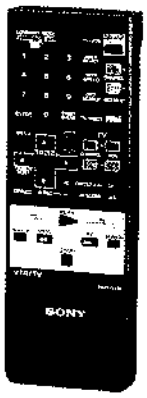
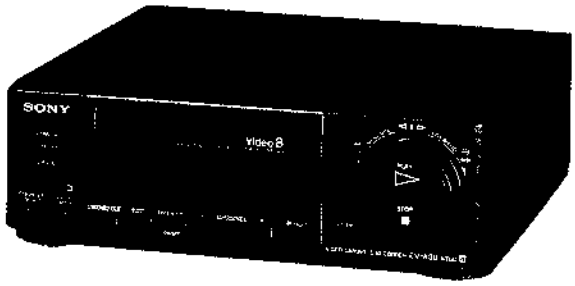
EV-A50
RMT-V119

SERVICE MANUAL

US Model
Canadian Model





Remote commander is available as a unit, See page 121 for repair parts.

Video 8
U' MECHANISM

For MECHANICAL ADJUSTMENT, refer to the "8mm Video MECHANICAL ADJUSTMENT MANUAL III (U MECHANISM)" (9-972-732-11).

SPECIFICATIONS

System

Video recording system
  Rotary two-head helical scanning FM system
Audio recording
  Rotary head, monaural system
Video signal NTSC color, EIA standards
Usable cassette 8mm video format cassettes
Tape speed SP: approx. 1.43cm/sec.
  LP: approx. 0.72cm/sec.
Maximum recording time
  SP: 2 hours 30 minutes
  LP: 5 hours
  (with Sony P6-150)
Fast-forward and rewind time
  Approx. 4 minutes (with Sony P6-120 cassette)
Tuner section
Channel coverage
  VHF channels 2 to 13
  UHF channels 14 to 69
  Cable TV channels 1 to 125
VHF/UHF output signal
  Channel 3 or 4 (selectable)
  75 ohms, unbalanced
VHF/UHF input signal
  75 ohms, F-type connector for VHF/UHF IN and VHF/UHF OUT

Inputs and outputs

Video input LINE IN VIDEO (phono jack) (1)
  Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
Video output LINE OUT VIDEO (phono jack) (1)
  Output signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio input LINE AUDIO (phono jack) (1)
  Input level: −7.5 dBs
  Input impedance: more than 47 kilohms
Audio output LINE OUT AUDIO (phono jack) (1)
  Standard impedance: −7.5 dBs at load impedance 47 kilohms
  Output impedance: less than 10 kilohms
CONTROL S IN Minijack
CONTROL L 3-pin mini-mini jack

Timer

Clock Quartz lock
Timer indication 12-hour digital indication
Timer setting Only for recording
6 events/1 month max.

General

Power requirements 120 V AC, 60 Hz
Power consumption 14W(max.)
Operating temperature 5°C to 40°C (41°F to 104°F)
Storage temperature −20°C to 60°C (−4°F to −140°F)
Dimensions Approx. 225 × 75 × 252 mm (w/h/d)
  Approx. 8 7/8 × 3 × 10 inch
Weight Approx. 2.25Kg (lb oz)

MICROFILM

8 VIDEO CASSETTE RECORDER
SONY®

Remote Commander RMT-V119

Remote control system	Infrared control
Command mode	Selectable VTR 1, 2 or 3
Power requirements	3V DC 2 size AA batteries (IEC designation R6)

Supplied accessories.

- Remote Commander RMT-V119 (1)
- Size AA (R6) batteris (2)
- External antenna connector (1)
- 75-ohm coaxial cable with F-type connectors (1)
- AC power cord (1)

Design and specifications subject to change without notice.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
6. Check the B+ voltage to see it is at the values specified.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

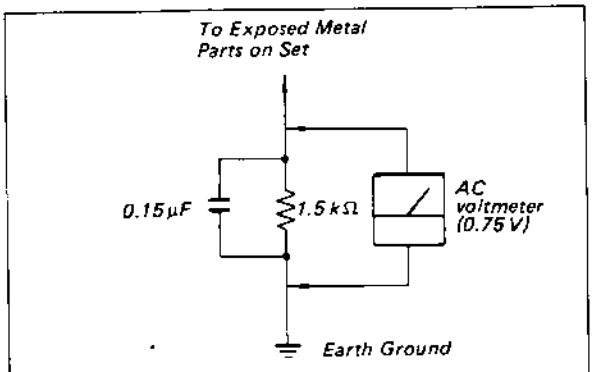


Fig. A. Using an AC voltmeter to check AC leakage.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

TABLE OF CONTENTS

SECTION 1
SERVICE NOTE

1-1. REMOVAL OF CASSETTE AT FAILURE WITH CASSETTE INSERTED

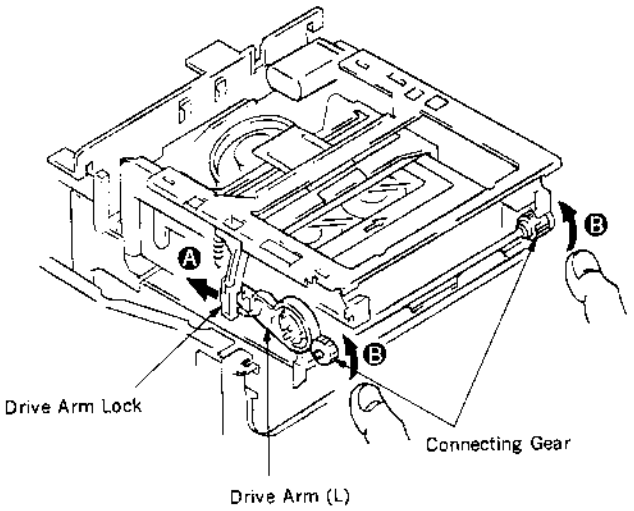
Ⓐ If tape is wounded on the drum and it cannot be removed: Rotate the capstan motor wheel in either direction and rotate the S or R reel to house the tape. Then, perform Procedure Ⓑ.

Ⓑ If tape is housed in the cassette half and cannot be removed:

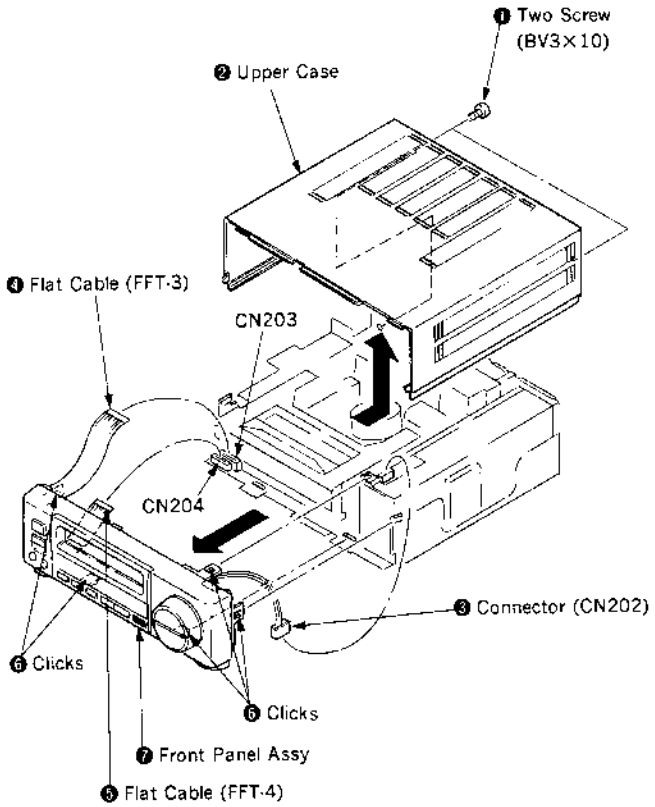
① Remove the MD block. (For removal, refer to Section 3-8.)

② Release the drive arm lock from the drive arm (L) located between the L frame and the left side of the cassette controller in the arrow direction Ⓐ.

③ Rotate the connecting gear in the arrow direction Ⓑ with both the thumbs.

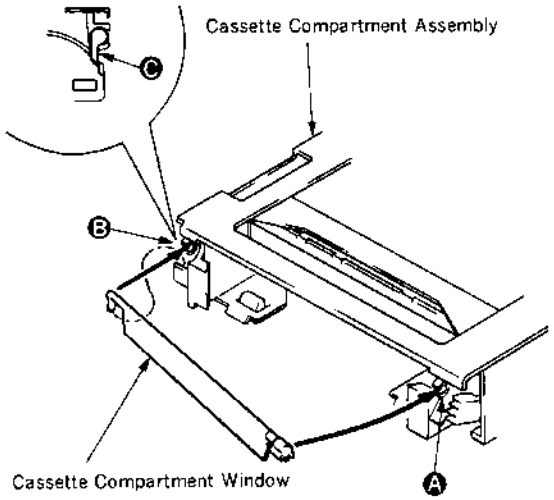


1-2. REPLACEMENT OF EXTERNAL PARTS



1-3. REPLACEMENT OF CASSETTE DOOR ASSEMBLY

1) Remove the front panel.
2) First undo Ⓐ portion toward you and then undo Ⓑ.



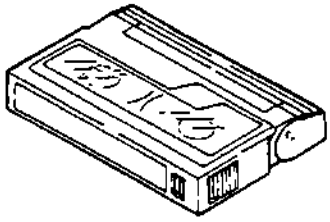
3) When installing, as shown above, first put in Ⓑ portion by setting the claw Ⓒ. Then, put in Ⓐ portion and install so that the door hangs almost vertically.

1-4. CLEANING OF VIDEO HEAD AND RUN SYSTEM

Method 1

[Cleaning Method with Cleaning Tape]

- A cleaning cassette should be used. (When using, the attached manual for the cleaning cassette should be thoroughly read.)



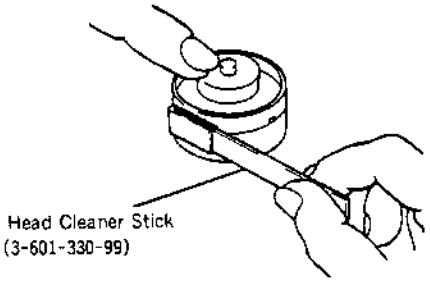
Method 2

[Cleaning Method with Cleaning Liquid]

①Remove the upper case of the video deck.

②Apply cleaning liquid to a head cleaner stick.

③As shown in the right figure, press the head cleaner stick lightly. Turn the rubber of the rotary upper drum gradually and clean the video deck.



[Cleaning Method for Run System]

①Apply cleaning liquid to a head cleaner stick.

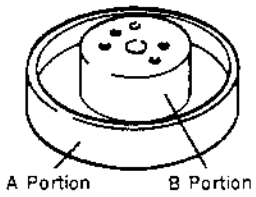
②Clean the guides which tape touches directly and the pinch roller with the head cleaner.

1-5. REPLACEMENT OF UPPER ROTARY DRUM

Method 3

Caution

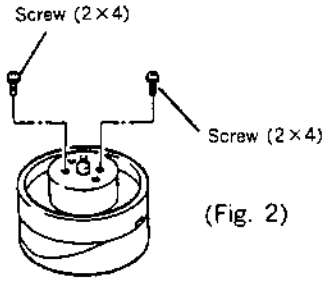
- Particular care must be taken when handling the video head and the terminals
- When handling the rotary upper drum, do not touch the side (A portion) and hold the top (B portion) (See Fig. 1)



(Fig. 1)

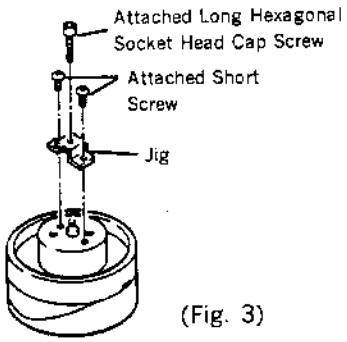
Removal of Rotary Upper Drum

①Remove two screws (2×4) (See Fig. 2).



(Fig. 2)

②Fix the jig (supplied with the spare rotary upper drum) with the two attached short screws. Then, put the attached long screw into the jig until the rotary upper drum may be removed (See Fig. 3).

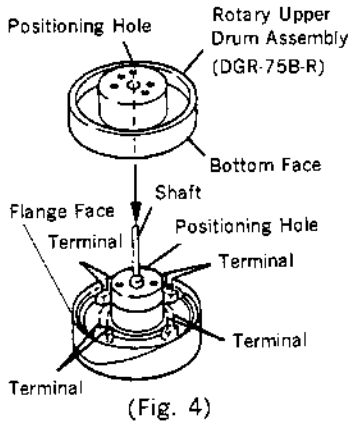


(Fig. 3)

Installation of New Rotary Upper drum

①Clean the flange face and the bottom face of the new rotary upper drum (See Fig. 4).

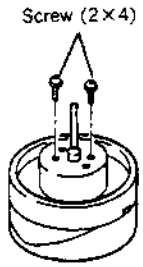
②Insert the shaft attached to the jig into the positioning hole in the lower drum. Then, put the shaft through the positioning hole in the new rotary upper drum and set the drum lightly.



(Fig. 4)

③With the shaft inserted into the positioning hole, push into the upper drum lightly with a hand. If the drum is not allowed to be bottomed, alternately tighten two screws (2×4) gradually and install the drum (See Fig. 5)

④Pull out the shaft inserted. If the shaft is not allowed to be withdrawn smoothly, go back to Step ② and redo the procedure.



(Fig. 5)

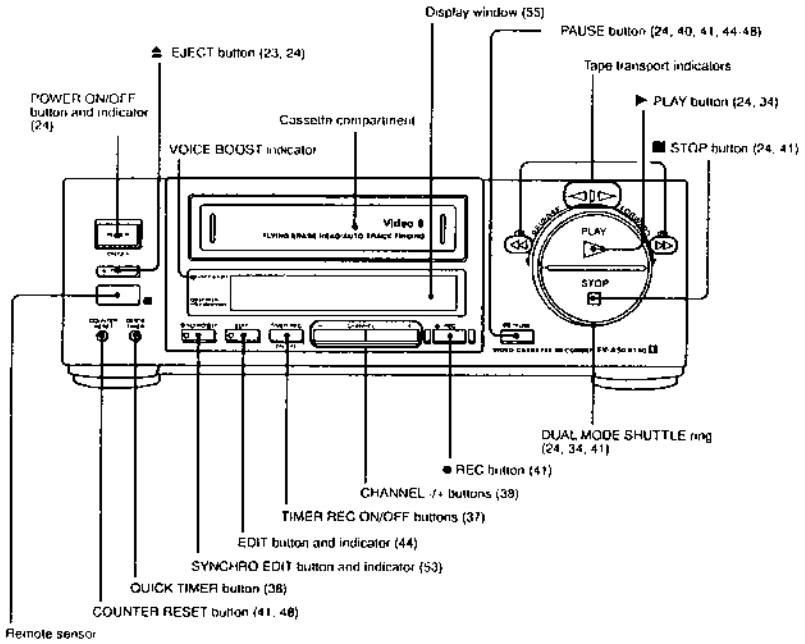
⑤Once the drum has been replaced, clean the video head and the run system with a head cleaner stick (See "Cleaning Method 2 for Video Head and Run System).

Identifying the Parts and Controls

This section is extracted from instruction manual.

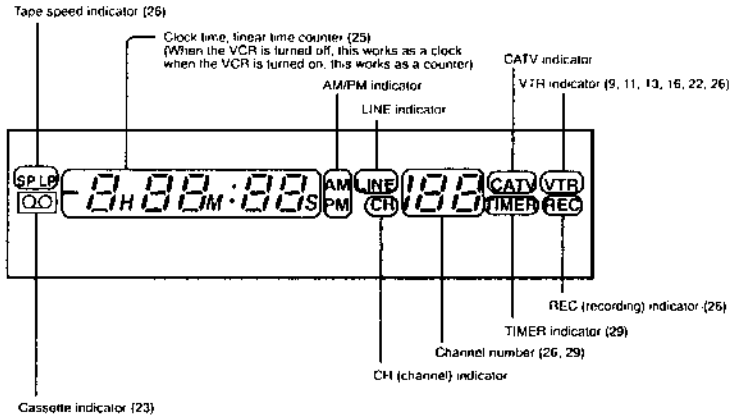
Front Panel

The function of each control is explained on the page indicated in parentheses ( ).



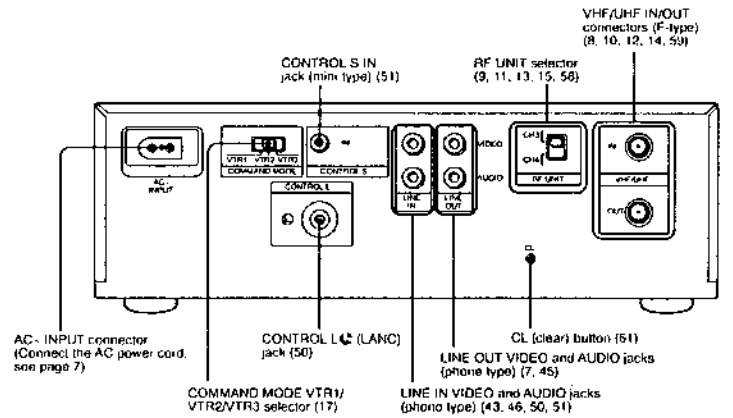
Display Window

Each indicator is explained on the page indicated in parentheses ( ).



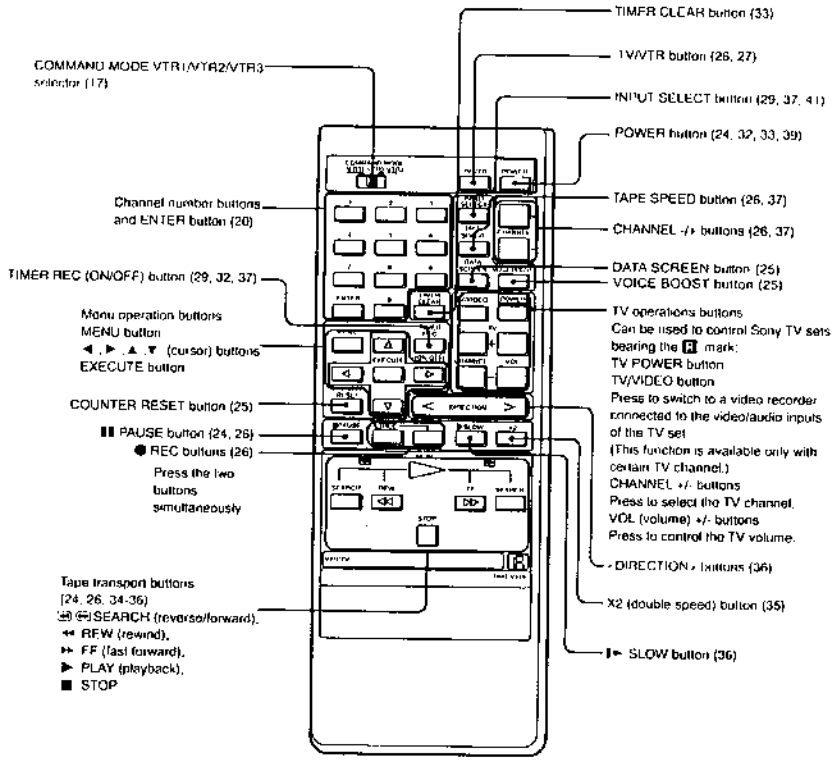
Rear Panel

The function of each control is explained on the page indicated in parentheses ( ).

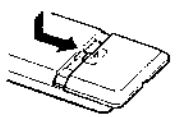


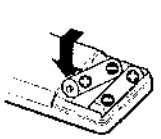
Remote Commander

The function of each control is explained on the page indicated in parentheses ( ).



Preparing the Remote Commander





Inserting Batteries

1 Open the lid.

2 Insert two size AA (IEC designation R6) batteries with the polarity lined up correctly.

3 Close the lid.

Notes on the handling of batteries

- With normal use, the batteries should last for approximately six months.
- If you do not use the Remote Commander for an extended period of time, remove the batteries to avoid possible damage from battery leakage.
- Do not use a new battery together with an old one. Do not use different types of batteries.

Setting the Command Mode

You can select three different positions for the Command Mode setting.

1 Set the COMMAND MODE VTR 1/VTR 2/VTR 3 selector on the rear panel of the VCR to VTR 2.

2 Set the COMMAND MODE VTR1/VTR2/VTR3 selector on the Remote Commander to VTR2.

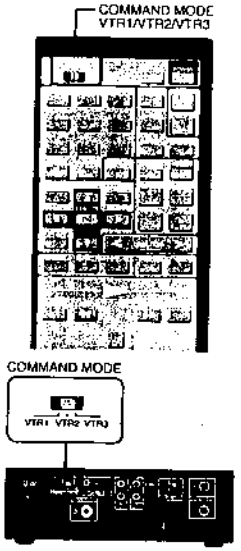
Controlling Other Sony Video Equipment

1 Set the Remote Commander COMMAND MODE VTR1/VTR2/VTR3 selector to a position other than the one you selected for this VCR.

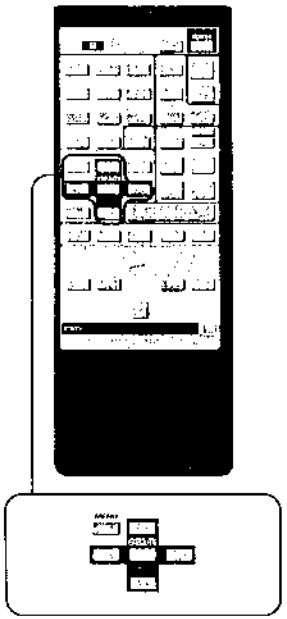
2 Set the COMMAND MODE selector of any other video equipment to the same position you selected in step 1.

If other Sony video equipment does not have a COMMAND MODE selector, you can control such equipment using the following settings:

Infrared remote controlled Sony Betamax VCRs: VTR 1
(Some of them may not be controlled in this mode.)
Sony 8mm format VCRs: VTR 2
Sony VHS format VCRs: VTR 3



Setting the Time and Date



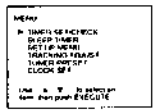
You can set the time and date between years 1992 and 2007 on the TV screen using the Remote Commander.

Before You Begin

- Use ▲ or ▼ to move the cursor (►)
- Use ◄ or ► to select the items.
- The day of the week is automatically set after the date is set.
- To quit setting in the middle of the procedures, press MENU.

Example of Time and Date Setting

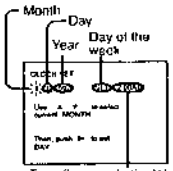
Example: To set to 9:30 am, July 4, 1992



1 Press MENU.
The main MENU appears.

2 Press ▲ or ▼ to move the cursor (►) to CLOCK SET.

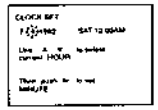
3 Press EXECUTE.
"1/1/1992 WED 12:00AM " is displayed. The leftmost 1, in the "month" position, flashes



4 Press ▲ or ▼ until 7 appears in the month position.

5 Press ► to make the next number blink in the "day" position.

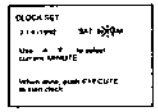
6 Press ▲ or ▼ until 4 appears in the day position.
The day of the week is set automatically.



7 Press ► to make the year flash and press ▲ to change the year.

8 Press ► to make the time flash.

9 Press ▲ or ▼ until 9 AM appears.



10 Press ► to make the minute flash.

11 Press ▲ or ▼ until 30 appears in the minute position.

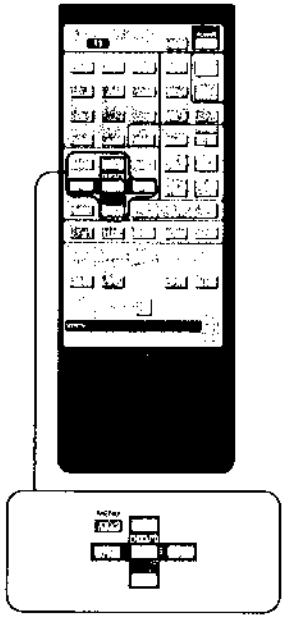
12 Press EXECUTE at the same time that you hear the time signal.
Pressing EXECUTE will set the clock to 9:30 am 00 seconds.

If "– : – –" lights up on the unit
If the power is interrupted for more than one hour, "– : – –" lights up in the display when the power is restored. You will have to reset the date and clock again.

When the time and date clock is displayed
The clock keeps running as long as no changes are made. The seconds are not reset to 00 when you return to the original screen.

You cannot set the time and date during timer-activated recording, timer recording standby, quick – timer recording or sleep-timer.

Presetting the Active Channels



This VCR can receive VHF channels 2 to 13, UHF channels 14 to 69 and CATV channels 1 to 125. These channels can be preset using the Remote Commander and the TUNER PRESET display. First, you should preset the active channels in your area using the automatic preset mode. Then, if there are any unwanted channels, disable them manually. If you have already decided which channels you wish to preset on the VCR, set them directly using the channel number buttons.

Before You Begin

Before presetting channels, check the following points:

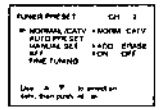
- Turn on the VCR and the TV.
- If you have connected the TV and the VCR using the VHF/UHF OUT on the VCR only, make sure that the TV is set to the correct channel (3 or 4) for the VCR.
- Press TV/VTR to display the VTR indicator in the display window on the VCR.
- Press INPUT SELECT so that the TUNER indicator and the channel number appear in the display window on the VCR.
- Use ▲ and ▼ to move the cursor (►).
- Use ◄ and ► to select the items.
- To quit setting in the middle of the procedures, press MENU.

Presetting All Receivable Channels Automatically

1 Press MENU.
The main MENU appears

2 Press ▲ or ▼ to move the cursor (►) to TUNER PRESET.

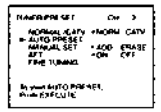
3 Press EXECUTE.
The TUNER PRESET menu is displayed



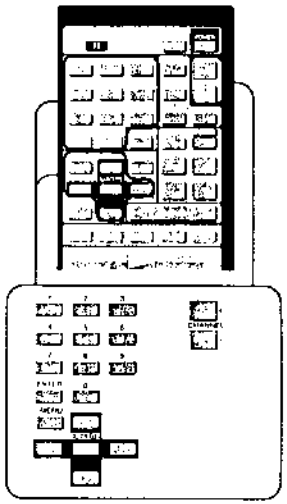
4 Press ▲ or ▼ to move the cursor to NORMAL/CATV

5 Press ◄ or ► to select NORM or CATV.
NORM presets the VHF and UHF channels; CATV presets your cable TV channels. The lowest channel number 2 for NORM, and 1 for CATV, will appear on the screen.

6 Press ▲ or ▼ to move the cursor to AUTO PRESET.



7 Press EXECUTE.
Receivable channels preset in numerical sequence. When no more channels can be found, the presetting stops and the picture of the lowest numbered channel is displayed on the TV screen.



Presetting Desired Channels or Disabling Unwanted Channels

After automatic presetting is completed, you can disable and/or add channels.

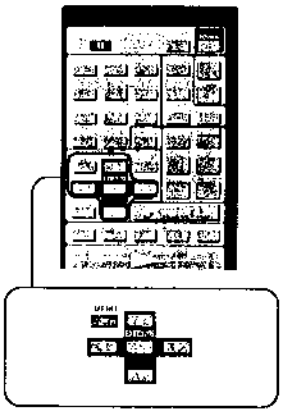
1 Follow steps 1 through 3 in "Presetting All Receivable Channels Automatically" on page 19.

2 Press CHANNEL + / −, or press channel number buttons (0 through 9) and ENTER to select the channel.
Once a channel was erased, it is skipped with CHANNEL + / −. So, if you want to select the number that was erased, use channel number buttons (0 through 9) and ENTER to select the channel.

3 Press ▲ or ▼ to move the cursor to MANUAL SET.

4 To disable channels, press ◄ or ► to select ERASE.
To add channels, press ◄ or ► to select ADD.

5 Press EXECUTE.
When you press CHANNEL + / −, the disabled channels are removed and the added channels are displayed.



Fine-Tuning

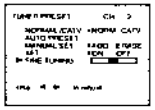
Normally, the Auto Fine Tuning (AFT) setting on the TUNER PRESET menu is set to ON, and the AFT function fine-tunes the picture. If the picture of a channel is not acceptable, fine-tune it manually.

1 Follow steps 1 through 3 in "Presetting All Receivable Channels Automatically" on page 19.

2 Press ▲ or ▼ to move the cursor to FINE TUNING.
The fine tuning indicator is displayed.

3 Press ◄ or ► to get a clearer picture.
The AFT ON/OFF automatically switches to OFF.

4 If you cannot get a better picture, press ▲ to move the cursor to AFT and select ON. Then, press EXECUTE.



The FINE TUNING indicator

The FINE TUNING indicator shows the operable fine-tuning range and stops at the optimal point of reception. When the VCR's tuner is receiving an optimal broadcast signal, the indicator stops at the center position or one space right or left of the center position. However, even when a broadcast is received in an optimal condition, the indicator may not be at the position described.

Cable TV Channel Assignment

Cable TV systems use letters or numerals to designate the channels. To tune-in a CATV channel, refer to the chart below which shows the CATV channel numbers on this VCR and the corresponding CATV channel. Note that the channel number assignment shown in the chart may not correspond to the channel number used by your local cable company. Check with your local cable TV company for more information on the available channels.

Number on this VCR	1	2	...	13	14	15	16	17	18
Corresponding CATV channel	A-8	2	...	13	A	B	C	D	E

19	20	21	22	23	24	25	26	27	28	29	30	31
F	G	H	I	J	K	L	M	N	O	P	Q	R

32	33	34	35	36	37	...	94	95	96	97	98	99
S	T	U	V	W	W+1	...	W+58	A-5	A-4	A-3	A-2	A-1

100	...	125
W+59	...	W+84

The VCR is designed to correspond to the standard cable system. However, cable TV services may vary from area to area. Your local cable TV company may adopt either the HRC*1 or IRC*2 cable system. Even in those cases, this VCR can receive either of these cable systems in the best condition.

***1 HRC (Harmonic Related Carriers)**

All channels except for 5 and 6 are 1250 KHz lower than the standard cable system. Channels 5 and 6 are 750 KHz higher than the standard cable system.

***2 IRC (Incremental Related Carriers)**

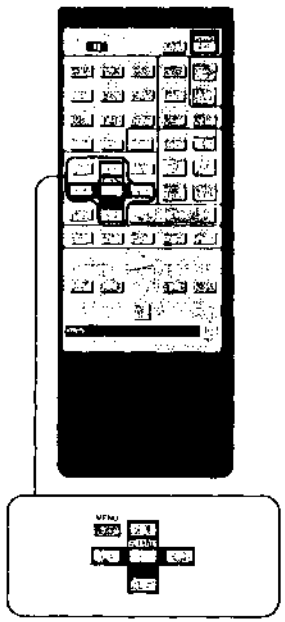
All channels except for 5 and 6 are the same as the standard cable system. Channels 5 and 6 are 2000 KHz higher than the standard cable system.

FINE TUNING indicator for receiving HRC or IRC cable systems

Even when the signals are received in optimal condition, the FINE TUNING indicator will not stay at the center position for channels higher or lower than the standard cable system due to the difference in the frequency.

Note

Pay cable TV systems use scrambled or encoded signals and require special converters (decoders) in addition to the normal cable connection.

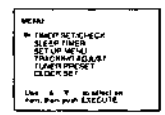


Before using the VCR, set options in the SET UP MENU display to your preferred position.

Before You Begin

- Use ▲ and ▼ to move the cursor (▶).
- Use ◀ and ▶ to select the items.
- To quit setting in the middle of the procedures, press MENU.

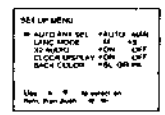
1 Press MENU.
The main MENU appears.



2 Press ▲ or ▼ to move the cursor (▶) to SET UP MENU.

3 Press EXECUTE.
The SET UP MENU appears.

4 Press ▲ or ▼ to move the cursor (▶) to the menu choice you want (see "Menu Choices" below).
Next, press ◀ or ▶ to move the dot (•) to select your desired mode setting.



5 Press EXECUTE to return to the original screen.
The settings are stored unless the power plug is disconnected.

Menu Choices

AUTO ANT SEL (Automatic Antenna Selector)

- If your TV is connected only to VHF/UHF OUT on the VCR, set to AUTO.

  When playing back a cassette, the picture is automatically displayed on the screen simply by selecting the channel for the VCR on the TV. To watch TV programs selected on the TV, press TV/VTR to turn off the VTR indicator in the display window.

- If your TV is connected to both VHF/UHF OUT and LINE OUT on the VCR, set to MAN.

  When playing back a cassette, select the input for the VCR on the TV.
  To watch the TV programs selected on the TV, select the tuner input.

LANC MODE

- If you control another VCR with the SYNCHRO EDIT button, set to M.
- Set to S in a case except above-mentioned. (For details, see page 49.)

x 2 AUDIO

- If you want to listen to the sound during double-speed playback, select ON.
- If you do not want to listen to the sound during double-speed playback, select OFF.

CLOCK DISPLAY
To erase the current time and date from the on-screen display, set to OFF.

BACK COLOR
You can select the background color from the three choices, BL (blue), GR (green) or PK (pink).

Playback

Caution

Be careful not to allow children to stick their fingers into the cassette loading slot. This may cause injury to the fingers.

This section shows you how to play back a video cassette.

Inserting a Video Cassette

1 Insert a video cassette.

2 Gently press the center of the front side of the cassette until the mechanism draws it into the compartment.
When the cassette has been inserted, the cassette indicator |▷ ○| lights in the display window and the VCR turns on automatically.

Ejecting the Cassette

Press ⏏ EJECT on the VCR. You can eject the cassette when the power is off.
When you press ⏏ EJECT, the power is turned on. After ejecting the cassette, the power automatically shuts off.

Note
You cannot eject a cassette during recording or recording pause mode.

Cassette Care

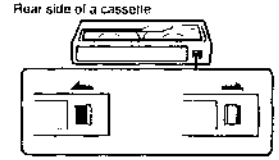
Notes

- Always insert the cassette in the correct position.
- Never insert anything in the small holes on the rear of the cassette.
- Store cassettes in their cases and keep them in an upright position to prevent intrusion of dust and uneven winding.
- To record from the beginning of the tape, run the VCR for about 15 seconds at the beginning of a cassette before recording.
- When the VCR is not in use, remove the cassette.
- Stick the cassette label in the designated area.
- Securely stick the label not to let it peel off.

Maximum recording time of a cassette

Cassette used	Recording/Playback Time	
	SP mode	LP mode
P6-15	15min	30min
P6-20	20min	40min
P6-30	20min	1h
P6-60	1h	2h
P6-90	1h 30min	3h
P6-120	2h	4h
P6-135	2h 15min	4h 30min
P6-150	2h 30min	5h

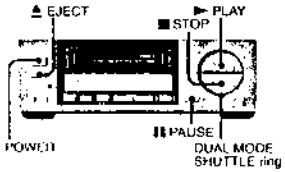
Rear side of a cassette

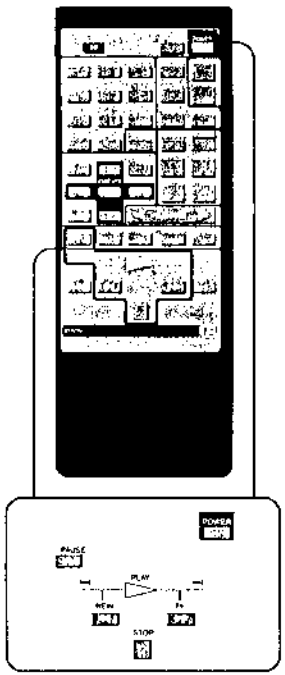


Protecting your cassette against accidental erasure

To prevent accidental erasure, slide out the tab on the cassette so that the red color is visible.

To re-record on the cassette, slide the tab back.





Playing Back a Cassette

You can control playback with the identically marked buttons on both the VCR and the Remote Commander.

1 Insert a cassette
The VCR turns on automatically.

2 Turn on the TV.
If your TV is connected to both the VHF/UHF OUT and LINE OUT on the VCR, select the input for the VCR.
If your TV is connected only to the VHF/UHF OUT on the VCR, select the channel for the VCR (Ch 3 or Ch 4).

3 Press ▶ PLAY.

To stop playback
Press ■ STOP.

To stop playback for a moment
Press II PAUSE.
Press II PAUSE again or press ▶ PLAY to resume playback.

To advance the tape rapidly
VCR: Press ■ STOP, then turn the DUAL MODE SHUTTLE ring clockwise.
Remote Commander: Press ■ STOP, then ▶▶ FF.

To rewind the tape
VCR: Press ■ STOP, then turn the DUAL MODE SHUTTLE ring counterclockwise.
Remote Commander: Press ■ STOP, then ◀◀ REW.

To view the picture during fast forward mode or rewind mode
You can view the picture momentarily while the VCR is in fast forward or rewind mode.

Keep pressing ▶▶ during fast-forward, and keep pressing ◀◀ during rewind. Release the button to return to fast forward or rewind.

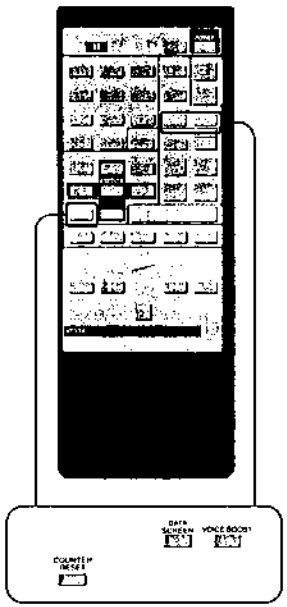
To eject the cassette
Press ⏏ EJECT on the VCR.

Pressing ⏏ EJECT when the VCR is turned off will turn the VCR on, eject the cassette and then turn it off again.

When the tape reaches the end during playback
The VCR automatically rewinds the tape to the beginning and the power remains on.

To turn the VCR on or off
Press POWER.

Never unplug the power cord while a tape is moving
This may cause the tape to be jammed in the VCR. When you need to unplug the power cord, be sure to remove the cassette or turn off the power of the VCR.

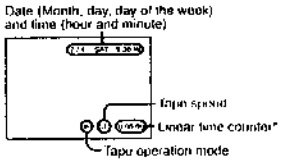


Notes on counter reading

- The counter does not work on the portions on which no recording has been made.
- After a cassette is ejected, the counter reading is retained. When a cassette is inserted in the VCR, the counter reading automatically returns to "0H00M00S".
- The linear time counter installed in this VCR is not a clock. There is a difference between the actual recording and playback time, and the counter display. This difference may increase when switching the tape speed from SP to LP and vice-versa, or depending on the position of the transported tape.

The Data Screen

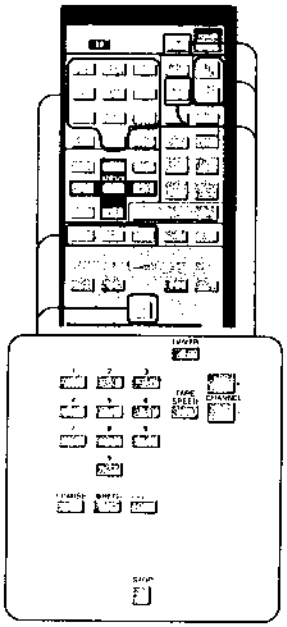
To turn off or display the data screen on the TV screen, press DATA SCREEN on the Remote Commander.



***Linear time counter**
Before recording or playback, press COUNTER RESET to reset the counter to zero. This counter is a "linear time counter," which tells you how much the tape has run in terms of time. By noting the setting, you can find that point later by referring to the counter. Use the label on a cassette to list the programs and their counter readings. Since the counter is not so accurate, use it only for reference.

Listening More Easily to Conversation Recorded with a Camcorder

When you press VOICE BOOST while playing back a tape recorded with a camcorder, human voice portion of the sound will be enhanced so that it is easier to listen to conversation. This reduces the sound of wind and other "unwanted" background noise.



This section shows you how to record. Recording can be done several ways:
- As you are watching it (See page 26)
- As you are watching another channel (See page 27)
- While the TV is off (See page 27)

Before You Begin

Before you begin, check the following points:

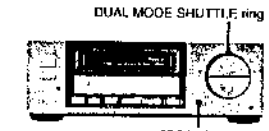
- Make sure that the connections have been made correctly (see page 7 to 14.)
- Check the input mode indicator in the display window of the VCR.
- Press INPUT SELECT to light the channel number indicator in the display window of the VCR.

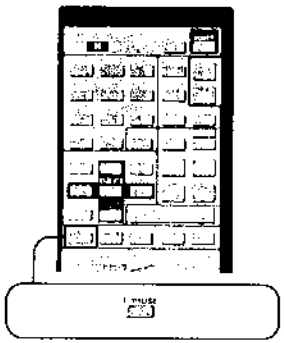
Recording TV Programs while You're Watching it

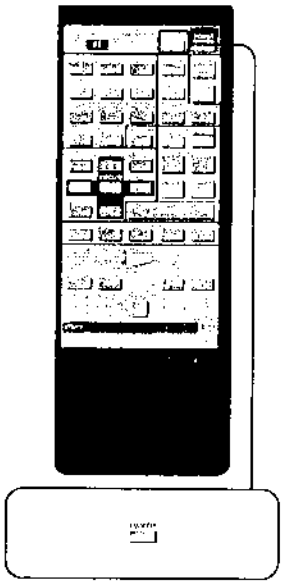
1 Insert a cassette.
The VCR turns on automatically.
2 Turn on the TV.
3 If your TV is connected to both VHF/UHF OUT and LINE OUT on the VCR, select the input for the VCR.
If your TV is connected only to VHF/UHF OUT on the VCR, select the channel for the VCR (Ch 3 or Ch 4).
4 If your TV is connected only to VHF/UHF OUT, then press TV/VTR so that the VTR indicator lights up. Skip this step if your VCR is connected to both the VHF/UHF and LINE OUT.
5 Press INPUT SELECT to light the channel number in the display window of the VCR. Select the channel to be recorded with CHANNEL + / − or channel number buttons.
6 Select SP or LP with TAPE SPEED (SP/LP).
To select the best recording tape speed, see "Maximum recording time of a cassette" on page 23.
7 Press the two ● REC buttons on the Remote Commander at the same time, or the REC button on the VCR.
The REC recording indicator lights up in the display window of the VCR.

To stop recording
Press ■ STOP.

To pause recording
Press II PAUSE. To resume recording, press II PAUSE. If the recording pause exceeds 7 minutes, the VCR stops.







Pausing

Technique 1
You can stop recording an unwanted scene and resume recording smoothly.
1 Press II PAUSE when an unwanted scene appears.
Recording will stop and the VCR enters recording pause mode.
2 Press II PAUSE at the desired point to release pause mode.
Recording resumes from the point set in step 1.

Technique 2
When an unwanted scene has already started recording, you can rewind the cassette to the desired point, have the VCR standby in recording pause mode, and resume recording when the unwanted scene is over.
1 Press II PAUSE to set the VCR to recording pause mode.
2 Turn the DUAL MODE SHUTTLE ring on the VCR counterclockwise to search for the point from which you wish to continue recording.
3 Release the DUAL MODE SHUTTLE ring on the VCR at the desired point.
After an instant in still mode, the VCR automatically enters recording pause mode.
4 Press II PAUSE.
Recording resumes.

Recording with the TV Off

Turn off the power of the TV or monitor.
There will be no interference with the recording.

Watching One TV Program While Recording Another

If your TV is connected only to VHF/UHF OUT on the VCR

1 Press TV/VTR so that the VTR indicator goes off.

2 Select the channel you want to watch on the TV.

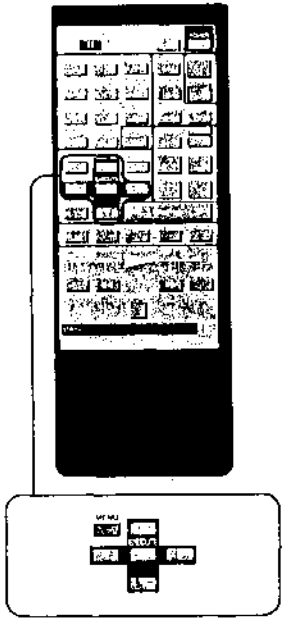
VTR indicator	Picture on the TV screen
Lit	Channel selected by the VCR or the playback picture of the VCR
Unlit	Channel selected by the TV

If your TV is connected to both VHF/UHF OUT and LINE OUT on the VCR

1 Set the input select mode to TV on the TV.

2 Select the channel you want to watch on the TV.

Timer-Activated Recording



The timer recording function lets you preset your VCR to record up to six programs within a one-month period. Perform this procedure using the Remote Commander and set each item on the TIMER/SET CHECK screen.

Before You Begin

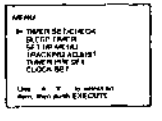
- Make sure the time and date clock is set correctly (see "Setting the Time and Date" on page 18).
- Make sure the cassette is long enough to record all the programs.
- Make sure the safety tab of the cassette has not been slid out. If you insert a cassette with the safety tab visible in red (closed) and press TIMER REC (ON/OFF), the cassette automatically ejects from the VCR.
- Use ▲ and ▼ to move the cursor (►).
- Use ◄ and ► to select items.
- To quit setting in the middle of the procedures, press MENU.

Setting the Timer

Example:

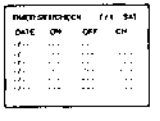
Record a program broadcast on channel 26 from 9:00 pm to 10:55 pm on Friday, July 10 in LP mode.

1 Press MENU.
The main MENU appears.

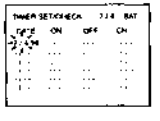


2 Press ▲ or ▼ to move the cursor (►) to TIMER SET/CHECK.

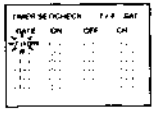
3 Press EXECUTE.
The TIMER SET/CHECK display appears on the screen.
If the clock is not set properly, reset the clock, refer to "Setting the Time and Date" on page 18.

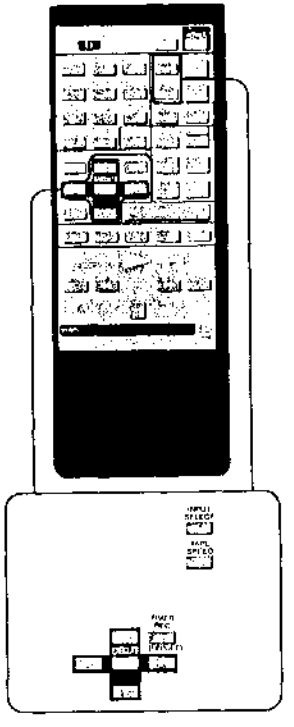


4 Press ►.
The current date appears blinking under "DATE".

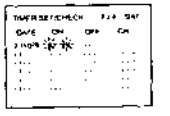


5 Press ▲ to set the month and date to 7/10/FRI.
The day of the week is automatically set.

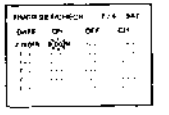




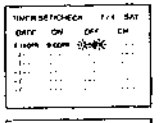
6 Press ► to blink the hours section under "ON" then ▲ or ▼ until 9PM appears.



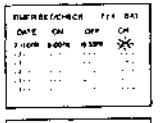
7 Press ► to blink the minutes section under "ON", then ▲ or ▼ until 00 appears.



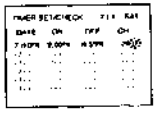
8 Press ►.
The cursor blinks in the time field under the "OFF" column.
Set the time to finish recording, referring to steps 6 and 7.



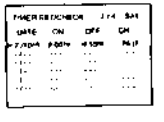
9 Press ► to blink the "CH" field , then press ▲ or ▼ until 26 appears.
Only the channels you have preset in the VCR will appear. You can also use the CHANNEL + / − or channel numbers buttons



10 Press ► or TAPE SPEED on the Remote Commander to make the recording position blink, then ▲ or ▼ until LP appears.
To change or correct a setting before entering it, press ◄ to return to the item you want to change.



11 Press ► to store the setting.
When all of the settings stop blinking and display a ► in the leftmost column, you've completed the setting.
To preset another program, move the cursor to the next line and repeat steps 4 to 11.



12 Press EXECUTE.
The message "Please push TIMER REC to set timer" appears on the TV screen.

13 Press TIMER REC (ON/OFF).
The VCR enters timer recording standby mode and the TIMER REC indicator in the display window of the VCR lights up.

To record video sources from LINE IN jacks
Press INPUT SELECT in step 9 to move the cursor to LINE in the "CH" field. This cursor returns to the channel number on the second press.

Daily/Weekly Recording

You can preset your VCR for daily or weekly recording.

Daily recording records the same program every day of the week. Weekly recording records the same program on the same day, every week.

Each time you press ▼, the indicator under the "DATE" column changes to one of the following choices:
SUN-SAT (Every day of the week)

MON-SAT (Every day except Sunday)
↓
MON-FRI (Every day except Saturday and Sunday)
↓
EVERY SAT
↓
EVERY TUE
↓
EVERY MON
↓
EVERY SUN

If power interruption occurs during timer recording, recording will stop and your VCR will turn off. If power is restored within one hour, and it's before the recording end time, recording will start again from that point. If the interruption lasts for more than one hour, any presettings will be erased and you'll need to reset the time and date for your programs. Note that the tape counter will return to "0H00M00S."

When the Tape reaches the end during timer recording
The tape is not rewound automatically. If the tape runs out before the recoring is completed, recording stops and the power is turned off.

When the recording of the preset program has finished
The program contents of the timer recording will be erased except for daily and weekly recording, and the program orders in the TIMER SET/CHECK list display will be moved up.

Timer Recording Standby Mode

When you return VCR to timer recording standby mode, you can record any previously preset programs. The VCR turns on automatically to record the first preset program. When it finishes recording, the power automatically shuts off.
To stop recording while a program is being recorded, press TIMER REC (ON/OFF).

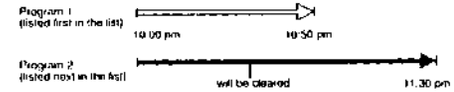
Buttons Operable During Timer Recording

TIMER REC (ON/OFF)		To stop recording
COUNTER RESET		(See "Indexing Tape Contents" on page 25.)
TV/VTR		(See "Watching One TV Program while Recording Another"on page 27.)
DATA SCREEN		(See "The Data screen"on page 25.)
MENU	TIMER SET CHECK	(See "Changing or Cancelling the Timer Settings" on page 33.)

Overlapping Timer Recordings

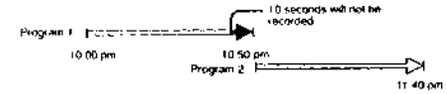
In cases in which you have made a "mistake" when presetting multiple programs, the VCR will interpret your settings as described in the following cases.

Case 1
If you preset two programs to begin recording at the same time.



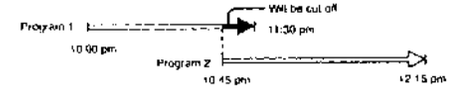
The program listed first on the TIMER SET/CHECK list display has priority over the other programs. The timer settings for lower priority programs will be deleted from the PROGRAM LIST display when recording begins for the first program.

Case 2
If you set program 2 to begin recording at the exact time you set program 1 to finish recording.

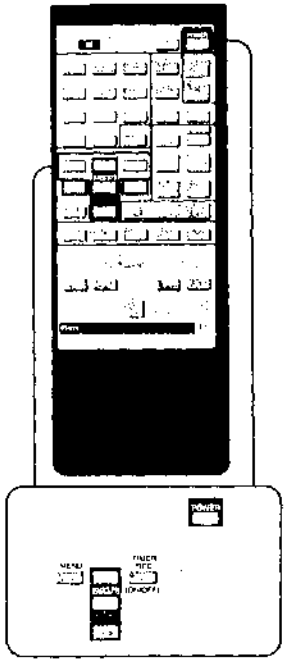


The last 10 seconds of program 1 will not be recorded.

Case 3
If you set program 2 to begin recording before program 1 has finished recording.



Program 2 will begin recording before program 1 has finished.



Checking the Timer Settings

Before You Begin

- Use ▲ and ▼ to move the cursor (▶).
- Use ◀ and ▶ to select items.

Here's how to display your timer settings to confirm the programs you wish to record.

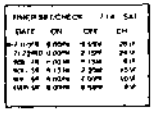
1 Press TIMER REC (ON/OFF) to release timer recording standby mode.
The TIMER REC (recording) indicator turns off in the display window of the VCR.

2 Press POWER to turn on the VCR.

3 Press MENU.
The main MENU appears.

4 Press ▲ or ▼ to move the cursor (▶) to TIMER SET/CHECK.

5 Press EXECUTE.
The TIMER SET/CHECK display appears.

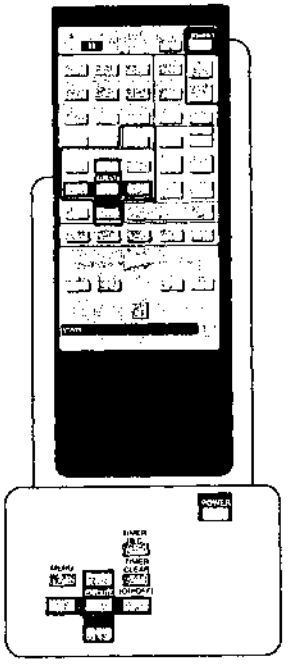


6 Press EXECUTE to return to the original screen.

7 Press TIMER REC (ON/OFF) to return to timer recording standby mode.
The TIMER REC (recording) indicator turns on in the display window of the VCR.

Notes

- If you set a program to record only one time, that setting is erased from the TIMER SET/CHECK display when the recording has finished.
- To check the timer settings during timer recording, follow steps 3 to 6.



Changing or Cancelling the Timer Settings

Before You Begin

- Use ▲ and ▼ to move the cursor (▶).
- Use ◀ and ▶ to select items.

Here's how to change or cancel any timer settings from the TIMER SET/CHECK display.

1 Display the TIMER SET/CHECK menu on the TV screen by following the procedures in "Checking the Timer Settings" on page 32.

2 Press ▲ or ▼ to move the cursor (▶) to the program you want to change or cancel.

3 To change a program, select the item to be changed by pressing ◀ or ▶, then make changes by pressing ▲ or ▼.
To cancel it, press TIMER CLEAR.
Repeat this step to change or cancel other settings.

4 Press EXECUTE to store the changes and return to the orginal screen.

5 Press TIMER REC (ON/OFF) to put the VCR in timer recording standby mode.

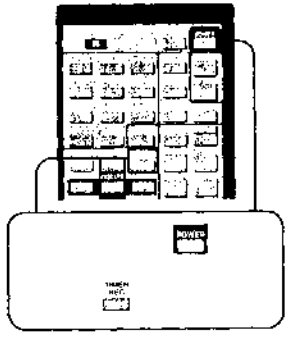
Using the VCR Before Timer Recording Starts

If you want to use your VCR while it's in timer recording standby mode, you must first turn off the TIMER REC (recording) indicator in the display window of the VCR.

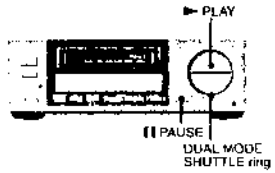
1 Press TIMER REC ON/OFF.
The TIMER REC (recording) in the display window turns off and the VCR leaves timer recording standby mode.

2 Press POWER.
The VCR is ready to use.

3 After using the VCR, press TIMER REC (ON/OFF).
The VCR returns to the timer recording standby mode.



Variable Speed Playback



The following section explains the advanced playback functions available on your VCR.

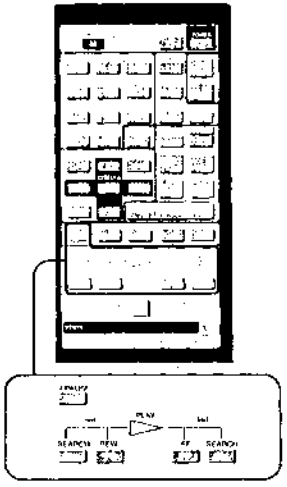
Using the DUAL MODE SHUTTLE ring on the VCR, you can play a cassette at a variety of forward and reverse speeds. You can also freeze a picture using the pause function.

Still Picture

During playback, press II PAUSE to hold the picture in one place.

To resume normal playback, press either ▶ PLAY or II PAUSE.

If you leave your VCR in pause mode, normal playback resumes after approximately 7 minutes.
If a still picture shakes up and down, you can adjust it on the TRACKING ADJUST menu. (See "Adjusting Tracking During Variable Speed Playback" on page 36.)



Picture Search During Playback

VCR: Turn the DUAL MODE SHUTTLE ring clockwise or counterclockwise. When you release your fingers from the ring, normal playback will resume.

Remote Commander: Press ▶▶ FF or ◀◀ REW.
When you release your finger from the button, normal playback will resume.

Locked Picture Search

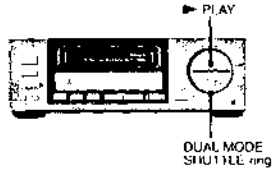
This feature works only when using the Remote Commander.

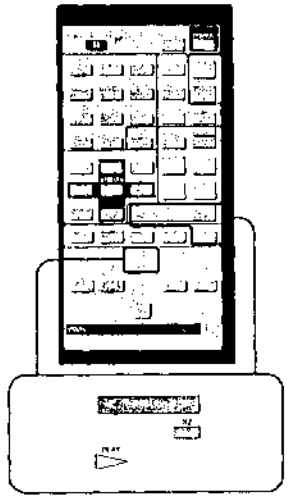
Press SEARCH on the Remote Commander during playback or playback pause. If you press the left SEARCH button, the VCR enters locked picture search mode in the reverse direction. If you press the right SEARCH button, the VCR enters locked picture search mode in the forward direction.

To return to normal playback
Press ▶ PLAY.

Notes

- When viewing the picture in still or picture search mode, the picture may shake vertically or the color may become black and white, depending upon the TV you are using.
- During picture search mode, several streaks appear on the TV screen. This is normal.
  A wider streak will appear on the TV screen during picture search mode as compared to tapes recorded in LP mode.
- If you perform picture search with the VCR connected to your TV via RF OUT, a sound such as a buzzing sound may slightly be heard.





x 2, –x 2 Speed Playback

Using the VCR:
Slowly turn the DUAL MODE SHUTTLE ring clockwise (in the forward direction) or counterclockwise (in the reverse direction) until the 2x (forward double-speed playback) or –x2 (reverse double-speed playback) indicator appears on the TV screen.

To return to normal playback
Release your fingers from the ring.

Using the Remote Commander:
Press x2.

To play back in the reverse direction
Press ◁ DIRECTION.

To resume the forward direction
Press DIRECTION ▷.

To return to normal playback
Press ▶ PLAY.

If you do not want to listen to the sound
Select OFF on the SET UP MENU(for details, see "Using the SET UP MENU" on page 22).

The sound is muted during reverse double-speed playback.

Auto Play

You can start playback automatically after rewinding a cassette.
This operation works only on the VCR. (You cannot use AUTO PLAY with the Remote Commander.)

Press ▶ PLAY after fully turning the DUAL MODE SHUTTLE ring counterclockwise.

Playback starts automatically after the tape is rewound to the beginning of the tape.

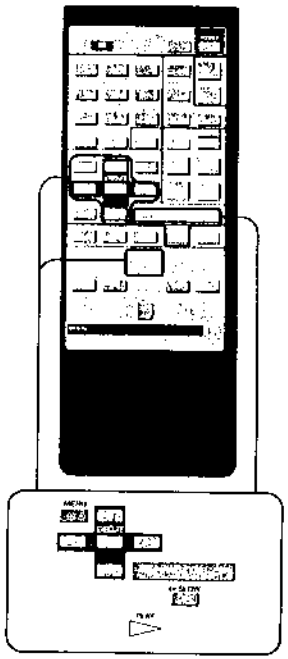
Frame-by-Frame Picture

During playback pause, press DIRECTION ▷ to advance the picture one frame or ◁ DIRECTION to reverse the picture one frame.

Each time you press the button, the picture moves one frame. To resume normal playback, press ▶ PLAY.

Notes

- It takes about two or three seconds to reverse the direction in slow motion mode or frame-by-frame mode.
- When the tape speed is switched, noise appears a moment.



Slow Motion Playback

Using the VCR:
Slowly turn the DUAL MODE SHUTTLE ring clockwise (in the foward direction) or counterclockwise (in the reverse direction) until the SLOW (forward slow motion playback) or - SLOW (reverse slow motion playback) indicator appears on the TV screen.

To return to normal playback
Release your fingers from the ring.

Using the Remote Commander:
Press II► SLOW.

To play back in the reverse direction
Press < DIRECTION.

To resume the forward direction
Press DIRECTION >.

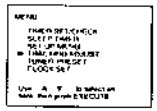
To return to normal playback
Press ► PLAY.

If you leave the VCR in slow motion mode for more than one minute, the VCR will automatically return to normal playback.

Adjusting Tracking During Variable Speed Playback

This adjustment works during only still picture, slow motion playback and x 2 speed playback.

1 Press MENU.
The main MENU appears.

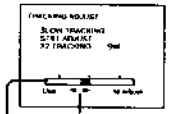


2 Press ▲ or ▼ to move the cursor to TRACKING ADJUST.

3 Press EXECUTE.
The TRACKING ADJUST menu appears.

4 Press ▲ or ▼ to move the cursor (►) to the item you want.

5 Press ◄ or ► to move ■ in the tracking bar so that you will obtain the best possible picture on the screen.



Shift this until you obtain the best possible picture.

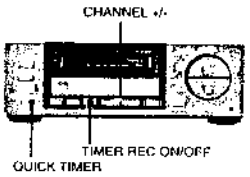
Tracking bar

6 Press EXECUTE.
The TRACKING ADJUST menu disappears.

Notes

- If the tracking bar is shifted too much, noise in the picture becomes too unstable to adjust. In this case, reset to the center.
- If the VCR is in stop mode, the tracking bar will not appear on the TV screen. Since you cannot adjust tracking, put the VCR in slow motion playback mode, still mode or x2 speed playback mode to adjust tracking.
- It is necessary to adjust tracking for both the SP and LP modes.
- When you perform a variable speed playback in the reverse direction, a wider streak appears on the screen, especially in SP mode. This is normal.

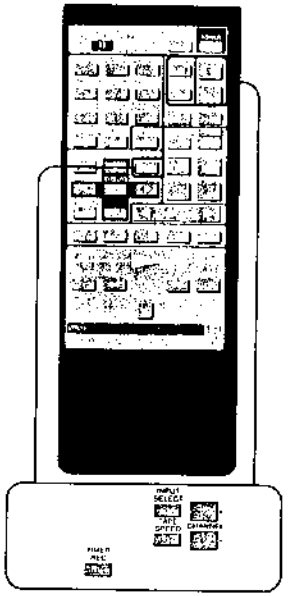
Quick-Timer Recording



This feature lets you record programs without going through the entire time-setting procedure. Note, however, that it provides only an approximate setting for the program you wish to record.

Before You Begin

- Make sure that the clock has been set correctly.
- Check to see that the TIMER REC indicator is not lit in the display window of the VCR.



Operation

If you're currently recording, skip to step 7.

1 Insert a cassette into your VCR.

2 Press INPUT SELECT on the Remote Commander to select the recording source from the tuner input or line input. If you selected the tuner input, the channel number lights in the display window of the VCR. If you selected the line input, the LINE indicator lights in the display window of the VCR.

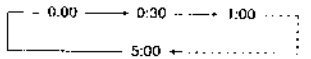
3 Select the desired recording speed (SP or LP) by pressing TAPE SPEED on the Remote Commander.

4 Press QUICK TIMER on the VCR.
If you insert a cassette with the safety tab slid out, your VCR will eject the cassette.

5 Select the channel you wish to record using CHANNEL + / – if you selected the tuner input.
The channel can be changed while the channel indicator is blinking (for about 25 seconds).

6 Press QUICK TIMER on the VCR again to start recording.

7 Select the recording duration by pressing QUICK TIMER on the VCR to change the duration indicator in the display window.
Each time you press QUICK TIMER, the recording duration increases by 30 minutes (up to 5 hours).



Once recording has finished, your VCR will turn off automatically.
During quick-timer recording, the recording time can be changed by pressing the QUICK TIMER button. During recording, the time displayed will count down in the units of the minute.

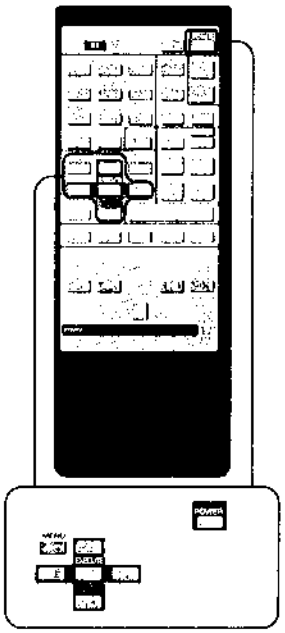
To stop quick-timer recording
Press TIMER REC ON/OFF.

- **If your cassette ends during quick-timer recording**
  Recording stops and the VCR turns off. The cassette will not rewind automatically.
- **If power interruption occurs during quick-timer recording**
  Recording will stop and your VCR will turn off. If the interruption lasts less than one hour and the power is restored before the recording end time, recording will start again from that point.
- The quick-timer recording feature does not work during timer recording standby mode.

Buttons Operable During Quick-Timer Recording

TIMER REC (ON/OFF)	To stop quick-timer recording.
QUICK-TIMER	To change recording duration.
COUNTER RESET	To reset the counter to zero.
TV/VTR	To watch the picture broadcast on another channel (TV).

Setting the Sleep Timer

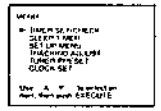


This feature allows you to have the VCR turn off at the preset time automatically. You can preset the time in units of 30 minutes (up to 5 hours). Using this function, it is not necessary to wait until the entire recording has finished.

Before You Begin

- Use ▲ and ▼ to move the cursor (►).
- Use ◄ and ► to set the preset time.

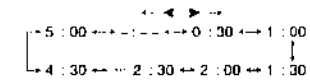
1 Press MENU.
The main MENU appears.



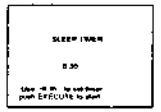
2 Press ▲ or ▼ to move the cursor to SLEEP TIMER.

3 Press EXECUTE.
The SLEEP TIMER menu appears.

4 Press ◄ or ► to set the preset time.
Press ► to increase the preset time.
Press ◄ to decrease the preset time.



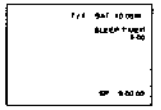
5 Press EXECUTE to start the sleep timer.
The indication "SLEEP TIMER" and the time you've just preset will appear on the TV screen.
When you press EXECUTE, the time displayed will count down in units of one minute.
The preset time will also appear in the display window of the VCR.



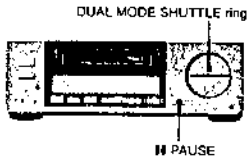
(When the preset time is set to 0.30)

To cancel the sleep timer

Press POWER or press ◄ or ► in step 4 to set the timer to – : – –, then press EXECUTE.



Cutting out the Unwanted Scenes – SHUTTLE EDIT

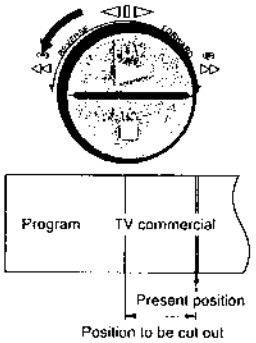


During Recording

If you wish to cut out scenes such as TV commercials, you can pause recording and rewind the tape until the beginning of an unwanted scene is reached. You can then record over it. This feature is controlled using the DUAL MODE SHUTTLE ring on the VCR. During timer-activated recording, you cannot use this function.

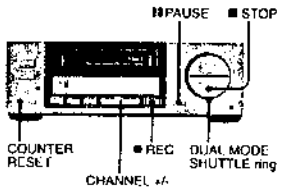
1 Press II PAUSE during recording.
The VCR enters recording pause mode.

2 Turn the DUAL MODE SHUTTLE ring on the VCR counterclockwise to rewind the tape until the unwanted scene appears.



Turn the ring slightly. During rewinding, the screen changes to the playback picture, but sound is not switched. When you release the ring, the VCR enters recording pause mode.

3 Press II PAUSE when a scene you want to start cutting out appears on the screen.
Recording starts.



During Playback

You can re-record onto an unwanted portion of a pre-recorded cassette using the DUAL MODE SHUTTLE ring on the VCR.

