SLV-777HF/778HF/788HF

SERVICE MANUAL

US Model
Canadian Model
SLV-777HF/778HF/788HF
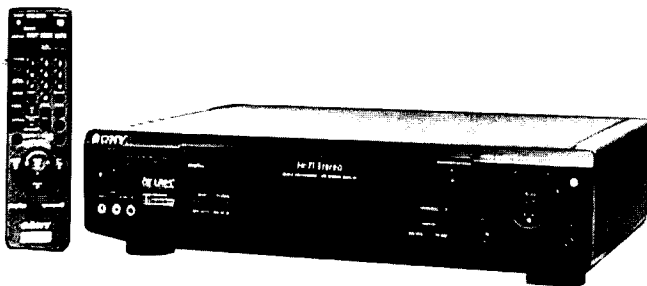
PX Model
SLV-777HF

Hi-Fi

VHS

Photo : SLV-788HF

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

S MECHANISM

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 (11/16 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 jack (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 jack (2)
 Standard output: 327 mVrms
 Load impedance: 47 kilohms
 Output impedance: less than 10 kilohms
S-LINK (CONTROL S IN) (788HF)
 Mini jack (1)
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 (US, Canadian models)
 110 V AC to 240 V AC, 50/60 Hz (PX model)
Power consumption
 24 W (Except PX model)
 20 W (PX model)
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 × 107 × 287 mm (w/h/d)
 Approx. (17 × 4 1/4 × 11 3/8 inches) including projecting parts and controls
Mass
 Approx. 4.3 kg (7 lb 7 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, 1 mini to 3 phono, 1 mini) (1)
Cable Mouse (cable box controller) (1)
Jack cover (1)
Plug adaptor (1) (PX model only)

Design and specifications are subject to change without notice.

VIDEO CASSETTE RECORDER

SONY®

MICROFILM

SECTION 1
GENERAL

SLV-777HF/778HF/788HF

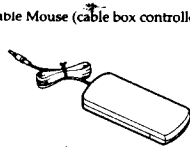This section is extracted from the
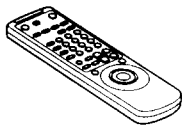SLV-788HF instruction manual.

Getting Started

Step 1

Unpacking

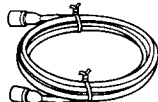Check that you have received the following items with the VCR.

- Remote commander

- Cable Mouse (cable box controller)

- Size AA (R6) batteries

- 75-ohm coaxial cable with F-type connectors

- Audio/video cable (3-phono, 1 mini to 3-phono, 1 mini)
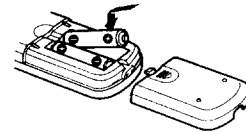
- Jack cover

4 Getting Started

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.
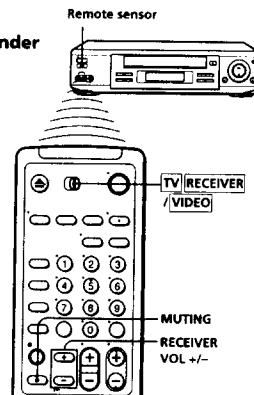
Remote sensor

Using the remote commander

You can use this remote commander to operate this VCR and a Sony TV or AV receiver. Buttons on the remote commander marked with a dot (•) can be used to operate your Sony TV.
The RECEIVER VOL +/– and MUTING buttons can be used to operate your Sony AV receiver.

To operate	Set TV/RECEIVER//VIDEO to
the VCR	VIDEO and point at the remote sensor on the VCR
a Sony TV or AV receiver	TV/RECEIVER and point at the remote sensor on the TV or AV receiver

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.
- Some Sony AV receivers may not be operated with the remote commander.

Getting Started | 5

Step 2: Setting up the remote commander (continued)

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.

1 Set TV/RECEIVER / VIDEO at the top of the remote commander to TV/RECEIVER.

2 Hold POWER down, and enter your TV's code number(s) using the number buttons. Then release POWER.

Now you can use the POWER, 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/RECEIVER / 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 automatically resets to 01 (Sony). Reset the appropriate code number.

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 8 and 9
Cable box that is compatible with the VCR's cable box control feature	Hookup 1	Pages 10 to 12
No cable box or incompatible cable box with only a few scrambled channels	Hookup 2	Pages 13 to 15
Antenna only, no cable TV	Hookup 3	Pages 16 to 18
Incompatible cable box with many scrambled channels	Hookup 4	Pages 19 to 21
DSS* receiver	Hookup 5	Pages 22 to 24
Incompatible cable box with only a few scrambled channels, using an A/B switch	Hookup 6	Pages 25 to 29

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.

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

## Audio/video (A/V) hookup   Pages 8 and 9

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 your TV has the S-Link™* (A/V bus control) function, hook up your VCR using the connection shown on page 9. Your TV will automatically switch to the A/V inputs for your VCR when you play back or operate menu on the VCR.

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 pages 8 and 9. 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.
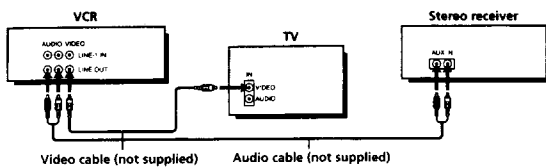
* S-Link™ is a trademark of Sony Corporation.

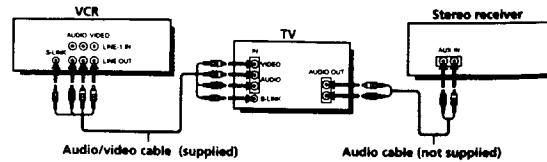### A Use this hookup if your TV has stereo jacks

Audio/video cable (supplied)   **Audio cable (not supplied)**
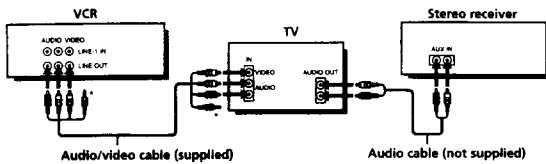
* Do not connect the miniplugs for this hookup.

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

Video cable (not supplied)   Audio cable (not supplied)

C Use this hookup if your TV has the S-Link™ function

Audio/video cable (supplied)   **Audio cable (not supplied)**

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

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 10 to 12
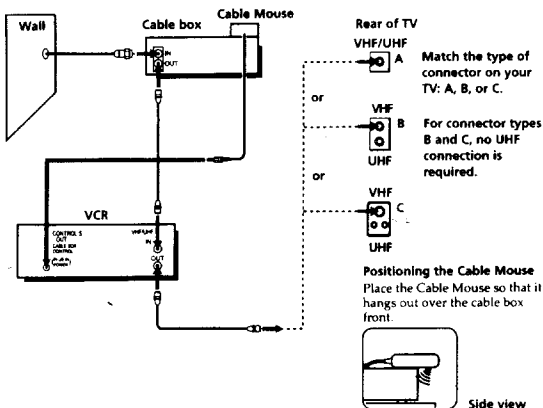
Using cable box control

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 page 39.
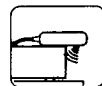
What you can do with this hookup
* Record any channel using the VCR's cable box control feature to select channels on the cable box

What you can't do
* Record with the cable box turned off
* Record one channel while watching another channel

Rear of TV
VHF/UHF
A Match the type of connector on your TV: A, B, or C.

VHF
B For connector types B and C, no UHF connection is required.
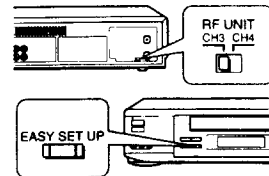UHF

VHF
C
UHF

Positioning the Cable Mouse
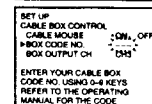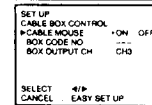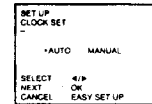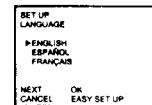Place the Cable Mouse so that it hangs out over the cable box front.

Side view

Hookup 1: VCR setup

1 Set the RF UNIT switch to CH 3 or CH 4, whichever channel is not used in your area. If both are used, set the switch to either channel.

For details, see page 76. If you made A/V connections (from page 8), you can skip this step.
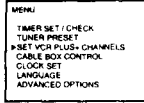

2 Turn on your cable box.

3 Press EASY SET UP on the VCR.

❶ The LANGUAGE menu appears. Change the on-screen display language to Spanish (ESPAÑOL) or French (FRANÇAIS) if desired, and press the joystick (OK). For details, see page 30.

❷ The CLOCK SET menu appears. Select AUTO and press the joystick (OK). For details, see page 31.

❸ The CABLE BOX CONTROL menu appears. Select ON. For details, see page 38.

❹ Enter your cable box code number and push the joystick to ↓. For details, see page 39.

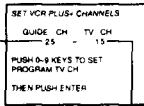❺ Select your cable box output channel and press the joystick (OK).

Normal display

Hookup 1: VCR Plus+ channel setup

1 Find the VCR Plus+ Channel Listing in your program guide. For details, see page 47.

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 48.

● Press MENU and select SET VCR PLUS+ CHANNELS.

```
MENU

TIMER SET / CHECK
TUNER PRESET
▶SET VCR PLUS+ CHANNELS
CABLE BOX CONTROL
CLOCK SET
LANGUAGE
ADVANCED OPTIONS
```

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

● Press the joystick (OK).

```
SET VCR PLUS+ CHANNELS

GUIDE  CH    TV  CH
       25   -   15

PUSH 0-9 KEYS TO SET
PROGRAM TV CH

THEN PUSH ENTER
```

Program guide channel

Your actual TV channel

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 36.

Note
• To use the automatic clock setting feature, leave the cable box on.

