

# DENON

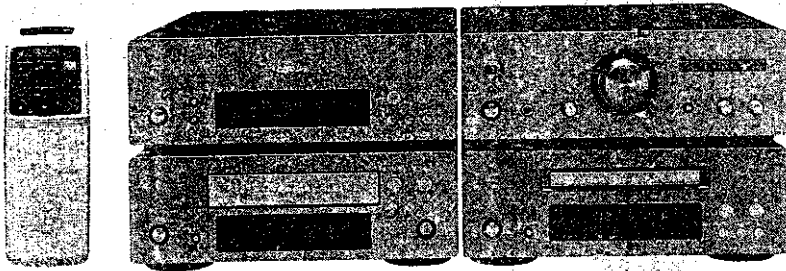
Hi-Fi Personal Component System

Europe Model

## SERVICE MANUAL

### PERSONAL COMPONENT SYSTEM D-F10

- UNIT No. UTU-F10 (AM, FM Stereo Tuner)
- UNIT No. UPA-F10 (Pre-Main Amplifier)
- UNIT No. UCD-F10 (Compact Disc Player)
- UNIT No. UDR-F10 (Cassette Tape Deck)



**COMPACT disc**  
DIGITAL AUDIO

• The D-F10 Personal Component System consists of the following:

|                          |         |
|--------------------------|---------|
| AM, FM Stereo Tuner Unit | UTU-F10 |
| Remote Control Unit      | RC-172  |
| Pre-Main Amplifier Unit  | UPA-F10 |
| CD player Unit           | UCD-F10 |
| Cassette Deck Unit       | UDR-F10 |

## MAIN FEATURES

DF10

- **RDS compatible**  
Compatible with various RDS services, including program service name (PS), program type identification (PTY), traffic program identification (TP) and clock time (CT).
- **Quality power for high quality sound**  
55W + 55W (4 ohm DIN) high quality amplifier and terminals for large speakers.
- **High sound quality, multi-function CD player**  
Edit function for automatically dividing the tracks on a CD for recording onto sides A and B of a tape. S.L.C for playback with high quality sound.
- **Cassette deck with Dolby B, C and HX-Pro circuits**  
For playback and recording of high quality sound.

- **Two types of timers**  
Two timer settings can be made – everyday and sleep.
- **Easy-to-use remote control unit**  
The most frequently used keys are located on the front, with the remaining keys enclosed under a sliding cover.
- **Auto on function**  
The power turns on automatically and playback begins when the play button on the CD player or the cassette deck or the tuner preset up/down buttons on the remote control unit are pressed.

## BEFORE USING

- **Moving the system**  
To prevent short-circuiting or damage of connection cords, be sure to unplug the power cord and disconnect all connection cords before moving the system.  
In addition, always remove CDs before moving the system. If not, the CD may be scratched.
- **Before turning the power on**  
Check again that all connections are proper and that the connection cords are not damaged. Always set the power switch to the STANDBY position before disconnecting connection cords.

- Humming may be produced if the system is set near a TV set or other audio component or its connection cords. If this happens, try changing the position of the equipment and connection cords.
- Do not move the system abruptly from a cold place to a warm place, as this may cause dew (water droplets) to form in the set, preventing proper operation. If this happens, wait one hour before using the system.
- **Be sure to keep this manual**  
The illustrations used in this manual may differ from the actual system.

Check that the following parts are included in the package aside from the main unit:

- **UPA-F10 (pre-main amplifier unit)**
  - Remote control unit (RC-172) ..... 1
  - R6P/AA batteries ..... 2
  - Operating instructions ..... 1
- **UTU-F10 (AM/FM stereo tuner)**
  - FM antenna ..... 1
  - AM loop antenna ..... 1
  - System connector cable ..... 1
  - RCA pin-plug cord ..... 1
  - AC cord ..... 1
  - Inst. Sheet ..... 1

- **UCD-F10 (compact disc player)**
  - System connector cable ..... 1
  - RCA pin-plug cord ..... 1
  - AC cord ..... 1
  - Inst. Sheet ..... 1
- **UDR-F10 (cassette tape deck)**
  - System connector cable ..... 1
  - RCA pin-plug cord ..... 2
  - Inst. Sheet ..... 1

**NIPPON COLUMBIA CO., LTD.**

GENERAL SECTION

GENERAL SECTION

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SPECIFICATIONS

- Pre-main amplifier (UPA-F10)**  
**Practical maximum output:** 55 W + 55 W (4 ohms DIN)  
**Low frequency adjustment range:** 100 Hz ±8 dB  
**High frequency adjustment range:** 10 kHz ±8 dB  
**Audio input / output jacks:** CD input jacks, tape input/output jacks, tuner input jacks, MD/AUX input/output jacks, processor loop jacks, 6.3mm headphones jack and phono input jacks  
**AC 230 V, 50 Hz**  
**Power supply:** 130 W  
**Power consumption:** 270 (W) × 96 (H) × 342 (D) mm (10-5/8" × 3-25/32" × 13-15/32") (including feet, controls and terminals)  
**Maximum external dimensions:** 4.5 kg (9 lbs. 15 oz)  
**Weight:**
  - Tuner (UTU-F10)**  
**Reception frequency band:** FM: 87.50 MHz – 108.00 MHz  
AM: 522 kHz – 1611 kHz  
**Reception sensitivity:** FM: 1.5 μ/75 ohms  
AM: 20 μV  
40 dB (1 kHz)  
**FM stereo separation:** AC 230 V, 50 Hz  
**Power supply:** 8 W  
**Power consumption:** 270 (W) × 96 (H) × 318 (D) mm (10-5/8" × 3-25/32" × 12-33/64") (including feet, controls and terminals)  
**Maximum external dimensions:** 2.8 kg (6 lbs. 3 oz)  
**Weight:**
  - CD player (UCD-F10)**  
**Wow & flutter:** Below measurable limits (±0.001% W. peak)  
44.1 kHz  
Semiconductor  
**Optical source:** AC 230 V, 50 Hz  
**Power supply:** 8 W  
**Power consumption:** 270 (W) × 96 (H) × 315 (D) mm (10-5/8" × 3-25/32" × 12-13/32") (including feet, controls and terminals)  
**Maximum external dimensions:** 3.3 kg (7 lbs. 5 oz)  
**Weight:**
  - Cassette deck (UDR-F10)**  
**Type:** Horizontal 4-track 2-channel stereo cassette deck  
**Heads:** 1 hard permalloy recording/playback head  
1 double-gap ferrite erasing head  
4.75 cm/s  
Dolby B and C NR, Dolby HX Pro  
**Tape speed:** Normal, chrome and metal  
**Included circuits:** AC 230 V, 50 Hz  
**Usable tapes:** AC 230 V, 50 Hz  
**Power supply:** 13 W  
**Power consumption:** 270 (W) × 96 (H) × 313 (D) mm (10-5/8" × 3-25/32" × 12-21/64") (including feet, controls and terminals)  
**Maximum external dimensions:** 3.8 kg (8 lbs. 6 oz)  
**Weight:**
  - Remote control unit (RC-172)**  
**Remote control system:** Infrared pulse  
**Number of buttons:** 50  
**Power supply:** Two DC 1.5 V R6P/AA batteries  
**Maximum external dimensions:** 57 (W) × 197 (H) × 21 (D) mm (2-1/4" × 7-3/4" × 53/64")  
**Weight:** 130 g (including batteries) (Approx. 4.6 oz)
- \* Maximum dimensions include controls, jacks, and covers.  
(W) = width, (H) = height, (D) = depth
- For improvement purposes, specifications and functions are subject to change without advanced notice.
  - Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.
  - "DOLBY", the double-D symbol  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

PACKING & ACCESSORIES PARTS LIST

| Ref. No. | Part No.     | Part Name                  | Remarks          | Qty            |
|----------|--------------|----------------------------|------------------|----------------|
| 1        | UTU F10      | Tuner Unit                 | Tuner            | 1 <sup>S</sup> |
| 2        | UPA F10      | Pre-Main Amp Unit          | Amp.             | 1 <sup>S</sup> |
| 3        | UCDF10       | CD Player Unit             | CD Player        | 1 <sup>S</sup> |
| 4        | UDR F10      | Cassette Deck Unit         | Cassette Deck    | 1 <sup>S</sup> |
| 5        | GEN 2740     | Envelope Sub. Ass'y-1      | included UTU-F10 | 1 <sup>S</sup> |
| 5-1      | 505 9125 009 | :Poly Cover                |                  | (1)            |
| 5-2      | 231 1914 003 | Loop Antenna               |                  | (1)            |
| 5-3      | 395 0021 000 | FM Ant. Ass'y              |                  | (1)            |
| 5-4      | 203 2310 009 | 2P Pin Cord                | L=1000           | (1)            |
| 5-5      | 203 2315 004 | Stereo Miniplug Cord Ass'y | L=500            | (1)            |
| 5-6      | 206 2108 003 | :AC Conn. with Plug        |                  | (1)            |
| 5-7      | 511 2653 007 | Inst. Sheet                |                  | (1)            |
| 6        | GEN 2738     | Envelope Sub Ass'y-2       | included UPA-F10 | 1 <sup>S</sup> |
| 6-1      | 505 8006 019 | Envelope                   |                  | (1)            |
| 6-2      | 511 2614 004 | Inst. Manual               | E.G.F.IT         | (1)            |
| 6-3      | 511 2615 003 | Inst. Manual               | ES,NL,S,PO       | (1)            |
| 6-4      | 399 0235 005 | Remote Control Unit        | RC-172           | (1)            |
| 6-5      | -            | Batteries                  | R6P/AA/UM-3      | (2)            |

| Ref. No. | Part No.     | Part Name                  | Remarks          | Qty            |
|----------|--------------|----------------------------|------------------|----------------|
| 7        | GEN 2742     | Envelope Sub. Ass'y-3      | included UCD-F10 | 1 <sup>S</sup> |
| 7-1      | 505 9125 009 | :Poly Cover                |                  | (1)            |
| 7-2      | 203 2310 009 | 2P Pin Cord                | L=1000           | (1)            |
| 7-3      | 203 2315 004 | Stereo Miniplug Cord Ass'y | L=500            | (1)            |
| 7-4      | 206 2108 003 | :AC Conn. with Plug        |                  | (1)            |
| 7-5      | 511 2654 006 | Inst. Sheet                |                  | (1)            |
| 8        | GEN 2744     | Envelope Sub. Ass'y-4      | included UDR-F10 | 1 <sup>S</sup> |
| 8-1      | 505 8006 019 | Envelope                   |                  | (1)            |
| 8-2      | 203 2223 002 | 2P Pin Cord                | L=1000           | (2)            |
| 8-3      | 203 2315 004 | Stereo Miniplug Cord Ass'y | L=500            | (1)            |
| 8-4      | 511 2651 009 | Inst. Sheet                |                  | (1)            |

SPEAKER SYSTEM PARTS LIST

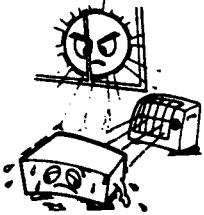


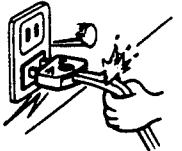
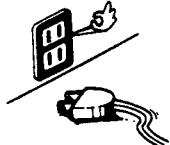
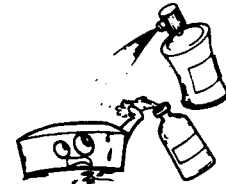
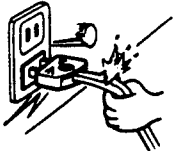


| Ref. No. | Part No.     | Part Name           | Remarks        | Qty            |
|----------|--------------|---------------------|----------------|----------------|
| 1        | SCF 10       | Speaker System      | Speaker System | 1 <sup>S</sup> |
| 2        | SCF 1000 119 | Envelope Sub. Ass'y |                | 1 <sup>S</sup> |
| 2-1      | SCF 1000 111 | Envelope            |                | (2)            |
| 2-2      | 009 0107 007 | Out Put Cord Ass'y  | L=2000         | (1)            |
| 3        | 511 2644 003 | Inst. Manual        |                | (1)            |
| 4        | -            | -                   | -              | (1)            |

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

VAROITUS! LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSATEILYLLE.

WARNING- OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS. KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.

## NOTE ON USE/HINWEISE ZUM GEBRAUCH/OBSERVATIONS RELATIVES A L'UTILISATION NOTE SULL'USO

|   |   |   |
|---|---|---|
|  <ul style="list-style-type: none"> <li>• Avoid high temperatures. Allow for sufficient heat dispersion when installed on a rack.</li> <li>• Vermeiden Sie hohe Temperaturen. Beachten Sie, daß eine ausreichend Luftzirkulation gewährleistet wird, wenn das Gerät auf ein Regal gestellt wird.</li> <li>• Éviter des températures élevées. Tenir compte d'une dispersion de chaleur suffisante lors de l'installation sur une étagère.</li> <li>• Evitare di esporre l'unità a temperature alte. Assicurarsi che ci sia un'adeguata dispersione del calore quando installate l'unità in un mobile per componenti audio.</li> </ul> |  <ul style="list-style-type: none"> <li>• Keep the set free from moisture, water, and dust.</li> <li>• Halten Sie das Gerät von Feuchtigkeit, Wasser und Staub fern.</li> <li>• Protéger l'appareil contre l'humidité, l'eau et la poussière.</li> <li>• Tenete l'unità lontana dall'umidità, dall'acqua e dalla polvere.</li> </ul>   |  <ul style="list-style-type: none"> <li>• Do not let foreign objects in the set.</li> <li>• Keine fremden Gegenstände in das Gerät kommen lassen.</li> <li>• Ne pas laisser des objets étrangers dans l'appareil.</li> <li>• E' importante che nessun oggetto è inserito all'interno dell'unità.</li> </ul>  |
|  <ul style="list-style-type: none"> <li>• Handle the power cord carefully. Hold the plug when unplugging the cord.</li> <li>• Gehen Sie vorsichtig mit dem Netzkabel um. Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen.</li> <li>• Manipuler le cordon d'alimentation avec précaution.</li> <li>• Tenir la prise lors du débranchement du cordon.</li> <li>• Maneggiare il filo di alimentazione con cura. Agitare per la spina quando scollegate il cavo dalla prese.</li> </ul>   |  <ul style="list-style-type: none"> <li>• Unplug the power cord when not using the set for long periods of time.</li> <li>• Wenn das Gerät eine längere Zeit nicht verwendet werden soll, trennen Sie das Netzkabel vom Netzstecker.</li> <li>• Débrancher le cordon d'alimentation lorsque l'appareil n'est pas utilisé pendant de longues périodes.</li> <li>• Disinnestate il filo di alimentazione quando avete l'intenzione di non usare il filo di alimentazione per un lungo periodo di tempo.</li> </ul> |  <ul style="list-style-type: none"> <li>• Do not let insecticides, benzene, and thinner come in contact with the set.</li> <li>• Lassen Sie das Gerät nicht mit Insektiziden, Benzin oder Verdünnungsmitteln in Berührung kommen.</li> <li>• Ne pas mettre en contact des insecticides, du benzène et un diluant avec l'appareil.</li> <li>• Assicurarsi che l'unità non venga in contatto con insetticidi, benzolo o solventi.</li> </ul> |
|  <ul style="list-style-type: none"> <li>• Handle the power cord carefully. Hold the plug when unplugging the cord.</li> <li>• Gehen Sie vorsichtig mit dem Netzkabel um. Halten Sie das Kabel am Stecker, wenn Sie den Stecker herausziehen.</li> <li>• Manipuler le cordon d'alimentation avec précaution.</li> <li>• Tenir la prise lors du débranchement du cordon.</li> <li>• Maneggiare il filo di alimentazione con cura. Agitare per la spina quando scollegate il cavo dalla prese.</li> </ul>   |  <p>*(For sets with ventilation holes)</p> <ul style="list-style-type: none"> <li>• Do not obstruct the ventilation holes.</li> <li>• Die Belüftungsöffnungen dürfen nicht verdeckt werden.</li> <li>• Ne pas obstruer les trous d'aération.</li> <li>• Non coprite i fori di ventilazione.</li> </ul>   |  <ul style="list-style-type: none"> <li>• Never disassemble or modify the set in any way.</li> <li>• Versuchen Sie niemals das Gerät auseinander zu nehmen oder auf jegliche Art zu verändern.</li> <li>• Ne jamais démonter ou modifier l'appareil d'une manière ou d'une autre.</li> <li>• Non smontate mai, né modificate l'unità in nessun modo.</li> </ul>  |

### CAUTION/VORSICHT/ATTENTION/AVVISO

- If the system should smoke or produce strange smells, immediately set the power switch to the STANDBY position, unplug the power cord, and contact your store of purchase.
- Sollte das Gerät Rauch produzieren oder eigenartig riechen, stellen Sie den Netzschalter sofort auf die Position STANDBY (Bereitschaft), ziehen Sie den Netzstecker heraus und kontaktieren Sie Ihren Händler.
- Si de la fumée sort de la chaîne ou des odeurs bizarres, placer l'interrupteur d'alimentation immédiatement sur la position de veille (STANDBY), débrancher le cordon d'alimentation et contacter le distributeur.
- Qualora il sistema dovesse produrre del fumo o degli odori strani, collocare immediatamente l'interruttore di accensione nella posizione STANDBY, disinnestate il filo di alimentazione e rivolgetevi al negozio dell'acquisto.

"SERIAL NO. \_\_\_\_\_  
PLEASE RECORD UNIT SERIAL NUMBER ATTACHED TO THE REAR OF THE  
CABINET FOR FUTURE REFERENCE"

## SAFETY IMPORTANT

### WARNING:

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

## •NUR FÜR EUROPÄISCHE MODELLE

### Konformitätserklärung

Die DENON Electronic GmbH  
Halskestraße 32  
40880 Ratingen

Erklärt als Hersteller/Importeur, daß das in dieser Bedienungsanleitung beschriebene Gerät den Technischen Vorschriften für Ton- und Fernseh-Rundfunkempfänger nach der Amtsblattverfügung 868/1989 (Amtsblatt des Bundesministers für Post und Telekommunikation vom 31. 8. 1989) entspricht.

### CLASS 1 LASER PRODUCT LUOKAN 1 LASERLAITE KLASS 1 LASERAPPARAT

ADVARNSEL: USYNLIG LASERSTRÅLING VED ÅBNING. NÅR SIKKERHEDSÅPBEVAREDE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.

VAROITUS: LAITTEEN KÄYTTÄMINEN MUULLA KUUN TÄSSÄ KÄYTTÖOHJEISSA MAINITULLA TAVALLA SAATTAA ALTIISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITÄVÄLLE NÄKYMÄTTÖMÄLLE LASERÄTÄLTYLLE.

VARNING: OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTEÅTTAS FÖR ÖBYNLIG LASERSTRÅLNING SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.

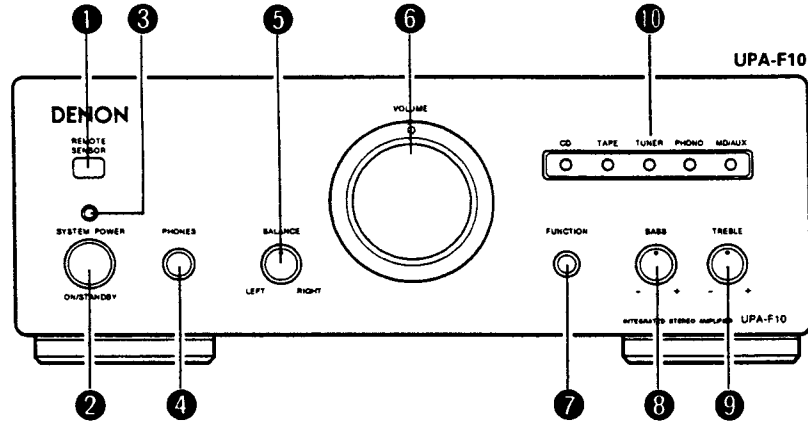
"CLASS 1  
LASER PRODUCT"



# FRONT PANEL/FRONTPLATTE/PANNEAU AVANT/PANNELLO ANTERIORE

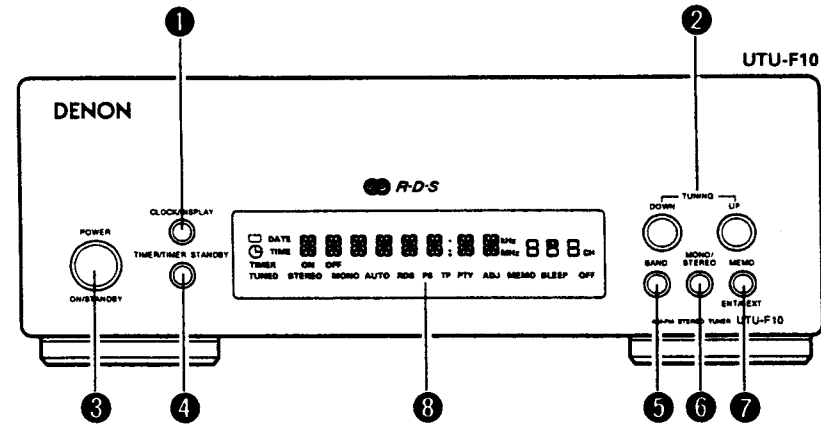
**PRE-MAIN AMPLIFIER**  
**VORVERSTÄRKER**  
**AMPLIFICATEUR-PRÉAMPLIFICATEUR**  
**PREAMPLIFICATORE PRINCIPALE**

See ENGLISH Page 6  
 Sehen Sie DEUTSCH Seite 30  
 Voir FRANÇAIS Page 54  
 Fate riferimento alla sezione ITALIANO alla pagina 78



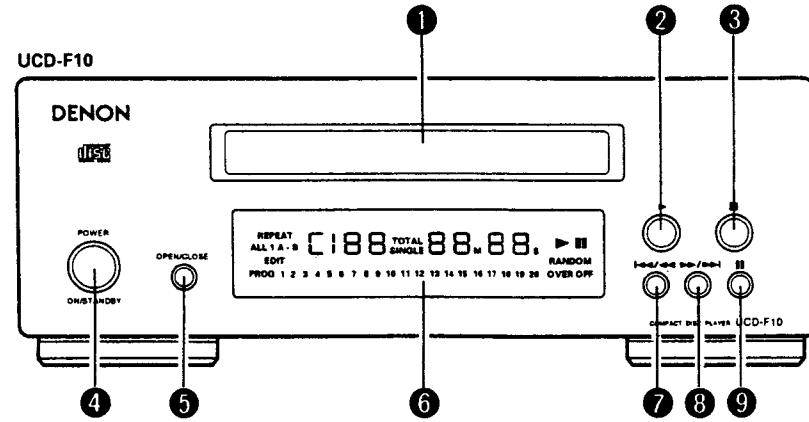
**STEREO TUNER**  
**STEREO EMPFÄNGER**  
**TUNER STÉRÉO**  
**SINTONIZZATORE STEREO**

See ENGLISH Page 6  
 Sehen Sie DEUTSCH Seite 30  
 Voir FRANÇAIS Page 54  
 Fate riferimento alla sezione ITALIANO alla pagina 78



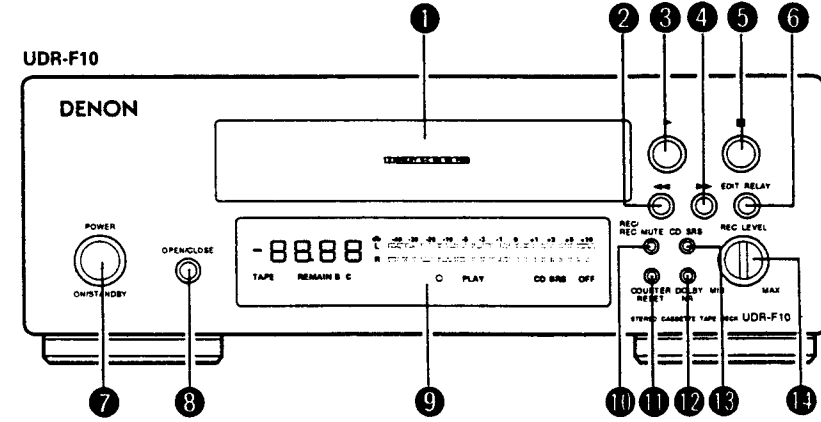
**CD PLAYER**  
**CD-SPIELER**  
**LECTEUR CD**  
**DISPLAY DELLA PIASTRA A CASSETTE**

See ENGLISH Page 7  
 Sehen Sie DEUTSCH Seite 31  
 Voir FRANÇAIS Page 55  
 Fate riferimento alla sezione ITALIANO alla pagina 79



**CASSETTE DECK**  
**CASSETTENECK**  
**PLATINE CASSETTE**  
**PIASTRA A CASSETTE**

See ENGLISH Page 8  
 Sehen Sie DEUTSCH Seite 32  
 Voir FRANÇAIS Page 56  
 Fate riferimento alla sezione ITALIANO alla pagina 80



- As an aid to better understanding the operation method, the illustrations used in this manual may differ from the actual system.
- Als Hilfestellung zum besseren Verständnis der Betriebsmethode, erlauben wir uns den Hinweis, daß sich die Abbildungen in dieser Bedienungsanleitung leicht von dem aktuellen System unterscheiden.
- Pour faciliter la compréhension de la méthode de fonctionnement, les illustrations utilisées dans ce manuel peuvent être différentes de celles de la chaîne réelle.
- Per rendere la spiegazione del metodo operativo più facile, le illustrazioni usate in questo libretto delle istruzioni possono differire dal sistema stesso.

## 5 PART NAMES, FUNCTIONS AND DISPLAYS

### PRE-MAIN AMPLIFIER

- 1 **REMOTE SENSOR**  
When operating the remote control unit, point it at this sensor.
- 2 **SYSTEM POWER switch**  
(This turns the power for the entire system on and off.)  
Press this once to turn the power on, then press again to set the power to the standby mode.
- 3 **Power indicator**  
This lights when the power cord is plugged into a power outlet, and flashes for 5 seconds after the system power is turned on.
- 4 **PHONES (headphones jack)**  
Plug the headphones into this jack.  
No sound is produced from the speakers when headphones are plugged in.
- 5 **BALANCE control**  
Use this to adjust the balance of the volume between the left and right channels. When set at the center position, the volume is the same for the left and right channels.

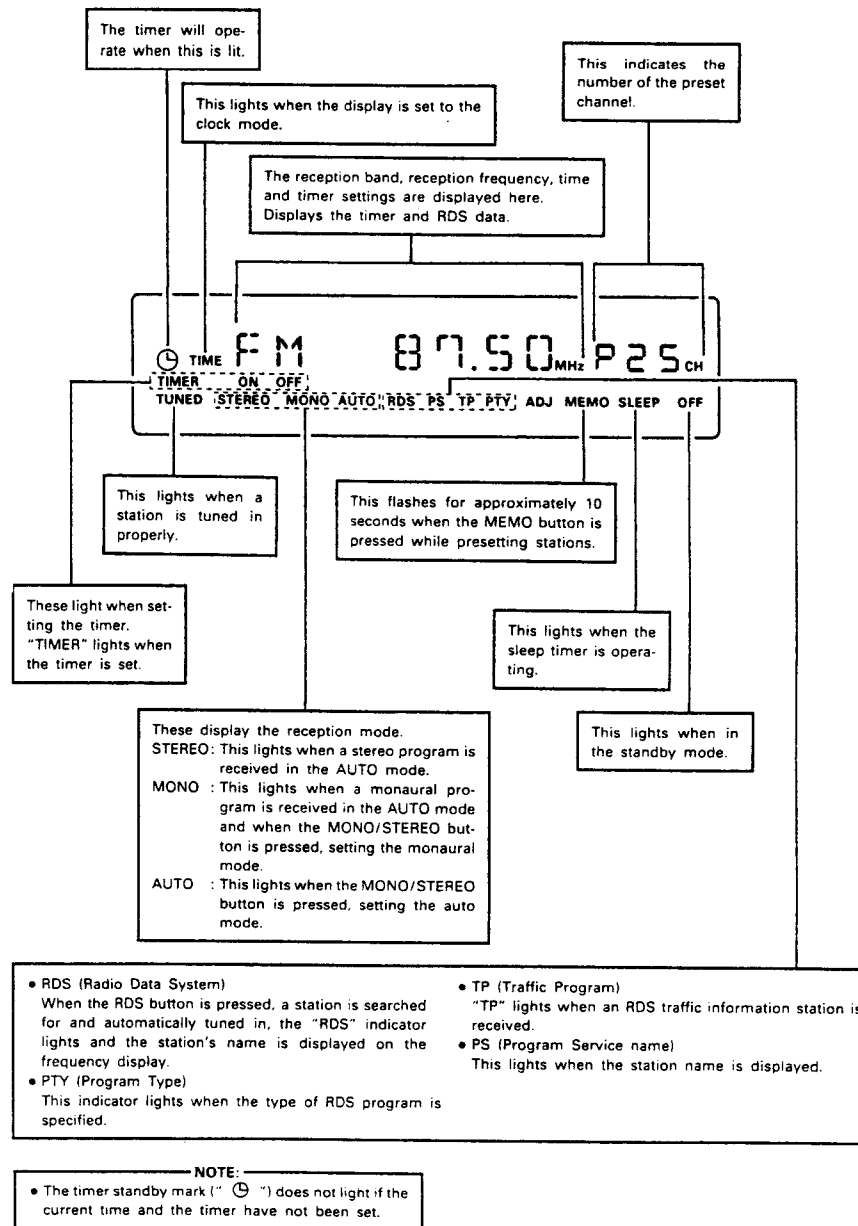
### TUNER

- 1 **CLOCK/DISPLAY selector button**  
This button is used to switch the display between the reception frequency and the clock.
- 2 **TUNING UP and DOWN buttons**  
These buttons are used to select AM and FM stations and to set the clock and timer.
- 3 **POWER switch**  
Press this button once to turn the tuner's power on, then press again to set the tuner to the standby mode. In the standby mode, "OFF" appears on the display.
- 4 **TIMER/TIMER STANDBY button**  
Press this when setting the timer and to turn the timer on so that it operates at the set times.  
When the button is pressed after the timer has been set, the timer standby mark ("⌚") appears on the display. Press again to turn the mark off.  
The timer will not operate when the "⌚" mark is off.

- 6 **VOLUME control**  
Use this to adjust the overall volume.  
The volume increases when the control is turned clockwise (↻) and decreases when it is turned counterclockwise (↺).
- 7 **FUNCTION (input) selector button**  
Use this to select the input (function).  
The input changes in the following order each time this button is pressed: CD, TAPE, TUNER, PHONO, MD/AUX. (The function changes automatically when the system's CD player or cassette deck is played or when a preset channel is recalled on the tuner.)
- 8 **BASS control**  
Use this to adjust the volume of the low frequencies.
- 9 **TREBLE control**  
Use this to adjust the volume of the high frequencies.
- 10 **Function indicators**  
These light to indicate the currently selected function.

- 5 **BAND (AM/FM) selector button**  
The band switches between AM and FM each time this button is pressed.
- 6 **MONO/STEREO selector button**  
**AUTO mode:** Use this mode to receive programs in stereo.  
The sound and the indicators on the display automatically switch between monaural ("MONO") and stereo ("STEREO") according to whether the program is being broadcast in monaural or stereo.  
**MONO mode:** Use this mode to receive programs in monaural, regardless of whether they are being broadcast in monaural or stereo.  
Set this mode if there is much noise or if the signals are weak when receiving stereo programs (when "AUTO" is lit).
- 7 **MEMO ENT/NEXT button**  
This button is used to preset AM and FM stations and when setting the timer.
- 8 **Display**

### TUNER DISPLAY



## 4 CONNECTIONS

### NOTE:

This system includes digital circuitry which may cause interference such as color blotching or changes in the color on TVs. If this happens, move the system and the TV as far apart as possible.

Use a record player with an MM cartridge

- Disconnect the ground cord if humming or noise is produced when it is connected.

- For instructions on connection and operation of an optional MD player, refer to the MD player's operating instructions.

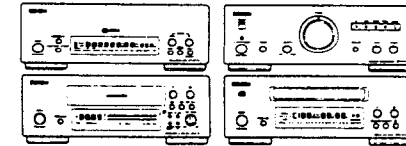
MD player, video deck, LD player, etc

### Connecting the speaker systems

Connect the speaker system for the left channel (the left side as seen from the front) to the "L" terminals. The speaker system for the right channel to the "R" terminals. Be sure to use speaker systems with an impedance of 4 ohm or greater.

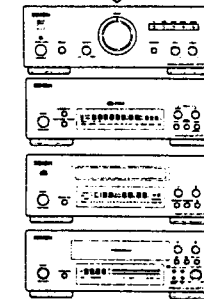
### CAUTION:

Whenever the power switch is in the STANDBY position, the unit is still connected on AC line voltage. Please be sure to unplug the cord when you leave home for, say, a vacation.

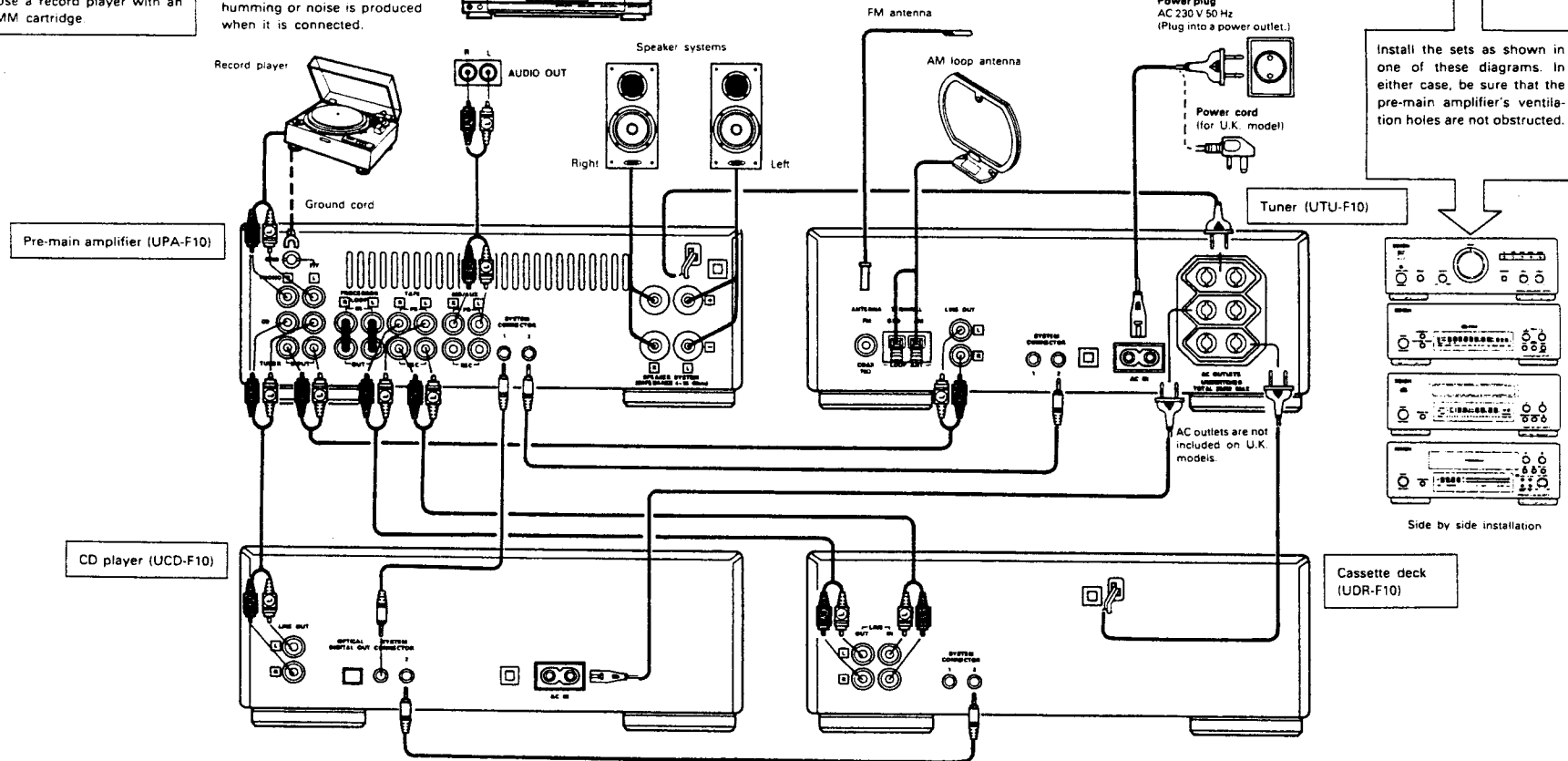


Side by side installation

Install the sets as shown in one of these diagrams. In either case, be sure that the pre-main amplifier's ventilation holes are not obstructed.



Side by side installation



### System operations

Such system operations as the timer and the auto on functions, as well as remote control operations cannot be performed unless all the RCA pin-plug cords and system connector cords are connected between the units, so be sure to make all the connections properly as shown in the diagram. Also, disconnecting system connectors while the system is operating may result in malfunction. Be sure to turn unplug the power cord before changing connections.

### OPTICAL DIGITAL OUT jack

Digital data is output in optical form from this jack.

### PROCESSOR LOOP jacks

The PROCESSOR LOOP jacks on the UPA-F10 are interconnected with short-circuiting pins. Only remove these pins when using these jacks for connection to another component.

### NOTES:

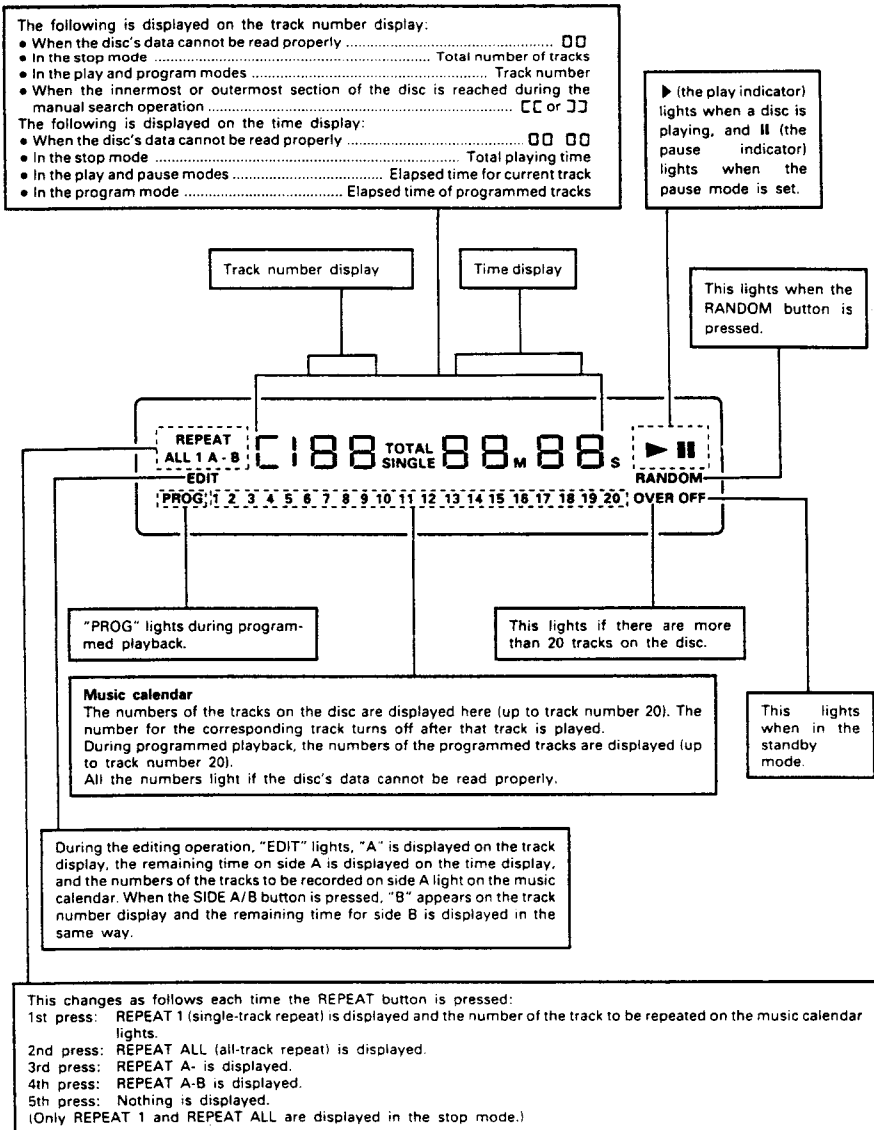
- Do not plug the power cord into the power outlet until all connections are completed. Be sure to interconnect the channels (L to L (white) and R to R (red)) properly, as shown on the diagram.
- Insert the plugs securely. Incomplete connections may result in noise.
- Be sure to connect the speaker cords between the speaker terminals and the speaker systems with the same polarities (+ to +, - to -). If the polarities are switched, the sound at the center will be weak, the position of the different instruments will be unclear, and the stereo effect will be lost.
- After unplugging the power cord, wait about 5 seconds before plugging it back in.
- Note that setting the connection cords (pin-plug cords) next to the power cords may result in humming or other noise.

## CD PLAYER

- 1 **Disc tray**  
Load discs here.
- 2 **(play) button**  
Press this button to start playing the disc. Even when the disc tray is open, the disc tray closes and playback begins when this button is pressed. When pressed in the standby mode, the power automatically turns on and playback begins. (Auto on function)
- 3 **(stop) button**  
Press this button to stop playback.
- 4 **POWER switch**  
Press this once to turn the CD player's power on, then press again to set the CD player to the standby mode. In the standby mode, "OFF" appears on the display.
- 5 **OPEN/CLOSE button**  
**Press this to open and close the disc tray.** When pressed once, the disc tray opens out, and when pressed again, the disc tray closes. If a disc is loaded, the total number of tracks and total playing time of the disc are displayed several seconds after the disc tray is closed. When pressed in the standby mode, the CD player's power turns on.

- 6 **Display**
- 7 **⏮ / ⏪ (automatic/manual search reverse) button**  
Use this to move to the beginning of a specific track. When pressed during playback or in the pause mode, the pickup moves backward a number of tracks equal to the number of times the button is pressed.
- 8 **⏩ / ⏭ (automatic/manual search forward) button**  
Use this to move to the beginning of a specific track. When pressed during playback or in the pause mode, the pickup moves forward a number of tracks equal to the number of times the button is pressed.
  - The automatic search mode is set if the 7 or 8 button is released within 0.5 seconds, and the manual search mode is set if the button is held for over 0.5 seconds.
- 9 **⏸ (pause) button**  
Press this button to stop playback temporarily. Press the play button to cancel the pause mode and resume playback.

## CD PLAYER DISPLAY



**CASSETTE DECK**

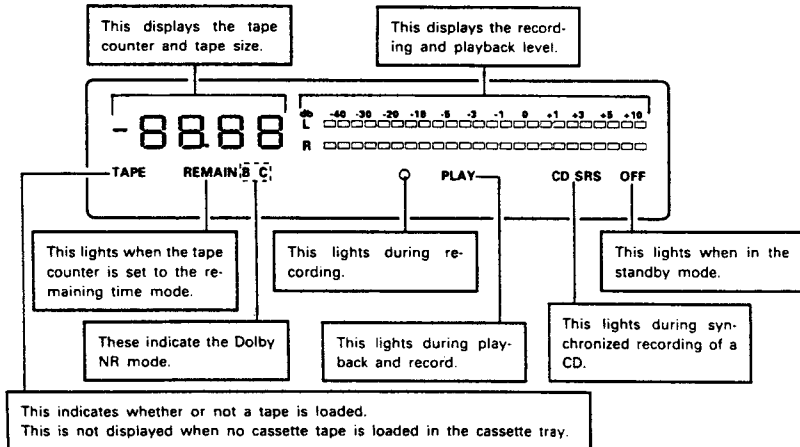
- 1 **Cassette tray**  
The cassette tray opens out when the OPEN/CLOSE button is pressed. Load the cassette tape with the side on which the tape is exposed facing away from you. To close the cassette tray, press the OPEN/CLOSE button again. For details, refer to Page 16.
- 2 **◀ (rewind) button**  
Press this button to rewind the tape. Press this button during playback to set the music search mode.
- 3 **▶ (play) button**  
Press this button to start playback. When pressed in the standby mode, the power of both the cassette deck and the pre-main amplifier turns on automatically and playback starts. (Auto on function)
- 4 **▶▶ (fast-forward) button**  
Press this button to fast-forward the tape. Press this button during playback to set the music search mode.
- 5 **■ (stop) button**  
Press this button while the tape is moving to stop the tape.
- 6 **EDIT RELAY button**  
The cassette tray opens when all the tracks for side A of the tape have been recorded with the CD edited recording function. To continue recording on side B, turn the tape over then press this button to close the cassette tray and start recording.
- 7 **POWER switch**  
Press this once to turn the cassette deck's power on, then press again to set the cassette deck to the standby mode. In the standby mode, "OFF" appears on the display.
- 8 **OPEN/CLOSE button**  
Press this to open and close the cassette tray. When pressed in the standby mode, the cassette deck's power turns on.
- 9 **Display**

- 10 **REC/REC MUTE button**  
This button is used when recording and when creating blank spaces between selections. If only the REC/REC MUTE button is pressed, the recording pause mode is set.  
When REC/REC MUTE button is pressed while in the recording pause mode, the recording mute mode is set for approximately 5 seconds, creating a blank space on the tape, after which the recording pause mode is once again set. When the ▶ (play) button is pressed while in the recording pause mode, recording begins.  
The recording pause mode is set when this button is pressed for less than 0.5 seconds while in the recording mode. If it is pressed for over 0.5 seconds while in the recording mode, the recording mute mode is set for approximately 5 seconds, after which the recording pause mode is once again set. Press the ■ (stop) button to cancel the recording pause mode.

**NOTE:**  
• If the play button on the CD player is pressed during the recording pause mode, recording of the CD begins automatically.

- 11 **COUNTER RESET button**  
Press this button to reset the tape counter to "00.00".
  - 12 **DOLBY NR mode selector button**  
Use this to select the Dolby NR mode (OFF, B or C). When playing a tape, set the Dolby NR mode to the same mode as when the tape was recorded.
- 
- 13 **CD-SRS (Synchronized Recording System) button**  
Use this button for synchronized recording of CDs. For details, refer to Page 19.
  - 14 **REC LEVEL control**  
Use this to set the recording level. For details, refer to Page 19.

**CASSETTE DECK DISPLAY**

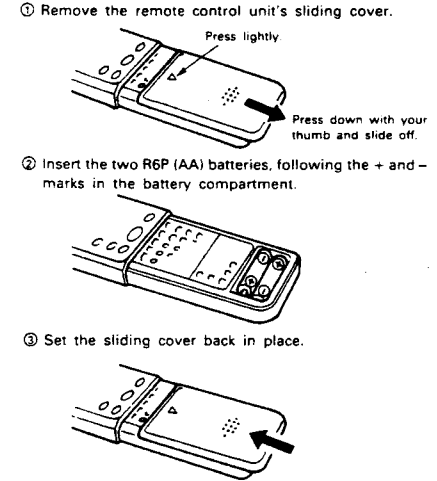


**6 REMOTE CONTROL UNIT**

The D-F10 comes with a system remote control unit (RC-172).

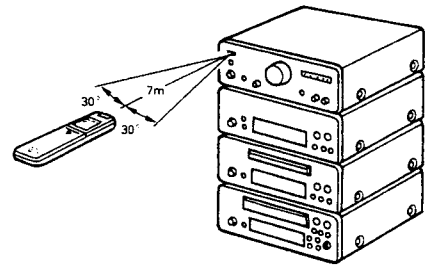
**Inserting the batteries**

- NOTES:**
- Use R6P (AA) batteries in this remote control unit.
  - Replace the batteries with new ones approximately once each year, though this depends on how frequently the remote control unit is used.
  - Replace the batteries with new ones earlier if the remote control unit does not operate even from a short distance.
  - Insert the batteries in the proper + and - direction, following the marks in the battery compartment.
  - Remove the batteries when not using the remote control unit for extended periods of time.
  - To avoid damage and leakage:
    - Do not use a new battery with an old one.
    - Do not use two different types of batteries.
    - Do not short-circuit, take apart, heat or dispose of batteries in flames.
  - If the batteries should leak, carefully wipe the fluid out of the battery compartment, then insert new batteries.



**Using the Remote Control Unit**

- Cautions on Use**
- The remote control unit may not operate if the remote sensor is exposed to direct sunlight or the strong light from a lighting fixture, or if there is an obstacle between the remote control unit and the remote sensor.
  - Do not press buttons on the remote control unit and on the set at the same time. Doing so could result in malfunction.
  - If the remote control unit is pointed away from the remote sensor during continuous operations (such as when turning the volume up or down), the operation will stop. If this happens, point the remote control unit at the remote sensor and press the button again.



- The remote sensor is located on the pre-main amplifier. Point the remote control unit at the remote sensor as shown on the diagram when operating it.
- The remote control unit will operate from a direct distance of approximately 7 meters, but this distance will be shortened if obstacles are present or if operated at an angle. (The remote control unit will operate at an angle of up to 30° in either direction.)



## Remote Control Unit Part Names and Functions

**CD operation buttons**

- (stop) button  
Press this button to stop playback.
- ▶ (play) button  
Press this button to start playback.
- ◀ and ▶ (auto search buttons)  
Use these buttons to search for the beginning of the desired track.

**FUNCTION selector button**

Press this button to switch the input (function).  
The input changes in the following order each time this button is pressed: CD, TAPE, TUNER, PHONO, MD/AUX.

**TUNER button**

Press this button to switch the function to the tuner and to recall preset stations from the remote control unit using the number buttons.

**Number buttons**

Press these buttons after pressing the TUNER button to recall preset stations.  
When playing a CD, press these buttons after pressing the DIRECT or PROGRAM button to specify the desired track.

**PRESET buttons**

Use these buttons to recall preset stations on the tuner.

**Cassette deck operation buttons**

- (stop) button  
Press this button to stop the tape.
- ▶ (play) button  
Press this button to start playback or recording.
- ◀ button  
This button does not function.

**POWER switch**

Use this switch to turn on the power of the entire system or set the power to the standby mode.

**VOLUME buttons**

Use these to adjust the volume. The volume increases when the ▲ button is pressed and decreases when the ▼ button is pressed.

**BAND (AM/FM) selector button**

**TUNING buttons**

**MEMO button**

**SLEEP button**

Press this button to set the sleep timer.

**RDS button**

Use this button to automatically tune to stations using the radio data system.  
RDS → PTY → TP

**PTY button**

Press this button after selecting "PTY" with the RDS button to select one of the 15 program types.

**CT button**

Use this to correct the time of the clock on the UTU-F10. Press this button when the time service of an RDS station is being properly received.  
"CT" and "TIME" are displayed for 2 seconds and the UTU-F10's clock is corrected. "NO CT" is displayed if the RDS station does not offer a time service and when the broadcast is not being received properly.

**PANEL button**

Press this button when receiving RDS stations to select the frequency, PS or PTY display.  
Note that this button will not function if the reception is poor.

With this remote control unit, only the most frequently used keys are located on the front. The remaining keys are enclosed under a sliding cover.  
To use the buttons under the sliding cover, press lightly on the ▽ mark then press on the ■ part with your thumb and slide the cover down, as shown on the diagram on the previous page.

**Cassette deck operation buttons**

- REC/REC MUTE button  
To start recording from the stop mode, press this button, then press ▶  
When this button is pressed, a blank section of approximately 5 seconds is created, after which the recording standby mode is set.
- ◀◀ (rewind) button  
Press this button to rewind the tape. Press this button during playback to set the music search mode (to find the beginning of selections).
- ▶▶ (fast-forward) button  
Press this button to fast-forward the tape. Press this button during playback to set the music search mode (to find the beginning of selections).
- RESET button  
Press this button to reset the tape counter to "00:00"
- REMAIN button  
Press this button to display the tape's remaining time on the tape counter.
- TAPE SIZE button  
Press this button to select the tape length.  
For details, refer to Page 17.
- REV. MODE button  
This button does not function.

**CD player operation buttons**

**DIRECT button**

Press this button for direct search on the CD player.

◀◀ and ▶▶ (manual search) buttons

Press these buttons during playback to move quickly forward or backward.

**REPEAT button**

Press this button for repeat playback.

**RANDOM button**

Press this button to play the tracks in random order.

**PROGRAM button**

Press this button for programmed playback on the CD player.

**CANCEL button**

Press this button to clear the last track from the program.

**EDIT button**

Press this button for edited recording on a tape, dividing the tracks onto sides A and B according to the length of the tape.

**TIME/SIDE A/B button**

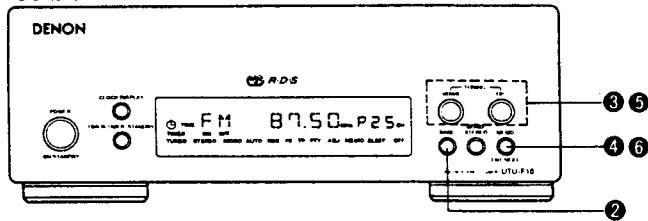
- TIME  
Press this button during the play or pause mode to switch the time display. Normally the elapsed time for the track currently playing is displayed. When this button is pressed, the display switches to the remaining time for that track ("SINGLE" lights), the total remaining time on the disc ("TOTAL" lights), then back to the elapsed time per track. During programmed playback, the total remaining time display indicates the total remaining time of the programmed tracks.
- SIDE A/B  
Press this button during the editing operation to switch the display between sides A and B of the tape.

\* The TIME/SIDE A/B button functions as the SIDE A/B button when it is pressed after the EDIT button is pressed and the tracks have been divided between sides A and B and before the play or pause button is pressed (before the recording mode is set).  
The TIME/SIDE A/B button functions as the TIME button when it is pressed during the play, pause, or edited recording modes.

## 7 LISTENING TO RADIO PROGRAMS

(Check the connections on Pages 4 and 5.)  
Tuner (UTU-F10)

### TUNING



Example: Tuning in FM 87.50 MHz  
(AM stations are tuned in using the same procedure.)

|   |   |  |  |
|---|---|--|--|
| 1 | Set the VOLUME control on the pre-main amplifier to the minimum position, then press the SYSTEM POWER switch to turn on the power.                                  |  |  |
| 2 | Press the BAND button on the tuner to select the FM band.   |  |  |
| 3 | Use the TUNING UP and DOWN buttons to tune the frequency to 87.50. Once the frequency is tuned in, adjust the volume to the desired level using the VOLUME control. |  |  |

#### Auto Tuning

- When one of the TUNING buttons is pressed, the frequency changes in steps of 50kHz in the FM band, 9kHz in the AM band.
- If one of the TUNING buttons is held in for over 1 second, the frequency continues to change when the button is released (auto tuning) and stops when a station is tuned in. Tuning will not stop at stations whose reception is poor.
- To stop the auto tuning function, press the UP or DOWN button once.

### Presetting AM and FM Stations

Example: Presetting FM 87.50 (currently tuned in) at preset number 3

|   |   |  |  |
|---|---|--|--|
| 4 | Press the MEMO ENT/NEXT button. The <b>MEMO</b> indicator flashes for 10 seconds.   |  |  |
| 5 | Use the UP and DOWN buttons to call out the number at which you want to preset the station (3), or simply press the corresponding number button ③ on the remote control unit. |  |  |
| 6 | Press the MEMO ENT/NEXT button while the <b>MEMO</b> indicator is flashing.   |  |  |

Up to 30 AM or FM stations can be preset using this procedure.

#### NOTES:

- In addition to the reception frequency, the reception mode (monaural or auto) is also preset, so check the display when presetting stations.
- If a station is preset at a number where a station is already preset, the previous station is replaced with the new station.
- The preset memory is not cleared immediately when the power cord is unplugged, but is cleared if the cord is left unplugged for an extended period of time. If this happens, preset the stations again.

### Listening to Preset Stations

The preset stations can be recalled using the number buttons on the remote control unit.

Also, if the following operation is performed when the system power is off, the power automatically turns on and the radio is played. (Auto on function)

Example: Listening to the station preset at number 3

(This operation is only possible from the remote control unit.)

|   |  |  |  |
|---|--|--|--|
| 1 | Press the TUNER button on the remote control unit. |  |  |
| 2 | Press button "3" on the remote control unit.       |  |  |


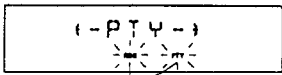

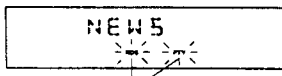

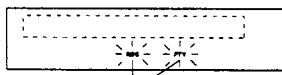
### Using the RDS functions

Receiving RDS broadcasts (FM only)

|   |  |  |  |
|---|--|--|--|
| 1 | Press the BAND button and set the FM band. |  |  |
| 2 | Press the RDS button once.                 |  |  |
| 3 | Press the AUTO TUNING UP or DOWN button.   |  |  |
| 4 | The station is tuned in.                   |  |  |


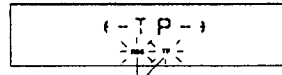

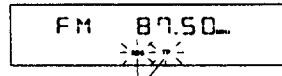
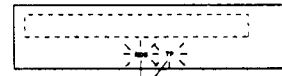
NOTE: If no RDS station is found, "NO PROG" is displayed.

**PTY Search**

|   |  |   |  |
|---|--|---|--|
| 1 | Press the RDS button twice.  |  |  <p>Flashes<br/>("PTY" and "RDS" flash, and "-PTY-" is displayed.)</p>  |
| 2 | Press the PTY button to select the type of program.<br>(One of the 15 types listed below can be selected.) |  |  <p>Flashes</p>   |
| 3 | Press the AUTO TUNING UP or DOWN button.   |  |  |
| 4 | The station is tuned in.   |   |  <p>"PTY" and "RDS" light after 5 seconds of flashing</p> <p>Once the station is tuned in, "RDS" and "PTY" flash for 5 seconds and the program service name is displayed.</p> |

**NOTE:** If no program of the specified type is found, "NO PROG" is displayed.

**TP Search**

|   |   |   |  |
|---|---|---|--|
| 1 | Press the RDS button 3 times.               |  |  <p>Flashes</p>   |
| 2 | Press the UP or DOWN button of AUTO TUNING. |  |  <p>Flashes</p>   |
| 3 | Broadcast reception.                        |   |  <p>"TP" and "RDS" light</p> <p>Once the station is tuned in, "TP" and "RDS" light and the program service name is displayed.</p> |

**NOTE:** "NO PROG" is displayed when there is no traffic information broadcast station.

**Receiving FM programs in stereo**

- Press the MONO/STEREO button to turn on the "AUTO" indicator. When a program being broadcast in stereo is received, the "STEREO" indicator lights and the program is received in stereo.
- If reception is poor and there is much noise in the stereo signals, press the MONO/STEREO button to set the monaural mode.

**NOTE:**

- A humming sound may be heard when using a TV nearby while receiving AM programs. If this happens, move the system as far from the TV as possible.

**Programs**

|         |                   |          |                    |
|---------|-------------------|----------|--------------------|
| NEWS    | (News)            | VARIED   | (Varied)           |
| AFFAIRS | (Current Affairs) | POP M    | (Pop Music)        |
| INFO    | (Information)     | ROCK M   | (Rock Music)       |
| SPORT   | (Sport)           | MOR M    | (M.O.R. Music)     |
| EDUCATE | (Education)       | LIGHT M  | (Light Classics)   |
| DRAMA   | (Drama)           | CLASSICS | (Serious Classics) |
| CULTURE | (Culture)         | OTHER M  | (Other Music)      |
| SCIENCE | (Science)         |          |                    |

## 8 USING THE TIMER

The time and timer functions are incorporated in the tuner.

### Timer Settings

#### Types of timer operations

- TIMER** : Use this to turn the power on and off at the same times every day.  
**SLEEP TIMER** : Use this to set the power to turn off after 10 to 60 minutes, in steps of 10 minutes (operated from the remote control unit).

#### Notes on timer settings

- Be sure to set the current time beforehand.
- To listen to or record a radio program ("air check") using the timer, be sure to preset the station beforehand. (Refer to "Presetting AM and FM Stations" on Page 10.)

### Power Failures

Should there be a power failure or should the power cord be unplugged, the time display will flash at "00:00". If this happens, reset the current time. Also check the timer and tuner presettings, and reset them if they have been cleared.

### Checking the Settings

To check the timer settings, press the **TIMER/TIMER STANDBY** button for at least 3 seconds. (This can also be done when the tuner's power is off.) Next, press the **ENTER/NEXT** button repeatedly to display the timer start mode, the reception band and preset channel number when in the tuner mode, the on time and the off time. Press the **ENTER/NEXT** button once more to return to the current mode display.

### Changing the Settings

Repeat the timer setting operation to erase the previous settings and set the new settings.

### Clearing the Settings

Press the **TIMER/TIMER STANDBY** button for at least 3 seconds, then press it again while "FUNC" is displayed to clear the timer settings.

### Note on Setting the Timer

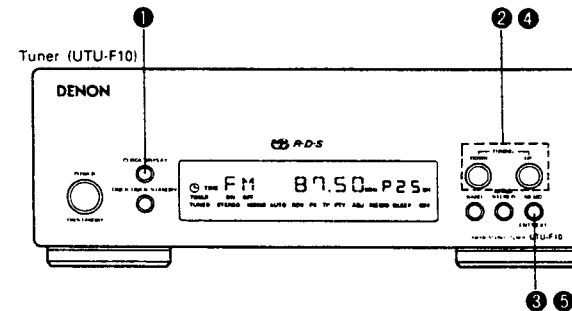
If the time set with the timer is reached while the system power is on, the operation switches to the operation set by the timer.

### Turning the Timer Off

Press the **TIMER/TIMER STANDBY** button to turn the  $\odot$  mark off.

### Setting the Current Time

The time is displayed in the 24-hour mode.



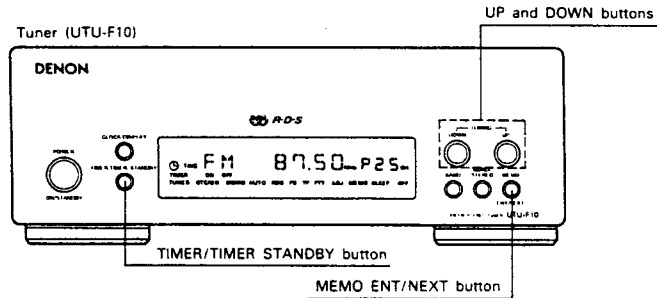
Example: Setting to 19:30 (7:30 p.m.)

|   |   |  |  |  |
|---|---|--|--|--|
| 1 | Press the <b>CLOCK/DISPLAY</b> button for at least 3 seconds.   |  |  | The hours place flashes.<br>(If the hours have already been set, that number flashes.)     |
| 2 | Use the <b>UP</b> and <b>DOWN</b> buttons to set the hours.   |  |  | The hours place flashes.   |
| 3 | Press the <b>MEMO ENT/NEXT</b> button.  |  |  | The minutes place flashes.<br>(If the minutes have already been set, that number flashes.) |
| 4 | Use the <b>UP</b> and <b>DOWN</b> buttons to set the minutes.   |  |  | The minutes place flashes.   |
| 5 | Press the <b>MEMO ENT/NEXT</b> button at the sound of a time service's chime. The time display stops flashing and the clock starts running. |  |  | The display stops flashing and the clock starts running from 00 seconds.                   |

- The current time can be set even when the power is off.
- If an RDS station offers a time service, the time can be set by pressing the **CT** button on the remote control unit while that station is tuned in.

### Setting the Timer

The power can be set to turn on and off every day at the same time in any of five modes: tuner, CD, cassette deck, MD player (optional) and air check (recording from the radio). (Preset the AM or FM station beforehand.)



Example: Setting the tuner to turn on at 12:35, off at 12:56 (with FM 87.50 MHz preset at channel "3")

|   |  |  |   |
|---|--|--|---|
| 1 | Press the SYSTEM POWER switch on the pre-main amplifier to turn on the system's power.     |  | <p>FM 90.00 P 1</p> <p>Say that FM 90.00 MHz is tuned in at preset channel number "1"</p> |
| 2 | Press the TIMER/TIMER STANDBY button for at least 3 seconds to set the timer setting mode. |  | <p>FUNC</p>   |
| 3 | Use the UP and DOWN buttons to set the "TUNER" mode.                                       |  | <p>TUNER</p>  |
| 4 | Press the MEMO ENT/NEXT button.  |  | <p>Flashes</p> <p>87.50 P 3</p>   |
| 5 | Use the UP and DOWN buttons to set the preset channel number.                              |  | <p>87.50 P 3</p>  |
| 6 | Press the MEMO ENT/NEXT button.  |  | <p>12:00</p> <p>(If the timer has already been set, that number flashes.)</p>             |
| 7 | Use the UP and DOWN buttons to set the hours for the timer on time.                        |  | <p>12:00</p> <p>Flashes</p>   |

|    |   |  |  |
|----|---|--|--|
| 8  | Press the MEMO ENT/NEXT button.   |  | <p>12:00</p> <p>Flashes<br/>(If the timer has already been set, that number flashes.)</p>          |
| 9  | Use the UP and DOWN buttons to set the minutes for the timer on time.                   |  | <p>12:35</p> <p>Flashes</p>  |
| 10 | Press the MEMO ENT/NEXT button.   |  | <p>12:00</p> <p>Flashes</p>  |
| 11 | Use the UP and DOWN buttons to set the hours for the timer off time.                    |  | <p>12:00</p> <p>Flashes</p>  |
| 12 | Press the MEMO ENT/NEXT button.   |  | <p>12:00</p> <p>Flashes<br/>(If the timer has already been set, that number flashes.)</p>          |
| 13 | Use the UP and DOWN buttons to set the minutes for the timer off time.                  |  | <p>12:56</p> <p>Flashes (if the timer has already been set, that number flashes.)</p>              |
| 14 | Press the MEMO ENT/NEXT button.   |  | <p>FM 90.00 P 1</p> <p>The display returns to as it was before the timer setting mode was set.</p> |
| 15 | Press the TIMER/TIMER STANDBY button.   |  | <p>Lights</p> <p>FM 90.00 P 1</p>  |
| 16 | Press the SYSTEM POWER switch on the pre-main amplifier to turn off the system's power. |  | <p>10.15</p>   |

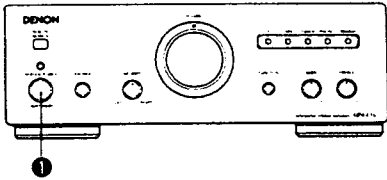
If the mark is displayed after the TIMER/TIMER STANDBY button is pressed, the timer will operate at the same times every day. To turn the timer off, press the TIMER/TIMER STANDBY button again to turn the mark off.

#### NOTES:

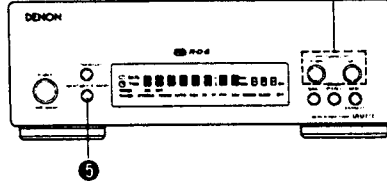
- The standby mark ("") will not light if the current time is not set. If this is the case, set the current time, then press the TIMER/TIMER STANDBY button.
- When an optional mini-disc (MD) player is connected, it can be operated with the timer. For instructions, refer to the MD player's operating instructions.

