

SLV-772HF/ 779HF

RMT-V266

SERVICE MANUAL

US Model

SLV-779HF

Canadian Model

SLV-772HF/779HF

Hi-Fi

VHS

VCR Plus+



Photo: SLV-779HF
RMT-V266

S MECHANISM

Refer to the SERVICE MANUAL of VHS
MECHANICAL ADJUSTMENT VI for
MECHANICAL ADJUSTMENTS. (9-921-647-11)

SPECIFICATIONS

System

Format
VHS NTSC standard
Video recording system
Rotary head helical scanning FM system
Video heads
Double azimuth four heads
Video signal
NTSC color, EIA standards
Tape speed
SP: 33.35 mm/s (1 3/8 inches/s)
EP: 11.11 mm/s (7/16 inches/s)
LP: 16.67 mm/s (1 1/16 inches/s),
playback only
Maximum recording/playback time
8 hrs. in EP mode (with T-160 tape)
Fast-forward and rewind time
Approx. 3 min. (with T-120 tape)

Tuner section

Channel coverage
VHF 2 to 13
UHF 14 to 69
CATV A-8 to A-1, A to W, W+1 to W+84
Antenna
75-ohm antenna terminal for VHF/UHF

Inputs and outputs

LINE-1 IN and -2 IN
VIDEO IN, phono jack (1 each)
Input signal: 1 Vp-p, 75 ohms, unbalanced,
sync negative
AUDIO IN, phono jacks (2 each)
Input level: 327 mVrms
Input impedance: more than 47 kilohms
LINE OUT
VIDEO OUT, phono jack (1)
Output signal: 1 Vp-p, 75 ohms, unbalanced,
sync negative
AUDIO OUT, phono jacks (2)
Standard output: 327 mVrms
Load impedance: 47 kilohms
Output impedance: less than 10 kilohms
CABLE BOX CONTROL (CONTROL S OUT)
Stereo mini jack (plug in power) (1)

Timer section

Clock
Quartz locked
Timer indication
12-hour cycle
Timer setting
8 programs per month (max.)
Power back-up
Built-in self-charging capacitor
Back-up duration: up to 1 hour at a time

General

Power requirements
120 V AC, 60 Hz
Power consumption
24 W
Operating temperature
5°C to 40°C (41°F to 104°F)
Storage temperature
-20°C to 60°C (-4°F to 140°F)
Dimensions
Approx. 430 × 100 × 287 mm (w/h/d)
(Approx. 17 × 4 × 11 3/8 inches) including
projecting parts and controls
Mass
Approx. 4.0 kg (8 lb 13 oz)

Supplied accessories

Remote commander (1)
Size AA (R6) batteries (2)
75-ohm coaxial cable with F-type connectors (1)
Audio/video cable (3 phono to 3 phono) (1)

Design and specifications are subject to change
without notice.

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As an ENERGY STAR Partner, Sony Corporation
has determined that this product meets the
ENERGY STAR guidelines for energy efficiency.

VIDEO CASSETTE RECORDER



SONY®

SAFETY CHECK-OUT

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

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

LEAKAGE TEST

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

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

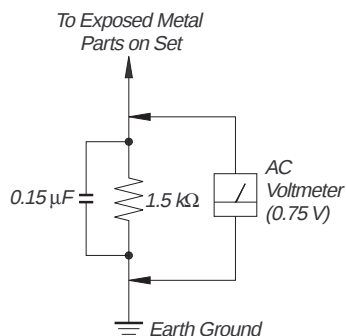


Fig. A. Using an AC voltmeter to check AC leakage.

SAFETY-RELATED COMPONENT WARNING!!

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

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

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

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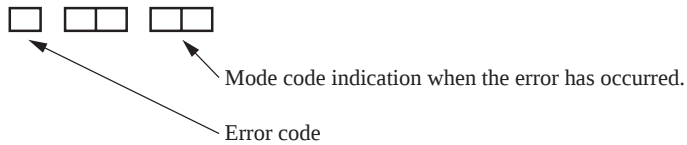
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SERVICE NOTE

1. ERROR CODE INDICATION

- Error codes are indicated using the lower 5 digits in the fluorescent display tube.
“At this time, Colon “:” between character is not indicated.”



ERROR CODE

0	No error
1	Cam encoder error Loading direction
2	Cam encoder error Unloading direction
3	T reel error
4	S reel error
5	Capstan error
6	Drum error
7	Error on initializing
8	Cassette loading error
9	Reserve

MODE CODE

0	Power-on eject	10	FWD x1	20	REW play
1	Power-on initial	11	FWD x2	21	Cas. loading
2	Power-off eject	12	CUE	22	Tape loading
3	Power-off stop	13	PB-pause	23	Power-off loading
4	FF	14	RVS-pause	24	Mecha. error (Power on)
5	REW	15	RVS x1	25	Power-on eject initial
6	REC	16	RVS x2	26	Power-off eject initial
7	REC- pause	17	REV	27	APC REC
8	Power-on stop	18	Power-off initial	28	Cas. loading
9	PB	19	Mecha. error (Power off)		(No auto PB check)

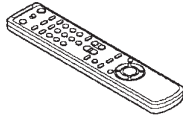
Getting Started

Step 1

Unpacking

Check that you have received the following items with the VCR:

- Remote commander



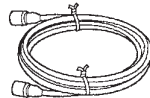
- Audio/video cable (3-phono to 3-phono)



- Size AA (R6) batteries



- 75-ohm coaxial cable with F-type connectors

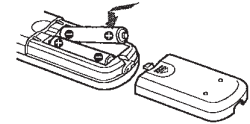


Step 2

Setting up the remote commander

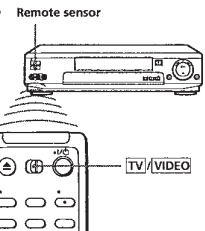
Inserting the batteries

Insert two size AA (R6) batteries by matching the + and - on the batteries to the diagram inside the battery compartment. Insert the negative (-) end first, then push in and down until the positive (+) end clicks into position.



Using the remote commander

You can use this remote commander to operate this VCR and a Sony TV. Buttons on the remote commander marked with a dot (•) can be used to operate your Sony TV.



To operate	Set [TV/VIDEO] to
the VCR	[VIDEO] and point at the remote sensor on the VCR
a Sony TV	[TV] and point at the remote sensor on the TV

continued

Step 2: Setting up the remote commander (continued)

Notes

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

Controlling other TVs with the remote commander

The remote commander is preprogrammed to control non-Sony TVs. If your TV is listed in the table below, set the appropriate manufacturer's code number.

- Set **[TV/VIDEO]** at the top of the remote commander to **[TV]**.
- Hold down **I/⏻**, and enter your TV's code number(s) using the number buttons. Then release **I/⏻**.

Now you can use the **I/⏻**, **VOL +/-**, **CH +/-**, and **TV/VIDEO** buttons to control your TV. You can also use the buttons marked with a dot (•) to control a Sony TV. To control the VCR, reset **[TV/VIDEO]** to **[VIDEO]**.

Code numbers of controllable TVs

If more than one code number is listed, try entering them one at a time until you find the one that works with your TV.

Manufacturer	Code number	Manufacturer	Code number	Manufacturer	Code number
Sony	01	JVC	09	RCA	04, 10
Akai	04	KMC	03	Sampo	12
AOC	04	Magnavox	03, 08, 12	Sanyo	11
Centurion	12	Marantz	04, 13	Scott	12
Coronado	03	MGA/Mitsubishi	04, 12, 13, 17	Sears	07, 10, 11
Curis-Mathes	12	NEC	04, 12	Sharp	03, 05, 18
Daytron	12	Panasonic	06, 19	Sylvania	08, 12
Emerson	03, 04, 14	Philco	03, 04	Teknika	03, 08, 14
Fisher	11	Philips	08	Toshiba	07
General Electric	06, 10	Pioneer	16	Wards	03, 04, 12
Gold Star	03, 04, 17	Portland	03	Yorx	12
Hitachi	02, 03	Quasar	06, 18	Zenith	15
J.C.Penny	04, 12	Radio Shack	05, 14		

Notes

- If the TV uses a different remote control system from the one programmed to work with the VCR, you cannot control your TV with the remote commander.
- If you enter a new code number, the code number previously entered will be erased.
- When you replace the batteries of the remote commander, the code number may change. Set the appropriate code number every time you replace the batteries.
- When you press the **AUDIO MONITOR** button, your TV's menu may appear on the TV's screen. To exit the TV menu, press the **MENU** button on the TV remote commander or wait until the menu disappears automatically.

Step 3

Hookups

Selecting the best hookup option

There are many ways in which your VCR can be hooked up. To hook up your VCR so that it works best for you, first scan through the table below. Then use the accompanying diagrams and procedures on the following pages to set up your VCR.

If you have	Use	Refer to
TV that has audio/video inputs	Audio/video (A/V) hookup, then follow one of the hookups below.	Pages 9 and 10
Cable box that is compatible with the VCR's cable box control feature	Hookup 1	Pages 11 to 14
No cable box or incompatible cable box with only a few scrambled channels	Hookup 2	Pages 15 to 18
Antenna only, no cable TV	Hookup 3	Pages 19 to 22
Incompatible cable box with many scrambled channels	Hookup 4	Pages 23 to 26
DIRECTV® digital satellite receiver	Hookup 5	Pages 27 to 29
Incompatible cable box with only a few scrambled channels, using an A/B switch	Hookup 6	Pages 30 to 34

After you've completed the connections, follow the instructions for setup. During setup, if you need more details on the procedure described, page numbers are provided where you can find complete, step-by-step instructions.

After you've completed the setup, you're ready to use your VCR. Procedures differ depending on the hookup you used. For an overview, refer to "Quick reference to using the VCR" on the back cover.

Before you get started

- Turn off the power to all equipment.
- Do not connect the AC power cords until all of the connections are completed.
- Be sure you make connections firmly. Loose connections may cause picture distortion.
- If your TV doesn't match any of the examples provided, see your nearest Sony dealer or qualified technician.

* DIRECTV is a trademark of DIRECTV, Inc., a unit of Hughes Electronics Corporation.

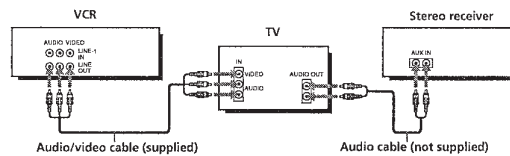
Audio/video (A/V) hookup

Pages 9 and 10

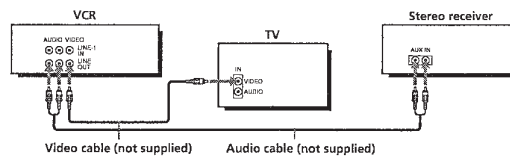
If your TV has audio/video (A/V) input jacks, you will get a better picture and sound if you hook up your VCR using these connections. In addition, for a true "home theater" experience, you should connect the audio outputs of your VCR or TV to your stereo system. If your TV doesn't have A/V inputs, see the following pages for antenna or cable hookups.

If you're not planning to use your VCR to record programs, you're finished setting up the VCR after you've made the connections shown on this page. If you want to record off-air or off your cable TV system, complete these connections first, and then go to the following pages for antenna or cable hookups.

A Use this hookup if your TV has stereo jacks



B Use this hookup if your TV doesn't have stereo jacks



Note

- To play a tape in stereo, you must use the A/V connection.

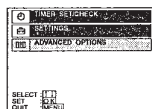
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Step 3: Hookups (continued)

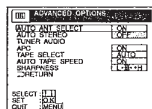
A/V hookup: VCR setup

After you've connected your TV and completed antenna or cable hookup, use the following procedure to set up the VCR.

Press MENU and select ADVANCED OPTIONS.



Set AUTO ANT SELECT to OFF and press OK.



For details, see page 84.

Caution

Connections between the VCR's VHF/UHF connector and the antenna terminals of the TV receiver should be made only as shown in the following instructions. Failure to do so may result in operation that violates the regulations of the Federal Communications Commission regarding the use and operation of RF devices. Never connect the output of the VCR to an antenna or make simultaneous (parallel) antenna and VCR connections at the antenna terminals of your receiver.

Note to CATV system installer (in USA)

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.

Hookup 1

Pages 11 to 14

Using cable box control

Recommended use

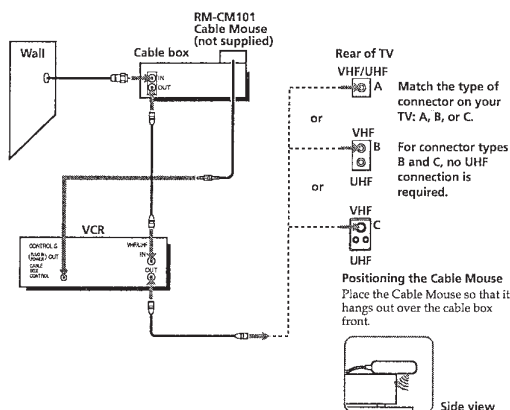
You should use this hookup if you have a cable box, especially if your cable system scrambles all or most channels. This hookup allows the VCR's cable box control feature to control the channel on the cable box, simplifying the recording process. A list of compatible cable boxes is on pages 45 to 47.

What you can do with this hookup

- Record any channel using the VCR's cable box control feature to select channels on the cable box

What you can't do

- Record with the cable box turned off
- Record one channel while watching another channel

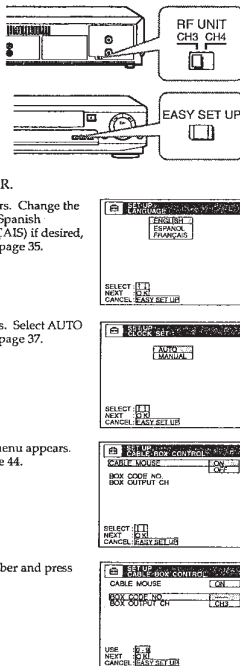


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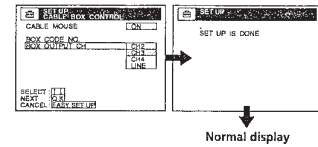
Step 3: Hookups (continued)

Hookup 1: VCR setup

- 1 Set the RF UNIT switch to CH3 or CH4, whichever channel is not used in your area. If both are used, set the switch to either channel. For details, see page 88. If you made A/V connections (page 9), you can skip this step.
- 2 Turn on your cable box.
- 3 Press EASY SET UP on the VCR.
 - 1 The LANGUAGE menu appears. Change the on-screen display language to Spanish (ESPAÑOL) or French (FRANÇAIS) if desired, and press OK. For details, see page 35.
 - 2 The CLOCK SET menu appears. Select AUTO and press OK. For details, see page 37.
 - 3 The CABLE BOX CONTROL menu appears. Select ON. For details, see page 44.
 - 4 Enter your cable box code number and press OK. For details, see page 44.



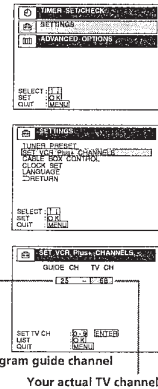
- 4 Select your cable box output channel and press OK.



Normal display

Hookup 1: The VCR Plus+ system channel setup

- 1 Find the VCR Plus+ system Channel Listing in your program guide. For details, see page 56.
- 2 If the channels in the program guide are different from the channels that you actually use on your TV, set the channels that are different as follows. For details, see page 57.
 - 1 Press MENU, then select SETTINGS and press OK.
 - 2 Select SET VCR Plus+ CHANNELS and press OK.
 - 3 Enter the program guide channel, then the channel you use on your TV.
 - 4 Press OK.
 - 5 Press MENU to exit the menu.



Program guide channel
Your actual TV channel

continued

Step 3: Hookups (continued)

Automatic clock setting

Once you've set up the VCR, it automatically sets the clock the first time you turn off the VCR. After that, whenever you turn off the VCR, it checks the time and adjusts the clock, even for Daylight Saving Time. The VCR sets the clock by picking up a time signal provided by some TV channels.

If you want to use the timer to record right away, or if the channels in your area do not carry time signals, set the clock manually. For details, see page 41.

Note

- To use the Auto Clock Set feature, leave the cable box on.

Hookup 2: Pages 15 to 18

No cable box, or incompatible cable box with only a few scrambled channels

Recommended use

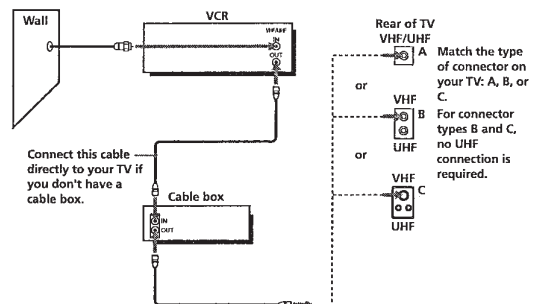
Use this hookup if you do not have a cable box. Also use this hookup if your cable company cannot supply a cable box that is compatible with the VCR's cable box control feature, and your cable system scrambles only a few channels.

What you can do with this hookup

- Record any unscrambled channel by selecting the channel on the VCR

What you can't do

- Record scrambled channels that require a cable box

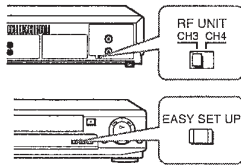


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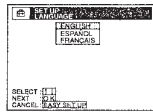
Step 3: Hookups (continued)

Hookup 2: VCR setup

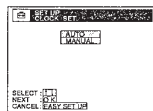
- 1 Set the RF UNIT switch to CH3 or CH4, whichever channel is not used in your area. If both are used, set the switch to either channel. For details, see page 88. If you made A/V connections (page 9), you can skip this step.
- 2 Press EASY SET UP on the VCR.



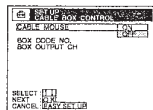
- 1 The LANGUAGE menu appears. Change the on-screen display language to Spanish (ESPAÑOL) or French (FRANÇAIS) if desired, and press OK. For details, see page 35.



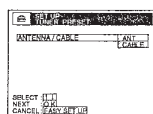
- 2 The CLOCK SET menu appears. Select AUTO and press OK. For details, see page 37.



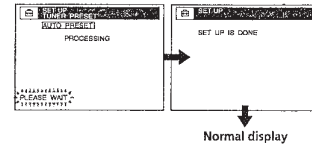
- 3 The CABLE BOX CONTROL menu appears. Select OFF and press OK.



- 4 The TUNER/PRESET menu appears. Set ANTENNA/CABLE to CABLE and press OK. For details, see page 50.



- 5 The AUTO PRESET starts.



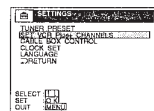
Hookup 2: The VCR Plus+ system channel setup

- 1 Find the VCR Plus+ system Channel Listing in your program guide. For details, see page 56.
- 2 If the channels in the program guide are different from the channels that you actually use on your TV, set the channels that are different as follows. For details, see page 57.

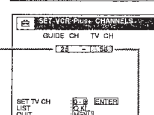
- 1 Press MENU, then select SETTINGS and press OK.



- 2 Select SET VCR Plus+ CHANNELS and press OK.



- 3 Enter the program guide channel, then the channel you use on your TV.



- 4 Press OK.

- 5 Press MENU to exit the menu.

continued

Step 3: Hookups (continued)

Automatic clock setting

Once you've set up the VCR, it automatically sets the clock the first time you turn off the VCR. After that, whenever you turn off the VCR, it checks the time and adjusts the clock, even for Daylight Saving Time. The VCR sets the clock by picking up a time signal provided by some TV channels.

If you want to use the timer to record right away, or if the channels in your area do not carry time signals, set the clock manually. For details, see page 41.

Hookup 3

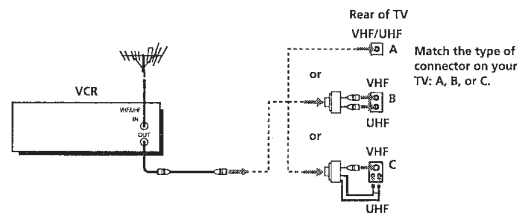
Pages 19 to 22

Antenna hookup

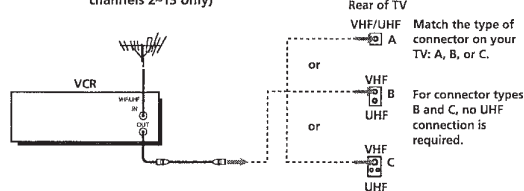
Make the following connections if you're using an antenna (if you don't have cable TV).

A Use this hookup if you're using:

- VHF/UHF antenna (you get channels 2-13 and channels 14 and higher)
- UHF-only antenna (you get channels 14 and higher)
- Separate VHF and UHF antennas



B Use this hookup if you're using a VHF-only antenna (you get channels 2-13 only)



If you cannot connect your antenna cable to the VCR directly

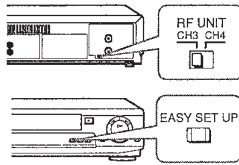
If your antenna cable is a flat cable (300-ohm twin lead cable), attach an external antenna connector (not supplied) so you can connect the cable to the VHF/UHF IN connector. If you have separate cables for VHF and UHF antennas, you should use a U/V band mixer (not supplied). For details, see page 89.

continued

Step 3: Hookups (continued)

Hookup 3: VCR setup

- 1 Set the RF UNIT switch to CH3 or CH4, whichever channel is not used in your area. If both are used, set the switch to either channel. For details, see page 88. If you made A/V connections (page 9), you can skip this step.
- 2 Press EASY SET UP on the VCR.



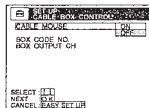
- 1 The LANGUAGE menu appears. Change the on-screen display language to Spanish (ESPAÑOL) or French (FRANÇAIS) if desired, and press OK. For details, see page 35.



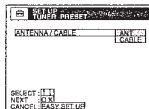
- 2 The CLOCK SET menu appears. Select AUTO and press OK. For details, see page 37.



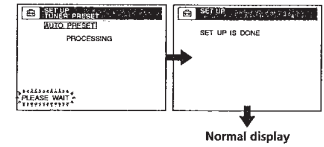
- 3 The CABLE BOX CONTROL menu appears. Select OFF and press OK.



- 4 The TUNER PRESET menu appears. Set ANTENNA/CABLE to ANT and press OK. For details, see page 50.



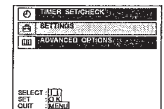
- 3 The AUTO PRESET starts.



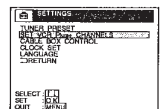
Hookup 3: The VCR Plus+ system channel setup

- 1 Find the VCR Plus+ system Channel Listing in your program guide. For details, see page 56.
- 2 If the channels in the program guide are different from the channels that you actually use on your TV, set the channels that are different as follows. For details, see page 57.

- 1 Press MENU, then select SETTINGS and press OK.



- 2 Select SET VCR Plus+ CHANNELS and press OK.



- 3 Enter the program guide channel, then the channel you use on your TV.



Program guide channel
Your actual TV channel

- 4 Press OK.

- 5 Press MENU to exit the menu.

continued

Step 3: Hookups (continued)

Automatic clock setting

Once you've set up the VCR, it automatically sets the clock the first time you turn off the VCR. After that, whenever you turn off the VCR, it checks the time and adjusts the clock, even for Daylight Saving Time. The VCR sets the clock by picking up a time signal provided by some TV channels.

If you want to use the timer to record right away, or if the channels in your area do not carry time signals, set the clock manually. For details, see page 41.

Hookup 4: Pages 23 to 26

Incompatible cable box with many scrambled channels

Recommended use

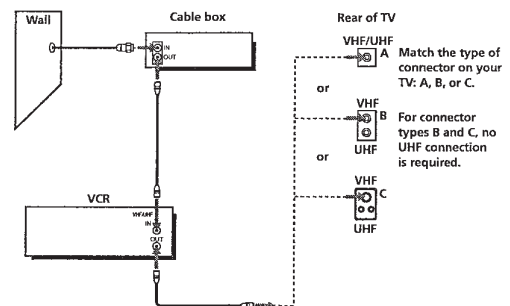
Use this hookup if your cable company cannot supply a cable box that is compatible with the VCR's cable box control feature, and your cable system scrambles all or most channels.

What you can do with this hookup

- Record any channel by selecting the channel on the cable box

What you can't do

- Record with the cable box turned off
- Record one channel while watching another channel

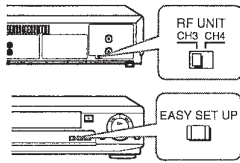


continued

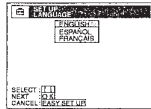
Step 3: Hookups (continued)

Hookup 4: VCR setup

- 1 Set the RF UNIT switch to CH3 or CH4, whichever channel is not used in your area. If both are used, set the switch to either channel. For details, see page 88. If you made A/V connections (page 9), you can skip this step.
- 2 Turn on your cable box.
- 3 Press EASY SET UP on the VCR.



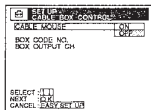
- 1 The LANGUAGE menu appears. Change the on-screen display language to Spanish (ESPAÑOL) or French (FRANÇAIS) if desired, and press OK. For details, see page 35.



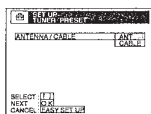
- 2 The CLOCK SET menu appears. Select MANUAL and press OK. Then set the clock manually and press OK. For details, see page 42.



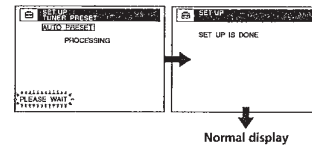
- 3 The CABLE BOX CONTROL menu appears. Select OFF and press OK.



- 4 The TUNER PRESET menu appears. Set ANTENNA/CABLE to ANT and press OK. For details, see page 50.



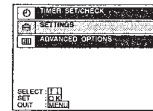
- 5 The AUTO PRESET starts.



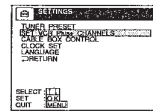
Hookup 4: The VCR Plus+ system channel setup

- 1 Find the VCR Plus+ system Channel Listing in your program guide. For details, see page 56.
- 2 Enter all the channels you want to record and the cable box output channel (usually 2, 3, or 4). For details, see page 57.

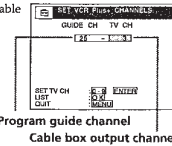
- 1 Press MENU, then select SETTINGS and press OK.



- 2 Select SET VCR Plus+ CHANNELS and press OK.



- 3 Enter the program guide channel, then the cable box output channel.



- 4 Press OK.

- 5 Press MENU to exit the menu.

continued

Step 3: Hookups (continued)

Automatic clock setting

To use the Auto Clock Set feature with this hookup, you need to manually select a channel that carries a time signal:

- 1 Tune the cable box to a channel that carries a time signal.
- 2 Select AUTO in the CLOCK SET menu to turn on the Auto Clock Set feature.
- 3 Turn off the VCR. It automatically sets the clock and adjusts for Daylight Saving Time by picking up the time signal.

If you want to use the timer to record right away, or if the channels in your area do not carry time signals, set the clock manually. For details, see page 41.

Note

- To use the Auto Clock Set feature, leave the cable box on.

Hookup 5: Pages 27 to 29

DIRECTV digital satellite receiver

Recommended use

Use this hookup if you have a DIRECTV digital satellite receiver. It allows the VCR's cable box control feature to control the channel on the DIRECTV digital satellite receiver, simplifying the recording process. A list of compatible DIRECTV digital satellite receivers is on page 47.

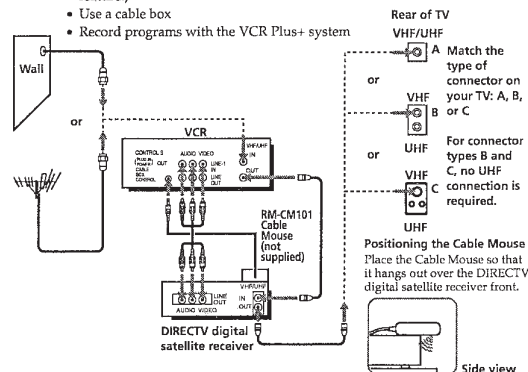
The DIRECTV system is a satellite broadcast that provides superior digital-quality video and crisp digital-quality audio. A variety of program packages are available through your program providers. It also has program guides that are sorted by program categories.

What you can do with this hookup

- Record any channels using the VCR's cable box control feature to select channels on the DIRECTV digital satellite receiver.

What you can't do

- Record with the DIRECTV digital satellite receiver turned off
- Record any channels from cable or an antenna
(To record channels from cable or an antenna, turn off the cable box control feature.)
- Use a cable box
- Record programs with the VCR Plus+ system

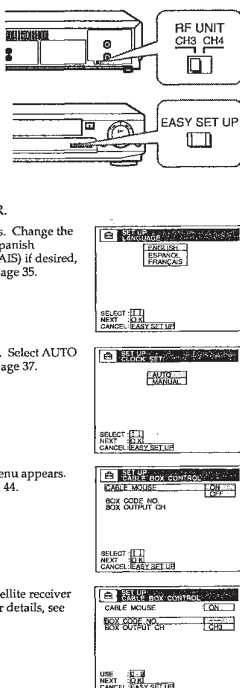


continued

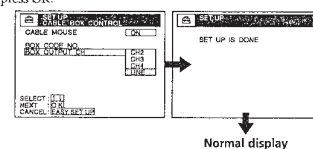
Step 3: Hookups (continued)

Hookup 5: VCR setup

- Set the RF UNIT switch to CH3 or CH4, whichever channel is not used in your area. If both are used, set the switch to either channel. For details, see page 88. If you made A/V connections (page 9), you can skip this step.
- Turn on your DIRECTV digital satellite receiver.
- Press EASY SET UP on the VCR.
 - The LANGUAGE menu appears. Change the on-screen display language to Spanish (ESPAÑOL) or French (FRANÇAIS) if desired, and press OK. For details, see page 35.
 - The CLOCK SET menu appears. Select AUTO and press OK. For details, see page 37.
 - The CABLE BOX CONTROL menu appears. Select ON. For details, see page 44.
 - Enter your DIRECTV digital satellite receiver code number and press OK. For details, see page 44.



- Set your DIRECTV digital satellite receiver output channel (BOX OUTPUT CH) to LINE and press OK.



Automatic clock setting

Once you've set up the VCR, it automatically sets the clock the first time you turn off the VCR. After that, whenever you turn off the VCR, it checks the time and adjusts the clock, even for Daylight Saving Time. The VCR sets the clock by picking up a time signal provided by some TV channels.

If you want to use the timer to record right away, or if the channels in your area do not carry time signals, set the clock manually. For details, see page 41.

Note

- To successfully record a program from the DIRECTV digital satellite receiver, proceed as follows:
 - Leave the DIRECTV digital satellite receiver on all the time.
 - Turn off the display (menu screen, channel number, etc.) of the DIRECTV digital satellite receiver.
 - To record or receive locked channels, unlock the channel before the VCR starts recording.
 - To set pay-per-view programs in the timer setting, order the pay-per-view program before the VCR starts recording.
 - Some programs are copy protected. You cannot record these programs.

continued

Step 3: Hookups (continued)

Hookup 6

Pages 30 to 34

Incompatible cable box with only a few scrambled channels, using an A/B switch

Recommended use

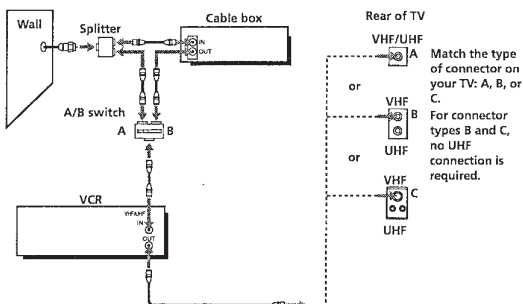
By using an A/B switch (not supplied), this hookup allows you to record both scrambled and unscrambled channels conveniently.

What you can do with this hookup

- Record any unscrambled channel by selecting the channel directly on the VCR (the A/B switch is set to A).
- Record any scrambled channel by selecting the channel on the cable box (the A/B switch is set to B).

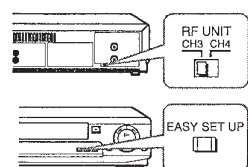
What you can't do

- Record one scrambled channel while watching another channel (the A/B switch is set to B).

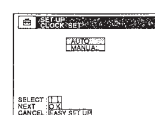


Hookup 6: VCR setup

- Set the RF UNIT switch to CH3 or CH4, whichever channel is not used in your area. If both are used, set the switch to either channel. For details, see page 88. If you made A/V connections (page 9), you can skip this step.
- Set the A/B switch to "A."
- Press EASY SET UP on the VCR.
 - The LANGUAGE menu appears. Change the on-screen display language to Spanish (ESPAÑOL) or French (FRANÇAIS) if desired, and press OK. For details, see page 35.



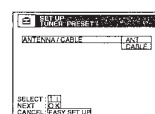
- The CLOCK SET menu appears. Select AUTO and press OK. For details, see page 37.



- The CABLE BOX CONTROL menu appears. Select OFF and press OK.



