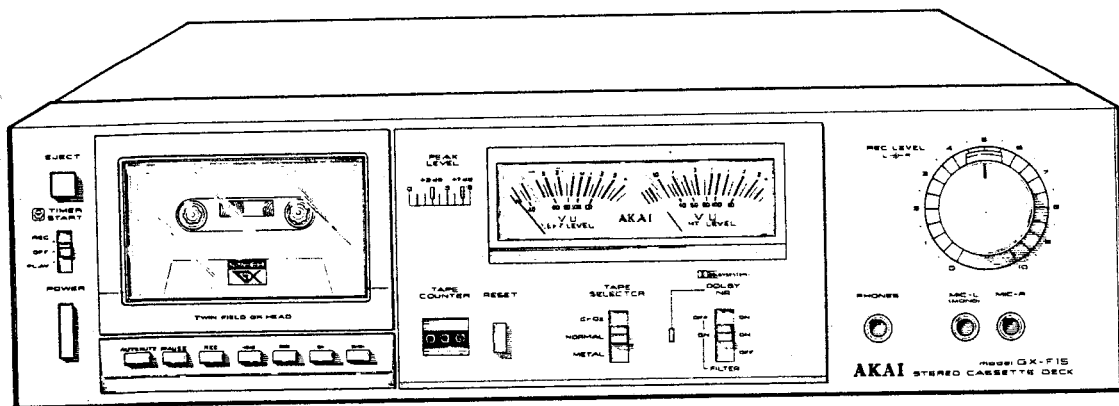


# AKAI SERVICE MANUAL



STEREO CASSETTE DECK

MODEL **GX-F15**



## STEREO CASSETTE DECK

MODEL **GX-F15**

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SECTION 1

# SERVICE MANUAL

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For basic adjustments, measuring methods, and operating principles, refer to GENERAL TECHNICAL MANUAL.



# I. TECHNICAL DATA

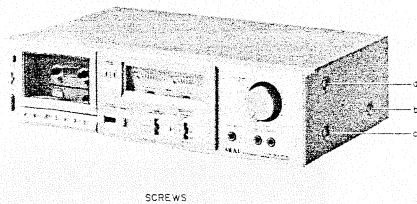
|                       |                                                                                                                                                                                                                                       |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TRACK SYSTEM          | 4 Track 2 Channel Stereo System                                                                                                                                                                                                       |
| TAPE                  | Philips Type Cassette                                                                                                                                                                                                                 |
| TAPE SPEED            | 4.76 cm/s $\pm 1.0\%$ (1-7/8 ips. $\pm 1.0\%$ )                                                                                                                                                                                       |
| HEADS                 | Erase head $\times 1$<br>Twin Field Super GX head for record/playback $\times 1$                                                                                                                                                      |
| MOTORS                | Electronically speed controlled D.C. motor for capstan drive $\times 1$<br>D.C. motor for reel drive $\times 1$                                                                                                                       |
| WOW & FLUTTER         | Less than 0.04% WRMS, 0.11% (DIN 45 500)                                                                                                                                                                                              |
| TAPE WINDING TIME     | 80 sec. using a C-60 cassette tape                                                                                                                                                                                                    |
| FREQUENCY RESPONSE    | Normal: 30 to 16,000 Hz $\pm 3$ dB ( $-20$ VU)<br>CrO <sub>2</sub> : 30 to 16,500 Hz $\pm 3$ dB ( $-20$ VU)<br>30 to 9,000 Hz $\pm 3$ dB (0 VU)<br>Metal: 30 to 19,000 Hz $\pm 3$ dB ( $-20$ VU)<br>30 to 13,000 Hz $\pm 3$ dB (0 VU) |
| SIGNAL TO NOISE RATIO | Normal: Better than 58 dB<br>CrO <sub>2</sub> : Better than 60 dB<br>Metal: Better than 60 dB<br>(measured via tape with peak recording level)<br>Dolby NR switch ON: Improves up to 10 dB above 5 kHz                                |
| HARMONIC DISTORTION   | Normal: Less than 0.8%<br>CrO <sub>2</sub> : Less than 0.7%<br>Metal: Less than 0.7%                                                                                                                                                  |
| INPUT                 | MIC: 0.25 mV (input impedance 5.0k ohms)<br>Required microphone impedance: 600 ohms<br>Line: 70 mV (input impedance 47k ohms)                                                                                                         |
| Output                | Line: 410 mV at 0 VU<br>Required load impedance: more than 20k ohms<br>Phone: 50 mV/8 ohms at 0 VU                                                                                                                                    |
| DIN                   | Input: 2 mV (input impedance 10k ohms)<br>Output: 410 mV<br>Required load impedance: more than 20k ohms<br>100V, 50/60 Hz for JPN                                                                                                     |
| POWER REQUIREMENTS    | 120V, 60 Hz for USA and Canada<br>220V, 50 Hz for Europe except UK<br>240V, 50 Hz for UK and Australia<br>110V/120V/220V/240V, 50/60 Hz internally switchable<br>for other countries.                                                 |
| POWER CONSUMPTION     | JPN 19W<br>U/T, AAL, CSA 21W                                                                                                                                                                                                          |
| DIMENSIONS            | 440(W) $\times$ 118(H) $\times$ 285(D) mm<br>(17.3 $\times$ 4.6 $\times$ 11.2")                                                                                                                                                       |
| WEIGHT                | 6.8 kg (15.0 lbs)                                                                                                                                                                                                                     |

- For improvement purpose, specifications and design are subject to change without notice.
- "Dolby" and the Double D system are trademarks of Dolby Laboratories.  
(Manufactured under license from Dolby Laboratories).

## II. DISMANTLING OF UNIT

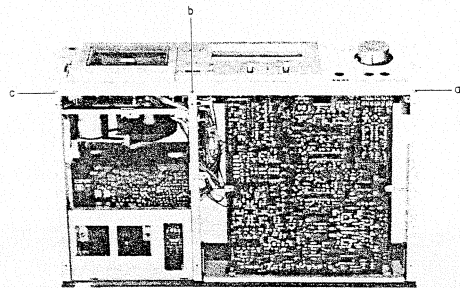
In case of trouble, etc. Necessitating dismantling, please dismantle in the photographs. Reassemble in reverse order.

1



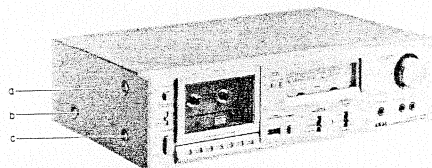
SCREWS

6



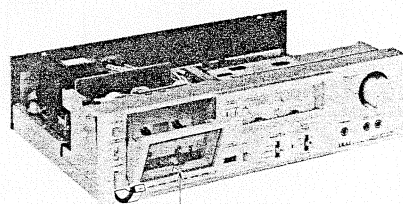
SCREWS

2



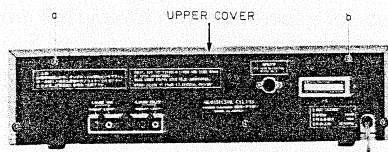
SCREWS

7



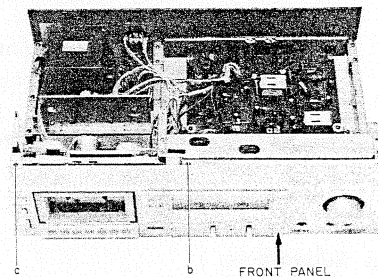
CASSETTE LID

3



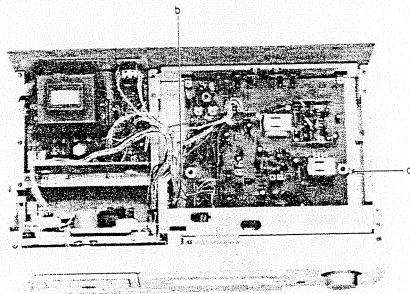
SCREW

8



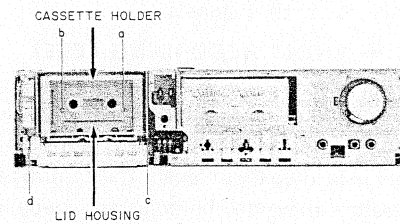
FRONT PANEL

4



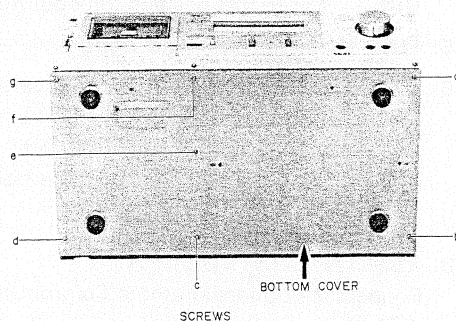
SCREWS

9



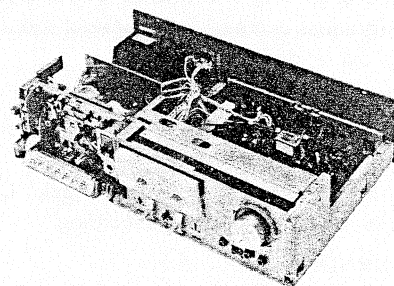
SCREWS

5



SCREWS

10



### III. CONTROLS

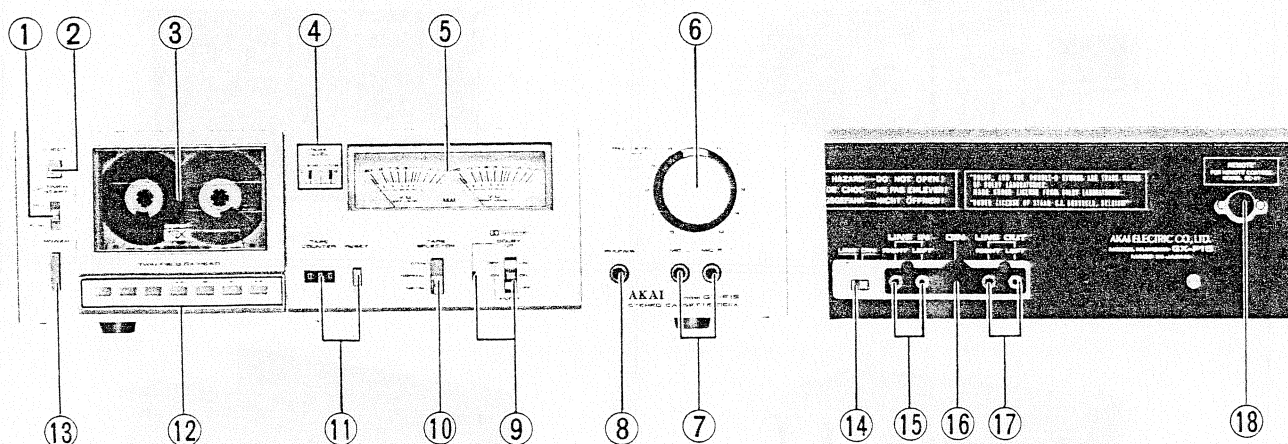


Fig. 1

#### 1. TIMER START Switch

- REC:** Set to this position for absentee recording with a timer.
- OFF:** Set to this position at all other times when the Timer Start operation is not to be engaged.
- PLAY:** Set to this position for timed playback with a timer.

#### 2. EJECT Button

#### 3. Cassette Receptacle

#### 4. PEAK LEVEL Indicators

#### 5. VU Meters

Show the VU reading for both recording and playback for both channels.

#### 6. LEFT → RIGHT RECORDING LEVEL Controls

The outer ring controls the right channel recording input level and the inner knob controls the left channel recording input level. The controls are coaxial therefore they may be adjusted independently or together.

- Coaxial controls and enumerated positions facilitate easy fade-in (gradual increase in volume at the beginning of a musical selection) and fade-out (gradual decrease in volume at the end) recording operations.

#### 7. MICROPHONE Jacks (left and right)

Connect one microphone to the left jack for monophonic recording.

- Some models have MONO MIC jack. Connect to this jack for monophonic recording.

#### 8. HEADPHONE Jack

Accommodates stereo headphones of 8 ohms impedance for monitoring or private headphone listening.

#### 9. DOLBY NR and FILTER Switch and Indicator

Dolby NR ON, FILTER OFF

Use for recording and playback with Dolby NR.

DOLBY NR ON, FILTER ON

Use for recording with Dolby NR from FM stereo broadcasts.

DOLBY NR OFF

Use for recording and playback without Dolby NR.

#### 10. TAPE SELECTOR

Set to position corresponding to the tape for the correct equalization and bias adjustment.

**NORMAL:** Normal tapes

(Low noise and low noise high output tapes)

**CrO<sub>2</sub>:** Chrome oxide tapes

**METAL:** Metal tapes

#### 11. TAPE COUNTER and RESET Buttons

#### 12. Operating Buttons

#### 13. POWER Switch

#### 14. LINE/DIN Selector (Some models do not have this facility.)

**LINE:** Set to this position for input from LINE IN jacks.

**DIN:** Set to this position for input from DIN jack.

#### 15. LINE IN Jacks (left and right)

#### 16. DIN Jack (Some models do not have this facility.)

Can be used instead of the LINE INPUT and OUTPUT jacks for connection with an external amplifier through a DIN connection cord.

#### 17. LINE OUT Jacks (left and right)

#### 18. REMOTE CONTROL Jack

Connect the optional Remote Control Unit RC-21 for remote control operation.

- Use only an AKAI recommended connecting cord.

