

Hi-Fi Component

[illegible]

OPERATING INSTRUCTIONS	2~23
SPECIFICATION	24
SOFTWARE SPECIFICATION	25~46
BLOCK DIAGRAM	47
DISASSEMBLY	48~50
LEVEL DIAGRAM	51
SERVICE MODE	52~58
CONFIRMING THE AUDIO	59, 60
ERROR CORD	61~63
HEAT RUN MODE	64
VERSION UP METHOD FOR DRIVE MICROCOMPUTER	65
IN CASE OF REPLACING FOR EEPROM	66
IN CASE OF FLAW AND DUST FOR PICK UP AND DISC	66
SCHEMATIC DIAGRAM	67~71
WIRING DIAGRAM	73
PRINTED WIRING BOARD	74, 75
NOTE FOR PARTS LIST	76
PRINTED WIRING BOARD PARTS LIST	76~83
SEMICONDUCTORS	84~104
PARTS LIST OF EXPLODED VIEW	102
EXPLODED VIEW	103
MD MECHANISM EXPLODED VIEW AND PARTS LIST	104
PACKING VIEW	105

NIPPON COLUMBIA CO., LTD.

IMPORTANT TO SAFETY

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION:

1. **Handle the power supply cord carefully**
Do not damage or deform the power supply cord. If it is damaged or deformed, it may cause electric shock or malfunction when used. When removing from wall outlet, be sure to remove by holding the plug attachment and not by pulling the cord.
2. **Do not open the top cover**
In order to prevent electric shock, do not open the top cover. If problems occur, contact your DENON dealer.
3. **Do not place anything inside**
Do not place metal objects or spill liquid inside the MD recorder. Electric shock or malfunction may result.

Please, record and retain the Model name and serial number of your set shown on the rating label.

Model No. DN-M1050R

Serial No. _____



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

NOTE:

This MD recorder uses the semiconductor laser. To allow you to enjoy music at a stable operation, it is recommended to use this in a room of 5°C (41°F) ~35°C (95°F).

LABELS (for U.S.A. model only)

CERTIFICATION

THIS PRODUCT COMPLIES WITH DHHS RULES 21 CFR SUBCHAPTER J APPLICABLE AT DATE OF MANUFACTURE.

CAUTION:

USE OF CONTROLS OR ADJUSTMENTS OR REFORMATION OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

THE COMPACT DISC PLAYER SHOULD NOT BE ADJUSTED OR REPAIRED BY ANYONE EXCEPT PROPERLY QUALIFIED SERVICE PERSONNEL.

NOTE:

This unit may cause interference to radio and television reception if you do not operate it in strict accordance with this OPERATING INSTRUCTIONS.

This unit complies with Class B computing device rules in accordance with the specifications in Sub-part J or Part 15 of the FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. If the unit does cause interference to any radio or television reception, try to reduce it by one or more of the following means:

- a) Turn the other unit to improve reception
- b) Move this unit
- c) Move this unit away from others
- d) Plug this unit respectively into a different AC outlet

* This is note in accordance with Section 15.838 of the FCC Rules.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLÄITE
KLASS 1 LASERAPPARAT

"CLASS 1
LASER PRODUCT"



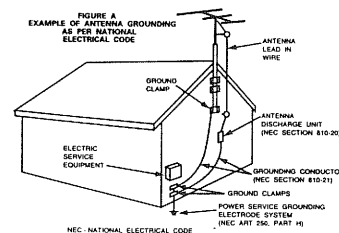
ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSÅBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.

VAROITUS: LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINTULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITÄVÄLLE NÄKYMÄTTÖMÄLLE LASERISÄTELYLLE.

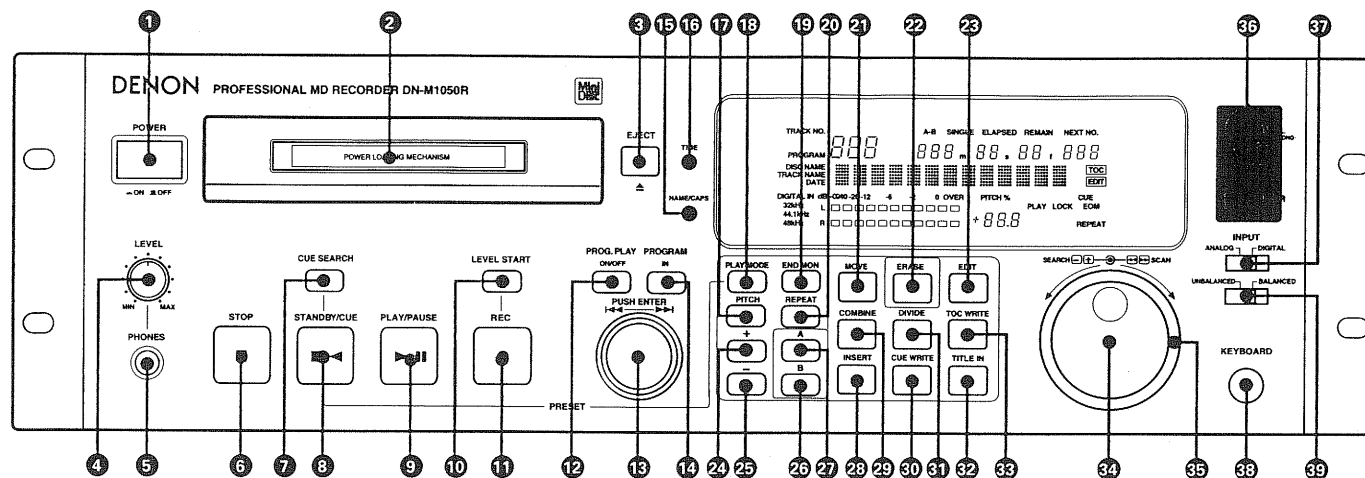
VARNING: OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFIKERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLING SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.

SAFETY INSTRUCTIONS

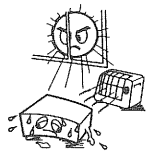
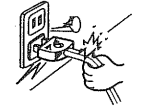
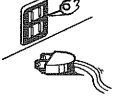
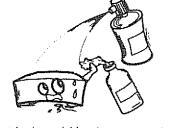
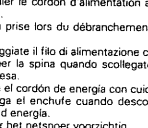
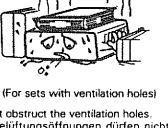
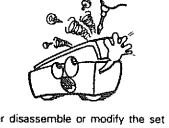
1. Read Instructions – All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions – The safety and operating instructions should be retained for future reference.
3. Heed Warning – All warnings on the appliance and in the operating instructions should be adhered to.
4. Following Instructions – All operating and use instructions should be followed.
5. Water and Moisture – The appliance should not be used near water – for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.
6. Carts and Stands – The appliance should be used only with a cart or stand that is recommended by the manufacturer.
- 6A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.
7. Wall or Ceiling Mounting – The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
8. Ventilation – The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.
9. Heat – The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
10. Power Sources – The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
11. Grounding or Polarization – Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.
12. Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
14. Cleaning – The appliance should be cleaned only as recommended by the manufacturer.
15. Power Lines – An outdoor antenna should be located away from power lines.
16. Outdoor Antenna Grounding – If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna-discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure A.
17. Nonuse Periods – The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
18. Object and Liquid Entry – Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.
19. Damage Requiring Service – The appliance should be serviced by qualified service personnel when:
 - A. The power-supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the appliance; or
 - C. The appliance has been exposed to rain; or
 - D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
 - E. The appliance has been dropped, or the enclosure damaged.
20. Servicing – The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.



FRONT PANEL /FRONTPLATTE/PANNEAU AVANT/PANEL FRONTAL



**NOTE ON USE/HINWEISE ZUM GEBRAUCH/OBSERVATIONS RELATIVES A L'UTILISATION
NOTE SULL'USO/NOTAS SOBRE EL USO/ALVORENS TE GEBRUIKEN/OBSERVERA
OBSERVAÇÕES QUANTO AO USO**

 • Avoid high temperatures. Allow for sufficient heat dispersion when installed on a rack. • Vermeiden Sie hohe Temperaturen. Beachten Sie, daß eine ausreichende Luftzirkulation gewährleistet wird, wenn das Gerät auf ein Regal gestellt wird. • Eviter des températures élevées. Tenir compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère. • Evitate di esporre l'unità a temperature alte. Assicuratevi che ci sia un'adeguata dispersione del calore quando installate l'unità in un mobile per componenti audio. • Evite altas temperaturas. Permita la suficiente dispersión del calor cuando está instalado en la consola. • Vermijd hoge temperaturen. Zorg voor een degelijk hitteafvoer indien het apparaat op een rek wordt geplaatst. • Undvik höga temperaturer. Se till att det finns möjlighet till god värmeavledning vid montering i ett rack. • Evite temperaturas altas. Conceda suficiente dispersão de calor quando o equipamento for instalado numa prateleira.	 • Keep the set free from moisture, water, and dust. • Halten Sie das Gerät von Feuchtigkeit, Wasser und Staub fern. • Protéger l'appareil contre l'humidité, l'eau et la poussière. • Tenete l'unità lontana dall'umidità, dall'acqua e dalla polvere. • Mantenga el equipo libre de humedad, agua y polvo. • Laat geen vochtigheid, water of stof in het apparaat binnendringen. • Utsätt inte apparaten för fukt, vatten och damm. • Mantenha o aparelho livre de qualquer umidade, água ou poeira.	 • Do not let foreign objects in the set. • Keine fremden Gegenstände in das Gerät kommen lassen. • Ne pas laisser des objets étrangers dans l'appareil. • E' importante che nessun oggetto è inserito all'interno dell'unità. • No deje objetos extraños dentro del equipo. • Laat geen vreemde voorwerpen in dit apparaat vallen. • Se till att främmande föremål inte tränger in i apparaten. • Não deixe objetos estranhos no aparelho.
 • Handle the power cord carefully. Hold the plug when unplugging the cord. • Gehen Sie vorsichtig mit dem Netzkabel um. Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen. • Manipuler le cordon d'alimentation avec précaution. Tenir la prise lors du débranchement du cordon. • Maneggiare il filo di alimentazione con cura. Agitare per la spina quando scollegate il cavo dalla presa. • Manee el cordón de energía con cuidado. Sostenga el enchufe cuando desconecte el cordón d'energía. • Hanteer het netsnoer voorzichtig. Houd het snoer bij de stekker vast wanneer deze moet worden aan- of losgekoppeld. • Hantera nätkabeln varsamt. Håll i kabeln när den kopplas från el-uttaget. • Manuseie com cuidado o fio condutor de energia. Segure a tomada ao desconectar o fio.	 • Unplug the power cord when not using the set for long periods of time. • Wenn das Gerät eine längere Zeit nicht verwendet werden soll, trennen Sie das Netzkabel vom Netzstecker. • Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes. • Disinnestare il filo di alimentazione quando avete l'intenzione di non usare il filo di alimentazione per un lungo periodo di tempo. • Desconecte el cordón de energía cuando no utilice el equipo por mucho tiempo. • Neem altijd het netsnoer uit het stopcontact wanneer het apparaat gedurende een lange periode niet wordt gebruikt. • Koppla ur nätkabeln om apparaten inte kommer att användas i lång tid. • Desligue o fio condutor de força quando o aparelho não tiver que ser usado por um longo período.	 • Do not let insecticides, benzene, and thinner come in contact with the set. • Lassen Sie das Gerät nicht mit Insektiziden, Benzin oder Verdünnungsmitteln in Berührung kommen. • Ne pas mettre en contact des insecticides, du benzène et un diluant avec l'appareil. • Assicuratevi che l'unità non venga in contatto con insetticidi, benzolo o solventi. • No permita el contacto de insecticidas, gasolina y diluyentes con el equipo. • Laat geen insectenverdelgende middelen, benzine of verdunder met dit apparaat in contact komen. • Se till att inte insektsmedel på spraybruk, bensin och thinner kommer i kontakt med apparatens hölje. • Não permita que inseticidas, benzina e dissolvente entrem em contacto com o aparelho.
 • Do not obstruct the ventilation holes. • Die Belüftungsöffnungen dürfen nicht verdeckt werden. • Ne pas obstruer les trous d'aération. • Non coprite i fori di ventilazione. • No obstruya los orificios de ventilación. • De ventilatieopeningen mogen niet worden beblokeerd. • Tapp inte till ventilationsöppningarna. • Não obstrua os orifícios de ventilação.	 • (For sets with ventilation holes)	 • Never disassemble or modify the set in any way. • Versuchen Sie niemals das Gerät auseinander zu nehmen oder auf jegliche Art zu verändern. • Ne jamais démonter ou modifier l'appareil d'une manière ou d'une autre. • Non smontate mai, né modificate l'unità in nessun modo. • Nunca desarme o modifique el equipo de ninguna manera. • Nooit dit apparaat demonteren of op andere wijze modifieren. • Ta inte isär apparaten och försök inte bygga om den. • Nunca desmonte ou modifique o aparelho de alguma forma.

MAIN FEATURES

The DN-M1050R MD recorder is a rack mount type MD recorder designed for use in broadcast stations, for productions, etc.

- **Auto Level Rec start**
This function automatically starts the recording operation when an audio signal level from an external unit connected to the DN-M1050R exceeds the preset level (-36 to -72 dB, 7 steps) *You can turn off this function.
- **Auto Track Increment**
DN-M1050R detects the silent portion of the program material and automatically increases the track number. The level of the silent portion can be set within a range of -36 to -72 dB (7 steps).
- **Stereo/Mono recording (74/148 min.)**
- **U-TOC Writing**
The U-TOC recording method is selectable. (Manual/Auto is switched according to preset U-TOC mode.)
1) Manual: After editing is completed, use the buttons to write the U-TOC.
2) Auto: U-TOC is automatically recorded each time recording or editing is performed.
- **Using CUE Signals to make searches (Up to 5 points per track)**
- **Editing**
1) Basic Editing
• DIVIDE: Smallest edited unit is 11.6 msec (1 sound group) • ERASE TRACK/ERASE DISC
• COMBINE • MOVE • TRACK NAME • DISC NAME
Up to 100 characters can be used for each name, however, the combined total number of characters cannot exceed 1700.
Keyboard (PS/2 connector, US keyboard with 101 or 104 keys recommended) can be connected to perform playback, recording, program input, editing, hot start and other operations.
2) Erase any A-B section.
This function is convenient when repeating the DIVIDE and TRACK ERASE operations at the same time.
3) A-B section can be inserted into any track.
This function lets the user move a section between point A and point B into any section within another track. The DIVIDE, MOVE and COMBINE operations can be performed simultaneously.
4) Cue signals also can be edited. (Can be erased, rewritten, or added to later.)
- **19 inch Rack Mountable (Height: 3U)**
- **Large FL Display, Illuminated Rubber Button**
- **Track Search Select knob (Easy track selection)**
- **Search/Scan dial**
Perform searches to 1 sound group precision using the dial and easy scans using the scan dial.
- **Program Play (Max. 25 tracks)**
1) When the PLAY mode is set to Single, the player stands by at the beginning of next track. (at Finish mode "NEXT")
2) When the PLAY mode is set to Continuous, the playback is continued according to your programmed sequence.
- **Play mode and Finish mode**
1) Play mode ① Continuous: Play a whole disc ② Single: Play a track ③ A-B: Play a A-B
2) Finish mode (Stop, Next, Recue)
* only when Single Track play is selected.
① Stop: Stop after finishing to play a track
② Next: Standby at the beginning of next track after finishing to play a track
③ Rescue: After finishing to play a track, standby at the beginning of the track
- **Auto Cue**
After a track is selected it is automatically cued to the point where audio starts.
Cueing tracks place at the point where audio starts rather than where the track starts. The level at which sound is first detected can be set between -36 to -72 dB (7 steps).
- **End Monitor**
Pressing the END MON button during standby instantly previews the end of the track, thus assuring perfect "outros". The point at which monitoring starts can be set within a range of 5 to 35 seconds (7 steps) prior to the track's end.
- **End Of Message (EOM)**
At the end of a track, the EOM flashes, providing a visual warning to the operator that the track will end shortly. the point at which the flashing begins can be set within a range of 5 to 35 seconds (7 steps) prior to the end of the track.
- **Pitch Control (+9.9 to -9.9%, 0.1 step)**
- **Instant Start (Playback starts less than 0.01 seconds after the PLAY button is pressed.)**
- **Rich Array of External Control Terminals**
Serial Remote (RS232C/RS422A switchable, D-sub 9pin)
Parallel Remote (D-sub 25 pin)
- **Undo function**
Undo function during editing (Up to 2 editing operations prior to the most recent one can be undone.)
- **SCMS**
Recording is possible without reception of the copy defeat restriction. Writing of the copy defeat code is selectable.
- **Easy operations from IBM-PC™ compatible keyboard**
• PS/2 keyboard connector is equipped on the front panel.
• Keyboard (PS/2 connector, US keyboard with 101 or 104 keys recommended) can be connected to perform playback, recording, program input, editing, hot start and other operations.
- **ACD-25FSM (Sampling Rate Converter I/O Kit) *Option**
• Digital output is possible at 32 and 48 kHz as well as 44.1 kHz.
• Digital input is possible at 32 and 48 kHz as well as 44.1 kHz.
• If input occurs at 32 or 48 kHz, it is automatically converted to 44.1 kHz during recording.
- **ACD-26HM (Hot Start Kit) *Option**
• Hot start is possible for up to 20 tracks.
• Tracks can be loaded into Hot Start by detecting the Auto Cue Level (-72/-66/-60/-54/-48/-42/-36 dB selectable in Preset mode).
• Sound can be loaded into Hot Start from any track location.
• Loaded tracks can be replaced with new tracks.
• Seamless Loop can be used during Hot Start playback.
• Hot Start operation is possible using parallel remote, serial remote or a keyboard (PS/2 connector, US keyboard with 101 or 104 keys recommended).

CONTENTS

1 PART NAMES AND FUNCTIONS	9-12	(4) Presetting Programs	27
(1) Front Panel	9	7 EDITING FUNCTIONS	28-37
(2) Rear Panel	11	(1) Editing Functions	28
(3) Display	12	(2) Erasing Tracks (Track erase function)	29
2 REMOTE CONTROL CONNECTIONS	13	(3) Erasing All the Tracks on the Disc (All erase function)	29
3 ABOUT MINIDISCS	13	(4) Erasing Cue Signals (Cue erase function)	30
4 BASIC OPERATION	14-17	(5) Erasing Specific Sections (A-B erase function)	31
(1) Before Starting Playback	14	(6) Dividing Tracks into Two Parts (Divide function)	32
(2) Starting Playback	14	(7) Combining Two Tracks (Combine function)	32
(3) Stopping Playback	14	(8) Moving Tracks (Move function)	33
(4) PLAY/PAUSE and STANDBY/CUE Operations	15	(9) Inserting Specific Sections (A-B insert function)	34
(5) Before Starting to Record	15	(10) Inputting (Changing) Names (Title function)	35
(6) Method of Recording on Discs	15	(11) Undoing Editing (Undo functions)	36
(7) Starting to Record	16	(12) Canceling the Edit Mode and Writing the UTOC	36
(8) Stopping Recording	16	(13) Error Messages	37
(9) Incrementing Track Numbers	17	8 CONNECTING AND OPERATING A KEYBOARD	38, 39
(10) Pre-UTOC Function	17	(1) Connecting the Keyboard	38
5 HANDY OPERATIONS	18-24	(2) Keyboard Operations	38
(1) Starting Playback from Middle of a Track (Manual Search)	18	9 PRESET FUNCTIONS AND OPERATIONS	40-43
(2) Playing at a Different Speed (Pitch)	18	(1) List of Preset Functions	40
(3) Storing the Play Speed on the Disc	19	(2) Presetting Procedure	41
(4) Playing Discs for Which the Play Speed Has Been Set	19	(3) Detailed Description of Preset Functions	42
(5) Playing a Specific Section of the Disc (A-B Play)	20	10 HANDLING CARTRIDGES	44
(6) Playing a Repeatedly (Repeat)	21	(1) Cautions on Handling	44
(7) Starting Recording Automatically by Detecting the Input Level	22	(2) Cautions on Storing	44
(8) Setting Cue Points	23	11 MESSAGES	44
(9) Direct Search for Cue Points	24	12 SYSTEM LIMITATIONS	45
6 PROGRAMMED PLAYBACK	25-27	(1) Track Number Limits	45
(1) Inputting Programs	25	(2) Recording Time Limits	45
(2) Changing Programs	25	(3) Editing Function Limits	45
(3) Playing Programs	26	(4) Title Function Limits	45
		(5) Other Limits	45
		13 SPECIFICATIONS	46

Checking the Contents

Check that the carton contains the following items:

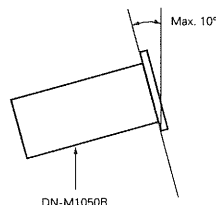
- 3P power supply cord 1 pc.
- Operating instructions (this booklet) 1 pc.

Installing the Units

Mount the units onto your console or rack with 19" EIA rack rails.

CAUTION:

- This DN-M1050R will work normally when the player unit is mounted with the front panel within 10 degrees of the vertical plane. If the unit is tilted excessively, discs may not load or unload properly.



DECLARATION OF CONFORMITY

We declare under our sole responsibility that this product, to which this declaration relates, is in conformity with the following standards:
EN60065, EN55013, EN55020, EN60555-2 and EN60555-3.
Following the provisions of 73/23/EEC, 89/336/EEC and 93/68/EEC Directive.

1 PART NAMES AND FUNCTIONS

(1) Front Panel

- 1 POWER button**
 - This turns the set on and off.
- 2 Cartridge insertion slot**
 - Insert the cartridge as indicated by the arrow on the top.
 - Once the cartridge is partially inserted, it is drawn in automatically.
- 3 EJECT button**
 - Press this button to eject the cartridge.
 - The cartridge cannot be ejected during playback or recording or while the UTOC is being written.
- 4 LEVEL control**
 - Use this to adjust the volume of the headphones.
- 5 PHONES jack**
 - Connect headphones with an impedance of 30 to 40 Ω/ohms.
- 6 STOP button**
 - Press this button to turn all the servo functions off and stop.
 - Press this button during the play, recording or recording pause mode to stop playback or recording.
- 7 CUE SEARCH button**
 - When this button is pressed during the standby, pause, search or play mode, the cue signal point direct search mode is set.
 - When pressed again, the direct search mode is canceled.
 - The button lights when the direct search mode is set.
- 8 STANDBY/CUE button**
 - When this button is pressed during the play or pause mode, the pickup returns to the position at which playback started and the standby mode is set. (Back Cue)
 - When pressed during playback when the next track has been programmed, the programmed track is searched for and the standby mode is set.
 - The button lights when the standby mode is set.
 - When the button is pressed during the recording or recording pause mode, recording stops, the pickup returns to the recording start position and the standby mode is set.
 - When the button is pressed during the cue direct search mode, the cue point is searched.
 - When the button is pressed while pressing the PLAY MODE button, the preset mode is set.
- 9 PLAY/PAUSE button**
 - Press this button in the standby, pause or manual search mode to begin playback.
 - Press the button in the stop mode to search for the first track and begin playback.
 - When the button is pressed in the recording pause mode, recording starts.
 - The button lights when the play or recording mode is set.
 - When the button is pressed during playback, the pause mode is set. The button flashes while the pause mode is set.
 - When the button is pressed during recording, the recording pause mode is set. The button flashes when the recording pause mode is set.
- 10 LEVEL START button**
 - When this button is pressed during the recording pause mode, the auto level start recording mode is set.
 - The button flashes when the auto level start recording mode is set.
 - When the button is pressed again, the auto level start recording mode is canceled.
- 11 REC button**
 - When this button is pressed during the stop, standby or pause mode, the recording pause mode is set.
 - When the button is pressed during recording, the track number is incremented.
 - The button lights when the recording or recording pause mode is set.
- 12 PROG. PLAY ON/OFF button**
 - When this button is pressed while the PROGRAM IN button is lit, the program play mode is set.
 - The button will not function during the A-B play mode.
 - The button lights during the program play standby and play modes.
 - When the button is pressed during the program play standby or play mode, the program play mode is cleared.
- 13 Select knob**
 - Turn this knob to select the next track to be played.
 - Turn the knob clockwise by one click to move one track forward, counterclockwise by one click to move one track backward.
 - When the knob turned while pressing it in, one click corresponds to 10 tracks.
 - In the preset mode, use this knob to set and enter preset setting.
 - When setting programs, use this knob to select, enter and check the program.
 - In the cue point direct search mode, use this knob to select the cue point.
- 14 PROGRAM IN button**
 - Press this button to set the program input mode.
 - The button will not function during the play mode.
 - The button flashes when in the program input mode.
 - The button lights when a program is set.
- 15 NAME/CAPS button**
 - When this button is pressed, the character display switches between the disc name, track name and date, in that order.
 - The date is only displayed when the date display is preset. (Refer to Page 43.)
 - When the button is pressed while editing names, the selected characters switch between capital letters, small letters, numbers and symbols, in that order.
- 16 TIME button**
 - Press this button to switch the time display between the remaining time (REMAIN) and the elapsed time (ELAPSED).
- 17 PITCH button**
 - Press this button to switch to the play speed set with the + and - buttons.
 - The button lights when the pitch play mode is set.
 - Press the button again to cancel the pitch play mode and return to the normal speed.

Caution on ejecting cartridge

- Do not push the cartridge back in while it is being ejected after pressing the EJECT button. If you wish to reload the cartridge, wait until it is fully ejected before pushing it back in.
- If you wish to eject a cartridge that is already partially inserted, first push the cartridge in further so that it is drawn inside, then press the EJECT button to eject it.
- Do not try to pull out a partially inserted cartridge. Doing so may damage it.

18 PLAY MODE button

- When this button is pressed, the play mode switches.

19 END MON button

- Press this button in the standby mode to monitor the end of the track. (End Monitor)
- The button lights when the end monitor mode is set.

20 REPEAT button

- Press this button to set the repeat mode.
- The button lights when the repeat mode is set.
- Press the button again to cancel the repeat mode.

21 MOVE button

- Press this button in the edit mode to set the move mode (to move tracks).
- When this button is pressed again in the move mode after selecting the number to which the track is to be moved, the track is moved.

22 ERASE button

- Press this button in the edit mode to set the erase mode (to erase discs, tracks, cue points or A-B sections.)
- When this button is pressed again after selecting the item to be erased, "OK?" appears on the display. Press the button again to erase the selected item.

23 EDIT button

- Press this button to set the edit mode.
- The button lights when the edit mode is set.
- When the button is pressed during the edit mode, the edit mode is canceled.

24 + button

- Press this button once to increase the pitch by 0.1%.
- Hold the button in to increase the pitch continuously.
- Press the button in the program editing mode to set the program insert mode.

25 - button

- Press this button once to decrease the pitch by 0.1%.
- Hold the button in to decrease the pitch continuously.
- Press the button in the program editing mode to clear the program.

26 B button

- Use this button when setting A-B playback, A-B erase or the insert function.
- Press this button when no B point is set to set the B point.
- The button lights when the B point is set.
- When pressed while the B point is set, the B point is searched for and the standby mode is set.
- When the button is pressed during manual search while the B point is set, the B point changes.

27 A button

- Use this button when setting A-B playback, A-B erase or the insert function.
- Press this button when no A point is set to set the A point.
- The button lights when the A point is set.
- When pressed while the A point is set, the A point is searched for and the standby mode is set.
- When the button is pressed during manual search while the A point is set, the A point changes.

28 INSERT button

- Press this button in the edit mode to set the insert mode (to insert any section).
- When the button is pressed again after setting the A and B points, "Insert PT ?" appears on the display.

29 COMBINE button

- Press this button in the edit mode to set the combine mode (to combine tracks).
- When the button is pressed again after checking the tracks, the tracks are combined and the combine mode is canceled.

30 CUE WRITE button

- Press this button during the standby, pause, play, or manual search. When the edit mode and recording mode to record a cue signal.

31 DIVIDE button

- Press this button in the edit mode to set the divide mode (to divide a track in two).
- When the button is pressed again after checking the divide point, the track is divided and the divide mode is canceled.

32 TITLE IN button

- Press this button during the standby, pause, play, manual search or recording mode to set the name input (edit) mode.
- The TITLE IN and EDIT buttons light when the name input mode is set.
- When the button is pressed after inputting the name, the name is input and the name input mode is canceled.

33 TOC WRITE button

- Press this button while "TOC Write" is lit after editing, inputting names or recording cue signals to write the new data in the TOC.

34 SEARCH dial (inner side)

- Turn this dial to set the manual search mode.
- Turn the dial clockwise to move the playback position forward, counterclockwise to move the playback position backward.
- One click corresponds to one frame of movement. The playback position can be moved anywhere between the beginning of the first track and the end of the last track.

35 SCAN dial (outer side)

- Turn this dial to set the manual search (fast forward or fast reverse) mode.
- Turn the dial clockwise to move the playback position forward, counterclockwise to move the playback position backward.
- The speed changes according to the angle at which the dial is turned.

36 INPUT LEVEL L (MONO)/R controls

- Use this to adjust the level of the analog input signal.

37 INPUT ANALOG/DIGITAL switch

- Set this to ANALOG to record analog input signals, DIGITAL to record digital input signals.

38 KEYBOARD connector

- To use a keyboard, connect it to this connector.
- The connector is a mini DIN type 6-pin connector.

39 INPUT UNBALANCED/BALANCED switch

- Set this to UNBALANCED to record the input signal connected to the UNBALANCED jack, to BALANCED to record the input signal connected to the BALANCED jack.

(2) Rear Panel**① DIGITAL IN (AES/EBU) connector**

- This is an active balanced input using an XLR type connector.
- Connect this connector to the balanced digital output connector on an amplifier or console.
- Signal format: AES/EBU or IEC958 Type I
- Pin layout:

1. Common
2. Cold
3. Hot
- Applicable connector: Cannon XLR-3-32 or equivalent.

② DIGITAL OUT (AES/EBU) connector

- This is an active balanced output using an XLR type connector.
- Connect this connector to the balanced digital input connector on an amplifier or console.
- Signal format: AES/EBU
- Pin layout:

1. Common
2. Cold
3. Hot
- Applicable connector: Cannon XLR-3-31 or equivalent.

③ DIGITAL IN (SPDIF) jack

- This is an unbalanced input using an RCA type jack.
- Connect this jack to the unbalanced digital output jack on an amplifier or console.
- Signal format: SPDIF or IEC958 Type II

④ DIGITAL OUT (SPDIF) jack

- This is an unbalanced output using an RCA type jack.
- Connect this jack to the unbalanced digital input jack on an amplifier or console.
- Signal format: SPDIF or IEC958 Type II

⑤ RS232C/RS422A connector

- This is a serial remote connector. A personal computer or other external controller can be connected to control the DN-M1050R externally.
- Applicable connector: 9-pin D-sub (female)
- Baud rate: 9600 bps or 19200 bps
- Pin layout:

RS232C			RS422A		
Pin no.	Signal name	I/O	Signal name	I/O	
1	NC	-	NC	-	
6	NC	-	S.GROUND	-	
2	T×D	O	T×D (RETURN)	O	
7	NC	-	T×D	O	
3	R×D	I	R×D	I	
8	NC	-	R×D (RETURN)	I	
4	NC	-	NC	-	
9	NC	-	NC	-	
5	S.GROUND	-	NC	-	

⑥ RS232C/RS422A selector switch

- Use this to switch the serial remote connector signal between RS232C and RS422A according to the external controller's signal.

⑦ REMOTE connector

- This is a parallel remote connector. Use it to control the DN-M1050R with dry contact circuit connections.
- Applicable connector: 25-pin D-sub (male)
- Connector signal layout:

Pin no.	Signal name	I/O	
1	FG	-	
14	PLAY tally	O	TTL (Iol=20mA)
2	PLAY command	I	HCMOS (Ii=3mA)
15	PAUSE tally	O	TTL (Iol=20mA)
3	PAUSE command	I	HCMOS (Ii=3mA)
16	STDBY/CUE tally	O	TTL (Iol=20mA)
4	STDBY/CUE command	I	HCMOS (Ii=3mA)
17	END CUE tally	O	TTL (Iol=20mA)
5	TRACK (+) command	I	HCMOS (Ii=3mA)
18	Tally common	-	
6	TRACK (-) command	I	HCMOS (Ii=3mA)
19	REC command	I	HCMOS (Ii=3mA)
7	SEARCH (FWD) command	I	HCMOS (Ii=3mA)
20	CUE tally	O	TTL (Iol=20mA)
8	SEARCH (REV) command	I	HCMOS (Ii=3mA)
21	REC tally	O	TTL (Iol=20mA)
9	FADER START command	I	PHOTO COUPLER
22	Tally power supply	-	+5V, 20mA
10	Command common	-	(Ii=10mA)
23	Command common	-	
11	Reserved	-	
24	E.O.M. tally	O	TTL (Iol=20mA)
12	Reserved	-	
25	Reserved	-	
13	Hot Start Mode (High)	I	HCMOS (Ii=3mA)

NOTE: The tally output pin has open collector IC specifications (Imax: 20 mA, Vmax: 5V), but the maximum supply current is 80 mA, so use with a total load current of 80 mA or less.

⑧ AC inlet

- Connect the included power cord here.

⑨ ANALOG IN (BALANCED) connectors

- These are active balanced inputs using XLR type connectors.
- Connect these connectors to the balanced analog output connectors on an amplifier or console.
- Pin layout:

	U.S.A. & Canada	Europe, Asia & Others
1. Common	1. Common	
2. Cold	2. Hot	
3. Hot	3. Cold	
- Applicable connector: Cannon XLR-3-32 or equivalent

⑩ ANALOG IN (UNBALANCED) jacks

- These are unbalanced inputs using RCA type jacks.
- Connect these jacks to the unbalanced analog output jacks on an amplifier or console.

⑪ ANALOG OUT (UNBALANCED) jacks

- These are unbalanced outputs using RCA type jacks.
- Connect these jacks to the unbalanced analog input jacks on an amplifier or console.

12 ANALOG OUT (BALANCED) connectors

- These are active balanced outputs using XLR type connectors.
- Connect these connectors to the balanced analog input connectors on an amplifier or console.
- Pin layout:

U.S.A. & Canada	Europe, Asia & Others
1. Common	1. Common
2. Cold	2. Hot
3. Hot	3. Cold
- Applicable connector: Cannon XLR-3-31 or equivalent

NOTE: Do not short-circuit the hot or cold pin with the common pin.

13 LEVEL L/R controls

- Use these controls to adjust the level of the audio signals from the ANALOG OUT (BALANCED) connectors.

(3) Display

1 DISC NAME/TRACK NAME/DATE indicators

- "DISC NAME" lights when the disc name is displayed on the character display, "TRACK NAME" lights when the track name is displayed, and "DATE" lights when the date is displayed.

2 PROGRAM indicator

- This lights when the Program play mode is set.

3 TRACK No. display

- This displays the number of the track at the current position. This also lights during the track search mode and when switching to the standby mode.

4 Character display

- This displays disc names, track names and the date.
- Various instructions are displayed here during presetting, programming, editing, etc.

5 Playing time display

- This indicates the time of the current position, in minutes (m), seconds (s) and frames (f).

6 PLAY MODE indicators

- "A-B" lights when in the A-B play mode.
- "SINGLE" lights when in the single track play mode.

7 TIME MODE indicators

- "ELAPSED" lights when the elapsed time is displayed.
- "REMAIN" lights when the remaining time is displayed.

8 NEXT No. display

- This displays the number of the next track to be played.

9 TOC indicator

- This lights when it is necessary to rewrite the TOC (UTOC) due to editing, etc.
- This flashes while the TOC (UTOC) is being written.

10 EDIT indicator

- This lights when the edit mode is set.

11 DIGITAL IN indicator

- This lights (or flashes) when the digital input signal is selected.
- The indicator flashes when the digital signal is unlocked and remains lit when the digital signal is locked.

12 Sampling frequency display

- This displays the sampling frequency of the digital output. (When an optional FS converter is connected, the sampling frequency can be set using the presettings.)

13 Level display

- This displays the playback level during playback, the input level during recording.

14 PITCH display

- This indicates the set play speed in %.

15 PLAY LOCK indicator

- This lights when the PLAY LOCK is preset. (See Page 43)

16 REPEAT indicator

- This lights when the repeat mode is set.

17 EOM indicator

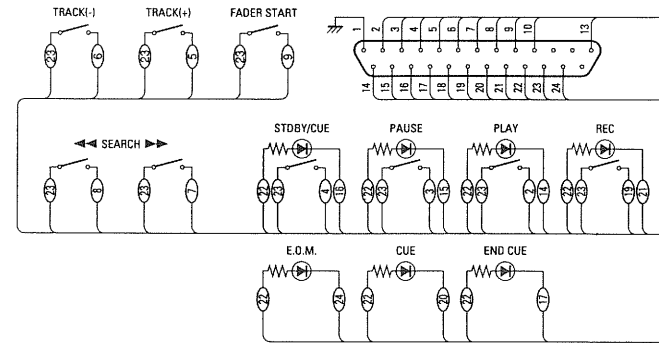
- This lights when the EOM is preset, and starts flashing when the EOM set time is reached.

18 CUE indicator

- This lights for approximately 3 seconds when the position at which a cue signal is set is played.
- The indicator flashes when the standby mode is set at a position at which a cue signal is set.

2 REMOTE CONTROL CONNECTIONS

To control the DN-M1050R remotely, refer to the example of remote control connections given below.



The rating of REMOTE connector pin 22 (TALLY POWER SUPPLY) is +5 V, 80 mA maximum. Avoid currents in excess of the rating.

3 ABOUT MINIDISCS

- MiniDiscs allow a maximum of 74 minutes (stereo) of recording and playback in a compact size.
- There are two types of MiniDiscs: those for playback only, and those for recording and playback.

Playback only MiniDiscs

- These discs are for playback only. Commercially available music MDs are of this type.
- These are laser discs, like regular compact discs.
- Tracks on such discs cannot be edited.



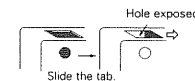
Recordable MiniDiscs

- These are magneto-optical discs on which both recording and playback are possible. Recording is performed through magnetic modulation.
- Re-recording is also possible.



Accidental erasure prevention tabs

These tabs protect recordable MiniDiscs from accidental erasure. To avoid accidentally erasing the recording, open the tab so that the hole is exposed. (See the diagram below.) When this is done, "Protected" is displayed if you attempt to record, erase or otherwise edit the disc, and the recording is protected. To record or erase the disc, set the tab back to its original position (with the hole covered).



Recording on discs

MiniDiscs include a section in which the audio signals are recorded and a section in which such data as track numbers and track titles are recorded.



Section in which track numbers and track titles are recorded (TOC)
Section in which audio signals are recorded

The TOC

With MiniDiscs, after the audio signals are recorded, data used for checking the tracks (TOC=Table of Contents) is also recorded on the disc. This TOC data is used when playing the disc. In addition, editing is performed by rewriting the TOC data. When TOC writing starts, the "TOC" indicator flashes. Do not shake the main unit, press the main unit's power button or unplug the power cord while the TOC is being written. If the data is not recorded properly, it will not be possible to play the disc.

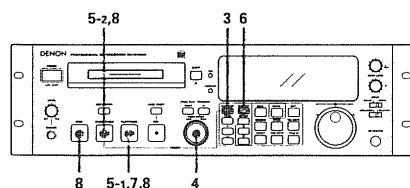
Handling MiniDiscs

- MiniDiscs are housed in cartridges, so there is no need to worry about dirt and scratches. However, dirty or warped cartridges may cause malfunction. Be careful of the following to ensure long-lasting, high quality sound:
 - Do not touch the disc surface directly.
 - Do not open the shutter by hand.
 - Do not place MiniDiscs in dusty, dirty or humid places.
 - Do not place MiniDiscs in places exposed to direct sunlight or high temperatures.

Cleaning

Use a dry cloth to gently wipe dirt or dust off the cartridge. Do not apply excessive force.

4 BASIC OPERATION



(1) Before Starting Playback

1	Load the cartridge.
2	Make the presettings according to the usage purpose. (See Page 40). NOTE: Steps 1 and 2 can be performed in the opposite order.
3	Select the play mode. Press the PLAY MODE button. NOTE: The A-B play mode cannot be set unless the A and B points are set.
4	Select the track to be played. Turn the select knob (I◀◀▶▶I). Flashing during search Lit when in standby The selected track is cued and the standby mode is set.
5-1	To check the play start position. Press the PLAY/PAUSE button. Monitor the playback signals to check the play start position.
5-2	Press STANDBY/CUE button. The pickup returns to the play start position and the standby mode is set. (Back Cue)

6	To check the play end position. Press the END MON button. The end is monitored, then the pickup returns to the play start position and the standby mode is set. (End Monitor) NOTE: If the STANDBY/CUE button is pressed during the end monitor operation, the end monitor operation is canceled, the pickup returns to the play start position and the standby mode is set.
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(2) Starting Playback

7	Start playback. Press the PLAY/PAUSE button. Playback begins and the playback signals are output.
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(3) Stopping Playback

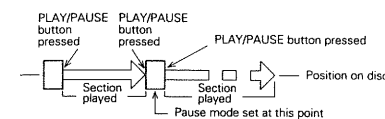
8	Playback can be stopped in the following ways: Playback is interrupted and the stop mode is set. Playback is interrupted, the pickup returns to the play start position and the standby mode is set. Playback is interrupted and the pause mode is set at that point. Sleep mode The sleep mode is set if no operation is performed for 30 minutes in the standby, pause mode. When in the sleep mode, press the PLAY/PAUSE button to search for the position before the sleep mode was set and start playback. Press the STANDBY/CUE button to search for the position before the sleep mode was set and standby at that point.
---	---

(4) PLAY/PAUSE and STANDBY/CUE Operations

- The operation switches between playback and pause each time the PLAY/PAUSE button is pressed.
- When the STANDBY/CUE button is pressed during playback, the pickup returns to the position at which playback was started.

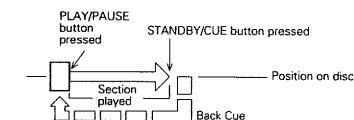
The diagrams below show playback patterns when the PLAY/PAUSE and STANDBY/CUE buttons are pressed.

PLAY and PAUSE



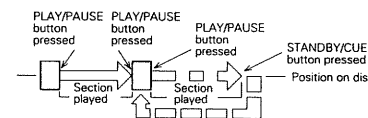
When the PLAY/PAUSE button is pressed, playback starts and proceeds as shown by the arrow on the diagram above. If the PLAY/PAUSE button is pressed again during playback, the pause mode is set at that point. Press the PLAY/PAUSE button again to resume playback.

PLAY and CUE



When the STANDBY/CUE button is pressed after starting playback by pressing the PLAY/PAUSE button, the pickup returns to the position at which playback was started and prepares for the next playback. Press the PLAY/PAUSE and STANDBY/CUE buttons alternately to start playback repeatedly from the same position. This function is called "Back Cue".

PLAY, PAUSE and CUE



If the pause mode is set and playback is then resumed, the position to which the pickup returns with the Back Cue function changes.

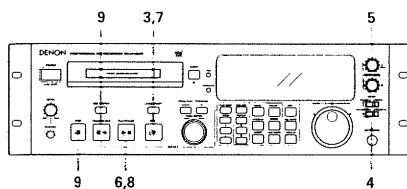
(5) Before Starting to Record

- Turn on the power. To record from the analog input, it is recommended to turn on the power at least 5 seconds before starting to record. This eliminates fluctuations of the A/D converter DC offset, reduces the amount of DC offset at the recording start position, in the middle of the recording and at the recording end position, and keeps the DC offset constant. DC offset hinders the auto cue function for detecting the point where the sound starts at low levels and the auto track increment function which detects soundless sections.
- Load a recordable disc. There are 60-minute and 74-minute recordable discs. For a description of recordable discs, see the section "Method of Recording on Discs" below. It is not possible to record on discs which are already recorded and have little free space left or on playback only discs.

(6) Method of Recording on Discs

Disc for recording	Method of recording on disc
1 Discs on which nothing is recorded	Recording starts from the beginning of the disc. The beginning of the disc is found automatically, so there is no need to do this manually.
2 Recording on discs after erasing all their tracks	Same as above.
3 Recording on an already recorded disc	Recording starts from the end of the last recorded section. The end of the last recorded section is found automatically, so there is no need to do this manually. The set is designed so that it is not possible to record over a recorded section, so you cannot accidentally erase a previous recording.
4 Recording on discs after erasing part or all of the disc	If there is not enough remaining space or if you want to do the recording over, erase before recording. To erase one track at a time: Use the track erase function. To erase all the tracks at once: Use the all erase function.

- Disc types
 - Blank discs: Discs on which nothing is recorded
Discs you have just bought
Discs that have been erased (using the all erase function)
 - No-track discs: Discs on which nothing is recorded but which contain a disc name
Blank discs which have been given a disc name
Discs with disc names on which all the tracks have been erased individually



(7) Starting to Record

1 Load the cartridge.

2 Set the presettings according to the purpose.
(Refer to Page 40).
NOTE: Steps 1 and 2 can also be performed in the reverse order.

3 Set the recording pause mode.
Press the REC button.

The disc's total number of tracks and playing time are displayed.
NOTE: If the REC button is pressed in the stop mode, the recording monitor mode is set. (Only the REC button lights.)

4 Set the input signal.
Set the ANALOG/DIGITAL and UNBALANCED/BALANCED switches according to the input signal.

When the ANALOG/DIGITAL switch is set to the DIGITAL position, the DIGITAL IN indicator lights.
NOTE: If the DIGITAL IN indicator is flashing, the digital signal is unlocked. If this is the case, recording is not possible.

5 Adjust the recording level.
When recording analog inputs, use the INPUT LEVEL controls to adjust the recording level.

Adjust the left and right controls, watching how the input level meter lights.

6 Start recording.
Press the PLAY/PAUSE button.

Recording starts and the **[TOC]** indicator lights.

7 To change the track number during recording:
Press the REC button.

The track number is incremented and recording continues.

8 To pause recording:
Press the PLAY/PAUSE button.

Recording stops and the recording pause mode is set. To resume recording, press the PLAY/PAUSE button again. The track number is incremented and recording resumes.

(8) Stopping Recording

9 Use one of the following methods to stop recording.

Recording stops, the UTOC is written and the stop mode is set.

Recording stops, the UTOC is written and the standby mode is set.
The **[TOC]** indicator flashes while the UTOC is being written.

(9) Incrementing Track Numbers

During recording, track numbers can be incremented either manually or automatically.

- Track numbers can be incremented manually in the following four ways:

- Press the REC button (●) during recording. This increments the track number.
- Press the PLAY/PAUSE button (▶||) during recording to stop recording for that track number and set the recording pause mode. When the PLAY/PAUSE button (▶||) is pressed again, recording starts with a new track number.
- Press the STOP button (■) during recording to stop recording for that track number and set the stop mode. Now set the recording mode again. Recording starts with a new track number.
- After recording, use the divide function.

- Track numbers can be incremented automatically in the following three ways, according to the type of input signal:

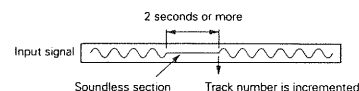
Input type		Method
Digital input	Analog/digital input	Detection of soundless section 1)
	CDs and MDs	Detection of soundless section 1) Using the CD's or MD's subcodes 2)
	DATs	Detection of soundless section 1) Using the DAT's start IDs 3)

- Detection of soundless section

- Make the following two presettings:

- Set "Auto Inc OFF" (4) to "Auto Inc Det."
- Set the soundless detection level setting to "Inc. Det. (-60) dB" (5).

- Start playback and recording in such a way that the beginning of the sound is not missed. When a soundless section (for a section with level lower than the preset soundless detection level setting) of at least 2 continuous seconds is detected, the disc's track number is automatically incremented.



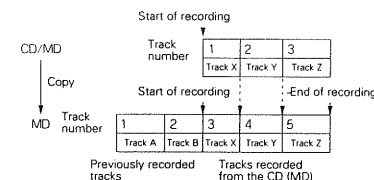
NOTE: The auto track increment function may not work when recording analog signals containing much noise. In this case lower the detection level to for example -54 dB.

- Using the CD's or MD's subcodes (digital input)

- Make the following presetting:

- Set "Auto Inc OFF" (4) to "Auto Inc Dig."

- Start playback on the CD (MD) player and recording on the recorder in such a way that the beginning of the sound is not missed. The disc's track number is automatically incremented when the CD's (MD's) track number changes. Changes in the CD's (MD's) track number will not be detected for approximately 4 seconds after the track number is incremented.



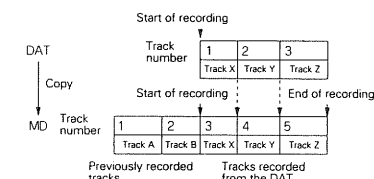
- Using the DAT's start IDs (digital input)

- Record the start ID on the recorded DAT.

- Make the following presetting:

- Set "Auto Inc OFF" (2) to "Auto Inc Dig."

- Start playback on the DAT player and recording on the recorder in such a way that the beginning of the sound is not missed. The disc's track number is automatically incremented when the DAT's start ID is detected. The start ID will not be detected for 15 seconds after the track number is incremented.



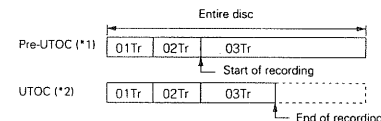
(10) Pre-UTOC Function

- Presettings must be set. (Refer to Page 42.)

This function protects the recording should the power supply be cut off. The UTOC is written directly after recording starts.

(The pre-UTOC is written.)

Normally the UTOC is written after recording is completed, so if the power supply should be cut off during the recording or directly after the recording is finished, the recording will not be registered on the disc. To prevent this, the pre-UTOC (*1) is registered on the disc directly after recording starts. Once recording is completed normally, the actual UTOC (*2) is written. If the power should be cut before the actual UTOC is written, the disc can be played according to the pre-UTOC. This way you never accidentally lose recordings that cannot be made over again.



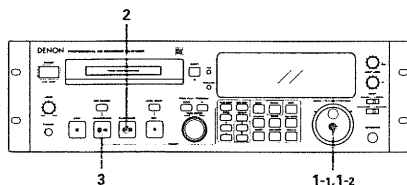
If some problem occurs and recording is interrupted, the same recording and UTOC can be written using the following editing operation:

Use the divide function at the point where recording was interrupted in track 03 on the above diagram to divide the track, then use the erase function to erase track 04.

NOTE:

The auto track increment function using the DAT's start ID or the CD's sub codes will not work if the digital input is in professional format (AES/EBU). Input digital signals of the consumer format (SPDIF). When recording from the DN-C680, set the presettings on the DN-C680.

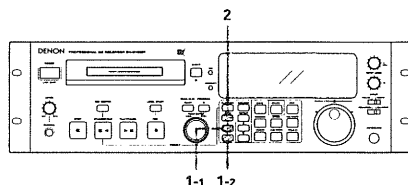
5 HANDY OPERATION



(1) Starting Playback from the Middle of a Track (Manual Search)

- When a track is selected and PLAY/PAUSE button is pressed, playback starts from the beginning of that track. To start from a different position in the track, use the procedure described below to find the desired position.

1-1	Find the play start position. Turn the SEARCH dial. When the SEARCH dial (inner side) is turned, the frame move mode is set. The playback position moves one frame for each click. Backward Forward When the dial is turned clockwise, the playback position moves as follows: 03 → 46.52 → 53 → 54 Listen to the sound and find the desired play start position.
1-2	Turn the SCAN dial to change the playback position quickly. The fast forward/reverse mode is set when the SCAN dial (outer side) is turned. The speed changes according to the angle at which the dial is turned. Backward Forward
2	To check the play start position: Press the PLAY/PAUSE button. Playback starts. Monitor the play signal to check the play start position.
3	Cue the play start position. Press the STANDBY/CUE button. The pickup returns to the play start position and the standby mode is set.



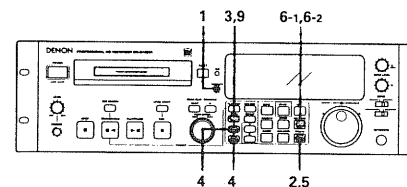
(2) Playing at a Different Speed (Pitch)

- Use this function to play discs at different speeds.
- The speed can be changed with the range of -9.9 to +9.9%.

1-1	Set the play speed. (1) To increase the speed: Press the "+" button. The speed increases by 0.1% each time the button is pressed. If the button is held in, the speed changes continuously.
1-2	(2) To decrease the speed: Press the "-" button. The speed decreases by 0.1% each time the button is pressed. If the button is held in, the speed changes continuously.
2	Set the pitch play mode. Press the PITCH button. The button lights and the set play speed is set. NOTE: When the PITCH button is lit, the play speed can be changed by pressing the "+" and "-" buttons.

NOTE:

When the play speed (PITCH) is set, the display shows the set pitch, but the disc is played at the standard speed until the PITCH button is pressed (and the button is lit). When the play speed is changed, the sampling frequency of the digital output signal also changes, so it may not be possible to receive digital signals.



(3) Storing the Play Speed on the Disc

- This function makes it possible to set and store a certain play speed on the disc, then play the disc at that speed.

1	Display the disc name. Press the NAME/CAPS button and set the DISC NAME display mode. DISC NAME
2	Select the name input mode. Press the TITLE IN button. Lit
3	Set the speed setting mode. Press the PITCH button. Flashing
4	Set the play speed. Use the "+" and "-" buttons to set the play speed. Lit
5	Cancel the name input model. Press the TITLE IN button. Off
6-1	Write the UTOC. Press the TOC WRITE button. Lit

6-2	Press the TOC WRITE button again while UTOC WRITE? is lit. Lit Off Lit Off
-----	--

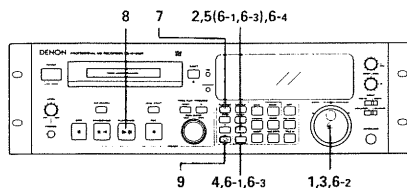
(4) Playing Discs for Which the Play Speed Has Been Set

7	Set the presettings. Set "PitchAuto" (12) to "ON", referring to "Preset Functions and Operations" on Page 40. PitchAuto OFF ↓ PitchAuto ON
8	Load the cartridge. The speed set for the disc is displayed here.
9	Set the variable speed (pitch) mode. Press the PITCH button. Lit The button lights and the set play speed is set.

The play speed can be changed even if another play speed has been stored on the disc. (Refer to "Playing at Different Speed" on Page 18.) The "PITCH %" display flashes when the play speed has been changed.

NOTE:

When the play speed (pitch) is set, the set pitch appears on the display, but the disc is played at the standard speed until the PITCH button is pressed (and lit). When playing at a different speed, the sampling frequency of the digital output signal also changes, so it may not be possible to receive the digital signal.



(5) Playing a Specific Section of the Disc (A-B Play)

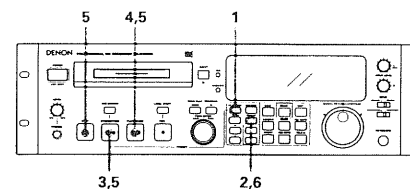
- Use the function to set the play start and end positions and only play the desired section of the disc.
- NOTE:** The A-B play mode cannot be set unless the A point, B point or both the A and B points are set.

1	Find the play start position (A point). The SEARCH or SCAN dial to find the desired play start position.
2	Set the A point. Press the "A" button.
3	Find the play end position (B point). Turn the SEARCH or SCAN dial to find the desired play end position.
4	Set the B point. Press the "B" button. * When setting the B point during playback, the B point can only be set if the A point is set before it.
5	Cue to A point. Press the "A" button. If the STANDBY/CUE button is pressed first, press the "A" button.
6-1	To change the A-B section: Press the "B" (or "A") button. To change the B point

6-2	Find the play end point (B point) (or play start point (A point)). Turn the SEARCH dial to find the desired play end point.
6-3	Set the new B point (or A point). Press the "B" (or "A") button. To change the B point
6-4	Cue to A point. Press the "A" button.
7	Set the A-B play mode. Press the PLAY MODE button.
8	Start playback. Press the PLAY/PAUSE button. Playback starts from the A point and stops when the B point is reached. "A-B" flashes on the display during the A-B play mode.
9	Clearing the A and B points - The set A and B points are cleared when the cartridge is ejected. - If the "-" button is pressed while the A or B button is flashing, the button turns off, the set A or B point is cleared and the play mode is set to the single track play mode.

NOTE:

- The following happens if either the A or B point is not set:
 - If only the A point is set, the B point is automatically set at the end of the track for which the A point is set.
 - If only the B point is set, the A point is automatically set at the beginning of the track for which the B point is set.
- When the B point is before the A point, the section from the B point to the A point is played.



(6) Playing Repeatedly (Repeat)

1	Select the play mode. Press the PLAY MODE button. To play the single selected track repeatedly: A-B SINGLE To play all the tracks on the disc repeatedly: A-B SINGLE To play the set section repeatedly: A-B SINGLE NOTE: The A-B repeat mode cannot be set unless the A point, B point or both the A and B points are set.
2	Select the repeat mode. Press the REPEAT button. The button lights, and the repeat mode is set.
3	Standby at the play start position. Press the STANDBY/CUE button. The pickup returns to the play start position and the standby mode is set.
4	Start playback. Press the PLAY/PAUSE button. Repeat playback starts. Note: Repeat playback is performed from the beginning of the play mode set in 1, regardless of the playback start position.

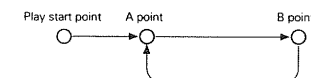
Stopping playback

Playback can be stopped in the following ways:

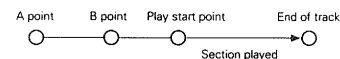
5	Playback is interrupted and the stop mode is set.
6	Canceling the repeat mode during playback Press the REPEAT button. The normal play mode resumes and playback continues to the play end point.

A-B repeat play

If playback is started before the A point, playback continues to the B point, then returns to the A point for repeat playback.

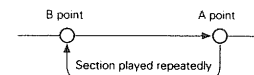


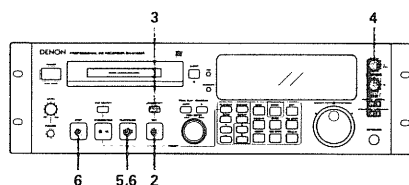
If playback is started after the B point, playback continues to the end of that track and nothing is repeated.



NOTE:

- When the B point is before the A point, the section from the B point to the A point is played repeatedly.





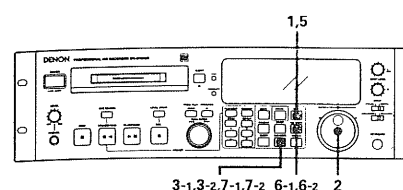
(7) Starting Recording Automatically by Detecting the Input Level

This function makes it possible to start recording by detecting the input signal level.

1	Set the presets. Make the following settings, referring to "Preset Functions and Operations" on Page 40. 8) RecStart - (**) dB Recording starts when a signal with a level at or above the set level is input. 9) RecOffset - (*) s Recording begins this number of seconds before the point where the set level is detected.
2	Set the recording pause mode. Press the REC button.
3	Set the recording level start mode. Press the LEVEL START button. NOTE: If the LEVEL START button is pressed while the button is flashing, the recording level start mode is canceled.
4	Set the input signal and input level. Set the input signal and input level, referring to steps 4 and 5 under "Starting Recording" on Page 16.
5	Start recording. Press the PLAY/PAUSE button. Recording starts when an input signal with a level at or above the set level is detected.

5	When the LEVEL START button is pressed in the input signal detection mode, recording starts immediately. During recording
6	To stop recording: Press the PLAY/PAUSE or STOP button.

NOTE:
The auto track increment function and Auto Level Rec start function may not work when recording analog signals containing much noise. In this case lower the detection level to for example -54 dB.

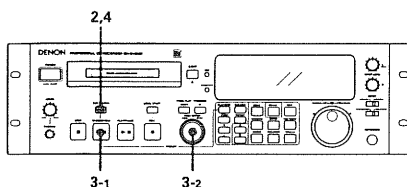


(8) Setting Cue Points

With this function, cue points can be set at any positions in tracks then searched for during playback. Up to five cue points can be set per track.

1	In the standby, pause, manual search or play mode: Set the EDIT mode. Press the EDIT button.
2	Find the position at which you want to set the cue point. Use the SEARCH or SCAN dials to find the position at which you want to set the cue point.
3-1	Set the cue point. Press the CUE WRITE button.
3-2	Press the CUE WRITE button again while Cue Write OK? is displayed.
4	To continue setting other cue points: Repeat steps 2, 3-1 and 3-2.
5	Cancel the edit mode. Press the EDIT button.

6-1	Write the UTOC. Press the TOC WRITE button.
6-2	Press the TOC WRITE button again while UTOC Write? is displayed. ("UTOC Write?" is displayed for 5 seconds.)
7-1	To set cue points during recording: Press the CUE WRITE button.
7-2	Press the CUE WRITE button again while Cue Write OK? is displayed. NOTE: The UTOC is written once recording is completed.



