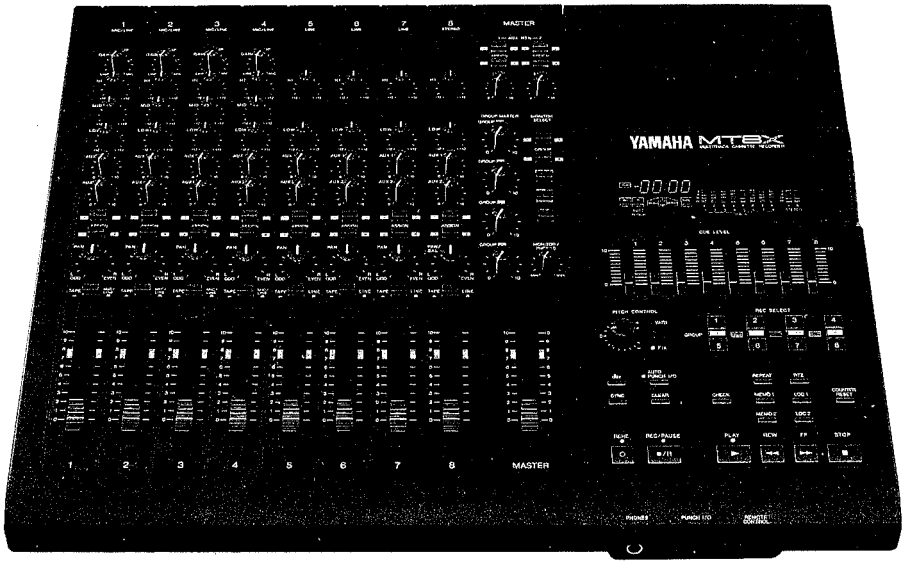
# MULTITRACK CASSETTE RECORDER

# MT8X

## SERVICE MANUAL



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# 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, 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 changes in specification 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.

MT8X

# 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 WHAT SO EVER!

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**

Components having special characteristics are marked ⚠ and must be replaced with parts having specifications equal to those originally installed.

⚠印の部品は、安全を維持するために重要な部品です。交換する場合は、安全のため必ず指定の部品をご使用下さい。

# ■ SPECIFICATIONS

| | | |
|---|---|---|
| **MODEL** | 8-track/8-channel one way recording and playback cassette recorder with mixer | |
| **TAPE TRANSPORT** | Tape Type | $CrO_2$ (Bias: HIGH; EQ: 70 μs) |
| | Track Configuration | 8-track/8-channel one way recording and playback |
| | Heads | 8-channel Permalloy rec/play head x 1 |
| | | 8-channel ferrite erase head x 1 |
| | Motor | DC servo motor for capstan x 1 |
| | | DC motor for reel x 1 |
| | | DC motor for mechanism control x 1 |
| | Tape Speed | 9.5 cm/sec. |
| | Pitch Control | Approx. ±12% |
| | Wow & Flutter | 0.08% WRMS or less |
| | Rewind Time | Approx. 95 sec. at normal speed (for C-60 tape) |
| | | Approx. 75 sec. at high speed (for C-60 tape) |

**ELECTRICAL SPECIFICATIONS**: 0 dB = 0.775 Vr.m.s.

<No. of I/O Jacks>

| | | |
|---|---|---|
| MIC/LINE x 4 CH1 – 4 | INSERT I/O x 2 CH1 – 2 | LINE x 3 CH5 – 7 |
| LINE L/MONO, R x 1 CH8 | AUX RETURN L/MONO, R x 2 | 2TR IN L, R x 1 |
| AUX SEND x 2 | STEREO OUT L,R x 1 | MONITOR OUT L, R x 1 |
| TAPE OUT x 8 CH1 – 8 | PHONES L,R x 1 | |

**CONNECTORS**

| | | |
|---|---|---|
| MIC/LINE 1 – 4 | Input Impedance 10 kΩ | Rated Input Level –10 dB to –50 dB (ch. fader nominal) |
| | Min. Input Level –56 dB (gain control, ch. fader max.) | |
| | Max. Input Level +10 dB (gain control min., headroom margin) | |
| INSERT IN 1, 2 | Input Impedance 10 kΩ | Rated Input Level –10 dB |
| | Min. Input Level –16 dB (ch. fader max.) | |
| LINE 5 – 8 | Input Impedance 10 kΩ | Rated Input Level –10 dB (ch. fader nominal) |
| | Min. Input Level –16 dB (ch. fader max.) | |
| AUX RETURN L/R 1, 2 | Input Impedance 20 kΩ | Rated Input Level –10 dB (AUX RTN LEVEL control nominal) |
| | Min. Input Level –16 dB (AUX RTN LEVEL control max.) | |
| 2TR IN L, R | Input Impedance 10 kΩ | Rated Input Level –10 dB (MONITOR/PHONES control nominal) |
| | Min. Input Level –16 dB | |
| INSERT OUT 1, 2 | Output Impedance 100 Ω | Rated Load Impedance 10 kΩ or more |
| | Rated Output Level –10 dB (at 10 kΩ load) | |
| AUX SEND 1, 2 | Output Impedance 1 kΩ | Rated Load Impedance 10 kΩ or more |
| | Rated Output Level –10 dB (at 10 kΩ load) | |
| STEREO OUT L, R | Output Impedance 1 kΩ | Rated Load Impedance 10 kΩ or more |
| | Rated Output Level –10 dB (at 10 kΩ load) | |
| MONITOR OUT L, R | Output Impedance 1 kΩ | Rated Load Impedance 10 kΩ or more |
| | Rated Output Level –10 dB (at 10 kΩ load) | |
| TAPE OUT 1 – 8 | Output Impedance 100 Ω | Rated Load Impedance 10 kΩ or more |
| | Rated Output Level –10 dB (at 10 kΩ load) | |
| PHONES | Rated Load Impedance 8–40 Ω | Max. Output Level 100 mW (at 40 Ω load) |

**MIXER**

Frequency Response (At Rated Input and Output)

| | | |
|---|---|---|
| 20 Hz – 20 kHz $^{+1}_{-4}$ dB | MIC IN–STEREO OUT | |
| | LINE IN–STEREO OUT | |
| | LINE IN–PHONES OUT | |

Noise level (12.7 kHz: 6 dB/oct. L.P.F)

Signal process noise: -115 dB/Rs = 150 Ω

STEREO OUT: -80 dB/CH, optimum position of the Master Fader

S/N Ratio (At Rated Input and Output Levels)

68 dB/IHF-A MIC IN-STEREO OUT (GAIN TRIM MAX.)

70 dB/IHF-A LINE IN-STEREO OUT (GAIN TRIM MIN.)

Distortion (1 kHz, At Rated Input and Output)

0.3 %/30 kHz L.P.F MIC IN-STEREO OUT (GAIN TRIM MAX.)

0.05 %/30 kHz L.P.F LINE IN-STEREO OUT (GAIN TRIM MIN.)

| | | | |
|---|---|---|---|
| Equalizer | LOW/SHELVING | Standard Frequency 100 Hz | Variable Range ±12 dB |
| | MID/PEAKING | Standard Frequency 1 kHz | Variable Range ±12 dB |
| | HIGH/SHELVING | Standard Frequency 10 kHz | Variable Range ±12 dB |

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| **RECORDER** | (4 track simultaneous recording) |
|---|---|
| Overall Frequency Response | 50 Hz –14 kHz $^{+3}_{-5}$dB (dbx NR OFF) |
| Overall S/N ratio | 80 dB/IHA-F (dbx NR ON), (At distortion level of 3 %) |
| Overall Distortion | 2 % (400 Hz, –10 dB) |
| Overall channel separation (between adjacent channels) | 60 dB (1 kHz, –10 dB, dbx NR ON) |
| Erasure Rate | 55 dB (1 kHz, 0 dB) |
| Noise Reduction | dbx NR (SYNC position: TR8 = OFF) |

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**GENERAL**

| | |
|---|---|
| Control Jacks | PUNCH I/O (FC4 or FC5) |
| | REMOTE CONTROL (RCM1) |
| Power Requirements | U.S. & Canadian Models: 120 V AC, 60 Hz |
| | UK Model: 240 V AC, 50 Hz |
| | General Model: 230 V AC, 50 Hz |
| Power Consumption | 40 W |
| Dimensions (WxHxD) | 489 mm X 129 mm X 390 mm (19 -1/4" X 5 - 1/16" X 15 - 3/8") |
| Weight | 7.0 kg (15 lbs. 6 oz.) |
| Accessory | AC power cord, cotton swab |

* dbx is a trademark of dbx Incorporated.
0 dB = 0.775 Vr.m.s.