1 Press II PAUSE at the end of the unwanted scene during playback.
The VCR enters playback pause mode.

2 Press COUNTER RESET to set the linear counter to "0H00M00S".

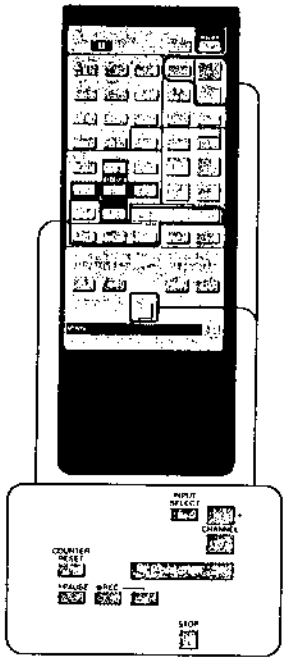
3 Turn the DUAL MODE SHUTTLE ring on the VCR until the beginning of the unwanted scene appears on the screen.
When you release the ring, the VCR enters playback pause mode. Use < DIRECTION > on the Remote Commander to rewind or advanced the picture frame by frame for searching more specific points.

4 Press ● REC.
The VCR enters recording pause mode.

5 Select a new program for re-recording.
Select the channel or change the input by pressing CHANNEL +/ – or INPUT SELECT on the Remote Commander.

6 Press II PAUSE when the scene to be recorded begins to appear on the screen.
Recording begins.

7 Press ■ STOP when the linear counter shows "0H00M00S".



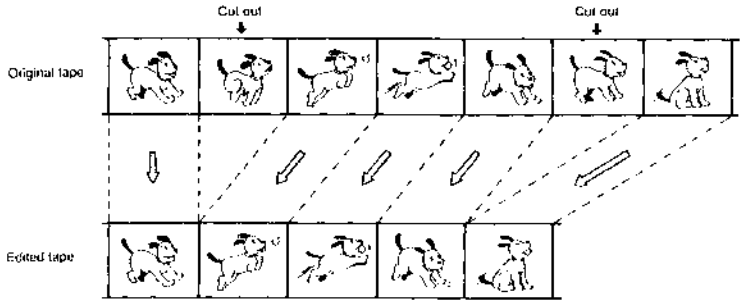
Note
The picture may be distorted a moment at the cut-out point (recording end point).

Overview of the Editing Functions

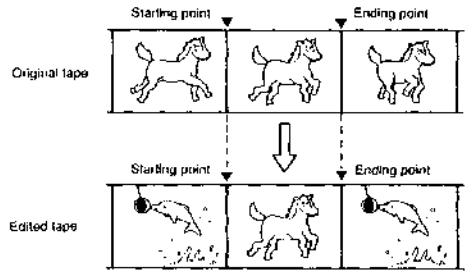
Using a second VCR, you can record programs from one VCR to the other. The following are the tape editing functions available on the VCR.

- **To make a copy of a tape**
  → See "Tape Dubbing" on page 43.

- **To edit out unwanted scenes**
  → See "Assemble Editing" on page 47.



- **To insert another scene into a tape**
  → See "Insert Editing" on page 49.



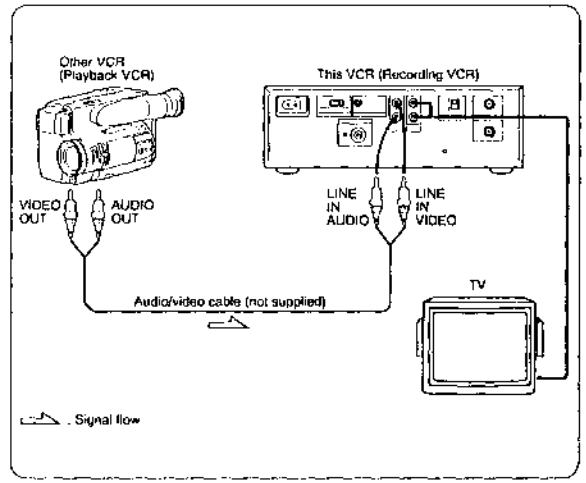
- **To edit tapes using the synchronized editing function**
  → See "Synchronized Editing" on page 49.
  You can also use the synchronized editing function to perform assemble editing and insert editing if your other VCR has a control L connector. Using this function controls both the playback VCR and the recording VCR simultaneously.

Tape Dubbing

Editing from the Other VCR

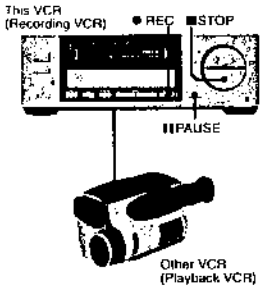
Here's how to edit from another VCR (such as an 8mm video camera recorder or a VHS-format VCR for playback) when using this VCR for recording.

Connection



Notes

- When connecting the VCRs, do not connect both LINE IN and LINE OUT jacks on your VCRs simultaneously. Doing so may cause a humming noise.
- To avoid deterioration of picture quality, remember to switch on the EDIT function of the other VCR if the EDIT function is provided with that VCR.
- If your playback VCR is a stereo unit, make connections using the VCM-910MS/920MS cable (not supplied).



Before You Begin

- Select the tape speed (SP or LP) with TAPE SPEED on the Remote Commander.
- Press INPUT SELECT on the Remote Commander to select LINE IN.
  The LINE indicator lights up in the display window of the VCR.
- Press EDIT on the VCR.

Note
If your playback VCR also has an editing function, select it to reduce static and improve reception.

Operation

1 Insert a blank cassette into the this (recording) VCR.

2 Turn on the other (playback) VCR and insert a source cassette.

3 Locate the playback starting point and select the playback pause mode on the other VCR.

4 Locate the recording starting point and select the recording pause mode on this VCR.

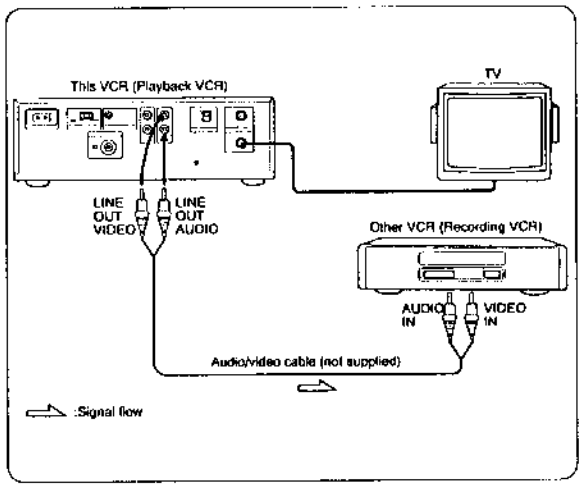
5 Press II PAUSE on both VCRs.
For best result, press II PAUSE on the other VCR just before pressing II PAUSE on this VCR.
When you've finished editing, press ■ STOP on both VCRs

Notes

- If your recording VCR is a stereo unit, make connections using the VCM-910MS/920MS cable (not supplied).
- When connecting the VCRs, do not connect both LINE IN and LINE OUT jacks on your VCR simultaneously. Doing so may cause a humming noise.

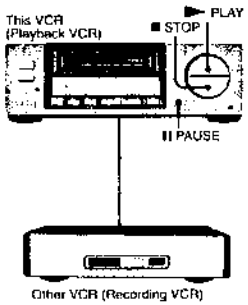
Editing onto the Other VCR

Here's how to edit from this VCR (as the playback VCR) onto the other VCR (as the recording VCR).



Before You Begin

- Press EDIT on this VCR.
  If the other VCR has an editing function, it should also be selected to improve reception.
- Press DATA SCREEN to turn off the data screen. Otherwise, the data screen will be recorded.



Operation

1 Turn on the other (recording) VCR and insert a blank cassette.

2 Insert a source cassette into this (playback) VCR.

3 Locate the playback start point and select the playback pause mode on this VCR.

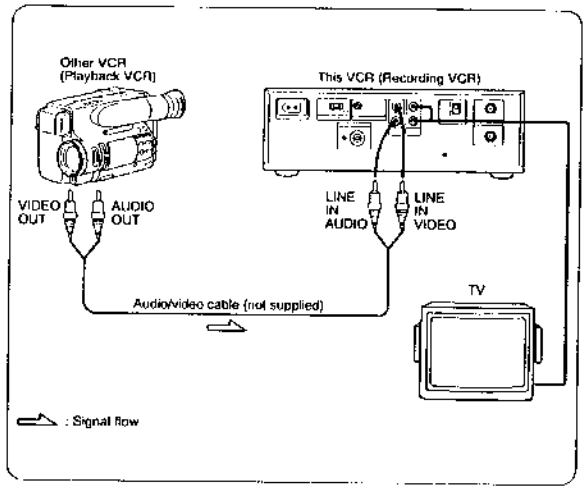
4 Locate the recording start point and select the recording pause mode on the other VCR.

5 Press II PAUSE on both VCRs.
For best results, press II PAUSE on this VCR just before pressing II PAUSE on the other VCR. When you've finished editing, press ■ STOP on both VCRs.

Assemble Editing/Insert Editing

When connecting to the equipment with the LANC connector, you can take advantage of the synchronized editing function. For the synchronized editing operation, see page 50.

Connection



Notes

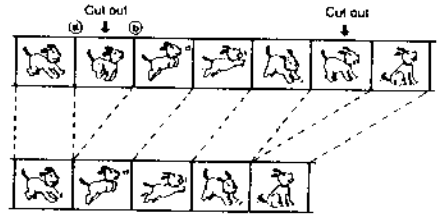
- When connecting the VCRs, do not connect both LINE IN and LINE OUT jacks on your VCRs simultaneously.
- If your playback VCR is a stereo unit, make connections using the VCM-910MS/920MS cable (not supplied).
- To avoid deterioration of picture quality, remember to switch on the EDIT function of the other VCR if the EDIT function is provided with that VCR.

Assemble Editing

Before You Begin

- Select the tape speed (SP or LP) with TAPE SPEED on the Remote Commander.
- Press INPUT SELECT on the Remote Commander to select LINE IN. The LINE indicator lights up in the display window of the VCR.

Tape on the playback VCR



Tape on the recording VCR

Operation

1 Insert a recorded cassette into the other (playback) VCR and a cassette for recording into this (recording) VCR.

2 Record on this VCR while viewing the playback picture of the other VCR and have the VCR enter recording pause mode at the point (point ⓐ) where you want to cut out.

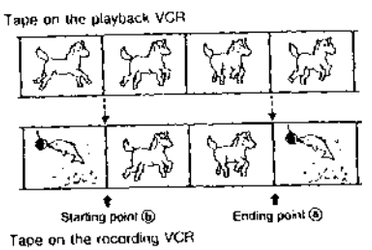
3 Release the recording pause at the point where you want to start recording again (point ⓑ).

4 Repeat steps 2 and 3 to make a newly composed tape. When you've finished editing, press ■ STOP on both VCRs.

Insert Editing

Before You Begin

- Select the tape speed according to the tape speed in which the recorded cassette was done
- Press INPUT SELECT on the Remote Commander to select LINE IN. The LINE indicator lights up in the display window of the VCR.



Operation

1 Insert a recorded cassette into the other (playback) VCR and a cassette for recording into this (recording) VCR.

2 Locate the editing end point ((A)) by playing back the cassette on this VCR and press the COUNTER RESET button.
The counter reads "0H00M00S".

3 Rewind the tape on this VCR and put the VCR in recording pause mode at the editing start point ((B))

4 Play back on the other VCR and put it in playback pause mode at the point where the picture to be inserted appears on the screen.

5 Release recording pause mode of this VCR and playback pause mode of the other VCR simultaneously.

6 Press the STOP button of this VCR to stop the recording at the editing end point (counter reading reaches to 0H00M00S) set in step 2.

7 Press the STOP button of the other VCR to stop the playback.

Note
If you play back a tape on which insert editing was performed, the picture may be distorted at the ending point of insert editing

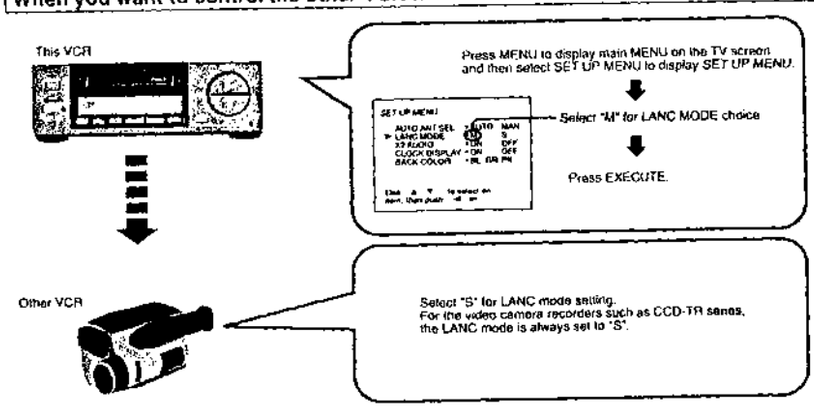
Synchronized Editing

If your other VCR has a control L connector, you can take advantage of a feature called "Synchronized Editing" that controls both VCRs (recording VCR and playback VCR), and releases the pause when the SYNCHRO EDIT button is pressed. To use this function, you must connect the control cable (LANC cable) in addition to the connections of the audio and video cables. There are two types of control cables: control L (REMOTE) cable and control S cable according to the type of connectors of the VCRs.
After you have made connections on page 50, you must set the LANC MODE. For details, see page 52.

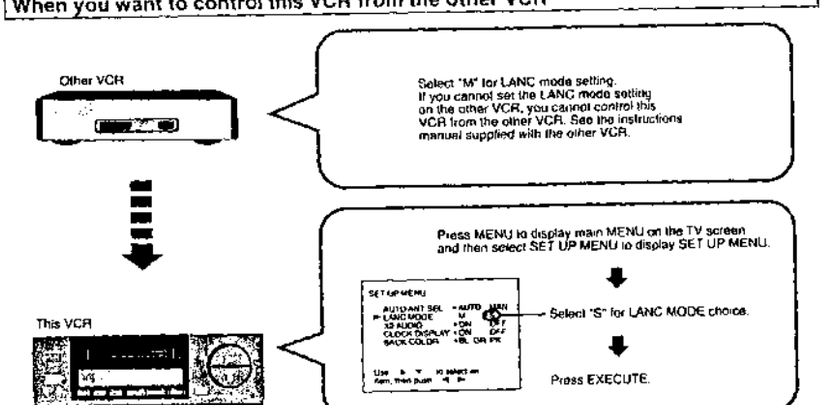
Setting the LANC MODE

When you perform synchronized editing remember to set the LANC MODE as described below:
For details, refer to page 52. Be sure this setting is correct before you begin editing, since it decides which VCR controls which.

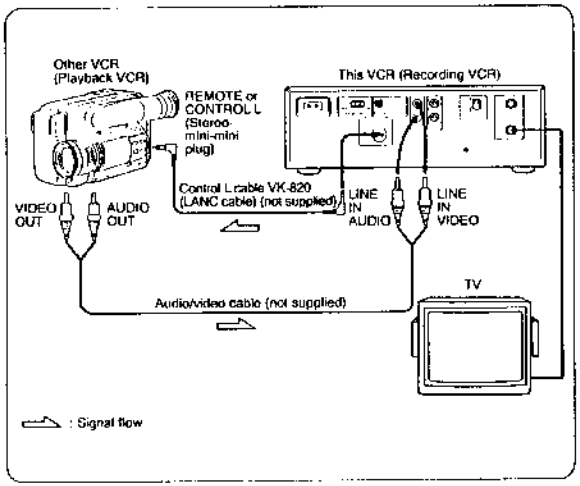
When you want to control the other VCR from this VCR



When you want to control this VCR from the other VCR



Connecting Video Equipment with the LANC connector

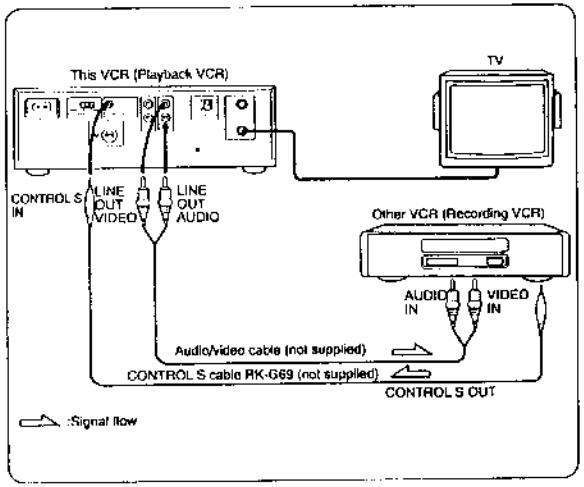


Notes

- When connecting two VCRs, do not connect both LINE IN and LINE OUT jacks on your VCRs simultaneously. Doing so may cause a humming noise.
- If your playback VCR is a stereo unit, make connections using the VCM-910MS/920MS cable (not supplied).
- If another VCR has both the LANC connector and the CONTROL S connector, use the LANC connector. Do not make the LANC and CONTROL S connections simultaneously.

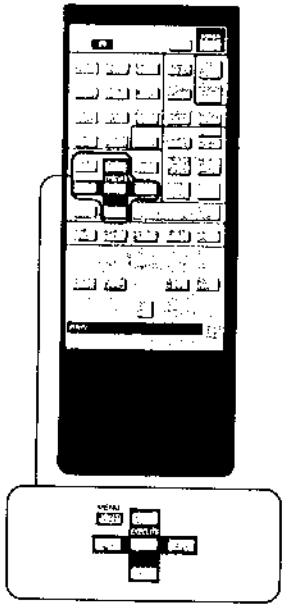
About the (LANC)
LANC stands for Local Application Control System.
The LANC connector is used for controlling the tape transport of video equipment and peripherals connected to it. This connector has the same function as the connectors indicated as CONTROL L or REMOTE.

Connecting Video Equipment with the CONTROL S connector



When using the CONTROL S cable

Set the commander mode of this VCR and the other video equipment to the same position.
If the other video equipment has the synchronized function, use the SYNCHRO EDIT button on other equipment.
The synchronized editing using the CONTROL S connector is the same as the synchronized editing using the LANC connector. This enables you to pause both VCRs and release the pause mode of both VCRs.
You can only perform synchronized editing using the CONTROL S IN jack when the other VCR has the CONTROL S OUT jack.

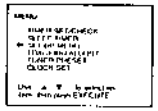


LANC MODE Setting

After you have made the control L cable connection, you must perform the LANC MODE setting. Use the SET UP MENU for this setting. For how to call up the SET UP MENU and set items, see page 22.

1 Press MENU to call up the SET UP MENU.

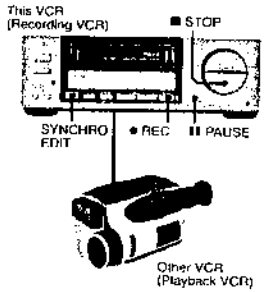
2 Move the cursor to LANC MODE.
Set LANC MODE.



LANC MODE setting
M: to control the other VCR with this VCR.
S: to control this VCR with the other VCR.

3 Press EXECUTE to return to the original screen.

Note
Do not make the CONTROL L connection between this VCR and the other VCR with the LANC mode settings of both VCRs set to the same position "S".



Synchronized Assemble Editing

Before You Begin

- Press TAPE SPEED on the Remote Commander to select the tape speed (SP or LP).
- Press INPUT SELECT on the Remote Commander to select LINE IN.
- Check the LANC MODE setting (see page 52).

Operation

1 Insert a recorded cassette into the other (playback) VCR and a cassette for recording into this (recording) VCR.

2 Locate the recording start point on this VCR and put the VCR in recording pause mode.

3 Locate the beginning of the scene to be edited out on the other VCR and put the VCR in playback pause mode.

4 Press the SYNCHRO EDIT button on this VCR. The SYNCHRO EDIT indicator lights up.
Pause mode of both the recording VCR and the playback VCR is released to start editing.

5 Press the SYNCHRO EDIT button on this VCR at the point where you want to stop recording.
This VCR enters recording pause mode, and the other VCR enters playback pause mode.

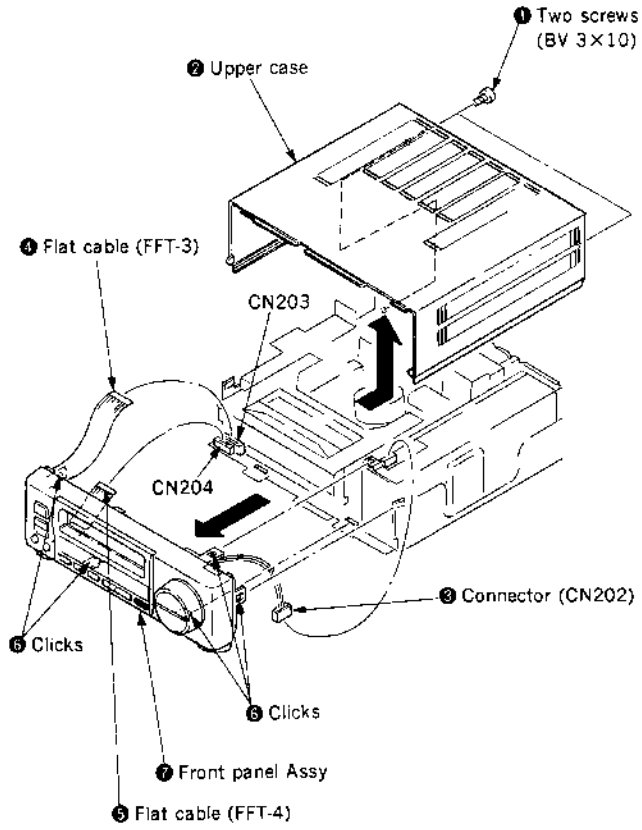
6 If you have another scene you want to edit, repeat steps 3 to 5.

7 After editing has completed, press the STOP button on both VCRs.

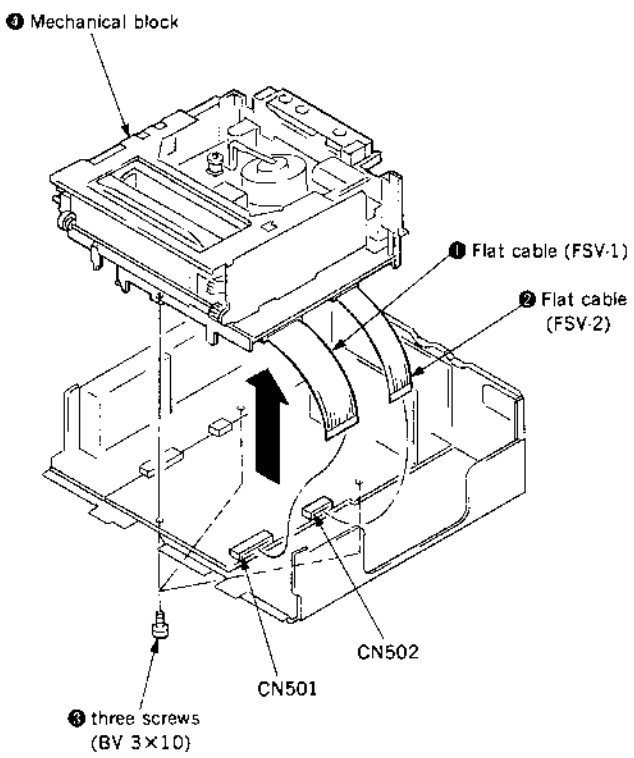
During synchronized editing
The edit function is activated automatically.

SECTION 3
DISASSEMBLY

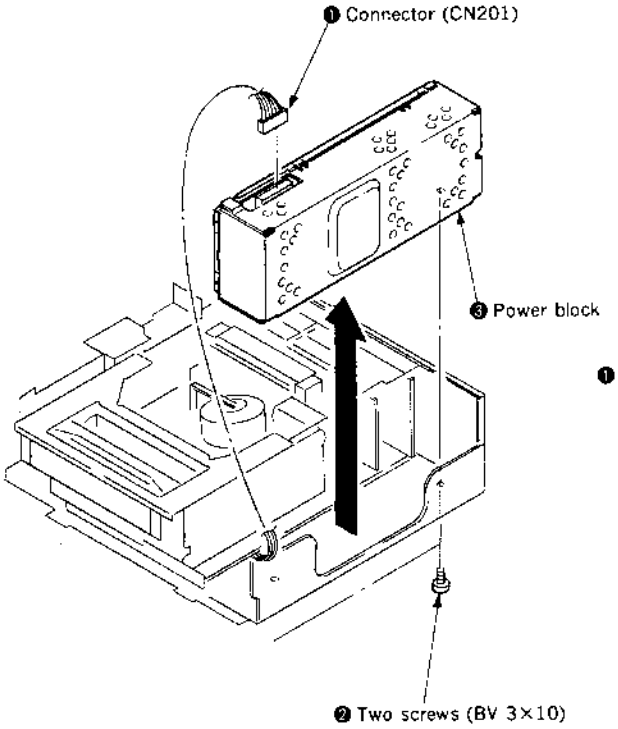
3-1. REMOVAL OF FRONT PANEL AND UPPER CASE



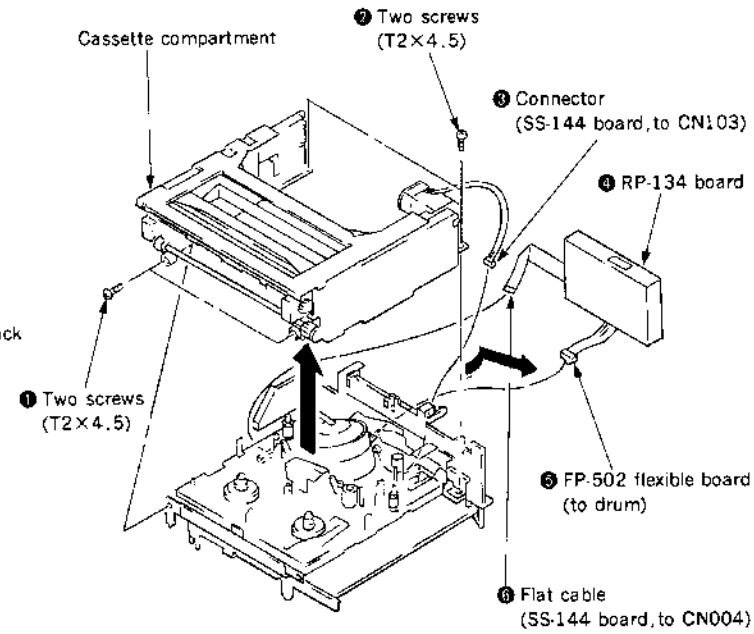
3-3. REMOVAL OF MECHANICAL BLOCK



3-2. REMOVAL OF POWER BLOCK



3-4. REMOVAL OF CASSETTE COMPARTMENT



3-5. MECHANICAL INTERNAL VIEWS

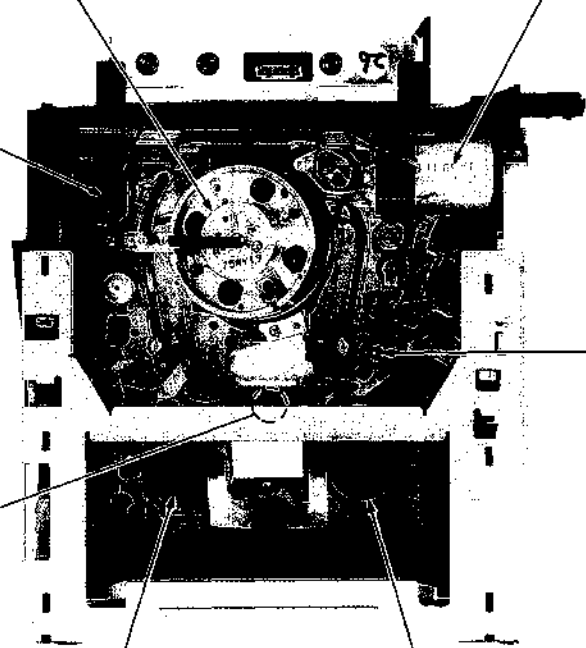
—UPPER—

M901

Drum ASSY (DGU-75B-R)	A-7048-596-A
Drum upper (DGR-75B-R)	A-7049-531-A

M904
FL Motor ASSY
X-3731-108-1

M903
Loading Motor Assy
A-7040-290-A



Pinch Arm block ASSY
A-7040-219-A

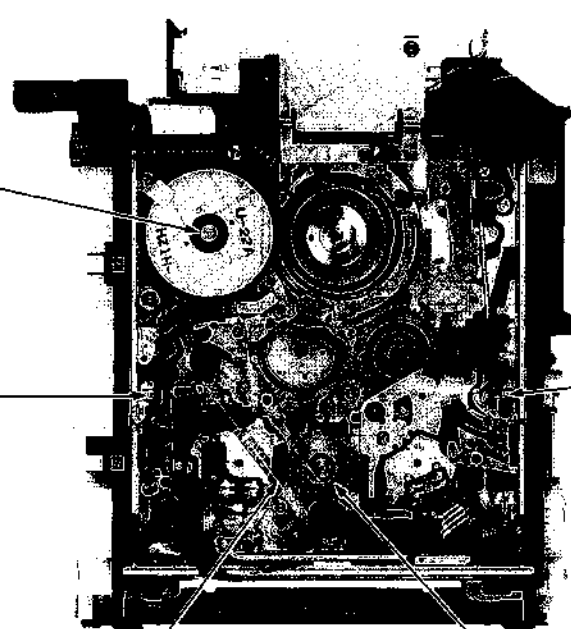
D302
Tape Top/Tape End LED
(GL453JS)
8-719-026-04

S Reel Table ASSY
X-3728-851-1

T Reel Table ASSY
X-3728-855-6

—LOWER—

M902
Capstan Motor (U-22A)
8-835-331-31



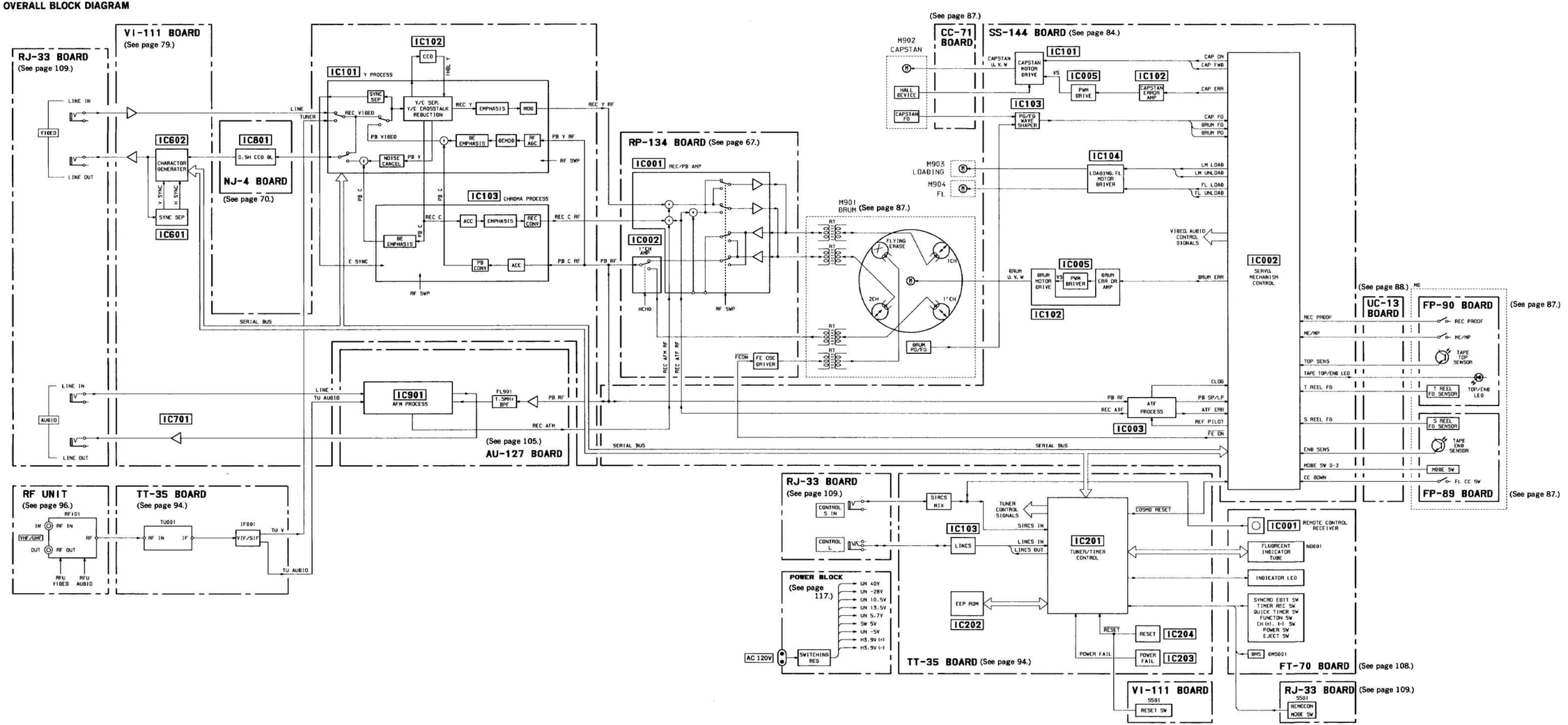
Q301
Tape Top Sensor (EE-TP109)
8-729-906-48

Q302
Tape End Sensor (EE-TP109)
8-729-906-48

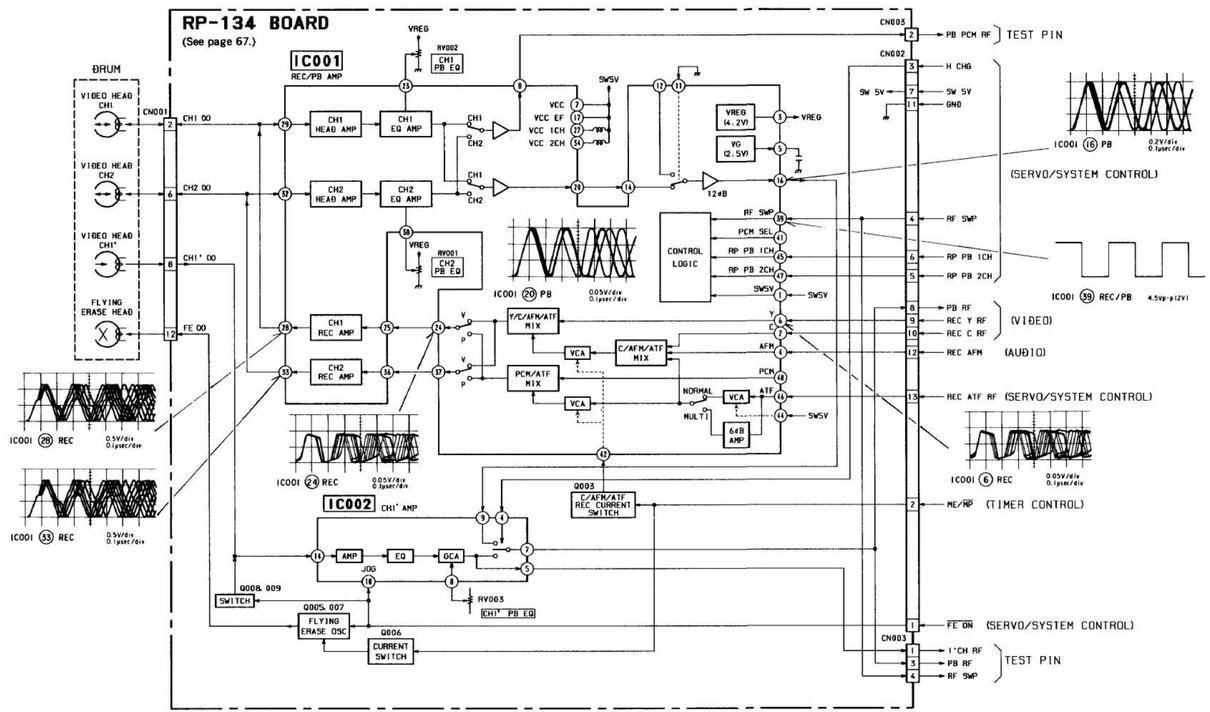
Timing Belt (L)
3-741-197-01

RK Gear ASSY
X-3728-866-1

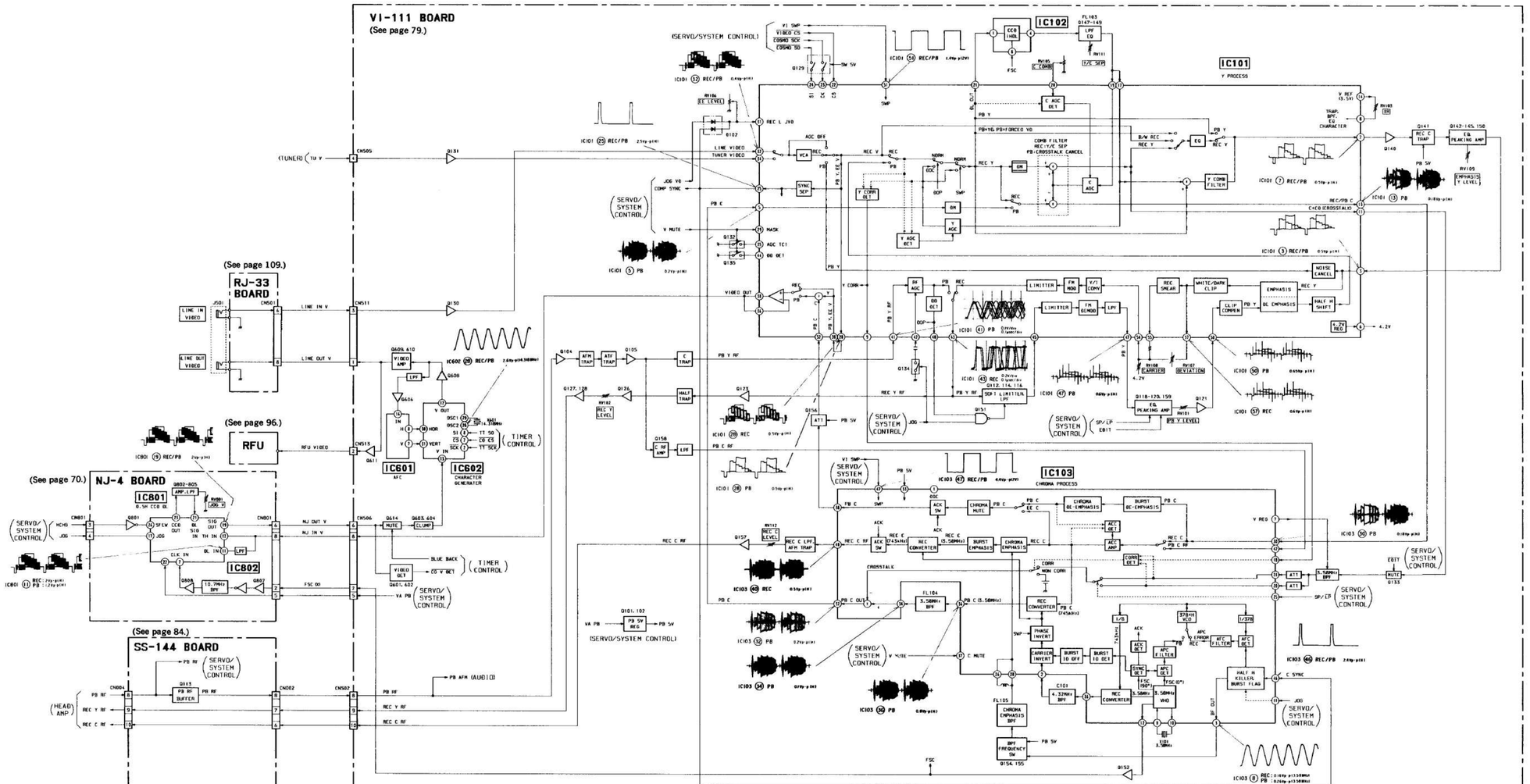
4-2. OVERALL BLOCK DIAGRAM



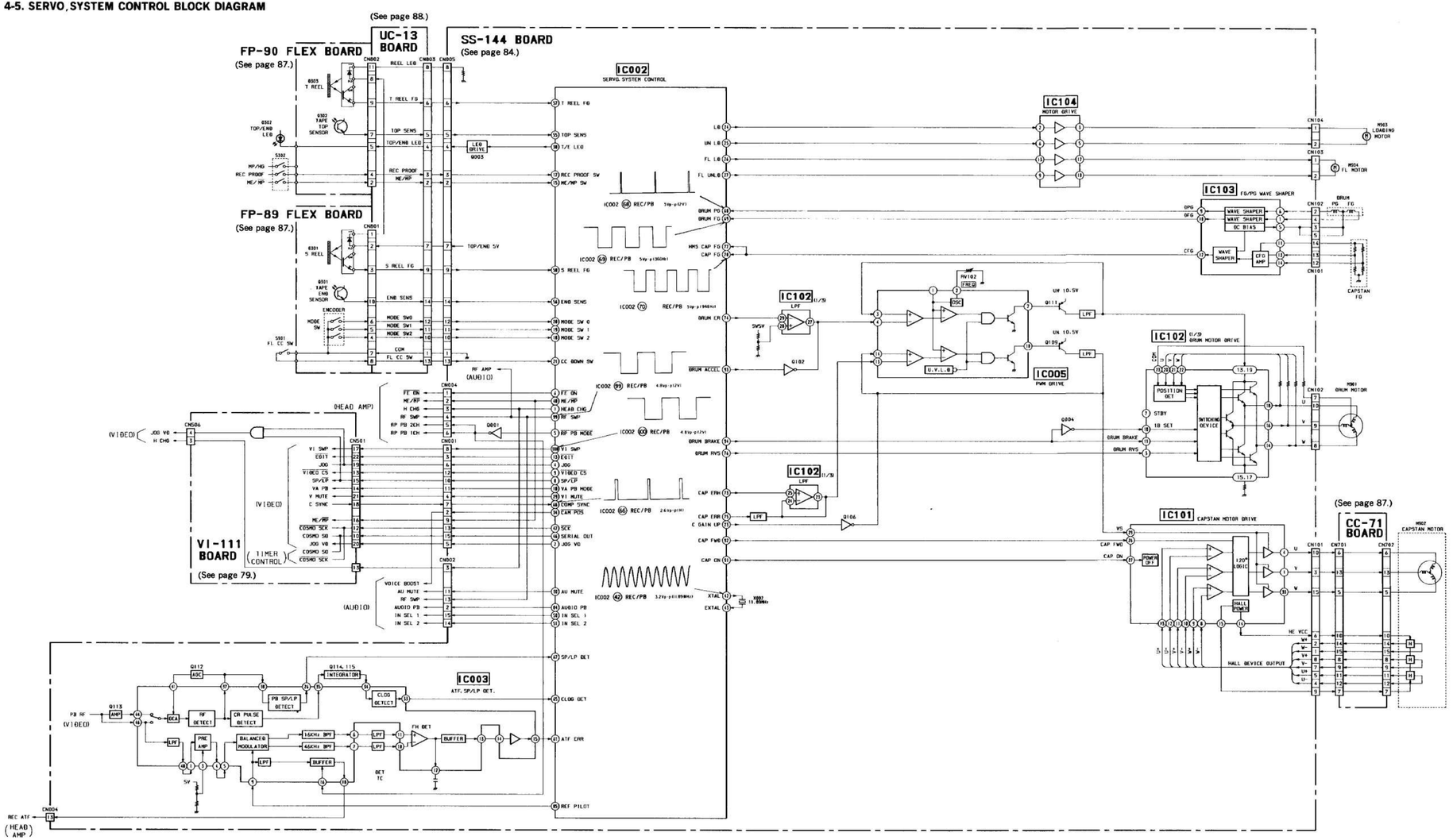
4-3. HEAD AMP BLOCK DIAGRAM



4-4. VIDEO BLOCK DIAGRAM



4-5. SERVO, SYSTEM CONTROL BLOCK DIAGRAM



4-6. SYSTEM CONTROL — VIDEO BLOCK INTERFACE (SS-144 BOARD)

Signal	Pin No.	I/O	VTR MODE							
			STOP	FF	REW	×2	−×2	PB	PICTURE SEARCH	
									CUE	REVIEW
SP/$\overline{LP}$	IC002 ⑧	O	* 1	H	H	* 1	* 2	* 2	* 2	* 2
V PB MODE	IC002 ⑩	O	L	L	L	H	H	H	H	H
JOG VD	IC002 ②	O	L	L	L	* 3	* 3	L	* 3	* 3
RP PB MODE	IC002 ⑤	O	L	L	L	L	L	L	L	L
$\overline{FE\ ON}$	IC002 ⑥	O	H	H	H	H	H	H	H	H
HEAD CHANGE	IC002 ①	O	L	L	L	* 5	* 5	L	L	L
VI SWP	IC002 ⑩⓪	O	L	* 7	* 7	* 6	* 6	* 7	* 7	* 7
RF SWP	IC002 ⑨⑨	O	L	* 7	* 7	* 7	* 7	* 7	* 7	* 7
JOG	IC002 ④	O	L	L	L	H	H	L	H	H
SP/$\overline{LP}$ DET	IC002 ⑥⑦	I	L	* 10	* 10	* 10	* 10	L	* 10	* 10
CLOG DET	IC002 ⑥⑤	I	H	* 11	* 11	* 11	* 11	* 11	* 11	* 11
COMP SYNC	IC002 ⑥⑥	I	* 12	* 12	* 12	* 12	* 12	* 12	* 12	* 12
AUDIO PB	IC002 ⑧④	O	L	L	L	* 13	* 13	H	* 13	* 13
AU MUTE	IC002 ⑨⑩	O	L	L	L	* 15	* 15	L	H	H
$\overline{VIDEO\ CS}$	IC002 ⑨	O	V-cycle"Low"pulse							
SO BUS	IC002 ④⑥	O	V-cycle pulse rank							
SCK	IC002 ④⑦	O	V-cycle"Low"pulse rank							

* 1. This outputs the result of determining what was the previous mode. "High" output in SP mode,"Low" output in LP mode.
* 2. This outputs the result of determining which record mode the playback tape has.
* 3. Pseudo VD signal
* 5. "High" when the HEAD for special playback is selected.
* 6. Output pulse to supply the OR of HEAD CHANGE and RF SWP.
* 7. Pulse of 30Hz,50% duty (synchronized with the rotation of the drum).
* 10. "High" at the SP record portion and "Low" at the LP record portion of tape.
* 11. "High" at the blank portion or at a Head clogging detection input.
* 12. Composite synch signal input separa or playback video signal. (This si
* 13. "Low" during shuttle editing from
* 14. This varies according to SP/LP sw and "Low" when LP mode is enter
* 15. "Low" during ON of audio when ×

PB • PAUSE	SLOW	REVERSE SLOW	REC	REC PAUSE
* 1	* 1	* 1	* 14	H/L
H	H	H	L	L
* 3	* 3	* 3	L	L
L	L	L	H	L
H	H	H	L	H
* 5	* 5	* 5	L	L
* 6	* 6	* 6	* 7	* 7
* 7	* 7	* 7	* 7	* 7
H	H	H	L	L
* 10	—	—	H	H
* 11	* 11	* 11	H	* 11
* 12	* 12	* 12	* 12	* 12
H	* 13	* 13	L	L
H	H	H	L	L

ny drop out portion of tape.

ated from line input video signal, camera video signal
nal has positive polarity).
REC PAUSE, "High" while in any other mode.
itching. It becomes "High" when SP mode is entered
d.
2 speed playback, "High" during OFF.

4-7. MECHANICAL CONTROL — SERVO BLOCK INTERFACE (SS-144 BOARD)

Signal	Pin No.	I/O	VTR MODE							
			STOP	FF	REW	×2	-×2	PB	PICTURE SEARCH	
									CUE	REVIEW
T.REEL FG	IC002 ⑰	I	—	* 1	* 1	* 1	* 1	* 1	* 1	* 1
S.REEL FG	IC002 ⑱	I	—	* 1	* 1	* 1	* 1	* 1	* 1	* 1
ATF ERROR	IC002 ⑥①	I	—	* 2	* 2	* 2	* 2	* 2	* 2	* 2
DRUM PG	IC002 ⑥⑧	I	—	* 3	* 3	* 3	* 3	* 3	* 3	* 3
DRUM FG	IC002 ⑥⑨	I	—	* 4	* 4	* 4	* 4	* 4	* 4	* 4
CAP FG/HMS CAP FG	IC002 ⑦⓪ ⑦⑦	I	—	* 5	* 5	* 5	* 5	* 5	* 5	* 5
CAP ON	IC002 ⑨①	O	L	H	H	H	H	H	H	H
REF PILOT	IC002 ⑧⑤	O	* 7	* 6	* 6	* 6	* 6	* 6	* 6	* 6
RP PB MODE	IC002 ⑤	O	L	L	L	L	L	L	L	L
DRUM FWD/$\overline{\text{RVS}}$ * 11	IC002 ⑦⑥	O	H	H	H	H	H	H	H	H
CAP FWD/$\overline{\text{RVS}}$	IC002 ⑨②	O	L	H	L	H	L	H	H	L
DRUM ERR	IC002 ⑦④	O	* 10	* 10	* 10	* 10	* 10	* 10	* 10	* 10
CAP ERR	IC002 ⑦⑤	O	L	* 10	* 10	* 10	* 10	* 10	* 10	* 10
DRUM ON * 12	IC002 ⑦②	O	L	H	H	H	H	H	H	H

* 1. The amplitude modulated pulse is input by the rotation of the reel. (200msec period during REC/PB mode)
* 2. ATF error voltage input.
* 3. One PG pulse is input by one rotation of the drum. Approximately 45Hz.
* 4. Six FG pulses are input by one rotation of the drum. Approximately 270Hz.
* 5. 360 FG pulses are input by one rotation of the capstan. Approximately 820Hz during REC/PB (SP) mode.
* 6. Four frequencies are output as synchronized with the rotation of the drum. f1=102.54kHz, f2=118.95kHz, f3=165.21kHz, f4=148.69kHz
* 7. f2 (118.95kHz) is output.
* 8. "High" pulse when tape is delive
* 9. "Low" pulse when tape is delive
* 10. PWM signal with a period of 2
* 11. Normally "High". Temporarily rotation).
* 12. The "High" level is at approxin

	PB · PAUSE	SLOW	REVERSE SLOW	REC	REC PAUSE
	—	* 1	* 1	* 1	—
	—	* 1	* 1	* 1	—
	* 2	* 2	* 2	* 2	* 2
	* 3	* 3	* 3	* 3	* 3
	* 4	* 4	* 4	* 4	* 4
	—	* 5	* 5	* 5	—
	L	* 8	* 8	H	L
	* 6	* 6	* 6	* 6	* 6
	L	L	L	H	L
	H	H	H	H	H
	L	* 8	* 9	H	L
	* 10	* 10	* 10	* 10	* 10
	L	* 10	* 10	* 10	L
	H	H	H	H	H

ired.
ired.
1.5 μ sec.
"Low" when a full top cassette is loaded (drum reverse

iately 1.3Vdc.

4-8. MECHANICAL CONTROL MICROCOMPUTER CXP80624 (SS-144 BOARD IC002) PORT FUNCTION DESCRIPTION

Pin No.	Signal	I/O	Function
1	HEAD CHG	O	HEAD CHANGE Signal.
2	JOG VD	O	Pseudo VD signal to be inserted into playback video signal when speed change playback is performed.
3	N. C.	—	Not used.
4	JOG	O	Speed change playback/normal playback select signal for the video circuit. "High" to select speed change playback.
5	RP PB MODE	O	REC/PB select signal for REC/PB amplifier (RP-134 board IC001) and ATF servo IC (SS-144 board IC003). "High" to select PB mode.
6	$\overline{\text{FE ON}}$	O	Flying erase oscillation ON/OFF control signal. "Low" to activate the oscillation.
7	INT VD OUT	O	Timing reference for serial data communication. V-cycle "Low" pulse.
8	SP/$\overline{\text{LP}}$	O	SP/LP select signal. "Low" to select LP.
9	$\overline{\text{VIDEO CS}}$	O	Serial data communication chip select signal to the video IC. V-Sycle "Low" pulse.
10	VA PB MODE	O	REC/PB select signal for the video circuit. "High" for PB mode.
11	MACRO DET	I	Not used.
12	10/7 SW	I	Not used.
13	$\overline{\text{EDIT}}$	O	Video circuit characteristic select signal.
14	VIRS	O	Not used.
15	ME/$\overline{\text{MP}}$ SW	I	ME/MP switch input. "Low" for MP, "High" for ME.
16	MP/HG SW	I	Not used.
17	REC PROOF SW	I	REC PROOF switch input. "High" for protected REC.
18	MODE SW 2	I	Mechanical deck MATRIX input.
19	MODE SW 1	I	Mechanical deck MATRIX input.
20	MODE SW 0	I	Mechanical deck MATRIX input.
21	CC DOWN SW	I	Cassette compartment clock switch input. "Low" for lock.
22	10/13 SW	I	Not used.
23	CAP GAIN UP	O	Capstan speed control signal ("High" during FF/REW mode).
24	LOAD	O	Loading motor control signal. "High" or "High" pulse output to allow loading.
25	UNLOAD	O	Loading motor control signal. "High" or "High" pulse output to allow unloading.
26	FL M LOAD	O	Front loading motor control signal. "High" or "High" pulse output to allow loading.
27	FL M UNLD	O	Front loading motor control signal. "High" or "High" pulse output to allow unloading.
28	N. C.	—	Not used.
29	VI MUTE	O	Video mute signal.
30	AUDIO MUTE	O	Audio mute signal.
31	N.C.	—	Not used.
32	N.C.	—	Not used.
33	COPY	O	Not used.
34	$\overline{\text{CAM POS}}$	O	Voice boost select signal. "Low" to turn on.
35	PAL V	O	Not used.
36	HI8/$\overline{\text{NORMAL}}$	O	Not used.
37	N.C.	—	Not used.
38	TOP END LED	O	ON/OFF signal for TAPE TOP/END LED.
39	MP	—	Connected to GND.
40	$\overline{\text{COSMO RESET}}$	I	Reset signal. "Low" to reset.
41	VSS	—	GND
42	XTAL	O	11.89MHz clock oscillation circuit.
43	EXTAL	I	

Pin No.	Signal	I/O	Function
44	$\overline{\text{COSMO CS}}$	I	Clip select signal from the mode control micromputer. V-cycle "Low" pulse.
45	SERIAL IN	I	Serial date input.
46	SERIAL OUT	O	Serial date output.
47	$\overline{\text{SCK}}$	O	Serial clock output.
48	ME/$\overline{\text{MP}}$	O	ME/MP select signal output. "Low" when MP Tape is used.
49	N. C.	—	GND
50	INSEL 1	O	Input select signal.
51	INSEL 2	O	Input select signal.
52	A VSS	—	GND
53	AVREF	—	Analog board reference voltage. Connected to +5V.
54	AVDD	—	Analog board power (+5V).
55	TOP SENS	I	Tape top sensing signal. This is normally "Low" and switches to "High" pulse input at tape top.
56	END SENS	I	Tape end sensing signal. This is normally "Low" and switches to "High" pulse input at tape end.
57	T REEL FG	I	T reel FG signal input.
58	S REEL FG	I	S reel FG signal input.
59	HI8 DET	I	Not used.
60	AFM MODE DET	I	Not used.
61	ATF ERROR	I	ATF error, ATF lock error input.
62	$\overline{\text{S SW 3}}$	I	Not used.
63	$\overline{\text{S SW 2}}$	I	Not used.
64	$\overline{\text{S SW 1}}$	I	Not used.
65	CLOG DET	I	This determines whether playback RF is present or not. "Low" under normal condition.
66	COMP SYNC	I	Composite sync signal separated form record/playback Y signal.
67	SP/$\overline{\text{LP}}$ DET	I	This determines which record mode the playback tape has when CUE/REVIEW/FF/REW mode is entered.
68	DRUM PG	I	Drum PG signal input. Used for the drum phase servo. 22.2msec periodic "High" pulse.
69	DRUM FG	I	Drum FG signal input. Used for the drum speed servo. 3.7msec periodic pulse.
70	CAP FG	I	Capstan FG signal input. Approximately 948Hz during REC/PB mode for the capstan speed servo.
71	N. C.	—	+5V power.
72	DRUM ON	O	Not used.
73	CAP ERR H	O	Not used.
74	DRUM ERR	O	Drum error signal output.
75	CAP ERR	O	Capstan error signal output. 20.15μsec PWM signal.
76	DRUM FWD/$\overline{\text{RVS}}$	O	Drum rotational direction control signal. Normally "High".
77	HMS CAP FG	O	Capstan FG signal input. Used tape counter.
78	N.C.	I	+5V power.
79	MPHG/$\overline{\text{MP}}$	O	Not used.
80	S/$\overline{\text{VIDEO}}$	O	Not used.
81	N.C.	—	Not used.
82	AFM OUTSEL	O	Not used.
83	AFM MODE	O	Not used.

Pin No.	Signal	I/O	Function
84	AUDIO PB	O	REC/PB select signal for the audio circuit. "High" for PB mode.
85	REF PILOT	O	Reference pilot signal for the ATF seruo. Four frequencies are selectively switched from one to another as synchronized with the rotation of the drum. $f_1 = 102.52$kHz, $f_2 = 118.95$kHz, $f_3 = 165.21$kHz, $f_4 = 148.69$kHz.
86	N. C.	—	N. C
87	N. C.	-	Connected to GND.
88	VSS	—	GND.
89	VDD	—	+5V power.
90	VPP	—	+5V power.
91	CAP ON	O	Capstan driver ON/OFF control signal. "High" to turn capstan ON.
92	CAP FWD/RVS	O	Capstan rotational direction control signal. "High" for FWD. "Low" for RVS.
93	DRUM ACCEL	O	Drum acceleration pulse.
94	DRUM BRAKE	O	Drum deceleration pulse.
95	PCM AFREC	O	Not used.
96	PCM REC INH	O	Not used.
97	FE RA	O	Not used.
98	PCM PB	O	Not used.
99	RF SWP	O	RF switching pulse signal. 30Hz, 50% duty pulse.
100	VI SWP	O	Video switching pulse.

4-9. TIMER/TUNER CONTROL MICRO COMPUTER MB89794B (TT-35 BOARD IC201) PORT FUNCTION DESCRIPTION

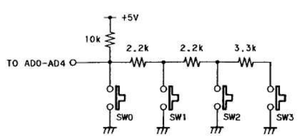
Pin No.	Signal	I/O	Function
1	AD1	I	Key, DMS input.
2	AD2	I	Key, DMS input.
3	AD3	I	Key, DMS input.
4	AD4	I	Key, DMS input.
5	PREPARATORY	—	Not used.
6	———	—	Not used.
7	ANALOG AFT	I	On tuning, gets AFT UP or AFT DOWN by comparing st some level (with hysteresis).
8	CLOCK	O	The frequency 8 divided 32.768kHz output (4.096kHz). output for the clock adjustment.
9	VCC	I	+5Vdc input.
10	CLOCK FOR CLOCK	I	Use for the standard clock by connecting the 32.768kHz crystal oscillator.
11	CLOCK FOR CLOCK	O	Use for the standard clock by connecting the 32.768kHz crystal oscillator.
12	5V	I	Connected to +5Vdc.
13	SYSTEM CLOCK	I	Use for the system clock by connecting the 8MHz crystal or ceramic oscillator.
14	SYSTEM CLOCK	I	Use for the system clock by connecting the 8MHz crystal or ceramic oscillator.
15	0V	VSS	Connected to 0Vdc.
16	$\overline{\text{RESET}}$	I	Micro-computer reset signal input.
17	$\overline{\text{EECS}}$	O	EEP ROM chip select signal.
18	$\overline{\text{EE SCK}}$	O	EEP ROM clock signal.
19	EE DATA	O	EEP ROM data signal.
20	EE BUSY	I	EEP ROM busy signal (transmission prohibition).

Pin No.	Signal	I/O	Function
21	$\overline{\text{TV/VTR}}$	—	Antenna select control signal.
22	———	—	Not used.
23	———	—	Not used.
24	———	—	Not used.
25	$\overline{\text{PB LED}}$	O	LED drive output. Lighting up on"L".
26	———	—	Not used.
27	×2 ON	O	×2 playback on "High".
28	$\overline{\text{SYNC EDIT LED}}$	O	LED drive output. Lighting up on"L".
29	$\overline{\text{HiFi LED}}$	O	Not used.
30	$\overline{\text{PAUSE LED}}$	O	LED drive output. Lighting up on"L".
31	———	—	Not used.
32	———	—	Not used.
33	LANCS WP	I	LANCS power control signal input.
34	LANCS P CONT	O	Power off and LANCS M on "Low" output.
35	$\overline{\text{POWER FAIL}}$	I	Electric power failure detection output. Normally "H", "L" on power failire.
36	INT VD	I	VD signal input from mechanical control microcomputer (SS-144 board IC002). Timing reference for serial data communication. V-cycle"Low" palse.
37	———	—	Not used.
38	$\overline{\text{TU V DET}}$	I	SYNC DETECT input for tuning.
39	SIRCS IN	I	W/L WD remote control input/SIRCS ENABLE output.
40	LANC IN	I	LANC input.
41	LANC OUT	O	LANC output.
42	$\overline{\text{COSMO CS}}$	O	Chip select signal output for SS 144 board IC002.
43	PWM	O	Not used.
44	———	—	Not used.
45	TA MUTE	O	Tuner, Audio MUTE signal output."H" during muting. Muting when channel select, input select, no signal and others.
46	———	—	Not used.
47	———	—	Not used.
48	POWER ON	O	Power control output."H" when the power is on,"L" when the power is off.
49	LATCH	O	FS tuner latch output.
50	CLOCK	O	FS tuner Clock output.
51	DATA	O	FS tuner data output.
52 – 59	FS00-07	O	FLO SEGMENT output. S1-S8
60	+5V		
61 – 64	FC04-07	O	FLO GRID output. T5-T8
65	+5V		
66 – 69	FC00-03	O	FLO GRID output. T1-T4
70	0V		
71 – 75	FS08-15	O	FLO SEGMENT output. S9-S13
76 – 78			Not used.
79	-30V		
80	–X1 LED	O	LED drive output. Lighting up on "H".
81 – 82			Not used.
83	EDIT LED	O	LED drive output. Lighting up on "H".

Pin No.	Signal	I/O	Function
84	BLUE BACK	O	Blue back on "H".
85	ZOOM SOUND	O	LED drive output. Lighting up on "H".
86	REW LED	O	LED drive output. Lighting up on "H".
87	FF LED	O	LED drive output. Lighting up on "H".
88	SI BUS	I	SI BUS data transmission line.
89	SO BUS	O	SO BUS data transmission line.
90	$\overline{SCK}$	I/O	S CLK data transmission line.
91	———	—	Not used.
92	$\overline{COSMO\ RESET}$	O	Reset signal output for SS-144 board IC002 Reset by "L".
93	———	—	Not used.
94	$\overline{CG\ V\ DET}$	I	$\overline{V\ DET}$ for the blue-back. $\overline{V\ DET}$ blue-back →"H", NORMAL →"L".
95	$\overline{CG\ CS}$	O	Chip select signal output for the character genetator.
96	———	—	Not used.
97	———	—	Not used.
98	0V		Ground terminal for analogue.
99	+5V		Power supply terminal for analogue.
100	AD0	I	Key, DMS input.

● A/D PORT ALLOCATION

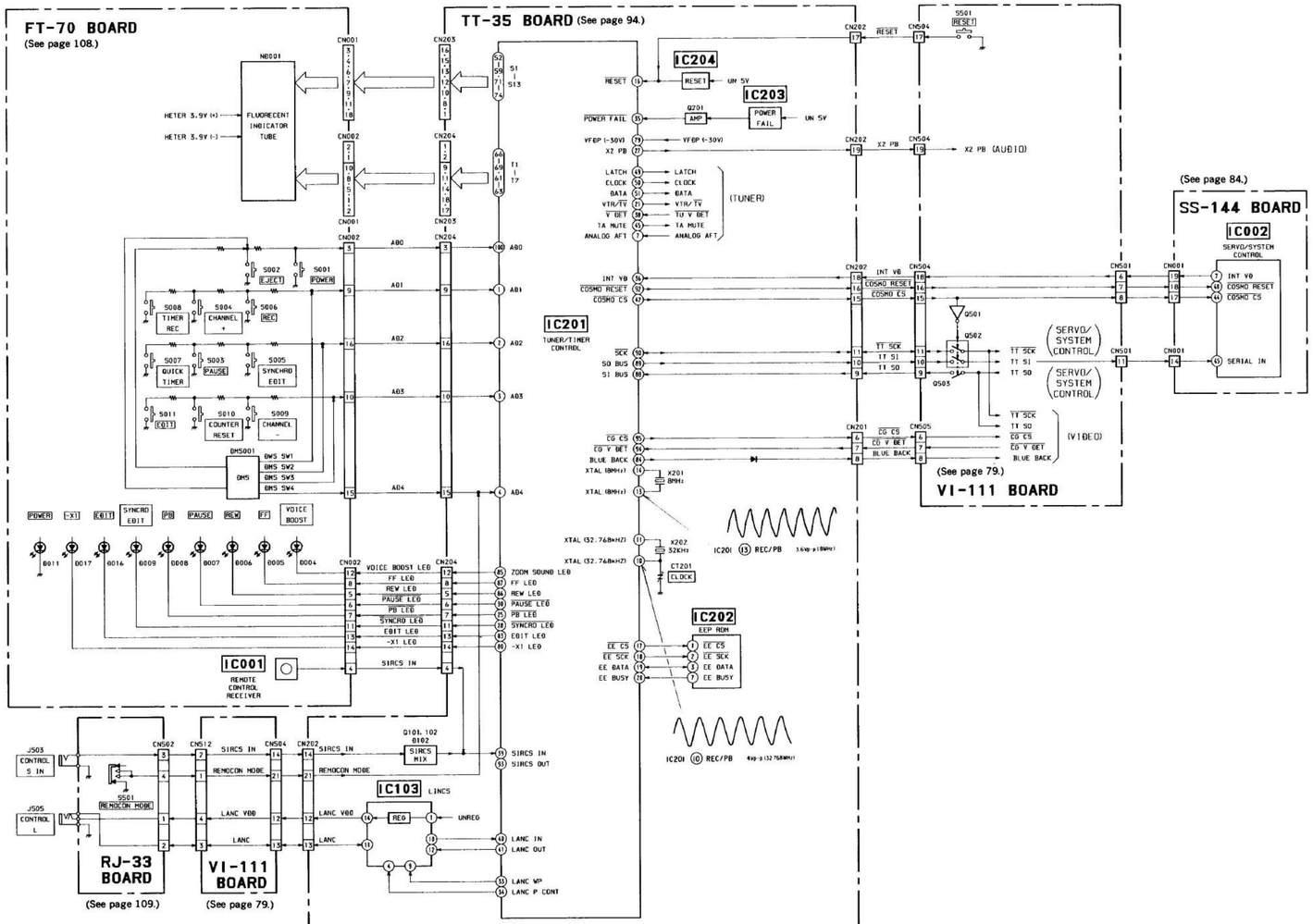
- The A/D ports are allocated as shown below.