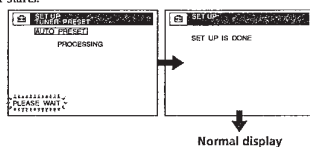
- The TUNER PRESET menu appears. Set ANTENNA/CABLE to CABLE and press OK. For details, see page 50.



continued

Step 3: Hookups (continued)

- The AUTO PRESET starts.

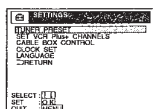


Normal display

- Preset the cable box output channel (usually 2, 3 or 4). For details, see page 52.

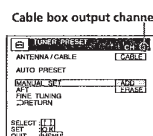
- Press MENU, then select SETTINGS and press OK.

- Select TUNER PRESET and press OK.



- Enter the cable box output channel.

- Set MANUAL SET to ADD and press OK.



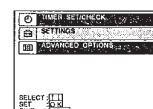
Cable box output channel

- Press MENU to exit the menu.

Hookup 6: The VCR Plus+ system channel setup

- Find the VCR Plus+ system Channel Listing in your program guide. For details, see page 56.
- To set the program guide channels for unscrambled channels, if the channels in the program guide are different from the channels that you actually use on your TV, set the channels that are different as follows. For details, see page 57.

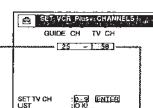
- Press MENU, then select SETTINGS and press OK.



- Select SET VCR Plus+ CHANNELS and press OK.



- Enter the program guide channel, then the channel you use on your TV.



Program guide channel
Your actual TV channel

- Press OK.

- Press MENU to exit the menu.

- To set the program guide channels for scrambled channels, enter all the scrambled channels you want to record and the cable box output channel (usually 2, 3, or 4). For details, see page 57.

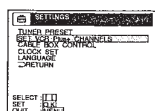
- Press MENU, then select SETTINGS and press OK.



continued

Step 3: Hookups (continued)

- Select SET VCR Plus+ CHANNELS and press OK.



- Enter the program guide channel, then the cable box output channel.



Program guide channel
Cable box output channel

- Press OK.

- Press MENU to exit the menu.

Automatic clock setting

Once you've set up the VCR, it automatically sets the clock the first time you turn off the VCR. After that, whenever you turn off the VCR, it checks the time and adjusts the clock, even for Daylight Saving Time. The VCR sets the clock by picking up a time signal provided by some TV channels.

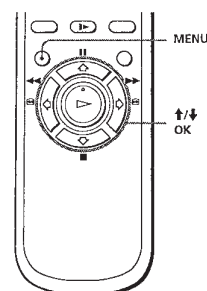
If you want to use the timer to record right away, or if the channels in your area do not carry time signals, set the clock manually. For details, see page 41.

Note

- To use the Auto Clock Set feature, set the A/B switch to "A."

Selecting a language

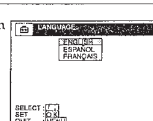
You can change the on-screen display language.



- Press MENU, then press $\uparrow/\downarrow$ to highlight SETTINGS and press OK. When using the EASY SET UP procedure, skip steps 1 and 2.



- Press $\uparrow/\downarrow$ to highlight LANGUAGE, then press OK.



- Press $\uparrow/\downarrow$ to highlight ENGLISH, ESPAÑOL, or FRANÇAIS, then press OK.



- Press MENU to exit the menu.



Tip

- If you want to return to the previous menu, highlight RETURN and press OK.

Setting the clock

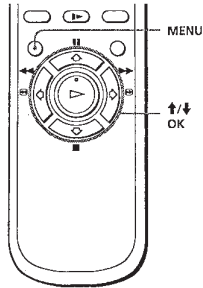
Using the Auto Clock Set feature

Some TV and cable channels transmit time signals with their broadcasts. Your VCR can pick up this time signal to automatically set the clock.

The Auto Clock Set feature works only if a channel in your area is broadcasting a time signal. If broadcasters in your area are not yet sending time signals, set the time manually (page 41).

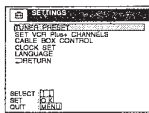
Before you start...

- Turn on the VCR and the TV.
- Set the TV to the VCR channel (channel 3 or 4). If your TV is connected to the VCR using A/V connections, set the TV to video input.
- Press TV/VIDEO to display the VIDEO indicator in the VCR's display window.
- Press INPUT SELECT so that a channel number appears in the VCR's display window.



- Press MENU, then press $\uparrow/\downarrow$ to highlight SETTINGS and press OK.

When using the EASY SET UP procedure, skip steps 1 and 2.
- Press $\uparrow/\downarrow$ to highlight CLOCK SET, then press OK.



- Press $\uparrow/\downarrow$ to highlight AUTO, then press OK.
- Press $\uparrow/\downarrow$ to highlight FULL AUTO, then press OK.
- Press $\uparrow/\downarrow$ to highlight YES, then press OK.
- Press MENU to exit the menu.
- To activate the Auto Clock Set function, turn off the VCR.

The VCR automatically sets the clock by searching for a channel that carries a time signal and sets your time zone and Daylight Saving Time (if applicable).

If your clock is set to the wrong time zone or Daylight Saving Time, you can adjust these settings without turning off the Auto Clock Set feature (page 38).

Tip

- If you want to return to the previous menu, highlight RETURN and press OK.

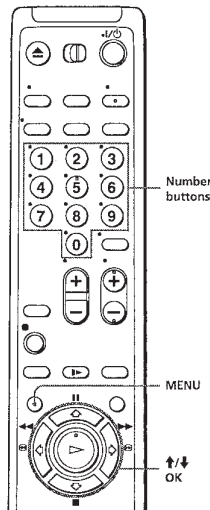
Notes

- The clock cannot be set automatically if you don't receive a channel that carries a time signal in your area. If so, set the clock manually.
- If there are only a few channels in your area that carry time signals, setting the clock automatically may take up to about 30 minutes. If nothing happens even after you wait about 30 minutes, set the clock manually.
- If you use Hookup 1, make sure you leave the cable box on.

continued

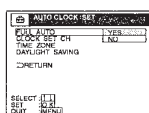
Setting the clock (continued)

If the clock is not activated



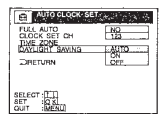
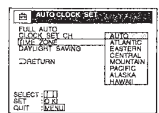
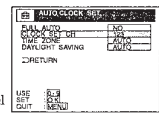
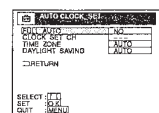
- Follow steps 1 to 4 in "Using the Auto Clock Set feature."

The AUTO CLOCK SET menu is displayed.



- Press $\uparrow/\downarrow$ to highlight NO for FULL AUTO and press OK.
- Press $\uparrow/\downarrow$ to highlight the item you want to set and press OK. Then press $\uparrow/\downarrow$ to make the setting and press OK.

 - For CLOCK SET CH: Leave the setting to "----" to have the VCR automatically search for a channel that carries a time signal. Press the number buttons to select a channel that carries a time signal. Most PBS member stations broadcast a time signal. For the fastest response, select your local PBS station.
 - For TIME ZONE: Select the time zone of your area, or select AUTO to have the VCR automatically set your time zone. The options are: AUTO $\leftrightarrow$ ATLANTIC $\leftrightarrow$ EASTERN $\leftrightarrow$ CENTRAL $\leftrightarrow$ MOUNTAIN $\leftrightarrow$ PACIFIC $\leftrightarrow$ ALASKA $\leftrightarrow$ HAWAII $\leftrightarrow$ AUTO
 - For DAYLIGHT SAVING: Select ON or OFF (standard time), or AUTO to have the VCR automatically set the daylight saving time.



continued

Setting the clock (continued)

4  Press MENU to exit the menu.

5 To activate the Auto Clock Set function, turn off the VCR.

Tip

- If you want to return to the previous menu, highlight RETURN and press OK.

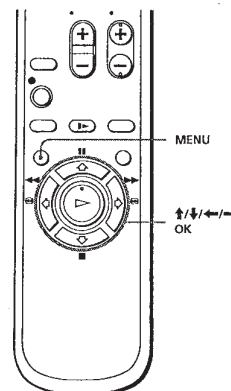
Note

- If you use both the cable box control feature and the Auto Clock Set feature, the VCR automatically changes channels on the cable box until a channel that carries a time signal is found, whenever you turn off the VCR.
- If you want to stop the search, change the channel on the cable box with the channel buttons either on the VCR or on the remote commander.

Using Manual Clock Set

Before you start...

- Turn on the VCR and the TV.
- Set the TV to the VCR channel (channel 3 or 4). If your TV is connected to the VCR using A/V connections, set the TV to video input.
- Press TV/VIDEO to display the VIDEO indicator in the VCR's display window.



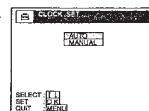
Getting Started

1  Press MENU, then press  to highlight SETTINGS and press OK.

When using the EASY SET UP procedure, skip steps 1 and 2.



2  Press  to highlight CLOCK SET, then press OK.



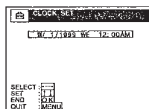
continued

Setting the clock (continued)

3  Press  to highlight MANUAL, then press OK.



4  Press  to set the month.



5  Press  to highlight the day and press  to set the day.
The day of the week is set automatically.



6 Set the year, hour, and minutes in the same way as the day.

7  Press OK to start the clock.

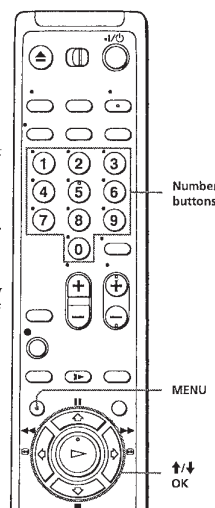
Tip

- If you want to return to the previous menu, highlight RETURN and press OK.

Setting up the cable box control (Skip this section if you are using Hookup 2, 3, 4, or 6.)

Your VCR includes a cable box control feature that allows the VCR to control most brands of cable boxes/DIRECTV digital satellite receivers via an optional Cable Mouse. With cable box control, the VCR controls channels on the cable box/DIRECTV digital satellite receiver for timer recording. You can also use the VCR's remote commander to change channels on the cable box/DIRECTV digital satellite receiver whenever the cable box/DIRECTV digital satellite receiver is turned on even if the VCR is turned off. To use cable box control, you need to connect the Sony RM-CM101 Cable Mouse (not supplied) (pages 11 and 27) and set the code number and output channel.

This VCR is programmed with codes necessary to control channel selection on most brands of cable boxes at the time this VCR was manufactured. It is possible that new cable boxes may be introduced that cannot be controlled with the RM-CM101 Cable Mouse. If you have a cable box that is incompatible with this VCR, contact your cable operator — they may be able to provide you with a compatible cable box.



Getting Started

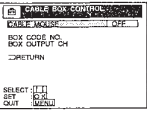
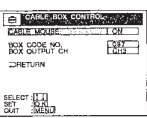
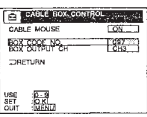
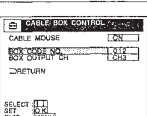
1  Press MENU, then press  to highlight SETTINGS and press OK.

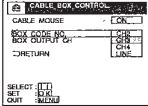
When using the EASY SET UP procedure, skip steps 1 and 2.



continued

Setting up the cable box control (continued)

- 2  Press $\uparrow/\downarrow$ to highlight CABLE BOX CONTROL, then press OK. 
- 3  Press $\uparrow/\downarrow$ to highlight CABLE MOUSE, then press OK.
- 4  Press $\uparrow/\downarrow$ to highlight ON, then press OK. 
- 5  Press $\uparrow/\downarrow$ to highlight BOX CODE NO., then press OK. When BOX CODE NO. is "-- --", skip this step. 
- 6  Press the number buttons to enter the cable box/DIRECTV digital satellite receiver code number, then press OK. Find your cable box/DIRECTV digital satellite receiver code number from the chart below. 

- 7  Press $\uparrow/\downarrow$ to highlight BOX OUTPUT CH, then press OK. 
- 8  If you want to control a cable box, press $\uparrow/\downarrow$ to highlight the cable box output channel, then press OK. If you want to control a DIRECTV digital satellite receiver, select LINE, then press OK.
- 9  Press MENU to exit the menu.

Cable box and DIRECTV digital satellite receiver brand and the corresponding code numbers

If more than one code number is listed, try entering them one by one, until you come to the correct code for your equipment.

Cable box brand	Code numbers	Cable box brand	Code numbers
ABC	018, 022, 024, 028, 217	Decsat	434
Amtronix	218	Diamond	046
Archer	033, 050, 164, 218, 808	Eagle Comtronics	051
BBT	278	Eastern	013, 285
Cable Star	067	Electricord	089
Cabletuna	033	Flectus	055
Cable time	172, 388, 459	Focus	411
Century	164	Garrard	164
Citizen	164, 326, 327	GC Electronics	027, 067, 341
Clyde Cablevision	097	GE	243, 244
Colour Voice	036, 042	GBC	097
Comband	243, 244	Gemini	026, 068, 081
Comtronics	051, 071	General Instrument	022, 287, 487

continued

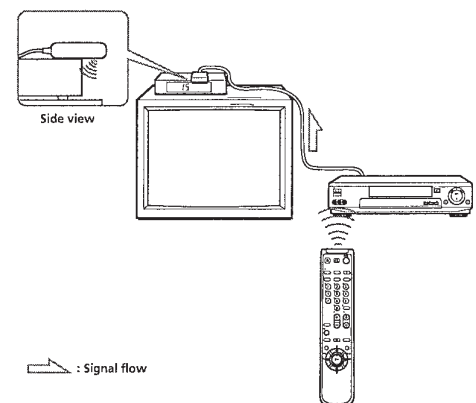
Setting up the cable box control (continued)

Cable box brand	Code numbers	Cable box brand	Code numbers
Hamlin	020, 031, 045, 270, 284	Sharp	324
Hitachi	022	Signal	051
Jasco	164, 326	Signature	022
Jerrold	014, 022, 025, 026, 035, 037, 058, 109, 287, 487	SL Marx	051
Linsay	451	Spectravision	069
Macom	044	Sprucer	032, 318
Magnavox	038, 043, 080	Standard Components	107, 166
Memorex	011	Starcom	014, 026, 058, 109
Movie Time	089, 167, 214	Stargate	026, 051
Northcoast	325	STS	167
Novaplex	629	Sylvania	012
NSC	074, 081, 167, 214	T-Cable Teletext	116
Oak	018, 030, 259	Tandy	269
Panasonic	032, 118	Tatung	108
Paragon	011	Teknica	157
Philips	036, 038, 039, 040, 041, 042, 071, 301	TeleCaption	232
Pioneer	034, 155, 271, 544, 695	Teleservice	292
Popular Mechanics	411	Texscan	012, 107
Pulsar	011	TFC	321
Radio shack	808	Timeless	429
RCA	032	Tocom	023, 024
Realistic	218	Toshiba	011
Recoton	411	Tudi	297
Regal	031, 270, 284, 290	TV86	074
Regency	013	TV COM	018, 030, 259
Rembrandt	081	Uniden	236
Samsung	051, 155	Unika	033, 164, 218
Scientific Atlanta	017, 019, 028, 288	United Artists	018
Scam	521	United Cable	014
		Universal	033, 030, 067, 088, 089, 164, 202, 218, 333

Cable box brand	Code numbers	DIRECTV digital satellite receiver brand	Code numbers
Videoway	251	Hitachi	830
Vidtech	255	RCA	577
Viewstar	038, 071, 074, 122, 222, 269, 300	Sony	650
Zenith	011, 065, 536	Toshiba	801
Zentek	411		
Wave Master	576		

To ensure correct operation

- Place the Cable Mouse so that it hangs out over the cable box/DIRECTV digital satellite receiver front.
- Do not place the cable box/DIRECTV digital satellite receiver on top of the VCR.
- Position the cable box/DIRECTV digital satellite receiver away from the VCR.
- Point the remote commander at the VCR, not at the cable box/DIRECTV digital satellite receiver.



continued

Setting up the cable box control (continued)

To check the cable box control setting

- 1 Press CH +/- on the remote commander. Does the channel indicator on the cable box/DIRECTV digital satellite receiver change? (Point the remote commander at the VCR, not at the cable box/DIRECTV digital satellite receiver.)
- 2 Press all 10 number buttons (0 to 9) on the remote commander. Does the channel indicator on the cable box/DIRECTV digital satellite receiver change?

If the answer to both 1 and 2 is "yes," you have made the correct setting.

If you cannot get your VCR to control the cable box/DIRECTV digital satellite receiver

- Check that the Cable Mouse is connected to the CABLE BOX CONTROL jack on the VCR.
- Check the position of the Cable Mouse.
- Place the cable box/DIRECTV digital satellite receiver and VCR away from each other. Do not place the cable box/DIRECTV digital satellite receiver on top of the VCR.
- Try the setup again making sure to use the correct control code. If the cable box still does not respond, try the other codes that are listed.

If your cable box still does not operate with the Cable Mouse, contact your cable company to see if they can provide you with a compatible cable box.

Tip

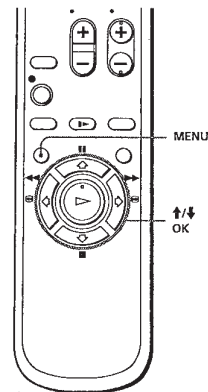
- If you want to return to the previous menu, highlight RETURN and press OK.

Note

- Make sure you turn off the VCR when you plug in or unplug the Cable Mouse. If you unplug the Cable Mouse and plug it in again, turn on the VCR before you use the cable box/DIRECTV digital satellite receiver control feature.

Presetting channels

(Skip this section if you are using cable box/DIRECTV digital satellite receiver control.)

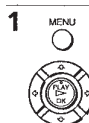


This VCR is capable of receiving VHF channels 2 to 13, UHF channels 14 to 69 and unscrambled CATV channels 1 to 125. First, we recommend that you preset the receivable channels in your area using automatic presetting. Then, if there are any unwanted channels, disable them manually. If you have decided which channels you wish to preset, set them directly using manual presetting.

Before you start...

- Turn on the VCR and the TV.
- Set the TV to the VCR channel (channel 3 or 4). If your TV is connected to the VCR using A/V connections, set the TV to video input.
- Press TV/VIDEO to display the VIDEO indicator in the VCR's display window.

Presetting all receivable channels automatically



Press MENU, then press $\uparrow/\downarrow$ to highlight SETTINGS and press OK.

When using the EASY SET UP procedure, skip steps 1 and 2.

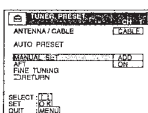


continued

Presetting channels (continued)



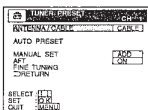
Press $\uparrow/\downarrow$ to highlight TUNER PRESET, then press OK.



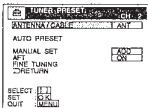
Press $\uparrow/\downarrow$ to highlight ANTENNA/CABLE, then press OK.



• To preset cable TV channels:
Press $\uparrow/\downarrow$ to set ANTENNA/CABLE to CABLE, then press OK.

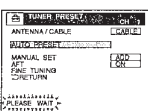


• To preset VHF and UHF channels:
Press $\uparrow/\downarrow$ to set ANTENNA/CABLE to ANT, then press OK.



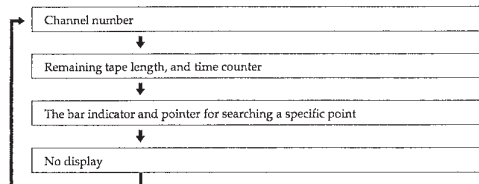
Press $\uparrow/\downarrow$ to highlight AUTO PRESET, then press OK.

All receivable channels are preset in numerical sequence. When no more receivable channels can be found, presetting stops and the picture from the lowest numbered channel is displayed on the TV screen.



Tips

- When receiving a VHF, UHF, or CATV channel, the display changes as follows each time you press DISPLAY.

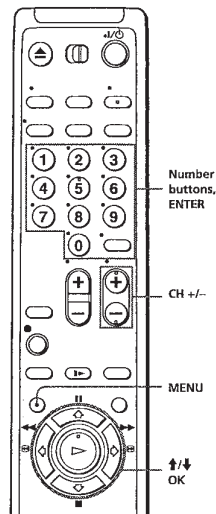


- If you want to return to the previous menu, highlight RETURN and press OK.

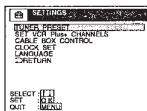
continued

Presetting channels (continued)

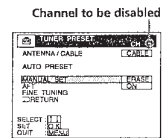
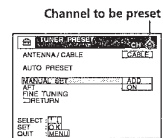
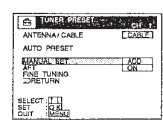
Presetting/disabling channels manually



- 1 Press MENU, then press $\uparrow/\downarrow$ to highlight SETTINGS and press OK.



- 2 Press $\uparrow/\downarrow$ to highlight TUNER PRESET, then press OK.
- 3
 - To preset a channel:
 - 1 Press the number buttons to enter the channel number, then press ENTER.
 - 2 Press OK.
 - 3 Press $\uparrow/\downarrow$ to set MANUAL SET to ADD, then press OK.
 - To disable a channel:
 - 1 Press CH +/- to select the channel number.
 - 2 Press OK.
 - 3 Press $\uparrow/\downarrow$ to set MANUAL SET to ERASE, then press OK.
- 4 Repeat step 3 to preset or disable channels as required, then press MENU.



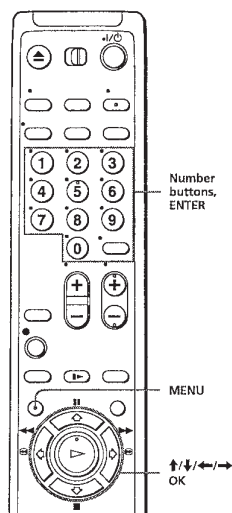
Tip
• If you want to return to the previous menu, highlight RETURN and press OK.

continued

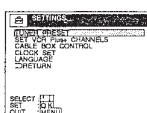
Presetting channels (continued)

If the picture is not clear

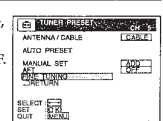
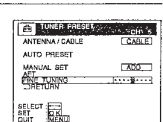
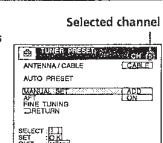
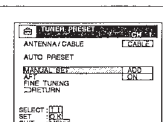
Normally, the Auto Fine Tuning (AFT) function automatically tunes in channels clearly. If, however, the picture of a channel is not clear, you can also use the manual tuning function.



- 1 Press MENU, then press $\uparrow/\downarrow$ to highlight SETTINGS and press OK.



- 2 Press $\uparrow/\downarrow$ to highlight TUNER PRESET, then press OK.
- 3 Press the number buttons to select the channel you want to fine-tune, then press ENTER.
- 4 Press $\uparrow/\downarrow$ to highlight FINE TUNING, then press OK. The fine tuning meter appears.
- 5 Press $\leftarrow/\rightarrow$ to adjust to a clearer picture, then press OK. Note that the AFT setting switches to OFF.
- 6 Press MENU to exit to the menu.



Tips
• To select the channel on step 3 above, you can also use the CH +/- buttons. In this case, you don't need to press ENTER.
• If you want to return to the previous menu, highlight RETURN and press OK.

Note
• When adjusting FINE TUNING, the menu may become difficult to read due to interference from the picture being received.

Setting up the VCR Plus+ system

How the VCR Plus+ system works

Whenever you want to record a TV program, all you need to do is look up the "PlusCode" number, a number assigned to each program published in the TV section of most newspapers, cable TV listings, and even *TV GUIDE* magazine. Then, just enter the PlusCode number of the program you want and the VCR is automatically programmed to record that show. It's that simple.

Example of "PlusCode"

		PlusCode
5:30	1 MOVIE — Musical (2hrs.)	33044
	2 SPORT — Golf (1hr. 25min.)	42060
	CH — WS 9974	
6:30	2 DRAMA — Comedy (2hrs.)	17390
	3 SCIENCE AND TECHNOLOGY (1hr. 15min.)	73457

How to set up your VCR

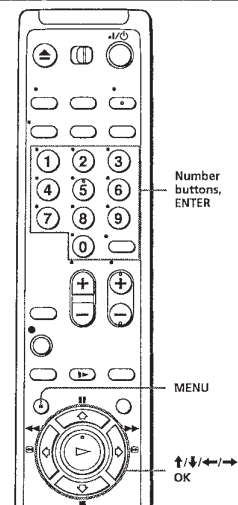
Setting up your VCR involves coordinating the TV channel number (the number you turn to on your TV or VCR to watch a program) with the guide channel (the number that's assigned to that channel in your program guide).

To find the guide channel numbers, look at the "Channel Line-up Chart" in the program guide for your area that features VCR PlusCodes. It usually looks like the example to the right.

To set the guide channels, use the Channel Line-up Chart to check that the guide channel numbers match the TV channel your VCR receives. For example, if HBO is listed in the Channel Line-up Chart on channel 33, and your VCR receives HBO on channel 5, you need to coordinate these numbers using the following procedure. If the guide and TV channel numbers are the same, you can skip this procedure.

Example of "Channel Line-up Chart"

CABLE CH	CABLE TV	VCR Plus+ GUIDE CH
16	AMC American Movie Classics	35
17	BRV Bravo (program grid only)	54
20	CNN Cable News Network	42
21	CSP C-SPAN	26
22	DIS The Disney Channel	53
25	DIS The Discovery Channel	37
34	ESPN	34
35	FAM The Family Channel	47
5	HBO Home Box Office	33
27	HBO Line	46
29	HBO Comedy	45
30	HBO Television	48
31	HBO Madison	38
39	ESPN Sports Channel	59
39	ESPN Sports Channel America	70
45	SHOW Showtime	41
17	TBS TBS SuperStation	43
44	TMC The Movie Channel	58
49	TNN The Nashville Network	49
50	TURN Turner Network Television	52
51	USA USA Network	44



- 1** Press MENU, then press $\uparrow/\downarrow$ to highlight SETTINGS and press OK.
- 2** Press $\uparrow/\downarrow$ to highlight SET VCR Plus+ CHANNELS, then press OK.

continued
Getting Started | 57

Setting up the VCR Plus+ system (continued)

- 3** Enter the guide channel number assigned in the program guide and press ENTER.

- 4** If you made Hookup 1, 2 or 3: Enter the actual number on your TV (and VCR) and press ENTER.

If you made Hookup 4: Enter the cable box output channel (usually 2, 3 or 4) and press ENTER.

If you made Hookup 6: Enter the actual number on your TV (and VCR) for an unscrambled channel and press ENTER. For a scrambled channel, enter the cable box output channel (usually 2, 3, or 4) and press ENTER.

- 5** Repeat steps 3 and 4 for each channel number that does not match.

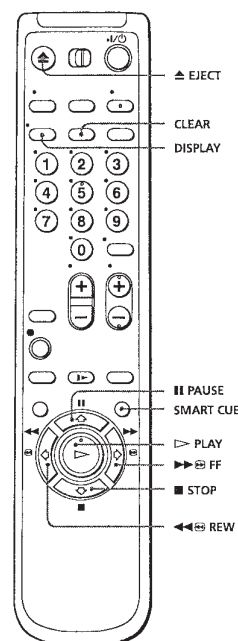
- 6** When you have set all channels, press OK to confirm your channel settings. To return to the previous page, press $\leftarrow$. To go to the next page, press $\rightarrow$.

- 7** After all settings are complete, press MENU to exit the menu.

Tip
• If you want to return to the previous menu, highlight RETURN and press OK.

Basic Operations

Playing a tape

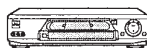


- 1** Turn on your TV and set it to the video channel.

continued

Playing a tape (continued)

- 2 Insert a tape.
The VCR turns on and starts playing automatically if you insert a tape with its safety tab removed.
- 3 Press **▶** PLAY.
When the tape reaches the end, it will rewind automatically.



Additional tasks

To	Press
Stop play	■ STOP
Pause play	⏸ PAUSE
Resume play after pause	⏸ PAUSE or ▶ PLAY.
Fast-forward the tape	⏮ FF during stop
Rewind the tape	⏭ REW during stop
Eject the tape	⏏ EJECT

To skip playback

You can skip a portion of playback you don't want to watch such as a commercial and restart playback by pressing a single button.

- 1 Press **SMART CUE** during playback of the scene you want to skip. The VCR starts searching.
- 2 Press **SMART CUE** again when you find the scene you want to watch. The VCR stops searching, rewinds a few seconds, then resumes normal playback.

If you press and hold **SMART CUE** while the VCR is skip searching, the VCR will stop searching, and continue rewinding until you release **SMART CUE**.

To use the time counter

At the point on the tape that you want to find later, press **CLEAR**. The counter in the display window resets to "0:00:00." Search for the point afterwards by referring to the counter.

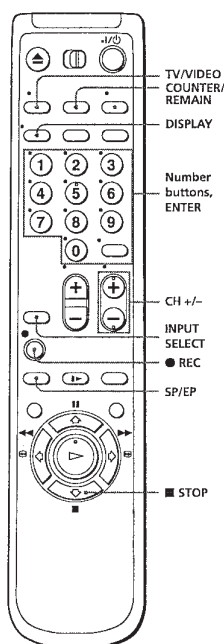


To display the counter on the TV screen, press **DISPLAY**.

Notes

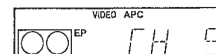
- Tapes recorded in the LP mode on other VCRs can be played back on this VCR but the picture quality cannot be guaranteed.
- While setting the menu on the TV screen, you cannot use **▶** PLAY, **⏸** PAUSE, **⏮** FF, **⏭** REW, or **■** STOP buttons.
- The counter resets to "0:00:00" whenever a tape is reinserted.
- The counter stops counting when it comes to a portion with no recording.

Recording TV programs

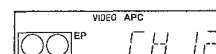


- 1 Turn on your TV and set it to the video channel.
To record from a cable box, turn it on.
- 2 Insert a tape with its safety tab in place.

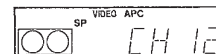
- 3 Press **INPUT SELECT** until a channel number appears in the display window.



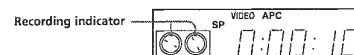
- 4 Press **CH +/-** to select the channel you want to record.



- 5 Press **SP/EP** to select the tape speed, SP or EP.
EP (Extended Play) provides recording time three times as long as SP (Standard Play), however, SP produces better picture and audio quality.



- 6 Press **REC** to start recording.
The recording indicator lights up red in the display window.



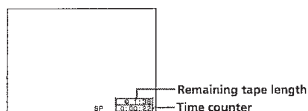
To stop recording
Press **■** STOP.

continued

Recording TV programs (continued)

To check the remaining tape length

Press DISPLAY. The remaining tape length and the time counter appear on the TV screen. Each time you press COUNTER/REMAIN, the time counter and the remaining tape length with the $\odot$ indicator appear alternately in the display window.



To check the remaining time of a T-140 or T-180 tape, set TAPE SELECT in the ADVANCED OPTIONS menu to 180. (For details, see page 85.)

To watch another TV program while recording

- 1 Press TV/VIDEO to turn off the VIDEO indicator in the display window.
- 2 If the TV is connected to the VCR's LINE OUT jacks, set the TV to TV input; if not, skip this step.
- 3 Select another channel on the TV.

To save a recording

To prevent accidental erasure, break off the safety tab as illustrated. To record on a tape again, cover the tab hole with adhesive tape.



Tips

- To select a channel, you can use the number buttons on the remote commander. Enter the channel number, then press ENTER.
- You can select a video source from the LINE-1 IN or LINE-2 IN jacks using the INPUT SELECT button.
- The display appears on the TV screen indicating information about the tape, but the information won't be recorded on the tape.
- If you don't want to watch TV while recording, you can turn off the TV. When using a cable box, make sure to leave it on.

Notes

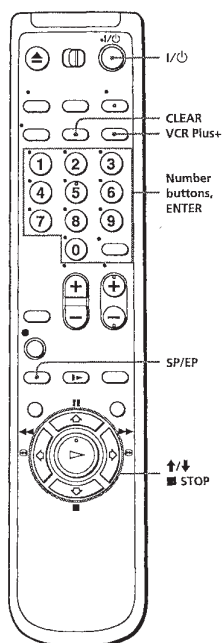
- The remaining tape length may not be indicated accurately for short tapes such as T-20 or T-30, or tapes recorded in the LP mode.
- The display does not appear during still (pause) mode or slow-motion playback.
- It may take up to one minute for the VCR to calculate and display the remaining tape length after you press DISPLAY.

Recording TV programs using the VCR Plus+ system

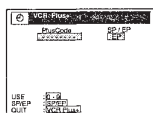
Just enter the PlusCode number listed in the TV program guide. The date, time and channel number of that program are set automatically. You can preset up to eight programs at a time.

Before you start...

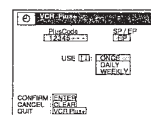
- Check that the VCR clock is set to the correct time.
- Turn on your TV and set it to the video channel. When using a cable box, turn it on.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.



- 1 Press VCR Plus+. Press VCR Plus+.

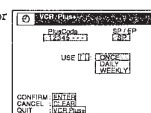


- 2 Press the number buttons to enter the PlusCode number.



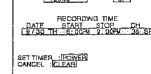
If you make a mistake, press CLEAR and re-enter the correct number.

- 3 Press SP/EP to select the tape speed, SP or EP.