## ■総合仕様

形式: ミキサー付8トラック8チャンネル片道録音/再生カセットレコーダー

機構部:

| | |
|---|---|
| 使用テープ | C−46 ～ 90 カセットテープ CrO2 (TypeII) 専用 |
| トラック形式 | 8トラック/8チャンネル片道録音/再生 |
| ヘッド構成 | 8チャンネル録音/再生:ハードパーマロイ ×1 |
| | 8チャンネル消去:フェライト×1 |
| モーター | DCサーボモーター キャプスタン用×1 |
| | DCモーター リール用×1 |
| | DCモーター メカニズムコントロール用×1 |
| テープ速度 | 9.5 cm/sec. |
| ピッチコントロール | 約 ±12 % |
| ワウフラッター | 0.08 % W.RMS以下 |
| 早巻き時間 | 約95秒 ノーマル (C−60テープ) |
| | 約75秒 高速 (C−60テープ) |

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電気部: 0dB=0.775Vrms

《入出力チャンネル数》

| | | |
|---|---|---|
| MIC/LINE×4 CH1 ～ 4 | INSERT I/O ×2 CH1 ～ 2 | LINE ×3 CH5 ～ 7 |
| LINE L/MONO,R ×1 CH8 | AUX RETURN L/MONO,R ×2 | 2TR IN L,R ×1 |
| AUX SEND ×2 | STEREO OUT L,R ×1 | MONITOR OUT L,R ×1 |
| TAPE OUT ×8 CH1 ～ 8 | PHONES L,R ×1 | |

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仕様:

| | | |
|---|---|---|
| MIC/LINE 1 ～ 4 | 入力インピーダンス 10 kΩ | 規定入力レベル -10dB ～ -50dB (CH FADER 規定位置) |
| | 最小入力レベル -56dB (GAIN TRIM,CH FADER MAX.) | |
| | 最大入力レベル +10dB (GAIN TRIM MIN.ヘッドルームマージン) | |
| INSERT IN 1,2 | 入力インピーダンス 10 kΩ | 規定入力レベル -10dB |
| | 最小入力レベル -16dB (CH FADER MAX.) | |
| LINE 5 ～ 8 | 入力インピーダンス 10 kΩ | 規定入力レベル-10dB (CH FADER 規定位置) |
| | 最小入力レベル -16dB (CH FADER MAX.) | |
| AUX RETURN L/R 1,2 | 入力インピーダンス 20 kΩ | 規定入力レベル -10dB (AUX RETURN VOLUME 規定位置) |
| | 最小入力レベル -16dB (AUX RETURN VOLUME MAX.) | |
| 2TR IN L,R | 入力インピーダンス 10 kΩ | 規定入力レベル -10dB (MONITOR/PHONES VOLUME 規定位置) |
| | 最小入力レベル -16dB | |
| INSERT OUT 1,2 | 出力インピーダンス 100Ω | 規定負荷インピーダンス 10 kΩ 以上 |
| | 規定出力レベル -10dB (10 kΩ 負荷時) | |
| AUX SEND 1,2 | 出力インピーダンス 1kΩ | 規定負荷インピーダンス 10 kΩ 以上 |
| | 規定出力レベル -10dB (10 kΩ 負荷時) | |
| STEREO OUT L,R | 出力インピーダンス 1kΩ | 規定負荷インピーダンス 10 kΩ 以上 |
| | 規定出力レベル -10dB (10 kΩ 負荷時) | |
| MONITOR OUT L,R | 出力インピーダンス 1kΩ | 規定負荷インピーダンス 10 kΩ 以上 |
| | 規定出力レベル -10dB (10 kΩ 負荷時) | |
| TAPE OUT 1～8 | 出力インピーダンス 100 Ω | 規定負荷インピーダンス 10 kΩ 以上 |
| | 規定出力レベル -10dB (10 kΩ 負荷時) | |
| PHONES | 規定負荷インピーダンス 8 ～ 40 Ω | 最大出力レベル 100mW (40 Ω 負荷時) |

ミキサー部

| | | |
|---|---|---|
| 周波数特性 (規定入出力時) | | |
| | 20Hz ～ 20kHz $^{+1}_{-4}$ dB | MIC IN－STEREO OUT<br>LINE IN－STEREO OUT<br>LINE IN－PHONES OUT |
| ノイズレベル ( 12.7kHz -6dB/oct. L.P.F) | | |
| 入力換算ノイズ | -115dB/Rs=150Ω | |
| STEREO OUT | -80dB/CH,MASTER FADER 規定位置 | |
| S/N (規定入力、規定出力レベル位置) | | |
| | 68dB/IHF-A MIC IN-STEREO OUT (GAIN TRIM MAX.) | |
| | 70dB/IHF-A LINE IN-STEREO OUT (GAIN TRIM MIN.) | |
| 歪率 (1kHz, 規定入出力時) | 0.3 %/30kHz L.P.F MIC IN-STEREO OUT (GAIN TRIM MAX.) | |
| | 0.05%/30kHz L.P.F LINE IN-STEREO OUT (GAIN TRIM MIN.) | |
| イコライザー | LOW/SHELVING | 基準周波数 100Hz 可変範囲 ±12dB |
| | MID/PEAKING | 基準周波数 1kHz 可変範囲 ±12dB |
| | HIGH/SHELVING | 基準周波数 10kHz 可変範囲 ±12dB |

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| | |
|---|---|
| レコーダー部 | (4トラック同時録音) |
| 総合周波数特性 | 50Hz $^{+3}_{-5}$ dB ～ 14kHz $^{+3}_{-5}$ dB (dbx NR OFF) |
| 総合S/N | 80dB/IHF-A (dbx NR ON)、歪率3%レベル |
| 総合歪率 | 2% (400Hz, -10dB レベル) |
| 総合チャンネルセパレーション ( 隣接チャンネル間 ) | 60dB (1kHz, -10dB レベル dbx NR ON) |
| 消去率 | 55dB (1kHz, 0dB レベル) |
| ノイズ・リダクション | dbx NR ( SYNC POSITION : Tr 8＝OFF ) |

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その他

| | |
|---|---|
| 操作端子 | PUNCH I/O ( FC4またはFC5 ) |
| | REMOTE CONTROL ( RCM1 ) |
| 電源 | AC100V 50/60Hz |
| 消費電力 | 35W |
| 最大外形寸法 | 489(W)×129(H)×390(D) |
| 重量 | 7.0 Kg |
| 付属品 | 電源コード、綿棒 |

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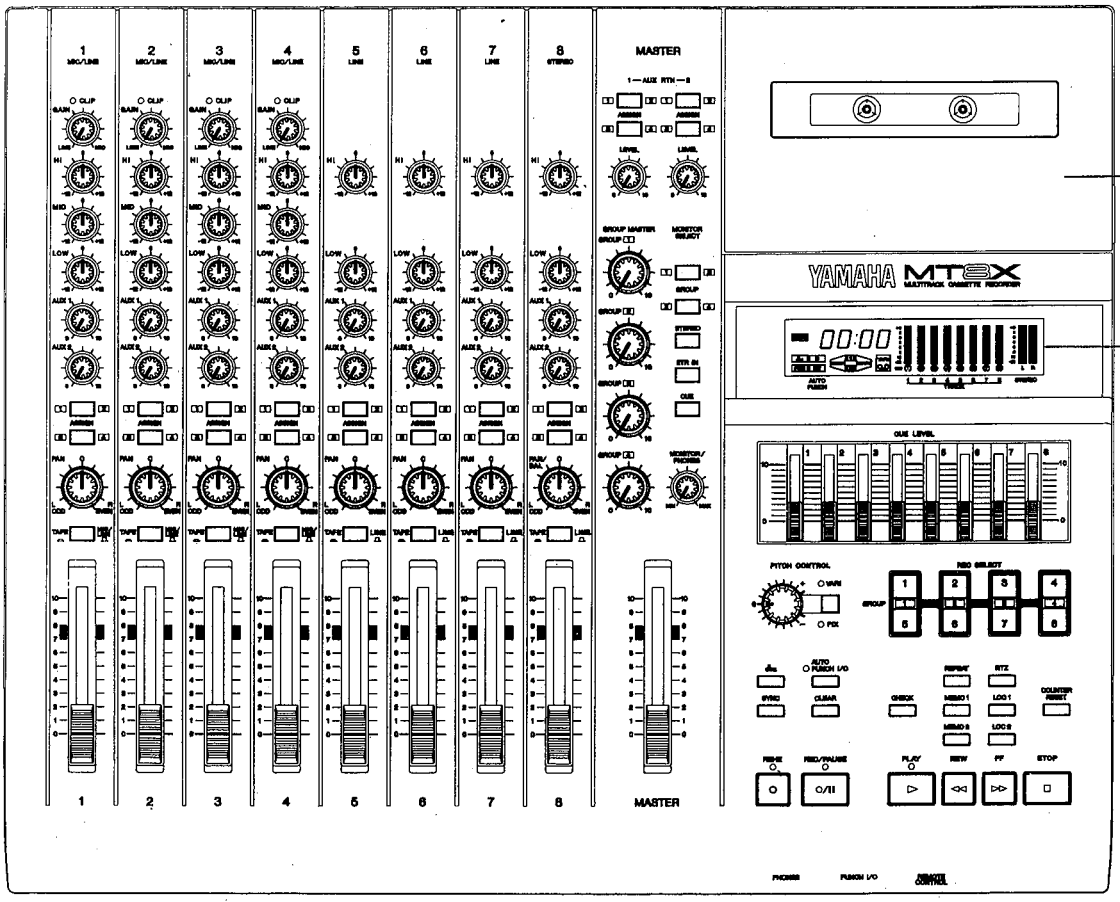
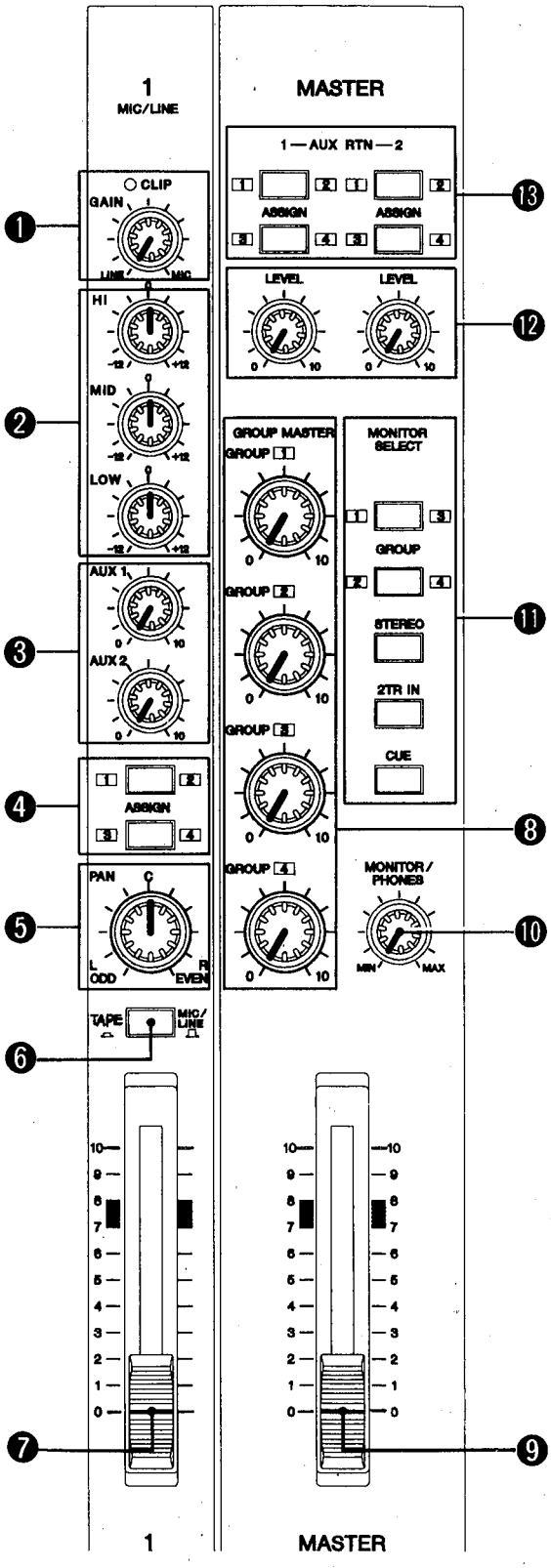
オプション