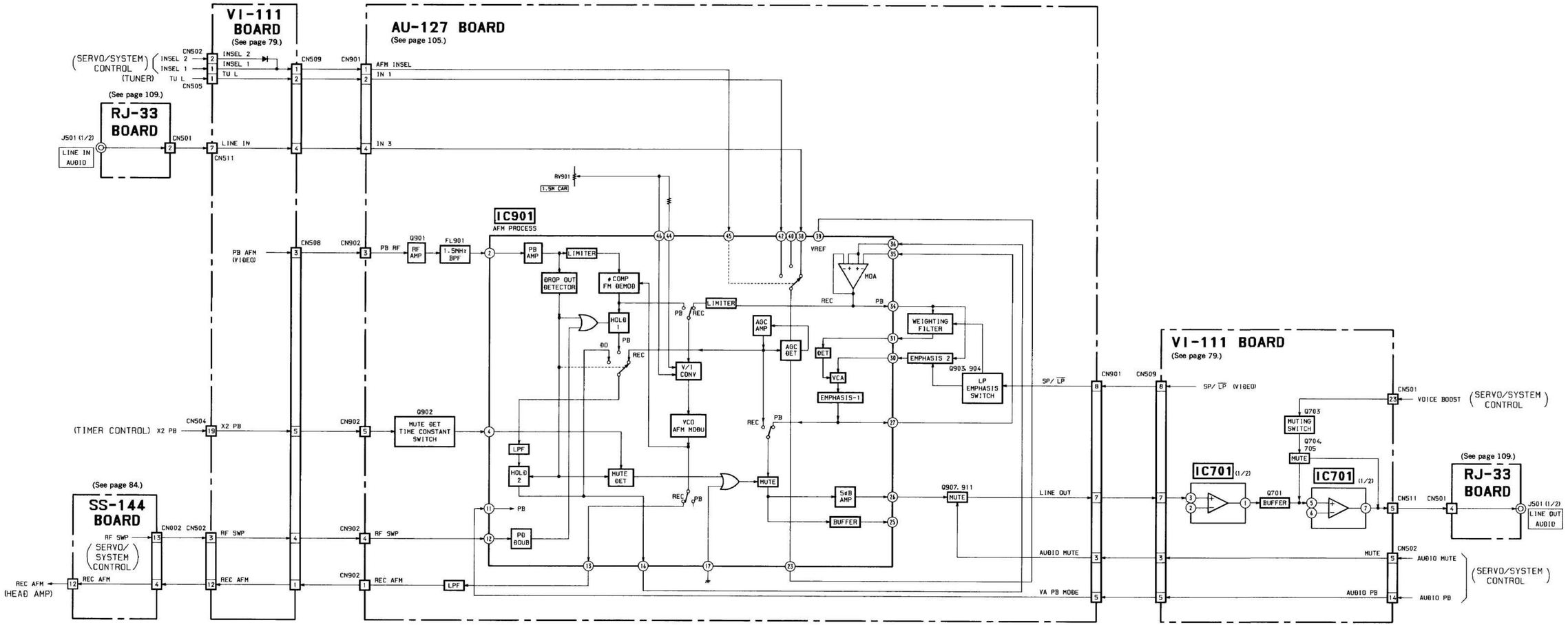
SW / AD	Pin No.	SW0 0.01 [V]	SW1 0.9 [V]	SW2 1.5 [V]	SW3 2.2 [V]	No. input 5.0 [V]
AD0	100	POWER	EJECT	DMS STOP	DMS PLAY	—
AD1	1	DMS SW1	REC	CHANNEL +	TIMER REC	—
AD2	2	DMS SW2	SYNC EDIT	PAUSE	QUICK TIMER	—
AD3	3	DMS SW3	CHANNEL −	COUNTER RESET	EDIT	—
AD4	4	DMS SW4	REMOCON MODE VTR3	REMOCON MODE VTR2	—	REMOCON MODE VTR1

- KEY input signals pass through the A/D ports as shown above.

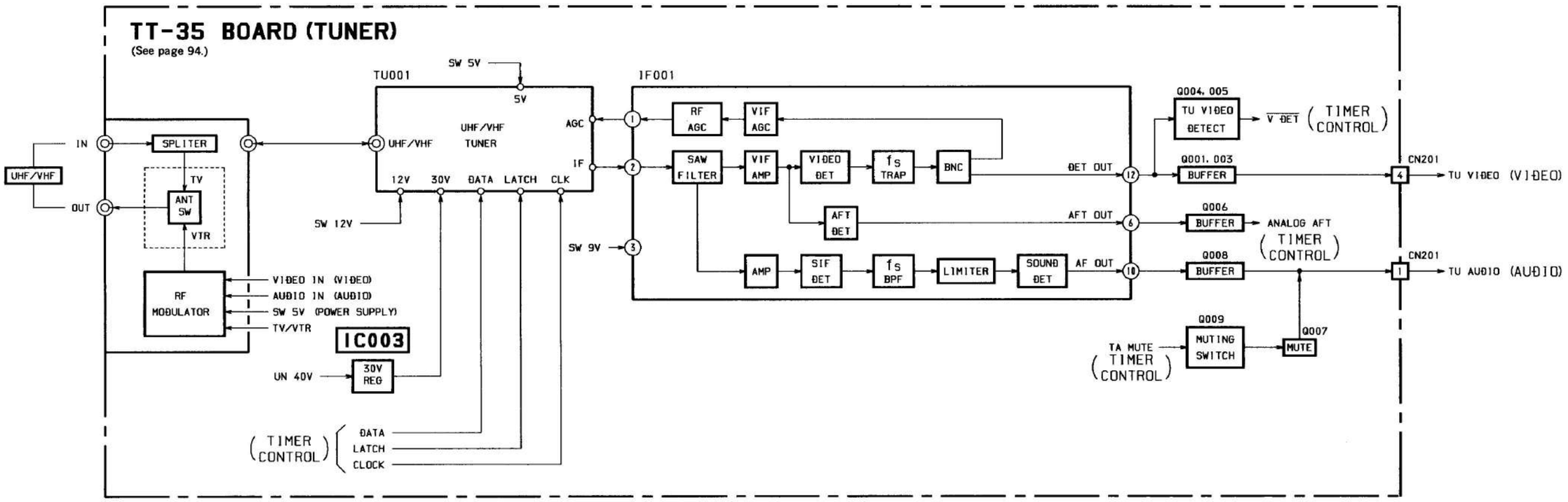
4-10. TIMER CONTROL BLOCK DIAGRAM



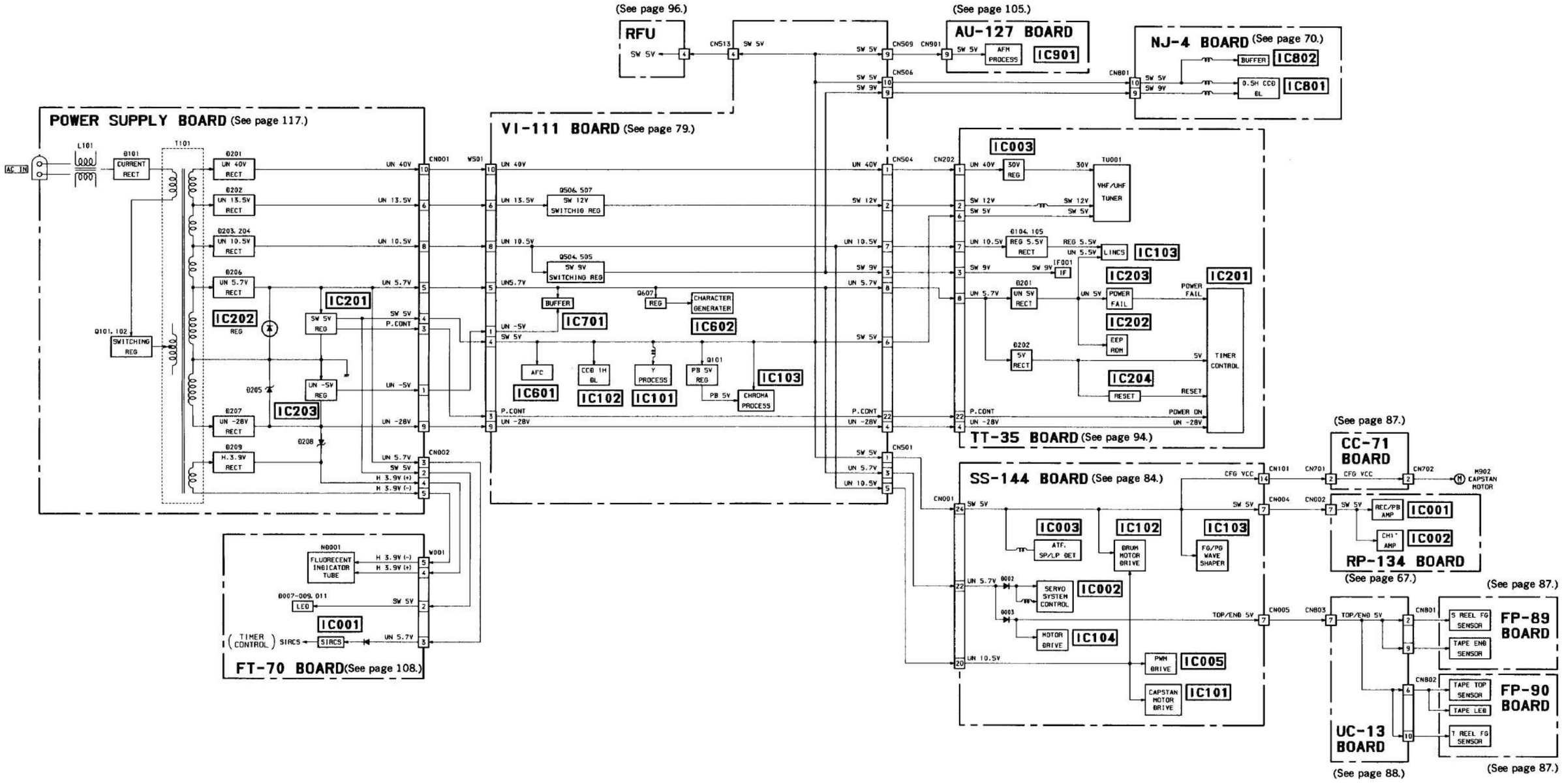
4-11. AUDIO BLOCK DIAGRAM



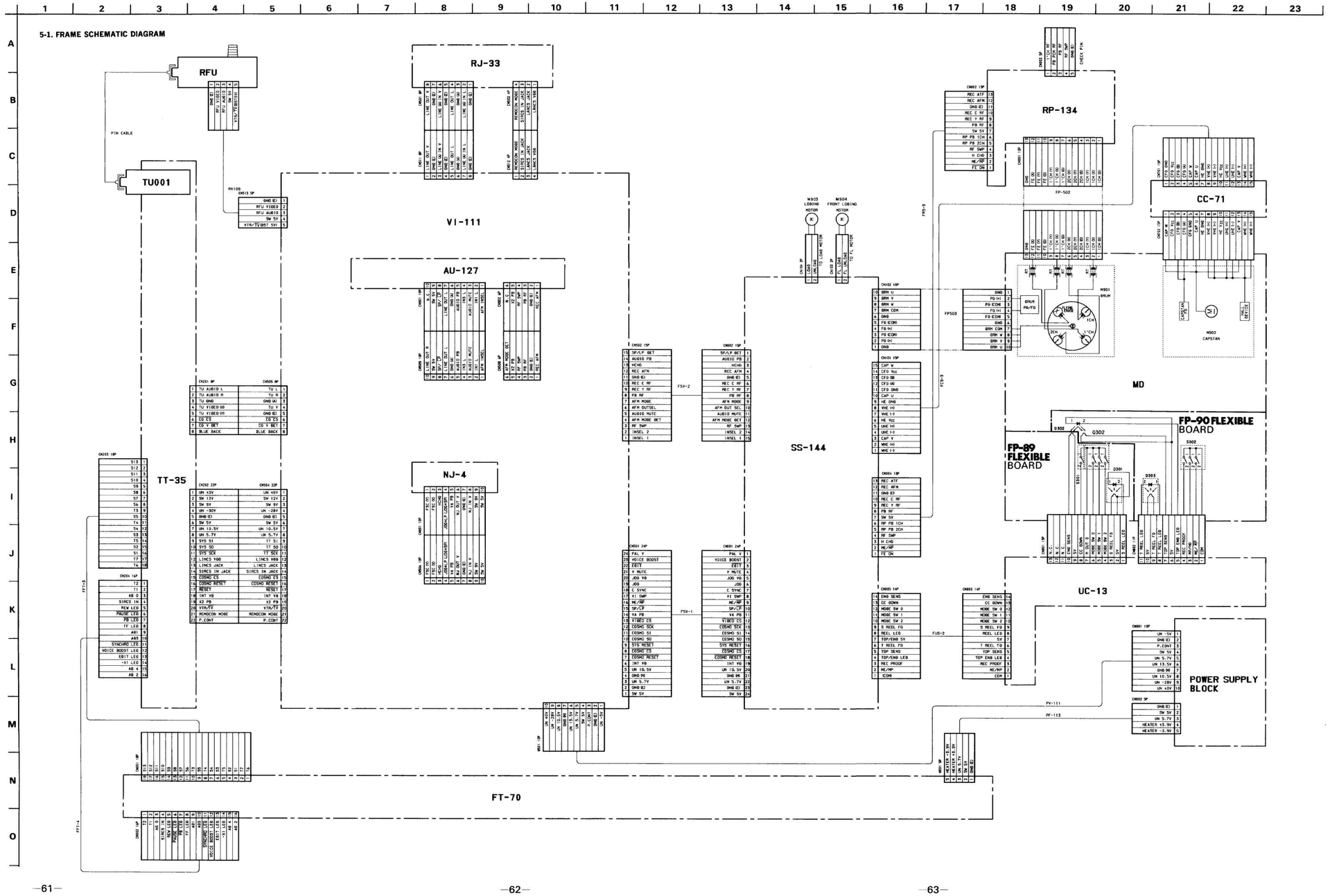
4-12. TUNER BLOCK DIAGRAM



4-13. POWER BLOCK DIAGRAM



5-1. FRAME SCHEMATIC DIAGRAM



5-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is is printed in each block.)

● For printed wiring boards.

- ● : Through hole.
- ▨ : Pattern from the side which enables seeing.
- ▩ : Pattern of the rear side.
- Circled numbers refer to waveforms.

● For schematic diagram.

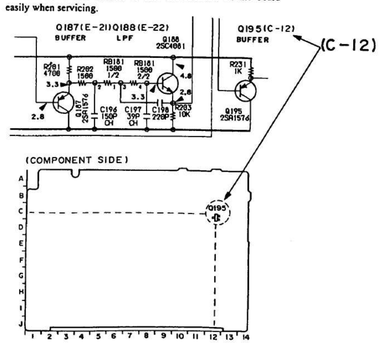
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W unless otherwise noted.
- Chip resistor are 1/8W or 1/10W unless otherwise noted.
  k Ω: 1000Ω, MΩ: 1000kΩ
- All capacitors are in μF unless otherwise noted. pF : μμF.
  50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- [ ] : adjustment for repair.
- —— B + Line.
- - - - B − Line.
- ⇨ IN/OUT direction of (+, −) B line.
- Circled numbers refer to waveforms.
- Voltages are dc between ground and measurement points.
- Readings are taken with a color bar signal input.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

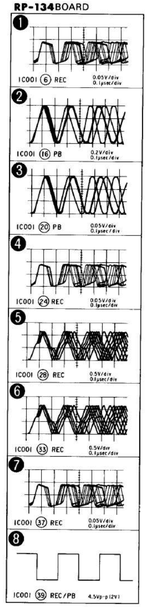
When indicating parts by reference number, please include the board name.

[SEMICONDUCTOR LOCATION]

In this service manual, the mounted locations of the semiconductors (IC, transistor, diodes) are indicated in red as shown below. This enables to find the location on the board easily when servicing.



RP-134BOARD

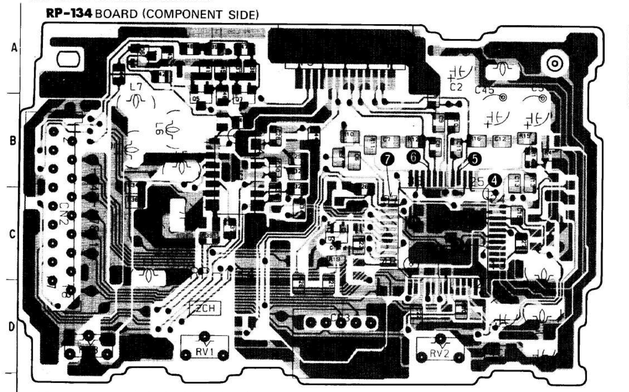


< IC >
IC001 8-752-032-35 CXA1202Q-Z
IC002 8-759-062-52 CXA1443M

< TRANSISTOR >
Q003 8-729-422-36 2SB709A-Q
Q005 8-729-216-22 2SA1162-Q
Q006 8-729-422-36 2SB709A-Q
Q007 8-729-422-36 2SB709A-Q
Q008 8-729-421-19 UN2213
Q009 8-729-424-18 UN2113

RP-134 (HEAD AMP) PRINTED WIRING BOARD
—Ref. No. RP-134 BOARD : 1000 series—

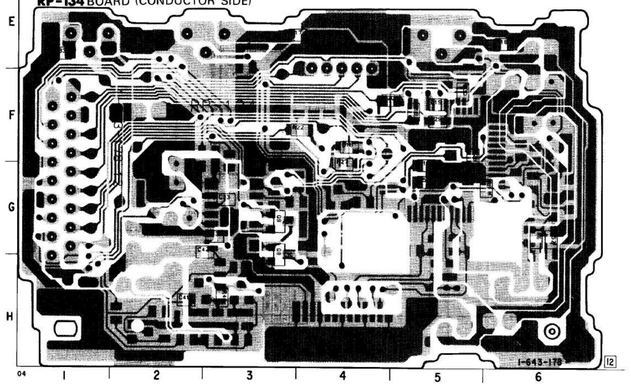
RP-134 BOARD (COMPONENT SIDE)



RP-134 BOARD
IC001 C-5
IC002 B-3

Q003 C-4
Q005 A-2
Q006 A-2
Q007 A-3
Q008 G-3
Q009 G-3

RP-134BOARD (CONDUCTOR SIDE)



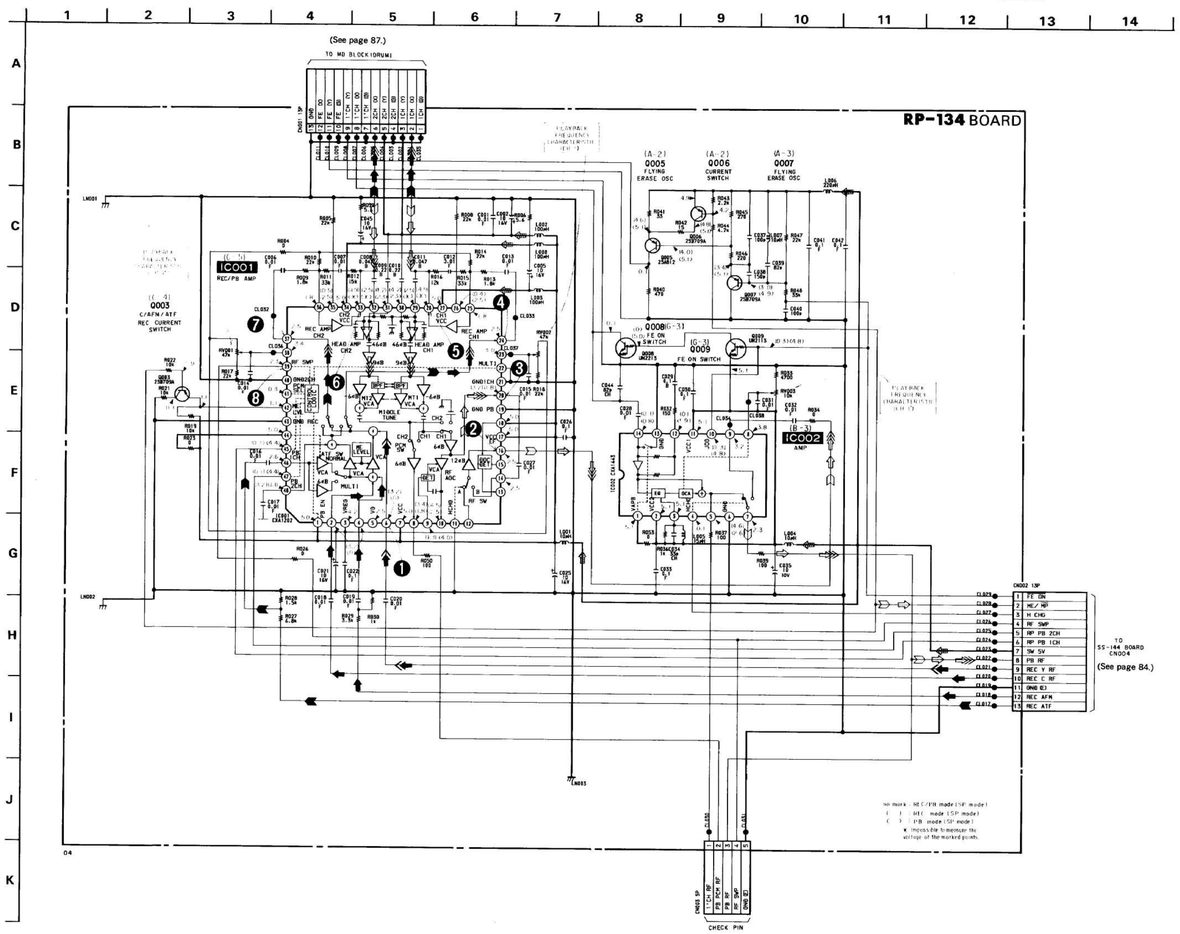
RP-134 (HEAD AMP) SCHEMATIC DIAGRAM
—Ref. No. RP-134 BOARD : 1000 series—

● Signal path

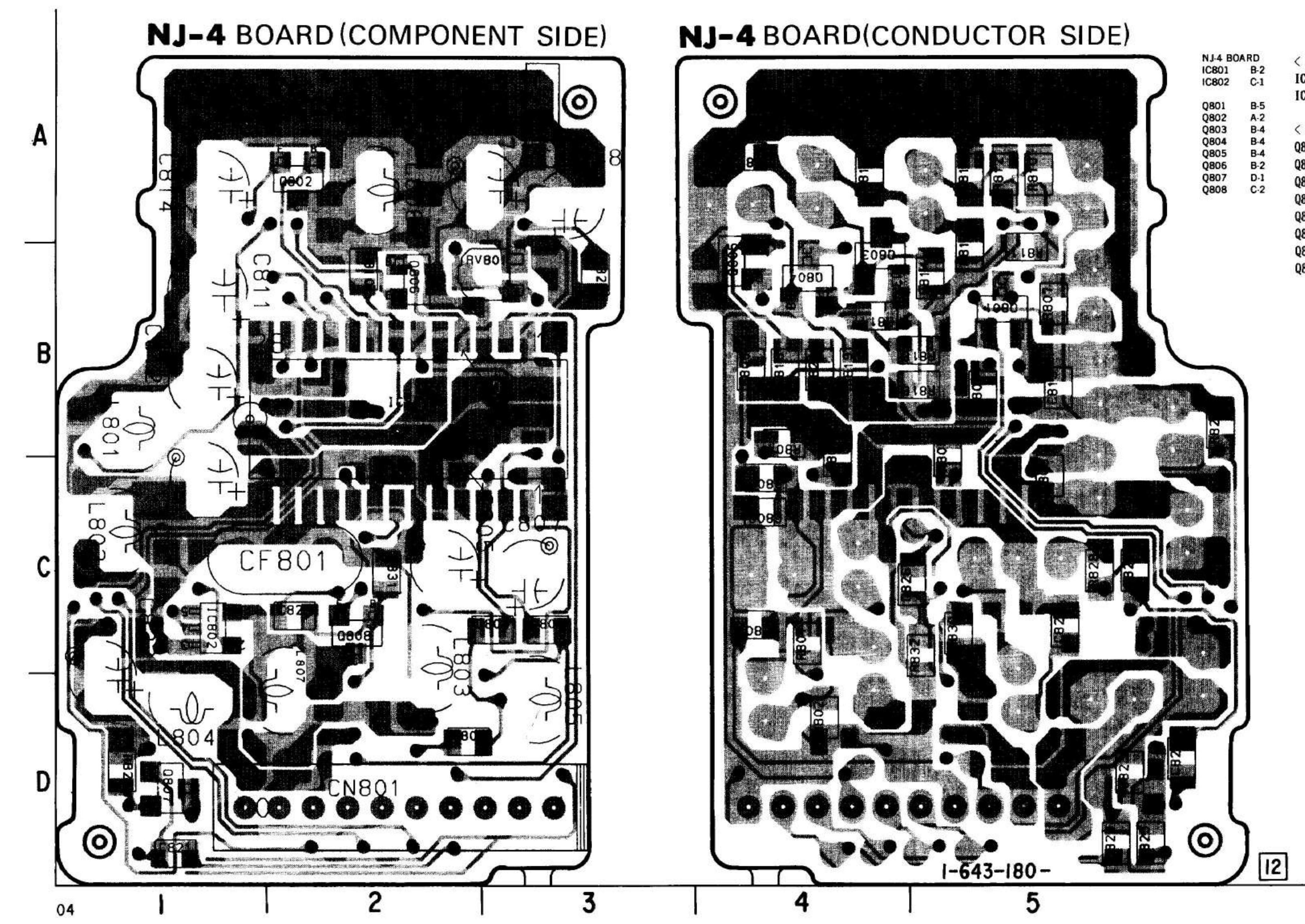
	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	➡
PB	⇨	⇨	⇨	⇨

● Signal path

	REC	REC/PB	PB
Ref.signal	➡		⇨



NJ-4 (JOG PROCESS) PRINTED WIRING BOARD
—Ref.No. NJ-4 BOARD : 1000 series—



NJ-4 BOARD	
IC801	B-2
IC802	C-1
Q801	B-5
Q802	A-2
Q803	B-4
Q804	B-4
Q805	B-4
Q806	B-2
Q807	D-1
Q808	C-2

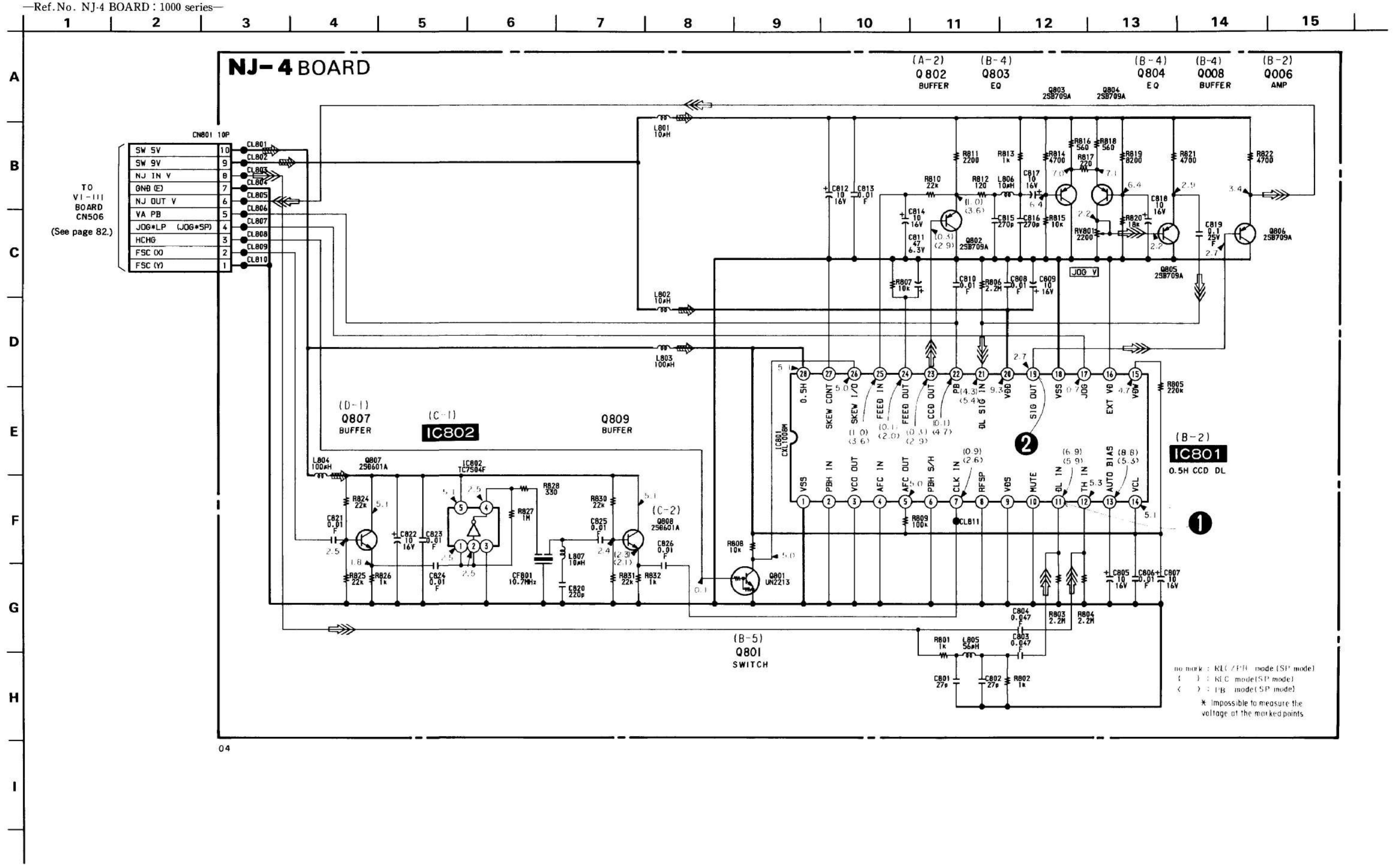
< IC >

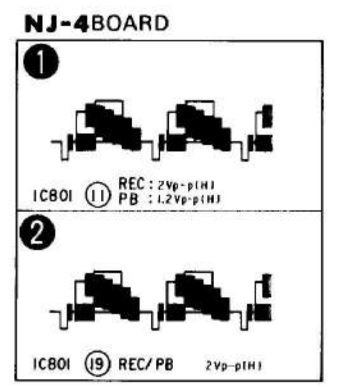
IC801	8-752-322-24	CXL1008M
IC802	8-759-031-84	SC7S04F

< TRANSISTOR >

Q801	8-729-421-19	UN2213
Q802	8-729-422-36	2SB709A-Q
Q803	8-729-422-36	2SB709A-Q
Q804	8-729-422-36	2SB709A-Q
Q805	8-729-422-36	2SB709A-Q
Q806	8-729-422-36	2SB709A-Q
Q807	8-729-422-27	2SD601A-Q
Q808	8-729-422-27	2SD601A-Q

NJ-4 (JOG PROCESS) SCHEMATIC DIAGRAM
—Ref.No. NJ-4 BOARD : 1000 series—





• **Signal path**

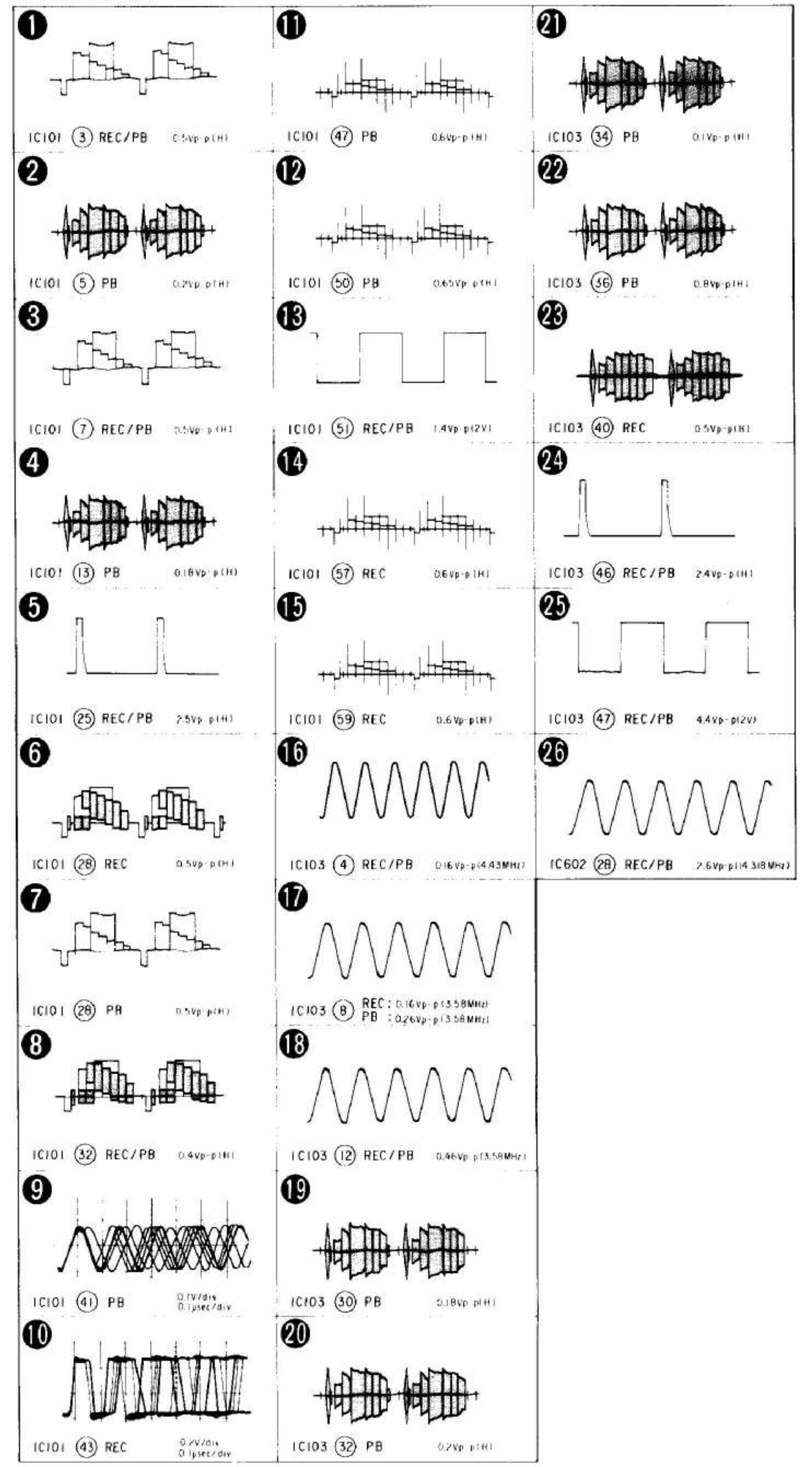
	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	➡
PB	⇨	⇨	⇨	⇨

VI-111 (VIDEO PROCESS) PRINTED WIRING BOARD

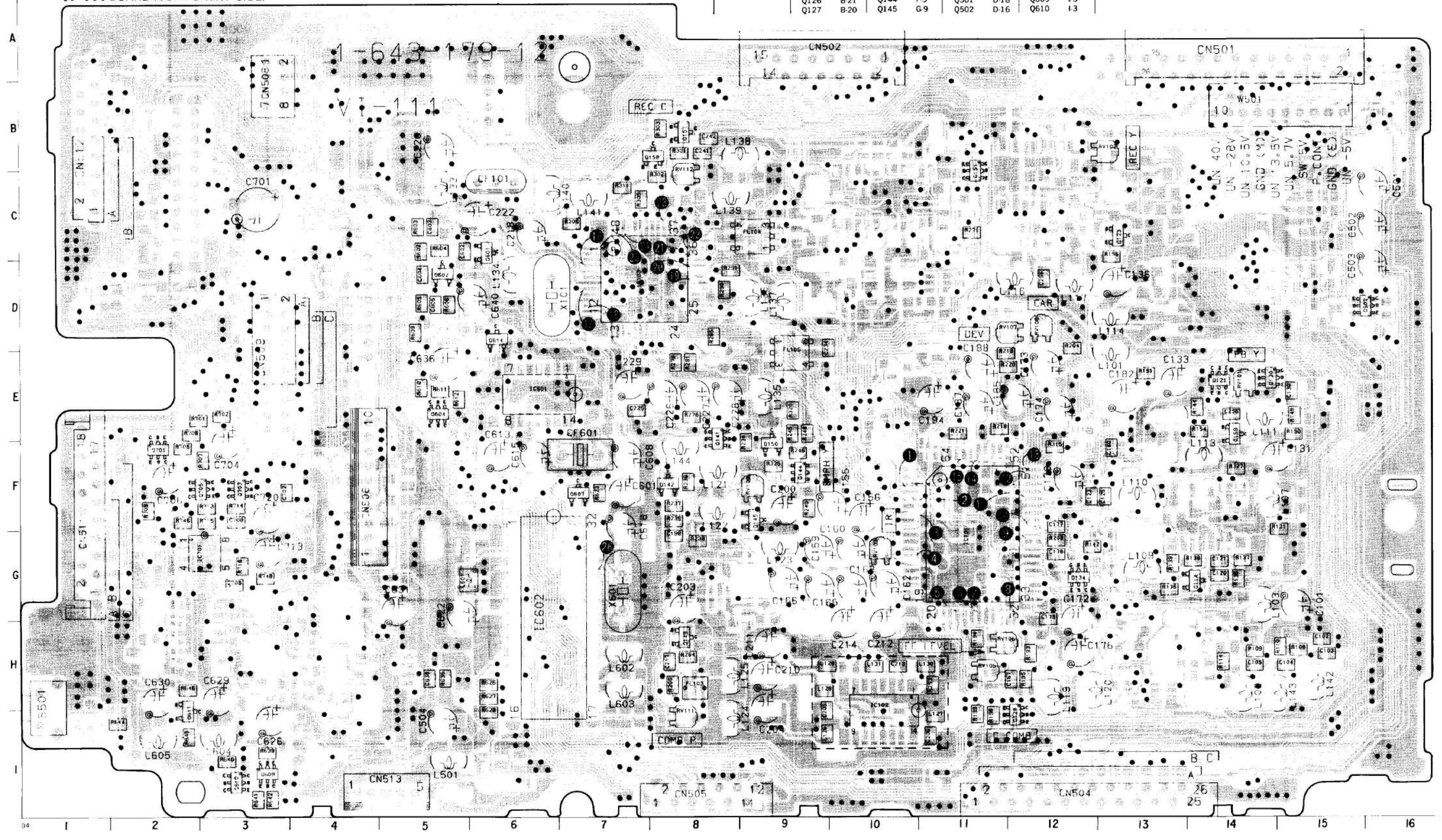
—Ref. No. VI-111 BOARD : 1000 series—

D101	F-19	IC101	F-11	Q101	D-19	Q128	C-19	Q147	H-25	Q503	D-18	Q611	I-2
D102	H-21	IC102	H-10	Q102	D-19	Q129	I-12	Q148	I-25	Q504	B-18	Q614	E-6
D501	D-18	IC103	D-7	Q104	H-18	Q130	H-21	Q149	H-8	Q505	C-18	Q701	F-2
D502	D-17	IC601	E-6	Q105	H-19	Q131	H-22	Q150	F-9	Q506	C-18	Q703	F-3
D503	D-18	IC602	G-6	Q112	F-19	Q132	G-20	Q151	C-11	Q507	D-18	Q704	F-30
D504	C-17	IC701	G-3	Q114	G-14	Q133	E-24	Q152	D-26	Q601	D-6	Q705	F-3
D505	F-28			Q116	F-20	Q134	G-12	Q154	C-24	Q602	D-5		
D506	D-29			Q118	E-19	Q135	G-21	Q155	D-25	Q603	D-28		
D601	C-27			Q119	E-18	Q140	F-24	Q156	C-25	Q604	E-5		
D602	F-26			Q120	E-14	Q141	E-8	Q157	B-8	Q606	D-28		
				Q121	E-14	Q142	F-8	Q158	B-8	Q607	F-7		
				Q123	C-13	Q143	F-25	Q159	E-14	Q608	H-27		
				Q126	B-21	Q144	F-9	Q501	D-18	Q609	I-3		
				Q127	B-20	Q145	G-9	Q502	D-16	Q610	I-3		

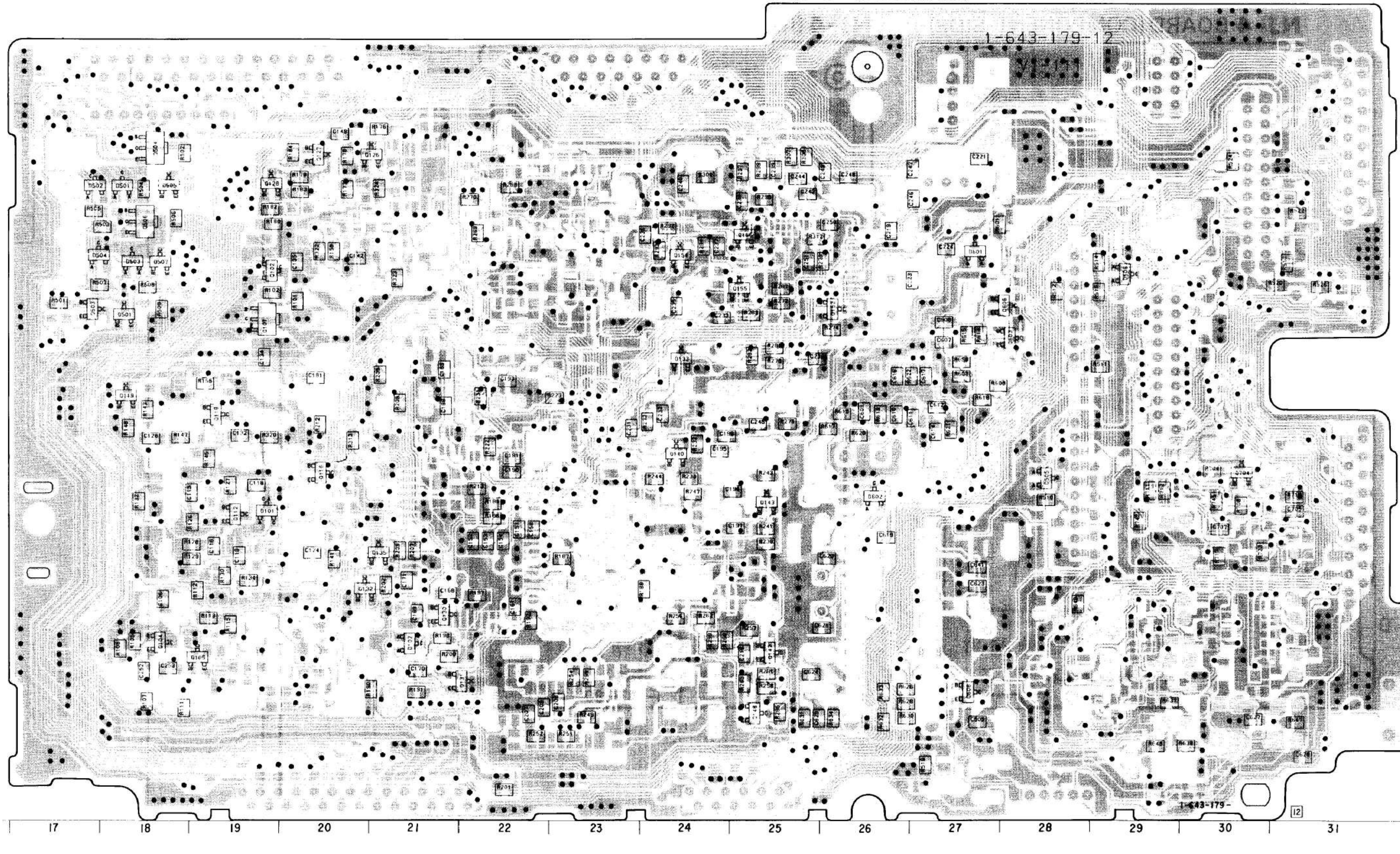
VI-111 BOARD



VI-111 BOARD (COMPONENT SIDE)



VI-111 BOARD (CONDUCTOR SIDE)



VI-111 (VIDEO PROCESS) SCHEMATIC DIAGRAM

—Ref.No. VI-111 BOARD : 1000 series—

< DIODE >

D101	8-719-800-76	1SS226
D102	8-719-400-18	MA152WK
⚠D501	8-719-975-41	RB411D
D502	8-719-105-91	RD5.6M-B2
⚠D503	8-719-975-41	RB411D
D504	8-719-106-44	RD9.1M-B2
D505	8-719-104-34	1S2836
D506	8-719-400-18	MA152WK
D601	8-719-400-18	MA152WK
D602	8-719-105-91	RD5.6M-B2

< IC >

IC101	8-752-054-87	CXA1207AQ
IC102	8-752-332-68	CXL5502M
IC103	8-752-039-34	CXA1208Q
IC601	8-759-631-10	M52684AFP
IC602	8-759-067-96	M50555
IC701	8-759-100-96	uPC4558G2

< TRANSISTOR >

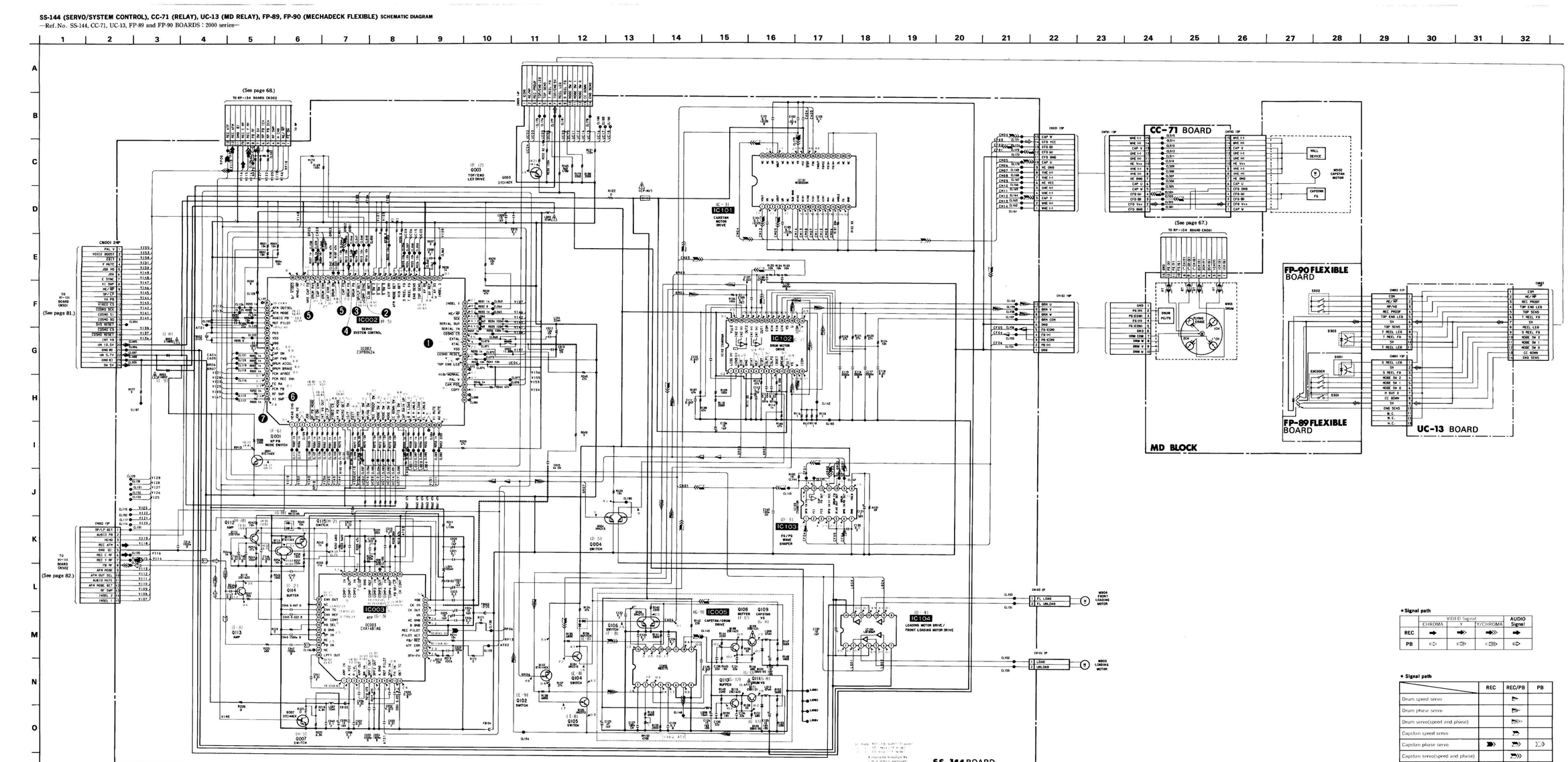
Q101	8-729-101-07	2SB798-DL
Q102	8-729-421-19	UN2213
Q104	8-729-422-27	2SD601A-Q
Q105	8-729-422-27	2SD601A-Q
Q112	8-729-102-07	2SC2223-F13
Q114	8-729-422-27	2SD601A-Q
Q116	8-729-424-18	UN2113
Q118	8-729-422-27	2SD601A-Q
Q119	8-729-422-27	2SD601A-Q
Q120	8-729-403-02	XN4212
Q121	8-729-402-84	XN4601
Q123	8-729-422-27	2SD601A-Q
Q126	8-729-422-27	2SD601A-Q
Q127	8-729-422-27	2SD601A-Q
Q128	8-729-422-27	2SD601A-Q
Q129	8-729-403-24	XN4210
Q130	8-729-422-36	2SB709A-Q
Q131	8-729-422-36	2SB709A-Q
Q132	8-729-421-19	UN2213
Q133	8-729-424-08	UN2111
Q134	8-729-420-20	XN4312
Q135	8-729-421-19	UN2213
Q140	8-729-422-27	2SD601A-Q
Q141	8-729-403-02	XN4212
Q142	8-729-422-27	2SD601A-Q
Q143	8-729-422-27	2SD601A-Q
Q144	8-729-402-81	XN4501
Q145	8-729-422-36	2SB709A-Q
Q147	8-729-422-36	2SB709A-Q
Q148	8-729-422-27	2SD601A-Q
Q149	8-729-422-27	2SD601A-Q
Q150	8-729-422-27	2SD601A-Q
Q151	8-729-420-12	XN4213
Q152	8-729-422-27	2SD601A-Q
Q154	8-729-421-19	UN2213
Q155	8-729-422-27	2SD601A-Q
Q156	8-729-421-19	UN2213
Q157	8-729-422-36	2SB709A-Q
Q158	8-729-422-27	2SD601A-Q
Q159	8-729-424-08	UN2111
Q501	8-729-424-18	UN2113
Q502	8-729-403-24	XN4210
Q503	8-729-424-78	UN2210
⚠Q504	8-729-103-95	2SB798
Q505	8-729-422-27	2SD601A-Q
⚠Q506	8-729-103-95	2SB798
Q507	8-729-422-27	2SD601A-Q
Q601	8-729-422-27	2SD601A-Q
Q602	8-729-422-36	2SB709A-Q
Q603	8-729-422-36	2SB709A-Q
Q604	8-729-402-84	XN4601
Q606	8-729-422-36	2SB709A-Q
Q607	8-729-422-27	2SD601A-Q
Q608	8-729-422-36	2SB709A-Q
Q609	8-729-402-84	XN4601
Q610	8-729-402-84	XN4601
Q611	8-729-422-27	2SD601A-Q
Q614	8-729-902-XX	UN2215
Q701	8-729-402-81	XN4501
Q703	8-729-421-90	XN4113
Q704	8-729-902-XX	UN2215
Q705	8-729-422-54	XN4215

• Signal path

	CHROMA			AUDIO Signal
REC	➡			➡
PB				⇨

• Signal path

	REC	REC/PB	PB
Ref.signal	➡		⇨



• Signal path

	VIDEO Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	➡
PB	⇨	⇨	⇨	⇨

• Signal path

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷	
Drum servo(speed and phase)		▷	
Capstan speed servo		▷	
Capstan phase servo	▶	▷	▷
Capstan servo(speed and phase)		▷	
Ref.signal	▶	▷	▷

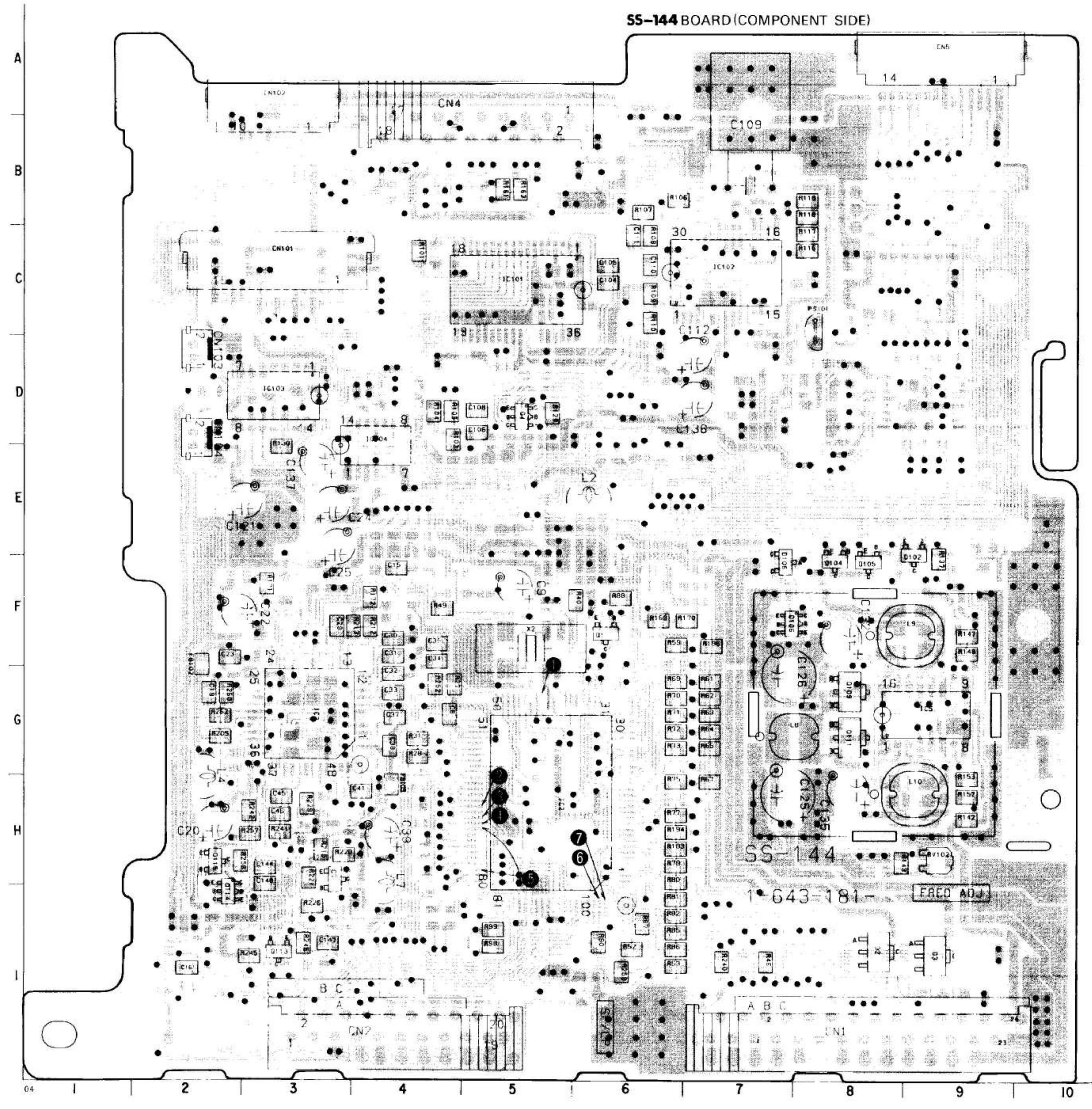
SS-144 BOARD

1 IC002 (42) REC/PB 3.2Vp-p(1.89MHz)
2 IC002 (64) REC/PB 2.4Vp-p(Hz)
3 IC002 (68) REC/PB 5Vp-p(2V)
4 IC002 (69) REC/PB 5Vp-p(1360Hz)
5 IC002 (70) (71) REC/PB 5Vp-p(1940Hz)
6 IC002 (90) REC/PB 4.8Vp-p(2V)
7 IC002 (93) REC/PB 4.8Vp-p(2V)

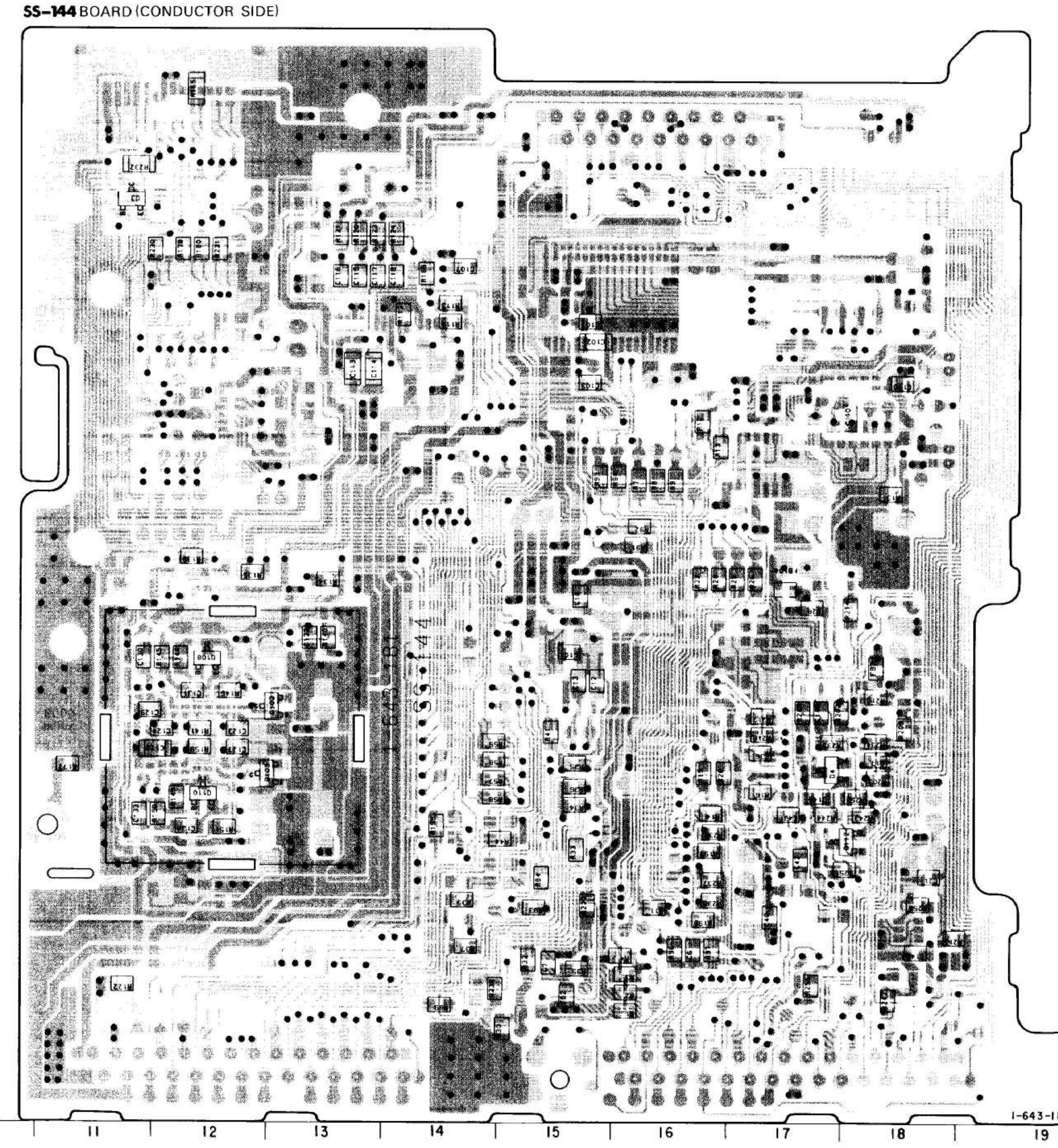
SS-144 (SERVO/SYSTEM CONTROL), CC-71 (RELAY), UC-13 (MD RELAY), FP-89, FP-90 (MECHADECK FLEXIBLE) PRINTED WIRING BOARDS

—Ref. No. SS-144, CC-71, UC-13, FP-89 and FP-90 BOARDS : 2000 series—

SS-144 BOARD (COMPONENT SIDE)

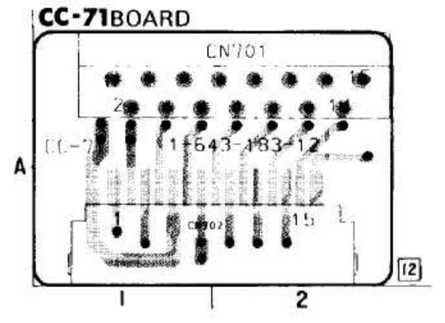


SS-144 BOARD (CONDUCTOR SIDE)



SS-144 BOARD	
D002	I-8
D003	I-9
D004	G-18
D102	G-13
D103	G-13
D106	E-8
IC002	H-5
IC003	G-3
IC005	G-9
IC101	C-3
IC102	C-7
IC103	D-3
IC104	D-4
Q001	F-6
Q003	B-12
Q004	D-5
Q007	H-3
Q102	E-9
Q104	E-8
Q105	E-8
Q106	F-6
Q108	F-12
Q109	G-8
Q110	G-12
Q111	G-8
Q112	H-18
Q113	I-3
Q114	I-2
Q115	H-2

CC-71 BOARD



< DIODE >

D002	8-719-200-27	E10DS2
D003	8-719-200-27	E10DS2
D004	8-719-104-34	1S2836
D102	8-719-938-75	SB05-05CP
D103	8-719-938-75	SB05-05CP
D106	8-719-104-34	1S2836

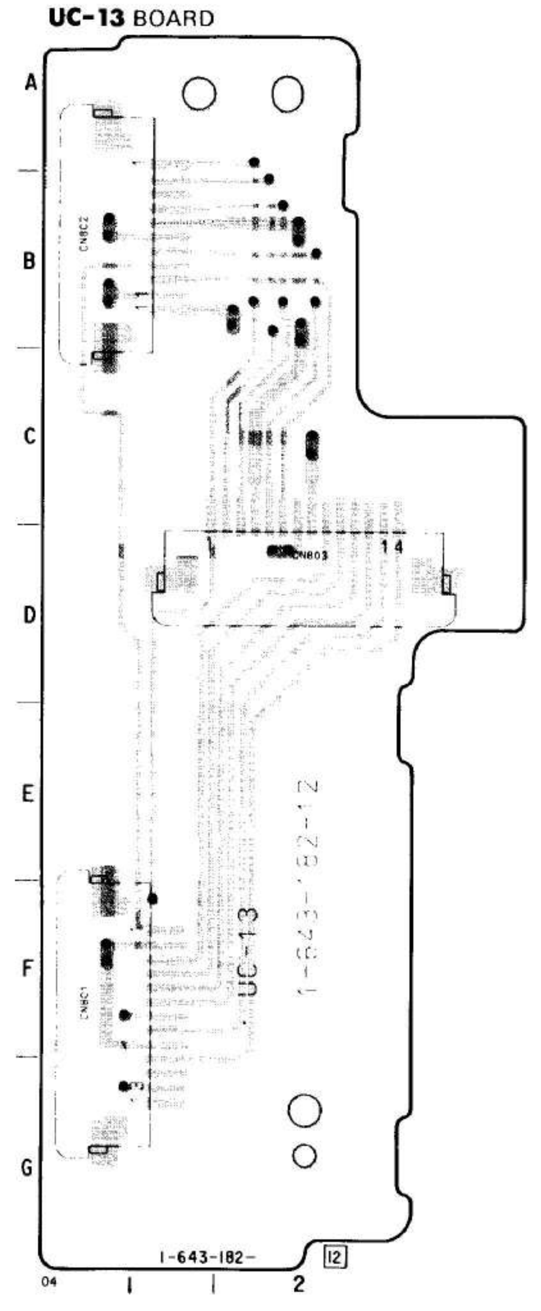
< IC >

IC002	8-752-833-39	CXP80624-286Q
IC003	8-759-070-96	CXA1481AQ
IC005	8-759-945-17	MB3775PF
IC101	8-759-823-65	MCD002AM
IC102	8-759-990-55	CXA8006M
IC103	8-759-148-05	CXA8010M
IC104	8-759-823-94	LB1836M

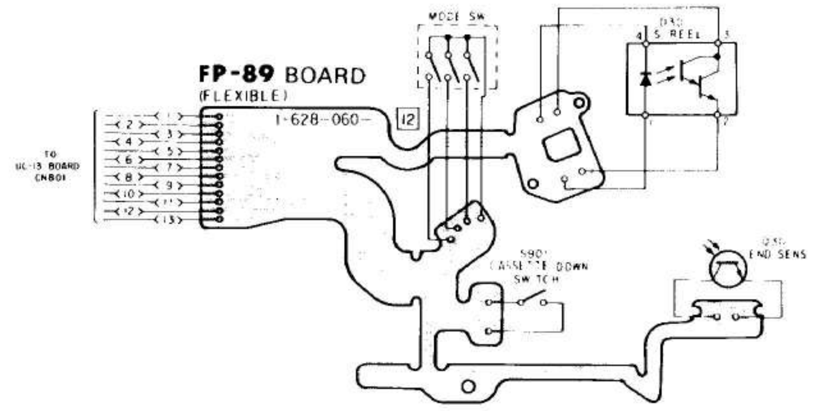
< TRANSISTOR >

Q001	8-729-901-01	DTC144EK
Q003	8-729-900-53	DTC114EK
Q004	8-729-420-12	XN4213
Q007	8-729-901-01	DTC144EK
Q102	8-729-901-06	DTA144EK
Q104	8-729-424-77	UN2210
Q105	8-729-424-77	UN2210
Q106	8-729-420-12	XN4213
Q108	8-729-100-66	2SC1623-L6
Q109	8-729-805-31	2SB1121
Q110	8-729-100-66	2SC1623-L6
Q111	8-729-805-31	2SB1121
Q112	8-729-422-36	2SB709A-Q
Q113	8-729-100-66	2SC1623-L6
Q114	8-729-402-81	XN4501
Q115	8-729-901-04	DTA114EK

UC-13 BOARD



FP-89 BOARD (FLEXIBLE)



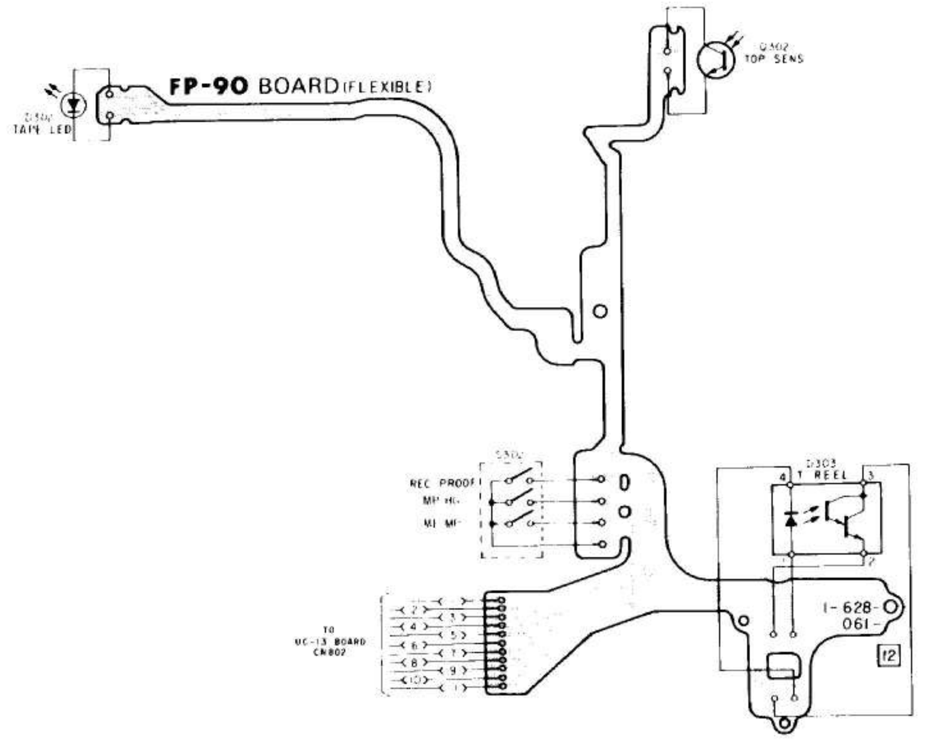
< DIODE >

D301 8-719-820-44 TLP907-0 (SONY2)

< TRANSISTOR >

Q301 8-729-906-48 EE-TP109

FP-90 BOARD (FLEXIBLE)



< DIODE >

D302 8-719-940-81 GL 452S

D303 8-719-820-41 TLP907-0 (SONY2)

