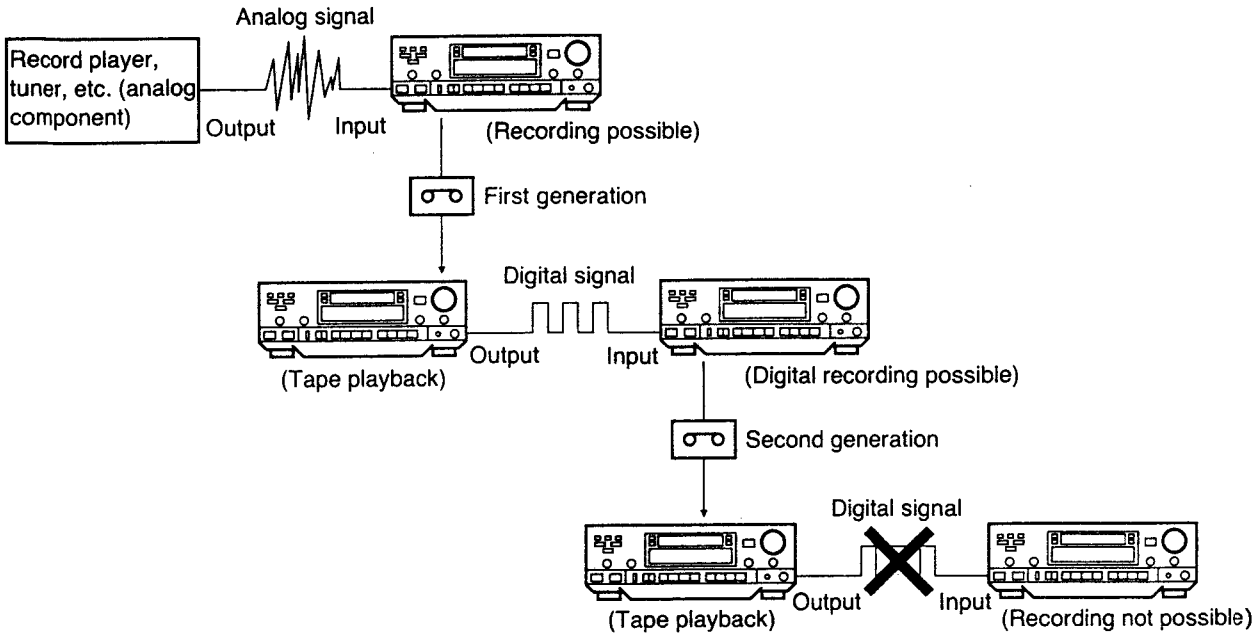
2 DCC tapes recorded digitally from a commercially produced music DCC tape or DAT cassette



Digital-signal recording from a commercially produced DCC or DAT music tape can be performed only for the first generation of DCC tape. The DCC tape thus recorded (1st generation) cannot be used as a master to make further digital copies (serial copies).

However, it should be noted that it may not be possible to make digital copies from commercial DCC or DAT music tapes which do not conform to the SCMS format.

3 DCC tape recorded from analog input terminals (when thereafter recorded digitally)



When the DCC recording of an analog source is used as the master tape for further digital-signal DCC copies, up to two generations of digital copies can be made. However, the second generation of such copies cannot be used as the master tape for making third and subsequent generations of digital copies (serial coies).

4 DCC tapes recorded from analog input terminals (when recorded in analog thereafter)

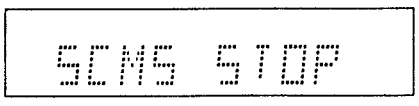
When recording is performed from the analog input terminals, no restrictions are made on copies, in the same way as for conventional audio cassette tape recorders. Accordingly, even in cases where recording of the digital signal (digital copy) is not possible, the analog input and output terminals can be used to perform analog recording.

Digital copy prohibit display

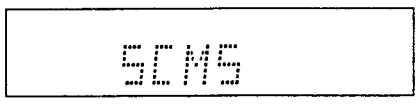
In the following cases, digital signals cannot be recorded in their original form:
When recording signals from a source which has been digitally copied once before

The COPY PROHIBIT indicator lights.

When a copy prohibit signal is supplied during recording



When a copy prohibit signal is supplied in the recording standby mode



■ HANDLING PRECAUTIONS FOR DCC HEAD

Because static electricity or magnetism can damage the DCC head, please observe the following when handling the DCC head.

1) Caution on magnetism

Be sure to use only the designated screwdriver (RFKZ0037) when making aztec adjustment.

Never use a steel screwdriver or other screwdriver whose blade or tip is magnetized.
Keep the DCC head away from all magnetized objects.

2) Caution on static electricity

Be sure to insert a shorting clip in the terminal of the FPC board (DCC head).

Connect the FPC board to the PCB connector as quickly as possible.

3) Others

Be especially careful not to use force when manipulating the FPC board or it will break or disconnect.

• Grounding for electrostatic breakdown prevention

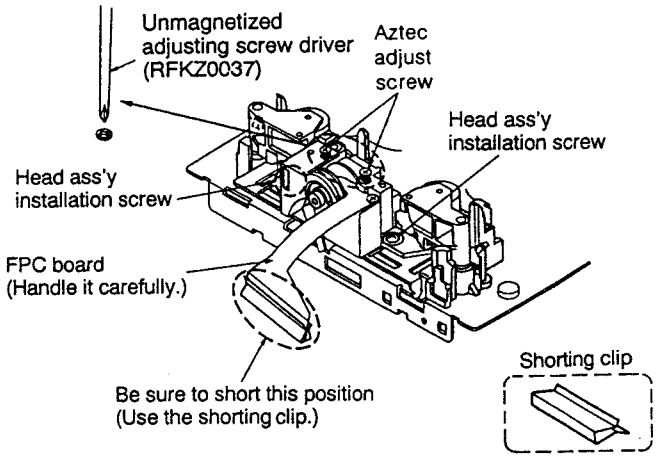
1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the DCC head is placed, and ground the sheet.

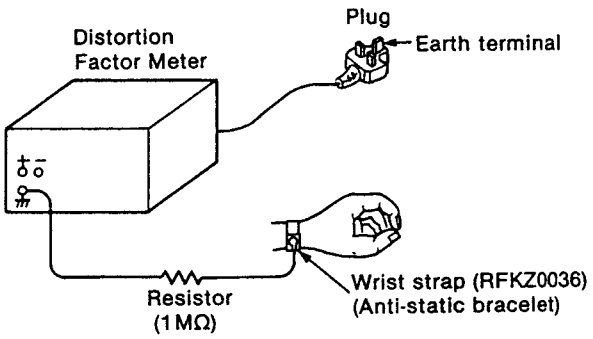
Note:

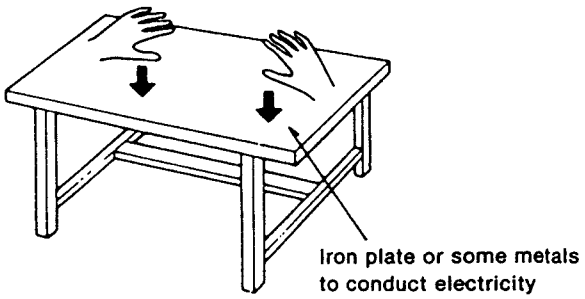
It is important to ground the instrument before testing. Use either the ground contact of a nearby 3P wall outlet, or connect it to the frame ground of an instrument which is connected a 3P wall outlet.

Caution:

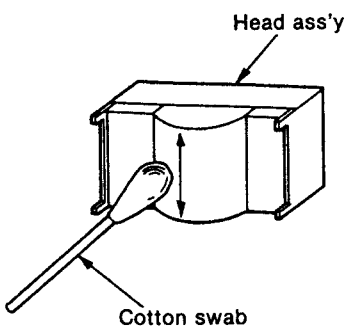
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the DCC head.







■ HEAD CLEANING METHOD



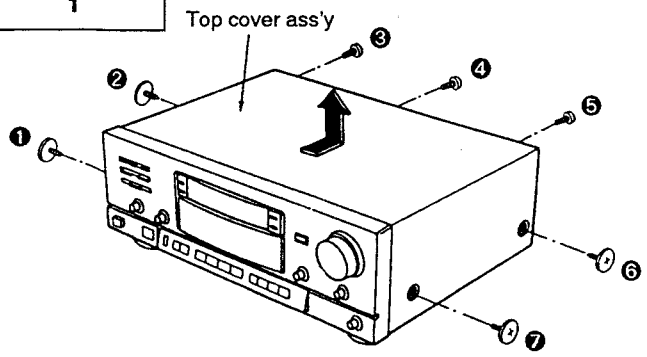
Clean the head up and down with a cotton swab slightly moistened with alcohol.

■ DISASSEMBLY INSTRUCTIONS

"ATTENTION SERVICER"
Some chassis components may have sharp edges. Be careful when disassembling and servicing.

Ref.No. 1	Removal of the top cover ass'y

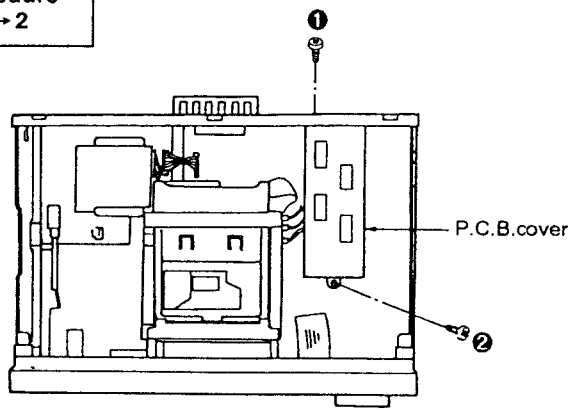
Procedure 1



1. Remove the 7 screws(❶~❼).
2. Remove the top cover ass'y in the direction of arrow.

Ref.No. 2	Removal of the P.C.B. cover

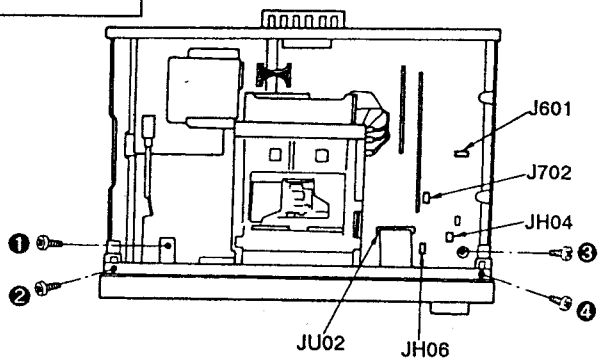
Procedure 1→2



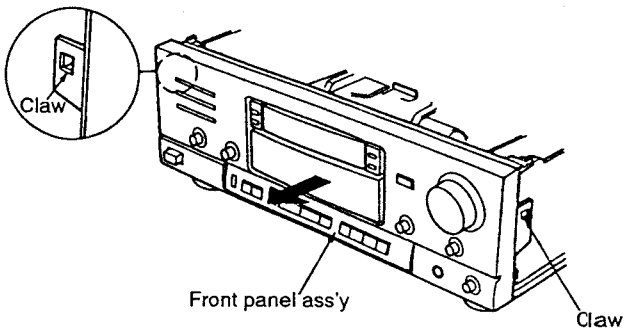
• Remove the 2 screws(❶, ❷).

Ref.No. 3	Removal of the front panel ass'y

Procedure 1→2→3



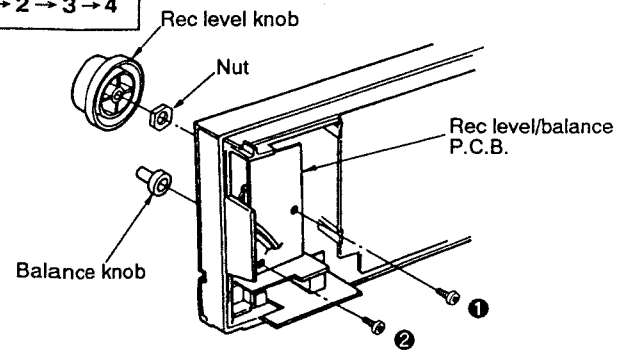
1. Remove the 5 connectors(JU02,JH04,JH06,J601,J702).
2. Remove the 4 screws(❶~❹).



3. Remove the 2 claws.
4. Remove the front panel ass'y in the direction of arrow.

Ref.No. 4	Removal of the rec level/balance P.C.B.

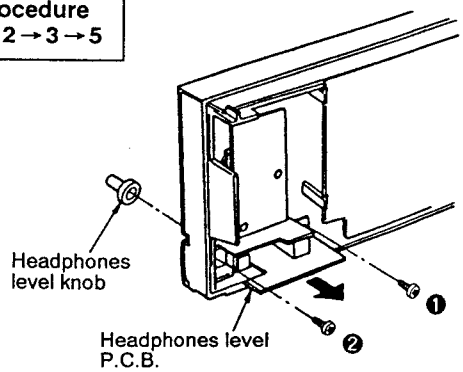
Procedure 1→2→3→4



1. Pull out the rec level knob and balance knob.
2. Remove the nut.
3. Remove the 2 screws(❶, ❷).

Ref.No. 5	Removal of the headphones level P.C.B.

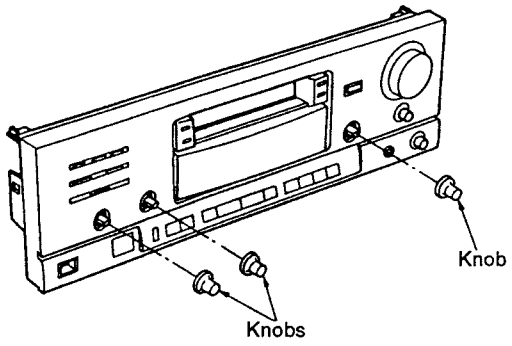
Procedure 1→2→3→5



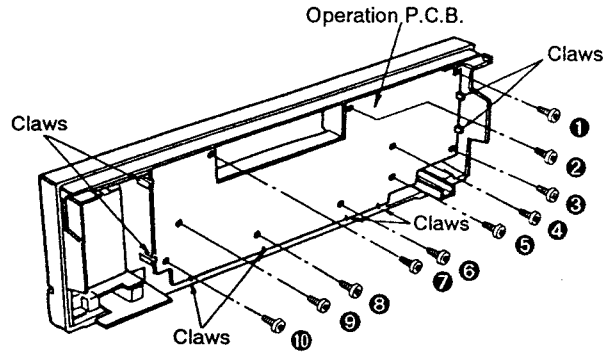
1. Pull out the headphones level knob.
2. Remove the 2 screws(❶, ❷).
3. Remove the headphones level P.C.B. in the direction of arrow .

Ref.No. 6	Removal of the operation P.C.B.

Procedure 1→2→3→6



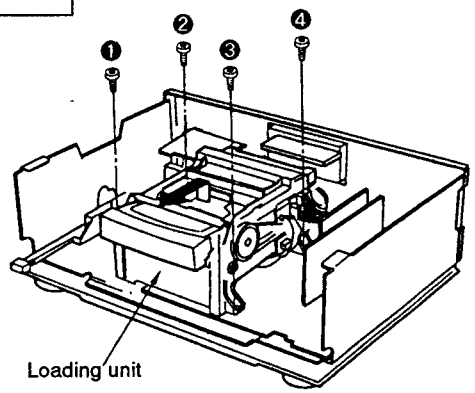
1. Remove the 3 knobs.



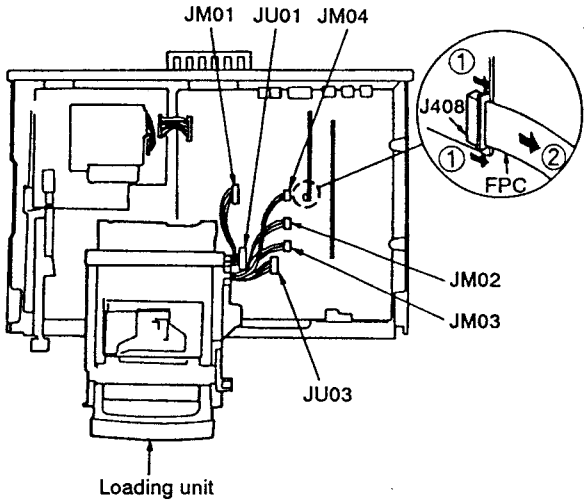
2. Remove the 10 screws(❶~⑩).
3. Release the 8 claws.

Ref.No. 7	Removal of the loading unit

Procedure 1→2→3→7



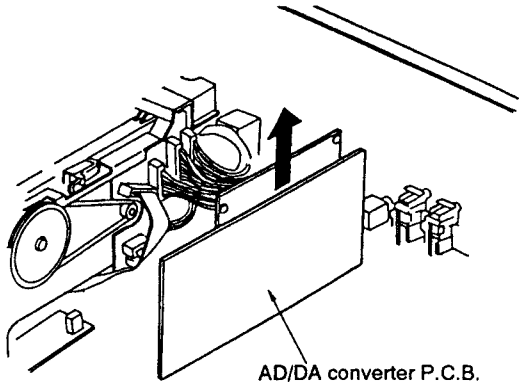
1. Remove the 4 screws(❶~❹).
2. Remove the loading unit in the direction of arrow.



3. Remove the 7 connectors(JM01,JU03,JM04,JM02,JM03, JU01,J408).

Ref.No. 8	Removal of the AD/DA converter P.C.B.

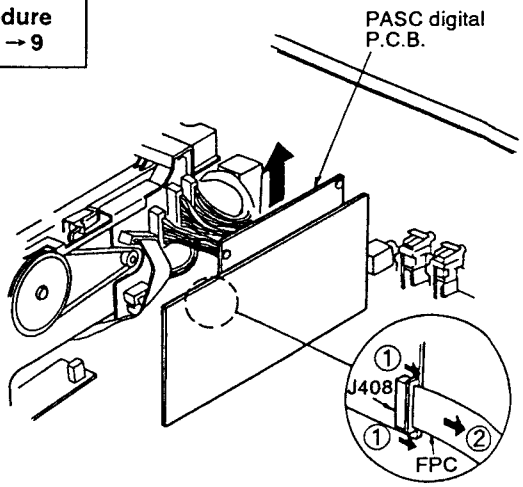
Procedure 1→2→8



- Remove the AD/DA converter P.C.B. in the direction of arrow.

Ref.No. 9	Removal of the PASC digital P.C.B.

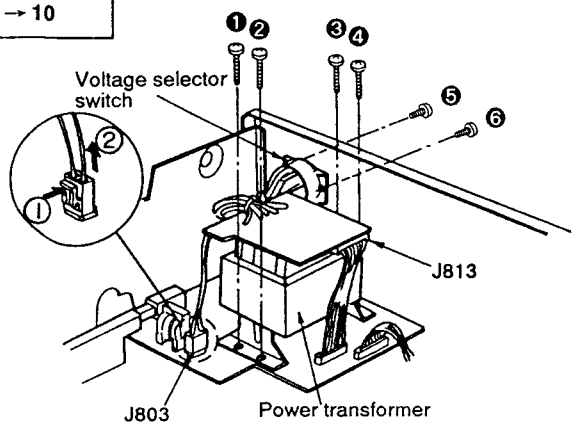
Procedure 1→2→9



1. Remove the 1 connector(J408).
2. Remove the PASC digital P.C.B. in the direction of arrow.

Ref.No. 10	Removal of the power transformer and voltage selector switch

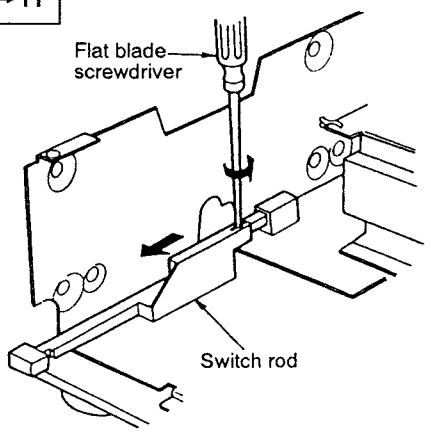
Procedure
1 → 10



1. Remove the 2 connectors(J803,J813).
2. Remove the 6 screws(❶~❻).

Ref.No. 11	Removal of the switch rod

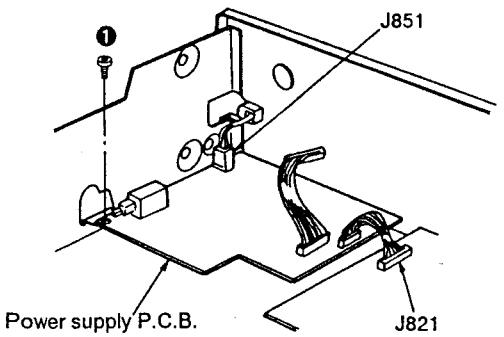
Procedure
1 → 2 → 3 → 11



- Pull the switch rod with twisting the slots of the ends of the switch rod by flat blade screwdriver.

Ref.No. 12	Removal of the power supply P.C.B.

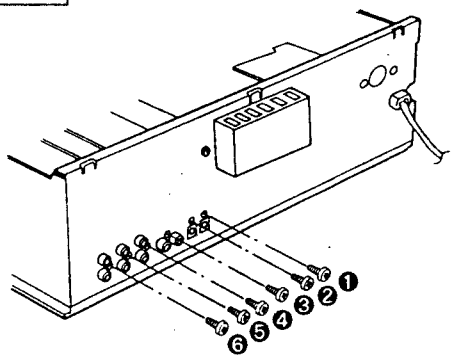
Procedure
1 → 2 → 3 → 10 → 11 → 12



1. Remove the 1 screw(❶).
2. Remove the 2 connectors(J821,J851).

Ref.No. 13	Removal of the main P.C.B.

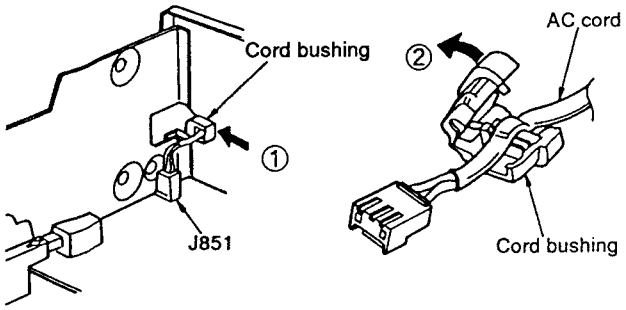
Procedure
1 → 2 → 3 → 7 → 8 → 9 → 13



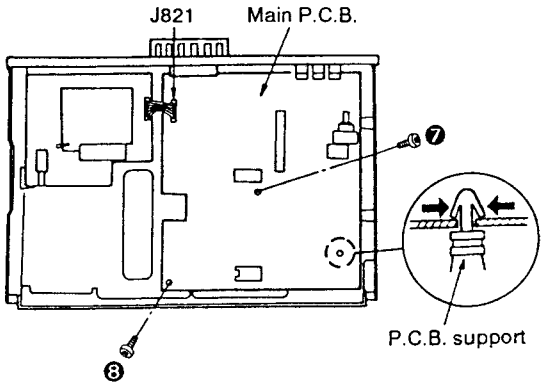
1. Remove the 6 screws(❶~❻).

Ref.No. 14	Removal of the AC cord

Procedure
1 → 14



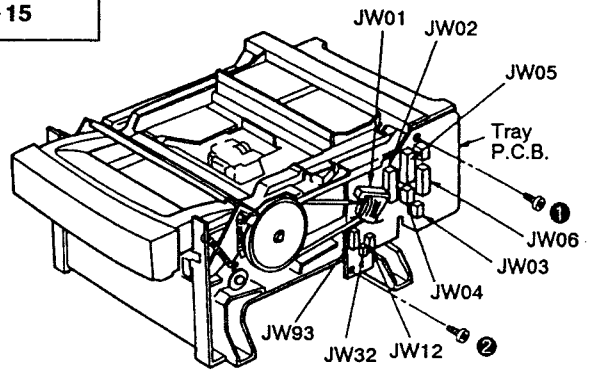
1. Remove the 1 connector(J851).
2. Remove the cord bushing in the direction of arrow①.
3. Remove the cord bushing in the direction of arrow②.



2. Remove the 1 connector(J821).
3. Remove the 2 screws(❼,❽).
4. Remove the P.C.B. support.

Ref.No. 15	Removal of the tray P.C.B.

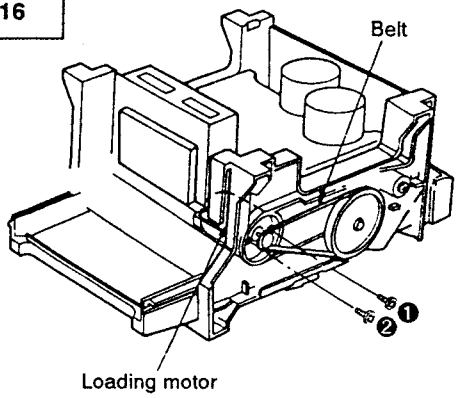
Procedure 1→2→3→7→15



1. Remove the 9 connectors(JW01,JW02,JW03,JW04,JW05, JW06,JW12,JW32,JW93).
2. Remove the 2 screws(❶,❷).

Ref.No. 16	Removal of the loading motor

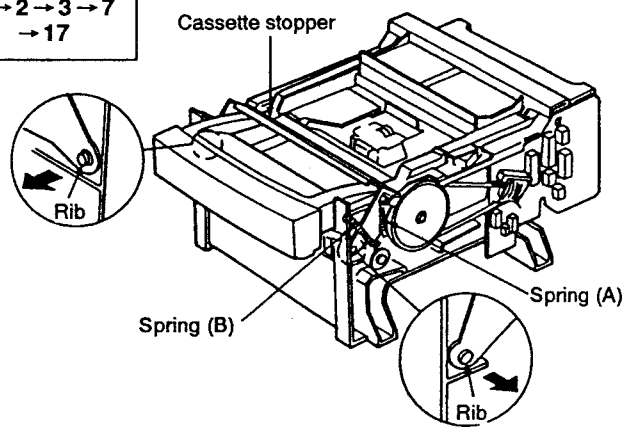
Procedure 1→2→3→7→15→16



1. Remove the belt.
2. Remove the 2 screws(❶,❷).

Ref.No. 17	Removal of the cassette stopper

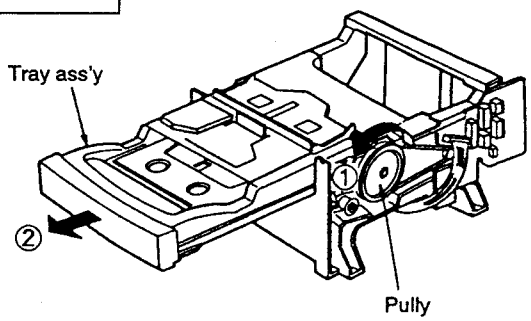
Procedure 1→2→3→7→17



1. Remove the spring (A) and spring (B).
2. Remove the ribs in the direction of arrow.

Ref.No. 18	Removal of the tray ass'y

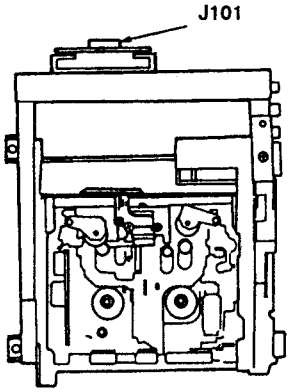
Procedure 1→2→3→7→17→18



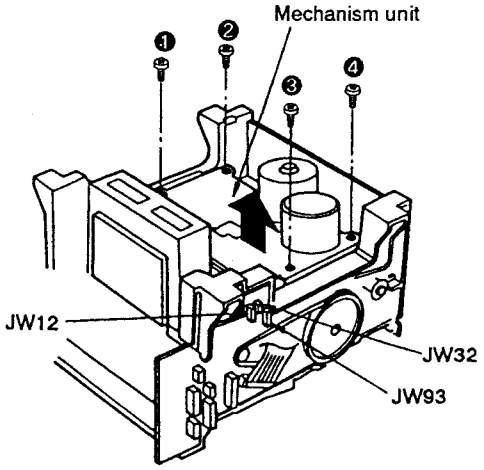
1. Roll the pully in the direction of arrow ①,and draw out the tray.
2. Remove the tray in the direction of arrow ②.

Ref.No. 19	Removal of the mechanism unit

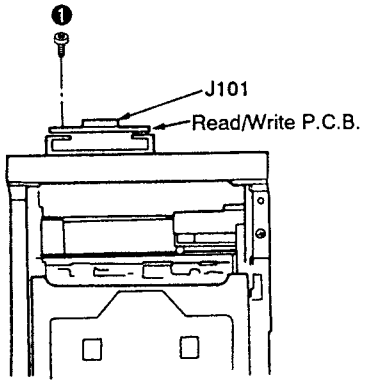
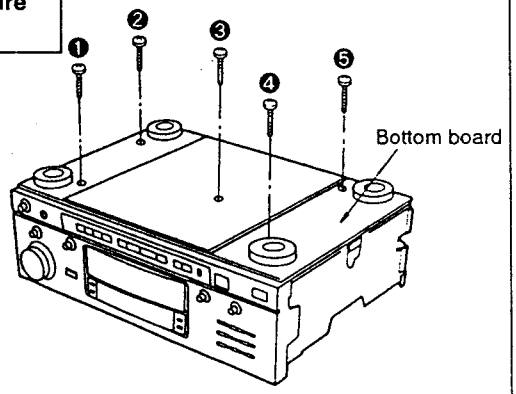
Procedure 1→2→3→7→17→18→19



1. Remove the 1 connector(J101).



2. Remove the 3 connectors(JW12,JW32,JW93).
3. Remove the 4 screws(❶~❹).
4. Remove the mechanism unit in the direction of arrow.

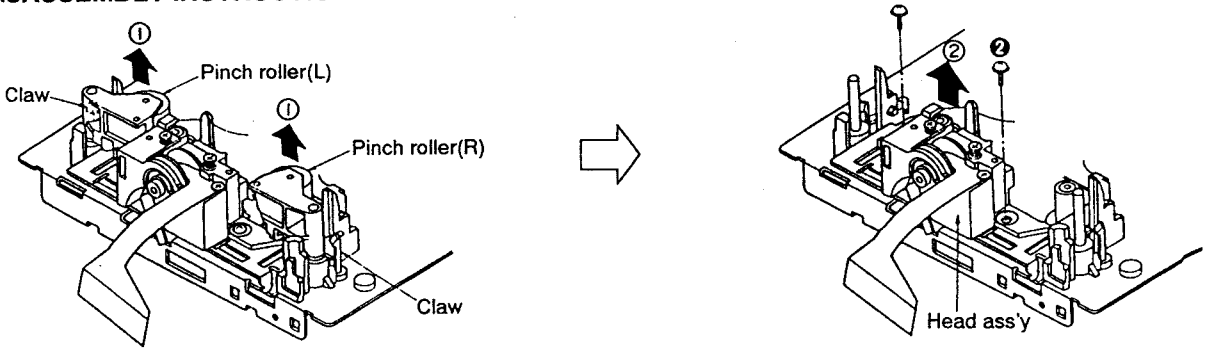
Ref.No. 20	Removal of the Read/Write P.C.B.	Ref.No. 21	Removal of the bottom board
Procedure 1→2→3→7 →17→18→20		Procedure 1→21	
1. Remove the 1 connector(J101). 2. Remove the 1 screws(❶).		• Remove the 5 screws(❶~❺).	

■ HEAD ASS'Y REPLACEMENT

Cautions:

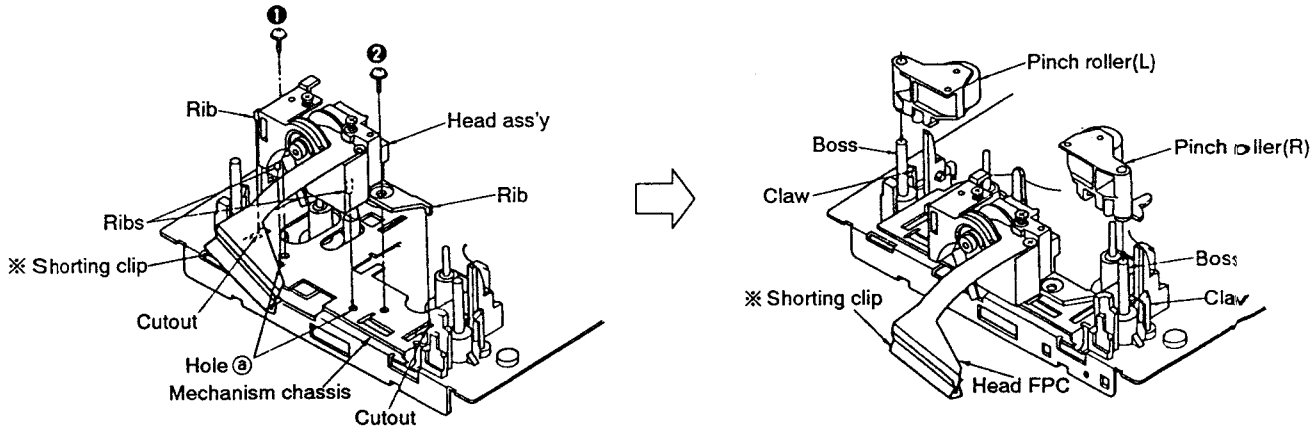
1. Be sure to wear a grounding wrist band whenever you touch the head assemblies.(RFKZ0036)(See page 13.)
2. When removal the "Head Ass'y" use a unmagnetized adjusting screwdriver.(RFKZ0037)(See page 13.)

● DISASSEMBLY INSTRUCTION



1. Release the 2 claws and remove the Pinch roller(L),(R) in the direction of arrow ①.
2. Remove the 2 screws(❶,❷).
3. Remove the head ass'y in the direction of arrow ②.

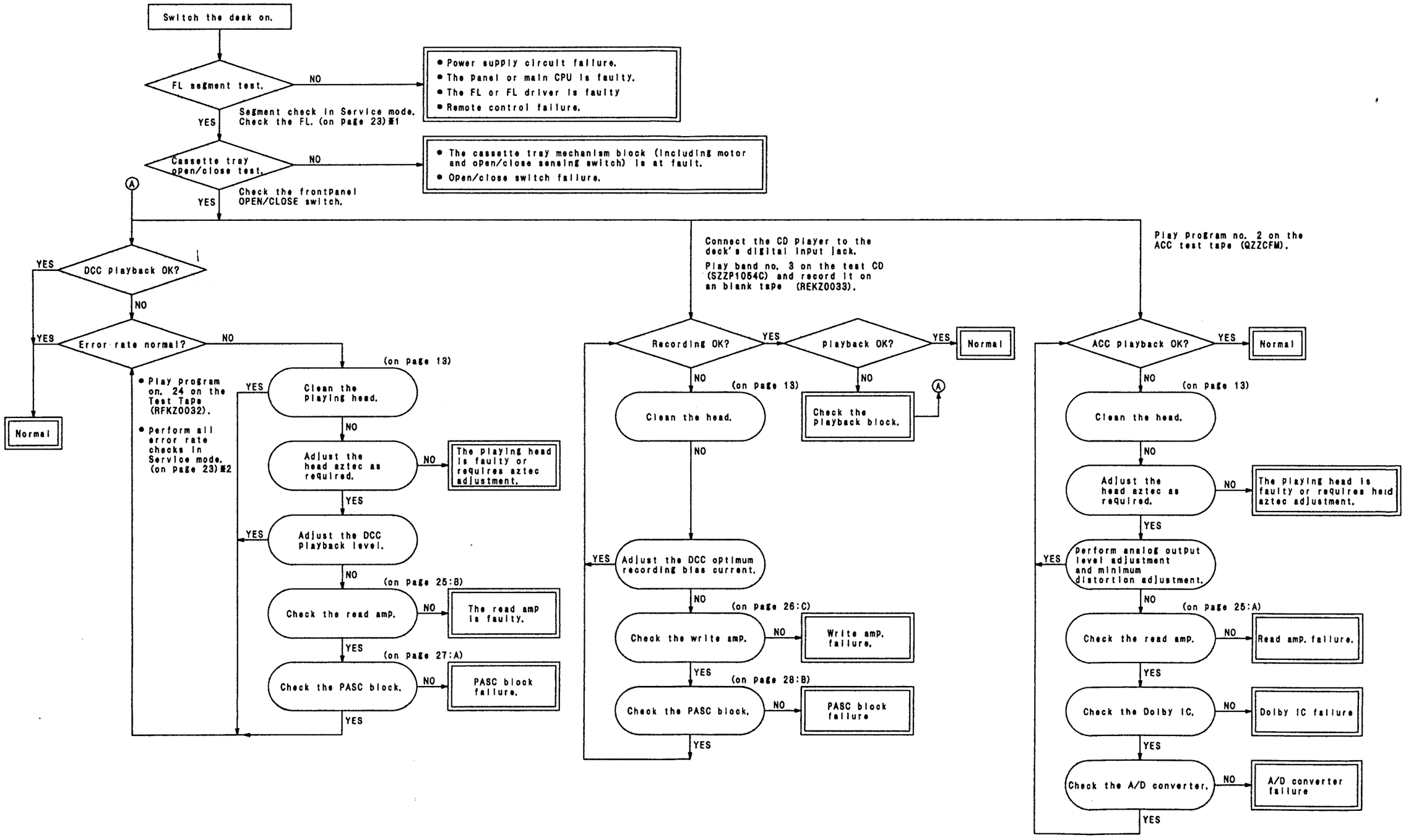
● REASSEMBLY INSTRUCTION



1. Align the 4 ribs of head ass'y to the two holes ⓐ and two cutouts in the mechanism chassis.
2. Fix the 2 screws(❶,❷)to the head ass'y.
3. Fix the 2 Pinch roller(L),(R) to each boss on the mechanism chassis.
   (Press the pinch rollers until it is secured by the claw on the mechanism chassis.)

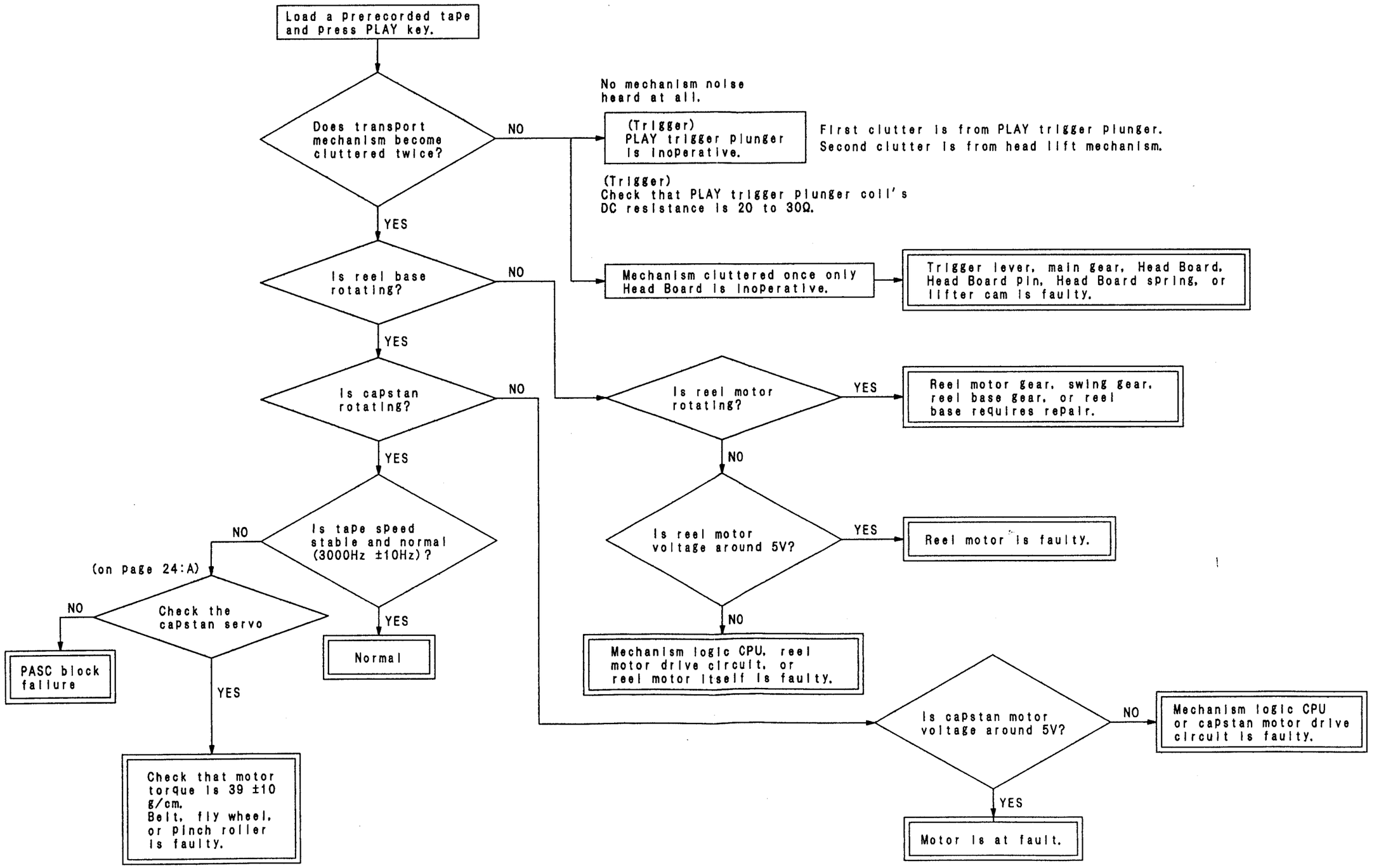
※ • Only remove the shorting clip on the head FPC if the Read/Write P.C.B. connector (J101) is connected.
• After the shorting clip is removed, make connection to the connector (J101) as soon as possible.

■ OPERATIONAL CHECKING PROCEDURE



■ MECHANISM BLOCK CHECK

(Remount on defective mechanism block. Connect extention cords to pins 9, 10, and 11 and connect extention FPC.)



■ HOW TO USE "SERVICE MODE"

• Test procedure by function of "Service Mode".

This unit provides "Service Mode" function by which the segment test, FL test (*1) and the "ALL ERROR RATE" inspection (*2) can be performed.

*1

1. Setting at Service Mode
   To select Service mode, switch on the unit while holding down the **STOP** and **PLAY** keys.

⇩

2. Segment Test
   The following characters are displayed in sequence

   SERVICE MODE 1′ +′ +−, 1
   0123456789 3=ε ′7
   ABCDEFGHIJKLMNOPQRSTUVWXYZ
   −A~Z

   (Display in alphabetical order)

⇩

3. FL Test
   Press the COUNTER key
   All FL segments are lit up and the PLAY (green) and REC (red LEDs on the operation panel, come on.

⇩

*2

(Press the counter key until "ALL ERROR RATE" is displayed.

⇩

ALL ERROR RATE

(FL displays)

⇩

00 00000000

(FL displays Displays of ten figure)

• Pass/Reject Condition from All Error Rate

• Program to play in DCC test tape

Display	Condition	Remedy
"00000000" is constantly displayed for all tracks.	Normal (OK)	—
"01101000" is momentarily displayed for any one to three tracks (or more).	Normal (OK)	—
"11111111" is constantly displayed for one to three tracks (or more).	Error	Clean head with alcohol. (on page 13.) ⇩ Check playback signal envelope at J103-pin 7. ⇩ Adjust DCC playback level if the envelope amplitude (Vp-p) is too small. ⇩ If the envelope amplitude is not at 12Vp-p±100mV, a problem exists in the head or read amplifier. ⇩ Check head assembly. ⇩ If the head assembly is normal, the read amplifier is most likely at fault. Refer to the content of "Read/Write P.C.B. check" on pages 25, 26.
"11111111" is constantly displayed for all tracks.	Error	
"FFFFFFFF" is constantly displayed for all tracks.	Error	

■ ABOUT THE OPERATIONAL CHECKING POINTS

Capstan Servo Check

A) DCC Playback System

1. Connect an oscilloscope to **J411 pin 3** (motor speed TP) on the **PASC digital P.C.B.** as shown in the figure below (connect the scope's ground lead to the chassis ground).
2. Load a **DCC music tape (RFKZ0034)** into the unit under test and put the unit **in PLAY mode.** When the capstan servo is locked, a **47Hz square wave with a duty ratio variation of less than 0.5μs** will be observed on the scope (see Fig. 1). Unlock the servo and verify that the muting function is active.