- 4 Press $\uparrow/\downarrow$ to highlight ONCE, DAILY, or WEEKLY, then press ENTER:

To record	Select
Only once	ONCE
Everyday Monday to Friday	DAILY
Once a week	WEEKLY



The date, start and stop time, channel number and tape speed appear on the TV screen. If the information is not correct, press CLEAR to cancel the setting.

- 5 To enter another setting, repeat steps 1 to 4.

- 6 Press I/O to turn off the VCR.

The $\odot$ indicator appears in the display window and the VCR stands by for recording. When using a cable box, leave it on.

To stop recording

To stop the VCR while recording, press $\blacksquare$ STOP.

continued

To use the VCR after setting the timer

To use the VCR before a timer recording begins, just press I/⏻. The Ⓞ indicator disappears from the display window and the VCR switches on. Remember to press I/⏻ to reset the VCR to the timer recording standby mode after using the VCR.

You can also do the following tasks while the VCR is recording:

- Reset the counter.
- Display tape information on the TV screen.
- Check the timer settings.
- Watch another TV program.

To lock the VCR after setting the timer (Child Lock)

While the VCR turns on, hold down I/⏻ POWER on the VCR until the Ⓞ indicator appears in the display window. The VCR turns off and the Ⓞ indicator remains lit. The VCR will not work except for timer recording.

To unlock the VCR, hold down I/⏻ POWER on the VCR until the Ⓞ indicator disappears from the display window. The VCR is unlocked and turns on.

To stop timer recording while the VCR is locked, press ■ STOP. The recording stops and the VCR is unlocked.

Tips

- To cancel the Plus+ system recording, press VCR Plus+ before pressing ENTER in step 4 above.
- When you are recording a program in the SP mode and the remaining tape becomes shorter than the recording time, the tape speed is automatically changed to the EP mode. Note that some noises will appear on the picture when the tape speed is changed. If you want to keep the tape speed, set AUTO TAPE SPEED to OFF in the ADVANCED OPTIONS menu (page 85).

Notes

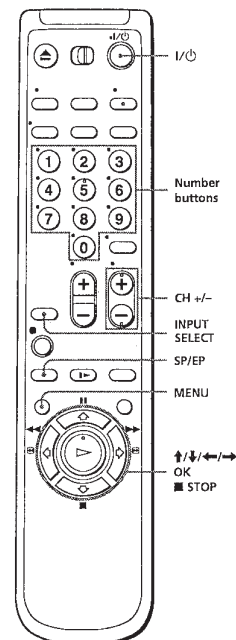
- If the VCR does not accept the PlusCode number, this means that:
 - The PlusCode number is incorrect.
 - ONCE, DAILY, or WEEKLY was selected incorrectly. You cannot select DAILY or WEEKLY for a program that airs more than seven days ahead.
- The VCR will be unlocked when:
 - you stop timer recording by pressing ■ STOP
 - you insert a tape
 - the AC power cord is disconnected or power supply stops.

Setting the timer manually

If the VCR Plus+ system is not available in your area, follow the instructions below to set the timer to record programs.

Before you start...

- Check that the VCR clock is set to the correct time.
- Turn on your TV and set it to the video channel. When using a cable box, turn it on.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.



- 1 Press MENU, then press ↑/↓ to highlight TIMER SET/CHECK and press OK.



continued

Basic Operations 69

68 Basic Operations

Setting the timer manually (continued)

- 2 Press ↑/↓ to highlight the line that is to be set, then press OK.
- 3 Set the date, start and stop time, channel number and tape speed:
 - 1 Press ↑/↓ to set each item.
 - 2 Press → to highlight and set each item in turn.

To correct a setting, press ← to return to that setting and reset.

To record the same program every day or the same day every week, press ↓ while the date is highlighting. For details, see "Daily/weekly recording" below.

To record from a source connected to the LINE-1 IN or LINE-2 IN jacks, press INPUT SELECT to display "L1" or "L2" in the "CH" position.
- 4 Press OK to confirm the setting. To enter another setting, highlight to the next line and repeat step 3.
- 5 Press MENU to exit the menu.
- 6 Press I/⏻ to turn off the VCR. The Ⓞ indicator appears in the display window and the VCR stands by for recording. When using a cable box, leave it on.

To stop recording

To stop the VCR while recording, press ■ STOP.

Daily/weekly recording

In step 3 above, press ↓ to select the recording pattern. Each time you press ↓, the indication changes as shown below. Press ↑ to change the indication in reverse order.

the current date → SU-SA → MO-SA → MO-FR → EVERY SA → → EVERY MO → EVERY SU → 1 month later → (dates count down) → the current date

To use the VCR after setting the timer

To use the VCR before a timer recording begins, just press I/⏻. The Ⓞ indicator disappears from the display window and the VCR switches on. Remember to press I/⏻ to reset the VCR to the timer recording standby mode after using the VCR.

You can also do the following tasks while the VCR is recording:

- Reset the counter.
- Display tape information on the TV screen.
- Check the timer settings.
- Watch another TV program.

To lock the VCR after setting the timer (Child Lock)

While the VCR turns on, hold down I/⏻ POWER on the VCR until the Ⓞ indicator appears in the display window. The VCR turns off and the Ⓞ indicator remains lit. The VCR will not work except for timer recording.

To unlock the VCR, hold down I/⏻ POWER on the VCR until the Ⓞ indicator disappears from the display window. The VCR is unlocked and turns on.

To stop timer recording while the VCR is locked, press ■ STOP. The recording stops and the VCR is unlocked.

continued

70 Basic Operations

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Setting the timer manually (continued)

Tips

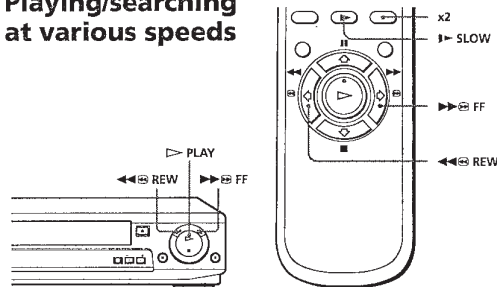
- To set the channel, you can also use the CH+/- or number buttons.
- To set the tape speed, you can also use the SP/EP button.
- When you are recording a program in the SP mode and the remaining tape becomes shorter than the recording time, the tape speed is automatically changed to the EP mode. Note that some noises will appear on the picture when the tape speed is changed. If you want to keep the tape speed, set AUTO TAPE SPEED to OFF in the ADVANCED OPTIONS menu (page 85).
- If you want to return to the previous menu and continue with other operations after setting the timer, press $\downarrow$ to highlight RETURN, then press OK. The display returns to the MENU screen.
- If you are finished using the VCR, turn off the power before the timer recording starts.

Note

- If you are using cable box control, you cannot select "L1" or "L2".

Additional Operations

Playing/searching at various speeds



Playback options	Operation
View the picture during fast-forward or rewind	During fast-forward, hold down $\gg\gg$ FF. During rewind, hold down $\ll\ll$ REW.
Play at high speed	- During playback, press $\gg\gg$ FF or $\ll\ll$ REW on the remote commander. - During playback, hold down $\gg\gg$ FF or $\ll\ll$ REW. When you release the button, normal playback resumes.
Play at twice the normal speed	During playback, press x2.
Play in slow motion	During playback or pause, press SLOW .
Play frame by frame	During pause, press $\gg\gg$ FF or $\ll\ll$ REW on the remote commander. Hold down the button to play one frame each second.
Rewind and start play	During stop, press $\triangleright$ PLAY on the VCR while holding down $\ll\ll$ REW on the VCR.

To resume normal playback

Press $\triangleright$ PLAY.

continued

Playing/searching at various speeds (continued)

Tip

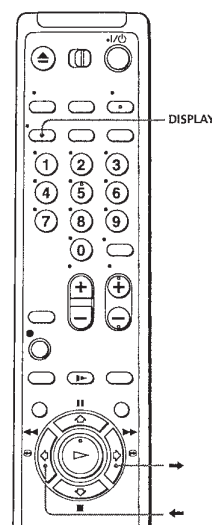
- Adjust the picture using the TRACKING +/- buttons if:
 - Streaks appear while playing in slow motion.
 - The picture shakes while pausing.
- To set tracking to the center position, press both buttons (+/-) at the same time.

Notes

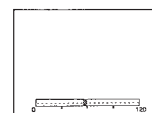
- The sound is muted during these operations.
- Tapes recorded in the LP mode on other VCRs can be played back on this VCR but the picture quality cannot be guaranteed.
- The picture may have snow when playing at high speed in reverse.

Searching for a selected point on the tape

You can easily find a specific point by moving the pointer on the TV screen. The VCR fast-forwards or rewinds to the point you indicate and starts playback automatically.



- Press DISPLAY repeatedly until the bar indication appears on the TV screen. A cursor (■) indicating the current position of the tape appears on the bar indication. If the cursor does not appear, play the tape a few moments (by pressing $\triangleright$ PLAY, $\gg\gg$ FF, or $\ll\ll$ REW) until the cursor appears.



continued

Searching for a selected point on the tape (continued)

- Press $\leftarrow/\rightarrow$ to move the pointer (V) to the point where you want to start playback. The VCR starts searching and the cursor (■) moves toward the pointer. When the VCR locates the marked point, playback starts.



To cancel searching

Press $\triangleright$ PLAY or ■ STOP.

To turn off the bar indication

Press DISPLAY again.

Notes

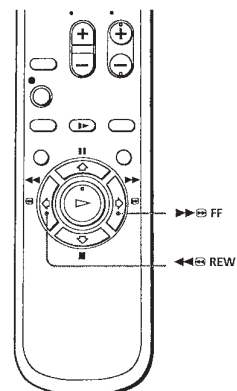
- The figure on the bar indication represents the total time length of the inserted tape as shown below. The total time length may not be displayed correctly for:
 - tapes other than T-60, T-120, or T-160
 - tapes recorded in more than one tape speed mode.

Tape type	Total time length		
	SP	LP	EP
T-60 or shorter	60	120	180
from T-80 to T-140	120	240	360
T-160 or longer	160	320	480

- If you move the pointer (V) on the bar indication during search, the VCR searches for the new reset point.
- With the bar indication on, the $\triangleright$ FF/ $\rightarrow$ and $\leftarrow$ REW/ $\leftarrow$ buttons on the remote commander work only for moving the pointer (V), while the $\triangleright$ FF and $\leftarrow$ REW buttons on the VCR are used for normal tape operation. Note, however, if you press these buttons on the VCR, searching is canceled.

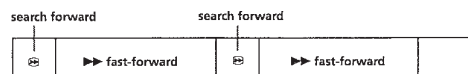
Skip-searching automatically

You can spot check a whole tape quickly. At intervals, the VCR skips playback while searching forward or backward.



Hold down $\triangleright$ FF (or $\leftarrow$ REW) for more than two seconds during stop. "SKIP" indicator appears on the TV screen.

The VCR searches forward (or backward) for about two minutes on the counter, then fast-forwards (or rewinds) for about ten minutes on the counter. The VCR repeats this operation until it stops at the end (or beginning) of the tape.



To cancel skip-search

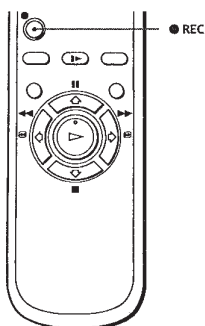
Press $\triangleright$ PLAY or ■ STOP.

Note

- The VCR automatically fast-forwards (or rewinds) any portion with no recording.

Setting the recording duration time

After starting recording in the normal way, you can have the VCR stop recording automatically after a specified duration.



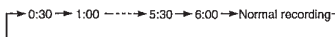
- While recording, press ● REC.

The ⊕ indicator appears in the display window.



- Press ● REC repeatedly to set the duration.

Each press advances the time in increments of 30 minutes.



The tape counter decreases minute by minute to 0:00, then the VCR stops recording and turns off automatically.

To extend the duration

Press ● REC repeatedly to set a new duration.

To cancel the duration

Press ● REC repeatedly until ⊕ indicator disappears and the VCR returns to normal recording mode.

To stop while recording

Press ■ STOP.

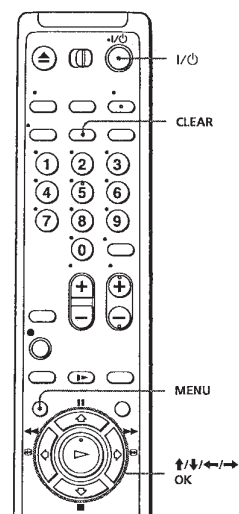
Note

- You cannot display the current tape time in the display window when setting the recording duration.

Checking/ changing/ canceling timer settings

Before you start...

- Turn on your TV and set it to the video channel.



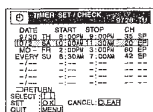
- Press I/O to turn on the VCR.

- Press MENU, then press $\uparrow/\downarrow$ to highlight TIMER SET/CHECK and press OK.

- If you want to change a setting, go on to the next step.
- If you do not need to change the settings, press MENU, then turn off the VCR to return to recording standby.

continued

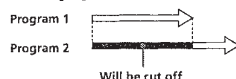
- 3 Press **↑/↓** to highlight the setting you want to change or cancel.
 - To change the setting, press **OK** and press **←/→** to highlight the item you want to change, then press **↑/↓** to reset it.
 - To cancel the setting, press **CLEAR**.



- 4** Press OK.
- 5** Press MENU to exit the menu.
- If any timer settings remain, turn off the VCR to return to recording standby.

When the timer settings overlap

The program that starts first has priority and the second program starts recording only after the first program has finished. If the programs start at the same time, the program listed first in the menu has priority.



Recording stereo and bilingual programs

Recording stereo programs

This VCR automatically receives and records stereo programs. When a stereo program is received, the STEREO indicator lights up. If there is noise in the stereo program, set AUTO STEREO in the ADVANCED OPTIONS menu to OFF. The sound will be recorded in monaural (on both hi-fi and normal audio tracks) but with less noise. For details, see page 84.

Recording bilingual programs

Normally, this VCR records only the main sound. When a SAP (Second Audio Program) is received, the SAP indicator lights up. To record only SAP sound, set **TUNER AUDIO** in the **ADVANCED OPTIONS** menu to **SAP**. For details, see page 84.

Selecting the sound during playback

Press **AUDIO MONITOR** to select the sound you want. (The sound being recorded will not change.)

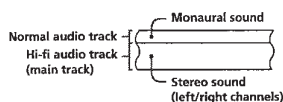
To listen to	On-screen display	Display window
Stereo	STEREO	STEREO
Left channel	L	STEREO
Right channel	R	STEREO
Monaural sound on the normal audio track	No indicator	No indicator

continued

Recording stereo and bilingual programs (continued)

How sound is recorded on a video tape

The VCR records sound onto two separate tracks. Hi-fi audio is recorded onto the main track along with the picture. Monaural sound is recorded onto the normal audio track along the edge of the tape.



Notes

- To play a tape in stereo, you must use the A/V connections.
- When you play a tape recorded in monaural, the sound is heard in monaural regardless of the AUDIO MONITOR setting.

Adjusting the picture

Adjusting the tracking

Although the VCR automatically adjusts the tracking when playing a tape (the indicator flashes in the display window, then goes off), distortion may occur if the tape was recorded in poor condition. In this case, manually adjust the tracking.

Press **TRACKING +/-** to display the tracking meter. The distortion should disappear as you press one of the two buttons (the  indicator lights up). To resume automatic tracking adjustment, eject the tape and reinsert it.



Tracking meter

About the Adaptive Picture Control (APC) function

The Adaptive Picture Control (APC) function automatically improves recording and playback quality by adjusting the VCR to the condition of the video heads and tape. To maintain better picture quality, we recommend that you set APC to ON in the ADVANCED OPTIONS menu (with the APC indicator in the display window lit). For details, see page 84.

APC playback

The APC function automatically works on all types of tapes, including rental tapes and tapes that were not recorded with APC.

APC recording

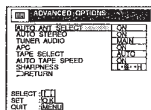
Whenever you insert a tape and first start recording, the VCR adjusts to the tape using the APC function (the APC indicator flashes rapidly). This adjustment is retained until the tape is ejected.

Notes

- The auto tracking adjustment cannot be guaranteed to work with tapes recorded in the LP mode on other VCRs.
- The AFC function does not work if the tape speed is automatically changed from the SP to EP mode during a timer recording when AUTO TAPE SPEED is set to ON in the ADVANCED OPTIONS menu, unless the tape has been recorded in the EP mode with the ADVANCED function.
- The length of about 30 seconds before the VCR actually starts recording while the VCR analyzes the tape. To avoid the delay, first set the VCR to recording pause (the APC indicator flashes slowly) and press **REC** to have the VCR analyze the tape (the APC indicator flashes rapidly). After the APC indicator stops flashing, press **PAUSE** to start recording immediately.
- If you want to start recording quickly without using the AFC function, first set the VCR to recording pause (the APC indicator flashes slowly) and press **PAUSE** to start recording.

Changing menu options

- 1 Press MENU, then select **ADVANCED OPTIONS** and press OK.



- 2 Press $\uparrow/\downarrow$ to highlight the option to change, then press OK.
- 3 Press $\uparrow/\downarrow$ to change the setting, then press OK.
To adjust the sharpness, press $\leftarrow/\rightarrow$ and press OK.
- 4 Press MENU to return to the original screen.

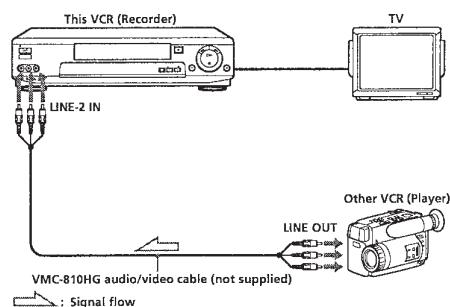
Menu choices

Initial settings are indicated in bold print.

Menu option	Set this option to
AUTO ANT SELECT	• ON if your TV is connected only to VHF/UHF OUT on the VCR. To play a tape, set the TV to the VCR channel (channel 3 or 4). • OFF if your TV is connected to both VHF/UHF OUT and LINE OUT on the VCR. To play a tape, set the TV to the VCR input.
AUTO STEREO	• ON to receive stereo programs. • OFF to reduce noise. The sound changes to monaural.
TUNER AUDIO	• MAIN to record the main sound on both hi-fi and normal audio tracks. • SAP to record the SAP (Second Audio Program) sound on both hi-fi and normal audio tracks.
APC	• ON to switch on the APC (Adaptive Picture Control) function and improve picture quality. • OFF to switch off APC.

Editing with another VCR

How to hook up to record on this VCR



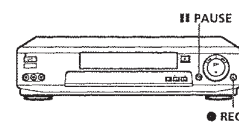
Notes

- Make sure you connect the plugs to jacks of the same color.
- If the other VCR is a monaural type and connected to this VCR's LINE-2 IN jacks, connect the audio plug to the AUDIO L (white) jack. The sound is recorded on both right and left channels. When connecting to the AUDIO R (red) jack, the sound is recorded only on the right channel.
- If you connected this VCR to both the LINE IN and LINE OUT jacks of the other VCR, select the input correctly to prevent a humming noise.
- You can use the LINE-1 IN jacks for editing. If the other VCR is a monaural type, the sound is recorded only on the channel whose jack is connected to the audio plug. To record on both right and left channels, connect the audio plugs to the AUDIO R/L jacks using a VMC-910HG audio/video cable (not supplied).

Operation (when recording on this VCR)

Before you start editing

- Turn on your TV and set it to the video channel.
- Press INPUT SELECT to display "L2" (or "L1") in the display window.
- Press SP/EP to select the tape speed, SP or EP.



- 1 Insert a source tape with its safety tab removed into the other (playback) VCR. Search for the point to start playback and set it to playback pause.
- 2 Insert a tape into this (recording) VCR. Search for the point to start recording and press **PAUSE**.
- 3 Press **REC** on this VCR and set it to recording pause.
- 4 To start editing, press the **PAUSE** buttons on both VCRs at the same time.

To stop editing

Press the **STOP** buttons on both VCRs.

Tip

- To cut out unwanted scenes while editing, press **PAUSE** on this VCR when an unwanted scene begins. When it ends, press **PAUSE** again to resume recording.

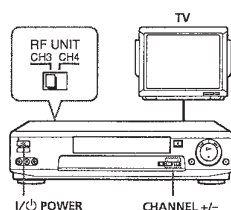
Note

- If you start recording following the procedure above, the VCR won't start recording with the APC function. To record a tape with the APC function, press **REC** again during recording pause in step 3 so that the VCR analyzes the tape. Then when you start recording in step 4, press **PAUSE** immediately after the APC indicator stops flashing. If you press **PAUSE** before the APC indicator stops flashing, the APC function is canceled.

General setup information

Setting the RF unit

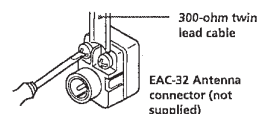
When connecting the VCR to the TV using only the antenna cable, you must set the RF UNIT switch on the rear of the VCR so that the TV can receive the correct signal from the VCR.



- 1 Set the RF UNIT switch on the rear of the VCR to CH3 or CH4, whichever channel is not used in your area. If both are used, set the switch to either channel.
- 2 Press I/POWER to turn on the VCR.
- 3 Press TV/VIDEO to turn on the VIDEO indicator in the VCR's display window.
- 4 Press CH +/- to display a channel number in the display window. Select an active channel number in your area.
- 5 Turn on your TV and set it to the channel you selected in step 1 (channel 3 or 4).
The channel you selected in step 4 appears on the TV screen. If the channels change when you press CH +/-, you have made the correct setting.
Whenever you use the VCR, set the TV to the channel selected in step 1.

Attaching the external antenna connector

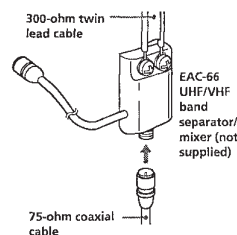
When using a 300-ohm twin lead cable for VHF/UHF antenna, use the EAC-32 antenna connector (not supplied) to connect the antenna to the VCR.



- 1 Loosen the screws on the antenna connector.
- 2 Wind the twin leads around the screws on the antenna connector.
- 3 Retighten the screws.

Attaching a UHF/VHF band mixer

When using both 75-ohm coaxial cable and 300-ohm twin lead cable for VHF/UHF antenna, use the EAC-66 UHF/VHF band separator/mixer (not supplied) to connect the antenna to the VCR.

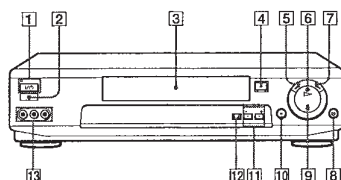


- 1 Loosen the screws on the mixer.
- 2 Wind the twin leads around the screws on the mixer.
- 3 Retighten the screws.
- 4 Connect the 75-ohm coaxial cable to the mixer.

Index to parts and controls

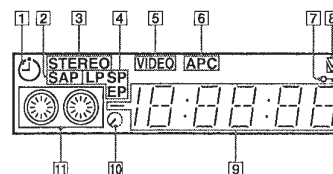
Refer to the pages indicated in parentheses () for details.

Front panel



- | | |
|---|--|
| 1 I/POWER switch/indicator (67) | 8 ● REC (record) button (63, 78, 87) |
| 2 Remote sensor (5) | 9 ■ STOP button (60, 87) |
| 3 Tape compartment | 10 ■ PAUSE button (60, 87) |
| 4 ▲ EJECT button (60) | 11 CHANNEL/TRACKING +/- buttons (63, 83) |
| 5 ◀◀ REW (rewind) button (60, 73) | 12 EASY SET UP button (12, 16, 20, 24, 28, 31) |
| 6 ▷▶ PLAY button (60, 73) | 13 LINE-2 IN VIDEO/AUDIO L/R jacks (86) |
| 7 ▶▶▶ FF (fast-forward) button (60, 73) | |

Display window

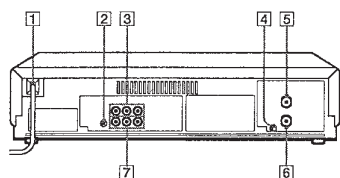


- | | |
|---|--|
| 1 Timer indicator (67, 70) | 7 Child Lock indicator (68) |
| 2 SAP (Second Audio Program) indicator (81) | 8 Tracking indicator (83) |
| 3 STEREO indicator (81) | 9 Time counter/clock/line/channel indicator (61, 63, 87) |
| 4 Tape speed indicator (63) | 10 Remaining time indicator (64) |
| 5 VIDEO indicator (64, 88) | 11 Tape/recording indicator (63) |
| 6 APC (Adaptive Picture Control) indicator (83) | |

continued

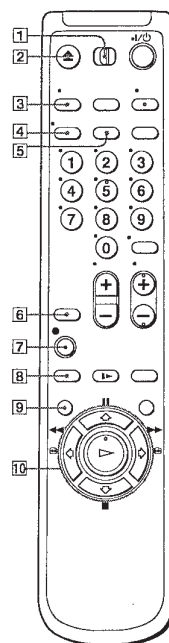
Index to parts and controls (continued)

Rear panel



- | | |
|---|--|
| 1 AC power cord (8) | 5 VHF/UHF IN connector (11, 15, 19, 23, 27, 30) |
| 2 CABLE BOX CONTROL (CONTROL S OUT) jack (11, 27) | 6 VHF/UHF OUT connector (11, 15, 19, 23, 27, 30) |
| 3 LINE-1 IN AUDIO R/L/VIDEO jacks (27, 86) | 7 LINE OUT AUDIO R/L/VIDEO jacks (9) |
| 4 RF (Radio Frequency) UNIT switch (88) | |

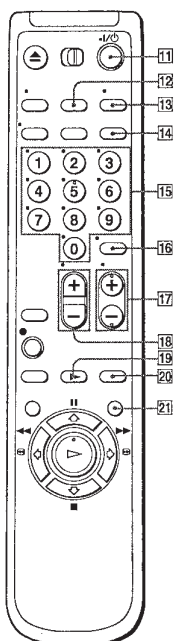
Remote commander



- | |
|---|
| 1 [TV]/[VIDEO] switch (5) |
| 2 EJECT button (60) |
| 3 TV/VIDEO button (6, 64) |
| 4 DISPLAY button (64, 75) |
| 5 CLEAR button (61, 67, 80) |
| 6 INPUT SELECT button (63, 65, 87) |
| 7 ● REC (record) button (63, 78) |
| 8 SP (Standard Play)/EP (Extended Play) button (63) |
| 9 MENU button (35, 69, 79) |
| 10 ■ PAUSE/▲ button (35, 60) |
| ■ STOP/▼ button (35, 60) |
| ◀◀ REW (rewind)/◀ button (60, 73) |
| ▶▶ FF (fast-forward)/▶ button (60, 73) |
| ▷ PLAY/OK button (35, 60) |

continued

Index to parts and controls (continued)

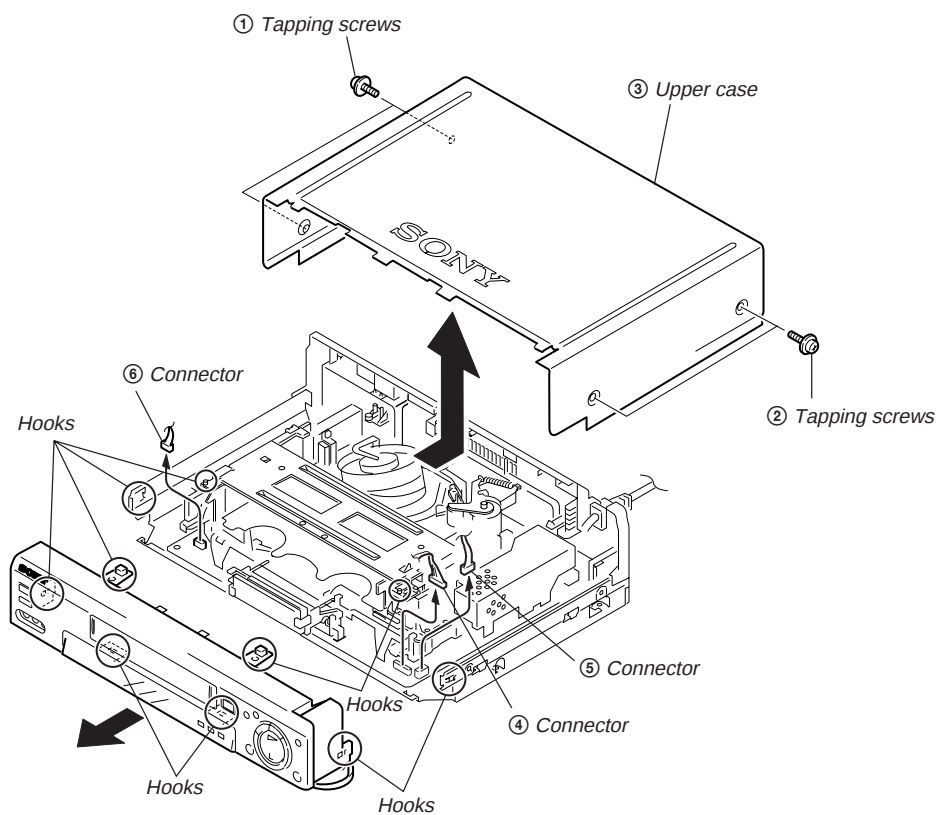


- | |
|-------------------------------------|
| 11 I/O (power) switch (6, 67) |
| 12 COUNTER/REMAIN button (64) |
| 13 AUDIO MONITOR button (81) |
| 14 VCR Plus+ button (66) |
| 15 Number buttons (67) |
| 16 ENTER button (67) |
| 17 CH (channel) +/- buttons (6, 63) |
| 18 VOL (volume) +/- buttons (6) |
| 19 ► SLOW button (73) |
| 20 x2 button (73) |
| 21 SMART CUE button (60) |

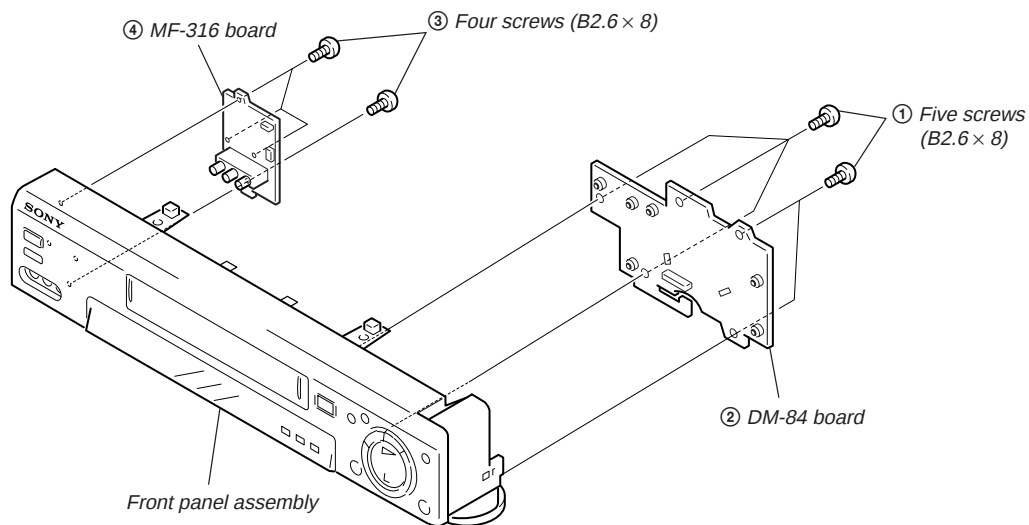
SECTION 2 DISASSEMBLY

NOTE: Follow the disassembly procedure in the numerical order given.

