DENON

Hi-Fi AV Surround Receiver

SERVICE MANUAL

MODEL AVR-810/810G

AV SURROUND RECEIVER

CONTENTS

NIPPON COLUMBIA CO., LTD.

CAUTION

RISK OF ELECTRIC SHOCK

DO NOT OPEN

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

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

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

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION

TO PREVENT ELECTRIC SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.

ATTENTION

POUR PREVENIR LES CHOCS ELECTRIQUES NE PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.

IMPORTANT SAFEGUARDS

1. Read Instructions – All the safety and operating instructions should be read before the appliance is operated.

2. Retain Instructions – The safety and operating instructions should be retained for future reference.

3. Heed Warnings – All warnings on the appliance and in the operating instructions should be adhered to.

4. Follow Instructions – All operating and use instructions should be followed.

5. Cleaning – Unplug this video product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

6. Attachments – Do not use attachments not recommended by the video product manufacturer as they may cause hazards.

7. Water and Moisture – Do not use this video product near water – for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, and the like.

8. Accessories – Do not place this video product on an unstable cart, stand, tripod, bracket, or table. The video product may fall, causing serious injury to a child or adult, and serious damage to the appliance. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the video product. Any mounting of the appliance should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

8A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

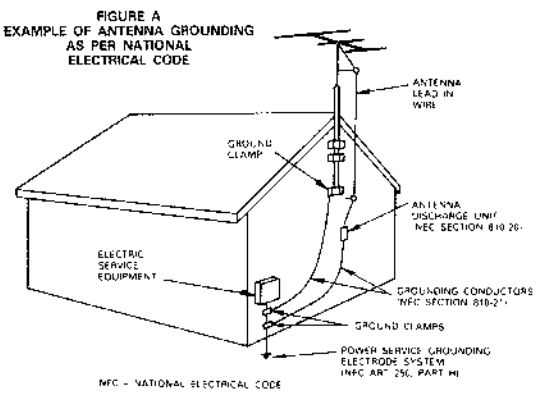
9. Ventilation – Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the video product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the video product on a bed, sofa, rug or other similar surface. This video product should never be placed near or over a radiator or heat register. This video product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhere to.

10. Power Sources – This video product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For video products intended to operate from battery power, or other sources, refer to the operating instructions.

11. Grounding or Polarization – This video product is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

12. Power-Cord Protection – Power-Supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

FIGURE A
EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE



13. Protective Attachment Plug – The appliance is equipped with an attachment plug having overload protection. This is a safety feature. See Instruction Manual for replacement or resetting of protective device. If replacement of the plug is required, be sure the service technician has used a replacement plug specified by the manufacturer that has the same overload protection as the original plug.

14. Outdoor Antenna Grounding – If an outside antenna or cable system is connectedto the video product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70–1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure A.

15. Lightning – For added protection for this video product receiver during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the video product due to lightning and power-line surges.

16. Power Lines – An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

17. Overloading – Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.

18. Object and Liquid Entry – Never push objects of any kind into this video product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind of the video product.

19. Servicing – Do not attempt to service this video product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

20. Damage Requiring Service – Unplug this video product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

    a. When the power-supply cord or plug is damaged.

    b. If liquid has been spilled, or objects have fallen into the video product.

    c. If the video product has been exposed to rain or water.

    d. If the video product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the video product to its normal operation.

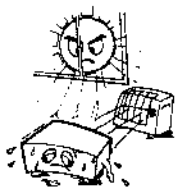
    e. If the video product has been dropped or the cabinet has been damaged.

    f. When the video product exhibits a distinct change in performance – this indicates a need for service.

21. Replacement Parts – When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

22. Safety Check – Upon completion of any service or repairs to this video product, ask the service technician to perform safety checks to determine that the video product is in proper operating condition.

NOTE ON USE

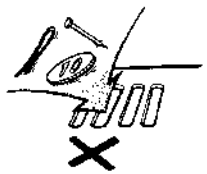


Be careful of high temperatures

- Do not place the set in a location where it will be exposed to direct sunlight or near a heating appliance.

Caution on rack/cabinet installation

- Avoid installing the set in a closed-type rack.
- When installing in a rack or cabinet, provide a sufficiently large ventilation opening to promote heat radiation.



Do not allow foreign matter into the equipment

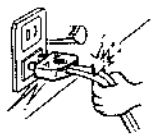
- Be especially careful of needles, hair pins, and coins getting into the set.

Caution on humidity, water, and dust

- Do not place the set in a location where there is high humidity or a lot of dust.
  Flower vases or other items containing water should not be placed on top of the set.

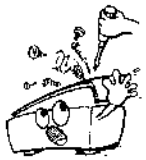
Care of the case

- Avoid the use of pesticides near the set as well as wiping the case with benzine, thinner or other solvents since they may cause a change in quality or color. Use a soft cloth when wiping away dirt and follow the instructions carefully when using chemically treated cloths.



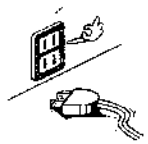
Care with the power cord

- When removing the plug from the receptacle, do not pull the power cord; be sure to hold the plug when removing it.



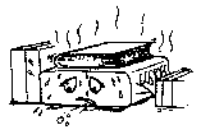
Do not open the case

- Opening the top cover or the bottom plate of the case and inserting your hand is dangerous. Do not open the case.
  If some trouble arises with the performance of the set, remove the power plug soon and contact the store where the set was purchased or a nearby dealer.



During your absence

- When not using the set for an extended period such as when taking a trip, be sure to disconnect the plug from the receptacle.



For sets with ventilation holes

Do not block the ventilation holes of the set

- Blocking of the ventilation holes will lead to damage of the set.
- The ventilation holes are very important for heat radiation from within the set. Care must be taken since placing an object against the holes will result in an extreme rise of temperature within the set.

- **Read this manual carefully to ensure that you take full advantage of all the features of this receiver. Keep the manual in a safe place for future reference.**
- **Be sure to check that the date of purchase and the store's name of purchase have been filled in properly on the warranty issued at your store of purchase.**

– CONTENTS –

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

①Operating Instructions 1
②Remote control unit (RC-139) 1
③Batteries (R6P/AA) 2
④AM loop antenna 1
⑤FM antenna adapter 1
⑥FM indoor antenna 1

1 BEFORE USING

Read the following cautions carefully before using the receiver:

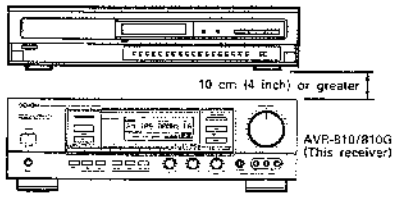
- Moving the set
  Be sure to unplug the power cord and disconnect other cords connecting the receiver to other audio units before moving the receiver to prevent damaging or short-circuiting the cords.
- Before turning on the power switch
  Check again to make sure that all connections are correct and that there are no problems with the connection cords. Be sure to turn the power OFF before disconnecting or connecting cords.
- Retain the operating instructions
  After reading this manual, store it in a safe place.
- The illustrations used in this manual may differ somewhat from the actual receiver.

2 INSTALLATION PRECAUTIONS

Using this receiver or other electronic equipment containing microprocessors simultaneously with a TV may result in noise in the sound or picture. If this should happen, take the following steps:

- Install the receiver as far as possible from the TV set.
- Keep the antenna lines of the TV as far as possible from the receiver's power cord and connection cables.
- This problem is especially frequent when using indoor antennas or 300 ohm feeder lines. We recommend using outdoor antennas and 75 ohm coaxial cables.

A note on stacking



For cooling purposes, do not place another AV component directly on top of the receiver. Be sure to leave a space of at least 10 cm (4 inch).

3 HANDLING PRECAUTIONS

- **Switching the input function when the input jacks are unconnected**
  Switching the input function when a component is not connected to the input jacks may result in the generation of click noise. If this should happen, turn down the MASTER VOLUME or connect a component to the input jacks.

- **Playback with Dolby Pro Logic**
  The Dolby Pro Logic position provides optimum effectiveness for sources recorded with Dolby Surround. A different surround mode should be selected when playing back sources other than this type. Note in particular that when playing back monaural recording sources, the bypass mode or the simulated mode should be used. Other modes will not provide a suitable effect.

- **Muting of the PRE OUT jacks**
  An electronic muting circuit has been connected to the PRE OUT jacks. This circuit greatly attenuates the output signal for approximately 7 seconds after the power has been switched on. Raising the volume during this operation will result in an extremely large output once the muting has ended, so volume adjustments should be made only after the completion of muting.

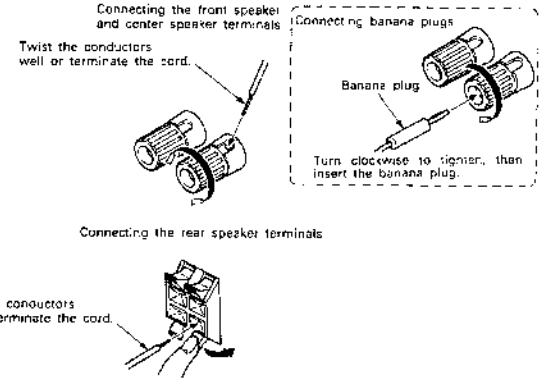
- **Rear output level while in the surround mode**
  The rear level will seem small for sources other than Dolby Surround sources. The reason for this is that a rear playback signal is not contained in the software. When playing back such software with a surround function, the mode should be set to something other than Dolby Pro Logic surround. The rear output level may seem small for software having a small rear signal, even Dolby Surround sources.

4 CONNECTIONS

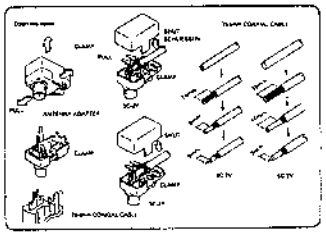
Speaker System Connections

- This receiver can accommodate connections of a total of five speakers including one set of front speakers, one set of rear speakers, and one center speaker.
- Connect the speaker terminals with the speakers making sure that like polarities are matched (⊖ with ⊕ ⊖ with ⊖). Mismatching of polarities will result in weak central sound, unclear orientation of the various instruments, and the sense of direction of the stereo being impaired.
- When making connections, take care that none of the individual conductors of the speaker cord come in contact with adjacent terminals, with other speaker cord conductors, or with the rear panel.
- **Speaker Impedance**
  - Speakers with an impedance of 6 to 12 ohms can be connected for use as front, center and rear speakers.
  - The protection circuit may operate or damage may occur when speakers with an impedance outside of the above range are used.

①Peel off the insulation from the tip of the cord
②Twist the conductors.
③Turn the speaker terminal counterclockwise to loosen it.
④Insert the exposed portion of wire completely and turn the terminal clockwise to tighten it.



Audio Section



Note to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

- Do not plug in the power cord until all connections have been completed.
- Be sure to connect the left and right channels properly (left with left, right with right).
- Insert the plugs securely. Incomplete connections will result in the generation of noise.
- **Use the AC OUTLETS for audio equipment only. Do not use them for hair driers, etc.**
- Note that binding pin plug cords together with power cords or placing them near a power transformer will result in the introduction of hum or other noise.
- **Precautions when connecting speakers**
  If a speaker is placed near a TV or video monitor, the colors on the screen may be disturbed by the speaker's magnetism. If this should happen, move the speaker away to a position where it does not have this effect.

FM INDOOR ANTENNA (An Accessory)

300 ohm ANTENNA

75 ohm ANTENNA

300 ohm

FEEDER

COAXIAL CABLE

AM OUTDOOR ANTENNA

Attach to the holder

AM LOOP ANTENNA

75 ohm COAXIAL CABLE

20 mm

7mm

NOTE:
When installing the AM loop antenna, be sure no metal parts are touching the top cover, as shown in the diagram.

Ground wire

Turntable (MM cartridge)

Connecting a turntable

Connect the turntable's output cord to the AVR-810/810G's PHONO jacks, the left plug in the L jack, the right plug in the R jack.
* If humming is produced when the ground wire is connected, disconnect it.

NOTE:
Turntables with MC cartridges cannot be played on this receiver. Use a separately sold head amplifier or a step-up transformer.

CD player

Connecting a CD player

Connect the CD player's analog output jacks to the AVR-810/810G's CD jacks, using pin-plug cords.

DAT (for recording and playback)

Connecting a DAT (Digital Audio Tape) recorder

Connections for recording: Connect the DAT's analog recording input jacks (LINE IN or REC) to the AVR-810/810G's tape recording jacks (OUTPUT) using pin-plug cords.
Connections for playback: Connect the DAT's analog playback output jacks (LINE OUT or PB) to the AVR-810/810G's tape playback jacks (INPUT) using pin-plug cords.

ANALOG OUTPUT

OUTPUT INPUTS

Tape deck 2

OUTPUT INPUTS

Connecting tape decks

Connections for recording: Connect the tape deck's recording input jacks (LINE IN or REC) to the AVR-810/810G's tape recording jacks (OUTPUT) using pin-plug cords.
Connections for playback: Connect the tape deck's playback output jacks (LINE OUT or PB) to the AVR-810/810G's tape playback jacks (INPUT) using pin-plug cords.

Center speaker

Power outlet
AC 120V, 60Hz
AC 110/220, 120/220V, 50/60Hz (Multiple)

AC OUTLETS

AC Outlets
These outlets are convenient for plugging in a TV tuner, turntable, tape deck, or some other component connected to the receiver.
- SWITCHED outlets (120W total capacity)
  The power of these outlets is switched on and off by the receiver's POWER switch.
  These outlets will also be switched on when the power is set to ON-STANDBY with the remote control. When the receiver is in the standby mode, the outlets will be switched off.

The polarities are indicated on the AVR-810/810G's power plug.
(Refer to the diagram at the right.)
When the polarities are indicated on the receiver or other audio component used with the AVR-810/810G, we recommend connecting the plug in such a way that the polarities are matched, or connecting the side on which the polarity is indicated (the white side of the AC cord) to the ground side (the larger hole) of the power outlet.

PRE OUT jacks

Use these jacks when using another pre-main amplifier or a separate amplifier.

Rear L

Rear R

Rear speaker system (surround)

Speaker system A

Front L

Front R

Connecting the speaker systems

Connect the speaker system from the left channel (as seen from the front) to the L terminals, the speaker system for the right channel to the R terminals.

- **MONO**
  There are two mono jacks. For connecting a super woofer with built-in amplifier (super woofer), etc.

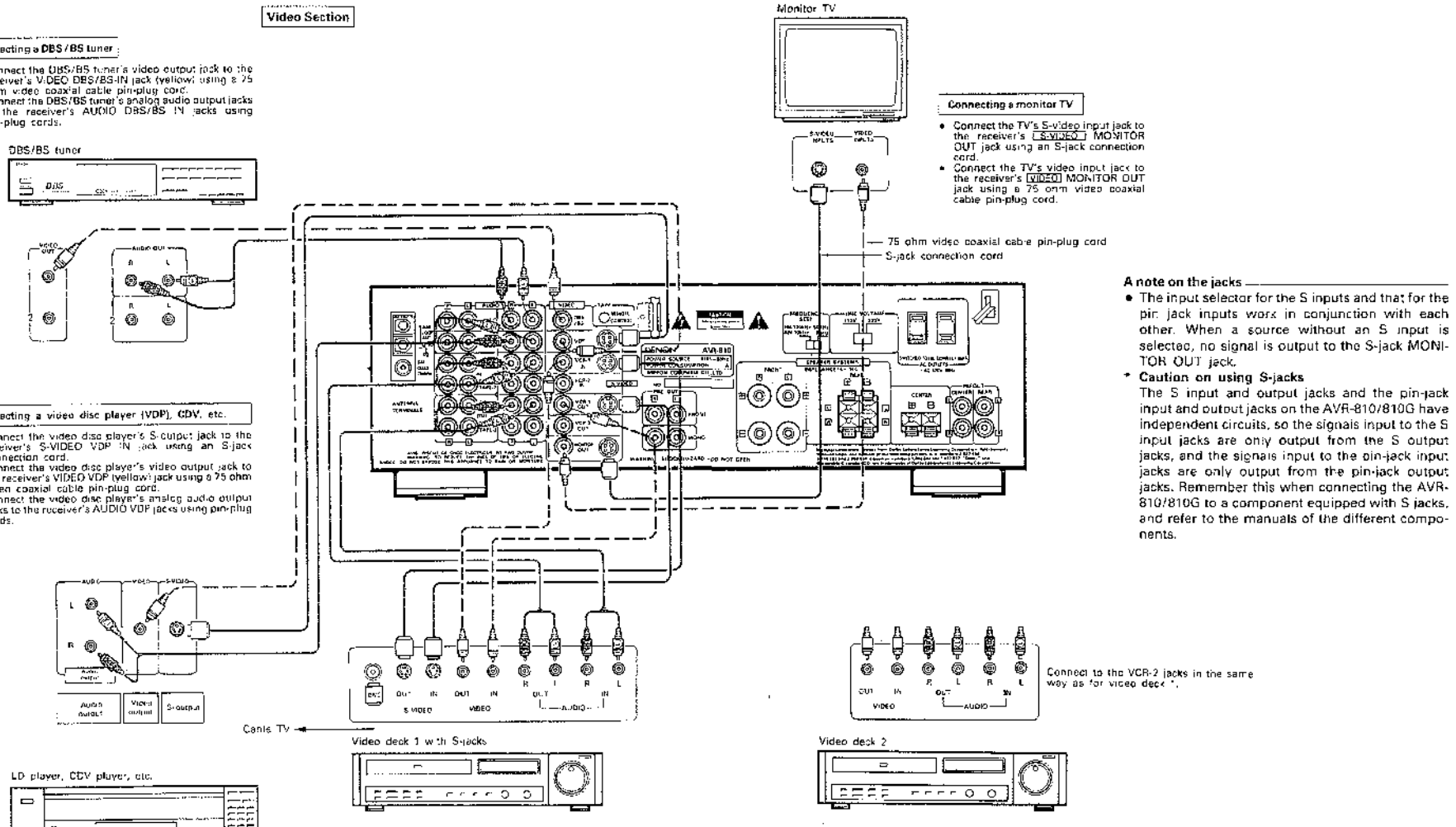
Front left speaker

Front right speaker

Pre-main (power) amplifier

Refer to Pages 10 and 11.

Video Section



Connecting a DBS / BS tuner

- Connect the DBS/BS tuner's video output jack to the receiver's VIDEO DBS/BS-IN jack (yellow) using a 75 ohm video coaxial cable pin-plug cord.
- Connect the DBS/BS tuner's analog audio output jacks to the receiver's AUDIO DBS/BS IN jacks using pin-plug cords.

Connecting a monitor TV

- Connect the TV's S-video input jack to the receiver's S-VIDEO MONITOR OUT jack using an S-jack connection cord.
- Connect the TV's video input jack to the receiver's VIDEO MONITOR OUT jack using a 75 ohm video coaxial cable pin-plug cord.

Connecting a video disc player (VDP), CDV, etc.

- Connect the video disc player's S-output jack to the receiver's S-VIDEO VDP IN jack using an S-jack connection cord.
- Connect the video disc player's video output jack to the receiver's VIDEO VDP (yellow) jack using a 75 ohm video coaxial cable pin-plug cord.
- Connect the video disc player's analog audio output jacks to the receiver's AUDIO VDP jacks using pin-plug cords.

The AVR-810/810G is equipped with VIDEO AUX jacks on the front panel for playback of video equipment. This makes it possible to connect video camcorders with playback functions as well as other equipment. The connections are the same as for a VDP.

Connecting video decks (VCR)

- There are two sets of VCR jacks, allowing connection of two video decks for simultaneous recording and video copying.

Connections for video input and output:
Connect the video deck's video output jack to the receiver's VCR-1 IN jack (yellow) and the video deck's video input jack to the receiver's VCR-1 OUT jack (yellow) using 75 ohm video coaxial cable pin-plug cords.

Connecting the S-jacks (VCR-1)
Connect the video deck's S-output jack to the receiver's S-VIDEO IN jack and the video deck's S-input jack to the receiver's S-VIDEO OUT jack using S-jack connection cords.

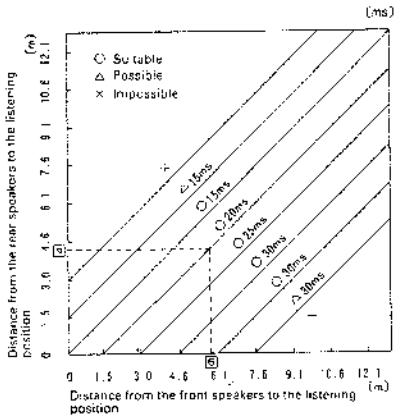
Connecting the audio input and output jacks
- Connect the video deck's audio output jacks to the receiver's AUDIO VCR-1 IN jacks and the video deck's audio input jacks to the receiver's AUDIO VCR-1 OUT jacks using pin-plug cords.
- A second video deck may be connected to the VCR-2 jacks in the same way.

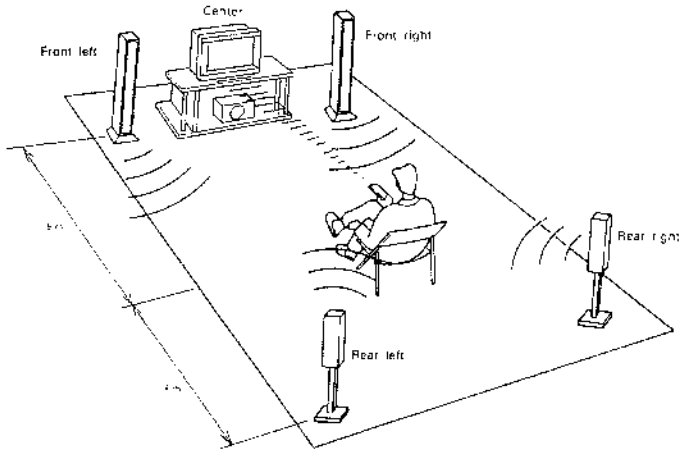
A note on the jacks
- The input selector for the S inputs and that for the pin jack inputs work in conjunction with each other. When a source without an S input is selected, no signal is output to the S-jack MONITOR OUT jack.
- **Caution on using S-jacks**
  The S input and output jacks and the pin-jack input and output jacks on the AVR-810/810G have independent circuits, so the signals input to the S input jacks are only output from the S output jacks, and the signals input to the pin-jack input jacks are only output from the pin-jack output jacks. Remember this when connecting the AVR-810/810G to a component equipped with S jacks, and refer to the manuals of the different components.

5 DOLBY PRO LOGIC SURROUND

- **Setting the delay time**
  The optimum delay time will differ depending on the listening position. Referring to the right chart, set the optimum delay time for your room's space and setting position. For example, when the distance from the front speakers to the listening position is 6 m and that from the rear speakers to the listening position is 4 m, the optimum delay time will be 20 ms.

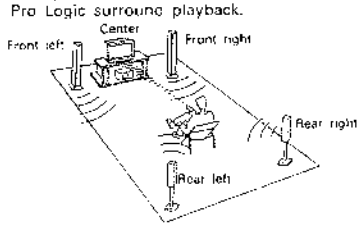
Listening position and optimum delay time for playback with Dolby Pro Logic surround





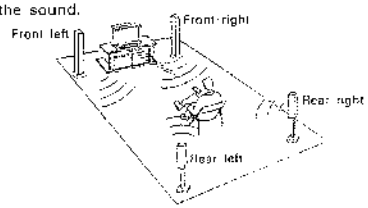
- **Adjustment of the Input Balance**
  This unit is equipped with an auto input balance circuit which makes the need for adjustment of input balance unnecessary.
  The AUTO BALANCE indicator in the display will light up when the auto input balance operation is active.

- **Speaker arrangement**
  Ideally, center speakers should be used for Dolby Pro Logic surround playback.



NORMAL mode

Normal mode: This mode is suited for an arrangement in which the center channel speakers are smaller than the left and right speakers. Signals below 100 Hz which have almost no effect on directional orientation are distributed to the left and right channels, whereas the center channel outputs signals greater than 100 Hz. The bass of the left and right channels increases the apparent deepness of the sound.



PHANTOM mode

Phantom mode: Use this mode when center channel speakers are not used. A directional emphasis circuit provides signal reproduction which is electrically oriented to the center and this achieves an effect which is extremely close to that of five-channel reproduction although there are four channels.

- **Test tone**
  The test tone function is used to generate a test signal for adjusting the level of each channel in the Dolby Pro Logic surround mode.
  Before using Dolby Pro Logic surround, arrange the speakers as illustrated above and follow the procedure given here. Using the test tone, set the optimum volume balance for each speaker and set the volume and other controls so that each speaker can be heard at the same level.
  In the normal and wide modes the test tone is provided as the speakers are switched in the following order:

Front left → Center → Front right → Rear

Use this signal to adjust the volume balance and set an optimum balance.
In the phantom mode the test tone is provided as the speakers are switched in the following order

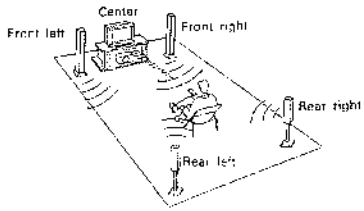
Front left → Front left and right → Front right → Rear

In the 3-channel logic mode the test tone is provided as the speakers are switched in the following order:

Front left → Center → Front right

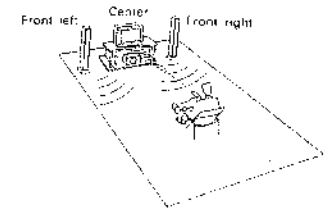
Note that this receiver provides the test tone at 4-second intervals for the first two cycles and for 2-second intervals thereafter.

Adjustment of the test tone should be made with the remote control unit (RC-1391.



WIDE mode

Wide mode: This mode is suited for an arrangement in which the center channel speakers are of the same grade as the left and right speakers. The entire sound band from low to high frequencies is output to the center channel to provide an exciting sound field for your enjoyment.

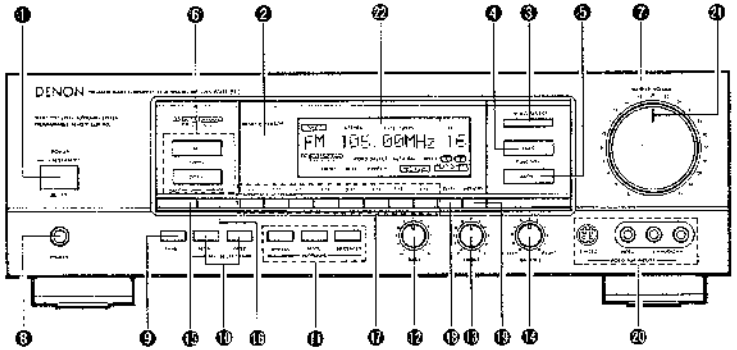


3-CH LOGIC

3-channel logic mode: Use this mode when rear channel speakers are not used. The rear channel information is fed to the front speakers to provide the surround effect.

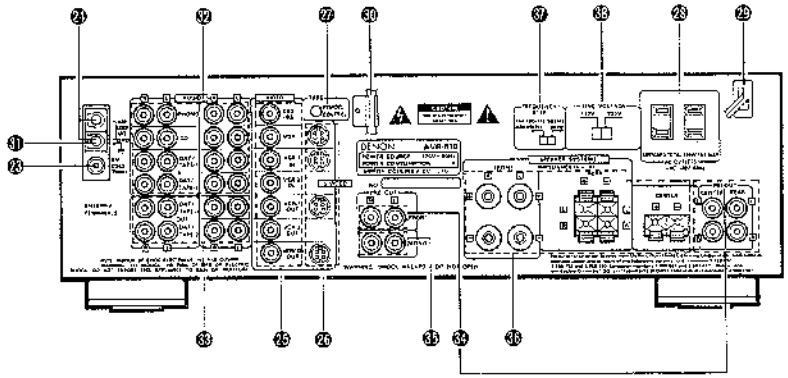
6 PART NAMES AND FUNCTIONS

Front panel



㉒ MULTI FUNCTION DISPLAY

Rear panel



❶ **POWER switch**

⏻ ON/STANDBY

In this position, the power is on and the MASTER VOLUME LED is flashing.

Several seconds are required after the power is turned on before the set will operate (the LED stops flashing and remains lit). This is because a built-in muting circuit is activated to prevent noise when the power switch is turned on and off.

Set the switch to this position when using the included remote control unit (RC-139) to turn the power on and off.

OFF

In this position, the power and the LED are off. The power cannot be turned on and off with the remote control unit when the switch is in this position.

❷ **REMOTE SENSOR**

This is the sensor of the wireless remote control unit.

Point the wireless remote control unit (RC-139) at this sensor when operating it.

❸ **VIDEO SELECT**

(Independent switching button for the video signal)

This button is used to switch the video signals independently of the audio signals.

Holding this button down will cause the video input signals to be switched in the order shown below. When the desired video input signal is displayed on the (FLD) multi-function display, remove your finger from the button. Now, even if the AUDIO FUNCTION selector ❺ is switched, the video signal will not change.

To cancel this condition, press the VIDEO SELECT button again or press the VIDEO FUNCTION selector ❹.

DBS/BS → VCR-1 → VCR-2 → V. AUX

❹ **VIDEO FUNCTION Selector**

(Video input signal switching button)

This button is used for the input positions which have video input signals.

Pressing this button repeatedly or holding it down steadily will switch the input positions in the following sequence.

DBS/BS → VCR-1 → VCR-2 → V. AUX

❺ **AUDIO FUNCTION Selector**

(Audio input signal switching button)

This button is used for switching the audio input positions.

Pressing this button repeatedly or holding it down steadily will switch the input positions in the following sequence.

PHONO → CD → TUNER → DAT/TAPE-1 → DAT/TAPE-2

❻ **TUNING (Tuning Buttons)**

Press these buttons to tune in a station. In the MANUAL TUNING mode, each press of the buttons will change the frequency in 100 kHz (or 50 kHz, Asia Model only) steps on FM and 10 kHz (or 9 kHz, Asia Model only) steps on AM. Keeping one of these buttons pressed, the frequency will change until the button is released.

During the AUTO TUNING mode, pressing one of these buttons will affect station search up or down the band.

❼ **MASTER VOLUME control**

Turn the knob clockwise (↷) to raise the volume and turn it counterclockwise (↶) to lower it.

❽ **PHONES jack**

This jack is used for headphone connections.

NOTE:

When using headphones only, switch off the speakers with OUTPUT button on the remote control unit. See page 16.

❾ **PANEL button**

Pressing this button provides a display of the current operating condition on the display. Pressing this button will switch the display. For details, see Page 11 to 12

⑩ **REC SELECT**
(Independent switching buttons for audio and video recording outputs)
These buttons provide a selection of the audio recording and video recording modes which is independent of the selection of the FUNCTION SELECTOR.

- **AUDIO button:**
  This button selects a signal output to the recording output jacks of DAT/TAPE 1 and 2, as well as VCR-1 and 2.
  With regard to the recording output, the signal input normally selected by the FUNCTION SELECTOR is output to the recording output side. Use of this button, however, permits selection of a signal from input jacks other than the FUNCTION SELECTOR jacks.
- **VIDEO button:**
  This button selects the signal output to the video (and audio) recording output jacks of VCR-1 and 2.
  With regard to the video recording (audio recording) output, normally the video signal (audio signal) selected by the VIDEO FUNCTION selector button ❹ is output. Use of this button, however, permits selection of an input signal from input jacks other than the VIDEO FUNCTION SELECTOR jacks.

⑪ **SURROUND buttons**
Pressing this button selects the surround mode.

- **BYPASS button**
  Pressing this button will bypass the surround mode to provide regular stereo playback.
  Rear output will not be provided.
- **MODE button**
  Pressing this button switches the surround mode in the following order:
  Priority order

①DOLBY PRO-LOGIC
↓
②SPECTAREA
↓
③HALL
↓
④SIMULATED
↓
⑤STUDIO

①DOLBY PRO-LOGIC (surround)
Use this setting when playing back video software recorded in Dolby Surround.
Switch the CENTER MODE to suit the speaker system in use.
The delay time may be switched in the range of 15 ms to 30 ms to suit the size of the room and the position of the speakers.

②SPECTAREA
Use this function when playing back video software other than that recorded in Dolby Surround.
The delay time can be switched in the range of 5 ms to 40 ms.

③HALL
Use this setting to create the atmosphere of a concert hall.
The delay time may be switched in the range of 5 ms to 40 ms.
There will be no output from the center speaker position.