**Various Timer Operations**

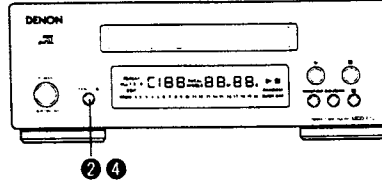
Pre-main amplifier (UPA-F10)



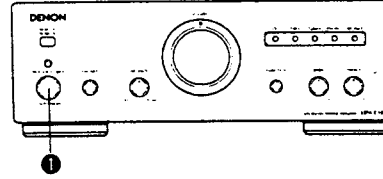
Tuner (UTU-F10)



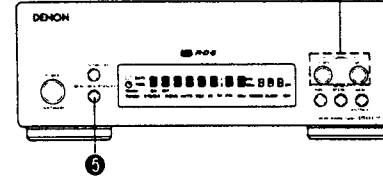
CD player (UCD-F10)



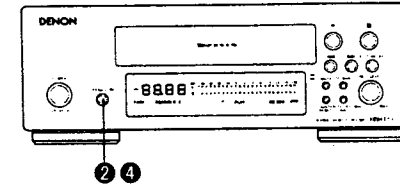
Pre-main amplifier (UPA-F10)



Tuner (UTU-F10)



Cassette deck (UDR-F10)



**Example 1: Playing a compact disc with the timer**

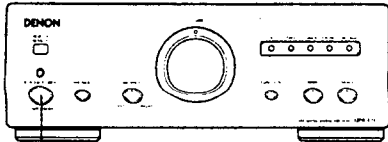
|   |  |  |  |
|---|--|--|--|
| 1 | Press the SYSTEM POWER switch on the pre-main amplifier to turn on the system's power. |  |  |
| 2 | Press the CD player's OPEN/CLOSE button to open the disc tray.                         |  |  |
| 3 | Load the disc in the disc tray. Refer to Page 20.                                      |  |  |
| 4 | Press the CD player's OPEN/CLOSE button again to close the disc tray.                  |  |  |
| 5 | Press the tuner's TIMER/TIMER STANDBY button for at least 3 seconds.                   |  |  |
| 6 | Use the tuner's UP and DOWN buttons to set the "CD" mode.                              |  |  |
| 7 | Now follow steps 6 to 16 under "Setting the Timer" on Page 13.                         |  |  |

**Example 2: Playing a cassette tape with the timer**

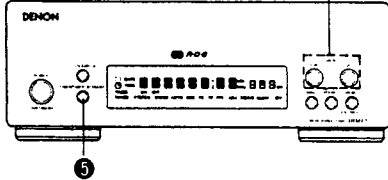
|   |  |  |  |
|---|--|--|--|
| 1 | Press the SYSTEM POWER switch on the pre-main amplifier to turn on the system's power. |  |  |
| 2 | Press the cassette deck's OPEN/CLOSE button to open the cassette tray.                 |  |  |
| 3 | Load the cassette tape in the cassette tray. Refer to Page 16.                         |  |  |
| 4 | Press the cassette deck's OPEN/CLOSE button again to close the cassette tray.          |  |  |
| 5 | Press the tuner's TIMER/TIMER STANDBY button for at least 3 seconds.                   |  |  |
| 6 | Use the tuner's UP and DOWN buttons to set the "TAPE" mode.                            |  |  |
| 7 | Now follow steps 6 to 16 under "Setting the Timer" on Page 13.                         |  |  |

• Check that the cassette deck is set to the desired Dolby NR mode.

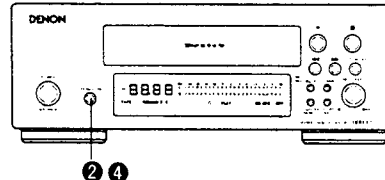
Pre-main amplifier (UPA-F10)



Tuner (UTU-F10)



Cassette deck (UDR-F10)



Example 3: Unattended recording of radio programs ("air check")

|   |  |  |  |
|---|--|--|--|
| 1 | Press the SYSTEM POWER switch on the pre-main amplifier to turn on the system's power. |  |  |
| 2 | Press the cassette deck's OPEN/CLOSE button to open the cassette tray.                 |  |  |
| 3 | Load the cassette tape in the cassette tray. Refer to Page 16.                         |  |  |
| 4 | Press the cassette deck's OPEN/CLOSE button again to close the cassette tray.          |  | • For the Dolby NR setting, refer to 2 on Page 19. |
| 5 | Press the tuner's TIMER/TIMER STANDBY button for at least 3 seconds.                   |  |  |
| 6 | Use the tuner's UP and DOWN buttons to set the "AIRCH" mode.                           |  |  |
| 7 | Now follow steps 4 to 16 under "Setting the Timer" on Page 13.                         |  |  |

- Recording is not possible on the leader tape at the beginning of the cassette tape, so to avoid missing any of the program, we recommend setting the timer to approximately 1 minute before the program is scheduled to start.
- When an optional mini-disc (MD) player is connected, radio programs can be recorded using the timer. For instructions, refer to the MD player's operating instructions.

### Setting the Sleep Timer

With this function, the power can be set to turn off after 10 to 60 minutes, in steps of 10 minutes, using the remote control unit.

Example: Setting the power to turn off in 50 minutes  
(This operation is only possible from the remote control unit.)

|   |  |  |
|---|--|--|
| 1 | Tuner currently set to FM 87.50 MHz  |  |
| 2 | Press the SLEEP button.  |  |
| 3 | Press the SLEEP button again while the "SLEEP" indicator is flashing.  |  |
| 4 | The previous display reappears after 5 seconds. The "SLEEP" indicator remains lit, indicating that the sleep timer is functioning. |  |

- The time is reset to "60" (60 minutes) if the SLEEP button is pressed again while the sleep timer is functioning.

### Cancelling the Sleep Timer

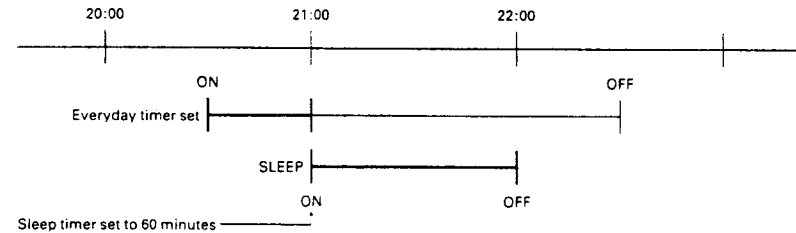
Press the SLEEP button repeatedly until the "SLEEP" indicator turns off. The sleep timer is also cancelled if the amplifier's SYSTEM POWER switch or the POWER switch on the remote control unit is pressed, turning the system power off.

#### NOTE:

- If the times set with the sleep and everyday timers overlap, the sleep timer has priority.

### Order of priority of the sleep and everyday timers

The sleep timer has priority for the off time. (The system operates as indicated by the bold lines.)



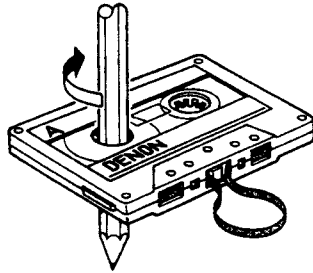
Even when the power was turned on with the timer, the power turns off if the remaining time of the sleep timer reaches "00" before the off time set with the everyday timer is reached. If the everyday timer's on time is reached while the sleep timer is functioning, the everyday timer does not function.

## 9 BEFORE RECORDING AND PLAYING TAPES

### About Cassette Tapes

#### ■ Cautions on handling cassette tapes

- C-120 cassette tapes
  - C-120 (120-minute) cassettes use very thin tape which can easily get caught on the capstans and pinch rollers. We recommend not using C-120 tapes.
  - Tape slack
- If the tape is slack, it may get caught in the mechanism and damaged. Take up any slack in the tape with a pencil, etc., before loading the cassette.



#### ■ Preventing accidental erasure

- Cassette tapes have tabs for preventing accidental erasure. Use a screwdriver, etc., to break off the tabs to prevent recordings from being accidentally erased.
- To record on a tape whose tabs have been broken, place a piece of cellophane tape, etc., over the tab holes.



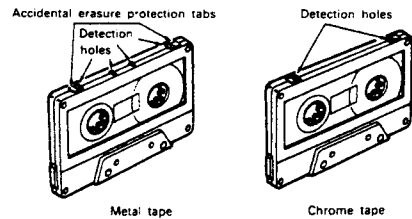
#### ■ Notes on storing cassette tapes

- Avoid placing cassette tapes in the following types of places:
  - Hot or humid places
  - Dusty places
  - Places exposed to direct sunlight
  - Near magnetic sources (TVs, speakers, etc.)
- Store cassette tapes in cases with stoppers to prevent the tape from getting slack.

### Auto Tape Selector Mechanism

The D-F10 is equipped with an auto tape selector mechanism which uses the detection holes in the cassette halves to detect the type of tape and automatically set the most appropriate recording bias and equalization for that type of tape.

- Do not use ferrichrome tapes.
- When an old metal tape with no detection holes is used, the treble will be stressed excessively, so use metal tapes with detection holes.



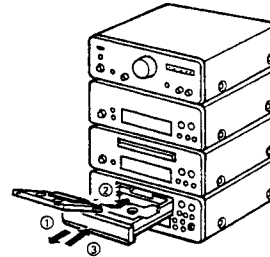
### Loading and Unloading Cassette Tape

#### NOTE:

- Load cassette tapes with the side on which the tape is exposed facing the set. Loading them the other way may result in damage.

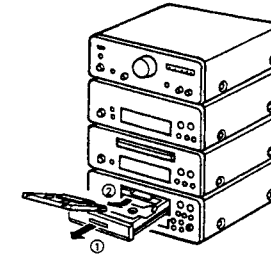
#### ■ Loading

- ① Press the OPEN/CLOSE button. The cassette tray opens.
- ② Load the cassette tape in the cassette tray as shown on the diagram below, with the side on which the tape is exposed facing inside.
- ③ Press the OPEN/CLOSE button to close the cassette tray.



#### ■ Unloading

- ① Press the OPEN/CLOSE button. The cassette tray opens.
- ② Remove the tape.



Check the following before recording or playing cassette tapes:

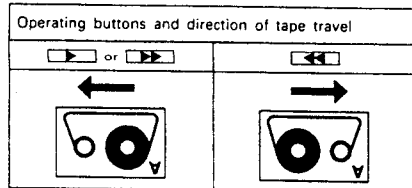
1. Are the heads dirty? ..... The sound quality will be poor if the heads are dirty. Refer to Page 25.
2. Are the accidental erasure protection tabs broken off? ..... Recording is not possible if the accidental erasure protection tabs on the top of the cassette are broken off. Refer to Page 16.



### Direction of Tape Playback

The relationship between the operating buttons on the D-F10 and the direction of tape travel is as shown on the diagram at the right.

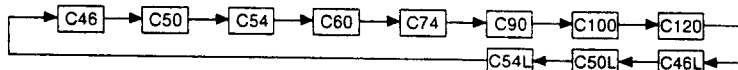
The side facing the top when the cassette tape is loaded in the cassette tray is played or recorded.



### Using the Tape Counter

#### 1. Tape size selector

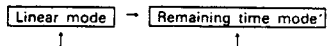
- When using the tape counter, be sure to set the size of the tape being used.
- Press the TAPE SIZE button on the remote control unit to display the tape size, then press the button again to select the desired tape size. The display changes as follows each time the button is pressed:



- "C46L", "C50L" and "C54L" are for tapes with large hubs.
- Tape sizes other than the ones indicated above cannot be set.

#### 2. Tape counter

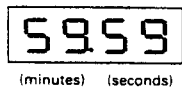
The D-F10's tape counter includes the two modes described below. The mode switches as follows each time the REMAIN button on the remote control unit is pressed:



The mode can be changed whether the tape is stopped or moving.

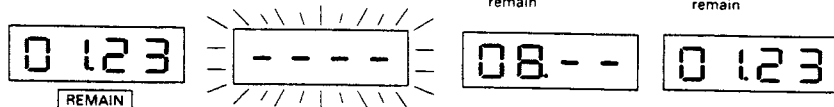
#### (1) Linear mode

- This indicates the tape's elapsed time in minutes and seconds.
- The counter is reset to "00.00" when a new tape is loaded and when the RESET button is pressed.
- If you make notes on the number on the counter and the recorded content while recording or playing tapes, these notes can be used to easily find the section you want to play or record.



#### (2) Remaining time mode

- This indicates the remaining time on the tape. When this mode is selected, "REMAIN" appears on the display (①).
- ② "-----" flashes for approximately 10 seconds after the tape is started while the remaining time is being calculated. After this, only the minutes are displayed if there are more than 8 minutes remaining (③), and both the minutes and seconds are displayed if there are less than 8 minutes remaining (④).
- ③ When over 8 minutes remain
- ④ When under 8 minutes remain



- "-----" (②) flashes for approximately 10 seconds after the tape is started while the remaining time is being calculated. After this, only the minutes are displayed if there are more than 8 minutes remaining (③), and both the minutes and seconds are displayed if there are less than 8 minutes remaining (④).
- "-----" flashes on the display during the fast-forward and rewind operations.

#### 3. Tape end warning

This "REMAIN" indicator starts flashing to indicate that there is little time remaining on the tape during recording or playback. (There may be a major error in the time at which the "REMAIN" indicator starts flashing if the actual tape and the tape size selector setting do not match, so be sure to set the proper tape size for the tape being used.)

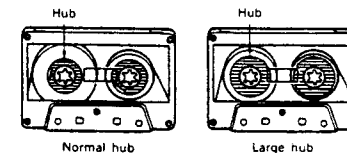
- The "REMAIN" indicator flashes starts approximately 5 minutes before the end of the tape when the counter is set to the linear mode. Press the REMAIN button on the remote control unit as necessary to switch the counter to the remaining time mode to check the remaining time.
- The "REMAIN" indicator remains lit without flashing when the remaining time mode is set.
- The tape end warning is only a rough indicator, and differs according to the thickness of the tape's hubs and the thickness of the tape. In some cases, it may not function.

#### NOTE:

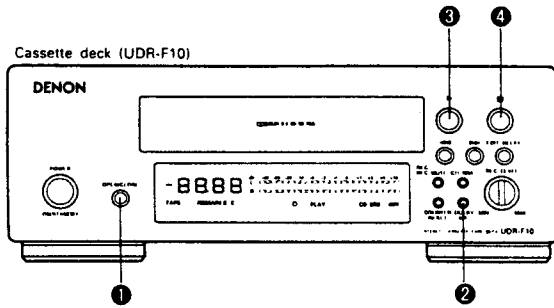
The D-F10's tape counter and tape end warning are set for use with C46, C50, C54, C60, C74, C90, C100, C120, C46L, C50L or C54L cassette tapes ("L" indicates tapes with large hubs), so they may be off when using tapes of other sizes or when the tape size setting is not the same as the size of the tape being used. When using tapes of other sizes, select the nearest tape size to minimize the error.

The tape counter is not as accurate as a clock, and may be slightly different from the actual time, since the tape thickness differs depending on the type of cassette tape (tape position and time). The counter may also be off due to differences in the hub size (small or large).

- Large hubs are hubs with a diameter of approximately 27mm. Note that there may be a major error in the remaining time display if tapes with larger hubs are used.



# 10 PLAYING CASSETTE TAPES



The **R** mark indicates operations which can also be performed on the remote control unit.

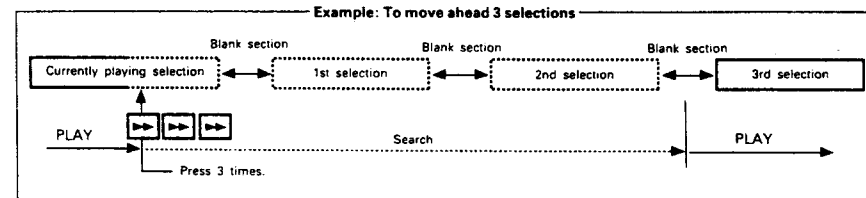
|   |   |
|---|---|
| <p>1 Press the OPEN/CLOSE button and load a recorded tape in the cassette tray. Refer to Page 16.</p> | <p>OPEN/CLOSE</p>   |
| <p>2 Press the DOLBY NR button display the Dolby mode. Refer to Page 8.</p>                           | <p>DOLBY NR</p> <p>The mode changes as follows each time the button is pressed:</p> <p>When playing tapes recorded with Dolby NR, set the Dolby mode to the same mode (B or C) as when the tape was recorded.</p> |
| <p>3 Press the play button (▶).</p>   | <p>Playback starts.</p>   |
| <p>4 To stop playback, press the stop button (■).</p>   |   |

## Using the Music Search Function (automatically finding the beginning of selections)

- Use this function to move back to the beginning of the current selection or forward to the beginning of the following selection.
- This function can also be used to skip over selections (up to 99 selections in either direction).

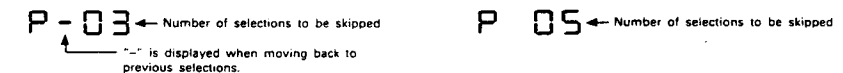
|                          |  |
|--------------------------|--|
| <p>1 During playback</p> | <p>To move to the beginning of the current selection:<br/>Press once.<br/>To move back 5 selections:<br/>Press 5 times.</p> <p>To move to the beginning of the following selection:<br/>Press once.<br/>To move ahead 5 selections:<br/>Press 5 times.</p> |
|--------------------------|--|

- To fast-forward or rewind the tape, first press the stop button (■), then press the ▶▶ or ◀◀ button.
- The music search function will only work if there are blank sections of at least 4 seconds between selections.



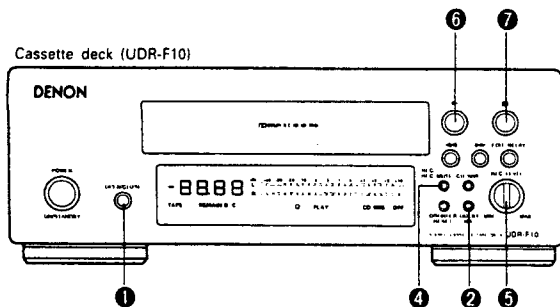
### Music Search Display

- When a selection before the current selection is specified:
- When a selection after the current selection is specified:



During the music search function, the number of selections to be skipped is displayed on the tape counter, and decreases each time a blank section is detected. (For example, P03 → P02 → P01 when moving 3 selections ahead.) The tape counter reappears when the operation is completed.

# 11 RECORDING CASSETTE TAPES



- Before recording on a cassette tape, check that its accidental erasure protection tabs are intact. Recording is not possible if the tabs are broken off.
- The positions of the VOLUME, TREBLE and BASS controls on the pre-main amplifier do not affect the recording.

The mark indicates operations which can also be performed on the remote control unit.

|  |  |
|--|--|
| <p><b>1</b></p> <p>Press the OPEN/CLOSE button and load the tape onto which you want to record in the cassette tray. Refer to Page 16.</p> |  |
| <p><b>2</b></p> <p>Press the DOLBY NR button display the Dolby mode. Refer to Page 8.</p>  |  |

|          | To record the radio  | To record from the component connected to the AUX terminals   | To record a CD  |
|----------|--|---|---|
| <b>3</b> | <p>Press the tuner's BAND selector button.</p> <p>Tune in the station to be recorded. Refer to Page 10.</p>      | <p>Press the FUNCTION button on the pre-main amplifier to select "MD/AUX".</p> <p>Starting playback on the MD player, video deck or LD player.</p>  | <p>Load the disc in the CD player. Refer to Page 20.</p> <p>Press the CD player's play button to start playback.</p>  |
| <b>4</b> | <p>Press the REC/REC MUTE button.</p>  | <p>The recording pause mode is set and the recording indicator (●) appears on the display.</p>  |   |
| <b>5</b> | <p>Adjust the recording level.</p>   |   | <p>The recording level of the source being played is displayed on the level meter. Use the REC LEVEL control to adjust the recording level. (Refer to "Adjusting the REC LEVEL Control" below.)</p> |
| <b>6</b> | <p>Press the play button (▶). (Recording starts.)</p> <p>The recording indicator (●) appears on the display.</p> | <p><b>6</b></p> <ul style="list-style-type: none"> <li>• For synchronized recording of CDs Press the stop buttons on the CD player and cassette deck, then press the CD SRS button.</li> </ul> <p>"CD SRS" appears on the display. (Recording starts.)</p> <ul style="list-style-type: none"> <li>• When the CD SRS button is pressed, a blank section of 9 seconds is automatically created on the tape before actual recording starts.</li> </ul> |   |
| <b>7</b> | <p>To stop recording, press the stop button (■).</p>   |   |   |

- If the CD player's play button is pressed in the recording pause mode, recording of the CD begins automatically.
- The CD SRS function will not work if the CD player is set to the random play or program mode.

### Adjusting the REC LEVEL Control

The recorded sound will be distorted if the recording level is too high, or there will be much noise if the recording level is too low. It is important to set the recording level to an appropriate setting to achieve a good quality recording.

- Watch how far the level meter lights and adjust the REC LEVEL control accordingly.

Optimum recording input level (approximate)

|                                    |                         |
|------------------------------------|-------------------------|
| Type-I (normal) tapes:             | Meter lights up to 0dB  |
| Type-II (CrO <sub>2</sub> ) tapes: | Meter lights up to +1dB |
| Type-IV (metal) tapes:             | Meter lights up to +3dB |

**NOTE:**  
The actual recording level differs depending on the source and the type of tape, so make a trial recording first to check the recording level.

**12 PLAYING CDs**



Only discs with the mark shown below can be played on the D-F10.

- For CDVs, only the audio part is played. (The video part is not played.)

**About Compact Discs**

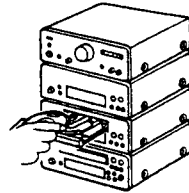
| Disc                   | Remarks                        |
|------------------------|--------------------------------|
| CD                     |                                |
| CDV                    | Only the audio part is played. |
| CD singles (8cm discs) |                                |

**Removing discs from their cases**

As shown on the diagram, grasp the outer edge of the disc with your fingers, insert a finger in the hole in the center, press gently, then lift the disc out of the case.



**Loading discs in the disc tray**



Be sure to load the disc with the labelled side facing up. (Compact discs only play on one side.) For 8cm CDs, set the disc in the sunken section in the center of the tray.

**NOTES:**

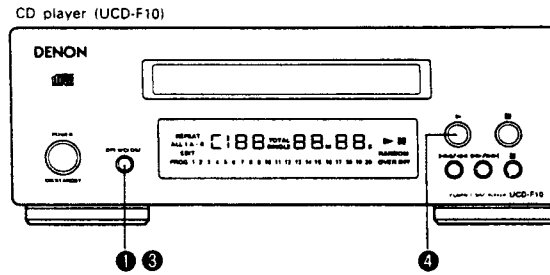
- The disc tray opens when the OPEN/CLOSE button is pressed once and closes when it is pressed again.
- When the disc tray is closed, the disc turns automatically for several seconds, then the total number of tracks and total playing time of that disc appear on the display.
- The disc tray can also be closed by pressing the play button (▶), in which case playback automatically starts from the first track on the disc (or if tracks are programmed, from the first programmed track).

**Handling the Disc Tray**



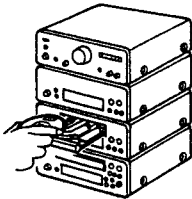




Do not turn off the power, stop the disc tray by hand or pull on it when it is moving. Doing so may damage it. If the headphones' cord or some other object accidentally gets caught in the disc tray while it is closing and the disc tray stops, press the OPEN/CLOSE button again to open the tray and remove the obstacle. Do not set objects other than discs on the disc tray. Doing so may damage it.



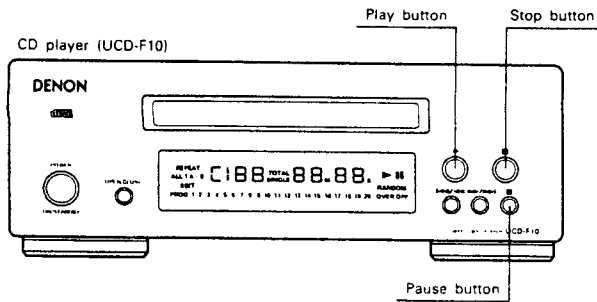
**Normal Playback**



**Example: Playing a disc containing 15 tracks and with a playing time of 62 minutes, 03 seconds, starting from the first track**

| The <b>R</b> mark indicates operations which can also be performed on the remote control unit. |   |   |
|--|---|---|
| 1  | Press the OPEN/CLOSE button to open the disc tray.  |       |
| 2  | Load the CD in the disc tray.   |    |
| 3  | Press the OPEN/CLOSE button. The disc tray closes. The display appears after several seconds. |     |
| 4  | Press the play button (▶).  |   |

## Various Playback Functions



### Interrupting playback temporarily

|                              |  |  |
|------------------------------|--|--|
| Press the pause button (II). |  | The "▶" mark turns off and the "II" mark appears on the display, and playback stops at the point where the button was pressed. |
|------------------------------|--|--|

### Resuming playback

|                            |  |  |
|----------------------------|--|--|
| Press the play button (▶). |  | The "II" mark turns off and the "▶" mark appears on the display, and playback resumes from the point where the pause button was pressed. |
|----------------------------|--|--|

### Stopping playback

|                            |  |  |
|----------------------------|--|--|
| Press the stop button (■). |  |  |
|----------------------------|--|--|

• When a disc is loaded, "00" is displayed on the track number display for several seconds while the data on the number of tracks and total playing time is being read from the innermost side of the disc, after which the number of tracks and total playing time appear.

#### NOTES:

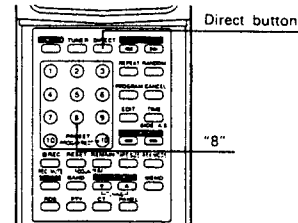
• If no disc is loaded, if the disc is upside-down, or if the data cannot be read properly due to scratches or dirt, the display reads as shown below and the disc will not play.

00 00.00.

In addition to the regular playback, the D-F10 also offers the following playback functions:

### ① Playing a specific track ..... Direct Search

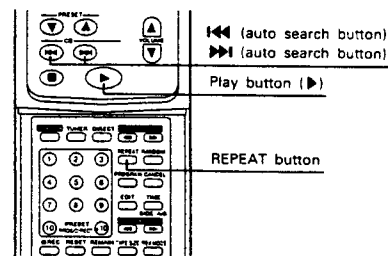
(Using the remote control unit)  
Example: Playing the 8th track



- Press the DIRECT button.
  - Press the button corresponding to the number of the track 8. "8" appears on the track number display and playback of track number 8 begins.
- When the end of the track is reached, playback continues on the next track.
  - To specify a track number of 11 or greater, say track 15, press [+10] then [5], and to specify a track number of 20 or greater, say track 23, press [+10], [+10] then [3]. To play track 20, press [+10] then [10].

### ② Playing a single track repeatedly ..... Single-track Repeat

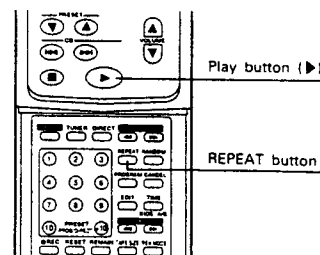
(Using the remote control unit)



- When the REPEAT button is pressed once, REPEAT 1 appears on the display and the single-track repeat mode is set.
  - Use the ◀◀ and ▶▶ buttons to select the track to be repeated.
  - Press the play button (▶) to start playback.
- When the end of the specified track is reached, playback starts over from the beginning of that track.
  - The single-track repeat mode can also be set by pressing the REPEAT button once during playback.
  - To cancel the single-track repeat mode, press the REPEAT button repeatedly until the "REPEAT" indicator turns off.

### ③ Playing all the tracks repeatedly ..... All-track Repeat

(Using the remote control unit)

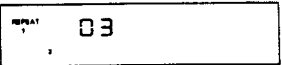
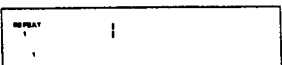






- When the REPEAT button is pressed twice, REPEAT ALL appears on the display and the all-track repeat mode is set.
  - Press the play button (▶) to start playback.
- The all-track repeat mode can also be set by pressing the REPEAT button twice during playback.
  - To cancel the all-track repeat mode, press the REPEAT button to turn the "REPEAT" indicator off.
  - If the REPEAT button is pressed during programmed playback, the tracks are played repeatedly in the programmed order.

Ⓞ Playing a certain section repeatedly

A-B Repeat

Example: Using a CD containing 15 tracks

|   |                                   |  |  |
|---|-----------------------------------|--|--|
| 1st press   | (1) When pressed during playback: |   | The single-track repeat mode is set and that track number is displayed on the music calendar.  |
|   | (2) When pressed before playback: |   | The single-track repeat mode is set and that track number is displayed on the music calendar. Next.<br>① Press the play button (▶) to play the first track repeatedly.<br>② If playback is started using the direct search buttons on the remote control unit or the ▶/▶▶ and ◀◀/◀ buttons on the CD player, the specified track is played repeatedly. |
| 2nd press   | (1) When pressed during playback: |   | The numbers of all the tracks on the disc are displayed on the music calendar, and the all-track repeat mode is set.   |
|   | (2) When pressed before playback: |   |  |
| 3rd press   | When pressed during playback:     |   | "REPEAT" and "A" light.  |
| 4th press   | When pressed during playback:     |  | "REPEAT" and "A-B" light, and the section between points A and B is played repeatedly.   |
| Press the REPEAT button again to return to normal playback. |                                   |  |  |

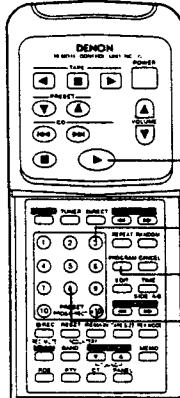
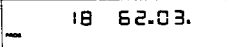
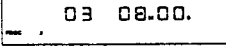
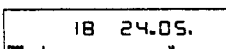
Ⓞ Playing the tracks in a certain order

Programmed Playback

(Using the remote control unit)

Example: Programming the 3rd track to play first, the 18th track to play second, using a CD containing 18 tracks and with a playing time of 62 minutes, 03 seconds

Procedure

|   |   |   |   |
|---|---|---|---|
| 1 | Press the PROGRAM button.   |  |    |
| 2 | Press "3" to set the 3rd track at the first place in the program.             |   |  <p>After 2 seconds<br/>                 □ 1<br/>                 Display when the 3rd track (8 minutes, 00 seconds long) is set at the first place</p>    |
| 3 | Press "+10" and "8" to set the 18th track at the second place in the program. |   |  <p>After 2 seconds<br/>                 □ 2<br/>                 Display when the 18th track (16 minutes, 05 seconds long) is set at the second place</p> |
| 4 | Press the play button (▶).  |   | The tracks are played in the programmed order.  |

Other operations possible during programmed playback:

Such operations as quick search, pause and skip monitor are also possible during programmed playback. For the quick search function, press the automatic/manual search reverse button (◀◀/◀) to move back to the beginning of the track, then press it again while the time display reads " 00.00. ". To move ahead to the beginning of the next track, press the automatic/manual search forward button (▶/▶▶), regardless of the time display.

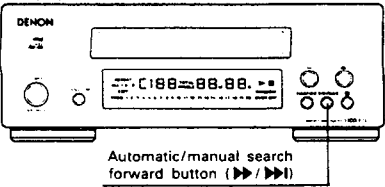
NOTES:

- The numbers of the programmed tracks on the music calendar turn off after the tracks have been played.
- If a track with a number of 21 or greater is programmed, the time display will read "--M--S"
- With this CD player, up to 20 tracks with any track number between 1 and 99 can be programmed.
- If a number greater than the total number of tracks on the disc is specified, that number will not be displayed.
- Programming is also possible with the disc tray open. In this case it is possible to program a track number not included on the disc, but when the program is played, that track number will be skipped.
- The entire program is cancelled when the OPEN/CLOSE button is pressed.
- If you make a mistake when programming, press the CANCEL button to cancel the mistake. (The last track in the program is cancelled each time the CANCEL button is pressed.)
- The single-track and A-B repeat functions do not work during programmed playback.
- Set the stop mode when cancelling tracks from the program.

③ Moving ahead to the next track during playback

Quick Search

CD player (UCD-F10)

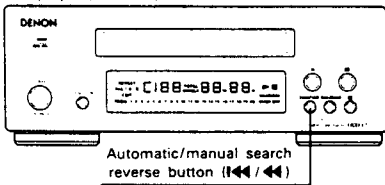


Press the automatic/manual search forward button (▶▶/▶▶).

④ Moving back to the beginning of the track during playback

Quick Search

CD player (UCD-F10)



Press the automatic/manual search reverse button (◀◀/◀◀).

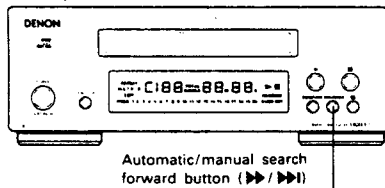
⑤ Finding a certain spot on the disc while listening to the sound

Skip Monitor

- Use this function to skip through the disc while listening to the sound.
- When the desired spot is reached using the skip monitor function, release the automatic/manual search forward button (▶▶/▶▶) or automatic/manual search reverse button (◀◀/◀◀) to resume normal playback from that point.

(1) Forward skip monitor

CD player (UCD-F10)

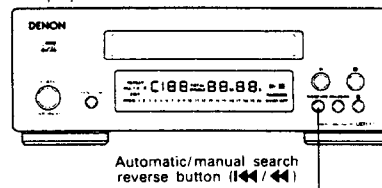


- The track currently being monitored and the elapsed time for that track are indicated on the display.
- If the end of the last track on the disc is reached while pressing the automatic/manual search forward button (▶▶/▶▶), "C" appears on the display and the manual search operation stops. To continue playback, press and hold in the automatic/manual search reverse button (◀◀/◀◀) until a track number appears on the display, then perform the desired operation.

During playback, press and hold in the automatic/manual search forward button (▶▶/▶▶) to skip through the disc in the forward direction while listening to the sound.

(2) Reverse skip monitor

CD player (UCD-F10)



- The track currently being monitored and the elapsed time for that track are indicated on the display.
- If the beginning of the first track on the disc is reached while pressing the automatic/manual search reverse button (◀◀/◀◀), "C" appears on the display and the manual search operation stops. To continue playback, press and hold in the automatic/manual search forward button (▶▶/▶▶) until a track number appears on the display, then perform the desired operation.

During playback, press and hold in the automatic/manual search reverse button (◀◀/◀◀) to skip through the disc in the reverse direction while listening to the sound.

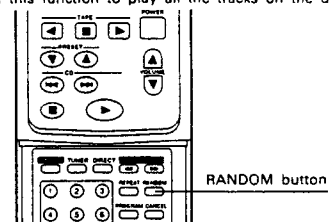
If the automatic/manual search forward or automatic/manual search reverse button is pressed during programmed playback then released at a track not in the program, that track is played to the end, then the next track in the program is played.

⑥ Playing the tracks in random order

Random Playback

(Using the remote control unit)

- Use this function to play all the tracks on the disc once in random order.



- Press the RANDOM button to turn on the RANDOM indicator, then press the play button to start random playback.
- During playback, simply press the RANDOM button to set the random playback mode.

- The programmed tracks can be played in random order by pressing the RANDOM button when tracks are programmed.
- If the RANDOM button is pressed while the repeat mode is set, the tracks are each played once in random order, then played again in another order, and so on.
- Random playback cannot be set in the single-track or A-B repeat mode.
- While the next track is being searched for, the numbers of all the tracks on the disc are displayed rapidly on the track number display so it is not possible to know which track will be played next.
- The random playback mode is not set when the RANDOM button is pressed during the single-track repeat mode. To set the random playback mode, first cancel the single-track repeat mode.

NOTES:

- The total remaining time cannot be displayed during the random playback mode.
- The random playback mode cannot be set during editing.

25

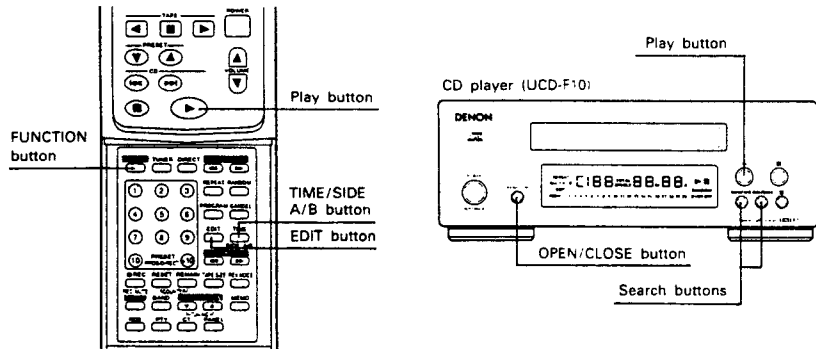
**Edited Recording on Sides A and B of a Tape**

This function allows edited recording according to the size of the tape. (This operation is only possible from the remote control unit.)

- Use this function to efficiently edit the tracks on a CD according to the length (time) of the tape onto which you want to record.
- Edited recording is possible with discs containing up to 20 tracks.

**NOTES:**

- Edited recording is not possible with discs containing more than 20 tracks.
- Load the cassette tape onto which you want to record in the cassette deck with side A on the top before starting the editing procedure. The tape is automatically wound to the beginning before recording starts.
- The editing mode is cancelled when the CD player's stop button is pressed.
- Note that even if the tape is slightly longer than the disc's total playing time, it may not be possible to record all the tracks on sides A and B because of the combination of tracks to be recorded on the different sides of the tape. "OVER" flashes the display if there are tracks which cannot be recorded onto the tape.
- When recording on an already recorded tape, if the tape is longer than the new recording, the previous recording will remain at the end of side B, so erase the tape before starting.
- To protect the recording, do not press the FUNCTION (input selector) button during edited recording.
- During edited recording, only the stop button, POWER switch, and TIME button for the CD player and the TAPE SIZE button, COUNTER button, REMAIN button, stop button, DOLBY NR button, and POWER switch for the cassette deck will function.
- Blank sections of 4 seconds are automatically created between all the selections to make it easier to search for selections on tapes recorded on this system. Since this differs from the actual time between tracks on the CD, the displayed time and the actual remaining time on the tape differ slightly.



Recording the tracks in the same order as on the disc ..... **Automatic Edited Recording**

Example: Recording a disc containing 18 tracks and a total playing time of 56 minutes on a C-60 cassette tape

|          |   |  |  |
|----------|---|--|--|
| <b>1</b> | Press the CD player's OPEN/CLOSE button to open the disc tray.<br>Load the disc in the disc tray. |  | 00 00.00.<br><small>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18</small> |
| <b>2</b> | Press the OPEN/CLOSE button to close the disc tray.<br>The display appears after several seconds. |  | 18 56.00.<br><small>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18</small> |

|           |  |  |   |
|-----------|--|--|---|
| <b>3</b>  | Press the FUNCTION button on the remote control unit or the pre-main amplifier to set the CD mode.   |  |   |
| <b>4</b>  | Press the EDIT button on the remote control unit to set the length of the tape.<br>(The length is the total for sides A and B.)<br>For a 60-minute (C-60) tape, press the EDIT button 4 times.<br><br>The display changes as shown below each time the EDIT button is pressed.<br>(If the tape length has already been set once, the display changes starting from that length.) |  | Load the cassette tape onto which you want to record in the cassette deck with side A facing up.  |
|           |  |  | <p>Example: For a 60-minute tape</p> <p>↓ 2 minutes, 40 seconds remaining on side A</p> <p>Side A display - Tracks 1 to 9 will be recorded on side A.</p> |
| <b>5</b>  | Press the TIME/SIDE A/B button on the remote control unit. The display switches between sides A and B each time the button is pressed.   |  | 1 minute, 20 seconds remaining on side B  |
| <b>6</b>  | Press the play button on the remote control unit or the CD player.   |  | <p>Track no. Elapsed time</p>   |
| <b>7</b>  | The tape is automatically wound to the beginning on the cassette deck, then recording starts.  |  |   |
| <b>8</b>  | When recording on side A is completed, the CD player is set to the pause mode at the first track to be recorded on side B.<br>When the end of side A is reached, the cassette tray opens.  |  |   |
| <b>9</b>  | Turn the tape over, then press the EDIT RELAY button.  |  |   |
| <b>10</b> | The cassette tray automatically closes and recording begins on side B.   |  |   |

Recording the tracks in a specific order ..... **Programmed Edited Recording**

- 1 Program the desired tracks as described in "Programmed Playback" on Page 22.
- 2 Follow steps 4 to 6 for automatic edited recording.

**NOTE**

Programmed edited recording is not possible with discs containing more than 20 tracks.



## 13 AUTO ON FUNCTION

- When the play button or OPEN/CLOSE button on the CD player or cassette deck is pressed while the power is set to the standby mode, the power automatically turns on and the play or open/close operation is performed.
- In the same way, when the tuner preset up/down buttons on the remote control unit is pressed, the power turns on and the corresponding station is tuned in.

## 14 OTHER INFORMATION

### Cleaning the Heads

- If the cassette deck's heads are dirty, tapes cannot be played or recorded with good sound quality.
- To take full advantage of all the performance this cassette deck has to offer and ensure good quality sound, clean the heads periodically after approximately 10 hours of use, using a commercially available cleaning cassette.

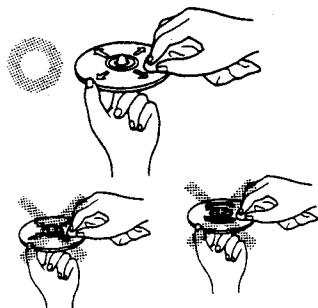
#### NOTE

Some commercially available cleaning cassettes are highly abrasive and may damage the heads. Avoid using such cleaning cassettes.

### Demagnetizing the Heads

- The heads become magnetized after they have been used for an extended period of time or if they are exposed to a magnetic object. This results in noise or a loss of the treble sound.
- If the heads are magnetized, use a commercially available cassette-type head demagnetizer to demagnetize them.

### Cleaning Discs



Dust, fingerprints or spit on the disc will result in noise or skipping. If the disc is dirty or if the CD player does not operate properly, use the following procedure to clean the disc:

- Hold the disc with the signal surface (the side opposite the labelled side) facing up, as shown in the diagram.
- Wipe the disc gently from the center towards the edge (in the direction of the arrow) with a soft cloth.

Do not clean discs with the following:

- Benzene, alcohol or other solvents
- Cleaner including an abrasive
- Sprays or cleaners designed for records
- Anti-static

#### NOTES

- Do not wipe discs in the direction opposite the arrow or in a circular motion as with regular records.
- The disc's signal surface is easily damaged, so do not wipe it with a hard cloth or rub it strongly.

## 15 SPECIFICATIONS

### ■ Pre-main amplifier (UPA-F10)

**Practical maximum output:**  
**Low frequency adjustment range:**  
**High frequency adjustment range:**  
**Audio input/output jacks:**

55W + 55W (4 ohms DIN)  
 100Hz ±8dB  
 10kHz ±8dB  
 CD input jacks, tape input/output jacks, tuner input jacks, MD/AUX input/output jacks, processor loop jacks, 6.3mm headphones jack and phono input jacks  
 AC 230V, 50Hz  
 130W  
 270 (W) × 96 (H) × 342 (D) mm  
 (10-5/8" × 3-25/32" × 13-15/32")  
 (including feet, controls and terminals)  
 4.5kg (9 lbs. 15 oz)

**Power supply:**  
**Power consumption:**  
**Maximum external dimensions:**

**Weight:**

### ■ Tuner (UTU-F10)

**Reception frequency band:**

FM: 87.50 MHz – 108.00 MHz  
 AM: 522 kHz – 1611 kHz  
 FM: 1.5 μ/75 ohms  
 AM: 20 μV

**Reception sensitivity:**

**FM stereo separation:**

**Power supply:**  
**Power consumption:**  
**Maximum external dimensions:**

40dB (1kHz)  
 AC 230V, 50Hz  
 8W  
 270 (W) × 96 (H) × 318 (D) mm  
 (10-5/8" × 3-25/32" × 12-33/64")  
 (including feet, controls and terminals)  
 2.8kg (6 lbs. 3 oz)

**Weight:**

### ■ CD player (UCD-F10)

**Wow & flutter:**

Below measurable limits  
 (±0.001% W, peak)

**Sampling frequency:**

**Optical source:**

**Power supply:**  
**Power consumption:**  
**Maximum external dimensions:**

44.1 kHz  
 Semiconductor  
 AC 230V, 50Hz  
 8W  
 270 (W) × 96 (H) × 315 (D) mm  
 (10-5/8" × 3-25/32" × 12-13/32")  
 (including feet, controls and terminals)  
 3.3kg (7 lbs. 5 oz)

**Weight:**

### ■ Cassette deck (UDR-F10)

**Type:**

**Heads:**

Horizontal 4-track 2-channel stereo cassette deck  
 1 hard permalloy recording/playback head  
 1 double-gap ferrite erasing head  
 4.75 cm/s

**Tape speed:**

**Included circuits:**

**Usable tapes:**

**Power supply:**

**Power consumption:**  
**Maximum external dimensions:**

Dolby B and C NR, Dolby HX Pro  
 Normal, chrome and metal  
 AC 230V, 50Hz  
 13W  
 270 (W) × 96 (H) × 313 (D) mm  
 (10-5/8" × 3-25/32" × 12-21/64")  
 (including feet, controls and terminals)  
 3.8kg (8 lbs. 6 oz)

**Weight:**

### ■ Remote control unit (RC-172)

**Remote control system:**

**Number of buttons:**

**Power supply:**

**Maximum external dimensions:**

Infrared pulse  
 50  
 Two DC 1.5V R6P/AA batteries  
 57 (W) × 197 (H) × 21 (D) mm  
 (2-1/4" × 7-3/4" × 53/64")  
 130g (including batteries) (Approx. 4.6 oz)


**Weight:**

- Maximum dimensions include controls, jacks, and covers.

(W) = width, (H) = height, (D) = depth

- For improvement purposes, specifications and functions are subject to change without advanced notice.

■ Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation HX Pro originated by Bang & Olufsen.

■ "DOLBY", the double-D symbol  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

## 16 TROUBLESHOOTING

Check the following once more before assuming there is a problem with the system.

1. Are connections proper?

2. Is the system being operated as explained in the operating instructions?

If the system does not seem to be operating properly, check as shown on the table below. If none of these checks apply to the problem, the system may be malfunctioning. Disconnect the power cord immediately and contact your store of purchase.

|               | Symptom   | Cause   | Countermeasure  | Page                |
|---------------|---|---|---|---------------------|
| General       | Power does not turn on when power switch is pressed.  | ● Power cord is not plugged into a power outlet.  | ● Plug the power cord securely into an outlet.  | 5                   |
|               | No sound is produced from the speakers.   | ● VOLUME control is turned down.<br>● Headphones are connected.<br>● Speaker cords are not securely connected.                  | ● Set the control to an appropriate position.<br>● Disconnect the headphones.<br>● Connect securely.                        | 6<br>6<br>5         |
|               | No treble sound is produced, or the position of the instruments is unclear.   | ● Speaker polarities (⊕ and ⊖) are inverted.  | ● Connect the speaker cords properly.   | 5                   |
|               | A source other than the desired one is heard.   | ● Function is not properly set.   | ● Set the desired function using the FUNCTION button.   | 6                   |
| Cassette deck | Recording does not start when REC/REC MUTE button is pressed.   | ● No cassette tape is loaded.<br>● Accidental erasure protection tabs are broken off.   | ● Load a cassette tape.<br>● Cover the tab holes with cellophane tape.  | 16<br>16            |
|               | Sound is broken or no sound is produced during recording and playback.  | ● Heads are dirty.<br>● Cassette tape is defective.   | ● Clean the heads.<br>● Replace the cassette tape.  | 25<br>-             |
|               | Humming sound is heard while playing cassette tapes.  | ● Noise from a TV.<br>● (Noise may be produced by some types of TVs.)   | ● Move the TV away from the system.<br>● Turn the TV off.   | 4<br>-              |
|               | Wow (shaky sound) is heavy during recording or playback.  | ● Capstans or pinch rollers are dirty.  | ● Clean them.   | 25                  |
| Tuner         | Hissing sound is heard in FM programs.  | ● Antenna direction is poor.<br>● Signals from the broadcast station are weak.  | ● Change the direction of the antenna.<br>● Install an outdoor antenna.   | 4<br>4              |
|               | Hissing sound is heard in AM programs.  | ● Noise from a TV or interference from a broadcast station.   | ● Turn the TV off.<br>● Change the direction of the loop antenna.<br>● Install an outdoor antenna.                          | -<br>-<br>4         |
|               | Humming sound is heard in AM programs.  | ● Signals on the power cord are being modulated by the power source frequency.  | ● Insert the power cord in the opposite direction.<br>● Install an outdoor antenna.   | -<br>4              |
| CD player     | Total number of tracks not displayed when disc is loaded.   | ● Disc is loaded upside-down.<br>● Disc is dirty.<br>● Disc is not of the specified type.                                       | ● Reload the disc.<br>● Clean the disc.<br>● Replace with a disc of the specified type.                                     | 20<br>25<br>-       |
|               | Nothing happens when operating buttons are pressed. Disc stops in the middle of a track and will not play properly. | ● Disc is loaded upside-down.<br>● Foreign object on disc tray.<br>● Disc is dirty.<br>● Disc is scratched.                     | ● Reload the disc.<br>● Remove the disc and the foreign object.<br>● Clean the disc.<br>● Replace with an unscratched disc. | 20<br>20<br>25<br>- |
|               | Sound is broken.  | ● Dirt, fingerprints, spittle, etc. on disc.<br>● Disc is scratched.<br>● Player is in an unstable place and vibrates strongly. | ● Clean the disc.<br>● Replace with an unscratched disc.<br>● Place the player in a stable place with no vibrations.        | 25<br>-<br>-        |
|               | Humming sound is heard when disc is played.   | ● Signals on the power cord are being modulated by the power source frequency.  | ● Insert the power cord in the opposite direction.  | -                   |

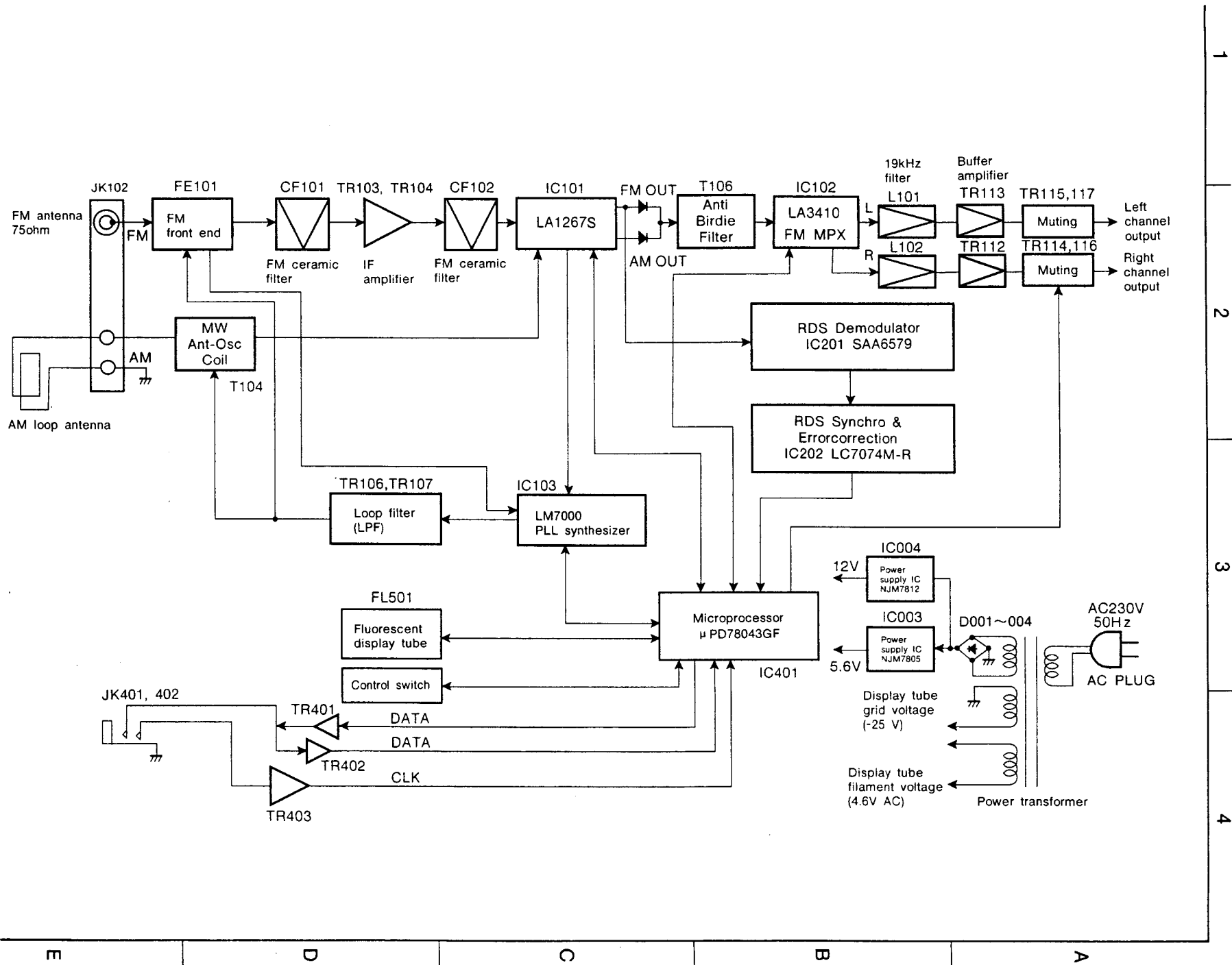
### ● Protector circuit

The UPA-F10 is equipped with a high speed protector circuit.

This circuit protects internal parts from being damaged by strong currents generated in the set should the set be operated when the speaker terminals are incompletely connected or short-circuited.

If this protector circuit is activated, a relay sound is produced, the output to the speakers is interrupted, and the function and power LEDs flash to indicate that there is a problem. If this should happen, unplug the power cord, check the speaker connections, then plug in the power cord and turn the power back on. After several seconds, a relay sound is heard and the set starts operating properly.

- The set may not operate properly due to such external influences as lightning or static electricity. If this happens, either turn off the power with the pre-main amplifier's SYSTEM POWER switch or unplug the power cord, wait approximately 5 seconds, then plug the power cord back in.



BLOCK DIAGRAM

TUNER SECTION

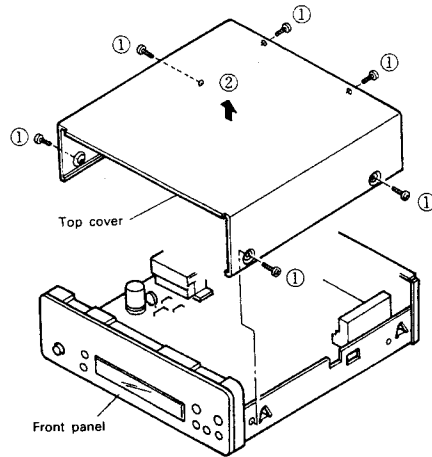
**TUNER SECTION**

**DISASSEMBLY PROCEDURES**

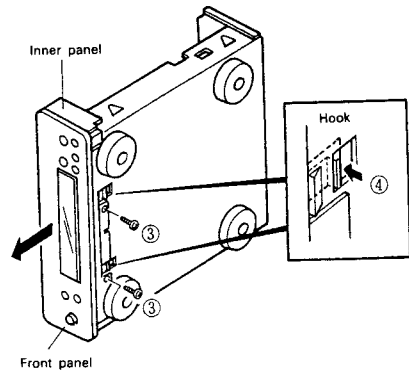
(Assembly is performed in the reverse order.)

**1. Removing the Top Cover and the Front Panel**

- ① Remove the six screws which fasten the top cover.
- ② Remove the top cover (upward) in the direction of the arrow.



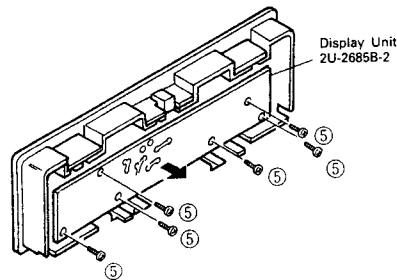
- ③ Remove the two screws which fasten front panel.
- ④ Release the inner panel hooks from the chassis while pulling the panels in the direction of the arrow to remove the inner panel and the front panel as one unit.



**2. Removing the Units**

**Display Unit (2U-2685B-2)**

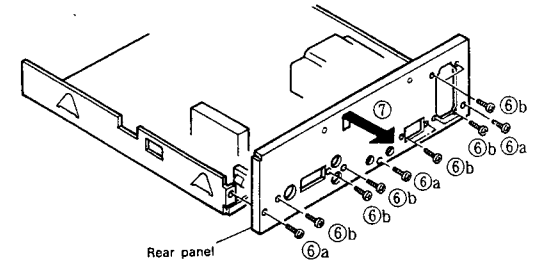
- ⑤ Remove the six screws which fasten the display unit.



**TUNER SECTION**

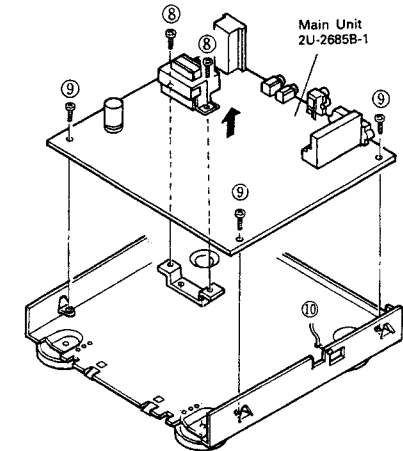
**3. Removing the Rear Panel**

- ⑥ Remove the three "a" screws and seven "b" screws which fasten the rear panel.
- ⑦ Remove the rear panel in the direction of the arrow.



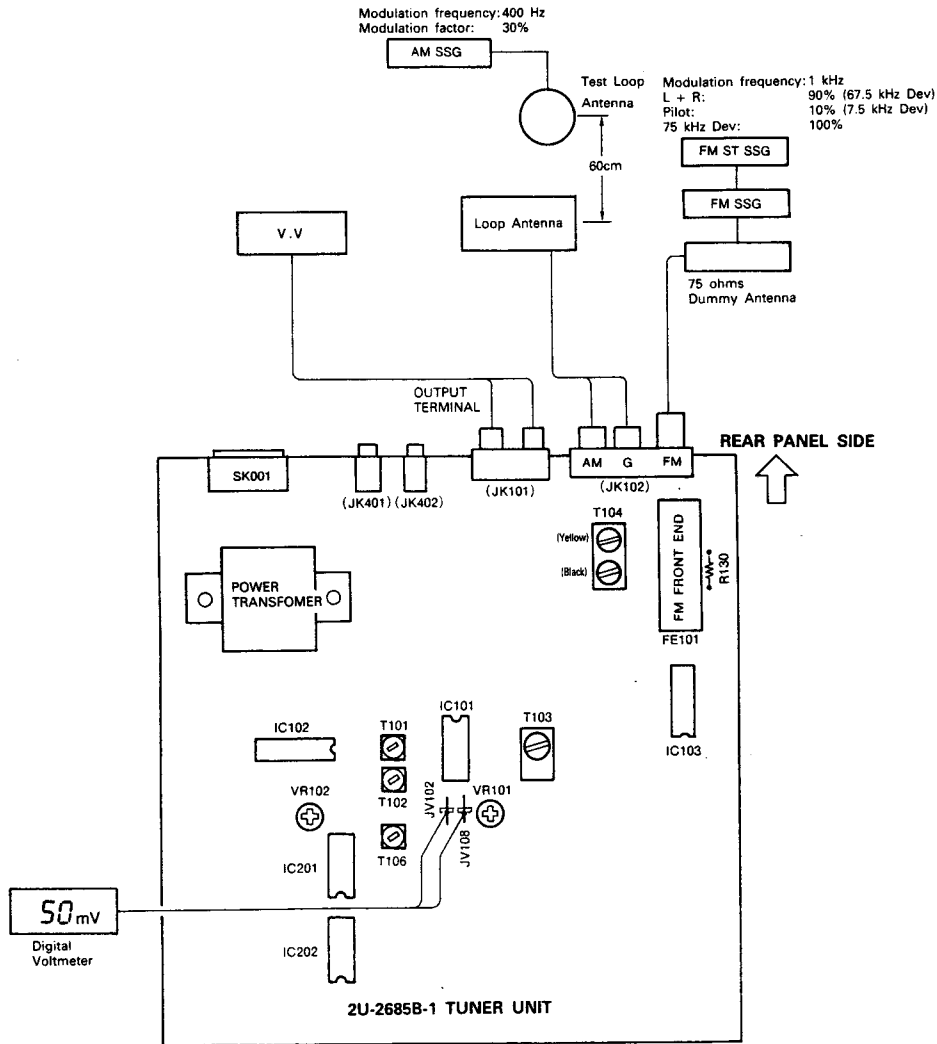
**Main Unit (2U-2685B-1)**

- ⑧ Remove the two screws which fasten the transformer.
- ⑨ Remove the three screws which fasten the main unit.
- ⑩ Remove the solder of the wire which goes between the chassis ground screw and the front end.



**TUNER SECTION**

**ADJUSTMENTS**



**TUNER SECTION**

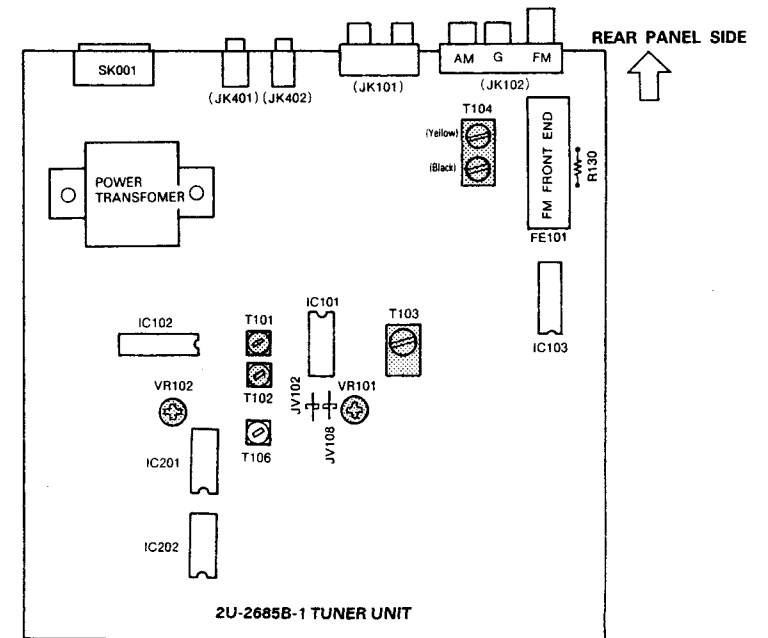
**1. FM adjustment (BAND button: FM, MONO/STEREO button: STEREO)**

| Step | Adjustment item      | Tuning point (channel setting) | Input                       |           |             |  | Output              |  | Adjustment location | Setting value      | Notes                                   |   |
|------|----------------------|--------------------------------|-----------------------------|-----------|-------------|--|---------------------|--|---------------------|--------------------|---|---|
|      |                      |                                | Measuring instrument        | Frequency | Input level | Modulation   | Connection location | Measuring instrument                     |                     |                    |   | Connection location   |
| 1    | FM DC balance        | 98.00MHz                       | FM S.G.                     | 98.00MHz  | 60dB $\mu$  | 1kHz<br>75kHz DEV                                      | FM antenna terminal | Digital volt meter<br>⊕ JV108<br>⊖ JV102 | T101                | 0 $\pm$ 50mV       | Perform with monaural modulation signal |   |
| 2    | Distortion           | -                              | -                           | -         | -           | -  | -                   | Distortion factor meter                  | Output jack         | Minimum distortion | -                                       |   |
| 3    | Repeat Steps 1 and 2 |                                |                             |           |             |  |                     |  |                     |                    |   |   |
| 4    | Auto stop level      | 98.00MHz                       | FM S.G.                     | 98.00MHz  | 22dB $\mu$  | 1kHz<br>75kHz DEV                                      | FM antenna terminal | Check for the lighting of TUNED          | Output jack         | VR101              | Input level<br>22dB $\mu$ =4dB          | (Level at which TUNED lights up)<br>Level at which the output is provided |
| 5    | Stereo separation    | -                              | FM stereo modulator FM S.G. | -         | 60dB $\mu$  | 1kHz<br>L or R:<br>67.5kHz DEV<br>Pilot:<br>7.5kHz DEV | -                   | VTVM<br>Oscilloscope                     | -                   | VR102              | Minimum R.ch. Output                    | Perform with L.ch. Input of FM stereo modulator                           |

**2. AM adjustment (BAND button: AM)**

| Step | Adjustment item                                      | Tuning point (channel setting)        | Input                |           |                                    |              | Output              |                      | Adjustment location   | Setting value | Notes                           |                     |
|------|--|---------------------------------------|----------------------|-----------|------------------------------------|--------------|---------------------|----------------------|-----------------------|---------------|---------------------------------|---------------------|
|      |  |                                       | Measuring instrument | Frequency | Input level                        | Modulation   | Connection location | Measuring instrument |                       |               |                                 | Connection location |
| 1    | IF   | Clear frequency (without a broadcast) | AM IF sweep          | -         | Level at which -AGC is not applied | -            | AM antenna terminal | Oscilloscope         | Output jack           | T103          | Waveform maximum and symmetry   | -                   |
| 2    | Band edge  | 52kHz<br>1611kHz                      | -                    | -         | -                                  | -            | -                   | Digital voltmeter    | ⊕ R103 (1kohm)<br>⊖ G | T104 Black    | 1.2V $\pm$ 0.2V<br>Approx. 7.6V | No piece to adjust  |
| 3    | Tracking   | 603kHz                                | AM S.G.              | 603kHz    | Level at which AGC is not applied  | 400Hz<br>30% | Loop antenna        | VTVM                 | Output terminal       | T104 Yellow   | Maximum output                  | -                   |
| 4    | Repeat Steps 2 and 3, and set the output to maximum. |                                       |                      |           |                                    |              |                     |                      |                       |               |                                 |                     |

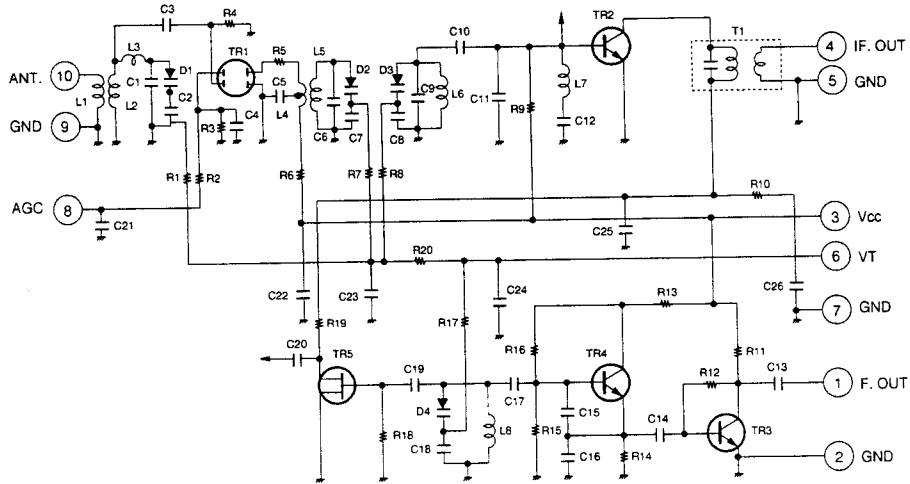
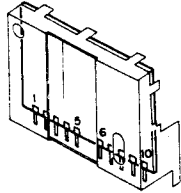
**2U-2685B-1 TUNER MAIN UNIT (Component Side)**



**TUNER SECTION**

Front End  
Part No.: 216 0097 003

| No. | Name    | No. | Name |
|-----|---------|-----|------|
| 1   | F. OUT  | 6   | VT   |
| 2   | GND     | 7   | GND  |
| 3   | Vcc     | 8   | AGC  |
| 4   | IF. OUT | 9   | GND  |
| 5   | GND     | 10  | ANT  |



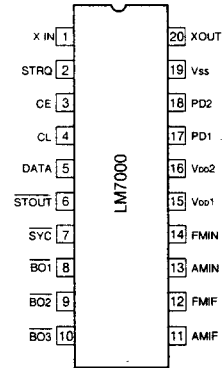
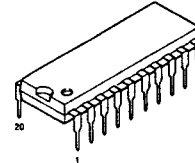
- Note
1. Terminal Number Refer to Overall Appearance
  2. Receiving Frequency 87.5 ~ 108 MHz
  3. Input Impedance ⑨ ~ ⑩ 75 ohm
  4. Output Impedance 300 ohm
  5. Supply Voltage 12 V
  6. Tuning Voltage 1.0 ~ 9.0 V

**TUNER SECTION**

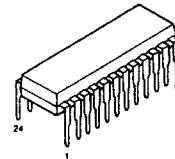
**SEMICONDUCTORS**

• IC's

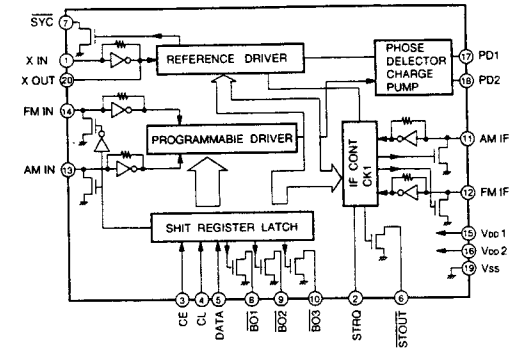
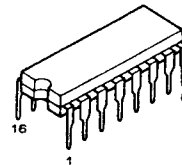
LM7000 (IC103)



LA1267S (IC101)

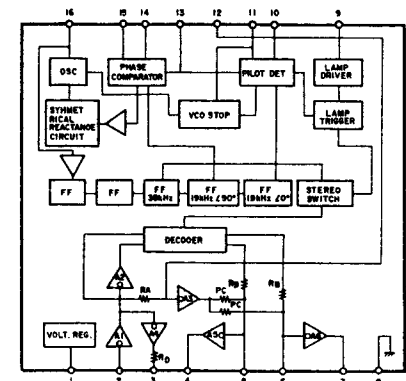
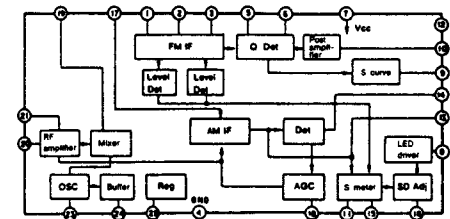


LA3410 (IC102)



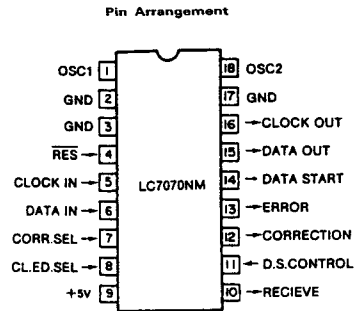
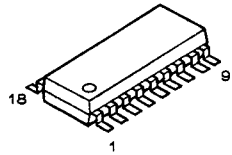
**Pin Description**

- SYNC : Clock (400 kHz) for the controller
- X IN, X OUT : X'tal oscillator (7.2 MHz) with built-in feedback resistor
- FM IN, AM IN : Local oscillator signal input
- CE, CL, DATA : Data input
- BO1, BO2, BO3 : Band data output. BO1 can be set as the time base output (8 Hz).
- STRO : IF counter request input
- STOUT : Auto research stop signal output
- VDD1, VDD2, VSS : Power supply (VDD2 is a back-up power supply)
- AMF, FMIF : IF signal input
- PD1, PD2 : Charge pump output



**TUNER SECTION**

LC7074M-R (IC202)



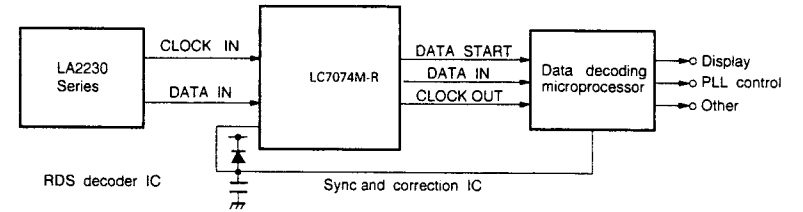
**Pin Description**

| Symbol       | Pin No.    | I/O    | Function/Details   | At Time of Reset |
|--------------|------------|--------|--|------------------|
| OSC1         | 1          | Input  | 4 MHz ceramic oscillator connection.   |                  |
| OSC2         | 18         | Output |  | "H" output       |
| CLOCK IN     | 5          | Input  | RDS LA2230 series demodulation clock input.  | "H" output       |
| DATA IN      | 6          | Input  | RDS LA2230 series demodulation data input.   | "H" output       |
| CORR. SEL    | 7          | Input  | <ul style="list-style-type: none"> <li>Error correction on/off selection input.</li> <li>Sets the IC to correct errors in the RDS demodulation data or to output the data without correction.</li> <li>When input is 0 : No corrections are made</li> <li>When input is 1 : Corrections are executed</li> </ul>  | "H" output       |
| CL. ED. SEL  | 8          | Input  | <ul style="list-style-type: none"> <li>Serial data clock polarity selection input.</li> <li>When input is 0 : Serial data output is enabled at the rise of the output clock. (Serial data output changes at the fall of the output clock.)</li> <li>When input is 1 : Serial data output is enabled at the fall of the output clock. (Serial data output changes at the rise of the output clock.)</li> </ul> <b>NOTE:</b> Set at the time of RES input. | "H" output       |
| D.S. CONTROL | 11         | Input  | <ul style="list-style-type: none"> <li>Block data start signal control input.</li> <li>When input is 0 : Data start signal is output for all blocks.</li> <li>When input is 1 : Data start signal is output for only the second block.</li> </ul>  | "H" output       |
| RECEIVE      | 10<br>(NC) | Output | <ul style="list-style-type: none"> <li>Output during RDS data reception.</li> <li>After the completion of sync detection, there is a low-level output while the serial data is being output. There is a high-level output at other times.</li> <li>Open drain output.</li> </ul>   | "H" output       |
| CORRECTION   | 12<br>(NC) | Output | <ul style="list-style-type: none"> <li>Output with or without error correction.</li> <li>There is a low-level output when the output data of the serial data output have been corrected or when correction is not possible. There is a high-level output when correction has not been applied.</li> <li>Open drain output.</li> </ul>  | "H" output       |
| ERROR        | 13<br>(NC) | Output | <ul style="list-style-type: none"> <li>Presence of error output.</li> <li>There is a low-level output when the output data of the serial data output has an error and correction is not possible. There is a high-level output when there is no error or when the error has been corrected.</li> <li>Open drain output.</li> </ul>   | "H" output       |
| DATA START   | 14         | Output | <ul style="list-style-type: none"> <li>Block data start signal of the serial data output.</li> <li>Output with pull-up resistor.</li> </ul>  | "H" output       |

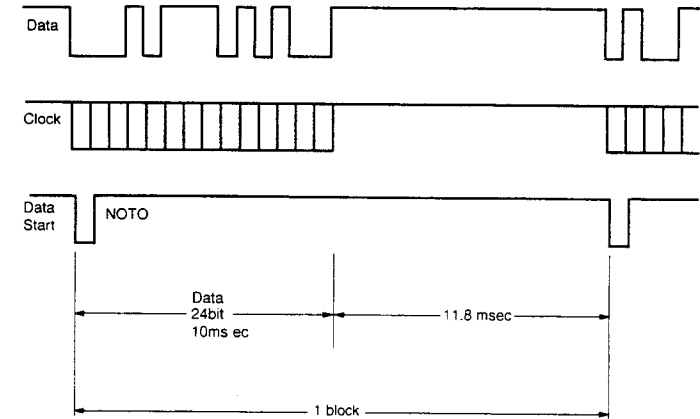
**TUNER SECTION**

| Symbol    | Pin No. | I/O    | Function/Details  | At Time of Reset |
|-----------|---------|--------|---|------------------|
| DATA OUT  | 15      | Output | <ul style="list-style-type: none"> <li>Data output of the serial data output.</li> <li>Output with pull-up resistor.</li> </ul>   | "H" output       |
| CLOCK OUT | 16      | Output | <ul style="list-style-type: none"> <li>Clock output of the serial data output.</li> <li>Output with pull-up resistor.</li> </ul>  | "H" output       |
| RES       | 4       | Input  | <ul style="list-style-type: none"> <li>System reset input.</li> <li>Reset and restart is accomplished by inputting the low level for 4 or more clock cycles.</li> </ul> |                  |

**Structure of the RDS Data Processing System**



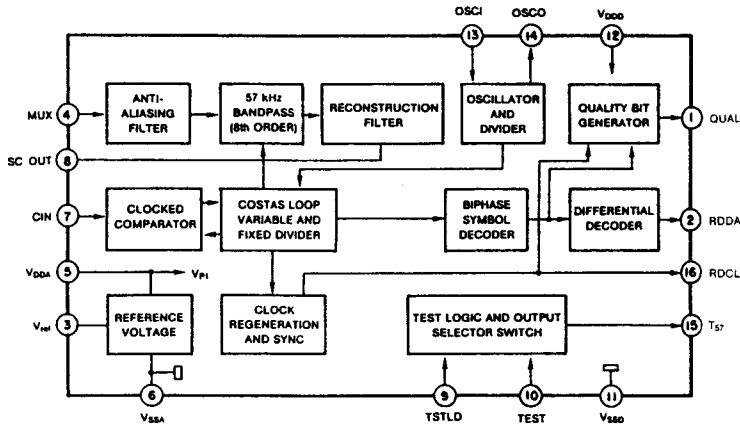
**Serial Data Output Timing Chart**



**NOTE:** Using the D.S. CONTROL input, only the second block among the entire 4 blocks of RDS data can be switched between the data start output and the total blocks' data start output.