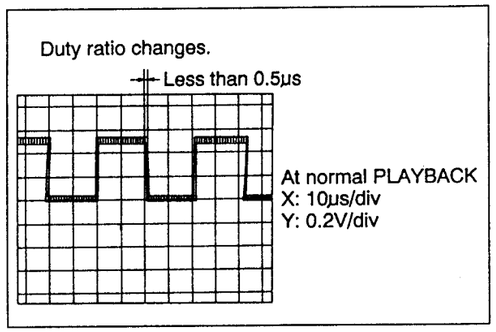


Fig. 1

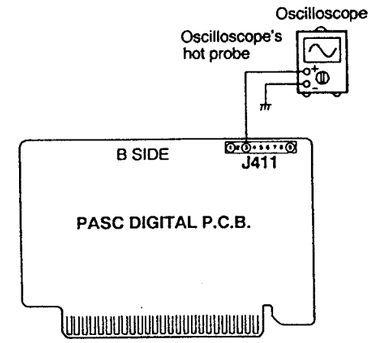


Fig. 2

B) DCC Record System and ACC Playback System

1. Set up the unit as described in paragraph 1 above.
2. Load a **DCC blank tape (RFKZ0033)** into the unit under test and put the unit **in REC mode.** Verify that a continuous **47Hz square wave with a 50 percent duty ratio** is observed on the scope (see Fig. 3). This is the normal result.
   Also verify that the same waveform is observed when a prerecorded ACC tape is played.

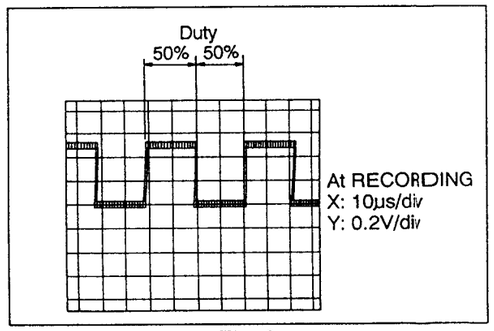


Fig. 3

Read/Write P.C.B. Check

A) ACC Playback System

1. Connect an oscilloscope to **J103 pin 18** (analog L-channel) or **16** (analog R-channel) on the Read/Write P.C.B. (connect the probe's ground lead to the chassis ground).
2. Play a **prerecorded ACC tape.**
3. Verify that the **waveform changes** as shown below when the unit is switched **from STOP mode to PLAY mode.**

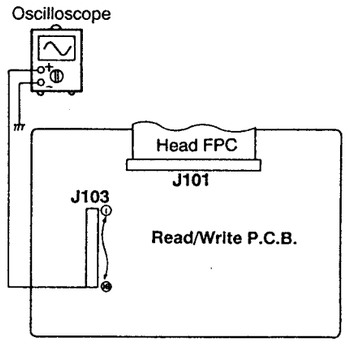


Fig. 4

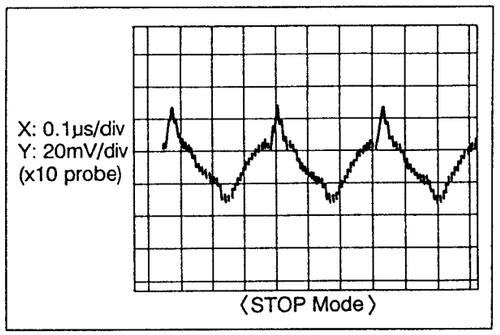


Fig. 5

Approx. 3 MHz in STOP mode
An AC bias is applied to suppress 600 mVp-p noise inherent to the MR head.

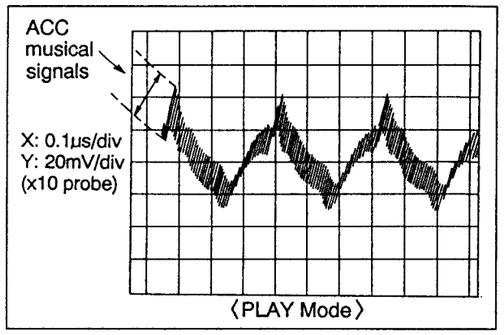


Fig. 6

During playback musical signals are superimposed on the AC bias.

B) DCC Playback System

1. Connect a dual-beam oscilloscope's **CH. 1 probe to J103 pin 9 (RD Clock)** on the Read/Write P.C.B. (connect the probe's ground lead to the chassis ground).
2. Connect the scope's **CH. 2 probe to J103 pin 11 (RD Sync).**
3. Play a **DCC music tape (RFKZ0034).**
4. Verify that the waveform shown below is observed on the scope.

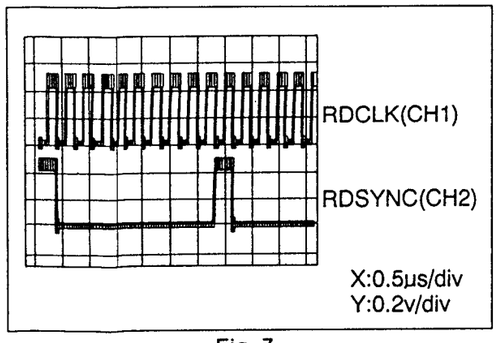


Fig. 7

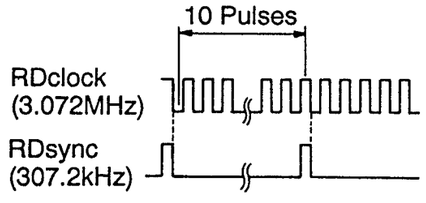


Fig. 8

5. Connect an oscilloscope's **CH. 1 probe to J103 pin 7 (RD Mux)** on the Read/Write P.C.B. (connect the probe's ground lead to the chassis ground).
6. Connect the scope's **CH. 2 probe to J103 pin 11 (RD Sync).**
7. Play a **DCC music tape (RFKZ0034).**
8. Verify that the waveform shown below is observed on the scope.

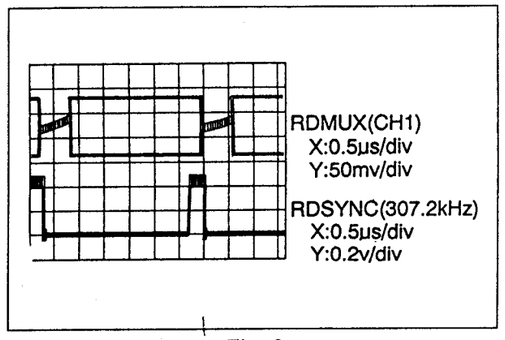


Fig. 9

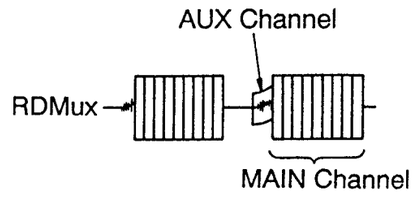


Fig. 10

C) DCC Recording System

9. Connect the dual-beam oscilloscope's **CH. 1 probe to J103 pin 5 (WCLCK)** on the Read/Write P.C.B. (connect the probe's ground lead to the chassis ground).
10. Connect the scope's **CH. 2 probe to J103 pin 3 (WDATA).**
11. Play a **DCC blank tape (RFKZ0033).**
    Verify that the waveform shown next page is observed on the scope.

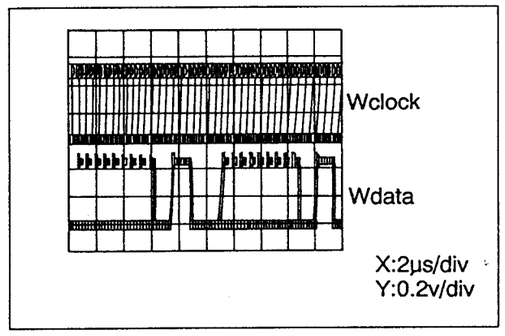


Fig. 11

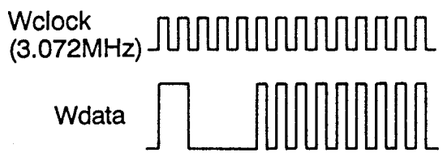


Fig. 12

— If adjustment failed, it is most probable that —

(1) Q101, Q105, Q106, or Q151 on the Read/Write P.C.B. (or any combination there of) is defective.
(2) The head is contaminated. Clean the head with alcohol.
(Follow the same cleaning procedure as for ACC decks.)

PASC Digital P.C.B. Check

A) Play Mode Check

- Checking the Input Signal Waveforms
  1. Play **program no. 34 on the Test Tape (RFKZ0032).**
     Connect an oscilloscope to **J408 pin 7** on the PASC Digital P.C.B. and check for the following input signal waveforms (connect the scope's ground lead to the chassis ground).

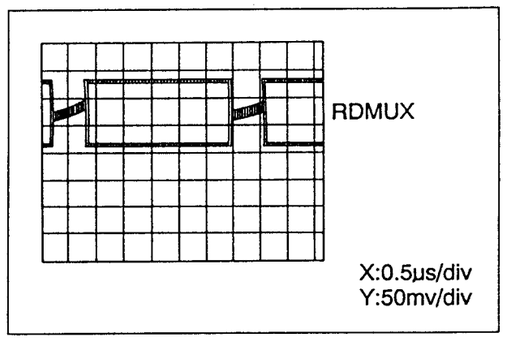


Fig. 13

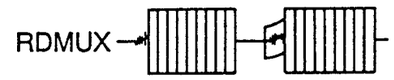


Fig. 14

- **Checking the Output Signal Waveforms**
  1. Check the output waveforms at **pin 42** (connect to the scope's **ch. 1** probe) and **pin 50** (connect to the scope's **ch. 2** probe) of connector **J421,** which connects the PASC Digital P.C.B. to the Main P.C.B.
  2. **Play program no. 34** on the **Test Tape (RFKZ0032)** and observe the output signal waveforms. Play program no. 47 on the same tape and check to make sure that the following output waveforms are observed.

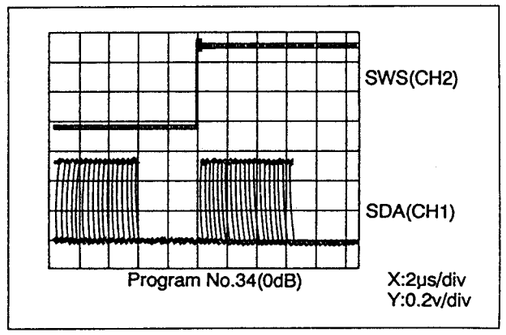


Fig. 15

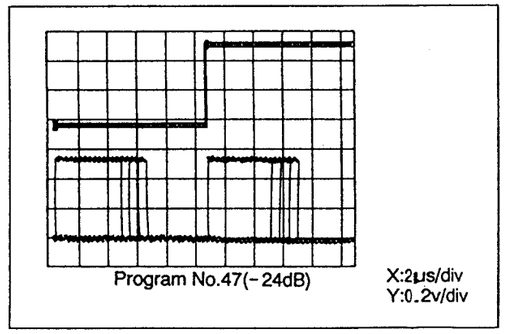


Fig. 16

The playback system is functioning normally if the specified input and output waveforms are obtained at the test points.

B) Recording Mode Check

Feed the CD player output to the DIGITAL REC IN/COAXIAL jack on the DCC deck.

- **Checking the Input Signal Waveforms**

1. Connect the oscilloscope to the same test points as those used to check the playback output signal.
2. Load an **DCC blank tape (RFKZ0033)** into the DCC deck. **Play Track 1 and 3 on the test CD (SZZP1054C)** and place the deck in REC mode to record the CD test programs.
3. Check for the following input signal waveforms at the test points.

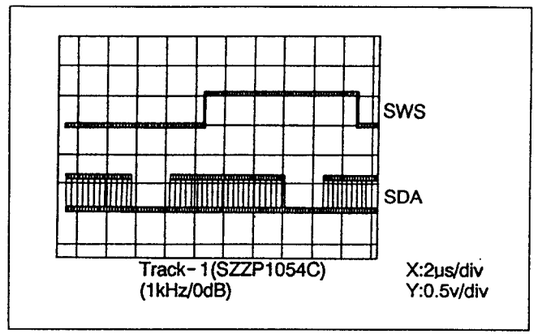


Fig. 17

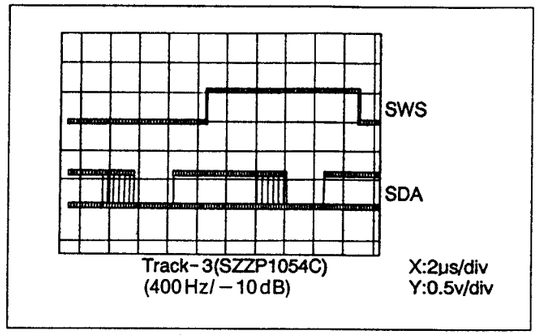


Fig. 18

- **Checking the Output Signal Waveforms**

1. Connect an oscilloscope to **J408 pin 3** on the PASC Digital P.C.B. and check for the following output signal waveforms (connect the scope's ground lead to the chassis ground).

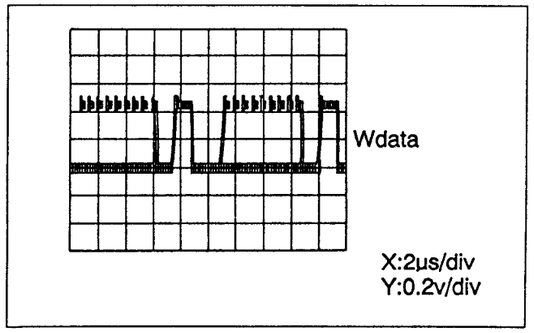


Fig. 19

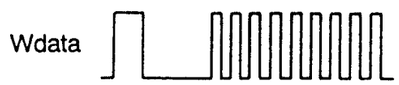
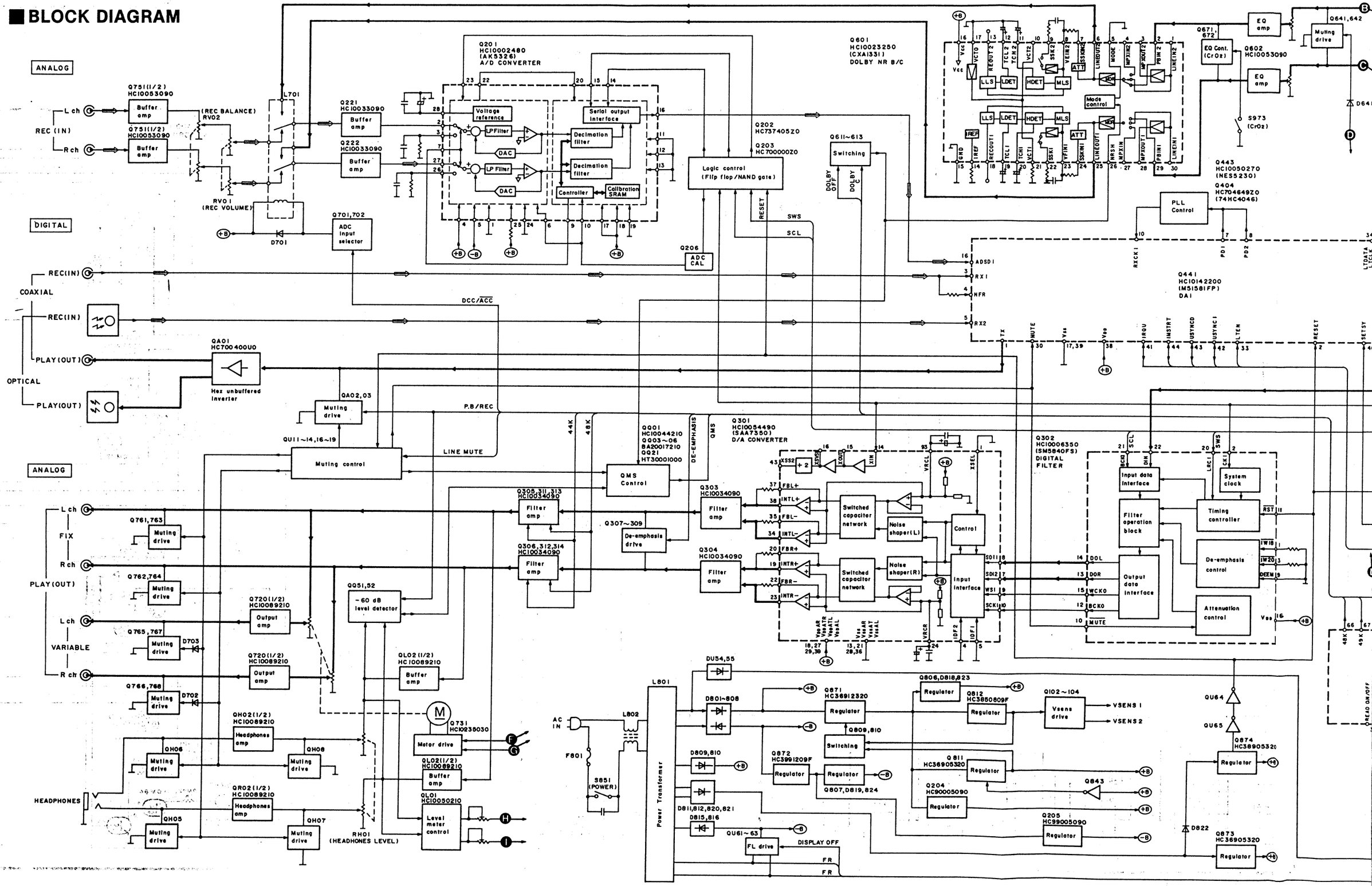
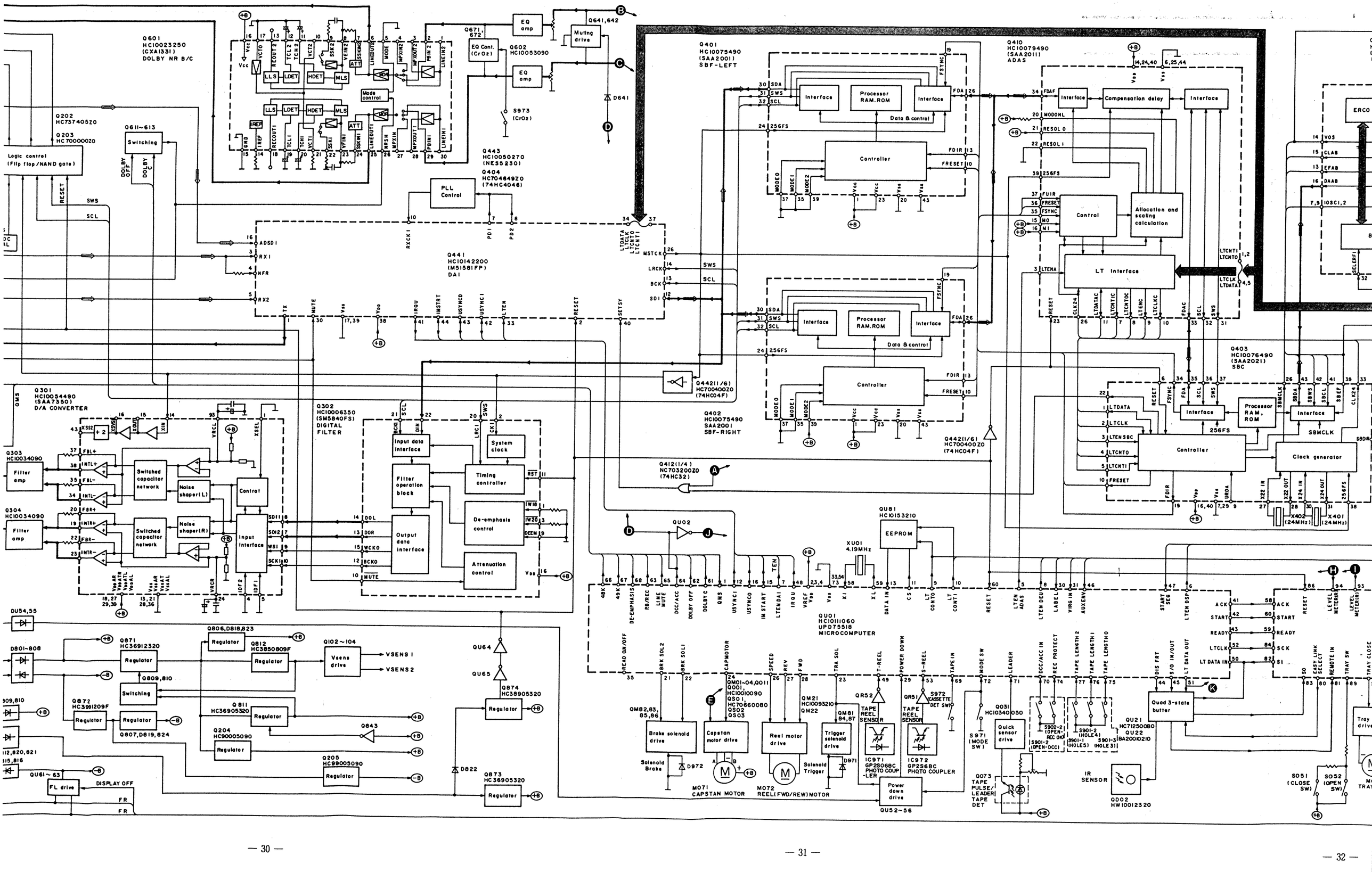


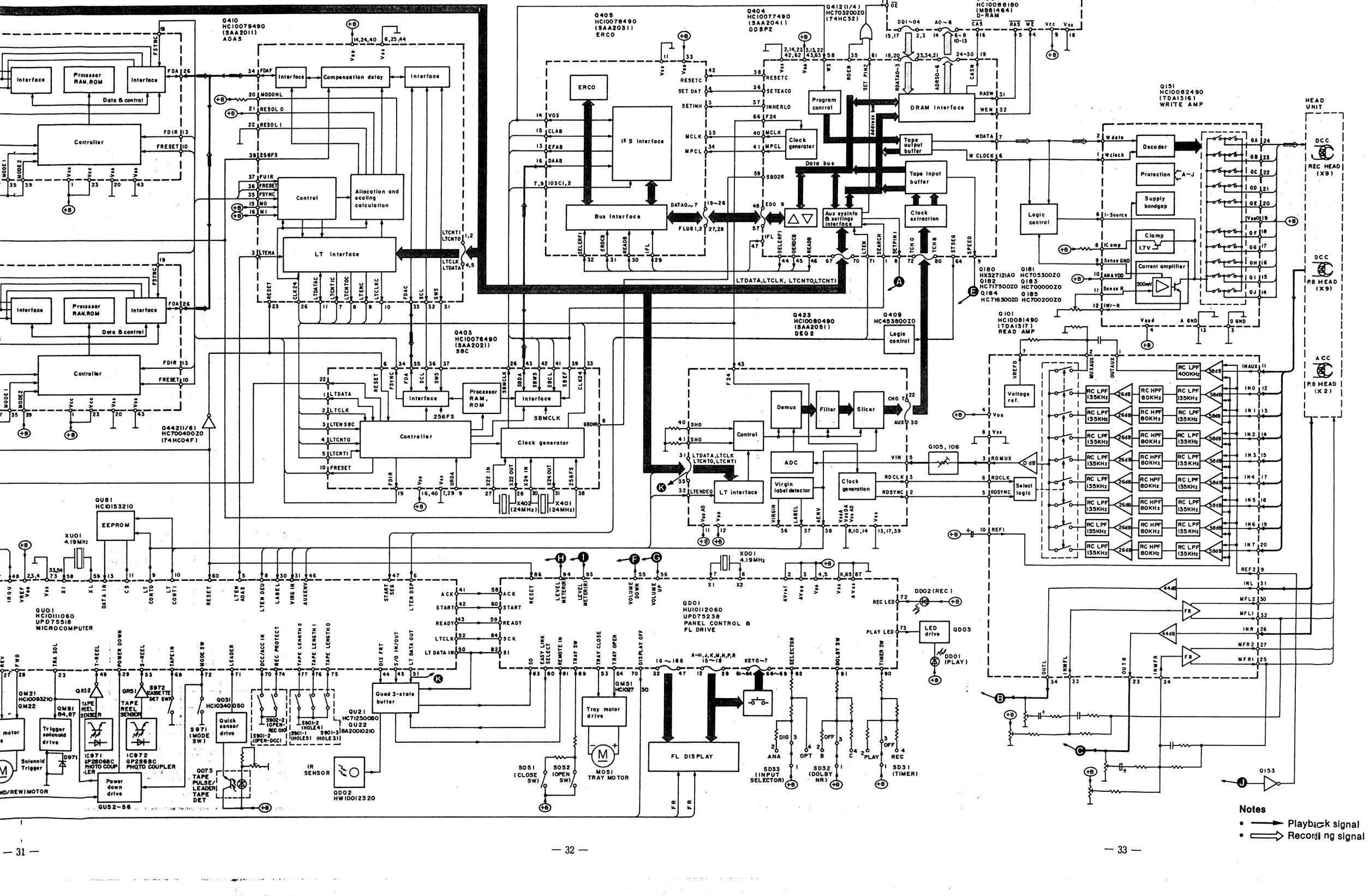
Fig. 20

The recording system is functioning normally if the specified input signal waveforms are obtained at the test point.

■ BLOCK DIAGRAM




Q601
HC10023250
(CXA1331)
DOLBY NR B/C
Q202
HC73740520
Q203
HC70000020
Logic control
(Flip flop/NAND gate)
RESET
SWS
SCL
Q611~613
Switching
DOLBY OFF
DOLBY C
Mode control
EQ amp
EQ Cont.
(CrO2)
Q602
HC10053090
Muting drive
Q641,642
Q671,672
D641
S973
(CrO2)
Q443
HC10050270
(NE55230)
Q404
HC704649Z0
(74HC4046)
PLL Control
Q441
HC10012200
(M51581FP)
DAI
ADSDI
RXI
NFR
RX2
TX
MUTE
IRQU
IMSTRT
USYNCO
USYNCI
LTEM
RESET
SETSY
MSTCK
LRCK
BCK
SDI
SWS
SCL
Q401
HC10075490
(SAA2001)
SBF-LEFT
Q402
HC10075490
SAA2001
SBF-RIGHT
Interface
Processor RAM.ROM
Data & control
Controller
FSYNC
FDA
256FS
FDIR
FRESET
MODE0
MODE1
MODE2
Q410
HC10079490
(SAA2011)
ADAS
Compensation delay
MODONL
RESOL 0
RESOL 1
Control
Allocation and scaling calculation
LT Interface
FDAF
LTENA
LTCNTI
LTCNTO
LTCLK
LTDATA
Q403
HC10076490
(SAA2021)
SBC
Processor RAM, ROM
Clock generator
SBMCLK
Q442(1/6)
HC70040OZ0
(74HC04F)
Q412(1/4)
NC703200Z0
(74HC32)
Q301
HC10054490
(SAA7350)
D/A CONVERTER
Filter amp
Switched capacitor network
Noise shaper(L)
Noise shaper(R)
Control
Input interface
Q302
HC10006350
(SM5840FS)
DIGITAL FILTER
Input data interface
System clock
Filter operation block
Timing controller
De-emphasis control
Output data interface
Attenuation control
Q303
HC10034090
Q304
HC10034090
QU02
XU01
4.19MHz
QU81
HC10153210
EEPROM
QU01
HC10111060
UPD75518
MICROCOMPUTER
DU54,55
D801~808
Q871
HC36912320
Regulator
Q809,810
Switching
Q872
HC3991209F
Q807,D819,824
Q806,D818,823
Q812
HC3850809F
Q811
HC36905320
Q204
HC90005090
Q205
HC89005090
Q102~104
Vsens drive
VSENS1
VSENS2
QU64
QU65
Q874
HC38905320
Q843
D822
Q873
HC36905320
QU61~63
FL drive
DISPLAY OFF
FR
Brake solenoid drive
Solenoid Brake
D972
Capstan motor drive
M071
CAPSTAN MOTOR
Reel motor drive
M072
REEL(FWD/REW)MOTOR
Trigger solenoid drive
Solenoid Trigger
D971
TAPE REEL SENSOR
IC971
GP2S68C
PHOTO COUP-LER
IC972
GP2S68C
PHOTO COUPLER
Power down drive
QU52~56
S971
(MODE SW)
Q031
HC10340050
Quick sensor drive
Q073
TAPE PULSE/ LEADER/ TAPE DET
S902-2
(OPEN-REC OK)
S901-2
(OPEN-DCC)
S901-1
(HOLE5)
S901-2
(HOLE4)
S901-3
(HOLE3)
QU21
HC71250080
QU22
BA20010210
Quad 3-state butter
IR SENSOR
QD02
HW10012320
S051
(CLOSE SW)
S052
(OPEN SW)
X402
(24MHz)
X401
(24MHz)


Q410 HC10079490 (SAA2011) ADAS
Q405 HC10076490 (SAA2031) ERCO
Q404 HC10077490 (SAA2041) DDSP2
Q412(1/4) HC703200Z0 (74HC32)
Q406 HC10088180 (MB81464) D-RAM
Q151 HC10082490 (TDA1316) WRITE AMP
HEAD UNIT
DCC REC HEAD (X9)
DCC P.B HEAD (X9)
ACC P.B HEAD (X2)
Q403 HC10076490 (SAA2021) SBC
Q423 HC10080490 (SAA2051) DEQ2
Q409 HC453800Z0
Q101 HC10081490 (TDA1317) READ AMP
Q180 HX32712IA0
Q181 HC705300Z0
Q182 HC71750OZ0
Q183 HC700000Z0
Q184 HC71630OZ0
Q185 HC700200Z0
Q442(1/6) HC700400Z0 (74HC04F)
Q081 HC10153210 EEPROM
XU01 4.19MHz
QU01 HC10111060 UPD75518 MICROCOMPUTER
QD01 HU10112060 UPD75238 PANEL CONTROL & FL DRIVE
XD01 4.19MHz
DD02(REC)
DD01(PLAY)
QD03
LED drive
Q105, 106
Q153
Interface
Processor RAM,ROM
Data & control
Controller
Compensation delay
Control
Allocation and scaling calculation
LT Interface
Clock generator
ERCO
I2S Interface
Bus Interface
Program control
DRAM Interface
Clock generator
Tape output buffer
Tape input buffer
Clock extraction
Aux sysinfo & settings interface
Logic control
Data bus
Decoder
Protection
Supply bandgap
Clamp 1.7V
Current amplifier 200mV
Demux
Filter
Slicer
Control
ADC
Virgin label detector
Clock generation
LT interface
Voltage ref.
Select logic
Quad 3-state buffer
Tray motor drive
Power down drive
Quick sensor drive
Trigger solenoid drive
Solenoid Trigger
TAPE REEL SENSOR
CASSETTE DET SW
IR SENSOR
TAPE PULSE/ LEADER/ TAPE DET
FL DISPLAY
LED drive
RC LPF 400KHz
RC LPF 135KHz
RC HPF 80KHz
56dB
26dB
44dB
FB
Notes
Playback signal
Recording signal

■ SCHEMATIC DIAGRAM

(Parts list on pages 67～74.)

(This schematic diagram may be modified at any time with development of new technology.)

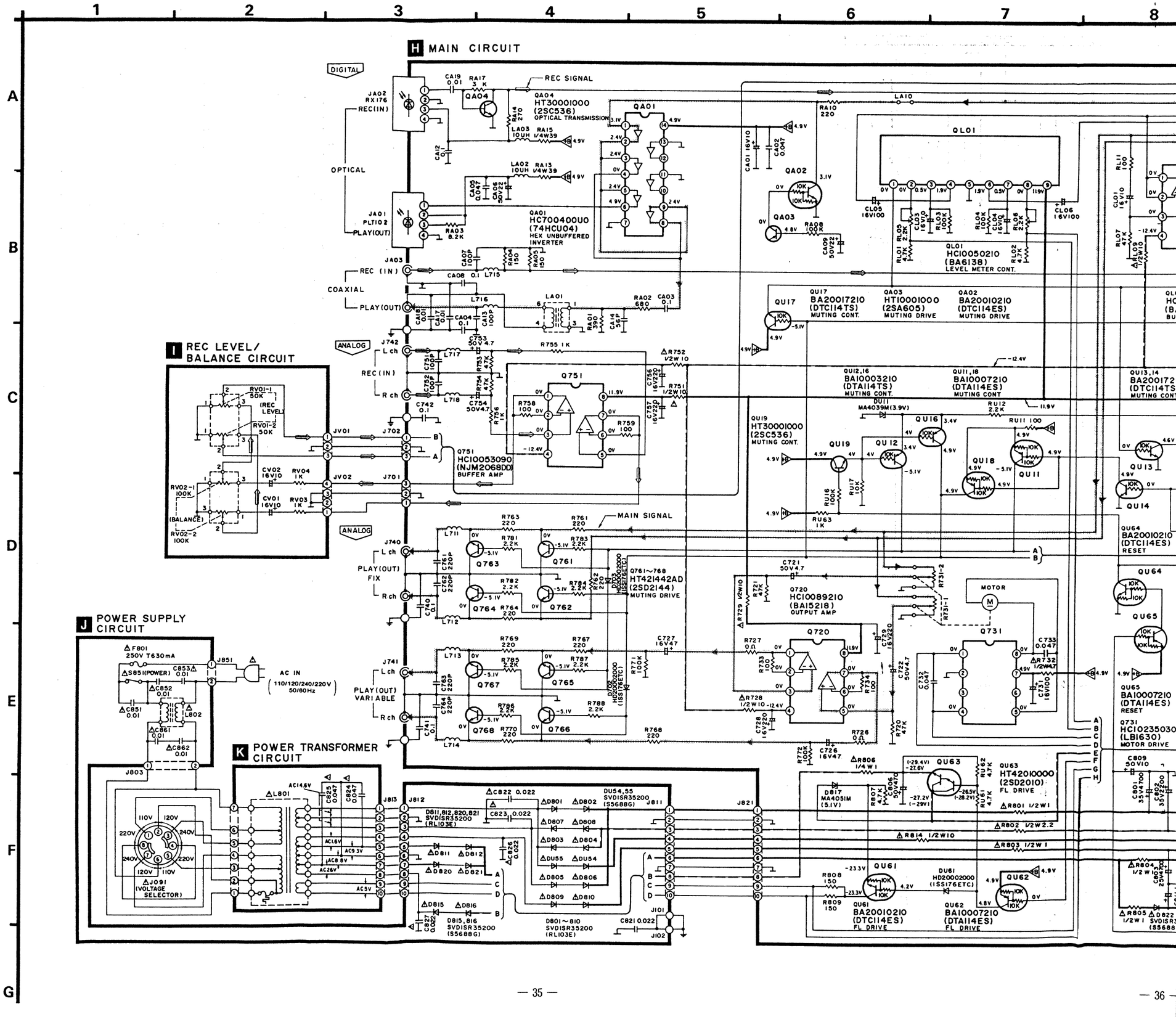
Note 1:

- **J091** : Voltage selector in **"240V"** position.
  (110V ↔ 120V ↔ 240V ↔ 220V)
- **S851** : Power switch in **"on"** position (POWER/■ OFF ▬ ON).
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
  1K=1,000 (Ω), 1M=1,000k (Ω)
- Capacity are in micro-farads (μF) unless specified otherwise.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.
  ( ).....Voltage values at record mode.
  For measurement us EVM.
- Important safety notice
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- (▬▬< +B >▬▬) indicates +B (bias).
- (▬▬< −B >▬▬) indicates −B (bias).
- (⇝) indicates the flow of the playback signal.
- (⇨) indicates the flow of the record signal.

Caution!

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevended by taking care during repair.

- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the legs of IC or LSI with the fingers directly.



2 3 4 5 6 7 8 9 10 11

H MAIN CIRCUIT

I REC LEVEL/ BALANCE CIRCUIT

K POWER TRANSFORMER CIRCUIT

L REGULATOR CIRCUIT

DIGITAL

OPTICAL

REC(IN)

PLAY(OUT)

COAXIAL

REC (IN)

PLAY(OUT)

ANALOG

REC(IN)

L ch

R ch

PLAY(OUT) FIX

PLAY(OUT) VARIABLE

REC SIGNAL

MAIN SIGNAL

AC IN (110/120/240/220V 50/60Hz)

QA04 HT30001000 (2SC536) OPTICAL TRANSMISSION

QA01 HC70400000 (74HCU04) HEX UNBUFFERED INVERTER

QA02 HC10089210 (BA15218) OUTPUT AMP

QA03 HT10001000 (2SA605) MUTING DRIVE

QL01 HC10050210 (BA6138) LEVEL METER CONT.

QL02 HC10089210 (BA15218) BUFFER AMP

QU17 BA20017210 (DTC114TS) MUTING CONT.

QU12,16 BA10003210 (DTA114TS) MUTING CONT.

QU11,18 BA10007210 (DTA114ES) MUTING CONT

QU13,14 BA20017210 (DTC114TS) MUTING CONT.

QU19 HT30001000 (2SC536) MUTING CONT.

QU19 MA4039M(3.9V)

QU64 BA20010210 (DTC114ES) RESET

QU65 BA10007210 (DTA114ES) RESET

Q731 HC10235030 (LB1630) MOTOR DRIVE

Q720 HC10089210 (BA15218) OUTPUT AMP

Q751 HC10053090 (NJM2068DD) BUFFER AMP

Q761~768 HT42144 2AD (2SD2144) MUTING DRIVE

QU61 BA20010210 (DTC114ES) FL DRIVE

QU62 BA10007210 (DTA114ES) FL DRIVE

QU63 QU65 HT42010000 (2SD2010) FL DRIVE

Q805 HT42159280 (2SD2159) REGULATOR

Q806 HD20002000 (ISS176ETC)

Q807 HT21425280 (2SB1425) REGULATOR

Q701 H74215928C (2SD2159) ADC INPUT SELECTOR

D701 SVD1SR35200 (S5688G)

Q812 HC3850809F (NJM78M08FA) REGULATOR

Q843 BA20017210 (DTC114TS)

Q811 HC36905320 (PQ05RA1) REGULATOR

Q809,810 BA20017210 (DTC114TS) SWITCHING

Q876 HC56912320 (PQ12RA11) REGULATOR

Q872 HC3991209F (NJM7912FA) REGULATOR

QU53 BA20010210 (DTC114ES) POWER DOWN DRIVE

QU52 BA10007210 (DTA114ES) POWER DOWN DRIVE

QU54 BA10010210 (DTA114ES) POWER DOWN DRIVE

QU55,56 BA2001 (DTC114 POWER DO DRIVE

D811,812,820,821 SVD1SR35200 (RL103E)

D801~810 SVD1SR35200 (RL103E)

D815,816 SVD1SR35200 (S5688G)

D822 SVD1SR35200 (S5688G)

J0091 (VOLTAGE SELECTOR)

10 11 12 13 14 15 16 17 18 19

TEST CONNECTOR JU03: LT-ADAS, LT-DDSP, LT-DAI, LT-DEQ, LT-CNTO, LT-CNTI, S-SEG, LT-DATA, LT-CLK, +B(1), D.GND

To G AD/DA CONVERTER CIRCUIT (J303): RESET, 48KHz, 44KHz, Rch IN, A.GND, Lch IN

To G AD/DA CONVERTER CIRCUIT (J302): DAC DATA, SWS, D.GND, SCL, AD DATA, D.GND, 256FS, D.GND, ADC CAL, DE-EMPHA, MUTE

To G AD/DA CONVERTER CIRCUIT (J301): +B(1), −B(1), +B(4), A.GND, Rch OUT, Lch OUT

Q701 H7421592B0 (2SD2159) ADC INPUT SELECTOR

Q702 BA20017210 (DTC114TS) ADC INPUT SELECTOR

QU03,04 BA10007210 (DTA114ES) 44KHz/48KHz SELECT

Q602 HC10053090 (NJM2068DD) EQ AMP

J421: UNLOCK, MUTE, OPTICAL, D-GND, TX, D-GND, COAXIAL, D-GND, IROU, IMSTRT, LABEL, RESET, LT-DAI, MUTE DAC, DE EMPHA, ATT DAC, LT-DDSP, LT-DEQ, A ENY, START SEG, GND, +5V(DIGITAL), GND(WRITE), +8V(SENSE), +5V(WRITE) / SWS, D-GND, SCL, D-GND, 256FS, D-GND, AD DATA, D-GND, DAC DATA, USYNC O, USYNC I, VIRGIN, LT-CNTI, LT-CNTO, LT-ADAS, D-GND, LT-CLK, D-GND, LT-DATA, SPEED, +5V(READ), ANA R, A-GND, ANA L, CC/DCC

Q812 HC3850809F (NJM78M08FA) REGULATOR

Q843 BA20017210 (DTC114TS)

Q811 HC36905320 (PQ05RA1) REGULATOR

Q809,810 BA20017210 (DTC114TS) SWITCHING

Q641,642 BA20028210 (DTC323TS) MUTING DRIVE

QU02 BA20017210 (DTC114TS) ACC / DCC

QU33 BA10010210 (DTA144ES) DAC CAL

QM21 HC10093210 (BA6219) REEL MOTOR DRIVE

QM22 BA20017210 (DTC114TS) MOTOR DRIVE

QU53 BA20010210 (DTC114ES) POWER DOWN DRIVE

QU52 BA10007210 (DTA114ES) POWER DOWN DRIVE

QU54 BA10010210 (DTA114ES) POWER DOWN DRIVE

QU55,56 BA20017210 (DTC114TS) POWER DOWN DRIVE

QM02 BA10003210 (DTA114TS) CAPSTAN MOTOR DRIVE

QM01 BA20017210 (DTC114TS) CAPSTAN MOTOR DRIVE

QM03 HT42010000 (2SD2010) CAPSTAN MOTOR DRIVE

QM04 BA20017210 (DTC114TS) CAPSTAN MOTOR DRIVE

QM85,86 HT320602B0 (2SC2060) BRAKE SOLENOID DRIVE

QM82,83 BA20017210 (DTC114TS) BRAKE SOLENOID DRIVE

QM87 HT21425B0 (2SB1425) SOLENOID DRIVE

QM81,84 BA20017210 (DTC114TS) TRIGGER SOLENOID DRIVE

QR52 BA20012210 (DTC144ES) TAPE REEL SENSOR

QR51 BA20012210 (DTC144ES) TAPE REEL SENSOR

JM02: +B(3), SPEED, CPM+, CPM−, FWD, REV, TRG SOL, TAPE IN, MODE SW, GND, T-REEL, +B(1), S-REEL, BRK SOL, CROz → JM01

To B TRAY CIRCUIT (JW06)

To H TRAY CIRCUIT (JW02)