## IV. PRINCIPAL PARTS LOCATION

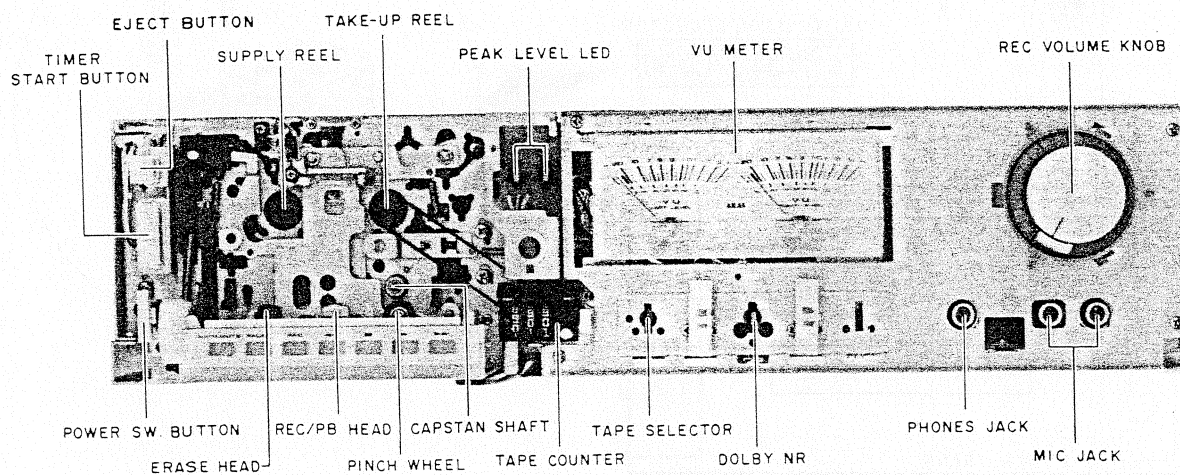


Fig. 2

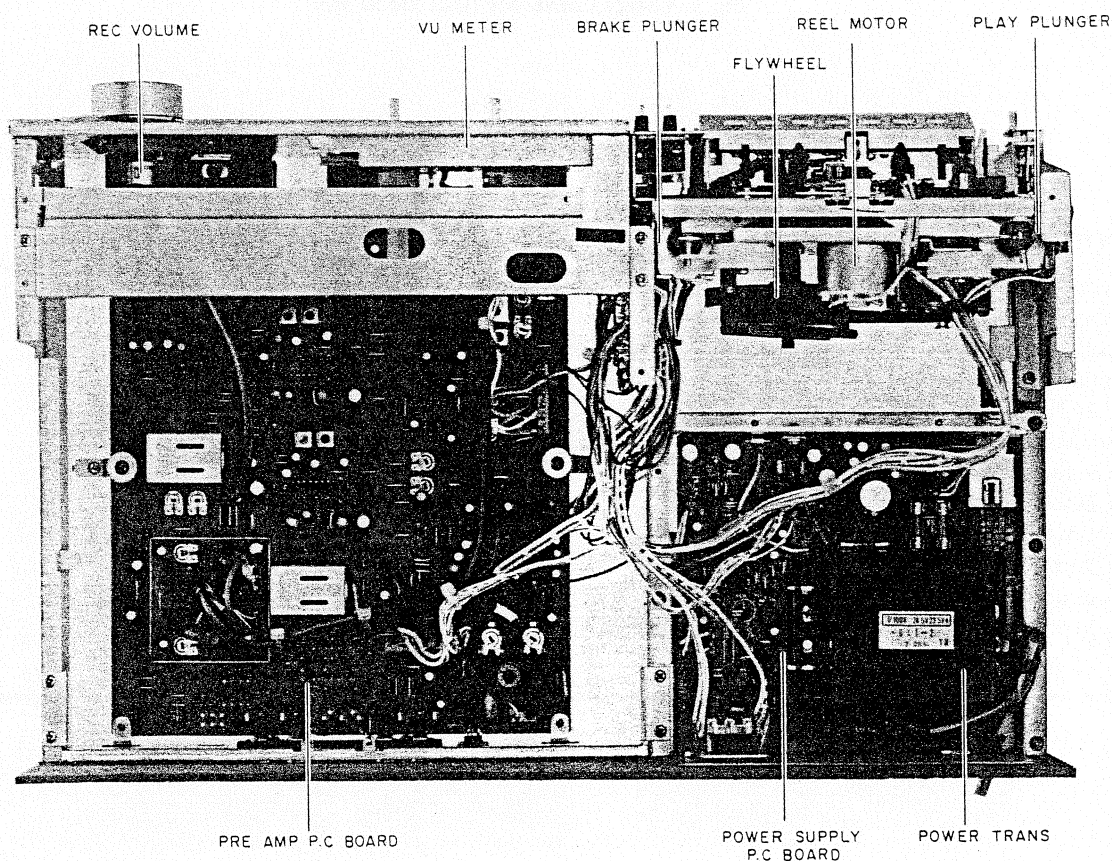


Fig. 3



## V. VOLTAGE AND CYCLE CONVERSION

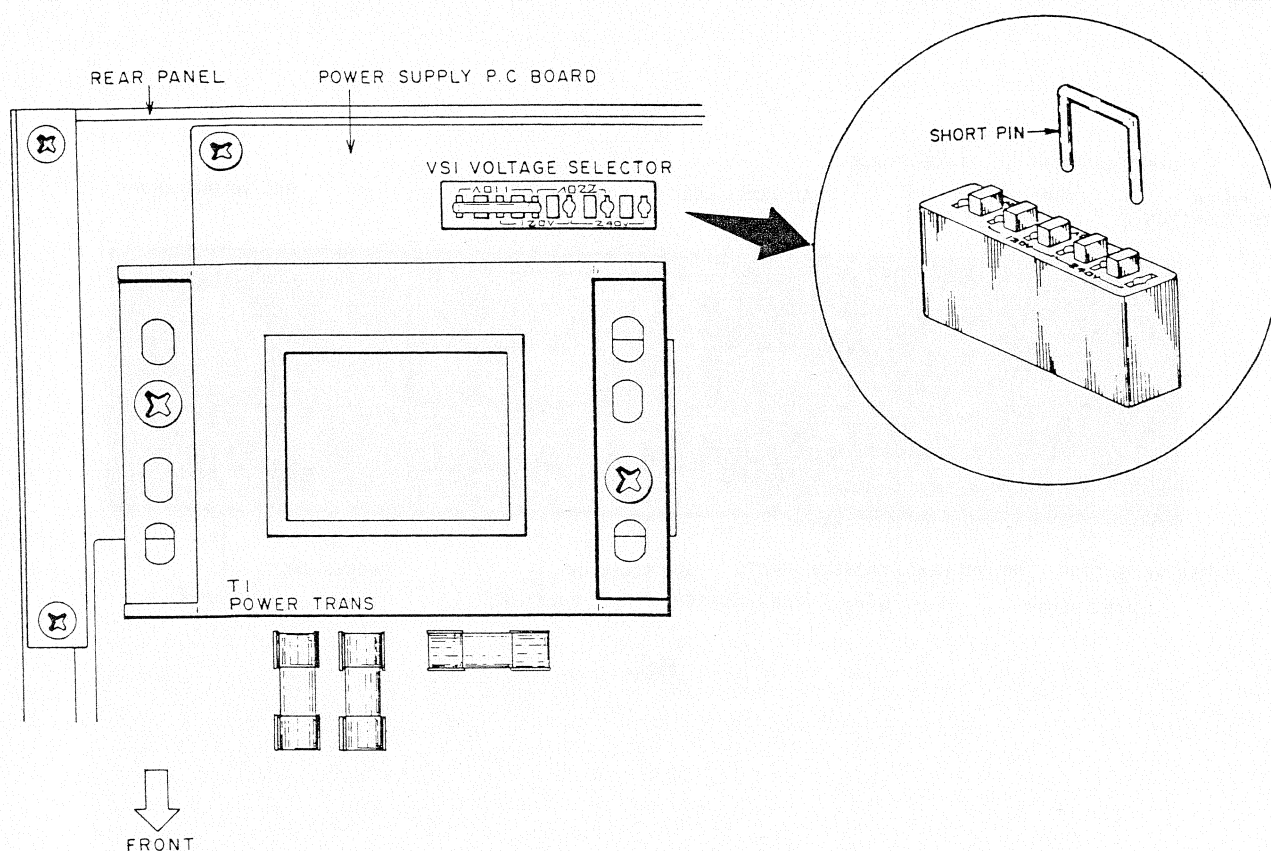


Fig. 4 Voltage Conversion (U/T Model only)

### 1. VOLTAGE CONVERSION

Models for Canada, Europe, USA, UK, Australia and Japan are not equipped with this facility.

Each machine is preset at the factory according to destination, but some machines can be set to 110V, 120V or 240V as required.

If voltage change is necessary, this can be accomplished as follows:

- 1) Disconnect power cord.
- 2) Loosen holding screws and remove upper cover.
- 3) Remove short pin plug from present holes and replace in correct holes.

Follow the markings explicitly.

### 2. CYCLE CONVERSION

With DC motor, cycle conversion is not necessary.

## VI. MECHANICAL ADJUSTMENT

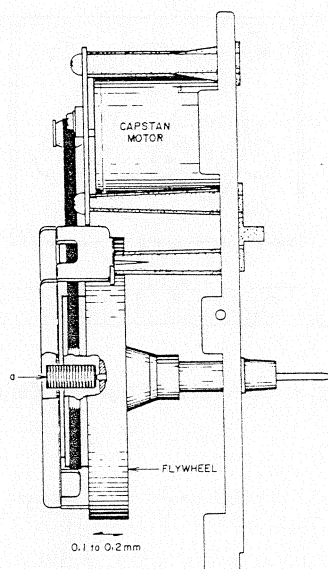


Fig. 5

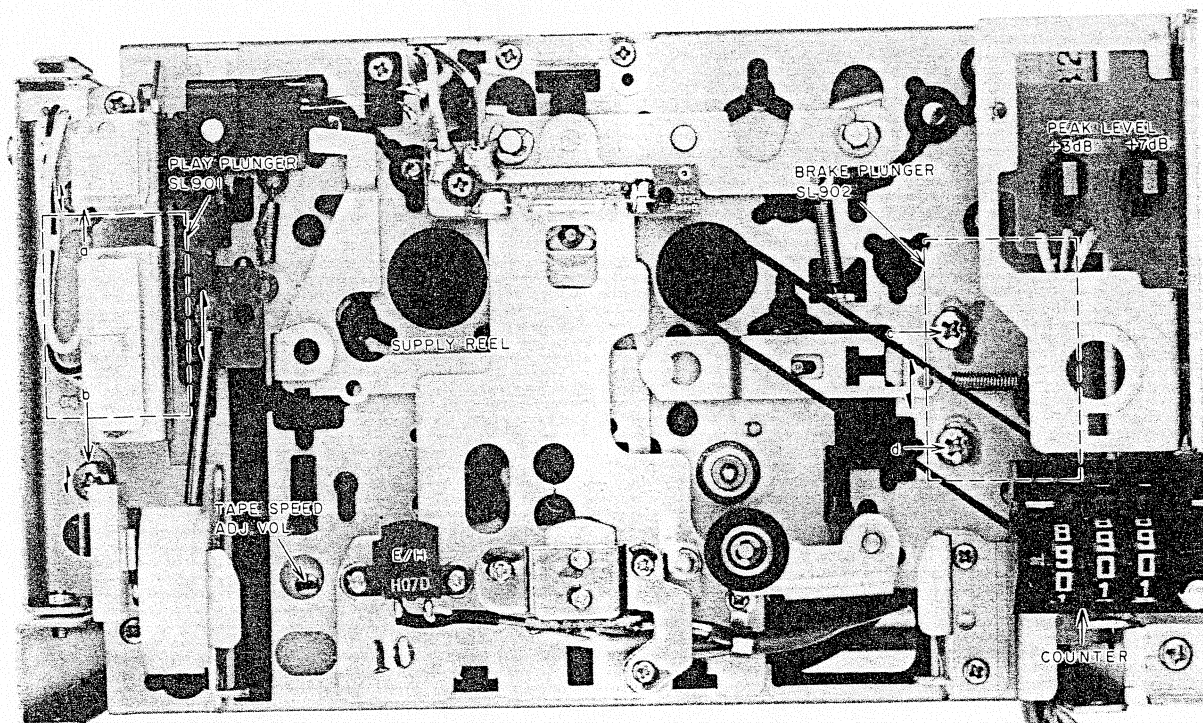


Fig. 6

### 1. FLYWHEEL LOOSE PLAY ADJUSTMENT (Refer to Fig. 5)

Adjust the screw (a) so that the flywheel moves 0.1 — 0.2 mm in the direction indicated by the arrow.

### 2. PLUNGER POSITIONING (Refer to Figs. 6, 7)

#### 1) Play Plunger Adjustment

Set the Akai Head Projection Gauge. Adjust the screws (a) and (b) so that when PAUSE mode is engaged, the Head Projection Gauge indicates to 2.5 mm  $\pm 0.05$  mm.

#### 2) Brake Plunger Adjustment

Set the Akai Head Projection Gauge. Adjust the screws (c) and (d) so that when play mode is engaged, the Head Projection Gauge indicates to 3.5 mm  $\pm 0.15$  mm.

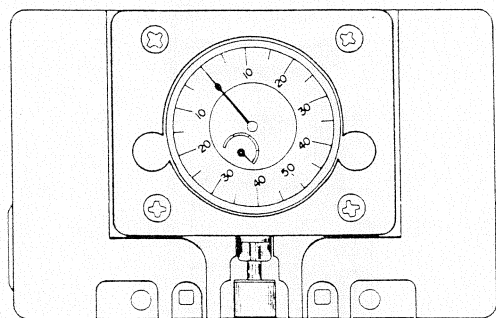


Fig. 7 AKAI Head Projection Gauge

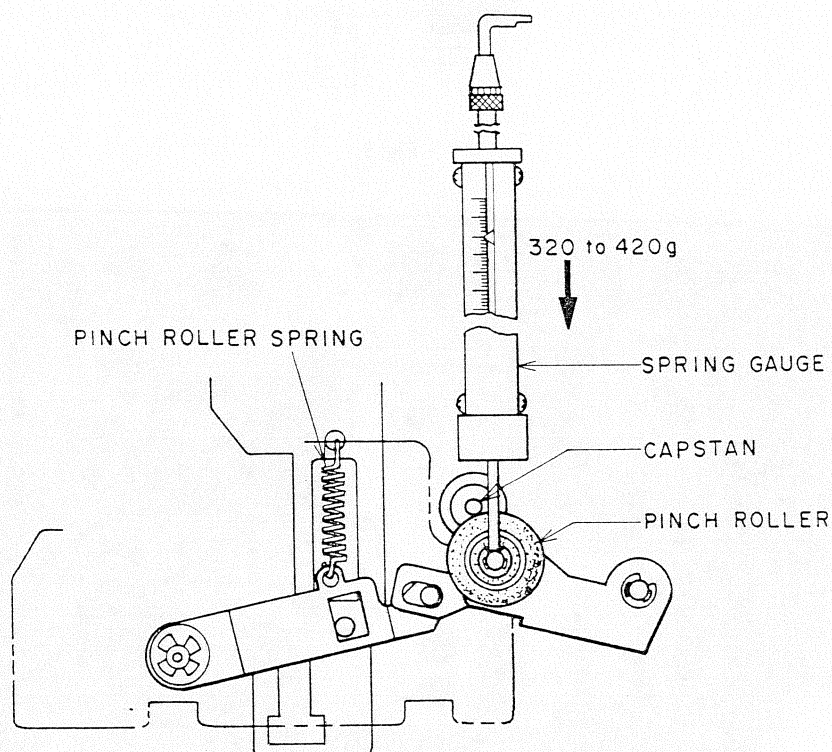


Fig. 8

### 3. PINCH ROLLER PRESSURE MEASUREMENT (Refer to Fig. 8)

At playback mode, push the pinch roller with a spring gauge until the pinch roller separates from the capstan by about 1 mm to 2 mm and then gently return. Take a reading of the spring gauge indication at the moment the pinch roller touches the capstan and begins to rotate

Specified Pinch Roller Pressure: 320 — 420g

### 5. TAPE SPEED ADJUSTMENT (Refer to Fig. 6)

Playback a 1,000 Hz pre-recorded test tape and adjust the tape speed adjustment volume to obtain a tape speed of 1,000 Hz  $\pm$  5 Hz.