**TUNER SECTION**

SAA8579 (IC201)

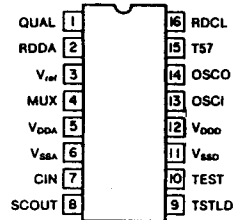


Block diagram and application circuit

**Pin Description**

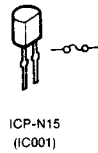
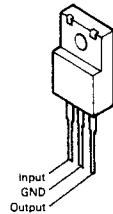
| SYMBOL           | PIN | DESCRIPTION                                      |
|------------------|-----|--|
| QUAL             | 1   | quality indication output                        |
| RDDA             | 2   | RDS data output                                  |
| Vref             | 3   | reference voltage output (0.5 V <sub>DDA</sub> ) |
| MUX              | 4   | multiplex signal input                           |
| V <sub>DDA</sub> | 5   | +5 V supply voltage for analog part              |
| V <sub>SSA</sub> | 6   | ground for analog part (0 V)                     |
| CIN              | 7   | subcarrier input to comparator                   |
| SCOUT            | 8   | subcarrier output of reconstruction filter       |
| TSTLD            | 9   | test control                                     |
| TEST             | 10  | test enable                                      |
| V <sub>SSD</sub> | 11  | ground for digital part (0 V)                    |
| V <sub>DDO</sub> | 12  | +5 V supply voltage for digital part             |
| OSCI             | 13  | oscillator input                                 |
| OSCO             | 14  | oscillator output                                |
| T57              | 15  | 57 kHz clock signal output                       |
| RDCL             | 16  | RDS clock output                                 |

**Pin configuration**



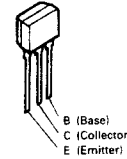
NJN7805FA(S) (IC003)  
NJN7812FA(S) (IC004)

**IC PROTECTOR**

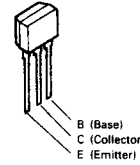


**Transistors**

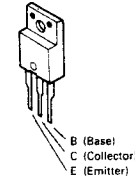
2SA933S (S)  
2SC1740S (E)



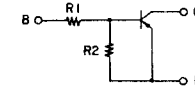
DTA114ES PNP Type  
DTC144ES NPN Type  
DTC343TS NPN Type



2SA1488 (Y)/(G)

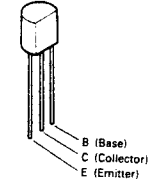


PNP Type  
DTA ES Series

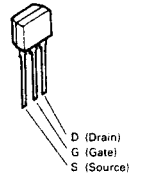


|          | R1      | R2     |
|----------|---------|--------|
| DTA114ES | 10 kohm | 10 kom |

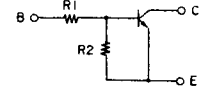
2SC2410S



2SK365 (BL/GR)

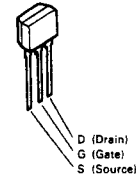


NPN Type  
DTC ES/TS Series



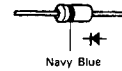
|          | R1       | R2     |
|----------|----------|--------|
| DTC144ES | 47 kohm  | 47 kom |
| DTC343TS | 4.7 kohm | -      |

2SK161 (GR)



**Diodes**

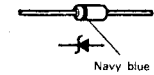
1SS270A



1SR35-200A



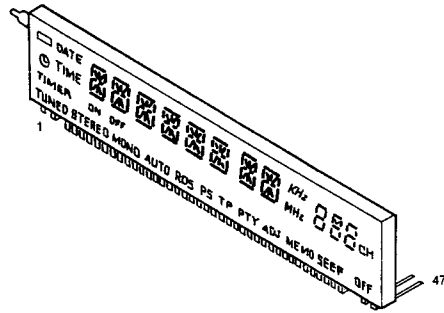
HZS4A-1  
HZS6A-1  
HZS6B-1  
HZS9A-1  
HZS27-1





**TUNER SECTION**

• **Fluorescent Display Tube 11BT27GK**  
(Part No.: 393 8012 002)

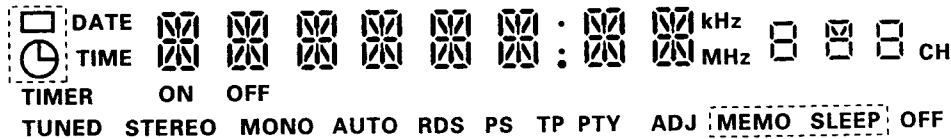


**Pin Connections**

|            |    |    |    |     |     |     |     |     |     |     |    |    |    |     |     |    |    |    |    |    |    |    |    |    |
|------------|----|----|----|-----|-----|-----|-----|-----|-----|-----|----|----|----|-----|-----|----|----|----|----|----|----|----|----|----|
| Pin No.    | 1  | 2  | 3  | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11 | 12 | 13 | 14  | 15  | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| Connection | F1 | F1 | NP | NP  | 1G  | 2G  | 3G  | 4G  | 5G  | 6G  | 7G | 8G | 9G | 10G | 11G | NC | NC | NC | NC | NC | NC | NC | NC | NC |
| Pin No.    | 25 | 26 | 27 | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35 | 36 | 37 | 38  | 39  | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 |    |
| Connection | NC | NC | NC | P16 | P15 | P14 | P13 | P12 | P11 | P10 | P9 | P8 | P7 | P6  | P5  | P4 | P3 | P2 | P1 | NP | NP | F2 | F2 |    |

- NOTE**
- 1) F1 and F2: ..... Filaments
  - 2) NP: ..... No pin
  - 3) NC: ..... No connection
  - 4) 1G through 11G: ..... Grid

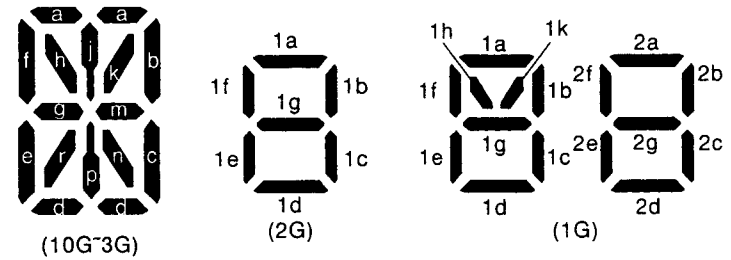
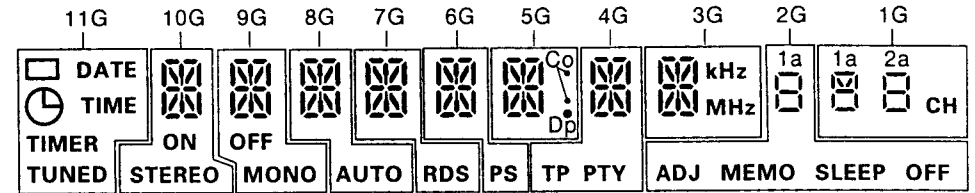
**Pattern Details**



**Illumination colors**  
 Reddish orange (Rsh. O x = 0.645, y = 0.355) ..... portion of above pattern  
 Green (G. x = 0.235, y = 0.405) ..... Other portions

**TUNER SECTION**

**GRID ASSIGNMENT**



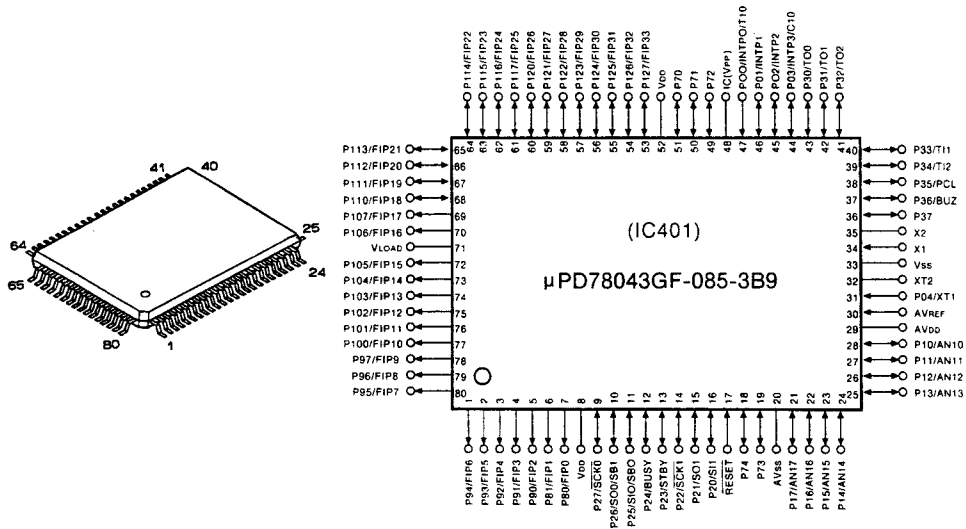
**ANODE CONNECTION**

|     | 11G   | 10G    | 9G   | 8G   | 7G  | 6G | 5G  | 4G  | 3G  | 2G    | 1G     |
|-----|-------|--------|------|------|-----|----|-----|-----|-----|-------|--------|
| P1  | □     | a      | a    | a    | a   | a  | a   | a   | a   | 1a    | 1a     |
| P2  | DATE  | b      | b    | b    | b   | b  | b   | b   | b   | 1b    | 1b     |
| P3  | ⌚     | c      | c    | c    | c   | c  | c   | c   | c   | 1c    | 1c     |
| P4  | TIME  | d      | d    | d    | d   | d  | d   | d   | d   | 1d    | 1d     |
| P5  | TIMER | e      | e    | e    | e   | e  | e   | e   | e   | 1e    | 1e     |
| P6  | TUNED | f      | f    | f    | f   | f  | f   | f   | f   | 1f    | 1f     |
| P7  | —     | g      | g    | g    | g   | g  | g   | g   | g   | 1g    | 1g     |
| P8  | —     | h      | h    | h    | h   | h  | h   | h   | h   | ADJ   | 1h, 1k |
| P9  | —     | j      | j    | j    | j   | j  | j   | j   | j   | MEMO  | 2a     |
| P10 | —     | k      | k    | k    | k   | k  | k   | k   | k   | SLEEP | 2b     |
| P11 | —     | m      | m    | m    | m   | m  | m   | m   | m   | OFF   | 2c     |
| P12 | —     | n      | n    | n    | n   | n  | n   | n   | n   | —     | 2d     |
| P13 | —     | p      | p    | p    | p   | p  | p   | p   | p   | —     | 2e     |
| P14 | —     | r      | r    | r    | r   | r  | r   | r   | r   | —     | 2f     |
| P15 | —     | ON     | OFF  | AUTO | RDS | PS | col | TP  | KHz | —     | 2g     |
| P16 | —     | STEREO | MONO | —    | —   | —  | Dp  | PTY | MHz | —     | CH     |

**TUNER SECTION**

**MICROPROCESSOR DOCUMENTATION**

μPD78043GF-085-3B9 : 262 1937 204



**1. Overview**

The functions of this microprocessor comprise the following three types.

**a. Tuner functions**

- Control operations required for receiving FM and AM broadcasts.

**b. Timer functions**

- These functions count the clock of the 24-hour display.
- These functions perform two types of timer operations, "everyday and sleep."

**c. Display functions**

- These functions output the drive signals of the fluorescent display tube.

**NOTE 1** Plugging the power cord into a power outlet while depressing both the STANDBY and MEMORY buttons will automatically register the frequencies used for tracking adjustments to the preset memory. These frequencies can be used for adjustments and other purposes.

|          |       |       |       |        |        |      |      |      |   |   |
|----------|-------|-------|-------|--------|--------|------|------|------|---|---|
|          | P1    | P2    | P3    | P4     | P5     | P6   | P7   | P8   | — | — |
| AM (kHz) | 522   | 603   | 846   | 999    | 1098   | 1404 | 1512 | 1611 |   |   |
|          | P11   | P12   | P13   | P14    | P15    | —    | —    | —    | — | — |
| FM (MHz) | 87.50 | 84.00 | 98.00 | 100.10 | 108.00 |      |      |      |   |   |

※ P9, P10, and P21 through P30 are AM 522 kHz, and P16 through P20 are FM 87.50 MHz.

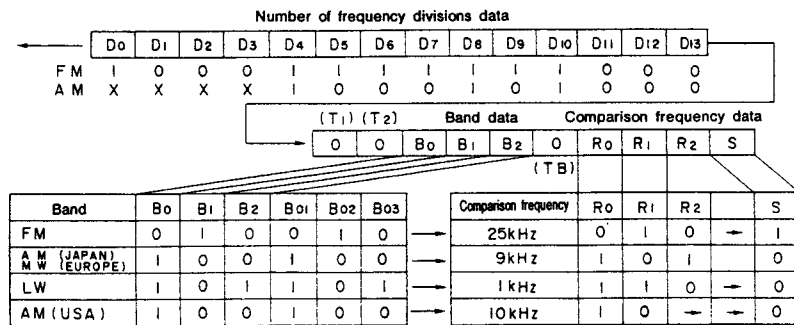
**NOTE 2** Plugging the power cord into a power outlet while depressing both the MEMORY and BAND buttons will initialize all settings including the current time and the contents of the timers and preset memory.

2. Receiving Band Table

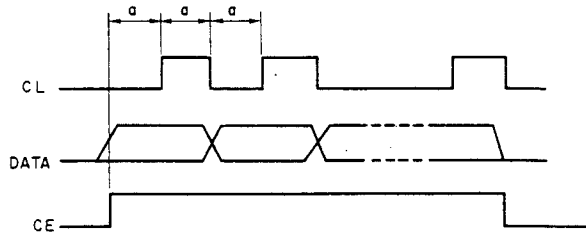
| Band | Receiving frequency | Local oscillator frequency | IF      | Frequency division ratio | Comparison frequency | Step frequency | Other |
|------|---------------------|----------------------------|---------|--------------------------|----------------------|----------------|-------|
| FM   | 87.50~108.00MHz     | 98.20~118.70MHz            | 10.7MHz | 1                        | 25kHz                | 50kHz          |       |
| AM   | 522~1611kHz         | 972~2061kHz                | 450kHz  | -                        | 9kHz                 | 9kHz           |       |

3. Signals sent to the LM7000 Programmable Divider

- a. Signals to the programmable divider are sent from 3 sources: CE OUT, CLOCK OUT, and DATA OUT.
- b. The programmable divider takes in DATA at CLOCK  $\overline{\text{CLK}}$ , when CE equals 1.
- c. The data is a 24-bit serial signal which is taken in to the programmable divider from the LSB. (At the AM setting, D<sub>0</sub> through D<sub>3</sub> are ignored, so that D<sub>4</sub> becomes the LSB.)
- d. The data is made up of the number of frequency divisions data, the band data, and the comparison frequency data. (See diagram below.)



e. Timing for sending  
a = 2.5 μsec



• Pin Description

| No. | Port Name            | Function Name     | I/O | Ini | ACT | Function   |
|-----|----------------------|-------------------|-----|-----|-----|--|
| 1   | P94/FIP6             | 7G                | O   | L   | H   | Fluorescent tube digit signal output   |
| 2   | P93/FIP5             | 6G                | O   | L   | H   | Fluorescent tube digit signal output   |
| 3   | P92/FIP4             | 5G                | O   | L   | H   | Fluorescent tube digit signal output   |
| 4   | P91/FIP3             | 4G                | O   | L   | H   | Fluorescent tube digit signal output   |
| 5   | P90/FIP2             | 3G                | O   | L   | H   | Fluorescent tube digit signal output   |
| 6   | P81/FIP1             | 2G                | O   | L   | H   | Fluorescent tube digit signal output   |
| 7   | P80/FIP0             | 1G                | O   | L   | H   | Fluorescent tube digit signal output   |
| 8   | V <sub>DD</sub>      | 5V                | -   | -   | -   | +5 V   |
| 9   | P27/SCK0             | SBCLK             | O   | L   | H   | DENON BUS clock  |
| 10  | P28/SQ0/SB1          | TXD0              | O   | L   | H   | DENON BUS data output  |
| 11  | P25/SI0/SB0          | RXD               | I   | L   | H   | DENON BUS data input   |
| 12  | P24/BUSY             | RDS Reset         | O   | L   | L   | LC7070 reset output  |
| 13  | P23/STBY             | PLLCE             | O   | H   | H   | PLL serial data selection output   |
| 14  | P22/SCK1             | CC lock           | I/O | H   | -   | RDS data fetch clock input and PLL control clock output                            |
| 15  | P21/SQ1              | PLL Data          | O   | H   | -   | PLL serial data output   |
| 16  | P20/SI1              | RDS Data          | I   | H   | -   | RDS serial data input  |
| 17  | RESET                | RESET             | I   | H   | H   | Reset  |
| 18  | P74                  | PLLSTRO           | O   | L   | L   | IF count operation request output  |
| 19  | P73                  | SignalIn          | I   | H   | L   | RF signal detection signal input   |
| 20  | AV <sub>SS</sub>     | GND               | -   | -   | -   | A/D converter ground   |
| 21  | P17/ANI7             | Tuned in          | I   | H   | -   | FM/AM sync signal input  |
| 22  | P16/ANI6             | NC                | I   | H   | -   | V <sub>DD</sub> connection   |
| 23  | P15/ANI5             | NC                | I   | H   | -   | V <sub>DD</sub> connection   |
| 24  | P14/ANI4             | NC                | I   | H   | -   | V <sub>DD</sub> connection   |
| 25  | P13/ANI3             | NC                | I   | H   | -   | V <sub>DD</sub> connection   |
| 26  | P12/ANI2             | NC                | I   | H   | -   | V <sub>DD</sub> connection   |
| 27  | P11/ANI1             | ANI1              | I   | -   | -   | Key input *1   |
| 28  | P10/ANI0             | ANI0              | I   | -   | -   | Key input *2   |
| 29  | AV <sub>DD</sub>     | AV <sub>DD</sub>  | -   | -   | -   | Analog 5 V (Common power supply with V <sub>DD</sub> as a measure against leakage) |
| 30  | AV <sub>REF</sub>    | AV <sub>REF</sub> | -   | -   | -   | +5 V (A/D converter reference voltage)   |
| 31  | P04/XT1              | XT1               | I   | -   | -   | 32.7 kHz (Xtal input oscillator for the clock)                                     |
| 32  | XT2                  | XT2               | O   | -   | -   | 32.7 kHz (Xtal output oscillator for the clock)                                    |
| 33  | V <sub>SS</sub>      | V <sub>SS</sub>   | -   | -   | -   | Digital ground   |
| 34  | X1                   | OSCI              | I   | -   | -   | 4.19 MHz (Xtal input)  |
| 35  | X2                   | OSCO              | O   | -   | -   | 4.19 MHz (Xtal output)   |
| 36  | P37                  | Power ON          | O   | H   | H   | Power on/off switching   |
| 37  | P36/BUZ              | NC                | O   | L   | L   | Open   |
| 38  | P35/RPL              | XTP               | O   | -   | -   | Xtal oscillator output (for frequency adjustments)                                 |
| 39  | P34/T12              | NC                | O   | L   | L   | Open   |
| 40  | P33/T11              | S0/60             | I   | -   | -   | AC power supply frequency (50/60 Hz) detection                                     |
| 41  | P32/T02              | Local/DX          | O   | L   | -   | RF signal strength control signal output   |
| 42  | P31/T01              | AUTO/MONO         | O   | L   | -   | Stereo (Auto)/Mono switching   |
| 43  | P30/T00              | NC                | O   | L   | L   | Open   |
| 44  | P03/INTP3/C10        | RDS Start         | I   | H   | L   | RDS signal start detection   |
| 45  | P02/INTP2            | NC                | O   | L   | L   | Open   |
| 46  | P01/INTP1            | RXD               | I   | H   | H   | DENON BUS data signal input (Transfer start request detection)                     |
| 47  | P00/INTP0/T10        | REMOCON           | I   | -   | -   | Remote control received data input   |
| 48  | IC(V <sub>DD</sub> ) | V <sub>DD</sub>   | -   | -   | -   | Ground (Set to 5 V when PROM program is used)                                      |
| 49  | P72                  | AM Stereo         | I   | H   | L   | AM stereo signal detection   |
| 50  | P71                  | Stop In           | I   | H   | L   | IF count sync detection  |
| 51  | P70                  | Stereo In         | I   | H   | L   | FM stereo recovery detection   |
| 52  | V <sub>DD</sub>      | V <sub>DD</sub>   | -   | -   | -   | 5 V  |
| 53  | P127/FIP33           | Mute Out          | O   | L   | L   | Mute output  |
| 54  | P126/FIP32           | NC                | O   | L   | L   | Open   |
| 55  | P125/FIP31           | NC                | O   | L   | L   | Open   |
| 56  | P124/FIP30           | NC                | O   | L   | L   | Open   |
| 57  | P123/FIP29           | NC                | O   | L   | L   | Open   |
| 58  | P122/FIP28           | Diode In          | I   | -   | L   | AM STEREO, EX, RDS, and ADJUST functions selection switch (diode) state detection  |
| 59  | P121/FIP27           | Jumper            | I   | -   | H   | Destination (Switch (diode) for USA, Europe, and frequency) state detection        |
| 60  | P120/FIP26           | Seg16             | O   | L   | L   | Segment 16 output  |
| 61  | P117/FIP25           | Seg15             | O   | L   | L   | Segment 15 output  |
| 62  | P116/FIP24           | Seg14             | O   | L   | L   | Segment 14 output  |
| 63  | P115/FIP23           | Seg13             | O   | L   | L   | Segment 13 output  |
| 64  | P114/FIP22           | Seg12             | O   | L   | L   | Segment 12 output  |
| 65  | P113/FIP21           | Seg11             | O   | L   | L   | Segment 11 output  |
| 66  | P112/FIP20           | Seg10             | O   | L   | L   | Segment 10 output  |
| 67  | P111/FIP19           | Seg9              | O   | L   | L   | Segment 9 output   |
| 68  | P110/FIP18           | Seg8              | O   | L   | L   | Segment 8 output   |
| 69  | P107/FIP17           | Seg7              | O   | L   | L   | Segment 7 output   |
| 70  | P106/FIP16           | Seg6              | O   | L   | L   | Segment 6 output   |
| 71  | V <sub>DD</sub>      | V <sub>DD</sub>   | -   | -   | -   | High B   |
| 72  | P105/FIP15           | Seg5              | O   | L   | L   | Fluorescent tube digit signal output   |
| 73  | P104/FIP14           | Seg4              | O   | L   | L   | Fluorescent tube digit signal output   |
| 74  | P103/FIP13           | Seg3              | O   | L   | L   | Fluorescent tube digit signal output   |
| 75  | P102/FIP12           | Seg2              | O   | L   | L   | Fluorescent tube digit signal output   |
| 76  | P101/FIP11           | Seg1              | O   | L   | L   | Fluorescent tube digit signal output   |
| 77  | P100/FIP10           | 11G               | O   | L   | L   | Fluorescent tube digit signal output   |
| 78  | P97/FIP9             | 10G               | O   | L   | L   | Fluorescent tube digit signal output   |
| 79  | P96/FIP8             | 9G                | O   | L   | L   | Fluorescent tube digit signal output   |
| 80  | P95/FIP7             | 8G                | O   | L   | L   | Fluorescent tube digit signal output   |

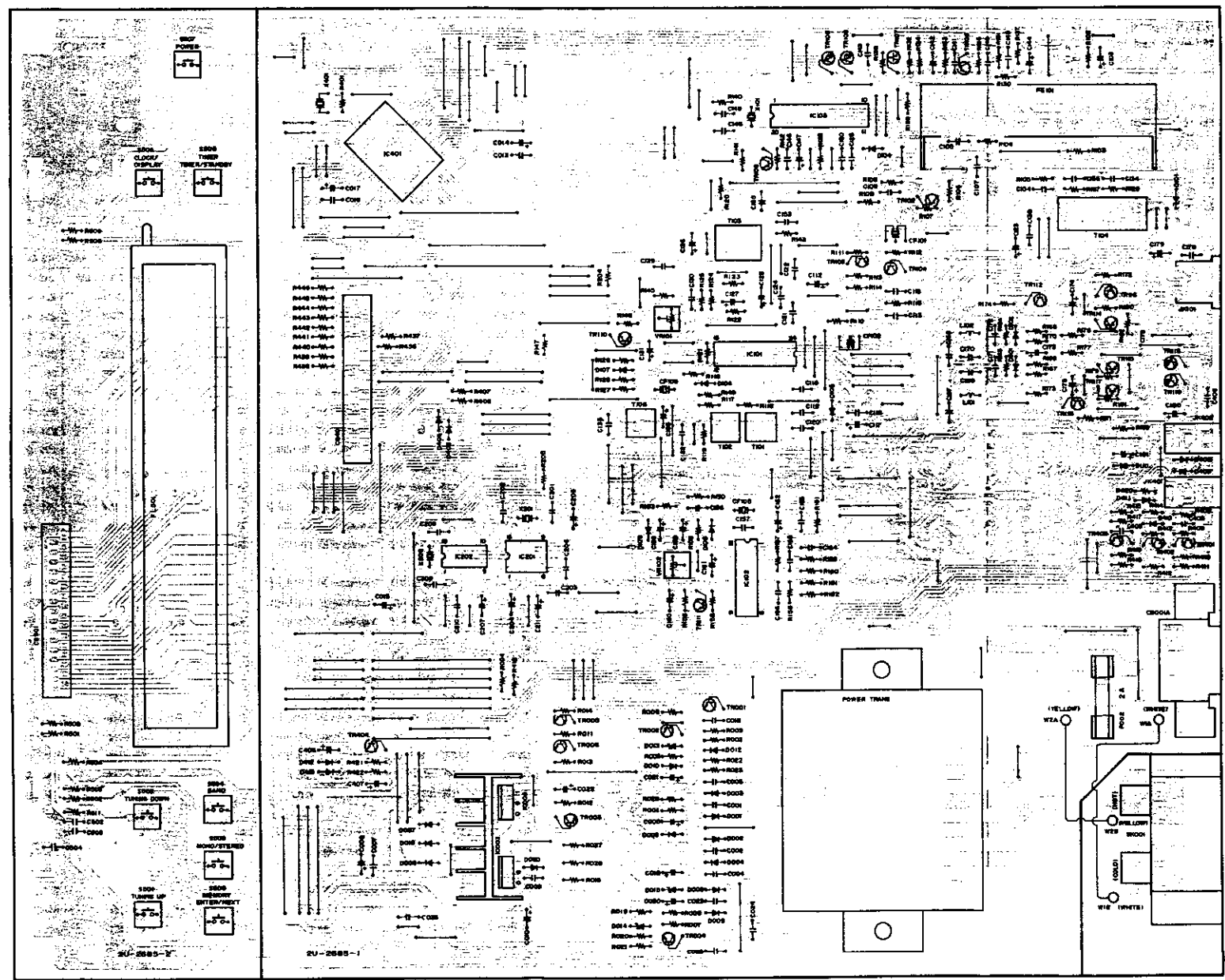
\*1: Each of the following buttons ..... CLOCK/DISPLAY, TIMER, BAND, MONO/STEREO, and TUNING up/down  
\*2: Each of the following buttons ..... PRESET up/down, PANEL, CT, PTY, RDS, MEMO, and DIMMER



TUNER SECTION

1 2 3 4 5 6 7 8

Pattern Side



A  
B  
C  
D  
E

**TUNER SECTION**

**NOTE ON PARTS LIST**

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

**WARNING:**

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

● **Resistors**

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

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

● **Resistance**  
 $\frac{1}{\text{---}} \frac{8}{\text{---}} \frac{2}{\text{---}}$  ⇒ 1800 ohm = 1.8 kohm  
 Indicates number of zeros after effective number  
 2-digit effective number  
 • Units: ohm

$\frac{1}{\text{---}} \frac{R}{\text{---}} \frac{2}{\text{---}}$  ⇒ 1.2 ohm  
 1-digit effective number.  
 2-digit effective number, decimal point indicated by R.  
 • Units: ohm

● **Capacity (electrolyte only)**  
 $\frac{2}{\text{---}} \frac{2}{\text{---}} \frac{2}{\text{---}}$  ⇒ 2200 μF  
 Indicates number of zeros after effective number.  
 2-digit effective number.  
 • Units: μF

$\frac{2}{\text{---}} \frac{R}{\text{---}} \frac{2}{\text{---}}$  ⇒ 2.2 μF  
 1-digit effective number.  
 2-digit effective number, decimal point indicated by R.  
 • Units: μF

● **Capacitors**

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

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

● **Capacity (except electrolyte)**  
 $\frac{2}{\text{---}} \frac{2}{\text{---}} \frac{2}{\text{---}}$  ⇒ 2200pF = 2200 μF = 0.0022 μF  
 (More than 2) Indicates number of zeros after effective number.  
 2-digit effective number.  
 • Units: pF

$\frac{2}{\text{---}} \frac{2}{\text{---}} \frac{1}{\text{---}}$  ⇒ 220pF  
 (0 or 1) Indicates number of zeros after effective number.  
 2-digit effective number.  
 • Units: pF

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

**2U-2685B TUNER UNIT ASS'Y PARTS LIST**

| Ref. No.                    | Part No.     | Part Name                 | Remarks           | Ref. No.  | Part No.     | Part Name                     | Remarks            |
|-----------------------------|--------------|---------------------------|-------------------|---|--------------|-------------------------------|--------------------|
| <b>SEMICONDUCTORS GROUP</b> |              |                           |                   | <b>RESISTORS GROUP</b> (Not included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for those Parts.) |              |                               |                    |
| IC001                       | 268 0073 905 | IC ICP-N15                | IC Protector 15V  | FL501   | 393 8012 002 | F.L. Tube 11BT27GK            |                    |
| IC003                       | 263 0809 006 | IC NJM7805FA (S)          | Regulator +5V     | ΔR016   | 244 2052 928 | Metal Oxide 47 ohm 1W (NB)    | RS14BSA470JNBS (S) |
| IC004                       | 263 0801 004 | IC NJM7812FA (S)          | Regulator +12V    | ΔR026   | 244 2052 928 | Metal Oxide 47 ohm 1W (NB)    | RS14BSA470JNBS (S) |
| IC101                       | 263 0831 003 | IC LA1267S                |                   | ΔR028   | 241 2378 908 | Carbon Film 1 ohm 1/4W (NB)   | RD14B2E910JNBS     |
| IC102                       | 263 0584 004 | IC LA3410                 |                   | ΔR138   | 241 2375 907 | Carbon Film 10 ohm 1/4W (NB)  | RD14B2E100JNBS     |
| IC103                       | 262 0703 002 | IC LM7000                 |                   | ΔR151   | 241 2377 947 | Carbon Film 100 ohm 1/4W (NB) | RD14B2E101JNBS     |
| IC201                       | 262 1701 906 | IC SAA6579                |                   | VR101   | 211 6093 967 | Semi Fixed Resist. 47k ohm    | V06PB473           |
| IC202                       | 262 1929 204 | IC LC7074M-R              |                   | VR102   | 211 6093 970 | Semi Fixed Resist. 100k ohm   | V06PB104           |
| IC401                       | 262 1937 204 | ICμPD78043GF-085-3B9      | μ-com             | <b>CAPACITORS GROUP</b>   |              |                               |                    |
| TR001,002                   | 273 0388 906 | Transistor 2SC1740S (E)   |                   | C001~004  | 253 1196 902 | Ceramic Cap. 0.01μF/25V       | CK14F1E103Z        |
| TR003                       | 271 0206 008 | Transistor 2SA1488 (YI/G) |                   | C005  | 254 4260 948 | Electrolytic 1μF/50V          | CE04W1H010M        |
| TR004                       | 271 0192 002 | Transistor 2SA933S (S)    |                   | C006  | 254 4259 700 | Electrolytic 2200μF/35V       | CE04W1V222MC       |
| TR005,006                   | 273 0388 906 | Transistor 2SC1740S (E)   |                   | C007  | 253 1196 902 | Ceramic Cap. 0.01μF/25V       | CK14F1E103Z        |
| TR102                       | 275 0051 909 | FET 2SK161 (GR)           |                   | C008  | 254 4254 941 | Electrolytic 100μF/16V        | CE04W1C101M        |
| TR103,104                   | 273 0422 901 | Transistor 2SC2410S       |                   | C009  | 253 1196 902 | Ceramic Cap. 0.01μF/25V       | CK14F1E103Z        |
| TR105                       | 269 0046 003 | Transistor DTA114ES       | Built in Resistor | C010  | 254 4252 930 | Electrolytic 100μF/10V        | CE04W1A101M        |
| TR106                       | 273 0388 906 | Transistor 2SC1740S (E)   |                   | C013  | 253 1196 902 | Ceramic Cap. 0.01μF/25V       | CK14F1E103Z        |
| TR107                       | 275 0053 907 | FET 2SK365 (BL/GR)        |                   | C014  | 254 4252 930 | Electrolytic 100μF/10V        | CE04W1A101M        |
| TR108                       | 273 0422 901 | Transistor 2SC2410S       |                   | C015  | 259 0008 002 | Backup Cap. 47000pF/5.5V      | ECCS5R5H473        |
| TR109                       | 269 0046 003 | Transistor DTA114ES       | Built in Resistor | C016  | 253 1196 902 | Ceramic Cap. 0.01μF/25V       | CK14F1E103Z        |
| TR110~113                   | 273 0388 906 | Transistor 2SC1740S (E)   |                   | C017  | 254 4252 930 | Electrolytic 100μF/10V        | CE04W1A101M        |
| TR114~117                   | 269 0146 903 | Transistor DTC343TS       | Built in Resistor | C018  | 253 1197 914 | Ceramic Cap. 0.1μF/25V        | CK14F1E104Z        |
| TR118,119                   | 269 0046 003 | Transistor DTA114ES       | Built in Resistor | C019  | 254 4261 921 | Electrolytic 100μF/50V        | CE04W1H101M        |
| TR401                       | 273 0388 906 | Transistor 2SC1740S (E)   |                   | C020  | 254 4258 918 | Electrolytic 10μF/35V         | CE04W1V100M        |
| TR402,403                   | 271 0192 002 | Transistor 2SA933S (S)    |                   | C021  | 254 4260 948 | Electrolytic 1μF/50V          | CE04W1H010M        |
| TR404                       | 269 0040 902 | Transistor DTC144ES       | Built in Resistor | C022  | 254 4258 950 | Electrolytic 100μF/35V        | CE04W1V101M        |
| D001~009                    | 276 0553 905 | Diode 1SR35-200A          |                   | C023  | 253 1196 902 | Ceramic Cap. 0.01μF/25V       | CK14F1E183Z        |
| D010                        | 276 0432 903 | Diode 1SS270A             |                   | C024  | 253 1197 914 | Ceramic Cap. 0.1μF/25V        | CK14F1E104Z        |
| D012                        | 276 0432 903 | Diode 1SS270A             |                   | C025  | 253 1196 902 | Ceramic Cap. 0.01μF/25V       | CK14F1E103Z        |
| D013                        | 276 0467 907 | Zener Diode HZS9A-1       | 9V                | C026  | 253 1197 914 | Ceramic Cap. 0.1μF/25V        | CK14F1E104Z        |
| D014                        | 276 0461 903 | Zener Diode HZS6A-1       | 6V                | C103  | 254 4254 909 | Electrolytic 10μF/16V         | CE04W1C100M        |
| D015                        | 276 0482 908 | Zener Diode HZS27-1       | 27V               | C104,105  | 253 1196 902 | Ceramic Cap. 0.01μF/25V       | CK14F1E103Z        |
| D018                        | 276 0553 905 | Diode 1SR35-200A          |                   | C107  | 253 1196 902 | Ceramic Cap. 0.01μF/25V       | CK14F1E103Z        |
| D020                        | 276 0553 905 | Diode 1SR35-200A          |                   | C109  | 253 1196 902 | Ceramic Cap. 0.01μF/25V       | CK14F1E103Z        |
| D101                        | 276 0455 906 | Zener Diode HZS4A-1       | 4V                | C112  | 254 4254 909 | Electrolytic 10μF/16V         | CE04W1C100M        |
| D104~110                    | 276 0432 903 | Diode 1SS270A             |                   | C113  | 253 1196 902 | Ceramic Cap. 0.01μF/25V       | CK14F1E103Z        |
| D403                        | 276 0432 903 | Diode 1SS270A             |                   | C115  | 253 1196 902 | Ceramic Cap. 0.01μF/25V       | CK14F1E103Z        |
| D406                        | 276 0432 903 | Diode 1SS270A             |                   | C116  | 253 1196 915 | Ceramic Cap. 0.022μF/25V      | CK14F1E223Z        |
| D408,409                    | 276 0462 902 | Zener Diode HZS6B-1       | 6V                | C117  | 254 4254 909 | Electrolytic 10μF/16V         | CE04W1C100M        |
| D410~412                    | 276 0432 903 | Diode 1SS270A             |                   | C118,119  | 253 1196 915 | Ceramic Cap. 0.022μF/25V      | CK14F1E223Z        |
|                             |              |                           |                   | C120  | 253 1190 908 | Ceramic Cap. 10pF/50V         | CK14SL1H100J       |
|                             |              |                           |                   | C121  | 253 1196 902 | Ceramic Cap. 0.01μF/25V       | CK14F1E103Z        |
|                             |              |                           |                   | C122  | 253 1193 934 | Ceramic Cap. 100pF/50V        | CK14B1H101K        |
|                             |              |                           |                   | C123  | 254 4254 909 | Electrolytic 10μF/16V         | CE04W1C100M        |
|                             |              |                           |                   | C124  | 253 1196 915 | Ceramic Cap. 0.022μF/25V      | CK14F1E223Z        |

TUNER SECTION

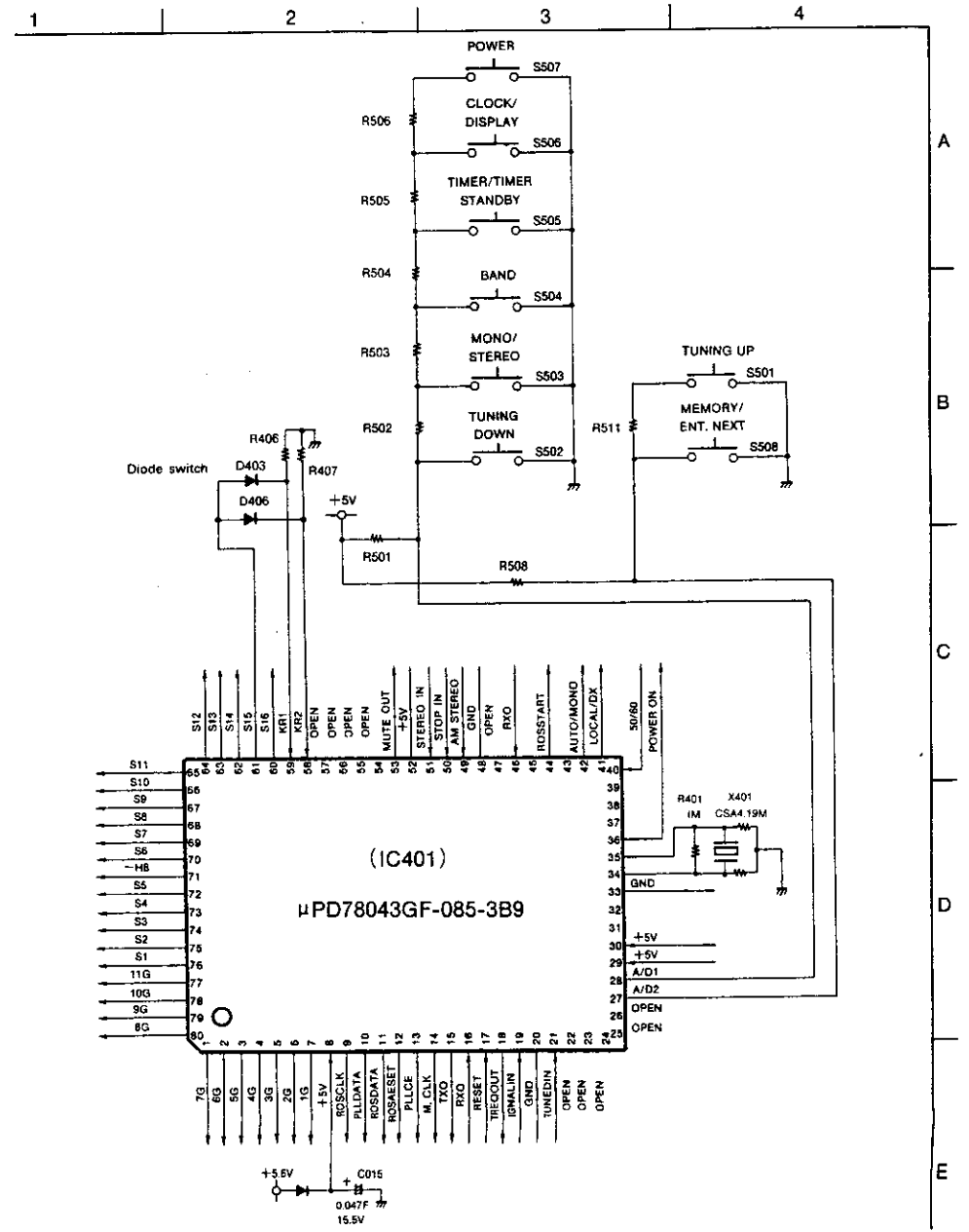
| Ref. No. | Part No.     | Part Name                      | Remarks             | Ref. No.           | Part No.     | Part Name                   | Remarks     | Qty |  |
|----------|--------------|--------------------------------|---------------------|--------------------|--------------|-----------------------------|-------------|-----|--|
| C125     | 254 4258 905 | Electrolytic 4.7uF/35V         | CE04W1V47M          | C210               | 254 4252 927 | Ceramic Cap. 0.01uF/25V     | CK14F1E103Z |     |  |
| C126     | 254 4260 964 | Electrolytic 3.3uF/50V         | CE04W1H3R3M         | C211               | 254 4252 927 | Electrolytic 47uF/10V       | CE04W1A470M |     |  |
| C127     | 254 4254 909 | Electrolytic 10uF/16V          | CE04W1C100M         | C403               | 253 1194 959 | Ceramic Cap. 1000pF/50V     | CK14B1H102K |     |  |
| C128     | 253 1194 959 | Ceramic Cap. 1000pF/50V        | CK14B1H102K         | C405               | 253 1194 959 | Ceramic Cap. 1000pF/50V     | CK14B1H102K |     |  |
| C129     | 253 9030 976 | BG Ceramic Cap. 0.015uF/25V    | CK45-1E153K         | C406               | 253 1196 902 | Ceramic Cap. 0.01uF/25V     | CK14F1E103Z |     |  |
| C130     | 253 1197 914 | Ceramic Cap. 0.1uF/25V         | CK14F1E104Z         | C407               | 254 4260 948 | Electrolytic 1uF/50V        | CE04W1H010M |     |  |
| C131     | 254 4260 964 | Electrolytic 3.3uF/50V         | CE04W1H3R3M         | C502,503           | 253 1194 959 | Ceramic Cap. 1000pF/50V     | CK14B1H102K |     |  |
| C132     | 253 1191 923 | Ceramic Cap. 33pF/50V          | CK14SL1H330J        | C504               | 253 1196 915 | Ceramic Cap. 0.022uF/25V    | CK14F1E223Z |     |  |
| C133     | 255 4201 984 | Polypropylene 560pF/50V        | CQ93P1H561J         | <b>OTHER GROUP</b> |              |                             |             |     |  |
| C134     | 253 4536 967 | Ceramic Cap. 18pF/50V          | CC45SL1H180J        |                    |              | (P.W. Board)                |             | (1) |  |
| C136     | 253 1197 901 | Ceramic Cap. 0.047uF/50V       | CK14F1H473Z         | L101,102           | 235 0020 097 | Inductor 39mH               |             | 2   |  |
| C138     | 253 1196 902 | Ceramic Cap. 0.01uF/25V        | CK14F1E103Z         |                    | 212 5604 910 | Tact Switch                 |             | 8   |  |
| C140     | 253 1196 902 | Ceramic Cap. 0.01uF/25V        | CK14F1E103Z         | CF101,102          | 261 0064 007 | Ceramic Filter SFT10.7M52   |             | 2   |  |
| C141     | 253 1196 915 | Ceramic Cap. 0.022uF/25V       | CK14F1E223Z         | CF103              | 261 0104 009 | Ceramic Filter BFU45C4M     |             | 1   |  |
| C142     | 254 3056 917 | Electrolytic 1uF/50V (Biopole) | CE04D1H010MBP       | CF105              | 261 0103 007 | Ceramic Resonator CSB456F11 |             | 1   |  |
| C143     | 253 1196 902 | Ceramic Cap. 0.01uF/25V        | CK14F1E103Z         | T101               | 231 2905 008 | FM IF DET Trans (A)         |             | 1   |  |
| C144     | 254 4254 938 | Electrolytic 47uF/16V          | CE04W1C470M         | T102               | 231 2906 007 | FM IF DET Trans (B)         |             | 1   |  |
| C145,146 | 253 1196 902 | Ceramic Cap. 0.01uF/25V        | CK14F1E103Z         | T103               | 231 3034 004 | AM IFT                      |             | 1   |  |
| C147     | 254 4258 947 | Electrolytic 47uF/35V          | CE04W1V470M         | T104               | 231 1913 004 | MW Ant. -Osc Coil           |             | 1   |  |
| C148     | 253 3125 900 | Ceramic Cap. 15pF/50V          | CC45CH1H150J (Temp) | T106               | 232 0152 005 | Ant Birdie Filter           |             | 1   |  |
| C149     | 253 3127 908 | Ceramic Cap. 18pF/50V          | CC45CH1H180J (Temp) | FE101              | 216 0097 003 | Front End (U)               |             | 1   |  |
| C150     | 253 1193 934 | Ceramic Cap. 100pF/50V         | CK14B1H101K         | X101               | 399 0075 003 | Crystal Resonator           | 7.2MHz      | 1   |  |
| C153     | 253 1196 902 | Ceramic Cap. 0.01uF/25V        | CK14F1E103Z         | X201               | 399 0178 007 | Crystal                     | 4.332MHz    | 1   |  |
| C155     | 254 4260 948 | Electrolytic 1uF/50V           | CE04W1H010M         | X202               | 399 0041 901 | Ceramic Resonator           | CSA4.00MG   | 1   |  |
| C156     | 254 3056 917 | Electrolytic 1uF/50V (Biopole) | CE04D1H010MBP       | X401               | 399 0196 908 | Ceramic Resonator           | EF0EC4194T4 | 1   |  |
| C157     | 253 1197 901 | Ceramic Cap. 0.047uF/50V       | CK14F1H473Z         |                    |              |                             |             |     |  |
| C158     | 254 4260 964 | Electrolytic 3.3uF/50V         | CE04W1H3R3M         |                    |              |                             |             |     |  |
| C159     | 254 4260 935 | Electrolytic 0.47uF/50V        | CE04W1HR47M         |                    |              |                             |             |     |  |
| C160     | 254 4254 909 | Electrolytic 10uF/16V          | CE04W1C100M         |                    |              |                             |             |     |  |
| C161     | 254 4260 948 | Electrolytic 1uF/50V           | CE04W1H010M         |                    |              |                             |             |     |  |
| C162     | 254 4254 938 | Electrolytic 47uF/16V          | CE04W1C470M         |                    |              |                             |             |     |  |
| C163     | 253 1196 902 | Ceramic Cap. 0.01uF/25V        | CK14F1E103Z         |                    |              |                             |             |     |  |
| C164     | 253 1193 992 | Ceramic Cap. 330pF/50V         | CK14B1H331K         |                    |              |                             |             |     |  |
| C165,166 | 253 1179 945 | Ceramic Cap. 220pF/50V         | CK14B1H221K         |                    |              |                             |             |     |  |
| C167,168 | 253 1117 907 | Ceramic Cap. 2700pF/50V        | CK45B1H272K         |                    |              |                             |             |     |  |
| C169,170 | 253 1115 909 | Ceramic Cap. 1800pF/50V        | CK45B1H182K         |                    |              |                             |             |     |  |
| C171,172 | 253 1180 934 | Ceramic Cap. 1200pF/50V        | CK45B1H122K         |                    |              |                             |             |     |  |
| C173     | 254 4254 938 | Electrolytic 47uF/16V          | CE04W1C470M         |                    |              |                             |             |     |  |
| C174,175 | 254 4260 951 | Electrolytic 2.2uF/50V         | CE04W1H2R2M         |                    |              |                             |             |     |  |
| C178     | 253 1196 902 | Ceramic Cap. 0.01uF/25V        | CK14F1E103Z         |                    |              |                             |             |     |  |
| C180     | 254 4252 930 | Electrolytic 100uF/10V         | CE04W1A101M         | Δ SK001A           | 203 3964 001 | 3P AC Outlet                |             | 1   |  |
| C181     | 254 4254 909 | Electrolytic 10uF/16V          | CE04W1C100M         | Δ CB001A           | 203 2349 009 | 2P Inlet                    |             | 1   |  |
| C185     | 253 1193 934 | Ceramic Cap. 100pF/50V         | CK14B1H101K         | Δ PT001            | 233 6069 003 | Power Trans                 |             | 1   |  |
| C201,202 | 253 3131 907 | Ceramic Cap. 27pF/50V          | CC45CH1H270J (Temp) | Δ F002             | 206 1015 061 | Fuse 2A                     |             | 1   |  |
| C203     | 253 1193 934 | Ceramic Cap. 100pF/50V         | CK14B1H101K         |                    | 513 2024 027 | Fuse Label                  |             | 1   |  |
| C204     | 254 4260 951 | Electrolytic 2.2uF/50V         | CE04W1H2R2M         |                    |              |                             |             |     |  |
| C205     | 254 4252 927 | Electrolytic 47uF/10V          | CE04W1A470M         | CB401,501          | 205 0736 005 | 33P FFC Conn Base           |             | 2   |  |
| C206     | 253 1194 920 | Ceramic Cap. 560pF/50V         | CK14B1H561K         |                    | 461 0655 009 | Rubber Sheet                |             | 2   |  |
| C207     | 254 4252 927 | Electrolytic 47uF/10V          | CE04W1A470M         |                    |              |                             |             |     |  |
| C208,209 | 253 1191 910 | Ceramic Cap. 30pF/50V          | CK14SL1H300J        |                    | 203 0548 022 | 1P Contact Assy             |             | 1   |  |

TUNER SECTION

TUNER SECTION

| Ref. No. | Part No.     | Part Name        | Remarks | Qty |
|----------|--------------|------------------|---------|-----|
|          | 203 0548 035 | 1P Contact Ass'y |         | 1   |
|          | 203 0497 021 | 1P Contact Ass'y |         | 1   |

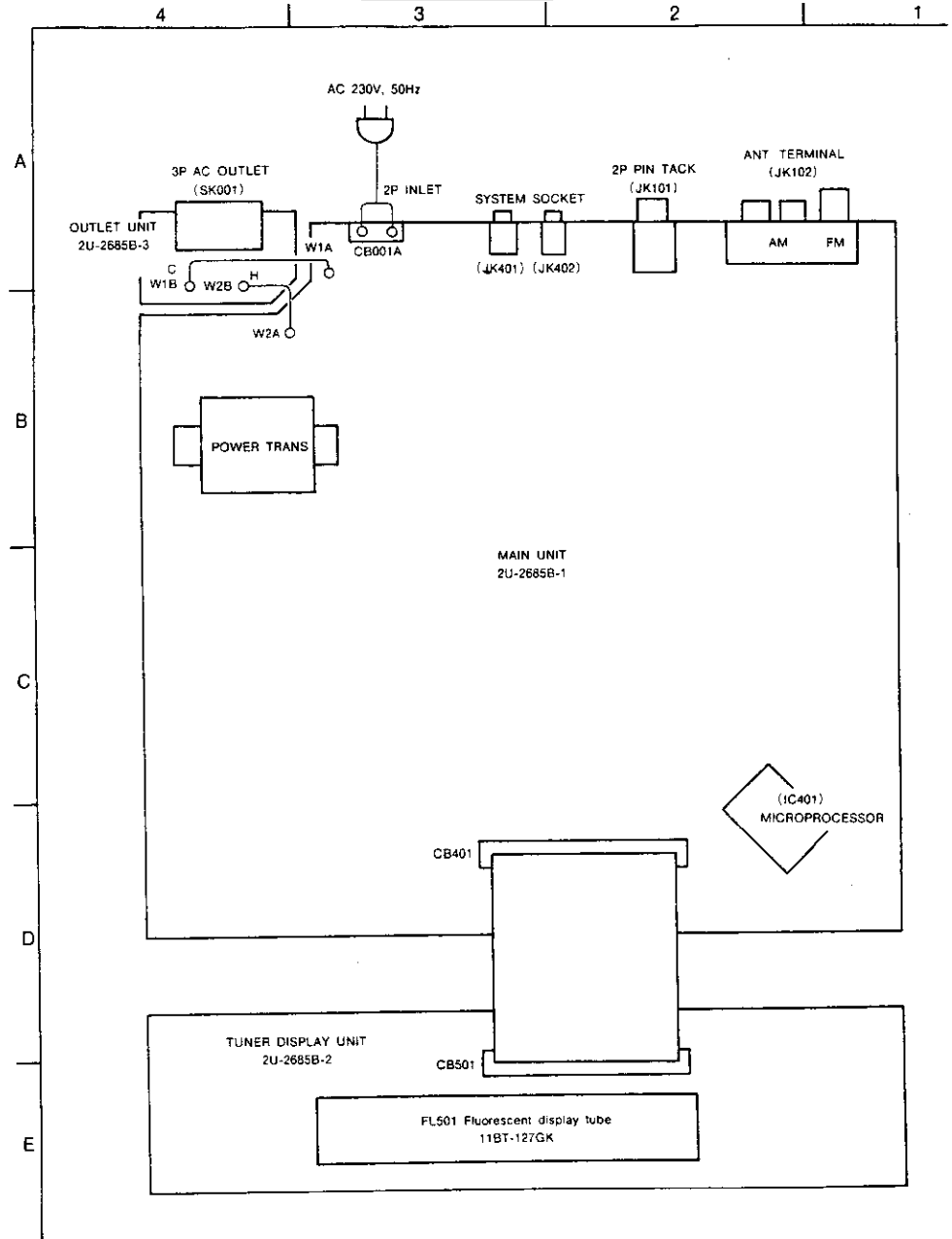
MICROPROCESSOR PERIPHERAL WIRING DIAGRAM

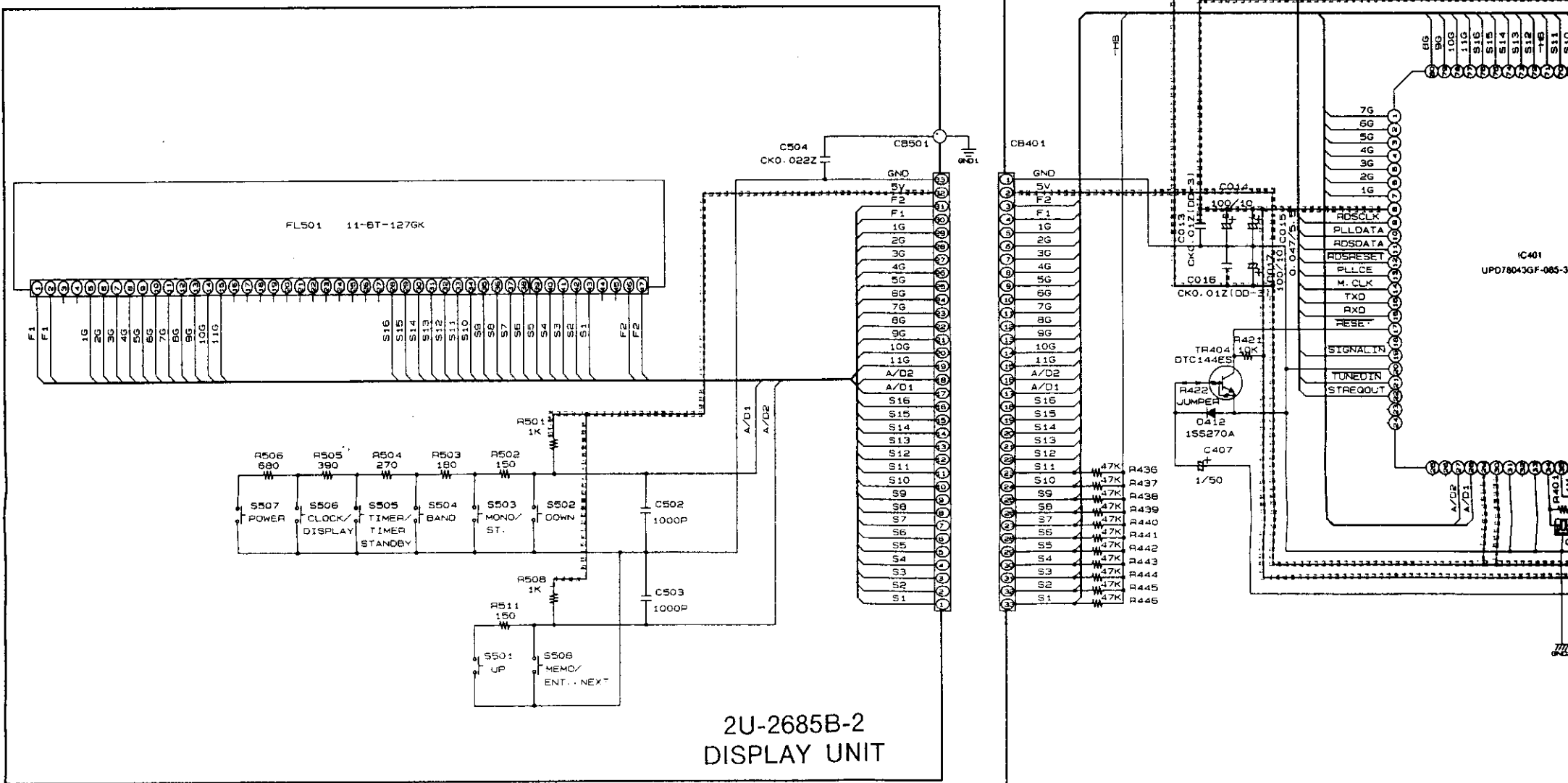
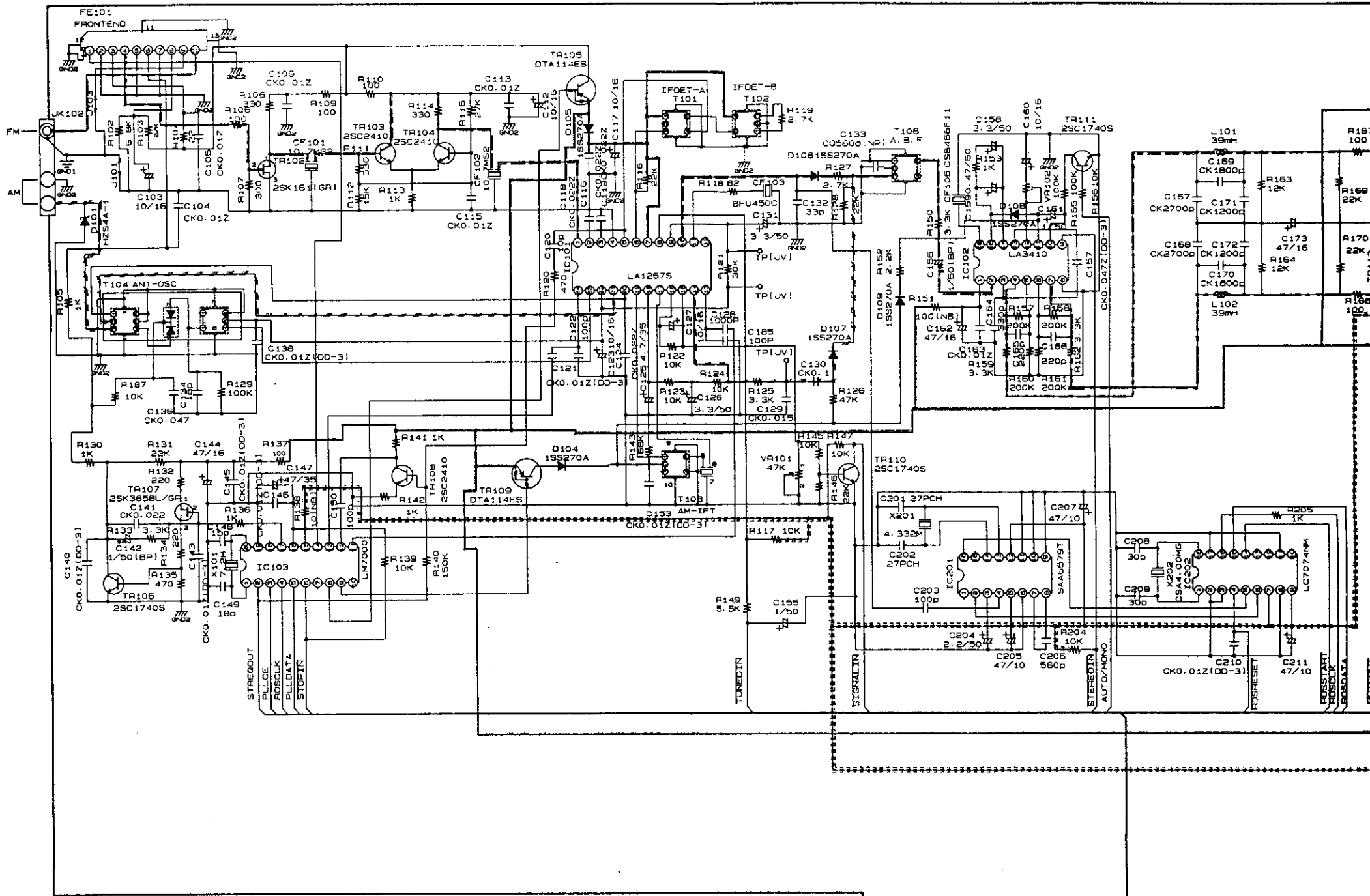




TUNER SECTION

WIRING DIAGRAM





2U-2685B-2  
DISPLAY UNIT

——— 12 LINE  
 ..... 5 LINE  
 - - - - - FM Lch SIGNAL LINE  
 - - - - - RDS SIGNAL LINE  
 - - - - - TUNER Lch SIGNAL LINE

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

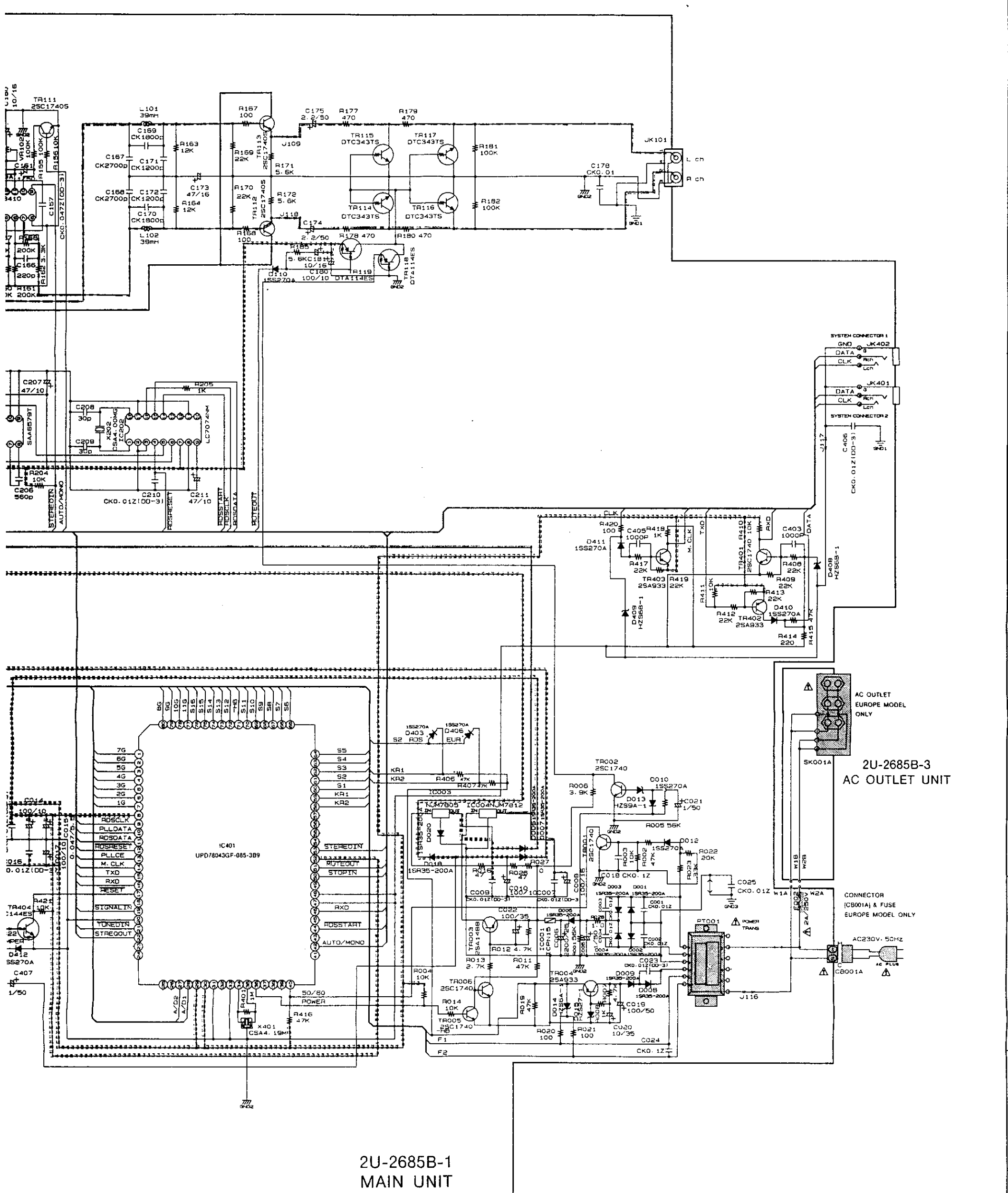
**WARNING**  
 DO NOT return the unit to the customer until the problem is located and corrected.

