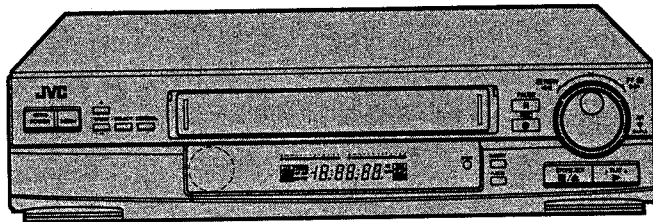
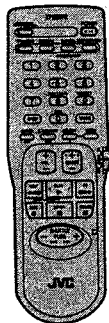


JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-S5200U/S7200U



VCR PlusTM C³
w/Cable Channel
Changer

Hi-Fi

S VHS

SPECIFICATIONS *(The specification shown pertain specifically to the model HR-S5200U)*

GENERAL

Power requirement	: AC 120 V~, 60 Hz
Power consumption	: 26 W
Temperature	
Operating	: 5°C to 40°C (41°F to 104°F)
Storage	: -20°C to 60°C (-4°F to 140°F)
Operating position	: Horizontal only
Dimensions (WxHxD)	: 400 x 94 x 340 mm (15-3/4" x 3-3/4" x 13-7/16")
Weight	: 4.5 kg (10.0 lbs)
Format	: S-VHS/VHS NTSC standard with Hi-Fi audio
Maximum recording time	
(SP)	: 160 min. with T-160 video cassette
(EP)	: 480 min. with T-160 video cassette

VIDEO/AUDIO

Signal system	: NTSC-type color signal and EIA monochrome signal, 525 lines/60 fields
Recording/Playback system	: DA-4 (Double Azimuth) head helical scan system
Signal-to-noise ratio	: 45 dB
Horizontal resolution	: 400 lines (S-VHS) 240 lines (VHS)
Frequency range	: 70 Hz to 10,000 Hz (Normal audio) 20 Hz to 20,000 Hz (Hi-Fi audio)
Input/Output	: RCA connectors (IN x 2, OUT x 1)

TUNER

Tuning system	: Frequency synthesized tuner
Channel coverage	
(VHF)	: Channels 2-13
(UHF)	: Channels 14-69
(CATV)	: 113 Channels
RF output	: Channel 3 or 4 (switchable; preset to Channel 3 when shipped) 75 ohms, unbalanced

TIMER

Clock reference	: Quartz
Program capacity	: 1-year programmable timer/ 8-programs
Memory backup time	: Approx. 60 min.

ACCESSORIES

Provided accessories	: RF cable (F-type), Infrared remote control unit, "AAA" battery x 2, Cable Box Controller, S-Video cable (4-pin), Audio/Video cable, Mini-plug cable
----------------------	---

Specifications shown are for SP mode unless otherwise specified.
E. & O.E. Design and specifications subject to change without notice.

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The following table lists the differing points between Models (HR-S5200U and HR-S7200U) in this series.

	HR-S5200U	HR-S7200U
DYNAMIC CONTRAST	X	O
VIDEO STABILIZER	X	O
SIDE PANEL	X	O

X : NOT USED O : USED

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the Δ symbol and shaded (■) parts are critical for safety.

Replace only with specified part numbers.

Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.

Caution for continued protection against fire hazard.

Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:

- 1) Wires covered with PVC tubing
- 2) Double insulated wires
- 3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:

- | | | |
|--------------------|--------------------------------------|------------|
| 1) Insulation Tape | 3) Spacers | 5) Barrier |
| 2) PVC tubing | 4) Insulation sheets for transistors | |

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

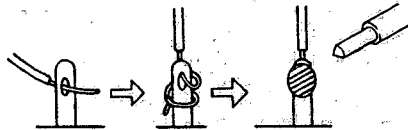


Fig. 1

7. Observe that wires do not contact heat producing parts (heat-sinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

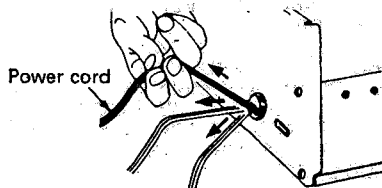


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)

In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector

In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

1) Connector part number : E03830-001

2) Required tool : Connector crimping tool of the proper type which will not damage insulated parts.

3) Replacement procedure

(1) Remove the old connector by cutting the wires at a point close to the connector.

Important : Do not reuse a connector (discard it).

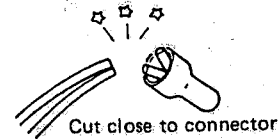


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

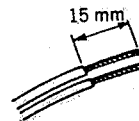


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

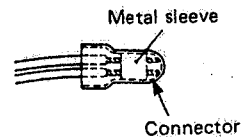


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

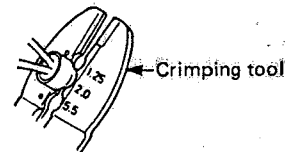


Fig. 6

(5) Check the four points noted in Fig. 7.

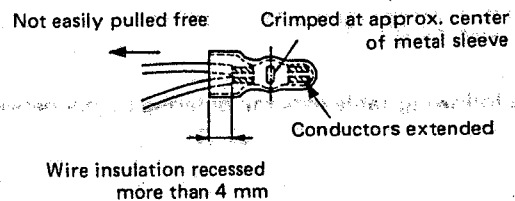


Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

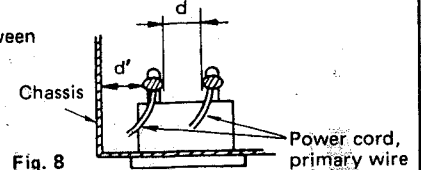
Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. Dielectric strength test

Confirm specified dielectric strength, or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.



4. Leakage current test

Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method: (Power ON)

Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

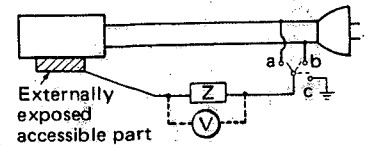


Fig. 9

5. Grounding (Class I model only)

Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).

Measuring Method:

Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

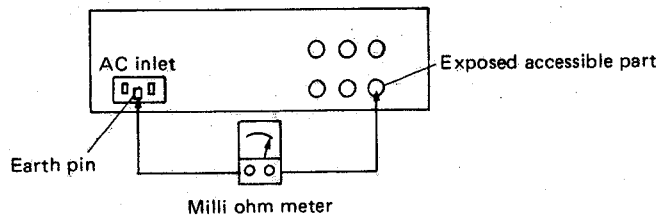


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	$Z \leq 0.1 \text{ ohm}$
Europe & Australia	$Z \leq 0.5 \text{ ohm}$

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	$R \geq 1 \text{ M}\Omega / 500 \text{ V DC}$	AC 1 kV 1 minute	$d, d' \geq 3 \text{ mm}$
100 to 240 V			AC 1.5 kV 1 minute	$d, d' \geq 4 \text{ mm}$
110 to 130 V	USA & Canada	—	AC 1 kV 1 minute	$d, d' \geq 3.2 \text{ mm}$
110 to 130 V	Europe & Australia	$R \geq 10 \text{ M}\Omega / 500 \text{ V DC}$	AC 3 kV 1 minute (Class II)	$d \geq 4 \text{ mm}$
200 to 240 V			AC 1.5 kV 1 minute (Class I)	$d' \geq 8 \text{ mm}$ (Power cord) $d' \geq 6 \text{ mm}$ (Primary wire)


Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	$1 \text{ k}\Omega$	$i \leq 1 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	USA & Canada	$0.15 \mu\text{F}$ and $1.5 \text{ k}\Omega$	$i \leq 0.5 \text{ mA rms}$	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	$2 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Antenna earth terminals
		$50 \text{ k}\Omega$	$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Other terminals


Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

Safety Precautions



CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN



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

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

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

Note to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

CAUTION:
This video cassette recorder should be used with AC 120V~, 60 Hz only.
To prevent electric shocks and fire hazards, do NOT use any other power source.

CAUTION:
TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION:
POUR ÉVITER LES CHOCs ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

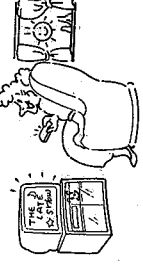


■ Cassettes marked "S-VHS" and "VHS" can be used with this video cassette recorder. However, S-VHS recordings are possible only with cassettes marked "S-VHS".

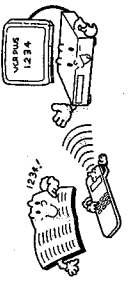
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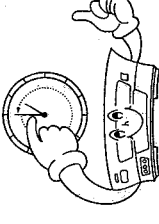
Some of your VCR's features

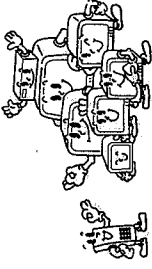
Instant ReView  p. 22

Quick access to your recordings! At the touch of a button, this function automatically turns on the VCR, rewinds the tape, searches for the beginning of your recorded program, and starts playback.

VCR Plus+ Programming  p. 28

Easy timer programming—just punch-in the code number in your TV listing.

Auto Daylight Saving Time  p. 11

TV and Cable Box Multi-Brand Remote Control  p. 33

Automatic adjustment of the VCR's clock for Daylight Saving Time.


Compatible with most major brands of televisions and Cable Boxes for basic control functions. Puts an end to two-handed remote control.

NOTE:

- When you are not using the video recorder for a long period of time, it is recommended that you disconnect the power cord from the AC outlet.
- Changes or modifications not approved by JVC could void user's authority to operate the equipment.
- The rating plate and the safety caution are on the rear and/or side of the unit.
- Please read the "Precautions" section of this instruction manual and the "Video Products Safety Guide" enclosed with this manual before installing or operating the VCR.
- This instruction manual, and the other reference materials enclosed with it, contain important information on VCR operation and proper usage. Please keep them near your VCR in a place where you can easily access them for reference.
- It should be noted that it may be unlawful to re-record pre-recorded tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast or cable program and in any literary, dramatic, musical, or artistic work embodied therein.

How To Use This Instruction Manual

This instruction manual begins with an introductory section, "Getting To Know Your VCR", followed by necessary set-up procedures in "Setting Up Your VCR". The next five sections—"Playback", "Recording", "Timer-Recording with VCR Plus+", "Timer-Recording without VCR Plus+" and "Special Features"—take you step-by-step through these operations of your VCR. "Editing" introduces you to your VCR's editing features. "If You Have Any Questions" is the section you should refer to if you experience any problems in VCR operation or if you need additional information regarding a feature or terminology. At the end of the book you will find "Warranty" information and the locations you can contact "For Servicing".

Throughout the book, if you ever need to refer to another page for instructions or information, you will be told so by a  mark pointing to the page number.

Unless otherwise specified, operation buttons mentioned in the instructions refer to those located on the remote control, not those duplicated on the VCR.

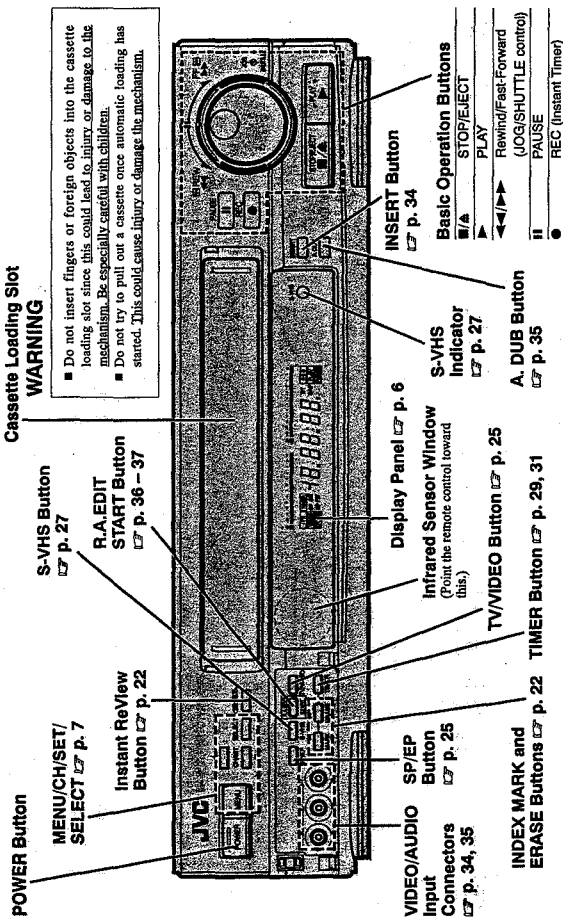
Remember, you must use your VCR correctly to fully enjoy it. Please use this manual effectively. It's the surest and quickest way to unlock the full potential of your new JVC VCR.

VCR Plus+ and PlusCode are trademarks of Genstar Development Corp. VCR Plus+ system is manufactured under licence from Genstar Development Corporation.

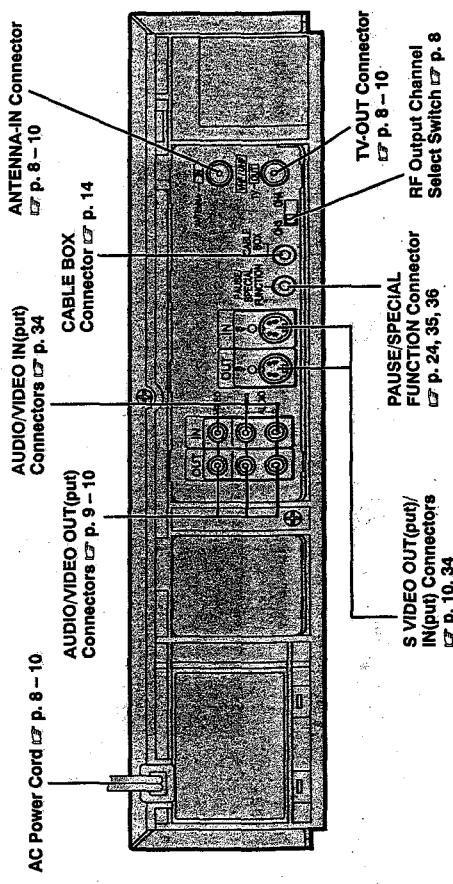
Getting To Know Your VCR

Front Panel

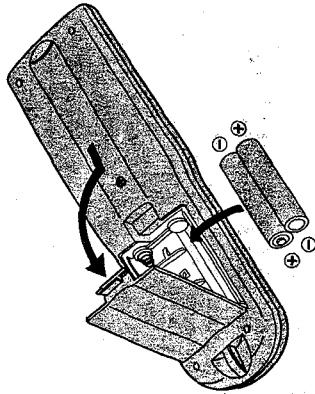
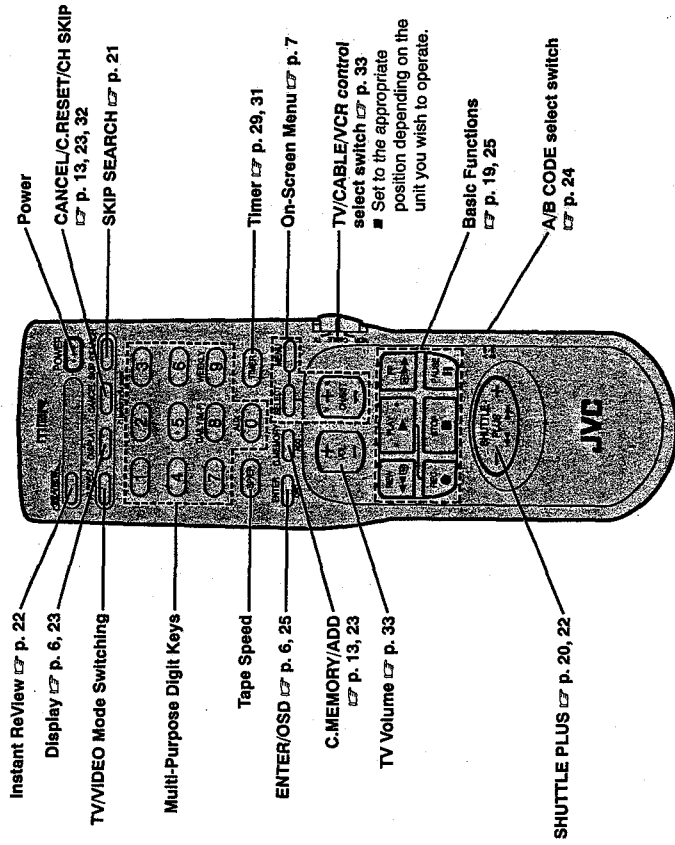
To open the front cover, push the left upper end where labelled "PUSH-OPEN".



Back Panel



Wireless Remote Control



Installing Batteries

- Slide the battery compartment cover in the direction of the arrow.
- Insert 2 "AAA"-size batteries (provided) in the correct directions.
- Replace the cover.

How To Use

This remote control can operate most of your VCR's functions. Set the TV/CABLE/VCR switch to the VCR position.

- Point the remote control toward the VCR's sensor window.
- Press the appropriate operation button.

■ The maximum operating distance of the remote control is about 8 m (26 ft).

This remote control can also operate various brands of TVs and Cable Boxes. For instructions, p. 33.

Setting Up Your VCR

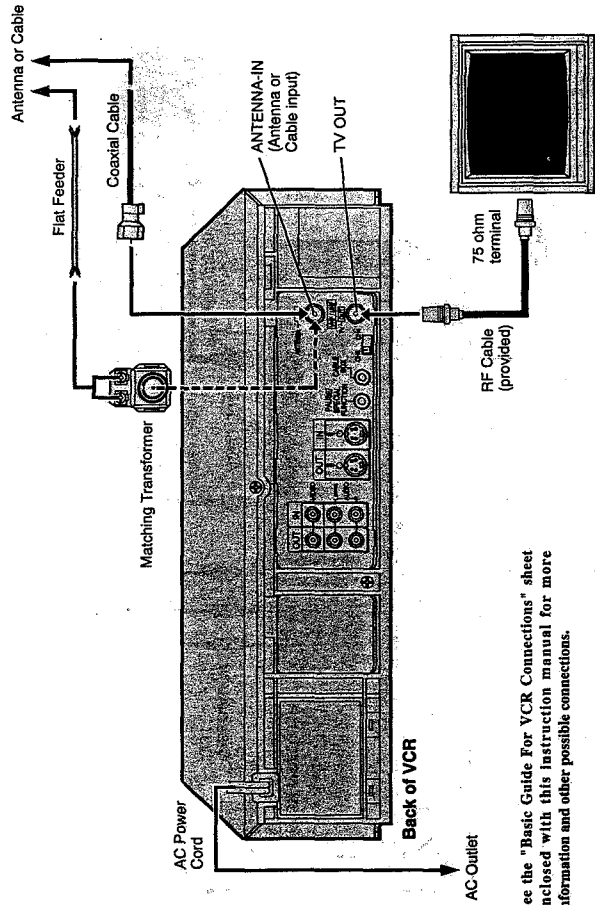
Making the right connections

It's essential that your VCR be properly hooked up for proper results. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VCR OPERATION CAN BE PERFORMED.

IF YOU HAVE A STANDARD TV SET

RF CONNECTION

- 1 Disconnect the TV antenna from the TV.
- 2 Connect the TV antenna to the VCR's ANTENNA-IN.
- 3 Connect the VCR's TV OUT to the TV's antenna terminal using the provided RF cable.

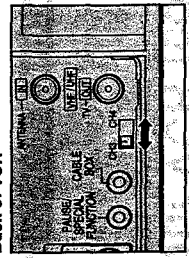


See the "Basic Guide For VCR Connections" sheet enclosed with this instruction manual for more information and other possible connections.

SELECT VCR CHANNEL (3 OR 4)

With a standard RF connection, the VCR sends picture and sound signals through the connecting cable to your TV on channel 3 or 4. The VCR's switch is pre-set to CH3 prior to shipment. Set this switch to CH4 in areas where channel 3 is used for broadcasting.

Back of VCR



NOTES:

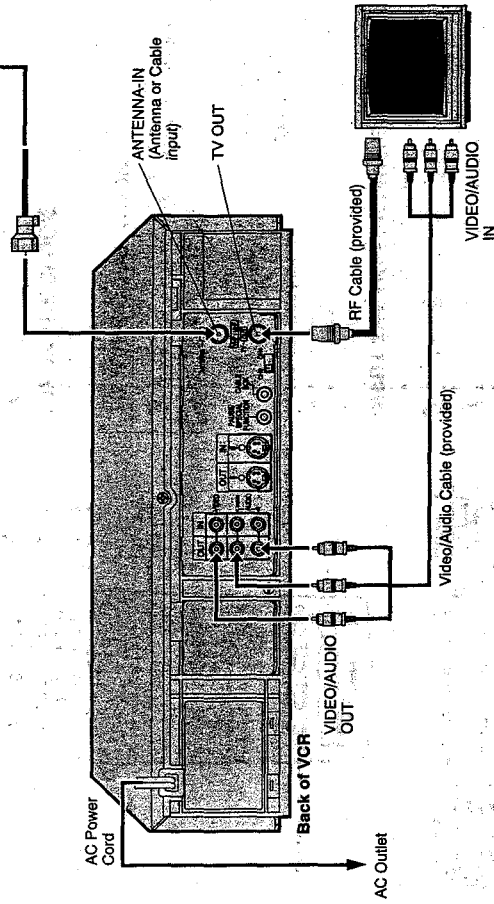
- To operate the VCR with your TV using an RF connection, it is always necessary to set your TV's channel to the one you set the VCR to in this step.
- Even if your TV is connected using AV input connectors, it is necessary to also connect your VCR and TV using the RF cable if you ever wish to watch a program while recording another (see p. 25).

Or...

IF YOU HAVE A TV SET WITH AV INPUT CONNECTORS

AV CONNECTION

- 1 Connect the antenna, VCR and TV as per "RF CONNECTION".
- 2 Connect the VCR's AUDIO OUT and VIDEO OUT to the TV's AV-IN connectors.



ADJUST RF SETTING IF NECESSARY

Even if your TV is connected to AV input connectors, it is necessary to also connect your VCR and TV using the RF cable if you ever wish to watch a program while recording another (see p. 25).

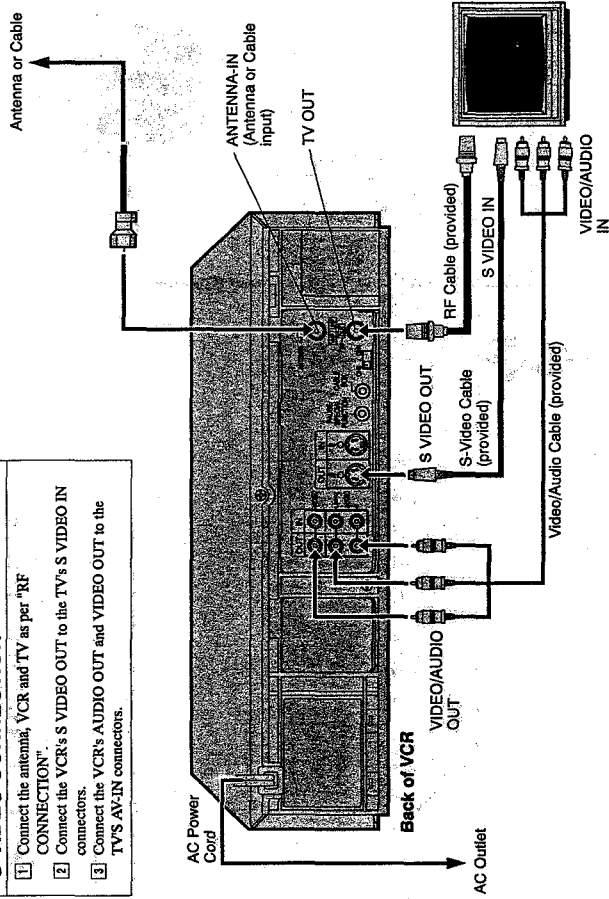
Setting Up Your VCR (cont'd)

Or...

IF YOU HAVE A TV SET WITH S-VIDEO INPUT CONNECTORS

S-VIDEO CONNECTION

- 1 Connect the antenna, VCR and TV as per "RF CONNECTION".
- 2 Connect the VCR's S VIDEO OUT to the TV's S VIDEO IN connectors.
- 3 Connect the VCR's AUDIO OUT and VIDEO OUT to the TV's AV-IN connectors.

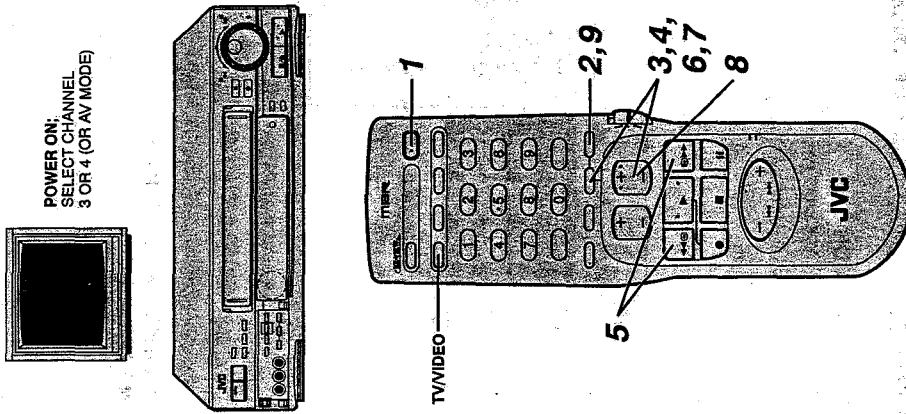


NOTES:

- To make the most of Super VHS picture performance, we recommend you use the S-VIDEO connection.
- To operate the VCR with your TV using the S VIDEO connection, set your TV to the AV mode.

Setting your VCR's clock

Since your VCR bases all of its timer recording start and stop "decisions" on the time kept by its built-in clock, accurate setting of this clock is crucial for proper timer-recording results.



You can also use the POWER, MENU, REW, FF, SET and SELECT buttons on the VCR.

TURN ON THE VCR

- 1 Press POWER.
 - If watching on channel 3 or 4, press TV/VIDEO to select the VIDEO mode. The VCR's VIDEO indicator will light.

ACCESS THE ON-SCREEN MENU

- 2 Press MENU.
 - The Main Menu screen will appear.
 - If the VCR Plus+ screen appears press MENU again.
 - Press SET to move the cursor to "SET-UP MENU" and then press SELECT.
 - Press SET to move the cursor to "INITIAL SET", and then press SELECT.

- 3 Press SET to move the cursor to "INITIAL SET", and then press SELECT.
- 4 Press SET to move the cursor to "INITIAL SET", and then press SELECT.
- 5 You can change the on-screen language.
 - Press REW for Spanish, PLAY for French.
 - Press FF to change back to English.

INPUT THE MONTH/DAY/YEAR/TIME

- 6 Press SET to set the month, and then press SELECT.
- 7 Repeat step 6 to set the day, year and time (making sure that AM or PM is correct).
 - The day of the week will automatically appear.

TO USE AUTO D.S.T.

- 8 If you want to take advantage of Auto D.S.T. (Daylight Saving Time) (see below), press SET to choose ON.

TO MAKE CORRECTIONS

Press SELECT so that the item you want to change blinks. Reset that item. Continue to step 9.

START THE CLOCK

- 9 Press MENU.

Auto Daylight Saving Time

Your VCR is incorporated with the D.S.T. function which automatically adjusts the clock at the start/end of Daylight Saving Time, making manual re-setting unnecessary.

When D.S.T. is set to ON:

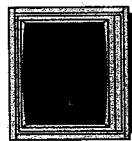
- On the first Sunday of April, 1 minute after 1:59AM the VCR's clock is adjusted to 3:00AM.
- On the last Sunday of October, 1 minute after 1:59AM the VCR's clock is adjusted to 1:00AM.

■ If you live in an area without Daylight Saving Time, keep D.S.T. OFF when setting the clock.

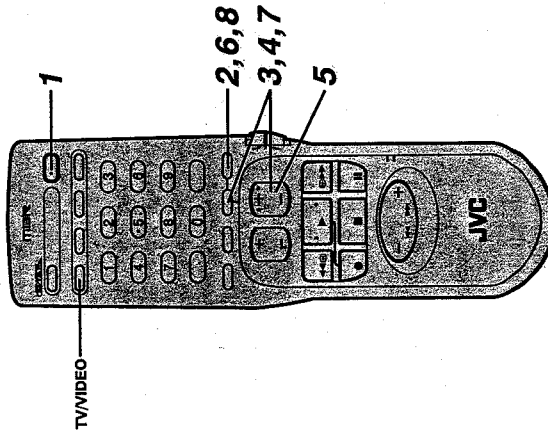
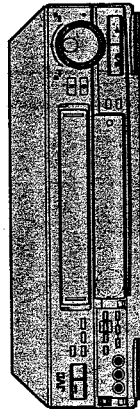
Setting Up Your VCR (cont'd)

Setting your VCR's tuner

The Auto Set feature introduced here automatically assigns receivable channels in your area to the CHANNEL UP/DOWN buttons and skips the others so you won't have to go through any "blank" channels to get to the one you want.



POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)



You can also use the POWER, MENU SET and SELECT buttons on the VCR.

POR INSTRUCCIONES EN ESPAÑOL VEA P. 42 - 43.

FOLLOW INSTRUCTIONS ON THIS PAGE OR ON P. 14 - 16 DEPENDING ON YOUR CABLE BOX.

TURN ON THE VCR

- Press POWER.
 - If watching on channel 3 or 4, press TV/VIDEO to select the VIDEO mode. The VCR's VIDEO indicator will light.

ACCESS THE ON-SCREEN MENU

- Press MENU to access the Main Menu screen.
 - If the VCR Plus+ screen appears press MENU again.
- Press SET to move the cursor to "TUNER SET", and then press SELECT.
- Press SET to move the cursor to "BAND", and then press SELECT.

SELECT THE BAND

- Press SET to choose "TV" or "CATV".
 - The BAND select feature has 2 settings (TV and CATV). Set to TV if your antenna provides only UHF and VHF channels. Set to CATV if your antenna system is a cable TV line.

START AUTO SET

- Press SET to move the cursor to "AUTO CHANNEL SET", and then press SELECT.
 - Auto set is in progress and "SCANNING..." is displayed.
 - When available channels are scanned, "ADD" will be displayed on the screen.
 - When unavailable channels are skipped, "SKIP" will be displayed.
 - After completion of auto set, the lowest tuned-in channel number and "SCAN COMPLETED" are displayed.
 - If "SCAN COMPLETED — NO SIGNAL —" is displayed, check the band setting and connections, and start again. **CT** p. 8 - 10.

RETURN TO THE TV SCREEN

- Press MENU as many times as necessary to exit.

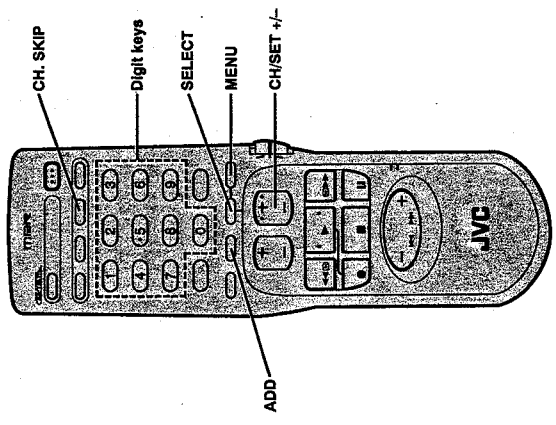
Now go to **CT** p. 17 "Setting up the VCR Plus+ feature".

To add a "skipped" channel to your VCR's tuner

- Press MENU to access the Main Menu screen.
 - If the VCR Plus+ screen appears press MENU again.
- Press SET to move the cursor to "TUNER SET", and then press SELECT.
- Press SET to move the cursor to "AFC", and then press SELECT.
- Press SET to choose "SPL".
- Press MENU.
- Press SET to move the cursor to "MANUAL CHANNEL SET", and then press SELECT.
- Input the channel number using the Digit keys.
- Press ADD to store the channel.
- Specify another channel number or press MENU as many times as necessary to exit.

To delete an unwanted channel from your VCR's tuner

- Press MENU to access the Main Menu screen.
 - If the VCR Plus+ screen appears press MENU again.
- Press SET to move the cursor to "TUNER SET", and then press SELECT.
- Press SET to move the cursor to "MANUAL CHANNEL SET", and then press SELECT.
- Input the channel number using the Digit keys or the CH +/- buttons.
- Press CH. SKIP to delete the channel.
- Specify another channel number or press MENU as many times as necessary to exit.



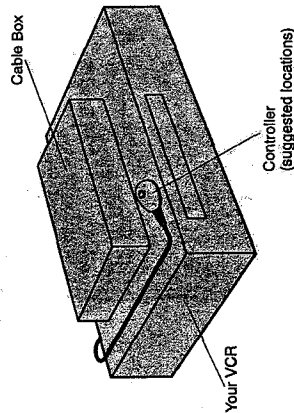
Setting Up Your VCR (cont'd)

Setting your VCR's tuner and Cable Box Controller

Follow these steps if you use an external Cable Box (descrambler) to receive cable stations. When properly set-up, the Multi-System Cable Box Controller will automatically switch channels on your Cable Box so you can timer-record two or more cable TV stations. It works for Cable TV shows that have been programmed using VCR Plus+ (see p. 28) or On-Screen (see p. 30) programming.

Suggested Locations

Attach to top of VCR with Controller's transmitter pointed towards Cable Box's remote sensor window.



PLACE CONTROLLER IN A GOOD LOCATION

- 1 Find a location for the Controller which offers an unobstructed path to the Cable Box's remote sensor window; otherwise the Controller's infrared beam will not be able to reach and control your Cable Box.
- 2 Attach the Controller using the supplied adhesive strips.

CONNECT CABLE BOX TO VCR

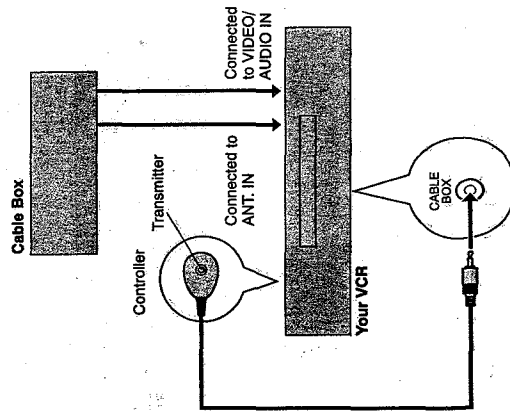
- If your Cable Box has VIDEO OUT/AUDIO OUT connectors...
- 3 Connect them to the VIDEO IN and AUDIO IN connectors of your VCR.
- If your Cable Box does not have VIDEO OUT/AUDIO OUT connectors...
- 3 Connect the Cable Box's antenna output terminal to the ANT. IN (Antenna) terminal of your VCR.
 - Refer to the Cable Box's instruction manual for more information.

CONNECT CONTROLLER TO VCR

- 4 Connect the Cable Box Controller to your VCR's CABLE BOX terminal.

NOTE:

- About Your Cable Box: This VCR has two separate methods to control your Cable Box. The provided Wireless Remote Control Unit can control your Cable Box. The VCR's Cable Box Controller can also control your Cable Box. The former eliminates the need for a separate Cable Box Remote Control Unit. The latter is to change your Cable Box's channel number during timer recordings. Each method must be set up separately. To set up the VCR's Remote Control Unit see p. 33.

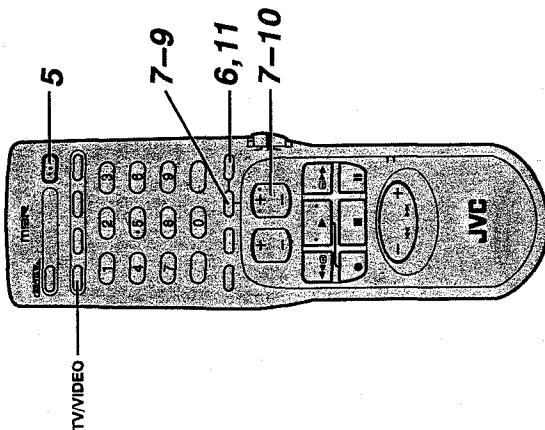


TURN ON THE VCR

- 5 Press POWER.
 - If watching on channel 3 or 4, press TV/VIDEO to select the VIDEO mode. The VCR's VIDEO indicator will light.

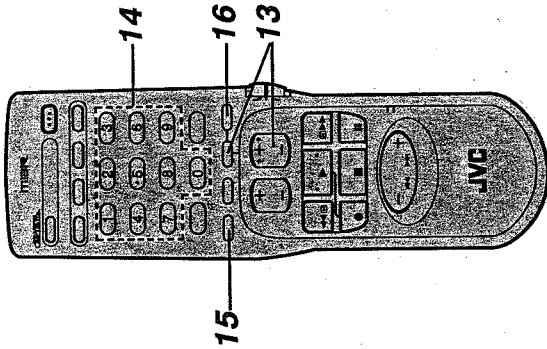
SET TO CABLE BOX'S OUTPUT CHANNEL

- 6 Press MENU until the Main Menu appears (see p. 7). Press SET to move the cursor to SET-UP MENU. Then press SELECT.
- 7 Press SET to move the cursor to CABLE BOX SET. Then press SELECT.
- 8 Press SET to move the cursor to CABLE BOX OUTPUT. Then press SELECT.
- 9 Press SET to choose the output channel number of your Cable Box (channels 2 thru 6) if it's connected to your VCR via RF connection.
 - For example, choose "ON-CH3" if the Cable Box provides its output on channel 3.
 - Choose "ON-LINE" if the Cable Box is connected to your VCR's Audio/Video input connectors.
- 10 Press MENU.
 - Cable Box Set menu will appear.



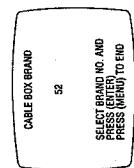
(Continued on next page.)

Setting Up Your VCR (cont'd)



SET CABLE BOX BRAND

- 12** Turn on the Cable Box's power.
 - Select a channel other than 9 on your Cable Box.
- 13** Press SET to move the cursor to BRAND SET. Then press SELECT.
 - Press the Digit keys corresponding to the code number for your Cable Box's brand. (See list below).
- 14** Press ENTER.
 - If Cable Box's channel changes to "9", setting is completed.
 - If the brand has more than one code number listed, repeat steps 14-15 until you reach the code that changes your Cable Box's channel.
 - Perhaps your cable box will respond to a new code number not yet published in the list. Try entering all code numbers from 1 to 101.
- 15** If Cable Box's channel changes to "9", setting is completed.
 - If the brand has more than one code number listed, repeat steps 14-15 until you reach the code that changes your Cable Box's channel.
 - Perhaps your cable box will respond to a new code number not yet published in the list. Try entering all code numbers from 1 to 101.
- 16** Press MENU as many times as necessary to exit.
 - Now go to p. 17 "Setting up the VCR Plus+ feature".
 - To change cable channels or turn on/off your cable box using the VCR's remote control, p. 33.



CABLE BOX BRAND LIST

BRAND	CODE	BRAND	CODE
ARCHER	52, 53, 54, 85, 86	RCA	25, 28, 27
CABLEVIEW	85, 86	REGAL	76, 79, 80
CITIZEN	85, 86	REGENCY	51
CURTIS	13, 14, 15, 16	SAMSUNG	74, 75, 76
DIAMOND	52, 53, 54	SCIENTIFIC ATLANTA	13, 14, 15, 16
EAGLE	30, 31, 32, 33, 34, 35, 36, 37	SL MARX	74, 75, 76
EASTERN	51	SPRUCER	25, 26, 27
GC BRAND	85, 86	STARGATE	74, 75, 76, 85, 86
GEMINI	55, 56	SYLVANIA	70
GENERAL ELECTRIC	97	TEKNIKA	68, 69
GENERAL INSTRUMENTS	1, 2, 3, 4, 5, 6, 101	TELECAPTION	100
HAMLIN	23, 24	TELEVIEW	74, 75, 76
JERROLD	1, 2, 3, 4, 5, 6, 101	TEXSCAN	28, 29
MAGOM	57, 58, 59	TUCOM	62, 63, 64, 65, 66
MAGNVOX	43, 44, 45, 46, 47, 48, 49	UNIKA	52, 53, 54, 85, 86
MOVIE TIME	71, 72, 73	UNIVERSAL	81, 82, 83, 84
NSC	71, 72, 73	VIDEOWAY	9, 10, 11, 12
OAK	17, 18, 19, 20, 21, 22	VID TECH	89
PANASONIC	25, 26, 27	VIDITER	89
PHILIPS	38, 39, 40, 41, 42	VIEWSTAR	30, 31, 32, 33, 34, 35, 36, 37
PIONEER	7, 8	ZENITH	9, 10, 11, 12
PULSER	85, 86		

NOTES:

- Although the provided Cable Box Controller is compatible with many different cable box brands, it is possible that it will not work with your cable box.
- If your cable box does not respond to any of the codes, your VCR is not able to change its channels during timer recordings. For this type of cable box, always remember to leave it turned on and tuned to the channel you want to record before the timer recording is programmed to start.
- Please contact your cable company about the possibility of exchanging your current cable box with one that is compatible with the VCR.
- The VCR can change the Cable Box channel selection through the Cable Box Controller only during timer recording.
- If your cable box cannot be controlled by a remote control, your VCR will not be able to change its channels during timer recording. For this type of cable box, turn it on and select the channel you want to record before the timer recording is programmed to start.
- If you are unable to set the cable box controller please contact JVC toll free at 1-800-252-5722.

Setting up the VCR Plus+ feature

Depending on the broadcast stations that are receivable in your area, or the cable stations offered by your cable supplier, you may have to make certain changes in your VCR's "Guide Channel Set" menu to get proper results. Please read on and find out what you need (and don't need) to do.

Make sure that you have already...

set the VCR's clock
set the VCR's tuner.
set the Cable Box Controller (p. 14) if using a Cable Box.
(If NOT using Cable Box)



Example of non-matching channels

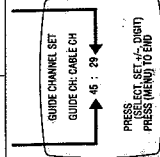
Broadcast Station	VCR Plus+ Assigned Guide Channel	The channel your VCR receives the station on
WNYB (TBN)	67	49
WSBK Boston, MA	15	38
WXII Paterson, NJ	12	41
WNUJ (Ind.)	6	47
WEDW Bridgeport, CT	14	49
WLIG Riverhead	10	55
WFXY (FOX)	33	28

(If using Cable Box)



Example of non-matching channels

Cable Station	VCR Plus+ Assigned Guide Channel	The channel your Cable Box receives the station on
WNUJ (Ind.)	6	8
WILW (PBS)	21	34
Music Television	48	20
Cable News Network	42	27
Home Box Office	33	28
Cinemax	45	29



Then...

COMPARE CHANNEL NUMBERS

Most TV listings will have a chart indicating the "Guide Channel" number that each TV station has been assigned for purposes of VCR Plus+ programming. Check in your TV listing and see whether that number is the same as the channel number you receive that station on with your VCR or Cable Box.*

If the numbers match, you don't have to do anything. You can go directly to "Timer-Recording with VCR Plus+" p. 28.

If there are stations where the numbers are different, and you want to be able to timer-record them, you will have to "tefl" the VCR about the mismatch. Go to step 1.

If there are stations where the numbers are different, but you don't want to timer-record them, you can go directly to "Timer-Recording with VCR Plus+" p. 28.

*SPECIAL NOTE FOR CABLE SUBSCRIBERS

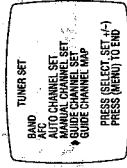
- In many instances, cable TV stations have VCR Plus+ Guide Channel numbers that DO NOT match the actual channel number the station is received on. Check your TV listing, or check with your cable supplier for details.
- In many instances, normal broadcast TV stations can be viewed on cable. Check your TV listing, or check with your cable supplier for details.

TURN ON THE VCR

- 1** If the VCR is off, press POWER to turn it on.
 - If watching on channel 3 or 4, press TV/VIDEO to select the video mode. The VCR's VIDEO indicator will light.

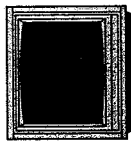
ACCESS THE ON-SCREEN MENU

- 2** Press MENU, SET and SELECT as many times as necessary to access the "TUNER SET" screen. (p. 7)
- 3** Press SET to move the cursor to "GUIDE CHANNEL SET", and then press SELECT.
 - The Guide Channel Set screen will appear.
 - If you have set the Cable Box Controller feature CABLE CH is displayed instead of VCR CH.

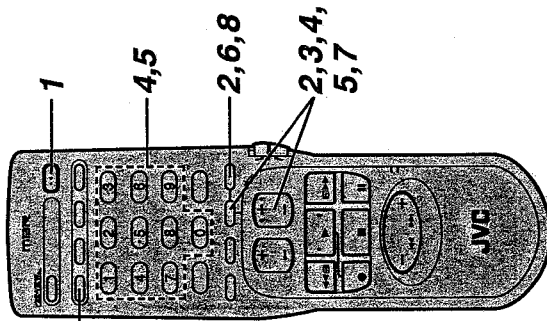


(Continued on next page.)

Setting Up Your VCR (cont'd)



**POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)**



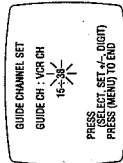
INPUT THE GUIDE CHANNEL

4 Press SET or the Digit keys to input the Guide Channel number (as shown in TV listing or this manual), and then press SELECT.



INPUT THE RECEIVING CHANNEL

5 If you don't use an external Cable Box... Press SET or the Digit keys to input the channel number your VCR receives the station on, and then press SELECT.



■ If there are other GUIDE CH numbers which don't match with the VCR CH numbers, input the changes by repeating steps 4 - 5.

5 If you use an external Cable Box...

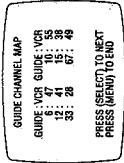
to input the channel number your Cable Box receives the station on, and then press SELECT.
■ If there are other GUIDE CH numbers which don't match with the CABLE CH numbers, input the changes by repeating steps 4 - 5.

CHECK THE GUIDE CHANNEL MAP

6 Press MENU once to go back to the Tuner Set menu.
7 Press SET to move the cursor to "GUIDE CHANNEL MAP", and then press SELECT.



■ A screen with GUIDE CH numbers (in ascending order) with their corresponding VCR CH numbers will be displayed. Check to make sure your entries are correct.



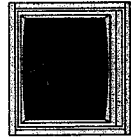
■ If there are more than 10 entries, press SELECT to display the 11th and higher entries.

RETURN TO THE TV SCREEN

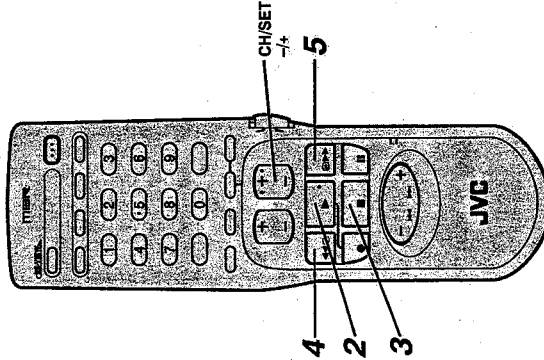
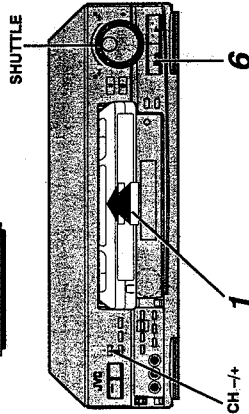
8 Press MENU as many times as necessary to exit.

Playback

The easiest, most basic operation possible with your VCR is tape playback. Previously-recorded signals on a video tape are read by your VCR and displayed on your TV just like a TV program.



**POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)**



LOAD A CASSETTE

1 Insert a cassette with its window side up, and label side facing you. Press gradually on the middle of the cassette until the VCR pulls the cassette in.
■ The VCR power will come on automatically.
■ The counter will be reset to "00:00:00" automatically.
■ If the safety tab on the cassette is absent, playback will start automatically.

TO START PLAYBACK

2 Press PLAY.

TO STOP PLAYBACK

3 Press STOP.

TO REWIND OR FAST-FORWARD

4 Press REW to rewind the tape.

5 Press FF to fast-forward the tape.

■ Press STOP to stop the tape.
■ To rewind or fast-forward the tape using the VCR's control, turn the SHUTTLE ring fully to the corresponding direction, and release it.

TO EJECT THE TAPE

6 Press the VCR's STOP/EJECT button again.

To adjust tracking manually

This overrides your VCR's automatic tracking.

During Playback...

1 Press the VCR's CH(annel) +/- buttons simultaneously to cancel auto tracking.

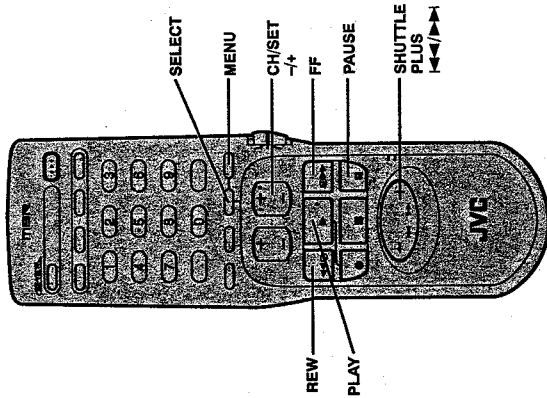
2 The remote control's CH +/- cannot be used for this purpose.

■ Press CH + or - to adjust tracking.
■ Press the VCR's CH +/- simultaneously to return to automatic tracking.

During Slow...

1 Simply press CH + or - to adjust tracking.

Playback (cont'd)



To view a still picture

- During Playback...**
- 1 Press PAUSE to view a still picture.
 - If there is vertical picture jitter, press CH - or + (on the VCR or remote control) to make the picture more stable.
 - 2 To advance the picture frame by frame, press PAUSE again.
 - For frame-by-frame playback in the forward or reverse direction, press SHUTTLE PLUS I<4>/> or I<4>/> in the corresponding direction while in the still picture mode.
 - 3 Press PLAY to resume normal playback.

To view a slow/fast-motion picture

- During Playback...**
- 1 Press the SHUTTLE PLUS I<4>/> or I<4>/> button. Tape speed will change in the corresponding direction.
 - To increase the speed, press the button for the same direction.
 - To decrease speed, press the button for the opposite direction.
 - 2 For forward slow motion playback, press PAUSE for more than 2 seconds while in the still picture mode.
 - 3 Press PLAY to resume normal playback.

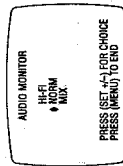
Or...

- During Playback...**
- 1 Press FF for forward fast-motion, or REW for reverse fast-motion.
 - 2 Press PLAY to resume normal playback.
 - For short searches, keep FF or REW pressed for more than 2 seconds. When released, normal playback will continue.

To select the soundtrack

Your VCR is capable of recording two soundtracks (HI-FI and NORMAL) simultaneously, and playing back the selected soundtrack or two together.

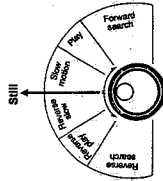
- During Playback or Stop:**
- 1 Press MENU, SET, and SELECT as many times as necessary to access the AUDIO MONITOR screen. (See p. 7).
 - 2 Press SET to choose "HI-FI", "NORM", or "MIX".
 - HI-FI to listen to the HI-FI soundtrack.
 - NORM to listen to the normal soundtrack.
 - MIX to listen to both soundtracks combined. Select this setting when playing back edited tapes with insert edits or dubbed audio made on an appropriately equipped VCR.
 - Normal audio will be outputted regardless of the playback audio monitor selection if HI-FI audio is not present on the tape.
 - 3 Press MENU as many times as necessary to exit.



To view jog/shuttle special effects

You can view pictures in slow to fast motion, or frame-by-frame. **During Still or Playback...**

- 1 Turn the outer ring (Shuttle) to the right for forward slow motion and search.
 - Release the Shuttle for a still picture.
 - For fast-forward with a visible picture, turn the Shuttle all the way to the right and release it within 1 second.
- 2 Turn the outer ring (Shuttle) to the left for reverse slow motion and search.
 - Release the Shuttle for a still picture.
 - For rewind with a visible picture, turn the Shuttle all the way to the left and release it within 1 second.



During Still or Playback...

- 1 Rotate the inner dial (Jog) clockwise or counterclockwise for jog control. The tape moves frame-by-frame at the speed with which the dial is rotated, in the direction the dial is rotated. (By rotating the Jog dial counterclockwise at 2 revolutions per second or faster, reverse play is possible.)

To resume normal playback, press the PLAY button.

Skip Search

To skip over unwanted sections of a recording.

During Playback...

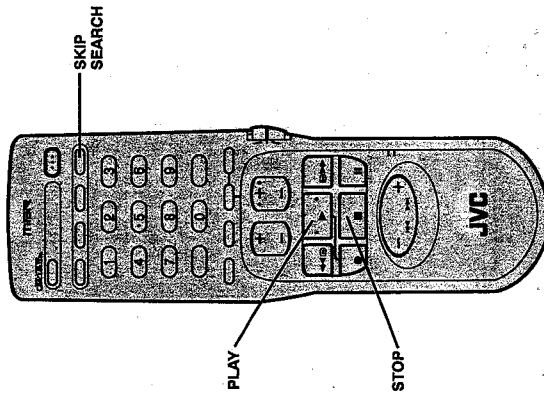
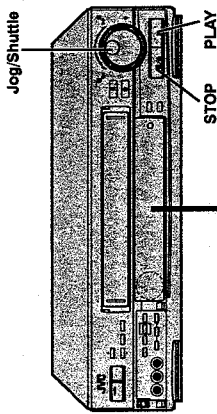
- 1 Press SKIP SEARCH from 1 to 4 times.
 - This fast-motion through 30-sec. to 2-min. of tape.
 - Playback resumes automatically.
- 2 Press PLAY to cancel a Skip Search midway.

Repeat Playback

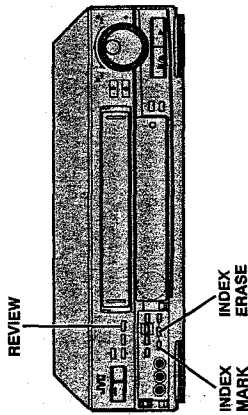
To play the whole tape repeatedly.

During Playback...

- 1 Press PLAY for more than 5 seconds, and release.
 - The "PLAY" indicator on the VCR panel will blink slowly.
 - The tape will be played 20 times automatically, and then stop.
 - To stop repeated playback at any time, press STOP.



Playback (cont'd)



Instant Review

Simply by pressing a single button, the VCR power comes on, rewinds, and begins playback of the last recording. This makes it easier to "review" the program you have time-recorded.

When the VCR power is off:

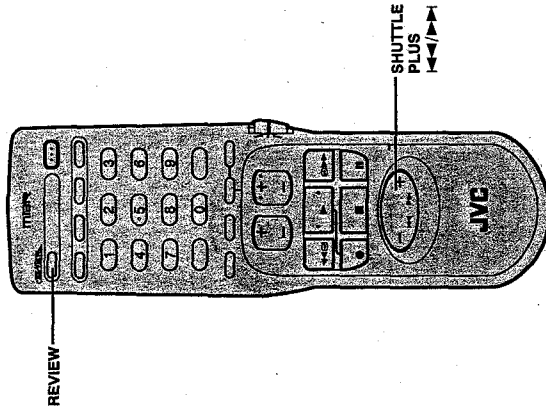
- 1 Press REVIEW.
- After the VCR power comes on, the tape will be rewound to the beginning of the last recording (where the index code is placed) and playback will start automatically.
- To play back a recording located 2 index codes away, press REVIEW twice. You can access any one of up to 9 index codes.
- Review is not possible while the VCR is in the Timer mode.
- The VCR's REVIEW button lights when timer-recording is finished, and blinks while the tape is being rewound.

Index Search

Index codes are electronic "bookmarks" which are automatically placed on the tape whenever recording is started. Index Search automatically seeks out these index codes so you can easily find the beginning of a recording (up to 9 index codes away in either direction).

During Stop...

- 1 Press SHUTTLE PLUS \leftarrow or \rightarrow "INDEX -1" or corresponding direction.
- 2 If you wish to access index codes 2 through 9, press SHUTTLE PLUS \leftarrow or \rightarrow repeatedly until the correct index number is displayed.
- When the specified index code is found, playback will start automatically.



Manual Index Mark/Erase

TO MARK AN INDEX CODE

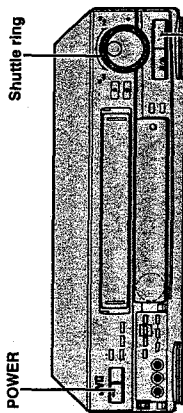
- During Playback...
- 1 Press INDEX MARK.
 - The VCR will mark an index code at that location.
 - "MARK" blinks while an index code is being marked.

TO ERASE AN INDEX CODE

- During Playback or Still...
- 1 Press INDEX ERASE.
 - The VCR will fast-forward to the nearest index code and erase it. Playback continues after the index code is erased.
 - "ERASE" blinks while an index code is being erased.

NOTES:

- If adjacent index codes are too close to each other, Index Search may not function properly.
- If the cassette's safety tab has been removed, index codes cannot be marked or erased.
- An index code is not placed on the tape when recording is paused and then resumed.



Counter Reset

To reset the tape counter to zero.

- 1 Press C. RESET.
- Pressing DISPLAY repeatedly changes the VCR's displayed indication. (Counter reading \rightarrow Channel* \rightarrow Clock time \rightarrow Remain).
- *Channel is not displayed during playback.

Counter Memory

To return to tape position zero.

- During Playback...
- 1 Press C. RESET at a point you wish to locate later.
 - 2 Press C. MEMORY.
 - Counter Memory mark is displayed.
 - 3 When you wish to return to that point, press STOP and then press REW.
 - The tape will rewind and stop at about "0h 00m 00s" automatically.
 - 4 To cancel the Counter Memory mode, press C. MEMORY.

Next-Function Memory

You can "tell" the VCR what to do immediately after rewinding.

During Stop:

For automatic start of playback after the tape is rewound...

- 1 Press REW.
- 2 Press PLAY within 2 seconds.

For automatic power off after the tape is rewound...

- 1 Press REW.
- 2 Press POWER within 2 seconds.

For automatic timer standby after the tape is rewound...

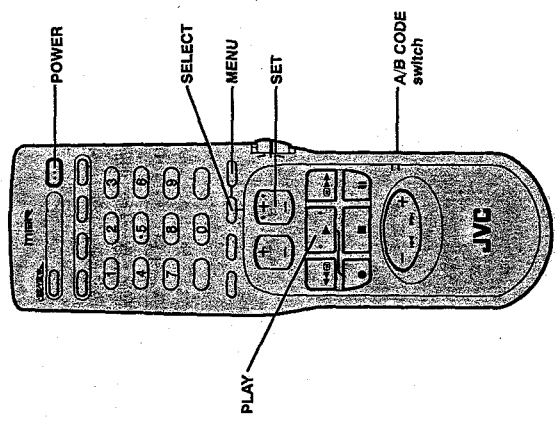
- 1 Press REW.
- 2 Press TIMER within 2 seconds.

To do the above using the VCR's controls:

During Stop, turn the Shuttle all the way to the left and release it instead of pressing REW, and then press PLAY or POWER within 2 seconds.

- If you want the "next function" to automatically start when the counter reads "0h 00m 00s" (instead of at the beginning of the tape), press C. MEMORY so that the counter memory "M" mark appears on the VCR display panel before pressing REW or FF.

Playback (cont'd)

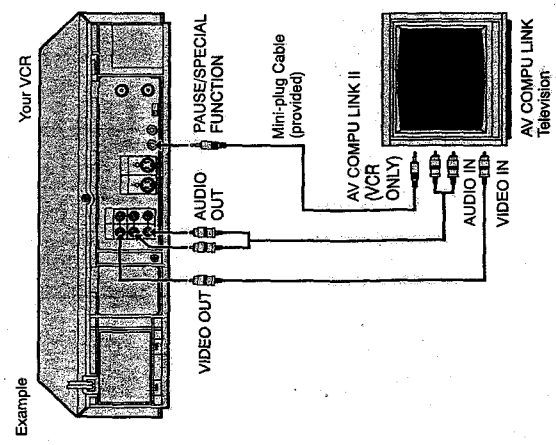


To control two JVC VCRs

The remote control is capable of controlling two JVC VCRs independently using the A/B CODE switch. You can set this switch in the "B" position and use the remote control only when the responds only when the switch is in the "A" position. This way you can control two JVC VCRs independently with a single remote control.

The A/B CODE switch is preset to the "A" position because your VCR is initially set to respond to A code signals. You can easily modify your VCR to respond to B code signals.

- 1 Unplug the VCR's power cord from the AC outlet.
- 2 Set the A/B CODE switch on the remote control unit to "B".
- 3 Plug the VCR's power cord back into the AC outlet. Do not use other remote controls at this stage.
- 4 Turn the VCR power on using the remote control's POWER button. The VCR will now respond only to B code signals.



AV COMPU LINK Playback

Your VCR is compatible with JVC's AV COMPU LINK components which include amplifiers (or receivers) and televisions.

PREPARATION

- 1 Connect your VCR to an AV COMPU LINK amplifier and/or an AV COMPU LINK television as illustrated.
- 2 Press MENU; SET; and SELECT as many times as necessary to access the SPECIAL FUNCTION screen. (P. 7)
- 3 Press SET to choose "AV COMPU-LINK".
- 4 Press MENU as many times as necessary to exit.

OPERATION

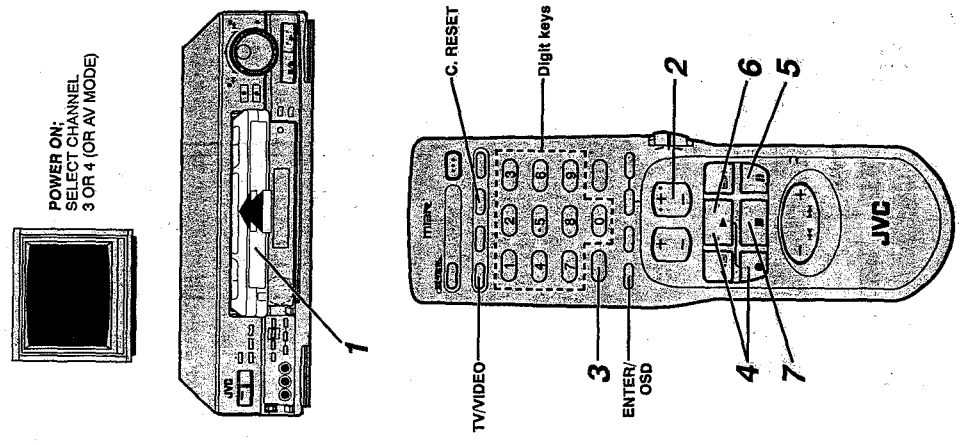
AV COMPU LINK video playback is as easy as this:

- Simply load a cassette in your VCR and press PLAY. (If the cassette's safety tab has been removed, it is not necessary to press play.) The TV (and amplifier) turn on automatically and the TV's mode is automatically set to VIDEO; you're ready to watch!
- Connection varies according to the type of TV. Please read your TV's instruction manual when making TV connection.

Recording

POR INSTRUCCIONES EN ESPAÑOL VEA p. 42 - 43.

TV signals being received by the VCR's built-in tuner can be recorded onto a video tape. This is realtime video recording.



- ### LOAD A CASSETTE
- 1 Insert a cassette with the safety tab present.
 - The VCR power will come on automatically.
 - If watching on channel 3 or 4 be sure that the VIDEO indicator is lit. If the indicator is not lit, press TV/VIDEO so that it lights.
- ### CHOOSE A PROGRAM
- 2 Press (Channel) +/- (or the digit keys followed by ENTER) to select the channel you wish to record.
 - Even if you don't press ENTER, the channel will automatically change in about 2 seconds.
- ### SET THE TAPE SPEED
- 3 Press S/P/E/R.
- ### TO START RECORDING
- 4 Press REC and PLAY simultaneously.
- ### TO PAUSE RECORDING
- 5 Press PAUSE.
- 6 Press PLAY to resume recording.
- ### TO STOP RECORDING
- 7 Press STOP.

To watch a program while recording another

During Recording...

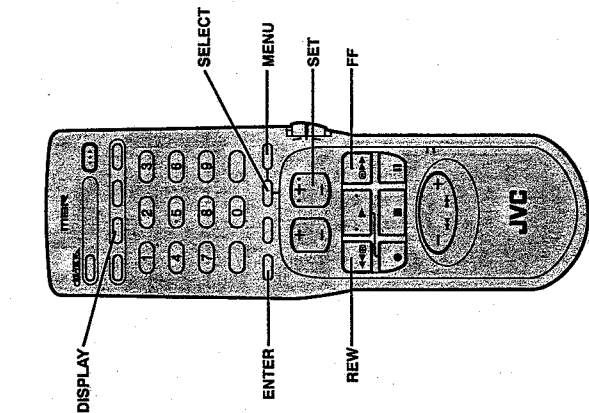
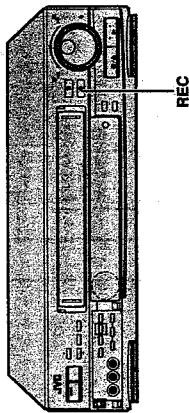
- 1 Press TV/VIDEO. The VCR's VIDEO indicator and the TV broadcast being recorded will disappear.
- 2 Use the channel controls on the TV to select the other channel you wish to view.
 - The program selected with the TV channel controls will appear on the TV screen while the one selected with the VCR channel controls will be recorded on the tape.

To display the elapsed recording time

Before starting recording...

- 1 Press C. RESET.
 - The counter will be reset to "00:00:00", and will show the exact elapsed time as the tape runs.
- 2 After starting recording, press OSD at any time to check the elapsed time on the TV screen.
- 3 Press OSD again to clear it from the screen.

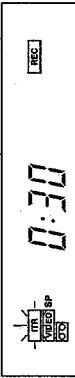
Recording (cont'd)



Instant Timer Recording

To set the VCR to shut-off automatically after recording.

During Recording...
 1 Press the VCR's REC button. The "TR" indication blinks and "0:30" appears indicating the recording will continue for 30 minutes and then power will switch off.



- 2 Press REC again to extend the record time by 30-minute increments (up to 9 hours).
 ■ This function is available only using the REC button on the VCR.
 ■ After the off-time is set, the display returns to the previously displayed mode (counter, channel, clock or remain).
 ■ You can check the time remaining before the VCR shuts off by pressing REC once; the remaining time is displayed for 5 seconds. (Pressing REC more than once will extend the record time.)

To display the remaining tape time

- 1 Press ENTER. Counter information appears on the screen.
- 2 Press DISPLAY until "REMAIN" appears. Approximate remaining tape time appears on the TV screen and VCR display panel.
 ■ If recording is in progress, the remaining time display on the VCR changes back to the "REC" mode display after 5 seconds.
 ■ Pressing DISPLAY repeatedly changes the displayed indication (Counter → Channel → Clock time → Remain).
 3 Press ENTER again to clear it from the screen.

Hi-Fi Audio Recording Level Control

Your VCR allows manual adjustment of the Hi-Fi audio recording level. Although the preset audio recording level is satisfactory for normal recording, if the sound you are going to record is too loud or too low, adjust the audio recording level while referring to the VCR's audio level meters.

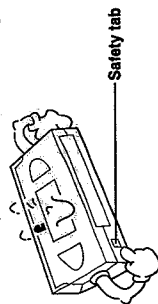
- 1 Press MENU, SET, and SELECT as many times as necessary to access the HI-FI REC LEVEL CONTROL screen. (See p. 7)
- 2 Press SET to choose "MANUAL".
- 3 Press FF or REW to adjust the audio recording level.
 ■ To move the on-screen's audio levels by one division of the scale, press FF or REW briefly for 5 times in succession. To move the audio levels faster, keep FF or REW pressed.
 ■ Adjust the recording level so that the audio level meters reach from 0dB to 4dB at the maximum sound volume.
 4 Press MENU as many times as necessary to exit.

NOTE:
 ■ Noise will increase if the recording level is too low, while distortion will increase if the level is too high.

Accidental erasure prevention

- To prevent accidental recording on a recorded cassette, remove its safety tab.

To record on it later, cover the hole with adhesive tape.



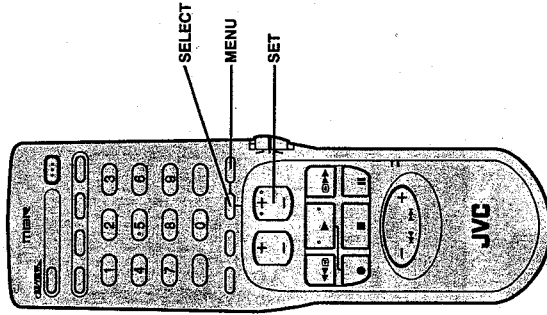
S-VHS indicator



ST(ereo) indicator



SAP indicator



S-VHS (Super VHS) and VHS

Your VCR can record in either S-VHS or VHS.

- To record in S-VHS, insert a cassette marked "S-VHS". The S-VHS indicator will light and the S-VHS recording mode is automatically selected.
- To record in VHS, insert a cassette marked "VHS". The VHS recording mode is automatically selected.
- You can also record in VHS on S-VHS cassettes. To do this, after inserting an S-VHS cassette, press the S-VHS button. The S-VHS indicator will go out.

Stereo and SAP (Second Audio Program)

Your VCR is equipped with an MTS decoder for reception of Multichannel TV Sound broadcasts.

- When a stereo program is being received, the ST indicator lights.
- When an SAP program (such as a bilingual broadcast) is being received, the SAP indicator lights.
- When a stereo program is accompanied by SAP audio, both indicators light.

To record stereo programs

Stereo programs are automatically recorded in stereo on the Hi-Fi audio track. No special operation is required. Simply follow the basic recording procedure.
 ■ To listen to the stereo soundtrack while recording, set the on-screen AUDIO MONITOR to "HI-FI". (See p. 20.)

To record SAP programs

- 1 Press MENU, SET, and SELECT as many times as necessary to access the 2ND AUDIO screen. (See p. 7)
 - 2 Press SET to choose "ON".
 - 3 Press MENU as many times as necessary to exit.
 Then follow the basic recording procedure.
- If an SAP program is received, the SAP audio will be recorded on both the Hi-Fi and the normal audio tracks. The main audio program will not be recorded.
 ■ If a regular program (non-SAP) is received, the main audio will be recorded on both the Hi-Fi and the normal audio tracks.