| | |
|---|---|
| インサーションケーブル | YIC025/YIC050/YIC070 |

## ■PANEL LAYOUT（パネルレイアウト）



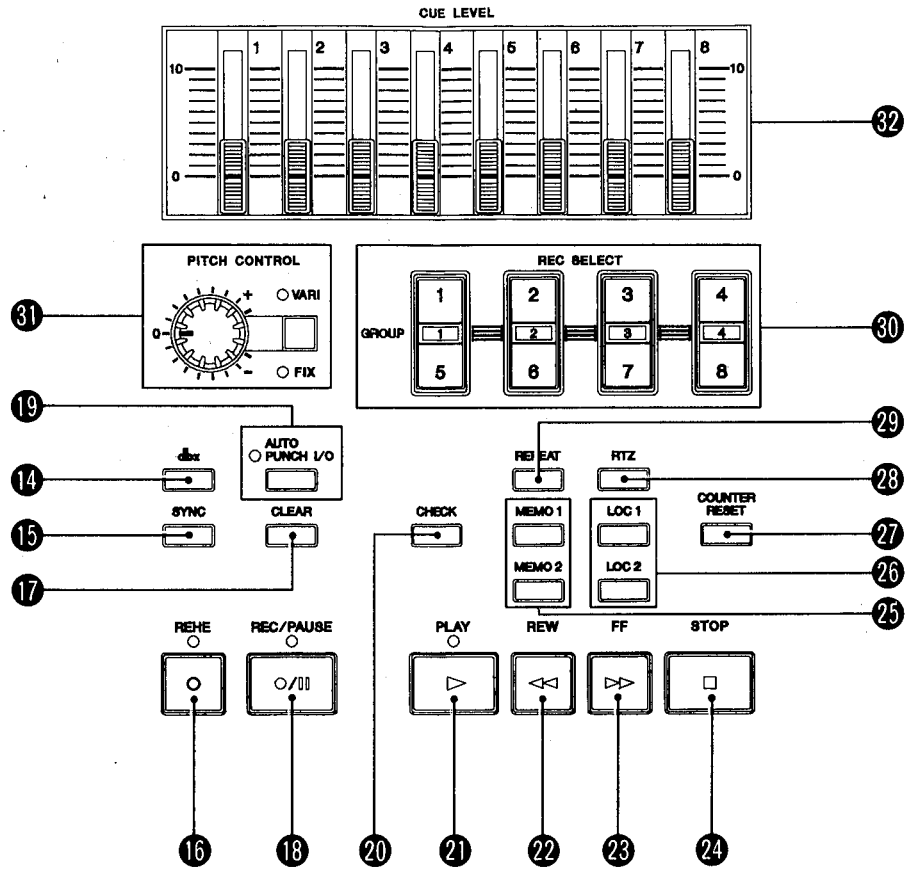
## ●MIXER(ミキサー部)




❶ GAIN Control and CLIP Indicator
❷ Equalizer Controls
❸ AUX 1 and 2 Controls
❹ ASSIGN Switches
❺ PAN Control
❻ Input Selector Switch
❼ Channel Fader
❽ GROUP MASTER Controls
❾ STEREO Fader
❿ MONITOR/PHONES Control
⓫ MONITOR SELECT Switches
⓬ AUX RTN LEVEL Controls
⓭ AUX RTN ASSIGN Switches

❶GAINコントロールツマミ,CLIPインジケーター
❷イコライザーツマミ
❸AUX1,2コントロールツマミ
❹ASSIGNスイッチ
❺PAN(パンポット)コントロールツマミ
❻入力セレクトスイッチ
❼チャンネルフェーダー
❽GROUP MASTERコントロールツマミ
❾ステレオフェーダー
❿MONITOR/PHONESコントロールツマミ
⓫MONITOR SELECTスイッチ
⓬AUX RTN LEVELコントロールツマミ
⓭AUX RTN ASSIGNスイッチ

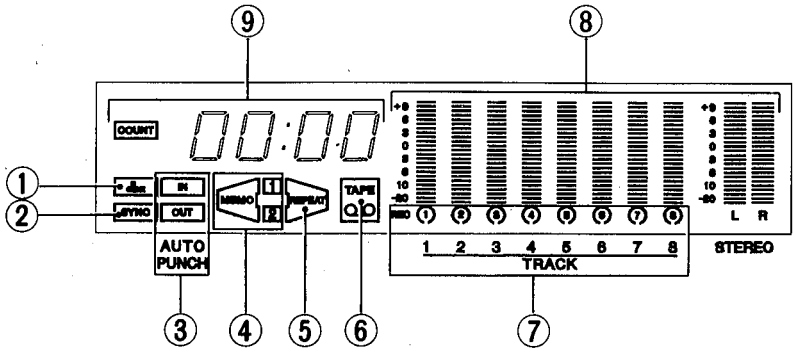
## ●RECORDER(レコーダー部)




⑭ dbx Switch
⑮ SYNC Switch
⑯ REHE Button Indicator
⑰ CLEAR Button
⑱ REC/PAUSE Button and Indicator
⑲ AUTO PUNCH I/O Button and Indicator
⑳ CHECK Button
㉑ PLAY Button and Indicator
㉒ REW Button
㉓ FF Button
㉔ STOP Button
㉕ MEMO 1 and 2 Buttons
㉖ LOC 1 and LOC 2 Buttons
㉗ COUNTER RESET Button
㉘ RTZ Button
㉙ REPEAT Button
㉚ REC SELECT Switches
㉛ PITCH Control (Knob, Switch and Indicators)
㉜ CUE LEVEL Controls
㉝ Cassette Compartment

⑭dbxキー
⑮SYNCキー
⑯REHEキー,インジケーター
⑰CLEARキー
⑱REC/PAUSEキー,インジケーター
⑲AUTO PUNCH I/Oキー,インジケーター
⑳CHECKキー
㉑PLAYキー,インジケーター
㉒REWキー
㉓FFキー
㉔STOPキー
㉕MEMO 1,2キー
㉖LOC 1,2キー
㉗COUNTER RESETキー
㉘RTZキー
㉙REPEATキー
㉚REC SELECTキー
㉛PITCH CONTROLツマミ,スイッチ,インジケーター
㉜CUE LEVELコントロール
㉝カセットホルダー

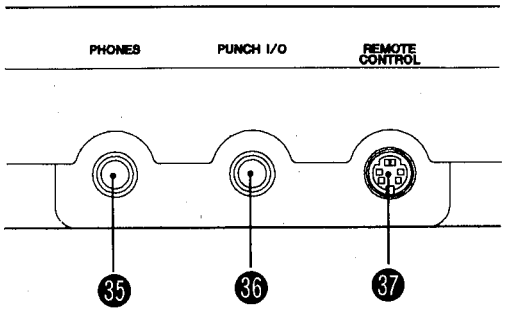
## ●DISPLAY(ディスプレイ部)㉞




① dbx Indicator
② SYNC Indicator
③ Automatic Punch-in/out Indicator
④ MEMO 1 and 2 Indicators
⑤ REPEAT Indicator
⑥ TAPE Indicator
⑦ REC Select Indicators
⑧ Level Meter
⑨ Tape Counter

①dbxインジケーター
②SYNCインジケーター
③AUTO PANCH IN, OUTインジケーター
④MEMO 1,2インジケーター
⑤REPEATインジケーター
⑥TAPEインジケーター
⑦REC SELECTインジケーター
⑧レベルメーター
⑨テープカウンター

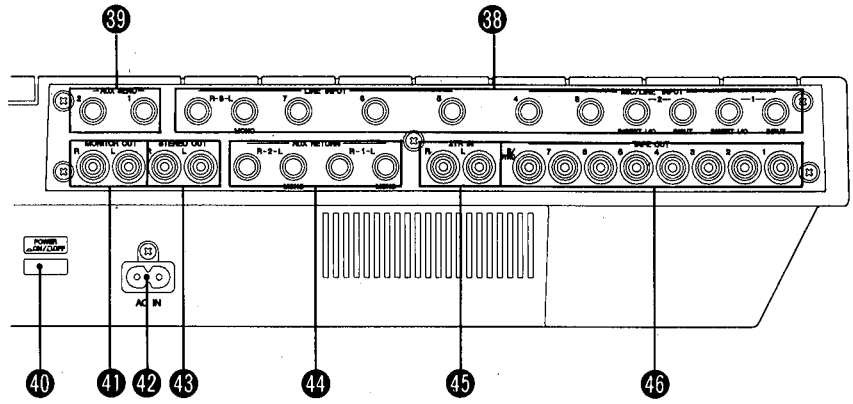
## ●FRONT PANEL (フロントパネル部)