SCHEMATIC DIAGRAM

TUNER SECTION

6 7 8 9 10 11

A  
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G



2U-2685B-1  
MAIN UNIT

2U-2685B-3  
AC OUTLET UNIT

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

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

either (1) a leakage current check or (2) a line to chassis resistance check. If the line to chassis resistance is less than 240 Kohms, the unit is

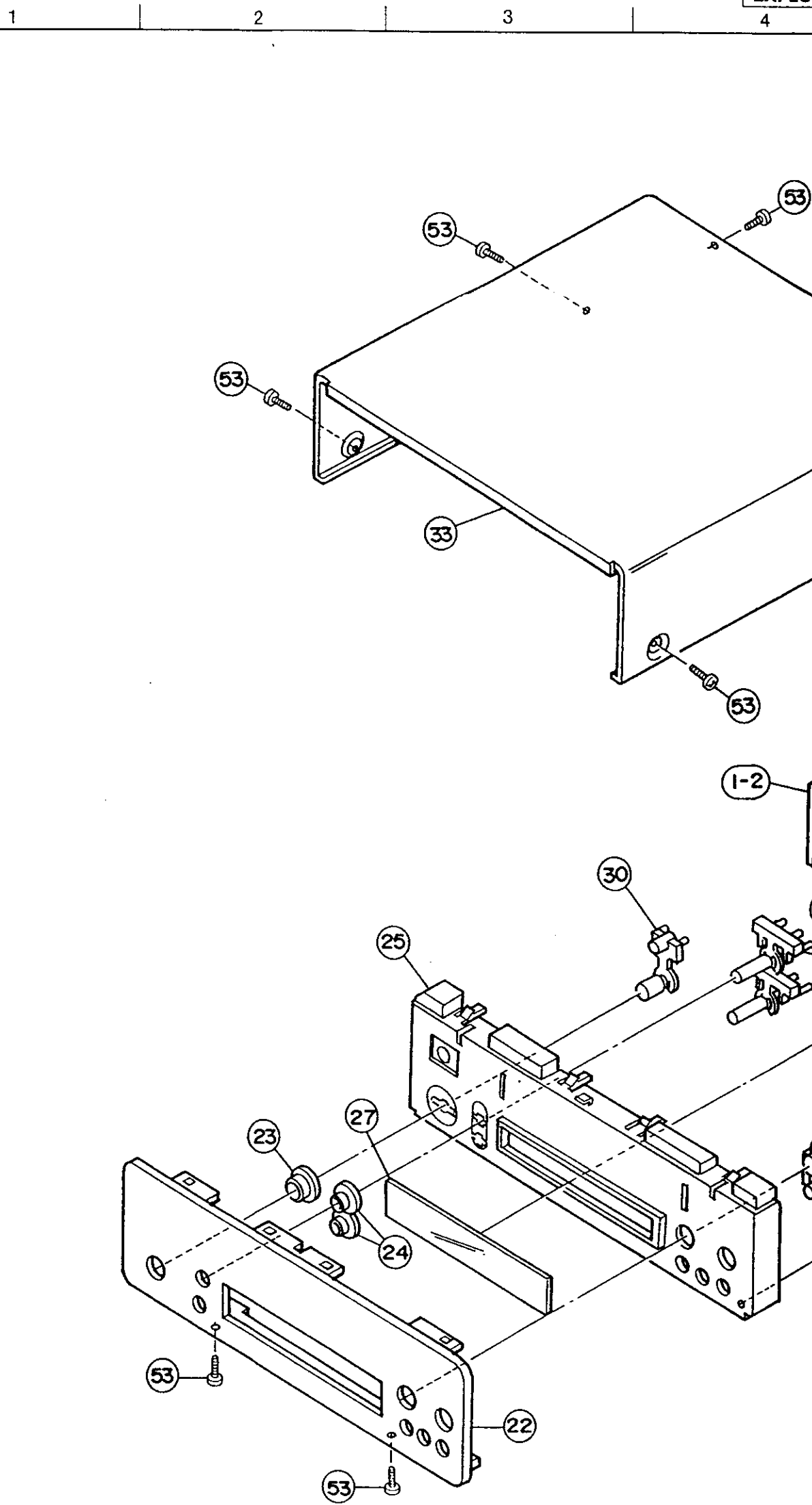
dated and corrected.

**TUNER SECTION**

**PARTS LIST OF UTU-F10 EXPLODED VIEW**

| Ref. No.  | Part No.     | Part Name                        | Remarks          | Qty            |
|---|--------------|----------------------------------|------------------|----------------|
| 1   | 2U- 2685 B   | Tuner Unit Ass'y                 |                  | 1 <sup>s</sup> |
| 1-1   | --           | Main Unit                        |                  | (1)            |
| 1-2   | --           | Display Unit                     |                  | (1)            |
| 1-3   | --           | Outlet Unit                      |                  | (1)            |
| 2   | 393 8012 002 | F.L. Tube 11BT127GK              | FL501            | 1              |
| 3   | --           | --                               |                  |                |
| 4   | 216 0097 003 | Front End (U)                    | FE101            | 1              |
| 5   | 254 4259 700 | Chemicon 2200 $\mu$ F/35V        | C006             | 1              |
| 6   | --           | --                               |                  |                |
| 7   | 205 0736 005 | 33P FFC Conn. Base               | CB401,501        | 2              |
| 8   | 205 0274 004 | 2P Conn. Base                    | JK101            | 1              |
| 9   | 204 8421 005 | Mini Jack                        | JK401,402        | 2              |
| 10  | 205 0847 004 | 3P Ant. Terminal (PAL/F)         | JK102            | 1              |
| 11  | 208 9984 001 | BP Ant. Outlet                   | BM001A           | 1              |
| 12  | 411 9115 251 | Main Chassis                     |                  | 1              |
| 13  | 412 3783 213 | Trans Bracket                    |                  | 1              |
| 14  | GEN 2798     | Foot Ass'y                       |                  | 4              |
| 15  | 105 1111 112 | Rear Panel (Tuner)               |                  | 1              |
| 16  | --           | --                               |                  |                |
| 17  | --           | --                               |                  |                |
| 18  | --           | --                               |                  |                |
| 19  | 412 2814 028 | Card Spacer (L=10)               |                  | 1              |
| 20  | 233 6096 003 | Power Trans                      |                  | 1              |
| 21  | --           | --                               |                  |                |
| 22  | 144 2363 045 | Front Panel (Tuner)              |                  | 1              |
| 23  | 146 9294 113 | Knob Ring (A)                    |                  | 1              |
| 24  | 146 9295 112 | Knob Ring (B)                    |                  | 2              |
| 25  | 146 9287 324 | Inner Panel (Tuner)              |                  | 1              |
| 26  | --           | --                               |                  |                |
| 27  | 143 0872 001 | Window                           |                  | 1              |
| 28  | 113 9276 115 | Button (5 Key)                   | 4 Gang           | 1              |
| 29  | 113 1656 018 | Tact Button (1 Key)              | 4 Gang           | 2              |
| 30  | 113 1654 104 | Power Button Ass'y               |                  | 1              |
| 31  | 009 0106 008 | 33P FF Cable                     |                  | 1              |
| 32  | --           | --                               |                  |                |
| 33  | 102 0545 117 | Top Cover                        |                  | 1              |
| 34  | 461 0866 009 | Rubber Sheet                     | Put on F.L. Tube | 2              |
| 35  | 513 2241 101 | Rating Sheet                     |                  | 1              |
| 36  | 203 2349 009 | 2P Inlet                         | CB001A           | 1              |
| 37  | 206 1015 061 | Fuse 2A                          | F002             | 1              |
| 38  | 461 0859 003 | Spacer                           | for or AC        | 1              |
| 39  | --           | --                               |                  |                |
| 40  | --           | --                               |                  |                |
| <b>SCREWS</b>   |              |                                  |                  |                |
| 51  | 473 7004 003 | Tapping Screw (S) 4 $\times$ 8   |                  | 4              |
| 52  | 473 7002 018 | Tapping Screw (S) 3 $\times$ 8   |                  | 8              |
| 53  | 473 7015 018 | Tapping Screw (S) 3 $\times$ 8   | Black            | 11             |
| 54  | 477 0064 107 | Fixing Screw                     |                  | 7              |
| 55  | 473 7505 007 | Tapping Screw (P) 2.6 $\times$ 8 |                  | 6              |
| 56  | 477 0276 018 | Earth Screw                      |                  | 1              |
| 57  | 475 2003 005 | Spring Washer $\phi$ 3           | for E. Screw     | 1              |
| 58  | 473 7500 015 | Tapping Screw (P) 3 $\times$ 8   |                  | 2              |
| 59  | --           | --                               |                  |                |
| 60  | --           | --                               |                  |                |
| <b>PACKING &amp; ACCESSORIES (Not included EXPLODED VIEW)</b> |              |                                  |                  |                |
| 101   | 505 0241 005 | Cabinet Cover                    |                  | 1              |
| 102   | 503 1091 106 | Cushion                          |                  | 1              |
| 103   | GEN 2740     | Envelope Sub. Ass'y              |                  | 1 <sup>s</sup> |
| 103-1   | 505 9125 009 | :Poly Cover                      |                  | (1)            |
| 103-2   | 231 1914 003 | Loop Antenna                     |                  | (1)            |
| 103-3   | 395 0021 000 | FM Ant. Ass'y                    |                  | (1)            |
| 103-4   | 203 2310 009 | 2P Pin Cord                      | L=1000           | (1)            |
| 103-5   | 203 2315 004 | Stereo Miniplug Cord             | L=500            | (1)            |
| 103-6   | 206 2108 003 | :AC Conn. with Plug              |                  | (1)            |
| 103-7   | 511 2653 007 | Inst. Sheet                      |                  | (1)            |
| 104   | 503 1061 000 | :Top Cushion                     |                  | 1              |
| 105   | 501 1781 009 | Carton Case                      |                  | 1              |
| 106   | --           | --                               |                  |                |
| 107   | --           | --                               |                  |                |

A  
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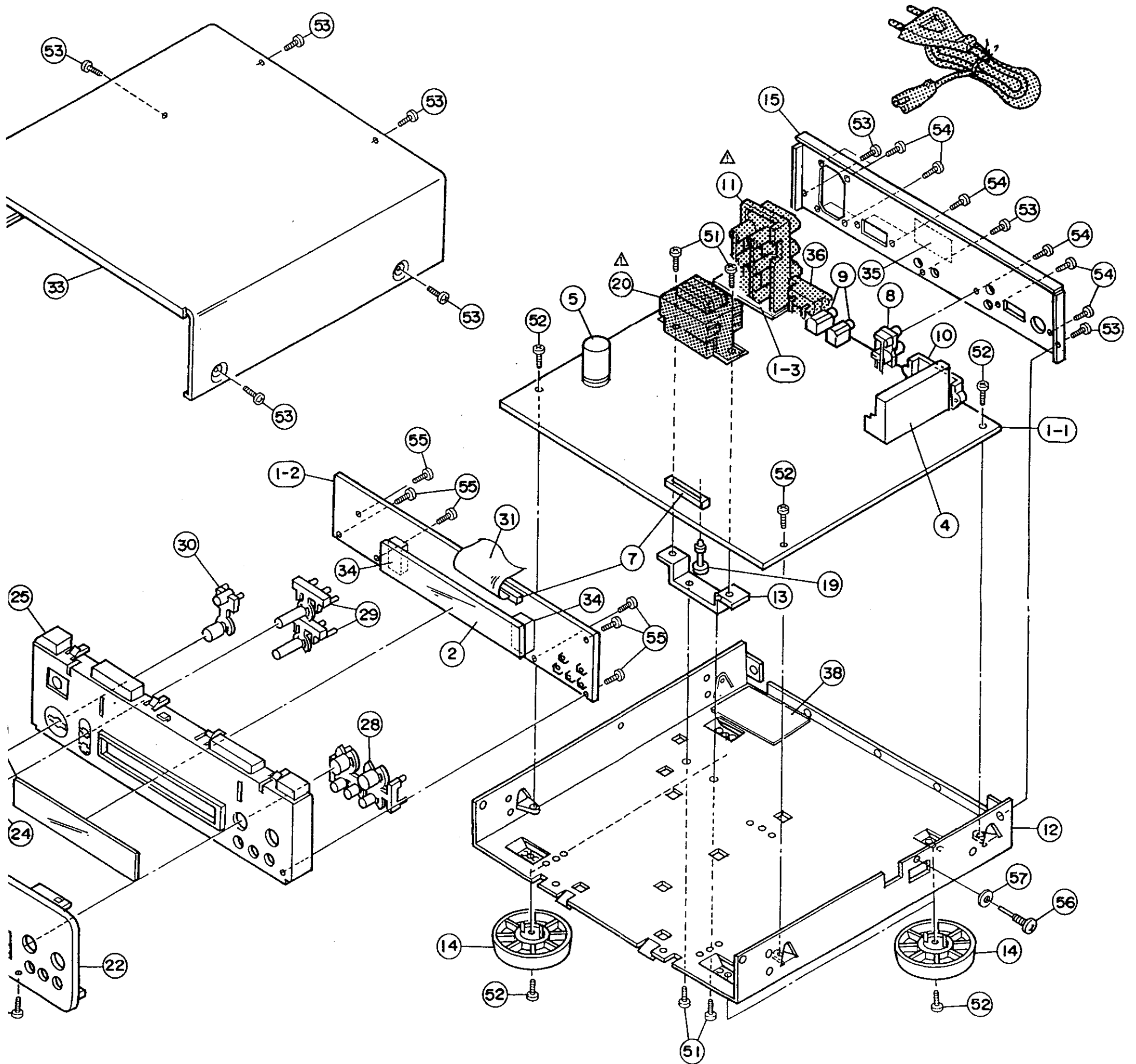
**NOTE ON PARTS LIST**

- Part indicated with the mark "●" are not always in stock and possibly to take a long period of time for supplying, or in some supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "1" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

**WARNING:**  
Parts marked with this symbol  $\Delta$  ★ have critical characteristics.  
Use ONLY replacement parts recommended by the manufacturer.

EXPLODED VIEW

3 4 5 6 7 8



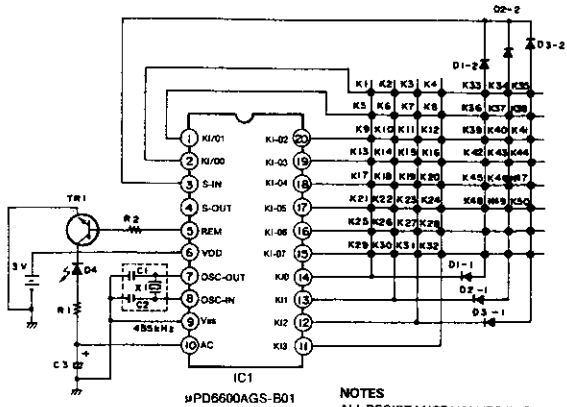
k and possibly to take a long period of time for supplying, or in some case

(i) to avoid mis-supplying.  
 ot be supplied.  
 n the exploded view.

racteristics.  
 nufacturer.

REMOTE CONTROL UNIT (RC-172 : Part No. 399 0235 005)

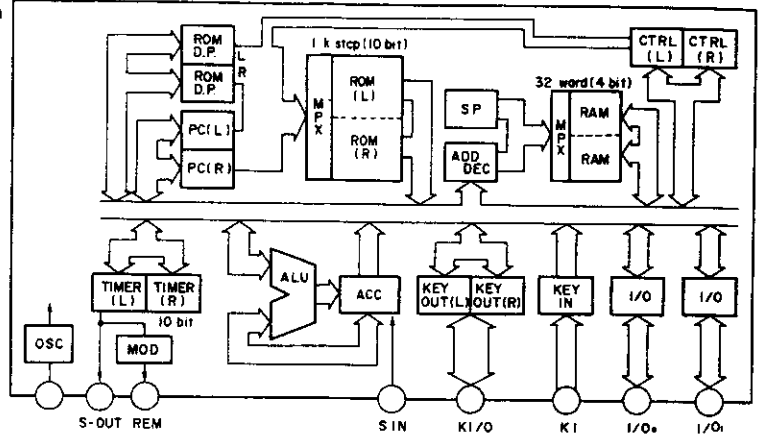
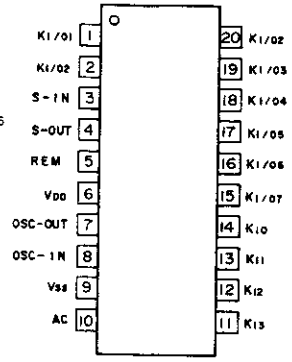
Schematic Diagram



NOTES
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ALL CAPACITANCE VALUES IN MICRO FARAD P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
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IC Block Diagram

uPD6600AGS-B01
Pin Connections Diagram (Top View)



TUNER Mode

After sending the tuner (K5) key and immediately after inserting the batteries, K9 through K19 are to send the tuner number keys and the + number key codes.

Table with columns: Key No., Address classify, System Address (C1-C14), Data Code (C5-C14), Expansion, Mask, Auto mem, Registration code, Notes. Rows include RECIIVER, TUNER, and CD modes.

Table with columns: Key No., Address classify, System Address (C1-C14), Data Code (C5-C14), Expansion, Mask, Auto mem, Registration code, Notes. Rows include DECK and various playback functions.

CD Mode

After sending the direct (K28) or program (K29) key, K9 through K19 are to send the CD number keys and the + number key codes.

Table with columns: Key No., Address classify, System Address (C1-C14), Data Code (C5-C14), Expansion, Mask, Auto mem, Registration code, Notes. Rows include CD mode keys and +10.

Transistors

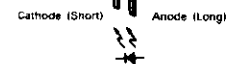
2SD1781KR
2SC3285
2SD596



Diodes

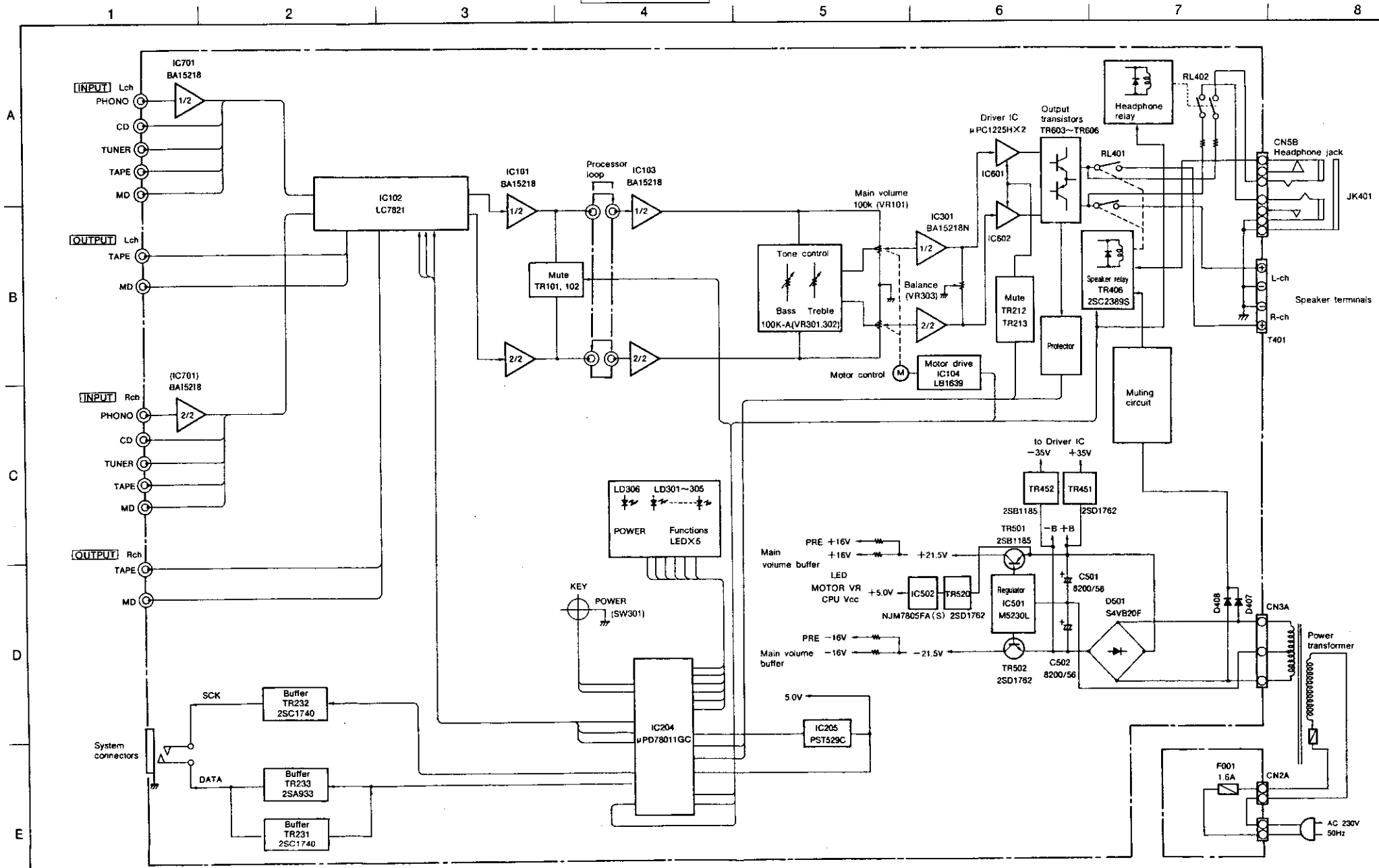
Infrared LED
SE303
LN66

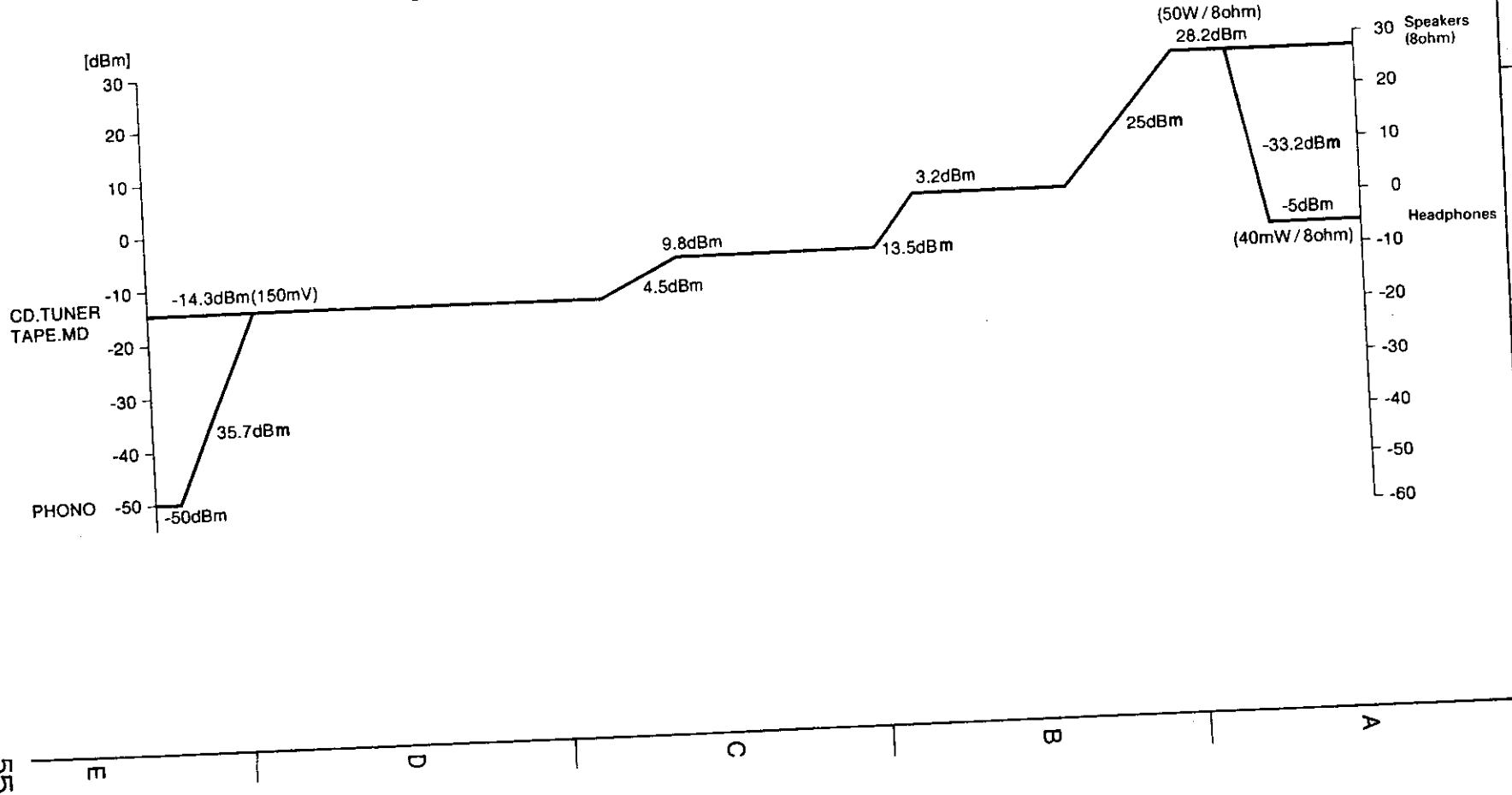
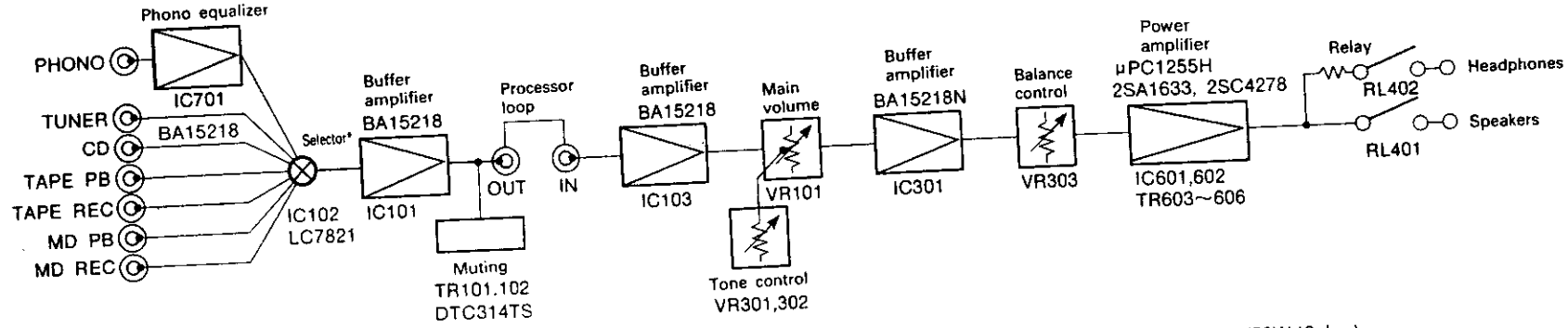
DAP202K
MA151WA



PRE-MAIN AMP. SECTION

BLOCK DIAGRAM





PRE-MAIN AMP. SECTION

D-F-10



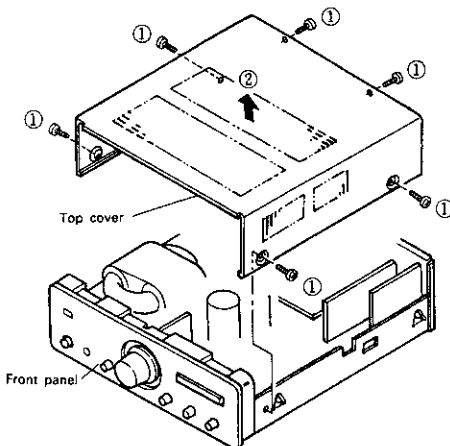
**PRE-MAIN AMP. SECTION**

**DISASSEMBLY PROCEDURES**

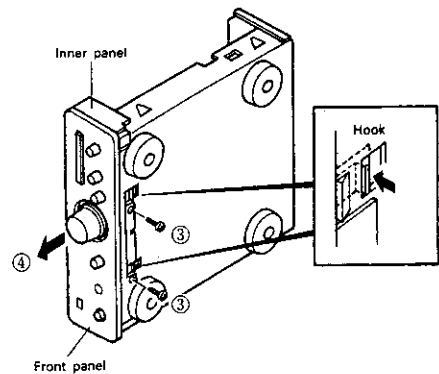
(Assembly is performed in the reverse order.)

**1. Removing the Top Cover and the Front Panel**

- ① Remove the six screws which fasten the top cover.
- ② Remove the top cover (upward) in the direction of the arrow.



- ③ Remove the two screws which fasten front panel.
- ④ Release the inner panel hooks from the chassis while pulling the panels in the direction of the arrow to remove the inner panel and the front panel as one unit.



**2. Removing the Units**

**Main Volume Unit (2U-2688B-4)**

- ⑤ Remove the main volume control assembly in the direction of the arrow, and remove the nut which fastens the main volume unit.

**Switch Unit (1) (2U-2688B-1)**

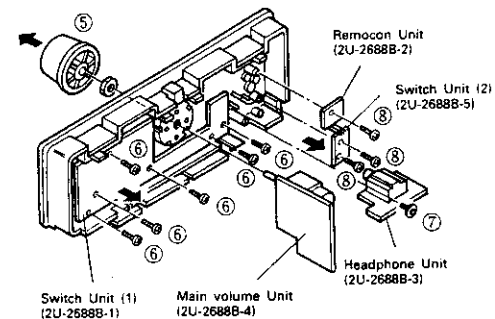
- ⑥ Remove the six screws which fasten switch unit (1).

**Headphone Unit (2U-2688B-3)**

- ⑦ Remove the screw which fastens the headphone unit.

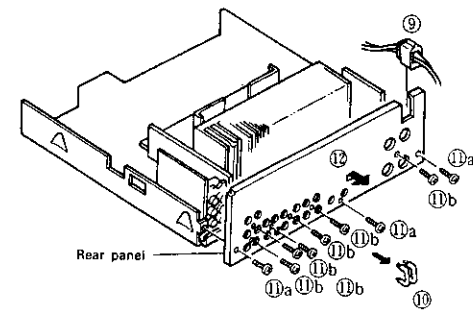
**Remocon Unit (2U-2688B-2) and Switch Unit (2) (2U-2688B-5)**

- ⑧ Remove the two screws which fasten remocon unit and switch unit (2).



**3. Removing the Rear Panel**

- ⑨ Remove the cord bush from the rear panel.
- ⑩ Remove the two shorting pins.
- ⑪ Remove the three "a" screws and the nine "b" screws which fasten the rear panel.
- ⑫ Remove the rear panel in the direction of the arrow.



**Processor Unit (2U-2687B-3)**

- ⑬ Disconnect the processor unit from the connector and remove in the direction of the arrow.

**Input Unit (2U-2687B-2)**

- ⑭ Disconnect the input unit from the connector and remove in the direction of the arrow.

**AC Input Unit (2U-2687B-5)**

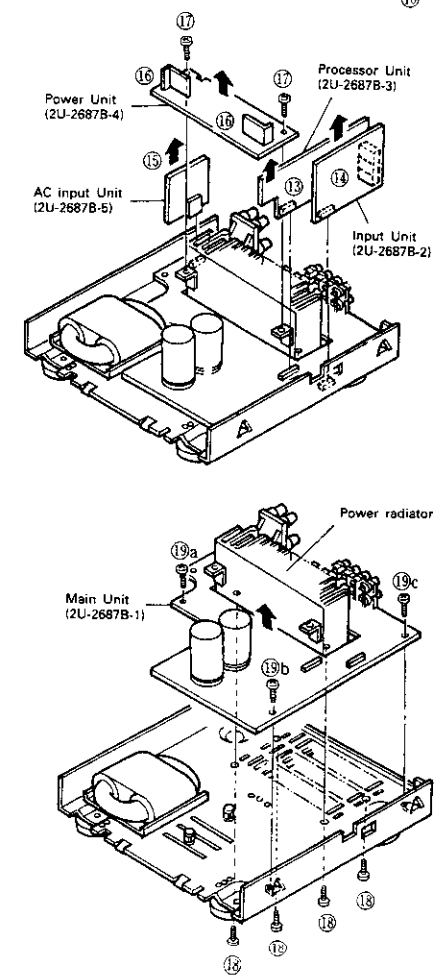
- ⑮ Disconnect the AC input unit from the connector and remove in the direction of the arrow.

**Power Unit (2U-2687B-4)**

- ⑯ Remove the solder from the four power transistors.
  - ⑰ Remove the two screws which fasten the power unit.
- NOTE:** Perform this after removing the power radiator.

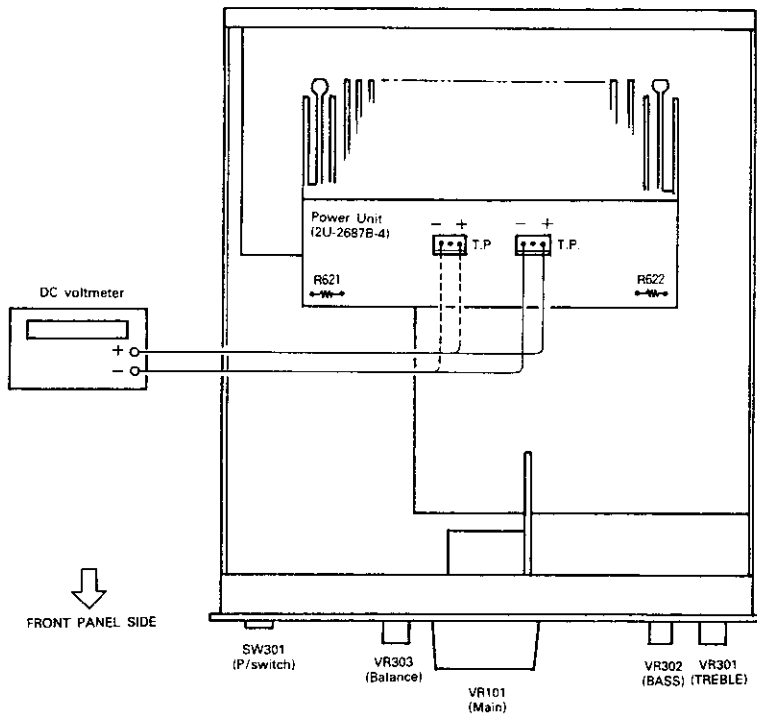
**Main Unit (2U-2687B-1)**

- ⑱ Remove the four screws which fasten the power radiator, then remove the power radiator.
- ⑲ Remove the single "a", "b", and "c" screws which fasten the main unit.



**PRE-MAIN AMP. SECTION**

**ADJUSTMENTS**



**1. Measuring Instruments Required for the Adjustments**

- DC voltmeter

**2. Preparation**

- ① Place the set in a location having normal usage conditions and avoid places with strong drafts such as near coolers or fans. The operating temperature of the set should be between 15 and 30°C and the humidity should be normal.
- ② Set the switches of the set as follows:
  - POWER switch → ON ( )
  - SPEAKER terminals → No load (Do not connect speakers or dummy resistors)
  - INPUT terminals → No input

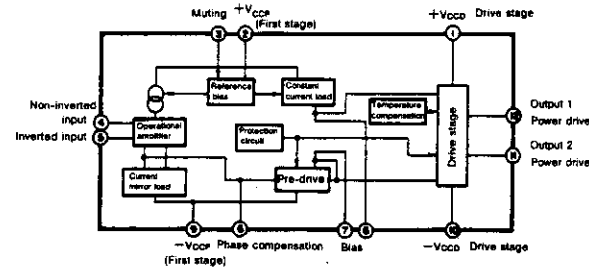
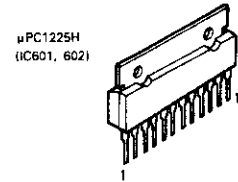
**• Adjustments**

- ① Remove the top cover and connect the DC voltmeter to the test points of the power unit (2U-2687B-4).
- ② Connect the power cable to a 230 V AC source and set the power switch to "ON ( )."
- ③ After 10 minutes, read the voltmeter and check that the reading is in the range of 2 mV to 40 mV (DC).
- ④ When the value read from the voltmeter is 2 mV or less, cut R621 and R622 (2 kohm) shown in the above diagram.

**SEMICONDUCTORS**

**PRE-MAIN AMP. SECTION**

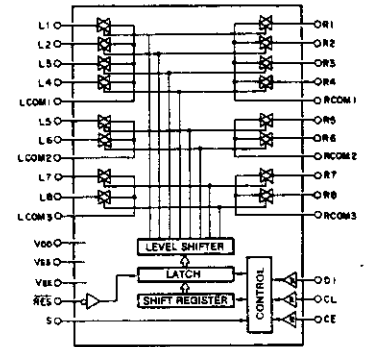
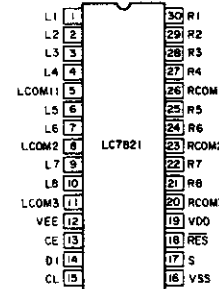
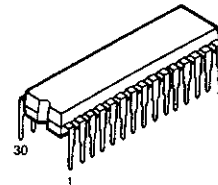
**• IC's**



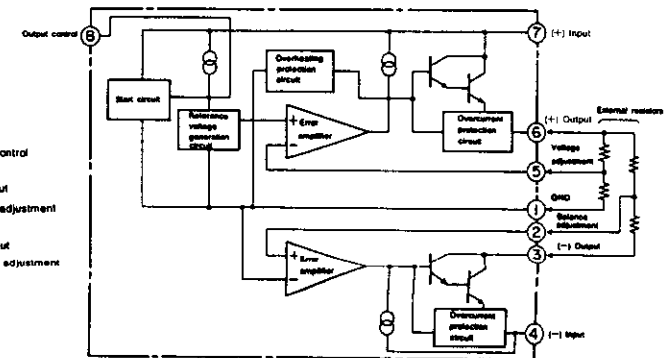
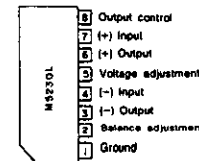
**Pin Connections**

| Pin No. | Connection                                       |
|---------|--|
| 1       | +V <sub>CCD</sub> (drive stage power supply)     |
| 2       | +V <sub>CCP</sub> (pre-drive stage power supply) |
| 3       | MUTING   |
| 4       | INPUT (non-inverting)                            |
| 5       | NFB (inverting)                                  |
| 6       | PHASE COMP                                       |
| 7       | BIAS   |
| 8       | BIAS   |
| 9       | -V <sub>CCP</sub> (drive stage power supply)     |
| 10      | -V <sub>CCD</sub> (pre-drive stage power supply) |
| 11      | LOWER OUTPUT                                     |
| 12      | UPPER OUTPUT                                     |

**LC7821 (IC102)**



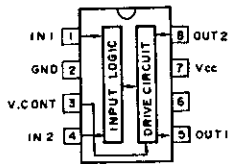
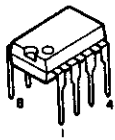
**M5230L (IC501)**



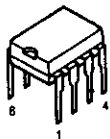
**PRE-MAIN AMP. SECTION**

**PRE-MAIN AMP. SECTION**

LB1639  
(IC104)



BA15218  
(IC101, 103, 701)

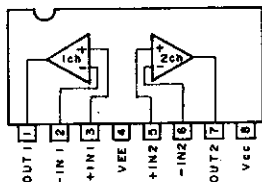
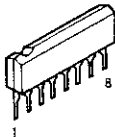


NJM7805FA (S)  
(IC502)

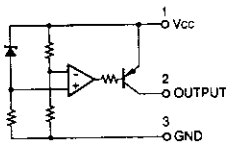


Output  
GND  
Input

BA15218N  
(IC301)

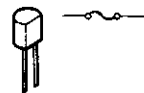


PST529C  
(IC205)



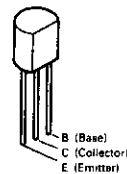
**IC Protector**

ICP-N15 (IC503, 504, 520)



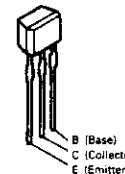
**Transistors**

2SA1038 (S/E)



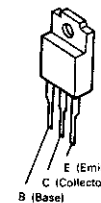
B (Base)  
C (Collector)  
E (Emitter)

2SA933S (S)  
2SC1740S (E)  
2SC2389 (S/E)  
2SD2144 (J)



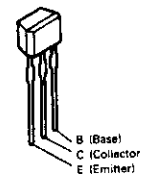
B (Base)  
C (Collector)  
E (Emitter)

2SB1185 (E/F)  
2SD1782 (E/F)



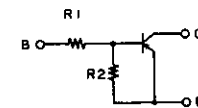
E (Emitter)  
C (Collector)  
B (Base)

DTA144ES PNP Type  
DTC144ES } NPN Type  
DTC314TS



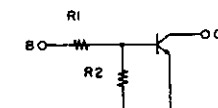
B (Base)  
C (Collector)  
E (Emitter)

PNP Type



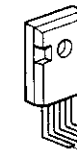
|          | R1      | R2      |
|----------|---------|---------|
| DTA144ES | 47 kohm | 47 kohm |

NPN Type



|          | R1      | R2      |
|----------|---------|---------|
| DTA144ES | 47 kohm | 47 kohm |
| DTC314TS | 10 kohm | -       |

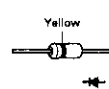
2SA1633 (E/F) (TR605, 606)  
2SC4278 (E/F) (TR605, 606)



E (Emitter)  
C (Collector)  
B (Base)

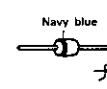
**Diodes (including LED)**

1SS252



Yellow

HZS8C-1  
HZS9B-1  
HZS1B-1



Navy blue

1SR35-200A

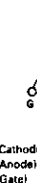
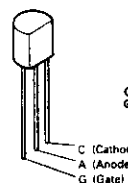


Blue

S4VB20F  
(D501)

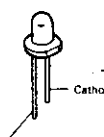


SF0R1A42  
(SR401)



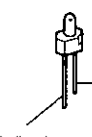
C (Cathode)  
A (Anode)  
G (Gate)

SEL4914D  
(LD306)



Anode (Long)

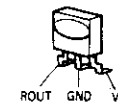
SEL4917D  
(LD301~305)



Anode (Long)

**Infrared Remote Control Sensor**

RPM-638CBB-L  
(IC302)

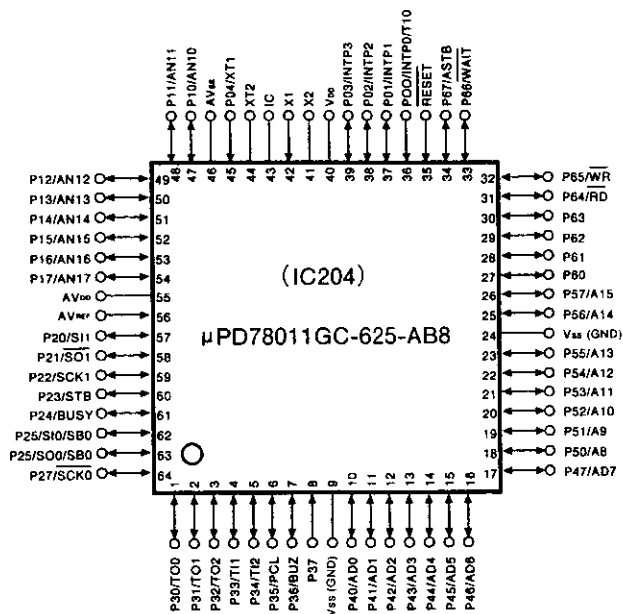
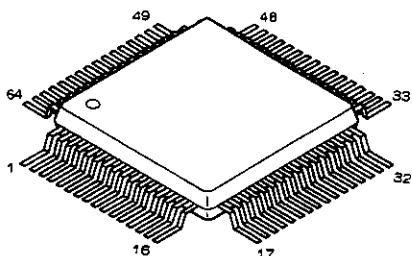


ROUT GND Vcc

PRE-MAIN AMP. SECTION

MICROPROCESSOR DOCUMENTATION

μPD78011GC-625-AB8 : 262 1964 002  
(IC204)



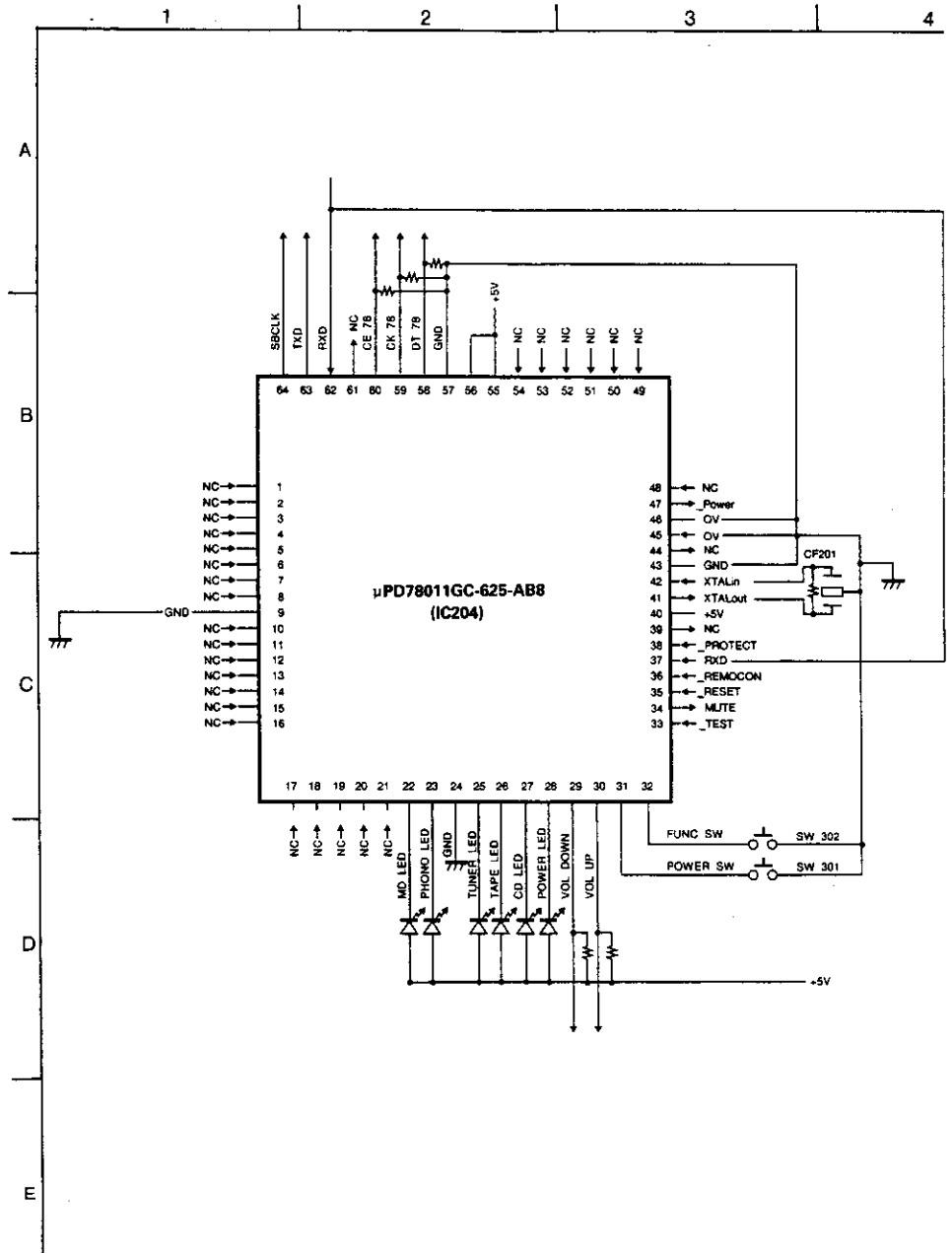
PRE-MAIN AMP. SECTION

• Pin Description (Ini: Initial Condition, ACT: Active)

| No. | Port Name         | Function Name | I/O | Ini | ACT | Function   |
|-----|-------------------|---------------|-----|-----|-----|--|
| 1   | P30/TO0           | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 2   | P31/TO1           | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 3   | P32/TO2           | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 4   | P33/TO1           | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 5   | P34/TO2           | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 6   | P35/PCL           | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 7   | P36/BUZ           | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 8   | P37               | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 9   | GND               | GND           | -   | -   | -   | 0 V: digital ground  |
| 10  | P40/AD0           | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 11  | P41/AD1           | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 12  | P42/AD2           | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 13  | P43/AD3           | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 14  | P44/AD4           | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 15  | P45/AD5           | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 16  | P46/AD6           | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 17  | P47               | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 18  | P50               | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 19  | P51               | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 20  | P52               | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 21  | P53               | NC            | O   | L   | -   | Open, fixed at 5 V internally.   |
| 22  | P54               | MDLED         | O   | H   | L   | LED lights when MD LED drive is low  |
| 23  | P55               | Phn LED       | O   | H   | L   | LED lights when Phono LED drive is low   |
| 24  | GND               | GND           | -   | -   | -   | 0 V: digital ground  |
| 25  | P56               | Tuner LED     | O   | H   | L   | LED lights when Tuner LED drive is low   |
| 26  | P57               | Tape LED      | O   | H   | L   | LED lights when Tape LED drive is low  |
| 27  | P60               | CD LED        | O   | H   | L   | LED lights when CD LED drive is low  |
| 28  | P61               | Pwr LED       | O   | H   | L   | LED lights when Power Indicator LED drive is low   |
| 29  | P62               | VI Down       | O   | H   | L   | There is drive when Volume Down is low   |
| 30  | P63               | VI Up         | O   | H   | L   | There is drive when Volume Up is low   |
| 31  | P64               | Power Sw      | I   | H   | L   | Power On/Off switch: Active low  |
| 32  | P65               | Func Sw       | I   | -   | L   | Function switch: Active low  |
| 33  | P66               | TEST          | I   | -   | L   | Test mode is set when the level is 0 V immediately after reset cancellation  |
| 34  | P67               | MUTE          | O   | L   | H   | Speaker relay is switched off at high level. Sound is muted.   |
| 35  | RESET             | RESET         | I   | -   | L   | Reset input  |
| 36  | PO0/INTP0         | REMOCON       | I   | -   | L   | Remote control signal input  |
| 37  | PO1/INTP1         | RXD           | I   | -   | L   | DENON BUS input signal: Connects in parallel with pin 62   |
| 38  | PO2/INTP2         | PROTECT       | I   | -   | L   | Overcurrent detection signal input (Not used with interrupts)  |
| 39  | PO3/INTP3         | NC            | O   | HZ  | -   | Fixed at open 0 V.   |
| 40  | VDD               | 5 V           | -   | -   | -   | Digital 5 V  |
| 41  | X2                | XTAL out      | O   | -   | -   | Crystal oscillator output  |
| 42  | X1                | XTAL in       | I   | -   | -   | Crystal oscillator input   |
| 43  | IC                | IC            | -   | -   | -   | Connected inside microprocessor. Connects to GND.  |
| 44  | X12               | NC            | O   | -   | -   | Fixed at open 0 V.   |
| 45  | PO4/XT1           | GND           | I   | -   | -   | Connects to GND.   |
| 46  | AV <sub>SS</sub>  | 0 V           | -   | -   | -   | 0 V: digital ground  |
| 47  | P10/AN0           | NC            | I   | -   | -   | Open   |
| 48  | P11/AN1           | NC            | I   | -   | -   | Open   |
| 49  | P12/AN2           | NC            | I   | -   | -   | Open   |
| 50  | P13/AN3           | NC            | I   | -   | -   | Open   |
| 51  | P14/AN4           | NC            | I   | -   | -   | Open   |
| 52  | P15/AN5           | NC            | I   | -   | -   | Open   |
| 53  | P16/AN6           | FUNC          | I   | -   | -   | Open   |
| 54  | P17/AN7           | POWER         | I   | -   | -   | Open   |
| 55  | AV <sub>DD</sub>  | 5 V           | -   | -   | -   | Digital 5 V  |
| 56  | AV <sub>REF</sub> | 5 V           | -   | -   | -   | Digital 5 V  |
| 57  | P20/SI1           | GND           | I   | -   | -   | 0 V: digital ground  |
| 58  | P21/SO1           | DT78          | O   | -   | H   | Serial output data to IC7821   |
| 59  | P22/SCK1          | CK78          | O   | H   | -   | Serial output clock to IC7821  |
| 60  | P23               | CE78          | O   | L   | H   | Chip enable to IC7821. A pull-down resistor is attached externally to guarantee the operation at the time of output reset. |
| 61  | P24               | NC            | O   | L   | L   | Fixed at open 0 V.   |
| 62  | P25/SI0           | RXD           | O   | L   | L   | DENON BUS communications data input  |
| 63  | P26/SO0           | TXD           | O   | H   | L   | DENON BUS communications data output   |
| 64  | P27/SCK0          | SBCLK         | O   | L   | H   | DENON BUS communications data clock  |

PRE-MAIN AMP. SECTION

MICROPROCESSOR PERIPHERAL WIRING DIAGRAM



PRINTED WIRING BOARD

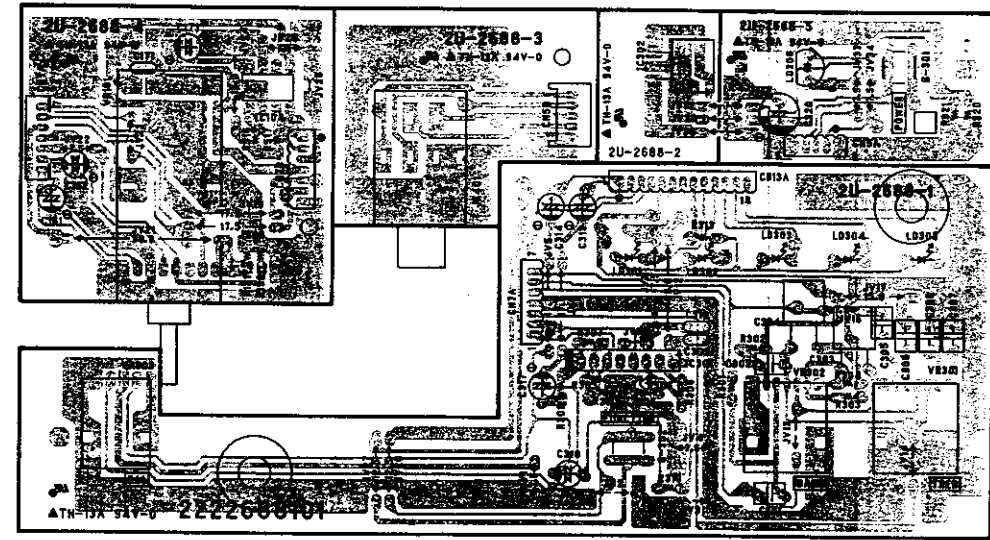
PRE-MAIN AMP. SECTION

1 2 3 4 5 6 7 8

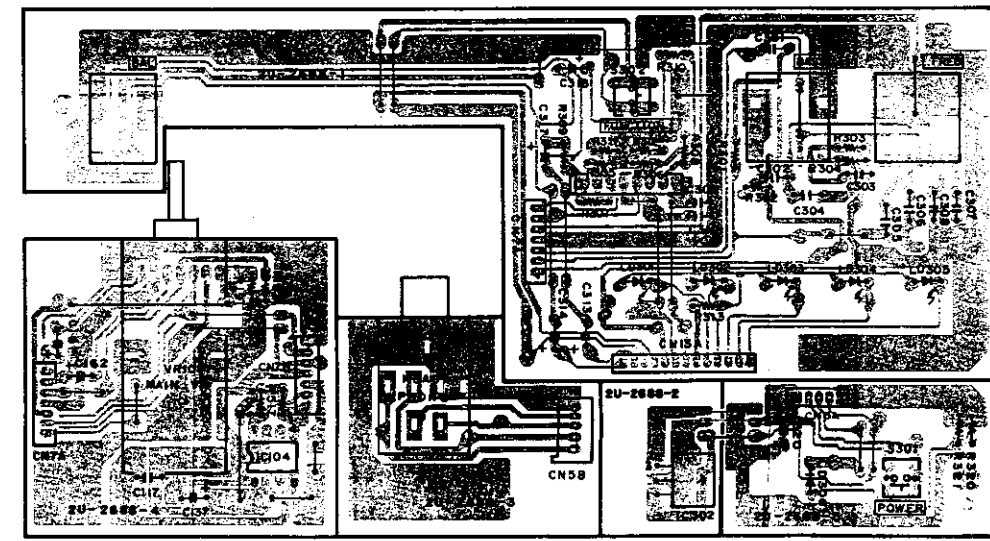
UPA-F10 2U-2688B SWITCH UNIT ASS'Y

| 2U-2688B |                 |
|----------|-----------------|
| -1       | Switch Unit (1) |
| -2       | Remocon Unit    |
| -3       | Headphone Unit  |
| -4       | Volume Unit     |
| -5       | Switch Unit (2) |

Component Side



Pattern Side



A  
B  
C  
D  
E

PRE-MAIN AMP. SECTION

1

2

3

4

5

6

7

8

UPA-F10 2U-2687B MAIN UNIT ASSY

Component Side

| 2U-2687B |                |
|----------|----------------|
| -1       | Main Amp. Unit |
| -2       | Input Unit     |
| -3       | Processor Unit |
| -4       | Power Unit     |
| -5       | AC Input Unit  |

A

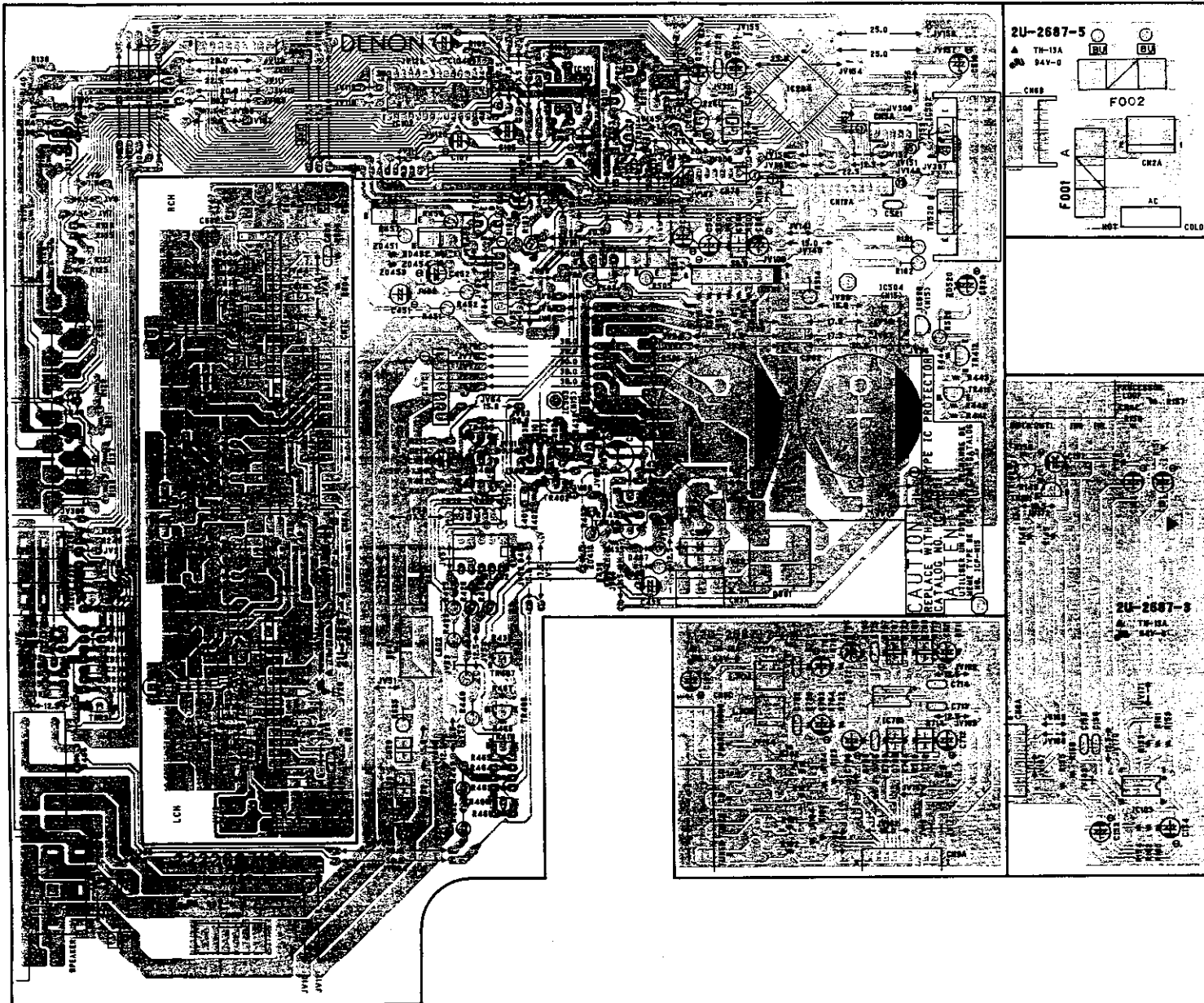
B

C

D

E

66



PRE-MAIN AMP. SECTION

| Ref. No.           | Part No.     | Part Name                       | Remarks           | Qty        |
|--------------------|--------------|---------------------------------|-------------------|------------|
| C435               | 254 4263 945 | Electrolytic 1µF/100V           | CE04W2AD10M       | 2          |
| C451.452           | 254 4262 917 | Electrolytic 10µF/63V           | CE04W1J100M       | 1          |
| C501.502           | 254 4371 701 | Electrolytic 8200µF/56V         | CE04W--822MC (DL) | 1          |
| C505               | 254 4260 948 | Electrolytic 1µF/50V            | CE04W1H010M       | 1          |
| C506.507           | 254 4260 980 | Electrolytic 10µF/50V           | CE04W1H100M       | 1          |
| C508               | 255 1264 982 | Mylar Film 0.0047µF/50V         | CQ93M1H472J (B)   | 1          |
| C509               | 256 1043 711 | Metalized 0.47µF/250V           | CF93B2E474K       | 1          |
| C510               | 254 4254 912 | Electrolytic 22µF/16V           | CE04W1C220M       | 1          |
| C520               | 254 4260 964 | Electrolytic 3.3µF/50V          | CE04W1H3R3M       | 1          |
| C521               | 253 1196 902 | Ceramic Cap. 0.01µF/25V         | CK14F1E103Z       | 1          |
| C605.606           | 253 1193 934 | Ceramic Cap. 100pF/50V          | CK14B1H101K       | 1          |
| C607.608           | 254 4470 903 | Electrolytic 100µF/6.3V         | CE04W0J101M (KME) | 1          |
| C613.614           | 253 1193 934 | Ceramic Cap. 100pF/50V          | CK14B1H101K       | 1          |
| C615.616           | 253 4536 996 | Ceramic Cap. 24pF/50V           | CC45SL1H240J      | 1          |
| C617.618           | 253 1196 902 | Ceramic Cap. 0.01µF/25V         | CK14F1E103Z       | 1          |
| C619.620           | 254 4274 947 | Electrolytic 10µF/16V           | CE04W1C100* (KME) | 2          |
| C621.622           | 253 1126 901 | Ceramic Cap. 150pF/500V         | CK45B2H151K       | 1          |
| C623.624           | 255 1265 994 | Mylar Film 0.033µF/50V          | CQ93M1H333J (B)   | 1          |
| C625.626           | 254 4262 917 | Electrolytic 10µF/63V           | CE04W1J100M       | 1          |
| C627.628           | 253 1175 907 | Ceramic Cap. 0.022µF/25V        | CK14F1E223Z       | 1          |
| C629.630           | 256 1034 979 | Metalized 0.1µF/50V             | CF93A1H104J       | 1          |
| C631.632           | 254 4262 917 | Electrolytic 10µF/63V           | CE04W1J100M       | 3          |
| C653.654           | 254 4260 948 | Electrolytic 1µF/50V            | CE04W1H010M       | 1          |
| C677.678           | 253 4535 955 | Ceramic Cap. 5pF/50V            | CC45SL1H050C      | 1          |
| C701.702           | 253 1193 976 | Ceramic Cap. 220pF/50V          | CK14B1H221K       | 1          |
| C703.704           | 254 4254 909 | Electrolytic 10µF/16V           | CE04W1C100M       | 1          |
| C705.706           | 254 4250 932 | Electrolytic 220µF/6.3V         | CE04W0J221M       | 1          |
| C707.708           | 255 4199 999 | Mylar Film 0.024µF/50V          | CQ92M1H243J (MRZ) | 1          |
| C709.710           | 255 1265 907 | Mylar Film 0.0068µF/50V         | CQ93M1H682J (B)   | 1          |
| C711.712           | 254 4260 951 | Electrolytic 2.2µF/50V          | CE04W1H2R2M       | 1          |
| C713.714           | 253 1196 902 | Ceramic Cap. 0.01µF/25V         | CK14F1E103Z       | 1          |
| C716.716           | 253 1191 917 | Ceramic Cap. 470pF/50V          | CK14SL1H471K      | 1          |
| <b>OTHER GROUP</b> |              |                                 |                   | <b>Qty</b> |
|                    |              | (P.W. Board)                    |                   | (1)        |
| L601.602           | 235 0104 007 | Inductor 1µH                    |                   | 2          |
| L701.702           | 235 9003 002 | FTZ Choke Coil                  |                   | 2          |
| CF201              | 399 0243 903 | Ceramic Resonator<br>C578.35M1W |                   | 1          |
| RL401              | 214 0154 005 | Relay (VB24SMBU)                |                   | 1          |
| RL402              | 214 0162 000 | Relay (A12W-K)                  |                   | 1          |
| JK101              | 204 8278 009 | 6P Pin Jack (S-GND)             |                   | 1          |
| JK102              | 204 8286 008 | 4P Pin Jack (S-GND)             |                   | 1          |
| JK103,104          | 204 8457 008 | 4P Pin Jack (S-GND)             |                   | 2          |
| JK201,202          | 204 8421 005 | Mini Jack                       |                   | 2          |
| T401               | 205 0551 002 | 4P Terminal                     |                   | 1          |
| ΔF001              | 206 1016 058 | Fuse 1.8A                       | 20mm              | 1          |
|                    | 202 0022 008 | Fuse Holder                     |                   | 2          |
|                    | 513 2277 049 | Fuse Label                      |                   | 1          |
|                    | 417 0499 000 | Heat Sink                       |                   | 2          |
|                    | 473 7002 018 | Tapping Screw (S) 3x8           |                   | 4          |
|                    | 417 0307 066 | Heat Sink                       |                   | 1          |