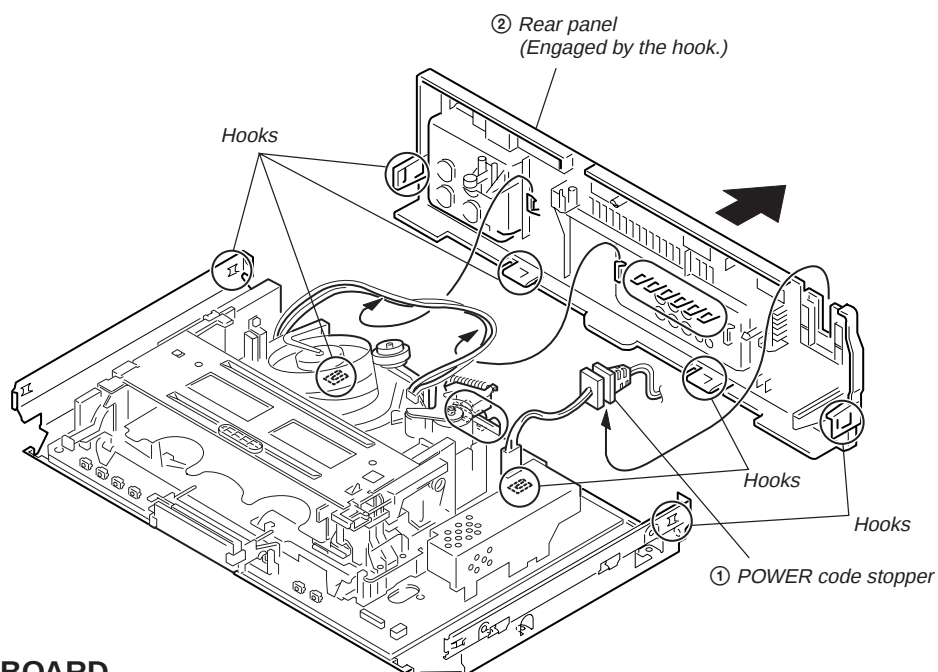
2-1. CASE, FRONT PANEL BLOCK ASSEMBLY



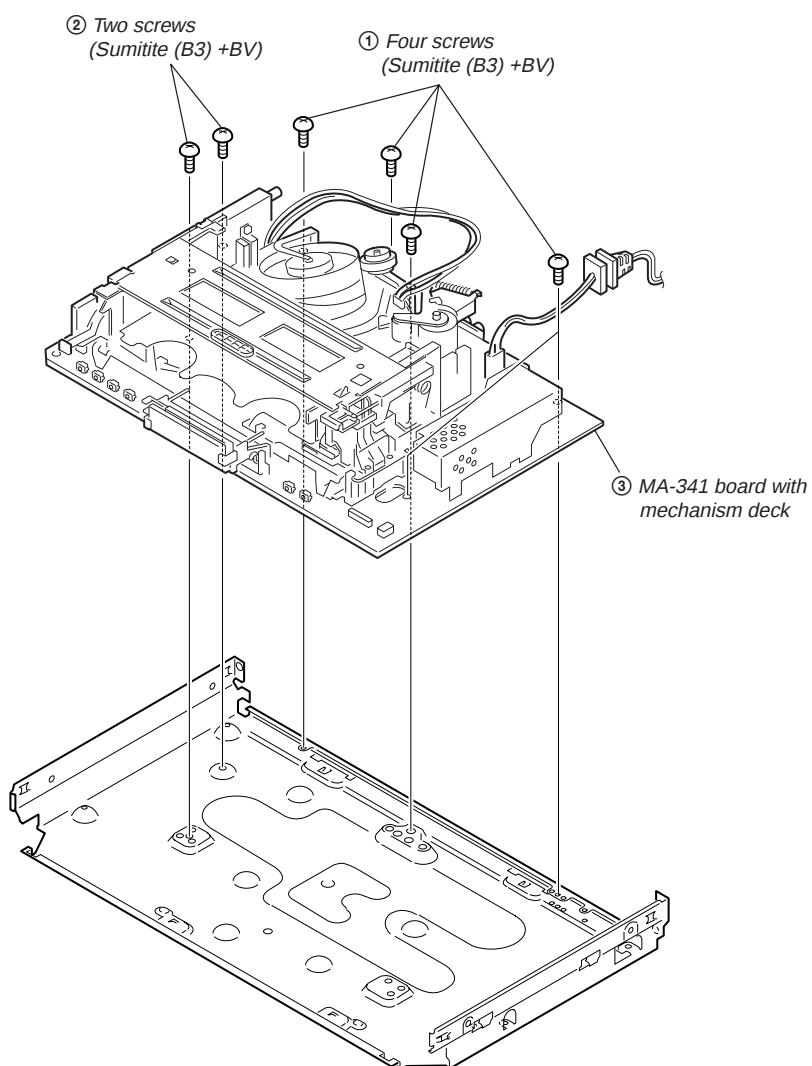
2-2. MF-316 BOARD, DM-84 BOARD



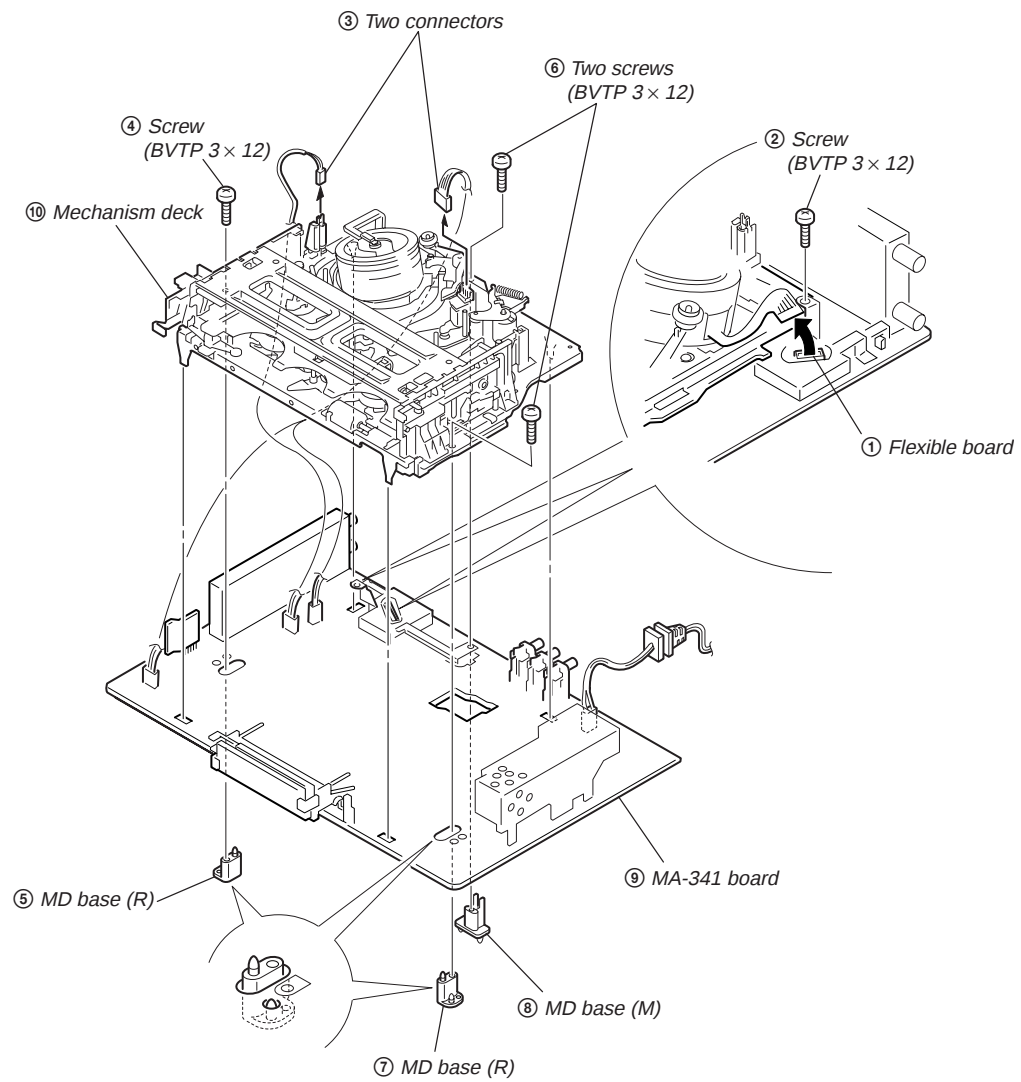
2-3. REAR PANEL



2-4. MA-341 BOARD

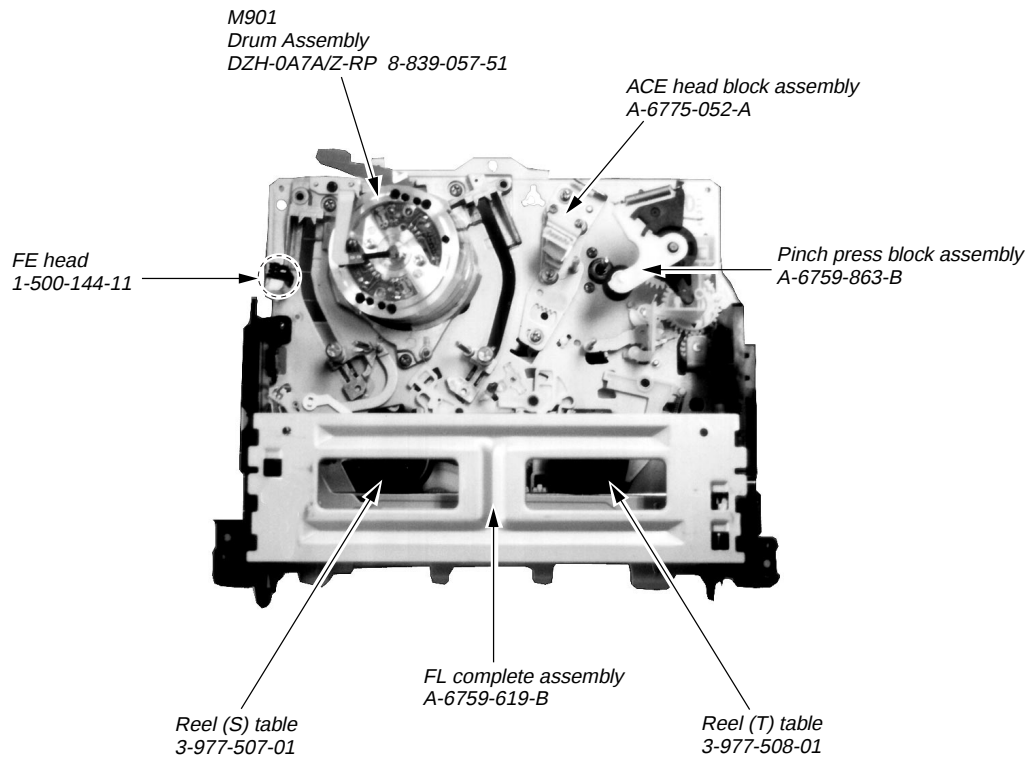


2-5. MECHANISM DECK

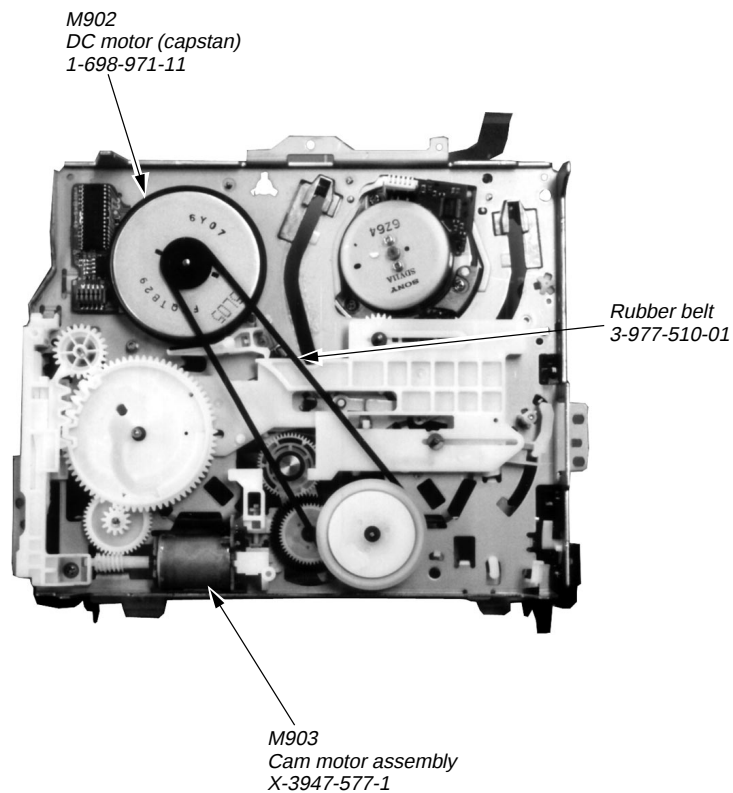


2-6. INTERNAL VIEWS

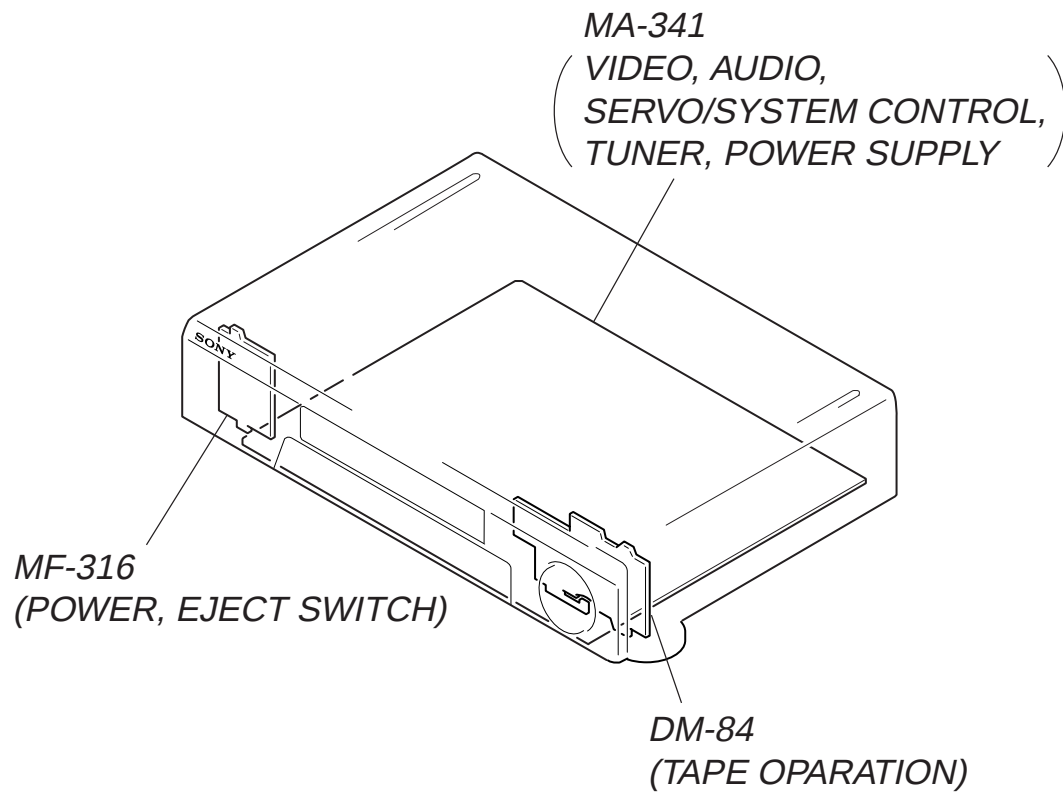
— Top View —



— Bottom View —

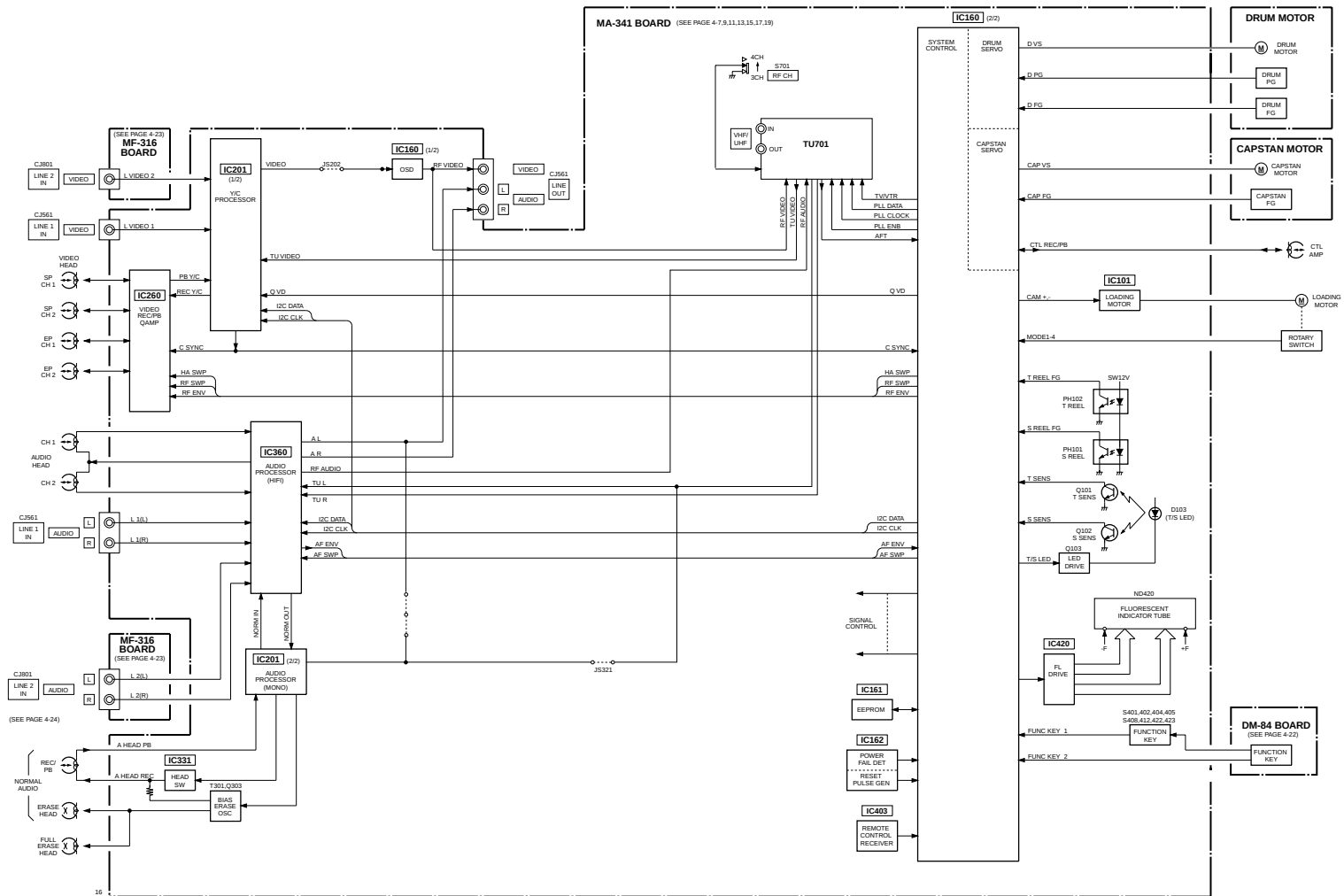


2-7. CIRCUIT BOARDS LOCATION



SECTION 3
BLOCK DIAGRAMS

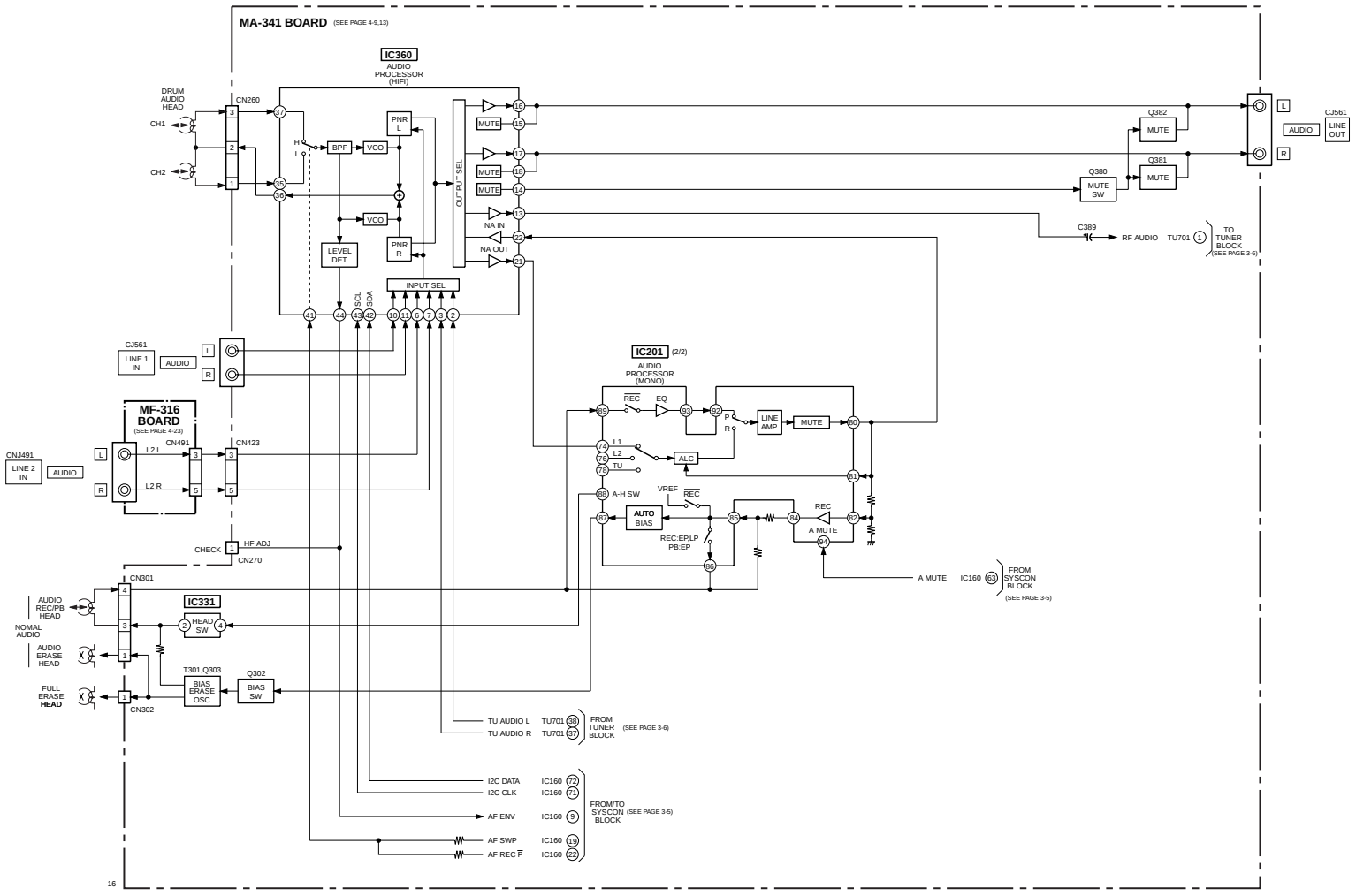
3-1. OVERALL BLOCK DIAGRAM



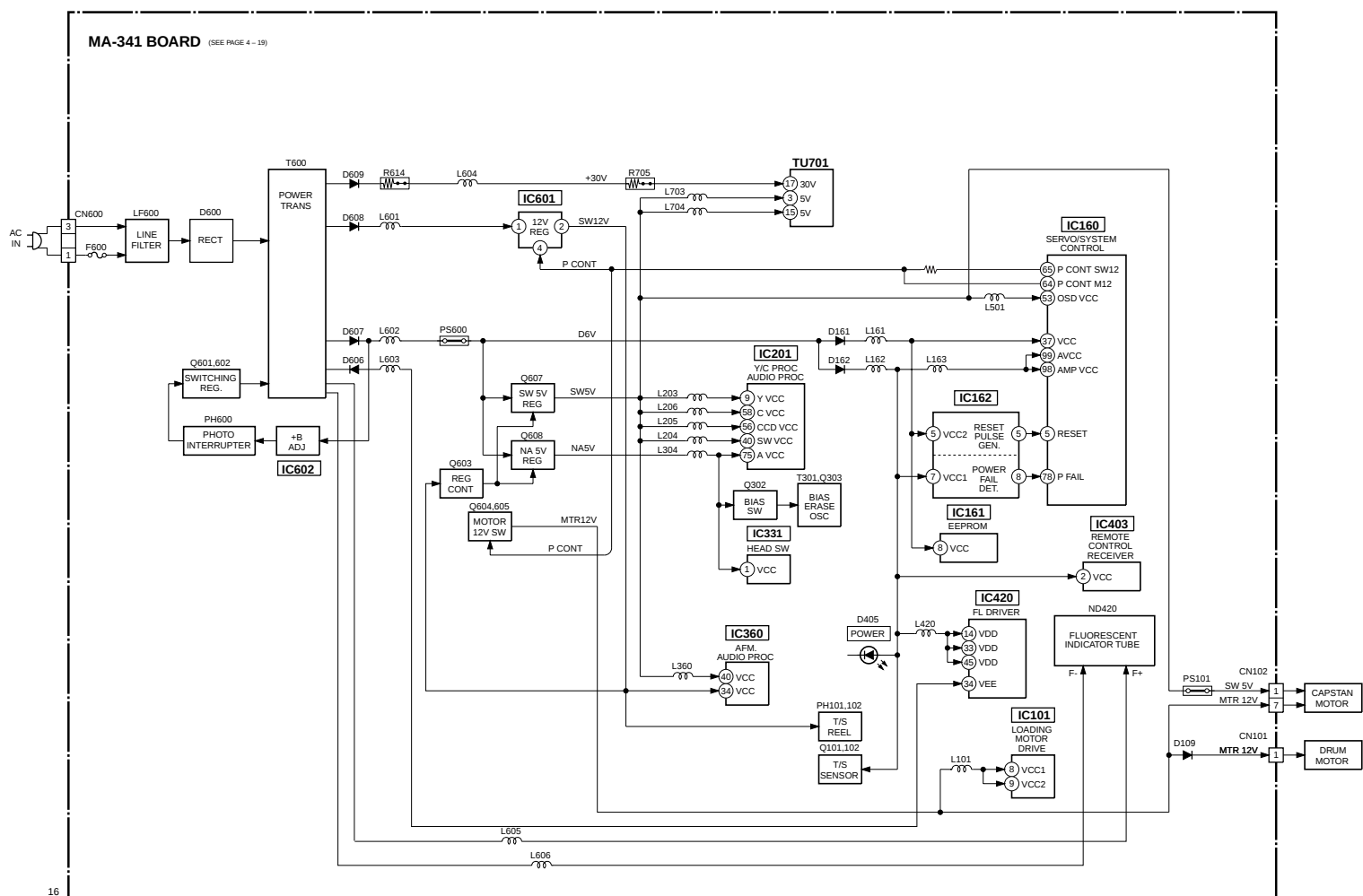


[illegible]

3-4. AUDIO BLOCK DIAGRAM



3-5. POWER BLOCK DIAGRAM



SECTION 4

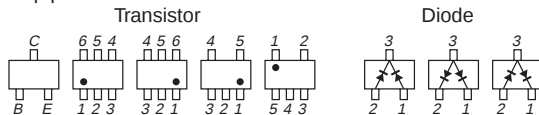
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.

(In addition to this, the necessary note is printed in each block.)

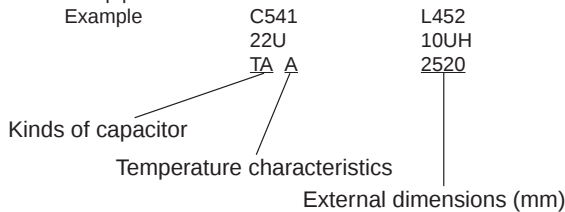
(For printed wiring boards)

- : Pattern from the side which enables seeing.
(The other layers' patterns are not indicated.)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.



(For schematic diagrams)

- All capacitors are in μF unless otherwise noted. $\text{pF} : \mu\text{F}$.
50V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10W unless otherwise noted.
 $\text{k}\Omega = 1000\Omega$, $\text{M}\Omega = 1000\text{k}\Omega$.
- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.



- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
In such cases, the unused circuits may be indicated.
- Parts with ★ differ according to the model/destination.
Refer to the mount table for each function.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
XEDIT → EDIT PB/XREC → PB/REC
- : non flammable resistor
- : fusible resistor
- : panel designation
- : internal component.
- : B+ Line.
- : B- Line.
- Circled numbers refer to waveforms.
- Readings are taken with a color-bar signal input.
- Voltage are dc between ground and measurement points.
- Readings are taken with a digital multimeter (DC10M Ω).
- Voltage variations may be noted due to normal production tolerances.
- : adjustment for repair.
- Circled numbers refer to waveforms.

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

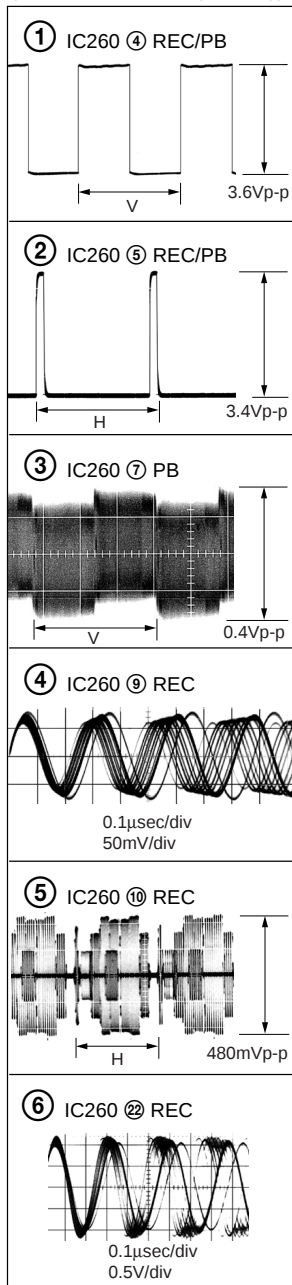
Note :

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

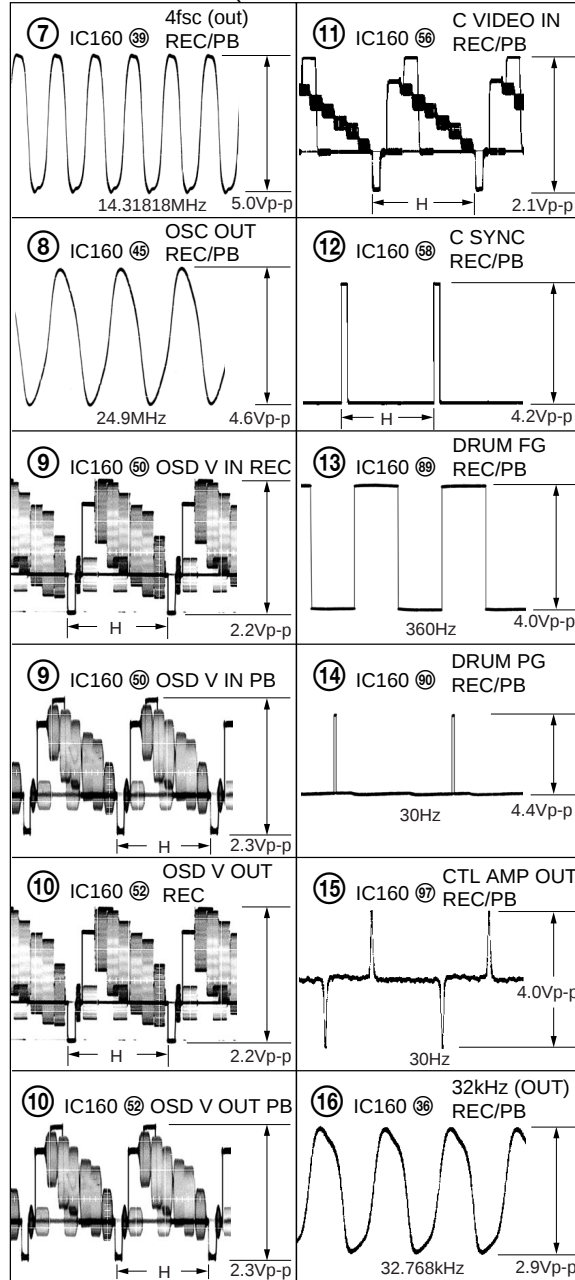
Note :