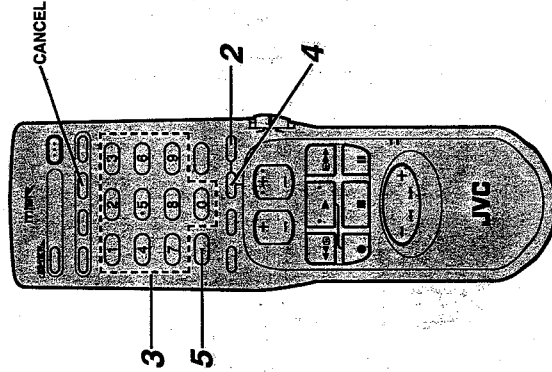
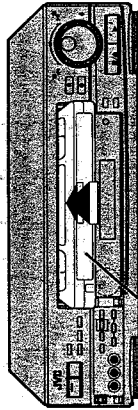


Timer-Recording with VCR Plus+

Your video recorder is equipped with the VCR Plus+ programming system. This programming system greatly simplifies timer programming because you won't have to enter all the data that is usually necessary (such as date, start and stop time, and channel). Simply key-in the PlusCode number for the TV program you wish to record (in most TV listings) and the VCR's timer is programmed. (For On-Screen Timer Programming without VCR Plus+ see p.30.)

VCR Plus+ programming is not possible unless you have already...

set the VCR's clock
set the VCR's timer
made necessary changes in the Guide Channel Set screen.



LOAD A CASSETTE

- 1 Insert a cassette with the safety tab present.
 - The VCR power will come on automatically.
 - If watching on channel 3 or 4 be sure that the VIDEO indicator is lit. If the indicator is not lit press TV/VIDEO so that it lights.

INPUT THE TV PROGRAM'S CODE NUMBER

- 2 Press MENU.
 - The "VCR PLUS+" input screen will be displayed.
- 3 Press the Digit keys to enter the PlusCode number for the TV program you wish to record.
 - To make corrections, press CANCEL and re-input with Digit keys.

CHECK FOR CORRECTNESS

- 4 Press SELECT.
 - The settings for the PlusCode number you just entered will be displayed.
 - If the settings are incorrect and do not match the program you wish to record, press CANCEL and, after pressing MENU three times, re-input the PlusCode.

SELECT THE TAPE SPEED

- 5 Press SP/EP.
 - The settings for the PlusCode number you just entered will be displayed.
 - If the settings are incorrect and do not match the program you wish to record, press CANCEL and, after pressing MENU three times, re-input the PlusCode.

(Continued on next page.)

RETURN TO THE TV SCREEN

- 6 Press MENU.
 - Select the desired Auto Timer setting. See page 32 for details.
- 7 Press MENU again.

SET TO TIMER MODE

- 8 Press TIMER.
 - The VCR will enter the timer mode and power will go off.

For AUTO TIMER and other timer programming features, see p. 32. For other error indications, see p. 39.

To Timer-Record Daily Serials

This function lets you set the recorder to timer-record at the same time every day, Monday through Friday.
■ After pressing SELECT in step 4, press DAILY (Digit key 8). "DAILY" will appear.

To Timer-Record Weekly Serials

This function lets you set the recorder to timer-record at the same time on the same day every week.
■ After pressing SELECT in step 4, press WEEKLY (Digit key 9). "WEEKLY" will appear.

TO MAKE CHANGES IN THE SETTINGS

You can delay a program's stop time or make other such "revisions" in the settings.

PROGRAM 1

DATE 12/25 MON
START 10:00 PM
STOP 10:30 PM
CHANNEL 1

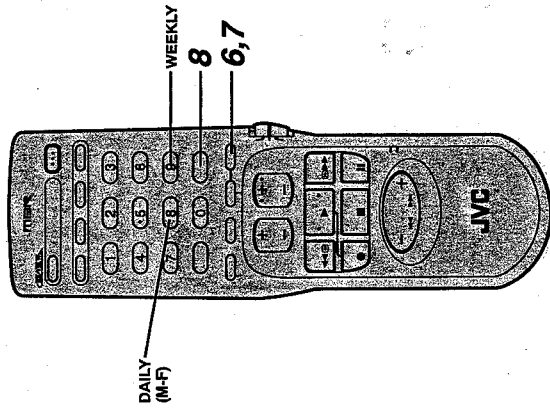
PRESS (SELECT) SET (+)
PRESS (MENU) TO END

TO DISENGAGE THE TIMER

For safety, when AUTO TIMER is "OFF", your VCR disables all other functions while in the timer mode.
■ To use your VCR, first disengage the timer mode by pressing TIMER again. Now all functions will be operable.
■ To re-engage the timer, press TIMER.

NOTE:

If there is a power failure the VCR will remember your timer-record selections for 60 minutes.



"ERROR" WARNING

If the PlusCode you input is incorrect, "ERROR" may appear on the screen to advise you of the error. This happens when the code is for a program which has already passed. "ERROR" is displayed for about 4 seconds and returns to the input screen (step 2).

VCR PLUS+

23699/

PROGRAM 1
DATE 12/25 MON
START 10:00 PM
STOP 10:30 PM
CHANNEL 1

PRESS (SELECT) SET (+)
PRESS (MENU) TO END

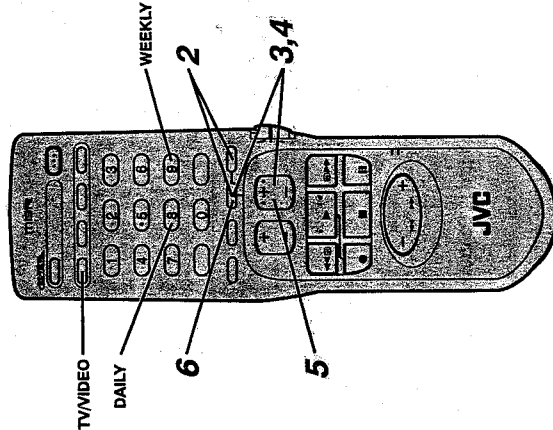
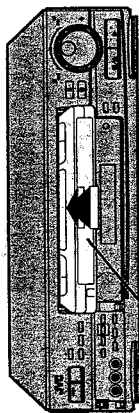
Timer-Recording without VCR Plus+

POR INSTRUCCIONES EN ESPAÑOL VEA p. 42 - 43.

With the On-Screen Timer Programming function introduced here you can directly program the VCR's timer to record up to 8 TV shows, up to a year ahead. It's especially convenient when you want to timer-record programs while you're away from home for long periods of time (over a week), or for TV programs listed without a PlusCode. **TIMER PROGRAMMING IS NOT POSSIBLE UNLESS THE CLOCK HAS BEEN SET.**



**POWER ON;
SELECT CHANNEL
3 OR 4 (OR AV MODE)**



You can also use the MENU, SET and SELECT buttons on the VCR.

LOAD A CASSETTE

- 1 Insert a cassette with the safety tab present.
 - The VCR power will come on automatically. If watching on channel 3 or 4 be sure that the VIDEO indicator is lit. If the indicator is not lit, press TV/VIDEO so that it lights.
 - If the clock has not been set, set the clock before starting step 2. *EP p. 11*

ACCESS THE ON-SCREEN MENU

- 2 Press MENU twice and then press SELECT.
 - The Program Set screen will appear.

SELECT A PROGRAM NUMBER

- 3 Press SET to move to a vacant program number, and then press SELECT.
 - Initially all programs are vacant, and the cursor is at program 1. So simply press SELECT.

INPUT THE DATE

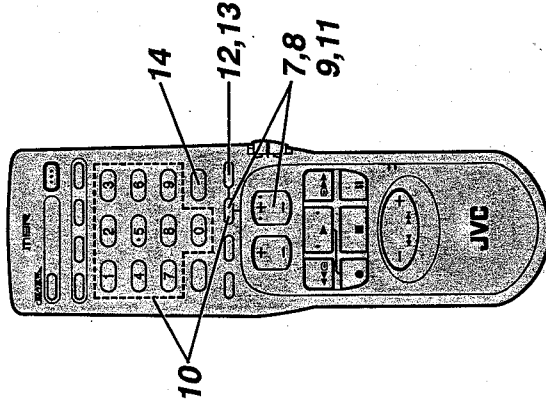
- 4 Press SET to set the month, and then press SELECT.
- 5 Press SET to set the day.
 - The day of the week will automatically appear.
 - To record the program daily (Mon-Fri) press DAILY (Digit key 8). To record the program weekly press WEEKLY (Digit key 9). "DAILY" or "WEEKLY" will appear on the screen.
- 6 Press SELECT.

(Continued on next page.)

"ERROR" WARNING

If the start time you input has already passed (i.e. is prior to the present date and time), the VCR will flash "ERROR" on the Program Set screen.

Check, if you've input the correct time and date. Remember: late night shows beginning at midnight or later must have the next day's date.



TO DISENGAGE THE TIMER

For safety, when AUTO TIMER is "OFF", your VCR disables all other functions while in the timer mode.

- To use your VCR, first disengage the timer mode by pressing TIMER again. Now all functions will be operable.
- To re-engage the timer, press TIMER.

INPUT THE START TIME

- 7 Press SET to set the hour (making sure that AM or PM is correct), and then press SELECT.
- 8 Press SET to set the minutes, and then press SELECT.

INPUT THE STOP TIME

- 9 Set the stop time in the same way as you set the start time in steps 7 - 8.

INPUT THE CHANNEL NUMBER

- 10 Press the Digit keys to enter the channel number, and then press SELECT.

SET THE TAPE SPEED

- 11 Press SET to choose SP or EP, and then press SELECT.
 - To input another program, repeat steps 3 - 11. (You can set up to a maximum of 8 programs.)

RETURN TO THE TV SCREEN

- 12 Press MENU.
 - Select the desired Auto Timer setting. See page 32 for details.
- 13 Press MENU again.

SET TO TIMER MODE

- 14 Press TIMER.
 - The VCR will enter the timer mode and power will go off.

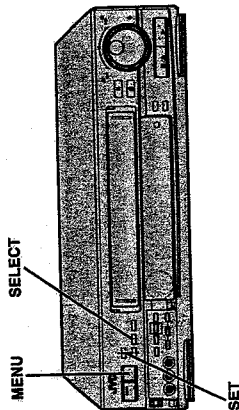
For AUTO TIMER and other timer programming features, *EP p. 32*. For other error indications, *EP p. 39*.

NOTES:

- If there is a power failure, the VCR will remember your timer-record selections for 60 minutes.
- When timer-recording cable channels received through a Converter Box, be sure to keep the Converter Box set to ON.



Timer-Recording (cont'd)



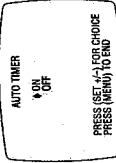
Auto Timer

What this feature does: Usually, the timer mode is not engaged unless the **TIMER** button is pressed. But with **AUTO TIMER** set to **ON**, the timer mode is automatically engaged when the VCR's power is turned **off**, and is disengaged whenever VCR power is turned **on** again.

- After step 6 (p. 29) or step 12 (p. 31), press **SET** to choose "ON", and press **MENU**.

Or...

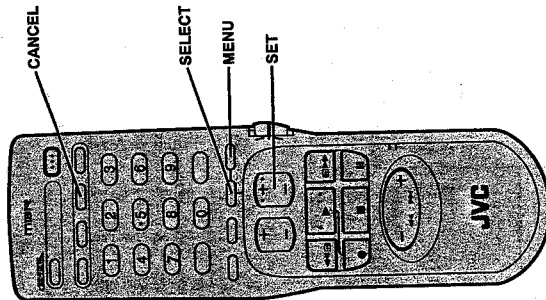
- Press **MENU**, **SET**, and **SELECT** as many times as necessary to access the **AUTO TIMER** screen. (p. 7)
- Press **SET** to choose "ON".
- Press **MENU** as many times as necessary to exit.



To check and cancel programs

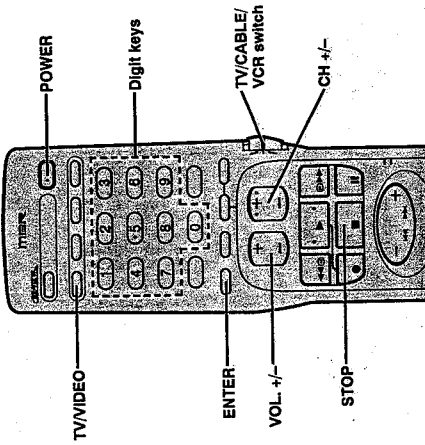
Make sure the timer mode is disengaged first. Then...

- Press **MENU** and then press **SELECT** (to access the Program Set screen).
- Press **SET** to check through the programs in succession.
- Press **CANCEL**.
 - Repeat steps 2 and 3 as necessary.
- Press **MENU** as many times as necessary to exit.



Special Features

The provided remote control is capable of controlling 10 different TV brands including JVC and 13 different Cable Box brands. Follow the instructions below to set the appropriate code for your TV or Cable Box.



TV Multi-Brand Remote Control

If your TV is a JVC, you don't have to set the TV code.

PREPARATION

- Turn the TV's power **OFF** using the TV's remote control.
- Set the remote control's **TV/CABLE/VCR** switch to "TV".
- While holding down the **POWER** button, enter your TV's brand code with the **Digit Keys** then press **STOP**.
 - Brand setting is completed. Once you set the brand, you do not have to reset it until the remote's batteries are replaced.
 - If you set the wrong code, re-enter the right code.
- Press **POWER** to turn the TV power on and check to see if the remote control works with the TV.

OPERATION

- Set the remote control's **TV/CABLE/VCR** switch to "TV".
- Operate the TV.
 - POWER**, **TV/VIDEO**, **CH +/-**, **VOL. +/-** buttons and **Digit keys** are available.
- To operate VCR, set the **TV/CABLE/VCR** switch to "VCR".

Cable Box Multi-Brand Remote Control

Some Cable Box brands have more than one code. When your Cable Box does not function with a specified code, try other codes.

PREPARATION

- Turn the Cable Box power **OFF** using the Cable Box's remote control.
- Set the remote control's **TV/CABLE/VCR** switch to "CABLE".
- While holding down the **POWER** button, enter your Cable Box's brand code with the **Digit Keys** then press **STOP**.
 - Brand setting is completed. Once you set the brand, you do not have to reset it until the remote's batteries are replaced.
 - If you set the wrong code, re-enter the right code.
- Press **POWER** to turn the Cable Box's power on and check to see if the remote control works with the Cable Box.

OPERATION

- Set the remote control's **TV/CABLE/VCR** switch to "CABLE".
- Operate the Cable Box.
 - POWER**, **CH +/-**, **ENTER** buttons and **Digit keys** are available.
- To operate VCR, set the **TV/CABLE/VCR** switch to "VCR".

NOTES:

- It is necessary to set the cable box brand in your remote control (this page) and the Cable Box Controller (p. 16) individually. With the remote control, you can change channels and turn on/off your cable box from a distance. With the Cable Box Controller, your cable box's channels can be automatically changed during timer-recording.
- Cable box brands available for the remote control (listed on the left) differ from those that are available for the Cable Box Controller (p. 16).
- It is possible that the remote control will not operate your cable box even if the cable box's channels automatically change during timer-recording using the Cable Box Controller.

TV Brand Name And Code

TV BRAND NAME	BRAND CODE
JVC	01
MAGNAX	02
MITSUBISHI	03
PANASONIC	04
RCA	05
SHARP	06
SONY	07
TOSHIBA	08
ZENITH	09
HITACHI	10

Cable Box Brand Name And Code

CABLE BOX BRAND NAME	BRAND CODE
GI	01,02,03,04,05,06,07,08
JERROLD	01,02,03,04,05,06,07,08
SCIENTIFIC ATLANTA	09,10
ZENITH	11,12
PIONEER	13,14
HAMLIN	15,16,17,18
REGAL	15,16,17,18
OAK	19,20,21
SIGMA	19,20,21
TOCOM	22,23
RCA	24,25,26
PANASONIC	24,25,26
SPRUCER	24,25,26

To edit to or from another VCR

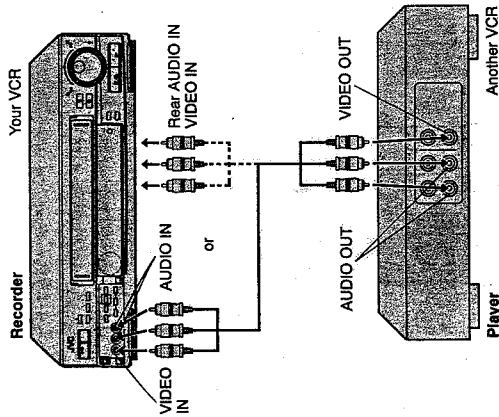
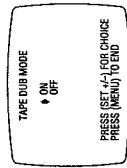
Your VCR can be used as either the recording deck or the source player when editing tapes.

PREPARATION

- 1 Connect the player's VIDEO OUT and AUDIO OUT connectors to the recorder's VIDEO IN and AUDIO IN connectors.
 - If the player has an S VIDEO connector, connect it to the recorder's S VIDEO connector using the provided S-Video cable.
 - When using your VCR as a recorder and connecting it to a monaural deck, connect that deck's AUDIO OUT connector to your VCR's AUDIO IN L connector.

OPERATION

- 2 Press MENU, SET, and SELECT as many times as necessary to access the "TAPE DUB MODE" screen. (P. 7)
- 3 Press SET to choose "ON".
- 4 Press MENU as many times as necessary to exit.
- 5 Set the recorder's input mode to AUX.
 - With this VCR model, press the digit key "0". "AU" will appear instead of a channel number.



FOR ASSEMBLE EDITING

Assemble editing adds one recorded scene to another in succession. To use your VCR as the recording deck...

- 1 Load the source tape in the player, and the recording tape in your VCR.
- 2 Select the recording speed (SP or EP).
- 3 Put your VCR in the Record-Pause mode.
- 4 Play back the source tape to search for a scene to be edited.
- 5 Press the recorder's PLAY button where you want to start editing.
- 6 Press the recorder's PAUSE button to stop editing.
- 7 Repeat steps 9 through 11 to continue editing. (Assemble Editing is also possible using your VCR as the playback deck.)

Advantages Of S-VHS VCRs

- You can edit from VHS to S-VHS, from S-VHS to VHS, or from S-VHS to S-VHS.
- From VHS to S-VHS (VIDEO-VIDEO connection): Record VHS playback signals in the S-VHS mode. Although the picture quality is inherently limited by that of the original, the edited tape has better picture quality than those made by VHS-to-VHS editing.
- From S-VHS to VHS (VIDEO-VIDEO connection): Because the picture quality of the source material is very high, the edited tape has better picture quality than those made by VHS-to-VHS editing.
- From S-VHS to S-VHS (S-VIDEO connection): All signals will be transferred without degradation.

FOR INSERT EDITING

Insert editing replaces part of the recorded scene with new material. Both the picture and Hi-Fi audio soundtrack are replaced with new ones, while the normal audio soundtrack remains unchanged. Use your VCR as the recording deck.

- 1 Load the source tape in the player, and the recording tape in your VCR.
- 2 Play back the recording tape and engage the Still mode at the edit-in point (the beginning of the segment to be replaced).
- 3 Press INSERT.
- 4 Your VCR enters the Insert-Pause mode. (REC, PLAY and PAUSE light up on the FDP)
- 5 The TV screen changes from the still picture to the input signal you are going to record.
- 6 Play back the segment of the source tape to be inserted.
- 7 Press PLAY on the recorder.
- 8 Insert editing will start. (PLAY and REC are displayed on the FDP)
- 9 Press PAUSE on the recorder to stop insert editing.
- 10 Do not press STOP to stop insert editing, otherwise the picture will be distorted at the switching point between the newly inserted and previously recorded pictures.

FOR AV/INSERT EDITING

If you want to replace the picture, Hi-Fi audio soundtrack and normal audio soundtrack all at the same time...

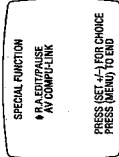
- 1 In step 8 above, after you press INSERT, press A. DUB. also. (REC and PLAY blink and PAUSE lights up on the FDP)

To edit from a camcorder

Tape-to-tape editing is also possible using a camcorder (equipped with playback facility) as the player and your VCR as the recorder.

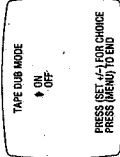
PREPARATION

- 1 Connect the camcorder's VIDEO OUT and AUDIO OUT connectors to the VCR's front panel VIDEO IN and AUDIO IN connectors.
 - Use the L connector for monaural connection.
 - When a Master Edit Control-equipped JVC camcorder is used, the camcorder is capable of controlling your VCR.
 - 1 Press MENU, SET, and SELECT as many times as necessary to access the SPECIAL FUNCTION screen. (P. 7)
 - 2 Press SET to choose "R.A.EDIT/PAUSE".
 - 3 Press MENU as many times as necessary to exit.
 - 4 Refer to camcorder's instruction manual for set-up procedure.



OPERATION

- 2 Press MENU, SET and SELECT as many times as necessary to access the "TAPE DUB MODE" screen. (P. 7)
- 3 Press SET to choose "ON".
- 4 Press MENU as many times as necessary to exit.
- 5 Set the VCR's input mode to AUX by pressing digit key "0". "AU" will appear instead of a channel number.
- 6 Put the camcorder in the Play mode.
- 7 Put the VCR in the Record mode.
 - Refer to the camcorder/recorder's instruction manual for operation instructions.



Audio Dubbing

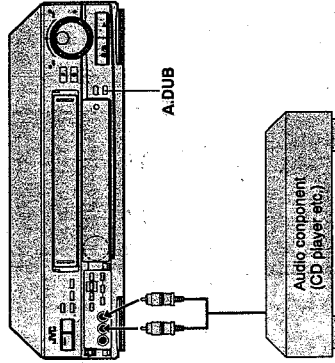
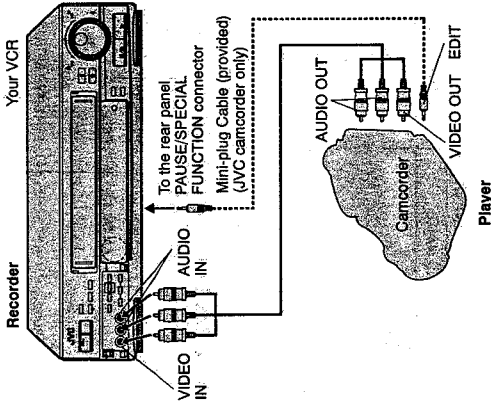
Audio Dubbing replaces the normal audio sound of a previously recorded tape with a new soundtrack.

PREPARATION

- 1 Connect an audio component to the recorder's front panel AUDIO L, R connectors. (For monaural equipment, use the L connector.)

OPERATION

- 2 Set the VCR's input mode to AUX by pressing digit key "0". "AU" will appear instead of channel number.
- 3 Start playback and engage the Still mode at the point from which you wish to start audio dubbing.
- 4 Press A. DUB.
 - Your VCR enters the Audio Dubbing-Pause mode. (REC blinks, PLAY and PAUSE light up on the FDP)
 - Start playback of the audio source, and then press PLAY.
 - Audio dubbing will start. (REC blinks and PLAY is displayed on the FDP)
- 5 Pressing PAUSE temporarily stops audio dubbing.
- 6 Press STOP to stop audio dubbing.



NOTES:

- After audio dubbing, the normal audio track remains selected. To hear the Hi-Fi tracks, select "Hi-Fi" (P. 20).
- Audio dubbing is possible using the rear connectors.
- Audio dubbing will stop automatically at the counter reading of "0:00:00", and the recorder will enter the Play mode. Check the counter before starting audio dubbing.
- It may be unlawful to record or play back copyrighted material without the consent of the copyright owner.

Random Assemble Editing

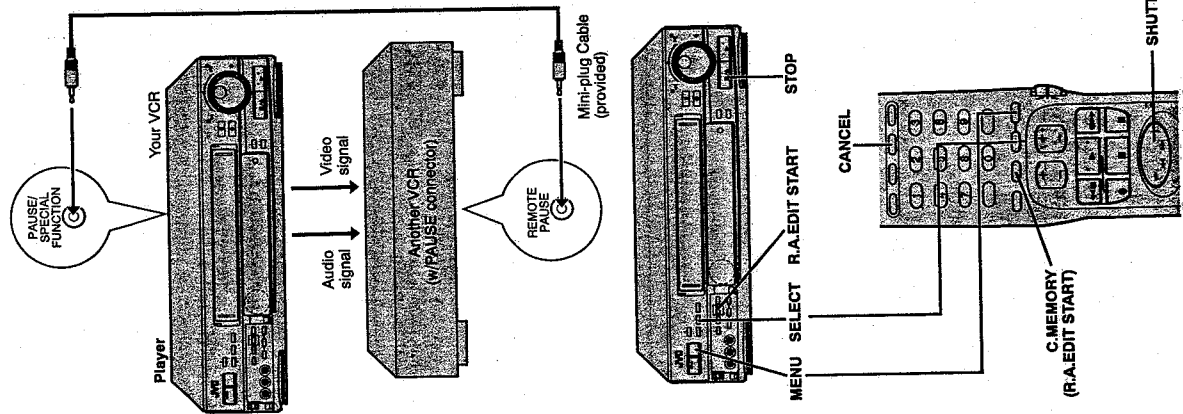
This function makes it easier to create edited videos when your VCR is used as the source player in combination with another video deck which is equipped with a PAUSE (i.e. REMOTE PAUSE) terminal. You can pre-program up to 8 scenes or "cuts" for automatic editing in the sequence you have specified.

PREPARATION

- 1 Connect your VCR's VIDEO OUT and AUDIO OUT connectors to the recording deck's VIDEO IN and AUDIO IN connectors.
- 2 Connect your VCR's PAUSE/SPECIAL FUNCTION connector to the recording deck's PAUSE connector.
- 3 If the recording deck does not have a PAUSE connector, connect to the R.A. EDIT connector.
- 4 Turn both units on.
- 5 Engage the recorder's AUXILIARY mode.
- 6 Press MENU, SET, and SELECT as many times as necessary to access the SPECIAL FUNCTION screen. (*p. 7)
- 7 Press SET to choose "R.A. EDIT/PAUSE".
- 8 Press MENU as many times as necessary to exit.

OPERATION

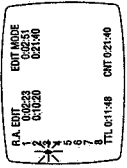
- 9 Insert a recorded cassette into your VCR.
- 10 Play back the tape in your VCR.
- 11 Press MENU, SET and SELECT as many times as necessary to access the R.A. EDIT screen.
- 12 The screen is superimposed on the video playback.
- 13 Use the SHUTTLE PLUS button to search for the point where you want an edited scene to start, and press SELECT.
- 14 The cut-in point is registered in memory.
- 15 Use the SHUTTLE PLUS button to search for the point where you want the scene to end, and press SELECT.
- 16 The cut-out point is registered in memory.
- 17 The "TTL" reading displays the total running time of the edited scenes.
- 18 Specify additional scenes by repeating steps 11 - 12.



TO MAKE CORRECTIONS

During step 11 or 12, you can correct a cut-in or cut-out point using the remote control. Each time the CANCEL button is pressed, the immediately preceding point is cleared and can be reset.

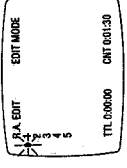
- Example: The cut-out point for "2" can be changed by pressing CANCEL once (to clear it) and re-setting it. By pressing CANCEL more times, you can back up to previous points for re-setting, but all points in between will be cleared in the process. (e.g. To reach the cut-out point for "1", the cut-in and out points for "2" will be cleared.)



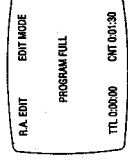
MEMORY CAPACITY

Random Assemble Editing utilizes the same memory space as the VCR's timer, so the number of sequences available to this function may not be 8, depending on how many programs are already stored in memory.

- Example: Only sequences 1 - 5 are available because three programs are stored in the timer memory.



- Example: The "PROGRAM FULL" screen appears when the timer memory is full (all 8 programs are used). To cancel a program, see p. 32.



USING INDEX SEARCH WITH RANDOM ASSEMBLE EDITING

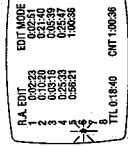
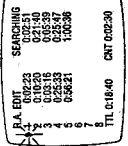
In step 11, Index Search can also be used to locate your edit points. When used, "INDEX" and the index number will appear on the R.A. EDIT screen. For Index Search see p. 22.

- Using Index Search during R.A. Edit will result in a reduction in accuracy.
- This function requires that index marks are previously recorded on your tape at the desired edit points.

- 4 Insert a cassette (with safety tab intact) into the recording deck, and put the recording deck in the Record-Pause mode.
- 5 Press R.A. EDIT START.

The function begins automatic editing: all the specified scenes are copied to the recording deck in sequential order.

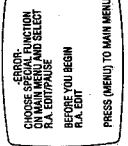
- The on-screen display remains superimposed while your VCR searches for each scene (the blinking cursor points to the scene number presently being searched), and is not displayed while the scenes are being edited.
- While a scene is being searched, the recording deck automatically enters the Record-Pause mode.
- "SEARCHING" appears on the screen.
- When Random Assemble Editing is finished, your VCR enters the Still mode, the recording deck enters the Record-Pause mode, and the cursor blinks at the next available scene number.
- Press MENU as many times as necessary to exit.
- Press STOP on both decks to end Random Assemble Editing.



"ERROR" WARNING

If you choose "AV COMPU-LINK" by mistake in step 6 and then reach the R.A. EDIT screen in step 10, the "ERROR" display will appear as shown on the right.

- Be sure to choose "R.A. EDIT/PAUSE" in step 6 to perform Random Assemble Editing.



OPTIONAL RM-V403U MULTI-BRAND R.A. EDIT CONTROLLER

By connecting this controller to your VCR's R.A. EDIT Connector, Random Assemble Editing will become possible in conjunction with a second non-JVC VCR. The controller is compatible with various major VCR brands — convenient especially if you already own a VCR other than JVC. For compatible systems and availability, please consult your JVC dealer.

NOTE:

You can also monitor the sound when searching for scenes you want to edit in steps 11 - 12. Since you can hear the soundtrack during selection, you can avoid abrupt or unnatural sounding scene-to-scene connections.

(Continued on next page.)

? If You Have Any Questions

Before requesting service...

Power or Tape Transport Problems?

Symptoms	Check points
No power is applied to the VCR.	<ul style="list-style-type: none"> Is the power cord disconnected? Connect it.
Remote control does not function.	<ul style="list-style-type: none"> Are the batteries discharged? Replace with new ones. Is the A/B code switch set to the appropriate position? Is the TV/CABLE/VCR switch set to the appropriate position? Check once again.
Clock is functioning properly, but the VCR cannot be powered.	<ul style="list-style-type: none"> "TIMER" displayed on the display panel? Press the TIMER button to extinguish the display.
Cassette will not load. Gets stuck and is ejected a few seconds later.	<ul style="list-style-type: none"> Are you inserting the cassette correctly? Incorrect insertion causes the built-in safety mechanism to automatically eject the cassette. Wait a few seconds and re-insert correctly. Be sure to push the middle of the cassette's label side and be sure the window side is up.
Tape stops during rewind or fast-forward.	<ul style="list-style-type: none"> Is the C. MEMORY button pressed? Press again to make "M" disappear from the counter display.
Tape will not rewind or fast-forward.	<ul style="list-style-type: none"> Is the tape already fully rewound or fast-forwarded? Check the cassette.

Playback Problems?

Symptoms	Check points
Playback picture does not appear while the tape is running.	<ul style="list-style-type: none"> If you are using RF OUT connection, is the TV receiver's channel selector set to the correct video channel? Set it to the RF converter channel (3 or 4). (CP p. 8) If you are using AV connection, is the TV receiver set to the AV mode? Set it to the AV mode.
Noise appears during visual search.	<ul style="list-style-type: none"> This is normal.
Noise appears during normal playback.	<ul style="list-style-type: none"> Is the automatic tracking mode engaged? Try manual tracking. (CP p. 19)
Noise appears during slow playback.	<ul style="list-style-type: none"> Try manual tracking. (CP p. 19)
Playback picture is blurred or interrupted while TV broadcast is clear.	<ul style="list-style-type: none"> Video heads may be dirty. Head cleaning is necessary. Consult your JVC dealer (CP p. 41)
Breaks are noticeable in Hi-Fi audio sound.	<ul style="list-style-type: none"> Is the automatic tracking mode engaged? Try manual tracking. (CP p. 19)
Hi-Fi soundtrack cannot be heard.	<ul style="list-style-type: none"> Is "AUDIO MONITOR" on the FUNCTION menu set to "NORM"? Set it to "HI-FI" (CP p. 20) Is Hi-Fi audio present on the tape?

Recording Problems?

Symptoms	Check points
Recording cannot be started.	<ul style="list-style-type: none"> Is a cassette loaded? Is the safety tab on the cassette removed? Cover with adhesive tape. (CP p. 26) Has "AUX" been selected by mistake? Set to the desired channel.
TV broadcasts cannot be recorded.	<ul style="list-style-type: none"> Is the camcorder or VCR correctly connected? Are all necessary power switches turned ON? Has "AUX" been selected? Set to "AUX" If using a rear panel input connection, make sure nothing is connected to the front panel connectors. (CP p. 34)
Tape-to-tape editing is not possible.	<ul style="list-style-type: none"> Is the camcorder correctly connected? Has "AUX" been selected? Set to "AUX"
Camera recording is not possible.	<ul style="list-style-type: none"> Is the camcorder correctly connected? Has "AUX" been selected? Set to "AUX"

Timer-Recording Problems?

Symptoms	Check points
Timer recording is not possible.	<ul style="list-style-type: none"> Have you set the clock correctly and programmed the timer correctly? Check once again. Have you set-up the VCR? Make sure you have... Set the VCR's tuner. Made necessary changes in the Guide Channel Set screen. Is the TIMER indicator displayed on the display panel? If not, press the TIMER button to display the TIMER indicator.
Cable channels are not automatically switched during timer-recording.	<ul style="list-style-type: none"> Make sure that... The Cable Box Controller is connected to your VCR's CABLE BOX CONNECTOR (CP p. 14). The correct Cable Box output channel selected in the CABLE BOX OUTPUT menu (CP p. 15). The Cable Box's power is left ON during timer-recording. Although the provided Cable Box Controller is compatible with many different cable box brands, it is possible that it will not work with your cable box.
Timer recording takes place, but the channel is always wrong.	<ul style="list-style-type: none"> Is CABLE BOX OUTPUT menu set to "ON" even though you don't use an external Cable Box? If you don't use a Cable Box, set CABLE BOX OUTPUT menu to "OFF". (CP p. 15) TV stations differ by locale. It may be necessary to re-set the VCR. (CP p. 17)
We moved, and now VCR Plus+ doesn't work properly.	<ul style="list-style-type: none"> The VCR's timer memory is full; all 8 programs are used. Cancel any unnecessary programs in the timer memory (CP p. 32)
"PROGRAM FULL" is displayed on the VCR Plus+ input screen.	<ul style="list-style-type: none"> Is the ITR indicator displayed on the display panel? Timer programming is not possible while an ITR is in progress.
"TIMER" and "ON" on the display panel continue blinking.	<ul style="list-style-type: none"> There is no cassette in the VCR. Insert a cassette with the safety tab intact.
The cassette is automatically ejected.	<ul style="list-style-type: none"> The inserted cassette has its safety tab removed. Insert a cassette with its safety tab intact. Or cover the safety tab hole of the cassette with adhesive tape and re-insert it. (CP p. 26)
"TIMER" and "ON" continue blinking.	<ul style="list-style-type: none"> There are no preset programs in memory, or they have all been incorrectly preset. Check the programmed data and re-program it as necessary. Press TIMER again.
"TIMER" blinks for 10 seconds and the timer mode is cancelled.	<ul style="list-style-type: none"> This means that the end of the tape was reached while timer-recording was in progress. Therefore, the preset program may not be recorded in its entirety.

Other Problems?

Symptoms	Check points
Some channels are skipped over when scanning channels.	<ul style="list-style-type: none"> Those channels are preset to be skipped over. If you need them, restore them. (CP p. 13)
Channel cannot be changed.	<ul style="list-style-type: none"> Is recording in progress? Press the PAUSE button, change the channel, and press the PLAY button.
Snowy picture on screen when viewing TV programs while recording another program.	<ul style="list-style-type: none"> Is the VIDEO indicator lit? Press the TV/VIDEO button.
Remote control does not operate my TV.	<ul style="list-style-type: none"> Although the provided remote control unit is compatible with JVC televisions as well as many TV models manufactured by others, it is possible that the provided remote control will not operate your TV, or in some instances, will have limited function capability. (CP p. 33) Is the remote control's TV/CABLE/VCR switch set to "TV"? If not, set it to "TV"
"12:00 AM" is blinking.	<ul style="list-style-type: none"> This means the clock must be set. It's displayed when time-keeping is terminated due to a power failure or because the VCR's power plug was pulled from the AC outlet. To set the clock CP p. 11. If power was interrupted, it's also likely that all preset timer programming data has been erased. Please check and re-program as necessary.

ATTENTION:

This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the power off and unplug the power cord. Then plug it in again and switch power on. Take out the cassette. After checking the cassette, operate the unit as usual.

? If You Have Any Questions (cont'd)

Notes regarding...

- Tuner Set**
 - Since receivable channels differ by locale, it will be necessary to reset your VCR's channels when you move to another location. Auto Channel Set is the easiest way to do this. **EP** p. 12.
- Playback**
 - If the end of the tape is reached during play or search, it is automatically rewound to the beginning and stops.
 - The VCR automatically stops when still continues for more than 5 minutes.
 - If the still picture is unstable, use the VCR's CH -/+ buttons to correct the picture.
 - During search playback, some noise bars will appear.
 - If noise bars appear during playback or slow motion, correct using manual tracking. **EP** p. 19.
 - There is no audio during search, slow, still, or frame-by-frame playback.
 - When playing back LP recordings during search, still or frame-by-frame playback, the picture will be distorted, and there may be a loss of color.
 - When a tape is first inserted, the recorder enters the automatic tracking mode automatically.
 - During multi-speed search, some noise bars will appear.
 - You do not have to set to NORM when playing back tapes with normal sound track only.
 - When MIX is selected, both "Hi-Fi" and "NORM" appear on the TV screen when the OSD button is pressed.

Recording

- To start recording with the VCR's Record button, press it once on its own. Pressing Record more than once activates Instant Timer Recording. **EP** p. 26.
- After pause, when recording is resumed, a few frames recorded before the pause may be overlapped by the new recording. This is meant to reduce picture distortion and is not a malfunction.
- The VCR automatically stops when record-pause continues for more than 5 minutes.
- If the end of the tape is reached while recording, it is automatically rewound to the beginning and stops.
- If the Record button does not work, check to see if the cassette's safety tab has been removed.
- The channel cannot be changed while recording is in progress. To change the channel, press Pause, then change the channel.
- The Remaining Tape Time is calculated based on the tape speed (SP or EP) being used. The indicated remaining time is only an estimate. Near the beginning of the tape, this estimate may be inaccurate. However, as the tape is used and the amount of remaining tape decreases, the estimation becomes more accurate.

Timer-Recording

- When timer-recording is successfully completed, the VCR power is automatically switched off.
- If the end of tape is reached while timer-recording, the cassette is automatically ejected.
- Since the timer starts and stops recording based on the time being kept by the VCR's built-in clock, the clock's time must be accurate for correct timer-recording results.
- When you program the timer while viewing a program or a tape, the TV screen will show the on-screen menu but the audio will continue to be heard.
- You can also program the timer while the VCR is recording; the on-screen menu will not be recorded on tape.
- Although the provided Cable Box Controller is compatible with many different cable box brands, it is possible that it will not work with your cable box.

Remote TV Operation

- Whenever you replace batteries in the remote control, it is necessary to reset the TV code if your television is not a JVC TV.
- With some televisions, the TV/VIDEO button functions only to switch the TV to the VIDEO(AV) mode.
- Although the provided remote control unit is compatible with JVC televisions as well as many TV models manufactured by others, it is possible that the provided remote control will not work with your TV.

Remote Cable Box Operation

- Whenever you replace batteries in the remote control, it is necessary to reset the Cable Box code.
- Although the provided remote control unit is compatible with many different Cable Box brands, it is possible that the provided remote control will not work with your Cable Box.

Editing

- Connections made to the front panel VIDEO and AUDIO inputs automatically override any rear panel VIDEO/AUDIO input connections. If you wish to edit with another machine connected to the rear input connectors, make sure that there is nothing connected to the front connectors.
- If connections are made to both the front VIDEO and S-VHS connectors, the S-VHS connection has priority.

Insert Editing

- To stop insert editing automatically, first determine the edit-out point on the recording tape (the end of the segment to be replaced) and press the remote control's C-RESET button. Then follow steps 8 through 11 in "Insert Editing" (**EP** p. 34). Insert editing will stop automatically at the counter reading of 0:00:00.
- Insert editing cannot be started from a non-recorded segment.
- A small portion of the recording which precedes an insert edit may become erased.
- Video or audio insert cannot be performed if the safety tab is absent.
- Video or audio insert cannot be performed on a tape recorded at LP speed.
- Distortion may occur in the inserted video if the recording tape had discontinuous video or video recorded at different speeds.

Audio Dubbing

- When monitoring the sound during Audio Dubbing, the normal soundtrack will be automatically selected. If you wish to hear the mixed sound (Hi-Fi + normal soundtracks), **EP** p. 20.
- Audio dubbing is not possible with cassettes whose safety tab is absent.

Random Assemble Editing

- When editing, there may be a discrepancy of about 2 seconds on the playback tape between the locations you choose as cut-in/out points and the locations the VCR recognizes as those points.
- For any scene, the cut-out point must have a counter reading that is at least 1 second after the cut-in point. A cut-out point with a counter reading less than or the same as the cut-in point will not be registered.
- Since the playback deck prewinds during Random Assemble Editing, there must be at least 15 seconds worth of recorded material prior to any cut-in point on the playback tape.
- If the record time for a cut-in point exceeds 5 minutes, the recording deck's Record-Pause mode will be cancelled and editing will not take place.
- R.A.Edit is also possible with another JVC VCR which doesn't have a PAUSE terminal but does have an R.A.EDIT connector. In this case, connect both VCRs by their R.A.EDIT connectors.

Precautions

Please follow these safety precautions. Not doing so may result in damage to the VCR, remote control, or video cassette.

- Avoid extreme heat and direct sunlight.
- Avoid extreme cold.
- Avoid extreme humidity.
- Avoid dust.
- Avoid places subject to vibrations.
- Avoid strong magnetic fields.
- Do not block the VCR's ventilation openings.
- Do not place anything heavy on the VCR or remote control.
- Do not place anything which might spill on top of the VCR or remote control.
- Do not place the VCR on cushions, pillows, or thick carpeting.
- Use the VCR in a stable, horizontal position only.

Beware of moisture condensation

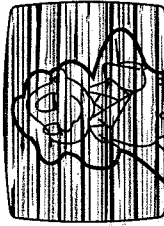
Moisture in the air will condense on the VCR when you move it from a cold place to a warm place, or under extremely humid conditions — just as water droplets form on the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the VCR's power turned on for a few hours to let the moisture dry.

When transporting

- Be sure to remove cassettes from VCR before packing.
- Avoid violent shocks to the VCR during packing and transport.

Place cassettes in cassette cases and store vertically.

About head cleaning



Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted. Although this model is equipped with a built-in head cleaner which automatically cleans the heads, reducing the likelihood of dirty heads, if such troubles are encountered please consult the nearest JVC dealer.

Auto Head Cleaner

A built-in head cleaner automatically cleans the video heads and head drum whenever a tape is loaded or unloaded to reduce head clogging.

Specifications

GENERAL

- Power requirement : AC 120 V~, 60 Hz
- Power consumption : 26 W
- Temperature : 5°C to 40°C (41°F to 104°F)
- Operating : -20°C to 60°C (-4°F to 140°F)
- Storage : Horizontal only
- Operating position : 400 x 94 x 340 mm (15-3/4" x 3-3/4" x 13-7/16")
- Dimensions (WxHxD) : 4.5 kg (10.0 lbs)
- Weight : S-VHS/VHS NTSC standard with Hi-Fi audio
- Format

Maximum recording time

- (SP) : 160 min. with T-160 video cassette
- (EP) : 480 min. with T-160 video cassette

VIDEO/AUDIO

- Signal system : NTSC-type color signal and EIA monochrome signal, 525 lines/60 fields
- Recording/Playback system : DA-4 (Double Azimuth) head helical scan system
- Signal-to-noise ratio : 45 dB
- Horizontal resolution : 400 lines (S-VHS) 240 lines (VHS)
- Frequency range : 70 Hz to 10,000 Hz (Normal audio) 20 Hz to 20,000 Hz (Hi-Fi audio)
- Input/Output : RCA connectors (IN x 2, OUT x 1)

TUNER

- Tuning system : Frequency synthesized tuner
- Channel coverage (VHF) : Channels 2-13 (UHF) : Channels 14-69 (CATV) : 113 Channels
- RF output : Channel 3 or 4 (switchable; preset to Channel 3 when shipped) 75 ohms, unbalanced

TIMER

- Clock reference : Quartz
- Program capacity : 1-year programmable timer/8-programs
- Memory backup time : Approx. 60 min.

ACCESSORIES

- Provided accessories : RF cable (F-type), Infrared remote control unit, "AAA" battery x 2, Cable Box Controller, S-Video cable (4-pin), Audio/Video cable, Mini-plug cable

Specifications shown are for SP mode unless otherwise specified. E. & O.E. Design and specifications subject to change without notice.

Operaciones básicas en español

Para las conexiones VCR-TV, vea la hoja de la "Guía básica para las conexiones del VCR" adjunta a este manual de instrucciones.

Disposición básica

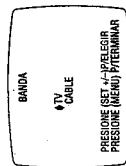
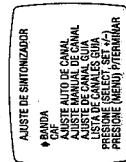
Ajuste del reloj de su VCR y de la lengua para indicación en pantalla

1. Presione POWER para encender el VCR.
2. Presione TV/VIDEO para que aparezca "TV" del display del VCR.
3. Presione MENU.
4. Presione SET +/- para seleccionar "AJUSTE INICIAL", y luego presione SELECT.
5. Presione REW para seleccionar "ESPAÑOL" para indicación en pantalla.
6. Presione SET +/- para fijar el mes y luego presione SELECT.
7. Repita el paso 6 para ajustar el día, el año y la hora.



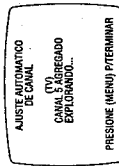
8. Presione MENU para comenzar de funcionamiento del reloj.
- ### Asignación de canales al sintonizador de su VCR

1. Presione POWER para encender el VCR.
2. Presione TV/VIDEO para que aparezca "TV" del display del VCR.
3. Presione MENU.
4. Presione SET +/- para seleccionar "AJUSTE DE SINTONIZADOR", y luego presione SELECT.



5. Presione SET +/- para seleccionar "BANDA", y luego presione SELECT.
6. Presione SET +/- para seleccionar "TV" o "CABLE".
7. Ajustado en TV si su antena recibe sólo canales de UHF y VHF por cable.
8. Presione MENU.

9. Presione SET +/- para seleccionar "AJUSTE AUTO DE CANAL", y luego presione SELECT.
- Se inicia la sintonización automática de canales y después de completada la misma aparecerá en la pantalla el mensaje "FIN DE EXPLORACION".



9. Presione MENU tantas veces como sea necesario.

Reproducción básica

- ### Preparación
- Encienda el televisor.
 - Seleccione el canal 3 o 4 (o modo AV).

1. Inserte un cassette.
- El VCR se encenderá automáticamente y el contador se reposicionará a 0:00:00.
- Si el cassette no tuviera lengüeta de seguridad, comenzará automáticamente la reproducción.
- Presione PLAY para iniciar la reproducción.
- Presione STOP para detener la reproducción.
- Para rebobinar la cinta, presione REW.
- Para avanzar rápidamente la cinta, presione FF.
- Para detener el rebobinado o bobinado rápido, presione STOR.
- Presione STOP/SELECT en el VCR para expulsar el cassette.

Grabación básica

- ### Preparación
- Encienda el televisor.
 - Seleccione el canal 3 o 4 (o modo AV).

1. Inserte un cassette con lengüeta de seguridad.
- El VCR se encenderá automáticamente y el contador se reposicionará a 0:00:00.
- Presione CH +/- (o las teclas numéricas) y luego ENTER para seleccionar el canal que desea grabar.
- Presione SP/PEP para cambiar la velocidad de cinta.
- Presione simultáneamente REC y PLAY para comenzar la grabación.
- Para efectuar una pausa de grabación, presione PAUSE.
- Para continuar con la grabación, presione PLAY.
- Presione STOP para detener la grabación.

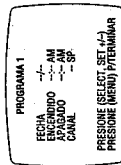
Para mirar un programa mientras graba otro

- Durante la grabación...
1. Presione TV/VIDEO para que aparezca "VIDEO" del display del VCR.
 - La teledefusión que se está grabando desaparecerá.
 - Utilice los controles de canales del televisor para elegir otro canal que desee ver.
 - El programa seleccionado con los controles de canales de TV aparecerá en la pantalla del televisor mientras el programa seleccionado con los controles de canales del VCR se grabará en la cinta.

Grabación por temporizador

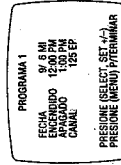
- ### Preparación
- Encienda el televisor.
 - Seleccione el canal 3 o 4 (o modo AV).

1. Inserte un cassette con lengüeta de seguridad.
- El VCR se encenderá automáticamente y el contador se reposicionará a 0:00:00.
- Presione dos veces MENU, y luego presione SELECT.
- Aparecerá el menú "PROGRAMA".



3. Presione SET +/- para seleccionar un número de programa vacante, y luego presione SELECT.
- Inicialmente todos los programas están vacantes y el cursor está en el programa 1. Por lo tanto, presione simplemente SELECT.
- Presione SET +/- para fijar el mes y luego presione SELECT.
- Presione SET +/- para fijar el día del mes.
- Para grabar un programa diario (lunes - viernes), presione DAILY (tecla 6). Para grabar un programa semanal, presione WEEKLY (tecla 9).

6. Presione SELECT.
7. Repita el paso 4 para fijar la hora de inicio, la hora de finalización, el número de canal y la velocidad de cinta.



8. Presione MENU tantas veces como sea necesario.
9. Presione TIMER.
- El VCR se establecerá en el modo de grabación programada y se apagará.

For Servicing

HOW TO LOCATE YOUR JVC SERVICE CENTER

TOLL FREE: 1-800-252-5722

Dear customer:
In order to receive the most satisfaction from your purchase, read the instruction booklet before operating the unit. In the event that repair is necessary, or for the address nearest your location, please refer to the factory service center list below or within the Continental United States, call 1-800-252-5722 for your authorized service. Remember to retain your Bill of Sale for Warranty Service.

— JVC

JVC SERVICE & ENGINEERING COMPANY OF AMERICA DIVISION OF US JVC CORP.

FACTORY SERVICE CENTER LOCATIONS

107 Little Falls Road
Fairfield, NJ 07704-2105
(201) 806-9279

5665 Corporate Avenue
Cypress, CA 90630-0024
(714) 228-8011

230 Elliot Street
Ashland, MA 01721-2377
(608) 881-5923

705 Enterprise Street
Aurora, IL 60504-8149
(708) 851-7855

2969 Mapunapuna Place
Honolulu, HI 96819-2040
(808) 839-5828

890 Duquesne Avenue
South San Francisco, CA 94080-1804
(415) 871-2666

Sophisticated electronic products may require occasional service. Just as quality is a keyword in the engineering and production of the wide array of JVC products, service is the key to maintaining the high level performance for which JVC is world famous. The JVC service and engineering organization stands behind our products.

NATIONAL HEADQUARTERS
JVC SERVICE & ENGINEERING COMPANY OF AMERICA
DIVISION OF US JVC CORP.
107 Little Falls Road
Fairfield, NJ 07704-2105

If you ship the product...

Pack your JVC unit in the original carton or one of equivalent size and strength. Enclose, with the unit, a letter stating the problem or symptom that exists and also a copy of the receipt or bill of sale you received when you purchased your JVC unit. Print your home return address on the outside and the inside of the carton. Send to the appropriate JVC Factory Service Center as listed above.

Don't service it yourself.

CAUTION

To prevent electrical shock, do not open the cabinet.
No user serviceable parts inside.
Refer servicing to qualified service personnel.

ACCESSORIES

To purchase accessories for your JVC product, you may contact your local JVC Dealer. Or from the 48 Continental United States call toll free: 1-800-862-2345.

Warranty

LIMITED WARRANTY

CONSUMER VIDEO 1-90
JVC COMPANY OF AMERICA warrants this product and all parts thereof, except as set forth below, ONLY TO THE ORIGINAL PURCHASER AT RETAIL TO BE FREE FROM DEFECTIVE MATERIALS AND WORKMANSHIP from the date of original retail purchase for the period as shown below. (The Warranty Period)

PARTS	1 YR	LABOR	90 DAYS
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THIS LIMITED WARRANTY IS VALID ONLY IN THE FIFTY (50) UNITED STATES, THE DISTRICT OF COLUMBIA AND IN COMMONWEALTH OF PUERTO RICO.

WHAT WE WILL DO:

If this product is found to be defective, JVC will repair or replace defective parts at no charge to the original owner. Such repair and replacement services shall be rendered by JVC during normal business hours at JVC authorized service centers. Parts used for replacement are warranted only for the remainder of the Warranty Period. All products and parts thereof may be brought to a JVC authorized service center on a carry-in basis except for Television sets having a screen size 25 inches and above which are covered on an in-home basis.

WHAT YOU MUST DO FOR WARRANTY SERVICE:

Return your product to a JVC authorized service center with a copy of your bill of sale. For your nearest JVC authorized service center, please call toll free: (800) 252-5722.
If service is not available locally, box the product carefully, preferably in the original carton, and ship, insured, with a copy of your bill of sale plus a letter of explanation of the problem to the nearest JVC Factory Service Center, the name and location of which will be given to you by the toll-free number.

If you have any questions concerning your JVC Product, please contact our Customer Relations Department.

WHAT IS NOT COVERED:

- This limited warranty provided by JVC does not cover:
- Products which have been subject to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, or if repaired or serviced by anyone other than a service facility authorized by JVC to render such service, or if affixed to any attachment not provided with the products, or if the model or serial number has been altered, tampered with, defaced or removed;
 - Initial installation and installation and removal for repair;
 - Operational adjustments covered in the Owner's Manual, normal maintenance, video and audio head cleaning;
 - Damage that occurs in shipment, due to act of God, and cosmetic damage;
 - Signal reception problems and failures due to line power surge;
 - Video Pick-up Tubes/CCD Image Sensor, Cartridge, Stylus (Needle) are covered for 90 days from the date of purchase;
 - Accessories;
 - Batteries (except that Rechargeable Batteries are covered for 90 days from the date of purchase); from the date of purchase.

There are no other express warranties except as listed above.

THE DURATION OF ANY IMPLIED WARRANTIES INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY, IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY HEREIN.

JVC SHALL NOT BE LIABLE FOR THE LOSS OF USE OF THE PRODUCT, INCONVENIENCE, LOSS OR ANY OTHER DAMAGES, WHETHER DIRECT, INCIDENTAL OR CONSEQUENTIAL, INCLUDING, WITHOUT LIMITATION, DAMAGE TO TAPES, RECORDS OR DISCS RESULTING FROM THE USE OF THE PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY, ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED TO THE WARRANTY PERIOD SET FORTH ABOVE.

Some states do not allow the exclusion of incidental or consequential damages or limitations on how long an implied warranty lasts, so these limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

JVC COMPANY OF AMERICA
DIVISION OF US JVC CORP.
41 Slater Drive
Elmwood Park, New Jersey 07407

REFURBISHED PRODUCTS CARRY A SEPARATE WARRANTY. THIS WARRANTY DOES NOT APPLY. FOR DETAILS OF REFURBISHED PRODUCT WARRANTY, PLEASE REFER TO THE REFURBISHED PRODUCT WARRANTY INFORMATION PACKAGED WITH EACH REFURBISHED PRODUCT.

For customer use:

Enter below the Model No. and Serial No. which is located either on the rear, bottom or side of the cabinet. Retain this information for future reference.

Model No. _____

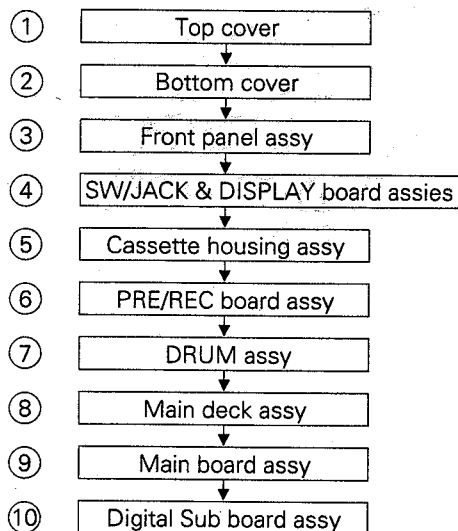
Serial No. _____

Purchaser date: _____ Name of dealer: _____

SECTION 1 DISASSEMBLY

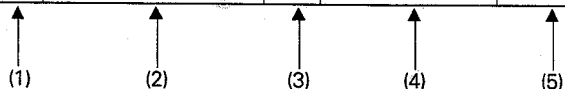
1.1 DISASSEMBLY FLOW CHART

This flowchart lists shows the disassembly steps for the cabinet parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend,route and dress the flat cables as they were originally.



1.2 HOW TO READ THE DISASSEMBLY AND ASSEMBLY

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	4(S1)	
②	BOTTOM COVER	D2	(S2), 7(L1)	
③	FRONT PANEL ASSY	D3	7(L2),*JOG/SHUTTLE	<NOTE 1>
④	SW/JACK & DISPLAY BOARD ASSIES	D4	12(L3),*CN1	<NOTE 2>
⑤	CASSETTE HOUSING ASSY	D5	4(S3) EARTH PLATE	<NOTE 3>
⑥	PRE/REC BOARD ASSY	D6	2(S4),*CN1 *CN201,*CN202 SHIELD CASE	



- (1) Order of steps in Procedure.
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) NO. of parts Figures.
- (2) Part name to be removed or installed.
- (3) Fig.No. showing procedure or part location
- (4) Identification of part to be removed,unhooked,unlocked, released,unplugged,unclamped or unsoldered. P = Spring, W = Washer, S = Screw, L = Locking tab, * = Unhook,unlock, release,unplug or unsolder.
- (5) Adjustment information for installation

1.3 DISASSEMBLY/ASSEMBLY METHOD

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	5(S1), SIDE PANEL (L),(R) (HR-S7200U)	
②	BOTTOM COVER	D2	(S2), 7(L1),(P1)	
③	FRONT PANEL ASSY	D3	7(L2),*JOG/SHUTTLE	<NOTE1>
④	SW/JACK & DISPLAY BOARD ASSIES	D4	13(L3),*CN1, *CN3, *CN5	<NOTE2>
⑤	CASSETTE HOUSING ASSY	D5	2(S3) ,2(S8) EARTH PLATE	<NOTE3>
⑥	PRE/REC BOARD ASSY	D6	3(S4),*CN1 *CN201,*CN202 SHIELD CASE	
⑦	DRUM ASSY	D7	3(S5),WR1,4(L4), (L5) INERTIA PLATE HEAD CLEANER	<NOTE4>
⑧	MAIN DECK ASSY	D8	2(S6),WR2 WR3,2(L6),*CN603	<NOTE5>
⑨	MAIN BOARD ASSY	D9	2(S7),(L7)	
⑩	DIGITAL SUB BOARD ASSY	D9	2(S9),(L8)	

<NOTE1>

When reattaching the front panel assy, make sure that the door opener (a) of the cassette housing assy is lowered in position prior to the reinstallation.

<NOTE2>

When plugging the connector in, check that the flat wire is inserted properly and fully.

<NOTE3>

When reattaching the cassette housing assy, pay careful attention to the switch lever not to make it touch the REC switch knob of the REC SAFETY board assy from the up-side.

(If the REC switch knob of the REC SAFETY board assy is damaged, cassette loading is impossible.)

<NOTE4>

When plugging the connector in, check that the flat wire is inserted properly and fully.

<NOTE5>

- When removing the Main deck assy only, unhook the two spacers connecting it with the Main board assy with pliers from the back side of the Main board assy first, and then remove the Main deck assy.
- When reattaching the Main deck assy to the Main board assy, make sure to set the spacers into the retaining slots respectively.

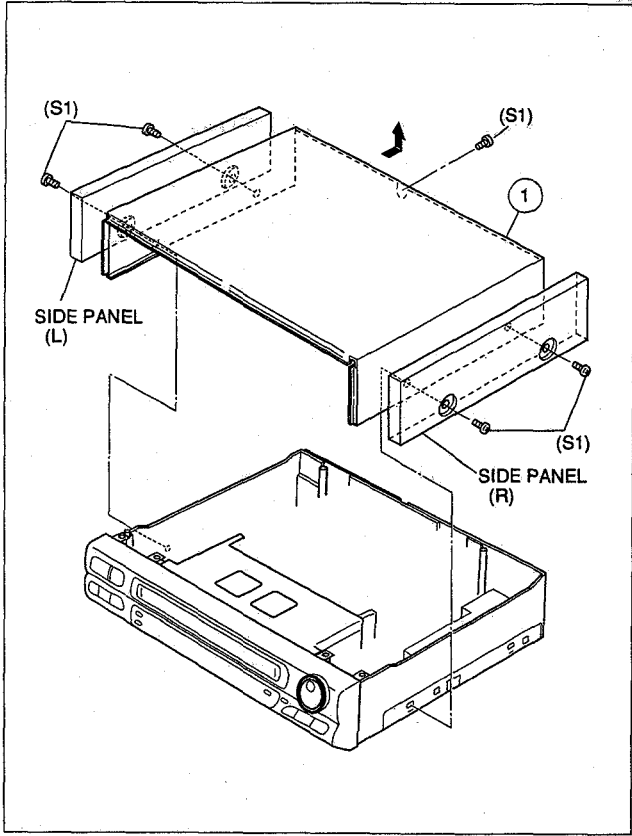


Fig. D1

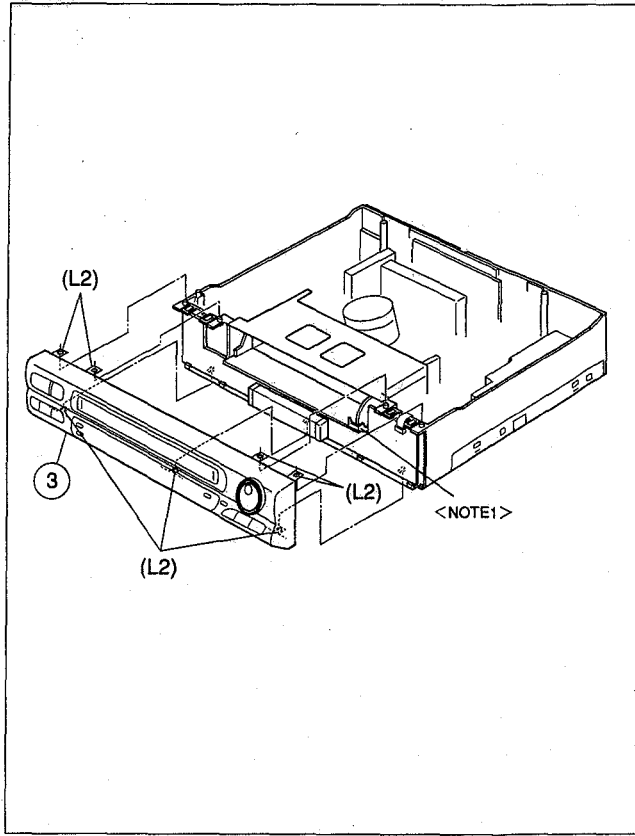


Fig. D3

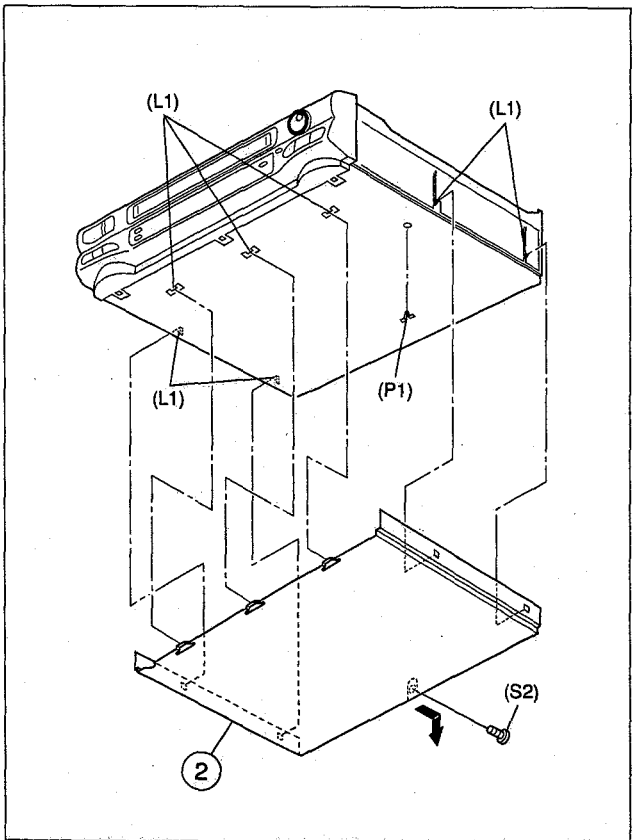


Fig. D2

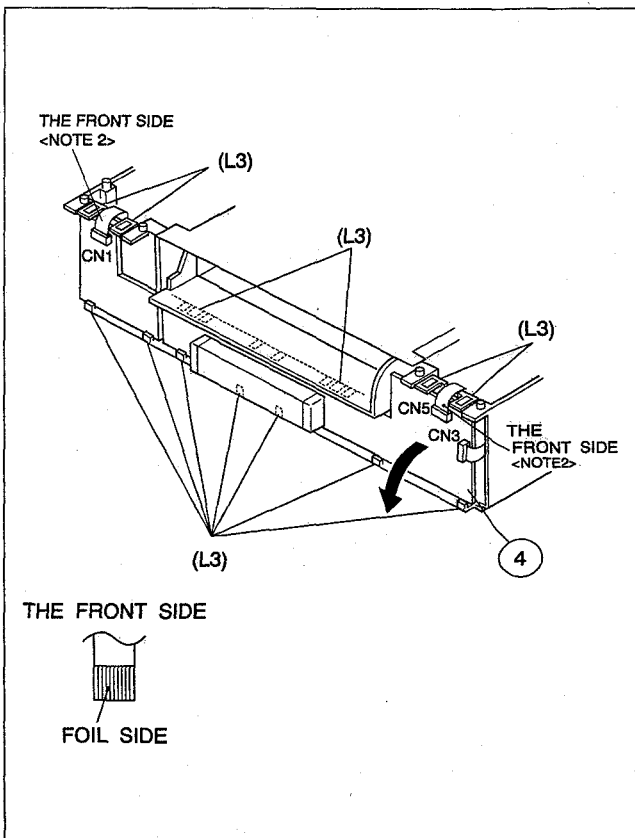


Fig. D4

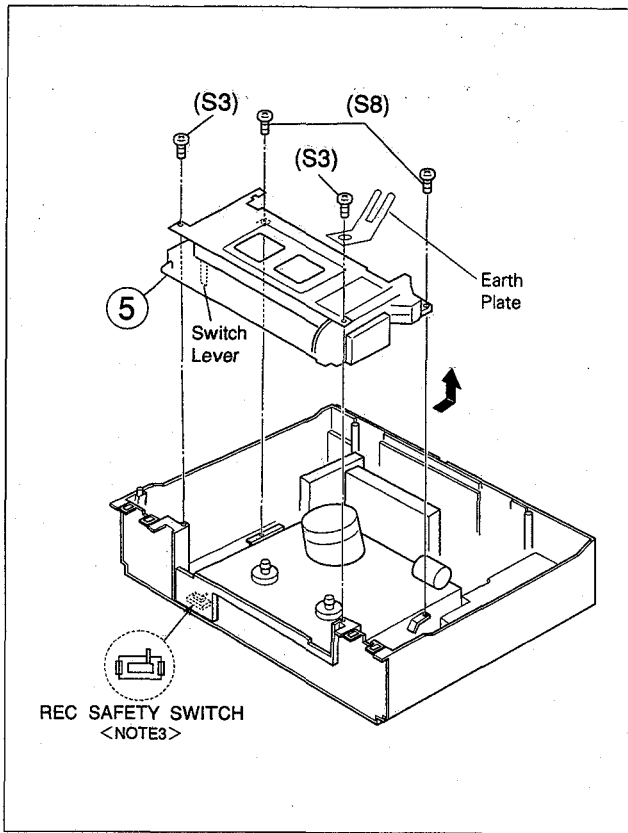


Fig. D5

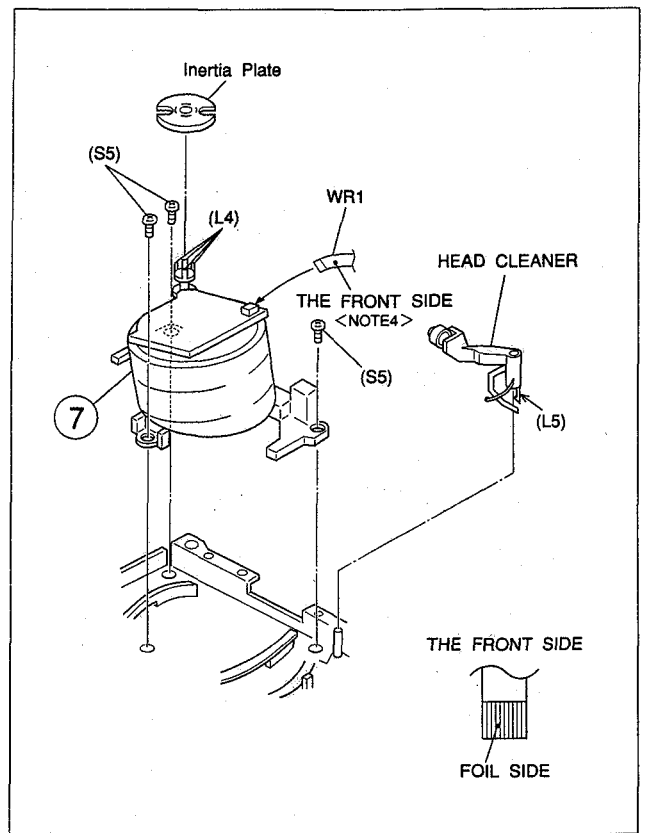


Fig. D7

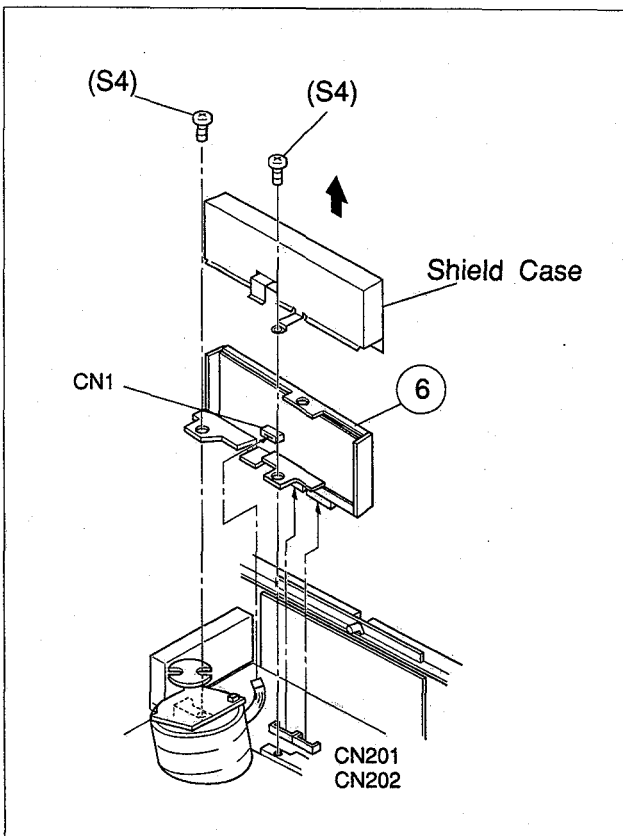


Fig. D6

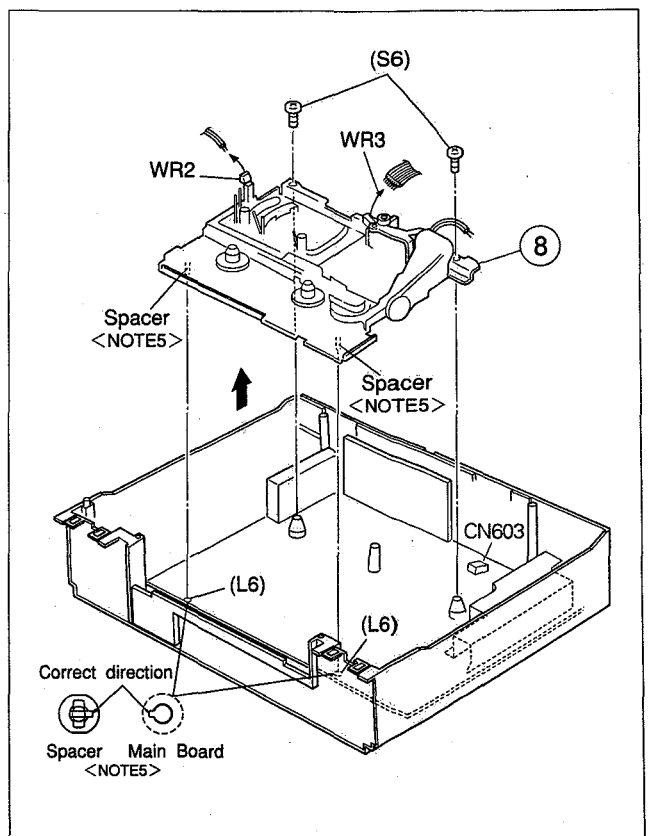


Fig. D8

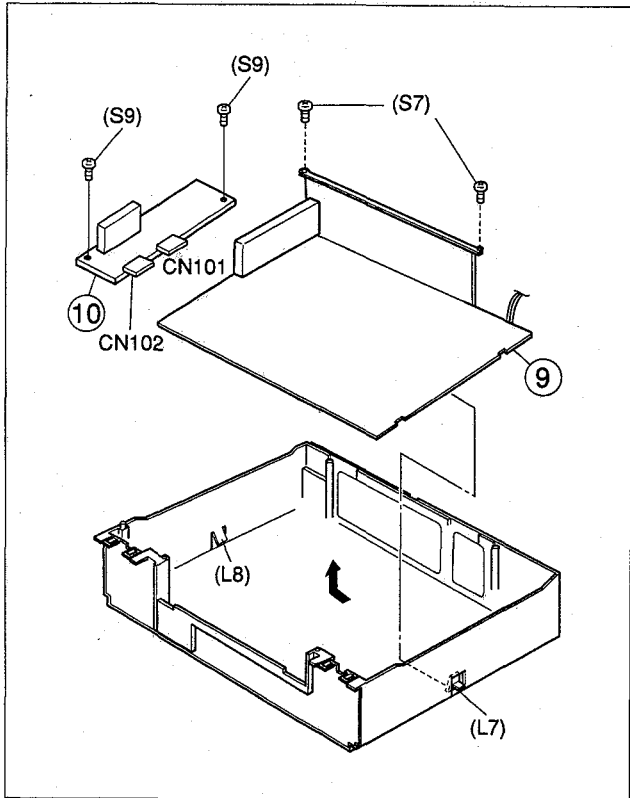


Fig. D9

1.4 CASSETTE HOUSING INSTALLATION

NOTE: Observe the mechanical phase and position (see figure) when installing the cassette housing assembly. If these are incorrect, the system will not operate properly even when tape is inserted.