㉟ PHONES Jack
㊱ PUNCH I/O Jack
㊲ REMOTE CONTROL Jack

㉟PHONES端子
㊱PUNCH I/O端子
㊲REMOTE CONTROL端子

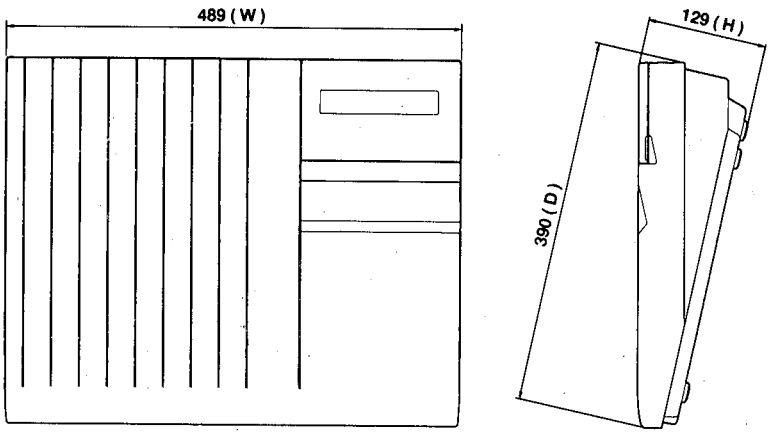
## ●REAR PANEL (リアパネル部)



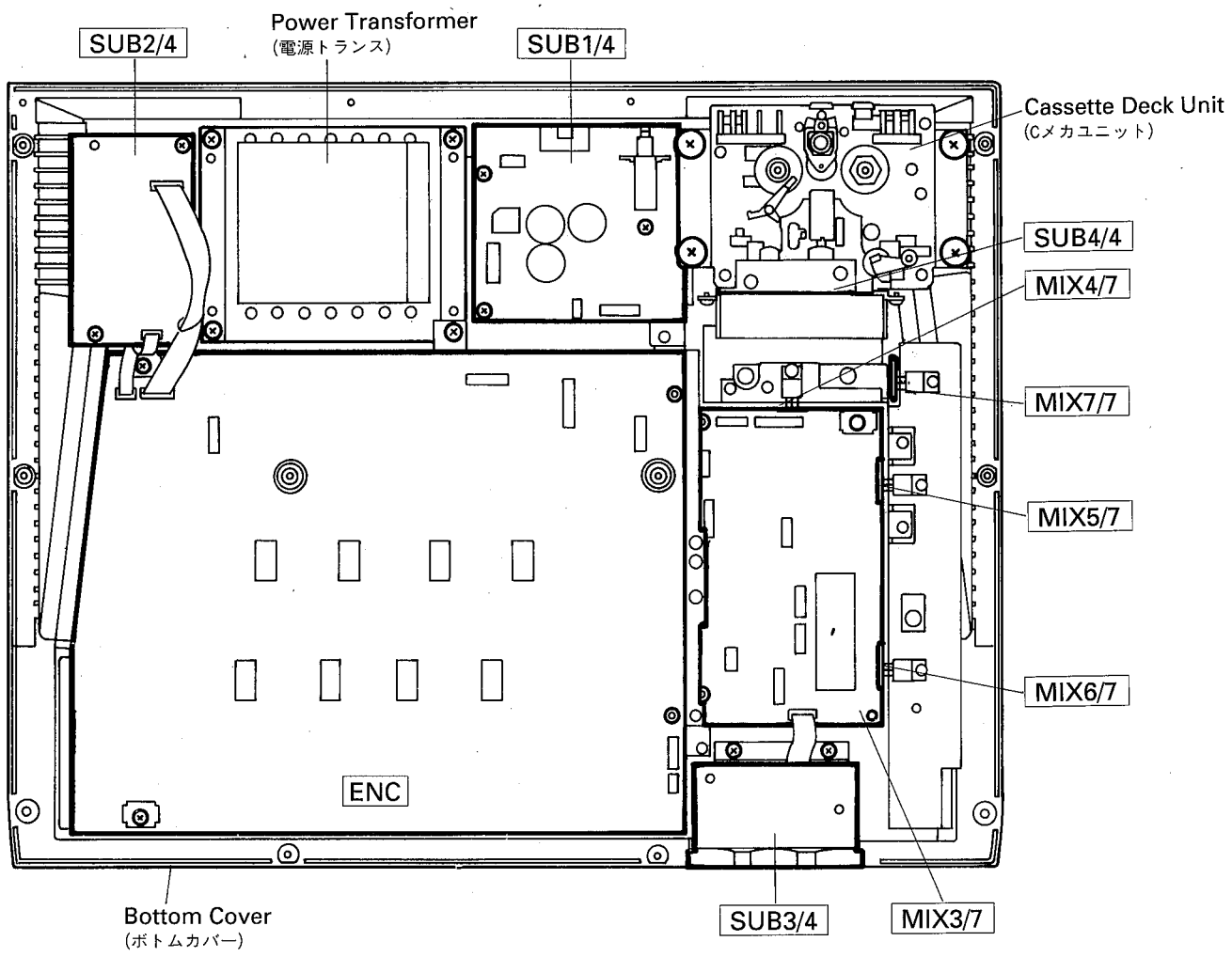

㊳ MIC/LINE INPUT, LINE INPUT and INSERT I/O Jacks
㊴ AUX SEND 1 and 2 Jacks
㊵ POWER Switch
㊶ MONITOR OUT Jacks
㊷ AC IN Socket
㊸ STEREO OUT Jacks
㊹ AUX RETURN 1 and 2 Jacks
㊺ 2TR IN Jacks
㊻ TAPE OUT Jacks (1-8/SYNC)

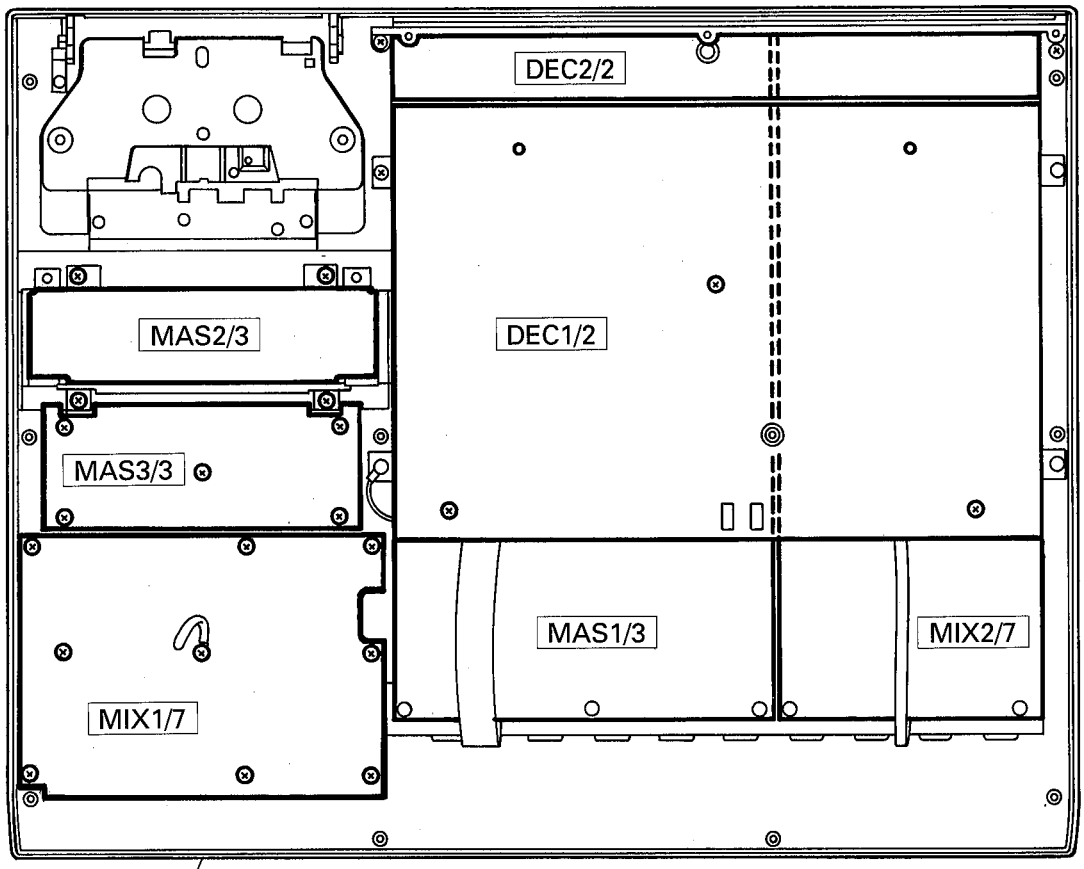
㊳MIC/LINE INPUT LINE INPUT,INSERT I/O端子
㊴AUX SEND 1,2端子
㊵POWERスイッチ
㊶MONITOR OUT端子
㊷AC INソケット
㊸STEREO OUT端子
㊹AUX RETURN端子
㊺2TN IN端子
㊻TAPE OUT端子(1～8/SYNC)

