

# MINIDISC RECORDER

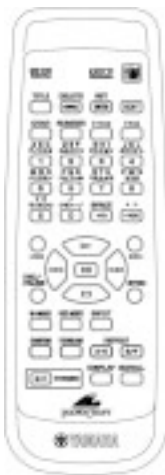
# MDX-E300

## SERVICE MANUAL

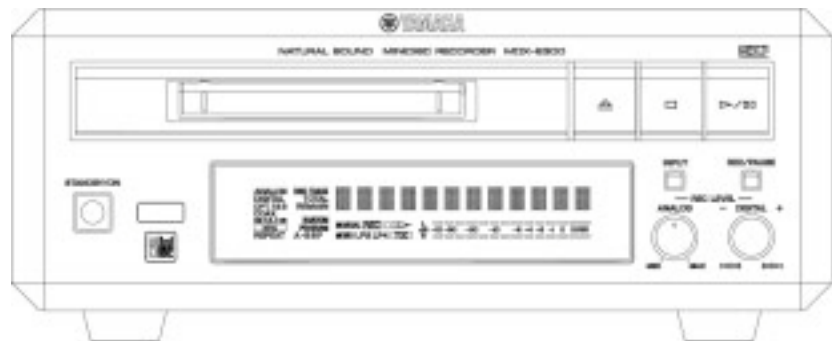
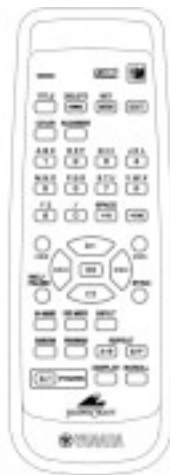
For the system operation of MDX-E300, please refer to Service Manual #100805 for the CRX-E300/NX-E300.

本機の「システム動作」については、CRX-E300/NX-E300のサービスマニュアル 100805 をご覧ください。

### ▼ J model



### ▼ R, G, B model



MDX-E300

### IMPORTANT NOTICE

This manual has been provided for the use of authorized YAMAHA Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically YAMAHA Products, are already known and understood by the users, and have therefore not been restated.

**WARNING:** Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all YAMAHA product owners that all service required should be performed by an authorized YAMAHA Retailer or the appointed service representative.

**IMPORTANT:** The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research, engineering, and service departments of YAMAHA are continually striving to improve YAMAHA products. Modifications are, therefore, inevitable and specifications are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

**WARNING:** Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground buss in the unit (heavy gauge black wires connect to this buss).

**IMPORTANT:** Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.



このサービスマニュアルは、エコマーク認定の再生紙を使用しています。  
This Service Manual uses recycled paper.

100806

 **YAMAHA**  
YAMAHA CORPORATION  
P.O.Box 1, Hamamatsu, Japan

CONTENTS

|                                              |       |                                       |       |
|----------------------------------------------|-------|---------------------------------------|-------|
| TO SERVICE PERSONNEL .....                   | 2-3   | TROUBLESHOOTING / トラブルシューティング .....   | 36-45 |
| PREVENTION OF ELECTRO STATIC DISCHARGE ..... | 4     | IC DATA .....                         | 46-55 |
| REAR PANELS .....                            | 4     | BLOCK DIAGRAM .....                   | 56-57 |
| SPECIFICATIONS .....                         | 5     | TEST POINT WAVEFORMS .....            | 58    |
| DIMENSIONS .....                             | 6     | PRINTED CIRCUIT BOARD .....           | 59-62 |
| INTERNAL VIEW .....                          | 6     | MD VOLTAGES .....                     | 62    |
| DISASSEMBLY PROCEDURES / 分解手順 .....          | 7-8   | SCHEMATIC DIAGRAM .....               | 63-64 |
| DISASSEMBLY OF MD RECORDER UNIT /            |       | DISPLAY DATA .....                    | 65    |
| MDレコーダーユニットの分解 .....                         | 9-11  | PARTS LIST .....                      | 66-77 |
| ADJUSTMENT & TEST MODE /                     |       | GREASE APPLICATION DIAGRAM .....      | 78    |
| 調整及びテストモード .....                             | 12-29 | REMOTE CONTROL TRANSMITTER .....      | 79    |
| SPECIAL TEST MODE / 特殊テストモード .....           | 30-31 | PARTS LIST FOR CARBON RESISTORS ..... | 80    |
| ERROR DISPLAY / エラー表示 .....                  | 32-35 |                                       |       |

TO SERVICE PERSONNEL

1. Critical Components Information
- Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.
2. Leakage Current Measurement (For 120V Models Only)
- When service has been completed, it is imperative to verify that all exposed conductive surfaces are properly insulated from supply circuits.
- Meter impedance should be equivalent to 1500 ohm shunted by 0.15μF.
  - Leakage current must not exceed 0.5mA.
  - Be sure to test for leakage with the AC plug in both polarities.

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

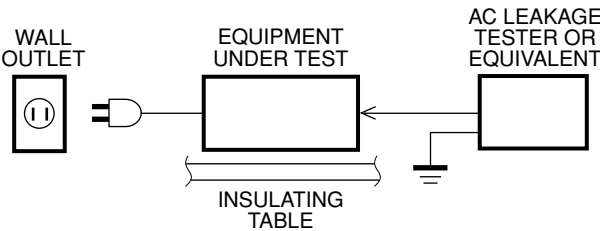
WARNING: CHEMICAL CONTENT NOTICE!

The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.



## WARNING: Laser Safety

This product contains a laser beam component. This component may emit invisible, as well as visible radiation, which may cause eye damage. To protect your eyes and skin from laser radiation, the following precautions must be used during servicing of the unit.

- 1) When testing and/or repairing any component within the product, keep your eyes and skin more than 30 cm away from the laser pick-up unit at all times. Do not stare at the laser beam at any time.
- 2) Do not attempt to readjust, disassemble or repair the laser pick-up, unless noted elsewhere in this manual.
- 3) CAUTION : Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

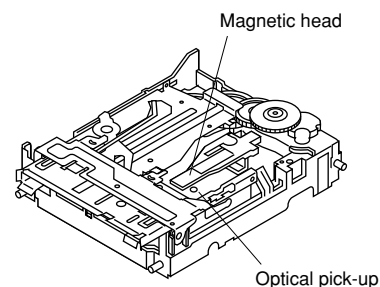
## Laser Emitting conditions:

- 1) When the Top Cover of the MD recorder unit is removed, and the "STANDBY/ON" SW is turned to the "ON" position, the laser component will emit a beam for several seconds to detect if a disc is present. During this time (5-10 sec.) the laser may radiate through the lens of the laser pick-up unit. Do not attempt any servicing during this period!  
If no disc is detected, the laser will stop emitting the beam. When a disc is set, you will not be exposed to any laser emissions.
- 2) The laser power level can be adjusted with the VR on the pick-up PWB. However, this level has been set by the factory prior to shipping from the factory. Do not adjust this laser level control unless instruction is provided elsewhere in this manual. Adjustment of this control can increase the laser emission level from the device.

## Laser Diode Properties

|                                                                         |                                     |
|-------------------------------------------------------------------------|-------------------------------------|
| Material :                                                              | GaAlAs                              |
| Wavelength :                                                            | 785 nm                              |
| Emission duration :                                                     | Continuous                          |
| Pulse Durations and Max. Output at the lens of the Laser Pick Up Unit ; |                                     |
| Read mode :                                                             | 0.6 mW (Continuous)                 |
| Write mode :                                                            | Max 10 mW for 0.5s, Min. Cycle 1.5s |
| ANSI Class :                                                            | Class 1                             |

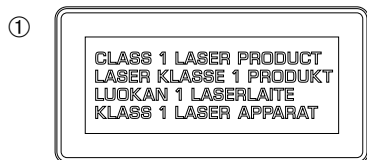
\* This output is the value measured at a distance of about 200 mm from the objective lens surface on the Optical Pick-up Block.



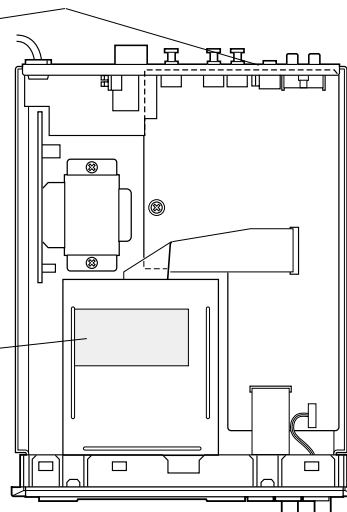
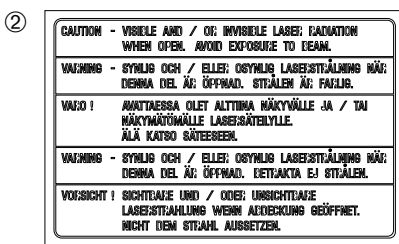
**VARO!** : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASER-SÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

**VARNING!** : OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.

### R, G, B models



### R, G, B models

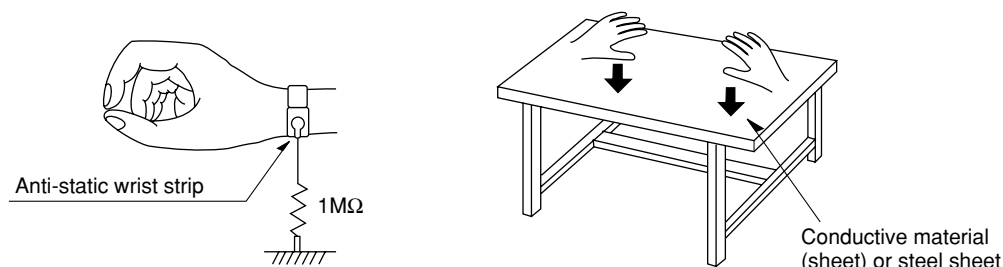


## ■ PREVENTION OF ELECTRO STATIC DISCHARGE

The laser diode in the MD recorder unit (optical pickup) may be damaged due to static electricity from clothes or the human body. Use caution to prevent electrostatic damage when servicing or handling the laser diode.

### 1. Grounding for electrostatic damage prevention

1. Worktable grounding  
Put a grounded conductive material (sheet) or iron sheet on the area where the optical pickup is placed.
2. Human body grounding  
Use an anti-static wrist strap to discharge the static electricity from your body.



### 2. Handling of the optical pickup

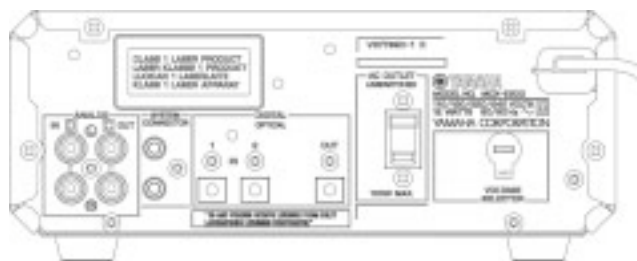
Do not use a tester to check the laser diode in the optical pickup. The power supply in the tester will damage the laser diode.

### 3. Handling Precautions for the MD recorder Unit (Optical Pickup)

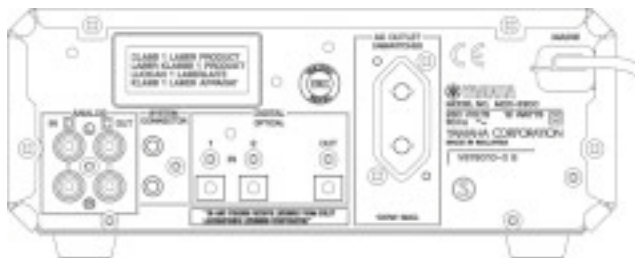
1. Handle the MD recorder unit (optical pickup) gently, as it is an extremely high-precision assembly.
2. The flexible cable lines may break if an excessive force is applied to it. Use caution when handling the cable.
3. The semi-fixed resistor for laser power adjustment should not be adjusted. Do not turn the resistor.

## ■ REAR PANELS

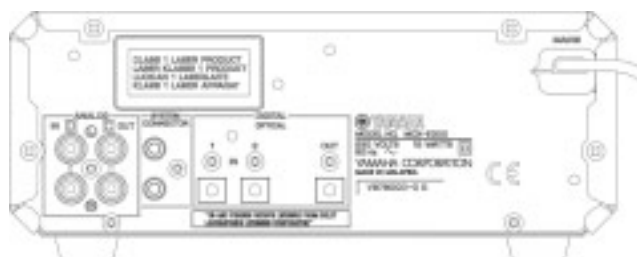
### ▼ R model



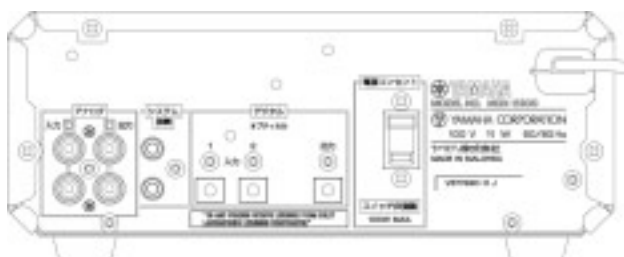
### ▼ G model



### ▼ B model



### ▼ J model



## ■ SPECIFICATIONS

### Digital audio system

#### System / 形式

MiniDisc digital audio system

#### Disc / ディスク

MiniDisc

#### Recording method / 記録方式

Magnetic field variation overwrite

#### Reading method / 再生読み取り方式

Non-contact optical pickup (using semiconductor laser)

#### Laser / レーザー

Semiconductor laser

#### Record/playback time / 録音再生時間

Max. 80 min. (on stereo)

Max. 161 min. (on ATRAC3-LP2)

Max. 323 min. (on ATRAC3-LP4)

#### Revolutions / 回転数

Approx. 400-900 rpm (CLV)

#### Error Correction / エラー訂正方式

ACIRC (Advanced Cross Interleave Reed-solomon Code)

#### Sampling frequency / サンプリング周波数

44.1 kHz (32 kHz and 48 kHz signals converted to 44.1 kHz for recording)

#### Coding / コーディング

ATRAC (Adaptive TRAnsform Acoustic Coding)

#### Modulation system / 変調方式

EFM (Eight-to-Fourteen Modulation)

#### Number of channels / チャンネル数

2 (stereo) or 1 (mono, for extended recording)

#### Frequency Response / 周波数特性

5 - 20,000 Hz  $\pm 0.5$  dB

#### Signal-to-Noise Ratio / SN比

More than 99 dB during playback

#### Wow and Flutter / ワウフラッター

Below measurable limit

### Inputs

#### LINE IN (REC) / ライン入力

Type: pin jack

Input impedance: greater than 50 k-ohms

Standard input level: 300 mV

#### DIGITAL IN (OPTICAL) 1/2 / デジタル入力 (光) 1/2

Type: square optical connector jack

### Outputs

#### LINE OUT (PLAY) / ライン出力

Type: pin jack

Standard output level:  $2.0 \pm 0.5$  Vrms

#### DIGITAL OUT (OPTICAL) / デジタル出力 (光)

Type: square optical connector jack

### GENERAL

#### Power Supplies / 電源

G, B models 230 V, 50 Hz

R model 110/120/220/240 V, 50/60 Hz

J model 100 V, 50/60 Hz

#### Power Consumption / 消費電力

R, G, B models 12W

J model 11W

#### Dimensions (W x H x D) / 外形寸法 (幅x高さx奥行)

217 x 88 x 297 mm (8-9/16" x 3-7/16" x 11-11/16")

#### Weight / 重量

2.6 kg (5 lbs. 11 oz.)

#### Finish / 仕上げ

Silver color B, G, J models

Gold color R, G models

#### Accessories / 付属品

Remote Control.... 1

Audio Pin Cable... 2

Optical Cable... 1

Batteries (AA, R6, UM-3).... 2

Specifications subject to change without notice.

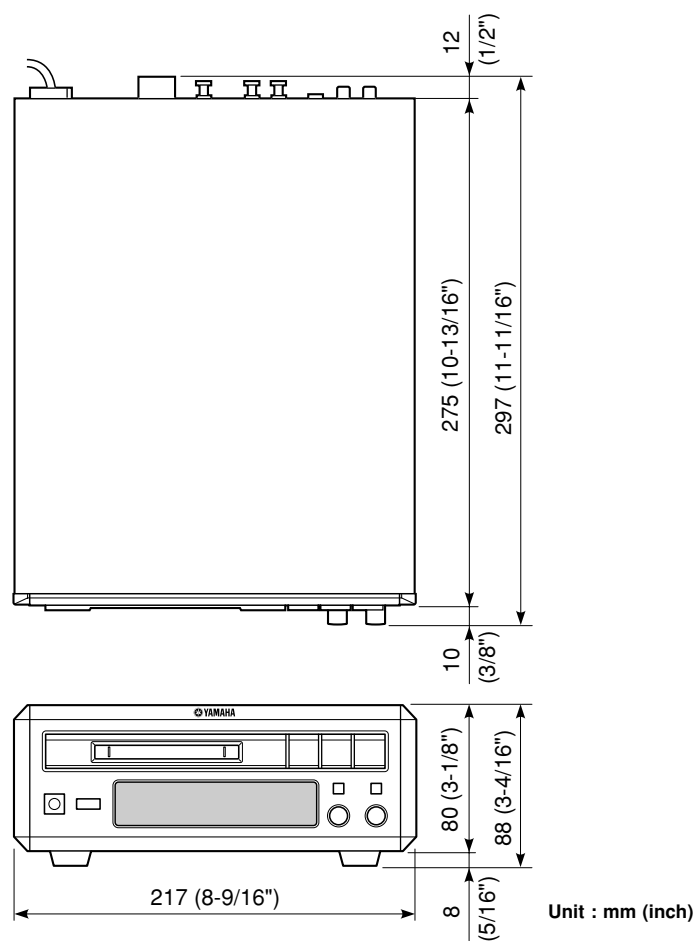
**B : British model**

**G : European model**

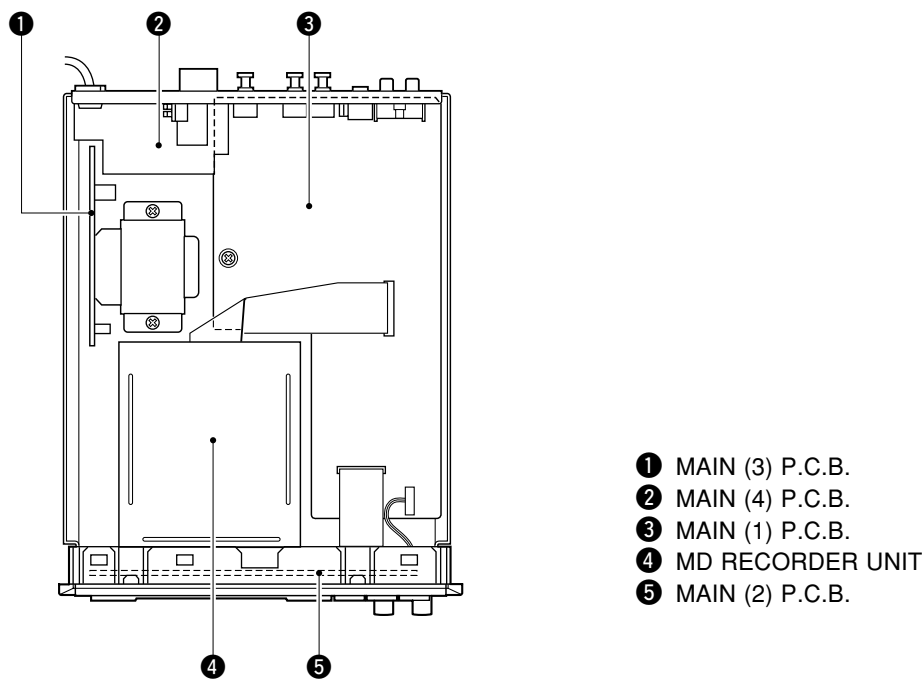
**R : General model**

**J : Japanese model**

DIMENSIONS



INTERNAL VIEW



## ■ DISASSEMBLY PROCEDURES / 分解手順

Remove parts in disassembly order as numbered.

(番号順に取り外しを行ってください。)

### 1. Removal of Top Cover

Remove 4 screws ( ① ) and 4 screw ( ② ) in Fig. 1.

### 1. トップカバーの外し方

①のネジ4本と②のネジ4本を外します。( Fig. 1 )

### 2. Removal of Front Panel

- Remove 2 connectors (CB6, CB602) in Fig. 2.
- Remove 2 screws ( ③ ) and 2 screws ( ④ ) in Fig. 1.
- Detach the 2 hooks in Fig. 1 and then pull the Front Panel forward.

### 2. フロントパネルの外し方

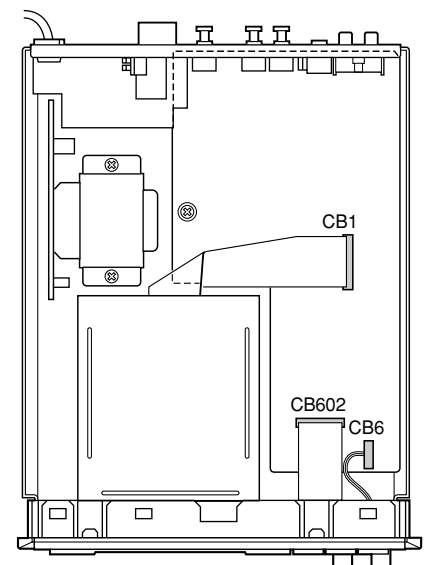
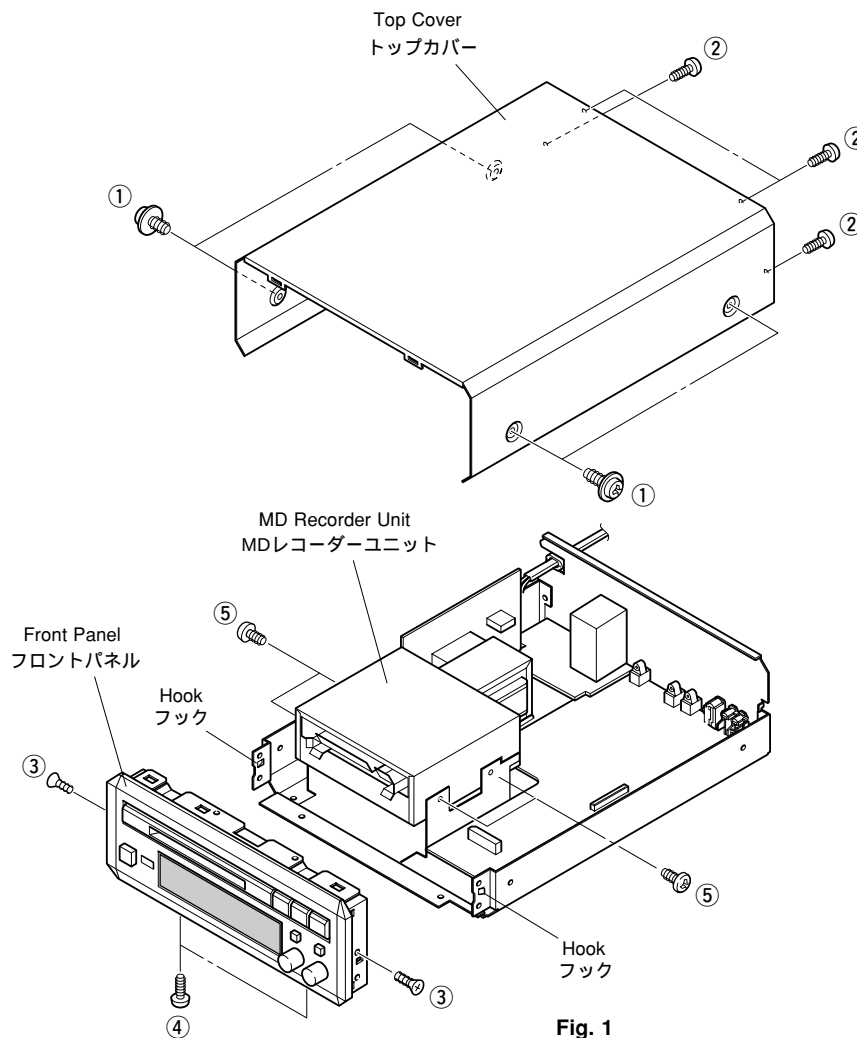
- コネクターを2ヶ所 (CB6, CB602)を外します。( Fig. 2 )
- ③のネジ2本と④のネジ2本を外します。( Fig. 1 )
- パネル両サイドのフックを外して、フロントパネルを引き出します。

### 3. Removal of MD Recorder Unit

- Remove 1 connector (CB1) in Fig. 2.
- Remove 4 screws ( ⑤ ) in Fig. 1.
- Remove the MD Recorder Unit.

### 3. MDレコーダーユニットの外し方

- コネクターを1ヶ所 (CB1)を外します。( Fig. 2 )
- ⑤のネジ4本を外します。( Fig. 1 )
- MDレコーダーユニットを取り外します。



### ● Service Position

- Remove 2 screws (⑥) in Fig. 3.
- Remove 2 screws (⑦) in Fig. 4.
- Remove the Main (1) P.C.B. from the chassis.
- Place the Main (1) P.C.B. and Main (4) P.C.B. as shown in Fig. 5 for servicing.

#### When checking the P.C.B.:

Be sure to connect the ST1 of the Main (4) P.C.B. to the chassis with a jumper wire or the like.

### ● サービスポジション

- ⑥ のネジ 2 本を外します。( Fig. 3 )
- ⑦ のネジ 2 本を外します。( Fig. 4 )
- Main (1) P.C.B. を外します。
- Main (1) P.C.B. および Main (4) P.C.B. を Fig. 5 のように置いて、動作チェックを行います。

P.C.B. チェックをする場合には

Main (4) P.C.B. の ST1 をリード線等でシャーシに接続してください。

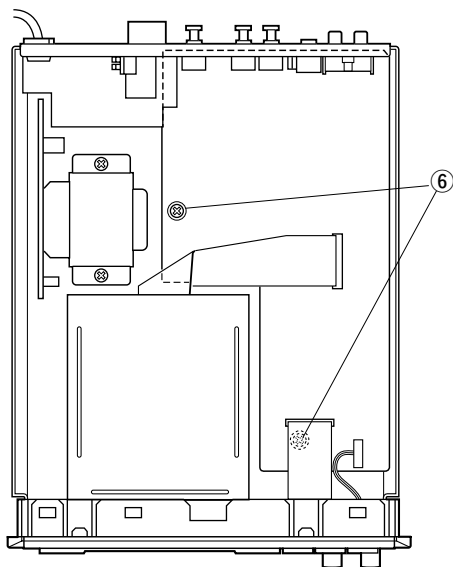


Fig. 3

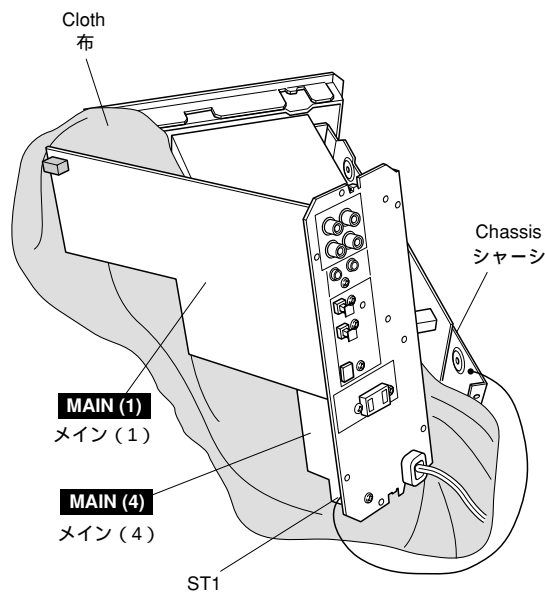


Fig. 5

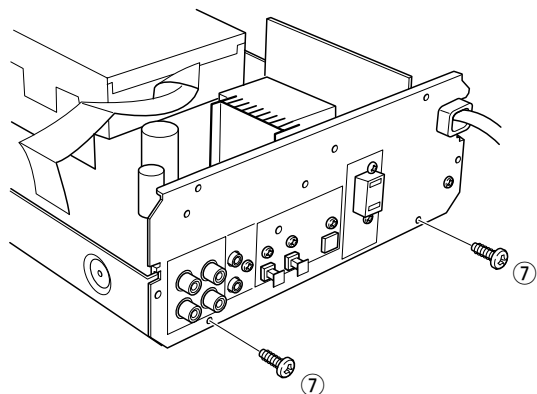


Fig. 4

## ■ DISASSEMBLY OF MD RECORDER UNIT / MDレコーダーユニットの分解

Remove the MD Recorder unit according to Steps 1 and 3 of the disassembly procedure.

分解手順 1 と 3 に従ってMDレコーダユニットを取り外してください。

### Removal of MD Main P.C.B. and MD Mechanism (Fig. 6)

1. Remove 3 screws (K1) and then remove the Top Cover.
2. Remove 2 screws (K2) and then remove the Bottom Cover.
3. Disconnect 3 flat connecting cables (K3).
4. Disconnect the flexible P.C.B. for the optical pickup (K4).
5. Disconnect a connector (K5).
6. Remove 2 screws (K6) and then remove the MD Main P.C.B.
7. Remove the spring (K7).
8. Remove 1 screw (K8) and then remove the Side Cover.
9. Remove 4 cushions (K9) from the bosses of the MD Mechanism.

### ● MDメイン基板・MDメカニズムの外し方 (Fig. 6参照)

1. ねじ (K1) × 3本を外し、シールドケース (トップ) を外します。
2. ねじ (K2) × 2本を外し、シールドケース (ボトム) を外します。
3. フラットケーブル (K3) × 3個を外します。
4. 光ピックアップ用フレキシ基板 (K4) × 1個を外します。
5. コネクター (K5) × 1個を外します。
6. ねじ (K6) × 2本を外し、MDメイン基板を外します。
7. スプリング (K7) × 1個を外します。
8. ねじ (K8) × 1本を外し、シールドケース (サイド) を外します。
9. クッション (K9) × 4個をMDメカニズムのボスから外します。

(\*1) After pulling off the flexible P.C.B. for the optical pickup from the connector, cover its end with aluminum foil or the like which is electrically conductive so as to prevent the optical pickup from being damaged by static electricity.

(\*1) 光ピックアップ用フレキシ基板をコネクタから引き抜いた後は、静電気による光ピックアップの破壊を防止するために、フレキシ基板の先端を導電性のあるアルミ箔等で包んでください。

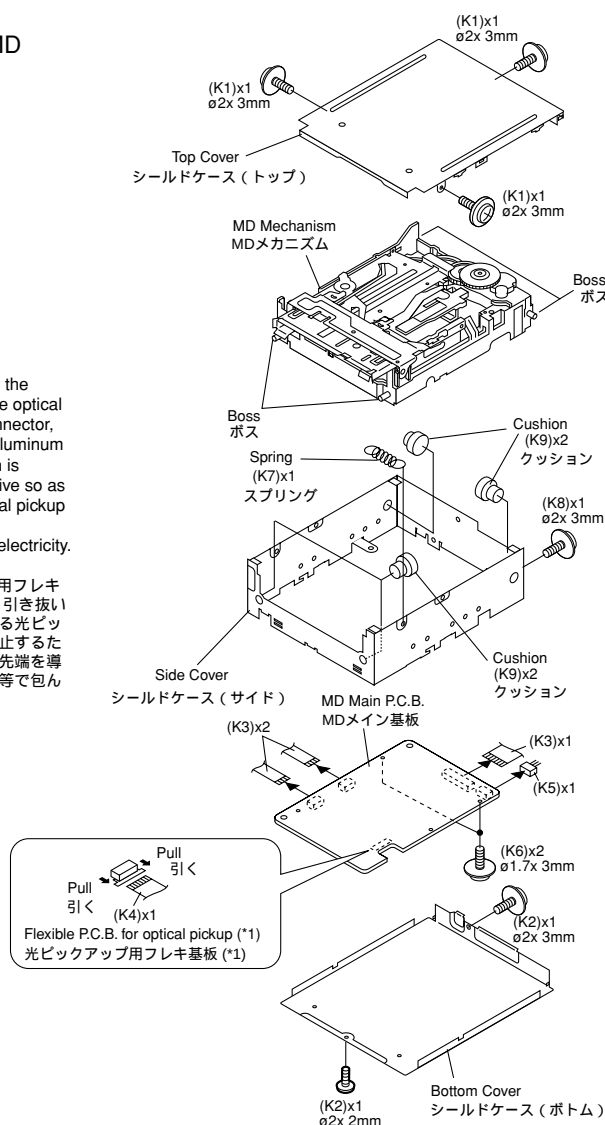


Fig. 6

### Removal of Magnetic Head (Fig. 7)

- Once the magnetic head is removed, it will be necessary to perform "Confirmation of magnetic head installation Position". (See page 26.)

Remove screw (A1).

#### Caution

- When removing the magnetic head, hold its base and do not touch the magnetic head itself or the leaf spring.
- Place the magnetic head upside down.
- Use special care so as not to cause any damage to the magnetic head when installing it.

- 磁気ヘッドの外し方 (Fig. 7 参照)
- 磁気ヘッドを外した場合、『磁気ヘッドの取付位置』の確認が必要です。(27ページ参照)

ねじ (A1) × 1本を外します。

#### 注意

- 磁気ヘッドを外すときは、磁気ヘッドのベース部分を持って外してください。磁気ヘッド部とリーフバネ部にはさわらないでください。
- 磁気ヘッドを置く場合は、裏向きに置いてください。
- 取り付け時には磁気ヘッドを傷つけないよう十分注意してください。

### Removal of MD Loading P.C.B./Loading Motor (Fig. 8)

- Remove 1 screw (B1).
- Remove 3 hooks (B2) and then remove the MD Loading P.C.B.
- Remove 2 screws (B3) and then remove the Loading Motor.

- MDローディング基板 / ローディングモータの外し方 (Fig. 8 参照)

- ねじ (B1) × 1本を外します。
- 爪 (B2) × 3箇所を外し、MDローディング基板を外します。
- ねじ (B3) × 2本を外し、ローディングモータを外します。

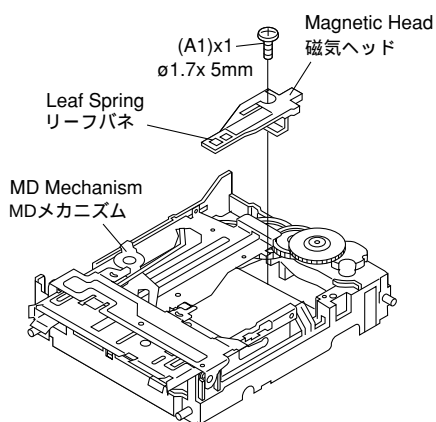


Fig. 7

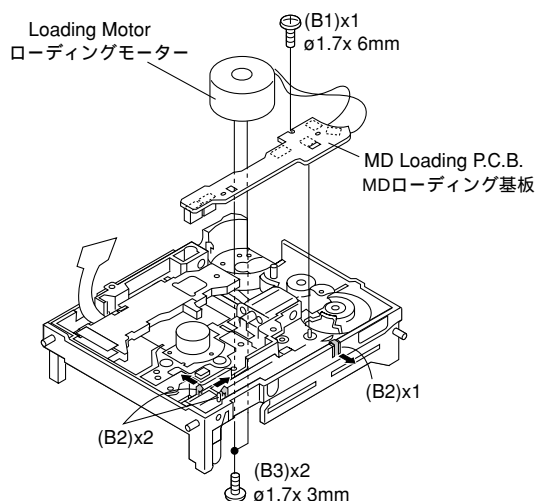


Fig. 8

**Removal of Sled Motor/Optical Pickup Head (Fig. 9)**

- Once the MD mechanism switch P.C.B. is removed, it will be necessary to perform "Adjustment of Lead-in Switch Position". (See page 26.)
- Once the optical pickup head is removed, it will be necessary to perform "Confirmation of magnetic head installation Position". (See page 26.)

- Remove 3 screws (C1) and then remove the sled motor.
- Remove the Optical Pickup Head.

**Caution**

Use care so as not to cause any damage to the gear.  
(A damaged gear will cause abnormal noise to occur while searching.)

**Removal of Spindle Motor (Fig. 10)**

- Once the spindle motor is removed, it will be necessary to perform "Pickup Rating". (See page 28.)

Remove 3 screws (D1) and then remove the Spindle Motor.

**Caution**

- Be careful not to scratch the gear.  
(Scratched gear will produce noises during searching.)
- As the turn-table is magnetized, keep foreign objects from being attracted.

- スレッドモータ / 光ピックアップの外し方 (Fig. 9 参照)
- MDメカニズムスイッチ基板を外すと、『リードインスイッチ位置』の調整が必要です。(27ページ参照)
- 光ピックアップを外すと、『磁気ヘッド位置』の確認が必要です。(27ページ参照)

- ねじ (C1) × 3本を外し、スレッドモータを外します。
- 光ピックアップを外します。

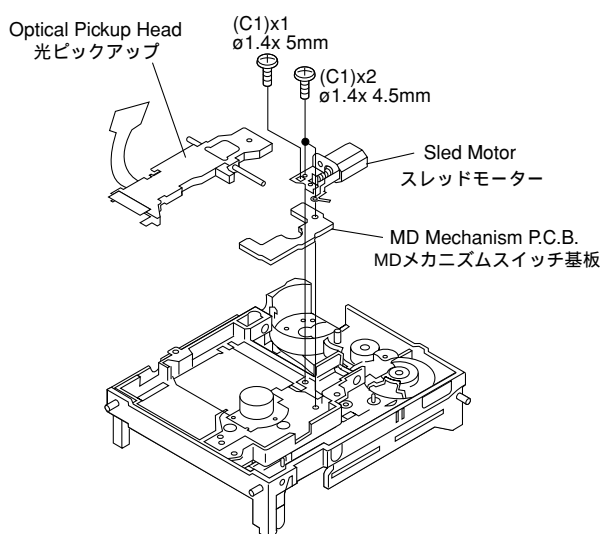
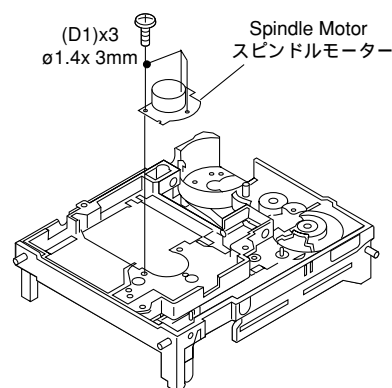
注意) ギヤを傷つけないように注意してください。  
(ギヤが傷つくと、サーチ時異音が発生する為)

- スピンドルモータの外し方 (Fig. 10 参照)
- スピンドルモータを外すと、『グレーティング調整』が必要です。(29ページ参照)

ねじ (D1) × 3本を外し、スピンドルモータを外します。

**注意**

- ギヤを傷つけないように注意してください。  
(ギヤが傷つくと、サーチ時異音が発生する為)
- ターンテーブルは磁化されていますので、異物吸着しないようにしてください。

**Fig. 9****Fig. 10**

## ■ ADJUSTMENT & TEST MODE

### Servicing Procedure

Perform adjustment and setup in the TEST mode. Specific adjustments and procedures vary depending on the type of servicing performed.

| Type of servicing                                 | Required item         |                                   |                             |                 |                     |                                    |                                                                       |          |
|---------------------------------------------------|-----------------------|-----------------------------------|-----------------------------|-----------------|---------------------|------------------------------------|-----------------------------------------------------------------------|----------|
|                                                   | TEMP standard setting | EEPROM setting value confirmation | AUTO preliminary adjustment | AUTO adjustment | AUTO AFB adjustment | EEPROM adjustment value entry (*1) | Operation confirmation<br>(With AUTO main adjustment done in advance) |          |
|                                                   | TEMP                  | EEPROM SET                        | AUT YOBI                    | AUTO AJST       | AUT AFB             | TEST mode cancel                   | TEST-PLAY                                                             | TEST-REC |
| PICKUP replacement                                | —                     | ①                                 | ②                           | ③               | ④                   | ⑤                                  | ⑥                                                                     | ⑦        |
| Magnetic head replacement                         | —                     | —                                 | —                           | —               | —                   | —                                  | —                                                                     | ①        |
| Mechanical unit replacement<br>(including PICKUP) | —                     | ①                                 | ②                           | ③               | ④                   | ⑤                                  | ⑥                                                                     | ⑦        |
| MD main PCB replacement                           | ①                     | ②                                 | ③                           | ④               | ⑤                   | ⑥                                  | ⑦                                                                     | ⑧        |
| MD microprocessor (IC1401)<br>replacement         | —                     | ①                                 | —                           | —               | —                   | ②                                  | ③                                                                     | ④        |
| MD LSI (IC1201) replacement                       | —                     | —                                 | ①                           | ②               | ③                   | ④                                  | ⑤                                                                     | ⑥        |
| RF IC (IC101) replacement                         | ①                     | ②                                 | ③                           | ④               | ⑤                   | ⑥                                  | ⑦                                                                     | ⑧        |
| EEPROM IC (IC1402) replacement                    | ①                     | ②                                 | ③                           | ④               | ⑤                   | ⑥                                  | ⑦                                                                     | ⑧        |

Numbers in the table, e.g., ①, ②, ③, indicate the order in which required items should be performed.