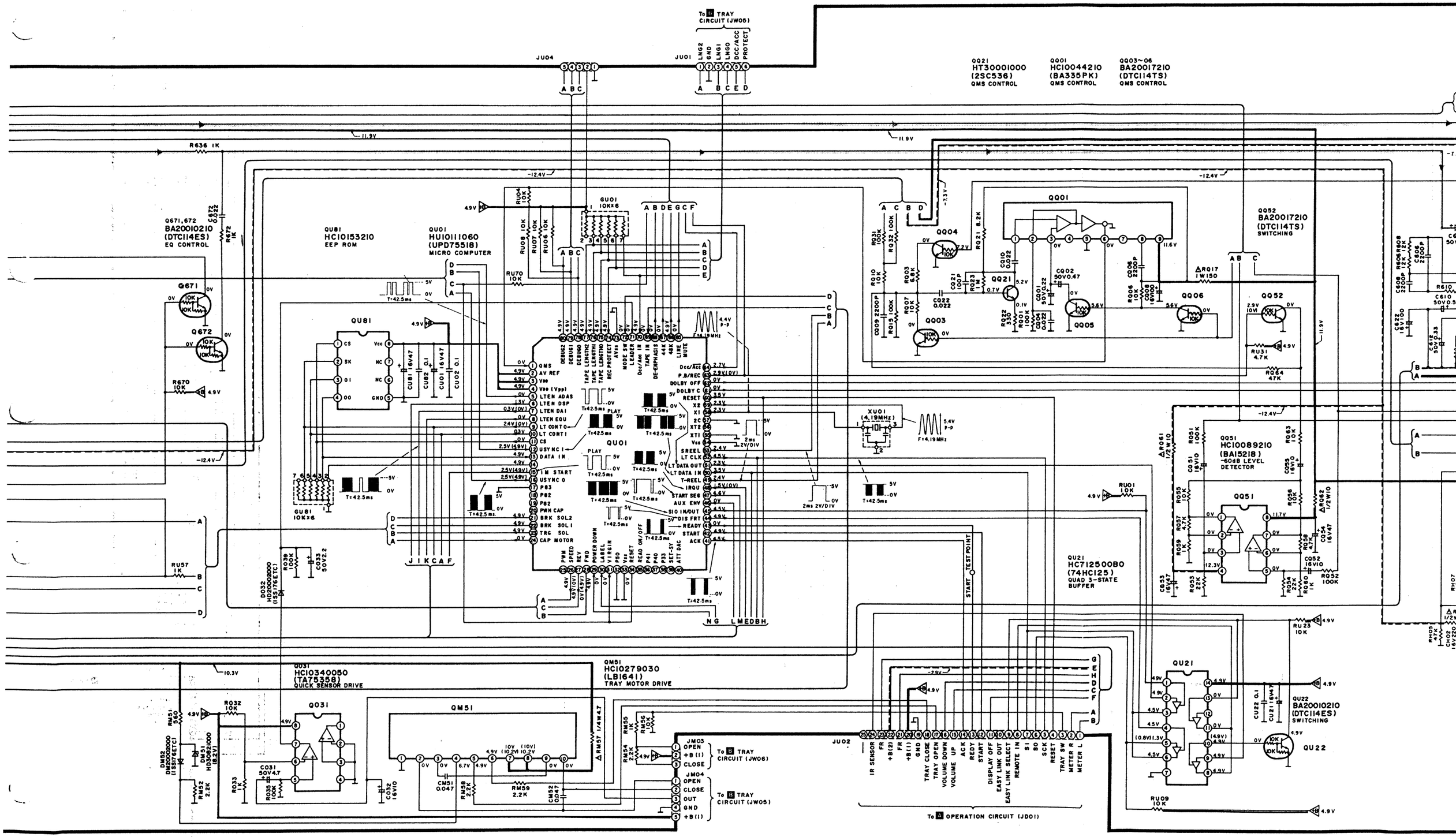
Q871 HC36912320 (PQ12RA11) REGULATOR

Q872 HC3991209F (NJM7912FA) REGULATOR

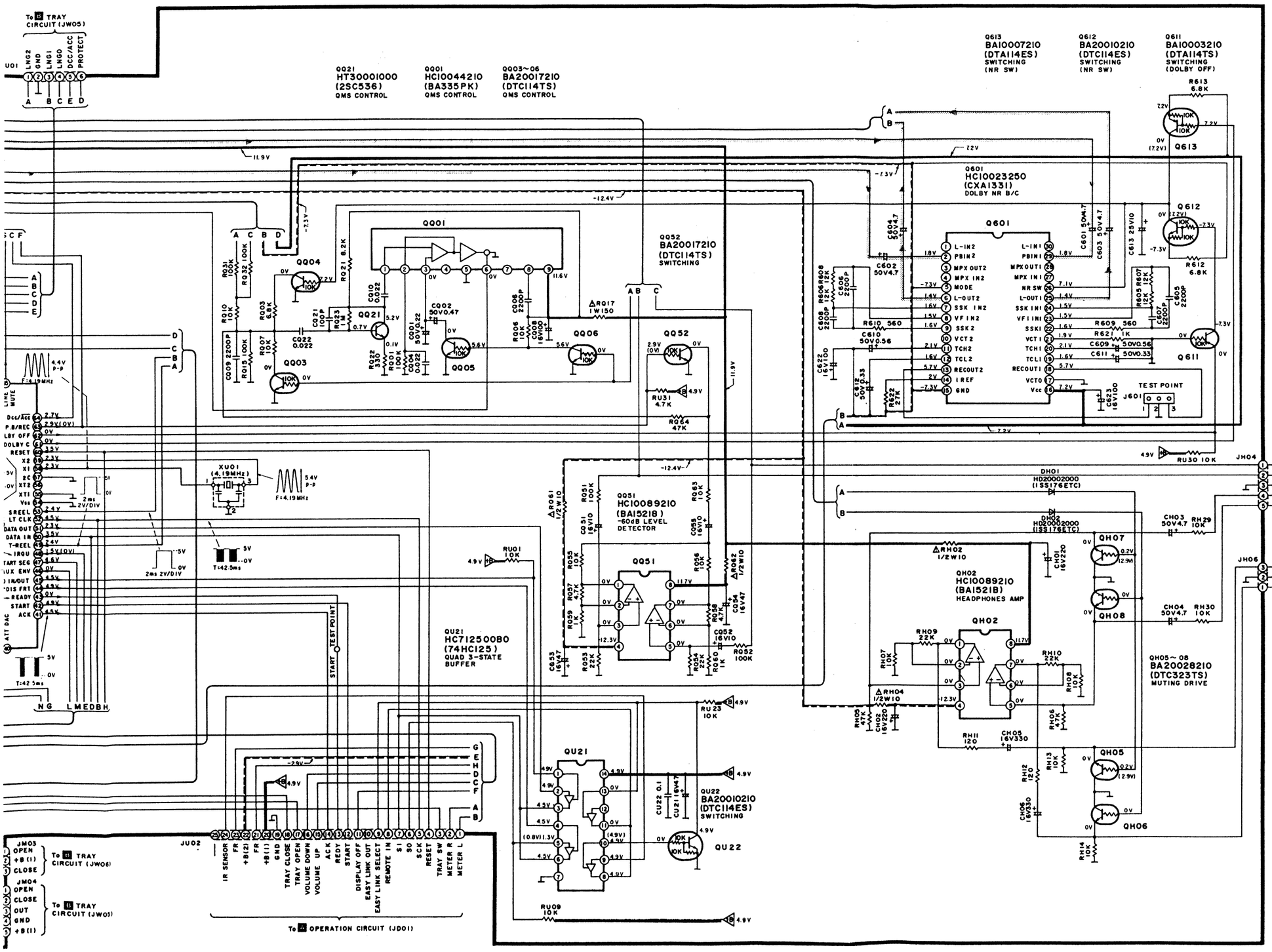
Q874 HC38905320 (PQ05RR1) REGULATOR

Q873 HC36905320 (PQ05RA1) REGULATOR

L REGULATOR CIRCUIT


JU04
JU01
To IN TRAY CIRCUIT (JW05)
LNG2 GND LNG1 LNG0 DCC/ACC PROTECT
Q671,672 BA20010210 (DTC114ES) EQ CONTROL
QU81 HC10153210 EEP ROM
QU01 HU10111060 (UPD75518) MICRO COMPUTER
GU01 10KX6
GU81 10KX6
QU01
QU81
Q671
Q672
Q031 HC10340050 (TA75358) QUICK SENSOR DRIVE
QM51 HC10279030 (LB1641) TRAY MOTOR DRIVE
JM03 OPEN +B(1) CLOSE
To B TRAY CIRCUIT (JW06)
JM04 OPEN CLOSE OUT GND +B(1)
To B TRAY CIRCUIT (JW05)
JU02
To A OPERATION CIRCUIT (JD01)
Q021 HT30001000 (2SC536) QMS CONTROL
Q001 HC10044210 (BA335PK) QMS CONTROL
Q003~06 BA20017210 (DTC114TS) QMS CONTROL
QU21 HC712500B0 (74HC125) QUAD 3-STATE BUFFER
Q052 BA20017210 (DTC114TS) SWITCHING
QU22 BA20010210 (DTC114ES) SWITCHING
Q051 HC10089210 (BA15218) -60dB LEVEL DETECTOR
XU01 (4.19MHz)
F=4.19MHz
START TEST POINT
DEBUG2 DEBUG1 DEBUG0 TAPE LENGTH2 TAPE LENGTH1 TAPE LENGTH0 REC PROTECT Vss MODE SW LEADER OUT TAPE IN DE-EMPHASIS 441 48 LINE MUTE
QMS AV REF Vdd Vpp (Vpp) LTEN ADAS LTEN DSP LTEN DAI LTEN EQU LT CONT0 LT CONT1 CS USYNC I DATA IN TM START USYNC 0 PB3 PB2 PWM CAP BRK SOL2 BRK SOL1 TRG SOL CAP MOTOR
Dcc/Acc P.B/REC DOLBY OFF DOLBY C RESET X2 XI 2C XT2 XTI Vss SREEL LT CLK LT DATA OUT LT DATA IN T-REEL IRQU START SEG AUX ENV SIO IN/OUT DIS FRT READY START ACK
PWM SPEED REV FWD POWER DOWN LABEL Y IN/GIN P50 Vss RESET READ ON/OFF PA1 PA0 P33 SET-5V ATT DAC
IR SENSOR FR +B(2) FR +B(1) GND TRAY CLOSE TRAY OPEN VOLUME DOWN VOLUME UP ACK REDY START DISPLAY OFF EASY LINK OUT EASY LINK SELECT REMOTE IN SI SO SCK RESET TRAY SW METER R METER L
11.9V
-12.4V
-7.3V
10.3V
4.9V
5V
0V

24 25 26 27 28 29 30 31 32 33



Note 3:

- **S051** : Cassette tray close detection switch.
- **S052** : Cassette tray open detection switch.
- **S901-1~S901-3**: Tape playing time detection switch.
- **S902-1** : DCC/ACC Tape detection switch in "**DCC**" position.
- **S902-2** : DCC Rec detection switch in "**DCC REC**" position.
- **S971** : Mechanism Play/Stop Mode switch in "**stop**" position.
- **S972** : Cassette half detection switch.
- **S973** : ATS (Normal•CrO_2/Metal) selector switch in "**normal**" position.
- **SD01** : Repeat switch (REPEAT).
- **SD02** : Tape travel selector switch (SIDE A/B).
- **SD03** : Rewind switch (REW ◀◀).
- **SD04** : Fastforward switch (FF ▶▶).
- **SD05** : Skip switch (SKIP I◀◀).
- **SD06** : Skip switch (SKIP ▶▶I).
- **SD07** : Play switch (PLAY ▶).
- **SD08** : Stop switch (STOP ■).
- **SD09** : Append switch (APPEND ▶▮▮).
- **SD10** : Renumber switch (RENUMBER).
- **SD11** : MKR erase switch (MKR ERASE).
- **SD12** : Next MKR write switch (NEXT MKR WRITE).
- **SD13** : Reverse MKR write switch (REVERSE MKR WRITE).
- **SD14** : Start MKR write switch (START MKR WRITE).
- **SD15** : Pause switch (PAUSE ▮▮).
- **SD16** : Record switch (REC ●).
- **SD17** : Cassette tray open/close switch (OPEN/CLOSE).
- **SD19** : Counter reset switch (COUNTER RESET).
- **SD20** : Text information selector switch (TEXT).
- **SD21** : Counter selector switch (COUNTER).
- **SD23** : Auto start MKR switch (AUTO START MKR).
- **SD24** : Recording mute switch (AUTO REC MUTE ❍).
- **SD31** : Timer switch "**off**" position (TIMER).
- **SD32** : Dolby NR selector switch (DOLBY NR).
- **SD33** : Input selector switch (INPUT SELECTOR).
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
  1K=1,000 (Ω), 1M=1,000k (Ω)
- Capacity are in micro-farads (μF) unless specified otherwise.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.

( ).....Voltage values at record mode.

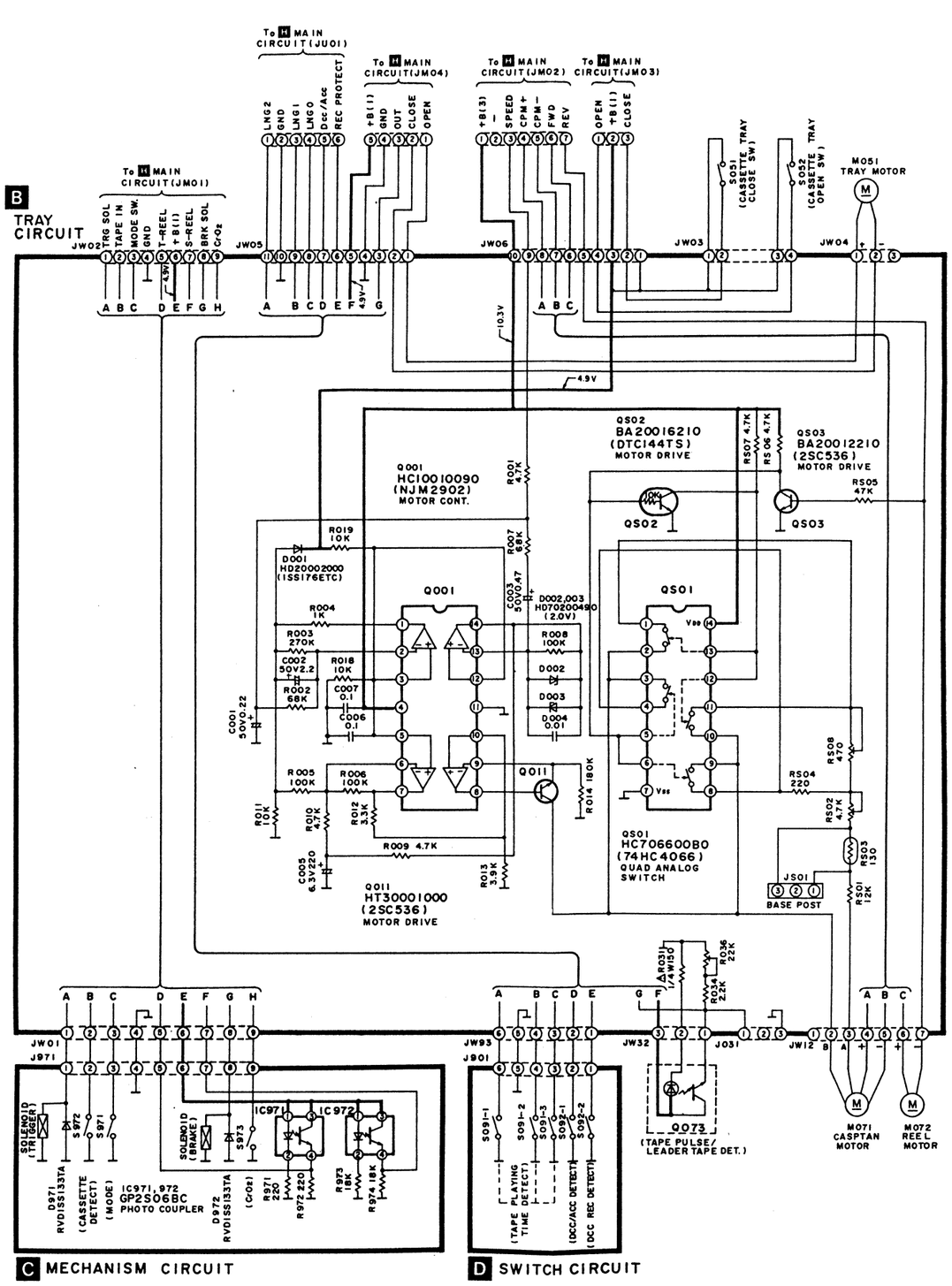
For measurement us EVM.

- Important safety notice
  Components identified by ⚠ mark have special characteristics important for safety.
  When replacing any of these components, use only manufacturer's specified parts.
- (▬▬<+B>▬▬) indicates +B (bias).
- (▬▬<−B>▬▬) indicates −B (bias).
- ( ) indicates the flow of the playback signal.
- ( ) indicates the flow of the record signal.

Caution!

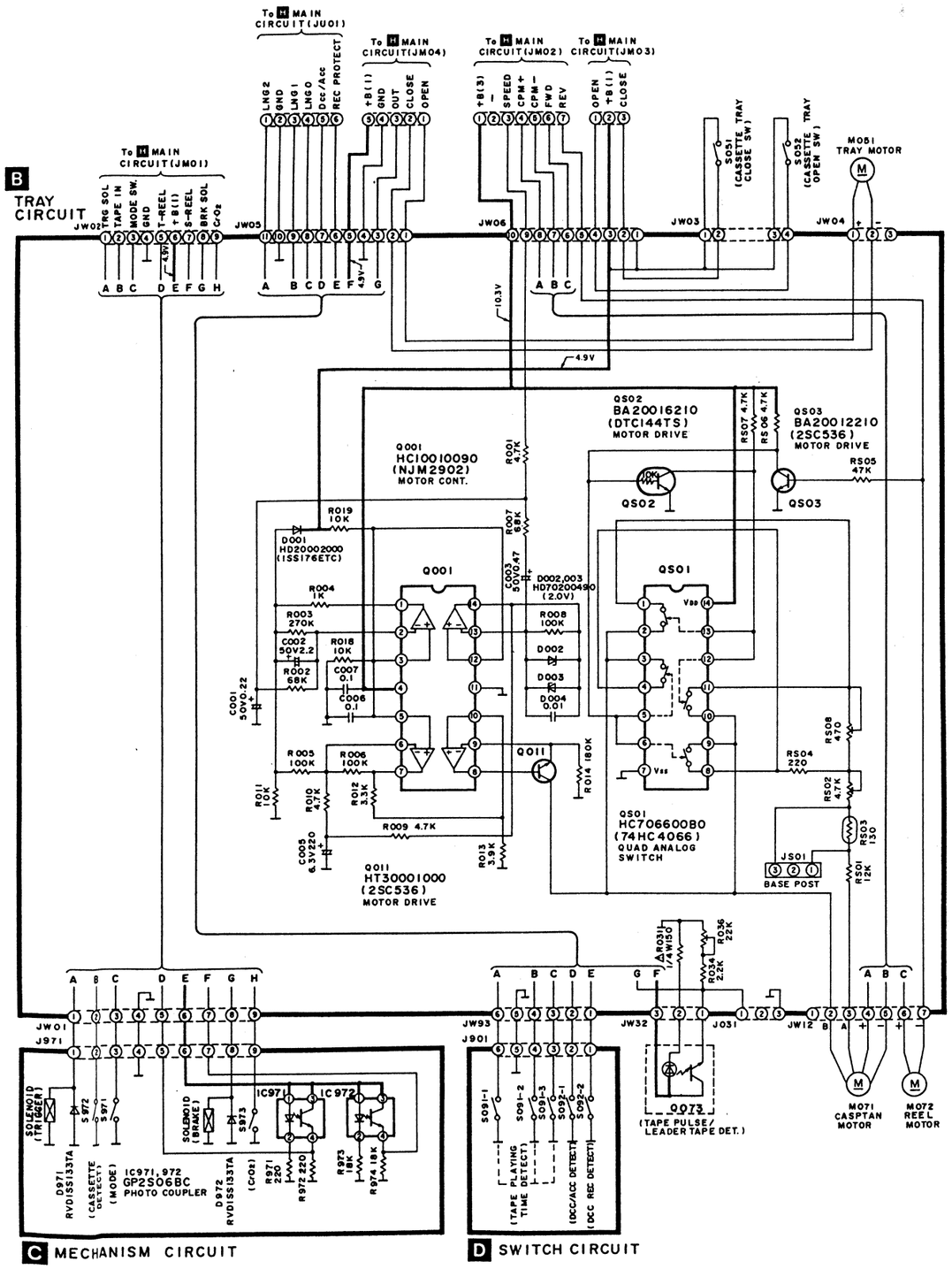
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevended by taking care during repair.

- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the legs of IC or LSI with the fingers directly.



5 6 7 8 9 10 11 12 13 14

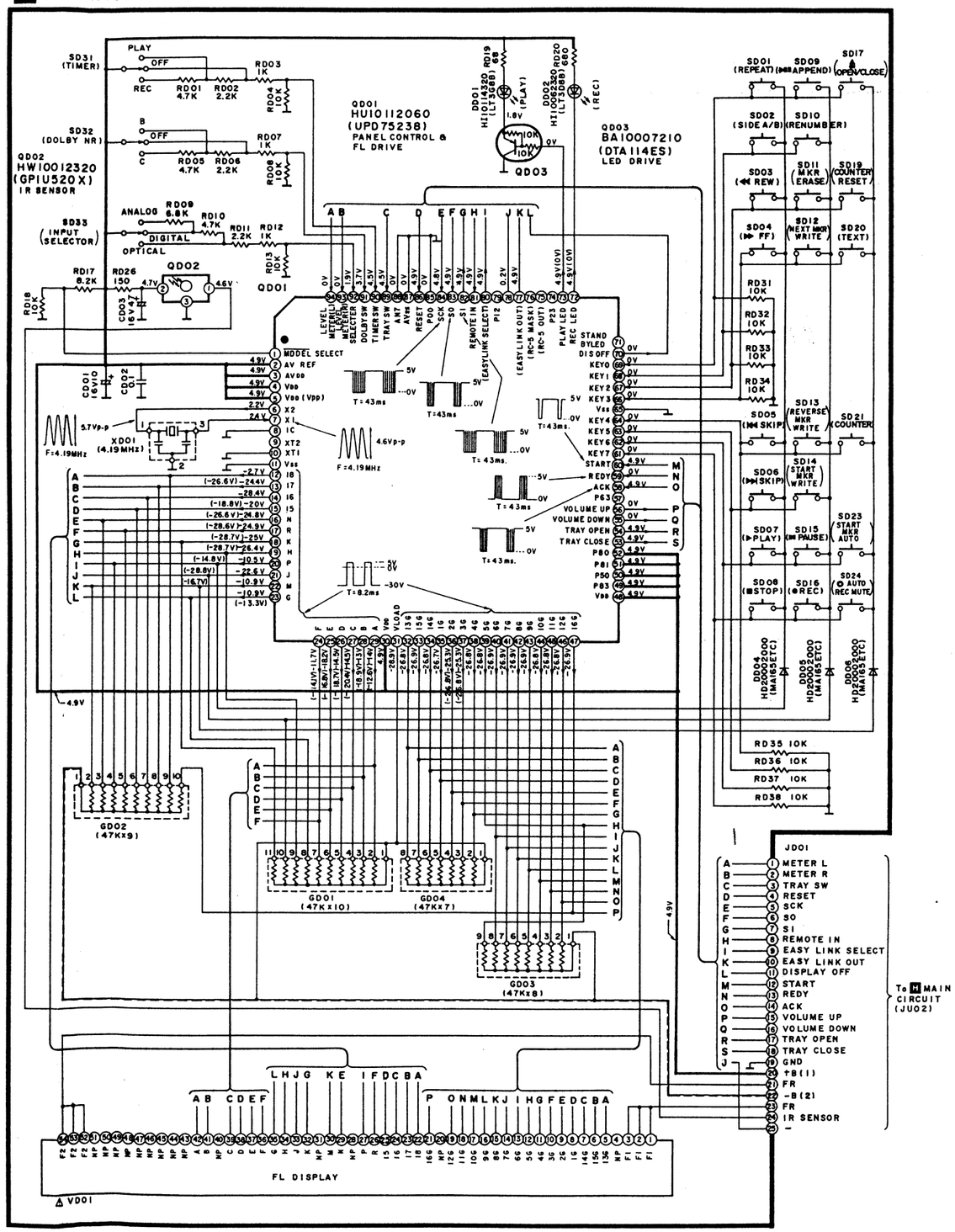
B TRAY CIRCUIT



C MECHANISM CIRCUIT

D SWITCH CIRCUIT

A OPERATION CIRCUIT



E READ/WRITE CIRCUIT

HEAD

P.8x2 (ANALOG COMPACT CASSETTE)

P.8x9 (DCC)

REC x9 (DCC)

J101

J I H G F E D C B A

J181

R187 NTC 40 25C

Q153 BA20003020 (UN2217) ACC/DCC

Q101 HC10081490 (TDA1317) READ AMP

Q106 HX327121A0 (2SC2712) RD MUX

Q105 HX111621A0 (2SA1162) RD MUX

Q190 HX327121A0 (2SC2712)

Q101

Q103 HX327121A0 (2SC2712) POWER SUPPLY

Q104 HX409992A0 (2SD999) POWER SUPPLY

Q102 HX327121A0 (2SC2712) POWER SUPPLY

Q185 HC700200Z0 (74HC02) NOR GATE

Q183 HC700000Z0 (74HC00) NAND GATE

Q181 HC705300Z0 (HC4053) MULTIPLEXER

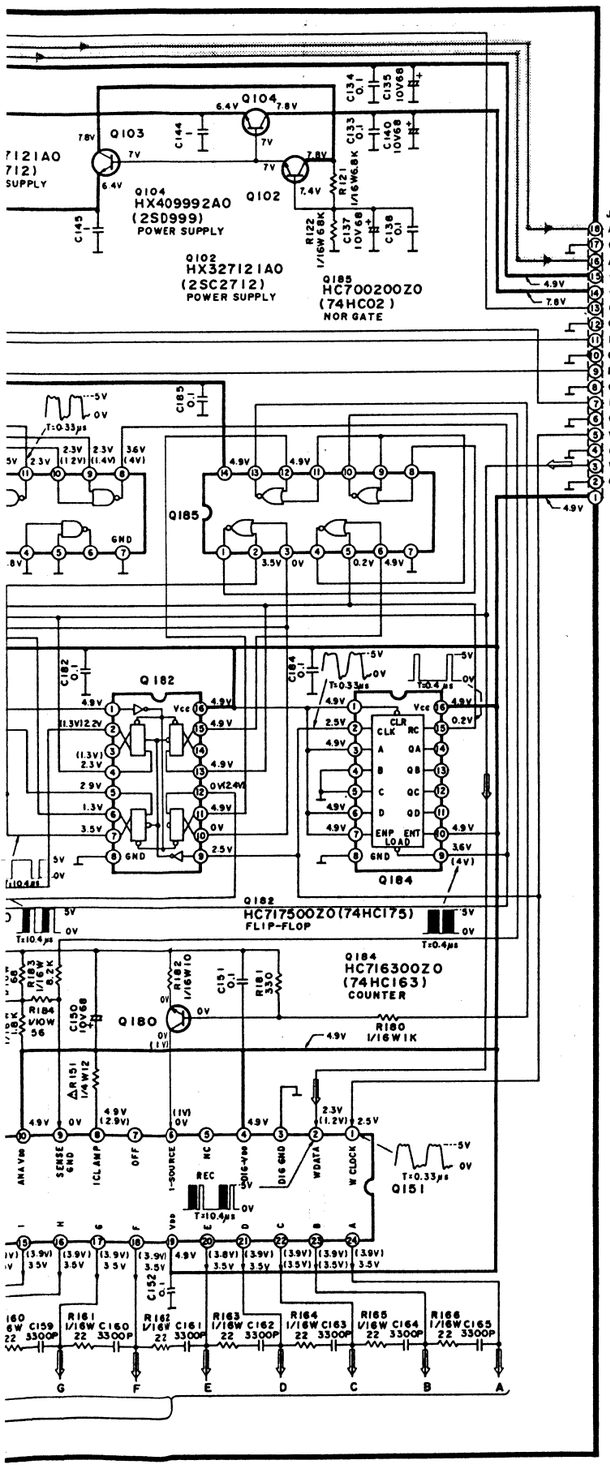
Q180 HX327121A0 (2SC2712) SWITCHING

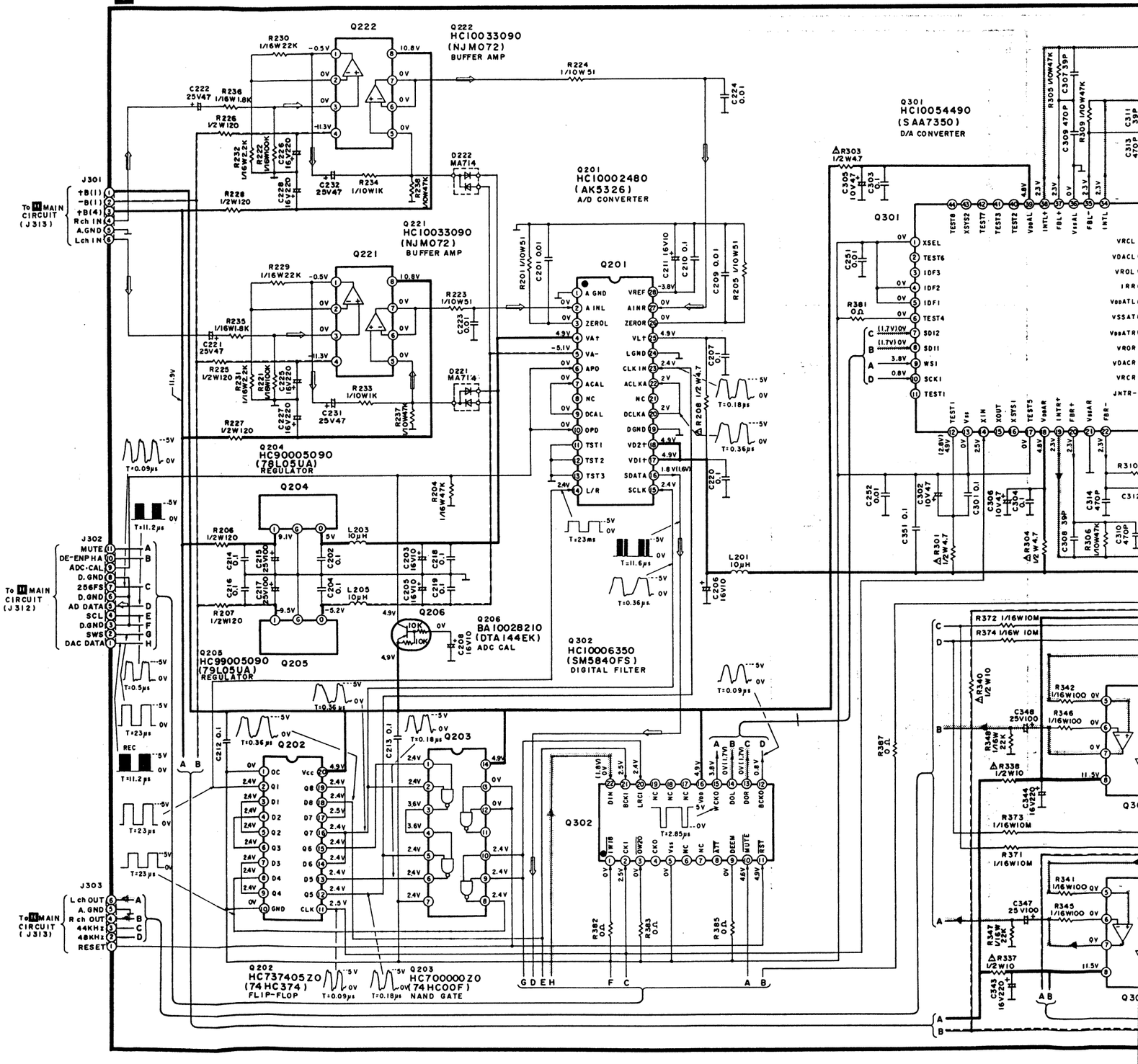
Q182 HC717500Z0 (74HC175) FLIP-FLOP

Q184 HC716300Z0 (74HC163) COUNTER

Q151 HC10082490 (TDA1316) WRITE AMP

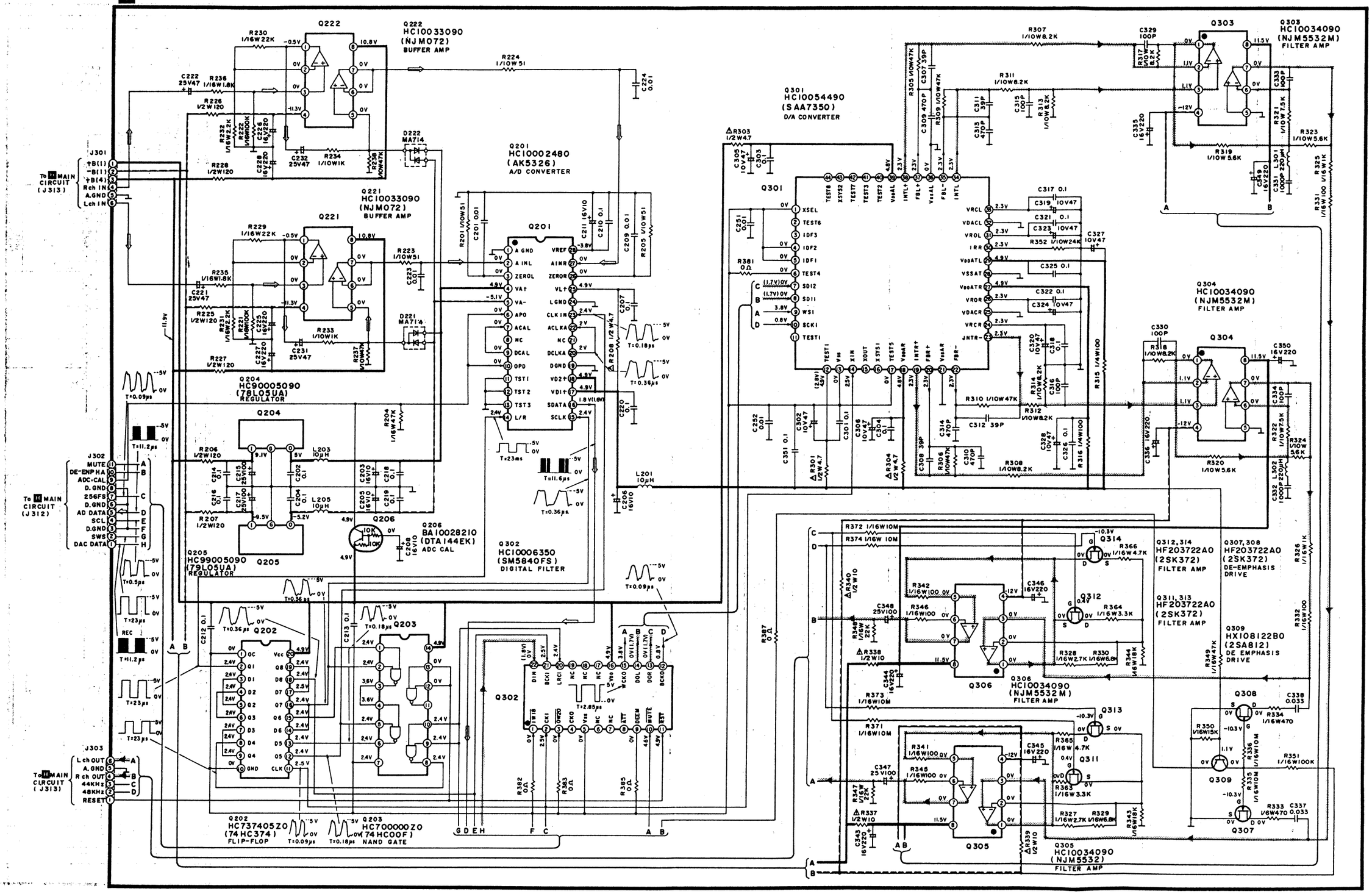
G AD/DA CONVERTER CIRCUIT



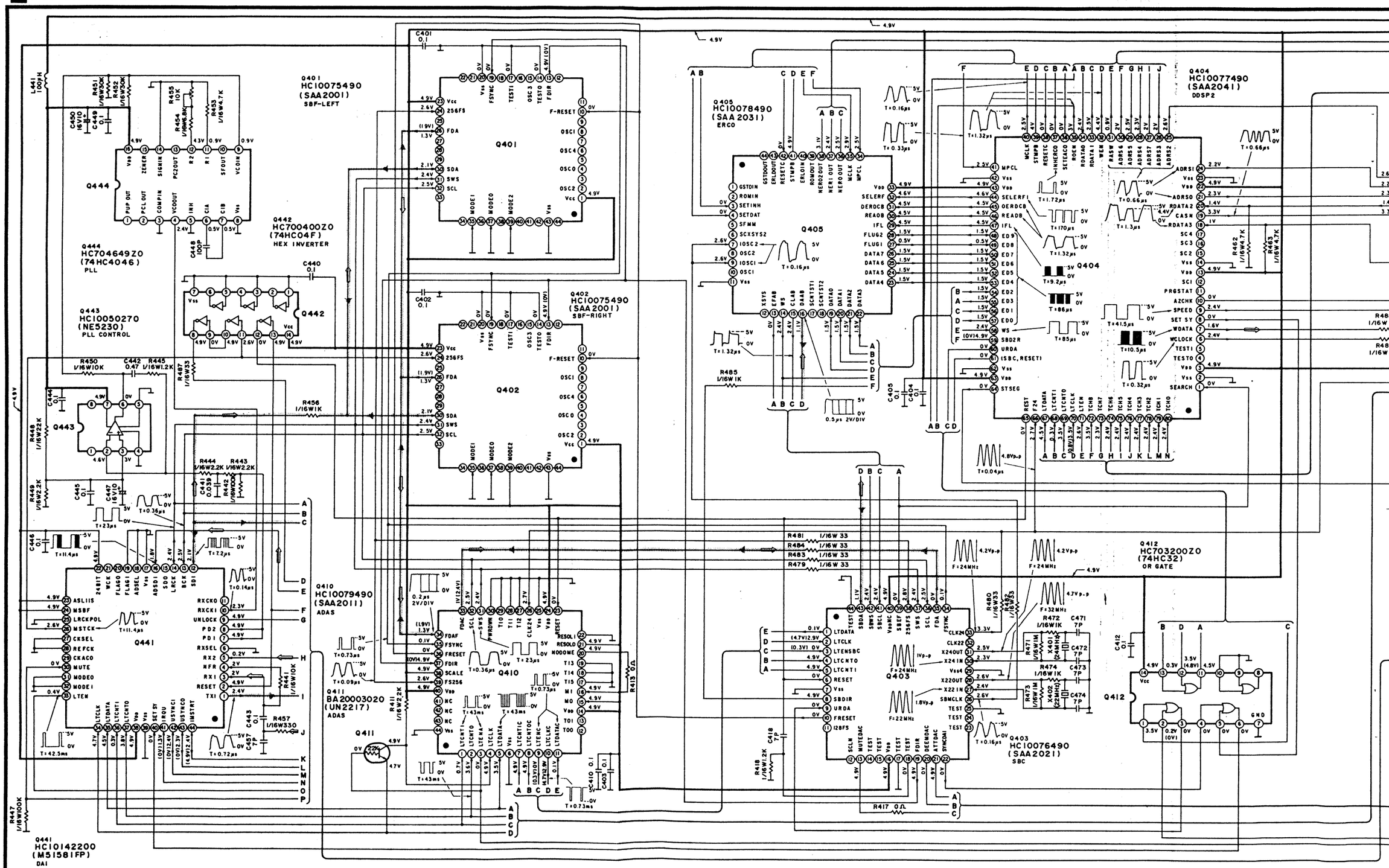


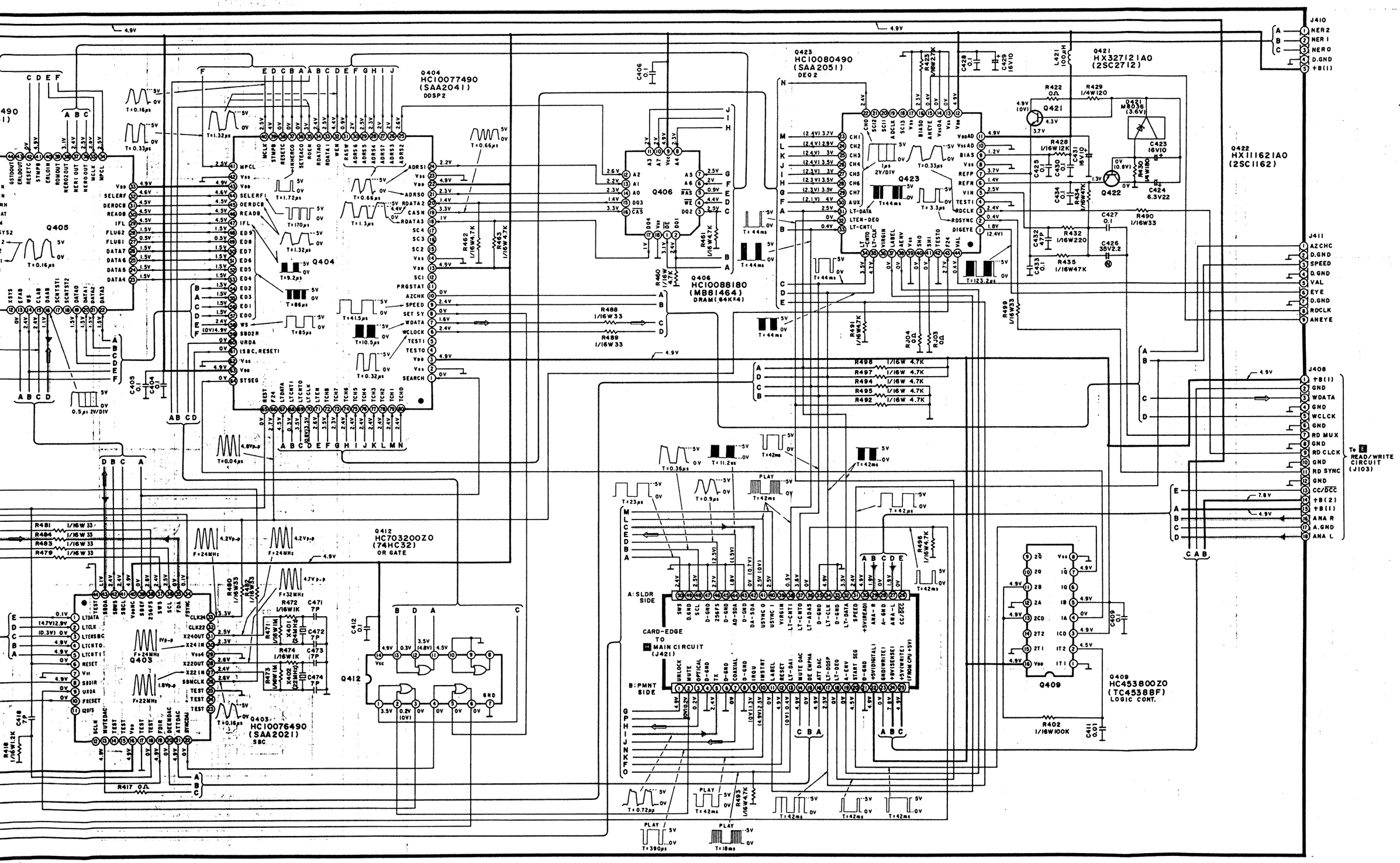
27 28 29 30 31 32 33 34 35 36

G AD/DA CONVERTER CIRCUIT

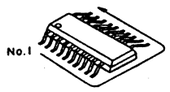


F PASC DIGITAL CIRCUIT




Q404
HC10077490
(SAA2041)
DDSP2
Q423
HC10080490
(SAA2051)
DEQ2
Q421
HX32712IA0
(2SC2712)
Q422
HX11162IA0
(2SC1162)
Q405
Q406
HC10088180
(MB81464)
DRAM(64K×4)
Q403
HC10076490
(SAA2021)
SBC
Q412
HC70320020
(74HC32)
OR GATE
Q409
HC45380020
(TC4538BF)
LOGIC CONT.
CARD-EDGE TO MAIN CIRCUIT (J421)
A: SLDR SIDE
B: PMNT SIDE
J410
J411
J408
To E READ/WRITE CIRCUIT (J103)

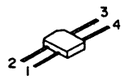
■TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

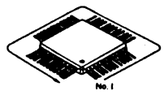


HC10033090	8 Pin	HC717500Z0	16 Pin
HC10034090	8 Pin	HC716300Z0	16 Pin
HC10050270	14 Pin	HC10006350	22 Pin
HC700200Z0	14 Pin	HC10082490	24 Pin
HC705300Z0	16 Pin		

HC700000Z0	14 Pin		
HC700400Z0	14 Pin		
HC453800Z0	16 Pin		
HC737405Z0	20 Pin		

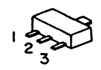
GP2S06BC



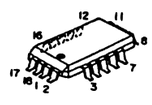


HC10054490	44 Pin	HC10080490	44 Pin
HC10075490	44 Pin	HC10081490	44 Pin
HC10076490	44 Pin	HC10142200	44 Pin
HC10078490	44 Pin	HU10112060	94 Pin
HC10079490	44 Pin		

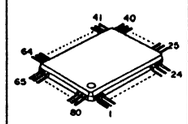
HC90005090
HC99005090

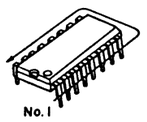


HC10088180



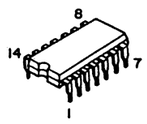
HC10077490

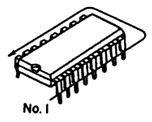




HC10153210	8 Pin	HC706600B0	14 Pin
HC10235030	8 Pin	HC712500B0	14 Pin
HC10340050	8 Pin	HC704649Z0	16 Pin
HC10010090	14 Pin	HC10002480	28 Pin
HU10111060	14 Pin	HC10023250	30 Pin

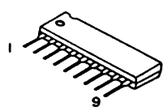
HC700400U0



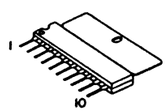


HC10089210	8 Pin		
HC10053090	8 Pin		
HC703200Z0	14 Pin		

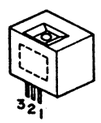
HC10044210
HC10050210



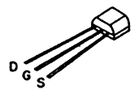
HC10093210
HC10279030



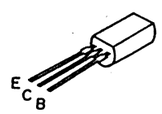
HW10012320



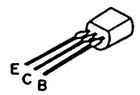
HF203722A0



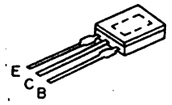
HT10001000
HT214252B0
HT30001000
HT320602B0
HT421592B0



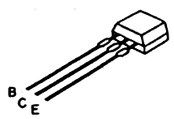
HT421442A0



HT42010000



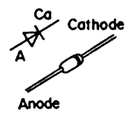
BA10003210
BA10007210
BA10010210
BA10028210
BA20003020
BA20010210



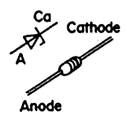
BA20012210
BA20016210
BA20017210
BA20028210

HX108122B0
HX111621A0
HX327121A0
HX409992A0

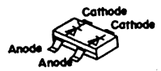
HD20002000
HD20029050
HD30821000
HD70200490
SVD1SR35200
RVD1SS133TA