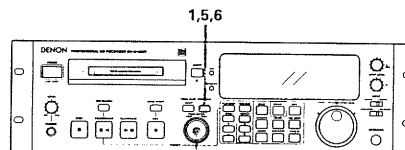
(9) Direct Search for Cue Points

When cue points are stored on a track, they can be used for direct search.

1	Load the cartridge.
2	Set the cue direct search mode. Press the CUE SEARCH button.
3-1	Search for the cue point. Press the STANDBY/CUE button. The Cue1 point is searched for and the standby mode is set at that position. Press the STANDBY/CUE button again to search as follows: <Cue2> ⇄ <Cue3> ⇄ <Cue5> ⇄ <Cue1>
3-2	Cue points can also be searched for by turning the select knob (I-◀ -▶-I). When turned clockwise: <Cue1> ⇄ <Cue2> ⇄ <Cue5> ⇄ <Cue1> When turned counterclockwise: <Cue5> ⇄ <Cue4> ⇄ <Cue1> ⇄ <Cue5>
4	Cancel the cue direct search mode. The set returns to the normal operating mode.

6 PROGRAMMED PLAYBACK

- The tracks can be programmed to play in a certain order.
- Up to 25 tracks can be programmed.
- Programmed playback is performed according to the play mode (single or continuous) and preset finish mode (stop, next or recall) settings.

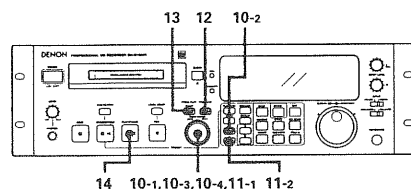


(1) Inputting Program

1	Set the program input mode. Press the PROGRAM IN button.
2	Select the track to be programmed. Turn the select knob (I-◀ -▶-I). When track 3 is selected: Selected track number 03
3	Enter the selected track in the program. Press the select knob. The number of the next step in the program is displayed.
4	Enter the next track in the program. Press the select knob. The time display shows the total playing time for the program. Repeat steps 2, 3 and 4 to program the tracks in the desired order.
5	Exit the program input mode. Press the PROGRAM IN button. The set returns to the normal mode.

(2) Changing Program

6	Set the program edit mode. Press the PROGRAM IN button.
7	Select the step number to be edited. Turn the select knob (I-◀ -▶-I). To edit the third step in the program: Selected track number 05
8	Set the program change mode. Press the select knob. The step number to be edited flashes.
9-1	To change the track: Select the track to be changed. Turn the select knob (I-◀ -▶-I). When track 7 is selected: Selected track number 07
9-2	Enter the selected track. Press the select knob. The number of the next step in the program lights. To continue editing the program, repeat steps 7, 8, 9-1 and 9-2.
To exit the program editing mode, press the PROGRAM IN button. The set returns to the normal mode.	



10-1	Inserting a track in the program Select the position at which to insert a track. Turn the select knob (←→). To insert a track at the third step in the program:
10-2	Set the program insert mode. Press the "+" button. The step number flashes.
10-3	Select the track to be inserted. Turn the select knob (←→). When track 8 is selected: Number of selected track Flashing
10-4	Enter the selected track. Press the select button. The number of the next step in the program lights. To insert more tracks in the program, repeat steps 10-1, 10-2, 10-3 and 10-4. (To exit the program insert mode, press the PROGRAM IN button.)
11-1	Deleting tracks from the program Select the step to be deleted. Turn the select knob (←→). To delete the track at the third step

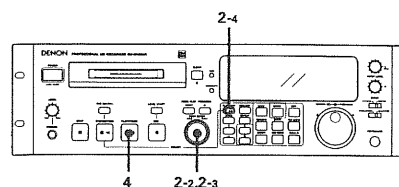
11-2	Delete that track from the program. Press the "-" button. Number of track at the next step in the program The next step number lights. To continue deleting tracks from the program, repeat steps 11-1 and 11-2.
12	Exit the program editing mode. Press the PROGRAM IN button. Flashing Lit

(3) Playing Programs

13	Set the program play mode. Press PROG. PLAY ON/OFF button. Lit Flashing Number of next step The first track in the program is cued and the standby mode is set.
14	Start programmed playback. Press the PLAY/PAUSE button. Lit Off Programmed playback starts.

• When the cartridge is ejected, the set program is cleared.
 • If a track that is not in the program is selected with a serial command during programmed playback, that command is ignored.

NOTE:
Programs cannot be input when no disc is loaded.



(4) Presetting Programs

- Programs can be stored in the preset memory. When a cartridge for which a program is preset is loaded, the programmed playback mode is set automatically.
- Programs can be stored for up to three cartridges.

1	Input the program. Following the instructions under "(1) Inputting the Program" to input the program. (See Page 25)
2-1	Set the preset mode. Follow the instructions under "(2) Presetting Procedure" to set the preset mode. (See Page 41)
2-2	Select the preset item. Turn the select knob to select "Program 1" (or "Program 2" or "Program 3"). Character display Program 1 Program 2 Program 3 Select one of these.
2-3	Change the preset setting. Press the select knob. The character display changes as follows: Before change Program1 OFF ⇔ Program1 ON Program2 OFF ⇔ Program2 ON Program3 OFF ⇔ Program3 ON After change
2-4	Cancel the preset mode. Press the PLAY MODE button. The preset setting mode is canceled and the set returns to the normal mode.

3	To play a preset disc: Load a disc for which a program is preset. The pickup searches for the first programmed track and the standby mode is set.
4	Start programmed playback. Press the PLAY/PAUSE button. Lit Off Programmed playback starts.

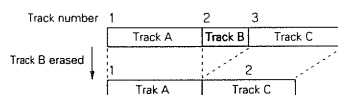
7 EDITING FUNCTIONS

(1) Editing Functions

There are six basic editing functions possible on MDs, as described below. Here we describe these functions briefly.

• Track erase function (for erasing specific tracks)

An entire track, from beginning to end, can be erased instantaneously simply by operating buttons. Unlike tapes, there is no need to record over, erase, or cut the tape.

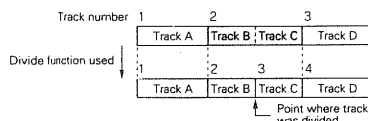


• All erase function (for erasing all the tracks on the disc)

All the tracks on the disc can be erased instantaneously simply by operating buttons. Unlike tapes, there is no need to use an eraser or record over.

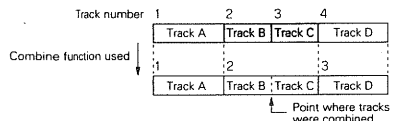
• Divide function (for dividing a track in two)

One track can be divided into two tracks. This makes it possible to easily set search points simply by operating buttons after recording.



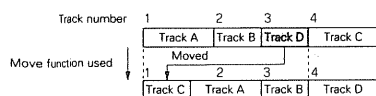
• Combine function (for combining two tracks)

Short recordings or cuts created by dividing tracks can be combined into a single track. Unlike tapes, there is no need to copy over or cut the tape.



• Move function (for moving tracks)

The order of the tracks can be changed. Unlike tapes, there is no need to copy over or cut the tape.



• Title function

Disc names or track names can be stored on recorded discs. The disc names and track names can be called out on the display using the display function.

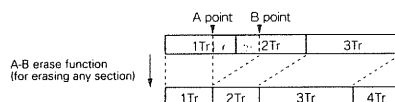
There are six basic editing functions possible on MDs, as described below. Here we describe these functions briefly.

• Cue erase function (erasing cue signals)

Cue signals (external control signals) recorded on the disc can be erased without affecting the tracks.

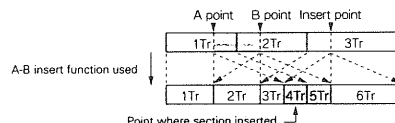
• A-B erase function (for erasing any section)

Sections can be selected directly and erased, without using the divide or combine function.



• A-B insert function (for inserting any section)

Sections can be selected directly and inserted, without using the divide or combine function.



• Undo functions (for undoing the editing)

Even after editing is completed, the editing can be undone as long as the UTOC has not yet been written.

There are three types of undo functions:

- 1) UNDO: For undoing the last editing operation.
- 2) REDO: For resetting the editing undone with the undo function.
- 3) FIRST: For undoing all the editing operations.

When three editing operations have been performed:

Original → Editing 1 → Editing 2 → Editing 3

When the undo function is used: Only the first two editing operations remain.

Original → Editing 1 → Editing 2 → Editing 3

When the undo function is used again: Only the first editing operation remains.

Original → Editing 1 → Editing 2 → Editing 3

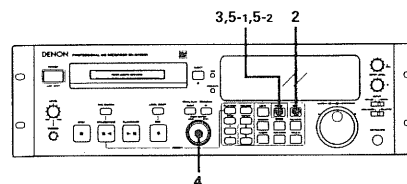
When the redo function is used: The first two editing operations remain.

Original → Editing 1 → Editing 2 → Editing 3

When the first function is used: None of the editing operations remain.

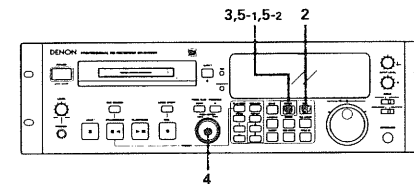
Original → Editing 1 → Editing 2 → Editing 3

(Editing operations 1, 2 and 3 cannot be retrieved.)



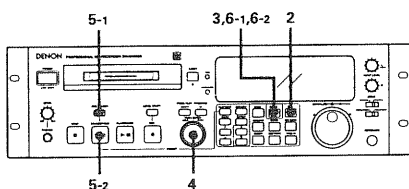
(2) Erasing Tracks (Track erase function)

- 1 First check the track you to erase by monitoring in, then set the standby mode at that track.
Set the edit mode.
Press the EDIT button.
- 2
- 3 Set the erase mode.
Press the ERASE button.
- 4 Select the track erase mode.
Turn the select knob and select "Track Erase?".
- 5-1 Erase the selected track.
Press the ERASE button.
- 5-2 Press the ERASE button again.



(3) Erasing All the Tracks on the Disc (All erase function)

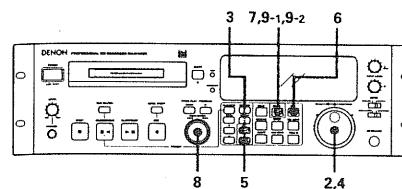
- 1 Erasing All the Tracks on the Disc.
Set the edit mode.
Press the EDIT button.
- 2
- 3 Set the erase mode.
Press the ERASE button.
- 4 Select the all erase mode.
Turn the select knob and select "All Erase?".
- 5-1 Erase all the tracks on the disc.
Press the ERASE button.
- 5-2 Press the ERASE button again.



(4) Erasing Cue Signals «Cue erase function»

1	Set the standby mode at the track containing the cue signal you want to erase. Set the edit mode. Press the EDIT button.
2	
3	Set the erase mode. Press the ERASE button. • The ERASE button lights.
4	Select the cue erase mode. Turn the select knob and select "Cue Erase?". Cue Erase? A-B Erase? Track Erase? All Erase? NOTE: A-B Erase? is not displayed if no A-B points are set.
5-1	Set the standby mode at the position of the cue signal you want to erase. Press the CUE SEARCH button. The cue direct search mode is set.
5-2	Press the STANDBY/CUE button. NOTE: Press the STANDBY/CUE button again to search for "Cue2", "Cue3", etc., and set the standby.

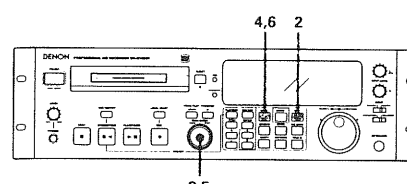
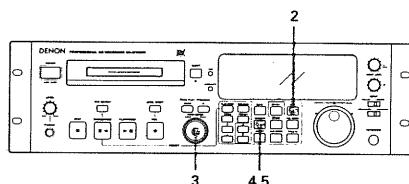
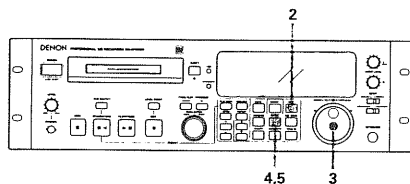
6-1	Erase the cue signal. Press the ERASE button.
6-2	Press the ERASE button again. The cue signal is erased and the mode returns to the edit mode. • The ERASE button turns off.



(5) Erasing Specific Sections «A-B erase function»

1	Load the cartridge.
2	Set the section to be erased. Use the SCAN or SEARCH dial to find the starting point.
3	Set the starting point. Press the "A" (or "B") button.
4	Use the SCAN or SEARCH dial to find the end point.
5	Set the end point. Press the "B" (or "A") button.
6	Set the edit mode. Press the EDIT button.
7	Set the erase mode. Press the ERASE button. • The ERASE button lights.

8	Select the A-B erase mode. Turn the select knob and select "A-B Erase?". Cue Erase? A-B Erase? Track Erase? All Erase? NOTE: Cue Erase? is not displayed if no cue signals are set.
9-1	Erase the set section. Press the ERASE button. Displayed if only the A point is set. Displayed if only the B point is set. A Point? (Set the B or A point, as necessary.) Press the ERASE button again. A-B erase is rehearsed. A-B Erase OK? NOTE: If both the A and B points are set, the A-B section is rehearsed and A-B Erase OK? is displayed the first time the ERASE button is pressed.
9-2	Press the ERASE button again. Complete! Edit Mode • The ERASE button turns off. The A-B section is erased and the mode returns to the edit mode.
Display during the A-B erase operation B Point? This is displayed if no B point is set. If you continue without setting the B point, the end of the track is set as the B point, and the section from the A point to the end of the track is rehearsed and erased. A Point? This is displayed if no A point is set. If you continue without setting the A point, the beginning of the track is set as the A point, and the section from the beginning of the track to the B point is rehearsed and erased. NOTE: The A-B erase operation cannot be performed if the A or B point is set on a track for which cue signals are set.	



(6) Dividing Tracks into Two Parts «Divide function»

1	Load the cartridge.
2	Set the edit mode. Press the EDIT button.
3	Use manual search, etc., to find the point at which you want to divide the track.
4	Set the divide mode. Press the DIVIDE button. * The DIVIDE button lights. The section from three seconds before the divide point to the divide point is played repeatedly. NOTE: To move the divide point, turn the SEARCH or SCAN dial.
5	Divide the track. Press the DIVIDE button. * The DIVIDE button turns off. The track is divided and the mode returns to the edit mode.

NOTE:

- The divide operation cannot be performed if cue signals are set for that track.
(Clear all the cue signals first.)

(7) Combining Two Tracks «Combine function»

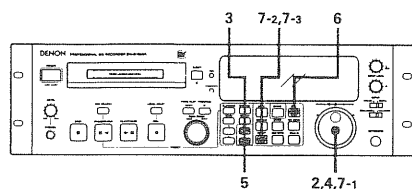
1	Load the cartridge.
2	Set the edit mode. Press the EDIT button.
3	Select the tracks to be combined. Use the select knob to set the standby mode at the second of the tracks to be combined. To combine tracks 02 and 03:
4	Set the combine mode. Press the COMBINE button. * The COMBINE button lights.
5	Combine the tracks. Press the COMBINE button. * The COMBINE button turns off. The tracks are combined and the mode returns to the edit mode.

NOTE:

- If the tracks have track names, the name of the second track will be cleared.
- The following tracks cannot be combined:
 - The first track with the last track
 - A stereo track with a monaural track
 - Tracks containing cue signals

(8) Moving Tracks «Move function»

1	Load the cartridge.
2	Set the edit mode. Press the EDIT button.
3	Use the select knob to select the track to be moved.
4	Set the move mode. Press the MOVE button. * The MOVE button lights.
5	Turn the select knob to select the destination of the track. To move track 3 to track 1:
6	Move the track. Press the MOVE button. * The MOVE button turns off. The track is moved and the mode returns to the edit mode.



(9) Inserting Specific Sections «A-B insert function»

1	Load the cartridge.
2	Set the section to be inserted. Use the SCAN or SEARCH dial to find the starting point.
3	Set the starting point. Press the "A" (or "B") button. A(B) point
4	Use the SCAN or SEARCH dial to find the end point.
5	Set the end point. Press the "B" (or "A") button. A(B) point B(A) point
6	Set the edit mode. Press the EDIT button. TRACK NO. 03 SINGLE REPEAT NEXT NO. 04 Edit Mode
7-1	Use the SCAN or SEARCH dial to set the insert point.
7-2	Set the insert mode. Press the INSERT button. TRACK NO. 03 SINGLE REPEAT NEXT NO. 04 Insert PT?

NOTE: If both the A and B points are set, the A-B section is rehearsed and Insert PT? is displayed when the INSERT button is pressed once.

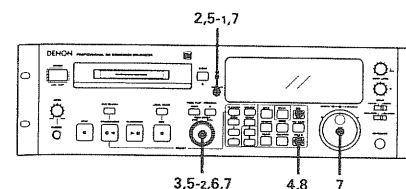
Press the INSERT button again.

The section is inserted and the mode returns to the edit mode.

- The INSERT button turns off.

NOTE:

- The A-B insert operation cannot be performed if the A or B point is set on a track for which cue signals are set.
- The A-B insert operation cannot be performed unless both the A and B points are set.
- A-B insert is not possible if the insert point is set at the beginning or end of a track.



(10) Inputting (Changing) Names «Title function»

1	Load the cartridge.
2	Display "DISC NAME" or "TRACK NAME". Press the NAME/CAPS button. DISC NAME TRACK NAME
3	Use the select knob to select the track for which a name is to be input.
4	Select the name input mode. Press the TITLE IN button. TITLE IN EDIT
5-1	Select the type of characters to be input. Press the NAME/CAPS button and select the type of characters. TITLE IN EDIT
5-2	Turn the select knob to select the character to be input. TITLE IN EDIT
6	Enter the selected character. Press the select knob. TITLE IN EDIT

7	Continue inputting the name. Repeat steps 5-1, 5-2 and 6 to input the name. Turn the SEARCH dial to move the cursor to change or correct a name. When the SEARCH dial is turned, the cursor moves one space for each click of the dial. Backwards Forwards
8	Cancel the name input mode. Press the TITLE IN button. The name input mode is canceled.

Input Characters

The following letters, numbers and symbols (ASCII code) can be selected using the NAME/CAPS button and the select knob:

Capital letters
SPRBCDEFGHIJKLMNOPQRSTUVWXYZ

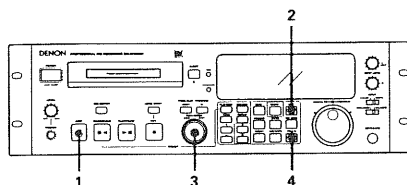
Small letters
SPabcdefghijklmnopqrstuvwxyz

Numbers
SP1234567890

Symbols
SP!"#\$%&'()*+,-./:;<=>?@[]^_`{|}~

SP_space

NOTE:
Disc and track names can be up to 100 characters long, but the maximum number of characters that can be set for the disc name and all the track names is 1700.



(11) Undoing Editing (Undo functions)

- 1 **Set the stop mode.**
Press the STOP button.
- 2 **Set the undo mode.**
Press the EDIT button and hold it in for about 3 seconds.

Keep pressing the button until 'Undo?' is displayed.
- 3 **Select the undo mode.**
Turn the select knob.

UNDO: For undoing the last editing operation.
REDO: For resetting the editing undone with the undo function.
FIRST: For undoing all the editing operations.
- 4 **Undo the editing.**
Press the TITLE IN button.

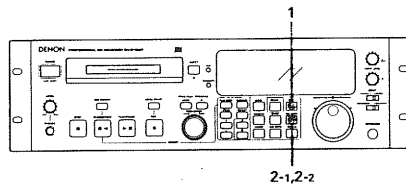
The editing is undone and the mode returns to the edit mode.

NOTE:

- The undo operation can be used to undo up to the two last editing operations. To undo previous editing operations, use the "First" operation to undo all the editing operations, then redo the editing.
- Once the UTOC is written, it is not possible to change previous editings.

NOTE:

If editing is performed when a program is set, the program is discarded.



(12) Canceling the Edit Mode and Writing the UTOC

Cancel the edit mode.
Press the EDIT button.

When the "UTOC Auto" mode is set, the UTOC is automatically written on the disc and the edit mode is canceled. ("UTOC Auto" mode: Refer to Page 42) UTOC Writing flashes while the UTOC is being written.

When the "UTOC Manual" mode is set, the edit mode is canceled and the UTOC is not written on the disc. ("UTOC Manual" mode: Refer to Page 42)

Write the UTOC.
Press the TOC WRITE button.

Press the TOC WRITE button again while "UTOC Write?" is displayed. ("UTOC Write?" is displayed for 5 seconds.)

Flashing

NOTE:

If the EJECT button is pressed after editing without writing the UTOC, "UTOC Write!" is displayed for 5 seconds. If the EJECT button is pressed again while the message is displayed, the editing is discarded and the cartridge is ejected.

(13) Error Messages

Messages appear if editing could not be completely normally. The meanings of the messages are described below.

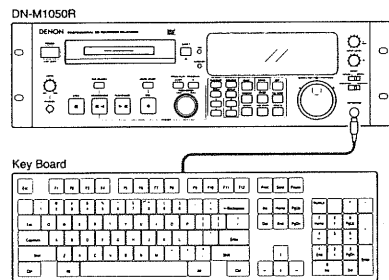
Message	Description
Protected	Disc's tab is set to record disable position.
Disc Type Err	Pre-mastered disc (disc on which recording is not possible) is loaded.
Can't Edit 10	Point to be erased unclear (cue erase operation).
Can't Edit 11	There are already 5 cue points (cue write operation).
Can't Edit 12	There is no space for names and cue data cannot be written (cue write operation).
Can't Edit 13	There is already a cue signal at this position (cue write operation).
Can't Edit 20	Dividing is not possible because the disc already contains 255 tracks.
Can't Edit 21	Dividing is not possible because you are at the beginning of the track.
Can't Edit 22	Dividing is not possible because the track is protected.
Can't Edit 23	Dividing is not possible because cue signals are set on that track.
Can't Edit 24	After dividing, the track name could not be given to the second track. (Dividing is completed)
Can't Edit 25	Dividing is not possible due to MD limitations.
Can't Edit 30	Combining is not possible because you are at track 1.
Can't Edit 31	Combining is not possible because the track is protected.
Can't Edit 32	Combining is not possible because cue signals are set on that track.
Can't Edit 33	Combining is not possible because the first track is protected.
Can't Edit 34	Combining is not possible because the track mode is different for the first and second tracks.
Can't Edit 35	Combining is not possible because cue signals are set for the first track.
Can't Edit 36	Combining is not possible due to MD limitations.
Can't Edit 40	Moving the same track is not possible.
Can't Edit 50	No more titles can be added because the maximum number of characters has already been reached.
Can't Edit 60	No A or B point (A-B insert operation).
Can't Edit 61	A and B points are the same (A-B insert operation).
Can't Edit 62	A point is the beginning of the track (A-B insert operation).
Can't Edit 63	B point is the end of the track (A-B insert operation).
Can't Edit 64	Inserting is not possible because there are already 253 tracks.
Can't Edit 65	Inserting is not possible because the insert point is between the A and B points.
Can't Edit 66	Inserting is not possible because the track at the insert point is protected.
Can't Edit 67	Inserting is not possible because the insert point is the beginning of a track.
Can't Edit 68	Inserting is not possible because the insert point is the end of a track.
Can't Edit 69	Inserting is not possible because there is a cue signal at the insert point.
Can't Edit 6a	Inserting is not possible because the track at the A point is protected.
Can't Edit 6b	Inserting is not possible because there is a cue signal at the A point.
Can't Edit 6c	Inserting is not possible because the track at the B point is protected.
Can't Edit 6d	Inserting is not possible because there is a cue signal at the B point.
Can't Edit 6e	A-B insert is not possible due to MD limitations.
Can't Edit 70	Erasing is not possible because the A and B points are the same (A-B erase operation). (When both the A and B points are set)
Can't Edit 71	Erasing is not possible because there are already 254 tracks (A-B erase operation). (When both the A and B points are set)
Can't Edit 72	Erasing is not possible because there are already 255 tracks (A-B erase operation). (When only the A or B point is set)
Can't Edit 73	Erasing is not possible because the track at the A point is protected (A-B erase operation).
Can't Edit 74	Erasing is not possible because there is a cue signal at the A point (A-B erase operation).
Can't Edit 75	Erasing is not possible because the track at the B point is protected (A-B erase operation).
Can't Edit 76	Erasing is not possible because there is a cue signal at the B point (A-B erase operation).
Can't Edit 77	Erasing is not possible due to MD limitations.
Can't Edit 80	No undo data.
Can't Edit 81	No redo data.
Can't Edit 82	No first data.

8 CONNECTING AND OPERATING A KEYBOARD

An IBM PC compatible keyboard can be connected and used to control the DN-M1050R.

Connectable keyboard: IBM US101 keyboard
(connector: 6-pin mini DIN PS/2 type)
Applicable cord: SCAN CODE SET 02

(1) Connecting the Keyboard



NOTE: Turn off the power of the DN-M1050R before connecting the keyboard.

(2) Keyboard Operations

The keyboard's keys are allocated to specific DN-M1050R panel operations. The functions of the keys differ according to the DN-M1050R's operating mode.

• Functions of keys F1 to F12



- F1** Track search reverse (1 track)
- F2** Track search forward (1 track)
- F3** PLAY/PAUSE button
- F4** STANDBY/CUE button
- F5** STOP button
- F6** REC button
- F7** PLAY MODE button
- F8** TIME button
- F9** PITCH button
- F10** PROG PLAY ON/OFF button
- F11** NAME/CAPS button
- F12** END MON button

When the **[Shift]** key is held in while pressing keys **F1** to **F12**, the keys function as follows:

- F1** Track search reverse (10 tracks)
- F2** Track search forward (10 tracks)
- F3** Manual search reverse
- F4** Manual search forward
- F5** CUE SEARCH button
- F6** LEVEL START button
- F7** A button
- F8** B button
- F9** REPEAT button
- F10** PROGRAM IN button
- F11** Loads hot start data.
- F12** TITLE IN button.

When the **[Ctrl]** key is held in while pressing keys **F1** to **F12**, the keys function as follows:

- F1** TOC WRITE button
- F2** Selects **First** in edit mode
- F3** Selects **Redo** in edit mode
- F4** Selects **Undo** in edit mode
- F5** EDIT button
- F6** DIVIDE button
- F7** COMBINE button
- F8** MOVE button
- F9** INSERT button
- F10** Selects **A-B Erase** in edit mode
- F11** Selects **Track Erase** in edit mode
- F12** Selects **All Erase** in edit mode

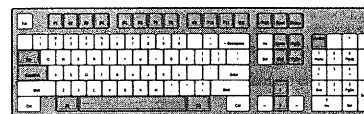
• Functions of other keys

1) In normal operating mode



- Numerical keypad keys** Select tracks
- +** Pitch "+" button
- Pitch "-" button
- Increments track selection
- ←** Decrements track selection
- Esc** Cancels track selected with numerical keypad keys
- Enter** "PUSH ENTER" operation.

• When editing names



- Letter keys** Input small letters (when CapsLock is off)
- Number keys** Input numbers
- Symbol keys** Input symbols
- Numerical keypad keys** Input numbers
- +** Inputs "+" symbol
- Inputs "-" symbol
- Ins** Inserts character
- Del** Deletes character
- BackSpace** Deletes previous character
- Moves cursor one step to right
- ←** Moves cursor one step to left
- Esc** Cancels name input
- Enter** Enters input name ("PUSH ENTER" operation)

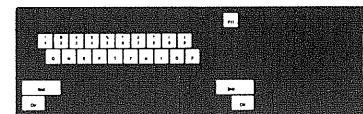
When keys are pressed while holding in the **[Shift]** key, the keys functions as follows:

- Letter keys** Input capital letters (when CapsLock is off)
- Number keys** Input symbols
- Symbol keys** Input (upper) symbols
- Numerical keypad keys** Input numbers
- Del** Deletes all characters after cursor
- Moves cursor to right end of display window
- ←** Moves cursor to left end of display window

When keys are pressed while holding in the **[Ctrl]** key, the keys functions as follows:

- Del** Deletes all characters
- Moves cursor to final character
- ←** Moves cursor to first character

• Hot start (optional function) data is load.



- Letter keys** Q to P : Hot start 11 to 20
- Number keys** Hot start 1 to 10
- +** Pitch "+" button
- Pitch "-" button

When keys are pressed while holding in the **[Ctrl]** key, the keys functions as follows:

- Letter keys** Q to P : Reload data 11 to 20
- Number keys** Reload data 1 to 10

When the **[Shift]** key is pressed while holding in the **F11** key, the hot start data is loaded.

• In the program mode



- Numerical keypad keys** Input tracks in the program
- +** Pitch "+" button
- Pitch "-" button
- Ins** Inserts track in program
- Del** Deletes track from program
- Increments track selection
- ←** Decrements track selection
- Enter** Enter : Set track ("PUSH ENTER" operation)

9 PRESET FUNCTIONS AND OPERATIONS

(1) List of Preset Functions

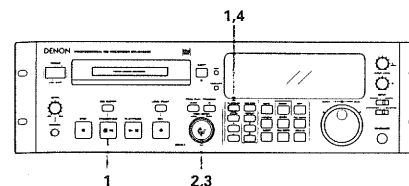
- Functions can be preset using the buttons on the front panel. These presettings are stored in a permanent memory, so they are not cleared even when the power is turned off.
- The functions shown on the table below can be preset. Set the functions according to the usage purpose to efficiently achieve even higher quality playback.
- One of the preset functions can be used to display information on this set (microprocessor version).

Preset function type	Description	Character display (as set upon shipment from factory)	No.
Preset type	Selection of preset type	Preset Type 1	1
Play end mode	Play end mode selection	Finish Next	2
Auto cue	Auto cue on/off setting and startup level setting	CueDet.OFF	3
Auto increment	Auto increment selection	Auto Inc OFF	4
Auto increment	Auto increment level setting	Inc Det.-60dB	5
UTOOC	Pre-UTOOC on/off setting	Pre UTOOC OFF	6
UTOOC	Manual/auto UTOOC write mode selection	UTOOC Manual	7
Recording start level	Recording start level setting	RecStart-60dB	8
Recording start offset	Recording start offset time setting	Rec Offset OFF	9
Stereo/mono	Stereo recording or mono recording selection	Rec Stereo	10
Copy management	Serial copy management on/off selection	SCMS INH	11
Play pitch	Selection of whether or not to use pitch set for disc	PichAuto OFF	12
Auto stop	Setting of whether or not to automatically stop the servo functions	Sleep ON	13
FS converter	Setting of whether or not to use the FS converter and sampling frequency setting (when optional FS converter mounted)	FS OFF	14
Hot start	Hot start on/off selection (when option mounted)	Hot start OFF	15
Date display	Date display on/off selection	Date Disp OFF	16
Program 1	Setting of whether or not to play program 1	Program 1 OFF	17
Program 2	Setting of whether or not to play program 2	Program 2 OFF	18
Program 3	Setting of whether or not to play program 3	Program 3 OFF	19
End monitor	Setting of whether or not to use the end monitor function and monitor time setting	End Mon. 10s	20
E.O.M.	Setting of whether or not to display the EOM and display time setting	E.O.M. 10s	21
End cue	End cue time setting	End Cue -2s	22
Next track standby	Setting of whether or not to standby at the next track when the STANDBY/CUE button is pressed during playback	Next Stb.OFF	23
Play lock	Selection of whether or not to inhibit the panel switches during playback	PlayLock.OFF	24
Serial remote	Baud rate setting	9600bps	25
Switch protect	Selection of whether or not to enable the panel switches	Switch ENA	26
Serial remote	Player ID on/off selection and ID setting	Player ID OFF	27
Parallel remote	Fader start mode selection	Fader Pause	28
Stereo/mono	Selection of stereo or monaural playback	Stereo	29
Preset clear	Setting for clearing presets and setting them to the initial values	Ini. Preset	30
Set information	Microprocessor version display	Ver. xxxx yyyy * 1 (xxxx yyyy is a number.)	31

* 1 "xxxx" indicates the system microprocessor version, "yyyy" the servo microprocessor version.

(2) Presetting Procedure

- Functions can be preset using the buttons on the front panel.
- The presettings can also be set using serial remote signals (RS232C/RS422A).
- Presettings can be made when no cartridge is loaded or when in the stop, standby, pause, recording pause or recording monitor mode.



Enter the preset mode.
Press the STANDBY/CUE button while pressing the PLAY MODE button.

1

Character display
Preset Mode

Select the preset item.
Turn the select knob (← →).

2

Character display
Preset Type1
Finish Next
CueDet.OFF
Auto Inc OFF
Ver. **** *

NOTE: The first preset item displayed is the last preset item displayed the last time the presettings were made.

Change the preset values.
Press the select knob.

3

Before change After change

Preset Type1 ⇔ Preset Type2
Finish Next ⇔ Finish Recue
CueDet.OFF ⇔ CueDet.-72dB
Auto Inc OFF ⇔ Auto Inc Dig.

Exit the preset mode.
Press the PLAY MODE button.

4

PLAY MODE
Initial Set

The preset mode is canceled and the set returns to the previous mode.

To set the presettings back to the initial settings (the settings set upon shipment from the factory)
Turn the power on while holding in both the PLAY MODE and the END MON buttons. For the initial settings, refer to "(1) List of preset functions".

5

PLAY MODE END MON
Initial Set

The character display changes as shown below.

NOTE:
If the message shown below appears, there is a problem with the preset memory. Contact a serviceperson.

Initial Error

(3) Detailed Description of Preset Functions

(* = initial setting)

- 1) "Preset Type (*)" (Three different sets (types) of presettings can be made and used for different purposes.)
 - Preset Type1 : Set to preset type 1.
 - Preset Type2 : Set to preset type 2.
 - Preset Type3 : Set to preset type 3.
- 2) "Finish (*)"
 - Finish Stop : Stop mode is set after track playing is finished.
 - Finish Next : Standby mode is set at next track after track playing is finished.
 - Finish Rescue : Standby mode is set at playback start position after track playing is finished.
- 3) "CueDet. OFF (-***)dB"
 - CueDet. OFF : Sound is not detected when cueing.
 - CueDet. (-***)dB : Sound detection level setting for cueing. (-72/-66/-60/-54/-48/-42/-36)
- 4) "Auto Inc OFF (*)"
 - Auto Inc OFF : No auto increment of track number.
 - Auto Inc Dig. : Track number is automatically incremented during digital recording using subcodes on CDs or MDs (Q codes) or start IDs on DATs.
 - Auto Inc Det. : Track number is automatically incremented during recording when level set in "5) "Inc Det. (-***)dB" setting is detected.
- 5) "Inc Det. (-***)dB"
 - Inc Det. (-***)dB : Sound detection level for auto increment function. (-72/-66/-60/-54/-48/-42/-36)
- 6) "Pre UTOC OFF (ON)" (Playback is possible up to that point even if power supply is cut off during recording or if recording stops due to some problem.)
 - Pre UTOC OFF : Pre-UTOC function off.
 - Pre UTOC ON : Pre-UTOC function on.
- 7) "UTOC Manual (Auto)"
 - UTOC Manual : UTOC is written by pressing TOC WRITE button after editing is completed.
 - UTOC Auto : UTOC is written automatically when editing is completed.
- 8) "RecStart (-***)dB"
 - RecStart (-***)dB : Sound detection level for auto record start function. (-72/-66/-60/-54/-48/-42/-36)
- 9) "Rec Offset (*)" (Recording can be started before sound detection during auto record start operation.)
 - Rec Offset (*) : Recording starts the set number of seconds before level detection. (*OFF/1s/2s/3s/4s/5s)
- 10) "Rec Stereo (Mono)"
 - Rec Stereo : Record in stereo.
 - Rec Mono : Record left channel signal in mono.
- 11) "SCMS INH (ENA)"
 - SCMS INH : Record onto disc same code as copy prohibit code in recording source.
 - SCMS ENA : Record copy prohibit code on disc according to SCMS.
- 12) "PitchAuto OFF (ON)"
 - PitchAuto OFF : Play pitch data stored on disc not used.
 - PitchAuto ON : Play disc at play pitch stored on disc.
- 13) "Sleep ON (OFF)"
 - Sleep ON : Automatically turn the servo functions off if no button is operated for 30 minutes in the pause, standby or manual search mode.
 - Sleep OFF : Do not automatically turn the servo functions off.
- 14) "FS OFF (***kHz)" (This setting can only be made when an optional FS converter is mounted.)
 - FS OFF : Do not use the FS converter.
 - FS (***kHz) : Select the digital output FS. (32 kHz/44.1 kHz/48 kHz)
- 15) "Hot Start OFF (ON)" (Hot start can be set when optional hot start unit is mounted.)
 - Hot Start OFF : Hot start off.
 - Hot Start ON : Hot start on.
- 16) "Date Disp OFF (ON)"
 - Date Disp OFF : Date not displayed even when NAME/CAPS button pressed.
 - Date Disp ON : Date displayed when NAME/CAPS button pressed.
- 17) "Program 1 OFF (ON)"
 - Program 1 OFF (ON) : Store the contents of program 1 when on. (Initial setting – "OFF")
- 18) "Program 2 OFF (ON)"
 - Program 2 OFF (ON) : Store the contents of program 2 when on. (Initial setting – "OFF")
- 19) "Program 3 OFF (ON)"
 - Program 3 OFF (ON) : Store the contents of program 3 when on. (Initial setting – "OFF")
- 20) "End Mon. (***)sec"
 - End Mon. (***)sec : Set the end monitor time. (5/*10/15/20/25/30/35)
 - End Mon. OFF : Do not use the end monitor function.
- 21) "E.O.M. (***)sec" (Output EOM tally signal to remote pint (24))
 - E.O.M. (***)sec : Set the EOM time. (0/5/*10/15/20/25/30)
 - E.O.M. OFF : Do not use the EOM function.
- 22) "End Cue (-*)sec" (Cue signal can be emitted before playback is completed.)
 - End Cue (-*)sec : End cue time setting. (0/-1/*-2/-3)
- 23) "Next Stb. OFF (ON)"
 - Next Stb. OFF : Return to the play start position and standby when the STANBY/CUE button is pressed during playback.
 - Next Stb. ON : Standby at the beginning of the next track when the STANDBY/CUE button is pressed during playback.
- 24) "PlayLock ON (OFF)"
 - PlayLock ON : Inhibit all operations other than the PLAY/PAUSE, TIME and PLAY MODE buttons during playback.
 - PlayLock OFF : Enable all functions during playback.
- 25) "9600 (19200) bps"
 - 9600 bps : Set the baud rate to 9600 bps.
 - 19200 bps : Set the baud rate to 19200 bps.
- 26) "Switch ENA (INH)"
 - Switch ENA : Enable operation of all the switches on the front panel.
 - Switch INH : Inhibit operation of all panel switches other than those used for presetting operations.
- 27) "Player ID (**)"
 - Player ID (**) : Player ID setting.
 - (Set ID to OFF or 0 to 15. Default setting - "OFF".)
- 28) "Fader Pause (Play)"
 - Fader Pause : Start playback when remote fader pins (9-10) are short-circuited and pause when pins are open.
 - Fader Play : Start playback when remote fader pins (9-10) are short-circuited and continue playback when pins are open.
- 29) "Stereo (Mono)"
 - Stereo : Output L and R stereo signals from the output connector.
 - Mono : Output mixed L and R signals from the output connector.
- 30) "Preset Clr? (Ini. Preset)"
 - Preset Clr? : Clear the presettings (set to the initial factory values).
 - Ini. Preset : Presetings set to initial factory defaults.
- 31) "Ver. xxxx yyyy"
 - Ver. xxxx yyyy : Display the microprocessor version. ("xxxx yyyy" is a number.)

10 HANDLING CARTRIDGES

Discs are stored inside cartridges, so they can be handled easily without worrying about dust or fingerprints. Be careful of the following in order to keep recordings in optimum condition.

(1) Cautions on Handling

- Keep cartridges away from magnets and sources of strong magnetic forces. (Only for recordable discs)
- Put cartridges in their cases when carrying them.
- Do not apply labels other than the ones included when the discs are purchased.
- Use a soft, dry cloth to wipe any dirt off the surface of the cartridge.
- Do not open the shutter.
- Forcing the shutter open could break it.
- If the shutter is opened, dirt or dust may get inside and fingerprints may get on the disc.

- Do not bend, heat or throw cartridges.
- Water droplets may form on the surface if cartridges are moved suddenly from outside or any cold place to a warm place. If this happens, wait awhile before using them.

(2) Cautions on Storing

- Always remove cartridges from the set after recording or playing them.
- Do not put cartridges in the following places:
 - Places exposed to direct sunlight.
 - Hot places.
 - Humid or dusty places.

11 MESSAGES

Messages appear on the display when operating the set. The meanings of the messages are described below.

Message	Description
A Point?	Indicates that the A point has not been set during the A-B erase operation.
B Point?	Indicates that the B point has not been set during the A-B erase operation.
Can't Edit **	Indicates that editing was not possible. (For details, refer to Page 37)
Can't Increment	Indicates that the track number cannot be incremented by pressing the REC button during recording.
Can't Rec!	Recording is not possible because of a problem in the TOC recording enable data.
Complete!	Indicates that editing is complete.
Cue*	Indicates that the cue search operation is being performed. (* is the cue number.)
<Cue>*****	Displayed at the beginning of the track name if cue signals are set for that track.
Disc Full	There is no more remaining time on the disc, or there are already 255 tracks on the disc.
Disc Type Err	Recording or editing is not possible with pre-mastered discs.
EEPROM Error	Displayed when changing the presets if there is a problem with the memory storage operation.
Error **	Displayed when a system error occurs.
Initial Error	Displayed if there is a problem with the memory storage operation when the presets have been reset (initialized).
Initial Set	Displayed when initializing the presets.
No Date	Indicates that the date data has not been set.
No Name	Indicates that no track name or disc name has been set.
No Program!	Indicates that no program has been input.
No Sel.Track	Displayed when the selected track does not exist on the disc.
No Track	Indicates discs containing disc names but no tracks.
Not Audio!	Data other than audio data is input.
Now A-B!	The A-B playback mode is set.
Now Program!	This means that a program has been input.
Play Lock!	Displayed when a locked operation is performed when play lock is preset.
Program Full	Displayed if you attempt to program a 26th step.
Protected	Displayed when you attempt to record or edit while the cartridge is in the accidental erasure prevention mode.
Rec Mono	Sound will be recorded in monaural.
Rec Stereo	Sound will be recorded in stereo.
Sleep	Indicates the sleep mode.
Track Full	Displayed when you attempt to set the recording mode on a disc containing 255 tracks.
UTOO Write!	Displayed when you attempt to eject the cartridge after editing is completed without first writing the UTOO.
UTOO Write?	Displayed when the TOC WRITE button is pressed.
UTOO Writing	Displayed while the UTOO is being written.

12 SYSTEM LIMITATIONS

(1) Track Number Limits

- Up to 255 tracks can be recorded when recording the tracks successively starting from the first track on blank or no-track discs. In the following cases, however, the number of tracks that can be recorded decreases:
 - When editing has been performed.
 - When there are scratches on the disc and tracks have been re-recorded.

(2) Recording Time Limits

- Recording is performed in units of approximately 2 seconds. Sections of less than 2 seconds still take up 2 seconds worth of space on the disc, so this decreases the actual recordable time.
- Scratched sections of discs are automatically eliminated from the recording time.
- Recording is no longer possible once the maximum number of tracks is reached, even if they take up less than the maximum recordable time. To record on such discs, first erase unneeded tracks. When this is done, it is not possible to record for longer than the time of the tracks that have been erased.
- The remaining time on the disc may not increase when short tracks (less than approximately 8 seconds) are erased.
- If there are many emphasis data on/off signals or other similar signals in a track, they are treated as divisions between tracks, so recording will not be possible regardless of the recording time and number of tracks.

(3) Editing Function Limits

- It may not be possible to combine a short track with another track.
- Tracks containing cue points cannot be divided or combined.

(4) Title Function Limits

- There are limits to the number of characters that can be used in disc and track names and to the total number of characters used for both. When writing names, the cursor will only move by the maximum number of writeable spaces. (After this no more characters can be input.)

Track names:	Up to 100 characters
Disc names:	Up to 100 characters
Total:	Up to 1700 characters
- The number of characters that can be used in track names decreases when the following functions are used:
 - Cue point function: Using one cue point decreases the number of characters that can be used by 5.
 - Play speed function: Changing the play speed decreases the number of characters that can be used by 6.
- When a track with a track name is divided, both of the divided tracks are given the same name. However, if the number of characters writeable on the disc is near the limit, the second track may only have part of the track name.
- When two tracks with track names are combined, the name of the second track is erased.

(5) Other Limits

- During the programmed playback mode, the recording mode cannot be set by pressing the REC button. If the REC button is pressed, "Now Program!" is displayed for approximately 5 seconds, then turns off.
- During the programmed playback mode, the edit mode cannot be set by pressing the EDIT button. If the EDIT button is pressed, "Now Program!" is displayed for approximately 5 seconds, then turns off.
- During the programmed playback mode, the A and B points cannot be set by pressing the A and B buttons.
- During the A-B play mode, the edit mode cannot be set by pressing the EDIT button.
- During the A-B play mode, the programmed playback mode cannot be set by pressing the PROG.PLAY ON/OFF button.
- The edit mode is set if the EDIT button is pressed when A and B points are set. The positions of the A and B points are corrected after editing is completed.

SPECIFICATION

GENERAL

Type:	MiniDisc Recorder
Recordable/Playable Discs:	Playback: Pre-mastered MDs and recordable MDs Recording: Recordable MDs
Recording System:	Magneto-optical overwriting system (Magnetic field modulation)
Signal Compression System:	ATRAC(Adaptive Transform Acoustic Coding) version 4.0
Rotating Speed:	Approx. 400 to 900 rpm.
Recording/playback time	74 min. (Stereo), 148 min. (Mono)

AUDIO SECTION

Channels:	2 channels (Stereo), 1 channel (Mono)
Sampling Frequency:	44.1kHz (32/48 kHz available using optional ACD-25FSM)
Quantization Bits:	A/D converter: 16bit, D/A converter: 18bit
Frequency Response:	20 to 20,000 Hz (± 1.0 dB)
Total Harmonic Distortion:	0.012% or less (Playback, A filter) 0.02% or less (Recording, A filter)
Signal to Noise Ratio:	92 dB or higher (Playback, A filter) 84 dB or higher (Recording, A filter)
Channel Separation:	86 dB or higher (Playback, A filter) 80 dB or higher (Recording, A filter)
Analog Output	(1 kHz, 0dB playback)
Transfer and Connector:	Balanced active, XLR connector Unbalanced, RCA jack
Output Level:	Balanced: +18 dBs, 600 Ω /ohms Unbalanced: 1.7 Vrms, 10 k Ω /ohms
Output Level Adjust Range:	+22 dBs to -20 dBs (Balanced)
Headphone Output:	20 mW (30 to 40 Ω /ohms)
Digital Output	
Transfer and Connector:	Balanced active, XLR connector (1. Common 2. Cold 3. Hot) Unbalanced, RCA jack
Signal Format:	Balanced: AES/EBU Unbalanced: SPDIF or IEC-958 Type II
Output Level:	Balanced: 3 Vp-p, 110 Ω /ohms Unbalanced: 0.5 Vp-p, 75 Ω /ohms

Pin No.	USA & Canada	Europe, Asia & Others
1	Common	Common
2	Cold	Hot
3	Hot	Cold

Analog Input	
Transfer and Connector:	Balanced active, XLR connector Unbalanced, RCA jack
Input Level:	Balanced: +18 dBs, 10 k Ω /ohms Unbalanced: 1.7 Vrms, 47 k Ω /ohms
Digital Input	
Transfer and Connector:	Balanced active, XLR connector (1. Common 2. Cold 3. Hot) Unbalanced, RCA jack
Signal Format:	Balanced: AES/EBU or IEC-958 Type I Unbalanced: SPDIF or IEC-958 Type II
Input Level:	Balanced: 3 to 10 Vp-p, 110 Ω /ohms Unbalanced: 0.3 to 1.0 Vp-p, 75 Ω /ohms
Variable Pitch Control:	$\pm 9.9\%$
Audio Start-up Time:	0.01 second less
Frame Search Accuracy:	1 frame (1/85 second)

Pin No.	USA & Canada	Europe, Asia & Others
1	Common	Common
2	Cold	Hot
3	Hot	Cold

DIMENSIONS:	482(W) x 132(H) x 275.6(D) (Not including feet, dials and terminals)
WEIGHT:	6.9 kg, 15.2 lbs
POWER CONSUMPTION:	29W
POWER SUPPLY:	AC 120 V $\pm 10\%$, 60 Hz (U.S.A. & Canada) AC 230 V $\pm 10\%$, 50 Hz (Europe, Asia & Others)

ENVIRONMENTAL CONDITIONS

Operating Temperature:	+5°C to 35°C
Humidity:	25% to 85%, non condensing
Storage Temperature:	-20°C to 60°C

REMOTE

Serial Remote:	RS232C/RS422A (switchable), 9600 bps/19200 obps (Selectable), D-sub 9-pin
Parallel Remote:	D-sub 25-pin
Keyboard terminal:	PS/2

* Specifications and design are subject to change without notice for purpose improvement.

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SOFTWARE SPECIFICATIONS

1. Command List (ASCII Code is used to the commands)

Code	Command	Parameter	Discription								
A	Scan	1 byte, SCAN mode *(1)	Performs the manual search (scan) with the selected direction and speed.								
	(1)	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0			
	X	0	0	0	0	0	0	0	: Block Repeat		
	X	0	0	0	0	0	0	1	: Step 1 Speed (About 1 Times)		
	X	0	0	0	0	0	1	0	: Step 2 Speed (About 2 Times)		
	X	0	0	0	0	1	0	0	: Step 3 Speed (About 8 Times)		
	X	0	0	0	1	0	0	0	: Step 4 Speed (About 16 Times)		
	X	0	0	1	0	0	0	0	: Step 5 Speed (About 24 Times)		
	X	0	0	1	1	0	0	0	: Step 6 Speed (About 32 Times)		
X	0	1	0	0	0	0	0	: Step 7 Speed (About 64 Times)			
0	X	X	X	X	X	X	X	: Forward			
1	X	X	X	X	X	X	X	: Reverse			
B	Back Cue	Non	Returns to the playback start position.								
D	End Monitor	Non	Starts the end monitor program.								
E	Send Time	1 Byte, TIME mode *(1)	Requests the time code with the frame/sound group unit.								
	(1)	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0			
	0	0	0	0	0	0	0	0	: P-Time (Elapse) Frame Notation		
	0	0	0	0	0	0	0	1	: P-Time (Remain) Frame Notation		
	0	0	0	0	0	0	1	0	: A-Time (Elapse) Frame Notation		
	0	0	0	0	0	0	1	1	: A-Time (Remain) Frame Notation		
	1	0	0	0	0	0	0	0	: P-Time (Elapse) SGroup Notation		
	1	0	0	0	0	0	0	1	: P-Time (Remain) SGroup Notation		
	1	0	0	0	0	0	1	0	: A-Time (Elapse) SGroup Notation		
1	0	0	0	0	0	1	1	: A-Time (Remain) SGroup Notation			
F	Eject	Non	Performs the disc eject operation.								
G	Send Old Presetting	Non	Requests the contents and information of presetting								
H	Send Reserved Track	Non	Requests the reserved track in the play mode.								
J	Jump	1 byte, JUMP mode *(1)	Jumps the track up or down with the selected type.								
	(1)	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0			
	X	X	X	X	0	0	0	1	: 1 Track Move		
	X	X	X	X					: ~		
	X	X	X	X	1	1	1	1	: 15 Tracks Move		
	X	1	X	X	X	X	X	X	: Track (fixed Code)		
	0	X	X	X	X	X	X	X	: Forward		
	1	X	X	X	X	X	X	X	: Reverse		
	K	Frame Cueing	1 byte, Frames *(1)	Moves the selected frames with block repeat form.							
(1)		<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
b 7		b 6	b 5	b 4	b 3	b 2	b 1	b 0			
X		0	0	0	0	0	0	0	: No Move		
X		0	0	0	0	0	0	1	: 1 Frame Move		
X									: ~		
X		1	1	0	0	1	0	0	: 100 Frames Move		
0		X	X	X	X	X	X	X	: Forward		
1		X	X	X	X	X	X	X	: Reverse		

Code	Command	Parameter	Discription								
M	Mode Set	1 byte, Frames mode *(1)	Performs the playback or the record set mode.								
	(1)	<table><tr><th>b 7</th><th>b 6</th><th>b 5</th><th>b 4</th><th>b 3</th><th>b 2</th><th>b 1</th><th>b 0</th></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0			
	X	0	0	0	0	0	0	1	: Play Mode (Set : Single/Cancel : Continue)		
	X	0	0	0	0	0	0	1	: Play Repeat in the Playback Mode (Set : Repeat/Cancel : Repeat OFF)		
	X	0	0	0	0	0	0	1	: Time Code Display Mode (Set : Remain/Cancel : Elapse)		
	X	0	0	0	0	1	0	0	: Serial Multi-ID Mode (Set/Cancel) Response treatment not executed		
	X	0	0	0	0	1	0	0	: A-B Playback Mode (Set : A-B Playback Mode/Cancel : A-B Playback Mode → Single)		
	X	0	0	0	0	1	0	1	: Pitch (Set : Pitch ON/Cancel : Pitch OFF)		
	X	0	0	0	0	1	0	1	: Auto Level Record Mode (Set : ON/Cancel : OFF)		
	X	0	0	0	0	1	1	0	: Name Display Mode (Set : Trank Name indication/Cancel : Disc Name indication)		
	X	0	0	0	0	1	1	0	: Date Display Mode (Set : Record Date indication/Cancel : Disc Name indication)		
	X	0	0	0	0	1	1	1	: Program (Set : Program ON/Cancel : Program OFF)		
	X	0	0	0	1	0	0	0	: Input Signal 1 mode (Set : Digital signal/Cancel : Analog signal)		
	X	0	0	0	1	0	0	0	: Input Signal 2 mode (Set : Balance input/Cancel : Unbalance signal) (Valid in digital Record Mode Only)		
	0	X	X	X	X	X	X	X	: Cancellation		
	1	X	X	X	X	X	X	X	: Set		
	O	Option	2 bytes, Option No. *(1), (2)	Requests the system, disc and track information.							
		(1) Information Request object code	<table><tr><th>b 7</th><th>b 6</th><th>b 5</th><th>b 4</th><th>b 3</th><th>b 2</th><th>b 1</th><th>b 0</th></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0
b 7		b 6	b 5	b 4	b 3	b 2	b 1	b 0			
0		0	0	0	0	0	0	0	: System (Disc Information)		
0		0	0	0	0	0	0	1	: 1 Track		
									: ~		
1		1	1	1	1	1	1	1	: 255 Track		
(2) Information Request Item Code		<table><tr><th>b 7</th><th>b 6</th><th>b 5</th><th>b 4</th><th>b 3</th><th>b 2</th><th>b 1</th><th>b 0</th></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
b 7		b 6	b 5	b 4	b 3	b 2	b 1	b 0			
0		0	0	0	0	0	0	0	: (0) TOC Information: Frame Notation		
0		0	0	0	0	0	0	1	: (1) TOC Information: SGroup Notation		
0		0	0	0	0	1	0	1	: (2) System Information: Old Format		
0		0	0	0	0	1	1	0	: (3) System 1 Information: New Format		
0		0	0	0	1	0	0	1	: (4) CPU Version Number		
0		0	0	1	0	0	0	0	: (5) Track Playback Time and Track Mode: Frame Notation		
0		0	0	1	0	0	0	1	: (6) Track Playback Time and Track Mode: SGroup Notation		
0		0	1	0	0	0	0	0	: (7) Track Recording Time		
0		0	1	1	0	0	0	0	: (8) Disc Type and Wirte Protect Information		
0		1	0	0	0	0	0	0	: (9) Disc Recording Time : Frame Notation		
0		1	0	0	0	0	0	1	: (10) Disc Recording Time: SGroup Notation		
0		1	1	0	0	0	0	1	: (11) Cue 1 Tally: Frame Notation		
0		1	1	0	0	0	1	0	: (12) Cue 2 Tally: Frame Notation		
0		1	1	0	0	0	1	1	: (13) Cue 3 Tally: Frame Notation		
0		1	1	0	0	1	0	0	: (14) Cue 4 Tally: Frame Notation		
0		1	1	0	0	1	0	1	: (15) Cue 5 Tally: Frame Notation		
0		1	1	0	1	0	0	1	: (16) Cue 1 Tally: SGroup Notation		
0		1	1	0	1	0	1	0	: (17) Cue 2 Tally: SGroup Notation		
0		1	1	0	1	0	1	1	: (18) Cue 3 Tally: SGroup Notation		
0		1	1	0	1	1	0	0	: (19) Cue 4 Tally: SGroup Notation		
0	1	1	0	1	1	0	1	: (20) Cue 5 Tally: SGroup Notation			
0	1	1	0	0	1	1	0	: (21) A: Frame Notation			
0	1	1	0	0	1	1	1	: (22) B: Frame Notation			
0	1	1	0	1	1	1	0	: (23) A: SGroup Notation			
0	1	1	0	1	1	1	1	: (24) B: SGroup Notation			
1	0	0	0	0	0	0	0	: (25) Category and Model Number: Old Format			
1	0	0	0	0	0	0	1	: (26) Category and Model Number: New Format			

Code	Command	Parameter	Discription																																																																																																																																																																	
P	Play	Non	Starts the playback.																																																																																																																																																																	
Q	Track Search	1 byte	Searches selected Track.																																																																																																																																																																	
	Track No. (Binary)																																																																																																																																																																			
R	Reset	Non	Initializes the system.																																																																																																																																																																	
S	Stop	Non	Stops the playback (Servo : OFF).																																																																																																																																																																	
T	Frame Time Search	5 bytes	Performs the time search with frame unit.																																																																																																																																																																	
	(1) Track (Binary) (2) Minute (BCD) (3) Minute (BCD) (4) Second (BCD) (5) Frame (BCD)																																																																																																																																																																			
U	Old Preset Memory	1 byte, OLD PRESET mode *(1)	Changes the setting with the old preset item.																																																																																																																																																																	
	(1) Command Subcode <table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>0</td><td>0</td><td>: b0</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>0</td><td>1</td><td>: b1</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>1</td><td>0</td><td>: b2</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>1</td><td>1</td><td>: b3</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>0</td><td>0</td><td>: b4</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>0</td><td>1</td><td>: b5</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>1</td><td>0</td><td>: b6</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>1</td><td>1</td><td>: b7</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>X</td><td>X</td><td>X</td><td>: Preset Data 1</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>1</td><td>X</td><td>X</td><td>X</td><td>: Preset Data 2</td></tr><tr><td>X</td><td>0</td><td>0</td><td>1</td><td>0</td><td>X</td><td>X</td><td>X</td><td>: Preset Data 3</td></tr><tr><td>X</td><td>0</td><td>0</td><td>1</td><td>1</td><td>X</td><td>X</td><td>X</td><td>: Preset Data 4</td></tr><tr><td>X</td><td>0</td><td>1</td><td>0</td><td>0</td><td>X</td><td>X</td><td>X</td><td>: Preset Data 5</td></tr><tr><td>X</td><td>0</td><td>1</td><td>0</td><td>1</td><td>X</td><td>X</td><td>X</td><td>: Preset Data 6</td></tr><tr><td>X</td><td>0</td><td>1</td><td>1</td><td>0</td><td>X</td><td>X</td><td>X</td><td>: Preset Data 7</td></tr><tr><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Cancellation</td></tr><tr><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Set</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		X	X	X	X	X	0	0	0	: b0	X	X	X	X	X	0	0	1	: b1	X	X	X	X	X	0	1	0	: b2	X	X	X	X	X	0	1	1	: b3	X	X	X	X	X	1	0	0	: b4	X	X	X	X	X	1	0	1	: b5	X	X	X	X	X	1	1	0	: b6	X	X	X	X	X	1	1	1	: b7	X	0	0	0	0	X	X	X	: Preset Data 1	X	0	0	0	1	X	X	X	: Preset Data 2	X	0	0	1	0	X	X	X	: Preset Data 3	X	0	0	1	1	X	X	X	: Preset Data 4	X	0	1	0	0	X	X	X	: Preset Data 5	X	0	1	0	1	X	X	X	: Preset Data 6	X	0	1	1	0	X	X	X	: Preset Data 7	0	X	X	X	X	X	X	X	: Cancellation	1	X	X	X	X	X	X	X
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																																																																													
X	X	X	X	X	0	0	0	: b0																																																																																																																																																												
X	X	X	X	X	0	0	1	: b1																																																																																																																																																												
X	X	X	X	X	0	1	0	: b2																																																																																																																																																												
X	X	X	X	X	0	1	1	: b3																																																																																																																																																												
X	X	X	X	X	1	0	0	: b4																																																																																																																																																												
X	X	X	X	X	1	0	1	: b5																																																																																																																																																												
X	X	X	X	X	1	1	0	: b6																																																																																																																																																												
X	X	X	X	X	1	1	1	: b7																																																																																																																																																												
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X	0	1	0	0	X	X	X	: Preset Data 5																																																																																																																																																												
X	0	1	0	1	X	X	X	: Preset Data 6																																																																																																																																																												
X	0	1	1	0	X	X	X	: Preset Data 7																																																																																																																																																												
0	X	X	X	X	X	X	X	: Cancellation																																																																																																																																																												
1	X	X	X	X	X	X	X	: Set																																																																																																																																																												
V	Pitch	1 byte, Pitch *(1)	Performs the set pitch function.																																																																																																																																																																	
	(1) Pitch Code <table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: Pitch ±0</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: Pitch 0.1</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: Pitch 0.2</td></tr><tr><td>X</td><td></td><td></td><td></td><td>~</td><td></td><td></td><td></td><td>: ~</td></tr><tr><td>X</td><td>1</td><td>1</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>: Pitch 9.9</td></tr><tr><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: + Pitch</td></tr><tr><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: - Pitch</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		0	0	0	0	0	0	0	0	: Pitch ±0	X	0	0	0	0	0	0	1	: Pitch 0.1	X	0	0	0	0	0	1	0	: Pitch 0.2	X				~				: ~	X	1	1	0	0	0	1	1	: Pitch 9.9	0	X	X	X	X	X	X	X	: + Pitch	1	X	X	X	X	X	X	X	: - Pitch																																																																																									
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																																																																													
0	0	0	0	0	0	0	0	: Pitch ±0																																																																																																																																																												
X	0	0	0	0	0	0	1	: Pitch 0.1																																																																																																																																																												
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X	1	1	0	0	0	1	1	: Pitch 9.9																																																																																																																																																												
0	X	X	X	X	X	X	X	: + Pitch																																																																																																																																																												
1	X	X	X	X	X	X	X	: - Pitch																																																																																																																																																												
W	Pause	Non	Pauses the playback.																																																																																																																																																																	
X	Send Old Status	Non	Requests the system status (1 byte Answer).																																																																																																																																																																	
Y	Standby	Non	Performs the standby operation.																																																																																																																																																																	
Z	Send Set Track	2 bytes, *(1), (2)	Requests the track number (program/hot start).																																																																																																																																																																	
	(1) Object Code <table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: Program</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: Hot Start</td></tr></table> (2) Program No. (1~25)/Hot Key No. (1~20) (Binary)			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		0	0	0	0	0	0	0	1	: Program	0	0	0	0	0	0	1	0	: Hot Start																																																																																																																																						
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																																																																													
0	0	0	0	0	0	0	1	: Program																																																																																																																																																												
0	0	0	0	0	0	1	0	: Hot Start																																																																																																																																																												