④SIMULATED
Use this setting to play back monaurally recorded sources with surround.
There will be no output from the center speaker position.
The delay time may be switched in the range of 5 ms to 40 ms.

⑤STUDIO
Use this setting to create the atmosphere of watching a live program in a studio.
There will be no output from the center speaker position.
The delay time is fixed at 0 ms.

- **CENTER button**
  Press this button when DOLBY PRO-LOGIC has been selected.
  When Dolby Pro Logic surround is used during playback, pressing this button will switch the center mode settings in the following order:

→① NORMAL → ② PHANTOM → ③ WIDE→

①NORMAL: Select this setting for playback with Dolby Pro Logic surround. This setting is effective when the center channel speakers are smaller than the left and right speakers.

②PHANTOM: Select this setting for playback with Dolby Pro Logic surround without using the center speakers.

③WIDE: Select this setting when the center channel speakers are of the same grade as the left and right speakers.

⑫ **BASS control**
This control is used to adjust the bass level of the front speaker output or the PRE OUT FRONT jacks.
The bass is increased when the control is turned clockwise (↷) and decreased when turned counterclockwise (↶) from the center position.

⑬ **TREBLE control**
This control is used to adjust the treble level of the front speaker output or the PRE OUT FRONT jacks.
The treble is increased when the control is turned clockwise (↷) and decreased when turned counterclockwise (↶) from the center position.

⑭ **BALANCE (Balance Control)**
Use this control to balance the volume levels between front left and front right channels. The volume levels in both channels are equal when the control is set to the center position.

⑮ **TUNING BAND (Tuning Band Selector Switch)**
Press this switch to select FM or AM band.

⑯ **TUNING MODE (Tuning Mode Switch)**
This switch allows selection between Auto Tuning and Manual Tuning.
AUTO TUNING: Pressing the UP button, the tuner will begin tuning to a higher frequency and pressing the DOWN button, it will begin tuning to a lower frequency until a broadcasting station is found.
MANUAL TUNING: Stations are tuned in manually by use of the UP and DOWN buttons. FM output is monaural during MANUAL TUNING.

⑰ **PRESET CHANNEL 1 ~ 16**
(Preset Station Buttons)
These buttons are used for storing stations or recalling stations which have been preset. Using the SHIFT button you can preset a total of 16 FM or AM stations into preset channels 1 ~ 8 and 9 ~ 16.
Once a radio has been memorized on a PRESET CHANNEL button, the same station can later be tuned in instantly simply by pressing the corresponding PRESET CHANNEL button.

⑱ **SHIFT (Shift Button)**
Each time this button is pressed, the preset station range will be shifted between "1 ~ 8" and "9 ~ 16". (A: 1 ~ 8, B: 9 ~ 16)

⑲ **MEMORY (Memory Button)**
This switch is used to store the desired radio station on a PRESET CHANNEL button. When pressing this button, the CH indicator flashing for approximately 6 seconds. During this interval, the desired station can be stored in the memory.

⑳ **VIDEO AUX INPUTS (external video input jacks)**
Connect the component's S-output jack to the receiver's S-VIDEO jack with an connection cord designed for S-jacks.
Connect the component's video output jack to the VIDEO jack with a 75-ohm coaxial cable pin-plug cord.
Connect the component's audio output jacks to the AUDIO jacks with pin-plug cords.

㉑ **MASTER VOLUME LED**

㉒ **MULTI FUNCTION DISPLAY**
The display indicates the tuner's reception frequency, the surround mode, the input and output data, etc., in up to 16 characters.
Normally the reception frequency is displayed when the function is set to tuner, and the surround mode is displayed when the function is set to other positions.
The display also indicates various other information as necessary.
Refer to page 12 for details.

㉓ **FM ANT. (FM Antenna Terminals)**
Both 75-ohm coaxial cable and 300-ohm feeder can be connected to this terminal. For antenna connecting procedure, see the ANTENNA INSTALLATION.

㉔ **AM ANT. (AM Aatenna Terminals)**
Connect the attached AM loop antenna. (Refer to page 8 for connections).
Connect to this terminal when a medium wave outdoor antenna is used.

㉕ **VIDEO input/output jacks**

㉖ **S-VIDEO input/output jacks**

㉗ **TAPE/REMOTE CONTROL**
This terminal is exclusively used for sending the remote control signals to the tape deck. Connect it with a 3.5mm mini-jack cord.

NOTE:
Do not hook up a headphones or microphone jack cord. Use this jack to connect a DENON cassette deck with a remote control jack (wired).
If the cassette deck does not have this jack, wired remote control is not possible.

㉘ **AC OUTLET (AC Power Outlets)**
This AC outlet is controlled by the power switch. Maximum capacity is 120 W.

㉙ **AC CORD (Power Cord)**
Connect this cord into the wall outlet.

㉚ **AM LOOP ANT (AM Loop Antenna)**
Correctly connect the AM loop antenna to the antenna terminal. Broadcasting cannot be received when the connection is incomplete. Adjust the antenna for optimum reception while receiving AM. Do not place a pin cord, SP cord or electric cord near the antenna. This may cause noise generation.

㉛ **GND (ground connection terminal)**
Connect the turntable's ground wire here.

㉜ **INPUTS (audio input jacks)**

㉝ **OUTPUTS (audio output jacks)**

㉞ **PRE OUT (FRONT, CENTER, REAR jacks)**

㉟ **MONO OUT (monaural output jacks)**
Connect a separately sold subwoofer, etc.

㊱ **SPEAKERS (speaker terminals)**

NOTE:
For connections, see page 5.

㊲ **FREQUENCY STEP (Frequency Step) Switch**
Multi Voltage model only.

㊳ **LINE VOLTAGE (Line Voltage) Switch**
Multi Voltage model only.

ANTENNA INSTALLATION

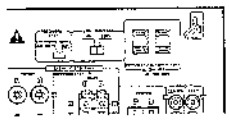
- **FM ANTENNA**
The supplied T-type indoor FM antenna (300 ohms) can be used inside wooden houses for receiving local FM stations and other strong FM signals. Stretch out the ends of the antenna and mount the antenna on the wall or ceiling where optimum reception is achieved. FM T-type antennas may not consistently ensure stable reception, due to environment changes. In such cases, the FM T-type antenna should only be used temporarily until an outdoor FM antenna has been installed.
When connecting an outdoor FM antenna, the use of 75-ohm coaxial cable (5C-2V, 5C-2V) is strongly recommended. Using a 300-ohm feeder cable will cause noise and you will not be able to achieve the high sound quality the built-in tuner is capable of delivering.
- **AM ANTENNA**
Attach the supplied AM loop antenna to the antenna holder on the back panel.
Connect the leads to the AM and GND terminals.
Also use the AM terminals for connecting an outdoor AM antenna (when making such a connection do not disconnect the AM loop antenna.)
Adjust the loop antenna to obtain optimum reception. Where broadcast stations are distant and only weak signals are received, or where signals are blocked, it is best to install an outdoor AM antenna.

NOTES
- This receiver has a full back-up system. When the power is turned on, the INPUT SELECTOR buttons are set to the last mode set before the power was turned off.
- When using this receiver in close proximity to video equipment (TV, VCR, VDP, etc.), noise may be generated in AM broadcasts. To avoid this, keep the receiver as far away from other video components as possible, or detach the AM loop antenna from the antenna holder and place it where noise is reduced. If the noise is not reduced, turn off the power of the video components when listening to AM broadcasts.

MULTI VOLTAGE MODEL ONLY

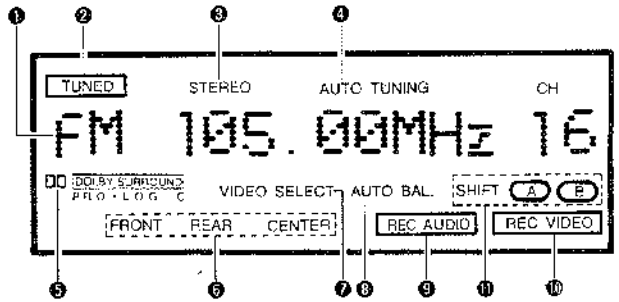
1. **Setting the frequency step.**
Set the FREQUENCY STEP switch as described below.
- In the U.S.A. and Canada – set the switch to 100 kHz/10 kHz side.
With this setting, the frequency varies in 100 kHz steps in the range of 87.5 to 108.0 MHz (FM) and in 10 kHz steps in 520 to 1710 kHz (AM).
- Elsewhere – set the switch to 50 kHz/9 kHz side.
With this setting, the frequency varies in 50 kHz steps in the range of 87.50 to 108.00 MHz (FM) and in 9 kHz steps in 522 to 1611 kHz (AM).

2. **Setting the line voltage (Power Supply: AC 110/220 V, 50/60 Hz)**



- The customer can set the VOLTAGE SELECTOR KNOB on the back panel for appropriate line voltage by using a screwdriver.
- Do not use excessive force in setting the VOLTAGE SELECTOR KNOB – you may damage it.
- If the VOLTAGE SELECTOR KNOB does not turn smoothly, call qualified service personnel.
- Be sure to set both voltage selectors to same position.

Display



❶ **MULTI FUNCTION DISPLAY**
This displays a maximum of 16 characters. Normally the reception frequency is displayed when the function is set to tuner, and the surround mode is displayed when the function is set to other positions. The display also indicates various other information according to the buttons pressed, as shown in the examples on the following pages 12.

❷ **TUNED (TUNED indicator)**
This indicator lights when broadcast signals are received.

❸ **STEREO (Stereo Indicator)**
The STEREO indicator will automatically light up when a stereo broadcast is received.

❹ **AUTO TUNING (AUTO TUNING Indicator)**
This indicator lights when the auto tuning mode is selected by pressing the TUNING MODE button ⑯.

❺ **DOLBY SURROUND Indicator**
This indicator lights when DOLBY PRO LOGIC is selected by pressing the SURROUND MODE button ⑰.

❻ **OUTPUT CHANNEL Indicator**
This indicates the currently output speaker channel.

❼ **VIDEO SELECT (VIDEO INPUT SELECT Indicator)**
This indicator lights when the video monitor output is fixed in the video input select mode.

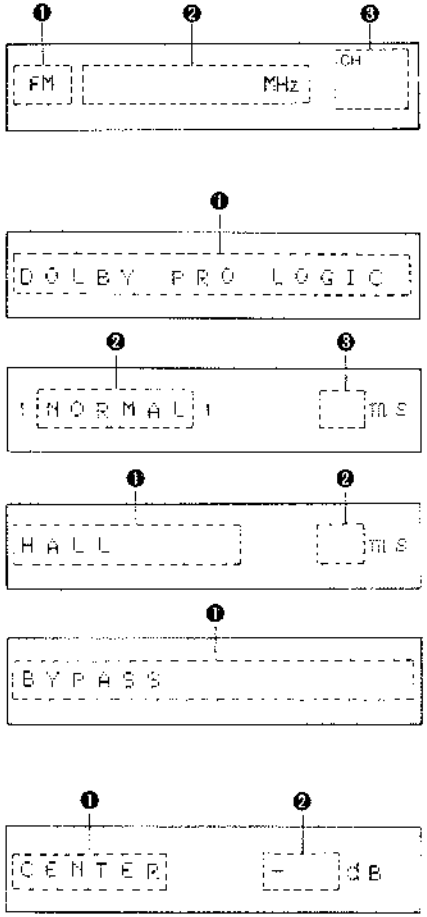
❽ **AUTO BALANCE Indicator**
This indicator shows that the auto input balance operation is active. It lights up when the surround mode is Dolby Pro-logic or Spectarea.

❾ **REC AUDIO (REC SELECT AUDIO Indicator)**
This indicator lights when the recording audio output is fixed in the REC SELECT AUDIO mode.

❿ **REC VIDEO (REC SELECT VIDEO Indicator)**
This indicator lights when the recording video output is fixed in the REC SELECT VIDEO mode.

⓫ **SHIFT (Shift Indicator)**
The preset channel which is selected with the Shift Button ⑱ is displayed by the SHIFT Ⓐ or Ⓑ.

• **MULTI FUNCTION DISPLAY Display Pattern Examples**
The set modes appear one after another each time the panel button on the AVR-810/810G or the remote control unit is pressed.



1. TUNER MODE display
❶ FM or AM.
❷ **FREQUENCY**
The frequency is displayed in numerals. It is displayed in MHz for FM and in kHz for AM.
❸ **CHANNEL**
When using the channel preset button ⓯, the channel and the memorized frequency are displayed.

2. SURROUND MODE display
(1) DOLBY PRO LOGIC
❶ DOLBY PRO LOGIC, DOLBY 3-CH. LOGIC
❷ NORMAL, PHANTOM, WIDE
❸ DELAY TIME
Dolby Pro Logic settings between 15 ms and 30 ms will be displayed in 5 ms steps. They will not be displayed in Dolby 3-CH Logic mode.

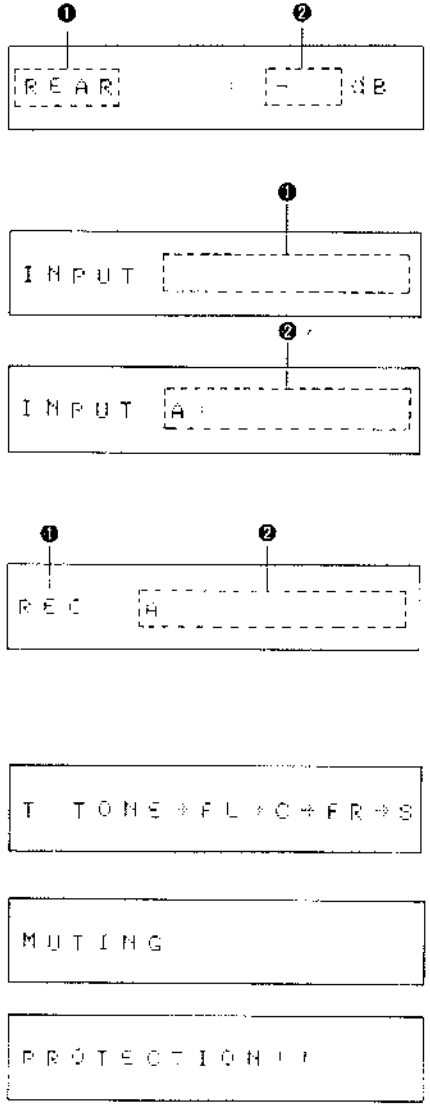
(2) Other SURROUND MODE displays
These displays will be shown during surround modes such as those listed below.

❶	❷
SPECTAREA	5 ms to 40 ms settings are displayed in 5 ms steps
HALL	5 ms to 40 ms settings are displayed in 5 ms steps
SIMULATED	5 ms to 40 ms settings are displayed in 5 ms steps
STUDIO	0 ms

(3) BYPASS display
❶ This display is shown in the bypass mode.

3. CENTER LEVEL display
❶ This display is shown when the CENTER LEVEL button is pressed (Remote Control Unit Only).
❷ The display is in 2 dB steps from –48 dB (minimum) to 0 dB (maximum).

NOTE:
This is not displayed in modes not using the center speakers.



4. REAR LEVEL display
❶ The display will be shown when the REAR LEVEL button is pressed (Remote Control Unit Only).
❷ The display is in 2 dB steps from –48 dB (minimum) to 0 dB (maximum).

NOTE:
This is not displayed in modes not using the rear speakers.

5. INPUT display
❶ The display will be shown when one of the input selectors is pressed, after which the function name will appear.
❷ If a video signal has already been selected using the video select buttons, the audio and video inputs will be displayed for 3 seconds after the button is pressed.

6. REC OUT display
❶ REC SELECT
The display will be shown when AUDIO or VIDEO is pressed.
❷ Audio outputs
The display shows which audio component was selected, PHONO, CD, TUNER, DAT/TAPE-1, DAT/TAPE-2, DBS/BS, VDP, VCR-1, VCR-2, or V-AUX.
Normally the source is displayed.
Video outputs
The display shows which video component was selected, DBS/BS, VDP, VCR-1, VCR 2, or V-AUX.
Normally the source is displayed.

7. TEST TONE display
• This appears when the TEST TONE button on the remote control unit is pressed. The arrow moves according to the output.
The display remains on until the test tone is turned off.

8. MUTING display
• This appears when the MUTING button on the included remote control unit is switched on. The display remains on until muting is canceled.

9. PROTECTION display
• This appears when the protection circuit is activated.
If this display should appear, set the power switch to standby and check the speaker connections, then switch the power back on.

7 OPERATION

PREPARATIONS FOR PLAYBACK

1. Checking connections

- Referring to the connection diagrams (Page 5 to 7) check to make sure that the connections are made properly.
- Check that the left and right speakers are connected properly and also that the polarities (⊕, ⊖) are correct.
- Check that the left and right sides of the pin-plug cords are connected properly.
- Check that each cord is securely connected.
- Check that each cord is of the proper type.

2. Checking the positions of the controls

(See Pages 9 to 11 for a reference to the circled numbers.)

- Turn the MASTER VOLUME control ❼ fully counterclockwise to the "0" position.
- Set the BALANCE ⓯, BASS ⓰, and TREBLE ⓱ controls to their center positions.

After making the above checks, press the POWER switch ❶ to switch on the power.
The receiver will be operable when the LED of the MASTER VOLUME control ❼ stops flashing after several seconds of muting.

Note on Playback

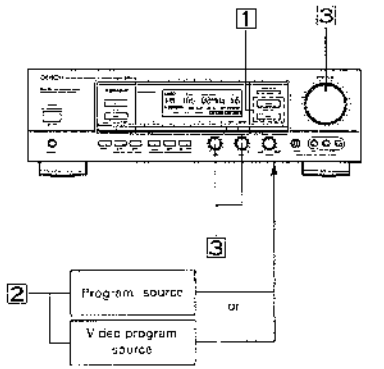
The sound will be interrupted if one of the input selector buttons (❹ and ❺) is pressed during playback. This is due to the operation of the muting circuit which prevents noise from being amplified at the time of switching, and is not a malfunction.
Note that the activation of the muting circuit mentioned above will not have an effect on the sound being recorded.

- When using the accompanying remote control unit, press the corresponding button. For details, see section 8, REMOTE CONTROL UNIT, on page 15.

Protection Circuit

This receiver is provided with a high-speed protection circuit. This circuit protects the internal circuitry from large currents which may be created by the output signals when the speaker terminals are not completely connected or are short-circuited.
The operation of this protection circuit automatically cuts off the output to the speakers and displays "PROTECTION!" on the multi function display.
If this should happen be sure to set the POWER switch on the receiver to the OFF mode, check the speaker connections, then switch the power back on. After several seconds of muting, the set will operate normally.

- **Playback of program sources – 1**
  (When the video and audio are from the same source)



1 Select the desired program source by pressing an audio input selection button or a video input selection button.

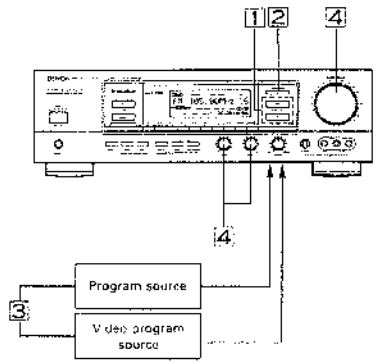
Program source	AUDIO INPUT SELECTOR
To listen to a record	PHONO
To listen to a CD	CD
To listen to FM or AM broadcasts	TUNER
To listen to the DAT or tape deck connected to the DAT/TAPE-1 jacks	DAT/ TAPE-1
To listen to the DAT or tape deck connected to the DAT/TAPE-2 jacks	DAT/ TAPE 2

Video program source	VIDEO INPUT SELECTOR
To watch a satellite broadcast	DBS/BS
To watch the video disc player connected to the VDP jacks	VDP
To watch the video deck connected to the VCR-1 jacks	VCR-1
To watch the video deck connected to the VCR-2 jacks	VCR-2
To watch the video camcorder equipped with playback function or another component connected to the VIDEO-AUX jacks (front panel)	V-AUX

2 Begin playback of the program source.
For operating details, see the manual of the respective component.
For the tuner, use the TUNING buttons ❻ and PRESET CHANNEL buttons ❼ to set the desired frequency.

3 Adjust the volume and tone.

- **Playback of program sources – 2**
  (Picture and sound from different sources – "Simulcast" playback)



1 Select the program source you wish to listen to with the AUDIO FUNCTION selector or the VIDEO FUNCTION selector.

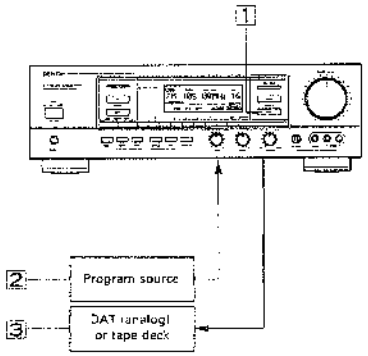
2 Press VIDEO SELECT to select the video program source you wish to watch.

3 Begin playback of the program sources.
For operating details, see the manual of the respective component.
For the tuner, use the TUNING buttons ❻ and PRESET CHANNEL buttons ❼ to set the desired frequency.

4 Adjust the volume and tone.

- When the video program source is again selected with the VIDEO FUNCTION button, even during Simulcast playback, the Simulcast playback will be cancelled automatically.

• Recording program sources and copying tapes (Recording the audio source currently being monitored)



1 Press one of the audio input selection buttons to select the program source you wish to record.

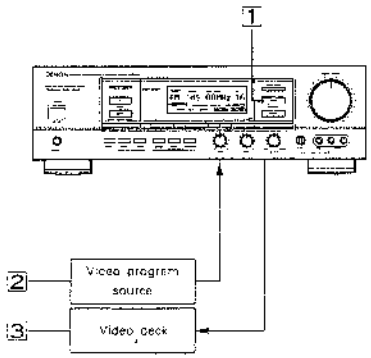
Program source	AUDIO INPUT SELECTOR
To record from a record	PHONO
To record from a CD	CD
To record from FM or AM broadcasts	TUNER
To record from the DAT or tape deck connected to the DAT/TAPE-1 jacks	DAT/ TAPE-1
To record from the DAT or tape deck connected to the DAT/TAPE-2 jacks	DAT/ TAPE-2

2 Begin playback of the program source you wish to record.

3 Begin recording on the tape deck or DAT (analog).
For operating details, see the manual of the respective component.

• Simultaneous recording
The signals from the sources selected by the input selection buttons are output simultaneously from the OUTPUT jacks of the audio and video systems. If two tape decks and two Hi-Fi video decks are connected and all four components are set to the recording mode, the four components will record the same source simultaneously.

• Recording video program sources and copying videos (Recording the sound and picture of the video source currently being monitored)



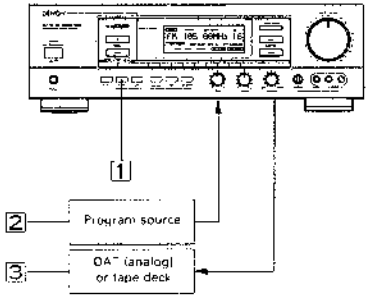
1 Press one of the video input selection buttons to select the program source you wish to record.

Video program source	VIDEO INPUT SELECTOR
To record from the DBS/BS tuner connected to the DBS/BS jacks	DBS/BS
To record from the video disc player connected to the VDP jacks	VDP
To record from the video tape deck connected to the VCR-1 jacks	VCR-1
To record from the video tape deck connected to the VCR-2 jacks	VCR-2
To record from the video camcorder equipped with playback function or another component connected to the VIDEO-AUX jacks (front panel)	V-AUX

2 Begin playback of the video program source you wish to record.

3 Begin recording on the video deck.
For operating details, see the manual of the respective component.

• Independent recording of program sources and independent tape copying (Recording the sound of a source other than the one currently being monitored)



1 Hold down the REC SELECT AUDIO button (an independent audio recording output selection button) and when the program source you wish to independently record is displayed, release your finger from the button.
The display will be switched in the following sequence.

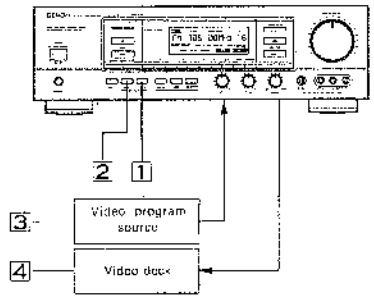
PHONO → CD → TUNER → DAT/TAPE-1 → DAT/TAPE-2 → V. AUX → VCR-2 → VCR-1 → VDP → DBS/BS

2 Start playing the program source you wish to record.

3 Start the recording with the tape deck or DAT (analog).
Refer to the instruction manuals accompanying your equipment for details on their operation.
• Pressing the REC SELECT AUDIO button again will cancel this mode.

• Monitoring the recording
When making a recording using a 3-head tape deck, the sound that has actually been recorded on the tape can be checked.
To monitor the tape recording, after completing the aforementioned settings, use the AUDIO FUNCTION selector to select the position which connects the 3-head tape deck, either DAT/TAPE-1 or 2.

• Independent recording of video program sources and independent video tape copying – 1 (Recording the picture of a source other than the one currently being monitored)



1 Hold down the REC SELECT VIDEO button (an independent video recording output selection button) and when the program source you wish to independently video record is displayed, release your finger from the button.
The display will be switched in the following sequence.

DBS/BS → VDP → VCR-1 → VCR-2 → V. AUX

3 Start playing the video program source you wish to video record.

4 Start the recording with the video deck.
Refer to the instruction manuals accompanying your equipment for details on their operation.
• Pressing the REC SELECT VIDEO button again will cancel this mode.

• Independent recording of video program sources and independent video tape copying – 2 (Simulcast recording)

Combining the above procedures, the video and audio programs of different sources can be recorded (Simulcast recording).

1 Hold down the REC SELECT VIDEO button and release your finger when the video program source you wish to record is displayed.

2 Hold down the REC SELECT AUDIO button and release your finger when the program source you wish to record is displayed.

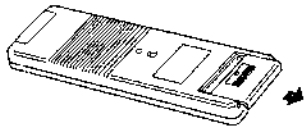
3 Begin playback of the program sources.

4 Begin recording on the video deck.
• Pressing the REC SELECT VIDEO button again will cancel this mode.

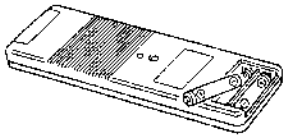
8 REMOTE CONTROL UNIT

Following the procedure outlined below, insert the batteries before using the remote control unit.

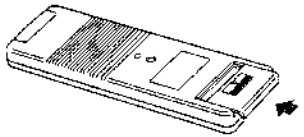
1. Open the bottom cover of the remote control unit and remove the battery cover.



2. Insert the two R6P (AA) batteries, matching the ⊕ and ⊖ marks on the batteries with those in the case.



3. Close the bottom cover until it clicks shut.



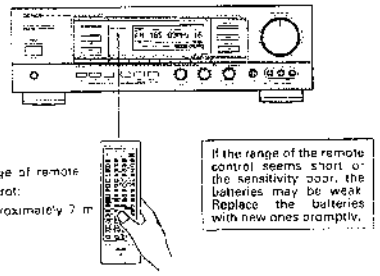
■ Using the remote control unit

The remote control unit uses highly linear infrared rays. Point it at the receiver's remote sensor when operating it. The receiver will not operate if the remote sensor is covered or if there is an obstacle between the remote control unit and the sensor. Also note that strong light shining on the remote sensor may result in mistaken operations. In addition, using the receiver near neon signs which generate pulse type noise may result in mistaken operations, so keep the receiver as far as possible from such neon signs.

■ Cautions for batteries

- Be sure that the ⊕ and ⊖ ends of the batteries match the marks on the battery case of the remote control unit.
- Replace weak batteries as soon as possible.
- Do not mix new batteries with used ones.
- Do not use batteries of different types together. Note that some batteries of the same shape and size may provide different performance.
- Some batteries are rechargeable, others are not. Read the battery instructions carefully.
- Do not connect the ⊕ and ⊖ ends of the batteries directly with metal objects. (Do not short-circuit the batteries.)
- Do not disassemble, heat, or dispose of batteries in a fire. If the batteries should leak, carefully wipe off any fluid from the battery case, then insert new batteries.

■ Range of operation of the remote control unit



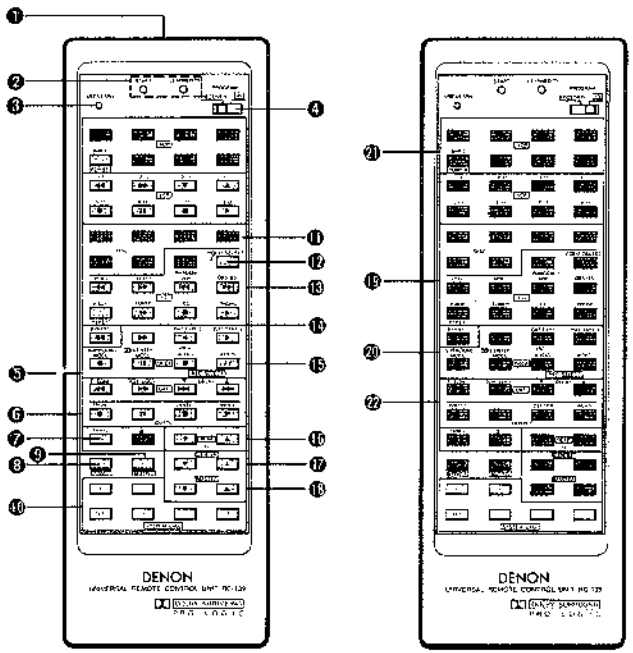
■ A note on battery replacement

Have replacement batteries on hand so that they can be inserted as quickly as possible after the old batteries are taken out.

The codes that have been learned may be lost if new batteries are not inserted within about 5 minutes.

Part Names and Functions of the Remote Control Unit

Learning Function Button



[PROGRAM RECEIVER]
16 Buttons

[PROGRAM AV]
58 Buttons

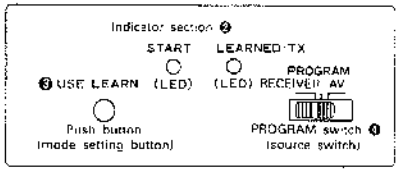
❶ **Transmitting window** The remote control signals (infrared rays) are sent from this window.

buttons contain a special receiver code and cannot learn.

buttons can learn. In the initial condition they contain the codes of DENON CD, VDP, cassette deck, and DAT products.

Note that there are a maximum of 37 programs wher DENON codes have been used.

Follow the procedure described below to use the learning function of the remote control unit.



Operation

1. USE/LEARN select button ❸
   Press this button with the tip of a pen, etc. to set the learn mode.
   The START and LEARNED/TX LEDs in the indicator section ❷ will start flashing to indicate that learning is possible.

2. Set the PROGRAM switch ❹ to the desired side, PROGRAM RECEIVER or AV.

3. Hold the transmitting windows of both your remote control unit and the RC-139 facing each other about 5 cm apart.

4. Press the button of the RC-139 to which you wish to store the code for 1 to 2 seconds, then release it. The LEDs will stop flashing and the START LED will remain lit.

5. Check that the START LED ❷ is lit, then hold down the corresponding button on the other remote control unit.

6. Release the button when the START LED ❷ goes off and the LEARNED LED lights up. The code has now been stored. The two LEDs will once again start flashing.
   Use this procedure to store other codes at other buttons.

   NOTE:
   - If the code cannot be stored, the LEARNED LED will not light after the START LED has gone off. This may occur for a very limited number of models.
   - If the memory is overloaded, both LEDs will start flashing rapidly after the START LED lights up. If this happens, no more codes can be stored.
     Use the reset operation to re-learn codes.

7. Repeat steps 4 through 6 above to store codes at other buttons.

8. After the learning operations are completed, press the USE/LEARN switch again. The two LEDs will stop flashing and the unit will be in the transmit mode. Check that the stored codes function properly.
   The buttons for which learning is possible are; Up to a maximum of 37 buttons, among the 15 buttons with the PROGRAM switch ❹ set to RECEIVER, and the 58 buttons with the PROGRAM switch set to AV.

   NOTE:
   Depending on the type and length of the codes to be learned, it may not be possible to use all 37 buttons for learning.