MA4039M
MA4051M

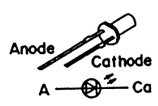


HZ20006020

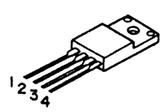


HZ30018050

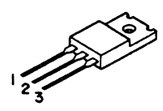
HI10062320
HI10114320



HC36905320
HC36912320
HC38905320

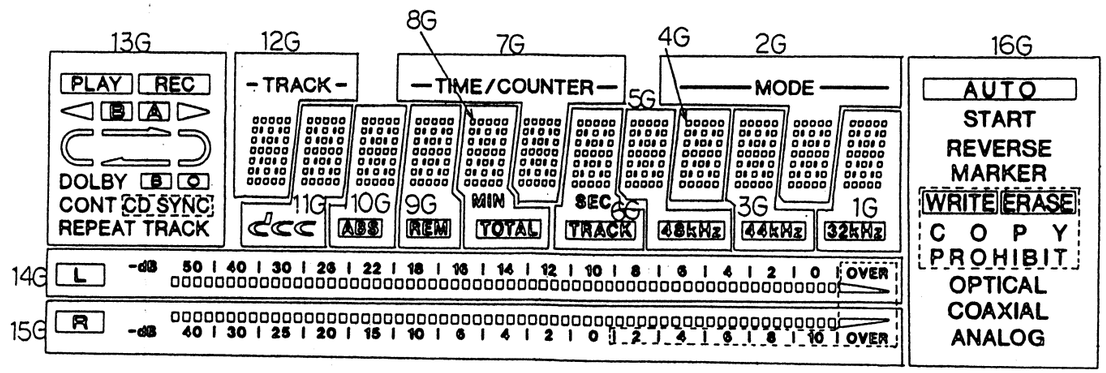


HC3850809F
HC3991209F

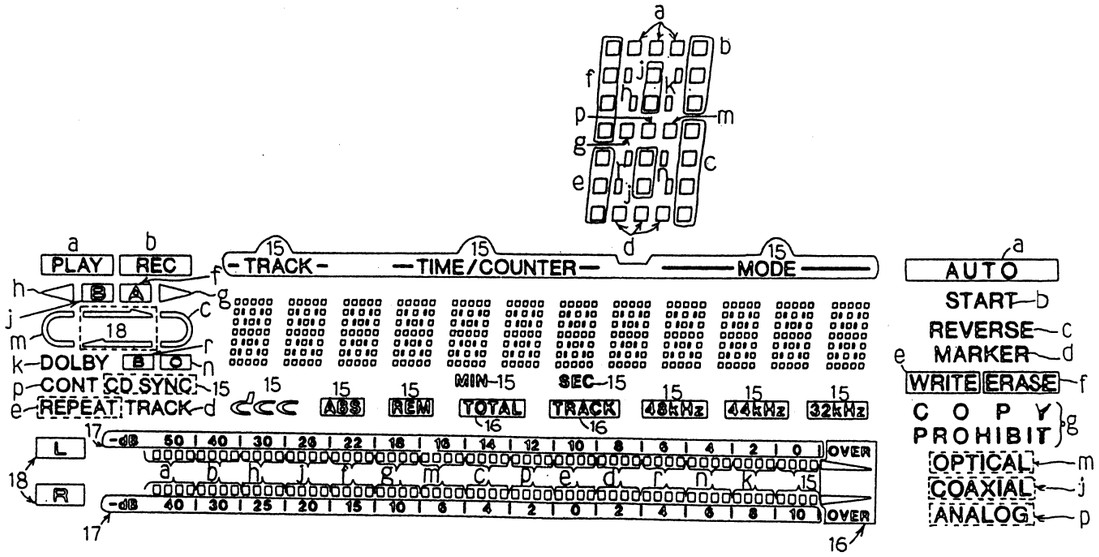


■ INTERNAL CONNECTION OF FL

• **Grid connection diagram**



• **Anode connection diagram**



• **Pin connection**

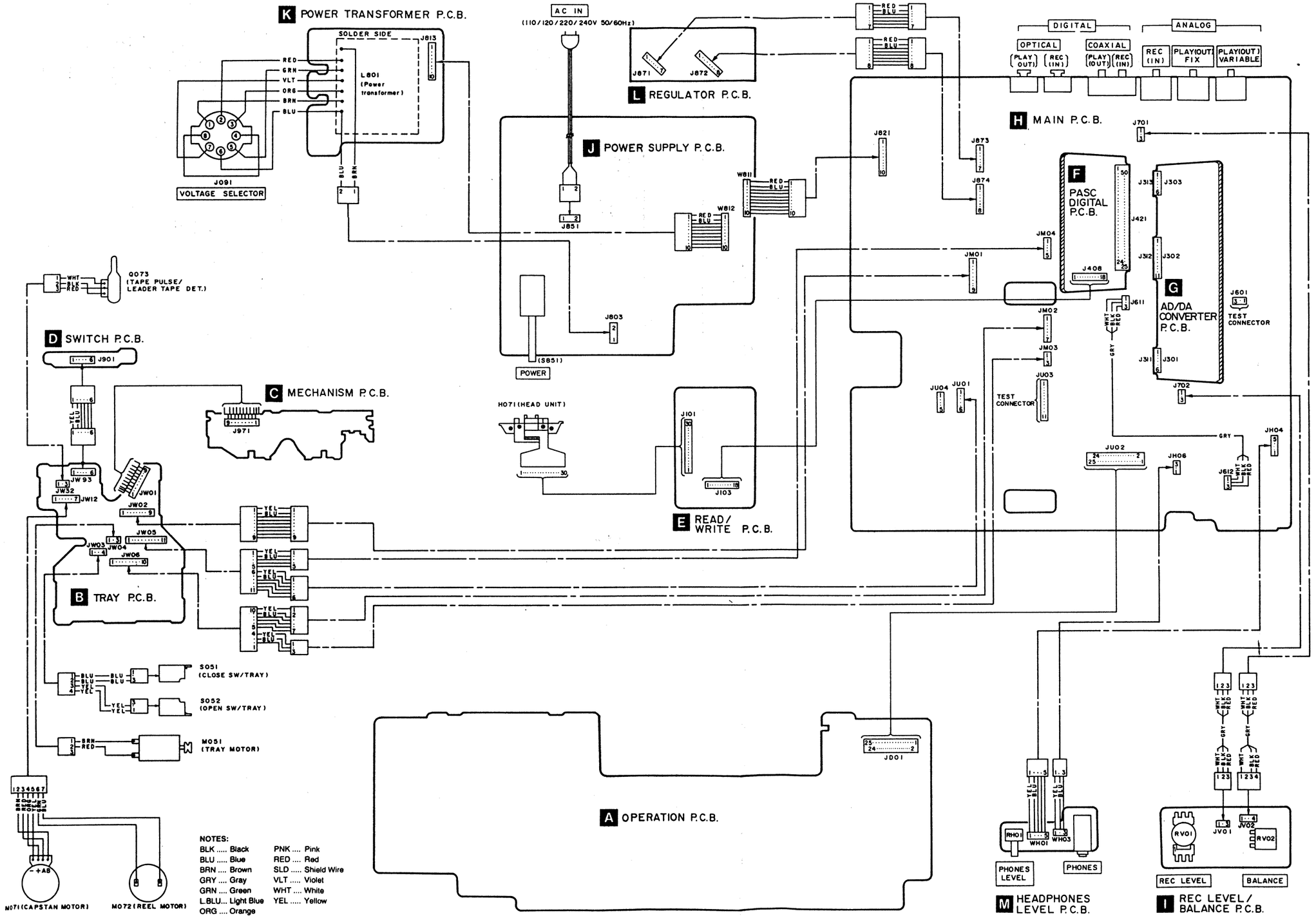
PIN NO.	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	NP	Pc	Pd	Pe	Pf	Pg	Ph	Pj	Pk	NP	Pm	Pn	NP	Pp	Pr	P15	P16	P17	P18	16G	NP	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	14G	15G	13G	NP	F1	F1	F1

PIN NO.	54	53	52	51	50	49	48	47	46	45	44	43	42	41
CONNECTION	F2	F2	F2	NP	NP	NP	NP	NP	NP	NP	NP	NP	Pa	Pb

Notes:

1) F1, F2 ..... Filament
2) NP ..... No pin
3) 1G~16G ..... Grid
4) Pa~Ph, Pj, Pk, Pm, Pn, Pp, Pr, P15~P18 ..... Anode

■ WIRING CONNECTION DIAGRAM



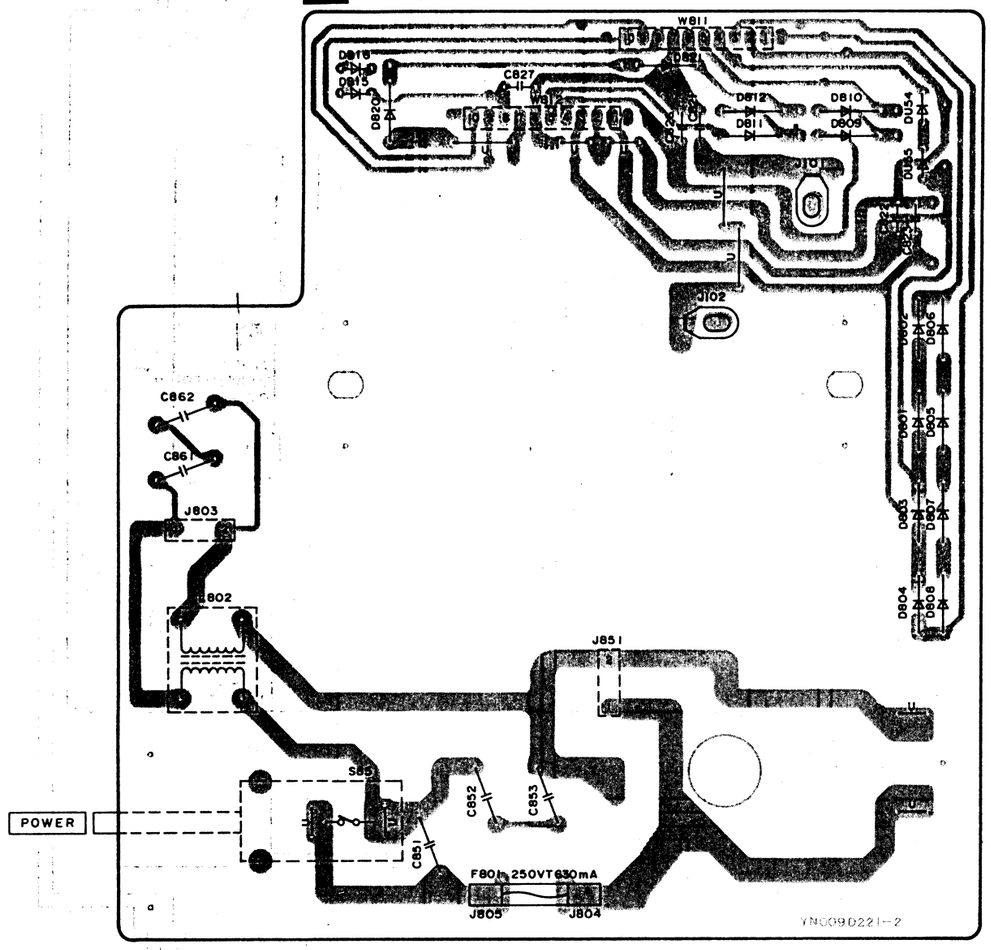
NOTES:

BLK ..... Black	PNK .... Pink
BLU ..... Blue	RED .... Red
BRN .... Brown	SLD ..... Shield Wire
GRY .... Gray	VLT ..... Violet
GRN .... Green	WHT .... White
L.BLU... Light Blue	YEL ..... Yellow
ORG .... Orange	

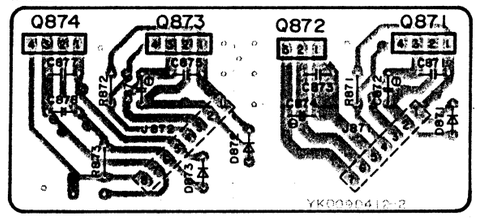
RS-DC10 RS-DC10

■ PRINTED CIRCUIT BOARDS

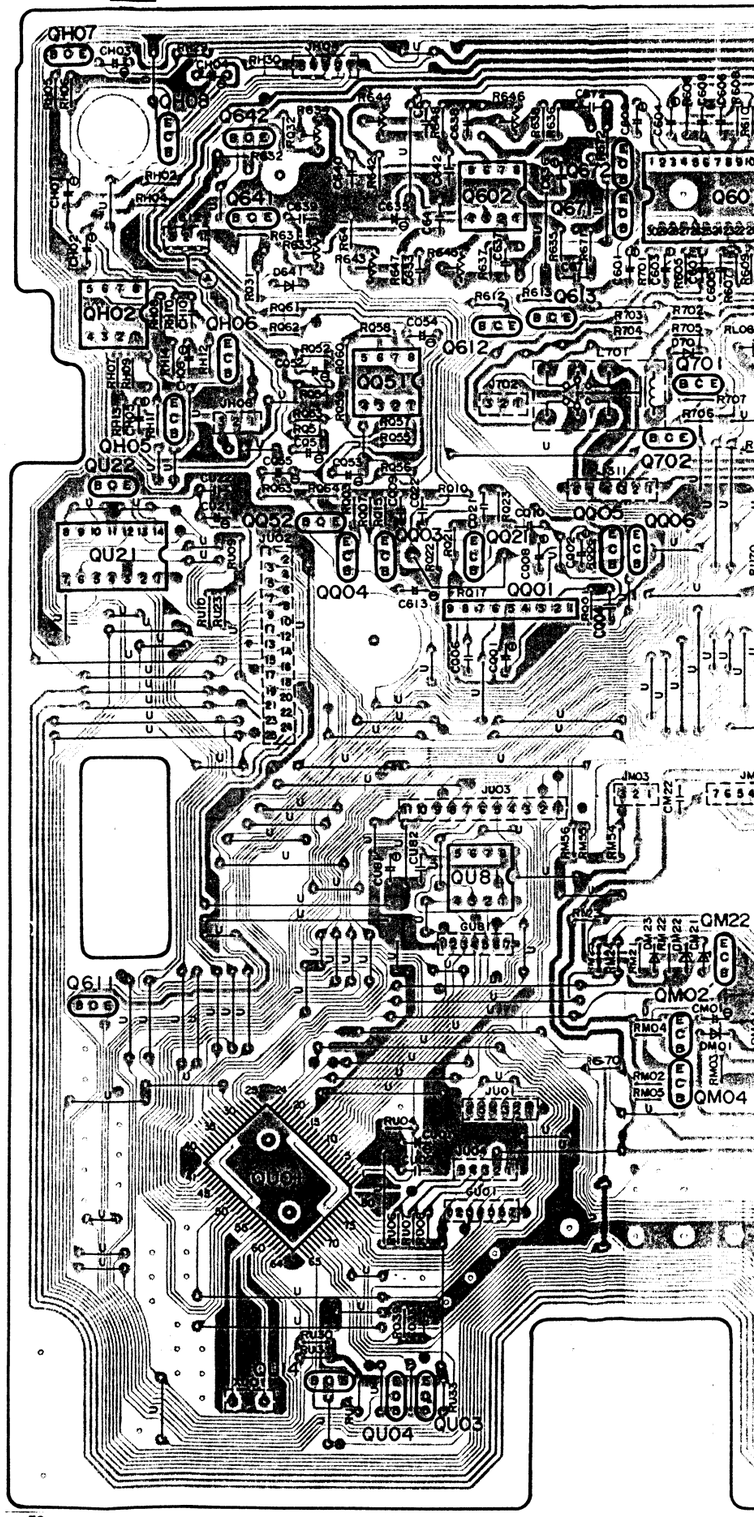
J POWER SUPPLY P.C.B. (ZZ011D8210)



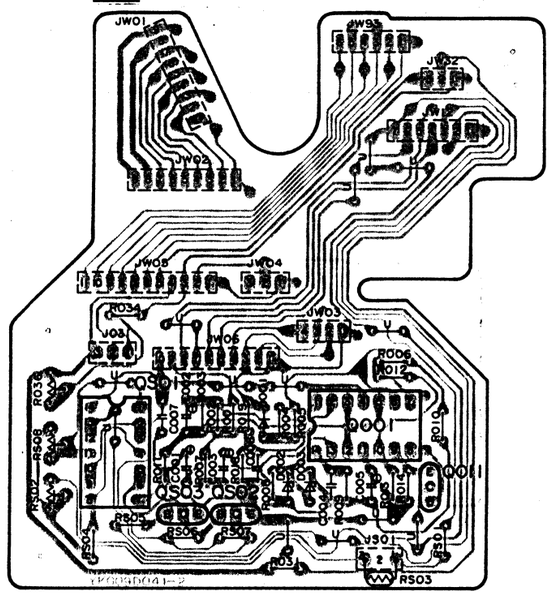
L REGULATOR P.C.B. (ZZ011D4120)



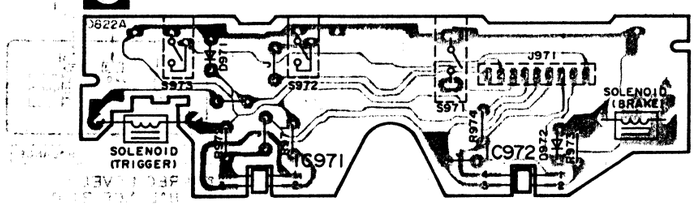
H MAIN P.C.B. (ZZ011D4110)



B CONNECTION P.C.B. (ZZ011D0410)

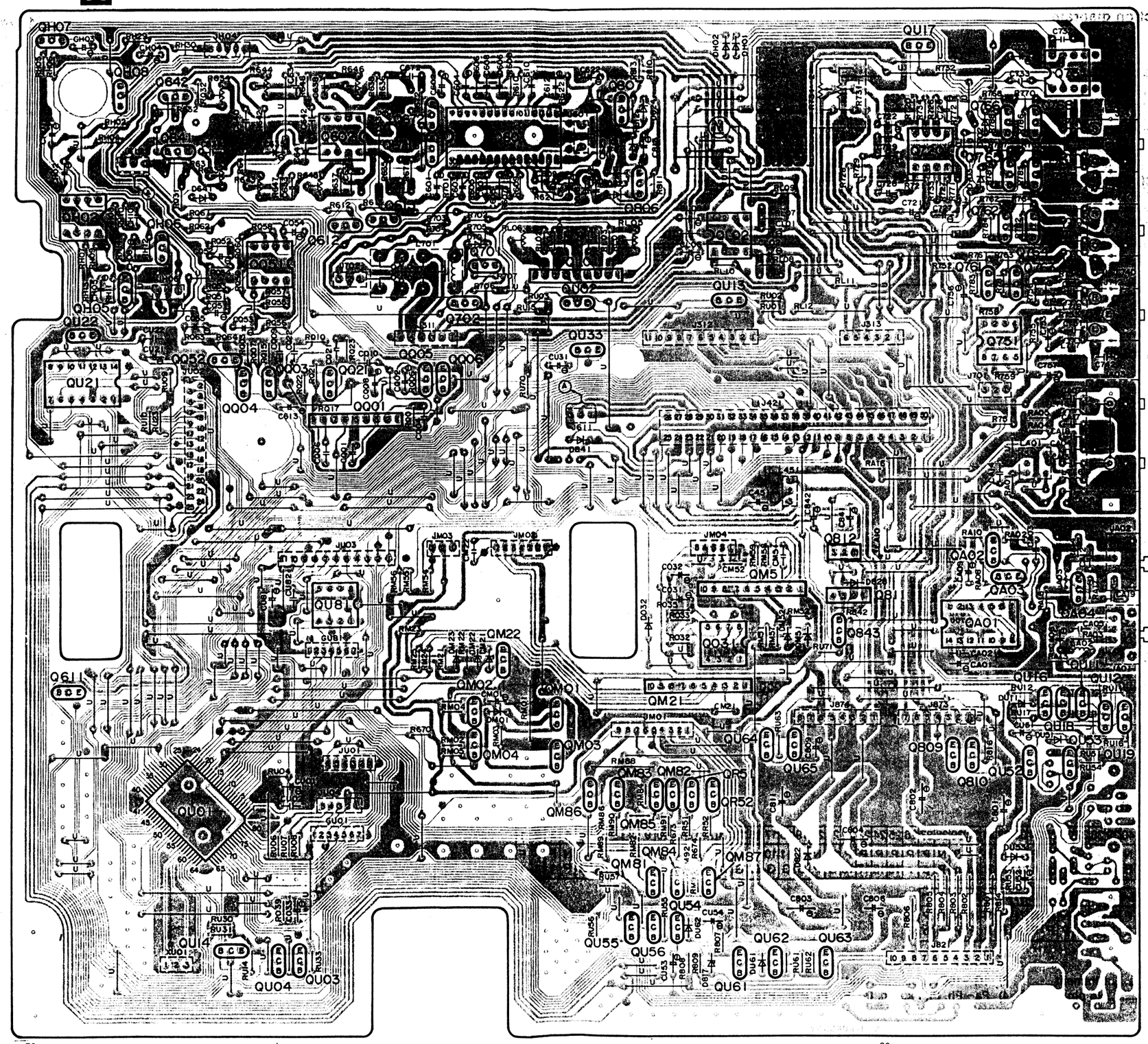


C MECHANISM P.C.B. (REP1406)

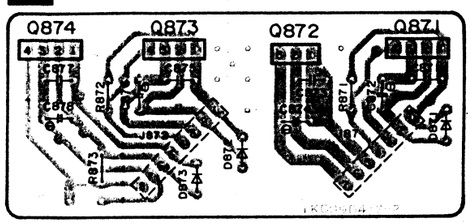


6 7 8 9 10 11 12 13 14

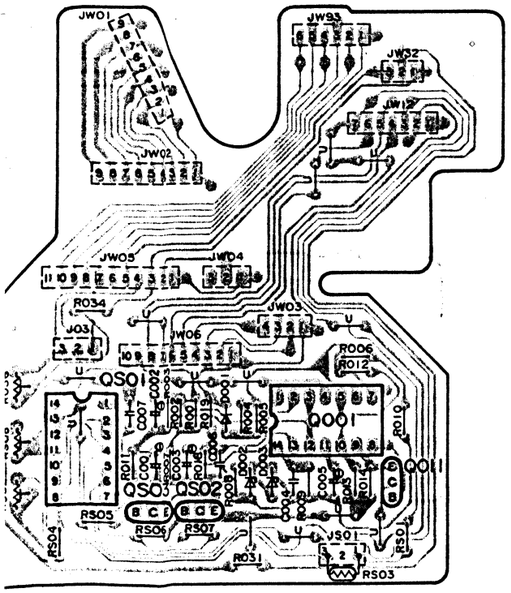
H MAIN P.C.B. (ZZ011D4110)



L REGULATOR P.C.B. (ZZ011D4120)

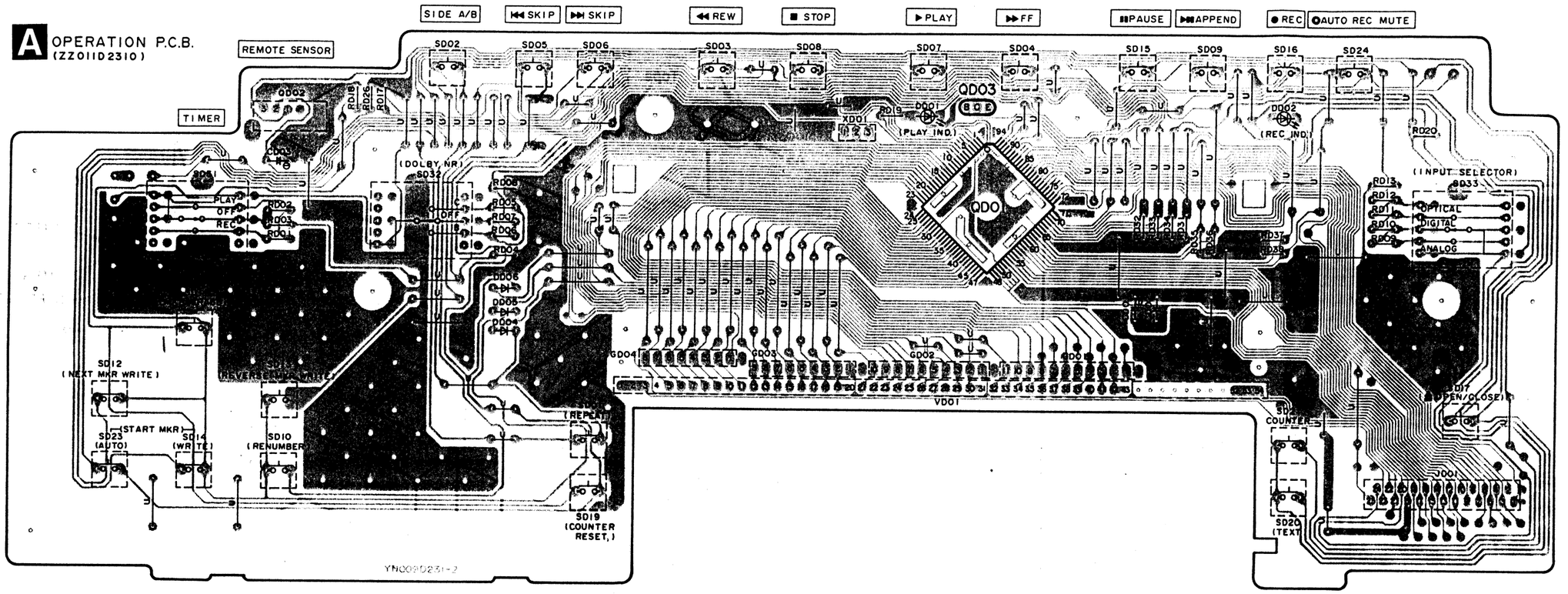


B CONNECTION P.C.B. (ZZ011D0410)

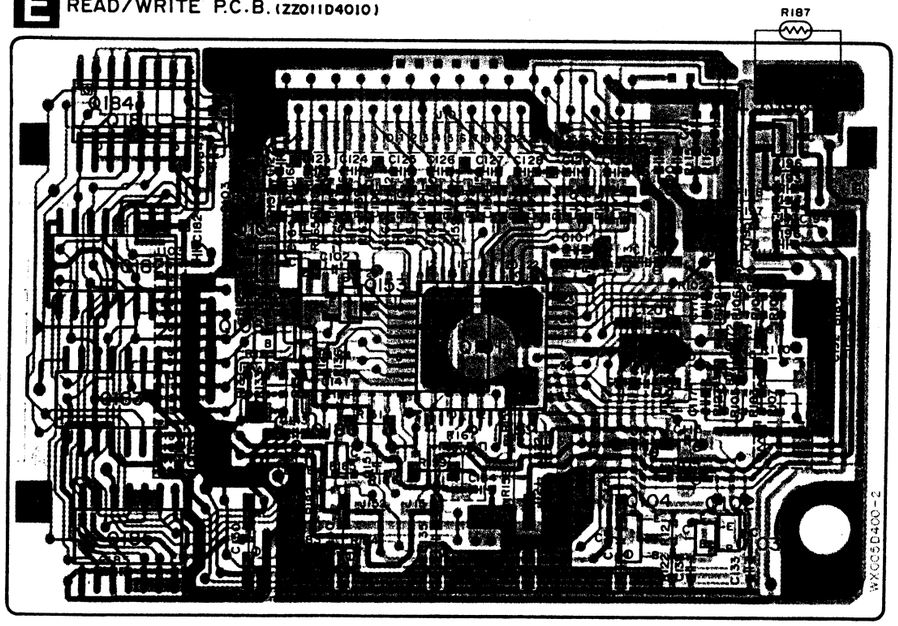


15 16 17 18 19 20 21 22 23 24

A OPERATION P.C.B. (ZZ011D2310)



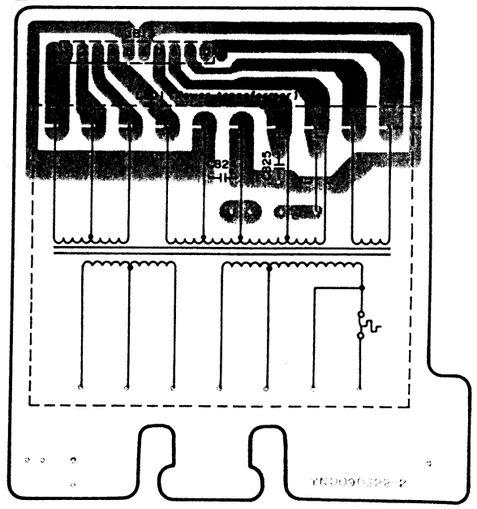
E READ/WRITE P.C.B. (ZZ011D4010)



Notes:

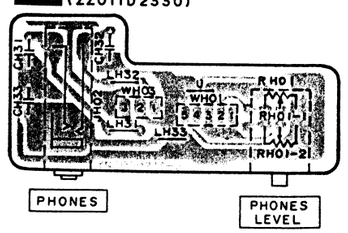
1. Only this P.C.B. (E) has a three-layered configuration.
2. G mark in foil pattern drowing indicates that the lead is connected to the ground pattern on the 2nd layer.

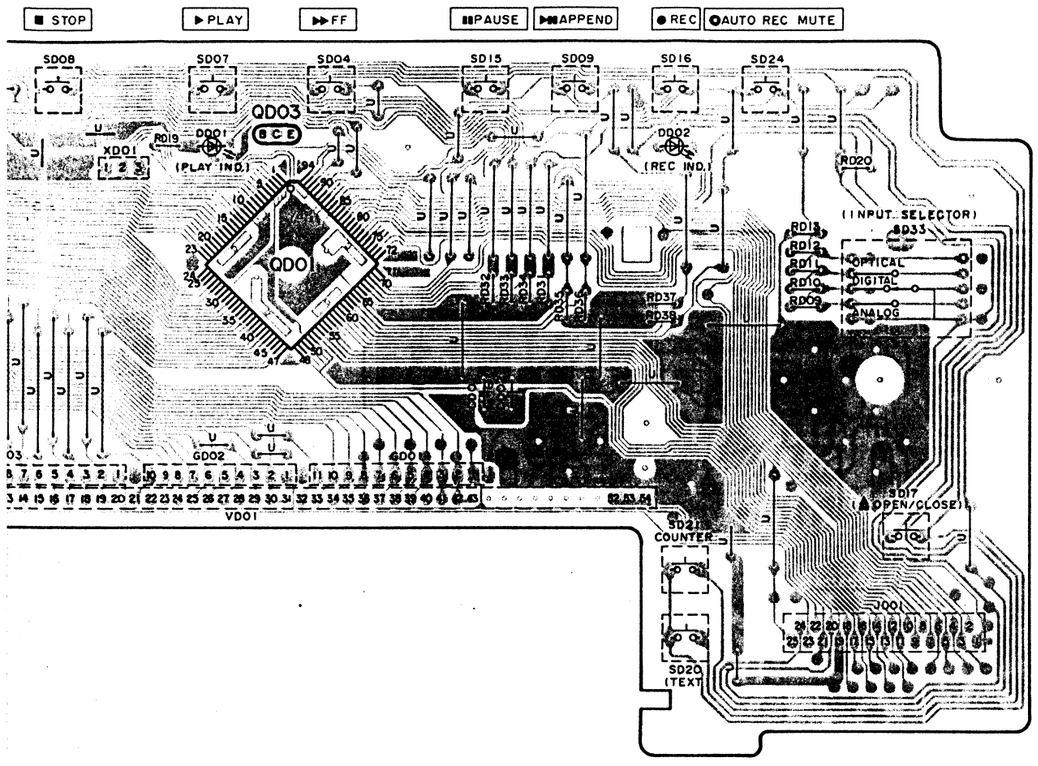
K POWER TRANSFORMER P.C.B. (ZZ011D8210)



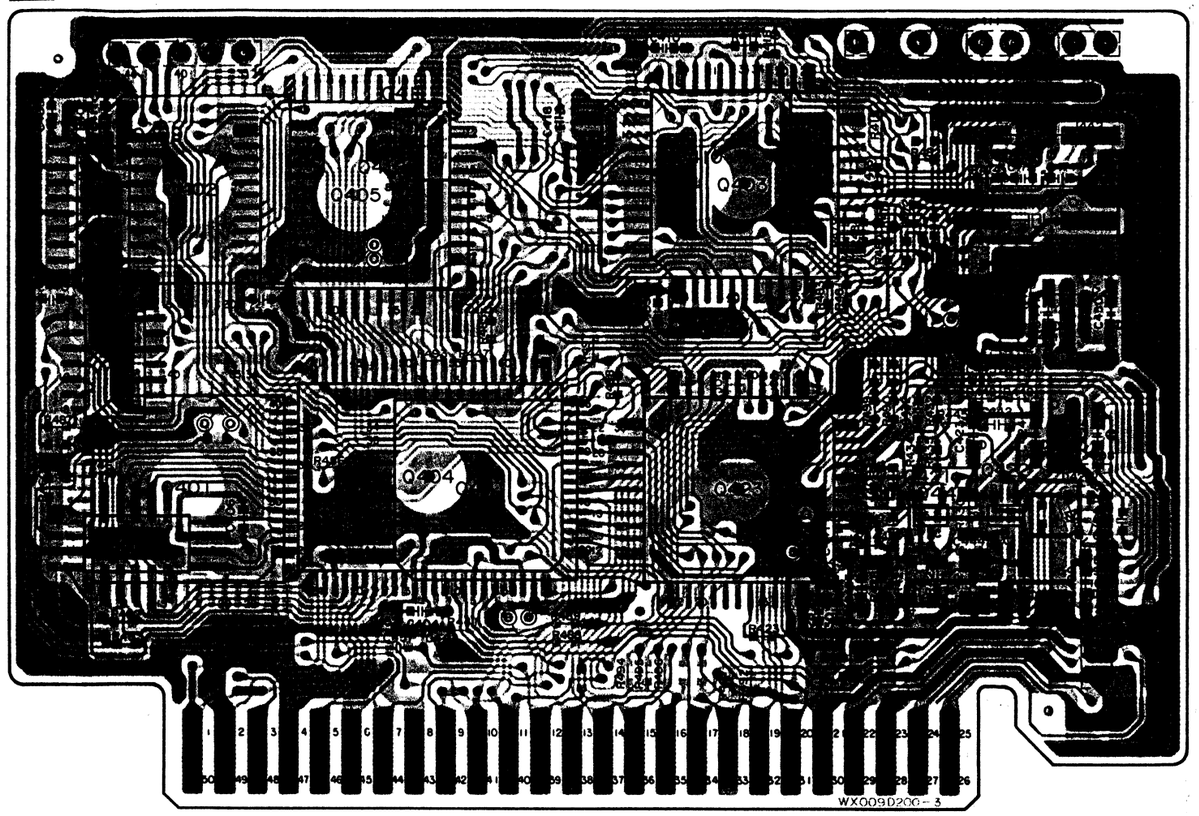
D SWITCH P.C.B. (REPI405)

M HEADPHONES LEVEL P.C.B. (ZZ011D2330)

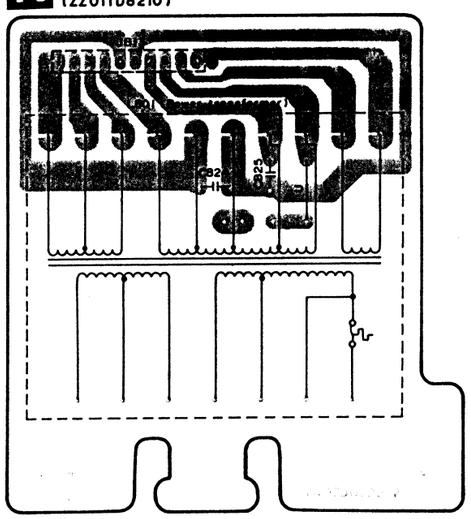




F PASC DIGITAL P.C.B. (ZZ011D9010)

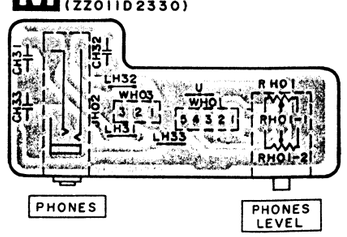


K POWER TRANSFORMER P.C.B. (ZZ011D8210)

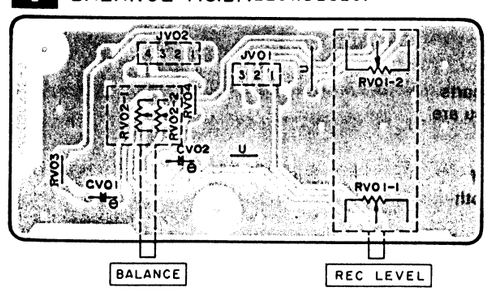


D SWITCH P.C.B. (REP1405)

M HEADPHONES LEVEL P.C.B. (ZZ011D2330)



I REC LEVEL/ BALANCE P.C.B. (ZZ011D2320)

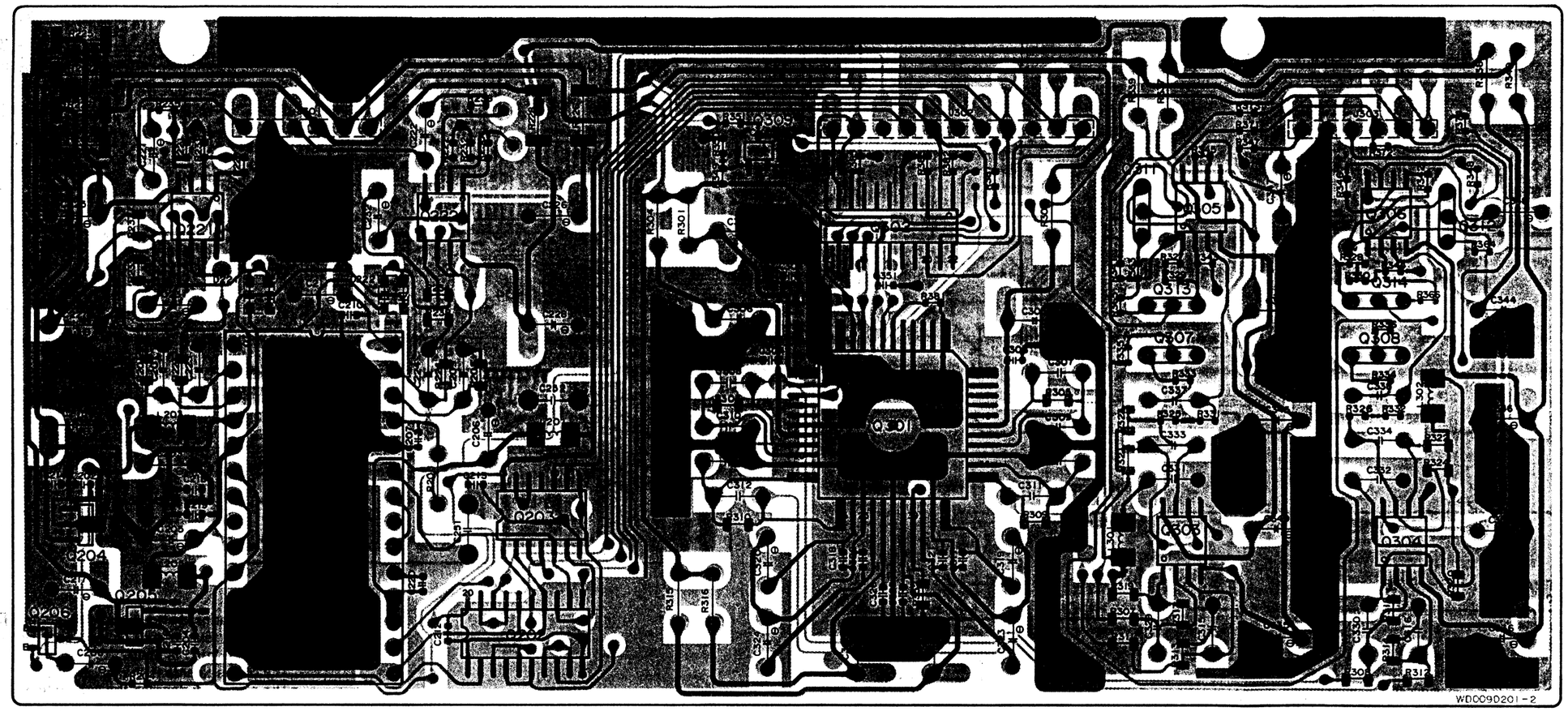


Notes:

- In these printed circuit board diagrams (E, F), the parts and foil patterns on the board facing toward you are printed in black.
  The opposite side is printed in blue.
- The "•" mark denotes the connection points of double-faced foil patterns (through holes) on both side of the printed circuit board.
- These printed circuit board diagrams may be modified at any time with the development of new technology.

RS-DC10

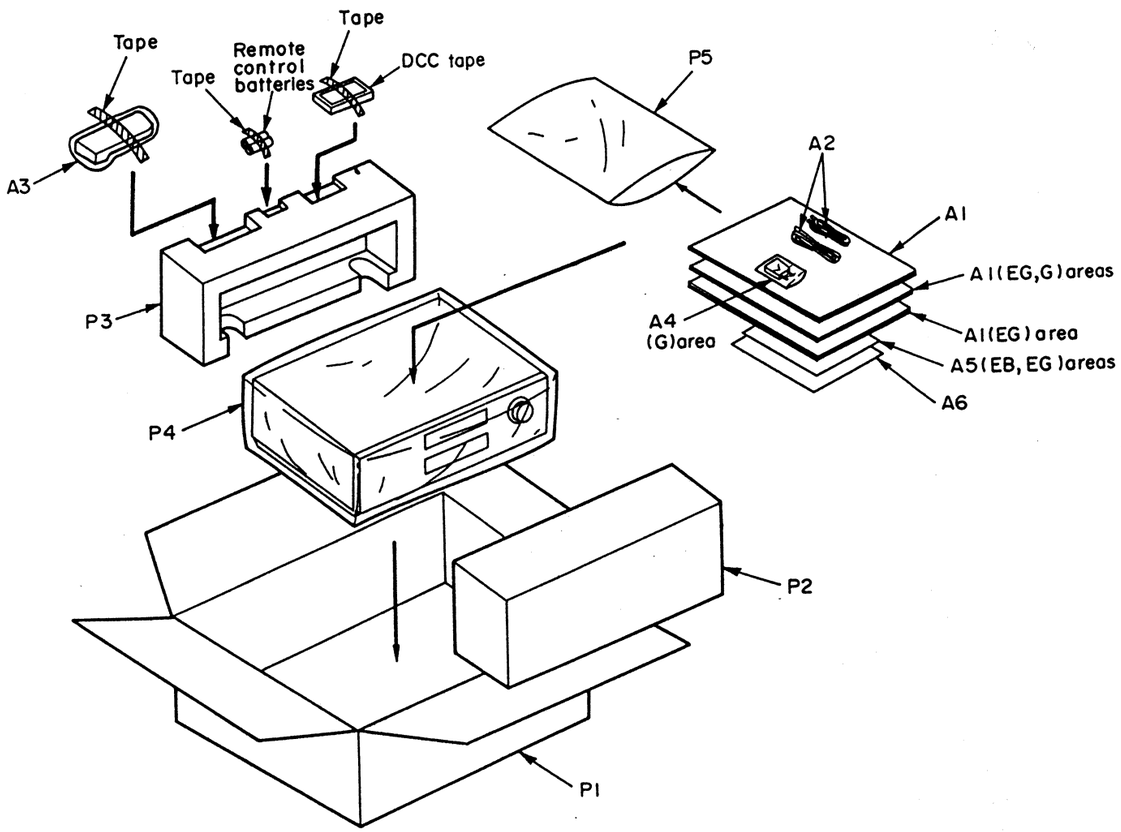
G AD/DA CONVERTER P.C.B. (ZZ011D2010)

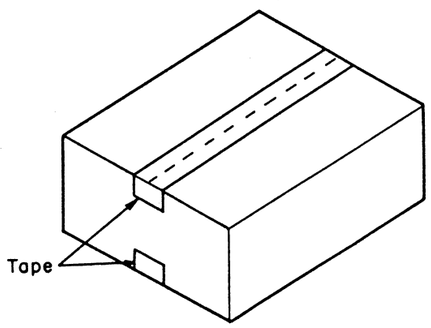


Notes:

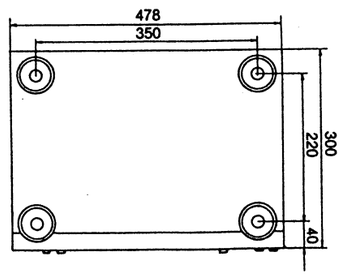
- In this printed circuit board diagram (G), the parts and foil patterns on the board facing toward you are printed in black.
  The opposite side is printed in blue.
- The "•" mark denotes the connection points of double-faced foil patterns (through holes) on both side of the printed circuit board.
- This printed circuit board diagram may be modified at any time with the development of new technology.