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

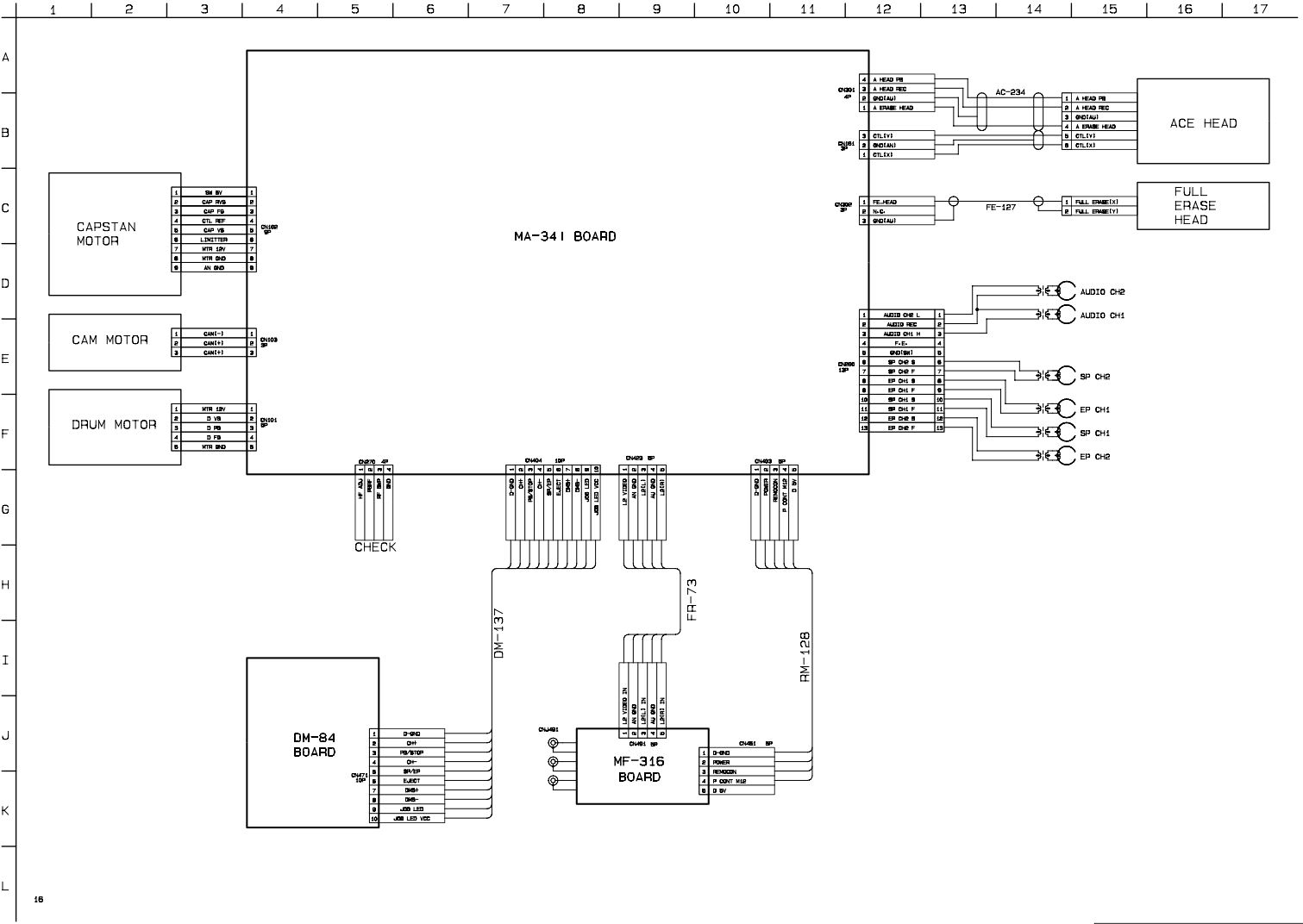
MA-341 BOARD (VIDEO BLOCK (IC260))



MA-341 BOARD (SERVO/SYSTEM CONTROL BLOCK)



4-1. FRAME SCHEMATIC DIAGRAM



FRAME SCHEMATIC DIAGRAM

SLV-772HF/779HF

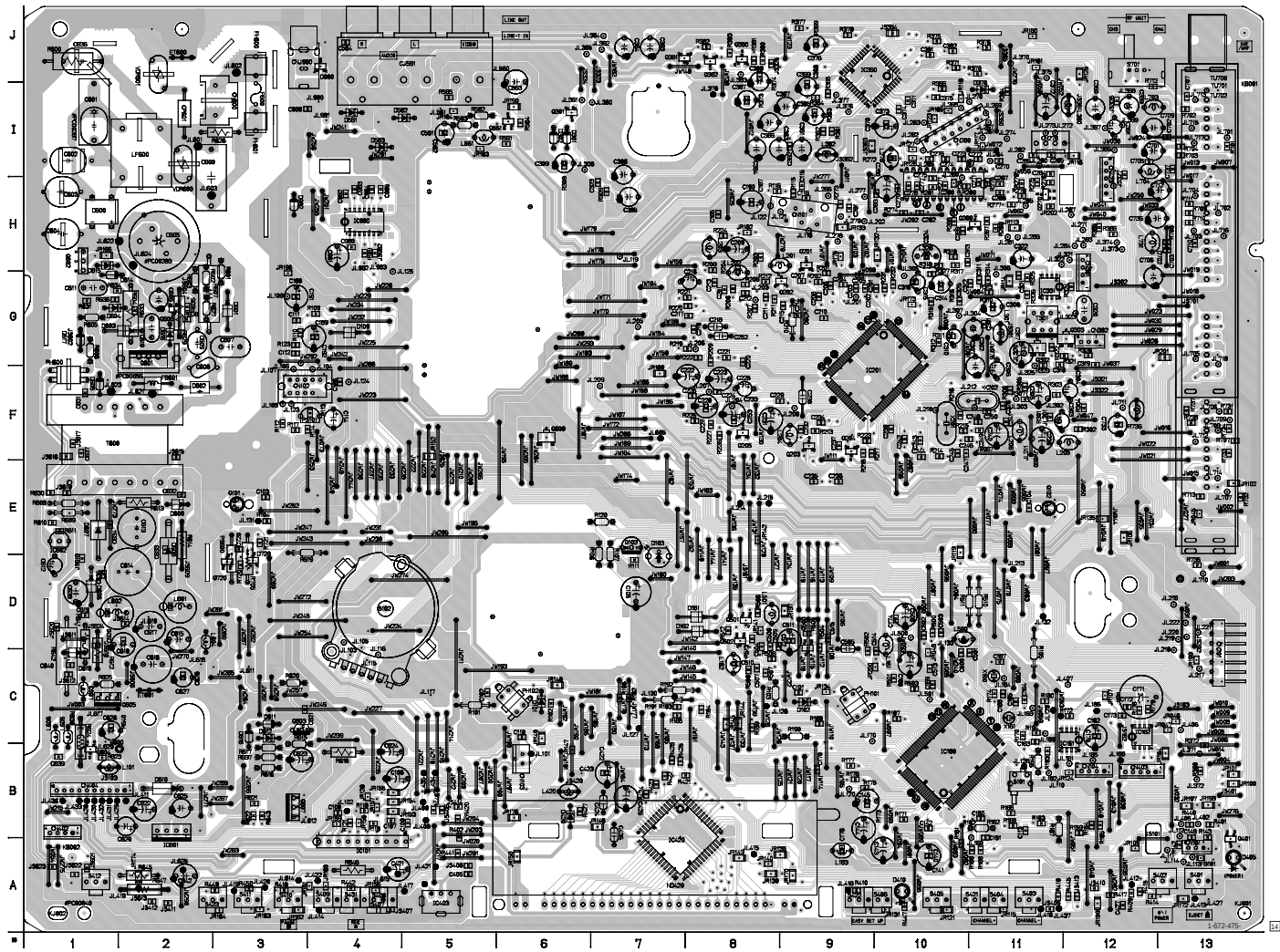
4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

MA-341 (VIDEO, AUDIO, SERVO/SYSTEM CONTROL, TUNER, POWER SUPPLY) PRINTED WIRING BOARD

— Ref. No. MA-341 Board; 1,000 Series —

MA-341 BOARD

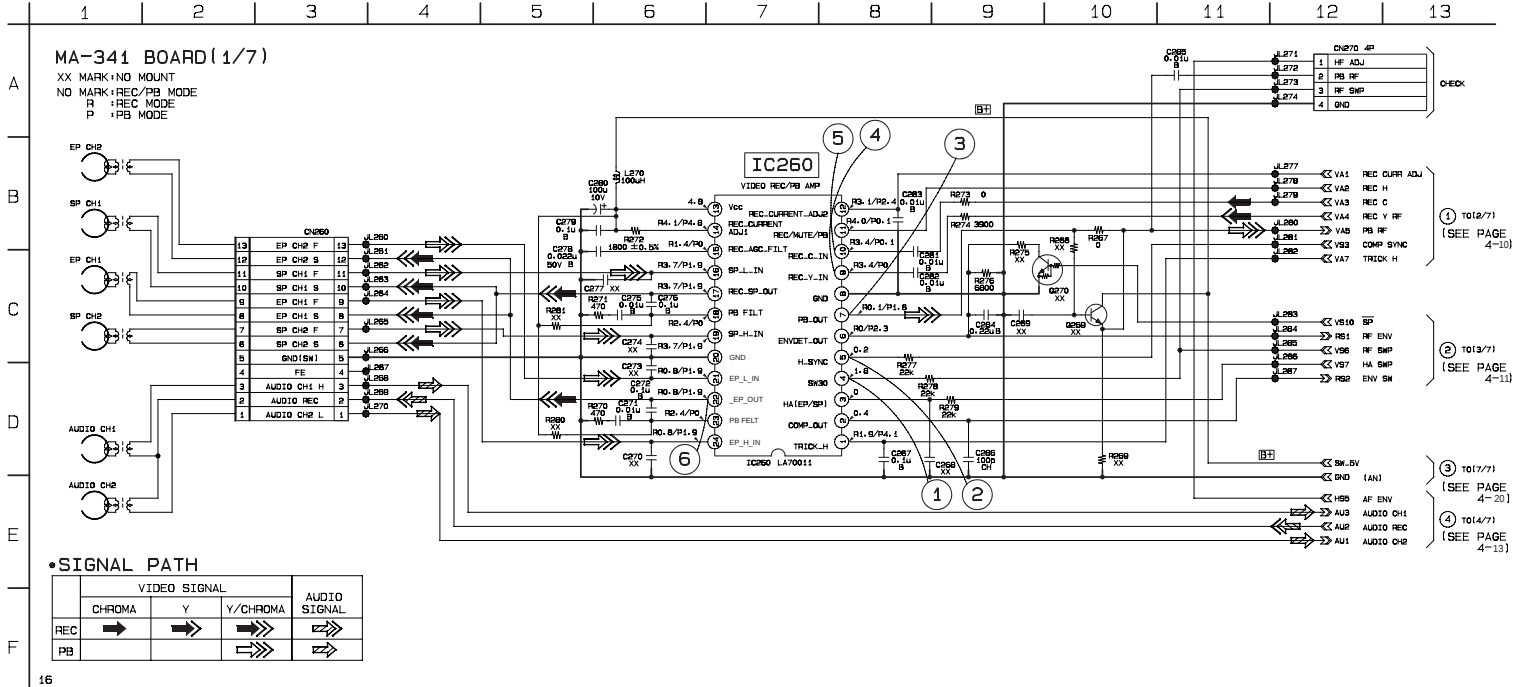
There are few cases that the part printed on this diagram isn't mounted in this model.



VIDEO, AUDIO, SERVO/SYSTEM CONTROL, TUNER, POWER SUPPLY
MA-341

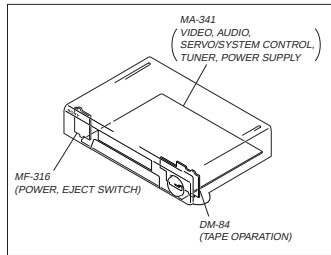
MA-341 (1/7) (VIDEO) SCHEMATIC DIAGRAM
— Ref. No. MA-341 Board; 1,000 Series —

For schematic diagram
• Refer to page 4-5 for printed wiring board.
• Refer to page 4-2 for waveforms.



MA-341 BOARD

CN101 H-9	D605 F-1	PH101 C-9
CN102 F-3	D606 D-1	PH102 C-6
CN103 B-6	D607 E-1	PH600 F-1
CN104 B-12	D608 E-2	
CN161 A-13	D609 E-2	Q101 E-3
CN260 I-10	D610 B-2	Q102 E-11
CN270 I-11	D611 C-3	Q103 E-7
CN301 G-12	D612 C-3	Q201 H-9
CN302 G-12	D618 C-3	Q202 G-8
CN403 B-12	D619 C-1	Q203 F-9
CN404 B-1	D702 H-13	Q302 G-11
CN423 I-12		Q303 G-12
CN600 I-3	IC101 A-4	Q380 J-8
	IC160 C-10	Q381 J-7
D103 D-7	IC161 C-12	Q382 J-8
D109 G-4	IC162 C-12	Q500 C-9
D161 D-8	IC201 F-10	Q502 C-8
D162 D-8	IC260 H-10	Q561 I-6
D420 B-6	IC331 G-11	Q601 G-2
D561 I-4	IC360 J-9	Q602 H-1
D600 H-1	IC420 A-7	Q603 C-3
D601 G-3	IC601 B-2	Q604 B-1
D602 F-2	IC602 E-1	Q605 C-1
D603 G-2	IC680 H-4	Q607 B-3
D604 G-2		Q608 F-6



4-7

4-8

VIDEO
MA-341(1/7)

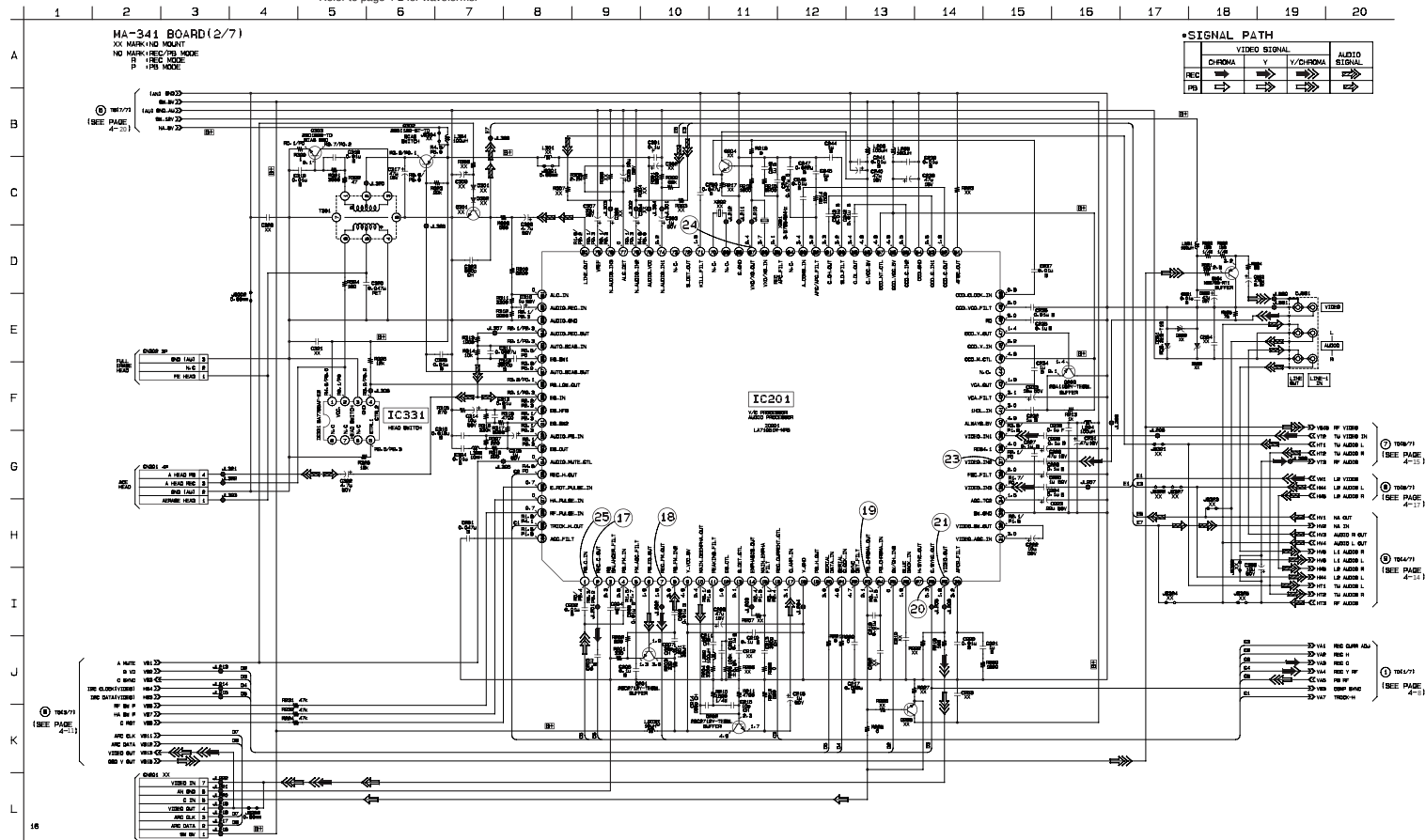
SLV-772HF/779HF

MA-341 (2/7) (AUDIO) SCHEMATIC DIAGRAM

— Ref. No. MA-341 Board; 1,000 Series —

For schematic diagram

- Refer to page 4-5 for printed wiring board.
- Refer to page 4-2 for waveforms.



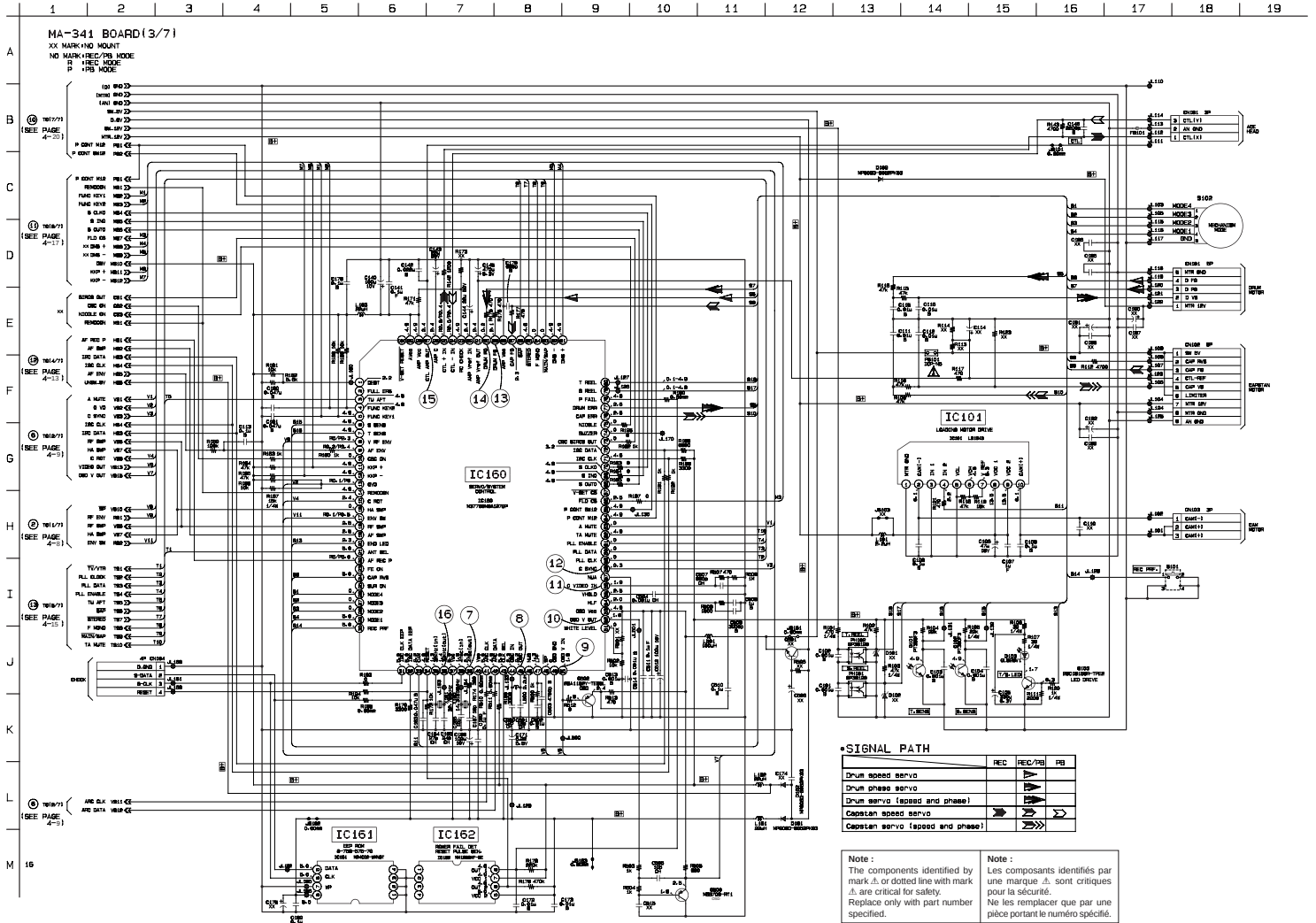
AUDIO
MA-341(2/7)

4-9

4-10

MA-341 (3/7) (SERVO/SYSTEM CONTROL) SCHEMATIC DIAGRAM
— Ref. No. MA-341 Board; 1,000 Series —

For schematic diagram
• Refer to page 4-5 for printed wiring board.
• Refer to page 4-2 for waveforms.



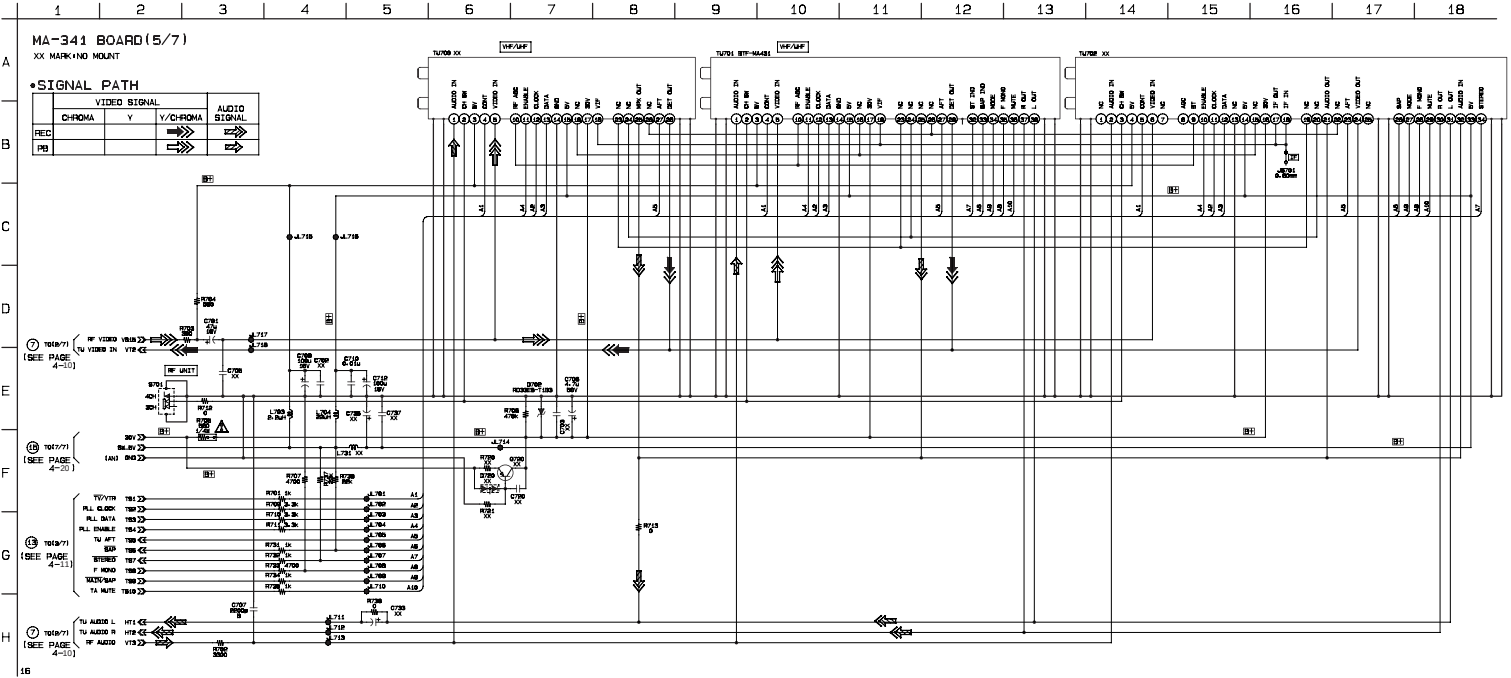
MA-341 (4/7) (AUDIO PROCESS) SCHEMATIC DIAGRAM
— Ref. No. MA-341 Board; 1,000 Series —

1	2	3	4	5	6	7	8	9	10	11	12	13
---	---	---	---	---	---	---	---	---	----	----	----	----



MA-341 (5/7) (TUNER) SCHEMATIC DIAGRAM
— Ref. No. MA-341 Board; 1,000 Series —

For schematic diagram
• Refer to page 4-5 for printed wiring board.



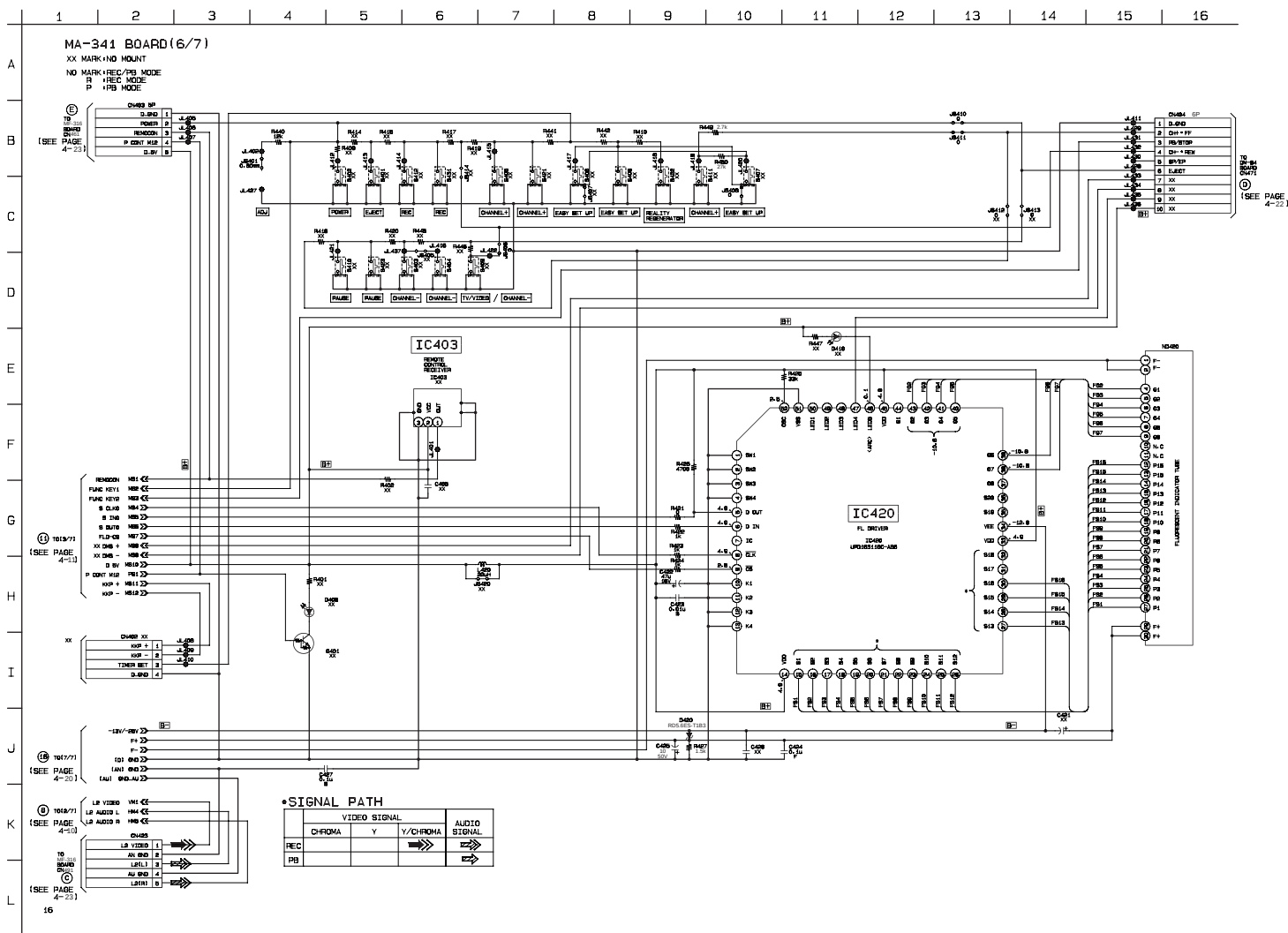
Note :
The components identified by
mark Δ or dotted line with mark
 Δ are critical for safety.
Replace only with part number
specified.

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

SLV-772HF/779HF

MA-341 (6/7) (MODE CONTROL) SCHEMATIC DIAGRAM
— Ref. No. MA-341 Board; 1,000 Series —

For schematic diagram
• Refer to page 4-5 for printed wiring board.



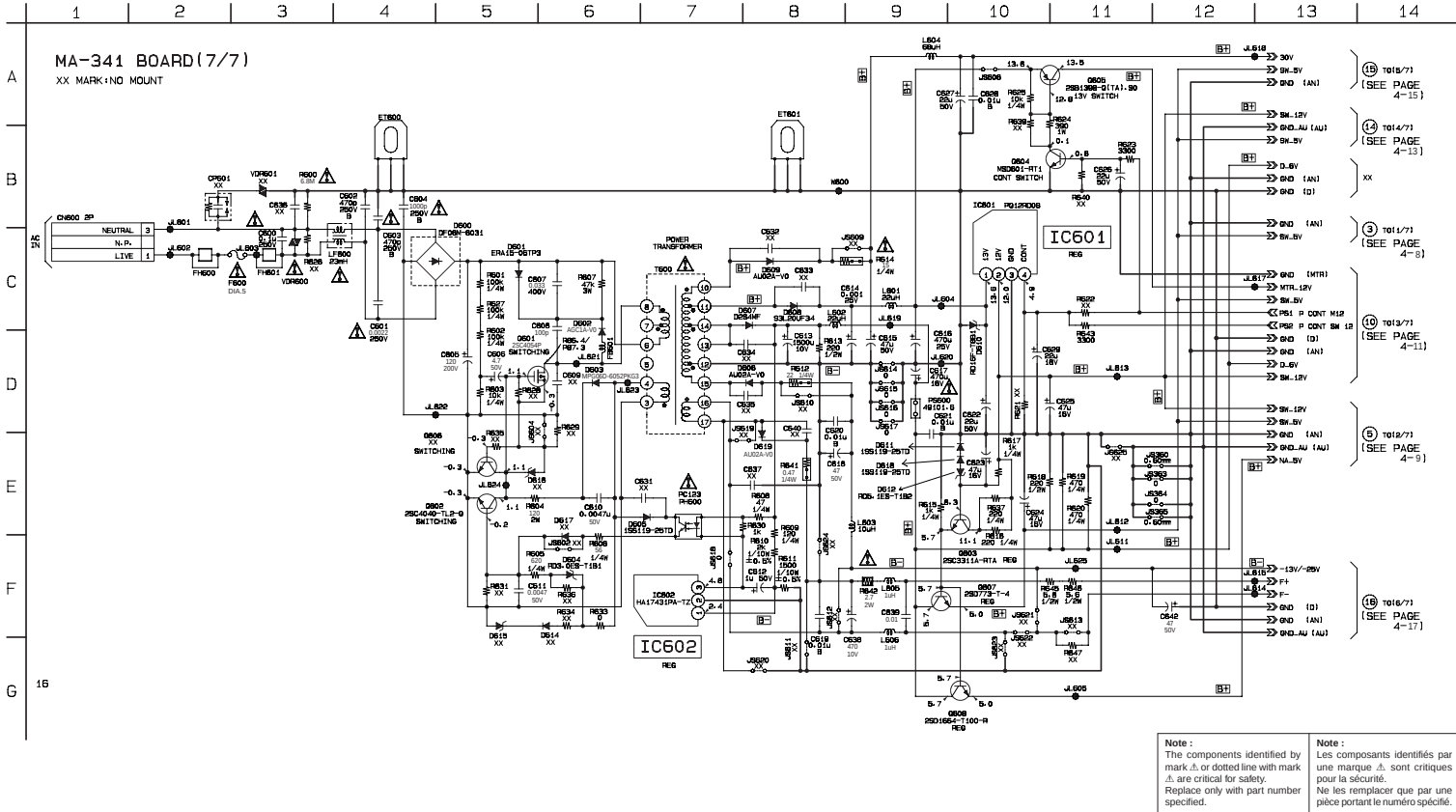
MODE CONTROL
MA-341(6/7)

4-17

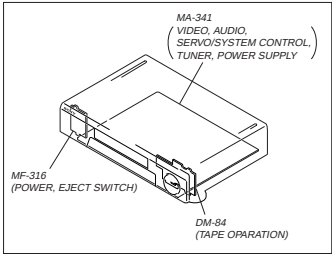
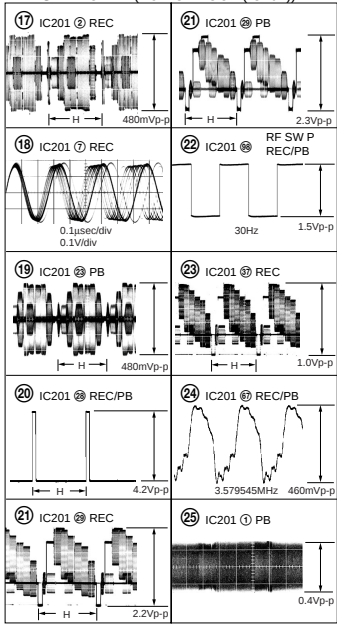
4-18

MA-341 (7/7) (POWER SUPPLY) SCHEMATIC DIAGRAM
— Ref. No. MA-341 Board; 1,000 Series —

For schematic diagram
• Refer to page 4-5 for printed wiring board.