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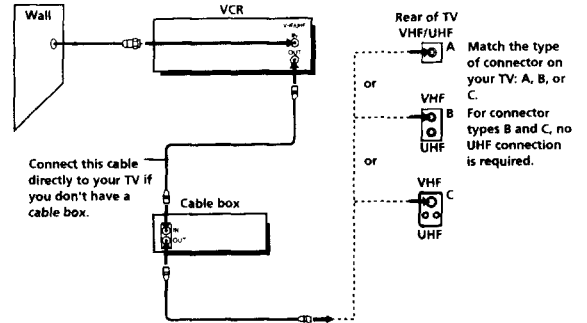
Recommended use

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
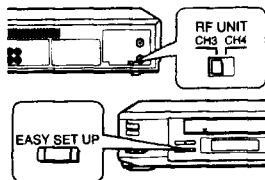• Record scrambled channels that require a cable box

Wall

VCR

Rear of TV
VHF/UHF

A Match the type of connector on your TV: A, B, or C.

or

VHF

B For connector types B and C, no UHF connection is required.

UHF

Connect this cable directly to your TV if you don't have a cable box.
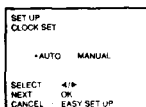
Cable box

or

VHF

C

UHF

Hookup 2: VCR setup

1 Set the RF UNIT switch to CH 3 or CH 4, whichever channel is not used in your area. If both are used, set the switch to either channel.

RF UNIT
CH3 CH4

For details, see page 76. If you made A/V connections (from page 8), you can skip this step.
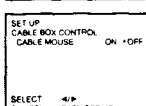
EASY SET UP

2 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 the joystick (OK). For details, see page 30.
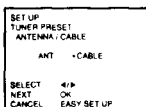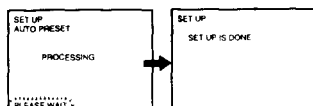
```
SET UP
LANGUAGE

▶ENGLISH
ESPAÑOL
FRANÇAIS

NEXT    : OK
CANCEL   EASY SET UP
```

● The CLOCK SET menu appears. Select AUTO and press the joystick (OK). For details, see page 31.

```
SET UP
CLOCK SET

•AUTO    MANUAL

SELECT  ◄/►
NEXT    OK
CANCEL  EASY SET UP
```

● The CABLE BOX CONTROL menu appears. Select OFF and press the joystick (OK).

```
SET UP
CABLE BOX CONTROL
  CABLE MOUSE    ON •OFF

SELECT  ◄/►
CANCEL  EASY SET UP
```
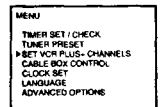
● The TUNER PRESET menu appears. Set ANTENNA/CABLE to CABLE and press the joystick (OK). For details, see page 43.

```
SET UP
TUNER PRESET
  ANTENNA/CABLE

   ANT    •CABLE

SELECT  ◄/►
NEXT    OK
CANCEL  EASY SET UP
```

● The AUTO PRESET starts.

```
SET UP
AUTO PRESET


   PROCESSING



PLEASE WAIT
```
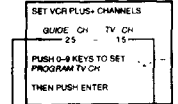
```
SET UP


  SET UP IS DONE
```

Hookup 2: VCR Plus+ channel setup

1 Find the VCR Plus+ Channel Listing in your program guide. For details, see page 47.

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 48.

● Press MENU and select SET VCR PLUS+ CHANNELS.

```
MENU

TIMER SET / CHECK
TUNER PRESET
▶SET VCR PLUS+ CHANNELS
CABLE BOX CONTROL
CLOCK SET
LANGUAGE
ADVANCED OPTIONS
```

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

● Press the joystick (OK).

```
SET VCR PLUS+ CHANNELS

GUIDE  CH    TV  CH
       25   -   15

PUSH 0-9 KEYS TO SET
PROGRAM TV CH

THEN PUSH ENTER
```

Program guide channel

Your actual TV channel

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 36.

Hookup 3

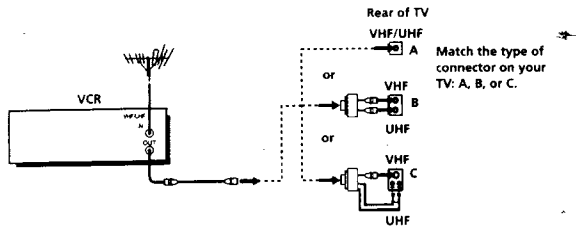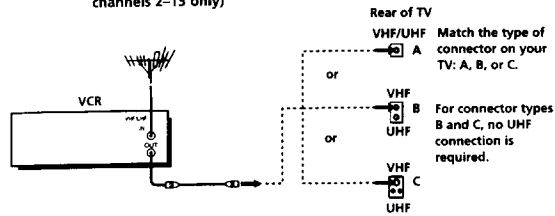### Antenna hookup

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

Rear of TV

VHF/UHF
A Match the type of connector on your TV: A, B, or C.

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

Rear of TV

VHF/UHF Match the type of connector on your TV: A, B, or C.

For connector types B and C, no UHF connection is required.

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 that 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 77.
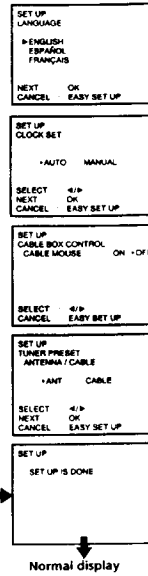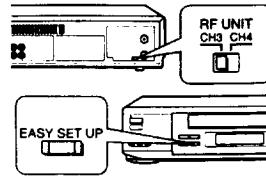
Hookup 3: VCR setup

1 Set the RF UNIT switch to CH 3 or CH 4, whichever channel is not used in your area. If both are used, set the switch to either channel.

For details, see page 76. If you made A / V connections (from page 8), 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 the joystick (OK). For details, see page 30.
- **②** The CLOCK SET menu appears. Select AUTO and press the joystick (OK). For details, see page 31.
- **③** The CABLE BOX CONTROL menu appears. Select OFF and press the joystick (OK).
- **④** The TUNER PRESET menu appears. Set ANTENNA / CABLE to ANT and press the joystick (OK). For details, see page 43.
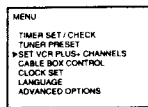- **⑤** The AUTO PRESET starts.
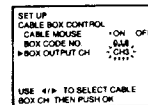
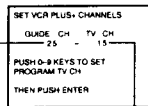Normal display

continued

Hookup 3: VCR Plus+ channel setup

1 Find the VCR Plus+ Channel Listing in your program guide. For details, see page 47.

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 48.
- **①** Press MENU and select SET VCR PLUS+ CHANNELS.
- **②** Enter the program guide channel, then the channel you use on your TV.
- **③** Press the joystick (OK).

Program guide channel

Your actual TV channel

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 36.

Hookup 4

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
- Select channels directly on the VCR

Wall   Cable box   Rear of TV

VHF/UHF
A Match the type of connector on your TV: A, B, or C.

VHF
B For connector types B and C, no UHF connection is required.
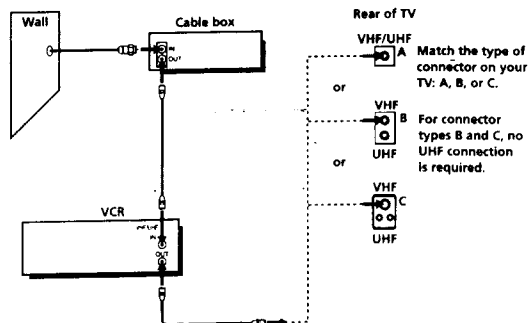
continued

Hookup 4: VCR setup

1 Set the RF UNIT switch to CH 3 or CH 4, whichever channel is not used in your area. If both are used, set the switch to either channel.

For details, see page 76. If you made A / V connections (from page 8), you can skip this step.

RF UNIT
CH3 CH4

EASY SET UP

2 Turn on your cable box.
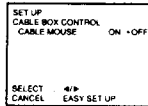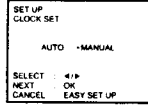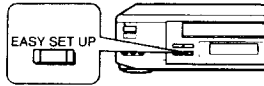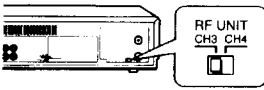
3 Press EASY SET UP on the VCR.

❶ The LANGUAGE menu appears. Change the on-screen display language to Spanish (ESPAÑOL) or French (FRANÇAIS) if desired, and press the joystick (OK). For details, see page 30.

```
SET UP
LANGUAGE

▶ENGLISH
  ESPAÑOL
  FRANÇAIS

NEXT    : OK
CANCEL    EASY SET UP
```

❷ The CLOCK SET menu appears. Select MANUAL, press the joystick (OK), and set the clock manually. For details, see page 36.

```
SET UP
CLOCK SET

      AUTO  ·MANUAL

SELECT  : ◄/►
NEXT    : OK
CANCEL    EASY SET UP
```

❸ The CABLE BOX CONTROL menu appears. Select OFF and press the joystick (OK).

```
SET UP
CABLE BOX CONTROL
  CABLE MOUSE    ON ·OFF

SELECT  : ◄/►
CANCEL    EASY SET UP
```

❹ The TUNER PRESET menu appears. Set ANTENNA / CABLE to ANT and press the joystick (OK). For details, see page 43.

```
SET UP
TUNER PRESET
  ANTENNA / CABLE
    ·ANT    CABLE

SELECT  : ◄/►
NEXT    : OK
CANCEL    EASY SET UP
```

❺ The AUTO PRESET starts.

```
SET UP
AUTO PRESET

    PROCESSING

:PLEASE WAIT :
```

```
SET UP

SET UP IS DONE
```

Normal display
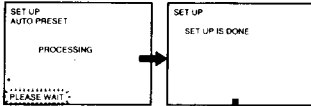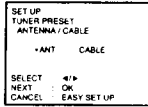
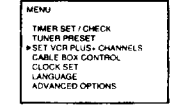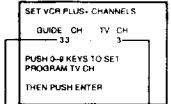
Hookup 4: VCR Plus+ channel setup

1 Find the VCR Plus+ Channel Listing in your program guide. For details, see page 47.

2 Enter all the channels you want to record and the cable box output channel (usually 2, 3, or 4). For details, see page 48.

