

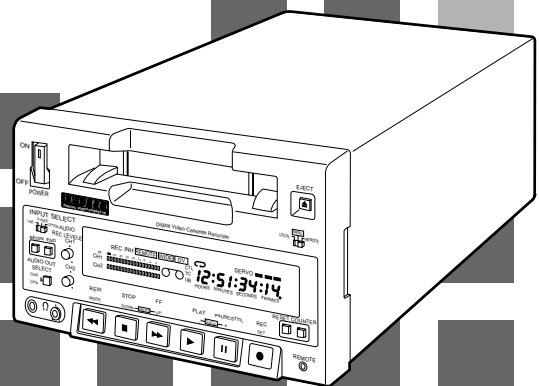
Panasonic

DVC PRO

Digital Video Cassette Recorder

AJ-D250P

Operating Instructions



IMPORTANT

“Unauthorized recording of copyrighted television programs, video tapes and other materials may infringe the right of copyright owners and be contrary to copyright laws.”



CAUTION

**RISK OF ELECTRIC SHOCK
DO NOT OPEN**



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



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



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

CAUTION:

Do not install or place this unit in a bookcase, built-in cabinet or in another confined space in order to keep well ventilated condition. Ensure that curtains and any other materials do not obstruct the ventilation condition to prevent risk of electric shock or fire hazard due to overheating.

WARNING:

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

CAUTION:

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

CAUTION:

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, REFER CHANGE OF SWITCH SETTING INSIDE THE UNIT TO QUALIFIED SERVICE PERSONNEL.

CAUTION:

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, REFER MOUNTING OF THE OPTIONAL INTERFACE BOARD TO QUALIFIED SERVICE PERSONNEL.

FCC Note:

This device complies with Part 15 of the FCC Rules. To assure continued compliance follow the attached installation instructions and do not make any unauthorized modifications.

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

 indicates safety information.

- Do not insert fingers or any objects into the video cassette holder.
- Avoid operating or leaving the unit near strong magnetic fields. Be especially careful of large audio speakers.
- Avoid operating or storing the unit in an excessively hot, cold, or damp environment as this may result in damage both to the recorder and to the tape.
- Do not spray any cleaner or wax directly on the unit.
- If the unit is not going to be used for a length of time, protect it from dirt and dust.
- Do not leave a cassette in the recorder when not in use.
- Do not block the ventilation slots of the unit.
- Use this unit horizontally and do not place anything on the top panel.
- Cassette tape can be used only for one-side, one direction recording. Two-way or two-track recordings cannot be made.
- Cassette tape can be used for either Color or Black & White recording.
- Do not attempt to disassemble the recorder. There are no user serviceable parts inside.
- If any liquid spills inside the recorder, have the recorder examined for possible damage.
- Refer any needed servicing to authorized service personnel.

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Introduction

The AJ-D250 is a digital VTR which uses 1/4" wide tapes. The incorporation of digital compression technology ensures that the deterioration in picture and sound quality suffered during dubbing will be much less than with conventional analog systems.

The model has a compact and lightweight design, enabling it to be readily carried about or easily installed in a rack.

The interactive system, which is featured for the unit's settings, enables these settings to be performed while viewing the menus on the TV monitor screen.

The model AJ-D250 comes with an RS-232C connector which makes it possible to control the editing operations and exercise remote control from a computer using the RS-232C remote control (AJ-A250 - available as an optional accessory).

Features

Compact and light

This unit is 8 7/16" (214 mm) wide, 5 1/4" (132 mm) high and 15 7/16" (391 mm) deep, and weighs 14.3 lb (6.5 kg). It is equipped with grips so that it can be carried easily.

Assemble editing and insert editing

Using the RS-232C remote control (AJ-A250 - available as an optional accessory), two units—one a player and the other a recorder—can be controlled directly from the remote control to perform editing operations.

Encoder control

The video output signals can be adjusted using the items on the setup menus.