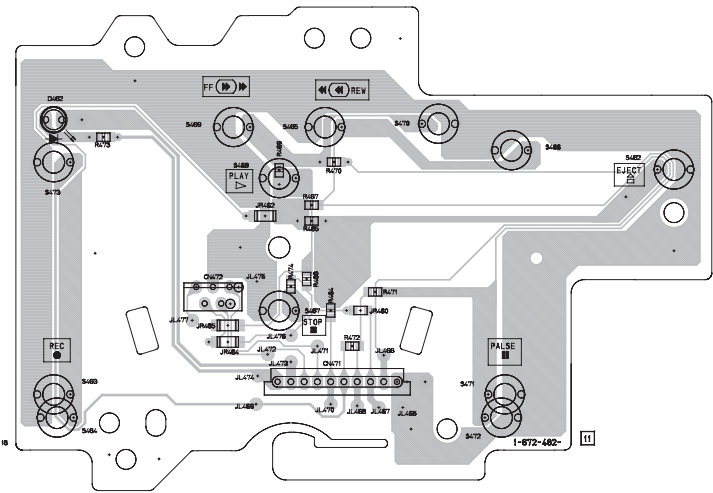
MA-341 BOARD (AUDIO BLOCK (IC201))



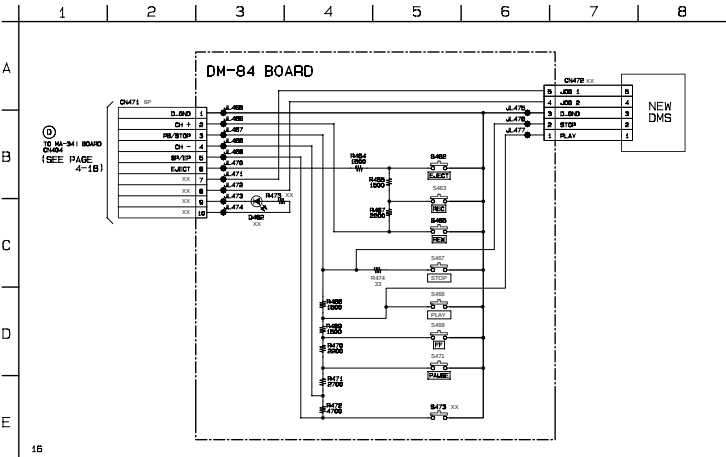
DM-84 (TAPE OPERATION) PRINTED WIRING BOARD
— Ref. No. DM-84 Board; 2,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this model.

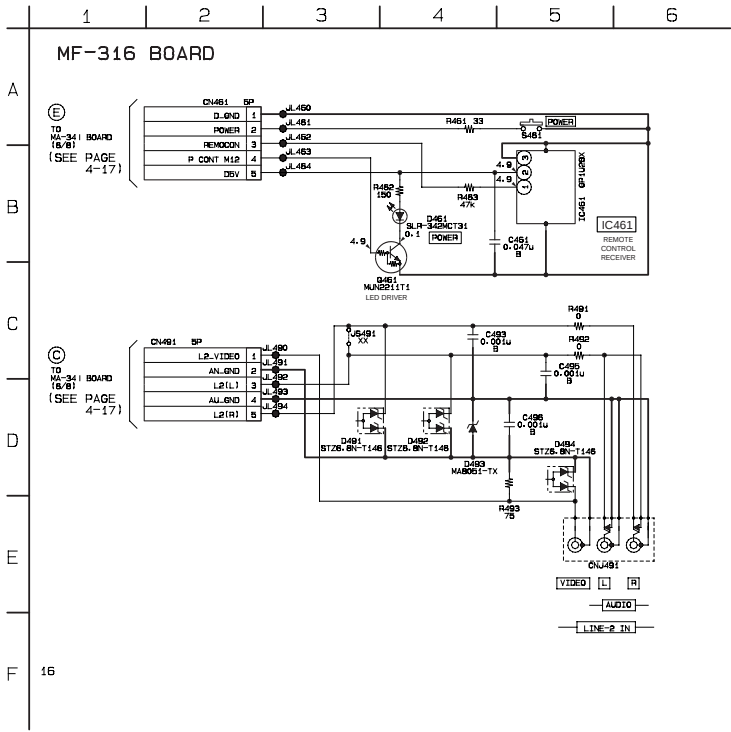
DM-84 BOARD (CONDUCTOR SIDE)



DM-84 (TAPE OPERATION) SCHEMATIC DIAGRAM
— Ref. No. DM-84 Board; 2,000 Series —



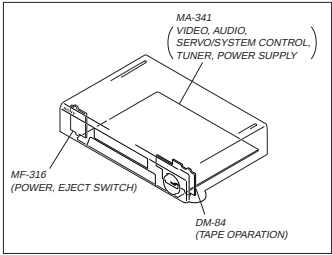
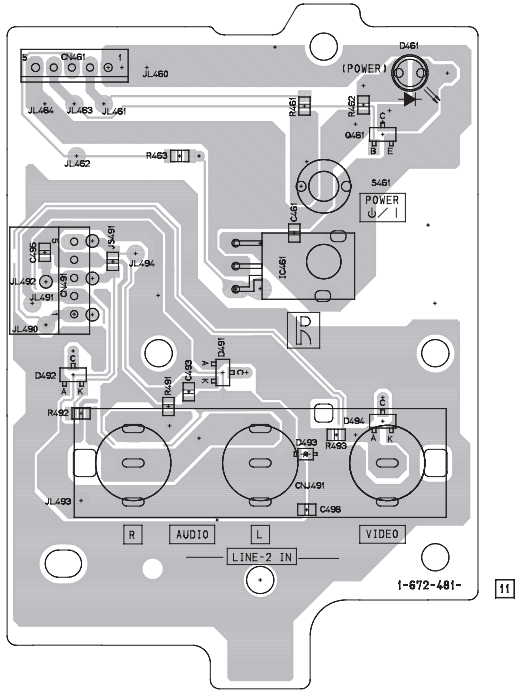
MF-316 (POWER/EJECT SWITCH) SCHEMATIC DIAGRAM
— Ref. No. MF-316 Board; 2,000 Series —



MF-316 (POWER/EJECT SWITCH) PRINTED WIRING BOARD
— Ref. No. MF-316 Board; 2,000 Series —

There are few cases that the part printed on this diagram isn't mounted in this model.

MF-316 BOARD (CONDUCTOR SIDE)



SECTION 5

INTERFACE, IC PIN FUNCTION DESCRIPTION

5-1. SYSTEM CONTROL — MECHANISM BLOCK INTERFACE (MA-341 BOARD IC160)

Signal	Pin No.	I/O	EJECTED	CASSETTE LOADING	CASSETTE UNLOADING	TAPE THREADING	TAPE UNTEREADING	STOP	FF	REW	PB	REC
CAM	MA-341 Board IC160 ^{③③}	O	*5	H	L	H	L	*5	*5	*5	*5	*5
MODE 1	MA-341 Board IC160 ^{②⑨}	I	—	—	—	—	—	H	H	H	H	H
MODE 2	MA-341 Board IC160 ^{②⑩}	I	—	—	—	—	—	L	L	L	H	H
MODE 3	MA-341 Board IC160 ^{②⑦}	I	—	—	—	—	—	H	H	H	L	L
MODE 4	MA-341 Board IC160 ^{②⑥}	I	—	—	—	—	—	H	L	L	L	L
REC PRF	MA-341 Board IC160 ^{③⑩}	I	L	*1	*1	*1	*1	*1	*1	*1	*1	*1
T REEL	MA-341 Board IC160 ^{③⑩}	I	H/L	H/L	H/L	H/L	H/L	H/L	*2	*2	*2	*2
S REEL	MA-341 Board IC160 ^{③⑨}	I	H/L	H/L	H/L	*2	*2	H/L	*2	*2	*2	*2
END LED	MA-341 Board IC160 ^{③⑩}	O	L	*3	*3	*3	*3	*3	*3	*3	*3	*3
T SENS	MA-341 Board IC160 ^⑦	I	*3	*3	*3	*4	*4	*4	*4	*4	*4	*4
S SENS	MA-341 Board IC160 ^⑥	I	*3	*3	*3	*4	*4	*4	*4	*4	*4	*4

- *1 "L" When erasing protection tab is bent. "H" when not bent.
 *2 Pulse of period in proportion to reel rotating speed.
 *3 Approx. 2 msec period "H" pulse when tape top or end is detected.
 *4 Normally "L". 2 msec period "H" pulse when tape top or end is detected.
 *5 Hi-Z

5-2. SYSTEM CONTROL — SERVO PERIPHERAL CIRCUIT INTERFACE (MA-341 BOARD IC160)

Signal	Pin No.	I/O	STOP	FF	REW	TAPE THREADING	TAPE UNTEREADING	PB	REC
CTL IN+	MA-341 Board IC160 ^{⑤⑤}	O	*7	*7	*7	*7	*7	*7	*1
DRUM PG	MA-341 Board IC160 ^{⑤⑩}	I	*3	*3	*3	*3	*3	*3	*3
DRUM FG	MA-341 Board IC160 ^{⑤⑨}	I	*4	*4	*4	*4	*4	*4	*4
CAP FG	MA-341 Board IC160 ^{⑤⑦}	I	H/L	*2	*2	*5	*5	*2	*2
CAP RVS	MA-341 Board IC160 ^{⑤④}	O	H/L	L	H	L	H	L	L
CAP ERR	MA-341 Board IC160 ^{⑤⑥}	O	L	*6	*6	*6	*6	*6	*6
DRUM ERR	MA-341 Board IC160 ^{⑤⑦}	O	*6	*6	*6	*6	*6	*6	*6

- *1. 30Hz pulse.
 *2. Pulse of period in proportion to tape speed.
 *3. 30Hz "H" pulse.
 *4. 720 Hz pulse.
 *5. Unstable period pulse.
 *6. DC voltage 1 – 5V.
 *7. Hi-Z (2.5V)

5-3. SYSTEM CONTROL — SYSTEM CONTROL PERIPHERAL CIRCUIT INTERFACE (MA-341 BOARD IC160)

Signal	Pin No.	I/O	I/O level
RESET	MA-341 Board IC160③	I	Normally “H”, “L” when service interruption detected or restored.
I2C DATA 1	MA-341 Board IC160②	I/O	Serial communication data to EEPROM I2C161.
I2C CLOCK 1	MA-341 Board IC160③	O	Serial communication clock to EEPROM I2C161.
I2C DATA VIDEO	MA-341 Board IC160⑦	I/O	Serial communication data to video and audio microprocessor.
I2C CLOCK VIDEO	MA-341 Board IC160⑦	O	Serial communication clock to video and audio microprocessor.
(ARC) S OUT 1	MA-341 Board IC160④	I/O	Serial communication data to ARC microprocessor.
(ARC) CLK 1	MA-341 Board IC160④	O	Serial communication clock to ARC microprocessor.

5-4. SYSTEM CONTROL AND RF MODULATOR — INPUT SELECTION BLOCK INTERFACE (MA-341 BOARD IC160)

Signal	Pin No.	I/O	I/O level
ANT SEL	MA-341 Board IC160②	O	“L” when RF modulator through.

5-5. SYSTEM CONTROL — VIDEO/RP BLOCK INTERFACE (MA-341 BOARD IC160)

Signal	Pin No.	I/O	STOP/FF /REW	TAPE LOADING	TAPE UNLOADING	PB	REC	REC/ PAUSE
RF SWP	MA-341 Board IC160⑩	O	*1	*1	*1	*1	*1	*1
QVD	MA-341 Board IC160⑬	O	L	L	L	*2	L	L
C SYNC	MA-341 Board IC160⑧	I	*3	*3	*3	*3	*3	*3

*1. Synchronized with drum rotation, 30Hz 50% duty pulse.

*2. Normal “L”, “H” when video signal is not regenerated.

*3. Composite sync signal (positive).

5-6. SYSTEM CONTROL — AUDIO BLOCK INTERFACE (MA-341 BOARD IC160)

Signal	Pin No.	I/O	STOP/FF /REW	TAPE LOADING	TAPE UNLOADING	PB	REC	REC/ PAUSE
A MUTE	MA-341 Board IC160⑥	O	L	L	L	L	L	H
AF REC P	MA-341 Board IC160②	O	L	L	L	L	L	H

5-7. SERVO/SYSTEM CONTROL MICROPROCESSOR PIN FUNCTIONS (MA-341 BOARD IC160)

Pin No.	Pin Name	I/O	Function
1	DEST	I	Destination control input
2	FULL ERS		NC
3	TU AFT	I	Tuner analog AFT input
4	FUNC KEY2	I	Key input
5	FUNC KEY1	I	Key input
6	S SENS	I	Tape end sensor input
7	T SENS	I	Tape top sensor input
8	V RF ENV	I	Video playback signal envelope input
9	AF ANV	I	Hi-Fi audio playback signal envelope input
10	CBC ON	O	Cable box control signal output
11	KKP+	I	ETR pulse signal input
12	KKP-	I	ETR pulse signal input
13	QVD	O	Quasi VD pulse output
14	REMOCON	I	Remote sires signal input
15	C ROT	O	Head AZ signal output
16	HA SWP	O	SP/EP changed head signal
17	ENV SW	I	SP/EP head output level detection signal
18	RF SWP	O	VIDEO RF switching pulse output.
19	AF SWP	O	AF switching pulse output.
20	END LED	O	END sensor LED output
21	ANT SEL	O	TV/VTR RF modulator control output
22	AF REC P	O	Hi-Fi record control pulse output.
23	FE ON		NC
24	CAP RVS	O	Capstan reverse control
25	SUR ON		NC
26	MODE4	I	Mechanism section CAM encoder input (data4)
27	MODE3	I	Mechanism section CAM encoder input (data3)
28	MODE2	I	Mechanism section CAM encoder input (data2)
29	MODE1	I	Mechanism section CAM encoder input (data1)
30	REC PRF	I	Erasing protection tab, cassette IN detection input
31	I2C CLK EEP	I/O	HC CLOCK line (EEPROM)
32	I2C DATA EEP	I/O	HC DATA line (EEPROM)
33	CAM	O	Cam motor control signal output
34	RESET	I	System reset input
35	32kHz (in)	I	Sub clock 32MHz
36	32kHz (out)	O	Sub clock 32MHz
37	Vcc	I	5V
38	4fsc (in)	I	Main clock input
39	4fsc (out)	O	Main clock output
40	Vss		Ground
41	ARC CLK	O	Rearityregenerator (ARC) control clock signal
42	ARC DATA	O	Rearityregenerator (ARC) control data signal
43	CLK SEL	I	CLOCK select "L" Sub clock, "H" main and sub clock.
44	OSC IN	I	OSD clock input
45	OSC OUT	O	OSD clock output
46	NUB		Ground
47	LPF	I/O	fsc filter
48	$\overline{SP}$	O	"L" output when SP mode.
49	OSD GND		Ground
50	OSD V IN	I	OSD Video signal input.

Pin No.	Pin Name	I/O	Function
51	WHITE LEVEL	I	White level signal input
52	OSD V OUT	O	OSD Video signal output
53	OSD Vcc		SW 5V (OSD block)
54	HLF	I/O	External low-pass filter for slicer/AFC is connected to this terminal
55	V HOLD	I/O	External capacitor for slicer is connected to this terminal
56	C VIDEO IN	I	Control video signal input (osd, tuner, sorvo)
57	NUA		D Ground
58	C SYNC	I	Composite sync input
59	PLL CLK	O	Tuner PLL clock output
60	PLL DATA	O	Tuner PLL data output
61	PLL ENABLE	O	Tuner enable output
62	TA MUTE	O	Tuner audio mute output
63	A MUTE	O	AUDIO mute output
64	P CONT M12	O	Motor 12V control output
65	P CONT SW12	O	SW 12V control output
66	FLD CS	O	FLD drive chip select signal output
67	V-SET CS	O	V-set micon chip select signal output
68	S OUT0	O	Serial communication signal (FLD, V-SET)
69	S IN 0	I	Serial communication signal (FLD, V-SET)
70	S CLK 0	O	Serial communication signal (FLD, V-SET)
71	I2C CLK	I/O	IIC clock signal (VIDEO, HiFi)
72	I2C DATA	I/O	IIC data signal (VIDEO, HiFi)
73	CBC SIRCS OUT	O	Cable mouse sircs signal output
74	BUZZER		NC
75	NICOLE	O	Timing signal output
76	CAP ERR	O	Capstan error D/A output
77	DRUM ERR	O	Drum error D/A output
78	P FAIL	I	Power fail detection input
79	S REEL	I	Supply reel sensor input
80	T REEL	I	Take up reel sensor input
81	DMS+	I	DMS control input
82	DMS-	I	DMS control input
83	MAIN/SAP	O	Tuner MAIN/SAP select signal
84	F MONO	O	Tuner audio normal select
85	STEREO	I	Tuner Stereo detection "L" when Stereo mode.
86	SAP	I	Tuner SAP detection "L" when SAP mode.
87	CAP FG	I	Capstan FG signal input
88	AMP Vss		Ground
89	DRUM FG	I	Drum FG input.
90	DRUM PG	I	Drum PG input.
91	AMP Vref OUT	O	Analog AMP reference Vcc output
92	AMP Vref IN	I	Analog AMP reference Vcc input
93	RC CHECK	I	Check input
94	CTL-IN	I/O	Control signal IN/OUT
95	CTL+IN	I/O	Control signal IN/OUT
96	AMP C		Control signal AC connect
97	CTL AMP OUT	O	Control signal AMP output
98	AMP Vcc		D-5V
99	A Vcc		D-5V
100	V-SET RESET	O	NC

SECTION 6 ADJUSTMENTS

6-1 MECHANICAL ADJUSTMENTS

For the mechanical adjustments, please refer to the "VHS MECHANICAL ADJUSTMENT MANUAL VI (S MECHANISM)" (9-921-647-11).

6-2. ELECTRICAL ADJUSTMENTS

See the adjusting part location diagram from on page 6-6 for the adjustment.

2-1. PREPARATION BEFORE ADJUSTMENT

2-1-1. Equipment Required

The measuring instruments used for this alignment include:

- 1) Monitor TV
- 2) Oscilloscope, dual-trace, bandwidth of 30 MHz or more, with delay mode (A probe 10:1 should be used unless otherwise specified.)
- 3) Frequency counter
- 4) NTSC Pattern generator
- 5) Remote commander
- 6) Digital voltmeter
- 7) Audio generator
- 8) Audio level meter
- 9) Audio attenuator
- 10) Alignment tapes

KRV-51N2 (NTSC) Part No. : 8-192-605-32

2-1-2. Equipment Connection

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

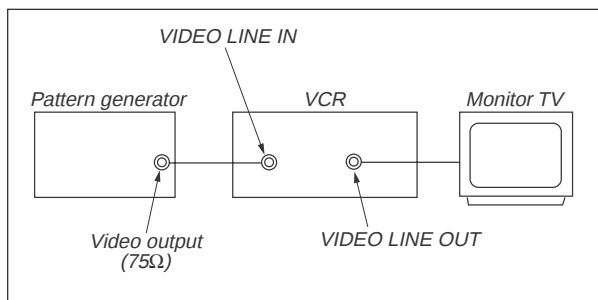


Fig. 6-2-1

2-1-3. Set-up of Adjustment

In this adjustment, NTSC pattern generator is connected with LINE input terminal. When check to tuner, connected AERIAL terminal. Check that the synchronizing signal of the Y signal has an amplitude of approximately 0.7 V and that the burst signal has an amplitude of approximately 0.3 V and its waveform is flat. And check that the level ratio of burst signal to "red" signal is 0.30 : 0.66. The video signal (color bar) used for electrical aligning this unit is shown in Fig. 6-2-2.

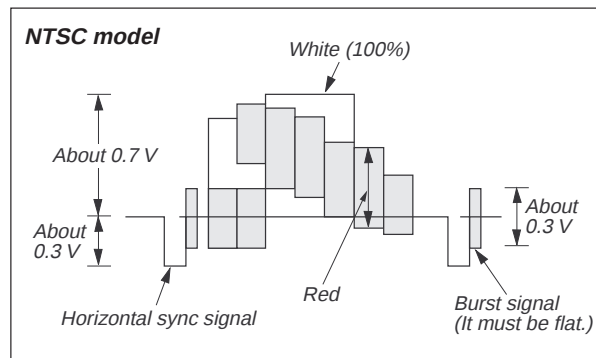


Fig. 6-2-2 Color Bar Signals of Pattern Generator

2-1-4. Alignment Tape

• Contents of KRV-51N2

	Mode	Period	Video signal	Audio signal	
				Hi-Fi	Normal
1	SP	7 minutes	Color bar	400Hz (L/R)	400Hz
2		3 minutes	Monoscope		
3	LP	7 minutes	Color bar		
4		3 minutes	Monoscope		

2-1-5. Input/Output Levels and Impedance

Video input: LINE IN

Input signal: 1 Vp-p, 75 ohms, unbalanced,
sync negative

Video output: LINE OUT

Output signal: 1 Vp-p, 75 ohms, unbalanced,
sync negative

Audio input: LINE IN

Input level: -7.5 dBs

(0 dBs= 0.775 Vrms)

Input impedance: more than 47 kilohms

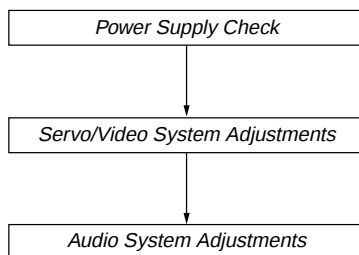
Audio output: LINE OUT

Standard level: -7.5 dBs at load impedance 47
kilohms

Output impedance: less than 10 kilohms

2-1-6. Adjustment Sequence

The adjustments should be performed in the following sequence.



2-2. POWER SUPPLY CHECK

2-2-1. Output Voltage Check (MA-341 Board)

Mode	STANDBY
+30 V Check	
Measurement point	C627 ⊕
Specified value	31.0 to 39.0 V
-11 V Check	
Measurement point	C642 ⊖
Specified value	-12.5 to - 9.5 V

+6 V Check	
Measurement point	Corrector of Q607
Specified value	5.56 to 6.25 V
Mode	E-E
Measuring Instrument	Digital voltmeter
+12 V Check	
Measurement point	IC601 pin ②
Specified value	11.7 to 12.3 V
+5 V Check	
Measurement point	Emitter of Q603
Specified value	4.8 to 5.4 V
MTR12 V Check	
Measurement point	Corrector of Q605
Specified value	12.5 to 14.5 V

[Check Method]

- 1) Each of these supply voltages must meet its specified value.

2-3. SERVO SYSTEM CHECK

2-3-1. RF Switching Position Adjustment (MA-341 Board)

[Adjustment Purpose]

To adjust the link of the A-ch and B-ch of the tape playback outputs. To make the unit compatible with other tapes and units. If this specification is not satisfied, the link will appear on the screen and the screen will be disrupted, etc.

Mode	Playback
Signal	Alignment tape: SP color bar portion
Measurement point	CH1: CN270 pin ② (PB RF) CH2: CN270 pin ③ (RF SWP)
Measuring instrument	Oscilloscope
Adjusting element	REMOCON CH+/-
Specified value	A=minimize

[Adjustment Method]

- 1) Playback the alignment tape.
- 2) Short JS401 to Ground.
- 3) Check that "A P" is indicated on FL display.
- 4) Adjust so that part A becomes minimized at CH +/-.
- 5) Write data in EEPROM by pressing PAUSE button.

Monoral model:

- 6) The display "A P" disappears and then the Adjustment mode terminates.

Hi-Fi model:

- 6) The display changes to "A H" and the mode goes to the HiFi switching position Adjustment.

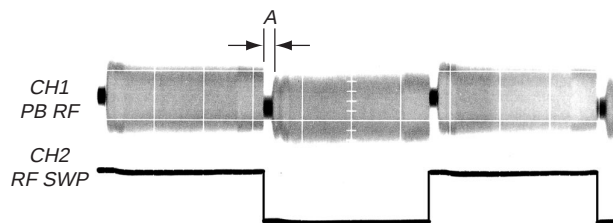


Fig. 6-2-3

2-4. AUDIO SYSTEM ADJUSTMENT

- Adjust both L ch and R ch.

[Connecting Instruments]

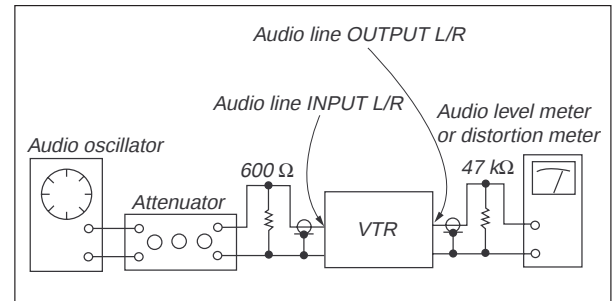


Fig. 6-2-4

2-4-1. Hi-Fi Audio System Adjustment (Hi-Fi model only)

- Perform the adjustment setting the switch on the following positions.
- AUDIO MONITOR STEREO

[Adjustment Method]

1. ACE head adjustment....Refer to the VHS mechanical adjustment manual VI (S MECHANISM)(9-921-647-11).
2. E-E output level check
3. "Recording Bias Adjustment"

2-4-2. HiFi Switching Position Adjustment (MA-341 Board)

[Adjustment Purpose]

To adjust the link of the A-ch and B-ch of the tape playback outputs. To make the unit compatible with other tapes and units. If this specification is not satisfied, the link will appear on the screen and the screen will be disrupted, etc.

Mode	Playback
Signal	Alignment tape: SP color bar portion
Measurement point	CH1: Pin ① of CN270 (HF ADJ) CH2: Pin ③ of CN270 (RF SWP)
Measuring instrument	Oscilloscope
Adjusting element	REMOCON CH +/-
Specified value	B=minimize

[Adjustment Method]

- 1) Check that "A H" is indicated on FL display.
- 2) Adjust so that part B becomes minimized at CH +/-.
- 3) Write data EEPROM by pressing PAUSE button.
- 4) Check that "A H" indicator turns off.
- 5) If "A H" indicator is still on, restart RF switching position Adjustment from the beginning.

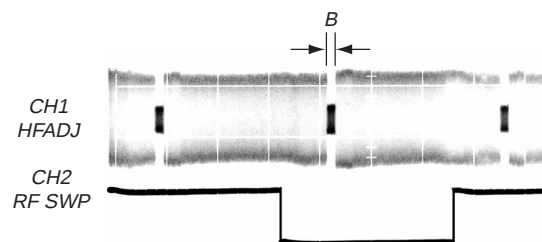


Fig. 6-2-5

2-4-3. Normal Audio System Adjustment

- Make adjustment in the SP mode unless otherwise specified. Use a normal VHS cassette for an adjustment tape.
- Set AUDIO MONITOR to normal.

2-4-4. ACE Head Adjustment

Refer to the VHS mechanical adjustment manual VI (S MECHANISM) (9-921-647-11).

2-4-5. E-E Output Level Check

[Adjustment purpose]

Confirm that the output level adjust the reference input is within the specification.

Mode	E-E
Signal	400 Hz, -7.5 dBs
Measurement point	CJ561 L/R
Measuring instrument	Audio level meter
Specified value	-7.5 ± 2 dBs

[Check Method]

- 1) Input signal of 400 Hz and -7.5 dBs to the CJ561 L/R.
- 2) Check that the audio output level is -7.5 ± 2 dBs.

2-4-6. Frequency Response Check

[Adjustment purpose]

Confirm that the frequency characteristic is within the specification.

Mode	REC and PB (SP mode)
Signal	400 Hz, -17.5 dBs 7 kHz, -17.5 dBs
Measurement point	Audio output terminal
Measuring instrument	Audio level meter
Specified value	0 ± 3 dB

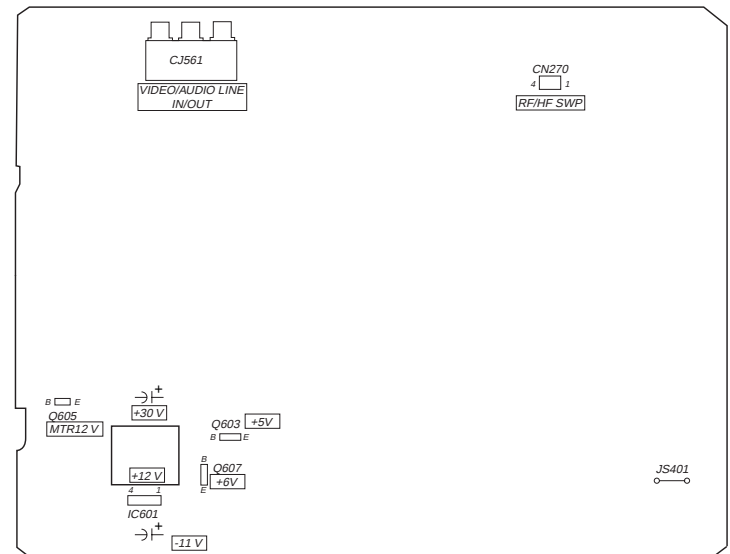
Note: Tape path adjustment must have been completed.

[Confirmation Method]

- 1) Supply a signal of 400 Hz, -17.5 dBs to both L and R channels of Audio Line Input.
- 2) Connect the audio level meter to the Audio Line Output.
- 3) Adjust the attenuator so that the audio level meter will indicate -17.5 dBs.
- 4) Make recording in the SP mode.
- 5) Set an audio line input signal to 7 kHz and make recording.
- 6) Playback a recorded portion, and measure output levels at 400 Hz and 7 kHz.
- 7) Confirm that the 7 kHz playback output level within a range of the 400 Hz playback output level 0 ± 3 dB.