"—" means that item needs not be performed.

(\*1): The result of EEPROM entry is displayed at the end of the TEST mode.

OK\_EEPROM: Both "setting value" and "preliminary adjustment completed" have been entered properly.

WR\_EEPROM: The "setting value" has been entered properly but not "preliminary adjustment completed".  
Perform preliminary adjustment properly and then enter "preliminary adjustment completed".

NG\_EEPROM: The "setting value" has not been entered.  
Check the MD microprocessor and EEPROM for connection.

### Preparation before Adjustment

#### ● Test disc

| Type                 | Test disc                                         |
|----------------------|---------------------------------------------------|
| High reflecting disc | TDYS1 (SONY) [for reproduction] (P/No. TX945850)  |
| Low reflecting disc  | Commercially available mini disc for recording    |
| Low reflecting disc  | MMD-318 [for pre-adjustment] (P/No. AAX04890)     |
| -----                | Clear disc for checking the head (P/No. AAX18050) |

#### ● Extension cable (see connection diagram on page 28.)

| Type                                       | Part No. |
|--------------------------------------------|----------|
| 1. Extension P.C.B. for servicing          | AAX16660 |
| 2. 2-pin extension connector for servicing | AAX16620 |
| 3. 6-pin flat cable for servicing          | AAX16640 |
| 4. 5-pin flat cable for servicing          | TX946190 |
| 5. 28-pin flat cable for servicing         | TX946220 |

## ■ 調整及びテストモード

### サービス手順

修理内容により、テストモードでの調整及び設定を実施してください。

| 必要実施項目<br>修理内容            | TEMP<br>基準設定 | EEPROM<br>設定値確認 | AUTO-<br>YOBI調整 | AUTO-<br>本調整 | AUTO-<br>AFB調整 | EEPROM調整<br>値書込み ( * 1 ) | 動作確認<br>( 予めAUTO本調整実施後 ) |          |
|---------------------------|--------------|-----------------|-----------------|--------------|----------------|--------------------------|--------------------------|----------|
|                           | TEMP         | EEPROM_SET      | AUT_YOBI        | AUTO_AJST    | AUT_AFB        | テストモードの解除                | TEST-PLAY                | TEST-REC |
| PICK交換                    | -            |                 |                 |              |                |                          |                          |          |
| 磁気ヘッド交換                   | -            | -               | -               | -            | -              | -                        | -                        |          |
| メカ交換 ( PICK含む )           | -            |                 |                 |              |                |                          |                          |          |
| MDメイン基板交換                 |              |                 |                 |              |                |                          |                          |          |
| MDマイコン( IC1401 )<br>交換    | -            |                 | -               | -            | -              |                          |                          |          |
| MD LSK( IC1201 )交換        | -            | -               |                 |              |                |                          |                          |          |
| RF IQ( IC1101 )交換         |              |                 |                 |              |                |                          |                          |          |
| EEPROM IQ( IC1402 )<br>交換 |              |                 |                 |              |                |                          |                          |          |

は実施の順序を示しています。

「 - 」は実施不要項目

( \* 1 ) : テストモード終了時にEEPROMの書込み結果を表示します。

OK\_EEPROM : 「設定値」及び「予備調整完了済み」の書込みが正常に行われた。

WR\_EEPROM : 「設定値」の書込みは正常に行われたが、「予備調整完了済み」の書込みがされていない。

→ 予備調整を実施し正常に調整後、書込みを行ってください。

NG\_EEPROM : 「設定値」の書込みができなかった。

→ MDマイコンとEEPROMの接続をチェックしてください。

### 準備するもの

#### ● テストディスク

| 種類           | テストディスク              | 部品NO.     |
|--------------|----------------------|-----------|
| 1. 高反射ディスク   | TDYS1 ( SONY ) [再生用] | TX945850  |
| 2. 低反射ディスク   | 市販の録音用ミニディスク         | - - - - - |
| 3. 低反射ディスク   | MMD-318 [予備調整用]      | AAX04890  |
| 4. - - - - - | ヘッド確認用透明ディスク         | AAX18050  |

#### ● 延長ケーブル ( 接続図29ページ参照 )

| 種類                   | 部品NO.    |
|----------------------|----------|
| 1. サービス用延長基板         | AAX16660 |
| 2. サービス用2ピン延長コネクタ    | AAX16620 |
| 3. サービス用6ピンフラットケーブル  | AAX16640 |
| 4. サービス用5ピンフラットケーブル  | TX946190 |
| 5. サービス用28ピンフラットケーブル | TX946220 |

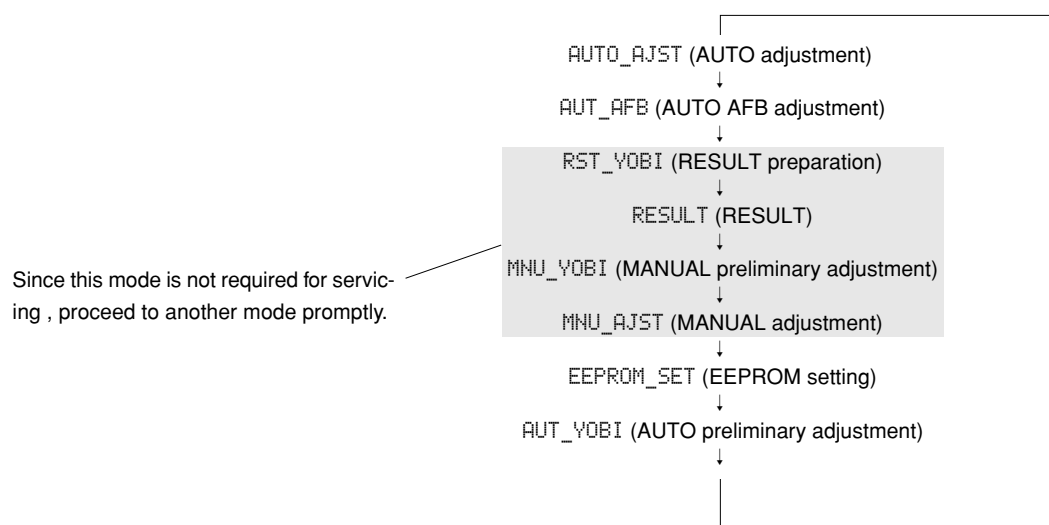
## TEST MODE

### 1. How to enter the test mode

- 1) Press the "STANDBY/ON" button while pressing the "□" button and the "INPUT" button and then release your fingers from those buttons.  
"EJECT" is displayed.
- 2) Load either a disc for reproduction or a disc for recording.  
"AUTO AJST" is displayed.

### 2. How to set to each mode

Every time the DISPLAY (forward) or EDIT (reverse) button on the remote control unit is pressed, the mode changes.  
(For operation of each mode, refer to the section describing each mode.)



### 3. How to cancel test mode (Entry of EEPROM adjustment value)

- 1) Be sure to perform AUTO preliminary adjustment, AUTO adjustment and AUTO AFB adjustment.  
( "COMPLETE" is displayed.)
- 2) After completing above adjustments, press the REC/PAUSE button (REMOCON). (Entry to EEPROM initiates then.)  
The TEST mode is completed. ( "Test End" is displayed.)
- 3) Press the "△" button to take out the disc.
- 4) Turn off the power.

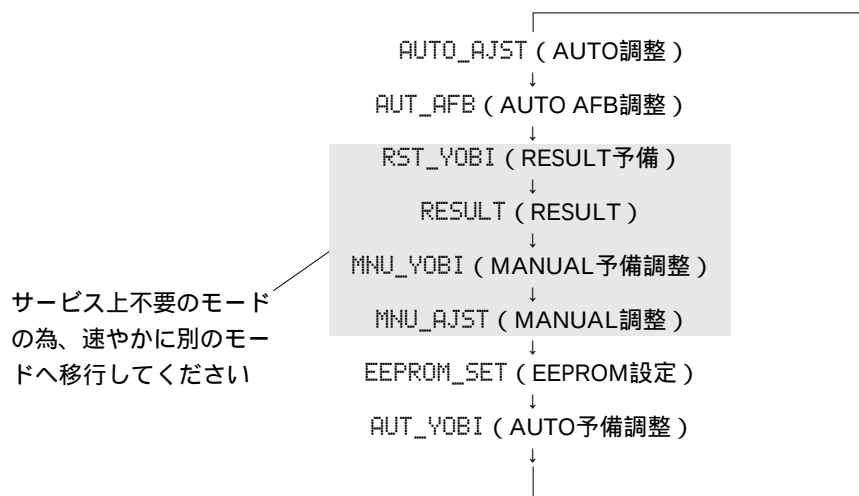
## テストモード

### 1. テストモードの入り方

- 1) “□”ボタンと“INPUT”ボタンを押しながら“STANDBY/ON”ボタンを押した後、これらのボタンから指を離します。  
『EJECT』と表示します。..... EJECTモード
- 2) 再生用ディスク又は録音用ディスクを入れます。  
『AUTO AJST』と表示します。..... AUTO調整モード  
以上でテストモード状態になります。

### 2. 各モードの入り方

リモコンのDISPLAYボタン( 順送り )/ EDITボタン( 逆送り )を押すたびに、各モードに変化します。  
( 各モードの操作については各モードの項を参照してください。 )



### 3. テストモードの解除 (EEPROM調整値書き込み)

- 1) 必ずAUTO予備調整・AUTO調整・AUTO AFB調整を実施してください。
- 2) 上記調整終了後、リモコンのREC/PAUSEボタンを押します。(これよりEEPROMに書き込みます。)  
テストモードが終了します。(Test End表示)
- 3) “△”ボタンを押し、ディスクを取り出します。
- 4) 電源を切ります。

## Details of Test Mode

### 1. EJECT mode

| Step | Setting method                            | Remark                                                                            | Display              |
|------|-------------------------------------------|-----------------------------------------------------------------------------------|----------------------|
| 1    | EJECT status in the TEST mode             | EJECT menu (No disc is loaded.)                                                   | [ __ EJECT __ ]      |
| 2    | Press the INPUT button (REMOCON).         | Reproduction power output status                                                  | [ PPW _____ ]        |
| 3    | Press the INPUT button (REMOCON).         | Recording power output status                                                     | [ RPW _____ ]        |
| 4    | Press the INPUT button (REMOCON).         | Since this mode is not required for servicing , proceed to another mode promptly. | [ xPW _____ ]        |
| 5    | Press the TITLE edit button (REMOCON).    | To TEMP setting<br>(Refer to TEMP setting)                                        | [ TEMP _ 0 0 _ ◆ ◆ ] |
| 6    | Press the CHARA. button (REMOCON).        | To CONTROL1 setting                                                               | [ CONTROL1 _ 08 ]    |
| 7    | Press the DISPLAY button (REMOCON).       | To CONTROL2 setting                                                               | [ CONTROL2 _ 02 ]    |
| 8    | Press the DELETE/CANCEL button (REMOCON). | EJECT menu                                                                        | [ __ EJECT __ ]      |

| Check procedure | Mode                         | Check item<br>(Pin 3 of IC1401) | Judgement                | Possible cause and check content |
|-----------------|------------------------------|---------------------------------|--------------------------|----------------------------------|
| ①               | Playback power output "ppw"  | DC 0.2V                         | OK (Move on to check ②.) | —                                |
|                 |                              | DC 1.5V                         | NG                       | Perform *1.                      |
| ②               | Recording power output "rpw" | DC 1.8V                         | OK (End of checking.)    | —                                |
|                 |                              | Less than DC1.5V                | NG                       | Perform *2.                      |
|                 | "rpw" not achieved.          | —                               | NG                       | Perform *1.                      |

\*1: Poor soldering of the line at Pin 100 of IC1401.

Check the line of Pin 93 of IC1401 for short and poor soldering. (Check all the way to the SW P.C.B.)

\*2: Check the line of Pin 3 of IC1401 for poor soldering and short with other patterns.

Check the pick-up laser for breakage.

#### ● Confirmation of pick-up laser power

Recording and reproduction can be checked by using the laser power meter. However it should be used for checking only because there is variation in its measurement. When the measured value is excessively deviated from the reference value, replace the pick-up.

Reference value (measured at room temperature of 25 °C)

During reproduction (ppw) :  $0.72 \pm 0.1$  mW

During recording :  $5.5 \pm 0.5$  mW

Note : Be very careful when using the laser power meter.

The laser beam would cause damage to your eye if exposed to it directly.

#### ● TEMP (temperature standard) setting

(Make this setting quickly when the room temperature is within the range of 21 °C to 29 °C and the P.C.B. is cold.)

(1) Set to the TEMP setting mode menu.

[ TEMP 00 ◆ ◆ ]

00 : Temperature measured value

◆ ◆ : Temperature setting value

(2) Make temperature correction based on the ambient temperature and according to the following table.

| Ambient temperature   | Correction value |
|-----------------------|------------------|
| + 21.0 °C ~ + 23.2 °C | — 1H             |
| + 23.3 °C ~ + 26.8 °C | ± 0H             |
| + 26.9 °C ~ + 30.7 °C | + 1H             |

**Example :** When the temperature measured value is 7AH and the ambient temperature is 22 °C:

7AH (measured value) - 01H (correction value) = 79H (setting value)

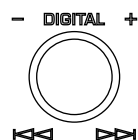
\* If the temperature measured value deflects between two values, use the smaller value (If 7AH and 79H in the above example, use 79H.)

(3) Using the jog dial, match the value obtained in Step (2) with the temperature setting value.

**Example :** When the temperature measured value is 7AH and the ambient temperature is 22 °C:

[ TEMP 7A 79 ]

Temperature setting value



(Jog dial)

## テストモード詳細

## 1. EJECTモード

| ステップNO. | 設定方法                     | 備 考                                  | 表 示            |
|---------|--------------------------|--------------------------------------|----------------|
| ステップ1   | テストモードEJECT状態            | EJECTメニュー（ディスクが挿入されていない状態）           | 『__EJECT__』    |
| ステップ2   | リモコンのINPUTボタンを押す         | 再生パワー出力状態                            | 『ppw__』        |
| ステップ3   | リモコンのINPUTボタンを押す         | 記録パワー出力状態                            | 『rpw__』        |
| ステップ4   | リモコンのINPUTボタンを押す         | サービス上不要のモードの為、<br>速やかに別のモードへ移行してください | 『xpw__』        |
| ステップ5   | リモコンのTITLEボタンを押す         | TEMP設定へ<br>（TEMP設定参照）                | 『TEMP__』       |
| ステップ6   | リモコンのCHARA.ボタンを押す        | CONTROL1設定                           | 『CONTROL1__08』 |
| ステップ7   | リモコンのDISPLAYボタンを押す       | CONTROL2設定                           | 『CONTROL2__02』 |
| ステップ8   | リモコンのDELETE/CANCELボタンを押す | EJECTメニュー                            | 『__EJECT__』    |

| チェック手順 | モード          | チェック項目<br>IC1401の3番ピン | 判定         | 考えられる原因とチェック内容 |
|--------|--------------|-----------------------|------------|----------------|
|        | 再生パワー出力『ppw』 | DC0.2V                | OK（チェックへ）  | -              |
|        |              | DC1.5V                | NG         | *1を実施。         |
|        | 記録パワー出力『rpw』 | DC1.8V                | OK（チェック終了） | -              |
|        |              | DC1.5V未満              | NG         | *2を実施          |
|        | 『rpw』にならない   | -                     | NG         | *1を実施。         |

\* 1 : IC1401の100番PINライン半田付け不良。

IC1401の93番PINラインのショート及び半田付け不良チェック（SW基板までチェックのこと）

\* 2 : IC1401の3番PINライン半田付け不良及び他のパターンとのショートチェック。

ピックアップレーザが壊れていないかチェック。

### ● ピックアップレーザパワーの確認

レーザパワーメータにて記録・再生時の確認ができます。但し、レーザパワーメータの測定ばらつき等がありますので確認のみとします。

大きくずれている場合はピックアップを交換します。

参考値（室温25 の時）

再生時（ppw） 0.72±0.1mW

録音時（vpw） 5.5±0.5mW

注）レーザ光を直視すると目を痛めますので十分注意してください。

### ● TEMP（温度基準）設定

（室温21 ～29 内で、基板が熱を持っていない状態にて素早く行ってください。）

1) TEMP設定モードメニューにします。

『TEMP\_\_』

\_\_ : 温度測定値, \_\_ : 温度設定値

2) 周囲温度により、下表に基づいて温度補正を行います。

| 周囲温度          | 補正值 |
|---------------|-----|
| +21 ～ +23.2   | -1H |
| +23.3 ～ +26.8 | ±0H |
| +26.9 ～ +30.7 | +1H |

例：温度測定値が7AHで周囲温度22 の場合

7AH（測定値） - 01H（補正值） = 79H（設定値）

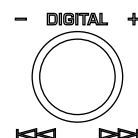
\* 温度測定値が2 値の間でちらつく場合、小さい値 7AHと79H なら79H を測定値とします。

3) 上記にて求めた値と温度設定値が、同じ値となるようにジョグダイヤルで合わせます。

例：温度測定値が7AHで周囲温度22 の場合

『TEMP 7A 79』

（温度設定値）



（ジョグダイヤル）

## 2. AUTO preliminary adjustment mode Disc in use: MMD-318 [for pre-adjustment]

| Step | Setting method                                                                                            | Remark                                                                                                                                                                                                                                                             | Display                                                           |
|------|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1    | Set the Test mode.                                                                                        | No disc is loaded.                                                                                                                                                                                                                                                 | [ EJECT ]                                                         |
| 2    | Load a disc.                                                                                              | Auto adjustment menu                                                                                                                                                                                                                                               | [ LOADING ]<br>[ AUTO _ AJST _ ]                                  |
| 3    | Press the EDIT button (REMOCON) once.                                                                     | Auto preliminary adjustment menu                                                                                                                                                                                                                                   | [ _ AUT _ YOBI _ ]                                                |
| 4    | Press the SET/ENTER button (REMOCON) once.<br><br>Adjusted values are output.<br>Adjustment is completed. | Auto preliminary adjustment is started after sliding to the innermost track.<br>“ *** ” changes in the following order during automatic adjustment.<br>HAo -> ..... -> TCO<br>Proceed to Step 5 when adjustment is OK.<br>Proceed to Step 6 when adjustment is NG. | [ *** : _ _ _ _ _ ]<br><br>[ _ COMPLETE _ ]<br>[ Can't _ ADJ. _ ] |
| 5    | When adjustment is OK, press the DELETE/CANCEL button (REMOCON).                                          | The display returns to the AUTO preliminary adjustment menu.                                                                                                                                                                                                       | [ _ AUT _ YOBI _ ]                                                |
| 6    | When adjustment is NG, press the DELETE/CANCEL button (REMOCON).                                          | There is an abnormality at the adjusted point such as HAo.<br>Refer to “Troubleshooting”. (page 36)                                                                                                                                                                | [ Can't _ ADJ. _ ]                                                |

## 3. AUTO adjustment mode Disc in use: TDYS1 (SONY) [for reproduction] or commercially available mini disc for recording

| Step | Setting method                                                                                            | Remark                                                                                                                                                                                                                                                                                                                                                                                                                   | Display                                                           |
|------|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1    | Set the TEST mode.                                                                                        | No disc is loaded.                                                                                                                                                                                                                                                                                                                                                                                                       | [ EJECT ]                                                         |
| 2    | Load a disc.                                                                                              | AUTO adjustment menu                                                                                                                                                                                                                                                                                                                                                                                                     | [ LOADING ]<br>[ AUTO _ AJST _ ]                                  |
| 3    | Press the SET/ENTER button (REMOCON) once.<br><br>Adjusted values are output.<br>Adjustment is completed. | Automatic adjustment is started after sliding to the innermost track.<br>“ *** ” changes in the following order when a high reflecting disc (disc for reproduction) is used.<br>PEG -> HAG<br>“ *** ” changes in the following order when a low reflecting disc (disc for recording) is used.<br>PEG -> LAG -> GCG -> GEG -> LAG<br>Proceed to Step 4 when adjustment is OK.<br>Proceed to Step 6 when adjustment is NG. | [ *** : _ _ _ _ _ ]<br><br>[ _ COMPLETE _ ]<br>[ Can't _ ADJ. _ ] |
| 4    | When adjustment is OK, press the SET/ENTER button (REMOCON).                                              | Continuous reproduction (bit section) (Address + C1 error display)<br>Continuous reproduction (group section) (Address + C1 error display)                                                                                                                                                                                                                                                                               | [ s XXXX c YYYY ]<br>[ a XXXX c YYYY ]                            |
| 5    | Press the INPUT button.<br>Press the DELETE/CANCEL button (REMOCON).                                      | Continuous reproduction (group section) (Address + ADIP error display)<br>Display returns to the AUTO adjustment menu display.                                                                                                                                                                                                                                                                                           | [ a XXXX a YYYY ]<br>[ AUTO _ AJST _ ]                            |
| 6    | When adjustment is NG, press the DELETE/CANCEL button (REMOCON).                                          | There is an abnormality at the adjusted point such as PEG.<br>Refer to “Troubleshooting”. (page 36)                                                                                                                                                                                                                                                                                                                      | [ Can't _ ADJ. _ ]                                                |

Note) \*\*\* : Adjustment name, XXXX: Address, YYYY: Measured value

## 4. AUTO AFB adjustment mode Disc in use: Commercially available mini disc for recording

| Step | Setting method                             | Remark                                                         | Display                                |
|------|--------------------------------------------|----------------------------------------------------------------|----------------------------------------|
| 1    | Set the Test mode.                         | No disc is loaded.                                             | [ EJECT ]                              |
| 2    | Load a disc.                               | Auto adjustment menu                                           | [ LOADING ]<br>[ AUTO _ AJST _ ]       |
| 3    | Press the DISPLAY button (REMOCON) once.   | Auto AFB adjustment menu                                       | [ _ AUT _ AFB _ ]                      |
| 4    | Press the SET/ENTER button (REMOCON) once. | Auto AFB adjustment is started.<br>Adjusted values are output. | [ FAB YY _ ZZZZ ]<br>[ YY _ ZZZZ _ _ ] |
| 5    | Press the DELETE/CANCEL button (REMOCON).  | The display returns to the AUTO AFB adjustment menu.           | [ _ AUT _ AFB _ ]                      |

Note) YY, ZZZZ: Measured value

## 2. AUTO予備調整モード 使用するディスク：MMD-318[予備調整用]

| ステップNO. | 設定方法                                | 備 考                                                                                                       | 表 示                                              |
|---------|-------------------------------------|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| ステップ1   | テストモードEJECT状態                       | EJECTメニュー（ディスクが挿入されていない状態）                                                                                | 『__EJECT__』                                      |
| ステップ2   | ディスクを入れる                            | AUTO調整メニュー                                                                                                | 『LOADING』<br>『AUTO_AJST__』                       |
| ステップ3   | リモコンのEDITボタンを1回押す                   | AUTO予備調整メニュー                                                                                              | 『__AUT_YOBI__』                                   |
| ステップ4   | リモコンのSET/ENTERボタンを1回押す<br><br>調整終了  | スライド最内周移動し自動予備調整に入る<br>・自動調整中        は次のように変化する。<br>HA0→ . . . . . →TCO<br>調整OKの場合はステップ5<br>調整NGの場合はステップ6 | 『 : _____』<br><br>『__COMPLETE__』<br>『Can't_ADJ.』 |
| ステップ5   | 調整OKの場合<br>リモコンのDELETE/CANCELボタンを押す | AUTO予備調整メニュー表示に戻す                                                                                         | 『__AUT_YOBI__』                                   |
| ステップ6   | 調整NGの場合<br>リモコンのDELETE/CANCELボタンを押す | HA0等の調整箇所に変異があります。<br>トラブルシューティングを参照（37ページ）                                                               | 『Can't_ADJ.』                                     |

## 3. AUTO調整モード 使用するディスク：TDYS1(SONY)[再生用]または市販の録音用ミニディスク

| ステップNO. | 設定方法                                         | 備 考                                                                                                                                                           | 表 示                                              |
|---------|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| ステップ1   | テストモードEJECT状態                                | EJECTメニュー（ディスクが挿入されていない状態）                                                                                                                                    | 『__EJECT__』                                      |
| ステップ2   | ディスクを入れる                                     | AUTO調整メニュー                                                                                                                                                    | 『LOADING』<br>『AUTO_AJST__』                       |
| ステップ3   | リモコンのSET/ENTERボタンを1回押す<br><br>調整値出力<br>調整終了  | スライド最内周移動し自動調整に入る<br>・高反射ディスク（再生ディスク）時    は次のように変化する。<br>PEG→HAg<br>・低反射ディスク（録音ディスク）時    は次のように変化する。<br>PEG→LAg→GCG→GEG→LAG<br>調整OKの場合はステップ4<br>調整NGの場合はステップ6 | 『 : _____』<br><br>『__COMPLETE__』<br>『Can't_ADJ.』 |
| ステップ4   | 調整OKの場合<br>リモコンのSET/ENTERボタンを押す              | 連続再生（ピット部）（アドレス+C1エラー表示）<br>連続再生（グループ部）（アドレス+C1エラー表示）                                                                                                         | 『s□□□□c○○○○』<br>『a□□□□c○○○○』                     |
| ステップ5   | リモコンのINPUTボタンを押す<br>リモコンのDELETE/CANCELボタンを押す | 連続再生（グループ部）（アドレス+ADIPエラー表示）<br>AUTO調整メニュー表示に戻す。                                                                                                               | 『a□□□□a○○○○』<br>『AUTO_AJST__』                    |
| ステップ6   | 調整NGの場合<br>リモコンのDELETE/CANCELボタンを押す          | PEG等の調整箇所に変異があります。<br>トラブルシューティングを参照（37ページ）                                                                                                                   | 『Can't_ADJ.』                                     |

・        : 調整名, ○○○○ : 測定値, □□□□ : アドレス

## 4. AUTO AFB調整モード 使用するディスク：市販の録音用ミニディスク

| ステップNO. | 設定方法                     | 備 考                        | 表 示                         |
|---------|--------------------------|----------------------------|-----------------------------|
| ステップ1   | テストモードEJECT状態            | EJECTメニュー（ディスクが挿入されていない状態） | 『__EJECT__』                 |
| ステップ2   | ディスクを入れる                 | AUTO調整メニュー                 | 『LOADING』<br>『AUTO_AJST__』  |
| ステップ3   | リモコンのDISPLAYボタンを1回押す     | AUTO AFB調整メニュー             | 『__AUT_AFB__』               |
| ステップ4   | リモコンのSET/ENTERボタンを1回押す   | 自動調整に入る<br>調整値を表示          | 『FAB○○__』<br>『○○__        』 |
| ステップ5   | リモコンのDELETE/CANCELボタンを押す | AUTO AFB調整メニュー表示に戻す        | 『__AUT_AFB__』               |

・○○,        : 測定値

## 5. EEPROM setting mode

Disc in use: Commercially available mini disc for recording

(used to confirm/adjust setting values)

1) Start the TEST mode.

2) Load the disc.

[AUTO AJST]

3) Press the DISPLAY button (REMOCON) 6 times.

[EEPROM SET]

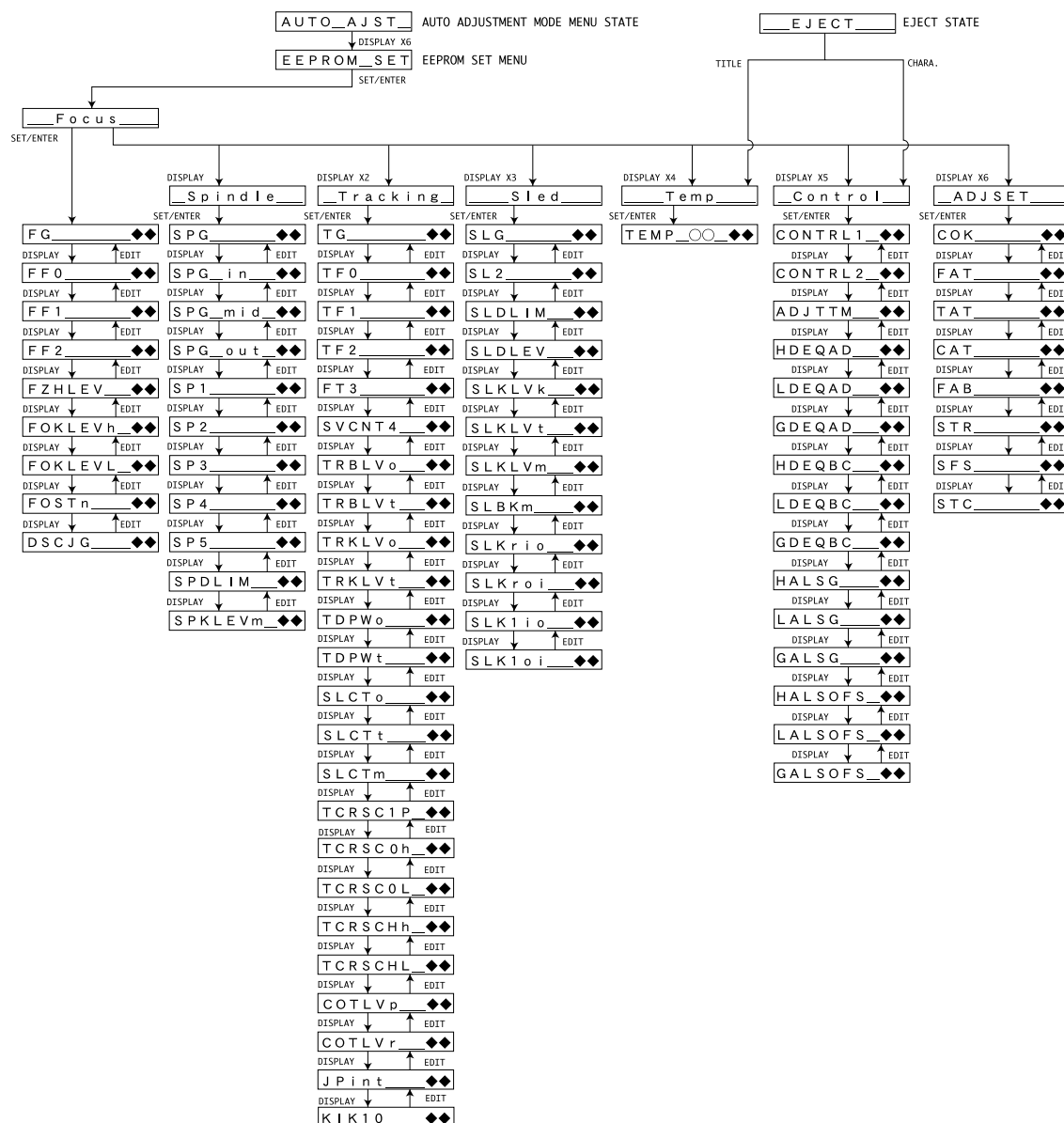
4) Execute the procedure to have "EEPROM setting mode transition diagram" displayed and adjust the jog dial so that the same setting values as those in "EEPROM contents list" are obtained.  
(Refer to p.16 for TEMP setting.)

5) Press the REC/PAUSE button (REMOCON) to cancel the TEST mode.

(Entry into EEPROM can be started here.)

6) Set to the TEST mode again and perform AUTO preliminary adjustment, AUTO adjustment and AUTO AFB adjustment.

## EEPROM SETTING MODE TRANSITION DIAGRAM



Note) To return to the SUB MENU or MAIN MENU display of the test mode, press the DELETE/CANCEL button.

## EEPROM CONTENTS LIST

## ● Focus setting (Focus)

| Item on display | Set value       |
|-----------------|-----------------|
| FG ○○           | B1 <sub>H</sub> |
| FF0 ○○          | 10 <sub>H</sub> |
| FF1 ○○          | 70 <sub>H</sub> |
| FF2 ○○          | E0 <sub>H</sub> |
| FZHLEV ○○       | ED <sub>H</sub> |
| FOKLEVh ○○      | 07 <sub>H</sub> |
| FOKLEVL ○○      | 09 <sub>H</sub> |
| F0STn ○○        | 2C <sub>H</sub> |
| DISCJG ○○       | 14 <sub>H</sub> |

## ● Spin setting (Spindle)

| Item on display | Set value       |
|-----------------|-----------------|
| SPG ○○          | 10 <sub>H</sub> |
| SPG-in ○○       | 5C <sub>H</sub> |
| SPG-mid ○○      | 48 <sub>H</sub> |
| SPG-out ○○      | 38 <sub>H</sub> |
| SP1 ○○          | 10 <sub>H</sub> |
| SP2 ○○          | 93 <sub>H</sub> |
| SP3 ○○          | ED <sub>H</sub> |
| SP4 ○○          | EE <sub>H</sub> |
| SP5 ○○          | 20 <sub>H</sub> |
| SPDLIM ○○       | 64 <sub>H</sub> |
| SPKLEVm ○○      | 15 <sub>H</sub> |

## ● Tracking setting (Tracking)

| Item on display | Set value       |
|-----------------|-----------------|
| TG ○○           | 6B <sub>H</sub> |
| TF0 ○○          | 10 <sub>H</sub> |
| TF1 ○○          | 6B <sub>H</sub> |
| TF2 ○○          | F0 <sub>H</sub> |
| FT3 ○○          | 08 <sub>H</sub> |
| SVCNT4 ○○       | 01 <sub>H</sub> |
| TRBLV0 ○○       | 68 <sub>H</sub> |
| TRBLVt ○○       | 50 <sub>H</sub> |
| TRKLV0 ○○       | 60 <sub>H</sub> |
| TRKLVt ○○       | 2E <sub>H</sub> |
| TDPW0 ○○        | 67 <sub>H</sub> |
| TDPWt ○○        | 21 <sub>H</sub> |
| SLCT0 ○○        | 00 <sub>H</sub> |
| SLCTt ○○        | 50 <sub>H</sub> |
| SLCTm ○○        | 53 <sub>H</sub> |
| TCRSC1P ○○      | 16 <sub>H</sub> |
| TCRSC0h ○○      | 00 <sub>H</sub> |
| TCRSC0L ○○      | FA <sub>H</sub> |
| TCRSC0h ○○      | 02 <sub>H</sub> |
| TCRSC0L ○○      | 02 <sub>H</sub> |
| COTLVP ○○       | 05 <sub>H</sub> |
| COTLVr ○○       | 15 <sub>H</sub> |
| JPint ○○        | 00 <sub>H</sub> |
| KIK10 ○○        | 64 <sub>H</sub> |

## ● Slide setting (Sled)

| Item on display | Set value       |
|-----------------|-----------------|
| SLG ○○          | 3E <sub>H</sub> |
| SL2 ○○          | 10 <sub>H</sub> |
| SLDLIM ○○       | 7F <sub>H</sub> |
| SLDLEV ○○       | 12 <sub>H</sub> |
| SLKLVk ○○       | 55 <sub>H</sub> |
| SLKLVt ○○       | 2E <sub>H</sub> |
| SLKLVm ○○       | 55 <sub>H</sub> |
| SLBKm ○○        | 08 <sub>H</sub> |
| SLKrio ○○       | 60 <sub>H</sub> |
| SLKroi ○○       | 68 <sub>H</sub> |
| SLKlio ○○       | 68 <sub>H</sub> |
| SLKloi ○○       | 60 <sub>H</sub> |

## ● Control setting (Control)

| Item on display | Set value       |
|-----------------|-----------------|
| CONTROL1 ○○     | 08 <sub>H</sub> |
| CONTROL2 ○○     | 02 <sub>H</sub> |
| ADJTTM ○○       | 14 <sub>H</sub> |
| HDEQAD ○○       | 92 <sub>H</sub> |
| LDEQAD ○○       | 8E <sub>H</sub> |
| GDEQAD ○○       | 91 <sub>H</sub> |
| MDEQBC ○○       | 8C <sub>H</sub> |
| LDEQBC ○○       | 8F <sub>H</sub> |
| GDEQBC ○○       | 8A <sub>H</sub> |
| HALSG ○○        | 11 <sub>H</sub> |
| LALSG ○○        | 11 <sub>H</sub> |
| GALSG ○○        | 11 <sub>H</sub> |
| HALS0FS ○○      | FC <sub>H</sub> |
| LALS0FS ○○      | 00 <sub>H</sub> |
| GALS0FS ○○      | 00 <sub>H</sub> |

## ● Adjust setting (ADJSET)

| Item on display | Set value       |
|-----------------|-----------------|
| COK ○○          | 58 <sub>H</sub> |
| FAT ○○          | C0 <sub>H</sub> |
| TAT ○○          | 3E <sub>H</sub> |
| CAT ○○          | 40 <sub>H</sub> |
| FAB ○○          | 5C <sub>H</sub> |
| STR ○○          | 0B <sub>H</sub> |
| SFS ○○          | 0D <sub>H</sub> |
| STC ○○          | 0D <sub>H</sub> |