< TRANSISTOR >

Q302 8-729-906-48 EE-TP109

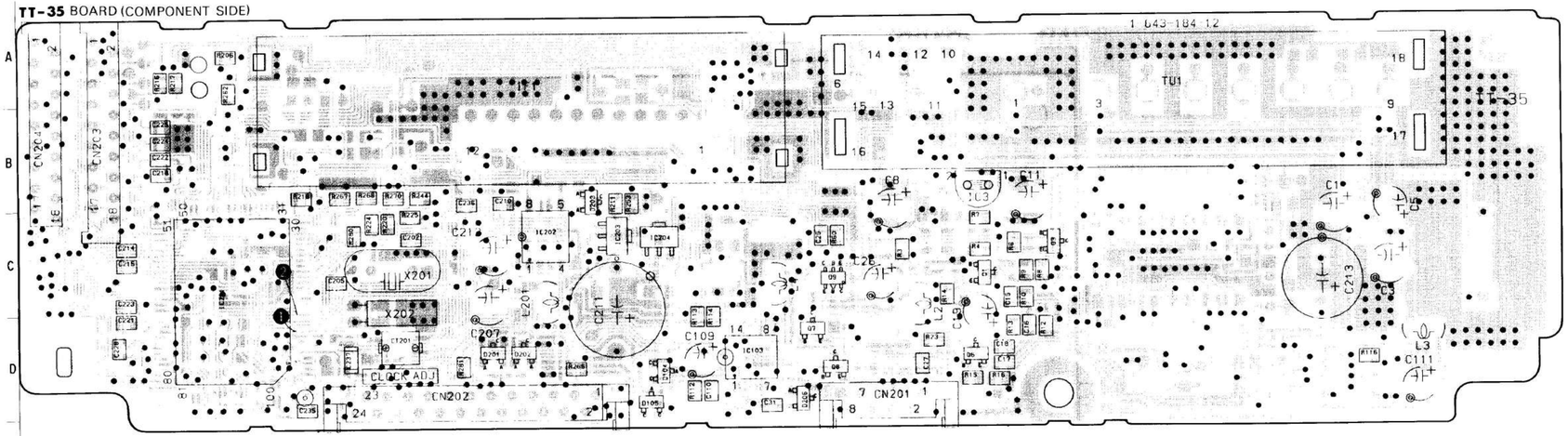
TT-35 (TIMER CONTROL , TUNER) SCHEMATIC DIAGRAM

—Ref. No. TT-35 BOARD : 3000 series—

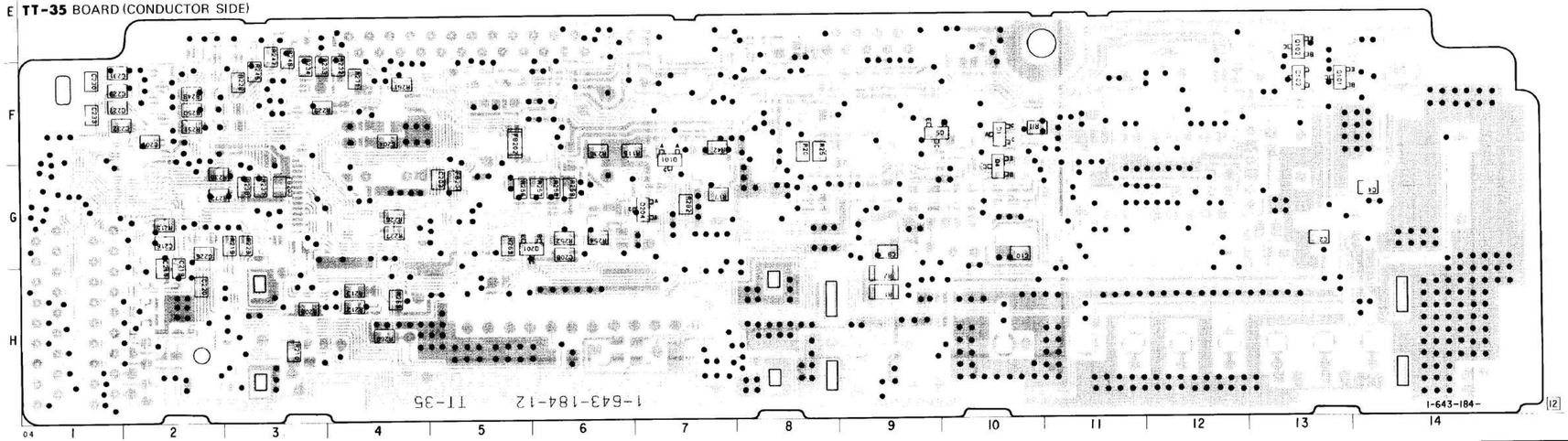
TT-35 (TIMER CONTROL , TUNER) PRINTED WIRING BOARD

Ref.No.TT-35 BOARD : 3000 series—

TT-35 BOARD (COMPONENT SIDE)



TT-35 BOARD (CONDUCTOR SIDE)



TT-35 BOARD

D001	F-10
D101	F-7
D102	F-13
D104	D-7
D105	D-7
D201	D-5
D202	D-5
D203	B-6
D204	G-7
D206	D-8
IC003	B-10
IC103	D-8
IC201	C-2
IC202	C-6
IC203	C-6
IC204	C-7
Q001	C-10
Q003	C-10
Q004	F-10
Q005	F-9
Q006	D-10
Q007	D-8
Q008	D-8
Q009	C-8
Q101	F-13
Q102	E-13
Q201	G-5

< DIODE >

D001	8-719-104-34 1S2836
D101	8-719-400-18 MA152WK
D102	8-719-400-18 MA152WK
D104	8-719-104-34 1S2836
D105	8-719-104-34 1S2836
D201	8-719-914-47 DAN202K
D202	8-719-914-47 DAN202K
D203	8-719-400-18 MA152WK
D204	8-719-400-18 MA152WK
D206	8-719-400-18 MA152WK

< IC >

IC003	8-759-157-40 uPC574J
IC103	8-759-999-02 TL1596CDR
IC201	8-759-053-72 MB89794B
IC202	8-759-720-45 CAT35C202K
IC203	8-759-937-56 S-8054ALB-LM-S
IC204	8-759-941-78 S-8053ALB

< TRANSISTOR >

Q001	8-729-920-74 2SC2412K-QR
Q003	8-729-216-22 2SA1162-G
Q004	8-729-216-22 2SA1162-G
Q005	8-729-920-74 2SC2412K-QR
Q006	8-729-920-74 2SC2412K-QR
Q007	8-729-202-38 2SC3326N-A
Q008	8-729-920-74 2SC2412K-QR
Q009	8-729-420-20 XN4312
Q101	8-729-901-06 DTA144EK
Q102	8-729-901-01 DTC144EK
Q201	8-729-216-22 2SA1162-G

AU-127 (AUDIO PROCESS) PRINTED WIRING BOARD

Ref.No.AU-127 BOARD : 4000 series

AU-127 BOARD
IC901 C-3

Q901 C-1
Q902 C-1
Q903 D-4
Q904 D-4
Q907 C-5
Q911 C-5

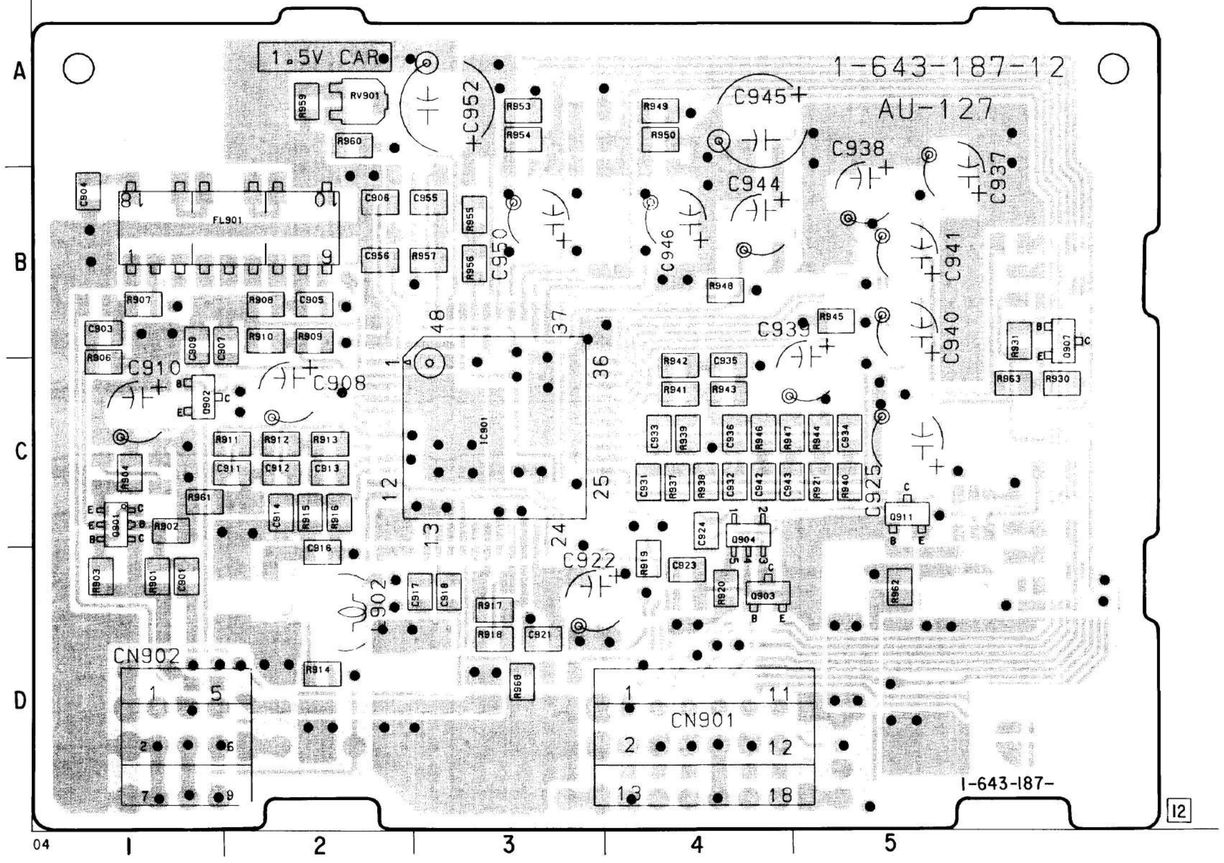
< IC >

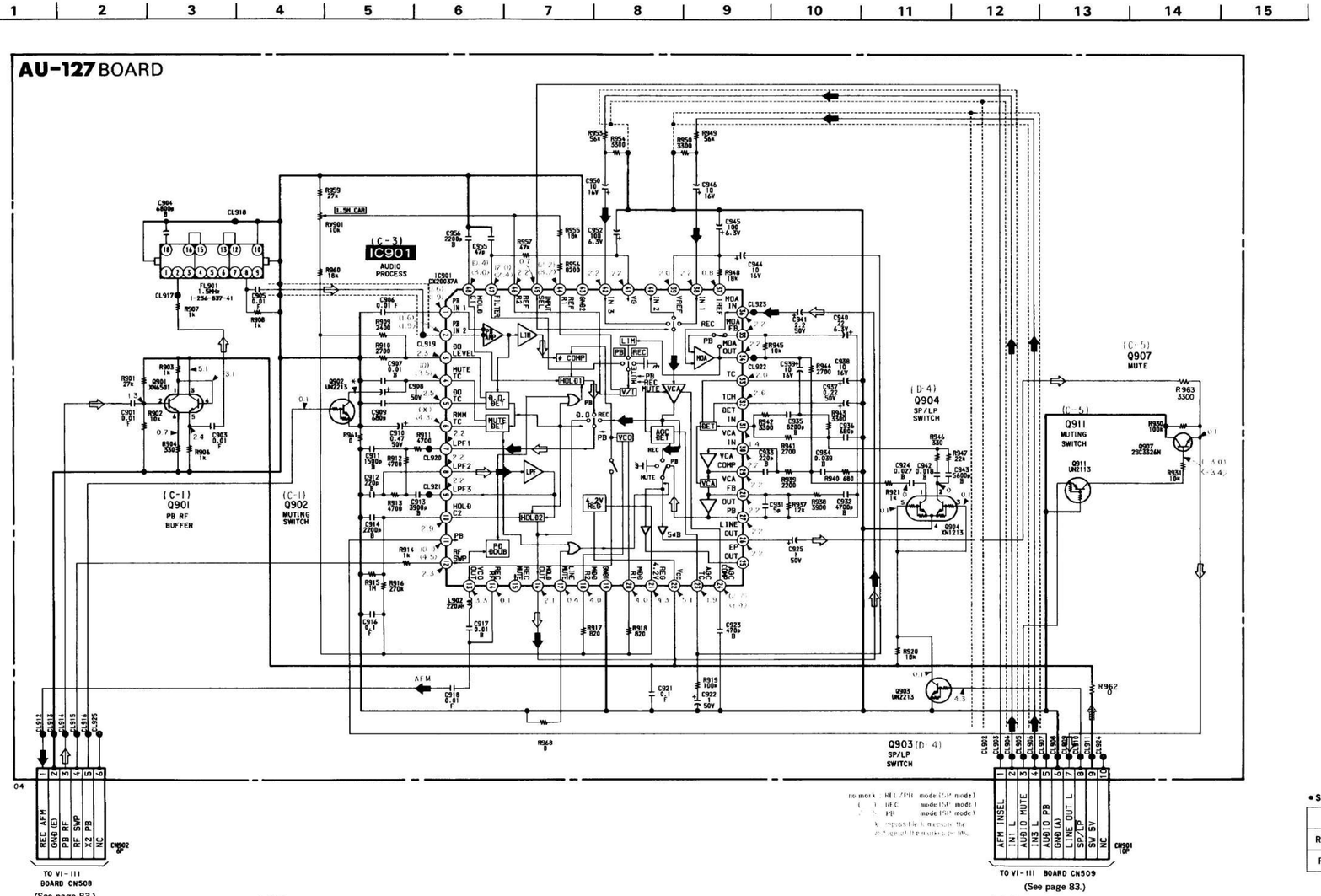
IC901 8-752-003-79 CX20037A

< TRANSISTOR >

Q901 8-729-402-19 XN6501
Q902 8-729-421-18 UN2213
Q903 8-729-421-19 UN2213
Q904 8-729-403-07 XN1213
Q907 8-729-202-38 2SC3326N-A
Q911 8-729-424-18 UN2113

AU-127 BOARD



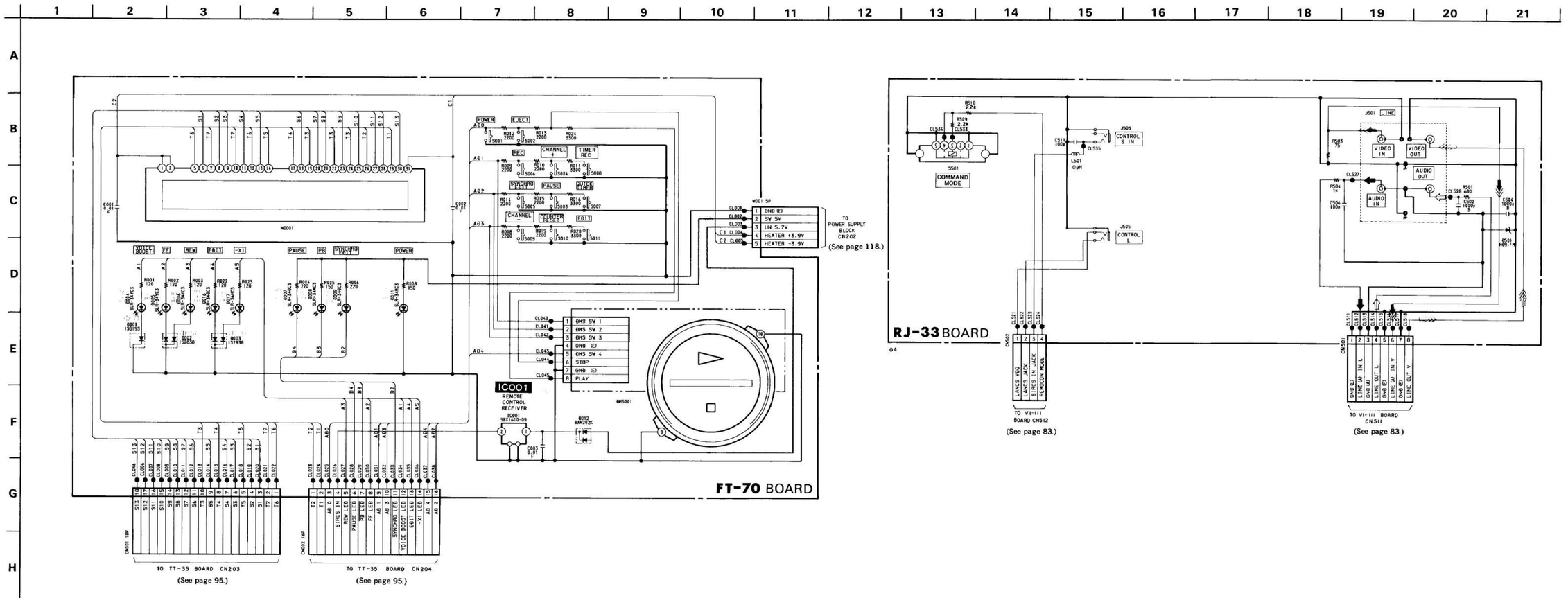


• Signal path

	AUDIO Signal
REC	➡
PB	⇨

FT-70 (FUNCTION SWITCH), RJ-33 (IN/OUT JACK) SCHEMATIC DIAGRAM

—Ref.No.FT-70 and RJ-33 BOARD : 5000 series —

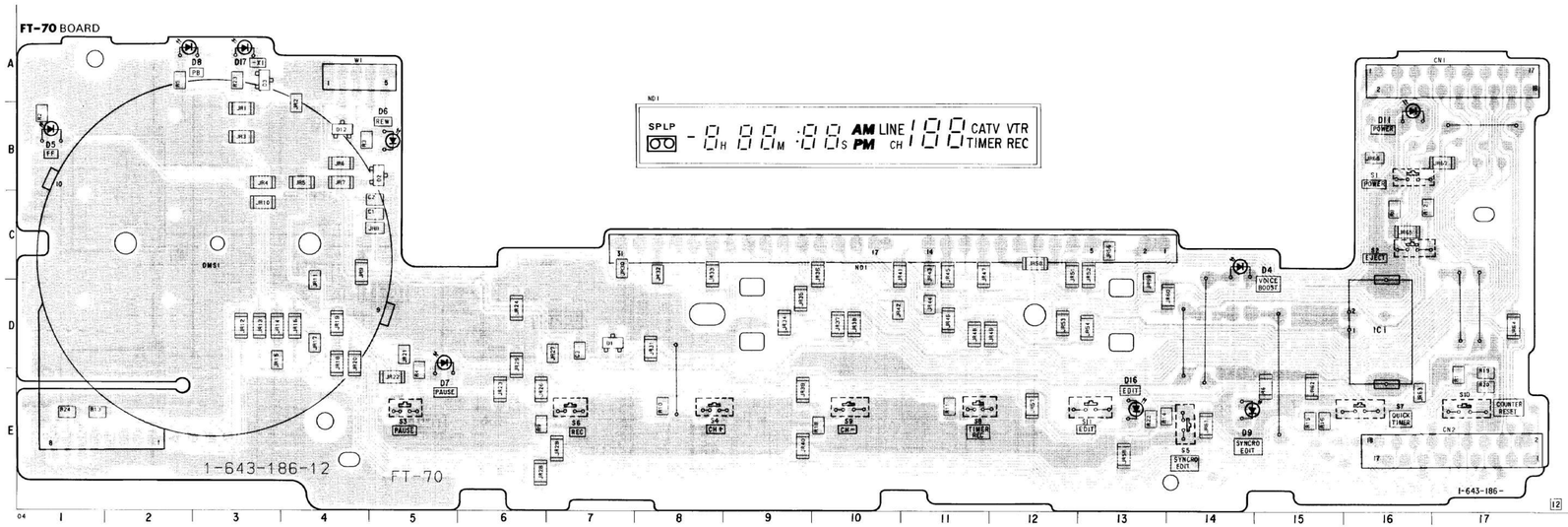


• Signal path

	Video Signal			AUDIO Signal
	CHROMA	Y	Y/CHROMA	
REC	➡	➡	➡	➡
PB	⇦	⇦	⇦	⇦

FT-70 (FUNCTION SWITCH), RJ-33 (IN/OUT JACK) PRINTED WIRING BOARDS

—Ref. No. FT-70 and RJ-33 BOARD : 5000 series —



< DIODE >

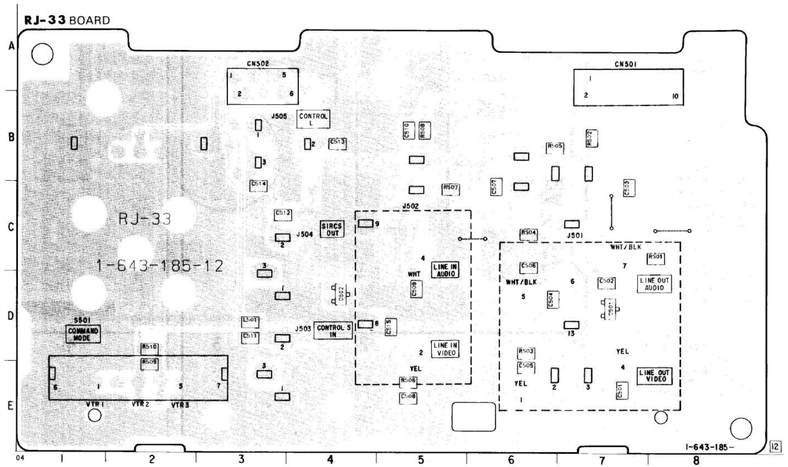
D001 8-719-400-18 MA152WK
D002 8-719-400-18 MA152WK
D003 8-719-400-18 MA152WK
D004 8-719-812-32 TLY123
D005 8-719-812-32 TLY123
D006 8-719-812-32 TLY123
D007 8-719-946-30 SLR34DC3
D008 8-719-940-82 SLR34MC3
D009 8-719-946-30 SLR34DC3
D011 8-719-940-82 SLR34MC3
D012 8-719-400-18 MA152WK
D016 8-719-946-30 SLR34DC3
D017 8-719-940-82 SLR34MC3

< IC >

IC001 8-741-100-47 SBX1610-09

FT-70 BOARD

D001 D-7
D002 B-5
D003 A-3
D004 C-14
D005 B-1
D006 B-5
D007 E-5
D008 A-2
D009 E-14
D011 B-16
D012 B-4
D016 E-13
D017 A-3



< DIODE >

D501 8-719-106-44 RD9.1M-B2

POWER SUPPLY (POWER) PRINTED WIRING BOARD
—Ref.No. POWER SUPPLY BOARD : 6000 series—

POWER SUPPLY BOARD
D101 B-2
D102 A-3
D103 A-4
D104 B-4
D105 C-3
D106 C-4
D201 B-6
D202 A-6
D203 A-6
D204 A-6
D205 B-6
D206 B-6
D207 B-6
D208 C-7
D209 B-6

IC201 B-7
IC202 C-5
IC203 A-6

PC101 C-5

Q101 B-4
Q102 C-3

< DIODE >

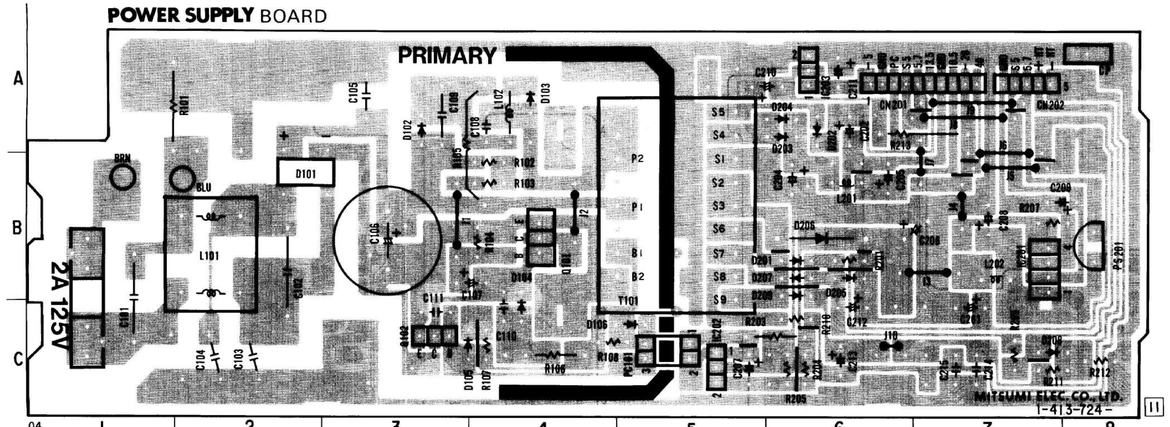
⚠D101	9-900-511-01	S1WBA60
D102	9-902-095-01	ERA15-06
D103	9-900-512-01	AG01A
D104	8-719-200-82	11ES2
D105	8-719-109-63	RD3.0ESB2
D106	9-900-514-01	MA165
D201	9-900-535-01	AU02Z
D202	9 900-535-01	AU02Z
D203	9-900-535-01	AU02Z
D204	9-900-535-01	AU02Z
D205	8-719-115-17	RD36JSB
D207	9-900-535-01	AU02Z
D208	8-719-114-47	RD7.5JSB

< IC >

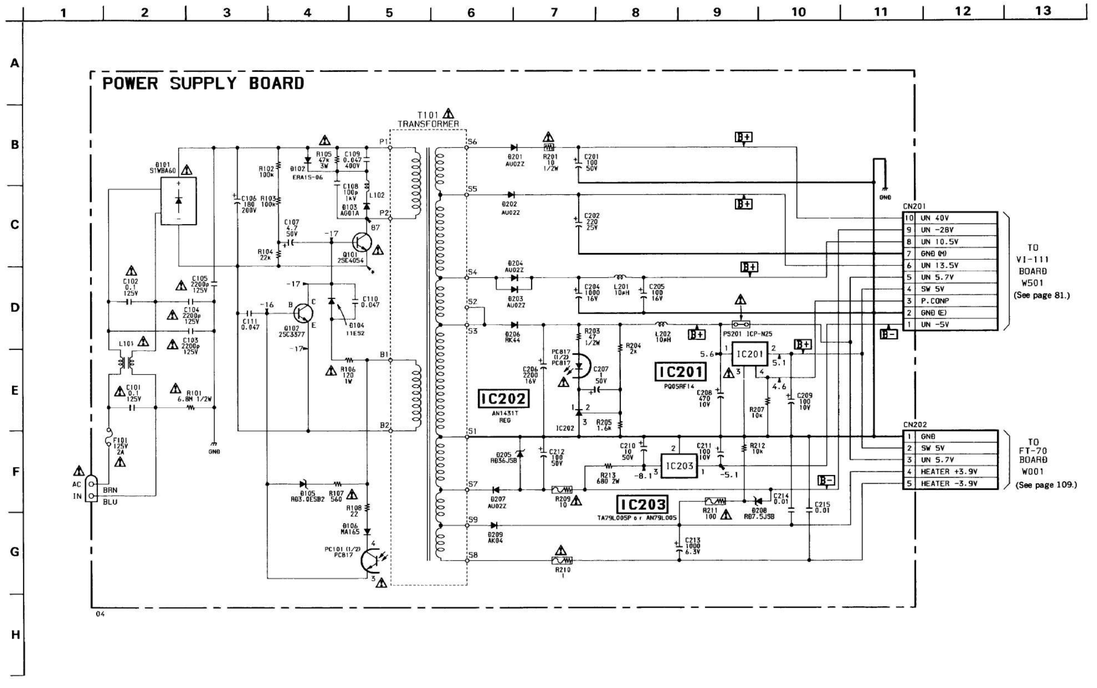
⚠IC201		PQ05RF14
IC202	8-759-420-19	AN1431T

< TRANSISTOR >

⚠Q101	9-902-096-01	2SC4054
Q102	9-900-517-01	2SC3377

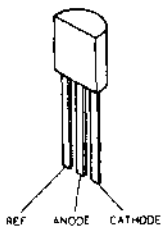


POWER SUPPLY (POWER) SCHEMATIC DIAGRAM
—Ref.No. POWER SUPPLY BOARD : 6000 series—

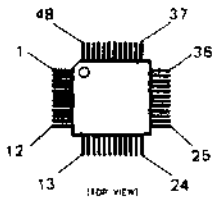


5-3. SEMICONDUCTORS

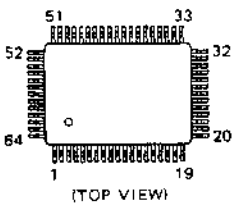
AN1431T



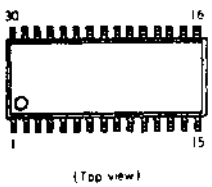
CXA1202Q-Z
CXA1208Q
CXA1443M
CXA1481AQ
CX20037A



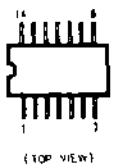
CXA1207AQ
CAT35C202K



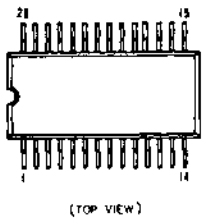
CXA8006M



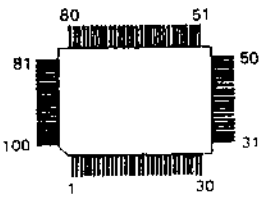
CXA8010M
CXL5502M
LB1836M
M52684AFP
TL1596CDB



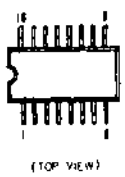
CXL1008M



CXP80624-286Q
MB89794B



MB3775PF



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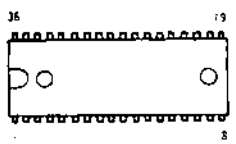
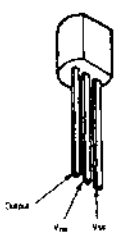
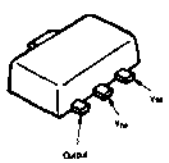


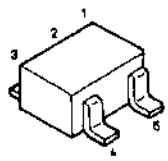
S-8053ALB



S-8054ALB-LM-S



SC7S04F



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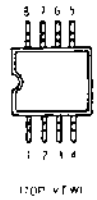
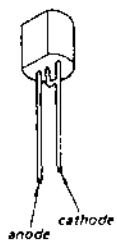


μPC574J



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2SB709A-Q
2SC1623
2SC2223-F13
2SC2412K-QR
2SC3326N-A
2SD601A-Q
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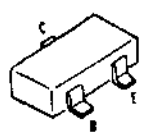
DTA144EK
DTC114EK
DTC144EK
UN2111
UN2113
UN2210
UN2213
UN2215



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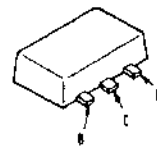
2SB798A-DL



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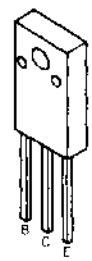
2SC4054



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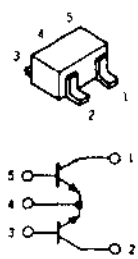

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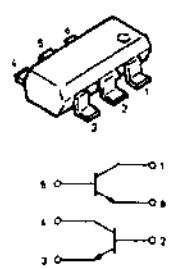
XN4212
XN4213
XN4215
XN4501



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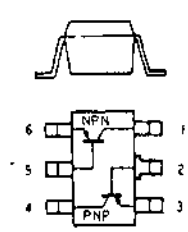

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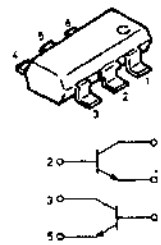

11ES2
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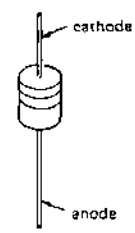
AU02Z
ERA15-06
MA165
RD3.0ES-B2
RD36JSB
RD7.5JSB



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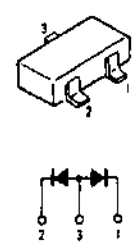

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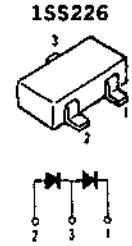
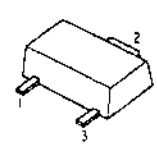
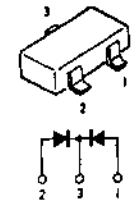


E10DS2

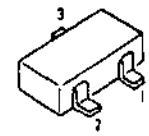


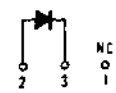
1 Anode
2 Cathode
3 N.C

MA152WK



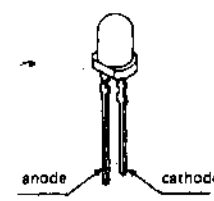
RD5.6M-B2
RD9.1M-B2
SB05-05CP



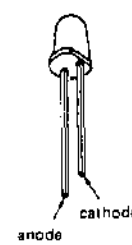


GL453JS

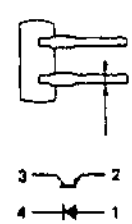
SLR34DC3



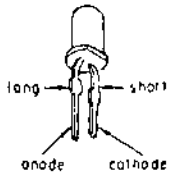
SLR34MC3



TLP907-0 (SONY2)



TLY123



2
2
P

athode

(SONY2)

SECTION 6
EXPLODED VIEWS

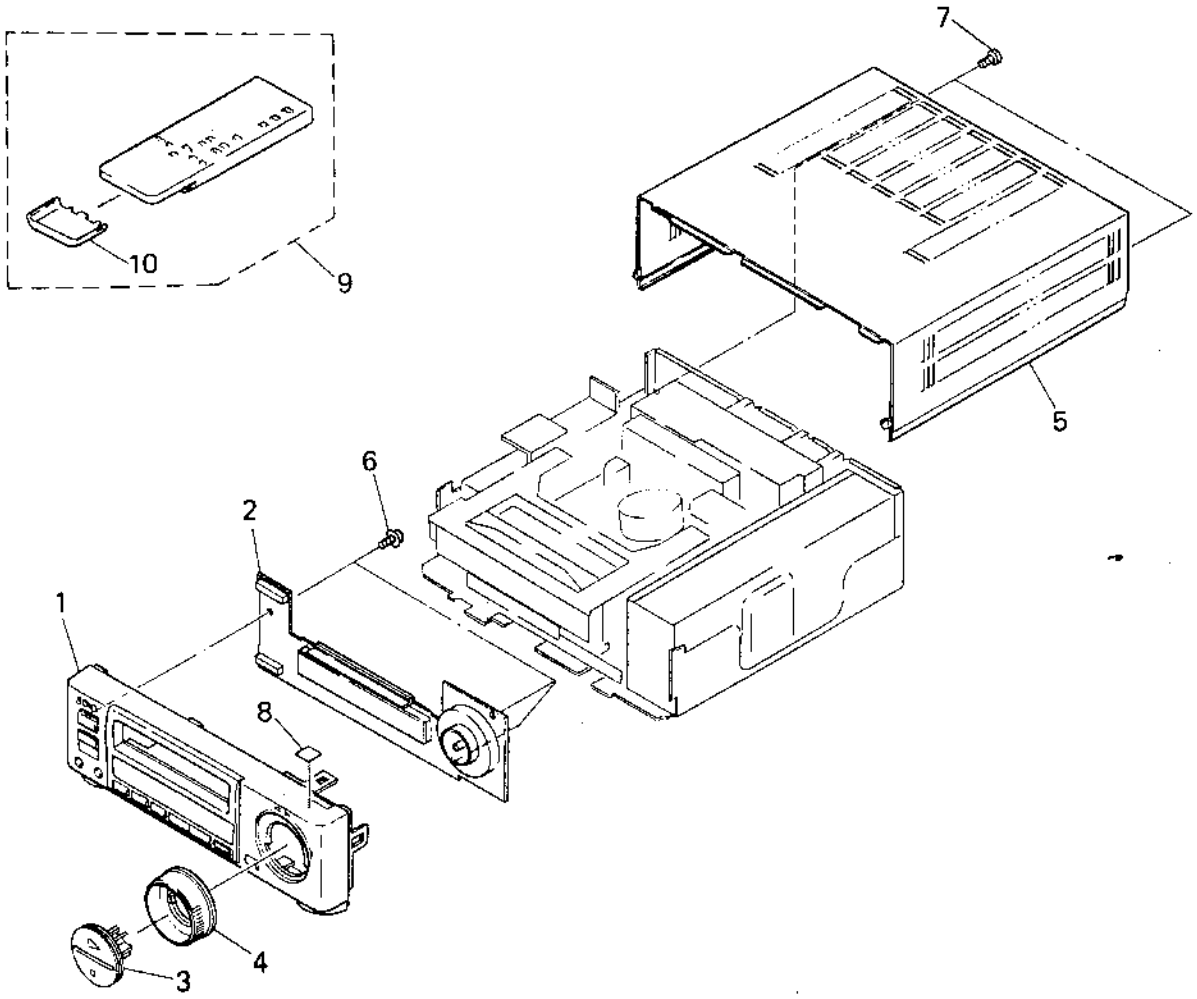
NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE)...(RED)
  ↑ Parts Color ↑ Cabinet's Color
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

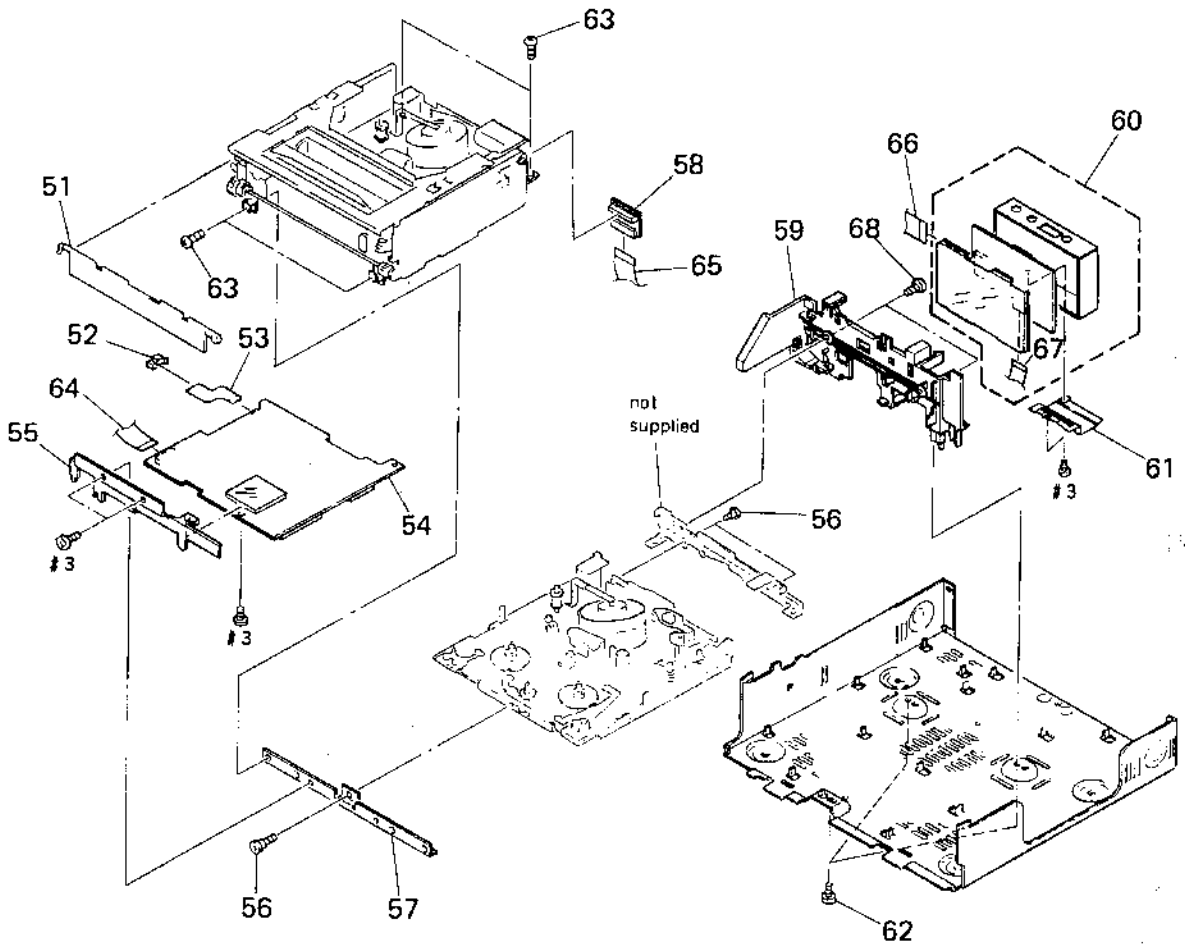
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

6-1. FRONT PANEL AND CASE ASSEMBLIES



Ref. No.	Part No.	Description	Remark
1	X-3941-462-1	PANEL ASSY, FRONT	
2	A-7063-091-A	FT-70 BOARD, COMPLETE	
3	X-3941-464-1	BUTTON ASSY, FUNCTION	
4	3-947-284-01	RING, SHUTTLE	
* 5	3-947-291-01	CASE, UPPER	
6	3-669-480-21	+ PTPWH 2	
7	3-948-500-01	SCREW, BV (3X10) RING	
* 8	3-703-713-41	STICKER, SONY SYMBOL (10)	
9	1-693-054-11	REMOTE COMMANDER (RMT-V119)	
10	3-707-584-01	COVER, BATTERY	

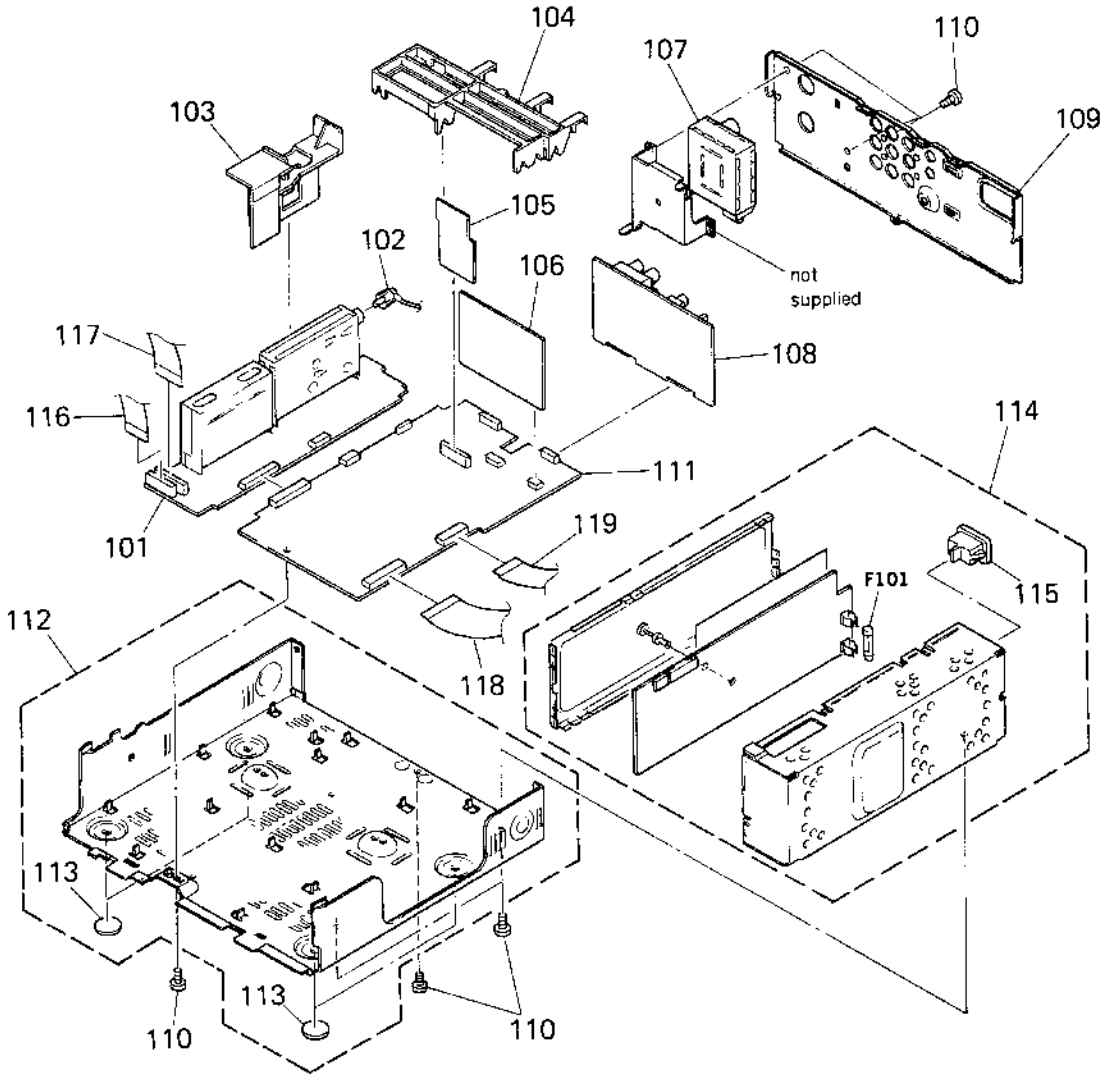
6-2. CHASSIS FRAME ASSEMBLY



Ref. No.	Part No.	Description	Remark
51	3-947-278-01	WINDOW, CASSETTE COMPARTMENT	
52	1-569-346-11	CONNECTOR, FPC (TRANSLATION) 10P	
53	1-643-189-11	FP-503 FLEXIBLE BOARD	
54	A-7063-090-A	SS-144 BOARD, COMPLETE	
* 55	3-947-273-01	FRAME (FRONT), MD	
56	3-732-816-01	SCREW, STEP	
* 57	3-732-810-02	BRACKET (FRONT)	
58	A-7063-089-A	CC-71 BOARD, COMPLETE	
* 59	3-947-275-01	FRAME, RP	

Ref. No.	Part No.	Description	Remark
60	A-7063-088-A	RP-134 BOARD, COMPLETE	
* 61	3-947-276-01	PLATE (MD), GROUND	
62	3-948-500-01	SCREW, BV (3X10) RING	
63	3-732-817-01	SCREW (2X4.5), TAPPING	
64	1-690-804-11	CABLE, FLAT (FUS-2) 14P	
65	1-690-805-11	CABLE, FLAT (FSC-3) 15P	
66	1-690-803-11	CABLE, FLAT (FRS-9) 13P	
67	1-643-188-11	CABLE, FLAT (FP-502) 13P	
68	3-719-381-01	SCREW (M2X4)	

6-3. MAIN BOARDS AND POWER BLOCK ASSEMBLIES



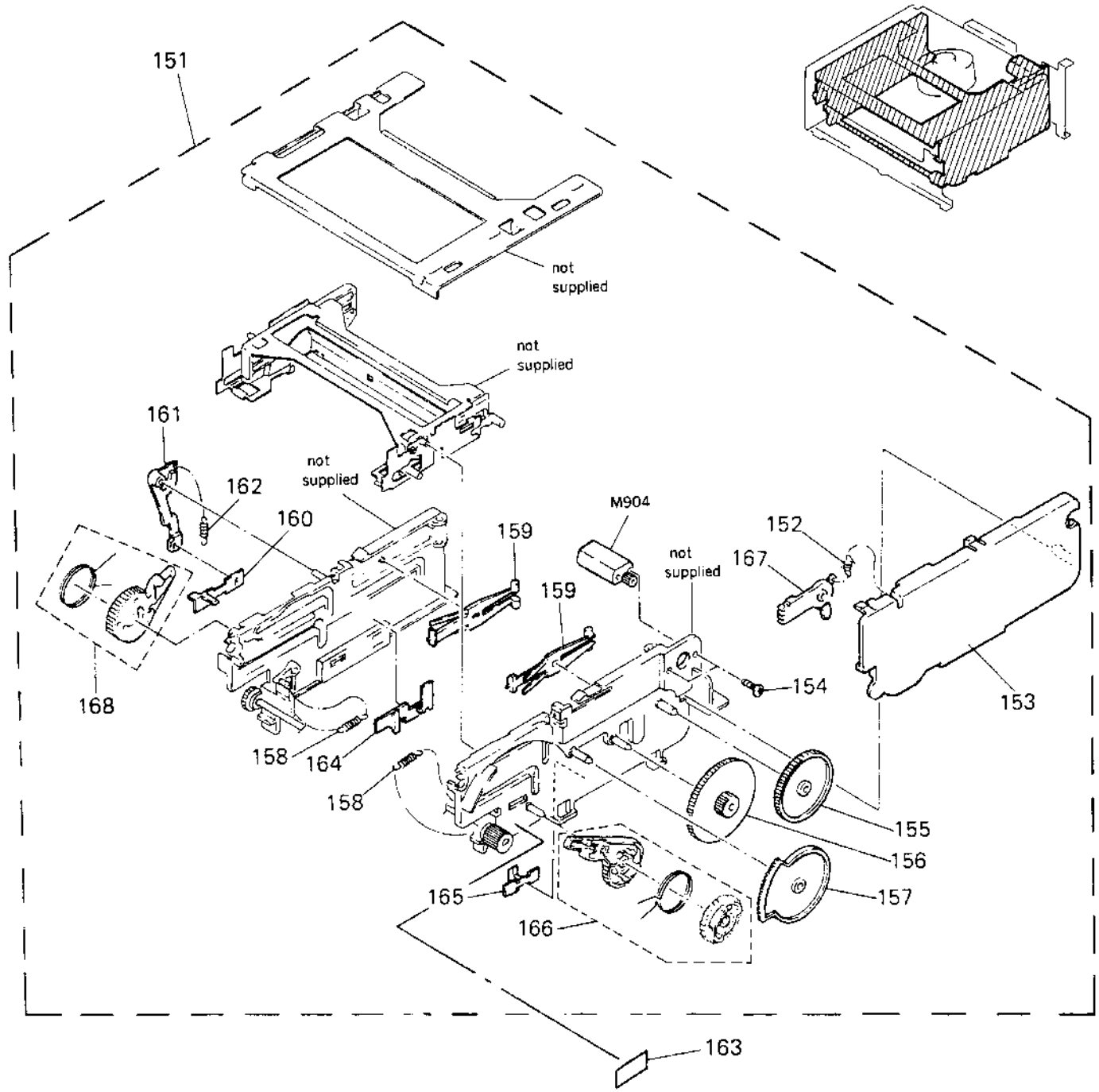
Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
101	A-7063-092-A	TT-35 BOARD, COMPLETE	
102	1-555-110-00	CABLE, PIN	
103	3-947-283-01	HOLDER, MAC	
* 104	3-947-294-01	HOLDER, PC BOARD	
105	A-7063-095-A	NJ-4 BOARD, COMPLETE	
106	A-7063-094-A	AU-127 BOARD, COMPLETE	
⚠107	1-466-645-11	MODULATOR, RF (RFU-1040)	
108	A-7063-096-A	RJ-33 BOARD, COMPLETE	
* 109	3-947-274-01	FRAME, REAR	
110	3-948-500-01	SCREW, BV (3X10) RING	

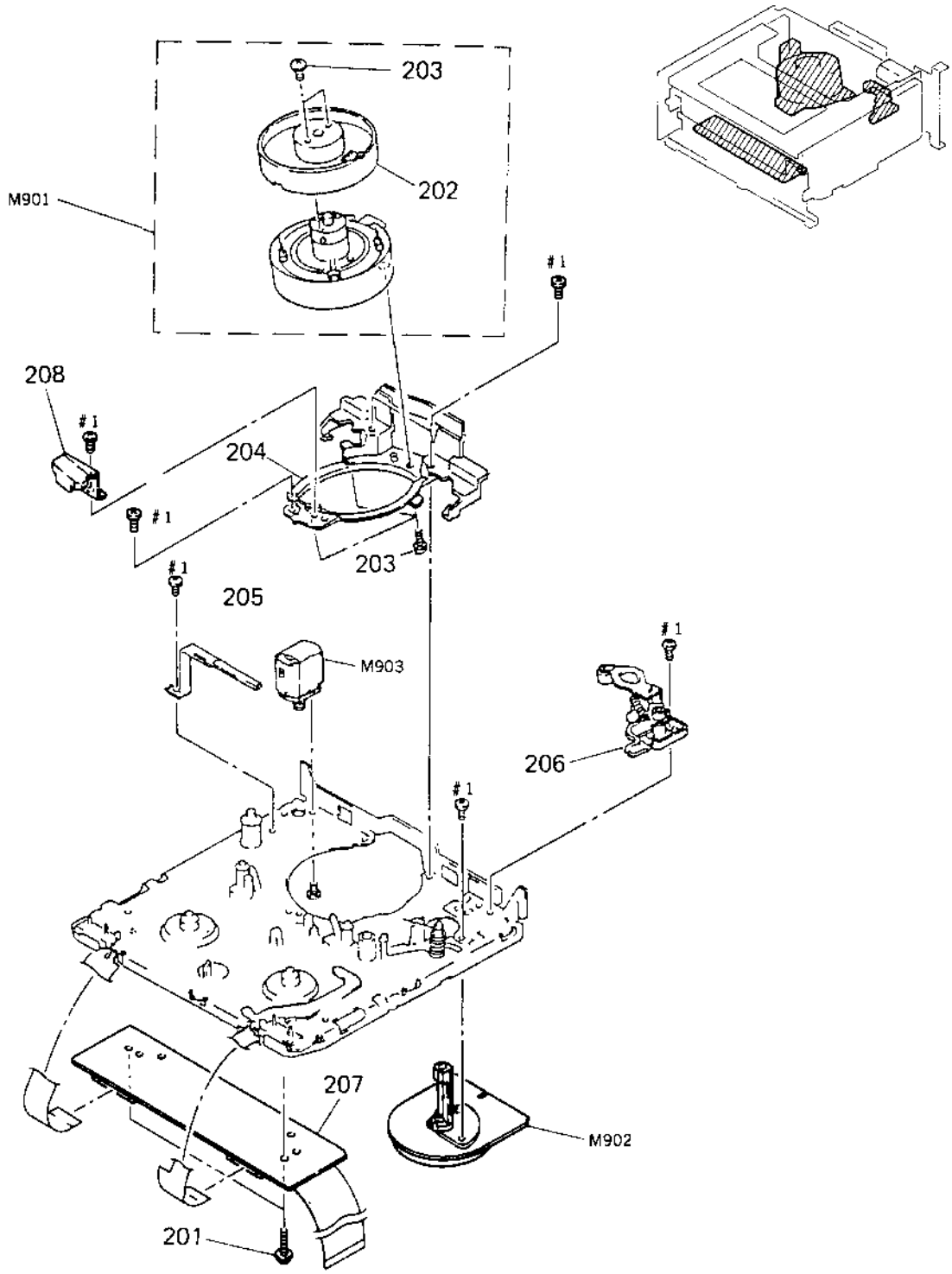
Ref. No.	Part No.	Description	Remark
111	A 7063-093-A	VI-111 BOARD, COMPLETE	
* 112	X-3941-463-1	PLATE ASSY, BOTTOM	
113	3 940-657-01	FOOT (FELT)	
114	1-413-724-11	POWER BLOCK	
⚠115	1-526-985-11	AC INLET	
116	1-690-800-11	CABLE, FLAT (FFT-4) 16P	
117	1-690-799-11	CABLE, FLAT (FFT-3) 18P	
118	1-690-801-11	CABLE, FLAT (FSV-1) 24P	
119	1-690-802-11	CABLE, FLAT (FSV-2) 15P	
⚠F101	1-532-743-11	FUSE, TIMER-LAG 2A 125V	

6-4. CASSETTE COMPARTMENT ASSEMBLY



Ref. No.	Part No.	Description	Remark
* 151	A-7091-647-A	CASSETTE COMPARTMENT ASSY, FL	
152	3-731-175-02	SPRING, TENSION	
153	3-732-804-03	COVER, GEAR	
154	3-730-141-01	SCREW (PSW) (2X4)	
155	3-731-182-01	GEAR (B), DECELERATION	
156	3-731-181-01	GEAR (A), DECELERATION	
157	3-731-192-01	GEAR, MIDWAY	
158	3-731-176-02	SPRING, TENSION	
159	3-731-184-02	HOLDER LOCK	
160	3-731-189-01	SLIDER, LOCK	
161	3-731-188-01	ARM LOCK, DRIVING	
162	3-731-174-01	SPRING, TENSION	
* 163	3-730-176-01	SHEET, MD	
164	X-3726-867-1	PRISM (LEFT) ASSY	
165	X-3726-866-1	PRISM (RIGHT) ASSY	
166	X-3731-109-2	ARM (RIGHT) ASSY, DRIVING	
167	3-731-185-01	LINK, SWITCHING, DOOR	
168	X-3731-111-1	ARM (LEFT) ASSY, DRIVING	
M904	X-3731-108-1	FL MOTOR ASSY	

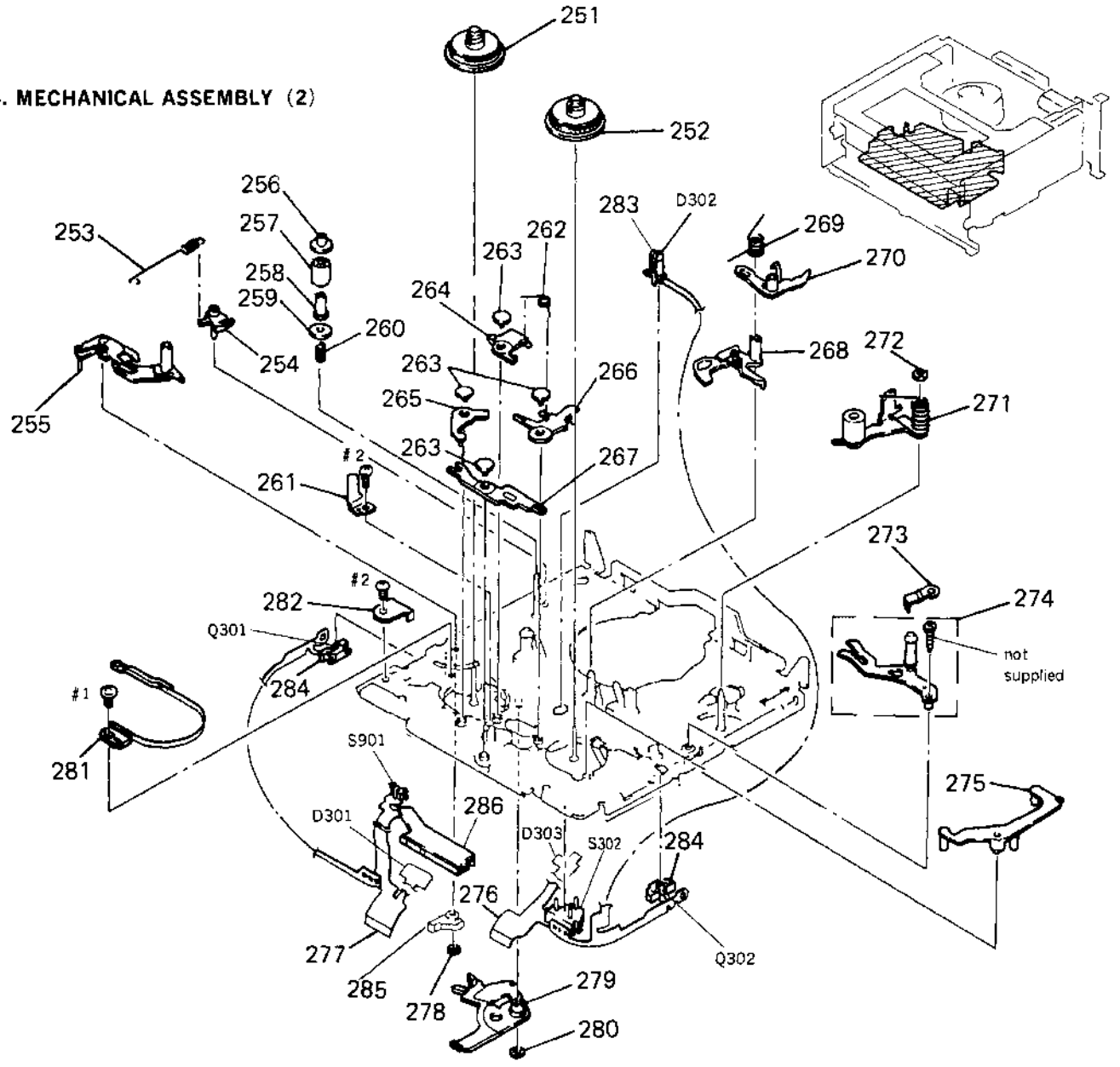
6-5. MECHANICAL ASSEMBLY (1)



Ref. No.	Part No.	Description	Remark
201	3-713-790-21	SCREW (M2X6), TAPPING, P3	
202	A-7049-531-A	DRUM ASSY, ROTARY (UPPER) (DGR-75B-R)	
203	3-686-493-01	SCREW (M2X5), P1	
204	X-3686-482-5	BASE ASSY, DRUM	
205	X-3728-864-1	GROUND ASSY, SHAFT	
206	A-7040-207-A	ROLLER BLOCK ASSY, HC	

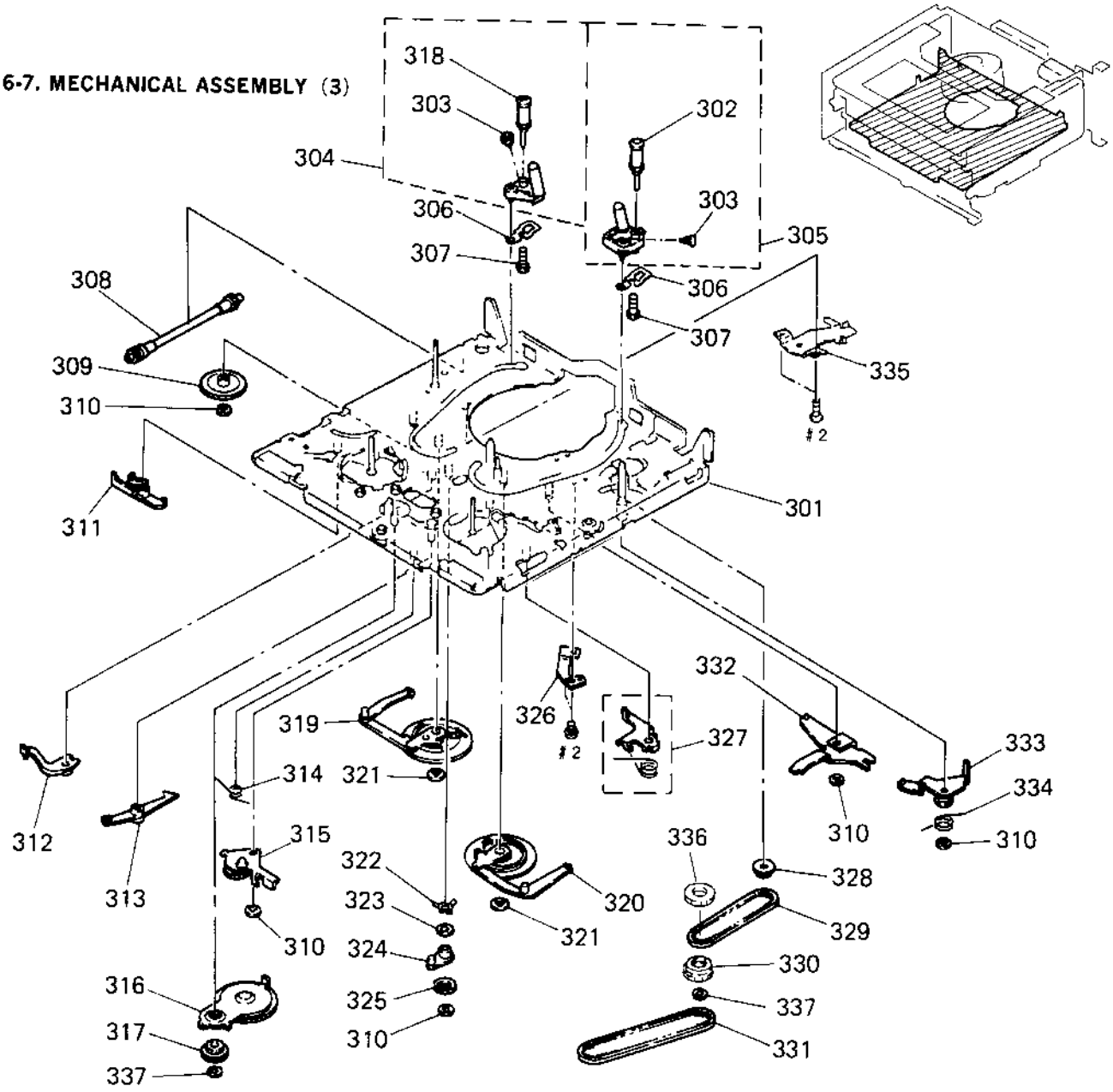
Ref. No.	Part No.	Description	Remark
* 207	A-7063-182-A	UC-13 BOARD, COMPLETE	
208	3-728-868-01	GUARD, GUIDE	
M901	A-7048-596-A	DRUM ASSY (DGU-75B-R)	
M902	8-835-331-31	MOTOR, DC U-22A (CAPSTAN)	
M903	A-7040-290-A	MOTOR ASSY, THREADING	

6-6. MECHANICAL ASSEMBLY (2)



Ref. No.	Part No.	Description	Remark
251	X-3728-851-1	TABLE ASSY, REEL, S	
252	X-3728-855-6	TABLE ASSY, REEL, T	
253	3-736-414-01	SPRING, TENSION	
254	3 728-855 03	ARM, ADJUSTMENT	
255	X-3728-867-1	ARM ASSY (S), TENSION REGULATOR	
256	3-726-884-01	FLANGE, UPPER, TG2	
257	3-726-883-01	ROLLER, TG2	
258	3-726-885-01	SLEEVE, TG2	
259	3-726-882-02	FLANGE, LOWER, TG2	
260	3-726-886-01	SPRING, COMPRESSION	
261	3-726-848-01	RETAINER, TL	
262	3-726-866-01	SPRING (ST), TORSION	
263	3-726-858-01	PIN, SHAFT RETAINER	
264	3-728-849-01	BRAKE, S	
265	3-726-852-01	BRAKE, LB	
266	3-728-850-01	BRAKE, T	
267	3-726-853-01	LEVER, LB	
268	3-728-875-01	STOPPER, RK	
269	3-726-864-01	SPRING (RK), TORSION	
270	3-728-852-02	ARM, RK STOPPER	
271	A-7040-219-A	ARM BLOCK ASSY, PINCH	
272	3-669-465-00	WASHER (1.5), STOPPER	
273	3-728-808-01	SPRING, LEAF	
274	X-3728-869-1	ARM ASSY, TG7	
275	3-728-848-01	ARM, LB RELEASE	
276	1-628-061-12	FP-90 FLEXIBLE BOARD	
277	1-628-060-12	FP-89 FLEXIBLE BOARD	
278	3-321-393-11	WASHER, STOPPER	
279	X-3728-863-1	LEVER ASSY, SW	
280	3-726-829-01	WASHER, STOPPER	
281	X-3728-859-1	BAND ASSY, TENSION REGULATOR	
282	3-730-125-01	RETAINER, SW	
283	3-728-837-01	HOLDER, LED	
284	3-728-869-02	HOLDER, SENSOR	
285	X-3728-857-1	STOPPER ASSY, TENSION REGULATOR	
286	1-572-173-11	SWITCH, SLIDE (ENCODER)	
D301	8-719-820-44	DIODE TLP-907-0	
D302	8-719-026-04	DIODE GL453JS	
D303	8 719-820-44	DIODE TLP-907-0	
Q301	8-729-906-48	TRANSISTOR EE-TP109	
Q302	8-729-906-48	TRANSISTOR EE-TP109	
S302	1-572-298-11	SWITCH, PUSH	
S901	1-571-099-11	SWITCH	

6-7. MECHANICAL ASSEMBLY (3)



Ref. No.	Part No.	Description	Remark
301	X-3728-862-1	CHASSIS ASSY, MECHANICAL	
302	X-3728-808-4	ROLLER ASSY (U) (PLATING), GUIDE	
303	3-726-822-01	SCREW (M1.4X2) (STEP), HEAD	
304	A-7040-204-A	COASTER (LEFT) BLOCK ASSY	
305	A-7040-216-A	COASTER (RIGHT) BLOCK ASSY (M1P)	
306	3-736-485-01	SPRING, LEAF, COSTER	
307	3-726-830-01	SCREW (M1.4X4) (THREE LOCK)	
308	X-3940-276-2	WORM ASSY	
309	3-744-109-01	GEAR, WHEEL	
310	3-726-829-01	WASHER, STOPPER	
311	3-728-842-01	LEVER, EJECT	
312	3-728-851-01	BRAKE, UL	
313	3-726-854-01	ARM, BRAKE RELEASE	
314	3-726-865-01	SPRING (LB), TORSION	
315	A-7040-225-A	GEAR BLOCK ASSY (N), LB	
316	X-3728-866-1	GEAR ASSY, RK	
317	X-3728-858-2	GEAR ASSY, RC	
318	X-3726-879-4	ROLLER ASSY ((U)-NB), GUIDE	
319	X-3728-842-1	GEAR (LEFT) ASSY, DRIVE	

Ref. No.	Part No.	Description	Remark
320	X-3728-843-1	GEAR (RIGHT) ASSY, DRIVE	
321	3-669-465-00	WASHER (1.5), STOPPER	
322	3-726-867-01	SPRING, LEAF	
323	3-701-436-21	WASHER, POLYEHTHYLENE	
324	3-726-857-03	ARM, UL	
325	3-726-856-04	GEAR, UL	
* 326	3-726-805-01	REINFORCEMENT (TT)	
327	X-3726-808-3	BRAKE ASSY, TS	
328	X-3726-805-1	GEAR ASSY, JOINT	
329	3-728-866-11	BELT (S), TIMING	
330	3-741-196-02	PULLEY (LOWER), BELT MIDWAY	
331	3-741-197-01	BELT (L), TIMING	
332	3-941-322-01	LEVER, LOADING	
333	X-3940-279-1	ARM ASSY, PINCH SUB	
334	3-726-895-01	SPRING	
335	X-3940-278-1	REINFORCEMENT (SS) ASSY	
336	X-3726-813-4	PULLEY (UPPER) ASSY, MIDWAY	
337	3-321-393-11	WASHER, STOPPER	

AU-127

SECTION 7
ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA . . : μA. . uPA. . : μPA. .
  uPB. . : μPB. . uPC. . : μPC. . uPD. . : μPD. .
- CAPACITORS
  uF: μF
- COILS
  uH: μH

When indicating parts by reference number, please include the board.