2-channel digital audio with high sound quality

RS-232C control

Use of the RS-232C remote control (AJ-A250 - available as an optional accessory) enables not only editing operations to be performed but remote control can also be exercised, from a computer by connecting the RS-232C cable between from the computer and this VTR.

Up to 184 minutes of recording

The unit uses two types of cassette tapes: one for news gathering (max. 66 minutes) and the other for general-purpose applications (184 minutes: using AJ-5P92LP *).

The unit's compact design accommodates tapes with a 1/4" width.

Compatible with consumer-use equipment

Using the cassette adapter (AJ-CS750P: optional accessory), consumer-use cassette tapes shot using a consumer-use digital camera can be played back on this unit. The LP mode is not supported.

Time codes

The unit comes with a built-in time code generator (TCG)/time code reader (TCR).

Repeat playback

Any section on a tape can be played back repeatedly for an unlimited number of times or one time only.

Menu-driven setup

The unit's settings are performed using an interactive system while viewing the menus on the TV monitor screen.

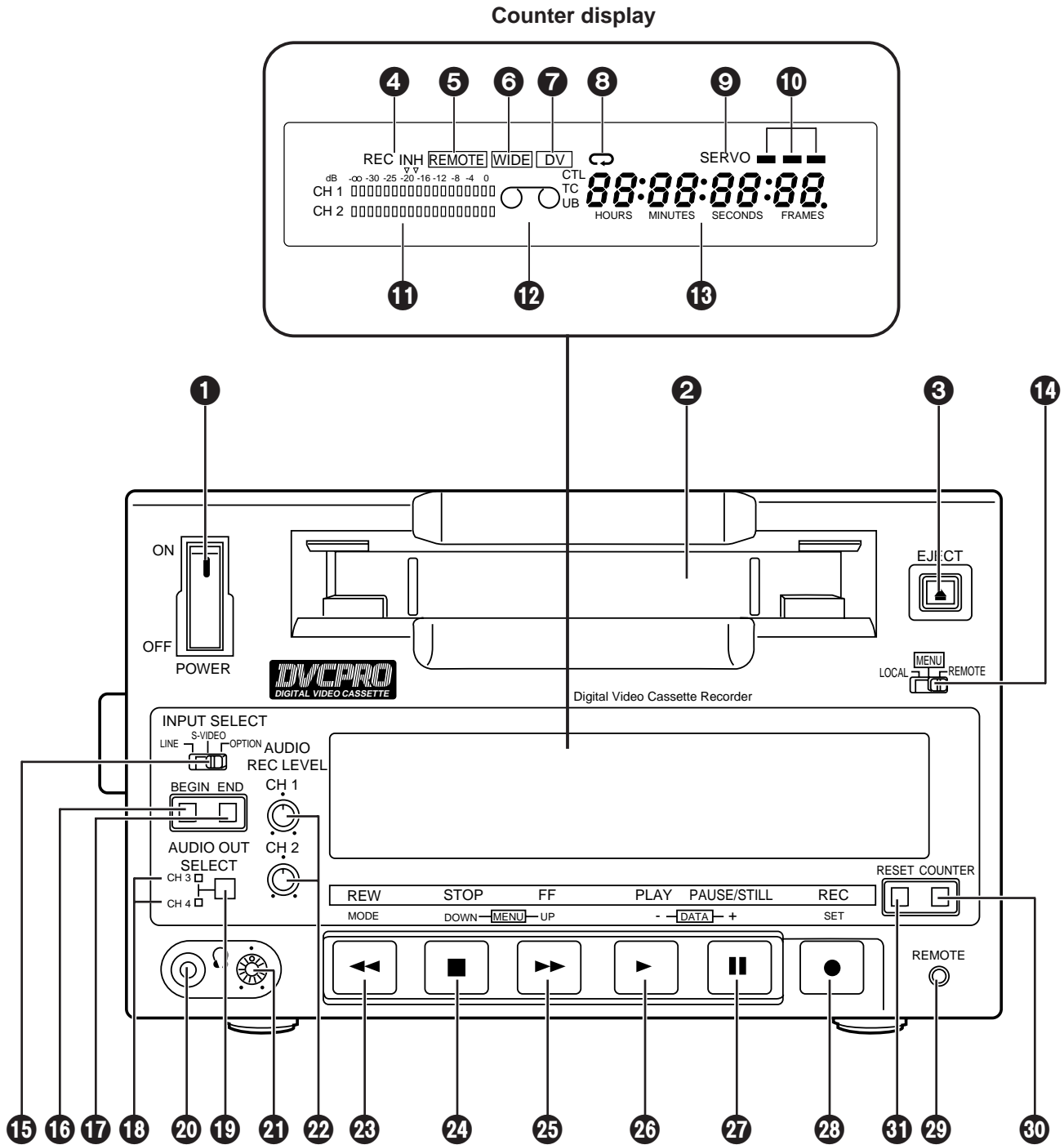
Remote control

The unit can be operated from distances up to 5 meters away when the AG-A11 remote control (optional accessory) is connected.

*For AJ-5P92LP cassette tapes, use a VTR supporting DVCPRO (25 Mbps) 184 minute tapes.

Parts and Their Functions

Front panel



Parts and Their Functions

Front panel

❶ POWER switch

When the ON side is pressed, power is supplied to the unit, and the counter display is illuminated.

❷ Cassette insertion slot

News gathering cassettes, general-purpose cassettes and consumer-use cassettes accompanied by the adapter are inserted into this slot. Consumer-use cassettes can be used for playback only.

❸ EJECT button

When this button is pressed, the tape is unloaded, and a few seconds later it is automatically ejected. If the counter display is set to the CTL display, the display will be reset.

❹ REC/REC INH lamp

REC: The lamp lights during recording.