2U-2688 B SWITCH UNIT ASS'Y PARTS LIST

| Ref. No.  | Part No.     | Part Name                       | Remarks           | Qty |
|---|--------------|---------------------------------|-------------------|-----|
| <b>SEMICONDUCTORS GROUP</b>   |              |                                 |                   |     |
| IC104   | 263 0476 002 | IC LB1639                       |                   | 1   |
| IC301   | 263 0606 005 | IC BA15218N                     |                   | 1   |
| IC302   | 499 0281 003 | Photocon Sensor<br>RPM-630C6B-L |                   | 1   |
| LD301~305   | 393 9420 910 | LED SEL4917D                    | Red               | 1   |
| LD306   | 393 9408 945 | LED SEL4914D                    |                   | 1   |
| <b>RESISTORS GROUP</b> (Not Included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for these Parts.) |              |                                 |                   |     |
| VR101   | 211 0825 005 | Variable Resistor 100k ohm      | Main Vol.         | 1   |
| VR301,302   | 211 0822 008 | Variable Resistor 100k ohm      | Tone Vol.         | 1   |
| VR303   | 211 0823 007 | Variable Resistor 50k ohm       | Balance Vol.      | 1   |
| <b>CAPACITORS GROUP</b>   |              |                                 |                   |     |
| C161,162  | 254 4260 948 | Electrolytic 1µF/50V            | CE04W1H010M       | 1   |
| C171  | 253 1196 902 | Ceramic Cap. 0.01µF/25V         | CK14F1E103Z       | 1   |
| C173  | 254 4254 938 | Electrolytic 47µF/16V           | CE04W1C470M       | 1   |
| C301,302  | 255 1265 994 | Mylar Film 0.033µF/50V          | CQ93M1H333J (B)   | 1   |
| C303,304  | 256 1035 004 | Metalized 0.18µF/50V            | CF93A1H184J       | 1   |
| C305,306  | 255 1264 995 | Mylar Film 0.0056µF/50V         | CQ93M1H562J (B)   | 1   |
| C307,308  | 255 1265 994 | Mylar Film 0.033µF/50V          | CQ93M1H333J (B)   | 1   |
| C309,310  | 253 1196 902 | Ceramic Cap. 0.01µF/25V         | CK14F1E103Z       | 1   |
| C313,314  | 254 4305 968 | Electrolytic 1µF/50V            | CE04W1H010M (SRE) | 1   |
| C317,318  | 254 4299 906 | Electrolytic 10µF/16V           | CE04W1C100M (SRE) | 1   |
| C320  | 254 4299 951 | Electrolytic 33µF/16V           | CE04W1C330M (SRE) | 1   |
| C323,324  | 253 1194 959 | Ceramic Cap. 1000pF/50V         | CK14B1H102K       | 1   |
| <b>OTHER GROUP</b>  |              |                                 |                   |     |
|   |              | (P.W. Board)                    |                   | (1) |
| S301,302  | 212 5604 910 | Tact Switch                     |                   | 2   |
| JK401   | 204 8420 006 | Headphone Jack (6.5)            |                   | 1   |
| CN5B  | 205 0355 059 | 5P KR Conn. Base (L)            |                   | 1   |
| CN7A  | 205 0343 074 | 7P KR Conn. Base (KR-PH)        |                   | 1   |
| CN5A  | 203 8280 065 | 5P KR-DA Conn. Cord             |                   | 1   |
| CN7A  | 204 2513 032 | 7P KR-DA Conn. Cord             |                   | 1   |
| CN7B  | 204 2513 045 | 7P KR-DA Conn. Cord             |                   | 1   |
| CN13A   | 204 6269 049 | 13P KR-DA Conn. Cord            |                   | 1   |
|   | 461 0665 080 | Rubber Sheet                    |                   | 1   |



PRE-MAIN AMP. SECTION

WIRING DIAGRAM

1 2 3 4 5 6 7 8

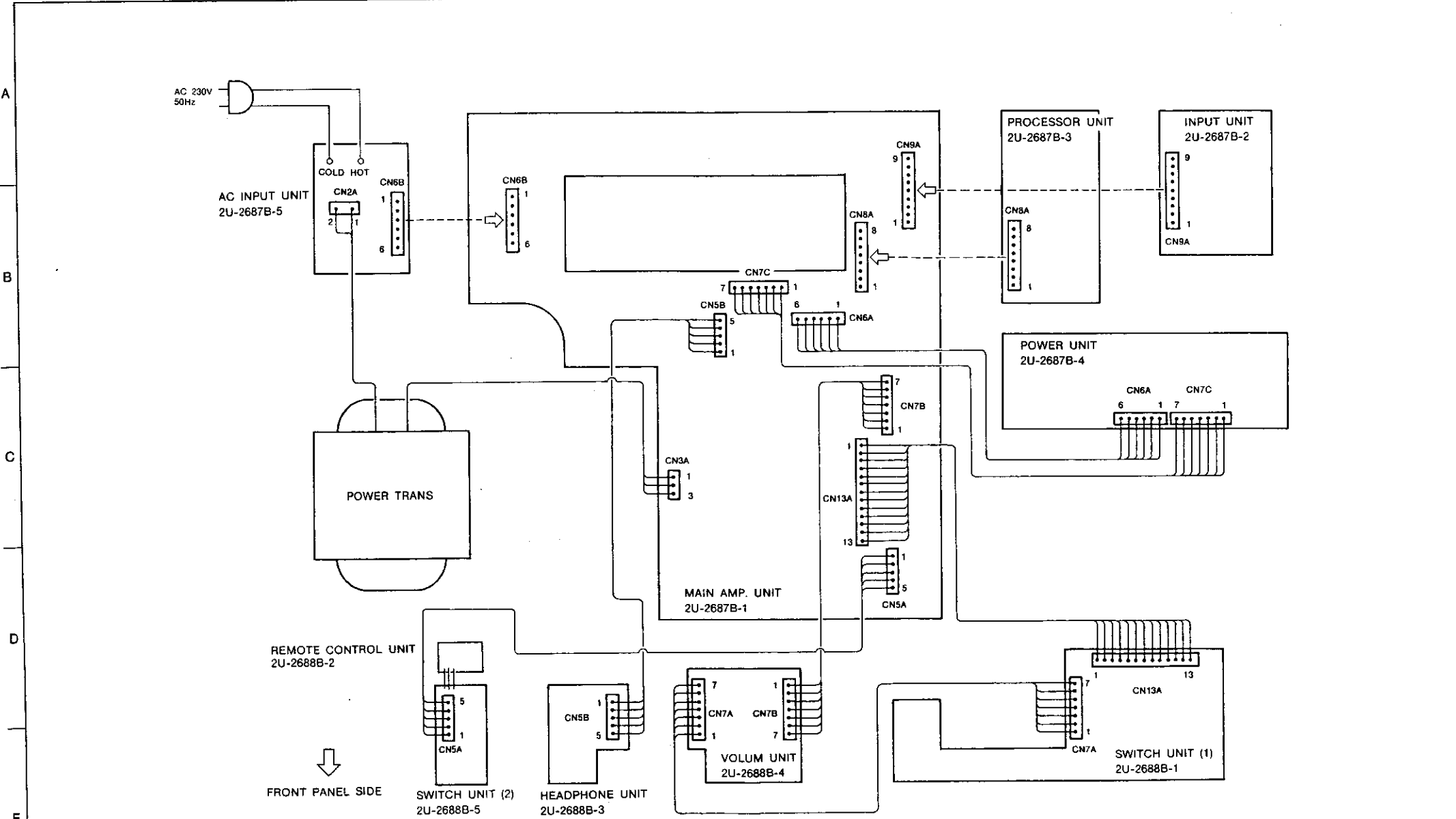
A

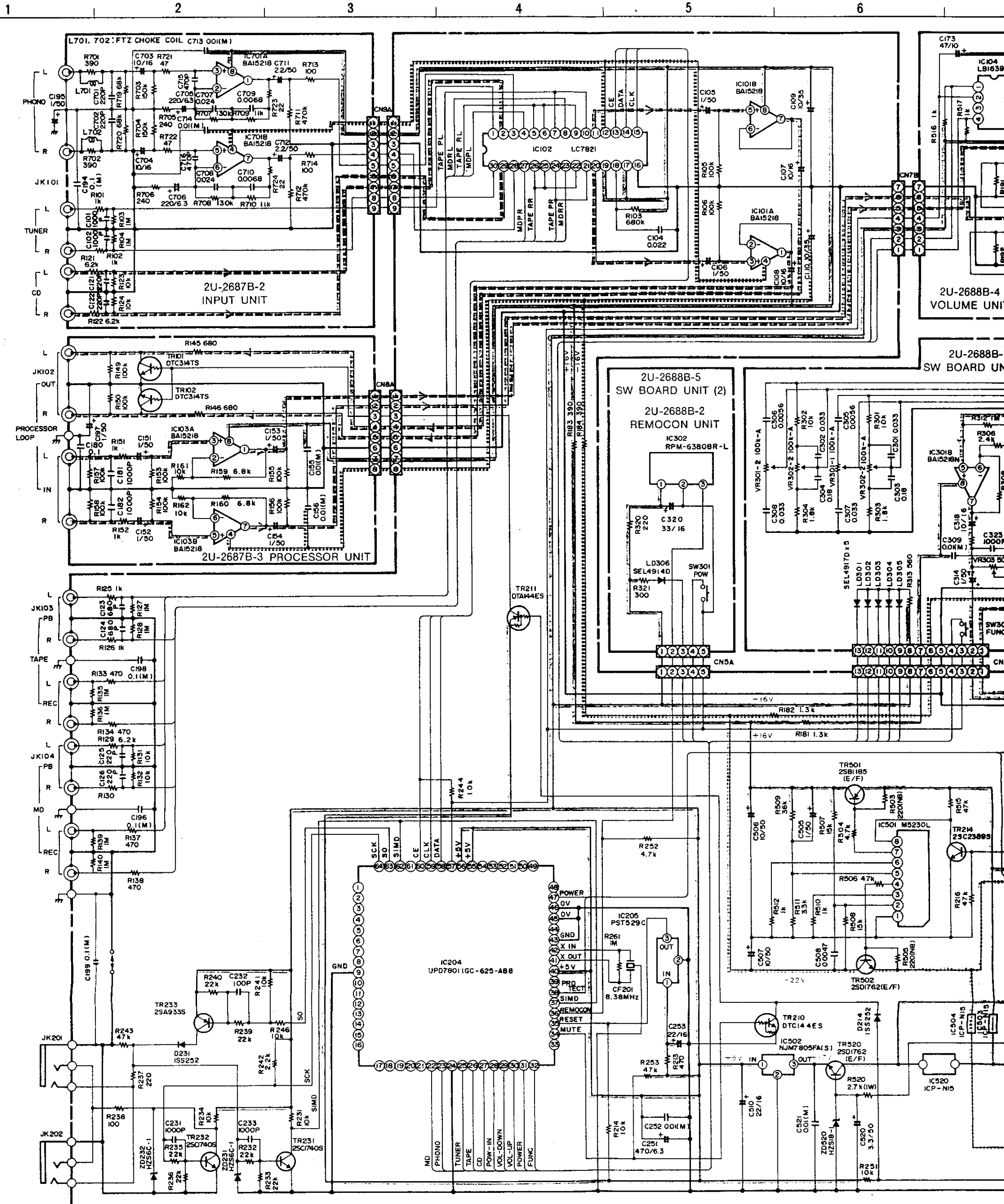
B

C

D

E





**CAUTION:**  
 Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis leakage current check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 100,000 ohms, the unit is defective.

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

SCHEMATIC DIAGRAM

6

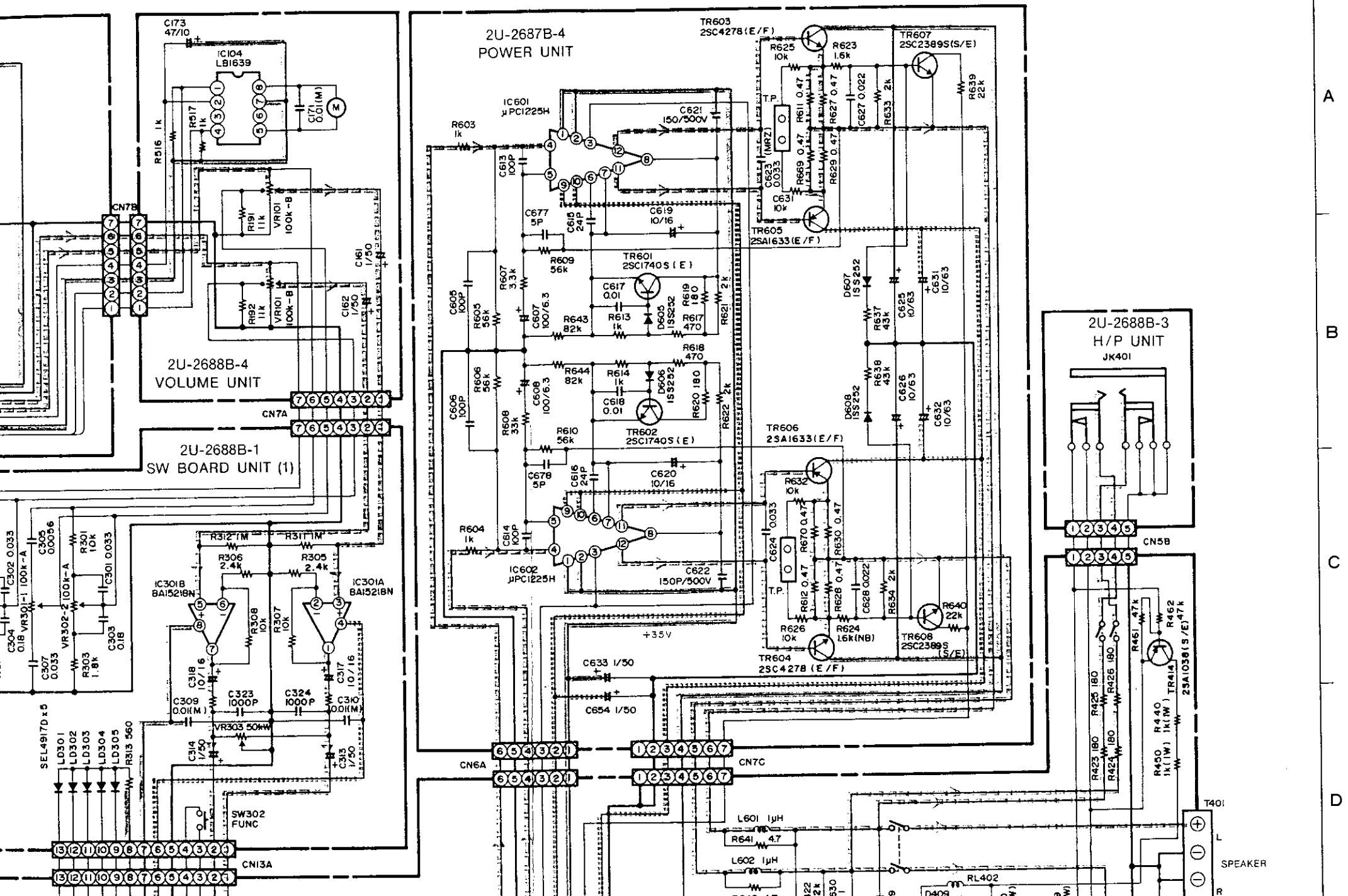
7

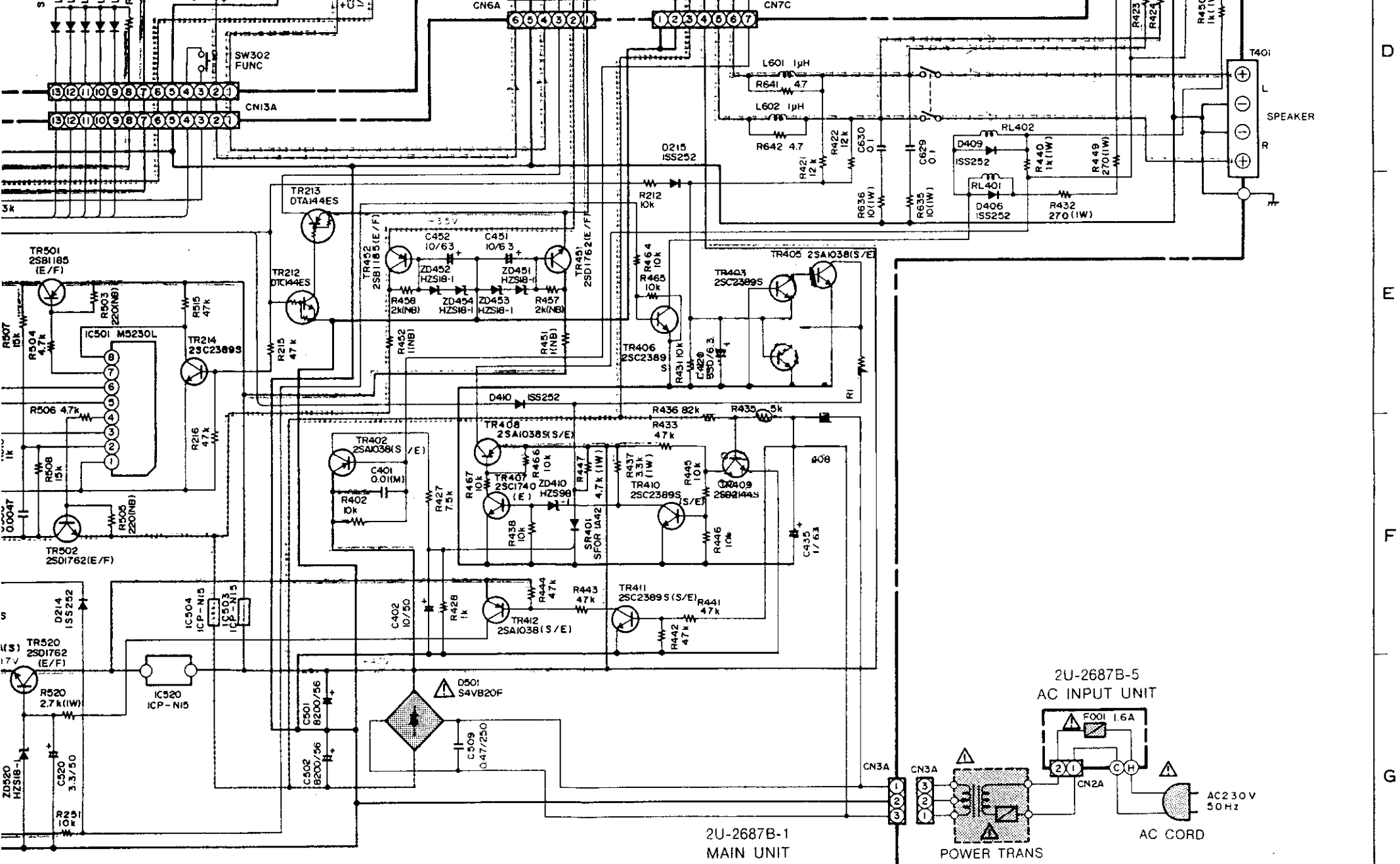
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11





either (1) a leakage current check or (2) a line to chassis resistance check. If the chassis to either side of the power cord is less than 240 Kohms, the unit is

ated and corrected.

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

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

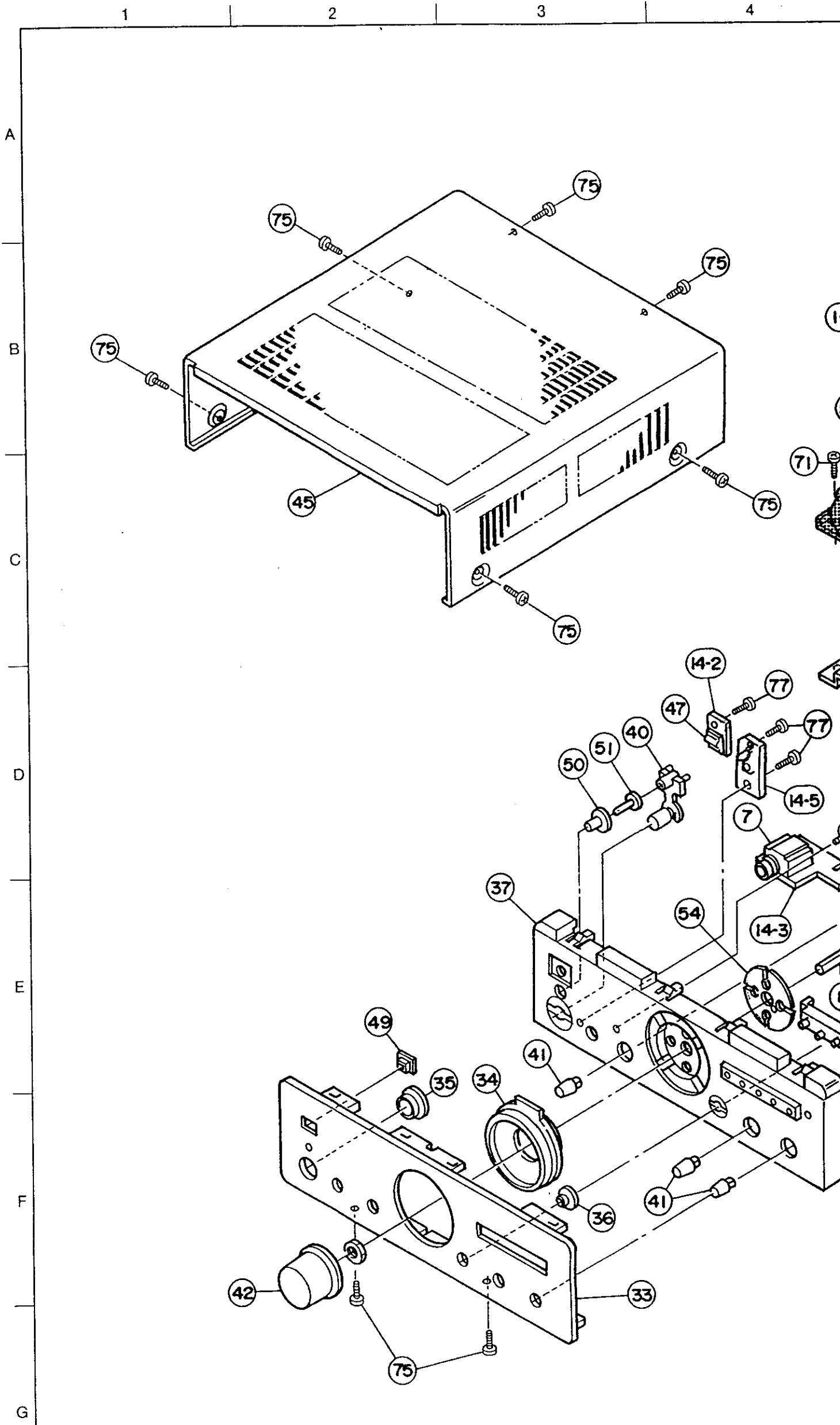
D  
E  
F  
G  
H

PRE-MAIN AMP. SECTION

EXPLODED VIEW

PARTS LIST OF UPA-F10 EXPLODED VIEW

| Ref. No.  | Part No.     | Part Name                    | Remarks           | Qty            |
|---|--------------|------------------------------|-------------------|----------------|
| 1   | 2U- 2687 B   | Main Unit Assy               |                   | 1 <sup>S</sup> |
| 1-1   | —            | Main Unit                    |                   | (1)            |
| 1-2   | —            | Input Unit                   |                   | (1)            |
| 1-3   | —            | Processor Unit               |                   | (1)            |
| 1-4   | —            | Power Unit                   |                   | (1)            |
| 1-5   | —            | AC IN Unit                   |                   | (1)            |
| 2   | 214 0154 005 | Relay (VB24SMBU)             | RL401             | 1              |
| 3   | 254 4371 701 | Chemicon 8200µF/56V          | C501,502          | 2              |
| 4   | 417 0499 000 | Heat Sink                    |                   | 2              |
| 5   | 417 0307 066 | Heat Sink                    |                   | 1              |
| 6   | 204 8421 005 | Mini Jack                    | JK201,202         | 2              |
| 7   | 204 8420 006 | Headphone Jack               | JK401             | 1              |
| 8   | 211 0825 005 | Variable Resistor 100k ohm   | VR101 Main Volume | 1              |
| 9   | 204 8266 008 | 4P Pin Jack (S-GND)          | JK102             | 1              |
| 10  | 204 8457 008 | 4P Pin Jack (S-GND)          | JK103,104         | 2              |
| 11  | 204 8278 009 | 6P Pin Jack (S-GND)          | JK101             | 1              |
| 12  | 205 0551 002 | 4P Terminal                  | T401              | 1              |
| 13  | 206 1015 058 | Fuse 1.6A                    | F001              | 1              |
| 14  | 2U- 2688 B   | Switch Unit Assy             |                   | 1 <sup>S</sup> |
| 14-1  | —            | Switch Unit (1)              |                   | (1)            |
| 14-2  | —            | Remocom Unit                 |                   | (1)            |
| 14-3  | —            | Headphone Unit               |                   | (1)            |
| 14-4  | —            | Volume Unit                  |                   | (1)            |
| 14-5  | —            | Switch Unit (2)              |                   | (1)            |
| 15  | 211 0822 008 | Variable Resistor 100k ohm   | VR301,302 Tone    | 2              |
| 16  | 211 0823 007 | Variable Resistor 50k ohm    | VR303 Balance     | 1              |
| 17  | 411 1224 315 | Main Chassis                 |                   | 1              |
| 18  | 412 3782 007 | Trans Bracket                |                   | 1              |
| 19  | GEN2798      | Foot Ass'y                   |                   | 4              |
| 20  | 412 3548 005 | P.W.B. Catcher               | H=10              | 4              |
| 21  | 412 2814 028 | Card Spacer (L=10)           | H=10              | 1              |
| 22  | 417 0496 003 | Power Radiator               |                   | 1              |
| 23  | 271 0276 009 | Transistor 2SA1633 F31 (E/F) | TR605,606         | 2              |
| 24  | 273 0430 003 | Transistor 2SC4278 F31 (E/F) | TR603,304         | 2              |
| 25  | 415 0234 007 | Insulating Sheet             |                   | 4              |
| 26  | 412 3829 009 | P.W.B. Bracket (A)           |                   | 2              |
| 27  | 105 1110 016 | Rear Panel (Amp.)            |                   | 1              |
| 28  | 206 2063 009 | AC Cord with Plug            |                   | 1              |
| 29  | 445 0056 008 | Cord Bush                    |                   | 1              |
| 30  | 205 0071 016 | Terminal Ass'y               | GND               | 1              |
| 31  | 477 0018 001 | Washer (P-87)                |                   | 1              |
| 32  | 233 6094 005 | Power Trans                  |                   | 1              |
| 33  | 144 2362 004 | Front Panel (Amp.)           |                   | 1              |
| 34  | 146 1482 208 | Knob Ring (C)                |                   | 1              |
| 35  | 146 9294 100 | Knob Ring (A)                |                   | 1              |
| 36  | 146 9295 109 | Knob Ring (B)                |                   | 1              |
| 37  | 146 1480 404 | Inner Panel (Amp.)           |                   | 1              |
| 38  | 143 0873 107 | Lens (5 Gang)                |                   | 1              |
| 39  | 113 1656 005 | Tact Button (1 Key)          |                   | 1              |
| 40  | 113 1654 104 | Power Button Ass'y           |                   | 1              |
| 41  | 112 0743 000 | Knob (Round)                 |                   | 3              |
| 42  | 112 0741 002 | Main Volume Kob Ass'y        |                   | 1              |
| 43  | 445 0033 005 | Wire Clamp Band              |                   | 3              |
| 44  | 205 0752 005 | Short Pin                    |                   | 2              |
| 45  | 102 0545 133 | Top Cover                    |                   | 1              |
| 46  | —            | —                            |                   | —              |
| 47  | 499 0281 003 | Remocn Sensor                | RPM-638CBR-L      | 1              |
| 48  | 214 0162 000 | Relay (A12W-K)               | RL402             | 1              |
| 49  | 143 0874 106 | Remocon Window               |                   | 1              |
| 50  | 146 1483 100 | Lens Guide                   |                   | 1              |
| 51  | 143 0876 104 | Lens                         |                   | 1              |
| 52  | 513 2240 005 | Rating Sheet                 |                   | 1              |
| 53  | 412 3838 003 | Headphone Bracket            |                   | 1              |
| 54  | 414 0725 102 | Main VR. Shield              |                   | 1              |
| 55  | —            | —                            |                   | —              |
| 56  | —            | —                            |                   | —              |
| 57  | —            | —                            |                   | —              |
| <b>SCREWS</b>   |              |                              |                   |                |
| 71  | 473 7004 003 | Tapping Screw (S) 4×8        |                   | 8              |
| 72  | 473 7002 018 | Tapping Screw (S) 3×8        |                   | 7              |
| 73  | 473 7508 046 | Tapping Screw (P) 3×16       | Black             | 1              |
| 74  | 473 8007 009 | Cup Screw 3×12               |                   | 4              |
| 75  | 473 7015 018 | Tapping Screw (S) 3×8        | Black             | 17             |
| 76  | 477 0064 107 | Fixing Screw                 |                   | 6              |
| 77  | 473 7505 007 | Tapping Screw (P) 2.6×8      |                   | 9              |
| 78  | 477 0262 006 | Special Screw                |                   | 2              |
| 79  | 473 7003 020 | F.H. Tapping Screw (S) 3×6   |                   | 2              |
| 80  | —            | —                            |                   | —              |
| <b>PACKING &amp; ACCESSORIES (Not included EXPLODED VIEW)</b> |              |                              |                   |                |
| 101   | 505 0102 089 | Stylen Paper                 | 700×700           | 1              |
| 102   | 503 1077 104 | Cushion                      |                   | 1              |
| 103   | GEN2738      | Envelope Sub. Ass'y          |                   | 1 <sup>S</sup> |
| 103-1   | 505 8006 019 | Envelope                     |                   | (1)            |
| 103-2   | 399 0235 005 | Remote Control               | RC-172            | (1)            |
| 103-3   | —            | Batterise                    | R06P/AA/UM-3      | (2)            |
| 103-4   | 511 2614 004 | Inst. Manual                 | E,G,F,IT          | (1)            |
| 103-5   | 511 2615 003 | Inst. Manual                 | ES,NL,S.PO        | (1)            |
| 104   | 503 1075 203 | Top Cushion                  |                   | 1              |
| 105   | 501 1780 000 | Carton Case                  |                   | 1              |



NOTE ON PARTS LIST

- Part indicated with the mark "●" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "1" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

WARNING:

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

EXPLODED VIEW

4

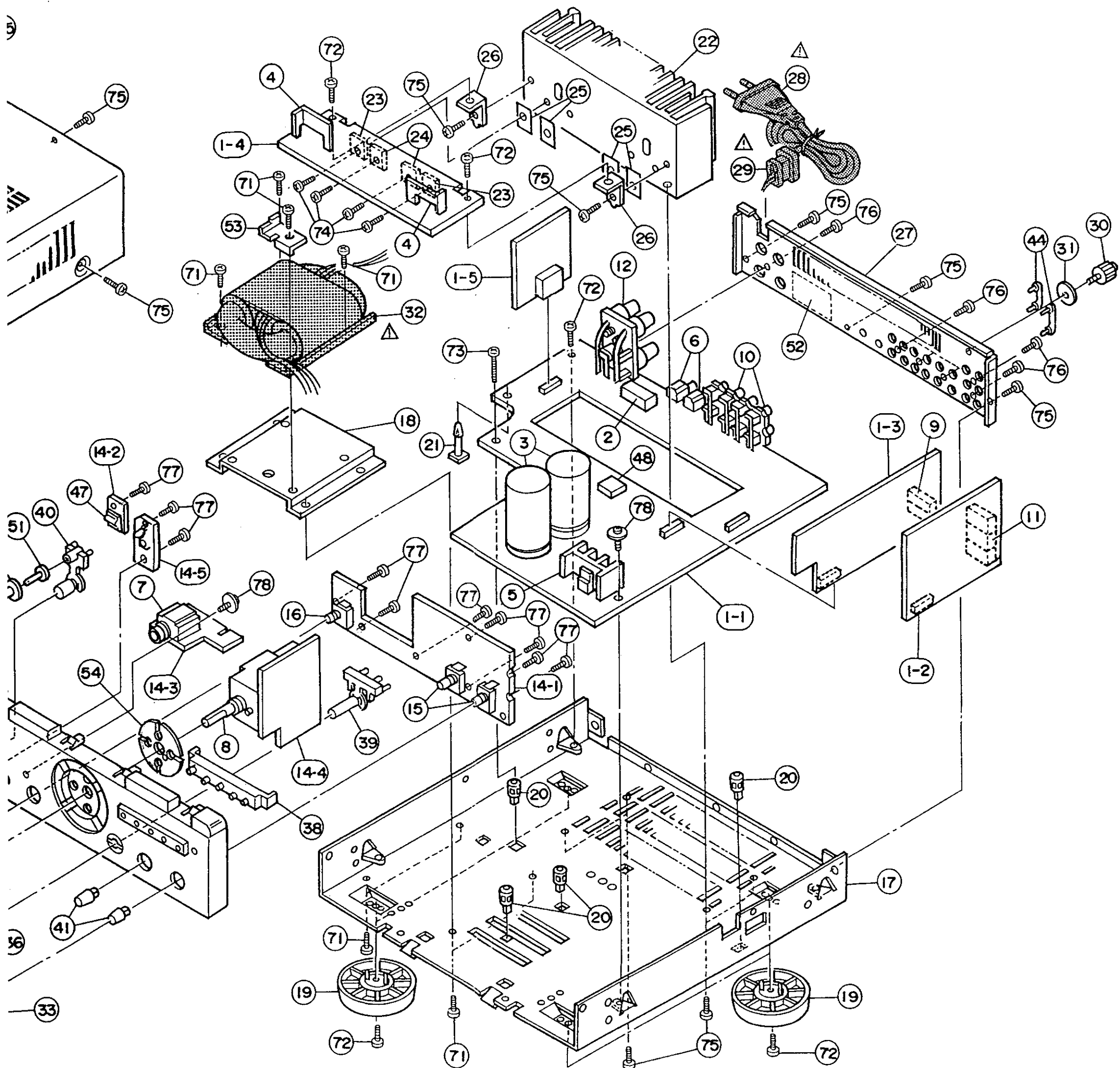
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iod of time for suppling, or in some case

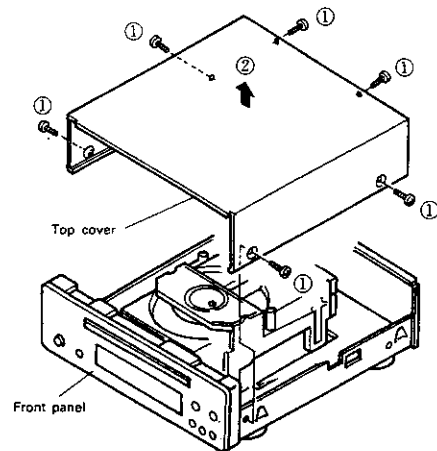
## CD PLAYER SECTION

## DISASSEMBLY PROCEDURES

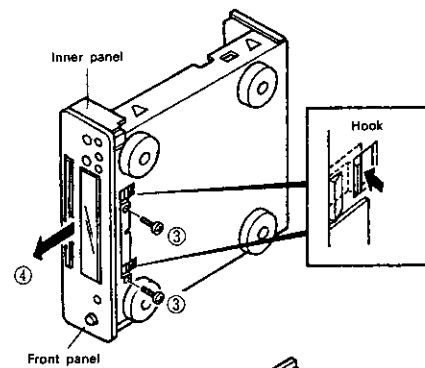
(Assembly is performed in the reverse order.)

## 1. Removing the Top Cover and the Front Panel

- ① Remove the six screws which fasten the top cover.
- ② Remove the top cover (upward) in the direction of the arrow.



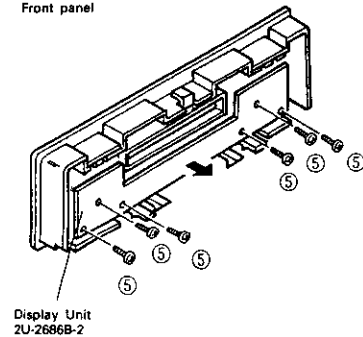
- ③ Remove the two screws which fasten front panel.
- ④ Release the inner panel hooks from the chassis while pulling the panels in the direction of the arrow to remove the inner panel and the front panel as one unit.



## 2. Removing the Units

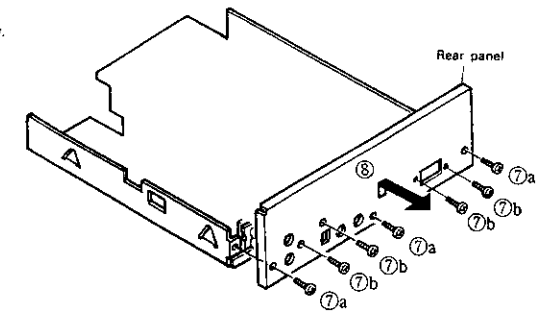
## Display Unit (2U-2686B-2)

- ⑤ Remove the six screws which fasten the display units.



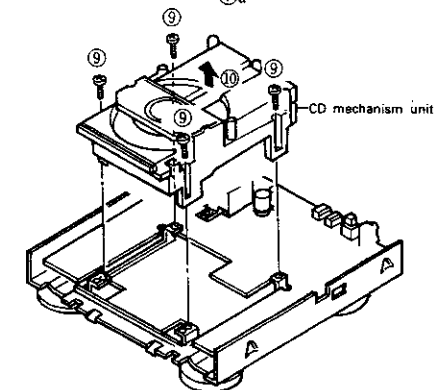
## 3. Removing the Rear Panel

- ⑦ Remove the three "a" screws and four "b" screws which fasten the rear panel.
- ⑧ Remove the rear panel in the direction of the arrow.



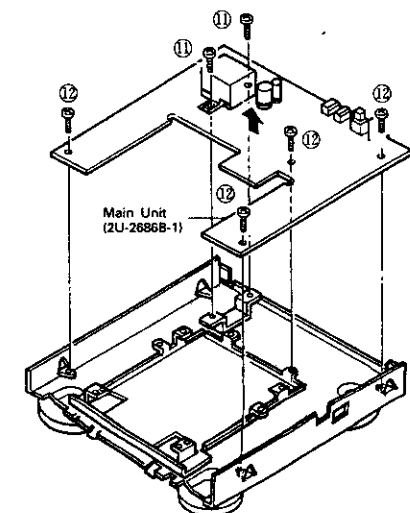
## 4. Removing the CD Mechanism Unit

- ⑨ Remove the four screws which fasten the CD mechanism unit.
- ⑩ Remove the CD mechanism unit in the direction of the arrow.



## Main Unit (2U-2686B-1)

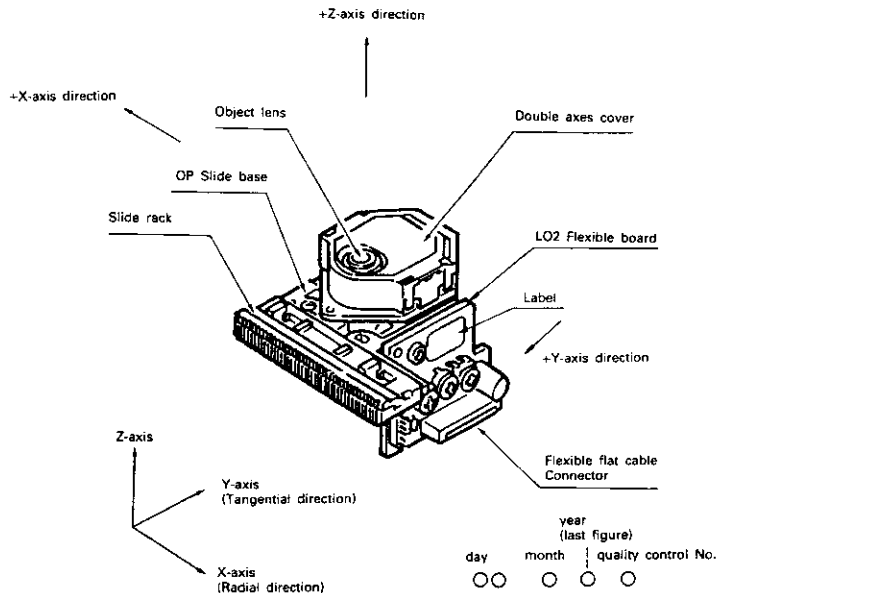
- ⑪ Remove the two screws which fasten the transformer.
- ⑫ Remove the four screws which fasten the main unit.



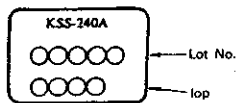
**CD PLAYER SECTION**

**DESCRIPTION OF THE COMPONENTS**

**LASER PICKUP**



**Label**



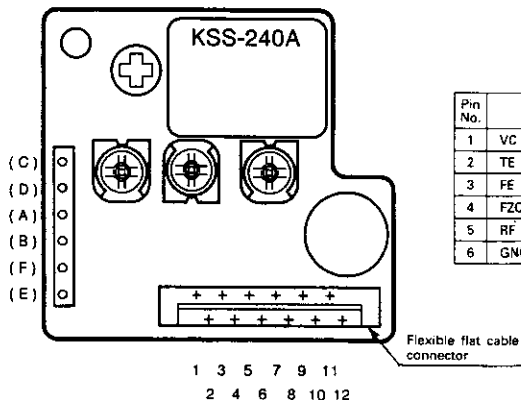
year (last figure)  
 month | quality control No.  
 day    month    year

but Oct. Nov. and Dec. are expressed by a alphabetical letters of X, Y and Z.

quality control    LD drive current

The expressed unit is by mA, with omission of the decimal points as for example, 56.5 mA will be expressed as 565, but the head of English letter means the control in the manufacturing plant.

**PIN CONNECTOR**



| Pin No. | Description        | Input/Output | Pin No. | Description        | Input/Output |
|---------|--------------------|--------------|---------|--------------------|--------------|
| 1       | VC (+2.5V)         | OUT          | 7       | Vcc (+5V)          | IN           |
| 2       | TE (TRK ER signal) | OUT          | 8       | LDC (LD Control)   | IN           |
| 3       | FE (FCS ER signal) | OUT          | 9       | FCS+ (Double axes) | IN           |
| 4       | FZC (FZS signal)   | OUT          | 10      | TRK+ (Double axes) | IN           |
| 5       | RF (RF signal)     | OUT          | 11      | TRK- (Double axes) | IN           |
| 6       | GND                | OUT          | 12      | FCS- (Double axes) | IN           |

**Caution for Handling the Laser Pick-up**

The laser pick-up KSS-240A is assembled and precisely adjusted using a sophisticated manufacturing process in our plant. Do not disassemble or attempt to readjust it. Please keep the following instructions carefully in handling pick-up.

**1. Handle with Care**

- (1) Storage  
Do not store the pick-up in dusty, high-temperature or high-humidity environments.
- (2) Please take care for preventing from shock by falling down or careless handling.

**2. Laser Diode (LD)**

- (1) Protect your eyes  
The laser beam may damage the human eye, since the intensity of the focused spot may reach  $7 \times 10^3 \text{ W/cm}^2$  even if the intensity at the objective lens is  $400 \mu\text{W}$  maximum. As the light beam spreads after focused through the objective lens, it does not effect you in the place as far as more than 30 cms. However, do not look at the laser light beam either through the objective lens directly nor another lens or a mirror.
- (2) Poison of As  
Since the LD chip contains As (Arsenic), as GaAs + GaAlAs, as known as the poison, although the poison is relatively weak, in comparing with others, e.g.  $\text{As}_2\text{O}_3$ ,  $\text{AsCl}_3$  etc., and the amount is small, avoid putting the chip in acid or an alkali solution, heating it over  $200^\circ\text{C}$  or putting it into your mouth.
- (3) Avoid surge current or electrostatic discharge  
The LD may be damaged or deteriorated by its own strong light if a large current is supplied to it, even if only a short pulse.

Make sure that there is no surge current in the LD driving circuit by switches or else. Be careful to handle pick-up as it may be damaged in a moment by human electrostatic discharge. The pins of the LD are short-circuited by solder for protection during shipment.

For safety handling of an LD, grounding the human body, measuring equipments and jig is strongly recommended. And still it is further desirable to make use of mat on the platform and floor for handling the LD.

To open the short-circuit, remove the soldering quickly with a soldering iron whose metal part is grounded.

The temperature of the soldering iron should be less than  $320^\circ\text{C}$  (30 W).

**3. Actuator**

- (1) The performance of the actuator may be effected if magnetic material is located nearby, since the actuator has a strong magnetic circuit. Do not permit dust to enter through the clearance of the cover.
- (2) Cleaning the lens  
It may change the specifications by attaching dust or ash on the objective lens. Clean the lens with a cleaning paper dampened with a little water, not pressing lens with so much strength by the cleaning paper.

**4. Metal Bearing**

As the metal bearing of Cu-compound sintered alloy is impregnated with FROIL946P (\*Part No. 529 0054 007), never fail to supply the bushing with the same lubricant at the time of replacing the pick-up.

**5. Handling**

Please handle the laser pick-up with holding the side base (rosin molded prt).

When either a part of human body or some other things may happen to touch directly with the circuit part of P.W. Board, it may cause deterioration, take careful attention in handling this base.

**6. Deterioration**

As KSS-240A comprises built-in RF Amp and APC circuit, it resists stronger against external electrostatic damages than the former typed pickup. However, there is possibility of pickup deterioration in the following cases.

- (1) Low HF level, or with great numbers of jitters.
- (2) Tracking offset (EF Balance) is out of order (Refer to "Confirmation Method of Adjustment" for confirmation on (1) and (2)).



**CD PLAYER SECTION**

**ADJUSTMENTS**

Microcomputer built in the unit, comprises service program to facilitate servo adjustment by pushing operation button.

**1. Start service program**

Set the UCD-F10 (CD player section) to standby. Then, while short-circuiting TP102 ③ SWCL and ④ SWOP, switch on the power switch. Two to three seconds later, "01" will appear on the display of the UCD-F10 to indicate the service mode setting.

**(Caution)**

- When service program started normal operation of buttons will be defeated.

**2. Service program function**

| Button        | Function  | Description  |
|---------------|---|--|
| ▲ OPEN/CLOSE  | Opens or close the disc holder.                                 | <ul style="list-style-type: none"> <li>• Opens or closes only when disc is stopped.</li> <li>• Operate other keys after open or close.</li> </ul>                  |
| ■ STOP        | Stops system function.  | <ul style="list-style-type: none"> <li>• Displays track number 01.</li> <li>• Push when adjustment completed, or do it again.</li> </ul>                           |
| ▶ PLAY        | Starts focus servo and disc turns.                              | <ul style="list-style-type: none"> <li>• Push when adjust tracking offset.</li> <li>• When completed, displays track number 02.</li> </ul>                         |
| ⏸ PAUSE       | Starts focus servo, tracking servo, slide servo, spindle servo. | <ul style="list-style-type: none"> <li>• When PLAY button is pushed, starts tracking servo and slide servo.</li> <li>• When completed, track number 03.</li> </ul> |
| Other buttons | No normal operation.  | <ul style="list-style-type: none"> <li>• Do not operate buttons other than the above.</li> <li>• If misoperated, immediately turn power switch OFF.</li> </ul>     |

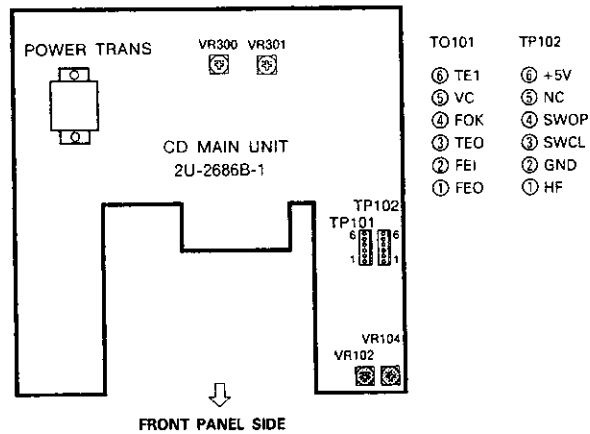
**(Caution)**

- Do not use remote control during service program mode.

**3. Adjustment method**

(1) Location

**2U-2686B CD MAIN UNIT (Component Side)**

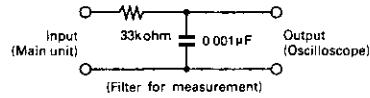


NOTE: VR301 and VR302 have been adjusted before shipping and do not require adjustment.

**CD PLAYER SECTION**

(2) Necessary equipment for adjustment

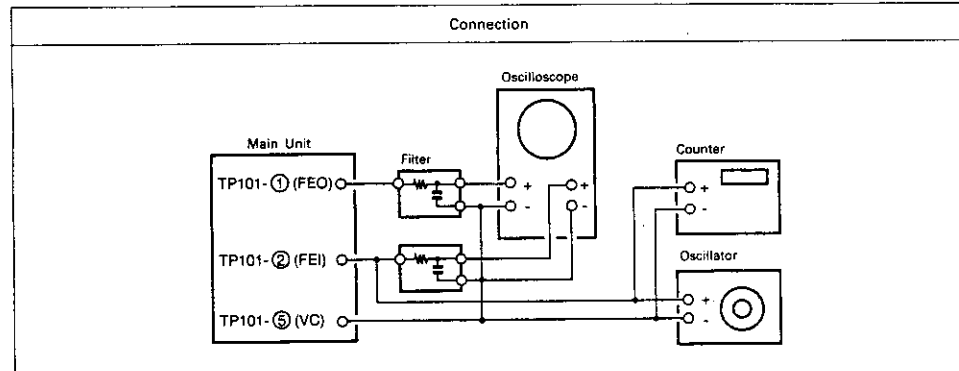
1. Dual trace oscilloscope
2. Reference disc TOMITA YASUKO (CA-1094) or W.A. MOZART (CO-74176)
3. Oscillator (10 Hz ~ 10 kHz, 0 ~ 3 Vp-p)
4. Frequency counter (readable no less than 5 kHz)
5. Filter for measurement



(3) Preset

|    |  |  |  |
|----|--|--|--|
| 1. | Start service program.                 |  |  |
| 2. | Preset VR102, 104 as per right figure. | VR102 (F-GAIN)  12 O'clock<br>VR104 (T-GAIN)  12 O'clock   |  |
| 3. | Step.                                  | 1. Focus gain (VR102)<br>2. Tracking gain (VR104)<br>3. Tracking Offset (Confirm)<br>4. AF Level (Confirm) |  |

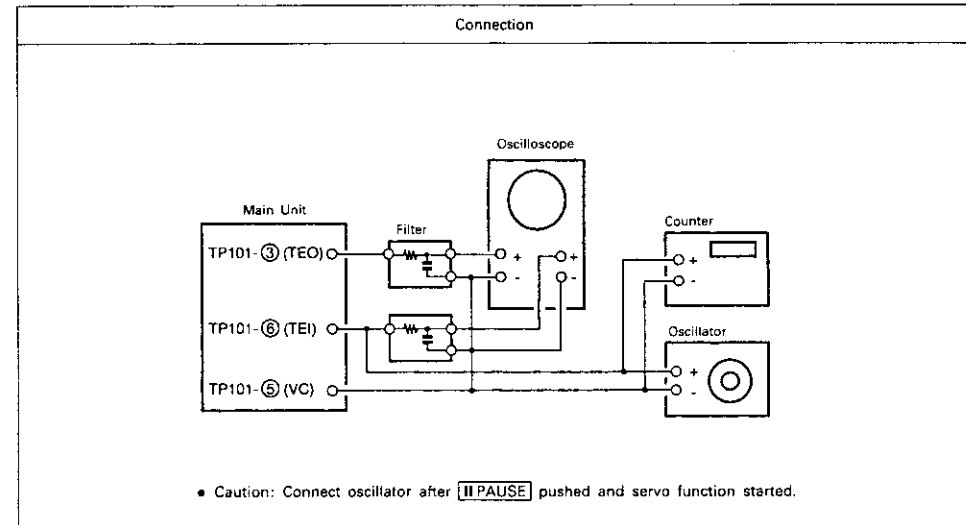
**4. Focus gain**



| Oscillator                          | Counter | Oscilloscope                      | Adjust            | Check   | Step   |
|-------------------------------------|---------|-----------------------------------|-------------------|---|--|
| (CA-1094)<br>• 930 Hz<br>• 2 Vp-p   | 930 Hz  | V   H<br>• DC range<br>• X-Y mode | (Volume)<br>VR102 | (Oscilloscope)<br>Y axis<br>X axis<br>Phase 90°<br>Waveform not right<br>Y axis<br>X axis | 1. Press the <b>OPEN/CLOSE</b> button and place a disc for adjustment purposes onto the disc holder.<br>2. Press the <b>OPEN/CLOSE</b> button again and close the disc holder.<br>3. Push <b>PAUSE</b> (Displays track number 03)<br>4. Set oscillator to 930 Hz/2 Vp-p or 1.1 kHz/2 Vp-p.<br>5. Switch oscilloscope input to X-Y mode.<br>6. Adjust VR104 [T-GAIN] to symmetrize Lissajous figures to X-Y axes. |
| (CO-74176)<br>• 1.1 kHz<br>• 2 Vp-p | 1.1 kHz |                                   |                   |   |  |

**CD PLAYER SECTION**

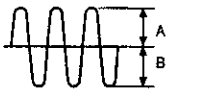
**5. Tracking gain**



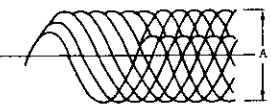
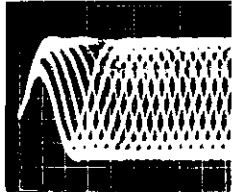
| Oscillator                            | Counter | Oscilloscope                      | Adjust            | Check   | Step   |
|---------------------------------------|---------|-----------------------------------|-------------------|---|--|
| (CA-1094)<br>• 2.7 kHz<br>• 0.8 Vp-p  | 2.7 kHz | V   H<br>• DC range<br>• X-Y mode | (Volume)<br>VR104 | (Oscilloscope)<br>Y axis<br>X axis<br>Phase 90°<br>Waveform not right<br>Y axis<br>X axis | 1. Push <b>PAUSE</b> (Displays track number 03)<br>2. Connect Oscillator<br>3. Set oscillator to 2.7 kHz/0.8 Vp-p or 3.3 kHz/0.8 Vp-p.<br>4. Switch oscilloscope input to X-Y mode.<br>5. Adjust VR104 [T-GAIN] to symmetrize Lissajous figures to X-Y axes. |
| (CO-74176)<br>• 3.3 kHz<br>• 0.8 Vp-p | 3.3 kHz |                                   |                   |   |  |

## CD PLAYER SECTION

## 6. Tracking offset (E/F Balance) confirm

| Oscilloscope |           | Check   | Step   |
|--------------|-----------|---|--|
| V            | H         | (Oscilloscope)  |  |
| 0.1V/div     | 1~2ms/div |  $\frac{A - B}{A + B} \times 100 < 20\%$ | 1. Push <b>▶ PLAY</b> to turn disc. (Displays track number <b>02</b> )<br>2. Short (+) (-) of oscilloscope and check the base line.<br>3. Confirm that upper and lower amplitude of the waveform is symmetric against 0 V. |

## 7. HF level confirm

| Oscilloscope                              |                                | Check   | Step   |
|---|--------------------------------|---|--|
| V   | H                              | (Oscilloscope)  |  |
| 50mV/div<br>or<br>20mV/div                | 0.2 μV/div<br>or<br>0.5 μV/div |  $A = 1.36 \pm 0.2V_{p-p}$ | 1. Push <b>⏸ PAUSE</b> . (Displays track number <b>03</b> )<br>2. Check HF level of oscilloscope.<br>3. Confirm that the waveform is in good shape.<br>(◇ Pattern in center must be able to discriminate clearly.) |
| • Set input mode to ALTERMATE or CHOPPER. |                                |                            |  |

## HEAT RUN MODE FUNCTION

## Heat Run Mode

## 1) To activate

While hold pushing **▶▶**, **◀◀**, **▶▶▶** and **◀◀◀** keys simultaneously, turn the unit power on. The remote control sensor indicator will light to show that the unit is shifted in Heat Run mode.

Be sure to load the disc previously.

Press the disc holder open/close button (**▲ OPEN/CLOSE**) to cancel Heat Run mode.

★ This mode functions only for a disc with 21 pieces of music or more. For a disc with 20 pieces of music or lesser, please do not use.

## 2) Operation

During the Heat Run mode to shift the unit in Play mode makes the unit replays from the first music after opens the loader once and re-closes it when finish playing the last track (comes into lead out).

Hereafter, operates open/close of loader, servo on, reading of TOC, and playing repeatedly, and repeats playing the two tracks; the first and the last ones.

## 3) Error Message

When the system error occurs while in Heat Run mode, the following error message will display on the Track No. indicator and stops operation.

## 1. E1

At the time of Focus Servo does not activate.

## 2. E2

When unable to detect synchronous pattern however the disc is in rotating. (GFS does not drive.)

## 3. E3

No synchronous pattern can be detected while in Play mode. (No GFS drives.)

## 4. E4

When TOC is unreadable in despite of servo is activated.

## 5. E5

In case of loader malfunctions. (Unable to turn on the switch.)

## 6. E6

The inner circle switch of Pick-up does not turn off.

## 7. E7

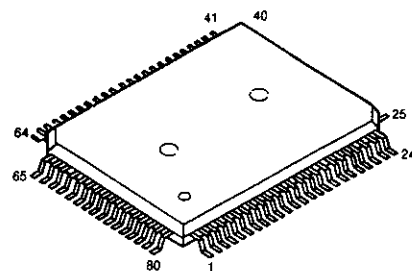
The inner circle switch of Pick-up does not turn on.

★ The number of operation up to the stop will be displayed on the minute and second portion of the indicator.