1. Check that the hole of the control cam are aligned to the deck hole. If necessary, turn the mode motor belt by hand to adjust the position.

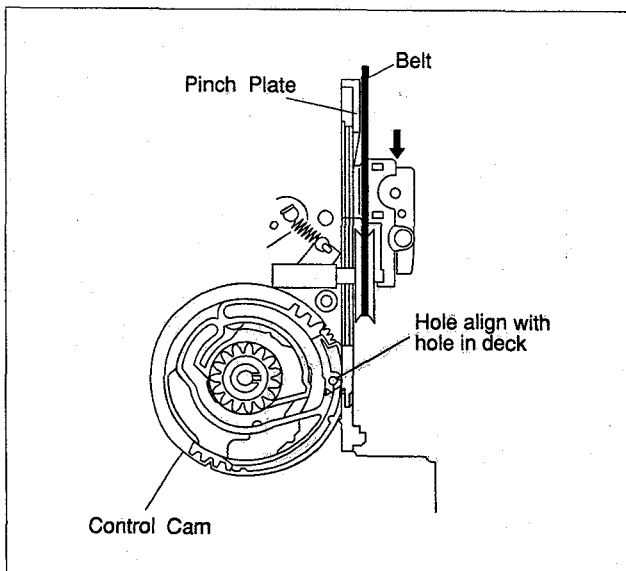


Fig. 1-4-1

1.5 SERVICE POSITION

1.5.1 How to take out the Mechanism and Main board assemblies.

- (1) Remove the Top cover, Front panel assy and CN1 of the DISPLAY board assy.
- (2) Take out 4 screws (A), 2 screws (B), 1 screw (C) and 2 screws (D) as shown in Fig.1-5-1.

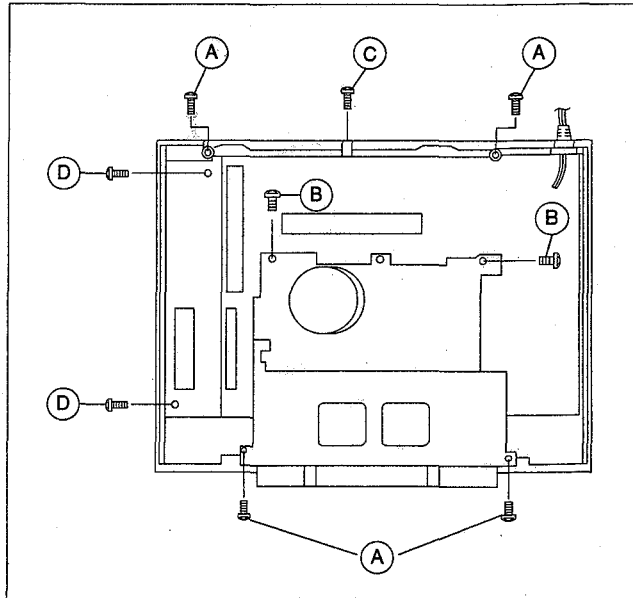


Fig. 1-5-1

- (3) Disengage 2 claws (a) from the chassis.
- (4) Remove the Mechanism assy (including Cassette housing) and Main board assy out of the chassis as shown in Fig. 1-5-2.

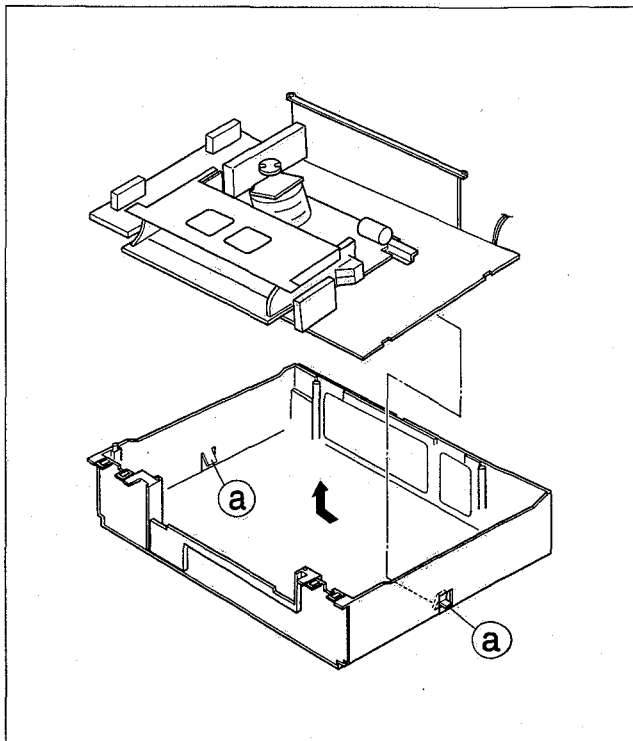


Fig. 1-5-2

- (5) Turn over the Mechanism assy and Main board assy then connect CN5 and CN3 of the DISPLAY board assy.
- (6) Carry out checks & repairs as necessary as shown in Fig.1-5-3.

Note: When input the AUDIO/VIDEO signal from connector, connect CN1 of the SW/JACK board assy.

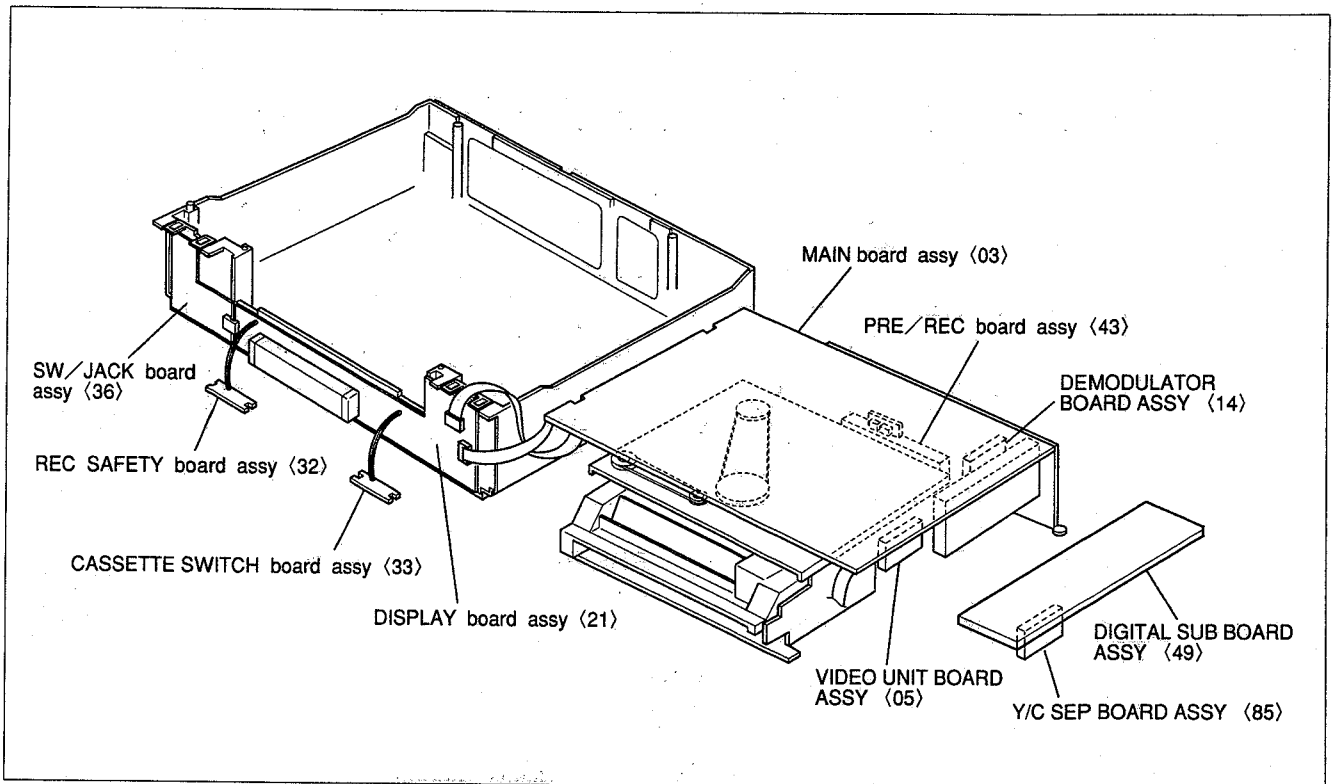


Fig. 1-5-3

1.5.2 Cautions on cassette loading when mechanism is in service position

The REC SAFETY board assembly of this set serves both for detecting the safety tab (erasure prevention tab) of a cassette and detecting a cassette loaded. Therefore, cassette loading in the condition that the mechanism is disassembled from the set needs manual operation of the switches of the REC SAFETY board assembly and the CASSETTE SWITCH board assembly.

1.5.3 Cassette loading and ejecting procedures when mechanism is in service position

- (1) Insert a cassette tape halfway into the cassette housing assembly.
- (2) Press the switch of the REC SAFETY board assembly to turn on.
- (3) When the cassette loading begins and the cassette goes down to the bottom, immediately press the switch of the REC SAFETY board assembly to turn off and hold the status that the switch of the CASSETTE SWITCH board assembly is turned on. (Fix the switch with adhesive tape or put a screwdriver, etc. on it to leave the switch in the ON status.)

- (4) In this status, desired operations (recording, playback, fast forward, rewind, etc.) can be performed.

Note: When the mechanism is in the service position, the safety tab of cassette tape is not detected and recording on cassette tapes without safety tab is possible. Therefore, carefully choose a cassette tape for operation in this mode so as to avoid using cassette tapes of important recording.

- (5) For ejecting the cassette in this status, do it in the reverse order of cassette loading mentioned above.

Note: If the manual operation REC SAFETY switch timing is incorrect, the cassette may be completely or partially ejected, and the cassette is often ejected incompletely. In such a case, it is possible to take out the cassette by hand.

If it is desired to load a cassette again after the cassette is ejected in the above procedure, make sure to set the tray of the cassette housing assembly in the frontmost position prior to loading the cassette once again.

1.5.4 Opening on the chassis.

The chassis assy has openings for easy access to the check-points and connector pins as shown in Fig.1-5-4.

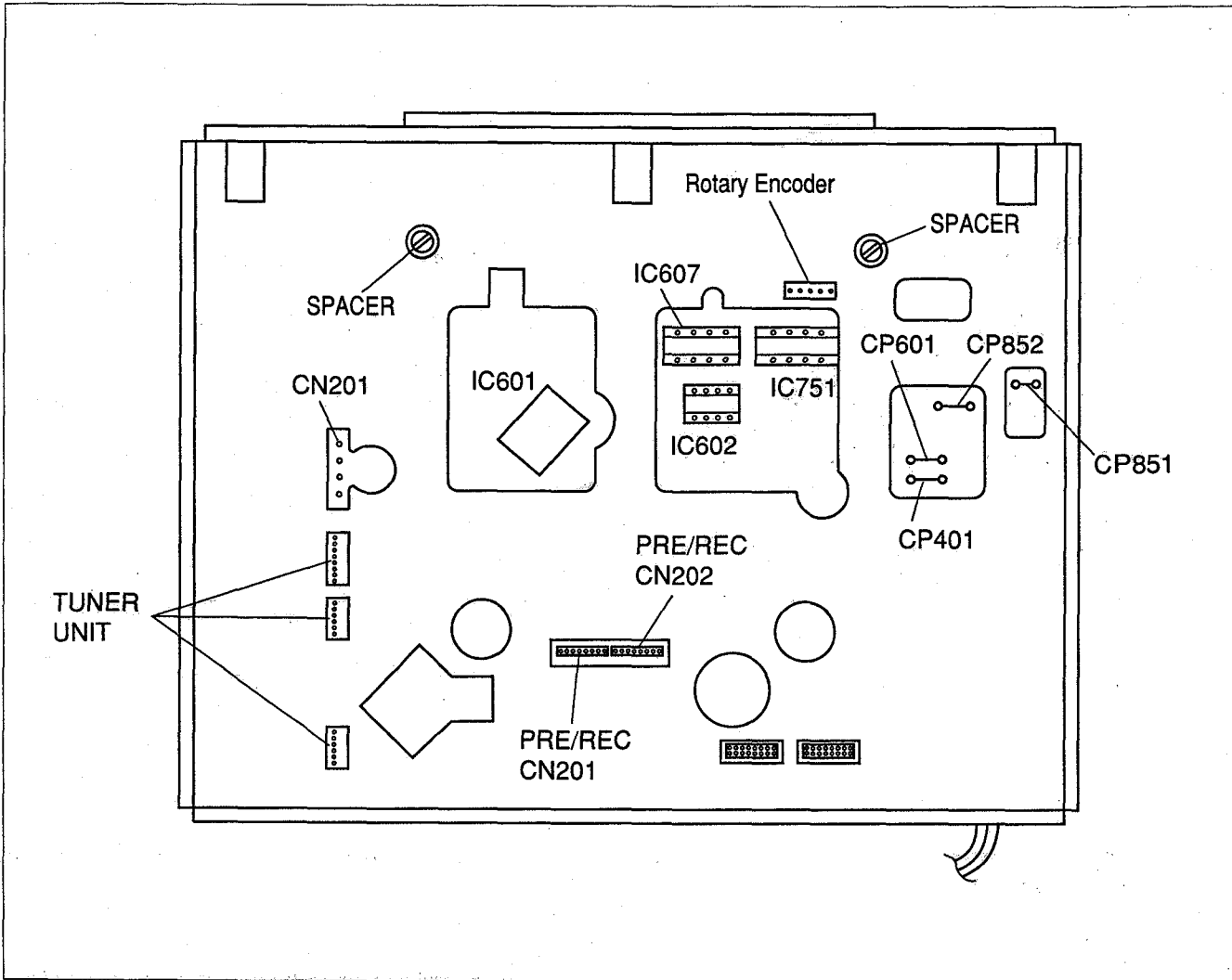


Fig. 1-5-4

1.6 MECHANISM SERVICE MODE

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the "MECHANISM SERVICE MODE".

1.6.1 How to set the "MECHANISM SERVICE MODE"

- (1) Disconnect VCR from AC.
- (2) Remove the Top cover, Front panel assy and cassette housing assy. (See Page 1-2, 1-3)

- (3) Connect B4 (GND) and B5 (TEST) on the DISPLAY board assy with a jump wire.
- (4) Connect VCR to AC.
- (5) Press the POWER button.
- (6) Select the desired operation modes with the operation buttons or remote controller.

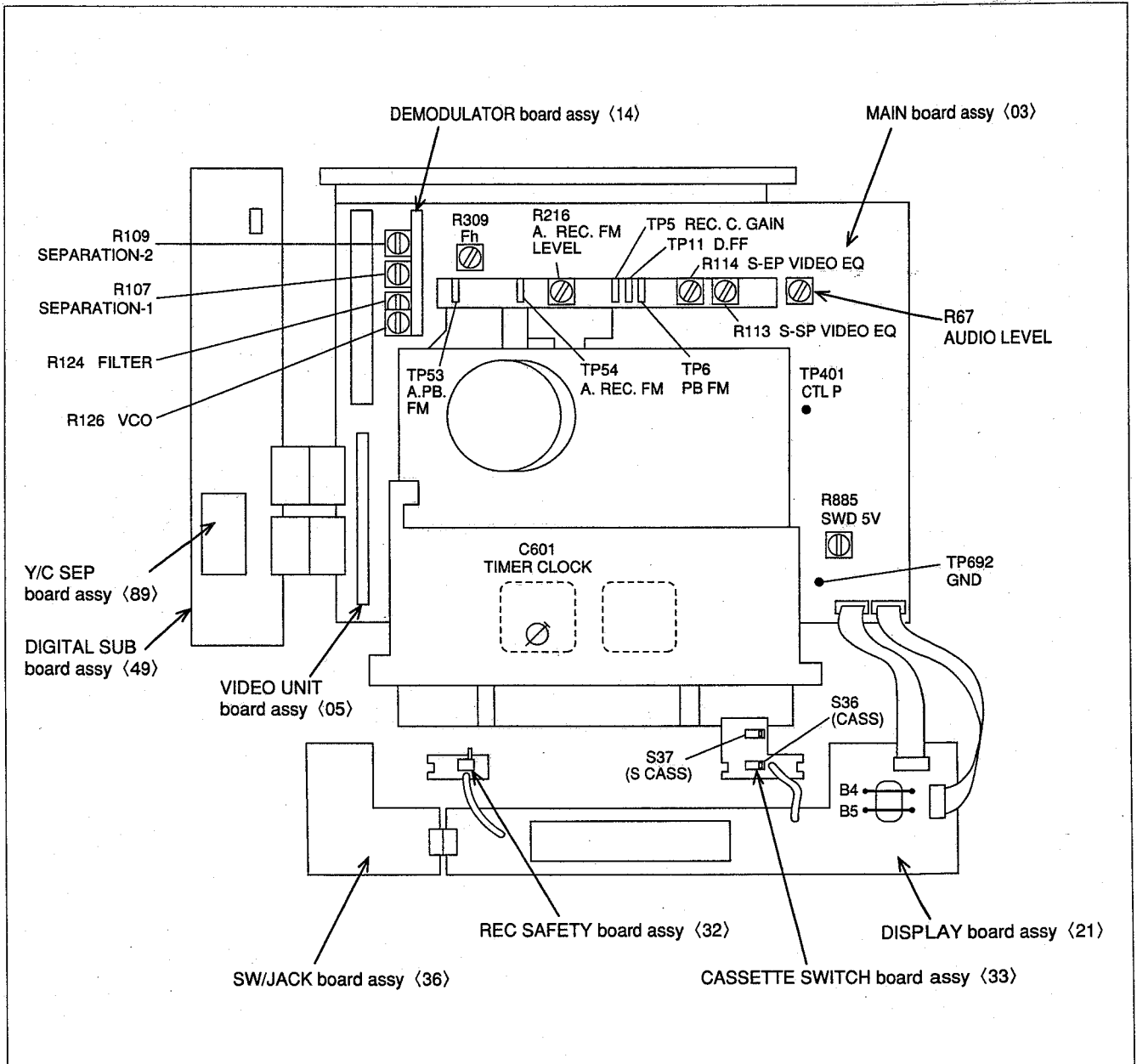


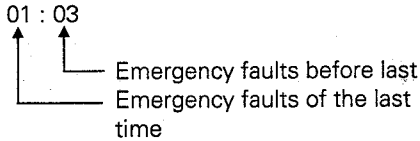
Fig. 1-6-1

1.7 EMERGENCY DISPLAY FUNCTION

This product has the function to store the last two previous emergency faults which can be displayed in the FDP when servicing.

1.7.1 How to display record of an emergency faults

- (1) Press "N" button of the presetting unit more than 2 seconds, and the two previous emergency faults are shown in the FDP.
- (2) Press "N" button of the presetting unit again to return to the normal mode.

[Example] E : 01 : 03


[Example] E : — : — — ← No record of emergency

1.7.2 Detail of emergency faults

FDP	Symptom	Detect mode	Resulting mode
E : 01	Loading motor rotates for more than 8 Sec without shift to next mode.	Loading	POWER OFF
E : 02	Loading motor rotates for more than 8 Sec without shift to next mode.	Unloading	POWER OFF
E : 03	SUP or TU REEL FG input is absent (for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 04	DRUM FF input is absent(for more than 3 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP
E : 06	CAPSTAN FG input is absent(for more than 1 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 07	No SWD5V/12V	POWER ON	POWER OFF

Table 1-7-1 EMERGENCY FAULTS

1.7.3 How to clear emergency record.

Press the COUNTER RESET button on the remote controller in the emergency record display mode, and the record of the emergency fault(s) is cleared.

SECTION 2 MECHANISM ADJUSTMENT

2.1 PREPARATION

2.1.1 Precautions

- (1) Disconnect VCR from AC power before soldering.
- (2) Avoid imparting stress to wires when disengaging connectors.
- (3) Determine and correct the cause of difficulty before proceeding to adjustments. Do not disturb settings unnecessarily.
- (4) Use care not to damage tabs, claws, etc during repairs.
- (5) Install the cassette housing assy only when the mechanism is in the MECHANISM ASSEMBLING MODE position.
- (6) When installing the Front panel assy, be sure to engage the housing door with the door opener of the cassette housing assy.
If this is omitted, the cassette door will not open at Eject and the cassette can not be removed. (See SECTION 1 DISASSEMBLY.)

2.1.2 Check without cassette housing assy.

Mechanism operations can be observed easily by removing the cassette housing assy. Use the MECHANISM SERVICE MODE (See SECTION 1 DIASSEMBLY)

2.1.3 Manual removal of loaded tape

When the deck enters the emergency mode with cassette tape loaded and it can not be ejected by pressing the EJECT button, take out of the cassette tape according to the following procedure.

- (1) Disconnect the power cord from AC outlet then take out the Top cover and Front panel assy.
- (2) Turn the mode motor on the Main deck assy by hand in the unloading direction to where the pole base assy (supply and take-up) is positioned below the cassette tape. At that time, pay careful attention to the tape not to get soiled with grease.
- (3) Take out 4 screws of the cassette housing assy. (See SECTION 1 DISASSEMBLY)
- (4) Remove the cassette housing with slackened tape and guard panel of cassette.
- (5) Wind up the tape by turning the reel hub (either supply or take-up side for convenience) from the bottom of the cassette, and remove the cassette tape.

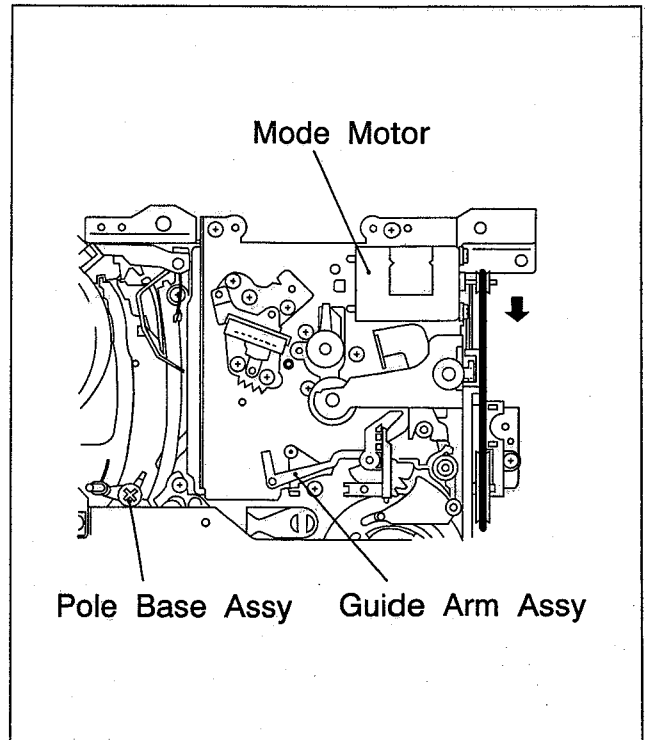


Fig. 2-1-1

2.1.4 Test Equipment

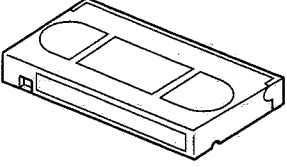
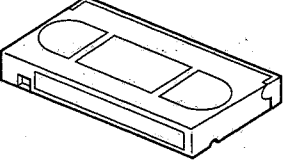
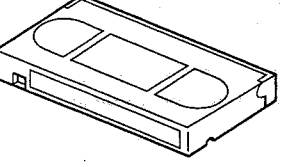

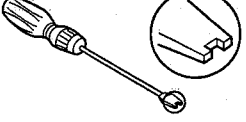
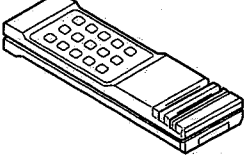

Alignment tape (SP) MHP	Alignment tape (EP) MHP-L	Back tension cassette gauge PUJ48076-2	A/C head positioning tool PTU94010
			
Roller driver PTU94002	Presetting unit PTU94008	Grease KYODO-SH-P	
			

Table 2-1 Test equipment

2.2 MAIN MECHANISM PARTS

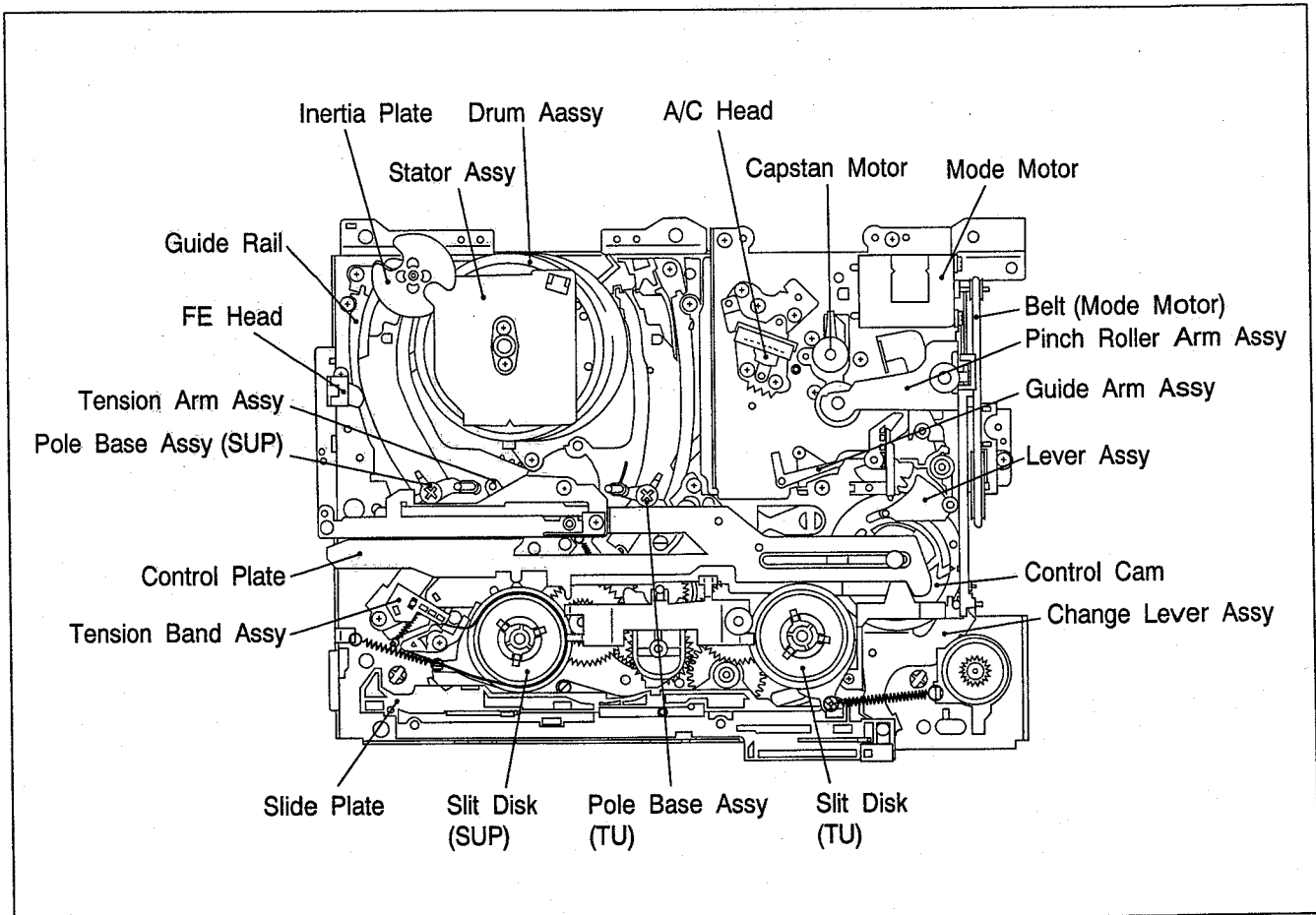


Fig. 2-2-1 Top view of main deck

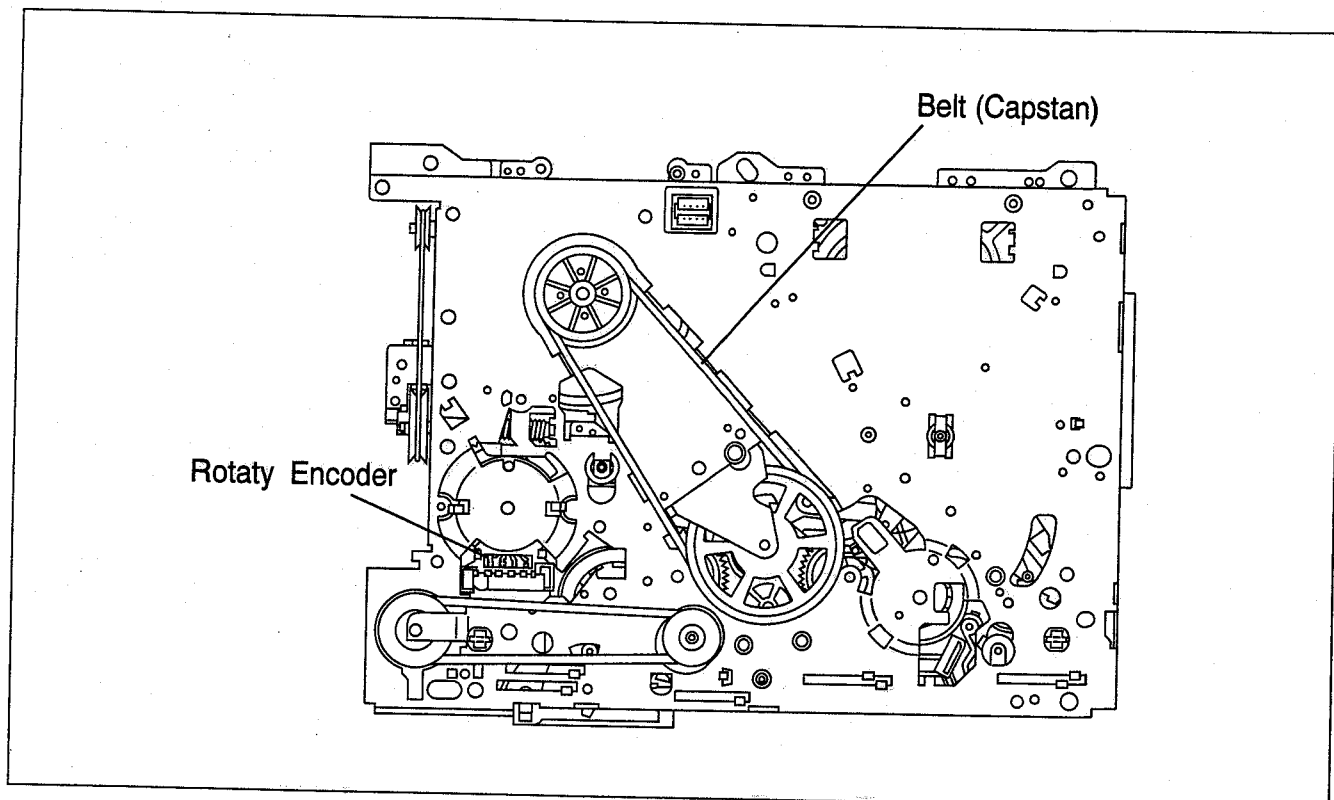


Fig. 2-2-2 Bottom view of main deck

2.2.1 Cleaning

Periodic cleaning of the tape transport system is desirable, but ordinarily not feasible in practice. Therefore, perform cleaning when a set is brought in for repairs or maintenance. Contamination of the video heads, tape guides and brush can detract from playback picture quality and in extreme cases, even damage the tape. For cleaning, use a finemesh cotton cloth (about the texture of a white dress-shirt) moistened in alcohol. It is recommended to also clean the tape tension posts and capstan.

- To clean the video heads, press the moistened cloth gently against the upper drum with fingertip and turn the drum by hand.
- Do not use a vertical stroke, as this may damage the heads.

2.2.2 Lubrication

Oil and grease do not normally require periodic replenishing. Apply only when replacing lubricated parts (also clean and replace lubrication of mating parts if soiled). For parts and points to apply oil and grease, refer to the exploded views of the mechanism assembly. Before oiling, clean with alcohol. Apply one or two drops of oil. Avoid excess oil.

1. Table 2-2-1 indicates the oil and grease used in this set. Use these or recommended locally available equivalents.

Category	Part No.
Oil	COSMO-HV56
Grease	KYODO-SH-P

Table 2-2-1

2. Grease is not required for a replacement cassette housing assembly, as this has been applied at the factory.

NOTE: Stir grease that has been stored for an extended period.

2.3 INSPECTION AND MAINTENANCE

This product employs rotary and moving parts which wear out in the course of usage. Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced as and when required.

2.3.1 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time, even if the set is not used.

System	Parts Name	Operation Hours	
		~1000H	~2000H
Tape transport	Upper drum assy	★ ○	○
	A/C head	★ ○	★ ○
	Lower drum motor assy	★	★ ○
	Pinch roller arm assy	★	★
	Full erase head	★	★
	Tension arm assy	★	★
	Guide arm assy	★	★
Drive	Capstan motor		○
	Belt (Capstan)	○	○
	Belt (Mode motor)		○
	Mode motor		○
	Slit disk (supply, take-up)		○
	Clutch unit (supply, take-up)		○
	Worm gear assy		○
	Control plate		○
	Slide plate		○
	Other	Brush assy	★ ○
Tension band assy		○	○
Rotary encoder			○

★ : Cleaning

○ : Inspection or Replacement if necessary

Table 2-3-1

2.4 DISASSEMBLY/ASSEMBLY PROCEDURE OF MECHANISM

2.4.1 Precaution before disassembling mechanism

This mechanism has an exclusive operation mode provided for disassembling and installation of the mechanism (MECHANISM ASSEMBLING MODE), and it is suggested to set the mechanism to this mode before disassembly and installation. The exclusive mechanism operation mode is not generally used and becomes available by manual setting only. Then this procedure starts with the condition that the cabinet parts, cassette housing assy and PRE/REC board assy have been removed.

2.4.2 How to set the exclusive mechanism operation mode (MECHANISM ASSEMBLING MODE)

- (1) Turn the mode motor belt by hand.
- (2) Confirm that the hole of the control cam are aligned to the deck hole as shown in Fig.2-4-1.

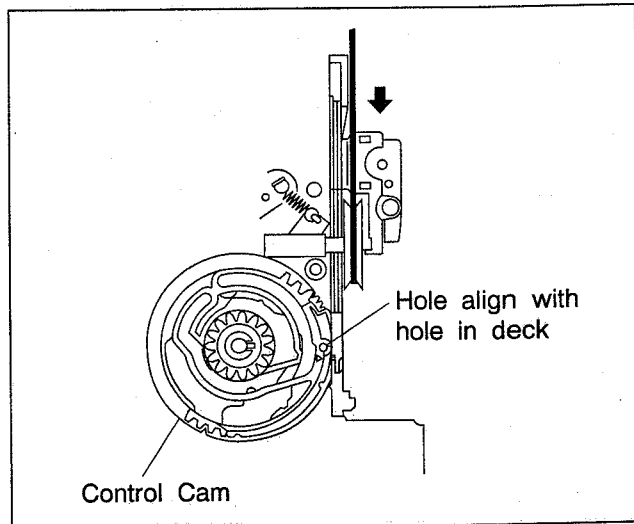


Fig. 2-4-1

2.5 MAIN PARTS REPLACEMENT OF MECHANISM

2.5.1 Pinch Roller Arm ASSY

- (1) Remove the slit washer.
- (2) Tilt up the pinch roller assy in direction of arrow.

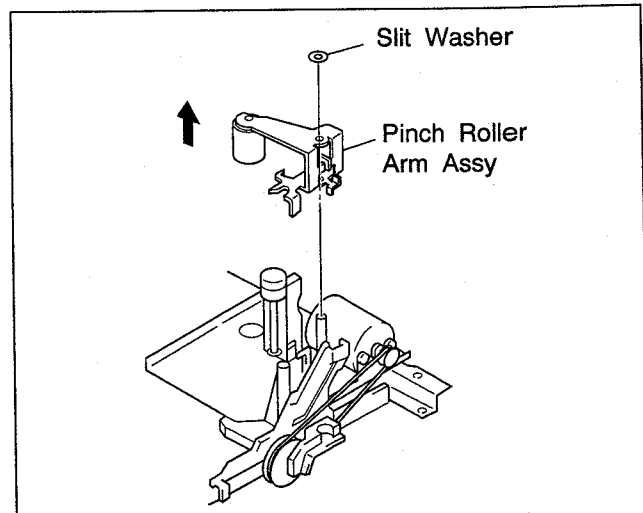


Fig.2-5-1

2.5.2 A/C Head

1. Removal

- (1) Take out 2 screws (A).
- (2) Remove the A/C head with head base.

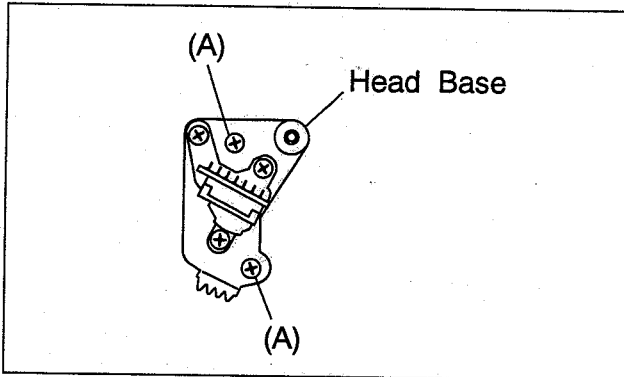


Fig.2-5-2

- (3) When replacing the A/C head only, remove 3 screws (B), use care not to misplace the 3 springs.

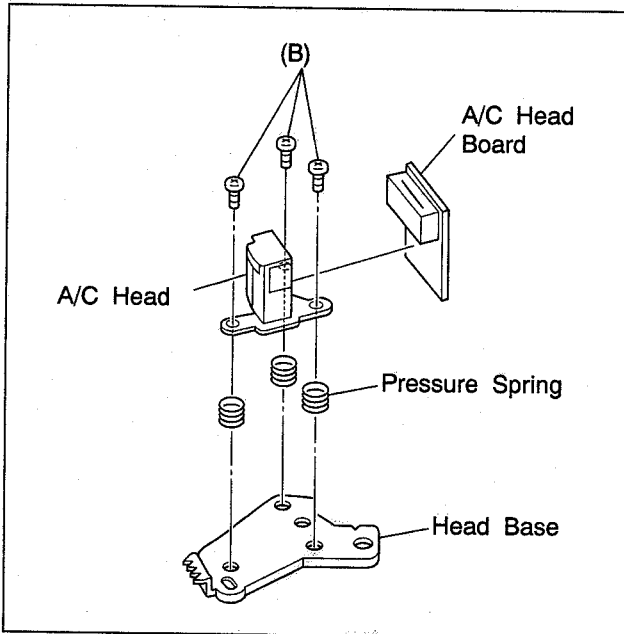


Fig.2-5-3

2. Installation

- (1) Temporarily set A/C head height as indicated in Fig. 2-5-4.

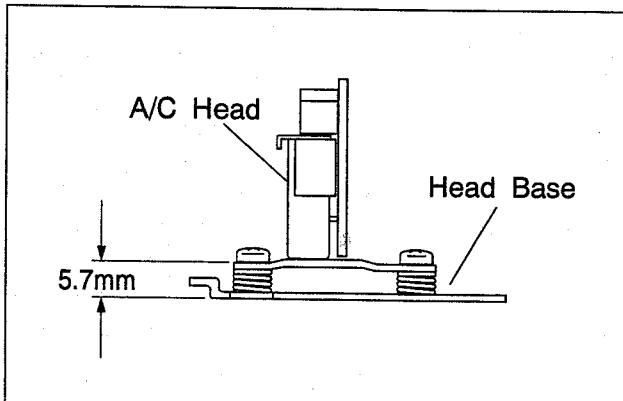


Fig.2-5-4

NOTES:

- It is very important to correctly adjust the control pulse and audio signal in addition to the mechanical tape path.
- Perform interchangeability adjustments after electrical adjustments.

2.5.3 Pinch Plate

1. Removal

- (1) Disengage 2 claws, then remove the pinch plate.

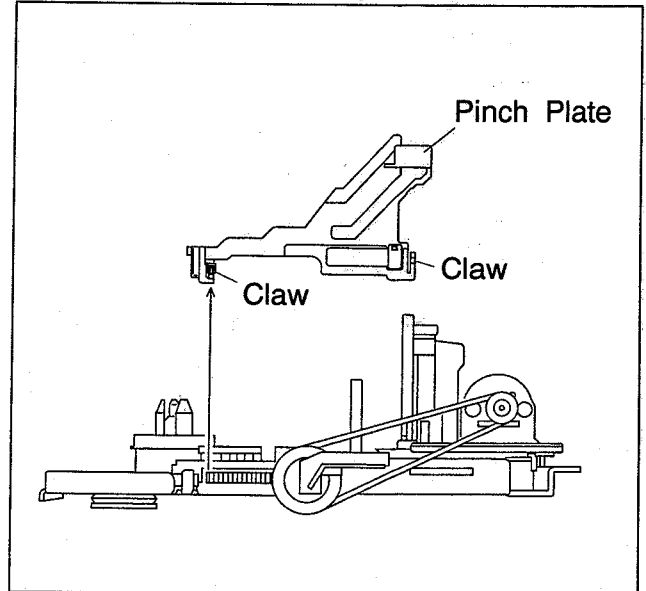


Fig.2-5-5

2. Installation

- (1) When installing pinch plate, align rack of pinch plate and triangle mark of control cam as indicated in Fig.2-5-6.

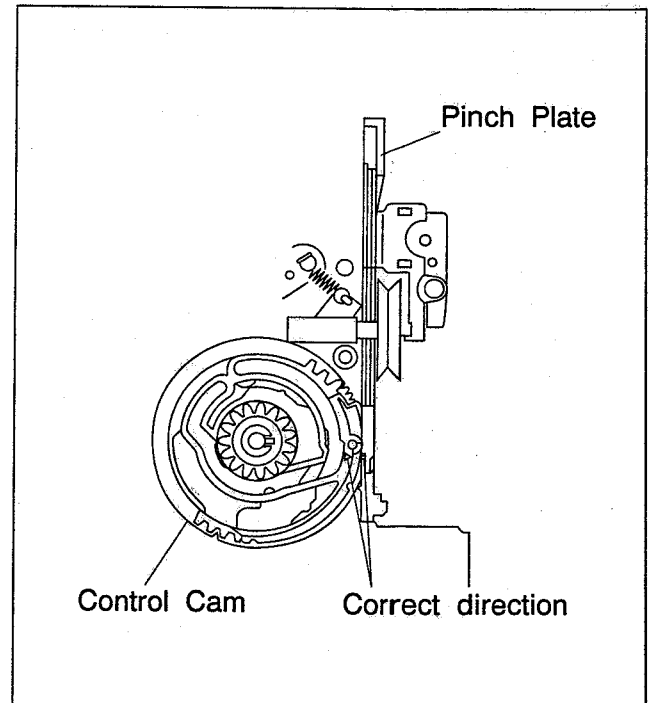


Fig. 2-5-6

2.5.4 Mode Motor

- (1) Disengage the belt between mode motor and worm gear.
- (2) Take out 2 screws (A) then remove the mode motor.

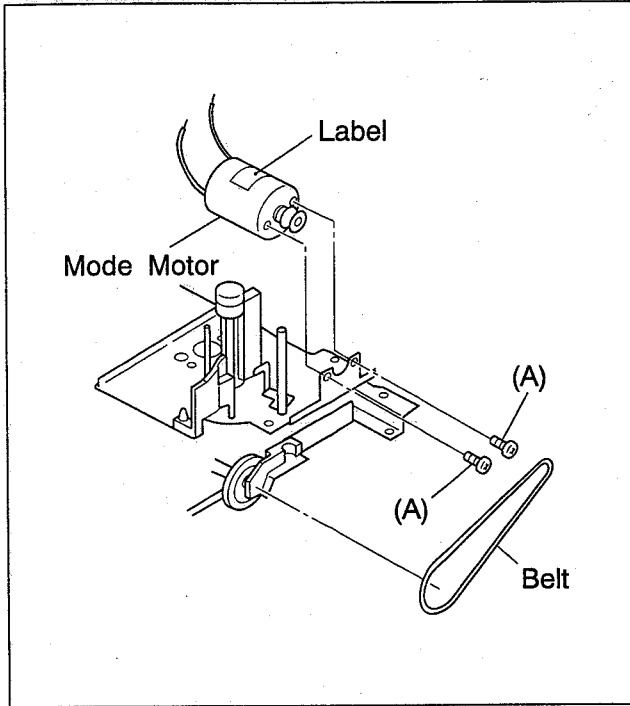


Fig.2-5-7

2.5.5 Lever Assy, Sub Deck Assy, Capstan Motor

- (1) Take out 1 slit washer, then remove the lever assy.
- (2) Disengage the belt (capstan motor) from bottom of mechanism assy first as indicated in Fig.2-5-10.
- (3) Take out 3 screws (A) and remove the sub deck assy as indicated in Fig.2-5-8.
- (4) Take out 3 screws (B) and remove the capstan motor from the sub deck assy as indicated in Fig.2-5-9.

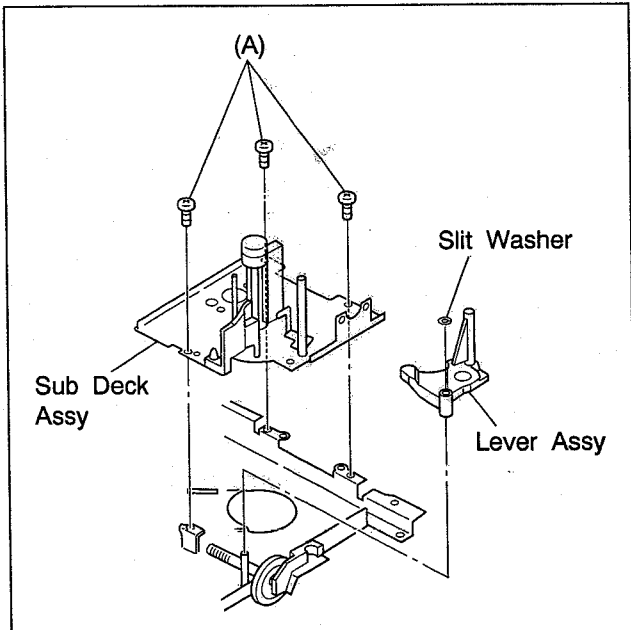


Fig.2-5-8

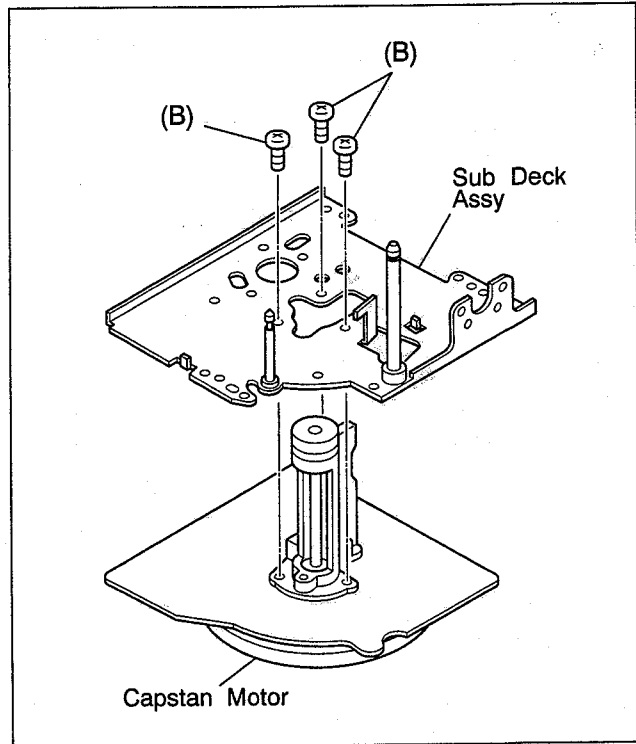


Fig.2-5-9

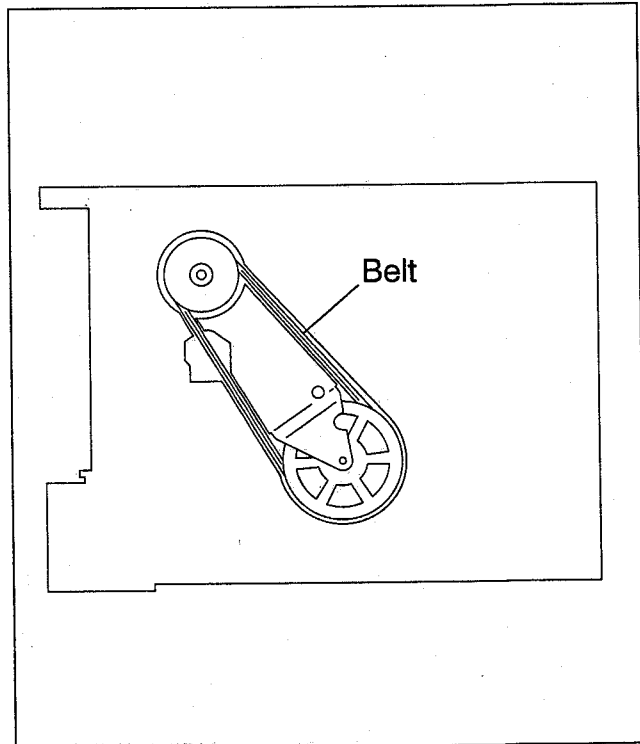


Fig.2-5-10

2.5.6 Control Bracket-1, Earth Plate

- (1) Take out 1 screw (A) and 1 screw (B).
- (2) Remove the control bracket-1 and earth plate.

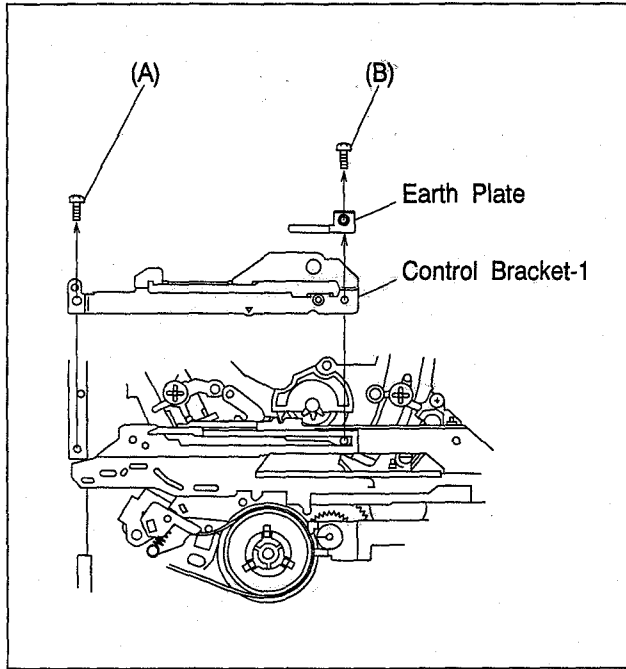


Fig.2-5-11

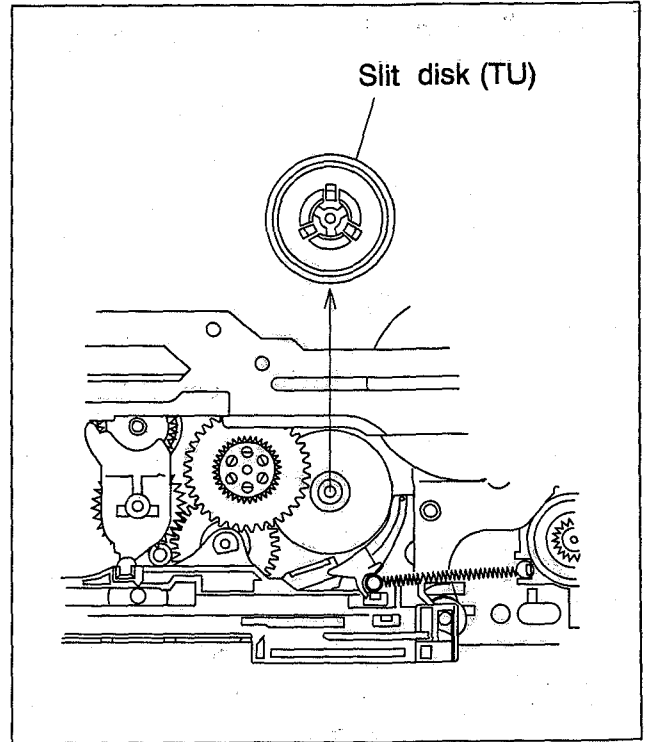


Fig.2-5-13

2.5.7 Reel Bracket, Slit disk (take-up)

- (1) Take out 2 slit washers.
- (2) Remove the reel bracket and slit disk (take-up).

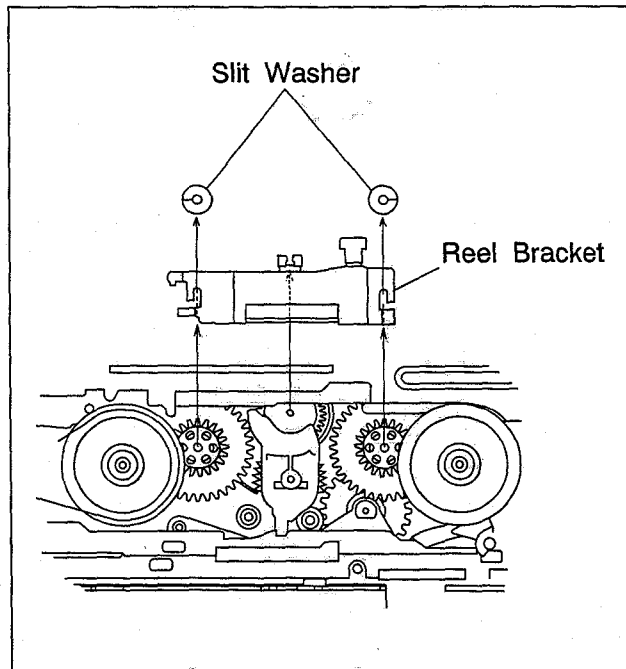


Fig.2-5-12

2.5.8 Control Bracket-2, Control Plate

- (1) Take out 1 screw (A) and remove the control bracket-2.
- (2) Take out 1 slit washer.
- (3) Disengage 2 claws and remove the control plate.

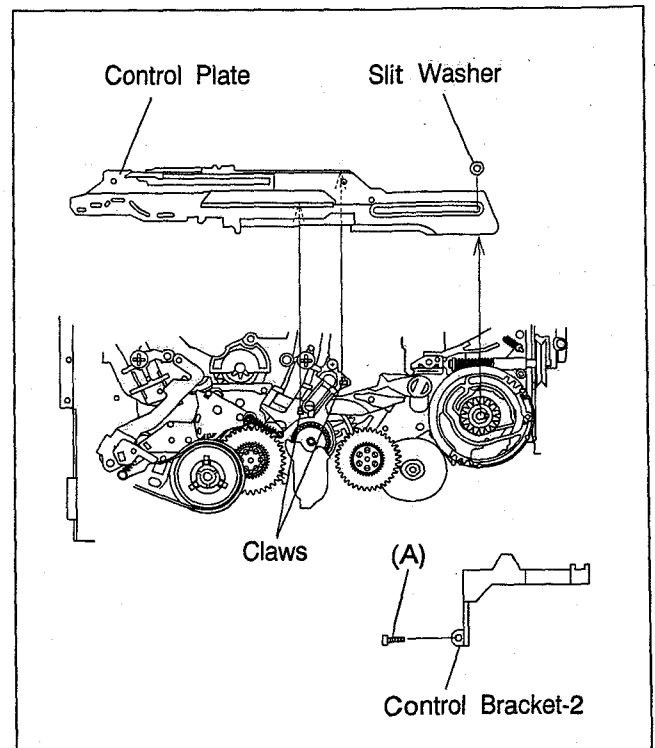


Fig.2-5-14

2.5.9 Sub Brake(take-up),Control Cam

- (1) Disengage 1 spring (a) and 1 claw then remove the sub brake (take-up).
- (2) Disengage 1 claw and remove the control cam.

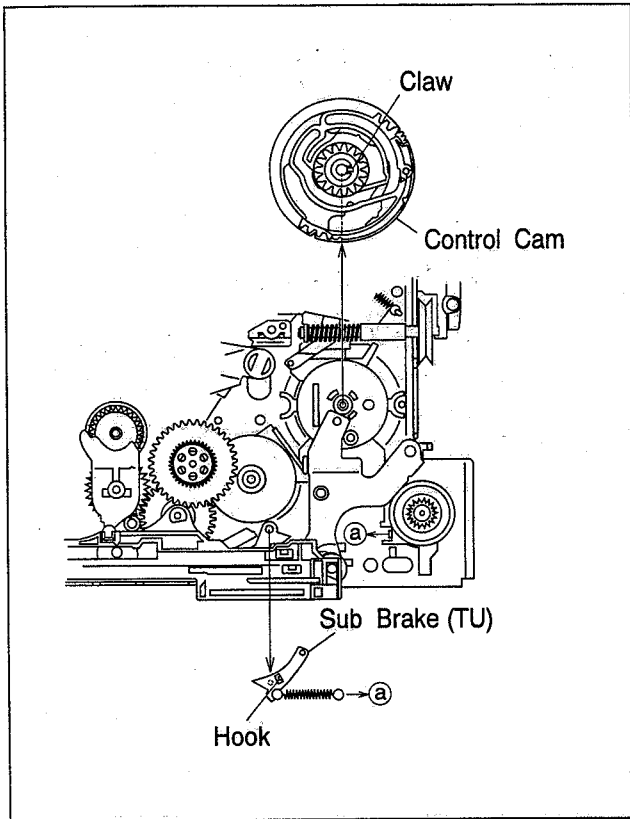


Fig.2-5-15

2.5.10 Slide Plate

- (1) Disengage 7 claws from bottom of the mechanism assy and remove the slide plate.

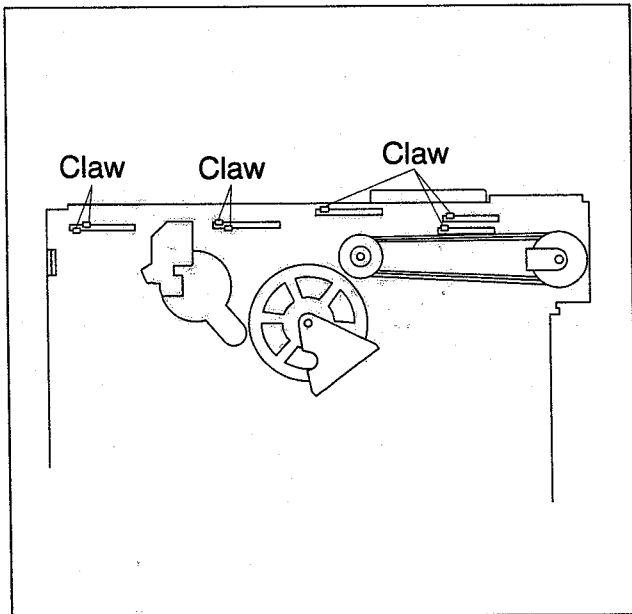


Fig. 2-5-16

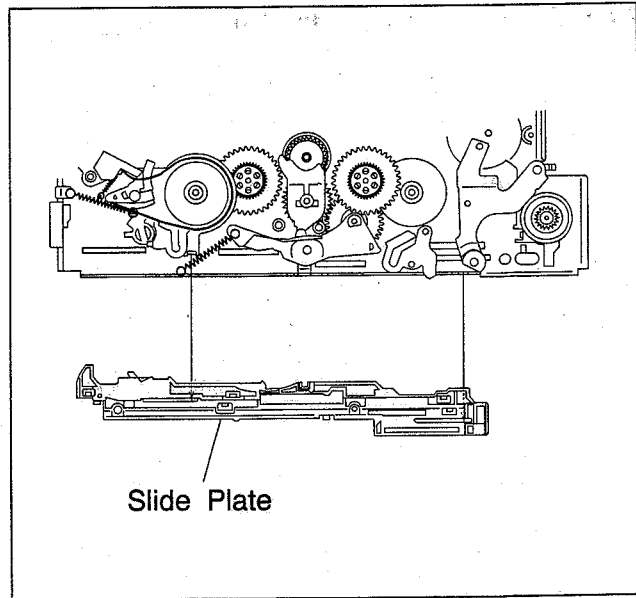


Fig. 2-5-17

2.5.11 Change Lever,Rotary Encoder

- (1) Remove the change lever.
- (2) Disengage 2 claws and remove the rotary encoder.

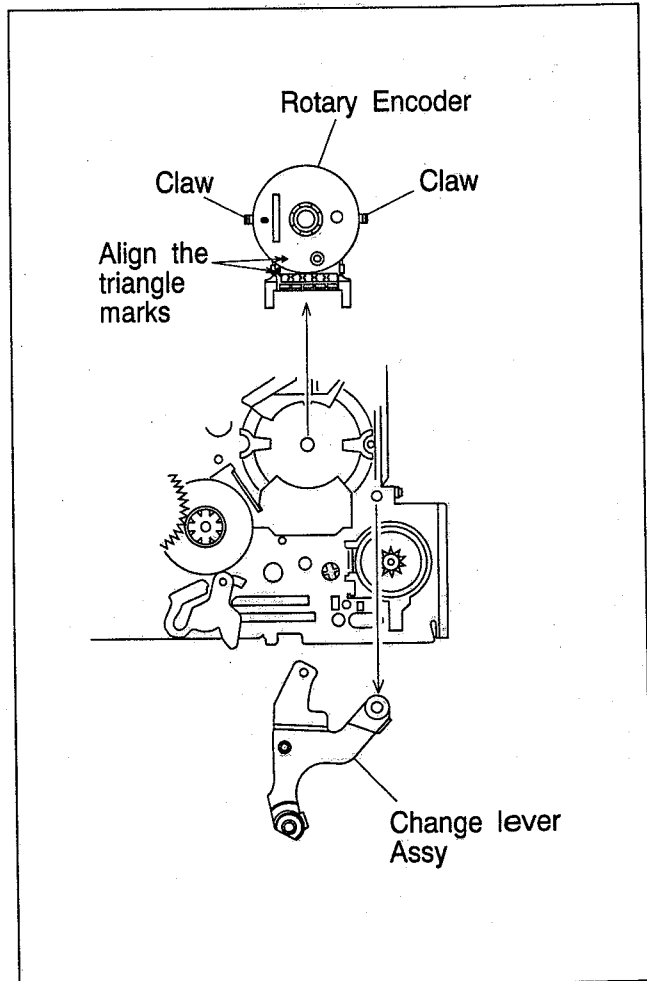


Fig. 2-5-18

2.5.12 Sub Brake (supply),Tension Band Assy,Tension Arm Assy,Take-up Lever Assy,Slit Disk(supply)

- (1) Disengage 1 spring (a).
- (2) Disengage 1 claw and remove the sub brake (supply).
- (3) Take out 1 screw (A),spring (c) and slit washer.
- (4) Remove the tension arm assy with tension band assy.
- (5) Disengage 1 spring (b) and remove the take-up lever assy.
- (6) Remove the slit disk(supply).