Code	Command	Parameter	Discription																																								
a	Name	2 Byte, *(1), (2)	Requests the disc and track name.																																								
	(1) Information Requesting Object Code																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr><tr><td colspan="4"></td><td>~</td><td colspan="3"></td></tr><tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1					~				1	1	1	1	1	1	1	1
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																			
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	1	1	1	1	1	1	1	1																																			
	: Requests the disc name																																										
	: 1 Track																																										
: ~																																											
: 255 Track																																											
(2) Starting Byte for Request Data (Binary)																																											
b	Edit	10 Bytes, *(1) ~ (10)	Performs the editing operation for disc or track.																																								
	(1) Deleting the Disc or Track																																										
	(1)-(1) Editing the Subcode																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	1																								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																			
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	(1)-(2) Reserved																																										
	(1)-(3) Reserved																																										
	(1)-(4) Reserved																																										
	(1)-(5) Reserved																																										
	(1)-(6) Reserved																																										
	(1)-(7) Reserved																																										
	(1)-(8) Reserved																																										
	(1)-(9) Reserved																																										
	(1)-(10) Deleting the Object Code																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr><tr><td colspan="4"></td><td>~</td><td colspan="3"></td></tr><tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1					~				1	1	1	1	1	1	1	1
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																			
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	0	0	0	0	0	0	0	1																																			
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	1	1	1	1	1	1	1	1																																			
	: Deletes the disc																																										
	: 1 Track																																										
	: ~																																										
	: 255 Tracks																																										
	(2) Combining the Track																																										
	(2)-(1) Editing the Subcode																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	1	0																								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																			
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(2)-(2) Reserved																																											
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(2)-(4) Reserved																																											
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(2)-(7) Reserved																																											
(2)-(8) Reserved																																											
(2)-(9) Reserved																																											
(2)-(10) Reserved																																											
(3) Moving the Track																																											
(3)-(1) Editing the Subcode																																											
<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	1	1																									
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																				
0	0	0	0	0	0	1	1																																				
(3)-(2) Reserved																																											
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(3)-(5) Reserved																																											
(3)-(6) Reserved																																											
(3)-(7) Reserved																																											
(3)-(8) Reserved																																											
(3)-(9) Reserved																																											
(3)-(10) Track number (Binary) After Moving																																											

Code	Command	Parameter	Discription																															
b	(4) Dividing the Track																																	
	(4)-(1) Editing the Subcode	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	1	0	0																
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																										
	0	0	0	0	0	1	0	0																										
	(4)-(2) Reserved																																	
	(4)-(3) Reserved																																	
	(4)-(4) Reserved																																	
	(4)-(5) Reserved																																	
	(4)-(6) Track number (Binary)																																	
	(4)-(7) Dividing Position Min. × 100 (BCD)																																	
	(4)-(8) Dividing position Min. × 10 (BCD), Dividing position Min. × 1 (BCD)																																	
	(4)-(9) Dividing position Sec. × 10 (BCD), Dividing position Sec. × 1 (BCD)																																	
	(4)-(10) Dividing position SGroup × 10 (BCD), Dividing position SGroup × 10 (BCD)																																	
	(5) Deleting between A-B point																																	
	(5)-(1) Editing the Subcode	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	1	0	0	0																
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																										
	0	0	0	0	1	0	0	0																										
	(5)-(2) Reserved																																	
	(5)-(3) Reserved																																	
	(5)-(4) Reserved																																	
	(5)-(5) Reserved																																	
	(5)-(6) Reserved																																	
	(5)-(7) Reserved																																	
	(5)-(8) Reserved																																	
	(5)-(9) Reserved																																	
	(5)-(10) Reserved																																	
	(6) Inserting (Moving) a point between A and B																																	
	(6)-(1) Editing the Subcode	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>1</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	1	0	0	1																
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																										
	0	0	0	0	1	0	0	1																										
	(6)-(2) Reserved																																	
	(6)-(3) Reserved																																	
	(6)-(4) Reserved																																	
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	(6)-(6) Track number (Binary)																																	
	(6)-(7) Moving position Min. × 100 (BCD)																																	
	(6)-(8) Moving position Min. × 10 (BCD), Moving position Min. × 1 (BCD)																																	
	(6)-(9) Moving position Sec. × 10 (BCD), Moving position Sec. × 1 (BCD)																																	
	(6)-(10) Moving position SGroup × 10 (BCD), Moving position SGroup × 1 (BCD)																																	
	(7) Undo/Redo/First																																	
	(7)-(1) Editing the Subcode	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td><td>0</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	1	0	1	0																
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																										
	0	0	0	0	1	0	1	0																										
	(7)-(2) Reserved																																	
	(7)-(3) Reserved																																	
	(7)-(4) Reserved																																	
	(7)-(5) Reserved																																	
(7)-(6) Reserved																																		
(7)-(7) Reserved																																		
(7)-(8) Reserved																																		
(7)-(9) Reserved																																		
(7)-(10) Setting the Code	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	: Undo Request : Redo Request : First Request
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																											
0	0	0	0	0	0	0	1																											
0	0	0	0	0	0	1	0																											
0	0	0	0	0	0	1	1																											

Code	Command	Parameter	Discription																																													
c	Change Hot Track	2 Bytes	Changes the hot track.																																													
	(1) Track No. (Binary) (2) Buffer No. for Hot Start (Binary)																																															
d	Data of Hot Track	Non	Requests the track number of the hot track.																																													
e	Writing Name	12 Bytes, *(1) ~ (12)	Writes the disc and track name.																																													
	(1) Writing the Object Code																																															
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: Disc Name</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: 1 Track</td></tr><tr><td colspan="8"></td><td>: ~</td></tr><tr><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>: 255 Tracks</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		0	0	0	0	0	0	0	0	: Disc Name	0	0	0	0	0	0	0	1	: 1 Track									: ~	1	1	1	1	1	1	1	1	: 255 Tracks
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																								
	0	0	0	0	0	0	0	0	: Disc Name																																							
	0	0	0	0	0	0	0	1	: 1 Track																																							
									: ~																																							
	1	1	1	1	1	1	1	1	: 255 Tracks																																							
	(2) Start byte for writing (Binary)																																															
	(3) Data 1 code (ASCII)																																															
	(4) Data 2 code (ASCII)																																															
	(5) Data 3 code (ASCII)																																															
(6) Data 4 code (ASCII)																																																
(7) Data 5 code (ASCII)																																																
(8) Data 6 code (ASCII)																																																
(9) Data 7 code (ASCII)																																																
(10) Data 8 code (ASCII)																																																
(11) Data 9 code (ASCII)																																																
(12) Data 10 code (ASCII)																																																
f	Recording Pause	Non	Requests the record pause operation.																																													
g	POS code	Non	Requests POS code.																																													
h	ISRC code	1 byte, *(1)	Requests ISRC code																																													
	(1) Track Number (Binary)																																															
i	Contents of Preset1	1 byte, *(1)	Requests the preset information and contents.																																													
	(1) Request Data Code																																															
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: (1) Requests area No. of the used preset</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: (2) Requests the data of the preset area No. 1.</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: (3) Requests the data of the preset area No. 2.</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>: (4) Requests the data of the preset area No. 3.</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		0	0	0	0	0	0	0	0	: (1) Requests area No. of the used preset	0	0	0	0	0	0	0	1	: (2) Requests the data of the preset area No. 1.	0	0	0	0	0	0	1	0	: (3) Requests the data of the preset area No. 2.	0	0	0	0	0	0	1	1	: (4) Requests the data of the preset area No. 3.
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																								
	0	0	0	0	0	0	0	0	: (1) Requests area No. of the used preset																																							
0	0	0	0	0	0	0	1	: (2) Requests the data of the preset area No. 1.																																								
0	0	0	0	0	0	1	0	: (3) Requests the data of the preset area No. 2.																																								
0	0	0	0	0	0	1	1	: (4) Requests the data of the preset area No. 3.																																								
j	Recording	Non	Requests the recording operation.																																													
k	Track Increment	Non	Requests the track increment operation in the recording.																																													
l	Loading Hot Tracks	Non	Requests the data loading operation for the hot track.																																													
m	Setting Tally	5 byte, *(1) ~ (5)	Requests the cue tally writing operation.																																													
	(1) Setting Cue Tally																																															
	(1)-(1) Cue Tally Code																																															
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: Frame Notation</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>: SGroup Notation</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		0	0	0	0	0	0	1	0	: Frame Notation	0	0	0	0	0	0	1	1	: SGroup Notation																		
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																								
	0	0	0	0	0	0	1	0	: Frame Notation																																							
0	0	0	0	0	0	1	1	: SGroup Notation																																								
(1)-(2) Min. × 100 (BCD)																																																
(1)-(3) Min. × 10 (BCD), Min. × 1 (BCD)																																																
(1)-(4) Sec. × 10 (BCD), Sec. × 1 (BCD)																																																
(1)-(5) Frame/SGroup × 10 (BCD), Frame/SGroup × 1 (BCD)																																																

Code	Command	Parameter	Discription																																																
m	(2) Deleting Cue Tally																																																		
	(2)-(1) Cue Tally code	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0																																	
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																											
	0	0	0	0	0	0	0	0																																											
	(2)-(2) Tally Number (Binary: 1~5)																																																		
	(2)-(3) Reserved																																																		
	(2)-(4) Reserved																																																		
(2)-(5) Reserved																																																			
n	Preset Memory	7 bytes, *(1) ~ (7)	Performs the set preset.																																																
	(1) Preset Setting Code	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	: (1) Changes the using area* : (2) Changes the set of the preset area No. 1. : (3) Changes the set of the preset area No. 2. : (4) Changes the set of the preset area No. 3. : (5) Requests the write function to the set preset EEPROM* : (6) Requests the write function to the set program EEPROM*
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																											
	0	0	0	0	0	0	0	0																																											
	0	0	0	0	0	0	0	1																																											
	0	0	0	0	0	0	1	0																																											
	0	0	0	0	0	1	0	0																																											
	0	0	0	0	0	1	0	1																																											
	(2) Preset code 1																																																		
	(3) Preset code 2																																																		
	(4) Preset code 3																																																		
	(5) Preset code 4																																																		
	(6) Preset code 5																																																		
	(7) Preset code 6																																																		
	* Changes the using area/Requests the write function to EEPROM																																																		
	(1) Preset setting code																																																		
	(2) Using area/Writing area (Binary: 1~3)																																																		
	(3)~(7) Reserved																																																		
o	SGroup Time Search	5 byte, *(1) ~ (5)	Requests the current track time search with the sound group unit.																																																
	(1) Track Number (Binary)																																																		
	(2) Minute (BCD)																																																		
	(3) Minute (BCD)																																																		
	(4) Second (BCD)																																																		
	(5) SGroup (BCD)																																																		
p	Hot Start	1 byte, *(1)	Requests the hot start operation with the specified buffer number.																																																
	(1) Hot Start Number 1~20 (Binary)																																																		
q	Program	25 bytes, *(1) ~ (25)	Performs the set program.																																																
	(1) Track No. of 1 step (Binary)																																																		
	(2) Track No. of 2 step (Binary)																																																		
	(3) Track No. of 3 step (Binary)																																																		
	(4) Track No. of 4 step (Binary)																																																		
	(5) Track No. of 5 step (Binary)																																																		
	(6) Track No. of 6 step (Binary)																																																		
	(7) Track No. of 7 step (Binary)																																																		
	(8) Track No. of 8 step (Binary)																																																		
	(9) Track No. of 9 step (Binary)																																																		
	(10) Track No. of 10 step (Binary)																																																		
	(11) Track No. of 11 step (Binary)																																																		
	(12) Track No. of 12 step (Binary)																																																		
	(13) Track No. of 13 step (Binary)																																																		
	(14) Track No. of 14 step (Binary)																																																		
	(15) Track No. of 15 step (Binary)																																																		
	(16) Track No. of 16 step (Binary)																																																		

Code	Command	Parameter	Discription																																																														
q	(17) Track No. of 17 step (Binary) (18) Track No. of 18 step (Binary) (19) Track No. of 19 step (Binary) (20) Track No. of 20 step (Binary) (21) Track No. of 21 step (Binary) (22) Track No. of 22 step (Binary) (23) Track No. of 23 step (Binary) (24) Track No. of 24 step (Binary) (25) Track No. of 25 step (Binary)																																																																
r	Reading UTOC	Non	Requests the UTOC reading operation.																																																														
s	Hot start Stop	Non	Requests the hot start stop operation.																																																														
t	Editing Work Status	Non	Requests the editing work status.																																																														
u	Repeat	1 byte *(1)	Performs the repeat program.																																																														
	(1) Operation Code																																																																
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: Repeat OFF</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: Repeat ON</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		0	0	0	0	0	0	0	0	: Repeat OFF	0	0	0	0	0	0	0	1	: Repeat ON																																			
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																										
0	0	0	0	0	0	0	0	: Repeat OFF																																																									
0	0	0	0	0	0	0	1	: Repeat ON																																																									
v	Send Pitch	Non	Requests the set pitch state.																																																														
w	Writing UTOC	Non	Requests the UTOC writing operation.																																																														
x	Send Status	Non	Requests the system status with 2 bytes answer.																																																														
y	Canceling Recording	Non	Requests the cancelling recording operation.																																																														
z	Canceling Operation	1 byte, *(1)	Cancels the edit, program or preset mode.																																																														
	(1) Operation Code																																																																
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: Edit mode</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: Program input mode</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>: Preset mode</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		0	0	0	0	0	0	0	1	: Edit mode	0	0	0	0	0	0	1	0	: Program input mode	0	0	0	0	0	1	0	0	: Preset mode																										
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																										
0	0	0	0	0	0	0	1	: Edit mode																																																									
0	0	0	0	0	0	1	0	: Program input mode																																																									
0	0	0	0	0	1	0	0	: Preset mode																																																									
:	Eeprom Work Status	Non	Requests the EEPROM access status.																																																														
;	SGroup Cueing	1 byte, *(1)	Moves to the specified sound group number and performs the block repeat operation.																																																														
	(1) Specifying the Code for Moving the Specified position																																																																
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: No move</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: 1 Sound group move</td></tr><tr><td>X</td><td></td><td></td><td></td><td>~</td><td></td><td></td><td></td><td>: ~</td></tr><tr><td>X</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>: 127 sound groups move</td></tr><tr><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Forward</td></tr><tr><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Reverse</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		X	0	0	0	0	0	0	0	: No move	X	0	0	0	0	0	0	1	: 1 Sound group move	X				~				: ~	X	1	1	1	1	1	1	1	: 127 sound groups move	0	X	X	X	X	X	X	X	: Forward	1	X	X	X	X	X	X	X
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																										
X	0	0	0	0	0	0	0	: No move																																																									
X	0	0	0	0	0	0	1	: 1 Sound group move																																																									
X				~				: ~																																																									
X	1	1	1	1	1	1	1	: 127 sound groups move																																																									
0	X	X	X	X	X	X	X	: Forward																																																									
1	X	X	X	X	X	X	X	: Reverse																																																									
<	Contents of Preset2	1 byte	Requests preset bit map 2 answer.																																																														
	(1) Request Data Code																																																																
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: (1) Requests the data of preset area No. 1</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: (2) Requests the data of preset area No. 2</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>: (3) Requests the data of preset area No. 3</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		0	0	0	0	0	0	0	1	: (1) Requests the data of preset area No. 1	0	0	0	0	0	0	1	0	: (2) Requests the data of preset area No. 2	0	0	0	0	0	0	1	1	: (3) Requests the data of preset area No. 3																										
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																										
0	0	0	0	0	0	0	1	: (1) Requests the data of preset area No. 1																																																									
0	0	0	0	0	0	1	0	: (2) Requests the data of preset area No. 2																																																									
0	0	0	0	0	0	1	1	: (3) Requests the data of preset area No. 3																																																									

Code	Command	Parameter	Discription																																																															
>	Preset 2 Memory	7 bytes	Sets preset 2 memory.																																																															
	(1) Preset2 Setting Code																																																																	
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: (1) Changes the using area*</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: (2) Changes the set of the preset area No.1</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: (3) Changes the set of the preset area No.2</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td><td>: (4) Changes the set of the preset area No.3</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>: (5) Requests the write function to the preset2 EEPROM*</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td><td>: (6) Requests the function to the program setting EEPROM*</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		0	0	0	0	0	0	0	0	: (1) Changes the using area*	0	0	0	0	0	0	0	1	: (2) Changes the set of the preset area No.1	0	0	0	0	0	0	1	0	: (3) Changes the set of the preset area No.2	0	0	0	0	0	0	1	1	: (4) Changes the set of the preset area No.3	0	0	0	0	0	1	0	0	: (5) Requests the write function to the preset2 EEPROM*	0	0	0	0	0	1	0	1	: (6) Requests the function to the program setting EEPROM*
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																										
	0	0	0	0	0	0	0	0	: (1) Changes the using area*																																																									
	0	0	0	0	0	0	0	1	: (2) Changes the set of the preset area No.1																																																									
	0	0	0	0	0	0	1	0	: (3) Changes the set of the preset area No.2																																																									
	0	0	0	0	0	0	1	1	: (4) Changes the set of the preset area No.3																																																									
	0	0	0	0	0	1	0	0	: (5) Requests the write function to the preset2 EEPROM*																																																									
	0	0	0	0	0	1	0	1	: (6) Requests the function to the program setting EEPROM*																																																									
(2) Preset Code7																																																																		
(3)~(7) Reserved																																																																		
* Changes the using area/Requests the write function to EEPROM																																																																		
(1) Preset 2 setting code																																																																		
(2) Using area/Writing area (Binary: 1~3)																																																																		
(3)~(7) Reserved																																																																		
@	Setting A/B Point	1 byte, *(1)	Performs the A/B set time.																																																															
	(1) Setting Code																																																																	
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: A Set Time</td></tr><tr><td>X</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: B Set Time</td></tr><tr><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Cancel</td></tr><tr><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Set</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		X	0	0	0	0	0	0	1	: A Set Time	X	0	0	0	0	0	1	0	: B Set Time	0	X	X	X	X	X	X	X	: Cancel	1	X	X	X	X	X	X	X	: Set																		
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																										
	X	0	0	0	0	0	0	1	: A Set Time																																																									
	X	0	0	0	0	0	1	0	: B Set Time																																																									
	0	X	X	X	X	X	X	X	: Cancel																																																									
	1	X	X	X	X	X	X	X	: Set																																																									

To control the player while attaching the ID (Player Number);

- 1) Set the Mode at first. [M]-[10001000]
After the above, the player accepts commands with ID.
- 2) Attach and transfer the ID (1 byte) subsequent to the control command.

Example: With ID [COMMAND]-[ID]-[DATA]
Without ID [COMMAND]-[DATA]

- 3) When the ID is [11111111], all players accept the command.

2. Status and Answer List

Code	Status	Parameter	Discription																																																																																																																					
A	Acknowledge	Non	Receipt of Command (Answer for A, B, D, F, J, K, M, P, Q, S, T, U, V, W, Y, b, c, e, f, j, k, l, m, n, o, p, q, r, s, u, w, y, z, :, >, @ Commands).																																																																																																																					
B	Standby	Non or 1 byte	During standby (Answer for X and x commands).																																																																																																																					
	Track No. (Binary)																																																																																																																							
C	End Monitor	Non or 1 byte	During End Monitor (Answer for X and x commands).																																																																																																																					
	Track No. (Binary)																																																																																																																							
	Tray-down	3 bytes	During Tray-down (Answer for X and x commands).																																																																																																																					
D		<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: Disc loading</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: Servo on and TOC read</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>: Disc eject</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		0	0	0	0	0	0	0	0	: Disc loading	0	0	0	0	0	0	0	1	: Servo on and TOC read	0	0	0	0	0	0	1	0	: Disc eject																																																																																		
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																																	
0	0	0	0	0	0	0	0	: Disc loading																																																																																																																
0	0	0	0	0	0	0	1	: Servo on and TOC read																																																																																																																
0	0	0	0	0	0	1	0	: Disc eject																																																																																																																
E	Error	1 byte *(1)	Transmits an error code. (Answer for X and x commands)																																																																																																																					
	Error Code																																																																																																																							
	Stop	1 byte	Answer for X and X commands.																																																																																																																					
F	(1) Power Save	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: STOP</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: Power save</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		0	0	0	0	0	0	0	0	: STOP	0	0	0	0	0	0	0	1	: Power save																																																																																											
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																																	
0	0	0	0	0	0	0	0	: STOP																																																																																																																
0	0	0	0	0	0	0	1	: Power save																																																																																																																
	Old Presetting	7 bytes *(1) ~ (7)	Answer for old presetting command.																																																																																																																					
	(1) Preset Code 1	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>: Analog Input (From Panel SW)</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>: Digital Input (From Panel SW)</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>X</td><td>: Mono (0: Stereo / 1: Mono)</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>X</td><td>X</td><td>: Normal Speed</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>X</td><td>X</td><td>: Pitch ON</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>X</td><td>X</td><td>X</td><td>: SCMS (0: INH / 1: ENA)</td></tr><tr><td>X</td><td>X</td><td>0</td><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Auto inc Dig.</td></tr><tr><td>X</td><td>X</td><td>0</td><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Auto inc Det</td></tr><tr><td>X</td><td>X</td><td>1</td><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Auto inc OFF</td></tr><tr><td>X</td><td>X</td><td>1</td><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Auto inc OFF</td></tr><tr><td>X</td><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Ch Status 1 Fixed for profession</td></tr><tr><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Hot Start (0: OFF / 1: ON)</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		X	X	X	X	X	X	X	0	: Analog Input (From Panel SW)	X	X	X	X	X	X	X	1	: Digital Input (From Panel SW)	X	X	X	X	X	X	1	X	: Mono (0: Stereo / 1: Mono)	X	X	X	X	X	0	X	X	: Normal Speed	X	X	X	X	X	1	X	X	: Pitch ON	X	X	X	X	1	X	X	X	: SCMS (0: INH / 1: ENA)	X	X	0	0	X	X	X	X	: Auto inc Dig.	X	X	0	1	X	X	X	X	: Auto inc Det	X	X	1	0	X	X	X	X	: Auto inc OFF	X	X	1	1	X	X	X	X	: Auto inc OFF	X	1	X	X	X	X	X	X	: Ch Status 1 Fixed for profession	1	X	X	X	X	X	X	X	: Hot Start (0: OFF / 1: ON)	
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																																	
X	X	X	X	X	X	X	0	: Analog Input (From Panel SW)																																																																																																																
X	X	X	X	X	X	X	1	: Digital Input (From Panel SW)																																																																																																																
X	X	X	X	X	X	1	X	: Mono (0: Stereo / 1: Mono)																																																																																																																
X	X	X	X	X	0	X	X	: Normal Speed																																																																																																																
X	X	X	X	X	1	X	X	: Pitch ON																																																																																																																
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X	X	0	0	X	X	X	X	: Auto inc Dig.																																																																																																																
X	X	0	1	X	X	X	X	: Auto inc Det																																																																																																																
X	X	1	0	X	X	X	X	: Auto inc OFF																																																																																																																
X	X	1	1	X	X	X	X	: Auto inc OFF																																																																																																																
X	1	X	X	X	X	X	X	: Ch Status 1 Fixed for profession																																																																																																																
1	X	X	X	X	X	X	X	: Hot Start (0: OFF / 1: ON)																																																																																																																
G	(2) Preset Code 2	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td><td></td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>0</td><td>0</td><td>: Cue Det. OFF</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>0</td><td>1</td><td>: Cue Det. -72dB</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>1</td><td>0</td><td>: Cue Det. -66dB</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>1</td><td>1</td><td>: Cue Det. -60dB</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>0</td><td>0</td><td>: Cue Det. -54dB</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>0</td><td>1</td><td>: Cue Det. -48dB</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>1</td><td>0</td><td>: Cue Det. -42dB</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>1</td><td>1</td><td>: Cue Det. -36dB</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>X</td><td>X</td><td>X</td><td>: UTOC Normal (Fixed)</td></tr><tr><td>X</td><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Remote ENA (Fixed)</td></tr><tr><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>: Switch (0: ENA / 1: INH)</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		X	X	X	X	X	0	0	0	: Cue Det. OFF	X	X	X	X	X	0	0	1	: Cue Det. -72dB	X	X	X	X	X	0	1	0	: Cue Det. -66dB	X	X	X	X	X	1	1	1	: Cue Det. -60dB	X	X	X	X	X	1	0	0	: Cue Det. -54dB	X	X	X	X	X	1	0	1	: Cue Det. -48dB	X	X	X	X	X	1	1	0	: Cue Det. -42dB	X	X	X	X	X	1	1	1	: Cue Det. -36dB	X	X	X	X	0	X	X	X	: UTOC Normal (Fixed)	X	0	X	X	X	X	X	X	: Remote ENA (Fixed)	1	X	X	X	X	X	X	X	: Switch (0: ENA / 1: INH)										
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																																	
X	X	X	X	X	0	0	0	: Cue Det. OFF																																																																																																																
X	X	X	X	X	0	0	1	: Cue Det. -72dB																																																																																																																
X	X	X	X	X	0	1	0	: Cue Det. -66dB																																																																																																																
X	X	X	X	X	1	1	1	: Cue Det. -60dB																																																																																																																
X	X	X	X	X	1	0	0	: Cue Det. -54dB																																																																																																																
X	X	X	X	X	1	0	1	: Cue Det. -48dB																																																																																																																
X	X	X	X	X	1	1	0	: Cue Det. -42dB																																																																																																																
X	X	X	X	X	1	1	1	: Cue Det. -36dB																																																																																																																
X	X	X	X	0	X	X	X	: UTOC Normal (Fixed)																																																																																																																
X	0	X	X	X	X	X	X	: Remote ENA (Fixed)																																																																																																																
1	X	X	X	X	X	X	X	: Switch (0: ENA / 1: INH)																																																																																																																

Code	Status	Parameter	Discription						
G	(3) Preset Code 3								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	X	X	X	1	: Play Lock (0: OFF / 1: ON)
	X	X	X	X	X	X	0	X	: End Mark OFF (Fixed)
	X	X	X	X	X	1	X	X	: Fader P-Pause (Fixed)
	X	X	0	0	0	X	X	X	: E.O.M. OFF
	X	X	0	0	1	X	X	X	: E.O.M. 5 sec
	X	X	0	1	0	X	X	X	: E.O.M. 10 sec
	X	X	0	1	1	X	X	X	: E.O.M. 15 sec
	X	X	1	0	0	X	X	X	: E.O.M. 20 sec
	X	X	1	0	1	X	X	X	: E.O.M. 25 sec
	X	X	1	1	0	X	X	X	: E.O.M. 30 sec
	X	X	1	1	1	X	X	X	: E.O.M. 35 sec
	(4) Preset Code 4								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	X	0	0	0	: End Mon OFF
	X	X	X	X	X	0	0	1	: End Mon 5 sec
	X	X	X	X	X	0	1	0	: End Mon 10 sec
	X	X	X	X	X	0	1	1	: End Mon 15 sec
	X	X	X	X	X	1	0	0	: End Mon 20 sec
	X	X	X	X	X	1	0	1	: End Mon 25 sec
	X	X	X	X	X	1	1	0	: End Mon 30 sec
	X	X	X	X	X	1	1	1	: End Mon 35 sec
	X	X	X	0	0	X	X	X	: Stdbby 0 ms (Fixed)
	X	0	0	X	X	X	X	X	: Delay 0 ms (Fixed)
	1	X	X	X	X	X	X	X	: bps (0: 9600bps / 1: 19200bps)
	(5) Preset Code 5								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	X	X	0	0	: Tally E.O.M. (Fixed)
	X	X	X	X	0	0	X	X	: End Cue 0 sec
	X	X	X	X	0	1	X	X	: End Cue -1 sec
	X	X	X	X	1	0	X	X	: End Cue -2 sec
	X	X	X	X	1	1	X	X	: End Cue -3 sec
	X	X	0	0	X	X	X	X	: Finish Stop
	X	X	0	1	X	X	X	X	: Finish Recue
	X	X	1	0	X	X	X	X	: Finish Next
	X	X	1	1	X	X	X	X	: Non (Finish Repeat)
	X	1	X	X	X	X	X	X	: Flash ON (Fixed)
	1	X	X	X	X	X	X	X	: Frame Disp ON (Fixed)
	(6) Preset Code 6								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	0	X	X	X	: Eject lock OFF (Fixed)
	X	X	X	1	X	X	X	X	: Pre UTOC (0: OFF / 1: ON)
	X	X	1	X	X	X	X	X	: Serial ENA (Fixed)
	0	0	X	X	X	X	X	X	: Disp Name (Fixed)

Code	Status	Parameter	Discription						
G	(7) Preset Code 7								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	0	0	0	0	: Player ID 0
	X	X	X	X					: ~
	X	X	X	X	1	1	1	1	: Player ID 15
	X	X	X	0	X	X	X	X	: Player OFF
	X	X	X	1	X	X	X	X	: Player ON
	0	0	0	X	X	X	X	X	: Inc Level -72 dB
	0	0	1	X	X	X	X	X	: Inc Level -66 dB
	0	1	0	X	X	X	X	X	: Inc Level -60 dB
	0	1	1	X	X	X	X	X	: Inc Level -54 dB
	1	0	0	X	X	X	X	X	: Inc Level -48 dB
	1	0	1	X	X	X	X	X	: Inc Level -42 dB
	1	1	0	X	X	X	X	X	: Inc Level -36 dB
	H	Reserved Track	1 byte, *(1)	Answer for H command					
(1) Track Number (Binary)									
I	Invalid Command	Non	Invalid command. (Answer for A, B, D, F, J, K, M, P, Q, S, T, U, V, W, Y, b, c, e, f, j, k, l, m, n, o, p, q, r, s, u, w, y, z, :, >, @ commands).						
O	Option	10 bytes	Answer for the Option Command.						
	(0) TOC Information (Frame) / (1) TOC information (SGroup)								
	(0), (1)-(1) First track number (Binary)								
	(0), (1)-(2) End track number (Binary)								
	(0), (1)-(3) Total Time, Minute (BCD)								
	(0), (1)-(4) Total Time, Minute (BCD)								
	(0), (1)-(5) Total Time, Sec. (BCD)								
	(0), (1)-(6) Total Time, Frame (BCD)								
	(2) System Information: Old Format								
	(2)-(1) Reserved								
	(2)-(2) Reserved								
	(2)-(3) Reserved								
	(2)-(4) Reserved								
	(2)-(5) System Information 1 Code								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
X	X	X	X	X	X	X	1	: FL Tube "EJECT LOCK" lights (0: Unlight)	
X	X	X	X	X	X	1	X	: LED "PITCH" lights (0: Unlight)	
X	X	X	X	X	1	X	X	: FL Tube "REMAIN" lights (0: Unlight)	
X	X	X	X	1	X	X	X	: FL Tube "DIGITAL" lights (0: Unlight)	
X	X	1	X	X	X	X	X	: FL Tube "CUE" lights (0: Unlight)	
X	1	X	X	X	X	X	X	: FL Tube "EDIT" lights (0: Unlight)	
1	X	X	X	X	X	X	X	: FL Tube "TOC" lights (0: Unlight)	
(2)-(6) System Information 2 Code									
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0		
X	X	X	X	X	X	1	X	: FL Tube "SINGLE" lights (0: Continue)	

Code	Status	Parameter	Description						
(3) System 1 Information: New Format									
(3)-(1) System Information 1 Code									
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	X	X	X	1	: FL Tube "REPEAT" lights (0: Blink/Unlight)
	X	X	X	X	X	X	1	X	: LED "PITCH" lights (0: Blink/Unlight)
	X	X	X	X	X	1	X	X	: FL Tube "EOM" lights (0: Blink/Unlight)
	X	X	X	X	1	X	X	X	: FL Tube "PROGRAM" lights (0: Blink/Unlight)
	X	X	X	1	X	X	X	X	: FL Tube "EJECT LOCK" lights (0: Blink/Unlight)
	X	X	1	X	X	X	X	X	: FL Tube "PLAY LOCK" lights (0: Blink/Unlight)
	X	1	X	X	X	X	X	X	: FL Tube "WORD SYNC" lights (0: Blink/Unlight)
	1	X	X	X	X	X	X	X	: FL Tube "VIDEO SYNC" lights (0: Blink/Unlight)
(3)-(2) System Information 2 Code									
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	X	X	X	1	: FL Tube "REPEAT" blinks (0: Light/Unlight)
	X	X	X	X	X	X	1	X	: LED "PITCH" blinks (0: Light/Unlight)
	X	X	X	X	X	1	X	X	: FL Tube "EOM" blinks (0: Light/Unlight)
	X	X	X	X	1	X	X	X	: FL Tube "PROGRAM" blinks (0: Light/Unlight)
	X	X	X	1	X	X	X	X	: FL Tube "EJECT LOCK" blinks (0: Light/Unlight)
	X	X	1	X	X	X	X	X	: FL Tube "PLAY LOCK" blinks (0: Light/Unlight)
	X	1	X	X	X	X	X	X	: FL Tube "WORD SYNC" blinks (0: Light/Unlight)
	1	X	X	X	X	X	X	X	: FL Tube "VIDEO SYNC" blinks (0: Light/Unlight)
(3)-(3) System Information 3 Code									
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	X	X	X	1	: FL Tube "SINGLE" lights (0: Blink/Unlight)
	X	X	X	X	X	X	1	X	: FL Tube "A-B" lights (0: Blink/Unlight)
	X	X	X	X	X	1	X	X	: FL Tube "ELAPSE" lights (0: Blink/Unlight)
	X	X	X	X	1	X	X	X	: FL Tube "REMAIN" lights (0: Blink/Unlight)
	X	X	X	1	X	X	X	X	: FL Tube "32 kHz" lights (0: Blink/Unlight)
	X	X	1	X	X	X	X	X	: FL Tube "44.1 kHz" lights (0: Blink/Unlight)
	X	1	X	X	X	X	X	X	: FL Tube "48 kHz" lights (0: Blink/Unlight)
(3)-(4) System Information 4 Code									
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	X	X	X	1	: FL Tube "SINGLE" blinks (0: Light/Unlight)
	X	X	X	X	X	X	1	X	: FL Tube "A-B" blinks (0: Light/Unlight)
	X	X	X	X	X	1	X	X	: FL Tube "ELAPSE" blinks (0: Light/Unlight)
	X	X	X	X	1	X	X	X	: FL Tube "REMAIN" blinks (0: Light/Unlight)
	X	X	X	1	X	X	X	X	: FL Tube "32 kHz" blinks (0: Light/Unlight)
	X	X	1	X	X	X	X	X	: FL Tube "44.1 kHz" blinks (0: Light/Unlight)
	X	1	X	X	X	X	X	X	: FL Tube "48 kHz" blinks (0: Light/Unlight)
(3)-(5) System Information 5 Code									
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	X	X	X	1	: FL Tube "TOC" lights (0: Blink/Unlight)
	X	X	X	X	X	X	1	X	: LED "EDIT" lights (0: Blink/Unlight)
	X	X	X	X	X	1	X	X	: FL Tube "CUE" lights (0: Blink/Unlight)
	X	X	X	X	1	X	X	X	: FL Tube "DISC NAME" lights (0: Blink/Unlight)
	X	X	X	1	X	X	X	X	: FL Tube "TRACK NAME" lights (0: Blink/Unlight)
	X	X	1	X	X	X	X	X	: FL Tube "DATE" lights (0: Blink/Unlight)
	X	1	X	X	X	X	X	X	: FL Tube "DIGITAL IN" lights (0: Blink/Unlight)
(3)-(6) System Information 6 Code									
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
	X	X	X	X	X	X	X	1	: FL Tube "TOC" blinks (0: Light/Unlight)
	X	X	X	X	X	X	1	X	: FL Tube "EDIT" blinks (0: Light/Unlight)
	X	X	X	X	X	1	X	X	: FL Tube "CUE" blinks (0: Light/Unlight)
	X	X	X	X	1	X	X	X	: FL Tube "DISC NAME" blinks (0: Light/Unlight)
	X	X	X	1	X	X	X	X	: FL Tube "TRACK NAME" blinks (0: Light/Unlight)
	X	X	1	X	X	X	X	X	: FL Tube "DATE" blinks (0: Light/Unlight)
	X	1	X	X	X	X	X	X	: FL Tube "DIGITAL IN" blinks (0: Light/Unlight)

Code	Status	Parameter	Discription																																																																																																																			
0		(4) CPU Version Number																																																																																																																				
		(4)-(1) Reserved																																																																																																																				
		(4)-(2) Reserved																																																																																																																				
		(4)-(3) System CPU number (BCD)																																																																																																																				
		(4)-(4) System CPU number (BCD)																																																																																																																				
		(4)-(5) Drive CPU number (BCD)																																																																																																																				
		(4)-(6) Drive CPU number (BCD)																																																																																																																				
		(5) Track Playback Time and Track Mode (Frame) / (6) Track Playback Time and Track Mode (SGroup)																																																																																																																				
		(5), (6)-(1) Reserved																																																																																																																				
		(5), (6)-(2) Minute (BCD)																																																																																																																				
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		(5), (6)-(4) Sec. (BCD)																																																																																																																				
		(5), (6)-(5) Frame/SGroup (BCD)																																																																																																																				
		(5), (6)-(6) Track Mode Code																																																																																																																				
		<table><tr><th>b 7</th><th>b 6</th><th>b 5</th><th>b 4</th><th>b 3</th><th>b 2</th><th>b 1</th><th>b 0</th></tr><tr><td>0</td><td>X</td><td>X</td><td>X</td><td>0</td><td>1</td><td>X</td><td>X</td><td>: Write protected</td></tr><tr><td>1</td><td>X</td><td>X</td><td>X</td><td>0</td><td>1</td><td>X</td><td>X</td><td>: Write permitted</td></tr><tr><td>X</td><td>0</td><td>X</td><td>X</td><td>0</td><td>1</td><td>X</td><td>X</td><td>: Copy right protected</td></tr><tr><td>X</td><td>1</td><td>X</td><td>X</td><td>0</td><td>1</td><td>X</td><td>X</td><td>: Not protected</td></tr><tr><td>X</td><td>X</td><td>0</td><td>X</td><td>0</td><td>1</td><td>X</td><td>X</td><td>: Original</td></tr><tr><td>X</td><td>X</td><td>1</td><td>X</td><td>0</td><td>1</td><td>X</td><td>X</td><td>: 1st or higher generation</td></tr><tr><td>X</td><td>X</td><td>X</td><td>0</td><td>0</td><td>1</td><td>X</td><td>X</td><td>: Audio</td></tr><tr><td>X</td><td>X</td><td>X</td><td>1</td><td>0</td><td>1</td><td>X</td><td>X</td><td>: Reserve</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>1</td><td>0</td><td>X</td><td>: Mono</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>1</td><td>1</td><td>X</td><td>: Stereo</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>1</td><td>X</td><td>0</td><td>: Emphasis off</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>1</td><td>X</td><td>1</td><td>: Emphasis 50/15 μs</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	X	X	X	0	1	X	X	: Write protected	1	X	X	X	0	1	X	X	: Write permitted	X	0	X	X	0	1	X	X	: Copy right protected	X	1	X	X	0	1	X	X	: Not protected	X	X	0	X	0	1	X	X	: Original	X	X	1	X	0	1	X	X	: 1st or higher generation	X	X	X	0	0	1	X	X	: Audio	X	X	X	1	0	1	X	X	: Reserve	X	X	X	X	0	1	0	X	: Mono	X	X	X	X	0	1	1	X	: Stereo	X	X	X	X	0	1	X	0	: Emphasis off	X	X	X	X	0	1	X	1	: Emphasis 50/15 μs
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																															
0	X	X	X	0	1	X	X	: Write protected																																																																																																														
1	X	X	X	0	1	X	X	: Write permitted																																																																																																														
X	0	X	X	0	1	X	X	: Copy right protected																																																																																																														
X	1	X	X	0	1	X	X	: Not protected																																																																																																														
X	X	0	X	0	1	X	X	: Original																																																																																																														
X	X	1	X	0	1	X	X	: 1st or higher generation																																																																																																														
X	X	X	0	0	1	X	X	: Audio																																																																																																														
X	X	X	1	0	1	X	X	: Reserve																																																																																																														
X	X	X	X	0	1	0	X	: Mono																																																																																																														
X	X	X	X	0	1	1	X	: Stereo																																																																																																														
X	X	X	X	0	1	X	0	: Emphasis off																																																																																																														
X	X	X	X	0	1	X	1	: Emphasis 50/15 μs																																																																																																														
	(7) Track Recording Data																																																																																																																					
	(7)-(1) Year (BCD)																																																																																																																					
	(7)-(2) Month (BCD)																																																																																																																					
	(7)-(3) Data (BCD)																																																																																																																					
	(7)-(4) Hour (BCD)																																																																																																																					
	(7)-(5) Minute (BCD)																																																																																																																					
	(7)-(6) Second (BCD)																																																																																																																					
	(8) Disc Write Protect Information																																																																																																																					
	(8)-(1) Reserved																																																																																																																					
	(8)-(2) Reserved																																																																																																																					
	(8)-(3) Reserved																																																																																																																					
	(8)-(4) Reserved																																																																																																																					
	(8)-(5) Disc Mode 1 Code																																																																																																																					
	<table><tr><th>b 7</th><th>b 6</th><th>b 5</th><th>b 4</th><th>b 3</th><th>b 2</th><th>b 1</th><th>b 0</th></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: Write permitted</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>: Write protected (Including no disc)</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	: Write permitted	0	0	0	0	0	0	0	1	: Write protected (Including no disc)																																																																																											
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																															
0	0	0	0	0	0	0	0	: Write permitted																																																																																																														
0	0	0	0	0	0	0	1	: Write protected (Including no disc)																																																																																																														
	(8)-(6) Disc Mode 2 Code																																																																																																																					
	<table><tr><th>b 7</th><th>b 6</th><th>b 5</th><th>b 4</th><th>b 3</th><th>b 2</th><th>b 1</th><th>b 0</th></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>: No Disc</td></tr><tr><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>1</td><td>: Prerecorded MD</td></tr><tr><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>0</td><td>: Recordable MD</td></tr><tr><td>0</td><td>0</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>1</td><td>: Hybrid MD</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	: No Disc	0	0	1	1	1	1	0	1	: Prerecorded MD	0	0	1	1	1	1	1	0	: Recordable MD	0	0	1	1	1	1	1	1	: Hybrid MD																																																																									
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																															
0	0	0	0	0	0	0	0	: No Disc																																																																																																														
0	0	1	1	1	1	0	1	: Prerecorded MD																																																																																																														
0	0	1	1	1	1	1	0	: Recordable MD																																																																																																														
0	0	1	1	1	1	1	1	: Hybrid MD																																																																																																														

Code	Status	Parameter	Discription																								
O		(9) Disc Recording Time (Frame) / (10) Disc Recording Time (SGroup)																									
		(9), (10)-(1) Reserved																									
		(9), (10)-(2) Reserved																									
		(9), (10)-(3) Minute (BCD)																									
		(9), (10)-(4) Minute (BCD)																									
		(9), (10)-(5) Second (BCD)																									
		(9), (10)-(6) Frame/SGroup (BCD)																									
		(11)~(15) Cue 1~5 Tally Time (Frame) / (16)~(20) Cue 1~5 Tally Time (SGroup)																									
		(11)~(20)-(1) Reserved																									
		(11)~(20)-(2) Cue tally setting code																									
		<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	: No cue tally setting : Cue tally setting
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																			
	0	0	0	0	0	0	0	0																			
	0	0	0	0	0	0	0	1																			
		(11)~(20)-(3) Minute (BCD)																									
	(11)~(20)-(4) Minute (BCD)																										
	(11)~(20)-(5) Sec. (BCD)																										
	(11)~(20)-(6) Frame/SGroup X10 (BCD)																										
		(21), (22) A/B Setting Time (Frame) / (23), (24) A/B Setting Time (SGroup)																									
		(21)~(24)-(1) A/B Setting Code																									
		<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	: No A/B set time : A/B Set time
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																			
	0	0	0	0	0	0	0	0																			
	0	0	0	0	0	0	0	1																			
		(21)~(24)-(2) A/B Track number																									
		(21)~(24)-(3) Minute (BCD)																									
		(21)~(24)-(4) Minute (BCD)																									
		(21)~(24)-(5) Sec. (BCD)																									
		(21)~(24)-(6) Frame/SGroup (BCD)																									
		(25) Category and Model Number: Old Format																									
		(25)-(1) Reserved																									
		(25)-(2) Reserved																									
		(25)-(3) Category code 05h (Fixed)																									
	(25)-(4) Model Number (ASCII Code)																										
	(25)-(5) Model Number (ASCII Code)																										
	(25)-(6) Model Number (ASCII Code)																										
		(26) Category and Model Number: New Format																									
		(26)-(1) Category code 05h (Fixed)																									
		(26)-(2) Reserved																									
		(26)-(3) Model Number (ASCII Code)																									
		(26)-(4) Model Number (ASCII Code)																									
		(26)-(5) Model Number (ASCII Code)																									
		(26)-(6) Model Number (ASCII Code)																									
P	Play	Non or 1 byte	During Play (Answer for X and x commands)																								
	Track No. (Binary)																										
Q	Manual Search and Scan	1 byte	Audio Signal is being output during Manual Search and Scan. (Answer for X and x commands)																								
	(1) Manual Search																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	: Block repeat : Manual Search	
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																				
0	0	0	0	0	0	0	0																				
0	0	0	0	0	0	0	1																				

Code	Status	Parameter	Discription																							
R	Ready	Non or 1 byte	No Disc is loaded. (Answer for X and x commands).																							
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></table> : No disc			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0							
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																			
0	0	0	0	0	0	0	0																			
S	Search	1 byte	Pick-up moving during the search function. (Answer for X and x command)																							
	(1) Recording Search <table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table> : Play back/Standby search : Recording search			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																			
0	0	0	0	0	0	0	0																			
0	0	0	0	0	0	0	1																			
T	Time	5 bytes	Sends the Time. (Answer for E command)																							
	(1) Track No. (Binary) (2) Minute (BCD) (3) Minute (BCD) (4) Second (BCD) (5) SGroup / Frame (BCD)																									
U	Pause	Non or 1 byte	During Pause. (Answer for X and x commands)																							
	Track No. (Binary)																									
Z	Select Track	1 byte	Answer for Z command.																							
	Track No. (Binary)																									

Code	Status	Parameter	Discription																																								
a	Record	Non or 1 byte	During record. (Answer for X and x commands)																																								
	Track No. (Binary)																																										
b	Record Pause	3 bytes	During record pause. (Answer for X and x commands)																																								
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>1</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																			
	0	0	0	0	0	0	0	0																																			
	0	0	0	0	0	0	0	1																																			
0	0	0	0	0	0	1	0																																				
0	0	0	0	0	0	1	1																																				
: Recording pause																																											
: Recording pause at digital unlock																																											
: Input monitor																																											
: Input monitor at digital unlock																																											
d	UTOC Write	Non or 1 byte	Answer for d command.																																								
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></table> : UTOC write			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0																								
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																				
0	0	0	0	0	0	0	0																																				
e	Name	10 bytes *(1) ~ (10)	Answer for a command.																																								
	(1) Data 1 code (ASCII)																																										
	(2) Data 2 code (ASCII)																																										
	(3) Data 3 code (ASCII)																																										
	(4) Data 4 code (ASCII)																																										
	(5) Data 5 code (ASCII)																																										
	(6) Data 6 code (ASCII)																																										
	(7) Data 7 code (ASCII)																																										
	(8) Data 8 code (ASCII)																																										
	(9) Data 9 code (ASCII)																																										
	(10) Data 10 code (ASCII)																																										
f	Hot Standby	Non or 1 byte	During hot standby. (Answer for X and x commands)																																								
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></tr></table> : Hot start standby			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	0	0	0	0	0	0	0	0																								
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																				
0	0	0	0	0	0	0	0																																				
g	POS	14 bytes or 1 byte	Answer for g command.																																								
	POS Code Response Enable																																										
	(1) POS existing code																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table> : Existing POS code			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	1	0	0	0	0	0	0	1																								
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																			
	1	0	0	0	0	0	0	1																																			
	(2) POS code 1 (ASCII)																																										
	(3) POS code 2 (ASCII)																																										
	(4) POS code 3 (ASCII)																																										
	(5) POS code 4 (ASCII)																																										
	(6) POS code 5 (ASCII)																																										
	(7) POS code 6 (ASCII)																																										
	(8) POS code 7 (ASCII)																																										
	(9) POS code 8 (ASCII)																																										
	(10) POS code 9 (ASCII)																																										
	(11) POS code 10 (ASCII)																																										
	(12) POS code 11 (ASCII)																																										
	(13) POS code 12 (ASCII)																																										
	(14) POS code 13 (ASCII)																																										
	POS Code Response Disable																																										
	(1)																																										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td></tr></table> : No existing POS code			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	1	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0																
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																			
	1	0	0	0	0	0	1	0																																			
	1	0	0	0	0	1	0	0																																			
	: No readed POS code																																										

Code	Status	Parameter	Discription																																																																																																																																
h	ISRC	1 or 13 bytes *(1) or (1) ~ (13)	Sends out ISRC. (Answer for h command)																																																																																																																																
	ISRC Code Response Enable																																																																																																																																		
	(1) ISRC Existing Code																																																																																																																																		
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td></tr></table> : Existing ISRC code			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	1	0	0	0	0	0	0	1																																																																																																																
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																																											
	1	0	0	0	0	0	0	1																																																																																																																											
	(2) ISRC country code 1 (ASCII)																																																																																																																																		
	(3) ISRC country code 2 (ASCII)																																																																																																																																		
	(4) ISRC owner code 1 (ASCII)																																																																																																																																		
	(5) ISRC owner code 2 (ASCII)																																																																																																																																		
	(6) ISRC owner code 3 (ASCII)																																																																																																																																		
	(7) ISRC recording year 1 (ASCII)																																																																																																																																		
	(8) ISRC recording year 2 (ASCII)																																																																																																																																		
	(9) ISRC serial number 1 (ASCII)																																																																																																																																		
	(10) ISRC serial number 2 (ASCII)																																																																																																																																		
(11) ISRC serial number 3 (ASCII)																																																																																																																																			
(12) ISRC serial number 4 (ASCII)																																																																																																																																			
(13) ISRC serial number 5 (ASCII)																																																																																																																																			
ISRC Code Response Disable																																																																																																																																			
(1) <table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td></tr></table> : No existing ISRC code : No readed ISRC code			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	1	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0																																																																																																									
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1	0	0	0	0	1	0	0																																																																																																																												
i	Preset	6 bytes	Answer for I command																																																																																																																																
	(1) Using Preset Area Request																																																																																																																																		
	(1)-(1) Using Preset area (Binary: 1~3)																																																																																																																																		
	(1)-(2) Reserved																																																																																																																																		
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	(1)-(5) Reserved																																																																																																																																		
	(1)-(6) Reserved																																																																																																																																		
	(2)-(4) Preset Data																																																																																																																																		
	(2)-(4)-(1) Preset Code 1																																																																																																																																		
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>0</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>0</td><td>1</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>0</td></tr><tr><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>1</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>0</td><td>0</td><td>0</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>0</td><td>0</td><td>1</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>0</td><td>1</td><td>0</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>0</td><td>1</td><td>1</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>1</td><td>0</td><td>0</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>1</td><td>0</td><td>1</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>1</td><td>1</td><td>0</td><td>X</td><td>X</td><td>X</td></tr><tr><td>X</td><td>X</td><td>1</td><td>1</td><td>1</td><td>X</td><td>X</td><td>X</td></tr><tr><td>0</td><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr><tr><td>0</td><td>1</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr><tr><td>1</td><td>0</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td><td>X</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	X	X	X	X	X	X	0	0	X	X	X	X	X	X	0	1	X	X	X	X	X	X	1	0	X	X	X	X	X	1	X	X	X	X	0	0	0	X	X	X	X	X	0	0	1	X	X	X	X	X	0	1	0	X	X	X	X	X	0	1	1	X	X	X	X	X	1	0	0	X	X	X	X	X	1	0	1	X	X	X	X	X	1	1	0	X	X	X	X	X	1	1	1	X	X	X	0	0	X	X	X	X	X	X	0	1	X	X	X	X	X	X	1	0	X	X	X	X	X	X
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0																																																																																																																											
	X	X	X	X	X	X	0	0																																																																																																																											
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X	X	X	X	X	1	X	X																																																																																																																												
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: Finish Stop																																																																																																																																			
: Finish Next																																																																																																																																			
: Finish Recue																																																																																																																																			
: Mono (1: Mono/0: Stereo)																																																																																																																																			
: Cue Det. OFF																																																																																																																																			
: Cue Det. -72 dB																																																																																																																																			
: Cue Det. -66 dB																																																																																																																																			
: Cue Det. -60 dB																																																																																																																																			
: Cue Det. -54 dB																																																																																																																																			
: Cue Det. -48 dB																																																																																																																																			
: Cue Det. -42 dB																																																																																																																																			
: Cue Dat. -36 dB																																																																																																																																			
: Auto Inc. OFF																																																																																																																																			
: Auto Inc. Dig.																																																																																																																																			
: Auto Inc. Det.																																																																																																																																			

Code	Status	Parameter	Discription								
(2)-(4)-(2) Preset Code 2											
		<table><tr><th>b 7</th><th>b 6</th><th>b 5</th><th>b 4</th><th>b 3</th><th>b 2</th><th>b 1</th><th>b 0</th></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0				
		X X X X X 0 0 0	: End Mon OFF								
		X X X X X 0 0 1	: End Mon 5 sec.								
		X X X X X 0 1 0	: End Mon 10 sec.								
		X X X X X 0 1 1	: End Mon 15 sec.								
		X X X X X 1 0 0	: End Mon 20 sec.								
		X X X X X 1 0 1	: End Mon 25 sec.								
		X X X X X 1 1 0	: End Mon 30 sec.								
		X X X X X 1 1 1	: End Mon 35 sec.								
		X X 0 0 0 X X X	: E.O.M. OFF								
		X X 0 0 1 X X X	: E.O.M. 5 sec.								
		X X 0 1 0 X X X	: E.O.M. 10 sec.								
		X X 0 1 1 X X X	: E.O.M. 15 sec.								
		X X 1 0 0 X X X	: E.O.M. 20 sec.								
		X X 1 0 1 X X X	: E.O.M. 25 sec.								
		X X 1 1 0 X X X	: E.O.M. 30 sec.								
		X X 1 1 1 X X X	: E.O.M. 35 sec.								
		X 1 X X X X X X	: Pre UTOC (1: ON/0: OFF)								
		1 X X X X X X X	: UTOC (1: Auto/0: Manual)								
(2)-(4)-(3) Preset Code 3											
		<table><tr><th>b 7</th><th>b 6</th><th>b 5</th><th>b 4</th><th>b 3</th><th>b 2</th><th>b 1</th><th>b 0</th></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0				
		X X X X X 0 0 0	: Inc. Level -72 dB								
		X X X X X 0 0 1	: Inc. Level -66 dB								
		X X X X X 0 1 0	: Inc. Level -60 dB								
		X X X X X 0 1 1	: Inc. Level -54 dB								
		X X X X X 1 0 0	: Inc. Level -48 dB								
		X X X X X 1 0 1	: Inc. Level -42 dB								
		X X X X X 1 1 0	: Inc. Level -36 dB								
		X X 0 0 1 X X X	: Rec Start -72 dB								
		X X 0 1 0 X X X	: Rec Start -66 dB								
		X X 0 1 1 X X X	: Rec Start -60 dB								
		X X 1 0 0 X X X	: Rec Start -54 dB								
		X X 1 0 1 X X X	: Rec Start -48 dB								
		X X 1 1 0 X X X	: Rec Start -42 dB								
		X X 1 1 1 X X X	: Rec Start -36 dB								
		X 1 X X X X X X	: SCMS (1: ENA/0: INH)								
		1 X X X X X X X	: Data Disp (1: ON/0: OFF)								
(2)-(4)-(4) Preset Code 4											
		<table><tr><th>b 7</th><th>b 6</th><th>b 5</th><th>b 4</th><th>b 3</th><th>b 2</th><th>b 1</th><th>b 0</th></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0				
		X X X X X 0 0 0	: Rec Offset OFF								
		X X X X X 0 0 1	: Rec Offset 1 sec								
		X X X X X 0 1 0	: Rec Offset 2 sec								
		X X X X X 0 1 1	: Rec Offset 3 sec								
		X X X X X 1 0 0	: Rec Offset 4 sec								
		X X X X X 1 0 1	: Rec Offset 5 sec								
		X X X X 0 X X X	: Hot Start OFF								
		X X X X 1 X X X	: Hot Start ON								
		X X X 1 X X X X	: Pitch Auto (1: ON/0: OFF)								
		X X 1 X X X X X	: Playlock (1: ON/0: OFF)								
(2)-(4)-(5) Preset Code 5											
		<table><tr><th>b 7</th><th>b 6</th><th>b 5</th><th>b 4</th><th>b 3</th><th>b 2</th><th>b 1</th><th>b 0</th></tr></table>	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0	
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0				
		X X X X X X X 1	: Power Save (1: ON/ 0: OFF)								
		X X X X X 1 X X	: Rec Mono (1: Mono/ 0: Stereo)								
		X X X X 1 X X X	: bps (1: 19200/0: 9600)								
		X X X 1 X X X X	: Switch (1: ENA/0: INH)								
		X 0 0 X X X X X	: End Cue 0 sec								
		X 0 1 X X X X X	: End Cue -1 sec								
		X 1 0 X X X X X	: End Cue -2 sec								
		X 1 1 X X X X X	: End Cue -3 sec								

Code	Status	Parameter	Discription								
i	(2)~(4)-(6) Preset Code 6										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0			
	X X X 1 0 0 0 0 : Player ID (1: ON/0: OFF)										
	X X X X 0 0 0 : Player ID 0										
	X X X ~ : ~										
	X X X X 1 1 1 : Player ID 15										
	X 0 0 X X X X : FS OFF										
	X 0 1 X X X X : FS 38 kHz										
	X 1 0 X X X X : FS 44.1 kHz										
X 1 1 X X X X : FS 48 kHz											
1 X X X X X X : Next StdbY (1: ENA/0: INH)											
l	Hot Data Load	1 byte	Loading Hot start data (Answer for X and x command.)								
	Memory No. (Binary)										
m	Data of Hot Tracks	21 bytes	Answer for d command								
	(1) Buffer 1 Track No. (Binary)										
	(2) Buffer 2 Track No. (Binary)										
	(3) Buffer 3 Track No. (Binary)										
	(4) Buffer 4 Track No. (Binary)										
	(5) Buffer 5 Track No. (Binary)										
	(6) Buffer 6 Track No. (Binary)										
	(7) Buffer 7 Track No. (Binary)										
	(8) Buffer 8 Track No. (Binary)										
	(9) Buffer 9 Track No. (Binary)										
	(10) Buffer 10 Track No. (Binary)										
	(11) Buffer 11 Track No. (Binary)										
	(12) Buffer 12 Track No. (Binary)										
	(13) Buffer 13 Track No. (Binary)										
	(14) Buffer 14 Track No. (Binary)										
	(15) Buffer 15 Track No. (Binary)										
	(16) Buffer 16 Track No. (Binary)										
	(17) Buffer 17 Track No. (Binary)										
	(18) Buffer 18 Track No. (Binary)										
	(19) Buffer 19 Track No. (Binary)										
	(20) Buffer 20 Track No. (Binary)										
	(21) Repeat Code										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0				
0 0 0 0 0 0 0 0 : Repeat OFF											
0 0 0 0 0 0 0 1 : Repeat ON											
n	No Select Track, Index	Non or 1 byte	Answer for X and x command.								
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0
b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0				
0 0 0 0 0 0 0 0 : No select track											
o	Program input mode	Non or 1 byte	Answer for X and x command.								
	Step (Binary)										
p	Hot Start	Non or 1 byte	Answer for p command.								
	Memory No. (Binary)										
t	Editing Work	1 byte	Answer for t command.								
	(1) Editing Operation Code										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0			
	0 0 0 0 0 0 0 0 : Editing end										
0 0 0 0 0 0 0 1 : During editing											
0 0 0 0 0 0 1 0 : Editing failure											

Code	Status	Parameter	Discription								
v	Pich	1 byte	Answer for v command.								
	(1) Pitch Setting Code										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0			
	1 1 1 0 0 0 1 1 : Pitch -9.9										
	1 1 1 0 0 0 1 0 : Pitch -9.8										
	: ~										
	1 0 0 0 0 0 0 1 : Pitch -0.1										
	0 0 0 0 0 0 0 0 : Pitch ±0										
	0 0 0 0 0 0 0 1 : Pitch 0.1										
	0 0 0 0 0 0 1 0 : Pitch 0.2										
	: ~										
0 1 1 0 0 0 1 1 : Pitch 9.9											
w	Edit	Non or 1 byte	Answer for X or x command								
	(1) Executing Edit										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0			
	0 0 0 0 0 0 0 0 : Inputting edit										
0 0 0 0 0 0 0 1 : Executing edit											
y	Preset mode	Non or 1 byte	Answer for X and x command.								
	(1) Writing EEPROM										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0			
0 0 0 0 0 0 0 0 : Inputting preset											
0 0 0 0 0 0 0 1 : Writing EEPROM											
z	Test	Non or 1 byte	Answer for X and x command.								
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0			
0 0 0 0 0 0 0 0 : Test											
:	EEP ROM status	1 byte	Answer for: command.								
	(1) EEP ROM Code										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0			
	0 0 0 0 0 0 0 0 : EEPROM No Error										
	0 0 0 0 0 0 0 1 : EEPROM Reading										
0 0 0 0 0 0 1 0 : EEPROM Writing											
0 0 0 0 0 1 0 0 : EEPROM Work Error											
<	Preset 2 contents	6 bytes	Answer for < command.								
	(1) Preset Code 7										
	<table><tr><td>b 7</td><td>b 6</td><td>b 5</td><td>b 4</td><td>b 3</td><td>b 2</td><td>b 1</td><td>b 0</td></tr></table>			b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0
	b 7	b 6	b 5	b 4	b 3	b 2	b 1	b 0			
	X X X X X X X 0 : Fader Pause										
	X X X X X X X 1 : Fader Play										
	(2) Reserved										
	(3) Reserved										
	(4) Reserved										
	(5) Reserved										
(6) Reserved											
NAK	NAK (0x15)	Non	Communication error.								