2-5. ADJUSTING PARTS LOCATION DIAGRAM

MA-341 BOARD (CONDUCTOR SIDE)



SECTION 7

REPAIR PARTS LIST

7-1. EXPLODED VIEWS

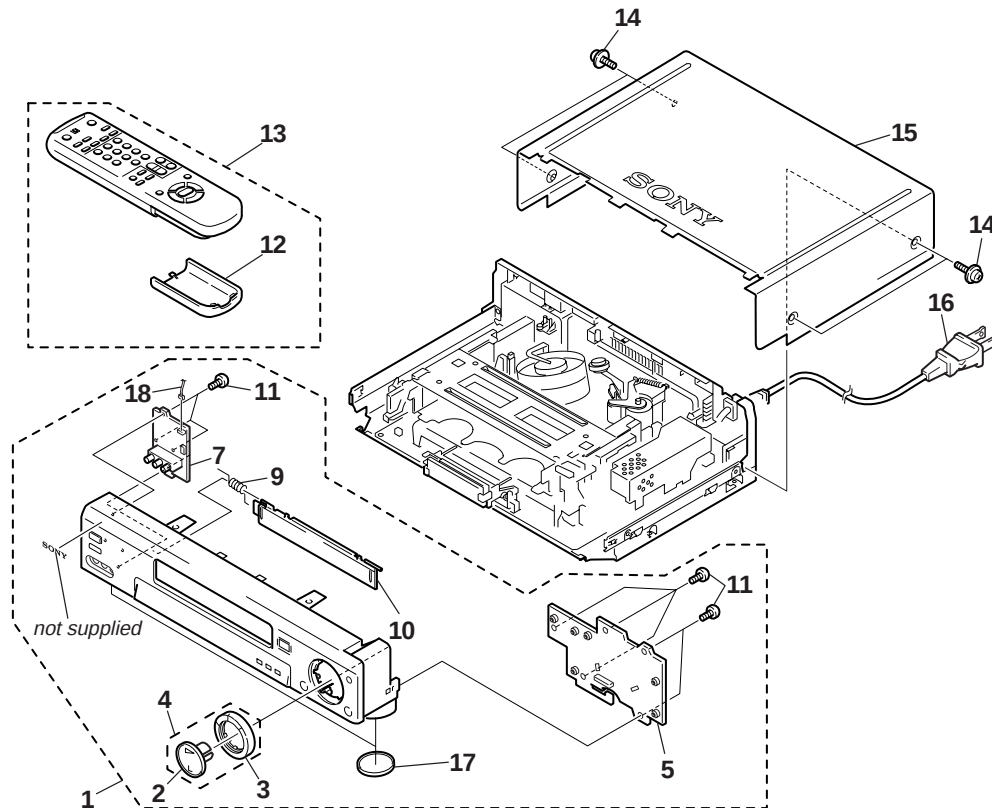
NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked “**” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
CND: Canadian

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

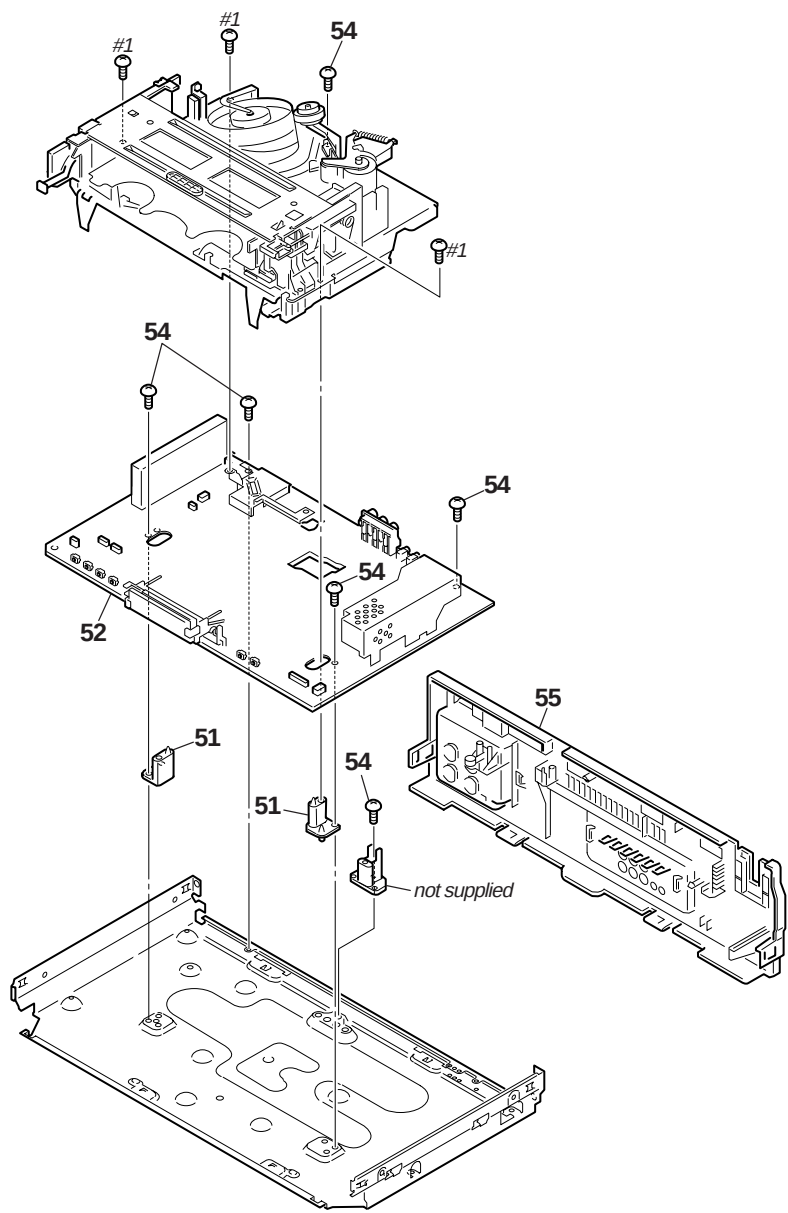
Les composants identifiés par une marque  sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

7-1-1. FRONT PANEL AND UPPER CASE SECTION



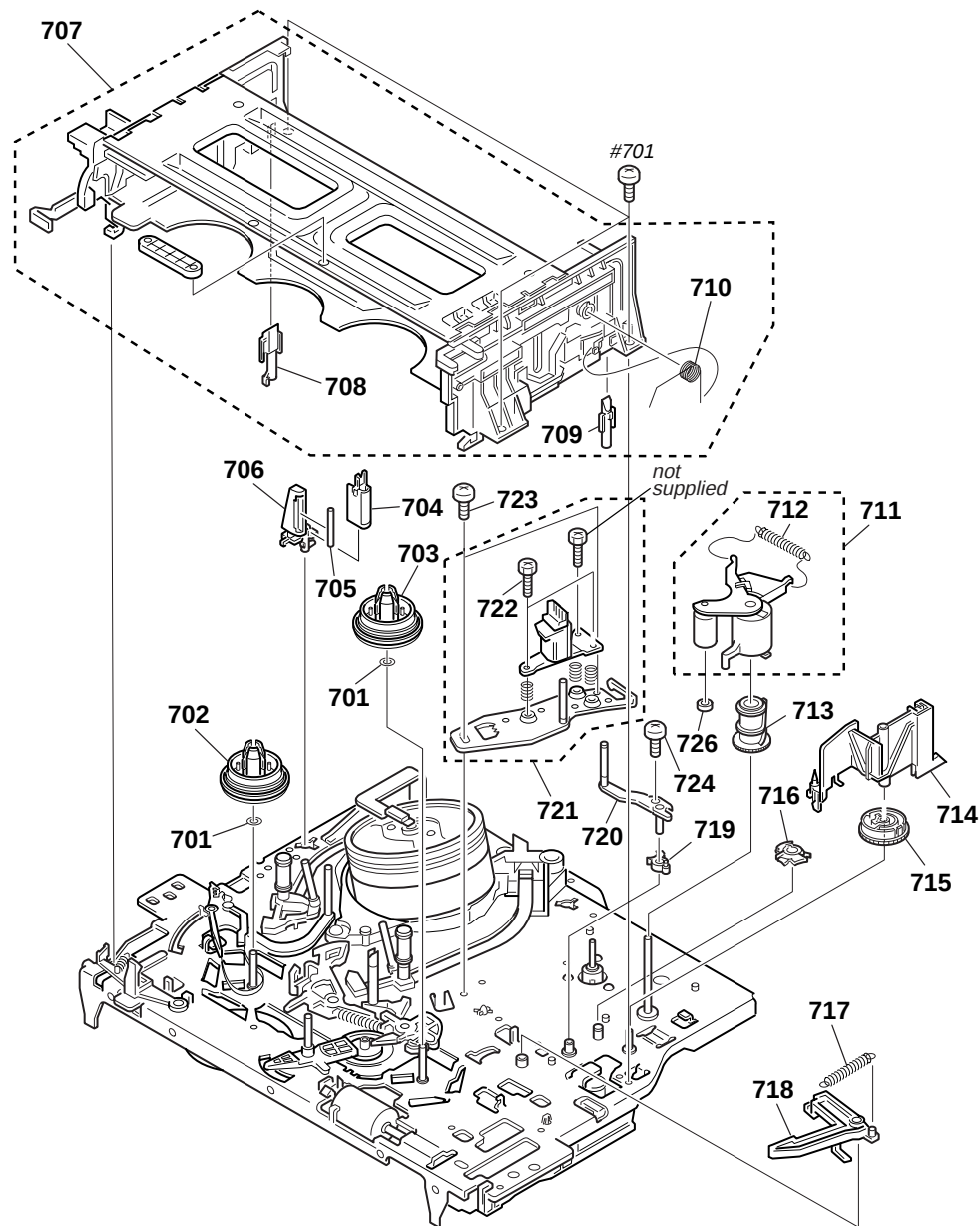
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
1	X-3949-121-1	PANEL ASSY, FRONT (779)		10	3-979-302-61	DOOR, CASSETTE (779)	
1	X-3949-531-1	PANEL ASSY, FRONT (772)		11	4-921-277-41	SCREW (B2.6 × 8), TAPPING, BIND	
2	3-972-518-11	BUTTON, CENTER (772)		12	3-709-432-01	COVER, REMOTE CONTROL BATTERY	
2	3-987-939-22	BUTTON CENTER (779)		13	1-418-153-11	COMMANDER, STANDARD (RMT-V266)	
3	3-987-938-21	BUTTON, RING (779)		14	3-710-901-11	SCREW, TAPPING	
3	3-987-816-01	RING, BUTTON (772)		15	3-977-136-71	CASE, UPPER (772)	
4	X-3948-232-1	BUTTON ASSY, FUNCTION (779)		15	3-977-136-81	CASE, UPPER (779)	
4	X-3948-599-1	BUTTON ASSY, FUNCTION (772)		△ 16	1-790-293-31	CORD, POWER	
* 5	A-6791-804-A	DM-84 BOARD, COMPLETE		* 17	3-977-160-01	INSULATOR	
* 7	A-6791-803-A	MF-316 BOARD, COMPLETE		18	1-779-725-11	CONNECTOR, BOARD TO BOARD 5P	
9	3-953-432-01	SPRING (GE), FL					

7-1-2. CHASSIS SECTION



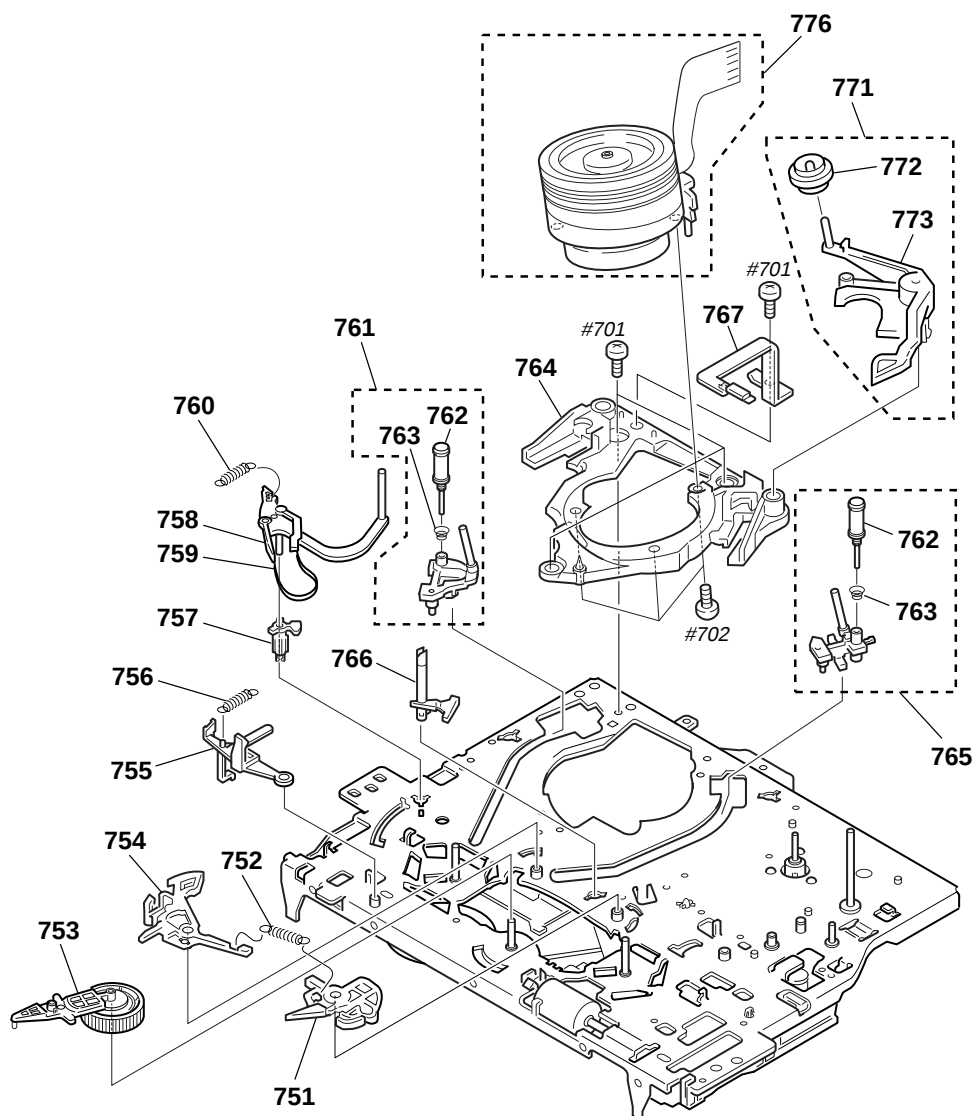
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
* 51	3-959-383-01	BASE (R), MD		54	3-970-608-21	SUMITITE (B3), +BV	
* 52	A-6791-802-A	MA-341 BOARD, COMPLETE		55	3-979-564-51	PANEL, REAR	

7-1-3. MECHANISM DECK SECTION-1



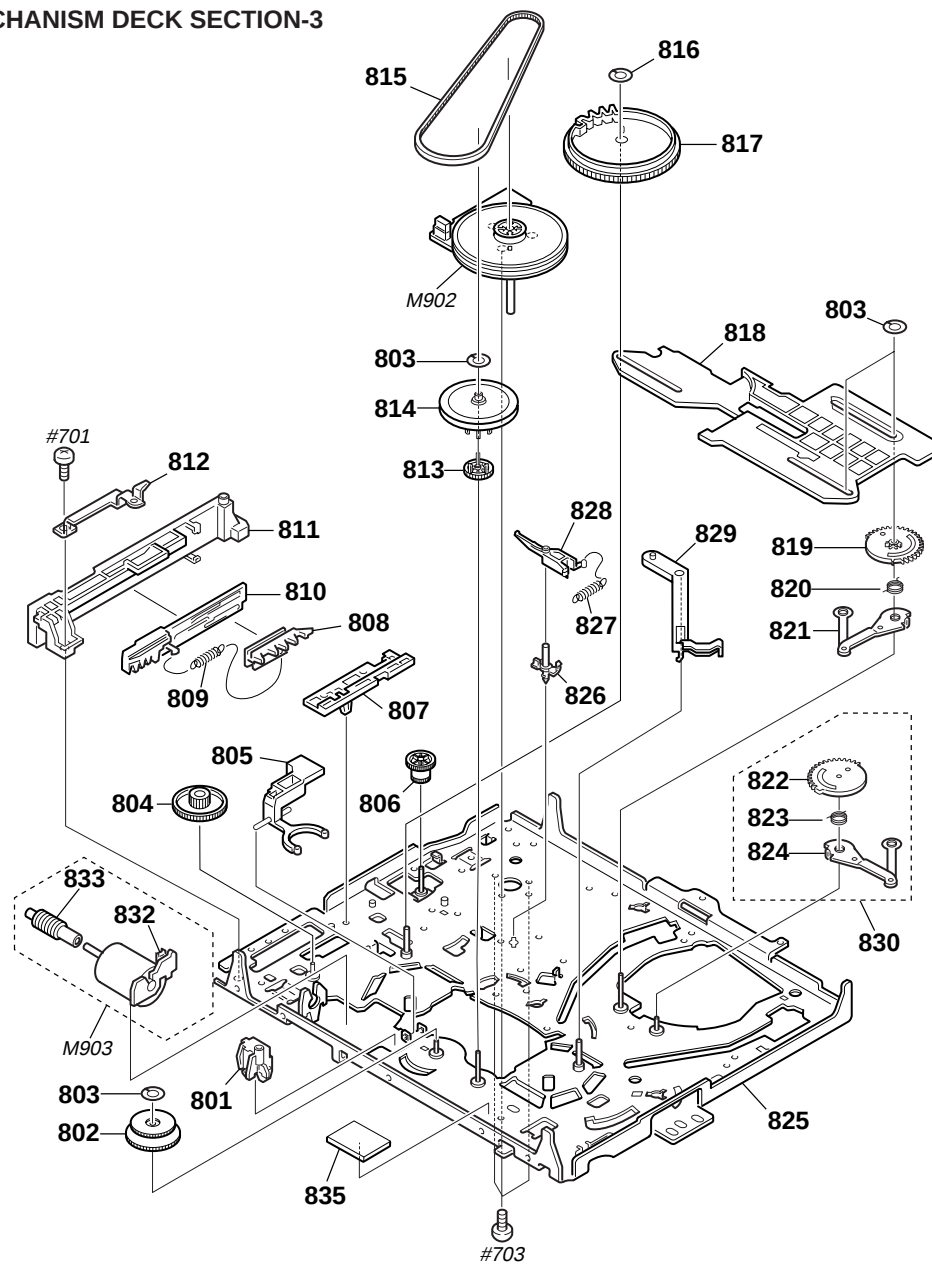
Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
701	3-977-509-01	WASHER, THRUST		714	3-977-514-01	OPENER, LID	
702	3-977-507-01	TABLE, REEL (S) (GRAY)		715	3-977-441-01	GEAR, PINCH PRESSING	
703	3-977-508-01	TABLE, REEL (T) (BLACK)		716	3-977-445-01	GEAR, TG8 ARM DRIVING	
704	1-500-144-11	HEAD, FE		717	3-977-465-01	SPRING, EXTENSION (RVS BRAKE)	
705	3-977-495-01	SHAFT TG2		718	X-3947-582-1	ARM ASSY, RVS BRAKE	
706	3-977-494-01	HOLDER, FEH		719	3-977-446-01	GEAR, TG8 ARM	
707	A-6759-619-C	FL COMPLETE ASSY BOARD, COMPLETE		720	X-3947-590-1	TG8 ASSY	
708	3-977-535-01	PLATE, LUMINOUS (END SENSOR)		721	A-6759-620-A	HEAD BLOCK ASSY, ACE (TDK)	
709	3-977-536-01	PLATE, LUMINOUS (TOP SENSOR)		722	3-974-556-01	+HEXA TT 2.6 x 9 (TAPER)	
710	3-970-471-01	SPRING (DECK OPEN), TORSION		723	3-979-508-01	SCREW +HEXA TP SW 3 x 8	
711	A-6759-615-A	PRESS BLOCK ASSY, PINCH		724	3-719-381-01	SCREW (M2 x 4)	
712	3-958-455-01	SPRING (PINCH), TENSION		726	3-736-045-01	BEARING (NO FLANG), BALL	
713	3-977-447-01	GEAR, ELEVATOR					

7-1-4. MECHANISM DECK SECTION-2



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
751	X-3947-581-1	BRAKE ASSY,MAIN(T)		762	X-3944-378-1	ROLLER ASSY, GUIDE	
752	3-977-462-01	SPRING,EXTENTION. (MAIN BRAKE)		763	3-965-178-01	SPRING	
753	X-3947-573-1	ARM ASSY, PENDULUM		764	3-969-632-04	BASE, DRUM	
754	X-3947-580-2	BRAKE ASSY, MAIN(S)		765	A-6750-328-E	SHUTTLE (T) BLOCK ASSY	
755	3-977-513-02	LEVER, REC PROOF		766	3-977-501-01	PLATE, LUMINOUS	
756	3-976-767-01	SPRING, TENS. (REC. PROOF)		767	X-3943-899-8	GROUND ASSY, SHAFT	
757	3-977-487-01	BOSS, TG1 FULCRUM		771	A-6746-074-G	ROLLER BLOCK ASSY, HC	
758	X-3947-587-1	TG1 ASSY		772	X-3947-255-1	ROLLER ASSY, HC	
759	X-3947-589-1	BAND ASSY, TG1		773	3-975-724-07	ARM, HC	
760	3-977-488-01	SPRING (POWER TENSION)		776	8-839-057-51	DRUM ASSY, DZH-0A7A/Z-RP	
761	A-6750-324-A	SHUTTLE (S) BLOCK ASSY					

7-1-5. MECHANISM DECK SECTION-3



Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
801	3-977-437-01	RETAINER,CAM MOTOR		819	3-977-455-01	GEAR, LOADING(T)	
802	X-3947-584-1	ASSY, REEL DIRECT		820	3-977-456-03	SPRING, TORSION (LOAD T)	
803	3-977-443-01	WASHER, STOPPER		821	X-3947-579-1	LEVER ASSY, LOADING(T)	
804	3-977-438-01	WORM - WHEEL		822	3-977-451-01	GEAR, LOADING(S)	
805	3-977-506-01	ARM, LIMITTER SELECTION		823	3-977-452-01	SPRING, TORSION (LOAD S)	
806	3-977-444-01	GEAR, PINCH TRANSMISSION		824	X-3947-578-1	LEVER ASSY, LOADING (S)	
807	3-977-515-01	GUIDE, FL SLIDER		825	X-3947-576-2	CHASSIS ASSY, MECHANICAL	
808	3-977-517-01	PLATE, SLIDE, FL		826	3-977-468-01	SHAFT, CAPSTAN BRAKE	
809	3-977-519-01	SPRING, TENS. (LIMIT, FL)		827	3-977-467-02	SPRING, CAP BRAKE	
810	3-977-518-02	PLATE, LIMITTER, FL		828	X-3947-583-1	BRAKE ASSY, CAPSTAN	
811	3-977-516-01	HOLDER, FL SLIDER		829	3-977-489-01	ARM, TG1 DRIVING	
812	3-977-877-01	PLATE, RETAINER		830	A-6759-616-A	GEAR BLOCK ASSY, LOADING (S)	
813	3-977-504-01	GEAR, CLUTCH		832	1-766-723-21	CONNECTOR, BOARD TO BOAR 3P	
814	X-3947-585-1	GEAR ASSY, PULLEY		833	3-977-436-01	WORM	
815	3-977-510-01	BELT, RUBBER		835	3-989-917-01	SPACER (REC PROOF)	
816	3-977-440-01	WASHER, STOPPER		M902	1-698-971-11	MOTOR, DC	
817	3-977-439-01	GEAR, CAM		M903	X-3947-577-1	MOTOR ASSY, CAM	
818	3-977-442-01	SLIDER					

7-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
uF: μ F
- RESISTORS
All resistors are in ohms.
METAL: metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F: nonflammable
- COILS
uH: μ H
- Abbreviation
CND: Canadian

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

- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA..., μ PA...,
uPB..., μ PB..., uPC..., μ PC...,
uPD..., μ PD...

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

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

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
*	A-6791-804-A	DM-84 BOARD, COMPLETE ***** (Ref.No.:2,000 Series)		C106	1-124-589-11	ELECT 47uF 20%	16V
		< JUMPER RESISTOR >		C107	1-164-346-11	CERAMIC CHIP 1uF	16V
JR460	1-216-295-00	METAL CHIP 0 5% 1/10W		C108	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
JR462	1-216-296-00	METAL CHIP 0 5% 1/8W		C109	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
JR464	1-216-296-00	METAL CHIP 0 5% 1/8W		C111	1-164-232-11	CERAMIC CHIP 0.01uF	50V
JR465	1-216-296-00	METAL CHIP 0 5% 1/8W		C112	1-164-232-11	CERAMIC CHIP 0.01uF	50V
		< RESISTOR >		C113	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
R464	1-216-053-00	METAL CHIP 1.5K 5% 1/10W		C115	1-164-232-11	CERAMIC CHIP 0.01uF	50V
R465	1-216-053-00	METAL CHIP 1.5K 5% 1/10W		C116	1-164-232-11	CERAMIC CHIP 0.01uF	50V
R467	1-216-057-00	METAL CHIP 2.2K 5% 1/10W		C140	1-124-584-00	ELECT 100uF 20%	10V
R468	1-216-053-00	METAL CHIP 1.5K 5% 1/10W		C141	1-163-038-00	CERAMIC CHIP 0.1uF	25V
R469	1-216-053-00	METAL CHIP 1.5K 5% 1/10W		C142	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V
R470	1-216-057-00	METAL CHIP 2.2K 5% 1/10W		C143	1-128-131-11	ELECT 22uF 20%	50V
R471	1-216-059-00	METAL CHIP 2.7K 5% 1/10W		C144	1-128-131-11	ELECT 22uF 20%	50V
R472	1-216-065-00	METAL CHIP 4.7K 5% 1/10W		C145	1-126-935-11	ELECT 470uF 20%	6.3V
R474	1-216-013-00	METAL CHIP 33 5% 1/10W		C146	1-164-161-11	CERAMIC CHIP 0.0022uF 10%	100V
		< SWITCH >		C160	1-163-809-11	CERAMIC CHIP 0.047uF 10%	25V
S462	1-762-196-21	SWITCH, TACT (EJECT)		C161	1-163-809-11	CERAMIC CHIP 0.047uF 10%	25V
S463	1-762-196-21	SWITCH, TACT (REC)		C162	1-163-038-00	CERAMIC CHIP 0.1uF	25V
S465	1-762-196-21	SWITCH, TACT (REW)		C163	1-163-809-11	CERAMIC CHIP 0.047uF 10%	25V
S467	1-762-196-21	SWITCH, TACT (STOP)		C164	1-163-237-11	CERAMIC CHIP 27PF 5%	50V
S468	1-762-196-21	SWITCH, TACT (PLAY)		C165	1-163-102-00	CERAMIC CHIP 24PF 5%	50V
S469	1-762-196-21	SWITCH, TACT (FF)		C166	1-163-231-11	CERAMIC CHIP 15PF 5%	50V
S471	1-762-196-21	SWITCH, TACT (PAUSE)		C167	1-163-233-11	CERAMIC CHIP 18PF 5%	50V
				C168	1-124-584-00	ELECT 100uF 20%	10V
*	A-6791-802-A	MA-341 BOARD, COMPLETE ***** (Ref.No.:1,000 Series)		C169	1-163-038-00	CERAMIC CHIP 0.1uF	25V
				C170	1-163-007-11	CERAMIC CHIP 680PF 10%	50V
				C171	1-104-905-11	CAPACITOR 0.22F	5.5V
				C172	1-164-232-11	CERAMIC CHIP 0.01uF	50V
				C173	1-164-232-11	CERAMIC CHIP 0.01uF	50V
*	3-951-893-01	HEAT SINK		C176	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
*	3-960-273-01	SPACER, TOP END		C201	1-104-760-11	CERAMIC CHIP 0.047uF 10%	50V
*	3-960-274-01	SPACER, LED		C202	1-164-232-11	CERAMIC CHIP 0.01uF	50V
*	3-966-865-01	BASE, INDICATION TUBE		C203	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
	3-970-608-21	SUMITITE (B3), +BV		C204	1-109-982-11	CERAMIC CHIP 1uF 10%	10V
		< CAPACITOR >		C205	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C101	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V	C206	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
C102	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V	C207	1-163-241-11	CERAMIC CHIP 39PF 5%	50V
C103	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V	C208	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C104	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V	C209	1-124-589-11	ELECT 47uF 20%	16V
C105	1-128-057-11	ELECT 330uF 20%	6.3V	C210	1-164-004-11	CERAMIC CHIP 0.1uF 10%	25V
				C211	1-163-239-11	CERAMIC CHIP 33PF 5%	50V
				C213	1-163-131-00	CERAMIC CHIP 390PF 5%	50V
				C214	1-163-257-11	CERAMIC CHIP 180PF 5%	50V
				C215	1-163-227-11	CERAMIC CHIP 10PF 0.5PF	50V

Ref. No.	Part No.	Description			Remarks	Ref. No.	Part No.	Description			Remarks
C216	1-126-160-11	ELECT	1uF	20%	50V	C311	1-163-014-00	CERAMIC CHIP	0.0027uF	10%	50V
C217	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	C312	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V
C218	1-162-306-11	CERAMIC	0.01uF	20%	16V	C313	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C220	1-164-232-11	CERAMIC CHIP	0.01uF		50V	C314	1-126-964-11	ELECT	10uF	20%	50V
C221	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C315	1-126-160-11	ELECT	1uF	20%	50V
C222	1-124-261-00	ELECT	10uF	20%	50V	C316	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V
C223	1-128-131-11	ELECT	22uF	20%	50V	C317	1-124-589-11	ELECT	47uF	20%	16V
C224	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C318	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C225	1-126-160-11	ELECT	1uF	20%	50V	C319	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C226	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C320	1-137-374-11	FILM	0.047uF	5%	50V
C227	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C322	1-126-963-11	ELECT	4.7uF	20%	50V
C228	1-124-589-11	ELECT	47uF	20%	16V	C323	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C229	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C324	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C230	1-164-159-21	CERAMIC	0.1uF		50V	C325	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C231	1-124-589-11	ELECT	47uF	20%	16V	C361	1-126-964-11	ELECT	10uF	20%	50V
C232	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C362	1-163-020-00	CERAMIC CHIP	0.0082uF	10%	50V
C233	1-124-261-00	ELECT	10uF	20%	50V	C363	1-104-664-11	ELECT	47uF	20%	16V
C234	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C364	1-126-964-11	ELECT	10uF	20%	50V
C235	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C365	1-126-961-11	ELECT	2.2uF	20%	50V
C236	1-164-232-11	CERAMIC CHIP	0.01uF		50V	C366	1-126-964-11	ELECT	10uF	20%	50V
C237	1-164-232-11	CERAMIC CHIP	0.01uF		50V	C367	1-104-664-11	ELECT	47uF	20%	16V
C238	1-124-589-11	ELECT	47uF	20%	16V	C368	1-163-020-00	CERAMIC CHIP	0.0082uF	10%	50V
C239	1-164-232-11	CERAMIC CHIP	0.01uF		50V	C369	1-126-964-11	ELECT	10uF	20%	50V
C240	1-124-589-11	ELECT	47uF	20%	16V	C370	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C241	1-164-232-11	CERAMIC CHIP	0.01uF		50V	C371	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C242	1-164-232-11	CERAMIC CHIP	0.01uF		50V	C372	1-124-589-11	ELECT	47uF	20%	16V
C243	1-164-232-11	CERAMIC CHIP	0.01uF		50V	C373	1-124-589-11	ELECT	47uF	20%	16V
C244	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C374	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C245	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C375	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C246	1-164-232-11	CERAMIC CHIP	0.01uF		50V	C376	1-126-964-11	ELECT	10uF	20%	50V
C247	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	C381	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C248	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	C382	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C249	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C383	1-126-960-11	ELECT	1uF	20%	50V
C250	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V	C384	1-126-960-11	ELECT	1uF	20%	50V
C251	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C385	1-126-960-11	ELECT	1uF	20%	50V
C267	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C386	1-126-964-11	ELECT	10uF	20%	50V
C271	1-164-232-11	CERAMIC CHIP	0.01uF		50V	C387	1-126-964-11	ELECT	10uF	20%	50V
C272	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C388	1-126-964-11	ELECT	10uF	20%	50V
C275	1-164-232-11	CERAMIC CHIP	0.01uF		50V	C389	1-126-964-11	ELECT	10uF	20%	50V
C276	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C390	1-126-960-11	ELECT	1uF	20%	50V
C278	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V	C391	1-126-160-11	ELECT	1uF	20%	50V
C279	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	C422	1-124-589-11	ELECT	47uF	20%	16V
C280	1-124-584-00	ELECT	100uF	20%	10V	C423	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C281	1-164-232-11	CERAMIC CHIP	0.01uF		50V	C424	1-164-159-21	CERAMIC	0.1uF		50V
C282	1-164-232-11	CERAMIC CHIP	0.01uF		50V	C425	1-124-261-00	ELECT	10uF	20%	50V
C283	1-164-232-11	CERAMIC CHIP	0.01uF		50V	C427	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C284	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	C500	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C285	1-164-232-11	CERAMIC CHIP	0.01uF		50V	C501	1-163-098-00	CERAMIC CHIP	16PF	5%	50V
C286	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	C502	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C301	1-163-038-00	CERAMIC CHIP	0.1uF		25V	C503	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C303	1-126-160-11	ELECT	1uF	20%	50V	C504	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C305	1-124-261-00	ELECT	10uF	20%	50V	C505	1-162-199-31	CERAMIC	10PF	5%	50V
C307	1-126-966-11	ELECT	33uF	20%	16V	C507	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C308	1-126-963-11	ELECT	4.7uF	20%	50V	C508	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C310	1-126-160-11	ELECT	1uF	20%	50V	C509	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
C510	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V	< CONNECTOR >			
C511	1-163-038-00	CERAMIC CHIP	0.1uF 25V	CN101	1-779-724-11	CONNECTOR, BOARD TO BOARD 5P	
C512	1-124-584-00	ELECT	100uF 20% 10V	CN102	1-779-723-11	CONNECTOR, BOARD TO BOARD 9P	
C513	1-163-009-11	CERAMIC CHIP	0.001uF 10% 50V	* CN103	1-766-716-11	CONNECTOR, BOARD TO BOARD 3P	
C514	1-163-009-11	CERAMIC CHIP	0.001uF 10% 50V	CN104	1-506-469-11	PIN, CONNECTOR 4P	
C561	1-164-232-11	CERAMIC CHIP	0.01uF 50V	CN161	1-506-468-11	PIN, CONNECTOR 3P	
C562	1-104-664-11	ELECT	47uF 20% 16V	CN260	1-766-986-11	CONNECTOR, FFC/FPC 13P	
C563	1-126-935-11	ELECT	470uF 20% 6.3V	* CN270	1-560-892-00	PIN, CONNECTOR 4P	
△ C600	1-104-705-11	FILM	0.1uF 20% 250V	CN301	1-506-469-11	PIN, CONNECTOR 4P	
△ C601	1-113-920-11	CERAMIC	0.0022uF 20% 250V	CN302	1-506-468-11	PIN, CONNECTOR 3P	
C602	1-119-886-51	CERAMIC	470PF 10% 250V	* CN403	1-573-128-11	PIN, CONNECTOR 5P	
△ C603	1-119-911-51	CERAMIC	470PF 10% 250V	CN404	1-506-475-11	PIN, CONNECTOR 10P	
△ C604	1-119-912-51	CERAMIC	1000PF 20% 250V	* CN423	1-573-128-11	PIN, CONNECTOR 5P	
C605	1-119-882-51	ELECT(BLOCK)	120uF 20% 200V	* CN600	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P	
C606	1-107-905-11	ELECT	4.7uF 20% 50V	< JACK >			
C607	1-113-681-11	FILM	0.033uF 10% 400V	CNJ980	1-779-013-11	JACK, MINIATURE(CONTROL S OUT)	
C608	1-162-558-11	CERAMIC	100PF 10% 2KV	< DIODE >			
C610	1-115-322-91	FILM	0.047uF 5% 50V	D103	8-719-048-26	DIODE GL528V1	
C611	1-115-322-91	FILM	0.047uF 5% 50V	D109	8-719-200-82	DIODE 11ES2	
C612	1-126-160-11	ELECT	1uF 20% 50V	D161	8-719-200-82	DIODE 11ES2	
C613	1-115-739-31	ELECT	0.0015F 20% 10V	D162	8-719-200-82	DIODE 11ES2	
C614	1-115-789-11	ELECT	0.001F 20% 25V	D420	8-719-109-90	DIODE RD5.6ESB3	
C615	1-126-967-11	ELECT	47uF 20% 50V	D561	8-719-110-08	DIODE RD8.2ES-B2	
C616	1-126-941-11	ELECT	470uF 20% 25V	D600	8-719-051-93	DIODE DF06M-6031	
C617	1-126-935-11	ELECT	470uF 20% 16V	D601	8-719-054-32	DIODE ERA15-06TP3	
C618	1-126-967-11	ELECT	47uF 20% 50V	D602	8-719-058-91	DIODE AG01A-V0	
C619	1-164-232-11	CERAMIC CHIP	0.01uF 50V	D603	8-719-200-82	DIODE 11ES2	
C620	1-164-232-11	CERAMIC CHIP	0.01uF 50V	D604	8-719-109-62	DIODE RD3.0ES-B1	
C621	1-164-232-11	CERAMIC CHIP	0.01uF 50V	D605	8-719-911-19	DIODE 1SS119	
C622	1-128-131-11	ELECT	22uF 20% 50V	D606	8-719-313-17	DIODE AU02A-V0	
C623	1-124-589-11	ELECT	47uF 20% 16V	D607	8-719-022-97	DIODE D2S4MF	
C624	1-124-589-11	ELECT	47uF 20% 16V	D608	8-719-073-18	DIODE S3L20UF34	
C625	1-104-664-11	ELECT	47uF 20% 16V	D609	8-719-313-17	DIODE AU02A-V0	
C626	1-126-965-11	ELECT	22uF 20% 50V	D610	8-719-160-64	DIODE RD16F-B1	
C627	1-126-965-11	ELECT	22uF 20% 50V	D611	8-719-911-19	DIODE 1SS119	
C628	1-164-232-11	CERAMIC CHIP	0.01uF 50V	D612	8-719-109-85	DIODE RD5.1ES-B2	
C629	1-124-234-00	ELECT	22uF 20% 16V	D618	8-719-911-19	DIODE 1SS119	
C638	1-126-925-11	ELECT	470uF 20% 10V	D619	8-719-313-17	DIODE AU02A-V0	
C639	1-164-232-11	CERAMIC CHIP	0.01uF 50V	D702	8-719-150-92	DIODE RD33EB3T	
C642	1-126-967-11	ELECT	47uF 20% 50V	D980	8-719-067-40	DIODE STZ6.8N-T146	
C650	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V	D982	8-719-911-19	DIODE 1SS119	
C701	1-104-664-11	ELECT	47uF 20% 16V	< EARTH >			
C706	1-126-963-11	ELECT	4.7uF 20% 50V	ET600	1-537-770-21	TERMINAL BOARD, GROUND	
C707	1-164-161-11	CERAMIC CHIP	0.0022uF 10% 100V	ET601	1-537-770-21	TERMINAL BOARD, GROUND	
C709	1-126-933-11	ELECT	100uF 20% 16V	< FUSE >			
C710	1-164-232-11	CERAMIC CHIP	0.01uF 50V	△ F600	1-533-296-11	FUSE, GLASS CYLINDRICAL(DIA.5)	
C712	1-126-933-11	ELECT	100uF 20% 16V	< FERRITE BEAD >			
C980	1-163-038-00	CERAMIC CHIP	0.1uF 25V	FB101	1-414-235-22	INDUCTOR CHIP 0UH	
C981	1-124-589-11	ELECT	47uF 20% 16V	FB601	1-410-858-21	INDUCTOR 0UH	
C982	1-163-038-00	CERAMIC CHIP	0.1uF 25V	< JACK >			
C984	1-163-009-11	CERAMIC CHIP	0.001uF 10% 50V	CJ561 1-779-011-11 JACK, PIN 6P (LINE-1 IN/LINE OUT)			
C985	1-163-017-00	CERAMIC CHIP	0.0047uF 5% 50V				
C986	1-163-038-00	CERAMIC CHIP	0.1uF 25V				