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
	A-7063-094-A	AU-127 BOARD, COMPLETE			
		**********			
		(Ref. No. 4000 series)			
		< CAPACITOR >			
C901	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C903	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C904	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C905	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C906	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C907	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C908	1-126-301-11	ELECT	1uF	20%	50V
C909	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C910	1-124-465-00	ELECT	0.47uF	20%	50V
C911	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C912	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C913	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V
C914	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C916	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C917	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C918	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C921	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C922	1-126-301-11	ELECT	1uF	20%	50V
C923	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C924	1-163-986-00	CERAMIC CHIP	0.027uF	10%	25V
C925	1-126-301-11	ELECT	1uF	20%	50V
C931	1-163-038-00	CERAMIC CHIP	5PF		50V
C932	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C933	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C934	1-162-587-11	CERAMIC CHIP	0.039uF	10%	25V
C935	1-163-020-00	CERAMIC CHIP	0.0082uF	10%	50V
C936	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C937	1-124-464-11	ELECT	0.22uF	20%	50V
C938	1-126-157-11	ELECT	10uF	20%	16V
C939	1-126-157-11	ELECT	10uF	20%	16V
C940	1-124-638-11	ELECT	22uF	20%	10V
C941	1-124-257-00	ELECT	2.2uF	20%	50V
C942	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V
C943	1-163-018-00	CERAMIC CHIP	0.0056uF	5%	50V
C944	1-126-157-11	ELECT	10uF	20%	16V
C945	1-126-177-11	ELECT	100uF	20%	10V
C946	1-126-157-11	ELECT	10uF	20%	16V
C950	1-126-157-11	ELECT	10uF	20%	16V
C952	1-126-177-11	ELECT	100uF	20%	10V
C955	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C956	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
		< CONNECTOR >			
* CN901	1-562-639-11	SOCKET, CONNECTOR 10P			
* CN902	1-562-637-11	SOCKET, CONNECTOR 6P			
		< FILTER >			
FL901	1-236-837-21	FILTER, BAND PASS			
		< IC >			
IC901	8-752-003-79	IC CX20037A			
		< COIL >			
L902	1-408-948-00	INDUCTOR	220uH		
		< TRANSISTOR >			
Q901	8-729-402-19	TRANSISTOR	XN6501		
Q902	8-729-421-19	TRANSISTOR	UN2213		
Q903	8-729-421-19	TRANSISTOR	UN2213		
Q904	8-729-403-07	TRANSISTOR	XN1213		
Q907	8-729-202-38	TRANSISTOR	2SC3326N-A		
Q911	8-729-424-18	TRANSISTOR	UN2113		
		< RESISTOR >			
R901	1-216-083-00	METAL CHIP	27K	5%	1/10W
R902	1-216-073-00	METAL CHIP	10K	5%	1/10W
R903	1-216-049-00	METAL CHIP	1K	5%	1/10W
R904	1-216-037-00	METAL CHIP	330	5%	1/10W
R906	1-216-049-00	METAL CHIP	1K	5%	1/10W
R907	1-216-049-00	METAL CHIP	1K	5%	1/10W
R908	1-216-049-00	METAL CHIP	1K	5%	1/10W
R909	1-216-058-00	METAL GLAZE	2.4K	5%	1/10W
R910	1-216-059-00	METAL CHIP	2.7K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R911	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R912	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R913	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R914	1-216-049-00	METAL CHIP	1K	5%	1/10W
R915	1-216-121-00	METAL CHIP	1M	5%	1/10W
R916	1-216-107-00	METAL CHIP	270K	5%	1/10W
R917	1-216-047-00	METAL CHIP	820	5%	1/10W
R918	1-216-047-00	METAL CHIP	820	5%	1/10W
R919	1-216-097-00	METAL CHIP	100K	5%	1/10W
R920	1-216-073-00	METAL CHIP	10K	5%	1/10W
R921	1-216-049-00	METAL CHIP	1K	5%	1/10W
R930	1-216-097-00	METAL CHIP	100K	5%	1/10W
R931	1-216-073-00	METAL CHIP	10K	5%	1/10W
R937	1-216-075-00	METAL CHIP	12K	5%	1/10W
R938	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R939	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R940	1-216-045-00	METAL CHIP	680	5%	1/10W
R941	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R942	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R943	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R944	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R945	1-216-073-00	METAL CHIP	10K	5%	1/10W
R946	1-216-037-00	METAL CHIP	330	5%	1/10W
R947	1-216-081-00	METAL CHIP	22K	5%	1/10W
R948	1-216-079-00	METAL CHIP	18K	5%	1/10W
R949	1-216-091-00	METAL CHIP	56K	5%	1/10W
R950	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R953	1-216-091-00	METAL CHIP	56K	5%	1/10W
R954	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R955	1-216-079-00	METAL CHIP	18K	5%	1/10W
R956	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R957	1-216-089-00	METAL CHIP	47K	5%	1/10W
R959	1-216-083-00	METAL CHIP	27K	5%	1/10W
R960	1-216-079-00	METAL CHIP	18K	5%	1/10W
R961	1-216-295-00	METAL CHIP	0	5%	1/10W
R962	1-216-295-00	METAL CHIP	0	5%	1/10W
R963	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R968	1-216-295-00	METAL CHIP	0	5%	1/10W
		< VARIABLE RESISTOR >			
RV901	1-238-090-11	RES, ADJ, CERMET	10K		

Ref. No.	Part No.	Description	Remark
	A-7063-089-A	CC-71 BOARD, COMPLETE	
		**********	
		(Ref. No. 2000 series)	
	1-690-805-11	CABLE, FLAT (FCS-3) 15P	
		< CONNECTOR >	
* CN701	1-562-880-21	CONNECTOR, CARD EDGE 15P	
CN702	1-566-547-11	CONNECTOR, FPC (NON ZIF) 15P	
	1-628-060-12	FP-89 FLEXIBLE BOARD	
		**********	
		(Ref. No. 2000 series)	
	3-728-869-02	HOLDER SENSOR	
		< DIODE >	
D301	8-719-820-44	TLP907-G (SONY2)	
		< TRANSISTOR >	
Q301	8-729-906-48	EE-TP109	
		< SWITCH >	
S301	1-572-173-11	SWITCH SLIDE (ENCODER)	
S303	1-571-099-11	SWITCH (CC DOWN)	
	1-628-061-12	FP-90 FLEXIBLE BOARD	
		**********	
		(Ref. No. 2000 series)	
	3-728-837-01	HOLDER LED	
	3-728-869-02	HOLDER SENSOR	
		< DIODE >	
D302	8-719-940-81	GL-452S	
D303	8-719-820-41	TLP907-G (SONY2)	
		< TRANSISTOR >	
Q302	8-729-906-48	EE-TP109	
		< SWITCH >	
S302	1-572-298-11	SWITCH PUSH (REC PROOF/TAPE SELECT)	

Ref.No.	Part No.	Description			Remark
	A-7063-091-A	FT-70 BOARD, COMPLETE			
		**********			
		(Ref.No.5000 series)			
	1-690-799-11	CABLE, FLAT (FFT-3) 18P			
	1-690-800-11	CABLE, FLAT (FFT-4) 16P			
	3-947-295-01	HOLDER (SX), INDICATION TUBE			
		< CAPACITOR >			
C001	1-163-031-11	CERAMIC CHIP 0.01uF			50V
C002	1-163-031-11	CERAMIC CHIP 0.01uF			50V
C003	1-163-031-11	CERAMIC CHIP 0.01uF			50V
		< CONNECTOR >			
CN001	1-691-050-21	HOUSING, CONNECTOR 18P			
CN002	1-569-933-11	HOUSING, CONNECTOR 16P			
		< DIODE >			
D001	8-719-400-18	DIODE MA152WK			
D002	8-719-400-18	DIODE MA152WK			
D003	8-719-400-18	DIODE MA152WK			
D004	8-719-812-32	LED TLY123			
D005	8-719-812-32	LED TLY123			
D006	8-719-812-32	LED TLY123			
D007	8-719-946-30	LED SLR34DC3			
D008	8-719-940-82	LED SLR34MC3			
D009	8-719-946-30	LED SLR34DC3			
D011	8-719-940-82	LED SLR34MC3			
D012	8-719-400-18	DIODE MA152WK			
D016	8-719-946-30	LED SLR34DC3			
D017	8-719-940-82	LED SLR34MC3			
		< SWITCH >			
DMS001	1-572-662-21	SWITCH, ROTARY (PLAY/STOP/REVERSE/FORWARD)			
		< IC >			
IC001	8-741-100-47	IC SBX1610-09			
		< JUMPER RESISTOR >			
JR001	1-216-296-00	METAL CHIP	0	5%	1/8W
JR002	1-216-295-00	METAL CHIP	0	5%	1/10W
JR003	1-216-296-00	METAL CHIP	0	5%	1/8W
JR004	1-216-296-00	METAL CHIP	0	5%	1/8W
JR005	1-216-296-00	METAL CHIP	0	5%	1/8W
JR006	1-216-296-00	METAL CHIP	0	5%	1/8W
JR007	1-216-296-00	METAL CHIP	0	5%	1/8W
JR008	1-216-295-00	METAL CHIP	0	5%	1/10W
JR009	1-216-296-00	METAL CHIP	0	5%	1/8W
JR010	1-216-296-00	METAL CHIP	0	5%	1/8W
JR011	1-216-295-00	METAL CHIP	0	5%	1/10W
JR012	1-216-296-00	METAL CHIP	0	5%	1/8W
JR013	1-216-296-00	METAL CHIP	0	5%	1/8W
JR014	1-216-296-00	METAL CHIP	0	5%	1/8W
JR015	1-216-295-00	METAL CHIP	0	5%	1/10W
JR016	1-216-296-00	METAL CHIP	0	5%	1/8W
JR017	1-216-295-00	METAL CHIP	0	5%	1/10W
JR018	1-216-296-00	METAL CHIP	0	5%	1/8W
JR019	1-216-296-00	METAL CHIP	0	5%	1/8W
JR020	1-216-296-00	METAL CHIP	0	5%	1/8W
JR021	1-216-295-00	METAL CHIP	0	5%	1/10W
JR022	1-216-296-00	METAL CHIP	0	5%	1/8W
JR023	1-216-296-00	METAL CHIP	0	5%	1/8W
JR024	1-216-296-00	METAL CHIP	0	5%	1/8W
JR025	1-216-296-00	METAL CHIP	0	5%	1/8W
JR026	1-216-296-00	METAL CHIP	0	5%	1/8W
JR027	1-216-295-00	METAL CHIP	0	5%	1/10W
JR028	1-216-296-00	METAL CHIP	0	5%	1/8W
JR029	1-216-296-00	METAL CHIP	0	5%	1/8W
JR030	1-216-295-00	METAL CHIP	0	5%	1/10W
JR031	1-216-296-00	METAL CHIP	0	5%	1/8W
JR032	1-216-295-00	METAL CHIP	0	5%	1/10W
JR033	1-216-296-00	METAL CHIP	0	5%	1/8W
JR034	1-216-296-00	METAL CHIP	0	5%	1/8W
JR035	1-216-296-00	METAL CHIP	0	5%	1/8W
JR036	1-216-296-00	METAL CHIP	0	5%	1/8W
JR037	1-216-296-00	METAL CHIP	0	5%	1/8W
JR038	1-216-296-00	METAL CHIP	0	5%	1/8W
JR039	1-216-296-00	METAL CHIP	0	5%	1/8W
JR040	1-216-296-00	METAL CHIP	0	5%	1/8W
JR041	1-216-296-00	METAL CHIP	0	5%	1/8W
JR042	1-216-295-00	METAL CHIP	0	5%	1/10W
JR043	1-216-295-00	METAL CHIP	0	5%	1/10W
JR044	1-216-295-00	METAL CHIP	0	5%	1/10W
JR045	1-216-296-00	METAL CHIP	0	5%	1/8W
JR046	1-216-296-00	METAL CHIP	0	5%	1/8W
JR047	1-216-296-00	METAL CHIP	0	5%	1/8W
JR048	1-216-296-00	METAL CHIP	0	5%	1/8W
JR049	1-216-296-00	METAL CHIP	0	5%	1/8W
JR050	1-216-296-00	METAL CHIP	0	5%	1/8W
JR051	1-216-296-00	METAL CHIP	0	5%	1/8W
JR052	1-216-296-00	METAL CHIP	0	5%	1/8W
JR053	1-216-296-00	METAL CHIP	0	5%	1/8W
JR054	1-216-296-00	METAL CHIP	0	5%	1/8W
JR056	1-216-295-00	METAL CHIP	0	5%	1/10W
JR057	1-216-296-00	METAL CHIP	0	5%	1/8W
JR058	1-216-296-00	METAL CHIP	0	5%	1/8W
JR059	1-216-295-00	METAL CHIP	0	5%	1/10W

Ref.No.	Part No.	Description			Remark
JR060	1-216-296-00	METAL CHIP	0	5%	1/8W
JR061	1-216-296-00	METAL CHIP	0	5%	1/8W
JR062	1-216-296-00	METAL CHIP	0	5%	1/8W
JR063	1-216-295-00	METAL CHIP	0	5%	1/10W
JR064	1-216-296-00	METAL CHIP	0	5%	1/8W
JR065	1-216-296-00	METAL CHIP	0	5%	1/8W
JR066	1-216-295-00	METAL CHIP	0	5%	1/10W
JR067	1-216-296-00	METAL CHIP	0	5%	1/8W
		< FLUORESCENT INDICATOR >			
ND001	1-519-715-11	INDICATOR TUBE, FLUORESCENT			
		< RESISTOR >			
R001	1-216-027-00	METAL CHIP	120	5%	1/10W
R002	1-216-027-00	METAL CHIP	120	5%	1/10W
R003	1-216-027-00	METAL CHIP	120	5%	1/10W
R004	1-216-033-00	METAL CHIP	220	5%	1/10W
R005	1-216-029-00	METAL CHIP	150	5%	1/10W
R006	1-216-182-00	METAL GLAZE	220	5%	1/8W
R008	1-216-029-00	METAL CHIP	150	5%	1/10W
R009	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R010	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R011	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R012	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R013	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R014	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R015	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R016	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R018	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R019	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R020	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R022	1-216-027-00	METAL CHIP	120	5%	1/10W
R023	1-216-027-00	METAL CHIP	120	5%	1/10W
R024	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
		< SWITCH >			
S001	1-571-977-11	SWITCH, TACTIL (POWER)			
S002	1-571-977-11	SWITCH, TACTIL (EJECT)			
S003	1-571-977-11	SWITCH, TACTIL (PAUSE)			
S004	1-571-977-11	SWITCH, TACTIL (CHANNEL +)			
S005	1-571-977-11	SWITCH, TACTIL (SYNCHRO EDIT)			
S006	1-571-977-11	SWITCH, TACTIL (REC)			
S007	1-571-977-11	SWITCH, TACTIL (QUICK TIMER)			
S008	1-571-977-11	SWITCH, TACTIL (TIMER REC)			
S009	1-571-977-11	SWITCH, TACTIL (CHANNEL -)			
S010	1-571-977-11	SWITCH, TACTIL (COUNTER RESET)			
S011	1-571-977-11	SWITCH, TACTIL (EDIT)			

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Ref.No.	Part No.	Description			Remark
	A-7063-095-A	NJ-4 BOARD, COMPLETE			
		**********			
		(Ref.No.1000 series)			
		< CAPASITOR >			
C801	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C802	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C803	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C804	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C805	1-126-157-11	ELECT	10uF	20%	16V
C806	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C807	1-126-157-11	ELECT	10uF	20%	16V
C808	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C809	1-126-157-11	ELECT	10uF	20%	16V
C810	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C811	1-126-154-11	ELECT	47uF	20%	6.3V
C812	1-126-157-11	ELECT	10uF	20%	16V
C813	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C814	1-126-157-11	ELECT	10uF	20%	16V
C815	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C816	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C817	1-126-157-11	ELECT	10uF	20%	16V
C818	1-126-157-11	ELECT	10uF	20%	16V
C819	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C820	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C821	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C822	1-126-157-11	ELECT	10uF	20%	16V
C823	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C824	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C825	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C826	1-163-031-11	CERAMIC CHIP	0.01uF		50V
		< FILTER >			
CF801	1-567-390-11	FILTER, CERAMIC 10.7M			
		< CONNECTOR >			
* CN801	1-569-387-11	SOCKET, CONNECTOR (PC BOARD) 10P			
		< IC >			
IC801	8-752-322-24	IC CXL1008M			
IC802	8-759-031-84	IC SC7S04F			
		< COIL >			
L801	1-408-970-21	INDUCTOR	10uH		
L802	1-408-970-21	INDUCTOR	10uH		
L803	1-407-169-XX	INDUCTOR	100uH		
L804	1-407-169-XX	INDUCTOR	100uH		
L805	1-408-979-21	INDUCTOR	56uH		

NJ-4 POWER BLOCK

Ref. No.	Part No.	Description			Remark
L806	1-408-970-21	INDUCTOR	10uH		
L807	1-408-970-21	INDUCTOR	10uH		
		< TRANSISTOR >			
Q801	8-729-421-19	TRANSISTOR	UN2213		
Q802	8-729-422-36	TRANSISTOR	2SB709A-Q		
Q803	8-729-422-36	TRANSISTOR	2SB709A-Q		
Q804	8-729-422-36	TRANSISTOR	2SB709A-Q		
Q805	8-729-422-36	TRANSISTOR	2SB709A-Q		
Q806	8-729-422-36	TRANSISTOR	2SB709A-Q		
Q807	8-729-422-27	TRANSISTOR	2SD601A-Q		
Q808	8-729-422-27	TRANSISTOR	2SD601A-Q		
		< RESISTOR >			
R801	1-216-049-00	METAL CHIP	1K	5% 1/10W	
R802	1-216-049-00	METAL CHIP	1K	5% 1/10W	
R803	1-216-129-00	METAL CHIP	2.2M	5% 1/10W	
R804	1-216-129-00	METAL CHIP	2.2M	5% 1/10W	
R805	1-216-105-00	METAL CHIP	220K	5% 1/10W	
R806	1-216-129-00	METAL CHIP	2.2M	5% 1/10W	
R807	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R808	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R809	1-216-097-00	METAL CHIP	100K	5% 1/10W	
R810	1-216-081-00	METAL CHIP	22K	5% 1/10W	
R811	1-216-057-00	METAL CHIP	2.2K	5% 1/10W	
R812	1-216-027-00	METAL CHIP	120	5% 1/10W	
R813	1-216-049-00	METAL CHIP	1K	5% 1/10W	
R814	1-216-065-00	METAL CHIP	4.7K	5% 1/10W	
R815	1-216-073-00	METAL CHIP	10K	5% 1/10W	
R816	1-216-043-00	METAL CHIP	560	5% 1/10W	
R817	1-216-033-00	METAL CHIP	220	5% 1/10W	
R818	1-216-043-00	METAL CHIP	560	5% 1/10W	
R819	1-216-071-00	METAL CHIP	8.2K	5% 1/10W	
R820	1-216-079-00	METAL CHIP	18K	5% 1/10W	
R821	1-216-065-00	METAL CHIP	4.7K	5% 1/10W	
R822	1-216-065-00	METAL CHIP	4.7K	5% 1/10W	
R824	1-216-081-00	METAL CHIP	22K	5% 1/10W	
R825	1-216-081-00	METAL CHIP	22K	5% 1/10W	
R826	1-216-049-00	METAL CHIP	1K	5% 1/10W	
R827	1-216-121-00	METAL CHIP	1M	5% 1/10W	
R828	1-216-037-00	METAL CHIP	330	5% 1/10W	
R830	1-216-081-00	METAL CHIP	22K	5% 1/10W	
R831	1-216-081-00	METAL CHIP	22K	5% 1/10W	
R832	1-216-049-00	METAL CHIP	1K	5% 1/10W	
		< VARIABLE RESISTOR >			
RV801	1-238-088-11	RES, ADJ, CERMET	2.2K		

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Ref. No.	Part No.	Description			Remark
	1-413-724-11	POWER BLOCK (Ref. No. 6000 series)			
		**********			
		< CAPASITOR >			
⚠C101	9-900-521-01	FILM	0.1uF		125V
⚠C102	9-900-521-01	FILM	0.1uF		125V
⚠C103	9-900-522-01	CERAMIC	2200PF		125V
⚠C104	9-900-522-01	CERAMIC	2200PF		125V
⚠C105	9-900-522-01	CERAMIC	2200PF		125V
C107	1-124-927-11	ELECT	4.7uF	20%	50V
C108	9-902-101-01	CERAMIC	100PF		1KV
C109	9-900-525-01	FILM	0.047uF		400V
C110	1-130-491-00	MYLAR	0.047uF	5%	50V
C111	1-130-491-00	MYLAR	0.047uF	5%	50V
C201	1-124-122-11	ELECT	100uF	20%	50V
C202	1-124-120-11	ELECT	220uF	20%	25V
C204	1-124-360-00	ELECT	1000uF	20%	16V
C205	1-126-101-11	ELECT	100uF	20%	16V
C206	1-124-556-11	ELECT	2200uF	20%	16V
C207	1-124-903-11	ELECT	1uF	20%	50V
C208	1-124-472-11	ELECT	470uF	20%	10V
C209	1-124-443-00	ELECT	100uF	20%	10V
C210	1-123-875-11	ELECT	10uF	20%	50V
C211	1-124-443-00	ELECT	100uF	20%	10V
C212	1-124-122-11	ELECT	100uF	20%	50V
C213	1-124-471-00	ELECT	1000uF	20%	6.3V
C214	1-130-483-00	MYLAR	0.01uF	5%	50V
C215	1-130-483-00	MYLAR	0.01uF	5%	50V
		< CONNECTOR >			
* CN1	1-506-489-11	PIN, CONNECTOR 10P			
* CN2	1-506-484-11	PIN, CONNECTOR 5P			
		< DIODE >			
⚠D101	9-900-511-01	DIODE	S1WBA60		
D102	9-902-095-01	DIODE	ERA15-06		
D103	9-900-512-01	DIODE	AG01A		
D104	8-719-200-82	DIODE	11ES2		
D105	8-719-109-63	DIODE	RD3.0ESB2		
D106	9-900-514-01	DIODE	MA165		
D201	9-900-535-01	DIODE	AU02Z		
D202	9-900-535-01	DIODE	AU02Z		
D203	9-900-535-01	DIODE	AU02Z		
D204	9-900-535-01	DIODE	AU02Z		
D205	8-719-115-17	DIODE	RD36JSB		
D207	9-900-535-01	DIODE	AU02Z		
D208	8-719-114-47	DIODE	RD7.5JSB		

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description			Remark
		< FUSE >			
⚠F101	1-532-743-11	FUSE, TIMER LAG 2A 125V			
		< IC >			
IC202	8-759-420-19	IC AN1431T			
		< COIL >			
⚠L101	9-900-520-01	FILTER, LINE			
L201	9-900-539-01	CHOKE COIL 10uH			
L202	9-900-539-01	CHOKE COIL 10uH			
		< IC LINK >			
⚠PS201	1-532-637-21	IC LINK ICP-N25			
		< PHOTO COUPLER >			
⚠PC101	9-902-097-01	PHOTO COUPLER PC817			
		< TRANSISTOR >			
⚠Q101	9-902-096-01	TRANSISTOR 2SC4054			
Q102	9-900-517-01	TRANSISTOR 2SC3377			
		< RESISTOR >			
⚠R101	1-202-729-00	SOLID	6.8M	10%	1/2W
R102	1-249-441-11	CARBON	100K	5%	1/4W
R103	1-249-441-11	CARBON	100K	5%	1/4W
R104	1-249-433-11	CARBON	22K	5%	1/4W
⚠R105	9-902-102-01	METAL	47		3W
⚠R106	1-216-427-00	METAL	120	5%	1W
⚠R107	1-247-825-11	CARBON	560	5%	1/4W
R108	1-249-397-11	CARBON	22	5%	1/4W
⚠R201	1-247-727-11	CARBON	10	5%	1/2W
R203	9-902-109-01	CARBON	47		1/2W
R204	1-215-428-00	METAL	2K	1%	1/4W
R205	1-215-426-00	METAL	1.6K	1%	1/4W
R207	1-249-429-11	CARBON	10K	5%	1/4W
⚠R209	9-902-113-01	FUSE	10		1/4W
⚠R210	9-902-115-01	FUSE	1		1/4W
R212	1-249-429-11	CARBON	10K	5%	1/4W

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Ref.No.	Part No.	Description			Remark
	A-7063-096-A	RJ-33 BOARD, COMPLETE			
		**********			
		(Ref.No.5000 series)			
		< CAPACITOR >			
C502	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C504	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C506	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C511	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
		< CONNECTOR >			
CN501	1-568-073-11	CONNECTOR (RECEPTALE) 8P			
CN502	1-568-071-11	CONNECTOR (RECEPTALE) 4P			
		< DIODE >			
D501	8-719-106-44	DIODE RD9.1M-B2			
		< JACK >			
J501	1-691-981-11	JACK, PIN 4P (LINE IN/LINE OUT)			
J503	1-507-792-31	JACK (CONTROL S IN)			
J505	1-568-800-11	JACK, ULTRA SMALL (CONTROL L)			
		< COIL >			
L501	1-412-390-21	INDUCTOR CHIP 0uH			
		< RESISTOR >			
R501	1-216-045-00	METAL CHIP	680	5%	1/10W
R503	1-216-022-00	METAL CHIP	75	5%	1/10W
R504	1-216-049-00	METAL CHIP	1K	5%	1/10W
R509	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R510	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
		< SWITCH >			
S501	1-571-880-11	SWITCH, SLIDE (COMMAND MODE)			

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	A 7063-088-A	RP-134 BOARD, COMPLETE			
		**********			
		(Ref.No.1000 series)			
	1-569-347-11	CONNECTOR, FPC(TRANSLATION)13P			
	1-643-188-11	FP-502 BOARD			
	1-690-803-11	CABLE, FLAT (FRS-9) 13P			
*	3-947-292-01	CASE (LID), SHIELD, RP			
*	3-947-293-01	CASE (MAIN), SHIELD, RP			
		< CAPACITOR >			
C001	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C002	1-126-157-11	ELECT	10uf	20%	16V
C005	1-126-157-11	ELECT	10uf	20%	16V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

RP-134

Ref. No.	Part No.	Description			Remark
C006	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C007	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C008	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C009	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C010	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C011	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C012	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C013	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C014	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C015	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C016	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C018	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C019	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C020	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C021	1-126-157-11	ELECT	10uF	20%	16V
C022	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C025	1-126-157-11	ELECT	10uF	20%	16V
C026	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C027	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C028	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C029	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C030	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C031	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C032	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C033	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C034	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C035	1-127-558-11	ELECT(SOLID)	10uF	20%	10V
C037	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C038	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C039	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C040	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C041	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C042	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C044	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C045	1-126-157-11	ELECT	10uF	20%	16V

< CONNECTOR >

CN001	1-566-545-41	CONNECTOR, FPC (NON ZIF)	13P
* CN002	1-691-072-11	HOUSING, CONNECTOR	13P
CN003	1-506-484-11	CONNECTOR	5P, MALE

< IC >

IC001	8-752-032-35	IC	CXA1202Q-Z
IC002	8-759-062-52	IC	CXA1443M

< COIL >

L001	1-408-970-21	INDUCTOR	10uH
L002	1-407-169-XX	INDUCTOR	100uH
L003	1-407-169-XX	INDUCTOR	100uH
L004	1-408-970-21	INDUCTOR	10uH
L005	1-408-972-21	INDUCTOR	15uH
L006	1-408-948-00	INDUCTOR	220uH
L007	1-408-970-21	INDUCTOR	10uH
L008	1-407-169-XX	INDUCTOR	100uH

< TRANSISTOR >

Q003	8-729-422-36	TRANSISTOR	2SB709A-Q
Q005	8-729-216-22	TRANSISTOR	2SA1162-Q
Q006	8-729-422-36	TRANSISTOR	2SB709A-Q
Q007	8-729-422-36	TRANSISTOR	2SB709A-Q
Q008	8-729-421-19	TRANSISTOR	UN2213
Q009	8 729-424-18	TRANSISTOR	UN2113

< RESISTOR >

R004	1-216-295-00	METAL CHIP	0	5% 1/10W
R005	1-216-081-00	METAL CHIP	22K	5% 1/10W
R006	1-216-309-00	METAL CHIP	5.6	5% 1/10W
R008	1-216-081-00	METAL CHIP	22K	5% 1/10W
R009	1-216-055-00	METAL CHIP	1.8K	5% 1/10W
R010	1-216-081-00	METAL CHIP	22K	5% 1/10W
R011	1-216-085-00	METAL CHIP	33K	5% 1/10W
R012	1-216 077-00	METAL CHIP	15K	5% 1/10W
R013	1-216-055-00	METAL CHIP	1.8K	5% 1/10W
R014	1-216-081-00	METAL CHIP	22K	5% 1/10W
R015	1-216-085-00	METAL CHIP	33K	5% 1/10W
R016	1-216-075-00	METAL CHIP	12K	5% 1/10W
R017	1-216-081-00	METAL CHIP	22K	5% 1/10W
R018	1-216-081-00	METAL CHIP	22K	5% 1/10W
R019	1-216-073-00	METAL CHIP	10K	5% 1/10W
R021	1-216-073-00	METAL CHIP	10K	5% 1/10W
R022	1-216-073-00	METAL CHIP	10K	5% 1/10W
R023	1-216-295-00	METAL CHIP	0	5% 1/10W
R026	1-216-295 00	METAL CHIP	0	5% 1/10W
R027	1-216-069 00	METAL CHIP	6.8K	5% 1/10W
R028	1-216-053-00	METAL CHIP	1.5K	5% 1/10W
R029	1-216-061-00	METAL CHIP	3.3K	5% 1/10W
R030	1-216-049-00	METAL CHIP	1K	5% 1/10W
R032	1-216-029-00	METAL CHIP	150	5% 1/10W
R033	1-216-065-00	METAL CHIP	4.7K	5% 1/10W
R034	1-216-295-00	METAL CHIP	0	5% 1/10W
R036	1-216-049-00	METAL CHIP	1K	5% 1/10W
R037	1-216-025-00	METAL CHIP	100	5% 1/10W
R039	1-216-025-00	METAL CHIP	100	5% 1/10W
R040	1-216-041-00	METAL CHIP	470	5% 1/10W
R041	1-216-013-00	METAL CHIP	33	5% 1/10W
R042	1-216-005-00	METAL CHIP	15	5% 1/10W
R043	1-216-057-00	METAL CHIP	2.2K	5% 1/10W
R044	1-216-065-00	METAL CHIP	4.7K	5% 1/10W

Ref. No.	Part No.	Description			Remark
R045	1-216-035-00	METAL CHIP	270	5%	1/10W
R046	1-216-033-00	METAL CHIP	220	5%	1/10W
R047	1-216-081-00	METAL CHIP	22K	5%	1/10W
R048	1-216-085-00	METAL CHIP	33K	5%	1/10W
R050	1-216-025-00	METAL CHIP	100	5%	1/10W
R052	1-216-309-00	METAL CHIP	5.6	5%	1/10W
R053	1-216-295-00	METAL CHIP	0	5%	1/10W
		< VARIABLE RESISTOR >			
RV001	1-230-723-11	RES, ADJ, CARBON 47K			
RV002	1-230-723-11	RES, ADJ, CARBON 47K			
RV003	1-230-721-11	RES, ADJ, CARBON 10K			
**********					
	A-7063-090-A	SS-144 BOARD, COMPLETE			
		**********			
		(Ref. No. 2000 series)			
	1-690-801-11	CABLE, FLAT (FSV-1) 24P			
	1-690-802-11	CABLE, FLAT (FSV-2) 15P			
*	3-947-505-01	CASE, SHIELD, PWM			
		< CAPACITOR >			
C006	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C007	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C008	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C009	1-126-157-11	ELECT	10uF	20%	16V
C010	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C012	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C013	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C015	1-163-087-00	CERAMIC CHIP	4PF		50V
C016	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C017	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C019	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C020	1-126-157-11	ELECT	10uF	20%	16V
C021	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C022	1-126-157-11	ELECT	10uF	20%	16V
C023	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C024	1-126-157-11	ELECT	10uF	20%	16V
C025	1-126-157-11	ELECT	10uF	20%	16V
C026	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C029	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C030	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C031	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C032	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C033	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C034	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C035	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C036	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C037	1-163-031-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description			Remark
C038	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C039	1-126-157-11	ELECT	10uF	20%	16V
C040	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C041	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C042	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C043	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C045	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C046	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C101	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C102	1-162-638-11	CERAMIC CHIP	1uF		16V
C103	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C104	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C105	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C106	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C107	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C108	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C109	1-130-495-00	MYLAR	0.1uF	5%	50V
C110	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C111	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C112	1-126-163-11	ELECT	4.7uF	20%	50V
C113	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V
C114	1-164-330-21	CERAMIC CHIP	0.22uF	10%	16V
C115	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C116	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C117	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C118	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C120	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C121	1-126-301-11	ELECT	1uF	20%	50V
C122	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C123	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C124	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C125	1-124-589-11	ELECT	47uF	20%	16V
C126	1-127-498-00	ELECT(SOLID)	15uF	20%	16V
C127	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C128	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C129	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C130	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C131	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C132	1-127-558-11	ELECT(SOLID)	10uF	20%	10V
C133	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C134	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C135	1-127-558-11	ELECT(SOLID)	10uF	20%	10V
C136	1-126-157-11	ELECT	10uF	20%	16V
C137	1-126-157-11	ELECT	10uF	20%	16V
C140	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C144	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C145	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C146	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C147	1-164-232-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description			Remark
C148	1-164-489-11	CERAMIC CHIP	0.22uF	10% 16V	
C149	1-163-037-11	CERAMIC CHIP	0.022uF	10% 25V	
		< CONNECTOR >			
* CN001	1-691-083-11	HOUSING, CONNECTOR 24P			
CN002	1-691-074-21	HOUSING, CONNECTOR 15P			
* CN004	1-691-072-11	HOUSING, CONNECTOR 13P			
CN005	1-566-546-11	CONNECTOR, FPC (NON ZIF) 14P			
CN101	1-566-531-11	CONNECTOR, FPC (ZIF) 15P			
CN102	1-566-542-31	CONNECTOR, FPC (NON ZIF) 10P			
* CN103	1-565-541-11	PIN, CONNECTOR (PC BOARD) 2P			
* CN104	1-565-541-11	PIN, CONNECTOR (PC BOARD) 2P			
		< DIODE >			
⚠D002	8-719-200-27	DIODE	E10DS2		
⚠D003	8-719-200-27	DIODE	E10DS2		
D004	8-719-104-34	DIODE	1S2836		
D102	8-719-938-75	DIODE	SB05-05CP		
D103	8-719-938-75	DIODE	SB05-05CP		
D106	8-719-104-34	DIODE	1S2836		
		< FERRITE BEAD >			
FB002	1-412-390-21	INDUCTOR CHIP	0uH		
FB003	1-412-390-21	INDUCTOR CHIP	0uH		
FB102	1-412-390-21	INDUCTOR CHIP	0uH		
FB103	1-412-390-21	INDUCTOR CHIP	0uH		
FB104	1-412-390-21	INDUCTOR CHIP	0uH		
		< IC >			
IC002	8-752-833-39	IC	CXP80624-286Q		
IC003	8-759-070-96	IC	CXA1481AQ		
IC005	8-759-945-17	IC	MB3775PF		
IC101	8-759-823-65	IC	MCD002AM		
IC102	8-759-990-55	IC	CXA8006M		
IC103	8-759-148-05	IC	CXA8010M		
IC104	8-759-823-94	IC	LB1836M		
		< COIL >			
⚠L002	1-408-978-21	INDUCTOR	47uH		
L004	1-407-169-XX	INDUCTOR	100uH		
L007	1-408-970-21	INDUCTOR	10uH		
L008	1-424-522-21	COIL, CHOKE	10uH		
L009	1-424-524-21	COIL, CHOKE	47uH		
L010	1-424-524-21	COIL, CHOKE	47uH		
L101	1-412-010-41	INDUCTOR CHIP	22uH		
		< IC LINK >			
⚠PS101	1-532-605-11	LINK, IC ICP-N10			

Ref. No.	Part No.	Description		Remark
		< TRANSISTOR >		
Q001	8-729-901-01	TRANSISTOR	DTC144EK	
Q003	8-729-900-53	TRANSISTOR	DTC114EK	
Q004	8-729-420-12	TRANSISTOR	XN4213	
Q007	8-729-901-01	TRANSISTOR	DTC144EK	
Q102	8-729-901-06	TRANSISTOR	DTA144EK	
Q104	8-729-424-77	TRANSISTOR	UN2210	
Q105	8-729-424-77	TRANSISTOR	UN2210	
Q106	8-729-420-12	TRANSISTOR	XN4213	
Q108	8-729-100-66	TRANSISTOR	2SC1623-L6	
⚠Q109	8-729-805-31	TRANSISTOR	2SB1121	
Q110	8-729-100-66	TRANSISTOR	2SC1623-L6	
⚠Q111	8-729-805-31	TRANSISTOR	2SB1121	
Q112	8-729-422-36	TRANSISTOR	2SB709A-Q	
Q113	8-729-100-66	TRANSISTOR	2SC1623-L6	
Q114	8-729-402-81	TRANSISTOR	XN4501	
Q115	8-729-901-04	TRANSISTOR	DTA114EK	
		< RESISTOR >		
R001	1-216-073-00	METAL CHIP	10K 5%	1/10W
R002	1-216-073-00	METAL CHIP	10K 5%	1/10W
R003	1-216-073-00	METAL CHIP	10K 5%	1/10W
R004	1-216-073-00	METAL CHIP	10K 5%	1/10W
R007	1-216-049-00	METAL CHIP	1K 5%	1/10W
R008	1-216-049-00	METAL CHIP	1K 5%	1/10W
R009	1-216-049-00	METAL CHIP	1K 5%	1/10W
R011	1-216-073-00	METAL CHIP	10K 5%	1/10W
R012	1-216-073-00	METAL CHIP	10K 5%	1/10W
R013	1-216-073-00	METAL CHIP	10K 5%	1/10W
R014	1-216-073-00	METAL CHIP	10K 5%	1/10W
R015	1-216-073-00	METAL CHIP	10K 5%	1/10W
R016	1-216-073-00	METAL CHIP	10K 5%	1/10W
R020	1-216-073-00	METAL CHIP	10K 5%	1/10W
R023	1-216-073-00	METAL CHIP	10K 5%	1/10W
R024	1-216-073-00	METAL CHIP	10K 5%	1/10W
R025	1-216-073-00	METAL CHIP	10K 5%	1/10W
R026	1-216-073-00	METAL CHIP	10K 5%	1/10W
R027	1-216-295-00	METAL CHIP	0 5%	1/10W
R028	1-216-049-00	METAL CHIP	1K 5%	1/10W
R030	1-216-089-00	METAL CHIP	47K 5%	1/10W
R031	1-216-049-00	METAL CHIP	1K 5%	1/10W
R032	1-216-295-00	METAL CHIP	0 5%	1/10W
R033	1-216-049-00	METAL CHIP	1K 5%	1/10W
R034	1-216-097-00	METAL CHIP	100K 5%	1/10W
R035	1-216-097-00	METAL CHIP	100K 5%	1/10W
R036	1-216-097-00	METAL CHIP	100K 5%	1/10W
R037	1-216-049-00	METAL CHIP	1K 5%	1/10W
R039	1-216-049-00	METAL CHIP	1K 5%	1/10W

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
R040	1-216-073-00	METAL CHIP	10K	5%	1/10W
R041	1-216-073-00	METAL CHIP	10K	5%	1/10W
R044	1-216-089-00	METAL CHIP	47K	5%	1/10W
R046	1-216-049-00	METAL CHIP	1K	5%	1/10W
R049	1-216-295-00	METAL CHIP	0	5%	1/10W
R052	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R053	1-216-049-00	METAL CHIP	1K	5%	1/10W
R055	1-216-049-00	METAL CHIP	1K	5%	1/10W
R056	1-216-049-00	METAL CHIP	1K	5%	1/10W
R057	1-216-049-00	METAL CHIP	1K	5%	1/10W
R058	1-216-049-00	METAL CHIP	1K	5%	1/10W
R059	1-216-049-00	METAL CHIP	1K	5%	1/10W
R061	1-216-089-00	METAL CHIP	47K	5%	1/10W
R062	1-216-089-00	METAL CHIP	47K	5%	1/10W
R063	1-216-089-00	METAL CHIP	47K	5%	1/10W
R064	1-216-089-00	METAL CHIP	47K	5%	1/10W
R065	1-216-089-00	METAL CHIP	47K	5%	1/10W
R067	1-216-089-00	METAL CHIP	47K	5%	1/10W
R069	1-216-073-00	METAL CHIP	10K	5%	1/10W
R070	1-216-073-00	METAL CHIP	10K	5%	1/10W
R071	1-216-073-00	METAL CHIP	10K	5%	1/10W
R072	1-216-073-00	METAL CHIP	10K	5%	1/10W
R073	1-216-073-00	METAL CHIP	10K	5%	1/10W
R075	1-216-073-00	METAL CHIP	10K	5%	1/10W
R077	1-216-049-00	METAL CHIP	1K	5%	1/10W
R079	1-216-049-00	METAL CHIP	1K	5%	1/10W
R080	1-216-049-00	METAL CHIP	1K	5%	1/10W
R081	1-216-049-00	METAL CHIP	1K	5%	1/10W
R082	1-216-049-00	METAL CHIP	1K	5%	1/10W
R083	1-216-049-00	METAL CHIP	1K	5%	1/10W
R084	1-216-049-00	METAL CHIP	1K	5%	1/10W
R085	1-216-049-00	METAL CHIP	1K	5%	1/10W
R086	1-216-049-00	METAL CHIP	1K	5%	1/10W
R087	1-216-049-00	METAL CHIP	1K	5%	1/10W
R088	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R089	1-216-049-00	METAL CHIP	1K	5%	1/10W
R090	1-216-049-00	METAL CHIP	1K	5%	1/10W
R091	1-216-049-00	METAL CHIP	1K	5%	1/10W
R092	1-216-049-00	METAL CHIP	1K	5%	1/10W
R093	1-216-049-00	METAL CHIP	1K	5%	1/10W
R094	1-216-049-00	METAL CHIP	1K	5%	1/10W
R095	1-216-295-00	METAL CHIP	0	5%	1/10W
R096	1-216-073-00	METAL CHIP	10K	5%	1/10W
R097	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R098	1-216-049-00	METAL CHIP	1K	5%	1/10W
R099	1-216-049-00	METAL CHIP	1K	5%	1/10W
R101	1-216-087-11	METAL GLAZE	39K	5%	1/10W
R103	1-216-073-00	METAL CHIP	10K	5%	1/10W
R104	1-216-073-00	METAL CHIP	10K	5%	1/10W
R105	1-216-073-00	METAL CHIP	10K	5%	1/10W
R106	1-216-097-00	METAL CHIP	100K	5%	1/10W
R107	1-216-089-00	METAL CHIP	47K	5%	1/10W
R108	1-216-089-00	METAL CHIP	47K	5%	1/10W
R109	1-216-097-00	METAL CHIP	100K	5%	1/10W
R110	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R112	1-216-089-00	METAL CHIP	47K	5%	1/10W
R113	1-216-037-00	METAL CHIP	330	5%	1/10W
R114	1-216-049-00	METAL CHIP	1K	5%	1/10W
R116	1-217-671-11	METAL CHIP	1	5%	1/10W
R117	1-217-671-11	METAL CHIP	1	5%	1/10W
R118	1-217-671-11	METAL CHIP	1	5%	1/10W
R119	1-217-671-11	METAL CHIP	1	5%	1/10W
R120	1-216-083-00	METAL CHIP	27K	5%	1/10W
R121	1-216-083-00	METAL CHIP	27K	5%	1/10W
R122	1-216-295-00	METAL CHIP	0	5%	1/10W
R123	1-216-083-00	METAL CHIP	27K	5%	1/10W
R124	1-216-073-00	METAL CHIP	10K	5%	1/10W
R129	1-216-073-00	METAL CHIP	10K	5%	1/10W
R130	1-216-121-00	METAL CHIP	1M	5%	1/10W
R131	1-216-121-00	METAL CHIP	1M	5%	1/10W
R134	1-216-089-00	METAL CHIP	47K	5%	1/10W
R135	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R137	1-216-083-00	METAL CHIP	27K	5%	1/10W
R138	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R140	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R141	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R142	1-216-033-00	METAL CHIP	220	5%	1/10W
R143	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R144	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R145	1-216-079-00	METAL CHIP	18K	5%	1/10W
R146	1-216-045-00	METAL CHIP	680	5%	1/10W
R147	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R148	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R149	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R150	1-216-079-00	METAL CHIP	18K	5%	1/10W
R151	1-216-045-00	METAL CHIP	680	5%	1/10W
R152	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R153	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R159	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R161	1-216-295-00	METAL CHIP	0	5%	1/10W
R163	1-216-295-00	METAL CHIP	0	5%	1/10W
R165	1-216-192-00	METAL CHIP	560	5%	1/8W
R166	1-216-089-00	METAL CHIP	47K	5%	1/10W
R169	1-216-097-00	METAL CHIP	100K	5%	1/10W
R170	1-216-295-00	METAL CHIP	0	5%	1/10W
R171	1-216-295-00	METAL CHIP	0	5%	1/10W
R172	1-216-295-00	METAL CHIP	0	5%	1/10W
R177	1-216-295-00	METAL CHIP	0	5%	1/10W

Ref. No.	Part No.	Description			Remark
R179	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R180	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R193	1-216-073-00	METAL CHIP	10K	5%	1/10W
R194	1-216-073-00	METAL CHIP	10K	5%	1/10W
R195	1-216 073-00	METAL CHIP	10K	5%	1/10W
R196	1-216-073-00	METAL CHIP	10K	5%	1/10W
R197	1-216-089-00	METAL CHIP	47K	5%	1/10W
R198	1-216-089-00	METAL CHIP	47K	5%	1/10W
R200	1-216-295-00	METAL CHIP	0	5%	1/10W
R202	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R203	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R205	1-216-089-00	METAL CHIP	47K	5%	1/10W
R209	1-216-087-11	METAL GLAZE	39K	5%	1/10W
R210	1-216-089-00	METAL CHIP	47K	5%	1/10W
R211	1-216-295-00	METAL CHIP	0	5%	1/10W
R212	1-216-081-00	METAL CHIP	22K	5%	1/10W
R213	1-216-097-00	METAL CHIP	100K	5%	1/10W
R214	1-216-073-00	METAL CHIP	10K	5%	1/10W
R217	1-216-041-00	METAL CHIP	470	5%	1/10W
R218	1-216-041-00	METAL CHIP	470	5%	1/10W
R219	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R220	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R221	1-216-295-00	METAL CHIP	0	5%	1/10W
R226	1-216-295-00	METAL CHIP	0	5%	1/10W
R229	1-216-295-00	METAL CHIP	0	5%	1/10W
R230	1-216-099-00	METAL CHIP	120K	5%	1/10W
R231	1-216-099-00	METAL CHIP	120K	5%	1/10W
R232	1-216-172-00	METAL CHIP	82	5%	1/8W
R233	1-216-097-00	METAL CHIP	100K	5%	1/10W
R234	1-216-109-00	METAL CHIP	330K	5%	1/10W
R236	1-216-295-00	METAL CHIP	0	5%	1/10W
R237	1-216-295-00	METAL CHIP	0	5%	1/10W
R238	1-216-295-00	METAL CHIP	0	5%	1/10W
R239	1-216-295-00	METAL CHIP	0	5%	1/10W
R240	1-216-089-00	METAL CHIP	47K	5%	1/10W
R241	1-216-097-00	METAL CHIP	100K	5%	1/10W
R242	1-216-073-00	METAL CHIP	10K	5%	1/10W
R243	1-216-049-00	METAL CHIP	1K	5%	1/10W
R244	1-216-121-00	METAL CHIP	1M	5%	1/10W
R245	1-216-049-00	METAL CHIP	1K	5%	1/10W
R246	1-216-105-00	METAL CHIP	220K	5%	1/10W
R247	1-216-039-00	METAL CHIP	390	5%	1/10W
R249	1-216-073-00	METAL CHIP	10K	5%	1/10W
R250	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R251	1-216-089-00	METAL CHIP	47K	5%	1/10W
R252	1-216-295-00	METAL CHIP	0	5%	1/10W
R253	1-216-074-00	METAL CHIP	11K	5%	1/10W
R255	1-216-045-00	METAL CHIP	680	5%	1/10W
R256	1-216-073-00	METAL CHIP	10K	5%	1/10W
R257	1 216-105-00	METAL CHIP	220K	5%	1/10W
R258	1-216-097-00	METAL CHIP	100K	5%	1/10W
R259	1-216-089-00	METAL CHIP	47K	5%	1/10W
		< VARIABLE RESISTOR >			
RV102	1-238-089-11	RES, ADJ, CERMET	4.7K		
		< VIBRATOR >			
X002	1-579-367-21	VABRATOR, CRYSTAL (11.89MHz)			

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A-7063-092-A TT-35 BOARD, COMPLETE

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(Ref. No. 3000 series)

< CAPACITOR >

C001	1-124-126-00	ELECT	47uF	20%	10V
C002	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C003	1-124-477-11	ELECT	47uF	20%	25V
C004	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C005	1-126-163-11	ELECT	4.7uF	20%	50V
C008	1-124-638-11	ELECT	22uF	20%	10V
C009	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C010	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C011	1-124-907-11	ELECT	10uF	20%	50V
C015	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C016	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C017	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C018	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C019	1-124-257-00	ELECT	2.2uF	20%	50V
C026	1-126-157-11	ELECT	10uF	20%	16V
C027	1-163-020-00	CERAMIC CHIP	0.0082uF	10%	50V
C031	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C109	1-126-157-11	ELECT	10uF	20%	16V
C110	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C111	1-124-257-00	ELECT	2.2uF	20%	50V
C201	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C202	1-163-098-00	CERAMIC CHIP	16PF	5%	50V
C203	1-163-098-00	CERAMIC CHIP	16PF	5%	50V
C204	1-163-245-11	CERAMIC CHIP	56PF	5%	50V
C205	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C207	1-126-154-11	ELECT	47uF	20%	6.3V
C208	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C210	1-163-033-00	CERAMIC CHIP	0.022uF		50V
C211	1-125-486-11	DOUBLE LAYERS	0.22F		5.5V
C212	1-126-154-11	ELECT	47uF	20%	6.3V
C213	1-124-471-00	ELECT	1000uF	20%	6.3V
C214	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C215	1-163-117-00	CERAMIC CHIP	100PF	5%	50V

Ref. No.	Part No.	Description			Remark
C216	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C217	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C218	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C219	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C220	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C221	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C222	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C223	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C224	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C225	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C226	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C227	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C228	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C229	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C230	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C231	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C232	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C233	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C235	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C236	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C237	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
		< CONNECTOR >			
CN201	1-568-087-11	CONNECTOR (PLUG) 8P			
CN202	1-568-094-11	CONNECTOR (PLUG) 22P			
CN203	1-691-050-21	HOUSING, CONNECTOR 18P			
CN204	1-569-933-11	HOUSING, CONNECTOR 16P			
		< TRIMMER >			
CT201	1-141-423-61	CAP, ADJ			
		< DIODE >			
D001	8-719-104-34	DIODE	1S2836		
D101	8-719-400-18	DIODE	MA152WK		
D102	8-719-400-18	DIODE	MA152WK		
⚠D104	8-719-104-34	DIODE	1S2836		
⚠D105	8-719-104-34	DIODE	1S2836		
⚠D201	8-719-914-47	DIODE	DAN202K		
⚠D202	8-719-914-47	DIODE	DAN202K		
D203	8-719-400-18	DIODE	MA152WK		
D204	8-719-400-18	DIODE	MA152WK		
D206	8-719-400-18	DIODE	MA152WK		
		< FERRITE BEAD >			
FB201	1-412-390-21	INDUCTOR CHIP	0uH		
FB202	1-543-256-11	BEAD, FERRITE			
FB203	1-412-390-21	INDUCTOR CHIP	0uH		

Ref. No.	Part No.	Description			Remark
		< IC >			
IC003	8-759-157-40	IC	uPC574J		
IC103	8-759-999-02	IC	TL1596CDB		
IC201	8-759-053-72	IC	MB89794B		
IC202	8-759-720-45	IC	CAT35C202K		
IC203	8-759-937-56	IC	S-8054ALB-LM-S		
IC204	8-759-941-78	IC	S-8053ALB		
		< IF BLOCK >			
⚠IF001	1-466-582-11	IF BLOCK (IFY-450CD)			
		< COIL >			
L002	1-408-969-21	INDUCTOR	8.2uH		
L003	1-408-969-21	INDUCTOR	8.2uH		
L004	1-408-969-21	INDUCTOR	8.2uH		
L201	1-408-970-21	INDUCTOR	10uH		
		< TRANSISTOR >			
Q001	8-729-920-74	TRANSISTOR	2SC2412K QR		
Q003	8-729-216-22	TRANSISTOR	2SA1162-G		
Q004	8-729-216-22	TRANSISTOR	2SA1162-G		
Q005	8-729-920-74	TRANSISTOR	2SC2412K-QR		
Q006	8-729-920-74	TRANSISTOR	2SC2412K-QR		
Q007	8-729-202-38	TRANSISTOR	2SC3326N-A		
Q008	8-729-920-74	TRANSISTOR	2SC2412K-QR		
Q009	8-729-420-20	TRANSISTOR	XN4312		
Q101	8-729-901-06	TRANSISTOR	DTA144EK		
Q102	8-729-901-01	TRANSISTOR	DTC144EK		
Q201	8-729-216-22	TRANSISTOR	2SA1162-G		
		< RESISTOR >			
R001	1-216-208-00	METAL GLAZE	2.7K	5%	1/8W
R002	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R003	1-216-295-00	METAL CHIP	0	5%	1/10W
R004	1-216-025-00	METAL CHIP	100	5%	1/10W
R006	1-216-049-00	METAL CHIP	1K	5%	1/10W
R007	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R008	1-216-049-00	METAL CHIP	1K	5%	1/10W
R009	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R010	1-216-121-00	METAL CHIP	1M	5%	1/10W
R011	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R012	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R013	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R014	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R015	1-216-087-11	METAL GLAZE	39K	5%	1/10W
R016	1-216-091-00	METAL CHIP	56K	5%	1/10W
R017	1-216-069-00	METAL CHIP	6.8K	5%	1/10W

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

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TT-35 **UC-13** **VI-111**

Ref. No.	Part No.	Description			Remark
R020	1-216-089-00	METAL CHIP	47K	5%	1/10W
R023	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R025	1-216-049-00	METAL CHIP	1K	5%	1/10W
R042	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R060	1-216-073-00	METAL CHIP	10K	5%	1/10W
R112	1-216-596-11	METAL GLAZE	2.7K	1%	1/10W
R113	1-216-073-00	METAL CHIP	10K	5%	1/10W
R114	1-216-073-00	METAL CHIP	10K	5%	1/10W
R115	1-216-113-00	METAL CHIP	470K	5%	1/10W
R116	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R206	1-216-049-00	METAL CHIP	1K	5%	1/10W
R209	1-216-049-00	METAL CHIP	1K	5%	1/10W
R210	1-216-073-00	METAL CHIP	10K	5%	1/10W
R211	1-216-295-00	METAL CHIP	0	5%	1/10W
R212	1-216-073-00	METAL CHIP	10K	5%	1/10W
R213	1-216-073-00	METAL CHIP	10K	5%	1/10W
R215	1-216-049-00	METAL CHIP	1K	5%	1/10W
R216	1-216-049-00	METAL CHIP	1K	5%	1/10W
R217	1-216-049-00	METAL CHIP	1K	5%	1/10W
R218	1-216-049-00	METAL CHIP	1K	5%	1/10W
R219	1-216-073-00	METAL CHIP	10K	5%	1/10W
R220	1-216-073-00	METAL CHIP	10K	5%	1/10W
R223	1-216-049-00	METAL CHIP	1K	5%	1/10W
R224	1-216-049-00	METAL CHIP	1K	5%	1/10W
R225	1-216-049-00	METAL CHIP	1K	5%	1/10W
R226	1-216-049-00	METAL CHIP	1K	5%	1/10W
R227	1-216-073-00	METAL CHIP	10K	5%	1/10W
R228	1-216-073-00	METAL CHIP	10K	5%	1/10W
R229	1-216-073-00	METAL CHIP	10K	5%	1/10W
R232	1-216-073-00	METAL CHIP	10K	5%	1/10W
R233	1-216-073-00	METAL CHIP	10K	5%	1/10W
R234	1-216-073-00	METAL CHIP	10K	5%	1/10W
R236	1-216-089-00	METAL CHIP	47K	5%	1/10W
R237	1-216-073-00	METAL CHIP	10K	5%	1/10W
R238	1-216-073-00	METAL CHIP	10K	5%	1/10W
R239	1-216-073-00	METAL CHIP	10K	5%	1/10W
R243	1-216-049-00	METAL CHIP	1K	5%	1/10W
R244	1-216-049-00	METAL CHIP	1K	5%	1/10W
R245	1-216-049-00	METAL CHIP	1K	5%	1/10W
R247	1-216-073-00	METAL CHIP	10K	5%	1/10W
R248	1-216-073-00	METAL CHIP	10K	5%	1/10W
R249	1-216-097-00	METAL CHIP	100K	5%	1/10W
R250	1-216-097-00	METAL CHIP	100K	5%	1/10W
R251	1-216-097-00	METAL CHIP	100K	5%	1/10W
R252	1-216-097-00	METAL CHIP	100K	5%	1/10W
R253	1-216-115-00	METAL CHIP	560K	5%	1/10W
R254	1-216-295-00	METAL CHIP	0	5%	1/10W
R256	1-216-097-00	METAL CHIP	100K	5%	1/10W
R257	1-216-097-00	METAL CHIP	100K	5%	1/10W
R258	1-216-097-00	METAL CHIP	100K	5%	1/10W
R259	1-216-097-00	METAL CHIP	100K	5%	1/10W
R260	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R261	1-216-073-00	METAL CHIP	10K	5%	1/10W
R262	1-216-073-00	METAL CHIP	10K	5%	1/10W
R263	1-216-097-00	METAL CHIP	100K	5%	1/10W
R266	1-216-017-00	METAL CHIP	47	5%	1/10W
R267	1-216-089-00	METAL CHIP	47K	5%	1/10W
R268	1-216-089-00	METAL CHIP	47K	5%	1/10W
R269	1-216-089-00	METAL CHIP	47K	5%	1/10W
R270	1-216-089-00	METAL CHIP	47K	5%	1/10W
R271	1-216-073-00	METAL CHIP	10K	5%	1/10W
R272	1-216-073-00	METAL CHIP	10K	5%	1/10W
R280	1-216-295-00	METAL CHIP	0	5%	1/10W
R281	1-216-049-00	METAL CHIP	1K	5%	1/10W
R282	1-216-295-00	METAL CHIP	0	5%	1/10W

< TUNER >

⚠TU001	1-465-239-21	TUNER, ET

< VIBRATOR >

X201	1-567-132-00	OSCILLATOR, CERAMIC (8.00MHz)
X202	1-527-997-21	VIBRATOR, CRYSTAL (32kHz)

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* A-7063-182-A UC-13 BOARD, COMPLETE

****

(Ref. No. 2000 series)

1-690-804-11 CABLE, FLAT (FUS-2) 14P

< CONNECTOR >

CN801	1-566-529-11	CONNECTOR, FPC (ZIF) 13P
CN802	1-566-527-11	CONNECTOR, FPC (ZIF) 11P
CN803	1-566-530-11	CONNECTOR, FPC (ZIF) 14P

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A-7063-093-A VI-111 BOARD, COMPLETE

****

(Ref. No. 1000 series)

< CAPACITOR >

C101	1-126-157-11	ELECT	10uF	20%	16V
C102	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C103	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C104	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C105	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C106	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C115	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C116	1-163-031-11	CERAMIC CHIP	0.01uF		50V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
C118	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C119	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C120	1-163-095-00	CERAMIC CHIP	12PF	5%	50V
C121	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C124	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C125	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C128	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C130	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C131	1-124-638-11	ELECT	22uF	20%	10V
C132	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C133	1-124-618-11	ELECT	22uF	20%	6.3V
C134	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C135	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C136	1-126-157-11	ELECT	10uF	20%	16V
C142	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C149	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C152	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C153	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C154	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C155	1-126-157-11	ELECT	10uF	20%	16V
C156	1-126-157-11	ELECT	10uF	20%	16V
C157	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C158	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C159	1-126-157-11	ELECT	10uF	20%	16V
C160	1-126-162-11	ELECT	3.3uF	20%	50V
C161	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C162	1-126-157-11	ELECT	10uF	20%	16V
C163	1-126-162-11	ELECT	3.3uF	20%	50V
C165	1-126-157-11	ELECT	10uF	20%	16V
C166	1-126-157-11	ELECT	10uF	20%	16V
C167	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C168	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C169	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C170	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C171	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C172	1-126-157-11	ELECT	10uF	20%	16V
C173	1-126-163-11	ELECT	4.7uF	20%	50V
C174	1-126-157-11	ELECT	10uF	20%	16V
C175	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C176	1-126-157-11	ELECT	10uF	20%	16V
C177	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C178	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C179	1-124-618-11	ELECT	22uF	20%	6.3V
C180	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C181	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C182	1-126-154-11	ELECT	47uF	20%	6.3V
C185	1-124-618-11	ELECT	22uF	20%	6.3V
C186	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C187	1-126-157-11	ELECT	10uF	20%	16V
C188	1-126-157-11	ELECT	10uF	20%	16V
C189	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C190	1-163-263-11	CERAMIC CHIP	330PF	5%	50V
C191	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C193	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C194	1-126-157-11	ELECT	10uF	20%	16V
C195	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C196	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C197	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C198	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C199	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C200	1-124-638-11	ELECT	22uF	20%	10V
C203	1-126-157-11	ELECT	10uF	20%	16V
C204	1-126-157-11	ELECT	10uF	20%	16V
C205	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C206	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C207	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C208	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C209	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C210	1-126-157-11	ELECT	10uF	20%	16V
C211	1-126-157-11	ELECT	10uF	20%	16V
C212	1-126-301-11	ELECT	1uF	20%	50V
C213	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C214	1-126-157-11	ELECT	10uF	20%	16V
C216	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C217	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C218	1-126-157-11	ELECT	10uF	20%	16V
C219	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C220	1-126-157-11	ELECT	10uF	20%	16V
C221	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C222	1-126-154-11	ELECT	47uF	20%	6.3V
C223	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C224	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C225	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C226	1-126-301-11	ELECT	1uF	20%	50V
C227	1-126-301-11	ELECT	1uF	20%	50V
C228	1-126-301-11	ELECT	1uF	20%	50V
C229	1-126-157-11	ELECT	10uF	20%	16V
C230	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C231	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C232	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C233	1-163-090-00	CERAMIC CHIP	7PF		50V
C234	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C235	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C236	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C237	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C238	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C239	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C240	1-163-115-00	CERAMIC CHIP	82PF	5%	50V

Ref. No.	Part No.	Description			Remark
C241	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C242	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C243	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C244	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C245	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C246	1-163-119-00	CERAMIC CHIP	120PF	5%	50V
C247	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C248	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C249	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C250	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C251	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C252	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C253	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C255	1-163-116-00	CERAMIC CHIP	91PF	5%	50V
C256	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C501	1-126-157-11	ELECT	10uF	20%	16V
C502	1-126-157-11	ELECT	10uF	20%	16V
C503	1-124-638-11	ELECT	22uF	20%	10V
C504	1-126-157-11	ELECT	10uF	20%	16V
C505	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C601	1-126-157-11	ELECT	10uF	20%	16V
C602	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C603	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C604	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C605	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C606	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C607	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C608	1-126-157-11	ELECT	10uF	20%	16V
C609	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C610	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C611	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C612	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C613	1-126-301-11	ELECT	1uF	20%	50V
C614	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C615	1-126-157-11	ELECT	10uF	20%	16V
C616	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C617	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V
C618	1-126-157-11	ELECT	10uF	20%	16V
C619	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C620	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C621	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C622	1-126-301-11	ELECT	1uF	20%	50V
C623	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C624	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C625	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C626	1-124-638-11	ELECT	22uF	20%	10V
C627	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C628	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C629	1-126-157-11	ELECT	10uF	20%	16V

Ref. No.	Part No.	Description			Remark
C630	1-126-157-11	ELECT	10uF	20%	16V
C636	1-124-638-11	ELECT	22uF	20%	10V
C638	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C640	1-124-638-11	ELECT	22uF	20%	10V
C641	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C701	1-126-177-11	ELECT	100uF	20%	10V
C702	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C704	1-126-163-11	ELECT	4.7uF	20%	50V
C705	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C706	1-126-163-11	ELECT	4.7uF	20%	50V
C707	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C708	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C709	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C713	1-126-157-11	ELECT	10uF	20%	16V
C720	1-126-157-11	ELECT	10uF	20%	16V
		< FILTER >			
CF101	1-567-727-11	FILTER, CERAMIC			
CF601	1-577-165-11	VIBLATOR, CERAMIC			
		< CONNECTOR >			
* CN501	1-691-083-11	HOUSING, CONNECTOR 24P			
CN502	1-691-074-21	HOUSING, CONNECTOR 15P			
CN504	1-568-080-11	CONNECTOR (RECEPTALE) 22P			
CN505	1-568-073-11	CONNECTOR (RECEPTALE) 8P			
* CN506	1-569-395-11	PIN, CONNECTOR (PC BOARD) 10P			
* CN508	1-564-678-11	PIN, CONNECTOR 6P			
CN509	1-564-680-11	PIN, CONNECTOR 10P			
CN511	1-568-087-11	CONNECTOR (PLUG) 8P			
CN512	1-568-085-11	CONNECTOR (PLUG) 4P			
CN513	1-506-470-11	CONNECTOR 5P, MALE			
		< DIODE >			
D101	8-719-800-76	DIODE	1SS226		
D102	8-719-400-18	DIODE	MA152WK		
⚠D501	8-719-975-41	DIODE	RB411D		
D502	8-719-105-91	DIODE	RD5.6M-B2		
⚠D503	8-719-975-41	DIODE	RB411D		
D504	8-719-106-44	DIODE	RD9.1M-B2		
D505	8-719-104-34	DIODE	1S2836		
D506	8-719-400-18	DIODE	MA152WK		
D601	8-719-400-18	DIODE	MA152WK		
D602	8-719-105-91	DIODE	RD5.6M-B2		
		< FILTER >			
FL103	1-236-757-21	FILTER, LOW PASS (C)			
FL104	1-236-575-11	B.P.F (PAL-M)			
FL105	1-236-146-11	FILTER, BAND PASS			