3. Command Sequence

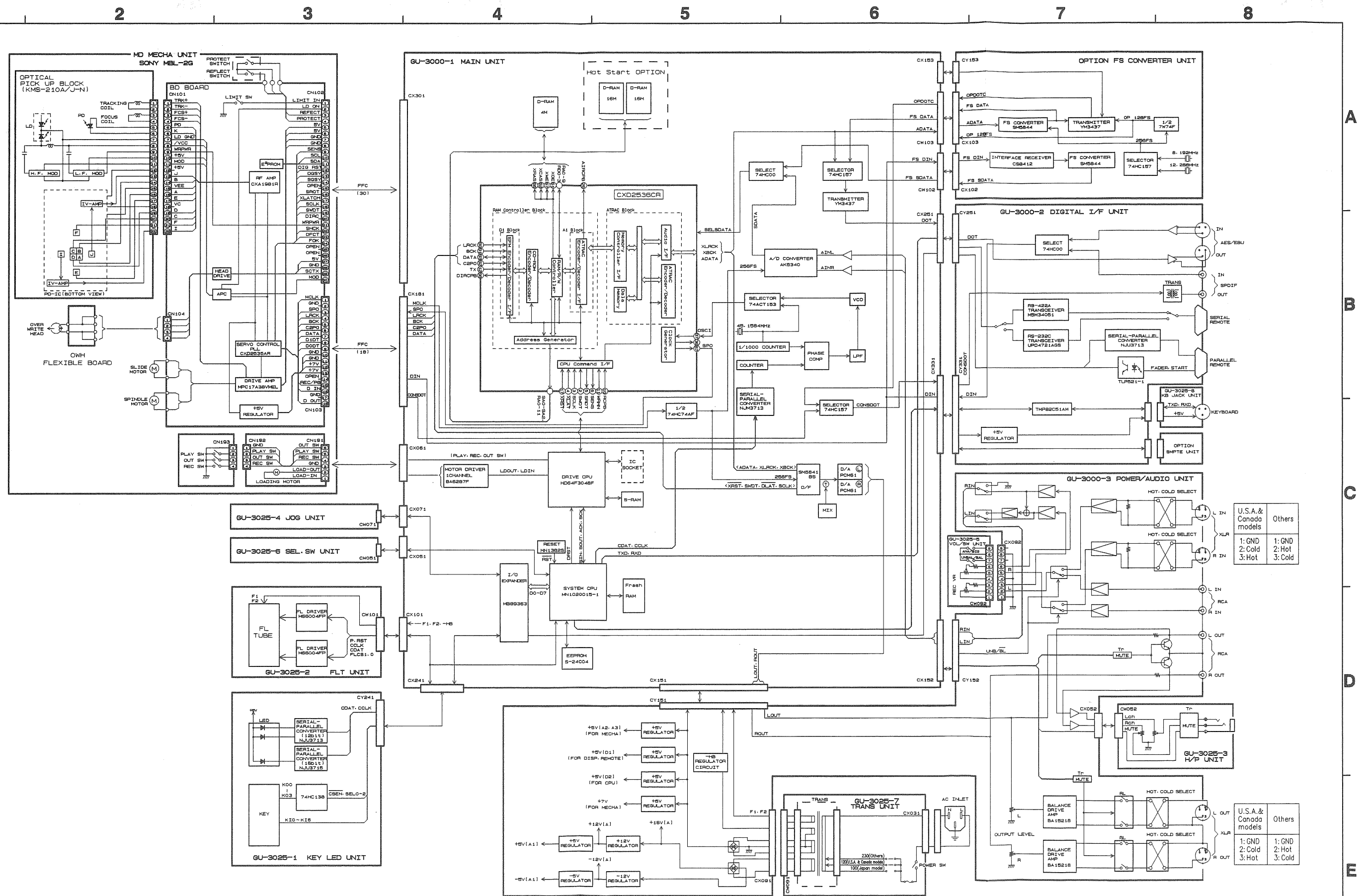
Apply the SEND STATUS COMMAND [X] or [x] from the Host Controller at all times for reading out the status of the DN-M1050R. Then take necessary steps.

4. Notice upon designing the Controller

- 1) After turning on the power or receipt of the Resetting Command [R], the unit will not accept new command for 0.5sec. in order for internal-unit initializing.
- 2) When a command is issued from the controller, send out next command after the acknowledge [A], Invalid [I] or the STATUS CODE is received.
- 3) Some of the commands may not be accepted except the unit is in the specific status mode.

These specifications and ratings are subject to change for improvement.

BLOCK DIAGRAM



DISASSEMBLY

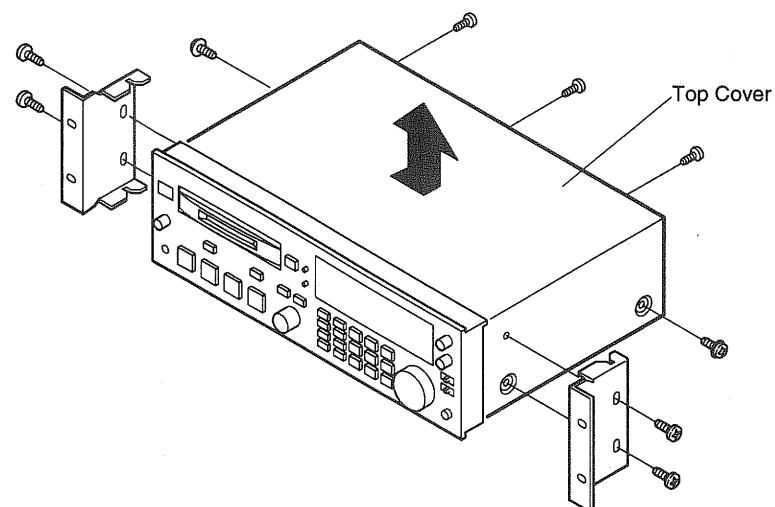
CAUTION:

The Optical Pick-up used for MD Recorder invite deflection by an external noise, such as electrostatic, etc., please pay the following attention.

1. Use a conductive mat on a working table to avoid electrostatic change.
2. A working personnel should use a wrist strap to ground human body.
3. Tools, etc., specially for a soldering iron must use with its tip grounded and without leakage of electricity. Utmost care must be taken to your clothes for electrostatic changing in a low humidity environment.

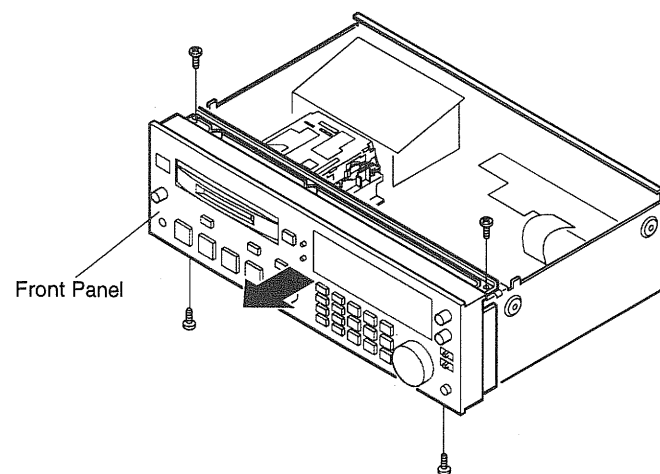
● TOP COVER

1. Remove 6 screws on the both sides, and 3 screws on the rear side.
2. Detach the Top Cover as shown in the arrow direction.



● FRONT PANEL

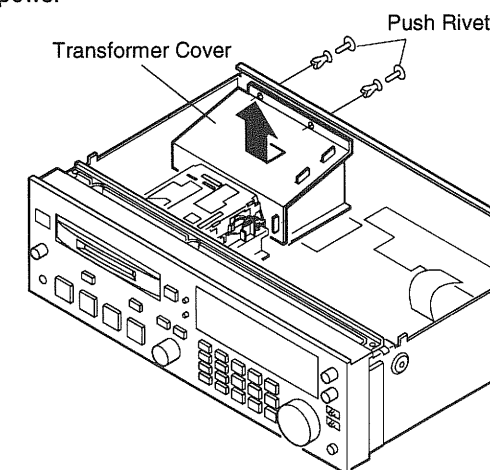
1. Remove 2 upper screws and 2 lower screws.
2. Detach the Front Panel in the arrow direction.



● TRANSFORMER COVER (SAFETY COVER)

1. Disconnect the power supply cord.
2. Remove 2 Push Rivets on the rear side.
3. Detach the Transformer Cover as shown in the arrow direction.

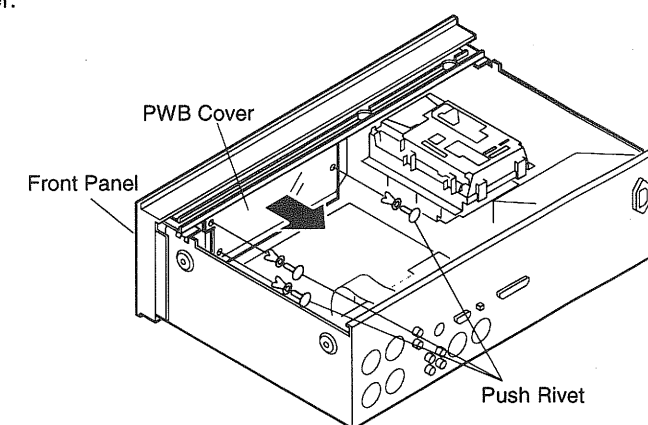
Note: When disassembling the set, be careful not to plug the power supply cord into the socket in order to avoid danger.



● PWB COVER (SAFETY COVER)

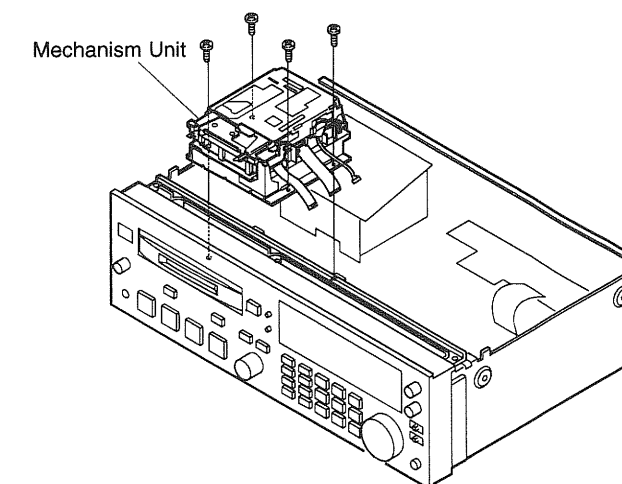
1. Disconnect the power supply cord.
2. Remove 3 Push Rivets and detach the PWB Cover.

Note: When disassembling the set, be careful not to plug the power supply cord into the socket in order to avoid danger.



● MECHANISM UNIT

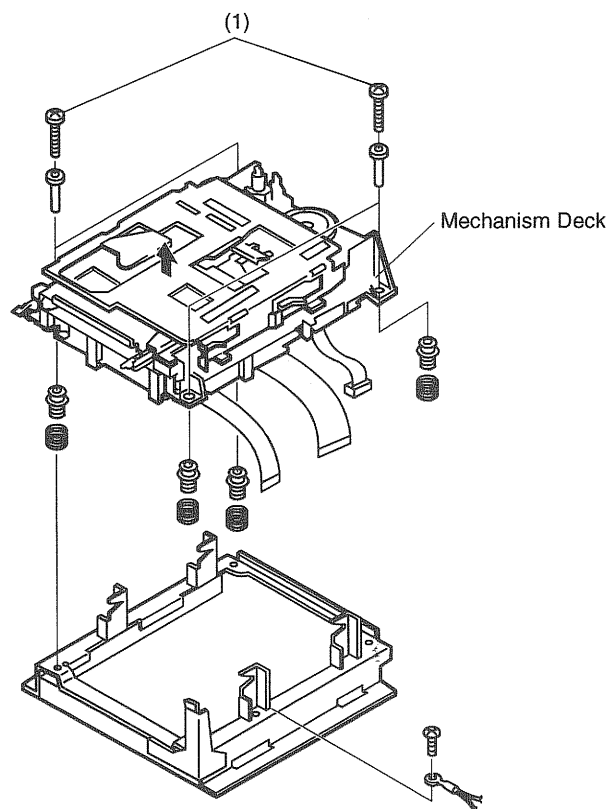
Remove 4 screws fixing the Mechanism Unit and detach the Mechanism Unit.



● MD MECHANISM UNIT

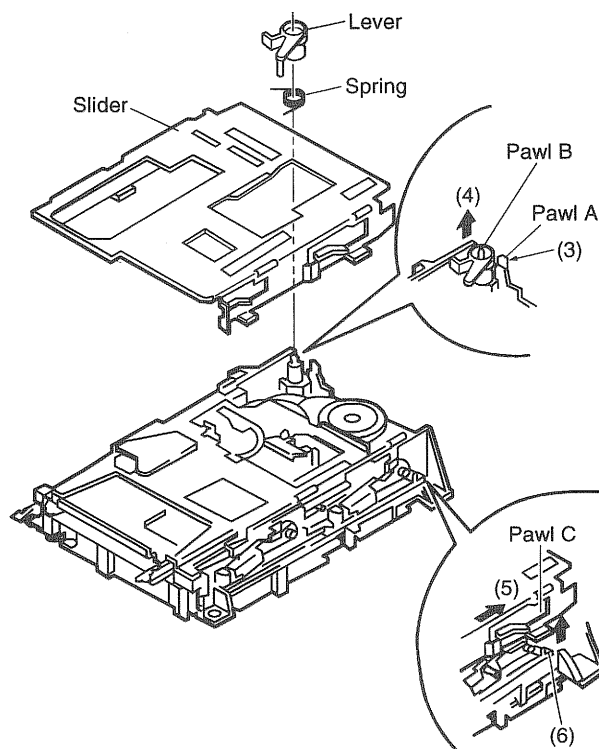
1. Mechanism Deck

- (1) Remove 4 screws fixing the mechanism deck.
- (2) Detach the mechanism deck in the arrow direction.



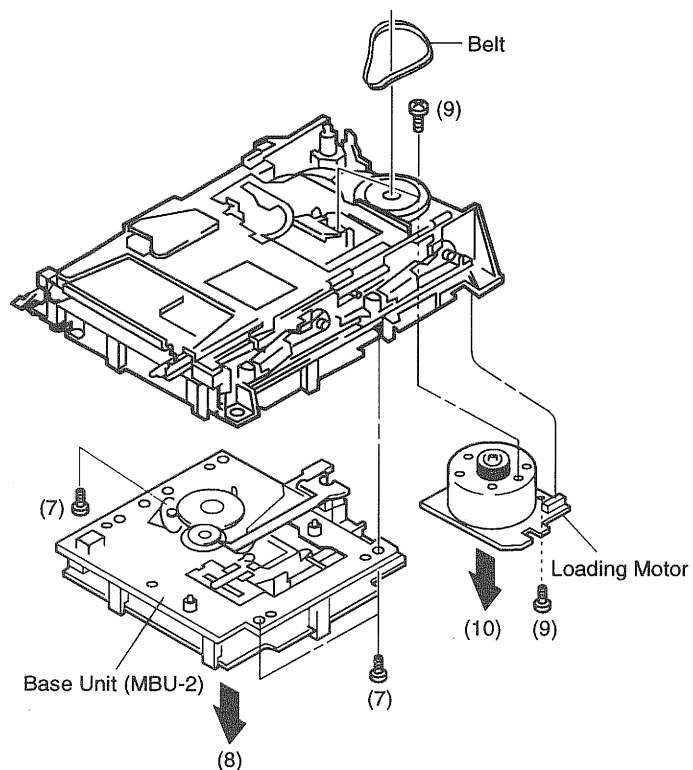
2. Slider

- (3) Disassemble the spring from the pawl A.
- (4) While releasing the pawl B, disassemble the lever in the arrow direction.
- (5) Move the pawl C of the slider in the arrow direction until bumping the base slot.
- (6) Dissassemble the slider in the arrow direction.



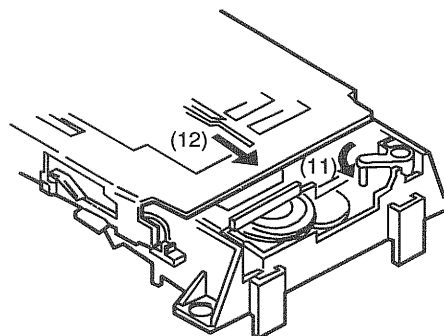
3. Base Unit and Loading Motor

- (7) Remove 3 screws mounting the base unit.
- (8) Detach the base unit in the arrow direction.
- (9) Remove 2 screws fixing the loading motor.
- (10) Disassemble the loading motor in the arrow direction.



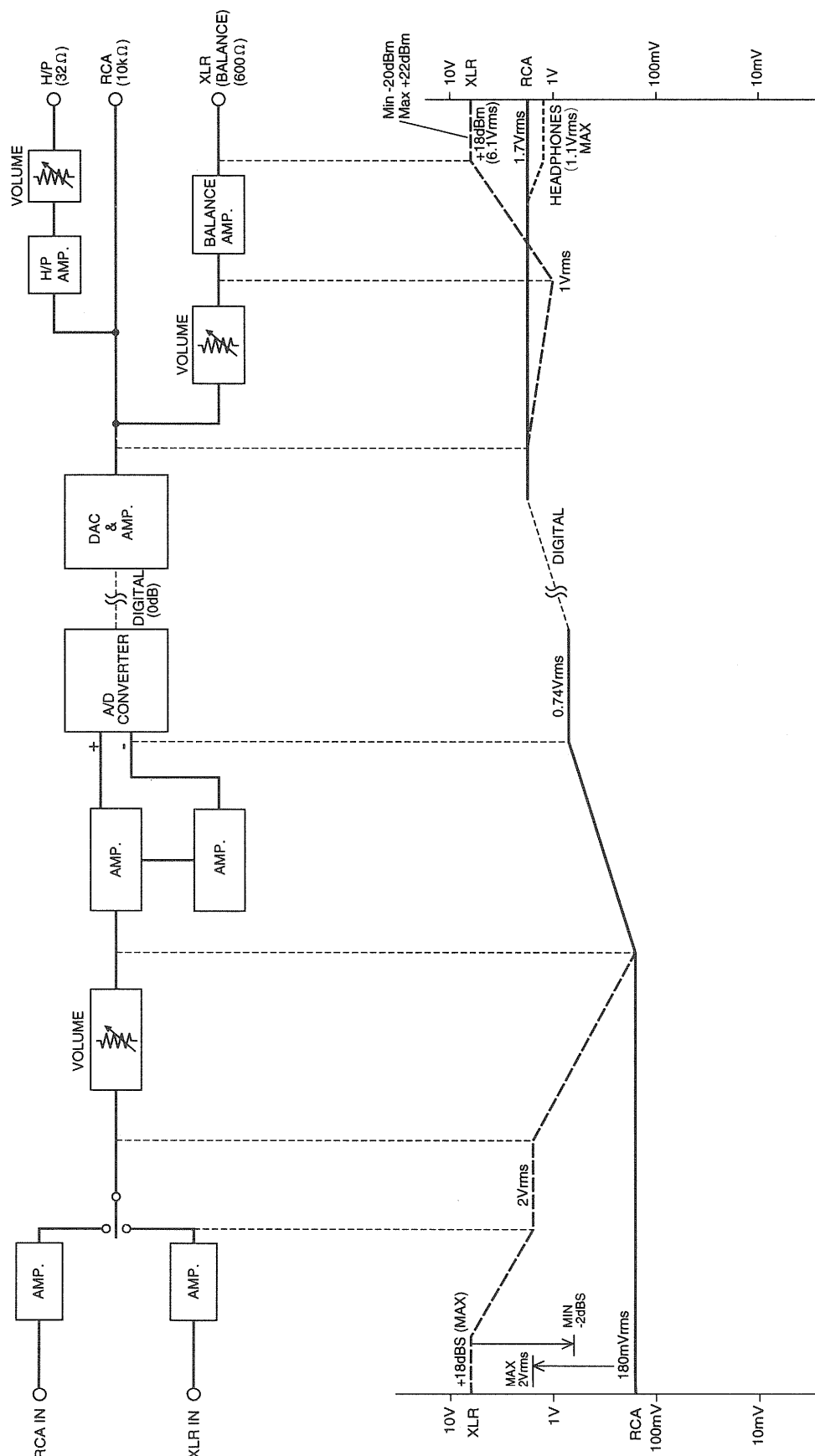
4. Installing the Slider

- (11) Turn the level fully in the arrow direction.
- (12) Move the slider in the arrow direction, and lock it on the lever.

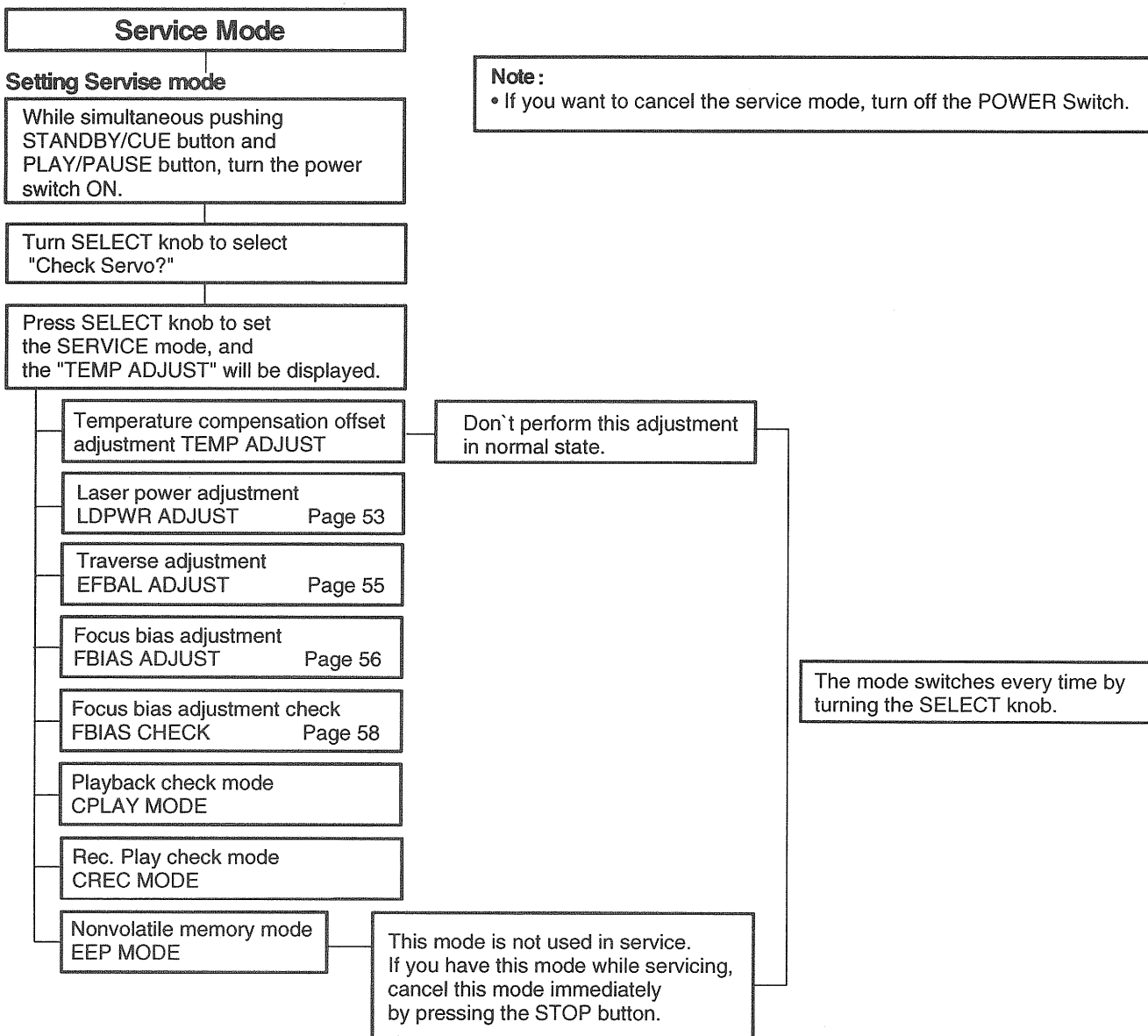


LEVEL DIAGRAM

DN-M1050R LEVEL DIAGRAM (REC. & PLAY)



SERVICE MODE



Key Functions

Key name	Function
Select Knob	Settlement of Parameter, Mode.
PLAY / PAUSE	Proceed forward. Settled.
STOP	Back to previous. Cancelled.
EDIT	Continuous Play when pressing it in STOP status, and Tracking Servo ON/OFF when pressing it while continued playing.
STANDBY/CUE	Stop of Continuous Playing / Continuous Recording.
Manual Forward Search key	The slider moves to the outer periphery direction while turning.
Manual Reverse Search key	The slider moves to the inner periphery direction while turning.
REC	Recording ON/OFF by pressing it while continuous playing.
PLAY MODE	Select the pit mode.
PITCH	Select the group mode.
TIME	Switching the contents of displaying. The display is changed by Pushing the switch every once.
EJECT (Remote Control)	Ejecting a disk.

Note:

- In service mode, the function of the erase protection knob is not detected. If you press REC key, in Traverse mode or Continuous recording mode, your recorded disk may be erased. Pay attention to your disk used for it.

Notice of adjustment

When replacing the following parts, adjust and check the items marked with ○.

Adjustment	Optical Pick-up	Mechanism P.W. Board		
		IC171	D101	IC101, 121, 191
1. Temperature compensation offset adjustment	×	○	○	○
2. Laser power adjustment	○	×	×	○
3. Traverse check	○	○	×	○
4. Focus bias adjustment	○	○	×	○
5. Error rate check	○	○	×	○

- Don't turn the semi-fixed resistor RV105 on the Mechanism P.W. Board. When it is replaced with new one, adjust it to the mechanical center position.

Creating the MO disk of continuous recording

- This disk is used for the focus adjustment bias and the error rate check. The following describes how to create the MO disk of continuous recording.

1. Load a MO disk (blank disk) sold in the market.

2. Turn SELECT knob to display [CREC MODE].

3. Press PLAY/PAUSE button to display [CREC IN].

4. Press PLAY/PAUSE button again to display [CREC MID].
Recording will be started. Recording term should be within 5 minutes.

5. Press STOP button to stop recording.

6. Press EJECT button to eject the MO disk.

Note:

- Do not apply any vibration while performing continuous recording.

Laser Power adjustment
LDPWR ADJUST**Note:**

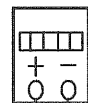
- Don't look the emit lighting of the laser diode from just above to prevent you from the loss of eyesight.
- Pay special attention to handle the laser diode of the optical pick-up, since it is easy to have an electrostatic break.



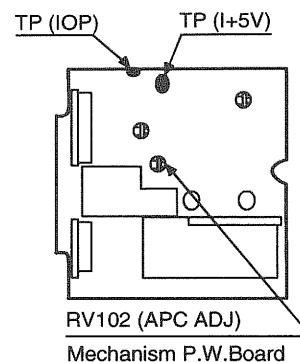
Connection Diagram

- Connect the digital voltmeter to TP(IOP) and TP(I+5V).

Digital Voltmeter



TP (IOP)
TP (I+5V)



Adjustment Method

1. Set the laser power meter on the object lens of the optical pick-up.
(The optical pick-up is moved by pressing the manual search key.)
2. Turn SELECT knob to display [LDPWR ADJUST].
3. Press PLAY/PAUSE button twice to display [LD\$4B+3.5mW].
4. Adjust the RV102 (APC ADJ) of the Mechanism P.W.Board so that the reading of the laser power meter becomes 3.4 to 3.5mW.
5. Press PLAY/PAUSE button to display [LD\$96=7mW]. : Writing laser power adjustment
6. Check that the readings of the laser power meter and the digital voltmeter are within specified values below.

Specification

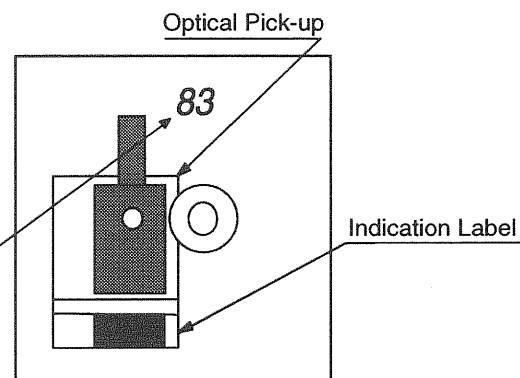
Reading of the laser power meter: $7.0 \pm 0.3\text{mW}$
Reading of the digital voltmeter: $\pm 10\%$ of indicated value on the Optical Pick-up.

(Indication of the optical pick-up)

KMS210A
X X X X X
B 0 8 2 5

The value with handwriting is lop value.
The value indicated on the label is rounded off. In case of 82.5mA, the value 83 is shown.

In this example, $\text{lop}=82.5\text{mA}$
 $\text{lop}(\text{mA}) = \frac{\text{The reading}(\text{mV}) \text{ of digital voltmeter}}{\div 1 (\text{ohm})}$



7. Press PLAY/PAUSE button to display [LD\$0F=0.7mW].
Check that the reading of the laser power meter is $0.70 \pm 0.1\text{mW}$.
8. Press STOP button to display [LDPW ADJUST], and stop the laser emit lighting.
(STOP key is accepted any time to press, and the laser emit lighting can be stopped.)

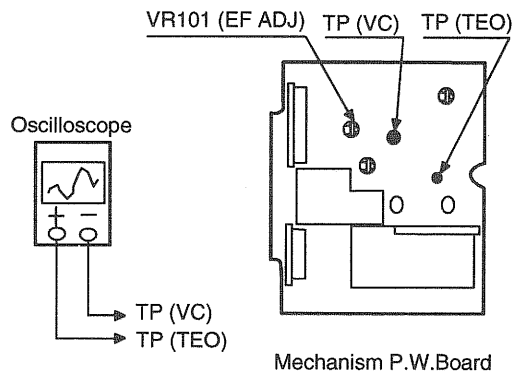
Note:

- Laser power adjustment and check should be performed at the ambient temperature $22^\circ\text{C} \pm 2^\circ\text{C}$ and humidity $50\% \pm 5\%$.
(If the ambient condition differs, the deviation values should be corrected.)

Traverse Adjustment EFBAL ADJUST

Connection Diagram

- Connect the oscilloscope to TP(TEO) and TO(VC)



Adjustment Method

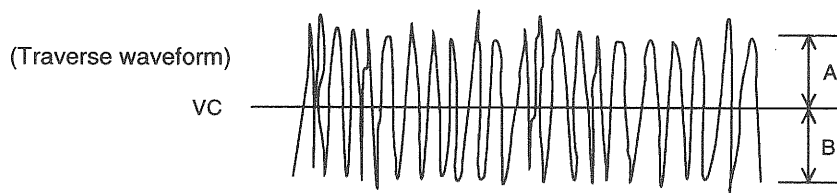
1. Load a MO disk sold in the at a market.

2. Press the manual search key to move the optical pick-up from the pit portion to outer periphery.

3. Turn the SELECT knob to display [EFBAL ADJUST].

4. Press PLAY/PAUSE button to display [EFBAL MO-W].

5. Adjust the RV101 on the Mechanism P.W.Board so that the waveform on the oscilloscope becomes A=B.



6. Press PLAY/PAUSE button. (MO groove read power traverse adjustment)

7. Turn the SELECT knob so that the waveform on the oscilloscope becomes A=B.
 (The waveform is changed when pressing the automatic search key. The waveform is changed in approximate 3% steps by this adjustment, and it should be adjusted closest to A=B.)

8. Press PLAY/PAUSE button to save the adjustment result into the nonvolatile memory. In that time, [EFB=\$_SAVE] is displayed in a moment, then the display will be changed to [EFBAL MO-P].

9. Press PLAY/PAUSE button to display [EFB=\$_ MO-P].

The optical pick-up moves to the pit portion area automatically, and it is controlled by the servo.

10. Turn the SELECT knob so that the waveform on the oscilloscope becomes A=B.

(The waveform is changed when pressing the automatic search key. The waveform is changed in approximate 3% steps by this adjustment, and it should be adjusted closest to A=B.)

11. Press PLAY/PAUSE button to save the adjustment result into the nonvolatile memory. In that time, [EFB=\$_SAVE] is displayed in a moment and the display will be changed to [EFBAL CD], then the rotation of the disk automatically stops.

12. Press EJECT button to eject the MO disk.

13. Load the test disk TDYS-1.

14. Press PLAY/PAUSE button to be controlled by the servo.

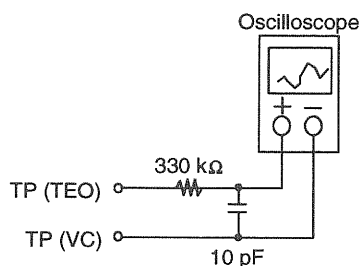
15. Turn the SELECT knob so that the waveform on the oscilloscope becomes A=B.
(The waveform is changed when pressing the automatic search key. The waveform is changed in approximate 3% steps by this adjustment, and it should adjusted closest to A=B.)

16. Press PLAY/PAUSE button to save the adjustment result into the nonvolatile memory. At that time, [EFB=\$_SAVE] is displayed in a moment and the display will be changed to [EFBAL ADJUST].

17. Press EJECT button to eject the test disk TDYS-1.

Note:

- If the recorded disk is used for this adjustment, the data is erased when writing into the MO disk.
- If the traverse waveform is difficult to see, it becomes better by connecting the filter as shown below.



**Focus Bias Adjustment
FBIAS ADJUST**

Adjustment Method

1. Load the continuous recorded disk (Refer to "Creating the MO disk of continuous recording").

2. Turn SELECT knob to display [CPLAY MODE].

3. Press PLAY/PAUSE button 3 times to display [CPLAY MID].

4. Press PLAY/PAUSE button after displaying [C1=____AD=____].

5. Press PLAY/PAUSE button to display [FBIAS ADJUST].

6. Press PLAY/PAUSE button to display [____/____a=____].
The first 4 digit numerals show C1 error rate, the numerals after [/] show ADER, and the numerals after [a=] show the amount of focus bias.

7. Turn SELECT knob to find the amount of focus bias which has 220 of C1 error rate.

8. Press PLAY/PAUSE button to display [____/____b=____].

9. Turn SELECT knob to find the amount of focus bias which has 220 of C1 error rate.

10. Press PLAY/PAUSE button to display [____/ ____c=____].

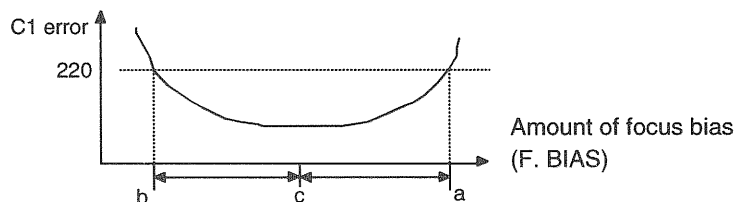
11. At that time, check that the C1 error rate is less than 50 and ADER is 00, then press PLAY/PAUSE button.

12. If the value of display [(____)] in the [____ - ____ - (____)] shows more than 20, press PLAY/PAUSE button. If it is less than 20, press STOP button and perform the adjustment again from the step 2 above.

13. Press STOP button and press EJECT button to eject the continuous recorded disk.

Note :

- The relation between C1 error and the amount of focus bias is shown in the figure below. Find the point a and b in the figure below after adjusting the process described above. The best focus point c can be obtained by calculating automatically from the points a, b.
- Adjust the C1 error rate by reading the average value since it has fluctuation.



Checking error rate

Checking CD error rate

Check Method

1. Load the test disk TDYS-1.

2. Turn SELECT knob to display [CPLAY MODE].

3. Press PLAY/PAUSE button 3 times to display [CPLAY MID]. [C1=____ AD= --] is displayed.

4. Check that the C1 error rate is less than 20.

5. Press STOP button key to stop playing-back, and press EJECT button to eject the test disk.

Checking MO error rate

Check Method

1. Load a continuous recorded disk.

2. Turn SELECT knob to display [CPLAY MODE].

3. Press PLAY/PAUSE button 3 times to display [CPLAY MID]. [C1=____ AD=____] is displayed.
C1=____ shows C1 error, AD=____ shows ADER.

4. Check that the C1 error rate is less than 50, and ADER is 00.

5. Press STOP button to stop playing-back, and press EJECT to eject the continuous recorded disk.

Focus Bias Check FBIAS CHECK

Check Method

1. Load the continuous recorded disk.

2. Turn SELECT knob to display [CPLAY MODE].

3. Press PLAY/PAUSE button 3 times to display [CPLAY MID].
Press STOP button after displaying [C1=____ AD=____].

4. Turn SELECT knob to display [FBIAS CHSCK].

5. Press PLAY/PAUSE button to display [____/ ____c=____].
The first 4 digit numerals show C1 error rate, the numerals after [/] show ADER, and the numerals after [c=] show the amount of focus bias.
At this time, check that the C1 error rate is less than 50 and ADER is 00.

6. Press PLAY/PAUSE button, changes the display to [____/ ____b=____].
At this time, check that the C1 error rate is less than 220 and ADER is always 00.

7. Press PLAY/PAUSE button, changes the display to [____/ ____a=____].
At this time, check that the C1 error rate is less than 220 and ADER is always 00.

8. Press STOP button, and press EJECT button to eject the continuous recorded disk.

Note:

- In case C1 error or ADER rate exceeds 00 at the points a or b, focus bias adjustment may deviated.
Perform readjustment.

CONFIRMING THE AUDIO

1. Necessary Equipment for Adjustment

Distortion-Factor Meter
 VTVM
 Low-Pass Filter (20kHz)
 AF Oscillator (20Hz ~ 20kHz, +18dBm)
 Reference Disc; Sony TDYS-1
 Recordable Mini Disc

2. Prior to Starting the Adjustment

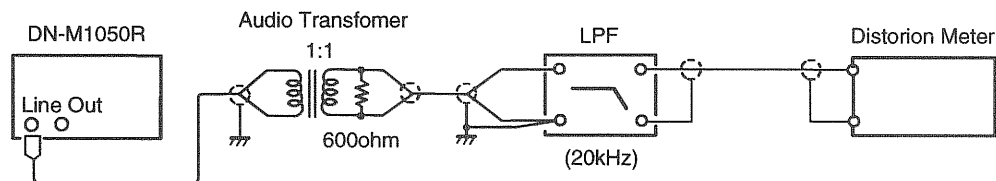
- 1) Audio circuit shall be adjusted after adjustment of servo circuit.

3. Adjustment of Super Linear Converter

Adjustment of Super Linear Converter is only performed at a time the DA converter is replaced.

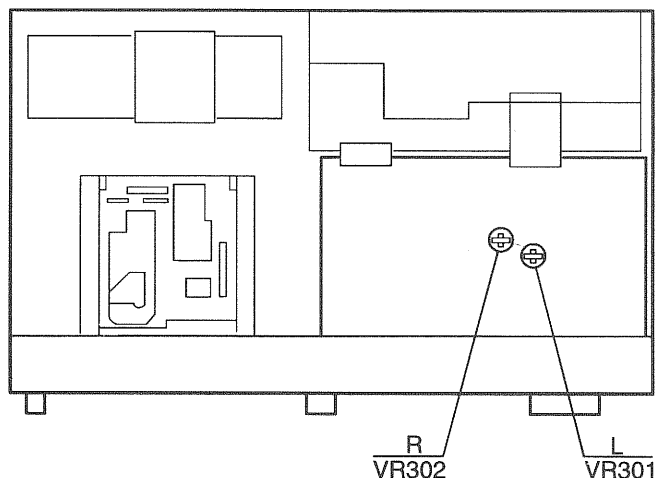
- 1) Connect the LINE OUT to the distortion-factor meter through the low-pass filter.

Note: If your distortion-factor meter has unbalanced input terminals, 1:1 ratio audio transformer is required between the unit and the measuring instrument in order to float the active balanced outputs from the ground.



Super Linear Converter Adjustment

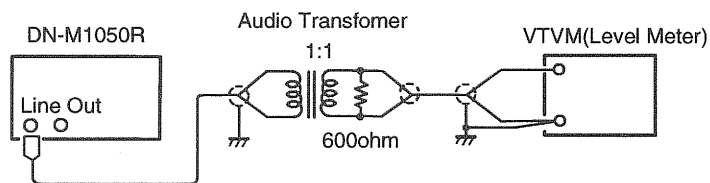
- 2) Turn the power switch ON.
- 3) Load the reference disc (Sony TDYS-1)
- 4) Set track No. "2" with SEARCH knob and press PLAY/PAUSE button.
- 5) Turn VR301 (L-ch) or VR302 (R-ch) on the MAIN unit so that distortion meter shows minimum distortion figures.



Location of Distortion-Factor Adjustment VRs

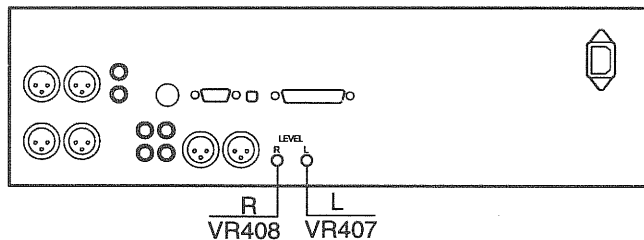
4. Output Level Adjustment

- 1) Connect VTVM to the output connector of DN-M1050R.
Use 1:1 600 ohm Audio Transformer between the unit and VTVMs in order for matching the unbalanced input of VTVM and the active balanced output of DN-M1050R as shown in figure.



Connection for Output Level Adjustment

- 2) Set track No. "2" and press PLAY/PAUSE button.
- 3) While reading VTVM indication, adjust VR407 (L-ch) and VR408 (R-ch) so that the output level attains +18dBm (or desired level).



Location of Level Adjustment VRs

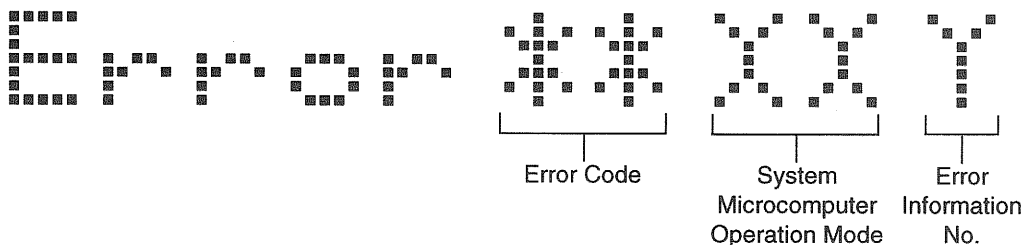
ERROR CODE

1. Setting in the Error Information Display Mode

- (1) While pressing the STANDBY/CUE and the PLAY/PAUSE buttons simultaneously, turn the power switch ON.
- (2) Turn the track select key to select "Error Disp?", then press the PUSH key to display "Error ** XX Y" or "No Error".

2. Viewing the Error Code Display

When completed item 1 above, turn the track select key clockwise to display the next error information by every step until the end error information, or turn the track select key counterclockwise to display the previous error information by every step until the start error information.



Error Code List

ERROR CODE	MODE	CONTENTS
52	REC	Computing miss error of the cluster.
53		DRAM full error when in the recording.
54		Address error of the P-FRA.
61		Transmitting end error (SCTX error) when in the recording.
62		ADIP read error when before the recording.
63		Time-over error when in the recording.
65	SEARCH	Search error when searching for the playback.
66		Search error when in the playback.
67		Search error when starting the recording.
68		Search error when in the recording.
69	REC	Head down error when starting the recording.
6B		Off track error when in the recording
6C	OTHER ERROR	Off track error according with ADIP jump detection.
71	TOC READ	TOC address continuous error.
72		TOC format is abnormal.
73	UTOOC READ	UTOOC address continuous error.
74		UTOOC format is abnormal.
75	TOC READ	TOC search error.
76	UTOOC READ	UTOOC search error.
81	UTOOC WRITE	ADIP read error when before the UTOOC writing.
82		Trasmitting end error when in the UTOOC writing.
83		Recording time over error when in the UTOOC writing.
84		Search error when starting the UTOOC writing.
85		Search error when in the UTOOC writing.
86		Magnetic head down error when starting the UTOOC writing.

ERROR CODE	MODE	CONTENTS
87	UTOC WRITE	Verify search error when in the UTOC writing.
88		Verify error when in the UTOC writing.
89		SHCK error when in the UTOC writing.
8a		ADIP jump error when in the UTOC writing.
91	OTHER ERROR	SRAM argument is abnormal.
92		Link P is abnormal in the SRAM.
93		Disc type error in the SRAM.
94		Track number error in the SRAM.
a1	EJECT	Unable to detect the eject switch even if the time (4 sec.) is over.
a2	LOADING	Unable to detect the checking switch even if the time (4 sec.) is over.
b2	REC PLAY INITIAL	Focus retry error.
b3		Spindle retry error.
b4		Adjustment time out error.
b5		Unable to adjust.
b6	INITIAL STOP	EEPROM read error.
b7	SERVICE	EEPROM write error.
b8		Unable to decide the adjustment.
bb	OTHER ERROR	Off set corrective error
c1	INITIAL STOP	Inner circle switch ON error even if the time (5 sec.) is over.
c2		Inner circle switch OFF error even if the time (5 sec.) is over.
f2	OTHER ERROR	LSI access error when the serial transmittal is end and the flag does not rise.
f5	REC	Head up error between 1 sec.
fe	OTHER ERROR	Decision condition error 1 when processing is possible continuously.
ff		Decision condition error 2 when unable to process continuously.
01		Microcomputer access error when the answer does not send out from the drive microcomputer.

System Microcomputer Operation Mode

d7	d6	d5	d4	d3	d2	d1	d0	
0	0	0	0	0	X	X	X	: Some error occurs in the no disc mode.
0	0	0	0	1	X	X	X	: Some error occurs in the loading mode.
0	0	0	1	0	X	X	X	: Some error occurs in the TOC/UTOC read mode.
0	0	0	1	1	X	X	X	: Some error occurs in the track search mode.
0	0	1	0	0	X	X	X	: Some error occurs in the time search mode.
0	0	1	0	1	X	X	X	: Some error occurs in the standby mode.
0	0	1	1	0	X	X	X	: Some error occurs in the play mode.
0	0	1	1	1	X	X	X	: Some error occurs in the pause mode.
0	1	0	0	0	X	X	X	: Some error occurs in the end monitor mode.
0	1	0	0	1	X	X	X	: Some error occurs in the manual pause.
0	1	0	1	0	X	X	X	: Some error occurs in the scan mode.

d7	d6	d5	d4	d3	d2	d1	d0	
0	1	0	1	1	X	X	X	: Some error occurs in the stop moving mode.
0	1	1	0	0	X	X	X	: Some error occurs in the stop mode.
0	1	1	0	1	X	X	X	: Some error occurs in the power save mode.
0	1	1	1	0	X	X	X	: Some error occurs in the REC search mode.
0	1	1	1	1	X	X	X	: Some error occurs in the REC standby mode.
1	0	0	0	0	X	X	X	: Some error occurs in the REC mode.
1	0	0	0	1	X	X	X	: Reserve
1	0	0	1	0	X	X	X	: Reserve
1	0	0	1	1	X	X	X	: Reserve
1	0	1	0	0	X	X	X	: Some error occurs in the REC pause mode.
1	0	1	0	1	X	X	X	: Reserve
1	0	1	1	0	X	X	X	: Some error occurs in the REC increment mode.
1	0	1	1	1	X	X	X	: Some error occurs in the REC monitor mode.
1	1	0	0	0	X	X	X	: Some error occurs in the level REC input waiting mode.
1	1	0	0	1	X	X	X	: Some error occurs in the UTOC write mode.
1	1	0	1	0	X	X	X	: Some error occurs in the hot start continual load mode.
1	1	0	1	1	X	X	X	: Some error occurs in the hot start mode.
1	1	1	0	0	X	X	X	: Some error occurs in the hot start pause mode.
1	1	1	0	1	X	X	X	: Some error occurs in the hot start single load mode.
1	1	1	1	0	X	X	X	: Some error occurs in the eject mode.
1	1	1	1	1	X	X	X	: Some error occurs in the edit mode.
X	X	X	X	X	0	0	0	: Some error occurs in the operation step 0.
X	X	X	X	X	0	0	1	: Some error occurs in the operation step 1.
X	X	X	X	X	0	1	0	: Some error occurs in the operation step 2.
X	X	X	X	X	0	1	1	: Some error occurs in the operation step 3.
X	X	X	X	X	1	0	0	: Some error occurs in the operation step 4.
X	X	X	X	X	1	0	1	: Some error occurs in the operation step 5.
X	X	X	X	X	1	1	0	: Some error occurs in the operation step 6.
X	X	X	X	X	1	1	1	: Some error occurs in the operation step 7 over.

3. Cancelling the Error Display Mode

To cancel the error display mode, turn the power switch OFF.

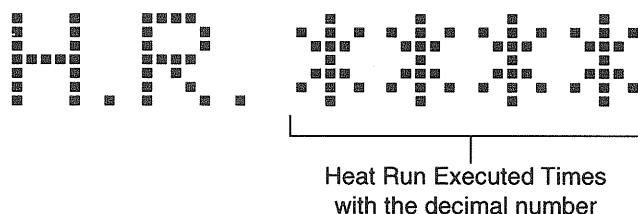
4. Deleting the Error Information

- (1) Press the PUSH key to become the error information deletion mode when in the error information display mode, or press the PUSH key to return the error information display mode when in the error information deletion mode.
- (2) When in the error information deletion mode, press the ERASE key to delete all memory error information in the EEPROM and display "No Error". If it is unsuccessful, displays "Delete NG".

HEAT RUN MODE

1. Setting in the Heat Run Mode

- (1) While pressing the STANDBY/CUE and PLAY/PAUSE buttons simultaneously, turn the power switch ON.
- (2) Turn the track select key to select "Heat Run?" .
- (3) Press the PUSH key to become the heat run mode and display as following.



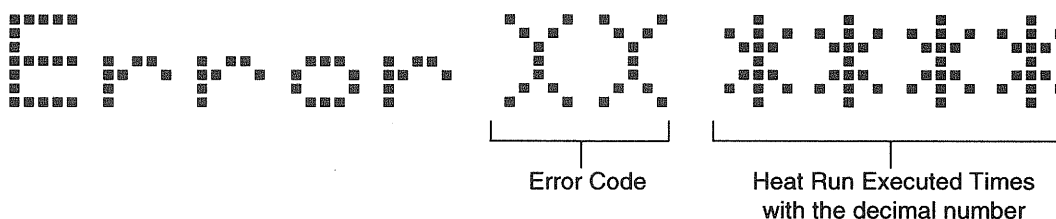
2. Operation in the Heat Run Mode

- (1) Set the disc of write protect ON with recordable disc, high bright disc and premastered disc.
 - ① Searches the first track which is reading the TOC/UTOC, starts playback when search is completed.
 - ② In case the disc is less than 20 tracks, continues playback with all track and stops after playback is end.
 - ③ In case the disc is more than 20 tracks, continues playback with the first track and end track only, and stops after playback is end.
 - ④ After stop, reads TOC/UTOC again and repeats playback operation.
- (2) Set the disc of write protect OFF with recordable disc.
 - ① Reads the TOC/UTOC. In case there is recordable time, records for 1 min.
 - ② After the record is completed, writes UTOC and stops it.
 - ③ After stoped when UTOC write is completed, searches the first track which is reading TOC/UTOC.
 - ④ After the first track search is completed continues playback from the first track to the end track.
 - ⑤ After the end track playback is completed, executes operation ①.
 - ⑥ After reading TOC/UTOC as operation ①. In case there is not recordable time, executes the disc erase and UTOC write.
 - ⑦ Stops after writing UTOC as operation ⑥, and executes operation ①.
 - ⑧ In case there is not recordable time in the first set disc, executes operation ⑥.

Note: In the operation, all key is invalid.

3. Error in the Heat Run Mode

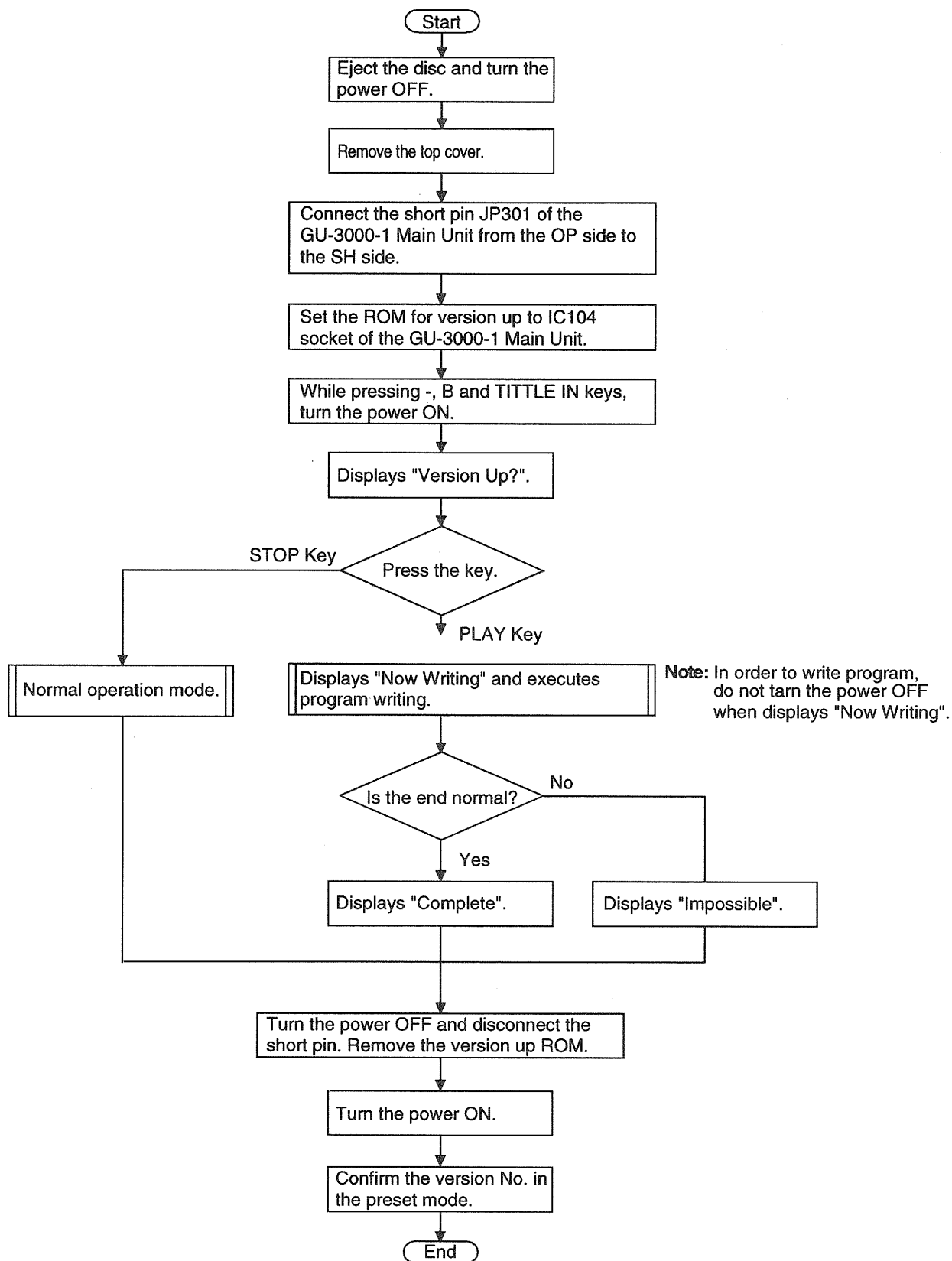
If some error occurs in the heat run mode, displays as following:



4. Cancelling the Heat Run Mode

To cancel the heat run mode, turn the power OFF.

VERSION UP METHOD FOR DRIVE MICROCOMPUTER



IN CASE OF REPLACING FOR EEPROM

When replaced the EEPROM, it is necessary that the EEPROM should be initialized as the following.

- (1) While pressing the PLAY MODE, END MON and STOP keys simultaneously, turn the power switch ON.
- (2) Actuates the EEPROM initialization mode and displays "Initial Fac". When initialization is completed, preset setting, program, name display mode, PLAY mode, time code display mode and error code become the factory delivery status, and return to the normal display state.
- (3) When initialization is unsuccessful, displays "Initial Error".

IN CASE OF FLAW AND DUST FOR PICK UP AND DISC

When the pick up or disc has flaw or dust, the below message is displayed. Clean the pick up or replace the disc, confirm it again. (Below message contents did not memory in the EEPROM error code.)