Note :

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

Note :

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

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
		< FUSE HOLDER >					
FH600	1-533-399-31	HOLDER, FUSE		JR141	1-216-295-00	METAL CHIP	0 5% 1/10W
FH601	1-533-399-31	HOLDER, FUSE		JR142	1-216-295-00	METAL CHIP	0 5% 1/10W
		< IC >		JR143	1-216-296-00	METAL CHIP	0 5% 1/8W
IC101	8-759-481-46	IC LB1943		JR144	1-216-296-00	METAL CHIP	0 5% 1/8W
IC160	8-759-587-76	IC M37760M8A127GP		JR145	1-216-296-00	METAL CHIP	0 5% 1/8W
IC161	8-759-575-71	IC M24C04-WMN6T		JR146	1-216-296-00	METAL CHIP	0 5% 1/8W
IC162	8-759-248-87	IC MM1256XF-BE		JR147	1-216-295-00	METAL CHIP	0 5% 1/10W
IC201	8-759-581-54	IC LA71051M-MPB		JR148	1-216-296-00	METAL CHIP	0 5% 1/8W
IC260	8-759-564-36	IC LA70011		JR149	1-216-296-00	METAL CHIP	0 5% 1/8W
IC331	8-759-499-30	IC BA7755AF-E2		JR150	1-216-296-00	METAL CHIP	0 5% 1/8W
IC360	8-759-559-37	IC TDA9605H/N1,557		JR152	1-216-296-00	METAL CHIP	0 5% 1/8W
IC420	8-759-438-82	IC uPD16311GC-AB6		JR153	1-216-296-00	METAL CHIP	0 5% 1/8W
IC601	8-759-438-18	IC PQ12RD08		JR154	1-216-296-00	METAL CHIP	0 5% 1/8W
IC602	8-759-321-95	IC HA17431PA-TZ		JR155	1-216-296-00	METAL CHIP	0 5% 1/8W
IC980	8-759-356-27	IC NJM2129M		JR156	1-216-295-00	METAL CHIP	0 5% 1/10W
		< JUMPER RESISTOR >		JR157	1-216-295-00	METAL CHIP	0 5% 1/10W
JR045	1-216-295-00	METAL CHIP	0 5% 1/10W	JR158	1-216-295-00	METAL CHIP	0 5% 1/10W
JR046	1-216-295-00	METAL CHIP	0 5% 1/10W	JR159	1-216-295-00	METAL CHIP	0 5% 1/10W
JR047	1-216-295-00	METAL CHIP	0 5% 1/10W	JR160	1-216-295-00	METAL CHIP	0 5% 1/10W
JR048	1-216-295-00	METAL CHIP	0 5% 1/10W	JR161	1-216-295-00	METAL CHIP	0 5% 1/10W
JR100	1-216-296-00	METAL CHIP	0 5% 1/8W	JR162	1-216-296-00	METAL CHIP	0 5% 1/8W
JR101	1-216-296-00	METAL CHIP	0 5% 1/8W	JR163	1-216-295-00	METAL CHIP	0 5% 1/10W
JR102	1-216-296-00	METAL CHIP	0 5% 1/8W	JR164	1-216-295-00	METAL CHIP	0 5% 1/10W
JR104	1-216-296-00	METAL CHIP	0 5% 1/8W	JR166	1-216-296-00	METAL CHIP	0 5% 1/8W
JR105	1-216-295-00	METAL CHIP	0 5% 1/10W	JR169	1-216-296-00	METAL CHIP	0 5% 1/8W
JR107	1-216-295-00	METAL CHIP	0 5% 1/10W	JR170	1-216-296-00	METAL CHIP	0 5% 1/8W
JR109	1-216-296-00	METAL CHIP	0 5% 1/8W	JR172	1-216-296-00	METAL CHIP	0 5% 1/8W
JR113	1-216-296-00	METAL CHIP	0 5% 1/8W	JR173	1-216-295-00	METAL CHIP	0 5% 1/10W
JR114	1-216-296-00	METAL CHIP	0 5% 1/8W	JR174	1-216-296-00	METAL CHIP	0 5% 1/8W
JR115	1-216-295-00	METAL CHIP	0 5% 1/10W	JR175	1-216-295-00	METAL CHIP	0 5% 1/10W
JR116	1-216-296-00	METAL CHIP	0 5% 1/8W	JR176	1-216-296-00	METAL CHIP	0 5% 1/8W
JR117	1-216-295-00	METAL CHIP	0 5% 1/10W	JR180	1-216-295-00	METAL CHIP	0 5% 1/10W
JR118	1-216-295-00	METAL CHIP	0 5% 1/10W	JR181	1-216-295-00	METAL CHIP	0 5% 1/10W
JR119	1-216-296-00	METAL CHIP	0 5% 1/8W	JR182	1-216-295-00	METAL CHIP	0 5% 1/10W
JR120	1-216-295-00	METAL CHIP	0 5% 1/10W	JR183	1-216-295-00	METAL CHIP	0 5% 1/10W
JR121	1-216-296-00	METAL CHIP	0 5% 1/8W	JR184	1-216-295-00	METAL CHIP	0 5% 1/10W
JR123	1-216-295-00	METAL CHIP	0 5% 1/10W	JR190	1-216-296-00	METAL CHIP	0 5% 1/8W
JR124	1-216-295-00	METAL CHIP	0 5% 1/10W	JR197	1-216-296-00	METAL CHIP	0 5% 1/8W
JR125	1-216-296-00	METAL CHIP	0 5% 1/8W	JR198	1-216-296-00	METAL CHIP	0 5% 1/8W
JR126	1-216-295-00	METAL CHIP	0 5% 1/10W	JR199	1-216-295-00	METAL CHIP	0 5% 1/10W
JR127	1-216-295-00	METAL CHIP	0 5% 1/10W	JR200	1-216-295-00	METAL CHIP	0 5% 1/10W
JR128	1-216-295-00	METAL CHIP	0 5% 1/10W	JR201	1-216-296-00	METAL CHIP	0 5% 1/8W
JR131	1-216-295-00	METAL CHIP	0 5% 1/10W	JR202	1-216-295-00	METAL CHIP	0 5% 1/10W
JR132	1-216-296-00	METAL CHIP	0 5% 1/8W			< JUMPER RESISTOR >	
JR133	1-216-296-00	METAL CHIP	0 5% 1/8W	JS363	1-216-296-00	METAL CHIP	0 5% 1/8W
JR134	1-216-295-00	METAL CHIP	0 5% 1/10W	JS364	1-216-296-00	METAL CHIP	0 5% 1/8W
JR135	1-216-296-00	METAL CHIP	0 5% 1/8W	JS406	1-216-295-00	METAL CHIP	0 5% 1/10W
JR136	1-216-296-00	METAL CHIP	0 5% 1/8W	JS408	1-216-295-00	METAL CHIP	0 5% 1/10W
JR137	1-216-296-00	METAL CHIP	0 5% 1/8W	JS410	1-216-295-00	METAL CHIP	0 5% 1/10W
JR139	1-216-296-00	METAL CHIP	0 5% 1/8W	JS411	1-216-295-00	METAL CHIP	0 5% 1/10W
JR140	1-216-295-00	METAL CHIP	0 5% 1/10W	JS614	1-216-295-00	METAL CHIP	0 5% 1/10W
				JS615	1-216-295-00	METAL CHIP	0 5% 1/10W
				JS616	1-216-296-00	METAL CHIP	0 5% 1/8W
				JS617	1-216-295-00	METAL CHIP	0 5% 1/10W
				JS618	1-216-295-00	METAL CHIP	0 5% 1/10W
				JS622	1-216-295-00	METAL CHIP	0 5% 1/10W

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
< COIL >							
L101	1-414-930-21	INDUCTOR 2.2uH		Q382	8-729-230-49	TRANSISTOR 2SC2712-YG	
L161	1-414-936-21	INDUCTOR 22uH		Q500	8-729-010-05	TRANSISTOR MSB709-RT1	
L162	1-414-936-21	INDUCTOR 22uH		Q502	8-729-216-21	TRANSISTOR 2SA1162-Y	
L163	1-414-936-21	INDUCTOR 22uH		Q561	8-729-010-05	TRANSISTOR MSB709-RT1	
L201	1-414-946-21	INDUCTOR 39uH		Q601	8-729-904-98	TRANSISTOR 2SC4054P	
L202	1-414-940-21	INDUCTOR 100uH		Q602	8-729-012-31	TRANSISTOR 2SC4040-TL2-Q	
L203	1-414-934-21	INDUCTOR 10uH		Q603	8-729-119-78	TRANSISTOR 2SC403SP-51	
L204	1-414-940-21	INDUCTOR 100uH		Q604	8-729-010-25	TRANSISTOR MSD601-RT1	
L205	1-414-940-21	INDUCTOR 100uH		Q604	8-729-422-29	TRANSISTOR 2SD601A-S	
L206	1-414-940-21	INDUCTOR 100uH		Q605	8-729-047-92	TRANSISTOR 2SB1398-Q(TA).SO	
L270	1-414-940-21	INDUCTOR 100uH		Q607	8-729-140-98	TRANSISTOR 2SD773-34	
L304	1-414-940-21	INDUCTOR 100uH		Q608	8-729-106-68	TRANSISTOR 2SD1615A-GP	
L328	1-410-071-11	INDUCTOR 10mH		< RESISTOR >			
L360	1-414-940-21	INDUCTOR 100uH		R101	1-249-413-11	CARBON 470 5%	1/4W F
L420	1-414-936-21	INDUCTOR 22uH		R102	1-216-089-00	METAL CHIP 47K 5%	1/10W
L500	1-414-930-21	INDUCTOR 2.2uH		R103	1-249-437-11	CARBON 47K 5%	1/4W
L501	1-414-940-21	INDUCTOR 100uH		R104	1-216-081-00	METAL CHIP 22K 5%	1/10W
L561	1-414-940-21	INDUCTOR 100uH		R105	1-247-863-91	CARBON 22K 5%	1/4W
L601	1-403-588-11	INDUCTOR 22uH		R106	1-249-400-11	CARBON 39 5%	1/4W F
L602	1-403-588-11	INDUCTOR 22uH		R107	1-249-400-11	CARBON 39 5%	1/4W F
L603	1-410-509-11	INDUCTOR 10uH		R109	1-216-089-00	METAL CHIP 47K 5%	1/10W
L604	1-410-519-11	INDUCTOR 68uH		R110	1-216-089-00	METAL CHIP 47K 5%	1/10W
L605	1-414-142-11	INDUCTOR 1uH		R111	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
L606	1-414-142-11	INDUCTOR 1uH		R112	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
L703	1-414-930-21	INDUCTOR 2.2uH		R115	1-216-089-00	METAL CHIP 47K 5%	1/10W
L704	1-414-936-21	INDUCTOR 22uH		R116	1-216-089-00	METAL CHIP 47K 5%	1/10W
< LINE FILTER >				R117	1-216-041-00	METAL CHIP 470 5%	1/10W
△ LF600	1-416-929-11	FILTER, LINE		R118	1-216-089-00	METAL CHIP 47K 5%	1/10W
< FLUORECENT INDICATOR >				R119	1-216-077-00	METAL CHIP 15K 5%	1/10W
ND420	1-517-732-11	INDICATOR TUBE, FLUORESCENT		R120	1-249-417-11	CARBON 1K 5%	1/4W F
< PHOTO INTERRUPTER >				R121	1-216-041-00	METAL CHIP 470 5%	1/10W
△ PH101	8-749-013-23	PHOTO INTERRUPTER GP3S120		R142	1-216-051-00	METAL CHIP 1.2K 5%	1/10W
△ PH102	8-749-013-23	PHOTO INTERRUPTER GP3S120		R143	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
△ PH600	8-749-014-24	COUPLER, PHOTO ON3131-S(LF)		R159	1-216-097-91	RES,CHIP 100K 5%	1/10W
< IC LINK >				R160	1-216-049-00	METAL CHIP 1K 5%	1/10W
△ PS101	1-532-727-11	LINK, IC 0.25A		R161	1-216-073-00	METAL CHIP 10K 5%	1/10W
△ PS600	1-532-841-21	LINK, IC		R162	1-249-426-11	CARBON 5.6K 5%	1/4W
< TRANSISTOR >				R163	1-216-049-00	METAL CHIP 1K 5%	1/10W
Q101	8-729-043-84	TRANSISTOR PT380F3		R164	1-216-089-00	METAL CHIP 47K 5%	1/10W
Q102	8-729-043-84	TRANSISTOR PT380F3		R165	1-216-089-00	METAL CHIP 47K 5%	1/10W
Q103	8-729-281-53	TRANSISTOR 2SC1815-GR		R166	1-216-073-00	METAL CHIP 10K 5%	1/10W
Q201	8-729-230-49	TRANSISTOR 2SC2712-YG		R167	1-249-431-11	CARBON 15K 5%	1/4W
Q202	8-729-230-49	TRANSISTOR 2SC2712-YG		R168	1-216-073-00	METAL CHIP 10K 5%	1/10W
Q203	8-729-216-21	TRANSISTOR 2SA1162-Y		R169	1-216-073-00	METAL CHIP 10K 5%	1/10W
Q302	8-729-804-41	TRANSISTOR 2SB1122-S		R170	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
Q303	8-729-821-15	TRANSISTOR 2SD1620		R171	1-216-089-00	METAL CHIP 47K 5%	1/10W
Q380	8-729-216-21	TRANSISTOR 2SA1162-Y		R172	1-216-073-00	METAL CHIP 10K 5%	1/10W
Q381	8-729-230-49	TRANSISTOR 2SC2712-YG		R174	1-216-039-00	METAL CHIP 390 5%	1/10W
				R175	1-216-041-00	METAL CHIP 470 5%	1/10W
				R176	1-216-041-00	METAL CHIP 470 5%	1/10W
				R177	1-216-041-00	METAL CHIP 470 5%	1/10W
				R178	1-216-105-91	RES,CHIP 220K 5%	1/10W
				R179	1-216-113-00	METAL CHIP 470K 5%	1/10W

Note :

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

Note :

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

Ref. No.	Part No.	Description			Remarks	Ref. No.	Part No.	Description			Remarks
R180	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R316	1-216-109-00	METAL CHIP	330K	5%	1/10W
R182	1-216-049-00	METAL CHIP	1K	5%	1/10W	R317	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R183	1-216-295-00	METAL CHIP	0	5%	1/10W	R318	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R184	1-216-295-00	METAL CHIP	0	5%	1/10W	R319	1-216-033-00	METAL CHIP	220	5%	1/10W
R185	1-216-295-00	METAL CHIP	0	5%	1/10W	R320	1-217-671-11	METAL CHIP	1	5%	1/10W
R187	1-216-295-00	METAL CHIP	0	5%	1/10W	R321	1-216-063-91	RES,CHIP	3.9K	5%	1/10W
R188	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	R322	1-216-017-91	RES,CHIP	47	5%	1/10W
R189	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R323	1-216-081-00	METAL CHIP	22K	5%	1/10W
R191	1-249-417-11	CARBON	1K	5%	1/4W F	R324	1-216-031-00	METAL CHIP	180	5%	1/10W
R192	1-249-417-11	CARBON	1K	5%	1/4W F	R325	1-216-075-00	METAL CHIP	12K	5%	1/10W
R193	1-216-295-00	METAL CHIP	0	5%	1/10W	R326	1-216-079-00	METAL CHIP	18K	5%	1/10W
R194	1-216-073-00	METAL CHIP	10K	5%	1/10W	R327	1-216-033-00	METAL CHIP	220	5%	1/10W
R196	1-216-295-00	METAL CHIP	0	5%	1/10W	R361	1-216-083-00	METAL CHIP	27K	5%	1/10W
R201	1-216-037-00	METAL CHIP	330	5%	1/10W	R362	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R202	1-216-047-91	RES,CHIP	820	5%	1/10W	R363	1-208-820-11	RES,CHIP	39K	0.50%	1/10W
R203	1-216-037-00	METAL CHIP	330	5%	1/10W	R364	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R204	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R365	1-216-083-00	METAL CHIP	27K	5%	1/10W
R205	1-208-830-11	RES,CHIP	100K	0.50%	1/10W	R366	1-216-041-00	METAL CHIP	470	5%	1/10W
R208	1-216-295-00	METAL CHIP	0	5%	1/10W	R368	1-216-079-00	METAL CHIP	18K	5%	1/10W
R209	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	R369	1-216-133-00	METAL CHIP	3.3M	5%	1/10W
R210	1-249-419-11	CARBON	1.5K	5%	1/4W F	R370	1-216-049-00	METAL CHIP	1K	5%	1/10W
R211	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R371	1-216-049-00	METAL CHIP	1K	5%	1/10W
R212	1-216-043-91	RES,CHIP	560	5%	1/10W	R372	1-216-073-00	METAL CHIP	10K	5%	1/10W
R213	1-216-049-00	METAL CHIP	1K	5%	1/10W	R373	1-216-295-00	METAL CHIP	0	5%	1/10W
R214	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	R374	1-216-295-00	METAL CHIP	0	5%	1/10W
R215	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	R375	1-216-025-91	RES,CHIP	100	5%	1/10W
R216	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	R376	1-216-025-91	RES,CHIP	100	5%	1/10W
R218	1-216-295-00	METAL CHIP	0	5%	1/10W	R377	1-216-295-00	METAL CHIP	0	5%	1/10W
R219	1-216-025-91	RES,CHIP	100	5%	1/10W	R378	1-216-295-00	METAL CHIP	0	5%	1/10W
R220	1-216-295-00	METAL CHIP	0	5%	1/10W	R380	1-216-073-00	METAL CHIP	10K	5%	1/10W
R221	1-216-295-00	METAL CHIP	0	5%	1/10W	R381	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R224	1-216-089-00	METAL CHIP	47K	5%	1/10W	R382	1-216-049-00	METAL CHIP	1K	5%	1/10W
R225	1-216-295-00	METAL CHIP	0	5%	1/10W	R383	1-216-049-00	METAL CHIP	1K	5%	1/10W
R231	1-216-089-00	METAL CHIP	47K	5%	1/10W	R385	1-216-295-00	METAL CHIP	0	5%	1/10W
R232	1-216-089-00	METAL CHIP	47K	5%	1/10W	R386	1-216-295-00	METAL CHIP	0	5%	1/10W
R267	1-216-295-00	METAL CHIP	0	5%	1/10W	R421	1-216-295-00	METAL CHIP	0	5%	1/10W
R270	1-216-041-00	METAL CHIP	470	5%	1/10W	R422	1-216-049-00	METAL CHIP	1K	5%	1/10W
R271	1-216-041-00	METAL CHIP	470	5%	1/10W	R423	1-216-049-00	METAL CHIP	1K	5%	1/10W
R272	1-208-788-11	RES,CHIP	1.8K	0.50%	1/10W	R424	1-216-049-00	METAL CHIP	1K	5%	1/10W
R273	1-216-295-00	METAL CHIP	0	5%	1/10W	R425	1-216-085-00	METAL CHIP	33K	5%	1/10W
R274	1-216-063-91	RES,CHIP	3.9K	5%	1/10W	R426	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R276	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	R427	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R277	1-216-081-00	METAL CHIP	22K	5%	1/10W	R440	1-216-075-00	METAL CHIP	12K	5%	1/10W
R278	1-216-081-00	METAL CHIP	22K	5%	1/10W	R449	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R279	1-216-081-00	METAL CHIP	22K	5%	1/10W	R450	1-216-083-00	METAL CHIP	27K	5%	1/10W
R301	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	R500	1-216-049-00	METAL CHIP	1K	5%	1/10W
R302	1-216-093-91	RES,CHIP	68K	5%	1/10W	R502	1-216-073-00	METAL CHIP	10K	5%	1/10W
R305	1-216-129-00	METAL CHIP	2.2M	5%	1/10W	R503	1-216-049-00	METAL CHIP	1K	5%	1/10W
R309	1-216-043-91	RES,CHIP	560	5%	1/10W	R504	1-216-049-00	METAL CHIP	1K	5%	1/10W
R310	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	R505	1-216-045-00	METAL CHIP	680	5%	1/10W
R311	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R507	1-216-041-00	METAL CHIP	470	5%	1/10W
R312	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R508	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R313	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	R509	1-216-121-91	RES,CHIP	1M	5%	1/10W
R314	1-216-073-00	METAL CHIP	10K	5%	1/10W	R512	1-216-295-00	METAL CHIP	0	5%	1/10W
R315	1-216-035-00	METAL CHIP	270	5%	1/10W	R513	1-216-041-00	METAL CHIP	470	5%	1/10W

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
R561	1-216-037-00	METAL CHIP	330 5% 1/10W	< SWITCH >			
R562	1-249-407-11	CARBON	150 5% 1/4W F	S101	1-762-108-11	SWITCH, PUSH (1 KEY)	
R563	1-249-408-11	CARBON	180 5% 1/4W F	S102	1-771-155-11	SWITCH, ROTARY (MECHANICAL MODE)	
R564	1-216-021-00	METAL CHIP	68 5% 1/10W	S407	1-771-574-21	SWITCH, TACTILE (EASY SET UP)	
R565	1-216-022-00	METAL CHIP	75 5% 1/10W	S409	1-771-574-21	SWITCH, TACTILE (TRACKING/CHANNEL-)	
△ R600	1-219-779-51	CARBON	6.8M 10% 1/2W	S411	1-771-574-21	SWITCH, TACTILE (TRACKING/CHANNEL+)	
R601	1-249-441-11	CARBON	100K 5% 1/4W	S701	1-571-588-11	SWITCH, SLIDE (RF UNIT CH3/CH4)	
R602	1-249-441-11	CARBON	100K 5% 1/4W	< TRANSFORMER >			
R603	1-249-429-11	CARBON	10K 5% 1/4W	T301	1-433-479-11	TRANSFORMER, BIAS OSCILLATION	
R604	1-216-451-11	METAL OXIDE	120 5% 2W F	△ T600	1-433-568-11	TRANSFORMER, CONVERTER (RCC)	
R605	1-215-416-00	METAL	620 1% 1/4W	< TUNER >			
R606	1-249-402-11	CARBON	56 5% 1/4W F	TU701	8-598-473-00	TUNER, FSS BTF-MA431	
R607	1-215-927-41	METAL OXIDE	47K 5% 3W	< VARISTOR >			
R608	1-249-401-11	CARBON	47 5% 1/4W F	△ VDR600	1-801-445-31	VARISTOR TNR10V241K660	
R609	1-249-406-11	CARBON	120 5% 1/4W F	< VIBRATOR >			
R610	1-208-789-11	RES,CHIP	2K 0.50% 1/10W	X160	1-767-857-11	VIBRATOR, CRYSTAL (14.31818MHz)	
R611	1-216-655-11	METAL CHIP	1.5K 0.5% 1/10W	X161	1-579-463-11	VIBRATOR, CRYSTAL (32.768kHz)	
R612	1-219-786-81	FUSIBLE	22 5% 1/4W	X201	1-577-380-11	VIBRATOR, CRYSTAL (3.579545MHz)	
R613	1-260-091-11	CARBON	220 5% 1/2W				
△ R614	1-240-306-81	FUSIBLE	15 5% 1/4W				
R615	1-249-417-11	CARBON	1K 5% 1/4W F				
R616	1-247-815-91	CARBON	220 5% 1/4W				
R617	1-249-417-11	CARBON	1K 5% 1/4W F				
R618	1-260-091-11	CARBON	220 5% 1/2W				
R619	1-249-413-11	CARBON	470 5% 1/4W F				
R620	1-249-413-11	CARBON	470 5% 1/4W F				
R623	1-216-061-00	METAL CHIP	3.3K 5% 1/10W				
R624	1-216-430-11	METAL OXIDE	390 5% 1W F				
R625	1-249-429-11	CARBON	10K 5% 1/4W				
R630	1-216-049-00	METAL CHIP	1K 5% 1/10W				
R633	1-216-295-00	METAL CHIP	0 5% 1/10W				
R637	1-247-815-91	CARBON	220 5% 1/4W				
R641	1-219-123-11	FUSIBLE	0.47 5% 1/4W F				
△ R642	1-216-374-41	METAL OXIDE	2.7 5% 2W				
R643	1-216-061-00	METAL CHIP	3.3K 5% 1/10W				
R701	1-216-049-00	METAL CHIP	1K 5% 1/10W				
R702	1-216-061-00	METAL CHIP	3.3K 5% 1/10W				
R703	1-216-039-00	METAL CHIP	390 5% 1/10W				
R704	1-216-043-91	RES,CHIP	560 5% 1/10W				
△ R705	1-240-307-81	FUSIBLE	560 5% 1/4W				
R706	1-216-113-00	METAL CHIP	470K 5% 1/10W				
R707	1-216-065-00	METAL CHIP	4.7K 5% 1/10W				
R709	1-216-061-00	METAL CHIP	3.3K 5% 1/10W				
R710	1-216-061-00	METAL CHIP	3.3K 5% 1/10W				
R711	1-216-061-00	METAL CHIP	3.3K 5% 1/10W				
R712	1-216-295-00	METAL CHIP	0 5% 1/10W				
R713	1-216-295-00	METAL CHIP	0 5% 1/10W				
R731	1-216-049-00	METAL CHIP	1K 5% 1/10W				
R732	1-216-049-00	METAL CHIP	1K 5% 1/10W				
R733	1-216-065-00	METAL CHIP	4.7K 5% 1/10W				
R734	1-216-049-00	METAL CHIP	1K 5% 1/10W				
R735	1-216-049-00	METAL CHIP	1K 5% 1/10W				
R736	1-216-295-00	METAL CHIP	0 5% 1/10W				
R737	1-216-081-00	METAL CHIP	22K 5% 1/10W				
R738	1-216-081-00	METAL CHIP	22K 5% 1/10W				
R981	1-216-295-00	METAL CHIP	0 5% 1/10W				

* A-6791-803-A MF-316 BOARD, COMPLETE

 (Ref.No.:2,000 Series)

< CAPACITOR >

C461	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C493	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C495	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C496	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V

< CONNECTOR >

CN461	1-568-954-11	PIN, CONNECTOR (STRAIGHT) 5P
CN491	1-506-484-11	PIN, CONNECTOR 5P

< JACK >

CNJ491	1-766-861-11	JACK, PIN (3P) (LINE-2 IN)
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< DIODE >

D461	8-719-056-07	DIODE SLR-342MC3F (POWER)
D491	8-719-067-40	DIODE STZ6.8N-T146
D492	8-719-067-40	DIODE STZ6.8N-T146
D493	8-719-422-37	DIODE MA8051
D494	8-719-067-40	DIODE STZ6.8N-T146

< IC >

IC461	8-749-011-05	IC GP1U28X (REMOTE CONTROL)
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< TRANSISTOR >

Q461	8-729-421-22	TRANSISTOR UN2211
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Note :
 The components identified by mark △ or dotted line with mark △ are critical for safety.
 Replace only with part number specified.

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

Ref. No.	Part No.	Description	Remarks		
< RESISTOR >					
R461	1-216-013-00	METAL CHIP	33	5%	1/10W
R462	1-216-029-00	METAL CHIP	150	5%	1/10W
R463	1-216-089-00	METAL CHIP	47K	5%	1/10W
R491	1-216-295-00	METAL CHIP	0	5%	1/10W
R492	1-216-295-00	METAL CHIP	0	5%	1/10W
R493	1-216-022-00	METAL CHIP	75	5%	1/10W
< SWITCH >					
S461	1-762-196-21	SWITCH, TACT (POWER)			

MISCELLANEOUS					

△ 16	1-790-293-31	CORD, POWER			
18	1-779-725-11	CONNECTOR, BOARD TO BOARD 5P			
704	1-500-144-11	HEAD, FE			
776	8-839-057-51	DRUM ASSY, DZH-0A7A/Z-NP			
832	1-766-723-21	CONNECTOR, BOARD TO BOARD 3P			
M902	1-698-971-11	MOTOR, DC			
M903	X-3947-577-1	MOTOR ASSY, CAM			

ACCESSORIES & PACKING MATERIALS					

	1-575-334-11	CORD, CONNECTION			
	1-696-592-11	CORD, CONNECTION (NTSC) (FOR RF)1.5m			
	1-418-153-11	COMMANDER, STANDARD (RMT-V266)			
	3-709-432-01	COVER, REMOTE CONTROL BATTERY			
	3-865-083-11	MANUAL, INSTRUCTION (ENGLISH)			
	3-865-083-21	MANUAL, INSTRUCTION			
		(FRENCH/CHINESE)(722/779:CND)			
*	3-987-421-01	CUSHION			

HARDWARE LIST					

#1	7-685-648-79	SCREW +BVTP	3 × 12	TYPE2	IT-3
#2	7-685-646-79	SCREW +BVTP	3 × 8	TYPE2	IT-3
#701	7-685-646-79	SCREW +BVTP	3 × 8	TYPE2	IT-3
#702	7-682-147-01	SCREW +P	3 × 6		
#703	7-685-133-19	SCREW (DIA. 2.6)	(IT3B)		

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