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description	Remark
		< IC >	
IC101	8-752-054-87	IC CXA1207AQ	
IC102	8-752-332-68	IC CXL5502M	
IC103	8-752-039-34	IC CXA1208Q	
IC601	8-759-631-10	IC M52684AFP	
IC602	8-759-067-96	IC M50555	
IC701	8-759-100-96	IC uPC4558G2	
		< COIL >	
L101	1-408-978-21	INDUCTOR 47uH	
L102	1-410-072-21	INDUCTOR 820uH	
L103	1-408-985-21	INDUCTOR 180uH	
L107	1-407-169-XX	INDUCTOR 100uH	
L109	1-408-975-21	INDUCTOR 27uH	
L110	1-408-970-21	INDUCTOR 10uH	
L111	1-408-972-21	INDUCTOR 15uH	
L113	1-407-169-XX	INDUCTOR 100uH	
L114	1-408-978-21	INDUCTOR 47uH	
L116	1-408-983-21	INDUCTOR 120uH	
L117	1-408-987-21	INDUCTOR 330uH	
L119	1-408-970-21	INDUCTOR 10uH	
L120	1-408-978-21	INDUCTOR 47uH	
L121	1-408-978-21	INDUCTOR 47uH	
L122	1-408-979-21	INDUCTOR 56uH	
L123	1-408-979-21	INDUCTOR 56uH	
L124	1-408-978-21	INDUCTOR 47uH	
L125	1-408-978-21	INDUCTOR 47uH	
L126	1-410-988-11	INDUCTOR CHIP 0.39uH	
L127	1-410-988-11	INDUCTOR CHIP 0.39uH	
L128	1-410-988-11	INDUCTOR CHIP 0.39uH	
L129	1-410-988-11	INDUCTOR CHIP 0.39uH	
L130	1-410-988-11	INDUCTOR CHIP 0.39uH	
L131	1-410-988-11	INDUCTOR CHIP 0.39uH	
L133	1-408-978-21	INDUCTOR 47uH	
L134	1-408-974-21	INDUCTOR 22uH	
L135	1-408-974-21	INDUCTOR 22uH	
L136	1-407-169-XX	INDUCTOR 100uH	
L137	1-408-966-21	INDUCTOR 4.7uH	
L138	1-407-169-XX	INDUCTOR 100uH	
L139	1-408-984-21	INDUCTOR 150uH	
L140	1-407-169-XX	INDUCTOR 100uH	
L141	1-408-983-21	INDUCTOR 120uH	
L142	1-408-974-21	INDUCTOR 22uH	
L143	1-408-987-21	INDUCTOR 330uH	
L144	1-408-974-21	INDUCTOR 22uH	
L501	1-408-978-21	INDUCTOR 47uH	
L601	1-412-188-11	INDUCTOR 22uH	
L602	1-408-975-21	INDUCTOR 27uH	
L603	1-408-975-21	INDUCTOR 27uH	
L604	1-408-978-21	INDUCTOR 47uH	
L605	1-408-978-21	INDUCTOR 47uH	
		< TRANSISTOR >	
Q101	8-729-101-07	TRANSISTOR 2SB798-DL	
Q102	8-729-421-19	TRANSISTOR UN2213	
Q104	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q105	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q112	8-729-102-07	TRANSISTOR 2SC2223-F13	
Q114	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q116	8-729-424-18	TRANSISTOR UN2113	
Q118	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q119	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q120	8-729-403-02	TRANSISTOR XN4212	
Q121	8-729-402-84	TRANSISTOR XN4601	
Q123	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q126	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q127	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q128	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q129	8-729-403-24	TRANSISTOR XN4210	
Q130	8-729-422-36	TRANSISTOR 2SB709A-Q	
Q131	8-729-422-36	TRANSISTOR 2SB709A-Q	
Q132	8-729-421-19	TRANSISTOR UN2213	
Q133	8-729-424-08	TRANSISTOR UN2111	
Q134	8-729-420-20	TRANSISTOR XN4312	
Q135	8-729-421-19	TRANSISTOR UN2213	
Q140	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q141	8-729-403-02	TRANSISTOR XN4212	
Q142	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q143	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q144	8-729-402-81	TRANSISTOR XN4501	
Q145	8-729-422-36	TRANSISTOR 2SB709A-Q	
Q147	8-729-422-36	TRANSISTOR 2SB709A-Q	
Q148	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q149	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q150	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q151	8-729-420-12	TRANSISTOR XN4213	
Q152	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q154	8-729-421-19	TRANSISTOR UN2213	
Q155	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q156	8-729-421-19	TRANSISTOR UN2213	
Q157	8-729-422-36	TRANSISTOR 2SB709A-Q	
Q158	8-729-422-27	TRANSISTOR 2SD601A-Q	
Q159	8-729-424-08	TRANSISTOR UN2111	
Q501	8-729-424-18	TRANSISTOR UN2113	
Q502	8-729-403-24	TRANSISTOR XN4210	
Q503	8-729-424-78	TRANSISTOR UN2210	
⚠Q504	8-729-103-95	TRANSISTOR 2SB798	

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Ref. No.	Part No.	Description				Remark
Q505	8-729-422-27	TRANSISTOR	2SD601A-Q			
⚠Q506	8-729-103-95	TRANSISTOR	2SB798			
Q507	8-729-422-27	TRANSISTOR	2SD601A-Q			
Q601	8-729-422-27	TRANSISTOR	2SD601A-Q			
Q602	8-729-422-36	TRANSISTOR	2SB709A-Q			
Q603	8-729-422-36	TRANSISTOR	2SB709A-Q			
Q604	8-729-402-84	TRANSISTOR	XN4601			
Q606	8-729-422-36	TRANSISTOR	2SB709A-Q			
Q607	8-729-422-27	TRANSISTOR	2SD601A Q			
Q608	8-729-422-36	TRANSISTOR	2SB709A-Q			
Q609	8-729-402-84	TRANSISTOR	XN4601			
Q610	8-729-402-84	TRANSISTOR	XN4601			
Q611	8-729-422-27	TRANSISTOR	2SD601A-Q			
Q614	8-729-902-XX	TRANSISTOR	UN2215			
Q701	8-729-402-81	TRANSISTOR	XN4501			
Q703	8-729-421-90	TRANSISTOR	XN4113			
Q704	8-729-902-XX	TRANSISTOR	UN2215			
Q705	8-729-422-54	TRANSISTOR	XN4215			
		< RESISTOR >				
R101	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R102	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R104	1-216-295-00	METAL CHIP	0	5%	1/10W	
R105	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R106	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R107	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R108	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R109	1-216-029-00	METAL CHIP	150	5%	1/10W	
R110	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R111	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R112	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R113	1-216-043-00	METAL CHIP	560	5%	1/10W	
R114	1-216-035-00	METAL CHIP	270	5%	1/10W	
R115	1-216-295-00	METAL CHIP	0	5%	1/10W	
R126	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R127	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R128	1-216-033-00	METAL CHIP	220	5%	1/10W	
R129	1-216-021-00	METAL CHIP	68	5%	1/10W	
R130	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R131	1-216-043-00	METAL CHIP	560	5%	1/10W	
R132	1-216-045-00	METAL CHIP	680	5%	1/10W	
R134	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R135	1-216-295-00	METAL CHIP	0	5%	1/10W	
R136	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R137	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R138	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R139	1-216-039-00	METAL CHIP	390	5%	1/10W	
R141	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	
R142	1-216-295-00	METAL CHIP	0	5%	1/10W	

Ref. No.	Part No.	Description				Remark
R143	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R144	1-216-033-00	METAL CHIP	220	5%	1/10W	
R145	1-216-033-00	METAL CHIP	220	5%	1/10W	
R147	1-216-037-00	METAL CHIP	330	5%	1/10W	
R148	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R149	1-216-047-00	METAL CHIP	820	5%	1/10W	
R150	1-216-295-00	METAL CHIP	0	5%	1/10W	
R151	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R154	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R155	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R156	1-216-295-00	METAL CHIP	0	5%	1/10W	
R157	1-216-041-00	METAL CHIP	470	5%	1/10W	
R158	1-216-041-00	METAL CHIP	470	5%	1/10W	
R176	1-216-295-00	METAL CHIP	0	5%	1/10W	
R177	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R178	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R179	1-216-041-00	METAL CHIP	470	5%	1/10W	
R180	1-216-041-00	METAL CHIP	470	5%	1/10W	
R182	1-216-041-00	METAL CHIP	470	5%	1/10W	
R183	1-216-033-00	METAL CHIP	220	5%	1/10W	
R184	1-216-025-00	METAL CHIP	100	5%	1/10W	
R185	1-216-047-00	METAL CHIP	820	5%	1/10W	
R186	1-216-047-00	METAL CHIP	820	5%	1/10W	
R187	1-216-083-00	METAL CHIP	27K	5%	1/10W	
R188	1-216-295-00	METAL CHIP	0	5%	1/10W	
R190	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R191	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R192	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
R193	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R194	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R195	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R196	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R197	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R198	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R199	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R200	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R201	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R202	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R204	1-216-047-00	METAL CHIP	820	5%	1/10W	
R205	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R206	1-216-295-00	METAL CHIP	0	5%	1/10W	
R207	1-216-699-11	METAL CHIP	100K	0.5%	1/10W	
R208	1-216-113-00	METAL CHIP	470K	5%	1/10W	
R209	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R212	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R213	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R218	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	
R219	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R220	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	

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Ref.No.	Part No.	Description			Remark
R221	1-216-653-11	METAL CHIP	1.2K	0.5%	1/10W
R222	1-216-643-11	METAL CHIP	470	0.5%	1/10W
R223	1-216-295-00	METAL CHIP	0	5%	1/10W
R231	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W
R232	1-216-049-00	METAL CHIP	1K	5%	1/10W
R233	1-216-035-00	METAL CHIP	270	5%	1/10W
R234	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R235	1-216-047-00	METAL CHIP	820	5%	1/10W
R236	1-216-047-00	METAL CHIP	820	5%	1/10W
R237	1-216-047-00	METAL CHIP	820	5%	1/10W
R238	1-216-041-00	METAL CHIP	470	5%	1/10W
R239	1-216-041-00	METAL CHIP	470	5%	1/10W
R240	1-216-041-00	METAL CHIP	470	5%	1/10W
R241	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R243	1-216-035-00	METAL CHIP	270	5%	1/10W
R244	1-216-081-00	METAL CHIP	22K	5%	1/10W
R245	1-216-049-00	METAL CHIP	1K	5%	1/10W
R246	1-216-039-00	METAL CHIP	390	5%	1/10W
R247	1-216-039-00	METAL CHIP	390	5%	1/10W
R248	1-216-049-00	METAL CHIP	1K	5%	1/10W
R249	1-216-295-00	METAL CHIP	0	5%	1/10W
R251	1-216-095-00	METAL CHIP	82K	5%	1/10W
R252	1-216-049-00	METAL CHIP	1K	5%	1/10W
R253	1-216-121-00	METAL CHIP	1M	5%	1/10W
R254	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R255	1-216-295-00	METAL CHIP	0	5%	1/10W
R256	1-216-295-00	METAL CHIP	0	5%	1/10W
R257	1-216-085-00	METAL CHIP	33K	5%	1/10W
R258	1-216-091-00	METAL CHIP	56K	5%	1/10W
R259	1-216-041-00	METAL CHIP	470	5%	1/10W
R260	1-216-049-00	METAL CHIP	1K	5%	1/10W
R261	1-216-049-00	METAL CHIP	1K	5%	1/10W
R262	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R263	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R264	1-216-041-00	METAL CHIP	470	5%	1/10W
R265	1-216-041-00	METAL CHIP	470	5%	1/10W
R266	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R269	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R270	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R271	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R272	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R273	1-216-699-11	METAL CHIP	100K	0.5%	1/10W
R274	1-216-049-00	METAL CHIP	1K	5%	1/10W
R275	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R276	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R277	1-216-041-00	METAL CHIP	470	5%	1/10W
R278	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R279	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R280	1-216-063-00	METAL CHIP	3.9K	5%	1/10W

Ref.No.	Part No.	Description			Remark
R281	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R282	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R285	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R287	1-216-295-00	METAL CHIP	0	5%	1/10W
R289	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R290	1-216-081-00	METAL CHIP	22K	5%	1/10W
R291	1-216-025-00	METAL CHIP	100	5%	1/10W
R292	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R293	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R294	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R296	1-216-049-00	METAL CHIP	1K	5%	1/10W
R297	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R298	1-216-295-00	METAL CHIP	0	5%	1/10W
R299	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R300	1-216-025-00	METAL CHIP	100	5%	1/10W
R301	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R302	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R303	1-216-295-00	METAL CHIP	0	5%	1/10W
R305	1-216-295-00	METAL CHIP	0	5%	1/10W
R306	1-216-049-00	METAL CHIP	1K	5%	1/10W
R307	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R308	1-216-041-00	METAL CHIP	470	5%	1/10W
R311	1-216-049-00	METAL CHIP	1K	5%	1/10W
R312	1-216-295-00	METAL CHIP	0	5%	1/10W
R313	1-216-073-00	METAL CHIP	10K	5%	1/10W
R315	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R320	1-216-295-00	METAL CHIP	0	5%	1/10W
R322	1-216-043-00	METAL CHIP	560	5%	1/10W
R323	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R324	1-216-295-00	METAL CHIP	0	5%	1/10W
R325	1-216-049-00	METAL CHIP	1K	5%	1/10W
R326	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R327	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R501	1-216-089-00	METAL CHIP	47K	5%	1/10W
R502	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R503	1-216-642-11	METAL CHIP	430	0.5%	1/10W
R504	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R505	1-216-666-11	METAL CHIP	4.3K	0.5%	1/10W
R506	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R507	1-216-642-11	METAL CHIP	430	0.5%	1/10W
R508	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R509	1-216-661-11	METAL CHIP	2.7K	0.5%	1/10W
R510	1-216-089-00	METAL CHIP	47K	5%	1/10W
R511	1-216-295-00	METAL CHIP	0	5%	1/10W
R512	1-216-295-00	METAL CHIP	0	5%	1/10W
R514	1-216-073-00	METAL CHIP	10K	5%	1/10W
R515	1-216-073-00	METAL CHIP	10K	5%	1/10W
R516	1-216-295-00	METAL CHIP	0	5%	1/10W
R517	1-216-065-00	METAL CHIP	4.7K	5%	1/10W

Ref.No.	Part No.	Description			Remark
R520	1-216-295-00	METAL CHIP	0	5%	1/10W
R522	1-216-295-00	METAL CHIP	0	5%	1/10W
R524	1-216-295-00	METAL CHIP	0	5%	1/10W
R526	1-216-295-00	METAL CHIP	0	5%	1/10W
R601	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R602	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R603	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R604	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R605	1-216-121-00	METAL CHIP	1M	5%	1/10W
R606	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R607	1-216-081-00	METAL CHIP	22K	5%	1/10W
R608	1-216-049-00	METAL CHIP	1K	5%	1/10W
R609	1-216-089-00	METAL CHIP	47K	5%	1/10W
R610	1-216-081-00	METAL CHIP	22K	5%	1/10W
R611	1-216-091-00	METAL CHIP	56K	5%	1/10W
R612	1-216-049-00	METAL CHIP	1K	5%	1/10W
R614	1-216-049-00	METAL CHIP	1K	5%	1/10W
R615	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R616	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R617	1-216-095-00	METAL CHIP	82K	5%	1/10W
R618	1-216-049-00	METAL CHIP	1K	5%	1/10W
R619	1-216-073-00	METAL CHIP	10K	5%	1/10W
R620	1-216-035-00	METAL CHIP	270	5%	1/10W
R621	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R622	1-216-097-00	METAL CHIP	100K	5%	1/10W
R623	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R625	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R626	1-216-043-00	METAL CHIP	560	5%	1/10W
R627	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R628	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R629	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R630	1-216-041-00	METAL CHIP	470	5%	1/10W
R631	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R632	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R633	1-216-045-00	METAL CHIP	680	5%	1/10W
R634	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R635	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R637	1-216-081-00	METAL CHIP	22K	5%	1/10W
R638	1-216-025-00	METAL CHIP	100	5%	1/10W
R639	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R640	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R641	1-216-309-00	METAL CHIP	5.6	5%	1/10W
R642	1-216-309-00	METAL CHIP	5.6	5%	1/10W
R644	1-216-019-00	METAL CHIP	56	5%	1/10W
R645	1-216-049-00	METAL CHIP	1K	5%	1/10W
R646	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R647	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R648	1-216-295-00	METAL CHIP	0	5%	1/10W
R649	1-216-295-00	METAL CHIP	0	5%	1/10W

Ref.No.	Part No.	Description			Remark
R658	1-216-049-00	METAL CHIP	1K	5%	1/10W
R701	1-216-037-00	METAL CHIP	330	5%	1/10W
R702	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R704	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R705	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R706	1-216-089-00	METAL CHIP	47K	5%	1/10W
R707	1-216-083-00	METAL CHIP	27K	5%	1/10W
R708	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R709	1-216-049-00	METAL CHIP	1K	5%	1/10W
R710	1-216-097-00	METAL CHIP	100K	5%	1/10W
R711	1-216-073-00	METAL CHIP	10K	5%	1/10W
R712	1-216-073-00	METAL CHIP	10K	5%	1/10W
R713	1-216-073-00	METAL CHIP	10K	5%	1/10W
R714	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R715	1-216-109-00	METAL CHIP	330K	5%	1/10W
R716	1-216-079-00	METAL CHIP	18K	5%	1/10W
R717	1-216-073-00	METAL CHIP	10K	5%	1/10W
R723	1-216-073-00	METAL CHIP	10K	5%	1/10W
R745	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R746	1-216-089-00	METAL CHIP	47K	5%	1/10W
R748	1-216-295-00	METAL CHIP	0	5%	1/10W
R749	1-216-295-00	METAL CHIP	0	5%	1/10W

< VARIABLE RESISTOR >

RV101	1-238-088-11	RES, ADJ, CERMET	2.2K
RV102	1-238-086-11	RES, ADJ, CERMET	470
RV103	1-238-091-11	RES, ADJ, CERMET	22K
RV105	1-238-092-11	RES, ADJ, CERMET	47K
RV106	1-238-091-11	RES, ADJ, CERMET	22K
RV107	1-238-088-11	RES, ADJ, CERMET	2.2K
RV108	1-238-089-11	RES, ADJ, CERMET	4.7K
RV109	1-238-088-11	RES, ADJ, CERMET	2.2K
RV111	1-238-086-11	RES, ADJ, CERMET	470
RV112	1-238-086-11	RES, ADJ, CERMET	470

< SWITCH >

S501	1-554-088-00	SWITCH, KEY BOARD (RESET)

< VIBRATOR >

X101	1-577-080-11	VIBRATOR, CRYSTAL (3.58MHz)
X601	1-567-900-11	OSCILLATOR, CRYSTAL (14.31818MHz)

****

Ref.No.	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
52	1-569-346-11	CONNECTOR, FPC(TRANSLATION)10P	
53	1-643-189-11	FP-503 FLEXIBLE BOARD	
64	1-690-804-11	CABLE, FLAT (FUS-2) 14P	
65	1-690-805-11	CABLE, FLAT (FSC-3) 15P	
66	1-690-803-11	CABLE, FLAT (FRS-9) 13P	
67	1-643-188-11	CABLE, FLAT (FP-502) 13P	
102	1-555-110-00	CABLE, PIN	
⚠107	1-466-645-11	MODULATOR, RF (RFU-1040)	
114	1-413-724-11	POWER BLOCK	
⚠115	1-526-985-11	AC INLET	
116	1-690-800-11	CABLE, FLAT (FFT-4) 16P	
117	1-690-799-11	CABLE, FLAT (FFT-3) 18P	
118	1-690-801-11	CABLE, FLAT (FSV-1) 24P	
119	1-690-802-11	CABLE, FLAT (FSV-2) 15P	
276	1-628-061-12	FP-90 FLEXIBLE BOARD	
277	1-628-060-12	FP-89 FLEXIBLE BOARD	
⚠F101	1-532-743-11	FUSE, TIMER-LAG 2A 125V	
M901	A-7048-596-A	DRUM ASSY (DGU-75B-R)	
M902	8-835-331-31	MOTOR, DC U-22A (CAPSTAN)	
M903	A-7040-290-A	MOTOR ASSY, THREADING	
M904	X-3731-108-1	FL MOTOR ASSY	
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-417-139-11	MATCHING TRANSFORMER, ANTENNA	
	1-558-076-41	CORD, CONNECTION	
⚠	1-590-135-31	CORD, POWER	
	1-693-054-11	REMOTE COMMANDER (RMT-V119)	
*	3-704-285-01	BAG (STANDARD), PROTECTION	
	3-754-787-21	MANUAL, INSTRUCTION (ENGLISH)	
	3-754-787-31	MANUAL, INSTRUCTION (ENGLISH, FRENCH) (Canadian)	
*	3-795-581-21	SAFEGUARD (SONY), IMPORTANT	
*	3-947-296-01	INDIVIDUAL CARTON	
*	3-947-297-01	CUSHION (RIGHT)	
*	3-947-298-01	CUSHION (LEFT)	

Ref.No.	Part No.	Description	Remark
		**********	
		HARDWARE LIST	
		**********	
#1	7-627-553-37	SCREW (M2X3), SPECIAL HEAD	
#2	7-627-555-88	SCREW (M1.4X1.8)	
#3	7-621-772-10	SCREW +B 2X4	
#4	7-627-553-68	SCREW, PRECISION +P 2X6 TYPE3	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

SECTION 8
SERVICE MODE

☆This unit uses the EVR (Electronic Variable Resistor) for performing adjustments and tests. These functions are implemented by the SENSER LANC system.

8-1. SENSER LANC

SENSER LANC is the LANC format designed to perform EVR (electronic variable resistor) adjustments and various tests for this 8mm VTR by using the LANC (Control L). The SENSER LANC is synonymous with the old SERVICE LANC. But there have been enhancements and the SENSER LANC is now used as a unified word.

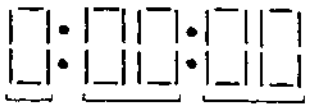
8-2. HOW TO USE THE RM-95 JIG (ADJUSTMENT REMOTE CONTROL)

The RM-95 jig is used to operate the SENSER LANC. This jig will create the SENSER LANC Mode. Because of this, the HOLD switch has been modified for service purpose.

Note that the old models of the RM-95 have no page display function and it is needed to replace their microcomputers within these old models.

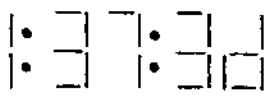
Old	UPD7503G-A71-12 UPD7503G-C23-12	8-759-142-56 8-759-146-77	No Page display (The microcomputer must be replaced.)
New	UPD7503G-C56-12	8-759-148-35	Page display

LCD Display of RM-95



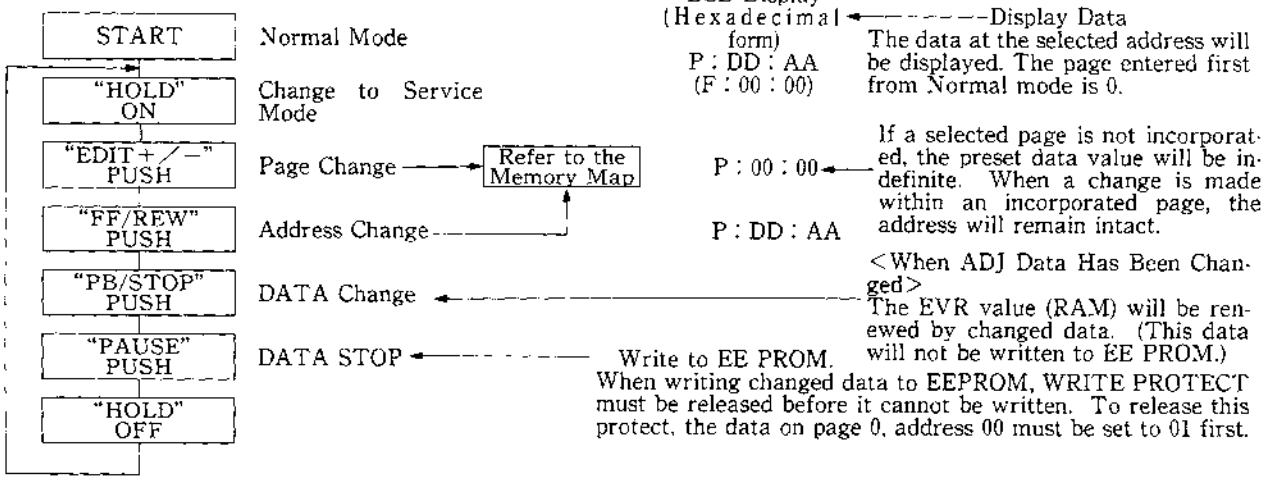
Page Data Address

Example



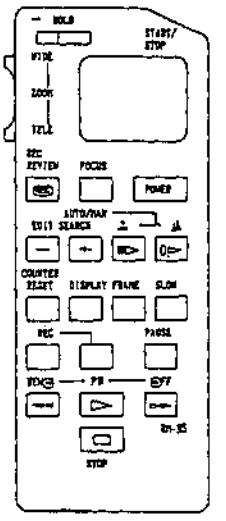
This means that the data on page 1, address 3D is 37.

8-3. HOW TO CHANGE THE SERVICE MODE WITH RM-95

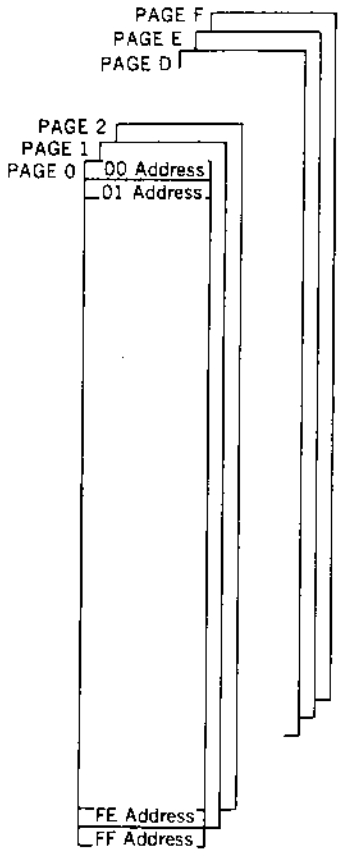


Command	Action	RM-95 Control Button Pushed
Page Up	Page+1	Edit Search+
Page Down	Page−1	Edit Search−
Direct Page Set	Sets to specified page.	Event Clear
Address Up	Address+1	Fast Forward
Address Down	Address−1	Rewind
Data Up	Data+1	Play Back
Data Down	Data−1	Stop
Store	Writes data to EEPROM. RAM	Pause

RM-95 (J-6082-053-B)



8-4. SENSER LANC MEMORY MAP



This unit has pages 0 to F allocated as listed below.

PAGE	Page Allocation
0	Service
1	
2	System Controler
3	System Controler
4	System Controler
5	
6	
7	Timer/Tuner Controler
8	Timer/Tuner Controler
9	Timer/Tuner Controler
A	
B	
C	
D	VTR EE-PROM
E	
F	

Note : The adjustment address 00 of the first page for the RAM is a control code for total control. This address is used to permit write to EE-PROM.
The initial data for this control code is "00" which inhibits write to EE-PROM. In order to write the VTR EE-PROM, the control codes for their respective adjustment pages must be set to "01" as shown by the arrow.
Sixteen different pages from 0 to F are available. Page allocations are as listed above. Only pages D and F are allocated to those memories that will not be cleared even if the power is turned off as the EVR (electronic variable resistor).

8-5. D PAGE WRITE PROTECT

D Page Write Protect is released and established as follows:

Page 0 or D	Address 01

Data	Function
00	Normal (Write Protected)
80	Write Protect Release

* Addres : 01 of page : 0 and address : 01 of page : D have same functions.
* After completing necessary adjustments/repairs, be sure to return the data at this address to 00.

8-6. TEST MODE SETTING

Variety of test modes are established and changed as listed below.

Page 0 or D	Address 02

Data	Function
00	Normal
01	Test Mode 1 Various Emergencies, Inhibit and Release Drum, Capstan, Loading Motor, Reel, Tape Top and End, DEW SP/LP Automatic Discrimination Inhibit, Manual Changeover (EDIT SW ON:LP, OFF:SP)
02	Test Mode 2 • Playback Frequency Characteristic 1'ch Adjustment With the ATF servo shifted one track, playback tape and allow taking RF on 1 channel. (This is valid only in playback mode.) SP/LP is protected from being distinguished and REC SP/LP followed.
03	Test Mode 3 Track Shift Playback • With a forward shift of 1/3 to 1/4 track, playback tape. (This is valid only in playback mode.) SP/LP is protected from being distinguished and REC SP/LP is followed.

* Address : 01 of page : 0 and address : 01 of page : D have same functions.
* After completing necessary adjustments/repairs, be sure to return the data at this address to 00.

8-7. EMERGENCY CODES

These codes can be used to check the condition of failure (abnormality) that occurred.

Page 0 or D	Address 06

First Emergency Code

....The code of the first failure that occurred.

Page 0 or D	Address 07

Last Emergency Code

....The code of the last failure that occurred (This data will be renewed each time a failure occurs.

* After completing necessary adjustments/repairs, be sure to rewrite the data at address 06 and the data at address 07 to 00. When rewriting, the protect should be released.
* When writing data, after setting the data, be sure to press the PAUSE button on the adjustment remote control.
* Address 06 and address 07 on page 0 have the same functions as address 06 and address 07 on page D respectively.

Code	Condition of Failure
00	No Failure
01	Loading Motor Failure
02	Reel Failure during Unloading
03	Reel Failure during operation other than unloading
04	Capstan Failure
05	FG Failure at Start of Drum
06	PG no Failure at Start of Drum
07	FG Failure when Drum is Stationary
08	FG Failure at Start of Drum during loading
09	PG no Failure at Start of Drum during loading
0A	FG Failure when Drum is Stationary during loading
0B	FG Failure at Start of Drum during unloading
0C	PG no Failure at Start of Drum during unloading
0D	FG Failure when Drum is Stationary during unloading

8-8. EMERGENCY MODE

This mode allows you to check the mode of operation in which the VTR was placed when failure occurred.

Page 0 or D	Address 08

First Emergency Code

....The code of the first failure that occurred.

Page 0 or D	Address 09

Last Emergency Code

....The code of the last failure that occurred

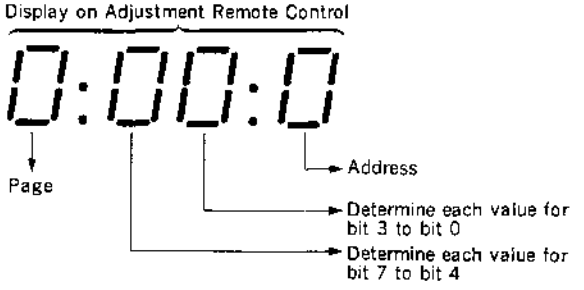
(This data will be renewed each time a failure occurs.)

* After completing necessary adjustments/repairs, be sure to rewrite the data at address 08 and the data at address 09 to 00.
* When writing data, after setting the data, be sure to press the PAUSE button on the adjustment remote control.
* Address 08 and address 09 on page 0 have the same functions as address 08 and address 09 on page D respectively.

Code	Condition of Failure
10	EJECTED
20	STOP
26	STOP TAPE END
27	STOP TAPE TOP
29	STOP ZERO
30	FF
33	FF ZERO PB
34	FF ZERO STOP
38	REW
3A	REW PB
3B	REW ZERO PB
3C	REW ZERO STOP
40	REC
41	REC PAUSE
42	TIMER REC
43	TIMER REC PAUSE
48	A INSERT
49	A INSERT PAUSE
60	PB
62	+1
63	−1
64	CUE
65	REVIEW
66	+2
67	−1
68	LOCKED CUE
69	LOCKED REVIEW
70	+STILL
71	−STILL
72	+SLOW, +SLOW 1/5
73	−SLOW, −SLOW 1/5
74	+SLOW 1/10
75	−SLOW 1/10
76	+FRAME
77	−FRAME

8-9. DETERMINATION OF BIT VALUE

For the following items, the data displayed on the adjustment remote control is used to determine the bit value. The list below should be checked to determine whether the bit value is "1" or "0".



	Display on Remote Control	Bit Value bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ→	8	1	0	0	0
	9	1	0	0	1
	A (日)	1	0	1	0
	B (コ)	1	0	1	1
	C (ㄷ)	1	1	0	0
	D (ㄷ')	1	1	0	1
Ⓑ→	E (ㅌ)	1	1	1	0
	F (ㅍ)	1	1	1	1

(Example) If the data displayed on the remote control is "8E", the values for bit 7 to bit 4 can be determined from the values in the column Ⓐ. The value for bit 3 to bit 0 can be determined from the values in the column Ⓑ.

8-10. 0 PAGE MEMORY MAP

Adjustment Address	Contents	Remarks
00	Not used	
01	EEP ROM Control Code	
02	Test Mode (COSMO)	
03	Switching Position Adjustment (LOW)	
04	Switching Position Adjustment (HIGH)	
05		
06	Emergency Code (FIRST)	
07	Emergency Code (LAST)	
08	Emergency Mode (FIRST)	
09	Emergency Mode (LAST)	
0A		
0B	GCA Data (ME)	
0C	GCA Data (MP)	
0D	GCA Data (HG)	
0E		
0F		

8-11. D PAGE MEMORY MAP

Address	Function	Initial Value	Memo Column
00	Not used		
01	EEP ROM Control Code		
02	Test Mode (COSMO)		
03	Switching Position Adjustment (LOW)	Adjustment	
04	Switching Position Adjustment (HIGH)	Adjustment	
05			
06	Emergency Code (FIRST)	FF	
07	Emergency Code (LAST)	FF	
08	Emergency Mode (FIRST)	FF	
09	Emergency Mode (LAST)	FF	
0A			
0B	GCA Data (ME)	FF	
0C	GCA Data (MP)	FF	
0D	GCA Data (HG)	FF	
0E			
0F			
10	Serial Data Storage Area LOW MP LP	0A	
11	Serial Data Storage Area LOW MP SP	05	
12	Serial Data Storage Area LOW HG LP	0A	
13	Serial Data Storage Area LOW HG SP	05	
14	Serial Data Storage Area LOW ME LP	01	
15	Serial Data Storage Area LOW ME SP	00	
16	Serial Data Storage Area HIGH HG LP	FF	
17	Serial Data Storage Area HIGH HG SP	FF	
18	Serial Data Storage Area HIGH ME LP	FF	

Address	Function	Initial Value	Memo Column
19	Serial Data Storage Area HIGH ME SP	FF	
1A			
1B			
1C	SLOW TRACON DATA (LP)	Adjustment	
1D	SLOW TRACON DATA (SP)	Adjustment	
1E	−SLOW TRACON DATA (LP)	Adjustment	
1F	-SLOW TRACON DATA (SP)	Adjustment	
20	×2 TRACON (LP)	Adjustment	
21	×2 TRACON (SP)	Adjustment	
22	STILL ADJUST	Adjustment	
23			
24	SHARPNESS		
25			
26			
27			
28	GCA Data (ME)	FF	
29	GCA Data (MP)	FF	
2A	GCA Data (HG)	FF	
2B			
2C	Emergency Code (FIRST)	FF	
2D	Emergency Code (LAST)	FF	
2E	Emergency Mode (FIRST)	FF	
2F	Emergency Mode (LAST)	FF	
30	Not used	00	
31	Not used	00	
32	Not used	00	
33	Not used	00	
34	Not used	00	
35	Not used	00	
36	Not used	00	
37	Not used	00	
38	Not used	00	
39	Not used	00	
3A	Not used	00	
3B	Not used	00	
3C	Not used	00	
3D	Not used	00	
3E	Not used	00	
3F	Not used	00	
40	AIR STOP Flag 1 (1ch~7ch) bit 0 : no used	FF	
41	AIR STOP Flag 2 (8ch~15ch)	FF	
42	AIR STOP Flag 3 (16ch~23ch)	FF	
43	AIR STOP Flag 4 (24ch~31ch)	FF	
44	AIR STOP Flag 5 (32ch~39ch)	FF	
45	AIR STOP Flag 6 (40ch~47ch)	FF	
46	AIR STOP Flag 7 (48ch~55ch)	FF	
47	AIR STOP Flag 8 (56ch~63ch)	FF	

Address	Function	Initial Value	Memo Column
48	AIR STOP Flag 9 (64ch~69ch)	FF	
49			
4A	CATV STOP Flag 1 (1ch~7ch)	FF	
4B	CATV STOP Flag 2 (8ch~15ch)	FF	
4C	CATV STOP Flag 3 (16ch~23ch)	FF	
4D	CATV STOP Flag 4 (24ch~31ch)	FF	
4E	CATV STOP Flag 5 (32ch~39ch)	FF	
4F	CATV STOP Flag 6 (40ch~47ch)	FF	
50	CATV STOP Flag 7 (48ch~55ch)	FF	
51	CATV STOP Flag 8 (56ch~63ch)	FF	
52	CATV STOP Flag 9 (64ch~71ch)	FF	
53	CATV STOP Flag 10 (72ch~79ch)	FF	
54	CATV STOP Flag 11 (80ch~87ch)	FF	
55	CATV STOP Flag 12 (88ch~95ch)	FF	
56	CATV STOP Flag 13 (96ch~103ch)	FF	
57	CATV STOP Flag 14 (104ch~111ch)	FF	
58	CATV STOP Flag 15 (112ch~119ch)	FF	
59	CATV STOP Flag 16 (120ch~125ch)	FF	
5A			
5B			
5C			
5D			
5E	Normal-/CATV Flag	00	
5F	Normal -/CATV Flag	00	
60	AIR AFT Flag 1 (1ch~7ch) bit 0 : no used	FF	
61	AIR AFT Flag 2 (8ch~15ch)	FF	
62	AIR AFT Flag 3 (16ch~23ch)	FF	
63	AIR AFT Flag 4 (24ch~31ch)	FF	
64	AIR AFT Flag 5 (32ch~39ch)	FF	
65	AIR AFT Flag 6 (40ch~47ch)	FF	
66	AIR AFT Flag 7 (48ch~55ch)	FF	
67	AIR AFT Flag 8 (56ch~63ch)	FF	
68	AIR AFT Flag 9 (64ch~69ch)	FF	
69			
6A	CATV AFT Flag 1 (1ch~7ch)	FF	
6B	CATV AFT Flag 2 (8ch~15ch)	FF	
6C	CATV AFT Flag 3 (16ch~23ch)	FF	
6D	CATV AFT Flag 4 (24ch~31ch)	FF	
6E	CATV AFT Flag 5 (32ch~39ch)	FF	
6F	CATV AFT Flag 6 (40ch~47ch)	FF	
70	CATV AFT Flag 7 (48ch~55ch)	FF	
71	CATV AFT Flag 8 (56ch~63ch)	FF	
72	CATV AFT Flag 9 (64ch~71ch)	FF	
73	CATV AFT Flag 10 (72ch~79ch)	FF	
74	CATV AFT Flag 11 (80ch~87ch)	FF	
75	CATV AFT Flag 12 (88ch~95ch)	FF	
76	CATV AFT Flag 13 (96ch~103ch)	FF	
77	CATV AFT Flag 14 (104ch~111ch)	FF	

Address	Function	Initial Value	Memo Column
78	CATV AFT Flag 15 (112ch~119ch)	FF	
79	CATV AFT Flag 16 (120ch~125ch)	FF	
7A			
7B			
7C			
7D			
7E			
7F			
80	AFT OFF CH Data 1	FF	
81	AFT OFF PLL Data 1	FF	
82	AFT OFF CH Data 2	FF	
83	AFT OFF PLL Data 2	FF	
84	AFT OFF CH Data 3	FF	
85	AFT OFF PLL Data 3	FF	
86	AFT OFF CH Data 4	FF	
87	AFT OFF PLL Data 4	FF	
88	AFT OFF CH Data 5	FF	
89	AFT OFF PLL Data 5	FF	
8A	AFT OFF CH Data 6	FF	
8B	AFT OFF PLL Data 6	FF	
8C	AFT OFF CH Data 7	FF	
8D	AFT OFF PLL Data 7	FF	
8E	AFT OFF CH Data 8	FF	
8F	AFT OFF PLL Data 8	FF	
90	AFT OFF CH Data 9	FF	
91	AFT OFF PLL Data 9	FF	
92	AFT OFF CH Data 10	FF	
93	AFT OFF PLL Data 10	FF	
94	AFT OFF CH Data 11	FF	
95	AFT OFF PLL Data 11	FF	
96	AFT OFF CH Data 12	FF	
97	AFT OFF PLL Data 12	FF	
98	AFT OFF CH Data 13	FF	
99	AFT OFF PLL Data 13	FF	
9A	AFT OFF CH Data 14	FF	
9B	AFT OFF PLL Data 14	FF	
9C	AFT OFF CH Data 15	FF	
9D	AFT OFF PLL Data 15	FF	
9E	AFT OFF CH Data 16	FF	
9F	AFT OFF PLL Data 16	FF	

SECTION 9
MECHANICAL ADJUSTMENTS

For Mechanical Adjustments

For the procedures how to adjust and check the mechanism, as well as how to replace mechanical parts, refer to the separate 8mm Video Mechanical Adjustment Manual III (9-972-732-01).

However, for the procedures how to set the Track Shift mode, refer to the following text.

9-1. TAPE PASS ADJUSTMENT

〔TRACK SHIFT〕

The 8mm Video Tape Recorder system uses the AFT (Automatic Track Finding) function in which four different pilot signals are used for controlling the tape speed instantaneously to provide high precision tracking. This eliminates the Tracking Adjustment control, thus allowing accurate tracing.

In spite of its advantageous feature, the AFT system may have a difficulty in adjusting the tape pass system. The ATF will automatically corrects tracing even if the head has only a little tracing distortion. This may make it impossible to perform a complete adjustment.

Therefore, when performing a fine adjustment for tracking, the Track Shift mode should be entered before starting this adjustment. This mode will force to operate the ATF to shift the amount of tracking by a given quantity (approximately 1/4), so that tracking can be easily fine adjusted. Furthermore, no track shift jig is needed.

9-1-1. Setting the Track Shift Mode

1) Place the adjustment remote control RM-95 (J-6082-053-B) in the HOLD ON position.
2) Operate the EDIT +/- button to select adjustment page 0.
3) Operate the FF/REW button to select adjustment address 01.
4) Operate the PB/STOP button to set to adjustment data 03. (This will go to the Test Mode 3 (Pass Adjustment).)

Note 1 : For details of the Test Mode, refer to "SECTION 8. SERVICE MODE."

Note 2 : If the LP mode is recognized by the system wrongly, operate the Recording Time SP/LP button to enter the SP mode.

Note 3 : After adjustment, operate the PB/STOP button to reset to adjustment data 00. Place the remote control in the HOLD OFF position to return to the normal mode.

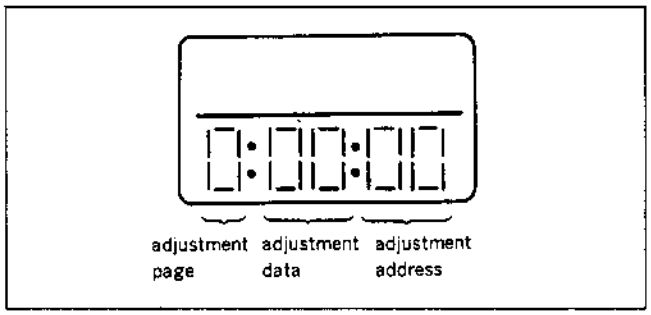


Fig. 9-1.

9-1-2. Preparation before Adjustment

1) Clean the surfaces over which tape moves past (of the tape guides, drum, capstan shaft and pinch rollers).
2) Oscilloscope Connection and Waveform Output:
   1 ch: Drum head's RF signal output, RP-134 board CN003 pin ③ (PB RF)
   External trigger input: RP-134 board CN003 pin ④ (RF SWP)
   GND: RP-134 board CN003 pin ② (GND)
3) Play back alignment tape for tracking (WR5-1NP).
4) Check that RF waveform observed on the oscilloscope is flat on both entrance and exit sides.
   If not flat, perform necessary adjustment according to the separate 8 mm Video Mechanical Adjustment III.

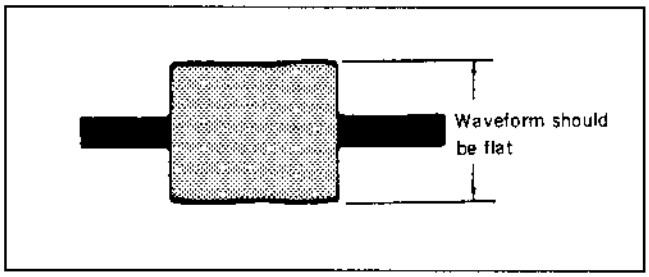


Fig. 9-2.

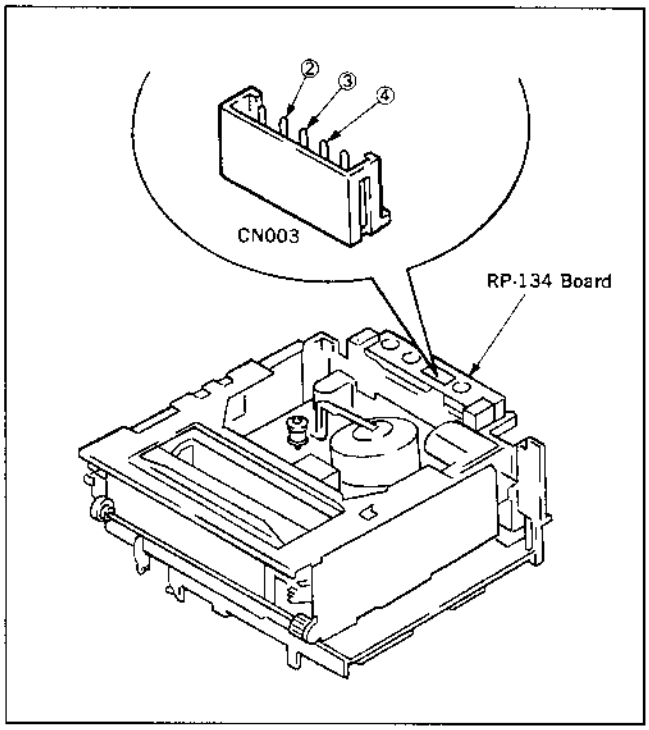


Fig. 9-3.

SECTION 10
ELECTRICAL ADJUSTMENTS

See the adjusting part location diagram from on page 172 for the adjustment.

For details of the SENSER LANC , refer to "SECTION 8. SERVICE MODE".

10-1. PREPARATION BEFORE ADJUSTMENT

10-1-1. Equipment Required

The measuring instruments used for this alignment include :

1) Monitor TV
2) Oscilloscope, dual-trace, bandwidth of 30MHz or more, with delay mode (A probe 10:1 should be used unless otherwise specified.)
3) Frequency counter
4) Pattern generator (with Video Output terminal; refer to Section 10-1-2. Equipment Connection.)
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Vector scope
11) Alignment tapes
    - For tracking adjustment (WR5-1NP)
      Part No.: 8-967-995-02
    - For video frequency adjustment (WR5-6N)
      Part No.: 8-967-995-12
    - For operation check
      For SP (WR5-5NSP)
      Part No.: 8-967-995-42
      or (WR5-4NSP)
      Part No.: 8-967-995-41
      For LP (WR5-4NL)
      Part No.: 8-967-995-51
    - For AFM stereo operation check (WR5-9NS)
      Part No.: 8-967-995-23
12) Adjustment remote control (J-6082-053-B)

10-1-2. Equipment Connection

Unless otherwise specified, connect and adjust the measuring instruments as shown is the following diagram.

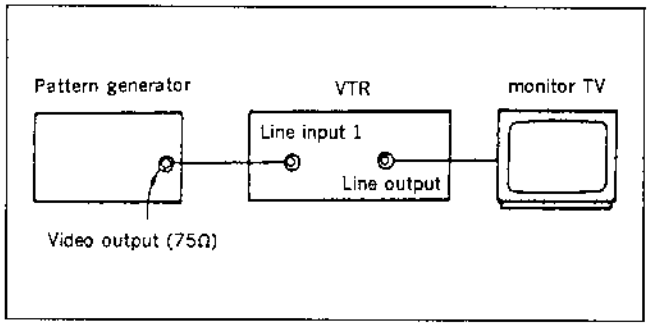


Fig. 10-1.

- Make adjustment with the switches set to the following positions :
  INPUT SELECT....LINE

10-1-3. Input Signal Check

In this adjustment, NTSC pattern generator is connected with LINE 1 input signal terminal. When check to tuner, connected VHF antenna terminal. Check that the amplitudes of video signal SYNC signal, of picture portions, and of burst signals are flat at approximately 0.3, 0.7 and 0.3V, respectively, and that the level ratio of the burst signal and "red" signal are 0.30 : 0.66. Fig. 10-2. shows video signals (color bars) used in adjusting the video section.

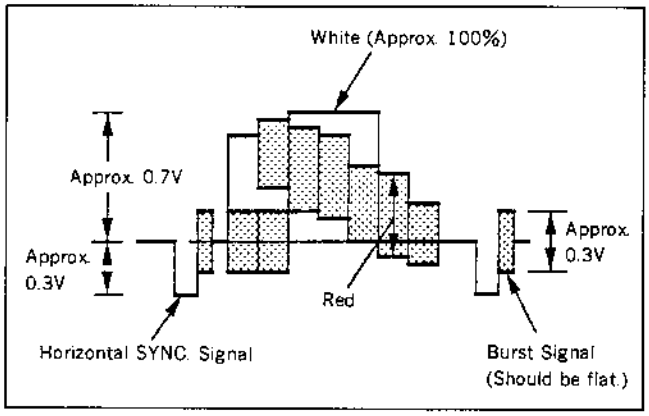


Fig. 10-2.

10-1-4. Alignment Tapes

The following alignment tapes are available.
The tape specified in the signal column for the adjustment to be performed should be used.

Note that if no tape code is specificed for the adjustments in which alignment tapes for operation check are used, any tape for operation check may be used.

Alignment Tape	Tape Speed	Contents of Record		Applications
		Video Area	PCM Area	
Tracking WR5-1NP (8-967-995-02)	SP	CH2 : 1MHz tape pass adjustment signal Switching position adjustment marker (CH1 : 9MHz)		Tape pass adjustment Switching position adjustment
Video frequency characteristic WR5-6N (8-967-995-12)	SP	RF sweep 0 to 10MHz Marker 1, 3.58, 5.5 and 7MHz		Frequency characteristic
Operation check WR5-4NSP (8-967-995-41) or WR5-5NSP (8-967-995-42)	SP	● Video signal Color bar 4 min. Monoscope 4 min. ● Audio signal (AFM) 400Hz 60% modulated	● Audio signal (PCM) Monoscope portion 20Hz 20sec. } This cycle 400Hz 20sec. } is repeated 14kHz 20sec. } 4 times Color bar portion 1kHz 4min.	Operation check
WR5-4NL (8-967-995-51)	LP	● Video signal Color bar 4 min. Monoscope 4 min. ● Audio signal (AFM) 400Hz 60% modulated		
AFM stereo operation check WR5-9NS (8-967-995-23)	SP	● Video signal Color bar 4 min. Monoscope 4 min. ● Audio signal (AFM) Stereo portion (color bar) Lch : 400Hz Rch : 1kHz (L+R 1.5MHz±60kHz DEV) (L—R 1.5MHz±30kHz DEV) Bilingual portion (monoscope) MAIN : 400Hz (1.5MHz±60kHz DEV) SUB : 1kHz (1.7MHz±30kHz DEV)	● Audio signal (PCM) 400Hz 8 min.	AFM stereo operation check

10-3. SYSTEM CONTROL SYSTEM ADJUSTMENTS

10-3-1. Timer Clock Adjustment (TT-35 Board)

Mode	E-E
Signal	Arbitrary
Measurement point	IC201 pin ⑧
Measuring instrument	Frequency counter
Adjustment element	CT201
Specified value	4096.020±0.015Hz

Note : A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[Adjustment Method]

1) Place the adjustment remote control RM-95 (J-6083-052-B) in the HOLD ON position.
2) Use EDIT +/−button to select adjustment page 7.
3) Use FF/REW button to select adjustment address 58.
4) Use PB/STOP button to set to adjustment data 04.
5) Press PAUSE button on the remote control to store the adjustment data.
6) Use CT201 to adjust to 4096.020±0.015Hz

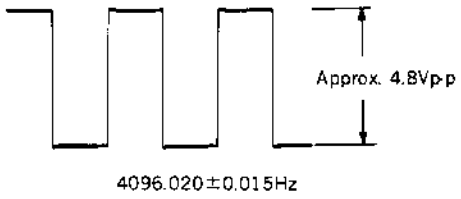


Fig. 10-4.

7) Use EDIT +/−button to select adjustment page 7.
8) Use FF/REW button to select adjustment address 58.
9) Use PB/STOP button to select adjustment data 07.
10) Press PAUSE button to store the adjustment data.

10-4. SERVO SYSTEM ADJUSTMENTS

[Adjustment sequence]

1. PWM Frequency Adjustment
2. Switching Position Adjustment
3. SLOW Adjustment

10-4-1. PWM Frequency Adjustment (SS-144 Board)

Mode	Record
Signal	Arbitrary
Measurement point	IC005 pin ⑦
Measuring instrument	Frequency counter
Adjustment element	RV102
Specified value	479.9±5.0kHz

[Adjustment Method]

1) Set Recording Time to SP mode.
2) Use RV005 to adjust to 479.9±5.0kHz.
3) Set Recording Time to LP mode.
4) Check for at 479.9±5.0kHz.
5) If the specification is not met, repeat Steps 1) to 4).

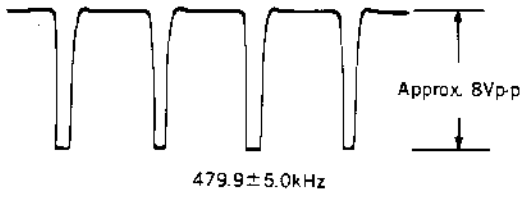


Fig. 10-5.

10-4-2. Switching Position Adjustment

Mode	Playback
Signal	Alignment tape: For operation check (WR5-1NP)
Measurement point	CH-1: RP-134 board CN003 pin ④ (RF SWP) CH-2: RP-134 board CN003 pin ③ (PB RF)
Measuring instrument	Oscilloscope
Adjustment page	D
Adjustment address	03 (Switching Position Adjustment (Low)) 04 (Switching Position Adjustment (High))
Specified value	t=0±5μsec

[Adjustment Method]

1) Place the adjustment remote control RM-95 (J-6082-053-B) in the HOLD ON position.
2) Use EDIT+/— button to select adjustment page D.
3) Use FF/REW button to select adjustment address 01.
4) Use PB/STOP button to set to adjustment data 80.
5) Press PAUSE button on the remote control to store the adjustment data.
6) Use EDIT+/— button to select adjustment page d.
7) Use FF/REW button to select adjustment address 04.
8) Operate PB/STOP button to change and set adjustment data so that t=0±255μsec.
9) Press PAUSE button on the remote control to store the adjustment data.
10) Use FF/REW button to select adjustment address 03.
11) Use FF/REW button to change and set adjustment data so that t=0±5μsec.
12) Press PAUSE button to store the adjustment data.

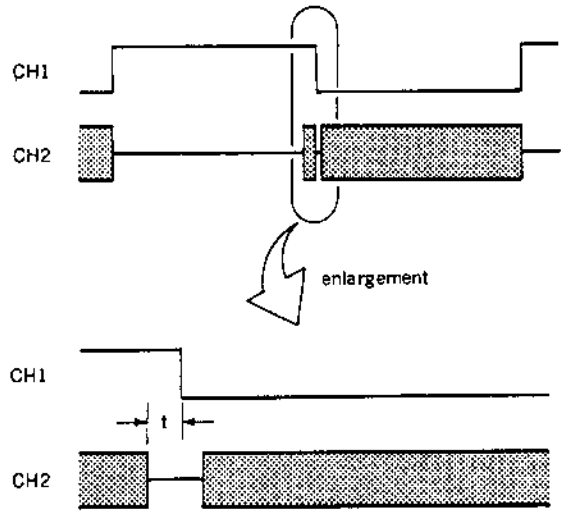


Fig. 10-6.

10-4-3. SLOW Adjustment

Mode	Self-record playback (SP and LP modes)
Signal	Color bar
Measurement point	CH-1: RP-134 board CN003 pin ④ (RF SWP) CH-2: RP-134 board CN003 pin ③ (PB RF)
Measuring instrument	Oscilloscope
Adjustment page	D
Adjustment address	1C (SLOW TRACON DATA (LP)) 1D (SLOW TRACON DATA (SP)) 1E (—SLOW TRACON DATA (LP)) 1F (—SLOW TRACON DATA (SP))
Specified value	A=B

[Adjustment Method]

1) Record color bar signal in both SP and LP modes.
2) Play back the recorded signal.
3) Place the adjustment remote control in the HOLD ON position.
4) Use EDIT−/— button to select adjustment page d.
5) Use FF/REW button to select adjustment address 1C.
6) Enter LP mode and check that the record is played back.
7) Use the EDIT SHUTTLE SLOW on the set to enter SLOW (1/5) mode.
8) Operate PB/STOP button on the remote control RM-95 to change and set adjustment data so that A=B.
9) Press PAUSE button on the remote control to store the adjustment data.
10) In the same manner, select adjustment address 1D for SP Mode SLOW (1/5) mode, adjustment address 1E for LP Mode —SLOW (—1/5) mode, and address 1F for SP Mode —SLOW (—1/5) mode and adjust so that A=B.

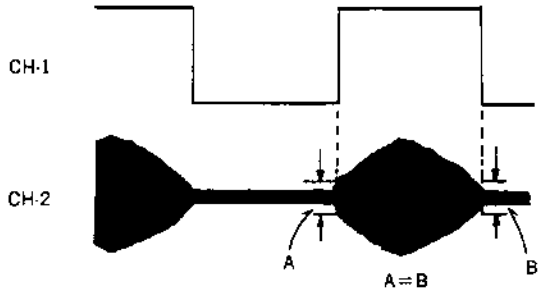


Fig. 10-7.

10-5. VIDEO SYSTEM ADJUSTMENTS

Color video signal supplied from a pattern generator is used as a video input signal for Video System Alignment in the Recording mode. This signal should be checked to ensure that it meets the specifications provided in Fig. 10-2 and "INPUT SIGNAL CHECK".

The adjustments in Video System Alignment should be performed in the following sequence.

[Adjustment sequence]

1. MIDDLE TUNE Adjustment
2. EE Level Adjustment
3. IR Adjustment
4. Y/Chroma Separation Adjustment
5. Emphasis Y Level Adjustment
6. AC Clip Check
7. Y FM Carrier, Y FM Deviation Adjustment
8. Recording Y Level Adjustment
9. Chroma Emphasis Adjustment
10. Recording Chroma Level Adjustment
11. Playback Y Level Adjustment
12. De-emphasis Y Level Check
13. CCD Direct Level Adjustment

10-5-1. MIDDLE TUNE Adjustment (RP-134 Board)

(1) 1ch,2ch

Note : The designation [ ] stands for adjustment on CH-2.

Mode	Playback
Signal	Alignment tape: for frequency characteristic adjustment (WR5-6N)
Measurement point	CN003 pin ③ (PB RF) External trigger: CN003 pin ④ (RF SWP) Trigger slope:—(+)
Measuring instrument	Oscilloscope
Adjustment element	RV002 (RV001)
Specified value	3.58MHz level: 5.5MHz level = 4 : 3

[Adjustment Method]

1) Use RV002 [RV001] to adjust so that the ratio of 3.58MHz level to 5.5MHz of PB RF output waveform is 4 : 3.

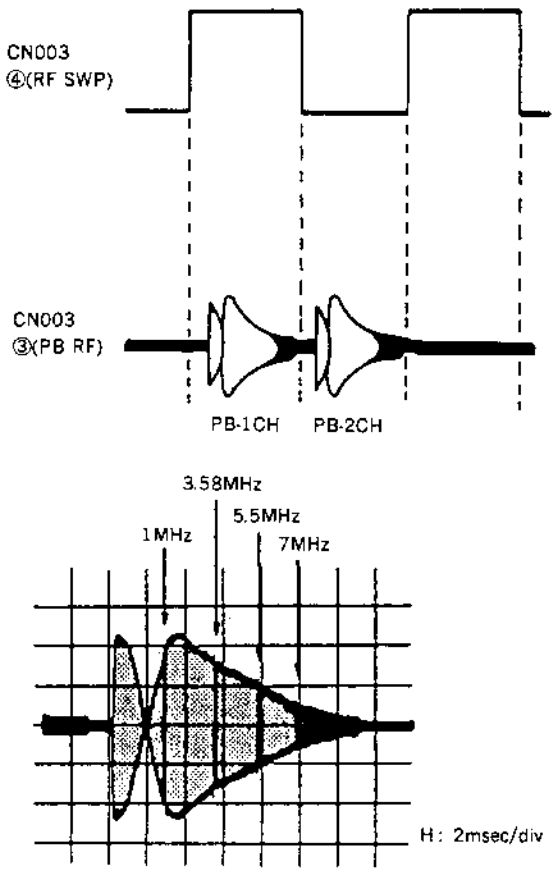


Fig. 10-8.

(2) 1'ch

Mode	Playback
Signal	Alignment tape: for frequency characteristic adjustment (WR5-6N)
Measurement point	CN003 pin ① (1'CH RF) External trigger: CN003 pin ④ (RF SWP)
Measuring instrument	Oscilloscope
Adjustment page	D
Adjustment address	02 (Test Mode (COSMO))
Adjustment element	RV003
Specified value	3.58MHz level: 5.5MHz level = 4 : 3

[Adjustment Method]

1) Place the adjustment remote control in the HOLD ON position.
2) Use EDIT +/— button to select adjustment page D.
3) Use FF/REW button to select adjustment address 01.
4) Use PB/STOP button to set to adjustment data 80.
5) Press PAUSE button on the remote control to store the adjustment data.
6) Use EDIT +/— button to select adjustment page d.
7) Use FF/REW button to select adjustment address 0E.
8) Use PB/STOP button to select adjustment data 0E.
9) Press PAUSE button on the remote control to store the adjustment data.
10) Use RV003 to adjust so that the ratio of 3.58MHz level to 5.5MHz of PB RF output waveform is 4 : 3.
11) Use EDIT +/— button to select adjustment page d.
12) Use FF/REW button to select adjustment address 01.
13) Use FF/REW button to select adjustment address 00.
14) Press PAUSE button on the remote control to store the adjustment data.
15) Place the adjustment remote control in the HOLD OFF position.

10-5-2. EE Level Adjustment (VI-111 Board)

Mode	Record
Signal	Color bar
Measurement point	CN511 pin ① (LINE OUT V)
Measuring instrument	Oscilloscope
Adjustment element	RV106
Specified value	1.00±0.05Vp-p

[Adjustment Method]

1) Use RV106 to adjust to 1.00±0.05Vp-p.

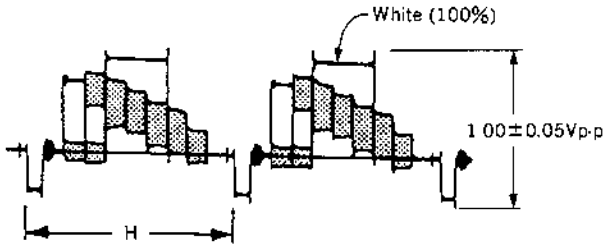


Fig. 10-9.

10-5-3. IR Adjustment (VI-111 Board)

Mode	Record
Signal	Color bar
Measurement point	IC101 pin ⑦ (Y COMB OUT)
Measuring instrument	Oscilloscope
Adjustment element	RV103
Specified value	Red residual chroma component should be minimized (to 60mVp-p or less).

[Connection]

1) Connect between pin ⑮ (SWP) and pin ⑭ (V REF) of IC101.

[Adjustment Method]

1) Use RV103 to adjust so that the red residual chroma component is minimized (to a level of 60mVp-p or less).

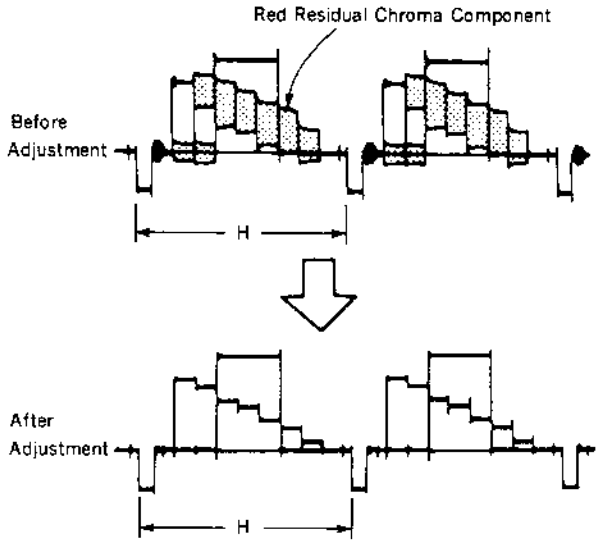


Fig. 10-10.

10-5-4. Y/Chroma Separation Adjustment (VI-111 Board)

Mode	E-E
Signal	Color bar (VIDEO)
Measurement point	IC101 pin ⑪ (C+CD)
Measuring instrument	Oscilloscope
Adjustment element	RV111 RV105
Specified value	Red residual chroma component should be minimized (to 30mVp-p or less).

[Adjustment Method]

1) Adjust RV111 and RV105 alternately to minimize the red residual chroma component (to a level of 30mVp-p or less).

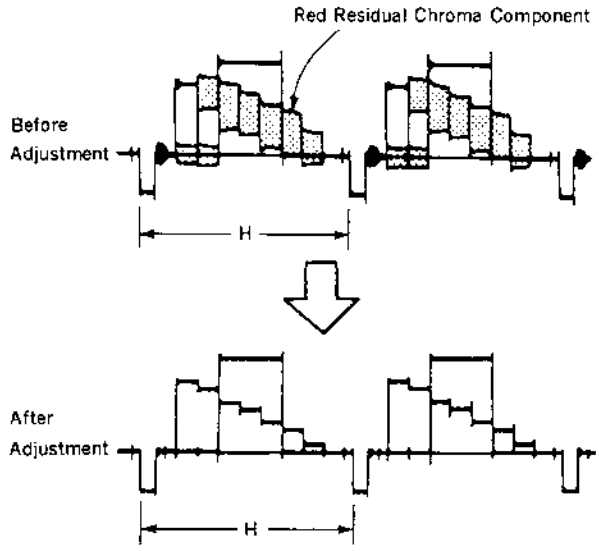


Fig. 10-11.

10-5-5. Emphasis Y Level Adjustment (VI-111 Board)

Mode	Record
Signal	Color bar
Measurement point	IC101 pin ③ (EMPH Y)
Measuring instrument	Oscilloscope
Adjustment element	RV109
Specified value	0.50±0.02Vp-p

[Adjustment Method]

1) Use RV109 and adjust to 0.50±0.02Vp-p.

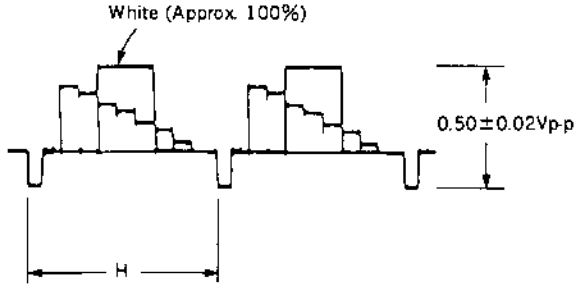


Fig. 10-12.

10-5-6. AC Clip Check (VI-111 Board)

Mode	Record
Signal	Color bar
Measurement point	IC101 pin ㊼ (DEV)
Measuring instrument	Oscilloscope
Specified value	White Clip : $\frac{B}{A}\times 100=235\pm 10\%$ Dark Clip : $\frac{C}{A}\times 100=95\pm 10\%$

Note : To measure with the oscilloscope, effect the band limit of 20MHz.

[Check Method]

1) Check that the output waveform at IC101 pin ㊼ is $\frac{B}{A}\times 100=235\pm 10\%$. Also check that the output waveform at IC101 pin ㊼ is $\frac{C}{A}\times 100=95\pm 10\%$.

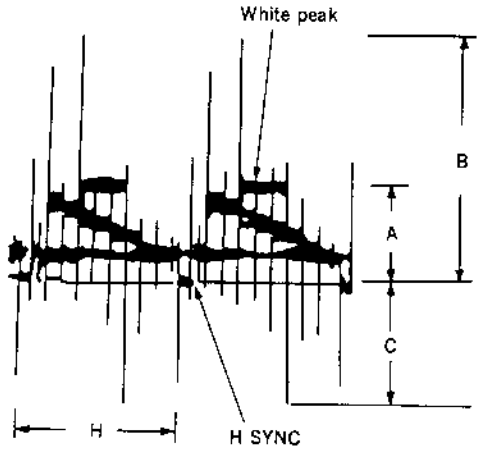


Fig. 10-13.