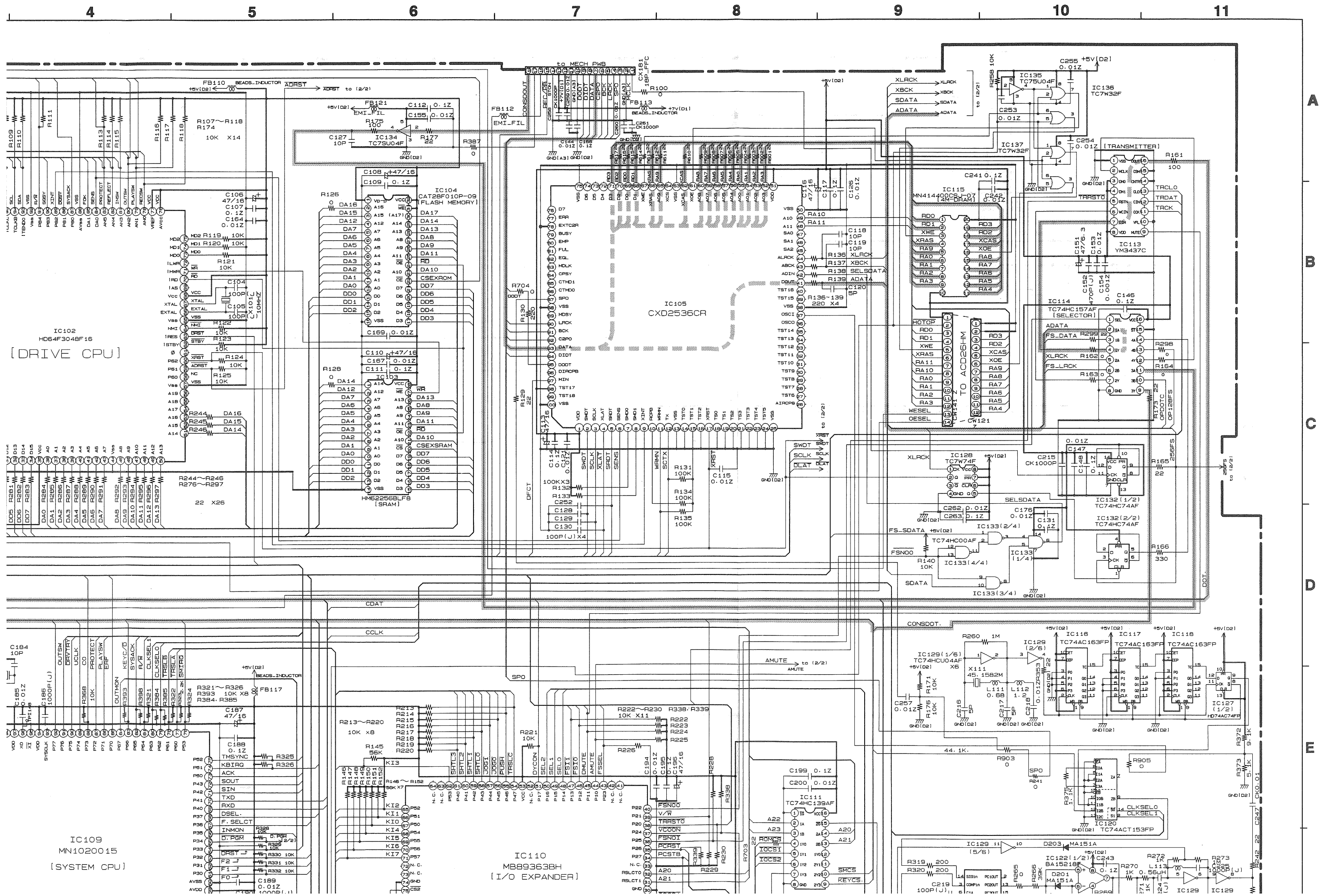
"REF NG" : Automatical adjustment is not executed properly.
(Operation with default adjustment value)

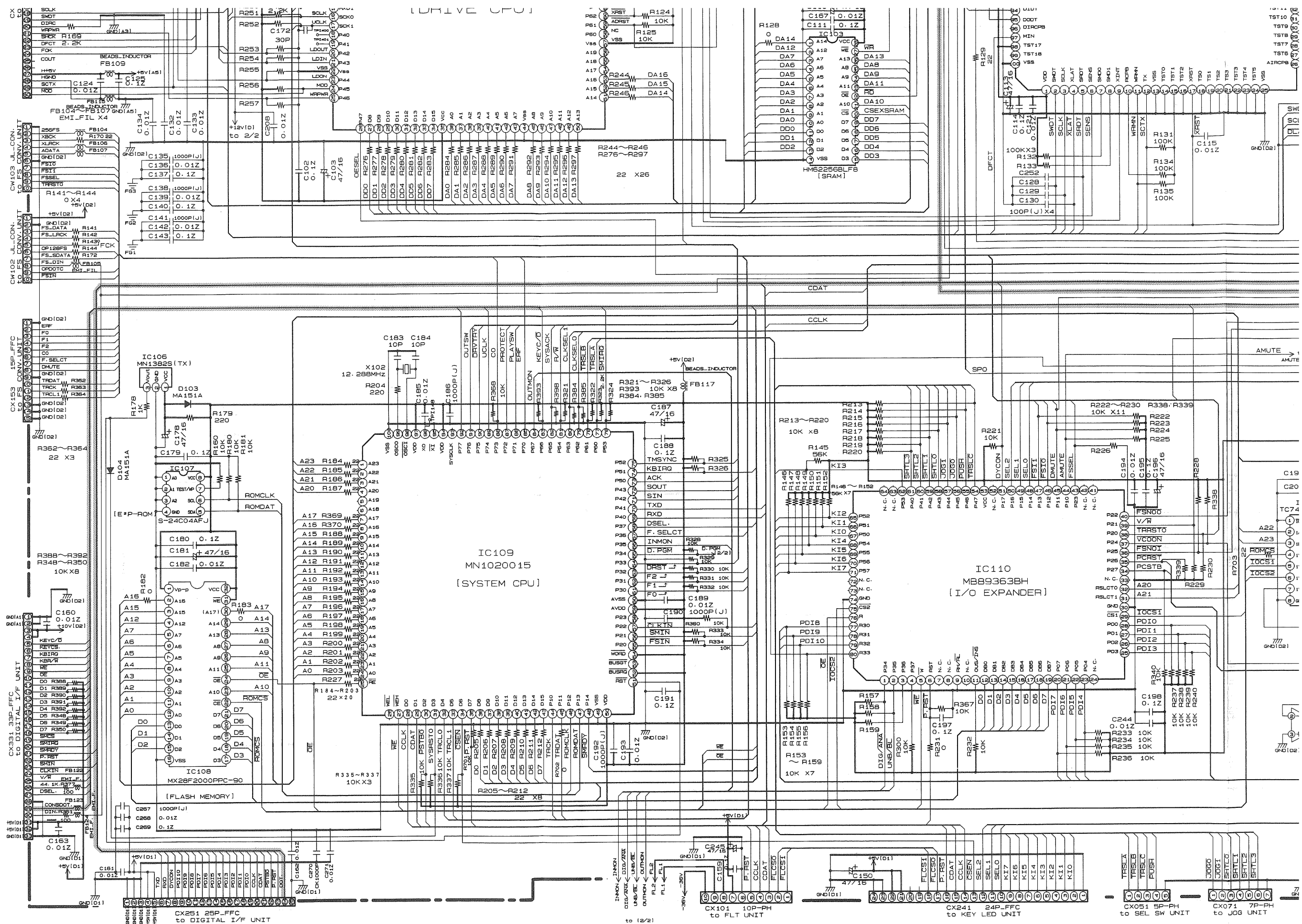
"EEPROM NG" : EEPROM of mechanism is not properly.
(Operation with default adjustment value)

"HEAD NG" : Some trouble occurs on the magnetic head.

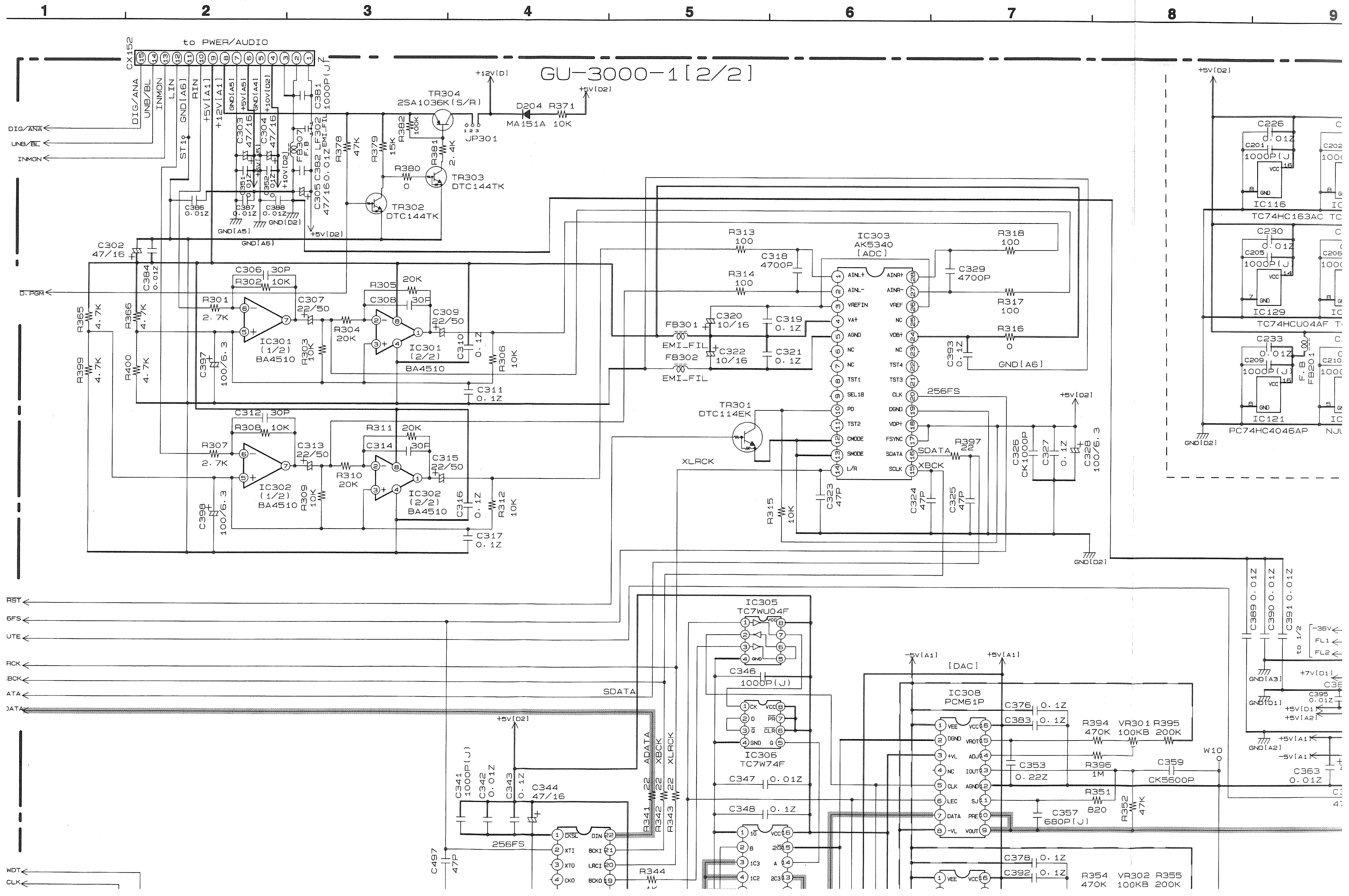
"BAD CONDITION" : Some trouble occurs between the system microcomputer and mechanism microcomputer communication.

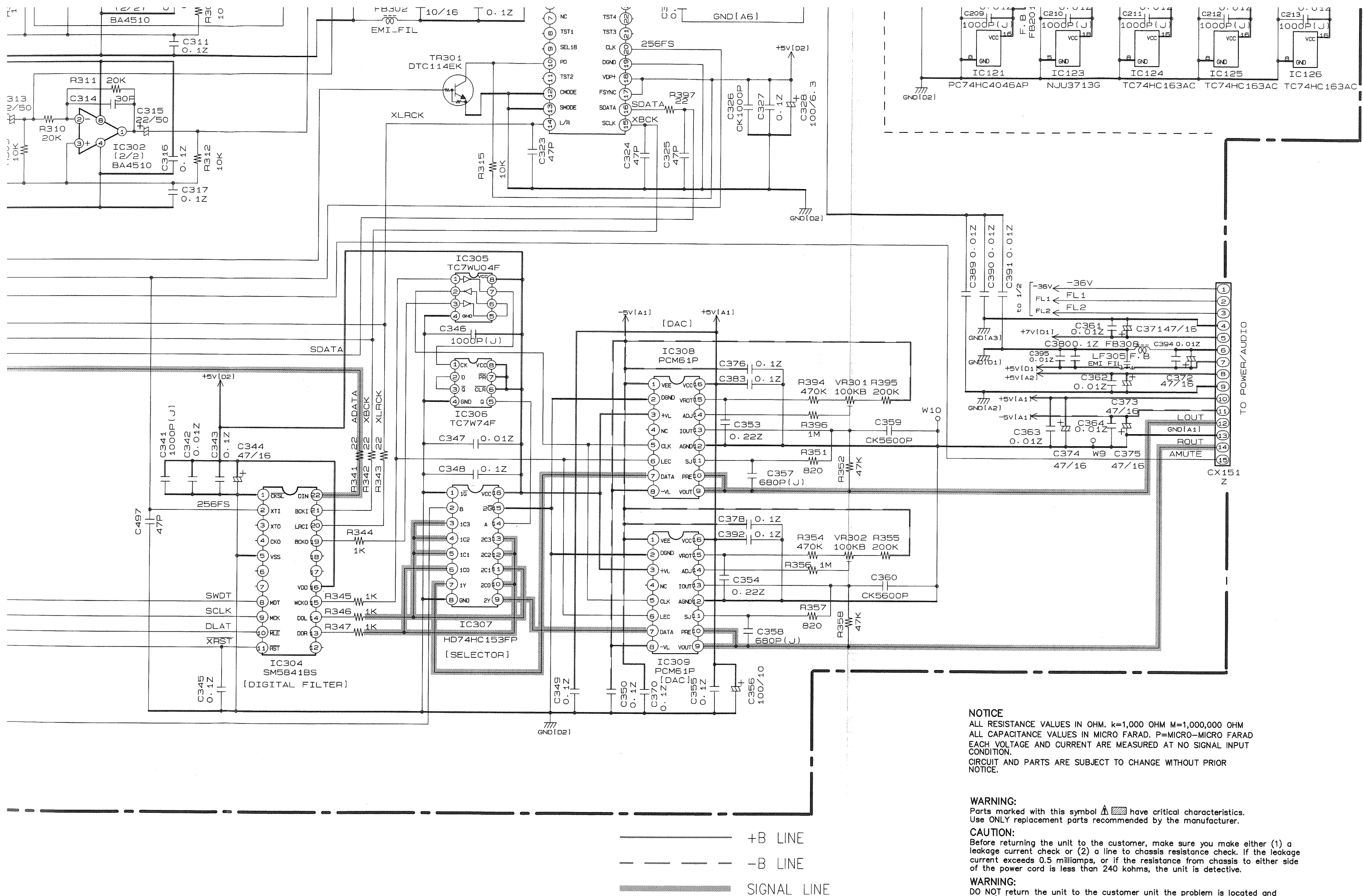
Time code display blinks (2 sec. interval) at playback : Unable to read address at playback with wrong address.





SCHEMATIC DIAGRAM (2/5)





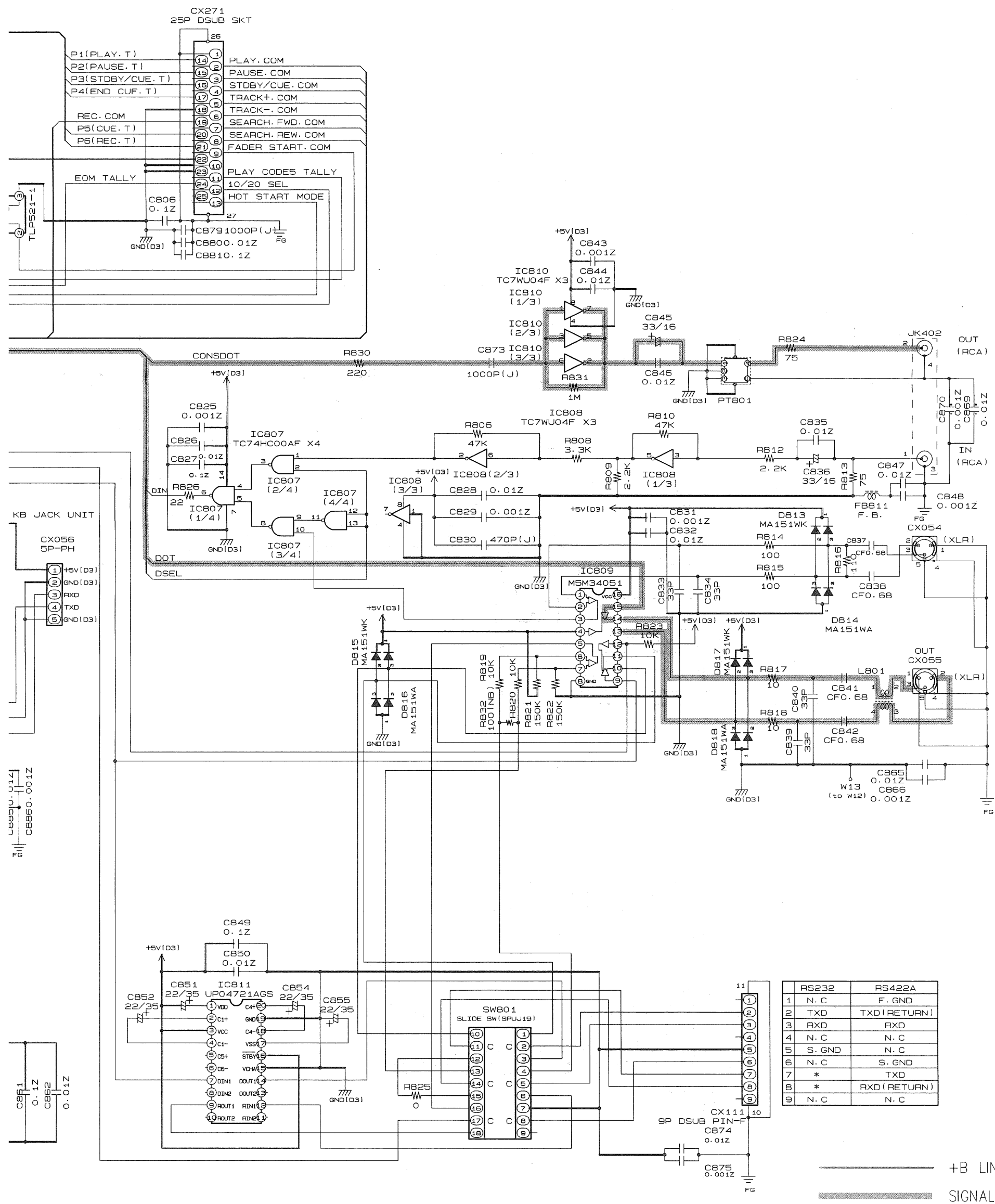
NOTICE
 ALL RESISTANCE VALUES IN OHM. k=1,000 OHM M=1,000,000 OHM
 ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
 EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT
 CONDITION.
 CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR
 NOTICE.

WARNING:
 Parts marked with this symbol  have critical characteristics.
 Use ONLY replacement parts recommended by the manufacturer.

CAUTION:
 Before returning the unit to the customer, make sure you make either (1) a
 leakage current check or (2) a line to chassis resistance check. If the leakage
 current exceeds 0.5 milliamps, or if the resistance from chassis to either side
 of the power cord is less than 240 kohms, the unit is defective.

WARNING:
 DO NOT return the unit to the customer unit the problem is located and
 corrected.

6 7 8 9 10 11



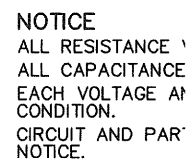
NOTICE
ALL RESISTANCE VALUES IN OHM. k=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT
CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR
NOTICE.

WARNING:
Parts marked with this symbol  have critical characteristics.
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CAUTION:
Before returning the unit to the customer, make sure you make either (1) a
leakage current check or (2) a line to chassis resistance check. If the leakage
current exceeds 0.5 milliamps, or if the resistance from chassis to either side
of the power cord is less than 240 kohms, the unit is defective.

WARNING:
DO NOT return the unit to the customer unit the problem is located and
corrected.

A
B
C
D
E
F
G
H

CE
00





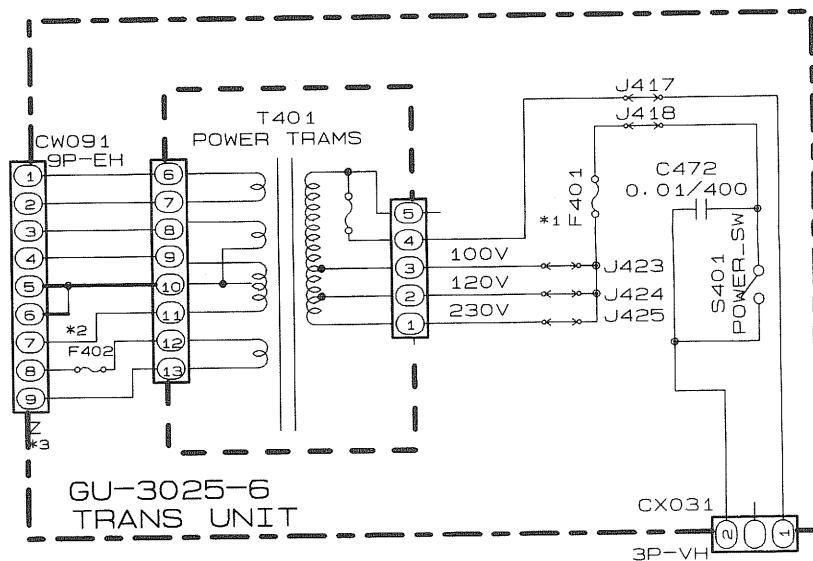
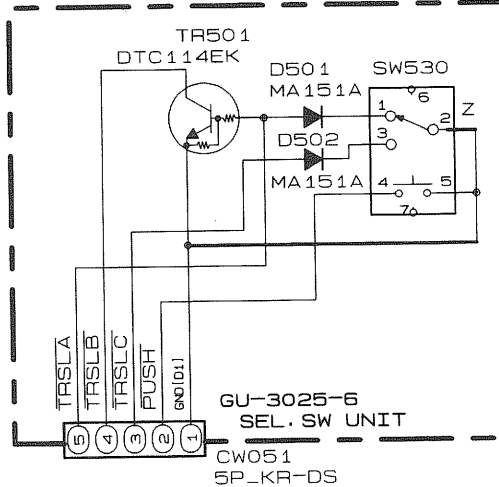
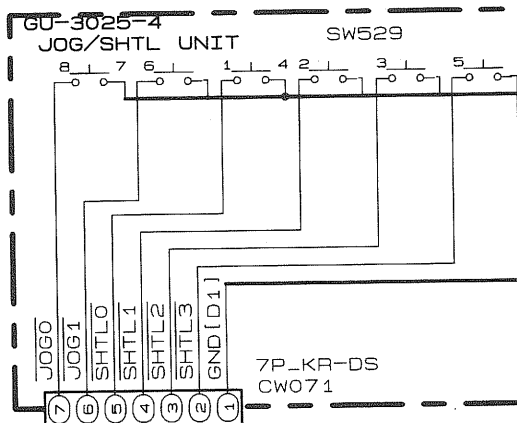
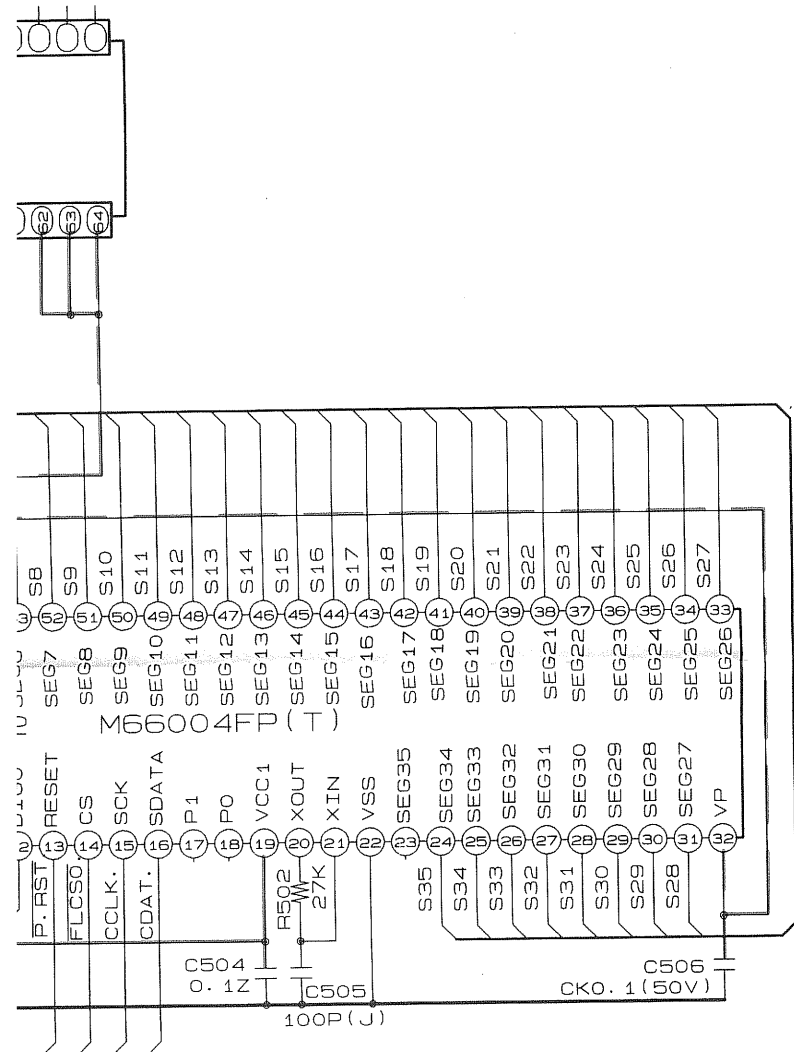
7

8

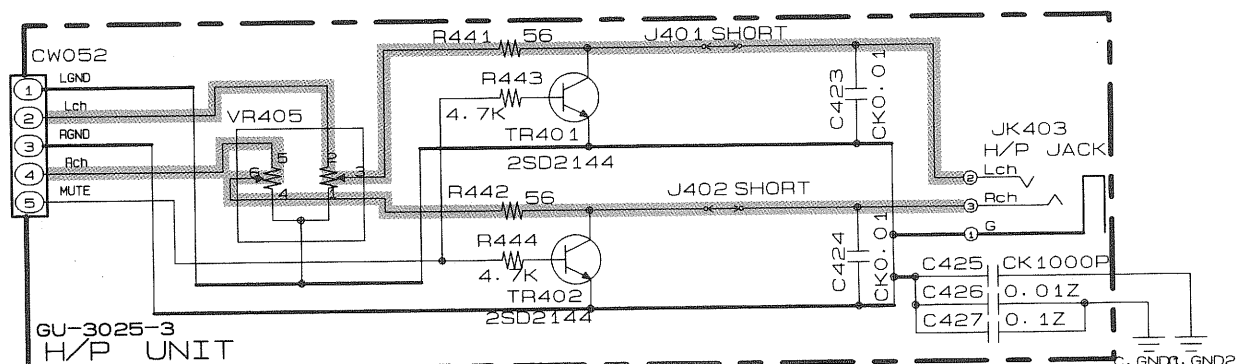
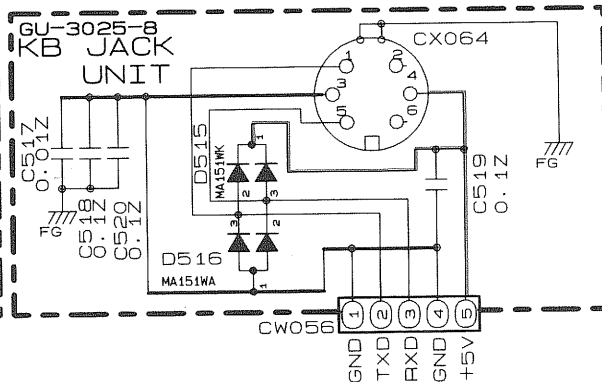
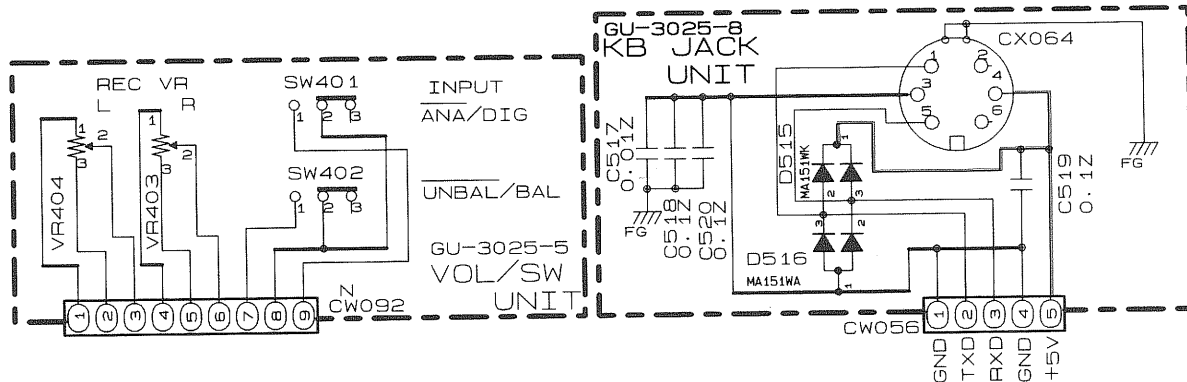
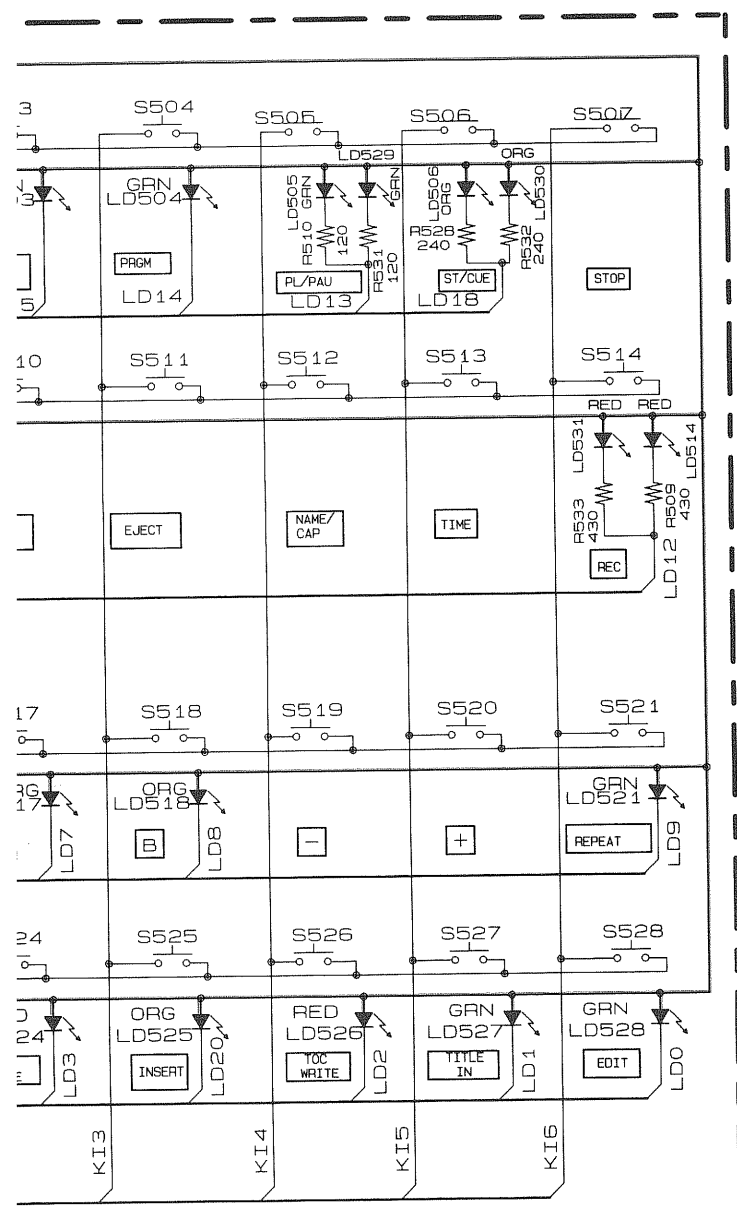
9

10

11



	*1 F401	*2 F402
E3	1A/125V	4A/125V
E2. EK	315mA/250V	4A/250V



NOTICE

ALL RESISTANCE VALUES IN OHM. k=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT
CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR
NOTICE.

WARNING:

Parts marked with this symbol  have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

CAUTION:

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 millamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

WARNING:

DO NOT return the unit to the customer unit the problem is located and corrected.

— +B LINE
- - -B LINE
— SIGNAL LINE

A

B

C

D

E

F

G

H

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
RESISTORS GROUP				R265	247 0009 943	Carbon chip 6.8kohm 1/10W	RM73B--682J
R101,102	247 0004 964	Carbon chip 68ohm 1/10W	RM73B--680J	R266	247 0008 960	Carbon chip 3.3kohm 1/10W	RM73B--332J
R103~111	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J	R267	247 0007 945	Carbon chip 1kohm 1/10W	RM73B--102J
R113~125	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J	R268,269	247 0010 929	Carbon chip 15kohm 1/10W	RM73B--153J
R126	247 0018 905	Carbon chip 0ohm 1/10W	RM73B--0R0K	R270~272	247 0007 945	Carbon chip 1kohm 1/10W	RM73B--102J
R127	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J	R273	247 0014 967	Carbon chip 1Mohm 1/10W	RM73B--105J
R128	247 0018 905	Carbon chip 0ohm 1/10W	RM73B--0R0K	R274,275	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R129	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J	R276~299	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J
R130	247 0005 989	Carbon chip 220ohm 1/10W	RM73B--221J	R300	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R131~135	247 0012 927	Carbon chip 100kohm 1/10W	RM73B--104J	R301	247 0008 944	Carbon chip 2.7kohm 1/10W	RM73B--272J
R136~139	247 0005 989	Carbon chip 220ohm 1/10W	RM73B--221J	R302	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R140	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J	R303	247 0011 944	Carbon chip 47kohm 1/10W	RM73B--473J
R141~144	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J	R304,305	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R145~152	247 0011 960	Carbon chip 56kohm 1/10W	RM73B--563J	R306	247 0011 944	Carbon chip 47kohm 1/10W	RM73B--473J
R153~160	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J	R307	247 0008 944	Carbon chip 2.7kohm 1/10W	RM73B--272J
R161	247 0005 905	Carbon chip 100ohm 1/10W	RM73B--101J	R308	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R162,163	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J	R309	247 0011 944	Carbon chip 47kohm 1/10W	RM73B--473J
R164	247 0006 975	Carbon chip 510ohm 1/10W	RM73B--511J	R310,311	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R165	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J	R312	247 0011 944	Carbon chip 47kohm 1/10W	RM73B--473J
R166	247 0006 920	Carbon chip 330ohm 1/10W	RM73B--331J	R313,314	247 0006 917	Carbon chip 300ohm 1/10W	RM73B--301J
R167	247 0014 967	Carbon chip 1Mohm 1/10W	RM73B--105J	R315	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R168	247 0005 989	Carbon chip 220ohm 1/10W	RM73B--221J	R316	247 0018 905	Carbon chip 0ohm 1/10W	RM73B--0R0K
R169	247 0008 928	Carbon chip 2.2kohm 1/10W	RM73B--222J	R317,318	247 0006 917	Carbon chip 300ohm 1/10W	RM73B--301J
R170	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J	R319,320	247 0005 976	Carbon chip 200ohm 1/10W	RM73B--201J
R172,173	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J	R321,322	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R174	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J	R323	247 0008 928	Carbon chip 2.2kohm 1/10W	RM73B--222J
R175	247 0005 905	Carbon chip 100ohm 1/10W	RM73B--101J	R324~326	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R177	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J	R328~340	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R178	247 0007 945	Carbon chip 1kohm 1/10W	RM73B--102J	R341~343	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J
R179	247 0005 989	Carbon chip 220ohm 1/10W	RM73B--221J	R344~347	247 0007 945	Carbon chip 1kohm 1/10W	RM73B--102J
R180,181	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J	R348~350	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R182,183	247 0018 905	Carbon chip 0ohm 1/10W	RM73B--0R0K	R351	247 0007 929	Carbon chip 820ohm 1/10W	RM73B--821J
R184~203	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J	R352	247 0011 944	Carbon chip 47kohm 1/10W	RM73B--473J
R204	247 0005 989	Carbon chip 220ohm 1/10W	RM73B--221J	R353	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J
R205~212	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J	R354	247 0013 984	Carbon chip 470kohm 1/10W	RM73B--474J
R213~226	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J	R355	247 0012 998	Carbon chip 200kohm 1/10W	RM73B--204J
R227	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J	R356	247 0014 967	Carbon chip 1Mohm 1/10W	RM73B--105J
R228~230	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J	R357	247 0007 929	Carbon chip 820ohm 1/10W	RM73B--821J
R231	247 0018 905	Carbon chip 0ohm 1/10W	RM73B--0R0K	R358	247 0011 944	Carbon chip 47kohm 1/10W	RM73B--473J
R232~240	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J	R359	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J
R241	247 0005 905	Carbon chip 100ohm 1/10W	RM73B--101J	R360	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R242~246	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J	R361	247 0005 905	Carbon chip 100ohm 1/10W	RM73B--101J
R247	247 0008 928	Carbon chip 2.2kohm 1/10W	RM73B--222J	R362~364	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J
R248	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J	R365,366	247 0009 901	Carbon chip 4.7kohm 1/10W	RM73B--472J
R249	247 0008 928	Carbon chip 2.2kohm 1/10W	RM73B--222J	R367,368	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R250	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J	R369,370	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J
R251	247 0008 928	Carbon chip 2.2kohm 1/10W	RM73B--222J	R371	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R252~258	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J	R372	247 0009 972	Carbon chip 9.1kohm 1/10W	RM73B--912J
R260	247 0014 967	Carbon chip 1Mohm 1/10W	RM73B--105J	R373	247 0009 914	Carbon chip 5.1kohm 1/10W	RM73B--512J
R261	247 0005 905	Carbon chip 100ohm 1/10W	RM73B--101J	R374	247 0009 972	Carbon chip 9.1kohm 1/10W	RM73B--912J
R262~264	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J	R375	247 0007 958	Carbon chip 1.1kohm 1/10W	RM73B--112J

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
R376	247 0009 972	Carbon chip 9.1kohm 1/10W	RM73B--912J	R489	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R377	247 0005 905	Carbon chip 100ohm 1/10W	RM73B--101J	R490	247 0005 905	Carbon chip 100ohm 1/10W	RM73B--101J
R378	247 0011 944	Carbon chip 47kohm 1/10W	RM73B--473J	R491,492	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R379	247 0010 929	Carbon chip 15kohm 1/10W	RM73B--153J	R493,494	247 0010 990	Carbon chip 30kohm 1/10W	RM73B--303J
R380	247 0018 905	Carbon chip 0ohm 1/10W	RM73B--0R0K	R495	247 0010 958	Carbon chip 20kohm 1/10W	RM73B--203J
R381	247 0008 931	Carbon chip 2.4kohm 1/10W	RM73B--242J	R498	247 0010 990	Carbon chip 30kohm 1/10W	RM73B--303J
R382	247 0012 927	Carbon chip 100kohm 1/10W	RM73B--104J				
R383	247 0007 932	Carbon chip 910ohm 1/10W	RM73B--911J	R500	247 0005 905	Carbon chip 100ohm 1/10W	RM73B--101J
R384,385	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J	R540	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R386	247 0008 928	Carbon chip 2.2kohm 1/10W	RM73B--222J				
R387	247 0018 905	Carbon chip 0ohm 1/10W	RM73B--0R0K	R601~617	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J
R388~393	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J				
R394	247 0013 984	Carbon chip 470kohm 1/10W	RM73B--474J	R701	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R395	247 0012 998	Carbon chip 200kohm 1/10W	RM73B--204J	R702	247 0018 905	Carbon chip 0ohm 1/10W	RM73B--0R0K
R396	247 0014 967	Carbon chip 1Mohm 1/10W	RM73B--105J	R703	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J
R397	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J	R704	247 0018 905	Carbon chip 0ohm 1/10W	RM73B--0R0K
R398	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J				
R399,400	247 0009 901	Carbon chip 4.7kohm 1/10W	RM73B--472J	R801	247 0006 962	Carbon chip 470ohm 1/10W	RM73B--471J
				R802	247 0014 967	Carbon chip 1Mohm 1/10W	RM73B--105J
R403~406	247 0010 990	Carbon chip 30kohm 1/10W	RM73B--303J	R803	247 0007 903	Carbon chip 680ohm 1/10W	RM73B--681J
R407,408	247 0011 944	Carbon chip 47kohm 1/10W	RM73B--473J	R804,805	247 0008 928	Carbon chip 2.2kohm 1/10W	RM73B--222J
R409~412	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J	R806	247 0011 944	Carbon chip 47kohm 1/10W	RM73B--473J
R413,414	247 0010 990	Carbon chip 30kohm 1/10W	RM73B--303J	R808	247 0008 960	Carbon chip 3.3kohm 1/10W	RM73B--332J
R415,416	247 0011 957	Carbon chip 51kohm 1/10W	RM73B--513J	R809	247 0008 928	Carbon chip 2.2kohm 1/10W	RM73B--222J
R417,418	247 0008 986	Carbon chip 3.9kohm 1/10W	RM73B--392J	R810	247 0011 944	Carbon chip 47kohm 1/10W	RM73B--473J
R419,420	247 0011 944	Carbon chip 47kohm 1/10W	RM73B--473J	R812	247 0008 928	Carbon chip 2.2kohm 1/10W	RM73B--222J
R421,422	247 0010 945	Carbon chip 18kohm 1/10W	RM73B--183J	R813	247 0007 916	Carbon chip 750ohm 1/10W	RM73B--751J
R423,424	247 0010 990	Carbon chip 30kohm 1/10W	RM73B--303J	R814,815	247 0005 905	Carbon chip 100ohm 1/10W	RM73B--101J
R425,426	247 0006 920	Carbon chip 330ohm 1/10W	RM73B--331J	R817,818	247 0002 966	Carbon chip 10ohm 1/10W	RM73B--100J
R427,428	247 0009 901	Carbon chip 4.7kohm 1/10W	RM73B--472J	R819,820	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R429,430	247 0006 920	Carbon chip 330ohm 1/10W	RM73B--331J	R821,822	247 0012 969	Carbon chip 150kohm 1/10W	RM73B--154J
R431,432	247 0008 944	Carbon chip 2.7kohm 1/10W	RM73B--272J	R823	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J
R433,434	247 0010 990	Carbon chip 30kohm 1/10W	RM73B--303J	R824	247 0004 977	Carbon chip 75ohm 1/10W	RM73B--750J
R435	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J	R825	247 0018 905	Carbon chip 0ohm 1/10W	RM73B--0R0K
R437,438	247 0008 999	Carbon chip 4.3kohm 1/10W	RM73B--432J	R826	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J
R439,440	247 0010 990	Carbon chip 30kohm 1/10W	RM73B--303J	R828,829	247 0018 905	Carbon chip 0ohm 1/10W	RM73B--0R0K
R441~444	247 0006 920	Carbon chip 330ohm 1/10W	RM73B--331J	R830	247 0005 989	Carbon chip 220ohm 1/10W	RM73B--221J
R445,446	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J	R831	247 0014 967	Carbon chip 1Mohm 1/10W	RM73B--105J
R450	247 0012 998	Carbon chip 200kohm 1/10W	RM73B--204J	R832	241 2377 947	Carbon film 100ohm 1/4W(NB)	RD14B2E101JNBS
R451	244 2052 902	Metal oxide 2.7kohm 1W	RS14B3A272JNBS(S)	VR301,302	211 6093 970	Semi fixed resistor 100kohm	V06PB104
R452	247 0004 922	Carbon chip 47ohm 1/10W	RM73B--470J				
R453,454	247 0002 982	Carbon chip 12ohm 1/10W	RM73B--120J	VR407,408	211 0552 006	Variable resistor 1kohm	V09QA102
R455,456	247 0008 973	Carbon chip 3.6kohm 1/10W	RM73B--362J				
R457~460	247 0009 985	Carbon chip 10kohm 1/10W	RM73B--103J				
R461,462	247 0010 929	Carbon chip 15kohm 1/10W	RM73B--153J				
R463,464	247 0010 990	Carbon chip 30kohm 1/10W	RM73B--303J				
R465,466	247 0010 929	Carbon chip 15kohm 1/10W	RM73B--153J				
R471~474	247 0003 949	Carbon chip 22ohm 1/10W	RM73B--220J				
R475~478	247 0010 958	Carbon chip 20kohm 1/10W	RM73B--203J				
R479~484	247 0018 905	Carbon chip 0ohm 1/10W	RM73B--0R0K				
R487	247 0008 960	Carbon chip 3.3kohm 1/10W	RM73B--332J				
R488	247 0012 927	Carbon chip 100kohm 1/10W	RM73B--104J				

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
CAPACITORS GROUP				C167~169	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C101,102	257 0014 935	Ceramic chip 0.1mF/25V	CK73F1E104Z	C172	257 0003 933	Ceramic chip 30pF/50V	CC73SL1H300J
C103	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M	C176	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C104,105	257 0004 961	Ceramic chip 100pF/50V	CC73SL1H101J	C178	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M
C106	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M	C179,180	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C107	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C181	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M
C108	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M	C182	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C109	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C183,184	257 0002 921	Ceramic chip 10 pF/50V	CC73SL1H100D
C110	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M	C185	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C111,112	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C186	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J
C113	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M	C187	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M
C114	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C188	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C115	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C189	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C116	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M	C190	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J
C117	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C191	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C118,119	257 0002 921	Ceramic chip 10 pF/50V	CC73SL1H100D	C192	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J
C120	257 0001 977	Ceramic chip 5.0 pF/50V	CC73SL1H5R0C	C193,194	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C121,122	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C195	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C123	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C196	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M
C124	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C197~199	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C125	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C200	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C126	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C201~207	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J
C127	257 0002 921	Ceramic chip 10 pF/50V	CC73SL1H100D	C209~213	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J
C128~130	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J	C215	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J
C131	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C216,217	257 0001 977	Ceramic chip 5.0 pF/50V	CC73SL1H5R0C
C132~134	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C218	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C135	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J	C219	257 0004 961	Ceramic chip 100pF/50V	CC73SL1H101J
C136	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C220	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J
C137	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C221	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C138	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J	C222	257 0002 921	Ceramic chip 10 pF/50V	CC73SL1H100D
C139	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C223	257 0012 982	Ceramic chip 0.022μF/50V	CK73F1H223Z
C140	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C224,225	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J
C141	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J	C226~237	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C142	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C241	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C143	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C242	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C144	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C243	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C145	257 0002 921	Ceramic chip 10 pF/50V	CC73SL1H100D	C244	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C146	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C245	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M
C147	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C246	257 0003 991	Ceramic chip 51pF/50V	CC73SL1H510J
C148	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C247,248	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C149	257 0002 921	Ceramic chip 10 pF/50V	CC73SL1H100D	C249	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J
C150	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M	C250,251	257 0002 921	Ceramic chip 10 pF/50V	CC73SL1H100D
C151	254 4250 916	Electrolytic 47μF/6.3V	CE04W0J470M	C252	257 0004 961	Ceramic chip 100pF/50V	CC73SL1H101J
C152	257 0006 927	Ceramic chip 470pF/50V	CC73SL1H471J	C253~255	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C153	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C259,260	257 0009 979	Ceramic chip 5600pF/50V	CK73B1H562K
C154	257 0012 908	Ceramic chip 1000pF/50V	CK73F1H102Z	C302~305	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M
C155	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C306	257 0003 933	Ceramic chip 30pF/50V	CC73SL1H300J
C157,158	257 0002 921	Ceramic chip 10 pF/50V	CC73SL1H100D	C307	254 4260 993	Electrolytic 22μF/50V	CE04W1H220M
C159	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C308	257 0003 933	Ceramic chip 30pF/50V	CC73SL1H300J
C160~164	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C309	254 4260 993	Electrolytic 22μF/50V	CE04W1H220M
C165	257 0002 921	Ceramic chip 10 pF/50V	CC73SL1H100D	C310,311	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C166	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z				

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
C312	257 0003 933	Ceramic chip 30pF/50V	CC73SL1H300J	C426	254 4256 952	Electrolytic 220μF/25V	CE04W1E221M
C313	254 4260 993	Electrolytic 22μF/50V	CE04W1H220M	C427~430	257 0003 904	Ceramic chip 22pF/50V	CC73SL1H220J
C314	257 0003 933	Ceramic chip 30pF/50V	CC73SL1H300J	C431,432	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C315	254 4260 993	Electrolytic 22μF/50V	CE04W1H220M	C433	254 4440 904	Electrolytic 100μF/16V	CE04W1C101M
C316,317	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C434~436	254 4254 941	Electrolytic 100μF/16V	CE04W1C101M
C318	257 0007 942	Ceramic chip 1500pF/50V	CC73SL1H152J	C437,438	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C319	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C439~444	257 0003 988	Ceramic chip 47pF/50V	CC73SL1H470J
C320	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M	C445,446	257 0010 900	Ceramic chip 0.01μF/50V	CK73B1H103K
C321	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C447	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C322	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M	C449,450	254 4389 913	Electrolytic 100μF/10V	CE04W1A101M
C323~325	257 0003 988	Ceramic chip 47pF/50V	CC73SL1H470J	C451,452	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C326	257 0008 983	Ceramic chip 1000pF/50V	CK73B1H102K	C453,454	254 4389 913	Electrolytic 100μF/10V	CE04W1A101M
C327	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C455,456	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C328	254 4250 929	Electrolytic 100μF/6.3V	CE04W0J101M	C457	254 4509 706	Electrolytic 12000μF/25V	CE04W1E123MC
C329	257 0007 942	Ceramic chip 1500pF/50V	CC73SL1H152J	C458~461	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C341	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J	C462,463	254 4440 904	Electrolytic 100μF/16V	CE04W1C101M
C342	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C464,465	257 1015 920	Ceramic Chip 0.1μF/50V	CK73F1H104Z
C343	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C466	254 4372 713	Electrolytic 1000μF/35V	CE04W1V102MHR
C344	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M	C467	254 4344 709	Electrolytic 2200μF/35V	CE04W1V222MC
C345	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C468	254 4262 946	Electrolytic 47μF/63V	CE04W1J470M
C346	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J	C469	254 4262 072	Electrolytic 330μF/63V	CE04W1J331M
C347	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C470,471	254 4389 913	Electrolytic 100μF/10V	CE04W1A101M
C348~350	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C473~478	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C351,352	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C479,480	254 4252 930	Electrolytic 100μF/10V	CE04W1A101M
C353,354	257 0014 948	Ceramic Chip 0.22μF/25V	CK73F1E224Z	C481,482	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C355	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C484	254 4302 916	Electrolytic 10μF/10V	CE04W1A100M(SRE)
C356	254 4252 930	Electrolytic 100μF/10V	CE04W1A101M	C487,488	257 0004 903	Ceramic chip 56pF/50V	CC73SL1H560J
C357,358	257 0006 969	Ceramic chip 680pF/50V	CC73SL1H681J	C489,490	254 4252 930	Electrolytic 100μF/10V	CE04W1A101M
C361~364	257 0012 966	Ceramic chip 0.01mF/50V	CK73F1H103Z	C491,492	257 0010 900	Ceramic chip 0.01μF/50V	CK73B1H103K
C370	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C493,494	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C371~375	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M	C495	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C376	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C497	257 0003 988	Ceramic chip 47pF/50V	CC73SL1H470J
C378	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C498,499	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C380	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z				
C381	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J	C801	254 4252 943	Electrolytic 220μF/10V	CE04W1A221M
C382	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C803	257 0012 908	Ceramic chip 1000pF/50V	CK73F1H102Z
C383	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C804	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C384	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C805	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C386~391	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C806	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C392,393	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C807,808	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M
C394,395	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z	C809	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C397,398	254 4250 929	Electrolytic 100μF/6.3V	CE04W0J101M	C810	254 4254 938	Electrolytic 47μF/16V	CE04W1C470M
				C812	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C401,402	253 1179 903	Ceramic 100pF/50V	CK45B1H101K	C813,814	257 0004 961	Ceramic chip 100pF/50V	CC73SL1H101J
C403,404	254 4302 916	Electrolytic 10μF/10V	CE04W1A100M(SRE)	C815	257 0012 908	Ceramic chip 1000pF/50V	CK73F1H102Z
C405~408	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z	C816	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C409	257 0010 900	Ceramic chip 0.01μF/50V	CK73B1H103K	C817,818	257 0004 903	Ceramic chip 56pF/50V	CC73SL1H560J
C411,412	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J	C825,826	257 0012 908	Ceramic chip 1000pF/50V	CK73F1H102Z
C413,414	254 4302 916	Electrolytic 10μF/10V	CE04W1A100M(SRE)	C827	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C415,416	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J	C828,829	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C417,418	254 4252 930	Electrolytic 100μF/10V	CE04W1A101M	C830	257 0006 927	Ceramic chip 470pF/50V	CC73SL1H471J
C420,421	254 4254 941	Electrolytic 100μF/16V	CE04W1C101M	C831,832	257 0012 908	Ceramic chip 1000pF/50V	CK73F1H102Z

Ref. No.	Part No.	Part Name	Remarks
C833,834	257 0003 946	Ceramic chip 33pF/50V	CC73SL1H330J
C835	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C836	254 4254 925	Electrolytic 33μF/16V	CE04W1C330M
C837,838	256 1035 978	Metalized 0.68μF/50V	CF93A1H684J
C839,840	257 0003 946	Ceramic chip 33pF/50V	CC73SL1H330J
C841,842	256 1035 978	Metalized 0.68μF/50V	CF93A1H684J
C843	257 0012 908	Ceramic chip 1000pF/50V	CK73F1H102Z
C844	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C845	254 4254 925	Electrolytic 33μF/16V	CE04W1C330M
C846,847	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C848	257 0012 908	Ceramic chip 1000pF/50V	CK73F1H102Z
C849	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C850	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C851,852	254 4258 921	Electrolytic 22μF/35V	CE04W1V220M
C854,855	254 4258 921	Electrolytic 22μF/35V	CE04W1V220M
C856	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C857	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C858	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C861	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C862	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C865	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C866	257 0012 908	Ceramic chip 1000pF/50V	CK73F1H102Z
C870,871	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C872	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C873	257 0007 900	Ceramic chip 1000pF/50V	CC73SL1H102J
C874	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C875	257 0012 908	Ceramic chip 1000pF/50V	CK73F1H102Z
C876	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z
C877	257 0012 966	Ceramic chip 0.01μF/50V	CK73F1H103Z
C878	257 0012 908	Ceramic chip 1000pF/50V	CK73F1H102Z
C969	257 0012 908	Ceramic chip 1000pF/50V	CK73F1H102Z

OTHER PARTS GROUP

CW102,103	205 0696 006	JL connector (BT-E)	2
CW121	205 0612 080	12P connector base	1
CW141	205 0612 093	14P connector base	1
CX051	205 0343 058	5P connector base(KR-PH)	1
CX052	205 0321 054	5P connector base (RED)	1
CX053	205 0956 005	3P Cannon connector	1
CX054	205 0955 006	3P Cannon connector	1
CX056	205 0343 058	5P connector base(KR-PH)	1
CX061	205 0760 000	6P connector base	1
CX071	205 1046 008	3P Cannon (OUT)	1
CX071A	205 0343 074	7P connector base(KR-PH)	1
CX072	205 1047 007	3P Cannon (IN)	1
CX091	205 0233 090	9P EH connector base	1
CX092	205 0343 090	9 P connector base (KR-PH)	1
CX101	205 0375 000	10P connector base (KR-PH)	1
CX111	205 0922 000	9P DSUB pin - F	1

Ref. No.	Part No.	Part Name	Remarks	Q'ty
CX151,152	205 0711 091	15P TBG connector base		2
CX153	205 0736 076	15P FFC connector base		1
CX181	205 0995 901	18P FFC connector base (0.8)		1
CX232	205 1049 005	23P FFC base (9603C)		1
CX241	205 0892 046	24P FFC base (P=1)		1
CX251	205 0736 089	25P FFC connector base		1
CX271	205 0618 110	25P DSUB SKT		1
CX301	205 0995 914	30P FFC connector base (0.8)		1
CX331	205 0736 005	33P FFC base		1
CY151,152	205 0711 091	15P TBG connector base		2
CY251	205 1050 010	25P FFC base (9603F)		1
CY331	205 0770 058	33PFFC base (SIDE)		1
FB101	235 0049 900	Beads inductor		1
FB104~107	235 0106 908	Chip emifil (21A05)		4
FB108~110	235 0049 900	Beads inductor		3
FB112	235 0106 908	Chip emifil (21A05)		1
FB113~115	235 0049 900	Beads inductor		3
FB117	235 0049 900	Beads inductor		1
FB121~124	235 0106 908	Chip emifil (21A05)		4
FB301,302	235 0106 908	Chip emifil (21A05)		2
FB306~308	235 0049 900	Beads inductor		3
FB804	235 0049 900	Beads inductor		1
FB811	235 0106 908	Chip emifil (21A05)		1
JK401	204 8507 013	4P pin jack		1
JK402	204 8557 005	2P pin jack (DIG)		1
L111	235 0107 910	LEM4532TR68M		1
L112	235 0107 923	LEM4532T1R2M		1
L113	235 0107 965	LEM4532TR56M		1
L801	231 0083 003	Low volt line filter		1
LF302	235 0086 905	EMI filter		1
LF305	235 0086 905	EMI filter		1
LF802	235 0086 905	EMI filter		1
PT801	231 8063 009	Pulse trans.		1
RL401,402	214 0127 003	Relay (RY-12W)		2
SW801	212 1142 007	Slide switch (SPUJ19)		1

GU-3025 DISPLAY/KEY P.W.B. UNIT ASS'Y

Ref. No.	Part No.	Part Name	Remarks	Q'ty	Ref. No.	Part No.	Part Name	Remarks
W003	203 0503 012	1P SIN con. Ass'y		1	SEMICONDUCTORS GROUP			
W005	203 0503 025	1P SIN con. Ass'y		1	IC501,502	262 1954 902	IC M66004FP	
X101	399 0359 907	Ceramic resonator	CSA10.0MTZ040-TF01	1	IC503	262 1708 909	IC TC74HC138AF	
X102	399 0219 021	Crystal 12.288 MHz		1	IC504	262 2367 909	IC NJU3715G	
X111	399 0239 904	Crystal 45.1584 MHz		1	IC505	262 1816 901	IC NJU3713GT1	
X112	399 0351 905	Crystal 22.5792MHz		1	TR401,402	274 0160 907	Transistor 2SD2144STPU	
XT801	399 0154 005	Ceramic resonator	CSA6.0MG	1	TR501	269 0082 902	Transistor DTC114EK	
	513 8013 003	P-ROM seal		1	TR502~504	271 0238 908	Transistor 2SA1037K(S/R)	
					D501~514	276 0438 910	Diode MA151A	
					D515	276 0438 949	Diode MA151WK	
					D516	276 0438 907	Diode MA151WA	
					FL501	393 8025 002	FLD BJ558G	
					LD501~505	393 9571 908	LED TLGU1002 (GRN)	
					LD506	393 9571 911	LED TLOU1002 (ORG)	
					LD508	393 9571 911	LED TLOU1002 (ORG)	
					LD509	393 9571 908	LED TLGU1002 (GRN)	
					LD514	393 9570 909	LED TLRA1002 (RED)	
					LD515~518	393 9571 911	LED TLOU1002 (ORG)	
					LD521	393 9571 908	LED TLGU1002 (GRN)	
					LD522	393 9570 909	LED TLRA1002 (RED)	
					LD523	393 9571 911	LED TLOU1002 (ORG)	
					LD524	393 9570 909	LED TLRA1002 (RED)	
					LD525	393 9571 911	LED TLOU1002 (ORG)	
					LD526	393 9570 909	LED TLRA1002 (RED)	
					LD527~529	393 9571 908	LED TLGU1002 (GRN)	
					LD530	393 9571 911	LED TLOU1002 (ORG)	
					LD531	393 9570 909	LED TLRA1002 (RED)	
					RESISTORS GROUP			
					R435,436	247 0018 905	Carbon chip 0ohm 1/10W	RM73B--0R0K
					R443,444	247 0009 901	Carbon chip 4.7kohm 1/10W	RM73B--472J
					R501,502	247 0010 987	Carbon chip 27kohm 1/10W	RM73B--273J
					R503	247 0005 992	Carbon chip 240ohm 1/10W	RM73B--241J
					R504,505	247 0006 988	Carbon chip 560ohm 1/10W	RM73B--561J
					R506	247 0005 947	Carbon chip 150ohm 1/10W	RM73B--151J
					R507	247 0006 988	Carbon chip 560ohm 1/10W	RM73B--561J
					R508	247 0005 947	Carbon chip 150ohm 1/10W	RM73B--151J
					R509	247 0006 959	Carbon chip 430ohm 1/10W	RM73B--431J
					R510	247 0005 921	Carbon chip 120ohm 1/10W	RM73B--121J
					R511,512	247 0005 947	Carbon chip 150ohm 1/10W	RM73B--151J
					R513	247 0005 992	Carbon chip 240ohm 1/10W	RM73B--241J
					R521,522	247 0005 992	Carbon chip 240ohm 1/10W	RM73B--241J
					R523,524	247 0006 959	Carbon chip 430ohm 1/10W	RM73B--431J
					R525,526	247 0005 947	Carbon chip 150ohm 1/10W	RM73B--151J
					R527	247 0006 959	Carbon chip 430ohm 1/10W	RM73B--431J
					R528	247 0005 992	Carbon chip 240ohm 1/10W	RM73B--241J
					R529,530	247 0005 947	Carbon chip 150ohm 1/10W	RM73B--151J