Clearing operation

For individual sources

1. Press the USE/LEARN switch ❸ with the tip of a pen, etc., to set the learn mode.
2. Set PROGRAM switch ❹ to the side of the source you wish to clear (either RECEIVER or AV).
3. Hold down the VCR-2 and D3S/BS ⓮ buttons at the same time for at least 4 seconds.
4. The START and LEARNED LEDs will light for 2 seconds, then go off when all learned codes for that source are cleared.
   If the source is PROGRAM RECEIVER or AV, the remote control unit will be set to the initial codes (DENON system codes).

For all sources

1. Press the USE/LEARN switch ❸ with the tip of a pen, etc., to set the learn mode.
2. The PROGRAM switch ❹ may be set to either RECEIVER or AV.
3. Press the TUNE and the DELAY button ▲ ❺ at the same time for at least 4 seconds.
4. When the START and LEARNED LEDs alternately light up 6 times, all learning codes will have been cleared.
   Note that the initial codes (DENON system codes) will be set.

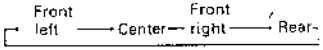
Remote control operation

1. Check that both LEDs are off.
   If both LEDs are flashing or if the START LED is lit, press the USE/LEARN button to switch them off.
2. When a remote control operation button is pressed, the LEARNED/TX LED will light and the remote control code will be transmitted.

Description of AVR-810/810G code buttons

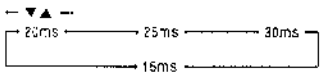
- For buttons also on the AVR-810/810G, refer to pages 14 to 18.

❺ SURROUND buttons
(Same function as on receiver)
- BYPASS button
- SURROUND MODE button
- CENTER MODE button ⊡
- TEST TONE button
  This button produces a test signal for adjusting the level of each channel in the Dolby Pro Logic surround mode.
  The test tone is switched as follows:

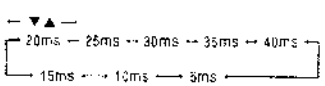


  This signal is used for adjusting the volume balance.
  For details, see Page 12.

- 3-CH LOGIC button
  This button is used for playing back a video source recorded using Dolby Surround without using the rear speakers.
  Switching this button on combines the rear speaker audio with that of the front speakers.
  Pressing the button once more switches this function off and returns the set to normal operation.
- DELAY TIME button
  This button sets the delay time.
  This button is only effective when the surround mode is on.
  Pressing the ▲ side increases the delay time.
  Pressing the ▼ side decreases the delay time.
  The following sequence is provided in the Dolby Pro Logic mode:



  The following sequence is provided in other surround modes (not including STUDIO):



❻ OUTPUT buttons
These buttons switch the speaker outputs on and off.
The settings are displayed on the display ❷.
- FRONT: Operates the speaker systems connected to the front speaker output terminals.
- CENTER: Operates the speaker systems connected to the center speaker output terminals.
- REAR: Operates the speaker systems connected to the rear speaker output terminals.

❼ PANEL button
(Same function as on receiver)

❽ POWER button

CAUTION:
- If the power is turned off with the remote control unit, the receiver is switched to the power stand-by state. If you are to be absent for a long period of time, be sure to turn the power off using the POWER switch on the receiver.
- The LED indicator in the VOLUME control knob lights while the receiver is in the power stand-by state.

❾ MUTING button
Pressing this button cuts off the outputs from the PRE OUT jacks and the speakers.
The MASTER VOLUME LED will be flashing during the muting condition. Pressing this button once will set the muting, another press will cancel the muting, the next press sets the muting, and so on.

❿ SYSTEM CALL buttons
See Page 31.

⓫ TUNER PRESET CALL buttons
(Same function as on receiver)
- PRESET CHANNEL 1–16
- SHIFT Button

⓬ VIDEO SELECT buttons
(Same function as on receiver.)

⓭ Video input selection buttons
(Same function as on receiver.)

⑭ **Audio input selection buttons**
(Same function as on receiver.)

⑮ **REC SELECT buttons**
(Same function as on receiver.)

⑯ **REAR LEVEL button**
These buttons are used to adjust the level of the rear output.
Pressing the ▲ side button increases the rear level volume.
Pressing the ▼ side button decreases the rear level volume.

⑰ **CENTER level control**
These buttons are used to adjust the level of the center output.
Pressing the ▲ side button increases the center level volume. Pressing the ▼ side button decreases the center level volume.

⑱ **MASTER volume control**
These buttons are used to adjust the master volume level.
The ▲ side button turns the master volume control of the receiver clockwise, increasing the overall volume level.
Pressing the ▼ side button turns the master volume control of the receiver counterclock wise, decreasing the overall volume level.

DENON System Code Buttons

When the PROGRAM switch ❹ is set to AV, the DENON component system code buttons are set to buttons ⑲ and ⑳.

⑲ **CD player system buttons**
These buttons directly control the DENON DCD-3560, 970, and other remote-controlled CD players.
The buttons have the same functions as the buttons on the CD player.
▶ PLAY button
Press this button to begin playback.
■ STOP button
Press this button to stop playback.
II PAUSE button
Press this button to pause.
◀◀ (Manual search reverse button)
▶▶ (Manual search forward button)
Press these buttons for manual search in the forward or reverse directions.
I◀◀ (Auto search reverse button)
▶▶I (Auto search forward button)
Press these buttons for auto search in the forward or reverse directions. Use them to find the beginnings of tracks.
REPEAT button
Press this button when you want to play the disc repeatedly.
DISC NUMBER buttons (1 ~ 6)
These buttons can be used with CD changers equipped with a disc number button.
For details, refer to the CD changer's manual.
RANDOM button
Press this button to random playback.
For details, refer to the CD player manual.

⑳ **DECK system buttons**
These buttons directly control DENON cassette decks equipped for remote control.
The buttons have the same functions as the buttons on the cassette deck.
▶ PLAY button (forward direction)
Press this button to begin playback in the forward direction.
◀ PLAY button (reverse direction)
Press this button to begin playback in the reverse direction.
■ STOP button
Press this button to stop the deck.
II PAUSE button
Refer to the operating instructions of your DENON tape deck.
● REC button
Refer to the operating instructions of your DENON tape deck.
SELECT-A/B button
Use this button for selection of the deck when using a double deck.
◀◀ REW button
Press this button to rewind the tape.
▶▶ FF button
Press this button to fast-forward the tape.

㉑ **VDP system buttons**
These buttons directly control the DENON LA-2000, 3000, and other remote-controlled VIDEO DISC players.
The buttons have the same functions as the buttons on the VIDEO DISC player.
▶ PLAY button
Press this button to begin playback and pause.
■ STOP button
Press this button to stop playback.
◀◀ (Manual search reverse button)
▶▶ (Manual search forward button)
Press these buttons for manual search in the forward or reverse directions.
I◀◀ (Auto search reverse button)
▶▶I (Auto search forward button)
Press these buttons for auto search in the forward or reverse directions. Use them to find the beginnings of tracks.
POWER
Press this button to power ON/OFF.

㉒ **DAT system buttons**
These buttons directly control the DENON DTR-2000, and other remote-controlled DAT.
The buttons have the same functions as the buttons on the DAT.
▶ PLAY button
Press this button to begin playback.
■ STOP button
Press this button to stop playback.
II PAUSE button
Press this button to pause.
◀◀ (Manual search reverse button)
▶▶ (Manual search forward button)
Press these buttons for manual search in the forward or reverse directions.
I◀◀ (Auto search reverse button)
▶▶I (Auto search forward button)
Press these buttons for auto search in the forward or reverse directions. Use them to find the beginnings of tracks.
● REC button
Use this button when recording.

SYSTEM CALL buttons

The SYSTEM CALL ⑩ function permits continuous remote control operation of the operations stored on up to 5 previously learned buttons using one button.

SYSTEM CALL registration
1. Press the [SET] button. The START LED of the indicator section will start flashing.
2. Set the PROGRAM switch ❹ and then press up to 5 buttons that you would like to set to system call operation in the order that you wish to send them. Each time a button is pressed the LEARNED/TX LED will light. (The maximum number of buttons that can be stored is 5.)
3. Press one button among buttons [1] through [5] to register the operation.
4. The START LED will go out and the buttons will have been registered.
5. Up to three buttons ([1] through [5]) can be registered. To continue the procedure and register another button, repeat the operations of steps [1] through [5].

NOTE:
The contents of the pressed buttons will also be sent during system call registration and so the transmitting window should be covered or some other precaution taken to avoid unwanted operation of the receiver, video deck, cassette deck etc.

SYSTEM CALL cancellation
1. Press the [SET] button and the START LED will begin flashing.
2. Press the button you wish to cancel from among buttons [1] through [5].
3. The START LED will go out and the button will be reset.
4. To continue the procedure and reset another button, repeat the operations of steps [1] through [5].

Using the SYSTEM CALL function
1. Press once one of the [1] through [5] buttons that have been registered for system call use.
2. The LEARNED/TX LED will light. The remote control codes will be sent in the registered order approximately every about 1.0 seconds.
3. The LEARNED/TX LED will go out and the transmission will be completed.

NOTE:
When one of the buttons on the main unit is pressed while a remote control operation is in progress, or when the remote control is operated while a main unit operation is in progress, priority will be given to the button last pressed and the operation of the button first pressed is stopped. To resume the operation of the button first pressed, press that button again.

9 TROUBLESHOOTING

If a problem should arise, first check the following:
1. Are the connections correct?
2. Have you operated the receiver according to the Operating Instructions?
3. Are the speakers, turntable, and other components operating properly?
If the receiver is not operating properly, check the items listed in the table below. Should the problem persist, there may be a malfunction. Disconnect the power immediately and contact your store of purchase.

	Symptom	Cause	Measures	Page
Common problems arising when listening to the CD, records, tapes.	LED not lit and sound not produced when power switch set to on.	• Power cord not plugged in securely. • At the time of the POWER ON function from the remote control unit, the POWER BUTTON of the main unit is not set to ON/STANDBY.	• Check the insertion of the power cord plug. • Switch ON with the POWER BUTTON of the main unit.	5-7 9
	LED lit but sound not produced.	• Speaker cords not securely connected. • Speaker output switch is off. • Improper position of the audio input selection button. • Improper position of the video input selection button. • Volume control set to minimum. • MUTING is on	• Connect securely. • Turn the speaker output switch on. • Set to a suitable position. • Set to a suitable position • Turn volume up to suitable level. • Switch off MUTING.	5 10 13,14 13,14 9 16
	LED continues flashing.	• Speaker terminals are short-circuited.	• Switch power off, connect speakers properly, then switch power back on.	5
	Sound produced only from one channel.	• Improper connection of speaker cords. • Improper connection of input/output cords. • Left/right balance is off.	• Connect securely. • Connect securely. • Adjust balance knob properly.	5 5-7 13
	Positions of instruments reversed during stereo playback.	• Reverse connections of left and right speakers or left and right input/output cords.	• Check left and right connections.	5-7
When playing records	Humming noise produced when record is playing.	• Ground wire of turntable not connected properly. • Incomplete PHONO jack connection. • TV or radio transmission antenna nearby.	• Connect securely. • Connect securely. • Contact your store of purchase.	5-7 6 –
	Howling noise produced when volume is high.	• Turntable and speaker systems too close together. • Floor is unstable and vibrates easily.	• Separate as much as possible. • Use cushions to absorb speaker vibrations transmitted by floor. If turntable is not equipped with insulators, use audio insulators (commonly available).	– –
	Sound is distorted.	• Stylus force too weak. • Dust or dirt on stylus. • Cartridge defective.	• Apply proper stylus force. • Check stylus. • Replace cartridge	– – –
	Volume is weak.	• MC cartridge being used.	• Replace with MM cartridge or use a head amplifier or step-up transformer.	6

	Symptom	Cause	Measures	Page
When Playing AM or FM Broadcasts	Radio program can not be received.	• Antenna connection is wrong. • A signal strength is weak.	• Check the connection • Check the antenna installation.	6 10,11
	Noise is reproduced.	• A signal strength is weak. • Automobile ignition noise interferes with reception. • Other electrical equipment interferes with reception.	• Install an outdoor antenna. • Keep the antenna away from the street. • Keep the equipment away from this set, or turn off the power of the other equipment	10,11 10,11 11
	In automatic tuning, the frequency doesn't stop at the radio station.	• A signal strength is weak.	• Use manual tuning	10,11
	In automatic tuning, it stops at the one step lower or higher frequency than the radio station.	• Noise or strong signal strength is received.	• Use manual tuning for optimum reception.	10,11
Remote control unit	Receiver does not operate properly when remote control unit is used. (When LEARNED/TX LED is lit)	• Batteries dead. • Remote control unit too far from receiver. • Obstacle between receiver and remote control unit. • Learning process to the button improper. • Different button is being pressed.	• Replace with new batteries • Move closer. • Remove obstacle. • Set learning again. • Press the proper button.	16 15 15 16 15-17
	Receiver does not operate properly when remote control unit is used. (When LEARNED/TX LED is not lit)	• Learning process to the button improper. • Learning process has not been applied to the button. • Batteries dead • ⊕ and ⊖ ends of battery inserted in reverse • Improper position of PROGRAM switch.	• Set learning again. • Apply learning process. • Replace with new batteries. • Insert batteries properly. • Set to desired position (RECEIVER, AV1	16 16 15 15 16
	"PROTECTION" display appears on the multi function display.	• Improper speaker cord connection •	• Connect speaker cord properly. • Connect the speaker cords properly then turn the POWER switch back on.	5,13 5,6

10 LAST FUNCTION MEMORY

- This receiver is equipped with a last function memory which stores the input and output setting conditions as they were immediately before the power is switched off.
  This function eliminates the need to perform complicated resettings when the power is switched on.
- This receiver is also equipped with a back-up memory. This function provides approximately one month of memory storage with the power switch "OFF".

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11 SPECIFICATIONS

AMPLIFIER SECTION

- **Power Amplifier**

Rated Output:

FRONT:	80 W × 2
(both channel driven at 2ch stereo):	(8 ohms 20 Hz ~ 20 kHz with 0.1% T.H.D.)
CENTER:	30 W × 1
(center 1ch driven at Bypass Mode)	(8 ohms 1 kHz with 0.4% T.H.D.)
REAR:	30 W × 2
(at Dolby Pro Logic Normal Mode)	(8 ohms 1 kHz with 2.0% T.H.D.)

Multi voltage models only

- Power Amplifier

Rated Output:

FRONT:	135 W + 135 W
(both channel driven at 2ch stereo)	(6 ohms/EIAJ)
CENTER:	40 W
(center 1ch driven at Bypass Mode)	(6 ohms/EIAJ)
REAR:	40 W + 40 W
(at Dolby Pro Logic Normal Mode)	(6 ohms/EIAJ)

- **Preamplifier and Main amplifier**

Input sensitivity / impedance: PHONO (MM): 2.5mV/47k ohms
CD, TAPE-1 and 2, DBS/BS, V-AUX, VDP, VCR-1 and 2: 150 mV/47k ohms

Output load impedance: FRONT, MONO, CENTER, REAR 10k ohms load
VCR-1 and 2 OUT, TAPE-1 and 2 OUT: 47k ohm load

Frequency response: 20Hz ~ 40kHz ±3dB (CD input: – FRONT PRE OUT)

RIAA deviation: 20Hz ~ 20kHz ±1dB

S / N ratio: 74dB (with 5mV input) (PHONO)

Tone control range:

BASS	100Hz ±10dB
TREBLE	10kHz ±10dB

- **Video**

Rated input / impedance: DBS/BS, VDP, V, AUX
VCR-1 and 2: 1 Vp-p/75 ohms
S-terminal/VCR-1, V, AUX, color signal: 0.286 Vp-p/75 ohms;
Brightness signal: 1 Vp-p/75 ohms

Rated output / impedance: VCR-1 and 2, MONITOR: 1 Vp-p/75 ohms
S-terminal/VCR-1, MONITOR, color signal: 0.286 Vp-p/75 ohms;
Brightness signal: 1 Vp-p/75 ohms

Video frequency response: VIDEO INPUT 5 Hz ~ 6 MHz +0, –3 dB;
S INPUT 5 Hz ~ 10 MHz +0, –3 dB

- **Surround**

Delay circuit: Digital delay 0 ~ 40 ms

Surround modes: Dolby Pro Logic – Wide
– Normal
– Phantom
– 3-ch logic
Spectacle
Hall
Simulated
Studio

TUNER SECTION

[FM] (note: μV at 75 ohms, 0 dBf = 1 × 10^{-15} W)

Receiving Range:	87.5 MHz ~ 108 MHz	
Usable Sensitivity:	0.9 μV (10.3 dBf)	
50 dB Quieting Sensitivity:	MONO	1.6 μV (15.3 dBf)
	STEREO	23 μV (38.5 dBf)
Signal to Noise Ratio (IHF-A):	MONO	80 dB
	STEREO	75 dB
Total Harmonic Distortion (at 1 kHz):	MONO	0.1%
	STEREO	0.2%

[AM]

Receiving Range:	520 kHz ~ 1710 kHz (for U.S.A. and Canada models); 522 kHz ~ 1611 kHz (for multi voltage model).
Usable Sensitivity:	18 μV
Signal to Noise Ratio:	50 dB

GENERAL

Power supply:	120 V AC, 60 Hz (for U.S.A. and Canada models); 110/220 V, 120/220 V AC, 50/60 Hz (for multi-voltage model)
Power consumption:	4.4 A (for U.S.A. and Canada models)
Maximum external dimensions:	434 (W) × 140 (H) × 421 (D) mm (17-3/32" × 5-33/64" × 16-37/64") AVR-810 470 (W) × 140 (H) × 421 (D) mm (18-1/2" × 5-33/64" × 16-37/64") AVR-810G
Weight:	12.5 kg (27 lbs 10 oz) AVR-810 14 kg (30 lbs 14 oz) AVR-810G

- **Remote control unit (RC-139)**

System remote control with Learning function:
Total buttons: 64
DENON system code CD player: 15 buttons Cassette deck: 8 buttons
DAT: 8 buttons VDP: 8 buttons
AVR-810/810G fixed codes: 41 buttons
System call buttons: 5 (maximum of 5 codes per button)
Programmable remote control
Maximum total: 37 program
Batteries: R6P/AA (two batteries)
External dimensions: 70 (W) × 215 (H) × 18 (D) mm
(2-3/4" × 8-15/32" × 45/64")
Weight: 170 g (Approx. 6 oz) including batteries

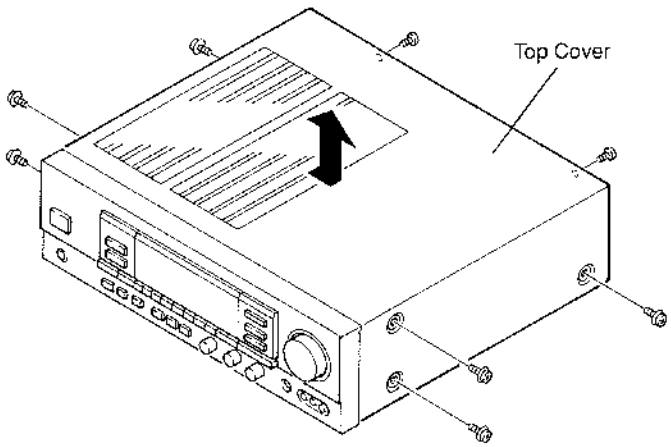
For purposes of improvement, specifications and design are subject to change without notice.

DISASSEMBLY

(To reassemble reverse disassembly)

1. Top Cover

Remove 8 screws, and pull up the top cover to arrow direction.

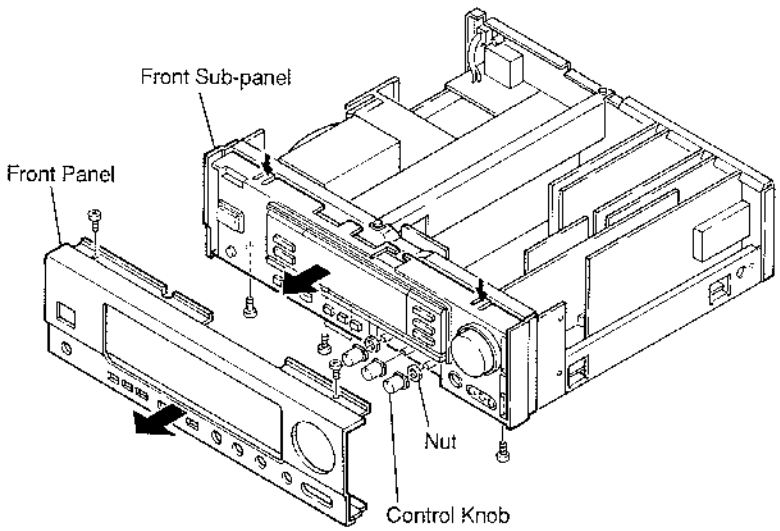


2. Front Panel

(1) Remove 2 upper screws and pull the front panel to arrow direction.

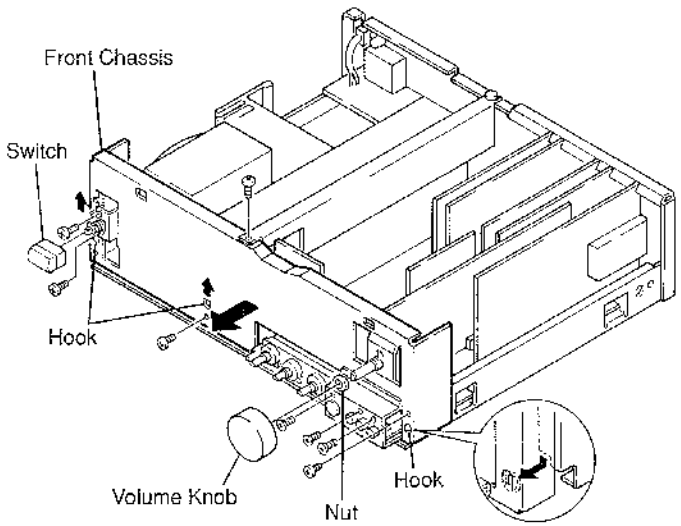
(2) Remove control knobs and nuts.

(3) Remove 4 lower screws and pull the front sub-panel to arrow direction.



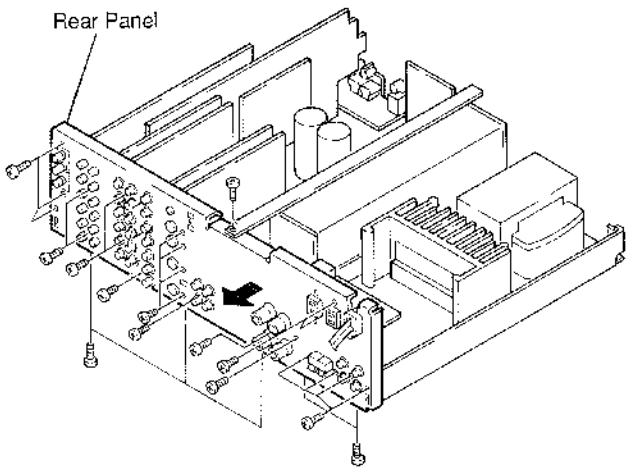
3. Front Chassis

(1) Remove switch, volume knob and nut.
(2) Remove 1 upper screw and 7 front screws.
(3) Remove 3 hooks to arrow direction and pull the front panel.



4. Rear Panel

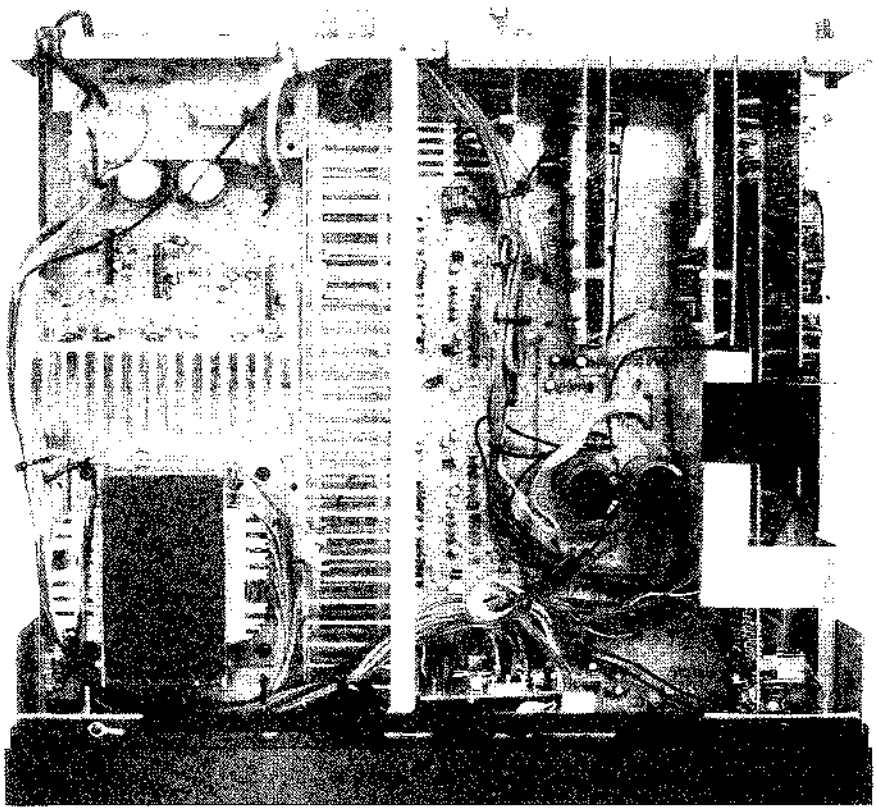
Remove 24 rear screws, 5 bottom screws and 1 upper screw, then pull the rear panel to arrow direction.



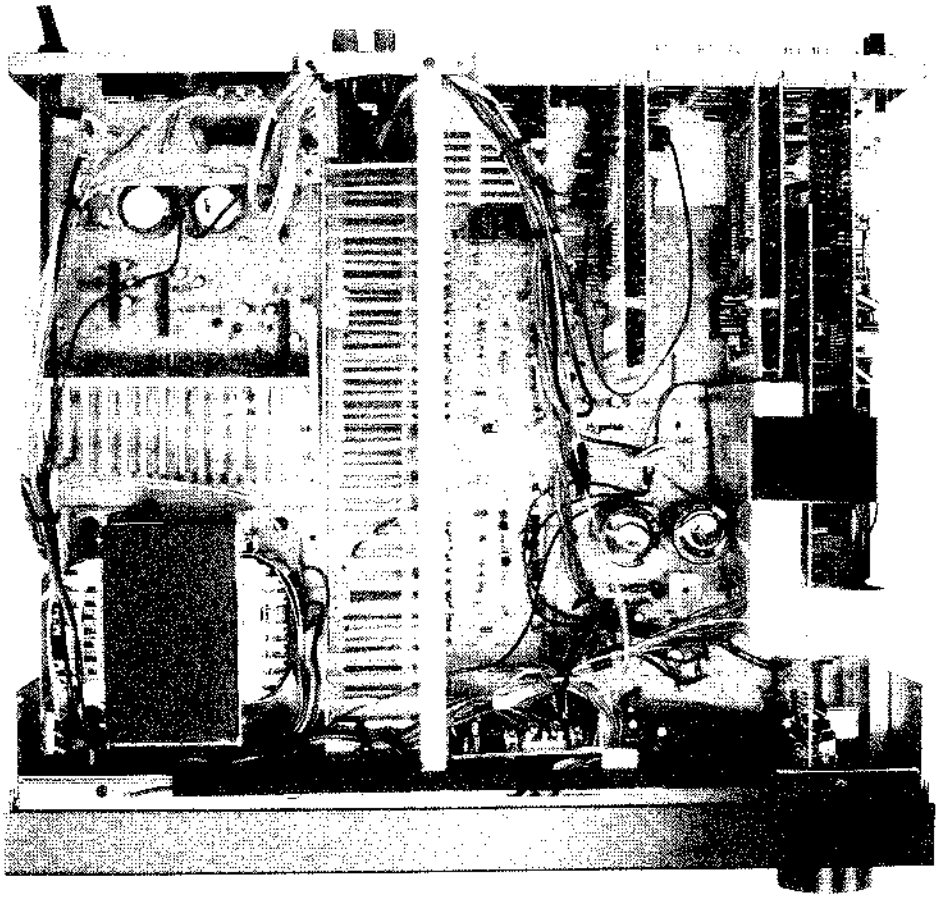
WIRE ARRANGEMENT

In case wires require unclamping or loosening to move the location to perform adjustment or part replacement, be sure to arrange them neatly to restore properly in the same location as they were originally placed. Or, it may occasionally cause to occur a noise.

For U.S.A. Model



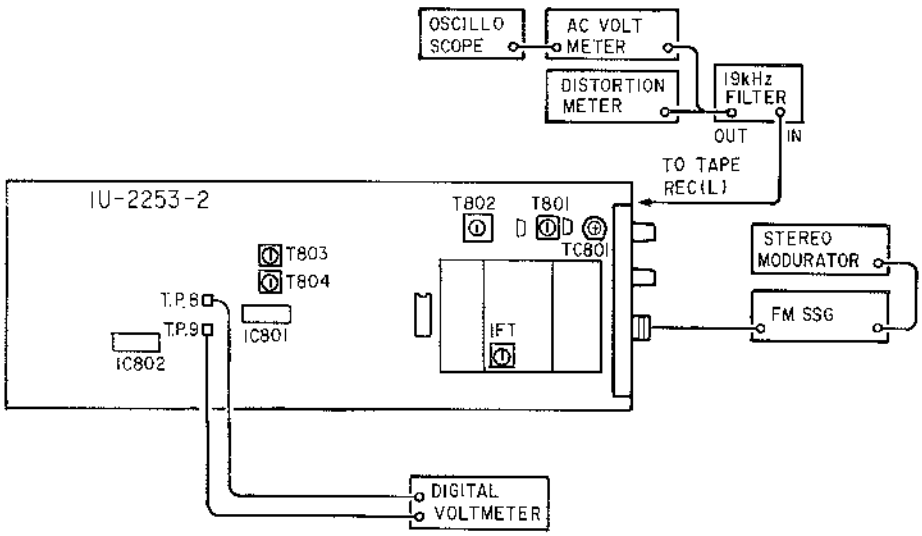
For Multi-Voltage Model



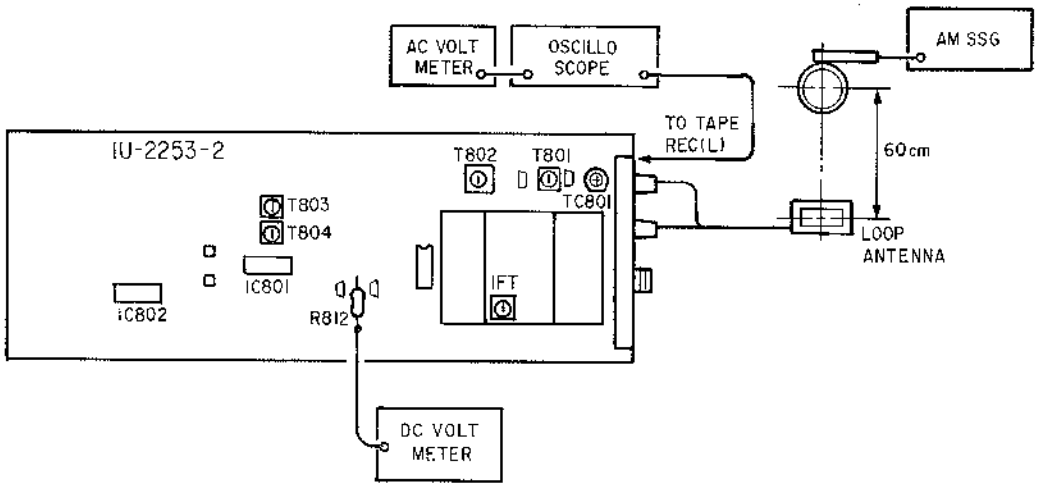
ADJUSTMENT

• TUNER SECTION
CONNECTION DIAGRAM OF MEASURING INSTRUMENTS

• FM



• AM



FM/MPX ALIGNMENT

Step	Alignment Item	Tuning Frequency Setting	Input					Output		Adjust		Remarks
			Type	Frequency	Input Level	Modulation	Coupling	Type	Connect to	Points	Adjust to	
1	Tuning Center	98 MHz	FM SSG Mono	98 MHz	60 dBμ	None	Antenna Terminal	Digital Voltmeter	T.P.8, 9	T804	±50 mV	Function: FM Mode: Auto
2	Distortion (Mono)	98MHz	FM SSG Mono	98 MHz	60 dBμ	1 kHz 100%	Antenna Terminal	Distortion Meter	TAPE REC (L)	T803	Minimum Distortion	Function: FM Mode: Auto
3	Distortion (Stereo)	98 MHz	FM SSG Stereo (L)	98 MHz	60 dBμ	1 kHz Main: 90% Pilot: 10%	Antenna Terminal	Distortion Meter	TAPE REC (L)	IFT on Front End	Minimum Distortion	Function: FM Mode: Auto
4	Noise Center & Distortion	Repeat 1, 2 and 3 to obtain minimum distortion and same time indicating ±50 mV on Digital Voltmeter.										