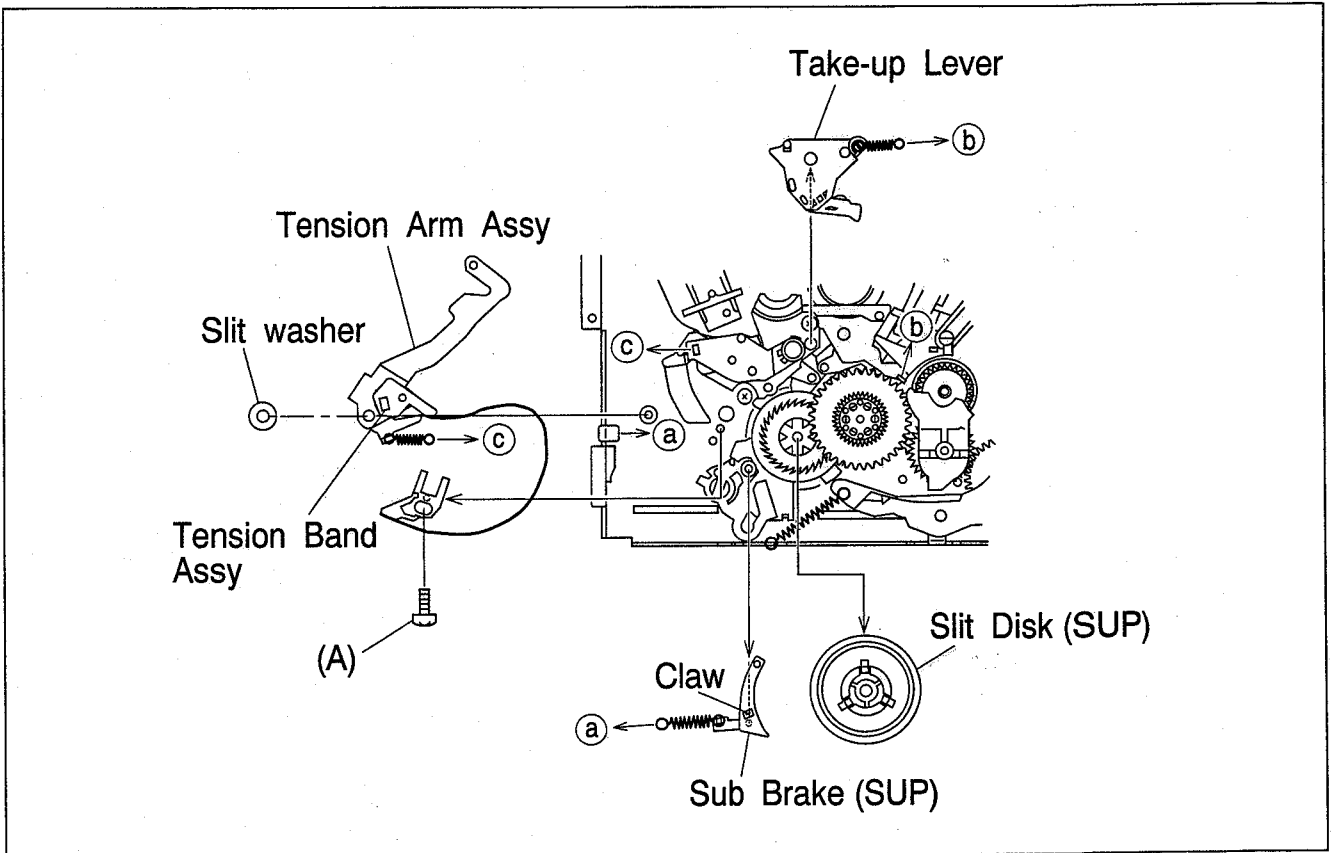


Fig. 2-5-19

2.5.13 Take-up Head,Tension Arm Lever

- (1) Remove the take-up head and tension arm lever.

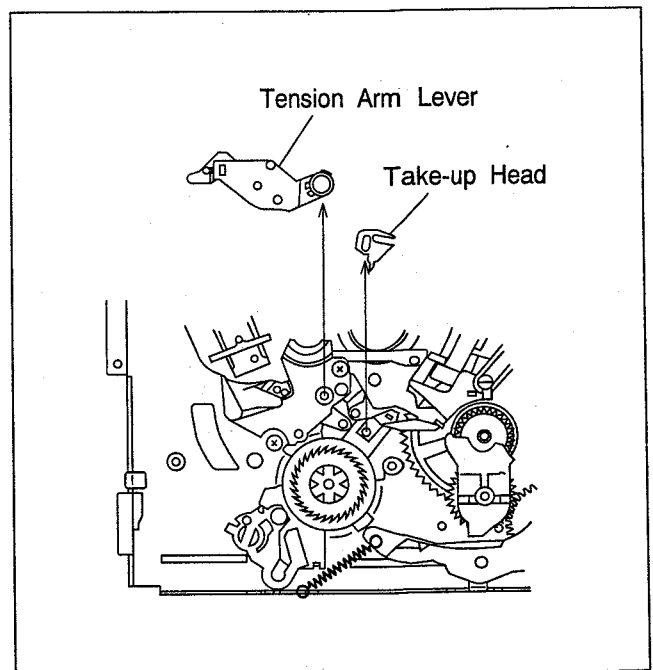


Fig.2-5-20

2.5.14 Guide Rail

- (1) Take out 5 screws (A) and 1 screw (B).
- (2) Disengage 4 claws and remove the guide rail.

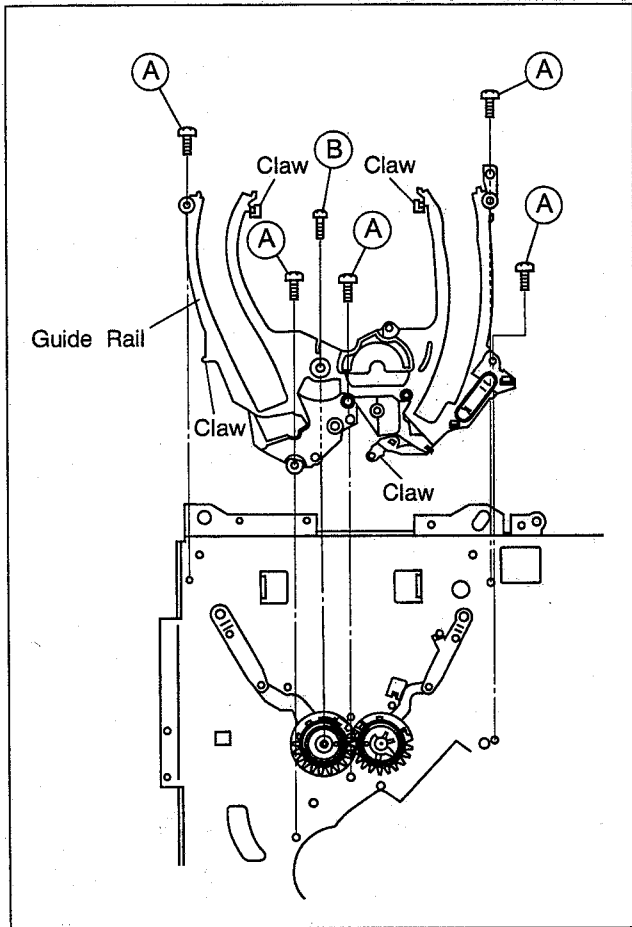


Fig. 2-5-21

2.5.15 Stator Assy

- (1) Take out 2 screws (A).
- (2) Raise the stator assy in the direction indicated by the arrow to remove it (also remove the inertia roller).
- (3) Remove the flat cable.
- (4) To reinstall, first secure the flat cable, then insert 2 screws (A).
- (5) After reinstalling, be sure to perform PB switching point adjustment (See SECTION 3 ELECTRICAL ADJUSTMENT).

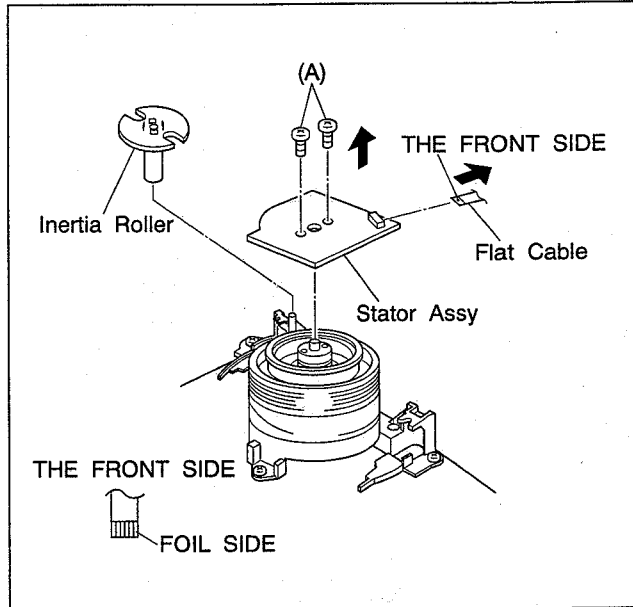


Fig. 2-5-22

NOTE : When refitting the connector, check that the flat wire is inserted correctly.

2.5.16 Rotor Assy

- (1) Remove the stator assy.
- (2) Take out 2 screws (B) and remove the rotor assy.

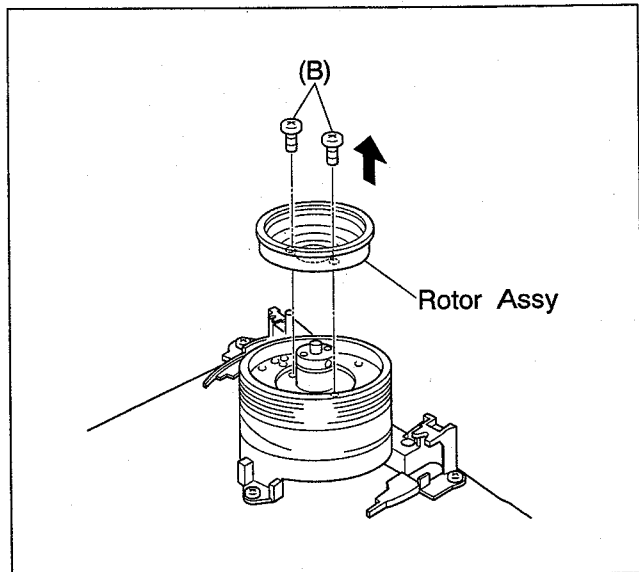


Fig. 2-5-23

- (3) Align the upper drum assy and rotor assy phase as indicated in Fig.2-5-24.
- (4) Overlap holes (a) of the upper drum assy with holes (b) of the rotor assy (align holes in 3 locations) and secure with 2 screws (B) as indicated in Fig.2-5-23.

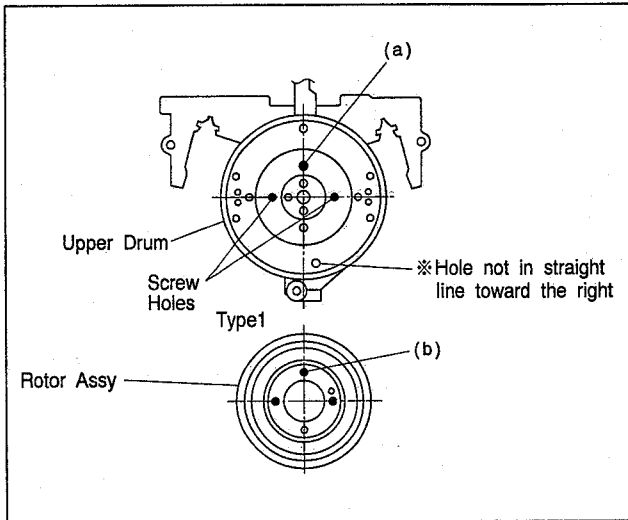


Fig. 2-5-24

2.5.17 Upper Drum Assy

1. Removal

- (1) Remove the stator assy and rotor assy.
- (2) Use a 1.5 mm hexagonal wrench to loosen the collar assy screw and remove the collar assy.
- (3) Remove the upper drum assy and use tweezers to remove the Washer.

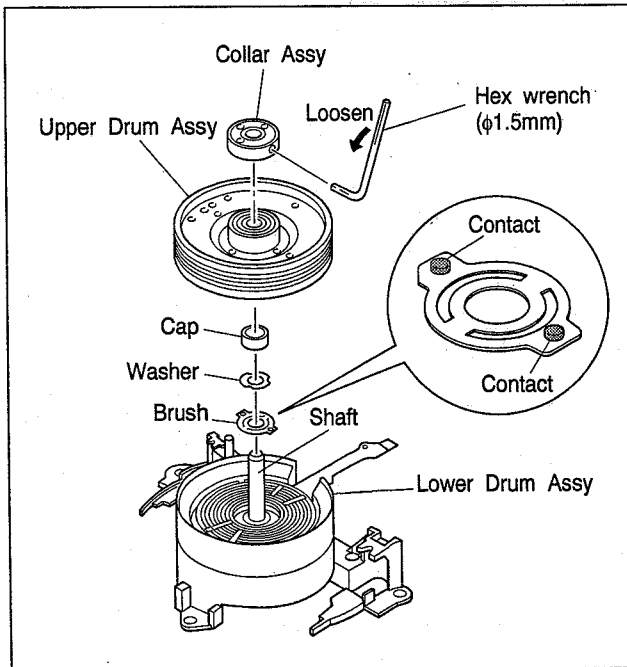


Fig. 2-5-25

NOTE : If the Brush is replaced, do not apply the grease to the contacts.

2. Installation

- (1) Use an air brush to clean the lower drum assy and the coil section of the new upper drum assy.
- (2) Set a new washer on the drum shaft as indicated in Fig.2-5-25.

NOTE : Be sure to use the new washer when replace the upper drum assy.

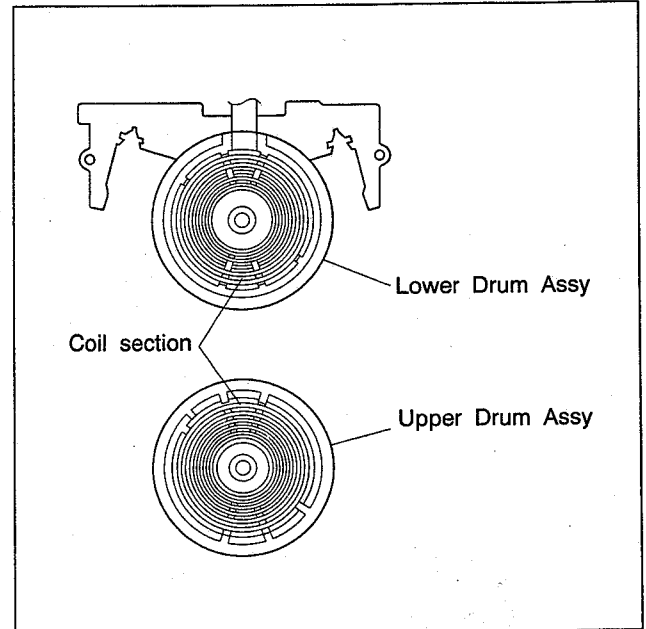


Fig.2-5-26

- (3) Note the top and bottom of the collar assy and determine the position as indicated in Fig.2-5-27.

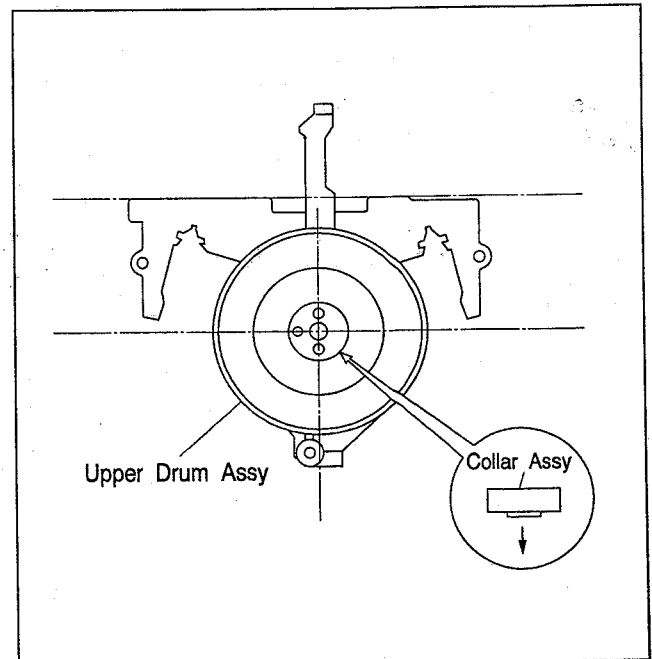


Fig.2-5-27

- (4) While pressing the collar assy evenly from above with your fingertips, secure the hexagonal screw.

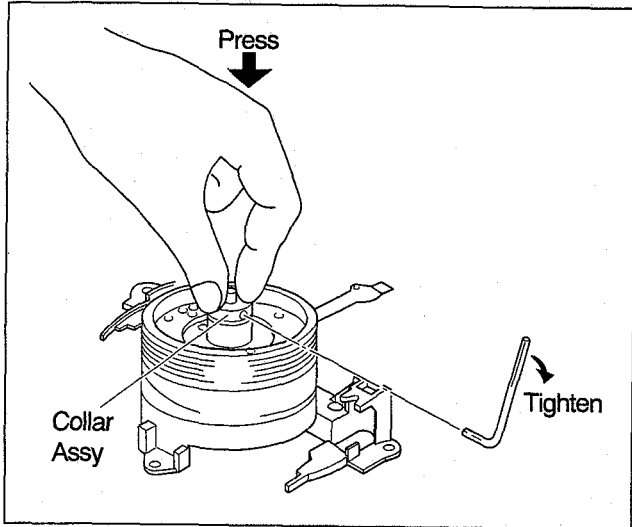


Fig.2-5-28

- (5) After installing, gently turn the upper drum by hand and confirm normal rotation.
 (6) Install the rotar assy and stator assy.
 (7) Clean the upper and lower drum assies and perform the following adjustments;
- PB switching point adjustment
 - Slow tracking preset adjustment
 - Interchangeability adjustment (be sure to check EP mode)

2.6 CHECKUP AND ADJUSTMENT OF MECHANISM PHASE

2.6.1 Precaution

The rotary encoder and syscon circuit are closely interrelated. Therefore, the rotary encoder and control cam connection determines the operations of mechanical parts such as plates, gears, brakes, etc. Correct positioning of these parts is essential for smooth tape loading and mechanical operations.

2.6.2 Loading Arm Assy (supply, take-up)

- (1) Install the supply loading arm assy and the take-up loading arm assy so that their positioning markings on the respective gear face each other and the holes of their arms correspond to the holes on the main deck assy respectively.
- (2) After setting the guide rails, engage the pole base assies with the tip of the loading arms respectively. Then, enter the mechanism into the unloading mode to return the pole base assies to the front position.
- (3) Reassemble the peripheral parts of the guide rail as originally.

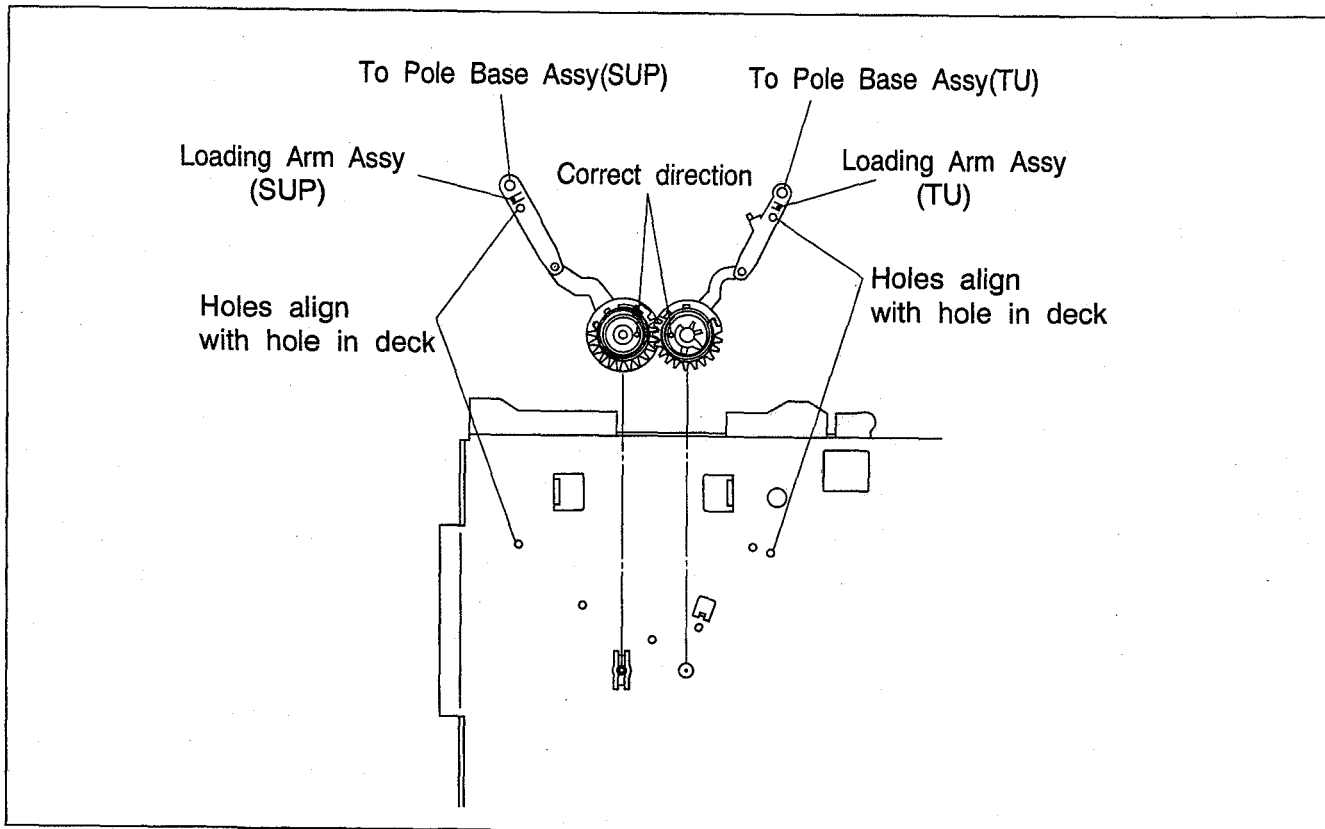


Fig.2-6-1

2.6.3 Rotary Encoder, Change Lever, Control Cam

- (1) When reinstalling the rotary encoder, adjust its position so as to fit the triangle marks each other and push it deep until it is locked by the pawls.
- (2) When reinstalling the change lever, set it so as to make its positioning hole correspond to the hole of the main deck assy.
- (3) When re-engaging the control cam, lower the capstan brake assy while setting it so as to make its positioning hole correspond to the hole of the main deck assy.

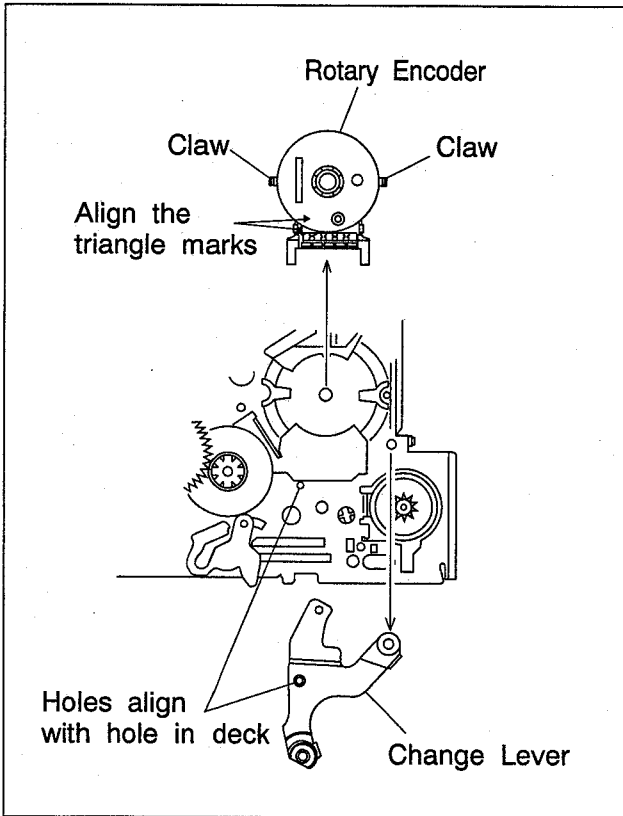


Fig. 2-6-2

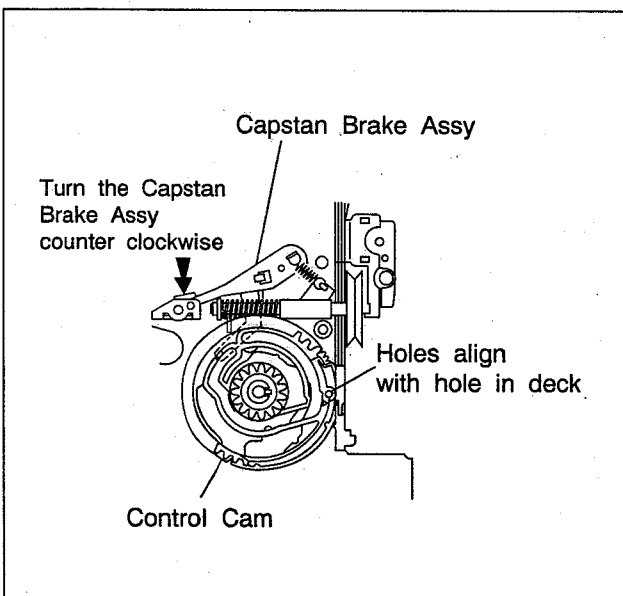


Fig. 2-6-3

2.6.4 Slide Plate

- (1) Lower both the main brake assies (supply and take-up) until they touch the edge of the main deck assy while reinstalling the slide plate so as to make the respective positioning holes of the main brake assies correspond to the holes on the main deck assy.

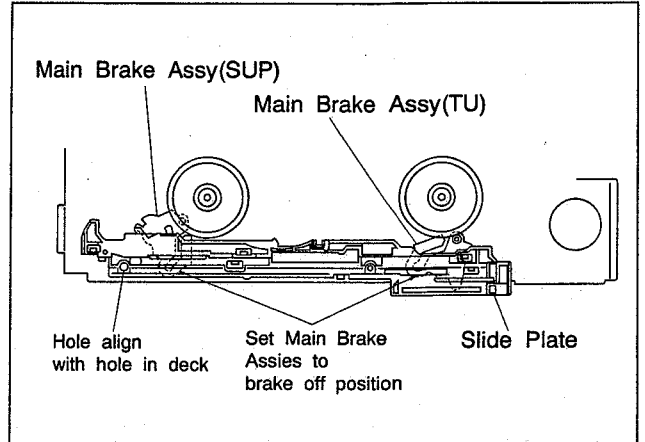


Fig.2-6-4

2.6.5 Control Plate

- (1) Reinstall the control plate so as to set the two positioning holes of it on the holes on the main deck assy respectively and to set the positioning hole of the take-up lever on the hole of the main deck at the same time. When adjusting the hole position of the take-up lever, use a pair of tweezers to hold and move it since it is pulled by a tension spring.
- (2) After reinstalling the control plate, fix it with the slit washer, control bracket-1 and -2.

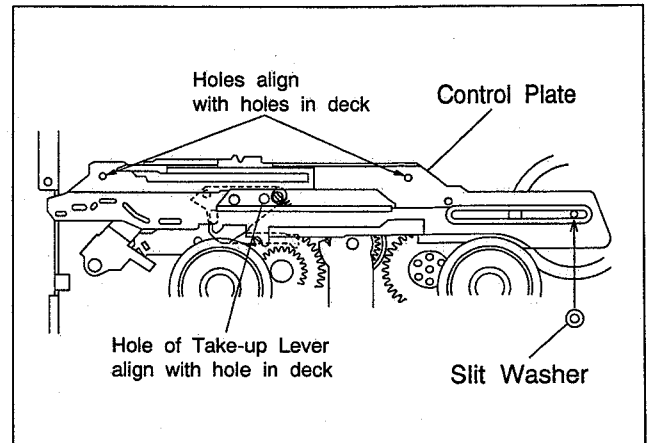


Fig. 2-6-5

2.7 TAPE INTERCHANGEABILITY ADJUSTMENT

- NOTE :**
- This adjustment is extremely important. However, it is normally not required during routine service. Perform only after replacing major components(A/C head,upper/lower drum assy,pole base assy,etc).
 - Before using costly alignment tape,use a spare tape and confirm correct operation of the tape transport.

2.7.1 Tape pattern

- (1) Connect the oscilloscope to TP6(PB FM) on the PRE/REC board.Use TP11(D.FF) on the PRE/REC board as a trigger.
- (2) Playback the SP stairstep portion of the alignment tape [MHP].Confirm that the FM waveform appears as indicated in Fig.2-7-1.
- (3) Set the manual tracking position by simultaneously pressing the CH "-" and "+" buttons.
- (4) Operate the tracking adjustment (press the CH buttons during playback) and set for maximum playback FM waveform.
- (5) By operating the CH button, vary the FM waveform from maximum to minimum and vice versa to confirm that the waveform varies nearly in a flat shape as shown in Fig.2-7-1.
- (6) When the FM waveform does not remain flat during this process,first slightly loosen the set screw located at the bottom of the guide rollers.Using the guide roller adjustment tool (Roller driver) ,adjust the supply and take-up guide rollers (refer to Fig.2-7-2) to obtain the correct waveform as indicated in Fig.2-7-3.
- (7) By pressing the CH buttons several times, vary the FM waveform output from maximum to minimum (and vice versa) gradually,and confirm that the variation proceeds in flat shape, as shown in Fig.2-7-3.
- (8) Next playback the EP stairstep portion of the alignment tape [MHP-L] and adjust the tracking control from maximum to minimum the FM waveform,confirm that FM waveform variation is always flat.
- (9) Record the signal and play it back in both of the SP and EP mode,confirm that the FM waveform is flat in both mode.
- (10) After adjustments,tighten the set screw of the guide rollers.
- (11) Confirm that the tape wrinking does not occur at the roller upper or lower limits as indicated in Fig.2-7-4.

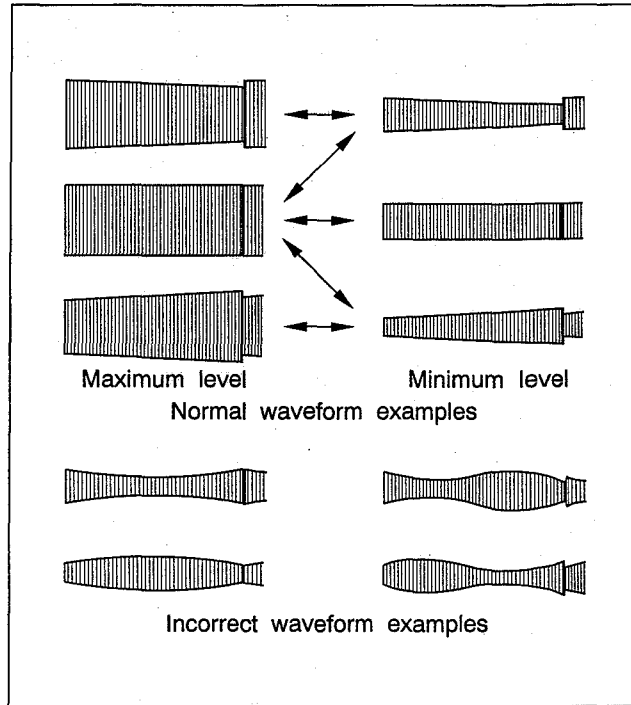


Fig. 2-7-1

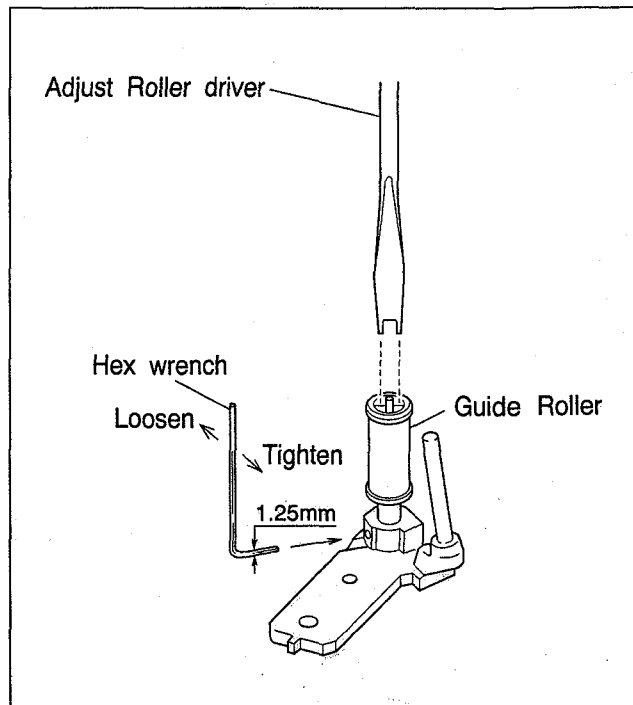


Fig. 2-7-2

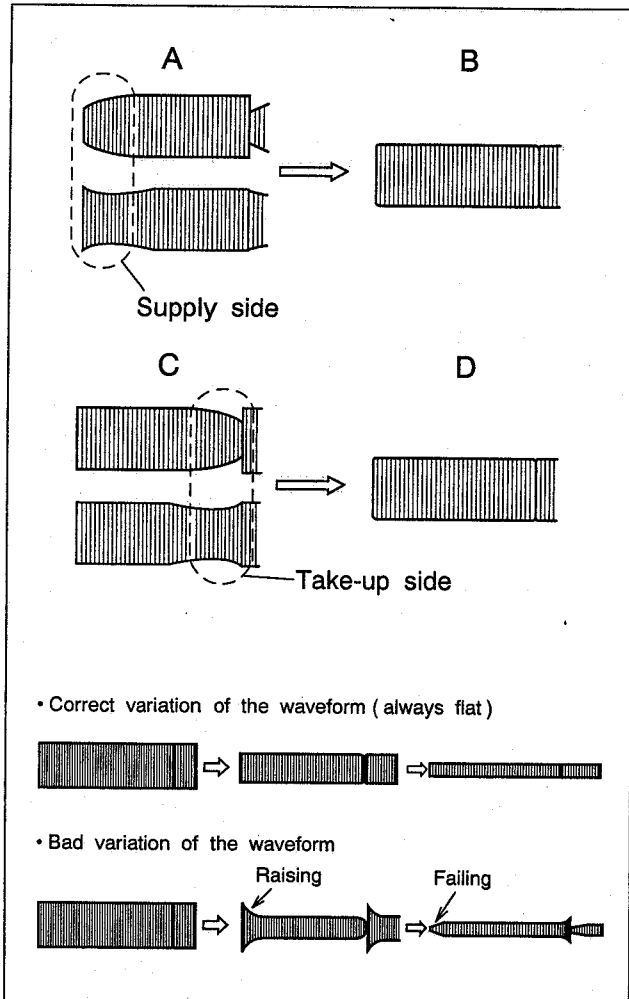


Fig. 2-7-3

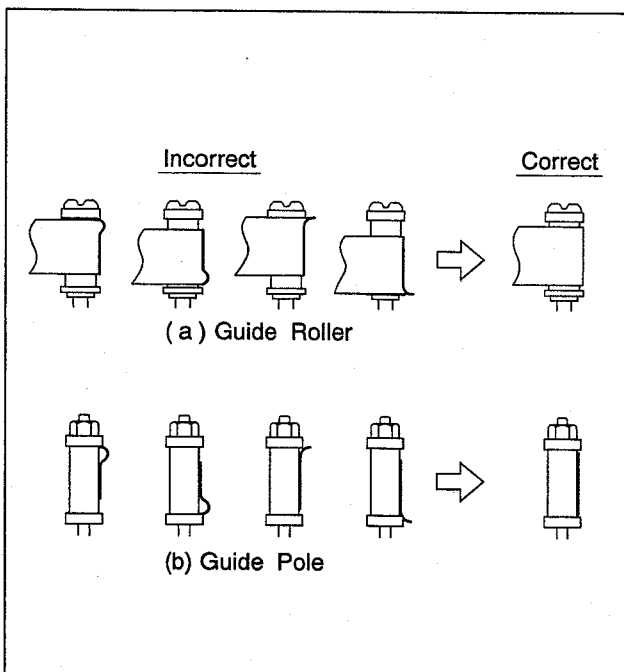


Fig. 2-7-4

2.7.2 A/C head height & azimuth

- NOTE :**
- Temporarily set A/C head height as indicated in Fig. 2-5-4.
 - Use spare tape to check the transport and confirm the tape is not scratched or damaged.

1. Tilt

- (1) Use spare tape and set for playback.
- (2) Turn screw (3) clockwise to where the tape curls just slightly at the TU guide pole bottom flange as shown in Fig.2-7-5.
- (3) Then slowly turn screw (3) counterclockwise to where the curling ceases.

2. Height

- (1) Connect CH-1 of a dual trace oscilloscope to Audio Out.
- (2) Connect CH-2 to TP401(CTL PULSE) of the Main board assy and use the ALT mode.
- (3) Playback the SP stairstep portion of the alignment tape [MHP].
- (4) Adjust screws (1),(2) and (3) for maximum audio output and control pulse level.

3. Azimuth

- (1) Connect the oscilloscope to Audio Out.
- (2) Playback the SP stairstep portion of the alignment tape [MHP].
- (3) Adjust screw (2) so that the audio output is both maximum and with minimum fluctuation.

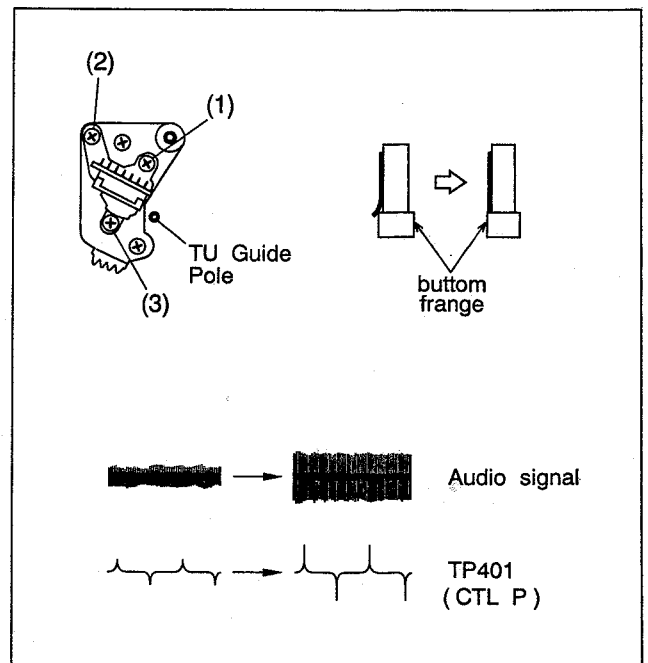


Fig. 2-7-5

2.7.3 A/C head phase(X-value)

- (1) Connect the oscilloscope to TP6(PB FM) on the PRE/REC board. Use TP11(D.FF) on the PRE/REC board as a trigger.
- (2) Playback the SP stairstep portion of the alignment tape [MHP].
- (3) Set the neutral manual tracking position by simultaneously pressing the CH "-" and "+" buttons.
- (4) If adjustment is required, slightly loosen screws (4) and (5). Set A/C head positioning tool on the A/C head adjusting boss as indicated in Fig.2-7-6.
- (5) Turn the tool first to position the A/C head fully toward the capstan. Then gradually return it toward the drum and stop at the position of maximum FM waveform output level as shown in Fig.2-7-7.
- (6) Tighten screw (5). Remove the tool and tighten screw (4).
- (7) Eject the SP alignment tape [MHP] and then re-insert the EP alignment tape [MHP-L].
- (8) Playback the EP stairstep portion of the alignment tape [MHP-L].
- (9) Set the neutral manual tracking position by simultaneously pressing the CH "-" and "+" buttons.
- (10) Confirm maximum playback FM waveform output level as shown in Fig.2-7-7.
- (11) If not maximum, slightly loosen the screws (4) and (5). Use the tool and adjust the head position for the nearest maximum point. Then tighten screws (4) and (5).

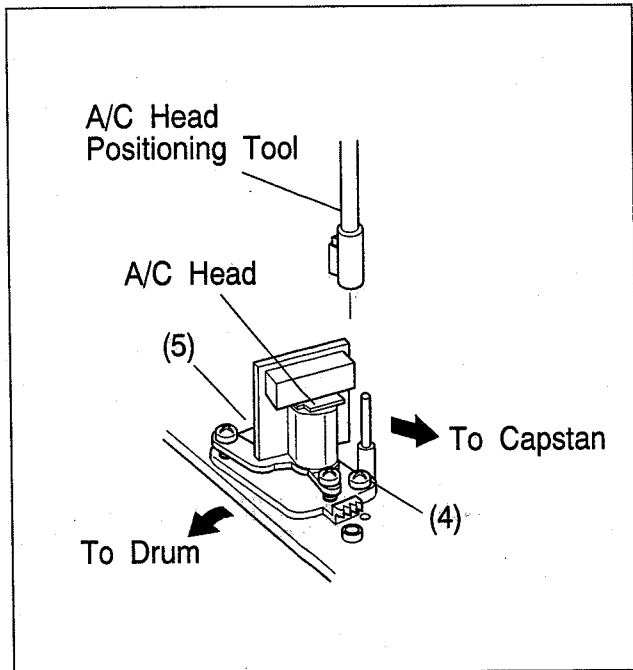


Fig. 2-7-6

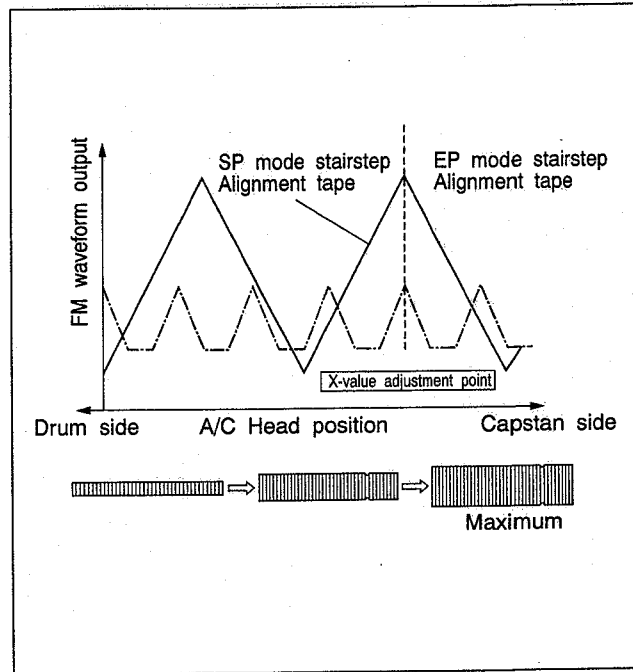


Fig. 2-7-7

2.7.4 EP mode auto tracking

NOTE : Set VCR to the mode A by remote controller.

- (1) Playback the EP stairstep portion of the alignment tape [MHP-L].
- (2) Confirm that the Automatic tracking indication [AT] stops flashing and remains on.
- (3) Press the "D" button on the presetting unit [PTU94008] to turn off the Automatic tracking indication [AT].
- (4) Press the "D" button again to change the mode to the EP interchangeability adjustment mode and confirm that Automatic tracking indication [AT] stops flashing and goes off.
- (5) If the alignment tape ejects automatically, repeat the A/C head phase adjustment (X-value).

2.7.5 Tension pole position

- (1) Set for playback mode using MECHANISM SERVICE MODE(See SECTION 1 DISASSEMBLY).
- (2) Slightly loosen the screw (A) .
- (3) Turn the adjust pin so that the tension arm assy does not touch $\phi 2.5$ pole on the outside.
- (4) Tighten the screw (A).
- (5) After adjustment,use the back tension cassette gauge and set for the playback mode.
- (6) Confirm reading of 29 to 46 g•cm.

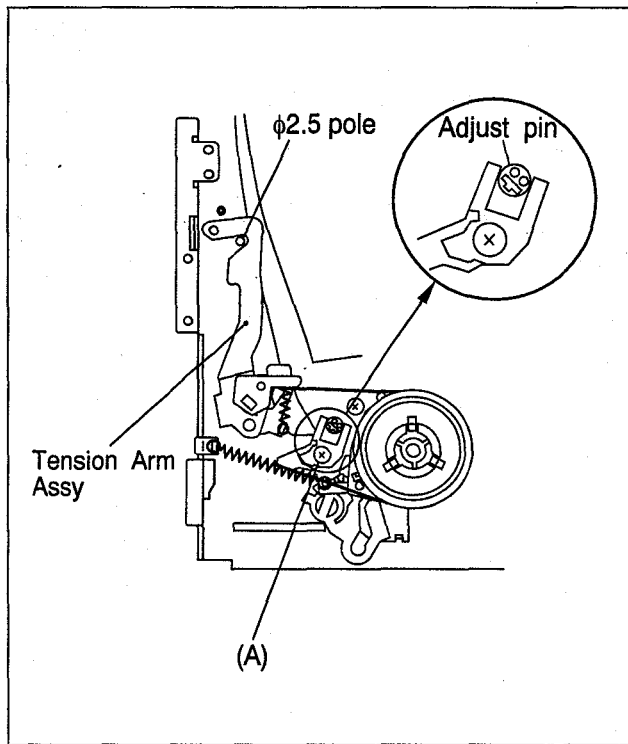


Fig. 2-7-8

2.7.6 Take-up torque

- (1) Use the back tension cassette gauge and set for the playback mode.
- (2) Confirm reading of 60 to 100 g•cm.

SECTION 3 ELECTRICAL ADJUSTMENT

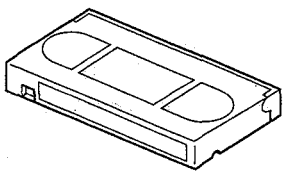
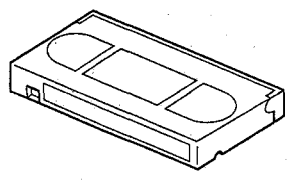
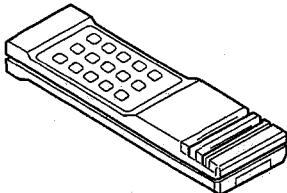
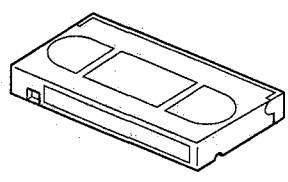
3.1 PRECAUTION

Electrical adjustment are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also do not attempt these adjustments unless the proper equipments is available.

3.1.1 Required test equipment

- ① Color television or monitor
- ② Oscilloscope: wide-band, dual-trace, triggered delayed sweep
- ③ Frequency counter
- ④ Digital voltmeter
- ⑤ Signal generator: RF/IF sweep/maker
- ⑥ Signal generator: NTSC color bar, stairstep
- ⑦ Recording tape
- ⑧ Digit-key remote controller(provided)

3.1.2 Required adjustment tools

Alignment tape (SP, stairstep) MHP	Alignment tape (SP, color bar) MHV-2
	
Presetting unit PTU94008	Alignment tape (S-VHS SP/EP color bar) MH-1H
	

3.1.3 Color bar signal, color bar pattern

- Color bar signal

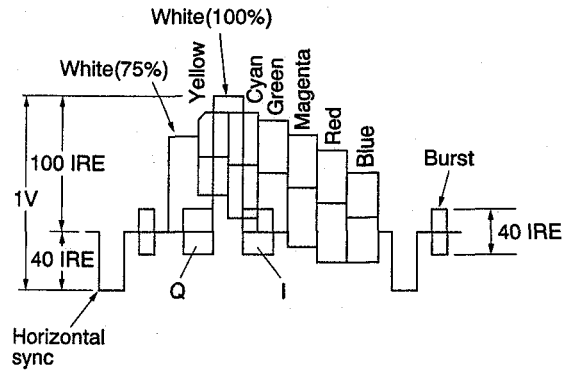


Fig.3-1-1 Color bar signal waveform

- Color bar pattern

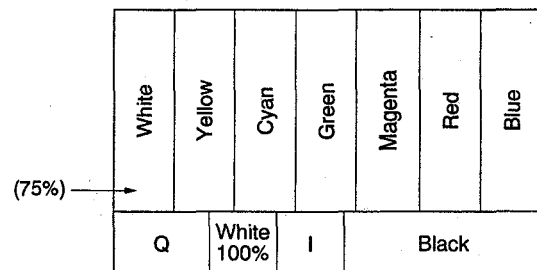


Fig.3-1-2 Color bar pattern

3.2 SWITCHING REGULATOR CIRCUIT

Note: • Unless otherwise specified, all measurement points and adjustment parts are located on the MAIN BOARD.

3.2.1 5V DC output voltage

Signal	•AUX •TUNER
Mode	•REC : SP
Equipment	•Digital voltmeter
Measurement point	•B201 (SWD 5V)
Adjustment part	•R885 (SWD 5V)
Specification	•5.22 ± 0.10V DC

- (1) Connect a digital voltmeter to B201 (left of the R885) and GND.
- (2) Adjust R885 for 5.22 ± 0.10V DC.

3.3 SERVO CIRCUIT

Notes: • Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.

- Set VCR to the mode A by remote controller.
- Use only buttons "E" and "F", depressing other buttons during adjustment may cause adjustment errors.

3.3.1 PB switching point

Signal	•Alignment tape [MHP], Stairstep
Mode	•PB, Automatic tracking OFF
Equipment	•Oscilloscope
Measurement point	•VIDEO OUT TERMINAL
Trigger slope (-)	•TP11(DRUM FF) , [PRE/REC BOARD]
Adjustment tool	•Presetting unit [PTU94008]
Specification	•6.5 ± 0.5H

- (1) Connect an oscilloscope to VIDEO OUT TERMINAL and external trigger from TP11 (negative slope).
- (2) Playback the stairstep signal of the alignment tape.
- (3) Set the tracking control to the center position by simultaneously pressing the CH "+" and "-" buttons.
- (4) Adjust by pressing "E" or "F" buttons of presetting unit for position the trigger point 6.5 ± 0.5 H from V.sync.
- (5) Depress the STOP button.

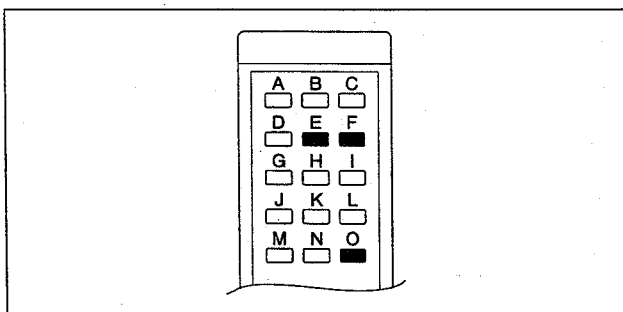


Fig.3-3-1 Presetting unit

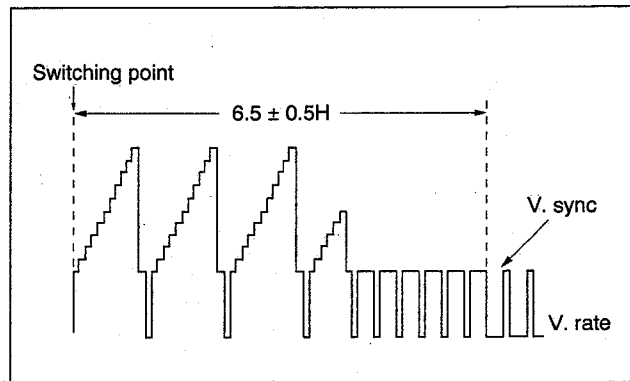


Fig.3-3-2 PB switching point

Alternate method

- (1) Playback the stairstep signal of the alignment tape.
- (2) Press the "O" button of the presetting unit.
- (3) Confirm that VCR mode becomes STOP mode.

3.3.2 Slow tracking preset

Signal	•Tuner or color bar
Mode	•SP/EP, REC → PB(SLOW) Automatic tracking OFF
Equipment	•TV-Monitor
Adjustment tool	•Presetting unit [PTU94008]
Specification	•Minimum noise

Notes: • Set VCR to the mode A by remote controller.
• Use only buttons "B" and "C", depressing other buttons during adjustment may cause adjustment errors.

- (1) Record a color bar signal in the SP mode.
- (2) Playback recorded signal on the FWD slow mode.
- (3) Set the tracking control to the center position by simultaneously pressing the CH "+" and "-" buttons.
- (4) Observe the display on the TV monitor and adjust for optimum noise condition (best tracking) by depressing "B" or "C" buttons of the presetting unit.
- (5) Depress the STOP button.
- (6) Confirm that the bar noise is not visible on the TV monitor in the slow mode.
- (7) Repeat steps (2) to (6) in REV slow mode.
- (8) Repeat steps (1) to (7) in EP mode.

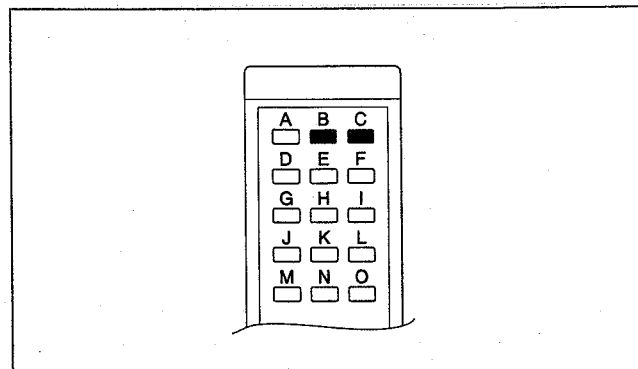


Fig.3-3-3 Presetting unit

3.4 VIDEO CIRCUIT

- Notes:**
- Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.
 - VIDEO circuit adjustments are performed by the EVR system by use of the presetting unit and digit-key remote controller.
 - S-INPUT means Y/C separated video signal in the chart.
 - Set VCR to the mode A by remote controller.
 - Set DYNAMIC CONTRAST to off mode. (HR-S7200U only)

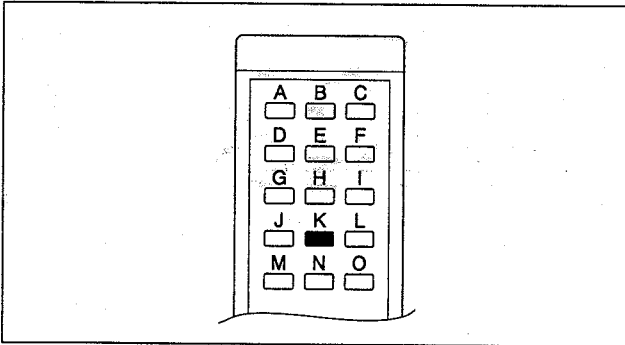


Fig.3-4-1 Presetting unit

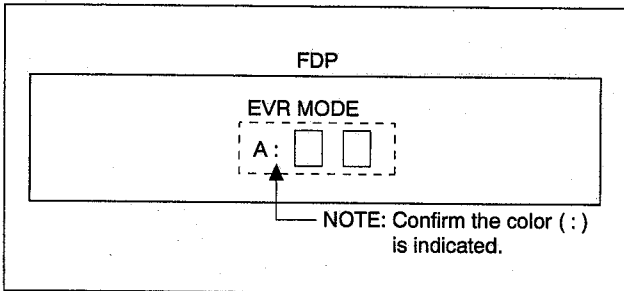


Fig.3-4-2 EVR mode

3.4.1 AGC Y LEVEL

Signal	• Color bar
Mode	• EE • S-VHS
Equipment	• Oscilloscope
Measurement point	• VIDEO OUT TERMINAL
Adjustment tool	• Presetting unit [PTU94008], Digit-key remote controller
EVR mode	• A : 11
Specification	• $1.00 \pm 0.03V_{p-p}$ (terminated)

- (1) Connect an oscilloscope to VIDEO OUT TERMINAL.
- (2) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
- (3) Set "A : 11" pressing 1 digit key twice of the remote controller.
- (4) Adjust CH "-" or "+" button for $1.00 \pm 0.03 V_{p-p}$.
- (5) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.

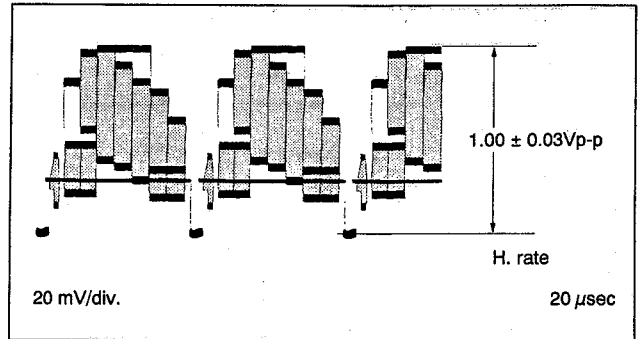


Fig. 3-4-3 EE Y level

3.4.2 WHITE/DARK CLIP (S-VHS/VHS)

Signal	• Color bar
Mode	• EE • S-VHS/VHS
Equipment	• Oscilloscope
Measurement point	• CN202 pin 8 (W/D CLIP)
Adjustment tool	• Presetting unit [PTU94008], Digit-key remote controller
EVR mode	• A : 14
Specification	• WHITE CLIP : $110 \pm 4\%$ (S-VHS) $90 \pm 4\%$ (VHS) DARK CLIP : $70 \pm 8\%$ (S-VHS) $45 \pm 8\%$ (VHS)

- (1) Connect an oscilloscope to CN202 pin 8.
- (2) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
- (3) Set "A : 14" pressing 1 and 4 digit keys of the remote controller.
- (4) Adjust CH "-" or "+" button for $110 \pm 4\%$ (S-VHS), $90 \pm 4\%$ (VHS) white clip and $70 \pm 8\%$ (S-VHS), $45 \pm 8\%$ (VHS) dark clip as shown in Fig.3-4-4.
- (5) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.

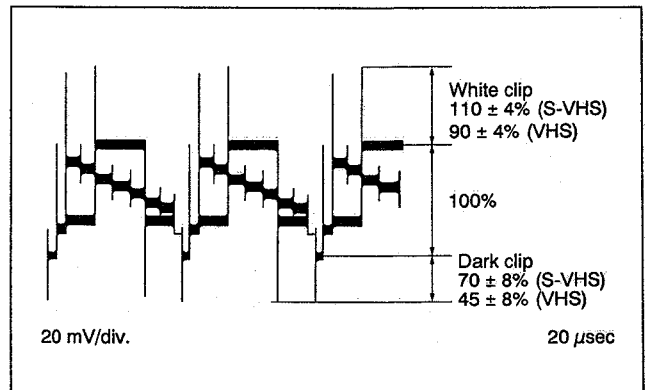


Fig.3-4-4 White/dark clip

3.4.3 SUB EMPHASIS INPUT LEVEL

Signal	• Color bar
Mode	• EE • S-VHS
Equipment	• Oscilloscope
Measurement point	• CN202 pin 17 (SUB EMPHASIS)
Adjustment tool	• Presetting unit [PTU94008], Digit-key remote controller
EVR mode	• A : 15
Specification	• 400 ± 20 mVp-p

- (1) Connect an oscilloscope to CN202 pin 17.
- (2) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
- (3) Set "A : 15" pressing 1 and 5 digit keys of the remote controller.
- (4) Adjust CH "-" or "+" button of the remote controller for 400 ± 20 mVp-p.
- (5) Set normal VCR mode by pressing "K" button of the pre-setting unit again so adjustment data is memorized.

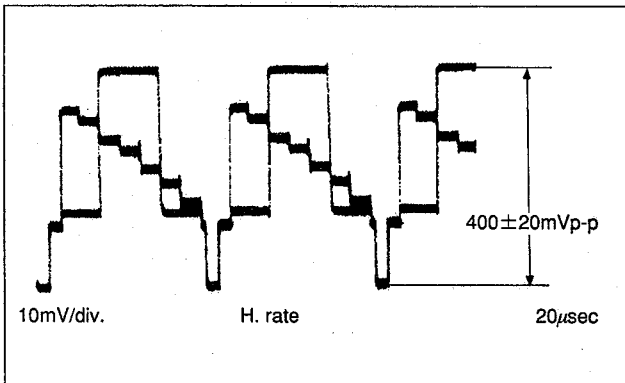


Fig. 3-4-5 Sub emphasis input level

3.4.4 PB Y LEVEL (S-VHS/VHS)

Signal	• Alignment tape [MHV-2, MH-1H], • Color bar
Mode	• PB
Equipment	• Oscilloscope
Measurement point	• VIDEO OUT TERMINAL
Adjustment tool	• Presetting unit [PTU94008], Digit-key remote controller
EVR mode	• A : 11
Specification	• 1.00 ± 0.03 Vp-p (terminated)

- (1) Connect an oscilloscope to VIDEO OUT TERMINAL.
- (2) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
- (3) Set "A : 11" pressing 1 digit key twice of the remote controller.
- (4) Playback the color bar signal of the alignment tape. (MH-1H and MHV-2)
- (5) Adjust CH "-" or "+" button for 1.00 ± 0.03 Vp-p as shown in Fig.3-4-6.
- (6) Set normal VCR mode by pressing "K" button of the pre-setting unit again so adjustment data is memorized.

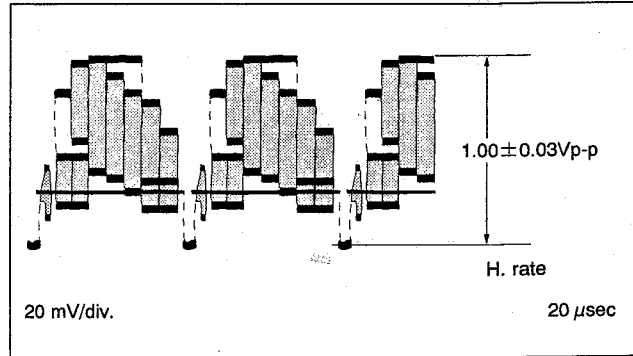


Fig.3-4-6 PB Y level

3.4.5 SP/EP REC COLOR LEVEL

Signal	• Alignment tape [MH-1H]Color bar
Mode	• PB (SP/EP) • REC → PB : SP/EP • S-VHS
Equipment	• Oscilloscope
Measurement point	• PB color out
Trigger slope (-)	• TP11 (DRUM FF) [PRE/REC board]
Adjustment tool	• Presetting unit [PTU94008], Digit-key remote controller
EVR mode	• A : 2
Specification	• "B" x $130 \pm 5\%$: SP • "B" x $100 \pm 5\%$: EP

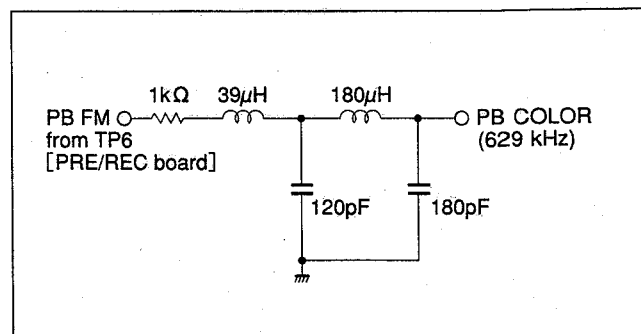


Fig. 3-4-7 LPF

- (1) Use a LPF as shown in Fig. 3-4-7.
- (2) Playback the SP (EP) color bar signal of MH-1H alignment tape.
- (3) Set the tracking of the Front panel to the Auto tracking off position by simultaneously pressing the CH "-" and "+" buttons.
- (4) Adjust by pressing the CH "-" or "+" buttons of the Front panel for maximum level of the color waveform and make a note of the higher color level "B".
- (5) Press the STOP/EJECT button and eject the MH-1H alignment tape.
- (6) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
- (7) Set "A : 2" by pressing 2 numeric key of the remote controller.
- (8) Record a color bar signal in SP (EP) mode, and playback recorded color bar signal.
- (9) Before recording, adjust CH "-" or "+" button of the remote controller so that the higher level channel becomes $130 \pm 5\%$: SP ($120 \pm 5\%$: EP) of the note "B" level during playback as shown in Fig. 3-4-8.
- (10) Set normal VCR mode by pressing "K" button again so adjustment data is memorized.

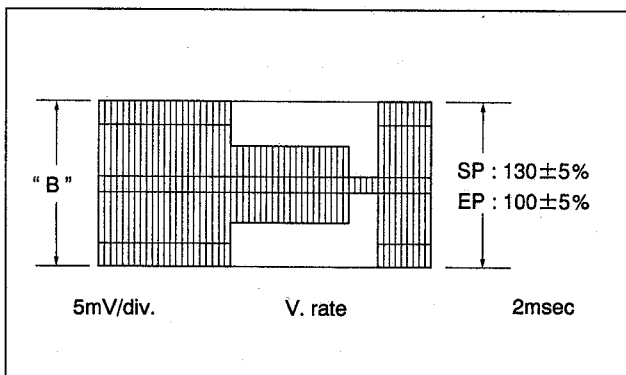


Fig. 3-4-8 REC color level

3.4.6 S-VHS VIDEO EQ

Signal	<ul style="list-style-type: none"> • S INPUT • Video sweep
Mode	<ul style="list-style-type: none"> • REC → PB : SP/EP • S-VHS • AUto tracking : OFF
Equipment	<ul style="list-style-type: none"> • Oscilloscope
Measurement point	<ul style="list-style-type: none"> • Y OUT TERMINAL
Adjustment part	<ul style="list-style-type: none"> • R113 (S-SP VIDEO EQ) [PRE/REC board] • R114 (S-EP VIDEO EQ) [PRE/REC board]
Specification	<ul style="list-style-type: none"> • 3.2 ± 0.2 scale R113 : SP • 2.8 ± 0.2 scale R114 : EP

- (1) Connect an oscilloscope to Y OUT TERMINAL.
- (2) Record a video sweep signal in S-VHS SP mode, then play it back.
- (3) If the sweeper's 100 kHz marker frequency is for 4 scale divisions on the oscilloscope screen, adjust R113 so that 3.58 MHz marker level becomes 3.2 ± 0.2 scale divisions.
- (4) Record a video sweep signal in S-VHS EP mode, then play it back.
- (5) If the sweeper's 100 kHz marker frequency is for 4 scale divisions on the oscilloscope screen, adjust R114 so that 3.58 MHz marker level becomes 2.8 ± 0.2 scale divisions.

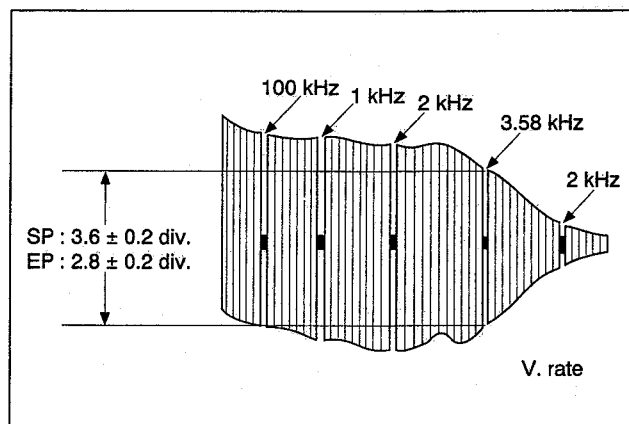


Fig. 3-4-9 S-VHS VIDEO EQ

Alternate method

- (1) Record a color bar signal in S-VHS SP mode,
- (2) Play it back to observe the picture and adjust R113 for best resolution, without impaired S/N.
- (3) So after adjustment, confirm black or white spot.
- (4) Record a color bar signal in S-VHS EP mode.
- (5) Play it back to observe the picture and adjust R114 for best resolution, without impaired S/N.
- (6) So after adjustment, confirm black or white spot.

3.4.7 AFC CLOCK

Note: For the following adjustments, use 1 : 1 probe with input capacitance less than 100 pF.

Signal	<ul style="list-style-type: none"> • No signal
Mode	<ul style="list-style-type: none"> • EE • AUX
Equipment	<ul style="list-style-type: none"> • Frequency counter
Measurement point	<ul style="list-style-type: none"> • TP301 round (Fh) or IC305 pin 15
Adjustment part	<ul style="list-style-type: none"> • R309 (Fh)
Specification	<ul style="list-style-type: none"> • 15.73 ± 0.10 kHz

- (1) Connect the frequency counter to TP301 round and GND.
- (2) Adjust R309 for 15.73 ± 0.10 kHz.

3.5 ON SCREEN CIRCUIT

- Notes:**
- Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.
 - Set VCR to the mode A by remote controller.

3.5.1 Dot clock

Signal	• Color bar or tuner
Mode	• EE
Equipment	• TV-monitor
Adjustment tool	• Presetting unit [PTU94008]
Specification	• Charactor center

- (1) Press the MENU button and display the onscreen character.
- (2) Observe TV-monitor and center position of character by pressing "H" button of the presetting unit.

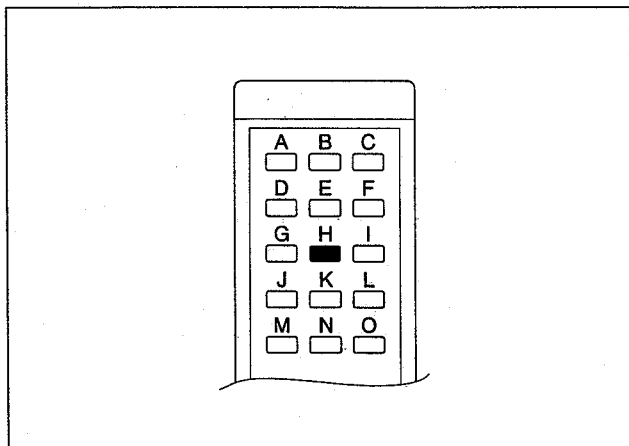


Fig.3-5-1 Dot clock

3.6 SYSCON CIRCUIT

- Notes:**
- Unless otherwise specified, all measurement point and adjustment parts are located on the MAIN BOARD.
 - When performing this adjustment, remove the MECHANISM assy.

3.6.1 Timer clock

Signal	• No signal
Mode	• EE
Equipment	• Frequency counter
Measurement point	• IC601 pin 64
Adjustment part	• C601 (TIMER CLOCK)
Specification	• 1024.008 ± 0.001 Hz [976.5549 ± 0.0010 usec]

- (1) Connect the frequency counter to IC601 pin 64 and GND.
- (2) Connect the short wire between IC601 pin 33 and IC601 pin 63.
- (3) Short the leads of capacitor C610 once in order to reset IC601.
- (4) Disconnect the short wire then connect it again quickly.
- (5) Adjust C601 for 1024.008 ± 0.001 Hz.
(976.5549 ± 0.0010 usec)

3.7 AUDIO CIRCUIT

- Note:** Unless otherwise specified, all measurement point and adjustment parts are located on the PRE/REC BOARD.

Signal	• AUX • VIDEO : Color bar • Audio : No signal
Mode	• REC → PB : EP • S-VHS
Equipment	• Oscilloscope
Measurement point	• TP53 (A. PB FM)
Trigger slope (-)	• TP11 (DRUM FF)
Adjustment part	• R216 (A. REC FM LEVEL)
Specification	• 90 ± 10 mVp-p

- (1) Connect an oscilloscope to TP53.
- (2) Record a color bar signal without an audio signal in S-VHS EP mode then playback.
- (3) Adjust R216 for 90 mVp-p playback level of higher channel level before recording.
- (4) Confirm that the lower channel level is more than 60 mVp-p.