### 4. VARIOUS TORQUE MEASUREMENT

Use the Cassette Torque Meter to confirm that the value of each mode is as follows:

|                |               |
|----------------|---------------|
| Take-up Torque | 35 ~ 50 g-cm  |
| Back Tension   | 2 ~ 4 g-cm    |
| FF/RWD Torque  | 85 ~ 130 g-cm |

## VII. HEAD ADJUSTMENT

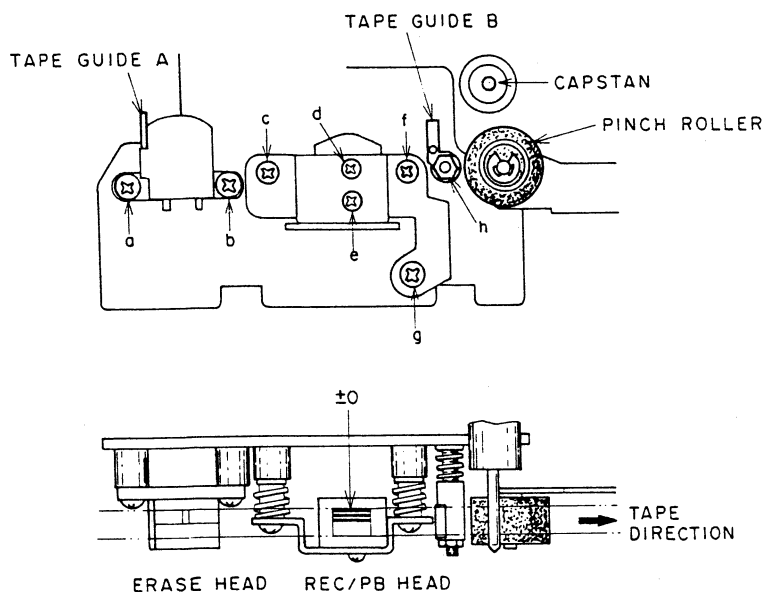


Fig. 9 Head Adjustment

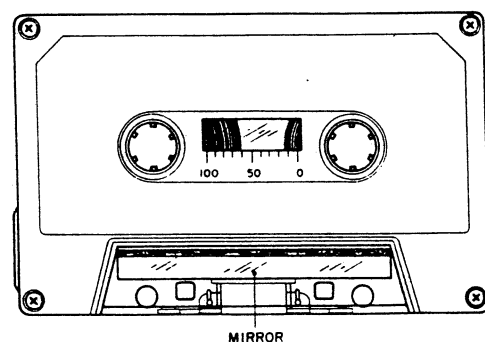


Fig. 10 Mirror Cassette

### 1. TAPE GUIDE HEIGHT ADJUSTMENT (Refer to Figs. 9, 10)

- 1) When using an ordinary cassette, the tape guides and heads, etc. are not visible. As shown in Fig. 10 use a cassette tape from which part of the cassette case has been cut out and a mirror installed for easy visibility of the head area when making tape guide height adjustment.
- 2) At playback mode, using the tape guide (A) shown in Fig. 9 as standard for height, adjust tape guide (B) height with tape guide height adjustment nut so that the tape runs smoothly and does not catch on the tape guides.

### 2. RECORDING/PLAYBACK HEAD HEIGHT ADJUSTMENT (Refer to Figs. 9, 10)

- 1) Utilize the cassette tape used in Tape Guide Height Adjustment above and playback the leader tape part of cassette tape.
- 2) As shown in Fig. 9 adjust head height with screws (c) (f) and (g) until the upper edge of the tape is the same height as the upper edge of the left channel REC/PB head core.
- 3) After adjustment step 2), playback the Head Height Adjustment tape (4 track, 1,000 Hz) and adjust Head Height Adjustment screws (c) (f) and (g) to put the output from both channels to maximum.

### 3. RECORDING/PLAYBACK HEAD AZIMUTH ALIGNMENT ADJUSTMENT (Refer to Fig. 9)

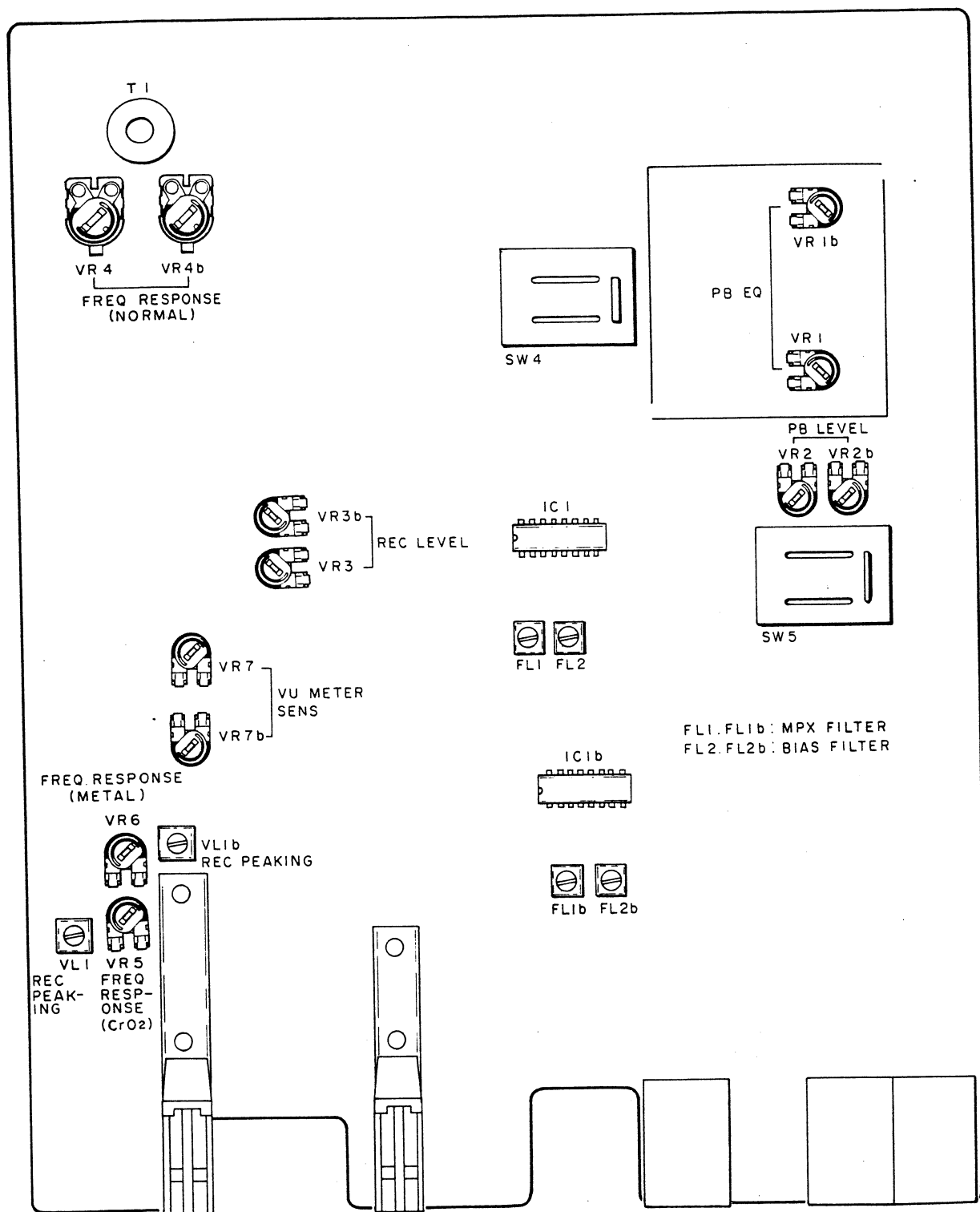
- 1) Playback a 10 kHz pre-recorded cassette azimuth alignment test tape and adjust screw (c) shown in Fig. 9 to obtain maximum output on both channels.
- 2) Invert cassette and confirm that the output level does not change from that obtained in Item 3-1) above. If the output level differs, adjust in the same way as in Item 3-1) above until both sides of the test tape display equal output.
- 3) After adjustment, better to check again head height and azimuth alignment.

#### NOTES:

1. Be sure to clean the heads prior to head adjustment.
2. Be careful not to use a magnetized driver or other magnetized tools in the vicinity of the heads.
3. Be sure to demagnetize the heads with a Head Demagnetizer before and after head adjustment.
4. When a mirror installed cassette test tape as shown in Fig. 10 is required, it can be ordered from AKAI Electric Co.



## VIII. ELECTRICAL ADJUSTMENT



\* THE LETTER "b" FOLLOWING AN ADJUSTMENT PARTS NUMBER INDICATES RIGHT CHANNEL.