❶ Press MENU and select SET VCR PLUS+ CHANNELS.

```
MENU

TIMER SET / CHECK
TUNER PRESET
▶SET VCR PLUS+ CHANNELS
CABLE BOX CONTROL
CLOCK SET
LANGUAGE
ADVANCED OPTIONS
```

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

❸ Press the joystick (OK).

```
SET VCR PLUS+ CHANNELS

  GUIDE  CH    TV  CH
      33          3

PUSH 0-9 KEYS TO SET
PROGRAM TV CH

THEN PUSH ENTER
```

Program guide channel

Cable box output channel

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 36.

Note
• To use the automatic clock setting feature, leave the cable box on.

Hookup 5   Pages 22 to 24

DSS (Digital Satellite System) receiver

Recommended use

Use this hookup if you have a DSS receiver. It allows the VCR's cable box control feature to control the channel on the DSS receiver, simplifying the recording process. A list of compatible DSS receivers is on page 40.
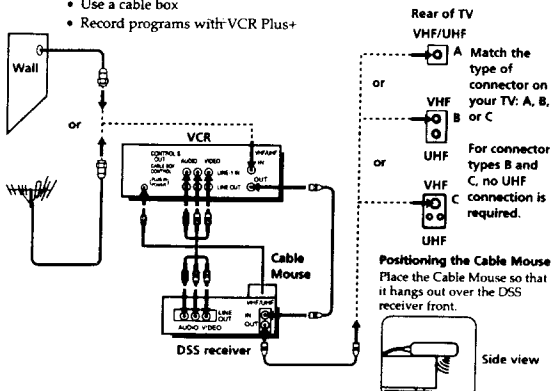
DSS (Digital Satellite System) is a satellite broadcast that provides superior digital-quality video and crisp digital-quality audio. A variety of program packages are available through your program providers. It also has program guides that are sorted by program categories.

What you can do with this hookup

• Record any channels using the VCR's cable box control feature to select channels on the DSS receiver.

What you can't do

• Record with the DSS 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
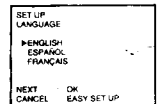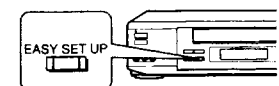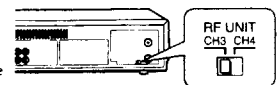• Record programs with VCR Plus+

Wall

VCR

Cable Mouse

DSS receiver

Rear of TV
VHF/UHF

A Match the type of connector on your TV: A, B, or C

or

VHF

B For connector types B and C, no UHF connection is required.

or

UHF

VHF

C

UHF

Positioning the Cable Mouse
Place the Cable Mouse so that it hangs out over the DSS receiver front.

Side view

Hookup 5: VCR setup

1 Set the RF UNIT switch to CH 3 or CH 4, whichever channel is not used in your area. If both are used, set the switch to either channel.
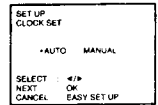
RF UNIT
CH3 CH4

For details, see page 76. If you made A / V connections (from page 8), you can skip this step.

EASY SET UP

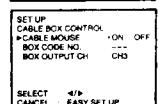**2** Turn on your DSS receiver.

3 Press EASY SET UP on the VCR.

❶ The LANGUAGE menu appears. Change the on-screen display language to Spanish (ESPAÑOL) or French (FRANÇAIS) if desired, and press the joystick (OK). For details, see page 30.

```
SET UP
LANGUAGE

▶ENGLISH
  ESPAÑOL
  FRANÇAIS

NEXT    : OK
CANCEL    EASY SET UP
```

❷ The CLOCK SET menu appears. Select AUTO and press the joystick (OK). For details, see page 31.

```
SET UP
CLOCK SET

      ·AUTO    MANUAL

SELECT  : ◄/►
NEXT    : OK
CANCEL    EASY SET UP
```

❸ The CABLE BOX CONTROL menu appears. Select ON. For details, see page 38.

```
SET UP
CABLE BOX CONTROL
▶CABLE MOUSE    ·ON  OFF
  BOX CODE NO.   - - -
  BOX OUTPUT CH    CH3

SELECT  : ◄/►
CANCEL    EASY SET UP
```

❹ Enter your DSS receiver code number and push the joystick to ↓. For details, see page 39.

```
SET UP
CABLE BOX CONTROL
  CABLE MOUSE    ·ON , OFF
▶BOX CODE NO    - - - ·
  BOX OUTPUT CH    ·CH3·

ENTER YOUR CABLE BOX
CODE NO. USING 0-9 KEYS
REFER TO THE OPERATING
MANUAL FOR THE CODE
```

❺ Set your DSS receiver output channel (BOX OUTPUT CH) to LINE and press the joystick (OK).

```
SET UP
CABLE BOX CONTROL
  CABLE MOUSE    ·ON  OFF
  BOX CODE NO    6 6 6
▶BOX OUTPUT CH    ·LINE·

USE ◄/► TO SELECT CABLE
BOX CH  THEN PUSH OK
```

```
SET UP

SET UP IS DONE
```

Normal display

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 36.

Note
- To successfully record a program from the DSS receiver, proceed as follows:
  – Leave the DSS receiver on all the time.
  – Turn off the display (menu screen, channel number, etc.) of the DSS 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.

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)

Match the type of connector on your TV: A, B, or C.

For connector types B and C, no UHF connection is required.

Hookup 6: VCR setup

1 Set the RF UNIT switch to CH 3 or CH 4, whichever channel is not used in your area. If both are used, set the switch to either channel.

For details, see page 76. If you made A/V connections (from page 8), you can skip this step.

2 Set the A/B switch to "A."

3 Press EASY SET UP on the VCR.

❶ The LANGUAGE menu appears. Change the on-screen display language to Spanish (ESPAÑOL) or French (FRANÇAIS) if desired, and press the joystick (OK). For details, see page 30.
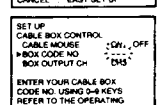
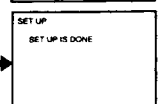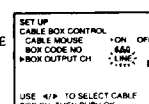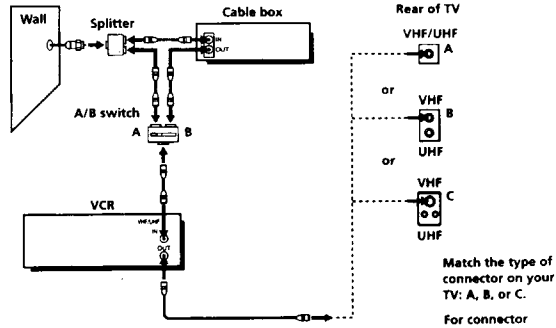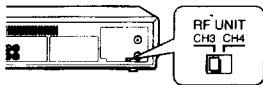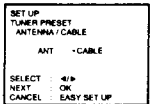❷ The CLOCK SET menu appears. Select AUTO and press the joystick (OK). For details, see page 31.

❸ The CABLE BOX CONTROL menu appears. Select OFF and press the joystick (OK).

❹ The TUNER PRESET menu appears. Set ANTENNA/CABLE to CABLE and press the joystick (OK). For details, see page 43.

❺ The AUTO PRESET starts.

4 Preset the cable box output channel (usually 2, 3 or 4). For details, see page 45.

❶ Press MENU and select TUNER PRESET.

❷ Enter the cable box output channel.

❸ Set MANUAL SET to ADD and press the joystick (OK).

Normal display

1-6

Hookup 6: VCR Plus+ channel setup

1 Find the VCR Plus+ Channel Listing in your program guide. For details, see page 47.

2 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 48.

❶ Press MENU and select SET VCR PLUS+ CHANNELS.

```
MENU
  TIMER SET / CHECK
  TUNER PRESET
 ▶SET VCR PLUS+ CHANNELS
  CABLE BOX CONTROL
  CLOCK SET
  LANGUAGE
  ADVANCED OPTIONS
```

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

❸ Press the joystick (OK).

```
SET VCR PLUS+ CHANNELS
  GUIDE  CH   TV  CH
 ───── 2 5  -   1 8 ─────
  PUSH 0-9 KEYS TO SET
  PROGRAM TV CH
  THEN PUSH ENTER
```
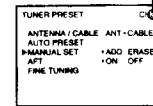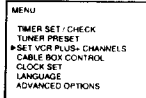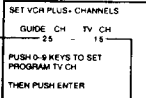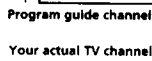
Program guide channel

Your actual TV channel

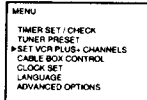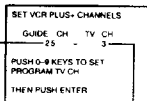**3** For scrambled channels, enter all the scrambled channels you want to record and the cable box output channel (usually 2, 3, or 4). For details, see page 48.
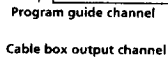
❶ Press MENU and select SET VCR PLUS+ CHANNELS.

```
MENU
  TIMER SET / CHECK
  TUNER PRESET
 ▶SET VCR PLUS+ CHANNELS
  CABLE BOX CONTROL
  CLOCK SET
  LANGUAGE
  ADVANCED OPTIONS
```

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

❸ Press the joystick (OK).

```
SET VCR PLUS+ CHANNELS
  GUIDE  CH   TV  CH
 ───── 2 5  -   3 ─────
  PUSH 0-9 KEYS TO SET
  PROGRAM TV CH
  THEN PUSH ENTER
```

Program guide channel

Cable box output channel

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 36.