AM ALIGNMENT

Step	Alignmet Item	Tuning Frequency Setting	Input					Output		Adjust		Remarks
			Type	Frequency	Input Level	Modulation	Coupling	Type	Connect to	Points	Adjust to	
1	Receving Banc Alignment	520 KHz	AM SSG	520 KHz	Input Level is not over to work A.G.C.	400 Hz 30%	Loop Antenna	Electric DC Voltmeter	R812 GND	T802	1.0 V ±20 mV	Function : AM
2	Tracking Alignment	600 KHz	AM SSG	600 KHz	Input Level is not over to work A.G.C.	400 Hz 30%	Loop Antenna	Audio V.M.	TAPE REC (L)	T801	Maximum Output	Function: AM
		1400 KHz	AM SSG	1400 KHz	Input Level is not over to work A.G.C.	400 Hz 30%	Loop Antenna	Audio V.M.	TAPE REC (L)	TC801	Maximum Output	Function: AM
3	Repeat 600 KHz and 1400 KHz to obtain maximum reading on Voltmeter.											

ADJUSTMENT

Idling Current (1U-2250-1) of Front channels

Arrangement

(1) Avoid direct blow from an air conditioner or an electric fan, and adjust the unit at normal room temperature 15°C ~ 30°C. (59°F ~ 86°F).

(2) Presetting

- POWER (Power source switch) → OFF
- VOLUME (Volume control) → 0: fully counterclockwise (↶ min.)
- TONE, BASS, TREBLE and BALANCE controls to center.
- SPEAKERS (Speaker terminal) → No load (Do not connect speaker, dummy resistor, etc.)

Adjustment

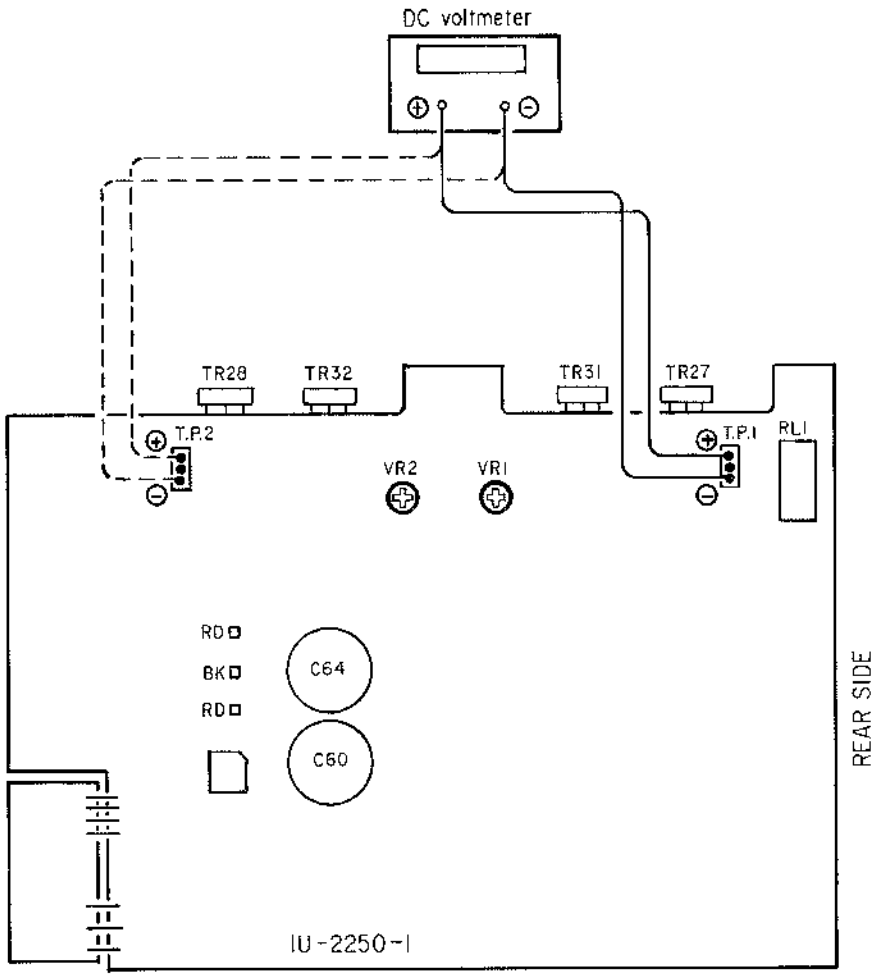
(1) Remove top cover and set VR1 (Lch), VR2 (Rch) of 1U-2250-1, to counterclockwise end position. (↶)

(2) Connect DC Voltmeter across Lch T.P.1 and Rch T.P.2, which are the test points.

(3) Connect power cord to AC line, and turn power switch "ON". Allow a minute, and turn VR1 and VR2 clockwise (↷) and adjust the TEST POINT voltage to 2 ± 1 mV DC.

(4) Allow 2 minutes, and adjust the VR1 and VR2 so that the meter reads 3 ± 1 mV DC.

(5) Allow 10 minutes, and adjust the VR1 and VR2 so that the meter reads 3 ± 1 mV DC.



CIRCUIT DESCRIPTIONS

SURROUND CIRCUIT

(1) Table below shows output in each surround mode.

MODE		Output Signal: FRONT Lch	FRONT Rch	FRONT CENTER	REAR Lch	REAR Rch	Delay Time	Output Control: FRONT	CENTER	REAR
BYPASS		Lin	Rin	Lin+Rin	—	—	—			×
DOLBY PRO. LOGIC	NORMAL	PRO. F_L	PRO. F_R	PRO. C	PRO. S		15 ~ 30			
	PHANTOM	↓	↓	—	↓		↓		×	
	WIDE	↓	↓	PRO. C	↓		↓		↓	
	3CH.	3CH. F_L	3CH. F_R	3CH. C	—		—		PHAN. ×	×
SPECTAREA		PRO. F_L	PRO. F_R	PRO. C	PRO. S		5 ~ 40			
HALL		Lin	Rin	↓	(Lin+Rin) delay		↓		×	
SIMULATED		↓	↓	↓	(Lin+Rin)d	−(Lin+Rin)d	↓		×	
STUDIO		↓	↓	↓	(Lin−Rin)	(Lin−Rin)	0		×	

In output control: ( )d means delay signal. × means OFF output.

Table 1

Switch control in surround mode

SURROUND MODE		Switching Position in Surround Mode (LC7821 "H" SW No.) 1	2	3	4	5	6	7	8	OUTPUT (SPEAKER and VOLUME) Controlling: FRONT	CENTER	REAR	DELAY TIME (msec)
BYPASS					○		○					×	—
DOLBY PRO. LOGIC	NORMAL	○				○		○				Δ	15 ~ 30
	PHANTOM	○				○		○			×	Δ	15 ~ 30
	WIDE	○				○		○				Δ	15 ~ 30
SPECTAREA		○				○			○				5 ~ 40
HALL			○				○	○			×		5 ~ 40
SIMULATED			○				○		○		×		5 ~ 40
STUDIO				○			○	○			×		Fixed 0
		PRO. C	—	—	L+R	PRO. L	DIRECT			× : Inhibits output and controlling. Δ : Inhibits at 3ch Logic.			※ — denotes Controlling inhibition.
		PRO. R	L+R	L−R	—	PRO. R	DIRECT	R	R−				
		REAR, CENTER SIGNAL				FRONT SIGNAL		REAR Rch					
		○ : ON Position, OFF for all others											

Table 2

(2) Dolby Pro-logic surround circuit

AVR-810/AVR-810G provides **Dolby pro-logic surround circuit** surround decoder which functions same as Dolby surround decoder for professional use. The circuit is also called **active decoder**, and it comprises a different circuit from **passive decoder**, conventionally employed for home use labelled as "Dolby surround." (Figure 4)

Directional enhancer to produce crisp sound image travel.

Main feature is **Directional enhancement circuit**. The conventional Dolby surround circuit is designed to control 3 channels (L.R.S), but this circuit provides a new center channel and 4 channels (L.R.C.S.) control, and employs speaker system same as that of a theater to produce the sound effect.

A merit of directional enhancement circuit greatly improves the front and rear sound separation to provide a sharp and dynamic front and rear sound image traveling. Conventionally the front and rear separation is around 3 dB, but the pro-logic provides approximately 26 ~ 40 dB. (Figure 5, 6). The directional enhancement circuit controls left, right, center and surround signals independently, and the sound image is very crisp and clear. With the conventional Dolby surround, the center sound image is nothing but compound of L and R channels, but the pro-logic has an independent center channel to produce the sound image, and achieved approximately 26 ~ 40 dB L and R channels separation. When the sound image is at center, both L and R channel output are cut down and as the sound image travels to L channel, center and R channel output are cut to enhance the travel of the sound.

Feature of Pro-Logic mode

- NORMAL: Signals which below 100Hz is cut are applied to center channel, and the signals below 100Hz are applied to L and R front speakers. Employ L and R speakers of a certain grade (as a pointer, use ones better than book-shelf), and use a smaller speaker for the center channel.

- WIDE: Normal signal is applied to center channel as it is. Employ speakers of the same grade (better than book-shelf) for center channel as well as L and R speakers.

- PHANTOM: Center channel signals are evenly applied to L and R channels. When a center speaker is not available, this mode is employed. Even without the center channel, the directional enhancement circuit functions as it is.

- 3CH LOGIC: "3CH LOGIC" mode built in remote control is to enjoy the surround mode without the surround speaker. In normal pro-logic mode, rear (Sch) outputs reversed phase of Lch, Rch input, but in this mode the output is mixed with the front direction Lch and Rch outputs.

- TEST TONE (Remote control): Used to adjust output level of each channel.

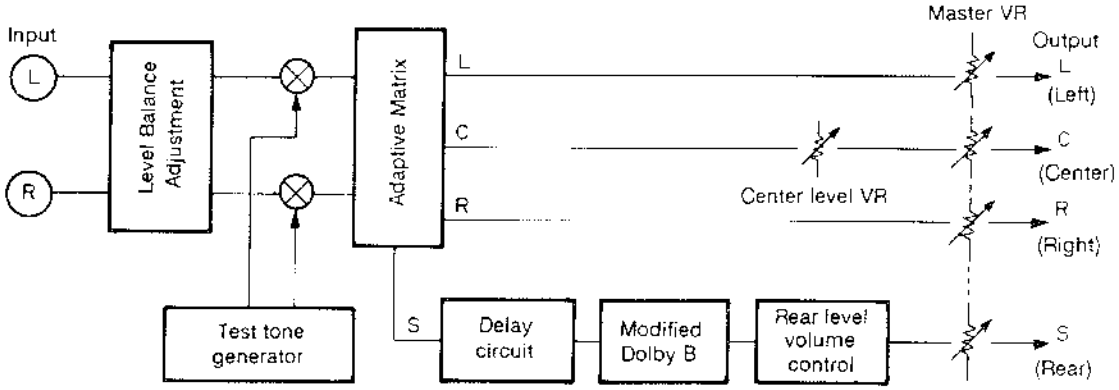


Figure 4

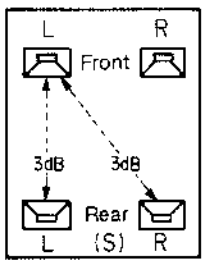


Figure 5

Dolby surround decoder
(Passive decoder)

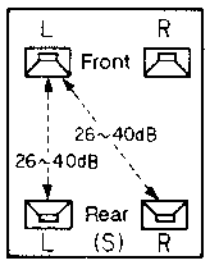


Figure 6

Dolby pro-logic surround decoder
(Active decoder)

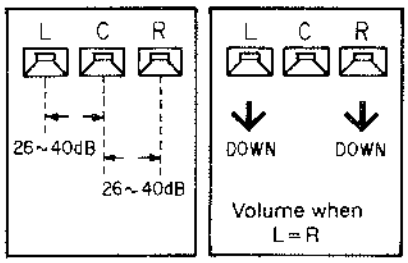


Figure 7

Dolby pro-logic surround decoder
(Active decoder)

Confirm Pro-logic circuit function

Confirm correct pro-logic circuit function with input signal shown table below.

- Measurement : Apply the correct input signal, and adjust level VR of master, center and rear, so that the level falls approximately within * level, respectively.

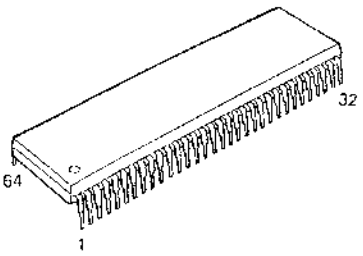
	Input	Output	Mode		
			Normal	Phantom	Wide
Pro-logic	L ch only	L	* 0 dB (1 kHz)	→	→
		C	(a) Below –20 dB (Normally approximately -26 - - -42 dB)		
		R			
		S			
	R ch only	L	Same as (a)		
		C			
		R	* 0 dB (1 kHz)	→	→
		S	Same as (a)		
	L = R Same Phase signal	L	Below –20 dB/approx. –6 dB	0 dB	Same as (a)
		C	* 0 dB/approx. –3 dB	Same as (a)	0 dB/0 dB
		R	Below –20 dB/approx. –6 dB	0 dB	Same as (a)
		S	Same as (a)		
	L = –R Both CHs Reversed Phase signal	L	Same as (a)		
		C			
		R			
		S	* +3 dB	→	→
3 ch logic	L = –R Both CHs Reversed Phase signal	L	* –3 dB	→	→
		C	Same as (a)		
		R	* –3 dB	→	→
		S	Same as (a)		

Table 3

SEMICONDUCTORS

● IC's

MSC7128-03SS (IC903)

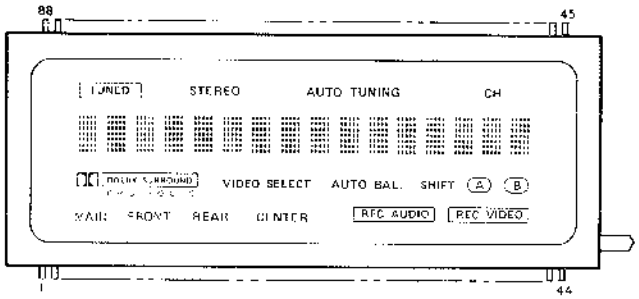


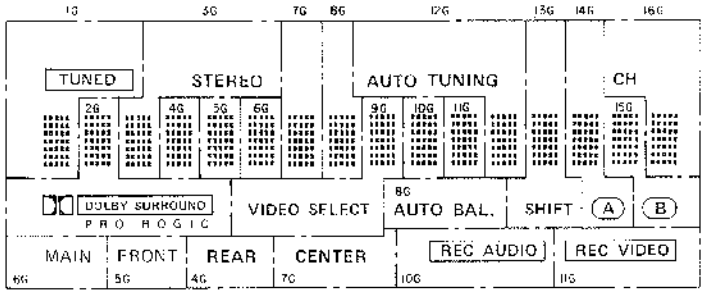
Terminal Name	Terminal No.	I/O	Connection
V_{DD1}	60		Power Supply
V_{DD2}	59		
V_{SS}	5		
V_{EE}	6		
DA	63	I	µCOM
$\overline{CP}$	62	I	µCOM
$\overline{CS}$	64	I	µCOM
OSCI	2	I	
OSCO	1	O	

Terminal Name	Terminal No.	I/O	Connection
RESET	61	I	
COM1 ~ COM16	7 ~ 22	O	FL DISPLAY GRID
SEG1 ~ SEG35	58 ~ 24	O	FL DISPLAY ANODE
SEG36	23	O	FL DISPLAY ANODE
TEST STEP	4	I	
TEST COUNT	3	I	

Table 4

● FL DISPLAY FIP16XM1KA





11	21	31	41	51
12	22	32	42	52
13	23	33	43	53
14	24	34	44	54
15	25	35	45	55
16	26	36	46	56
17	27	37	47	57

5 × 7 Dot inner connections.

(UPPER)

TERMINAL No.	88	87	86	85	84	83	82	81	80	79	78	77								
ELECTRODE	F	F	NP	NP	NP	NP	NP	NP	P (11)	P (21)	P (31)	P (41)								
TERMINAL No.	76	75	74	73	72	71	70	69	68	67	66	65	64	63	62	61	60	59	58	57
ELECTRODE	P (51)	P (12)	P (22)	P (32)	P (42)	P (52)	P (13)	P (23)	P (33)	NP	NP	NP	P (55)	P (45)	P (35)	P (25)	P (15)	P (54)	P (44)	P (34)
TERMINAL No.									56	55	54	53	52	51	50	49	48	47	46	45
ELECTRODE									P (24)	P (14)	P (53)	P (43)	NP	NP	NP	NP	NP	NP	F	F

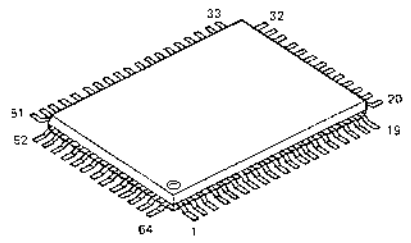
(LOWER)

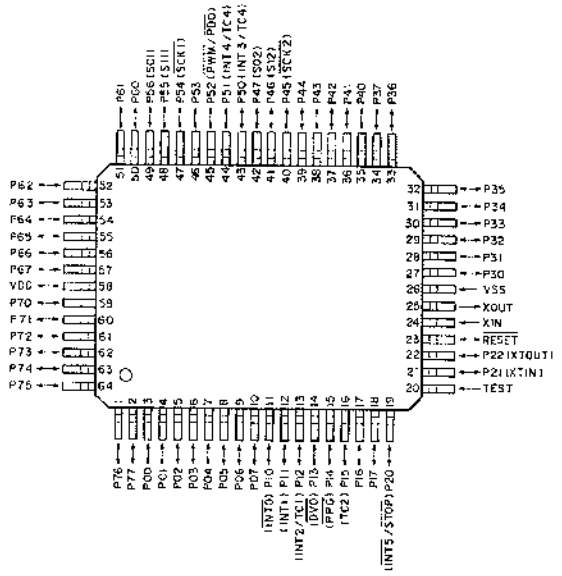
TERMINAL No.									33	34	35	36	37	38	39	40	41	42	43	44
ELECTRODE									P (27)	P (37)	P (47)	P (57)	NP	NP	NP	NP	NP	NP	F	F
TERMINAL No.	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
ELECTRODE	3G	7G	8G	12G	13G	14G	15G	16G	11G	10G	2G	9G	NP	P (X)	P (16)	P (26)	P (36)	P (46)	P (56)	P (17)
TERMINAL No.	1	2	3	4	5	6	7	8	9	10	11	12								
ELECTRODE	F	F	NP	NP	NP	NP	NP	NP	6G	5G	4G	1G								

Notes: F: Filament NP: No Pin
G: Grid
P: Anode

Table 5

TMP87CH00F (IC901)



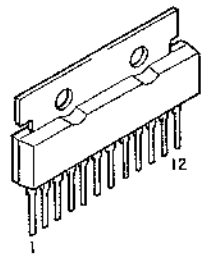


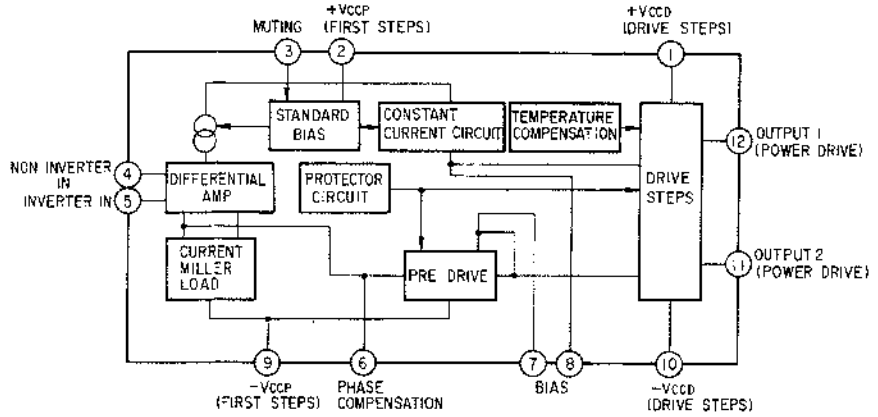
TMP87CH00F Terminal Function

Pin No.	Terminal Name	I/O	Active	Initial	Usage
1	P76	O	H	H	[B] Video input control. (HD14051, 14052)
2	P77	O	H	H	[C] Video input control. (HD14051, 14052)
3	P00	O	H	H	[A] Video rec out control. (HD14051, 14052)
4	P01	O	H	H	[B] Video rec out control. (HD14051, 14052)
5	P02	O	H	H	[C] Video rec out control. (HD14051, 14052)
6	P03	O	H#	H	[VCR-1] Rec inhibit. (#"H" at inhibit mode)
7	P04	O	H#	H	[VCR-2] Rec inhibit. (#"H" at inhibit mode)
8	P05	O	H	L	[CK] Audio I/O and surround analog switch. (LC7821, 7822) (#"H" at enable mode)
9	P06	O	H	L	[DATA] Audio I/O and surround analog switch. (LC7821, 7822) (#"H" at enable mode)
10	P07	O	H#	H	[$\overline{CE}$] Audio I/O and surround analog switch. (LC7821, 7822) (#"H" at enable mode)
11	P10 ($\overline{INT0}$)	I	L#	—	Power brakedown detection terminal. (#"L" at power brakedown mode)
12	P11 ($\overline{INT1}$)	I	H#	—	Protection input. (#"H" at protection mode)
13	P12 (INT2/TC1)	I	H	—	Remote control receive signal input.
14	P13 ($\overline{DVO}$)	I	L	—	All times "L" active.
15	P14 ($\overline{PPG}$)	O	H	H	[DM1] Pro-logic control. (SSM-2125)
16	P15 (TC2)	O	H	H	[DM2] Pro-logic control. (SSM-2125)
17	P16	O	H	H	[DM3] Pro-logic control. (SSM-2125)
18	P17	O	H	H	[DM4] Pro-logic control. (SSM-2125)
19	P20 ($\overline{INT5}$/STOP)				Open.
20	TEST	I	—	—	Connect to Ground.
21	P21 (XTIN)	O	H	H	[CM1] Pro-logic control. (SSM-2125)
22	P22 (XTOUT)	O	H	H	[CM2] Pro-logic control. (SSM-2125)
23	$\overline{RESET}$	I	L	—	Reset signal input.
24	XIN	I	—	—	Connect to oscillator. (8 MHz)
25	XOUT	O	—	—	Connect to oscillator. (8 MHz)
26	VSS	P.S.	—	—	Power supply terminal. (0V)
27	P30	O	L	L	Master volume LED.
28	P31	O	L#	L	[$\overline{RS}$] FL driver reset signal output. (#"L" at reset mode)
29	P32	O	L#	L	[ST/MONO] Stereo and monaural switching. (#"L" at stereo mode)
30	P33	O	L#	H	[SP-MAIN] Speaker relay control. (#"L" at speaker output mode)
31	P34	O	L#	H	[SP-REAR] Speaker relay control. (#"L" at speaker output mode)
32	P35	O	L#	H	[SP-CENTER] Speaker relay control. (#"L" at speaker output mode)
33	P36	O	L#	H	Remote power control. (#"L" at power on mode)
34	P37	O	H#	H	[PRE OUT, H/P MUTE] (#"H" at mute mode)
35	P40	O	H	L	[DATA] Electrical volume control. (TC9176N)
36	P41	O	H	L	[CK] Electrical volume control. (TC9176N)
37	P42	O	H	L	[ST] Electrical volume control. (TC9176N)
38	P43	O	H	L	[VOL. UP] Electrical volume control. (BA6109)
39	P44	O	H	L	[VOL. DOWN] Electrical volume control. (BA6109)

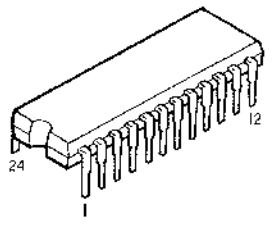
Pin No.	Terminal Name	I/O	Active	Initial	Usage
40	P45 (SCK2)	O	H	L	[CK] FL driver control. (MSC7128) (#"L" at data transfer mode)
41	P46 (SI2)	O	L#	H	[Req] FL driver control. (MSC7128) (#"L" at data transfer mode)
42	P47 (SO2)	O	H	L	[DATA] FL driver control. (MSC7128) (#"L" at data transfer mode)
43	P50 (INT3/TC3)	I	H#	—	Tuned signal input. (# "H" at receive mode)
44	P51 (INT4/TC4)	I	L#	—	Stereo signal input. (# "L" at stereo signal receive mode)
45	P52 ($\overline{PWM/PDD}$)	O	H#	H	[TUNER MUTE] (# "H" at mute mode)
46	P53	O	H#	H	[AMP MUTE] (#"H" at mute mode)
47	P54 ($\overline{SCK1}$)	O	H	L	[CK] Tuner PLL control. (LM7001)
48	P55 (SI1)	O	H	L	[ST] Tuner PLL control. (LM7001)
49	P56 (SO1)	O	H	L	[DATA] Tuner PLL control. (LM7001)
50	P60	O	H	L	[CK] Digital delay control. (M50198P) (#"L" at data transfer mode)
51	P61	O	H	L	[DATA] Digital delay control. (M50198P) (#"L" at data transfer mode)
52	P62	O	L#	H	[Req] Digital delay control. (M50198P) (#"L" at data transfer mode)
53	P63	O	H	L	[KS1] Key scan strobe.
54	P64	O	H	L	[KS2] Key scan strobe.
55	P65	O	H	L	[KS3] Key scan strobe.
56	P66	O	H	L	[KS4] Key scan strobe.
57	P67	O	H	L	[KS5] Key scan strobe.
58	VDD	P.S.	—	—	Power supply terminal. (+5V)
59	P70	I	H	—	[KA1] Key scan receive.
60	P71	I	H	—	[KA2] Key scan receive.
61	P72	I	H	—	[KA3] Key scan receive.
62	P73	I	H	—	[KA4] Key scan receive.
63	P74	I	H	—	[KA5] Key scan receive.
64	P75	O	H	H	[A] Video input control. (HD14051, 14052)

µPC1225H (IC301, 351, 352)

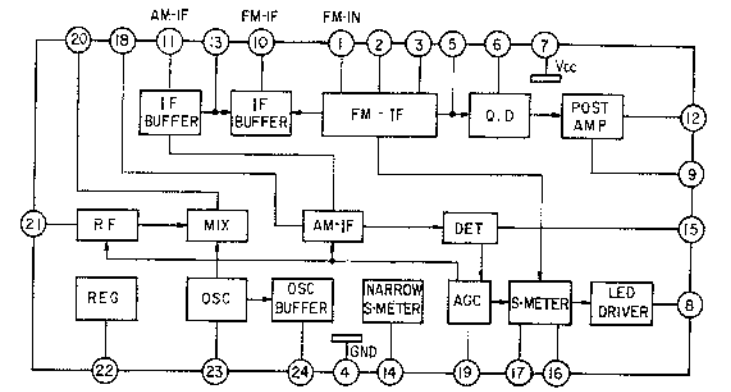




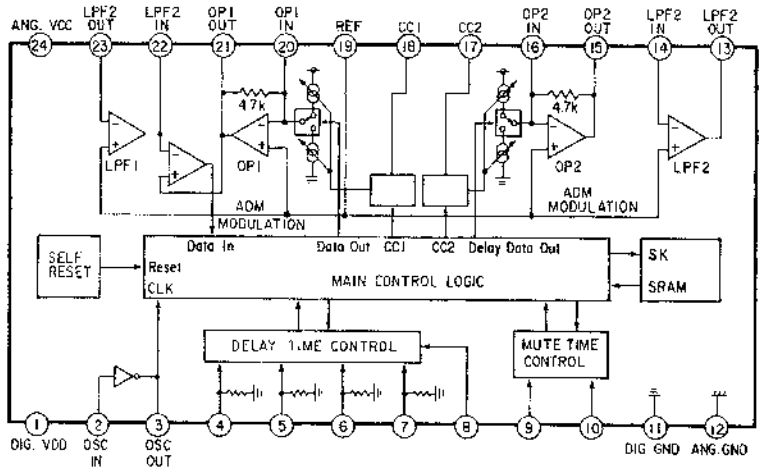
LA1266 (IC801)
M50198P (IC403)



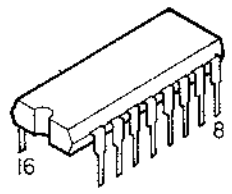
LA1266

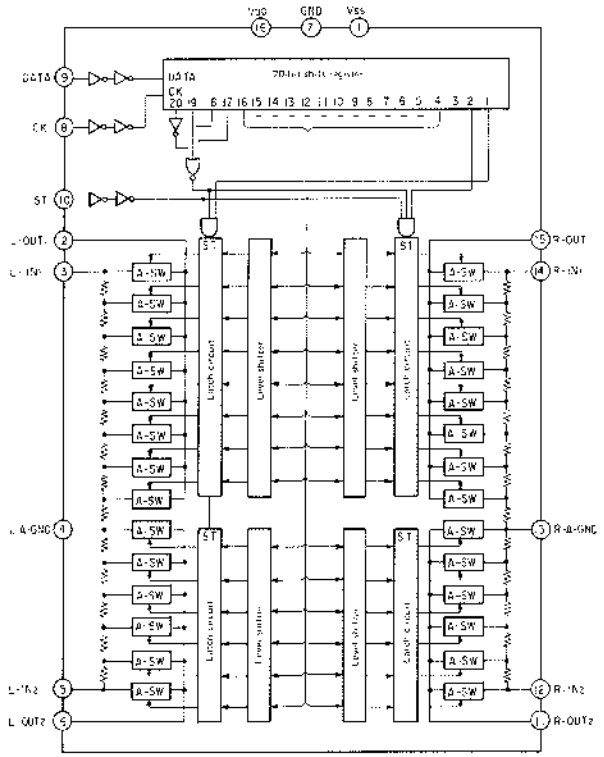


M50198P

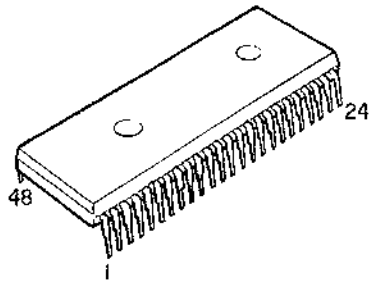


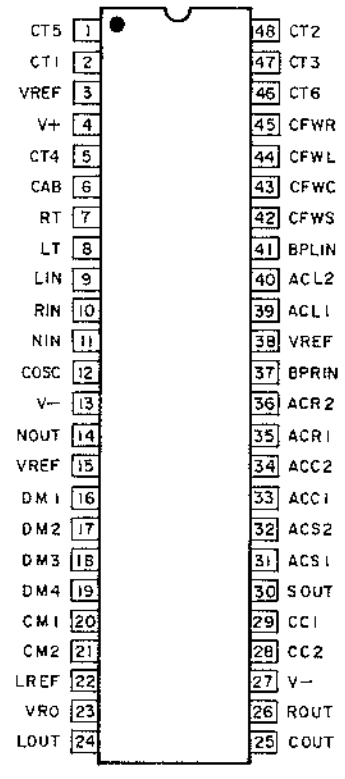
TC9176P
(IC407)



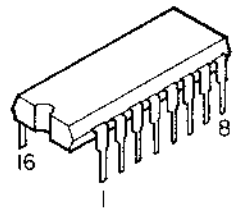


SSM2125D
(IC410)