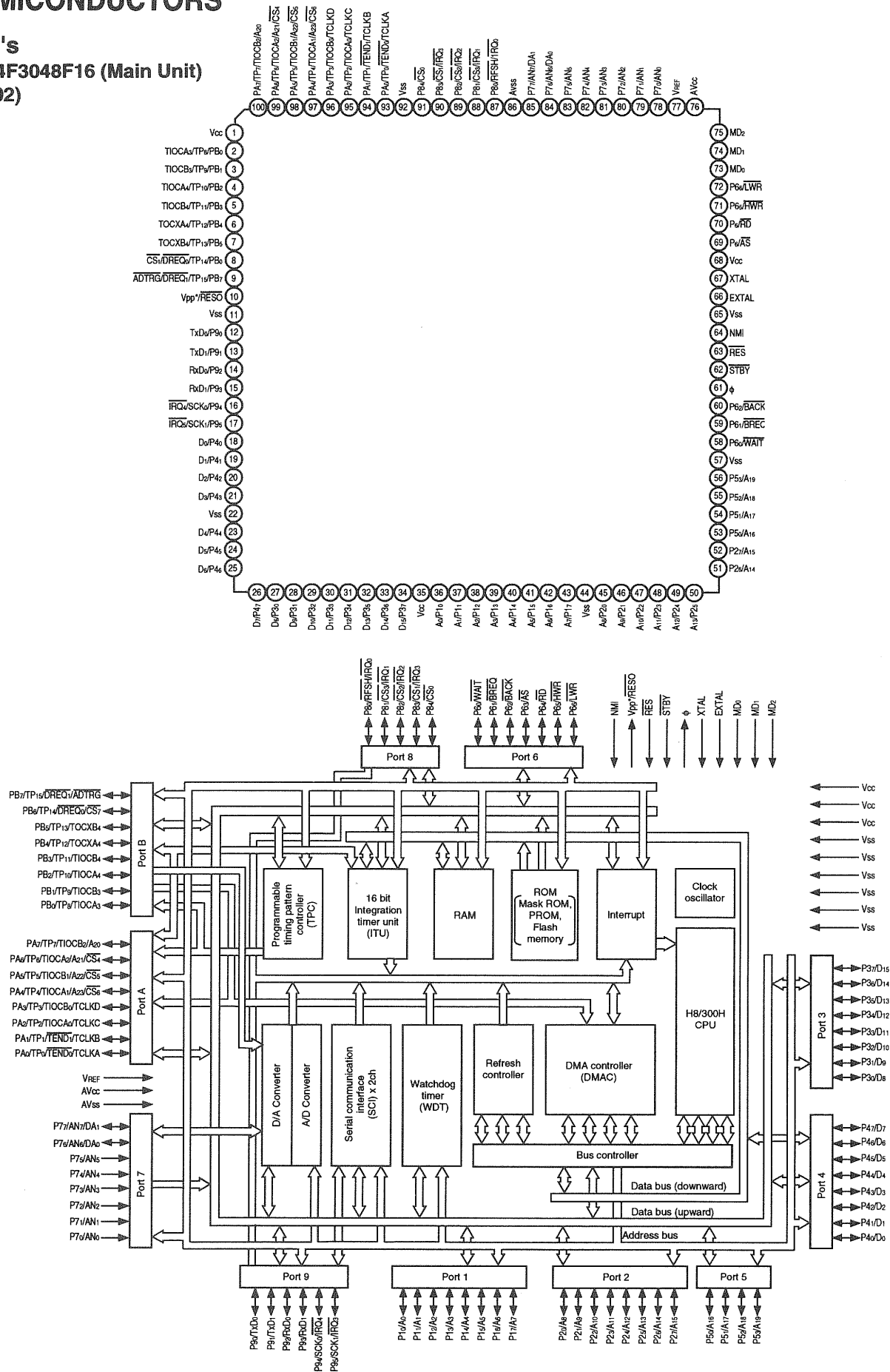
Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks	Q'ty
R531	247 0005 921	Carbon chip 120ohm 1/10W	RM73B--121J	J417,418	209 0008 120	Jumper (L=10)		2
R532	247 0005 992	Carbon chip 240ohm 1/10W	RM73B--241J					
R533	247 0006 959	Carbon chip 430ohm 1/10W	RM73B--431J	JK403	204 8264 000	Headphone jack (AU)		1
R534~536	247 0005 905	Carbon chip 100ohm 1/10W	RM73B--101J					
VR403,404	211 0878 007	Variable resistor 50kohm	V11B17FA503K	S401	212 0286 003	Power switch		1
VR405	211 0879 006	Variable resistor 2kohm	V0920B17FA202K					
CAPACITORS GROUP				SW401,402	212 1165 000	Slide switch (1-2)		2
C423,424	257 0010 900	Ceramic chip 0.01μF/50V	CK73B1H103K	SW529	212 0352 018	Jog-shuttle		1
C425	257 0008 983	Ceramic chip 1000pF/50V	CK73B1H102K	SW530	212 0387 009	Rotary encoder - jog		1
C426	257 0010 900	Ceramic chip 0.01μF/50V	CK73B1H103K					
C427	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z					
C472	253 8014 702	Ceramic 0.01μF/400V(AC)	CK45F2GAC103MC					
C501	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z					
C502	257 0004 961	Ceramic chip 100pF/50V	CC73SL1H101J					
C503	257 1015 920	Ceramic Chip 0.1μF/50V	CK73F1H104Z					
C504	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z					
C505	257 0004 961	Ceramic chip 100pF/50V	CC73SL1H101J					
C506	257 1015 920	Ceramic Chip 0.1μF/50V	CK73F1H104Z					
C507	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z					
C508	257 2002 961	Tantalum E. 47pF/ V	CS77B--470M					
C509,510	257 0010 900	Ceramic chip 0.01μF/50V	CK73B1H103K					
C511	257 0008 983	Ceramic chip 1000pF/50V	CK73B1H102K					
C512	257 0010 900	Ceramic chip 0.01μF/50V	CK73B1H103K					
C513	257 0008 983	Ceramic chip 1000pF/50V	CK73B1H102K					
C516	257 0008 983	Ceramic chip 1000pF/50V	CK73B1H102K					
C517	257 0010 900	Ceramic chip 0.01μF/50V	CK73B1H103K					
C518,519	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z					
C526,527	257 0014 935	Ceramic chip 0.1μF/25V	CK73F1E104Z					
OTHER PARTS GROUP								
CW051	203 8273 014	5P KR-DS connector cord						
CW052	203 8224 018	5P PH-SAN connector cord						
CW056	203 8355 026	5P KR-DS connector cord						
CW071	204 2382 001	7P KR-DS connector cord						
CW091	204 2747 015	9P EH-SCN connector cord						
CW092	204 2748 014	9P PH-SAN shielded cord						
CW101	204 2412 036	10P KR-DS connector cord						
CX031	205 0581 001	2P VH connector base						
CY241	205 0856 930	24P FFC connector base						
FH401,402	202 0040 909	Fuse clip						
FL501	393 8025 002	FLD BJ558G						
J401,402	209 0008 146	Jumper (L=5)						

SEMICONDUCTORS

● IC's

HD64F3048F16 (Main Unit)

(IC102)

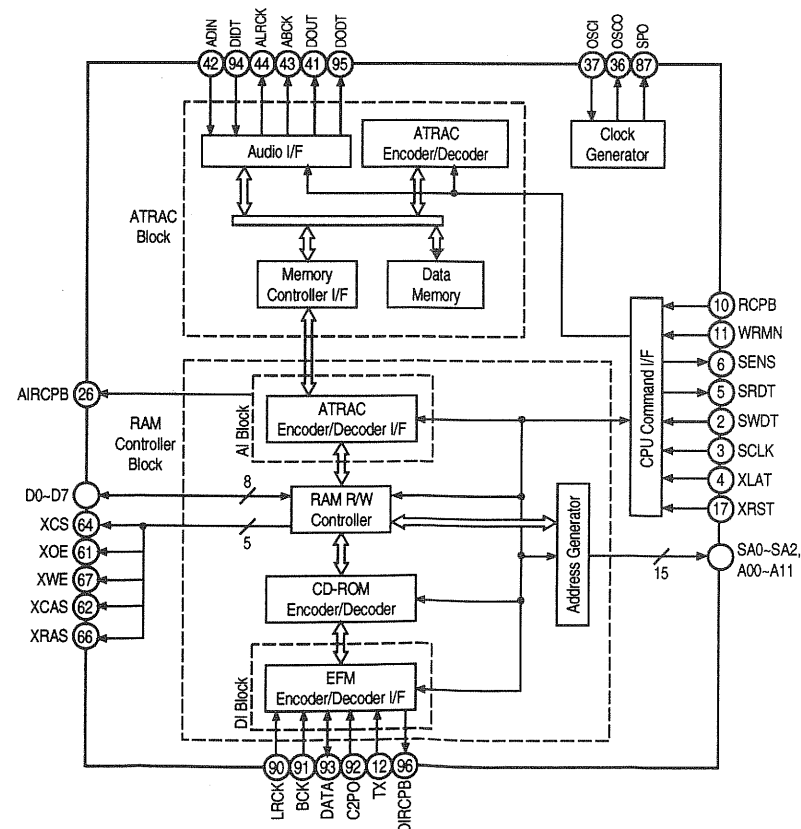
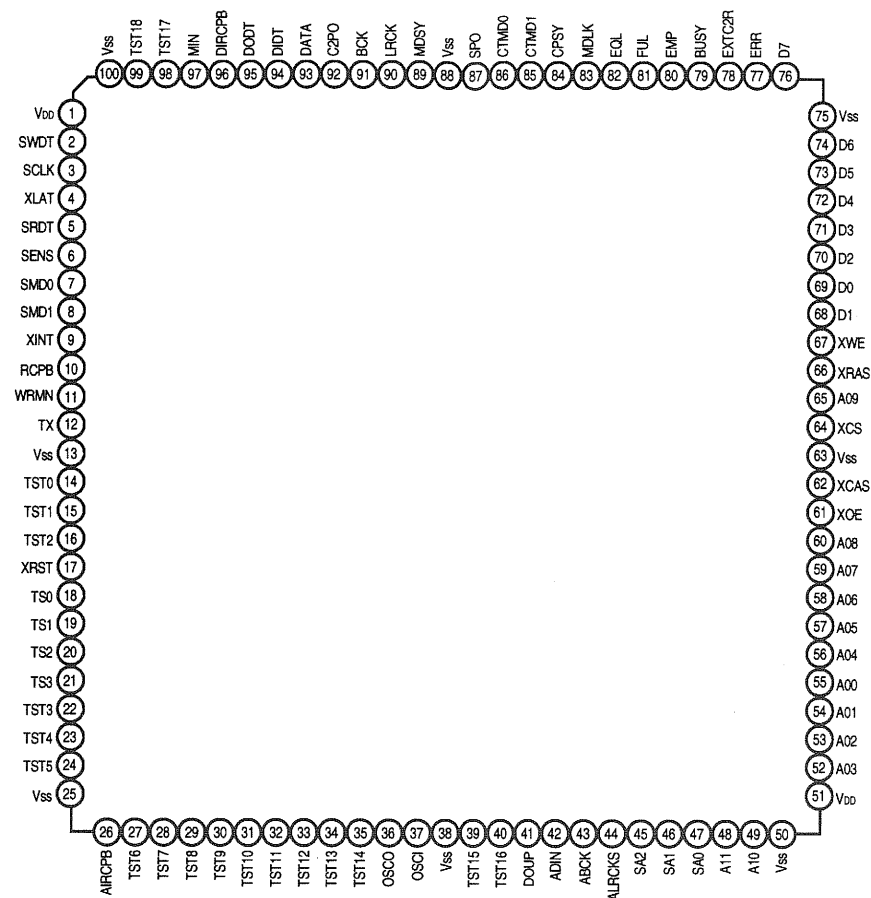


HD64F3048F16 Terminal Function

Pin No.	Terminal Name	Symbol	I/O	Det	Res	Ext	Ini	Function
1	Vcc	Vcc	I	—	—	+5V	—	Connect with power supply (+5V).
2	PB0/TP8/TIOCA3	!TMSYNC	O	—	—	PU	H	Time code sync output (outputs "L" pulse when each audio address is renewed).
3	PB1/TP9/TIOCB3	ACK	O	—	—	PD	L	Acknowledge output for communication between the microcomputer.
4	PB2/TP10/TIOCA4	!DRVTRY	O	—	—	PU	H	Tally out signal output (L: starting).
5	PB3/TP11/TIOCB4	!DLAT	O	—	—	—	H	Latch signal output to digital filter.
6	PB4/TP12/TOCXA4	REC/IPB	O	—	—	—	L	Mode switching signal output (L: playback, H: recording).
7	PB5/TP13/TOCXB4	WRMN	O	—	—	PD	L	Write/Monitor mode switching output (L: monitor, H: write).
8	PB6/TP14/!DREQ0/!CS7	SCTX	O	—	—	PD	L	Enable signal output of data output when recording (H: enable).
9	PB7/TP15/!DREQ1/!ADTRG	!XLAT	O	—	—	PU	H	Latch signal output for peripheral LSI control.
10	!RESO/Vpp	Vpp	I	—	—	PU	—	Reset output/ON port program power supply for writing.
11	Vss	Vss	I	—	—	OV	—	Connect with ground (0V).
12	P90/TxD0	SWDT	O	So	—	PU	H	Serial data output for peripheral LSI control.
13	P91/TxD1	SIN	O	So	—	PU	H	Serial data output for communication between the microcomputer to system microcomputer SIN.
14	P92/RxD0	SRDT	I	Si	—	PU	—	Serial data input for peripheral LSI control.
15	P93/RxD1	SOUT	I	Si	—	PU	—	Serial data input for communication between the microcomputer to system microcomputer SOUT.
16	P94/SCK0/!IRQ4	SCLK	O	Sck	—	PU	H	Serial clock output for peripheral LSI control.
17	P95/SCK1/!IRQ3	UCLK	I	Sck	—	PU	—	Serial clock input for communication between the microcomputer to system microcomputer SCLK.
18	P40/D0	!RECDIG	O	—	—	PU	H	Clock select signal output (L: to digital filter when digital recording).
19	P41/D1	TEST41	O	—	—	NC	H	Non connect
20	P42/D2	LDOUT	O	—	—	PD	L	Loader open/Head up signal output (H: ON).
21	P43/D3	LDIN	O	—	—	PD	L	Loader close/Head down signal output (H: ON).
22	Vss	Vss	I	—	—	OV	—	Connect with ground (0V).
23	P44/D4	LDON	O	—	—	PD	L	Laser ON/OFF switching signal output (H: ON).
24	P45/D5	MOD	O	—	—	PU	H	Switching signal output for high frequency superimposed circuit operation (L: ON).
25	P46/D6	WRPWR	O	—	—	PD	L	Laser power swithing signal output (H: recording power, L: playback power).
26	P47/D7	OESEL	O	—	—	PU	H	DRAM swithing signal output (H: DRAM1 select).
27	D8 (P30)	DD0	I/O	—	—	—	—	Data bus.
28	D9 (P31)	DD1	I/O	—	—	—	—	Data bus.
29	D10 (P32)	DD2	I/O	—	—	—	—	Data bus.
30	D11 (P33)	DD3	I/O	—	—	—	—	Data bus.
31	D12 (P34)	DD4	I/O	—	—	—	—	Data bus.
32	D13 (P35)	DD5	I/O	—	—	—	—	Data bus.
33	D14 (P36)	DD6	I/O	—	—	—	—	Data bus.
34	D15 (P37)	DD7	I/O	—	—	—	—	Data bus.
35	Vcc	Vcc	I	—	—	+5V	—	Connect with power supply (+5V).
36	P10/A0	DA0	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
37	P11/A1	DA1	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
38	P12/A2	DA2	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
39	P13/A3	DA3	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
40	P14/A4	DA4	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
41	P15/A5	DA5	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
42	P16/A6	DA6	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
43	P17/A7	DA7	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
44	Vss	Vss	I	—	—	+5V	—	Connect with power supply (+5V).
45	P20/A8	DA8	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
46	P21/A9	DA9	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
47	P22/A10	DA10	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
48	P23/A11	DA11	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
49	P24/A12	DA12	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).

Pin No.	Terminal Name	Symbol	I/O	Det	Res	Ext	Ini	Function
50	P25/A13	DA13	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
51	P26/A14	DA14	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
52	P27/A15	DA15	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
53	P50/A16	DA16	O	—	—	—	—	Address bus (DDR="0": input port, DDR="1": address output).
54	P51/A17	DA17	O	—	—	NC	—	Address bus (Not used).
55	P52/A18	DA18	O	—	—	NC	—	Address bus (Not used).
56	P53/A19	DA19	O	—	—	NC	—	Address bus (Not used).
57	Vss	Vss	I	—	—	OV	—	Connect with ground (0V).
58	P60/!WAIT	TEST60	O	—	—	NC	H	Non connect
59	P61/!BREQ	!ADRST	O	—	—	PD	L	Reset signal output for AD converter.
60	P62/!BACK	!XRST	O	—	—	PD	L	Reset signal output for peripheral LSI.
61	φ	MONI	O	—	—	NC	—	System clock monitor output.
62	!STBY	!STBY	I	—	—	PU	—	Pull up, hardware stand-by mode (not used).
63	!RES	!DRST	I	—	L	—	—	Reset input.
64	NMI	!NMI	I	Ed	—	PU	—	Pull up, non-maskable interrupt (not used).
65	Vss	Vss	I	—	—	OV	—	Connect with ground (0V).
66	EXTAL	EXAL	I	—	—	—	—	Connect with crystal oscillator (20MHz).
67	XTAL	XTAL	I	—	—	—	—	Connect with crystal oscillator (20MHz). (enable to input external clock.)
68	Vcc	Vcc	I	—	—	+5V	—	Connect with power supply (+5V).
69	!AS (P63)	!AS	O	—	—	—	—	Address strobe output (L: valid).
70	!RD (P64)	!RD	O	—	—	—	—	Read signal output (L: read).
71	!HWR (P65)	!WR	O	—	—	—	—	Upward byte write signal output (L: valid).
72	!LWR (P66)	!LWR	O	—	—	NC	H	Downward byte write signal output, normally "H".
73	MD0	MD0	I	—	—	PU	—	Operation mode setting input (H: mode 5).
74	MD1	MD1	I	—	—	PD	—	Operation mode setting input (L: mode 5).
75	MD2	MD2	I	—	—	PU	—	Operation mode setting input (H: mode 5).
76	AVcc	Vcc	I	—	—	+5V	—	Connect with power supply (+5V).
77	VREF	Vcc	I	—	—	+5V	—	Connect with power supply (+5V).
78	P70/AN0	RECSW	I	Lv	—	PU	—	Head/Loading position detection signal input.
79	P71/AN1	PLAYSW	I	Lv	—	PU	—	Head/Loading position detection signal input.
80	P72/AN2	OUTSW	I	Lv	—	PU	—	Disc position detection input (L: eject OK).
81	P73/AN3	INSW	I	Lv	—	PU	—	Inner circle SW detection signal input (L: ON).
82	P74/AN4	REFLECT	I	Lv	—	PU	—	Reflection rate detection signal input (L: high reflection).
83	P75/AN5	PROTECT	I	Lv	—	PU	—	Write prohibition detection signal input (L: enable).
84	P76/AN6/DA0	SENS	I	Lv	—	—	—	Sense signal input.
85	P77/AN7/DA1	FOK	I	Lv	—	—	—	Focus OK signal input (H: focus OK).
86	AVss	Vss	I	—	—	OV	—	Connect with ground (0V).
87	P80/!RFSH/!IRQ0	!SYSACK	I	EG	—	PU	—	Communication system microcomputer acknowledge signal input between microcomputer.
88	P81/!CS3/!IRQ1	!DQSY	I	EG	—	—	—	MD format sub code Q sync interrupt input when digital source is CD at SCR, MD of U-bit CD.
89	P82/!CS2/!IRQ2	!XINT	I	EG	—	—	—	CXD-2536 internal status interrupt input.
90	P83/!CS1/!IRQ3	!SQSY	I	EG	—	—	—	Sub Q/ADIP sync interrupt input.
91	P84/!CS0	R/!W	I	Lv	—	PU	—	Trigger signal input when starting communication between microcomonputer (L: starting, L: write/H: read).
92	Vss	Vss	I	—	—	OV	—	Connect with ground (0V).
93	PA0/TP0/!TEND0/TCLKA	SDA	I/O	—	—	PU	H	Serial data input/output for EEPROM control.
94	PA1/TP1/!TEND1/TCLKB	SCL	I/O	—	—	PU	H	Serial clock input/output for EEPROM control.
95	PA2/TP2/TIOCA0/TCLKC	!SHCK	I	EG	—	PU	—	Track out detection signal interrupt input.
96	PA3/TP3/TIOCB0/TCLKD	!IGRST	O	—	—	PD	L	Reset signal output for CXD2535.
97	PA4/TP4/TIOCA1/!CS6	CSEXROM	O	—	—	PU	H	Chip select signal output for external ROM.
98	PA5/TP5/TIOCB1/!CS5	TESTA5	O	—	—	PU	H	Pull up (Not used)
99	PA6/TP6/TIOCA2/!CS4	CSEXSRAM	O	—	—	—	H	Chip select signal output for external SRAM.
100	PA7/TP7/TIOCB2	WESEL	O	—	—	PU	H	Write enable switching signal (H: DRAM1 selection).

CXD2536CR (Main Unit)
(IC105)

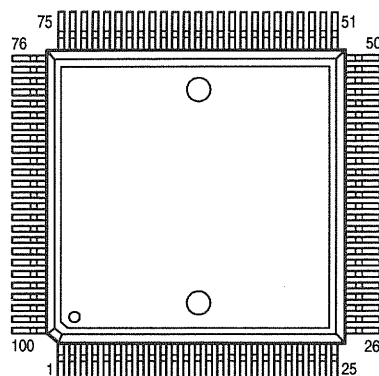


CXD2536CR Terminal Function

Pin No.	Symbol	I/O	Function
1	VDD		Power supply terminal.
2	SWDT	I	Microcomputer serial interface data input.
3	SCLK	I	Microcomputer serial interface shift clock input.
4	XLAT	I	Microcomputer serial interface latch input (L: Latch).
5	SRDT	O	Microcomputer serial interface data output.
6	SENS	O	Internal status output terminal according to microcomputer serial interface address.
7	SMD0	I	Control mode of the serial command.
8	SMD1	I	Control mode of the serial command.
9	XINT	O	Interrupt request output terminal (L: Interrupt status).
10	RCPB	I	H: Recording mode, L: Playback mode.
11	WRMN	I	H: Wirting mode, L: Monitor mode.
12	TX	I	Enable signal input terminal of the recording data output (H: Enable).
13	VSS		Connect with ground.
14	TST0	I	Test terminal, connect with ground.
15	TST1	I	Test terminal, connect with ground.
16	TST2	I	Test terminal, connect with ground.
17	XRST	I	Reset input (L: Reset).
18	TS0	I	Test terminal, connect with ground.
19	TS1	I	Test terminal, connect with ground.
20	TS2	I	Test terminal, connect with ground.
21	TS3	I	Test terminal, connect with ground.
22	TST3	I	Test terminal, connect with ground.
23	TST4	I	Test terminal, connect with ground.
24	TST5	I	Test terminal, connect with ground.
25	VSS		Connect with ground.
26	ALRCPB	O	H, L ATRAC block recording/playback mode output (H: Recording mode, L: Playback mode).
27	TST6	O	Test terminal, open.
28	TST7	O	Test terminal, open.
29	TST8	O	Test terminal, open.
30	TST9	O	Test terminal, open.
31	TST10	O	Test terminal, open.
32	TST11	O	Test terminal, open.
33	TST12	O	Test terminal, open.
34	TST13	O	Test terminal, open.
35	TST14	O	Test terminal, open.
36	OSCO	O	Crystal oscillator circuit output terminal (inverting output of OSCI terminal).
37	OSCI	I	Crystal oscillator circuit input terminal (1024 Fs = 45.1584 MHz).
38	VSS		Connect with ground.
39	TST15	O	Test terminal, open.
40	TST16	O	Test terminal, open.
41	DOUT	O	H, L REC monitor output/decode audio data output.
42	ADIN	I	Analog recording input terminal (connect with external A/D converter output).
43	ABCK	O	H, L XBCK (64 Fs) output terminal to the external audio block.
44	ALRCK	O	LRCK (Fs) output terminal to the external audio block.
45	SA2	O	SRAM address bus.
46	SA1	O	SRAM address bus.
47	SA0	O	SRAM address bus.
48	A11	O	RAM address bus.
49	A10	O	RAM address bus.
50	VSS		Connect with ground.
51	VDD		Power supply terminal.
52	A03	O	H, L RAM address bus.
53	A02	O	H, L RAM address bus.

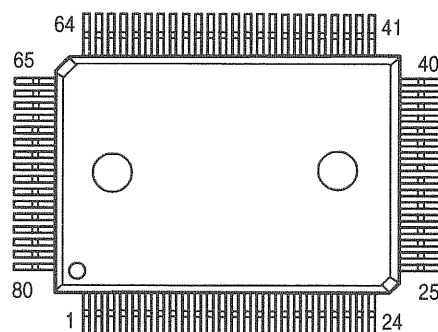
Pin No.	Symbol	I/O		Function
54	A01	O	H, L	RAM address bus.
55	A00	O	H, L	RAM address bus.
56	A04	O	H, L	RAM address bus.
57	A05	O	H, L	RAM address bus.
58	A06	O	H, L	RAM address bus.
59	A07	O	H, L	RAM address bus.
60	A08	O	H, L	RAM address bus.
61	XOE	O	H, L	RAM output enable signal.
62	XCAS	O	H, L	DRAM CAS output.
63	Vss			Connect with ground.
64	XCS	O	H, L	RAM chip select (H: DRAM, L: SRAM).
65	A09	O	H, L	RAM address bus.
66	XRAS	O	H, L	DRAM RAS output.
67	XWE	O	H, L	RAM write enable.
68	D1	I/O	H, L	RAM data bus.
69	D0	I/O	H, L	RAM data bus.
70	D2	I/O	H, L	RAM data bus.
71	D3	I/O	H, L	RAM data bus.
72	D4	I/O	H, L	RAM data bus.
73	D5	I/O	H, L	RAM data bus.
74	D6	I/O	H, L	RAM data bus.
75	Vss			Connect with ground.
76	D7	I/O	H, L	RAM data bus.
77	ERR	I/O	H, L	Data input/output terminal to RAM for C2P0.
78	EXTC2R	I		RAM select signal for C2P0 (H: used, L: Not used).
79	BUSY	O	H, L	RAM access busy signal output (H: RAM access).
80	EMP	O	H, L	Indication signal output when ATRAC data is empty or before the data is full.
81	FUL	O	H, L	Indication signal output when ATRAC data is full or before the data is empty.
82	EQL	O	H, L	ATRAC data empty (H: ASC = DSC).
83	MDLK	O	H, L	Indicates main/sub of recording/playback data (H: sub or linking, L: main).
84	CPSY	O	H, L	Internal sink output.
85	CTMD1	O	H, L	Internal count mode output.
86	CTMD0	O	H, L	Internal count mode output.
87	SPO	O	H, L	512 Fs output.
88	Vss			Connect with ground.
89	MDSY	O	H, L	Sink detection output of main data.
90	LRCK	I		LRCK (Fs) input terminal from FDM encoder/decoder.
91	BCK	I		BCK (64 Fs) input terminal from EFM encoder/decoder.
92	C2P0	I		C2P0 input terminal from EFM encoder/decoder.
93	DATA	I/O	H, L	Data input/output from EFM encoder/decoder.
94	DIDT	I		Digital recording input terminal.
95	DODT	O	H, L	REC monitor output/decode audio data output.
96	DIRCPB	O	H, L	Recording/playback mode output to EFM encoder/decoder (H: recording mode, L: playback mode).
97	MIN	I		External monitor signal input terminal.
98	TST17	I		Test terminal, connect with VDD.
99	TST18	O		Test terminal, open.
100	Vss			Connect with ground.

- Between OSCI and OSCO terminal, incorporated an internal feedback impedance.
- When not using RAM for C2P0 (EXT2CR = "L"), open ERR terminal.
- When XRST terminal is "L", 512 Fs output signal from SPO terminal will be stopped and become L level.

MN1020015-1 (Main Unit)
(IC109)

MN1020015 Terminal Function

Pin No.	Terminal Name	Symbol	I/O	DET	Ext	Ini	Res	Function
1	A23	A23	O	—	—	—	L	Address bus 23 (Non connection).
2	A22	A22	O	—	—	—	L	Address bus 22 (Non connection).
3	A21	A21	O	—	—	—	L	Address bus 21 (Non connection).
4	A20	A20	O	—	—	—	L	Address bus 20 (Non connection).
5	A19	A19	O	—	—	—	L	Address bus 19.
6	A18	A18	O	—	—	—	L	Address bus 18.
7	A17	A17	O	—	—	—	L	Address bus 17.
8	A16	A16	O	—	—	—	L	Address bus 16.
9	A15	A15	O	—	—	—	L	Address bus 15.
10	A14	A14	O	—	—	—	L	Address bus 14.
11	A13	A13	O	—	—	—	L	Address bus 13.
12	A12	A12	O	—	—	—	L	Address bus 12.
13	A11	A11	O	—	—	—	L	Address bus 11.
14	A10	A10	O	—	—	—	L	Address bus 10.
15	A09	A9	O	—	—	—	L	Address bus 09.
16	A08	A8	O	—	—	—	L	Address bus 08.
17	A07	A7	O	—	—	—	L	Address bus 07.
18	A06	A6	O	—	—	—	L	Address bus 06.
19	A05	A5	O	—	—	—	L	Address bus 05.
20	A04	A4	O	—	—	—	L	Address bus 04.
21	A03	A3	O	—	—	—	L	Address bus 03.
22	A02	A2	O	—	—	—	L	Address bus 02.
23	A01	A1	O	—	—	—	L	Address bus 01.
24	A00	A0	O	—	—	—	L	Address bus 00.
25	!RE	!OE	O	—	—	—	—	Read enable output terminal.
26	!WEL	!WEL	O	—	—	—	—	Not used (open).
27	!WHE	!WE	O	—	—	—	—	Write enable output terminal (D08~D15).
28	P00 D00	CCLK	O	—	—	H	—	Clock signal for FL tube, LED, parallel out, pitch control.
29	P01 D01	CDAT	O	—	—	H	—	Data signal for FL tube, LED, parallel out and pitch control.
30	P02 D02	!PSTB0	O	—	Pu	H	H	Parallel output strobe 0 signal.
31	P03 D03	SYSRST0	O	—	Pu	—	H	System reset output (L: reset).
32	P04 D04	TRCL0	O	—	—	H	—	Digital output transmitter strobe 0 signal.
33	P05 D05	TRCL1	O	—	—	H	—	Digital output transmitter strobe 1 signal for FS option.
34	P06 D06	!CSEN	O	—	Pu	H	H	SEL0~2 (HC138) enable signal for LED and FL tube.
35	P07 D07	!P. RST	O	Lv	—	L	—	Power ON reset output (L: RESET).
36	D08	D0	I/O	—	—	—	—	Data bus 0 (F memory, I/O, SMPTE).
37	D09	D1	I/O	—	—	—	—	Data bus 1 (F memory, I/O, SMPTE).
38	D10	D2	I/O	—	—	—	—	Data bus 2 (F memory, I/O, SMPTE).
39	D11	D3	I/O	—	—	—	—	Data bus 3 (F memory, I/O, SMPTE).
40	D12	D4	I/O	—	—	—	—	Data bus 4 (F memory, I/O, SMPTE).

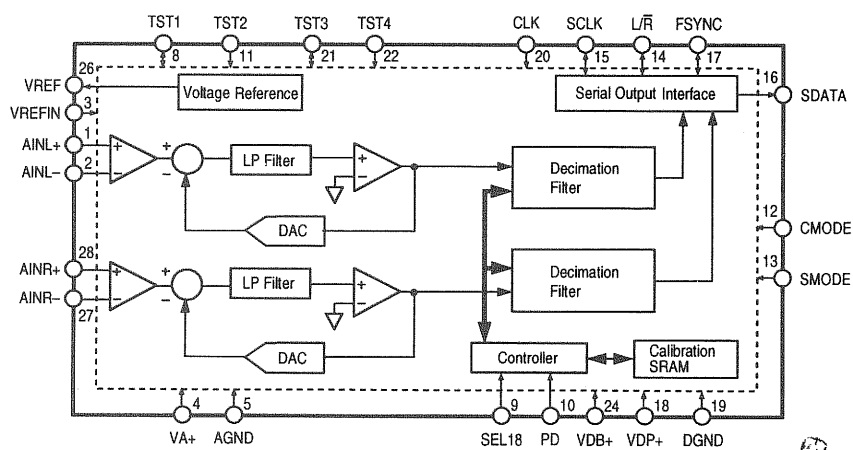
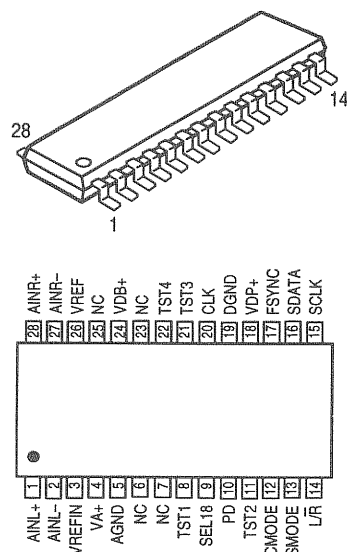
Pin No.	Terminal Name	Symbol	I/O	DET	Ext	Ini	Res	Function
41	D13	D5	I/O	—	—	—	—	Data bus 5 (F memory, I/O, SMPTE).
42	D14	D6	I/O	—	—	—	—	Data bus 6 (F memory, I/O, SMPTE).
43	D15	D7	I/O	—	—	—	—	Data bus 7 (F memory, I/O, SMPTE).
44	P10 !RAS	TRCK	O	—	—	—	—	Transmitter control clock.
45	P11 !CAS0/CS0	TRDAT	O	—	—	—	—	Transmitter control data.
46	P12 !CAS1/CS1	ROMCLK	O	—	—	—	—	EEPROM clock output signal.
47	P13 !CAS2/CS2	ROMDAT	I/O	—	—	—	—	EEPROM data input/output signal (initial value is for input).
48	P14 !CAS3/CS3	!SMRDY	I	Lv	—	L	—	SMPTE interrupt input R/W identification signal.
49	VSS	VSS	—	—	—	—	—	GND (0v).
50	VDD	VDD	—	—	—	—	—	Power supply (+5.0V).
51	!IRST	!IRST	I	—	—	—	—	Reset input terminal.
52	!BUSRQ	!BUSRQ	I	—	—	—	—	Bus request signal (Not used, fixed at +5.0V).
53	!BUSGT	!BUSGT	O	—	—	—	—	Bus request enable terminal (Not used, open).
54	!WORD	!WORD	I	—	—	—	—	Data bus width selection terminal (8 bit mode, +5V).
55	P20 AD0	!FSIN	I	Lv	Pu	—	H	L: FS converter option IN.
56	P21 AD1	!SMIN	I	Lv	Pu	—	H	L: SMPTE option IN.
57	P22 AD2	!CLKIN	I	Lv	Pu	—	H	Video/Word clock input detection signal (L: clock IN).
58	P23 AD3	RESERVE	O	—	—	L	—	Not used.
59	AVDD	AVDD	—	—	—	—	—	Power supply (+5.0V).
60	AVSS	AVSS	—	—	—	—	—	GND (0v).
61	P30 RTOA0	F0	I	Lv	Pu	—	H	Sampling frequency detection signal for identifying F0, F1, F2 pattern.
62	P31 RTOA1/ADTRG	F1	I	Lv	Pu	—	H	Sampling frequency detection signal for identifying F0, F1, F2 pattern.
63	P32 RTOA2/VREFL	F2	I	Lv	Pu	—	H	Sampling frequency detection signal for identifying F0, F1, F2 pattern.
64	P33 RTOA3/VREFH	!DRST	O	Lv	Pd	L	L	Drive microcomputer reset signal (L: reset).
65	P34 RTOB0/AD4	!D. PGM	O	Lv	Pu	H	H	Drive microcomputer program rewriting signal (L: rewriting).
66	P35 RTOB1/AD5	INMON	O	Lv	—	—	—	Audio input, monaural/stereo switching signal (H: monaural).
67	P36 RTOB2/AD6/TC16C	F. SELCT	O	—	—	—	—	Selection signal for Pin61, 62 and 63 pattern.
68	P37 RTOB3/AD7/TC17C	DSEL	O	—	—	—	—	Digital input selection signal (H: RCA input).
69	P40 SB10	RXD	I	—	—	—	—	Receiving line for external serial communication.
70	P41 SB00	TXD	O	—	—	—	—	Transmitting line for external serial Communication.
71	P42 SB11	SIN	I	—	—	—	—	Receiving line from the microcomputer communication (System microcomputer reference).
72	P43 SB01	SOUT	O	—	—	—	—	Transmitting line to the microcomputer communication (System microcomputer reference).
73	P50 IRQ1/TC106B	ACK	I	Ed	Pu	—	—	ACK input signal from the microcomputer communication (interruption).
74	P51 IRQ1/TC107B	KBIRQ	I	Ed	Pu	—	—	Keyboard TXE/RXE RDY interrupt input.
75	P52 IRQ3/TC108B	TMSYNC	I	Ed	Pu	—	—	Time code sync input (interruption).
76	P53 IRQ3	!SMIRQ	I	Ed	Pu	—	—	SMPTE data R/W input (interruption).
77	!KI0	!TRSLA	I	Ed	Pu	—	—	Track select pulse input terminal (interruption).
78	!KI1	!TRSLB	I	Ed	Pu	—	—	Track select pulse inverting input terminal (interruption).
79	!KI2	CLKSEL0	O	—	—	—	—	Operation clock switching signal 0 for 44.1k, SMPTE and pitch control.
80	!KI3	CLKSEL1	O	—	—	—	—	Operation clock switching signal 1 for 44.1k, SMPTE and pitch control.
81	!KI4	R/W	O	Lv	Pu	H	H	Read/write switching signal for microcomputer communication (H: read).
82	!KI5	SYSACK	O	—	Pd	L	L	System microcomputer ACK output signal for the microcomputer communication.
83	!KI6	KEYS/!D	O	—	Pu	—	H	Keyboard control data switching signal.
84	!KI7	OUTMON	O	Lv	—	—	—	Audio output, monaural/stereo switching signal (H: monaural).
85	TCI00	ERF	I	—	—	—	—	Digital audio interface receiving error signal.
86	TCI01	PLAYSW	I	—	—	—	—	Disc reset input signal (H: disc reset).
87	TCI02	PROTECT	I	—	—	—	—	Write protect input signal (H: record inhibition).
88	TCI03/SBT0	CO	I	—	—	—	—	PRO/COS format detection signal.
89	TCI04/SBT1	UCLK	O	—	—	—	—	Clock output for the microcomputer communication.
90	TCI6A	!DRVTRY	I	—	—	—	—	Drive microcomputer status input.
91	TCI07A	OUTSW	I	—	—	—	—	Disc set detecting switch signal (L: disc set).
92	TCI08A	KBR/!W	I	—	—	—	—	Keyboard interrupt R/W identification input signal.
93	SYSCLK	SYSCLK	O	—	—	—	H	System clock output terminal (a half of OSCI frequency).
94	VDD	VDD	—	—	—	—	—	Power supply (+5.0V).
95	!XI	!XI	I	—	—	—	—	GND (0V).
96	X0	X0	O	—	—	—	—	Open.
97	VDD	VDD	—	—	—	—	—	Power supply (+5.0V).
98	!OSCI	!OSCI	I	—	—	—	—	System clock input (12.288 MHz).
99	OSCO	OSCO	O	—	—	—	—	System clock output (12.288 MHz).
100	VSS	VSS	—	—	—	—	—	GND (0v).

MB89363BH (Main Unit)
(IC110)

MB89363BH Terminal Function

Pin No.	Terminal Name	Symbol	Address	I/O	DET	Ext	Ini	Res	Function
1	P34	DIG/ANA	0001	I	Lv	Pu	—	H	MD audio signal input, status selecting switch input (L: analog).
2	P35	UNB/!BL	0001	I	Lv	Pu	—	H	MD audio signal input, status selecting switch input (L: balance).
3	P36	RESERVE	0001	I	—	Pu	—	H	Not used.
4	P37	RESERVE	0001	I	—	Pu	—	H	Not used.
5	!W	!WE		I	—	—	—	—	Data writing signal, connect with the microcomputer "!WR".
6	RST	!P. RST		I	—	—	—	—	Reset signal input (L: reset).
7	N.C.	N.C.		—	—	—	—	—	Open.
8	N.C.	N.C.		—	—	—	—	—	Open.
9	RH/!RL	!RL		I	—	—	—	—	Reset polarity: select active low (fixed at 0V).
10	N.C.	N.C.		—	—	—	—	—	Open.
11	OUS/!INS	OUS		I	—	—	—	—	Port 0 and 3 read value selection (external terminal value read, fixed at +5V).
12	DB0	D0		I	—	—	—	T	Data bus 0 (Connect with the microcomputer data bus D0).
13	DB1	D1		I	—	—	—	T	Data bus 1 (Connect with the microcomputer data bus D1).
14	DB2	D2		I	—	—	—	T	Data bus 2 (Connect with the microcomputer data bus D2).
15	DB3	D3		I	—	—	—	T	Data bus 3 (Connect with the microcomputer data bus D3).
16	DB4	D4		I	—	—	—	T	Data bus 4 (Connect with the microcomputer data bus D4).
17	DB5	D5		I	—	—	—	T	Data bus 5 (Connect with the microcomputer data bus D5).
18	DB6	D6		I	—	—	—	T	Data bus 6 (Connect with the microcomputer data bus D6).
19	DB7	D7		I	—	—	—	T	Data bus 7 (Connect with the microcomputer data bus D7).
20	PO7	PDI7	0010	I	—	Pu	—	H	Parallel input 7 (FADER, START, COM).
21	PO6	PDI6	0010	I	—	Pu	—	H	Parallel input 6 (SERCH, REW, COM).
22	PO5	PDI5	0010	I	—	Pu	—	H	Parallel input 5 (SERCH, FWD, COM).
23	PO4	PDI4	0010	I	—	Pu	—	H	Parallel input 4 (TRACK-, COM).
24	N.C.	N.C.		—	—	—	—	—	Open.
25	PO3	PDI3	0010	I	—	Pu	—	H	Parallel input 3 (TRACK+, COM).
26	PO2	PDI2	0010	I	—	Pu	—	H	Parallel input 2 (STDBY/CUE, COM).
27	PO1	PDI1	0010	I	—	Pu	—	H	Parallel input 1 (PAUSE, COM).
28	PO0	PDI0	0010	I	—	Pu	—	H	Parallel input 0 (PLAY, COM).
29	!CS1	!IOCS1		I	—	—	—	—	Chip selection 1 input.
30	GND	GND		—	—	—	—	—	

Pin No.	Terminal Name	Symbol	Address	I/O	DET	Ext	Ini	Res	Function
31	RSLCT1	RSLCT1		I	—	—	—	—	Access object selection 1 signal (connect with the microcomputer address bus A17).
32	RSLCT0	RSLCT0		I	—	—	—	—	Access object selection 0 signal (connect with the microcomputer address bus A16).
33	N.C.	N.C.		—	—	—	—	—	Open.
34	P27	PCSTB	0110	O	Lv	Pu	H	H	Strobe signal for pitch control.
35	P26	!PCRST	0110	O	Lv	Pd	L	L	Reset signal for pitch control (L: reset).
36	P25	!FSNOI	0110	O	Lv	Pu	H	H	44.1 kHz through output switching signal (L: 44.1 kHz through).
37	P24	!VCOON	0110	O	Lv	Pu	H	H	VCO circuit ON/OFF control signal (L: VCO ON).
38	P20	!TRRSTO	0110	O	Lv	Pd	L	L	Transmitter reset output signal for output (YM3437C) (L: reset).
39	P21	V!/W	0110	O	Lv	Pd	L	L	Video/wide sync switching signal (H: video sync).
40	P22	!FSNOO	0110	O	Lv	Pd	L	L	44.1 kHz through input switching signal (H: 44.1 kHz through).
41	N.C.	N.C.		—	—	—	—	—	Open.
42	N.C.	N.C.		—	—	—	—	—	Open.
43	P23	FSSEL	0110	O	Lv	Pd	L	L	32k/48k switching signal (L:32 kHz).
44	P10	AMUTE	1010	O	Lv	Pu	H	H	Analog mute control signal (H: mute ON).
45	P11	DMUTE	1010	O	Lv	Pu	H	H	Mute signal for transmitter (YM3437C) output system (H: mute ON).
46	P12	!FSIO	1010	O	—	Pu	H	H	FS converter crystal oscillator ON/OFF switching signal (32 kHz) (L: ON).
47	P13	!FSI1	1010	O	—	Pu	H	H	FS converter crystal oscillator ON/OFF switching signal (48 kHz) (L: ON).
48	P14	SEL0	1010	O	—	—	—	T	Panel control signal for selecting KS0, KS1, KS2, KS3, FLCS0, FLCS1 STB0 and STB1.
49	P15	SEL1	1010	O	—	—	—	T	
50	P16	SEL2	1010	O	—	—	—	T	
51	P17	DYCON	1010	O	—	Pu	—	H	RS422 daisy chain control signal (L: high impedance).
52	N.C.	N.C.		—	—	—	—	—	Open.
53	Vcc	AVDD		—	—	—	—	—	—
54	P47	!TRSLC	1001	I	—	Pu	—	—	Track selector "select C" input.
55	P46	!PUSH	1001	I	—	Pu	—	H	Track selector "push" input.
56	P45	!JOG0	1001	I	—	Pu	—	H	Jog 0 input.
57	P44	!JOG1	1001	I	—	Pu	—	H	Jog 1 input
58	P43	!SHTL0	1001	I	—	Pu	—	H	Shuttle 0 input.
59	P42	!SHTL1	1001	I	—	Pu	—	H	Shuttle 1 input.
60	P41	!SHTL2	1001	I	—	Pu	—	H	Shuttle 2 input.
61	P40	!SHTL3	1001	I	—	Pu	—	H	Shuttle 3 input.
62	P53	KI3	0101	I	—	Pu	—	H	Key input.
63	N.C.	N.C.		—	—	—	—	—	Open.
64	N.C.	N.C.		—	—	—	—	—	Open.
65	P52	KI2	0101	I	—	Pu	—	H	Key input.
66	P51	KI1	0101	I	—	Pu	—	H	Key input.
67	P50	KI0	0101	I	—	Pu	—	H	Key input.
68	P54	KI4	0101	I	—	Pu	—	H	Key input.
69	P55	KI5	0101	I	—	Pu	—	H	Key input.
70	P56	KI6	0101	I	—	Pu	—	H	Key input.
71	P57	KI7	0101	I	—	Pu	—	H	Key input (Stand-by).
72	N.C.	N.C.		—	—	—	—	—	Open.
73	N.C.	N.C.		—	—	—	—	—	Open.
74	GND	GND		—	—	—	—	—	—
75	!CS2	!I0CS2		I	—	—	—	—	Chip select 2 input.
76	!R	!OE		O	—	—	—	—	Data read signal, connect with the microcomputer "OE".
77	P30	PDI8	0001	I	—	Pu	—	H	Parallel input 8 (REC, COM).
78	P31	PDI9	0001	I	—	Pu	—	H	Parallel input 9 (HOT, START, MODE) (L: HOT START).
79	P32	PDI10	0001	I	—	Pu	—	H	Parallel input 10 (HOT, START, 10/20, SELECT) (L: 20 TRACK).
80	P33	!HOTOP	0001	I	Lv	Pu	—	H	Hot start option input signal (L: option IN).

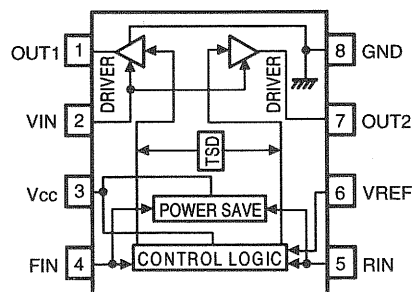
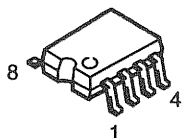
AK5340-VS-E1(IC206)



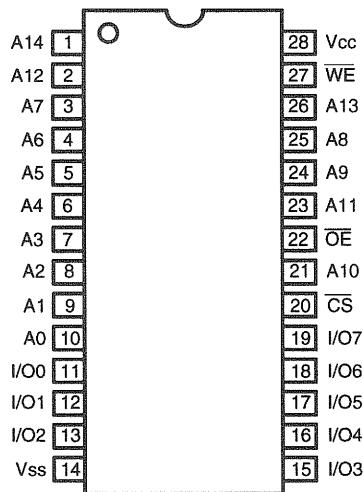
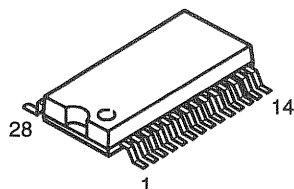
AK5340-VS-E1 Terminal Function

Pin No.	Symbol	I/O	Function
1	AINL+	I	Lch analog non-inverting input terminal.
2	AINL-	I	Lch analog inverting input terminal.
3	VREFIN	I	Reference voltage input terminal.
4	VA+	—	Analog power supply terminal (+5V).
5	AGND	—	Analog ground.
6	NC		
7	NC		
8	TST1		Test terminal, open.
9	SEL18	I	Output data length selection terminal (L : 16bit, H : 18bit).
10	PD	I	Power down terminal (H : power down mode).
11	TST2		Test terminal, open.
12	CMODE	I	Master clock selection terminal (L : CLK=256fs, H : CLK=384fs).
13	SMODE	I	Interface clock selection terminal (L : slave mode, H : master mode).
14	L/R	I/O	Input channel selection terminal.
15	SCLK	I/O	Serial data clock terminal.
16	SDATA	O	Serial data output terminal.
17	FSYNC	I/O	Frame sync clock terminal.
18	VDP+	—	Digital power supply terminal (+5V).
19	DGND	—	Digital ground.
20	CLK	I	Master clock input terminal (CMODE="H": 384fs, CMODE="L": 256fs).
21	TST3		Test terminal, open.
22	TST4		Test terminal, open.
23	NC		
24	VDB+	—	Digital power supply terminal (+5V), (silicon substrate potential).
25	NC		
26	VREF	O	Reference voltage output terminal (VA+, -2.6V).
27	AINR-	I	Rch analog inverting input terminal.
28	AINR+	I	Rch analog non-inverting input terminal.