- 1) テストモードを立ち上げます。
- 2) ディスクをいれます。  
『 A U T O   A J S T   』
- 3) リモコンのDISPLAYボタンを6回押します。  
『 E E P R O M   S E T   』
- 4) 『EEPROM設定モード遷移図』に示す操作を行い、  
『EEPROM内容一覧』と全て同じ設定値になるよう  
に、ジョグダイヤルにて調整します。  
(TEMP 設定は17ページを参照)
- 5) リモコンのREC/PAUSEボタンを押してテストモード  
を解除します。(これよりEEPROMに書き込みます。)
- 6) 再度テストモードに入り、AUTO予備調整・AUTO調  
整・AUTO AFB調整を実施します。

```

graph TD
    AA[AUTO_AJST] -- "DISPLAY X6" --> EPS[EEPROM_SET]
    EPS -- "SET/ENTER" --> Focus[Focus]
    Focus -- "SET/ENTER" --> SPG[SPG]
    Focus -- "SET/ENTER" --> TGT[TGT]
    Focus -- "DISPLAY" --> SLG[SLG]
    Focus -- "DISPLAY" --> TEMP[TEMP]
    Focus -- "DISPLAY" --> CTRL1[CTRL1]
    Focus -- "DISPLAY" --> ADJSET[ADJSET]

    SPG -- "SET/ENTER" --> FG[FG]
    SPG -- "SET/ENTER" --> SPG_in[SPG_in]
    SPG -- "SET/ENTER" --> SPG_mid[SPG_mid]
    SPG -- "SET/ENTER" --> SPG_out[SPG_out]
    SPG -- "SET/ENTER" --> SP1[SP1]
    SPG -- "SET/ENTER" --> SP2[SP2]
    SPG -- "SET/ENTER" --> SP3[SP3]
    SPG -- "SET/ENTER" --> SP4[SP4]
    SPG -- "SET/ENTER" --> SP5[SP5]
    SPG -- "SET/ENTER" --> SPDLIM[SPDLIM]
    SPG -- "SET/ENTER" --> SPKLEVm[SPKLEVm]

    TGT -- "SET/ENTER" --> TGT --> TF0[TF0]
    TGT -- "SET/ENTER" --> TF1[TF1]
    TGT -- "SET/ENTER" --> TF2[TF2]
    TGT -- "SET/ENTER" --> FT3[FT3]
    TGT -- "SET/ENTER" --> SVCNT4[SVCNT4]
    TGT -- "SET/ENTER" --> TRBLVo[TRBLVo]
    TGT -- "SET/ENTER" --> TRBLVt[TRBLVt]
    TGT -- "SET/ENTER" --> TRKLVo[TRKLVo]
    TGT -- "SET/ENTER" --> TRKLVt[TRKLVt]
    TGT -- "SET/ENTER" --> TDPWo[TDPWo]
    TGT -- "SET/ENTER" --> TDPWt[TDPWt]
    TGT -- "SET/ENTER" --> SLCTo[SLCTo]
    TGT -- "SET/ENTER" --> SLCTt[SLCTt]
    TGT -- "SET/ENTER" --> SLCTm[SLCTm]
    TGT -- "SET/ENTER" --> TCRSC1P[TCRSC1P]
    TGT -- "SET/ENTER" --> TCRSC0h[TCRSC0h]
    TGT -- "SET/ENTER" --> TCRSC0L[TCRSC0L]
    TGT -- "SET/ENTER" --> TCRSCHh[TCRSCHh]
    TGT -- "SET/ENTER" --> TCRSCHL[TCRSCHL]
    TGT -- "SET/ENTER" --> COTLVp[COTLVp]
    TGT -- "SET/ENTER" --> COTLVr[COTLVr]
    TGT -- "SET/ENTER" --> JPint[JPint]
    TGT -- "SET/ENTER" --> KIK10[KIK10]

    SLG -- "SET/ENTER" --> SLG --> SL2[SL2]
    SLG -- "SET/ENTER" --> SLDLIM[SLDLIM]
    SLG -- "SET/ENTER" --> SLDLEV[SLDLEV]
    SLG -- "SET/ENTER" --> SLKLVk[SLKLVk]
    SLG -- "SET/ENTER" --> SLKLVm[SLKLVm]
    SLG -- "SET/ENTER" --> SLBKm[SLBKm]
    SLG -- "SET/ENTER" --> SLKrio[SLKrio]
    SLG -- "SET/ENTER" --> SLKroi[SLKroi]
    SLG -- "SET/ENTER" --> SLK1io[SLK1io]
    SLG -- "SET/ENTER" --> SLK1oi[SLK1oi]

    TEMP -- "SET/ENTER" --> TEMP[TEMP]

    CTRL1 -- "SET/ENTER" --> CTRL1 --> CONTRL1[CONTRL1]
    CTRL1 -- "SET/ENTER" --> CONTRL2[CONTRL2]
    CTRL1 -- "SET/ENTER" --> ADJTm[ADJTm]
    CTRL1 -- "SET/ENTER" --> HDEQAD[HDEQAD]
    CTRL1 -- "SET/ENTER" --> LDEQAD[LDEQAD]
    CTRL1 -- "SET/ENTER" --> GDEQAD[GDEQAD]
    CTRL1 -- "SET/ENTER" --> HDEQBC[HDEQBC]
    CTRL1 -- "SET/ENTER" --> LDEQBC[LDEQBC]
    CTRL1 -- "SET/ENTER" --> GDEQBC[GDEQBC]
    CTRL1 -- "SET/ENTER" --> HALSG[HALSG]
    CTRL1 -- "SET/ENTER" --> LALSG[LALSG]
    CTRL1 -- "SET/ENTER" --> GALSG[GALSG]
    CTRL1 -- "SET/ENTER" --> HALSOFs[HALSOFs]
    CTRL1 -- "SET/ENTER" --> LALSOFs[LALSOFs]
    CTRL1 -- "SET/ENTER" --> GALSOFs[GALSOFs]

    ADJSET -- "SET/ENTER" --> ADJSET --> COK[COK]
    ADJSET -- "SET/ENTER" --> FAT[FAT]
    ADJSET -- "SET/ENTER" --> TAT[TAT]
    ADJSET -- "SET/ENTER" --> CAT[CAT]
    ADJSET -- "SET/ENTER" --> FAB[FAB]
    ADJSET -- "SET/ENTER" --> STR[STR]
    ADJSET -- "SET/ENTER" --> SFS[SFS]
    ADJSET -- "SET/ENTER" --> STC[STC]
  
```

22

## EEPROM内容一覧

## ● フォーカス設定 (Focus)

| 項目表示                       | 設定値   |
|----------------------------|-------|
| F G                    ○ ○ | B 1 H |
| F F 0                  ○ ○ | 1 0 H |
| F F 1                  ○ ○ | 7 0 H |
| F F 2                  ○ ○ | E 0 H |
| F Z H L E V          ○ ○   | E D H |
| F O K L E V h        ○ ○   | 0 7 H |
| F O K L E V L        ○ ○   | 0 9 H |
| F O S T n            ○ ○   | 2 C H |
| D S C J G            ○ ○   | 1 4 H |

## ● スピン設定 (Spindle)

| 項目表示                         | 設定値   |
|------------------------------|-------|
| S P G                    ○ ○ | 1 0 H |
| S P G - i n            ○ ○   | 5 C H |
| S P G - m i d        ○ ○     | 4 8 H |
| S P G - o u t        ○ ○     | 3 8 H |
| S P 1                    ○ ○ | 1 0 H |
| S P 2                    ○ ○ | 9 3 H |
| S P 3                    ○ ○ | E D H |
| S P 4                    ○ ○ | E E H |
| S P 5                    ○ ○ | 2 0 H |
| S P D L I M            ○ ○   | 6 4 H |
| S P K L E V m        ○ ○     | 1 5 H |

## ● トラッキング設定 (Tracking)

| 項目表示                       | 設定値   |
|----------------------------|-------|
| T G                    ○ ○ | 6 B H |
| T F 0                  ○ ○ | 1 0 H |
| T F 1                  ○ ○ | 6 B H |
| T F 2                  ○ ○ | F 0 H |
| F T 3                  ○ ○ | 0 8 H |
| S V C N T 4          ○ ○   | 0 1 H |
| T R B L V o            ○ ○ | 6 8 H |
| T R B L V t            ○ ○ | 5 0 H |
| T R K L V o            ○ ○ | 6 0 H |
| T R K L V t            ○ ○ | 2 E H |
| T D P W o            ○ ○   | 6 7 H |
| T D P W t            ○ ○   | 2 1 H |
| S L C T o              ○ ○ | 0 0 H |
| S L C T t              ○ ○ | 5 0 H |
| S L C T m              ○ ○ | 5 3 H |
| T C R S C 1 P        ○ ○   | 1 6 H |
| T C R S C 0 h        ○ ○   | 0 0 H |
| T C R S C 0 L        ○ ○   | F A H |
| T C R S C H h        ○ ○   | 0 2 H |
| T C R S C H L        ○ ○   | 0 2 H |
| C O T L V P            ○ ○ | 0 5 H |
| C O T L V r            ○ ○ | 1 5 H |
| J P i n t              ○ ○ | 0 0 H |
| K I K 1 0            ○ ○   | 6 4 H |

## ● スライド設定 (Sled)

| 項目表示                         | 設定値   |
|------------------------------|-------|
| S L G                    ○ ○ | 3 E H |
| S L 2                    ○ ○ | 1 0 H |
| S L D L I M            ○ ○   | 7 F H |
| S L D L E V            ○ ○   | 1 2 H |
| S L K L V k            ○ ○   | 5 5 H |
| S L K L V t            ○ ○   | 2 E H |
| S L K L V m            ○ ○   | 5 5 H |
| S L B K m              ○ ○   | 0 8 H |
| S L K r i o            ○ ○   | 6 0 H |
| S L K r o i            ○ ○   | 6 8 H |
| S L K 1 i o            ○ ○   | 6 8 H |
| S L K 1 o i            ○ ○   | 6 0 H |

## ● コントロール設定 (Control)

| 項目表示                       | 設定値   |
|----------------------------|-------|
| C O N T R L 1        ○ ○   | 0 8 H |
| C O N T R L 2        ○ ○   | 0 2 H |
| A D J T T M            ○ ○ | 1 4 H |
| H D E Q A D            ○ ○ | 9 2 H |
| L D E Q A D            ○ ○ | 8 E H |
| G D E Q A D            ○ ○ | 9 1 H |
| M D E Q B C            ○ ○ | 8 C H |
| L D E Q B C            ○ ○ | 8 F H |
| G D E Q B C            ○ ○ | 8 A H |
| H A L S G              ○ ○ | 1 1 H |
| L A L S G              ○ ○ | 1 1 H |
| G A L S G              ○ ○ | 1 1 H |
| H A L S O F S        ○ ○   | F C H |
| L A L S O F S        ○ ○   | 0 0 H |
| G A L S O F S        ○ ○   | 0 0 H |

## ● 調整設定 (ADJSET)

| 項目表示                         | 設定値   |
|------------------------------|-------|
| C O K                    ○ ○ | 5 8 H |
| F A T                    ○ ○ | C 0 H |
| T A T                    ○ ○ | 3 E H |
| C A T                    ○ ○ | 4 0 H |
| F A B                    ○ ○ | 5 C H |
| S T R                    ○ ○ | 0 B H |
| S F S                    ○ ○ | 0 D H |
| S T C                    ○ ○ | 0 D H |

## 6. TEST-PLAY mode Using the disc: Commercially available mini disc for recording

(Use this mode to check that the playback function is provided at the specified address.)

| Step | Setting method                            | Remark                                                                  | Display           |
|------|-------------------------------------------|-------------------------------------------------------------------------|-------------------|
| 1    | Load a disc.                              | AUTO adjustment menu                                                    | [ AUTO _ AJST _ ] |
| 2    | Press the TITLE button (REMOCON).         | TEST-PLAY menu                                                          | [ TEST _ PLAY _ ] |
| 3    | Press the INPUT button (REMOCON).         | ADDRESS setting (The initial value of the target address is displayed.) | [ ADRES _ 0032 ]  |
| 4    | Press the SET/ENTER button (REMOCON).     | Continuous reproduction (bit section) (Address + C1 error display)      | [ ≡ XXXX c YYYY ] |
|      |                                           | Continuous reproduction (group section) (Address + C1 error display)    | [ a XXXX c YYYY ] |
| 5    | Press the INPUT button (REMOCON).         | Continuous reproduction (group section) (Address + ADIP error display)  | [ a XXXX a YYYY ] |
| 6    | Press the DELETE/CANCEL button (REMOCON). | TEST-PLAY menu                                                          | [ TEST _ PLAY _ ] |

- Every time the TITLE button (REMOCON) is pressed in the address setting mode, the address changes in the order of 0032-> 03C0 -> 0700 -> 08A0 -> 0950 -> —
- Pressing the DISPLAY button (REMOCON) in the TEST-PLAY menu changes to the AUTO adjustment menu.

## 7. TEST-REC mode Disc in use: Commercially available mini disc for recording

(It is used to check the REC function at the specified address.)

| Step | Setting method                            | Remark                                                           | Display            |
|------|-------------------------------------------|------------------------------------------------------------------|--------------------|
| 1    | Load a disc.                              | AUTO adjustment menu                                             | [ AUTO _ AJST _ ]  |
| 2    | Press the TITLE button (REMOCON) twice.   | TEST-REC menu                                                    | [ TEST _ REC _ ]   |
| 3    | Press the SET/ENTER button (REMOCON).     | ADDRESS setting (The initial value of the address is displayed.) | [ a0032 _ Fw ZZ ]  |
| 4    | Press the SET/ENTER button (REMOCON).     | Continuous recording                                             | [ a XXXX _ Fw ZZ ] |
| 5    | Press the DELETE/CANCEL button (REMOCON). | TEST-REC menu                                                    | [ TEST _ REC _ ]   |

- Every time the TITLE button (REMOCON) is pressed in the address setting mode, the address changes in the order of 0032-> 03C0 -> 0700 -> 08A0 -> 0950 -> —
- Pressing the DISPLAY button (REMOCON) in the TEST-REC menu changes to the AUTO adjustment menu.

## 8. INNER mode Disc in use: Commercially available mini disc for recording

| Step | Setting method                            | Remark                                                                                | Display           |
|------|-------------------------------------------|---------------------------------------------------------------------------------------|-------------------|
| 1    | Load a disc.                              | AUTO adjustment menu                                                                  | [ AUTO _ AJST _ ] |
| 2    | Press the CHARA. button (REMOCON).        | INNER menu                                                                            | [ _ _ INNER _ _ ] |
| 3    | Press the SET/ENTER button (REMOCON).     | INNER switch position is measured.<br>(Both SUBQ address and C1 error are displayed.) | [ ≡ XXXX c YYYY ] |
| 4    | Press the DELETE/CANCEL button (REMOCON). | INNER menu                                                                            | [ _ _ INNER _ _ ] |

- Pressing the DISPLAY button (REMOCON) in the INNER menu changes to the AUTO adjustment menu.

## 6. TEST-PLAYモード 使用するディスク：市販の録音用ミニディスク

（指定アドレスでの再生性能確認用に使用します。）

| ステップNO. | 設定方法                     | 備 考                                                 | 表 示                          |
|---------|--------------------------|-----------------------------------------------------|------------------------------|
| ステップ1   | ディスクを入れる                 | AUTO調整メニュー                                          | 『AUTO__AJST__』               |
| ステップ2   | リモコンのTITLEボタンを押す         | TEST-PLAYメニュー                                       | 『TEST__PLAY__』               |
| ステップ3   | リモコンのINPUTボタンを押す         | ADRES設定（目標アドレス初期値を表示）                               | 『ADRES__0032』                |
| ステップ4   | リモコンのSET/ENTERボタンを押す     | 連続再生(ピット部)アドレス+C1エラー表示)<br>連続再生(グループ部)アドレス+C1エラー表示) | 『s□□□□c○○○○』<br>『a□□□□c○○○○』 |
| ステップ5   | リモコンのINPUTボタンを押す         | 連続再生(グループ部)アドレス+ADIPエラー表示)                          | 『a□□□□a○○○○』                 |
| ステップ6   | リモコンのDELETE/CANCELボタンを押す | TEST-PLAYメニュー                                       | 『TEST__PLAY__』               |

・アドレス設定モードでリモコンのTITLEボタンを押す毎にアドレスが次のように変化します。

0032→03C0→0700→08A0→0950→.....

・TEST-PLAYメニュー中にリモコンのDISPLAYボタンを押すと、AUTO調整メニューに移行します。

## 7. TEST-RECモード 使用するディスク：市販の録音用ミニディスク

（指定アドレスでのREC性能確認用に使用します。）

| ステップNO. | 設定方法                     | 備 考                 | 表 示            |
|---------|--------------------------|---------------------|----------------|
| ステップ1   | ディスクを入れる                 | AUTO調整メニュー          | 『AUTO__AJST__』 |
| ステップ2   | リモコンのTITLEボタンを2回押す       | TEST-RECメニュー        | 『TEST__REC__』  |
| ステップ3   | リモコンのSET/ENTERボタンを押す     | ADRES設定（アドレス初期値を表示） | 『a0032__pw__』  |
| ステップ4   | リモコンのSET/ENTERボタンを押す     | 連続記録                | 『a□□□□pw__』    |
| ステップ5   | リモコンのDELETE/CANCELボタンを押す | TEST-RECメニュー        | 『TEST__REC__』  |

・アドレス設定モードでリモコンのTITLEボタンを押す毎にアドレスが次のように変化します。

0032→03C0→0700→08A0→0950→.....

・TEST-RECメニュー中にDISPLAYボタンを押すと、AUTO調整メニューに移行します。

## 8. INNERモード 使用するディスク：市販の録音用ミニディスク

| ステップNO. | 設定方法                     | 備 考                                         | 表 示            |
|---------|--------------------------|---------------------------------------------|----------------|
| ステップ1   | ディスクを入れる                 | AUTO調整メニュー                                  | 『AUTO__AJST__』 |
| ステップ2   | リモコンのCHARA.ボタンを押す        | INNERメニュー                                   | 『__INNER__』    |
| ステップ3   | リモコンのSET/ENTERボタンを押す     | INNER（リードイン）スイッチ位置測定<br>（SUBQアドレスとC1エラーも表示） | 『s□□□□c○○○○』   |
| ステップ4   | リモコンのDELETE/CANCELボタンを押す | INNERメニュー                                   | 『__INNER__』    |

・□□□□：アドレス

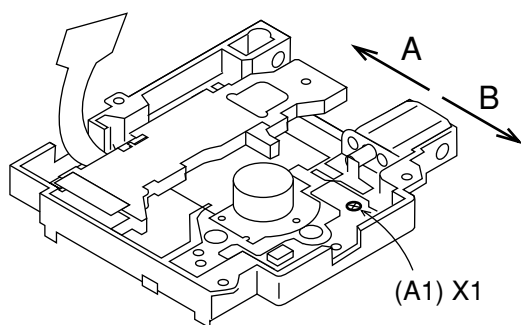
・INNERメニュー中にリモコンのDISPLAYボタンを押すと、AUTO調整メニューに移行します。

### ● Lead-in switch position adjustment

**Adjust the lead-in switch position so that it is between FF85 and FFD2.**

1. Load a TDYS1 (SONY) (P/No. TX945850) disc for reproduction.
2. Loosen the screw (A1) (1 pc) attaching the mechanical switch P.C.B.
3. Retighten the screw (A1) (1 pc) while pressing the mechanical switch P.C.B in the arrow A direction in the figure for FF85 or less and in the arrow B direction for FFD2 or more.

Measure the lead-in switch position again and check that it is in the range between FF85 and FFD2.

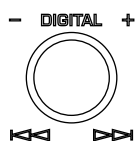


**Fig. 11**

Note) Apply thread lock to the screw (A1) (1 pc) of the P.C.B. after tightening it.

● **Forced rotation of loading motor**

It is possible to force the loading motor to rotate by turning the jog dial when the microprocessor version (**tsm22\*\*\*e\*\***) of the test mode or EJECT appears on display. (This is used when the disc cannot be ejected.)



JOG DIAL   : Forced feeding of the disc to EJECT

JOG DIAL   : Forced feeding of the disc to LOAD

\* To obtain the microprocessor version on display when a disc is loaded, "AUTO \_ AJST \_" appears on display. Press the DELETE/CANCEL button (REMOCON) in this state, and the microprocessor version will appear.

Version of microprocessor    t s m 2 2 \* \* e \* \*

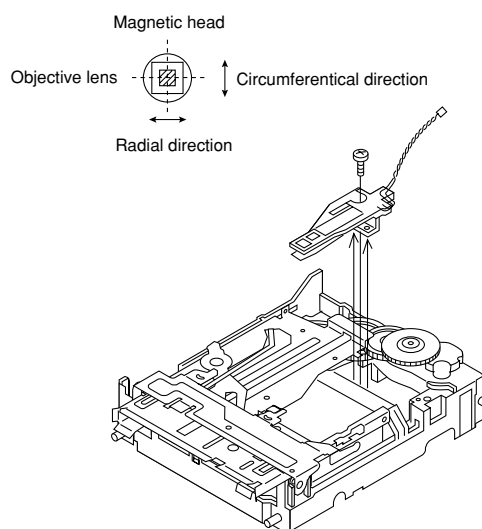
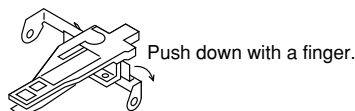
↑  
Version of EEPROM protect data (from 01)

↑  
Version of microprocessor ROM (from 01)

### ● Confirmation of magnetic head installation position

- After replacing the magnetic head and the optical pick-up, be sure to confirm their installation positions.
- To facilitate adjustment of their installation positions, bring the optical pick-up to the center position and follow the procedure described below.

1. Load a clear disc (P/No. AAX18050) for checking the head.
2. Push down the up-shift arm of the magnetic head with a finger to raise the magnetic head.
3. Looking at the unit from above, check if the magnetic head matches with the optical pick-up objective lens.
4. Check to ensure that the magnetic head moves up and down smoothly.



**Fig. 12**

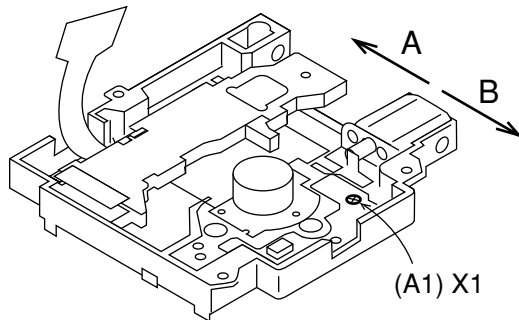
### ● リードインスイッチ位置調整

リードインスイッチ位置をFF85～FFD2に調整します。

1. テストディスクTDYS1(SONY)[再生用](TX945850)を入れます。
2. メカスイッチ基板を固定しているねじ (A1) × 1本をゆるめます。
3. FF85以下の場合はA方向、FFD2以上の場合はB方向にメカスイッチ基板を押しながらねじ (A1) × 1本をしめ直します。

再度リードインスイッチ位置を測定してください。

リードスイッチ位置がFF85～FFD2であることを確認します。

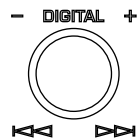


注) 基板上のねじ (A1) × 1本は、締め付け後ネジロック塗布

図11

### ● ローディングモータの強制回転

DISPLAY表示がテストモードのマイコンバージョン表示 ( t s m 2 2 〇 〇 e 〇 〇 ) またはEJECT表示のとき、ジョグダイヤルを回すことによりローディングモータの強制回転が可能です。  
( ディスクの取り出しができなくなったときに使用します )



ジョグダイヤル ≡ : 強制EJECT送り  
ジョグダイヤル ≡ : 強制LOAD送り

### \* マイコンバージョン表示にする方法

ディスクが挿入されている場合、『 A U T O \_ A J S T \_ 』表示になっております。

このとき、リモコンのDELETE/CANCELボタンを押すと、マイコンバージョン表示になります。

『 t s m 2 2 〇 〇 e 〇 〇 』 (マイコンバージョン表示)  
↑ ↑  
EEPROMプロテクトデータのバージョン ( 0 1 から )  
マイコンROMバージョン ( 0 1 から )

### ● 磁気ヘッドの取付位置確認

- ・ 磁気ヘッドおよび光ピックアップを交換した場合は必ず取付位置確認を実施願います。
  - ・ 取付位置調整を安易にする為に光ピックアップを中央位置まで移動して位置調整を行って下さい。
1. ヘッド確認用透明ディスク(AAX18050)をセットします。
  2. 磁気ヘッドアップシフトアームを手で下げ、磁気ヘッドを上げます。
  3. セットを上から見て光ピックアップ対物レンズに磁気ヘッドが合っているか確認します。
  4. 磁気ヘッドが上下にスムーズに動くことを確認します。

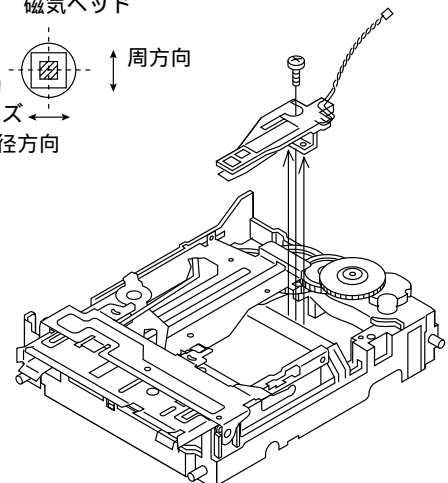
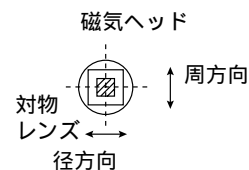
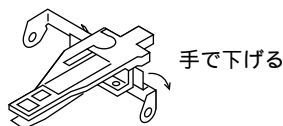


図12

## MECHANISM ADJUSTMENT

When making an adjustment, be sure to connect an extension cable for servicing and an expansion P.C.B. as shown in Fig.15.

### Optical pickup rating inspection method

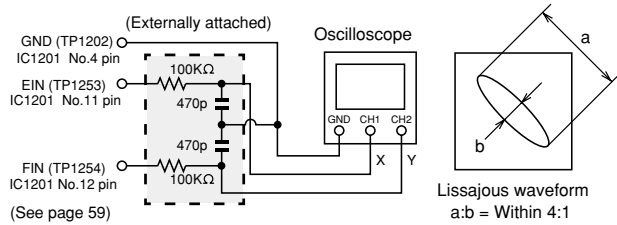


Fig. 13

After performing automatic adjustment in the AUTO mode selected from the test mode by using a TDYS1 (SONY) (P/ No. TX945850) disc for reproduction (COMPLETE status on display), adjust the EOUT to FOUT Lissajous waveform (x-y).

1. Loosen 3 screws of the spindle motor a little and make adjustment while watching the Lissajous waveform.
2. After adjustment, tighten screws in the order of (①), (②) and (③).

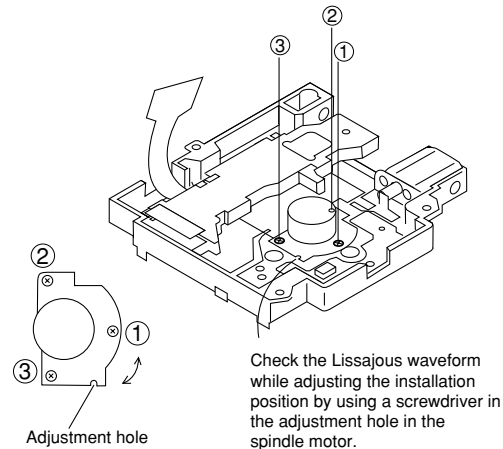


Fig. 14

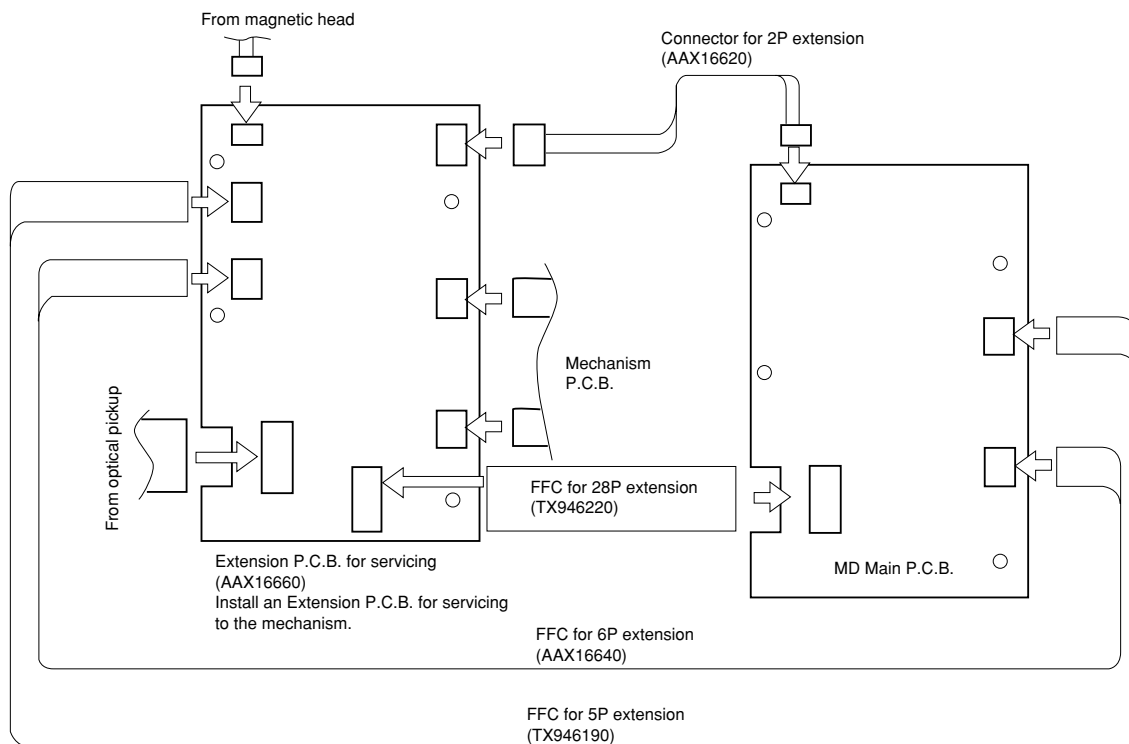


Fig. 15

## ● メカニズム調整

調整する際、図15のようにサービス用の延長ケーブル&延長基板を接続してください。

### 光ピックアップグレーティング検査方法

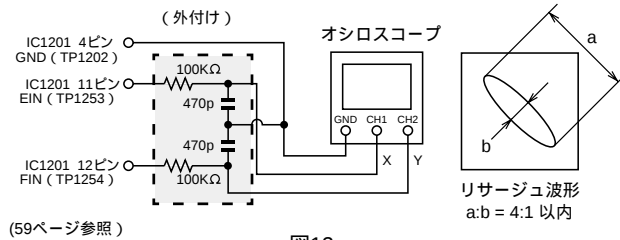


図13

テストディスクTDYS1(SONY)[再生用](TX945850)を使用しテストモードのAUTO調整モードで自動調整を行なった後 (COMPLETE表示) EOUT対FOUTのリサージュ波形 (x-y) を調整します。

1. スピンドルモータのねじ3本を少しゆるめ、リサージュ波形を見ながら調整します。
2. 調整後、①、②、③の順にねじを締付けます。

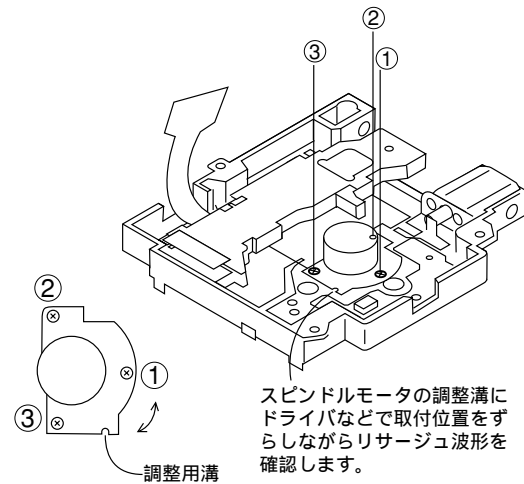


図14

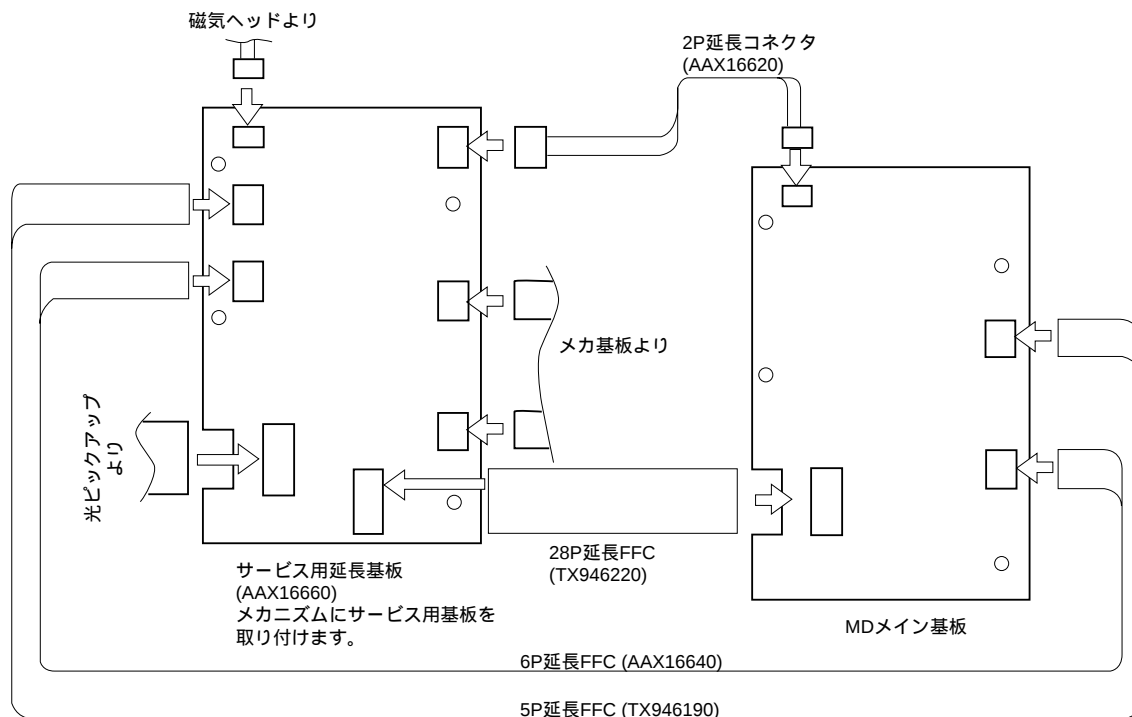


図15

SPECIAL TEST MODE

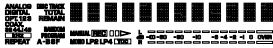
How to set to the special test mode

Press the “STANDBY/ON” button while pressing the “□” button and the “▷/□□” button. Then all the indicators will light up.

Operation procedure

Every time the “▷/□□” button is pressed, lighting of indicators and items on the display change as follows.

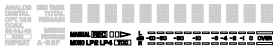
- 1) All indicators light up.

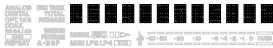

- 2) All indicators turn off.


- 3) All indicators in grid 15 light up.


- 4) All indicators in grid 2 light up.


- 5) All indicators in grid 1 light up.


- 6) All indicators in grid 3-14 light up.


- 7) The date when the software was entered appears on the display.

[ Rel:10/04/02 ]
- 8) The version of the micro processor appears on the display.

[ S/W Ver 1.00 ]
- 9) The time of auto-marking appears on the display.

[ AM Time :C8h ]
- 10) The analog level of auto-marking appears on the display.

[ AM Lv1\_A:24h ]
- 11) The digital level of auto-marking appears on the display.

[ AM Lv1\_D:1Ah ]
- 12) Write/read check for EEPROM appears on the display

[ EE W/R Check ]

When the INPUT button is pressed at this point, whether the micro processor executed data write/read function into EEPROM or not is checked.

If [OK] appears on the display and the pin 6 of IC6 is at “H”, the check result is satisfactory.

[NG] is displayed when there is an error while writing or reading the data.

In such a case, check EEPROM (IC7).

- 13) Single play WR50.

[ SPWR50 :C0h ]
- 14) Single play WR56.

[ SPWR56 :FEh ]
- 15) Single play WR44.

[ SPWR44 :00h ]
- 16) Single play WR53.

[ SPWR53 :16h ]
- 17) Long play 2 WR50.

[ SPWR50 :80h ]
- 18) Long play 2 WR56.

[ LP2WR56 :20h ]
- 19) Long play 2 WR44.

[ LP2WR44 :80h ]
- 20) Long play 2 WR53.

[ LP2WR53 :00h ]
- 21) Long play 4 WR50.

[ LP4WR50 :BFh ]
- 22) Long play 4 WR56.

[ LP4WR56 :02h ]
- 23) Long play 4 WR44.

[ LP4WR44 :80h ]
- 24) Long play 4 WR53.

[ LP4WR53 :00h ]
- 25) Returns the step 1 (All indicators light up).

How to cancel the special mode

Press the “□” button, and the mode will change from the special test mode to the product mode and the data in RAM will be cleared.