## ■ DIMENSIONS (寸法図)



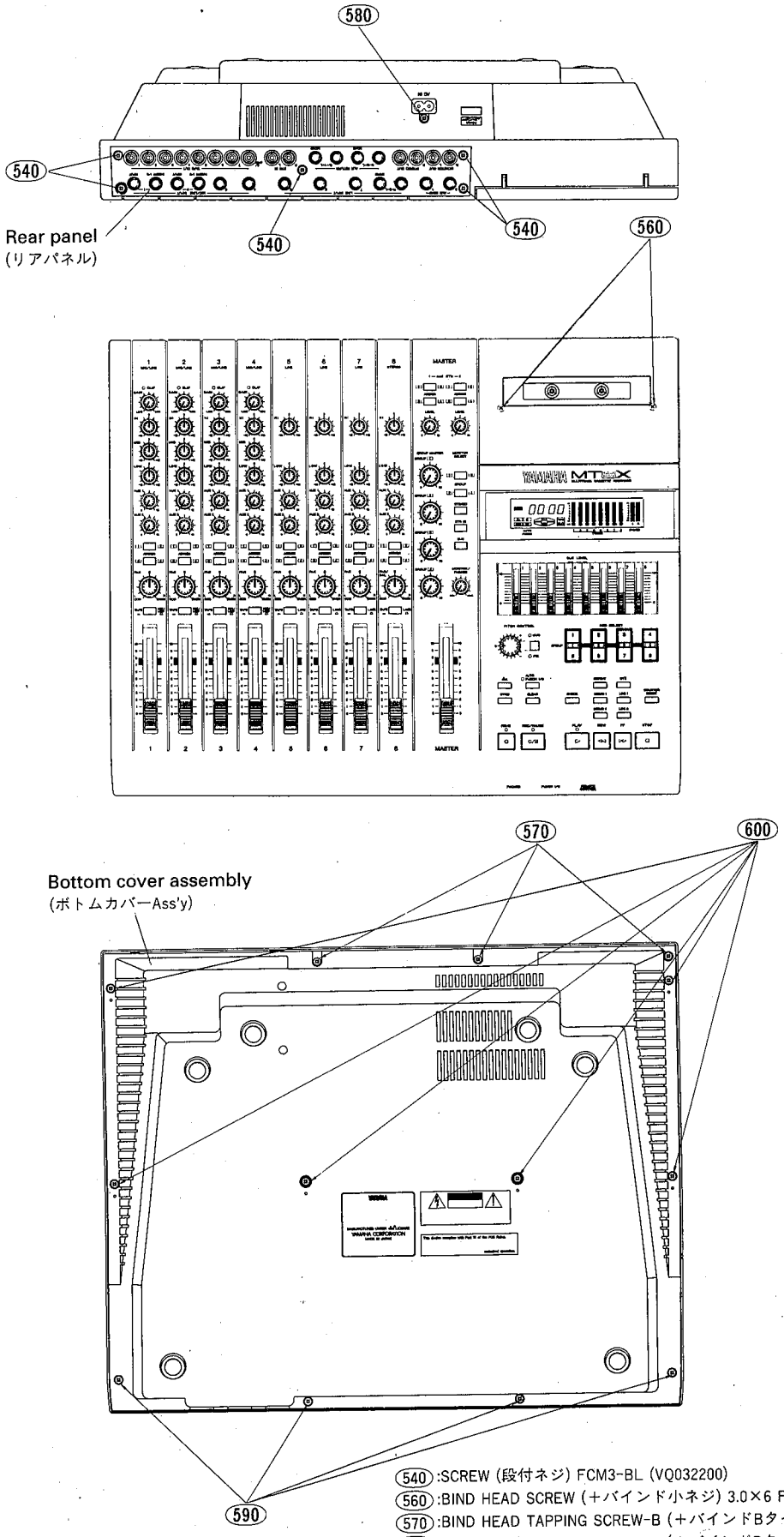
## ■CIRCUIT BOARD LAYOUT（ユニットレイアウト）






Top Cover
(トップカバー)

## ■ DISASSEMBLY PROCEDURE（分解手順）




(Fig. 1)

(540):SCREW (段付ネジ) FCM3-BL (VQ032200)
(560):BIND HEAD SCREW (+バインド小ネジ) 3.0×6 FCM3BL (EG330030)
(570):BIND HEAD TAPPING SCREW-B (+バインドBタイト) 3.0×8 FCM3BL (EP600830)
(580):BIND HEAD TAPPING SCREW-P (+バインドPタイト) 3.0×10 FCM3BL (EP600910)
(590):BIND HEAD TAPPING SCREW-P (+バインドPタイト) 3.0×16 FCM3BL (VD016800)
(600):BIND HEAD TAPPING SCREW-P (+バインドPタイト) 3.0×35 FCM3BL (VQ032700)

## 1. Bottom Cover Assembly Removal

1-1. Remove the three (3) screws marked (570), the four (4) screws marked (590), the six (6) screws marked (600) and the two (2) screws marked (560), then the bottom cover assembly can be removed. (Fig.1)

## 1．ボトムカバーAss'yの外し方

1-1 (570) のネジを3本、(590) のネジを4本、(600) のネジを6本、(560) のネジ2本を外し、ボトムカバーAss'yを外します。(図1)

## 2. ENC Circuit Board Removal

2-1. Remove the bottom cover assembly. (see procedure 1)
2-2. Remove the two (2) plastic rivets marked (630A). (Fig.2)
2-3. Remove the two (2) screws marked (580A), then the ENC circuit board can be removed. (Fig.2)

## 2．ENCシートの外し方

2-1 ボトムカバーAss'yを外します。(1項参照)
2-2 (630A) のプラリベット2本を外します。(図2)
2-3 (580A) のネジ2本を外し、ENCシートを外します。(図2)

## 3. MIX-3/7 Circuit Board Removal

3-1. Remove the bottom cover assembly. (see procedure 1)
3-2. Remove the three (3) plastic rivets marked (630B). (Fig.2)
3-3. Remove the screw marked (580B), then the MIX-3/7 circuit board can be removed. (Fig.2)

## 3．MIX-3/7シートの外し方

3-1 ボトムカバーAss'yを外します。(1項参照)
3-2 (630B) のプラリベット3本を外します。(図2)
3-3 (580B) のネジ1本を外し、MIX-3/7シートを外します。(図2)

## 4. SUB-1/4 Circuit Board Removal

4-1. Remove the bottom cover assembly. (see procedure 1)
4-2. Remove the screw marked (580). (Fig.1)
4-3. Remove the three (3) screws marked (580C), then the SUB-1/4 circuit board can be removed. (Fig.2)

## 4．SUB-1/4シートの外し方

4-1 ボトムカバーAss'yを外します。(1項参照)
4-2 AC IN端子を止めている (580) のネジ1本を外します。(図1)
4-3 (580C) のネジ3本を外し、SUB-1/4シートを外します。(図2)

## 5. SUB-2/4 Circuit Board Removal

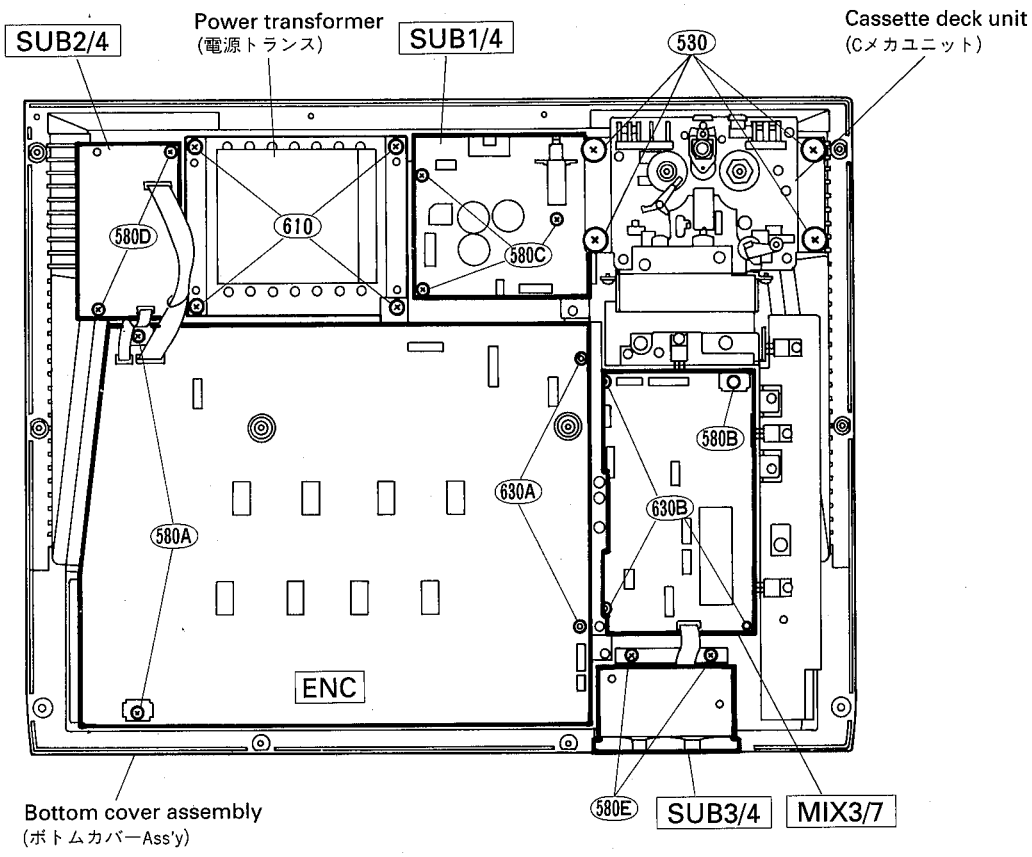
5-1. Remove the bottom cover assembly. (see procedure 1)

5-2. Remove the two (2) screws marked (580D), then the SUB-2/4 circuit board can be removed. (Fig.2)

## 5．SUB-2/4シートの外し方

5-1 ボトムカバーAss'yを外します。(1項参照)

5-2 (580D)のネジ2本を外し、SUB-2/4シートを外します。(図2)




(530) :SCREW(段付ネジ) ZMC2-Y (VQ031900)
(580) :BIND HEAD TAPPING SCREW-P (+バインドPタイト) 3.0×10 FCM3BL (EP600910)
(610) :BIND HEAD TAPPING SCREW-P (+バインドPタイト) 4.0×12 FCM3BL (VB744600)

**(Fig. 2)**

## 6. SUB-3/4 Circuit Board Removal

6-1. Remove the bottom cover assembly. (see procedure 1)

6-2. Remove the two (2) screws marked (580E) (Fig.2)