■PACKAGING





• Position of foot (Dimension: mm)



■REPLACEMENT PARTS LIST

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
*Remote Control Ass'y:
Supply period for three years from termination of production.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC971, 972	GP2S06BC	PHOTO COUPLER	
Q001	HC10010090	MOTOR CONTROL	
Q031	HC10340050	QUICK SENSOR DRIVE	
Q101	HC10081490	READ AMP	
Q151	HC10082490	WRITE AMP	
Q181	HC70530020	MULTIPLEXER	
Q182	HC71750020	FLIP-FLOP	
Q183	HC70000020	NAND GATE	
Q184	HC71630020	COUNTER	
Q185	HC70020020	NOR GATE	
Q201	HC10002480	A/D CONVERTER	
Q202	HC73740520	FLIP-FLOP	
Q203	HC70000020	NAND GATE	
Q204	HC90005090	REGULATOR	
Q205	HC99005090	REGULATOR	
Q221, 222	HC10033090	BUFFER AMP	
Q301	HC10054490	D/A CONVERTER	
Q302	HC10006350	DIGITAL FILTER	
Q303-306	HC10034090	FILTER AMP	
Q401	HC10075490	SBF-LEFT	
Q402	HC10075490	SBF-RIGHT	
Q403	HC10076490	SBC	
Q404	HC10077490	DDSP2	
Q405	HC10078490	ERCO	
Q406	HC10088180	DRAM(64kx4)	
Q409	HC45380020	LOGIC CONTROL	
Q410	HC10079490	ADAS	
Q412	HC70320020	OR GATE	
Q423	HC10080490	DEQ2	
Q441	HC10142200	DAIAL FILTER	
Q442	HC70040020	HEX INVERTER	
Q443	HC10050270	PLL CONTROL	
Q444	HC70464920	PLL	
Q601	HC10023250	DOLBY NR B/C	
Q602	HC10053090	EQUALIZER AMP	
Q720	HC10089210	OUTPUT AMP	
Q731	HC10235030	MOTOR DRIVE	
Q751	HC10053090	BUFFER AMP	
Q811	HC36905320	REGULATOR	⚠
Q812	HC3850809F	REGULATOR	⚠
Q871	HC36912320	REGULATOR	⚠
Q872	HC3991209F	REGULATOR	⚠

Ref. No.	Part No.	Part Name & Description	Remarks
Q873	HC36905320	REGULATOR	⚠
Q874	HC38905320	REGULATOR	⚠
QA01	HC700400U0	HEX UNBUFFERED INVERTER	
QD01	HU10112060	PANEL CONTROL AND FL DRIVE	
QD02	HW10012320	IR SENSOR	
QH02	HC10089210	HEADPHONES AMP	
QL01	HC10050210	LEVEL METER CONTROL	
QL02	HC10089210	BUFFER AMP	
QM21	HC10093210	REEL MOTOR DRIVE	
QM51	HC10279030	TRAY MOTOR DRIVE	
QQ01	HC10044210	QMS CONTROL	
QQ51	HC10089210	-60dB LEVEL DETECTOR	
QS01	HC706600B0	QUAD ANALOG SWITCH	
QU01	HU10111060	MICROCOMPUTER	
QU21	HC712500B0	QUAD 3-STATE BUFFER	
QU81	HC10153210	EEP ROM	
		TRANSISTOR(S)	
Q011	HT30001000	TRANSISTOR	
Q102, 103	HX327121A0	TRANSISTOR	
Q104	HX409992A0	TRANSISTOR	
Q105	HX111621A0	TRANSISTOR	
Q106	HX327121A0	TRANSISTOR	
Q153	BA20003020	TRANSISTOR	
Q180	HX327121A0	TRANSISTOR	
Q190	HX327121A0	TRANSISTOR	
Q206	BA10028210	TRANSISTOR	
Q307, 308	HF203722A0	F.E.T.	
Q309	HX108122B0	TRANSISTOR	
Q311-314	HF203722A0	F.E.T.	
Q411	BA20003020	TRANSISTOR	
Q421	HX327121A0	TRANSISTOR	
Q422	HX111621A0	TRANSISTOR	
Q611	BA10003210	TRANSISTOR	
Q612	BA20010210	TRANSISTOR	
Q613	BA10007210	TRANSISTOR	
Q641, 642	BA20028210	TRANSISTOR	
Q671, 672	BA20010210	TRANSISTOR	
Q701	HT421592B0	TRANSISTOR	
Q702	BA20017210	TRANSISTOR	
Q761-768	HT421442A0	TRANSISTOR	
Q806	HT421592B0	TRANSISTOR	
Q807	HT214252B0	TRANSISTOR	
Q809, 810	BA20017210	TRANSISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
Q843	BA20017210	TRANSISTOR	
QA02	BA20010210	TRANSISTOR	
QA03	HT10001000	TRANSISTOR	
QA04	HT30001000	TRANSISTOR	
QD03	BA10007210	TRANSISTOR	
QH05, 06	BA20028210	TRANSISTOR	
QH07, 08	BA20028210	TRANSISTOR	
QM01	BA20017210	TRANSISTOR	
QM02	BA10003210	TRANSISTOR	
QM03	HT42010000	TRANSISTOR	
QM04	BA20017210	TRANSISTOR	
QM22	BA20017210	TRANSISTOR	
QM81-84	BA20017210	TRANSISTOR	
QM85, 86	HT320602B0	TRANSISTOR	
QM87	HT214252B0	TRANSISTOR	
QQ03-06	BA20017210	TRANSISTOR	
QQ21	HT30001000	TRANSISTOR	
QQ52	BA20017210	TRANSISTOR	
QR51, 52	BA20012210	TRANSISTOR	
QS02	BA20016210	TRANSISTOR	
QS03	BA20012210	TRANSISTOR	
QU02	BA20017210	TRANSISTOR	
QU03-05	BA10007210	TRANSISTOR	
QU11	BA10007210	TRANSISTOR	
QU12	BA10003210	TRANSISTOR	
QU13, 14	BA20017210	TRANSISTOR	
QU16	BA10003210	TRANSISTOR	
QU17	BA20017210	TRANSISTOR	
QU18	BA10007210	TRANSISTOR	
QU19	HT30001000	TRANSISTOR	
QU22	BA20010210	TRANSISTOR	
QU33	BA10010210	TRANSISTOR	
QU41	HT30001000	TRANSISTOR	
QU52	BA10007210	TRANSISTOR	
QU53	BA20010210	TRANSISTOR	
QU54	BA10010210	TRANSISTOR	
QU55-57	BA20017210	TRANSISTOR	
QU61	BA20010210	TRANSISTOR	
QU62	BA10007210	TRANSISTOR	
QU63	HT42010000	TRANSISTOR	
QU64	BA20010210	TRANSISTOR	
QU65	BA10007210	TRANSISTOR	
		DIODE(S)	
D001	HD20002000	DIODE	
D002, 003	HD70200490	ZENER	
D032	HD20002000	DIODE	
D221, 222	HZ20006020	DIODE	
D421	HZ30018050	DIODE	
D701	SVD1SR35200	DIODE	
D702, 703	HD20002000	DIODE	

Ref. No.	Part No.	Part Name & Description	Remarks
D801-812	SVD1SR35200	DIODE	⚠
D815, 816	SVD1SR35200	DIODE	⚠
D817	MA4051M	ZENER	
D818, 819	HD30821000	ZENER	
D820, 821	SVD1SR35200	DIODE	⚠
D822	SVD1SR35200	DIODE	⚠
D823, 824	HD20002000	DIODE	
D828	SVD1SR35200	DIODE	⚠
D841	SVD1SR35200	DIODE	⚠
D871-873	SVD1SR35200	DIODE	⚠
D971, 972	RVD1SS133TA	DIODE	
DD01	HI10114320	L. E. D. (GREEN)	
DD02	HI10062320	L. E. D. (ORANGE)	
DD04-06	HD20002000	DIODE	
DH01-04	HD20002000	DIODE	
DM01	HD20002000	DIODE	
DM21	MA4039M	ZENER	
DM22	HD30821000	ZENER	
DM23	HD20002000	DIODE	
DM51	HD30821000	ZENER	
DM52	HD20002000	DIODE	
DU11	MA4039M	ZENER	
DU51	HD20002000	DIODE	
DU53	HD20002000	DIODE	
DU54, 55	SVD1SR35200	DIODE	⚠
DU56	HD20002000	DIODE	
DU61	HD20002000	DIODE	
DU62	HD20029050	DIODE	
		VARIABLE RESISTOR(S)	
R036	RA02230760	QUICK SENSOR ADJ.	
R101, 102	NY04720090	ANALOG OUTPUT LEVEL ADJ.	
R109, 110	NY04720090	ANALOG OUTPUT DIST. ADJ.	
R135	NY01020090	DCC P. B. LEVEL ADJ.	
R167	NY01010160	DCC OPT. REC. BIAS CURR. ADJ.	
R455	NY01030090	PLL ADJ.	
R633, 634	RA01030780	DOLBY NR ADJ.	
R643, 644	RA04730780	ANALOG P. B. RES. ADJ. (HIGH)	
R645, 646	RA04740780	ANALOG P. B. RES. ADJ. (LO)	
R731	RY02030040	MOTOR VOLUME	
RH01	RM02030430	PHONES LEVEL	
RL05, 06	RA02220780	LEVEL METER ADJ.	
RS02	RA04720760	TAPE SPEED ADJ. (FORWARD)	
RS08	RA04710760	TAPE SPEED ADJ. (REVERSE)	
RV01	RM05031830	REC LEVEL	
RV02	RM01041490	BALANCE	
		THERMISTOR(S)	
R187	HH00030020	THERMISTOR	
RS03	HH00031020	THERMISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
		COIL(S)	
L101, 102	LU01153010	COIL	
L201	LU12103010	COIL	
L203	LU12103010	COIL	
L205	LU12103010	COIL	
L301, 302	LU02224010	COIL	
L421	LU12104010	COIL	
L441	LU12104010	COIL	
L451	FM12223010	COIL	
L711-718	FC90050090	COIL	
LA01	TP41042010	COIL	
LA02	LC11030140	CHOKE COIL	
LA03	LC14730140	CHOKE COIL	
LH31-33	FC90050090	COIL	
		TRANSFORMER(S)	
L801	TS16670030	POWER TRANSFORMER	(G)⚠
L801	TS16670010	POWER TRANSFORMER	(EB, EG)⚠
L802	FN01010020	TRANSFORMER	⚠
		COMPONENT COMBINATION(S)	
GD01	BW05473120	COMBINATION PART(47kX10)	
GD02	BW05473110	COMBINATION PART(47kX9)	
GD03	BW05473100	COMBINATION PART(47kX8)	
GD04	BW05473090	COMBINATION PART(47kX7)	
GU01	BW05103150	COMBINATION PART(10kX6)	
GU81	BW05103150	COMBINATION PART(10kX6)	
		OSCILLATOR(S)	
X401	FZ02455010	CERAMIC FILTER(24MHz)	
X402	FZ02255010	CERAMIC FILTER(22MHz)	
XD01	FQ04194020	CERAMIC FILTER(4.19MHz)	
XU01	FQ04194020	CERAMIC FILTER(4.19MHz)	
		DISPLAY TUBE(S)	
VD01	HQ31605060	FL DISPLAY TUBE	⚠
		FUSE(S)	
F801	FS10063850	FUSE, 250V, T630mA	⚠
		SWITCH(ES)	
JO91	BY05080070	VOLTAGE SELECTOR	(G)⚠
S851	SP01011830	POWER	⚠
S901	RSP1C001-A	TAPE P. TIME DETECTION	(S901-1-901-3)

Ref. No.	Part No.	Part Name & Description	Remarks
S902	RSP1B001-A	TAPE DETECTION	(S902-1, 902-2)
S971	RSH1A89ZC-U	MODE	
S972	RSH1A90YC-U	CASSETTE HALF DETECTION	
S973	RSH1A90YC-U	ATS	
SD01	SP0101128X	REPEAT	
SD02	SP0101128X	SIDE A/B	
SD03	SP0101128X	REW	
SD04	SP0101128X	FF	
SD05	SP0101128X	SKIP(REVERSE)	
SD06	SP0101128X	SKIP(FORWARD)	
SD07	SP0101128X	PLAY	
SD08	SP0101128X	STOP	
SD09	SP0101128X	APPEND	
SD10	SP0101128X	RENUMBER	
SD11	SP0101128X	MRK ERASE	
SD12	SP0101128X	NEXT MRK WRITE	
SD13	SP0101128X	REVERSE MRK WRITE	
SD14	SP0101128X	START MRK WRITE	
SD15	SP0101128X	PAUSE	
SD16	SP0101128X	REC	
SD17	SP0101128X	TRAY OPEN/CLOSE	
SD19	SP0101128X	COUNTER RESET	
SD20	SP0101128X	TEXT	
SD21	SP0101128X	COUNTER	
SD23	SP0101128X	AUTO START MRK	
SD24	SP0101128X	AUTO REC MUTE	
SD31	SR01030080	TIMER	
SD32	SR01030070	DOLBY NR	
SD33	SR01030070	INPUT SELECTOR	
		RELAY(S)	
L701	LY20120320	RELAY	
		CONNECTOR(S) AND SOCKET(S)	
J031	YP06006930	CONNECTOR(3P)	
J101	YJ07006250	CONNECTOR(30P)	
J103	YJ07006090	CONNECTOR(18P)	
J301	YP06006290	CONNECTOR(6P)	
J302	YP06006470	CONNECTOR(11P)	
J303	YP06006290	CONNECTOR(6P)	
J311	YJ06008760	SOCKET(6P)	
J312	YJ06008810	SOCKET(11P)	
J313	YJ06008760	SOCKET(6P)	
J408	YJ07006100	CONNECTOR(18P)	
J421	YJ07006130	CONNECTOR(50P)	
J601	YP06006930	CONNECTOR(6P)	
J701, 702	YP06003830	CONNECTOR(3P)	
J803	YP04000760	CONNECTOR(2P)	
J813	YP06011900	CONNECTOR(10P)	
J821	YP06012300	CONNECTOR(10P)	

Ref. No.	Part No.	Part Name & Description	Remarks
J851	YP04000760	CONNECTOR (2P)	
J871	YP06010460	CONNECTOR (7P)	
J872	YP06003880	CONNECTOR (8P)	
J873	YP06010460	CONNECTOR (7P)	
J874	YP06003880	CONNECTOR (8P)	
JD01	YJ07006080	CONNECTOR (25P)	
JH04	YP06006650	CONNECTOR (5P)	
JH06	YP06003830	CONNECTOR (3P)	
JM01	YP06006690	CONNECTOR (9P)	
JM02	YP06006670	CONNECTOR (7P)	
JM03	YP06003830	CONNECTOR (3P)	
JM04	YP06006650	CONNECTOR (5P)	
JU01	YP06006660	CONNECTOR (6P)	
JU02	YJ07006070	CONNECTOR (25P)	
JU04	YP06006650	CONNECTOR (5P)	
JV01	YP06003830	CONNECTOR (3P)	
JV02	YP06003910	CONNECTOR (4P)	
JW01	YJ06011690	CONNECTOR (9P)	
JW02	YP06006690	CONNECTOR (9P)	
JW03	YP06006640	CONNECTOR (4P)	
JW04	YP06003830	CONNECTOR (3P)	
JW05	YP06006710	CONNECTOR (11P)	
JW06	YP06006700	CONNECTOR (10P)	
JW12	YP06006670	CONNECTOR (7P)	
JW32	YJ06006230	CONNECTOR (3P)	
JW93	YJ06006260	CONNECTOR (6P)	
		JACK (S)	
J740	YT02021080	TERMINAL BOARD (2P) : FIX	
J741	YT02021080	TERMINAL BOARD (2P) : VARIABLE	
J742	YT02021080	TERMINAL BOARD (2P) : REC	
JA01	YJ15000080	OPTICAL PLAY	
JA02	YJ15000120	OPTICAL REC	
JA03	YT02021070	TERMINAL BOARD (2P) : COAXIAL	
JH02	YJ01003490	JACK, HEADPHONES	
		FLAT CABLE (S)	
J611 (J612)	YB00170640	CONNECTIVE CORD (3P)	
W010	YW009D0010	WIRE MATERIALS	(G)
W103	YU18200520	FPC BOARD (18P)	
W803	YB00181770	CONNECTIVE CORD (2P)	(EB, EG)
W803	YB00203570	CONNECTIVE CORD (2P)	(G)
W811	YB00050850	CONNECTIVE CORD (10P)	
W812	YB00081430	CONNECTIVE CORD (10P)	
W871	YB00121600	CONNECTIVE CORD (7P)	
W872	YB00121610	CONNECTIVE CORD (8P)	
WD01	YU25150520	FPC BOARD (25P)	
WH01	YB00104160	CONNECTIVE CORD (5P)	
WH03	YB00081510	CONNECTIVE CORD (3P)	
WM01	YU09220270	FLAT CABLE (9P)	

Ref. No.	Part No.	Part Name & Description	Remarks
WM02	YB00203600	CONNECTIVE CORD (9P)	
WM05	YB00203620	CONNECTIVE CORD (11P)	
WM06	YB00203610	CONNECTIVE CORD (10P)	
WM12	YB00181790	CONNECTIVE CORD (7P)	
WM93	YB00240940	CONNECTIVE CORD (6P)	
WV01	YB00203280	CONNECTIVE CORD (3P)	
WV02	YB00340510	CONNECTIVE CORD (4P)	
		GND PART (S)	
JJ01	YL01010110	EARTH GROUND	
JJ02	309V129010	EARTH GROUND	
		HOLDER (S)	
J804	YJ08000430	FUSE HOLDER	
J805	YJ08000450	FUSE HOLDER	

■ RESISTORS AND CAPACITORS

Notes : • Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
• Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k (OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R001	ERDS2TJ472	1/4W 4.7K
R002	ERDS2TJ683	1/4W 68K
R003	ERDS2TJ274	1/4W 270K
R004	ERDS2TJ102	1/4W 1K
R005, 006	ERDS2TJ104	1/4W 100K
R007	ERDS2TJ682	1/4W 6.8K
R008	ERDS2TJ104	1/4W 100K
R009, 010	ERDS2TJ472	1/4W 4.7K
R011	ERDS2TJ103	1/4W 10K
R012	ERDS2TJ332	1/4W 3.3K
R013	ERDS2TJ392	1/4W 3.9K
R014	ERDS2TJ184	1/4W 180K
R018, 019	ERJ2GEYJ154V	1/4W 10K
R031	ERDS2TJ151	1/4W 150 ⚠
R032	ERDS2TJ103	1/4W 10K
R033	ERDS2TJ102	1/4W 1K
R034	ERDS2TJ222	1/4W 2.2K
R035	ERDS2TJ104	1/4W 100K
R039	ERDS2TJ104	1/4W 100K
R103, 104	ERJ2GEYJ473V	1/16W 47K
R105, 106	NN05303610	1/16W 30K
R107, 108	ERJ2GEYJ154V	1/16W 150K
R111-114	NN05100610	1/16W 10
R115, 116	NN05561610	1/16W 560
R121	ERJ2GEYJ682V	1/16W 6.8K
R122	NN05683610	1/16W 68K
R125	ERJ2GEYJ104V	1/16W 100K
R127, 128	ERJ2GEYJ102V	1/16W 1K
R129	ERJ2GEYJ470V	1/16W 47
R130	ERJ2GEYJ471V	1/16W 470
R131	ERJ2GEYJ331V	1/16W 330
R132	NN05561610	1/16W 560
R133	ERJ2GEYJ822V	1/16W 8.2K
R134	ERJ2GEYJ123V	1/16W 12K
R136	NN05393610	1/16W 39K
R137-145	ERJ6GEYJ561V	1/10W 560
R146	NN05561610	1/16W 560
R151	ERDS2TJ120	1/4W 12
R155	ERDS2TJ2R2	1/4W 2.2
R156	ERDS2TJ181	1/4W 180
R158-166	NN05220610	1/16W 22
R171, 172	ERJ2GEYJ472V	1/16W 4.7K
R180	ERJ2GEYJ102V	1/16W 1K
R181	ERJ2GEYJ331V	1/16W 330
R182	NN05100610	1/16W 10
R183	ERJ2GEYJ822V	1/16W 8.2K
R184	NI05560110	1/10W 56
R185	NN05182610	1/16W 1.8K
R186	NN05680610	1/16W 68
R192	NN05182610	1/16W 1.8K
R193	ERJ2GEYJ152V	1/16W 1.5K
R194	NN05561610	1/16W 560
R195	NN05121610	1/16W 120
R196-198	NN05390610	1/16W 39
R201	NI01510110	1/10W 51
R204	ERJ2GEYJ473V	1/16W 47K
R205	NI01510110	1/10W 51
R206, 207	RI05121120	1/2W 120
R208	ERQ12AJ4R7	1/2W 4.7 ⚠
R221, 222	ERJ2GEYJ104V	1/16W 100K
R223, 224	NI01510110	1/10W 51
R225-228	RI05121120	1/2W 120
R229, 230	NN05223610	1/16W 22K
R231, 232	ERJ2GEYJ222V	1/16W 2.2K
R233, 234	NI01102110	1/10W 1K
R235, 236	NN05182610	1/16W 1.8K
R237, 238	NI01473110	1/10W 47K
R301	ERQ12AJ4R7	1/2W 4.7 ⚠
R303, 304	ERQ12AJ4R7	1/2W 4.7 ⚠
R305, 306	NI01473110	1/10W 47K
R307, 308	NI01822110	1/10W 8.2K
R309, 310	NI01473110	1/10W 47K
R311-314	NI01822110	1/10W 8.2K
R315, 316	ERDS2TJ101	1/4W 100
R317, 318	NI01822110	1/10W 8.2K
R319, 320	NI01562110	1/10W 5.6K
R321, 322	NI01752110	1/10W 7.5K
R323, 324	NI01562110	1/10W 5.6K
R325, 326	ERJ2GEYJ102V	1/16W 1K
R327, 328	ERJ2GEYJ272V	1/16W 2.7K
R329, 330	ERJ2GEYJ682V	1/16W 6.8K
R331, 332	ERJ2GEYJ101V	1/16W 100
R333, 334	ERJ2GEYJ471V	1/16W 470
R335, 336	NN05106610	1/16W 10M
R337-340	NF02100140	1/2W 10 ⚠
R341, 342	ERJ2GEYJ101V	1/16W 100
R343, 344	ERJ2GEYJ183V	1/16W 18K
R345, 346	ERJ2GEYJ101V	1/16W 100
R347, 348	NN05223610	1/16W 22K
R349	ERJ2GEYJ473V	1/16W 47K
R350	ERJ2GEYJ153V	1/16W 15K
R351	ERJ2GEYJ104V	1/16W 100K
R352	NI01243110	1/10W 24K
R363, 364	ERJ2GEYJ332V	1/16W 3.3K
R365, 366	ERJ2GEYJ472V	1/16W 4.7K
R371-374	NN05106610	1/16W 10M
R402	ERJ2GEYJ104V	1/16W 100K
R411	ERJ2GEYJ222V	1/16W 2.2K
R423	ERJ2GEYJ272V	1/16W 2.7K
R428	ERJ2GEYJ123V	1/16W 12K
R429	ERDS2TJ121	1/4W 120
R430	ERDS2TJ181	1/4W 180
R432	NN05221610	1/16W 220
R434, 435	ERJ2GEYJ473V	1/16W 47K
R441	ERJ2GEYJ103V	1/16W 10K
R442	ERJ2GEYJ104V	1/16W 100K
R443, 444	ERJ2GEYJ222V	1/16W 2.2K
R445	ERJ2GEYJ122V	1/16W 1.2K
R447	ERJ2GEYJ104V	1/16W 100K
R448, 449	NN05223610	1/16W 22K
R450	ERJ2GEYJ103V	1/16W 10K
R451, 452	NN05303610	1/16W 30K
R453	ERJ2GEYJ472V	1/16W 4.7K
R454	ERJ2GEYJ682V	1/16W 6.8K
R471	ERJ2GEYJ105V	1/16W 1M
R472	ERJ2GEYJ102V	1/16W 1K
R473	ERJ2GEYJ105V	1/16W 1M
R474	ERJ2GEYJ102V	1/16W 1K
R479-484	NN05330610	1/16W 33
R485	ERJ2GEYJ102V	1/16W 1K
R487-490	NN05330610	1/16W 33
R491-498	ERJ2GEYJ472V	1/16W 4.7K
R499	NN05330610	1/16W 33
R605-608	ERDS2TJ123	1/4W 12K
R609, 610	ERDS2TJ561	1/4W 560
R612, 613	ERDS2TJ682	1/4W 6.8K
R621	ERDS2TJ102	1/4W 1K
R622	ERDS2TJ273	1/4W 27K
R631, 632	ERDS2TJ153	1/4W 15K
R635, 636	ERDS2TJ102	1/4W 1K
R637, 638	ERDS2TJ103	1/4W 10K
R641, 642	ERDS2TJ102	1/4W 1K
R647, 648	ERDS2TJ332	1/4W 3.3K
R670	ERDS2TJ103	1/4W 10K
R671, 672	ERDS2TJ102	1/4W 1K
R673	ERDS2TJ103	1/4W 10K
R674	ERDS2TJ472	1/4W 4.7K
R701, 702	ERDS2TJ123	1/4W 12K
R703, 704	ERDS2TJ152	1/4W 1.5K
R705	NF02100140	1/2W 10 ⚠
R706, 707	ERDS2TJ222	1/4W 2.2K
R720, 721	ERDS2TJ473	1/4W 47K
R728, 729	NF02100140	1/2W 10 ⚠
R732	ERQ12AJ4R7	1/2W 4.7 ⚠

Ref. No.	Part No.	Values & Remarks
R733, 734	ERDS2TJ101	1/4W 100
R751, 752	NF02100140	1/2W 10 ⚠
R753, 754	ERDS2TJ473	1/4W 47K
R755, 756	ERDS2TJ102	1/4W 1K
R758, 759	ERDS2TJ101	1/4W 100
R761-764	ERDS2TJ221	1/4W 220
R767-770	ERDS2TJ221	1/4W 220
R771, 772	ERDS2TJ104	1/4W 100K
R781-788	ERDS2TJ222	1/4W 2.2K
R801	RF05010120	1/2W 1 ⚠
R802	RF05022120	1/2W 2.2 ⚠
R803-805	RF05010120	1/2W 1 ⚠
R806	NH05010140	1/4W 1 ⚠
R807	ERDS2TJ472	1/4W 4.7K
R808, 809	ERDS2TJ151	1/4W 150
R810	NF02100140	1/2W 10 ⚠
R811, 812	ERDS2TJ222	1/4W 2.2
R813, 814	NF02100140	1/2W 10 ⚠
R816	ERDS2TJ103	1/4W 10K
R820	ERDS2TJ104	1/4W 100K
R842	ERDS2TJ104	1/4W 100K
R871, 872	ERDS2TJ104	1/4W 100K
R873	ERDS2TJ103	1/4W 10K
R971	ERDS2TJ221	1/4W 220
R972	ERDS2TJ183T	1/4W 18K
R973	ERDS2TJ221	1/4W 220
R974	ERDS2TJ183T	1/4W 18K
RA01	ERDS2TJ391	1/4W 390
RA02	ERDS2TJ681	1/4W 680
RA03	ERDS2TJ822	1/4W 8.2K
RA04, 05	ERDS2TJ151	1/4W 150
RA08	ERDS2TJ104	1/4W 100K
RA10	ERDS2TJ221	1/4W 220
RA13	ERDS2TJ390	1/4W 39
RA15	ERDS2TJ390	1/4W 39
RD01	ERDS2TJ472	1/4W 4.7K
RD02	ERDS2TJ222	1/4W 2.2K
RD03	ERDS2TJ102	1/4W 1K
RD04	ERDS2TJ103	1/4W 10K
RD05	ERDS2TJ472	1/4W 4.7K
RD06	ERDS2TJ222	1/4W 2.2K
RD07	ERDS2TJ102	1/4W 1K
RD08	ERDS2TJ103	1/4W 10K
RD09	ERDS2TJ682	1/4W 6.8K
RD10	ERDS2TJ472	1/4W 4.7K
RD11	ERDS2TJ222	1/4W 2.2K
RD12	ERDS2TJ102	1/4W 1K
RD13	ERDS2TJ103	1/4W 10K
RD17	ERDS2TJ822	1/4W 8.2K
RD18	ERDS2TJ103	1/4W 10K
RD19	ERDS2TJ680	1/4W 68
RD20	ERDS2TJ681	1/4W 680

Ref. No.	Part No.	Values & Remarks
RD26	ERDS2TJ151	1/4W 150
RD31-38	ERDS2TJ103	1/4W 10K
RH02	NF02100140	1/2W 10 ⚠
RH04	NF02100140	1/2W 10 ⚠
RH05, 06	ERDS2TJ473	1/4W 47K
RH07, 08	ERDS2TJ103	1/4W 10K
RH09, 10	ERDS2TJ223	1/4W 22K
RH11, 12	ERDS2TJ121	1/4W 120
RH13, 14	ERDS2TJ103	1/4W 10K
RH29, 30	ERDS2TJ103	1/4W 10K
RL01, 02	ERDS2TJ103	1/4W 10K
RL03, 04	ERDS2TJ104	1/4W 100K
RL07, 08	ERDS2TJ473	1/4W 47K
RL09, 10	NF02100140	1/2W 10 ⚠
RL11, 12	ERDS2TJ101	1/4W 100
RM01	ERG1ANJ2R2	1W 2.2 ⚠
RM02	ERDS2TJ222	1/4W 2.2K
RM03	ERDS2TJ223	1/4W 22K
RM04	ERDS2TJ473	1/4W 47K
RM05	ERDS2TJ103	1/4W 10K
RM21	ERDS2TJ561	1/4W 560
RM22	ERDS2TJ222	1/4W 2.2K
RM23	NH05047140	1/4W 4.7 ⚠
RM24, 25	ERDS2TJ222	1/4W 2.2K
RM51	ERDS2TJ561	1/4W 560
RM52	ERDS2TJ222	1/4W 2.2K
RM54	ERDS2TJ222	1/4W 2.2K
RM55	ERDS2TJ102	1/4W 1K
RM56	ERDS2TJ103	1/4W 10K
RM57	NH05047140	1/4W 4.7 ⚠
RM58, 59	ERDS2TJ222	1/4W 2.2K
RM82	ERDS2TJ222	1/4W 2.2K
RM84	ERDS2TJ222	1/4W 2.2K
RM86	ERDS2TJ222	1/4W 2.2K
RM88	ERG1ANJ330	1W 33
RM89-91	ERDS2TJ103	1/4W 10K
RM92	ERDS2TJ102	1/4W 1K
RM93	ERDS2TJ473	1/4W 47K
RQ01	ERDS2TJ104	1/4W 100K
RQ03	ERDS2TJ682	1/4W 6.8K
RQ06, 07	ERDS2TJ103	1/4W 10K
RQ10	ERDS2TJ103	1/4W 10K
RQ15	ERDS2TJ104	1/4W 100K
RQ17	ERG1ANJ151	1W 150 ⚠
RQ21	ERDS2TJ822	1/4W 8.2K
RQ22	ERDS2TJ331	1/4W 330
RQ23	ERDS2TJ105	1/4W 1M
RQ31, 32	ERDS2TJ104	1/4W 100K
RQ51, 52	ERDS2TJ104	1/4W 100K
RQ53, 54	ERDS2TJ223	1/4W 22K
RQ55, 56	ERDS2TJ103	1/4W 10K
RQ57, 58	ERDS2TJ472	1/4W 4.7K

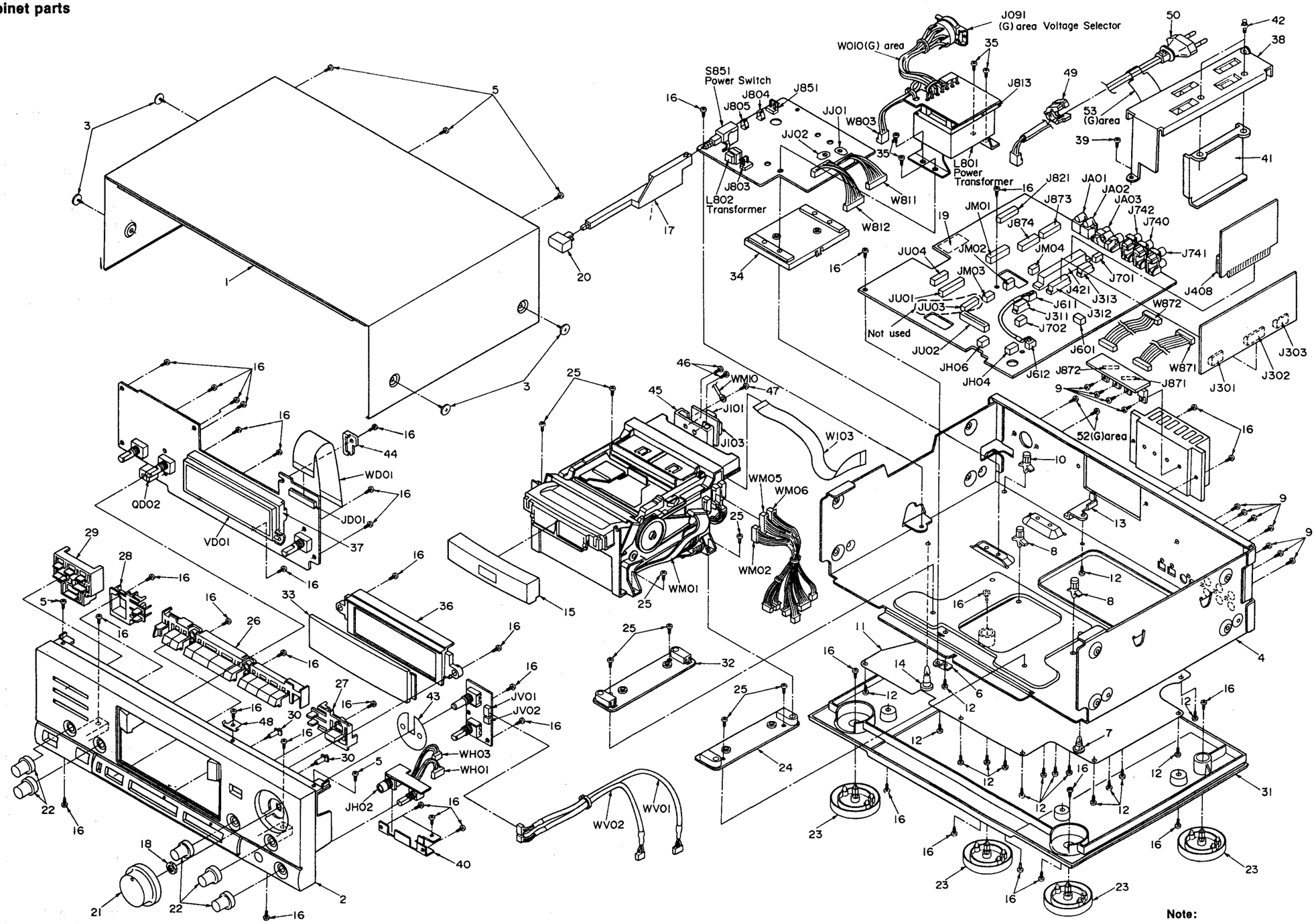
Ref. No.	Part No.	Values & Remarks
RQ59, 60	ERDS2TJ102	1/4W 1K
RQ61, 62	NF02100140	1/2W 10 ⚠
RQ63	ERDS2TJ103	1/4W 10K
RQ64	ERDS2TJ473	1/4W 47K
RR51, 52	ERDS2TJ103	1/4W 10K
RS01	ERDS2TJ123	1/4W 12K
RS04	ERDS2TJ221	1/4W 220
RS06, 07	ERDS2TJ472	1/4W 4.7K
RU01-10	ERDS2TJ103	1/4W 10K
RU11	ERDS2TJ101	1/4W 100
RU12	ERDS2TJ222	1/4W 2.2K
RU14	ERDS2TJ103	1/4W 10K
RU15	ERDS2TJ102	1/4W 1K
RU16	ERDS2TJ104	1/4W 100K
RU17	ERDS2TJ103	1/4W 10K
RU21	ERDS2TJ472	1/4W 4.7K
RU23	ERDS2TJ103	1/4W 10K
RU30	ERDS2TJ103	1/4W 10K
RU31	ERDS2TJ472	1/4W 4.7K
RU33	ERDS2TJ103	1/4W 10K
RU51	ERDS2TJ470	1/4W 47
RU53	ERDS2TJ222	1/4W 2.2K
RU54	ERDS2TJ103	1/4W 10K
RU55	ERDS2TJ102	1/4W 1K
RU56	ERDS2TJ473	1/4W 47K
RU57	ERDS2TJ102	1/4W 1K
RU61, 62	ERDS2TJ472	1/4W 4.7K
RU63	ERDS2TJ102	1/4W 1K
RU71	ERDS2TJ103	1/4W 10K
RV03, 04	ERDS2TJ102	1/4W 1K
		CHIP JUMPERS
CA10	75060501P0	CHIP JUMPER
J111, 112	ERJ6GEYJ000V	CHIP JUMPER
J121, 122	ERJ6GEYJ000V	CHIP JUMPER
J151, 152	ERJ6GEYJ000V	CHIP JUMPER
J409	ERJ6GEYJ000V	CHIP JUMPER
J441, 442	ERJ6GEYJ000V	CHIP JUMPER
LA10	75060501P0	CHIP JUMPER
R199	RI05000180	CHIP JUMPER
R381-383	NN05000610	CHIP JUMPER
R385	NN05000610	CHIP JUMPER
R387	NN05000610	CHIP JUMPER
R413	NN05000610	CHIP JUMPER
R417	NN05000610	CHIP JUMPER
R422	RI05000180	CHIP JUMPER
RA06	75060501P0	CHIP JUMPER
RH15	75060501P0	CHIP JUMPER
RJ03, 04	NN05000610	CHIP JUMPER
		CAPACITORS

Ref. No.	Part No.	Values & Remarks
C001	0A22405020	50V 0.22U
C002	EQ22505030	50V 2.2U
C003	EQ47405030	50V 0.47U
C004	ECKF1H103ZF	50V 0.01U
C005	ECA0JPXS221B	6.3V 220U
C006, 007	DD38104010	25V 0.1U
C031	ECA1HPXS4R7B	50V 4.7U
C032	ECA1CPXS100B	16V 10U
C033	ECA1HPXS2R2B	50V 2.2U
C101	ECKF1E104ZV	25V 0.1U
C102	ECST1CY105	16V 1U
C103	EY47501640	16V 4.7U
C104-111	DK58105200	16V 1U
C112	EY10601620	16V 10U
C113, 114	ECST1CY105	16V 1U
C115, 116	EY22500610	6.3V 2.2U
C117, 118	DK96182300	50V 1800P
C119-121	EY10601620	16V 10U
C122-132	ECUX1H103KB	50V 0.01U
C133, 134	ECKF1E104ZV	25V 0.1U
C135	EY68601020	10V 63U
C137	EY68601020	10V 63U
C138	ECKF1E104ZV	25V 0.1U
C140	EY68601020	10V 63U
C141	ECKF1E104ZV	25V 0.1U
C143	EY47501640	16V 4.7U
C144, 145	DK58105200	16V 1U
C150	EY68601020	10V 63U
C151, 152	ECKF1E104ZV	25V 0.1U
C157-165	DK96332300	50V 3300P
C181-185	ECKF1E104ZV	25V 0.1U
C190, 191	ECUX1H333ZF	50V 0.033U
C192	DK96102300	50V 1000P
C193	DD95390360	50V 39P
C194, 195	DK96222300	50V 2200P
C196	ECKF1E104ZV	25V 0.1U
C201	DF15103350	50V 0.01U
C202	ECKF1E104ZV	25V 0.1U
C203	ECA1CPXS100B	16V 10U
C204	ECKF1E104ZV	25V 0.1U
C205, 206	ECA1CPXS100B	16V 10U
C207	ECKF1E104ZV	25V 0.1U
C208	ECA1CPXS100B	16V 10U
C209	DF15103350	50V 0.01U
C210	ECKF1E104ZV	25V 0.1U
C211	ECA1CPXS100B	16V 10U
C212-214	ECKF1E104ZV	25V 0.1U
C215	ECA1EPXS101B	25V 100U
C216	ECKF1E104ZV	25V 0.1U
C217	ECA1EPXS101B	25V 100U
C218-220	ECKF1E104ZV	25V 0.1U
C221, 222	ECA1EPXS470B	25V 47U
C223, 224	DF15103350	50V 0.01U
C225-228	ECA1CPXS221B	16V 220U
C231, 232	ECA1EPXS470B	25V 47U
C251, 252	ECKF1H103ZF	50V 0.01U
C301	ECKF1E104ZV	25V 0.1U
C302	0A47601050	10V 47U
C303, 304	ECKF1E104ZV	25V 0.1U
C305, 306	0A47601050	10V 47U
C307, 308	ECCF1H390JC	50V 39P
C309, 310	ECQP1H471JZ	50V 470P
C311, 312	ECCF1H390JC	50V 39P
C313, 314	ECQP1H471JZ	50V 470P
C315, 316	DF15101550	100V 100P
C317, 318	ECKF1E104ZV	25V 0.1U
C319, 320	0A47601050	10V 47U
C321, 322	ECKF1E104ZV	25V 0.1U
C323, 324	0A47601050	10V 47U
C325, 326	ECKF1E104ZV	25V 0.1U
C327, 328	0A47601050	10V 47U
C329, 330	DF15101550	100V 100P
C331, 332	DF15102350	50V 1000P
C333, 334	DF15101550	100V 100P
C335, 336	ECA1CPXS221B	16V 220U
C337, 338	ECQM1H333JZ	50V 0.033U
C343-346	ECA1CPXS221B	16V 220U
C347, 348	ECA1EPXS101B	25V 100U
C349, 350	ECA1CPXS221B	16V 220U
C351	ECKF1E104ZV	25V 0.1U
C401-406	ECKF1E104ZV	25V 0.1U
C409, 410	ECKF1E104ZV	25V 0.1U
C411	ECUX1H103KB	50V 0.01U
C412	ECKF1E104ZV	25V 0.1U
C418	ECCF1H221K	50V 220P
C423	EY10601620	16V 10U
C424	EY22600620	6.3V 22U
C425	ECKF1E104ZV	25V 0.1U
C426	EY22505040	35V 2.2U
C427, 428	ECKF1E104ZV	25V 0.1U
C429	EY10601620	16V 10U
C430	ECKF1E104ZV	25V 0.1U
C431	EY10601620	16V 10U
C432	ECCF1H470JC	50V 47P
C433, 434	ECKF1E104ZV	25V 0.1U
C440	ECKF1E104ZV	25V 0.1U
C441	DK98393200	16V 0.039U
C442	DK58474200	16V 0.47U
C443-446	ECKF1E104ZV	25V 0.1U
C447	EY10601620	16V 10U
C448	ECCF1H101JC	50V 100P
C449	ECKF1E104ZV	25V 0.1U
C450	EY10601620	16V 10U
C451	0A47701620	16V 470U
C457	ECCF1H151JC	50V 150P
C471-474	ECCF1HD70CC	50V 7P
C601-604	ECA1HPXS4R7B	50V 4.7U
C605-608	DF16222310	50V 2200P
C609, 610	EA56405010	50V 0.56U
C611, 612	EA33405010	50V 0.33U
C613	ECA1EPXS100B	25V 10U
C622, 623	ECA1CPXS101B	16V 100U
C633, 634	DF16472310	50V 4700P
C635, 636	ECA1CPXS221B	16V 220U
C637, 638	ECQP1H223JZ	50V 0.022U
C639, 640	DA16221110	50V 220P
C641, 642	ECQP1H152JZ3	50V 1500P
C671, 672	ECQP1H223JZ	50V 0.022U
C721, 722	ECA1HPXS4R7B	50V 4.7U
C726, 727	ECA1CPXS470B	16V 47U
C728, 729	ECA1CPXS221B	16V 220U
C731	ECA1CPXS101B	16V 100U
C732, 733	DA17473110	50V 0.047U
C740-742	DD38104010	25V 0.1U
C751, 752	ECBA1H101KB5	50V 100P
C753, 754	ECA1HPXS4R7B	50V 4.7U
C756, 757	ECA1CPXS221B	16V 220U
C761-764	ECBA1H221KBY	50V 220P
C801	EA47803510	35V 4700U
C802	ECA1VM222B	35V 2200U
C803, 804	ECA1EM472	25V 4700U
C806	ECA1HM471B	50V 470U
C809	ECA1HPXS100B	50V 10U
C810	DA17473110	50V 0.047U
C811	ECA1EM472	25V 4700U
C812, 813	ECA1CPXS100B	16V 10U
C821	ECKF1H223ZF	50V 0.022U
C822, 823	ECKF1H223ZF	50V 0.022U ⚠
C824, 825	DA17473110	50V 0.047U ⚠
C826, 827	ECKF1H223ZF	50V 0.022U ⚠
C841, 842	ECA1CPXS221B	16V 220U
C851-853	ECKF1H103KB	50V 0.01U ⚠
C861, 862	ECKF1H103KB	50V 0.01U ⚠
C871	DA17473110	50V 0.047U ⚠
C872	EA10601620	16V 10U
C873	DA17473110	50V 0.047U
C874	EA10601620	16V 10U
C875	DA17473110	50V 0.047U ⚠
C876	EA10601620	16V 10U
C877	DA17473110	50V 0.047U
C878	EA47601620	16V 47U
CA01	ECA1CPXS100B	16V 10U
CA02	DA17473110	50V 0.047U
CA03	DF15104350	50V 0.1U
CA04	DD38104010	25V 0.1U