Note : Turning off the power will cancel the special test mode but will not clear the data in RAM (ie., user settings are maintained).

| Data to write in EEPROM (IC7) | Initial settings                   |
|-------------------------------|------------------------------------|
| INPUT mode                    | ANALOG                             |
| REPEAT mode                   | OFF                                |
| RANDOM mode                   | OFF                                |
| PROGRAM mode                  | OFF                                |
| REC mode (STEREO/MONO)        | STEREO                             |
| AUTO MARK/MANUAL              | AUTO (“MANUAL” does not light up.) |
| DISPLAY mode                  | DISC TITLE                         |

## ■ 特殊テストモード

### ● 特殊テストモードの入り方

“□”ボタンと“▷/00”ボタンを押しながら“STANDBY/ON”ボタンを押します。  
表示器が全灯します。

### ● 操作のしかた

“▷/00”ボタンを押すたびに、以下の様に表示が変化します。

- 1) 全灯 ..... 
- 2) 消灯 ..... 
- 3) グリッド15のインジケータが点灯 ..... 
- 4) グリッド2のインジケータが点灯 ..... 
- 5) グリッド1のインジケータが点灯 ..... 
- 6) グリッド3からグリッド14のインジケータが点灯 ..... 
- 7) ソフト書き込み日の表示 ..... 『Rel:10/04/02』
- 8) マイコンのバージョン表示 ..... 『S/W Ver 1.00』
- 9) オートマーキングの時間表示 ..... 『AM Time :08h』
- 10) オートマーキングのアナログレベル表示 ..... 『AM Lv1\_A:24h』
- 11) オートマーキングのデジタルレベル表示 ..... 『AM Lv1\_D:1Ah』
- 12) EEPROMへの書き込み・読み込みチェック表示 ..... 『EE W/R Check』  
ここでINPUTボタンを押すと、マイコンがEEPROMにデータを書き込み・読み込みができたかをチェックします。  
「OK」が表示され、IC6の6ピンが“H”であればOKです。  
データ書き込み・読み込みにエラーがあると「NG」が表示されます。この場合は、EEPROM(IC7)をチェックします。
- 13) シングルプレイWR50 ..... 『SPWR50 :00h』
- 14) シングルプレイWR56 ..... 『SPWR56 :FEh』
- 15) シングルプレイWR44 ..... 『SPWR44 :00h』
- 16) シングルプレイWR53 ..... 『SPWR53 :16h』
- 17) ロングプレイ2 WR50 ..... 『SPWR50 :80h』
- 18) ロングプレイ2 WR56 ..... 『LP2WR56 :20h』
- 19) ロングプレイ2 WR44 ..... 『LP2WR44 :80h』
- 20) ロングプレイ2 WR53 ..... 『LP2WR53 :00h』
- 21) ロングプレイ4 WR50 ..... 『LP4WR50 :BFh』
- 22) ロングプレイ4 WR56 ..... 『LP4WR56 :02h』
- 23) ロングプレイ4 WR44 ..... 『LP4WR44 :80h』
- 24) ロングプレイ4 WR53 ..... 『LP4WR53 :00h』
- 25) ステップ1(全灯)に戻ります。

### ● 特殊テストモードの解除のしかた

“□”ボタンを押すと、特殊テストモードから抜けて製品モードとなり、RAMクリアされます。  
注意) 電源を切った場合は、特殊テストモード解除となりますが、RAMクリアはされません。

| EEPROM (IC7) に書き込むデータ  | 初期値                |
|------------------------|--------------------|
| INPUT mode             | ANALOG             |
| REPEAT mode            | OFF                |
| RANDOM mode            | OFF                |
| PROGRAM mode           | OFF                |
| REC mode (STEREO/MONO) | STEREO             |
| AUTO MARK/MANUAL       | AUTO(MANUALが点灯しない) |
| DISPLAY mode           | DISC TITLE         |

## ■ ERROR DISPLAY

| Error on display | Description                                                                                                                                                                                                                                                                                                                                        | Countermeasure                                                                                                                                                                                             |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Can't REC        | <ul style="list-style-type: none"> <li>• DEFECT occurred 10 times continuously during REC-PLAY.</li> <li>• Recordable cluster became "0" due to occurrence of DEFECT during REC-PLAY.</li> <li>• REC mode cannot be set for 20 seconds even after repeatedly trying to read the read disabled address.</li> </ul>                                  | <ul style="list-style-type: none"> <li>• Check that the disc is free from any scratch, dust, finger print, black spot, etc. and that decentering, face deflection, etc. are not excessive.</li> </ul>      |
| Can't Copy       | <ul style="list-style-type: none"> <li>• One of the following judgments has been made depending on the channel status of the digital signal input from D-IN during REC-PAUSE or REC-PLAY.</li> <li>(1) Other than audio</li> <li>(2) Other than civil purpose</li> <li>(3) Copy NG due to reversed COPY bit of CD (ie., copy protected)</li> </ul> | <ul style="list-style-type: none"> <li>• Check if the CD is a copy inhibited on (e.g., CD-R, etc.)</li> </ul>                                                                                              |
| DIGin Unlock     | <ul style="list-style-type: none"> <li>• Either of the following symptoms occurred for the digital signal input from D-IN during REC-PAUSE or REC-PLAY.</li> <li>(1) Digital IN PLL is unlocked.</li> <li>(2) Locked under conditions other than FS=44.1kHz.</li> </ul>                                                                            | <ul style="list-style-type: none"> <li>• Check that the D-IN signal line is free from abnormality.</li> </ul>                                                                                              |
| TOC Full         | <ul style="list-style-type: none"> <li>• No space is left to register music No and character data (song name, disc name, etc.) while the REC-PLAY function is used.</li> <li>• No recordable space is left when trying to activate the REC-PAUSE function.</li> </ul>                                                                              | <ul style="list-style-type: none"> <li>• Use a disc for recording and reproduction with a space left to register UTOC.</li> </ul>                                                                          |
| UTOC ERR R       | <ul style="list-style-type: none"> <li>• "FTNO &gt; LTNO" occurred.</li> <li>• "FTNO = 0 or 1" occurred.</li> <li>• UTOC recorded in the disc could not be read.</li> </ul>                                                                                                                                                                        | <ul style="list-style-type: none"> <li>• As an abnormality exists in the UTOC data, use another disc.</li> </ul>                                                                                           |
| UTOC ERR A       | <ul style="list-style-type: none"> <li>• "Start address &gt; end address" occurred.</li> </ul>                                                                                                                                                                                                                                                     |                                                                                                                                                                                                            |
| UTOC ERR L0 ~ 4  | <ul style="list-style-type: none"> <li>• Any one of the UTOC0 ~ 4 data was looped.</li> </ul>                                                                                                                                                                                                                                                      |                                                                                                                                                                                                            |
| Not Audio        | <ul style="list-style-type: none"> <li>• Data not for audio purpose is recorded in the track mode of TNO which is currently selected.</li> </ul>                                                                                                                                                                                                   | <ul style="list-style-type: none"> <li>• Select another TNO or use another disc.</li> </ul>                                                                                                                |
| Disc Full        | <ul style="list-style-type: none"> <li>• No recordable space is left when trying to activate the REC-PAUSE function.</li> </ul>                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>• Use another disc for recording with a recordable space left.</li> </ul>                                                                                           |
| Playback MD      | <ul style="list-style-type: none"> <li>• The loaded disc was for reproduction only when trying to activate the REC-PAUSE function or trying to edit.</li> </ul>                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>• As the loaded disc is for reproduction only, use a disc for recording.</li> </ul>                                                                                 |
| Protected        | <ul style="list-style-type: none"> <li>• Recording or editing was attempted while the data protector of the disc for recording and reproduction is set to the data protected state.</li> <li>• Editing the track subject to write protect function was attempted by using the data written in UTOC.</li> </ul>                                     | <ul style="list-style-type: none"> <li>• Try again with the data protector set to the original position.</li> <li>• As the track to be edited is write protected, try again with another track.</li> </ul> |

## ■ エラー表示

| エラー表示           | エラー内容                                                                                                                                                                             | 処理方法                                                                                                                                     |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Can't REC       | <ul style="list-style-type: none"> <li>・ REC-PLAY中DETECTが連続10回発生した。</li> <li>・ REC-PLAY中DETECTの発生で記録可能クラスが0となった。</li> <li>・ アドレス読み取り不可、再トライをくり返しても20秒間、REC状態に入れない時。</li> </ul>    | <ul style="list-style-type: none"> <li>・ ディスクにキズ・ほこり・指紋・ブラックスポット等がないか。偏芯・面振れ等の大きいディスクでないかチェックする。</li> </ul>                              |
| Can't Copy      | <ul style="list-style-type: none"> <li>・ REC-PAUSE又は、REC-PLAY中D-INから入力されたデジタル信号のチャンネルステータスにより以下のように判定された。<br/>オーディオ以外である。<br/>民生用以外である。<br/>CDでCOPY bitの反転によりコピーNGである。</li> </ul> | <ul style="list-style-type: none"> <li>・ コピー禁止のCDなのか（例：CD-R等）かチェックする。</li> </ul>                                                         |
| DIGin Unlock    | <ul style="list-style-type: none"> <li>・ REC-PAUSE又は、REC-PLAY中にD-INから入力されたデジタル信号に対して以下となった。<br/>デジタルINのPLLがUNLOCKした。<br/>FS=44.1kHz以外でロックした。</li> </ul>                           | <ul style="list-style-type: none"> <li>・ D-INの信号ラインに異常がないかチェックする</li> </ul>                                                              |
| TOC Full        | <ul style="list-style-type: none"> <li>・ REC-PLAY中曲番や文字情報（曲名・ディスク名等）を登録する領域がなくなった。</li> <li>・ REC-PAUSEに入ろうとしたとき、録音可能な領域が残っていない。</li> </ul>                                       | <ul style="list-style-type: none"> <li>・ UTOCを登録する領域の残っている録再用ディスクと入れ換えてみる。</li> </ul>                                                    |
| UTOC ERR R      | <ul style="list-style-type: none"> <li>・ FTNO &gt; LTNOであった。</li> <li>・ FTNO ≠ 0 or 1 であった。</li> <li>・ DISCに記録されているUTOCが読めなかった。</li> </ul>                                        | <ul style="list-style-type: none"> <li>・ UTOCのデータに異常があるので他のディスクと入れ換えてみる。</li> </ul>                                                      |
| UTOC ERR A      | <ul style="list-style-type: none"> <li>・ スタートアドレス &gt; エンドアドレスであった。</li> </ul>                                                                                                    | <ul style="list-style-type: none"> <li>・ UTOCのデータに異常があるので他のディスクと入れ換えてみる。</li> </ul>                                                      |
| UTOC ERR L0 ~ 4 | <ul style="list-style-type: none"> <li>・ UTOC 0 ~ 4 のどれかのデータがループしていた。</li> </ul>                                                                                                  | <ul style="list-style-type: none"> <li>・ UTOCのデータに異常があるので他のディスクと入れ換えてみる。</li> </ul>                                                      |
| Not Audio       | <ul style="list-style-type: none"> <li>・ 現在選曲されているTNOのトラックモードに、オーディオ用でないデータが記録されている。</li> </ul>                                                                                   | <ul style="list-style-type: none"> <li>・ 他のTNOを選曲するか、他のディスクと入れ換えてみる。</li> </ul>                                                          |
| Disc Full       | <ul style="list-style-type: none"> <li>・ REC-PAUSEに入ろうとしたとき、録音可能な領域が残っていない。</li> </ul>                                                                                            | <ul style="list-style-type: none"> <li>・ 録音可能領域の残っている、他の録音用ディスクと入れ換えてみる。</li> </ul>                                                      |
| Playback MD     | <ul style="list-style-type: none"> <li>・ REC-PAUSEに入ろうとした時、又は編集をしようとしたとき、再生専用のディスクだった。</li> </ul>                                                                                 | <ul style="list-style-type: none"> <li>・ 再生専用のディスクなので、録音用のディスクと入れ換えてみる。</li> </ul>                                                       |
| Protected       | <ul style="list-style-type: none"> <li>・ 録音再生用ディスクの誤消去防止ツマミが誤消去防止状態になっているのに、録音又は編集をしようとした。</li> <li>・ UTOCに書かれている情報により、ライトプロテクトのかかっているトラックを編集しようとした。</li> </ul>                   | <ul style="list-style-type: none"> <li>・ 誤消去防止ツマミをもとに戻してもう一度やり直す。</li> <li>・ 編集をしようとしたトラックはライトプロテクトがかかっているため、違うトラックでもう一度やり直す。</li> </ul> |
| Can't Edit      | <ul style="list-style-type: none"> <li>・ 各編集機能において、それぞれの編集条件を満足しなかった。</li> </ul>                                                                                                  | <ul style="list-style-type: none"> <li>・ 操作方法が間違っているため、正しい操作方法でもう一度やり直す。</li> </ul>                                                      |
| TMP Over!!      | <ul style="list-style-type: none"> <li>・ 何か異常が発生したため、セット（MDユニット）内の温度が高くなりすぎた。</li> </ul>                                                                                          | <ul style="list-style-type: none"> <li>・ トラブルシューティングによりチェックする。</li> <li>・ 高温の場所で使用していないか。</li> </ul>                                     |

| Error on display                    | Description                                                                                                                                                                                                     | Countermeasure                                                                                                                                                                                                |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Can't Edit                          | <ul style="list-style-type: none"> <li>Editing conditions were not satisfied with respect to each editing function.</li> </ul>                                                                                  | <ul style="list-style-type: none"> <li>Wrong operation procedure was used. Try again by using the correct procedure.</li> </ul>                                                                               |
| TMP Over!!                          | <ul style="list-style-type: none"> <li>The temperature in the set (MD unit) went up excessively high due to occurrence of some abnormality.</li> </ul>                                                          | <ul style="list-style-type: none"> <li>Check according to troubleshooting.</li> <li>Check the temperature of the area where the unit is used.</li> </ul>                                                      |
| SDRD ERR<br>RecP-SE ERR<br>SRWR ERR | <ul style="list-style-type: none"> <li>The data was not correct or it was not possible to read it correctly.</li> <li>Recording the music data failed as an abnormality occurred while recording it.</li> </ul> | <ul style="list-style-type: none"> <li>Use another disc as there is an abnormality in TOC or UTOC data or the disc has a scratch or other faulty condition.</li> </ul>                                        |
| TOC ERR S<br>TOC ERR R              | <ul style="list-style-type: none"> <li>The TOC data was not correct.</li> <li>It was not possible to read the TOC data.</li> </ul>                                                                              | <ul style="list-style-type: none"> <li>The TOC data recorded in the disc is not in compliance with the MD standard.</li> <li>Use another disc as the disc has a scratch or other faulty condition.</li> </ul> |
| U TOC W ERR                         | <ul style="list-style-type: none"> <li>It was not possible to rewrite UTOC correctly and an abnormality occurred while rewriting it.</li> </ul>                                                                 | <ul style="list-style-type: none"> <li>Use another disc as the disc has a scratch or other faulty condition.</li> </ul>                                                                                       |
| FOCUS ERR                           | <ul style="list-style-type: none"> <li>The disc was loaded but it was not possible to achieve FOCUS.</li> </ul>                                                                                                 | <ul style="list-style-type: none"> <li>Check that the disc is free from any scratch, dust, finger print, black spot, etc. and that decentering, face deflection, etc. are not excessive.</li> </ul>           |
| BLANK DISC                          | <ul style="list-style-type: none"> <li>The total number of TNO and NAME characters was "0" as a result of reading UTOC.</li> </ul>                                                                              | <ul style="list-style-type: none"> <li>Check if the disc is recordable by actually recording.</li> </ul>                                                                                                      |
| TOC W ERROR                         | <ul style="list-style-type: none"> <li>UTOC can be read but cannot be rewritten.</li> </ul>                                                                                                                     | <ul style="list-style-type: none"> <li>Check if the recording head contacts properly and if wiring from the circuit board to the recording head is free from breakage.</li> </ul>                             |
| EEPROM ERROR                        | <ul style="list-style-type: none"> <li>The EEPROM data is not correct</li> </ul>                                                                                                                                | <ul style="list-style-type: none"> <li>Try again after resetting and if still NG, replace EEPROM.</li> </ul>                                                                                                  |

### Mechanism Error

| Error on display | Description                  |
|------------------|------------------------------|
| Er_MD2_*         | The head fails to move up.   |
| Er_MD3_*         | The head fails to move down. |

HINF (IC1401 No.93 pin)

|       |                            |               |
|-------|----------------------------|---------------|
| * = E | Eject completed position   | < 1.0 V       |
| * = M | Horizontal midway position | > 3.01 V      |
| * = L | Load completed position    | 1.31 — 2.36 V |
| * = D | Head down position         | 1.01 — 1.31 V |

| エラー表示                               | エラー内容                                                                                                                          | 処理方法                                                                                                                                    |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| SDRD ERR<br>RecP-SE ERR<br>SRWR ERR | <ul style="list-style-type: none"> <li>・データを読んだ結果データが正しくなかった。又は、正しく読めなかった。</li> <li>・音楽データの記録中に異常が発生し、記録が正しく行えなかった。</li> </ul> | <ul style="list-style-type: none"> <li>・TOCやUTOCのデータに異常がある又は、ディスクにキズ等があるので、他のディスクに入れ換えてみる。</li> </ul>                                   |
| TOC ERR S<br>TOC ERR R              | <ul style="list-style-type: none"> <li>・TOCを読んだ結果データが正しくなかった。</li> <li>・TOCを読もうとしたが読むことが出来なかった。</li> </ul>                     | <ul style="list-style-type: none"> <li>・DISCに記録されているTOC情報が、MD規格に合っていないので、他のディスクに変えてみる。</li> <li>・ディスクにキズ等があるので、他のディスクに変えてみる。</li> </ul> |
| U TOC W ERR                         | <ul style="list-style-type: none"> <li>・UTOCの書き換え中に異常が発生し、UTOCの書き換えが正しく行えなかった。</li> </ul>                                      | <ul style="list-style-type: none"> <li>・ディスクにキズ等があるので、他のディスクに入れ換えてみる。</li> </ul>                                                        |
| FOCUS ERR                           | <ul style="list-style-type: none"> <li>・ディスクを入れたがFOCUSを引き込む事が出来なかった。</li> </ul>                                                | <ul style="list-style-type: none"> <li>・ディスクにキズ・ほこり・指紋・ブラックスポット等がないか。偏芯・面振れ等の大きいディスクでないかチェックする。</li> </ul>                              |
| BLANK DISC                          | <ul style="list-style-type: none"> <li>・UTOCを読んだ結果、総TNO及びNAMEの文字数が0であった。</li> </ul>                                            | <ul style="list-style-type: none"> <li>・録音可能なディスクなのか、録音してチェックしてみる。</li> </ul>                                                           |
| TOC W ERROR                         | <ul style="list-style-type: none"> <li>・UTOCは読めるが、UTOCの書き換えができない。</li> </ul>                                                   | <ul style="list-style-type: none"> <li>・録音ヘッドの当たりは正常か。基板から録音ヘッドまで断線していないかをチェックする。</li> </ul>                                            |
| EEPROM ERROR                        | <ul style="list-style-type: none"> <li>・EEPROMのデータが正しくない。</li> </ul>                                                           | <ul style="list-style-type: none"> <li>・一度RESETしてやり直してみる。それでもダメならEEPROMを取り替える。</li> </ul>                                               |

### メカエラーの詳細説明

| エラー表示      | エラー内容             |
|------------|-------------------|
| E r - MD 2 | いつまでもHEAD UPしない   |
| E r - MD 3 | いつまでもHEAD DOWNしない |

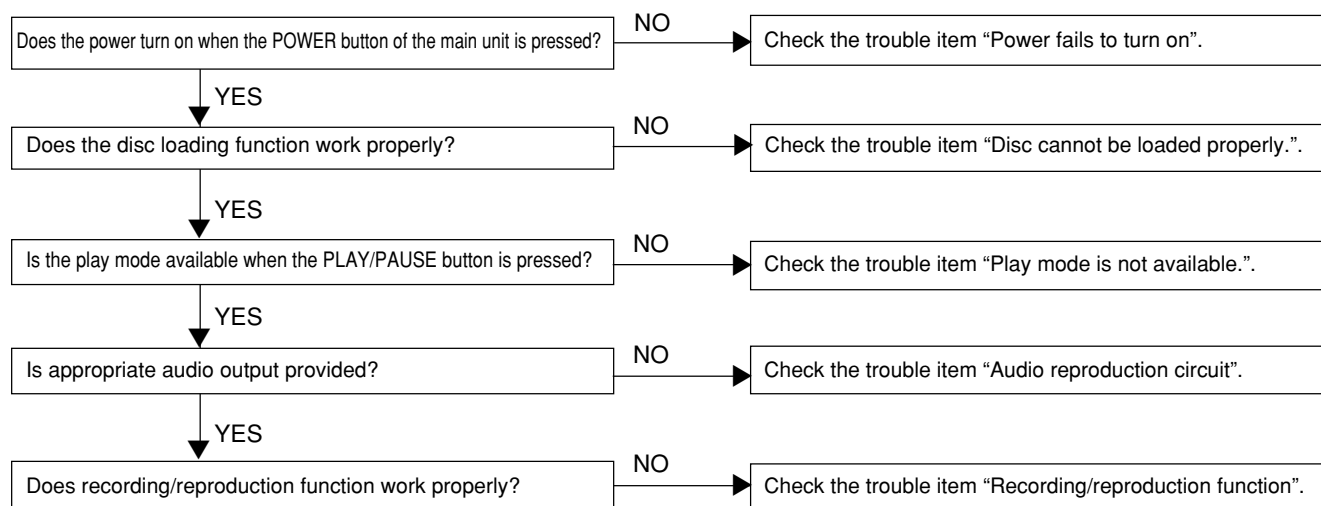
|                 |                     |
|-----------------|---------------------|
|                 | HINF (IC1401 93 ピン) |
| = E EJECT完位置    | < 1.0 V             |
| = M 水平途中位置      | > 3.01 V            |
| = L LOAD完位置     | 1.31 ~ 2.36 V       |
| = D HEAD DOWN位置 | 1.01 ~ 1.31 V       |

## ■ TROUBLESHOOTING

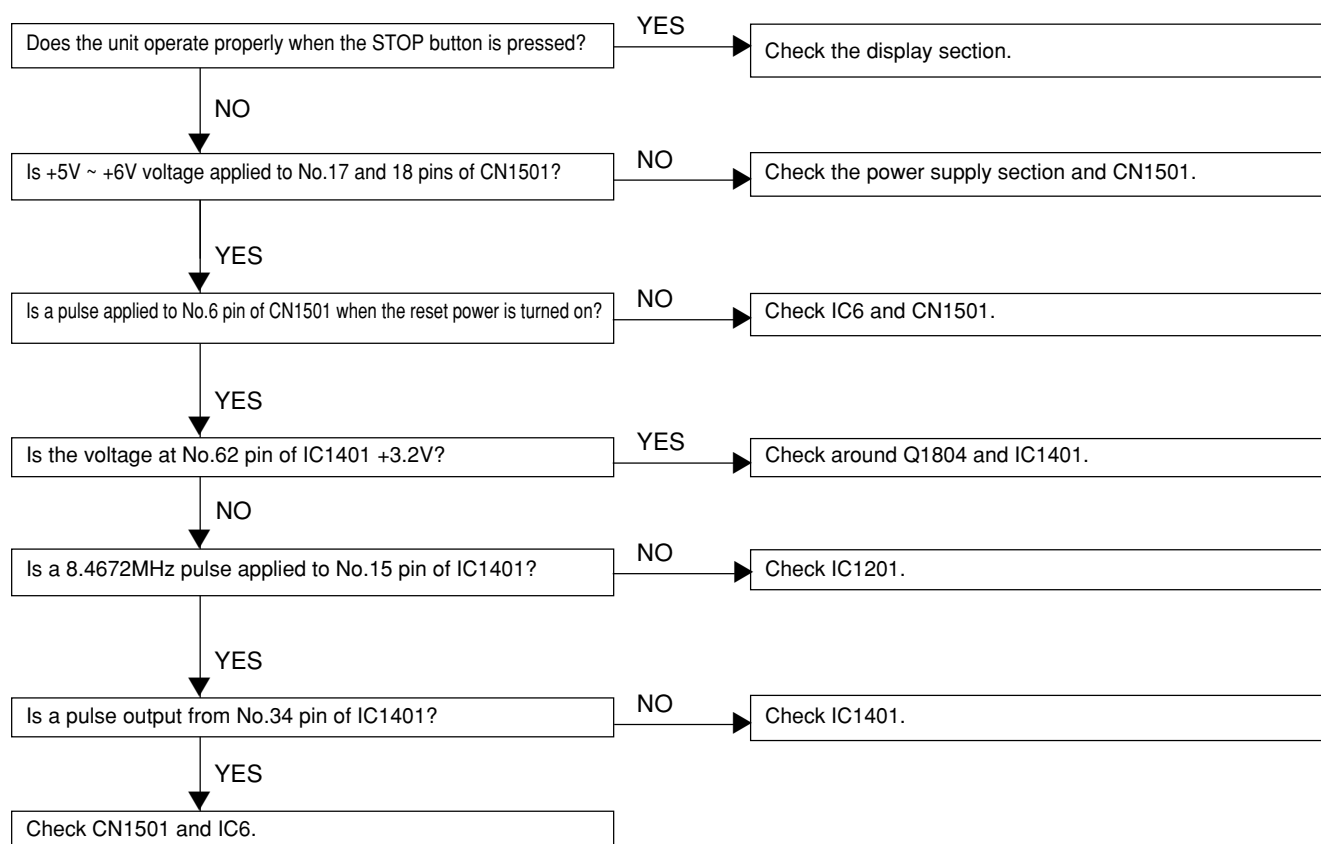
### When MD fails to operate

When the objective lens of the optical pickup becomes dirty, MD may fail to operate. Clean the objective lens first and check MD for reproduction function. If it still fails to operate, check according to the following flow charts. Contaminant on the pickup lens such as dust or other foreign matter may cause the pickup to skip or the TOC (content of the selection) not to be displayed. Check if the lens is clean before making adjustments. If the lens is dirty, clean it as follows.

- Turn off the power. Dampen the lens cleaning paper with a small amount of isopropyl alcohol and wipe the lens with it, using care not to cause any damage to the lens. Be sure not to touch the lens with your hand directly.



### Power fails to turn on.



## ■ トラブルシューティング

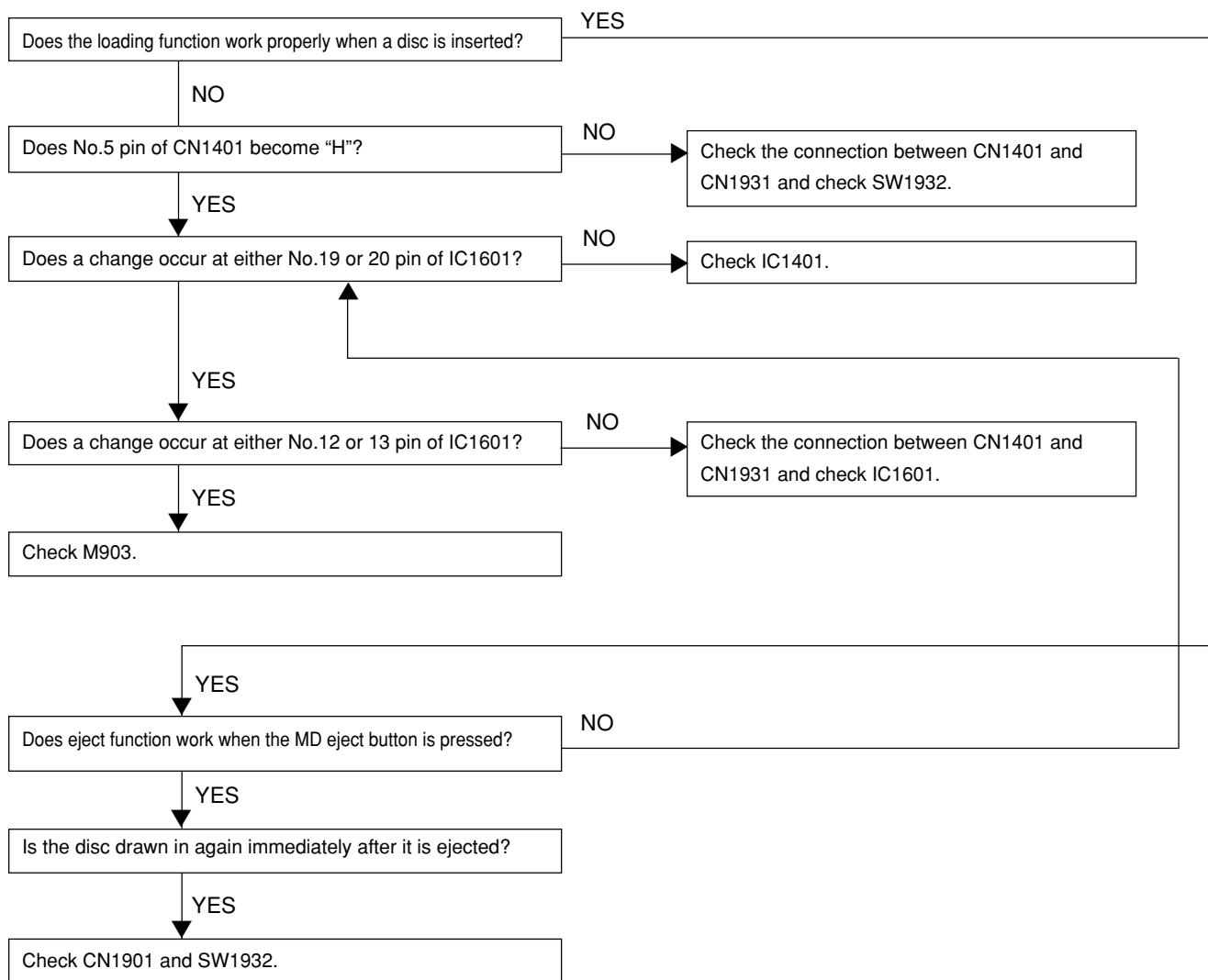
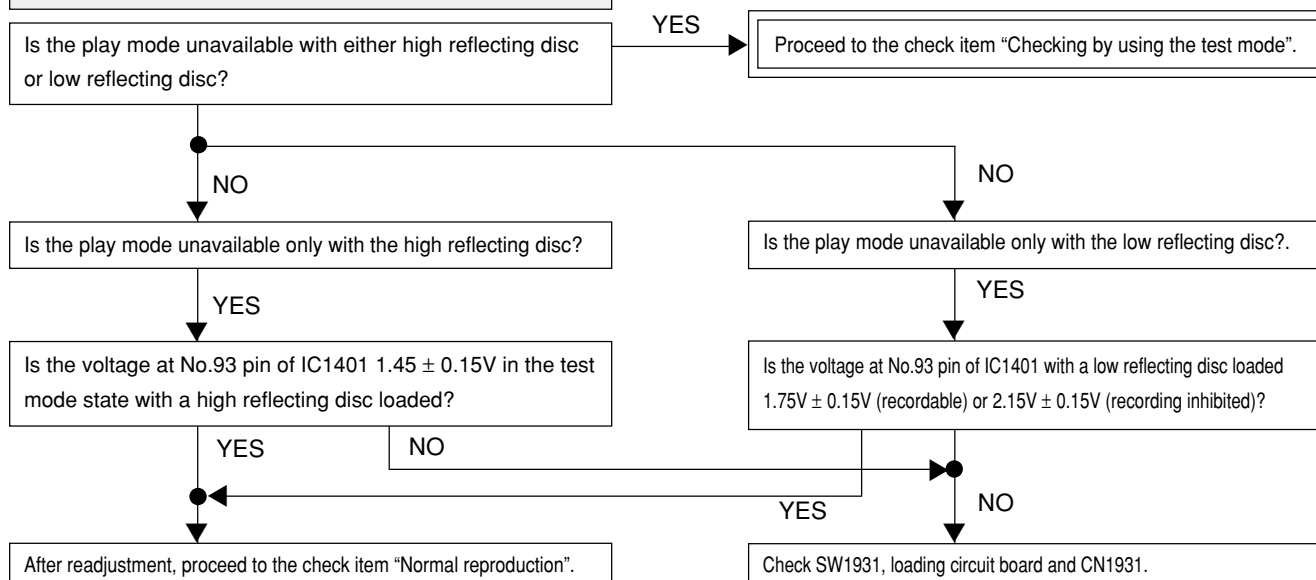
### ● MDが動作しない場合

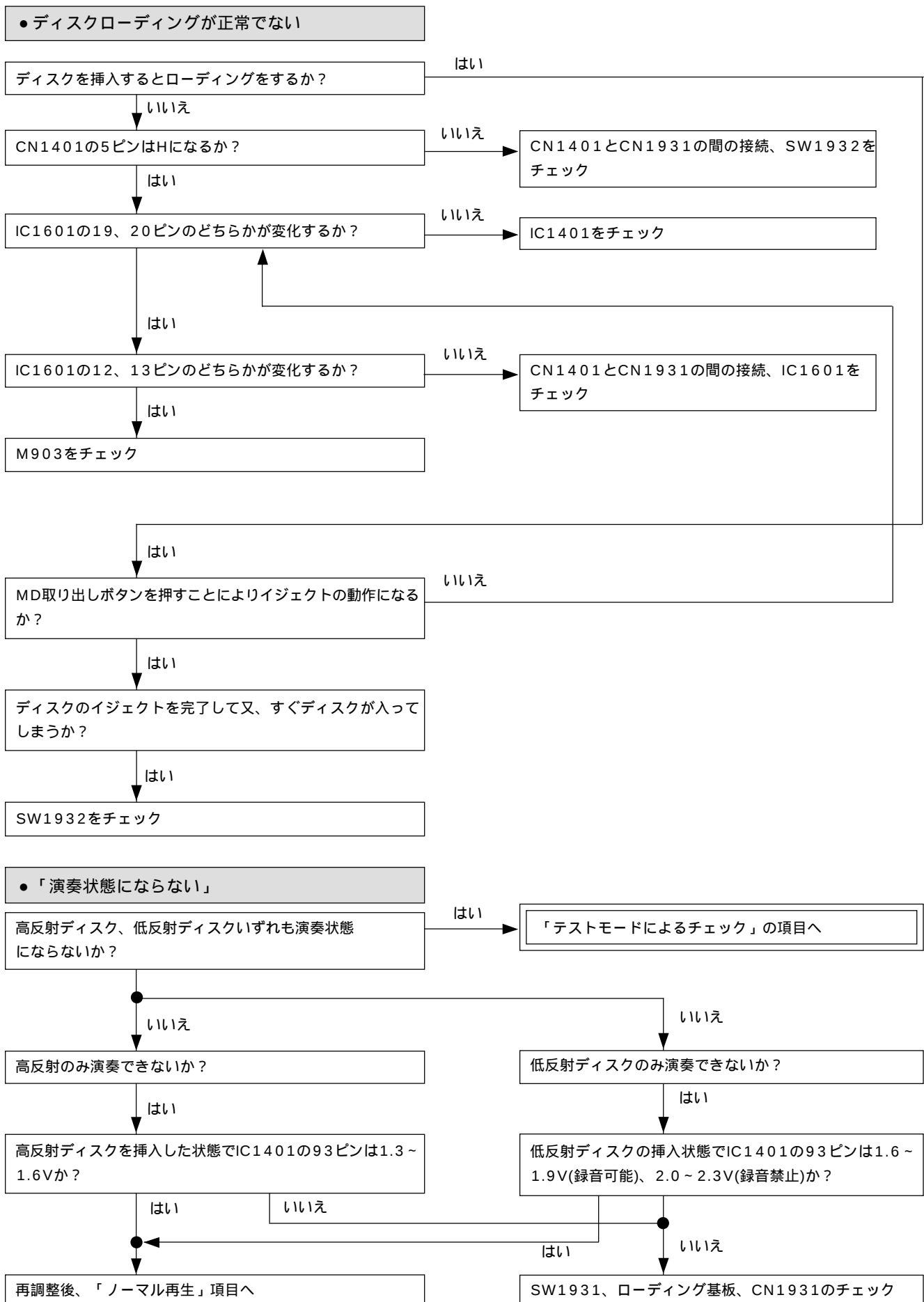
光ピックアップの対物レンズが汚れると動作しない場合がありますので、最初に対物レンズのクリーニングを行ない再生動作をチェックして下さい。以上を行なって動作しない場合、下記の項目に沿ってチェック下さい。

ピックアップレンズにほこりや異物がたまると、曲飛びを起こしたりTOC（曲目の内容）が表示されなかったりすることがあります。調整を行う前には、レンズがきれいかどうか確認してください。レンズが汚れているときは、下記のようにしてください。

- 電源を切りレンズクリーニングペーパーに少量のイソプロピルアルコールを湿らせてレンズを傷つけない様に拭いて下さい。この時、レンズを直接手で触れないようにして下さい。

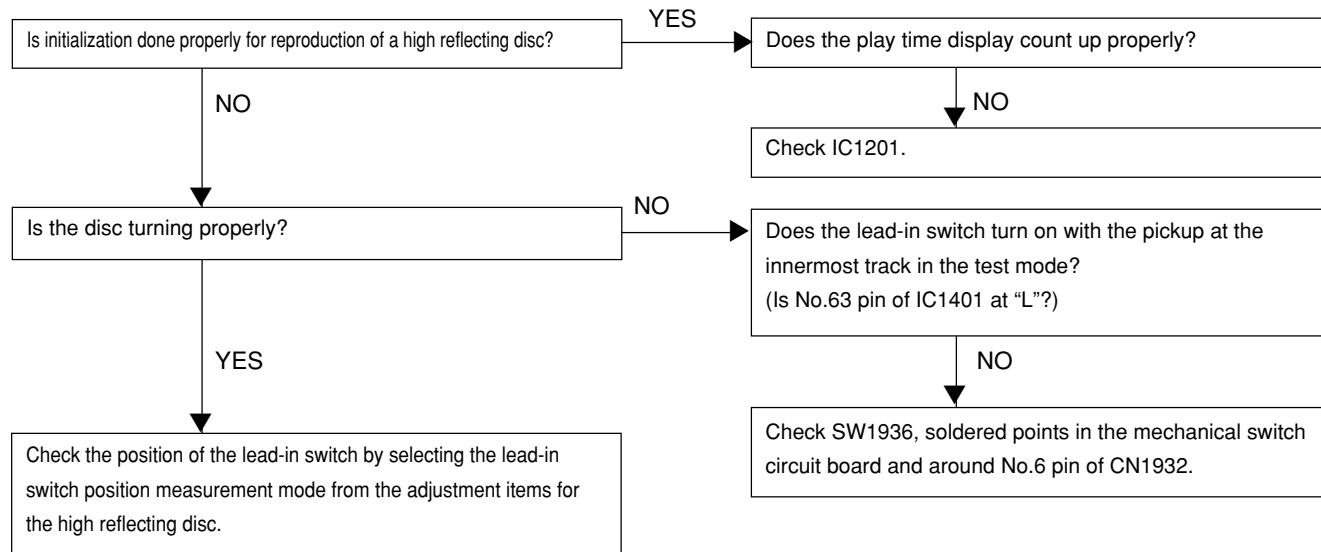


**Disc cannot be loaded properly.****Play mode is not available.**



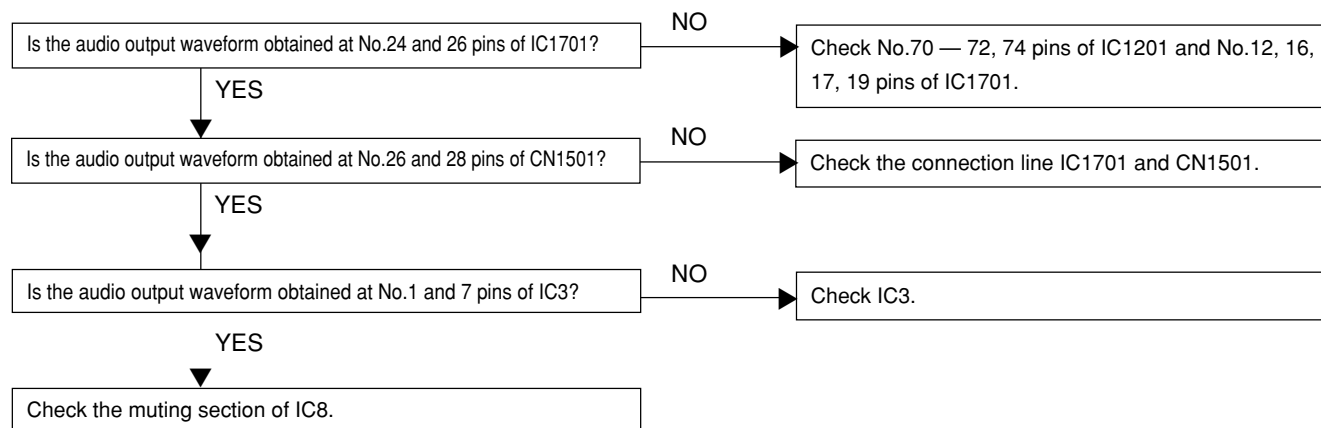
### Normal reproduction

Applicable when the E2-PROM value has been confirmed as normal in the test mode



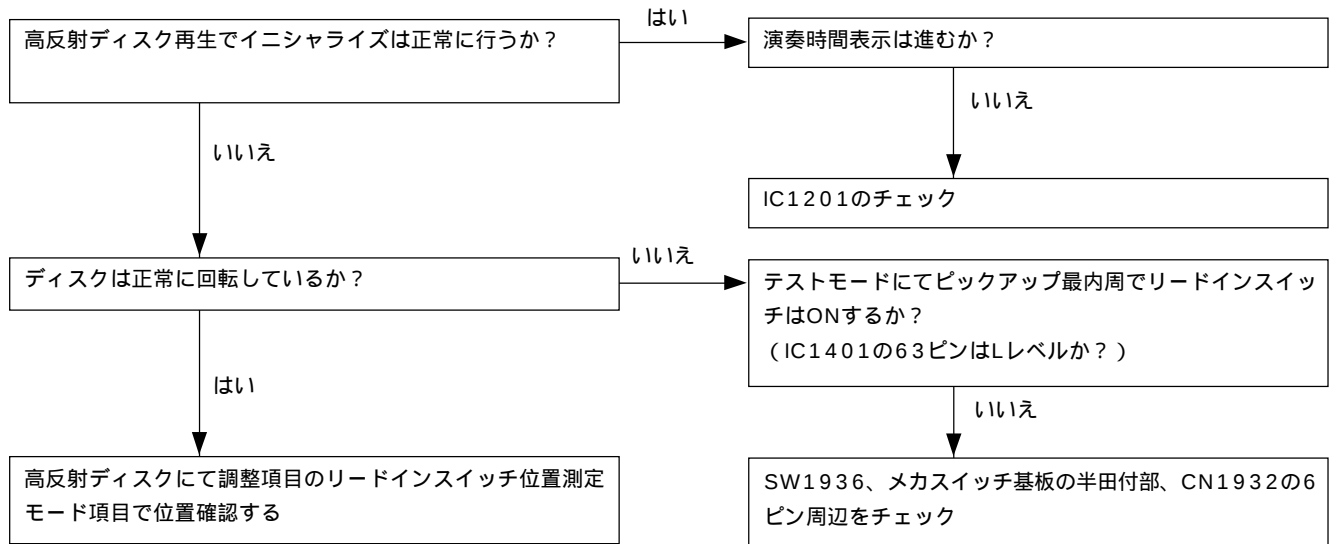
### Audio reproduction circuit

Applicable when no sound is produced although the play time display counts up properly during reproduction in the normal mode