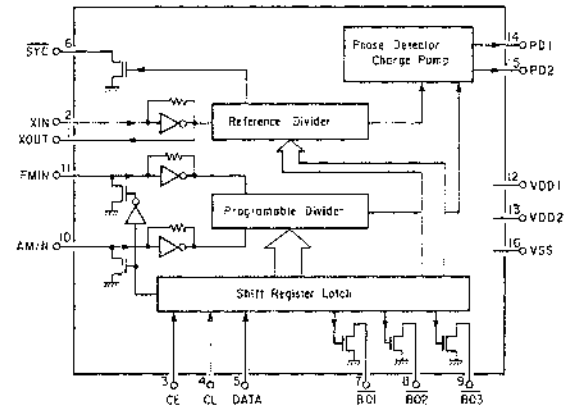




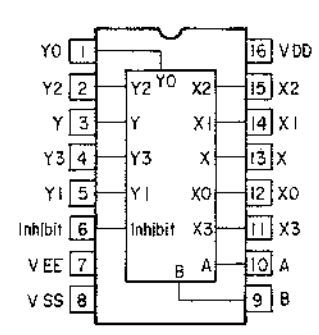
LM7001
HD14051BP
HD14052BP

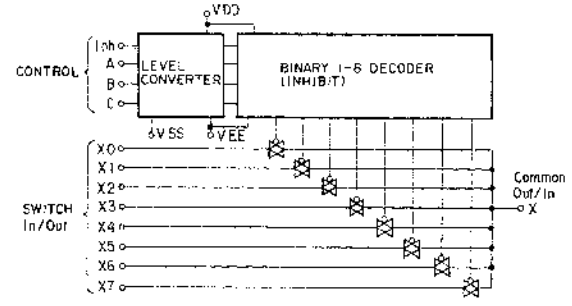


LM7001 (IC803)

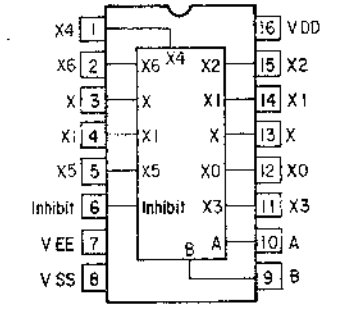


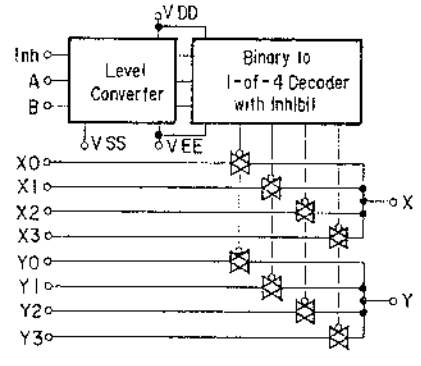
HD14051BP
(IC701, 702)



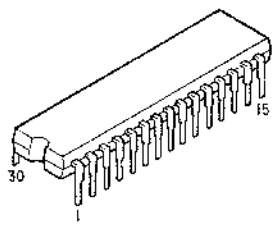


HD14052BP
(IC704, 705)

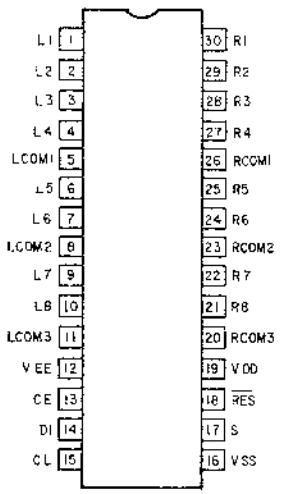




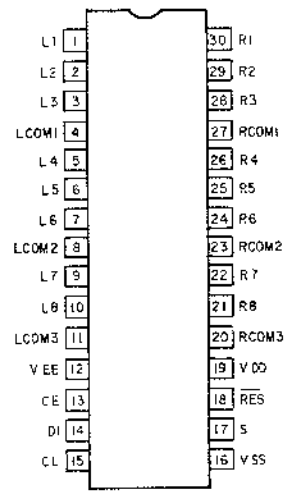
LC7821 (IC102, 408)
LC7822 (IC103, 104)



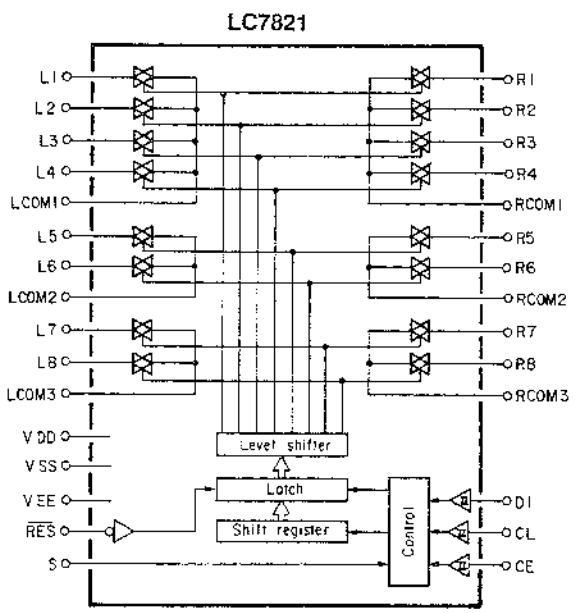
LC7821



LC7822



LC7821



LC7822

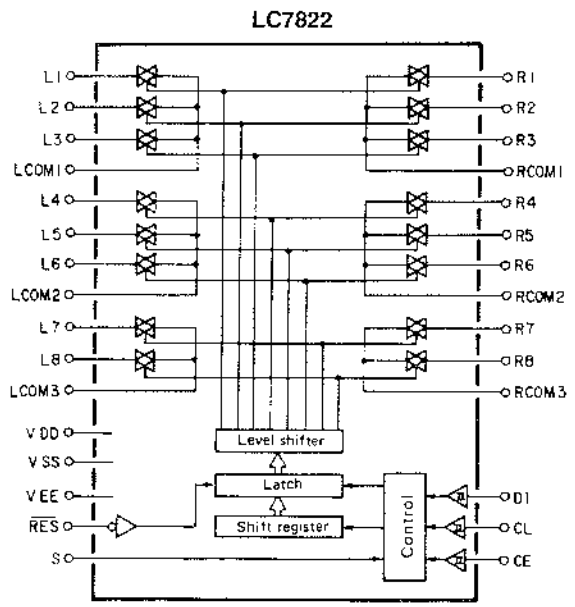
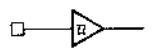
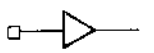
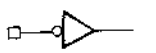


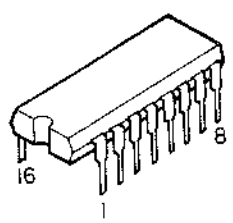
TABLE OF TERMINAL FUNCTION for LC7821, 7822

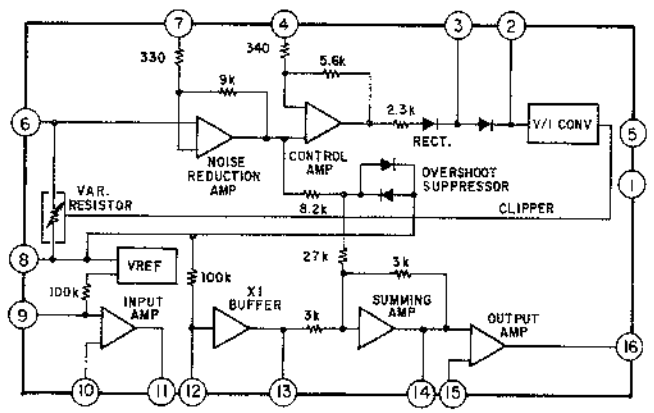
Name of Terminal	I/O	Equivalent Internal Circuit	Function of Terminal
V_{DD}, V_{SS}, V_{EE}			Power terminal.
L1 – L8, R1 – R8, LCOM1 ~ LCOM4, BCOM1 ~ BCOM4		Refer to block diagram	In/Out terminal of analog switch.
CL, DI, CE	I		Serial data input terminal (Schmidt buffer). CL = Clock input terminal. DI = Data input terminal. CE = Chip enable terminal.
S	I		Selection terminal for using of two. Address will be shifted as per below table when switching S terminal to L or H.
$\overline{RES}$	I		Reset terminal. Condition of analog switch is not fixed at the time turn on the power. When shift this terminal to L, all analog switches become OFF.

Name of Item	S Terminal	Address			
		A0	A1	A2	A3
LC7821	L	0	1	0	1
	H	1	1	0	1
LC7822	L	0	0	1	1
	H	1	0	1	1

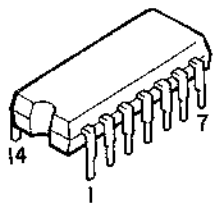
Table 13

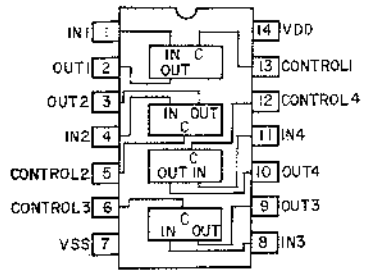
LA2730
(IC404)



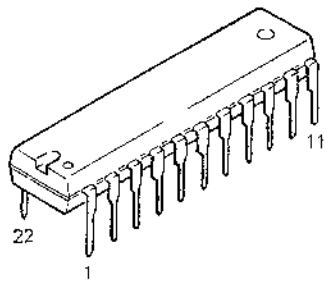


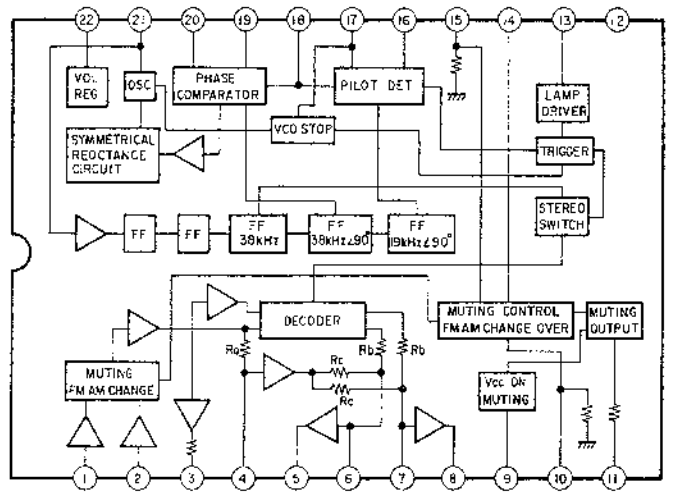
HD14066BP
(IC703,706)



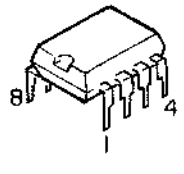


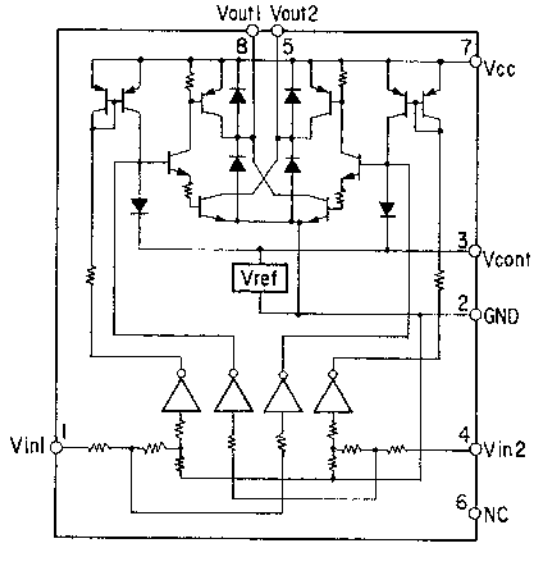
LA3401
(IC802)



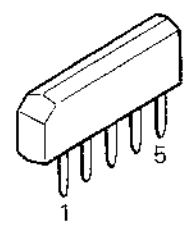


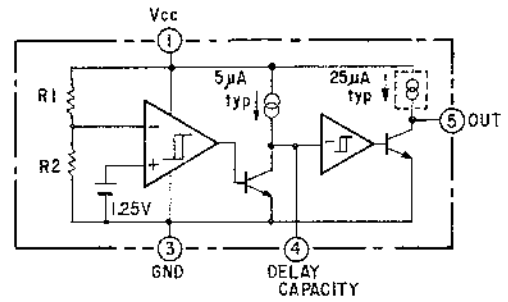
BA1639
(IC651)



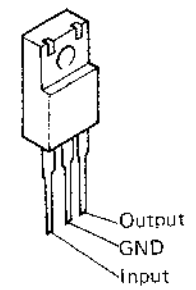


M51953B
(IC902)

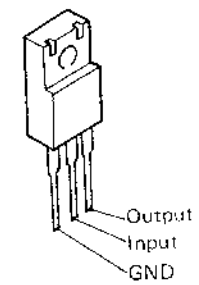




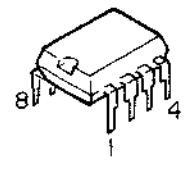
NJM7806FA (IC6, 9)
NJM7815FA (IC1)

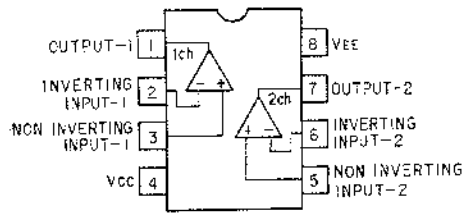


NJM7906FA (IC10)
NJM7915FA (IC2)

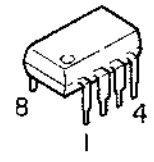


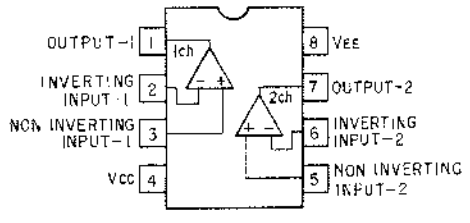
M5218AP (IC105, 231, 401, 402, 405, 406, IC409, 412, 415, 601, 653)





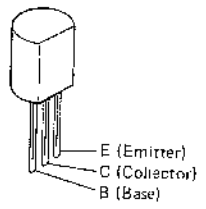
NJM4558D-D (IC101)



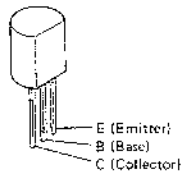


● TRANSISTORS

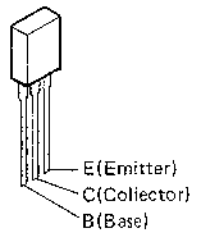
2SA970 (BL)
2SA988 (E/F)
2SA1015 (GR/Y), (GR)
2SC1815 (BL), (Y)
2SC1841 (E/F)
2SC2878 (A/B)



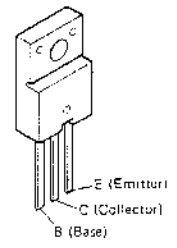
2SD667A (C)



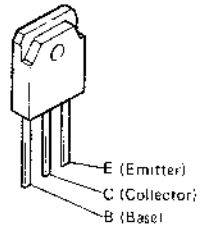
2SB1328 (P)
2SD2004 (P)



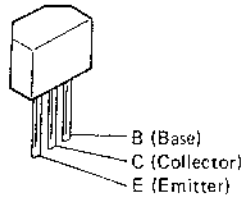
2SA1725 (Y)
2SC4511 (Y)



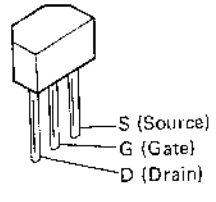
2SA1491 (O)/(P)/(Y)
2SC3855 (O)/(P)/(Y)



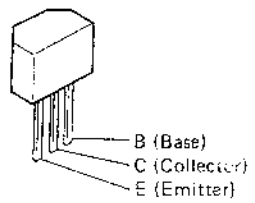
2SA1048 (GR)
2SC2458 (Y/GR), (BL)
2SC2839 (E)



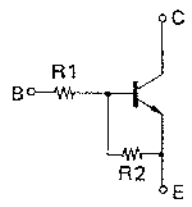
2SK365 (BL/GR)



RN1204 (47k-47k)
RN2202 (10k-10k)
RN2204 (47k-47k)
RN1241 (A/B)

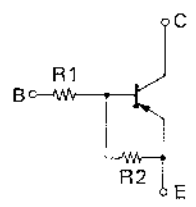


RN1204 (47k-47k)



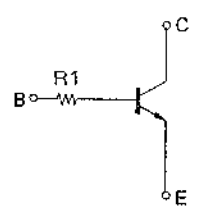
	R1	R2
RN1204	47kΩ	47kΩ

RN2202 (10k-10k)
RN2204 (47k-47k)



	R1	R2
RN2202	10kΩ	10kΩ
RN2204	47kΩ	47kΩ

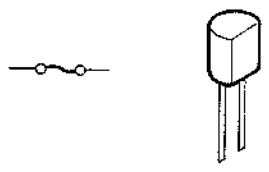
RN1241



	R1
RN1241	5.6kΩ

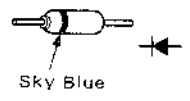
● IC PROTECTOR

ICP-N10 (IC3, 4)
ICP-N15 (IC5, 8, 11, 12)

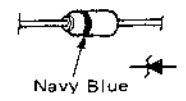


● DIODES (Included LED)

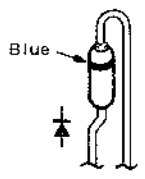
1SS270A
1S2076A



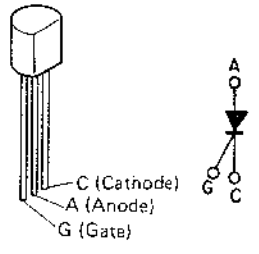
HZS7C-2
HZS6B-3
HZS3B-2
HZS7B-3
HZS9A-2
HZS20-1
HZS20-3



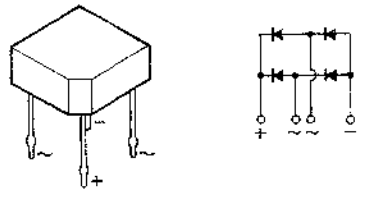
1SR35-200A



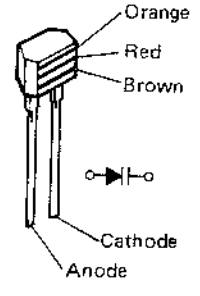
SFOR1A42
(Thyristor)



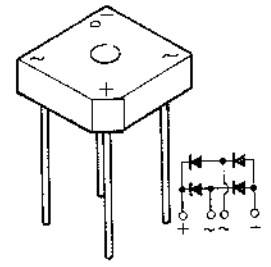
4D4B42



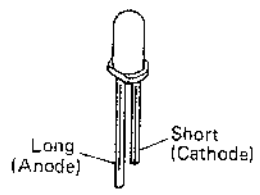
SVC321SPA-D-2



S4VB20

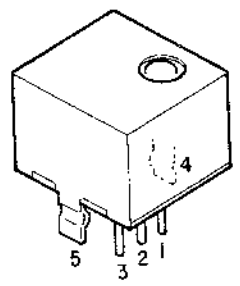


SEL1210S (Red)



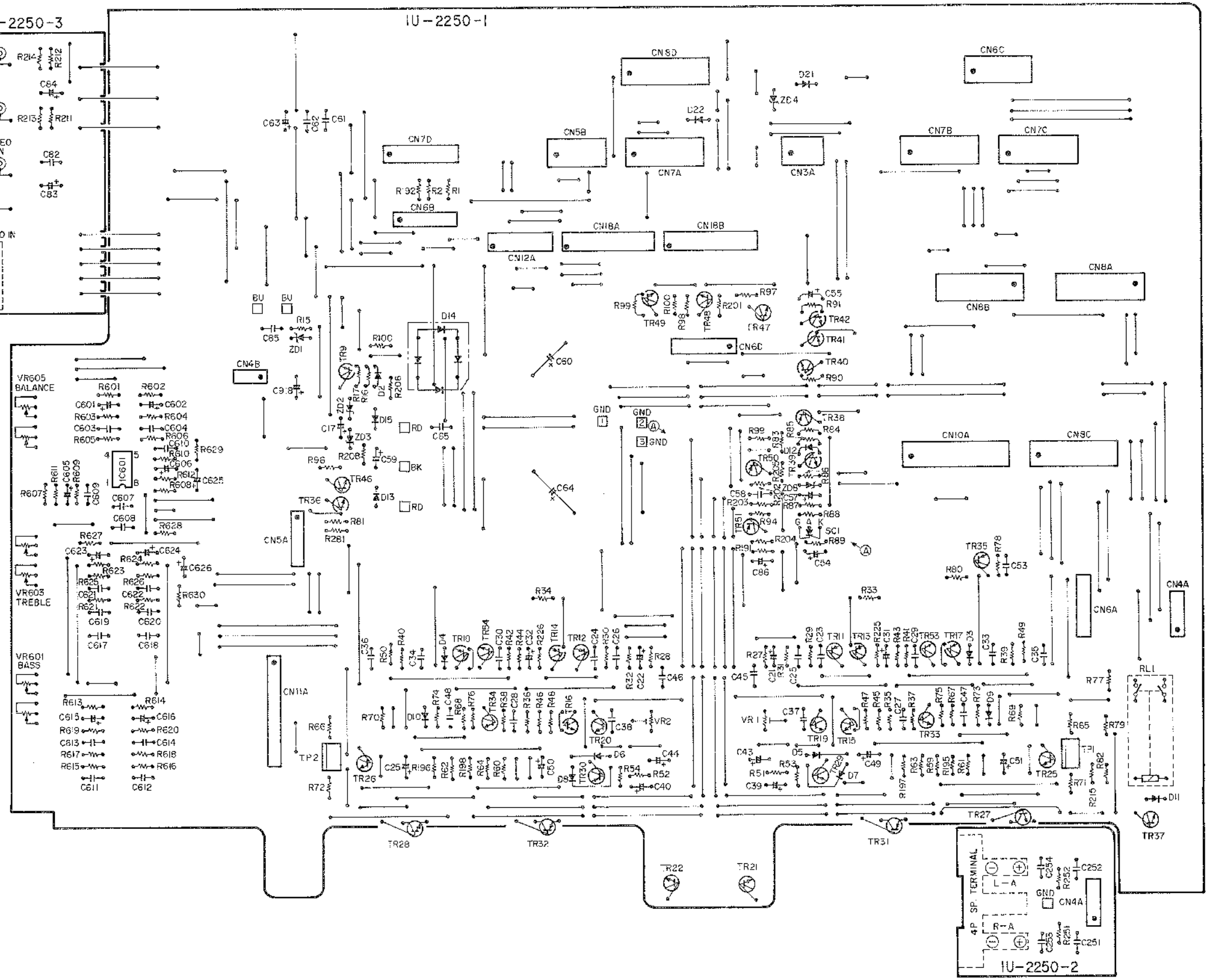
● OTHERS

SBX1610-52 (Remote Control Receiver)

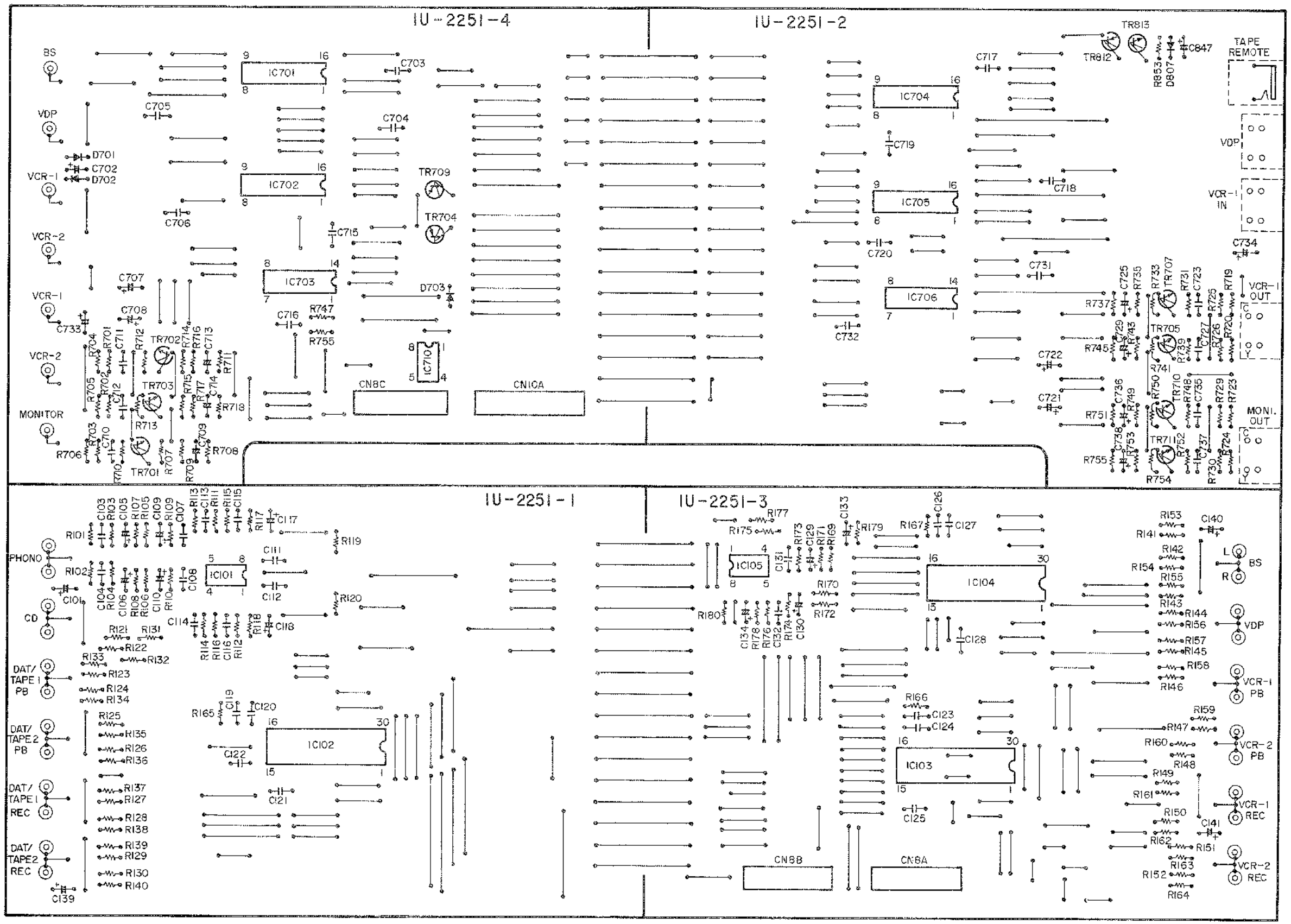


PRINTED WIRING BOARD (Pattern side)