Fig. 11 Pre Amp P.C Board CL-5301A

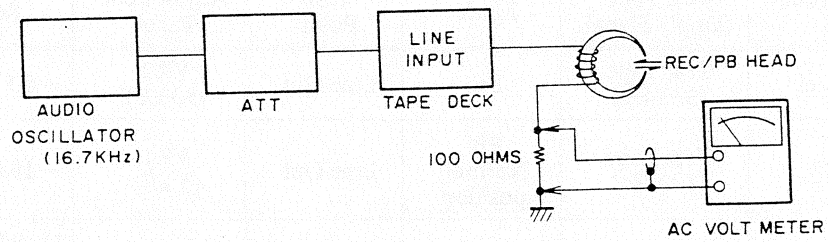


Fig. 12 REC Peaking Adjustment

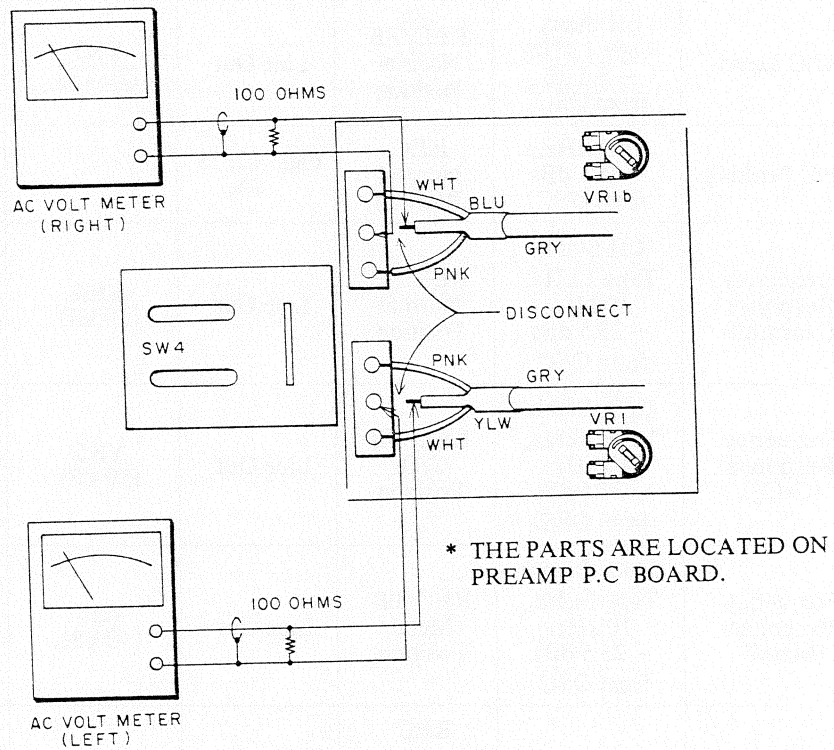


Fig. 13 Rec Peaking

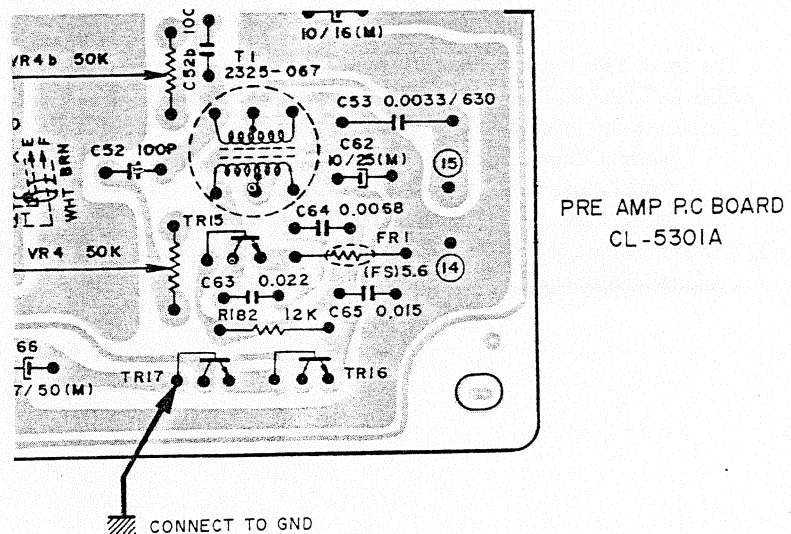


Fig. 14 Rec Peaking

| Step | Adjustment Item                        | Test Tape Supply Signal                                      | Mode                             | Test Point       | Adjustment Parts     | Result & Remarks                                                                                                 |
|------|----------------------------------------|--------------------------------------------------------------|----------------------------------|------------------|----------------------|------------------------------------------------------------------------------------------------------------------|
| 1    | PB Level                               | Test Tape (333 Hz)                                           | PB                               | Line Out         | VR2 (50 k $\Omega$ ) | -5.5 dBs $\pm$ 0.5 dB                                                                                            |
| 2    | PB EQ                                  | Test Tape (10 kHz)                                           | PB Normal position               | Line Out         | VR1 (5 k $\Omega$ )  | -19 dBs $\pm$ 1 dB                                                                                               |
| 3    | VU Meter Sensitivity                   | 1 kHz from OSC                                               | REC                              | VU Meter         | VR7 (5 k $\Omega$ )  | 1) Adjust the Line output level to -5.5 dBs with Rec Volume.<br>2) Adjust the VU Meter indicates 0 dB with VR 7. |
| 4    | REC Level                              | LH Blank Tape 1 kHz, -5.5 dB from OSC                        | REC/PB Normal Position           | Line Out         | VR3 (20 k $\Omega$ ) | -5.5 dBs $\pm$ 0.5 dB                                                                                            |
| 5    | REC Peaking                            | 16.7 kHz, -25.5 dBs from OSC                                 | REC Normal Position              | Figs. 12, 13 14. |                      | Maximum voltage (Note 3)                                                                                         |
| 6    | Frequency Response (Normal)            | LH Blank Tape 1 kHz, 10 kHz -25.5 dBs from OSC               | REC/PB Normal Position           | Line Out         | VR4 (50 k $\Omega$ ) | 1 kHz to 10 kHz flat level.                                                                                      |
| 7    | Frequency Response (CrO <sub>2</sub> ) | CrO <sub>2</sub> Blank Tape 1 kHz, 10 kHz -25.5 dBs from OSC | REC/PB CrO <sub>2</sub> Position | Line Out         | VR5 (50 k $\Omega$ ) | Same as above.                                                                                                   |
| 8    | Frequency Response (Metal)             | Metal Blank Tape 1 kHz, 10 kHz -25.5 dBs from OSC            | REC/PB Metal Position            | Line Out         | VR6 (50 k $\Omega$ ) | Same as above.                                                                                                   |
| 9    | Bias Filter                            | No Signal                                                    | REC REC Volume max Position      | Line out         | FL2                  | Minimum output.                                                                                                  |
| 10   | MPX Filter                             | 19 kHz from OSC                                              | Filter ON                        | Line Out         | FL1                  | Minimum output.                                                                                                  |

- NOTES:**
1. The Input Selector Switch set st "LINE".  
(The U/T, AAL, CSA, JPN Models do not have this facility).
  2. Please use the following tapes as measuring tapes.  
 Normal Tape (LH):      Maxell UD C-60  
 CrO<sub>2</sub> Tape:              TDK SA C-60  
 Metal Tape:              TDK MA-C C-60
  3. Ground the base of TR17, as shown in Fig. 14, to stop the Bias Oscillator from oscillating when conducting REC Peaking adjustment.

## IX. DC RESISTANCE OF VARIOUS COILS

---

| Description            | Name     | DC Resistance       |
|------------------------|----------|---------------------|
| Rec/PB Head            | PR4-7    | 650 ohms $\pm 10\%$ |
| Erase Head             | HF213151 | 3.5 ohms            |
| Play and Brake Plunger | 1240PLT  | 90 ohms $\pm 10\%$  |

## X. CLASSIFICATION OF VARIOUS P.C BOARDS

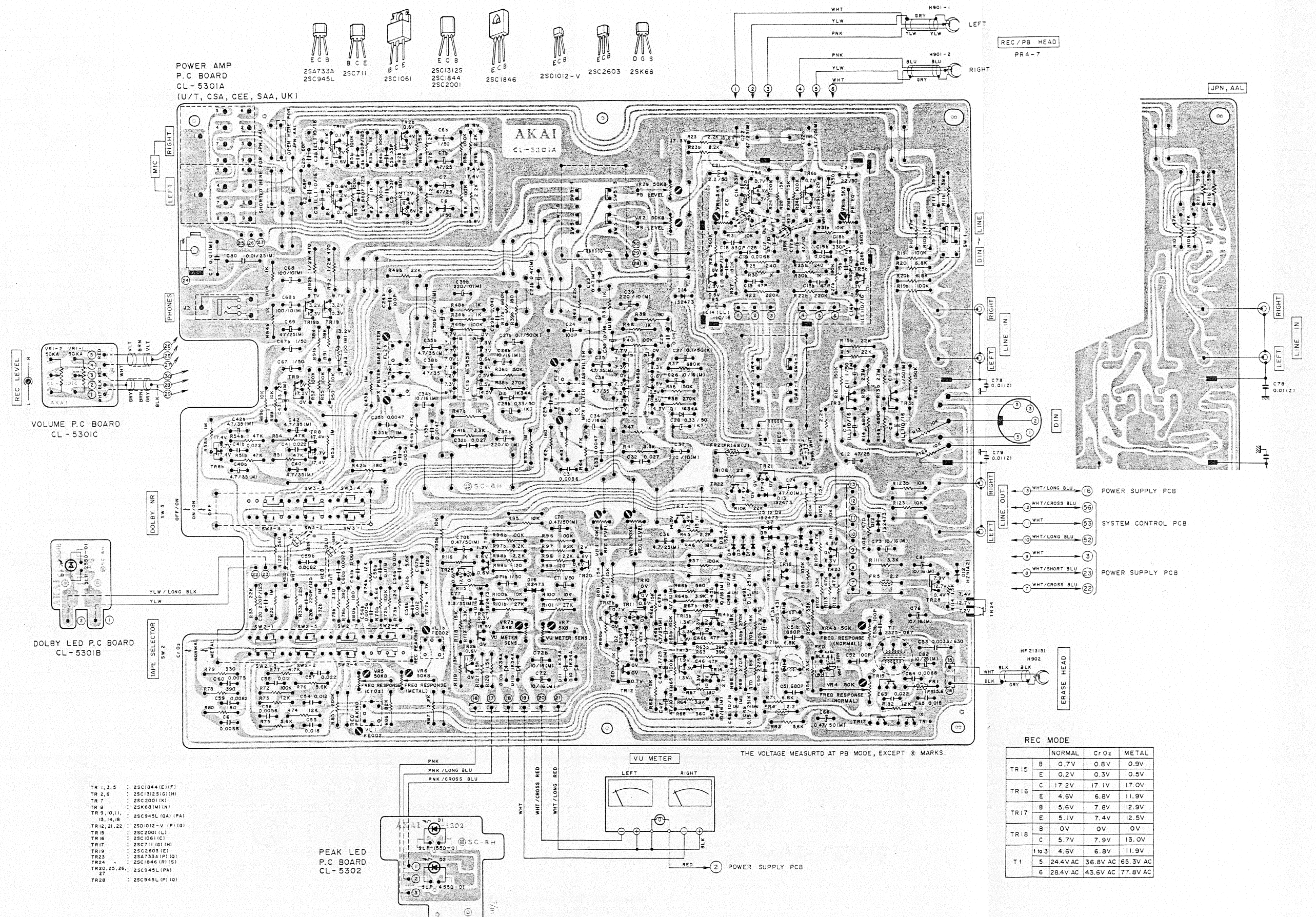
### 1. P.C BOARD TITLES AND IDENTIFICATION NUMBERS

| P.C Board Title          | P.C Board Number | Remarks      |
|--------------------------|------------------|--------------|
| Pre Amp P.C Board        | CL-5301A         |              |
| Dolby LED P.C Board      | CL-5301B         |              |
| Rec Volume P.C Board     | CL-5301C         |              |
| Peak LED P.C Board       | CL-5302          |              |
| System Control P.C Board | CL-5202A         |              |
| Remote Control P.C Board | CL-5202B         |              |
| Power Supply P.C Board   | CL-5003          | U/T          |
| Power Supply P.C Board   | CL-5004          | JPN          |
| Power Supply P.C Board   | CL-5005          | AAL          |
| Power Supply P.C Board   | CL-5025          | CSA          |
| Power Supply P.C Board   | CL-5006          | CEE, SAA, UK |
| Lamp P.C Board           | CL-5009          |              |
| Detector P.C Board       | CL-5010          |              |



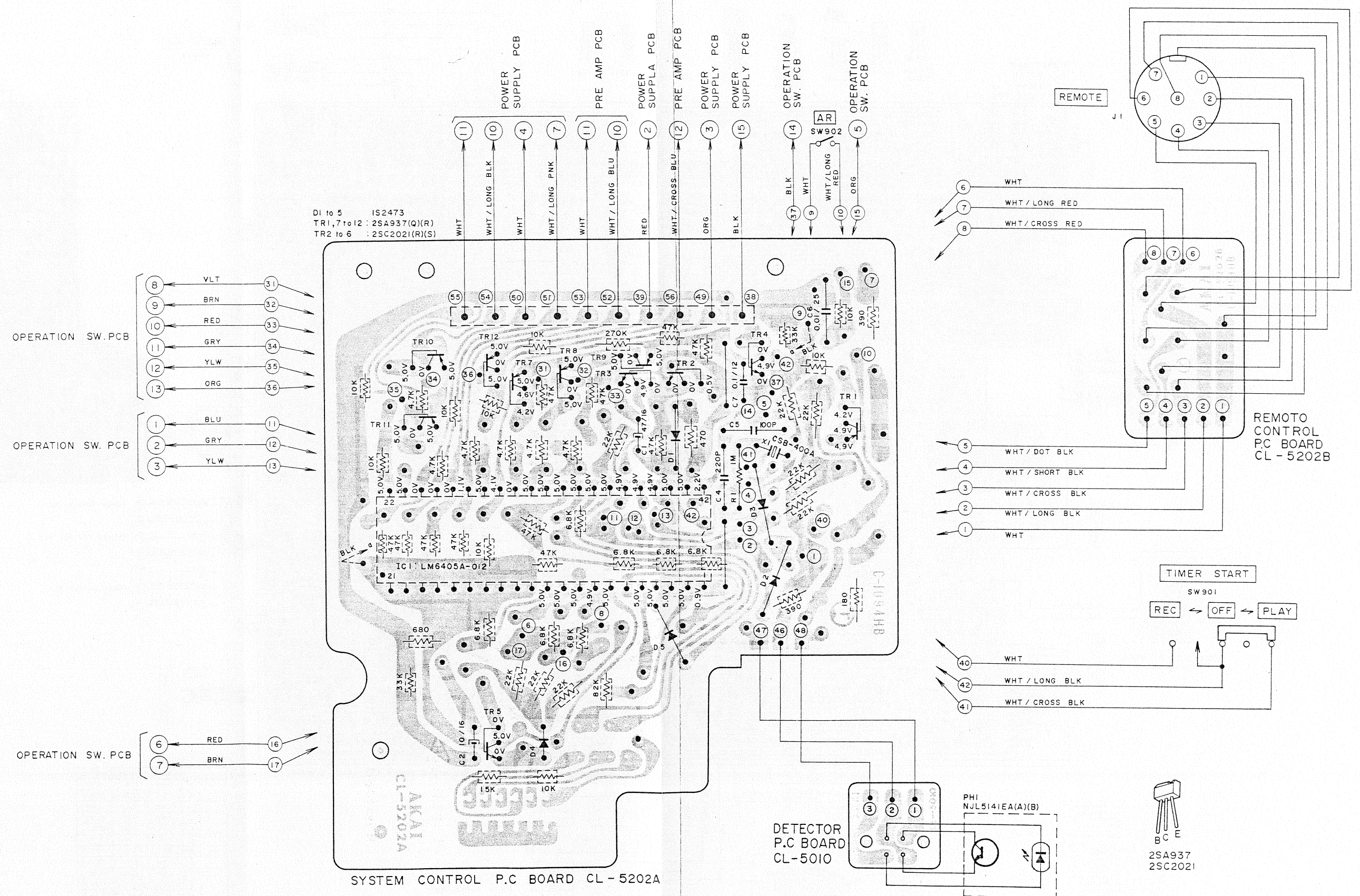
## 2. COMPOSITION OF VARIOUS P.C BOARDS

1) Pre Amp P.C Board CL-5301A, Dolby LED P.C Board CL-5301B, Rec Volume P.C Board CL-5301C and Peak LED P.C Board CL-5302.