REC INH: The lamp lights when the accidental cassette erasure prevention status is established.

It also lights when "ON" is selected as the "REC INHIBIT" setting on the setup menu.

Recording cannot be conducted while this lamp is lighted.

❺ REMOTE lamp

This lamp lights when the LOCAL/MENU/REMOTE switch has been set to REMOTE.

❻ WIDE lamp

This lamp lights in the 16:9 wide screen mode.

❼ Consumer-use cassette insertion lamp

This lamp lights when a cassette recorded using a consumer-use DV device has been inserted.

❽ REPEAT lamp

This lamp lights during repeat playback.

❾ SERVO lamp

This lamp lights when the drum servo and capstan servo are locked.

❿ Channel status lamps

One of these lamps lights depending on the error rate status. (Green → Blue → Red)

Green: This lamp lights when the error rate for both the video and audio playback signals is at an acceptable level.

Blue: This lamp lights when the error rate for either the video or audio playback signals has deteriorated. A normal playback picture appears even when the lamp is lighted.

Red: This lamp lights when either the video or audio playback signals have become subject to correction or interpolation.

⓫ Level meter

This indicates the levels of the audio signals.

During recording or E-E selection, it indicates the audio input signal levels; during playback, it indicates the audio output signal levels.

⓬ Cassette insertion lamp

This lamp lights when a cassette has been inserted into the unit.

⓭ Counter display

The time codes, CTL count values and on-screen information and other messages appear on this display.

⓮ LOCAL/MENU/REMOTE switch

This switch is set when the menu settings are to be performed or when the unit is to be controlled from an external source.

LOCAL: Set here when the unit is to be controlled using the controls provided on the unit's operation panel.

MENU: Set here when the on-screen menu items are to be set.

REMOTE: Set here when the unit is to be controlled using the RS-232C interface or other external control device.

⓯ INPUT SELECT switch

This is used to select the input signals.

LINE: Set here to record the signals which are supplied to the video signal input connector.