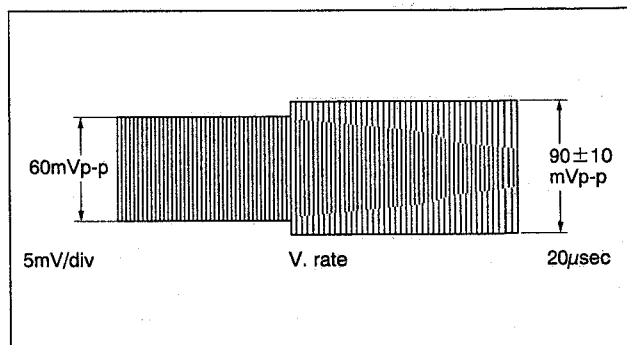


Fig. 3-7-1 Audio REC FM level

3.7.1 REC LEVEL CTL

Signal	•AUX •1 kHz, -8 dBs
Mode	•EE
Equipment	•Audio oscillator
Adjustment tool	•R67 (AUDIO LEVEL) [MAIN board]
Specification	•-8 dBs \pm 2 dBs

- (1) Connect an audio oscillator to AUDIO OUTPUT terminal.
- (2) Set the Hi-Fi REC LEVEL CONTROL to "MANUAL" position on the on screen mode.
- (3) Adjust R67 so that the audio output level becomes -8 db \pm 2 db.

3.8 TUNER CIRCUIT

Note: Unless otherwise specified, all measurement point and adjustment parts are located on the IF UNIT.

Signal	•TV broadcasting
Mode	•Tuner
Equipment	•TV monitor
Measurement point	•IF UNIT
Adjustment tool	•IF VR
Specification	•Minimum noise

Note: Adjust IF VR (RF AGC) to correct for excess noise in the picture or when streaks cross interference occurs due to strong electrical fields.

- (1) Adjust IF VR to minimize noise or streaks on the TV screen.
- (2) Adjust for noisy picture with strong signal. Then adjust until noise just disappears. Select other channels to confirm proper pick-up of channels.

3.9 Y/C SEP CIRCUIT

Note: Unless otherwise specified, all measurement point and adjustment parts are located on the Y/C SEP BOARD.

3.9.1 DIGITAL I/O LEVEL

Signal	•Color bar
Mode	•EE •S-VHS
Equipment	•Oscilloscope
Measurement point	•JP102 pin 6 (Y/V To SEP) •JP102 pin 8 (SEPAD Y1) [DIGITAL SUB board]
Adjustment part	•R68 (DIGITAL I/O LEVEL)
Specification	•Equal level

- (1) Connect the channel (CH-1) of a dual trace oscilloscope to JP102 pin 6 and the other channel (CH-2) to JP102 pin 8.
- (2) Set the oscilloscope for DUAL mode, and overlap the waveform.
- (3) Adjust R68 for equal Y levels.

3.10 DEMODULATOR CIRCUIT

Note: Unless otherwise specified, all measurement point and adjustment parts are located on the DEMODULATOR BOARD.

3.10.1 Stereo VCO adjustment

Signal	•No signal
Mode	•EE
Equipment	•Frequency counter
Measurement point	•IC101 pin 23
Adjustment part	•R126 (STEREO VCO)
Specification	•15.73 \pm 0.01 kHz

- (1) Connect the 20 k Ω resistor between IC101 pin 10 and IC101 pin 13.
- (2) Adjust R126 for 15.73 \pm 0.05 kHz.

3.10.2 Low pass filter adjustment

Signal	• No signal
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• IC101 pin 14
Adjustment part	• R124 (FILTER)
Specification	• Minimize

- (1) Connect a oscilloscope to IC101 pin 14.
- (2) Adjust R124 for minimum waveform.

3.10.3 Stereo separation adjustment

<Factor Method>

Signal	• Sweep generator output (96 dB μ , 1 kHz)
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• IC101 pin 29
Adjustment part	• R107 (SEPARATION-1) • R109 (SEPARATION-2)
Specification	• Minimize

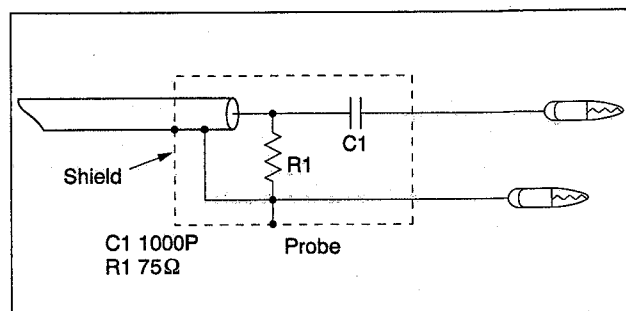


Fig. 3-10-1 Sweeper probe

- (1) Use a sweeper probe shown in Fig. 3-10-1.
- (2) Supply 300 Hz L-only modulated IF signal to IF terminal of U/V tuner (front end).
- (3) Connect an oscilloscope to IC101 pin 29.
- (4) Adjust R107 for minimum output level.
- (5) Supply 5 kHz L-only modulated IF signal to IF terminal of U/V tuner (front end).
- (6) Connect an oscilloscope to IC101 pin 29.
- (7) Adjust R109 for minimum output level.

SECTION 4 CHARTS AND DIAGRAMS

SCHEMATIC DIAGRAM NOTES

Safety precautions

The Components identified by the symbol are critical for safety. For continued safety, replace safety critical components only with manufactures recommended parts.

1. Schematic diagram values

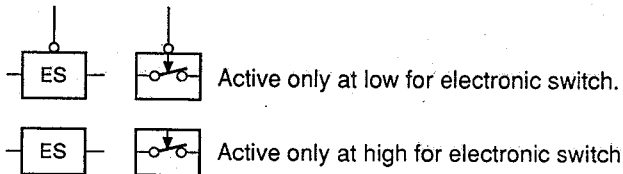
Unless otherwise specified.

- 1) All resistance values are in ohms. 1/6 W, 1/8 W (refer to parts list).
Chip resistors are 1/16 W.
K: K Ω (1000 Ω), M: M Ω (1000K Ω)
- 2) All capacitance values are in μ F, (P: PF).
- 3) All inductance values in μ H, (m: mH).
- 4) All diodes are 1SS133 or MA165, (refer to parts list).

2. Indications

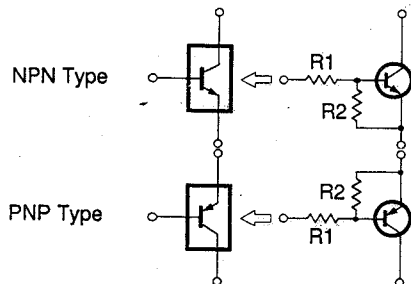
AUX : Active only at high.

$\overline{\text{AUX}}$: Active only at low.

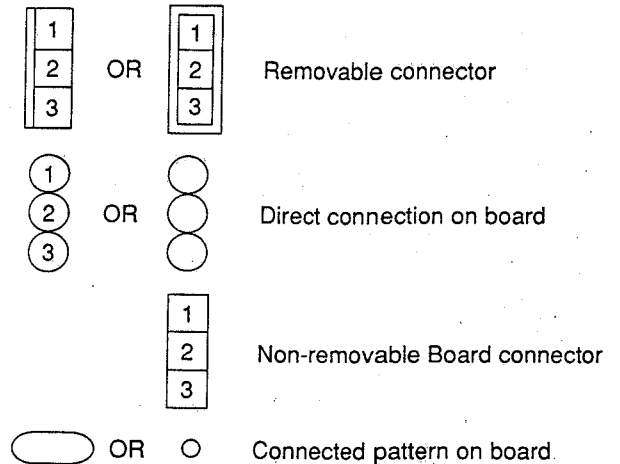


Digital transistor :

The digital transistor includes built in resistors. It features small size and high reliability.

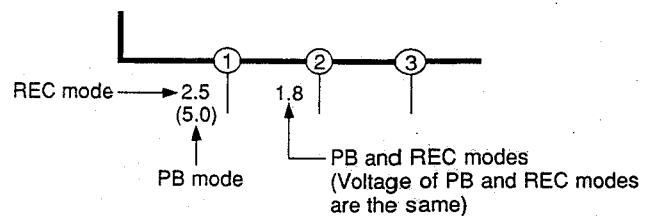


3. Interpreting Connector indications



4. Voltage measurement

- 1) Video circuits
REC: Colour bar signal in SP mode, normal VHS mode.
PB : Alignment tape, colour bar SP mode, normal VHS mode.
— : Unmeasurable or unnecessary to measure.
- 2) Audio circuits
REC: 1KHz, -8 dBs sine wave signal in SP mode, Normal VHS mode.
PB : REC then playback it.
- 3) Movie Camera circuits
Measured using a correctly illuminated grey scale or colour bar test charts in the E-E mode.
- 4) Indication on schematic diagram
Voltage Indications for REC and PB modes on the schematic diagram are as shown below.



Note: If do not indicate for voltage measurement on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits

REC: Colour bar signal in SP mode, normal VHS mode.
PB : Alignment tape, colour bar SP mode, normal VHS mode.

2) Audio circuits

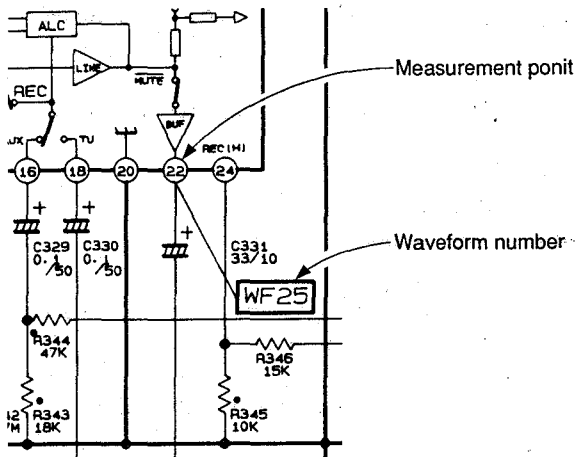
REC: 1KHz, -8 dBs sine wave signal in SP mode, normal VHS mode.
PB : REC then playback it.

3) Movie Camera circuits

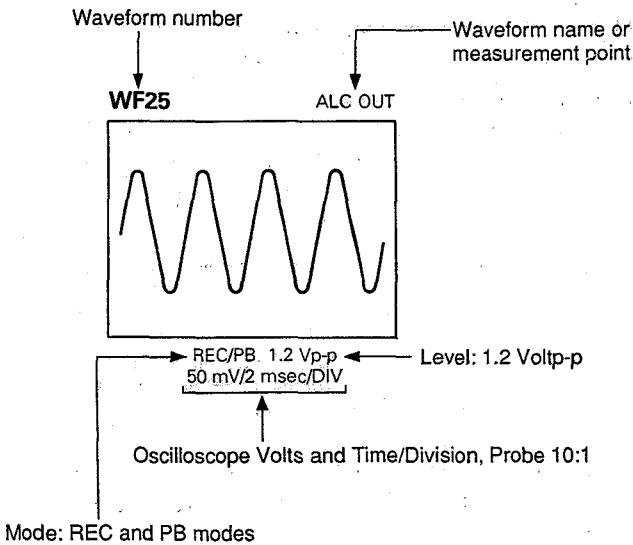
Measured using a correctly illuminated grey scale or colour bar test charts in the E-E mode.

4) Indication on schematic diagram

Waveform indications on the schematic diagram are as shown below.



5) Waveform indications



6. Signal path Symbols

The arrows indicate the signal path as follows.

- Playback signal path
- Playback and recording signal path
- Recording signal path (including E-E signal path)
- Y signal path
- Colour (Chroma) signal path
- R or R-Y signal path
- B or B-Y signal path
- Capstan servo path
- Drum servo path
- Reel servo path

CIRCUIT BOARD NOTES

1. Colour indications

- 1) Foil side :
Foil side patterns are indicated at GREY shading.
- 2) Component side :
Component side patterns are indicated at RED shading.

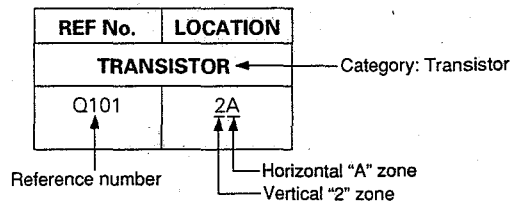
2. Foil and Component sides

- 1) Foil side (B side) :
Parts on the foil side seen from foil face (pattern face) are indicated.
- 2) Component side (A side) :
Parts on the component side seen from component face (parts face) are indicated.

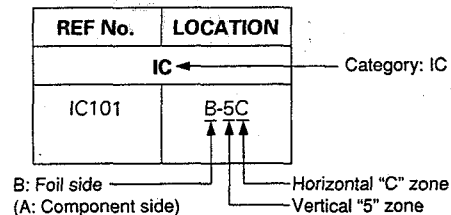
3. Parts location guides

Parts location are indicated by guide scale on the circuit board.

1) Signal pattern :



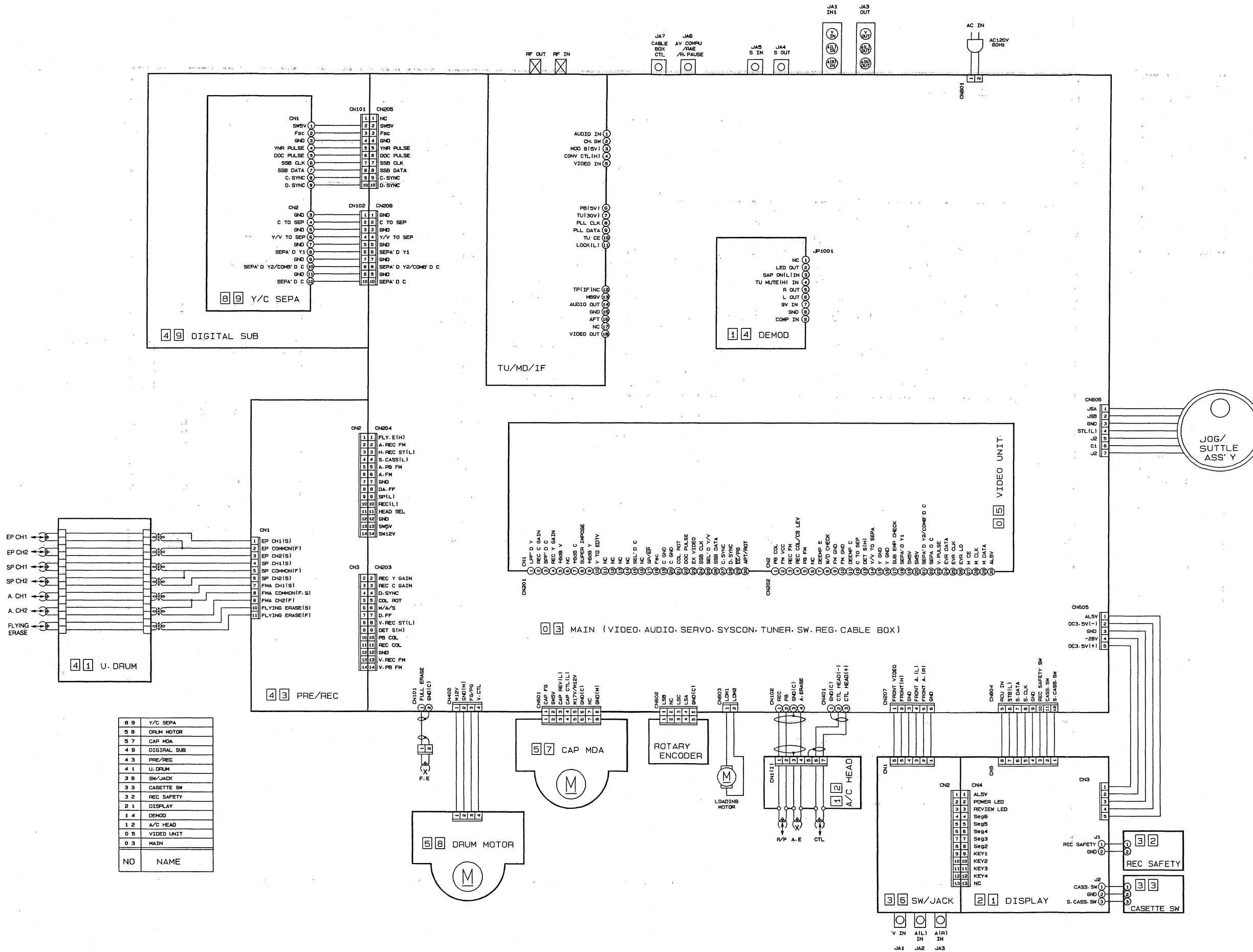
2) Double pattern :



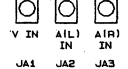
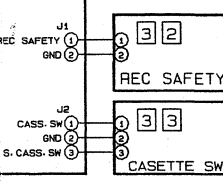
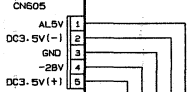
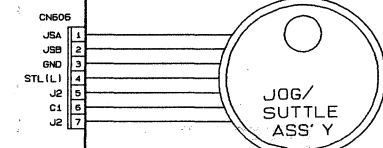
Notes:

- 1) For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).
- 2) For repairing SMC (Surface Mounted Components), please refer to the VIDEO SERVICE GUIDE No. VTS81001.

4.1 BOARD INTERCONNECTIONS

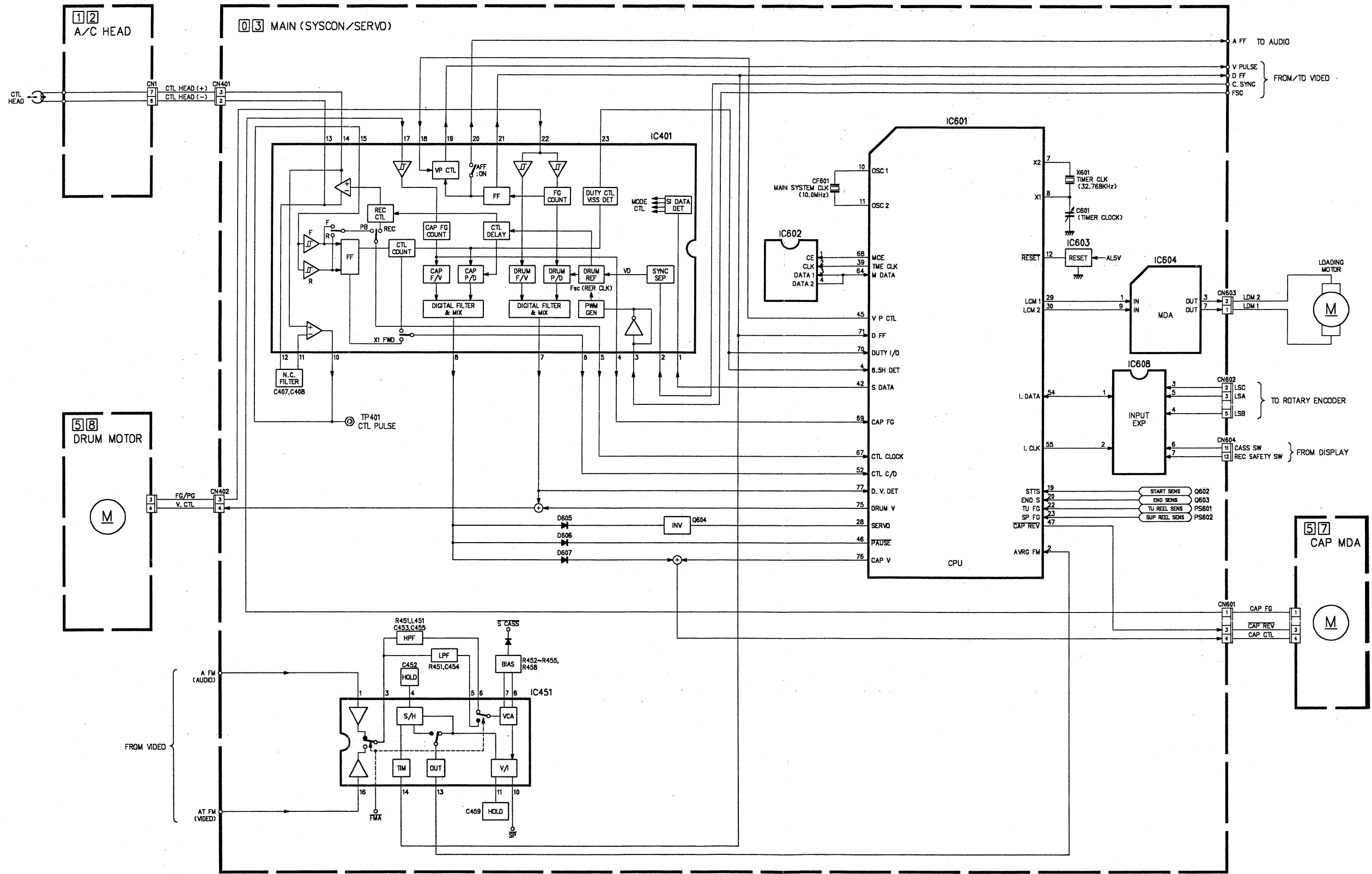


8 9	Y/C SEPA
5 6	DRUM MOTOR
5 7	CAP MDA
4 9	DIGITAL SUB
4 3	PRE/REC
4 1	U. DRUM
3 6	SW/JACK
3 3	CASSETTE SW
3 2	REC SAFETY
2 1	DISPLAY
1 4	DEMODO
1 2	A/C HEAD
0 5	VIDEO UNIT
0 3	MAIN
NO	NAME



4.2 SYSCON/SERVO BLOCK DIAGRAM

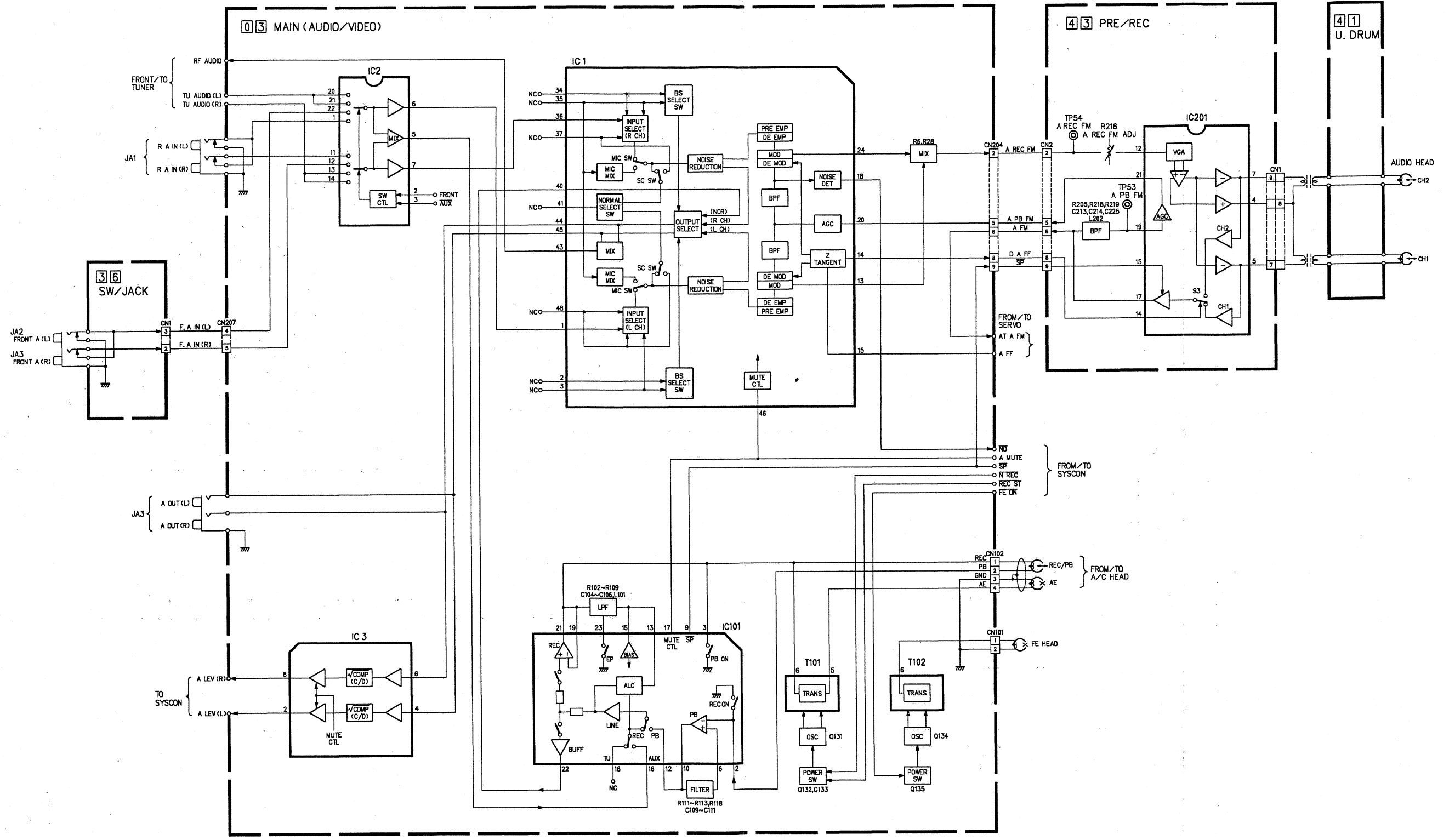
DRUM MOTOR PART NO. C4415 10



A B C 4-5 4-6 E F G H

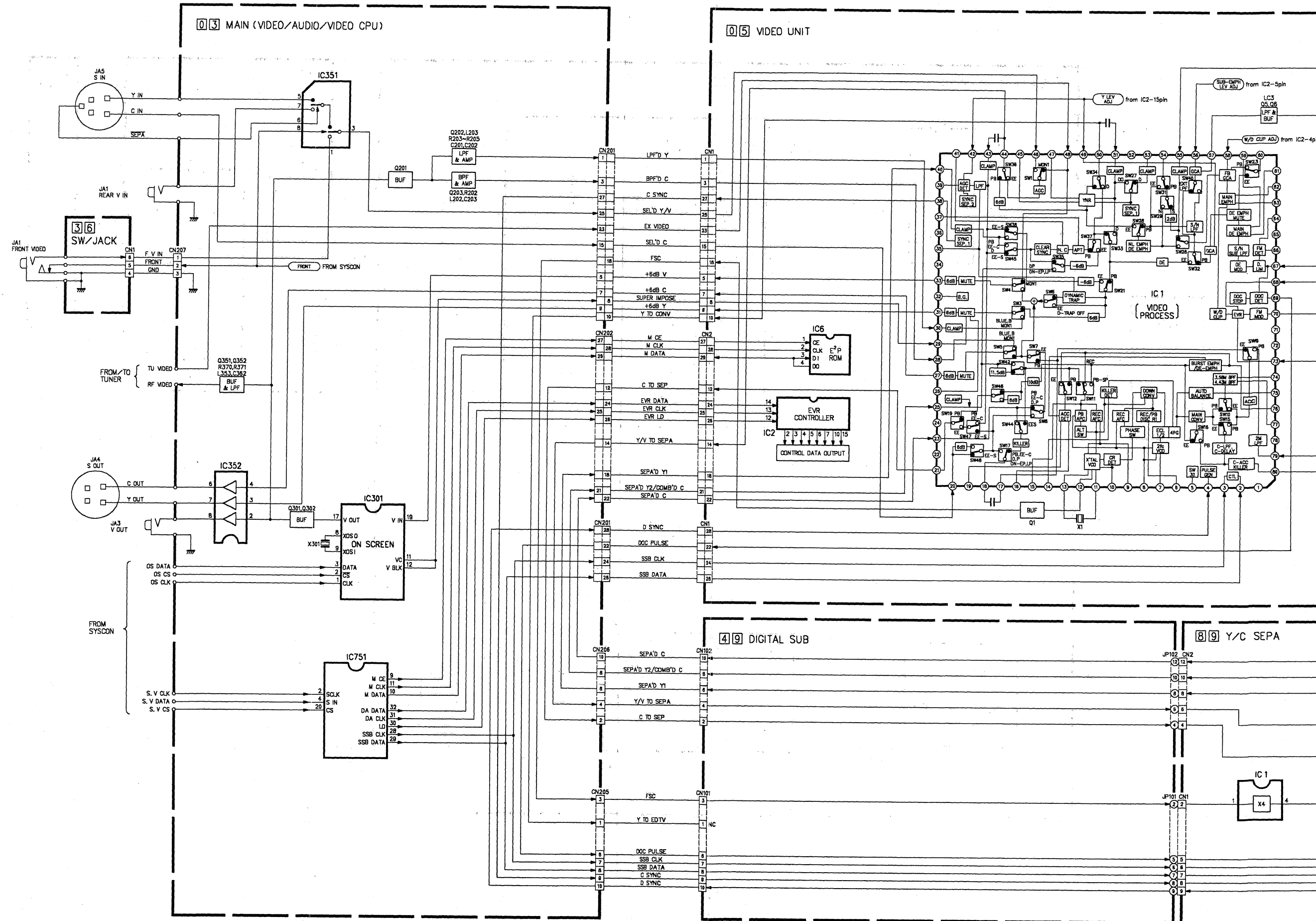
4.3 AUDIO BLOCK DIAGRAM

6
5
4
3
2
1



A B C 4-7 4-8 E F G H

4.4 VIDEO BLOCK DIAGRAM



A

B

C

4-9

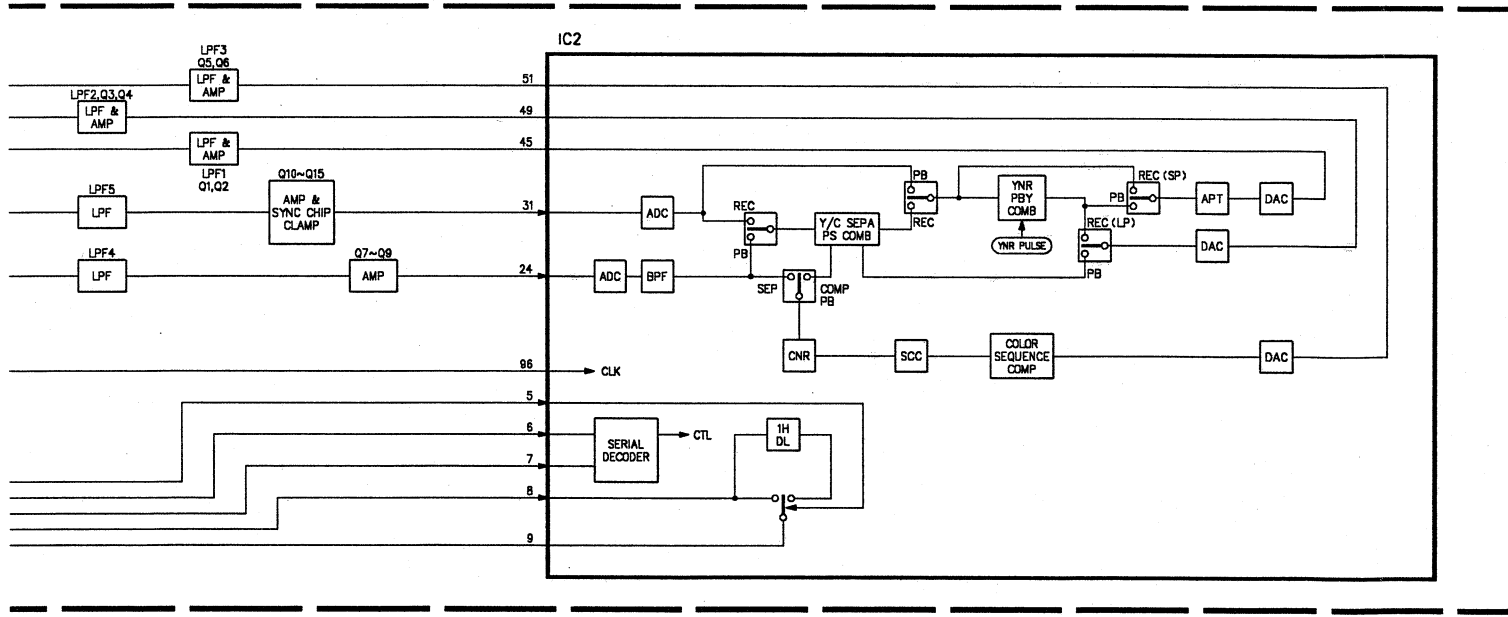
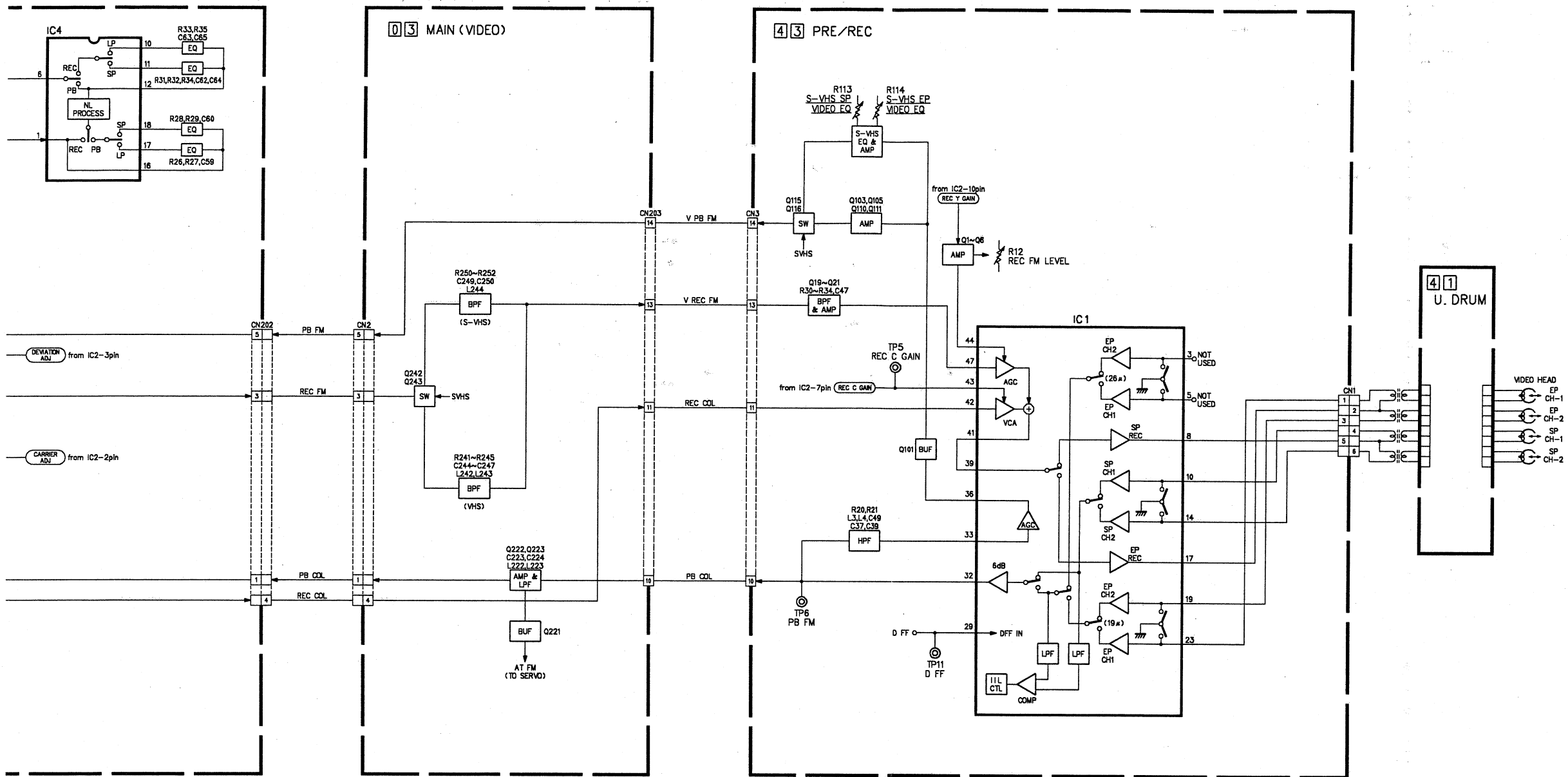
4-10

E

F

G

H



4-11

4-12

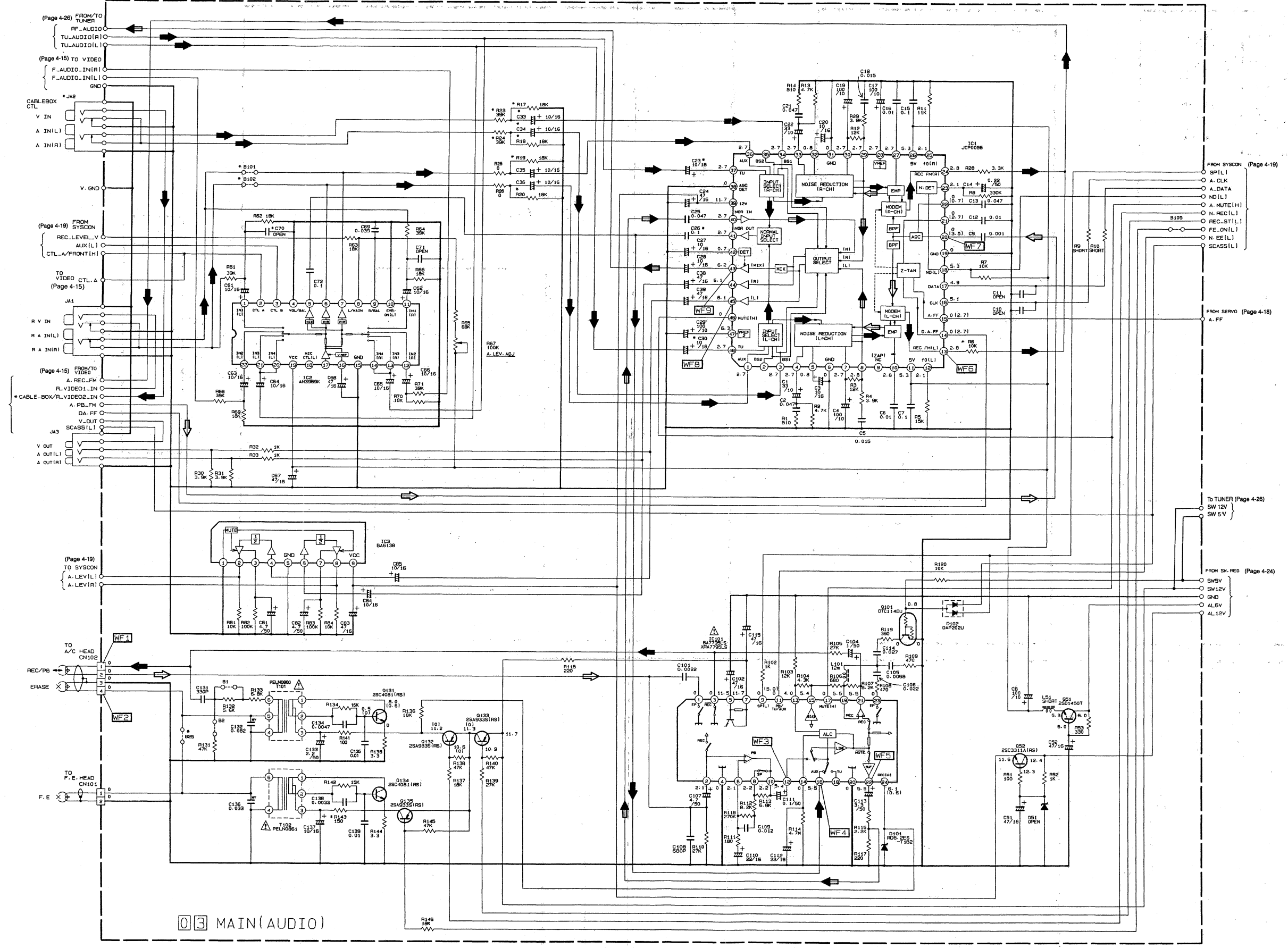
M

N

O

P

4.5 AUDIO SCHEMATIC DIAGRAM



03 MAIN(AUDIO)

NOTES: 1. Mark (*) is not used.
2. For AUDIO waveforms, please refer to page 4-27.

4.6 VIDEO SCHEMATIC DIAGRAM

6

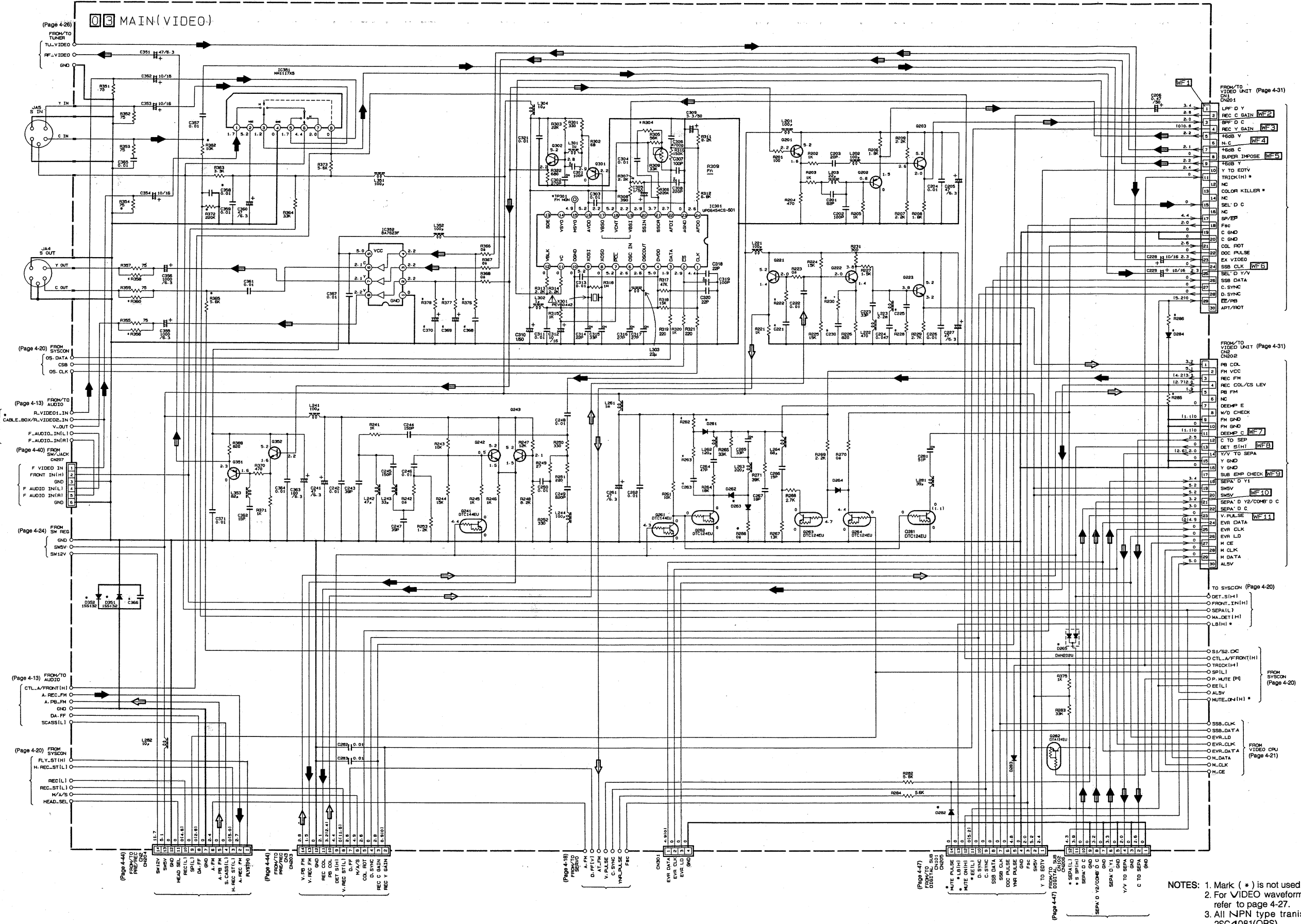
5

4

3

2

1



NOTES: 1. Mark (*) is not used.
 2. For VIDEO waveforms, please refer to page 4-27.
 3. All NPN type transistors are 2SC4081(QRS). All PNP type transistors are 2SA1576(RS).

A

B

C

4-15

4-16

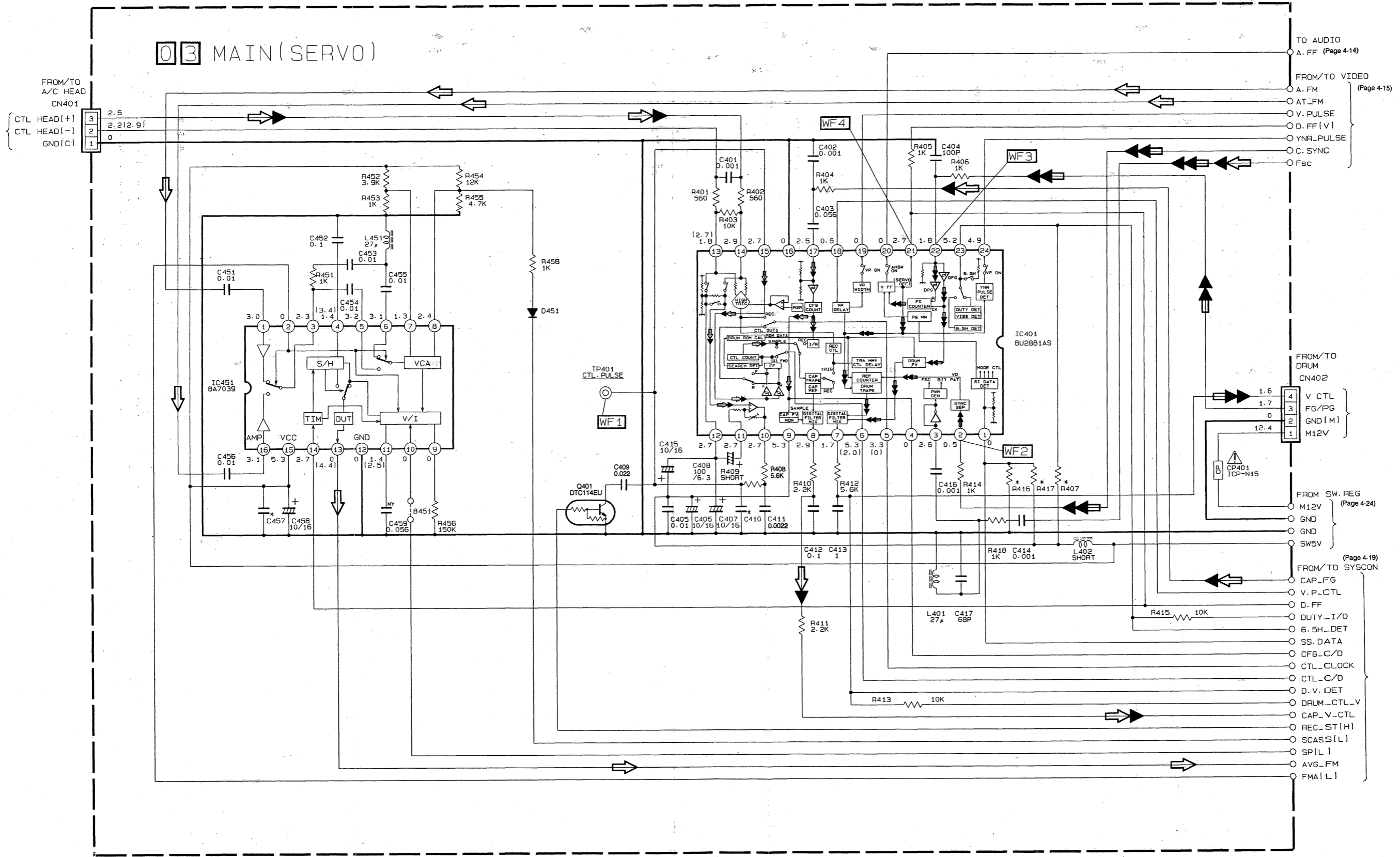
E

F

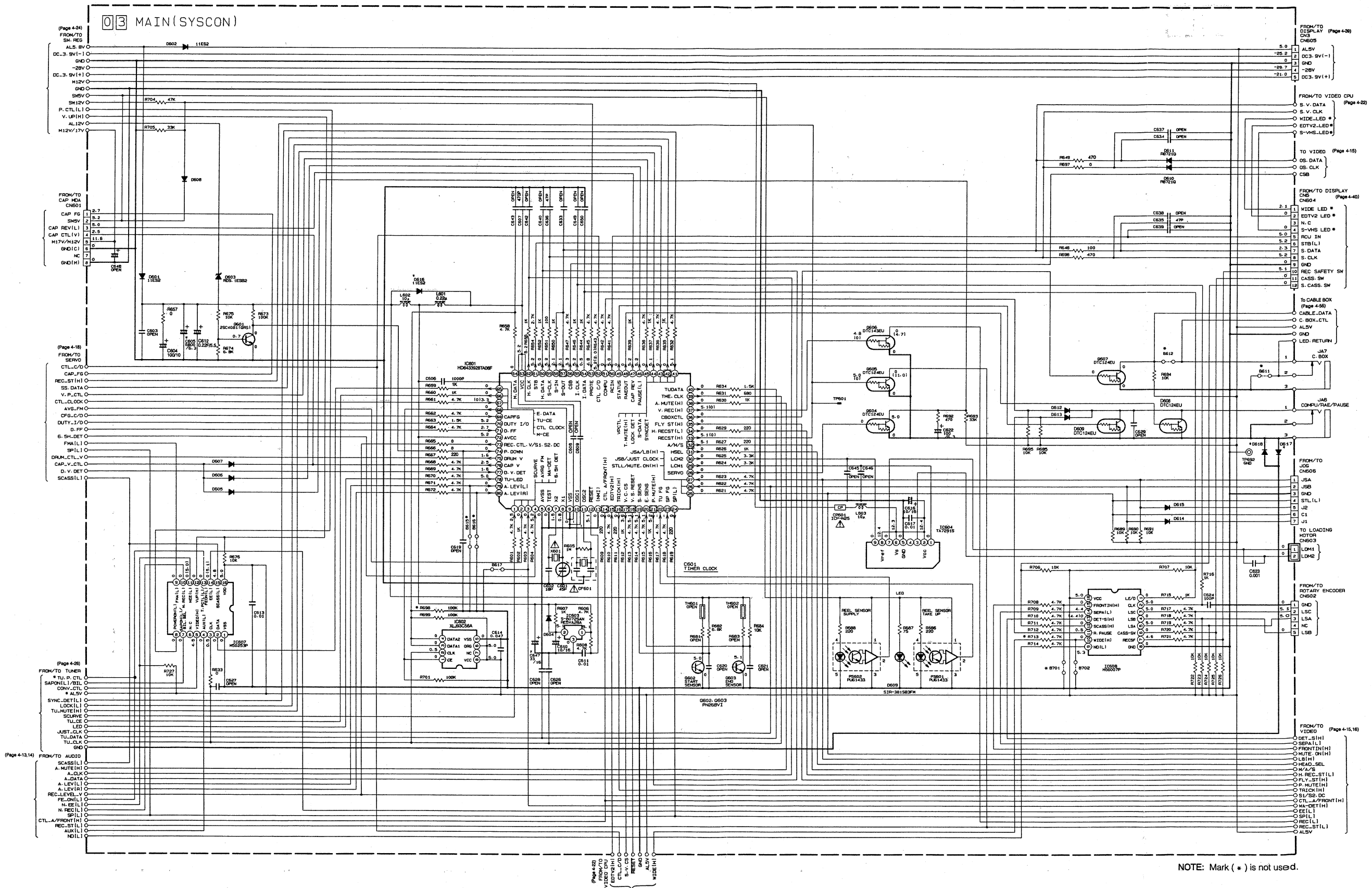
G

H

4.7 SERVO SCHEMATIC DIAGRAM

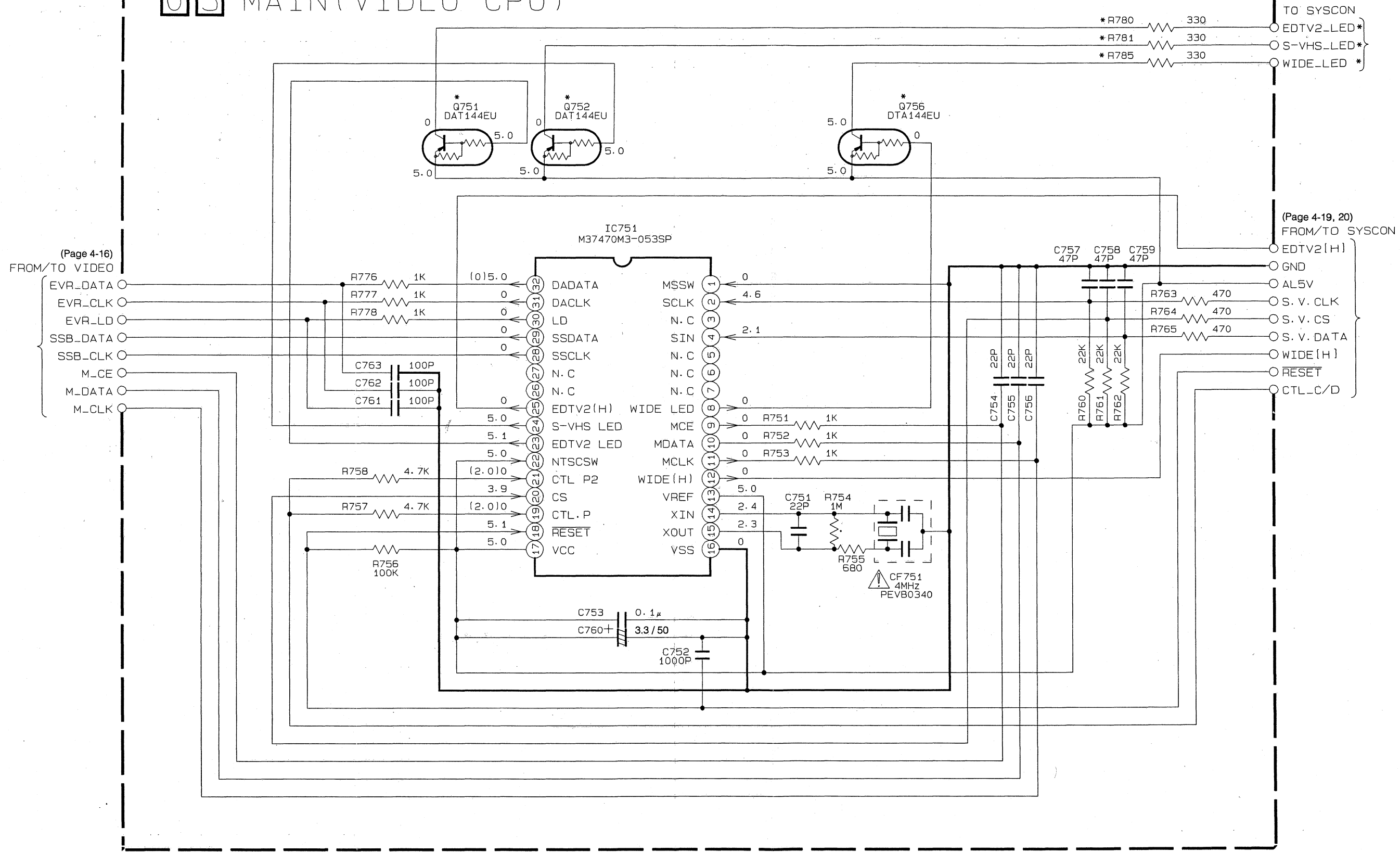


NOTES: 1. Mark (*) is not used.
 2. For SERVO waveforms, please refer to page 4-27.



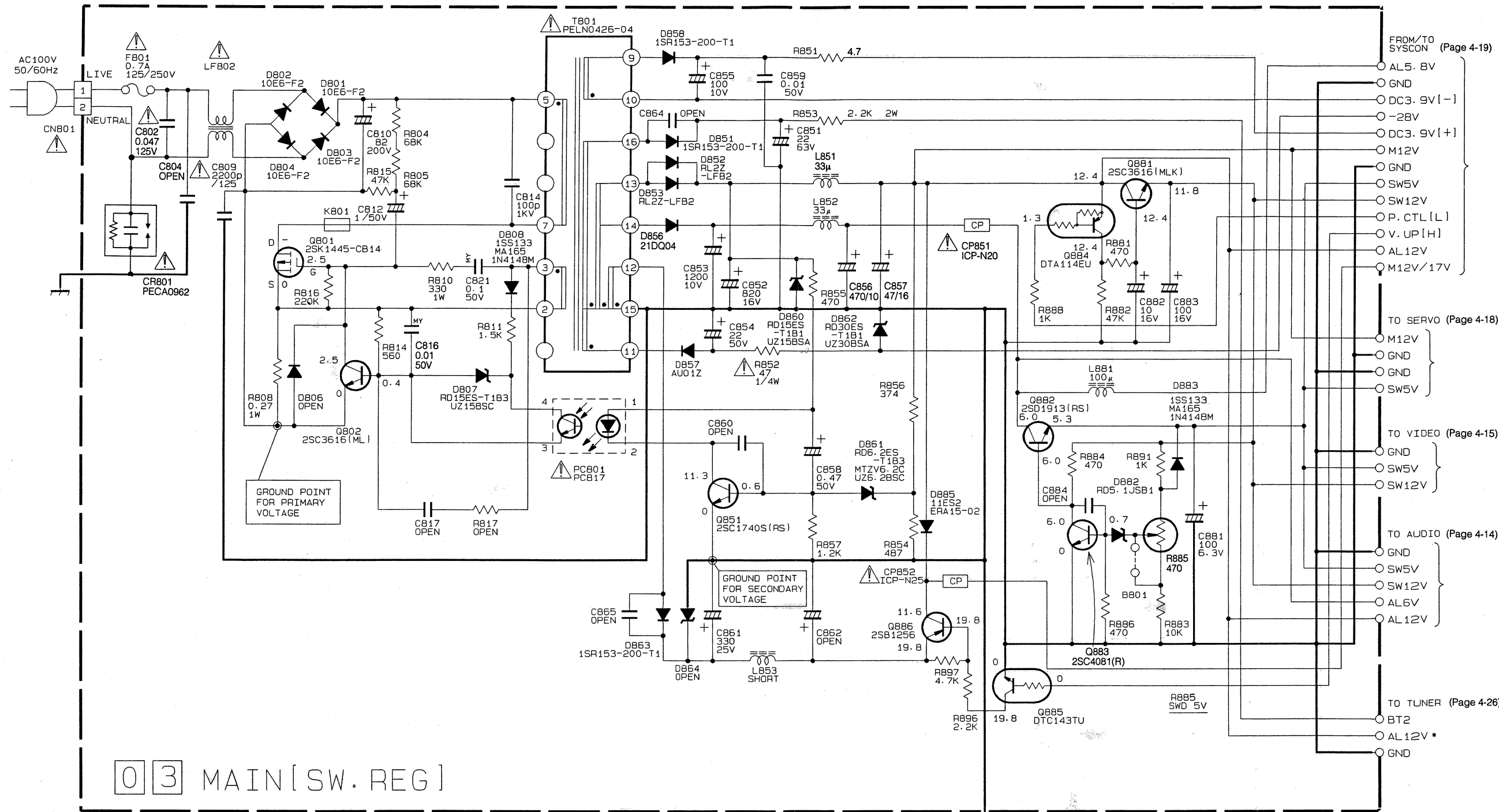
4.9 VIDEO CPU SCHEMATIC DIAGRAM

03 MAIN(VIDEO CPU)

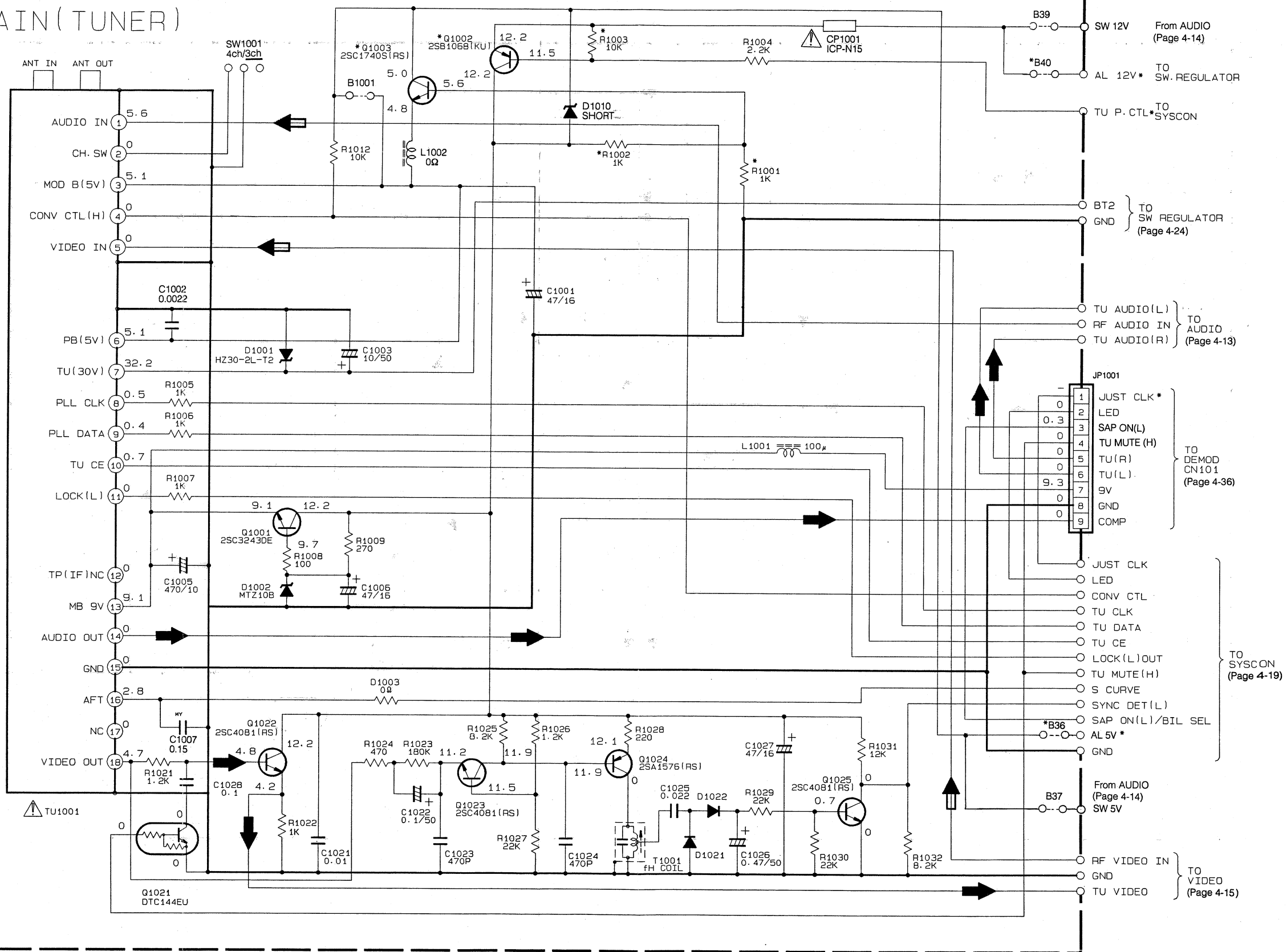


NOTE: Mark (*) is not used.

4.10 SWITCHING REGULATOR SCHEMATIC DIAGRAM



03 MAIN(TUNER)

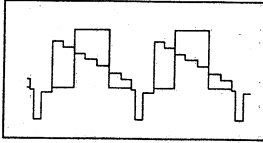


NOTE: Mark (*) is not used.