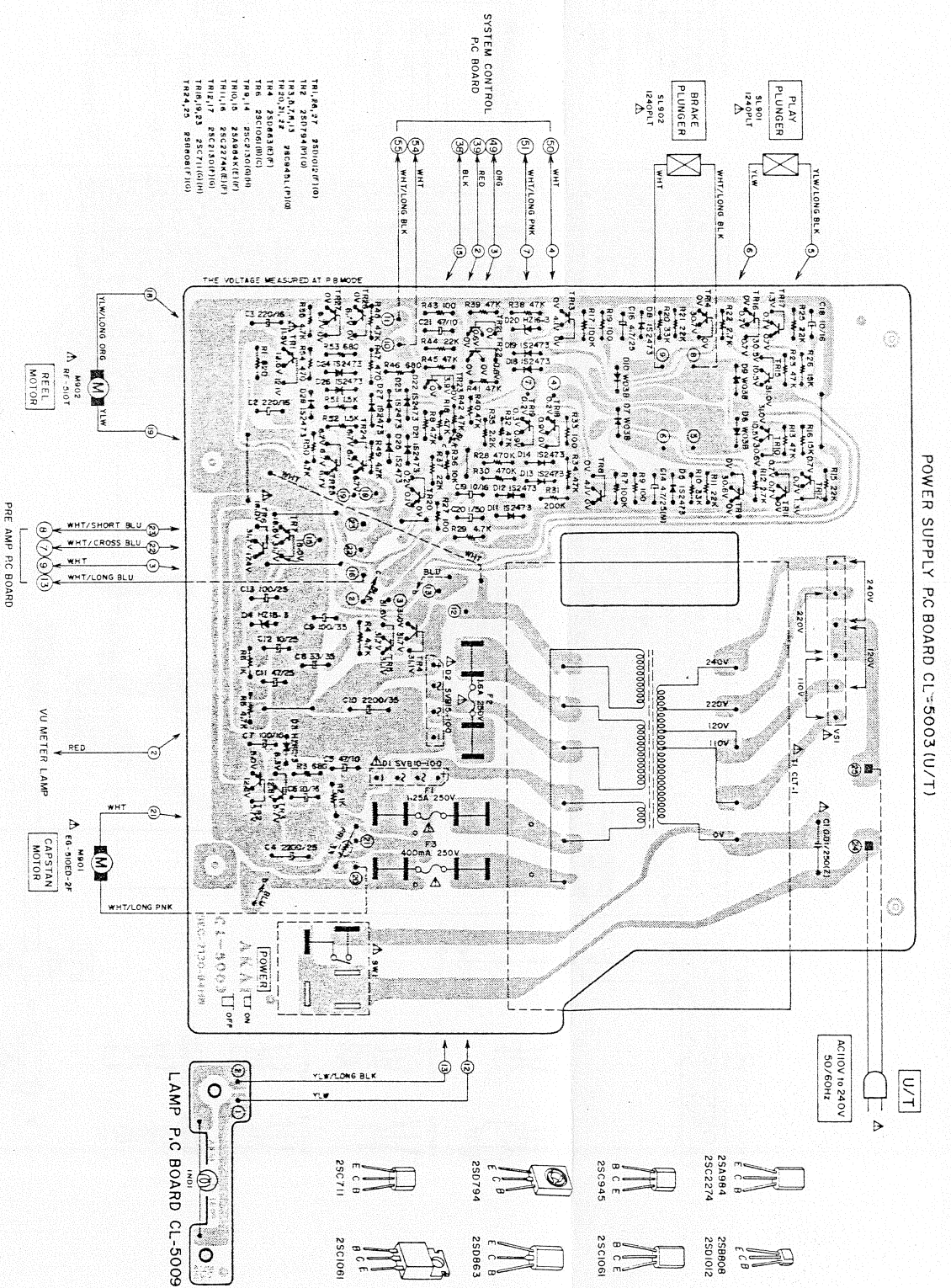
2) System Control P.C Board CL-5202A, Remote Control P.C Board CL-5202B and Detector P.C Board CL-5010.



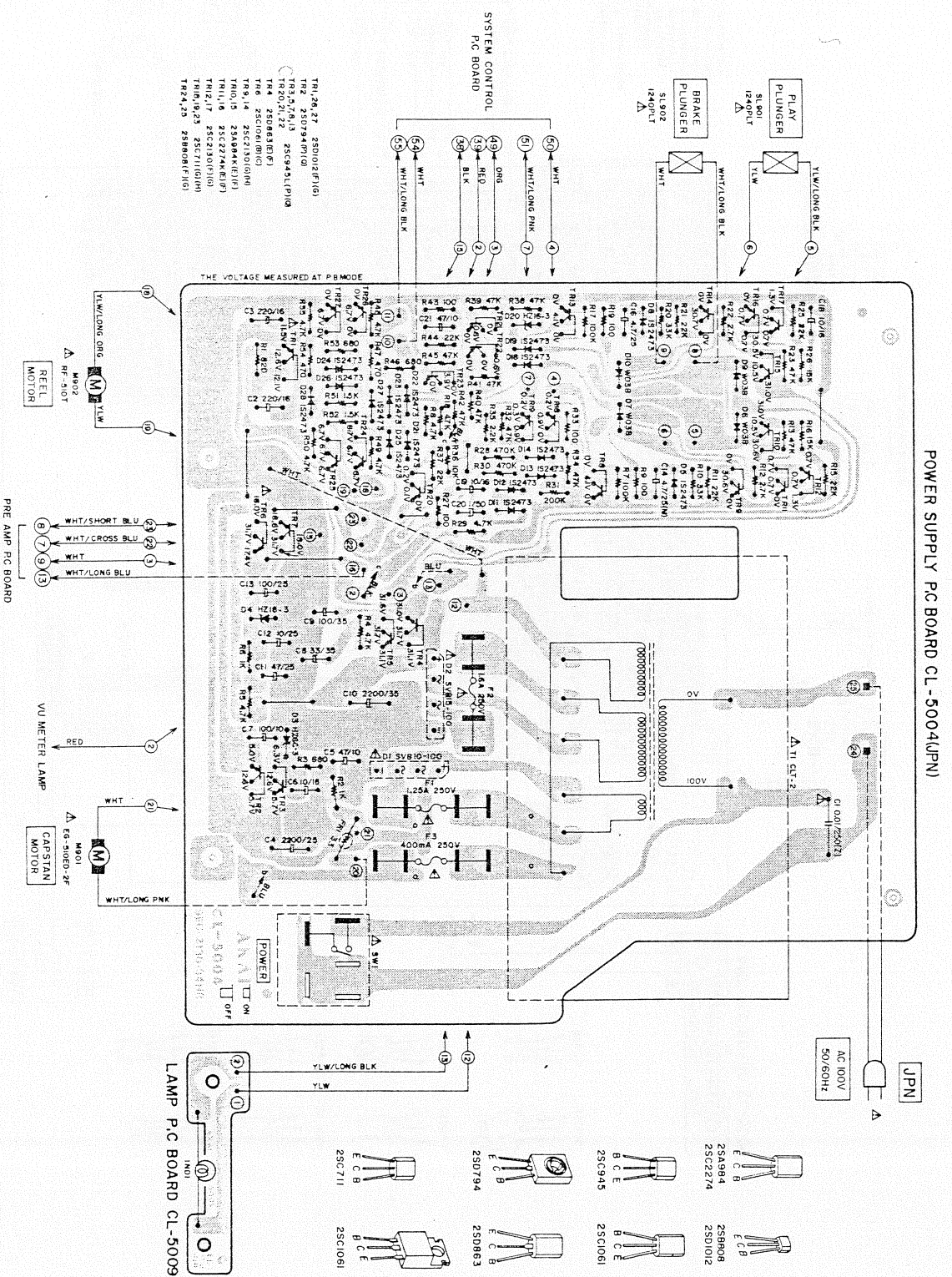
Please note that some terminal numbers printed on the P.C Board and in this figure do not match.



3) Power Supply P.C Board CL-5003 (U/T) and Lamp P.C Board CL-5009.



4) Power Supply P.C.Board CL-5004 (JPN) and Lamp P.C Board CL-5009.







# MEMO

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## SECTION 2

# PARTS LIST

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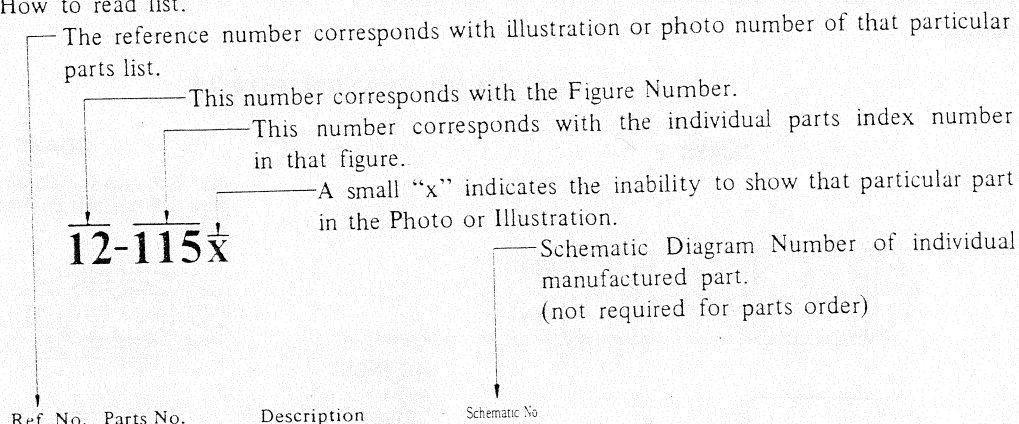
|                                                     |    |
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| 2. MECHA ASSEMBLY BLOCK .....                       | 26 |
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| 5. SYS. CON. P.C BOARD (CL-5202A) BLOCK .....       | 28 |
| 6. ASSEMBLY BLOCK .....                             | 28 |
| 7. FINAL ASSEMBLY BLOCK .....                       | 28 |
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Resistor and Capacitor which is not listed in this parts list, please refer to COMMON LIST FOR SERVICE PARTS.



## HOW TO USE THIS PARTS LIST

1. This parts list is compiled by various individual blocks based on assembly process.
2. When ordering parts, please describe parts number, serial number, and model number in detail.
3. How to read list.



### FLYWHEEL BLOCK #13

|         |        |                            |         |
|---------|--------|----------------------------|---------|
| 12-115x | 800425 | Flywheel Block Assy. Comp. | RDG #13 |
| 12-116  | 244506 | Flywheel Only              | RD 233  |
| 12-117x | 244754 | Felt, Flywheel             | RD 275  |
| 12-118  | 251324 | Main Metal Case            | RD 226  |
| 12-119  | 253080 | Main Metal                 | RD 237  |

4. The symbol numbers shown on the P.C. Board list can be matched with the Composite Views of components of the Schematic Diagram or Service Manual.
5. The indications of Resistors and Capacitors in the photos of P.C. Board are being eliminated.
6. The shape of the parts and parts name, etc. can be confirmed by comparing them with the parts shown on the Electrical Parts Table of P.C. Board.
7. Both the kind of part and installation position can be determined by the Parts Number. To determine where a parts number is listed, utilize Parts Index at end of Parts List.  
It is necessary first of all to find the Parts Number. This can be accomplished by using the Reference Number listed at right of parts number in the Parts Index. (meaning of ref. no. outlined in Item 3 above).
8. Utilize separate "Price List for Parts" to determine unit price. The most simple method of finding parts Price is to utilize the reference number.

### CAUTION:

1. When placing an order for parts, be sure to list the parts no. model no., and description. There are instances in which if any of this information is omitted, parts cannot be shipped or the wrong parts will be delivered.
2. Please be careful not to make a mistake in the parts no. If the parts no. is in error, a part different from the one ordered may be delivered.
3. Because parts number and parts unit supply in the Preliminary Service Manual (Basic Parts List) may be partially changed, please use this parts list for all future reference.

**WARNING:** △ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMEMNDED PARTS.

**AVERTISSEMENT:** △ IL INDIQU LES COMPOSANTS CRITIQUES DE SURETE. POUR MAINTENIR LE DEGRE DE SECURITE DE L'APPAREIL NE REMPLACER LES COMPOSANTS DONT LE FONCTIONNEMENT EST CRITIQUE POUR LA SECURITE QUE PAR DES PIECES RECOMMANDEES PAR LE FABRICANT.



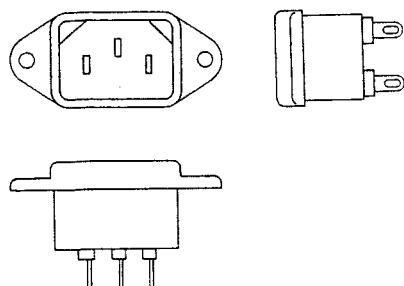
## AC INLET SYSTEM

This model is equipped with an AC INLET SYSTEM. Please refer to the AC INLET SYSTEM CHART below for the specific type. By the AC INLET SYSTEM, AC (mains) cord can be connected to and disconnected from the model because the model is provided with socket exclusively for AC (mains) cord on its main body.

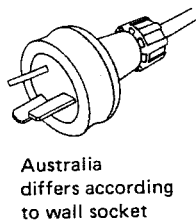
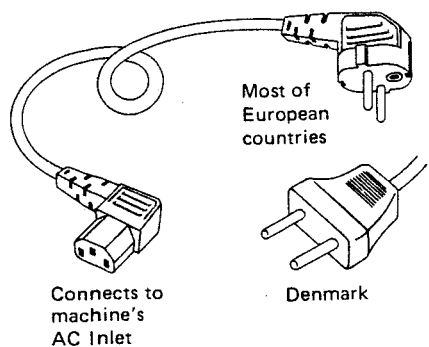
Please note, however, that certain models are not equipped with this system and has a built-in AC (mains) cord as before.

### AC INLET SYSTEM CHART

#### CLASS I

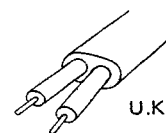
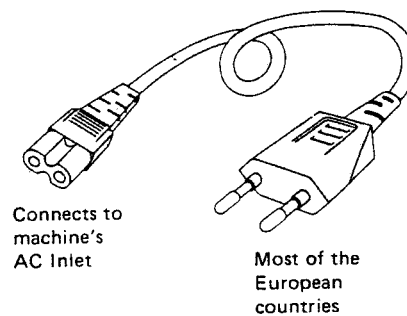
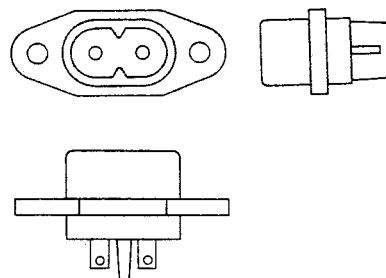


Picture 1  
AC INLET  
to be  
installed  
on machines



#### CLASS II

Ⓢ This mark indicating double insulation will be attached to machine's rear panel



Picture 2  
AC (mains)  
cord

#### Parts List for AC (mains) Cord Set

| Standard |     | Description            | Type of AC Inlet | Parts No. |
|----------|-----|------------------------|------------------|-----------|
| Class I  | CEE | Cord Set CEE (3 cores) | 3P               | EW302993  |
|          | UK  | Cord Set UK (3 cores)  | 3P               | EW302994  |
|          | SAA | Cord Set SAA (3 cores) | 3P               | EW302996  |
|          | U/T | Cord Set U/T (3 cores) | 3P               | EW302646  |
| Class II | CEE | Cord Set CEE (2 cores) | 2P               | EW638144  |
|          | UK  | Cord Set UK (2 cores)  | 2P               | EW302995  |
|          | SAA | Cord Set SAA (2 cores) | 2P               | EW302991  |
|          | U/T | Cord Set U/T (2 cores) | 2P               | EW302899  |