S-VIDEO: Set here to record the signals which are supplied to the S-VIDEO input connector.

OPTION: Set here to supply video and audio signals from the optional board and record them.

⓰ BEGIN button

This button sets the start point for repeat playback and it indicates the start point which is currently entered.

⓱ END button

This button sets the end point for repeat playback and it indicates the end point which is currently entered.

⓲ CH3/CH4 lamps

These lamps light when the audio signals have been set to CH3 and CH4 during DV format playback.

⓳ AUDIO OUT SELECT button

This button selects the audio signals which are to be output.

Parts and Their Functions

20 Headphones jack

When headphones are connected to this jack, they can be used to monitor the sound being recorded or played back.

21 Volume control

This is used to adjust the volume to the headphones.

22 Audio recording level controls

These controls are used to adjust the recording level for PCM audio signals CH1 and CH2.

23 REW button

When this button is pressed, the tape is rewound, and the playback pictures can be monitored if "TAPE" has been selected for the "S/F/R EE SEL" setup menu item setting.

24 STOP button

When this button is pressed, the tape stops traveling, and the still picture can be monitored when the "TAPE" setting has been selected for the "S/F/R EE SEL" setup menu item.

In the stop mode, the drum still continues to rotate, and the tape remains tightly wrapped around the drum.

When the designated period of time has elapsed in the stop mode, the unit is automatically set to the standby OFF mode in order to protect the tape.

25 FF button

When this button is pressed, the tape is fast-forwarded, and the playback pictures can be monitored if "TAPE" has been selected as the "S/F/R EE SEL" setup menu item setting.

26 PLAY button

When this button is pressed, playback is commenced.

Recording is commenced when it is pressed together with the REC button.

27 PAUSE/STILL button

When this button is pressed during recording, recording is stopped temporarily. When it is pressed again, recording is resumed.

When this button is pressed during playback, the still picture mode is established. When it is pressed again, playback is resumed.

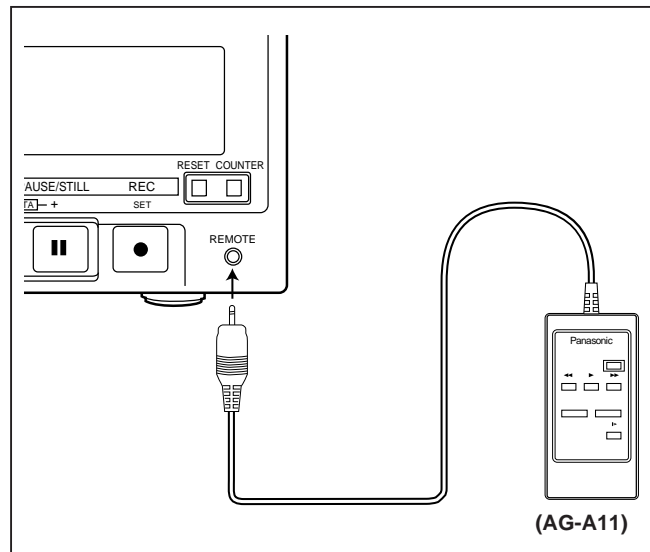
28 REC button

Recording is commenced when this button is pressed together with the PLAY button. When it is pressed during playback or in the STOP mode or standby OFF mode, the REC CHECK mode is established. (See page 15)

29 REMOTE connector

When the remote control (AG-A11) is plugged into this connector, the unit can be operated at a distance using the controls on the remote control instead of the unit's function buttons.

Keep the LOCAL/MENU/REMOTE switch at the **REMOTE** position.



30 COUNTER button

This button is used to switch the counter display.

CTL: Set here to display the tape timer (control signal).

TC: Set here to display the time code.

UB: Set here to display the user's bit.