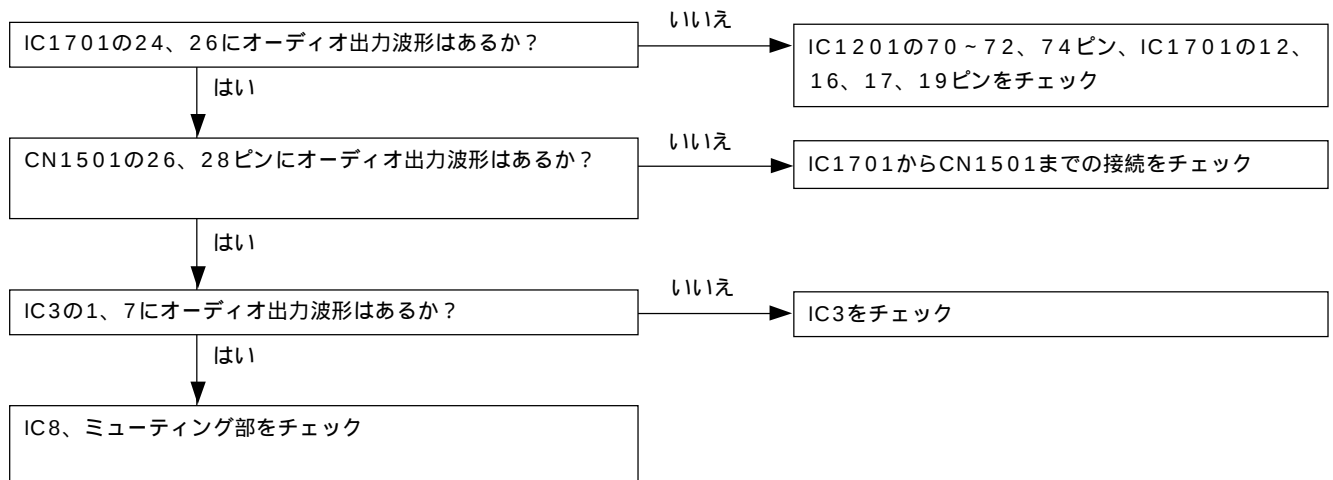
### ● ノーマル再生

テストモードでEEPROMの値が正常であることが確認された場合



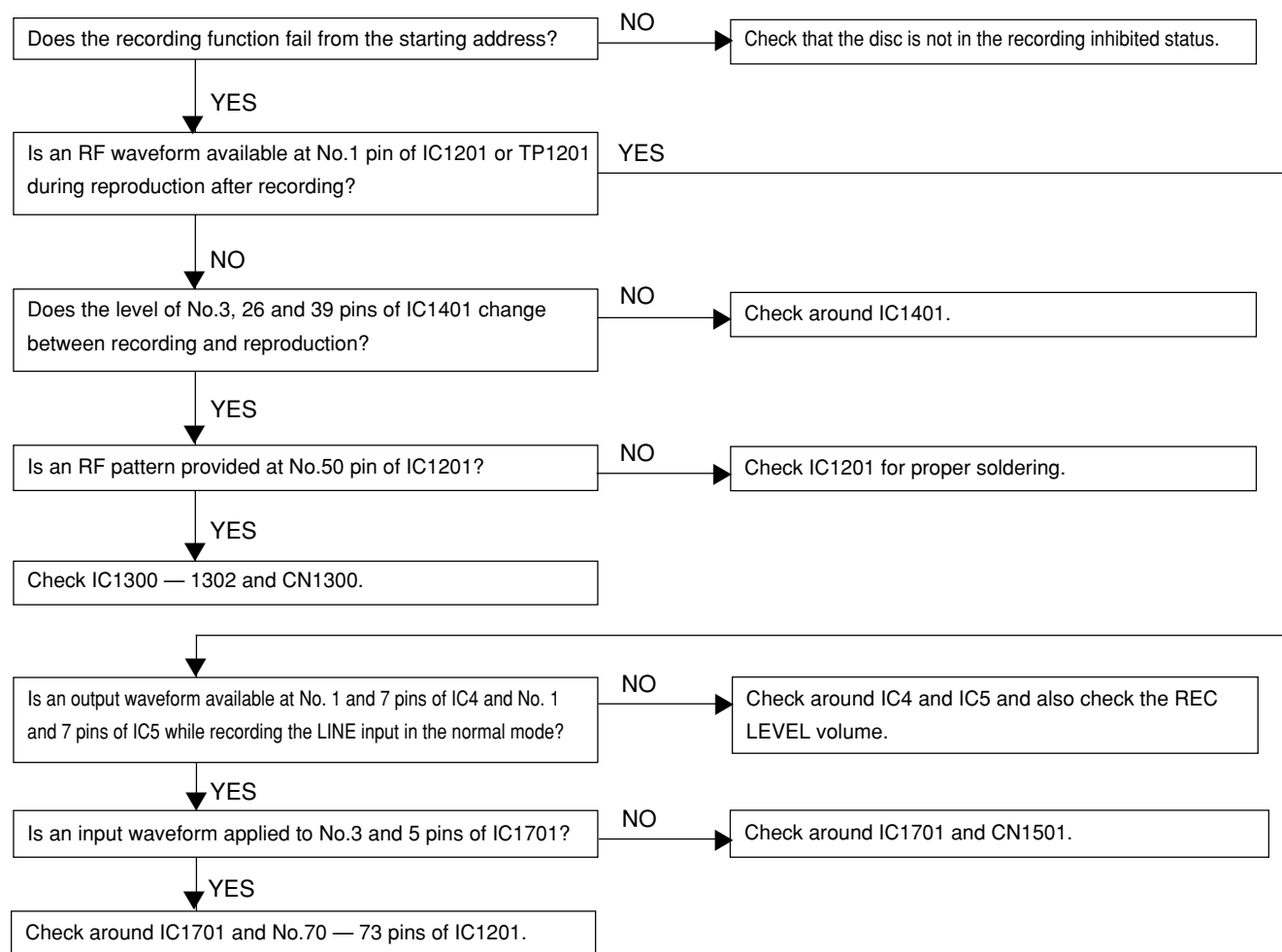
### ● オーディオ再生回路

ノーマルモードで再生中、演奏時間表示は進むが音が出ない場合



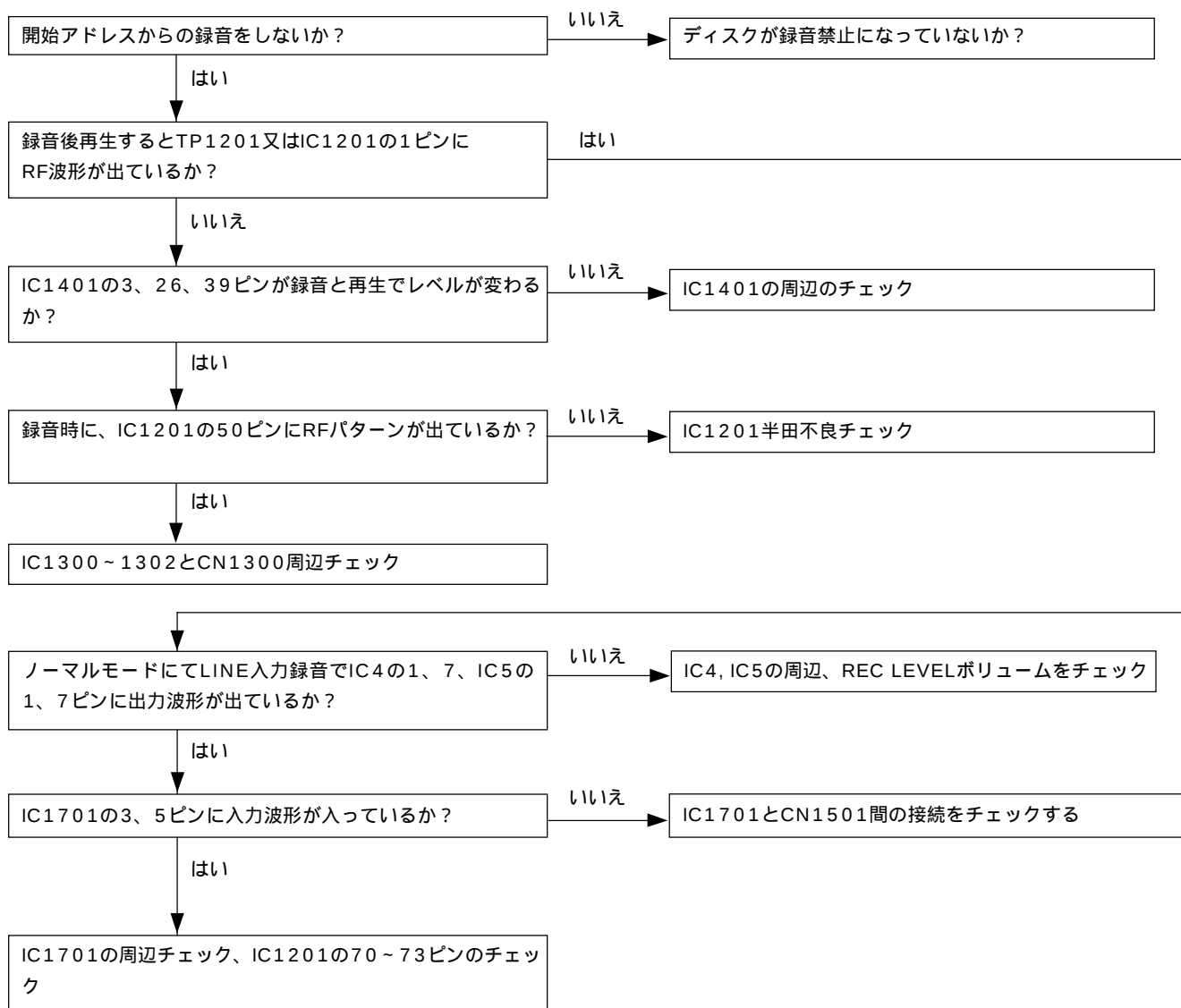
### Recording/reproduction function

Load a low reflection disc and after confirming the audio output in the normal reproduction mode, execute recording/reproduction.



# ●録音再生動作

低反射ディスクを挿入し、ノーマルモード再生でオーディオ出力確認後、録再を行う



### Checking by using the test mode

#### Spindle motor does not run.

Is a correct waveform provided at No.24 and 25 pins of IC1201 during the AUTO adjustment mode step 3 in the test mode?

NO

Check No.24 and 25 pins of IC1201 as well as solder connections and parts of the peripheral circuit.

YES

Is a waveform provided at No.9 and 10 pins of IC1601 as well as at No.5 and 6 pins of CN1402?

NO

Check IC1601, CN1402 and the mechanism switch circuit board solder connections.

YES

Replace the spindle motor as a complete unit.

#### Sled motor does not run.

Does a change occur at No.22 and 23 pins of IC1201 when ►► and ◄◄ buttons are pressed?

NO

Check the waveform at No.22 and 23 pins of IC1201, peripheral parts and solder connections.

YES

Does a change occur at No.14 and 15 pins of IC1601 and No.3 and 4 pins of CN1402 when the ►► and ◄◄ buttons are pressed?

NO

Check IC1601 and CN1402 solder connections.

YES

Does a voltage change occur at the + and - terminals of the sled motor when the ►► and ◄◄ buttons are pressed?

NO

Check the connection section to the sled motor for any poor solder connections or broken wires.

YES

Replace the sled motor.

# テストモードによるチェック

## ●スピンドルモータが回転しない

テストモードAUTO調整モードステップ3でIC1201の24、25ピンの波形が出ているか？

いいえ

IC1201の24、25ピンと周辺回路の半田付と部品をチェックする

はい

IC1601の9、10ピン、CN1402の5、6ピンの波形は出ているか？

いいえ

IC1601、CN1402、メカニズムスイッチ基板の半田付チェック

はい

スピンドルモータ完成品交換

## ●スレッドモータが回転しない

▶▶、◀◀ボタンでIC1201の22、23ピンが変化するか？

いいえ

IC1201の22、23ピンの波形チェック及び周辺部品のチェック、半田付をチェックする

はい

▶▶、◀◀ボタンでIC1601の14、15ピン、CN1402の3、4ピンは変化するか？

いいえ

IC1601、CN1402の半田付チェック

はい

▶▶、◀◀ボタンでスレッドモータの+、-端子の電圧は変化するか？

いいえ

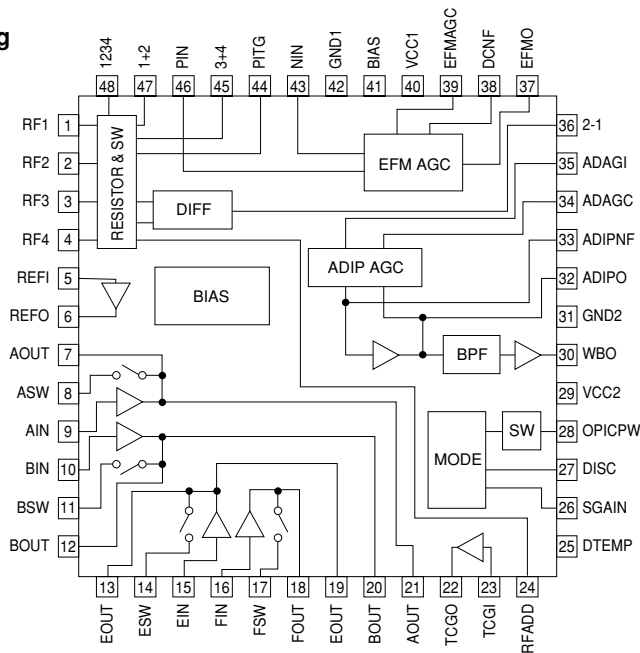
スレッドモータに接続している半田付チェック、断線していないかチェックする

はい

スレッドモータ交換

IC DATA

IC1101 : IR3R58M  
RF Signal Processing



| No. | Pin Name | Function                                                                       |
|-----|----------|--------------------------------------------------------------------------------|
| 1   | RF1      | RF signal input terminal 1 to input RF signal output from pickup               |
| 2   | RF2      | RF signal input terminal 2 to input RF signal output from pickup               |
| 3   | RF3      | RF signal input terminal 3 to input RF signal output from pickup               |
| 4   | RF4      | RF signal input terminal 4 to input RF signal output from pickup               |
| 5   | REFI     | Amplifier input terminal for reference voltage                                 |
| 6   | REFO     | Amplifier output terminal for reference voltage                                |
| 7   | AOUT     | Amplifier (focus servo system) output terminal 1 for servo signal              |
| 8   | ASW      | Amplifier (focus servo system) output terminal 2 for servo signal              |
| 9   | AIN      | Amplifier (focus servo system) reverse input terminal for servo signal         |
| 10  | BIN      | Amplifier (focus servo system) reverse input terminal for servo signal         |
| 11  | BSW      | Amplifier (focus servo system) output terminal 2 for servo signal              |
| 12  | BOUT     | Amplifier (focus servo system) output terminal 1 for servo signal              |
| 13  | EOUT     | Amplifier (tracking servo system) output terminal 1 for servo signal           |
| 14  | ESW      | Amplifier (tracking servo system) output terminal 2 for servo signal           |
| 15  | EIN      | Amplifier (tracking servo system) reverse input terminal for servo signal      |
| 16  | FIN      | Amplifier (tracking servo system) reverse input terminal for servo signal      |
| 17  | FSW      | Amplifier (tracking servo system) output terminal 2 for servo signal           |
| 18  | FOUT     | Amplifier (tracking servo system) output terminal 1 for servo signal           |
| 19  | EOUT     | Amplifier (tracking servo system) output terminal 1 for servo signal           |
| 20  | BOUT     | Amplifier (tracking servo system) output terminal 1 for servo signal           |
| 21  | AOUT     | Amplifier (tracking servo system) output terminal 1 for servo signal           |
| 22  | TCGO     | Amplifier output terminal for track cross detect signal when in groove section |
| 23  | TCGI     | Amplifier input terminal for track cross detect signal when in groove section  |
| 24  | RFADD    | Output terminal for added resistance of RF1 ~ 4                                |
| 25  | DTEMP    | Chip temperature detect terminal                                               |
| 26  | SGAIN    | Switch control terminal for servo amplifier                                    |
| 27  | DISC     | Pit/grove mode select control terminal                                         |
| 28* | OPICPW   | Power supply output terminal for OPIC section                                  |
| 29  | VCC2     | Power supply terminal for digital/power section                                |
| 30* | WBO      | Comparator output terminal to make ADIP signal into binary value               |
| 31  | GND2     | Ground terminal for digital/power section                                      |
| 32  | ADPO     | Pre-amplifier output terminal for ADIP signal                                  |

The \* marked terminal is a terminal which is not connected externally (open terminal).

MDX-E300

### IC1101 : IR3R58M

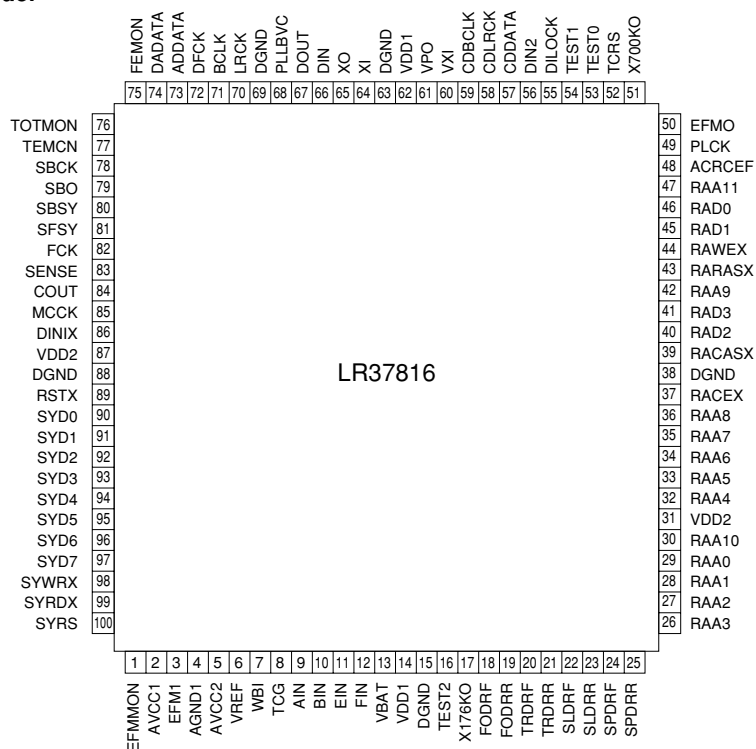
#### RF Signal Processing

| No. | Pin Name | Function                                                                           |
|-----|----------|------------------------------------------------------------------------------------|
| 33* | ADIPNF   | AGC amplifier output terminal for ADIP signal                                      |
| 34  | ADAGC    | AGC smooth capacitor connecting terminal for ADIP signal                           |
| 35  | ADAGI    | AGC amplifier input terminal for ADIP signal                                       |
| 36  | 2-1      | RF1, RF2 differential signal                                                       |
| 37  | EFMO     | AGC amplifier output terminal for RF signal                                        |
| 38  | DCNF     | Reference voltage smooth capacitor connecting terminal for RF signal AGC amplifier |
| 39  | EFMAGO   | AGC smooth capacitor connecting terminal for RF signal                             |
| 40  | VCC1     | Power supply terminal for analog section                                           |
| 41  | BIAS     | Bias input terminal                                                                |
| 42  | GND1     | Ground terminal for analog section                                                 |
| 43  | NIN      | AGC amplifier reverse input terminal for RF signal                                 |
| 44  | PITG     | Ground terminal when in pit section                                                |
| 45  | 3+4      | Output terminal for added resistance of RF3 and RF4 when in groove section         |
| 46  | PIN      | AGC amplifier reverse input terminal for RF signal                                 |
| 47  | 1+2      | Output terminal for added resistance of RF1 and RF2 when in groove section         |
| 48  | 1234     | Output terminal for added resistance of RF1 ~ 4 when in pit section                |

The \* marked terminal is a terminal which is not connected externally (open terminal).

### IC1201 : LR37816

#### ATRAC Encoder/Decoder



| No. | Pin Name | I/O | Function                                        |
|-----|----------|-----|-------------------------------------------------|
| 1*  | EFMMON   | O   | EFM monitor output                              |
| 2   | AVCC     |     | Power supply terminal for analog section        |
| 3   | EFMI     | I   | Input terminal for EFM signal from RF amplifier |
| 4   | AGND1    |     | Ground terminal for analog section              |
| 5   | AVCC2    |     | Power supply terminal for analog section        |
| 6   | VREF     | I   | Reference voltage input for RF amplifier        |
| 7   | WBI      | I   | ADIP wobble signal                              |
| 8   | TCG      | I   | Tracking cross signal                           |
| 9   | AIN      | I   | Focus error signal A                            |

The \* marked terminal is a terminal which is not connected externally (open terminal).

## IC1201 : LR37816

## ATRAC Encoder/Decoder

| No.   | Pin Name    | I/O | Function                                                                                       |
|-------|-------------|-----|------------------------------------------------------------------------------------------------|
| 10    | BIN         | I   | Focus error signal B                                                                           |
| 11    | EIN         | I   | Tracking error signal E                                                                        |
| 12    | FIN         | I   | Tracking error signal F                                                                        |
| 13    | VBAT        | I   | Power supply voltage detect signal for constant voltage servo                                  |
| 14    | VDD1        |     | Power supply terminal for digital section                                                      |
| 15    | DGND        |     | Digital ground terminal                                                                        |
| 16    | TEST2       | I   | Connected to GND in normal use                                                                 |
| 17*   | X176KO      | O   | Clock output. f=176.4KHz (4fs)                                                                 |
| 18    | FODRF       | O   | Focus servo forward output. PWM                                                                |
| 19    | FODRR       | O   | Focus servo reverse output. PWM                                                                |
| 20    | TRDRF       | O   | Tracking servo forward output. PWM                                                             |
| 21    | TRDRR       | O   | Tracking servo reverse output. PWM                                                             |
| 22    | SLDRF       | O   | Slide servo forward output. PWM                                                                |
| 23    | SLDRR       | O   | Slide servo reverse output. PWM                                                                |
| 24    | SPDRF       | O   | Spindle servo forward output or spindle serve output. PWM                                      |
| 25    | SPDRR       | O   | Spindle servo reverse output or switching of spindle rotation forward/reverse                  |
| 26    | RAA3        | O   | Address output to external D-RAM. ADR3                                                         |
| 27    | RAA2        | O   | Address output to external D-RAM. ADR2                                                         |
| 28    | RAA1        | O   | Address output to external D-RAM. ADR1                                                         |
| 29    | RAA0        | O   | Address output to external D-RAM. ADR0 (LSB)                                                   |
| 30*   | RAA10       | O   | Address output to external D-RAM. ADR10 (MSB)                                                  |
| 31    | VDD2        |     | Power supply terminal for DRAM interface                                                       |
| 32    | RAA4        | O   | Address output to external D-RAM. ADR4                                                         |
| 33    | RAA5        | O   | Address output to external D-RAM. ADR5                                                         |
| 34    | RAA6        | O   | Address output to external D-RAM. ADR6                                                         |
| 35    | RAA7        | O   | Address output to external D-RAM. ADR7                                                         |
| 36    | RAA8        | O   | Address output to external D-RAM. ADR8                                                         |
| 37    | RAOEX       | O   | Data output enable signal output to external D-RAM                                             |
| 38    | DGND        |     | Ground terminal for digital section                                                            |
| 39    | RACASX      | O   | Column address strobe signal output to external D-RAM                                          |
| 40    | RAD2        | I/O | Data input/output with external D-RAM. D2                                                      |
| 41    | RAD3        | I/O | Data input/output with external D-RAM. D3 (MSB)                                                |
| 42    | RAA9        | O   | Address output to external D-RAM. ADR9                                                         |
| 43    | RARASX      | O   | Low address strobe signal output to external D-RAM                                             |
| 44    | RAWEX       | O   | Data write enable signal output to external D-RAM                                              |
| 45    | RAD1        | I/O | Data input/output with external D-RAM. D1                                                      |
| 46    | RAD0        | I/O | Data input/output with external D-RAM. D0 (LSB)                                                |
| 47*   | RAA11       | O   | ADR11 (MSB 64Mbit)                                                                             |
| 48*   | ACRCER      | O   | CRC error flag monitor output of ADIP                                                          |
| 49*   | PLCK        | O   | EFM PLL clock output during reproduction                                                       |
| 50    | EFM0        | O   | EFM signal output during recording and C1F (C1 error flag) monitor output during reproduction  |
| 51*   | X700KO      | O   | Clock output. f=705.6KHz. No clock output when RSTX=0.                                         |
| 52*   | TCRS        | O   | Track cross signal                                                                             |
| 53,54 | TEST0,TEST1 | I   | Test input terminal, connected to GND when in normal use                                       |
| 55    | DILOCK      | O   | DIN lock detect                                                                                |
| 56    | DIN2        | I/O | Digital input signal. Expansion port 0                                                         |
| 57    | CDDATA      | I/O | Data input for high speed dubbing. Microprocessor expansion output port 5 when switching.      |
| 58    | CDLRCK      | I/O | LR clock input for high speed dubbing. Microprocessor expansion output port 6 when switching.  |
| 59    | CDBCLK      | I/O | Bit clock input for high speed dubbing. Microprocessor expansion output port 7 when switching. |
| 60    | VXI         | I   | PLL clock input for variable pitch.                                                            |
| 61*   | VPO         | O   | PLL phase error output for variable pitch.                                                     |
| 62    | VDD1        |     | Power supply terminal for digital section                                                      |
| 63    | DGND        |     | Ground terminal for digital section                                                            |
| 64    | XI          | I   | Oscillation circuit input. 33.8688MHz                                                          |

The \* marked terminal is a terminal which is not connected externally (open terminal).

## IC1201 : LR37816

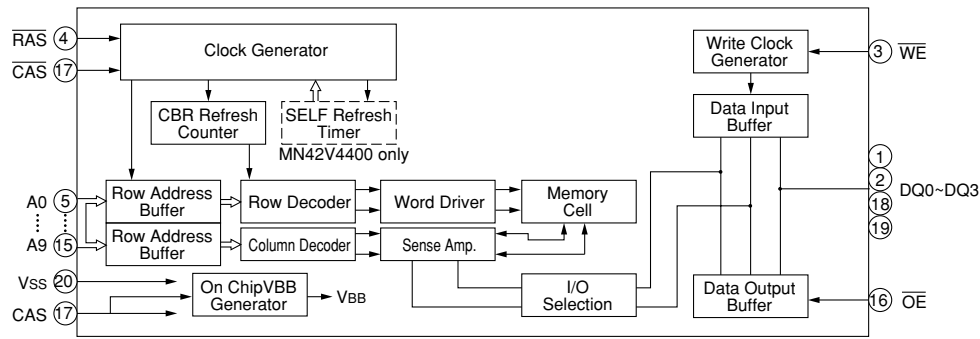
## ATRAC Encoder/Decoder

| No.   | Pin Name    | I/O | Function                                                                        |
|-------|-------------|-----|---------------------------------------------------------------------------------|
| 65    | XO          | O   | Oscillation circuit output. 33.8688MHz                                          |
| 66    | DIN         | I   | Digital input signal                                                            |
| 67    | DOUT        | O   | Digital output signal                                                           |
| 68    | PLLBVG      | O   | External capacitor terminal for internal PLL                                    |
| 69    | DGND        |     | Ground terminal for digital section                                             |
| 70    | LRCK        | O   | Output terminal for switching music data to Lch, Rch                            |
| 71    | BCLK        | O   | Shift clock for music data                                                      |
| 72    | DFCK        | O   | Clock for AD/DA converter digital filter. 256Fs                                 |
| 73    | ADDATA      | I   | Voice data input                                                                |
| 74    | DADATA      | O   | Voice data output                                                               |
| 75*   | FEMON       | O   | Focus error signal monitor output                                               |
| 76*   | TOTMON      | O   | Total signal monitor output                                                     |
| 77*   | TEMON       | O   | Tracking error signal monitor output                                            |
| 78    | SBCK        | I/O | DIN sub-code reading clock. EIAJ CP-309 format                                  |
| 79    | SBO         | I/O | DIN sub-code serial data. EIAJ CP-309 format.                                   |
| 80    | SBSY        | I/O | DIN sub-code block synchronous signal. EIAJ CP-309 format.                      |
| 81    | SFSY        | I/O | DIN sub-code frame synchronous signal. EIAJ CP-309 format.                      |
| 82    | FOK         | O   | Focus OK detect signal. "0": focus OK                                           |
| 83    | SENSE       | O   | Servo state detect signal. "1": Auto move, auto jump, auto focus being drawn in |
| 84    | COUT        | O   | Track cross signal output                                                       |
| 85    | MCCK        | O   | Clock output for microprocessor. Clock output also when RSTX=0                  |
| 86    | DINTX       | O   | Output terminal used to request interrupt into system control interface.        |
| 87    | VDD2        |     | Power supply terminal for interface section                                     |
| 88    | DGND        |     | Ground terminal for digital section                                             |
| 89    | RSTX        | I   | Chip reset input. Reset at "L" (Note)                                           |
| 90    | SYD0        | I/O | Data bus terminal of system control interface (LSB)                             |
| 91—96 | SYD1 — SYD6 | I/O | Data bus terminal of system control interface.                                  |
| 97    | SYD7        | I/O | Data bus terminal of system control interface. (MSB)                            |
| 98    | SYWRX       | I   | Input terminal for register write pulse of system control interface             |
| 99    | SYRDX       | I   | Input terminal for register read pulse of system control interface              |
| 100   | SYRS        | I   | Input terminal for register selection of system control interface               |

The \* marked terminal is a terminal which is not connected externally (open terminal).

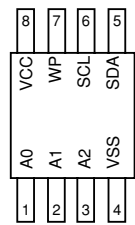
(Note) Set RSTX to "L" when or after turning on the power supply.

IC1202 : IX2474AF  
4M Bit D-RAM



| Pin No. | Name     | Function               |
|---------|----------|------------------------|
| 1, 2    | DQ0, DQ1 | Data input/data output |
| 3       | WE       | Write enable           |
| 4       | RAS      | Low address strobe     |
| 5       | A9       | Address input          |
| 6 — 9   | A0-A3    | Address input          |
| 10      | VDD      | Power supply (3.3V)    |
| 11 — 15 | A4-A8    | Address input          |
| 16      | OE       | Output enable          |
| 17      | CAS      | Column address strobe  |
| 18, 19  | DQ2, DQ3 | Data input/data output |
| 20      | Vss      | Power supply (0V)      |

IC1402 : 58X2402T  
EEPROM



| Pin No. | Name    | Function                 |
|---------|---------|--------------------------|
| 1 — 3   | A0 — A2 | Device address           |
| 4       | VSS     | Ground                   |
| 5       | SDA     | Serial data input/output |
| 6       | SCL     | Serial clock input       |
| 7       | WP      | Write protect            |
| 8       | VCC     | Power supply             |

## IC1401 : iX0410AW

## MD System Microprocessor

| No. | Pin Name  | I/O | Function                                                              |
|-----|-----------|-----|-----------------------------------------------------------------------|
| 1   | 4M/16M    | O   | 4M/16M DRAM select input                                              |
| 2   | 64M       | O   | 64M DRAM select input                                                 |
| 3   | LDVAR     | O   | LDVAR (Laser power adjustment output)                                 |
| 4*  | ADJS      | O   | ADJS (for automatic adjustment step check)                            |
| 5   | CIN       | I   | CIN (Track count signal input)                                        |
| 6*  | NC        |     | Unused                                                                |
| 7   | UNLOCK    | I   | ERR input (to unlock monitor PLL)                                     |
| 8   | BYTE      | I   | GND                                                                   |
| 9   | CNVss     | I   | GND                                                                   |
| 10* | STID OUT  | O   | ST-ID output                                                          |
| 11* | SEACH OUT | O   | MD search output                                                      |
| 12  | RESET     | I   | RESET input                                                           |
| 13* | NC        |     | Clock output                                                          |
| 14  | Vss       |     | GND                                                                   |
| 15  | MCCK      | I   | EXTAL (8.4672MHz)                                                     |
| 16  | Vcc       |     | +3.15V                                                                |
| 17  | P85       | I   | Input/output port P85                                                 |
| 18  | DINT      | I   | DINT (interrupt input from MD-LSI)                                    |
| 19  | SFSY      | I   | Interrupt input                                                       |
| 20  | ST-ID     | I   | ST-ID input (MD-ON)                                                   |
| 21  | SERCH     | I   | CD search input (Synchro REC interrupt input)                         |
| 22  | MDRSW     | O   | MD RSW output                                                         |
| 23* | CDB SEL   | O   | CD BLK SEL output                                                     |
| 24  | DSENSE    | I   | DSENSE (Servo sense input from MD-LSI)                                |
| 25  | P-DOWN    | I   | P-DOWN (power failure detect)                                         |
| 26  | HD ON     | O   | HDON (Magnetic head current ON/OFF output)                            |
| 27  | EEPRO     | O   | EEPROM protect cancel output                                          |
| 28  | HFON      | O   | HFON                                                                  |
| 29  | EEPK      | O   | EEPROM serial clock output                                            |
| 30  | EEPD      | I/O | EEPROM data input/output                                              |
| 31  | MD DATA   | O   | MD data output                                                        |
| 32  | K DATA    | I   | System computer data input                                            |
| 33  | DSCK      | I   | System computer communication clock input                             |
| 34  | DSTB      | O   | DSTB (system computer communication enabled and during communication) |
| 35* | NC        | O   | Unused                                                                |
| 36  | SBO       | I   | Sub-code serial data input                                            |
| 37  | SBCK      | O   | Sub-code communication serial clock output                            |
| 38  | DISC      | O   | DISC                                                                  |
| 39  | R/P       | O   | R/P output (REC/PLAY select)                                          |
| 40  | FOK       | I   | FOK (focus servo state monitor input)                                 |
| 41  | FLASH L   | I   | Flash write select                                                    |
| 42  | SGAIN     | O   | SGAIN                                                                 |
| 43  | SYRS      | O   | MD LSI register select signal output                                  |
| 44  | SYRD      | O   | SYRD (MD-LSI read signal output)                                      |
| 45  | SYWR      | O   | SYWR (MD-LSI write signal output)                                     |
| 46  | FLASH H   | I   | Flash write select                                                    |
| 47  | SYS D7    | I/O | SYS D7 (data bus 7)                                                   |
| 48  | SYS D6    | I/O | SYS D6 (data bus 6)                                                   |
| 49  | SYS D5    | I/O | SYS D5 (data bus 5)                                                   |
| 50  | SYS D4    | I/O | SYS D4 (data bus 4)                                                   |
| 51  | SYS D3    | I/O | SYS D3 (data bus 3)                                                   |
| 52  | SYS D2    | I/O | SYS D2 (data bus 2)                                                   |
| 53  | SYS D1    | I/O | SYS D1 (data bus 1)                                                   |
| 54  | SYS D0    | I/O | SYS D0 (Data bus 0)                                                   |

The \* marked terminal is a terminal which is not connected externally (open terminal).

## IC1401 : iX0410AW

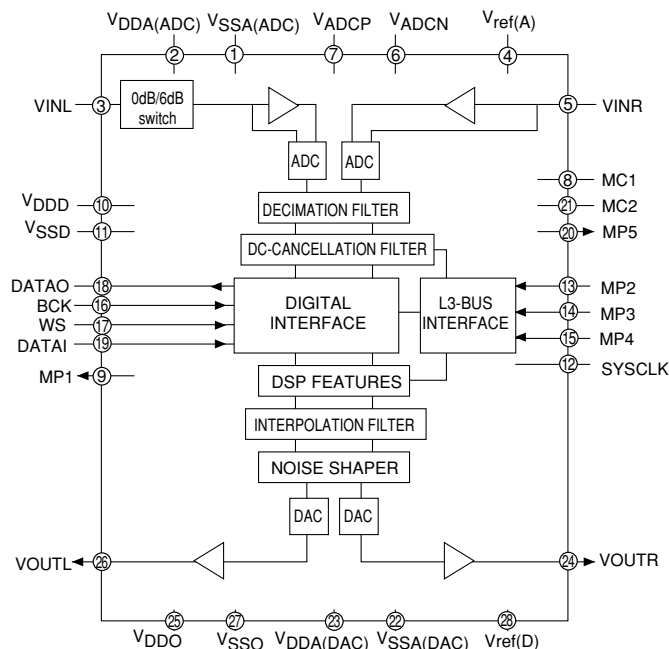
## MD System Microprocessor

| No. | Pin Name | I/O | Function                                                     |
|-----|----------|-----|--------------------------------------------------------------|
| 55* | P37      | O   | Input/output port P37                                        |
| 56* | P36      | O   | Input/output port P36                                        |
| 57* | P35      | O   | Input/output port P35                                        |
| 58* | P34      | O   | Input/output port P34                                        |
| 59* | P33      | O   | Input/output port P33                                        |
| 60* | P32      | O   | Input/output port P32                                        |
| 61  | P31      | O   | Input/output port P31                                        |
| 62  | Vcc      | I   | +3.15V                                                       |
| 63  | INNSW    | I   | Pick innermost track detect input                            |
| 64  | GND      |     | GND                                                          |
| 65  | L3 DATA  | O   | L3 DATA (soft serial communication, with 2 modes, LSB first) |
| 66  | L3 MODE  | O   | L3 MODE (soft serial communication, with 2 modes, LSB first) |
| 67  | L3 CLK   | O   | L3 CLK (soft serial communication, with 2 modes, LSB first)  |
| 68* | P24      | O   | Input/output port P24                                        |
| 69* | P23      | O   | Input/output port P23                                        |
| 70  | PCNT0    | O   | PCNT0 output                                                 |
| 71* | LAST     | O   | LAST                                                         |
| 72  | LD ON    | O   | LDON output (H: ON)                                          |
| 73  | A/B      | O   | ANLPTR output                                                |
| 74  | SBSY     | O   | ADPON output (for CK)                                        |
| 75* | DAP ON   | O   | DAPON output (for CK)                                        |
| 76* | DFS0     | O   | DFS0 output                                                  |
| 77* | DFS1     | O   | DFS1 output                                                  |
| 78  | P12      | O   | Input/output port P12                                        |
| 79  | P11      | O   | Input/output port P11                                        |
| 80  | XRST     | O   | XRST (system reset output)                                   |
| 81* | AD MUTE  | O   | ADMUTE output (for CK)                                       |
| 82  | LD+      | O   | Loading motor + side control output                          |
| 83  | LD-      | O   | Loading motor - side control output                          |
| 84* | MUTE     | O   | MUTE output                                                  |
| 85* | RAST     | O   | RAST                                                         |
| 86* | TEST2    | I   | TEST 2 (special mode select 2)                               |
| 87* | TEST1    | I   | TEST 1 (special mode select 1)                               |
| 88* | TEST0    | I   | TEST 0 (special mode select 0)                               |
| 89  | AVCK3    | I   | AVCK3 (motor driver power supply monitor input)              |
| 90  | AVCK2    | I   | AVCK2 (AD/DA block 3.1V monitor input)                       |
| 91  | AVCK1    | I   | AVCK1 (head circuit power supply monitor input)              |
| 92  | DTEMP    | I   | DTEMP (temperature detect input)                             |
| 93  | MINF     | I   | MINF (by disc type / REC input)                              |
| 94* | TEST K1  | I   | TEST K1 (test key input 1)                                   |
| 95* | TEST K2  | I   | TEST K2 (test key input 2)                                   |
| 96  | GND      |     | GND                                                          |
| 97* | NC       |     | Unused                                                       |
| 98  | VREF     |     | +3.15V                                                       |
| 99  | AVcc     |     | +3.15V                                                       |
| 100 | PR       | I   | Playback/recording reset input                               |

The \* marked terminal is a terminal which is not connected externally (open terminal).