10-5-7. Y FM Carrier Frequency, Y FM Deviation Adjustment

(1) Y FM Carrier Frequency Adjustment (VI-111 Board)

Mode	Record
Signal	No signal
Measurement point	CN502 pin ⑨ (REC Y RF)
Measuring instrument	Frequency counter Oscilloscope
Adjustment element	RV108
Specified value	4.37±0.02MHz

Note : A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[Adjustment Method]

1) Use RV108 to adjust to 4.37±0.02MHz.

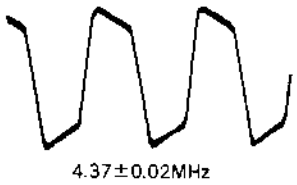


Fig. 10-14.

(2) Y FM Deviation Adjustment (VI-111 Board)

Mode	Record and playback
Signal	Color bar
Measurement point	LINE VIDEO OUT terminal
Measuring instrument	Oscilloscope
Adjustment element	RV107
Specified value	Playback level should be at 1.00±0.05Vp-p.

[Adjustment Method]

1) Record color bar signal.
2) Play back the recorded signal.
3) Check the playback output level.
   Specification: 1.00±0.05Vp-p
4) If the specification is not met, rotate RV107 as directed below and then repeat Steps 1) to 4).

	Direction of Rotating RV107
Over specified value	Counterclockwise (↺)
Below specified value	Clockwise (↻)

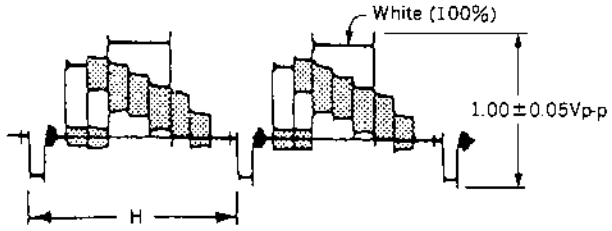


Fig. 10-15.

10-5-8. Recording Y Level Adjustment (VI-111 Board)

Mode	Record
Signal	No signal
Measurement point	CN502 pin ⑨ (REC Y RF)
Measuring instrument	Oscilloscope
Adjustment element	RV102
Specified value	260±10mVp-p

[Adjustment Method]

1) Record.
2) Use RV102 to adjust to 260±10mVp-p.

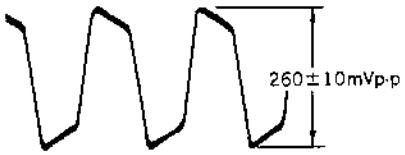


Fig. 10-16.

10-5-9. Chroma Emphasis Adjustment (VI-111 Board)

Mode	Record
Signal	Color bar
Measurement point	IC103 pin ㉔ (B.EMPH 0)
Measuring instrument	Oscilloscope
Adjustment element	FL105
Specified value	fo component should be reduced to a minimum.

[Adjustment Method]

1) Adjust FL105 to allow the latter half of the yellow component in the chroma signal to have a minimum amplitude.

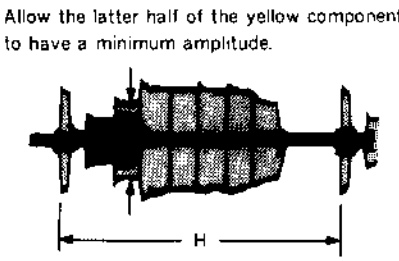


Fig. 10-17.

10-5-10. Recording Chroma Level Adjustment (VI-111 Board)

Mode	Record
Signal	Color bar
Measurement point	CN502 pin ⑩ (REC C RF)
Measuring instrument	Oscilloscope
Adjustment element	RV112
Specified value	140±10mVp-p

[Adjustment Method]

1) Adjust RV112 so that the flat portion of the chroma signal RED component has the level 140±10mVp-p.

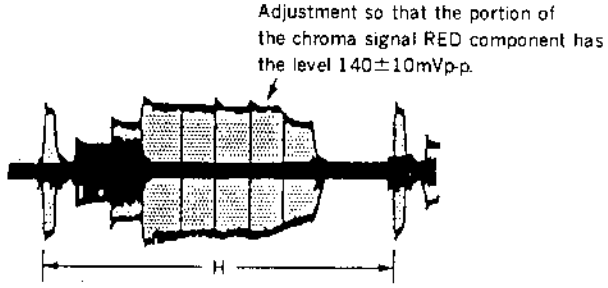


Fig. 10-18.

10-5-11. Playback Y Level Adjustment (VI-111 Board)

Mode	Playback
Signal	Alignment tape: For operation check, color bar portion (WR5-5NSP)
Measurement point	IC511 pin ⑧
Measuring instrument	Oscilloscope
Adjustment element	RV101
Specified value	1.00±0.05Vp-p

[Adjustment Method]

1) Use RV101 to adjust to 1.00±0.05Vp-p.

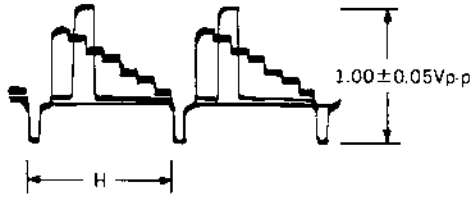


Fig. 10-19.

10-5-12. De-emphasis Level Check (VI-111 Board)

Mode	Playback
Signal	Alignment tape: For operation check, color bar portion (WR5-5NSP)
Measurement point	IC101 pin ㉑ (DL IN 1)
Measuring instrument	Oscilloscope
Specified value	0.5±0.1Vp-p

[Check Method]

1) Check to 0.5±0.1Vp-p.

Fig. 10-20.

10-5-13. CCD Direct Level Adjustment (VI-111 Board)

Mode	Playback Pause (SP mode)
Signal	Alignment tape: For operation check, (WR5-5NSP) Color bar portion
Measurement point	LINE VIDEO OUT terminal
Measuring instrument	Oscilloscope
Adjustment element	RV801
Specified value	The level differene between playback and pause modes must be 0±0.05Vp-p.

Note : The LINE VIDEO OUT terminal (RJ-33 board J501) should be terminated at 75 ohms.

[Adjustment Method]

1) Confirm that the video signal level is at 1.00±0.05Vp-p in playback mode.
2) Enter the playback pause mode.
3) Adjust RV801 so that the video signal level is equal to during playback.

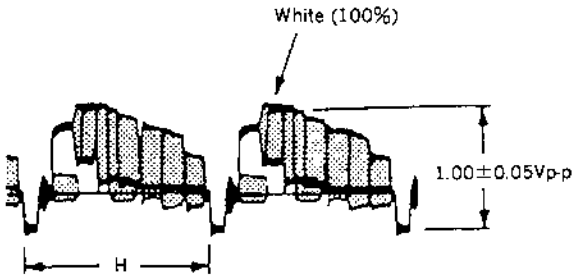


Fig. 10-21.

10-6. AUDIO SYSTEM ADJUSTMENTS

Color bar signal should be used as Video signal input for performing this adjustment.

[Connection of Equipment for Audio Measurement]

In addition to equipment for video measurement, equipment for audio system measurement should be connected as illustrated below.

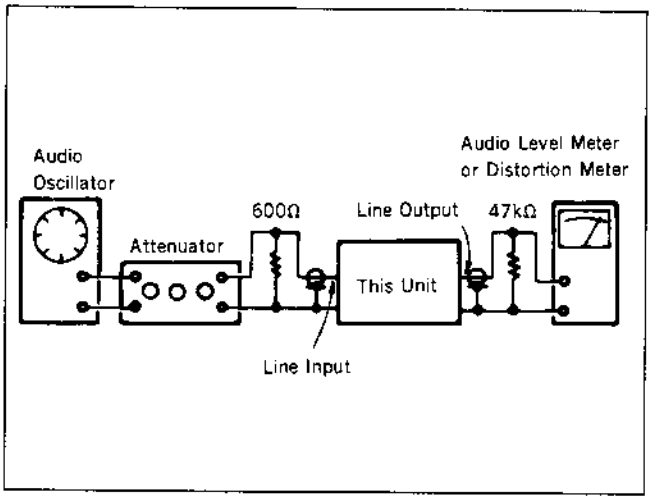


Fig. 10-22.

Unless otherwise specified, place the switches and controls of this unit in the following positions:

● Input Select switch ..... LINE

The adjustments should be performed in the following sequence.

[Adjustment sequence]

1. Carrier Frequency Adjustment
2. Playback Level Check
3. Overall Level Check
4. Overall Distortion Factor Check
5. Overall Noise Level Check
6. Overall Frequency Characteristic Check

10-6-1. Carrier Frequency Adjustment (VI-111 Board)

Mode	Record
Signal	No signal
Measurement point	CN902 pin ① (REC AFM)
Measuring instrument	Frequency counter
Adjustment element	RV901
Specified value	1500±3kHz

Note : A frequency counter should be connected through a buffer amplifier (oscilloscope, etc.) having a high impedance and a low capacitance.

[Adjustment Method]

1) Use RV901 to adjust to 1500±3kHz.

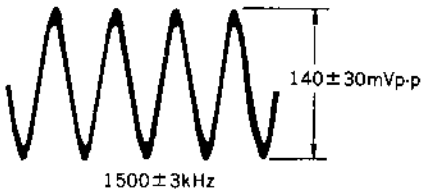


Fig. 10-23.

10-6-2. Playback Level Check (AU-127 Board)

Mode	Playback
Signal	Alignment tape: For operation check, 400Hz portion (WR5-9NS)
Measurement point	LINE AUDIO OUT terminal
Measuring instrument	Audio level meter
Specified value	−7.5±2.0dBs

[Adjustment Method]

1) Check level is at −7.5±2.0dBs.

10-6-3. Overall Level Check

Mode	Record (SP/LP mode)
Signal	400Hz, −7.5dBs
Measurement point	LINE AUDIO OUT terminal
Measuring instrument	Audio level meter
Specified value	−7.5±3dBs

[Check Method]

1) Record to SP mode.
2) Check level is at −7.5±3dBs.
3) Record to LP mode.
4) Check level is at −7.5±3dBs.

10-6-4. Overall Distortion Factor Check

Mode	Self-record playback (SP/LP mode)
Signal	400Hz, −7.5dBs
Measurement point	LINE AUDIO OUT terminal
Measuring instrument	Distortion meter
Specified value	0.25% or less

[Check Method]

1) Record signal to SP/LP mode.
2) Play back the recorded portion.
3) Check that the distortion factor is 0.25% or less.

10-6-5. Overall Noise Level Check

Mode	Self-record playback (LP mode)
Signal	No signal (Insert a shorting plug into the Audio Line Input jack.)
Measurement point	LINE AUDIO OUT terminal
Measuring instrument	Audio level meter
Specified value	−60dBs or less Note)

[Check Method]

1) Record.
2) Play back recorded portion.
3) Check that the noise level is −60dBs or less.

Note : This is a value when an IHF-A weighing filter is used.

10-6-6. Overall Frequency Characteristic Check

Mode	Self-record playback
Signal	Ⓐ 400Hz, −7.5dBs Ⓑ 20Hz, −7.5dBs Ⓒ 14kHz, −7.5dBs : Audio Line Input terminal
Measurement point	LINE AUDIO OUT terminal
Measuring instrument	Audio level meter
Specified value	The playback output levels of 20Hz and 14kHz should be 0±3dBs with 400Hz playback output level at 0dBs.

[Check Method]

1) Record signals Ⓐ to Ⓒ in turn.
2) Play back the recorded portion.
3) Check that the respective playback output levels of 20Hz and 14kHz are 0+3dBs with 400Hz playback output level at 0dBs.

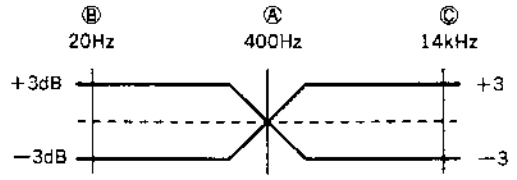


Fig. 10-24.

10-7. TUNER SYSTEM ADJUSTMENTS

This adjustment should be made in the VHF/UHF Broadcasting Listening mode.

10-7-1. AGC Adjustment (TT-35 Board)

Mode	E-E
Signal	TV signal (60dBμ)
Measurement point	TU001 pin ⑥
Measuring instrument	Digital voltmeter
Adjustment element	AGC VR (IF001)
Specified value	6.5±0.3Vdc

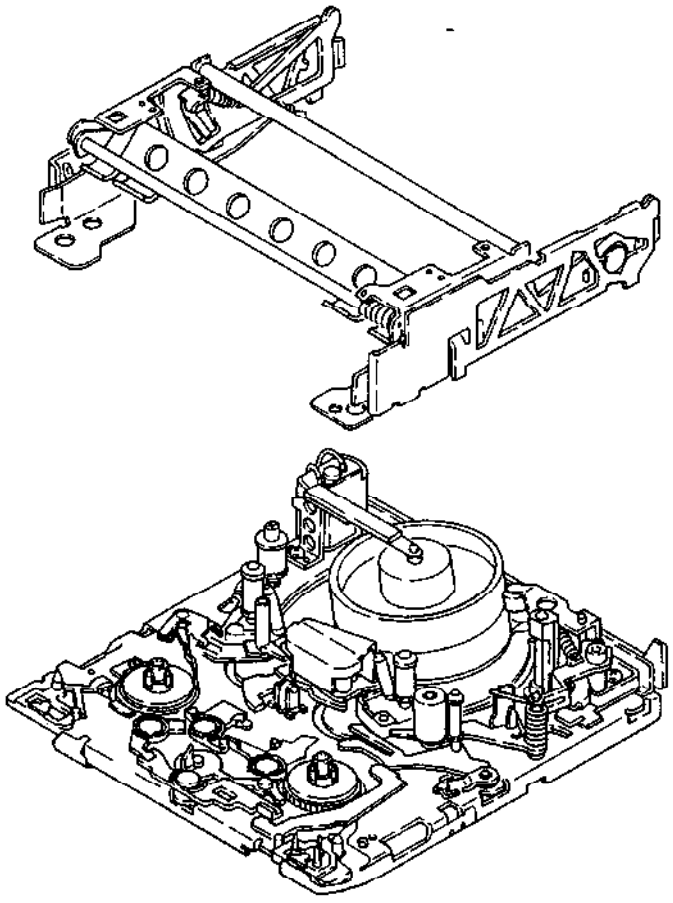
[Adjustment Method]

1) Use AGC VR to adjust the voltage value to 6.5±0.3Vdc.
2) Input TV signal of 58dBμ and make sure that the voltage is 7Vdc or more.
3) Input TV signal of 60dBμ and make sure that the voltage is 6.3±0.5Vdc.

U MECHANISM

Video 8

Please use in conjunction with the SERVICE MANUAL



8 MECHANISM DECK

SONY

TABLE OF CONTENTS

1. PREPARATIONS FOR MECHANICAL BLOCK CHECK, ADJUSTMENT AND REPLACEMENT

Note: For removal of the cabinet, the boards, the cassette compartment, etc., refer to the service guides.

1-1. OPERATION WITHOUT CASSETTE COMPARTMENT ASSEMBLY AND TAPE

Note: The unit will not work if exposed to a strong light.

1-1-1. How to Trigger the Loading Operation (See Fig. 1-1.)

1) Supply power to the unit after removing the cabinet, the camera block, the cassette compartment assembly, etc., as indicated in the service guides. (This will enable operation of the mechanical deck.)
2) Cover the LED assembly with an opaque cap, etc. ❶.
3) Attach a piece of tape to the RECOG switch ❷ so that the pin is held down.
4) Push the EJECT lever ❸ in the direction of the arrow ❹.

1-1-2. Setting the Playback Mode (See Fig. 1-1.)

1) Follow the procedures in section 1-1-1. above.
2) Put the rubber band ❺ around the S and T reels.
3) Press the PLAY switch of unit, then push the tension regulator arm assembly ❻ in the direction of the arrow ❼ when the T reel starts to rotate (the tension regulator band will be released, and the S reel will start rotating).
4) To stop operation, press the STOP switch.

1-1-3. Eject Operation (See Fig. 1-1.)

1) To eject, turn the EJECT switch on.

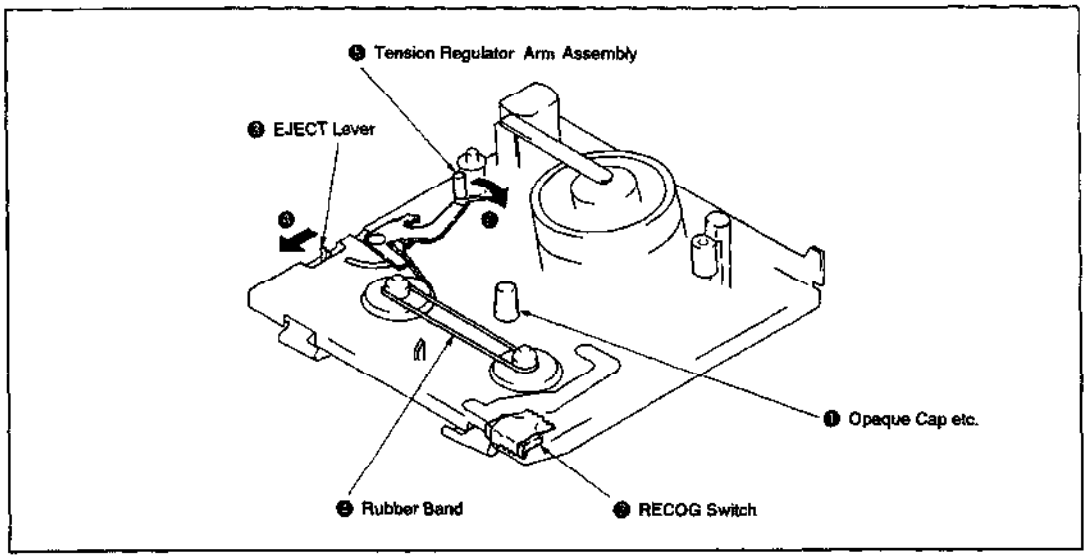


Fig. 1-1.

1-2. THE MODE SELECTOR

1-2-1. Name of Each Part (external) (See Fig. 1-2.)

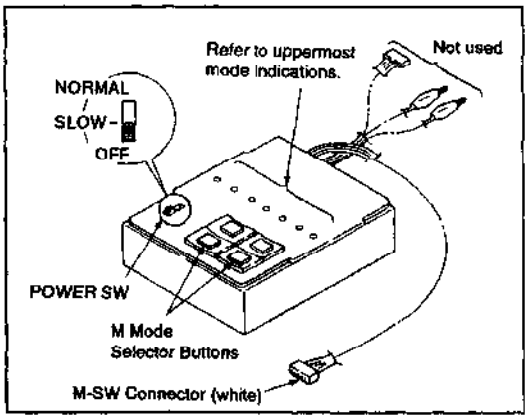


Fig. 1-2.

1-2-2. Connections (See Fig. 1-3.)

1) Mount the MODE SELECTOR III panel (Ref. No. J-9) ❶ onto the mode selector.
2) Attach the conversion connector (Ref. No. J-8) ❸ of MODE SELECTOR III to the 6-pin connector (white) ❷ of the mode selector M-SW.
3) Remove the FP-89 flexible board ❺ from the flexible connector ❹.
4) Attach the FP-89 flexible board ❺ to the flexible connector ❹ of the MODE SELECTOR III conversion connector ❸, then attach the 2-pin connector (white) ❻ of the loading motor to the 2-pin connector (white) ❶.

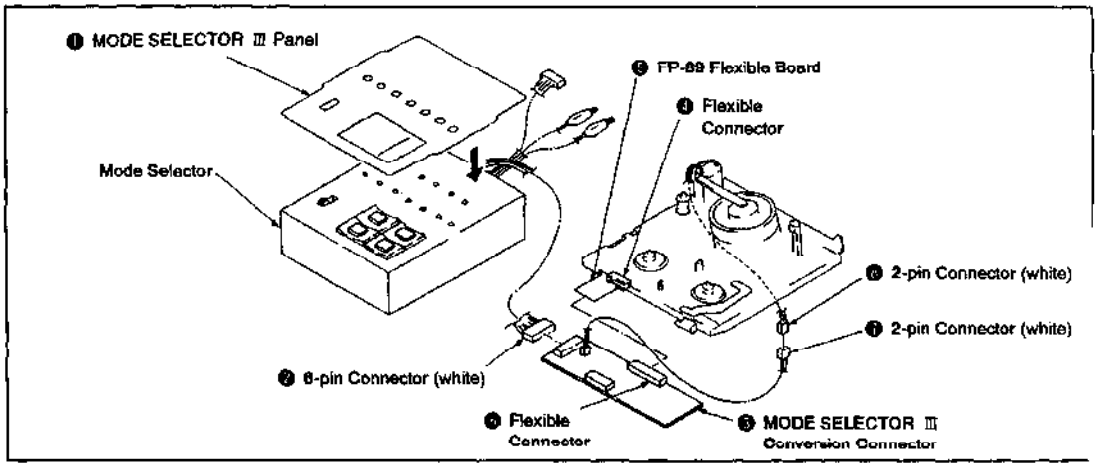


Fig. 1-3.

1-2-3. Handling (See Figs. 1-2. and 1-4.)

- Use only the M mode selector buttons.
- Refer to mode indications on the uppermost part of the MODE SELECTOR III panel.
- If the right M mode selector button is kept pressed, the lit indication will change in the order of EJECT → (1A) → ULD → (1B) → STOP → (1C) → FWD.
- To change modes in the reverse direction (from FWD to EJECT), press the left selector button.

Note: For this U mechanism, the uppermost indicators on the MODE SELECTOR III panel are used. The 1A, 1B and 1C indications light up during mode changes.

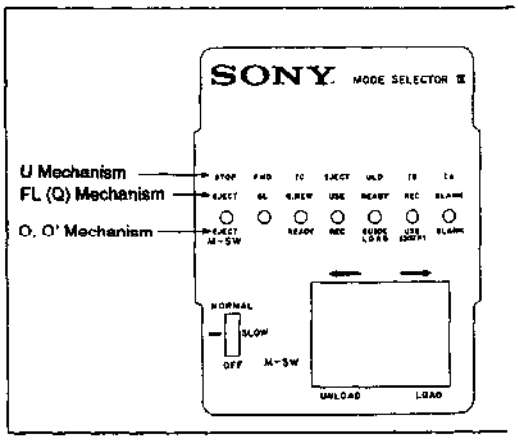


Fig. 1-4.

2. PERIODICAL CHECK AND MAINTENANCE (See Fig. 2-1.)

The following periodical check and maintenance procedures are necessary to ensure proper operation and to protect the tapes as well as the unit, and the following maintenance procedures must be always carried out after repairing regardless of how long the unit has been used.

2-1. ROTARY DRUM ASSEMBLY CLEANING

1) While pressing a piece of chamois leather (Ref. No. J-2) moistened in cleaning fluid (Ref. No. J-1) lightly against the rotary drum, turn the rotary upper drum slowly counter-clockwise with your fingers.

Note: Do not drive the drum with the motor, and do not turn it clockwise.
Do not move the chamois leather vertically against the head tip; this can damage the head tip. Strictly follow the cleaning instructions above.

2-2. TAPE PATH CLEANING

1) Set the cassette compartment assembly to the eject state, or remove it. Then clean the tape path (guides No. 1 to 7, capstan shaft, pinch rollers) with a piece of chamois leather moistened in cleaning fluid (See Fig. 2-1).

2-3. DRIVE SYSTEM CLEANING

1) Clean the drive system (timing belt, reel table surface) with a piece of cloth moistened in cleaning fluid.

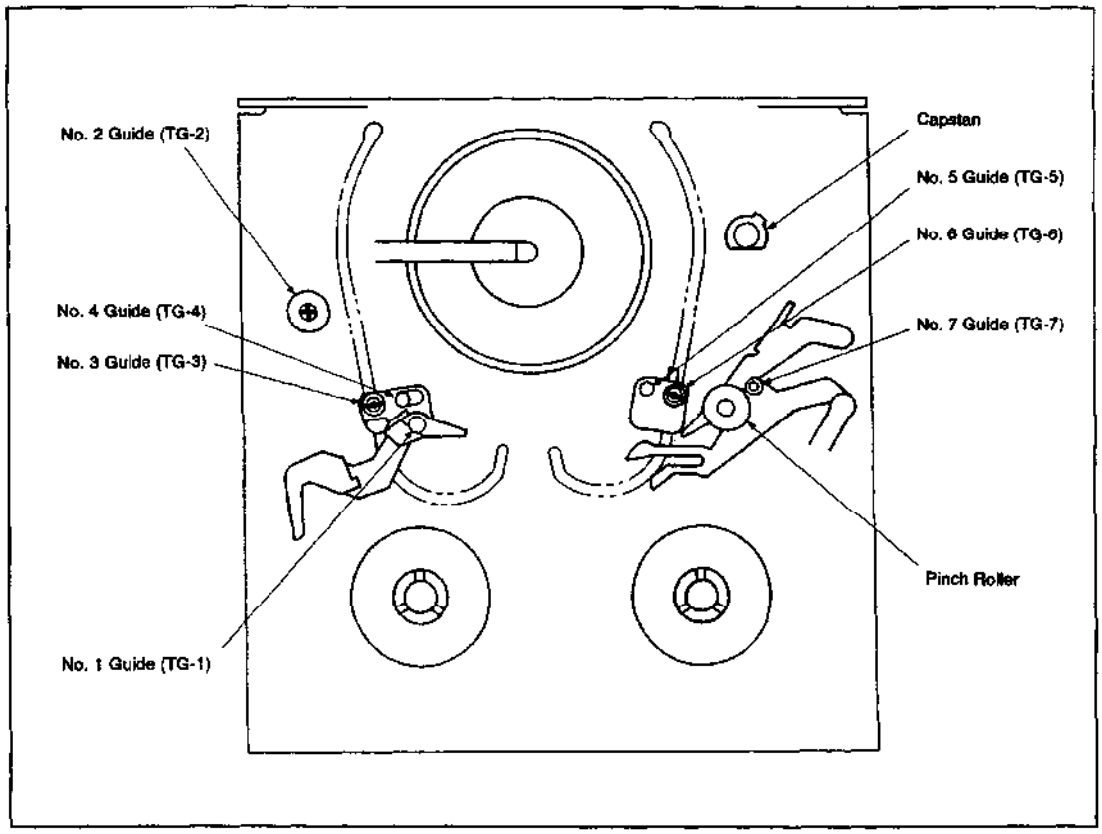


Fig. 2-1.

2-4. PERIODICAL CHECK ITEMS

○Cleaning ◎Lubrication ☆Check

Maintenance and Check Item		Operation time (H)										Remarks
		500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Cleaning and Demag-netizing	Tape path surfaces Cleaning	○	○	○	○	○	○	○	○	○	○	Do not oil.
	Rotary drum assembly cleaning and demagnetizing	○	○	○	○	○	○	○	○	○	○	Do not oil.
Drive System	Relay belt (short)	–	☆	–	☆	–	☆	–	☆	–	☆	3-728-866-01
	Relay belt (long)	–	☆	–	☆	–	☆	–	☆	–	☆	3-728-865-01
	Capstan shaft	–	◎	–	◎	–	◎	–	◎	–	◎	Take care that no oil gets on tape path surfaces.
	Idler pulley axle	–	◎	–	◎	–	◎	–	◎	–	◎	
	Loading motor	–	☆	–	☆	–	☆	–	☆	–	☆	1-541-612-11
Perfor-mance Check	Abnormal noise	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back tension measurement	–	☆	–	☆	–	☆	–	☆	–	☆	
	Brake system	–	☆	–	☆	–	☆	–	☆	–	☆	
	FWD, RVS torque measurement	–	☆	–	☆	–	☆	–	☆	–	☆	

Notes: When overhauling the unit, perform parts replacement referring to the table above.

Regarding Oil:

- Always use the specified oil (using oil of different viscosity, etc. can cause troubles of several kinds) .
  Specified oil: Part No. 7-661-018-01
  (Mitsubishi Diamond Oil Hydrofluid EP56)
- Be sure that no dirt is mixed in the oil to be used on axle bearings. Use of dirty oil can result in bearing wear and burning.
- By "one drop of oil" is meant the quantity of oil adhering to the end of a a 2mm-diameter rod as shown in Fig. 2-2.

On grease:

- Use the specified grease.
  Grease: Part No. 7-662-010-08
  (Sony grease SGL-701)

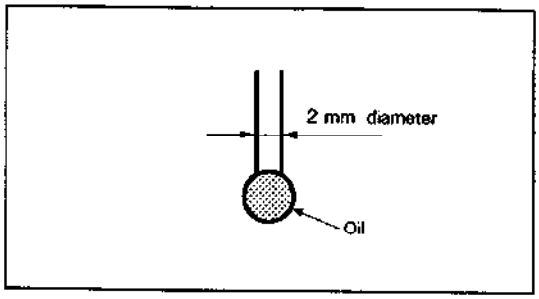
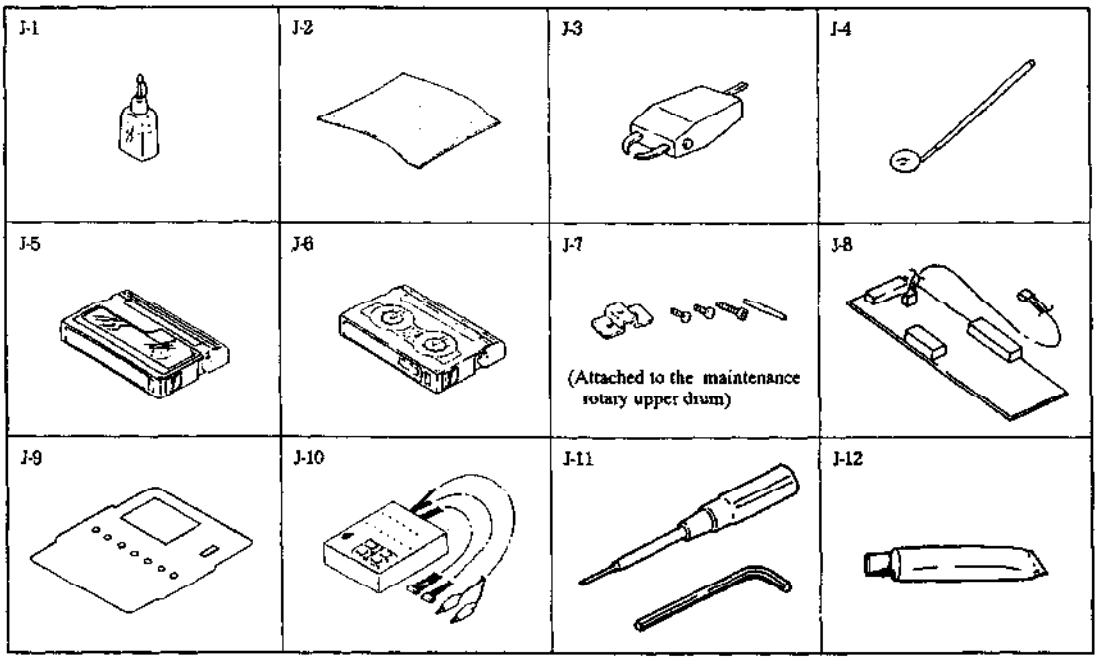


Fig. 2-2.

2-5. SERVICING TOOLS

Ref. No.	Name	Part Code	Marking	Application, etc.
J-1	Cleaning fluid	Y-2031-001-0	–	
J-2	Chamois cloth	2-034-697-00	–	
J-3	Head demagnetizer	Commercially available	–	
J-4	Dental mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-5	Alignment tape NTSC (WR5-1N) PAL (WR5-1C)	8-967-995-01 8-967-995-06		Tape path
J-6	FWD/RVS takeup torque cassette	J-6080-624-A	GD-2086	
J-7	Rotary drum jig	(Attached to the maintenance rotary upper drum)		
J-8	Mode selector III conversion connector	J-6082-021-A		General
J-9	Mode selector III panel	J-6082-023-A		General
J-10	Mode selector	J-6080-825-A		General
J-11	Hexagonal wrench detection (0.89 mm) or L wrench (0.89 mm)	7-700-766-01 7-700-736-06		Tape path
J-12	Sony grease (SGL-701)	7-662-010-08		

Other devices: Oscilloscope
Analog tester (20 kΩ)



3. MECHANICAL BLOCK CHECK, ADJUSTMENT AND REPLACEMENT

Notes:
- Use the mode selector (Ref. No. J-10) for procedures in this chapter.
- Modes within a frame [ ] are those set by pressing the buttons of the mode selector.

3-1. HC ROLLER ASSEMBLY

1. Removal (See Fig. 3-1.)

1) Remove the screw ❶, then remove the HC roller assembly ❷.

2. Installation (See Fig. 3-1.)

1) Align the two dowels ❸ attached to the HC roller assembly ❷ with the two holes ❹ in the mechanism chassis.
2) Secure the HC roller assembly ❷ with the screw ❶.

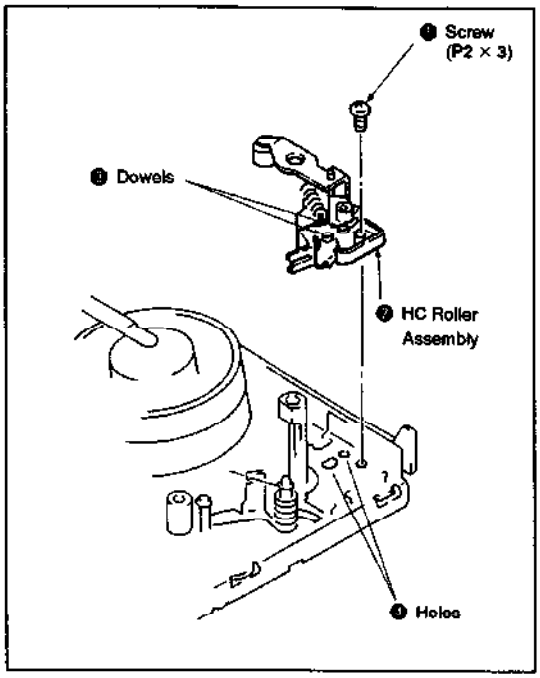


Fig. 3-1.

3-2. GUIDE GUARD ASSEMBLY

1. Removal (See Fig. 3-2.)

Remove the screw ❶, then remove the guide guard assembly ❷.

2. Installation (See Fig. 3-2.)

1) Align the dowel ❸ attached to the guide guard assembly ❷ with the hole ❹.
2) Secure the guide guard assembly ❷ with the screw ❶.

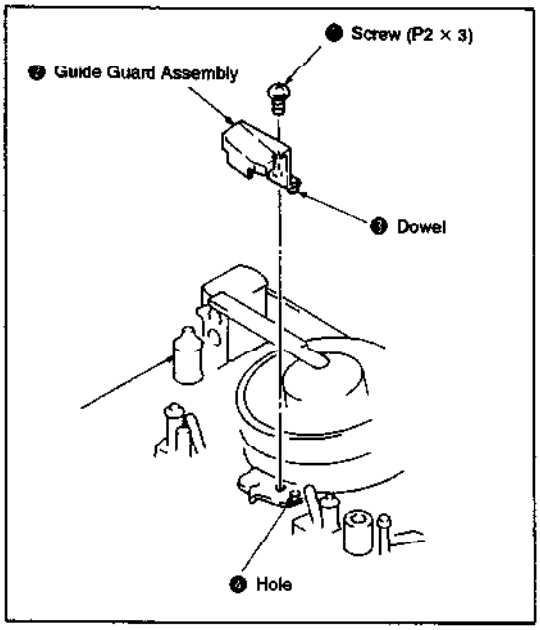


Fig. 3-2.

3-3. DC MOTOR (CAPSTAN MOTOR) ASSEMBLY

1. Removal (See Fig. 3-3.)

1) Set the ULD mode.
2) Turn the stopper ❶ in the direction of the arrow ❹ as far as it will go.
3) Remove the two screws ❷, then remove the DC motor ❸.

2. Installation (See Fig. 3-3.)

1) Align the two screwed dowels ❹ with the two holes ❺, then engage the toothed part ❻ with the connecting gear ❼.
2) Secure the DC motor assembly ❸ with the two screws ❷.
3) Turn the stopper ❶ in the direction of the arrow ❺ as far as it will go.

Note:
- When engaging the gears, take care not to damage their teeth.
- Do not leave any clearance between the DC motor ❸ and the chassis.
- Do not touch the capstan motor axle*, the oil seal* and the rotor*.

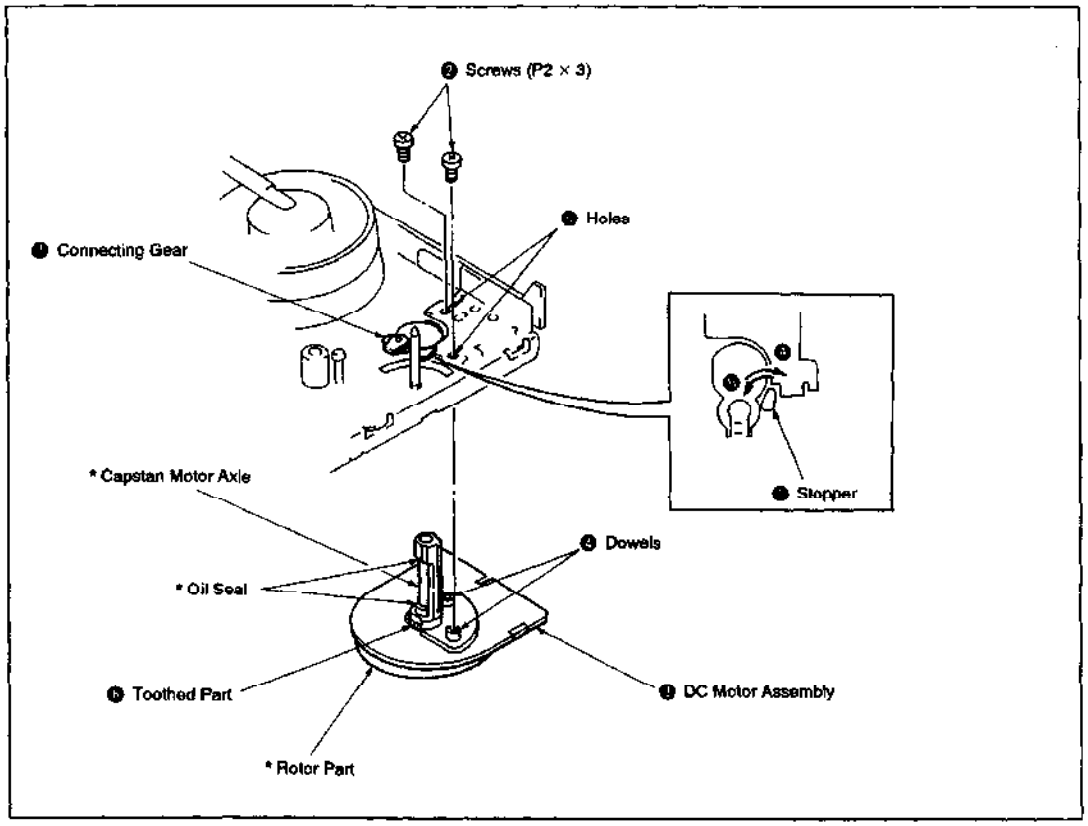


Fig. 3-3.

3-4. S BRAKE, T BRAKE

1. Removal (See Fig. 3-4.)

1) Remove the torsion coil spring (ST) ⑧.
2) Remove the axle holding pin ⑨, then remove the T brake ⑩.
3) Remove the axle holding pin ④, then remove the S brake ⑤.

2. Installation (See Fig. 3-4.)

1) While fitting the toothed part ⑥ into the notch ⑪, mount the S brake ⑤.
2) Insert the axle holding pin ⑨.
3) Insert the axle ⑫ to the S reel side of the brake release arm ⑬ so that the ⑭ part comes closer to the drum than part ⑮, and mount the T brake ⑩.
4) Insert the axle holding pin ⑨.
5) Insert the torsion coil spring (ST) ⑧ below the claw ⑦ of the axle ⑫, then hook it to two claws ⑯.

Note: Confirm that the claws of axle holding pins ⑨ and ④ are not broken before assembling.

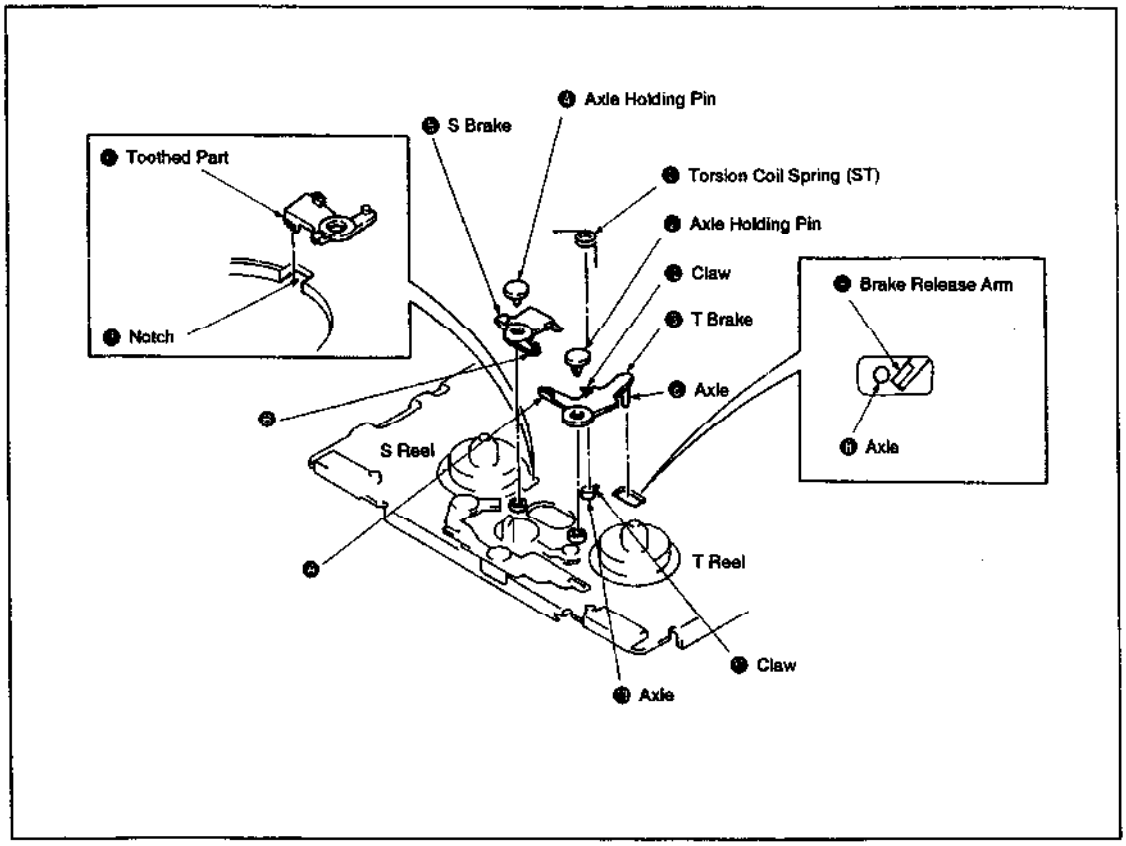


Fig. 3-4.

3-5. LB BRAKE, AXLE HOLDING PINS

1. Removal (See Fig. 3-5.)

1) Remove the screw ❶, then remove the TL holding plate ❷.
2) Remove the axle holding pin ❸, then remove the LB brake ❹.
3) Remove the axle holding pin ❺, then remove the LB lever ❻.

2. Installation (See Fig. 3-5.)

1) Mount the LB lever ❻ matching it to pin ❼ of the LB gear, then secure it with the axle holding pin ❺.
2) Insert the pin ❽ into the notch ❾ of the LB lever ❻, then mount the LB brake ❹ while inserting the toothed part ❿ into the notch ⓫.
3) Insert the axle holding pin ❸.
4) Align the dowel ⓬ with the hole ⓭, then mount the TL holding plate and secure it with the screw ❶.

Note: Confirm that the claws of axle holding pins ❸ and ❺ are not broken before assembling.

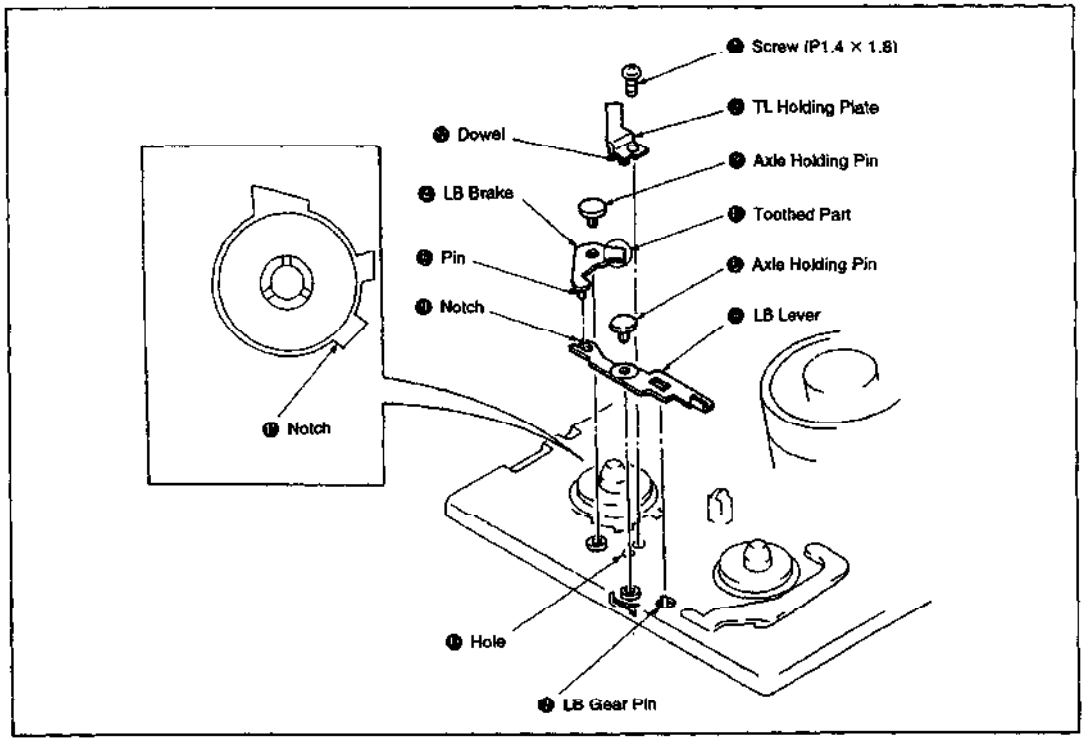


Fig. 3-5.

3-6. LB RELEASE ARM

1. Removal (See Fig. 3-6.)

1) While pushing the claw ❶ in the direction of the arrow, remove the LB release arm ❷.

2. Installation (See Fig. 3-6.)

1) Fit the LB release arm ❷ to the axle ❸, insert protrusions ❶, ❺, ❻, ❼ into the three holes ❹, then secure with the claw ❶.

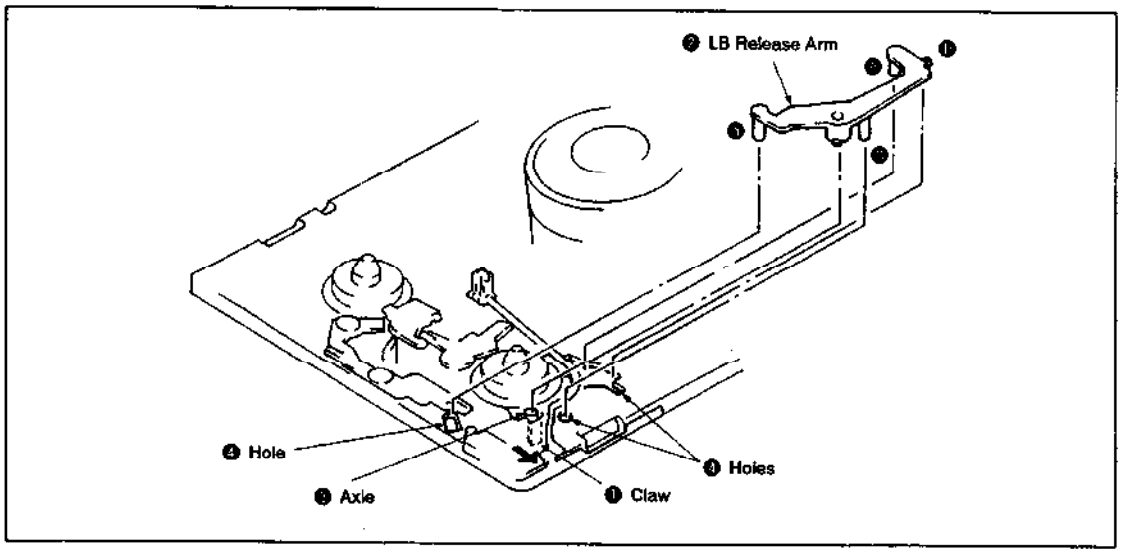


Fig. 3-6.

3-7. RK STOPPER. RK STOPPER ARMS

1. Removal (See Fig. 3-7.)

1) Remove the torsion coil spring (RK) ❶.
2) Open the chassis claw ❽, then remove the RK stopper arm ❼.
3) Remove the RK stopper ❹.

2. Installation (See Fig. 3-7.)

1) Mount the RK stopper ❹ onto the axle ❸.
2) Mount the RK stopper arm ❼ onto the axle ❸, insert Pin ❿ into hole ❾, then hook the claw ❽ of the chassis to the hole ❽.
3) Insert the torsion coil spring (RK) ❶ into the axle ❸, then hook it to claws ❽ and ❾.

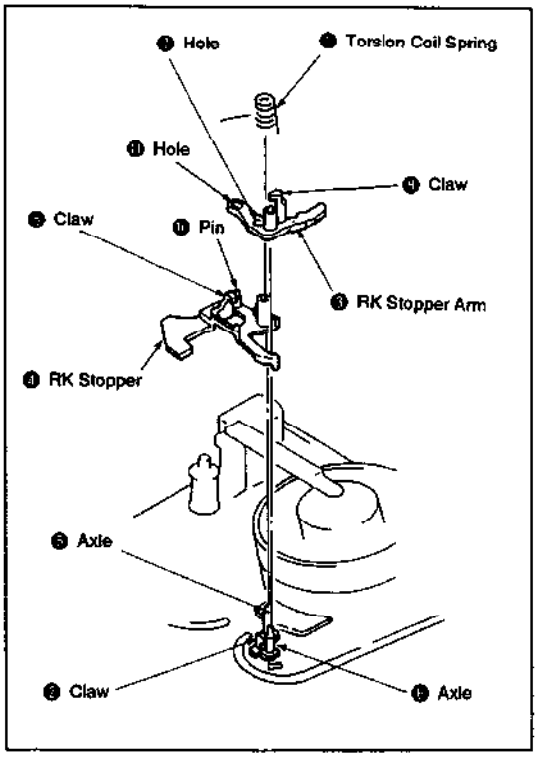


Fig. 3-7.

3-8. PINCH ARM ASSEMBLY, TG-7 ASSEMBLY

1. Removal (See Fig. 3-8.)

1) Set the [PB] mode.
2) Remove the stopper washer ❶, then remove the pinch arm assembly ❷.
3) Bend the claw ❹ inside hole ❸ in the direction of the arrow using a thin screwdriver or the like, then remove the TG-7 plate spring ❺.
4) Remove the TG-7 arm assembly ❻.

2. Installation (See Fig. 3-8.)

1) Grease the inner surfaces of hole ❸ (See Fig. A).
2) Insert the axle ❽ of the TG-7 arm assembly ❻ into the hole ❸.
3) Grease the shaded section ⓫ (See Fig. A).
4) Insert the TG-7 plate spring ❺ into the hole ❸, then secure it with the claw ❹.
5) Apply half a drop of oil to the axle ❽ (See Fig. B).
6) Fit the pinch arm assembly ❷ to the axle ❽ and insert the pinch roller sub arm assembly tab ⓬ into the ⓭ part.
7) Install the stopper washer ❶.

Note:
- Take care not to grease the screw ⓫ of the TG-7 arm assembly ❻ (See Fig. A).
- When fitting the pinch arm assembly ❷ to the axle ❽, make sure that it does not touch the TG-7 guide ❼ or the rubber roller ❾.
- After assembling, be sure to perform tape path adjustment as described in section 4.

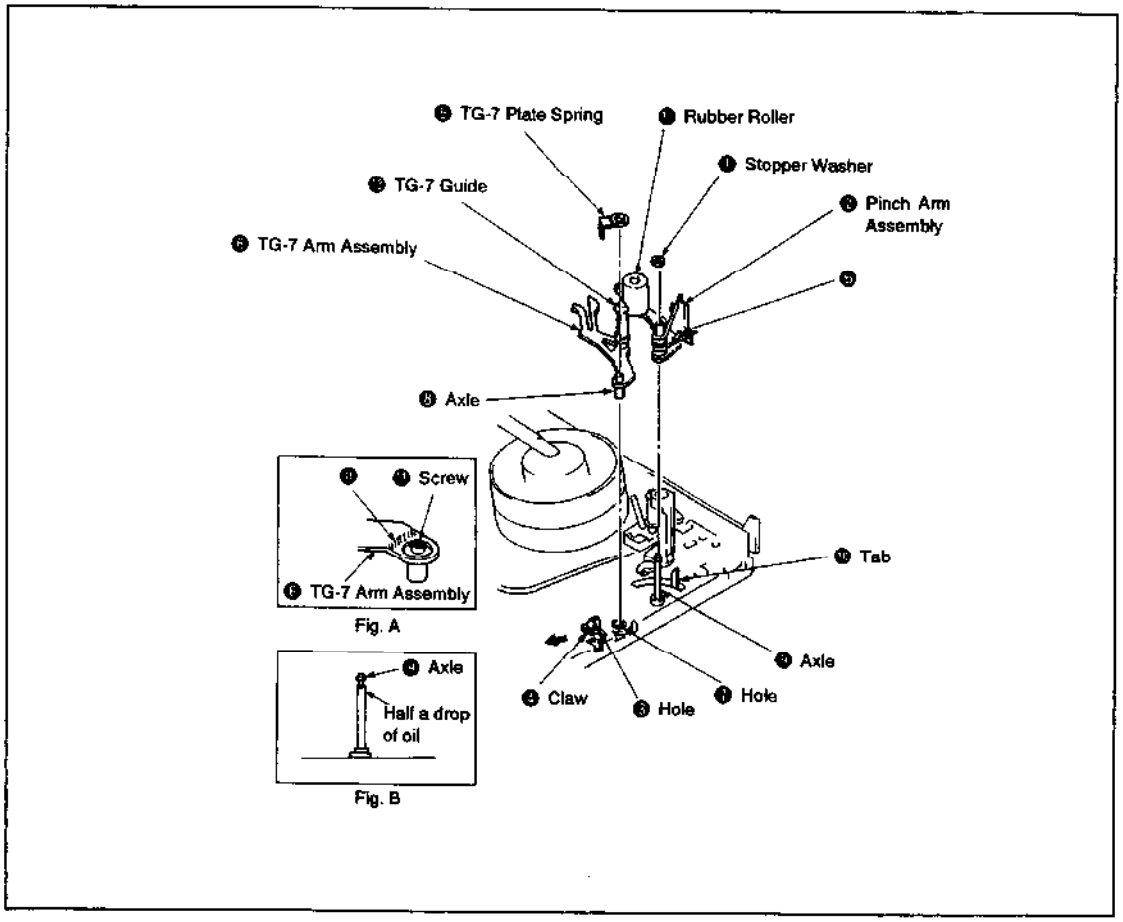


Fig. 3-8.

3-9. TG-2 ASSEMBLY

1. Removal (See Fig. 3-9.)

1) Remove the TG-2 upper flange assembly ❶.
2) Remove the TG-2 roller ❷, the TG-2 sleeve ❸, the TG-2 lower flange ❹ and the compression spring ❺.

2. Installation (See Fig. 3-9.)

1) Mount the compression spring ❺, the TG-2 lower flange ❹, the TG-2 sleeve ❸ and the TG-2 roller ❷ to the axle.
2) Secure the TG-2 upper flange ❶ to the axle by rotating it 4 to 6 turns.

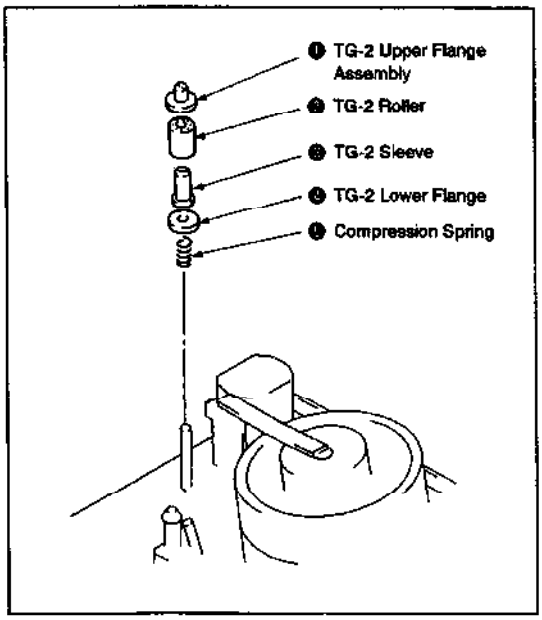


Fig. 3-9.

3. TG-2 Height Preset (see Fig. 3-10.)

1) Adjust height from the mechanism chassis upper surface to the TG-2 upper flange ❶ upper surface to 18.6 mm by turning the TG-2 upper flange ❶.

Note: After adjustment, be sure to perform tape path adjustment as described in section 4.

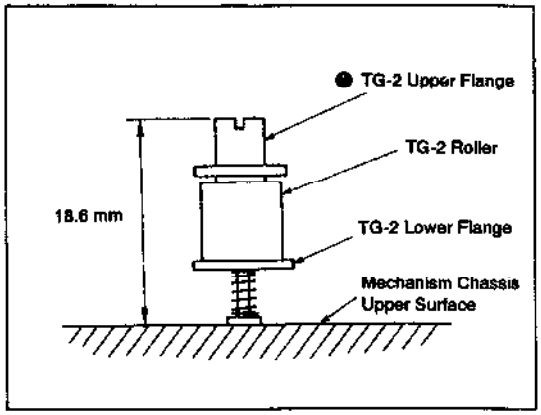


Fig. 3-10.

3-10. S REEL TABLE ASSEMBLY, T REEL TABLE ASSEMBLY

1. Removal (See Fig. 3-11.)

1) Remove the S brake and T brake as described in section 3-4.
2) Remove the TL holding plate as described in section 3-5.
3) Remove the tension regulator band assembly as described in section 3-11.
4) Remove the S reel table assembly ❶.
5) Turn the stopper ❷ approx. 90° in the direction of the arrow ❸.
6) While sliding the LB release arm ❹ in the direction of the arrow ❺, remove the T reel table assembly ❻.

2. Installation (See Fig. 3-11.)

1) Apply half a drop of oil to the axle ❽ (See Fig. A).
2) Move the RK gear ❾ in the direction of the arrow ❿ and the TS brake ⓫ in the direction of the arrow ⓬, putting them out of the way.
3) While sliding the LB release arm ❹ in the direction of the arrow ❺, mount the T reel table assembly ❻ onto the axle ❽, then turn the stopper ❷ in the direction of the arrow ❸ as far as it will go.
4) Apply half a drop of oil to the axle ❽ (See Fig. B).
5) Move the RK gear ❾ in the direction of the arrow ⓭, the UL brake ⓮ in the direction of the arrow ⓯ and the LB brake ⓰ in the direction of the arrow ⓱, putting them out of the way.
6) Mount the S reel table ❶ onto the axle ❽.
7) Mount the tension regulator band assembly as described in section 3-11.
8) Mount the TL holding plate as described in section 3-5.
9) Mount the S brake and T brake assemblies as described in section 3-4.

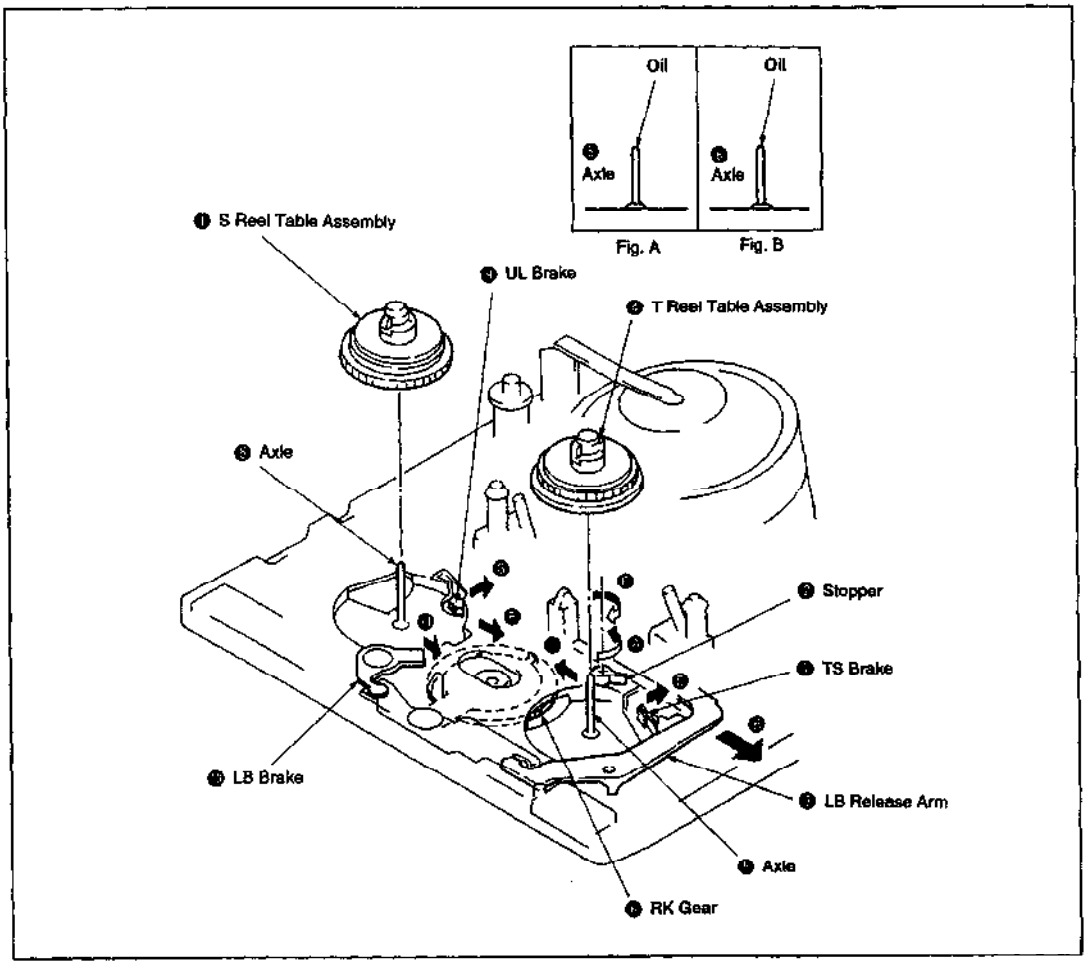


Fig. 3-11.

3-11. TENSION REGULATOR BAND ASSEMBLY, TENSION REGULATOR ARM ASSEMBLY

1. Removal (See Fig. 3-12.)

1) Remove the TL holding plate as described in section 3-5.
2) Remove the screw ❶.
3) Using a thin screwdriver or the like, remove the tension regulator band assembly ❹ from the axle ❸ of tension regulator arm assembly ❷.
4) Remove the tension spring ❺.
5) Remove the stopper washer ❻ from the back of the mechanism chassis, then remove the tension regulator arm assembly ❷.
6) Open the claw ❼, then remove the adjust arm ❽.

Note: When removing the tension regulator band assembly ❹, take care not to twist or bend it, and not to touch the felt surface ❾.

2. Installation (See Fig. 3-12.)

1) Engage the adjust arm ❽ in the position shown in Fig. A, then close the claw ❼.
2) Apply half a drop of oil to the hole ⓰.
3) Mount the tension regulator arm assembly ❷, then insert it into the slot ⓫ so that the ❽ part comes to the arrow Ⓐ side of the switch lever assembly (See Fig. B).
4) While holding the tension regulator arm assembly ❷ from the mechanism chassis front, secure it with the stopper washer ❻ from the back.
5) Hook the R hook of the tension spring ❺ to the adjust arm ❽ as shown in the figure, then hook the opposite end to the tension regulator arm assembly ❷.
6) Mount the tension regulator band assembly ❹ onto the axle ❸ of tension regulator arm assembly ❷, and place it so that the felt surface ❾ comes against the shaded portion of the S reel table assembly ⓯.
7) Mount the tension regulator plate ⓬ of the tension regulator band assembly ❹ so that it is aligned with the dowel ⓭ of the mechanism chassis, then secure it temporarily with the screw ❶.
8) Mount the TL holding plate as described in section 3-5.
9) Adjust tension regulator FWD position as described in section 3-12.
10) Perform adjust arm adjustment as described in section 3-22.

Note: When mounting the tension regulator band assembly ❷, take care not to twist or bend it, and not to touch the felt surface ❾.

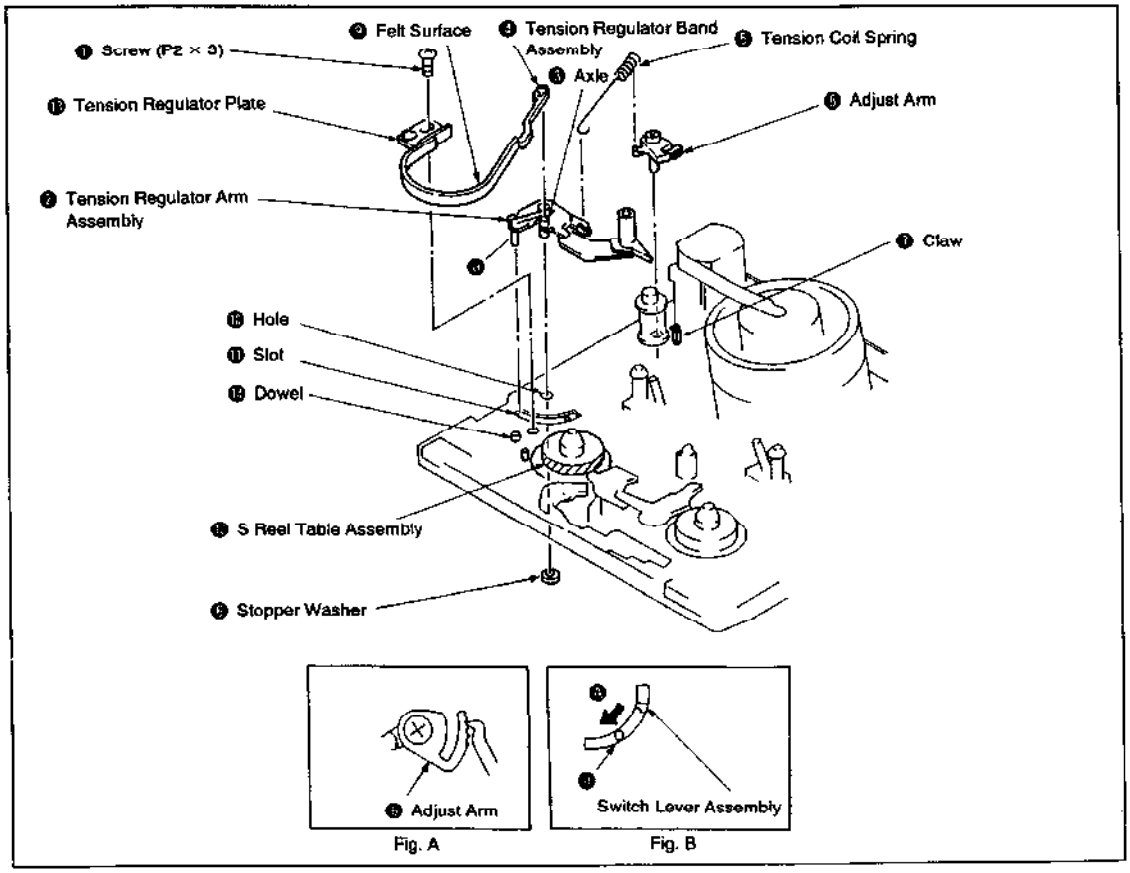


Fig. A Fig. B

Fig. 3-12.