Note
• To use the automatic clock setting feature, set the A / B switch to A.

Selecting a language

You can change the on-screen display language.

1 Press MENU, then push the joystick to ↑/↓ to move the cursor (▶) to LANGUAGE and press the joystick (OK).

When using the EASY SET UP procedure, skip this step.

```
LANGUAGE
 ▶ENGLISH
  ESPAÑOL
  FRANÇAIS
```

2 Push the joystick to ↑/↓ to select ENGLISH, ESPAÑOL, or FRANÇAIS, then press the joystick (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 36).

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.
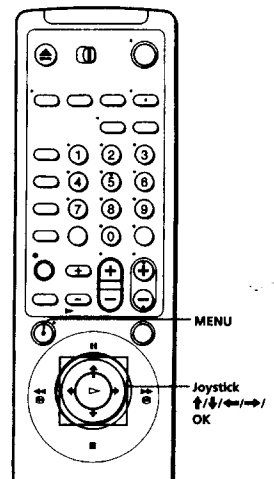
1 Press MENU, then push the joystick to ↑/↓ to move the cursor (▶) to CLOCK SET and press the joystick (OK).

```
CLOCK SET
    •AUTO    MANUAL
  SELECT   ◀/▶
  THEN PUSH OK
  QUIT      MENU
```
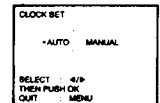
2 Push the joystick to ◀/➡ to select AUTO, then press the joystick (OK).

```
AUTO CLOCK SET
  FULL AUTO       •YES   NO
  SELECT   ◀/▶
  END       OK
  QUIT      MENU
```

3
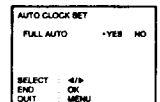
Push the joystick to ←/→ to select YES, then press the joystick (OK).

4

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 33).

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.

If the clock is not activated

Number buttons

MENU

Joystick
↑/↓/←/→/
OK

1

Follow steps 1 and 2 in "Using the Auto Clock Set feature."
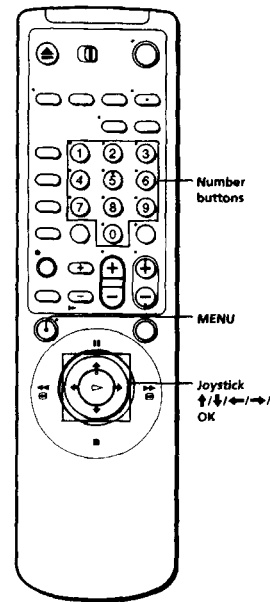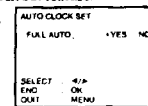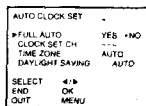
The AUTO CLOCK SET menu is displayed.

```
AUTO CLOCK SET

FULL AUTO.      •YES   NO


SELECT   ◄/►
END      OK
QUIT     MENU
```

2

Push the joystick to ←/→ to select NO for FULL AUTO.

```
AUTO CLOCK SET

►FULL AUTO        YES  •NO
 CLOCK SET CH     - - -
 TIME ZONE        AUTO
 DAYLIGHT SAVING  AUTO

SELECT   ◄/►
END      OK
QUIT     MENU
```

3

Push the joystick to ↑/↓ to move the cursor (►) to the item you want to set, then push the joystick to ←/→ to make the setting.

- **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.
  Use this option if you know of a channel that carries a time signal. Most PBS member stations broadcast a time signal. For the fastest response, select your local PBS station.

```
AUTO CLOCK SET

 FULL AUTO        YES  •NO
►CLOCK SET CH     122
 TIME ZONE        AUTO
 DAYLIGHT SAVING  AUTO

USE      0 - 9
END      OK
QUIT     MENU
```
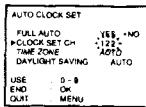
- **For TIME ZONE**
  Select the time zone of your area, or select AUTO to have the VCR automatically set your time zone.
  The options are: AUTO → ATLANTIC → EASTERN → CENTRAL → MOUNTAIN → PACIFIC → ALASKA → HAWAII → AUTO

```
AUTO CLOCK SET

 FULL AUTO        YES  •NO
 CLOCK SET CH     122
►TIME ZONE        •AUTO•
 DAYLIGHT SAVING  ••AUTO

SELECT   ◄/►
END      OK
QUIT     MENU
```
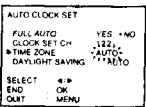
- **For DAYLIGHT SAVING**
  Select ON or OFF (standard time), or AUTO to have the VCR automatically set the daylight saving time.

```
AUTO CLOCK SET

 FULL AUTO        YES  •NO
 CLOCK SET CH     122
 TIME ZONE        AUTO
►DAYLIGHT SAVING  •AUTO•

SELECT   ◄/►
END      OK
QUIT     MENU
```

4
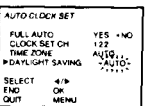
Press the joystick (OK).

5

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

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

MENU

Joystick
↑/↓/←/→/
OK

1 ○ MENU Press MENU, then push the joystick to ↑/↓ to move the cursor (▶) to CLOCK SET and press the joystick (OK).

When using the EASY SET UP procedure, skip this step.

```
CLOCK SET

    •AUTO    MANUAL

SELECT   ◄/►
THEN PUSH OK
QUIT     MENU
```

2 Push the joystick to ←/→ to select MANUAL and press the joystick (OK).
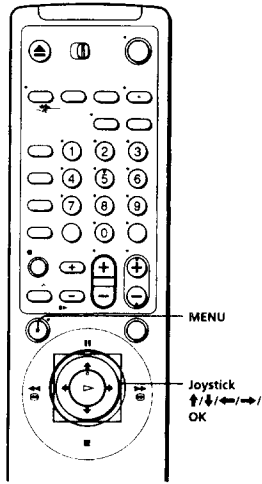
```
CLOCK SET
  1/1998  TH  12 00M
```

3 Push the joystick to ↑/↓ to set the month.

```
CLOCK SET
  1/1998 SU 12 00M
```

4 Push the joystick to → to flash the day and push the joystick to ↑/↓ to set the day.

The day of the week is set automatically.

```
CLOCK SET
  11/1998 MO 12 00M
```

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

6 Press the joystick (OK) to start the clock.

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

Number buttons

CH +/-

MENU

Joystick
↑/↓/←/→/
OK

Your VCR includes a cable box control feature that allows the VCR to control most brands of cable boxes/DSS receivers via the Cable Mouse. With cable box control, the VCR controls channels on the cable box/DSS receiver for timer recording. You can also use the VCR's remote commander to change channels on the cable box/DSS receiver whenever the cable box/DSS receiver is turned on even if the VCR is turned off. To use cable box control, you need to connect the Cable Mouse (pages 10 and 22) 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 this VCR's 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.

1 ○ MENU Press MENU, then push the joystick to ↑/↓ to move the cursor (▶) to CABLE BOX CONTROL and press the joystick (OK).

When using the EASY SET UP procedure, skip this step.

```
CABLE BOX CONTROL

CABLE MOUSE      ON •OFF

USE ◄/► TO SELECT
PUSH MENU TO QUIT
```

2 Push the joystick to ←/→ to select ON, then push the joystick to ↓.

"– – –" flashes in the BOX CODE NO. row.

If a code number has already been entered, push the joystick to ↓ to select BOX CODE NO.

```
CABLE BOX CONTROL

CABLE MOUSE     :ON. •OFF
►BOX CODE NO    ----
  BOX OUTPUT CH  CH1

ENTER YOUR CABLE BOX
CODE NO. USING 0-9 KEYS
REFER TO THE OPERATING
MANUAL FOR THE CODE
```

3 Press the number buttons to enter the cable box/DSS receiver code number, then push the joystick to ↓.

Find your cable box/DSS receiver code number from the chart below.

```
CABLE BOX CONTROL

CABLE MOUSE     •ON  OFF
  BOX CODE NO    048
►BOX OUTPUT CH  :CH3:

USE ◄/► TO SELECT CABLE
BOX CH. THEN PUSH OK
```

4 If you want to control a cable box, push the joystick to ←/→ to select the output channel for the cable box, then press the joystick (OK).

If you want to control a DSS receiver, select LINE, then press the joystick (OK).

Cable box and DSS 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	Eastern	013, 285
Antronix	218	Electricord	089
Archer	033, 050, 164, 218, 808	Electus	055
BBT	278	Focus	411
Cable Star	067	Garrard	164
Cabletenna	033	GC Electronics	027, 067, 341
Cable time	172, 388, 459	GE	243, 244
Century	164	GEC	097
Citizen	164, 326, 327	Gemini	026, 068, 081
Clyde Cablevision	097	General Instrument	022, 287, 487
Colour Voice	036, 042	Hamlin	020, 031, 045, 270, 284
Comband	243, 244	Hitachi	022
Comtronics	051, 071	Jasco	164, 326
Decsat	434	Jerrold	014, 022, 025, 026, 035, 037, 058, 109, 287, 487
Diamond	046		
Eagle Comtronics	051	Linsay	451

Cable box brand	Code numbers
Macom	044
Magnavox	038, 043, 080
Memorex	011
Movie Time	089, 167, 214
Northcoast	325
Novaplex	629
NSC	074, 081, 167, 214
Oak	018, 030, 259
Panasonic	032, 118
Paragon	011
Philips	036, 038, 039, 040, 041, 042, 071, 301
Pioneer	034, 155, 271, 544, 695
Popular Mechanics	411
Pulsar	011
Radio shack	808
RCA	032
Realistic	218
Recoton	411
Regal	031, 270, 284, 290
Regency	013
Rembrandt	081
Samsung	051, 155
Scientific Atlanta	017, 019, 028, 288
Seam	521
Sharp	324
Signal	051
Signature	022
SL Marx	051
Spectravision	069
Sprucer	032, 318
Standard Components	107, 166
Starcom	014, 026, 058, 109
Stargate	026, 051