Remaining tape:

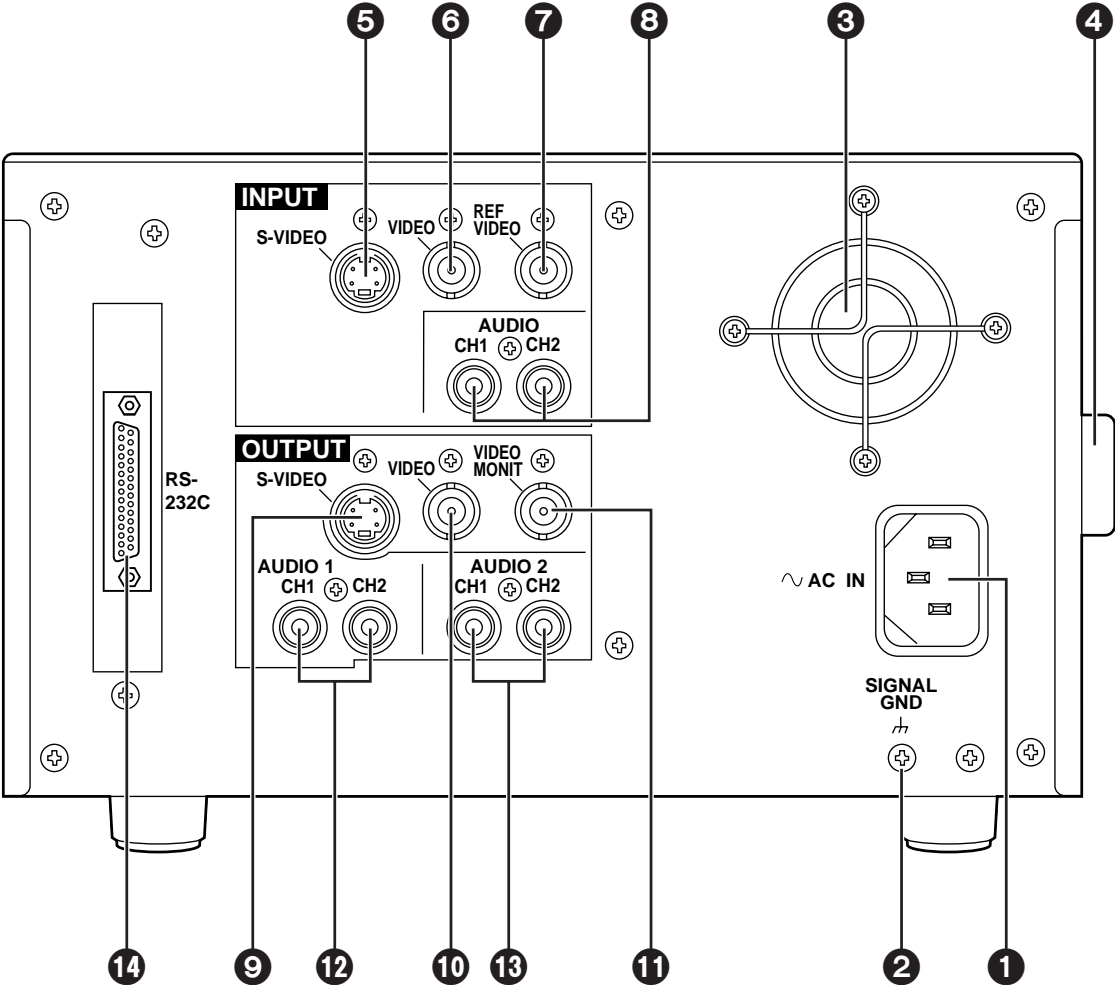
Set here to display the amount of remaining tape.

31 RESET button

When this button is pressed in the CTL mode, the counter display is reset to 00:00:00:00.

Parts and Their Functions

Connector panel



Parts and Their Functions

Connector panel

1 AC IN socket

Plug one end of the unit's power cord into this power socket.

2 SIGNAL GND terminal

In order to reduce noise, connect this terminal to the signal grounding terminal on one of the devices to which the unit is connected. This is not a safety ground.