## CD PLAYER SECTION

## SEMICONDUCTORS

## • IC's



CXD 2500BQ (IC202)

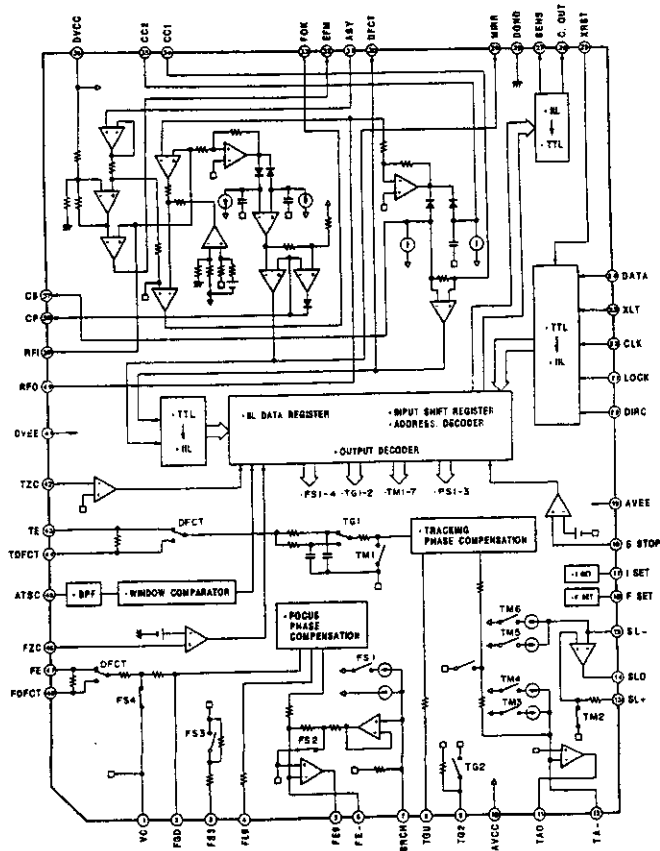
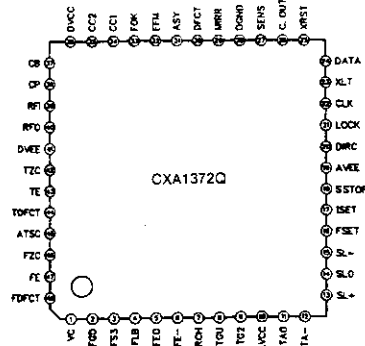
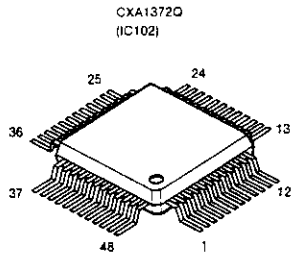
## • Pin Function Table

| Pin No. | Pin Symbol       | I/O        | Pin Description  |
|---------|------------------|------------|--|
| 1       | FOK              | I          | Focus OK input pin. Used with SENS output and the servo auto sequencer.  |
| 2       | FSW              | O, Z,0     | Output filter switching output of the spindle motor.   |
| 3       | MON              | O, 1,0     | On-off control output of the spindle motor.  |
| 4       | MDP              | O, 1,Z,0   | Servo control of the spindle motor.  |
| 5       | MDS              | O, 1,Z,0   | Servo control of the spindle motor.  |
| 6       | LOCK             | O, 1,0     | Samples the GFS at 460 Hz and outputs a high level when GFS is high. Outputs a low level when GFS is continuously low 8 times. |
| 7       | NC               | -          |  |
| 8       | VCOO             | O, 1,0     | Oscillator circuit output for analog EFM PLL use.  |
| 9       | VCOI             | O          | Oscillator circuit output for analog EFM PLL use. fLOCK = 8.6436 MHz   |
| 10      | TEST             | I          | Pin for test purposes, usually grounded.   |
| 11      | PDO              | O, 1,Z,0   | Used for the charge pump for analog EFM PLL.   |
| 12      | V <sub>SS</sub>  |            | Ground   |
| 13      | NC               | -          |  |
| 14      | NC               | -          |  |
| 15      | NC               | -          |  |
| 16      | VPCO             | O, 1,Z,0   | PLL charge pump output for variable pitch.   |
| 17      | VCKI             | O          | Clock input center frequency (fcenter) from the external VCO used for variable pitch is 16.9344 MHz.                           |
| 18      | FILO             | O, Analog. | Slave (i.e., digital PLL) digital output for the master PLL.   |
| 19      | FILF             | I          | Filter input for the master PLL.   |
| 20      | PCO              | O, 1,Z,0   | Charge pump output for the master PLL.   |
| 21      | AV <sub>SS</sub> |            | Analog ground  |
| 22      | CLTV             | I          | Master VCO control voltage input.  |
| 23      | AV <sub>DD</sub> |            | Analog power supply (+5 V).  |
| 24      | RF               | I          | EFM signal input.  |
| 25      | TEST2            | I          | Grounded.  |
| 26      | TEST3            | I          | Grounded.  |
| 27      | ASYO             | O, 1,0     | EFM full-swing output. (V <sub>SS</sub> at low, V <sub>DD</sub> at high.)  |
| 28      | TEST4            | I          | Grounded.  |
| 29      | NC               | -          |  |
| 30      | PSSI             | I          | Audio data output mode switching input. Serial output at low level, parallel output at high level.                             |
| 31      | WDCK             | O, 1,0     | D/A interface for a 48-bit slot. Word clock frequency is 2Fs.  |
| 32      | LRCK             | O, 1,0     | D/A interface for a 48-bit slot. LR clock frequency is Fs.   |
| 33      | V <sub>DD</sub>  |            | Power supply (+5 V).   |

## CD PLAYER SECTION

| Pin No. | Pin Symbol      | I/O      | Pin Description  |
|---------|-----------------|----------|--|
| 34      | DA16            | O, 1,0   | When PSSL equals 1, DA16 (MSB) is output. When PSSL equals 0, the serial data of the 48-bit slot is output. (Two's complement, MSB first.) |
| 35      | DA15            | O, 1,0   | When PSSL equals 1, DA15 is output. When PSSL equals 0, the bit clock of the 48-bit slot is output.  |
| 36      | DA14            | O, 1,0   | When PSSL equals 1, DA14 is output. When PSSL equals 0, the serial data of the 48-bit slot is output. (Two's complement, LSB first.)       |
| 37      | DA13            | O, 1,0   | When PSSL equals 1, DA13 is output. When PSSL equals 0, the bit clock of the 48-bit slot is output.  |
| 38      | DA12            | O, 1,0   | When PSSL equals 1, DA12 is output. When PSSL equals 0, the LR clock of the 48-bit slot is output.   |
| 39      | DA11            | O, 1,0   | When PSSL equals 1, DA11 is output. When PSSL equals 0, GTOP is output.  |
| 40      | DA10            | O, 1,0   | When PSSL equals 1, DA10 is output. When PSSL equals 0, XUGF is output.  |
| 41      | DA09            | O, 1,0   | When PSSL equals 1, DA09 is output. When PSSL equals 0, XPLCK is output.   |
| 42      | DA08            | O, 1,0   | When PSSL equals 1, DA08 is output. When PSSL equals 0, GFS is output.   |
| 43      | DA07            | O, 1,0   | When PSSL equals 1, DA07 is output. When PSSL equals 0, RFCK is output.  |
| 44      | DA06            | O, 1,0   | When PSSL equals 1, DA06 is output. When PSSL equals 0, C2P0 is output.  |
| 45      | DA05            | O, 1,0   | When PSSL equals 1, DA05 is output. When PSSL equals 0, XRAOF is output.   |
| 46      | DA04            | O, 1,0   | When PSSL equals 1, DA04 is output. When PSSL equals 0, MNT3 is output.  |
| 47      | DA03            | O, 1,0   | When PSSL equals 1, DA03 is output. When PSSL equals 0, MNT2 is output.  |
| 48      | DA02            | O, 1,0   | When PSSL equals 1, DA02 is output. When PSSL equals 0, MNT1 is output.  |
| 49      | DA01            | O, 1,0   | When PSSL equals 1, DA01 is output. When PSSL equals 0, MNT0 is output.  |
| 50      | APTR            | O, 1,0   | Aperture correction control output. High level at time of the right channel.   |
| 51      | APTL            | O, 1,0   | Aperture correction control output. High level at time of the left channel.  |
| 52      | V <sub>SS</sub> |          | Ground.  |
| 53      | XTAI            | I        | 16.9344 MHz crystal oscillator circuit input. Or, 33.8688 MHz input.   |
| 54      | XTAO            | O, 1,0   | 16.9344 MHz crystal oscillator circuit input.  |
| 55      | XTSL            | I        | Crystal selection input pin. Set to low level when the crystal is 16.9344 MHz. Set to high level when 33.8688 MHz.                         |
| 56      | FSTT            | O, 1,0   | Output of 2/3 division of pins 53 and 54. Does not change with variable pitch.   |
| 57      | C4M             | O, 1,0   | 4.2336 MHz output. Changes simultaneously with variable pitch effects.   |
| 58      | C16M            | O, 1,0   | 16.9344 MHz output. Changes simultaneously with variable pitch effects.  |
| 59      | MD2             | I        | Digital-Out on/off control. On at high level and off at low level.   |
| 60      | DOUT            | O, 1,0   | Digital-Out output pin.  |
| 61      | EMPH            | O, 1,0   | High level output when played disc has emphasis. Low level output when there is no emphasis.   |
| 62      | WFCK            | O, 1,0   | WFCK (Write Frame Clock) output.   |
| 63      | SCOR            | O, 1,0   | High level is output when either sub code sync S0 or S1 is detected.   |
| 64      | SBSO            | O, 1,0   | Serial output of SubP through W.   |
| 65      | EXCK            | I        | Clock input for SBSO readout.  |
| 66      | SQSO            | O, 1,0   | SubQ 80bit and PCM peak level data 16-bit output.  |
| 67      | SQCK            | I        | Clock input for SQSO readout.  |
| 68      | MUTE            | I        | Muting at high level, cancellation at low level.   |
| 69      | SENS            | -, 1,Z,0 | SENS output. Output to CPU.  |
| 70      | XRST            | I        | System set. Reset at low level.  |
| 71      | DATA            | I        | Serial data input from the CPU.  |
| 72      | XLAT            | I        | Latch input data input from the CPU. Serial data are latched with the trailing edge.   |
| 73      | V <sub>DD</sub> |          | Power supply (+5 V).   |
| 74      | CLOCK           | I        | Serial data transfer clock input from the CPU.   |
| 75      | SEIN            | I        | Sense input from SSP.  |
| 76      | CNIN            | O, 1,0   | Number of track jumps counting signal input.   |
| 77      | DATO            | O, 1,0   | Serial data output to SSP.   |
| 78      | XLTO            | O, 1,0   | Serial data latch output to SSP. Latched with the trailing edge.   |
| 79      | CLKP            | O, 1,0   | Serial data transfer clock output to SSP.  |
| 80      | MIRR            | I        | Mirror signal input. Used for jumps of 128 tracks or greater with an auto sequencer.   |

CD PLAYER SECTION

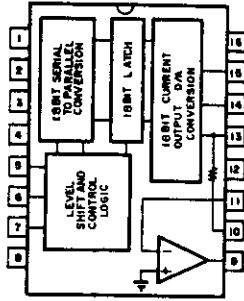
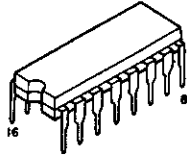


Pin Description Table

| Pin No. | Pin Symbol | I/O | Pin Description   |
|---------|------------|-----|---|
| 1       | VC         | I   | Mid-point voltage input pin. GND with two power supplies. (VCC + GND)/2 with a single power supply.                       |
| 2       | FGD        | I   | When dropping the high-region gain of the focus servo, insert a capacitor between this pin and pin 3.                     |
| 3       | FS3        | I   | The on/off state of FS3 switches the high-region gain of the focus servo.   |
| 4       | FLB        | I   | This is the time constant external connection pin for the low-region boost of the focus servo.                            |
| 5       | FEO        | O   | This is the focus drive output.   |
| 6       | FE-        | I   | Inverting input pin of the focus amplifier.   |
| 7       | SRCH       | I   | Time constant external connection pin for creating the focus search waveform.   |
| 8       | TGU        | I   | Time constant external connection pin for switching of the tracking high-region gain.                                     |
| 9       | TG2        | I   | Time constant external connection pin for switching of the tracking high-region gain.                                     |
| 10      | —          | —   | —   |
| 11      | TAO        | O   | Tracking drive output.  |
| 12      | TA-        | I   | Inverting input pin of the tracking amplifier.  |
| 13      | SL+        | I   | Non-inverting input pin of the sled amplifier.  |
| 14      | SLO        | O   | Sled drive output.  |
| 15      | SL-        | I   | Inverting input pin of the sled amplifier.  |
| 16      | FSET       | I   | Pin used for the peak setting of the focus tracking phase correction.   |
| 17      | ISET       | I   | Supplies the current which determines the focus search, tracking jump, and sled kick height.                              |
| 18      | SSTOP      | I   | Pin used for the on/off detection signal of the limit switch which is used for detecting the innermost track of the disc. |
| 19      | —          | —   | —   |
| 20      | DIRC       | I   | Used at the time of one tracking jump. Includes a 47 kohm pull-up resistor.   |
| 21      | LOCK       | I   | The sled runaway prevention circuit is activated at low level. Includes a 47 kohm pull-up resistor.                       |
| 22      | CLK        | I   | Serial data transfer clock input from the CPU. (No pull-up resistor.)   |
| 23      | XLT        | I   | Latch input from the CPU. (No pull-up resistor.)  |
| 24      | DATA       | I   | Serial data input from the CPU. (No pull-up resistor.)  |
| 25      | XRST       | I   | Resets with a low level at the reset input pin. (No pull-up resistor.)  |
| 26      | C.OUT      | I   | Signal output for the count of the number of tracks.  |
| 27      | SENS       | O   | Outputs FZC, AS, TZC, SSTOP and other signals by command from the CPU.  |
| 28      | —          | —   | —   |
| 29      | MIRR       | O   | Output pin of the MIRR comparator. (DC voltage: 10 kohm load resistor connection)   |
| 30      | DFCT       | O   | Output pin of the DEFECT comparator. (DC voltage: 10 kohm load resistor connection)                                       |
| 31      | ASY        | I   | Input pin of the auto symmetry control.   |
| 32      | EFM        | O   | Output pin of the EFM comparator. (DC voltage: 10 kohm load resistor connection)  |
| 33      | FOK        | O   | Output pin of the focus OK comparator. (DC voltage: 10 kohm load resistor connection)                                     |
| 34      | CC1        | I   | DEFECT bottom hold output pin.  |
| 35      | CC2        | O   | Input pin for which the DEFECT bottom hold output is input with capacitive coupling.                                      |
| 36      | —          | —   | —   |
| 37      | CB         | I   | Connection pin of the DEFECT bottom hold capacitor.   |
| 38      | CP         | I   | Connection pin of the MIRR hold capacitor. This is the non-inverting input pin of the MIRR comparator.                    |
| 39      | RF1        | I   | Input pin for which the output of the RF summing amplifier is input with capacitive coupling.                             |
| 40      | RFO        | O   | Output pin of the RF summing amplifier. This is the eye pattern check point.  |
| 41      | —          | —   | —   |
| 42      | TZC        | I   | Input pin of the tracking zero-cross comparator.  |
| 43      | TE         | I   | Tracking error input pin.   |
| 44      | TDFCT      | I   | Time-constant capacitor connection pin at time of defects.  |
| 45      | ATSC       | I   | Window comparator input pin for ATSC detection.   |
| 46      | FZC        | I   | Focus zero-cross comparator input pin.  |
| 47      | FE         | I   | Focus error input pin.  |
| 48      | DFDCT      | I   | Time-constant capacitor connection pin at time of defects.  |

**CD PLAYER SECTION**

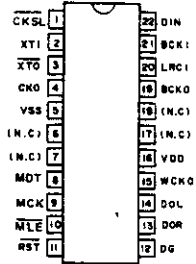
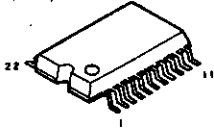
PCM61P-L (IC302, 303)



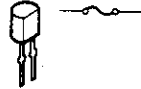
**Pin Arrangement**

|    |                   |                               |
|----|-------------------|-------------------------------|
| 1  | -V <sub>CC</sub>  | Analog negative power supply  |
| 2  | DIG. GND          | Digital ground                |
| 3  | +V <sub>L</sub>   | Logic positive power supply   |
| 4  | NC                | No connection                 |
| 5  | CLK               | Clock input                   |
| 6  | LEC               | Latch enable input            |
| 7  | DATA              | Serial data input             |
| 8  | -V <sub>L</sub>   | Logic negative power supply   |
| 9  | V <sub>OUTA</sub> | Voltage output                |
| 10 | RF                | Feedback resistor             |
| 11 | S. J              | Summing junction              |
| 12 | ANA. GND          | Analog ground                 |
| 13 | I <sub>OUTJ</sub> | Current output                |
| 14 | MSB ADJ           | MSB adjustment pin            |
| 15 | V <sub>POTJ</sub> | MSB trimmer potentiometer pin |
| 16 | -V <sub>CC</sub>  | Analog positive power supply  |

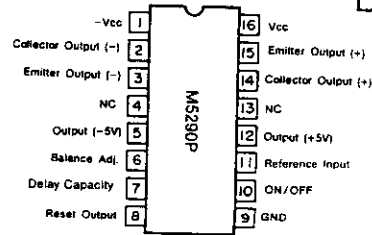
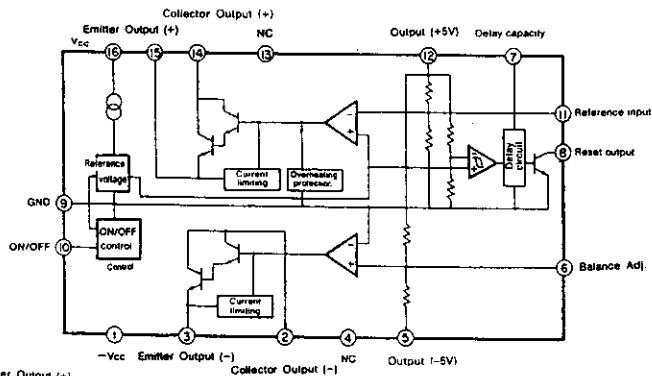
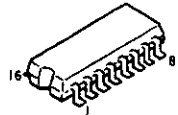
SM5841BS (IC300)



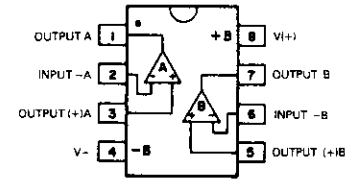
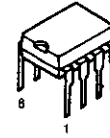
**IC Protector**  
ICP-N15 (IC502, 503)



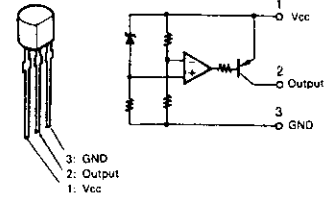
M5290FP (IC501)



BA15218 (IC103, 105, 106)



PST529C (IC200)

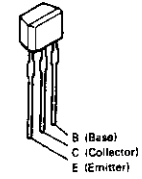
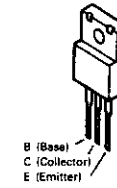
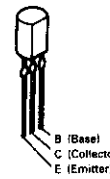


**Transistors**

- 2SA934 (Q)
- 2SC2060 (Q)

- 2SB1185 (E/F)
- 2SD1762 (E/F)

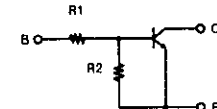
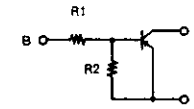
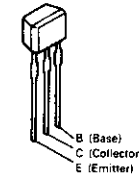
- 2SA933S (S)
- 2SC1740S (S)
- 2SD2144S



DTA114ES PNP type  
DTC114ES NPN type

PNP type

NPN type



|          | R1      | R2     |
|----------|---------|--------|
| DTA114ES | 10 kohm | 10 kom |

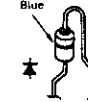
|          | R1      | R2     |
|----------|---------|--------|
| DTC114ES | 10 kohm | 10 kom |

**Diodes**

1SS270A



1SR35-200A

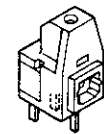


HZS6A-1  
HZS6C-1  
HZS22-1



**Optical out**

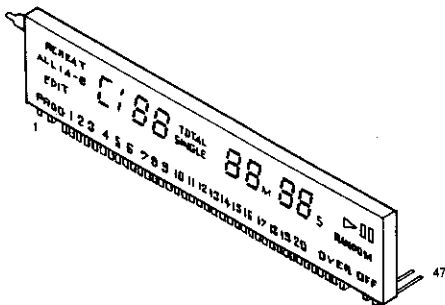
GP1F32T (JK280)



**CD PLAYER SECTION**

**CD PLAYER SECTION**

• Fluorescent Display Tube 8BT159GK  
(Part No.: 393 8013 001)



**Pin Connections**

|            |    |    |    |    |    |    |    |    |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|------------|----|----|----|----|----|----|----|----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Pin No.    | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9   | 10  | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| Connection | F1 | F1 | NP | NP | 1G | 2G | 3G | 4G | 5G  | 6G  | 7G | 8G | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC |
| Pin No.    | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33  | 34  | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 |    |
| Connection | NC | NC | NC | NC | NC | NC | NC | NC | P11 | P10 | P9 | P8 | P7 | P6 | P5 | P4 | P3 | P2 | P1 | NP | NP | F2 | F2 |    |

- NOTE**
- 1) F1 and F2: Filaments
  - 2) NP: No pin
  - 3) NC: No connection
  - 4) 1 G through 11 G: Grid

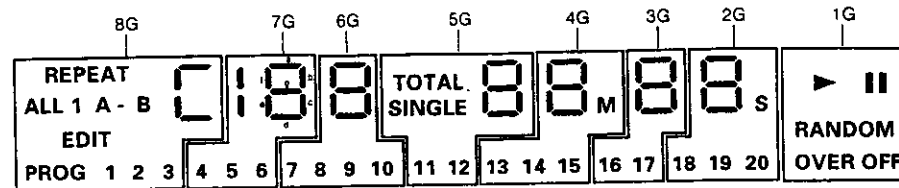
**Pattern Details**



**Illumination colors**  
 Reddish orange: portion of above pattern  
 Green: Other portions

**CD PLAYER SECTION**

**GRID ASSIGNMENT**

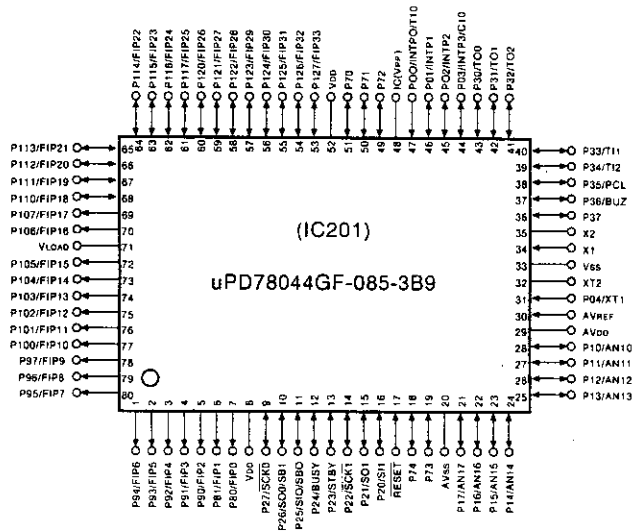
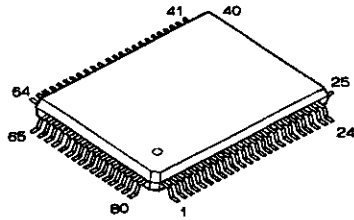


**ANODE CONNECTION**

|     | 8G     | 7G | 6G | 5G     | 4G | 3G | 2G | 1G     |
|-----|--------|----|----|--------|----|----|----|--------|
| P1  | REPEAT | a  | a  | a      | a  | a  | a  | ▶      |
| P2  | [ ]    | b  | b  | b      | b  | b  | b  | ⏸      |
| P3  | ALL    | c  | c  | c      | c  | c  | c  | RANDOM |
| P4  | 1      | d  | d  | d      | d  | d  | d  | OVER   |
| P5  | A -    | e  | e  | e      | e  | e  | e  | OFF    |
| P6  | B      | f  | f  | f      | f  | f  | f  | —      |
| P7  | EDIT   | g  | g  | g      | g  | g  | g  | —      |
| P8  | PROG   | 1  | 7  | TOTAL  | M  | 16 | S  | —      |
| P9  | 1      | 4  | 8  | SINGLE | 13 | 17 | 18 | —      |
| P10 | 2      | 5  | 9  | 11     | 14 | —  | 19 | —      |
| P11 | 3      | 6  | 10 | 12     | 15 | —  | 20 | —      |

MICROPROCESSOR DOCUMENTATION

μPD78044GF-085-3B9 : 262 1936 108  
(IC201)



• Pin Description Table

| Pin | Port Name     | Function Name | I/O | Det | Res | Ext | Ini | Function   | Notes     |
|-----|---------------|---------------|-----|-----|-----|-----|-----|--|-----------|
| 1   | P94/FIP6      | G7            | O   | -   | -   | -   | L   | Fluorescent tube display grid 7 signal.                                  | O P-open  |
| 2   | P93/FIP5      | G6            | O   | -   | -   | -   | L   | Fluorescent tube display grid 6 signal.                                  | O P-open  |
| 3   | P92/FIP4      | G5            | O   | -   | -   | -   | L   | Fluorescent tube display grid 5 signal.                                  | O P-open  |
| 4   | P91/FIP3      | G4            | O   | -   | -   | -   | L   | Fluorescent tube display grid 4 signal.                                  | O P-open  |
| 5   | P90/FIP2      | G3            | O   | -   | -   | -   | L   | Fluorescent tube display grid 3 signal.                                  | O P-open  |
| 6   | P81/FIP1      | G2            | O   | -   | -   | -   | L   | Fluorescent tube display grid 2 signal.                                  | O P-open  |
| 7   | P80/FIP0      | G1            | O   | -   | -   | -   | L   | Fluorescent tube display grid 1 signal.                                  | O P-open  |
| 8   | VDD           | VDD           | -   | -   | -   | -   | -   | Power supply (Connected to +5 V)   | -         |
| 9   | P27/SCK0      | SQCK          | O   | -   | Z   | -   | H   | Subcode input clock signal   | IO        |
| 10  | P26/SO0/SB1   | Not used.     | O   | -   | Z   | -   | H   | Not connected.   | IO        |
| 11  | P25/SI0/SB0   | SUBQ          | I   | -   | Z   | -   | -   | Subcode input data signal  | IO        |
| 12  | P24/BUSY      | Not used.     | I   | -   | Z   | -   | -   | Connected to ground.   | IO        |
| 13  | P23/STB       | Not used.     | I   | -   | Z   | -   | -   | Connected to ground.   | IO        |
| 14  | P22/SCK1      | FUNCLCK       | O   | -   | Z   | -   | H   | Clock signal for auto functions.   | IO        |
| 15  | P21/SO1       | FUNCLCK       | O   | -   | Z   | -   | H   | Data output signal for auto functions.                                   | IO        |
| 16  | P20/SI1       | FUNCIN        | I   | -   | Z   | -   | -   | Data input signal for auto functions.                                    | IO        |
| 17  | RESET         | RESET         | I   | Lv  | -   | -   | -   | Reset signal input   | I         |
| 18  | P74           | Not used.     | I   | -   | -   | -   | -   | Connected to ground.   | IO N-open |
| 19  | P73           | Not used.     | I   | -   | -   | -   | -   | Connected to ground.   | IO N-open |
| 20  | AVSS          | AVSS          | -   | -   | -   | -   | -   | Ground of A/D converter. (Connected to ground.)                          | -         |
| 21  | P17/AN17      | XRST          | O   | -   | Z   | -   | L   | Reset signal for DSP.  | IO        |
| 22  | P16/AN16      | STANBY        | O   | -   | Z   | Pd  | L   | Power on/off control signal.   | IO        |
| 23  | P15/AN15      | Not used.     | I   | -   | Z   | -   | -   | Connected to ground.   | IO        |
| 24  | P14/AN14      | Not used.     | I   | -   | Z   | -   | -   | Connected to ground.   | IO        |
| 25  | P13/AN13      | Not used.     | I   | -   | Z   | -   | -   | Connected to ground.   | IO        |
| 26  | P12/AN12      | Not used.     | I   | -   | Z   | -   | -   | Connected to ground.   | IO        |
| 27  | P11/AN11      | K2            | I   | -   | Z   | -   | -   | Key input signal 2. (Analog input)                                       | IO        |
| 28  | P10/AN10      | K1            | I   | -   | Z   | -   | -   | Key input signal 1. (Analog input)                                       | IO        |
| 29  | AVDD          | AVDD          | -   | -   | -   | -   | -   | Analog power supply of the A/D converter. (Connected to +5 V)            | -         |
| 30  | AVREF         | AVREF         | I   | -   | -   | -   | -   | Reference voltage input signal of the A/D converter. (Connected to +5 V) | I         |
| 31  | P04/XT1       | Not used.     | I   | -   | -   | -   | -   | Subsystem clock. (Connected to ground.)                                  | I         |
| 32  | XT2           | Not used.     | -   | -   | -   | -   | -   | Subsystem clock. (Not connected.)  | -         |
| 33  | VSS           | GND           | -   | -   | -   | -   | -   | Connected to ground.   | -         |
| 34  | X1            | X1            | I   | -   | -   | -   | -   | Main system clock.   | I         |
| 35  | X1            | X1            | I   | -   | -   | -   | -   | Main system clock.   | -         |
| 36  | P37           | CLK           | O   | -   | Z   | -   | H   | Clock  | IO        |
| 37  | P36/BUZ       | DATA          | O   | -   | Z   | -   | H   | Data   | IO        |
| 38  | P35/PCL       | XLT           | O   | -   | Z   | -   | H   | Latch  | IO        |
| 39  | P34/TI2       | LASER         | O   | -   | Z   | Pd  | L   | Laser diode on/off control signal  | IO        |
| 40  | P33/TI1       | SENSE         | I   | L/E | Z   | -   | -   | Servo condition detection signal   | IO        |
| 41  | P32/TO2       | FDATA         | O   | -   | Z   | -   | H   | Data for digital filter control.   | IO        |
| 42  | P31/TO1       | FCLK          | O   | -   | Z   | -   | H   | Clock for digital filter control.  | IO        |
| 43  | P30/TO0       | MLE           | O   | -   | Z   | -   | H   | Latch for digital filter control.  | IO        |
| 44  | P03/INTP3/C10 | Not used.     | O   | Ed  | Z   | -   | -   | Connected to ground.   | IO        |
| 45  | P02/INTP1     | RESET2        | O   | Ed  | Z   | Pu  | -   | RESET signal input (from M5290).   | IO        |



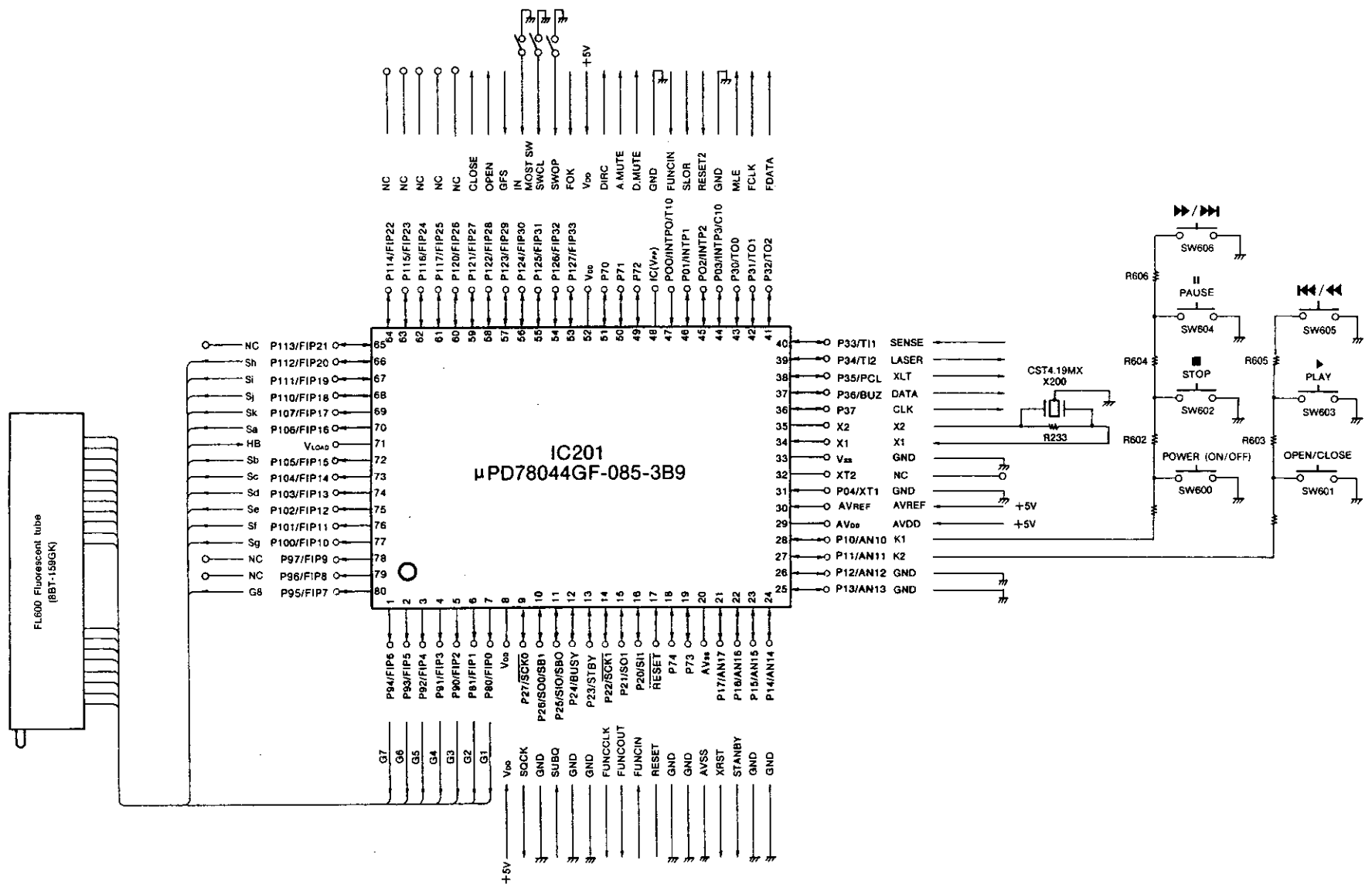
**CD PLAYER SECTION**

| Pin | Port Name     | Function Name | I/O | Det | Res | Ext | Ini | Function                                     | Notes     |
|-----|---------------|---------------|-----|-----|-----|-----|-----|--|-----------|
| 46  | P01/INTP1     | SCOR          | I   | Ed  | Z   | -   | -   | Subcode sync signal                          | IO        |
| 47  | P00/INTP0/T10 | FUNCIN        | I   | Ed  | Z   | -   | -   | Auto function interrupt signal               | I         |
| 48  | IC (VPP)      | IC            | -   | -   | -   | -   | -   | Connected to ground.                         | -         |
| 49  | P72           | DMUTE         | O   | -   | Z   | Pu* | H   | Digital muting signal                        | IO N-open |
| 50  | P71           | AMUTE         | O   | -   | Z   | Pu* | H   | Analog muting signal                         | IO N-open |
| 51  | P70           | DIRC          | O   | -   | Z   | Pu* | L   | Servo control signal                         | IO N-open |
| 52  | VDD           | VDD           | -   | -   | -   | -   | -   | Power supply. (Connected to +5 V)            | -         |
| 53  | P127/FIP33    | FOK           | I   | Lv  | Z   | -   | -   | Focus OK signal                              | IO P-open |
| 54  | P126/FIP32    | SWOP          | I   | Lv  | Z   | Pu  | -   | Loader open position detection switch        | IO P-open |
| 55  | P125/FIP31    | SWCL          | I   | Lv  | Z   | Pu  | -   | Loader close position detection switch       | IO P-open |
| 56  | P124/FIP30    | INSW          | I   | Lv  | Z   | Pu  | -   | Pickup inner track position detection switch | IO P-open |
| 57  | P123/FIP29    | GFS           | I   | Lv  | Z   | -   | -   | Rotation sync signal from DSP                | IO P-open |
| 58  | P122/FIP28    | OPEN          | O   | -   | Z   | Pd  | H   | Loader open drive signal                     | IO P-open |
| 59  | P121/FIP27    | CLOSE         | O   | -   | Z   | Pd  | H   | Loader close drive signal                    | IO P-open |
| 60  | P120/FIP26    | Not used.     | O   | -   | Z   | -   | L   | Not connected.                               | IO P-open |
| 61  | P117/FIP25    | Not used.     | O   | -   | Z   | -   | L   | Not connected.                               | IO P-open |
| 62  | P116/FIP24    | Not used.     | O   | -   | Z   | -   | L   | Not connected.                               | IO P-open |
| 63  | P115/FIP23    | Not used.     | O   | -   | Z   | -   | L   | Not connected.                               | IO P-open |
| 64  | P114/FIP22    | Not used.     | O   | -   | Z   | -   | L   | Not connected.                               | IO P-open |
| 65  | P113/FIP21    | Not used.     | O   | -   | Z   | -   | L   | Not connected.                               | IO P-open |
| 66  | P112/FIP20    | Sh            | O   | -   | Z   | Pd  | L   | Fluorescent tube display segment h signal    | IO P-open |
| 67  | P111/FIP19    | Si            | O   | -   | Z   | Pd  | L   | Fluorescent tube display segment i signal    | IO P-open |
| 68  | P110/FIP18    | Sj            | O   | -   | Z   | Pd  | L   | Fluorescent tube display segment j signal    | IO P-open |
| 69  | P107/FIP17    | Sk            | O   | -   | -   | Pd  | L   | Fluorescent tube display segment k signal    | IO P-open |
| 70  | P106/FIP16    | Sa            | O   | -   | -   | Pd  | L   | Fluorescent tube display segment a signal    | IO P-open |
| 71  | VLOAD         | -HB           | -   | -   | -   | -   | -   | Power supply for the display.                | -         |
| 72  | P105/FIP15    | Sb            | O   | -   | -   | Pd  | L   | Fluorescent tube display segment b signal    | IO P-open |
| 73  | P104/FIP14    | Sc            | O   | -   | -   | Pd  | L   | Fluorescent tube display segment c signal    | IO P-open |
| 74  | P103/FIP13    | Sd            | O   | -   | -   | Pd  | L   | Fluorescent tube display segment d signal    | IO P-open |
| 75  | P102/FIP12    | Se            | O   | -   | -   | Pd  | L   | Fluorescent tube display segment e signal    | IO P-open |
| 76  | P101/FIP11    | Sf            | O   | -   | -   | Pd  | L   | Fluorescent tube display segment f signal    | IO P-open |
| 77  | P100/FIP10    | Sg            | O   | -   | -   | Pd  | L   | Fluorescent tube display segment g signal    | IO P-open |
| 78  | P97/FIP9      | Not used.     | O   | -   | -   | Pd  | L   | Not connected.                               | IO P-open |
| 79  | P96/FIP8      | Not used.     | O   | -   | -   | Pd  | L   | Not connected.                               | IO P-open |
| 80  | P95/FIP7      | G8            | O   | -   | -   | Pd  | L   | Fluorescent tube display grid 8 signal       | IO P-open |

CD PLAYER SECTION

MICROPROCESSOR PERIPHERAL WIRING DIAGRAM

1 2 3 4 5 6 7 8



A  
B  
C  
D  
E

CD PLAYER SECTION

PRINTED WIRING BOARD

1 2 3 4 5 6 7 8

UCD-F10 2U-2686B CD UNIT ASS'Y

Component Side

A

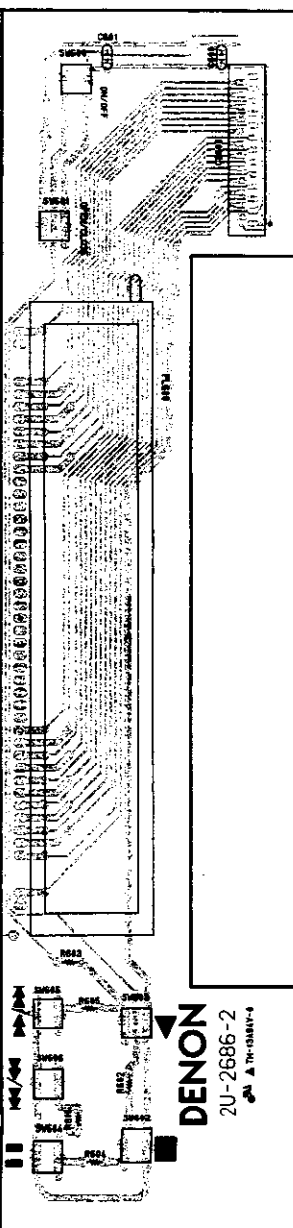
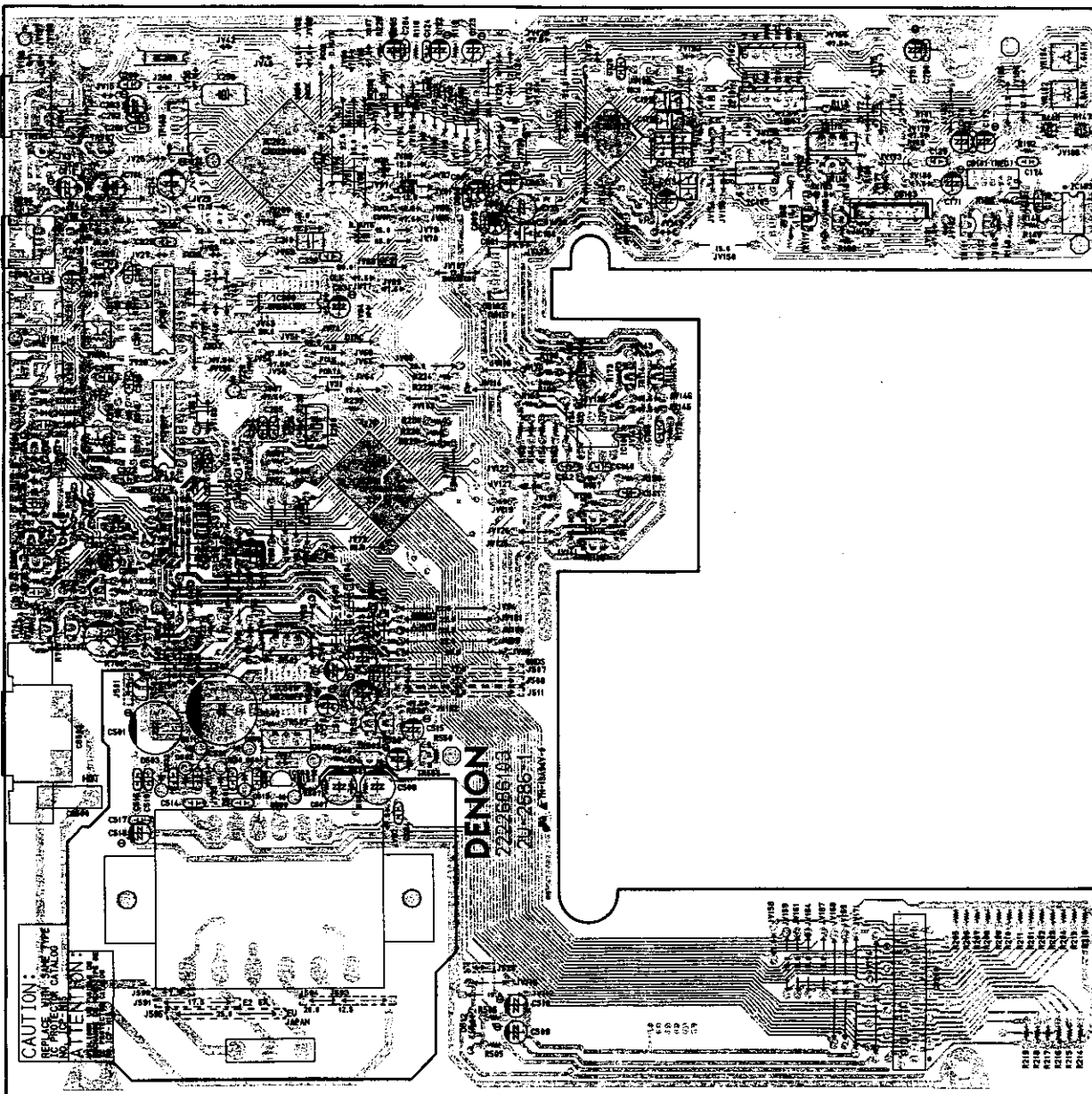
| 2U-2686B |              |
|----------|--------------|
| -1       | Main Unit    |
| -2       | Display Unit |

B

C

D

E





**CD PLAYER SECTION**

**NOTE ON PARTS LIST**

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

**WARNING:**

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

**Resistors**

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

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

**Resistance**  
**1 8 2** ⇒ 1800 ohm = 1.8 kohm  
 ↑ ↑ ↑  
 1-digit effective number, 2-digit effective number, decimal point indicated by R.  
 • Units: ohm

**1 R 2** ⇒ 1.2 ohm  
 ↑ ↑ ↑  
 1-digit effective number, 2-digit effective number, decimal point indicated by R.  
 • Units: ohm

**Capacity (electrolyte only)**  
**2 2 2** ⇒ 2200 μF  
 ↑ ↑ ↑  
 1-digit effective number, 2-digit effective number.  
 • Units: μF

**2 R 2** ⇒ 2.2 μF  
 ↑ ↑ ↑  
 1-digit effective number, 2-digit effective number, decimal point indicated by R.  
 • Units: μF

**Capacitors**

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

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

**Capacity (except electrolyte)**  
**2 2 2** ⇒ 2200pF = 2200 μF = 0.0022 μF  
 ↑ ↑ ↑  
 (More than 2) — Indicates number of zeros after effective number, 2-digit effective number.  
 • Units: μF

**2 2 1** ⇒ 220pF  
 ↑ ↑ ↑  
 (0 or 1) — Indicates number of zeros after effective number, 2-digit effective number.  
 • Units: pF

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

**2U-2686B CD UNIT ASS'Y PARTS LIST**

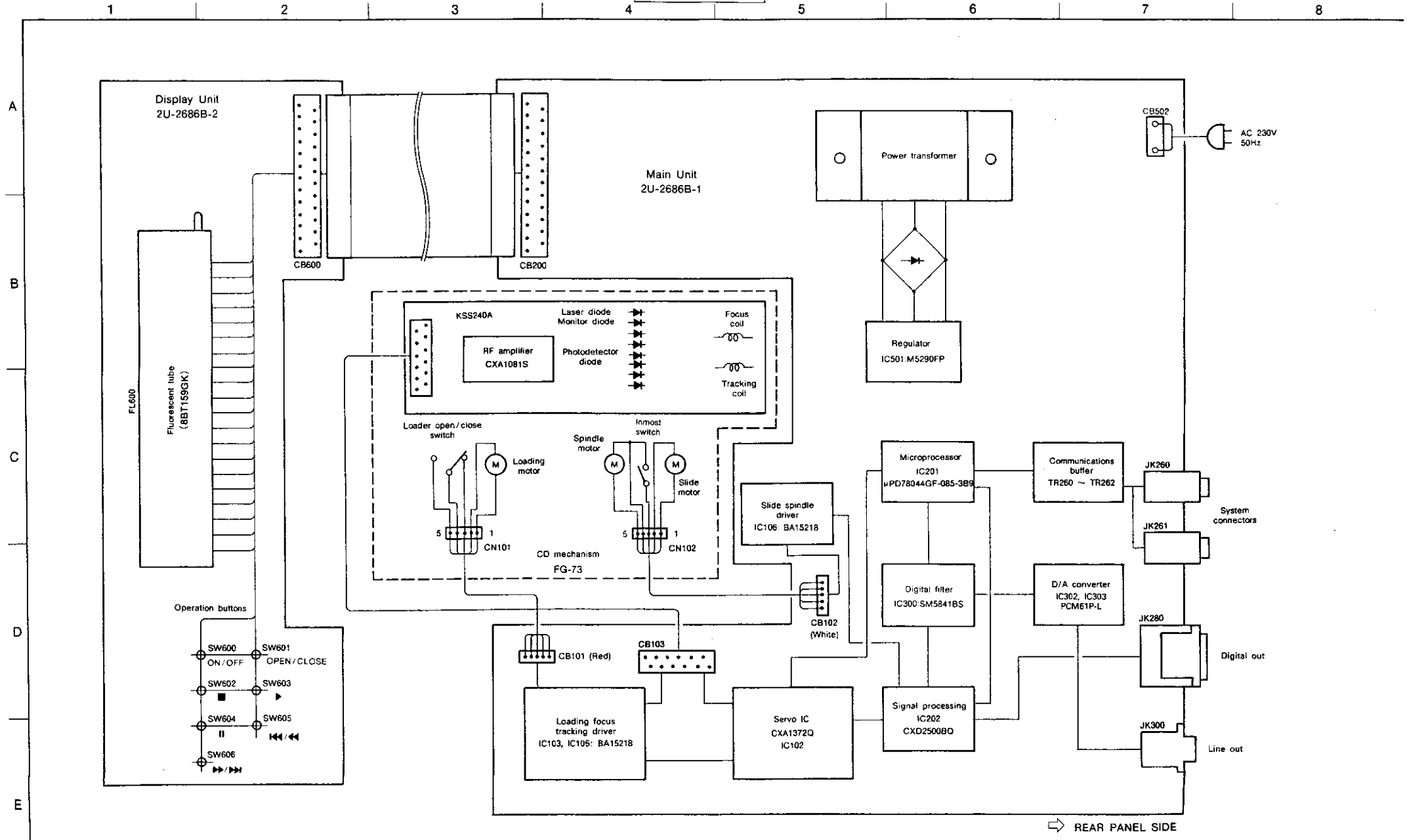
| Ref. No.  | Part No.     | Part Name                  | Remarks           | Ref. No.                | Part No.     | Part Name                    | Remarks      |
|---|--------------|----------------------------|-------------------|-------------------------|--------------|------------------------------|--------------|
| <b>SEMICONDUCTORS GROUP</b>   |              |                            |                   |                         |              |                              |              |
| IC102   | 262 1342 006 | IC CXA1372Q                |                   | R114                    | 247 0009 956 | Chip Carbon 7.5k ohm 1/10W   | RM73B--752J  |
| IC103   | 263 0565 007 | IC BA15218                 |                   | R115                    | 247 0014 925 | Chip Carbon 680k ohm 1/10W   | RM73B--684J  |
| IC105.106   | 263 0565 007 | IC BA15218                 |                   | R116                    | 247 0013 913 | Chip Carbon 240k ohm 1/10W   | RM73B--244J  |
| IC200   | 263 0652 907 | IC PST529C                 |                   | R117                    | 247 0007 945 | Chip Carbon 1k ohm 1/10W     | RM73B--102J  |
| IC201   | 262 1936 108 | IC μPD78044GF-085-389      | u-com             | R120                    | 247 0009 985 | Chip Carbon 10k ohm 1/10W    | RM73B--103J  |
| IC202   | 262 1819 005 | IC :CXD2500BQ              |                   | R132                    | 247 0013 968 | Chip Carbon 390k ohm 1/10W   | RM73B--394J  |
| IC300   | 262 1765 900 | IC SM5841BS                |                   | R133                    | 247 0012 969 | Chip Carbon 150k ohm 1/10W   | RM73B--154J  |
| IC302.303   | 262 1409 004 | IC :PCM61P-L               |                   | R136                    | 247 0012 927 | Chip Carbon 100k ohm 1/10W   | RM73B--104J  |
| IC501   | 263 0916 902 | IC M5290FP-600C            |                   | R137                    | 247 0012 914 | Chip Carbon 91k ohm 1/10W    | RM73B--913J  |
| IC502.503   | 268 0073 905 | IC ICP-N15                 | IC Protector 15V  | R138                    | 247 0011 944 | Chip Carbon 47k ohm 1/10W    | RM73B--473J  |
| TR109   | 273 0195 005 | Transistor 2SC2060 (Q)     |                   | R140                    | 247 0011 986 | Chip Carbon 68k ohm 1/10W    | RM73B--683J  |
| TR110   | 271 0271 907 | Transistor 2SA934 (Q)      |                   | R141                    | 247 0009 972 | Chip Carbon 91k ohm 1/10W    | RM73B--912J  |
| TR111   | 273 0195 005 | Transistor 2SC2060 (Q)     |                   | R166                    | 247 0012 927 | Chip Carbon 100k ohm 1/10W   | RM73B--104J  |
| TR112   | 271 0271 907 | Transistor 2SA934 (Q)      |                   | R167                    | 247 0009 985 | Chip Carbon 10k ohm 1/10W    | RM73B--103J  |
| TR113   | 273 0195 005 | Transistor 2SC2060 (Q)     |                   | R174.175                | 247 0011 944 | Chip Carbon 47k ohm 1/10W    | RM73B--473J  |
| TR114   | 271 0271 907 | Transistor 2SA934 (Q)      |                   | R176.177                | 247 0012 927 | Chip Carbon 100k ohm 1/10W   | RM73B--104J  |
| TR115   | 274 0120 002 | Transistor 2SD1762 (E/F)   |                   | R179                    | 247 0005 989 | Chip Carbon 220 ohm 1/10W    | RM73B--221J  |
| TR116   | 271 0271 907 | Transistor 2SA934 (Q)      |                   | R181.182                | 247 0011 944 | Chip Carbon 47k ohm 1/10W    | RM73B--473J  |
| TR117   | 273 0195 005 | Transistor 2SC2060 (Q)     |                   | R183                    | 247 0012 927 | Chip Carbon 100k ohm 1/10W   | RM73B--104J  |
| TR118   | 271 0271 907 | Transistor 2SA934 (Q)      |                   | R185                    | 247 0012 927 | Chip Carbon 100k ohm 1/10W   | RM73B--104J  |
| TR260   | 271 0192 002 | Transistor 2SA933S (S)     |                   | R187                    | 247 0005 989 | Chip Carbon 220 ohm 1/10W    | RM73B--221J  |
| TR261   | 273 0303 910 | Transistor 2SC1740S (S)    |                   | R191                    | 247 0012 969 | Chip Carbon 150k ohm 1/10W   | RM73B--154J  |
| TR262   | 271 0192 002 | Transistor 2SA933S (S)     |                   | R197                    | 247 0012 930 | Chip Carbon 110k ohm 1/10W   | RM73B--114J  |
| TR501   | 274 0120 002 | Transistor 2SD1762 (E/F)   |                   | R240                    | 247 0008 960 | Chip Carbon 3.3k ohm 1/10W   | RM73B--332J  |
| TR502   | 272 0083 004 | Transistor 2SB1185 (E/F)   |                   | R241                    | 247 0009 943 | Chip Carbon 6.8k ohm 1/10W   | RM73B--682J  |
| TR503   | 271 0192 002 | Transistor 2SA933S (S)     |                   | R242                    | 247 0009 985 | Chip Carbon 10k ohm 1/10W    | RM73B--103J  |
| TR530.531   | 269 0020 906 | Transistor DTC114ES        | Built in Resistor | R255                    | 247 0007 945 | Chip Carbon 1k ohm 1/10W     | RM73B--102J  |
| TR550   | 273 0195 908 | Transistor 2SC2060 (Q)     |                   | R305~308                | 247 0007 945 | Chip Carbon 1k ohm 1/10W     | RM73B--102J  |
| TR700   | 269 0020 906 | Transistor DTC114ES        | Built in Resistor | R310.311                | 247 0013 984 | Chip Carbon 470k ohm 1/10W   | RM73B--474J  |
| TR701   | 269 0046 906 | Transistor DTA114ES        | Built in Resistor | R312.313                | 247 0012 996 | Chip Carbon 200k ohm 1/10W   | RM73B--204J  |
| TR706.707   | 274 0160 907 | Transistor 2SD2144STPU     | Built in Resistor | R314.315                | 247 0014 967 | Chip Carbon 1M ohm 1/10W     | RM73B--105J  |
| D200  | 276 0432 903 | Diode 1SS270A              |                   | R358~360                | 247 0007 945 | Chip Carbon 1k ohm 1/10W     | RM73B--102J  |
| D260  | 276 0432 903 | Diode 1SS270A              |                   | R705                    | 247 0007 945 | Chip Carbon 1k ohm 1/10W     | RM73B--102J  |
| D261.262  | 276 0463 901 | Zener Diode HZS6C-1        | 6V                | R720.721                | 247 0007 903 | Chip Carbon 680 ohm 1/10W    | RM73B--681J  |
| D263  | 276 0432 903 | Diode 1SS270A              |                   | R724.725                | 247 0010 990 | Chip Carbon 30k ohm 1/10W    | RM73B--303J  |
| D501~504  | 276 0553 905 | Diode 1SR35-200A           |                   | R732.733                | 247 0008 944 | Chip Carbon 2.7k ohm 1/10W   | RM73B--272J  |
| D507  | 276 0480 900 | Zener Diode HZS22-1        | 22V               | VR102                   | 211 6093 954 | Semi Fixed Resistor 22k ohm  | V06PB223     |
| D508.509  | 276 0553 905 | Diode 1SR35-200A           |                   | VR104                   | 211 6093 954 | Semi Fixed Resistor 22k ohm  | V06PB223     |
| D512  | 276 0461 903 | Zener Diode HZS6A-1        | 6V                | VR300.301               | 211 6093 970 | Semi Fixed Resistor 100k ohm | V06PB104     |
| D550  | 276 0463 901 | Zener Diode HZS6C-1        | 6V                | <b>CAPACITORS GROUP</b> |              |                              |              |
| D700  | 276 0432 903 | Diode 1SS270A              |                   | C106                    | 257 0009 940 | Chip Ceramic 3300pF/50V      | CK73B1H332K  |
| JK280   | 269 0098 006 | Optical Out GP1F32T        | OPT. OUT          | C107                    | 257 0011 954 | Chip Ceramic 0.027μF/25V     | CK73B1E273K  |
| FL600   | 393 8013 001 | F.L. Tube 8BT159GK         |                   | C108                    | 257 0009 924 | Chip Ceramic 2200pF/50V      | CK73B1H222K  |
| <b>RESISTORS GROUP (Not included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for those Parts.)</b> |              |                            |                   |                         |              |                              |              |
| R110  | 247 0012 998 | Chip Carbon 200k ohm 1/10W | RM73B--204J       | C109~112                | 256 1034 979 | Metallized 0.1μF/50V         | CF93A1H104J  |
| R111  | 247 0011 928 | Chip Carbon 39k ohm 1/10W  | RM73B--393J       | C113                    | 254 4337 910 | Electrolytic 6.8μF/50V       | CE04W1H6R8M  |
| R112  | 247 0011 960 | Chip Carbon 56k ohm 1/10W  | RM73B--563J       | C114                    | 256 1035 910 | Metallized 0.22μF/50V        | CF93A1H224J  |
|   |              |                            |                   | C116                    | 257 0011 909 | Chip Ceramic 0.01μF/25V      | CK73B1E103K  |
|   |              |                            |                   | C117                    | 253 1197 914 | Ceramic Cap. 0.1μF/50V       | CK14F1H104Z  |
|   |              |                            |                   | C118.119                | 257 0007 900 | Chip Ceramic 1000pF/50V      | CC73SL1H102J |
|   |              |                            |                   | C120                    | 257 0014 935 | Ceramic Cap. 0.1μF/25V       | CK73F1E104Z  |
|   |              |                            |                   | C121                    | 257 0012 966 | Chip Ceramic 0.01μF/50V      | CK73F1H103Z  |
|   |              |                            |                   | C122.123                | 254 4260 919 | Electrolytic 0.22μF/50V      | CE04W1HR22M  |
|   |              |                            |                   | C124                    | 253 1198 913 | Ceramic Cap. 0.01μF/16V      | CK14Y1C103M  |
|   |              |                            |                   | C125                    | 257 0011 967 | Chip Ceramic 0.033μF/25V     | CK73B1E333K  |
|   |              |                            |                   | C126                    | 253 1198 913 | Ceramic Cap. 0.01μF/16V      | CK14Y1C103M  |

CD PLAYER SECTION

| Ref. No. | Part No.     | Part Name                       | Remarks       | Ref. No.           | Part No.     | Part Name               | Remarks     |
|----------|--------------|---------------------------------|---------------|--------------------|--------------|-------------------------|-------------|
| C127     | 257 0009 940 | Chip Ceramic 3300pF/50V         | CK73B1H332K   | C519               | 253 1196 902 | Ceramic Cap. 0.01µF/25V | CK14F1E103Z |
| C128     | 257 0009 937 | Chip Ceramic 2700pF/50V         | CK73B1H272K   | C550               | 254 4260 948 | Electrolytic 1µF/50V    | CE04W1H010M |
| C129     | 253 1197 914 | Ceramic Cap. 0.1µF/50V          | CK14F1H104Z   | C600,601           | 253 1194 959 | Ceramic Cap. 1000pF/50V | CK14B1H102K |
| C130     | 257 0006 943 | Chip Ceramic 560pF/50V          | CC73SL1H561J  | C700               | 254 4254 954 | Electrolytic 220µF/16V  | CE04W1C221M |
| C131     | 257 0009 979 | Chip Ceramic 5600pF/50V         | CK73B1H562K   | C703               | 254 4260 948 | Electrolytic 1µF/50V    | CE04W1H010M |
| C132     | 257 0004 932 | Chip Ceramic 75pF/50V           | CC73SL1H750J  | C710,711           | 254 4260 980 | Electrolytic 10µF/50V   | CE04W1H100M |
| C133     | 257 0002 921 | Chip Ceramic 10pF/50V           | CC73SL1H100D  | C730               | 253 1196 902 | Ceramic Cap. 0.01µF/25V | CK14F1E103Z |
| C134     | 256 1034 979 | Metalized 0.1µF/50V             | CE04D1V100MBP | <b>OTHER GROUP</b> |              |                         |             |
| C135     | 254 3055 918 | Electrolytic 10µF/35V (Bipolar) | CE04D1V100MBP |                    |              | (P.W. Board)            |             |
| C136     | 257 0004 961 | Chip Ceramic 100pF/50V          | CC73SL1H101J  |                    |              |                         |             |
| C140     | 253 1193 905 | Chip Ceramic 75pF/50V           | CK14SL1H750J  | JV027              | 235 0049 900 | Beads Inductor          | 1           |
| C141     | 253 1195 945 | Chip Ceramic 3300pF/16V         | CK14X1C332M   |                    | 212 5604 910 | Tact Switch             | 7           |
| C142     | 253 1197 914 | Ceramic Cap. 0.1µF/50V          | CK14F1H104Z   |                    | 204 8421 005 | Mini Jack               | 2           |
| C164     | 253 1190 940 | Chip Ceramic 15pF/50V           | CK14SL1H150J  |                    | 205 0274 004 | 2P Conn. Base           | 1           |
| C166     | 257 0002 963 | Chip Ceramic 15pF/50V           | CC73SL1H150J  |                    | 233 6097 002 | Power Trans.            | 1           |
| C168     | 257 0004 932 | Chip Ceramic 75pF/50V           | CC73SL1H750J  | X200               | 399 0196 908 | Ceramic Resonator       | 1           |
| C170,171 | 254 4250 916 | Electrolytic 47µF/6.3V          | CE04W0J470M   | X250               | 399 0112 005 | Crystal Resonator       | 16.9344MHZ  |
| C173     | 254 4250 916 | Electrolytic 47µF/6.3V          | CE04W0J470M   | CB101              | 205 0321 054 | 5P Conn. Base (Red)     | 1           |
| C174     | 253 1197 914 | Ceramic Cap. 0.1µF/50V          | CK14F1H104Z   | CB102              | 205 0343 058 | 5P Conn. Base (KR-PH)   | 1           |
| C200     | 254 4250 932 | Electrolytic 220µF/6.3V         | CE04W0J221M   | CB103              | 205 0683 006 | 12P FFC Conn. Base      | 1           |
| C201,202 | 253 1196 902 | Ceramic Cap. 0.01µF/25V         | CK14F1E103Z   | CB200,600          | 205 0736 089 | 25P FFC Conn. Base      | 2           |
| C203     | 254 4254 909 | Electrolytic 10µF/16V           | CE04W1C100M   | TP101,102          | 205 0190 065 | 6P NH Conn. Base        | 2           |
| C204,205 | 253 1196 902 | Ceramic Cap. 0.01µF/25V         | CK14F1E103Z   |                    | 203 2349 009 | 2P Pin                  | 1           |
| C210     | 253 9031 904 | BC Ceramic 0.047µF/25V          | CK45-1E473K   |                    | 203 0469 004 | 1P Contact Ass'y        | 1           |
| C211     | 257 0007 942 | Ceramic Cap. 1500pF/50V         | CC73SL1H152J  |                    | 205 0452 017 | Style Pin               | 1           |
| C212     | 257 0012 966 | Chip Ceramic 0.01µF/50V         | CK73B1H103Z   |                    |              |                         |             |
| C214     | 254 4250 932 | Electrolytic 220µF/6.3V         | CE04W0J221M   |                    |              |                         |             |
| C215     | 257 0008 983 | Chip Ceramic 1000pF/50V         | CK73B1H102K   |                    |              |                         |             |
| C223,224 | 257 0002 921 | Chip Ceramic 10pF/50V           | CC73SL1H100D  |                    |              |                         |             |
| C225     | 257 0014 935 | Chip Ceramic 0.1µF/25V          | CK73F1E104Z   |                    |              |                         |             |
| C255     | 257 0003 988 | Chip Ceramic 47pF/50V           | CC73SL1H470J  |                    |              |                         |             |
| C256     | 257 0007 900 | Ceramic Cap. 1000pF/50V         | CC73SL1H102J  |                    |              |                         |             |
| C257,258 | 257 0008 983 | Chip Ceramic 1000pF/50V         | CK73B1H102K   |                    |              |                         |             |
| C260,261 | 253 1194 959 | Ceramic Cap. 1000pF/50V         | CK14B1H102K   |                    |              |                         |             |
| C263     | 253 1194 959 | Ceramic Cap. 1000pF/50V         | CK14B1H102K   |                    |              |                         |             |
| C270     | 257 0008 983 | Chip Ceramic 1000pF/50V         | CK73B1H102K   |                    |              |                         |             |
| C280~282 | 253 1196 902 | Ceramic Cap. 0.01µF/25V         | CK14F1E103Z   |                    |              |                         |             |
| C288     | 253 1196 902 | Ceramic Cap. 0.01µF/25V         | CK14F1E103Z   |                    |              |                         |             |
| C306,307 | 253 1194 933 | Ceramic Cap. 680pF/50V          | CK14B1H681K   |                    |              |                         |             |
| C308,309 | 253 1195 974 | Ceramic Cap. 5600pF/16V         | CK45X1C562M   |                    |              |                         |             |
| C320     | 253 1196 902 | Ceramic Cap. 0.01µF/25V         | CK14F1E103Z   |                    |              |                         |             |
| C322~325 | 253 1196 902 | Ceramic Cap. 0.01µF/25V         | CK14F1E103Z   |                    |              |                         |             |
| C326,327 | 254 4252 930 | Electrolytic 100µF/10V          | CE04W1A101M   |                    |              |                         |             |
| C330     | 253 1196 902 | Ceramic Cap. 0.01µF/25V         | CK14F1E103Z   |                    |              |                         |             |
| C331     | 254 4252 930 | Electrolytic 100µF/10V          | CE04W1A101M   |                    |              |                         |             |
| C399     | 257 0005 986 | Ceramic Cap. 330pF/50V          | CC73SL1H331J  |                    |              |                         |             |
| C501     | 254 4254 792 | Electrolytic 2200µF/16V         | CE04W1C222MC  |                    |              |                         |             |
| C502     | 254 4255 717 | Electrolytic 4700µF/16V         | CE04W1C472MC  |                    |              |                         |             |
| C503,504 | 254 4250 932 | Electrolytic 220µF/6.3V         | CE04W0J221M   |                    |              |                         |             |
| C505     | 254 4260 948 | Electrolytic 1µF/50V            | CE04W1H010M   |                    |              |                         |             |
| C507     | 254 4261 918 | Electrolytic 47µF/50V           | CE04W1H470M   |                    |              |                         |             |
| C508     | 254 4258 950 | Electrolytic 100µF/35V          | CE04W1V101M   |                    |              |                         |             |
| C509,510 | 254 4258 934 | Electrolytic 33µF/35V           | CE04W1V330M   |                    |              |                         |             |
| C511     | 254 4260 964 | Electrolytic 3.3µF/50V          | CE04W1H3R3M   |                    |              |                         |             |
| C513,514 | 253 1195 987 | Ceramic Cap. 5600pF/16V         | CK14X1C562M   |                    |              |                         |             |
| C515     | 254 4252 930 | Electrolytic 100µF/10V          | CE04W1A101M   |                    |              |                         |             |
| C516,517 | 253 1196 902 | Ceramic Cap. 0.01µF/25V         | CK14F1E103Z   |                    |              |                         |             |
| C518     | 254 4260 948 | Electrolytic 1µF/50V            | CE04W1H010M   |                    |              |                         |             |

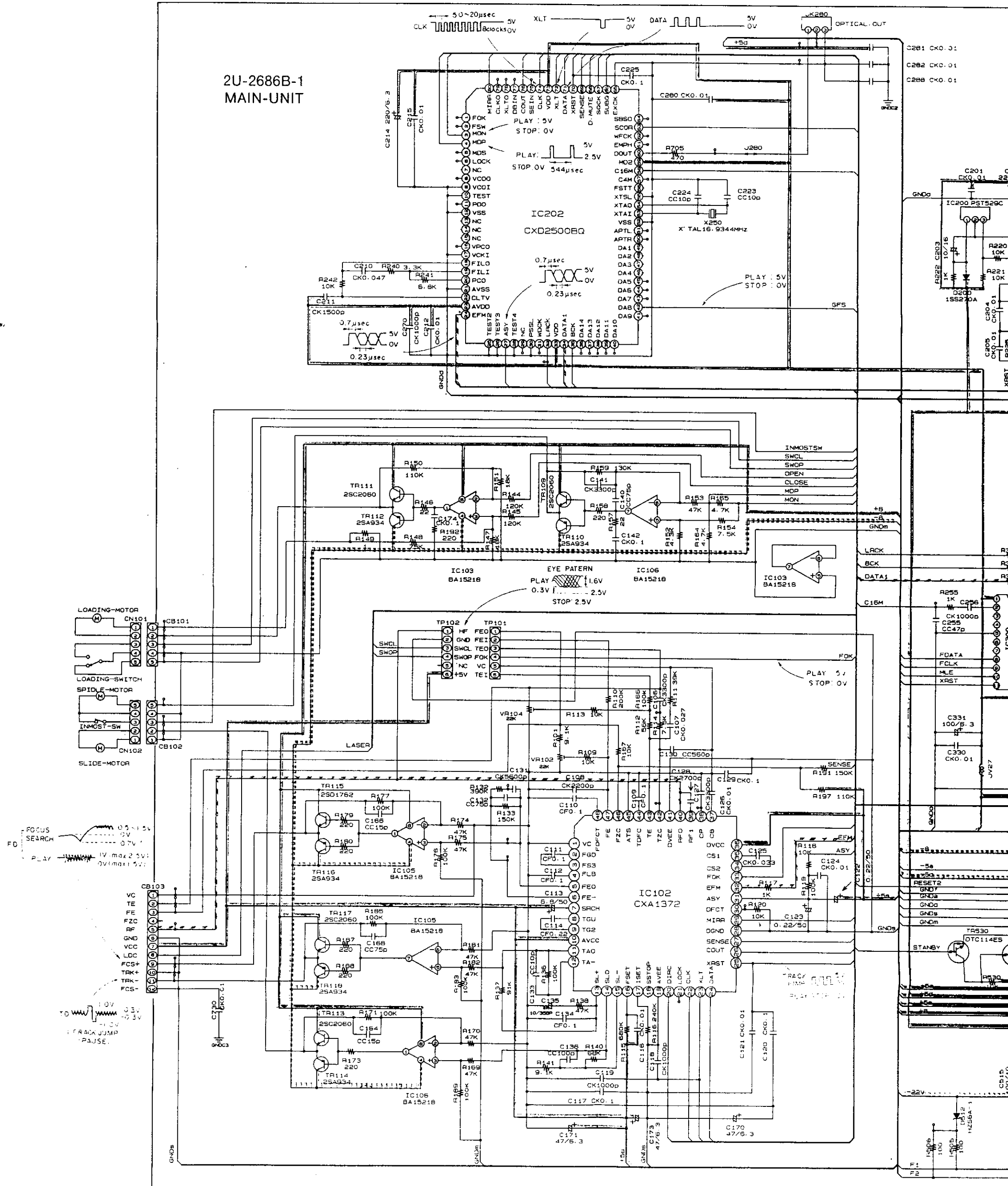
CD PLAYER SECTION

WIRING DIAGRAM



⇨ REAR PANEL SIDE

2U-2686B-1  
MAIN-UNIT

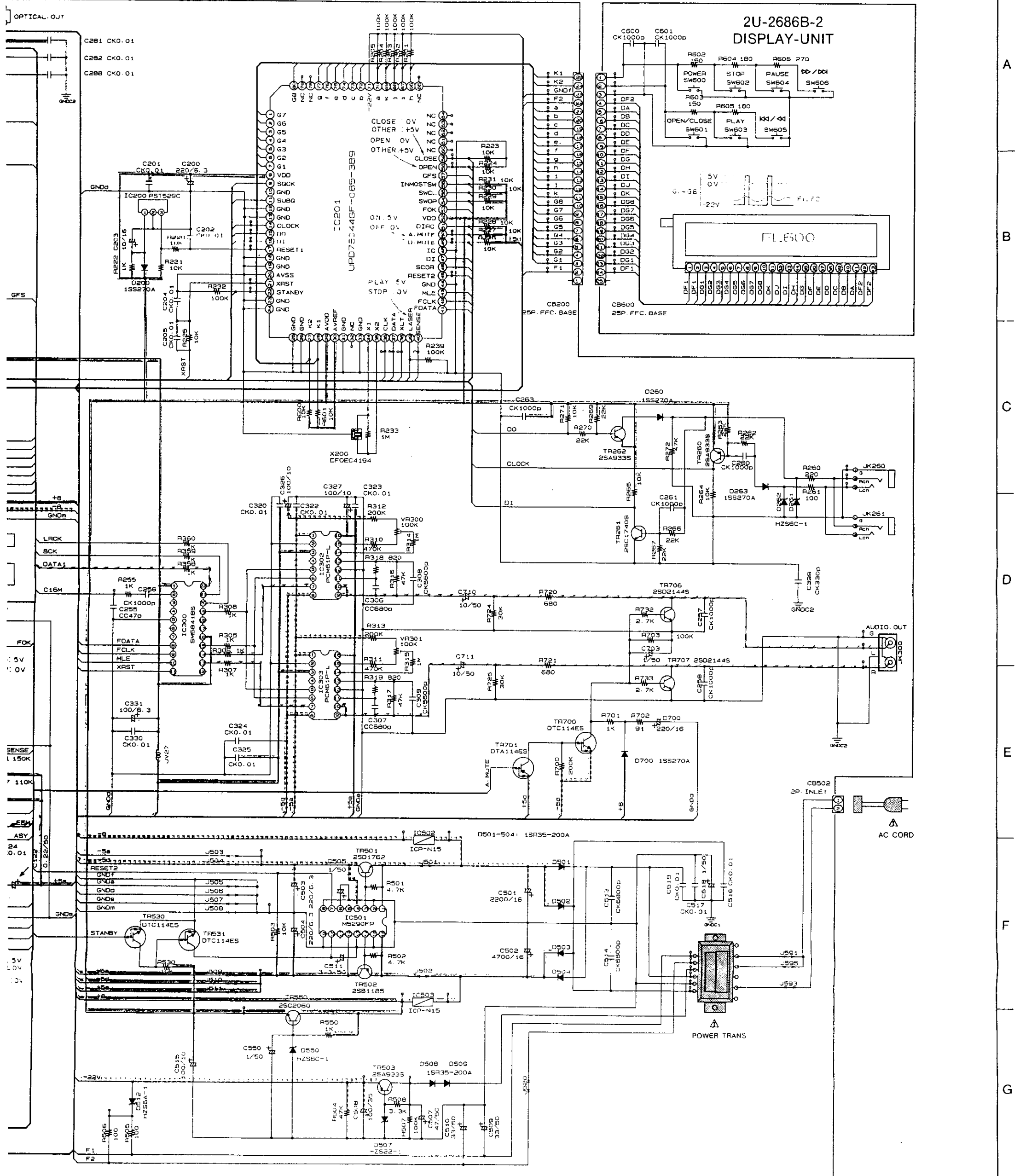


**CAUTION:**  
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 ohms.  
**WARNING:**  
DO NOT return the unit to the customer until the problem is located and corrected.