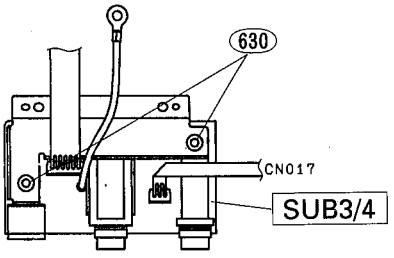
6-3. Remove the two (2) plastic rivets marked (630), then the SUB-3/4 circuit board can be removed. (Fig.3)

## 6．SUB-3/4シートの外し方

6-1 ボトムカバーAss'yを外します。(1項参照)

6-2 (580E)のネジ2本を外します。(図2)

6-3 (630)のプラリベット2本を外し、SUB-3/4シートを外します。(図3)



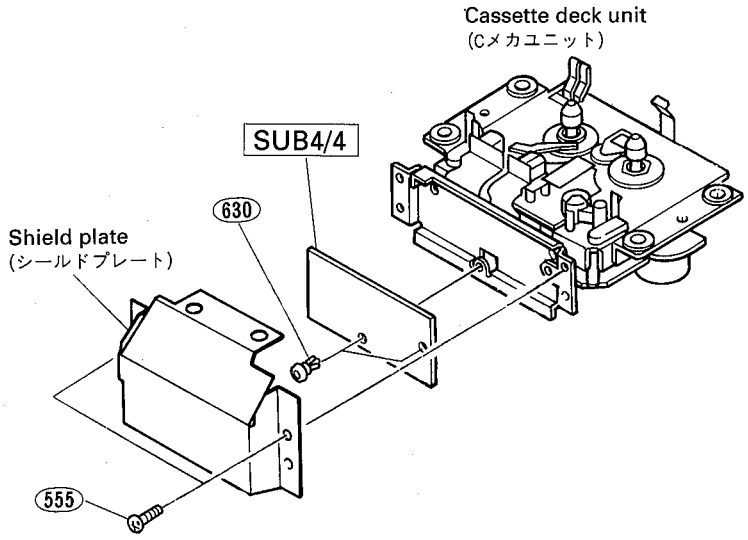

**(Fig. 3)**

## 7. SUB-4/4 Circuit Board Removal

7-1. Remove the bottom cover assembly. (see procedure 1)
7-2. Remove the four (4) screws marked (530), then the cassette deck unit can be removed. (Fig.2)
7-3. To remove the shield plate, remove the two (2) screws marked (555). (Fig.4)
7-4. Remove the two (2) plastic rivets marked (630), then the SUB-4/4 circuit board can be removed. (Fig.4)

## 7．SUB-4/4シートの外し方

7-1 ボトムカバーAss'yを外します。(1項参照)
7-2 (530)のネジ4本を外し、Cメカユニットを外します。(図2)
7-3 (555)のネジ2本を外し、Cメカユニットからシールドプレートを外します。(図4)
7-4 (630)のプラリベット2本を外し、SUB-4/4シートを外します。(図4)




(555) :BIND HEAD TAPPING SCREW-B (+バインドBタイト) 3.0×5 ZMC2-Y (VQ030800)

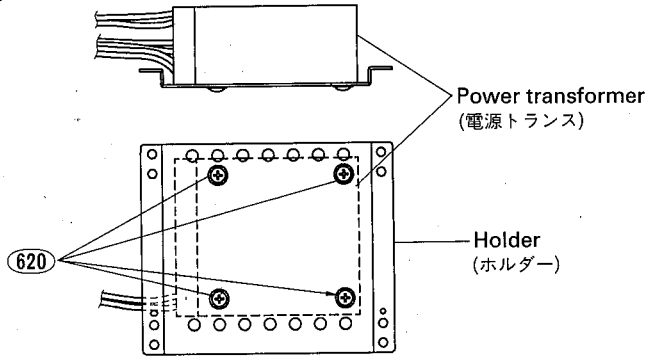
**(Fig. 4)**

## 8. Power Transformer Removal

8-1. Remove the bottom cover assembly. (see procedure 1)
8-2. Remove the four (4) screws marked (610), then the power transformer can be removed with the holder. (Fig.2)
8-3. To remove the holder, remove the four (4) screws marked (620). (Fig.5)

## 8．電源トランスの外し方

8-1 ボトムカバーAss'yを外します。(1項参照)
8-2 (610)のネジ4本を外します。(図2)
8-3 (620)のネジ4本を外し、ホルダーから電源トランスを外します。(図5)




(620) :SELF TAPPING SCREW-S (カップSタイト) 4.0×8 FNM3-BL (VE460600)

**(Fig. 5)**

## 9. DEC-1/2 Circuit Board Removal

9-1. Remove the bottom cover assembly. (see procedure 1)

9-2. Remove the three (3) screws marked (600) and the two (2) plastic rivets marked (630), then the shield sheet can be removed. (Fig.6)

9-3. Remove the DEC-1/2 circuit board from the two (2) spacers marked (470). (Fig.6)

* DEC-1/2 circuit board is directly connected to the MIX-2/7 and the MAS-1/3 with the connector CN109 and CN110.

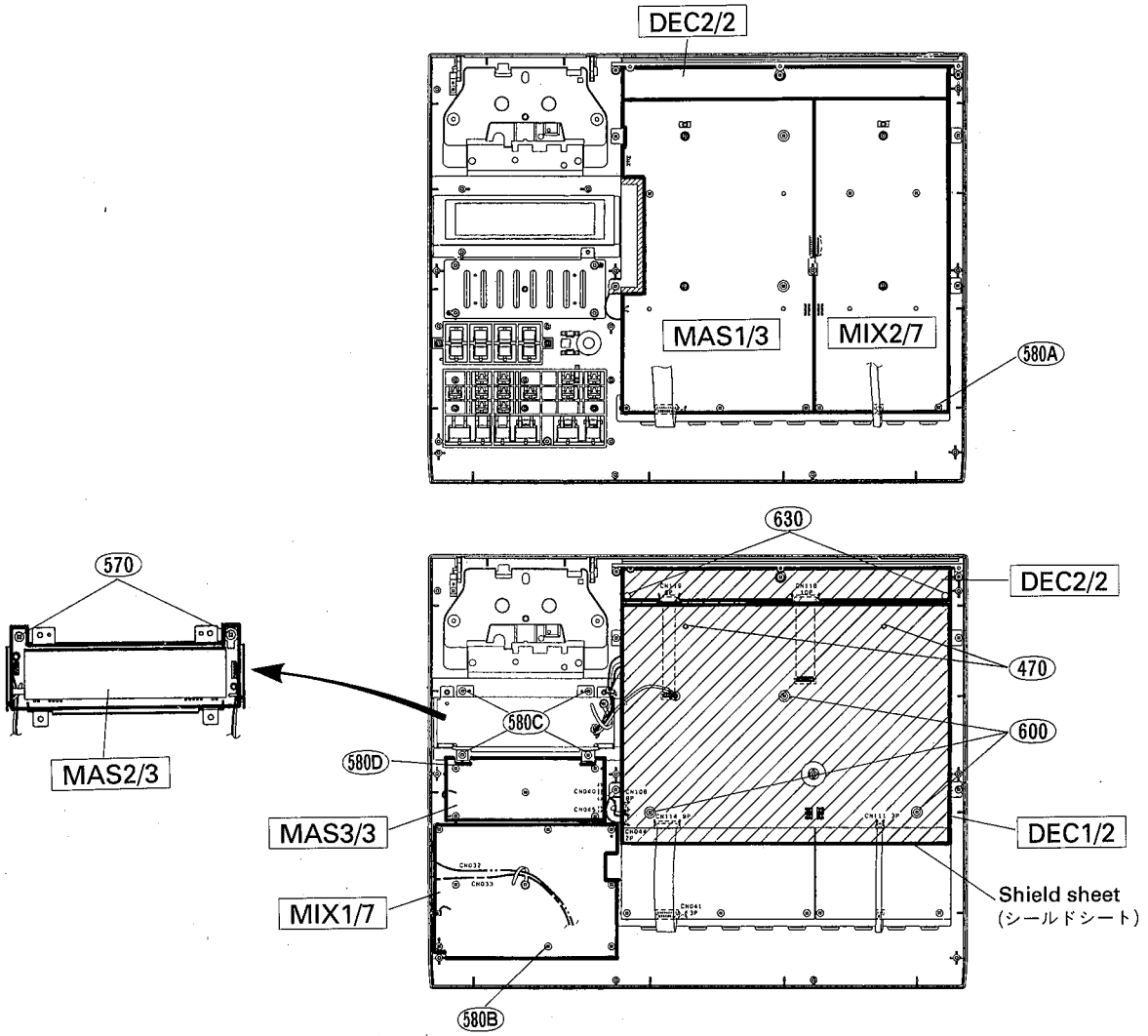
## 9．DEC-1/2シートの外し方

9-1 ボトムカバーAss'yを外します。(1項参照)

9-2 (600) のネジ3本と (630) のプラリベット2本を外し、シールドシートを外します。(図6)

9-3 (470) のスペーサー2ケ所を外し、DEC-1/2シートを真上に引き抜きます。(図6)

注) DEC-1/2シートは、CN109とCN110でMIX-2/7シートとMAS-1/3シートに直接接続されています。




(Fig. 6)

(570) :BIND HEAD TAPPING SCREW-B (+バインドBタイト) 3.0×8 FCM3BL (EP600830)
(580) :BIND HEAD TAPPING SCREW-P (+バインドPタイト) 3.0×10 FCM3BL (EP600910)
(600) :BIND HEAD TAPPING SCREW-P (+バインドPタイト) 3.0×35 FCM3BL (VQ032700)

## 10. DEC-2/2, MAS-1/3 and MIX-2/7 Circuit Board Removal

10-1. Pull out the knobs in channel input section.