3 Fan motor

This motor is used to cool the unit.

4 Grip

This grip is fitted on the side panel. When operating the unit, however, place the unit flat on its bottom surface.

5 S-VIDEO IN connector

The S-VIDEO video signals are supplied to this connector.

6 VIDEO IN connector

The analog video signals are supplied to this connector.

7 REF VIDEO IN connector

This is connected to the reference video signal when the unit is to be synchronized with the reference sync signals of an external unit during playback.

8 AUDIO IN connectors

The analog audio signals are supplied to this connector.

9 S-VIDEO OUT connector

The S-VIDEO video signals are output from this connector.

10 VIDEO OUT connector

The analog video signals are output from this connector.

11 MONITOR OUT connector

The video monitor signals are output from this connector. Superimposed video signals can be output.

12 AUDIO 1 OUT connectors

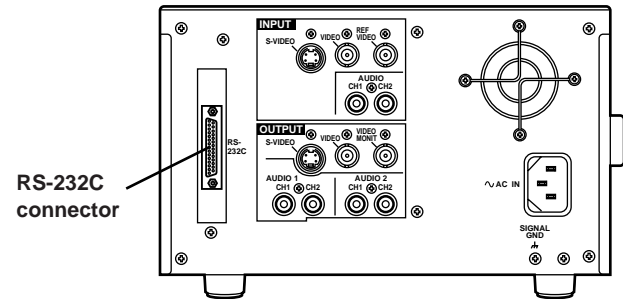
The analog audio signals are output from this connector.

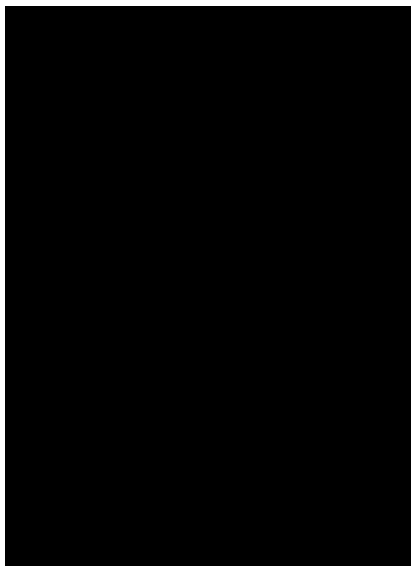
13 AUDIO 2 OUT connectors

The analog audio signals are output from this connector.

14 RS-232C connector

Editing operations can be conducted speedily and efficiently by connecting the RS-232C remote control (AJ-A250 - available as an optional accessory) to this connector. Various operations can be performed from a computer by using the RS-232C cable which is available as an optional accessory.





Operation

Turning on the power/inserting a cassette

Before proceeding to operate the unit, make sure that the unit has been connected properly.