Cable box brand	Code numbers
STS	167
Sylvania	012
T-Cable Teletext	116
Tandy	269
Tatung	108
Teknica	157
TeleCaption	232
Teleservice	292
Texscan	012, 107
TFC	321
Timeless	429
Tocom	023, 024
Toshiba	011
Tudi	297
TV86	074
TV COM	018, 030, 259
Uniden	236
Unika	033, 164, 218
United Artists	018
United Cable	014
Universal	033, 050, 067, 088, 089, 164, 202, 218, 333
Videoway	261
Vidtech	255
Viewstar	038, 071, 074, 122, 222, 269, 300
Zenith	011, 065, 536
Zentek	411
Wave Master	576

DSS receiver brand	Code numbers
RCA	577
Sony	650

To ensure correct operation

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

Side view

➲ : Signal flow
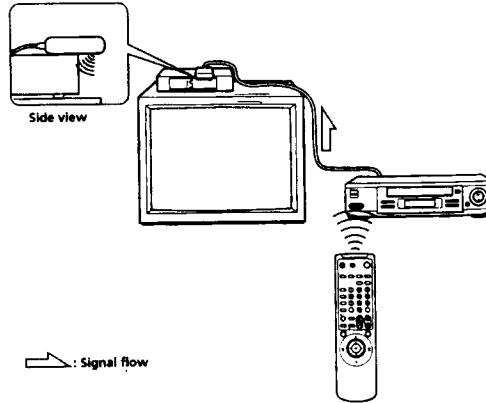
To check the cable box control setting

1 Press CH +/– on the remote commander. Does the channel indicator on the cable box/DSS receiver change? (Point the remote commander at the VCR, not at the cable box/DSS receiver.)

2 Press all 10 number buttons (0 to 9) on the remote commander. Does the channel indicator on the cable box/DSS 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/DSS 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/DSS receiver and VCR away from each other. Do not place the cable box/DSS 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.

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/DSS receiver control feature.

Presetting channels

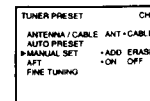### (Skip this section if you are using cable box/DSS receiver control.)

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.

MENU

Joystick
↑/↓/←/→/
OK

Presetting all receivable channels automatically

1 Press MENU, then push the joystick to ↑/↓ to move the cursor (▶) to TUNER PRESET and press the joystick (OK).

When using the EASY SET UP procedure, skip this step.

```
TUNER PRESET              CH1
ANTENNA / CABLE   ANT • CABLE
AUTO PRESET
▶ MANUAL SET      • ADD  ERASE
AFT              • ON   OFF
FINE TUNING
```

2 Push the joystick to ↑/↓ to select ANTENNA/CABLE.

Presetting channels (continued)

3

• To preset cable TV channels:

Push the joystick to ◄━/━► to set ANTENNA / CABLE to CABLE.

```
TUNER PRESET          CH1
►ANTENNA / CABLE  ANT • CABLE
 AUTO PRESET
 MANUAL SET       • ADD  ERASE
 AFT              • ON   OFF
 FINE TUNING
```

• To preset VHF and UHF channels:

Push the joystick to ◄━/━► to set ANTENNA / CABLE to ANT.

```
TUNER PRESET          CH2
►ANTENNA / CABLE  • ANT  CABLE
 AUTO PRESET
 MANUAL SET       • ADD  ERASE
 AFT              • ON   OFF
 FINE TUNING
```

4

Push the joystick to ↑/↓ to select AUTO PRESET, then press the joystick (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.

```
TUNER PRESET          CH2
 ANTENNA / CABLE  • ANT  CABLE
►AUTO PRESET
 MANUAL SET       • ADD  ERASE
 AFT              • ON   OFF
 FINE TUNING

   ·········
   · PLEASE WAIT ·
```

Presetting/disabling channels manually

Number buttons, ENTER

CH +/-

MENU

Joystick ↑/↓/◄━/━► OK

1 • MENU Press MENU and select TUNER PRESET, then press the joystick (OK).

```
TUNER PRESET          CH1
 ANTENNA / CABLE  ANT • CABLE
 AUTO PRESET
►MANUAL SET       • ADD  ERASE
 AFT              • ON   OFF
 FINE TUNING
```
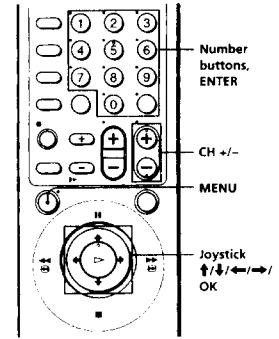
2 • To preset a channel: **Channel to be preset**

1 Press the number buttons to enter the channel number, then press ENTER.

2 Push the joystick to ◄━/━► to set MANUAL SET to ADD.

```
TUNER PRESET          CH●
 ANTENNA / CABLE  ANT • CABLE
 AUTO PRESET
►MANUAL SET       • ADD  ERASE
 AFT              • ON   OFF
 FINE TUNING
```

• To disable a channel: **Channel to be disabled**

1 Press CH +/- to select the channel number.

2 Push the joystick to ◄━/━► to set MANUAL SET to ERASE.

```
TUNER PRESET          CH●
 ANTENNA / CABLE  ANT • CABLE
 AUTO PRESET
►MANUAL SET       ADD • ERASE
 AFT              • ON   OFF
 FINE TUNING
```

3 Repeat step 2 to preset or disable channels as required, then press the joystick (OK).

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.

Number buttons, ENTER

MENU

Joystick ↑/↓/◄━/━► OK

1 • MENU Press MENU and select TUNER PRESET, then press the joystick (OK).

```
TUNER PRESET          CH1
 ANTENNA / CABLE  ANT • CABLE
 AUTO PRESET
►MANUAL SET       • ADD  ERASE
 AFT              • ON   OFF
 FINE TUNING
```
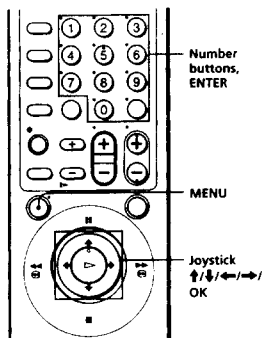
2 Press the number buttons to select the channel you want to fine-tune, then press ENTER.

Selected channel

```
TUNER PRESET          CH●
 ANTENNA / CABLE  ANT • CABLE
 AUTO PRESET
►MANUAL SET       • ADD  ERASE
 AFT              • ON   OFF
 FINE TUNING
```

3 Push the joystick to ↑/↓ to select FINE TUNING.

The fine tuning meter appears.

```
TUNER PRESET          CH5
 ANTENNA / CABLE  ANT • CABLE
 AUTO PRESET
 MANUAL SET       • ADD  ERASE
 AFT              • ON   OFF
►FINE TUNING

   ----■----
```

4 Push the joystick to ◄━/━► to adjust to a clearer picture, then press the joystick (OK).

Note that the AFT setting switches to OFF.

```
TUNER PRESET          CH5
 ANTENNA / CABLE  ANT • CABLE
 AUTO PRESET
 MANUAL SET       • ADD  ERASE
 AFT              ON  • OFF
►FINE TUNING

   ----■---
```

Setting up VCR Plus+

How VCR Plus+ works

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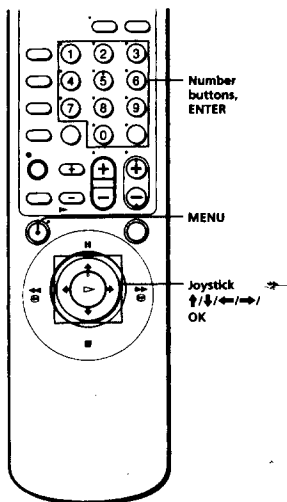
How to set up your VCR

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 get the guide channel numbers, find 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.
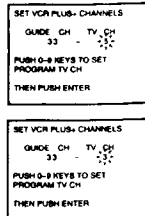
For each channel your VCR receives, use the Channel Line-up Chart to check that the channel numbers match. For example, if HBO is listed in the Channel Line-up Chart on channel 33, and your VCR receives HBO on channel 5, you need to coordinate these numbers using the following procedure. For channels in which the numbers are the same, you can skip this procedure.
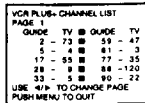
Example of "PlusCode"

PlusCode

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

Example of "Channel Line-up Chart"

CABLE CH	CABLE TV	VCR Plus+ GUIDE CH
16	American Movie Classics	35
17	Bravo (program grd only)	54
20	Cable News Network	42
21	C-SPAN	28
22	The Disney Channel	53
25	The Discovery Channel	37
34	ESPN	34
35	The Family Channel	47
5	Home Box Office	33
27	Lifetime	46
29	Cinemax	45
30	Music Television	48
31	Nickelodeon	38
38	Sports Channel	59
39	Sports Channel America	70
45	Showtime	41
17	TBS SuperStation	43
44	The Movie Channel	58
49	The Nashville Network	49
50	Turner Network Television	52
51	USA Network	44

Number buttons, ENTER

MENU

Joystick ↑/↓/←/→/ OK

1 ○ •MENU Press MENU, then push the joystick to ↑/↓ to move the cursor (▶) to SET VCR PLUS+ CHANNELS and press the joystick (OK).

SET VCR PLUS+ CHANNELS

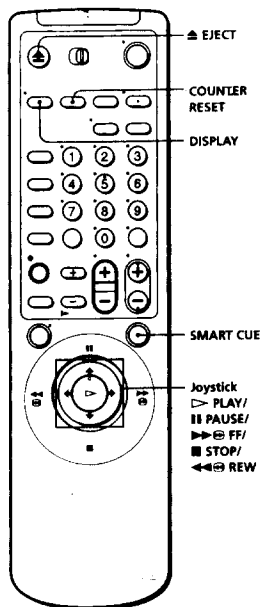GUIDE CH   TV CH
--,-   -   --

PUSH 0-9 KEYS TO SET
PROGRAM GUIDE CH

OR PUSH OK TO SEE
VCR PLUS+ CHANNEL LIST

2 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ○ Enter the channel number assigned in the program guide and press ENTER.