10-2. To remove the rear panel, remove the five (5) screws marked (540). (Fig.1)

10-3. Remove the bottom cover assembly. (see procedure 1)

10-4. Remove the DEC-1/2 circuit board. (see procedure 9)

## 10．DEC-2/2シート、MAS-1/3シート、MIX-2/7シートの外し方

10-1 ミキサー部のツマミを全て外します。

10-2 (540) のネジ5本を外し、リヤパネルを外します。(図1)

10-3 ボトムカバーAss'yを外します。(1項参照)

10-4 DEC-1/2シートを外します。(9項参照)

10-5. Remove the seventeen (17) screws marked (580A) . (Fig.6)
10-6. To remove the two (2) stays, remove the ten (10) hexagonal nuts marked [510]. (Fig.7)
10-7. Remove the seventeen (17) u-shaped holders marked (500) and the seven (7) screws marked (575) , then the sub chassis can be removed. (Fig.7)
10-8. Disconnect CN120, then the DEC-2/2 circuit board can be removed.
10-9. Disconnect CN036, then the MAS-1/3 circuit board and MIX-2/7 circuit board can be removed. (Fig.7)

**11. MIX-1/7 Circuit Board Removal**

11-1. Pull out the pitch control knob.
11-2. Remove the bottom cover assembly. (see procedure 1)
11-3. Remove the nine (9) screws marked (580B) , then the MIX-1/7 circuit board can be removed. (Fig.6)

**12. MAS-2/3 Circuit Board Removal**

12-1. Remove the bottom cover assembly. (see procedure 1)
12-2. Remove the four (4) screws marked (580C) . (Fig.6)
12-3. Remove the two (2) screws marked (570) , then the MAS-2/3 circuit board can be removed. (Fig.6)

**13. MAS-3/3 Circuit Board Removal**

13-1. Pull out the cue level knobs and the spacers.
13-2. Remove the bottom cover assembly. (see procedure 1)
13-3. Remove the five (5) screws marked (580D) , then the MAS-3/3 circuit board can be removed. (Fig.6)

10-5 (580A) のネジ17本を外します。(図6)
10-6 (510) の特殊六角ナット10ケを外し、ステー2本を外します。(図7)
10-7 (500) のU字金具17ケと (575) のネジ7本を外し、サブシャーシを外します。(図7)
10-8 DEC-2/2シートのCN120をMAS-1/3シートから引き抜き、DEC-2/2シートを外します。
10-9 MIX-2/7シートのCN036を外すと、MAS-1/3シートとMIX-2/7シートが外れます。(図7)

**11. MIX-1/7シートの外し方**

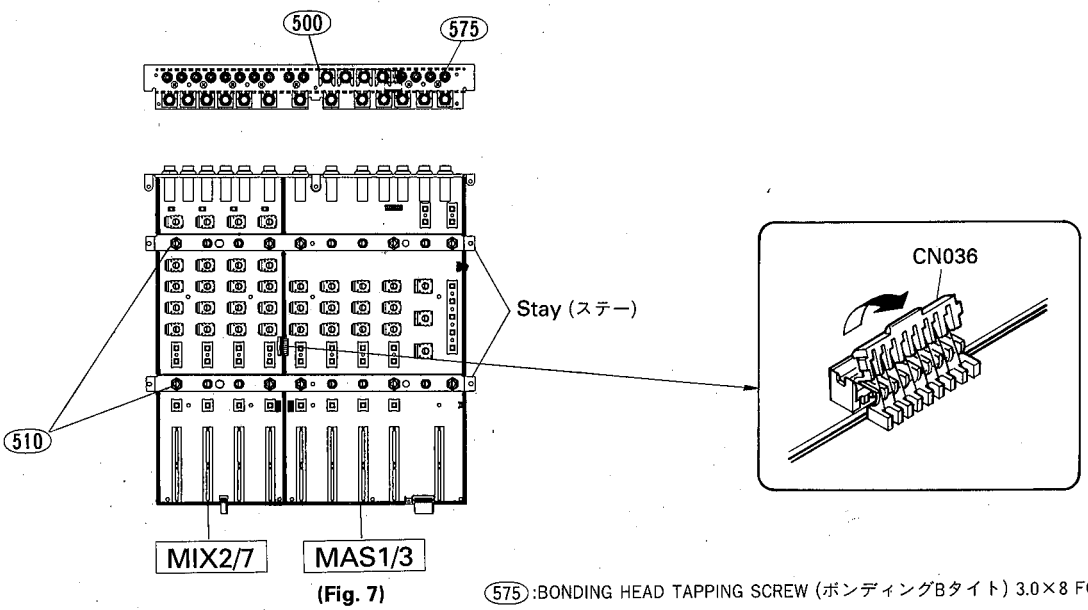
11-1 PITCH CONTROLのツマミを外します。
11-2 ボトムカバーAss'yを外します。(1項参照)
11-3 (580B) のネジ9本を外し、MIX-1/7シートを外します。(図6)

**12. MAS-2/3シートの外し方**

12-1 ボトムカバーAss'yを外します。(1項参照)
12-2 (580C) のネジ4本を外します。(図6)
12-3 (570) のネジ2本を外し、ステーからMAS-2/3シートを外します。(図6)

**13. MAS-3/3シートの外し方**

13-1 CUE LEVELのツマミとスペーサーを外します。
13-2 ボトムカバーAss'yを外します。(1項参照)
13-3 (580D) のネジ5本を外し、MAS-3/3シートを外します。(図6)




**(Fig. 7)**

(575):BONDING HEAD TAPPING SCREW (ボンディングBタイト) 3.0×8 FCM3BL (EZ000620)

# ■LSI PIN DESCRIPTION (LSI端子機能表)

## • M38022M2SP (XM267A00) CPU

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---|---|---|---|---|---|---|---|
| 1 | VCC | | | 41 | SW | I | Punch I/O "L": Unpluged, "H": pluged |
| 2 | VR | I | | 42 | – | | Not use |
| 3 | AVSS | I | | 43 | FF | O | Reel motor speed control |
| 4 | 1, 2 | I | A/D Track 1, 2 | 44 | PLAY | O | |
| 5 | 3, 4 | I | A/D Track 3, 4 | | | | |
| 6 | 5, 6 | I | A/D Track 5, 6 (Level meter data *1) | | | | |
| 7 | 7, 8 | I | A/D Track 7, 8 | | | | |
| 8 | L, R | I | A/D Stereo out L, R | | | | |
| 9 | Key 1 | I | A/D Key 1 | | | | |
| 10 | Key 2 | I | A/D Key 2 (Operation key data) | | | | |
| 11 | Key 3 | I | A/D Key 3 | 45 | RMR | O | Reel motor direction control |
| 12 | PLAY | O | LED (Play) | 46 | RMF | O | |
| 13 | REC | O | LED (Rec/Pause) | | | | |
| 14 | RH | O | LED (Rehe) ("L": Glowing *2) | | | | |
| 15 | P, I/O | O | LED (Auto punch I/O) | | | | |
| 16 | CTR | O | A/D Select "L":Meter CH1, 3, 5, key B, D "H":Meter CH2, 4, 6, 8, key A, C | | | | |
| 17 | $\overline{CL}$ | I/O | Chip Select (to M66008) | | | | |
| 18 | CLK | O | Clock (to M66008) | 47 | AM – | O | Assist motor control |
| 19 | DATA | O | Data (to M66008) | 48 | AM + | O | |
| 20 | CLK | O | Clock (to MSC1164) | 49 | I/O | I | Condition of foot switch "L": off, "H": on |
| 21 | DIN | O | Din (to MSC 1164) | 50 | P.DET | I | Delection of power Off |
| 22 | LS | O | Latch strove (to MSC1164) | 51 | SW2 | I | Detection of cassetle mechanical unit position |
| 23 | $\overline{CL}$ | O | Clear (to MSC1164) | 52 | SW1 | I | |
| 24 | – | | Not use | 53 | REC | I | "L": Recording possible, "H": Recording impossible |
| 25 | SYNC | O | Analog switch control "L": SYNC on | | | | |
| 26 | CNVSS | I | Ground | 54 | HS | I | "L": Tape eguipped, "H": Tape not eguipped |
| 27 | RESET | I | Reset | | | | |
| 28 | DBX | O | dBx "L": on, "H": off | 55 | RPT | I | Detection of reel pulse |
| 29 | CUE | O | Not use | 56 | RPS | I | PRT: Take up side |
| 30 | X1 | I | Clock | | | | RPS: Supply side |
| 31 | XO | O | | 57 | PB. MUTE1 | O | |
| 32 | VSS | | Ground | 58 | PB. MUTE2 | O | |
| 33 | R. MUTE1 | O | | 59 | PB. MUTE3 | O | |
| 34 | R. MUTE2 | O | Recording mute control | 60 | PB. MUTE4 | O | Play back mute control |
| 35 | R. MUTE3 | O | "L": Other than recording condition | 61 | PB. MUTE5 | O | "L": Other than play back condition |
| 36 | R. MUTE4 | O | "H": Recording condition | 62 | PB. MUTE6 | O | "H": In recording condition |
| 37 | BIAS1 | O | | 63 | PB. MUTE7 | O | |
| 38 | BIAS2 | O | Bias oscillating control | 64 | PB. MUTE8 | O | |
| 39 | BIAS3 | O | "L": Other than recording condition | | | | |
| 40 | BIAS4 | O | "H": Recording condition | | | | |

Reel motor speed control

| Pin | PLAY | FF | igh FF |
|---|---|---|---|
| 43,FF | "H" | "L" | "L" |
| 44,PLAY | "L" | "H" | "L" |

Reel motor direction control

| PIN | Direction | |
|---|---|---|
| | FF | REW |
| 45, RMR | "L" | "H" |
| 46, RMF | "H" | "L" |

## *1 A/D DATA (METER)

| Segment | –20 | –10 | –6 | –3 | 0 | +3 | +6 | +10 |
|---|---|---|---|---|---|---|---|---|
| Voltage [V] | 0.353 | 0.598 | 0.753 | 0.859 | 1.00 | 1.164 | 1.353 | 1.568 |