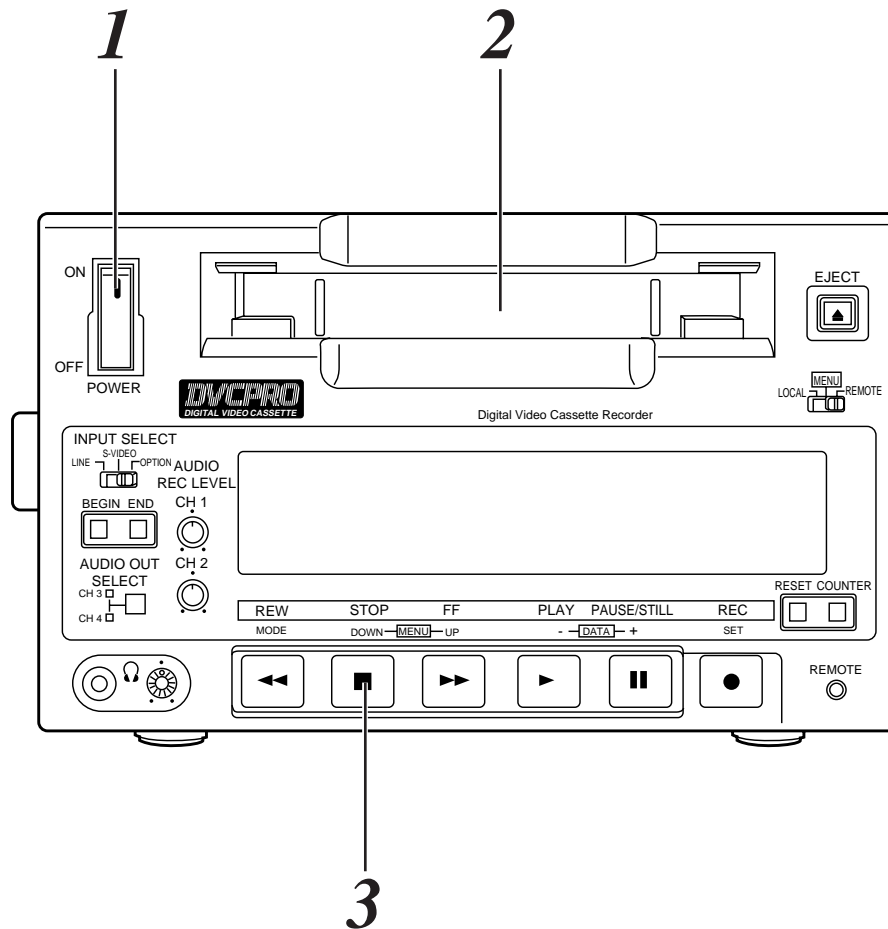
1 Turn on the unit's power.

2 Insert the cassette tape.
Insert it at the prescribed position without forcing it in any way.

3 Check that the **STOP** lamp is lighted.
When the tape is inserted, the cylinder starts rotating automatically, the tape is loaded, and the STOP mode is established.

<Note>

It is possible to change the mode when a tape is inserted using the settings in Item No. 104 "TAPE IN MOD" of the Setup menu. (See page 29)



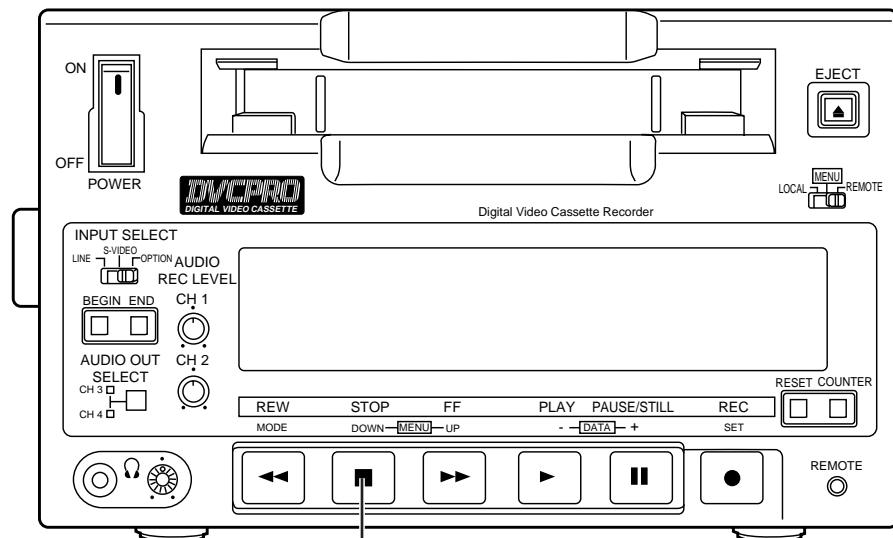
STOP mode

1 When the **STOP** button is pressed, the **STOP** mode is established.
The STOP lamp lights, and the tape stops traveling.