Ref. No.	Part No.	Values & Remarks
CA05	DA17473110	50V 0.047U
CA06	0A22605020	50V 22U
CA07	ECBA1H101KB5	50V 100P
CA08	DD38104010	25V 0.1U
CA09	0A22605020	50V 22U
CA12	ECA1CPXS101B	16V 100U
CA13	ECBA1H101KB5	50V 100P
CA14	ECCF1H560J	50V 56P
CA16	ECCF1H101K	50V 100P
CA17-19	DD38104010	25V 0.1U
CD01	EG10601650	16V 10U
CD02	DD38104010	25V 0.1U
CD03	EG47601650	16V 47U
CH01, 02	ECA1CPXS221B	16V 220U
CH03, 04	ECA1HPXS4R7B	50V 4.7U
CH05, 06	0A33701620	16V 330U
CH07, 08	DA17472110	50V 4700P
CH31, 32	DA17472110	50V 4700P
CH33	DD38104010	25V 0.1U
CL01-04	ECA1CPXS100B	16V 10U
CL05, 06	ECA1CPXS101B	16V 100U
CM01	ECA1CPXS101B	16V 100U
CM21, 22	DA17473110	50V 0.047U
CM51, 52	DA17473110	50V 0.047U
CQ01	0A22405020	50V 0.22U
CQ02	0A47405020	16V 0.47U
CQ04	ECKF1H223ZF	50V 0.022U
CQ06	DF16222310	50V 2200P
CQ08	ECA1CPXS101B	16V 100U
CQ09	DF16222310	50V 2200P
CQ10	ECKF1H223ZF	50V 0.022U
CQ21	ECBA1H101KB5	50V 100P
CQ22	ECKF1H223ZF	50V 0.022U
CQ51, 52	ECA1CPXS100B	16V 10U
CQ53, 54	ECA1CPXS470B	16V 47U
CQ55	ECA1CPXS100B	16V 10U
CU01	ECA1CPXS470B	16V 47U
CU02	DD38104010	25V 0.1U
CU21	ECA1CPXS470B	16V 47U
CU22	DD38104010	25V 0.1U
CU31	ECA1HPXS010B	50V 1U
CU51	ECA1CPXS101B	16V 100U
CU52	ECA1HPXS100B	50V 10U
CU53	ECA1HPXS2R2B	50V 2.2U
CU54	ECA1CPXS101B	16V 100U
CU81	ECA1CPXS470B	16V 47U
CU82	DD38104010	25V 0.1U
CV01, 02	EG10601650	16V 10U

■ EXPLODED VIEWS

• **Cabinet parts**

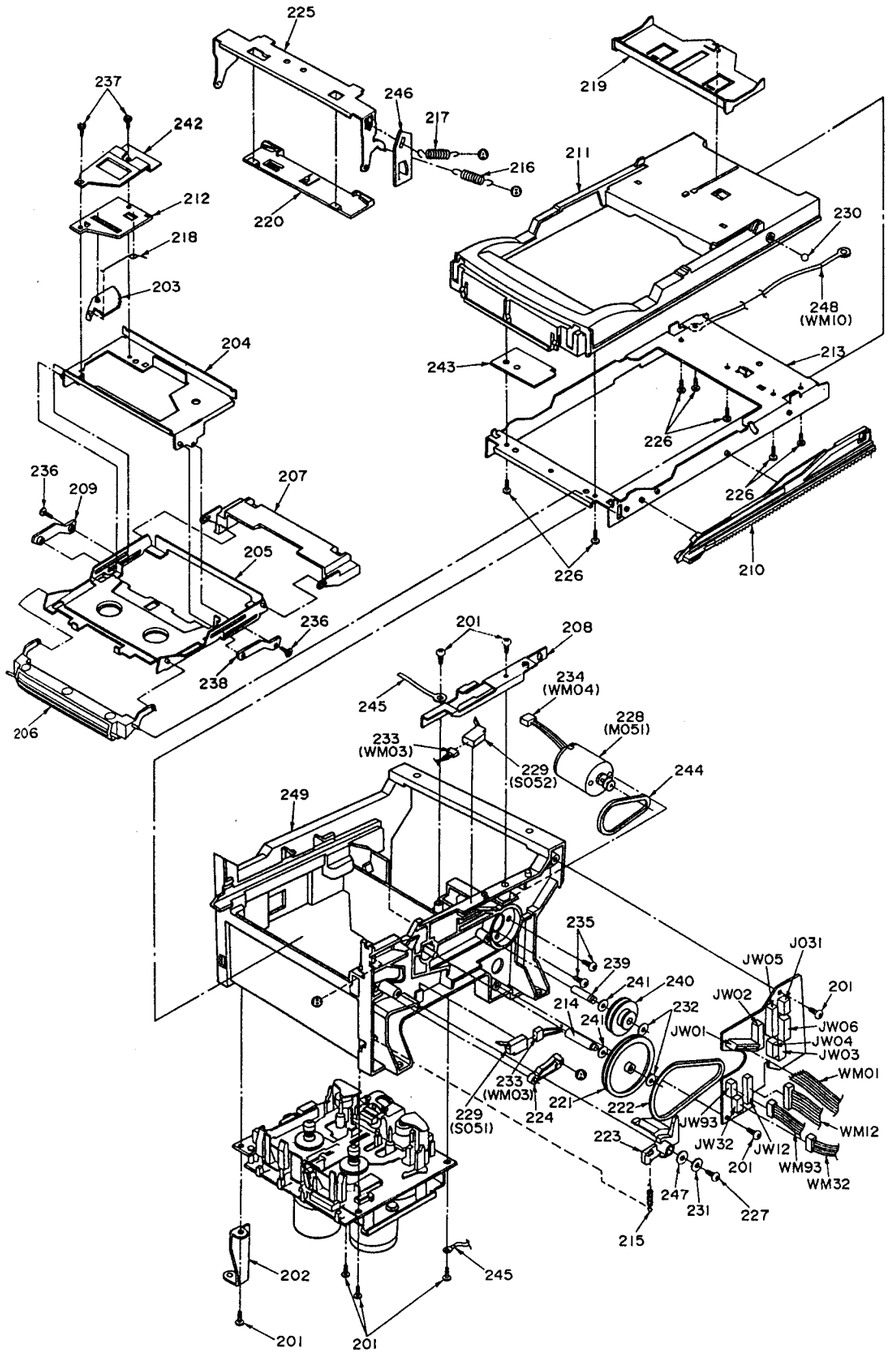


Note:

The configuration of Ref. No. 50 (AC power supply cord) differs according to area.

10 11 12 13 14

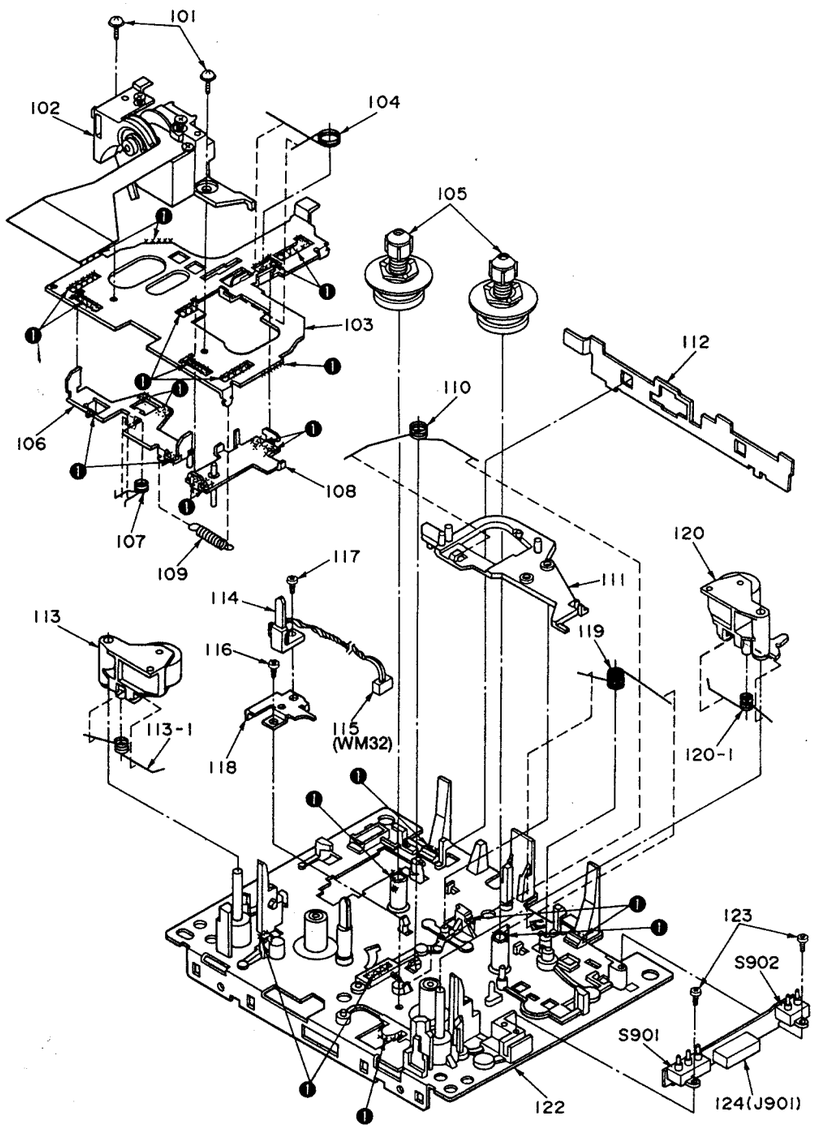
• **Loading Parts**



RS-DC10

• **Mechanical parts**

(Top view)

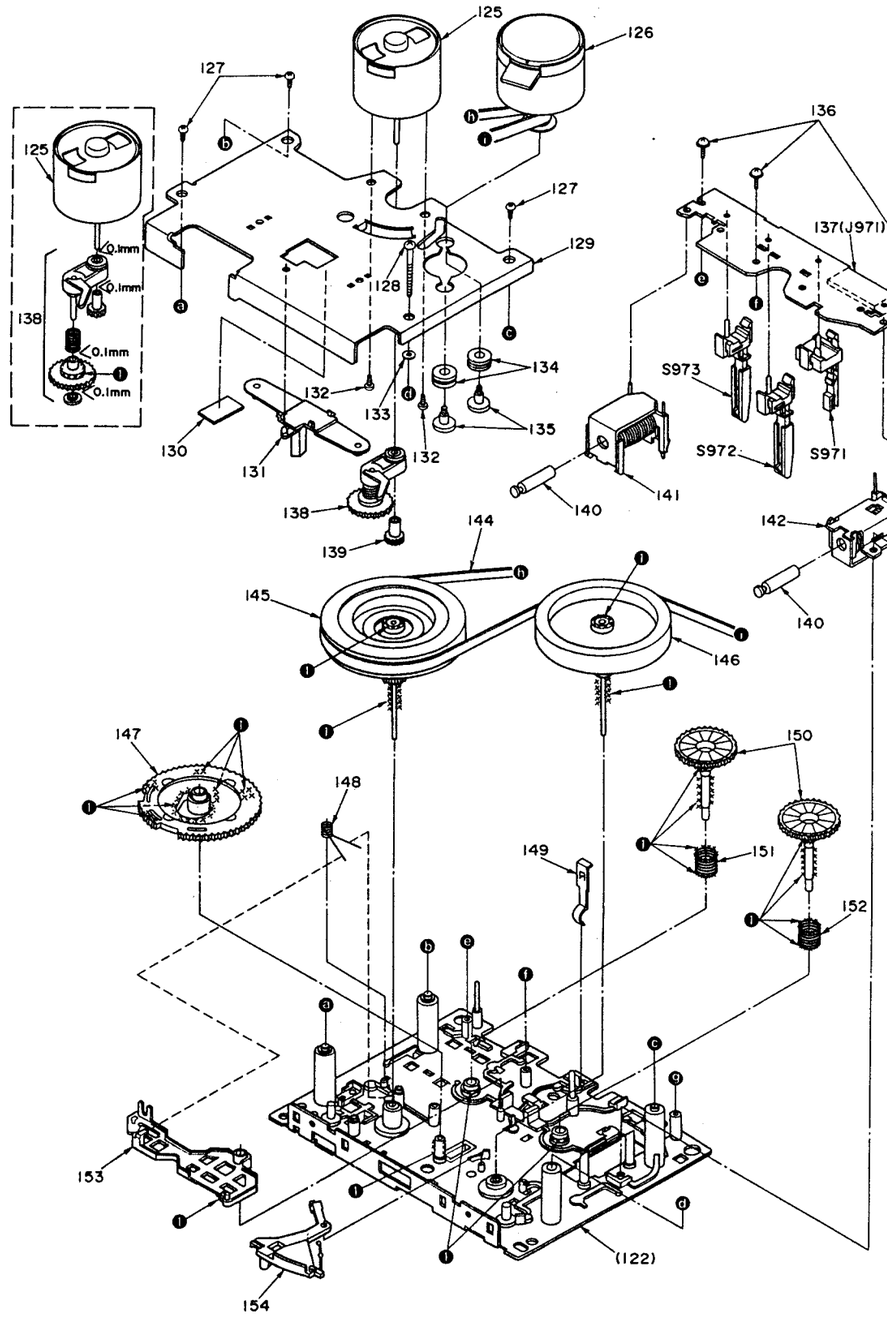


Note:

When changing mechanism parts, apply the specified grease to areas marked "× ×" as shown in the drawing.

Ref. No.	Part Name	Part No.
❶	FLOIL AK-152	SZZ0L18

(Bottom view)



■ REPLACEMENT PARTS LIST

Notes: *Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
*The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.
*Remote Control Ass'y:
Supply period for three years from termination of production.

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RFKKSDC10PPK	TOP COVER ASS'Y	
2	RFKGSDC10PPK	FRONT PANEL ASS'Y	
3	011D010010	SCREW	
4	RFKHSDC10G-K	CHASSIS ASS'Y	(G)
4	RFKHSDC10EGK	CHASSIS ASS'Y	(EG)
4	RFKHSDC10EBK	CHASSIS ASS'Y	(EB)
5	XTBS3+10JFZ	SCREW	
6	009D104130	RETAINER, MAIN P.C.B.	
7	467H118010	SPACER, MAIN P.C.B.	
8	054J101040	P.C.B. SUPPORT	
9	237K010010	SCREW	
10	054J101050	P.C.B. SUPPORT	
11	009D257120	BOTTOM LID	
12	XTB3+6JFZ	SCREW	
13	011D104010	RETANIER, MAIN P.C.B.	
14	045H118010	SPACER, POWER P.C.B. SUPPORT	
15	RFKNSDC10CK	CASSETTE TRAY ASS'Y	
16	XTB3+8JFZ	SCREW	
17	011D121010	POWER SWITCH LINK	
18	XNS7D	NUT	
19	147T118010	SPACER	
20	RGU0030	BUTTON, POWER	
21	011D154020	KNOB, REC LEVEL	
22	009D154060	KNOB, TIM/NR/SEL/BAL/H.P	
23	RKA0009-1	FOOT	
24	009D104120	RETAINER, MECHA BRACKET(R)	
25	XTB3+20JFZ	SCREW	
26	011D270120	BUTTON, MECHA:OPERATION	
27	009D270130	BUTTON, TEXT/COUNTER/TRAY	
28	009D270040	BUTTON, COUNTER/REPEAT	
29	009D270050	BUTTON, MARKER CONTROL	
30	011D355020	PLAY/REC INDIKET LENS	
31	RFKJSDC10EGK	BOTTOM BOARD ASS'Y	
32	009D104120	RETAINER, MECHA BRACKET(L)	
33	011D158010	FL WINDOW	
34	009D104110	RETAINER, TRANS BRACKET	
35	51280315A0	SCREW	
36	011D160020	BRACKET, FL WINDOW	
37	009D271010	FL HOLDER	
38	009D104150	RETAINER, DCC P.C.B.	
39	51280310B0	SCREW	
40	011D160010	BRACKET, HEADPHONES	
41	009D109010	SHIELD PLATE	
42	173H005010	CLAMPER	
43	009D109390	SHIELD PLATE, REC VR	
44	009D101010	HOLDER	
45	009D160110	BRACKET, READ/WRITE P.C.B.	
46	XTB26+4J	SCREW	
47	51100306S0	SCREW	
48	011D123030	CONTACTOR	
49	450H259010	BUSHING, AC P.SUPPLY CORD	
50	YC01800610	AC POWER SUPPLY CORD, WD01	(EG, G) ⚠
50	YC01800620	AC POWER SUPPLY CORD, WD01	(EB) ⚠
52	51100306S9	SCREW	(G)
53	RQLA0134	CAUTION LABEL(VOL. SELECTOR)	(G)
		LOADING PARTS LIST	
201	XTB3+8JFZ	SCREW	
202	009D109140	BRACKET	
203	009D002500	ARM KIT	
204	009D104500	RETAINER KIT	
205	009D163500	TRAY KIT	
206	009D002010	ARM	
207	009D002020	ARM	
208	009D051010	GUIDE	
209	009D005020	CLAMPER	
210	009D058010	GEAR	
211	009D064010	CASE	
212	RFKNSDC10PPA	RETAINER ASS'Y	
213	009D105010	CHASSIS	
214	009D112010	SHAFT	
215	009D115010	SPRING	
216	009D115020	SPRING	
217	009D115030	SPRING	
218	009D115040	SPRING	
219	009D127010	CONTROL BORAD	
220	009D252010	PAD	
221	009D262010	PULLEY	
222	009D264010	BELT	
223	009D354010	LEVER	
224	009D354020	LEVER	
225	009D354030	LEVER	
226	51302605U0	SCREW	
227	XTB3+10JFZ	SCREW	
228	RFKPSDC10PPK	D.C.MOTOR ASS'Y(M051)	
229	SS01020590	SLIDE SWITCH(S051, 052)	

Ref. No.	Part No.	Part Name & Description	Remarks
230	61050010T0	BALL	
231	54110149A0	WASHER	
232	009D114210	WASHER	
233	YB00141200	CONNECTIVE CORD(4P), WM03	
234	YB00121590	CONNECTIVE CORD(3P), WM04	
235	XSB3+4FZ	SCREW	
236	XSN17+4BN	SCREW	
237	51821702S0	SCREW	
238	009D005010	CLAMPER	
239	009D112050	SHAFT	
240	009D262020	PULLEY	
241	59035402G9	WASHER	
242	009D116020	SPACER	
243	009D116010	SPACER	
244	009D264020	BELT	
245	009D005030	HADE CORD	
246	009D269010	ANGLE	
247	59069505G9	SPACER	
248	YB00151850	CONNECTIVE CORD, WM10	
249	RFKNSDC10PPB	FRAME ASS'Y	
		MECHANISM	
101	XTW2+6L	SCREW	
102	RFKQSDC10-K	HEAD BLOCK (R/P) ASS'Y	
103	RMKD152	HEAD BASE	
104	RMB0229	SPRING, HEAD BASE	
105	RXR0013	REEL TABLE	
106	RFKRSDC10CK	ROD ASS'Y	
107	RUW143ZA	SPRING	
108	RFKRSDC10BK	MAIN ROD	
109	RUD105ZA	SPRING	
110	RME0020	SPRING, BRAKE	
111	RML0040-2	BRAKE LEVER	
112	RMA0550	PLATE	
113	RXP0005	PINCH ROLLER ARM	
113-1	RUW141ZA	SPRING, PINCH ROLLER	
114	SPI-306-03	END SENSOR	
115	REX0419Y	READ WIRE BLOCK(3P), WM32	
116	XQN2+CM25	SCREW	
117	XSN2+4	SCREW	
118	RMA0551	SENSOR ANGLE	
119	RUW142ZA	SPRING	
120	RXP0004	PINCH ROLLER ARM(F)	
120-1	RUW140ZC	SPRING, PINCH ROLLER ARM(F)	
122	RFKRSDC10AK	CHASSIS ASS'Y	
123	XTB2+6J	SCREW	
124	SJTD613	CONNECTOR(6P), J901	
125	MMN-6F4RA88	REEL MOTOR	
126	RFM133ZA	DC MOTOR	
127	XTN26+7J	SCREW	
128	XTN26+26F	SCREW	

Ref. No.	Part No.	Part Name & Description	Remarks
129	RMA0048	FLYWHEEL PLATE	
130	RMQ0325	SPACER	
131	RMD5014ZC	THRUST ANGLE	
132	XSN26+3	SCREW	
133	RHW31002	WASHER	
134	RHG3032ZA	CUSHION	
135	RHD26002	SCREW	
136	XTW2+8S	SCREW	
137	RJS9T7ZA	CONNECTOR(9P), J971	
138	RXG0009	IDLER GEAR ASS'Y	
139	RDG0034	REEL MOTOR GEAR	
140	RUB428ZE	MOVING IRON CORE	
141	RSJ0003	SOLENOID	
142	RXQ0011	BRAKE SOLENOID	
143	XTN26+4F	SCREW	
144	RDV0015	CAPSTAN BELT	
145	RXF0007	FLYWHEEL(F)	
146	1DW0054YA	FLYWHEEL(R)	
147	RDG0221	MAIN GEAR	
148	RUW147ZA	TRIGGER LEVER SPRING	
149	RUS609ZC	SPRING	
150	RXG0003	REEL TABLE GEAR	
151	RMB0298	BACK TENSION SPRING R	
152	RMB0299	BACK TENSION SPRING L	
153	RML0037	TRIGGER LEVER	
154	RML0038	LEVER	
		PACKING MATERIAL	
P1	011D801010	PACKING CASE	(G, EG)
P1	011D801040	PACKING CASE	(EB)
P2	011D809110	CUSHION(FRONT)	
P3	011D809120	CUSHION(BACK)	
P4	157K811010	PROTECTION COVER(UNIT)	
P5	XZB24X33C04	PROTECTION BAG(F.B., ACC.)	
		ACCESSORIES	
A1	RFKSSDC10EGK	INSTRUCTION MANUAL ASS'Y	(EG)
A1	RFKSSDC10G-K	INSTRUCTION MANUAL ASS'Y	(G)
A1	011D851040	INSTRUCTION MANUAL	(EB)
A2	SFDHM03N02	STEREO CONNECTION CABLE	
A3	ZK011D0020	REMOTE CONTROL TRANSMITTER	
A4	YJ04001280	POWER PLUG ADAPTOR	(G)⚠
A5	RQA0013	WARRANTY CARD	(EB, EG)

Printed in Japan
H921207000 SN/K/YO/YU/TN

ORDER NO. AD9212389C8

Service Manual

Supplement

Digital Compact Cassette Deck

RS-DC10

Colour

(K) ... Black Type

Area

Suffix for Model No.	Area	Colour
(PP)	U.S.A./Canada.	(K)
(EB)	Great Britain.	
(EG)	Germany, Italy and Europe.	
(G)	Asia, Latin America, Middle Near East and Africa.	

Please file and use this supplement manual together with the service manual for Model No. RS-DC10, Order No. AD9209339C1 (PP), AD9209340C8 (EB, EG, G).

Note: This supplement is intended to provide additional information or corrections to the existing service manual for Model No. RS-DC10. Be sure to update your service manual for future reference.

FOR USE OF ADJUSTMENT

■ CONTENTS

Technics

■ CAUTION!

1 Connect a wrist strap (RFKZ0036) to the meter's ground terminal. Always wear a wrist strap when replacing the heads or inspecting or repairing a P.C.B. to prevent electrostatic breakdown.

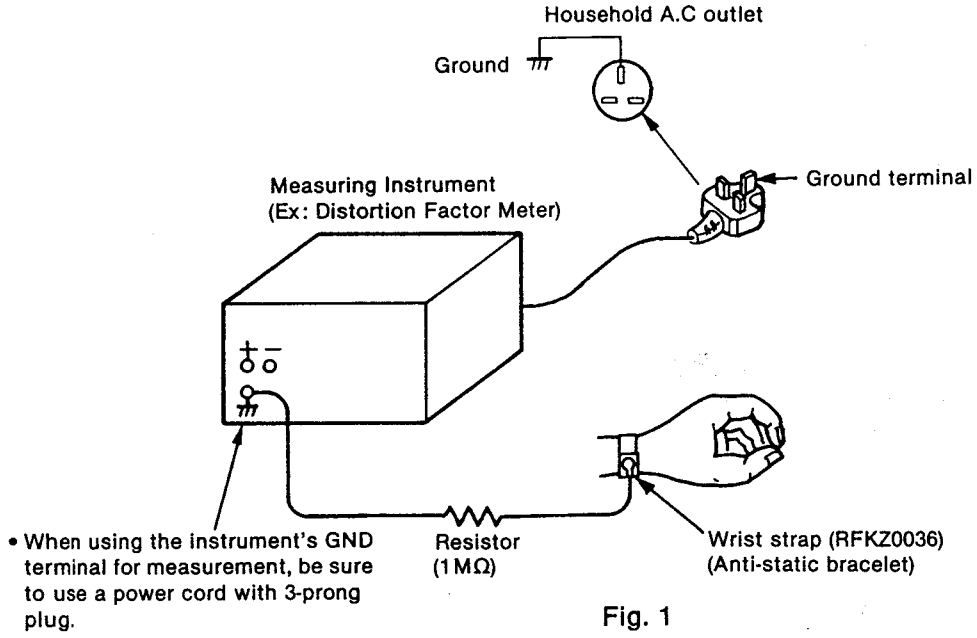


Fig. 1

2 When removing the head FPC from the READ/WRITE P.C.B., always attach a shorting clip to the FPC to prevent electrostatic breakdown.

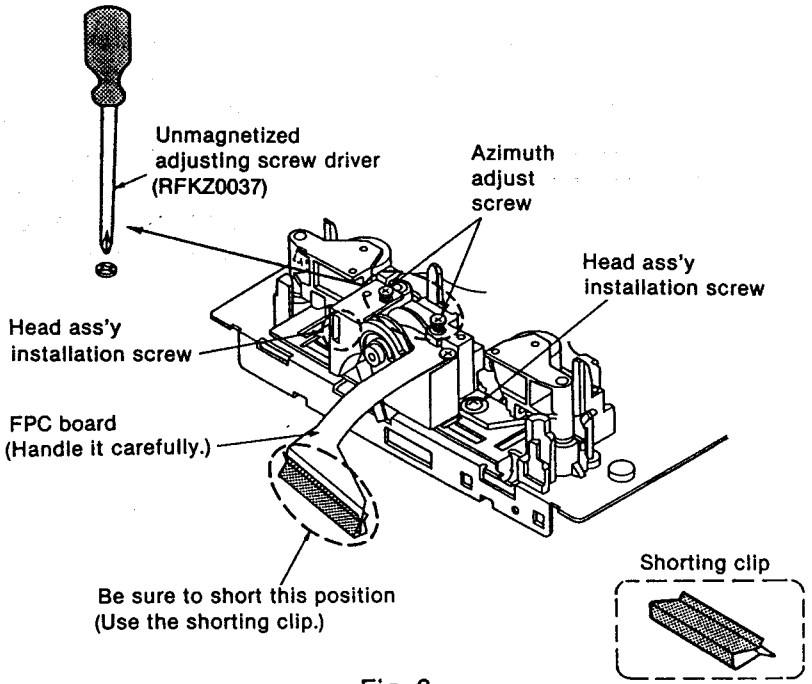


Fig. 2

3 Use the unmagnetized adjusting screw driver (RFKZ0037) for replacing the head and for AZTEC adjustment.
(The head may be damaged by an external magnetic field.)

■ PREPARATION FOR ADJUSTMENTS

• How to use Extension cables (RFKZ0029, RFKZ0030, RFKZ0031) for Adjustment

Extension cable	P.C.B. to P.C.B.
RFKZ0029	Main P.C.B. ↔ Mechanism Block (JW02/05/06) (See Fig. 3)
RFKZ0030	PASC P.C.B. ↔ Read/Write P.C.B. (See Fig. 4)
RFKZ0031	Main P.C.B. ↔ PASC Digital P.C.B. (See Fig. 4)

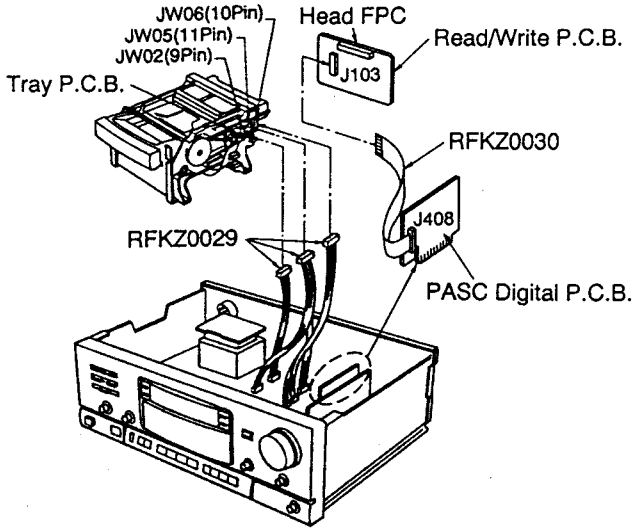


Fig. 3

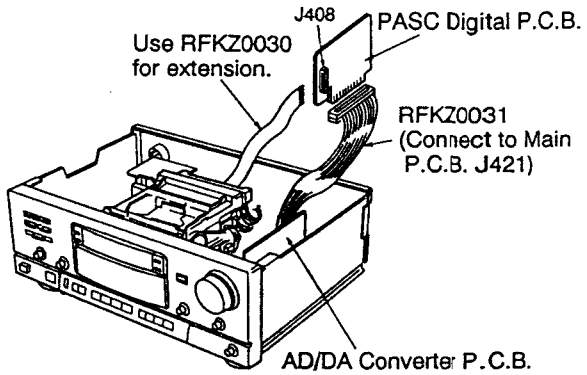


Fig. 4

• Necessary Test tapes for each adjustment

Part No.	Name	Use
QZZCAC	10kHz Test tape	AZTEC adjustment
QZZCRD	Mirror tape	
RFKZ0033	DCC Blank tape	Optimum DCC recording current adjustment
RFKZ0032	DCC Characteristics tape	DCC playback level adjustment and Error Rate check
QZZCFM	ACC Test tape	Analog feedback adjustment
		Minimum analog output distortion adjustment
		Analog output frequency response characteristics adjustment
RFKZ0038	Dolby level tape	Dolby level adjustment
QZZCWAT	3kHz Test tape	Tape speed adjustment

• Necessary tools and measuring instruments

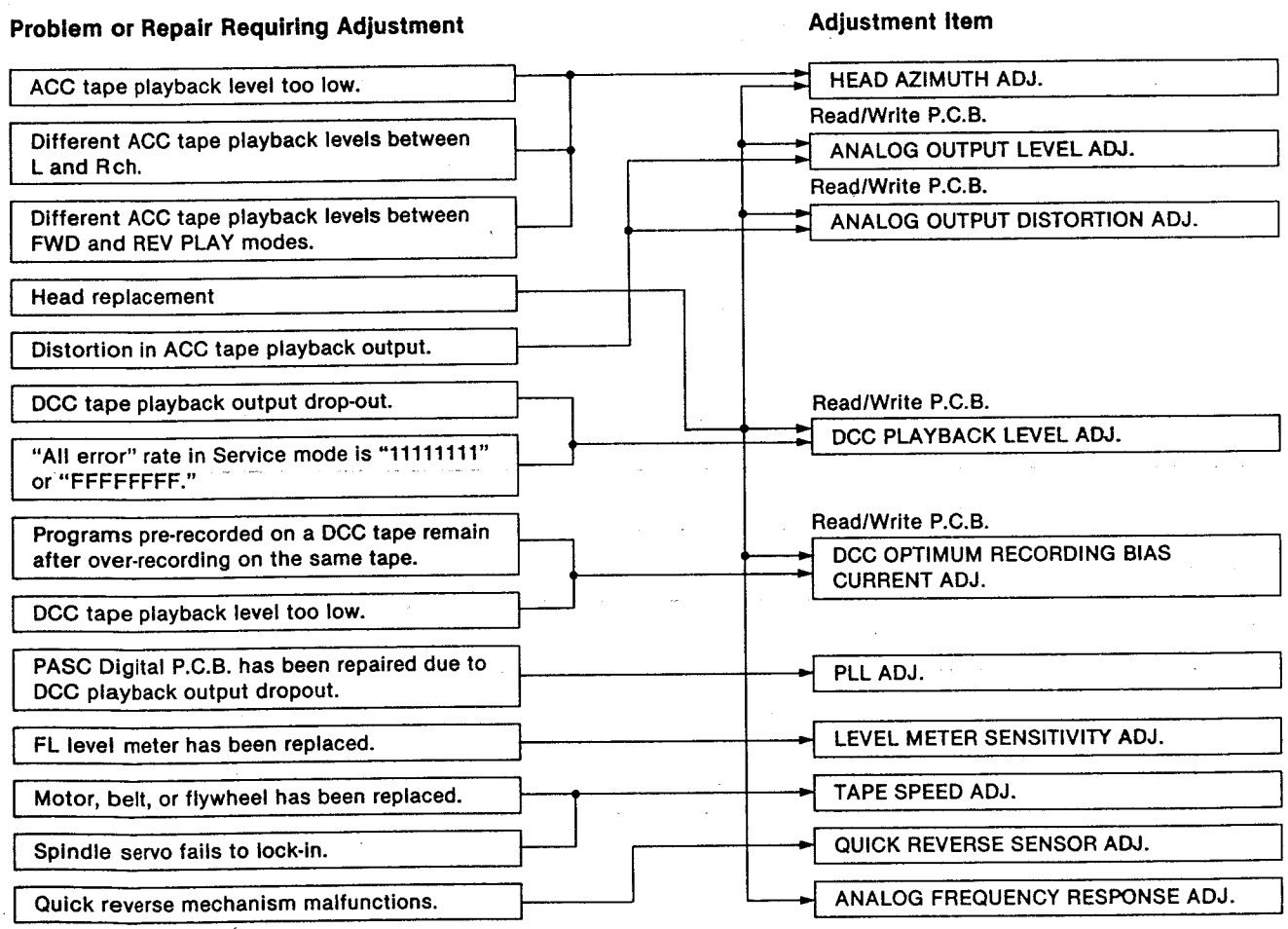
Tools

Unmagnetized adjusting screw driver (RFKZ0037)
CD player (EX: SL-PS700, SL-PS900 etc.)

Measuring Instruments

Oscilloscope (30MHz or Higher)
Distortion Factor Meter
Frequency Counter
Electric Volt Meter (AC/DC)

■ EXAMPLES OF PROBLEMS WHICH REQUIRE ADJUSTMENT



■ WHAT YOU SHOULD KNOW BEFORE ADJUSTMENT

The DCC head block employs the AZTEC mechanism.
AZTEC plays an important role in stabilizing the running of the tape relative to the head.

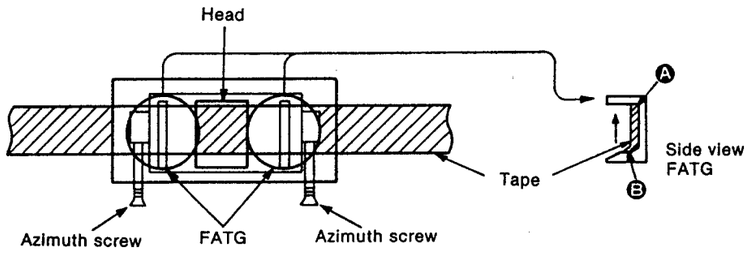


Fig. 1

The Fixed Azimuth Tape Guidance (FATG) has a different shape above and below the tape. The upper part Ⓐ is the guiding surface for the tape's upper edge. The slanted area of the lower part Ⓑ is structured so that the tape moves itself upwards. The tape usually runs along the upper guiding surface Ⓐ.

When the head has been replaced, be sure to adjust the AZTEC.

❶ Head is too low relative to the tape hub.

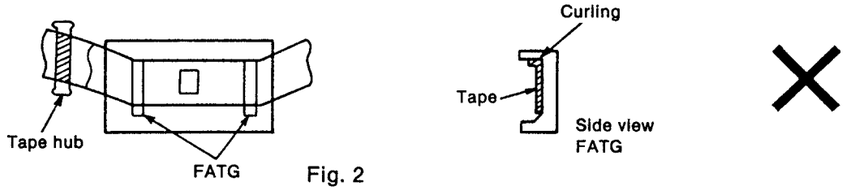


Fig. 2

❷ Head and tape hub are correctly aligned.

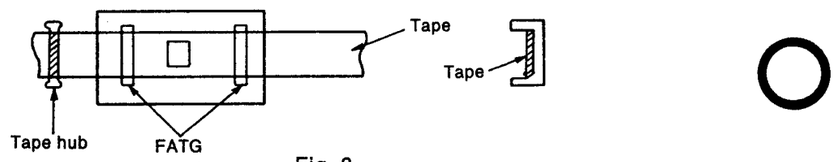


Fig. 3

❸ Head is too high relative to the tape hub.

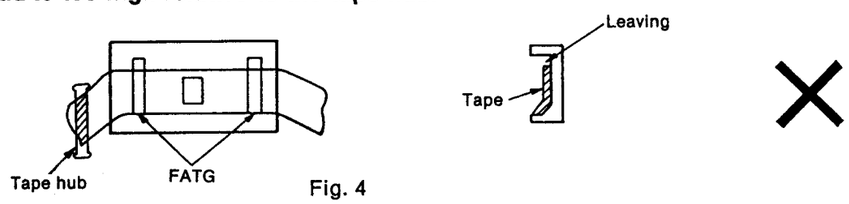


Fig. 4

∗If condition ❶ or ❸ occurs, adjust the azimuth screws to obtain the correct position (as shown in ❷).

• Front Panel

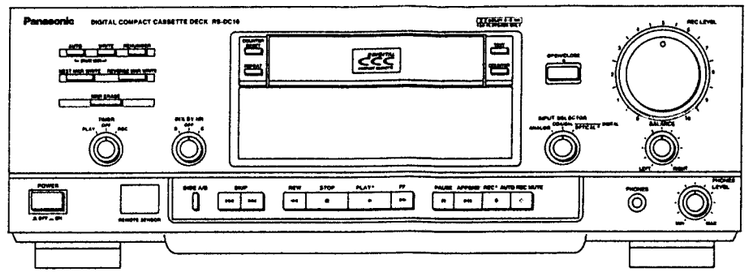


Fig. 5

• Rear Panel

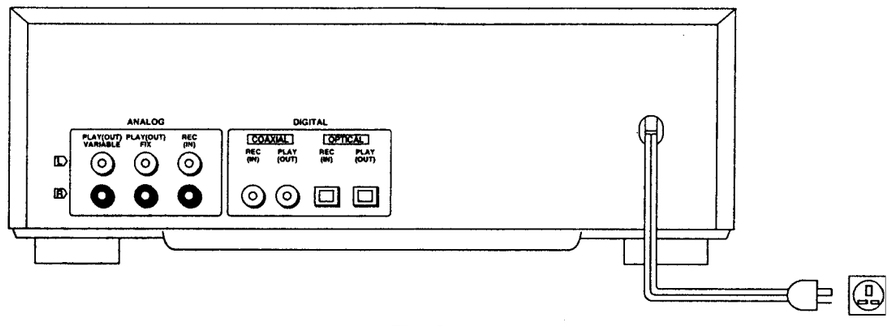


Fig. 6

• P.C.B. Location

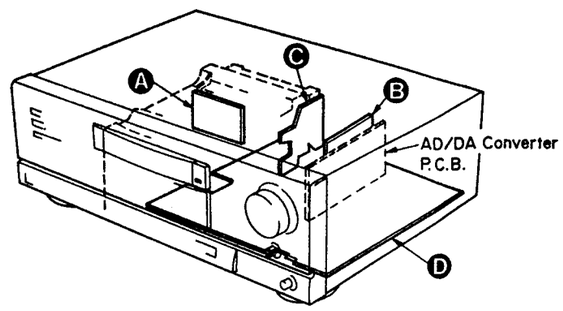


Fig. 7

Ⓐ READ/WRITE P.C.B.
Ⓑ PASC DIGITAL P.C.B.
Ⓒ TRAY P.C.B.
Ⓓ MAIN P.C.B.

■ ADJUSTMENT

1. AZTEC ADJUSTMENT

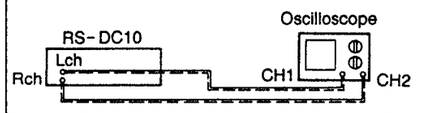
Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. Mirror tape (QZZCRD) 2. 10kHz Test tape (QZZCAC) 3. Unmagnetized adjusting screw driver (RFKZ0037) 4. Wrist strap (RFKZ0036)	1. Oscilloscope (30MHz or higher)	 FIX OUT(ANALOG) LCH → Oscilloscope CH1 RCH → Oscilloscope CH2

Fig. 1

• Adjustment Steps

(1) Trigger on CH1.
(2) Remove the tape control lever from the tray mechanism.

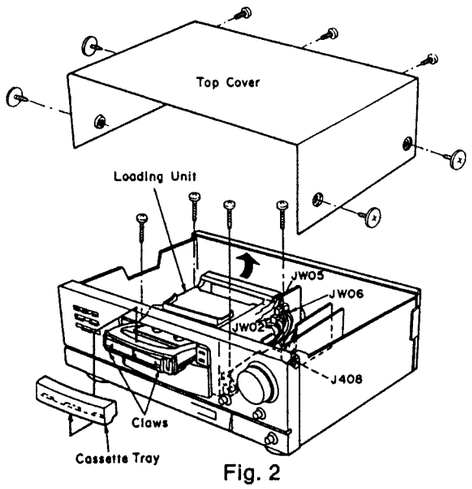


Fig. 2

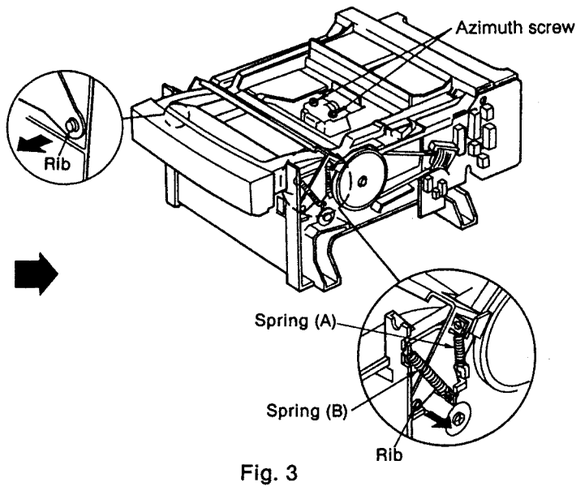


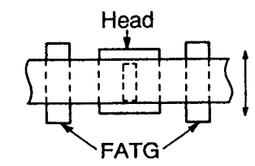
Fig. 3

• Rough Adjustment

STEP 1

1. Using the Mirror tape (QZZCRD):
   Adjust the Azimuth screws so that the Mirror tape (QZZCRD) runs over the center of the head.

2. Not using the Mirror tape (QZZCRD):
   While playing back the 10kHz Test tape (QZZCAC), adjust the Azimuth screws to attain a peak on one channel (RCH) only.



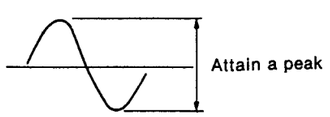


Fig. 4

• Fine Adjustment

STEP 2 **Forward side adjustment**

To adjust in the forward direction, use the right side Azimuth screw.
Do not touch the left side Azimuth screw (Fig. 5).

1. Run the 10kHz Test tape (QZZCAC) to its middle. Press a finger on the shaded area (▨) and run the tape. (To keep the cassette from floating.)
2. While keeping your finger in the position given in Fig. 5. Press another finger on the head of the Supply reel cap, and turn the right side Azimuth screw to the right. (Control the range of movement to the left and right of the CH1 waveform.)