## IC1701 : UDA1345T

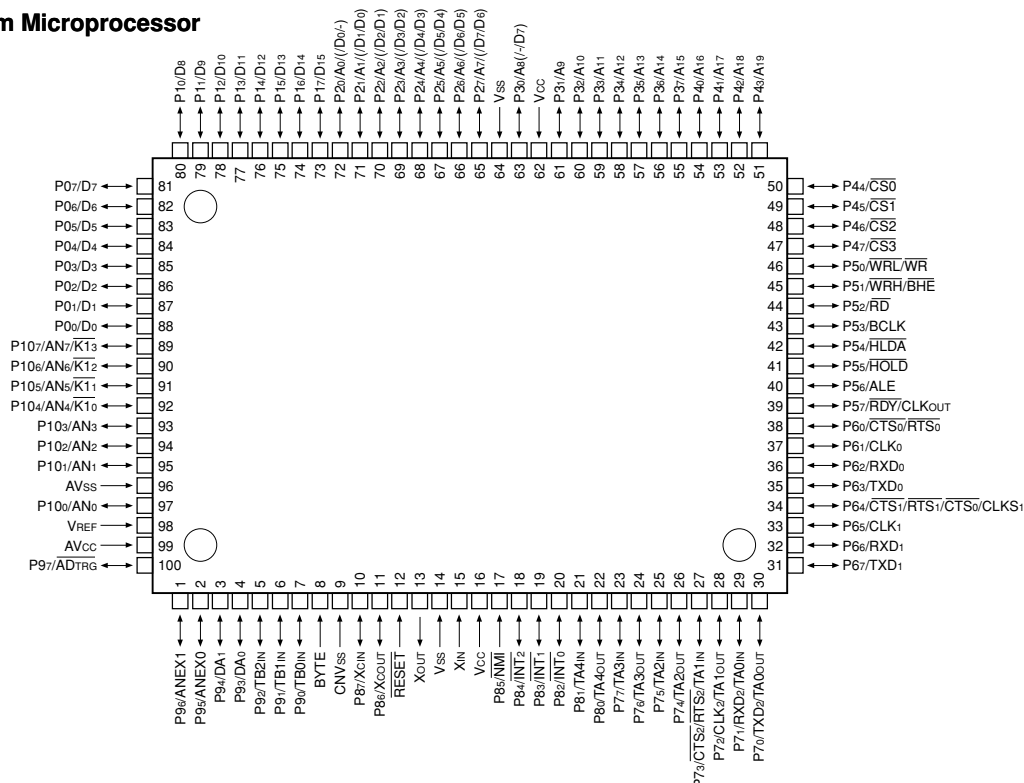
## AD Converter/DA Converter



| Pin No. | Name      | Function                         |
|---------|-----------|----------------------------------|
| 1       | VSSA(ADC) | ADC analog ground                |
| 2       | VDDA(ADC) | ADC analog power supply          |
| 3       | VINL      | ADC input (left)                 |
| 4       | Vref(A)   | ADC reference voltage            |
| 5       | VINR      | ADC input (right)                |
| 6       | VADCN     | ADC reference voltage N          |
| 7       | VADCP     | ADC reference voltage P          |
| 8*      | MC1       | Mode control 1 (pull-down)       |
| 9*      | MP1       | Multi-purpose pin 1              |
| 10      | VDDD      | Digital power supply             |
| 11      | VSSD      | Digital ground                   |
| 12      | SYSCLK    | System clock 256, 384, 512fs     |
| 13      | MP2       | Multi-purpose pin 2              |
| 14      | MP3       | Multi-purpose pin 3              |
| 15      | MP4       | Multi-purpose pin 4              |
| 16      | BCK       | Bit clock input                  |
| 17      | WS        | Word select input                |
| 18      | DATAO     | Data output                      |
| 19      | DATAI     | Data input                       |
| 20*     | MP5       | Multi-purpose pin 5 (pull-down)  |
| 21*     | MC2       | Mode control 2 (pull-down)       |
| 22      | VSSA(DAC) | DAC analog ground                |
| 23      | VDDA(ADC) | DAC analog power supply          |
| 24      | VOUTR     | DAC output (right)               |
| 25      | VDDO      | Operation amplifier power supply |
| 26      | VOUTL     | DAC output (left)                |
| 27      | VSSO      | Operation amplifier ground       |
| 28      | Vref(D)   | DAC reference voltage            |

The \* marked terminal is a terminal which is not connected externally (open terminal).

## Main System Microprocessor



| No. | Port            | I/O | Name      | Function                          |
|-----|-----------------|-----|-----------|-----------------------------------|
| 1   | P96/ANEX1       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 2   | P95/ANEX0       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 3   | P94/DA1         | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 4   | P93/DA0         | I/O |           | Unused (Open)                     |
| 5   | P92/TB2in       | O   | SEL       | Digital input switching           |
| 6   | P91/TB1in       | O   | /MUTE     | LINE MUTE                         |
| 7   | P90/TB0in       |     |           | Unused (Pull-down at 10 kΩ)       |
| 8   | BYTE            | I   | GND       |                                   |
| 9   | CNVss           | I   | GND       | (Pull-down at 4.7 kΩ)             |
| 10  | P87/Xcin        | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 11  | P86/Xcout       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 12  | /RESET          | I   | /RESET    | Reset input                       |
| 13  | Xout            | O   | XOUT      | Ceramic clock 10MHz               |
| 14  | Vss             | I   | GND       | GND level input                   |
| 15  | Xin             | I   | XIN       | Ceramic clock 10MHz               |
| 16  | Vcc             | I   | VCC       | Microprocessor power supply input |
| 17  | P85//NMI        | I   | PU        | PU to Vcc                         |
| 18  | P84//INT2       | I   | DSTB      | MD strobe input                   |
| 19  | P83//INT1       | I   | /PDN      | Power failure detect (Power down) |
| 20  | P82//INT0       | I   | REM       | Remote controller input           |
| 21  | P81/TA4in       | I   | SYSIN     | System control in                 |
| 22  | P80/TA4out      | O   | SYSOUT    | System control out                |
| 23  | P77/TA3in       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 24  | P76/TA3out      | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 25  | P75/TA2in       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 26  | P74/TA2out      | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 27  | P73/TA1in       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 28  | P72/TA1out      | O   | SCL       | Clock to EEPROM                   |
| 29  | P71/TA0in       | I   | SDI       | Data input for EEPROM             |
| 30  | P70/TA0out      | O   | SDO       | Data to EEPROM                    |
| 31  | P67/TxD1        | O   | FLDAT     | Data to FL driver                 |
| 32  | P66/RxD1        | O   | /FLCE     | CE FL driver                      |
| 33  | P65/CLK1        | O   | FLCLK     | Clock FL data                     |
| 34  | P64//CTS        | O   | /FLRES    | Reset FL driver                   |
| 35  | P63/TxD0        | O   | KDATA     | MD key data                       |
| 36  | P62/RxD0        | I   | MDDATA    | MD data input                     |
| 37  | P61/CLK0        | O   | DSCK      | MD clock output                   |
| 38  | P60//CTS0,/RTS0 | O   | MD-ST     | MD start (MD-ON)                  |
| 39  | P57//RDY,CLKout | O   | /MD-RESET | MD reset output                   |

## IC6 : M30622M8-xxxFP

## Main System Microprocessor

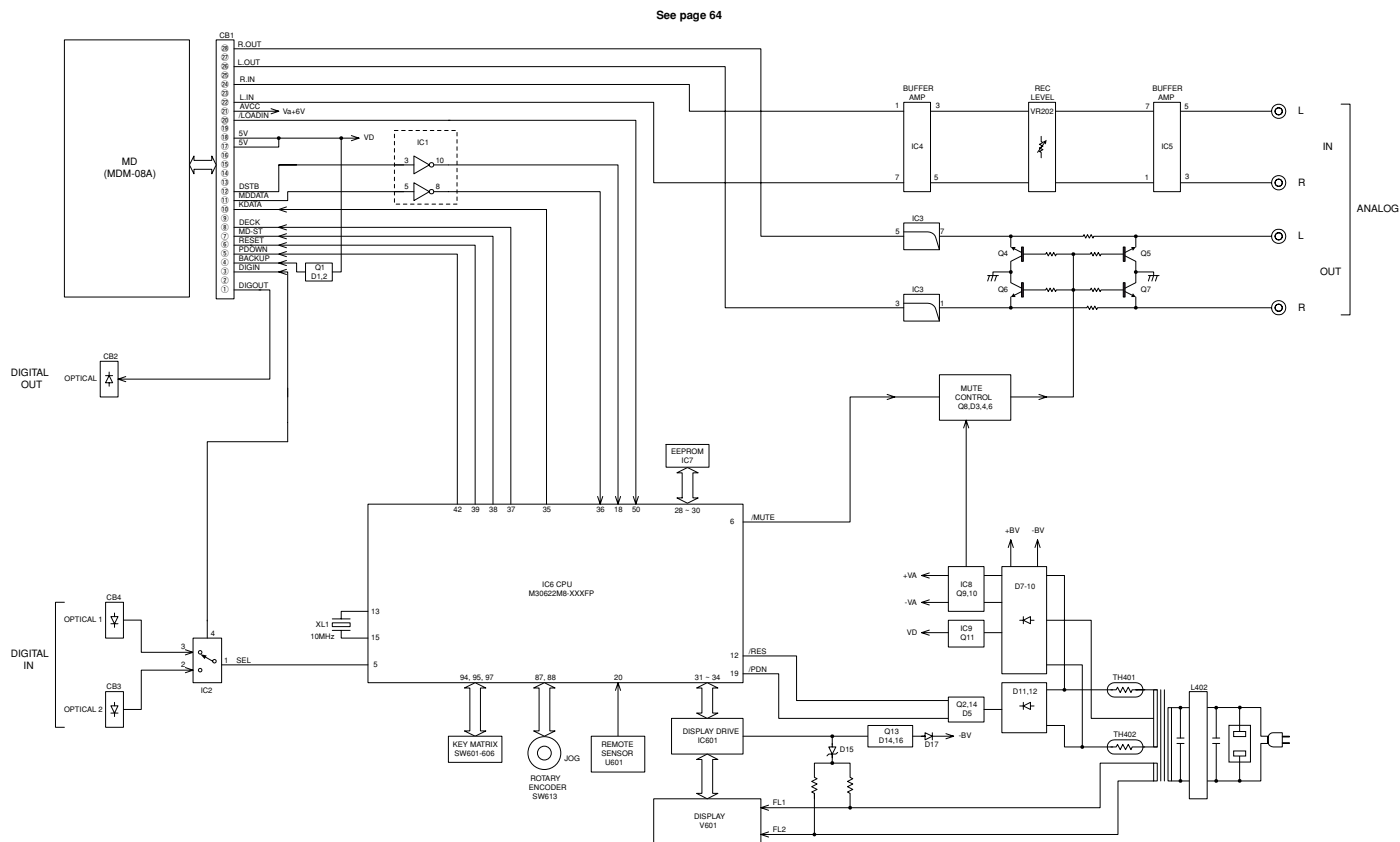
| No. | Port          | I/O | Name      | Function                          |
|-----|---------------|-----|-----------|-----------------------------------|
| 40  | P56/ALE       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 41  | P55//HOLD     | I   | /EPM      | GND                               |
| 42  | P54//HLDA     | O   | POWERDOWN | Used at MD unit power failure     |
| 43  | P53/BCLK      | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 44  | P52//RD       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 45  | P51//WRH./BHE | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 46  | P50//WRL./WR  | I   | /CE       | PU at 10kΩ                        |
| 47  | P47//CS3      | I/O | CG/CSG    | Unused (pull up)                  |
| 48  | P46//CS2      | I/O |           | Unused (pull up)                  |
| 49  | P45//CS1      | I   | VER       | Destination input                 |
| 50  | P44//CS0      | I   | LOADIN    | L-H: DISC IN                      |
| 51  | P43/A19       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 52  | P42/A18       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 53  | P41/A17       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 54  | P40/A16       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 55  | P37/A15       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 56  | P36/A14       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 57  | P35/A13       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 58  | P34/A12       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 59  | P33/A11       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 60  | P32/A10       | I/O |           | Unused ((Pull-down at 10 kΩ)      |
| 61  | P31/A9        | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 62  | Vcc           | I   | VCC       | Microprocessor power supply input |
| 63  | P30/A8        | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 64  | Vss           | I   | GND       | GND level input                   |
| 65  | P27/A7        | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 66  | P26/A6        | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 67  | P25/A5        | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 68  | P24/A4        | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 69  | P23/A3        | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 70  | P22/A2        | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 71  | P21/A1        | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 72  | P20/A0        | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 73  | P17/D15       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 74  | P16/D14       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 75  | P15/D13       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 76  | P14/D12       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 77  | P13/D11       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 78  | P12/D10       | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 79  | P11/D9        | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 80  | P10/D8        | I/O |           | Unused ((Pull-down at 10 kΩ)      |
| 81  | P07/D7        | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 82  | P06/D6        | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 83  | P05/D5        | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 84  | P04/D4        | I   | TREC      | Unused (Pull-down at 10 kΩ)       |
| 85  | P03/D3        | I   | TPLY      | Unused (Pull-down at 10 kΩ)       |
| 86  | P02/D2        | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 87  | P01/D1        | I   | JOG2      | JOG input 2                       |
| 88  | P00/D0        | I   | JOG1      | JOG input 1                       |
| 89  | P107/AN7      | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 90  | P106/AN6      | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 91  | P105/AN5      | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 92  | P104/AN4      | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 93  | P103/AN3      | I/O |           | Unused (Pull-down at 10 kΩ)       |
| 94  | P102/AN2      | I   | KEY3      | KEY input 3                       |
| 95  | P101/AN1      | I   | KEY2      | KEY input 2                       |
| 96  | AVss          | I   | DGND      | GND level input for AD            |
| 97  | P100/AN0      | I   | KEY1      | KEY input 1                       |
| 98  | Vref          | I   | VREF      | Reference voltage input for AD    |
| 99  | AVcc          | I   | ADVCC     | Power supply terminal for AD      |
| 100 | P97//ADTRG    | I/O |           | Unused (Pull-down at 10 kΩ)       |

## ● KEY INPUT (A-D) PULL UP RESISTOR 10kΩ

| Standard value(V) | Permission value(V) | KEY 1 (97pin) | KEY 2 (95pin) | KEY 3 (94pin) |
|-------------------|---------------------|---------------|---------------|---------------|
| 0.00              | 0.00—0.37           | NO KEY        | □             | STANDBY/ON    |
| 1.25              | 1.00—1.51           | INPUT         | NO KEY        | NO KEY        |
| 1.76              | 1.51—2.02           | REC/PAUSE     | NO KEY        | NO KEY        |
| 2.25              | 2.02—2.49           | NO KEY        | NO KEY        | NO KEY        |
| 2.75              | 2.49—3.00           | ▷ / ▢         | NO KEY        | NO KEY        |
| 3.26              | 3.00—3.53           | NO KEY        | △             | NO KEY        |
| 5.00              | 4.02—5.00           | KEY OFF       | KEY OFF       | KEY OFF       |

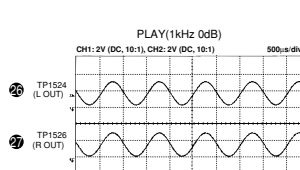
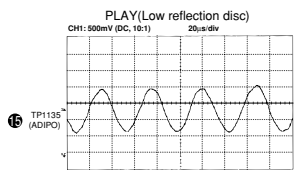
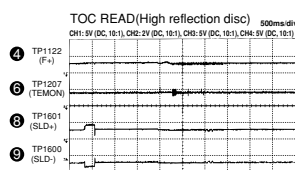
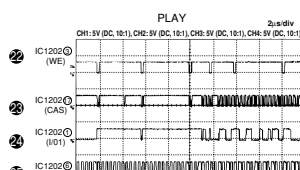
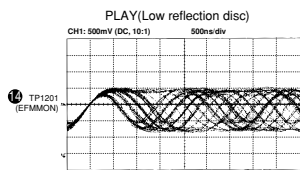
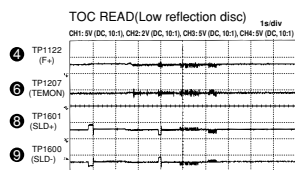
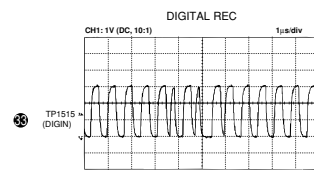
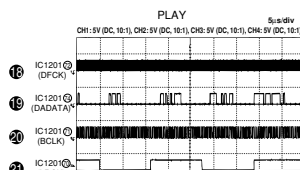
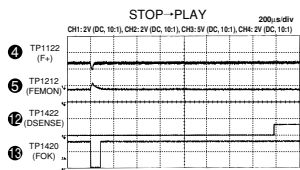
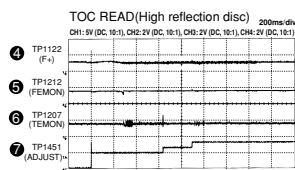
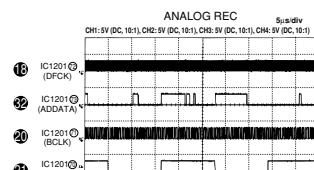
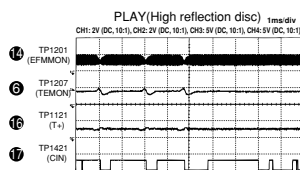
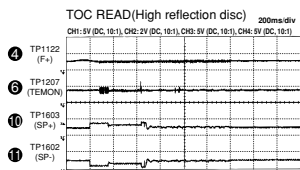
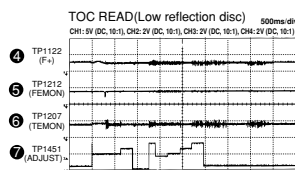
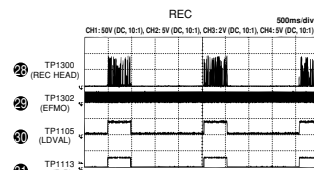
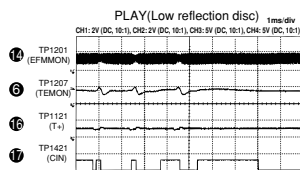
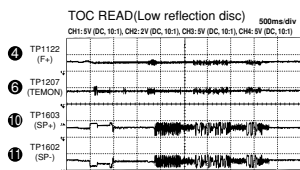
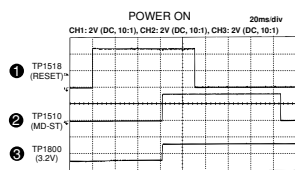


## ■ BLOCK DIAGRAM

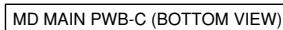
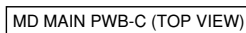


# MDX-E300

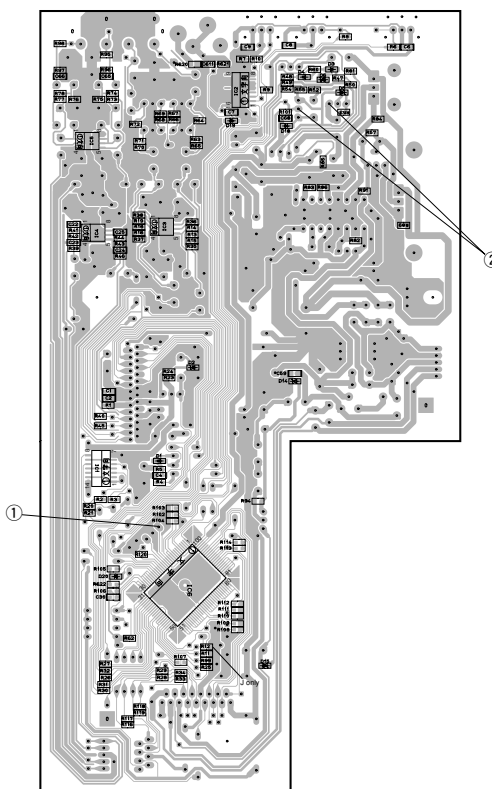
## TEST POINT WAVEFORM



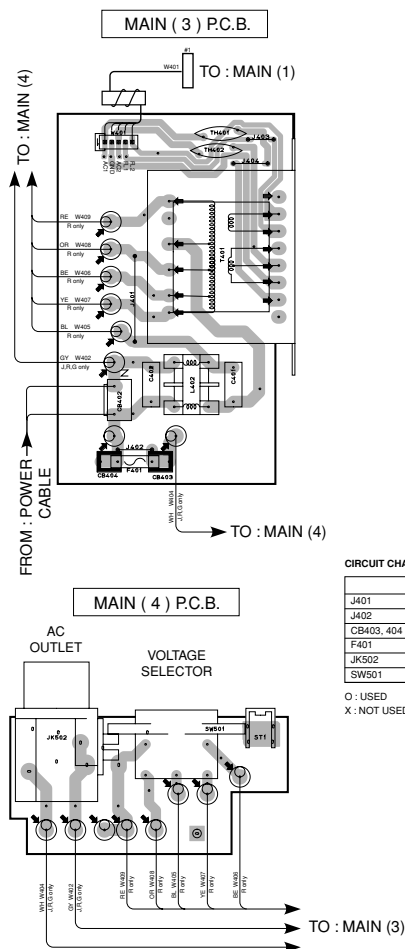
**1** to **33**: TEST POINT WAVEFORMS (See page 58)



MAIN ( 1 ) P.C.B. (Surface Mount Device)



- 1 \_\_\_\_\_
- 2 \_\_\_\_\_
- 3 \_\_\_\_\_
- 4 \_\_\_\_\_
- 5 \_\_\_\_\_
- 6 \_\_\_\_\_



**CIRCUIT CHANGES BY MARKET.**

|            | R | B | G | J |
|------------|---|---|---|---|
| J401       | X | O | O | O |
| J402       | O | X | X | O |
| CB403, 404 | X | X | O | X |
| F401       | X | X | O | X |
| JK502      | O | X | O | O |
| SW501      | O | X | X | X |

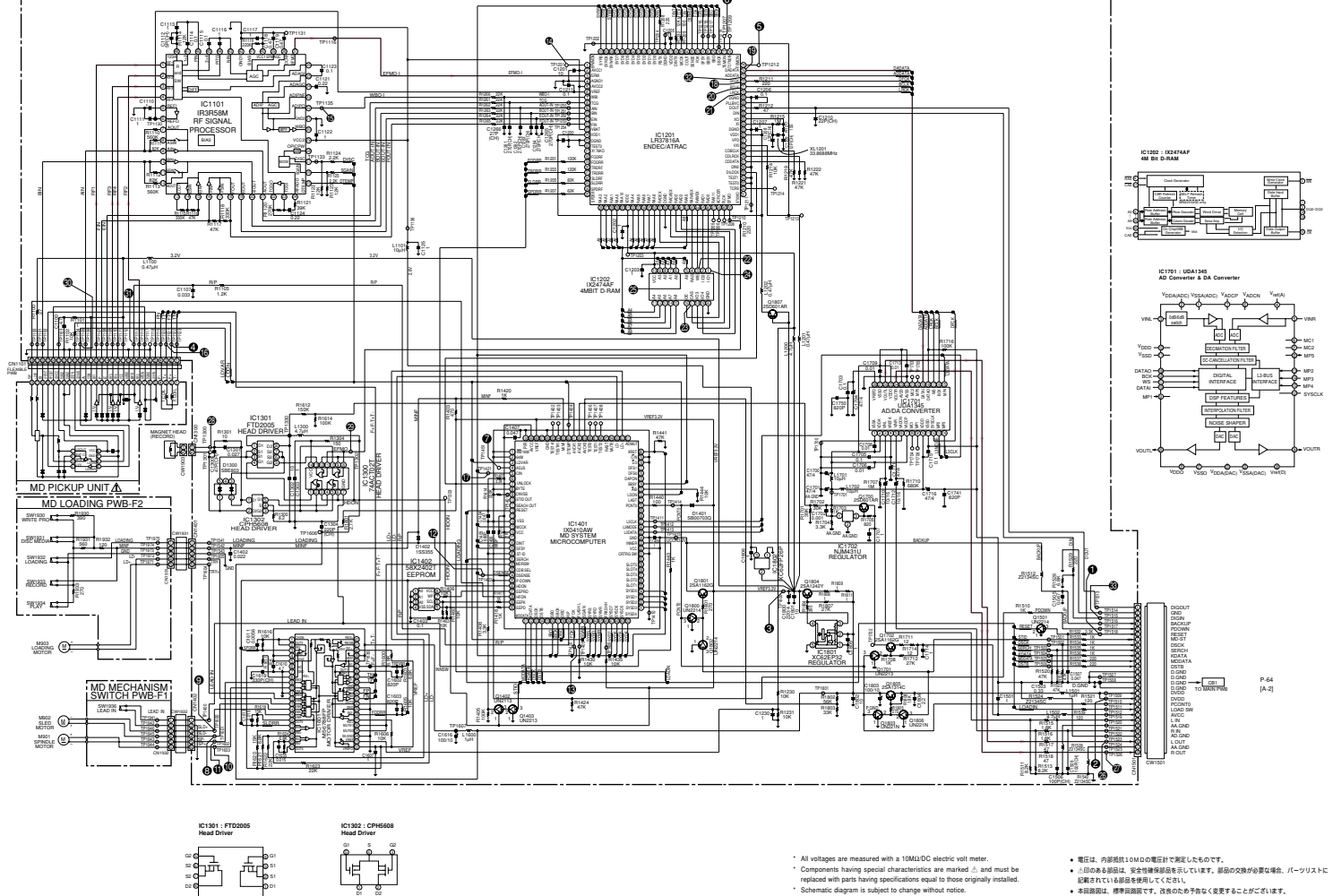
O : USED  
X : NOT USED

62

## ■ SCHEMATIC DIAGRAM

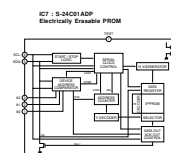
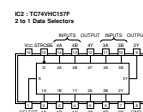
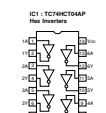
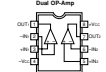
● to ● : TEST POINT WAVEFORMS (See page 58)

MD MAIN PWB-C

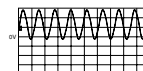


\* All voltages are measured with a 10MΩ/DC electric volt meter.  
 \* Components having special characteristics are marked Ⓢ, and must be replaced with parts having specifications equal to those originally installed.  
 \* Schematic diagram is subject to change without notice.

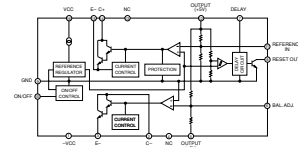
● 電圧は、内部抵抗10MΩの電圧計で測定したものです。  
 ● Ⓢ印のある部品は、安全性能部品を示しています。部品の交換が必要な場合、パーツリストに記載されている部品を使用してください。  
 ● 本図面は、標準図面です。改変のため予告なく変更することがあります。



**Point ①** (Pin 13 of IC6)  
V : 2V/div H : 20  $\mu$ sec/div  
DC range 1 : 1 probe

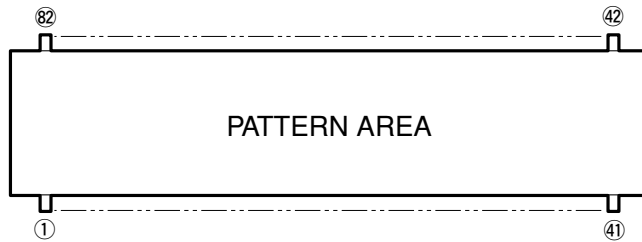


**Point ②**  
 (CH1: Emitter of Q2) V: 2V/div CH1  
 (CH2: Collector of Q14) V: 2V/div CH2  
 H: 5 sec/div DC range 1:1 probe



- \* All voltages are measured with a 10MΩ/DC electric volt meter.
- \* Components having special characteristics are marked  $\triangle$  and must be replaced with parts having specifications equal to those originally installed.
- \* Schematic diagram is subject to change without notice.
- 電圧は、内部抵抗10MΩの電圧計で測定したものです。
- $\triangle$ 印のある部品は、安全性確保部品を示しています。部品の交換が必要な場合、パーツリストに記載されている部品を使用してください。
- 本図面は、標準図面です。改修のため予告なく変更することがございます。

**V601 : 15-BT-82GN (V8833800)**

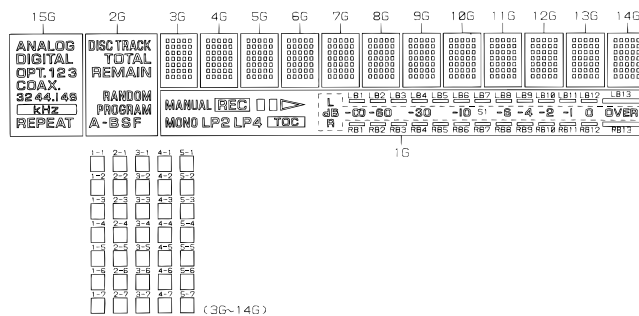


## ● PIN CONNECTION

[illegible]

- Note 1) F1, F2 ..... Filament  
2) NP ..... No Pin  
3) NX ..... No extend Pin  
4) P1~P35 ..... Datum Line  
5) 1G~15G ..... Grid

## ● GRID ASSIGNMENT



### ● ANODE CONNECTION

|     | 1G     | 2G      | 3G~14G | 15G     |
|-----|--------|---------|--------|---------|
| P1  | LP2    | -       | 1-1    | -       |
| P2  | LP4    | -       | 2-1    | -       |
| P3  | TOC    | -       | 3-1    | -       |
| P4  | MANUAL | -       | 4-1    | -       |
| P5  | ▶      | -       | 5-1    | -       |
| P6  | □□     | -       | 1-2    | -       |
| P7  | REC    | -       | 2-2    | -       |
| P8  | MONO   | -       | 3-2    | -       |
| P9  | RB1    | -       | 4-2    | -       |
| P10 | RB2    | -       | 5-2    | -       |
| P11 | RB3    | -       | 1-3    | -       |
| P12 | RB4    | -       | 2-3    | -       |
| P13 | RB5    | -       | 3-3    | -       |
| P14 | RB6    | DISC    | 4-3    | -       |
| P15 | RB7    | TRACK   | 5-3    | -       |
| P16 | RB8    | TOTAL   | 1-4    | -       |
| P17 | RB9    | REMAIN  | 2-4    | -       |
| P18 | RB10   | RANDOM  | 3-4    | -       |
| P19 | RB11   | PROGRAM | 4-4    | -       |
| P20 | RB12   | A       | 5-4    | -       |
| P21 | RB13   | -B      | 1-5    | -       |
| P22 | S1     | S       | 2-5    | -       |
| P23 | LB1    | F       | 3-5    | -       |
| P24 | LB2    | -       | 4-5    | ANALOG  |
| P25 | LB3    | -       | 5-5    | DIGITAL |
| P26 | LB4    | -       | 1-6    | 1       |
| P27 | LB5    | -       | 2-6    | 2       |
| P28 | LB6    | -       | 3-6    | 3       |
| P29 | LB7    | -       | 4-6    | OPT.    |
| P30 | LB8    | -       | 5-6    | COAX.   |
| P31 | LB9    | -       | 1-7    | 32      |
| P32 | LB10   | -       | 2-7    | 44.1    |
| P33 | LB11   | -       | 3-7    | 48      |
| P34 | LB12   | -       | 4-7    | kHz     |
| P35 | LB13   | -       | 5-7    | REPEAT  |

# PARTS LIST

## ■ ELECTRICAL PARTS

### ■ WARNING

- Components having special characteristics are marked △ and must be replaced with parts having specifications equal to those originally installed.
- Carbon resistors (1/6W or 1/4W) are not included in the ELECTRICAL PARTS List. For the parts No. of the carbon resistors, refer to last page.

- △印のある部分は、安全確保部品を示しています。部品の交換が必要な場合、パーツリストに記載されている部品を使用してください。
- 本機に使用しているカーボン抵抗は、1/6Wです。このパーツリストには、記載しておりませんので、部品番号がHF85○○○○タイプまたは同等品を使用してください。

### ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS :

C.A.EL.CHP : CHIP ALUMI. ELECTROLYTIC CAP  
 C.CE : CERAMIC CAP  
 C.CE.ARRAY : CERAMIC CAP ARRAY  
 C.CE.CHP : CHIP CERAMIC CAP  
 C.CE.ML : MULTILAYER CERAMIC CAP  
 C.CE.M.CHP : CHIP MULTILAYER CERAMIC CAP  
 C.CE.SAFTY : RECOGNIZED CERAMIC CAP  
 C.CE.TUBLR : CERAMIC TUBULAR CAP  
 C.CE.SMI : SEMI CONDUCTIVE CERAMIC CAP  
 C.EL : ELECTROLYTIC CAP  
 C.MICA : MICA CAP  
 C.ML.FLM : MULTILAYER FILM CAP  
 C.MP : METALLIZED PAPER CAP  
 C.MYLAR : MYLAR FILM CAP  
 C.MYLAR.ML : MULTILAYER MYLAR FILM CAP  
 C.PAPER : PAPER CAPACITOR  
 C.PLS : POLYSTYRENE FILM CAP  
 C.POL : POLYESTER FILM CAP  
 C.POLY : POLYETHYLENE FILM CAP  
 C.PP : POLYPROPYLENE FILM CAP  
 C.TNTL : TANTALUM CAP  
 C.TNTL.CHP : CHIP TANTALUM CAP  
 C.TRIM : TRIMMER CAP  
 CN : CONNECTOR  
 CN.BS.PIN : CONNECTOR, BASE PIN  
 CN.CANNON : CONNECTOR, CANNON  
 CN.DIN : CONNECTOR, DIN  
 CN.FLAT : CONNECTOR, FLAT CABLE  
 CN.POST : CONNECTOR, BASE POST  
 COIL.MX.AM : COIL, AM MIX  
 COIL.AT.FM : COIL, FM ANTENNA  
 COIL.DT.FM : COIL, FM DETECT  
 COIL.MX.FM : COIL, FM MIX  
 COIL.OUTPT : OUTPUT COIL  
 DIOD.ARRAY : DIODE ARRAY  
 DIODE.BRG : DIODE BRIDGE  
 DIODE.CHP : CHIP DIODE  
 DIODE.SHOT : SCHOTTKY BARRIER DIODE  
 DIODE.VAR : VARACTOR DIODE  
 DIOD.Z.CHP : CHIP ZENER DIODE  
 DIODE.ZENR : ZENER DIODE  
 DSCR.CE : CERAMIC DISCRIMINATOR  
 FER.BEAD : FERRITE BEADS  
 FER.CORE : FERRITE CORE  
 FET.CHP : CHIP FET  
 FL.DSPLY : FLUORESCENT DISPLAY  
 FLTR.CE : CERAMIC FILTER  
 FLTR.COMB : COMB FILTER MODULE  
 FLTR.LC.RF : LC FILTER ,EMI  
 GND.MTL : GROUND PLATE  
 GND.TERM : GROUND TERMINAL  
 HOLDER.FUS : FUSE HOLDER  
 IC.PRTCT : IC PROTECTOR  
 JUMPER.CN : JUMPER CONNECTOR  
 JUMPER.TST : JUMPER, TEST POINT

L.DTCT : LIGHT DETECTING MODULE  
 L.EMIT : LIGHT EMITTING MODULE  
 LED.DSPLY : LED DISPLAY  
 LED.INFRD : LED, INFRARED  
 MODUL.RF : MODULATOR, RF  
 PHOT.CPL : PHOTO COUPLER  
 PHOT.INTR : PHOTO INTERRUPTER  
 PHOT.RFLCT : PHOTO REFLECTOR  
 PIN.TEST : PIN, TEST POINT  
 PLST.RIVET : PLASTIC RIVET  
 R.ARRAY : RESISTOR ARRAY  
 R.CAR : CARBON RESISTOR  
 R.CAR.CHP : CHIP RESISTOR  
 R.CAR.FP : FLAME PROOF CARBON RESISTOR  
 R.FUS : FUSABLE RESISTOR  
 R.MTL.CHP : CHIP METAL FILM RESISTOR  
 R.MTL.FLM : METAL FILM RESISTOR  
 R.MTL.OXD : METAL OXIDE FILM RESISTOR  
 R.MTL.PLAT : METAL PLATE RESISTOR  
 RSNR.CE : CERAMIC RESONATOR  
 RSNR.CRYS : CRYSTAL RESONATOR  
 R.TW.CEM : TWIN CEMENT FIXED RESISTOR  
 R.WW : WIRE WOUND RESISTOR  
 SCR.BND.HD : BIND HEAD B-TITE SCREW  
 SCR.BW.HD : BW HEAD TAPPING SCREW  
 SCR.CUP : CUP TITE SCREW  
 SCR.TERM : SCREW TERMINAL  
 SCR.TR : SCREW, TRANSISTOR  
 SUPRT.PCB : SUPPORT, P.C.B.  
 SURG.PRTCT : SURGE PROTECTOR  
 SW.TACT : TACT SWITCH  
 SW.LEAF : LEAF SWITCH  
 SW.LEVER : LEVER SWITCH  
 SW.MICRO : MICRO SWITCH  
 SW.PUSH : PUSH SWITCH  
 SW.RT.ENC : ROTARY ENCODER  
 SW.RT.MTR : ROTARY SWITCH WITH MOTOR  
 SW.RT : ROTARY SWITCH  
 SW.SLIDE : SLIDE SWITCH  
 TERM.SP : SPEAKER TERMINAL  
 TERM.WRAP : WRAPPING TERMINAL  
 THRMST.CHP : CHIP THERMISTOR  
 TR.CHP : CHIP TRANSISTOR  
 TR.DGT : DIGITAL TRANSISTOR  
 TR.DGT.CHP : CHIP DIGITAL TRANSISTOR  
 TRANS : TRANSFORMER  
 TRANS.PULS : PULSE TRANSFORMER  
 TRANS.PWR : POWER TRANSFORMER ASS'y  
 TUNER.AM : TUNER PACK, AM  
 TUNER.FM : TUNER PACK, FM  
 TUNER.PK : FRONT-END TUNER PACK  
 VR : ROTARY POTENTIOMETER  
 VR.MTR : POTENTIOMETER WITH MOTOR  
 VR.SW : POTENTIOMETER WITH ROTARY SW  
 VR.SLIDE : SLIDE POTENTIOMETER  
 VR.TRIM : TRIMMER POTENTIOMETER