EMATIC DIAGRAM

6 7 8 9 10 11



(1) a leakage current check or (2) a line to chassis resistance check. If the is to either side of the power cord is less than 240 Kohms, the unit is

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

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

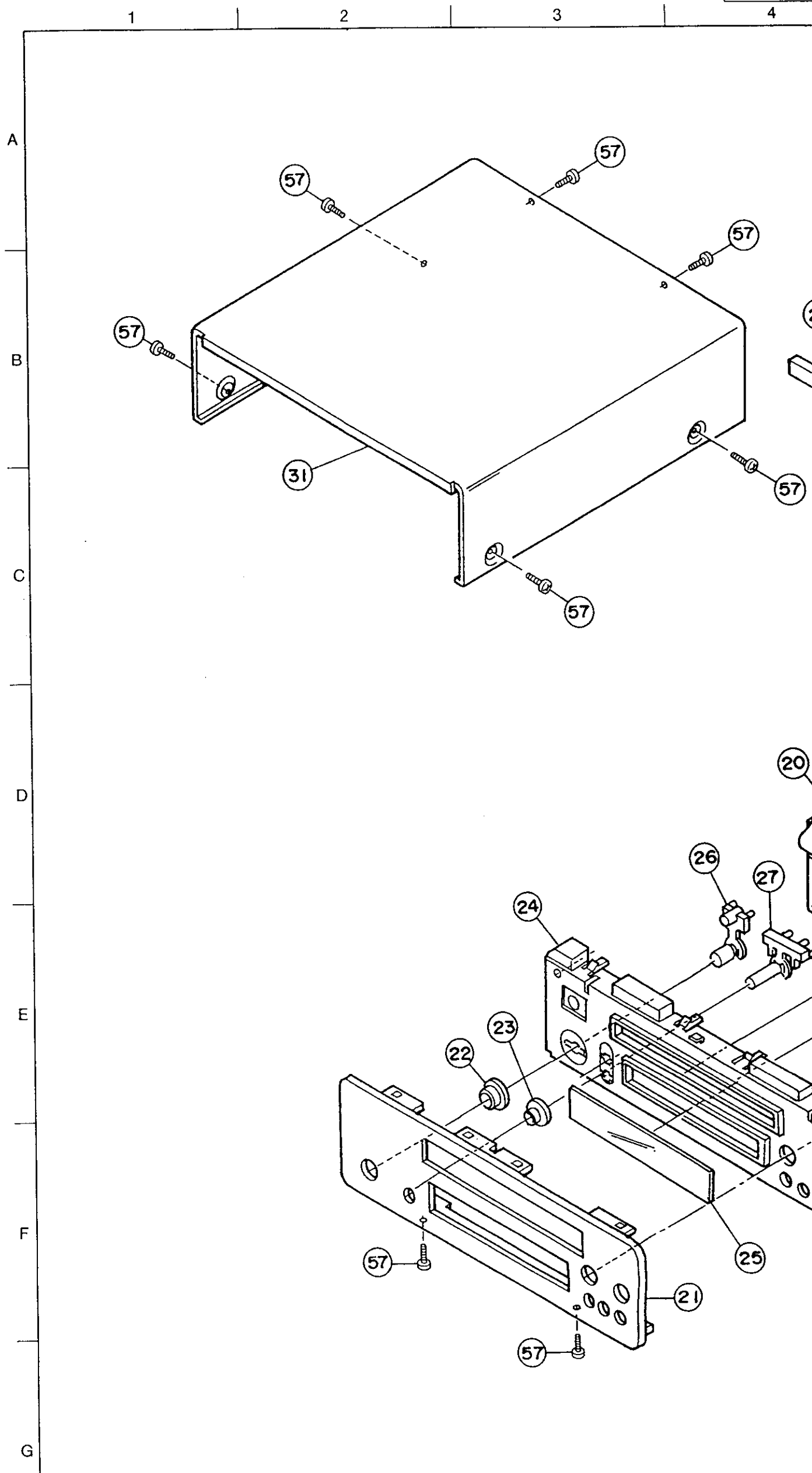
nd corrected.

CD PLAYER SECTION

EXPLODED

PARTS LIST OF UCD-F10 EXPLODED VIEW

| Ref. No.  | Part No.     | Part Name               | Remarks            | Qty            |
|---|--------------|-------------------------|--------------------|----------------|
| 1   | 2U- 2686 B   | CD Unit Ass'y           |                    | 1 <sup>S</sup> |
| 1-1   | —            | Main Unit               |                    | (1)            |
| 1-2   | —            | Display Unit            |                    | (1)            |
| 2   | 254 4254 792 | Chemicon 2200µF/16V     | C501               | 1              |
| 3   | 254 4255 018 | Chemicon 4700µF/16V     | C502               | 1              |
| 4   | 205 0736 089 | 25P FFC Conn. Base      | CB200,600          | 2              |
| 5   | 269 0098 006 | Optical Out GP1F32T     | JK280              | 1              |
| 6   | 205 0274 004 | 2P Conn. Base           | JK300              | 1              |
| 7   | 204 8421 005 | Mini Jack               | JK260,261          | 2              |
| 8   | 234 6097 002 | Power Trans.            |                    | 1              |
| 9   | 393 8013 001 | F.L. Tube 8BT159GK      | FL600              | 1              |
| 10  | 411 9115 248 | Main Chassis            |                    | 1              |
| 11  | 449 9034 007 | Mech. Holder            |                    | 1              |
| 12  | 412 3783 200 | Trans Bracket           |                    | 1              |
| 13  | GEN 2798     | Foot Ass'y              |                    | 4              |
| 14  | 105 9237 234 | Rear Panel (CD)         |                    | 1              |
| 15  | —            | —                       |                    | —              |
| 16  | —            | —                       |                    | —              |
| 17  | 412 2814 028 | Card Spacer (L=10)      |                    | 2              |
| 18  | 337 0032 006 | CD Mech. Ass'y          | FG-73              | 1              |
| 19  | 499 0191 009 | Laser Pickup            | KSS-240A           | 1              |
| 20  | 009 0108 006 | 25P FF Cable Cord       |                    | 1              |
| 21  | 144 2363 016 | Front Panel (CD)        |                    | 1              |
| 22  | 146 9294 113 | Knob Ring (A)           |                    | 1              |
| 23  | 146 9295 112 | Knob Ring (B)           |                    | 1              |
| 24  | 146 9287 337 | Inner Panel (CD)        |                    | 1              |
| 25  | 143 0872 001 | Window                  |                    | 1              |
| 26  | 113 1654 104 | Power Button Ass'y      |                    | 1              |
| 27  | 113 1656 018 | Tact Button (1 Key)     | OP/CLOSE           | 1              |
| 28  | 113 9276 115 | Button (5 Key)          | 4 Gang             | 1              |
| 29  | 146 9289 102 | Loader Panel (CD)       |                    | 1              |
| 30  | —            | —                       |                    | —              |
| 31  | 102 0545 117 | Top Cover               |                    | 1              |
| 32  | 461 0866 009 | Rubber Sheet            | Put on F.L. Holder | 2              |
| 33  | 513 2242 100 | Rating Sheet            |                    | 1              |
| 34  | —            | —                       |                    | —              |
| 35  | 203 2349 009 | 2P Inlet                |                    | 1              |
| 36  | 513 2066 001 | Laser Caution           |                    | 1              |
| 37  | 513 0985 003 | Inst. Label             |                    | 1              |
| 38  | 461 0859 003 | Spacer                  | for AC 1           | 1              |
| 39  | —            | —                       |                    | —              |
| 40  | —            | —                       |                    | —              |
| <b>SCREWS</b>   |              |                         |                    |                |
| 51  | 473 7015 005 | Tapping Screw (S) 3×6   | Black              | 3              |
| 52  | 473 7004 003 | Tapping Screw (S) 4×8   |                    | 4              |
| 53  | 473 7002 018 | Tapping Screw (S) 3×8   |                    | 8              |
| 54  | 477 0064 107 | Fixing Screw            |                    | 4              |
| 55  | 473 7505 007 | Tapping Screw (P) 2.6×8 |                    | 6              |
| 56  | 473 8007 025 | Cup Screw 3×8           |                    | 4              |
| 57  | 473 7015 018 | Tapping Screw (S) 3×8   | Black              | 11             |
| 58  | 473 7500 015 | Tapping Screw (P) 3×8   |                    | 2              |
| 59  | —            | —                       |                    | —              |
| 60  | —            | —                       |                    | —              |
| <b>PACKING &amp; ACCESSORIES (Not included EXPLODED VIEW)</b> |              |                         |                    |                |
| 101   | 505 0241 005 | Cabinet Cover           |                    | 1              |
| 102   | 503 1091 106 | Cushion                 |                    | 1              |
| 103   | GEN 2742     | Envelope Sub. Ass'y     |                    | 1 <sup>S</sup> |
| 103-1   | 505 9125 009 | Poly Cover              |                    | (1)            |
| 103-2   | 203 2310 009 | 2P Pin Cord             | L=1000             | (1)            |
| 103-3   | 203 2315 004 | Stereo Miniplug Cord    | L=500              | (1)            |
| 103-4   | 206 2108 003 | AC Conn. with Plug      |                    | (1)            |
| 103-5   | 511 2654 006 | Inst. Sheet             |                    | (1)            |
| 104   | 503 1061 000 | Top Cushion             |                    | 1              |
| 105   | 501 1781 012 | Carton Case             |                    | 1              |



NOTE ON PARTS LIST

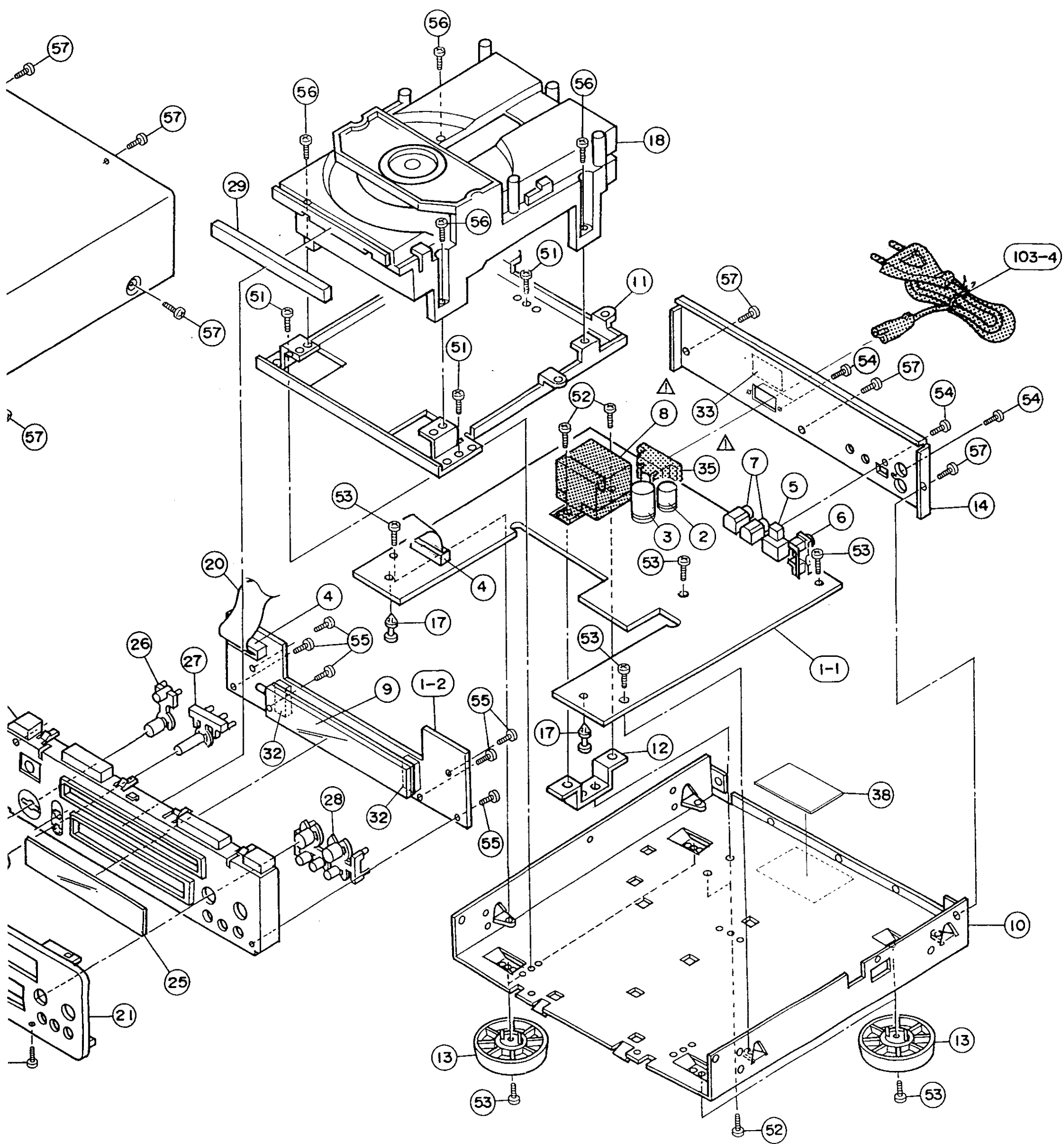
- Part indicated with the mark "●" are not always in stock and possibly to take a long period of time for supplying. supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "1" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

WARNING:

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

EXPLODED VIEW

3 4 5 6 7 8 9

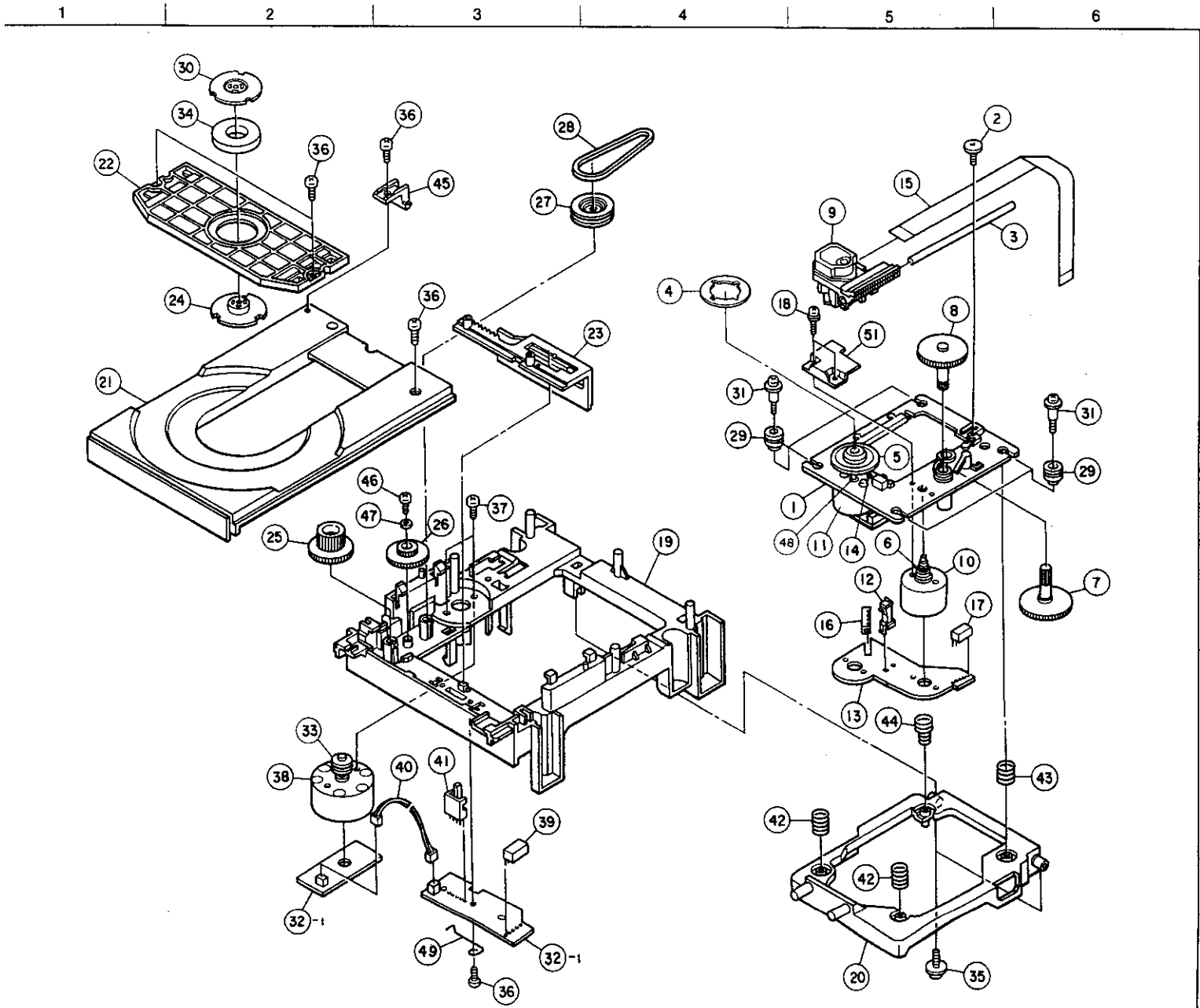


ably to take a long period of time for supplying, or in some case  
I mis-supplying.  
lied.  
oded view.

DISASSEMBLY OF CD MECHANISM (FG-73) Part No. : 337 0032 006

CD PLAYER SECTION

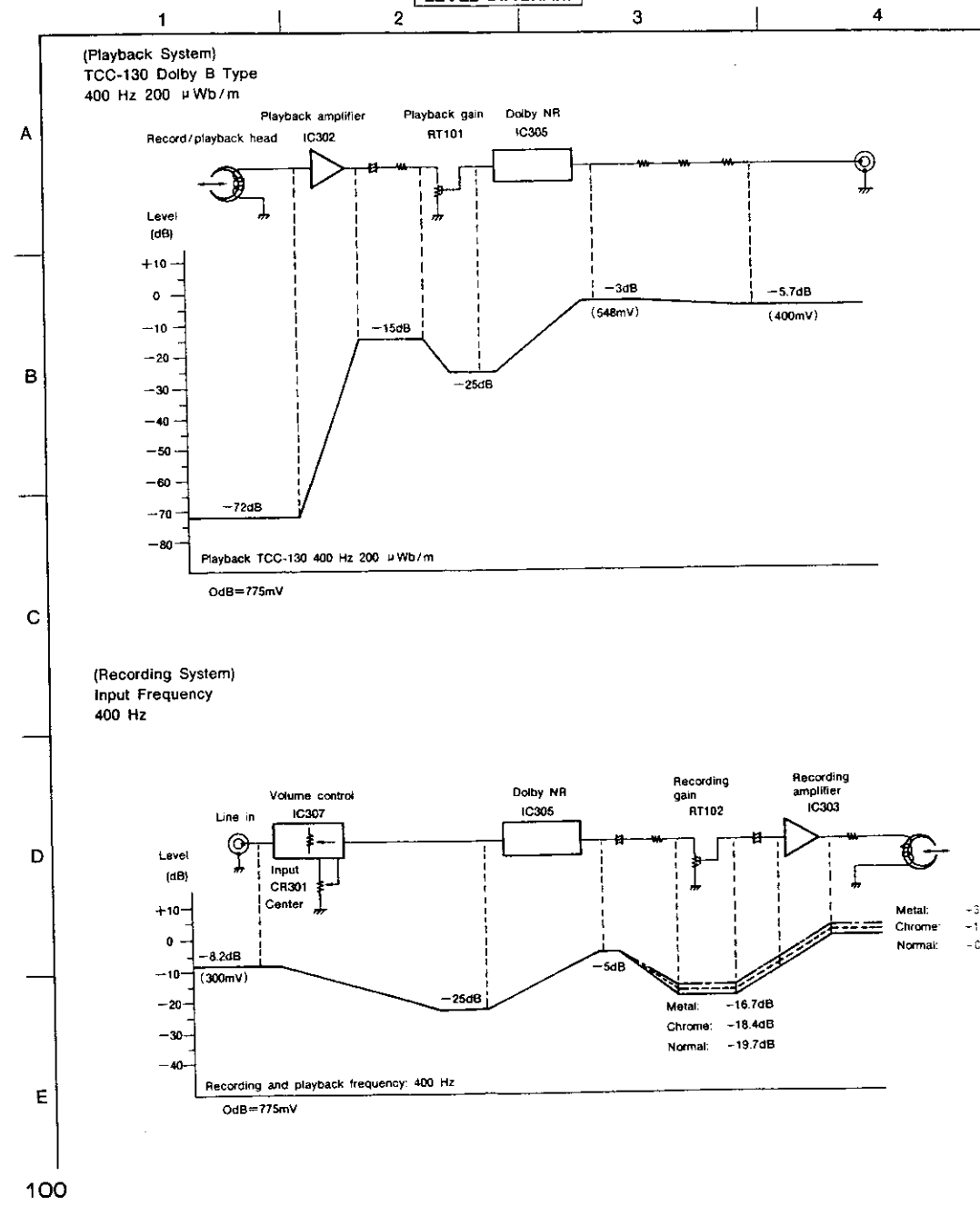
CD MECHANISM (FG-73) PARTS LIST

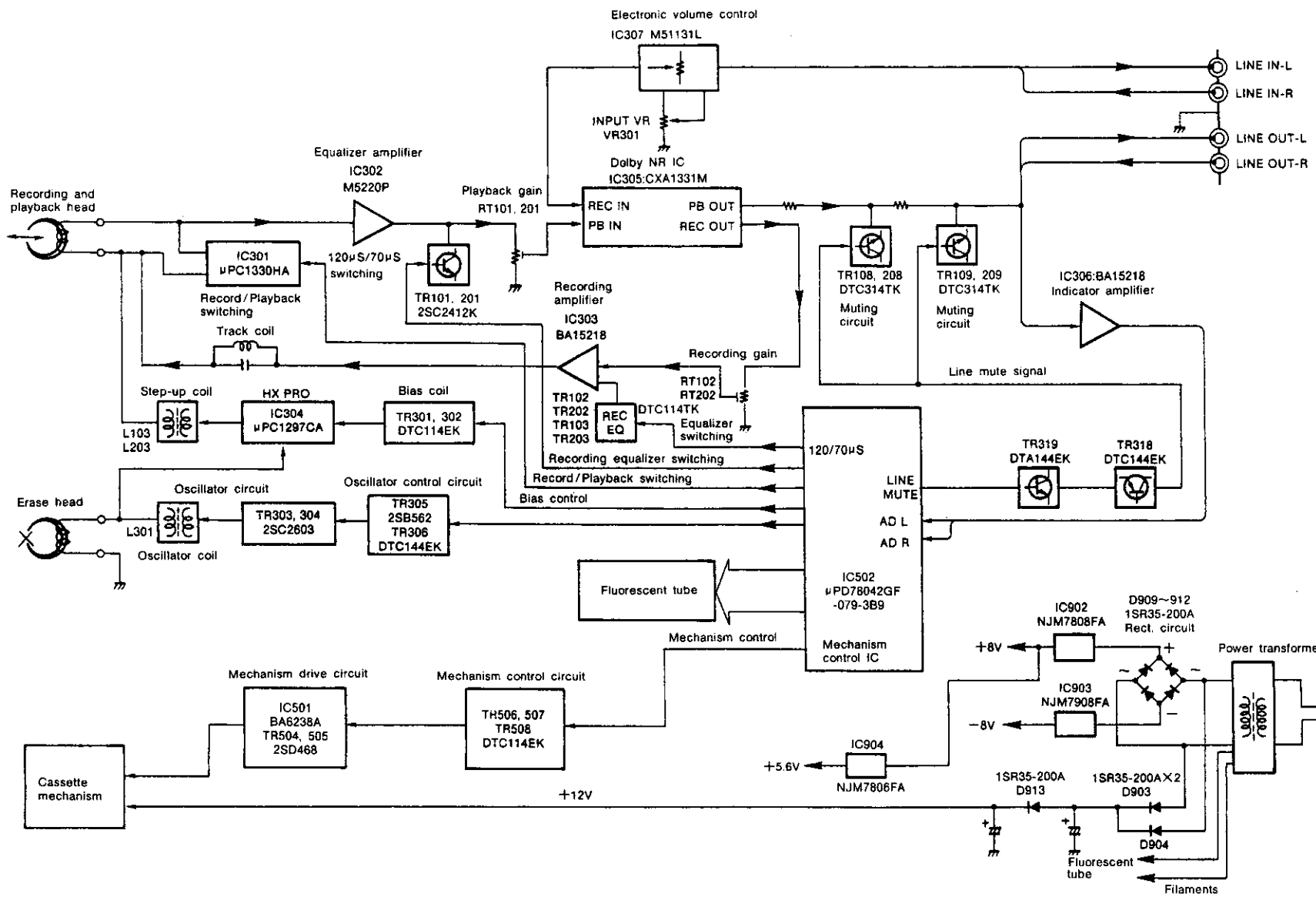


| Ref. No. | Part No.     | Part Name            | Remarks                 | Qty |
|----------|--------------|----------------------|-------------------------|-----|
| 1        | 9KA 85A0 01  | FG-40 Base Assy      |                         | 1   |
| 1-1      | 9KA 85P0 03  | FG-40 Base           |                         | (1) |
| 2        | 9KA 90H0 06  | FS Hold Screw        |                         | 1   |
| 3        | 9KA 90H0 05  | Feed Shaft           |                         | 1   |
| 4        | 9KA 90P0 70  | T.T Plate M3A        |                         | 1   |
| 5        | 9KA 90G1 04  | Turn Table M3A       |                         | 1   |
| 6        | 9KA 85G0 28  | Gear Motor FG-40     |                         | 1   |
| 7        | 9KA 85G0 17  | Forward Gear A       |                         | 1   |
| 8        | 9KA 85G0 18  | Forward Gear B       |                         | 1   |
| 9        | 499 0191 009 | Pick Up              | KSS240A                 | 1   |
| 10       | 9KM 01T1 36  | Motor (Feed)         | RF-310T11400-30         | 1   |
| 11       | 9KM 01T1 31  | Motor (Spindle)      | RF-310T11400-38         | 1   |
| 12       | 9KS 01W1 47  | Switch               | LSA-1121EAU             | 1   |
| 13       | 9KA 85P0 09  | Motor P.W.B. Unit    |                         | 1   |
| 14       | 9KM 20S0 03  | Tams Screw M2×3      |                         | 2   |
| 15       | 009 0051 001 | Flexible P.W.B. Unit | FFC-260-B               | 1   |
| 16       | 443 1093 006 | FFC Bush             |                         | 1   |
| 17       | 9KA 82G2 53  | SP Conn. Base        | S5B-PH                  | 1   |
| 18       | 9KM 20S0 04  | Tams Screw M2×4      |                         | 2   |
| 19       | 9KA 85G0 19  | Mech. Plate          | FL12SA                  | 1   |
| 20       | 9KA 85G0 20  | Mech. Frame          |                         | 1   |
| 21       | 9KA 85G0 25  | CD Tray              | FL12SA                  | 1   |
| 22       | 9KA 85G0 04  | Clamper Frame        |                         | 1   |
| 23       | 9KA 85G0 22  | UD Plate Gear        |                         | 1   |
| 24       | 9KA 85G0 06  | Clamper -F           |                         | 1   |
| 25       | 9KA 85G0 07  | Relay Gear A         |                         | 1   |
| 26       | 9KA 85G0 08  | Relay Gear B         |                         | 1   |
| 27       | 9KA 85G0 09  | Relay Gear C         |                         | 1   |
| 28       | 9KA 85G0 10  | Gear Belt F          |                         | 1   |
| 29       | 9KA 85G0 30  | Dumper               |                         | 4   |
| 30       | 9KA 85P0 01  | Clamper Plate F      |                         | 1   |
| 31       | 9KA 85H0 01  | Screw F              |                         | 4   |
| 32       | 9KA 85P0 05  | Motor Unit Assy      |                         | 1   |
| 32-1     | FG7 0000 622 | Switch Unit          |                         | 1   |
| 33       | 9KA 82G0 49  | Motor Pulley         |                         | 1   |
| 34       | 9KA 82G0 57  | Magnet 17×27×5       |                         | 1   |
| 35       | 9KA 91H0 02  | Tight Screw M3×8     | P light                 | 2   |
| 36       | 9KB 30B0 08  | Bind Screw M3×8      | B light Black           | 5   |
| 37       | 9KM 26B0 04  | Bind Screw M2.6×4    |                         | 2   |
| 38       | 9KM 01T1 32  | Motor (Loading)      | RF500TB14415            | 1   |
| 39       | 9KA 82G3 08  | SP Conn. Base        | S5B-PH                  | 1   |
| 40       | 9KA 85G0 27  | Connector Cord       | CNW2                    | 1   |
| 41       | 9KS 01W1 48  | Open/Close Switch    |                         | 1   |
| 42       | 9KA 85S0 04  | Spring D             |                         | 2   |
| 43       | 9KA 85S0 02  | Spring B             |                         | 1   |
| 44       | 9KA 85S0 03  | Spring C             |                         | 1   |
| 45       | 9KA 85G0 36  | Try Stopper          |                         | 1   |
| 46       | 9KM 20B0 05  | Bind Screw M2×5      |                         | 1   |
| 47       | 9KS 21W6 04  | Washer 2.1×6×0.4     |                         | 1   |
| 48       | 9KB 22G0 29  | Oil Seal Washer      |                         | 1   |
| 49       | 9KA 85S0 05  | Hold Spring          |                         | 1   |
| 50       | -            | -                    |                         | -   |
| 51       | 9KA 85G0 33  | Gear Guide           |                         | 1   |
| 60       | 9KA 85A0 07  | Spindle Motor Assy   | Included 1,4,5,11,14,48 | 1   |
| 61       | 9KA 85A0 08  | Feed Motor Assy      | Included 6,10           | 1   |
| 62       | 9KA 85A0 06  | Loading Motor Assy   | Included 33,38          | 1   |

CASSETTE DECK SECTION

LEVEL DIAGRAM





BLOCK DIAGRAM

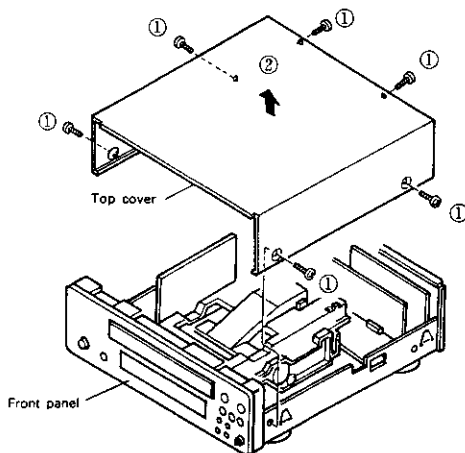
5  
6  
7  
8

**DISASSEMBLY PROCEDURES**

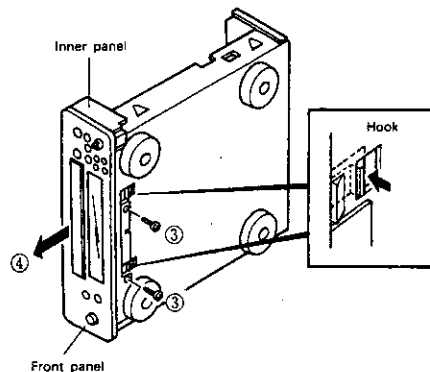
(Assembly is performed in the reverse order.)

**1. Removing the Top Cover and the Front Panel**

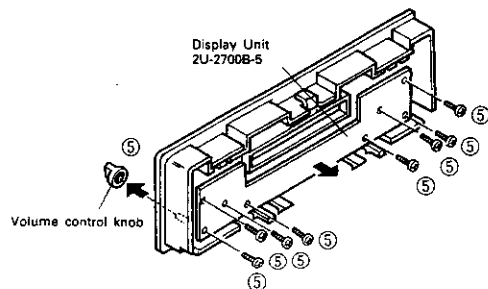
- ① Remove the six screws which fasten the top cover.
- ② Remove the top cover (upward) in the direction of the arrow.



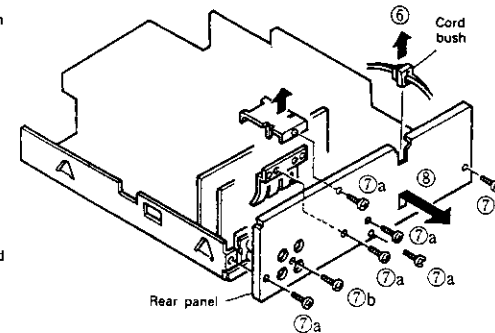
- ③ Remove the two screws which fasten front panel.
- ④ Release the inner panel hooks from the chassis while pulling the panels in the direction of the arrow to remove the inner panel and the front panel as one unit.

**2. Removing the Units****Display Unit (2U-2700B-5)**

- ⑤ Remove the volume control knob in the direction of the arrow, then remove the eight screws which fasten the display unit.

**3. Removing the Rear Panel**

- ⑥ Remove the cord bush from the rear panel.
- ⑦ Remove the six "a" screws and one "b" screw which fasten the rear panel.
- ⑧ Remove the rear panel in the direction of the arrow.

**Microprocessor Unit (2U-2700B-4)**

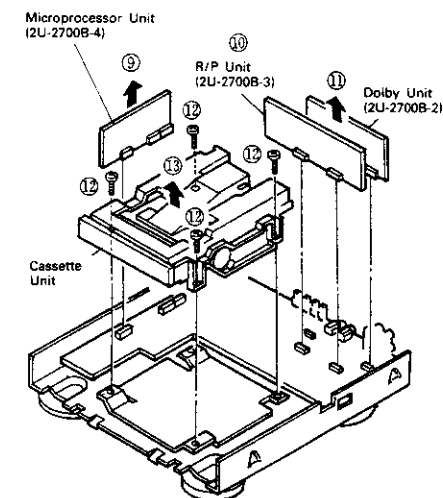
- ⑨ Disconnect the microprocessor unit from the connector and remove in the direction of the arrow.

**R/P Unit (2U-2700B-3)**

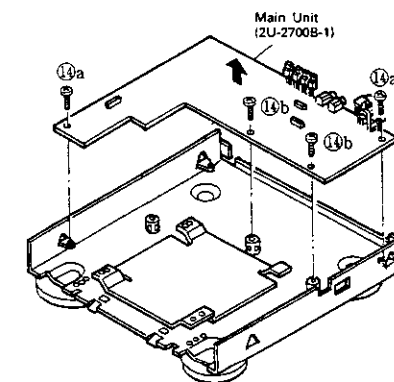
- ⑩ Disconnect the R/P unit from the connector and remove in the direction of the arrow.

**Dolby Unit (2U-2700B-2)**

- ⑪ Disconnect the Dolby unit from the connector and remove in the direction of the arrow.

**4. Removing the Cassette Unit**

- ⑫ Remove the five screws which fasten the cassette unit.
- ⑬ Remove the cassette unit in the direction of the arrow.

**Main Unit (2U-2700B-1)**

- ⑭ Remove the two "a" screws and 2 "b" screws which fasten the main unit.

**CASSETTE DECK SECTION**

**ADJUSTMENTS**

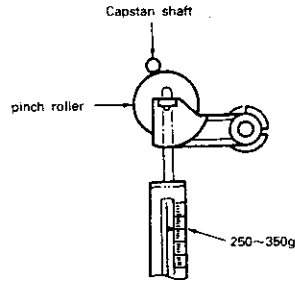
**ADJUSTING AND CHECKING THE MECHANISM SECTION**

**1. Replacement of the pinch roller**

Before replacing the pinch roller, clean the tape contact surface of the pinch roller and the tape contact surface of the capstan shaft. After replacement, run a C-90 tape without a pad and check for the presence of tape curl at the tape guide portion of the head.

**2. Checking the pinch roller pressure**

Set to the playback condition and hook a bar-type spring scale to the bracket above the center line of the pinch roller. Pull the pinch roller away from the capstan shaft, then allow the pinch roller to come into contact with the capstan shaft and check that the reading of the bar-type spring scale is between 250 g and 350 g when the pinch roller starts to rotate. Replace the pinch roller when the value falls outside of the specified range.



**3. Replacement of the recording/playback head assembly**

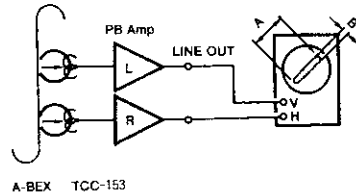
Perform this procedure after removing the front panel.

**3-1 Removal of the head assembly**

- (1) Remove the 2 head base fastening screws
- (2) Remove the head base from the reed holder and the wire connector.

**3-2 Mounting the recording/playback head assembly**

Perform by following the steps of Section 3-1 Removal of the head assembly in reverse.



**4. Adjustment of the recording/playback head**

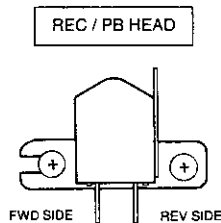
**Azimuth adjustment**

Load side A of the A-BEX TCC-153 test tape facing forward, and adjust.

- (1) Play in the FWD direction and turn the azimuth adjustment nut for the FWD side so that the Lissajous's figure becomes maximum at (A) and minimum at (B).
- (2) Apply screw lock to the adjustment locations.

**5. Checking the winding torque**

Load a cassette type torque meter (Sony TW2111A at the FWD side) and check that the reading of the torque meter during playback is 30 to 70 g-cm at the center value. When outside of the specified value range, check the voltage of the reel motor (approx. 4 V). When the voltage value is low, the torque is weak, and when high, the torque is strong.



**6. Checking the back tension torque at the time of recording and playback**

Load a cassette type torque meter (Sony TW2111A at the FWD side) and check that the reading of the torque meter during playback is 2 to 6 g-cm and that there is no unevenness.

**7. Checking the FF and REW torque**

Load a cassette type torque meter (Sony TW2231) and check that the value indicated by the torque meter for winding and rewinding is between 90 and 180 g-cm.

**8. Checking the FF and REW time**

Load a DENON HD-X / 60 cassette tape, and check that the time for FF and REW is between 80 and 110 seconds. When outside of the specified range, check Steps 5 and 6.

**9. Checking the erroneous erasure prevention, and the metal and chrome switch operations**

Check that the detection lever is operating the switch properly depending upon the presence or absence of a hole.

**ADJUSTING AND CHECKING THE ELECTRICAL SECTION**

**Measuring instruments needed for the adjustments**

- (1) Low frequency oscillator
- (2) Variable resistance attenuator
- (3) Electronic voltmeter
- (4) Oscilloscope
- (5) Frequency counter
- (6) Adjustment screwdriver
- (7) 4-sided adjustment rod for trap coil adjustments
- (8) Test tapes  
(Sony TY224)  
(A-BEX TCC-153, TCC-130, TCC-262B/162B)  
(DENON HDX-60)
- (9) Mirror cassette for the transport (A-BEX TCC-902)

**Adjustment precaution**

- (1) Before adjustments, use gauze or a swab moistened with alcohol to wipe the surface of the heads, the capstan shaft, and the pinch roller.
- (2) Demagnetize the record/playback head and the erase head with a head eraser.
- (3) Completely demagnetize the driver to be used for the adjustments.
- (4) Unless otherwise specified, set the various operation controls as indicated below.  
Input/output controls: Center  
Dolby NR switch: Off

**1. Tape transport check**

Load the mirror cassette for the transport, and illuminate the area around the fixed guide of the record/playback head with a lamp and observe.

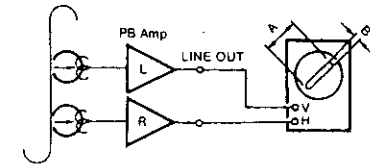
Check that the tape edge is not hitting the tape guide portion. Note that the tape transport is the greatest factor affecting the performance of the cassette deck. Never move the inspection locations without good reason.

For information about replacement and adjustment of the record/playback head, see the section "Adjustment and checking of the mechanism."



## 2. Azimuth adjustment

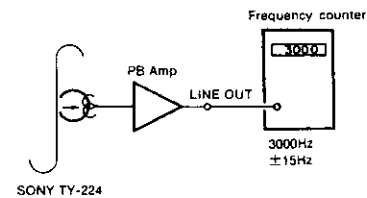
- 2-1 After making the tape transport check, load the test tape (A-BEX TCC-153).
- 2-2 Play back the test tape and turn the azimuth adjustment nut so that the Lissajous's figure becomes maximum at (A) and minimum at (B).



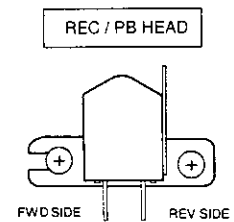
A-BEX TCC-153

## 3. Tape speed check and adjustment

- 3-1 Connect the frequency counter to the LINE OUT pin and load the test tape (Sony TY-224).
- 3-2 Playback a test tape. At about halfway through the tape, where the tape transport is stable, adjust RT-501 so that the frequency counter will have a reading within the range of 3,000 Hz  $\pm$  15 Hz

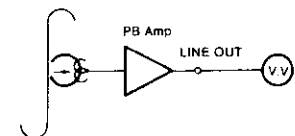


SONY TY-224



## 4. Adjustment of the playback system

- 4-1 Playback level  
Play back the test tape for the Dolby standard level (A-BEX TCC-130), and adjust RT101 (Left channel) and RT201 (right channel) so that the level of the LINE OUT pin becomes -5.7 dB (400 mV). (Load resistance of 47 kohm)
- 4-2 Checking the playback frequency responses  
Play back the test tape (A-BEX TCC-262B/162B), and check that the frequency response satisfies the standard.

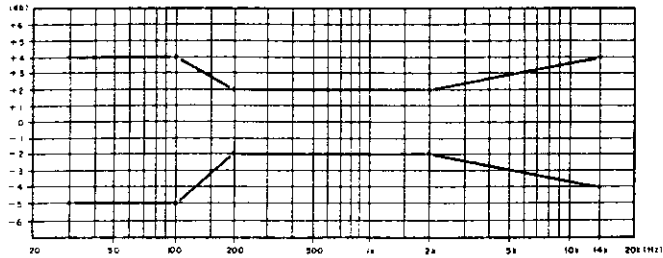


### NOTE

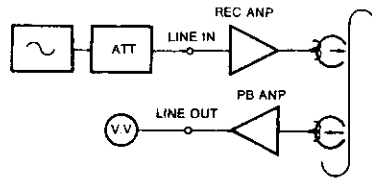
After making the azimuth adjustment with the 8 kHz at the start of the A-BEX TCC-262B test tape, perform check of the frequency responses.  
Also, after the check make an azimuth adjustment again with A-BEX TCC-153, then apply screw lock.

**CASSETTE DECK SECTION**

Playback Frequency Response



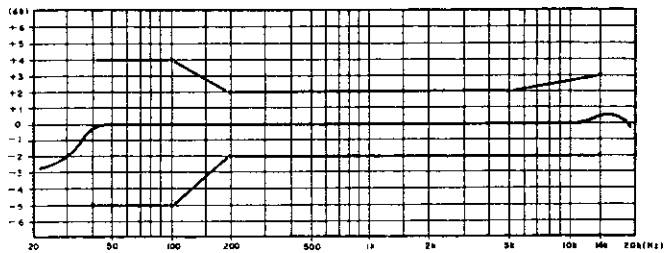
TAPE: A-BEX TCC-262B/162B



**5. Adjustment of the recording system**

- 5-1 Adjustment of the recording and playback overall frequency responses
- (1) Load the DENON HD/60 test tape, record a signal of -20 dB 1 kHz input level, and play back.
  - (2) Set the input signal to 10 kHz, record, and play back. Adjust RT103 (left channel) and RT203 (right channel) so that the response specifications of the diagram below are satisfied with respect to the 1 kHz output level.

Recording / Playback Overall Frequency Response

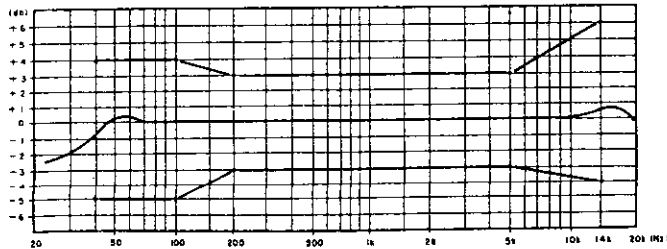


Tape : HD-X/60  
Dolby NR : Off  
Level : -20 dB From Dolby Level

5-2 Adjustment of the recording/playback level

- (1) Load the DENON HDX/60 test tape, record a signal of 1 kHz (-20 dB), and play back.
- (2) Adjust RT-102 (left channel) and RT-202 (right channel) so that the output of the LINE OUT pin becomes the same as the output at the time of the recording monitor.

Recording / Playback Overall Frequency Response

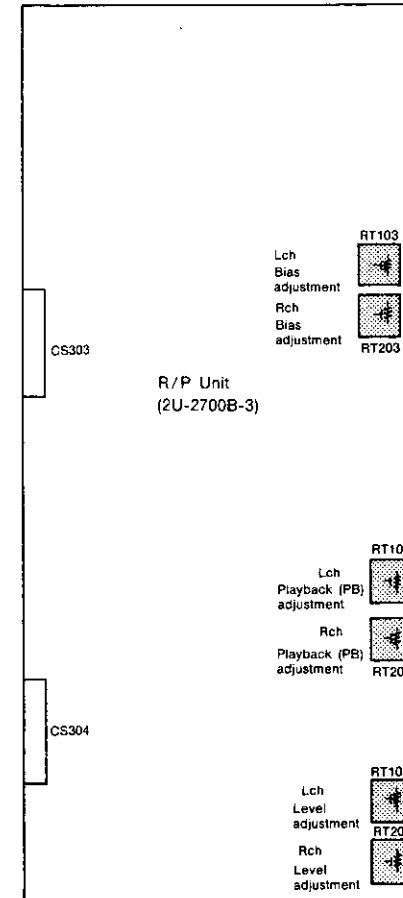


Tape : HD-X/60  
Dolby NR : On C  
Level : -20 dB From Dolby Level

**CASSETTE DECK SECTION**

**OUTLINE DIAGRAM OF ADJUSTMENT LOCATIONS**

2U-2700B-3 PB, REC/PB UNIT ASS'Y (Component Side)



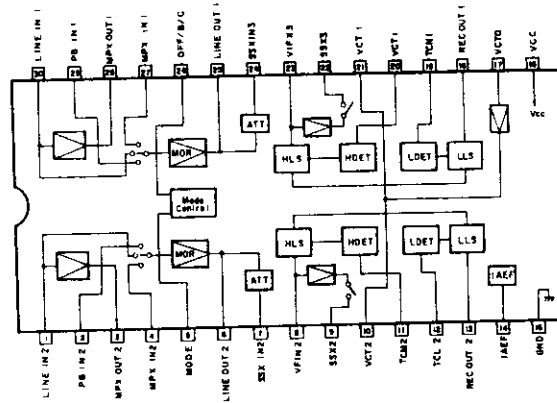
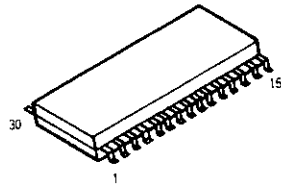
CASSETTE DECK SECTION

CASSETTE DECK SECTION

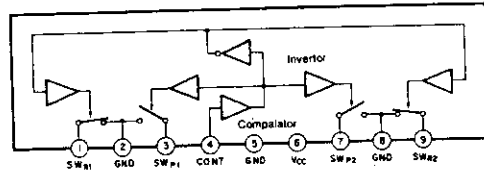
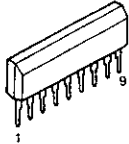
SEMICONDUCTORS

IC's

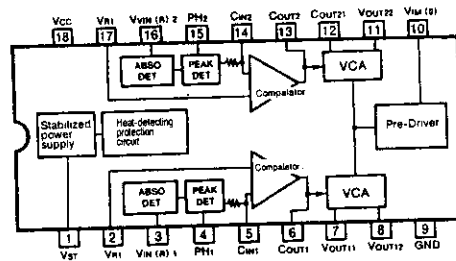
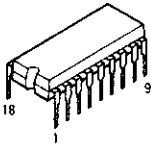
CXA1331M (IC305)



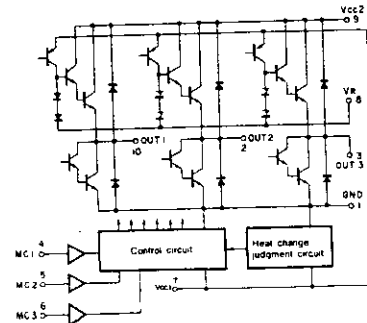
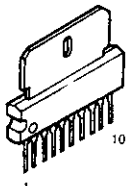
μPC1330HA (IC301)



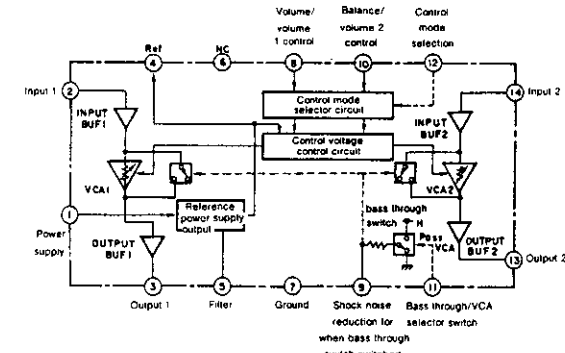
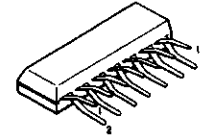
μPC1297CA (IC304)  
Dolby HX Pro.



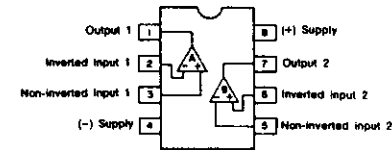
BA6238A (IC501)  
Reversible motor driver  
(2 circuits built in)



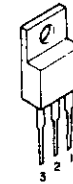
M51131L (IC307)



BA15218F (IC303, 306)

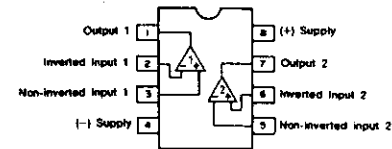
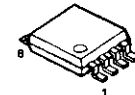


NJM7806FA(S) (IC904)  
NJM7808FA(S) (IC902)  
(Three-terminal positive constant voltage power supply)



1: Output  
2: GND  
3: Input

M5220FP (IC302)



NJM7908FA (IC903)  
(Three-terminal negative constant voltage power supply)



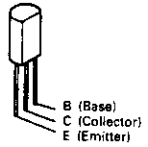
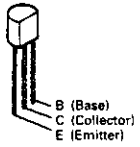
1: Output  
2: Input  
3: GND

**CASSETTE DECK SECTION**

• **Transistors**

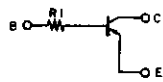
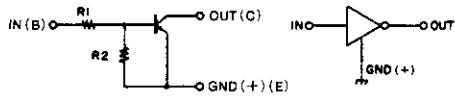
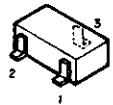
2SC2603 (E/F)  
2SD1111

2SB562 (C)  
2SD468 (C)



DTA EK series

DTC TK series



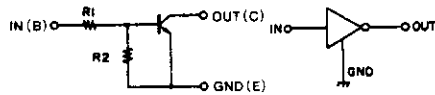
- 1. : GND/Emitter
- 2. : In/Base
- 3. : Out/Collector

|          | R1      | R2      |
|----------|---------|---------|
| DTA144EK | 47 kohm | 47 kohm |

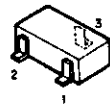
|          | R1      |
|----------|---------|
| DTC114TK | 10 kohm |
| DTC314TK | 10 kohm |

DTC EK series

- DTA144EK PNP type
- DTC114EK
- DTC124EK
- DTC144EK
- DTC114TK
- DTC314TK



2SA1037K (S/R)  
2SC2412K (S)



- 1. : Emitter
- 2. : Base
- 3. : Collector

|          | R1      | R2      |
|----------|---------|---------|
| DTA114EK | 10 kohm | 10 kohm |
| DTA124EK | 22 kohm | 22 kohm |
| DTA144EK | 47 kohm | 47 kohm |

• **Diodes**

- HZS2C-1
- HZS3C-1
- HZS4C-1
- HZS5C-1
- HZS6A-1
- HZS6C-1
- HZS7B-1
- HZS9B-1
- HZS20-1

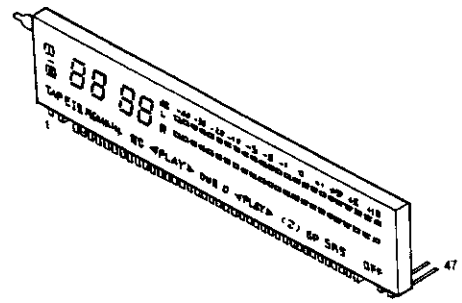
1SS252

1SR35-200A



CASSETTE DECK SECTION

• Fluorescent Display Tube BJ239GK  
(Part No.: 393 8014 000)



Pin Connections

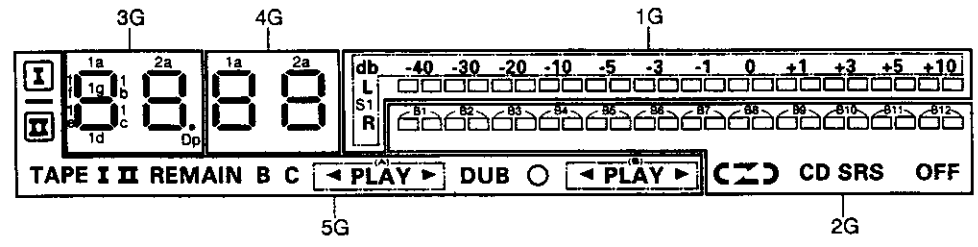
|            |    |    |     |     |     |     |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Pin No.    | 1  | 2  | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| Connection | F1 | F1 | NP  | NP  | 1G  | 2G  | 3G  | 4G  | 5G  | NC  | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC | NC |
| Pin No.    | 25 | 26 | 27  | 28  | 29  | 30  | 31  | 32  | 33  | 34  | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 |    |
| Connection | NC | NC | P17 | P16 | P15 | P14 | P13 | P12 | P11 | P10 | P9 | P8 | P7 | P6 | P5 | P4 | P3 | P2 | P1 | NP | NP | F2 | F2 |    |

- NOTE
- 1) F1 and F2: ..... Filaments
  - 2) NP: ..... No pin
  - 3) NC: ..... No connection
  - 4) 1G through 5G: ..... Grid

Anode Connection

|     | 5G       | 4G | 3G | 2G     | 1G  |
|-----|----------|----|----|--------|-----|
| P1  | TAPE     | 1a | 1a | B1     | B1  |
| P2  | I        | 1b | 1b | B2     | B2  |
| P3  | II       | 1c | 1c | B3     | B3  |
| P4  | REMAIN   | 1d | 1d | B4     | B4  |
| P5  | B        | 1e | 1e | B5     | B5  |
| P6  | C        | 1f | 1f | B6     | B6  |
| P7  | ◀ (A)    | 1g | 1g | B7     | B7  |
| P8  | PLAY (A) | 2a | 2a | B8     | B8  |
| P9  | ▶ (A)    | 2b | 2b | B9     | B9  |
| P10 | DUB      | 2c | 2c | B10    | B10 |
| P11 | ○        | 2d | 2d | B11    | B11 |
| P12 | ◀ (B)    | 2e | 2e | B12    | B12 |
| P13 | PLAY (B) | 2f | 2f | C      | S1  |
| P14 | ▶ (B)    | 2g | 2g | Σ      | —   |
| P15 | I        | —  | Dp | ∩      | —   |
| P16 | —        | —  | —  | CD SRS | —   |
| P17 | II       | —  | —  | OFF    | —   |

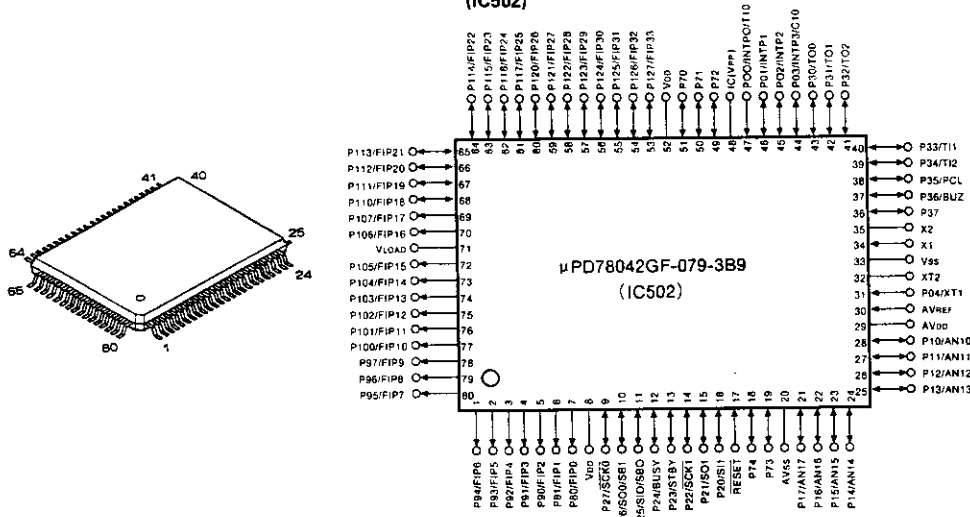
Grid Assignment



CASSETTE DECK SECTION

MICROPROCESSOR DOCUMENTATION

μPD78042GF-079-3B9 : 262 1938 106  
(IC502)



Output logic: H = positive logic, L = negative logic  
Initial condition: H = positive potential, L = ground  
Output type: P = PMOS, N = NMOS, C = CMOS  
Load resistor: None, (PULL) UP, (PULL) DOWN

• Pin Description

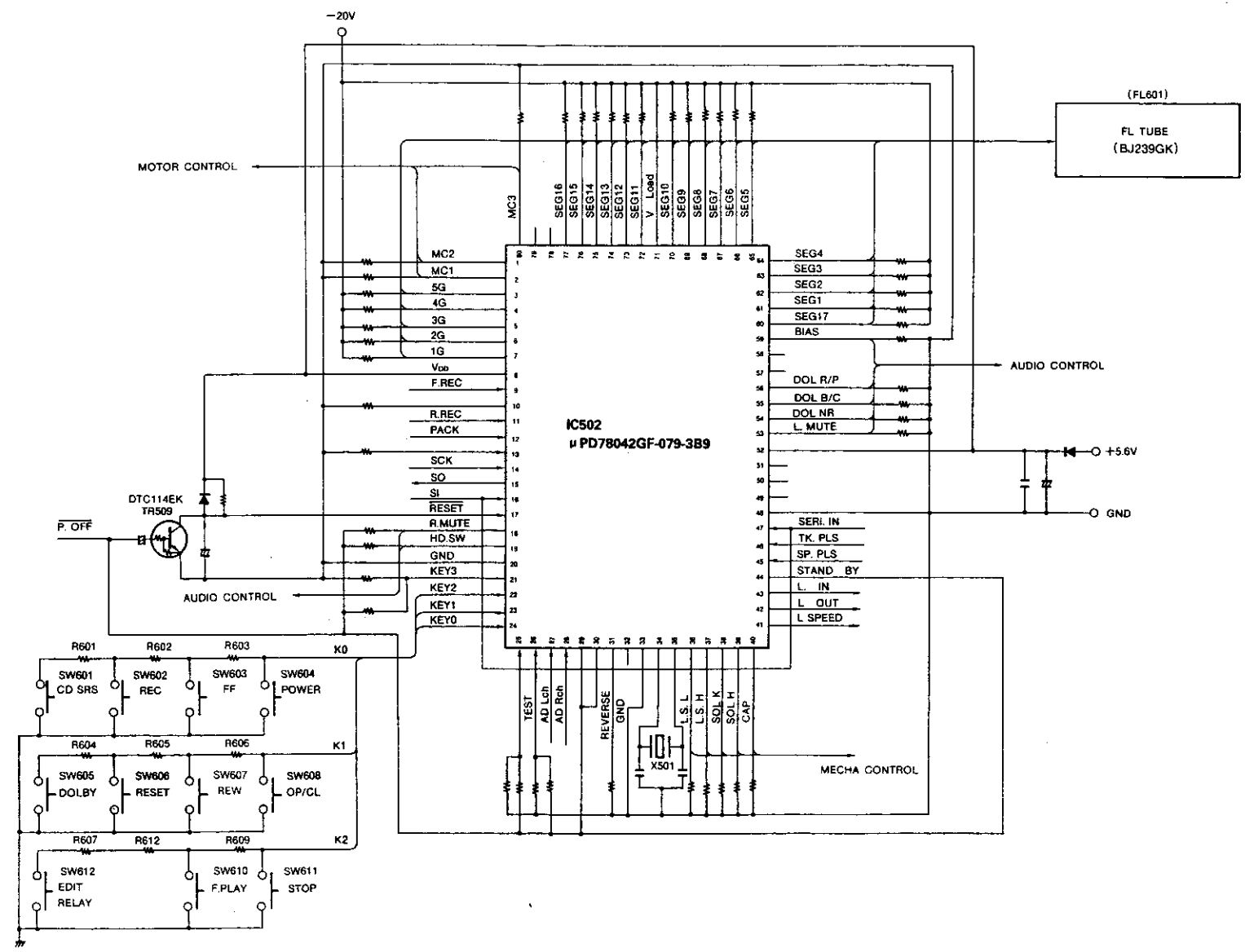
| Pin | Pin Name | Function Name | I/O | Output Logic | Initial Condition | Output Type | Load Resistor | Details  |
|-----|----------|---------------|-----|--------------|-------------------|-------------|---------------|--|
| 1   | P94      | MTCONT2       | O   | H            | Hi-Z              | P           | External DOWN | PULL-DOWN one time: built in. Mask: optional. Reel, loader motor control       |
| 2   | P93      | MTCONT1       | O   | H            | Hi-Z              | P           | External DOWN | PULL-DOWN one time: built in. Mask: optional. Reel, loader motor control       |
| 3   | P92      | GRID-5        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: built in. Mask: optional. Display tube grid control signal |
| 4   | P91      | GRID-4        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: built in. Mask: optional. Display tube grid control signal |
| 5   | P90      | GRID-3        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: built in. Mask: optional. Display tube grid control signal |
| 6   | P81      | GRID-2        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: built in. Mask: optional. Display tube grid control signal |
| 7   | P80      | GRID-1        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: built in. Mask: optional. Display tube grid control signal |
| 8   | VDD      | 5[V]          |     |              |                   |             |               |  |
| 9   | P27      | REC-FWD       | I   | H            | Hi-Z              | —           | External DOWN | Mechanism switch input signal  |
| 10  | P26      | METAL         | I   | H            | Hi-Z              | —           | External DOWN | Mechanism switch input signal  |
| 11  | P25      | REC-REV       | I   | H            | Hi-Z              | —           | External DOWN | Mechanism switch input signal  |
| 12  | P24      | PACK          | I   | H            | Hi-Z              | —           | External DOWN | Mechanism switch input signal  |
| 13  | P23      | CHROME        | I   | H            | Hi-Z              | —           | External DOWN | Mechanism switch input signal  |
| 14  | P22      | SERCLK        | I   | EDGE         | Hi-Z              | —           | External UP   | Serial communications clock signal   |
| 15  | P21      | SEROUT        | O   | H            | Hi-Z              | C           | External UP   | Serial communications output signal  |
| 16  | P20      | SER-IN        | I   | H            | Hi-Z              | —           | External UP   | Serial communications input signal   |
| 17  | RESET    | RESET         | I   | L            | Hi-Z              | —           | External UP   | Reset input signal   |
| 18  | P74      | R-MUTE        | O   | H            | Hi-Z              | N           | External UP   | Recording mute control signal  |
| 19  | P73      | HEADSW        | O   | H/L          | Hi-Z              | N           | External UP   | Head switching control signal: record at high level and play back at low level |
| 20  | AVSS     | GND           |     |              |                   |             |               |  |
| 21  | AN17     | KEYIN-3       | I   | A/D          | Hi-Z              | —           | External UP   | Operation button input signal (Not used)                                       |
| 22  | AN16     | KEYIN-2       | I   | A/D          | Hi-Z              | —           | External UP   | Operation button input signal No. 2  |
| 23  | AN15     | KEYIN-1       | I   | A/D          | Hi-Z              | —           | External UP   | Operation button input signal No. 1  |
| 24  | AN14     | KEYIN-0       | I   | A/D          | Hi-Z              | —           | External UP   | Operation button input signal No. 0  |
| 25  | AN13     | MSREF         | I   | A/D          | Hi-Z              | —           |               | Between-track detection reference voltage                                      |

| Pin | Pin Name | Function Name | I/O | Output Logic | Initial Condition | Output Type | Load Resistor | Details   |
|-----|----------|---------------|-----|--------------|-------------------|-------------|---------------|---|
| 26  | AN12     | TEST          | I   | A/D          | Hi-Z              | —           |               |   |
| 27  | AN13     | A/D-L         | I   | A/D          | Hi-Z              | —           | External DOWN | Left channel audio signal   |
| 28  | AN10     | A/D-L         | I   | A/D          | Hi-Z              | —           | External DOWN | Right channel audio signal  |
| 29  | AVDD     | +5[V]         |     |              |                   |             |               |   |
| 30  | AVREF    | +5[V]         |     |              |                   |             |               |   |
| 31  | P04      | RVS/ONE       | I   | H/L          | Hi-Z              | —           |               | Reverse/one-way switching: one-way at low level, reverse at high level        |
| 32  | XT2      | OPEN          |     |              |                   |             |               |   |
| 33  | VSS      | GND           |     |              |                   |             |               |   |
| 34  | X1       | CLOCK         |     |              |                   |             |               | System clock input pin  |
| 35  | X2       | CLOCK         |     |              |                   |             |               | System clock input pin  |
| 36  | P37      | SPD/L         | O   | H            | Hi-Z              | C           | External DOWN | Loader speed control signal   |
| 37  | P36      | SPD/H         | O   | H            | Hi-Z              | C           | External DOWN | Loader speed control signal   |
| 38  | P35      | SOL/K         | O   | H            | Hi-Z              | C           | External DOWN | Solenoid kick control signal  |
| 39  | P34      | SOL/H         | O   | H            | Hi-Z              | C           | External DOWN | Solenoid kick control signal  |
| 40  | P33      | CAPSTAN       | O   | H            | Hi-Z              | C           | External DOWN | Capstan control signal  |
| 41  | P32      | LOADSPD       | I   | H            | Hi-Z              | —           | External DOWN | Loader speed switching input signal   |
| 42  | P31      | LOADOUT       | I   | H            | Hi-Z              | —           | External DOWN | Loader open input signal  |
| 43  | P30      | LOADIN        | I   | H            | Hi-Z              | —           | External DOWN | Loader close input signal   |
| 44  | P03      | STANBY        | I   | H            | Hi-Z              | —           | External UP   | Power loss detection signal   |
| 45  | INTP2    | SERINT        | I   | EDGE         | Hi-Z              | —           | External UP   | Serial communications interrupt signal  |
| 46  | INTP1    | TK-PLS        | I   | EDGE         | Hi-Z              | —           | External UP   | Take-up reel pulse input signal   |
| 47  | INTP0    | SP-PLS        | I   | EDGE         | Hi-Z              | —           | External UP   | Supply-reel pulse input signal  |
| 48  | IC       | D-GND         |     |              |                   |             |               |   |
| 49  | P72      | NORMAL        | O   | H            | Hi-Z              | N           | External DOWN | Tape select switching signal  |
| 50  | P71      | CHROME        | O   | H            | Hi-Z              | N           | External DOWN | Tape select switching signal  |
| 51  | P70      | METAL         | O   | H            | Hi-Z              | N           | External DOWN | Tape select switching signal  |
| 52  | VDD      | 5[V] HOLD     |     |              |                   |             |               |   |
| 53  | P127     | L-MUTE        | O   | L            | Hi-Z              | P           | External DOWN | Line mute control signal  |
| 54  | P126     | DOLON/OFF     | O   | H/L          | Hi-Z              | P           | External DOWN | Dolby on/off switching signal: Off at high level, On at low level             |
| 55  | P125     | DOLB/C        | O   | H/L          | Hi-Z              | P           | External DOWN | Dolby B/C switching signal: Type-B at high, Type-C at low                     |
| 56  | P124     | DOLR/P        | O   | H/L          | Hi-Z              | P           | External DOWN | Dolby recording/playback switching signal: PB at high, REC at low             |
| 57  | P123     | MPXFL         | O   | H            | Hi-Z              | P           | External DOWN | MPX filter control signal   |
| 58  | P122     | 70/120        | O   | H/L          | Hi-Z              | P           | External DOWN | Playback equalizer control signal: 70 $\mu$ s at high, and 120 $\mu$ s at low |
| 59  | P121     | BIAS          | O   | H            | Hi-Z              | P           | External DOWN | Bias control signal   |
| 60  | P120     | SEG-17        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: None. Mask: optional. Display tube segment control signal |
| 61  | P117     | SEG-01        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: None. Mask: optional. Display tube segment control signal |
| 62  | P116     | SEG-02        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: None. Mask: optional. Display tube segment control signal |
| 63  | P115     | SEG-03        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: None. Mask: optional. Display tube segment control signal |
| 64  | P114     | SEG-04        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: None. Mask: optional. Display tube segment control signal |
| 65  | P113     | SEG-05        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: None. Mask: optional. Display tube segment control signal |
| 66  | P112     | SEG-06        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: None. Mask: optional. Display tube segment control signal |
| 67  | P111     | SEG-07        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: None. Mask: optional. Display tube segment control signal |
| 68  | P110     | SEG-08        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: None. Mask: optional. Display tube segment control signal |
| 69  | P107     | SEG-09        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: None. Mask: optional. Display tube segment control signal |
| 70  | P106     | SEG-10        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: None. Mask: optional. Display tube segment control signal |
| 71  | VLOAD    | -2[V]         |     |              |                   |             |               |   |
| 72  | P105     | SEG-11        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: None. Mask: optional. Display tube segment control signal |
| 73  | P104     | SEG-12        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: None. Mask: optional. Display tube segment control signal |
| 74  | P103     | SEG-13        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: None. Mask: optional. Display tube segment control signal |
| 75  | P102     | SEG-14        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: None. Mask: optional. Display tube segment control signal |
| 76  | P101     | SEG-15        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: None. Mask: optional. Display tube segment control signal |
| 77  | P100     | SEG-16        | O   | H            | Hi-Z              | P           | Built-in DOWN | PULL-DOWN one time: None. Mask: optional. Display tube segment control signal |
| 78  | P97      | OPEN          |     |              |                   |             |               | PULL-DOWN one time: Built in. Mask: optional.                                 |
| 79  | P96      | OPEN          |     |              |                   |             |               | PULL-DOWN one time: Built in. Mask: optional.                                 |
| 80  | P95      | MTCONT3       | O   | H            | Hi-Z              | P           | External DOWN | PULL-DOWN one time: Built in. Mask: optional.                                 |