WAVEFORMS

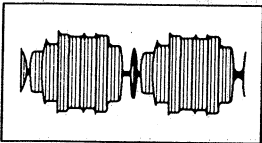
— VIDEO —

WF1 CN201-1
LPF.D Y



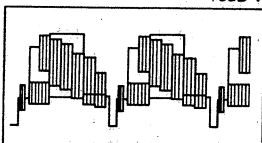
REC./PB1.0Vp-p
50mV/20μsec/DIV

WF2 CN201-3
BPF.D C



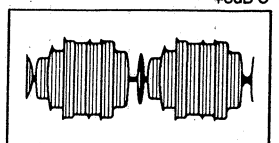
REC/PB0.7Vp-p
50mV/20μsec/DIV

WF3 CN201-5
+6dB V



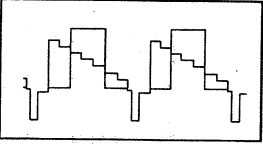
REC/PB2.5Vp-p
0.1V/20μsec/DIV

WF4 CN201-7
+6dB C



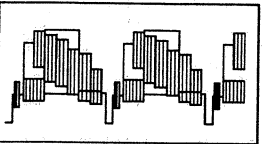
REC/PB1.2Vp-p
0.1V/20μsec/DIV

WF5 CN201-9
+6dB Y



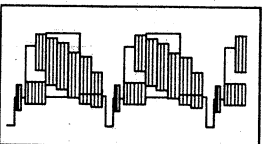
REC/PB2.2Vp-p
0.1V/20μsec/DIV

WF6 CN201-25
SEL.D Y/V



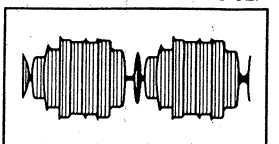
REC/PB1.0Vp-p
50mV/20μsec/DIV

WF7 CN202-12
C TO SEP



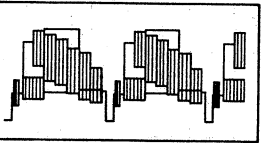
REC0.9Vp-p
50mV/20μsec/DIV

WF7 CN202-12
C TO SEP



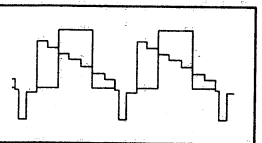
PB0.8Vp-p
50mV/20μsec/DIV

WF8 CN202-14
Y/V TO SEP



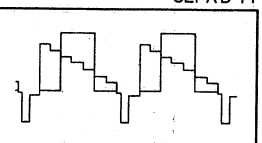
REC1.0Vp-p
50mV/20μsec/DIV

WF8 CN202-14
Y/V TO SEP



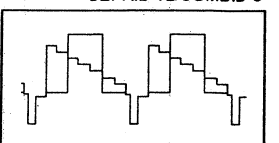
PB1.0Vp-p
50mV/20μsec/DIV

WF9 CN202-18
SEPA'D Y1



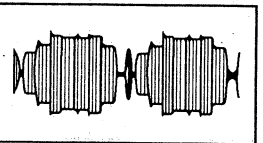
REC/PB1.0Vp-p
50mV/20μsec/DIV

WF10 CN202-21
SEPA.D Y2/COMB.D C



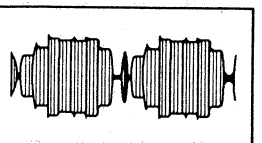
REC1.0Vp-p
50mV/20μsec/DIV

WF10 CN202-21
SEPA.D Y2/COMB.D C



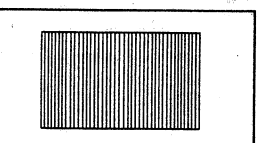
PB0.7Vp-p
50mV/20μsec/DIV

WF11 CN202-22
SEPA.D C



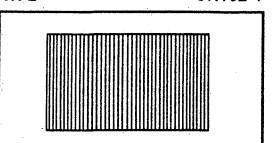
REC/PB0.7Vp-p
50mV/20μsec/DIV

— AUDIO —
WF1 CN102-1



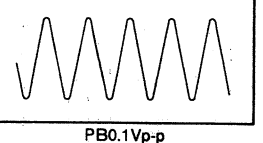
REC43.0Vp-p
1.0V/0.2msec/DIV

WF2 CN102-4



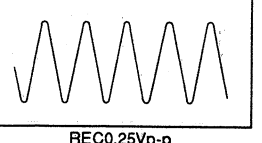
REC35.0Vp-p
1.0V/0.2msec/DIV

WF3 IC101-12



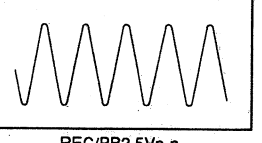
PB0.1Vp-p
5mV/0.5msec/DIV

WF4 IC101-16



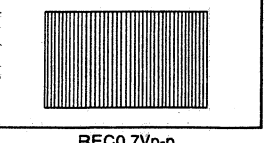
REC0.25Vp-p
10mV/0.5msec/DIV

WF5 IC101-22



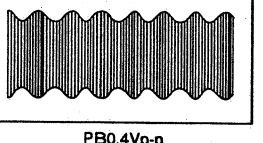
REC/PB2.5Vp-p
0.1V/0.5msec/DIV

WF6 IC1-13



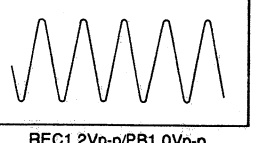
REC0.7Vp-p
20mV/10msec/DIV

WF7 IC1-20



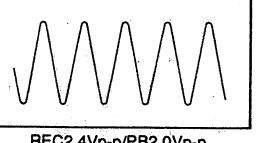
PB0.4Vp-p
20mV/1msec/DIV

WF8 IC1-45



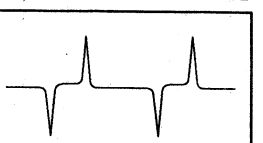
REC1.2Vp-p/PB1.0Vp-p
50mV/0.5msec/DIV

WF9 IC1-43



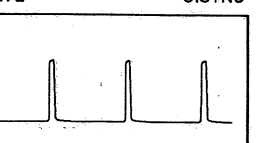
REC2.4Vp-p/PB2.0Vp-p
0.1V/0.5msec/DIV

— SERVO —
WF1 TP401
CTL.PULSE



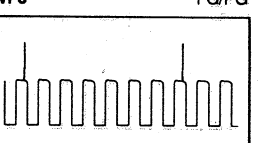
PB2.5Vp-p
0.1V/5msec/DIV

WF2 IC401-2
C.SYNC



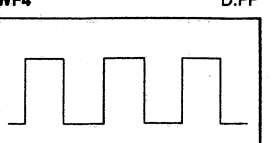
REC/PB5.0Vp-p
0.2V/20μsec/DIV

WF3 IC401-22
FG/PG



REC/PB4.0Vp-p
0.2V/5msec/DIV

WF4 IC401-21
D.FF

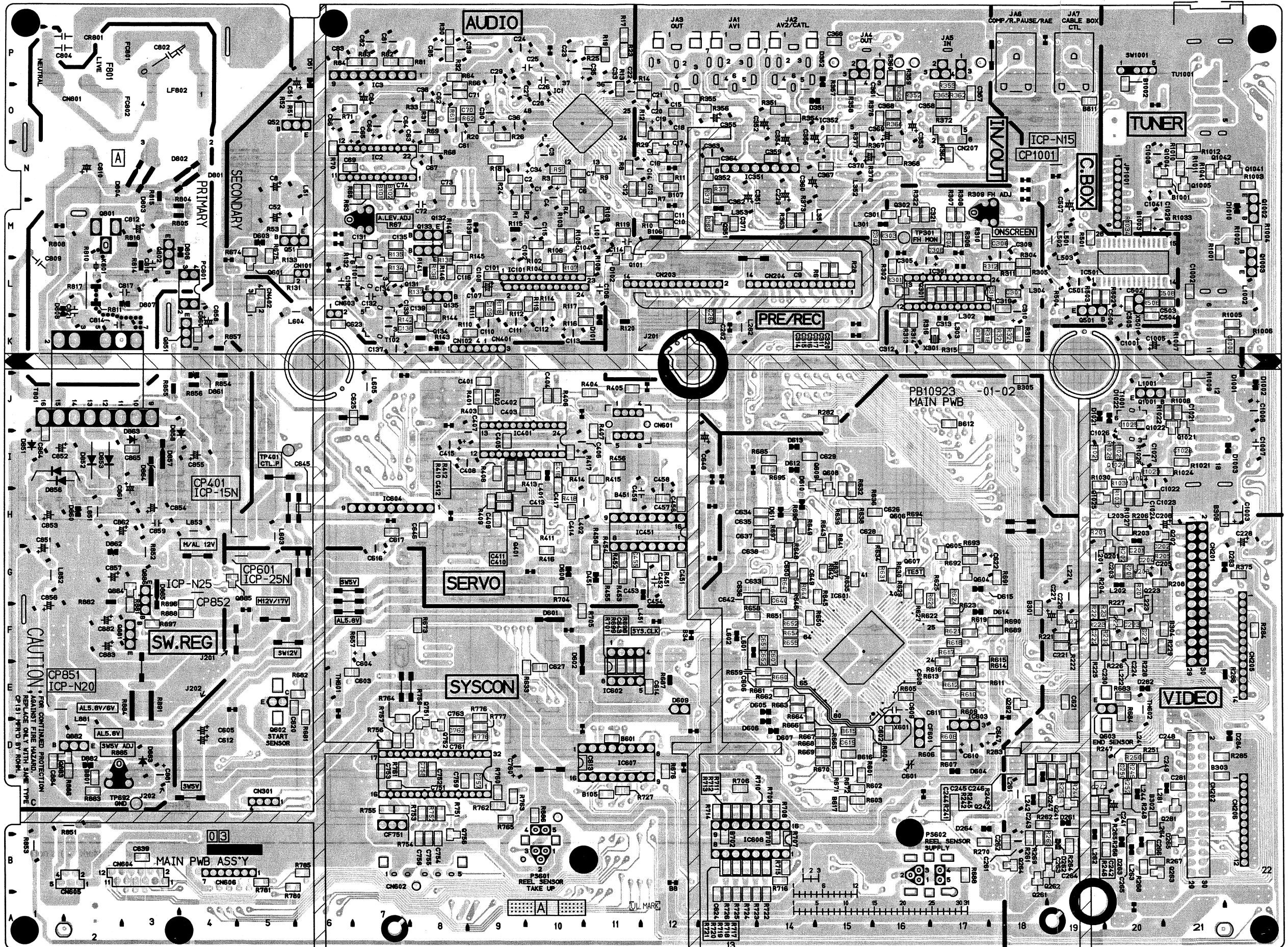


REC/PB5.0Vp-p
0.2V/5msec/DIV

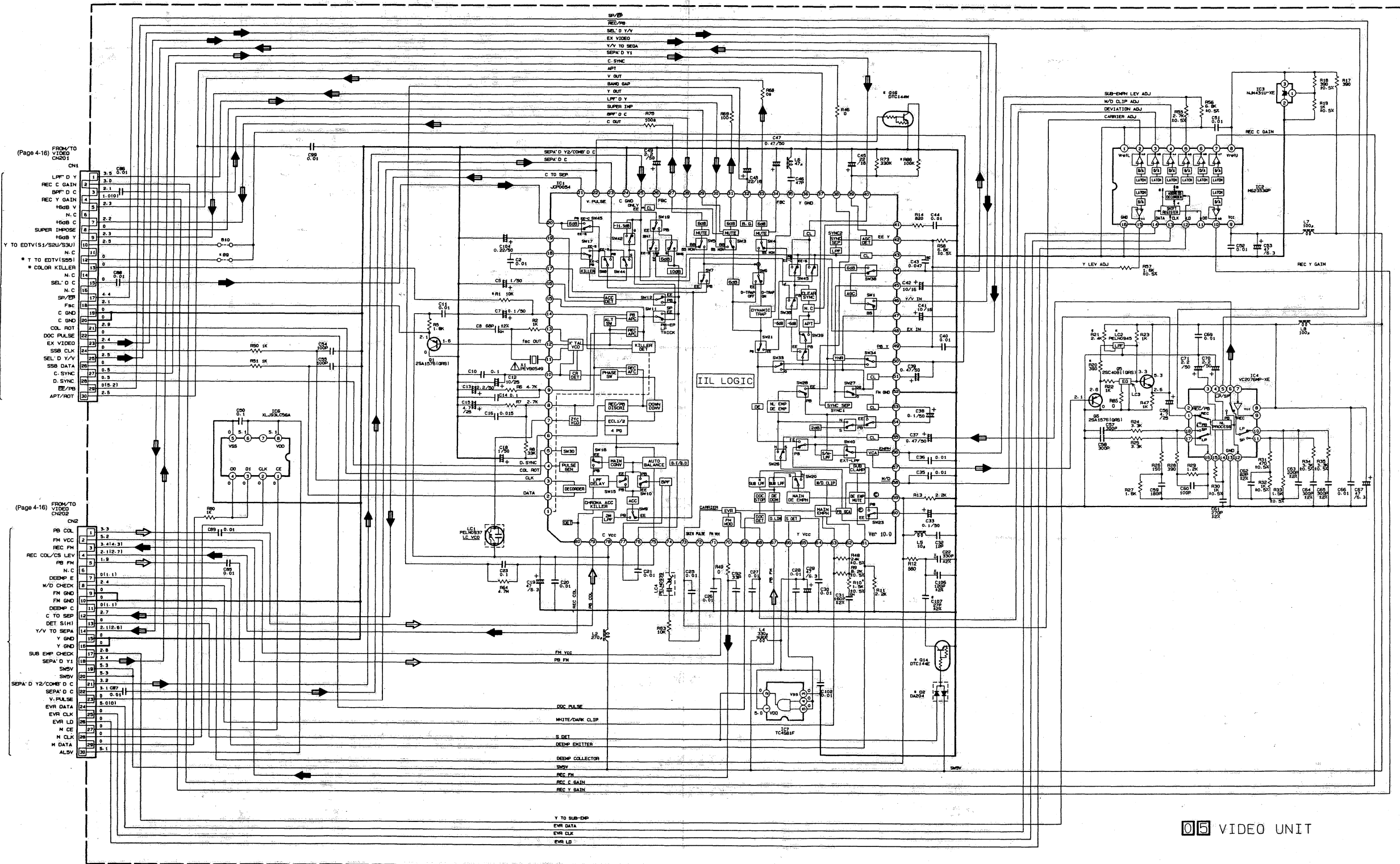
COMPONENT PARTS LOCATION GUIDE

REF. NO.	LOCATION	REF. NO.	LOCATION	REF. NO.	LOCATION	REF. NO.	LOCATION	REF. NO.	LOCATION	REF. NO.	LOCATION	REF. NO.	LOCATION
C1	A 10N	C351	B 13M	C1001	A 20K	L262	A 188	R83	B 7P	L401	B 11J	R723	B 14A
C2	B 9N	C352	A 140	C1002	A 21L	L263	A 20B	R84	B 7P	R405	B 10J	R724	B 13A
C3	A 10N	C353	A 160	C1003	A 22H	L284	A 20B	R102	B 10M	R407	B 11J	R725	B 13A
C4	A 10N	C354	A 14N	C1004	A 22K	L281	A 21C	R103	B 10M	R409	B 91	R726	B 11C
C5	A 10N	C355	A 150	C1005	A 22J	L282	A 21H	R104	B 10L	R410	B 91	R727	B 9C
C6	A 10N	C356	A 15N	C1006	A 22J	L301	A 16M	R105	B 10M	R411	B 91	R752	B 8C
C7	B 10N	C357	B 170	C1007	A 22I	L302	A 17K	R106	B 10M	R412	B 91	R753	B 8C
C8	B 10N	C358	B 170	C1008	A 20H	L303	A 17K	R107	B 10M	R413	B 91	R754	B 7C
C9	B 10N	C359	B 14N	C1009	B 21J	L304	A 17K	R108	B 11M	R414	B 11M	R755	B 7C
C10	B 12M	C360	B 14N	C1010	A 20I	L351	A 14M	R109	B 11M	R414	B 11M	R756	B 7D
C11	B 12M	C361	B 160	C1013	B 20H	L352	A 15N	R110	B 9K	R415	B 111	R757	B 7D
C12	B 11N	C362	B 13N	C1024	A 20H	L353	A 13M	R111	B 9L	R416	B 10G	R758	B 8C
C13	B 12N	C363	B 13N	C1025	A 20J	L401	A 10I	R112	B 9L	R417	B 10I	R764	B 8C
C14	B 12N	C364	B 13N	C1026	A 20I	L402	A 11H	R113	B 9L	R418	B 10H	R761	B 8C
C15	B 120	C365	B 170	C1027	A 20I	L451	A 12C	R114	B 10L	R452	B 12C	R762	B 9C
C16	B 12N	C366	B 15P	C1028	A 21I	L501	A 15M	R115	A 10M	R453	B 11G	R763	B 9C
C17	B 12N	C367	B 15N	C1029	A 20M	L502	A 15M	R116	A 11K	R454	B 11G	R764	B 7E
C18	B 120	C368	B 160	C1041	A 20N	L503	A 11H	R117	B 11L	R454	B 11G	R765	B 9C
C19	B 120	C369	B 160	CONNECTOR			A 13F	R118	B 9L	R455	B 11G	R776	B 9E
C20	B 120	C370	B 15N	CN101	A 8L	L602	A 13F	R119	B 11M	R456	B 11G	R777	B 9E
C21	B 120	C371	B 13M	CN102	A 8K	L603	A 5H	R120	A 11K	R458	B 11G	R778	B 9E
C22	B 110	C401	B 9J	CN201	A 21H	L804	A 6L	R131	B 5L	R501	B 19M	R780	B 9E
C23	B 10P	C402	B 10J	CN202	A 21J	L805	A 7J	R132	B 23C	R502	B 20L	R781	B 3F
C24	B 10P	C403	B 10J	CN203	A 15L	L851	A 2H	R133	B 6M	R503	B 19L	R785	B 6M
C25	B 10P	C404	B 10J	CN204	A 15L	L852	A 1G	R134	B 7L	R504	B 19L	R804	B 3W
C26	B 10P	C405	B 11I	CN205	A 22G	L853	A 4H	R135	B 7M	R506	B 20L	R805	B 3W
C27	B 100	C406	B 9I	CN206	A 22C	L861	A 2D	R136	B 8L	R508	B 15C	R806	B 1M
C28	B 9P	C407	B 8I	CN207	A 11001	L1001	A 2D	R137	B 8L	R502	B 15C	R810	B 2L
C29	B 9P	C408	B 8I	CN901	A 4D	L1002	A 2D	R138	B 8L	R503	B 15C	R811	B 2L
C30	B 9P	C409	B 8I	CN401	A 4D	L9K	A 2D	R139	B 8M	R504	B 16D	R814	B 3W
C31	B 110	C410	B 9H	CN402	A 4D	L5L	A 6M	R140	B 8M	R505	B 16E	R815	B 3W
C32	B 11P	C411	B 9H	CN601	A 4D	L5L	A 6M	R141	B 7K	R506	B 17C	R816	B 3W
C33	B 11P	C412	B 10H	CN602	A 4D	L7B	A 11M	R142	B 7K	R507	B 17C	R817	B 3W
C34	B 90	C413	B 10H	CN603	A 4D	L6L	A 8L	R143	B 8K	R508	B 17D	R851	B 2C
C35	B 90	C414	B 10H	CN804	A 4D	L3E	A 8M	R144	B 8K	R509	B 17E	R852	B 3C
C36	B 8P	C415	B 10I	CN805	A 4D	L2B	A 8M	R145	B 8M	R510	B 17E	R853	B 1B
C37	B 8P	C416	B 10I	CN806	A 4D	L5B	A 8M	R146	B 8M	R511	B 17E	R854	B 1B
C38	B 8P	C417	B 10I	CN807	A 4D	L2P	A 8L	R147	B 8M	R512	B 17E	R855	B 3J
C39	B 8P	C418	B 12G	JP1001	A 2D	L2G	A 20H	R202	B 20C	R613	B 17E	R856	B 4J
C40	B 80	C452	B 12G	CP			A 20H	R203	B 20H	R614	B 17E	R857	B 4K
C41	B 80	C453	B 12G	CP401	A 4G	L4H	A 20G	R204	B 19C	R615	B 17F	R881	B 2C
C42	B 70	C454	B 11C	CP801	A 4E	L221	A 20G	R205	B 21C	R616	B 17F	R882	B 2C
C43	B 70	C455	B 11C	CP851	A 4D	L222	A 20F	R206	B 20H	R617	B 17F	R883	B 2C
C44	B 60	C456	B 12H	CP852	A 4D	L4G	A 20F	R207	B 20G	R618	B 17F	R884	B 2D
C45	B 60	C457	B 12H	CP1001	A 4D	L19N	A 19C	R208	B 20G	R619	B 17F	R885	B 2D
C46	B 60	C458	B 12H	DIODE			A 19C	R211	B 19C	R622	B 17F	R888	B 3D
C47	B 6N	C501	B 12H	D1	B 12N	L243	A 19C	R221	B 19C	R622	B 17F	R888	B 3D
C48	B 6N	C501	B 12H	D51	B 6P	L281	A 18B	R222	B 19C	R623	B 17F	R891	B 3D
C49	B 6N	C502	B 20L	D101	B 11K	L262	A 18B	R223	B 19C	R624	B 17G	R896	B 4G
C50	B 9M	C503	B 21L	D102	B 11L	L263	A 20B	R224	B 19F	R625	B 17G	R897	B 3F
C51	B 7N	C504	B 20L	D251	B 9K	L284	A 20B	R225	B 19F	R626	B 17G	R898	B 2M
C52	B 7N	C505	B 20L	D262	B 19C	L281	A 21C	R226	B 20F	R627	B 16C	R1002	B 22M
C53	B 7N	C506	B 20L	D263	A 20C	L282	A 18E	R227	B 20F	R629	B 16G	R1003	B 22M
C54	B 7P	C507	B 19M	D264	A 18C	L301	A 16L	R228	B 20F	R630	B 16G	R1004	B 22M
C55	B 7P	C508	B 16D	D265	A 21B	L302	A 16M	R229	B 21F	R631	B 16G	R1005	B 22M
C56	B 8P	C509	B 16D	D266	A 20C	L351	A 9M	R230	B 20F	R632	B 15H	R1006	B 22M
C57	B 8P	C510	B 16D	D267	A 22G	L352	A 13N	R231	B 19F	R633	B 10E	R1007	B 21K
C58	B 8P	C511	B 7E	D268	A 4D	L401	A 9H	R241	B 18D	R634	B 16G	R1008	B 21J
C59	B 9M	C512	B 4D	D351	A 140	L501	A 19L	R242	B 18D	R635	B 15G	R1009	B 21J
C60	B 11M	C513	B 40	D352	A 140	L502	A 19L	R243	B 18D	R636	B 15G	R1010	B 21J
C61	B 11M	C514	B 40	D451	A 11C	L602	A 5E	R244	B 19C	R637	B 15G	R1011	B 21J
C62	B 11L	C515	B 17D	D601	A 10F	L603	A 20E	R245	B 19D	R638	B 15H	R1012	B 21N
C63	B 9L	C516	B 17E	D602	A 11F	L604	A 17G	R246	B 19C	R639	B 15H	R1012	B 21N
C64	B 9L	C517	B 17E	D603	A 5M	L605	A 18G	R247	B 19D	R641	B 15H	R1013	B 21J
C65	B 9L	C518	B 11D	D604	A 17D	L606	A 16H	R248	B 20C	R642	B 15G	R1023	B 20I
C66	B 9K	C519	B 14E	D605	A 14E	L607	A 16H	R249	B 20H	R643	B 15G	R1024	B 21I
C67	B 9K	C520	B 7C	D606	A 14D	L608	A 15I	R250	B 20D	R644	B 14G	R1025	B 20I
C68	B 9K	C521	B 7C	D607	A 14D	L609	A 15I	R251	B 20D	R645	B 15G	R1026	B 20I
C69	B 11K	C522	B 10D	D608	A 10D	L610	A 15I	R252	B 20C	R646	B 14G	R1027	B 20I
C70	B 11M	C523	B 6E	D609	A 12E	L611	A 8D	R253	B 19C	R647	B 14G	R1028	B 20I
C71	B 10W	C524	B 19E	D610	A 14H	L612	A 8C	R254	B 18B	R648	B 14G	R1029	B 19I
C72	B 8L	C525	B 18G	D611	A 14H	L613	A 2M	R255	B 18C	R649	B 14H	R1030	B 19I
C73	B 8L	C526	B 9K	D612	A 14I	L614	A 3M	R256	B 18B	R650	B 14F	R1031	B 20I
C74	B 7L	C527	B 13A	D613	A 17F	L615	A 3F	R257	B 20C	R652	B 14F	R1032	B 20I
C75	B 7L	C528	B 16H	D614	A 17F	L616	A 2D	R258	B 20B	R654	B 14F	R1033	B 21M
C76	B 7L	C529	B 10E	D615	A 4N	L617	A 2D	R259	B 20B	R655	B 14F	R1034	B 20M
C77	B 7K	C530	B 14I	D801	A 3N	L618	A 4C	R260	B 20B	R656	B 14F	R1041	B 15N
C78	B 7K	C531	B 14I	D802	A 3N	L619	A 4C	R261	B 18B	R657	B 14F		
C79	B 8L	C532	B 14G	D803	A 3N	L620	A 3G	R270	B 17B	R659	B 14E	TEST POINT	
C80	B 8L	C533	B 14H	D804	A 4M	L621	A 20J	R282	B 15J	R660	B 14E	TP201	B 5I
C81	B 20G	C534	B 14H	D805	A 3L	L622	A 22N	R283	B 14E	R661	B 14E	TP401	B 3C
C82	B 21H	C535	B 14H	D806	A 2K	L623	A 20N	R284	B 14E	R662	B 14E	TP629	B 5C
C83	B 20G	C536	B 14H	D851	A 01004	L624	A 21N	R285	B 14E	R663			
C84	B 20G	C537	B 14H	D852	A 01005	L625	A 21N	R286	B 14E	R664			
C85	B 20G	C538	B 14H	D853	A 01021	L626	A 21J	R301	B 16L	R665	B 14E	X501	B 16K
C86	B 21H	C539	B 14C	D854	A 01022	L627	A 21J	R302	B 16L	R666	B 14D	X501	B 16E
C87	B 19F	C540	B 13C	D855	A 01023	L628	A 20I	R303	B 16L	R667	B 15D	CF501	B 16D
C88	B 20F	C541	B 6H	D856	A 01024	L629	A 20I	R304	B 18L	R668	B 15D	CF751	B 7C
C89	B 20F	C542	B 6H	D860	A 01025	L630	A 20H	R305	B 18L	R669	B 15D	J201	B 12K
C90	B 22G	C543	B 1										

4.12 MAIN CIRCUIT BOARD



4.13 VIDEO UNIT SCHEMATIC DIAGRAM



(Page 4-16) FROM/TO VIDEO CN201

1	3.3	0.01
2	3.3	0.01
3	2.1	1.0101
4	1.0101	0.01
5	2.2	0.01
6	2.2	0.01
7	2.2	0.01
8	2.2	0.01
9	2.2	0.01
10	2.2	0.01
11	2.2	0.01
12	2.2	0.01
13	2.2	0.01
14	2.2	0.01
15	2.2	0.01
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18	2.2	0.01
19	2.2	0.01
20	2.2	0.01
21	2.2	0.01
22	2.2	0.01
23	2.2	0.01
24	2.2	0.01
25	2.2	0.01
26	2.2	0.01
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29	2.2	0.01
30	2.2	0.01

(Page 4-16) FROM/TO VIDEO CN202

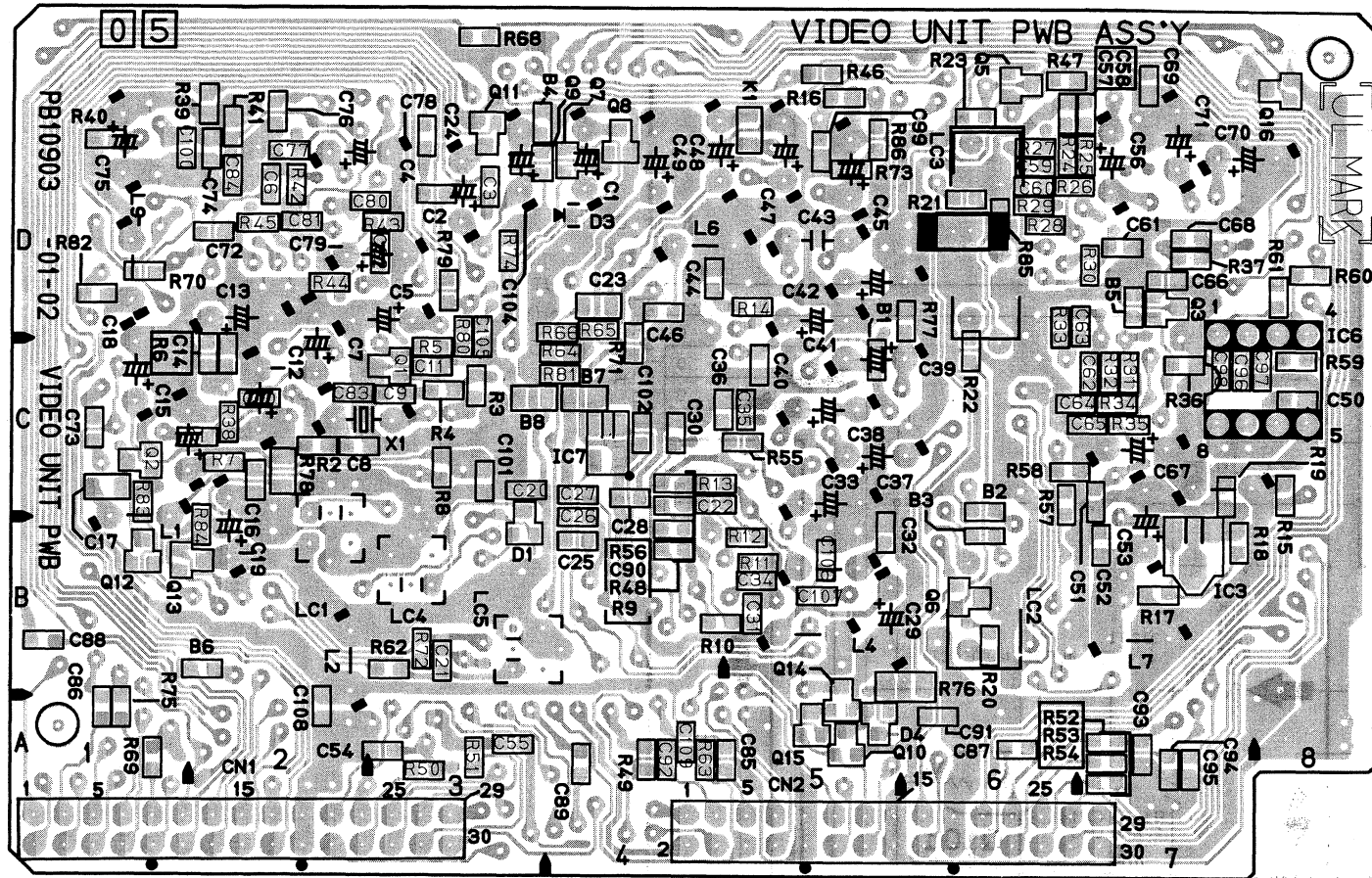
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2	3.3	0.01
3	2.1	1.0101
4	1.0101	0.01
5	2.2	0.01
6	2.2	0.01
7	2.2	0.01
8	2.2	0.01
9	2.2	0.01
10	2.2	0.01
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VIDEO UNIT

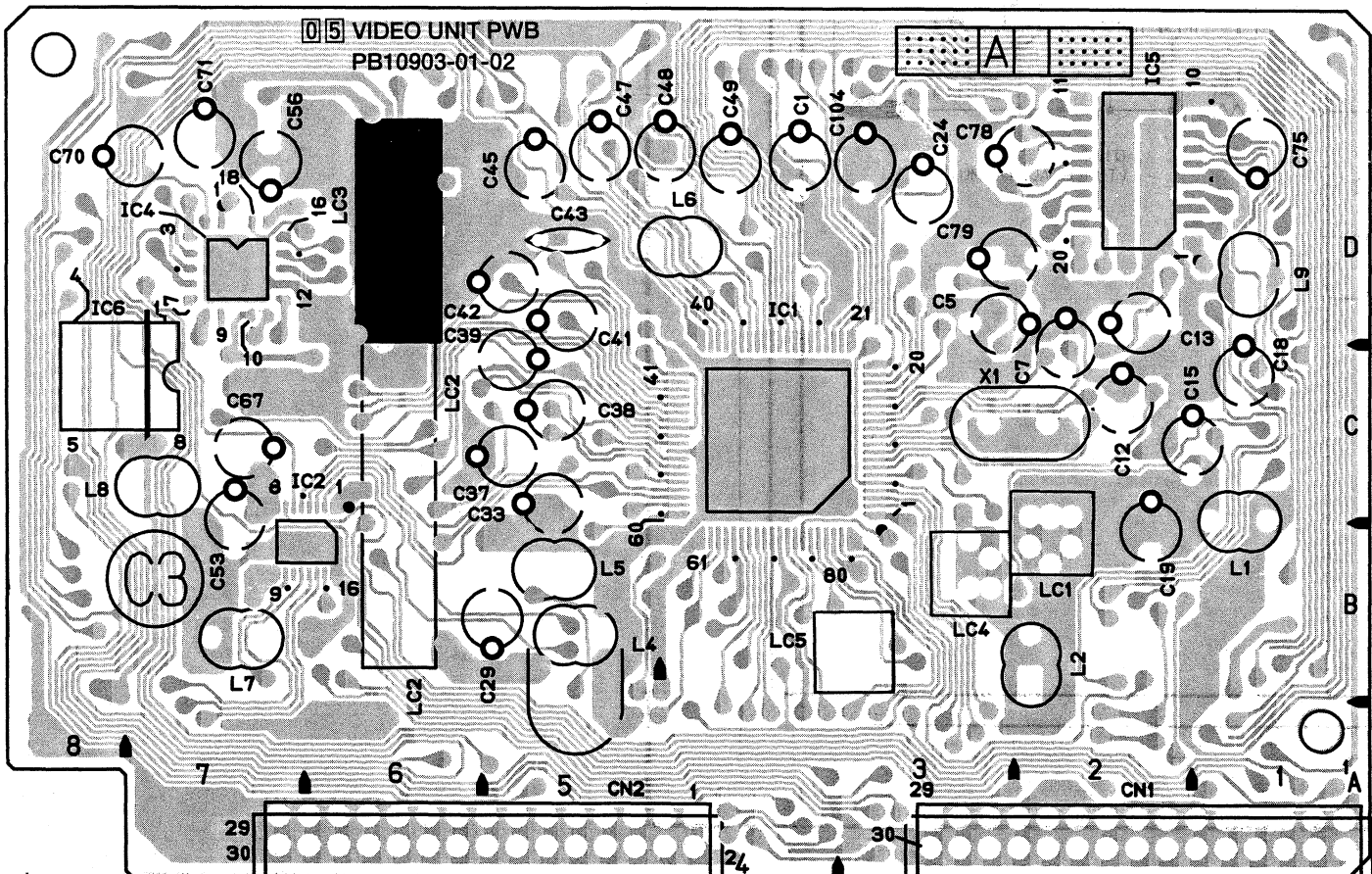
NOTE: Mark (*) is not used.

4.14 VIDEO UNIT CIRCUIT BOARD

— FOIL SIDE —

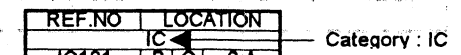


— COMPONENT SIDE —



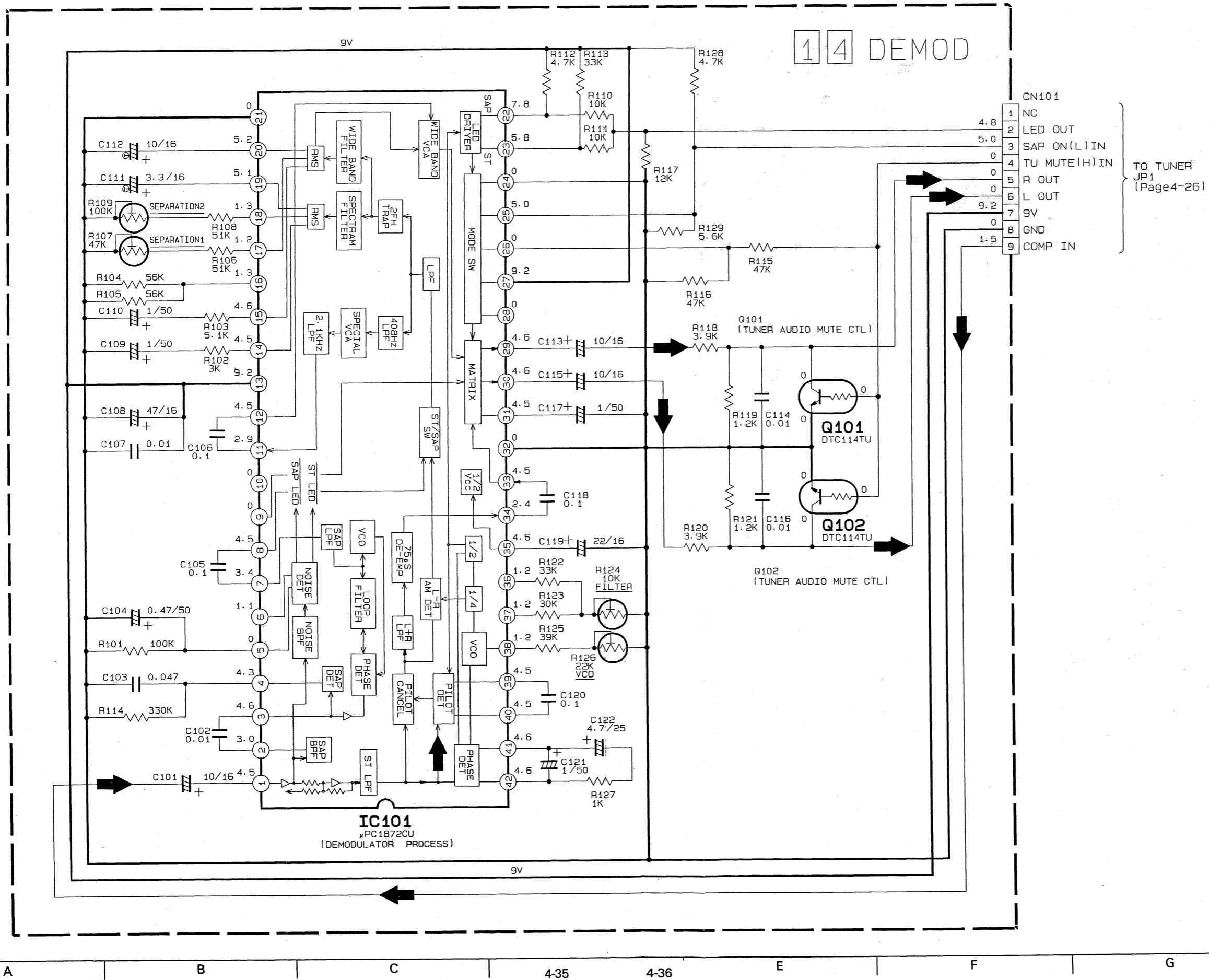
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COMPONENT PARTS LOCATION GUIDE

REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION	REF.NO.	LOCATION
CAPACITOR							
C1	A D 4D	C61	B C 7D	IC6	A D 7D	R34	B C 7C
C2	B C 3D	C62	B C 7C	IC7	B C 4C	R35	B C 7C
C3	B C 3D	C63	B C 7D	COIL			
C4	B C 3E	C64	B C 6C	L1	A D 1C	R36	B C 7C
C5	A D 3D	C65	B C 7C	L2	A D 2B	R37	B C 7D
C6	B C 2D	C66	B C 7D	L3	A D 5B	R38	B C 2C
C7	A D 2C	C67	A D 7C	L4	A D 5B	R39	B C 2E
C8	B C 2C	C68	B C 7D	L5	A D 5D	R40	B C 1E
C9	B C 3C	C69	B C 7E	L6	A D 5D	R41	B C 2E
C10	B C 2C	C70	A D 7E	L7	A D 7B	R42	B C 2D
C11	B C 3C	C71	A D 7D	L8	A D 7C	R43	B C 3D
C12	A D 2C	C72	B C 2D	L9	A D 1D	R44	B C 2D
C13	A D 2D	C73	B C 1C	TRANSISTOR			
C14	B C 2C	C74	B C 2E	Q1	B C 3C	R45	B C 2D
C15	A D 1C	C75	A D 1E	Q2	B C 1C	R46	B C 5E
C16	B C 2C	C76	B C 2E	Q3	B C 7D	R47	B C 6E
C17	B C 1C	C77	B C 2E	Q4	B C 6E	R48	B C 4B
C18	A D 1C	C78	A D 2E	Q5	B C 6E	R49	B C 4A
C19	A D 2B	C79	A D 2D	Q6	B C 6B	R50	B C 3A
C20	B C 3C	C80	B C 2D	Q7	B C 4E	R51	B C 3A
C21	B C 3B	C81	B C 2D	Q8	B C 4E	R52	B C 7A
C22	B C 4C	C82	B C 3D	Q9	B C 3D	R53	B C 7A
C23	B C 4D	C83	B C 2C	Q10	B C 5A	R54	B C 7A
C24	A D 3D	C84	B C 2D	Q11	B C 3E	R55	B C 5C
C25	B C 4B	C85	B C 5A	Q12	B C 1B	R56	B C 4C
C26	B C 4C	C86	B C 1A	Q13	B C 2B	R57	B C 6C
C27	B C 4C	C87	B C 6A	Q14	B C 5A	R58	B C 6C
C28	B C 4C	C88	B C 1B	Q15	B C 5A	R59	B C 8C
C29	A D 5B	C89	B C 4A	Q16	B C 8E	R60	B C 8D
C30	B C 4C	C90	B C 4C	RESISTOR			
C31	B C 5B	C91	B C 6A	R1	B C 2C	R61	B C 8D
C32	B C 5B	C92	B C 4A	R2	B C 2C	R62	B C 3B
C33	A D 5C	C93	B C 7A	R3	B C 3C	R63	B C 4A
C34	B C 5B	C94	B C 7A	R4	B C 3C	R64	B C 4C
C35	B C 5C	C95	B C 7A	R5	B C 3C	R65	B C 4D
C36	B C 4C	C96	B C 7C	R6	B C 2C	R66	B C 4D
C37	A D 5C	C97	B C 8C	R7	B C 2C	R68	B C 3E
C38	A D 5C	C98	B C 7C	R8	B C 3C	R69	B C 1A
C39	A D 6C	C99	B C 5E	R9	B C 3C	R70	B C 1D
C40	B C 5C	C100	B C 1E	R10	B C 4B	R71	B C 4C
C41	A D 5D	C101	B C 3C	R11	B C 4B	R72	B C 3B
C42	A D 5D	C102	B C 4C	R12	B C 5B	R73	B C 5D
C43	A D 5D	C103	A D 3D	R13	B C 5B	R74	B C 3D
C44	B C 4D	C104	B C 4C	R14	B C 4C	R75	B C 1A
C45	A D 5D	C105	B C 3D	R15	B C 5D	R76	B C 6B
C46	B C 4D	C106	B C 5B	R16	B C 8C	R77	B C 6D
C47	A D 5D	C107	B C 5B	R17	B C 5E	R78	B C 2C
C48	A D 4D	C108	B C 2A	R18	B C 7B	R79	B C 3D
C49	A D 4D	C109	B C 4A	R19	B C 7B	R80	B C 3D
C50	B C 8C	CONNECTOR				R20	B C 4C
C51	B C 7C	CN1	A D 1A	R21	B C 6B	R81	B C 1D
C52	B C 7B	CN2	A D 4A	R22	B C 6D	R82	B C 1D
C53	A D 7B	DIODE				R23	B C 1C
C54	B C 3A	D1	B C 3B	R24	B C 6C	R83	B C 2B
C55	B C 3A	D3	B C 4D	R25	B C 6E	R84	B C 2B
C56	A D 7E	D4	B C 5A	R26	B C 6E	R85	B C 6D
C57	B C 6E	IC				R27	B C 6E
C58	B C 7E	IC1	A C 4C	R28	B C 7E	R86	B C 5E
C59	B C 6D	IC2	A C 6B	R29	B C 6D	OTHERS	
C60	B C 6D	IC3	B C 7B	R30	B C 6D	X1	A D 3C
		IC4	A C 7D	R31	B C 7D	K1	B C 5E
		IC5	A C 2D	R32	B C 7C	LC1	A D 2C
				R33	B C 6D	LC2	A D 6B
						LC3	A D 6E
						LC4	A D 3B
						LC5	A D 3B

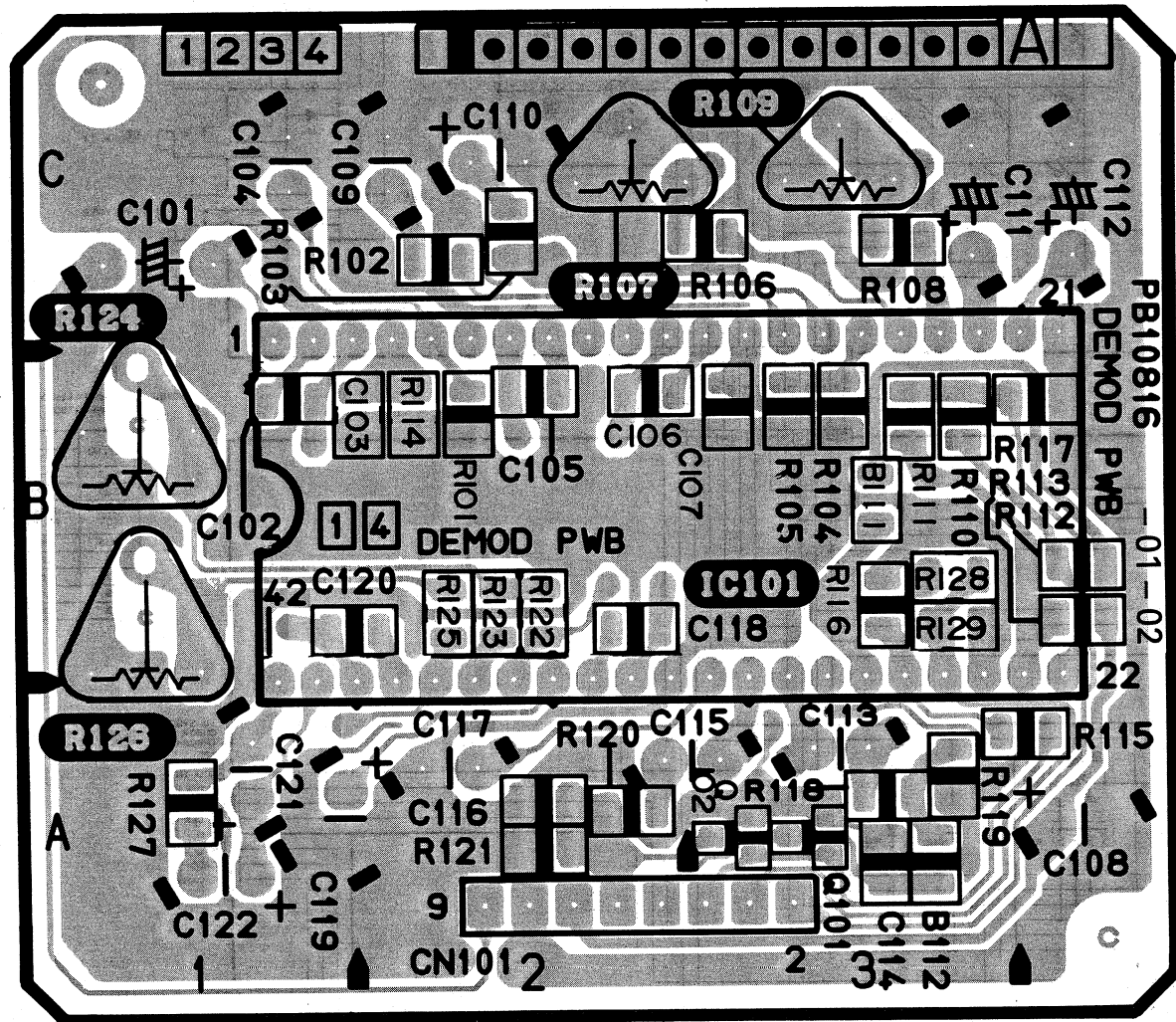


Category : IC
B : Foil side
A : Component side
C : Chip component
D : Discrete component
Horizontal "A" zone
Vertical "6" zone

4.15 DEMODULATOR SCHEMATIC DIAGRAM



4.16 DEMODULATOR CIRCUIT BOARD



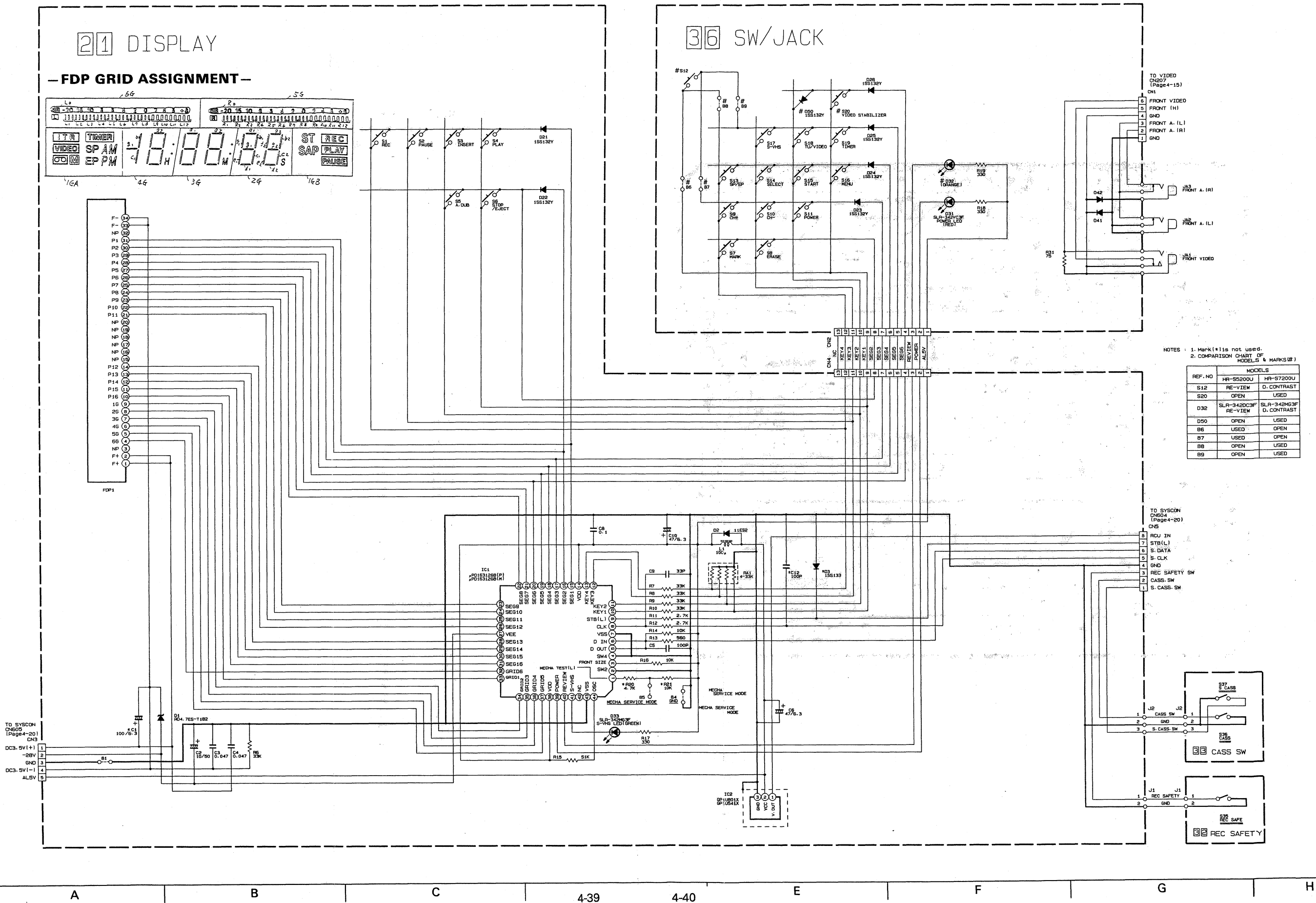
LEADLESS COMPONENT PARTS LOCATION GUIDE

REF. No.	LOCATION
TRANSISTOR	
Q101	3A
Q102	3A
RESISTOR	
R101	2B
R102	2C
R103	2C
R104	3B
R105	3B
R106	3C
R108	3C
R110	3B
R111	3B
R112	4B
R113	4B
R114	2B
R115	4A
R116	3B
R117	4B
R118	3A
R119	3A
R120	2A
R121	2A
R122	2B
R123	2B
R125	2B
R127	1A
R128	3B
R129	3B
CAPACITOR	
C102	1B
C103	1B
C105	2B
C106	2B
C107	3B
C114	3A
C116	2A
C118	2B
C120	1B

MAIN COMPONENT LOCATION GUIDE

REF. No.	LOCATION
IC	
IC101	3B
TRANSISTOR	
Q101	3A
Q102	3A
ADJUSTMENT	
R107	2C
R109	3C
R124	1B
R126	1B
CONNECTOR	
CN101	2A

4.17 DISPLAY, SW/JACK, SAFETY AND CASSETTE SW SCHEMATIC DIAGRAMS

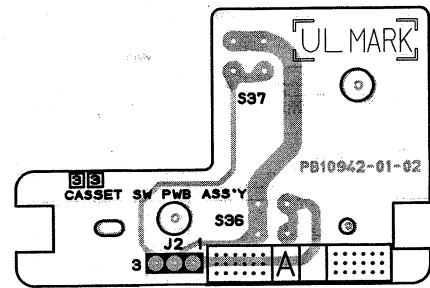


NOTES: 1. Mark (+) is not used.
2. COMPARISON CHART OF MODELS & MARKS (#)

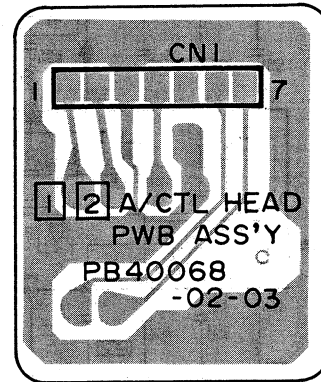
REF. NO	MODEL	MODEL
S12	RE-VIEW	D. CONTRAST
S20	OPEN	USED
D32	SLR-3420C3F	SLR-342M3F
	RE-VIEW	D. CONTRAST
D50	OPEN	USED
B6	USED	OPEN
B7	USED	OPEN
B8	OPEN	USED
B9	OPEN	USED

4.18 DISPLAY, SW/JACK, REC SAFETY, CASSETTE SW AND A/C HEAD CIRCUIT BOARDS

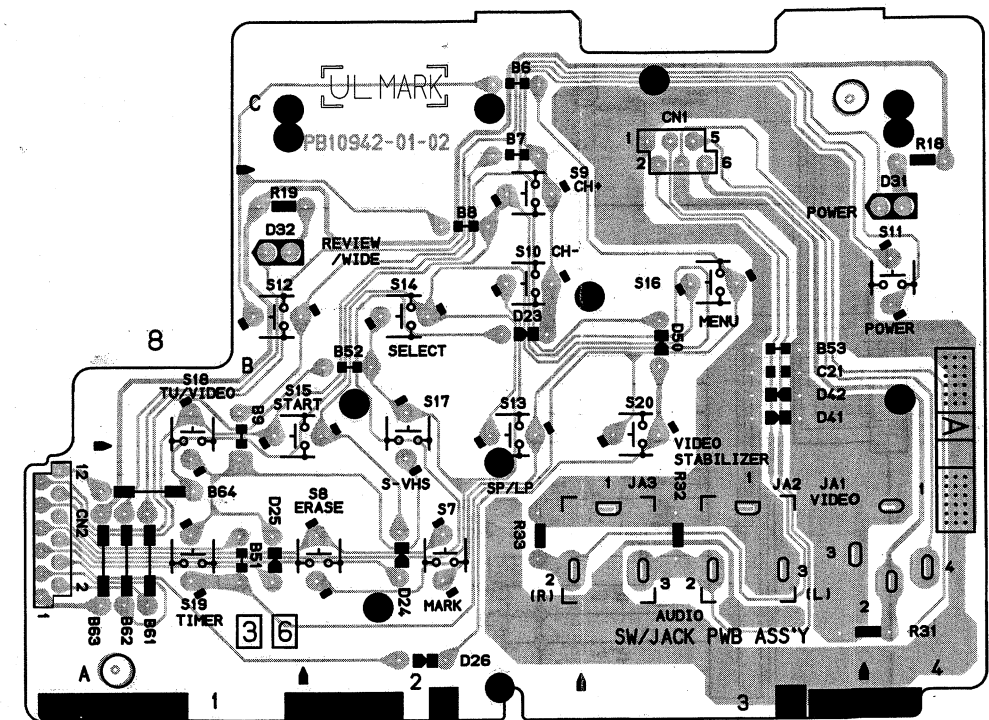
— CASSETTE SW —



— A/C HEAD —



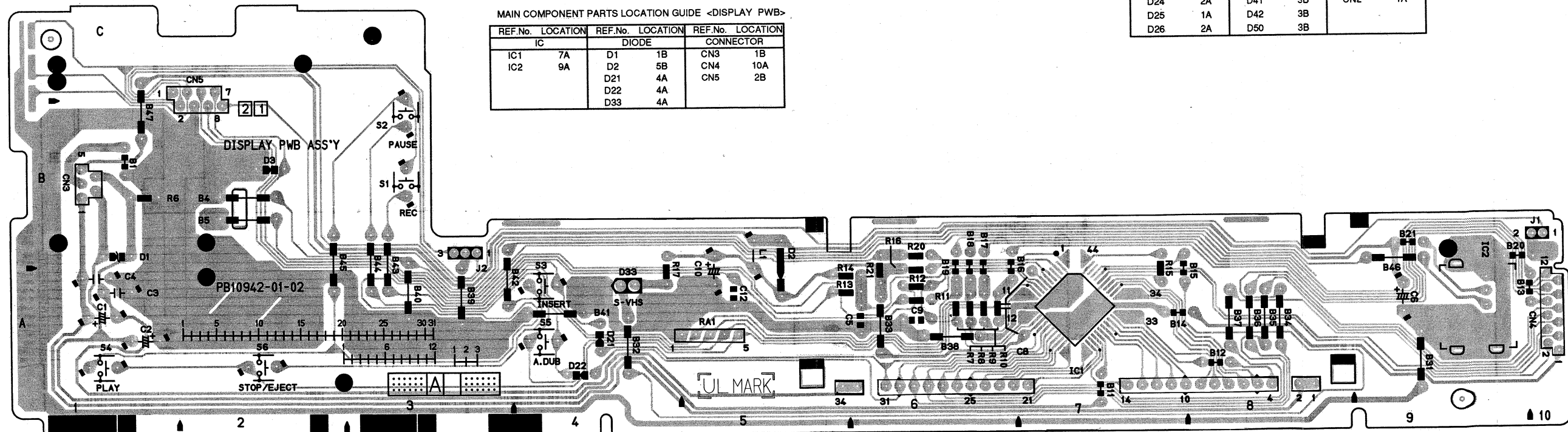
— SW/JACK —



— REC SAFETY —



— DISPLAY —



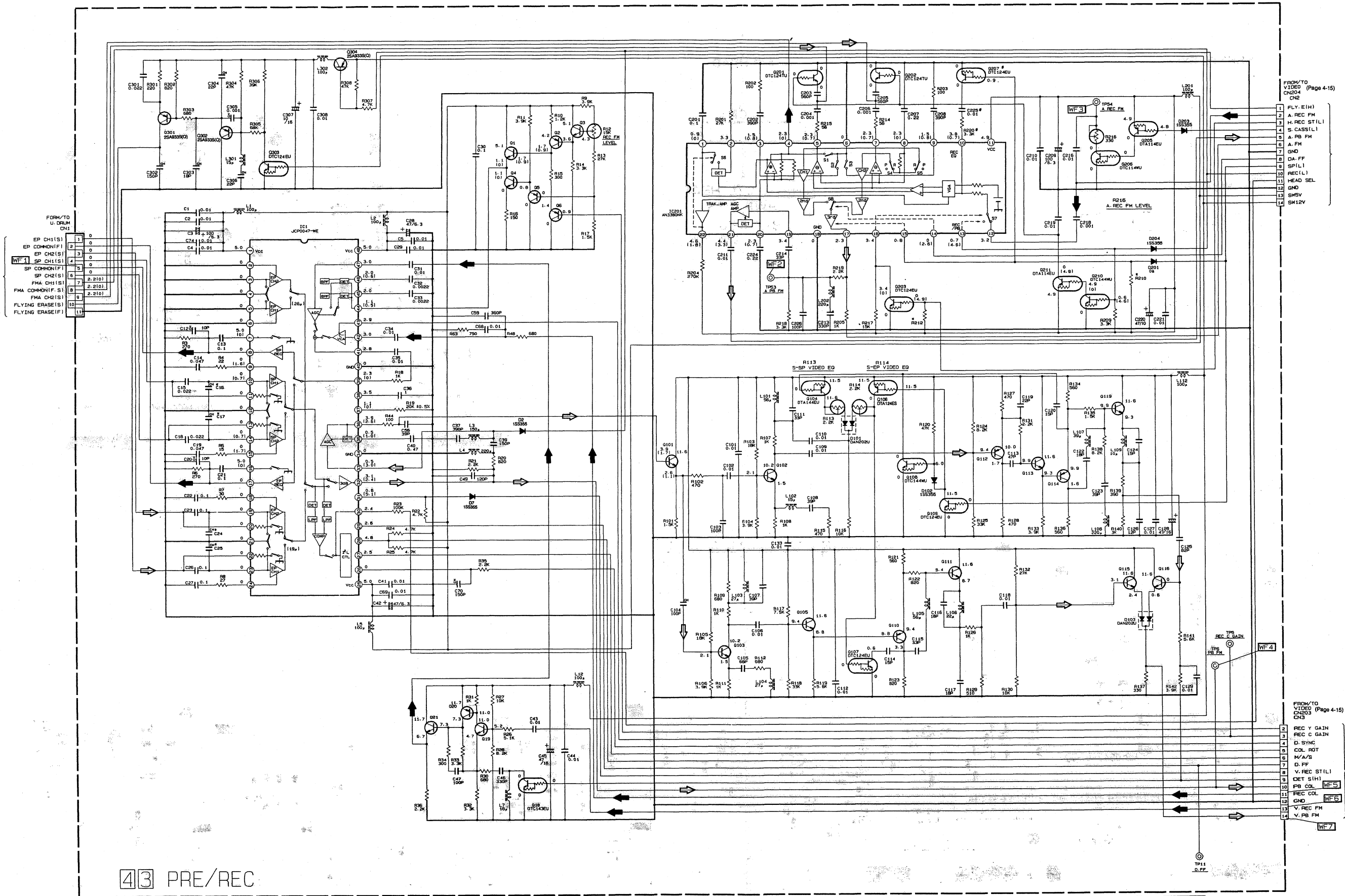
MAIN COMPONENT PARTS LOCATION GUIDE <DISPLAY PWB>

REF.No.	LOCATION	REF.No.	LOCATION	REF.No.	LOCATION
IC1	7A	D1	1B	CN3	1B
IC2	9A	D2	5B	CN4	10A
		D21	4A	CN5	2B
		D22	4A		
		D33	4A		

MAIN COMPONENT PARTS LOCATION GUIDE <SWITCH/JACK PWB>

REF.No.	LOCATION	REF.No.	LOCATION	REF.No.	LOCATION
D23	2B	D31	4B	CONNECTOR	
D24	2A	D32	1B	CN1	3C
D25	1A	D41	3B	CN2	1A
D26	2A	D50	3B		

4.19 PRE/REC SCHEMATIC DIAGRAM



PRE/REC

NOTES: 1. Mark (*) is not used.
2. Comparison chart of models & marks (#).

REF No.	MODELS	
	HR-S5200U	HR-S7200U
Q207	OPEN	USED
R220	OPEN	USED
C225	OPEN	USED

FROM/TO VIDEO (Page 4-15)
CH204 CN2

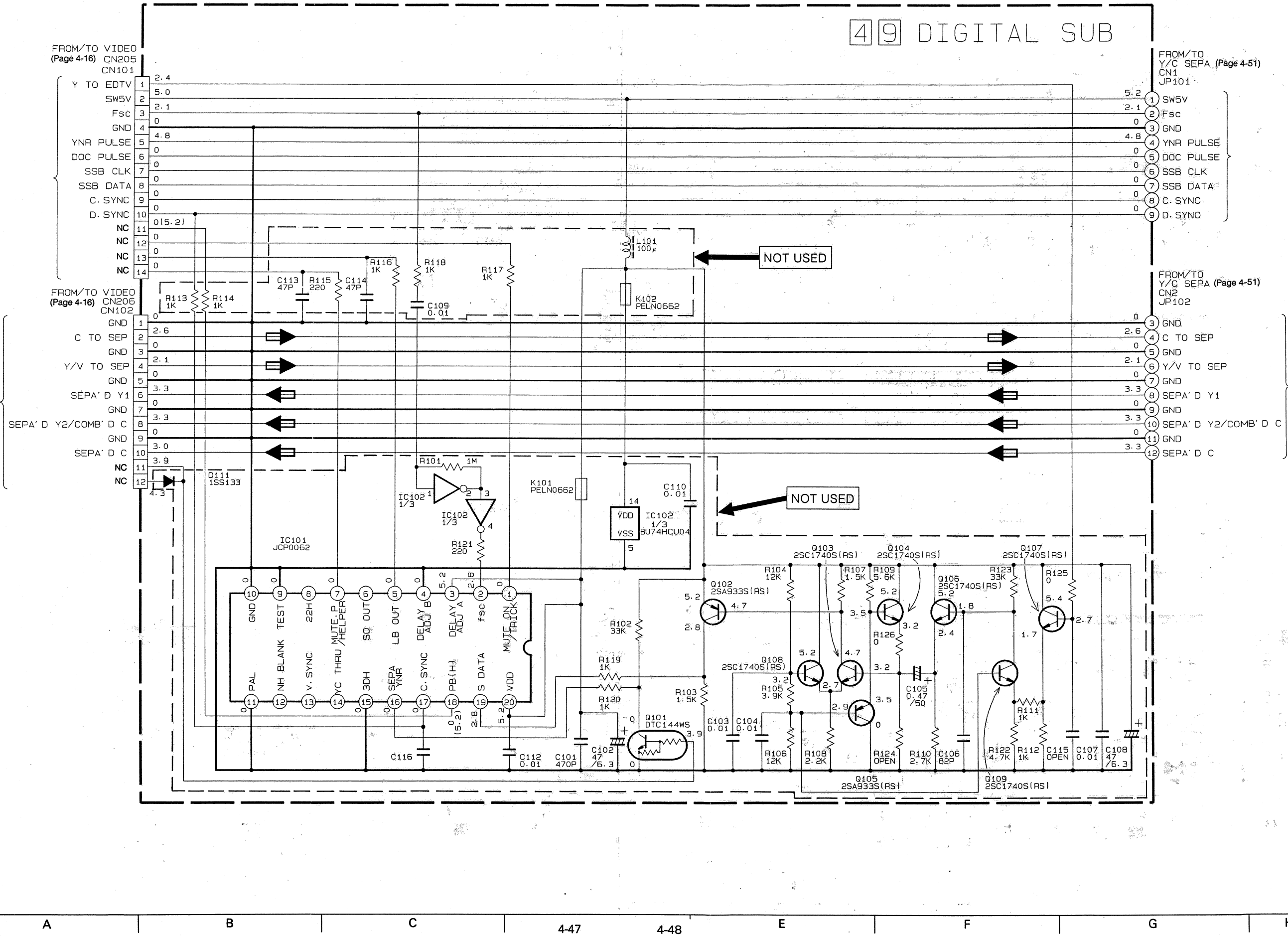
- 1 FLY. E(H)
- 2 A. REC FM
- 3 S. REC ST(L)
- 4 S. CASS(L)
- 5 A. PB FM
- 6 A. FM
- 7 GND
- 8 DA-FF
- 9 SFL(L)
- 10 REC(L)
- 11 HEAD SEL
- 12 GND
- 13 S.M.V
- 14 S.M.12V

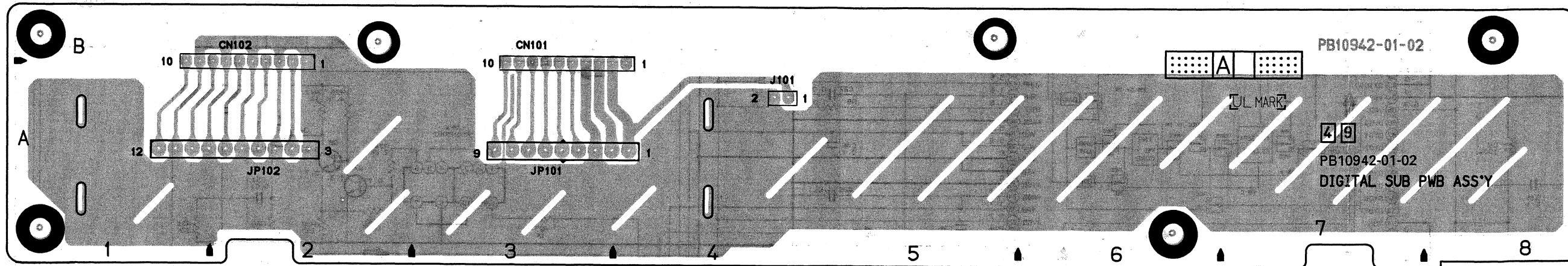
FROM/TO VIDEO (Page 4-15)
CH203 CN3

- 1 REC Y GAIN
- 2 REC C GAIN
- 3 D. SYNC
- 4 COL ROT
- 5 M/A/S
- 6 D. FF
- 7 V. REC ST(L)
- 8 DET S(H)
- 9 PB COL WF 5
- 10 REC COL WF 6
- 11 GND
- 12 V. REC FM
- 13 V. PB FM
- 14 WF 7

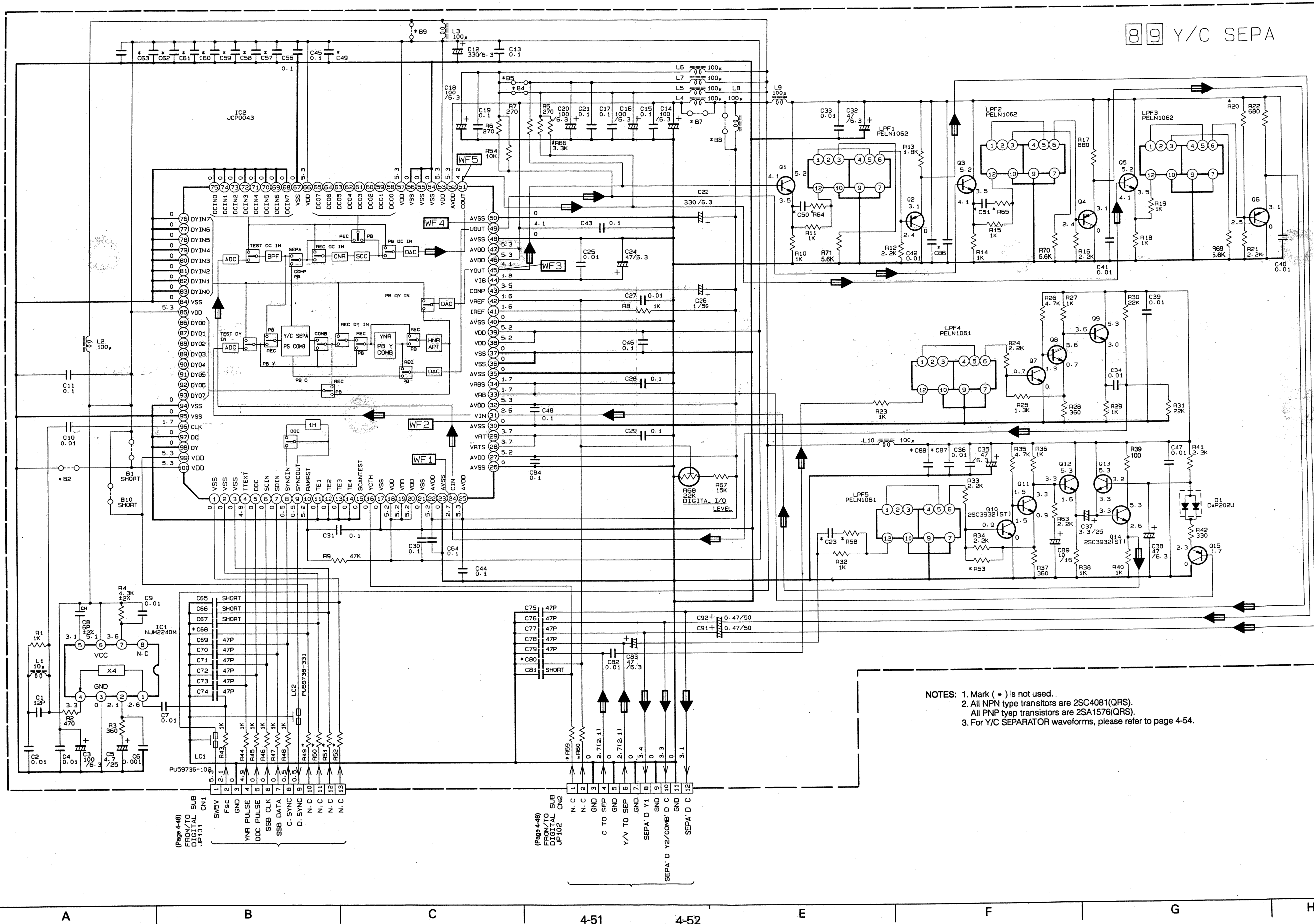
4.21 DIGITAL SUB SCHEMATIC DIAGRAM

49 DIGITAL SUB





4.23 Y/C SEPARATOR SCHEMATIC DIAGRAM



89 Y/C SEPA

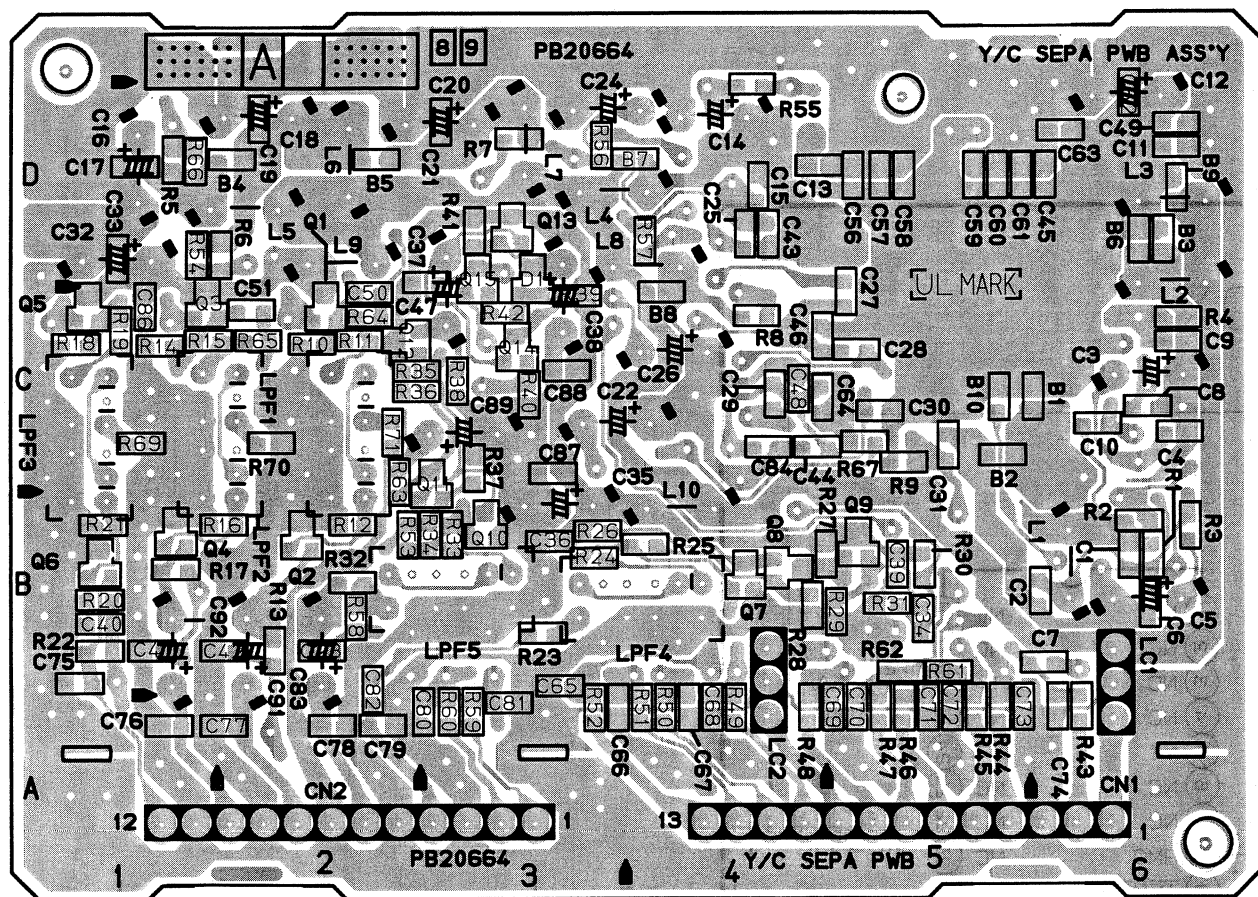
- NOTES: 1. Mark (*) is not used.
 2. All NPN type transistors are 2SC4081(QRS).
 All PNP type transistors are 2SA1578(QRS).
 3. For Y/C SEPARATOR waveforms, please refer to page 4-54.