## P.C.B. MAIN

| Ref.<br>No.      | PART NO. | Description | Remarks     | Markets | 部品名 | Rank        |    |
|------------------|----------|-------------|-------------|---------|-----|-------------|----|
| *<br>*<br>*<br>* | V9082900 | P.C.B.      | MAIN        | SI      | J   | P C B 集成メイン |    |
|                  | V9083000 | P.C.B.      | MAIN        | GD      | R   | P C B 集成メイン |    |
|                  | V9083100 | P.C.B.      | MAIN        | SI      | B   | P C B 集成メイン |    |
|                  | V9133100 | P.C.B.      | MAIN        | SI      | G   | P C B 集成メイン |    |
| CB1              | V3733000 | CN          | 28P         |         |     | F M N コネクター | 03 |
| CB2              | V4164300 | L.EMIT      | TOTX178A    |         |     | 光送信モジュール    | 04 |
| CB3              | VT620100 | L.DTCT      | TORX178A    |         |     | 光受信モジュール    | 05 |
| CB4              | VT620100 | L.DTCT      | TORX178A    |         |     | 光受信モジュール    | 05 |
| CB6              | VB390100 | CN.BS.PIN   | 5P          |         |     | ベースピン       | 01 |
| CB8              | VB390100 | CN.BS.PIN   | 5P          |         |     | ベースピン       | 01 |
| CB9              | VP682200 | CN.BS.PIN   | 8P          |         |     | F F C コネクター | 01 |
| CB402            | VG879900 | CN.BS.PIN   | 2P          |         |     | ベースピン       | 01 |
| CB403            | VP206500 | HOLDER.FUS  | EYF-52BCT   |         | G   | ヒューズホルダー    | 01 |
| CB404            | VP206500 | HOLDER.FUS  | EYF-52BCT   |         | G   | ヒューズホルダー    | 01 |
| CB601            | VF982300 | CN.BS.PIN   | 17P         |         |     | F F C コネクター | 01 |
| CB602            | VU271700 | CN          | 17P         |         |     | F F C コネクター | 01 |
| C1               | US035100 | C.CE.M.CHP  | 0.1uF 16V   |         |     | チップセラコン     | 01 |
| C2               | US035100 | C.CE.M.CHP  | 0.1uF 16V   |         |     | チップセラコン     | 01 |
| C3               | UR838100 | C.EL        | 100uF 16V   |         |     | ケミコン        | 01 |
| C4               | US035100 | C.CE.M.CHP  | 0.1uF 16V   |         |     | チップセラコン     | 01 |
| C5               | VF992600 | C.EL        | 4700uF 5.5V |         |     | バックアップケミコン  | 02 |
| C6               | US035100 | C.CE.M.CHP  | 0.1uF 16V   |         |     | チップセラコン     | 01 |
| C7               | US044220 | C.CE.M.CHP  | 0.022uF 25V |         |     | チップセラコン     | 01 |
| C8               | US035100 | C.CE.M.CHP  | 0.1uF 16V   |         |     | チップセラコン     | 01 |
| C9               | US035100 | C.CE.M.CHP  | 0.1uF 16V   |         |     | チップセラコン     | 01 |
| C10              | UA653300 | C.MYLAR     | 3000pF 50V  |         |     | マイラーコン      | 01 |
| C11              | VQ083000 | C.EL        | 47uF 16V    |         |     | ケミコン        | 01 |
| C12              | VQ083000 | C.EL        | 47uF 16V    |         |     | ケミコン        | 01 |
| C13              | UA653300 | C.MYLAR     | 3000pF 50V  |         |     | マイラーコン      | 01 |
| C14              | UR838100 | C.EL        | 100uF 16V   |         |     | ケミコン        | 01 |
| C15              | UR838100 | C.EL        | 100uF 16V   |         |     | ケミコン        | 01 |
| C16              | VG287600 | C.EL        | 100uF 25V   |         |     | ケミコン        | 01 |
| C17              | UA653390 | C.MYLAR     | 3900pF 50V  |         |     | マイラーコン      | 01 |
| C18              | UA653390 | C.MYLAR     | 3900pF 50V  |         |     | マイラーコン      | 01 |
| C19              | VG287600 | C.EL        | 100uF 25V   |         |     | ケミコン        | 01 |
| C20              | UR846470 | C.EL        | 4.7uF 25V   |         |     | ケミコン        | 01 |
| C21              | UR837100 | C.EL        | 10uF 16V    |         |     | ケミコン        | 01 |
| C22              | US061100 | C.CE.M.CHP  | 10pF 50V    |         |     | チップセラコン     | 01 |
| C23              | US061470 | C.CE.M.CHP  | 47pF 50V    |         |     | チップセラコン     | 01 |
| C24              | US061470 | C.CE.M.CHP  | 47pF 50V    |         |     | チップセラコン     | 01 |
| C25              | US061100 | C.CE.M.CHP  | 10pF 50V    |         |     | チップセラコン     | 01 |
| C26              | UR837100 | C.EL        | 10uF 16V    |         |     | ケミコン        | 01 |
| C27              | UR846470 | C.EL        | 4.7uF 25V   |         |     | ケミコン        | 01 |
| C29              | UR838470 | C.EL        | 470uF 16V   |         |     | ケミコン        | 01 |
| C30              | US035100 | C.CE.M.CHP  | 0.1uF 16V   |         |     | チップセラコン     | 01 |
| C31              | VQ569900 | C.EL        | 100uF 25V   |         |     | ケミコン        |    |
| C32              | VQ569900 | C.EL        | 100uF 25V   |         |     | ケミコン        |    |
| C33              | UA652560 | C.MYLAR     | 560pF 50V   |         |     | マイラーコン      | 02 |
| C35              | UR866100 | C.EL        | 1uF 50V     |         |     | ケミコン        | 01 |
| C36              | UR846470 | C.EL        | 4.7uF 25V   |         |     | ケミコン        | 01 |
| C37              | UA652220 | C.MYLAR     | 220pF 50V   |         |     | マイラーコン      | 01 |
| C38              | UR837100 | C.EL        | 10uF 16V    |         |     | ケミコン        | 01 |
| C39              | UR837100 | C.EL        | 10uF 16V    |         |     | ケミコン        | 01 |

\* New Parts (新規部品)

Note) Those parts marked with “#” are not included in the P.C.B. ass'y. (マーク#の部品は、基板に含まれません)

## P.C.B. MAIN

| Ref.<br>No. | PART NO. | Description | Remarks       | Markets | 部品名       | Rank |
|-------------|----------|-------------|---------------|---------|-----------|------|
| C40         | UA652220 | C.MYLAR     | 220pF 50V     |         | マイラーコン    | 01   |
| C42         | UR866100 | C.EL        | 1uF 50V       |         | ケミコン      | 01   |
| C43         | UR846470 | C.EL        | 4.7uF 25V     |         | ケミコン      | 01   |
| C44         | UA652560 | C.MYLAR     | 560pF 50V     |         | マイラーコン    | 02   |
| △ C45       | VK534100 | C.PP        | 0.01uF 100V   |         | P P コン    | 01   |
| C46         | UR837100 | C.EL        | 10uF 16V      |         | ケミコン      | 01   |
| C47         | VG289800 | C.EL        | 1000uF 50V    |         | ケミコン      | 02   |
| C48         | VG289100 | C.EL        | 330uF 25V     |         | ケミコン      | 01   |
| C49         | VG289800 | C.EL        | 1000uF 50V    |         | ケミコン      | 02   |
| C50         | VG289800 | C.EL        | 1000uF 50V    |         | ケミコン      | 02   |
| C51         | UR73A100 | C.EL        | 10000uF 16V   |         | ケミコン      | 03   |
| △ C52       | VK534100 | C.PP        | 0.01uF 100V   |         | P P コン    | 01   |
| C53         | UR837330 | C.EL        | 33uF 16V      |         | ケミコン      | 01   |
| C54         | UR866100 | C.EL        | 1uF 50V       |         | ケミコン      | 01   |
| C55         | VR169000 | C.MYLAR.ML  | ECQ-V1H334JL3 |         | 積層マイラーコン  | 01   |
| C58         | UR866470 | C.EL        | 4.7uF 50V     |         | ケミコン      | 01   |
| C59         | US035100 | C.CE.M.CHP  | 0.1uF 16V     |         | チップセラコン   | 01   |
| C60         | UR868330 | C.EL        | 330uF 50V     |         | ケミコン      | 01   |
| C61         | UR867470 | C.EL        | 47uF 50V      |         | ケミコン      | 01   |
| C62         | UR866470 | C.EL        | 4.7uF 50V     |         | ケミコン      | 01   |
| C63         | VL883800 | C.PP        | 2200pF 100V   |         | P P コン    | 01   |
| C64         | VL883800 | C.PP        | 2200pF 100V   |         | P P コン    | 01   |
| C65         | US062220 | C.CE.CHP    | 220pF 50V     |         | チップセラコン   | 01   |
| C66         | US062220 | C.CE.CHP    | 220pF 50V     |         | チップセラコン   | 01   |
| C67         | UR866220 | C.EL        | 2.2uF 50V     |         | ケミコン      | 01   |
| C68         | US035100 | C.CE.M.CHP  | 0.1uF 16V     |         | チップセラコン   | 01   |
| C70         | V4749000 | C.EL        | 150uF 6.3V    |         | ケミコン      |      |
| C71         | V4749000 | C.EL        | 150uF 6.3V    |         | ケミコン      |      |
| △ C401      | V6185300 | C.CE.SAFTY  | 0.01uF 275V   |         | 規格認定コン    |      |
| △ C402      | V6185300 | C.CE.SAFTY  | 0.01uF 275V   |         | 規格認定コン    |      |
| C601        | US035100 | C.CE.M.CHP  | 0.1uF 16V     |         | チップセラコン   | 01   |
| C602        | UM416470 | C.EL        | 4.7uF 50V     |         | ケミコン      | 01   |
| C603        | UM416470 | C.EL        | 4.7uF 50V     |         | ケミコン      | 01   |
| C604        | UM416470 | C.EL        | 4.7uF 50V     |         | ケミコン      | 01   |
| C605        | US035100 | C.CE.M.CHP  | 0.1uF 16V     |         | チップセラコン   | 01   |
| C606        | US061330 | C.CE.M.CHP  | 33pF 50V      |         | チップセラコン   | 01   |
| C607        | US035100 | C.CE.M.CHP  | 0.1uF 16V     |         | チップセラコン   | 01   |
| C608        | US035100 | C.CE.M.CHP  | 0.1uF 16V     |         | チップセラコン   | 01   |
| C611        | US063100 | C.CE.M.CHP  | 1000pF 50V    |         | チップセラコン   | 01   |
| C612        | V4749000 | C.EL        | 150uF 6.3V    |         | ケミコン      |      |
| D1          | VT332900 | DIODE       | 1SS355        |         | ダイオード     | 01   |
| D2          | VU991400 | DIODE.ZENR  | MA8039-L 3.8V |         | ツェナーダイオード | 01   |
| D3          | VT332900 | DIODE       | 1SS355        |         | ダイオード     | 01   |
| D4          | VT332900 | DIODE       | 1SS355        |         | ダイオード     | 01   |
| D5          | VU992700 | DIODE.ZENR  | MA8051-H 5.3V |         | ツェナーダイオード |      |
| D6          | VU991400 | DIODE.ZENR  | MA8039-L 3.8V |         | ツェナーダイオード | 01   |
| △ D7        | VU264200 | DIODE       | 1SR139-400    |         | ダイオード     | 01   |
| △ D8        | VU264200 | DIODE       | 1SR139-400    |         | ダイオード     | 01   |
| △ D9        | VU264200 | DIODE       | 1SR139-400    |         | ダイオード     | 01   |
| △ D10       | VU264200 | DIODE       | 1SR139-400    |         | ダイオード     | 01   |
| △ D11       | VU264200 | DIODE       | 1SR139-400    |         | ダイオード     | 01   |
| △ D12       | VU264200 | DIODE       | 1SR139-400    |         | ダイオード     | 01   |
| △ D14       | VU999900 | DIODE.ZENR  | MA8300-M 30V  |         | ツェナーダイオード | 01   |

\* New Parts (新規部品)

68 Note) Those parts marked with “#” are not included in the P.C.B. ass'y. (マーク#の部品は、基板に含まれません)

## P.C.B. MAIN

| Ref.<br>No. | PART NO. | Description | Remarks            | Markets | 部品名          | Rank |
|-------------|----------|-------------|--------------------|---------|--------------|------|
| △ D15       | VU993100 | DIODE.ZENR  | MA8056-H 5.8V      |         | ツェナーダイオード    | 01   |
| △ D16       | VU264200 | DIODE       | 1SR139-400         |         | ダイオード        | 01   |
| △ D17       | VU264200 | DIODE       | 1SR139-400         |         | ダイオード        | 01   |
| D18         | VT332900 | DIODE       | 1SS355             |         | ダイオード        | 01   |
| D19         | VV220700 | DIODE.SHOT  | RB501V-40          |         | ショットキーダイオード  | 01   |
| D20         | VT332900 | DIODE       | 1SS355             |         | ダイオード        | 01   |
| F401        | VT942900 | FUSE        | TH2.5A 250V        | G       | ヒューズ         | 01   |
| IC1         | Xi297A00 | IC          | TC74HCT04AF-T1     |         | IC           | 01   |
| * IC2       | XY239A00 | IC          | TC74VHC157F        |         | ロジックIC SOP   |      |
| IC3         | XJ553A00 | IC          | NJM2068MD          |         | IC           | 02   |
| IC4         | XJ553A00 | IC          | NJM2068MD          |         | IC           | 02   |
| IC5         | XJ553A00 | IC          | NJM2068MD          |         | IC           | 02   |
| * IC6       | X3167A00 | IC.CPU      | M30622M8-XXXFP CPU |         | CPU / 周辺IC   |      |
| IC7         | XS070A00 | IC          | S-24C01ADP EEPROM  |         | IC           | 05   |
| IC8         | XD201A00 | IC          | M5290P             |         | IC           | 05   |
| △ IC9       | XQ667A00 | IC          | M5237L             |         | 電源IC         | 02   |
| * IC601     | X2078A00 | IC          | M6605-0001FP       |         | ロジックIC フラット  |      |
| JK1         | V3576300 | JACK        | 2P                 |         | ミニジャック       | 03   |
| △ JK502     | V3609200 | OUTLET.AC   | 1P                 | G       | ACアウトレット     |      |
| △ JK502     | V3609300 | OUTLET.AC   | 1P                 | JR      | ACアウトレット     | 03   |
| L1          | VD473700 | COIL        | 60uH               |         | コイル          | 02   |
| L2          | VD473700 | COIL        | 60uH               |         | コイル          | 02   |
| L3          | GE300610 | FER.BEAD    | BL02RN1-R62T4      |         | フェライトビーズ     | 01   |
| L4          | GE300610 | FER.BEAD    | BL02RN1-R62T4      |         | フェライトビーズ     | 01   |
| △ L402      | VU984000 | FLTR        | 1E-UU10.5-009      |         | ラインフィルター     | 04   |
| PJ1         | V3007700 | JACK.PIN    | 4P                 |         | ピンジャック 4P    | 03   |
| Q1          | iC174020 | TR          | 2SC1740S R,S       |         | トランジスタ       | 01   |
| Q2          | iA093320 | TR          | 2SA933S Q,R        |         | トランジスタ       | 01   |
| Q4          | VK432900 | TR          | 2SD1915F S,T       |         | トランジスタ       | 01   |
| Q5          | VK432900 | TR          | 2SD1915F S,T       |         | トランジスタ       | 01   |
| Q6          | VK432900 | TR          | 2SD1915F S,T       |         | トランジスタ       | 01   |
| Q7          | VK432900 | TR          | 2SD1915F S,T       |         | トランジスタ       | 01   |
| Q8          | iA093320 | TR          | 2SA933S Q,R        |         | トランジスタ       | 01   |
| △ Q9        | iD040040 | TR          | 2SD400             |         | トランジスタ       | 02   |
| △ Q10       | VS883300 | TR          | 2SB1565 E,F        |         | トランジスタ       | 02   |
| Q11         | VC141900 | TR          | 2SB941 P,Q         |         | トランジスタ       | 04   |
| △ Q13       | iA093320 | TR          | 2SA933S Q,R        |         | トランジスタ       | 01   |
| Q14         | VG722000 | TR.DGT      | DTC144ES           |         | デジタルトランジスタ   | 01   |
| R51         | VP944500 | R.MTL.OXD   | 390Ω 1W            |         | 酸化金属被膜抵抗     | 01   |
| R79         | VP940900 | R.MTL.OXD   | 560Ω 1W            |         | 酸化金属被膜抵抗     |      |
| R92         | HV755100 | R.CAR.FP    | 100Ω 1/4W          |         | 不燃化カーボン抵抗    | 01   |
| R93         | HV755100 | R.CAR.FP    | 100Ω 1/4W          |         | 不燃化カーボン抵抗    | 01   |
| R115        | V2370600 | R.FUS       | 0.47Ω 1/6W         |         | ヒューズ抵抗       | 02   |
| △ R121      | HV754150 | R.CAR.FP    | 15Ω 1/4W           |         | 不燃化カーボン抵抗    | 01   |
| △ R122      | HV754150 | R.CAR.FP    | 15Ω 1/4W           |         | 不燃化カーボン抵抗    | 01   |
| ST1         | V4040500 | SCR.TERM    | M3                 | JG      | スクリー / ターミナル | 01   |
| △ SW501     | VG388100 | VOLT.SELECT | HXW0244-01-080     | R       | 電圧切換器        | 04   |
| SW601       | VV020300 | SW.TACT     | SKQNAA             |         | タクトSW        | 01   |
| SW602       | VV020300 | SW.TACT     | SKQNAA             |         | タクトSW        | 01   |
| SW603       | VV020300 | SW.TACT     | SKQNAA             |         | タクトSW        | 01   |
| SW604       | VV020300 | SW.TACT     | SKQNAA             |         | タクトSW        | 01   |
| SW605       | VV020300 | SW.TACT     | SKQNAA             |         | タクトSW        | 01   |
| SW606       | VV020300 | SW.TACT     | SKQNAA             |         | タクトSW        | 01   |

\* New Parts (新規部品)

Note) Those parts marked with “#” are not included in the P.C.B. ass'y. (マーク#の部品は、基板に含まれません)

## P.C.B. MAIN

| Ref.<br>No. | PART NO. | Description | Remarks            | Markets      | 部品名        | Rank |
|-------------|----------|-------------|--------------------|--------------|------------|------|
| SW613       | V3800600 | SW.RT.ENC   | EC12E2420404       |              | ロータリーエンコーダ | 04   |
| * T401      | XW085A00 | TRANS.PWR   |                    | R            | 電源トランス     |      |
| * T401      | XW510A00 | TRANS.PWR   |                    | J            | 電源トランス     | 08   |
| * T401      | XW511A00 | TRANS.PWR   |                    | BG           | 電源トランス     |      |
| TH401       | VT865700 | POSISTOR    | PTH8L14AR0R5M1C030 |              | ポジスタ       | 03   |
| TH402       | VT865700 | POSISTOR    | PTH8L14AR0R5M1C030 |              | ポジスタ       | 03   |
| * U601      | V8444900 | L.DTCT      | GP1UM271XK         |              | リモコン受光ユニット | 04   |
| * V601      | V8833800 | FL.DSPLY    | 15-BT-82GN         |              | 蛍光表示管      |      |
| VR202       | V3800700 | VR          | A5KΩ               |              | 2連ロータリーVR  | 03   |
| XL1         | VQ791000 | RSNR.CE     | 10MHz              |              | セラミック発振子   | 01   |
| %           | V3747500 | SUPRT       |                    | GD->VR519500 | サポート/FL    | 01   |
|             | V3688300 | SHEET.FL    | SI                 |              | シート/FL     | 02   |
|             | VR519500 | SHEET.FL    | GD                 |              | シート/FL     | 01   |
|             | V3747400 | SPACER.FL   | T4x6x18            |              | スペーサ/FL    | 01   |
|             | EG330030 | SCR.BND.HD  | 3x6 MFC2BL         |              | バインド小ネジ    | 01   |
|             | RD353100 | R.CAR.CHP   | 1Ω 1/10W           |              | チップ抵抗      | 01   |
|             | RD353220 | R.CAR.CHP   | 2.2Ω 1/10W         |              | チップ抵抗      | 01   |
|             | RD354220 | R.CAR.CHP   | 22Ω 1/10W          |              | チップ抵抗      | 01   |
|             | RD355100 | R.CAR.CHP   | 100Ω 1/10W         |              | チップ抵抗      | 01   |
|             | RD355120 | R.CAR.CHP   | 120Ω 1/10W         |              | チップ抵抗      | 01   |
|             | RD355220 | R.CAR.CHP   | 220Ω 1/10W         |              | チップ抵抗      | 01   |
|             | RD355330 | R.CAR.CHP   | 330Ω 1/10W         |              | チップ抵抗      | 01   |
|             | RD355470 | R.CAR.CHP   | 470Ω 1/10W         |              | チップ抵抗      | 01   |
|             | RD355680 | R.CAR.CHP   | 680Ω 1/10W         |              | チップ抵抗      | 01   |
|             | RD356100 | R.CAR.CHP   | 1KΩ 1/10W          |              | チップ抵抗      | 01   |
|             | RD356120 | R.CAR.CHP   | 1.2KΩ 1/10W        |              | チップ抵抗      | 01   |
|             | RD356180 | R.CAR.CHP   | 1.8KΩ 1/10W        |              | チップ抵抗      | 01   |
|             | RD356220 | R.CAR.CHP   | 2.2KΩ 1/10W        |              | チップ抵抗      | 01   |
|             | RD356270 | R.CAR.CHP   | 2.7KΩ 1/10W        |              | チップ抵抗      | 01   |
|             | RD356330 | R.CAR.CHP   | 3.3KΩ 1/10W        |              | チップ抵抗      | 01   |
|             | RD356390 | R.CAR.CHP   | 3.9KΩ 1/10W        |              | チップ抵抗      | 01   |
|             | RD356470 | R.CAR.CHP   | 4.7KΩ 1/10W        |              | チップ抵抗      | 01   |
|             | RD356820 | R.CAR.CHP   | 8.2KΩ 1/10W        |              | チップ抵抗      | 01   |
|             | RD357100 | R.CAR.CHP   | 10KΩ 1/10W         |              | チップ抵抗      | 01   |
|             | RD357120 | R.CAR.CHP   | 12KΩ 1/10W         |              | チップ抵抗      | 01   |
|             | RD357150 | R.CAR.CHP   | 15KΩ 1/10W         |              | チップ抵抗      | 01   |
|             | RD357220 | R.CAR.CHP   | 22KΩ 1/10W         |              | チップ抵抗      | 01   |
|             | RD357270 | R.CAR.CHP   | 27KΩ 1/10W         |              | チップ抵抗      | 01   |
|             | RD357470 | R.CAR.CHP   | 47KΩ 1/10W         |              | チップ抵抗      | 01   |
|             | RD358100 | R.CAR.CHP   | 100KΩ 1/10W        |              | チップ抵抗      | 01   |

## % : Note on the Main PCB

Of the Main PCB part Nos., only the silver (SI) type part Nos. are included in the table. (G model)

The only different part between the gold (GD) and silver (SI) type parts is the sheet/FL that is attached to the fluorescent character display tube. When a GD type Main PCB becomes necessary, order a SI type Main PCB and a GD type sheet/FL (VR519500) and replace the sheet/FL of the SI type Main PCB with the GD type sheet/FL.

\* New Parts (新規部品)

**70 Note)** Those parts marked with “#” are not included in the P.C.B. ass'y. (マーク#の部品は、基板に含まれません)

## P.C.B. MD MAIN

| Ref.<br>No. | PART NO. | Description | Remarks     | Markets | 部品名           | Rank |
|-------------|----------|-------------|-------------|---------|---------------|------|
|             |          | P.C.B.      | MD MAIN     |         | P C B M D メイン |      |
| C1100       | AAX02530 | C.CHP       | 4.7uF 10V   |         | チップコンデンサ      |      |
| C1107       | AAX02630 | C.CHP       | 0.022uF 16V |         | チップコンデンサ      |      |
| C1110       | AAX02780 | C.CHP       | 1uF 16V     |         | チップコンデンサ      |      |
| C1111       | AAX02780 | C.CHP       | 1uF 16V     |         | チップコンデンサ      |      |
| * C1112     | AAX17430 | C.CHP       | 5pF 50V     |         | チップコンデンサ      |      |
| C1113       | AAX02750 | C.CHP       | 1uF 6.3V    |         | チップコンデンサ      |      |
| * C1114     | AAX17460 | C.CHP       | 0.1uF 16V   |         | チップコンデンサ      |      |
| * C1115     | AAX17460 | C.CHP       | 0.1uF 16V   |         | チップコンデンサ      |      |
| C1116       | AAX02750 | C.CHP       | 1uF 6.3V    |         | チップコンデンサ      |      |
| C1117       | AAX02780 | C.CHP       | 1uF 16V     |         | チップコンデンサ      |      |
| C1118       | AAX02760 | C.CHP       | 0.47uF 16V  |         | チップコンデンサ      |      |
| C1119       | AAX02760 | C.CHP       | 0.47uF 16V  |         | チップコンデンサ      |      |
| * C1121     | AAX17530 | C.CHP       | 0.22uF 16V  |         | チップコンデンサ      |      |
| C1122       | AAX02780 | C.CHP       | 1uF 16V     |         | チップコンデンサ      |      |
| * C1123     | AAX17460 | C.CHP       | 0.1uF 16V   |         | チップコンデンサ      |      |
| * C1124     | AAX17460 | C.CHP       | 0.1uF 16V   |         | チップコンデンサ      |      |
| C1125       | AAX02780 | C.CHP       | 1uF 16V     |         | チップコンデンサ      |      |
| C1200       | AAX02780 | C.CHP       | 1uF 16V     |         | チップコンデンサ      |      |
| C1201       | AAX02520 | C.CHP       | 10uF 10V    |         | チップコンデンサ      |      |
| C1202       | AAX02780 | C.CHP       | 1uF 16V     |         | チップコンデンサ      |      |
| C1203       | AAX02780 | C.CHP       | 1uF 16V     |         | チップコンデンサ      |      |
| C1205       | AAX02780 | C.CHP       | 1uF 16V     |         | チップコンデンサ      |      |
| C1206       | AAX02670 | C.CHP       | 0.1uF 25V   |         | チップコンデンサ      |      |
| C1207       | AAX02780 | C.CHP       | 1uF 16V     |         | チップコンデンサ      |      |
| C1208       | AAX02550 | C.CHP       | 12pF 50V    |         | チップコンデンサ      |      |
| C1209       | AAX02550 | C.CHP       | 12pF 50V    |         | チップコンデンサ      |      |
| C1210       | AAX02560 | C.CHP       | 22pF 50V    |         | チップコンデンサ      |      |
| C1211       | AAX02670 | C.CHP       | 0.1uF 25V   |         | チップコンデンサ      |      |
| C1230       | AAX02780 | C.CHP       | 1uF 16V     |         | チップコンデンサ      |      |
| * C1261     | AAX17440 | C.CHP       | 220pF 50V   |         | チップコンデンサ      |      |
| * C1262     | AAX17440 | C.CHP       | 220pF 50V   |         | チップコンデンサ      |      |
| * C1263     | AAX17440 | C.CHP       | 220pF 50V   |         | チップコンデンサ      |      |
| * C1264     | AAX17440 | C.CHP       | 220pF 50V   |         | チップコンデンサ      |      |
| * C1265     | AAX17440 | C.CHP       | 220pF 50V   |         | チップコンデンサ      |      |
| C1266       | AAX02560 | C.CHP       | 22pF 50V    |         | チップコンデンサ      |      |
| * C1300     | AAX17450 | C.CHP       | 47pF 50V    |         | チップコンデンサ      |      |
| C1301       | AAX02630 | C.CHP       | 0.022uF 16V |         | チップコンデンサ      |      |
| * C1302     | AAX17410 | C.CHP       | 10uF 10V    |         | チップコンデンサ      |      |
| C1303       | AAX02780 | C.CHP       | 1uF 16V     |         | チップコンデンサ      |      |
| * C1304     | AAX17440 | C.CHP       | 220pF 50V   |         | チップコンデンサ      |      |
| C1403       | AAX02830 | C.CHP       | 0.01uF 50V  |         | チップコンデンサ      |      |
| C1404       | AAX02830 | C.CHP       | 0.01uF 50V  |         | チップコンデンサ      |      |
| C1405       | AAX02700 | C.CHP       | 680pF 50V   |         | チップコンデンサ      |      |
| C1406       | AAX02700 | C.CHP       | 680pF 50V   |         | チップコンデンサ      |      |
| C1407       | AAX02670 | C.CHP       | 0.1uF 25V   |         | チップコンデンサ      |      |
| C1409       | AAX02780 | C.CHP       | 1uF 16V     |         | チップコンデンサ      |      |
| C1501       | AAX02780 | C.CHP       | 1uF 16V     |         | チップコンデンサ      |      |
| C1503       | AAX02720 | C.CHP       | 0.33uF 16V  |         | チップコンデンサ      |      |
| C1505       | AAX02670 | C.CHP       | 0.1uF 25V   |         | チップコンデンサ      |      |
| C1506       | AAX02540 | C.CHP       | 100pF 50V   |         | チップコンデンサ      |      |
| C1507       | AAX02670 | C.CHP       | 0.1uF 25V   |         | チップコンデンサ      |      |
| C1509       | AAX02540 | C.CHP       | 100pF 50V   |         | チップコンデンサ      |      |

\* New Parts (新規部品)

Note) Those parts marked with “#” are not included in the P.C.B. ass'y. (マーク#の部品は、基板に含まれません)

## P.C.B. MD MAIN

| Ref.<br>No. | PART NO. | Description | Remarks   | Markets | 部品名      | Rank |
|-------------|----------|-------------|-----------|---------|----------|------|
| C1602       | US062470 | C.CHP       | 470pF     | 50V     | チップセラコン  | 01   |
| C1603       | AAX02700 | C.CHP       | 680pF     | 50V     | チップコンデンサ |      |
| C1606       | AAX02520 | C.CHP       | 10uF      | 10V     | チップコンデンサ |      |
| C1607       | AAX02780 | C.CHP       | 1uF       | 16V     | チップコンデンサ |      |
| C1610       | AAX02530 | C.CHP       | 4.7uF     | 10V     | チップコンデンサ |      |
| C1611       | US063470 | C.CE.CHP    | 4700pF    | 50V     | チップセラコン  | 01   |
| C1613       | AAX02830 | C.CHP       | 0.01uF    | 50V     | チップコンデンサ |      |
| C1616       | UF128100 | C.EL.CHP    | 100uF     | 10V     | チップケミコン  | 01   |
| C1619       | AAX02590 | C.CHP       | 330pF     | 50V     | チップコンデンサ |      |
| C1655       | AAX02830 | C.CHP       | 0.01uF    | 50V     | チップコンデンサ |      |
| C1700       | AAX02510 | C.EL.CHP    | 47uF      | 4V      | チップケミコン  |      |
| C1701       | AAX02510 | C.EL.CHP    | 47uF      | 4V      | チップケミコン  |      |
| * C1702     | AAX17490 | C.CHP       | 1000pF    | 50V     | チップコンデンサ |      |
| C1703       | AAX02670 | C.CHP       | 0.1uF     | 25V     | チップコンデンサ |      |
| C1704       | AAX02510 | C.EL.CHP    | 47uF      | 4V      | チップケミコン  |      |
| C1705       | AAX02670 | C.CHP       | 0.1uF     | 25V     | チップコンデンサ |      |
| C1706       | AAX02830 | C.CHP       | 0.01uF    | 50V     | チップコンデンサ |      |
| C1707       | AAX02780 | C.CHP       | 1uF       | 16V     | チップコンデンサ |      |
| C1708       | AAX02830 | C.CHP       | 0.01uF    | 50V     | チップコンデンサ |      |
| C1709       | AAX02830 | C.CHP       | 0.01uF    | 50V     | チップコンデンサ |      |
| C1710       | AAX02480 | C.EL.CHP    | 10uF      | 16V     | チップケミコン  |      |
| C1711       | AAX02510 | C.EL.CHP    | 47uF      | 4V      | チップケミコン  |      |
| C1712       | AAX02480 | C.EL.CHP    | 10uF      | 16V     | チップケミコン  |      |
| C1713       | AAX02830 | C.CHP       | 0.01uF    | 50V     | チップコンデンサ |      |
| C1714       | AAX02780 | C.CHP       | 1uF       | 16V     | チップコンデンサ |      |
| * C1715     | AAX17520 | C.CHP       | 0.1uF     | 16V     | チップコンデンサ |      |
| C1716       | AAX02510 | C.EL.CHP    | 47uF      | 4V      | チップケミコン  |      |
| C1741       | AAX02700 | C.CHP       | 680pF     | 50V     | チップコンデンサ |      |
| C1750       | AAX02700 | C.CHP       | 680pF     | 50V     | チップコンデンサ |      |
| C1800       | AAX02500 | C.EL.CHP    | 220uF     | 4V      | チップケミコン  |      |
| C1801       | AAX02520 | C.CHP       | 10uF      | 10V     | チップコンデンサ |      |
| C1802       | AAX02520 | C.CHP       | 10uF      | 10V     | チップコンデンサ |      |
| C1803       | UF128100 | C.EL.CHP    | 100uF     | 10V     | チップケミコン  | 01   |
| C1804       | AAX02740 | C.CHP       | 2.2uF     | 16V     | チップコンデンサ |      |
| C1805       | AAX02780 | C.CHP       | 1uF       | 16V     | チップコンデンサ |      |
| C1806       | AAX02780 | C.CHP       | 1uF       | 16V     | チップコンデンサ |      |
| * CN1300    | AAX17630 | CN.PLUG     | 2P        |         | プラグ      |      |
| CN1401      | AAX01390 | CN.PLUG     | 5P        |         | プラグ      |      |
| * CN1402    | AAX17640 | CN.PLUG     | 6P        |         | プラグ      |      |
| * D1300     | AAX17400 | DIODE       | SBE803    |         | ダイオード    |      |
| D1401       | AAX02460 | DIODE       | SB00703Q  |         | ダイオード    | 03   |
| * D1402     | AAX17390 | DIODE       | 1SS355    |         | ダイオード    |      |
| * IC1101    | AAX17300 | IC          | IR3R58M   |         | I C      |      |
| * IC1201    | AAX34610 | IC          | LR37816A  |         | I C      |      |
| IC1202      | AAX02150 | IC          | IX2474AF  |         | I C      | 23   |
| IC1300      | AAX17270 | IC          | 74ACT02T  |         | I C      | 05   |
| IC1301      | AAX17290 | IC          | FTD2005   |         | I C      | 05   |
| IC1302      | AAX17280 | IC          | CPH5608   |         | I C      | 09   |
| * IC1401    | AAX34600 | IC          | IX0410AW  |         | I C      |      |
| IC1402      | AAX17260 | IC          | 58X2402T  |         | I C      | 06   |
| * IC1601    | AAX17320 | IC          | M56788FP  |         | I C      |      |
| * IC1701    | AAX34620 | IC          | UDA1345TS |         | I C      |      |
| IC1702      | AAX02190 | IC          | NJM431U   |         | I C      | 06   |

\* New Parts (新規部品)

## P.C.B. MD MAIN

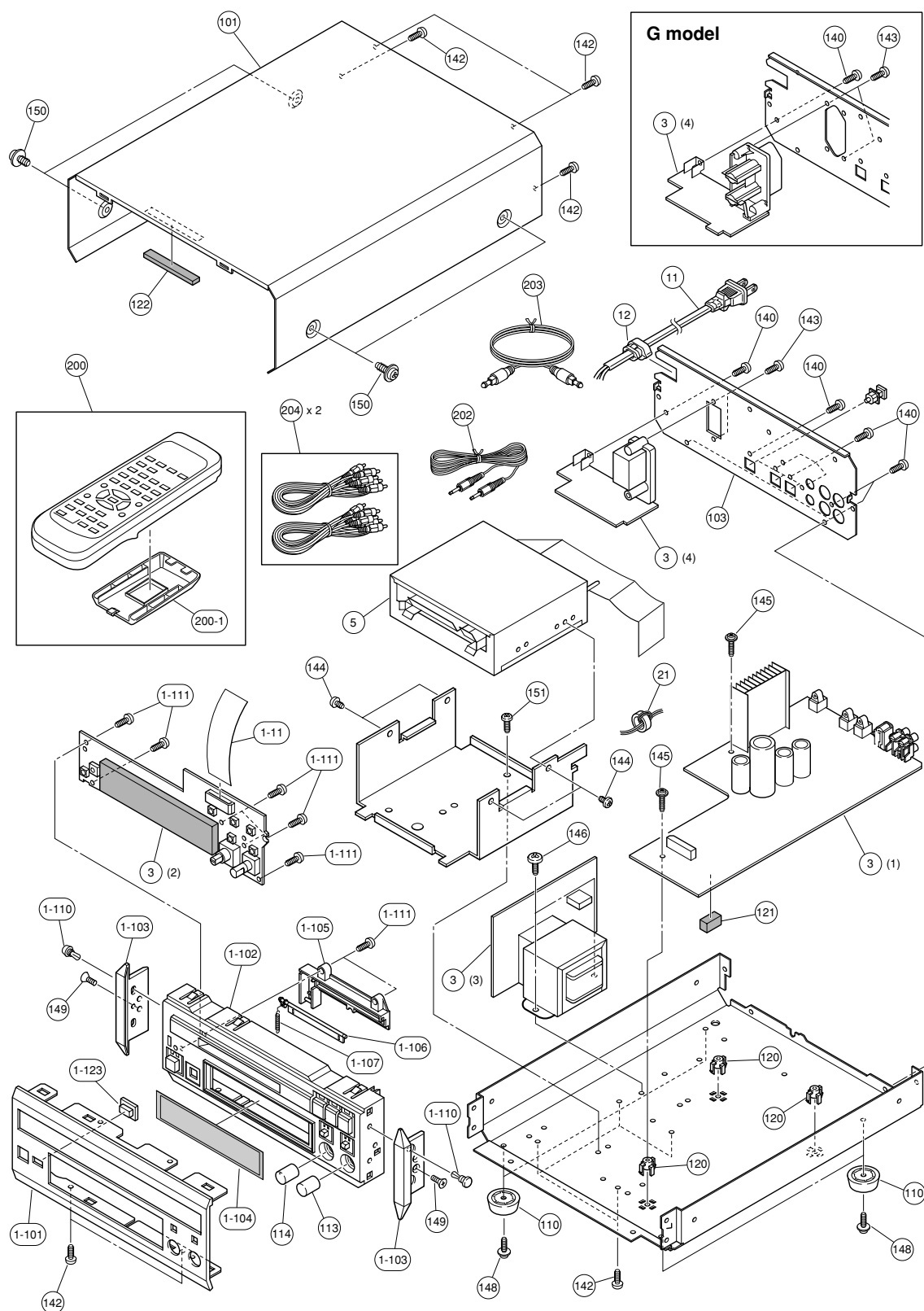
| Ref.<br>No. | PART NO. | Description | Remarks          | Markets | 部品名         | Rank |
|-------------|----------|-------------|------------------|---------|-------------|------|
| IC1801      | AAX02220 | IC          | XC62EP32         |         | I C         | 06   |
| * IC1802    | AAX17340 | IC          | XC62FP26         |         | I C         |      |
| L1100       | AAX02230 | IC          | 0.47uH           |         | コイル         | 04   |
| L1101       | AAX02330 | COIL        | 10uH             |         | コイル         | 04   |
| L1200       | AAX02340 | COIL        | 4.7uH            |         | コイル         | 04   |
| L1201       | AAX02230 | IC          | 0.47uH           |         | コイル         | 04   |
| * L1300     | AAX17350 | COIL        | 4.7uH            |         | コイル         |      |
| L1501       | AAX02320 | COIL        | 1uH              |         | コイル         | 05   |
| L1502       | AAX02340 | COIL        | 4.7uH            |         | コイル         | 04   |
| L1600       | AAX02320 | COIL        | 1uH              |         | コイル         | 05   |
| L1701       | AAX02330 | COIL        | 10uH             |         | コイル         | 04   |
| L1702       | AAX02330 | COIL        | 10uH             |         | コイル         | 04   |
| * Q1402     | AAX17560 | TR          | UN2113           |         | トランジスタ      |      |
| * Q1403     | AAX17570 | TR          | UN2213           |         | トランジスタ      |      |
| * Q1501     | AAX17580 | TR          | UN2214           |         | トランジスタ      |      |
| * Q1700     | AAX17550 | TR          | 2SD601 AR        |         | トランジスタ      |      |
| * Q1701     | AAX17570 | TR          | UN2213           |         | トランジスタ      |      |
| Q1702       | AAX02840 | TR          | 2SA1162G         |         | トランジスタ      | 03   |
| * Q1800     | AAX17580 | TR          | UN2214           |         | トランジスタ      |      |
| Q1801       | AAX02840 | TR          | 2SA1162G         |         | トランジスタ      | 03   |
| * Q1802     | AAX17580 | TR          | UN2214           |         | トランジスタ      |      |
| * Q1803     | AAX17590 | TR          | UN221 N          |         | トランジスタ      |      |
| * Q1804     | AAX17540 | TR          | 2SA1242 Y        |         | トランジスタ      |      |
| Q1805       | AAX02850 | TR          | 2SA1314C         |         | トランジスタ      | 05   |
| * Q1806     | AAX17590 | TR          | UN221 N          |         | トランジスタ      |      |
| XL1201      | AAX01660 | RSNR.CRYS   |                  |         | 水晶振動子       | 09   |
|             |          | P.C.B.      | SWITCH & LOADING |         | スイッチ&ローディング |      |
| CN1931      | AAX01390 | CN.PLUG     | 5P               |         | プラグ         |      |
| * CN1932    | AAX17640 | CN.PLUG     | 6P               |         | プラグ         |      |
| * SW1930    | AAX17370 | SW          | PUSH TYPE        |         | スイッチ        |      |
| * SW1931    | AAX17380 | SW          | PUSH TYPE        |         | スイッチ        |      |
| * SW1932    | AAX17360 | SW          | PUSH TYPE        |         | スイッチ        |      |
| * SW1933    | AAX17360 | SW          | PUSH TYPE        |         | スイッチ        |      |
| * SW1934    | AAX17360 | SW          | PUSH TYPE        |         | スイッチ        |      |
| SW1936      | AAX02400 | SW          | SLIDE TYPE       |         | スイッチ        | 05   |

\* New Parts (新規部品)

Note) Those parts marked with “#” are not included in the P.C.B. ass'y. (マーク#の部品は、基板に含まれません)

## MDX-E300

## ■ EXPLODED VIEW



## % : Note on the Main PCB

Of the Main PCB part Nos., only the silver (SI) type part Nos. are included in the table. (G model)

The only different part between the gold (GD) and silver (SI) type parts is the sheet/FL that is attached to the fluorescent character display tube. When a GD type Main PCB becomes necessary, order a SI type Main PCB and a GD type sheet/FL (VR519500) and replace the sheet/FL of the SI type Main PCB with the GD type sheet/FL.