SET VCR PLUS+ CHANNELS

GUIDE CH   TV CH
-9,- -   --

PUSH 0-9 KEYS TO SET
PROGRAM GUIDE CH

THEN PUSH ENTER

3 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ○
- 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 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.

SET VCR PLUS+ CHANNELS

GUIDE CH   TV CH
33   -   -:-

PUSH 0-9 KEYS TO SET
PROGRAM TV CH

THEN PUSH ENTER

SET VCR PLUS+ CHANNELS

GUIDE CH   TV CH
33   -   -:-

PUSH 0-9 KEYS TO SET
PROGRAM TV CH

THEN PUSH ENTER

4 Repeat steps 2 and 3 for each channel whose numbers don't match.

5 When you have set all channels, press the joystick (OK) to confirm your channel settings.

VCR PLUS+ CHANNEL LIST
PAGE 1
GUIDE   TV ■ GUIDE   TV
2 - 73 ■   59 - 47
5 - 4 ■   81 - 3
17 - 55 ■   77 - 35
28 - 8 ■   88 -120
33 - 5 ■   90 - 22
USE ◄/► TO CHANGE PAGE
PUSH MENU TO QUIT

6 ○ •MENU When you've finished, press MENU to exit.

Playing a tape

▲ EJECT

COUNTER RESET

DISPLAY

SMART CUE

Joystick
▷ PLAY/
‖ PAUSE/
▶▶⊕ FF/
■ STOP/
◀◀⊕ REW

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

2 Insert a tape.

The VCR turns on and starts playing automatically if you insert a tape with its safety tab removed.

3 Press the joystick ▷ .

When the tape reaches the end, it will rewind automatically.

Additional tasks

To	Push the joystick to
Stop play	■ STOP
Pause play	‖ PAUSE
Resume play after pause	‖ PAUSE or press the joystick ▷.
Fast-forward the tape	▶▶⊕ FF during stop
Rewind the tape	◀◀⊕ REW during stop
Eject the tape	Press ▲ 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.

Press SMART CUE during playback of a scene you want to skip. The VCR starts searching.

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.

To use the time counter

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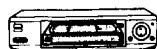
VIDEO

◯◯ SP 0:00:00

To display the counter on the TV screen, press DISPLAY.
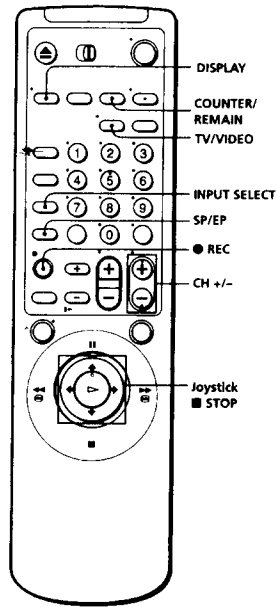
Notes
- Tapes recorded in the LP mode on other VCRs can be played back on this VCR but the picture quality cannot be guaranteed.
- While setting the menu on the TV screen, you cannot use the joystick for tape operation.
- The counter resets to "0:00:00" whenever a tape is reinserted.
- The counter stops counting when it comes to a portion with no recording.

Recording TV programs

- DISPLAY
- COUNTER/REMAIN
- TV/VIDEO
- INPUT SELECT
- SP/EP
- ● REC
- CH +/–
- Joystick
- ■ STOP

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 (Extra 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.

Recording indicator

To stop recording
Push the joystick to ■ STOP.

Recording TV programs (continued)

To check the remaining time
Press DISPLAY. With the display on, press COUNTER/REMAIN to check the remaining time. Each time you press COUNTER/REMAIN, the time counter and the remaining time appear alternately. The remaining time indicator also appears in the display window.

SP [0:00:22] — Time counter
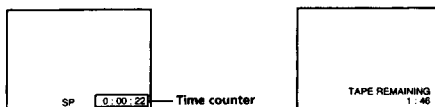
TAPE REMAINING 1:46

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 73.)

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 select the channel using the shuttle ring
To select a channel in step 4 on page 53, you can also use the shuttle ring. During stop, turn the shuttle ring clockwise for higher channels or counterclockwise for lower channels. The VCR switches the channel in the preset order.

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.

Safety tab

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 INPUT SELECT.
- 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.
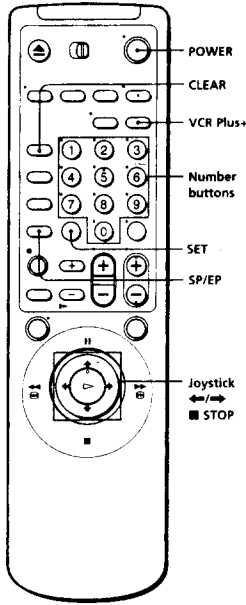
Notes
- The remaining time may not be indicated accurately for:
  - short tapes less than T-20
  - T-130
  - T-210
  - tapes recorded in the LP mode.
- The display doesn't appear during still (pause) mode, search mode, or slow-motion playback.
- It may take up to one minute for the VCR to calculate and display the remaining time after you press DISPLAY.
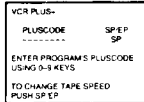
Recording TV programs using VCR Plus+

Just enter the program's PlusCode listed in the TV program guide. The date, times 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.

POWER
CLEAR
VCR Plus+
Number buttons
SET
SP/EP
Joystick ←/→
■ STOP

1 VCR Plus+ Press VCR Plus+.

```
VCR PLUS+

PLUSCODE          SP/EP
---------          SP

ENTER PROGRAM'S PLUSCODE
USING 0-9 KEYS

TO CHANGE TAPE SPEED
PUSH SP/EP
```

2 ① ② ③ Press the number buttons to enter the
④ ⑤ ⑥ program's PlusCode.
⑦ ⑧ ⑨ If you make a mistake, press CLEAR and
⓪ re-enter the correct number.

```
VCR PLUS+

PLUSCODE          SP/EP
8812----           SP

USE ◆ KEYS FOR
 •ONCE   DAILY   WEEKLY

TO CONFIRM    SET
TO CANCEL     CLEAR
```

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

```
VCR PLUS+

PLUSCODE          SP/EP
8812----           EP

USE ◆ KEYS FOR
 •ONCE   DAILY   WEEKLY

TO CONFIRM    SET
TO CANCEL     CLEAR
```

4 Push the joystick ←/→ to select ONCE, DAILY, or WEEKLY, then press SET.

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

```
VCR PLUS+

PLUSCODE          SP/EP
8812----           EP
    RECORDING TIME
DATE    START  STOP  CH
11/17  TU ■ 00M 11 00M 60P

TO SET TIMER : PUSH POWER
TO CANCEL     PUSH CLEAR
```
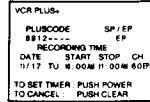
The date, start and stop times, channel number and tape speed appear on the TV screen. If the information is not correct, press CLEAR to cancel the setting.

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

6 •POWER Press POWER 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, push the joystick to ■ STOP.

Recording TV programs using VCR Plus+ (continued)

To use the VCR after setting the timer
To use the VCR before a timer recording begins, just press POWER. The ☉ indicator turns off and the VCR switches on. Remember to press POWER to reset the VCR in timer recording standby 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 POWER down on the VCR until the o-n indicator appears in the display window. The VCR turns off and the o-n indicator remains lit. The VCR will not work except for timer recording.

To unlock the VCR, hold POWER down on the VCR until the o-n 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.

Tip
- To cancel the VCR Plus+ recording, press VCR Plus+ before pressing SET in step 4 on page 57.

Note
- If the VCR doesn't accept the PlusCode, this means that:
  - The PlusCode 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.
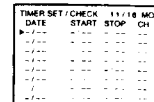

Setting the timer manually

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

POWER
INPUT SELECT
MENU
Joystick ↑/↓/←/→/ OK
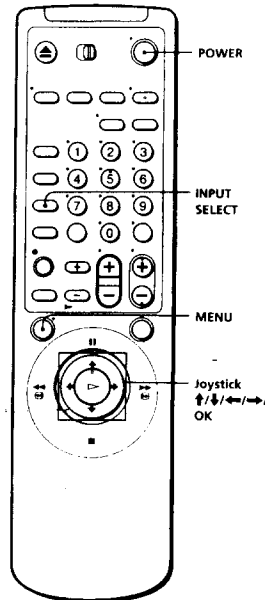
1 •MENU Press MENU and select TIMER SET/ CHECK, then press the joystick (OK).

```
TIMER SET/CHECK  11/18 MO
DATE   START  STOP   CH
►-/--   -- --  -- --  --
  -/--   -- --  -- --  --
  -/--   -- --  -- --  --
  -/--   -- --  -- --  --
  -/--   -- --  -- --  --
  -/--   -- --  -- --  --
  -/--   -- --  -- --  --
  -/--   -- --  -- --  --
```

1-14

Setting the timer manually (continued)

Playing/searching at various speeds

2

Set the date, start and stop times, channel number and tape speed:

1 Push the joystick to ➡ to flash each item in turn.

2 Push the joystick to ↑/↓ to set each item. To correct a setting, push the joystick to ⬅ to return to that setting and reset.

TIMER SET / CHECK	11 / 16	MO
DATE.....	START	STOP	CH
· 11 / 16 MO:--			--:--
· 11 / 18 MO:--			--:--
-/--	-:--	--:--	--
-/--	-:--	--:--	--
-/--	-:--	--:--	--
-/--	-:--	--:--	--
-/--	-:--	--:--	--

To record the same program every day or the same day every week, push the joystick to ↓ while the date is flashing. For details, see "Daily/weekly recording" on this page.