(Page 4-48)
 FROM/TO SUB
 DIGITAL JF101
 CN1

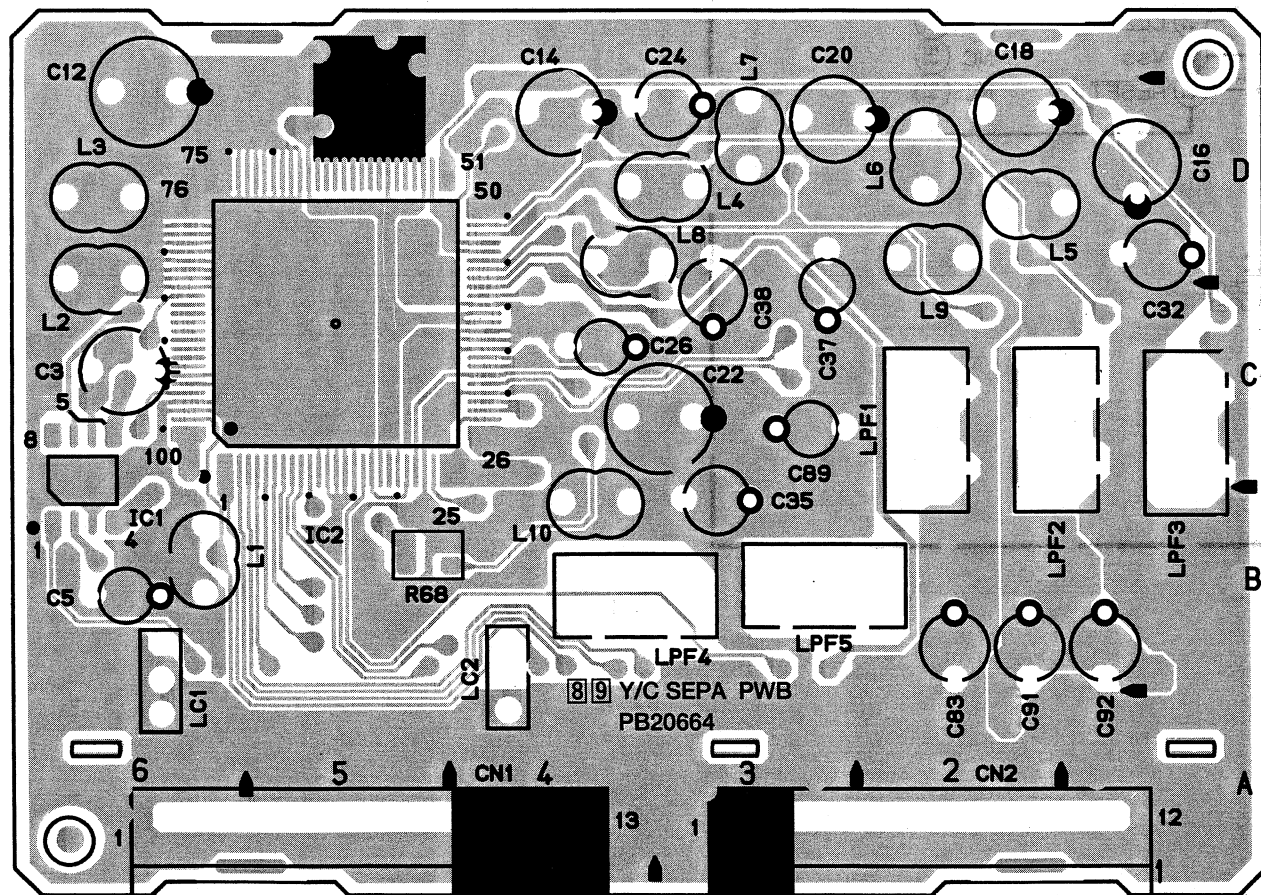
(Page 4-48)
 TO/DIGITAL
 SUB JF102
 CN2

4.24 Y/C SEPARATOR CIRCUIT BOARD

— FOIL SIDE —

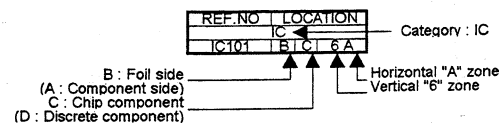


— COMPONENT SIDE —

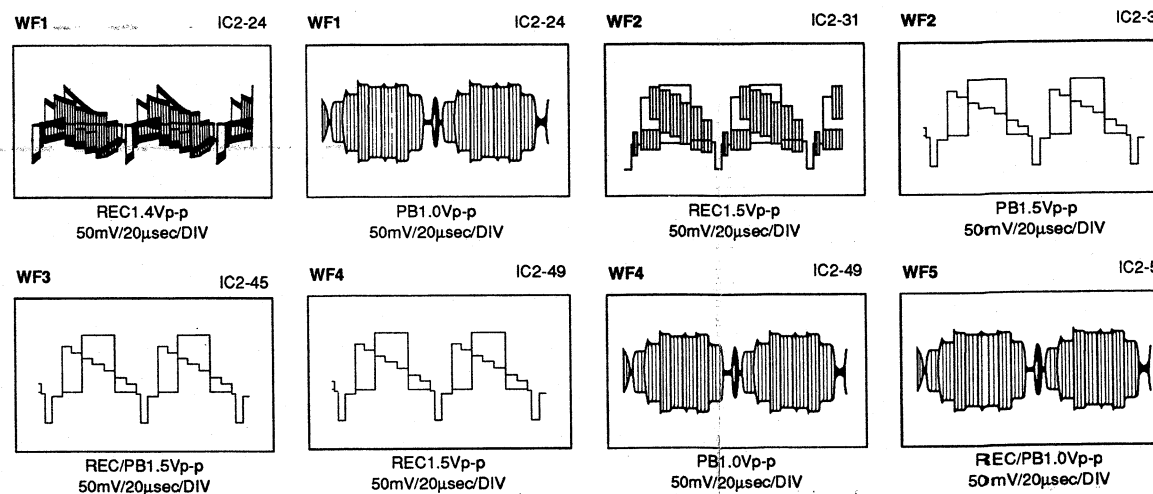


COMPONENT PARTS LOCATION GUIDE

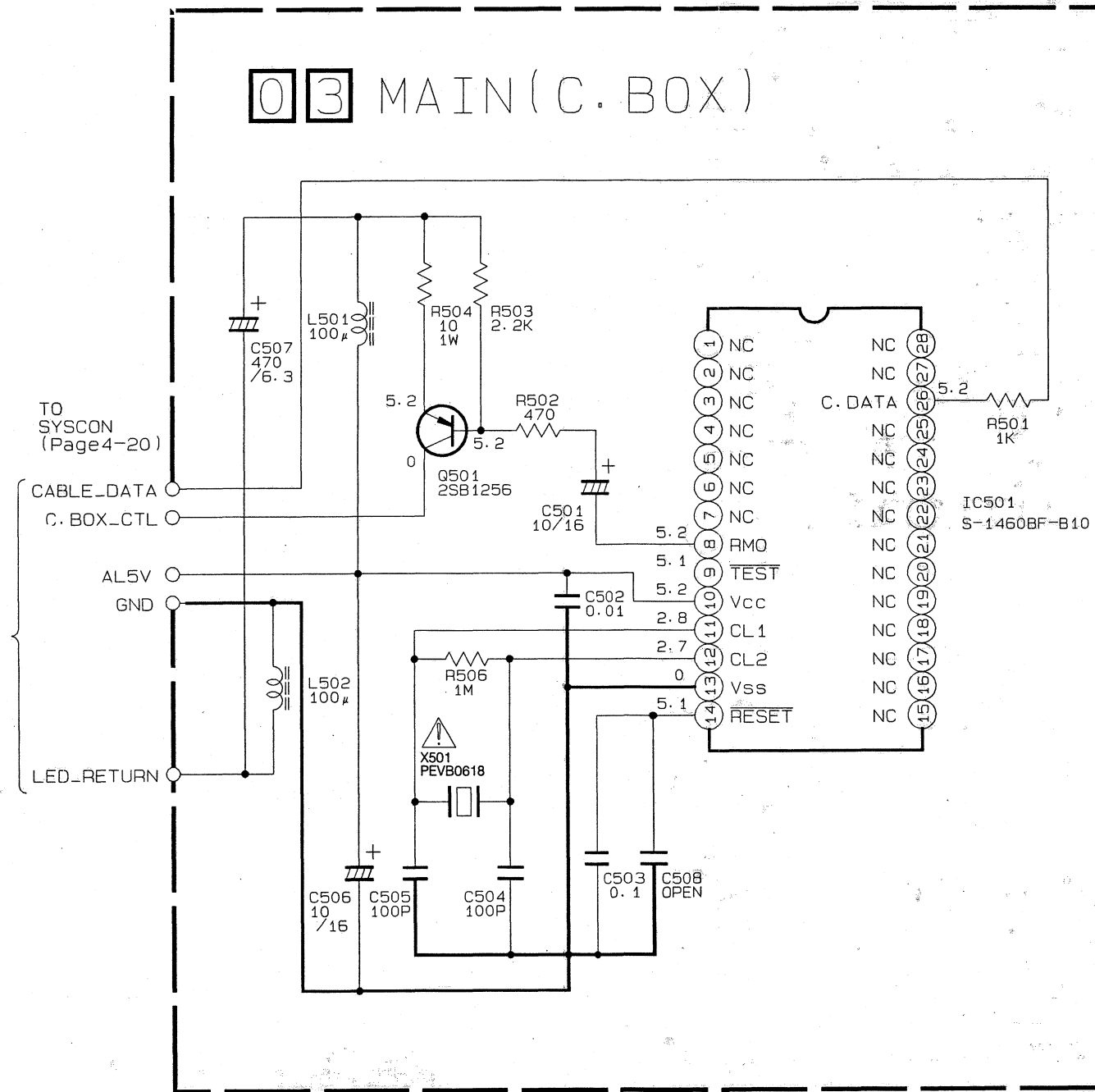
REF.NO	LOCATION	REF.NO	LOCATION	REF.NO	LOCATION	REF.NO	LOCATION	REF.NO	LOCATION
CAPACITOR									
C1	B/C 6B	C46	B/C 4C	IC		R10	B/C 2C	R56	B/C 3D
C2	B/C 6B	C47	B/C 3D	IC1	A/C 6C	R11	B/C 2C	R57	B/C 4D
C3	A/D 6C	C48	B/C 4C	IC2	A/C 5C	R12	B/C 2B	R58	B/C 2B
C4	B/C 6C	C49	B/C 6D	COIL		R13	B/C 2B	R59	B/C 3A
C5	A/D 6B	C50	B/C 2C	L1	A/D 6B	R14	B/C 1C	R60	B/C 3A
C6	B/C 6B	C51	B/C 2C	L2	A/D 6D	R15	B/C 1C	R61	B/C 5B
C7	B/C 6B	C52	B/C 5D	L3	A/D 6D	R16	B/C 2B	R62	B/C 5B
C8	B/C 6C	C53	B/C 5D	L4	A/D 3D	R17	B/C 1B	R63	B/C 2C
C9	B/C 6C	C54	B/C 5D	L5	A/D 1D	R18	B/C 1C	R64	B/C 2C
C10	B/C 6C	C55	B/C 5D	L6	A/D 2D	R19	B/C 1C	R65	B/C 2C
C11	B/C 6D	C56	B/C 5D	L7	A/D 3D	R20	B/C 1B	R66	B/C 1D
C12	A/D 6D	C57	B/C 5D	L8	A/D 3D	R21	B/C 1B	R67	B/C 5C
C13	B/C 4D	C58	B/C 6D	L9	A/D 2D	R22	B/C 1B	R68	A/C 5B
C14	A/D 4D	C59	B/C 6D	L10	A/D 4B	R23	B/C 3B	R69	B/C 1C
C15	B/C 4D	C60	B/C 4C	LOW PASS FILTER		R24	B/C 3B	R70	B/C 2C
C16	A/D 1D	C61	B/C 3B	LPF1	A/D 2C	R25	B/C 4B	R71	B/C 2C
C17	B/C 1D	C62	B/C 3A	LPF2	A/D 2C	R26	B/C 3B		
C18	A/D 2D	C63	B/C 4A	LPF3	A/D 1C	R27	B/C 5B		
C19	B/C 2D	C64	B/C 4A	LPF4	A/D 3B	R28	B/C 4B		
C20	A/D 3D	C65	B/C 5A	LPF5	A/D 2B	R29	B/C 5B		
C21	B/C 3D	C66	B/C 5A	TRANSISTOR		R30	B/C 5B		
C22	A/D 4C	C67	B/C 5A	Q1	B/C 2C	R31	B/C 5B		
C23	B/C 2B	C68	B/C 5A	Q2	B/C 2B	R32	B/C 2B		
C24	A/D 4B	C69	B/C 6A	Q3	B/C 1C	R33	B/C 3B		
C25	B/C 4D	C70	B/C 6A	Q4	B/C 1B	R34	B/C 3B		
C26	A/D 4C	C71	B/C 1B	Q5	B/C 1C	R35	B/C 2C		
C27	B/C 5C	C72	B/C 1A	Q6	B/C 1B	R36	B/C 2C		
C28	B/C 5C	C73	B/C 2A	Q7	B/C 4B	R37	B/C 3C		
C29	B/C 4C	C74	B/C 2A	Q8	B/C 4B	R38	B/C 3C		
C30	B/C 5C	C75	B/C 3A	Q9	B/C 5B	R39	B/C 3C		
C31	B/C 5C	C76	B/C 3A	Q10	B/C 3B	R40	B/C 3C		
C32	A/D 1D	C77	B/C 3A	Q11	B/C 3C	R41	B/C 3D		
C33	B/C 1D	C78	B/C 2B	Q12	B/C 2C	R42	B/C 3C		
C34	B/C 5B	C79	A/D 2B	Q13	B/C 3D	R43	B/C 6A		
C35	A/D 3B	C80	B/C 4C	Q14	B/C 3C	R44	B/C 5A		
C36	B/C 3B	C81	B/C 1C	Q15	B/C 3D	R45	B/C 5A		
C37	A/D 3D	C82	B/C 3C	RESISTOR		R46	B/C 5A		
C38	A/D 3D	C83	B/C 3C	R1	B/C 6B	R47	B/C 5A		
C39	B/C 5B	C84	A/D 3C	R2	B/C 6B	R48	B/C 4A		
C40	B/C 1B	C85	A/D 2B	R3	B/C 6B	R49	B/C 4A		
C41	B/C 1B	C86	A/D 1B	R4	B/C 6C	R50	B/C 4A		
C42	B/C 2B	C87	A/D 1B	CONNECTOR		R51	B/C 4A		
C43	B/C 4D	C88	A/D 1B	CN1	A/D 4A	R52	B/C 3A		
C44	B/C 4C	C89	A/D 1A	CN2	A/D 1A	R53	B/C 2B		
C45	B/C 6D	C90	A/D 1B	DIODE		R54	B/C 1D		
		D1	B/C 3D	R5	B/C 1D	R55	B/C 4D		



WAVEFORMS
— Y/C SEPARATOR —



4.25 CABLE BOX SCHEMATIC DIAGRAM



A

B

C

4-55

4-56

E

F

G

H

6

4.26 REMOTE CONTROL SCHEMATIC DIAGRAM

— for HR-S5200U —

NOTE:

1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.

5

4

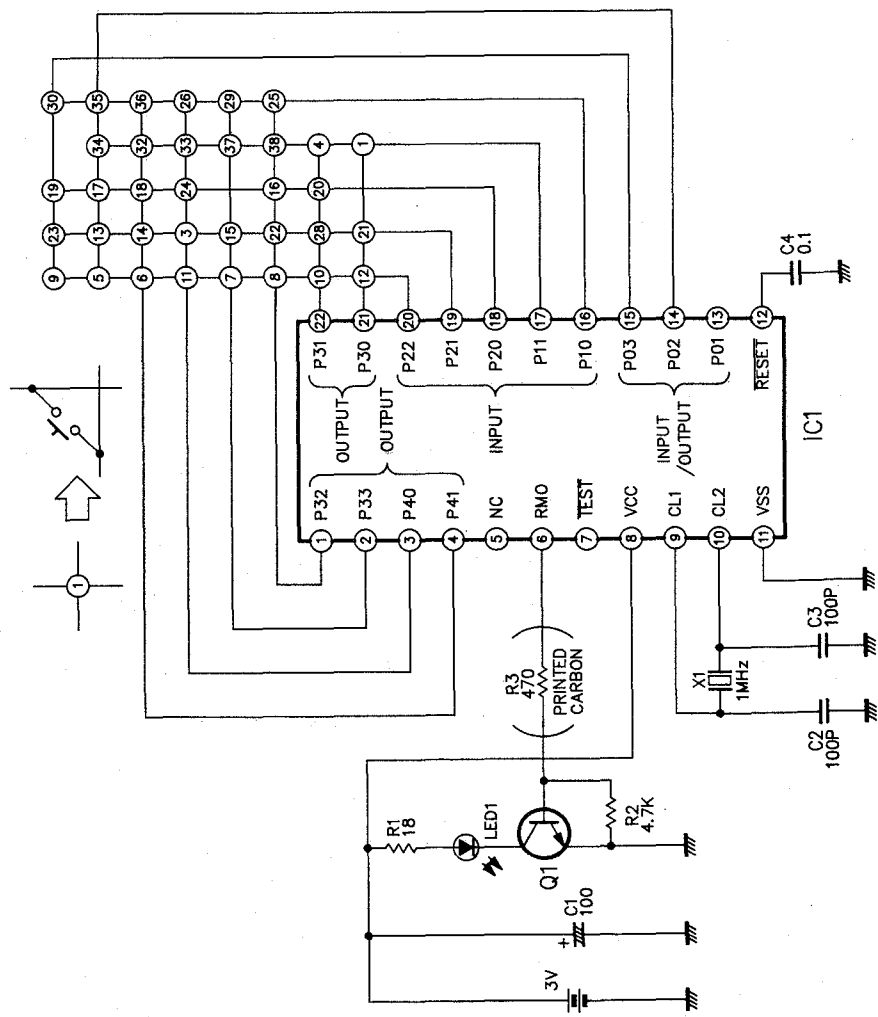
3

2

1

REMOTE CONTROLLER

Key No.	Key Name	Key No.	Key Name
1	ONE PRESS INDEX	31	PAUSE
2	TIMER	32	MENU
3	POWER	33	SELECT
5	1	35	C MEMORY
6	2	36	CANCEL
7	3	37	CH -
8	4	38	CH +
9	5	29+26	REC PLAY
10	6	29+32	REC PAUSE
11	7	17+4	TV POWER
12	8	17+18	TV/VIDEO
13	9	(17+)21	TV VOL -
14	0	(17+)22	TV VOL +
15	DISPLAY	17+37	TV CH -
16	ENTER	17+38	TV CH +
17	TV		
18	TV/VIDEO		
19	SP/EP		
20	SKIP		
21	TV VOL -		
22	TV VOL +		
23	SEARCH ◀		
24	SEARCH ▶		
25	REW		
26	PLAY		
27			
28	FF		
29	REC		
30	STOP		



A

B

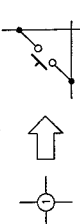
C

D

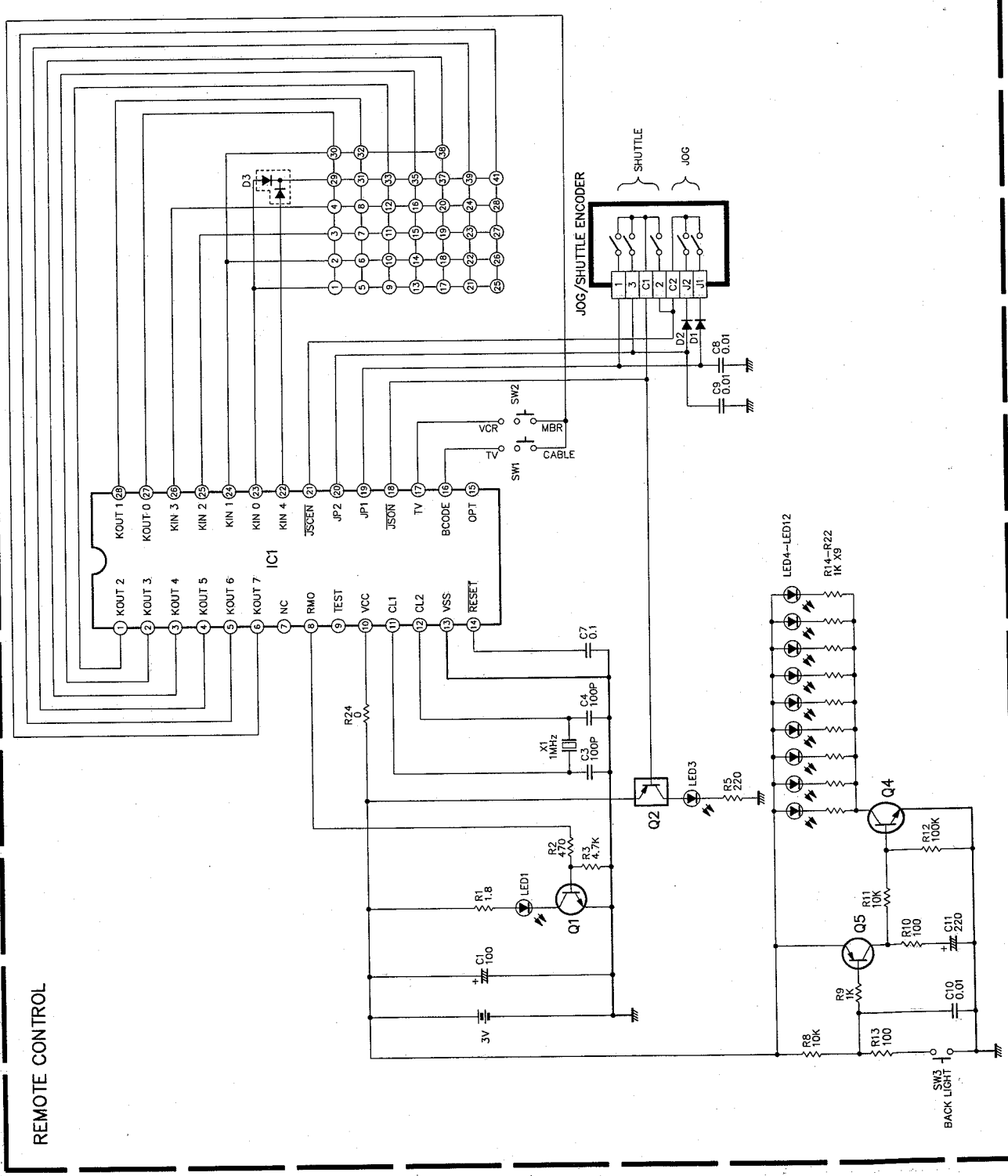
— for HR-S7200U —

NOTE:

1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.



Key No.	Key Name
1	3
2	5
3	1
4	2
5	6
6	8
7	4
8	TV/VIDEO
9	9
10	0
11	7
12	POWER
13	CH/SET -
14	CH/SET +
15	TV VOL +
16	TV VOL -
17	MENU
18	SELECT
19	C.MEMORY/ADD
20	ENTER/OSD
21	TIMER
22	V SEARCH >>
23	V SEARCH <<
24	SP / PD
25	C.RESET/SKIP
26	SKIP/SEARCH
27	RE-VIEW
28	DISPLAY
29	PAUSE/STILL ■■
30	-
31	JOG/SHUTTLE
32	-
33	REC ●
35	REW ◀
37	PLAY ▶
38	-
39	FF ▶▶
41	STOP ■
33+29	REC PAUSE
33+37	REC START



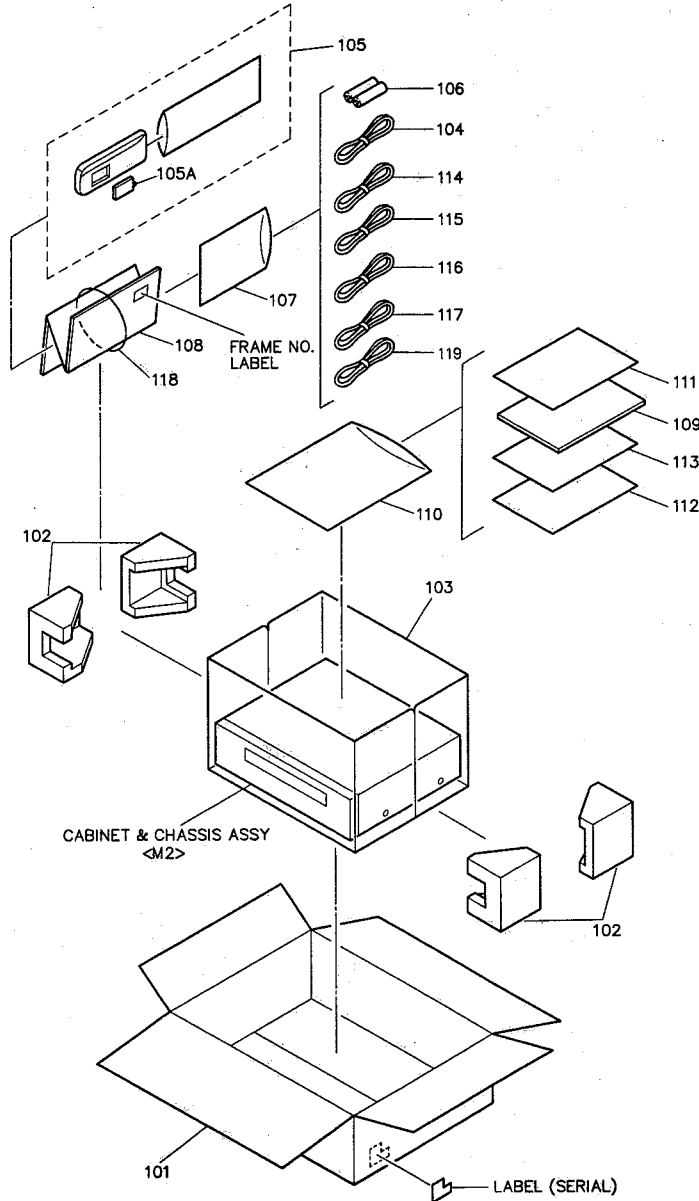
REMOTE CONTROL

SECTION 5 PARTS LIST

SAFETY PRECAUTION

Parts identified by the \triangle symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>



# \triangle REF No.	PART No.	PART NAME, DESCRIPTION

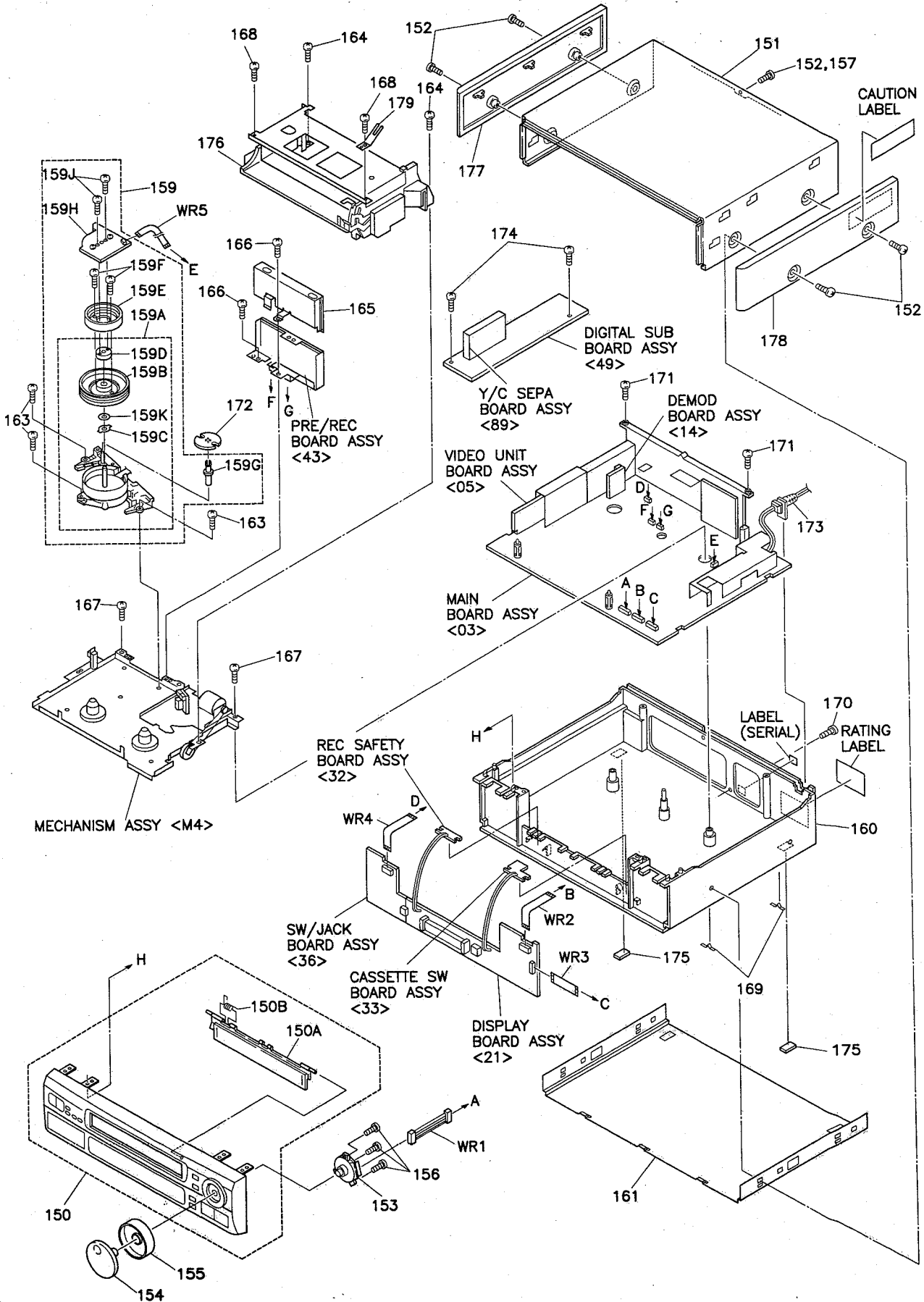
PACKING AND ACCESSORY ASSEMBLY < M1 >		
101	PQ35407	PACKING CASE,S5200U
	PQ35408	PACKING CASE,S7200U
102	PQ35413A	CUSHION ASSY
103	PQM30021-93	POLY(FOAM)BAG,S5200U
	PQM30021-95	POLY(FOAM)BAG,S7200U
104	PEAC0294-04	RF CABLE
\triangle 105	PQ21760A-3	REMOTE CONTROLLER,S5200U
\triangle	PQ11525U-20	REMOTE CONTROLLER,S7200U
105A	PQ46034	CAP(BATTERY),S7200U
106	PECA0786	BATTERY,X2 S5200U
	R6PRPA-2ST	BATTERY,X2 S7200U

# \triangle REF No.	PART No.	PART NAME, DESCRIPTION
	107	PQ35364-2
		PQ35364-5
	108	PQ35274-1-1
\triangle 109	PU30425-1746	INSTRUCTIONS,S5200U
\triangle	PU30425-1747	INSTRUCTIONS,S7200U
	110	PQ35364-5
	111	BT-51006-1
\triangle 112	YU20333	SAFETY CAUTION
	113	PU36560-2
\triangle 114	PEAC0370	LED CABLE ASSY,CABLE BOX
	115	PEAC0359-120
	116	PU60111
	117	PEAC0368-150
	118	PQ46504
	119	PEAC0294-04
		RF CABLE

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.

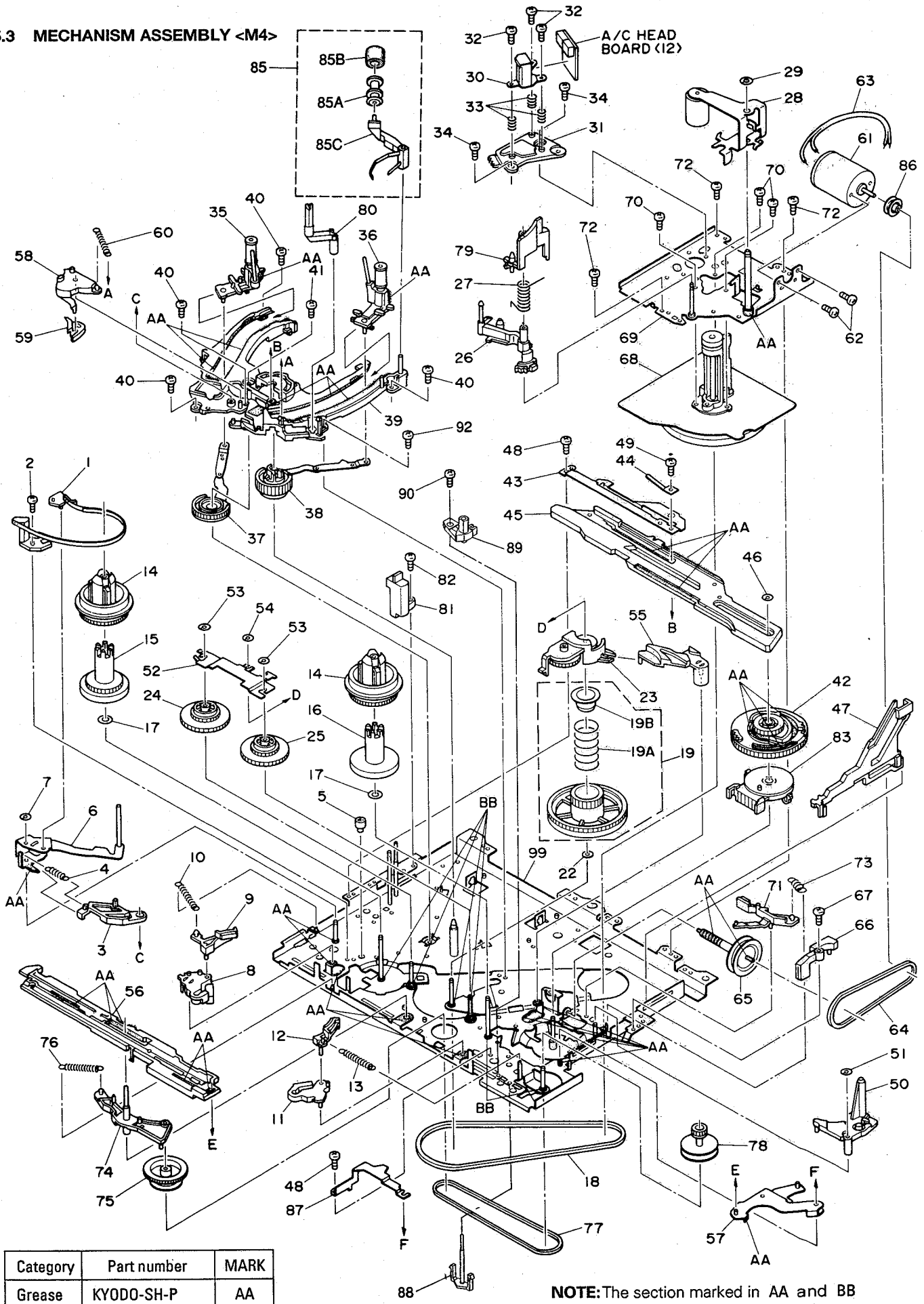


#△ REF No. PART No. PART NAME, DESCRIPTION

CABINET AND CHASSIS ASSEMBLY <M2>

△	150	PQ11802U	FRONT PANEL ASSY,S5200U
△		PQ11802V-5	FRONT PANEL ASSY,S7200U
	150A	PQ21818-15	CASSETTE DOOR
	150B	PQ46448	TORSION SPRING
△	151	PQ11676-12	TOP COVER,S5200U
△		PQ11676-9	TOP COVER,S7200U
	152	PQ43930	SPECIAL SCREW,X4 TOP COVER S7200U
		SDSF3010M	SCREW,X5 TOP COVER S5200U
	153	PEME0757-03	JOG SHUTTLE ASSY
	154	PQ35247-2	KNOB(JOG)
	155	PQ35295	KNOB(SHUTTLE)
	156	SDSF2608Z	SCREW,X3 JOG
	157	SDSF3010M	SCREW,TOP COVER S7200U
	159	PDV2368A	DRUM ASSY,S5200U
		PDV2391A	DRUM ASSY,S7200U
	159A	PDM2261V	DRUM SUB ASSY,S5200U
		PDM2261Y	DRUM SUB ASSY,S7200U
	159B	PDM3353AB	UPPER DRUM ASSY,S7200U
		PDM3353AQ	UPPER DRUM ASSY,S5200U
	159C	PDM4400C	BRUSH ASSEMBLY
	159D	PDM4345A	COLLAR ASSEMBLY
	159E	PDZ0141-2	ROTOR ASSEMBLY
	159F	SPSH2660Z	SCREW,X2
	159G	PDM4311A-1	ROLLER ASSEMBLY
△	159H	PDZ0141-1-2	STATOR ASSEMBLY
	159J	SPSP2606Z	SCREW,X2
	159K	PDM4050-9	WASHER
△	160	PQ11666-5	BOTTOM CHASSIS
△	161	PQ11668-2	BOTTOM COVER
	163	SPST2608Z	SCREW,X3 DRUM
	164	SPST2612Z	SCREW,X2 CASS HOUSING ASSY
	165	PQ21806	SHIELD CASE.PRE
	166	SDST2606Z	SCREW,X2 PRE
	167	SDSF4012Z	SCREW,X2 MECHA
	168	SDSF3010Z	SCREW,X2 CASS HOUSING ASSY
△	169	PQ46412-2	E. SPRING,X2
	170	SDSF3010M	SCREW,TERMINAL
	171	SDSF3010Z	SCREW,X2 TERMINAL
	172	PQ44230	INERTIA PLATE
△	173	QMP14K0-170	POWER CORD
	174	SDSF3010Z	SCREW,X2
	175	PQ43013-5	FOOT,X2
	176	PUS29724A-5	CASSETTE HOUSING ASSY
	177	PQ11842	SIDE PANEL(L),S7200U
	178	PQ11843	SIDE PANEL(R),S7200U
	179	PQ41556	EARTH PLATE
	WR1	PW30202-0772018	WIRE,JOG
	WR2	PW30802-0814	WIRE,DISPLAY
	WR3	PW30802-0515	WIRE,DISPLAY
	WR4	PW30802-0636	WIRE,DISPLAY
	WR5	PW30803-0422	WIRE,DRUM

5.3 MECHANISM ASSEMBLY <M4>



Category	Part number	MARK
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

#△ REF No. PART No. PART NAME, DESCRIPTION

MECHANISM ASSEMBLY <M4>

1	PQ46298A-5	TENSION BAND ASSEMBLY
2	SDST2608Z	SCREW
3	PQ35012-1-3	TENSION ARM LEVER
4	PQM30001-385109	TENSION SPRING
5	PQ46302-1-3	ADJUST PIN
6	PQ46303A-3	TENSION ARM ASSEMBLY
7	PQM30017-47	SLIT WASHER
8	PQ46305B-3	MAIN BRAKE ASSEMBLY(SUPPLY)
9	PQ46306A-3	SUB BRAKE ASSEMBLY(SUPPLY)
10	PQM30001-393	TENSION SPRING
11	PQ46308A-3	MAIN BRAKE ASSEMBLY(TAKE UP)
12	PQ46309A-4	SUB BRAKE ASSEMBLY (TAKE UP)
13	PQM30001-389102	TENSION SPRING
14	PQ21683-1-7	REEL DISK,X2
15	PQ35014-1-1	SLIT DISK(SUPPLY)
16	PQ35015-1-1	SLIT DISK(TAKE UP)
17	Q03093-828	WASHER,X2
18	PQM30003-33	BELT(CAPSTAN)
19	PQ46497B	PULLEY ASSEMBLY
19A	PQM30002-233	COMP.SPRING
19B	PQ46311	SPRING.CAP
22	PQM30018-69	SPACER
23	PQ46312B	IDLER ARM ASSEMBLY
24	PQ46316A-1	CLUTCH UNIT(SUPPLY)
25	PQ46323A-1	CLUTCH UNIT(TAKE UP)
26	PQ46325B	GUIDE ARM ASSEMBLY
27	PQ46326-1-2	TORSION SPRING
28	PQ46327A	PINCH ROLLER ARM ASSEMBLY
29	PQM30017-24	SLIT WASHER
30	PEHE0182	AUDIO/CONTROL HEAD
31	PQ35206	HEAD BASE
32	PQ43687A	SPECIAL SCREW,X3
33	PQM30002-192	COMPRESSION SPRING,X3
34	SDST2604Z	SCREW,X2
35	PQ46330A-1	POLE BASE ASSY(SUPPLY)
36	PQ46331A-1	POLE BASE ASSY(TAKE UP)
37	PQ46332A-3	LOADING ARM ASSY(SUPPLY)
38	PQ46337A-4	LOADING ARM ASSY(TAKE UP)
39	PQ11657-1-9	GUIDE RAIL
40	SPST2608Z	SCREW,X4
41	SDST2612Z	SCREW
42	PQ21684-1-3	CONTROL CAM
43	PQ35138-1-2	CONTROL BRACKET
44	PQ46423	EARTH PLATE
45	PQ11658-1-5	CONTROL PLATE
46	PQM30017-8	SLIT WASHER

#△ REF No.	PART No.	PART NAME, DESCRIPTION
47	PQ21685-2-6	PINCH PLATE
48	SPST2606Z	SCREW,X2
49	SPSF2608M	SCREW
50	PQ46342A-6	LEVER ASSY
51	PQM30017-8	SLIT WASHER
52	PQ35083-1-7	REEL BRACKET
53	PQM30017-51	SLIT WASHER,X2
54	Q03093-830	WASHER
55	PQ35026-1-4	IDLER LEVER
56	PQ11659-1-10	SLIDE PLATE
57	PQ46344A-2	CHANGE LEVER ASSEMBLY
58	PQ21686	TAKE UP LEVER
59	PQ46345	TAKE UP HEAD
60	PQM30001-387106	TENSION SPRING
△ 61	PU60628-4	LOADING MOTOR
62	SPSP3003Z	SCREW,X2
63	PW30101-80AJ632	WIRE
64	PQM30003-34-17	BELT
65	PQ46395A	WORM GEAR ASSEMBLY
66	PQ21699	WORM BEARING
67	SPST2606Z	SCREW
△ 68	PU61435	CAPSTAN MOTOR
69	PQ46347B-8	SUB DECK ASSEMBLY
70	SPSG2608Z	SCREW,X3
71	PQ46356A-1	CAPSTAN BRAKE ASSEMBLY
72	SDST2608Z	SCREW,X3
73	PQM30001-384101	TENSION SPRING,C.BRAKE
74	PQ46353A-2	CHANGE ARM ASSEMBLY
75	PQ46354	CHANGE GEAR
76	PQM30001-386	TENSION SPRING
77	PQM30003-35	BELT
78	PQ46355	CASSETTE GEAR
79	PQ35030-1-4	LID GUIDE
80	PQ21689	LED PRISM
81	PEHE0237	FULL ERASE HEAD
82	SDST2610Z	SCREW
83	PU61432-1-1	ROTARY ENCODER
85	PQ46436A-1	CLEANER ASSEMBLY
85A	PQ46418-1-2	CLEANER ROLLER
85B	PQ46419-1-2	CLEANER
85C	PQ35159-1-1	CLEANER ARM
86	PQ43546-1-2	MOTOR PULLEY
87	PQ35217-1-2	CONTROL BRACKET 2
88	PQ46473	S-SW PIN
89	PQ46474-1-2	S-SW HOLDER
90	SPST2606Z	SCREW
92	SDST2608Z	SCREW
99	PQ21680B-11	MAIN DECK ASSEMBLY

5.4 ELECTRICAL PARTS LIST

#△ REF No. PART No. PART NAME, DESCRIPTION

MAIN BOARD ASSEMBLY <03>

PWBA	PB10923B-01	MAIN BOARD ASSY,S5200U
	PB10923C-01	MAIN BOARD ASSY,S7200U
OTH1	PQ46408-1-2	SENSOR CAP,X2 Q602 Q603
△ CR801	PECA0962	CAPRISTOR
△ TU1001	PERF0204	TUNER UNIT
IC1	JCP0056	IC
IC2	AN3969K	IC
IC3	BA6138	IC
△ IC101	XRA7795LS	IC
△	or BA7795LS	IC
IC301	UPD6459CS-501	IC (OSD)
	or UPD6459ACS-501	IC (OSD)
IC351	MM1117XS	IC
IC352	BA7623F	IC
IC401	BU2881AS	IC
IC451	BA7039	IC
	or XRA7039	IC
IC501	S-1460BF-B10	SOP IC (MCU)
	or S-1460BF-B10-W	SOP IC (MCU)
	or S-14P60AF-B10	IC
IC601	HD6433928TA06F	QFP IC (MCU)
IC602	XLJ93LC56A	IC
	or AT93C56-10PC	IC
	or 93LC56/P	IC
	or 93LC56B/P	IC
IC603	S-80728AN-Z	IC
	or RE5VA28A	IC
	or RE5VL28A	IC
IC604	TA7291S	IC
IC607	M50253P	IC
	or BU2090	IC
IC608	M66007P	IC
IC751	M37470M3-053SP	IC
Q51	2SD1450S,T	TRANSISTOR
Q52	2SC3311A(RS)	TRANSISTOR
Q101	DTC114EU	TRANSISTOR
Q131	2SC4081(RS)	TRANSISTOR
Q132	2SA933S(RS)	TRANSISTOR
Q133	2SA933S(RS)	TRANSISTOR
Q134	2SC4081(RS)	TRANSISTOR
Q135	2SA933S(RS)	TRANSISTOR
Q201	2SC4081(QRS)	TRANSISTOR
Q202	2SA1576(QRS)	TRANSISTOR
Q203	2SC4081(QRS)	TRANSISTOR
Q221	2SC4081(QRS)	TRANSISTOR
Q222	2SC4081(QRS)	TRANSISTOR
Q223	2SC4081(QRS)	TRANSISTOR
Q241	DTC144EU	TRANSISTOR
Q242	2SC4081(QRS)	TRANSISTOR
Q243	2SC4081(QRS)	TRANSISTOR
Q261	DTC144EU	TRANSISTOR
Q262	DTC124EU	TRANSISTOR
Q263	DTC124EU	TRANSISTOR
Q264	DTC124EU	TRANSISTOR
Q281	DTC124EU	TRANSISTOR
Q282	DTA124EU	TRANSISTOR
Q301	2SA1576(QRS)	TRANSISTOR
Q302	2SC4081(QRS)	TRANSISTOR

#△ REF No. PART No. PART NAME, DESCRIPTION

Q351	2SA1576(QRS)	TRANSISTOR
Q352	2SC4081(QRS)	TRANSISTOR
Q401	DTC114EU	TRANSISTOR
Q501	2SB1256	TRANSISTOR
Q601	2SC4081(QRS)	TRANSISTOR
Q602	PN268VI	PHOTO TRANSISTOR
Q603	PN268VI	PHOTO TRANSISTOR
Q604	DTC124EU	TRANSISTOR
Q605	DTC124EU	TRANSISTOR
Q606	DTC143EU	TRANSISTOR
Q607	DTC124EU	TRANSISTOR
Q608	DTC124EU	TRANSISTOR
Q609	DTC124EU	TRANSISTOR
Q801	2SK1445-CB14	FE TRANSISTOR
	or 2SK1976-F44	FE TRANSISTOR
	or 2SK2123-LT	FE TRANSISTOR
Q802	2SC3616(ML)	TRANSISTOR
Q851	2SC1740S(RS)	TRANSISTOR
Q881	2SC3616(MLK)	TRANSISTOR
Q882	2SD1913(RS)	TRANSISTOR
Q883	2SC4081(R)	TRANSISTOR
Q884	DTA114EU	TRANSISTOR
Q885	DTC143TU	TRANSISTOR
Q886	2SB1256	TRANSISTOR
Q1001	2SC3243D,E	TRANSISTOR
Q1021	DTC144EU	TRANSISTOR
Q1022	2SC4081(RS)	TRANSISTOR
Q1023	2SC4081(RS)	TRANSISTOR
Q1024	2SA1576(RS)	TRANSISTOR
Q1025	2SC4081(RS)	TRANSISTOR
D101	RD6.2ES-T1B2	ZENER DIODE
D102	DAP202U	DIODE
D262	1SS133	DIODE
	or 1N4148M	DIODE
	or MA165	DIODE
D264	1SS133	DIODE
	or 1N4148M	DIODE
	or MA165	DIODE
D283	1SS133	DIODE
	or MA165	DIODE
	or 1N4148M	DIODE
D451	1SS133	DIODE
	or MA165	DIODE
	or 1N4148M	DIODE
D601	11ES2	DIODE
D602	11ES2	DIODE
D603	RD9.1ES-T1B2	ZENER DIODE
D604	1SS133	DIODE
	or MA165	DIODE
	or 1N4148M	DIODE
D605	1SS133	DIODE
	or 1N4148M	DIODE
	or MA165	DIODE
D606	1SS133	DIODE
	or MA165	DIODE
	or 1N4148M	DIODE
D607	1SS133	DIODE
	or 1N4148M	DIODE
	or MA165	DIODE
D608	1SS133	DIODE
	or MA165	DIODE
	or 1N4148M	DIODE