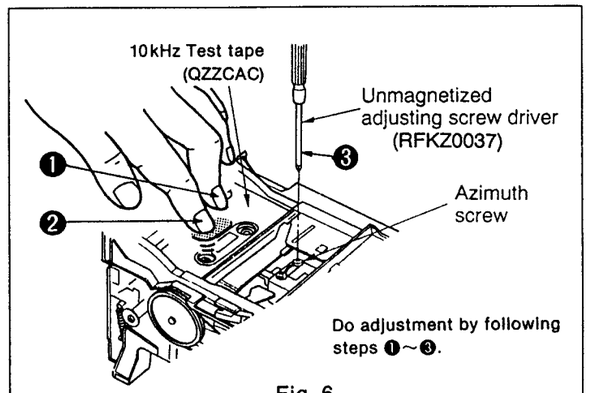


Fig. 6

• Adjustment Points

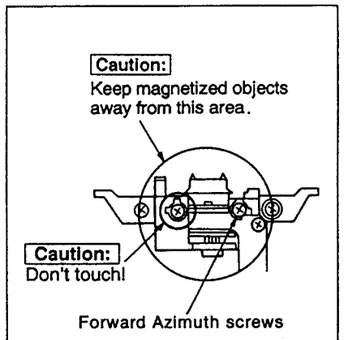
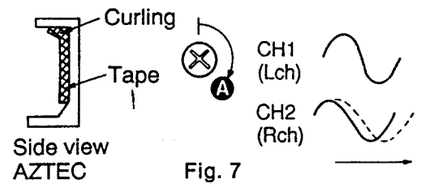
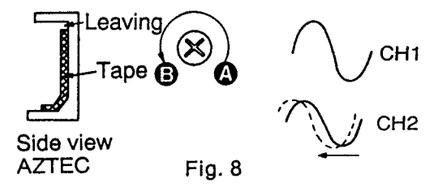
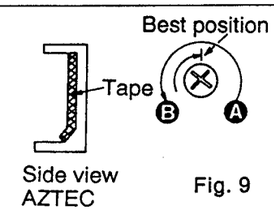


Fig. 5

Procedure	Refference figure
① Stop the right side Azimuth screw at the point where only the CH2 waveform starts to move Ⓐ.	 Fig. 7
② Turn the Azimuth screw to the left until the point where the waveform starts to move in the opposite direction Ⓑ.	 Fig. 8
③ Turn the Azimuth screw to halfway between Ⓐ and Ⓑ.	 Fig. 9

STEP 3 Method of verification

1. Connect the oscilloscope to the AZCHK terminal of the PASC DIGITAL P.C.B. (Fig. 11).
2. Playback the DCC Characteristics tape (RFKZ0032).
   If the pulse width shown is within 150µsec, the adjustment is good (Fig. 10).
3. Otherwise, re-adjust starting with STEP 1 (Refer to page 7).

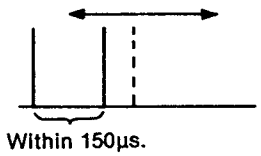


Fig. 10

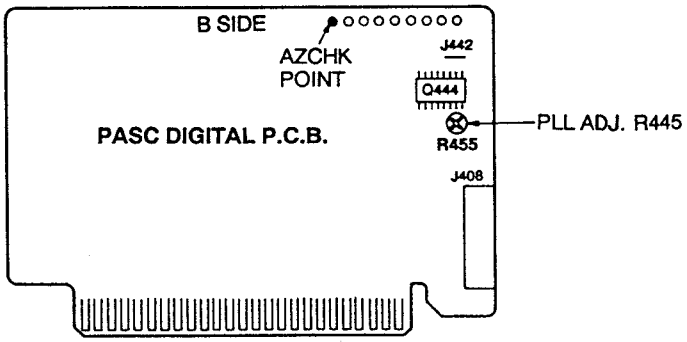


Fig. 11

STEP 4 Reverse side adjustment

To adjust in the reverse direction, use the left side Azimuth screw.
Do not touch the right side Azimuth screw (Fig. 12).

1. Reverse playback the 10kHz Test tape (QZZCAC).
   (Control the tape with your finger.)
2. While reverse playing and keeping your finger pressed on the Supply reel cap (to apply a load), turn the left side Azimuth screw as was done for the forward side adjustment (Fig. 13).

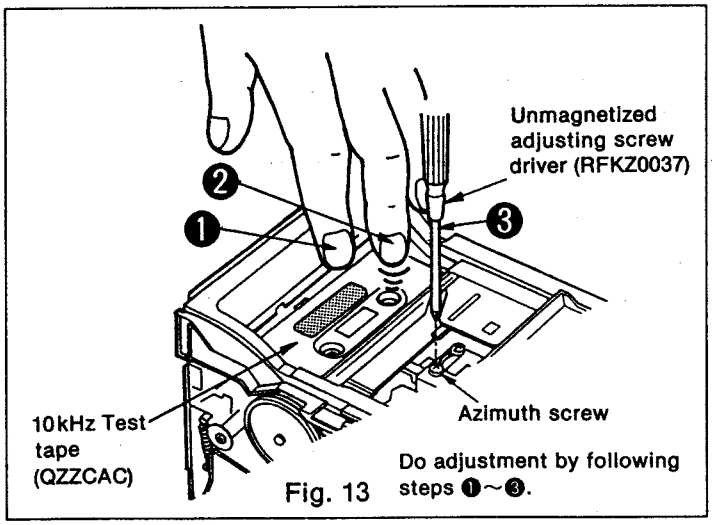


Fig. 13

3. The method of verification is also the same.

• Adjustment Points

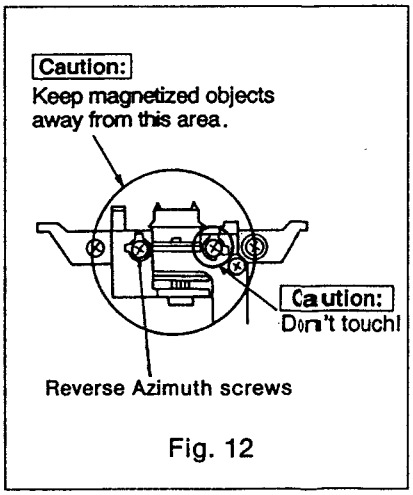


Fig. 12

2. OPTIMUM DCC RECORDING CURRENT ADJUSTMENT (READ/WRITE P.C.B.)

• Connect the CD player output terminal with the DCC recording terminal (either analog input, digital input, or optical input). Record the CD sound onto the DCC Blank tape (RFKZ0033). This recording gives A-time.

Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. CD player & CD 2. DCC Blank tape (RFKZ0033)	1. Oscilloscope (30 MHz or higher)	

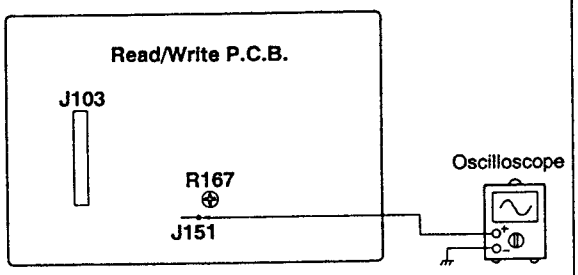


Fig. 14

[How to do A-time recording]

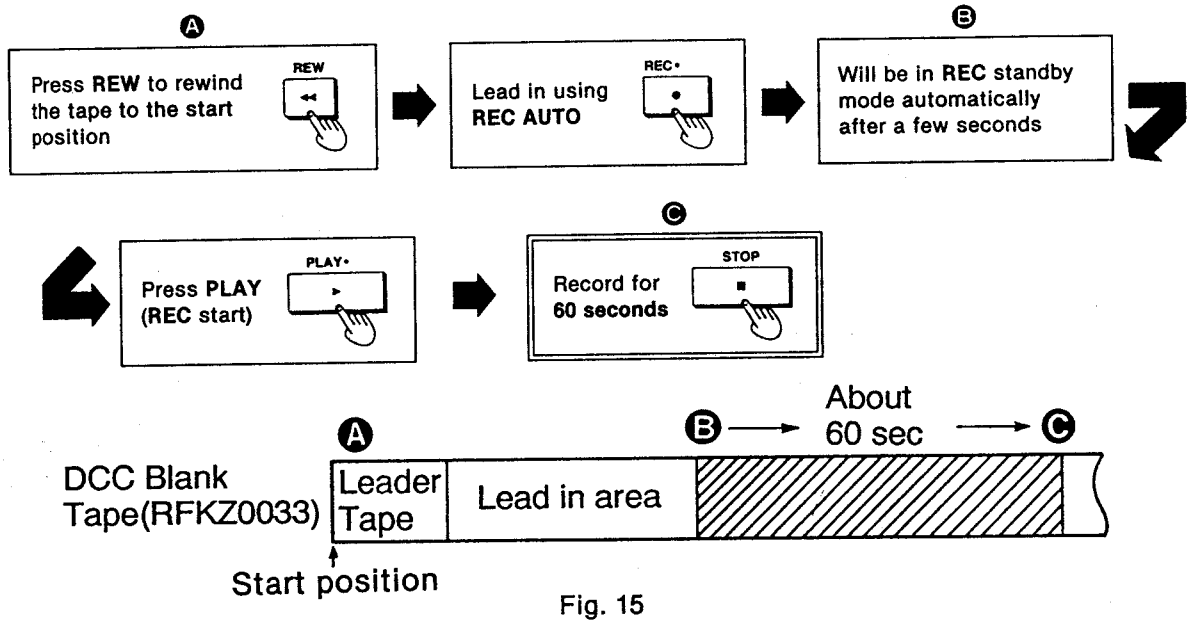


Fig. 15

• Adjustment Steps

(1) Put the unit in **REC** mode using an unrecorded section of the DCC Blank tape (RFKZ0033).
(2) Adjust potentiometer R167 to obtain the optimum voltage on the output level of J151.

* How to find the optimum voltage
The bias current indicated on the back of the FPC of each head is found using the following formula:
V = I × R151 (12Ω)

Example:

When the bias current is 160 mA:
V = 160 mA × 12Ω = 1920 mV

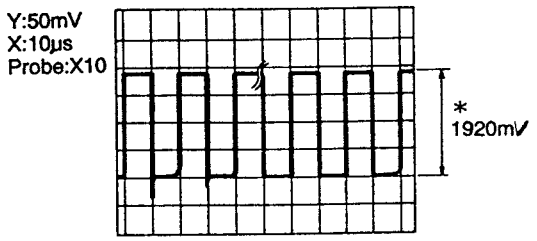


Fig. 16

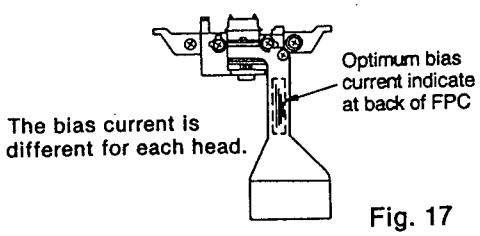


Fig. 17

(I) Method of Verification (Must be performed after adjustment.)

Overwrite with another music source part of the section that was recorded during preparation.

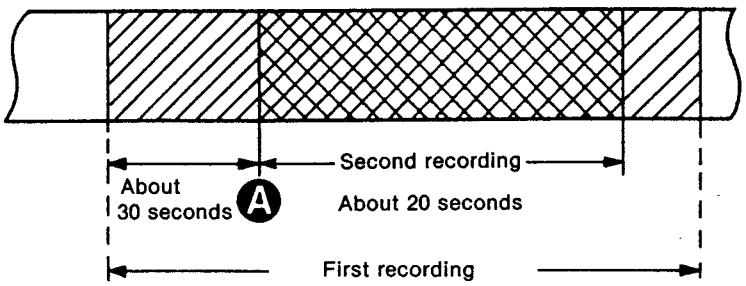
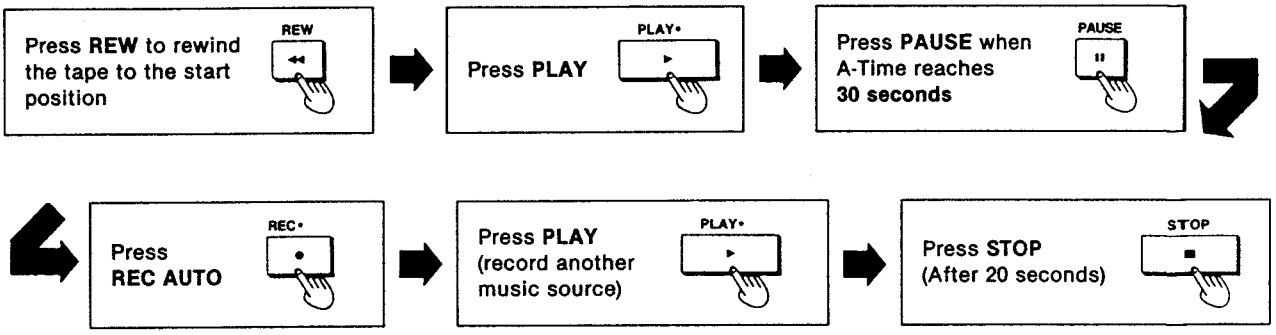


Fig. 18

[How to overwrite]



(II) Verification Items

Rewind the tape and play it back, and check the following at the breaks between tracks.

1. Check that A-Time is played back.
   (Fails if the recording current is low.)

2. Check the Error Rate
   ① Stop after about 25 seconds from the tape start position.
   ② Turn off the power so that "ALL • ERR • RATE" is displayed in the service mode, and play the tape again. (Refer to page 12)
   ③ Confirm that "00 00000000" remains on the display, although the Error Rate is momentarily worse than this at A-Time (5 seconds after the initial 25 seconds).

(III) Viewing the "Error Rate"

(1) Setting the Error Rate mode

1. Turn the **POWER** off. While pressing both the **STOP** key and the **PLAY** key, turn the **POWER** on.

2. [SERVICE MODE] is displayed.

```
! ' + ' + − , / 0 1 2 3 4 5 6 7 8 9
< = > 7 A B C D E F G H I J K L M N
O P Q R S T U V W X Y Z
```

are scrolled in order.

Press the **COUNTER** key on the DCC seven times.
ALL • ERR • RATE is displayed.

Place a pre-recorded tape into the machine and press the **PLAY** key.

3. Ten characters (numbers or letters) will be displayed on the display section.
This display shows the Error Rate on each of 8 CH signal tracks and the AUX CH.
The signal drop-out condition for each channel is displayed using the hexadecimal digits 0-9, A-F.

```
Aux CH   CH  1  2  3  4  5  6  7  8
 00          0  0  0  0  0  0  0  0
             ∫
             9
             A
             ∫
             F  F  F  F  F  F  F  F
```

(2) Error Rate acceptability criteria

Display	Condition
"00000000" is constantly displayed for all tracks.	Normal (OK)
"01101000" is momentarily displayed for any one to three tracks (or more).	Normal (OK)
"11111111" is constantly displayed for one to three tracks (or more). **Anything but "0" is displayed.**	Error
"11111111" is constantly displayed for all tracks. **Anything but "0" is displayed.**	Error
"FFFFFFFF" is constantly displayed for all tracks.	Error

3. DCC PLAYBACK LEVEL ADJUSTMENT (READ/WRITE P.C.B. or PASC DIGITAL P.C.B.)

• The purpose of this adjustment is to feed digital signals at the specified level from the DCC RF circuit to the PASC Digital circuit.

Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. **DCC Test tape (RFKZ0032)** 2. Screwdriver (−)	1. Oscilloscope (30MHz or higher)	**(Ex. 1)**

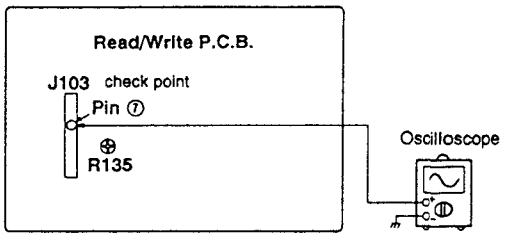


Fig. 19

(EX. 2)

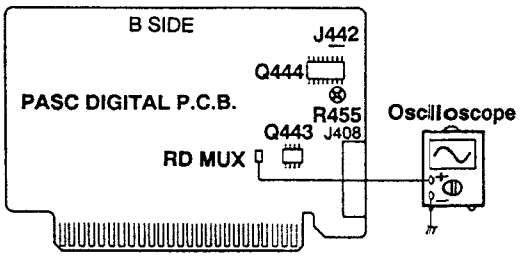


Fig. 20

• Adjustment Steps

(1) Play forward the **DCC Test tape (RFKZ0032)**.
(2) Adjust potentiometer **R135** so the voltage at J103-pin ⑦ is 1.2Vp-p±100mV (Fig. 19).
(or RD MUX on the B SIDE of the PASC DIGITAL P.C.B. will do (Fig. 20).)

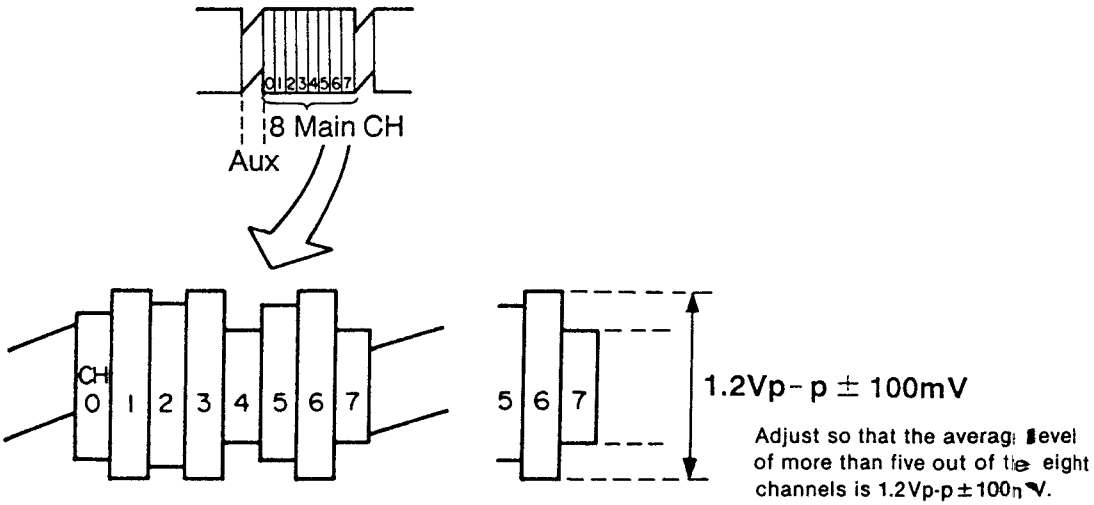


Fig. 21

4. ANALOG OUTPUT LEVEL ADJUSTMENT (READ/WRITE P.C.B.)

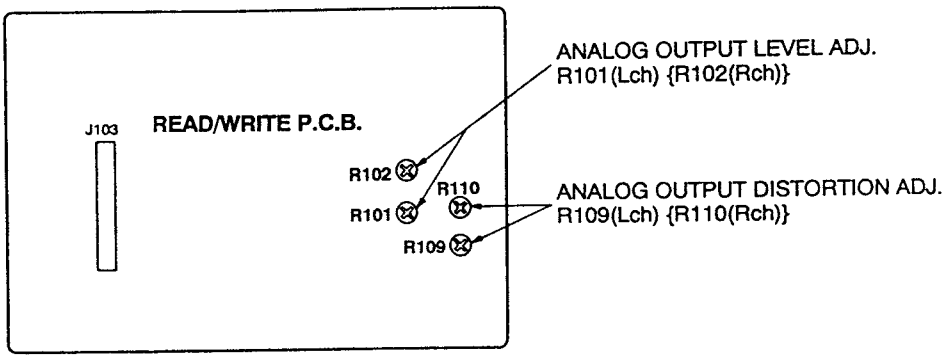


Fig. 22

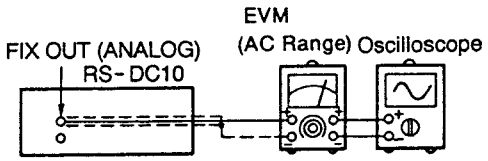
Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. **ACC Test tape (QZZCFM)** 2. Screwdriver (−)	1. Oscilloscope (30MHz or higher) 2. EVM (AC Range)	

Fig. 23

• Adjustment Steps

(1) Play forward the 315Hz, 0dB test tone on the ACC Test tape (QZZCFM).
(2) Maximize output level with potentiometers **R101** (Lch) and **R102** (Rch).
(3) Reduce output level by −10dB (optimum output level) from the maximum level again with **R101** and **R102**.

5. CONFIRMATION OF ANALOG OUTPUT DISTORTION ADJUSTMENT (READ/WRITE P.C.B.)

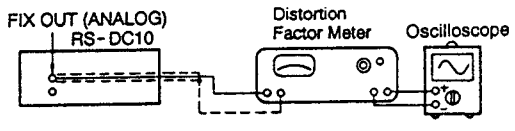
Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. **ACC Test tape (QZZCFM)** 2. Screwdriver (−)	1. Oscilloscope (30MHz or faster) 2. Distortion Factor Meter	

Fig. 24

• Adjustment Steps

(1) Play forward the 315Hz, 0dB test tone on the ACC Test tape (QZZCFM).
(2) Check to make sure that THD is no greater than 1.5%.
(3) If THD is grater than 1.5%, adjust the **R109** (Lch) and **R110** (Rch) until it is within 1.5%.

ADJUSTMENT POINTS (MAIN P.C.B.)

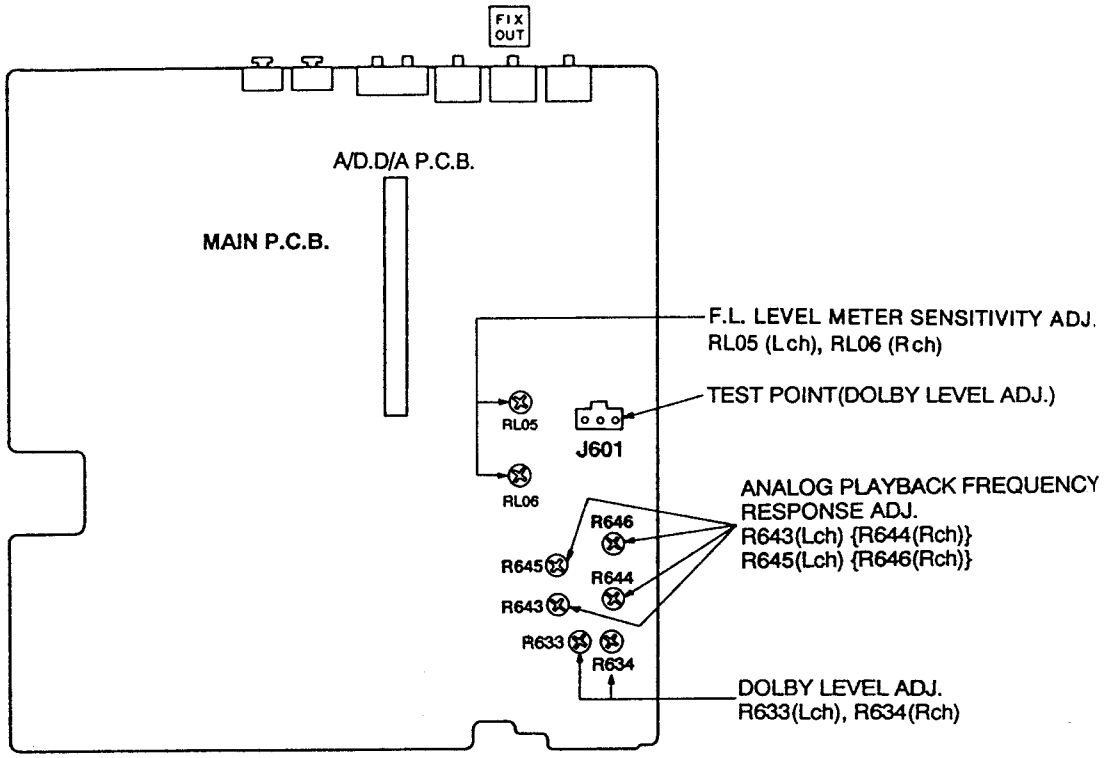


Fig. 25

6. DOLBY LEVEL ADJUSTMENT (MAIN P.C.B.)

Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. Dolby level tape (RFKZ0038)	1. EVM (AC Range)	

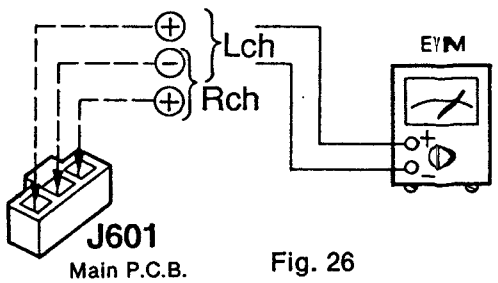
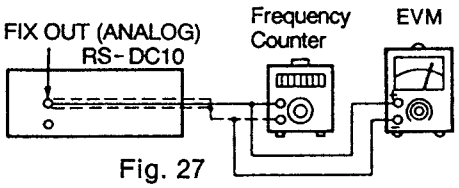


Fig. 26

• Adjustment Steps

(1) While playing back the Dolby level tape (RFKZ0038), adjust the voltage at test point J601 to 338n**V** using **R633** (Lch) and **R634** (Rch) (See Fig. 25).

7. ANALOG PLAYBACK FREQUENCY RESPONSE ADJUSTMENT (MAIN P.C.B.)

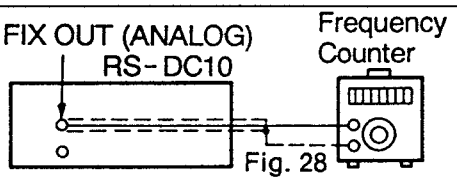
Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. **ACC Test tape (QZZCFM)** 2. Screwdriver (−)	1. Frequency Counter 2. EVM (AC Range)	 Fig. 27

• Adjustment Steps

(1) Play the 1kHz and 63Hz test tones on the **ACC Test tape (QZZCFM)** and adjust potentiometers **R645** (Lch) and **R646** (Rch) until the FIXED OUT output level at 63Hz is within 0±0/−1dB from that at 1kHz.
(2) Play the 1kHz and 12.5kHz test tones on the **ACC Test tape (QZZCFM)** and adjust potentiometers **R643** (Lch) and **R644** (Rch) until the FIXED OUT output level at 12.5kHz is within 0±0/−1dB from at 1kHz.
(See Fig. 25)

Notes:
- During adjustment, monitor playback frequency with a Frequency Counter.
- Misalignment will affect the ACC Test tape (QZZCFM) playback frequency response.

8. TAPE SPEED ADJUSTMENT (TRAY P.C.B.)

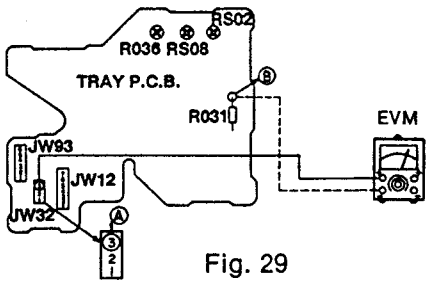
Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. **ACC Test tape (QZZCFM)** 2. Screwdriver (−)	1. Frequency Counter	 Fig. 28

• Adjustment Steps

(1) Play forward the 3000Hz test tone on the **ACC Test tape (QZZCFM)** and adjust the signal frequency at the FIXED OUT jack to 3000Hz±10Hz with potentiometer **RS02** (See Fig. 29).
(2) Play backward the 3000Hz test tone on the **ACC Test tape (QZZCFM)** and adjust the signal frequency at the FIXED OUT jack to 3000Hz±10Hz with potentiometer **RS08** (See Fig. 29).

9. QUICK REVERSE SENSOR ADJUSTMENT (TRAY P.C.B.)

- The purpose of this adjustment is to set EOT sensor's sensitivity to the magnetic and leader portions of cassette tapes (quick reverse sensor).

Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. **ACC Blank tape (MAXELL UD-I90)** (commercially available) 2. Screwdriver (−)	1. EVM (DC Range)	 Fig. 29

• Adjustment Steps

(1) Play the leader tape portion of an **ACC Blank tape** (MAXELL UD-I90) and adjust the potential difference between JW32 and **R031** to 1V with potentiometer **R036.**

10. PLL ADJUSTMENT (PASC DIGITAL P.C.B.)

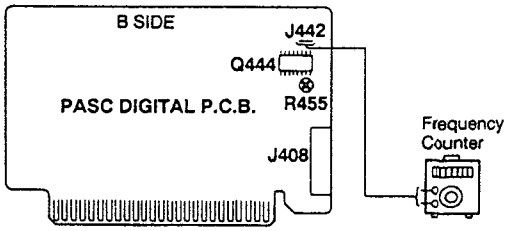
Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. Screwdriver (−)	1. Frequency Counter	

Fig. 30

• Adjustment Steps

(1) Place the unit in **STOP** mode.
(2) Adjust VCO free-running frequency (J442) to 7.5MHz±0.1MHz with potentiometer R455.

Note:

- Misalignment can cause digital signal drop-out.
- Perform measurements with the digital source input (optical, coaxial) disconnected.
- Do not use the Extension cable (RFKZ0031), since the influence of external noise may cause incorrect results. Adjust again after putting the PASC and the P.C.B. back in their original positions.

11. F.L. LEVEL METER SENSITIVITY ADJUSTMENT (MAIN P.C.B.)

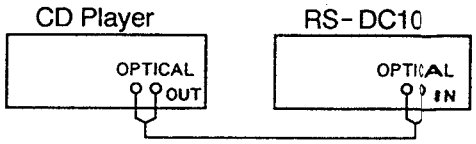
Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. CD player (with optical output) 2. **CD Test disc (SZZP1054C)** 3. **DCC Blank tape (RFKZ0033)**	1. Nothing	

Fig. 31

• Adjustment Steps

(1) Load a **DCC Blank tape (RFKZ0033)** in the unit under test and place it in **REC PAUSE** mode.
(2) Load the **CD Test disc (SZZP1054C)** in the CD player and play the second band (1kHz, 0dB, L+R signal).
(3) Adjust potentiometers **RL05** (Lch) and **RL06** (Rch) so the DCC unit's FL level meters indicate 0 to −2dB (See Fig. 25).

Other potentiometers (R117 on Read/Write P.C.B. or R633, R634 on Main P.C.B.) require no service adjustment.

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ORDER NO. AD9307210S0
A0

Service Manual

Supplement-1

Digital Compact Cassette Deck

RS-DC10

Colour

(K) ... Black Type

Area

Suffix for Model No.	Area	Colour
(PP)	U.S.A./Canada.	(K)
(EB)	Great Britain.	
(EG)	Germany, Italy and Europe.	
(G)	Asia, Latin America, Middle Near East and Africa.	

Please file and use this supplement manual together with the service manual for Model No. RS-DC10, Order No. AD9209339C1 (PP), AD9209340C8 (EB, EG, G).

Note: This supplement is intended to provide additional information or corrections to the existing service manual for Model No. RS-DC10. Be sure to update your service manual for future reference.

FOR USE OF ADJUSTMENT

■ CONTENTS

NOTE : Please put this Supplement-1 (AD9307210S0) in the place of Supplement (AD9212389C8).

Technics

■ CAUTION!

1 Connect a wrist strap (RFKZ0036) to the meter's ground terminal. Always wear a wrist strap when replacing the heads or inspecting or repairing a P.C.B. to prevent electrostatic breakdown.

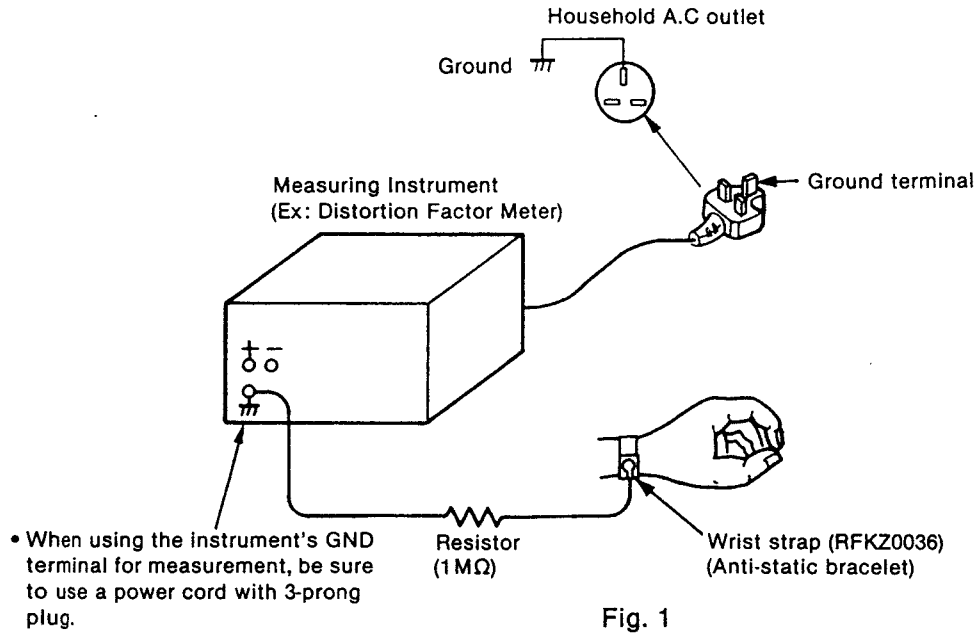


Fig. 1

2 When removing the head FPC from the READ/WRITE P.C.B., always attach a shorting clip to the FPC to prevent electrostatic breakdown.

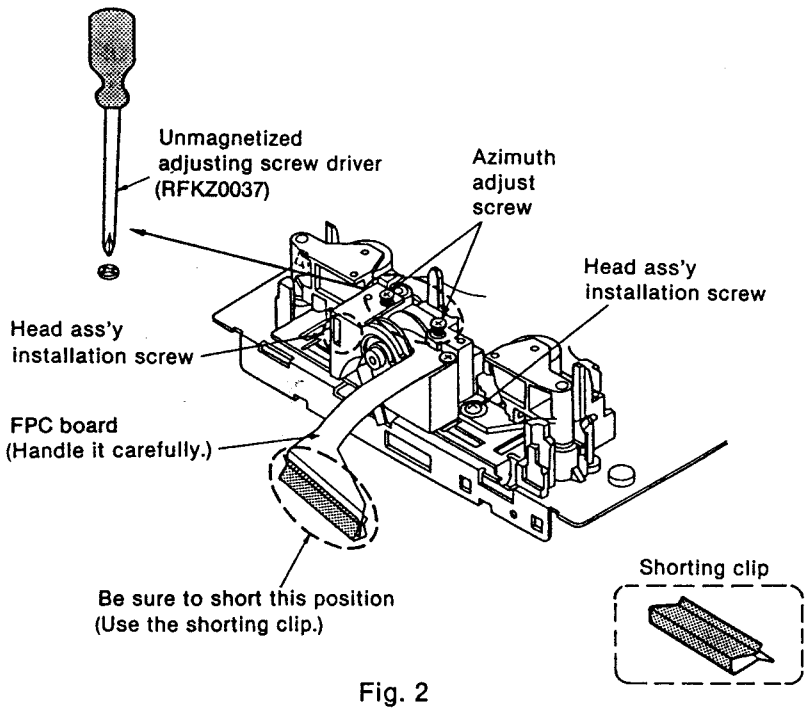


Fig. 2

3 Use the unmagnetized adjusting screw driver (RFKZ0037) for replacing the head and for AZTEC adjustment.
(The head may be damaged by an external magnetic field.)

■ PREPARATION FOR ADJUSTMENTS

• How to use Extension cables (RFKZ0029, RFKZ0030, RFKZ0031) for Adjustment

Extension cable	P.C.B. to P.C.B.
RFKZ0029	Main P.C.B. ↔ Mechanism Block (JW02/05/06) (See Fig. 3)
RFKZ0030	PASC P.C.B. ↔ Read/Write P.C.B. (See Fig. 4)
RFKZ0031	Main P.C.B. ↔ PASC Digital P.C.B. (See Fig. 4)

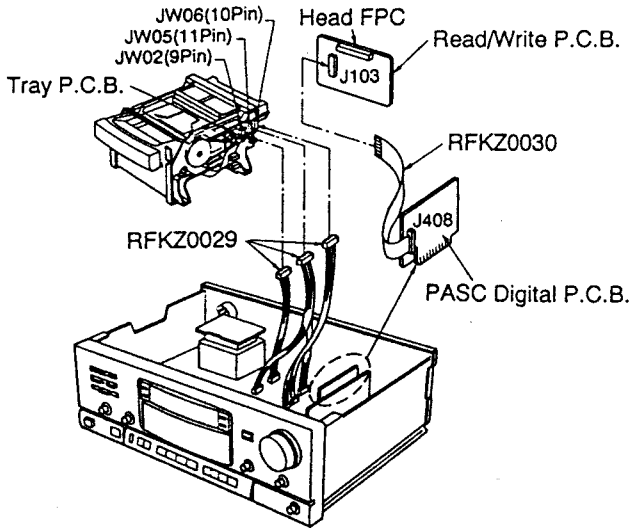


Fig. 3

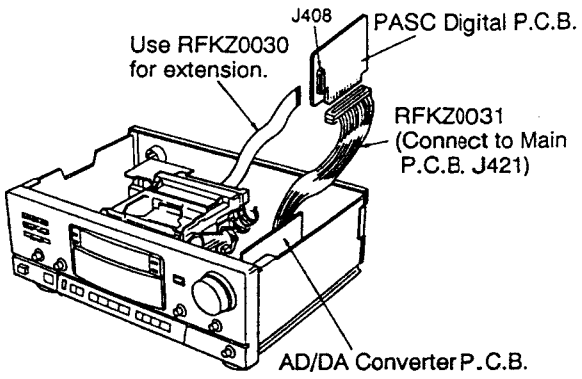


Fig. 4

• Necessary Test tapes for each adjustment

Part No.	Name	Use
QZZCAC	10kHz Test tape	AZTEC adjustment
QZZCRD	Mirror tape	
RFKZ0033	DCC Blank tape	Optimum DCC recording current adjustment
DCC-S1	DCC Characteristics tape	DCC playback level adjustment and Error Rate check
QZZCFM	ACC Test tape	Analog feedback adjustment
		Minimum analog output distortion adjustment
		Analog output frequency response characteristics adjustment
RFKZ0038	Dolby level tape	Dolby level adjustment
QZZCWAT	3kHz Test tape	Tape speed adjustment

• Necessary tools and measuring instruments

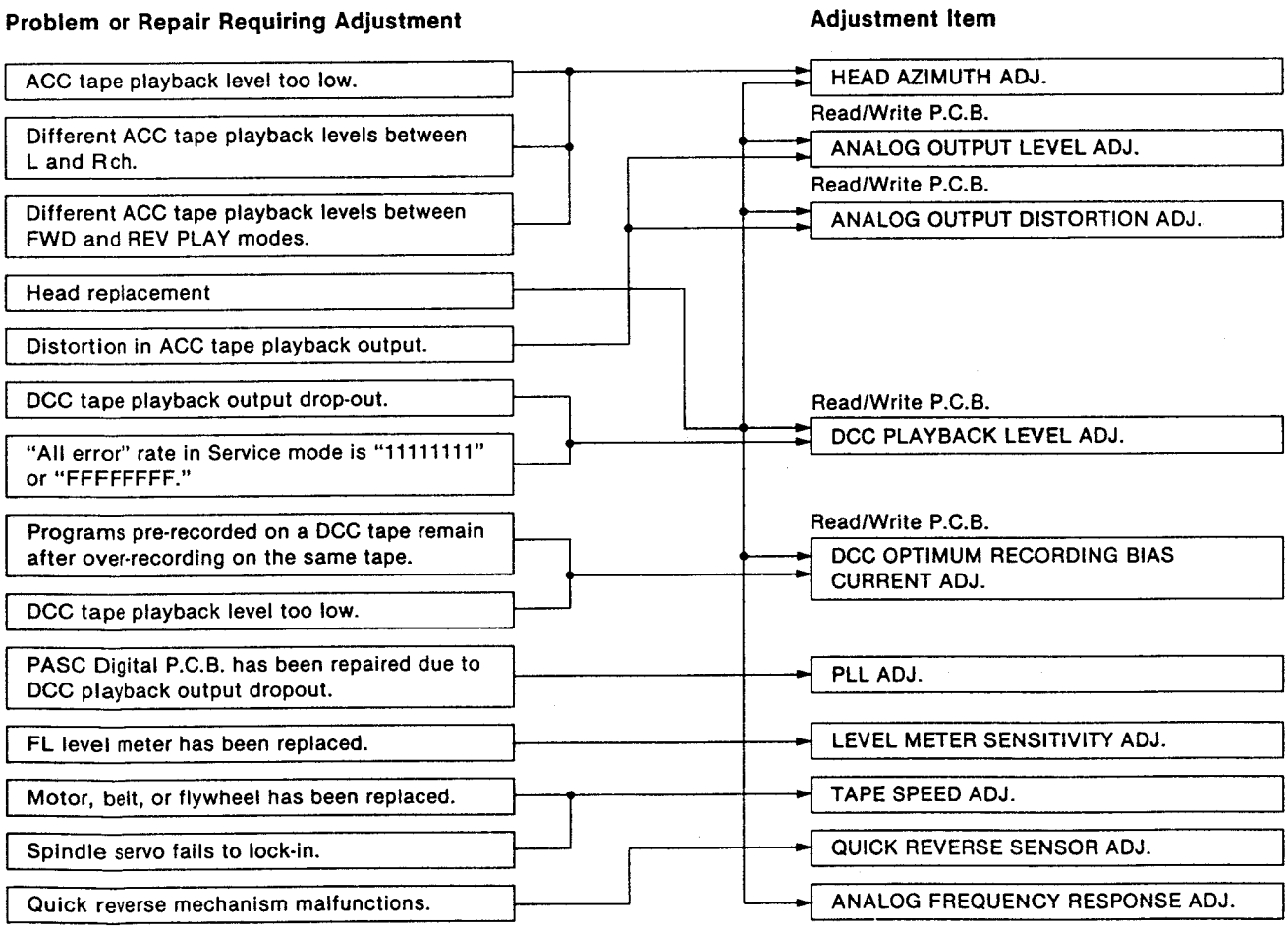
Tools

Unmagnetized adjusting screw driver (RFKZ0037)
CD player (EX: SL-PS700, SL-PS900 etc.)

Measuring Instruments

Oscilloscope (30MHz or Higher)
Distortion Factor Meter
Frequency Counter
Electric Volt Meter (AC/DC)

■ EXAMPLES OF PROBLEMS WHICH REQUIRE ADJUSTMENT



■ WHAT YOU SHOULD KNOW BEFORE ADJUSTMENT

The DCC head block employs the AZTEC mechanism.
AZTEC plays an important role in stabilizing the running of the tape relative to the head.

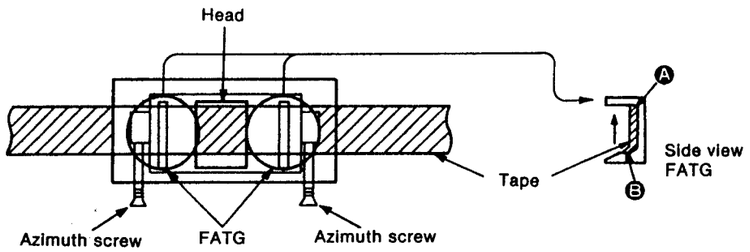


Fig. 1

The Fixed Azimuth Tape Guidance (FATG) has a different shape above and below the tape. The upper part Ⓐ is the guiding surface for the tape's upper edge. The slanted area of the lower part Ⓑ is structured so that the tape moves itself upwards. The tape usually runs along the upper guiding surface Ⓐ.

When the head has been replaced, be sure to adjust the AZTEC.

❶ Head is too low relative to the tape hub.

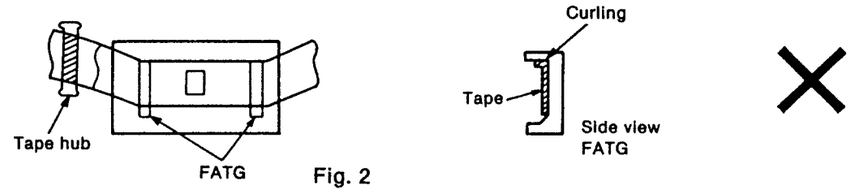


Fig. 2

❷ Head and tape hub are correctly aligned.

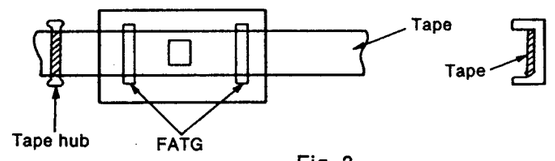


Fig. 3

❸ Head is too high relative to the tape hub.