INPUT SELECT

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.

3

Push the joystick to ➡ to confirm the setting.

The cursor (▶) appears at the beginning of the line. To enter another setting, move the cursor to the next line and repeat step 2.

4

Press the joystick (OK).

5 · POWER

Press POWER 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.

Daily/weekly recording

In step 2 above, push the joystick to ↓ to select the recording pattern. Each time you push the joystick to ↓, the indication changes as shown below. Push the joystick to ↑ 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

Tips
• To set the channel, you can also use the CH+/-, number buttons, or shuttle ring during stop.
• To set the tape speed, you can also use SP/EP.

Note
• If you are using cable box control, you cannot select "L1" or "L2".
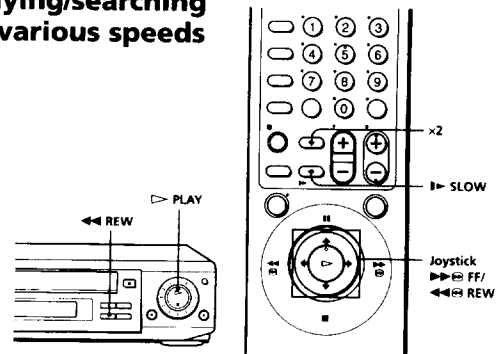
Playback options	Operation
View the picture during fast-forward or rewind	During fast-forward, keep pushing the joystick to ▶▶⊖ FF. During rewind, keep pushing the joystick to ◀◀⊖ REW.
Play at high speed	• During playback, push the joystick to ▶▶⊖ FF or ◀◀⊖ REW on the remote commander. • During playback, keep pushing the joystick to ▶▶⊖ FF or ◀◀⊖ REW. When you release the joystick, normal playback resumes.
Play at twice the normal speed	During playback, press ×2.
Play in slow motion	During playback or pause, press I▶ SLOW.
Play frame by frame	During pause, push the joystick to ▶▶⊖ FF or ◀◀⊖ REW. Keep pushing the joystick to play one frame each second.
Rewind and start play	During stop, hold ◀◀ REW on the VCR, and press ▷ PLAY on the VCR.

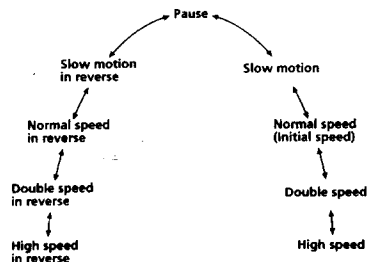## Playing/searching at various speeds (continued)

Using the shuttle ring on the VCR

JOG

With the shuttle ring on the VCR, you can operate a variety of playback options. There are two ways for using the shuttle ring, normal mode and jog mode.
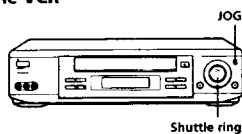
Shuttle ring

To use the shuttle ring in normal mode

During playback or pause, turn the shuttle ring clockwise or counterclockwise. Each change in the shuttle ring position changes the playback mode in the following way.

Pause

Slow motion in reverse / Slow motion

Normal speed in reverse / Normal speed (initial speed)

Double speed in reverse / Double speed

High speed in reverse / High speed

To use the shuttle ring in jog mode

Use this mode for frame-by-frame playback.

Press JOG to enter the jog mode. The JOG button lights up. If you change to the jog mode during any playback mode, the playback pauses so you can see a still picture. Each change in the shuttle ring position shifts the picture one frame. To shift frames in reverse, turn the shuttle ring counterclockwise. The frame shift speed depends on the speed you turn the shuttle ring. To resume normal playback, press JOG again. The JOG indicator goes off.

### To resume normal playback

Press the joystick ▷.

Tip
• Adjust the picture using the TRACKING +/- buttons on the VCR if:
  - Streaks appear while playing in slow motion.
 - The picture shakes while pausing.

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
  - when playing in reverse slow motion
  - when playing in reverse.
• On screen symbols, such as the bar indication, may shake while playing or searching at various speeds.

Searching for a selected point on the tape

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

DISPLAY

Joystick
←/→
▷ PLAY
►►⊟ FF
◄◄⊟ REW
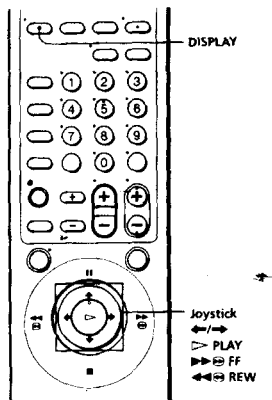
1 Press DISPLAY repeatedly until the bar indication appears on the TV screen.

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 pushing the joystick to ▷ PLAY, ►►⊟ FF or ◄◄⊟ REW) until the cursor appears.

2 Push the joystick to ←/→ to move the pointer (+) 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.
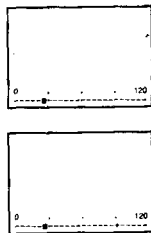
To cancel searching
Push the joystick to ▷ PLAY or STOP ■.

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 (+) on the bar indication during search, the VCR searches for the new reset point.
• While the cursor (■) is displayed on the bar indication, the joystick (►►⊟ FF / → and ◄◄⊟ REW/←) on the remote commander work only for moving the pointer (+), while the ►►⊟ FF and ◄◄⊟ REW buttons on the VCR work 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.
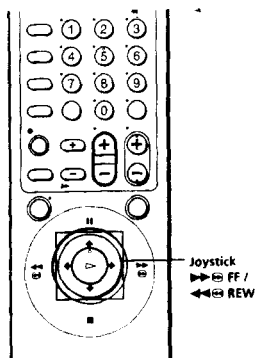
Joystick
►►⊟ FF /
◄◄⊟ REW

Push the joystick to ►► ⊟ FF (or ◄◄ ⊟ REW) for two seconds during stop.
"SKIP" indicator appears on the TV screen.

SKIP

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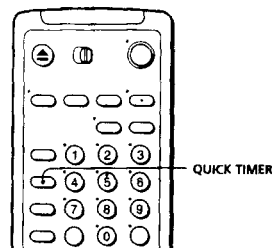
search forward   search forward

⊟	►► fast-forward	⊟	►► fast-forward	
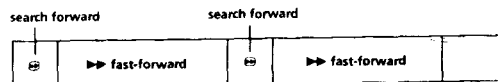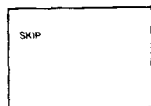
To cancel skip-search
Push the joystick to ▷ PLAY or ■ STOP.

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

Recording TV programs using the quick timer

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

QUICK TIMER

1 While recording, press QUICK TIMER once.
The ⏀ indicator appears in the display window.

2 Press QUICK TIMER repeatedly to set the duration.
Each press advances the time in increments of 30 minutes.

→ 0:00 → 0:30 → 1:00 → ···· → 10:30 → 11:00 →
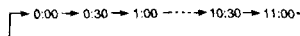
The duration decreases minute by minute to 0:00, then the VCR stops recording and turns off automatically.

To extend the duration
Press QUICK TIMER repeatedly to set to the new duration.

**To stop the VCR while recording**
Push the joystick to ■ STOP.

Using the quick timer during stop mode

1 Press QUICK TIMER.
2 Press CH +/– or INPUT SELECT to select the channel you want to record.
3 Press QUICK TIMER repeatedly to set the recording duration.
The recording starts.

Checking/ changing/ canceling timer settings

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

POWER

CLEAR
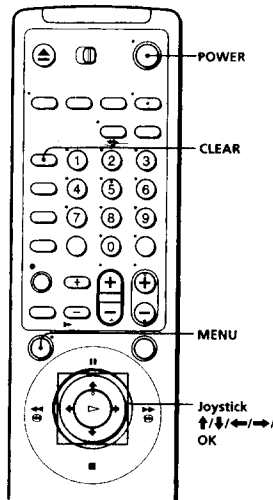
MENU

Joystick
↑/↓/←/→/
OK

1 Press POWER to turn on the VCR.

2 Press MENU and select TIMER SET / CHECK:

```
TIMER SET / CHECK   11 / 16  MO
DATE       START  STOP   CH
▶11/17  TU  7 :00M  8 :00M   6P
 11/25  WE  10:30M 11:15M  50P
 MO – SA  1 :00M  3 :00M  L1P
 EVERY SU 11:55M  1 :30M  42P
 –/--    - :--   - :--   --
 –/--    - :--   - :--   --
 –/--    - :--   - :--   --
```

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

3 Push the joystick to ↑/↓ to select the setting you want to change or cancel:

- To change the setting, push the joystick to ←/→ to flash the item you want to change, and push the joystick to ↑/↓ to reset it. Then, push the joystick to → repeatedly until the cursor (▶) appears at the beginning of the line.
- To cancel the setting, press CLEAR.

4 Press the joystick (OK).

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.

Program 1

Program 2

Will be cut off
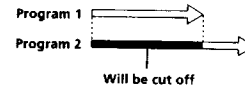
Recording stereo and bilingual programs

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 73.

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 73.

Selecting the sound while playing

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

Stereo program

To listen to	Indicator on the TV screen
Stereo	STEREO
Left channel	L
Right channel	R
Monaural sound on the normal audio track*	No indicator appears

* Usually the mixed sound of left and right channels

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.

Monaural sound

Normal audio track
Hi-fi audio track
(main track)

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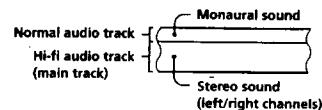
Notes
- To play a tape in stereo, you must use the A / V connections.
- When you play a tape recorded in monaural, the sound is heard in monaural regardless of the AUDIO MONITOR setting.