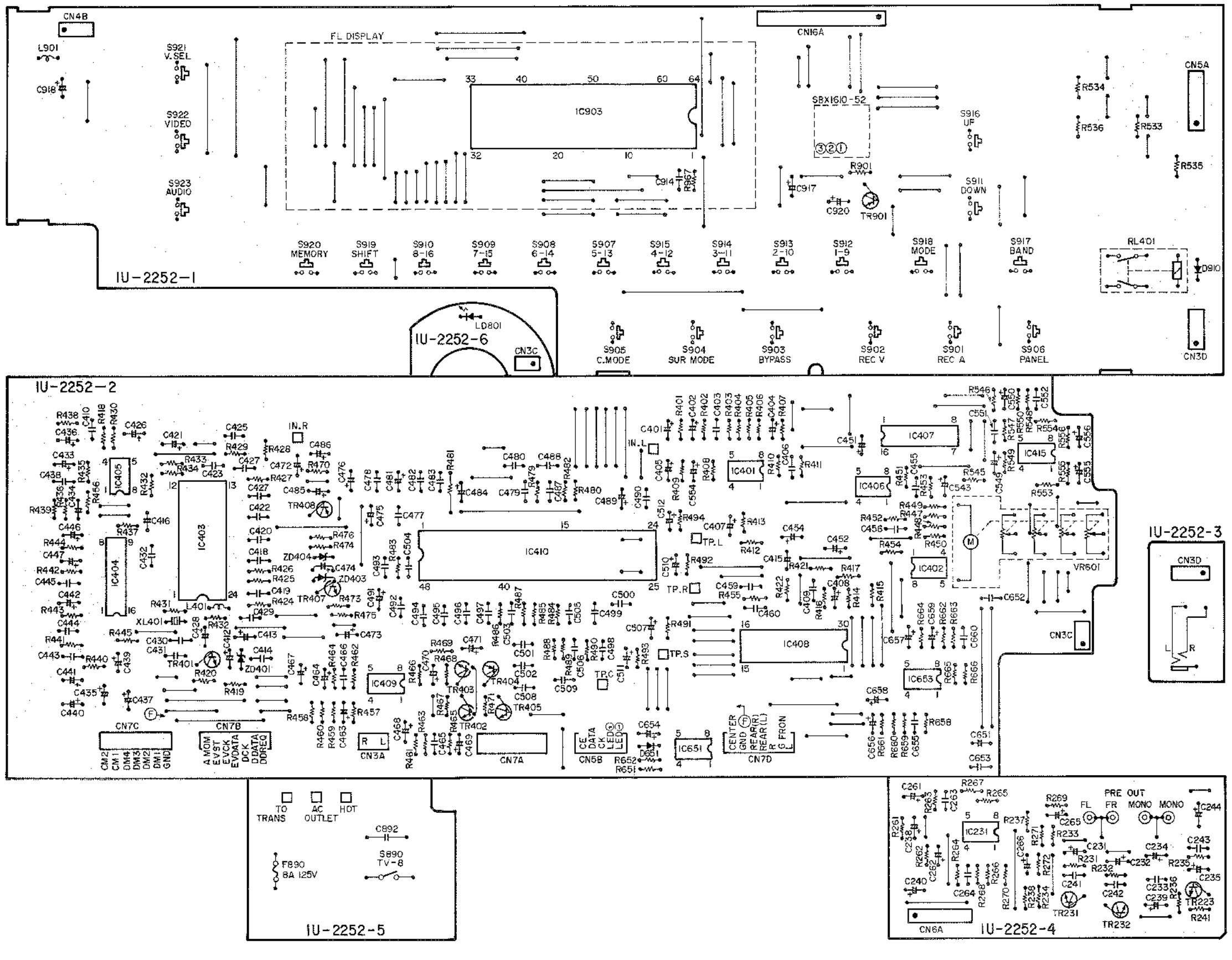
1U-2250 FRONT AMP. UNIT ASS'Y



1U-2251 INPUT UNIT ASS'Y



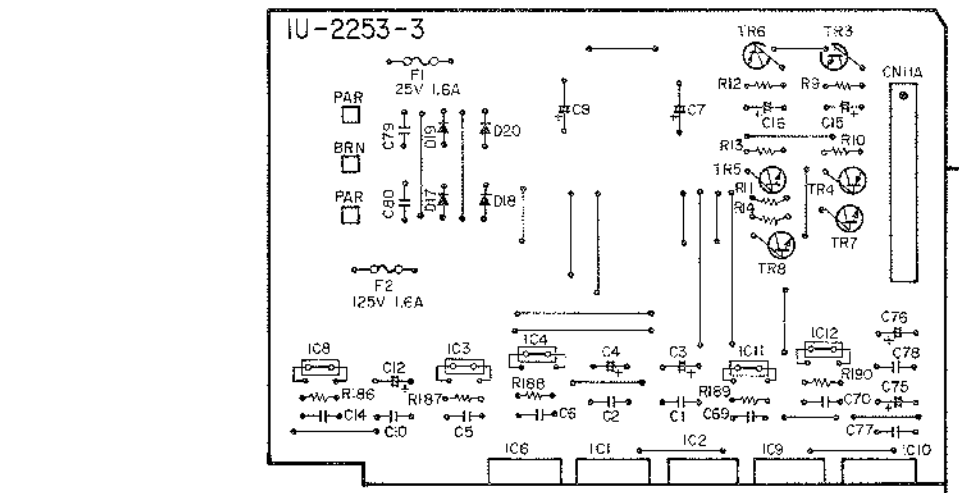
1U-2252 SURROUND UNIT ASS'Y

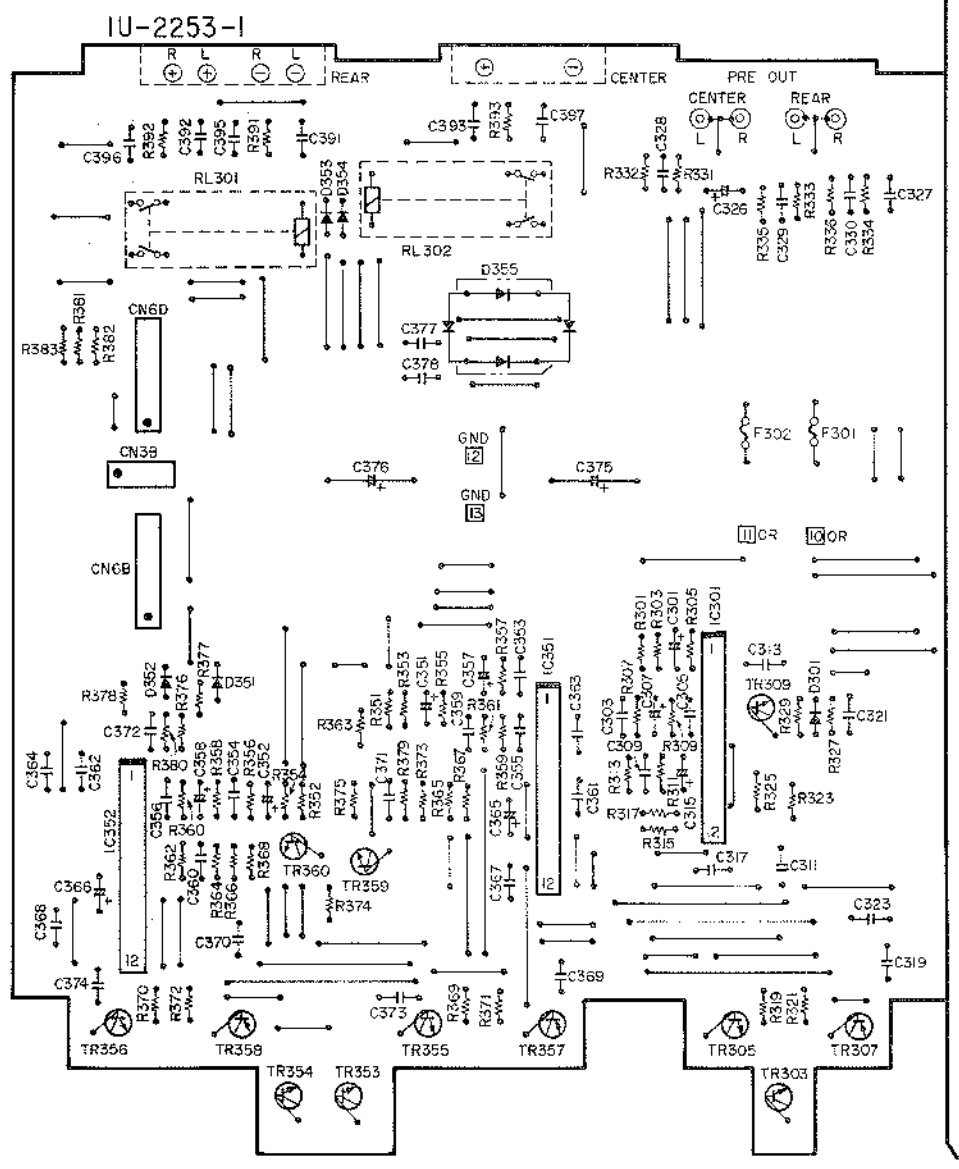


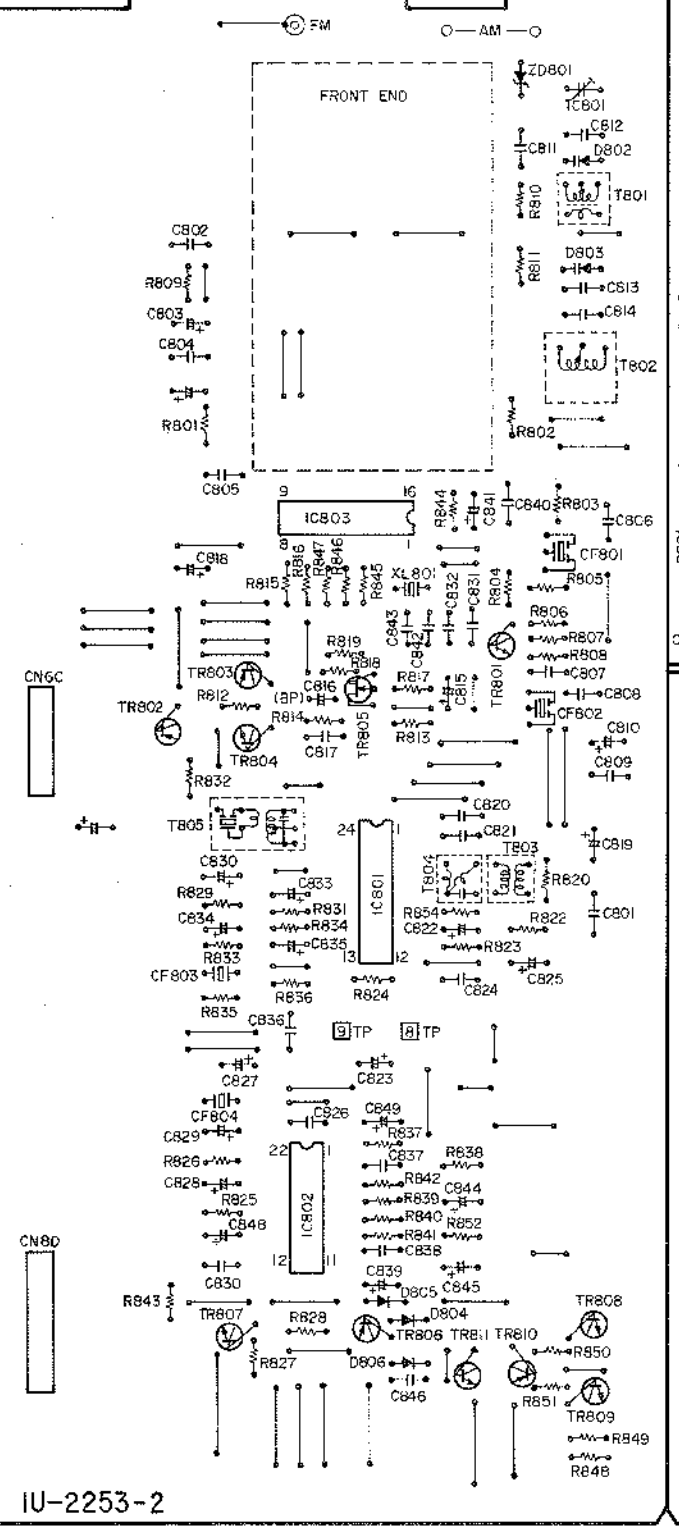
1 2 3 4 5 6 7 8

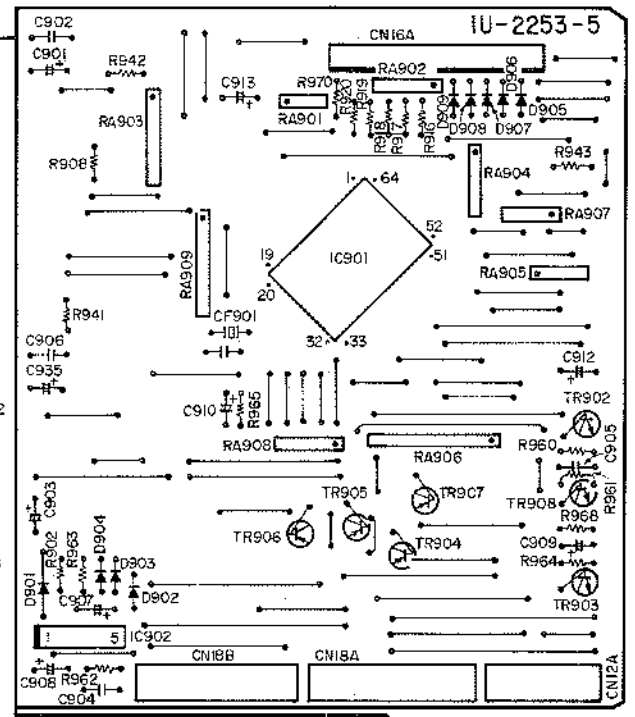
A B C D E

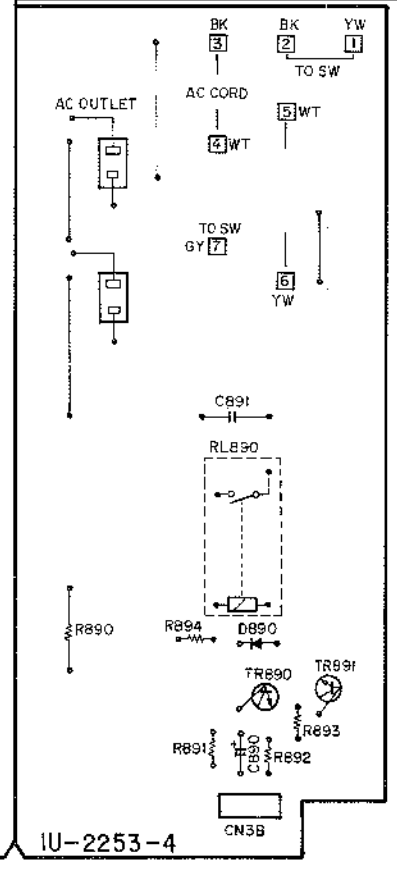
1U-2253 REAR CENTER AMP UNIT ASS'Y











NOTE FOR PARTS LIST

- Part indicated with the mark " ⊙ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "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 ⚠ ▒ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

- **Resistors**

Ex.: RN (Type) 14K (Shape and performance) 2E (Power) 182 (Resistance) G (Allowable error) FR (Others)

Type	Power	Allowable error	Others
RD Carbon	2B 1/8W	F ±1%	P Pulse-resistant type
RC Fixed	2E 1/4W	G ±2%	NL Low noise type
RS Metallic film	2H 1/2W	J ±5%	NB Non-burning type
RW Winding	3A 1W	K ±10%	FR Fuse resistor
RN Metal film	3D 2W	M ±20%	F Lead wire forming
RK Metal mixture	3F 3W		
	3H 5W		

★ **Resistance**
1 8 2 ⇨ 1800Ω = 1.8kΩ
2 ...... Indicates number of zeros after effective number
1 8 ...... 2-digit effective number, decimal point indicated by R
• Units: Ω

- **Capacitors**

Ex.: CE (Type) 04W (Shape and performance) 1H (Dielectric strength) 2R2 (Capacity) M (Allowable error) BP (Others)

Type	Dielectric strength	Allowable error	Others
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
CQ 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% −20%	U UL part
CP Oil	2A 100V		C CSA part
CM Mica	2B 125V	P +100% −0%	W UL-CSA type
CF Metallized	2C 160V		F Lead wire forming
CH Metallized	2D 200V	C ±0.25pF	
	2E 250V	D ±0.5pF	
	2H 500V	− Others	
	2J 630V		

★ **Capacity**
2 R 2 ⇨ 2.2µF
2 ...... 1-digit effective number, decimal point indicated by R.
2 R ...... 2-digit effective number, decimal point indicated by R.
• Units: µF, (for P, pF (µµF))
• When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

PRINTED WIRING BOARD PARTS LIST
1U-2250 FRONT AMP UNIT

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
IC601	263 0711 000	IC M5218AP	
TR009	271 0131 924	Transistor 2SA988T (E/F)	
TR011~014	271 0094 919	Transistor 2SA970 (BL)	
TR015,016	273 0235 923	Transistor 2SC1841 (E/F)	
TR017,018	271 0131 924	Transistor 2SA988 (E/F)	
TR019,020	273 0235 923	Transistor 2SC1841 (E/F)	
TR021,022	273 0198 905	Transistor 2SC1815 (Y)	
TR025,026	274 0151 903	Transistor 2SD2004 (P)	
TR029,030	272 0107 003	Transistor 2SB1328 (P)	
TR033,034	273 0235 923	Transistor 2SC1841 (E/F)	
TR035	271 0131 924	Transistor 2SA988 (E/F)	
TR036,307	273 0317 906	Transistor 2SC2458 (BL)	
TR038	271 0191 906	Transistor 2SA1048 (GR)	
TR039,040	273 0317 906	Transistor 2SC2458 (BL)	
TR041	271 0191 906	Transistor 2SA1048 (GR)	
TR042	273 0317 906	Transistor 2SC2458 (BL)	
TR046,047	273 0317 906	Transistor 2SC2458 (BL)	
TR048,049	273 0317 906	Transistor 2SC2458 (BL)	
TR050	271 0102 924	Transistor 2SA1015 (GR)	
TR051	271 0131 924	Transistor 2SA988 (E/F)	
TR053,054	273 0235 923	Transistor 2SC1841 (E/F)	
TR055	273 0317 906	Transistor 2SC2458 (BL)	
D002~004	276 0432 903	Diode 1SS270A	
D005~008	276 0049 914	Diode 1S2076A	
D009	276 0432 903	Diode 1SS270A	
D010~012	276 0432 903	Diode 1SS270A	
D013	276 0553 905	Diode 1SR35-200A	
D014	276 0424 005	Diode 4D4B42 (LC1)	Bridge
D015	276 0553 905	Diode 1SR35-200A	
D021,022	276 0432 903	Diode 1SS270A	
D023	276 0049 914	Diode 1S2076A	
ZD001	276 0476 910	Zener Diode HZS9A-2	
ZD002	276 0479 908	Zener Diode HZS20-1	
ZD003	276 0479 924	Zener Diode HZS20-3	
ZD004	276 0450 901	Zener Diode HZS2B-1	
ZD008	276 0465 925	Zener Diode HZS7B-3	
SC001	279 0016 904	Thyrister SF0R1A42	
RESISTOR GROUP (Not included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for those parts.)			
VR601,603, 605	211 0704 003	Variable Resistor	3 Gang VR
VR001,002	211 6064 048	Semi Fixed 5 Kohm	V08PB502
⚠ R016	244 2055 941	Metal Oxide 330ohm, 1W	RS14B3A331JS(S)
⚠ R035,036	241 2380 963	Carbon 2.2Kohm, 1/4W(N.B)	RD14B2E222JNBS
⚠ R039,040	241 2377 976	Carbon 130ohm, 1/4W(N.B)	RD14B2E131JNBS
⚠ R045,046	241 2380 963	Carbon 2.2Kohm, 1/4W(N.B)	RD14B2E222JNBS
⚠ R047,048	241 2315 967	Fusible 68ohm, 1/4W	RD14B2E680GFR
⚠ R049,050	241 2377 976	Carbon 130ohm, 1/4W(N.B)	RD14B2E131JNBS
⚠ R059,060	241 2378 920	Carbon 220ohm, 1/4W(N.B)	RD14B2E221JNBS
⚠ R061~064	244 2043 982	Metal Oxide 0.22ohm, 1W	RS14B3AR22JS(S)
⚠ R067~070	241 2380 950	Carbon 2Kohm, 1/4W(N.B)	RD14B2E202JNBS
⚠ R082	241 2378 917	Carbon 200ohm, 1/4W(N.B)	RD14B2E201JNBS
⚠ R094	244 2051 932	Metal Oxide 3.3Kohm, 1W	RS14B3A332JS(S)
⚠ R100	241 2378 917	Carbon 200ohm, 1/4W(N.B)	RD14B2E201JNBS
⚠ R195~198	244 2043 982	Metal Oxide 0.22ohm, 1W	RS14B3AR22JS(S)
⚠ R201	241 2378 917	Carbon 200ohm, 1/4W(N.B)	RD14B2E201JNBS
⚠ R251,252	244 2043 937	Metal Oxide 10ohm, 1W	RS14B3A100JS(S)
⚠ R281	244 2052 944	Metal Oxide 1.5Kohm, 1W	RS14B3A152JS(S)
CAPACITOR GROUP			
C017	254 4260 948	Electrolytic 1µF/50V	CE04W1H010M
C021,022	254 4254 909	Electrolytic 10µF/16V	CE04W1C100M
C023,024	253 1179 945	Ceramic 220PF/50V	CK45B1H221K (DD-3)
C025,026	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)
C027,028	255 1212 905	Film 0.01µF/50V	CQ93M1H103JT
C029,030	253 1179 903	Ceramic 100PF/50V	CK45B1H101K
C031,032	254 4256 952	Electrolytic 220µF/25V	CE04W1E221M
C033~036	255 1200 904	Film 0.001µF/50V	CQ93M1H102J
C037,038	253 4482 901	Ceramic 33PF/500V	CC45SL2H330J
C039,040	254 4260 948	Electrolytic 1µF/50V	CE04W1H010M
C043,044	254 4260 948	Electrolytic 1µF/50V	CE04W1H010M
C045,046	253 1128 909	Ceramic 220PF/500V	CK45B2H221K
C047,048	253 1181 904	Cermaic 0.01µF/50V	CK45F1H103Z (DD-3)
C049~052	254 4262 904	Electrolytic 4.7µF/63V	CE04W1J4R7M
C053	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C054	254 4260 993	Electrolytic 22µF/50V	CE04W1H220M
C055	254 4250 945	Electrolytic 330µF/6.3V	CE04W0J331M
C057	254 4261 905	Electrolytic 33µF/50V	CE04W1H330M
C058	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C059	254 4263 958	Electrolytic 2.2µF/100V	CE04W2A2R2M
C061	256 1034 979	Metallized 0.1µF/50V	CF93A1H104JT
C062	255 1212 905	Film 0.01µF/50V	CQ93M1H103JT
C063	254 4260 948	Electrolytic 1µF/50V	CE04W1H010M
C065,087, 088	256 1042 903	Metallized 0.1µF/250V	CF93A2E104K
C082	256 1034 979	Metallized 0.1µF/50V	CF93A1H104JT
C083	254 4254 909	Electrolytic 10µF/16V	CE04W1C100M
C084	254 4260 948	Electrolytic 1µF/50V	CE04W1H010M
C085	256 1034 979	Metallized 0.1µF/50V	CF93A1H104JT
C086	254 4260 948	Electrolytic 1µF/50V	CE04W1H010M
C252	256 1034 979	Metallized 0.1µF/50V	CF93A1H104J
C253,254	255 1208 906	Film 0.0047µF/50V	CQ93M1H472JT
C601,602	254 4254 909	Electrolytic 10µF/16V	CE04W1C100M
C603,604	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)
C605,606	254 4260 977	Electrolytic 4.7µF/50V	CE04W1H4R7M
C607	256 1034 937	Metallized 0.047µF/50V	CF93A1H473JT
C608	253 1181 917	Ceramic 0.022µF/50V	CK45F1H223Z (DD-3)

Ref. No.	Part No.	Part Name	Remarks
C609,610	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)
C611,612	255 1200 904	Film 0.001μF/50V	CQ93M1H102J
C613,614	256 1034 995	Metallized 0.15μF/50V	CF93A1H154J
C615,616	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C617,618	255 1203 901	Film 0.0018μF/50V	CQ93M1H182J
C619,620	255 1213 904	Film 0.012μF/50V	CQ93M1H123JT
C621,622	256 1034 953	Metallized 0.068μF/50V	CF93A1H683JT
C623,624	254 4260 935	Electrolytic 0.47μF/50V	CE04W1HR47M
C625,626	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C852	254 4250 929	Electrolytic 100μF/6.3V	CE04W0J101M
C853	254 4254 941	Electrolytic 100μF/16V	CE04W1C101M
C854	254 4256 936	Electrolytic 47μF/25V	CE04W1E470M
C918	254 4261 743	Electrolytic 330μF/50V	CE04W1H331MC

OTHER PARTS				Q'ty
RL001	214 0129 001	RELAY (DH2TV)		1
	204 8342 003	3P PIN JACK (C-GND)		1
	205 0605 000	S-TERMINAL		1
*	205 0635 009	4P SP TERMINAL (V-1)		1
T.P	205 0190 036	3P NH CONNECTOR BASE		2
CN10A	205 0696 006	JL CONNECTOR (BT-E)		1
CN3A	205 0696 035	JL CONNECTOR (BT-E)		1
CN5B	205 0696 051	JL CONNECTOR (BT-E)		1
CN6C	205 0696 064	JL CONNECTOR (BT-E)		1
CN7A,7B 7C,7D	205 0696 077	JL CONNECTOR (BT-E)		4
CN8A,8B 8C,8D	205 0696 080	JL CONNECTOR (BT-E)		4
CN12A	205 0699 029	BTEM CONNECTOR (1S)		1
CN18A,B	205 0699 087	BTEM CONNECTOR (1S)		2

1U-2250C FRONT AMP UNIT PARTS LIST
for multivoltage model
Same as 1U-2250 for U.S.A. model except the followings.

Ref. No.	Part No.	Part Name	Remarks	Q'ty
	205 0550 003	4P TERMINAL	for Speaker	1

1U-2251 INPUT UNIT PARTS LIST

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
IC101	265 0030 004	IC NJM4558D-D	
IC102	262 1227 008	IC LC7821	
IC103~104	262 1228 007	IC LC7822	
IC105	263 0711 000	IC M5218AP	
IC701~702	262 0621 003	IC HD14051BP	
IC703	262 0276 005	IC HD14066BP	
IC704~705	262 0628 006	IC HD14052BP	
IC706	262 0276 005	IC HD14066BP	
TR701~703	273 0198 918	Transistor 2SC1815 (BL)	
TR704	269 0030 909	Transistor RN2204 (47K-47K)	Digital
TR705	273 0198 918	Transistor 2SC1815 (BL)	
TR707	273 0198 918	Transistor 2SC1815 (BL)	
TR709	269 0030 909	Transistor RN2204 (47K-47K)	Digital
TR710~711	273 0198 918	Transistor 2SC1815 (BL)	
TR812	269 0030 909	Transistor RN2204 (47K-47K)	Digital
TR813	269 0029 907	Transistor RN1204 (47K-47K)	Digital
D703	276 0432 903	Diode 1SS270A	
D807	276 0432 903	Diode 1SS270A	
RESISTOR GROUP **(Not included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for those parts.)**			
CAPACITOR GROUP			
C101	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C103,104	253 4443 908	Ceramic 200PF/50V	CC45SL1H201J
C105,106	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C107,108	253 1179 987	Ceramic 470PF/50V	CK45B1H471K (DD-3)
C109,110	254 4250 932	Electrolytic 220μF/6.3V	CE04W0J221M
C111,112	253 1181 917	Ceramic 0.022μF/50V	CK45F1H223Z (DD-3)
C113,114	255 4199 999	Film 0.024μF/50V	CQ92M1H243J (MRZ)
C115,116	255 1210 907	Film 0.0068μF/50V	CQ93M1H682J
C117,118	254 4260 951	Electrolytic 2.2μF/50V	CE04W1H2R2M
C119~121	253 1181 917	Ceramic 0.022μF/50V	CK45F1H223Z (DD-3)
C122	255 1204 900	Film 0.0022μF/50V	CQ93M1H222J
C123~128	253 1181 917	Ceramic 0.022μF/50V	CK45F1H223Z (DD-3)
C129,130	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C131,132	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)
C133,134	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C139~141	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C702	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C703~706	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103Z (DD-3)

Ref. No.	Part No.	Part Name	Remarks
C707,708	254 4252 079	Electrolytic 1000µF/10V	CE04W1A102M
C709	254 4252 930	Electrolytic 100µF/10V	CE04W1A101M
C710~712	253 1179 945	Ceramic 220PF/50V	CK45B1H221KT (DD-3)
C713,714	254 4252 930	Electrolytic 100µF/10V	CE04W1A101M
C715~720	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C721,722	254 4252 079	Electrolytic 1000µF/10V	CE04W1A102M
C723	253 1179 987	Ceramic 470PF/50V	CK45B1H471KT (DD-3)
C725	254 4252 930	Electrolytic 100µF/10V	CE04W1A101M
C727	253 1179 987	Ceramic 470PF/50V	CK45B1H471K (DD-3)
C729	254 4252 930	Electrolytic 100µF/10V	CE04W1A101M
C731,732	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C733,734	254 4260 948	Electrolytic 1µF/50V	CE04W1H010M
C735	253 1179 987	Ceramic 470PF/50V	CK45B1H471K (DD-3)
C736	254 4252 930	Electrolytic 100µF/10V	CE04W1A101M
C737	253 1179 987	Ceramic 470PF/50V	CK45B1H471K (DD-3)
C738	254 4252 930	Electrolytic 100µF/10V	CE04W1A101M
C847	254 4254 909	Electrolytic 10µF/16V	CE04W1C100M

OTHER PARTS				Q'ty
	204 8278 009	6P Pin Jack (S-GND)	White	2
	204 8346 009	6P Pin Jack	Red	2
	204 8260 004	Mini Jack	Remocon	1
	204 8309 004	4P Pin Jack (C-GND)		1
	204 8308 005	3P Pin Jack (C-GND)		1
	205 0578 001	S-Terminal		4
CN8A,8B 8C	205 0697 089	JL Connector (F-E)		3
CN10A	205 0697 005	JL Connector (F-E)		1

1U-2252 SURROUND UNIT PARTS LIST

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
IC231	263 0711 000	IC M5218AP	
IC401,402	263 0711 000	IC M5218AP	
IC403	262 1198 001	IC M50198P	
IC404	263 0609 001	IC LA2730	
IC405,406	263 0711 000	IC M5218AP	
IC407	262 0625 009	IC TC9176P	
IC408	262 1227 008	IC LC7821	
IC409	263 0711 000	IC M5218AP	
IC410	263 0756 010	IC SSM2125	Surround
IC415	263 0711 000	IC M5218AP	
IC651	263 0476 002	IC LB1639	
IC653	263 0711 000	IC M5218AP	
IC903	262 1418 008	IC MSC7128-03SS	FL Driver
TR231~233	269 0107 900	Transistor RN1241(A/B)	Digital
TR401	274 0060 900	Transistor 2SD667A(C)	
TR402,403	269 0107 900	Transistor RN1241 (A/B)	Digital
TR404	269 0026 900	Transistor RN2202 (10K-10K)	Digital
TR405	269 0029 907	Transistor RN1204 (47K-47K)	Digital
TR407	273 0198 905	Transistor 2SC1815 (Y)	
TR408	271 0102 924	Transistor 2SA1015 (GR)	
TR901	269 0030 909	Transistor RN2204 (47K-47K)	Digital
D651,910	276 0432 903	Diode 1SS270A	
ZD401	276 0462 928	Zener Diode HZS6B-3TD	
ZD403,404	276 0466 911	Zener Diode HZS7C-2TD	
LD801	393 9434 906	LED SEL1210S	Red
RESISTOR GROUP (Not included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for those parts.)			
⚠ R419	241 2387 940	Carbon 4.7ohm, 1/4W (N.B)	RD14B2E4R7JNBS
⚠ R445	241 2379 903	Carbon 470ohm, 1/4W (N.B)	RD14B2E471JNBS
⚠ R475,476	244 2052 928	Metal Oxide 47ohm, 1W	RS14B3A470JS(S)
⚠ R533~536	244 2052 960	Metal Oxide 220ohm, 1W	RS14B3A221JS(S)
⚠ R481	242 0203 003	Carbon Composite 10Mohm, 1/4W	RC05GF2E106K
VR651	211 0703 004	Variable Resistor 100Kohm	with Motor
CAPACITOR GROUP			
C231,232	254 4254 909	Electrolytic 10µF/16V	CE04W1C100M
C233	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C234	254 4260 948	Electrolytic 1µF/50V	CE04W1H010M
C235	254 4254 909	Electrolytic 10µF/16V	CE04W1C100M
C238	254 4260 948	Electrolytic 1µF/50V	CE04W1H010M
C239	254 4254 909	Electrolytic 10µF/16V	CE04W1C100M

Ref. No.	Part No.	Part Name	Remarks
C240	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C241~243	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)
C261,262	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C263,264	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)
C265,266	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C401,402	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C403	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)
C404,405	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C406	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)
C407	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C408	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C409	253 1179 903	Ceramic 100PF/50V	CK45B1H101K
C410	255 1212 905	Film 0.01μF/50V	CQ93M1H103J
C412	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C413	254 4250 929	Electrolytic 100μF/6.3V	CE04W0J101M
C414	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103Z (DD-3)
C415	254 4258 950	Electrolytic 100μF/35V	CE04W1V101M
C416	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C418	253 1179 990	Ceramic 560PF/50V	CK45B1H561K (DD-3)
C419	255 1209 905	Film 0.0056μF/50V	CQ93M1H562J
C420	256 1034 979	Metallized 0.1μF/50V	CF93A1H104J
C421	254 4254 954	Electrolytic 220μF/16V	CE04W1C221M
C422~424	256 1034 979	Metallized 0.1μF/50V	CF93A1H104J
C425	255 1202 902	Film 0.0015μF/50V	CQ93M1H152J
C426	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C427	253 1179 958	Ceramic 270PF/50V	CK45B1H271K (DD-3)
C428	254 4250 958	Electrolytic 470μF/6.3V	CE04W0J471J
C429	255 1212 905	Film 0.01μF/50V	CQ93M1H103J
C430	253 1179 916	Ceramic 120PF/50V	CK45B1H121K (DD-3)
C431	253 4537 908	Ceramic 27PF/50V	CC45SL1H270J (DD-3)
C432	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103Z (DD-3)
C433~437	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C438	255 1209 905	Film 0.0056μF/50V	CQ93M1H562J
C439	254 4256 949	Electrolytic 100μF/25V	CE04W1E101M
C440	254 4260 922	Electrolytic 0.33μF/50V	CE04W1HR33M
C441	254 4260 906	Electrolytic 0.1μF/50V	CE04W1H0R1M
C442	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C443	255 1218 909	Film 0.033μF/50V	CQ93M1H333J
C444	255 1217 900	Film 0.027μF/50V	CQ93M1H273J
C445	255 1208 906	Film 0.0047μF/50V	CQ93M1H472J
C446	254 4252 930	Electrolytic 100μF/10V	CE04W1A101M
C447	254 4254 912	Electrolytic 22μF/16V	CE04W1C220M
C451,452	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C453	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C454	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C455,456	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)

Ref. No.	Part No.	Part Name	Remarks
C459,460	253 1181 917	Ceramic 0.022μF/50V	CK45F1H223Z (DD-3)
C463,464	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C465,466	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)
C467,468	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C469~472	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C473,474	254 4261 918	Electrolytic 47μF/50V	CE04W1H470M
C475,476	254 4254 941	Electrolytic 100μF/16V	CE04W1C101M
C477,478	256 1034 979	Metallized 0.1μF/50V	CF93A1H104J
C479,480	255 1212 905	Film 0.01μF/50V	CQ93M1H103J
C481	254 4258 905	Electrolytic 4.7μF/35V	CE04W1V4R7M
C482,483	256 1035 910	Metallized 0.22μF/50V	CF93A1H224J
C484	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C485,486	254 4258 905	Electrolytic 4.7μF/35V	CE04W1V4R7M
C487	256 1035 091	Metallized 1μF/50V	CF93A1H105J
C488	255 1212 905	Film 0.01μF/50V	CQ93M1H103J
C489	254 4256 949	Electrolytic 100μF/25V	CE04W1E101M
C490	256 1034 979	Metallized 0.1μF/50V	CF93A1H104J
C491	254 4258 905	Electrolytic 4.7μF/35V	CE04W1V4R7M
C492,493	256 1035 910	Metallized 0.22μF/50V	CF93A1H224J
C494~497	256 1035 936	Metallized 0.33μF/50V	CF93A1H334J
C498,499	255 1216 901	Film 0.022μF/50V	CQ93M1H223J
C500~502	256 1034 979	Metallized 0.1μF/50V	CF93A1H104J
C503	253 1180 905	Ceramic 680PF/50V	CK45B1H681K (DD-3)
C504,505	255 1216 901	Film 0.022μF/50V	CQ93M1H223J
C506	253 1180 905	Ceramic 680PF/50V	CK45B1H681K (DD-3)
C507	254 4258 905	Electrolytic 4.7μF/35V	CE04W1V4R7M
C508,509	256 1034 979	Metallized 0.1μF/50V	CF93A1H104J
C510~512	254 4258 905	Electrolytic 4.7μF/35V	CE04W1V4R7M
C549,550	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C551,552	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)
C554~556	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C560	254 4260 045	Electrolytic 1μF/50V	CE04W1H010M
C651	254 3056 917	Electrolytic 1μF/50V(Bipole)	CE04D1H010MBP
C652,653	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103Z (DD-3)
C654	254 4252 927	Electrolytic 47μF/10V	CE04W1A470M
C655	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)
C656	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C657,658	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C659	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C660	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)
C661	254 4254 941	Electrolytic 100μF/16V	CE04W1C101M
⚠ C892	253 8014 702	Ceramic 0.01μF/400V(AC)	CK45F2GAC103MC
C914	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)
C915	255 1212 905	Film 0.01μF/50V	CQ93M1H103J
C916	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C917	254 4250 945	Electrolytic 330μF/6.3V	CE04W0J331M
C918	254 4261 921	Electrolytic 100μF/50V	CE04W1H101M
C920	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M

Ref. No.	Part No.	Part Name	Remarks	
C951	256 1034 979	Metallized 0.1μF/50V	CF93A1H104J	
C952	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M	
OTHER PARTS				**Q'ty**
L401	235 0060 989	Inductor (121)	120mH	1
L901	235 0060 989	Inductor (121)	120mH	1
	499 0150 008	Remocon Receiver	SBX1610-52	1
S901~923	212 5604 910	Tact Switch		23
⚠ RL401	214 0127 003	Relay (RY-12W)	for H/P	1
XL401	399 0085 006	Ceramic Vibrator	CSA3.27MG	1
⚠ S-890	212 9534 002	Power SW (Push) TV-8		1
⚠	202 0022 008	Fuse Holder		2
⚠ F890	206 1046 014	Fuse 8A		1
	205 0075 038	3P Terminal		1
	204 8266 008	4P Pin Jack (S-GND)	Pre Out	1
	412 3156 002	FLD Bracket		1
	393 4126 002	FLD (FIP16XM1KA)		1
CN3A	205 0697 034	JL Connector (F-E)		1
CN5A	205 0697 050	JL Connector (F-E)		1
CN7A,7B 7C,7D	205 0697 076	JL Connector (F-E)		4
	204 8341 004	Headphone Jack		1

1U-2252C SURROUND UNIT PARTS LIST
for multivoltage model
Same as 1U-2252 for U.S.A. model except the followings.