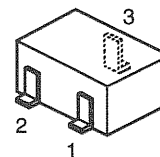
BA6287F(IC101)
(Main unit)



HM62256BLFP-8T (IC103)
(Main unit)

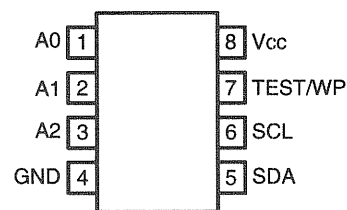
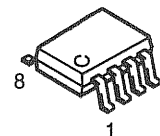


MN1382-S (TX) (IC106)
(Main unit)

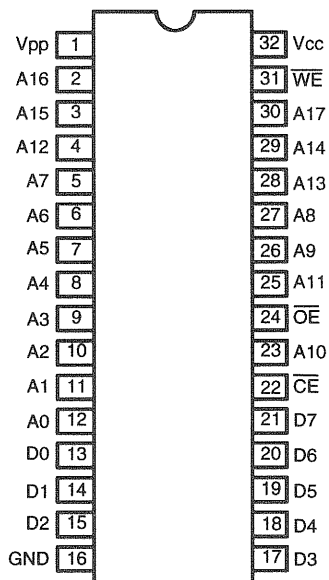
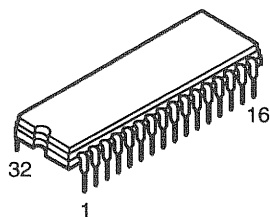


1: GND
2: V_{DD}
3: OUT

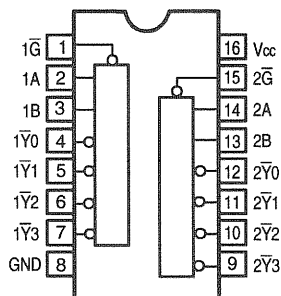
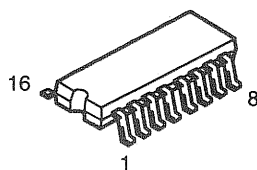
S-24C04AFJ (IC107)
(Main unit)



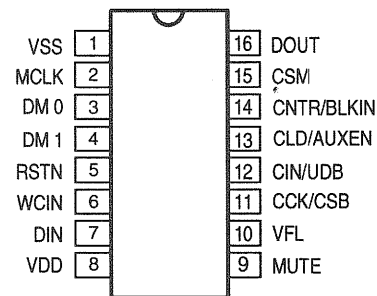
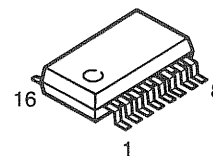
MX28F2000 PPC-90 (IC108)
(Main unit)



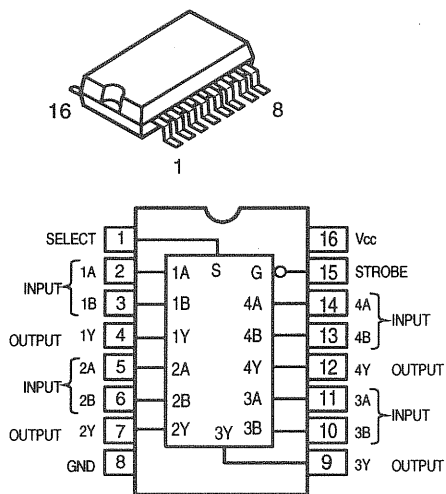
TC74HC139AF (IC111)
(Main unit)



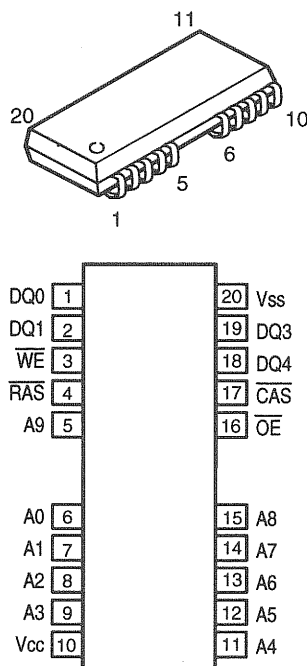
YM3437C-F (E2) (IC113)
(Main unit)



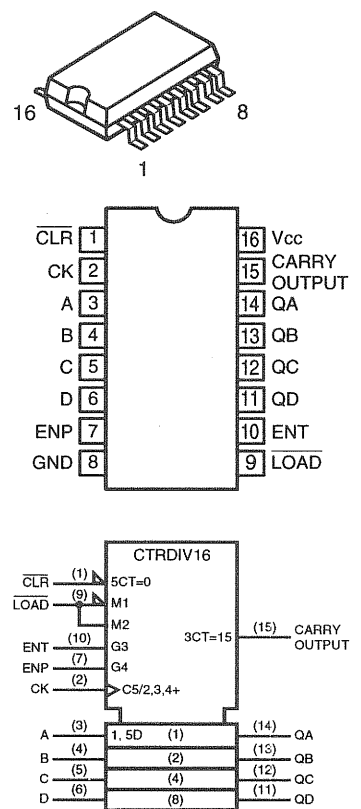
TCT74HC157AF (IC114)
(Main unit)



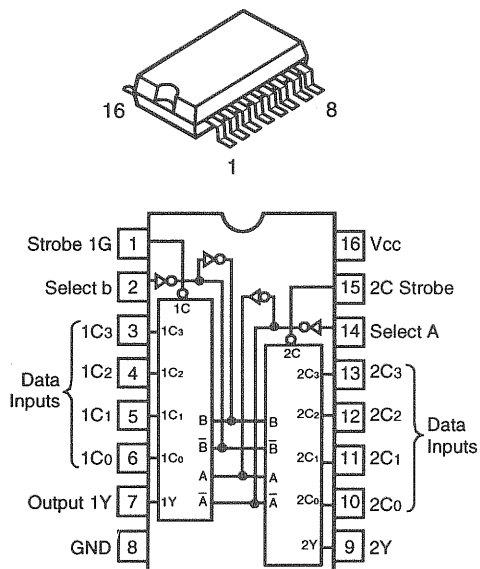
MN414400CSJ-07 (IC115)
(Main unit)



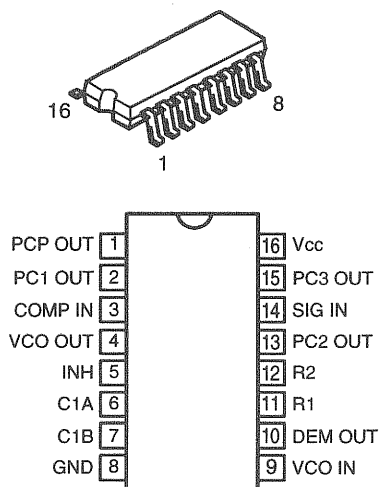
TC74AC163FP
(IC116~118, 124~126)
(Main unit)



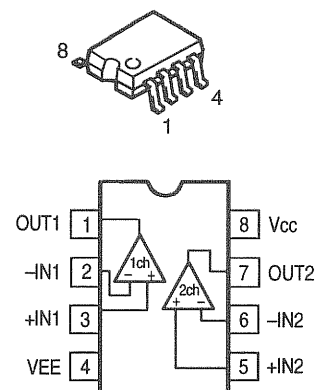
HD74ACT153FP (IC119, 120)
HD74HC153FP (IC307)
(Main unit)



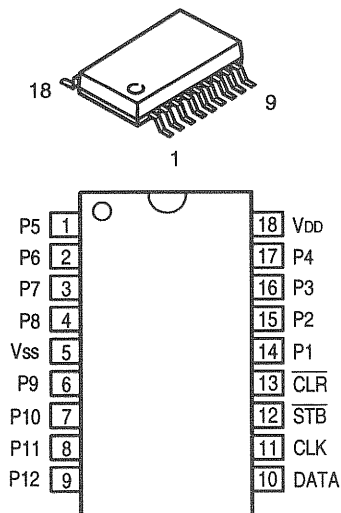
PC74HC4046AT-T (IC121)
(Main unit)



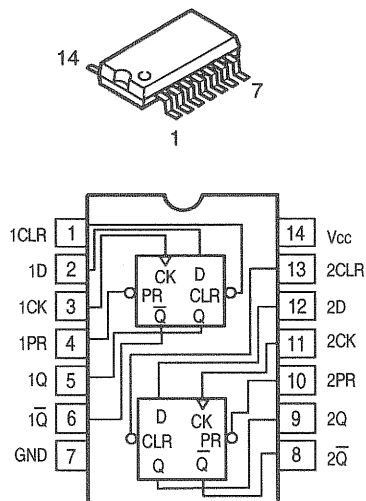
BA15218F
(IC122, 401, 402, 403, 408, 409)
NJM5532MD (IC409, 410)
(Main unit)



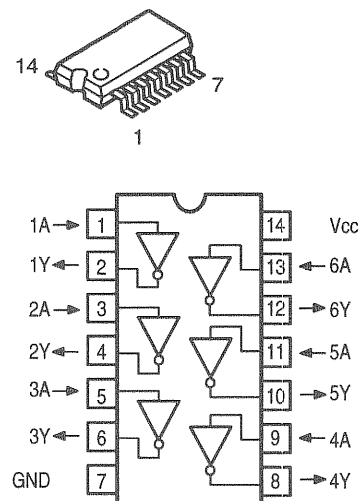
NJU3713GT1 (IC123, 505, 801)
(Main unit, Display/Key unit)



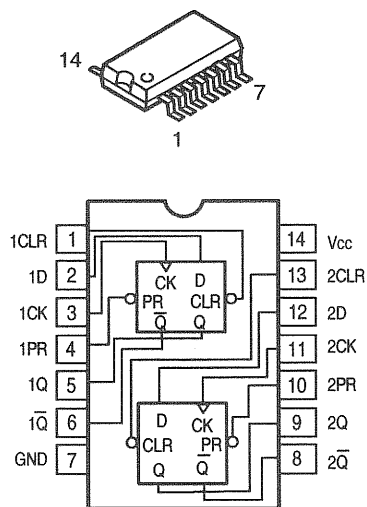
HD74AC74FP (IC127)
(Main unit)



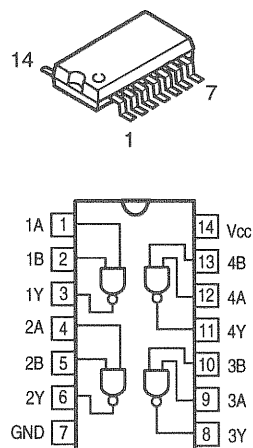
TC74HC04AF (IC129, 806)
(Main unit)



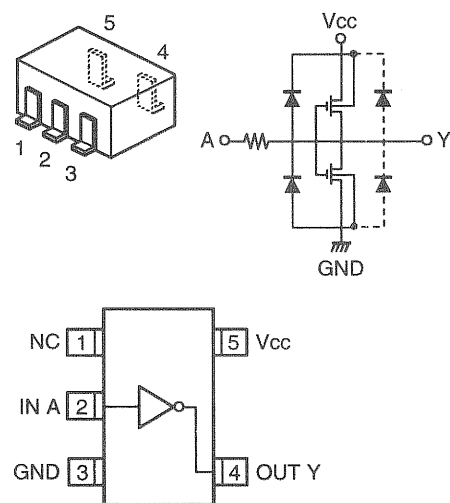
HD74HC74FP (IC132)
(Main unit)



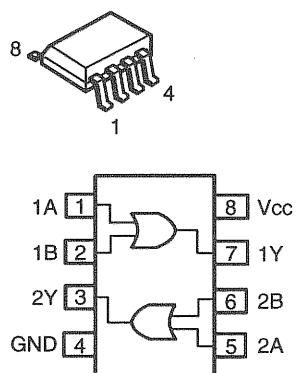
TC74HC00AF (IC133, 807)
(Main unit)



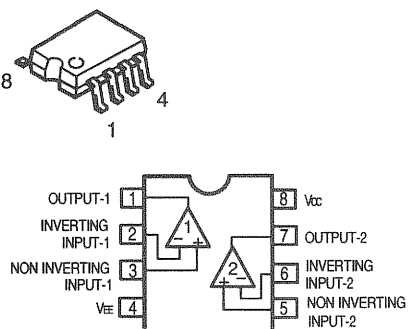
TC7SU04F (IC134, 135)
(Main unit)



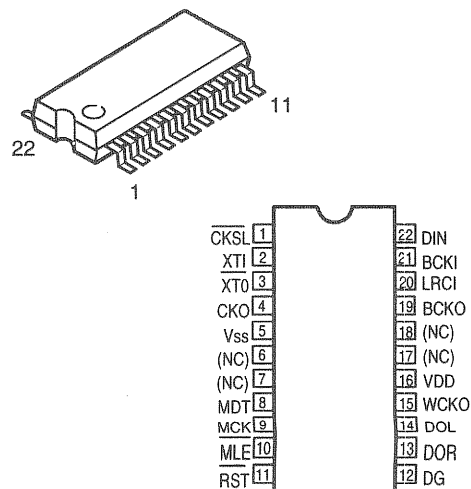
TC7W32F (IC136, 137)
(Main unit)



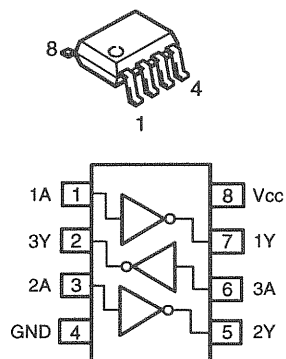
BA4510F (IC301, 302)



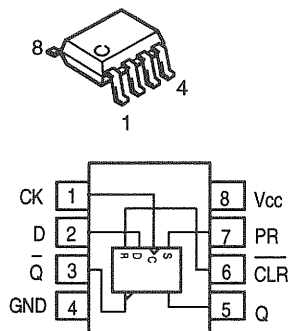
SM5841BS (IC304)
(Main unit)



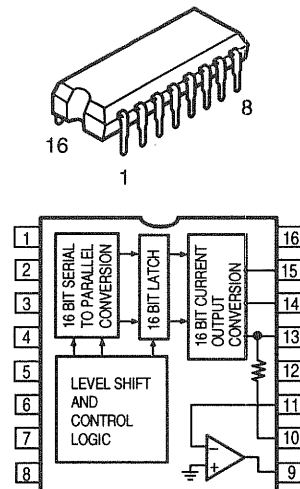
TC7WU04F (IC305, 808, 810)
(Main unit)



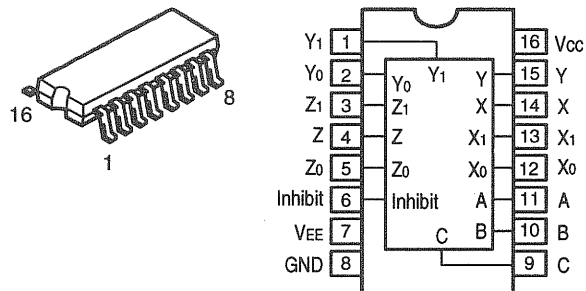
TC7W74F (IC306)
(Main unit)



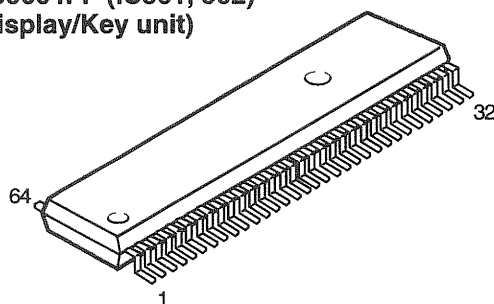
PCM61P (IC308, 309)
(Main unit)



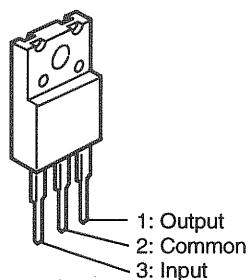
TC4053BF (IC404, 405)
(Main unit)



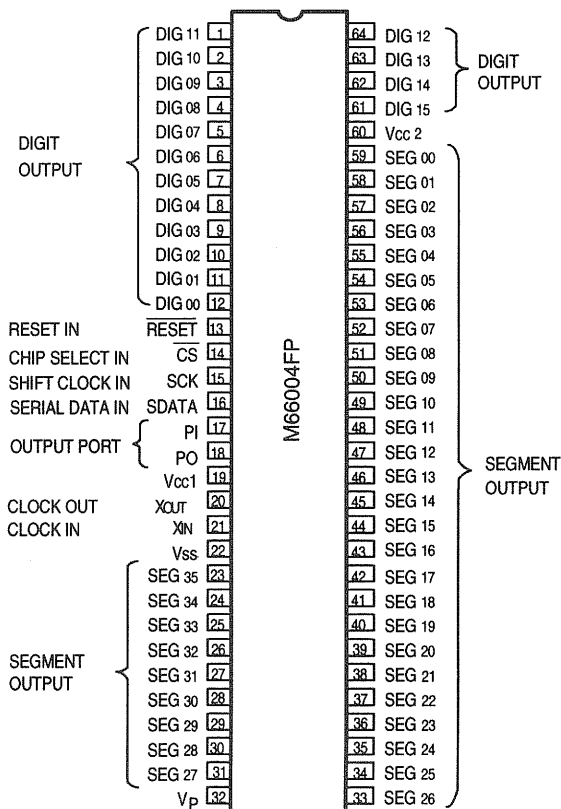
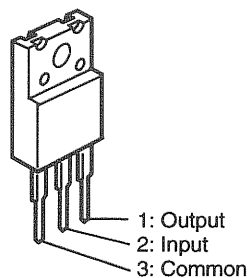
M66004FP (IC501, 502)
(Display/Key unit)

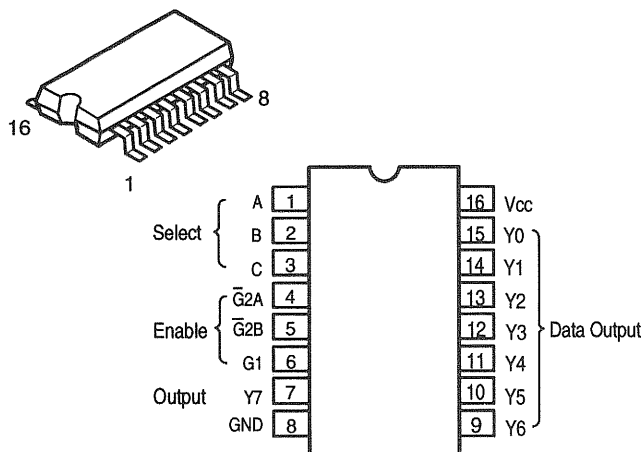
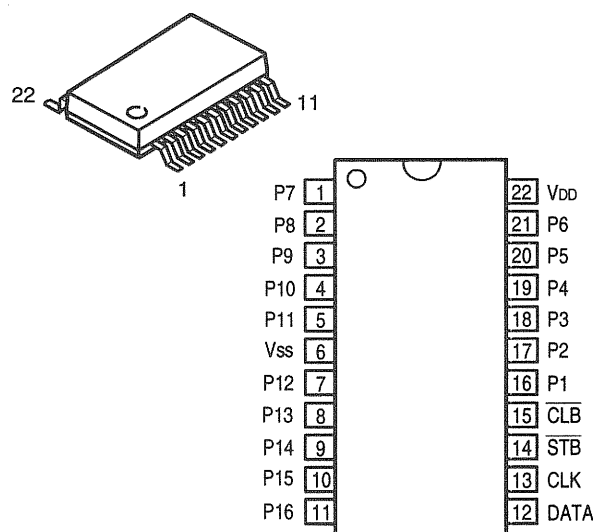
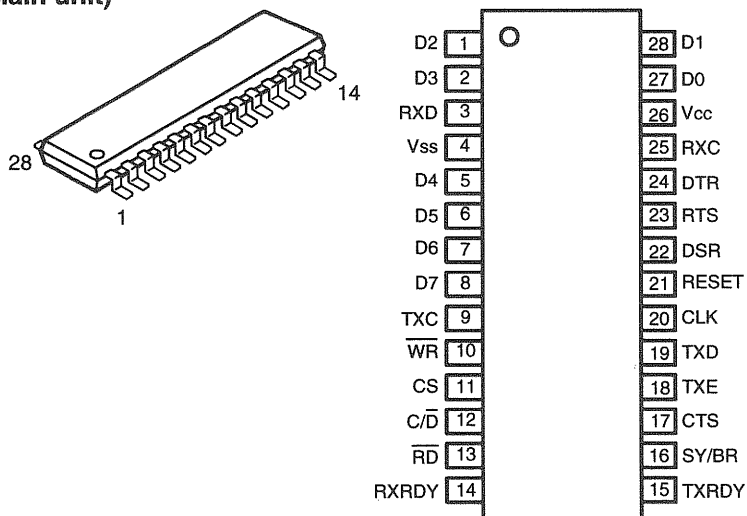
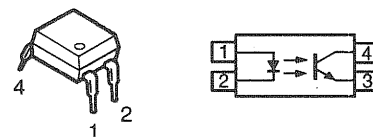
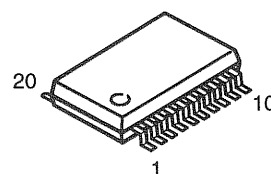
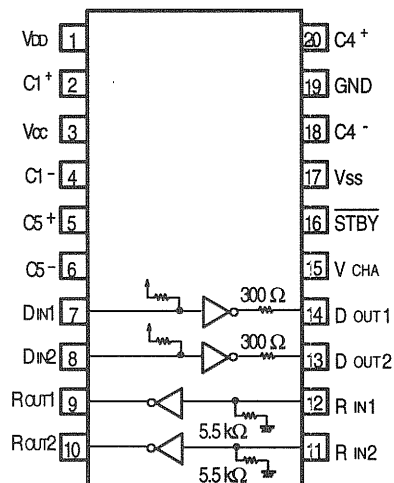
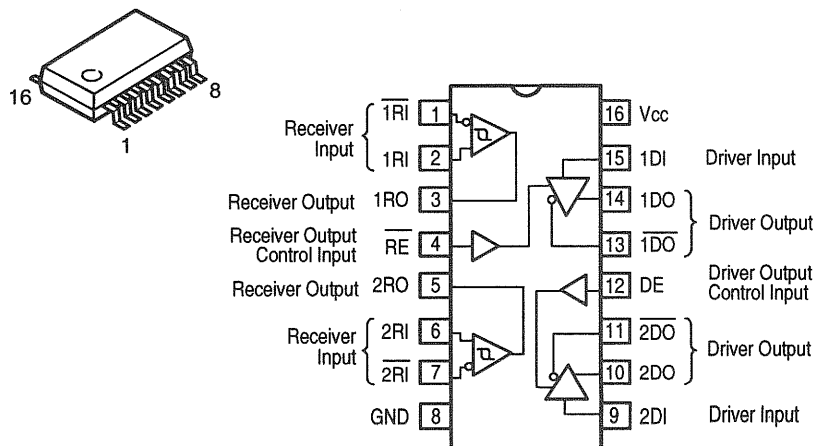


NJM7805FA (S) (IC411, 412, 414, 812)
NJM78M05FA (S) (IC415)
NJM7806FA (S) (IC413)
NJM78M12FA (S) (IC417)
(Main unit)



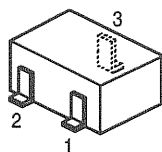
NJM79M05FA (S) (IC416)
NJM79M12FA (IC418)
(Main unit)



TC74HC138AF (IC503)
(Display/Key unit)

NJU3715G (IC504)
(Display/Key unit)

TMP82C51AM-10 (CELZ) (IC804)
(Main unit)

TLP521-1 (BL) (IC802)
(Main unit)

 μ PD4721GS-GJG (IC811)
(Min unit)

M5M34051FP (IC809)
(Main unit)


● TRANSISTOR

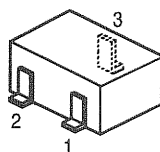
2SA1037K (S/R) (TR502, 503, 504)



1: GND/Emitter
2: Input/Base
3: Output/Collector

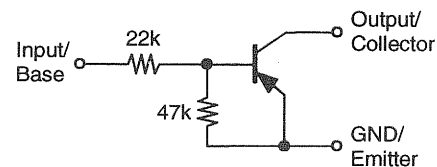
DTA124XKA (TR409)

DTC114EK (TR301, 410, 413, 501)

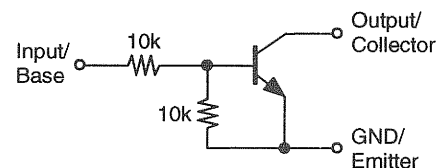


1: GND/Emitter
2: Input/Base
3: Output/Collector

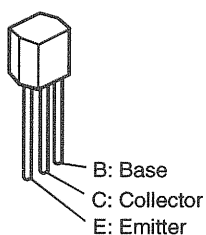
DTA124XKA



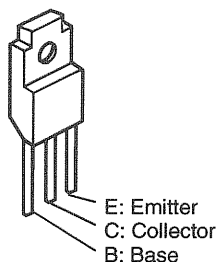
DTC114EK



2SC1740 (S) (TR411)
2SD2144STPU
(TR401, 402, 405~408)



2SB1185 (E/F)
(TR412)

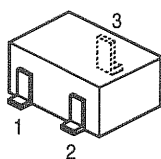


● DIODE

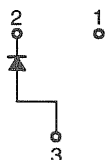
MA151A
(D103, 104, 201, 203, 407, 408,
413, 501~509, 511~514)

MA151WA
(D516, 807~812, 814, 816, 818)

MA151WK
(D515, 801~806, 813, 815, 817)

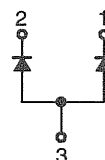


MA151A



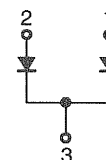
1: NC
2: Cathode
3: Anode

MA151WA



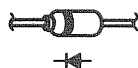
1: Cathode
2: Cathode
3: Anode

MA151WK

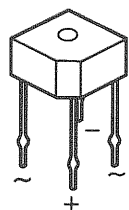


1: Anode
2: Anode
3: Cathode

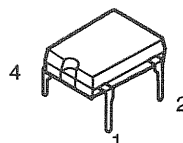
1SS270A
(D204, 405)



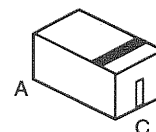
S4VB20F(D409)



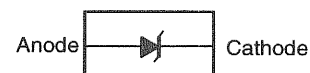
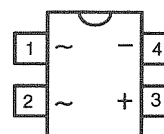
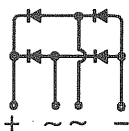
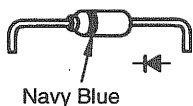
S1WB(A) 10
(D410)



HVU17 (D202)

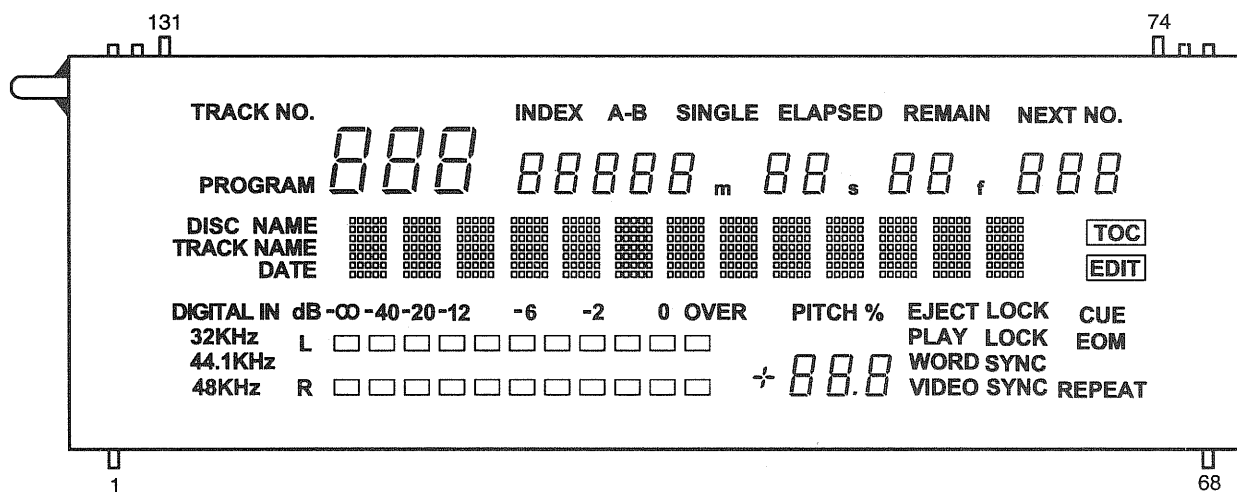


1SR139-200T-62
(D411, 412)



● FLUORESCENT DISPLAY TUBE BJ558GK

(Part No: 393 8025 002)



Pin Connection

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Connection	F1	F1	F1	NP	NP	P35	P34	P33	P32	P31	P30	P29	P28	P27	P26	P25	P24	P23	P22	P21	P20	P19	P18	P17	P16	P15	P14	P13	P12	P11	P10	P9	P8	P7

Pin No.	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68
Connection	P6	P5	P4	P3	P2	P1	NC	NC	NC	NC	19 G	18 G	17 G	16 G	15 G	14 G	13 G	12 G	11 G	10 G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NP	NP	F2	F2	F2

Pin No.	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102
Connection	NP	NP	NP	NP	NP	NC	NC	NC	NC	NC	NC	NC	NC	IC	P 36	P 37	P 38	P 39	P 40	P 41	P 42	P 43	P 44	P 45	P 46	P 47	P 48	P 49	P 50	P 51	P 52	P 53	P 54	P 55

Pin No.	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136
Connection	P 56	P 57	P 58	P 59	P 60	P 61	P 62	P 63	P 64	P 65	P 66	P 67	P 68	P 69	P 70	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC	NP	NP	NP	NP	NP

Note:

1) F1, F2		Filament
2) NP		No pin
3) NC		No connection
4) DL		Datum Line
5) 1G~19G		Grid
6) IC		Internal connection

GRID ASSIGNMENT

13G	17G	13G	15G															
TRACK NO.	1a	4a	3a	INDEX A-B SINGLE ELAPSED REMAIN										NEXT NO.				
PROGRAM	1g	4g	3g	2a	1a	5a	4a	14G	3a	15G	2a	14G	1a	4a	3a	18G	2a	1a
DISC NAME											TOC							
TRACK NAME											EDIT							
DATE																		
DIGITAL IN																		
32KHz																		
44.1KHz																		
48KHz																		
dB -∞ -40 -20 -12																		
-6																		
-2																		
0 OVER																		
PITCH %																		
EJECT LOCK																		
PLAY LOCK																		
WORD SYNC																		
VIDEO SYNC																		
REPEAT																		

1-1	2-1	3-1	4-1	5-1
1-2	2-2	3-2	4-2	5-2
1-3	2-3	3-3	4-3	5-3
1-4	2-4	3-4	4-4	5-4
1-5	2-5	3-5	4-5	5-5
1-6	2-6	3-6	4-6	5-6
1-7	2-7	3-7	4-7	5-7

(1G~12G, 19G)



(16G)

ANODE CONNECTION

	1G~12G	13G	14G	15G	16G	17G	18G	19G
P1	1-1	TRACK NO	—	—	B11	B11	—	1-1
P2	2-1	4d	—	—	B10	B10	—	2-1
P3	3-1	3d	—	—	B9	B9	—	3-1
P4	4-1	2d	—	—	2d	2d	—	4-1
P5	5-1	1d	—	—	1d	1d	—	5-1
P6	1-2	PROGRAM	—	—	B8	B8	—	1-2
P7	2-2	4e	—	—	B7	B7	—	2-2
P8	3-2	3e	—	—	B6	B6	—	3-2
P9	4-2	2e	—	—	2e	2e	—	4-2
P10	5-2	1e	—	—	1e	1e	—	5-2
P11	1-3	INDEX	—	—	B5	B5	—	1-3
P12	2-3	4c	—	—	B4	B4	—	2-3
P13	3-3	3c	—	—	B3	B3	—	3-3
P14	4-3	2c	—	—	2c	2c	—	4-3
P15	5-3	1c	—	—	1c	1c	—	5-3
P16	1-4	A-B	—	—	B2	B2	—	1-4
P17	2-4	4g	—	—	B1	B1	—	2-4
P18	3-4	3g	—	—	S1	DATA	—	3-4
P19	4-4	2g	—	—	2g	2g	—	4-4
P20	5-4	1g	—	—	1g	1g	—	5-4
P21	1-5	SINGLE	—	—	S2	—	—	1-5
P22	2-5	4f	—	—	VIDEO SYNC	DISC NAME	—	2-5
P23	3-5	3f	—	—	REPEAT	TRACK NAME	—	3-5
P24	4-5	2f	—	—	2f	2f	—	4-5
P25	5-5	1f	—	—	1f	1f	—	5-5
P26	1-6	ELAPSED	—	—	—	—	—	1-6
P27	2-6	4b	—	—	—	DIGITAL IN	—	2-6
P28	3-6	3b	—	—	WORD SYNC	32KHz	—	3-6
P29	4-6	2b	—	—	2b	2b	—	4-6
P30	5-6	1b	—	—	1b	1b	—	5-6
P31	1-7	REMAIN	—	—	PLAY LOCK	44.1KHz	—	1-7
P32	2-7	4a	—	—	EJECT LOCK	48KHz	—	2-7
P33	3-7	3a	—	—	PITCH % Dp	S3	—	3-7
P34	4-7	2a	—	—	2a	2a	—	4-7
P35	5-7	1a	—	—	1a	1a	—	5-7

ANODE CONNECTION

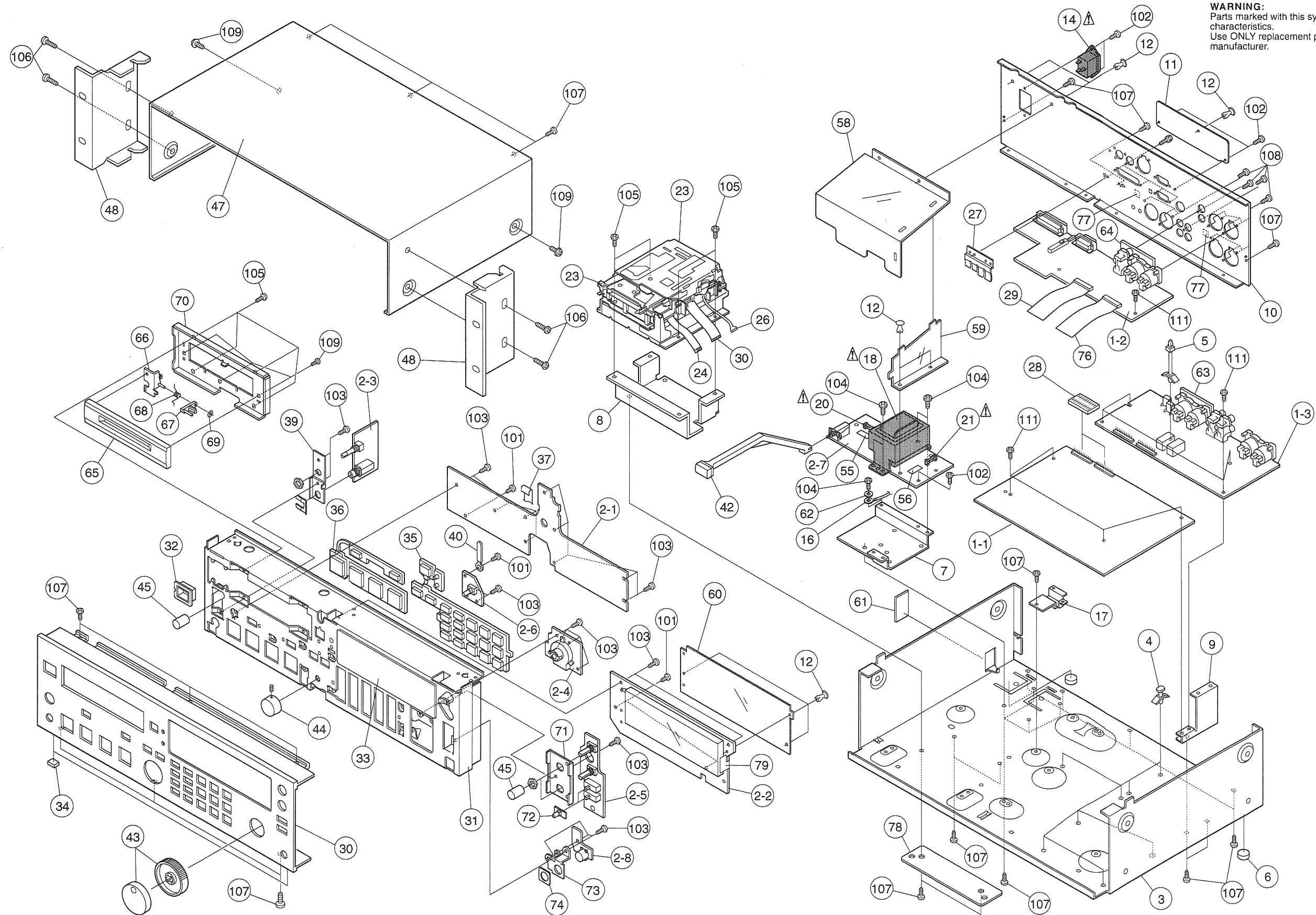
	1G~12G	13G	14G	15G	16G	17G	18G	19G
P36	—	—	5d	m s	—	—	—	—
P37	—	—	4d	4d	—	—	—	—
P38	—	—	3d	3d	—	—	—	—
P39	—	—	2d	2d	—	—	—	—
P40	—	—	1d	1d	—	—	1d	—
P41	—	—	5e	f	—	—	—	—
P42	—	—	4e	4e	—	—	—	—
P43	—	—	3e	3e	—	—	—	—
P44	—	—	2e	2e	—	—	—	—
P45	—	—	1e	1e	—	—	1e	—
P46	—	—	5c	TOC	—	—	—	—
P47	—	—	4c	4c	—	—	—	—
P48	—	—	3c	3c	—	—	—	—
P49	—	—	2c	2c	—	—	—	—
P50	—	—	1c	1c	—	—	1c	—
P51	—	—	5g	EDIT	—	—	—	—
P52	—	—	4g	4g	—	—	—	—
P53	—	—	3g	3g	—	—	—	—
P54	—	—	2g	2g	—	—	—	—
P55	—	—	1g	1g	—	—	1g	—
P56	—	—	5f	CUE	—	—	—	—
P57	—	—	4f	4f	—	—	—	—
P58	—	—	3f	3f	—	—	—	—
P59	—	—	2f	2f	—	—	—	—
P60	—	—	1f	1f	—	—	1f	—
P61	—	—	5b	EOM	—	—	—	—
P62	—	—	4b	4b	—	—	—	—
P63	—	—	3b	3b	—	—	—	—
P64	—	—	2b	2b	—	—	—	—
P65	—	—	1b	1b	—	—	1b	—
P66	—	—	5a	NEXT NO.	—	—	—	—
P67	—	—	4a	4a	—	—	—	—
P68	—	—	3a	3a	—	—	—	—
P69	—	—	2a	2a	—	—	—	—
P70	—	—	1a	1a	—	—	1a	—

PARTS LIST OF EXPLODED VIEW

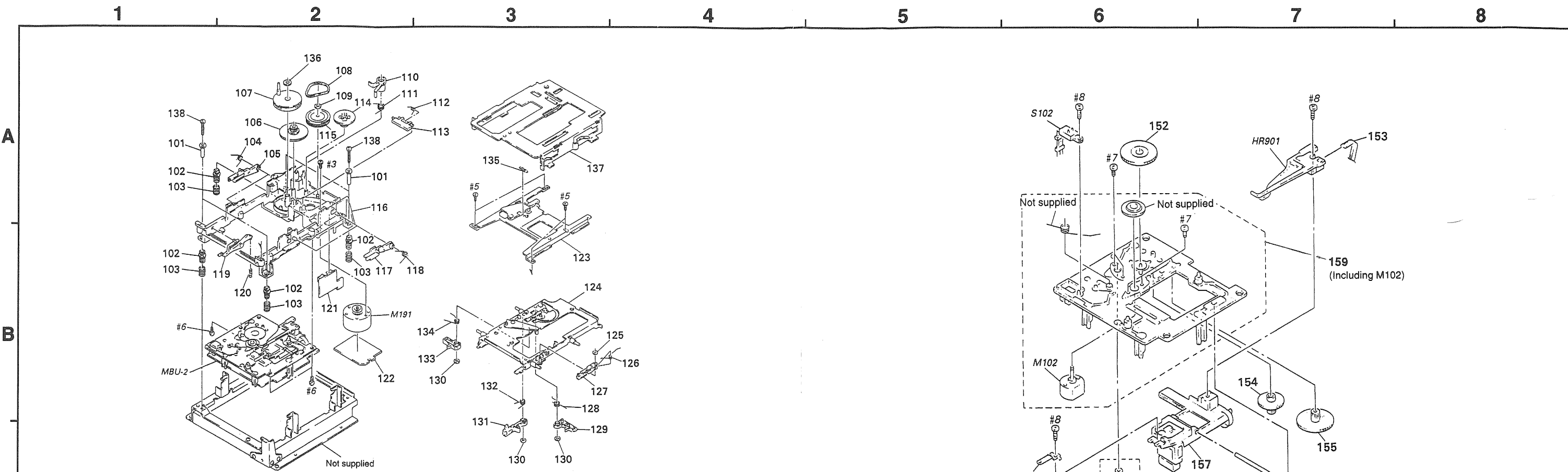
Ref. No.	Part No.	Part Name	Remarks	Q'ty	Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	GU-3000	Main P.W.B. unit Ass'y		1	36	119 0091 119	Rubber key (B)		1
1-1	GU-3000-1	CPU P.W.B. unit			37	009 0148 008	24P FFC cable (turn)	CN241	1
1-2	GU-3000-2	Digital I/F P.W.B. unit			39	412 4188 008	H/P bracket		1
1-3	GU-3000-3	Power/audio P.W.B. unit			40	445 8028 009	Cord holder		1
2	GU-3025	Display/key P.W.B. unit Ass'y		1	41	441 1830 001	Earth plate (B)		1
2-1	GU-3025-1	Key LED P.W.B. unit			42	113 1188 227	P.S. lever ass'y		1
2-2	GU-3025-2	FLT P.W.B. unit			43	113 1642 019	JOG dial		1
2-3	GU-3025-3	H/P P.W.B. unit			44	112 0526 418	Select knob A		1
2-4	GU-3025-4	JOG shuttle P.W.B. unit			45	112 0555 007	Vol. knob (B)		3
2-5	GU-3025-5	Vol./SW P.W.B. unit			47	102 0565 142	Top cover		1
2-6	GU-3025-6	Select SW P.W.B. unit			48	412 4087 002	Mounter		2
2-7	GU-3025-7	Trans. P.W.B. unit			49	513 2674 037	Rating sheet	Europe &	
2-8	GU-3025-8	KB Jack unit						U.K. models	1
3	411 1360 101	Chassis		1	49	513 2674 024	Rating sheet	U.S.A. &	
4	449 0050 064	Card spacer		8				Canada models	1
5	415 9016 064	P.C.B holder		1	50	513 2521 009	CE label	Europe &	
6	461 0911 006	Foot sheet		2				U.K. models	1
7	412 4214 008	Trans. bracket		1	51	513 2303 007	Version label		1
8	412 4215 007	Mecha. bracket		1	52	513 0985 003	Inst. label	Europe &	
9	412 4216 006	PWB bracket (A)		1				U.K. models	1
10	105 1227 103	Back panel		1	53	513 2702 006	CUL label	U.S.A. &	
11	414 0811 003	Blind plate		1				Canada models	1
12	479 0003 025	Push rivet		10	54	513 1560 003	GND caution label	U.S.A. &	
13	513 2063 004	E2 laser caution	Europe model	1				Canada models	1
14	203 3962 003	AC inlet		1	55	513 1451 099	Fuse label	U.S.A. &	
15	203 5169 011	3P VH connector cord	CN031	1				Canada models	
16	203 0657 023	1P terminal wire	W011	1	56	513 2277 052	Fuse label	U.S.A. &	
17	412 4217 005	P.W.B. bracket (B)		1				Canada models	
Δ 18	233 6219 000	Power trans.	T401	1	57	513 2697 001	E3 label	U.S.A. &	
19	513 1869 005	Caution label		1				Canada models	1
Δ 20	206 1039 034	Fuse	U.S.A. & Canada models		58	414 0812 002	Trans. cover (A)		1
	206 1015 045	Fuse	Europe & U.K. models		59	414 0813 001	Trans. cover (B)		1
Δ 21	206 1039 092	Fuse	U.S.A. & Canada models		60	414 0814 000	PWB cover (A)		1
	206 1015 087	Fuse	Europe & U.K. models		61	414 0815 009	Side cover		1
22	513 1220 000	Caution label		1	62	475 2004 004	4SW ZN		1
23	337 0046 005	MD mecha. unit MBL-2G		1	63	441 1830 001	Earth plate (B)		1
24	009 0150 009	18P FFC (0.8,AD)	CN181	1	64	441 1829 009	Earth plate (A)		1
25	009 0150 012	30P FFC (0.8,AD)	CN301	1	65	146 1595 111	Door panel ass'y		1
26	204 0502 003	6P CT-CT con. cord	CN061	1	66	421 0721 007	D.L bracket ass'y		1
27	412 9371 001	Spring plate		1	67	433 0624 000	Door lever		1
28	205 0712 090	15P TBG-S connector	CN151,152	2	68	463 0820 009	Door lever spring		1
29	009 0105 038	25P FFC cable	CN251	1	69	475 1157 059	Slit washer T0.5		1
30	144 2526 109	Front panel		1	70	412 4199 107	Door bracket		1
31	441 1822 103	Inner panel ass'y		1	71	412 4189 007	Volume bracket		1
32	146 0919 002	Knob guide		1	72	113 0753 006	Slide knob		2
33	146 1674 003	Window		1	73	412 4257 007	Keyboard con. bracket		1
34	461 0912 005	Sheet		2	74	414 0816 008	Spacer		1
35	119 0090 110	Rubber key (A)		1	75	445 8004 007	Wire clamper		1
					76	009 0149 007	33P FFC cable	CN331	1
					77	513 2704 004	Pin No. sheet	U.S.A. & Canada models	2

Ref. No.	Part No.	Part Name	Remarks	Q'ty
78	412 4288 005	Bottom plate		1
79	441 1835 006	Shield plate		1
SCREWS				
101	471 3301 018	Screw 3X4 CBS-Z		6
102	471 3303 029	Screw 3X6 CBS-B		1
103	473 7002 018	Screw 3X8 CBTS(S)-Z		16
104	473 7002 021	Screw 3X8 CBTS(S)-B		4
105	473 7002 034	Screw 3X6 CBTS(S)-B		24
106	473 7004 003	Screw 4X8 CBTS(S)-Z		5
107	473 7007 013	Screw 4X10 CBTS(S)-B		4
108	473 7015 018	Screw 3X8 CBTS(S)-B		32
109	473 7505 007	Screw 2.6X8 CBTS(P)-Z		3
110	473 7508 017	Screw 3X10 CBTS(P)-B		12
111	477 0263 005	3P. swelling screw		2
PACKING & ACCESSORIES				
151	505 8092 007	Laminate envelope		1
152	503 1240 009	Cushion		2
153	505 0038 030	Poly. cover		1
154	511 3079 004	Inst. manual		1
Δ 155	206 2068 004	3P AC cord set	Europe model	1
Δ	206 2107 004	AC cord set (SJT)	U.S.A. & Canada model	1
Δ	206 2153 003	AC cord set (EK)	U.K. model	1
156	501 1924 015	Carton case	Europe model	1
	501 1924 015	Carton case	U.S.A. & Canada models	1
	501 1924 057	Carton case	U.K. model	1
157	513 2303 007	Version label		2
158	513 1389 006	Control card base		1
159	513 1349 004	Thermal carbon film		1
160	502 0900 004	Pad ass'y	U.K. model	1

EXPLODED VIEW



MD MECHANISM EXPLODED VIEW AND PARTS LIST



PARTS LIST OF MECHANISM UNIT

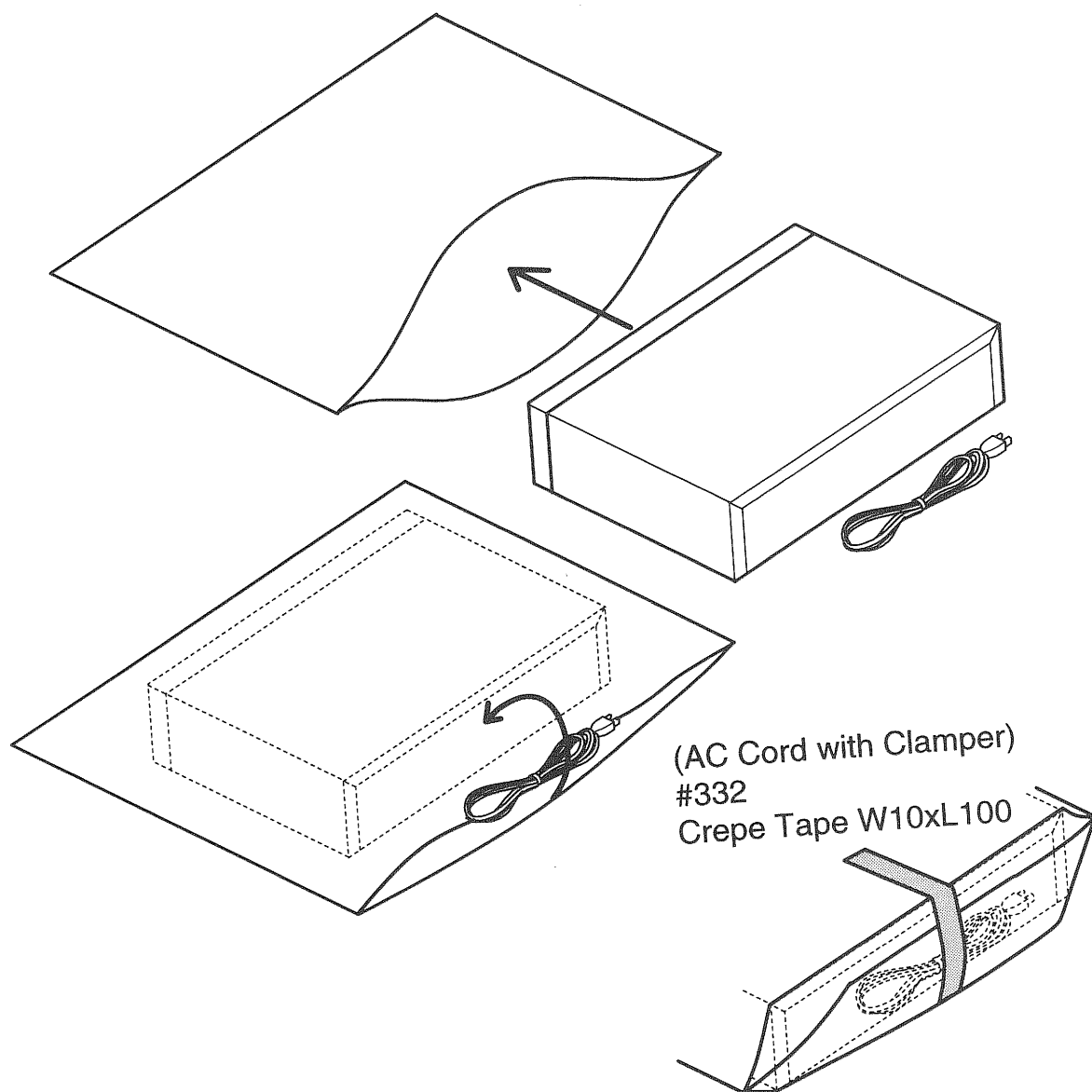
Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
101	S49 6767 201	Collar		126	S49 6764 601	Spring (SHT)	
102	S49 6767 101	Insulator (MD)		127	S49 6764 501	Lever (SHT)	
103	S49 6767 301	Compression Spring		128	S49 7745 001	Spring (LM)	
104	S49 6766 801	Spring (UDL)		129	S49 6763 901	Lever (LM)	
105	S49 6766 701	Lever (UDL)		130	S49 6891 901	Washer	
106	S49 6766 501	Gear (BD-B)		131	S49 6764 101	Lever (L)	
107	SX4 9450 691	Cam Ass'y		132	S49 6764 201	Spring (L)	
108	S49 6765 601	Belt (BD)		133	S49 6764 201	Lever (LS)	
109	S49 6891 931	Washer		134	S49 6764 401	Spring (LS)	
110	S49 6763 701	Lever (SLM)		135	S49 7174 302	Tension Spring	
111	S49 6763 801	Spring (SLM)		136	S49 6891 921	Washer	
112	S49 6827 301	Spring (OWH)		137	SX4 9458 721	Slide (M) Ass'y	
113	S49 6827 201	Lever (OWH)		138	S49 9291 001	Screw +B 2.6 x 8	
114	S49 6765 401	Gear (BD-A)		M191	SA4 6606 46A	Motor (loading) Ass'y	
115	S49 5779 401	Gear			SA4 6609 53B	Holder Ass'y No. 124~134	
116	SX4 9450 681	Base Ass'y (BD)					
117	S49 6766 901	Lever (UDR)		#3	S76 2177 520	Screw +B 2.6 x 5 (EP-FE/ZNBK/CM2)	
118	S49 6767 001	Spring (UDR)		#5	S76 8510 419	Screw +B 2 x 6 (EP-FE/ZNBK/CM2)	
119	S49 6765 701	Door Lever		#6	S76 8564 579	Screw +BVTP 3 x 6 (EP-FE/ZNBK/CM2)	
120	S49 7071 001	Compression Spring		#6	S76 8587 101	Screw +BVTP 3 x 6 (EP-FE/ZN/CM2)	
121	S16 5341 111	Detection SW Board					
122	S16 5341 211	Motor Board					
123	SA4 6606 47B	Installation Plate Ass'y (LVO)					
124	SX4 9463 781	Holder Ass'y					
125	S49 6891 911	Washer					

PARTS LIST OF BASE UNIT

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
151	S49 9676 901	Plate Spring		159	SA4 6606 50A	Chassis Ass'y (BU)	
152	S49 9676 501	Gear (SL-A)		*	SA4 6731 74A	Mount BDBBoard	
153	S16 5444 611	OWH Flexible Board		HR901	S15 0017 511	Over Write Head (RF322-74A)	
154	S49 9676 601	Gear (SL-B)		M101	SA4 6606 51A	Motor Ass'y (Slide)	
155	S49 9676 701	Gear (SL-C)		S102	S17 6214 811	Push Switch (2 key) (REFLECT/PROTECT)	
156	S49 9676 801	Shaft		#7			
157	S85 8300 911	Optical Pick-up (KALS-210A/J-N)		#8	S76 8510 519	Screw +BVTP 2 x 8 (EP-FE/ZNBK/CM2)	
158	SA4 6736 56A	BD Mount (A)					

PACKING VIEW

* Refer to the Packing & Accessories on the page 98.



DENON

NIPPON COLUMBIA CO., LTD.

14-14, AKASAKA 4-CHOME, MINATO-KU, TOKYO 107-11 JAPAN

Telephone: 03 (3584) 8111

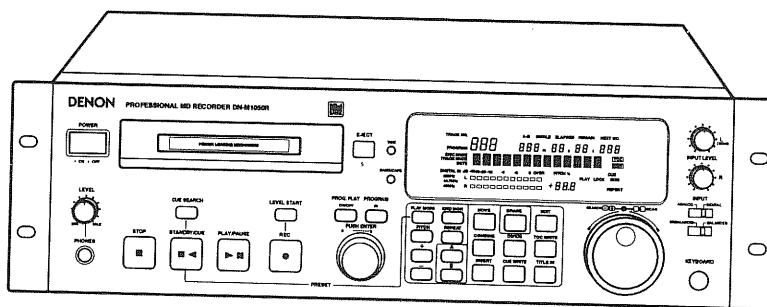
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DENON

Hi-Fi Component

SUPPLEMENT

SERVICE MANUAL MODEL DN-M1050R MD RECORDER



Only changed/added descriptions for DN-M1050R formerly issued service manual are mentioned in this supplement. When servicing, refer to the service manual for DN-M1050R, with this supplement.

— TABLE OF CONTENTS —

PICK-UP REPLACEMENT STANDARD	2
PRINTED WIRING BOARD	3
NOTE FOR PARTS LIST	4
PRINTED WIRING BOARD PARTS LIST, MD MECHANISM UNIT	4, 5
WIRING DIAGRAM	6
SCHEMATIC DIAGRAM	7~12

- For better explanation, some illustrations used in this document may be slightly different from the actual product.

NIPPON COLUMBIA CO., LTD.

PICK-UP REPLACEMENT STANDARD

1. Check Steps

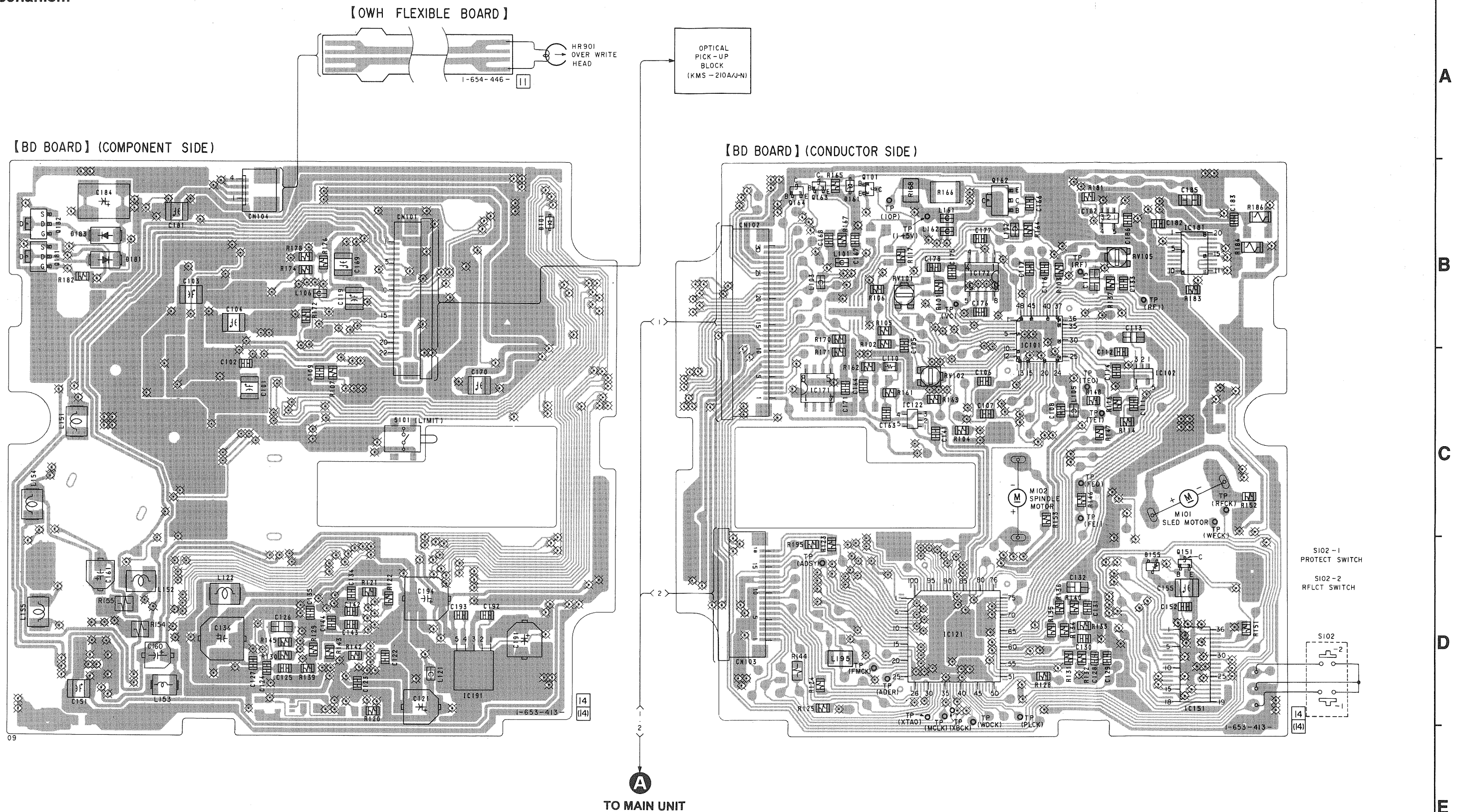
- 1) Prepare the unit to be checked and a commercially available recordable MD disk.
Record on the MD disk according to the procedure described under Service Mode, Test Mode "CREC MODE" in the service manual for DN-M1050R.
The Pick-up position must be "CREC MID".
- 2) Playback the MD disk according to the procedure described under Service Mode, Test Mode "CPLAY MODE" in the service manual for DN-M1050R.
The Pick-up position must be "CPLAY MID".
- 3) At the step 2), read the values of "C1 error" and "ADER". When reading, as the values indicated are always fluctuated, take an average of 10 times reading respectively.
 - C1 error value = (C1 error (1) + .. + C1 error (10)) / 10
 - ADER value = (ADER (1) + .. + ADER (10)) / 10
- 4) Compare the calculated values with the criteria below.
If the value is out of the criterion, repeat the step 1) ~ 3) above after executing adjustment according to the service manual for DN-M1050R and compare again.
If the value is still out of the criterion, then replace the Pick-up.

2. Replacement Criteria

- 1) Replace the Pick-up if "C1 error" is 220 or more.
- 2) Replace the Pick-up if "ADER" is 5 or more.

PRINTED WIRING BOARD

MD Mechanism



NOTE FOR PARTS LIST

- Part indicated with the mark "⊕" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "I" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film $\pm 5\%$, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:

Parts marked with this symbol $\triangle$ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

● Resistors

Ex.: RN 14K 2E 182 G FR
Type Shape Power Resist- Allowable Others
and per- ance error
formance

RD : Carbon	2B : 1/8W	F : $\pm 1\%$	P : Pulse-resistant type
RC : Composition	2E : 1/4W	G : $\pm 2\%$	NL : Low noise type
RS : Metal oxide film	2H : 1/2W	J : $\pm 5\%$	NB : Non-burning type
RW : Winding	3A : 1W	K : $\pm 10\%$	FR : Fuse-resistor
RN : Metal film	3D : 2W	M : $\pm 20\%$	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

*** Resistance**

$\overset{1}{\uparrow} \text{8} \overset{2}{\downarrow} \Rightarrow 1800 \text{ ohm} = 1.8 \text{ kohm}$
Indicates number of zeros after effective number.
2-digit effective number.

• Units: ohm

$\overset{1}{\uparrow} \text{R} \overset{2}{\downarrow} \Rightarrow 1.2 \text{ ohm}$
1-digit effective number.
2-digit effective number, decimal point indicated by R.

• Units: ohm

● Capacitors

Ex.: CE 04W 1H 2R2 M BP
Type Shape Dielectric Capacity Allowable Others
and per- strength error
formance

CE : Aluminum foil electrolytic	0J : 6.3V	F : $\pm 1\%$	HS : High stability type
CA : Aluminum solid electrolytic	1A : 10V	G : $\pm 2\%$	BP : Non-polar type
CS : Tantalum electrolytic	1C : 16V	J : $\pm 5\%$	HR : Ripple-resistant type
CQ : Film	1E : 25V	K : $\pm 10\%$	DL : For charge and discharge
CK : Ceramic	1V : 35V	M : $\pm 20\%$	HF : For assuring high frequency
CC : Ceramic	1H : 50V	Z : $\pm 80\%$	U : UL part
CP : Oil	2A : 100V	-20%	C : CSA part
CM : Mica	2B : 125V	P : $\pm 100\%$	W : UL-CSA type
CF : Metallized	2C : 160V	-0%	F : Lead wire forming
CH : Metallized	2D : 200V	C : $\pm 0.25\text{pF}$	
	2E : 250V	D : $\pm 0.5\text{pF}$	
	2H : 500V	= : Others	
	2J : 630V		

*** Capacity (electrolyte only)**

$\overset{2}{\uparrow} \overset{2}{\downarrow} \overset{2}{\downarrow} \Rightarrow 2200\mu\text{F}$
Indicates number of zeros after effective number.
2-digit effective number.

• Units: μF .

$\overset{2}{\uparrow} \text{R} \overset{2}{\downarrow} \Rightarrow 2.2\mu\text{F}$
1-digit effective number.
2-digit effective number, decimal point indicated by R.

• Units: μF .*** Capacity (except electrolyte)**

$\overset{2}{\uparrow} \overset{2}{\downarrow} \overset{2}{\downarrow} \Rightarrow 2200\text{pF} = 0.0022\mu\text{F}$
(More than 2) — Indicates number of zeros after effective number.
2-digit effective number.

• Units: μF .

$\overset{2}{\uparrow} \overset{2}{\downarrow} \overset{1}{\downarrow} \Rightarrow 220\text{pF}$
(0 or 1) — Indicates number of zeros after effective number.
2-digit effective number.

• Units: pF.