## 1. REEL TABLE BLOCK

| Ref. No. | Parts No. | Description                | Schematic No. |
|----------|-----------|----------------------------|---------------|
| 1-1      | BR328517  | Reel Table Part GX-F35     | CL-2001       |
| 1-2      | ZG328361  | Idler Spring               | CL-2008       |
| 1-3      | ZW270088  | Ring E 190SUP CMT          | 6-1-9         |
| 1-4      | BL328426  | Wind Idler Assy            | 9-3-70        |
| 1-5      | BR328424  | Take-up Reel Table Assy    | 9-3-68        |
| 1-6      | ZW536466  | PW21 × 70 × 50NYL          |               |
| 1-7      | ZW305546  | PW21 × 40 × 25P SL         |               |
| 1-8      | MT305793  | Reel Cap                   | CF-2039       |
| 1-9      | BR328425  | Supply Reel Table Assy     | 9-3-69        |
| 1-10     | ZW2016010 | PW19.8 × 80 × 25PSL        |               |
| 1-11     | MB282104  | Brake Rubber               | CN-1020       |
| 1-12     | ZG312945  | SP T1-3.2/0.29-14.0 T1-061 |               |
| 1-13     | BM329350  | Reel Motor BLK             |               |
| 1-14     | ZS430413  | CTS26 × 04STL CMT          |               |
| 1-15     | BZ329351  | Damper (B) Assy GX-F35     | CL-1043       |

## 2. MECHA ASSEMBLY BLOCK

| Ref. No.                          | Parts No. | Description                     | Schematic No. |
|-----------------------------------|-----------|---------------------------------|---------------|
| <b>HEAD BLOCK</b>                 |           |                                 |               |
| 2-1                               | BH329370  | Head BLK GX-F35                 |               |
| 2-2                               | HE321585  | Head E HF213151 C               | 37-2-33       |
| 2-3                               | ZS590804  | Pan 23 × 6 STL CMT              |               |
| 2-4                               | ZS303936  | Pan 20 × 2 STL CMT              |               |
| 2-5                               | ZG328305  | Angle Spring                    | CL-0007       |
| 2-6                               | HZ328307  | Tape Guide                      | CL-0009       |
| 2-7                               | ZW591265  | N23BRS NI3 3                    |               |
| 2-8                               | ZS590804  | Pan 23 × 6 STL CMT              |               |
| 2-9                               | ZW270101  | Ring E300SUP CMT                | 6-1-9         |
| 2-10                              | ZG312946  | SP T1-3.2/0.29-16.0 T1-062      |               |
| 2-11                              | ZG312997  | SP T1-4.0/0.4-16.0              |               |
| <b>REC/PB HEAD BLOCK</b>          |           |                                 |               |
| 2-12                              | HZ328306  | Head Fixation Plate             | CL-0008       |
| 2-13                              | HP319079  | Head REC/PB PR4-7               |               |
| 2-14                              | ZS477876  | Pan 20 × 3 STL CMT              |               |
| <b>MAIN MOTOR BLOCK</b>           |           |                                 |               |
| 2-15                              | BM329353  | Main Motor BLK (W/Pully) GX-F35 |               |
| 2-16                              | ZS321338  | Motor Screw                     | 7-1-75        |
| 2-17                              | MB282778  | Rubber Bush                     | CN-7003       |
| <b>LAMP P.C BLOCK</b>             |           |                                 |               |
| 2-18                              | EL200096  | PL Lead 3.5V 100MA              | E28-01-083    |
| <b>MECHA SIDE PLATE (R) BLOCK</b> |           |                                 |               |
| 2-19                              | ZS325495  | T2BR30 × 6 STL CMT              |               |
| 2-20                              | BK328417  | SW Operation GX-F35 7P L        | 25-5-393      |
| 2-21                              | BK328528  | SW Operation GX-F35-BL 7P L     | 25-5-406      |
| <b>PEAK LED P.C BLOCK</b>         |           |                                 |               |
| 2-22                              | ED322772  | D LED SLP-155D-01 Red           | 45-15-38      |
| 2-23                              | ED328701  | D LED SLP-455D-01 ORG           | 45-15-52      |
| <b>DETECTION P.C BLOCK</b>        |           |                                 |               |
| 2-24                              | EI329411  | Photo Sensor NJL5141E-B(A)(B)   | 45-18-3       |
| <b>SW BRACKET BLOCK</b>           |           |                                 |               |
| 2-25                              | BZ329366  | Damper (A) Assy GX-F35          | CL-1042       |
| 2-26                              | ZW290283  | Ring U285SUP CMT                | 6-1-1         |
| 2-27                              | ZG329433  | Eject Spring                    | CL-1045       |
| <b>SLIDE SW ASSY</b>              |           |                                 |               |
| 2-28                              | ES-328416 | SW Slide SSB02385 2-02-03S      | 25-3-186      |
| <b>R PLUNGER ASSY</b>             |           |                                 |               |
| 2-29                              | EP328420  | Plunger 1240PLT (TDS-12SB-105)  | 44-1-138      |
| 2-30                              | ZW270088  | Ring E 190SUP CMT               | 6-1-9         |

| Ref. No.                        | Parts No. | Description                     | Schematic No. |
|---------------------------------|-----------|---------------------------------|---------------|
| <b>L PLUNGER ASSY</b>           |           |                                 |               |
| 2-31                            | EP328419  | Plunger 1240PLT (TDS-12SB-104)  | 44-1-137      |
| <b>FLYWHEEL BLOCK</b>           |           |                                 |               |
| 2-32                            | BF200102  | Flywheel (B)                    | CL-1202       |
| 2-33                            | ZW309295  | Thrust Washer                   | CY-1037       |
| 2-34                            | ZS302318  | Hold Screw                      | CL-1258       |
| <b>PINCH ROLLER ASSY</b>        |           |                                 |               |
| 2-35                            | ML328513  | Pinch Roller Arm Part GX-F35    | CL-1029       |
| 2-36                            | MP319580  | Pinch Roller Part GX-F90        | CU-1056       |
| <b>EJECT ASSY</b>               |           |                                 |               |
| 2-37                            | ZW270101  | Ring E300SUP CMT                | 6-1-9         |
| 2-38                            | ZG312943  | SP T1-3.2/0.29-11.2 T1-059      |               |
| <b>LEAF SW ASSY</b>             |           |                                 |               |
| 2-39                            | ES328430  | SW Leaf BSW-101B 01-1 NO        | 25-10-45      |
| <b>CASSETTE HOLD PLATE ASSY</b> |           |                                 |               |
| 2-40                            | TC329369  | Cassette Hold Plate Assy GX-F35 |               |
| <b>COUNTER BLOCK</b>            |           |                                 |               |
| 2-41                            | MC328723  | Counter MP390-442               | 9-1-93        |
| 2-42                            | MC328725  | Counter (BL) MP390-443          | 9-1-94        |
| <b>LID HOUSING ASSY</b>         |           |                                 |               |
| 2-43                            | BZ329374  | Lid Housing Assy GX-F35         |               |
| 2-44                            | BZ329375  | Lid Housing Assy GX-F35-BL      |               |
| <b>MECHA ASSEMBLY BLOCK</b>     |           |                                 |               |
| 2-45                            | MV328322  | Main Case                       | CL-1014       |
| 2-46                            | BL328427  | Take-up Idler Assy              | 9-3-71        |
| 2-47                            | MB328323  | Flywheel Belt                   | CL-1016       |
| 2-48                            | ZW694798  | PW31 × 70 × 20TFL               |               |
| 2-49                            | ZW259492  | PW31 × 80 × 30PBR               |               |
| 2-50                            | ZW329422  | Ring CS0300                     | 6-1-18        |
| 2-51                            | ZG328352  | Pinch Roller Spring             | CL-1041       |
| 2-52                            | ZW329448  | PW26 × 45 × 13P SL              |               |
| 2-53                            | ML328337  | Coupling Lever                  | CL-1028       |
| 2-54                            | ZG324329  | SP T2-3.2/0.29-11.2 T2-059      |               |
| 2-55                            | TC328344  | Eject Joint                     | CL-1034       |
| 2-56                            | MV368886  | Ball 300STL                     |               |
| 2-57                            | TC328348  | Guide Collar                    | CL-1037       |
| 2-58                            | MB328324  | Counter Belt                    | CL-1017       |
| 2-59                            | TC328350  | Cassette Holder                 | CL-1040       |
| 2-60                            | TC328351  | Cassette Holder (BL)            | CL-1040       |
| 2-61                            | ZG321487  | Mold Spring                     | CE-6011       |
| 2-62                            | ZS329445  | PLX Pan 26 × 8STL NI3           |               |
| 2-63                            | ZS329443  | PLX Pan 26 × 8STL BNI (BL)      |               |
| 2-64                            | ZS328347  | OP Fixation Screw               | CL-1036       |

When ordering parts, please quote Parts Number, Description and Model Number.

### 3. PRE AMP P.C BOARD (CL-5301A) BLOCK

| Ref. No.   | Parts No. | Description                          | Schematic No. |
|------------|-----------|--------------------------------------|---------------|
| 3-1        | BA600072  | PRE AMP PC BLK GX-F15 (U) (U/T, JPN) |               |
| 3-IC1      | EI605013  | IC NE545B                            | 45-8-117      |
| 3-TR1      | ET308954  | TR 2SC1844 (E) (F)                   | 45-1-327      |
| 3-TR2      | ET603257  | TR 2SC1312S (G) (H)                  | 45-1-182      |
| 3-TR5      | ET308954  | TR 2SC1844 (E) (F)                   | 45-1-327      |
| 3-TR6      | ET603257  | TR 2SC1312S (G) (H)                  | 45-1-182      |
| 3-TR7      | ET309343  | TR 2SC2001 (K) (L)                   | 45-1-272      |
| 3-TR8      | ET301464  | FET 2SK68 (M) (N)                    | 45-12-14      |
| 3-TR9T014  | ET639437  | TR 2SC945L (QA) (PA)                 | 45-1-85       |
| 3-TR15     | ET300044  | TR 2SC2001 (L)                       | 45-1-272      |
| 3-TR16     | ET402682  | TR 2SC1061 (C)                       | 45-1-96       |
| 3-TR17     | ET563905  | TR 2SC711 (G) (H)                    | 45-1-67       |
| 3-TR18     | ET639437  | TR 2SC945L (QA) (PA)                 | 45-1-85       |
| 3-TR19     | ET200596  | TR 2SC2603 (E)                       | E45-03-170    |
| 3-TR20     | ET638504  | TR 2SC945L (PA)                      | 45-1-85       |
| 3-TR21,22  | ET328437  | TR 2SD1012-V (F) (G)                 | 45-1-396      |
| 3-TR23     | ET554657  | TR 2SA733A (P) (Q)                   | 45-1-124      |
| 3-TR24     | ET310920  | TR 2SC1846 (R) (S)                   | 45-1-267      |
| 3-TR25T027 | ET638504  | TR 2SC945L (PA)                      | 45-1-85       |
| 3-TR28     | ET639437  | TR 2SC945L (QA) (PA)                 | 45-1-85       |
| 3-D1       | ED308952  | D Germa V 1K34A-LR F07               | 45-3-47       |
| 3-D2T09    | ED560913  | D Silicon V 1S2473VE                 | 45-3-23       |
| 3-D10,11   | ED308952  | D Germa V 1K34A-LR F07               | 45-3-47       |
| 3-D12T014  | ED560913  | D Silicon V 1S2473VE                 | 45-3-23       |
| 3-D15      | ED328700  | D Zener H HZ9 A2                     | 45-6-80       |
| 3-D16,17   | ED560913  | D Silicon V 1S2473VE                 | 45-3-23       |
| 3-SW2      | ES315748  | SW Lever 83157 2-08-03S              | 25-12-62      |
| 3-SW3      | ES321274  | SW Lever 63349 2-06-03S              | 25-12-65      |
| 3-SW4      | ES328415  | SW Solenoid SWE018401                |               |
|            |           | 18V 04-2S                            | 25-9-18       |
| 3-SW5      | ES328530  | SW Solenoid SWE018404                |               |
|            |           | 18V 04-2N                            | 25-9-25       |
| 3-VL2      | EO321336  | Coil Vari 1 FE002 10.00MH            | 23-1-333      |
| 3-VR1      | EV315412  | R S-Fix H D8 3P 502                  | 36-10-280     |
| 3-VR2      | EV315413  | R S-Fix H D8 3P 503                  | 36-10-280     |
| 3-VR3      | EV315414  | R S-Fix H D8 3P 203                  | 36-10-280     |
| 3-VR4      | EV300154  | R S-Fix H VG103TL2                   |               |
|            |           | T3P 0.50W 503                        | E36-04-016    |
| 3-VR5,6    | EV315413  | R S-Fix H D8 3P 503                  | 36-10-280     |
| 3-VR7      | EV315412  | R S-Fix H D8 3P 502                  | 36-10-280     |
| 3-T1       | EO328485  | Coil OSC 1 2325-067                  |               |
|            |           | 100.0KC                              | 23-1-426      |
| 3-FL1      | ER328490  | Filter Dolby D07-001K                |               |
|            |           | 19KC                                 | 23-1-425      |
| 3-FL2      | ER328491  | Filter Dolby D07-003K                |               |
|            |           | 100KC                                | 23-1-425      |
| 3-FL3      | EO315758  | Coil TUN1 100S-431                   |               |
|            |           | 100.00KC                             | 23-1-331      |
| 3-J1       | EJ321328  | Phone J HLJ0345-010 2 x 3P           | 31-2-110      |
| 3-J2       | EJ316156  | Phone J 3P HLJ0315-020 6.3           | 31-2-106      |
| 3-J3       | EJ308986  | Pin J 1784P1782 P 4P                 | 31-5-145      |
| FR1        | ER200595  | △ R Fuse ERD2FC 1/4W                 |               |
|            |           | 5R6J                                 | 35-14-31      |
| 3-FR2      | ER201803  | △ R Fuse FR25SJ 1/4W                 |               |
|            |           | 680J                                 | 35-14-23      |
| 3-FR3      | ER328520  | △ R Fuse ERD2FC 1/4W                 |               |
|            |           | 1000G                                | 35-14-31      |
| 3-FR4,5    | ER325381  | R Fuse FR25SJ 1/4W 2R2J              | 35-14-23      |
| 3-C4       | EC320454  | C STY V T05 CQT92 681J               |               |
|            |           | 125DC                                | 24-23-11      |
| 3-C15      | EC320454  | C STY V T05 CQT92 681J               |               |
|            |           | 125DC                                | 24-23-11      |
| 3-C18      | EC200592  | C STY V T05 CQT92 331J               |               |
|            |           | 125DC                                | 24-23-11      |
| 3-C20      | EC200593  | C STY V T05 CQT92 221J               |               |
|            |           | 125DC                                | 24-23-11      |
| 3-C51      | EC320454  | C STY V T05 CQT92 681J               |               |
|            |           | 125DC                                | 24-23-11      |
| 3-C53      | EC325380  | C PP V F10 PFH 332J                  |               |
|            |           | 630DC                                | 24-22-9       |