Ref. No.	Part No.	Part Name	Remarks	Q'ty
⚠ F890	206 1061 060	Fuse 8A (250V)		1

1U-2253 REAR CENTER AMP UNIT PARTS LIST

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTOR GROUP			
IC001	263 0560 002	IC NJM7815FA	Regulator
IC002	263 0561 001	IC NJM7915FA	Regulator
IC003,004	268 0072 906	IC ICP-N10T	IC Protector
IC006	262 1071 005	IC NJM7806FA	Regulator
IC008	268 0063 905	IC ICP-N15T	IC Protector
IC009	262 1071 005	IC NJM7806FA	Regulator
IC010	263 0683 002	IC NJM7906FA	Regulator
IC011,012	268 0063 905	IC ICP-N15T	IC Protector
IC301	263 0206 007	IC UPC1225H	
IC351,352	263 0206 007	IC UPC1225H	
IC801	263 0438 008	IC LA1266	
IC802	263 0439 007	IC LA3401	
IC803	262 0719 009	IC LM7001	
IC901	262 1480 007	IC TMP87CH00F	
IC902	263 0423 000	IC M51953B	
TR003	274 0151 903	Transistor 2SD2004(P)	
TR004	271 0191 906	Transistor 2SA1048(GR)	
TR005	273 0317 906	Transistor 2SC2458(BL)	
TR006	272 0107 906	Transistor 2SB1328(P)	
TR007,008	269 0029 907	Transistor RN1204(47K-47K)	Digital
TR303	273 0317 906	Transistor 2SC2458(BL)	
TR305	273 0404 000	Transistor 2SC4511(Y)	
TR307	271 0254 005	Transistor 2SA1725(Y)	
TR309	273 0235 923	Transistor 2SC1841(E/F)	
TR353,354	273 0317 906	Transistor 2SC2458(BL)	
TR355,356	273 0404 000	Trnasistor 2SC4511(Y)	
TR357,358	271 0254 005	Transistor 2SA1725(Y)	
TR359,360	273 0235 923	Transistor 2SC1841(E/F)	
TR801	273 0357 908	Transistor 2SC2839(E)	
TR802,803	271 0191 906	Transistor 2SA1048(GR)	
TR804	273 0222 907	Transistor 2SC2458(Y/GR)	
TR805	275 0053 907	Transistor 2SK365(BL/GR)	
TR806	269 0030 909	Transistor RN2204(47K-47K)	Digital
TR807	273 0222 907	Transistor 2SC2458(Y/GR)	
TR808,809	273 0253 918	Transistor 2SC2878(A/B)	
TR810	269 0030 909	Transistor RN2204(47K-47K)	Digital
TR811	269 0029 907	Transistor RN1204(47K-47K)	Digital
TR890,891	273 0235 923	Transistor 2SC1841(E/F)	
TR902,903	273 0317 906	Transistor 2SC2458(BL)	
TR904,907	269 0030 909	Transistor RN2204(47K-47K)	Digital
TR908	273 0317 906	Transistor 2SC2458(BL)	
D017~020	276 0553 905	Diode 1SR35-200A	
D301	276 0432 903	Diode 1SS270A	
D351~354	276 0432 903	Diode 1SS270A	
D355	276 0305 001	Diode S4VB20	Bridge
D802,803	276 0302 004	Diode SVC321SPA-D-2	Varactor
D804~806	276 0432 903	Diode 1SS270A	
D890	276 0432 903	Diode 1SS270A	
D901	276 0046 914	Diode 1S2076A	
D902~909	276 0432 903	Diode 1SS270A	
ZD801	276 0467 910	Zener Diode HZS9A-2	

Ref. No.	Part No.	Part Name	Remarks
RESISTOR GROUP (Not included Carbon Film ±5%, 1/4W Type. Refer to the Schematic Diagram for those parts.)			
⚠ R319	244 2043 982	Metal Oxide 0.22ohm, 1W	RS14B3AR22JS(S)
⚠ R321	244 2043 982	Metal Oxide 0.22ohm 1W	RS14B3AR22JS(S)
⚠ R323	241 2380 950	Carbon 2Kohm, 1/4W (N.B)	RD14B2E202JNBS
⚠ R325	241 2380 992	Carbon 3Kohm, 1/4W (N.B)	RD14B2E302JNBS
⚠ R369~372	244 2043 982	Metal Oxide 0.22ohm, 1W	RS14B3AR22JS(S)
⚠ R373,374	241 2380 950	Carbon 2Kohm, 1/4W (N.B)	RD14B2E202JNBS
⚠ R375,376	241 2380 992	Carbon 3Kohm, 1/4W (N.B)	RD14B2E302JNBS
⚠ R391~393	244 2051 987	Metal Oxide 4.7ohm, 1W	RS14B3A4R7JS(S)
* R890	242 0073 000	Carbon Composite 2.2Mohm, 1/2W	RC05GF2H225K
⚠ R894	244 2052 986	Metal Oxide 750ohm, 1W	RS14B3A751JS(S)
⚠ R896	244 2051 929	Metal Oxide 820ohm, 1W	RS14B3A821JS(S)
⚠ R902	241 2387 940	Carbon 4.7ohm, 1/4W (N.B)	RD14B2E4R7JNBS
CAPACITOR GROUP			
C001,002	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C003,004	254 4254 909	Electrolytic 10µF/16V	CE04W1C100M
C005,006	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C007,008	254 4259 700	Electrolytic 2200µF/35V	CE04W1V222MC
C010	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C012	254 4254 909	Electrolytic 10µF/16V	CE04W1C100MT
C014	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C015,016	254 4256 949	Electrolytic 100µF/25V	CE04W1E101M
C069,070	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C075,076	254 4254 909	Electrolytic 10µF/16V	CE04W1C100M
C077,080	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C301	254 4260 948	Electrolytic 1µF/50V	CE04W1H010M
C303	253 1179 945	Ceramic 220PF/50V	CK45B1H221K (DD-3)
C305	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)
C307	254 4250 929	Electrolytic 100µF/6.3V	CE04W0J101M
C309	253 4536 909	Ceramic 10PF/50V	CC45SL1H100D (DD-3)
C311	253 1179 929	Ceramic 150PF/50V	CK45B1H151K (DD-3)
C313	253 4537 966	Ceramic 47µF/50V	CC45SL1H470J (DD-3)
C315	254 4254 909	Electrolytic 10µF/16V	CE04W1C100M
C317	255 1206 908	Film 0.0033µF/50V	CQ93M1H332J
C319	253 1189 917	Ceramic 0.022µF/50V	CK45F1H223Z (DD-3)
C321	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C323	253 1189 917	Ceramic 0.022µF/50V	CK45F1H223Z (DD-3)

Ref. No.	Part No.	Part Name	Remarks
C326	254 4254 909	Electrolytic 10µF/16V	CE04W1C100M
C327	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C328~330	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)
C351,352	254 4260 948	Electrolytic 1µF/50V	CE04W1H010M
C353,354	253 1179 945	Ceramic 220PF/50V	CK45B1H221K (DD-3)
C355,356	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)
C357,358	254 4250 929	Electrolytic 100µF/6.3V	CE04W0J101M
C359,360	253 4536 909	Ceramic 10PF/50V	CC45SL1H100D (DD-3)
C361,362	253 4537 966	Ceramic 47PF/50V	CC45SL1H470J (DD-3)
C363,364	253 1179 929	Ceramic 150PF/50V	CK45B1H151K (DD-3)
C365,366	254 4254 909	Electrolytic 10µF/16V	CE04W1C100M
C367,368	255 1206 908	Film 0.0033µF/50V	CQ93M1H332J
C369,370	253 1189 917	Ceramic 0.022µF/50V	CK45F1H223Z (DD-3)
C371,372	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C373,374	253 1189 917	Ceramic 0.022µF/50V	CK45F1H223Z (DD-3)
C377,378	253 1151 905	Ceramic 4700PF/500V	CK45E2H472P
C391~393	256 1034 979	Metallized 0.1µF/50V	CF93A1H104J
C395~397	255 1208 906	Film 0.0047µF/50V	CQ93M1H472J
C801	255 1212 905	Film 0.01µF/50V	CQ93M1H103J
C802	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C803	254 4254 909	Electrolytic 10µF/16V	CE04W1C100M
C804~809	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C810	254 4254 938	Electrolytic 47µF/16V	CE04W1C470M
C811	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C813	253 4536 941	Ceramic 15PF/50V	CC45SL1H150J (DD-3)
C814	253 1179 974	Ceramic 390PF/50V	CK45B1H391K (DD-3)
C815	254 4254 938	Electrolytic 47µF/16V	CE04W1C470M
C816,863	254 3056 917	Electrolytic 1µF/50V (Bipole)	CE04D1H010MBP
C817	253 1181 917	Ceramic 0.022µF/50V	CK45F1H223Z (DD-3)
C818	254 4260 906	Electrolytic 0.1µF/50V	CE04W1H0R1M
C819	254 4250 929	Electrolytic 100µF/6.3V	CE04W0J101M
C820,821	253 1181 904	Ceramic 0.01µF/50V	CK45F1H103Z (DD-3)
C822,864	254 4254 938	Electrolytic 47µF/16V	CE04W1C470M
C823	254 4260 948	Electrolytic 1µF/50V	CE04W1H010M
C824	253 1179 916	Ceramic 120PF/50V	CK45B1H121K (DD-3)
C825	254 4254 909	Electrolytic 10µF/16V	CE04W1C100M
C826	253 9031 904	Ceramic 0.047µF/25V	CK45=1E473K
C827	254 4254 938	Electrolytic 47µF/16V	CE04W1C470M
C828	254 4260 919	Electrolytic 0.22µF/50V	CE04W1HR22M

Ref. No.	Part No.	Part Name	Remarks
C829	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C830	254 4258 905	Electrolytic 4.7μF/35V	CE04W1V4R7M
C830,831	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103Z (DD-3)
C832	253 1179 903	Ceramic 100PF/50V	CK45B1H101K (DD-3)
C833	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C834	254 4260 964	Electrolytic 3.3μF/50V	CE04W1H3R3M
C835	254 4260 906	Electrolytic 0.1μF/50V	CE04W1H0R1M
C836	253 9035 942	Electrolytic 0.056μF/25V	CK45=1E563K
C837,838	253 4457 907	Ceramic 750PF/50V	CC45SL1H751J
C839	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C840	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103Z(DD-3)
C841	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C842,843	253 4536 954	Ceramic 16PF/50V	CC45SL1H160J (DD-3)
C844,845	254 4260 951	Electrolytic 2.2μF/50V	CE04W1H2R2M
C846	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103Z(DD-3)
C848	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C849	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
C851	253 1024 003	Ceramic 0.01μF/50V	CK45F1H103Z
C861,921	254 4250 026	Electrolytic 100μF/6.3V	CE04W0J101M
C862	254 4254 967	Electrolytic 330μF/16V	CE04W1C331M
C890	254 4254 909	Electrolytic 10μF/16V	CE04W1C100M
⚠ C891	253 8014 702	Ceramic 0.01μF/400V(AC)	CK45F2GAC103MC
C901	254 4250 945	Electrolytic 330μF/6.3V	CE04W0J331M
C902	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103Z(DD-3)
C903	259 0007 003	for Back Up 8200μF/5.5V	SB CAP==822=
C904	256 1034 982	Metallized 0.12μF/50V	CF93A1H124J
C905,906	253 1181 904	Ceramic 0.01μF/50V	CK45F1H103Z(DD-3)
C907	254 4260 922	Electrolytic 0.33μF/50V	CE04W1HR33M
C908	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C909	254 4258 905	Electrolytic 4.7μF/35V	CE04W1V4R7M
C910	254 4260 906	Electrolytic 0.1μF/50V	CE04W1H0R1M
C913	254 4260 948	Electrolytic 1μF/50V	CE04W1H010M
C953	254 4250 932	Electrolytic 220μF/6.3V	CE04W0J221M

OTHER PARTS				Q'ty
RL301,302	214 0129 001	Relay (DH2TV)		2
⚠ RL890	214 0142 004	Relay (TV-5)		1
XL801	399 0075 003	X-TAL (7.2MHz)		1
CF801,802	261 0025 004	Ceramic Filter		1
CF803	261 0031 001	Ceramic Filter	BFU45024	1
CF804	261 0079 005	Ceramic Filter	CSB456F11	1
CF901	399 0093 001	Ceramic Vibrator		1
T801	231 1127 007	MW ANT Trans		1
T802	231 4901 000	MWOSC Coil		1
T803	231 2077 004	IF DET Trans (S)		1
T804	231 2076 005	IF DET Trans (P)		1
T805	231 1132 005	AM IFT (SFL450J3)		1
TC801	231 0041 034	Trimmer Condencer		1
⚠ F001,002	206 1039 050	Fuse 1.6AT		1
⚠ F301,302	206 1046 014	Fuse 8A		2
⚠	203 3941 008	AC Outlet (2P)		1
	204 8266 008	4P Pin Jack (S-GND)	Pre Out	1

Ref. No.	Part No.	Part Name	Remarks	Q'ty
	205 0433 010	ANT. Terminal (F)		1
	205 0592 016	4P Push Terminal	Rear SP	1
	205 0075 038	3P Terminal	Trans	1
CN12A	205 0698 020	BTEM Connector (1R)		1
CN18A,18B	205 0698 088	BTEM Connector (1R)		2
CN6C	205 0697 063	JL Connector (F-E)		1
CN8D	205 0697 089	JL Connector (F-E)		1
	216 0064 007	Front End		1
⚠	202 0022 008	Fuse Holder		8

1U-2253C REAR CENTER AMP UNIT PARTS LIST for multivoltage model

Same as 1U-2253 for U.S.A. model except the followings.

Ref. No.	Part No.	Part Name	Remarks	Q'ty
⚠ R890	—	2.2 Mohm (Delete)		1
	202 0220 008	Fuse Holder		10
⚠ F891	206 1061 031	Fuse 4A (250V)		1
⚠ F001,002	206 1035 054	Fuse 1.6A (T)		2
⚠ F301,302	206 1052 008	Fuse 8A		2
S999	212 4659 005	Slide Switch		1
	415 0299 000	Condenser Cover		1
D999	276 0432 903	Diode 1SS270A		1
C837,838	253 4453 901	Ceramic 510pF/50V	CC45SL1H511J	2

PARTS LIST OF EXPLODED VIEW

Ref. No.	Part No.	Part Name	Remarks	Q'ty
⊙ * 1	Note	Front Amp. Unit		1S
1-1	—	Front Amp Unit		(1)
1-2	—	Front SP Unit		(1)
1-3	—	Video AUX Unit		(1)
2	214 0129 001	Relay (DH2TU)		3
3	204 8342 003	3P Pin Jack (C-GND)		1
4	205 0605 000	S-Terminal		1
5	205 0635 009	4P SP Terminal (V-1)		1
6	211 0704 003	Variable Resistor	3 Gang VR	1
⊙ * 7	Note	Input Unit		1S
7-1	—	Audio Input Unit		(1)
7-2	—	Video Input Unit		(1)
7-3	—	Audio Input-2 Unit		(1)
7-4	—	Video Input-2 Unit		(1)
8	204 8278 009	6P Pin Jack (S-GND)	Upper Wht	2
9	204 8346 009	6P Pin Jack (S-GND)	Lower Red	1
10	204 8260 004	Mini Jack		1
11	204 8309 004	4P Pin Jack (C-GND)		1
12	204 8308 005	3P Pin Jack (C-GND)		1
13	205 0578 001	S-Terminal		4
⊙ * 14	Note	Surround Unit		1S
14-1	—	FLD Unit		(1)
14-2	—	Surround Unit		(1)
14-3	—	Headphone Unit		(1)
14-4	—	Preout Unit		(1)
14-5	—	Power SW Unit		(1)
14-6	—	LED Unit		(1)
15	393 4126 002	FLD (FIP16XM1KA)		1
16	214 0127 003	Relay (RY-12W)		1
17	204 8341 004	Head Phone Jack		1
18	211 0703 004	Variable Resistor 100Kohm	Motor Volume	1
⚠ 19	212 9534 002	Power Switch (Push) (TV-8)		1
⚠ * 20	Note	Fuse (8A)		1
21	204 8266 008	4P Pin Jack (S-GND)		2
⊙ * 22	Note	Rear Center Amp Unit		1S
22-1	—	Rear Center Amp. Unit		(1)
22-2	—	Tuner Unit		(1)
22-3	—	Power Supply Unit		(1)
22-4	—	AC Outlet Unit		(1)
22-5	—	Micom Unit		(1)
* 23	Note	Front End		(1)
⚠ * 24	Note	Fuse 8A		1
⚠ * 25	Note	Fuse 1.6AT		2
26	214 0142 004	Relay (TV-5)		1
⚠ 27	203 3941 008	AC Outlet (2P)		1
* 28	Note	Ant. Terminal (F)		1
29	205 0592 016	4P Push Terminal	for Rear	1
30	205 0075 038	3P Terminal		2
⊙ 31	411 1092 000	Front Chassis Ass'y		1
⊙ 32	411 1095 007	Side Chassis		1
⊙ 33	411 1094 008	Trans Chassis		1
34	415 9032 006	P.C.B Holder (T)		1
⊙ 35	412 9160 209	Trans Bracket		1
36	415 0597 003	Card Spacer (H=7.5)		5
⊙ 37	412 2897 100	VR. Bracket		1
⊙ 38	412 2741 036	P.W.B Holder (H=10)		6
* 39	Note	Rear Panel		1
⚠ * 40	Note	AC Cord	Polarized	1
⚠ * 41	Note	Cord Bush		1
42	146 0925 009	Ant. Holder		1
43	417 0430 205	Power Radiator (A)		1

Ref. No.	Part No.	Part Name	Remarks	Q'ty
44	271 0240 006	Transistor 2SA1491 (O/P/Y)(Z)		2
45	273 0389 002	Transistor 2SC3855 (O/P/Y)(Z)		2
46	412 3314 006	Spring Plate (A)		1
47	412 3315 005	Radiator Bracket (A)		1
48	417 0429 009	Power Radiator (B)		1
⊙ 49	412 3317 003	Radiator Bracket (B)		1
⊙ 50	412 3316 004	Spring Plate (B)		1
51	105 0965 107	Bottom Cover		1
52	104 0194 001	Foot Ass'y		4
* 53	Note	Dangerous Mark		1
⚠ * 54	Note	Power Trans		1
* 55	Note	Blind Sheet		1
* 56	Note	Inner Frame Ass'y		1
* 57	Note	Knob Tact (Function)		1
* 58	Note	Knob Tact (Function)		1
* 59	Note	Preset Knob		1
* 60	Note	Tact Knob		1
61	412 2814 002	Card Spacer (L=8)		5
* 62	Note	Front Panel		1
* 63	Note	P. Knob (P) Ass'y		1
* 64	Note	Knob (Round)		3
* 65	Note	VR Knob Ass'y		1
66	477 0096 007	Push Rivet		1
67	445 8004 007	Wire Clamper		5
68	122 0183 049	Spacer		1
69	102 0501 009	Top Cover		1
70	461 0577 039	Rubber Sheet		1
71	461 0334 007	Rubber Sheet		2
* 72	Note	UL Label (1409)		1
73	254 4259 700	Chemicon 2200µF/35V	C007,008	2
⊙ 74	412 3370 008	P.W.B. Bracket		1
75	477 0288 006	Push Rivet		1
⊙ 76	412 3369 006	P.W.B. Support		1
77	461 0577 042	Rubber Sheet		1
77	415 0234 007	Insulating Sheet		4
78	254 4400 708	Chemicon 6800µF/ V	C375,376	2
78	513 1796 042	Fuse Caution Label		1
79	205 0695 007	2P Push Terminal (V-1)	for Center	1
79	513 1796 055	Fuse Caution Label		1
⊙ 80	412 3372 006	AC Outlet Bracket		1
81	445 0048 003	Cord Holder (I=76)		2
82	415 0235 006	Insulating Sheet		1
83	415 0609 205	Shield Cover		1

SCREWS

201	Note	Tapping Screw (S) 3×8	Black	40
202	473 7007 000	Tapping Screw (S) 4×8	Black	12
203	—	—		
204	473 7511 004	F.H. Tapping Screw (P) 3×10		3
205	477 0064 107	Fixing Screw		24
206	473 7006 027	Tapping Screw (S) 3×10	Black	1
207	473 8007 009	Cup Screw 3×12		4
208	473 7501 001	Tapping Screw (P) 3×10		10
209	477 0276 018	Earth Screw (S) 4×6		1
210	477 0262 006	Special Screw		1
* 211	Note	3P. Swelling Screw		6
212	473 8007 025	Cup Screw 3×8		13

Ref. No.	Part No.	Part Name	Remarks	Q'ty
PACKING & ACCESSORIES (not included EXPLODED VIEW)				
⊙ 251	504 0092 060	Styrene Paper	for AC Cord	1
⊙ 252	504 9102 029	Styrene Paper	for Set	1
⊙ 253	505 9102 019	Poly Cover		1
⊙ 254	503 0946 003	Cushion		2
⊙ 255	GEN 1576	Envelope Sub Ass'y		1S
⊙ 255-1	505 8006 019	Envelope		(1)
⊙ 255-2	511 2164 004	Inst. Manual		(1)
⊙ 255-3	231 1129 005	Loop Antenna		(1)
⊙ 255-4	395 0019 009	FM Ant. Ass'y		(1)
⊙ 255-5	529 0072 005	FM Ant. Adaptor		(1)
⊙ 255-6	—	Battery		(2)
⊙ *255-7	Note	DAI Warranty Home 4		(1)
⊙ 256	499 0204 006	Remote Control (RC-139)		1
⊙ * 257	Note	Carton Case		1
258	513 1389 006	Control Card Base		1
259	513 1349 004	Thermal Carbon Film		1

NOTE FOR PARTS LIST

- Part indicated with the mark " ⊙ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "l" (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:

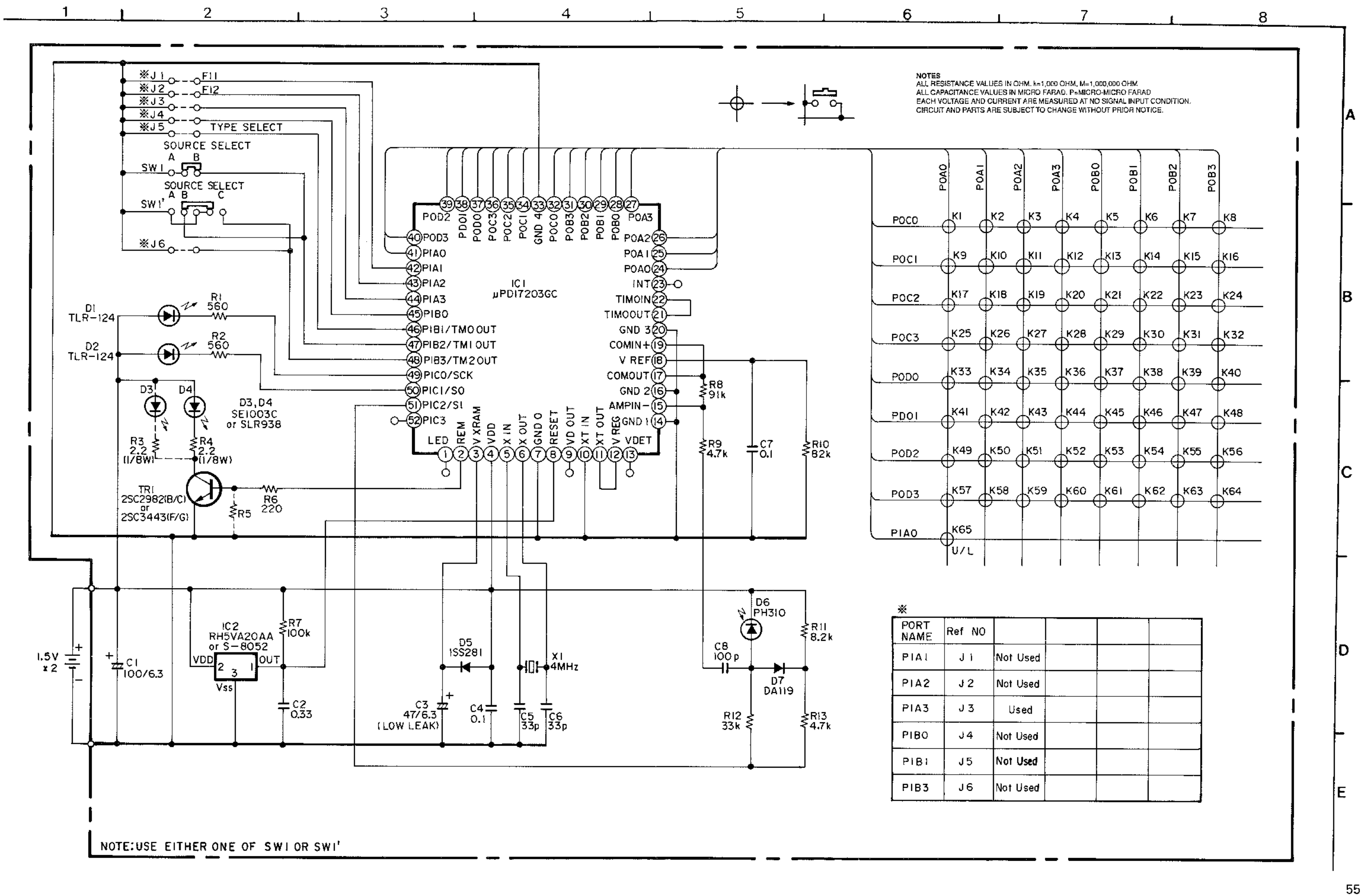
Parts marked with this symbol ⚠ ▨ have critical characteristics.

Use ONLY replacement parts recommended by the manufacturer.