• When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

PRINTED WIRING BOARD PARTS LIST

GU-3000 MAIN P.W.B. UNIT

Ref. No.	Part No.	Part Name	Remarks
IC102	262 2443 001	RHD64F3048F16	
IC108	GEN4116	SYSTEM ROM SUB Ass'y	

MD MECHANISM UNIT

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC101	S87 5207 268	IC CXA1981R	
IC102	262 1738 908	IC TC7SU04F	
IC121	S87 5237 536	IC CXD2535BR	
IC122	262 1738 908	IC TC7SU04F	
IC123	S87 5905 859	IC TC7SU04FU-TE85L	
IC151	S87 5017 960	IC MPC17A38VMEL	
IC171	S87 5950 412	IC X24C01S	
IC172	S87 5914 973	IC $\mu\text{PC842G2}$	
IC181	262 1955 901	IC TC74ACT540FS	
IC182	262 1738 908	IC TC7SU04F	
IC191	S87 5982 299	IC L88MS05T-FA	
Q101	S87 2990 512	Transistor DTA144EU	Built-in Resistor
Q151	S87 2990 518	Transistor DTC144EU	Built-in Resistor
Q162	S87 2910 107	Transistor 2SB798-DL	
Q163	S87 2990 512	Transistor DTA144EU	Built-in Resistor
Q164	S87 2992 419	Transistor DTA123JU	Built-in Resistor
Q181	S87 2901 875	Transistor 2SJ278MY	
Q182	S87 2901 765	Transistor 2SK1764KY	
D101	S87 1998 862	Diode 1SS355	
D155	S87 1903 117	Diode 1SS322	
D161	S87 1942 115	Zener Diode MA8027-L	
D181	S87 1903 360	Diode F1P2STP	
D183	S87 1903 360	Diode F1P2STP	
RESISTORS GROUP (Not included Carbon Film $\pm 5\%$ 1/4W)			
RV101	S12 4039 711	Semi Fixed Resistor 47kohm	
RV102	S12 4139 611	Semi Fixed Resistor	Metal Glaze
RV105	S12 4139 511	Semi Fixed Resistor 10kohm	
R101	S12 1606 100	Carbon (Chip) 3.3kohm 1/10W	
R102	S12 1607 300	Carbon (Chip) 10kohm 1/10W	
R103	S12 1607 300	Carbon (Chip) 10kohm 1/10W	
R104	S12 1604 900	Carbon (Chip) 1kohm 1/10W	
R105	S12 1606 500	Carbon (Chip) 4.7kohm 1/10W	
R106	S12 1613 300	Carbon (Chip) 3.3Mohm 1/10W	
R107	S12 1611 300	Carbon (Chip) 470kohm 1/10W	
R114	S12 1602 500	Carbon (Chip) 100ohm 1/10W	
R116	S12 1606 900	Carbon (Chip) 6.8kohm 1/10W	
R117	S12 1611 300	Carbon (Chip) 470kohm 1/10W	
R120	S12 1602 500	Carbon (Chip) 100ohm 1/10W	
R121	S12 1609 700	Carbon (Chip) 100kohm 1/10W	
R122	S12 1629 500	Carbon (Chip) 0ohm 1/10W	
R123	S12 1603 700	Carbon (Chip) 330ohm 1/10W	
R124	S12 1602 500	Carbon (Chip) 100ohm 1/10W	
R125	S12 1602 500	Carbon (Chip) 100ohm 1/10W	
R128	S12 1605 300	Carbon (Chip) 1.5kohm 1/10W	
R129	S12 1603 700	Carbon (Chip) 330ohm 1/10W	
R130	S12 1604 100	Carbon (Chip) 470ohm 1/10W	

Ref. No.	Part No.	Part Name	Remarks
R131	S12 1607 300	Carbon (Chip) 10kohm 1/10W	
R132	S12 1609 700	Carbon (Chip) 100kohm 1/10W	
R133	S12 1613 300	Carbon (Chip) 3.3Mohm 1/10W	
R134	S12 1603 700	Carbon (Chip) 330ohm 1/10W	
R135	S12 1605 300	Carbon (Chip) 1.5kohm 1/10W	
R136	S12 1604 100	Carbon (Chip) 470ohm 1/10W	
R137	S12 1602 500	Carbon (Chip) 100ohm 1/10W	
R139	S12 1601 700	Carbon (Chip) 47ohm 1/10W	
R140	S12 1601 700	Carbon (Chip) 47ohm 1/10W	
R142	S12 1607 300	Carbon (Chip) 10kohm 1/10W	
R143	S12 1607 300	Carbon (Chip) 10kohm 1/10W	
R144	S12 1602 500	Carbon (Chip) 100ohm 1/10W	
R145	S12 1612 100	Carbon (Chip) 1Mohm 1/10W	
R146	S12 1603 700	Carbon (Chip) 330ohm 1/10W	
R147	S12 1602 500	Carbon (Chip) 100ohm 1/10W	
R148	S12 1604 500	Carbon (Chip) 680ohm 1/10W	
R151	S12 1609 700	Carbon (Chip) 100kohm 1/10W	
R152	S12 1629 500	Carbon (Chip) 0ohm 1/10W	
R153	S12 1629 500	Carbon (Chip) 0ohm 1/10W	
R154	S12 2025 911	Carbon (Chip) 150ohm 1/4W	
R155	S12 2025 911	Carbon (Chip) 150ohm 1/4W	
R161	S12 1605 700	Carbon (Chip) 2.2kohm 1/10W	
R162	S12 1605 700	Carbon (Chip) 2.2kohm 1/10W	
R163	S12 1605 700	Carbon (Chip) 2.2kohm 1/10W	
R164	S12 1604 500	Carbon (Chip) 680ohm 1/10W	
R165	S12 1609 700	Carbon (Chip) 100kohm 1/10W	
R166	S12 2025 011	Carbon (Chip) 10ohm 1/2W	
R167	S12 1606 500	Carbon (Chip) 4.7kohm 1/10W	
R168	S12 1823 691	Carbon (Chip) 1ohm 1/4W	
R170	S12 1607 300	Carbon (Chip) 10kohm 1/10W	
R171	S12 1607 300	Carbon (Chip) 10kohm 1/10W	
R172	S12 1606 500	Carbon (Chip) 4.7kohm 1/10W	
R174	S12 1606 500	Carbon (Chip) 4.7kohm 1/10W	
R176	S12 1604 500	Carbon (Chip) 4.7kohm 1/10W	
R178	S12 1604 500	Carbon (Chip) 4.7kohm 1/10W	
R181	S12 1607 300	Carbon (Chip) 10kohm 1/10W	
R182	S12 1608 900	Carbon (Chip) 47kohm 1/10W	
R183	S12 1608 900	Carbon (Chip) 47kohm 1/10W	
R184	S12 1629 600	Carbon (Chip) 0ohm 1/8W	
R186	S12 1629 600	Carbon (Chip) 0ohm 1/8W	
R195	S12 1629 500	Carbon (Chip) 0ohm 1/10W	
INDUCTOR/RESISTOR			
L101	S14 1423 411	Ferrite Beads Inductor	
L102	S14 1423 411	Ferrite Beads Inductor	
L103	S14 1423 411	Ferrite Beads Inductor	
L105	S14 1423 411	Ferrite Beads Inductor	
L106	S14 1423 411	Ferrite Beads Inductor	
L110	S12 1629 500	Carbon (Chip) 0ohm 1/10W	
L121	S14 1423 411	Ferrite Beads Inductor	
L122	S14 1203 951	Inductor (Chip) 100μH	
L151	S14 1262 251	Inductor 10μH	

Ref. No.	Part No.	Part Name	Remarks
L152	S14 1262 251	Inductor 10μH	
L153	S14 1203 951	Inductor (Chip) 100μH	
L154	S14 1203 951	Inductor (Chip) 100μH	
L155	S14 1098 051	Inductor (Chip) 1μH	
L161	S14 1423 411	Ferrite Beads Inductor	
L162	S14 1423 411	Ferrite Beads Inductor	
L195	S12 3331 621	EMI Filter Chip	
CAPACITORS GROUP			
C101	S11 0491 311	Tantalum (Chip) 10μF/16V	
C102	S11 6306 800	Ceramic (Chip) 0.1μ/25V	
C103	S11 0491 311	Tantalum (Chip) 10μF/16V	
C104	S11 0491 311	Tantalum (Chip) 10μF/16V	
C105	S11 0423 211	Ceramic (Chip) 0.01μF/100V	
C106	S11 6327 511	Ceramic (Chip) 0.001μF/50V	
C107	S11 6423 211	Ceramic (Chip) 0.01μF/100V	
C108	S11 6423 211	Ceramic (Chip) 0.01μF/100V	
C109	S11 6303 711	Ceramic (Chip) 0.022μF/25V	
C111	S11 6400 411	Ceramic (Chip) 0.1μF/25V	
C112	S11 6423 211	Ceramic (Chip) 0.01μF/100V	
C113	S11 0768 211	Ceramic (Chip) 1μF/16V	
C114	S11 6303 800	Ceramic (Chip) 0.1μF/25V	
C115	S11 0768 211	Ceramic (Chip) 1μF/16V	
C116	S11 0301 900	Ceramic (Chip) 0.0068μF/50V	
C117	S11 6400 411	Ceramic (Chip) 0.1μF/25V	
C119	S11 0491 311	Tantalum (Chip) 10μF/16V	
C121	254 4465 905	Electrolytic (Chip) 22μF/16V	
C122	S11 6423 211	Ceramic (Chip) 0.01μF/100V	
C123	S11 6303 800	Ceramic (Chip) 0.1μF/25V	
C124	S11 6303 800	Ceramic (Chip) 0.1μF/25V	
C125	S11 0476 011	Ceramic (Chip) 0.047μF/50V	
C126	S11 0768 211	Ceramic (Chip) 1μF/16V	
C127	S11 6303 800	Ceramic (Chip) 0.1μF/25V	
C128	S11 6423 211	Ceramic (Chip) 0.01μF/100V	
C129	S11 0782 311	Ceramic (Chip) 0.47μF/16V	
C130	S11 6325 111	Ceramic (Chip) 100pF/50V	
C131	S11 0476 011	Ceramic (Chip) 0.047μF/50V	
C132	S11 0768 211	Ceramic (Chip) 1μF/16V	
C133	S11 6301 700	Ceramic (Chip) 0.0047μF/50V	
C134	S11 6303 800	Ceramic (Chip) 0.1μF/25V	
C135	S11 6303 800	Ceramic (Chip) 0.1μF/25V	
C136	254 4464 906	Electrolytic (Chip) 100μF/6.3V	
C141	S11 6303 800	Ceramic (Chip) 0.1μF/25V	
C142	S11 6325 111	Ceramic (Chip) 100pF/50V	
C143	S11 6325 111	Ceramic (Chip) 100pF/50V	
C144	S11 6325 111	Ceramic (Chip) 100pF/50V	
C151	S11 0491 311	Tantalum (Chip) 10μF/16V	
C152	S11 6303 800	Ceramic (Chip) 0.1μF/25V	
C155	S11 0491 611	Ceramic (Chip) 0.8μF/20V	
C160	S11 0460 111	Electrolytic (Chip) 10μF/10V	
C161	S11 0460 111	Electrolytic (Chip) 10μF/10V	
C163	S11 6423 211	Ceramic (Chip) 0.01μF/100V	

Ref. No.	Part No.	Part Name	Remarks
C164	S11 6423 211	Ceramic (Chip) 0.01μF/100V	
C166	S11 6327 511	Ceramic (Chip) 0.001μF/50V	
C167	S11 6303 800	Ceramic (Chip) 0.1μF/25V	
C168	S11 6303 800	Ceramic (Chip) 0.1μF/25V	
C169	S11 0491 311	Tantalum (Chip) 10μF/16V	
C170	S11 0491 311	Tantalum (Chip) 10μF/16V	
C171	S11 6303 800	Ceramic (Chip) 0.1μF/25V	
C175	S11 6303 800	Ceramic (Chip) 0.1μF/25V	
C176	S11 6322 711	Ceramic (Chip) 10pF/50V	
C177	S11 6322 711	Ceramic (Chip) 10pF/50V	
C178	S11 6303 800	Ceramic (Chip) 0.1μF/25V	
C181	S11 0491 311	Tantalum (Chip) 10μF/16V	
C182	S11 6303 800	Ceramic (Chip) 0.1μF/25V	
C183	S11 6303 800	Ceramic (Chip) 0.1μF/25V	
C184	S11 0783 611	Electrolytic (Chip) 22μF/8V	
△ C185	S11 6461 111	Ceramic (Chip) 0.001μF/500V	
C186	S11 6303 800	Ceramic (Chip) 0.1μF/25V	
C191	254 4465 905	Electrolytic (Chip) 22μF/16V	
C192	S11 6303 800	Ceramic (Chip) 0.1μF/25V	
C193	S11 6434 611	Ceramic (Chip) 1μF/16V	
C194	254 4464 906	Electrolytic (Chip) 100μF/6.3V	
OTHER GROUP			
S101	S15 7246 731	Push Switch (Limit) 1key	
S102	S17 6214 811	Push Switch (2key) (REFLECT/PROTECT)	
S191	S17 6214 911	Push Switch	
S192	S17 6214 911	Push Switch	
S193	S17 6214 911	Push Switch	
CN101	S17 6650 811	FFC/FPC Connector (Z1F) 22P	
CN102	S17 6651 021	FFC/FPC Connector 30P	
CN103	S17 6650 921	FFC/FPC Connector 18P	
CN104	S17 6689 821	Connector Housing (For P.W.B) 4P	
CN191	S17 6894 411	Pin connector 6P	
CN192	S17 7001 141	Board ~ Board Connector (Receptacle) 4P	
CN193	S17 7001 021	Board ~ Board Connector (Plug) 4P	
	S16 5444 611	OWH Flexible Board	



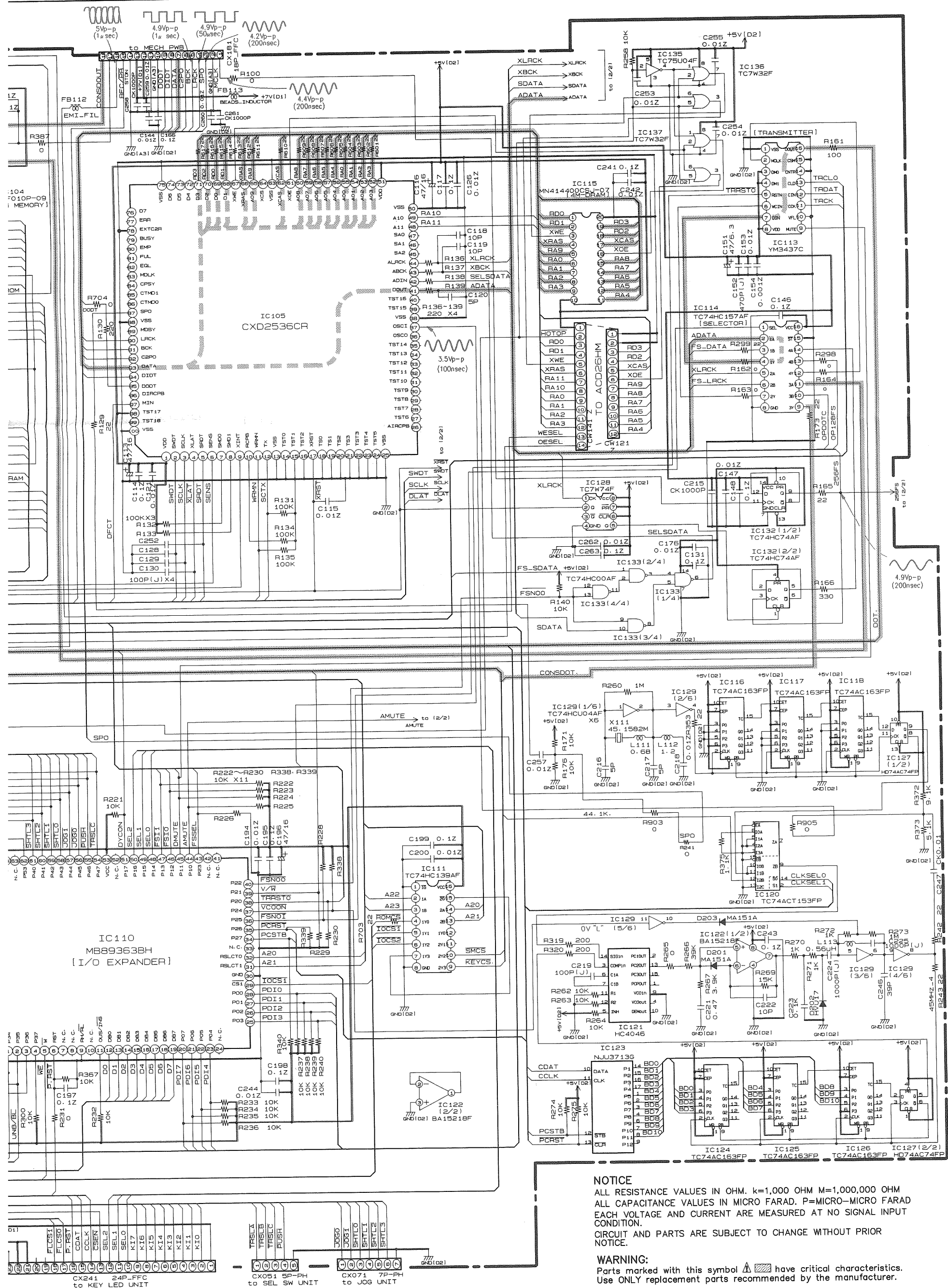
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NOTICE

ALL RESISTANCE VALUES IN OHM. K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT
CONDITION.

CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR
NOTICE.

WARNING:

Parts marked with this symbol  have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

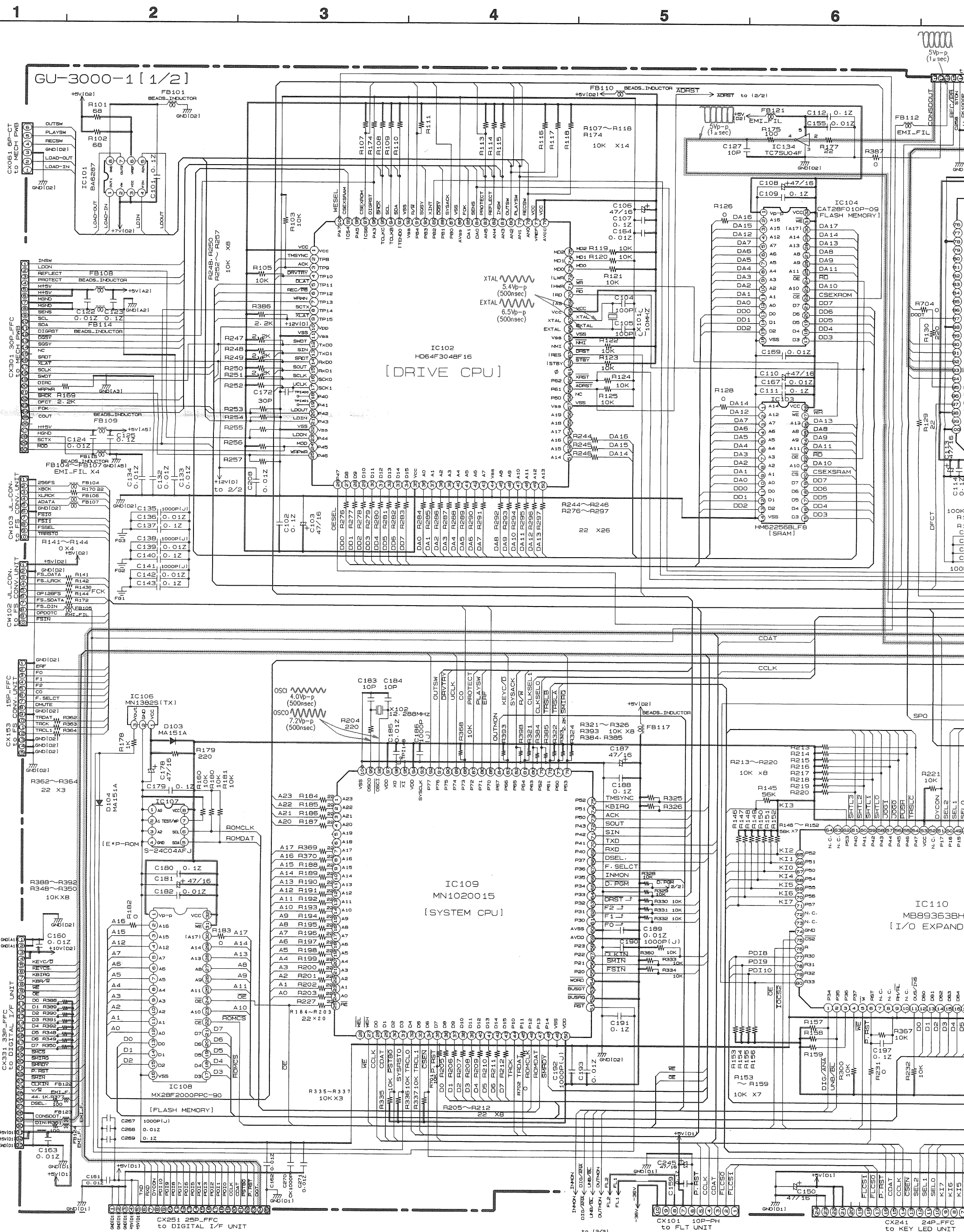
CAUTION:

Before returning the unit to the customer, make sure you make either (1) a
leakage current check or (2) a line to chassis resistance check. If the leakage
current exceeds 0.5 milliamperes, or if the resistance from chassis to either side
of the power cord is less than 240 kohms, the unit is defective.

WARNING:

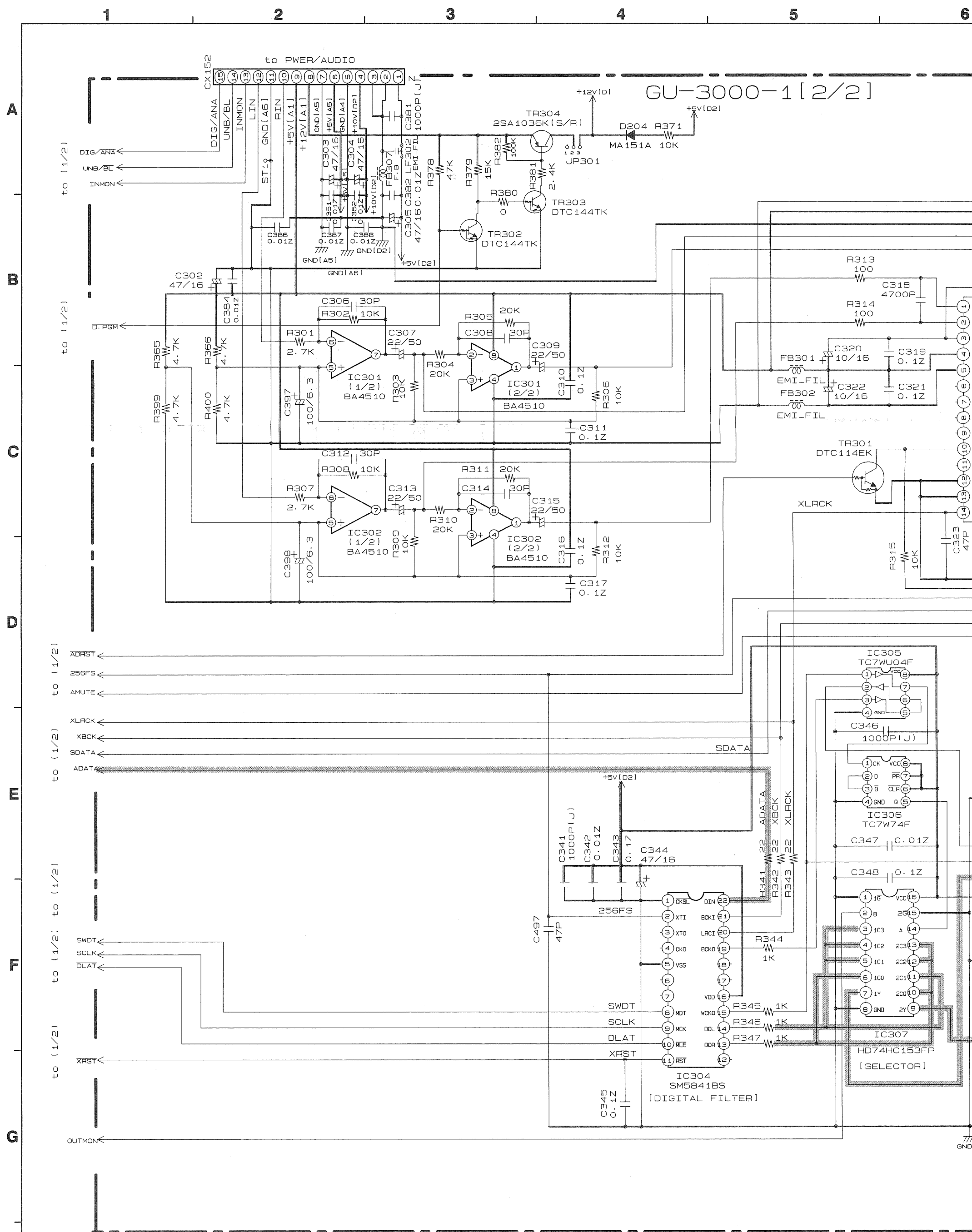
DO NOT return the unit to

SCHEMATIC DIAGRAM (1/6)



to (2/2)

SCHEMATIC DIAGRAM (2/6)





SIGNAL LINE

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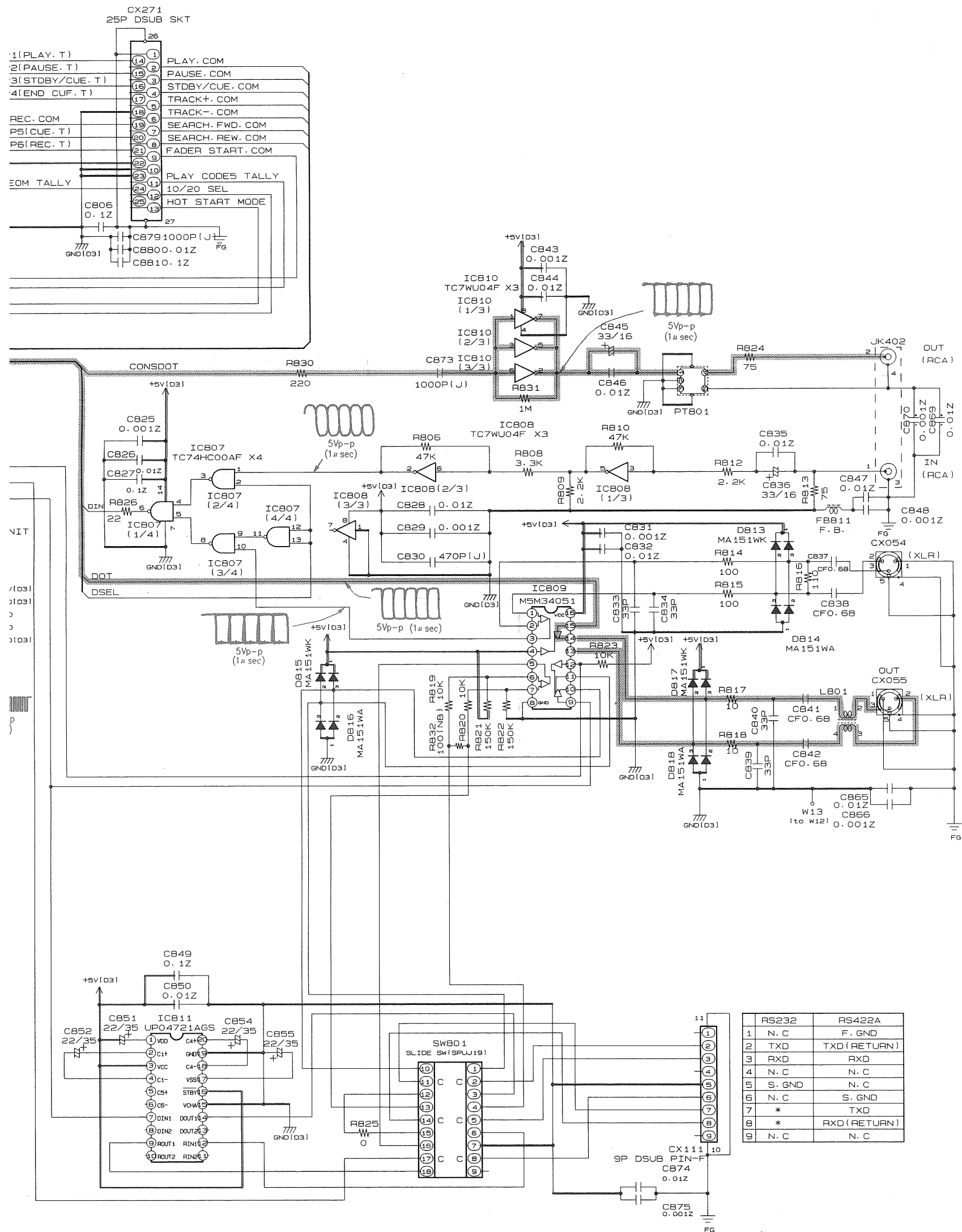
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E

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G

H



RES IN OHM. k=1,000 OHM M=1,000,000 OHM
 .UES IN MICRO FARAD. P=MICRO-MICRO FARAD
 CURRENT ARE MEASURED AT NO SIGNAL INPUT

RE SUBJECT TO CHANGE WITHOUT PRIOR

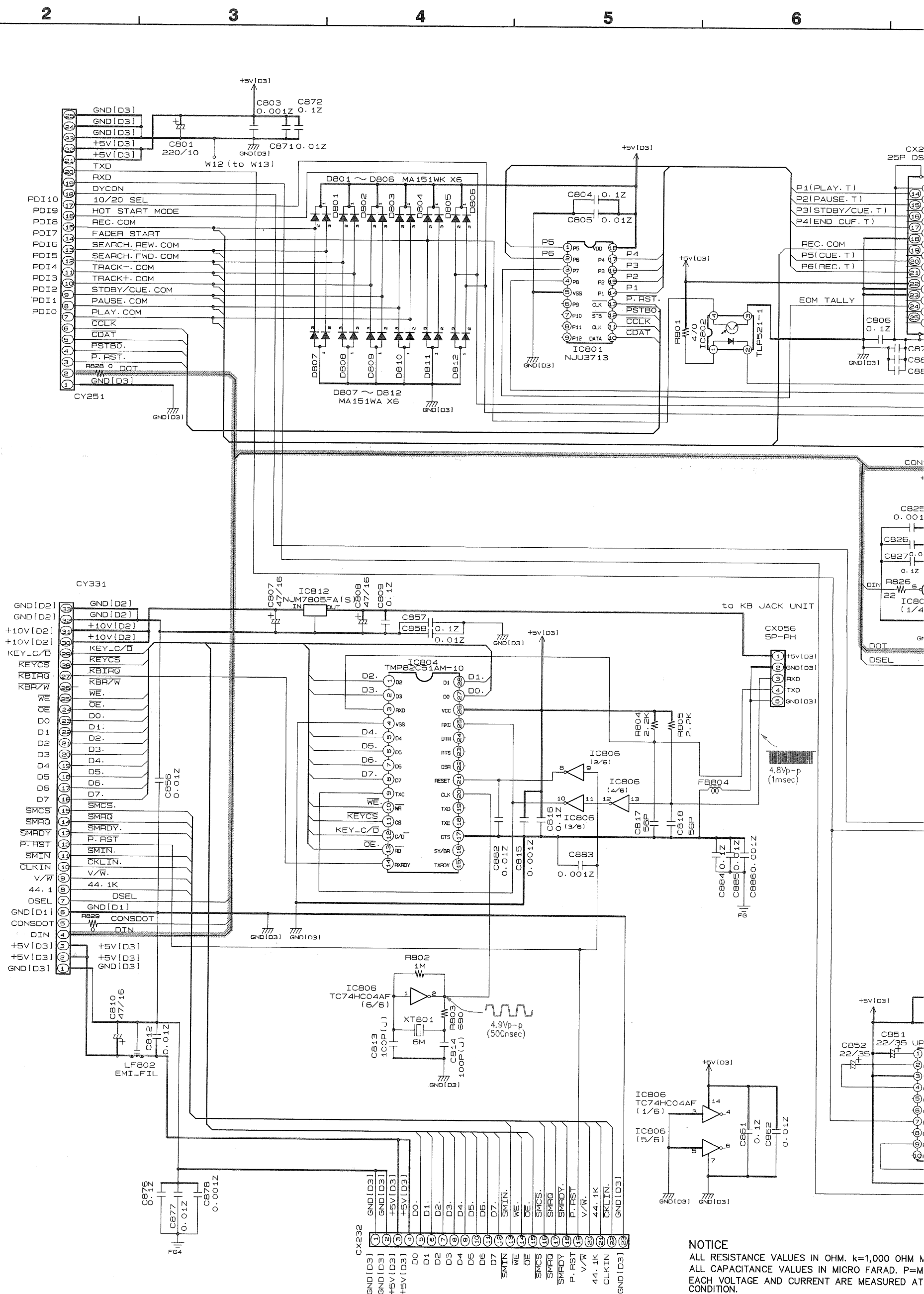
WARNING:
 Parts marked with this symbol  have critical characteristics.
 Use ONLY replacement parts recommended by the manufacturer.

CAUTION:
 Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

WARNING:
 DO NOT return the unit to the customer unit the problem is located and corrected.

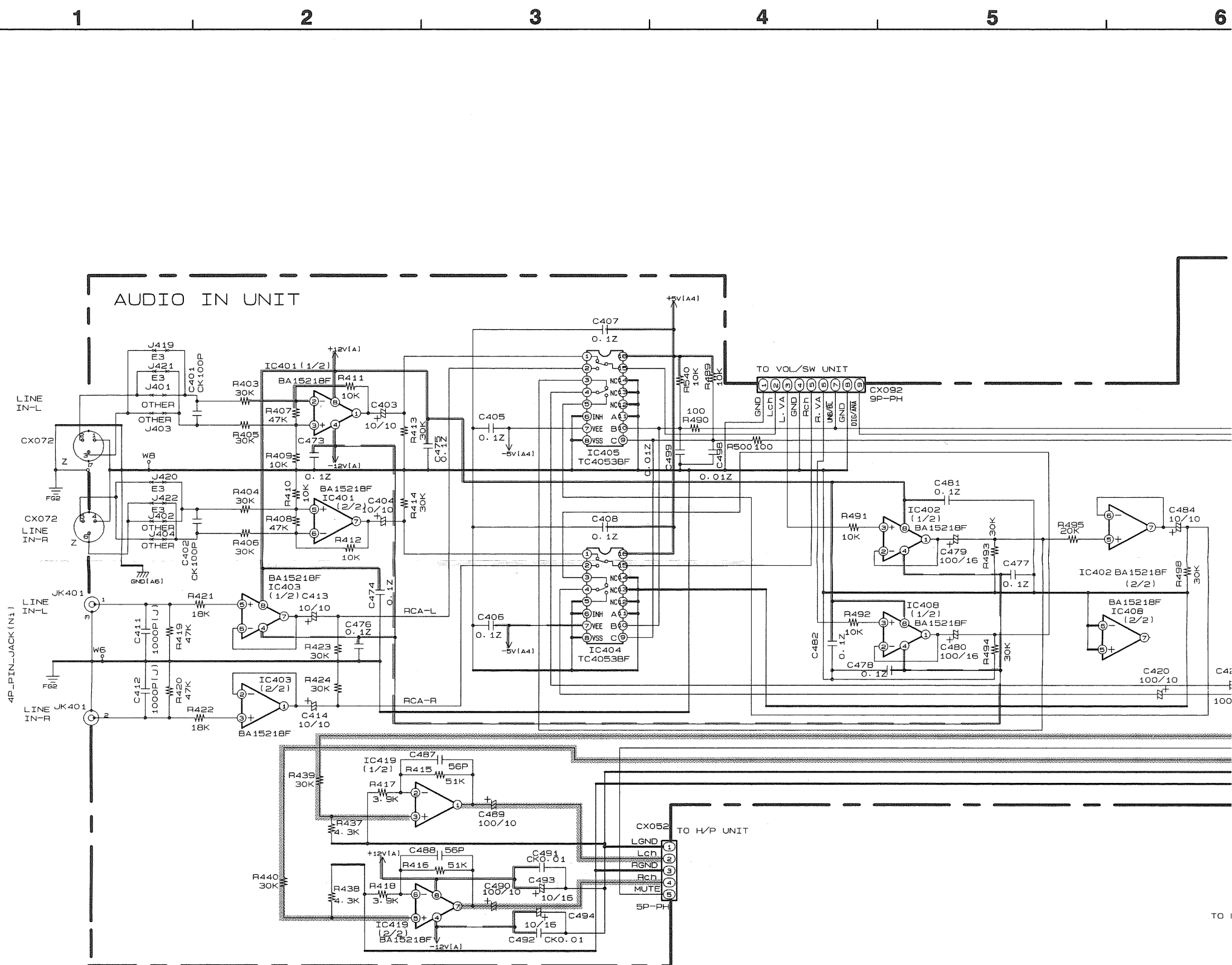
— +B LINE
 — SIGNAL LINE

SCHEMATIC DIAGRAM (3/6)



NOTICE
ALL RESISTANCE VALUES IN OHM. K=1,000 OHM M
ALL CAPACITANCE VALUES IN MICRO FARAD. P=M
EACH VOLTAGE AND CURRENT ARE MEASURED AT
CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE W/
NOTICE.

SCHEMATIC DIAGRAM (4/6)



NOTICE

ALL RESISTANCE VALUES IN OHM. K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT
CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR
NOTICE.

WARNING:

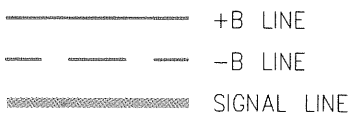
Parts marked with this symbol  have critical characteristics. Use ONLY replacement parts recommended by the manufacturer.

CAUTION:

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

WARNING:

WARNING:
DO NOT return the unit to the customer until the problem is located and corrected.



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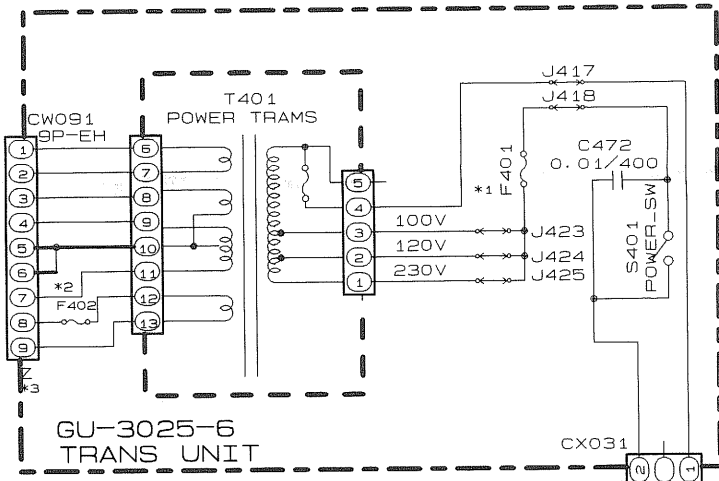
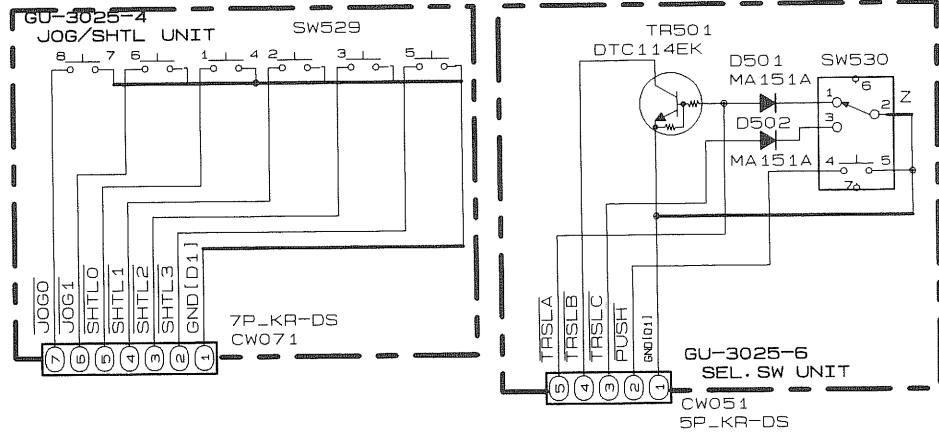
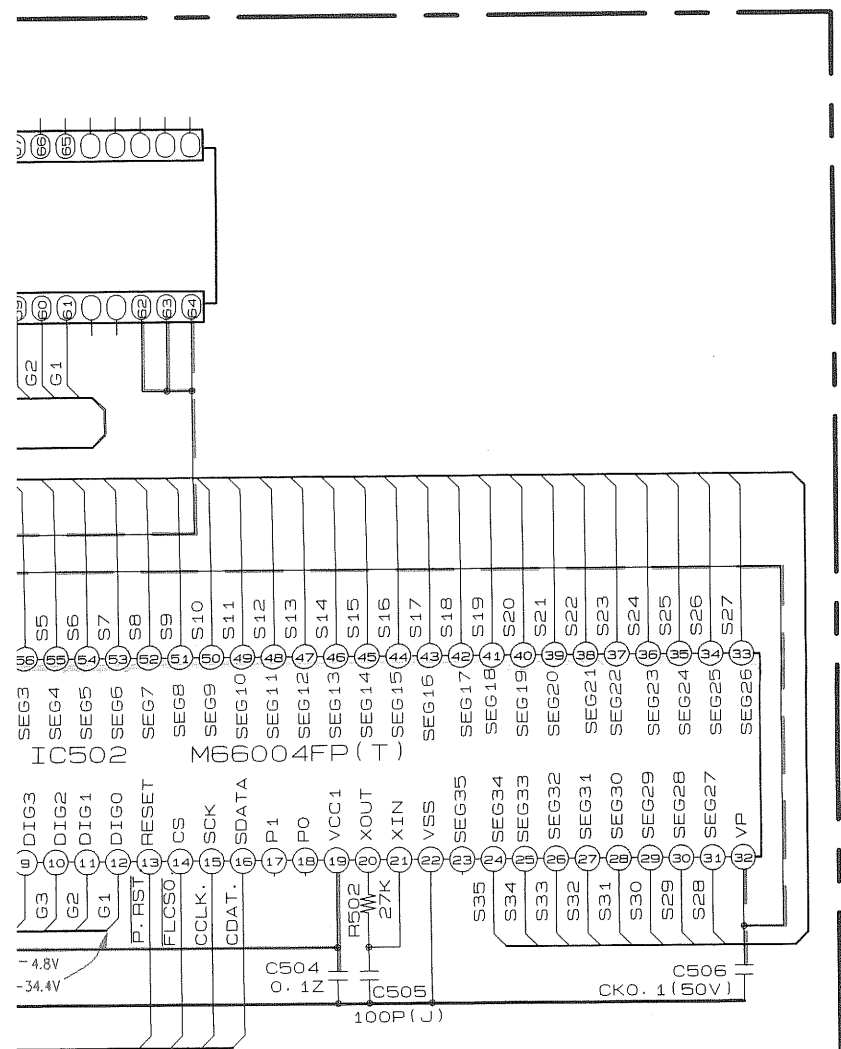
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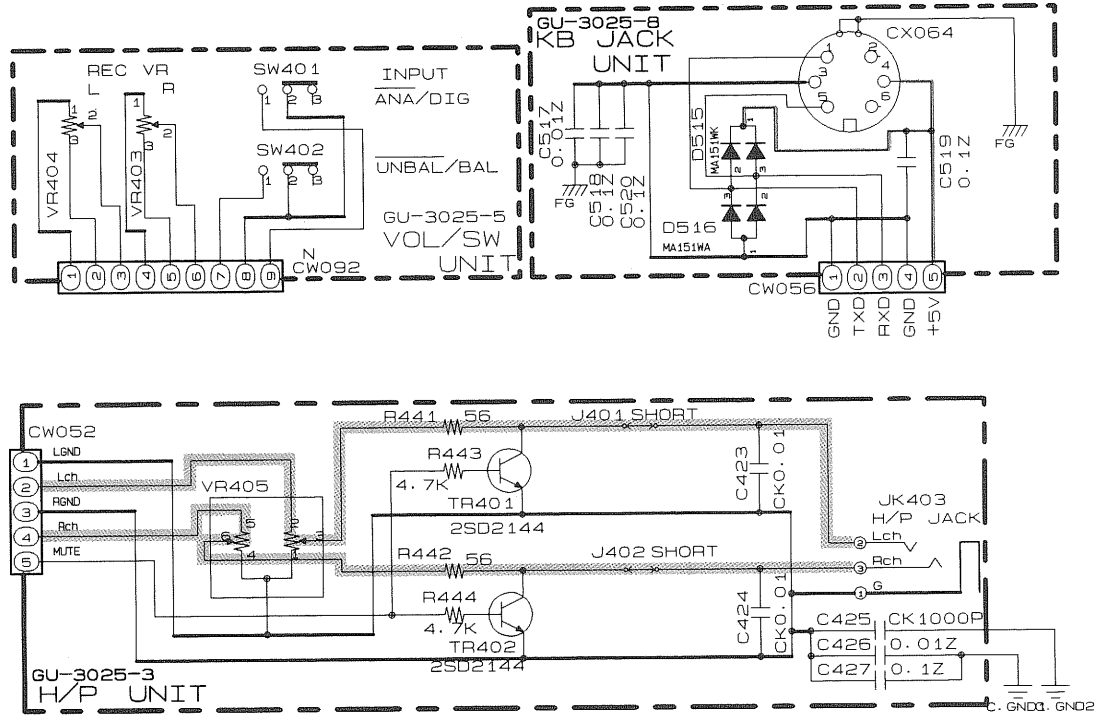
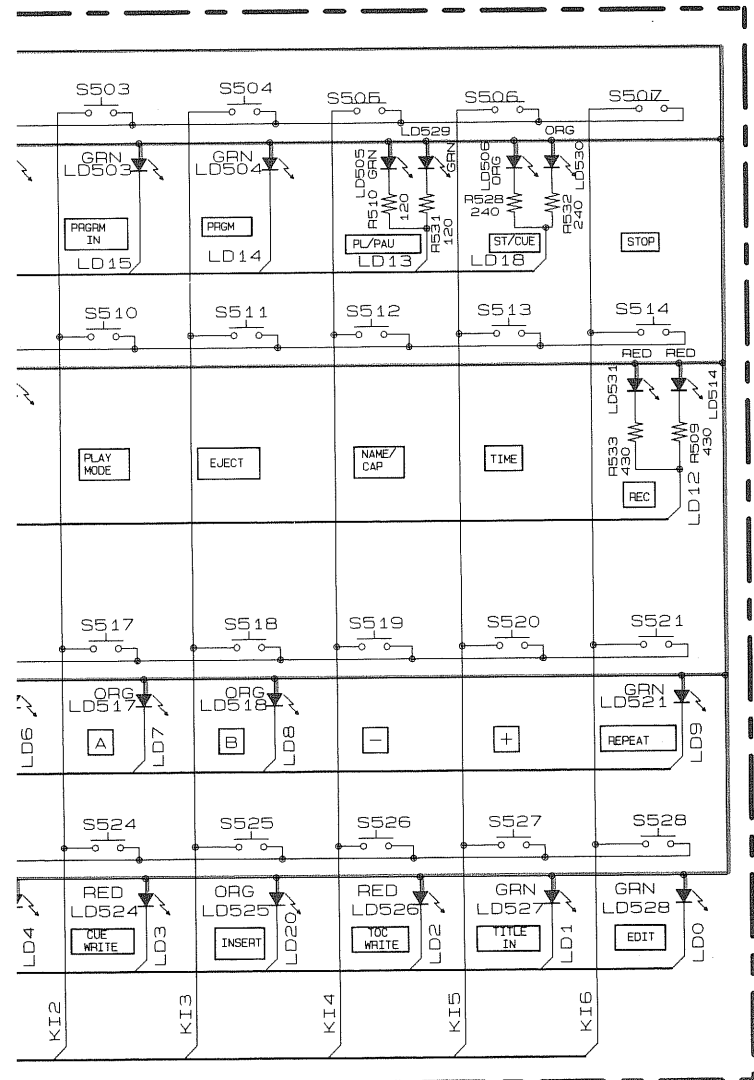
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	*1 F401	*2 F402
E3	1A/125V	4A/125V
E2·Ek	315mA/250V	4A/250V



NOTICE

ALL RESISTANCE VALUES IN OHM. k=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT
CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR
NOTICE.

WARNING:

Parts marked with this symbol have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

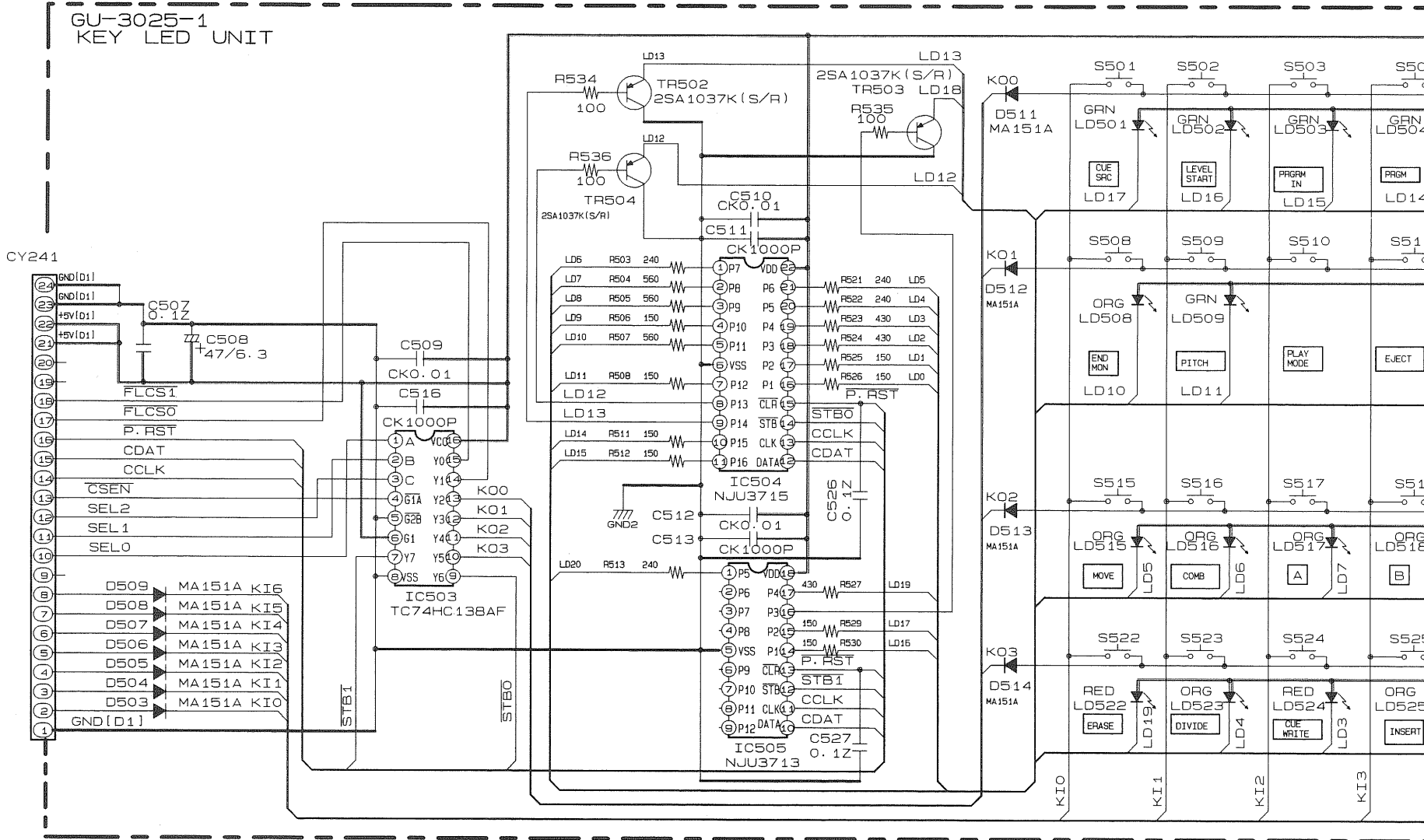
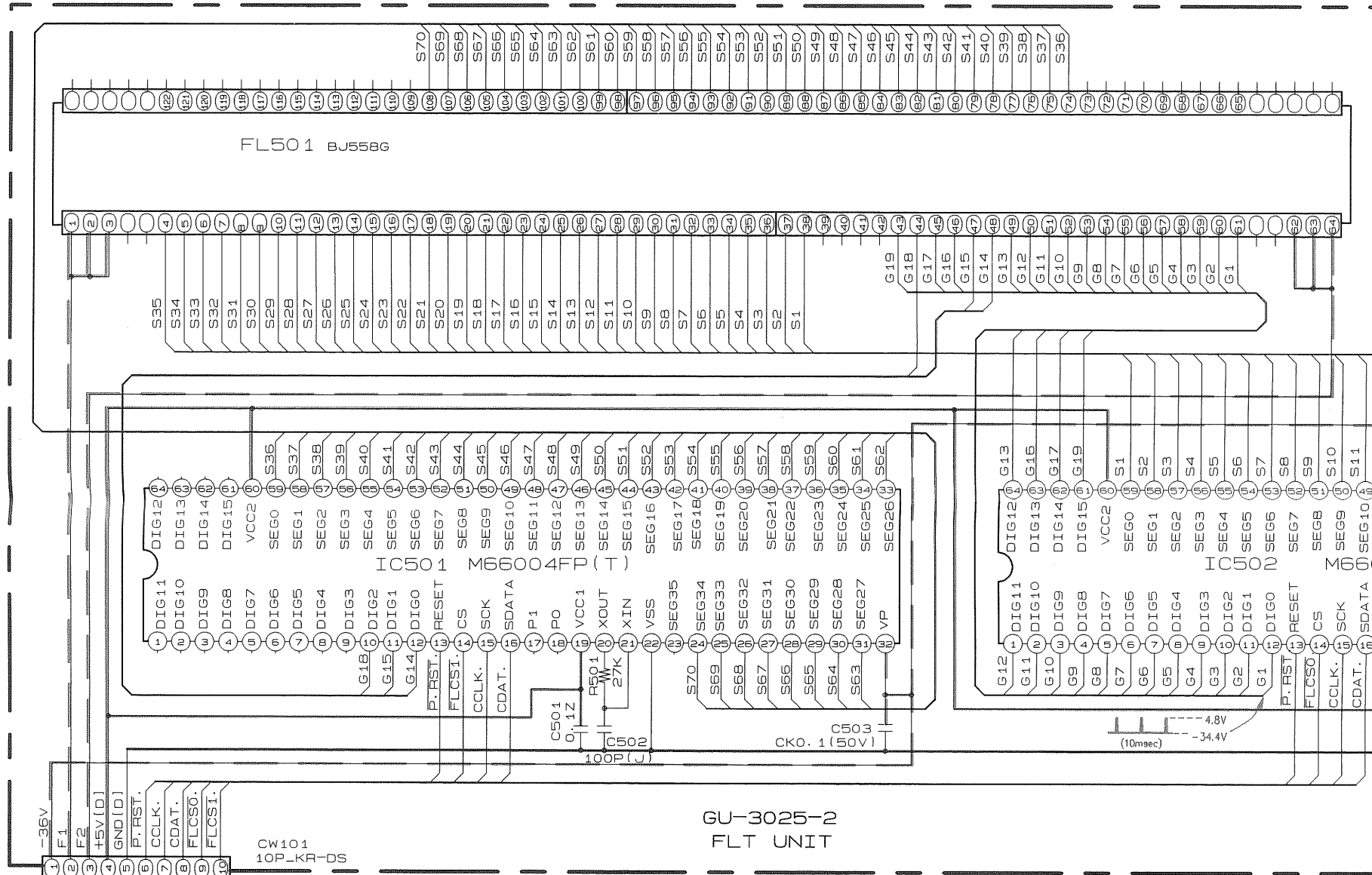
CAUTION:

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

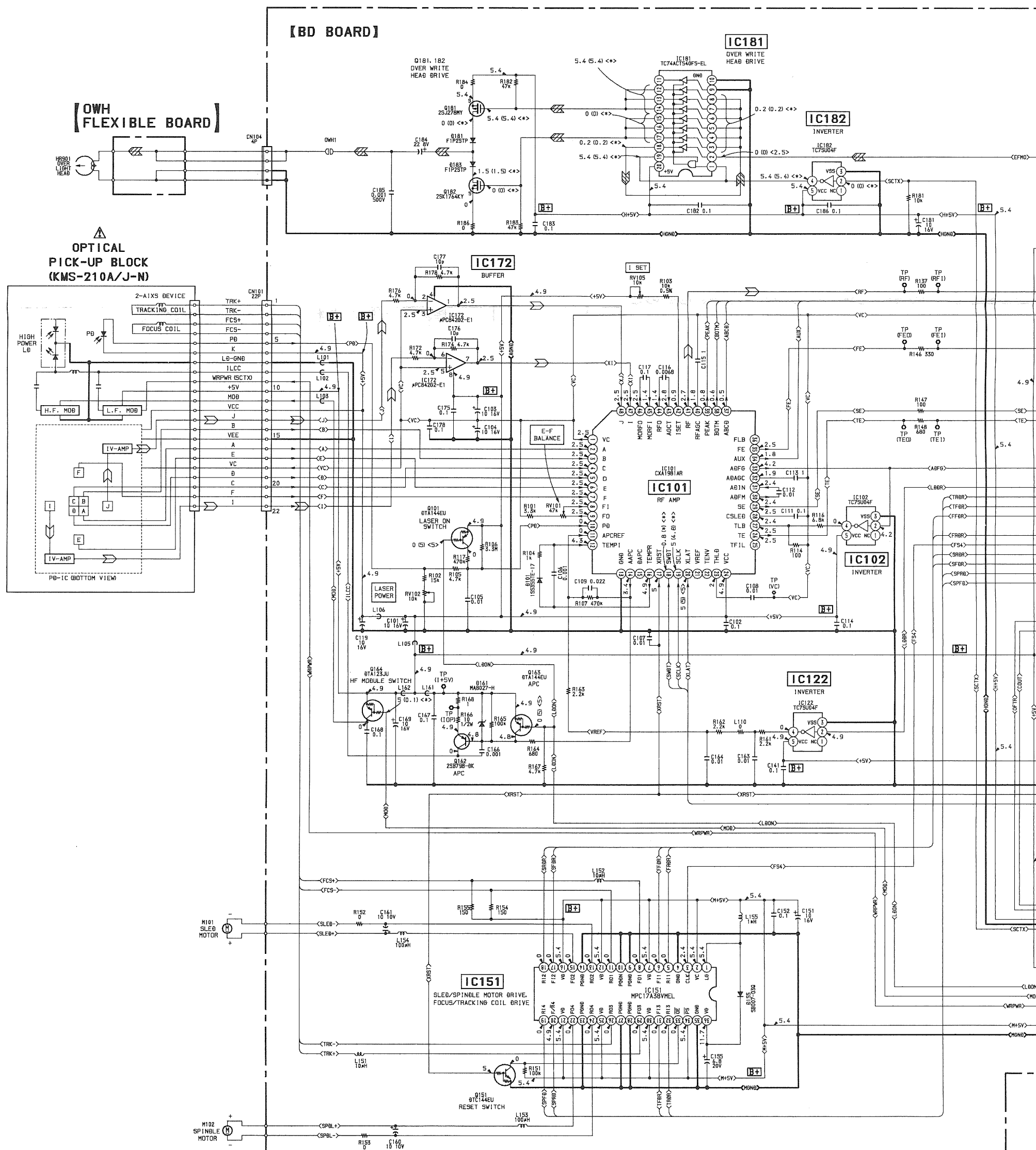
WARNING:

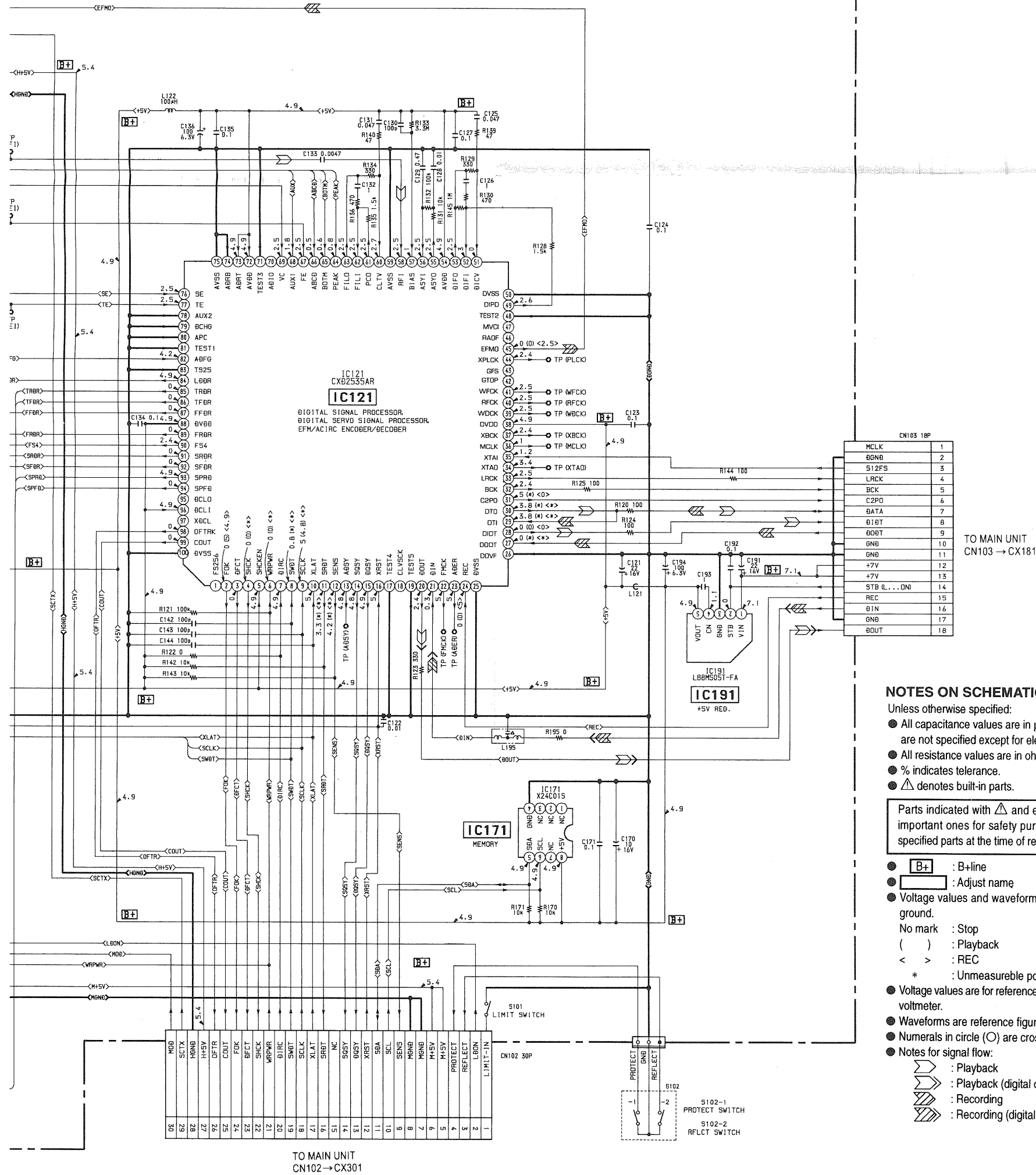
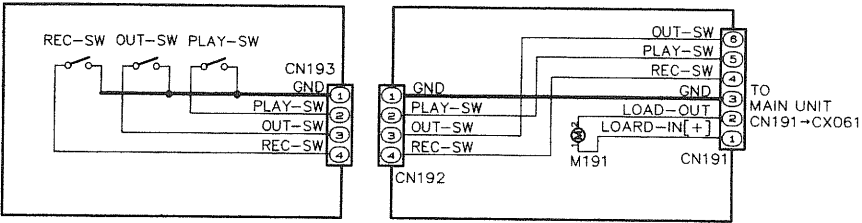
DO NOT return the unit to the customer unit the problem is located and corrected.

----- +B LINE
----- -B LINE
----- SIGNAL LINE



MD MECHA UNIT





NOTES ON SCHEMATIC DIAGRAM

Unless otherwise specified:
● All capacitance values are in μF , p=pF. Resisting voltage less than 50V are not specified except for electrolytic and tantalum.
● All resistance values are in ohms, rated 1/4W.
● % indicates tolerance.
● Δ denotes built-in parts.

Parts indicated with Δ and encircled dotted line with Δ are very important ones for safety purpose. Accordingly, be sure to use the specified parts at the time of replacement.

- **B+** : B-line
- **Adjust** : Adjust name
- Voltage values and waveforms are observed with no signal across the ground.
 - No mark : Stop
 - () : Playback
 - < > : REC
 - * : Unmeasurable points
- Voltage values are for reference measured with a 10Mohm inner resistance voltmeter.
- Waveforms are reference figure observed with an oscilloscope.
- Numerals in circle (O) are cross reference for waveform figures.
- Notes for signal flow:
 - : Playback
 - : Playback (digital output)
 - : Recording
 - : Recording (digital input)