### 4. POWER SUPPLY P.C BOARD (A) (CL-5003) BLOCK

| Ref. No.   | Parts No. | Description                             | Schematic No. |
|------------|-----------|-----------------------------------------|---------------|
| 4-1        | BA600068  | Power Supply PC (A) BLK GX-F15(U) (U/T) |               |
| 4-2        | BA600069  | Power Supply PC (B) BLK GX-F15(J) (JPN) |               |
| 4-TR1      | ET328437  | TR 2SD1012-V (F) (G)                    | 45-1-396      |
| 4-TR2      | ET307349  | TR 2SD794 (P) (Q)                       | 45-1-334      |
| 4-TR3      | ET639437  | TR 2SC945L (QA) (PA)                    | 45-1-85       |
| 4-TR4      | ET328440  | TR 2SD863-V8 (E) (F)                    | 45-1-398      |
| 4-TR5      | ET639437  | TR 2SC945L (QA) (PA)                    | 45-1-85       |
| 4-TR6      | ET375603  | TR 2SC1061 (B) (C)                      | 45-1-96       |
| 4-TR7,8    | ET639437  | TR 2SC945L (QA) (PA)                    | 45-1-85       |
| 4-TR9      | ET308937  | TR 2SC2130 (G) (H)                      | 45-1-317      |
| 4-TR10     | ET324134  | TR 2SA984K (E) (F)                      | 45-1-378      |
| 4-TR11     | ET309353  | TR 2SC2274 (E) (F)                      | 45-1-335      |
| 4-TR12     | ET311868  | TR 2SC2130 (F) (G)                      | 45-1-317      |
| 4-TR13     | ET639437  | TR 2SC945L (QA) (PA)                    | 45-1-85       |
| 4-TR14     | ET308937  | TR 2SC2130 (G) (H)                      | 45-1-317      |
| 4-TR15     | ET324134  | TR 2SA984K (E) (F)                      | 45-1-378      |
| 4-TR16     | ET309353  | TR 2SC2274 (E) (F)                      | 45-1-335      |
| 4-TR17     | ET311868  | TR 2SC2130 (F) (G)                      | 45-1-317      |
| 4-TR18,19  | ET563905  | TR 2SC711 (G) (H)                       | 45-1-67       |
| 4-TR20T022 | ET639437  | TR 2SC945L (QA) (PA)                    | 45-1-85       |
| 4-TR23     | ET563905  | TR 2SC711 (G) (H)                       | 45-1-67       |
| 4-TR24,25  | ET328438  | TR 2SB808-V (F) (G)                     | 45-1-397      |
| 4-TR26,27  | ET328437  | TR 2SD1012-V (F) (G)                    | 45-1-396      |
| 4-D1       | ED308945  | D Silicon SVB10-100 100/1.0A            | 45-2-82       |
| 4-D2       | ED309357  | D Silicon SVB 15-100 100/1.5A           | 45-2-83       |
| 4-D3       | ED319167  | D Zener H HZ6 C3                        | 45-6-80       |
| 4-D4       | ED329449  | D Zener H HZ18 3                        | 45-6-80       |
| 4-D5       | ED560913  | D Silicon V 1S2473VE                    | 45-3-23       |
| 4-D6,7     | ED306109  | D Silicon W03B 100/1.0A                 | 45-2-78       |
| 4-D8       | ED560913  | D Silicon V 1S2473VE                    | 45-3-23       |
| 4-D9,10    | ED306109  | D Silicon W03B 100/1.0A                 | 45-2-78       |
| 4-D11T014  | ED560913  | D Silicon V 1S2473VE                    | 45-3-23       |
| 4-D18,19   | ED560913  | D Silicon V 1S2473VE                    | 45-3-23       |
| 4-D20      | ED313846  | D Zener H HZ16 3                        | 45-6-80       |
| 4-D21T028  | ED560913  | D Silicon V 1S2473VE                    | 45-3-23       |
| 4-VS1      | MZ283140  | △ Socket Selector                       |               |
|            |           | X-17237 6P (U/T)                        | 40-2-13       |
| 4-SW1      | ES310839  | △ SW Push SDG1P-E                       |               |
|            |           | 01-1 E (U/T)                            | 25-5-310      |
| 4-SW1      | ES315159  | △ SW Push SDG1P 01-1 J (J)              | 25-5-330      |
|            |           | (JPN)                                   |               |
| 4-FR1      | ER200972  | △ R Fuse ERD2FC 1/4W                    |               |
|            |           | 330J                                    | 35-14-31      |
| 4-C1       | EC320548  | △ C CE V F 103Z 250AC                   | 24-5-112      |
| 4-C4       | EC315966  | C EC V Cut H 332M 16.0DC                | 24-12-46      |
| 4-C10      | EC316230  | C EC V Cut H 222M 35.0DC                | 24-12-46      |

## 5. SYS. CON. P.C BOARD (CL-5202A) BLOCK

| Ref. No.  | Parts No. | Description                        | Schematic No. |
|-----------|-----------|------------------------------------|---------------|
| 5-1       | BA600327  | Syscon PC BLK GX-F15<br>(U/T, JPN) |               |
| 5-IC1     | EI328407  | IC LM6405A-012                     | 45-8-507      |
| 5-TR1     | ET328436  | TR 2SA937 (Q) (R)                  | 45-1-395      |
| 5-TR2T05  | ET328435  | TR 2SC2021 (R) (S)                 | 45-1-394      |
| 5-TR7T012 | ET328436  | TR 2SA937 (Q) (R)                  | 45-1-395      |
| 5-D1      | ED316143  | D Silicon H IS2473HS F10           | 45-3-53       |
| 5-D2,3    | ED317594  | D Silicon H IS2473HL F12           | 45-3-60       |
| 5-D4      | ED560913  | D Silicon V IS2473VE               | 45-3-23       |
| 5-D5      | ED316143  | D Silicon H IS2473HS F10           | 45-3-53       |
| 5-X1      | EZ328406  | OSC CE CSB400A 0.000400MC          | 53-1-207      |

## 6. ASSEMBLY BLOCK

| Ref. No.                    | Parts No. | Description                                 | Schematic No. |
|-----------------------------|-----------|---------------------------------------------|---------------|
| <b>DOLBY LED P.C BLOCK</b>  |           |                                             |               |
| 6-1                         | ED322773  | D LED SLP25SD-01 GRN                        | 45-15-37      |
| <b>VR PC BLOCK</b>          |           |                                             |               |
| 6-2                         | EV329416  | VR Rotary 16P11 × OR 15A503<br>15A503       | 36-18-23      |
| <b>REMOCON BLOCK</b>        |           |                                             |               |
| 6-3                         | EJ324276  | DIN J TCS4680-01-111 P 8P                   | 31-5-156      |
| <b>POWER SUPPLY BLOCK</b>   |           |                                             |               |
| 6-4                         | BT328401  | △ Trans Power CLT-1 (U/T)                   | 38-4-884      |
| 6-5                         | BT328402  | △ Trans Power CLT-2 (JPN)                   | 38-4-885      |
| 6-6                         | ZS314702  | ST BID40 × 10STL CMT                        |               |
| 6-7                         | EW306428  | △ AC Cord 2 Cores<br>KP-205A, VFF UCJ (U/T) | 26-3-64       |
| 6-8                         | EW306427  | △ AC Cord 2 Cores<br>KP-211, VFF J (JPN)    | 26-3-63       |
| 6-9                         | EZ631945  | Strain Relief SR-4N-4                       | 2-7-49        |
| <b>FINAL ASSEMBLY BLOCK</b> |           |                                             |               |
| 6-10                        | SP328379  | Bottom Plate                                | CL-5022       |
| 6-11                        | SA306240  | Rubber Foot (B)                             | LE-6740       |
| 6-12                        | ZS313486  | ST Pan 30 × 6STL CMT C                      |               |
| 6-13                        | EF306949  | △ Fuse TSC A Type<br>250V 1.25A (F1)        | 39-1-64       |
| 6-14                        | EF311839  | △ Fuse TSC A Type<br>250V 1.60A (F2)        | 39-1-64       |
| 6-15                        | EF309389  | △ Fuse TSC A 250V<br>0.40A (F3)             | 39-1-64       |

## 7. FINAL ASSEMBLY BLOCK

| Ref. No.                    | Parts No. | Description                                 | Schematic No. |
|-----------------------------|-----------|---------------------------------------------|---------------|
| <b>FRONT PANEL BLOCK</b>    |           |                                             |               |
| 7-1                         | BD600078  | Front Panel BLK GX-F15 (U)<br>(U/T, JPN)    |               |
| 7-2                         | BD600080  | Front Panel BLK GX-F15-BL (U)<br>(U/T, JPN) |               |
| <b>LID PANEL ASSY</b>       |           |                                             |               |
| 7-3                         | BD329402  | Lid Panel Assy GX-F35                       |               |
| 7-4                         | BD329403  | Lid Panel Assy GX-F35-BL                    |               |
| <b>FINAL ASSEMBLY BLOCK</b> |           |                                             |               |
| 7-5                         | EM328721  | Meter VU VU-33-301 0.250MA                  | 46-1-239      |
| 7-6                         | EM328722  | Meter VU VU-33-302 0.250MA                  | 46-1-240      |
| 7-7                         | ZW698308  | RV NYL 30 × 55 BL                           | 2-7-54        |
| 7-8                         | SB316316  | Button (B)                                  | CM-6305       |
| 7-9                         | SB316317  | Button (B-BL)                               | CM-6305       |
| 7-10                        | SK328391  | Slide Knob                                  | CL-6007       |
| 7-11                        | SK328392  | Slide Knob (BL)                             | CL-6007       |
| 7-12                        | SB316498  | Button (B)                                  | CU-6009       |
| 7-13                        | SB316499  | Button (B-BL)                               | CU-6009       |
| 7-14                        | SE325784  | VOL. Escutcheon                             | CY-6066       |
| 7-15                        | SE329408  | VOL. Escutcheon (BL)                        | CY-6066       |
| 7-16                        | SK328387  | Lever Knob                                  | CL-6005       |
| 7-17                        | SK328388  | Lever Knob (BL)                             | CL-6005       |
| 7-18                        | SP328471  | Upper Cover (A)                             | CL-6020       |
| 7-19                        | SP328472  | Upper Cover (A-BL)                          | CL-6020       |
| 7-20                        | ZS315878  | XST BID40 × 8STL NI3                        |               |
| 7-21                        | ZS310588  | XST BID40 × 8STL BNI                        |               |
| 7-22                        | SK325785  | Double Knob (Upper)                         | CY-6067       |
| 7-23                        | SK325786  | Double Knob (Upper-BL)                      | CY-6067       |
| 7-24                        | SK325787  | Double Knob (Lower)                         | CY-6068       |
| 7-25                        | SK325788  | Double Knob (Lower-BL)                      | CY-6068       |
| 7-26                        | SP200161  | Back Board GX-F15 (U) (U/T)                 | CL-6017       |
| 7-27                        | SP200162  | Back Board GX-F15 (J) (JPN)                 | CL-6017       |
| 7-28                        | ZW305013  | RV POP32                                    | 7-6-9         |