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
D609	SIR-381SB3FM	LE DIODE	
D610	RB721Q	DIODE	
D611	RB721Q	DIODE	
D612	1SS133	DIODE	
	or MA165	DIODE	
	or 1N4148M	DIODE	
D613	1SS133	DIODE	
	or 1N4148M	DIODE	
	or MA165	DIODE	
D614	1SS133	DIODE	
	or 1N4148M	DIODE	
	or MA165	DIODE	
D615	1SS133	DIODE	
	or 1N4148M	DIODE	
	or MA165	DIODE	
D801	10E6-F2	DIODE	
D802	10E6-F2	DIODE	
D803	10E6-F2	DIODE	
D804	10E6-F2	DIODE	
D807	RD15ES-T1B3	ZENER DIODE	
	or UZ15BSC	DIODE	
D808	1N4148M	DIODE	
	or 1SS133	DIODE	
	or MA165	DIODE	
D851	1SR153-200-T1	FR DIODE	
D852	RL2Z-LFB2	FR DIODE	
D853	RL2Z-LFB2	FR DIODE	
D856	21DQ04	BARRIER DIODE	
	or RK14LF-B2	BARRIER DIODE	
D857	AU01Z	FR DIODE	
	or 1SR153-200-T2	FR DIODE	
	or ERA18-02-T2	FR DIODE	
D858	1SR153-200-T1	FR DIODE	
D860	RD15ES-T1B1	ZENER DIODE	
	or UZ15BSA	DIODE	
D861	RD6.2ES-T1B3	ZENER DIODE	
	or UZ6.2BSC	ZENER DIODE	
	or MTZV6.2C	ZENER DIODE	
D862	RD30ES-T1B1	ZENER DIODE	
	or MTZ30AT-77	ZENER DIODE	
	or UZ30BSA	ZENER DIODE	
D863	1SR153-200-T1	FR DIODE	
D882	RD5.1JSB1	ZENER DIODE	
D883	1N4148M	DIODE	
	or 1SS133	DIODE	
	or MA165	DIODE	
D885	11ES2	DIODE	
	or ERA15-02	DIODE	
D1001	HZ30-2L-T2	ZENER DIODE	
D1002	MTZ10B	ZENER DIODE	
D1003	QRD161J-0R0	RESISTOR	0Ω,1/6W
D1021	1SS133	DIODE	
	or 1N4148M	DIODE	
	or MA165	DIODE	
D1022	1SS133	DIODE	
	or MA165	DIODE	
	or 1N4148M	DIODE	
R1	QRSA08J-511YN	RESISTOR	510Ω,1/10W
R2	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R3	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
R4	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R5	NRVA62B-153N	RESISTOR	15kΩ,1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R6	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R7	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R8	QRSA08J-334YN	RESISTOR	330kΩ,1/10W
R9	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R10	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R11	NRVA62B-113N	RESISTOR	11kΩ,1/16W
R12	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
R13	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R14	QRSA08J-511YN	RESISTOR	510Ω,1/10W
R25	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R26	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R28	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R29	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R30	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R31	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R32	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R33	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R51	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R52	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R53	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R61	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R62	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R63	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R64	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R65	QRSA08J-683YN	RESISTOR	68kΩ,1/10W
R66	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R67	QVPA606-104Z	V RESISTOR,AUDIO LEVEL	
R68	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R69	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R70	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R71	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R81	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R82	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R83	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R84	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R102	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R103	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
R104	QRSA08J-432YN	RESISTOR	4.3kΩ,1/10W
R105	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
R106	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R107	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
R108	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R109	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R110	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
R111	QRSA08J-181YN	RESISTOR	180Ω,1/10W
R112	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
R113	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R114	QRSA08J-475YN	RESISTOR	4.7MΩ,1/10W
R115	QRD161J-221	RESISTOR	220Ω,1/6W
R116	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R117	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R118	QRSA08J-274YN	RESISTOR	270kΩ,1/10W
R119	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R120	QRD161J-103	RESISTOR	10kΩ,1/6W
R131	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R132	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
R133	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R134	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R135	QRSA08J-3R3YN	RESISTOR	3.3Ω,1/10W
R136	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R137	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R138	QRSA08J-473YN	RESISTOR	47kΩ,1/10W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R139	QRSA08J-273YN	RESISTOR	27kΩ, 1/10W
R140	QRSA08J-473YN	RESISTOR	47kΩ, 1/10W
R141	QRD161J-101	RESISTOR	100Ω, 1/6W
R142	QRSA08J-153YN	RESISTOR	15kΩ, 1/10W
R143	QRD161J-151	RESISTOR	150Ω, 1/6W
R144	QRSA08J-3R3YN	RESISTOR	3.3Ω, 1/10W
R145	QRSA08J-473YN	RESISTOR	47kΩ, 1/10W
R146	QRSA08J-183YN	RESISTOR	18kΩ, 1/10W
R201	QRSA08J-101YN	RESISTOR	100Ω, 1/10W
R202	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R203	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R204	QRSA08J-471YN	RESISTOR	470Ω, 1/10W
R205	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R206	QRSA08J-182YN	RESISTOR	1.8kΩ, 1/10W
R207	QRSA08J-222YN	RESISTOR	2.2kΩ, 1/10W
R208	QRSA08J-182YN	RESISTOR	1.8kΩ, 1/10W
R209	QRSA08J-222YN	RESISTOR	2.2kΩ, 1/10W
R221	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R223	QRSA08J-0R0Y	RESISTOR	0Ω, 1/10W
R224	QRSA08J-153YN	RESISTOR	15kΩ, 1/10W
R225	QRSA08J-153YN	RESISTOR	15kΩ, 1/10W
R226	QRSA08J-821YN	RESISTOR	820Ω, 1/10W
R227	QRSA08J-152YN	RESISTOR	1.5kΩ, 1/10W
R229	QRSA08J-272YN	RESISTOR	2.7kΩ, 1/10W
R231	QRSA08J-301YN	RESISTOR	300Ω, 1/10W
R241	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R242	QRSA08J-0R0Y	RESISTOR	0Ω, 1/10W
R243	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R244	QRSA08J-153YN	RESISTOR	15kΩ, 1/10W
R245	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R246	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R247	QRSA08J-123YN	RESISTOR	12kΩ, 1/10W
R248	QRSA08J-822YN	RESISTOR	8.2kΩ, 1/10W
R249	QRSA08J-270YN	RESISTOR	27Ω, 1/10W
R250	QRSA08J-331YN	RESISTOR	330Ω, 1/10W
R251	QRSA08J-221YN	RESISTOR	220Ω, 1/10W
R252	QRSA08J-331YN	RESISTOR	330Ω, 1/10W
R253	QRSA08J-122YN	RESISTOR	1.2kΩ, 1/10W
R261	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R264	QRSA08J-183YN	RESISTOR	18kΩ, 1/10W
R265	QRD161J-333	RESISTOR	33kΩ, 1/6W
R266	QRSA08J-0R0Y	RESISTOR	0Ω, 1/10W
R268	QRSA08J-272YN	RESISTOR	2.7kΩ, 1/10W
R269	QRSA08J-222YN	RESISTOR	2.2kΩ, 1/10W
R270	QRSA08J-0R0Y	RESISTOR	0Ω, 1/10W
R271	QRD161J-393	RESISTOR	39kΩ, 1/6W
R282	QRSA08J-562YN	RESISTOR	5.6kΩ, 1/10W
R283	QRSA08J-333YN	RESISTOR	33kΩ, 1/10W
R284	QRSA08J-562YN	RESISTOR	5.6kΩ, 1/10W
R301	QRSA08J-331YN	RESISTOR	330Ω, 1/10W
R302	QRSA08J-680YN	RESISTOR	68Ω, 1/10W
R303	QRSA08J-223YN	RESISTOR	22kΩ, 1/10W
R305	QRSA08J-563YN	RESISTOR	56kΩ, 1/10W
R306	QRSA08J-224YN	RESISTOR	220kΩ, 1/10W
R307	QRSA08J-222YN	RESISTOR	2.2kΩ, 1/10W
R308	QRSA08J-391YN	RESISTOR	390Ω, 1/10W
R309	QVPA606-333Z	V RESISTOR, Fh	
R310	QRSA08J-154YN	RESISTOR	150kΩ, 1/10W
R311	QRSA08J-822YN	RESISTOR	8.2kΩ, 1/10W
R312	QRSA08J-682YN	RESISTOR	6.8kΩ, 1/10W
R313	QRSA08J-222YN	RESISTOR	2.2kΩ, 1/10W
R314	QRSA08J-222YN	RESISTOR	2.2kΩ, 1/10W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R315	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R316	QRSA08J-105YN	RESISTOR	1MΩ, 1/10W
R317	QRSA08J-473YN	RESISTOR	47kΩ, 1/10W
R318	QRSA08J-153YN	RESISTOR	15kΩ, 1/10W
R319	QRSA08J-221YN	RESISTOR	220Ω, 1/10W
R320	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R321	QRSA08J-221YN	RESISTOR	220Ω, 1/10W
R322	QRSA08J-681YN	RESISTOR	680Ω, 1/10W
R351	QRSA08J-750YN	RESISTOR	75Ω, 1/10W
R352	QRSA08J-750YN	RESISTOR	75Ω, 1/10W
R353	QRSA08J-750YN	RESISTOR	75Ω, 1/10W
R355	QRSA08J-750YN	RESISTOR	75Ω, 1/10W
R357	QRSA08J-750YN	RESISTOR	75Ω, 1/10W
R359	QRSA08J-750YN	RESISTOR	75Ω, 1/10W
R363	QRSA08J-332YN	RESISTOR	3.3kΩ, 1/10W
R364	QRSA08J-333YN	RESISTOR	33kΩ, 1/10W
R366	QRSA08J-0R0Y	RESISTOR	0Ω, 1/10W
R367	QRSA08J-0R0Y	RESISTOR	0Ω, 1/10W
R368	QRSA08J-0R0Y	RESISTOR	0Ω, 1/10W
R369	QRSA08J-821YN	RESISTOR	820Ω, 1/10W
R370	QRSA08J-471YN	RESISTOR	470Ω, 1/10W
R371	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R373	QRSA08J-562YN	RESISTOR	5.6kΩ, 1/10W
R375	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R401	QRSA08J-561YN	RESISTOR	560Ω, 1/10W
R402	QRSA08J-561YN	RESISTOR	560Ω, 1/10W
R403	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R404	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R405	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R406	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R408	QRSA08J-562YN	RESISTOR	5.6kΩ, 1/10W
R409	QRSA08J-0R0Y	RESISTOR	0Ω, 1/10W
R410	QRSA08J-222YN	RESISTOR	2.2kΩ, 1/10W
R411	QRSA08J-222YN	RESISTOR	2.2kΩ, 1/10W
R412	QRSA08J-562YN	RESISTOR	5.6kΩ, 1/10W
R413	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R414	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R415	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R418	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R451	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R452	QRSA08J-392YN	RESISTOR	3.9kΩ, 1/10W
R453	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R454	QRSA08J-123YN	RESISTOR	12kΩ, 1/10W
R455	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R456	QRSA08J-154YN	RESISTOR	150kΩ, 1/10W
R458	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R501	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R502	QRSA08J-471YN	RESISTOR	470Ω, 1/10W
R503	QRSA08J-222YN	RESISTOR	2.2kΩ, 1/10W
R504	QRG01DJ-100X	RESISTOR	10Ω, 1W
R506	QRSA08J-105YN	RESISTOR	1MΩ, 1/10W
R601	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R602	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R603	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R604	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R605	QRSA08J-105YN	RESISTOR	1MΩ, 1/10W
R606	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R607	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R608	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R609	QRSA08J-221YN	RESISTOR	220Ω, 1/10W
R611	QRSA08J-221YN	RESISTOR	220Ω, 1/10W
R612	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R613	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R614	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R615	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R616	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R617	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R618	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R619	QRSA08J-221YN	RESISTOR	220Ω, 1/10W
R621	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R622	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R623	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R624	QRSA08J-332YN	RESISTOR	3.3kΩ, 1/10W
R625	QRSA08J-332YN	RESISTOR	3.3kΩ, 1/10W
R626	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R627	QRSA08J-221YN	RESISTOR	220Ω, 1/10W
R629	QRSA08J-221YN	RESISTOR	220Ω, 1/10W
R630	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R631	QRSA08J-681YN	RESISTOR	680Ω, 1/10W
R632	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R633	QRSA08J-0R0Y	RESISTOR	0Ω, 1/10W
R634	QRSA08J-152YN	RESISTOR	1.5kΩ, 1/10W
R635	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R636	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R637	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R638	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R639	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R641	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R642	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R643	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R644	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R645	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R646	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R647	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R648	QRSA08J-101YN	RESISTOR	100Ω, 1/10W
R649	QRSA08J-471YN	RESISTOR	470Ω, 1/10W
R650	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R651	QRSA08J-101YN	RESISTOR	100Ω, 1/10W
R652	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R654	QRSA08J-272YN	RESISTOR	2.7kΩ, 1/10W
R655	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R657	QRSA08J-0R0Y	RESISTOR	0Ω, 1/10W
R658	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R659	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R660	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R661	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R662	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R663	QRSA08J-152YN	RESISTOR	1.5kΩ, 1/10W
R664	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R665	QRSA08J-0R0Y	RESISTOR	0Ω, 1/10W
R666	QRSA08J-0R0Y	RESISTOR	0Ω, 1/10W
R667	QRSA08J-221YN	RESISTOR	220Ω, 1/10W
R668	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R669	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R670	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R671	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R672	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R673	QRSA08J-104YN	RESISTOR	100kΩ, 1/10W
R674	QRSA08J-682YN	RESISTOR	6.8kΩ, 1/10W
R675	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R676	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R682	QRSA08J-822YN	RESISTOR	8.2kΩ, 1/10W
R684	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R685	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R686	QRSA08J-221YN	RESISTOR	220Ω, 1/10W
R687	QRD161J-750	RESISTOR	75Ω, 1/6W
R688	QRSA08J-221YN	RESISTOR	220Ω, 1/10W
R689	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R690	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R691	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R692	QRSA08J-471YN	RESISTOR	470Ω, 1/10W
R693	QRSA08J-333YN	RESISTOR	33kΩ, 1/10W
R694	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R695	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R696	QRSA08J-471YN	RESISTOR	470Ω, 1/10W
R697	QRSA08J-0R0Y	RESISTOR	0Ω, 1/10W
R699	QRSA08J-104YN	RESISTOR	100kΩ, 1/10W
R701	QRSA08J-104YN	RESISTOR	100kΩ, 1/10W
R704	QRSA08J-473YN	RESISTOR	47kΩ, 1/10W
R705	QRSA08J-333YN	RESISTOR	33kΩ, 1/10W
R706	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R707	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R708	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R709	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R710	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R711	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R712	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R714	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R715	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R716	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R717	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R718	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R719	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R720	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R721	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R722	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R723	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R724	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R725	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R726	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R727	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
R751	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R752	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R753	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R754	QRSA08J-105YN	RESISTOR	1MΩ, 1/10W
R755	QRSA08J-681YN	RESISTOR	680Ω, 1/10W
R756	QRSA08J-104YN	RESISTOR	100kΩ, 1/10W
R757	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R758	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
R760	QRSA08J-223YN	RESISTOR	22kΩ, 1/10W
R761	QRSA08J-223YN	RESISTOR	22kΩ, 1/10W
R762	QRSA08J-223YN	RESISTOR	22kΩ, 1/10W
R763	QRSA08J-471YN	RESISTOR	470Ω, 1/10W
R764	QRSA08J-471YN	RESISTOR	470Ω, 1/10W
R765	QRSA08J-471YN	RESISTOR	470Ω, 1/10W
R776	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R777	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R778	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
R804	QRD161J-683	RESISTOR	68kΩ, 1/6W
R805	QRD161J-683	RESISTOR	68kΩ, 1/6W
R808	QRX014J-R27Z	MF RESISTOR	0.27Ω, 1W
R810	QRG019J-331A	OMF RESISTOR	330Ω, 1W
R811	QRD161J-152	RESISTOR	1.5kΩ, 1/6W
R814	QRD161J-561	RESISTOR	560Ω, 1/6W
R815	QRD161J-473	RESISTOR	47kΩ, 1/6W
R816	QRD161J-224	RESISTOR	220kΩ, 1/6W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R851	QRX014J-4R7Z	MF RESISTOR	4.7Ω,1W
△ R852	QRZ0077-470X	FUSIBLE RESISTOR	470Ω,1/4W
R853	QRG02DJ-222X	OMF RESISTOR	2.2kΩ,2W
R854	QRV144F-4870AY	CMF RESISTOR	487Ω,1/4W
R855	QRD161J-471	RESISTOR	470Ω,1/6W
R856	QRV144F-3740AY	CMF RESISTOR	374Ω,1/4W
R857	QRD161J-122	RESISTOR	1.2kΩ,1/6W
R881	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R882	QRD161J-473	RESISTOR	47kΩ,1/6W
R883	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R884	QRD161J-471	RESISTOR	470Ω,1/6W
R885	QVPA606-471Z	V RESISTOR,SWD 5V	
R886	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R888	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R891	QRD161J-102	RESISTOR	1kΩ,1/6W
R896	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R897	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R1005	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1006	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1007	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1008	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R1009	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R1012	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R1021	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R1022	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R1023	QRSA08J-184YN	RESISTOR	180kΩ,1/10W
R1024	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R1025	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
R1026	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R1027	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R1028	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R1029	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R1030	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R1031	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
R1032	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
R1033	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R1034	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
C1	QEK1AM-336	E CAPACITOR	33μF,10V
C2	QCYA1CK-473	CAPACITOR	0.047μF,16V
C3	QEK1CM-106	E CAPACITOR	10μF,16V
C4	QEK1AM-107	E CAPACITOR	100μF,10V
C5	QCYA1EK-153	CAPACITOR	0.015μF,25V
C6	QCYA1HK-103	CAPACITOR	0.01μF,50V
C7	QCYA1EK-104	CAPACITOR	0.1μF,25V
C8	QETA1AM-107	E CAPACITOR	100μF,10V
C9	QCSA1HJ-102	CAPACITOR	0.001μF,50V
C12	QCYA1HK-103	CAPACITOR	0.01μF,50V
C13	QCYA1EK-473	CAPACITOR	0.047μF,25V
C14	QEK1HM-224	E CAPACITOR	0.22μF,50V
C15	QCYA1EK-104	CAPACITOR	0.1μF,25V
C16	QCYA1HK-103	CAPACITOR	0.01μF,50V
C17	QEK1AM-107	E CAPACITOR	100μF,10V
C18	QCYA1EK-153	CAPACITOR	0.015μF,25V
C19	QEK1AM-107	E CAPACITOR	100μF,10V
C20	QEK1CM-106	E CAPACITOR	10μF,16V
C21	QCYA1CK-473	CAPACITOR	0.047μF,16V
C22	QEK1AM-336	E CAPACITOR	33μF,10V
C24	QEK1CM-476	E CAPACITOR	47μF,16V
C25	QCC11EK-473	CAPACITOR	0.047μF,25V
C27	QEK1CM-106	E CAPACITOR	10μF,16V
C28	QEK1CM-106	E CAPACITOR	10μF,16V
C29	QEK1AM-107	E CAPACITOR	100μF,10V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C35	QEK1CM-106	E CAPACITOR	10μF,16V
C36	QEK1CM-106	E CAPACITOR	10μF,16V
C38	QEK1CM-476	E CAPACITOR	47μF,16V
C39	QEK1CM-476	E CAPACITOR	47μF,16V
C51	QETC1CM-476	E CAPACITOR	47μF,16V
C52	QETA1CM-476	E CAPACITOR	47μF,16V
C61	QEK1CM-106	E CAPACITOR	10μF,16V
C62	QEK1CM-106	E CAPACITOR	10μF,16V
C63	QEK1CM-106	E CAPACITOR	10μF,16V
C64	QEK1CM-106	E CAPACITOR	10μF,16V
C65	QEK1CM-106	E CAPACITOR	10μF,16V
C66	QEK1CM-106	E CAPACITOR	10μF,16V
C67	QEK1CM-476	E CAPACITOR	47μF,16V
C68	QEK1CM-476	E CAPACITOR	47μF,16V
C69	QCYA1HK-393	CAPACITOR	0.039μF,50V
C72	QCC11EK-104	CAPACITOR	0.1μF,25V
C81	QEK1HM-475	E CAPACITOR	4.7μF,50V
C82	QEK1HM-475	E CAPACITOR	4.7μF,50V
C83	QEK1CM-476	E CAPACITOR	47μF,16V
C84	QETC1CM-106	E CAPACITOR	10μF,16V
C85	QEK1CM-106	E CAPACITOR	10μF,16V
C101	QCSA1HJ-222	CAPACITOR	0.0022μF,50V
C102	QERF1CM-476	E CAPACITOR	47μF,16V
C104	QERF1HM-105	E CAPACITOR	1μF,50V
C105	QCC11EJ-682	CAPACITOR	0.0068μF,25V
C106	QCC11EJ-223	CAPACITOR	0.022μF,25V
C107	QEK61HM-475	E CAPACITOR	4.7μF,50V
C108	QCSA1HJ-681	CAPACITOR	680pF,50V
C109	QCYA1EK-123	CAPACITOR	0.012μF,25V
C110	QEK1CM-226	E CAPACITOR	22μF,16V
C111	QEK1HM-104	E CAPACITOR	0.1μF,50V
C112	QEK1CM-226	E CAPACITOR	22μF,16V
C113	QETF1HM-335	E CAPACITOR	3.3μF,50V
C114	QCC31EJ-273	CAPACITOR	0.027μF,25V
C115	QEK1CM-476	E CAPACITOR	47μF,16V
C131	QCSA1HJ-331	CAPACITOR	330pF,50V
C132	QFLC1HJ-333Z	F CAPACITOR	0.033μF,50V
C133	QEK1HM-225	E CAPACITOR	2.2μF,50V
C134	QCYA1HK-472	CAPACITOR	0.0047μF,50V
C135	QCYA1HK-103	CAPACITOR	0.01μF,50V
C136	QFLC1HJ-333Z	F CAPACITOR	0.033μF,50V
C137	QEK1CM-106	E CAPACITOR	10μF,16V
C138	QCYA1HK-332	CAPACITOR	0.0033μF,50V
C139	QCYA1HK-103	CAPACITOR	0.01μF,50V
C201	QCSA1HJ-820	CAPACITOR	82pF,50V
C202	QCSA1HJ-101	CAPACITOR	100pF,50V
C203	QCSA1HJ-200	CAPACITOR	20pF,50V
C204	QCYA1HK-103	CAPACITOR	0.01μF,50V
C205	QEK1JM-476	E CAPACITOR	47μF,6.3V
C206	QETC1HM-474	E CAPACITOR	0.47μF,50V
C222	QCYA1HK-103	CAPACITOR	0.01μF,50V
C223	QCSA1HJ-330	CAPACITOR	33pF,50V
C224	QCYA1HK-473	CAPACITOR	0.047μF,50V
C226	QCYA1HK-103	CAPACITOR	0.01μF,50V
C227	QEK60JM-476	E CAPACITOR	47μF,6.3V
C228	QETA1CM-106	E CAPACITOR	10μF,16V
C229	QETC1CM-106	E CAPACITOR	10μF,16V
C241	QEK60JM-476	E CAPACITOR	47μF,6.3V
C242	QCYA1HK-103	CAPACITOR	0.01μF,50V
C243	QCSA1HJ-390	CAPACITOR	39pF,50V
C244	QCSA1HJ-151	CAPACITOR	150pF,50V
C245	QCSA1HJ-151	CAPACITOR	150pF,50V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	#△ REF No.	PART No.	PART NAME, DESCRIPTION
C246	QCYA1HK-103	CAPACITOR 0.01μF,50V	C413	QCYB1CK-105	CAPACITOR 1μF,16V
C247	QCSA1HJ-390	CAPACITOR 39pF,50V	C414	QCYA1HK-102	CAPACITOR 0.001μF,50V
C248	QCYA1HK-103	CAPACITOR 0.01μF,50V	C415	QEKF1CM-106	E CAPACITOR 10μF,16V
C249	QCSA1HJ-821	CAPACITOR 820pF,50V	C416	QCYA1HK-102	CAPACITOR 0.001μF,50V
C250	QCYA1HK-103	CAPACITOR 0.01μF,50V	C417	QCSA1HJ-680	CAPACITOR 68pF,50V
C261	QEKFOJM-476	E CAPACITOR 47μF,6.3V	C451	QCYA1HK-103	CAPACITOR 0.01μF,50V
C262	QCYA1HK-103	CAPACITOR 0.01μF,50V	C452	QCC31CK-104	CAPACITOR 0.1μF,16V
C264	QCSA1HJ-470	CAPACITOR 47pF,50V	C453	QCYA1HK-103	CAPACITOR 0.01μF,50V
C265	QCTA1CH-330	CAPACITOR 33pF,16V	C454	QCYA1HK-103	CAPACITOR 0.01μF,50V
C266	QCSA1HJ-150	CAPACITOR 15pF,50V	C455	QCYA1HK-103	CAPACITOR 0.01μF,50V
C267	QCB1HJ-101	CAPACITOR 100pF,50V	C456	QCYA1HK-103	CAPACITOR 0.01μF,50V
C281	QCTA1CH-510	CAPACITOR 51pF,16V	C458	QEKF1CM-106	E CAPACITOR 10μF,16V
C282	QCYA1HK-103	CAPACITOR 0.01μF,50V	C459	QFV11HJ-563AZ	F CAPACITOR 0.056μF,50V
C283	QCYA1HK-103	CAPACITOR 0.01μF,50V	C501	QEKF1CM-106	E CAPACITOR 10μF,16V
C301	QCSA1HJ-101	CAPACITOR 100pF,50V	C502	QCYA1HK-103	CAPACITOR 0.01μF,50V
C302	QCSA1HJ-271	CAPACITOR 270pF,50V	C503	QCYA1EK-104	CAPACITOR 0.1μF,25V
C303	QCVB1CN-103	CAPACITOR 0.01μF,16V	C504	QCTA1CH-101	CAPACITOR 100pF,16V
C304	QCYA1HK-103	CAPACITOR 0.01μF,50V	C505	QCTA1CH-101	CAPACITOR 100pF,16V
C305	QEKF1HM-105	E CAPACITOR 1μF,50V	C506	QEKF1CM-106	E CAPACITOR 10μF,16V
C306	QCYA1HK-472	CAPACITOR 0.0047μF,50V	C507	QETC0JM-477	E CAPACITOR 470μF,6.3V
C307	QCTA1CH-101	CAPACITOR 100pF,16V	C601	QAT3120-450Z	TRIM CAPACITOR,TIMER CLOCK
C308	QCSA1HJ-221	CAPACITOR 220pF,50V	C602	QCTA1CH-180	CAPACITOR 18pF,16V
C309	QEKF1HM-335	E CAPACITOR 3.3μF,50V	C604	QEKF1AM-107	E CAPACITOR 100μF,10V
C310	QEKF1HM-105	E CAPACITOR 1μF,50V	C607	QCSA1HJ-471	CAPACITOR 470pF,50V
C311	QCYA1HK-103	CAPACITOR 0.01μF,50V	C610	QEKF1CM-106	E CAPACITOR 10μF,16V
C312	QEKF1CM-106	E CAPACITOR 10μF,16V	C611	QCYA1HK-103	CAPACITOR 0.01μF,50V
C313	QCVB1CN-103	CAPACITOR 0.01μF,16V	C612	PU60676-223	E CAPACITOR,S5200U 0.022μF,5.5V
C314	QCTA1CH-220	CAPACITOR 22pF,16V		PU60676-224	E CAPACITOR,S7200U 0.22μF,5.5V
C315	QCTA1CH-330	CAPACITOR 33pF,16V	C613	QCYA1HK-103	CAPACITOR 0.01μF,50V
C316	QCTA1CH-270	CAPACITOR 27pF,16V	C614	QCYA1CK-473	CAPACITOR 0.047μF,16V
C317	QCTA1CH-270	CAPACITOR 27pF,16V	C616	QEKF1CM-106	E CAPACITOR 10μF,16V
C318	QCTA1CH-220	CAPACITOR 22pF,16V	C617	QCYA1HK-103	CAPACITOR 0.01μF,50V
C319	QCSA1HJ-101	CAPACITOR 100pF,50V	C622	QEKFOJM-107	E CAPACITOR 100μF,6.3V
C320	QCTA1CH-220	CAPACITOR 22pF,16V	C623	QCSA1HJ-102	CAPACITOR 0.001μF,50V
C321	QCYA1HK-103	CAPACITOR 0.01μF,50V	C624	QCSA1HJ-101	CAPACITOR 100pF,50V
C351	QETC0JM-476	E CAPACITOR 47μF,6.3V	C635	QCSA1HJ-470	CAPACITOR 47pF,50V
C352	QETC1CM-106	E CAPACITOR 10μF,16V	C636	QCSA1HJ-470	CAPACITOR 47pF,50V
C353	QETC1CM-106	E CAPACITOR 10μF,16V	C651	QCSA1HJ-102	CAPACITOR 0.001μF,50V
C354	QETC1CM-106	E CAPACITOR 10μF,16V	C652	QCYA1HK-473	CAPACITOR 0.047μF,50V
C355	QETN0JM-108ZS	E CAPACITOR 1000μF,6.3V	C653	QCT30CH-100	CAPACITOR 10pF
C356	QETN0JM-108ZS	E CAPACITOR 1000μF,6.3V	C654	QCT30CH-100	CAPACITOR 10pF
C357	QCYA1HK-103	CAPACITOR 0.01μF,50V	C751	QCSA1HJ-220	CAPACITOR 22pF,50V
C359	QCYA1HK-103	CAPACITOR 0.01μF,50V	C752	QCYA1HK-102	CAPACITOR 0.001μF,50V
C360	QETC0JM-476	E CAPACITOR 47μF,6.3V	C753	QCYA1EK-104	CAPACITOR 0.1μF,25V
C361	QCYA1HK-103	CAPACITOR 0.01μF,50V	C754	QCSA1HJ-220	CAPACITOR 22pF,50V
C362	QCSA1HJ-150	CAPACITOR 15pF,50V	C755	QCSA1HJ-220	CAPACITOR 22pF,50V
C363	QEKFOJM-107	E CAPACITOR 100μF,6.3V	C756	QCSA1HJ-220	CAPACITOR 22pF,50V
C364	QCYA1HK-103	CAPACITOR 0.01μF,50V	C757	QCSA1HJ-470	CAPACITOR 47pF,50V
C365	QCFA1HZ-103	CAPACITOR 0.01μF,50V	C758	QCSA1HJ-470	CAPACITOR 47pF,50V
C367	QCYA1HK-103	CAPACITOR 0.01μF,50V	C759	QCSA1HJ-470	CAPACITOR 47pF,50V
C371	QCYA1HK-103	CAPACITOR 0.01μF,50V	C760	QEKF1HM-335	E CAPACITOR 3.3μF,50V
C401	QCYA1HK-102	CAPACITOR 0.001μF,50V	C761	QCSA1HJ-101	CAPACITOR 100pF,50V
C402	QCYA1HK-102	CAPACITOR 0.001μF,50V	C762	QCSA1HJ-101	CAPACITOR 100pF,50V
C403	QCYA1EK-563	CAPACITOR 0.056μF,25V	C763	QCSA1HJ-101	CAPACITOR 100pF,50V
C404	QCSA1HJ-101	CAPACITOR 100pF,50V	C764	QCB1HJ-471	CAPACITOR 470pF,50V
C405	QCYA1HK-103	CAPACITOR 0.01μF,50V	△ C802	QFZ9037-473	F CAPACITOR 0.047μF
C406	QEKF1CM-106	E CAPACITOR 10μF,16V	△ C809	QCZ9016-222M	CAPACITOR 0.0022μF
C407	QEKF1CM-106	E CAPACITOR 10μF,16V	C810	QETM2DM-826R	E CAPACITOR 82μF,200V
C408	QEKFOJM-107	E CAPACITOR 100μF,6.3V	C812	QETC1HM-105	E CAPACITOR 1μF,50V
C409	QCYA1HK-223	CAPACITOR 0.022μF,50V	C814	QCZ0136-101Z	CAPACITOR 100pF,1KV
C411	QCYA1HK-222	CAPACITOR 0.0022μF,50V	C816	QFLA1HJ-103Z	F CAPACITOR 0.01μF,50V
C412	QCYA1CK-104	CAPACITOR 0.1μF,16V	C821	QFV11HJ-104	F CAPACITOR 0.1μF,50V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	#△ REF No.	PART No.	PART NAME, DESCRIPTION
C851	QETC1JM-226	E CAPACITOR 22μF,63V	L852	PELN0687	COIL
C852	QEM91CM-827	E CAPACITOR 820μF,16V	L881	PU48530-101K	COIL 100μH
C853	QEM91AM-128	E CAPACITOR 1200μF,10V	L1001	PELN0530-101JZ	COIL 100μH
C854	QETA1HM-226	E CAPACITOR 22μF,50V	L1002	QRD161J-0R0	RESISTOR 0Ω,1/6W
C855	QEMR1AM-107	E CAPACITOR 100μF,10V	△ CF601	PEVB0497	RESONATOR
C856	QETC1AM-477	E CAPACITOR 470μF,10V	△ CF751	PEVB0340	RESONATOR
C857	QETC1CM-477	E CAPACITOR 470μF,16V	△ X301	PEVB0442	CRYSTAL RESONATOR
C858	QEK61HM-474	E CAPACITOR 0.47μF,50V	△ X501	PEVB0618	RESONATOR
C859	QFLA1HJ-103Z	F CAPACITOR 0.01μF,50V	△ X601	PEVB0422	CRYSTAL RESONATOR
C861	QEM91EM-337	E CAPACITOR 330μF,25V	SW1001	PESW0671	SLIDE SWITCH,RF CH SW
C881	QETF0JM-107	E CAPACITOR 100μF,6.3V	K801	PELN0662-Z	FERRITE BEADS
C882	QEK61CM-106	E CAPACITOR 10μF,16V	△ PC801	PC817	PH COUPLER
C883	QETC1CM-107	E CAPACITOR 100μF,16V	PS601	PU61433	REEL SENSOR
C1001	QKCF1CM-476	E CAPACITOR 47μF,16V	PS602	PU61433	REEL SENSOR
C1002	QCYA1HK-222	CAPACITOR 0.0022μF,50V	△ T101	PELN0860	OSC TRANSFORMER
C1003	QKCF1HM-106	E CAPACITOR 10μF,50V	△ T102	PELN0861	OSC TRANSFORMER
C1005	QETC1AM-477	E CAPACITOR 470μF,10V	△ T801	PELN0426-04	SW TRANS
C1006	QKCF1CM-476	E CAPACITOR 47μF,16V	T1001	PELN0806	COIL
C1007	QFV21HJ-154AZ	F CAPACITOR 0.15μF,50V	ETH1	PQ21623-1-2	EARTH PLATE(RF)
C1021	QCYA1HK-103	CAPACITOR 0.01μF,50V	JA1	PEMC1117	PIN JACK(SW),A/V IN 1
C1022	QKCF1HM-104	E CAPACITOR 0.1μF,50V	JA3	PEMC1116	PIN JACK,A/V OUT
C1023	QCTA1CH-471	CAPACITOR 470pF,16V	JA4	PEMC1118	S JACK,S OUT
C1024	QCSA1HJ-471	CAPACITOR 470pF,50V	JA5	PEMC1118	S JACK,S IN
C1025	QCYA1EK-223	CAPACITOR 0.022μF,25V	JA6	PU60612	MINI JACK,R PAUSE
C1026	QKCF1HM-474	E CAPACITOR 0.47μF,50V	JA7	PU60612	MINI JACK,C BOX
C1027	QKCF1CM-476	E CAPACITOR 47μF,16V	SCW1	SDSF4012M	SCREW,X2 TERMINAL BOARD
C1028	QCYA1CK-104	CAPACITOR 0.1μF,16V	SCW2	SDSF3010Z	SCREW,X2 TERMINAL BOARD
C1029	QKCF1CM-106	E CAPACITOR 10μF,16V	SPC1	PEME0947-01-01	SPACER,X2
L101	PU58308-123J	COIL 12mH	SPC2	PQM30029-250	SPACER
L201	PELN0975-101JZ	COIL 100μH	△ TB1	PQ11783-2	TERMINAL BOARD
L202	PU59988-101J	COIL 100μH	△ FC801	PEMC0965-Z	FUSE CLIP,F801
L203	PU59988-220JY	COIL 22μH	△ FC802	PEMC0965-Z	FUSE CLIP,F801
L221	PELN0975-101JZ	COIL 100μH	△ LF802	PU59707	LINE FILTER
L222	PU48530-471J	COIL 470μH	CN101	PW30701-36AAYY	WIRE,(1-2) FE HEAD
L223	PU48530-222J	COIL 2.2mH	CN102	PW30705-12AAYY	WIRE,(1-4) A/C HEAD
L241	PELN0975-101JZ	COIL 100μH	CN203	PEMC1055-013	CONNECTOR,(2-14)PRE/REC
L242	PU59988-470J	COIL 47μH	CN204	PEMC1055-014	CONNECTOR,(1-14)PRE/REC
L243	PU59988-330J	COIL 33μH	CN205	PEMC0846-010	CONNECTOR,(1-10)DIGITAL SUB
L244	PU59988-101J	COIL 100μH	CN206	PEMC0846-010	CONNECTOR,(1-10)DIGITAL SUB
L261	PU48530-102K	COIL 1mH	CN207	PEMC1101-006	CONNECTOR,(1-6)JACK
L262	PU59988-121JY	COIL 120μH	CN301	PU59555-4	CONNECTOR,(1-4)EVR
L263	PU59988-221J	COIL 220μH	CN401	PW30702-12AAYY	WIRE,(1-3) A/C HEAD
L264	PU59988-680JL	COIL 68μH	CN402	PEMC1101-004	CONNECTOR,(1-4)DRUM MOTOR
L281	PU59988-390J	COIL 39μH	CN601	PEMC1077	CONNECTOR,(1-8)CAP MDA
L282	PU48530-100J	COIL 10μH	CN602	PU61434-1-1	CONNECTOR,(1-5)ROTARY ENCORDE
L301	PU59988-1R0JY	COIL 1μH	CN603	PU60727-2	CONNECTOR,(1-2)LOADING MOTOR
L302	PU59988-1R0JY	COIL 1μH	CN604	PEMC1101-008	CONNECTOR,(5-12)DISPLAY
L303	PU58333-220J	COIL 22μH	CN605	PEMC1101-005	CONNECTOR,(1-5)DISPLAY
L304	PU48530-100J	COIL 10μH	CN606	PU59555-7	CONNECTOR,(1-7)
L351	PELN0975-101JZ	COIL 100μH	△ CN801	PU60250-2	CONNECTOR,(1-2)AC-IN
L352	PELN0975-101JZ	COIL 100μH	△ CP401	ICP-N15	CIRCUIT PROTECTOR
L353	PU59988-820J	COIL 82μH	△ CP601	ICP-N25	CIRCUIT PROTECTOR
L401	PU59988-270J	COIL 27μH	△ CP851	ICP-N20	CIRCUIT PROTECTOR
L451	PU59988-270J	COIL 27μH	△ CP852	ICP-N25	CIRCUIT PROTECTOR
L501	PU48530-101J	COIL 100μH	△ CP1001	ICP-N15	CIRCUIT PROTECTOR
L502	PU48530-101J	COIL 100μH	△ F801	QMF51N2-R70J1	FUSE T0.7A
L601	PU59988-R22KY	COIL 0.22μH			
L602	PU59988-100J	COIL 10μH			
L603	PU48530-100K	COIL 10μH			
L604	PU54223-100J	COIL 10μH			
L605	PU54223-100J	COIL 10μH			
L851	PELN0695-330K	COIL 33μH			

#△ REF No. PART No. PART NAME, DESCRIPTION

VIDEO UNIT BOARD ASSEMBLY <05>

PWBA	PART No.	PART NAME, DESCRIPTION	
	PB10903A-03	VIDEO UNIT BOARD ASSEMBLY	
IC1	JCP0054	IC	
IC2	M62353GP	IC	
IC3	NJM431U-XE	IC	
IC4	VC2076MP-XE	IC	
IC6	XLJ93LC56A	IC	
	or AT93C56-10PC	IC	
IC7	TC4S81F	IC	
Q1	2SA1576(QRS)	TRANSISTOR	
Q5	2SC4081(QRS)	TRANSISTOR	
Q6	2SA1576(QRS)	TRANSISTOR	
R2	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
R5	NRSA63J-182N	RESISTOR	1.8kΩ, 1/16W
R6	NRSA63J-472N	RESISTOR	4.7kΩ, 1/16W
R7	NRSA63J-272N	RESISTOR	2.7kΩ, 1/16W
R8	NRSA63J-333N	RESISTOR	33kΩ, 1/16W
R9	NRVA63D-822N	MF RESISTOR	8.2kΩ, 1/16W
R10	NRVA63D-152N	MF RESESTOR	
R11	NRSA63J-222N	RESISTOR	2.2kΩ, 1/16W
R12	NRVA63D-561N	MF RESISTOR	560Ω, 1/16W
R13	NRSA63J-222N	RESISTOR	2.2kΩ, 1/16W
R14	NRSA63J-821N	RESISTOR	820Ω, 1/16W
R17	NRSA63J-391N	RESISTOR	390Ω, 1/16W
R18	NRVA63D-391N	RESISTOR	390Ω, 1/16W
R19	NRVA63D-102N	MF RESISTOR	1kΩ, 1/16W
R22	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
R23	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
R24	NRSA63J-332N	RESISTOR	3.3kΩ, 1/16W
R25	NRSA63J-332N	RESISTOR	3.3kΩ, 1/16W
R26	NRSA63J-151N	RESISTOR	150Ω, 1/16W
R27	NRSA63J-162N	RESISTOR	1.6kΩ, 1/16W
R28	NRSA63J-391N	RESISTOR	390Ω, 1/16W
R29	NRSA63J-122N	RESISTOR	1.2kΩ, 1/16W
R30	NRVA63D-102N	MF RESISTOR	1kΩ, 1/16W
R31	NRVA63D-471N	RESISTOR	470Ω, 1/16W
R32	NRVA63D-102N	MF RESISTOR	1kΩ, 1/16W
R33	NRVA63D-152N	MF RESESTOR	
R34	NRVA63D-332N	MF RESISTOR	3.3kΩ, 1/16W
R35	NRVA63D-332N	MF RESISTOR	3.3kΩ, 1/16W
R37	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
R46	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
R47	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
R48	NRVA63D-243N	RESISTOR	24kΩ, 1/16W
R49	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
R50	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
R51	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
R52	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
R53	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
R54	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
R55	NRVA63D-272N	MF RESISTOR	2.7kΩ, 1/16W
R56	NRVA63D-682N	MF RESISTOR	6.8kΩ, 1/16W
R57	NRVA63D-162N	MF RESISTOR	1.6kΩ, 1/16W
R58	NRVA63D-682N	MF RESISTOR	6.8kΩ, 1/16W
R59	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
R60	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
R61	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
R63	NRSA63J-103N	RESISTOR	10kΩ, 1/16W
R64	NRSA63J-475N	RESISTOR	4.7MΩ, 1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R65	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
R68	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
R69	NRSA63J-101N	RESISTOR	100Ω, 1/16W
R73	NRSA63J-334N	RESISTOR	330kΩ, 1/16W
R75	NRSA63J-101N	RESISTOR	100Ω, 1/16W
R79	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
R85	NRSA63J-472N	RESISTOR	4.7kΩ, 1/16W
C2	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
C5	QETC1HM-105	E CAPACITOR	1μF, 50V
C7	QETC1HM-104	E CAPACITOR	0.1μF, 50V
C8	NCT08CH-680A	CAPACITOR	68pF, 50V
C10	NCF31EZ-104A	CAPACITOR	0.1μF, 25V
C11	NCB31HK-103A	CAPACITOR	0.01μF, 50V
C12	QETC1EM-106	E CAPACITOR	10μF, 25V
C13	QETC1HM-225	E CAPACITOR	2.2μF, 50V
C14	NCF31EZ-104A	CAPACITOR	0.1μF, 25V
C15	QETC1EM-475	E CAPACITOR	4.7μF, 25V
C16	NCB31EK-153A	CAPACITOR	0.015μF, 25V
C18	QETC1HM-105	E CAPACITOR	1μF, 50V
C19	QETC0JM-476	E CAPACITOR	47μF, 6.3V
C20	NCB31HK-103A	CAPACITOR	0.01μF, 50V
C21	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
C22	NCT08CH-331A	CAPACITOR	330pF, 50V
C23	QCYA1EK-104	CAPACITOR	0.1μF, 25V
C25	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
C26	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
C27	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
C28	NCB31HK-103A	CAPACITOR	0.01μF, 50V
C29	QETC0JM-476	E CAPACITOR	47μF, 6.3V
C30	NCB31EK-103A	CAPACITOR	0.01μF, 25V
C31	NCT08CH-161A	CAPACITOR	160pF, 50V
C32	NCS31HJ-120A	CAPACITOR	12pF, 50V
C33	QETC1HM-104	E CAPACITOR	0.1μF, 50V
C35	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
C36	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
C37	QETC1HM-474	E CAPACITOR	0.47μF, 50V
C38	QETC1HM-104	E CAPACITOR	0.1μF, 50V
C39	QETC1HM-474	E CAPACITOR	0.47μF, 50V
C40	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
C41	QETC1CM-106	E CAPACITOR	10μF, 16V
C42	QETC1CM-106	E CAPACITOR	10μF, 16V
C43	QCC31EK-473	CAPACITOR	0.047μF, 25V
C44	NCB31HK-103A	CAPACITOR	0.01μF, 50V
C45	QETC1CM-226	E CAPACITOR	22μF, 16V
C46	NCS31HJ-470A	CAPACITOR	47pF, 50V
C47	QETC1HM-474	E CAPACITOR	0.47μF, 50V
C48	QETC1CM-226	E CAPACITOR	22μF, 16V
C49	QETC1HM-225	E CAPACITOR	2.2μF, 50V
C50	NCF31EZ-104A	CAPACITOR	0.1μF, 25V
C51	NCB31HK-103A	CAPACITOR	0.01μF, 50V
C52	NCB31HK-103A	CAPACITOR	0.01μF, 50V
C53	QETC0JM-476	E CAPACITOR	47μF, 6.3V
C54	NCS31HJ-101A	CAPACITOR	100pF, 50V
C55	NCS31HJ-101A	CAPACITOR	100pF, 50V
C56	QETC1EM-475	E CAPACITOR	4.7μF, 25V
C57	NCS31HJ-301A	CAPACITOR	300pF, 50V
C58	NCS31HJ-301A	CAPACITOR	300pF, 50V
C59	NCS31HJ-181A	CAPACITOR	180pF, 50V
C60	NCS31HJ-101A	CAPACITOR	100pF, 50V
C61	NCS31HG-271A	CAPACITOR	270pF, 50V
C62	NCS31HG-820A	CAPACITOR	82pF, 50V

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C63	NCS31HG-221A	CAPACITOR	220pF,50V
C64	NCS31HG-301A	CAPACITOR	300pF,50V
C65	NCS31HG-301A	CAPACITOR	300pF,50V
C66	NCB31HK-103A	CAPACITOR	0.01μF,50V
C67	QETC0JM-476	E CAPACITOR	47μF,6.3V
C69	NCB31HK-103A	CAPACITOR	0.01μF,50V
C70	QETC1HM-225	E CAPACITOR	2.2μF,50V
C71	QETC1HM-225	E CAPACITOR	2.2μF,50V
C85	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C86	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C87	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C88	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C89	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C99	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C102	NCB31EK-103A	CAPACITOR	0.01μF,25V
C104	QETC1HM-224	E CAPACITOR	0.22μF,50V
C106	NCT08CH-121A	CAPACITOR	120pF,50V
L2	PU48530-271K	COIL	270μH
L4	PU48530-331K	COIL	330μH
L5	PU48530-100J	COIL	10μH
L6	PU48530-470J	COIL	47μH
L7	PU48530-101K	COIL	100μH
L8	PU48530-101K	COIL	100μH
LC1	PELN0937	LC TRAP	
LC3	PELN1149	EQUALIZER	
LC4	PELN0939	LC TRAP	
△ X1	PEVB0549	CRYSTAL RESONATOR	
K1	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
CN1	PEMC0919-130K	PIN HEADER,(1-30)MAIN	
CN2	PEMC0919-130K	PIN HEADER,(1-30)MAIN	

A/C HEAD BOARD <12>

PWBA	PB40068A	A/CTL HEAD BOARD ASSEMBLY
CN1	PU60910-107	CONNECTOR,(1-7)MAIN

DEMOD BOARD ASSEMBLY <14>

PWBA	PB10816B-01	DEMOD BOARD ASSEMBLY	
IC101	UPC1872CU	IC	
Q101	DTC114TU	TRANSISTOR	
Q102	DTC114TU	TRANSISTOR	
R101	QRSA08J-154YN	RESISTOR	150kΩ,1/10W
R102	QRSA08J-302YN	RESISTOR	3kΩ,1/10W
R103	QRSA08J-512YN	RESISTOR	5.1kΩ,1/10W
R104	QRSA08J-563YN	RESISTOR	56kΩ,1/10W
R105	QRSA08J-563YN	RESISTOR	56kΩ,1/10W
R106	QRSA08J-513YN	RESISTOR	51kΩ,1/10W
R107	QVZ3521-473Z	V RESISTOR,SEPARATION-1	
R108	QRSA08J-513YN	RESISTOR	51kΩ,1/10W
R109	QVZ3521-104Z	V RESISTOR,SEPARATION-2	
R110	QRSA08J-103YN	RESISTOR	10kΩ,1/10W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R111	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R112	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R113	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
R114	QRSA08J-334YN	RESISTOR	330kΩ,1/10W
R115	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R116	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R117	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
R118	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R119	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R120	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R121	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R122	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
R123	QRSA08J-303YN	RESISTOR	30kΩ,1/10W
R124	QVPC624-103	V RESISTOR,FILTER	
R125	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R126	QVPC624-223	V RESISTOR,VCO	
R127	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R128	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R129	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
C101	QEK61CM-106	E CAPACITOR	10μF,16V
C102	QCYA1HK-103	CAPACITOR	0.01μF,50V
C103	QCYA1EK-473	CAPACITOR	0.047μF,25V
C104	QEKF1HM-474	E CAPACITOR	0.47μF,50V
C105	QCYA1EK-104	CAPACITOR	0.1μF,25V
C106	QCYA1EK-104	CAPACITOR	0.1μF,25V
C107	QCYA1HK-103	CAPACITOR	0.01μF,50V
C108	QEKF1CM-476	E CAPACITOR	47μF,16V
C109	QEKF1HM-105	E CAPACITOR	1μF,50V
C110	QEKF1HM-105	E CAPACITOR	1μF,50V
C111	QEE81CJ-335	TA E CAPACITOR	
C112	QEE81CJ-106	TA E CAPACITOR	
C113	QEKF1CM-106	E CAPACITOR	10μF,16V
C114	QCYA1HK-103	CAPACITOR	0.01μF,50V
C115	QEKF1CM-106	E CAPACITOR	10μF,16V
C116	QCYA1HK-103	CAPACITOR	0.01μF,50V
C117	QEKF1HM-105	E CAPACITOR	1μF,50V
C118	QCYA1EK-104	CAPACITOR	0.1μF,25V
C119	QEKF1CM-226	E CAPACITOR	22μF,16V
C120	QCYA1EK-104	CAPACITOR	0.1μF,25V
C121	QEKF1HM-105	E CAPACITOR	1μF,50V
C122	QEKF1EM-475	E CAPACITOR	4.7μF,25V
CN101	PEMC0778-108Y	PIN HEADER,(2-9)MAIN	

DISPLAY BOARD ASSEMBLY <21>

PWBA1	PB10942A1	DISPLAY BOARD ASSEMBLY,S5200U
	PB10942B1	DISPLAY BOARD ASSEMBLY,S7200U
IC1	UPD16312GB(P)	IC
	or UPD16312GB(M)	IC
IC2	GP1U581X	IR DETECT UNIT
	or HC-377J	IR DETECT UNIT
D1	RD4.7ES-T1B2	ZENER DIODE
D2	11ES2	DIODE
D21	1SS132Y	DIODE
	or 1N4148M	DIODE
D22	1SS132Y	DIODE
	or 1N4148M	DIODE

#△ REF No.	PART No.	PART NAME, DESCRIPTION
D33	SLR-342MG3F	LE DIODE
R6	QRD161J-333	RESISTOR 33kΩ,1/6W
R7	QRD161J-333	RESISTOR 33kΩ,1/6W
R8	QRD161J-333	RESISTOR 33kΩ,1/6W
R9	QRD161J-333	RESISTOR 33kΩ,1/6W
R10	QRD161J-333	RESISTOR 33kΩ,1/6W
R11	QRD161J-272	RESISTOR 2.7kΩ,1/6W
R12	QRD161J-272	RESISTOR 2.7kΩ,1/6W
R13	QRD161J-561	RESISTOR 560Ω,1/6W
R14	QRD161J-103	RESISTOR 10kΩ,1/6W
R15	QRD161J-513	RESISTOR 51kΩ,1/6W
R16	QRD161J-103	RESISTOR 10kΩ,1/6W
R17	QRD161J-331	RESISTOR 330Ω,1/6W
R20	QRD161J-472	RESISTOR 4.7kΩ,1/6W
R21	QRD161J-103	RESISTOR 10kΩ,1/6W
RA1	QRB045J-333M	RESISTOR ARRAY 33kΩ,1/8W
C2	QEK61HM-106	E CAPACITOR 10μF,50V
C3	QCC11EK-473	CAPACITOR 0.047μF,25V
C4	QCC11EK-473	CAPACITOR 0.047μF,25V
C5	QCB1HJ-101	CAPACITOR 100pF,50V
C6	QEK60JM-476	E CAPACITOR 47μF,6.3V
C8	QCC11EJ-104	CAPACITOR 0.1μF,25V
C9	QCSB1HJ-330	CAPACITOR 33pF,50V
C10	QEK60JM-476	E CAPACITOR 47μF,6.3V
L1	PU48530-101J	COIL 100μH
S1	PU60392-2-2	TACT SWITCH,REC
S2	PU60392-2-2	TACT SWITCH,PAUSE
S3	PU60392-2-2	TACT SWITCH,INSERT
S4	PU60392-2-2	TACT SWITCH,PLAY
S5	PU60392-2-2	TACT SWITCH,A.DUB
S6	PU60392-2-2	TACT SWITCH,STOP/EJECT
FDP1	PEDP0104-02	FLUORESCENT DISPLAY PANEL
HD1	PQ34668	FDP HOLDER(L)
HD2	PQ34669	FDP HOLDER(R)
HD3	PQM30038-6	LED HOLDER,D33
J1	PW30101-C0AA442	PARALLEL WIRE
J2	PW30101-60AA443	PARALLEL WIRE
CN3	PEMC1101-105	CONNECTOR,(1-5)MAIN
CN4	PEMC0889-013	CONNECTOR,(1-13)JACK
CN5	PEMC1101-108	CONNECTOR,(1-8)MAIN

REC SAFETY BOARD ASSEMBLY <32>

PWBA4	PB10942A4	REC SAFE BOARD ASSEMBLY
S35	PESW0589	PUSH SWITCH

CASSETTE SW BOARD ASSEMBLY <33>

PWBA3	PB10942A3	CASS.SW BOARD ASSEMBLY
S36	PU61320	PUSH SWITCH
S37	PU61320	PUSH SWITCH

#△ REF No. PART No. PART NAME, DESCRIPTION

SWITCH/JACK BOARD ASSEMBLY <36>

PWBA2	PB10942A2	SW/JACK BOARD ASSEMBLY,S5200U
	PB10942B2	SW/JACK BOARD ASSEMBLY,S7200U
D23	1SS132Y	DIODE
	or 1N4148M	DIODE
D24	1SS132Y	DIODE
	or 1N4148M	DIODE
D25	1SS132Y	DIODE
	or 1N4148M	DIODE
D26	1SS132Y	DIODE
	or 1N4148M	DIODE
D31	SLR-342VC3F	LE DIODE,POWER
D32	SLR-342DC3F	LE DIODE,DY.CNT S5200U
	SLR-342MG3F	LE DIODE,DY.CNT S7200U
D41	1SS133	DIODE
	or MA165	DIODE
D42	1SS133	DIODE
	or MA165	DIODE
D50	1SS132Y	DIODE,S7200U
	or 1N4148M	DIODE,S7200U
R18	QRD161J-331	RESISTOR 330Ω,1/6W
R19	QRD161J-331	RESISTOR 330Ω,1/6W
R31	QRD161J-750	RESISTOR 75Ω,1/6W
S7	PU60392-2-2	TACT SWITCH,MARK
S8	PU60392-2-2	TACT SWITCH,ERASE
S9	PU60392-2-2	TACT SWITCH,CH +
S10	PU60392-2-2	TACT SWITCH,CH -
S11	PU60392-2-2	TACT SWITCH,POWER
S12	PU60392-2-2	TACT SWITCH,D.CONTRAST
S13	PU60392-2-2	TACT SWITCH,SP/EP
S14	PU60392-2-2	TACT SWITCH,SELECT
S15	PU60392-2-2	TACT SWITCH,START
S16	PU60392-2-2	TACT SWITCH,MENU
S17	PU60392-2-2	TACT SWITCH,S-VHS
S18	PU60392-2-2	TACT SWITCH,TU/VIDEO
S19	PU60392-2-2	TACT SWITCH,TIMER
S20	PU60392-2-2	TACT SWITCH,V.STB S7200U
HD1	PQM30038-1-2	LED HOLDER,X2 D31 D32
JA1	PEMC1076	PIN JACK,VIDEO
JA2	PEMC0922	PIN JACK,AUDIO L
JA3	PEMC0922	PIN JACK,AUDIO R
CN1	PEMC1101-106	CONNECTOR,(1-6)MAIN
CN2	PEMC0825-013	CONNECTOR,(1-13)DISPLAY

PRE/REC BOARD ASSEMBLY <43>

PWBA	PB10948C	PRE/REC BOARD ASSEMBLY,S5200U
	PB10948D	PRE/REC BOARD ASSEMBLY,S7200U
IC1	JCP0047-WE	IC
IC201	AN3380NK	IC
Q1	2SC4081(QRS)	TRANSISTOR
Q2	2SA1576(QR)	TRANSISTOR
Q3	2SC4081(QRS)	TRANSISTOR
Q4	2SC4081(QRS)	TRANSISTOR

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
Q5	2SA1576(QR)	TRANSISTOR	
Q6	2SA1576(QR)	TRANSISTOR	
Q18	DTC143EU	TRANSISTOR	
Q19	2SC4081(QRS)	TRANSISTOR	
Q20	2SA1576(QR)	TRANSISTOR	
Q21	2SC4081(QRS)	TRANSISTOR	
Q101	2SC4081(QRS)	TRANSISTOR	
Q102	2SC4081(QRS)	TRANSISTOR	
Q103	2SC4081(QRS)	TRANSISTOR	
Q104	DTA144EU	TRANSISTOR	
Q105	2SC4081(QRS)	TRANSISTOR	
Q106	DTA124ES	TRANSISTOR	
Q107	DTC124EU	TRANSISTOR	
Q108	DTC144WU	TRANSISTOR	
Q109	DTC124EU	TRANSISTOR	
Q110	2SA1576(QR)	TRANSISTOR	
Q111	2SC4081(QRS)	TRANSISTOR	
Q112	2SA1576(QR)	TRANSISTOR	
Q113	2SC4081(QRS)	TRANSISTOR	
Q114	2SA1576(QR)	TRANSISTOR	
Q115	2SC4081(QRS)	TRANSISTOR	
Q116	2SC4081(QRS)	TRANSISTOR	
Q119	2SC4081(QRS)	TRANSISTOR	
Q201	DTC124TU	TRANSISTOR	
Q202	DTC124TU	TRANSISTOR	
Q203	DTC124EU	TRANSISTOR	
Q205	DTA114EU	TRANSISTOR	
Q206	DTC114WU	TRANSISTOR	
Q207	DTC124EU	TRANSISTOR,S7200U	
Q210	DTC144WU	TRANSISTOR	
Q211	DTA114EU	TRANSISTOR	
Q301	2SA933S(Q)	TRANSISTOR	
Q302	2SA933S(Q)	TRANSISTOR	
Q303	DTC124EU	TRANSISTOR	
Q304	2SA933S(Q)	TRANSISTOR	
D2	1SS355	DIODE	
D7	1SS355	DIODE	
D101	DAN202U	DIODE	
	or MA141WK	DIODE	
D102	1SS355	DIODE	
D103	DAN202U	DIODE	
	or MA141WK	DIODE	
D203	1SS355	DIODE	
D204	1SS355	DIODE	
R3	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R4	QRSA08J-220YN	RESISTOR	220Ω,1/10W
R5	QRSA08J-150YN	RESISTOR	150Ω,1/10W
R6	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R7	QRSA08J-300YN	RESISTOR	300Ω,1/10W
R8	QRSA08J-270YN	RESISTOR	270Ω,1/10W
R9	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R10	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R11	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R12	NVP1311-153N	V RESISTOR,REC FM LEVEL	
R13	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
R14	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R15	QRSA08J-301YN	RESISTOR	300Ω,1/10W
R16	QRSA08J-151YN	RESISTOR	150Ω,1/10W
R17	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R18	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R19	NRVA62D-203N	RESISTOR	20kΩ,1/16W
R20	QRSA08J-821YN	RESISTOR	820Ω,1/10W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R21	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R22	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R23	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R24	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R25	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R26	QRSA08J-512YN	RESISTOR	5.1kΩ,1/10W
R27	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R28	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
R30	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R31	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R32	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R33	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R34	QRSA08J-301YN	RESISTOR	300Ω,1/10W
R35	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R36	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R44	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R48	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R63	QRSA08J-751YN	RESISTOR	750Ω,1/10W
R101	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R102	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R103	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R104	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R105	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
R106	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R107	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R108	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R109	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R110	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R111	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R112	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R113	QVPA603-222	V RESISTOR,S-SP VIDEO EQ	
R114	QVPA603-222	V RESISTOR,S-EP VIDEO EQ	
R115	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R116	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R117	QRSA08J-752YN	RESISTOR	7.5kΩ,1/10W
R118	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
R119	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
R120	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R121	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R122	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R123	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R124	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
R125	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
R126	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R127	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R128	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R129	QRSA08J-511YN	RESISTOR	510Ω,1/10W
R130	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R131	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R132	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
R133	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R134	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R135	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R136	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R137	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R138	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
R139	QRSA08J-391YN	RESISTOR	390Ω,1/10W
R140	QRSA08J-302YN	RESISTOR	3kΩ,1/10W
R141	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
R142	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
R151	QRD161J-102	RESISTOR	1kΩ,1/6W
R201	QRSA08J-273YN	RESISTOR	27kΩ,1/10W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	#△ REF No.	PART No.	PART NAME, DESCRIPTION
R202	QRSA08J-101YN	RESISTOR 100Ω,1/10W	C74	QCFA1HZ-103	CAPACITOR 0.01μF,50V
R203	QRSA08J-101YN	RESISTOR 100Ω,1/10W	C101	QCFA1HZ-103	CAPACITOR 0.01μF,50V
R204	QRSA08J-274YN	RESISTOR 270kΩ,1/10W	C102	QCFA1HZ-103	CAPACITOR 0.01μF,50V
R205	QRSA08J-102YN	RESISTOR 1kΩ,1/10W	C103	QCSA1HJ-101	CAPACITOR 100pF,50V
R209	QRSA08J-332YN	RESISTOR 3.3kΩ,1/10W	C104	QCTA1CH-101	CAPACITOR 100pF,16V
R214	QRSA08J-560YN	RESISTOR 56Ω,1/10W	C105	QCSA1HJ-680	CAPACITOR 68pF,50V
R215	QRSA08J-560YN	RESISTOR 56Ω,1/10W	C106	QCFA1HZ-103	CAPACITOR 0.01μF,50V
R216	QVPA603-331Z	V RESISTOR,AUDIO REC FM LEVEL	C107	QCSA1HJ-390	CAPACITOR 39pF,50V
R217	QRSA08J-153YN	RESISTOR 15kΩ,1/10W	C108	QCSA1HJ-390	CAPACITOR 39pF,50V
R218	QRSA08J-332YN	RESISTOR 3.3kΩ,1/10W	C109	QCFA1HZ-103	CAPACITOR 0.01μF,50V
R219	QRSA08J-222YN	RESISTOR 2.2kΩ,1/10W	C110	QCFA1HZ-103	CAPACITOR 0.01μF,50V
R220	QRSA08J-332YN	RESISTOR,S7200U 3.3kΩ,1/10W	C111	QCSA1HJ-330	CAPACITOR 33pF,50V
R301	QRSA08J-221YN	RESISTOR 220Ω,1/10W	C112	QCFA1HZ-103	CAPACITOR 0.01μF,50V
R302	QRSA08J-821YN	RESISTOR 820Ω,1/10W	C113	QCSA1HJ-470	CAPACITOR 47pF,50V
R303	QRSA08J-681YN	RESISTOR 680Ω,1/10W	C114	QCSA1HJ-150	CAPACITOR 15pF,50V
R304	QRSA08J-473YN	RESISTOR 47kΩ,1/10W	C115	QCSA1HJ-330	CAPACITOR 33pF,50V
R305	QRSA08J-683YN	RESISTOR 68kΩ,1/10W	C116	QCSA1HJ-180	CAPACITOR 18pF,50V
R306	QRSA08J-393YN	RESISTOR 39kΩ,1/10W	C117	QCSA1HJ-180	CAPACITOR 18pF,50V
R307	QRSA08J-472YN	RESISTOR 4.7kΩ,1/10W	C118	QCFA1HZ-103	CAPACITOR 0.01μF,50V
R308	QRSA08J-473YN	RESISTOR 47kΩ,1/10W	C119	QCSA1HJ-220	CAPACITOR 22pF,50V
C1	QCFA1HZ-103	CAPACITOR 0.01μF,50V	C120	QCSA1HJ-150	CAPACITOR 15pF,50V
C2	QCFA1HZ-103	CAPACITOR 0.01μF,50V	C122	QCSA1HJ-180	CAPACITOR 18pF,50V
C3	QEK60JM-107	E CAPACITOR 100μF,6.3V	C123	QCSA1HJ-390	CAPACITOR 39pF,50V
C4	QCFA1HZ-103	CAPACITOR 0.01μF,50V	C124	QCSA1HJ-150	CAPACITOR 15pF,50V
C5	QCFA1HZ-103	CAPACITOR 0.01μF,50V	C125	QCSA1HJ-820	CAPACITOR 82pF,50V
C12	QCTA1CH-100	CAPACITOR 10pF,16V	C126	QCSA1HJ-120	CAPACITOR 12pF,50V
C13	QCFA1EZ-104	CAPACITOR 0.1μF,25V	C127	QCFA1HZ-103	CAPACITOR 0.01μF,50V
C14	QCYA1HK-473	CAPACITOR 0.047μF,50V	C128	QEK61CM-476	E CAPACITOR 47μF,16V
C15	QCYA1HK-223	CAPACITOR 0.022μF,50V	C129	QCFA1HZ-103	CAPACITOR 0.01μF,50V
C18	QCYA1HK-223	CAPACITOR 0.022μF,50V	C133	QCFA1HZ-103	CAPACITOR 0.01μF,50V
C19	QCYA1HK-473	CAPACITOR 0.047μF,50V	C201	QCFA1EZ-104	CAPACITOR 0.1μF,25V
C20	QCTA1CH-100	CAPACITOR 10pF,16V	C202	QCSA1HJ-391	CAPACITOR 390pF,50V
C21	QCFA1EZ-104	CAPACITOR 0.1μF,25V	C203	QCSA1HJ-561	CAPACITOR 560pF,50V
C22	QCFA1EZ-104	CAPACITOR 0.1μF,25V	C204	QCSA1HJ-102	CAPACITOR 0.001μF,50V
C23	QCFA1EZ-104	CAPACITOR 0.1μF,25V	C205	QCSA1HJ-561	CAPACITOR 560pF,50V
C26	QCFA1EZ-104	CAPACITOR 0.1μF,25V	C206	QCSA1HJ-102	CAPACITOR 0.001μF,50V
C27	QCFA1EZ-104	CAPACITOR 0.1μF,25V	C207	QCFA1CZ-224	CAPACITOR 0.22μF,16V
C28	QEK60JM-476	E CAPACITOR 47μF,6.3V	C208	QCSA1HJ-391	CAPACITOR 390pF,50V
C29	QCFA1HZ-103	CAPACITOR 0.01μF,50V	C209	QEK60JM-107	E CAPACITOR 100μF,6.3V
C30	QCFA1EZ-104	CAPACITOR 0.1μF,25V	C210	QCYA1HK-103	CAPACITOR 0.01μF,50V
C31	QCFA1HZ-103	CAPACITOR 0.01μF,50V	C211	QCYA1HK-103	CAPACITOR 0.01μF,50V
C32	QCYA1HJ-222	CAPACITOR 0.0022μF,50V	C213	QCTA1CH-331	CAPACITOR 330pF,16V
C33	QCYA1HJ-222	CAPACITOR 0.0022μF,50V	C214	QCSA1HJ-330	CAPACITOR 33pF,50V
C34	QCFA1HZ-103	CAPACITOR 0.01μF,50V	C216	QCYA1HK-103	CAPACITOR 0.01μF,50V
C35	QCFA1HZ-103	CAPACITOR 0.01μF,50V	C218	QCSA1HJ-102	CAPACITOR 0.001μF,50V
C36	QCFA1CZ-105	CAPACITOR 1μF,16V	C219	QCYA1HK-103	CAPACITOR 0.01μF,50V
C37	QCSA1HJ-391	CAPACITOR 390pF,50V	C220	QEK61AM-476	E CAPACITOR 47μF,10V
C39	QCSA1HJ-151	CAPACITOR 150pF,50V	C221	QCYA1HK-103	CAPACITOR 0.01μF,50V
C40	QCFA1CZ-474	CAPACITOR 0.47μF,16V	C224	QCFA1CZ-224	CAPACITOR 0.22μF,16V
C41	QCFA1HZ-103	CAPACITOR 0.01μF,50V	C225	QCYA1HK-103	CAPACITOR,S7200U 0.01μF,50V
C42	QEKF0JM-476	E CAPACITOR 47μF,6.3V	C226	QCTA1CH-101	CAPACITOR 100pF,16V
C43	QCFA1HZ-103	CAPACITOR 0.01μF,50V	C301	QCYA1HK-223	CAPACITOR 0.022μF,50V
C44	QCFA1HZ-103	CAPACITOR 0.01μF,50V	C302	QCTA1CH-151	CAPACITOR 150pF,16V
C45	QEKF1CM-476	E CAPACITOR 47μF,16V	C303	QCTA1CH-180	CAPACITOR 18pF,16V
C46	QCSA1HJ-331	CAPACITOR 330pF,50V	C304	QCTA1CH-220	CAPACITOR 22pF,16V
C47	QCSA1HJ-101	CAPACITOR 100pF,50V	C305	QCTA1CH-102	CAPACITOR 0.001μF,16V
C49	QCSA1HJ-121	CAPACITOR 120pF,50V	C306	QCTA1CH-220	CAPACITOR 22pF,16V
C56	QCSA1HJ-390	CAPACITOR 39pF,50V	C307	QEKF1CM-106	E CAPACITOR 10μF,16V
C59	QCSA1HJ-361	CAPACITOR 360pF,50V	C308	QCYA1HK-103	CAPACITOR 0.01μF,50V
C68	QCFA1HZ-103	CAPACITOR 0.01μF,50V	L1	PELN0975-101JZ	COIL 100μH
C69	QCFA1HZ-103	CAPACITOR 0.01μF,50V	L2	PELN0975-101JZ	COIL 100μH
C70	QCTA1CH-151	CAPACITOR 150pF,16V	L3	PU59988-151JY	COIL 150μH

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
L4	PU59988-221J	COIL	220μH
L5	PELN0975-101JZ	COIL	100μH
L7	PU59988-180J	COIL	18μH
L12	PELN0975-101JZ	COIL	100μH
L101	PU59988-560JL	COIL	56μH
L102	PU59988-150J	COIL	15μH
L103	PU59988-270J	COIL	27μH
L104	PU59988-270J	COIL	27μH
L105	PU59988-560J	COIL	56μH
L106	PU59988-220JY	COIL	22μH
L107	PU59988-390J	COIL	39μH
L108	PU59988-221J	COIL	220μH
L109	PU59988-100J	COIL	10μH
L112	PELN0975-101JZ	COIL	100μH
L201	PELN0975-101JZ	COIL	100μH
L202	PELN0530-221JZ	COIL	220μH
L301	PU59988-150J	COIL	15μH
L302	PELN0975-101JZ	COIL	100μH
SLD1	PQ21805	SHIELD FLAME	
CN1	PU59973-11	CONNECTOR,(1-11)U.DRUM	
CN2	PEMC1056-114	CONNECTOR,(1-14)MAIN	
CN3	PEMC1056-113	CONNECTOR,(2-14)MAIN	

DIGITAL SUB BOARD ASSEMBLY <49>

PWBA5	PB10942A5	DIGITAL SUB BOARD ASSEMBLY
CN101	PEMC0723-010	CONNECTOR,(1-10)MAIN
CN102	PEMC0723-010	CONNECTOR,(1-10)MAIN

Y/C SEPA BOARD ASSEMBLY <89>

PWBA	PB20664A	Y/C SEPARATION BOARD ASSEMBLY	
IC1	NJM2240M	IC	
IC2	JCP0043	IC	
Q1	2SC4081(QRS)	TRANSISTOR	
Q2	2SA1576(QRS)	TRANSISTOR	
Q3	2SC4081(QRS)	TRANSISTOR	
Q4	2SA1576(QRS)	TRANSISTOR	
Q5	2SC4081(QRS)	TRANSISTOR	
Q6	2SA1576(QRS)	TRANSISTOR	
Q7	2SC4081(QRS)	TRANSISTOR	
Q8	2SC4081(QRS)	TRANSISTOR	
Q9	2SC4081(QRS)	TRANSISTOR	
Q10	2SC3932(ST)	TRANSISTOR	
Q11	2SC4081(QRS)	TRANSISTOR	
Q12	2SC4081(QRS)	TRANSISTOR	
Q13	2SC4081(QRS)	TRANSISTOR	
Q14	2SC3932(ST)	TRANSISTOR	
Q15	2SA1576(QRS)	TRANSISTOR	
D1	DAP202U	DIODE	
R1	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R2	NRSA63J-471N	RESISTOR	470Ω,1/16W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R3	NRSA63J-361N	RESISTOR	360Ω,1/16W
R4	NRSA63G-432N	RESISTOR	4.3kΩ,1/16W
R5	NRSA63J-271N	RESISTOR	270Ω,1/16W
R6	NRSA63J-271N	RESISTOR	270Ω,1/16W
R7	NRSA63J-271N	RESISTOR	270Ω,1/16W
R8	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R9	NRSA63J-473N	RESISTOR	47kΩ,1/16W
R10	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R11	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R12	NRSA63J-222N	RESISTOR	2.2kΩ,1/16W
R13	NRSA63J-182N	RESISTOR	1.8kΩ,1/16W
R14	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R15	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R16	NRSA63J-222N	RESISTOR	2.2kΩ,1/16W
R17	NRSA63J-681N	RESISTOR	680Ω,1/16W
R18	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R19	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R21	NRSA63J-222N	RESISTOR	2.2kΩ,1/16W
R22	NRSA63J-681N	RESISTOR	680Ω,1/16W
R23	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R24	NRSA63J-222N	RESISTOR	2.2kΩ,1/16W
R25	NRSA63J-132N	RESISTOR	1.3kΩ,1/16W
R26	NRSA63J-472N	RESISTOR	4.7kΩ,1/16W
R27	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R28	NRSA63J-361N	RESISTOR	360Ω,1/16W
R29	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R30	NRSA63J-223N	RESISTOR	22kΩ,1/16W
R31	NRSA63J-223N	RESISTOR	22kΩ,1/16W
R32	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R33	NRSA63J-222N	RESISTOR	2.2kΩ,1/16W
R34	NRSA63J-222N	RESISTOR	2.2kΩ,1/16W
R35	NRSA63J-472N	RESISTOR	4.7kΩ,1/16W
R36	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R37	NRSA63J-361N	RESISTOR	360Ω,1/16W
R38	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R39	NRSA63J-101N	RESISTOR	100Ω,1/16W
R40	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R41	NRSA63J-222N	RESISTOR	2.2kΩ,1/16W
R42	NRSA63J-331N	RESISTOR	330Ω,1/16W
R43	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R44	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R45	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R46	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R47	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R48	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R54	NRSA63J-103N	RESISTOR	10kΩ,1/16W
R63	NRSA63J-222N	RESISTOR	2.2kΩ,1/16W
R67	NRSA63J-153N	RESISTOR	15kΩ,1/16W
R68	NVP1311-223N	V RESISTOR,DIGITAL I/O LEVEL	
R69	NRSA63J-562N	RESISTOR	5.6kΩ,1/16W
R70	NRSA63J-562N	RESISTOR	5.6kΩ,1/16W
R71	NRSA63J-562N	RESISTOR	5.6kΩ,1/16W
C1	NCS31HJ-120A	CAPACITOR	12pF,50V
C2	NCB31HK-103A	CAPACITOR	0.01μF,50V
C3	QEK60JM-107	E CAPACITOR	100μF,6.3V
C4	NCB31HK-103A	CAPACITOR	0.01μF,50V
C5	QEK61EM-475	E CAPACITOR	4.7μF,25V
C6	NCB31HK-102A	CAPACITOR	0.001μF,50V
C7	NCB31HK-103A	CAPACITOR	0.01μF,50V
C8	NCT08CH-6R0A	CAPACITOR	6pF,50V
C9	NCB31HK-103A	CAPACITOR	0.01μF,50V
C10	NCB31HK-103A	CAPACITOR	0.01μF,50V

#△ REF No.	PART No.	PART NAME, DESCRIPTION		#△ REF No.	PART No.	PART NAME, DESCRIPTION	
C11	NCF31EZ-104A	CAPACITOR	0.1μF,25V	L7	PU48530-101K	COIL	100μH
C12	QEK60JM-337	E CAPACITOR	330μF,6.3V	L8	PU59153-101K	COIL	100μH
C13	NCF31EZ-104A	CAPACITOR	0.1μF,25V	L9	PU48530-101K	COIL	100μH
C14	QEK60JM-107	E CAPACITOR	100μF,6.3V	L10	PU48530-101K	COIL	100μH
C15	NCF31EZ-104A	CAPACITOR	0.1μF,25V	LPF1	PELN1062-S	LOW PASS FILTER	
C16	QEK60JM-107	E CAPACITOR	100μF,6.3V	LPF2	PELN1062-S	LOW PASS FILTER	
C17	NCF31EZ-104A	CAPACITOR	0.1μF,25V	LPF3	PELN1062-S	LOW PASS FILTER	
C18	QEK60JM-107	E CAPACITOR	100μF,6.3V	LPF4	PELN1061-S	LOW PASS FILTER	
C19	NCF31EZ-104A	CAPACITOR	0.1μF,25V	LPF5	PELN1061-S	LOW PASS FILTER	
C20	QEK60JM-107	E CAPACITOR	100μF,6.3V	LC1	PU59736-102	N FILTER	
C21	NCF31EZ-104A	CAPACITOR	0.1μF,25V	LC2	PU59736-331	N FILTER	
C22	QEK60JM-337	E CAPACITOR	330μF,6.3V	SLD1	PQ34851-1-1	SHIELD FRAME	
C24	QEK60JM-476	E CAPACITOR	47μF,6.3V	SLD2	PQ34852-1-2	SHIELD COVER,X2	
C25	NCB31HK-103A	CAPACITOR	0.01μF,50V	CN1	PEMC0712-109	PIN HEADER,(1-9)DIGITAL SUB	
C26	QEK61HM-105	E CAPACITOR	1μF,50V	CN2	PEMC0712-110	PIN HEADER,(3-12)DIGITAL SUB	
C27	NCB31HK-103A	CAPACITOR	0.01μF,50V				
C28	NCF31EZ-104A	CAPACITOR	0.1μF,25V				
C29	NCF31EZ-104A	CAPACITOR	0.1μF,25V				
C30	NCF31EZ-104A	CAPACITOR	0.1μF,25V				
C31	NCF31EZ-104A	CAPACITOR	0.1μF,25V				
C32	QEK60JM-476	E CAPACITOR	47μF,6.3V				
C33	NCB31HK-103A	CAPACITOR	0.01μF,50V				
C34	NCB31HK-103A	CAPACITOR	0.01μF,50V				
C35	QEK60JM-476	E CAPACITOR	47μF,6.3V				
C36	NCB31HK-103A	CAPACITOR	0.01μF,50V				
C37	QEK61EM-335	E CAPACITOR	3.3μF,25V				
C38	QEK60JM-476	E CAPACITOR	47μF,6.3V				
C39	NCB31HK-103A	CAPACITOR	0.01μF,50V				
C40	NCB31HK-103A	CAPACITOR	0.01μF,50V				
C41	NCB31HK-103A	CAPACITOR	0.01μF,50V				
C42	NCB31HK-103A	CAPACITOR	0.01μF,50V				
C43	NCF31EZ-104A	CAPACITOR	0.1μF,25V				
C44	NCF31EZ-104A	CAPACITOR	0.1μF,25V				
C45	NCF31EZ-104A	CAPACITOR	0.1μF,25V				
C46	NCF31EZ-104A	CAPACITOR	0.1μF,25V				
C47	NCB31HK-103A	CAPACITOR	0.01μF,50V				
C48	NCF31EZ-104A	CAPACITOR	0.1μF,25V				
C56	NCF31EZ-104A	CAPACITOR	0.1μF,25V				
C64	NCF31EZ-104A	CAPACITOR	0.1μF,25V				
C69	NCS31HJ-470A	CAPACITOR	47pF,50V				
C70	NCS31HJ-470A	CAPACITOR	47pF,50V				
C71	NCS31HJ-470A	CAPACITOR	47pF,50V				
C72	NCS31HJ-470A	CAPACITOR	47pF,50V				
C73	NCS31HJ-470A	CAPACITOR	47pF,50V				
C74	NCS31HJ-470A	CAPACITOR	47pF,50V				
C75	NCS31HJ-470A	CAPACITOR	47pF,50V				
C76	NCS31HJ-470A	CAPACITOR	47pF,50V				
C77	NCS31HJ-470A	CAPACITOR	47pF,50V				
C78	NCS31HJ-470A	CAPACITOR	47pF,50V				
C79	NCS31HJ-470A	CAPACITOR	47pF,50V				
C82	NCB31HK-103A	CAPACITOR	0.01μF,50V				
C83	QEK60JM-476	E CAPACITOR	47μF,6.3V				
C84	NCF31EZ-104A	CAPACITOR	0.1μF,25V				
C89	QEK61CM-106	E CAPACITOR	10μF,16V				
C91	QEK61HM-474	E CAPACITOR	0.47μF,50V				
C92	QEK61HM-474	E CAPACITOR	0.47μF,50V				
L1	PU48530-100J	COIL	10μH				
L2	PU48530-101K	COIL	100μH				
L3	PU59153-101K	COIL	100μH				
L4	PU59153-101K	COIL	100μH				
L5	PU48530-101K	COIL	100μH				
L6	PU48530-101K	COIL	100μH				

SECTION 6 TECHNICAL INFORMATION

6.1 SYSCON CIRCUIT

6.1.1 Syscon CPU pin function (IC601) 1/2

PIN NO	LABEL	IN/OUT	NOTE
1	S. CURVE	IN	TUNING CHECK
2	AVRGFM	IN	AUTO TRACING DATA (AVERAGE VOLTAGE OF PB FM LEVEL) INPUT
3	WA-DET	IN	NC
4	6.5H DET	IN	PB SWITCHING POINT ADJUST PULSE
5	AVSS	-	GND
6	TEST	-	GND
7	X2	-	TIMER CLOCK (32.768KHz)
8	X1	-	TIMER CLOCK (32.768KHz)
9	VSS	-	GND
10	OSC1	IN	SYSTEM CLOCK (10MHz)
11	OSC2	OUT	SYSTEM CLOCK (10MHz)
12	RESET	IN	RESET AT CONNECT VCR TO AC
13	(NMI)	-	NC
14	FRONT (H)	OUT	FRONT A/V TERMINAL INPUT MODE: H
15	EDTV2 (H)	IN	NC
16	TRICK (H)	OUT	SPECIAL PB (SLOW/STILL) :H
17	V. C. CS	OUT	VIDEO CPU CHIP ENABLE
18	V. S. RESET	OUT	VIDEO CPU RESET
19	S. SENS	IN	LEADER TAPE DETECT (DETECT ON:L)
20	E. SENS	IN	TRAILER TAPE DETECT (DETECT ON:L)
21	P. MUTE (H)	OUT	PICTURE MUTE CONTROL (MUTE ON:H)
22	TU FG	IN	TAKE-UP REEL ROTATION DET/TAPE REMAIN
23	SUP FG	IN	SUPPLY REEL ROTATION DET/TAPE REMAIN
24	SP (L)	OUT	SP MODE:L
25	STILL	OUT	JOG/SHUTTLE SWITCH
26	JSB	IN	JOG DIAL PULSE INPUT (B)
27	JSA	IN	JOG DIAL PULSE INPUT (A)
28	SERVO	OUT	CAPSTAN MOTOR CONTROL (SERVO:L/SYSCON:H)
29	LCM1	OUT	LOADING MOTOR DRIVE (1)
30	LCM2	OUT	LOADING MOTOR DRIVE (2)
31	H SEL	OUT	HEAD SELECT CONTROL (SP:L/LP:M/EP:H)
32	A/M/S	OUT	PRE/REC CIRCUIT CONTROL (AUTO:M/MANUAL:H/S&S:L)
33	REC ST (H)	OUT	REC START:H
34	H. RECST (L)	OUT	HiFi AUDIO REC START:L
35	FLY ST (H)	OUT	FLYING ERASE HEAD CONTROL (FE ON:H)
36	CBOXCTL	OUT	CABLE BOX ON/OFF CTL
37	V. REC (H)	OUT	VIDEO REC MODE:H
38	A. MUTE (H)	OUT	AUDIO MUTE CONTROL (MUTE ON:H)
39	TM CLK	OUT	SERIAL DATA SHIFT CLOCK OUTPUT
40	TU DATA	OUT	TUNING CONTROL SERIAL DATA OUTPUT

Table 6-1-1 SYSCON CPU pin function (1/2)

6.1.2 Syscon CPU pin function (IC601) 2/2

PIN NO	LABEL	IN/OUT	NOTE
41	SYNC. DET	IN	SYNC DETECT (NO SYNC:H)
42	S-DATA	OUT	SERVO IC CONTROL DATA
43	LOCK DET	OUT	TUNING LOCK CHECK
44	T. MUTE (H)	IN	TUNER MUTE CONTROL (MUTE ON:H)
45	VPCTL	OUT	V. PULSE ADDITION TIMING CONTROL
46	PAUSE (L)	OUT	CAPSTAN MOTOR CONTROL (PAUSE:L)
47	CAP REV	OUT	CAPSTAN MOTOR CONTROL (FWD:H/REV:L)
48	RAE OUT	OUT	REMOTE PAUSE CONTROL OUTPUT
49	STATUS	OUT	NC
50	RC IN	IN	REMOTE CONTROL DATA INPUT
51	COMPU	IN	AV COMPULINK MODE
52	CTL C/D	IN	CTL PULSE INPUT (MODE DETECT/BLANK PORTION DET)
53	PROTECT	IN	SWD5V/12V DETECT
54	I. DATA	OUT	EXPANNDER IC(IC608) SERIAL DATA
55	I. CLK	OUT	EXPANNDER IC(IC608) TRANSFER CLOCK
56	CSB	OUT	ON SCREEN IC CHIP SELECT
57	S-OUT	OUT	ON SCREEN CONTROL DATA
58	S-IN	IN	ON SCREEN/FDP CONTROL DATA
59	S-CLK	OUT	DATA TRANSFER CLOCK
60	H DATA	OUT	VIDEO IC CONTROL DATA
61	STB	OUT	CLOCK OUTPUT PERMISSION
62	H CLK	OUT	VIDEO IC DATA TRANSFER CLOCK
63	VCC	-	SYSTEM POWER
64	M. DATA	OUT	MEMORY IC DATA
65	E. DATA	OUT	EXPANNDER IC(IC607) DATA
66	TU-CE	OUT	TUNER UNIT CHIP ENABLE
67	CTL CLOCK	IN	INDEX CONTROL
68	M-CE	OUT	MEMORY IC CHIP ENABLE
69	CAP FG	IN	TAPE SPEED DETECT/BACK SPACE COUNT
70	DUTY I/O	IN/OUT	IN/OUT INDEX DATA CONTROL
71	D. FF	IN	DRUM ROTATION DETECT/REC TIMING CONTROL
72	AVCC	-	SYSTEM POWER (for ANALOG)
73	REC CTL. V	OUT	AUDIO REC LEVEL CONTROL VOLTAGE
74	P. DOWN	IN	POWER DOWN DETECT (POWER DOWN:H → L)
75	DRUM V	OUT	DRUM MOTOR CONTROL
76	CAP V	OUT	CAPSTAN MOTOR CONTROL
77	D. V. DET	IN	DRUM DRIVE VOLTAGE DETECT
78	TU-LED	IN	TUNER LED CONTROL
79	A. LVL (L)	IN	AUDIO INDICATOR LEVEL INPUT (Lch)
80	A. LVL (R)	IN	AUDIO INDICATOR LEVEL INPUT (Rch)

Table 6-1-2 SYSCON CPU pin function (2/2)