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 the TRACKING +/- buttons on the VCR 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.

NORMAL TRACKING
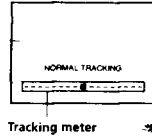
Tracking meter

About Adaptive Picture Control (APC)

Adaptive Picture Control (APC) 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 73.

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 on tapes recorded in the LP mode on other VCRs.
* When you set AUTO TAPE SPEED to ON in the ADVANCED OPTIONS menu, the APC function doesn't work if the tape speed is automatically changed from the SP to EP mode during a timer recording, unless the tape has been recorded in the EP mode with the APC function. For details, see page 73.
* There is a delay of a few 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. After the APC indicator stops flashing, push the joystick to ❚❚ PAUSE to start recording immediately. If you push the joystick to ❚❚ PAUSE before the APC indicator stops flashing, the APC function is canceled.

Changing menu options

1   Press MENU and select ADVANCED OPTIONS.

```
ADVANCED OPTIONS

▶AUTO STEREO      ·ON    OFF
TUNER AUDIO       ·MAIN  SAP
APC               ·ON    OFF
TAPE SELECT       ·AUTO  180
AUTO TAPE SPEED   ·ON    OFF
SHARPNESS         L-■--H
```

2   Push the joystick to ↑/↓ to select the option to change, then push the joystick to ◀/▶ to change the setting.

3   Press the joystick (OK) to return to the original screen.

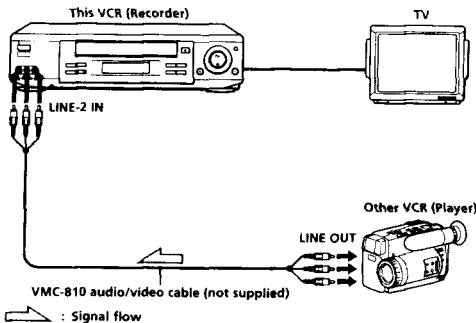## Menu choices

Initial settings are indicated in bold print.

Menu option	Set this option to
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.
TAPE SELECT	**AUTO** or 180 (when using a T-140 or T-180) to select the tape length and display the remaining time correctly.
AUTO TAPE SPEED	**ON** to change the timer recording tape speed automatically to the EP mode when the remaining tape becomes shorter than the recording time. OFF to keep the set tape speed.
SHARPNESS	L (Low) through H (High) to adjust the sharpness of the picture. L to turn off the sharpness control.

Editing with another VCR

How to hook up to record on this VCR

This VCR (Recorder)

TV

LINE-2 IN

Other VCR (Player)

LINE OUT

VMC-810 audio/video cable (not supplied)

▭▷ : Signal flow

How to hook up to a stereo system

Connect LINE-2 IN AUDIO on this VCR to the audio output jacks on the stereo system, using the RK-C510KS audio cable (not supplied).

If the other VCR has a CONTROL S OUT jack for synchronized editing

Hook up to record on the other VCR, then connect the VCRs via the CONTROL S jacks. The CONTROL S connection lets you control (pause and release pause) both VCRs from the recording 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 also use the LINE-1 IN jacks instead. 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-910MS audio/video cable (not supplied).

Operation
(when recording on this VCR)

❚❚ PAUSE

Before you start editing

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

● REC
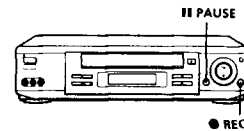
1   Insert a source tape with its safety tab removed into the other (playback) VCR. Search for the point to start playback and set it to playback pause.

2   Insert a tape with its safety tab in place 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.

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.

POWER   TV/VIDEO   CHANNEL +/-
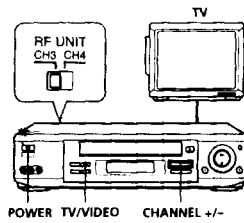
1   Set the RF UNIT switch on the rear of the VCR to CH 3 or CH 4, whichever channel is not used in your area. If both are used, set the switch to either channel.

2   Press POWER to turn on the VCR.

3   Press TV/VIDEO to turn on the VIDEO indicator in the VCR's display window.

4   Press CHANNEL +/- 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 selected TV channel broadcast appears on the TV screen. If the channels change when you press CHANNEL +/-, 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.

300-ohm twin lead cable
EAC-32 Antenna connector (not supplied)
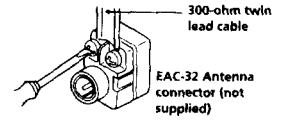
1   Loosen the screws on the antenna connector.

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.
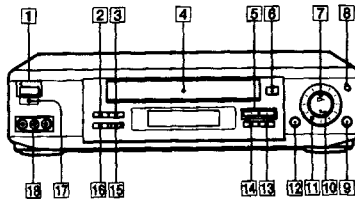
300-ohm twin lead cable
EAC-66 UHF/VHF band separator/mixer (not supplied)
75-ohm coaxial cable
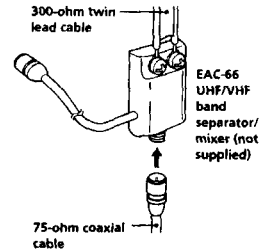
1   Loosen the screws on the mixer.

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]   POWER switch/indicator (57).

[2]   SP (Standard Play)/EP (Extra Play) button (53, 57)

[3]   TV/VIDEO button (54)

[4]   Tape compartment

[5]   CHANNEL/TRACKING +/- buttons (53, 72)

[6]   ▲ EJECT button (51)

[7]   ▷ PLAY button (51, 61)

[8]   JOG button (62)

[9]   ● REC (record) button (53, 75)

[10]   ■ STOP button (51)

[11]   Shuttle ring (54, 62)

[12]   ‖ PAUSE button (51)

[13]   ►► FF (fast-forward) button (51, 61)

[14]   ◄◄ REW (rewind) button (51, 61)

[15]   EASY SET UP button (11, 14, 17, 20, 23, 26)

[16]   INPUT SELECT button (53, 55)

[17]   Remote sensor (5)

[18]   LINE-2 IN VIDEO/AUDIO L/R jacks (74)

Index to parts and controls (continued)

Display window
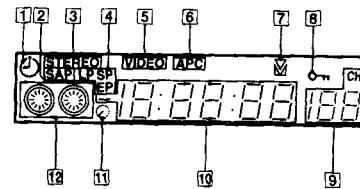
[1]   Timer indicator (57)

[2]   SAP indicator (70)

[3]   STEREO indicator (70)

[4]   Tape speed indicator (53)

[5]   VIDEO indicator (54, 76)

[6]   APC indicator (72)

[7]   Tracking indicator (72)

[8]   Child Lock indicator (58)

[9]   Line/channel indicator (53, 75)

[10]   Time counter/clock indicator (51)

[11]   Remaining time indicator (54)
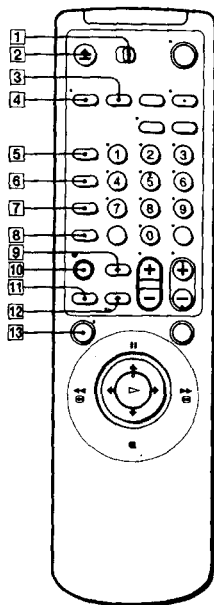
[12]   Tape/recording indicator (53)

Rear panel
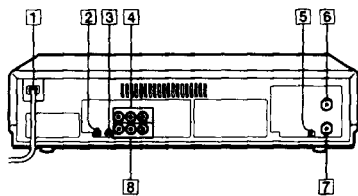
[1] AC power cord (7)

[2] S LINK (CONTROL S IN) jack (9)

[3] CABLE BOX CONTROL (CONTROL S OUT) jack (10, 22)

[4] LINE-1 IN AUDIO L/R/VIDEO jacks (22, 74)

[5] RF (Radio Frequency) UNIT switch (76)

[6] VHF/UHF IN connector (10, 13, 16, 19, 22, 25)

[7] VHF/UHF OUT connector (10, 13, 16, 19, 22, 25)

[8] LINE OUT AUDIO L/R/VIDEO jacks (8)

Remote commander

[1] [TV] [RECEIVER]/[VIDEO] remote control switch (5)

[2] ≜ EJECT button (51)

[3] COUNTER RESET button (51)

[4] DISPLAY button (54, 64)

[5] CLEAR button (68)

[6] QUICK TIMER button (67)

[7] INPUT SELECT button (53, 60, 75)

[8] SP (Standard Play)/EP (Extra Play) button (53)

[9] x2/RECEIVER VOL (volume) + button (5, 61)

[10] ● REC (record) button (53)

[11] MUTING button (5)

[12] ⏮ SLOW/RECEIVER VOL (volume) – button (5, 61)

[13] MENU button (30, 73)
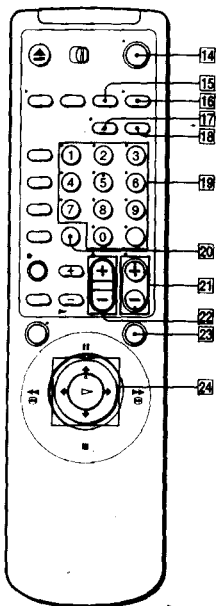
[14] POWER switch (57)

[15] COUNTER/REMAIN button (54)

[16] AUDIO MONITOR button (70)

[17] TV/VIDEO button (76)

[18] VCR Plus+ button (56)

[19] Number buttons and ENTER button (48, 57)

[20] SET button (57)

[21] CH (channel) +/– buttons (53)

[22] VOL (volume) +/– buttons

[23] SMART CUE button (51)

[24] Joystick
▷ PLAY/OK (51, 61)
Ⅱ PAUSE/↑ (51)
■ STOP/↓ (51)
◀◀⊖ REW (rewind)/← (51, 61)
▶▶⊖ FF (fast-forward)/→ (51, 61)