3-12. TENSION REGULATOR FWD POSITION PRESET (See Fig. 3-13.)

1) Load a cassette tape and set the FWD mode.
2) Confirm whether the distance between ❻ part of the tension regulator arm ❶ and the groove ❷ of the chassis is 1.1 ± 0.3 mm. If this distance is not within the specified range, remove the cassette tape and perform the following adjustment.
3) Loosen the fixing screw ❹ of the tension regulator band assembly ❸.
4) Slide the tension regulator plate ❺ in the direction of the arrow ❼ if the measured distance is over the specified range, and in the direction of the arrow ❽ if it is under that range. Then, fix it with the screw ❹.
5) Repeat steps 1) and 2) and confirm that the distance is within the specified range.

Note: Use a cassette with the tape advanced halfway.

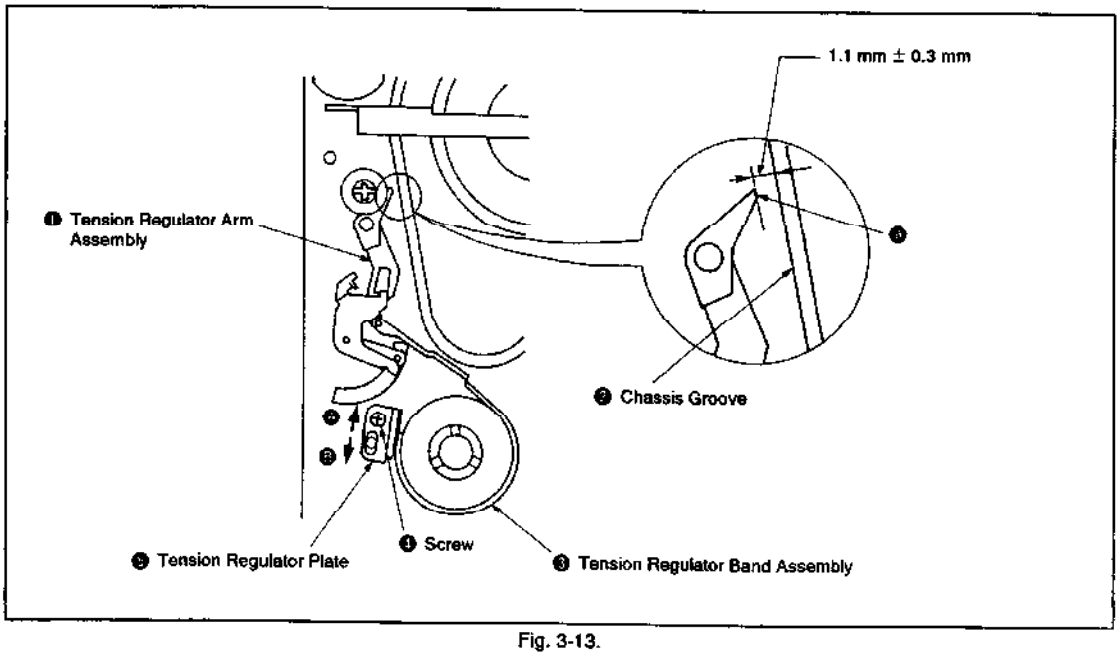


Fig. 3-13.

3-13. DRUM ASSEMBLY, DEW SENSOR

1. Removal (See Fig. 3-14.)

1) Set the EJECT mode.
2) Remove the flexible board ❶ and the two connectors ❷.
3) Remove the guide guard assembly as described in section 3-2.
4) Remove the screw ❸, then remove the axle ground terminal ❹.
5) Remove the three screws ❺, then remove the drum assembly ❻ from the mechanism chassis.
6) Remove the connector ⓬.
7) Remove the screw ❽, then remove the dew sensor ❾.

Note:
- When removing the drum assembly ❻ from the mechanism chassis, take care not to cut the flexible board ❶ or the harness.
- Take care not to touch the head tip ❿.

2. Installation (See Fig. 3-14.)

1) Insert part ❾ of the dew sensor ❾ into the notch ⓫ of the mechanism chassis, then secure it with the screw ❽.
2) Mount the connector ⓬.
3) Clamp the harness ⓭ of the dew sensor ❾ with the reinforcing the claw ⓮ of the plate SS assembly (See Fig. A).
4) Insert the connector ⓬ and the flexible board ❶ into the hole ⓯ of the mechanism chassis, align the drum assembly ❻ with the two dowels ⓰ and secure it with the three screws ❺.
5) Align the axle ground terminal ❹ with the two dowels ⓱ of the mechanism chassis and secure it with the screw ❸.
6) Mount the guide guard assembly as described in section 3-2.
7) Mount the two connectors ❷ and the flexible board ❶.

Note:
- Take care not to cut the flexible board ❶ or the harness ⓭.
- Take care not to touch the head tip ❿.
- After assembling, be sure to perform Tape Path Adjustment following instructions in section 4.

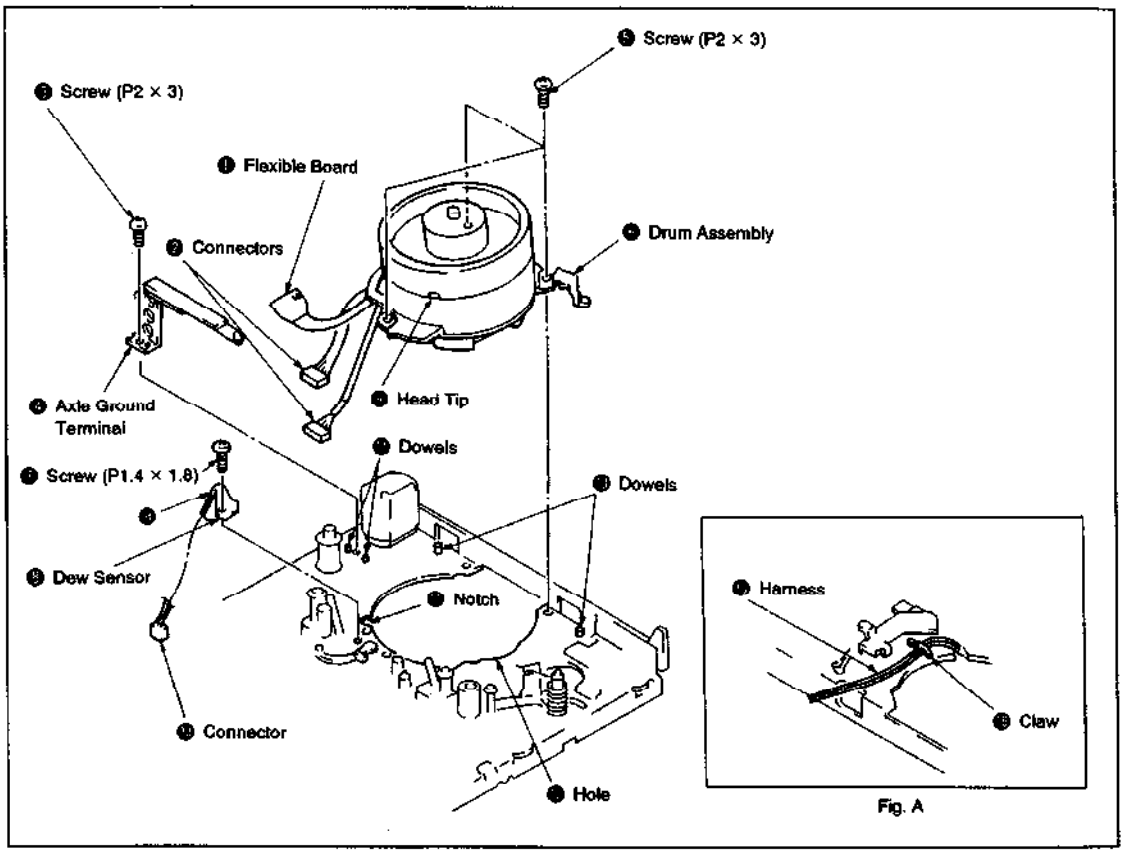


Fig. A

Fig. 3-14.

3-14. EJECT LEVER, SWITCH LEVER ASSEMBLY, PINCH ROLLER SUB ARM ASSEMBLY

1. Removal (See Fig. 3-15.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Set the STOP mode.
3) Remove the claw ❶, then remove the eject lever ❷.
4) Remove the stopper washer ❸, then remove the switch lever assembly ❹.
5) Remove the pinch roller load spring ❺.
6) Remove the stopper washer ❻, then remove the pinch roller sub arm assembly ❼.

2. Installation (See Fig. 3-15.)

1) Grease the axle ❽ (See Fig. A).
2) Assemble by inserting ❾ part of the pinch roller sub arm assembly ❼ into the slot ❿, then insert the pin ⓫ into the loading lever assembly notch ⓬.
3) Secure with the stopper washer ❻.
4) Mount the pinch roller load spring ❺ by catching its ⓭ end between the claw ❶ and the chassis side and its ⓮ end to the claw ❶.
5) Apply half a drop of oil to the axle ⓯ (See Fig. B).
6) Align the groove ⓰ of the switch lever assembly ❹ with the mode detector switch protrusion ⓱, mount it on the axle ⓯, then insert the pin ⓲ into the drive gear (left) assembly ⓳ outer groove.
7) Secure with the stopper washer ❸.
8) Mount the eject lever ❷ and close the claw ❶.
9) Mount the DC motor (capstan motor) as described in section 3-3.

Note: When mounting the switch lever assembly ❹ onto the axle ⓯ with the tension regulator arm assembly installed, set the pin ⓲ to the arrow ⓴ side of the switch lever assembly ❹.

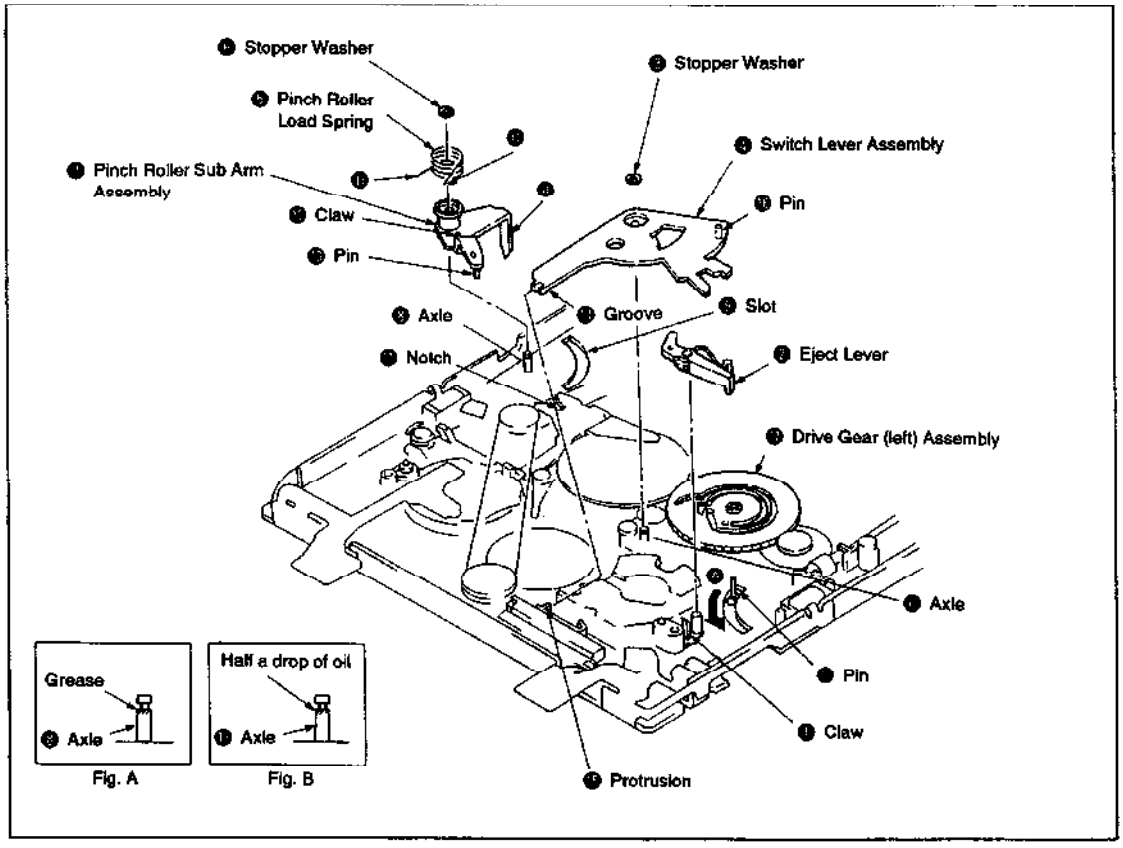


Fig. 3-15.

3-15. TIMING BELT (L) , RC GEAR ASSEMBLY, LOADING LEVER ASSEMBLY, TIMING BELT (S), CONNECTING GEAR ASSEMBLY

1. Removal (See Fig. 3-16.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Remove the pinch roller sub arm assembly as described in section 3-14.
3) Set the STOP mode.
4) Remove the stopper washer ❶ , then remove the RC gear assembly ❷ from the axle ❹ with the timing belt (L) ❸ attached.
5) Remove the timing belt (L) ❸ from the idler pulley assembly ❺ .
6) Remove the stopper washer ❻ and remove the loading lever assembly ❼ while pushing the claw ❽ in the direction of the arrow ❾ .
7) Turn the stopper ❿ approx. 90 ° in the direction of the arrow ⓫ .
8) Remove the connecting gear assembly ⓬ from the axle ⓭ with the timing belt (S) ⓮ attached.
9) Remove the timing belt (S) ⓮ from the idler pulley assembly ⓯ .

Note: When removing the connecting gear ⓬ , take care not touch the flange section ⓰ .

2. Installation (See Fig. 3-16.)

1) Apply half a drop of oil to the axle ⓰ (See Fig. F).
2) Hook one end of the timing belt (S) ⓮ onto the connecting gear assembly ⓬ and the other end onto gear ⓱ of the idler pulley assembly ⓯ . (Refer to the figure.)
3) Mount the connecting gear assembly ⓬ with the timing belt (S) ⓮ attached to the axle ⓭ .
4) Turn the stopper ❿ in the direction of the arrow ⓫ as far as it will go.
5) Apply half a drop of oil to the axle ⓭ (See Fig. A).
6) Fit the loading lever assembly ❼ to the axle ⓭ , secure the ❼ part with the claw ❽ and place the pin ⓲ into the groove of the drive gear (right) assembly ⓳ .
7) Install the stopper washer ❻ .
8) Place the timing belt (L) ❸ around the gears of the RC gear assembly ❷ indicated in Fig. B, and its opposite side around the gear ⓴ of the idler pulley assembly ⓯ . (See Fig. E.)
9) Mount the RC gear assembly ❷ onto the axle ❹ with the timing belt (L) ❸ attached, and engage it with the gear of the RK gear assembly ㉑ .
10) Install the stopper washer ❶ .
11) Grease parts of the loading lever assembly ❼ indicated in Fig. C.
12) Mount the pinch roller sub arm assembly as described in section 3-14.
13) Mount the DC motor (capstan motor) as described in section 3-3.

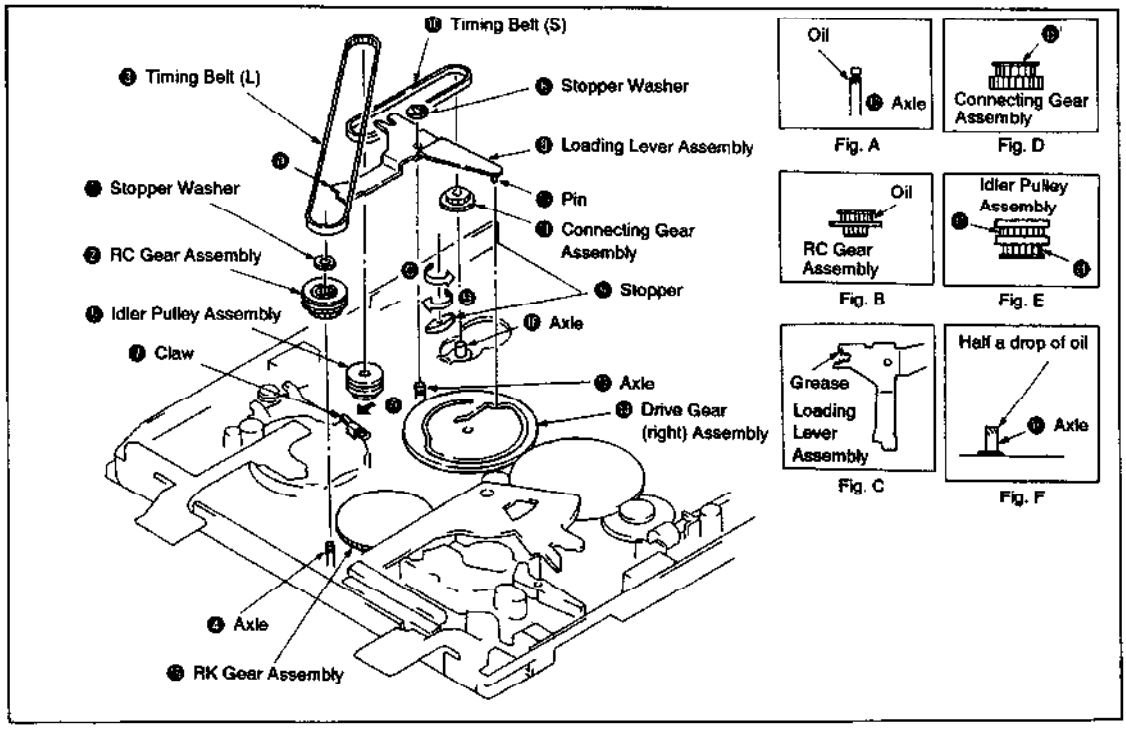


Fig. 3-16.

3-16. IDLER PULLEY, TS BRAKE ASSEMBLY, LB GEAR ASSEMBLY, RK GEAR ASSEMBLY

1. Removal (See Fig. 3-17.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Remove the switch lever assembly as described in section 3-14.
3) Remove the timing belt (L), the RC gear assembly, the loading lever assembly, the timing belt (S) and the connecting gear assembly described in section 3-15.
4) Set the STOP mode.
5) Remove the stopper washer ❶, then remove the idler pulley ❷.
6) Open the claw ❸, then remove the TS brake assembly ❹.
7) Remove the torsion coil spring (LB) ❺.
8) Remove the stopper washer ❻, then remove the LB gear assembly ❼.
9) Remove the RK gear assembly ❽.

Note: When removing the idler pulley ❷, take care not to touch the flange section ❷. (See Fig. C.)

2. Installation (See Fig. 3-17.)

1) Apply half a drop of oil to the axle ❾ (See Fig. A).
2) Mount the RK gear assembly ❽ onto the axle ❾, keeping it in horizontal position.
3) Apply half a drop of oil to the axle ❿ (See Fig. B).
4) Mount the LB gear assembly ❼ onto the axle ⓫ and secure it with the stopper washer ❻.
5) Insert the torsion coil spring (LB) ❺ into the axle ❾, then hook it to the mechanism chassis notch ⓬ and to the tab ⓭.
6) Mount the TS brake assembly ❹ and close the claw ❸.
7) Apply half a drop of oil to the axle ⓮ (See Fig. D).
8) Mount the idler pulley ❷ onto the axle ⓮, then secure it with the stopper washer ❶.
9) Mount the timing belt (L), the RC gear assembly, the loading lever assembly, the timing belt (S) and the connecting gear assembly as described in section 3-15.
10) Mount the switch lever assembly as described in section 3-14.
11) Mount the DC motor (capstan motor) as described in section 3-3.

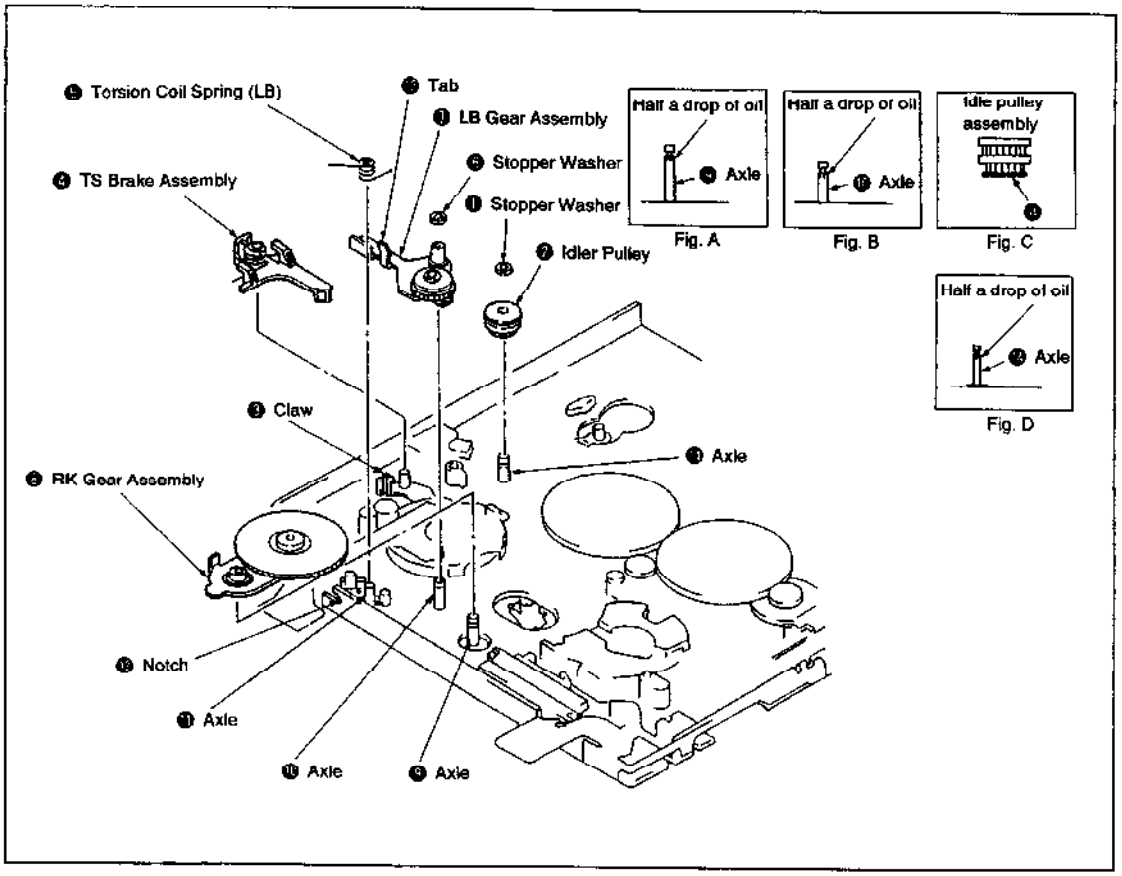


Fig. 3-17.

3-17. UL GEAR, UL BRAKE, UL ARM, LB PLATE SPRING

1. Removal (See Fig. 3-18.)

1) Remove the switch lever assembly as described in section 3-14.
2) Remove the stopper washer ❶, then remove the UL gear ❷.
3) Remove the UL arm ❸, the 1.6 mm-diameter poly washer ❼ and the LB plate spring ❺.
4) Remove the UL brake ❻.

2. Installation (See Fig. 3-18.)

1) Mount the UL brake ❻.
2) Apply half a drop of oil to the axle ❽ (See Fig. A).
3) Mount the LB plate spring ❺ to the axle ❽ as shown in Fig. B, then install the 1.6mm-diameter poly washer ❼.
4) Mount the UL arm ❸ to the axle ❽ so that the protrusion ❹ comes into the groove ❾ of the UL brake ❻.
5) Mount the UL gear ❷ to the axle ❽ and engage it with the gear of the drive gear (left) assembly ❿.
6) Install the stopper washer ❶.
7) Mount the switch lever assembly as described in section 3-14.

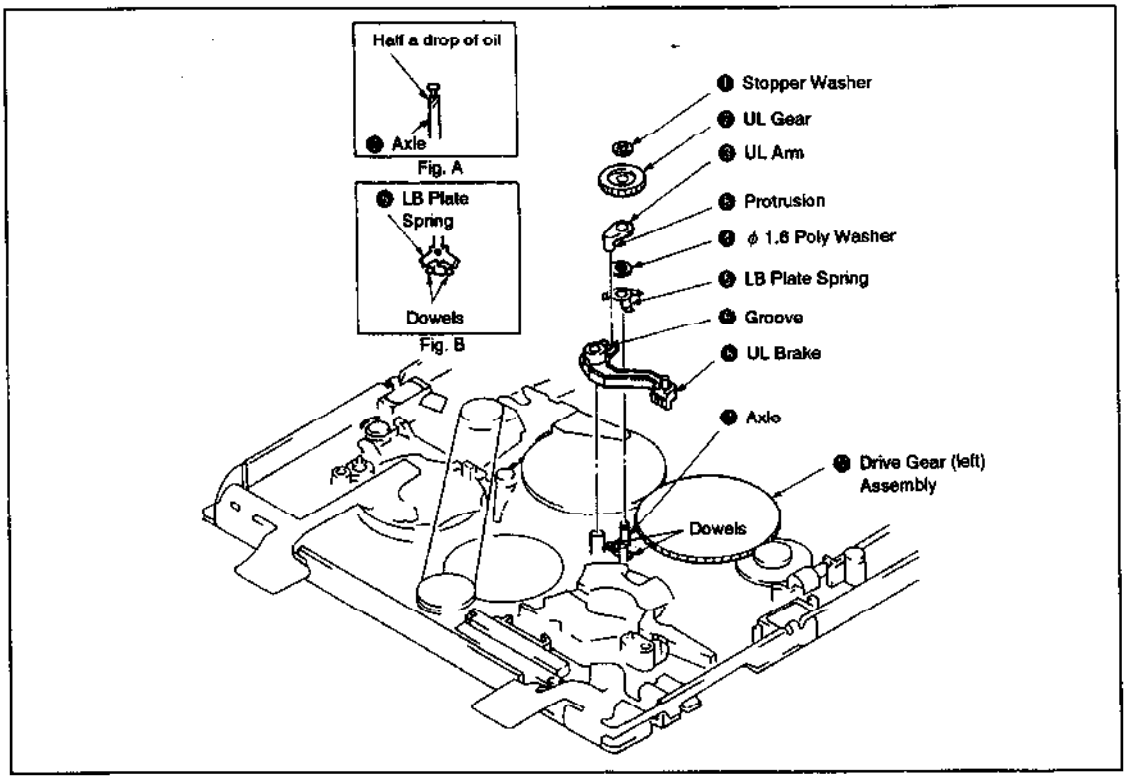


Fig. 3-18.

3-18. COASTER (RIGHT) ASSEMBLY, DRIVE GEAR (RIGHT) ASSEMBLY

1. Removal (See Fig. 3-19.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Remove the drum unit as described in section 3-13.
3) Remove the switch lever assembly as described in section 3-14.
4) Remove the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
5) Set the STOP mode.
6) Remove the screw ❶, then remove the coaster plate spring ❷ and the coaster (right) assembly ❸.
7) Remove the two screws ❹, then remove the reinforcing plate TT ❺.
8) Remove the stopper washer 1.5 ❻, then remove the drive gear (right) assembly ❼.

2. Installation (See Fig. 3-19.)

1) Grease the points of the mechanism chassis shown in Fig A.
2) Apply half a drop of oil to the axle ❽ (See Fig. F).
3) Grease pin ❾, axle ❿ and dowel ⓫ of the coaster (right) assembly ⓬ (See Fig. D).
4) Mount by aligning the pin ⓭ and the axle ⓮ with the slot ⓯ of the mechanism chassis.
5) Move the brake release arm ⓰ in the direction of the arrow ⓱ to put it out of the way.
6) Mount the drive gear (right) assembly ❼ to the axle ❽, and engage it with the drive gear (left) assembly ⓲ as shown in Fig. B.
7) Align the ⓳ part with the ⓴ part, and the hole ㉑ with the pin ㉒ of the coaster (right) assembly ❸.
8) Install the stopper washer 1.5 ❻.
9) Mount by aligning the coaster plate spring ❷ with the axle ㉓ of the coaster (right) assembly ❸ and pin ㉔, then secure with the screw ❶.
10) Mount the reinforcing plate TT ❺ aligning it with the dowel ㉕, then tighten the two screws ❹ in the indicated order.
11) Grease the points indicated in Figs. C and E.
12) Mount the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
13) Mount the switch lever assembly as described in section 3-14.
14) Mount the drum unit as described in section 3-13.
15) Mount the DC motor (capstan motor) as described in section 3-3.

Note: • Screw ❶ should be tightened with a tightening torque of approx. 500g•cm. If tightened too much, the coaster (right) assembly ❸ and the coaster plate spring ❷ will be deformed.

• After installing, be sure to perform tape path adjustment as described in section 4.

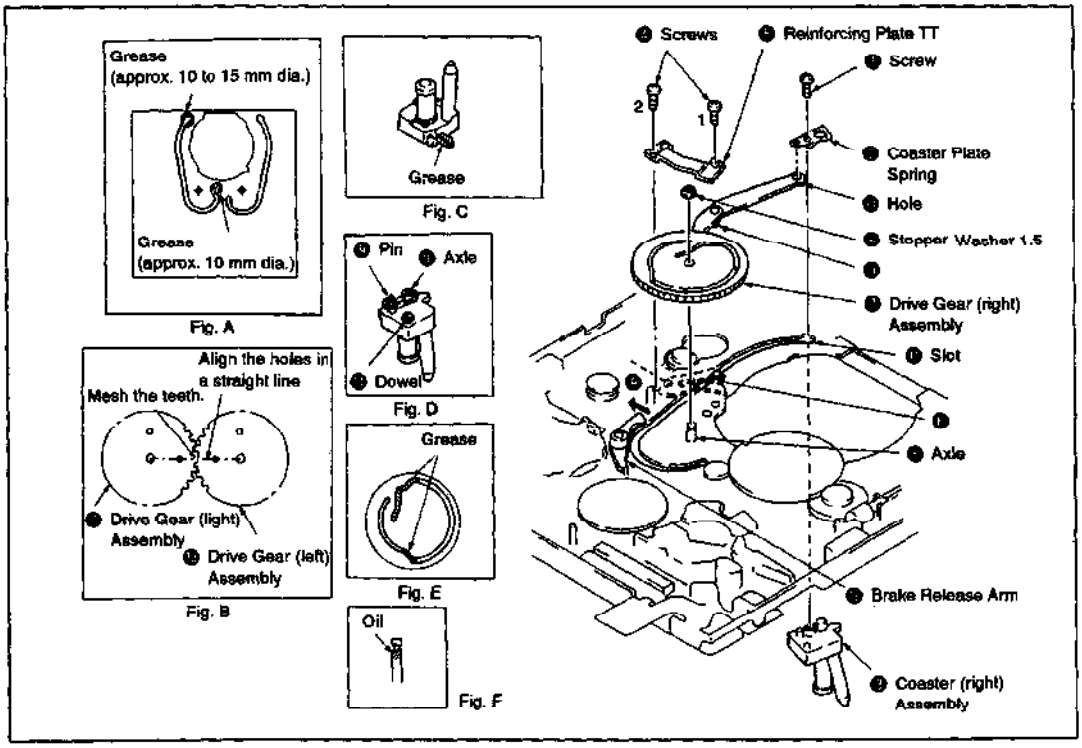


Fig. 3-19.

3-19. COASTER (LEFT) ASSEMBLY, DRIVE GEAR (LEFT) ASSEMBLY

1. Removal (See Fig. 3-20.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Remove the drum assembly as described in section 3-13.
3) Remove the switch lever assembly and the pinch roller sub-arm assembly as described in section 3-14.
4) Remove the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
5) Remove the coaster (right) assembly and the drive gear (right)assembly as described in section 3-18.
6) Remove the screw ❶, then remove the coaster plate spring ❷ and the coaster (left) assembly ❸.
7) Remove the two screws ❹, then remove the reinforcing plate SS assembly ❺.
8) Remove the stopper washer 1.5 ❻, then remove the drive gear (left) assembly ❼.

2. Installation (See Fig. 3-20.)

1) Grease the points of the mechanism chassis shown in Fig A.
2) Apply half a drop of oil to the axle ❽ (See Fig. E).
3) Grease pin ❾, axle ❿ and dowel ⓫ of the coaster (left) assembly ❸ (See Fig. B).
4) Mount by aligning the pin ❾ and the axle ❿ with the slot ⓭ of the mechanism chassis.
5) Fit the drive gear (left) assembly ❼ to the axle ❿, and mount so that the gear engages with the wheel gear ⓮ and the UL gear ⓯.
6) Align the ⓬ part with the slot ⓭, and the hole ⓬ with the pin ❾ of the coaster (left) assembly ❸.
7) Install the stopper washer 1.5 ❻.
8) Mount by aligning the coaster plate spring ❷ with the axle ❿ and pin ❾ of the coaster (left) assembly ❸, then secure with the screw ❶.
9) Mount the reinforcing plate SS assembly ❺ aligning it with the dowel ⓫, then tighten the two screws ❹ in the indicated order.
10) Grease points indicated in Figs. C and D.
11) Mount the coaster (right) assembly and the drive gear (right)assembly as described in section 3-18.
12) Mount the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
13) Mount the switch lever assembly and the pinch roller sub arm assembly as described in section 3-14.
14) Mount the drum assembly as described in section 3-13.
15) Mount the DC motor (capstan motor) as described in section 3-3.

Note: • Screw ❶ should be tightened with a tightening torque of approx. 500g•cm. If tightened too much, the coaster (right) assembly ❸ and the coaster plate spring ❷ will be deformed.
• After installing, be sure to perform tape path adjustment as described in section 4.

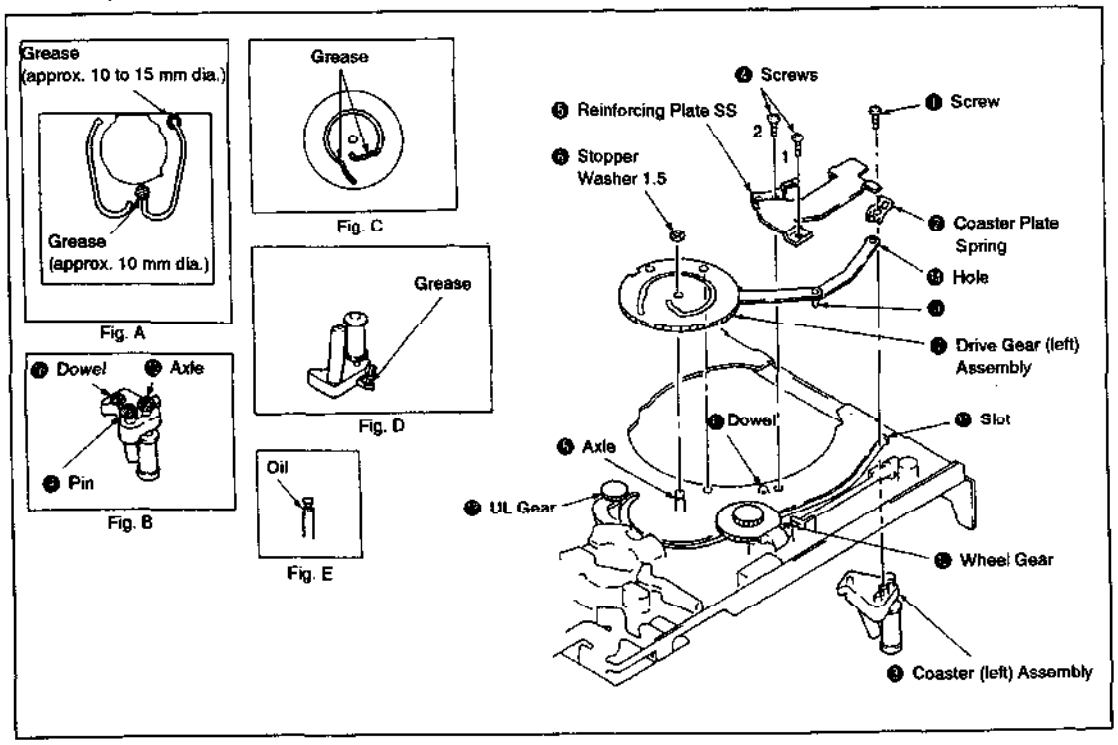


Fig. 3-20.

3-20. LOADING MOTOR, BRAKE RELEASE ARM, WHEEL GEAR, WORM ASSEMBLY

1. Removal (See Fig. 3-21.)

1) Remove the DC motor (capstan motor) as described in section 3-3.
2) Remove the switch lever assembly and the pinch roller sub arm assembly as described in section 3-14.
3) Remove the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
4) Remove the drive gear (right) assembly as described in section 3-18.
5) Remove the drive gear (left) assembly as described in section 3-19.
6) Remove the two screws ❽, then remove the loading motor assembly ❼.
7) Remove the brake release arm ❶.
8) Remove the stopper washer ❷, then remove the wheel gear ❸.
9) Remove the worm assembly ❹ from the six claws ❺.

2. Installation (See Fig. 3-21.)

1) Mount the worm assembly ❹, matching it to the six claws ❺.
2) Grease the shaded parts of the worm assembly ❹ (five places) (see Fig A).
3) Apply half a drop of oil to the axle ❻ (See Fig. B).
4) Fit the wheel gear ❸ to the axle ❻ and engage it with the gear of the worm assembly ❹.
5) Mount the brake release arm ❶.
6) Grease the whole perimeter of the gear of the loading motor assembly ❼.
7) Align the loading motor assembly ❼ with the mechanism chassis and secure it with the two screws ❽.
8) Mount the drive gear (left) assembly as described in section 3-19.
9) Mount the drive gear (right) assembly as described in section 3-18.
10) Mount the timing belt (L), the RC gear assembly and the loading lever assembly as described in section 3-15.
11) Mount the switch lever assembly and the pinch roller sub arm assembly as described in section 3-14.
12) Mount the DC motor (capstan motor) as described in section 3-3.

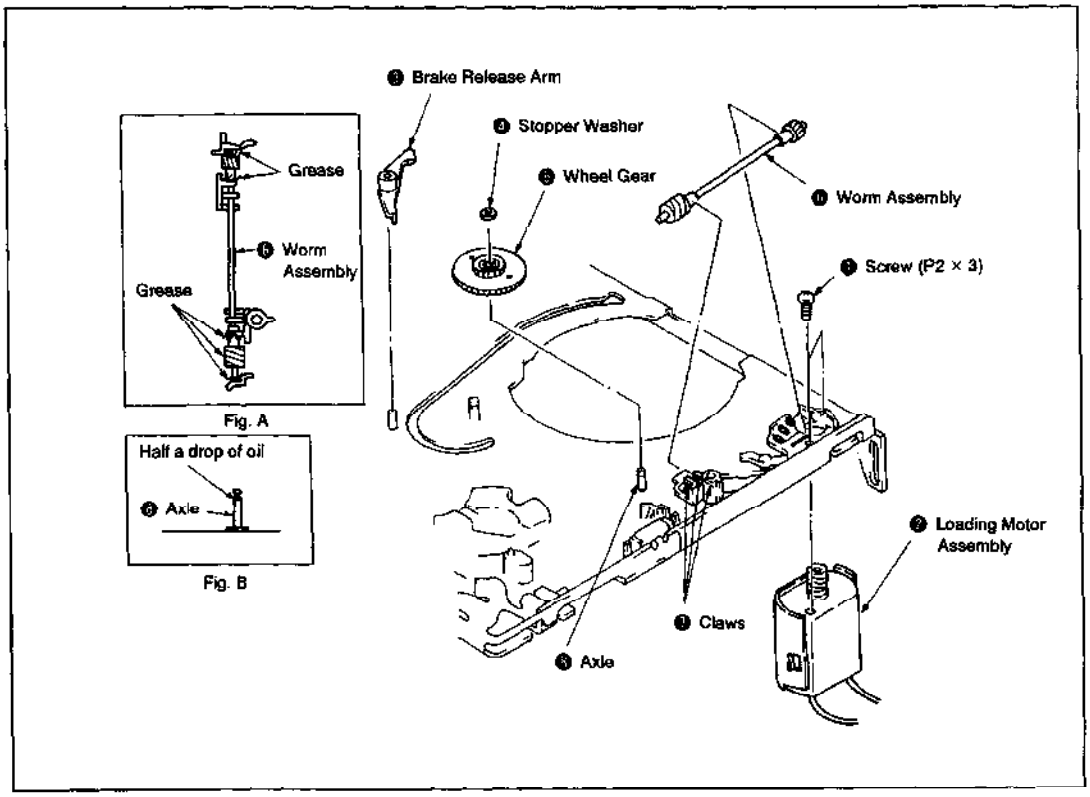


Fig. 3-21.

3-21. ROTARY UPPER DRUM REPLACEMENT

1. Removal

- If possible, make a recording before removal.

1) Detach the six solderings ❶, then use a pair of tweezers or the like to confirm that the terminals passing through the board holes from below can move freely.
2) Remove the two screws ❷ (See Fig. 3-22).
3) Mount the jig ❹ (Ref. No. J-7) with the two supplied screws ❸, then screw the attached hexagon socket screws ❸ to the jig ❹. The rotary upper drum ❺ will move upward and come off (See Fig. 3-23).

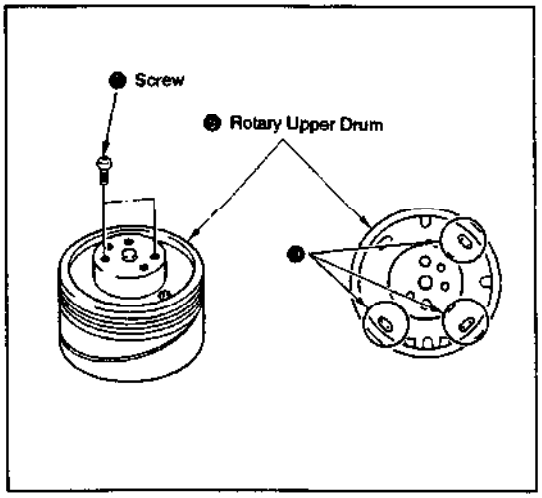


Fig. 3-22.

2. Installation

1) Wipe clean the flange surface and the rotary upper drum ❺ surface that makes contact with it, and confirm that they are free from dirt and scratches.
2) Insert the jig ❹ (Ref. No. J-7) into the drum positioning hole, then set the rotary upper drum ❺ by passing the jig through its positioning hole ❹.
   Note: Confirm that the terminals ❻ protrude slightly from the rotary upper drum board holes (See Fig. 3-24).
3) Remove the jig ❹ and push down the rotary upper drum ❺ gently by hand. If it does not go all the way down, secure it temporarily by tightening the two hexagon socket screws ❸ alternately.
4) Insert the jig ❹ into the positioning hole ❹ again and confirm that it goes in smoothly. If it does not, loosen the two screws ❸, repeat step 3 of the Removal paragraph and restart the setting procedure.
5) Tighten the screws ❶.
6) Solder the terminals ❻ (❻ in Fig. 3-22).
   Note: Take care that no solder flows below the board.

Note: After installing, be sure to perform tape path adjustment as described in section 4.

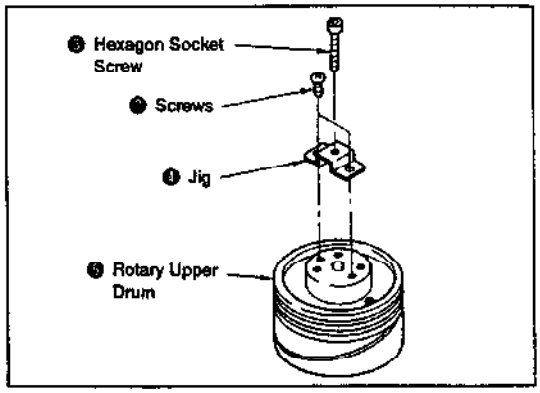


Fig. 3-23.

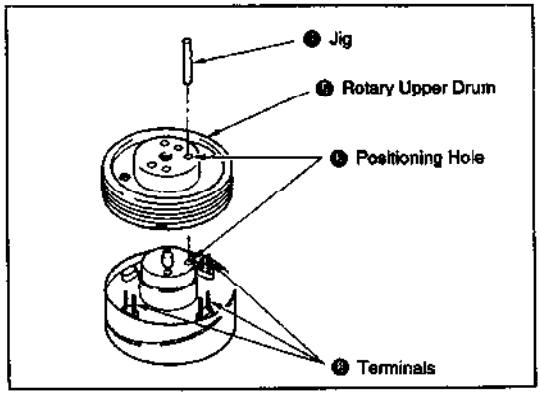


Fig. 3-24.

3-22. FWD BACK TENSION (See Fig. 3-25.)

1) Set the torque cassette (Ref. No. J-6).
2) Set the FWD mode and confirm that S reel table torque value is within 9 to 13 g•cm.
3) If the torque value does not meet the specification, adjust the adjust arm ●.

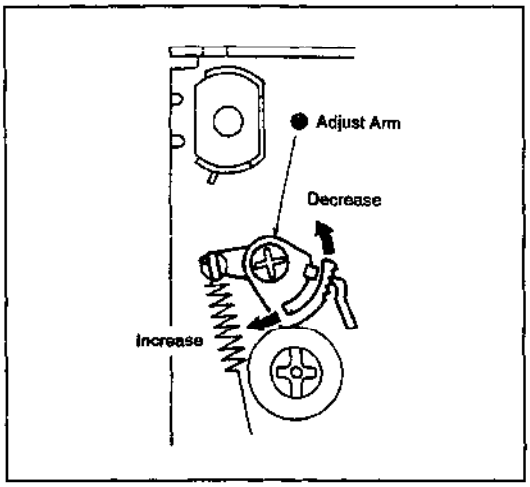


Fig. 3-25.

3-23. REEL TORQUE CHECK

1) Set the torque cassette.
2) Set the FWD mode and confirm that T reel table torque value is within 7 to 15 g•cm.
3) Set the REV mode and confirm that S reel table torque value is within 29 ± 6 g•cm.
4) Set the REV mode and confirm that T reel table torque value is within 13 to 25 g•cm.
5) If a torque value does not meet the specifications above, replace the corresponding reel table.

4. TAPE PATH ADJUSTMENT

[The Track Shift Mode]

In the 8 mm video system, instantaneous tape speed control is performed using four kinds of pilot signals, and high-precision tracking is achieved through the ATF (Automatic Track Finding) system. This makes a tracking control knob unnecessary and allows for precise tracing.

On the other hand, however, tape path adjustment presents some difficulties when the ATF system is used. Namely, since the ATF system will automatically compensate to some degree for head tracing errors, thorough adjustment is not possible.

This can be solved by setting the track shift mode for tracking fine adjustment. ATF will be compulsorily activated, shifting the tracking amount by a fixed amount (approx. 1/4) and thus making tracking fine adjustment easy. Furthermore, no track shift jigs are required.

4-1. TRACK SHIFT MODE SETTING

[Setting Procedure]

* Connect the TEST A and TEST B terminals to the COM terminal.

  Example:

  NTSC ····· GV-8

  PAL ····· GV-8E

  Connect Pins ① and pin ③ of CN017 on the { SV-34 board (GV-8) / SV-35 board (GV-8E) } to pin ② of it. (See Fig. 4-1)

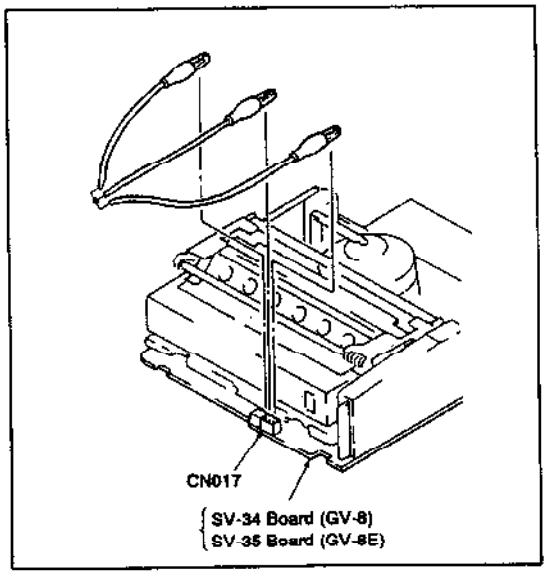
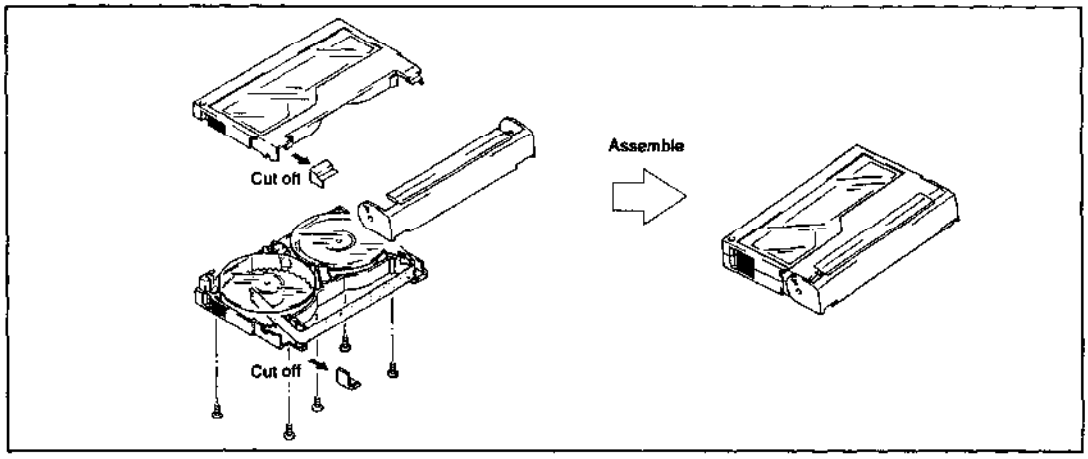


Fig. 4-1.

[Note on Adjustment of No.7 Guide (TG-7)]

The height adjustment screw for No.7 guide (TG-7) is located at some distance from the guide (refer to Fig. 4-2).

Therefore, when performing section 4-6. No.7 Guide (TG-7) Adjustment it is convenient to use the alignment tape for tracking (Ref. No. J-5), modified as follows, and perform adjustment in playback mode.



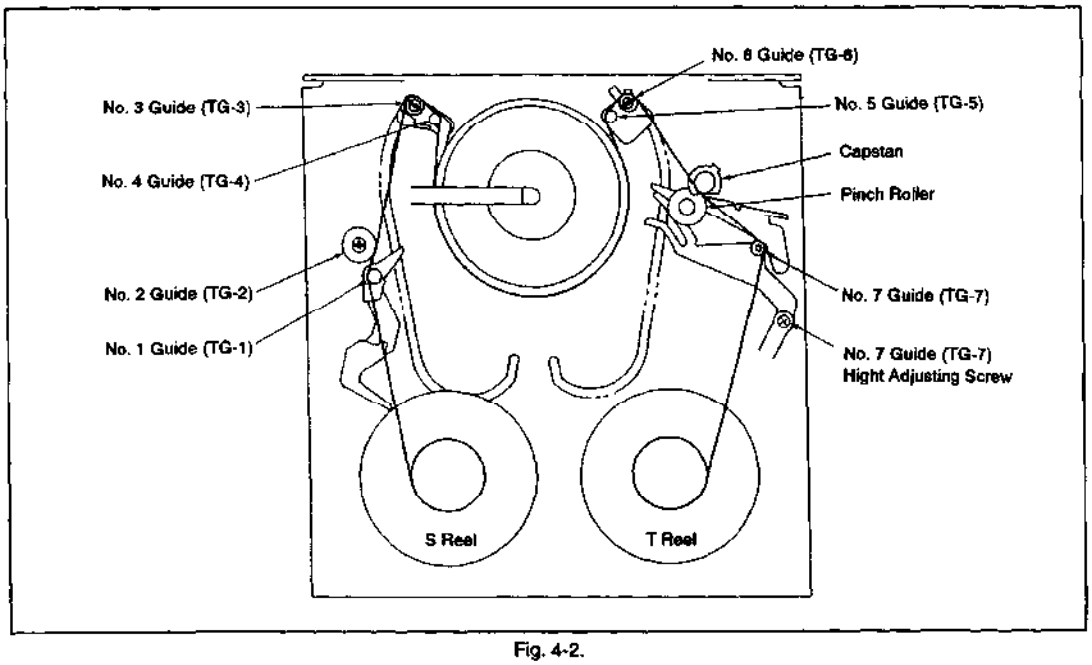


Fig. 4-2.

4-2. PREPARATIONS FOR ADJUSTMENT

1) Clean tape path surfaces (tape guides, drum, capstan shaft, pinch roller) (See Fig. 4-2).
2) Connection of oscilloscope and output method of waveform.
   CH 1: RF signal output of the drum head (V RF OUT)
   Method for signal output:
   Short-circuit the external trigger output (RF SW. P) and GND.

   Example:
   NTSC ····· GV-8
   PAL ····· GV-8E
   CH 1: Pin ③ (V RF OUT) of CN018 on the
   { SV-34 board (GV-8)
   { SV-35 board (GV-8E)
   Method for signal output:
   Short-circuit pin ① (GND) and pin ② (RF SW.P) of CN018 on the
   { SV-34 board (GV-8)
   { SV-35 board (GV-8E)
3) Play back the alignment tape for tracking adjustment (Ref. No. J-5).
4) Confirm that both the entrance and exit side RF waveforms of the oscilloscope are flat (See Fig. 4-4). If they are not, adjust as follows.

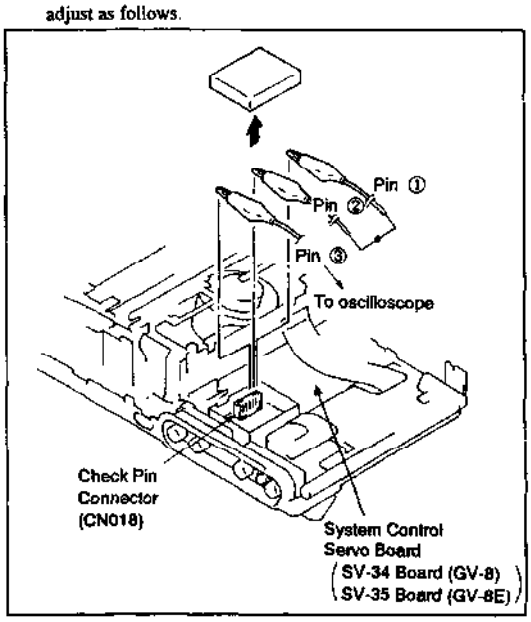


Fig. 4-3.

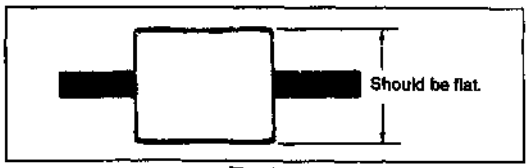


Fig. 4-4.

4-3. TRACKING ADJUSTMENT (See Fig. 4-5.)

1) Play back the alignment tape for tracking adjustment.
2) Pass a hexagonal wrench, screwdriver (Ref. No. J-11) or the like through the hole ❶, loosen the lockscrew ❷ a little, then make the entrance side waveform flat by turning the No. 3 guide (TG-3) ❸.
3) Pass a hexagonal wrench, screwdriver or the like through the hole ❹, loosen the lockscrew ❺ a little, then make the exit side waveform flat by turning the No. 6 guide (TG-6) ❻.

Note: Take care not to loosen lockscrews too much, since guides come loose easily.

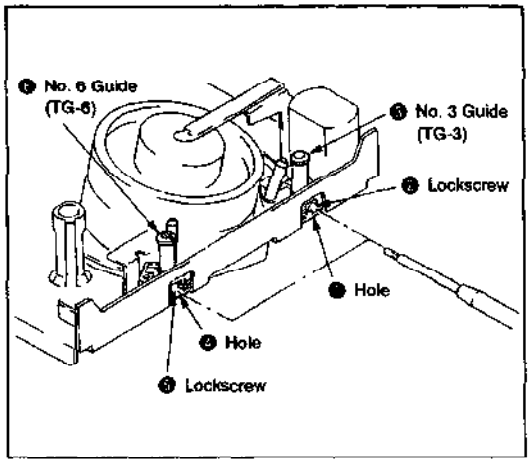


Fig. 4-5.

4-4. TRACKING FINE ADJUSTMENT (See Figs. 4-5. and 4-6.)

1) Play back the alignment tape for tracking adjustment and set the track shift mode.
2) Confirm whether the waveform is flat. If it is not, turn the No. 3 (TG-3) and No. 6 (TG-6) guides so that it becomes flat.
3) Fix the No. 3 guide ❸ by tightening its lockscrew ❼. Then confirm that the entrance side waveform has not changed.
4) Fix the No. 6 guide ❻ by tightening its lockscrew ❽. Then confirm that the exit side waveform has not changed.

Note: The set screws ❼ and ❽ should be tightened with a tightening torgue of approx. 200g•cm ± 10%.
If tightened too much, there is danger of damaging the thread.

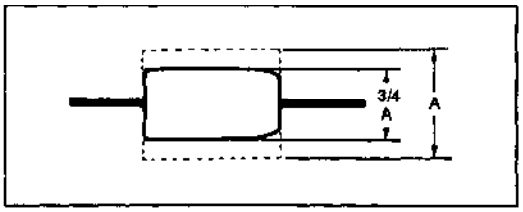


Fig. 4-6.

4-5. No. 2 GUIDE (TG-2) ADJUSTMENT

When the No. 2 guide has been turned or replaced, perform height presetting before this adjustment.

4-5-1. No. 2 Guide (TG-2) Height Presetting (See Fig. 4-7.)

1) Adjust the height from the mechanism chassis upper surface to the TG-2 upper flange ❶ upper surface to 18.6 mm by rotating the TG-2 upper flange ❶.

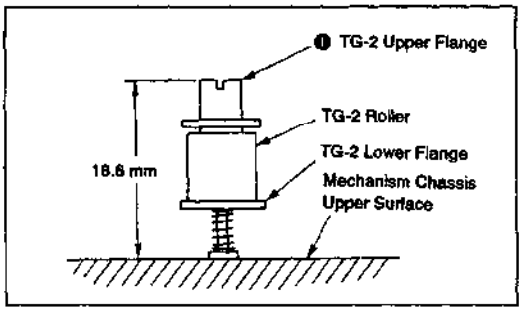


Fig. 4-7.

[Reference]
This U mechanism is equipped with four adjustable guides (TG-2, 3, 6 and 7). To raise or lower the respective guide rotate the corresponding adjustment screw as shown below.

Guide	Guide adjustment	Rotating direction of adjustment screw
TG-2, 3, 6	Raise	Counterclockwise
	Lower	Clockwise
TG-7	Raise	Counterclockwise
	Lower	Clockwise

4-5-2. No. 2 Guide (TG-2) Adjustment (See Figs. 4-8. and 4-9.)

1) Play back a thin tape like the P6-120MP, etc. and set the REV mode.
2) Confirm that the tape is not bent at the lower flange ❷ of the No. 2 guide (TG-2) ❶ (See Fig. 4-8). If it is, turn the upper flange ❸ of the No. 2 guide (TG-2) ❶ clockwise with a screwdriver, lowering it until the tape is straightened.
3) Play back the alignment tape for tracking adjustment.
4) Perform tracking adjustment and tracking fine adjustment as described in sections 4-3. and 4-4.
5) In the track shift mode, CUE/REV the tape, then play it back and confirm that the RF waveform rises flat within 2 seconds.
6) If the waveform is not normal (See Fig. 4-9), turn the upper flange ❸ of the No. 2 guide (TG-2) ❶ 90° counter-clockwise and repeat step 5.
   Repeat steps 5 and 6 until a normal waveform is obtained. Then, confirm that the tracking waveform has not changed. If it has, perform fine adjustment of entrance side tracking and repeat step 5.

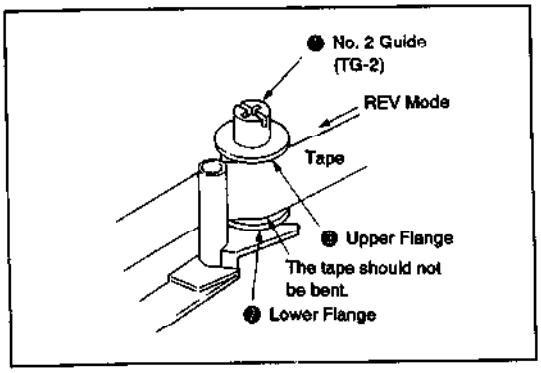


Fig. 4-8.

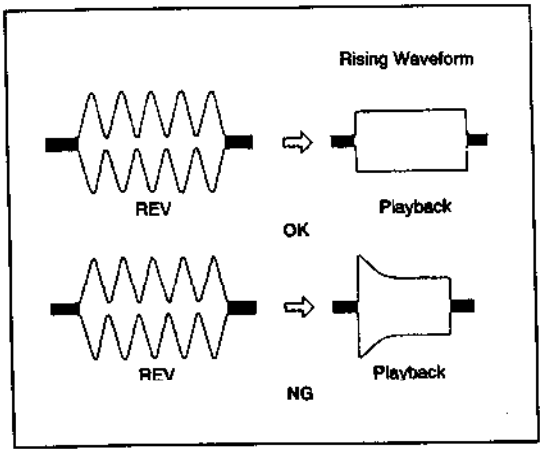


Fig. 4-9.

4-6. No. 7 GUIDE (TG-7) ADJUSTMENT (See Fig. 4-10.)

1) Play back the alignment tape for tracking adjustment and set the REV mode.
2) Confirm that the tape is not bent between the No. 6 guide (TG-6) ❶ and the capstan ❷ . If it is, turn the hight adjusting screw ❹ of the No. 7 guide (TG-7) ❸ until the tape is straightened.
3) Set the playback mode again and confirm that the tape is not bent between the capstan ❷ and the hight adjusting screw ❹ of the No. 7 guide (specification:0.5 mm or less) . If the tape is bent beyond the specification, turn the No. 7 guide (TG-7) ❸ until bending is within the specification (0.5 mm).
   If in the REV mode tape bending between the No. 6 guide (TG-6) ❶ and the capstan ❷ is 0.3 mm or less, adjustment can be considered completed.

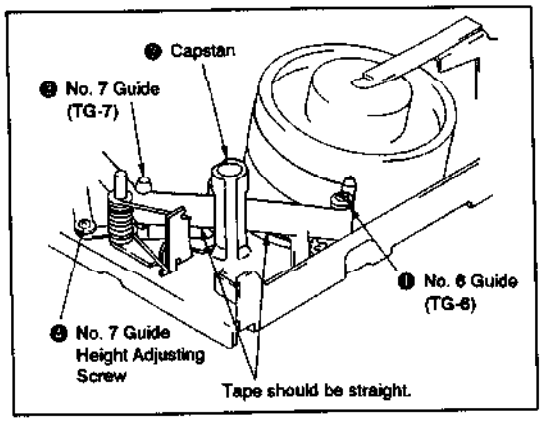


Fig. 4-10.

4-7. CUE AND REV WAVEFORM CHECK (See Fig. 4-11.)

1) Play back the alignment tape for tracking adjustment and set the REV mode. Confirm that waveform peaks maintain a constant pitch of 5 seconds or more (See Fig. 4-11). In case pitch is not constant, perform section 4-4. Tracking Fine Adjustment and section 4-6. No. 7 Guide Adjustment.
2) Set the CUE mode. Confirm that waveform peaks still maintain a constant pitch of 5 seconds or more (See Fig. 4-11). Otherwise, perform section 4-4. Tracking Fine Adjustment.

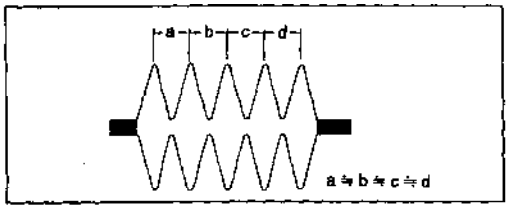


Fig. 4-11.

4-8. CHECK AFTER ADJUSTMENT

4-8-1. Tracking Check

1) Confirm that the amplitude of RF waveform is reduced to approx. 3/4 when the track shift mode is set (See Fig. 4-12).
2) Then, confirm that the minimum amplitude value (EMIN) is 65% of the maximum value (EMAX) or larger (See Fig. 4-13).
3) Confirm that no large fluctuations occur on the waveform (See Fig. 4-14).

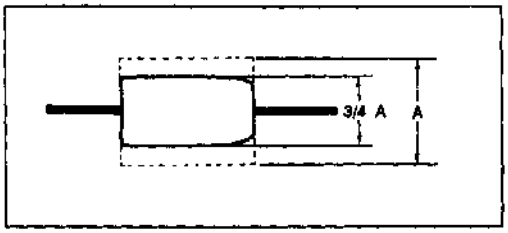


Fig. 4-12.

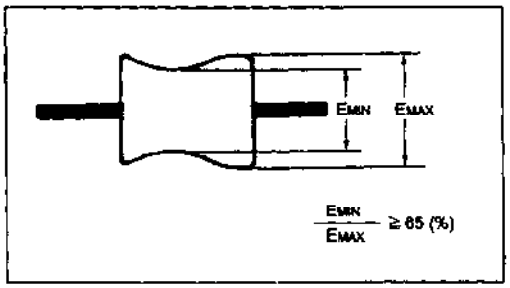


Fig. 4-13.

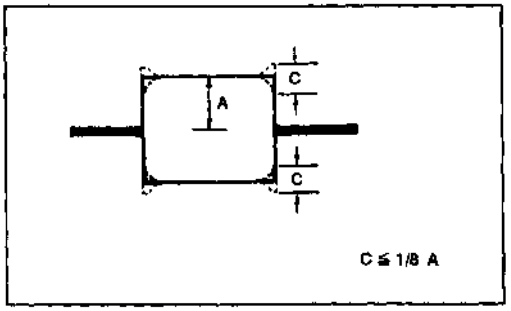


Fig. 4-14.

4-8-2. Rising Check (See Fig. 4-15.)

1) Play back the alignment tape for tracking adjustment.
2) Cancel the track shift mode.
3) Eject the tape, then load it again.
4) Set the playback mode and confirm that the RF waveform rises flat within 2 seconds. Also confirm that the tape is not bent around the pinch roller (See Fig. 4-15).
5) CUE/REV and FF/REW the tape, then play it back and confirm that the RF waveform rises flat within 2 seconds. Also confirm that the tape is not bent around the pinch roller.
6) Repeat steps 3) to 5) once more.

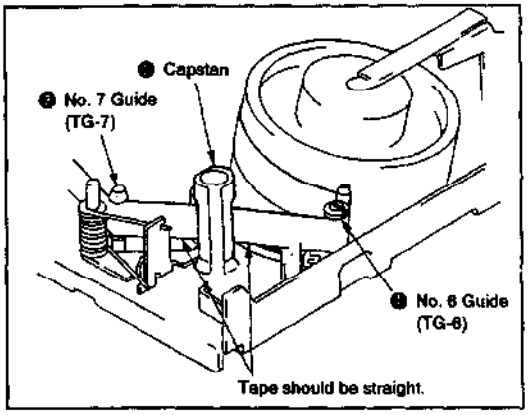


Fig. 4-15.

4-8-3. Tape Path Check (See Fig. 4-16.)

1) Play back a thin tape like the P6-120MP (NTSC) or P5-90MP (PAL), etc. and confirm that no tape rising occurs, and that curling is less than 0.3 mm, at the lower flange of the No. 2 guide, the upper flange of the No. 3 guide, the upper flange of the No. 6 guide and the No. 7 guide upper and lower flanges.
2) Confirm that no tape rising occurs and that curling is less than 0.3 mm at the flanges of all guide when pressing the FF button in the playback mode to set the CUE mode, or the REW button to set the REV mode.

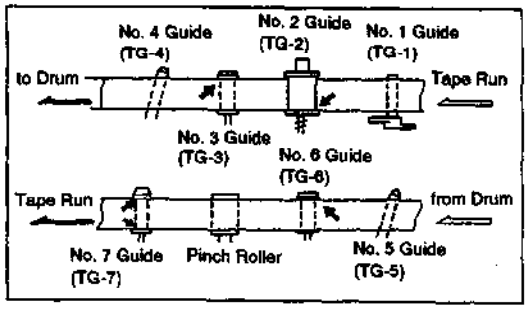


Fig. 4-16.