## *2 A/D DATA (KEY)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| KEY | A | 4 | 8 | RESET | STOP | FF | REW | – | – |
| | B | 3 | 7 | RTZ | LOC2 | MONO2 | PLAY | – | – |
| | C | 2 | 6 | LOC1 | MONO1 | CLEAR | SYNC | REC/PAUSE | – |
| | D | 1 | 5 | REPEAT | CHECK | AUTO I/O | dbx | REHE | – |
| Voltage [V] | | 0.0 | 0.69 | 1.43 | 2.21 | 2.87 | 3.63 | 4.31 | 5.0 |

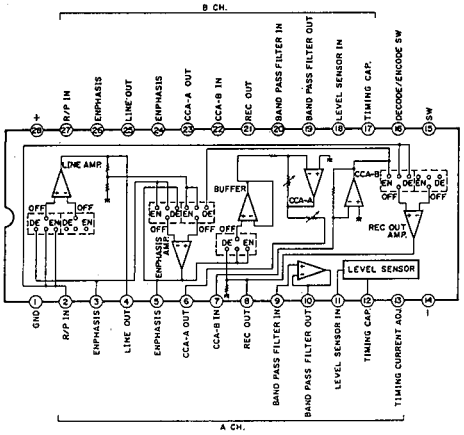
## • M66008P (XM266A00) EXP. I/O

| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---|---|---|---|---|---|---|---|
| 1 | DO | – | Not used | 13 | D12 | O | Encode/Decode (CH4) ("L": Recording signal "H": play back signal) |
| 2 | DI | I | Data | 14 | D11 | O | Encode/Decode (CH3) |
| 3 | CLK | I | Clock | 15 | D10 | O | Encode/Decode (CH2) |
| 4 | $\overline{CS}$ | I | Chip select | 16 | D 9 | O | Encode/Decode (CH1) |
| 5 | VCC | | Power supply | 17 | D 8 | O | Monitor select (CH8) (Whether to return played back sound to mixer input "L" Level:Not to be returned (being recorded)"H" Level:To be returned (being played back)) |
| 6 | $\overline{S}$ | I | Set in | 18 | D 7 | O | Monitor select (CH7) |
| 7 | GND | | Ground | 19 | D 6 | O | Monitor select (CH6) |
| 8 | D16 | O | Encode/Decode (CH8) ("L": Recording signal "H": play back signal) | 20 | D 5 | O | Monitor select (CH5) |
| 9 | D15 | O | Encode/Decode (CH7) | 21 | D 4 | O | Monitor select (CH4) |
| 10 | D14 | O | Encode/Decode (CH6) | 22 | D 3 | O | Monitor select (CH3) |
| 11 | D13 | O | Encode/Decode (CH5) | 23 | D 2 | O | Monitor select (CH2) |
| 12 | GND | | Ground | 24 | D 1 | O | Monitor select (CH1) |

## • **MSC1164** (XM255A00) FL DRIVER

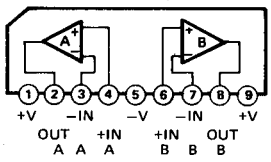
| PIN NO. | NAME | I/O | FUNCTION | PIN NO. | NAME | I/O | FUNCTION |
|---|---|---|---|---|---|---|---|
| 1 | – | | | 17 | | O | Driver |
| 2 | – | | | 18 | | O | |
| 3 | DO | O | Data output | 19 | | O | |
| 4 | LS | I | Latch strove | 20 | | O | |
| 5 | CL | I | Clear | 21 | | O | |
| 6 | +5 | | Power supply | 22 | | O | |
| 7 | | O | Driver | 23 | | O | |
| 8 | | O | | 24 | | O | |
| 9 | | O | | 25 | | O | |
| 10 | | O | | 26 | | O | |
| 11 | | O | | 27 | +32 | | Power supply (Driver) |
| 12 | | O | | 28 | GND | | Ground |
| 13 | | O | | 29 | CLK | I | Clock |
| 14 | | O | | 30 | DI | I | Data input |
| 15 | | O | | 31 | – | | |
| 16 | | O | | 32 | – | | |

## • **AN6292NK** (XJ637A00) Dual dbx NR

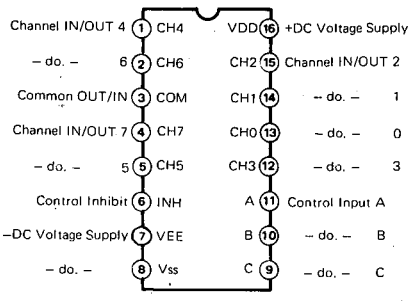


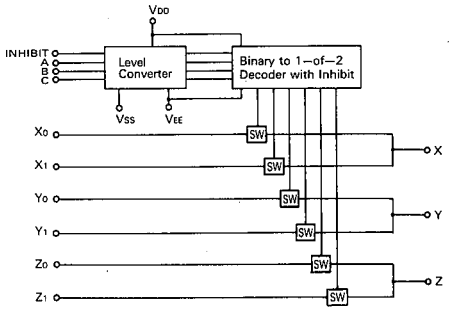

# ■ IC BLOCK DIAGRAM (ICブロック図)

- **NJM2068S-D** (XE322A00)
- **NJM4558S** (IG076800)
- **NJM4560S** (IG121800)
- **μPC4570HA** (XB247A00)
  Dual Operational Amplifier




- **BU4053B** (IG149000)
  Triple 2-Ch.
  Multiplexer/Demuliplexer

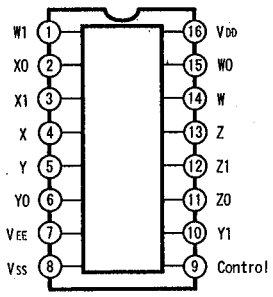


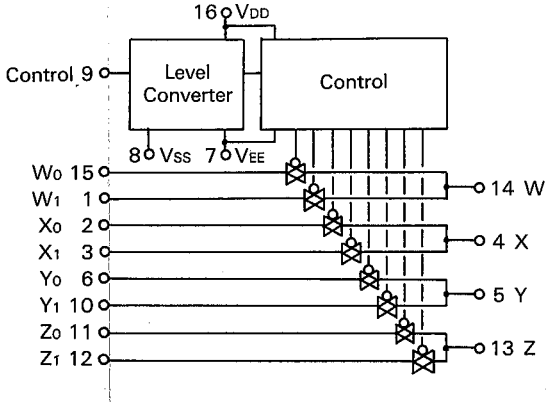




| Control | | | | channel "ON" |
|---|---|---|---|---|
| INHIBIT | C | B | A | |
| L | L | L | L | Z0, Y0, X0 |
| L | L | L | H | Z0, Y0, X1 |
| L | L | H | L | Z0, Y1, X0 |
| L | L | H | H | Z0, Y1, X1 |
| L | H | L | L | Z1, Y0, X0 |
| L | H | L | H | Z1, Y0, X1 |
| L | H | H | L | Z1, Y1, X0 |
| L | H | H | H | Z1, Y1, X1 |
| H | X | X | X | NONE |

## • **BU4551B** (XI929A00)

Quad 2 Channel
Analog Multuiplexer/Demultiplexer

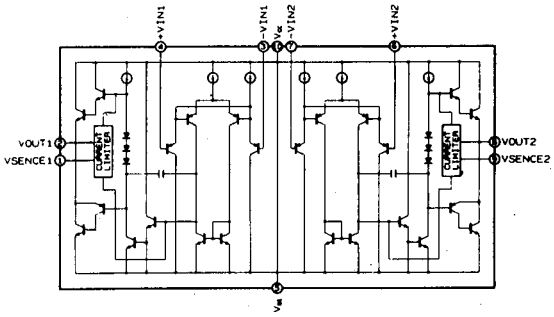



| Control | ON |
|---|---|
| 0 | $W_0$ $X_0$ $Y_0$ $Z_0$ |
| 1 | $W_1$ $X_1$ $Y_1$ $Z_1$ |

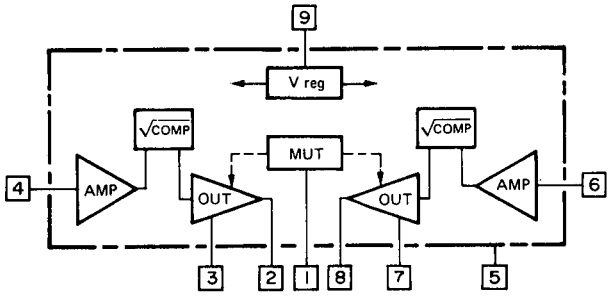
## • **LA6515** (XI250A00)

Operational Amplifier



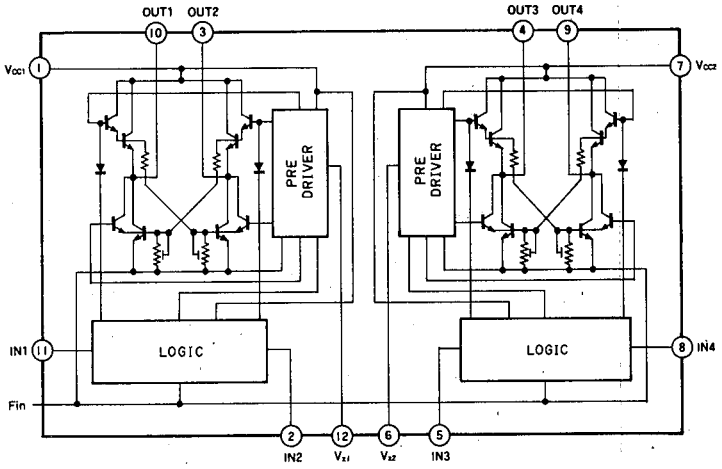

## • **BA6138** (IG074900)

(1/2W Power of Compressor Amp.)




## • **LB1649** (XA299A00)

Motor Driver




## • **LC4966** (IG149300)

Quad Analog Switch