ADDENDUM LIST

Ref. No.	Parts Name & Descriptions		Parts No. U.S.A (Black)	Canada (Black)	Multivoltage (Black)		
⊙ 1	Front Amp Unit	(1)	1U-2250	1U-2250	1U-2250C		
⊙ 7	Input Unit	(1)	1U-2251	1U-2251	1U-2251		
⊙ 14	Surround Unit	(1)	1U-2252	1U-2252	1U-2252C		
⚠ 20	Fuse 8A (F-890)	(1)	206 1046 014	206 1046 014	206 1061 060		
⊙ 22	Rear Center Amp Unit	(1)	1U-2253	1U-2253	1U-2253C		
23	Front End	(1)	216 0064 007	216 0064 007	216 0064 007		
⚠ 24	Fuse 8A (F-301, 302)	(1)	206 1046 014	206 1046 014	206 1052 008		
⚠ 25	Fuse 1.6AT (F-001, 002)	(2)	206 1039 050	206 1039 050	206 1035 054		
28	Ant. Terminal	(1)	205 0433 010	205 0433 010	205 0433 010		
39	Rear Panel	(1)	105 0964 108	105 0964 108	105 0964 140		
⚠ 40	AC Cord	(1)	206 2060 002 (Polarized)	206 2060 002 (Polarized)	206 2083 005		
⚠ 41	Cord Bush	(1)	445 0056 008	445 0056 008	445 0071 009		
53	Dangerous Mark	(1)	513 8266 009	—	—		
⚠ 54	Power Trans	(1)	233 5388 005	233 5388 005	233 5890 006		
55	Blind Sheet	(1)	146 9045 100	146 9045 100	146 9045 100		
56	Inner Frame Ass'y	(1)	146 1268 008	146 1268 011	146 1268 008		
57	Knob Tact (Function)	(1)	113 1411 101	113 1411 101	113 1411 101		
58	Knob Tact (Function)	(1)	113 1411 127	113 1411 127	113 1411 127		
59	Preset Knob	(1)	113 1453 004	113 1453 004	113 1453 004		
60	Tact Knob	(2)	113 1454 003	113 1454 003	113 1454 003		
62	Front Panel	(1)	144 2126 101	144 2126 101	144 2126 101		
63	P. Knob (P) Ass'y	(1)	113 9213 000	113 9213 000	113 9213 000		
64	Knob (Round)	(3)	112 0685 003	112 0685 003	112 0685 003		
65	VR Knob Ass'y	(1)	112 0569 103	112 0569 103	112 0693 103		
72	UL Label (1409)	(1)	513 1577 009	—	—		
72	CSA Label	(1)	—	LL- 4794 1	—		
⚠ 100	Voltage Sel. Switch	(1)	—	—	212 1020 006		
101	Preset Label	(1)	—	—	515 8030 008		
⚠ 102	Fuse (4A) (F-891)	(1)	—	—	206 1061 031		
103	Slide Switch	(1)	—	—	212 4659 005		
201	Tapping Screw(S) 3x8 black		473 7015 018 (40)	473 7015 018 (40)	473 7015 018 (42)		
211	3P Swelling Screw	(6)	477 0263 005	477 0263 005	477 0263 005		
215	Washer φ5 (Black)	(6)	—	—	—		
216	Tapping Screw(S) 4x20 black	(6)	—	—	—		
255-7	DAI/DCI Warranty	(1)	515 0418 408	515 0388 208	—		
257	Carton Case	(1)	501 1528 000	501 1528 000	501 1528 000		

REMOTE CONTROL UNIT SCHEMATIC DIAGRAM



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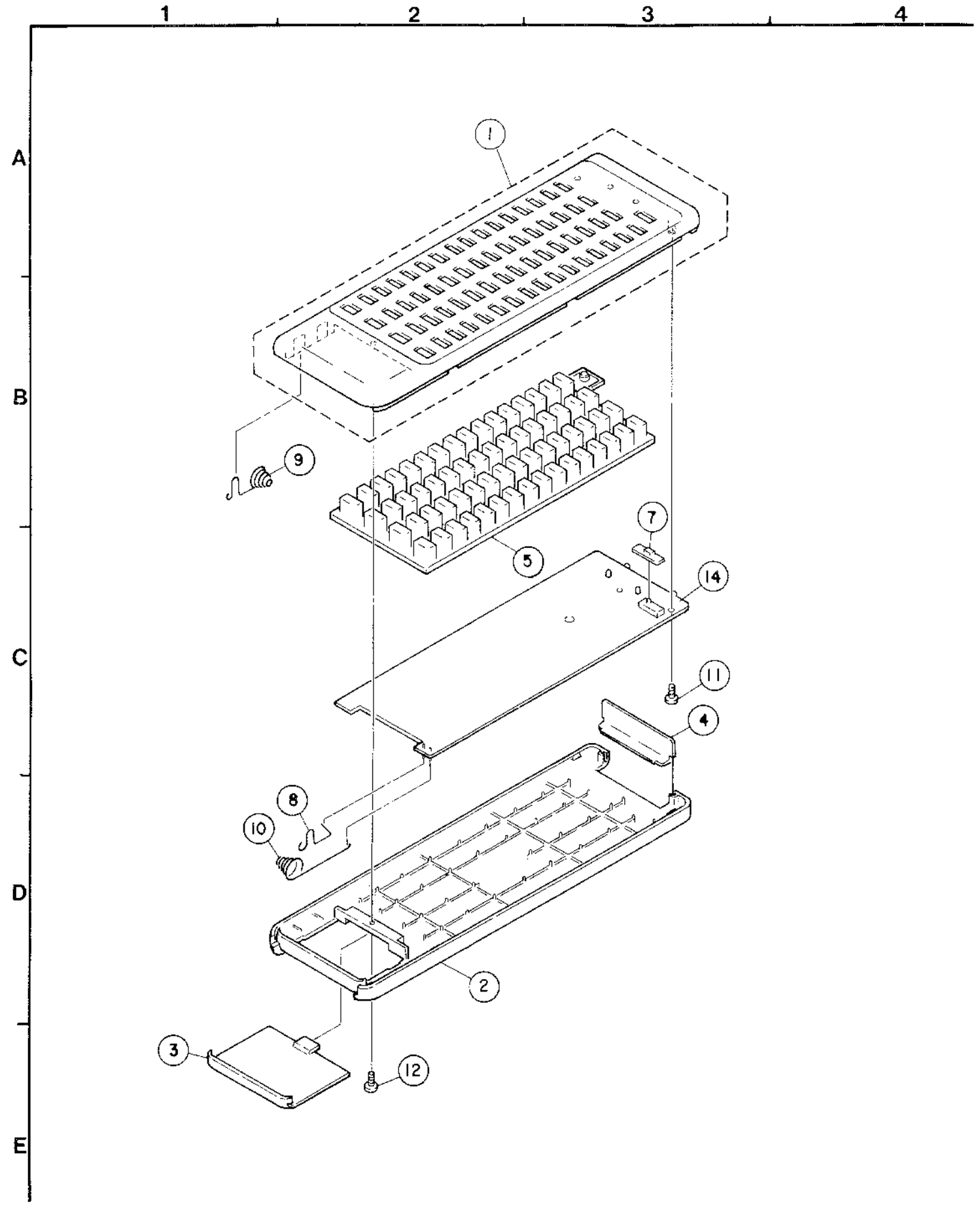
PORT NAME	Ref NO				
PIA1	J1	Not Used			
PIA2	J2	Not Used			
PIA3	J3	Used			
PIB0	J4	Not Used			
PIB1	J5	Not Used			
PIB3	J6	Not Used			

EXPLODED VIEW



REMOTE CONTROLLER PARTS LIST

• MECHANICAL PARTS LIST

Ref. No.	Part No.	Part Name	Remarks	Q'ty
1	9H3 1000 094	Case Top	PA2106218	1
2	9H3 1000 056	Case Bottom	PA2106301	1
3	9H3 1000 057	Cover Battery	PA2106501	1
4	9H3 1000 058	Filter IR	PA2106401	1
5	9H3 1000 093	SW-Rubber	PA2108108	1
6	—	Panel	MP2102321	1
7	9H3 1000 060	Bottom SW	PA2108201	1
8	9H3 1000 064	Terminal Battery	MASP00023	1
9	9H3 1000 061	Spring Coil	MASP00921	1
10	9H3 1000 062	Spring Coil	MAS900932	1
11	—	Screw-Tapping 2×5	ST2005B2F	1
12	—	Screw-Tapping 2×6	ST2006B2F	1
★ 13	—	Label	ZLAA00202	1
14	—	P.W.Board Ass'y		1

Ref. No.	Part No.	Part Name	Remarks	Q'ty
PACKING & ACCESSORIES				
20	9H3 1000 075	Bag-Poly	ZB101C301	1
21	—	Batt. Manganese	BATA00252	1
22	—	Sheet PC	PA3103001	1

• ELECTRICAL PARTS LIST

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS			
IC1		μPD17203-567	μ-Com
IC2		IC RH5VA20AA	Vol. Detector
TR1	9H3 1000 070	Transistor 2SC3443BF/BG	Tr-Chip
or			
D1,2	9H3 1000 028	LED TLR124	LED-Visible-Red
D3	9H3 1000 072	LED SE1003-C	LED-Infrared
D5		Diode 1SS281(1)	Diode
D6	9H3 1000 629	Diode PH310	Diode-Photo-Pin
D7	9H3 1000 071	Diode DA119	Diode
or		Diode 1SS196	Diode
RESISTORS (Chip Resistor)			
J1~6		0Ω, 1/8W	RM73B2B0R0K
R1,2	247 0006 085	560Ω, 1/10W	RM73B--561J
R3,4	247 0001 006	2.2Ω, 1/10W	RM73B--2R2K
R6	247 0005 086	220Ω, 1/10W	RM73B--221J
R7	247 0012 024	100KΩ, 1/10W	RM73B--104J
R8	247 0012 011	91KΩ, 1/10W	RM73B--913J
R9	247 0009 008	4.7KΩ, 1/10W	RM73B--472J
R10	247 0012 008	82KΩ 1/10W	RM73B--823J
R11	247 0009 066	8.2KΩ, 1/10W	RM73B--822J
R12	247 0011 009	33KΩ, 1/10W	RM73B--333J
R13	247 0009 008	4.7KΩ, 1/10W	RM73B--472J

Ref. No.	Part No.	Part Name	Remarks
CAPACITORS			
(Chip Ceramic Capacitor)			
C2		0.33μF/25V	CK73F1E334Z
C4	257 0014 032	0.1μF/25V	CK73F1E104Z
C5,6	257 0003 043	33PF/50V	CC73SL1H330J
C7	257 0014 032	0.1μF/25V	CK73F1E104Z
C8	257 0004 068	100PF/50V	CC73SL1H101J
(Electrolytic Capacitor)			
C1	254 4250 026	100μF/6.3V	CE04W0J101M
C3	254 4250 055	470μF/6.3V	CE04W0J471M
E.U. PARTS			Q'ty
X1	9H3 1000 073	Ceramic Resonator	KBR4.0MS03 1
SW1	9H3 1000 074	Slide Switch	SSSS213A 1
OTHER PARTS			
	—	P.W.Board	PCBA01853 (1)
		Post Wrapping	2

KEY BOARD

K65			
K2	K1	K4	K3
K9	K12	K11	K10
K17	K18	K19	K20
K25	K26	K27	K28
K33	K34	K35	K36
K41	K42	K43	K44
K49	K50	K51	K52
K57	K58	K59	K60
K61	K62	K63	K64
K53	K54	K55	K56
K45	K46	K47	K48
K37	K38	K39	K40
K29	K30	K31	K32
K21	K22	K23	K24
K13	K14	K15	K16
K5	K6	K7	K8

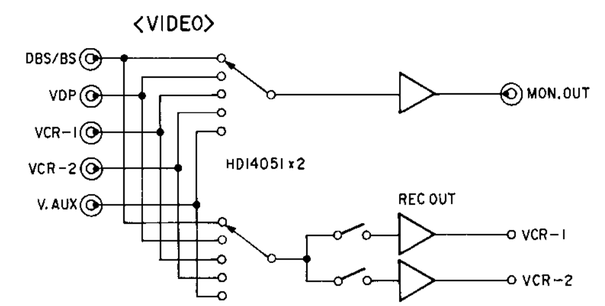
DENON

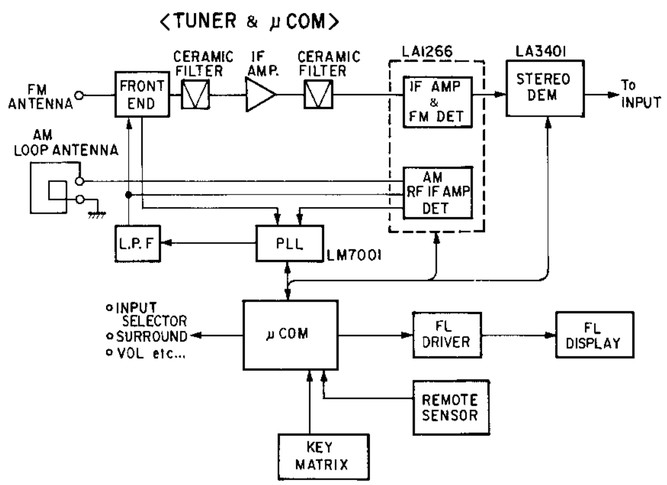
NIPPON COLUMBIA CO., LTD.

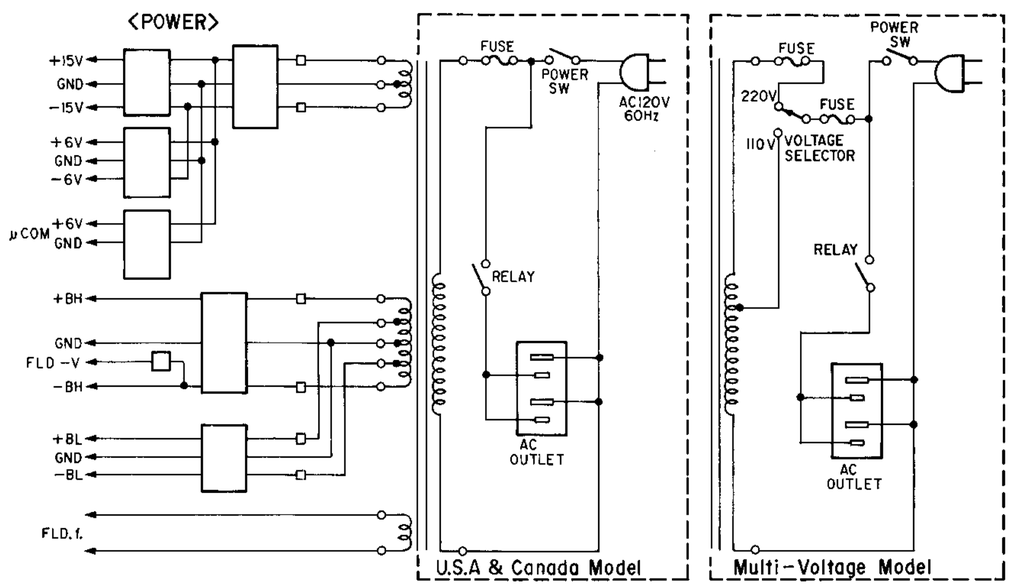
14-14, AKASAKA 4-CHOME, MINATO-KU, TOKYO 107-11, JAPAN
Telephone: 03 (3584) 8111
Cable: NIPPONCOLUMBIA TOKYO Telex: JAPANOLA J22591

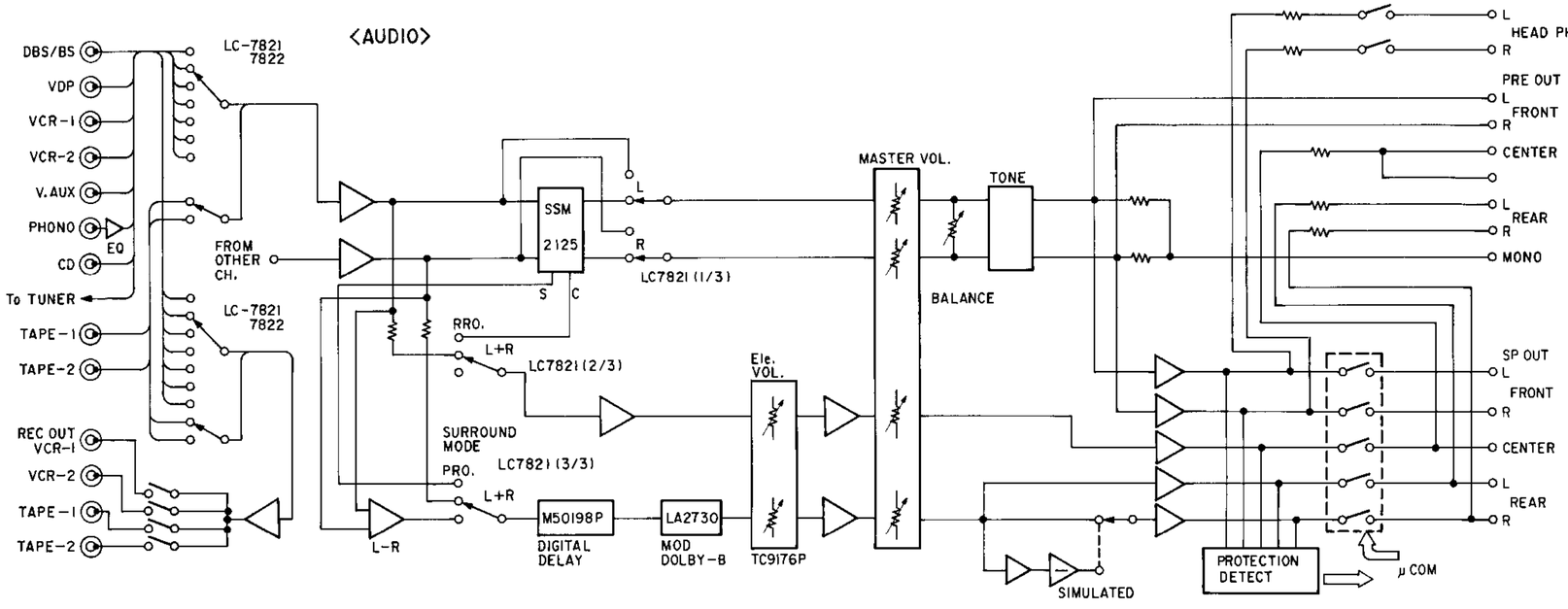
Printed in Japan 103 BU 0246

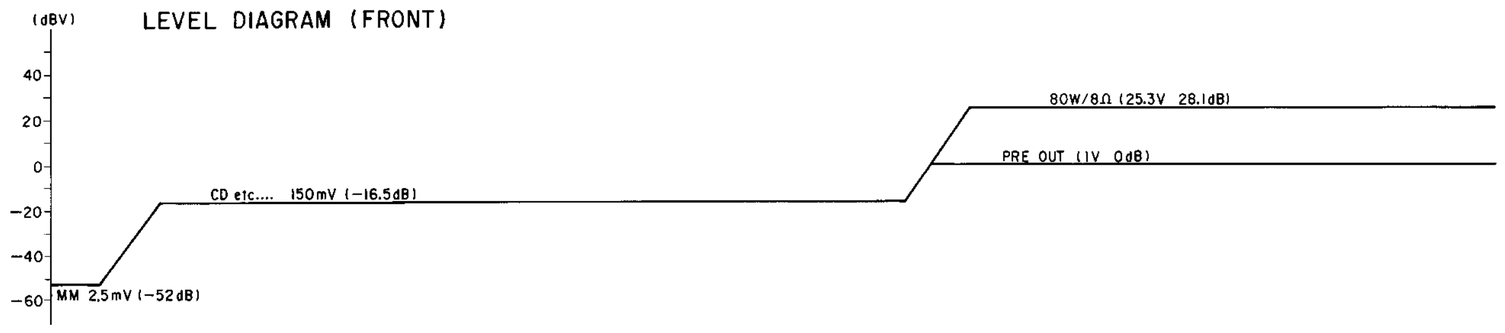
BLOCK DIAGRAM



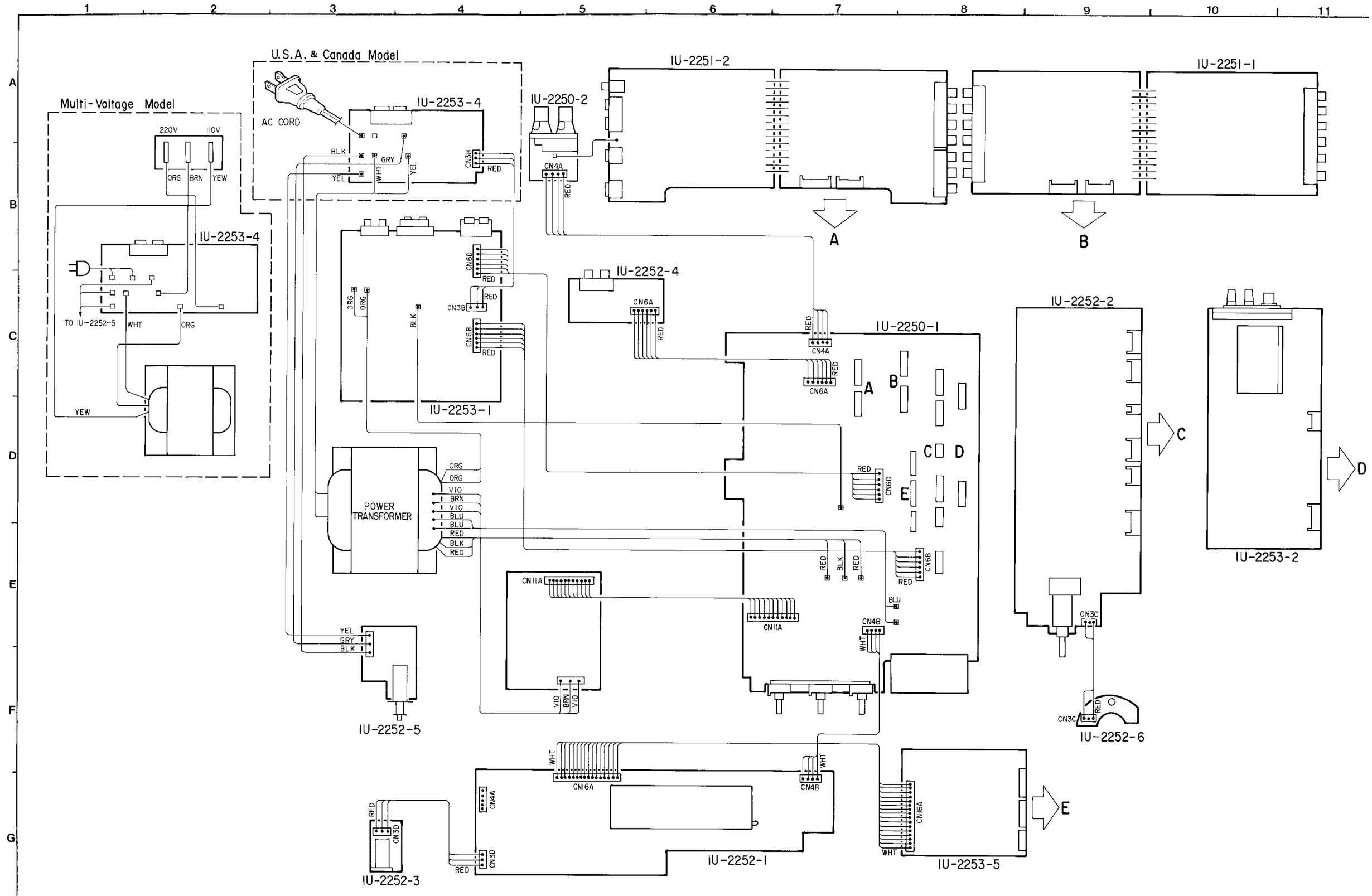






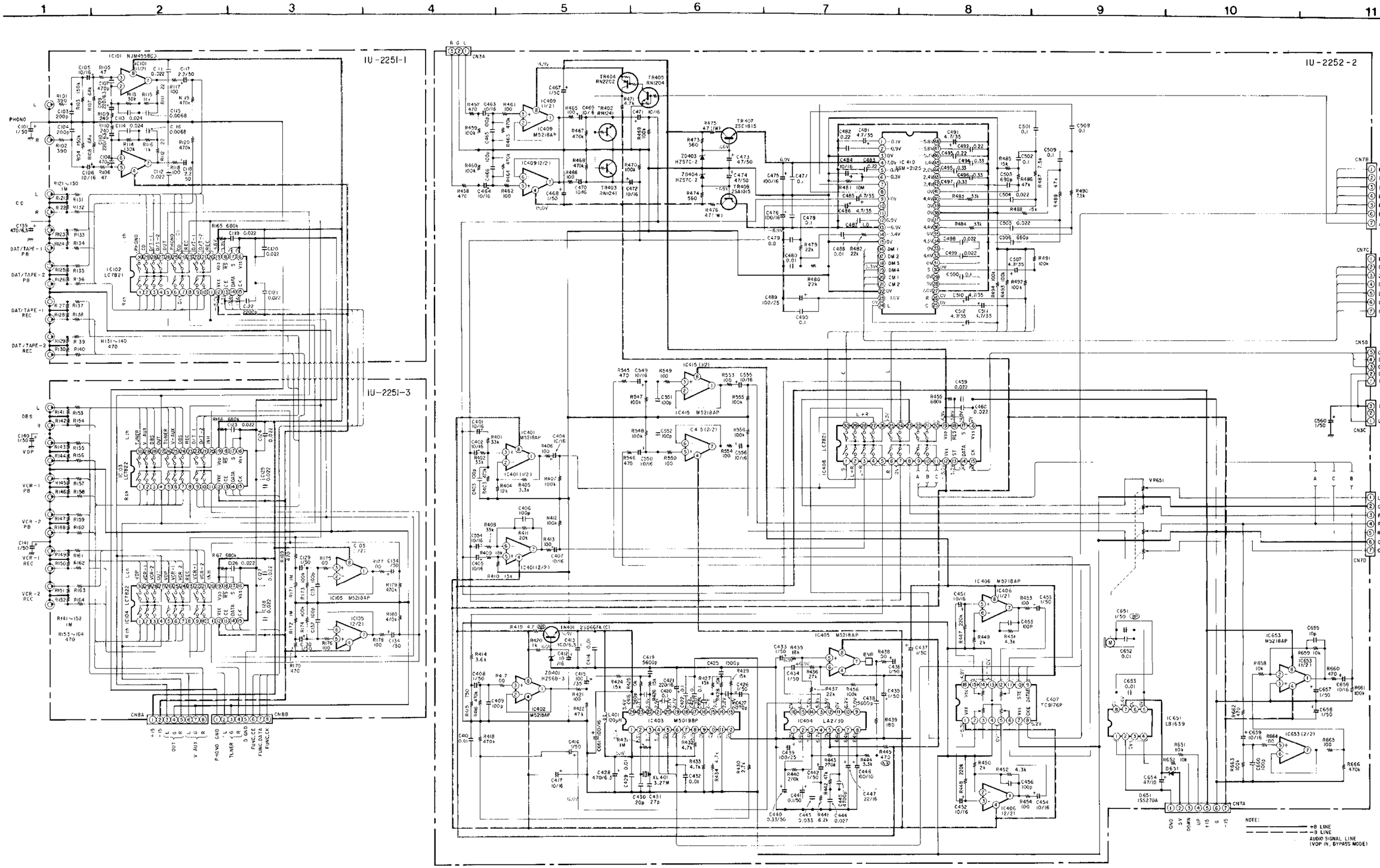


WIRING DIAGRAM



Area	Unit No.			
	Front Amp. Unit	Input Unit	Surround Unit	Rear Center Amp. Unit
U.S.A. & Canada model	1U-2250	1U-2251	1U-2252	1U-2253
Multivoltage model	1U-2250C	1U-2251	1U-2252C	1U-2253C

SCHEMATIC DIAGRAM (1/3) Main Section



	Unit No.			
	Front Amp	Input Unit	Surround Amp	Rear Center Amp
U.S.A. model	1U-2250	1U-2251	1U-2252	1U-2253
Canada model	1U-2250	1U-2251	1U-2252	1U-2253
Multivoltage model	1U-2250C	1U-2251C	1U-2252C	1U-2253C

	Power Trans	C837, 838	R824	D999
U.S.A. model	233 5888 005	750 PF	18K	—
Canada model	233 5888 005	750 PF	18K	—
Multivoltage model	233 5890 006	510 PF	33K	1SS270A

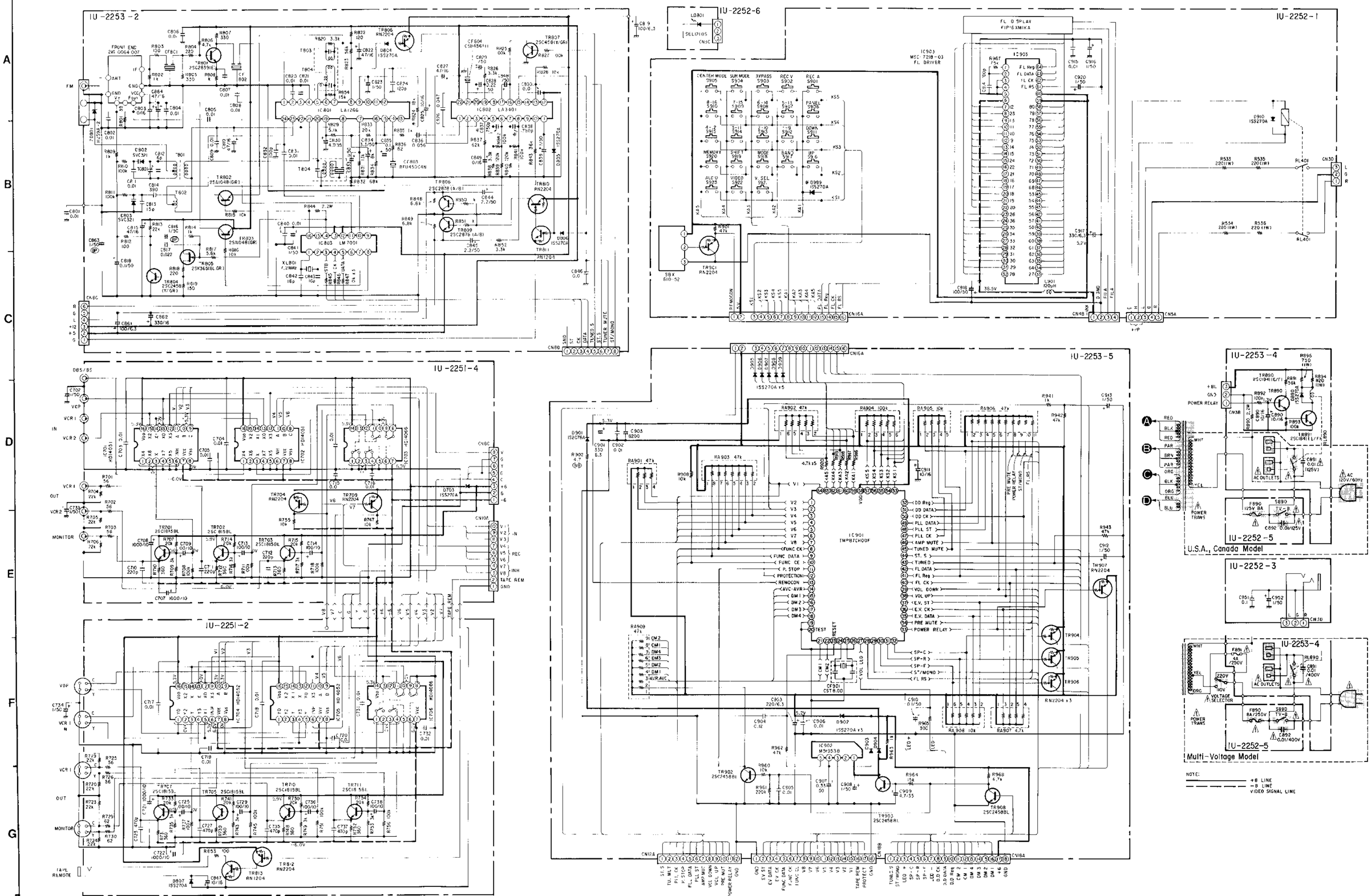
NOTES
ALL RESISTANCE VALUES IN OHM. k=1,000 OHM, M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

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

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

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

SCHEMATIC DIAGRAM (2/3) Video Section



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

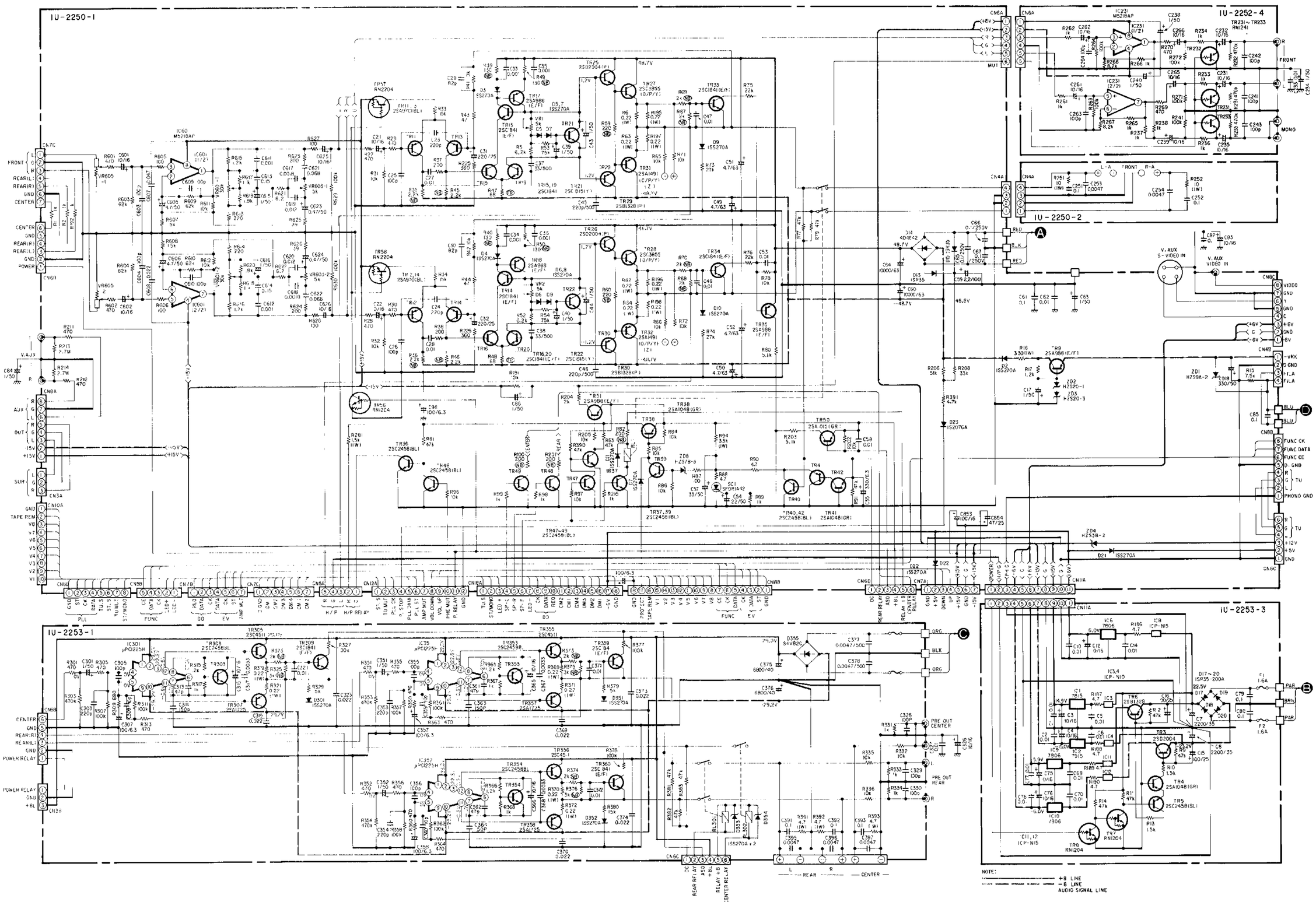
CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 240 kohms, the unit is defective.

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

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.

	Unit No.				Ref. No.		
	Front Amp	Input Unit	Surround Amp	Rear Center Amp	R824	C837,C838	D999
U.S.A. model	1U-2250	1U-2251	1U-2252	1U-2253	18K	750P	—
Canada model	1U-2250	1U-2251	1U-2252	1U 2253	18K	750P	—
Multivoltage model	1U-2250C	1U-2251	1U-2252C	1U-2253C	33K	510P	1SS270A

SCHEMATIC DIAGRAM (3/3) Audio Section



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

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

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

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.

EXPLODED VIEW OF CHASSIS AND CABINET

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

Multi voltage
Model only