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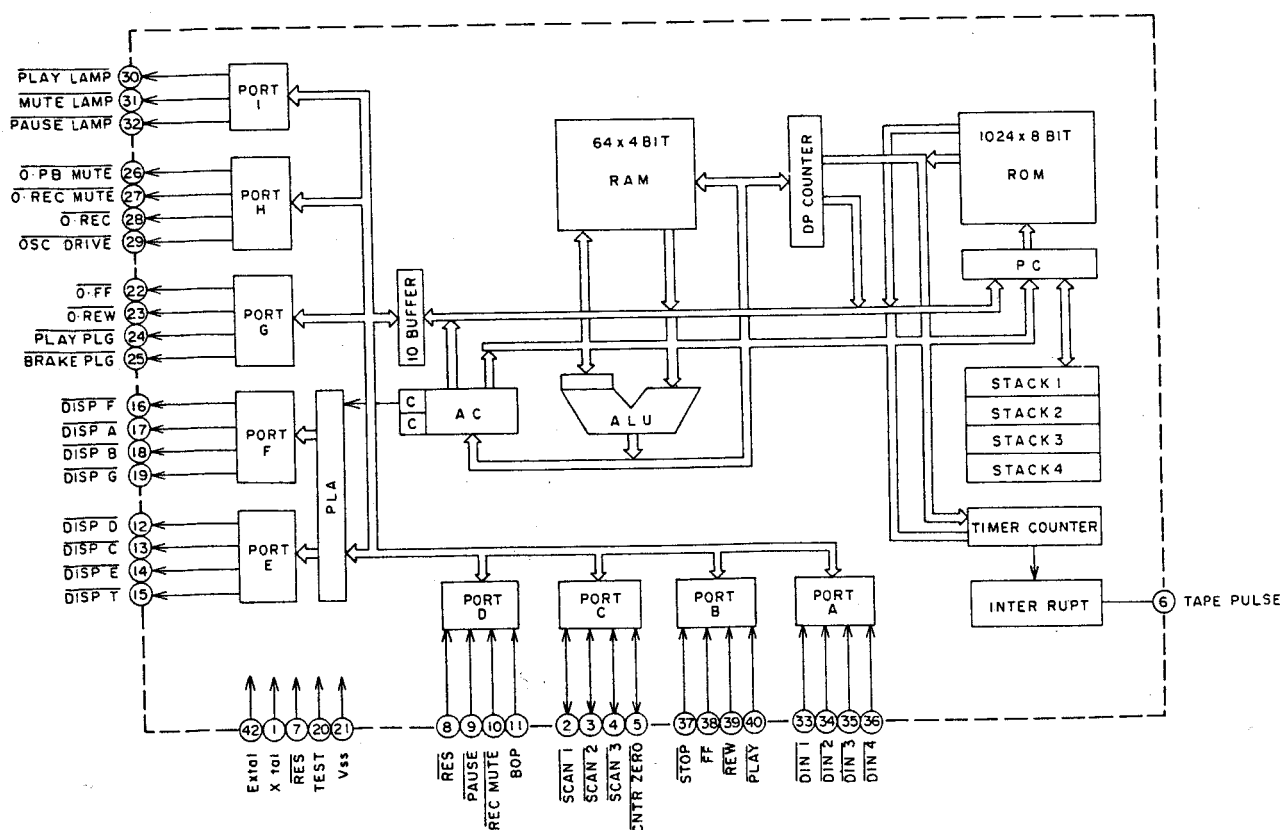
| Parts No. | Ref. No. & Symbol No. | Parts No. | Ref. No. & Symbol No. | Parts No. | Ref. No. & Symbol No. | Parts No. | Ref. No. & Symbol No. |
|-----------|-----------------------|-----------|-----------------------|-----------|-----------------------|-----------|-----------------------|
| BA600068  | 4-1                   | EF309389  | 6-15                  | ET563905  | 4-TR18,19             | SP328471  | 7-18                  |
| BA600069  | 4-2                   | EF311839  | 6-14                  | ET563905  | 4-TR23                | SP328472  | 7-19                  |
| BA600072  | 3-1                   | EI328407  | 5-IC1                 | ET603257  | 3-TR2                 | TC328344  | 2-55                  |
| BA600327  | 5-1                   | EI329411  | 2-24                  | ET603257  | 3-TR6                 | TC328348  | 2-57                  |
| BD329402  | 7-3                   | EI605013  | 3-IC1                 | ET638504  | 3-TR20                | TC328350  | 2-59                  |
| BD329403  | 7-4                   | EJ308986  | 3-J3                  | ET638504  | 3-TR25T027            | TC328351  | 2-60                  |
| BD600078  | 7-1                   | EJ316156  | 3-J2                  | ET639437  | 3-TR9T014             | TC329369  | 2-40                  |
| BD600080  | 7-2                   | EJ321328  | 3-J1                  | ET639437  | 3-TR18                | ZG312943  | 2-38                  |
| BF200102  | 2-32                  | EJ324276  | 6-3                   | ET639437  | 3-TR28                | ZG312945  | 1-12                  |
| BH329370  | 2-1                   | EL200096  | 2-18                  | ET639437  | 4-TR3                 | ZG312946  | 2-10                  |
| BK328417  | 2-20                  | EM328721  | 7-5                   | ET639437  | 4-TR5                 | ZG312997  | 2-11                  |
| BK328528  | 2-21                  | EM328722  | 7-6                   | ET639437  | 4-TR7,8               | ZG321487  | 2-61                  |
| BL328426  | 1-4                   | EO315758  | 3-FL3                 | ET639437  | 4-TR13                | ZG324329  | 2-54                  |
| BL328427  | 2-46                  | EO321336  | 3-VL1                 | ET639437  | 4-TR20T022            | ZG328305  | 2-5                   |
| BM329350  | 1-13                  | EO328485  | 3-T1                  | EV300154  | 3-VR4                 | ZG328352  | 2-51                  |
| BM329353  | 2-15                  | EP328419  | 2-31                  | EV315412  | 3-VR1                 | ZG328361  | 1-2                   |
| BR328424  | 1-5                   | EP328420  | 2-29                  | EV315412  | 3-VR7                 | ZG329433  | 2-27                  |
| BR328425  | 1-9                   | ER200595  | 3-FR1                 | EV315413  | 3-VR2                 | ZS302318  | 2-34                  |
| BR328517  | 1-1                   | ER200972  | 4-FR1                 | EV315413  | 3-VR5,6               | ZS303936  | 2-4                   |
| BT328401  | 6-4                   | ER201803  | 3-FR2                 | EV315414  | 3-VR3                 | ZS310588  | 7-21                  |
| BT328402  | 6-5                   | ER325381  | 3-FR4,5               | EV329416  | 6-2                   | ZS313486  | 6-12                  |
| BZ329351  | 1-15                  | ER328490  | 3-FL1                 | EW306427  | 6-8                   | ZS314702  | 6-6                   |
| BZ329366  | 2-25                  | ER328491  | 3-FL2                 | EW306428  | 6-7                   | ZS315878  | 7-20                  |
| BZ329374  | 2-43                  | ER328520  | 3-FR3                 | EZ328406  | 5-X1                  | ZS321338  | 2-16                  |
| BZ329375  | 2-44                  | ES310839  | 4-SW1                 | EZ631945  | 6-9                   | ZS325495  | 2-19                  |
| EC200592  | 3-C18                 | ES315159  | 4-SW1                 | HE321585  | 2-2                   | ZS328347  | 2-64                  |
| EC200593  | 3-C20                 | ES315748  | 3-SW2                 | HP319079  | 2-13                  | ZS329443  | 2-63                  |
| EC315966  | 4-C4                  | ES321274  | 3-SW3                 | HZ328306  | 2-12                  | ZS329445  | 2-62                  |
| EC316230  | 4-C10                 | ES328415  | 3-SW4                 | HZ328307  | 2-6                   | ZS430413  | 1-14                  |
| EC320454  | 3-C4                  | ES328416  | 2-28                  | MB282104  | 1-11                  | ZS477876  | 2-14                  |
| EC320454  | 3-C15                 | ES328430  | 2-39                  | MB282778  | 2-17                  | ZS590804  | 2-3                   |
| EC320454  | 3-C51                 | ES328530  | 3-SW5                 | MB328323  | 2-47                  | ZS590804  | 2-8                   |
| EC320548  | 4-C1                  | ET200596  | 3-TR19                | MB328324  | 2-58                  | ZW201610  | 1-10                  |
| EC325380  | 3-C53                 | ET300044  | 3-TR15                | MC328723  | 2-41                  | ZW259492  | 2-49                  |
| ED306109  | 4-D6,7                | ET301464  | 3-TR8                 | MC328725  | 2-42                  | ZW270088  | 1-3                   |
| ED306109  | 4-D9,10               | ET307349  | 4-TR2                 | ML328337  | 2-53                  | ZW270088  | 2-30                  |
| ED308945  | 4-D1                  | ET308937  | 4-TR9                 | ML328513  | 2-35                  | ZW270101  | 2-9                   |
| ED308952  | 3-D1                  | ET308937  | 4-TR14                | MP319580  | 2-36                  | ZW270101  | 2-37                  |
| ED308952  | 3-D10,11              | ET308954  | 3-TR1                 | MT305793  | 1-8                   | ZW290283  | 2-26                  |
| ED309357  | 4-D2                  | ET308954  | 3-TR5                 | MV328322  | 2-45                  | ZW305013  | 7-28                  |
| ED313846  | 4-D20                 | ET309343  | 3-TR7                 | MV368886  | 2-56                  | ZW305546  | 1-7                   |
| ED316143  | 5-D1                  | ET309353  | 4-TR11                | MZ283140  | 4-VS1                 | ZW309295  | 2-33                  |
| ED316143  | 5-D5                  | ET309353  | 4-TR16                | SA306240  | 6-11                  | ZW329422  | 2-50                  |
| ED317594  | 5-D2,3                | ET310920  | 3-TR24                | SB316316  | 7-8                   | ZW329448  | 2-52                  |
| ED319167  | 4-D3                  | ET311868  | 4-TR12                | SB316317  | 7-9                   | ZW536466  | 1-6                   |
| ED322772  | 2-22                  | ET311868  | 4-TR17                | SB316498  | 7-12                  | ZW591265  | 2-7                   |
| ED322773  | 6-1                   | ET324134  | 4-TR10                | SB316499  | 7-13                  | ZW694798  | 2-48                  |
| ED328700  | 3-D15                 | ET324134  | 4-TR15                | SE325784  | 7-14                  | ZW698308  | 7-7                   |
| ED328701  | 2-23                  | ET328435  | 5-TR2T05              | SE329408  | 7-15                  |           |                       |
| ED329449  | 4-D4                  | ET328436  | 5-TR1                 | SK325785  | 7-22                  |           |                       |
| ED560913  | 3-D2T09               | ET328436  | 5-TR7T012             | SK325786  | 7-23                  |           |                       |
| ED560913  | 3-D12T014             | ET328437  | 3-TR21,22             | SK325787  | 7-24                  |           |                       |
| ED560913  | 3-D16,17              | ET328437  | 4-TR1                 | SK325788  | 7-25                  |           |                       |
| ED560913  | 4-D5                  | ET328437  | 4-TR26,27             | SK328387  | 7-16                  |           |                       |
| ED560913  | 4-D8                  | ET328438  | 4-TR24,25             | SK328388  | 7-17                  |           |                       |
| ED560913  | 4-D11T014             | ET328440  | 4-TR4                 | SK328391  | 7-10                  |           |                       |
| ED560913  | 4-D18,19              | ET375603  | 4-TR6                 | SK328392  | 7-11                  |           |                       |
| ED560913  | 4-D21T028             | ET402682  | 3-TR16                | SP200161  | 7-26                  |           |                       |
| ED560913  | 5-D4                  | ET554657  | 3-TR23                | SP200162  | 7-27                  |           |                       |
| EF306949  | 6-13                  | ET563905  | 3TR17                 | SP328379  | 6-10                  |           |                       |

## SECTION 3

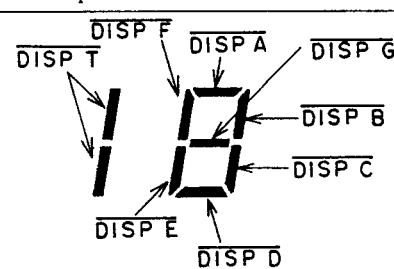
# SCHEMATIC DIAGRAM

1. SCHEMATIC DIAGRAM OF ICs
2. GX-F15 NO. 2-1 1602210A SCHEMATIC DIAGRAM
3. GX-F15 NO. 2-2 1602211A SCHEMATIC DIAGRAM

LM6405A-012



## LM6405A-012's Terminal Function

| CATEGORY                                                         | PIN NAME         | PIN NO. | FUNCTION                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|------------------------------------------------------------------|------------------|---------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Operation Key Input                                              | STOP             | 37      | STOP Key Input .....                                                                 | Input to stop action                                                                                                                                                                                                                                                                                                                                                                                         |  |
|                                                                  | FF               | 38      | FF Key Input.....                                                                    | Input to order fast forward                                                                                                                                                                                                                                                                                                                                                                                  |  |
|                                                                  | REW              | 39      | REW Key Input .....                                                                  | Input to order rewind                                                                                                                                                                                                                                                                                                                                                                                        |  |
|                                                                  | PLAY             | 40      | PLAY Key Input .....                                                                 | Input to order playback                                                                                                                                                                                                                                                                                                                                                                                      |  |
|                                                                  | REC              | 8       | REC Key Input .....                                                                  | Input to order recording, effective along with PAUSE or PLAY                                                                                                                                                                                                                                                                                                                                                 |  |
|                                                                  | PAUSE            | 9       | PAUSE Key Input .....                                                                | Input to order momentary stop                                                                                                                                                                                                                                                                                                                                                                                |  |
| Mechanical Drive Output                                          | REC MUTE         | 10      | REC MUTE Key Input .....                                                             | Input to order no-signal recording (auto spacer input)                                                                                                                                                                                                                                                                                                                                                       |  |
|                                                                  | O. FF            | 22      | Signal so that it becomes L at FF.                                                   | Output for reel motor and FF lamp drivers                                                                                                                                                                                                                                                                                                                                                                    |  |
|                                                                  | O. REW           | 23      | Signal so that it becomes L at REW.                                                  | Output for reel motor and REW lamp drivers                                                                                                                                                                                                                                                                                                                                                                   |  |
|                                                                  | PLAY PLG         | 24      | Signal to make it L at..... PLAY or PAUSE.                                           | For plunger which pulls head                                                                                                                                                                                                                                                                                                                                                                                 |  |
| Amplifier Control Output                                         | BRAKE PLG        | 25      | Signal to make it L at..... FF, REW and PLAY                                         | For plunger which releases brake                                                                                                                                                                                                                                                                                                                                                                             |  |
|                                                                  | O. PB MUTE       | 26      | Playback mute output                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | O. REC MUTE      | 27      | Recording mute output                                                                |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | O. REC           | 28      | Output to change recording                                                           |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| Output to drive mode indicator lamps                             | OSC DRIVE        | 29      | Output to drive bias oscillator                                                      |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | PLAY LAMP        | 30      | Output to drive PLAY lamp                                                            |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| Output for number of selections skipped by IPLS/time of REC MUTE | MUTE LAMP        | 31      | Output to drive MUTE lamp                                                            |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | PAUSE LAMP       | 32      | Output to drive Pause lamp                                                           |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | DISP D           | 12      |  |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | DISP C           | 13      |                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | DISP E           | 14      |                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | DISP T           | 15      |                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | DISP F           | 16      |                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | DISP A           | 17      |                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| DISP B                                                           | 18               |         |                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| DISP G                                                           | 19               |         |                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| Auto function IPLS program clear                                 | DIN 1            | 33      | Input signal for key scan return                                                     | <ul style="list-style-type: none"><li>• Selects auto function when key scan output is added to key scan return signal input via diode.</li><li>• Input SCAN 1 to DIN 1 — DIN 3.</li><li>• Input SCAN 1 to DIN 4..... IPLS</li><li>• Input SCAN 2 to DIN 1..... PROGRAM (input to set IPLS number of selection to skip)</li><li>• Input SCAN 2 to DIN 2..... CLEAR (clear of IPLS selection number)</li></ul> |  |
|                                                                  | DIN 2            | 34      |                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | DIN 3            | 35      |                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | DIN 4            | 36      |                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | SCAN 1           | 2       | Key scan output                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | SCAN 2           | 3       |                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | SCAN 3           | 4       |                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| Others                                                           | CNTR ZERO        | 5       | Counter 0 input signal                                                               |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | TAPE PULSE       | 6       | Tape travel pulse input signal                                                       |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | BOP              | 11      | Signal input between selections for IPLS                                             |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| Terminal for oscillator circuit                                  | E X'tal<br>X'tal | 42<br>1 | Occurrence of standard signal for inside action                                      |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| Test terminal                                                    | TEST             | 20      | Input to test inside circuit (When used generally at 0V)                             |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
| Power Supply                                                     | VDD              | 41      | +5V                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|                                                                  | VSS              | 21      | 0V                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                              |  |