CASSETTE DECK SECTION

MICROPROCESSOR PERIPHERAL WIRING DIAGRAM

1 2 3 4 5 6 7 8



A  
B  
C  
D  
E

CASSETTE DECK SECTION

PRINTED WIRING BOARD

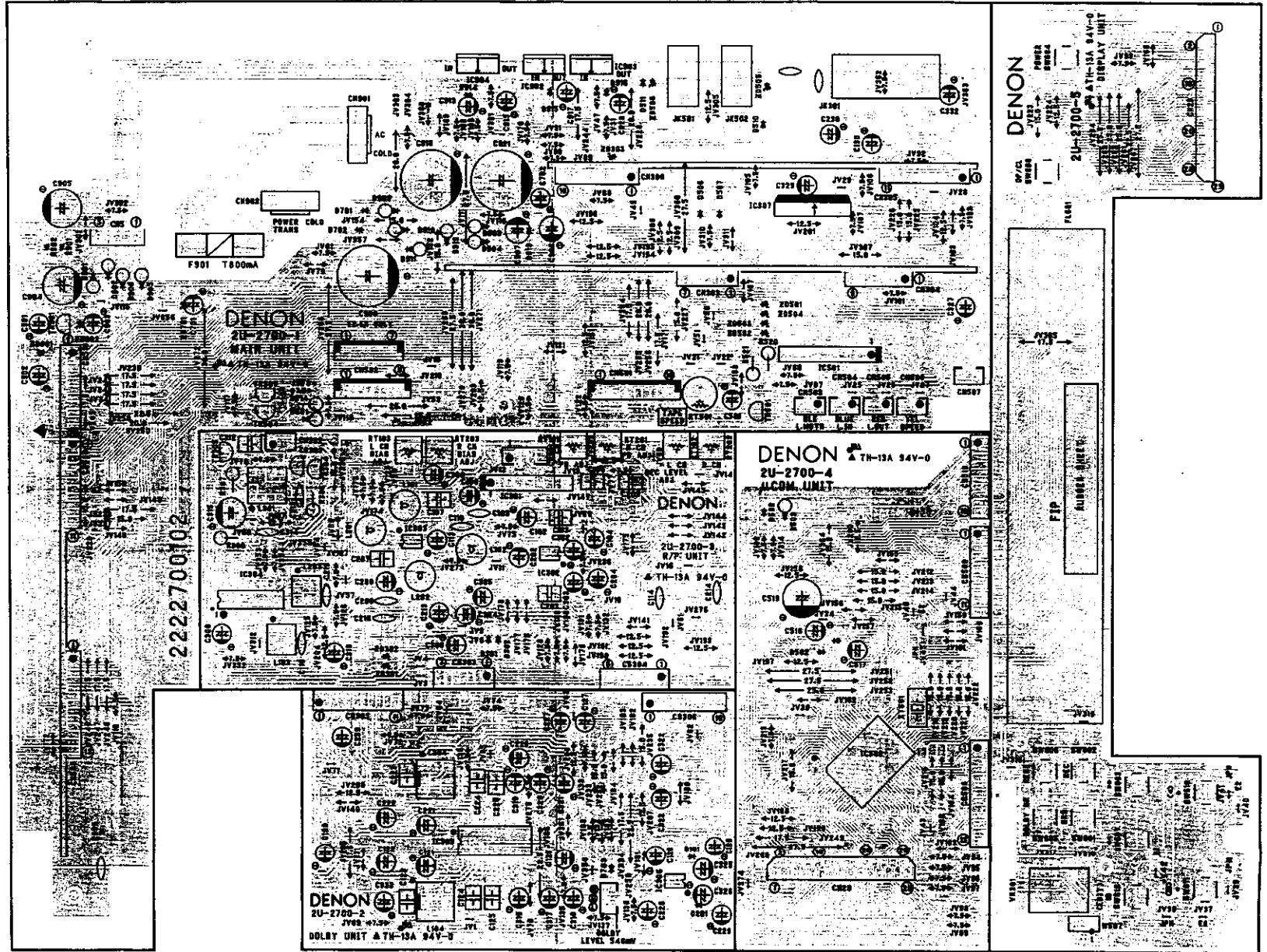
1 2 3 4 5 6 7 8

UDR-F10 2U-2700B DECK UNIT ASS'Y

Component Side

| 2U-2700B |                     |
|----------|---------------------|
| -1       | Main Unit           |
| -2       | Dolby Unit          |
| -3       | Rec/PB Unit         |
| -4       | Microprocessor Unit |
| -5       | Display Unit        |

A  
B  
C  
D  
E

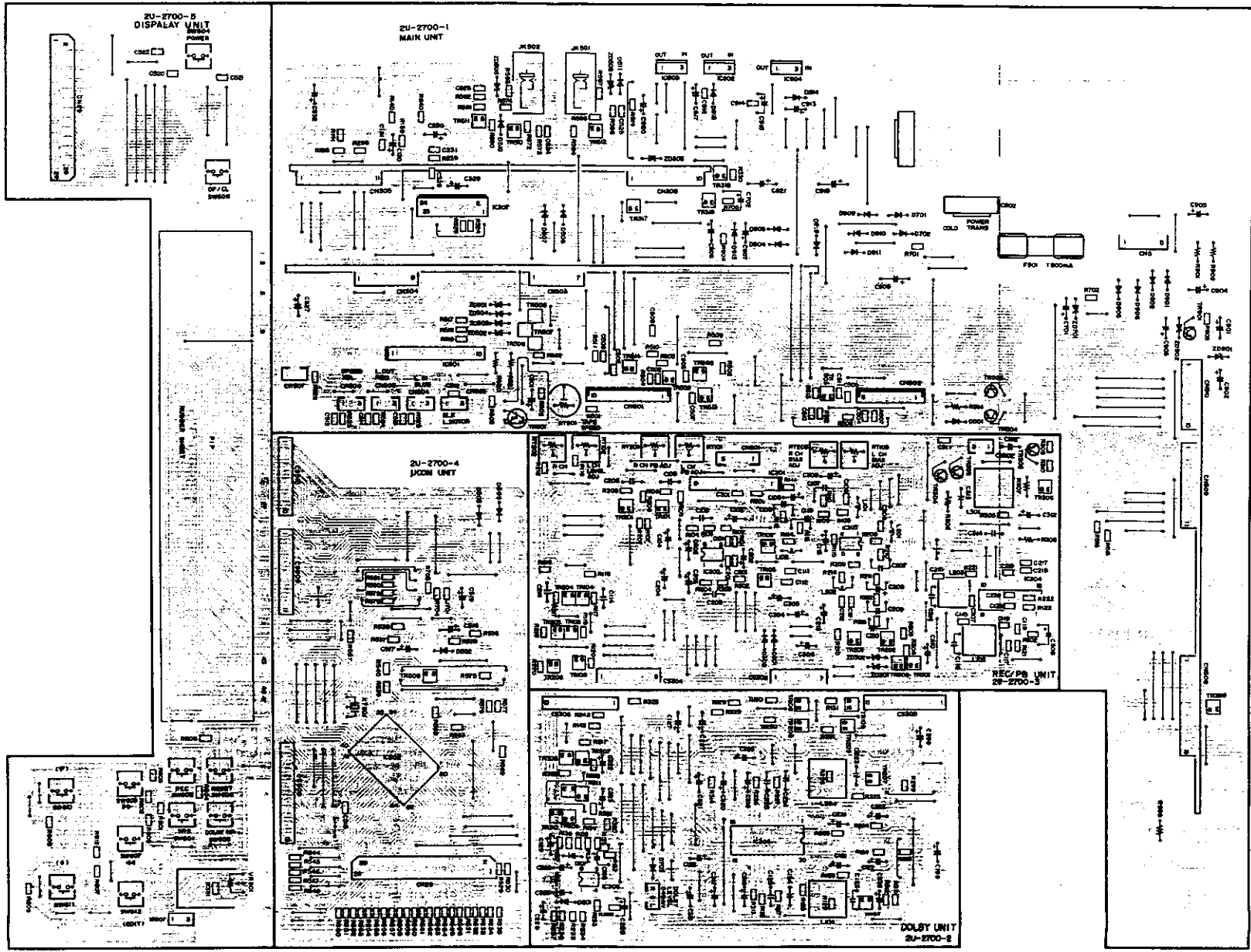




CASSETTE DECK SECTION

1 2 3 4 5 6 7 8

Pattern Side



A  
B  
C  
D  
E



CASSETTE DECK SECTION

Table with columns: Ref. No., Part No., Part Name, Remarks. Contains rows R309-R331, R501-R612, R701-R710.

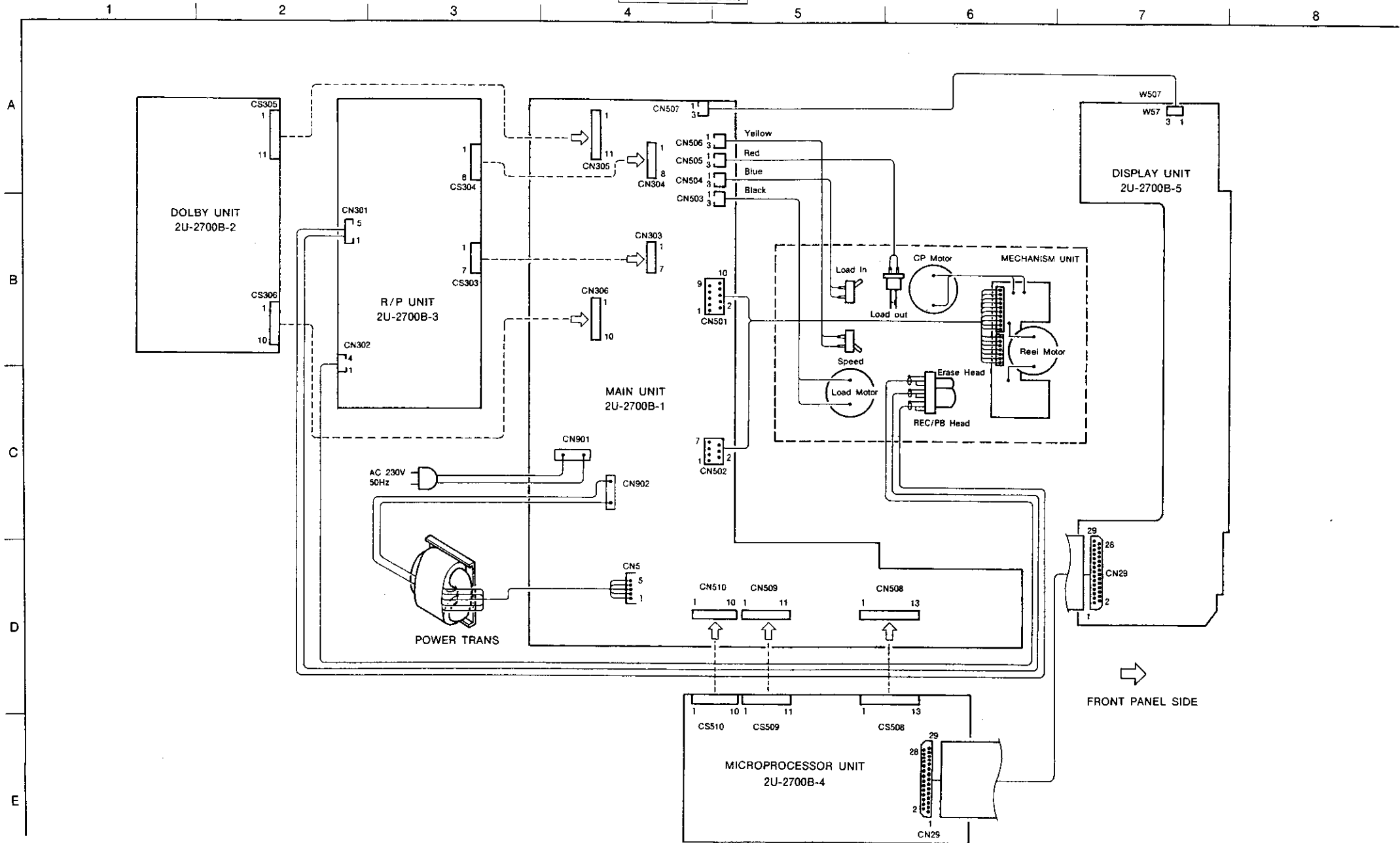
Table with columns: Ref. No., Part No., Part Name, Remarks. Includes sub-section 'CAPACITORS GROUP' and rows R903-R904, ΔR306, ΔR307, ΔR315.316, ΔR514, ΔR520.521, RT101-RT103, RT201-RT203, RT501, VR301, C101-C220.

Table with columns: Ref. No., Part No., Part Name, Remarks. Includes sub-section 'OTHER GROUP' and rows C221.222, C223, C224.225, C226~228, C229, C230, C231, C239, C301, C302~305, C306, C307, C308, C309, C310, C311, C312, C313, C314, C315, C316, C317, C318, C319, C320, C321, C322.323, C325.326, C327, C328, C329, C333, C501, C503, C509, C511, C512, C516, C517, C518, C519, C525.526, C701, C702, C901, C902, C903, C904.905, C906.907, C908, C913, C914, C915, C916, C917, C918, C919, C920, C921, L101, L102, L103, L203, L204.

Table with columns: Ref. No., Part No., Part Name, Remarks. Includes rows L201, L202, L203, L204, L301, XT501, JK301, JK501.502, ΔF901, CN005, CN505, CN506, CN504, CN503, CN302.507, CN301, CN303, CN304, CN508, CN305.509, CN306.510, CN501, CN502, CS303, CS304, CN508, CS305.509, CS306.510, CN029.029, CN901.902, W507, 461, 461.0415.007, Q7.

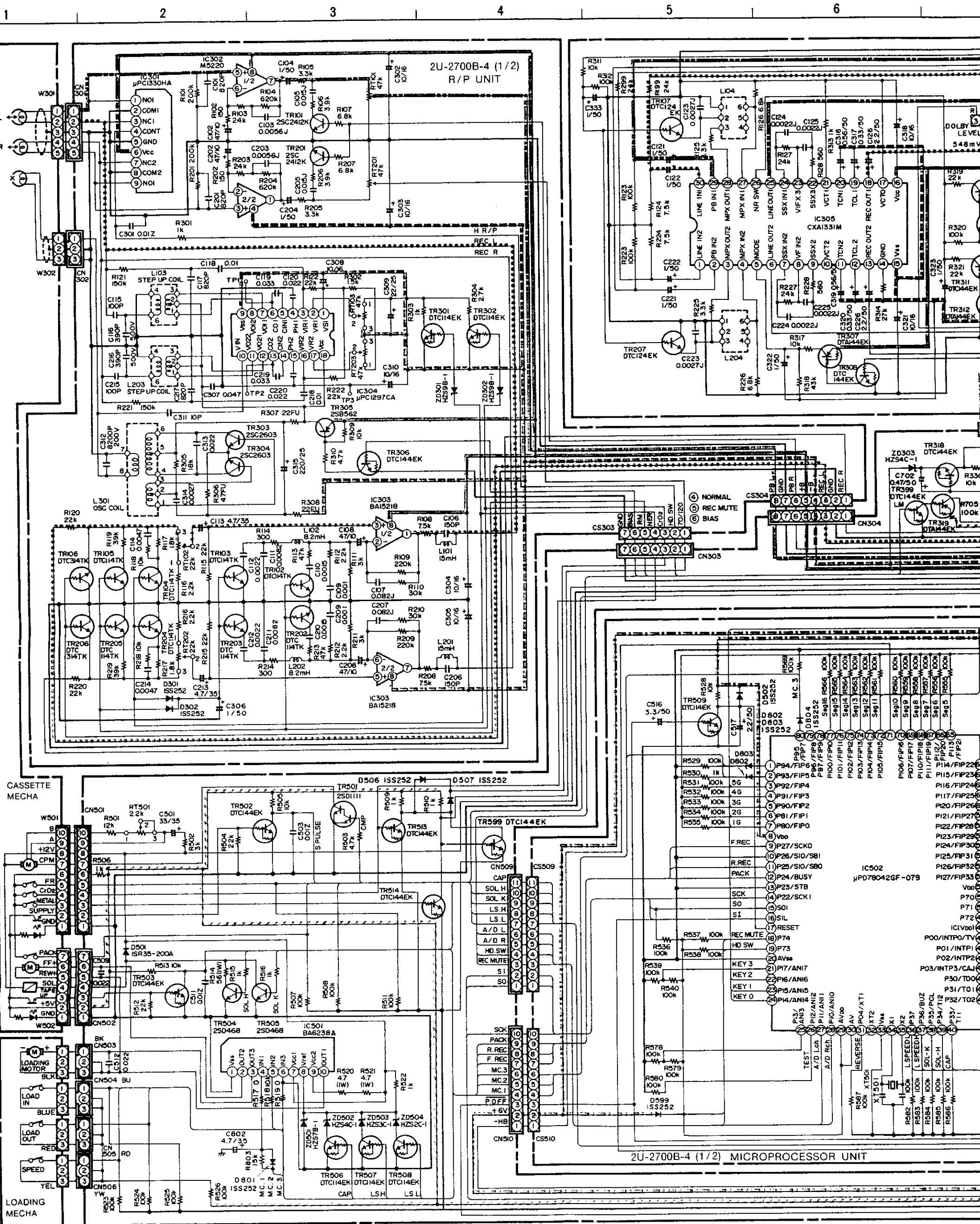
CASSETTE DECK SECTION

WIRING DIAGRAM





SCHEMATIC DIAGRAM



- - - - - PE LINE  
 ..... REC MUTE  
 - - - - - +5V LINE

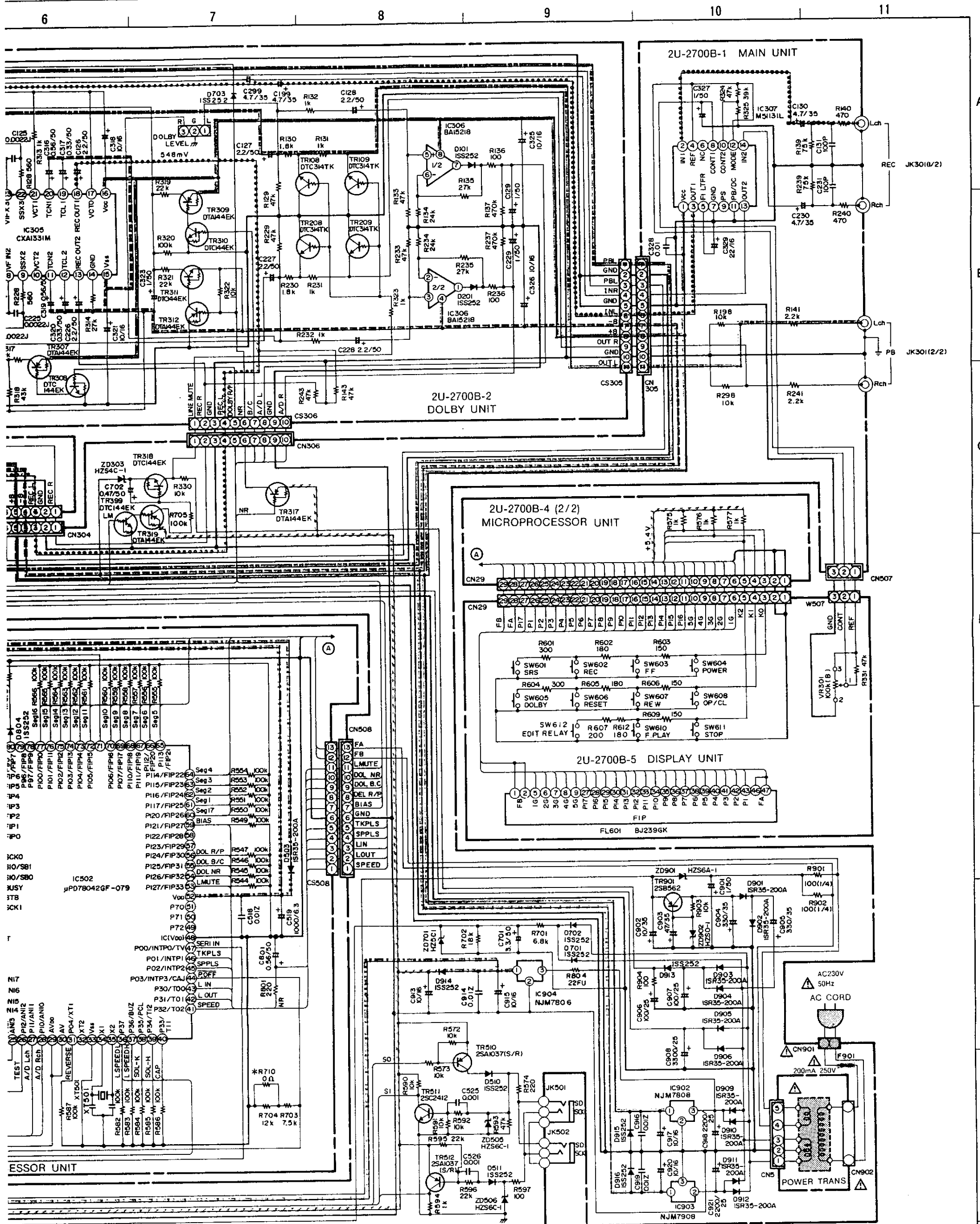
**CAUTION:**  
 Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamperes, or if the resistance from chassis to either side of the power cord is less than 240 Kohms, the unit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

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

\* 0Ω is erased only when using the R710 WAITAMU microcomputer. (μP78P044)

CASSETTE DECK SECTION

SCHEMATIC DIAGRAM



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

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

1) a leakage current check or (2) a line to chassis resistance check. If the resistance to either side of the power cord is less than 240 Kohms, the unit is defective.

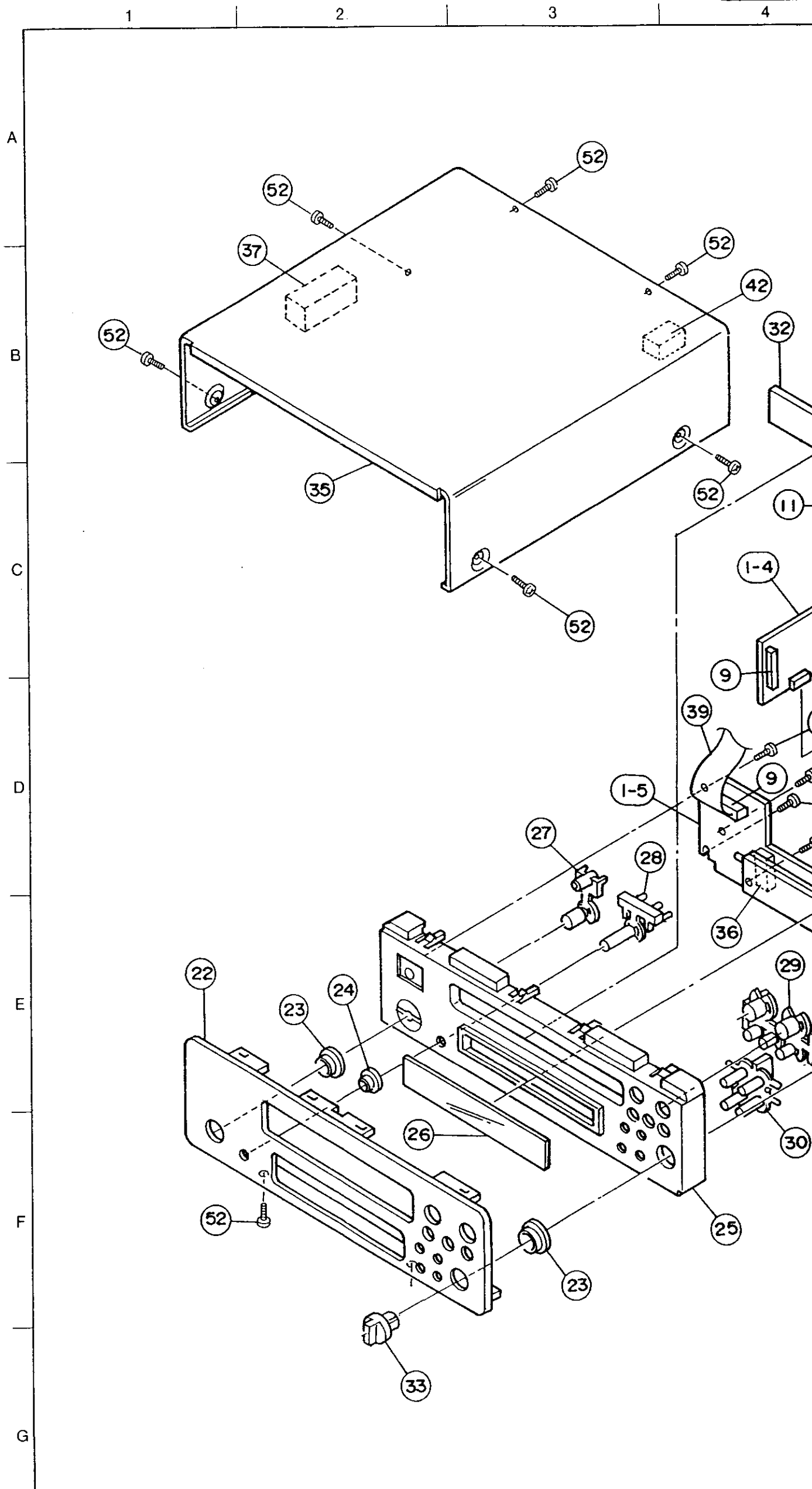


CASSETTE DECK SECTION

EXPLODED

PARTS LIST OF UDR-F10 EXPLODED VIEW

| Ref. No.  | Part No.     | Part Name                  | Remarks             | Qty            |
|---|--------------|----------------------------|---------------------|----------------|
| 1   | 2U- 2700 B   | Deck Unit Assy             |                     | 1 <sup>S</sup> |
| 1-1   | —            | Main Unit                  |                     | (1)            |
| 1-2   | —            | Dolby Unit                 |                     | (1)            |
| 1-3   | —            | Rec/PB Unit                |                     | (1)            |
| 1-4   | —            | Microprocessor Unit        |                     | (1)            |
| 1-5   | —            | Display Unit               |                     | (1)            |
| 2   | 211 0824 006 | Variable Resistor 100k ohm | VR301               | 1              |
| 3   | 204 8421 005 | Mini Jack                  | JK501,502           | 2              |
| 4   | 204 8266 008 | 4P Pin Jack (S-GND)        | JK301               | 1              |
| 5   | 254 4256 091 | Chemicon 2200µF/25V        | C918,921            | 2              |
| 6   | 254 4257 003 | Chemicon 3300µF/25V        | C908                | 1              |
| 7   | 254 4250 068 | Chemicon 1000µF/6.3V       | C519                | 1              |
| 8   | 393 8014 000 | F.L. Tube BJ239GK          | FL601               | 1              |
| 9   | 205 0736 034 | 29P FFC Conn. Base         | CN029,029           | 2              |
| 10  | 411 1224 328 | Main Chassis               |                     | 1              |
| 11  | 412 9373 009 | Mech. Holder (Deck)        |                     | 1              |
| 12  | GEN 2798     | Foot Ass'y                 |                     | 4              |
| 13  | 105 9237 124 | Rear Panel (Deck)          |                     | 1              |
| 14  | 206 2063 009 | AC Cord with Plug          |                     | 1              |
| 15  | 445 0056 008 | Cord Bush                  |                     | 1              |
| 16  | 233 6095 004 | Power Trans. (Deck)        |                     | 1              |
| 17  | 412 3548 005 | P.W.B. Catcher             |                     | 3              |
| 18  | —            | —                          |                     | —              |
| 19  | 412 9371 001 | Spring Plate               |                     | 1              |
| 20  | 412 9372 000 | P.W.B. Bracket (A)         |                     | 1              |
| 21  | GEN 2862     | Cassette Mech. Unit Ass'y  |                     | 1 <sup>S</sup> |
| 22  | 144 9188 016 | Front Panel (Deck)         |                     | 1              |
| 23  | 146 9294 100 | Knob Ring (A)              |                     | 2              |
| 24  | 146 9295 109 | Knob Ring (B)              |                     | 1              |
| 25  | 146 9286 309 | Inner Panel (Deck)         |                     | 1              |
| 26  | 143 0872 001 | Window                     |                     | 1              |
| 27  | 113 1654 104 | Power Button Ass'y         |                     | 1              |
| 28  | 113 1656 005 | Tact Button (1 Key)        |                     | 1              |
| 29  | 113 9276 102 | Button (5 Key)             |                     | 1              |
| 30  | 113 9277 101 | Button (4 Key)             |                     | 1              |
| 31  | —            | —                          |                     | —              |
| 32  | 146 9288 006 | Loader Panel (Deck)        |                     | 1              |
| 33  | 112 9100 000 | Knob (Fuji)                |                     | 1              |
| 34  | 445 0033 005 | Wire Clamp Band            |                     | 3              |
| 35  | 102 0545 117 | Top Cover                  |                     | 1              |
| 36  | 461 0866 009 | Rubber Sheet               | Put on Display Unit | 2              |
| 37  | 461 0665 035 | Rubber Sheet               | Put on Top Cover    | 1              |
| 38  | 513 2243 002 | Rating Sheet               |                     | 1              |
| 39  | 009 0101 003 | 29P FF Cable               |                     | 1              |
| 40  | 462 0136 004 | Washer                     | Put on Inner Panel  | 2              |
| 41  | 415 0730 006 | UL Tube (4.8,3) Black      |                     | 1              |
| 42  | 461 0861 004 | Rubber Sheet               | Put on T. cover     | 1              |
| 43  | 461 0860 005 | Spacer                     | for AC 1            | 1              |
| 44  | 206 1029 002 | Fuse 0.2A T                | F90                 | 1              |
| 45  | —            | —                          |                     | —              |
| 46  | —            | —                          |                     | —              |
| <b>SCREWS</b>   |              |                            |                     |                |
| 51  | 473 7002 018 | Tapping Screw (S) 3×8      |                     | 11             |
| 52  | 473 7015 018 | Tapping Screw (S) 3×8      | Black               | 18             |
| 53  | 473 7508 046 | Tapping Screw (P) 3×16     | Black               | 2              |
| 54  | 477 0064 107 | Fixing Screw               | Black               | 1              |
| 55  | 473 7505 007 | Tapping Screw (P) 2.6×8    |                     | 8              |
| 56  | 473 7500 015 | Tapping Screw (P) 3×8      |                     | 2              |
| 57  | 473 7007 000 | Tapping Screw (S) 4×8      | Black               | 4              |
| 58  | —            | —                          |                     | —              |
| 59  | —            | —                          |                     | —              |
| <b>PACKING &amp; ACCESSORIES (Not included EXPLODED VIEW)</b> |              |                            |                     |                |
| 101   | 505 0102 089 | Stylen Paper               | 700×700             | 1              |
| 102   | 503 1077 104 | Cushion                    |                     | 1              |
| 103   | GEN 2744     | Envelope Sub. Ass'y        |                     | 1 <sup>S</sup> |
| 103-1   | 505 8006 019 | Envelope                   |                     | (1)            |
| 103-2   | 203 2223 002 | 2P Pin Cord                | L=1000              | (2)            |
| 103-3   | 203 2315 004 | Stereo Miniplug Cord       | L=500               | (1)            |
| 103-4   | 511 2651 009 | Inst. Sheet                |                     | (1)            |
| 104   | 503 1075 203 | Top Cushion                |                     | (1)            |
| 105   | 501 1780 013 | Carton Case                |                     | 1              |



NOTE ON PARTS LIST

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- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

WARNING:

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EXPLODED VIEW

3

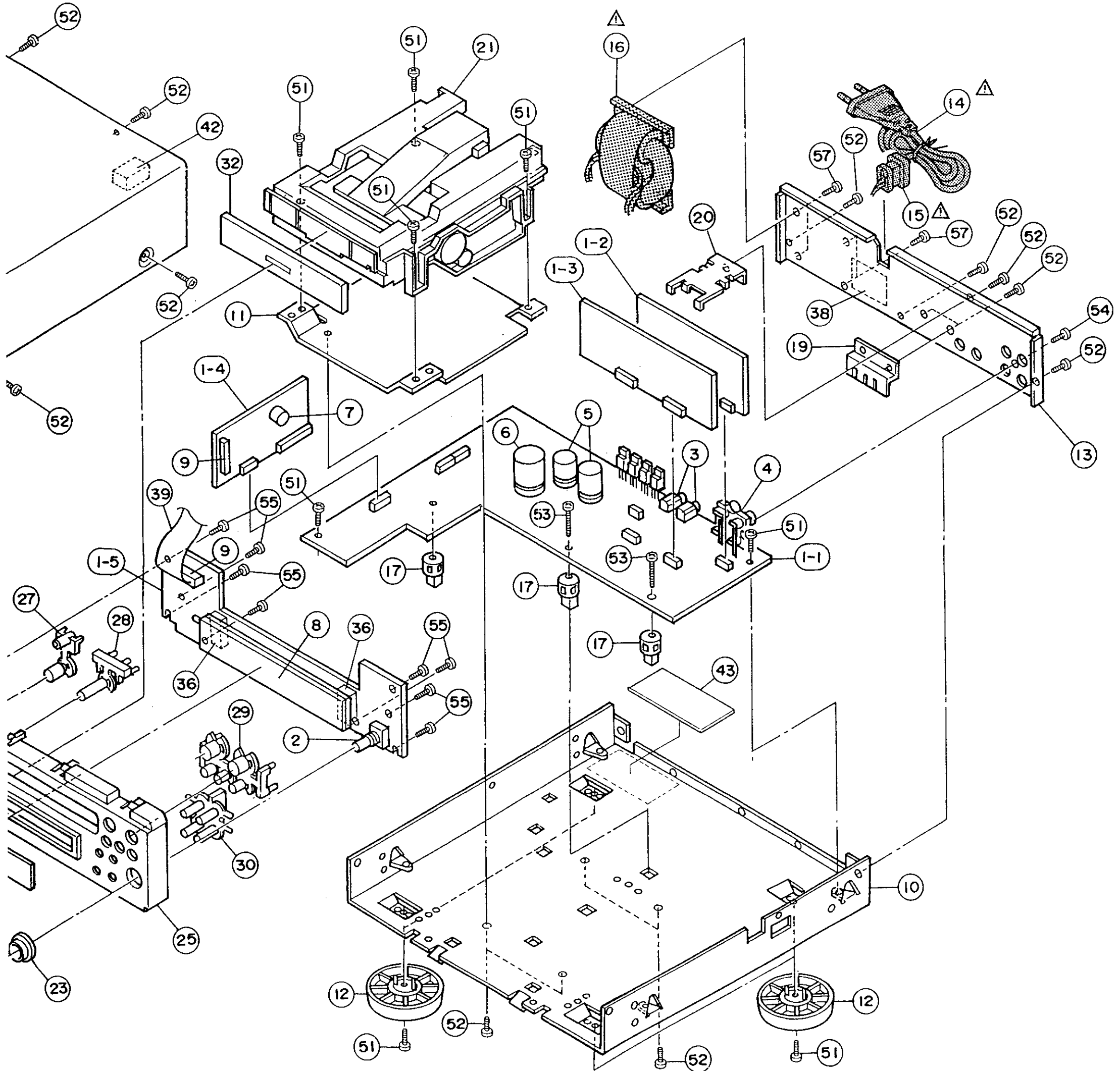
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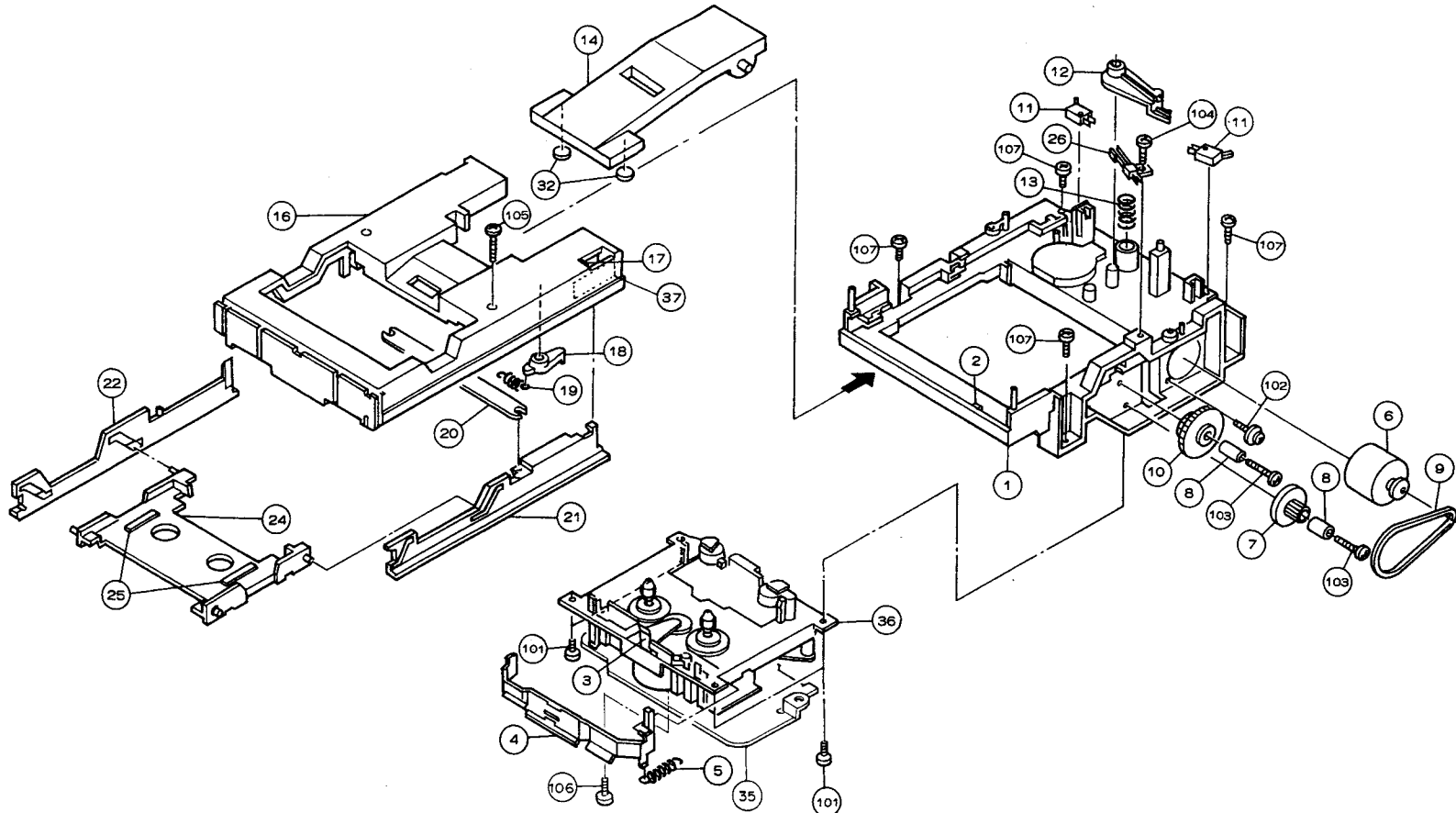
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CASSETTE DECK SECTION

CASSETTE MECHANISM EXPLODED VIEW



GEN 2862 CASSETTE MECHANISM PARTS LIST

| Ref. No.      | Part No.     | Part Name               | Remarks               | Qty             | Ref. No. | Part No.     | Part Name                | Remarks | Qty             | Ref. No. | Part No.     | Part Name                | Remarks       | Qty |
|---------------|--------------|-------------------------|-----------------------|-----------------|----------|--------------|--------------------------|---------|-----------------|----------|--------------|--------------------------|---------------|-----|
| ● 1           | 411 0987 718 | Mech. Base              |                       | 1               | 16       | 431 0295 307 | Loader Frame             |         | 1               | 103      | 473 3808 009 | Tapping Screw (1) 3×25   |               | 2   |
| 2             | 461 0581 012 | Pad                     |                       | 1               | 17       | 461 0581 009 | Pad                      |         | 1               | 104      | 473 7505 007 | Tapping Screw (P) 2.8×8  |               | 3   |
| 3             | 463 0683 004 | Cassette Spring         |                       | 1               | 18       | 424 0158 103 | Stopper Cam              |         | 1               | 105      | 473 7501 014 | Tapping Screw (P) 3×14   |               | 1   |
| ● 4           | 412 3082 309 | Lever Plate Ass'y       |                       | 1               | 19       | 463 0647 004 | Stopper Cam Spring       |         | 1               | 106      | 473 4001 009 | Tapping Screw (S) 2.6×25 | with s/washer | 1   |
| 5             | 463 0646 005 | Lever Plate Spring      |                       | 1               | ● 20     | 412 3084 200 | Cam Plate                |         | 1               | 107      | 473 7002 018 | Tapping Screw (S) 3×8    |               | 4   |
| ● ★ 4         | GEN1162      | Loading Motor Ass'y     |                       | 1               | 21       | 424 0157 502 | Slide Cam (R)            |         | 1               |          |              |                          |               |     |
| 6             | 424 0130 008 | Pulley Gear             |                       | 1               | 22       | 424 0156 105 | Slide Cam (L)            |         | 1               |          |              |                          |               |     |
| 8             | 443 0999 004 | Collar                  |                       | 2               | ● ★ 23   | GEN1311      | Cassette Tray Sub. Ass'y |         | 1 <sup>15</sup> |          |              |                          |               |     |
| 9             | 423 0050 004 | Belt                    |                       | 1               | 24       | 431 0296 306 | Cassette Tray            |         | 1               |          |              |                          |               |     |
| 10            | 424 0131 007 | Gear                    |                       | 1               | 25       | 461 0593 000 | Tray Pad                 |         | 2               |          |              |                          |               |     |
| 11            | 212 4650 004 | Leaf Switch             |                       | 2               | 26       | 212 6011 007 | Leaf Switch              |         | 1               |          |              |                          |               |     |
| 12            | 424 0155 203 | Clamper Cam             |                       | 1               | ★ 27     | 203 0288 007 | 1P Contact Ass'y         |         | 1               |          |              |                          |               |     |
| 13            | 463 0644 007 | Clamper Spring          |                       | 1               | ● 28     | -            | -                        |         | 1               |          |              |                          |               |     |
| 14            | 433 0553 508 | Clamper Arm             |                       | 1               | ● 29     | 203 4508 000 | 3P PH Conn. Cord (Blue)  |         | 1               |          |              |                          |               |     |
| ● ★ 15        | GEN1161      | Loader Frame Sub. Ass'y |                       | 1 <sup>15</sup> | ★ 30     | 203 4434 008 | 3P PH Conn. Cord (Red)   |         | 1               |          |              |                          |               |     |
| <b>SCREWS</b> |              |                         |                       |                 |          |              |                          |         |                 |          |              |                          |               |     |
|               | 101          | 473 7500 015            | Tapping Screw (P) 3×8 |                 | 4        |              |                          |         |                 |          |              |                          |               |     |
|               | 102          | 477 0262 019            | Special Screw         |                 | 1        |              |                          |         |                 |          |              |                          |               |     |

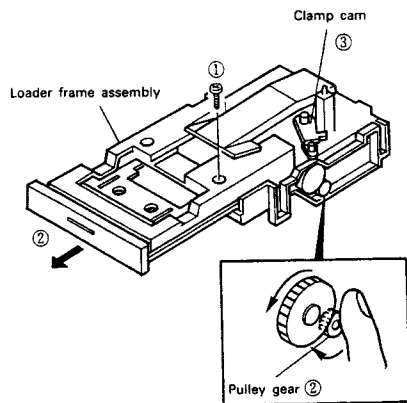
**CASSETTE DECK SECTION**

**DISASSEMBLY PROCEDURE**

(Assembly is performed in the reverse order.)

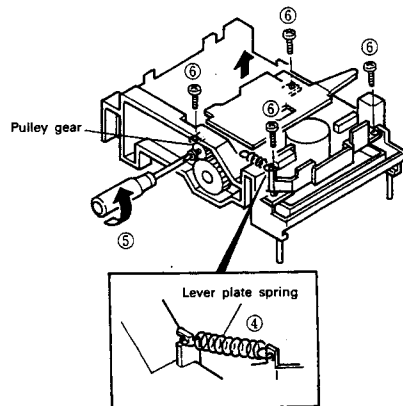
**1. Removing the loader frame assembly**

- ① Remove the screws attached to the loader frame assembly.
- ② Turn the pulley gear in the direction of the arrow, then pull the loader frame assembly toward you.
- ③ To install the loader frame assembly, the clamp cam must be in the position shown on the diagram.



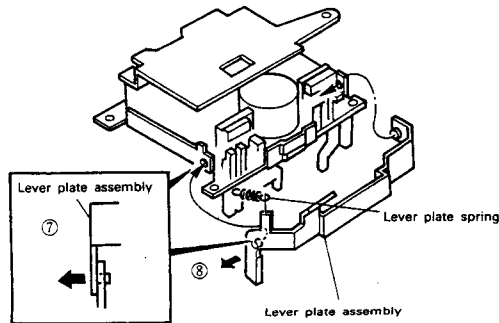
**2. Removing the cassette mechanism**

- ④ Remove the lever plate spring.
- ⑤ Loosen the pulley gear's screw to the position shown in the diagram.
- ⑥ Remove the four screws attaching the cassette mechanism, then remove the mechanism in the direction of the arrow.



**3. Removing the lever plate assembly**

- ⑦ Remove the lever plate spring.
- ⑧ Remove the lever plate assembly in the direction of the arrow.



**CASSETTE MECHANISM PARTS LIST**  
(Parts No.: 338 0175 005)

| Ref. No. | Part No.     | Part Name               | Remarks  | Qty              |
|----------|--------------|-------------------------|----------|------------------|
| 2        | 9DF 5115 99  | Chassis Assy            |          | 1 <sup>5</sup>   |
| 2- 1     | 9DF 5170 49  | Gear Assy               |          | (1)              |
| 2- 4     | 9DF 6230 37  | Reel Base (F) Assy      |          | (1)              |
| 2- 5     | 9DF 6231 27  | Reel Base (R) Assy      |          | (1)              |
| 2- 8     | 9DF J111 17  | Washer 1.7×0.25         |          | (2)              |
| 2-11     | 9DU J12V 11  | W. Poly Washer 2.1×0.25 |          | (2) <sup>5</sup> |
| 3        | 9DF 5137 22  | Plate HD Assy           |          | 1 <sup>5</sup>   |
| 3- 4     | 9DF 045T 17  | Head Base               |          | (1)              |
| 3- 5     | 9DF G137 18  | Screw                   |          | (1)              |
| 3- 7     | 9DF K21U 11  | HB Spring               |          | (1)              |
| 3- 8     | 9DF K26N 14  | Spring                  |          | (1)              |
| 3- 9     | 9DF U15R 11  | Rec/PB Head             |          | (1)              |
| 3-10     | 9DF U192 11  | Erase Head              |          | (1)              |
| 3-11     | 9DWH55L 04A  | RE/Head Wire Assy       |          | (1)              |
| 3-12     | 9DWH63P 04   | E/Head Wire Assy        |          | (1)              |
| 4        | 9DF 5253 00  | MTR Main Assy           |          | 1 <sup>5</sup>   |
| 5        | 9DF 5675 52  | Control Unit Assy       |          | 1 <sup>5</sup>   |
| 5-13     | 9DA W13G00   | Reel Sensor             | SG-107F3 | (1)              |
| 5-17     | 9DU E16E 11  | Push Switch             |          | (5)              |
| 8        | 9DF C52H 61  | Cassette Spring         |          | 1                |
| 12       | 9DF D45G 21  | Play Arm                |          | 1                |
| 14       | 9DF D45B 16  | Cam Gear (3R)           |          | 1                |
| 15       | 9DF D44T 14  | REC Sensor Lever        |          | 3                |
| 16       | 9DF D46L 11  | PACK Sensor Lever       |          | 1                |
| 17       | 9DF D44V 12  | METAL Sensor Lever      |          | 1                |
| 18       | 9DF F17W 31  | Main Belt               |          | 1                |
| 20       | 9DF J111 30  | Poly Washer 2.6×0.25    |          | 2                |
| 23       | 9DF J111 14  | Poly Washer 2.6×0.5     |          | 2                |
| 26       | 9DF K28R 12  | Slide Spring            |          | 1                |
| 29       | 9DF R23S 12  | Fly Wheel Assy          |          | 1                |
| 30       | —            | —                       |          | —                |
| 31       | 9DF R20L 22  | Pinch Roller Assy (R)   |          | 1                |
| 32       | —            | —                       |          | —                |
| 36       | 9DU G12H 14  | Screw 2.6×8             |          | 1                |
| 39       | 9DU G13U 15  | E Ring                  |          | 2                |
| 40       | 9DU G20B 11  | Screw                   |          | 1                |
| 41       | 9DF 5642 80  | MTR Reel Assy           |          | 1                |
| 42       | 9DF G156 11A | Screw 2.6×6.4           |          | 2                |
| 51       | 9DF 7652 63  | Solenoid Assy           |          | 1                |
| 52       | 9DF L39H 12A | Iron Core               |          | 1                |
| 53       | 9DF L39K 12  | Plunger                 |          | 1                |

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**WARNING:**

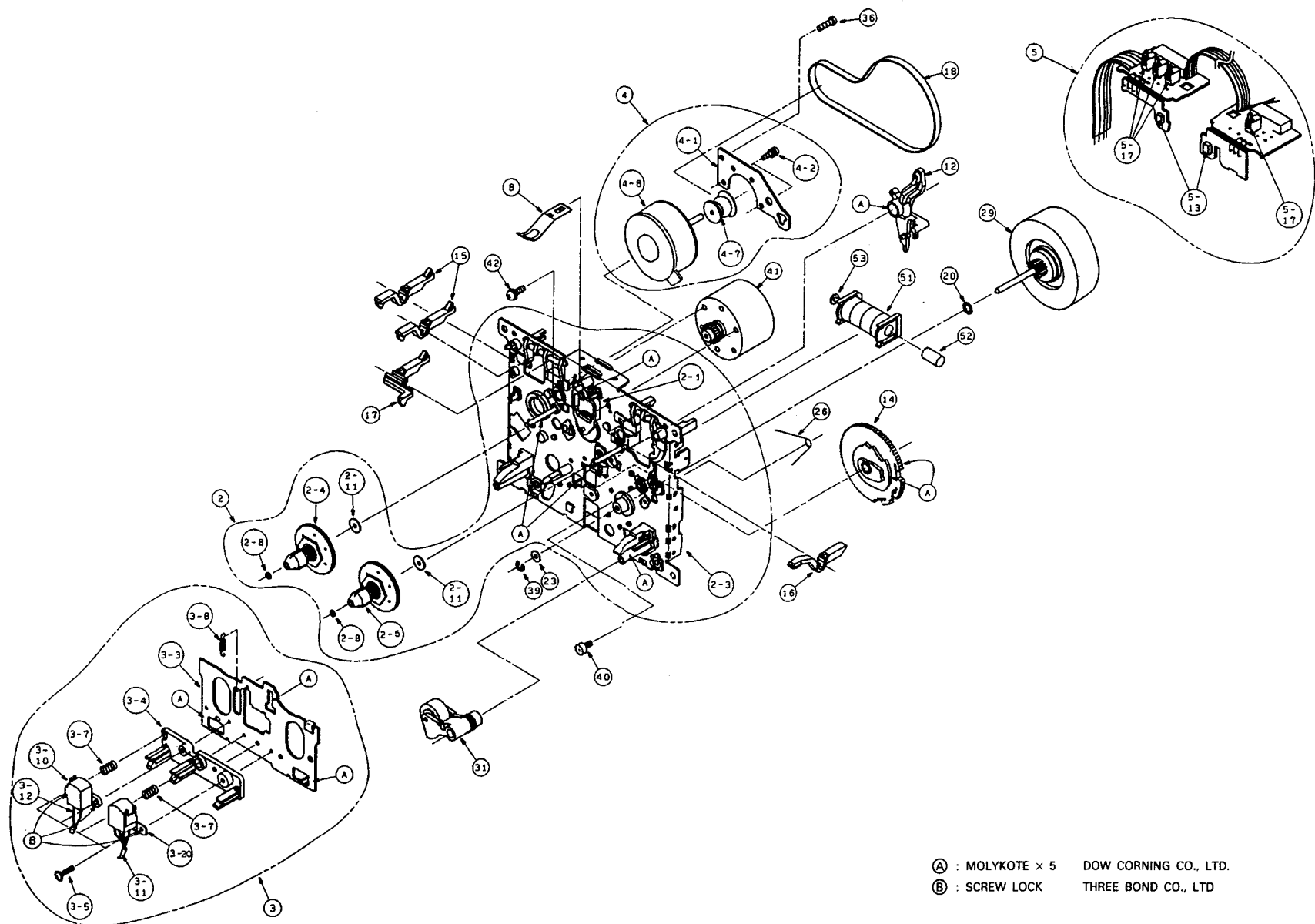
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CASSETTE MECHANISM

Part No. : 338 0175 005

CASSETTE DECK SECTION

1 2 3 4 5 6 7 8

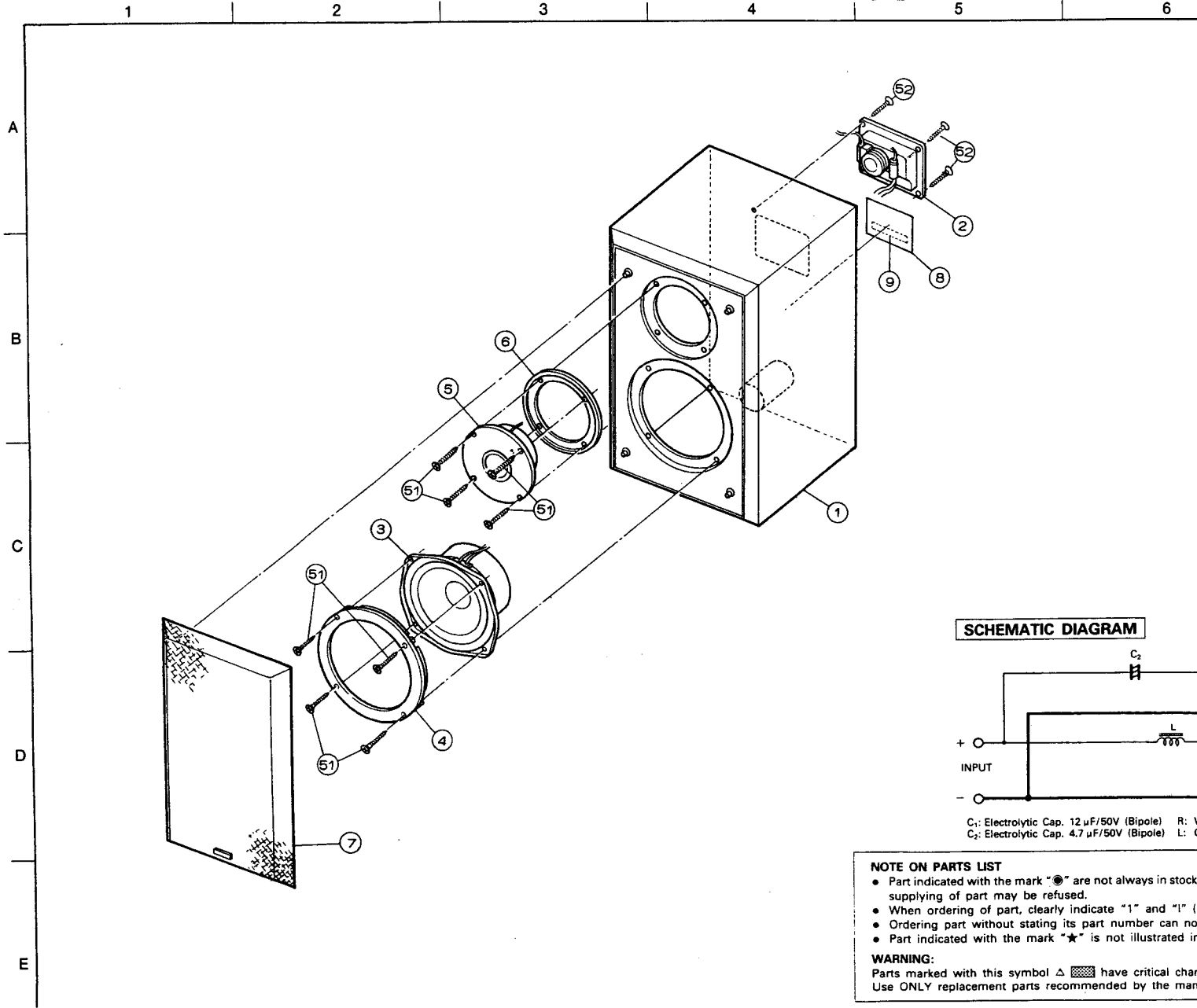


- (A) : MOLYKOTE x 5      DOW CORNING CO., LTD.
- (B) : SCREW LOCK      THREE BOND CO., LTD

A  
B  
C  
D  
E

**SPEAKER SYSTEM**

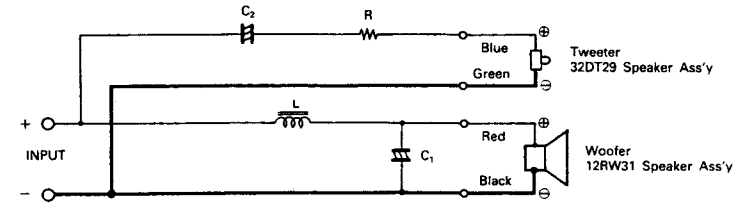
**EXPLODED VIEW**



**PARTS LIST OF SC-F10 EXPLODED VIEW**

| Ref. No.                                       | Part No.     | Part Name                | Remarks            | Qty            |
|--|--------------|--------------------------|--------------------|----------------|
| ● 1  | SCF 1000 101 | Cabinet Sub. Ass'y       |                    | 2 <sup>S</sup> |
| ● 2  | SCF 1000 110 | :Network Ass'y           |                    | 2              |
| ● 3  | SCF 1000 109 | :12RW31 Speaker Ass'y    | Woofer             | 2              |
| ● 4  | SCF 1000 103 | :Woofer Ring             |                    | 2              |
| ● 5  | SCF 1000 108 | :32DT29 Speaker Ass'y    | Tweeter            | 2              |
| ● 6  | SCF 1000 104 | :Tweeter Ring            |                    | 8              |
| ● 7  | SCF 1000 102 | :Grille Board Ass'y      |                    | 2              |
| 8  | SCF 1000 118 | :Rating Sheet            |                    | 2              |
| 9  | SCF 1000 116 | :Serial No. Sheet        |                    | 2              |
| 10   |              |                          |                    |                |
| 11   |              |                          |                    |                |
| 12   |              |                          |                    |                |
| <b>SCREWS</b>                                  |              |                          |                    |                |
| 51   | SCF 1000 121 | F.H. Tapping Screw       |                    | 16             |
| 52   | SCF 1000 122 | F.H. Tapping Screw       |                    | 8              |
| 53   |              |                          |                    |                |
| 54   |              |                          |                    |                |
| <b>PACKING &amp; ACCESSORIES</b>               |              |                          |                    |                |
| 101  | SCF 1000 119 | Envelope Sub. Ass'y      | included S.P. Cord | 1 <sup>S</sup> |
| 101-1  | SCF 1000 111 | :Envelope                |                    | (1)            |
| 102  | SCF 1000 113 | :Cabinet Cover           |                    | 2              |
| ● 103  | SCF 1000 114 | :Cushion                 |                    | 2              |
| ● 104  | SCF 1000 112 | :Carton Case             |                    | 1              |
| 105  | SCF 1000 116 | :Serial No. Sheet        |                    | 1              |
| 106  |              |                          |                    |                |
| <b>NETWORK Ass'y (Parts No.: SCF 1000 110)</b> |              |                          |                    |                |
| 71   | —            | 2P Terminal Ass'y        |                    | 2              |
| 72   | —            | 1C Wire Ass'y (Red)      | L=270              | 2              |
| 73   | —            | 1C Wire Ass'y (Black)    | L=270              | 2              |
| 74   | —            | 1C Wire Ass'y (Blue)     | L=270              | 2              |
| 75   | —            | 1C Wire Ass'y (Green)    | L=270              | 2              |
| 76   | —            | Chemicon 12 $\mu$ F/50V  | C1 (Bipole)        | 2              |
| 77   | —            | Choke Coil 0.75mH        | L                  | 2              |
| 78   | —            | Resistor 1.5 ohm/5W      | R                  | 2              |
| 79   | —            | Chemicon 4.7 $\mu$ F/50V | C2 (Bipole)        | 2              |
| 80   |              |                          |                    | 2              |

**SCHEMATIC DIAGRAM**



C<sub>1</sub>: Electrolytic Cap. 12  $\mu$ F/50V (Bipole) R: Wire Wound Resistor 1.5ohm/5W  
 C<sub>2</sub>: Electrolytic Cap. 4.7  $\mu$ F/50V (Bipole) L: Choke Coil 0.75mH

**NOTE ON PARTS LIST**

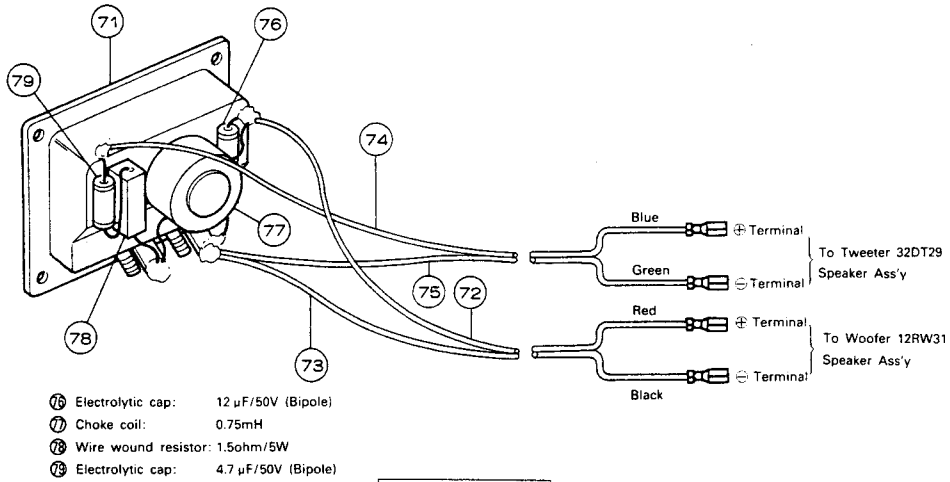
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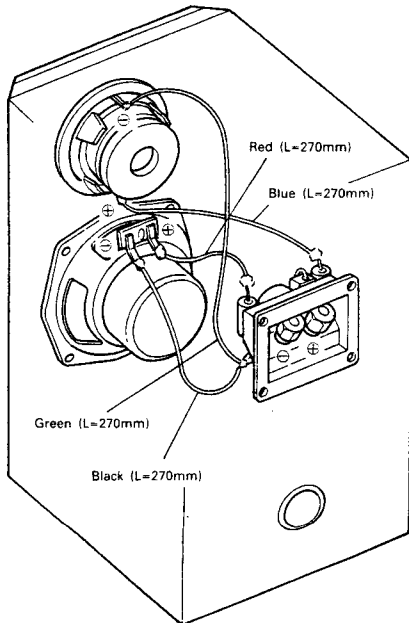
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**SPEAKER SYSTEM**

**NETWORK Ass'y**  
(SCF 1000 110)



**WIRE FORMING**



- ① Place so that the network assembly has the Red terminal ( + ) on the right side, then attach.
- ② For connections to the tweeter, connect the Blue lead to the ( + ) side (length = 270mm) and the Green lead (length = 270mm) to the ( - ) side.
- ③ For the connections to the woofer, connect the Red lead (length = 270mm) to the ( + ) side and the Black lead (length = 270mm) to the ( - ) side.