# MECHANICAL PARTS

| Ref.<br>No. | PART NO. | Description                  | Remarks        | Markets       | 部品名             | Rank |
|-------------|----------|------------------------------|----------------|---------------|-----------------|------|
| 1-11        | MF117100 | FLEXIBLE FLAT CABLE          | 17P 100mm      |               | カード電線 C & C     | 01   |
| * 1-101     | V8779500 | FRONT PANEL                  |                | SI            | フロントパネル         |      |
| * 1-101     | V8779600 | FRONT PANEL                  |                | GD            | フロントパネル         |      |
| * 1-102     | V8779300 | SUB PANEL-MDX                |                | SI            | サブパネル - MDX     |      |
| * 1-102     | V8779400 | SUB PANEL-MDX                |                | GD            | サブパネル - MDX     |      |
| * 1-103     | V8779200 | PANEL/SIDE-H80               | H80            |               | パネル / サイド       |      |
| * 1-104     | V8786500 | SHEET                        |                |               | シート / ウィンドウ     |      |
| 1-105       | V4005800 | GRILL, LID                   |                | SI            | グリル / リッド       | 02   |
| 1-105       | V4006200 | GRILL, LID                   |                | GD            | グリル / リッド       | 02   |
| 1-106       | V4006300 | LID, MD                      |                | SI            | リッド / MD        | 02   |
| 1-106       | V3153600 | LID, MD                      |                | GD            | リッド / MD        | 02   |
| 1-107       | V3082300 | SPRING                       |                |               | スプリング           | 01   |
| 1-110       | VQ368600 | PUSH RIVET                   | P3555-B        |               | ブッシュリベット        | 01   |
| 1-111       | VF617600 | PAN HEAD P-TITE SCREW        | 2.6x8 MFC2BL   |               | 鉄ナベ P タイツネジ     | 01   |
| * 1-123     | V8785300 | LENS/REMOCON                 |                |               | レンズ / リモコン      |      |
| * 3         | V9082900 | P.C.B. ASS'Y                 | MAIN           | SI            | P C B 集成メイン     |      |
| * 3         | V9083000 | P.C.B. ASS'Y                 | MAIN           | GD            | P C B 集成メイン     |      |
| * 3         | V9083100 | P.C.B. ASS'Y                 | MAIN           | SI            | P C B 集成メイン     |      |
| * 3         | V9133100 | P.C.B. ASS'Y                 | MAIN           | SI            | P C B 集成メイン     |      |
| * 5         | V8911400 | MD RECORDER UNIT             | MDM-08A        |               | MD レコーダーユニット    |      |
| △ 11        | V2723100 | POWER CABLE                  | 1.8m           | J             | 電源コード           | 07   |
| △ 11        | VZ542500 | POWER CABLE                  | 2m             | R             | 電源コード           | 05   |
| △ 11        | VV437300 | POWER CABLE                  | 2m             | B             | 電源コード           | 08   |
| △ 11        | VN363700 | POWER CABLE                  | 2m             | G             | 電源コード           | 04   |
| 12          | V2438700 | CORD STOPPER                 | 10P1           |               | コードストッパー        | 02   |
| * 21        | V6661200 | FERRITE CORE                 | F5T22X8.0X14.0 |               | フェライトコア         |      |
| 101         | V3681800 | TOP COVER                    |                | SI            | トップカバー          | 08   |
| 101         | V3809300 | TOP COVER                    |                | GD            | トップカバー          | 08   |
| * 103       | V8779800 | REAR PANEL                   |                |               | リヤパネル           |      |
| * 103       | V8779900 | REAR PANEL                   |                | J             | リヤパネル           |      |
| * 103       | V8780000 | REAR PANEL                   |                | R             | リヤパネル           |      |
| * 103       | V8780100 | REAR PANEL                   |                | B             | リヤパネル           |      |
| * 110       | V3688500 | LEG                          | M0080-M0       | G             | リヤパネル           |      |
| * 113       | V8785900 | KNOB, D10                    |                |               | レッグ             | 01   |
| * 113       | V8786000 | KNOB, D10                    |                | SI            | ノブ / D 1 0      |      |
| * 114       | V8786100 | KNOB/D10-P                   |                | GD            | ノブ / D 1 0      |      |
| * 114       | V8786200 | KNOB/D10-P                   |                | SI            | ノブ / D 1 0 - P  |      |
| 120         | VR264400 | SPACER                       | H8             |               | ノブ / D 1 0 - P  |      |
| 121         | VQ390100 | DAMPER                       | 8x8x15         |               | スペーサー           | 01   |
| 122         | VP857700 | DAMPER                       | 4x6x5          |               | ダンパー            | 01   |
| 140         | VN413300 | BIND HEAD BONDING B-T. SCREW | 3x8 MFZN2BL    |               | ダンパー            | 01   |
| 142         | EP600830 | BIND HEAD B-TITE SCREW       | 3x8 MFC2BL     |               | ボンディング B タイツネジ  | 01   |
| 143         | EP600250 | BIND HEAD B-TITE SCREW       | 3x8 MFZN2Y     |               | バインド B タイツネジ    | 01   |
| 144         | V2500400 | BIND HEAD SCREW              | 3x3 MFZN2BL    |               | バインド B タイツネジ    | 01   |
| 145         | VT669400 | PW HEAD B-TITE SCREW         | 3x15-8 MFC2    |               | バインド小ネジ         |      |
| 146         | V2728500 | BIND HEAD S-TITE SCREW       | 4x7 MFZN2BL    |               | P W ヘッド B タイツネジ | 01   |
| 148         | EL300650 | PW HEAD B-TITE SCREW         | 3x8-8 MFC2BL   |               | バインド S タイツネジ    | 01   |
| 149         | EP600790 | FLAT HEAD B-TITE SCREW       | 3x8 MFZN2BL    |               | P W ヘッド B タイツネジ | 01   |
| 150         | VY712800 | PW HEAD B-TITE SCREW         | 3x8-8 MFN133   |               | 皿 B タイツネジ       | 01   |
| 151         | EP630210 | BIND HEAD S-TITE SCREW       | 3x6 MFZN2BL    |               | P W ヘッド B タイツネジ | 01   |
| %           | VR519500 | SHEET, FL                    | GD             |               | バインド S タイツネジ    | 01   |
|             |          | ACCESSORIES                  |                |               | シート / F L       | 01   |
| * 200       | V8913700 | REMOTE CONTROL               | RRS4800-0853L  | RRS4800-0853L | 付属品             |      |
| * 200       | V8913800 | REMOTE CONTROL               | RRS4800-0854L  | RRS4800-0854L | リモコン            |      |
| 200-1       | AAX07830 | BATTERY COVER                |                | 103RRS09301R  | リモコン            |      |
| 202         | V4135300 | SYSTEM CONTROL CABLE         | 1P 1m          |               | 電池蓋             |      |
| 203         | V6326400 | OPTICAL CABLE                | 1P 0.6m 1pc    |               | システム接続ケーブル      | 05   |
| 204         | VY952200 | AUDIO PIN CABLE              | 2P 1m          |               | 光ケーブル           | 05   |
|             |          | BATTERY                      | AA, R06, UM-3  |               | ステレオピンケーブル      | 04   |
|             |          |                              |                |               | 単 3 乾電池         |      |

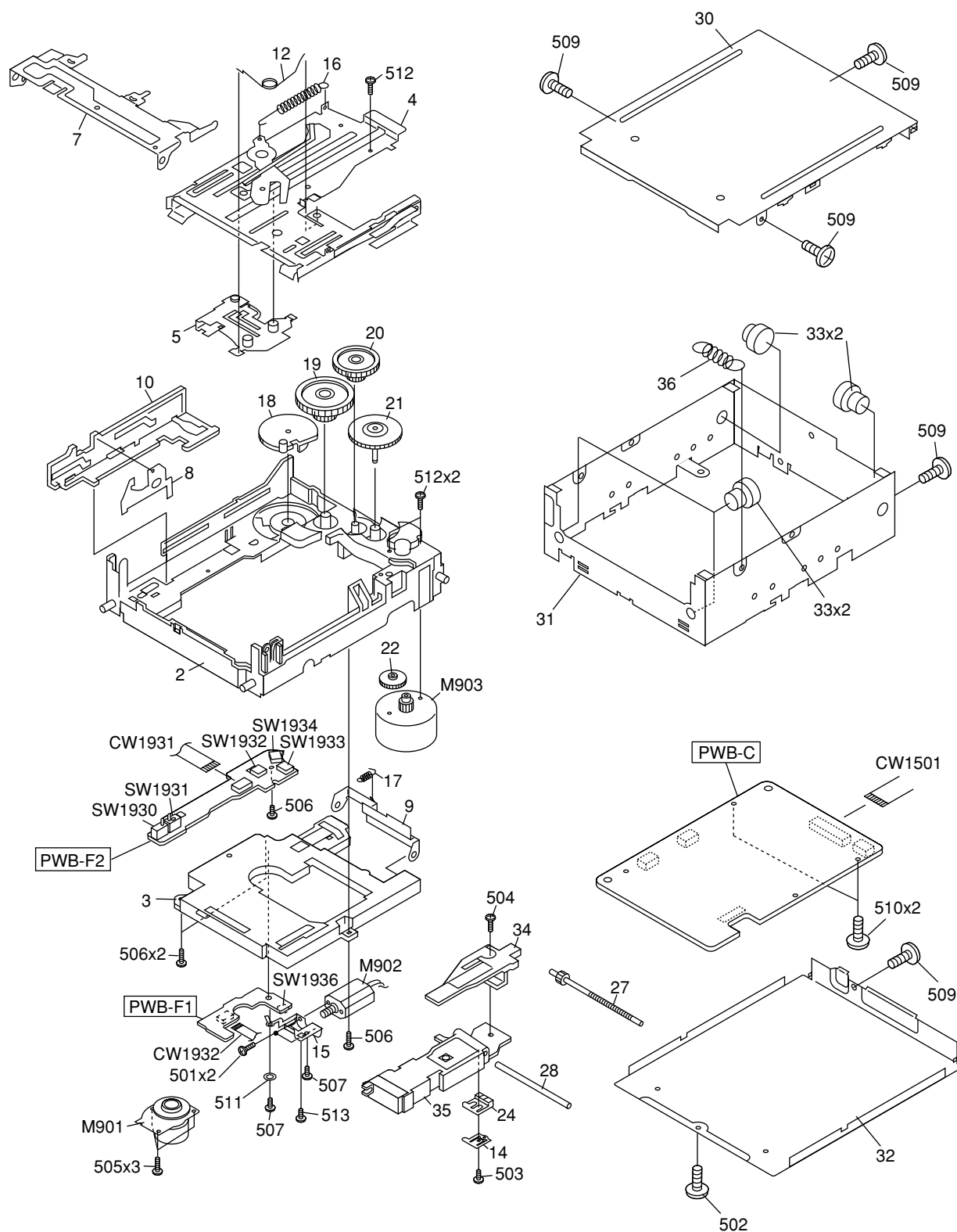
\* New Parts (新規部品)

Note) Those parts marked with “#” are not included in the P.C.B. ass'y. (マーク # の部品は、基板に含まれません)

MDX-E300

## MDX-E300

## ■ EXPLODED VIEW (MD Recorder Unit)



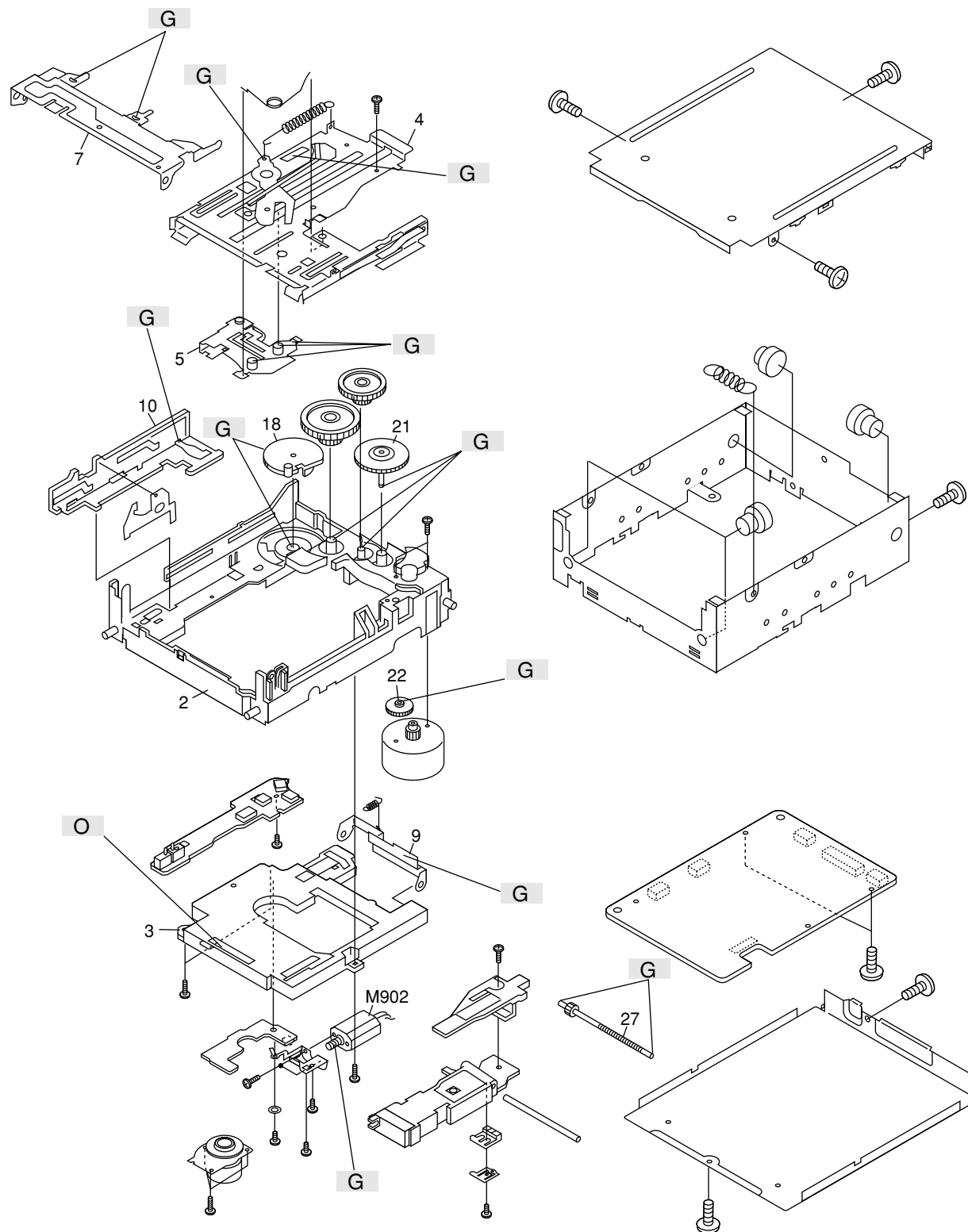
# MECHANICAL PARTS (MD Recorder Unit)

| Ref.<br>No. | PART NO. | Description            | Remarks    | Markets        | 部品名             | Rank |
|-------------|----------|------------------------|------------|----------------|-----------------|------|
| *           | V8911400 | MD RECORDER UNIT       | MDM-08A    |                | M D レコーダーユニット   |      |
| * 2         | AAX16830 | LD BASE                |            | LCHSM0089AWZZ  | L D ベース         |      |
| * 3         | AAX16840 | MD BASE                |            | LCHSM0090AWZZ  | M D ベース         |      |
| * 4         | AAX34560 | CARTRIDGE HOLDER ASS'Y |            | LHLDX3009AWM1  | カートリッジホルダー組品    |      |
| * 5         | AAX16980 | SLIDER LEVER ASS'Y     |            | MLEVF0051AWM1  | スライダレバー組品       |      |
| * 7         | AAX17100 | HOLDER ARM             |            | MLEVF0046AWFW  | ホルダアーム          |      |
| * 8         | AAX16960 | SWITCH PLATE           |            | MLEVF0047AWFW  | スイッチプレート        |      |
| * 9         | AAX34550 | H/A SHIFT ARM          |            | MLEVF0054AWFW  | H A シフトアーム      |      |
| * 10        | AAX16870 | CAM PLATE LEVER        |            | MLEVP0095AWZZ  | カムプレートレバー       |      |
| * 12        | AAX17150 | SPRING, ROADING        |            | MSPRD0132AWFJ  | ローディングばね        |      |
| * 14        | AAX16890 | SPRING, GRIP           |            | MSPRP0030AWFJ  | グリップばね          |      |
| * 15        | AAX16950 | SPRING, SHAFT          |            | MSPRP0031AWFJ  | シャフトばね          |      |
| * 16        | AAX17160 | SPRING, ROADING ARM    |            | MSPRT0031AWFJ  | ローディングアームばね     |      |
| * 17        | AAX16940 | SPRING, SHIFT ARM      |            | MSPRT0032AWFJ  | シフトアームばね        |      |
| * 18        | AAX34580 | GEAR, LOADING(A)       | A          | NGERH0147AWZZ  | ローディングギヤー ( A ) |      |
| * 19        | AAX17110 | MIDDLE GEAR (A)        | A          | NGERH0086AWZZ  | ミドルギヤー ( A )    |      |
| * 20        | AAX17120 | MIDDLE GEAR (B)        | B          | NGERH0087AWZZ  | ミドルギヤー ( B )    |      |
| * 21        | AAX17130 | MIDDLE GEAR (C)        | C          | NGERH0088AWZZ  | ミドルギヤー ( C )    |      |
| * 22        | AAX17140 | MIDDLE GEAR (D)        | D          | NGERH0089AWZZ  | ミドルギヤー ( D )    |      |
| * 24        | AAX16900 | GRIP RACK              |            | NGERR0004AWZZ  | グリップラック         |      |
| * 27        | AAX17000 | DRIVE SCREW ASS'Y      |            | NSFTD0006AWM1  | ドライブスクリュー組品     |      |
| * 28        | AAX17090 | PICK GUIDE SHAFT       |            | NSFTM0019AWFW  | ピックガイドシャフト      |      |
| * 30        | AAX16920 | SEALED COVER (TOP)     |            | PCOV3029AWFW   | シールドカバー ( トップ ) |      |
| * 31        | AAX16910 | SEALED COVER (SIDE)    |            | PCOV3033AWFW   | シールドカバー ( サイド ) |      |
| * 32        | AAX16930 | SEALED COVER (BOTTOM)  |            | PCOV3031AWFW   | シールドカバー ( ボトム ) |      |
| * 33        | AAX16880 | CUSSION                |            | PCUSG0045AWZZ  | クッション           |      |
|             | AAX17210 | MAGNETIC HEAD          |            | RCILH0113AFZZ  | 磁気ヘッド           | 05   |
|             | AAX17200 | OPTICAL PICKUP         |            | RCTR8198AFZZ   | 光ピックアップ         | 16   |
| * 36        | AAX16850 | SPRING, GROUNDING      |            | MSPRT0034AWFJ  | アースばね           |      |
| * 501       | AAX17010 | SCREW                  | M1. 4x1. 5 | LXBX0040AWZZ   | ネジ              |      |
| * 502       | AAX17020 | SCREW                  | M2. 0x2    | LXBX0046AWZZ   | ネジ              |      |
| * 503       | AAX17030 | SCREW                  | M1. 4x2    | LXBX0800AFZZ   | ネジ              |      |
|             | AAX01280 | SCREW                  | M1. 7x5    | LXBX0883AFZZ   | ネジ              | 03   |
| * 505       | AAX17040 | SCREW                  | M1. 4x3    | LXJZ0020AWZZ   | ネジ              |      |
| * 506       | AAX17050 | SCREW                  | M1. 7x6    | LXJZ0022AWZZ   | ネジ              |      |
| * 507       | AAX17060 | SCREW                  | M1. 4x4    | LXJZ0024AWZZ   | ネジ              |      |
| * 509       | AAX17080 | SCREW                  | M2. 0x3    | XBPSD20P03K00  | ネジ              |      |
|             | AAX01300 | SCREW                  | M1. 7x3    | XSPSN17P03K00  | ネジ              | 03   |
| * 511       | AAX17190 | WASHER                 | 1. 4x0. 5  | XWSSD1405000   | ワッシャ            |      |
|             | AAX03010 | SCREW                  | M1. 7x3    | LXBX0946AFZZ   | ネジ              | 03   |
| * 513       | AAX17070 | SCREW                  | M1. 4x5    | LXJZ0025AWZZ   | ネジ              |      |
| * CW1501    | AAX17620 | FLAT CABLE             | 28P        | QCNNW1549AWZZ  | フラットケーブル        |      |
| * CW1931    | AAX17600 | FLAT CABLE             | 5P         | QCNNW1512AWZZ  | フラットケーブル        |      |
| * CW1932    | AAX17610 | FLAT CABLE             | 6P         | QCNNW1513AWZZ  | フラットケーブル        |      |
| * M901      | AAX34570 | SPINDLE MOTOR          |            | RMOTV0038AWZZ  | スピンドルモータ組品      |      |
| * M902      | AAX16990 | SLED MOTOR ASS'Y       | SLED       | 92LMTR3167BASV | スレッドモータ組品       |      |
| * M903      | AAX17180 | LOADING MOTOR ASS'Y    | LOADING    | 92LMTR3167AASY | ローディングモータ組品     |      |

\* New Parts (新規部品)

MDX-E300

# GREASE APPLICATION DIAGRAM



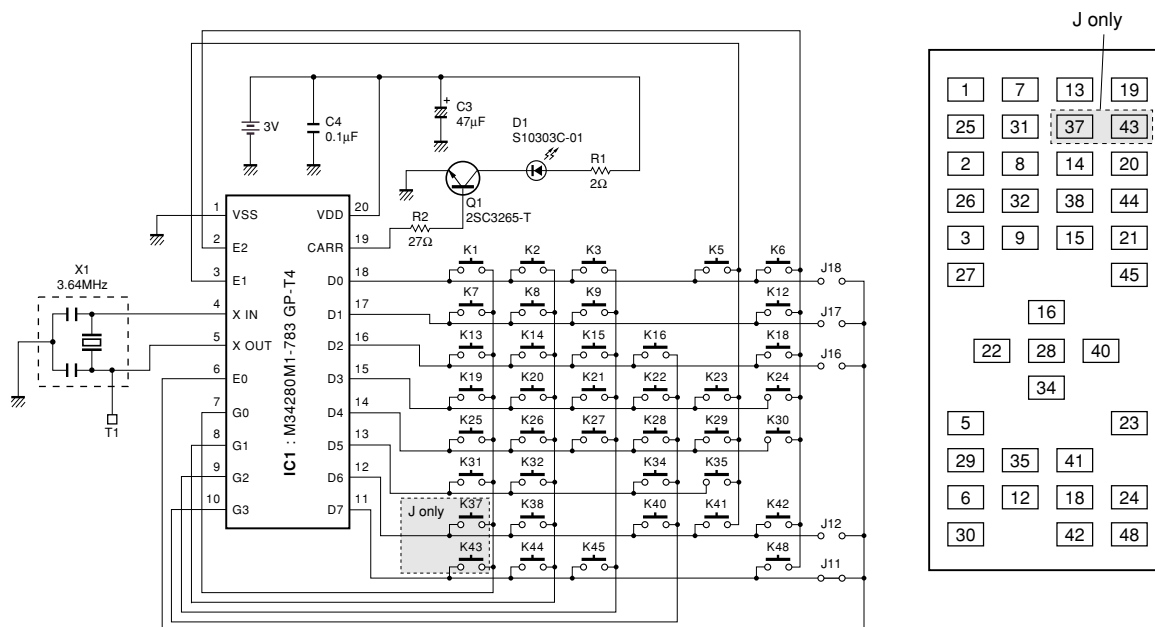
## Grease

G : Molykote PG-662

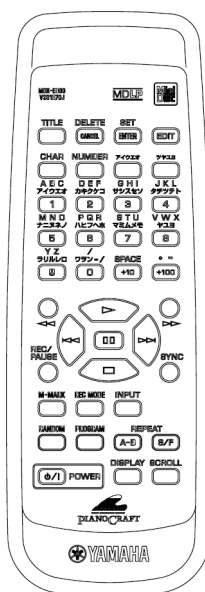
O : HYDRO-FLUTE EP-68

# REMOTE CONTROL TRANSMITTER

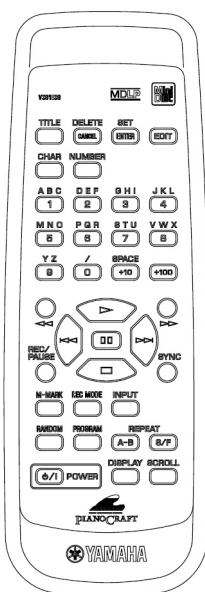
## ■ SCHEMATIC DIAGRAM



▼ J model



▼ R, G, B model



| Key No. | Function        | Custom (Hex) |      |      |
|---------|-----------------|--------------|------|------|
|         |                 | Cus          | Cus' | Data |
| 1       | TITLE           | 79           | 86   | A0   |
| 7       | DELETE          | 79           | 86   | A4   |
| 13      | SET             | 79           | 86   | A3   |
| 19      | EDIT            | 79           | 86   | B6   |
| 25      | CHARACTER       | 79           | 86   | A1   |
| 31      | NUMBER          | 79           | 86   | A2   |
| 37      | アイウエオ           | 79           | 86   | 9D   |
| 43      | ツヤユヨ            | 79           | 86   | 9E   |
| 2       | 1 (ABC, アイウエオ)  | 79           | 86   | B7   |
| 8       | 2 (DEF, カクケコ)   | 79           | 86   | B8   |
| 14      | 3 (GHI, サシセソ)   | 79           | 86   | B9   |
| 20      | 4 (JKL, タチツテト)  | 79           | 86   | BA   |
| 26      | 5 (MNO, ナニヌネノ)  | 79           | 86   | BB   |
| 32      | 8 (PQR, ハヒフヘホ)  | 79           | 86   | BC   |
| 38      | 7 (STU, マミムメモ)  | 79           | 86   | BD   |
| 44      | 8 (VWX, ヤユヨ)    | 79           | 86   | BE   |
| 3       | 9 (YZ, ラリルレロ)   | 79           | 86   | BF   |
| 9       | 0 ( / ワオン - / ) | 79           | 86   | C0   |
| 15      | +10 (SPACE)     | 79           | 86   | 8F   |
| 21      | +100 . "        | 79           | 86   | 9F   |
| 27      | SEARCH -        | 79           | 86   | AC   |
| 45      | SEARCH +        | 79           | 86   | AD   |
| 16      | PLAY            | 79           | 86   | A8   |
| 22      | SKIP -          | 79           | 86   | AB   |
| 28      | PAUSE           | 79           | 86   | A9   |
| 40      | SKIP +          | 79           | 86   | AE   |
| 34      | STOP            | 79           | 86   | AA   |
| 5       | REC/PAUSE       | 79           | 86   | B1   |
| 23      | SYNCHRO REC     | 79           | 86   | B2   |
| 29      | M - MARK        | 79           | 86   | B3   |
| 35      | REC MODE        | 79           | 86   | B4   |
| 41      | INPUT SEL       | 79           | 86   | A7   |
| 6       | RANDOM          | 79           | 86   | 83   |
| 12      | PROGRAM         | 79           | 86   | 84   |
| 18      | REPEAT A - B    | 79           | 86   | 82   |
| 24      | REPEAT S/F      | 79           | 86   | 81   |
| 30      | POWER           | 79           | 86   | B5   |
| 42      | DISPLAY         | 79           | 86   | A5   |
| 48      | SCROLL          | 79           | 86   | A6   |

J only  
J only

# Parts List for Carbon Resistors

| Value          | 1/4W Type Part No. | 1/6W Type Part No. | Value          | 1/4W Type Part No. | 1/6W Type Part No. |
|----------------|--------------------|--------------------|----------------|--------------------|--------------------|
| 1.0 $\Omega$   | HJ35 3100          | HF85 3100          | 10 k $\Omega$  | HF45 7100          | HF45 7100          |
| 1.8 $\Omega$   | HJ35 3180          | *                  | 11 k $\Omega$  | HF45 7110          | HF45 7110          |
| 2.2 $\Omega$   | HJ35 3220          | HF85 3220          | 12 k $\Omega$  | HJ35 7120          | HF85 7120          |
| 3.3 $\Omega$   | HJ35 3330          | HF85 3330          | 13 k $\Omega$  | HF45 7130          | HF45 7130          |
| 4.7 $\Omega$   | HJ35 3470          | HF85 3470          | 15 k $\Omega$  | HF45 7150          | HF45 7150          |
| 5.6 $\Omega$   | HJ35 3560          | HF85 3560          | 18 k $\Omega$  | HF45 7180          | HF45 7180          |
| 10 $\Omega$    | HF45 4100          | HF45 4100          | 22 k $\Omega$  | HF45 7220          | HF45 7220          |
| 15 $\Omega$    | HJ35 4150          | HF85 4150          | 24 k $\Omega$  | HF45 7240          | HF45 7240          |
| 22 $\Omega$    | HF45 4220          | HF45 4220          | 27 k $\Omega$  | HJ35 7270          | HF85 7270          |
| 27 $\Omega$    | HJ35 4270          | HF85 4270          | 30 k $\Omega$  | HF45 7300          | HF45 7300          |
| 33 $\Omega$    | HF45 4330          | HF45 4330          | 33 k $\Omega$  | HF45 7330          | HF45 7330          |
| 39 $\Omega$    | HJ35 4470          | HF85 4390          | 36 k $\Omega$  | HF45 7360          | HF45 7360          |
| 47 $\Omega$    | HF45 4470          | HF45 4470          | 39 k $\Omega$  | HF45 7390          | HF45 7390          |
| 56 $\Omega$    | HF45 4560          | HF45 4560          | 47 k $\Omega$  | HF45 7470          | HF45 7470          |
| 68 $\Omega$    | HF45 4680          | HF45 4680          | 51 k $\Omega$  | HF45 7510          | HF45 7510          |
| 75 $\Omega$    | HF45 4750          | HF45 4750          | 56 k $\Omega$  | HF45 7560          | HF45 7560          |
| 82 $\Omega$    | HF45 4820          | HF45 4820          | 62 k $\Omega$  | HF45 7620          | HF45 7620          |
| 91 $\Omega$    | HF45 4910          | HF45 4910          | 68 k $\Omega$  | HF45 7680          | HF45 7680          |
| 100 $\Omega$   | HF45 5100          | HF45 5100          | 82 k $\Omega$  | HF45 7820          | HF45 7820          |
| 110 $\Omega$   | HJ35 5110          | HF85 5110          | 91 k $\Omega$  | HF45 7910          | HF45 7910          |
| 120 $\Omega$   | HF45 5120          | HF45 5120          | 100 k $\Omega$ | HF45 8100          | HF45 8100          |
| 150 $\Omega$   | HF45 5150          | HF45 5150          | 110 k $\Omega$ | HF45 8110          | HF45 8110          |
| 160 $\Omega$   | HJ35 5160          | *                  | 120 k $\Omega$ | HF45 8120          | HF45 8120          |
| 180 $\Omega$   | HF45 5180          | HF45 5180          | 150 k $\Omega$ | HF45 8150          | HF45 8150          |
| 200 $\Omega$   | HF45 5200          | HF45 5200          | 180 k $\Omega$ | HF45 8180          | HF45 8180          |
| 220 $\Omega$   | HF45 5220          | HF45 5220          | 220 k $\Omega$ | HJ35 8220          | HF85 8220          |
| 270 $\Omega$   | HF45 5270          | HF45 5270          | 270 k $\Omega$ | HF45 8270          | HF45 8270          |
| 330 $\Omega$   | HF45 5330          | HF45 5330          | 300 k $\Omega$ | HF45 8300          | HF45 8300          |
| 390 $\Omega$   | HF45 5390          | HF45 5390          | 330 k $\Omega$ | HF45 8330          | HF45 8330          |
| 430 $\Omega$   | HF45 5430          | HF45 5430          | 390 k $\Omega$ | HJ35 8390          | HF85 8390          |
| 470 $\Omega$   | HF45 5470          | HF45 5470          | 470 k $\Omega$ | HF45 8470          | HF45 8470          |
| 510 $\Omega$   | HF45 5510          | HF45 5510          | 560 k $\Omega$ | HJ35 8560          | HF85 8560          |
| 560 $\Omega$   | HF45 5560          | HF45 5560          | 680 k $\Omega$ | HJ35 8680          | HF85 8680          |
| 680 $\Omega$   | HF45 5680          | HF45 5680          | 820 k $\Omega$ | HJ35 8820          | HF85 8820          |
| 820 $\Omega$   | HF45 5820          | HF45 5820          | 1.0 M $\Omega$ | HF45 9100          | HF45 9100          |
| 910 $\Omega$   | HF45 5910          | HF45 5910          | 1.2 M $\Omega$ | HJ35 9120          | *                  |
| 1.0 k $\Omega$ | HF45 6100          | HF45 6100          | 1.5 M $\Omega$ | HJ35 9150          | HF85 9150          |
| 1.2 k $\Omega$ | HF45 6120          | HF45 6120          | 1.8 M $\Omega$ | HJ35 9180          | HF85 9180          |
| 1.5 k $\Omega$ | HF45 6150          | HF45 6150          | 2.2 M $\Omega$ | HJ35 9220          | HF85 9220          |
| 1.8 k $\Omega$ | HF45 6180          | HF45 6180          | 3.3 M $\Omega$ | HJ35 9330          | HF85 9330          |
| 2.0 k $\Omega$ | HJ35 6200          | HF85 6200          | 3.9 M $\Omega$ | HJ35 9390          | *                  |
| 2.2 k $\Omega$ | HF45 6220          | HF45 6220          | 4.7 M $\Omega$ | HJ35 9470          | HF85 9470          |
| 2.4 k $\Omega$ | HJ35 6240          | HF85 6240          |                |                    |                    |
| 2.7 k $\Omega$ | HF45 6270          | HF45 6270          |                |                    |                    |
| 3.0 k $\Omega$ | HF45 6300          | HF45 6300          |                |                    |                    |
| 3.3 k $\Omega$ | HF45 6330          | HF45 6330          |                |                    |                    |
| 3.6 k $\Omega$ | HJ35 6360          | HF85 6360          |                |                    |                    |
| 3.9 k $\Omega$ | HF45 6390          | HF45 6390          |                |                    |                    |
| 4.7 k $\Omega$ | HF45 6470          | HF45 6470          |                |                    |                    |
| 5.1 k $\Omega$ | HF45 6510          | HF45 6510          |                |                    |                    |
| 5.6 k $\Omega$ | HF45 6560          | HF45 6560          |                |                    |                    |
| 6.8 k $\Omega$ | HF45 6680          | HF45 6680          |                |                    |                    |
| 8.2 k $\Omega$ | HF45 6820          | HF45 6820          |                |                    |                    |
| 9.1 k $\Omega$ | HF45 6910          | HF45 6910          |                |                    |                    |

**1/4W Type**  
HJ35 ○○○○

**1/6W Type**  
HF45 ○○○○

**1/4W Type**  
HF45 ○○○○

**1/6W Type**  
HF85 ○○○○

10mm

5mm