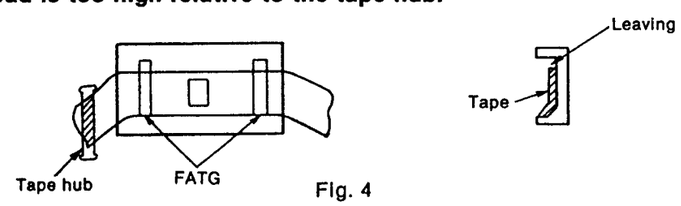


Fig. 4

∗ If condition ❶ or ❸ occurs, adjust the azimuth screws to obtain the correct position (as shown in ❷).

• Front Panel

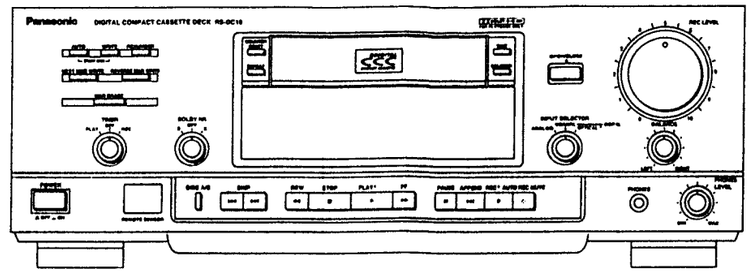


Fig. 5

• Rear Panel

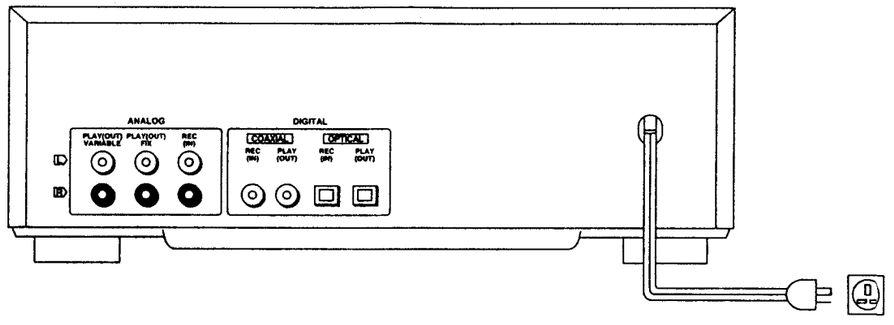
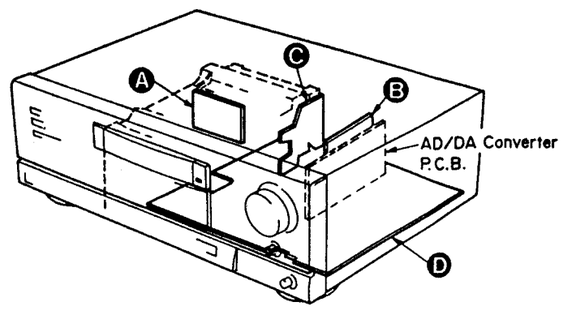


Fig. 6

• P.C.B. Location

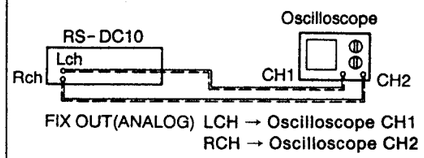


Ⓐ READ/WRITE P.C.B.
Ⓑ PASC DIGITAL P.C.B.
Ⓒ TRAY P.C.B.
Ⓓ MAIN P.C.B.

Fig. 7

■ ADJUSTMENT

1. AZTEC ADJUSTMENT

Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. Mirror tape (QZZCRD) 2. 10kHz Test tape (QZZCAC) 3. Unmagnetized adjusting screw driver (RFKZ0037) 4. Wrist strap (RFKZ0036)	1. Oscilloscope (30MHz or higher)	 Fig. 1

• Adjustment Steps

(1) Trigger on CH1.
(2) Remove the tape control lever from the tray mechanism.

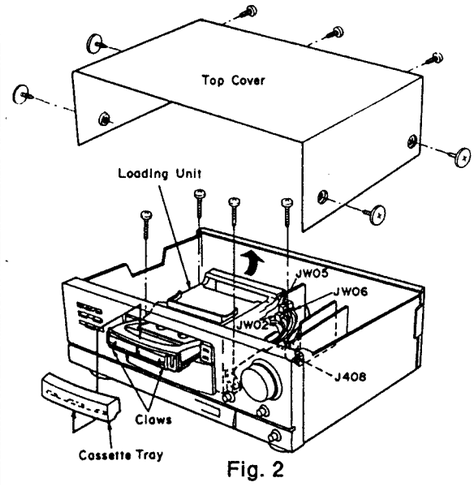


Fig. 2

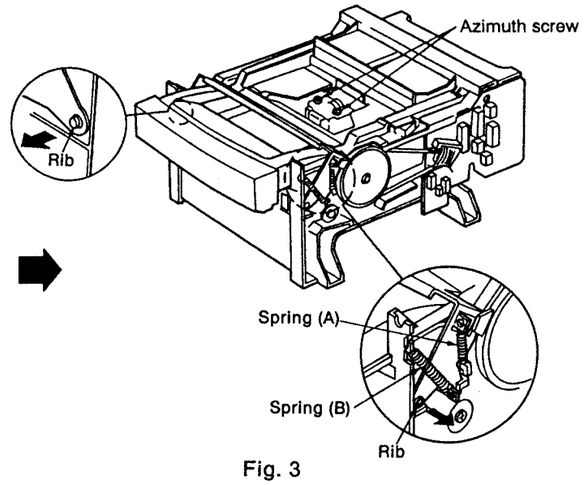


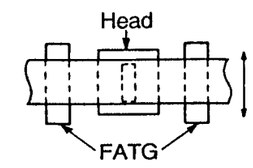
Fig. 3

• Rough Adjustment

STEP 1

1. Using the Mirror tape (QZZCRD):
   Adjust the Azimuth screws so that the Mirror tape (QZZCRD) runs over the center of the head.

2. Not using the Mirror tape (QZZCRD):
   While playing back the 10kHz Test tape (QZZCAC), adjust the Azimuth screws to attain a peak on one channel (RCH) only.



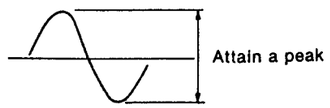


Fig. 4

• Fine Adjustment

STEP 2 **Forward side adjustment**

To adjust in the forward direction, use the right side Azimuth screw.
Do not touch the left side Azimuth screw (Fig. 5).

1. Run the 10kHz Test tape (QZZCAC) to its middle. Press a finger on the shaded area (▨) and run the tape. (To keep the cassette from floating.)
2. While keeping your finger in the position given in Fig. 6. Press another finger on the head of the Supply reel cap, and turn the right side Azimuth screw to the right. (Control the range of movement to the left and right of the CH1 waveform.)

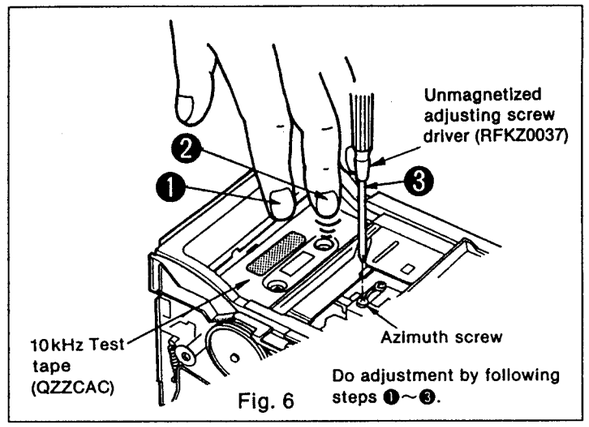


Fig. 6

• Adjustment Points

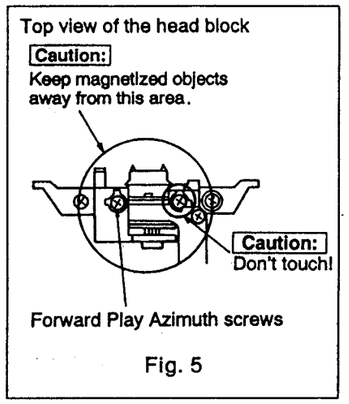
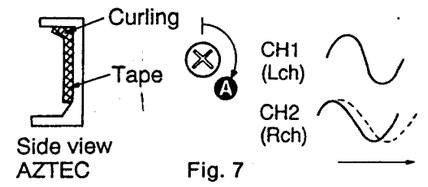
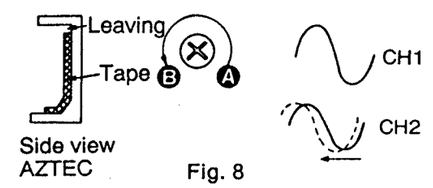
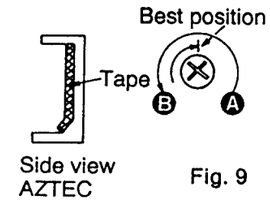


Fig. 5

Procedure	Refference figure
① Stop the right side Azimuth screw at the point where only the CH2 waveform starts to move Ⓐ.	 Fig. 7
② Turn the Azimuth screw to the left until the point where the waveform starts to move in the opposite direction Ⓑ.	 Fig. 8
③ Turn the Azimuth screw to halfway between Ⓐ and Ⓑ.	 Fig. 9

STEP 3 Method of verification

1. Connect the oscilloscope to the AZCHK terminal of the PASC DIGITAL P.C.B. (Fig. 11).
2. Playback the DCC Characteristics tape (DCC-S1).
   If the pulse width shown is within 150µsec, the adjustment is good (Fig. 10).
3. Otherwise, re-adjust starting with STEP 1 (Refer to page 7).

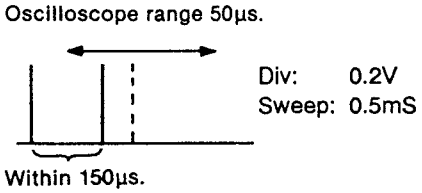


Fig. 10

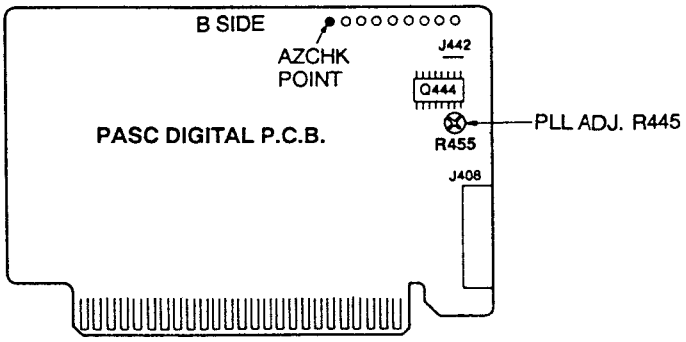


Fig. 11

STEP 4 Reverse side adjustment

To adjust in the reverse direction, use the left side Azimuth screw.
Do not touch the right side Azimuth screw (Fig. 12).

1. Reverse playback the 10kHz Test tape (QZZCAC).
   (Control the tape with your finger.)
2. While reverse playing and keeping your finger pressed on the Supply reel cap (to apply a load), turn the left side Azimuth screw as was done for the forward side adjustment (Fig. 13).

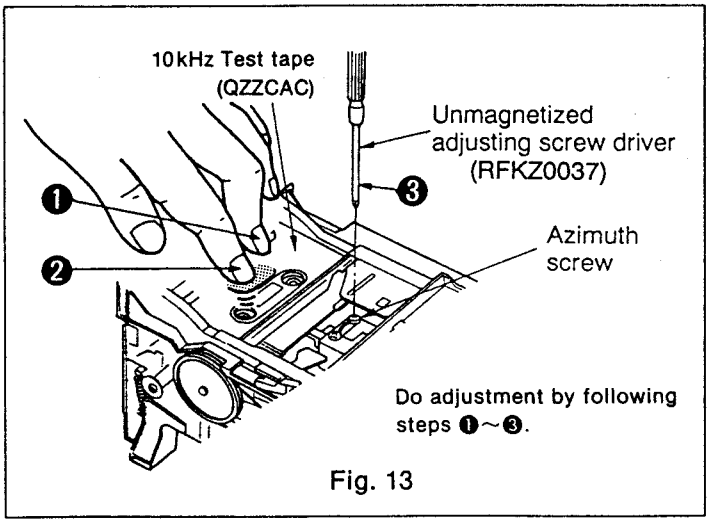


Fig. 13

3. The method of verification is also the same.

• Adjustment Points

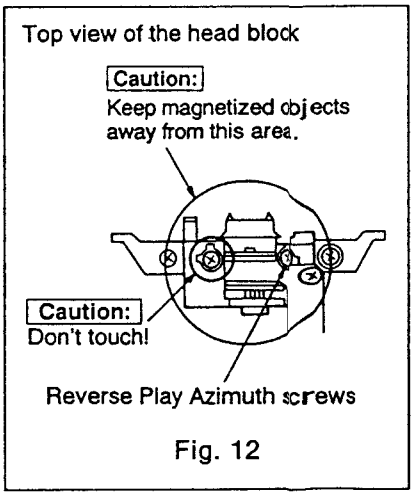


Fig. 12

2. OPTIMUM DCC RECORDING CURRENT ADJUSTMENT (READ/WRITE P.C.B.)

• Connect the CD player output terminal with the DCC recording terminal (either analog input, digital input, or optical input). Record the CD sound onto the DCC Blank tape (RFKZ0033). This recording gives A-time.

Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. CD player & CD 2. DCC Blank tape (RFKZ0033)	1. Oscilloscope (30MHz or higher)	

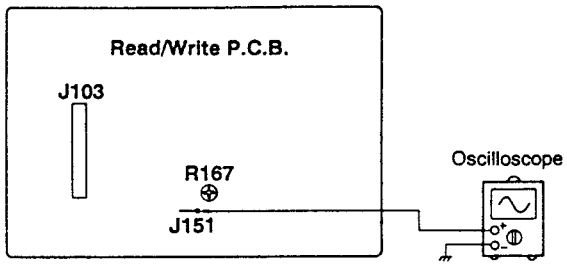


Fig. 14

[How to do A-time recording]

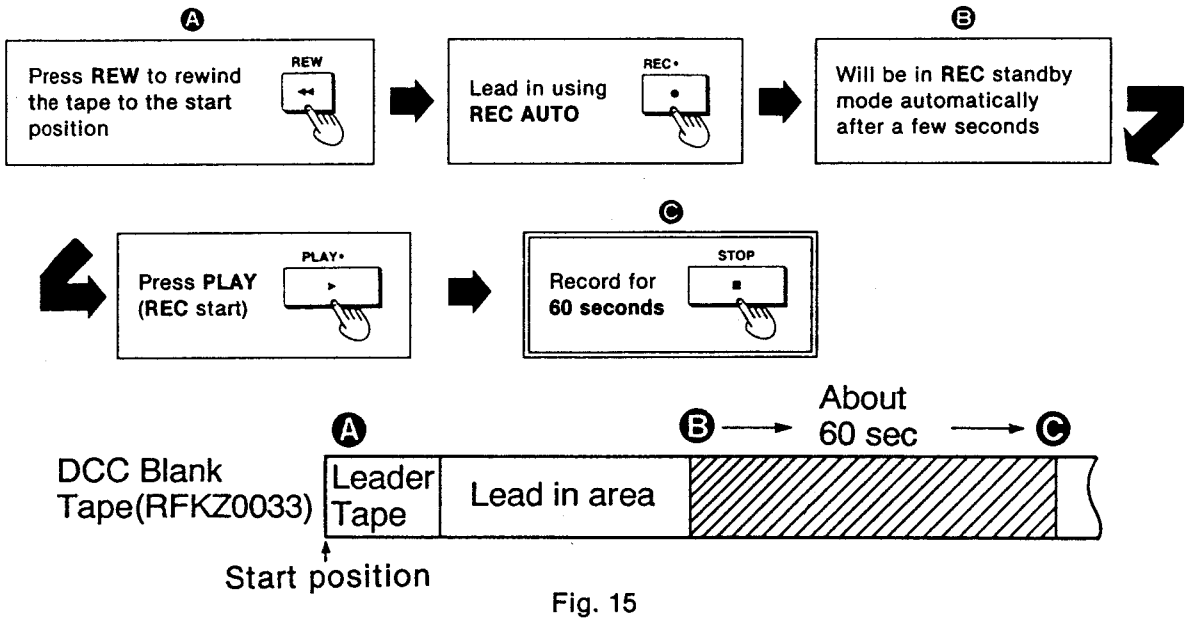


Fig. 15

• Adjustment Steps

(1) Put the unit in **REC** mode using an unrecorded section of the DCC Blank tape (RFKZ0033).
(2) Adjust potentiometer R167 to obtain the optimum voltage on the output level of J151.

* How to find the optimum voltage
The bias current indicated on the back of the FPC of each head is found using the following formula:
V=I×R151 (12Ω)

Example:

When the bias current is 160mA:
V=160mA×12Ω=1920mV

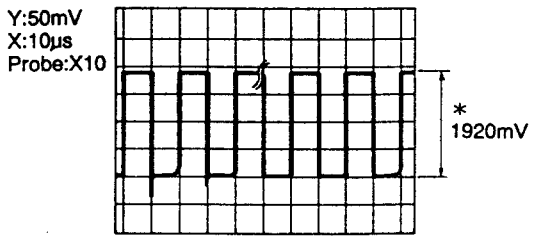


Fig. 16

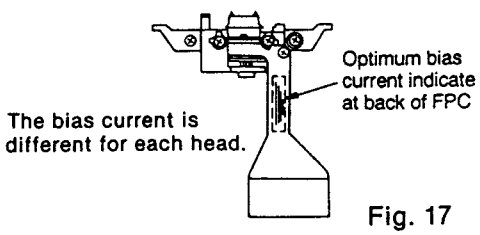


Fig. 17

(I) Method of Verification (Must be performed after adjustment.)

Overwrite with another music source part of the section that was recorded during preparation.

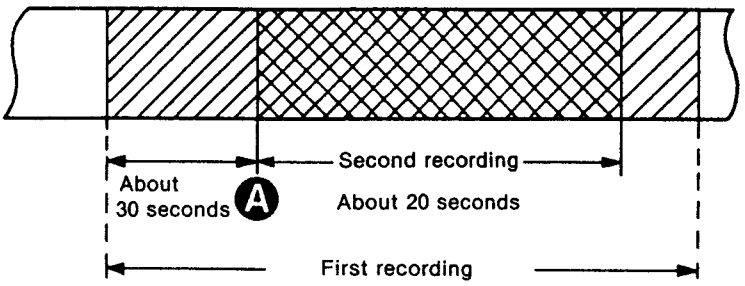
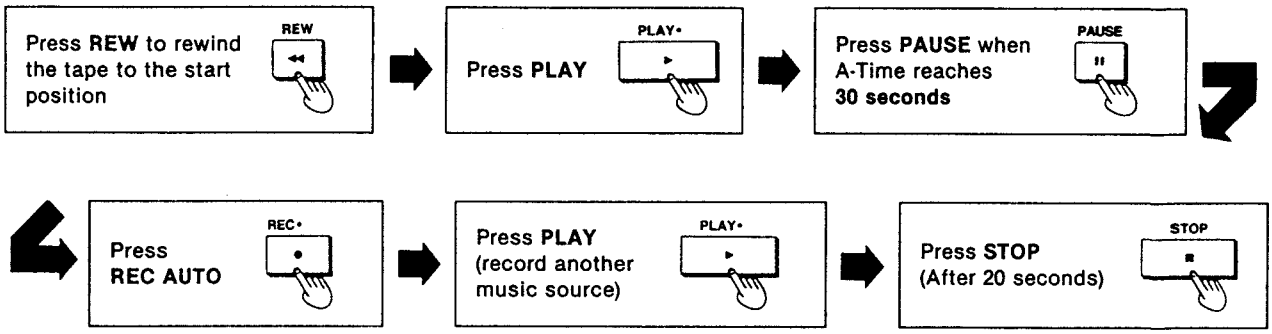


Fig. 18

[How to overwrite]



(II) Verification Items

Rewind the tape and play it back, and check the following at the breaks between tracks.

1. Check that A-Time is played back.
   (Fails if the recording current is low.)

2. Check the Error Rate
   ① Stop after about 25 seconds from the tape start position.
   ② Turn off the power so that "ALL • ERR • RATE" is displayed in the service mode, and play the tape again. (Refer to page 12)
   ③ Confirm that "00 00000000" remains on the display, although the Error Rate is momentarily worse than this at A-Time (5 seconds after the initial 25 seconds).

(III) Viewing the "Error Rate"

(1) Setting the Error Rate mode

1. Turn the **POWER** off. While pressing both the **STOP** key and the **PLAY** key, turn the **POWER** on.

2. [SERVICE MODE] is displayed.

```
! " + " + − , / 0 1 2 3 4 5 6 7 8 9
< = > 7 A B C D E F G H I J K L M N
O P Q R S T U V W X Y Z
```

are scrolled in order.

Press the **COUNTER** key on the DCC seven times.
ALL • ERR • RATE is displayed.

Place a pre-recorded tape into the machine and press the **PLAY** key.

3. Ten characters (numbers or letters) will be displayed on the display section.
This display shows the Error Rate on each of 8 CH signal tracks and the AUX CH.
The signal drop-out condition for each channel is displayed using the hexadecimal digits 0-9, A-F.

```
Aux CH   CH  1  2  3  4  5  6  7  8
 00          0  0  0  0  0  0  0  0
             ⌇
             9
             A
             ⌇
             F  F  F  F  F  F  F  F
```

(2) Error Rate acceptability criteria

Display	Condition
"00000000" is constantly displayed for all tracks.	Normal (OK)
"01101000" is momentarily displayed for any one to three tracks (or more).	Normal (OK)
"11111111" is constantly displayed for one to three tracks (or more). **Anything but "0" is displayed.**	Error
"11111111" is constantly displayed for all tracks. **Anything but "0" is displayed.**	Error
"FFFFFFFF" is constantly displayed for all tracks.	Error

3. DCC PLAYBACK LEVEL ADJUSTMENT (READ/WRITE P.C.B. or PASC DIGITAL P.C.B.)

• The purpose of this adjustment is to feed digital signals at the specified level from the DCC RF circuit to the PASC Digital circuit.

Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. **DCC Test tape (DCC-S1).** 2. Screwdriver (−)	1. Oscilloscope (30MHz or higher)	**(Ex. 1)**

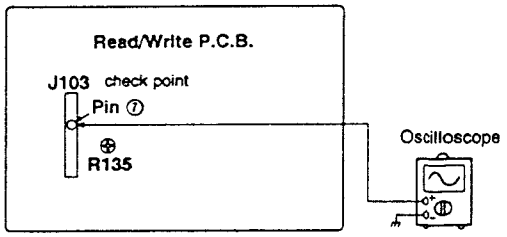


Fig. 19

(EX. 2)

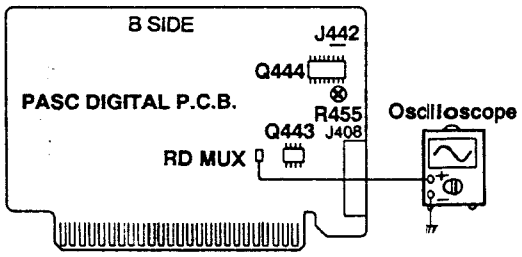


Fig. 20

• Adjustment Steps

(1) Play forward the **DCC Test tape (DCC-S1).**
(2) Adjust potentiometer **R135** so the voltage at J103-pin ⑦ is 1.2Vp-p ± 100mV (Fig. 19).
(or RD MUX on the B SIDE of the PASC DIGITAL P.C.B. will do (Fig. 20).)

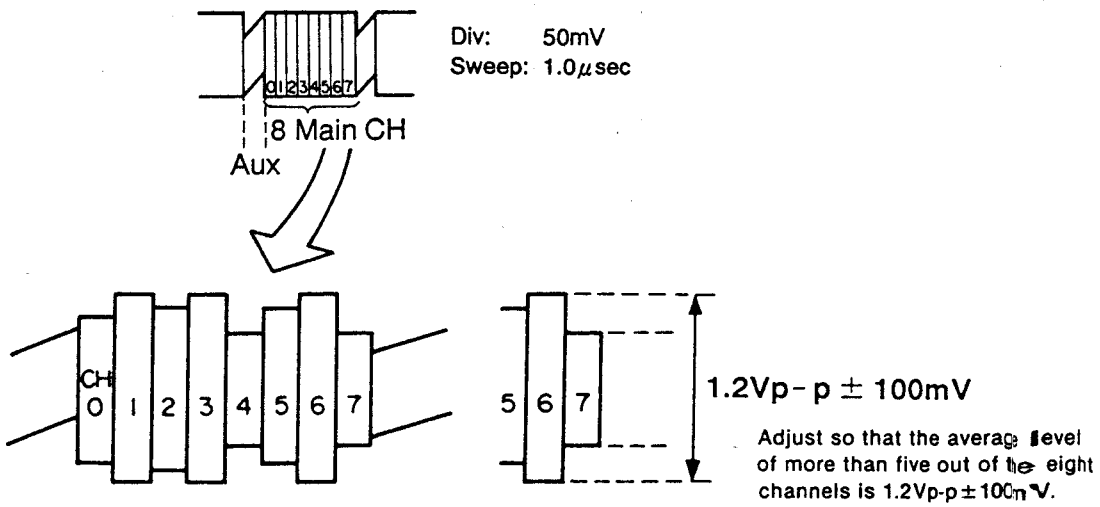


Fig. 21

4. ANALOG OUTPUT LEVEL ADJUSTMENT (READ/WRITE P.C.B.)

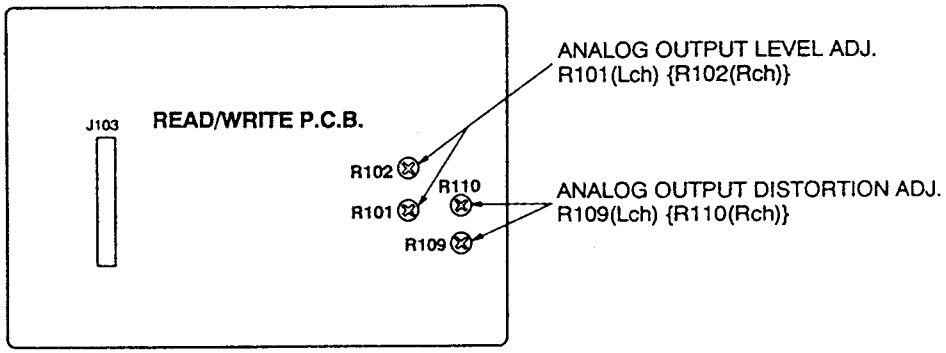
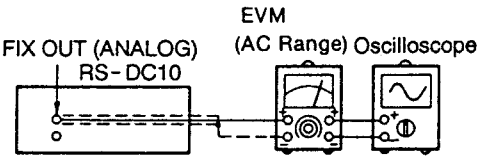


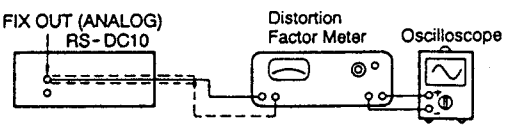
Fig. 22

Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. **ACC Test tape (QZZCFM)** 2. Screwdriver (−)	1. Oscilloscope (30MHz or higher) 2. EVM (AC Range)	 Fig. 23

• Adjustment Steps

(1) Play forward the 315Hz, 0dB test tone on the ACC Test tape (QZZCFM).
(2) Maximize output level with potentiometers **R101** (Lch) and **R102** (Rch).
(3) Reduce output level by −10dB (optimum output level) from the maximum level again with **R101** and **R102**.

5. CONFIRMATION OF ANALOG OUTPUT DISTORTION ADJUSTMENT (READ/WRITE P.C.B.)

Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. **ACC Test tape (QZZCFM)** 2. Screwdriver (−)	1. Oscilloscope (30MHz or faster) 2. Distortion Factor Meter	 Fig. 24

• Adjustment Steps

(1) Play forward the 315Hz, 0dB test tone on the ACC Test tape (QZZCFM).
(2) Check to make sure that THD is no greater than 1.5%.
(3) If THD is grater than 1.5%, adjust the **R109** (Lch) and **R110** (Rch) until it is within 1.5%.

ADJUSTMENT POINTS (MAIN P.C.B.)

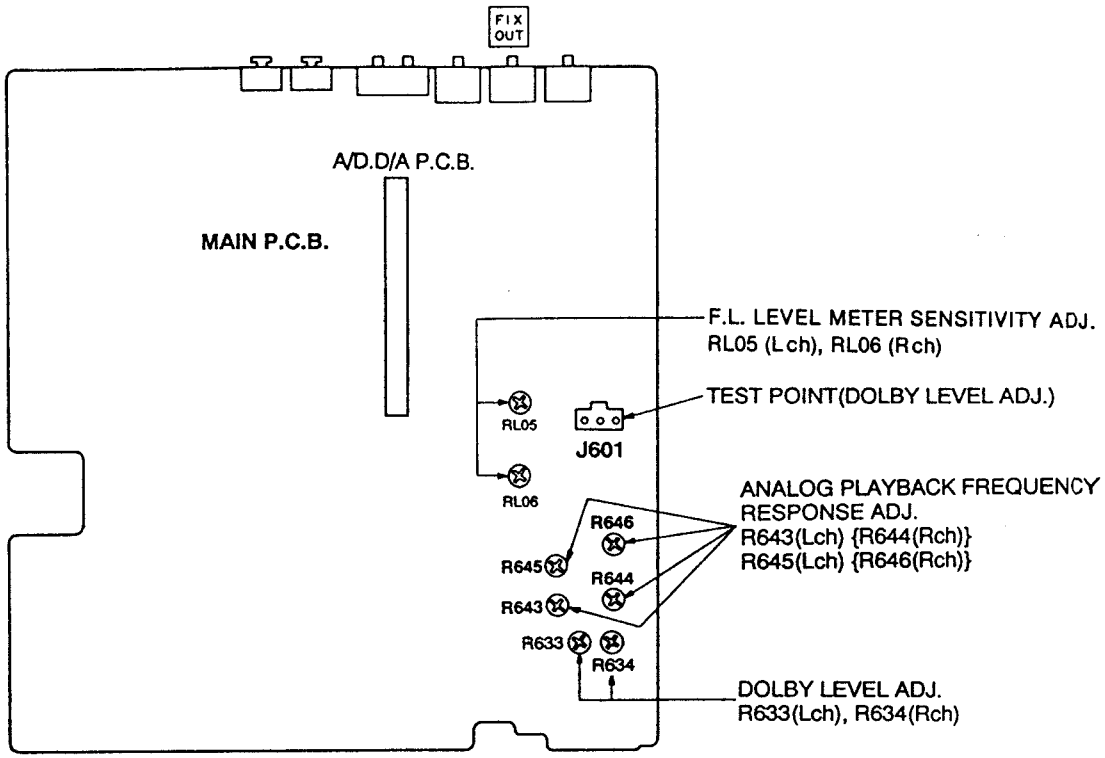


Fig. 25

6. DOLBY LEVEL ADJUSTMENT (MAIN P.C.B.)

Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. Dolby level tape (RFKZ0038)	1. EVM (AC Range)	

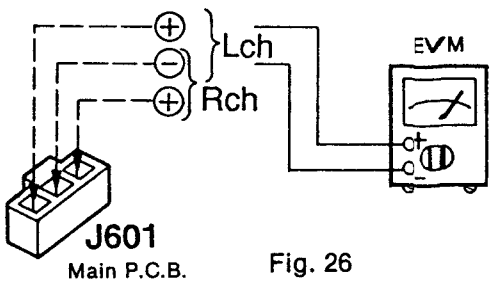
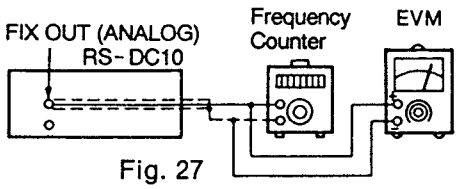


Fig. 26

• Adjustment Steps

(1) While playing back the Dolby level tape (RFKZ0038), adjust the voltage at test point J601 to 33[illegible]mV using **R633** (Lch) and **R634** (Rch) (See Fig. 25).

7. ANALOG PLAYBACK FREQUENCY RESPONSE ADJUSTMENT (MAIN P.C.B.)

Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. **ACC Test tape (QZZCFM)** 2. Screwdriver (−)	1. Frequency Counter 2. EVM (AC Range)	 Fig. 27

• Adjustment Steps

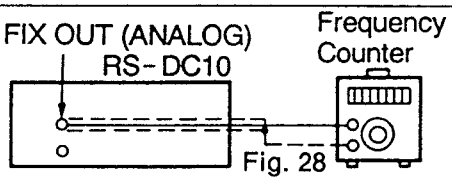
(1) Play the 1kHz and 63Hz test tones on the **ACC Test tape (QZZCFM)** and adjust potentiometers **R645** (Lch) and **R646** (Rch) until the FIXED OUT output level at 63Hz is within 0±0/−1dB from that at 1kHz.
(2) Play the 1kHz and 12.5kHz test tones on the **ACC Test tape (QZZCFM)** and adjust potentiometers **R643** (Lch) and **R644** (Rch) until the FIXED OUT output level at 12.5kHz is within 0±0/−1dB from at 1kHz.

(See Fig. 25)

Notes:

- During adjustment, monitor playback frequency with a Frequency Counter.
- Misalignment will affect the ACC Test tape (QZZCFM) playback frequency response.

8. TAPE SPEED ADJUSTMENT (TRAY P.C.B.)

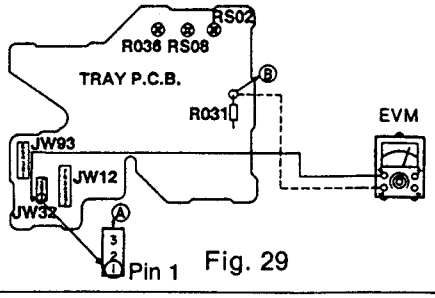
Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. **ACC Test tape (QZZCWAT).** 3kHz − 10dB 2. Screwdriver (−)	1. Frequency Counter	 Fig. 28

• Adjustment Steps

(1) Play forward the 3000Hz test tone on the **ACC Test tape (QZZCWAT)** and adjust the signal frequency at the FIXED OUT jack to 3000Hz±10Hz with potentiometer **RS02** (See Fig. 29).
(2) Play backward the 3000Hz test tone on the **ACC Test tape (QZZCWAT)** and adjust the signal frequency at the FIXED OUT jack to 3000Hz±10Hz with potentiometer **RS08** (See Fig. 29).

9. QUICK REVERSE SENSOR ADJUSTMENT (TRAY P.C.B.)

- The purpose of this adjustment is to set EOT sensor's sensitivity to the magnetic and leader portions of cassette tapes (quick reverse sensor).

Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. **ACC Blank tape** **(MAXELL UD-I90)** (commercially available) 2. Screwdriver (−)	1. EVM (DC Range)	 Fig. 29

• Adjustment Steps

(1) Play the leader tape portion of an **ACC Blank tape** (MAXELL UD-I90) and adjust the potential difference between JW32 and **R031** to 1V with potentiometer **R036**.

10. PLL ADJUSTMENT (PASC DIGITAL P.C.B.)

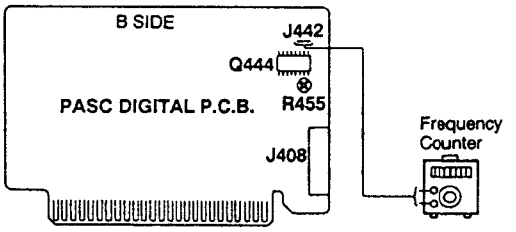
Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. Screwdriver (−)	1. Frequency Counter	

Fig. 30

• Adjustment Steps

(1) Place the unit in **STOP** mode.
(2) Adjust VCO free-running frequency (J442) to 7.5MHz±0.1MHz with potentiometer R455.

Note:

- Misalignment can cause digital signal drop-out.
- Perform measurements with the digital source input (optical, coaxial) disconnected.
- Do not use the Extension cable (RFKZ0031), since the influence of external noise may cause incorrect results. Adjust again after putting the PASC and the P.C.B. back in their original positions.

11. F.L. LEVEL METER SENSITIVITY ADJUSTMENT (MAIN P.C.B.)

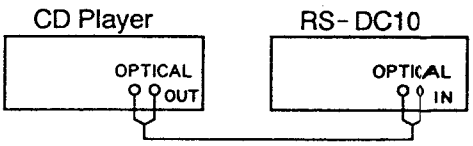
Preparations		Test Setup
Tools & Jigs	Measuring Instruments	
1. CD player (with optical output) 2. **CD Test disc (SZZP1054C)** 3. **DCC Blank tape (RFKZ0033)**	1. Nothing	

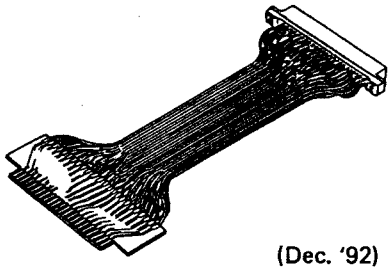
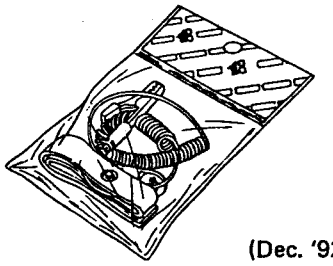
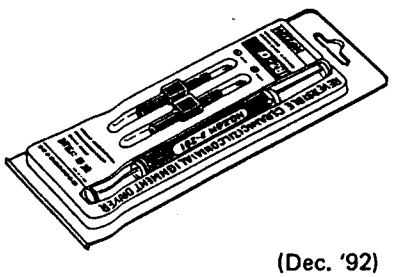
Fig. 31

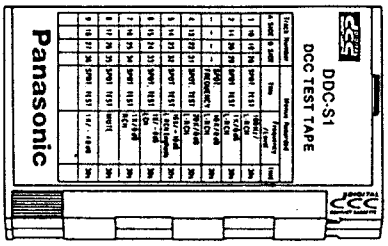
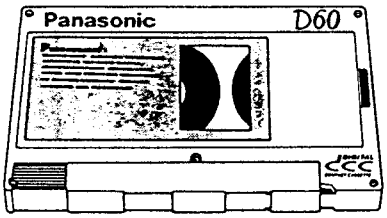
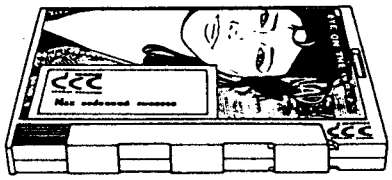
• Adjustment Steps

(1) Load a **DCC Blank tape (RFKZ0033)** in the unit under test and place it in **REC PAUSE** mode.
(2) Load the **CD Test disc (SZZP1054C)** in the CD player and play the second band (1kHz, 0dB, L+R signal).
(3) Adjust potentiometers **RL05** (Lch) and **RL06** (Rch) so the DCC unit's FL level meters indicate 0 to −2dB (See Fig. 25).

Other potentiometers (R117 on Read/Write P.C.B. or R633, R634 on Main P.C.B.) require no service adjustment.

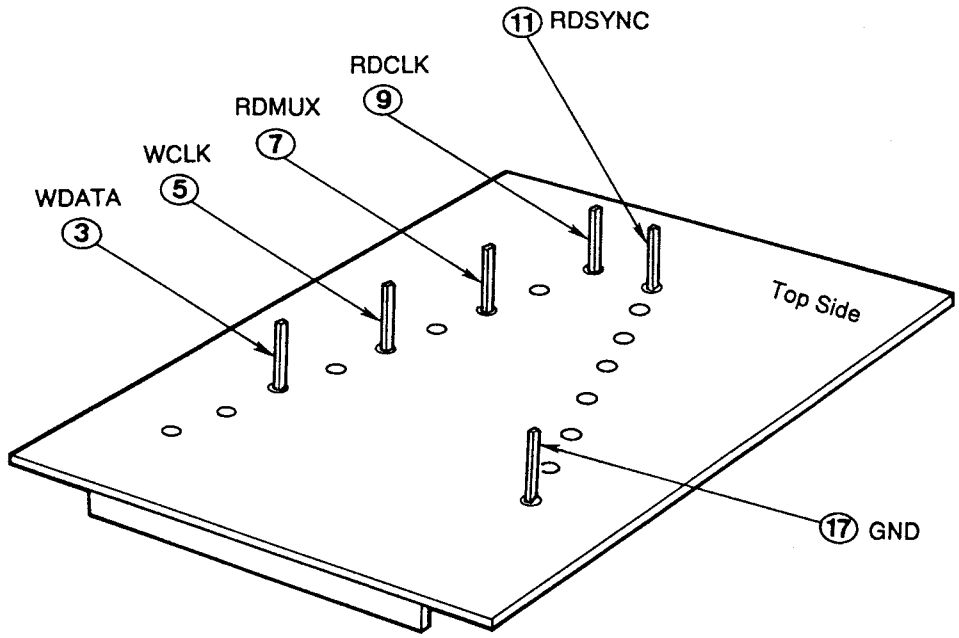
12. DCC TEST FIXTURE LIST

Appearance	Part No.	Description
Extension Cable  (Dec. '92)	RFKZ0029	Used for checking Tray P.C.B.
Extension FPC  (Dec. '92)	RFKZ0030	Used for checking Read/Write P.C.B.
Extension Cable  (Dec. '92)	RFKZ0031	Used for checking Pasc P.C.B.
Wrist strap (F-50)  (Dec. '92)	RFKZ0036	Discharge static electricity from body
Screw Driver (D-281)  (Dec. '92)	RFKZ0037	Head Azimuth adjustment

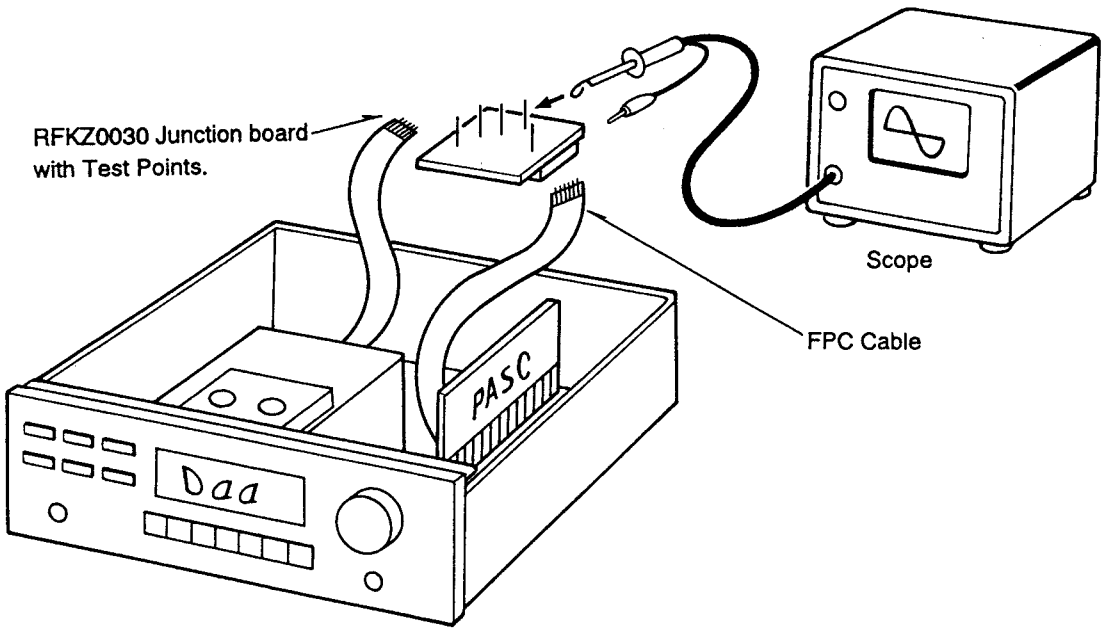
Appearance	Part No.	Description
 (Dec. '92)	DCC-S1	Test Tape
 (Dec. '92)	RFKZ0033	Blank Tape
 (Design should be changed) (Dec. '92)	RFKZ0034	Music Tape (848 981-5)

《Troubleshooting Method》

How to connect the REKZ0030 Junction board and easy to confirm the Record/Playback envelopes.



RFKZ0030 Junction Board



13. TROUBLESHOOTING & QUICK SERVICE INFORMATION

RS-DC10 Trouble Examples

Symptom	Cause	Remedy
1) Tray sometimes opens.	Connector (JW06) inserted incompletely.	Insert it completely.
2) No sound is heard at times.	Same as above.	Same as above.
3) Tape fails to come out.	Connector (JW05)	Insert it again.
4) Unit cannot be turned ON.	Open of diode (D812).	Replace it with a new one.
5) Only DCC the not read.	Shutter OPEN/CLOSE lever return spring slipped off.	Repair it.
6) No headphone output.	Open of RH02	Replace it with a new one.
7) Tray closed opens soon.	Control board out of position.	Correct it.
8) No recording cvan be made with other manufacturer's optical input. Pioneer CLD303/CLD939 Sony ZS-F1	Pitch shift clock mode of some other appliance's digital output is out of standard.	

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