- In order to protect the tape, the tape protection mode will be established when the time selected for the "STILL TIMER" setup menu item setting has elapsed. (See page 31)
When the STOP, REW, FF or PLAY button is pressed, the corresponding mode will be established.

<Checkpoint for STILL TIMER setting>

- Repeatedly using the same locations on the same tape will increase the cumulative standby time at those locations. In the interest of protecting the tape, keep the standby times at the same locations as short as possible.



1

Recording

- 1** Set the accidental erasure prevention tab on the cassette tape to “recording,” and insert the tape.
- 2** Press the **STOP** button to set the unit to the **STOP** mode.
- 3** Check that the **REC INH** lamp has gone off.
- 4** Selecting the video and audio input signals and adjusting the audio levels
 - 4-1** Selecting the video and audio input signals
 - 1** Connect the signals which are to be recorded.
 - 2** Select the input signals using the **INPUT SELECT** switch on the front panel.
 - 4-2** Adjusting the audio levels
 - 1** Adjust the levels of the audio input signals.

The audio signals are recorded at the proper levels when the level controls are at their center-click positions.
- 5** Press the **PLAY** button while holding down the **REC** button.

The **REC** and **PLAY** lamps light and recording commences.
- 6** Press the **STOP** button to end the recording.

The recording now ends, and the **STOP** mode is established.

<Notes>

- If recording prevention signals are included among the input signals, the input signals will not be recorded properly.
- Check that the **SERVO** lamp has lighted during recording. The image which is played back will be disturbed if the lamp is flashing or off.

Pause/record (frame-to-frame continuity)

- 1 Press the PAUSE/STILL button while the cassette tape is playing.**
When ON has been selected as the AUTO BACK setup menu item setting, the tape will be rewound for about 2 seconds starting from the position where the PAUSE/STILL was pressed. (See page 29)
- 2 Press the REC button to set the unit to the REC PAUSE mode.**
The monitor display now switches to the E-E screen.
- 3 Press the PAUSE/STILL button to commence recording.**
The tape travels to the position where the PAUSE/STILL was pressed in step **1** above, and recording commences.
<Note>
The E-E screen is now displayed.

Playback

- 1 Insert the cassette tape.**
- 2 Press the PLAY button.**
Normal playback is now commenced.
- 3 Press the STOP button to end the playback.**
The unit is now set to the STOP mode.

<Note>

Check that the SERVO lamp has lighted during playback. The playback image will be disturbed if the lamp is off or flashing.

Cue/review

Hold down the FF or REW button during playback.

While this button is pressed, the tape will be cued or reviewed at about 10 times the normal tape speed.

Normal playback is restored when the button is released.

- When ON has been selected as the SEARCH CUE setup menu item setting, the CUE track sound will be output during cue or review. (See page 34)

Still picture playback

Press the PAUSE/STILL button during playback.

Normal playback is restored when the PAUSE/STILL button is pressed again.

- No sound will be heard during still picture playback.

Operation

Frame by frame advance

When the FF or REW button is pressed during still picture playback, the tape will be advanced forward or backward one frame at a time.

- No sound will be heard during frame by frame advance.

Audio switching

The AUDIO OUT SELECT button is used to switch to the desired sound.

By pressing this button, the audio output is switched to the modes in the sequence shown below.

Mode	AUDIO OUT connectors		Display tube	LED
	CH1 output	CH2 output		
A	CH1	CH2	CH1 CH2	CH3 <input type="checkbox"/> CH4 <input type="checkbox"/>
B	CH1		CH1	CH3 <input type="checkbox"/> CH4 <input type="checkbox"/>
C	CH2		CH2	CH3 <input type="checkbox"/> CH4 <input type="checkbox"/>
D	CH3	CH4	No display	CH3 <input checked="" type="checkbox"/> CH4 <input checked="" type="checkbox"/>
E	CH3		No display	CH3 <input checked="" type="checkbox"/> CH4 <input type="checkbox"/>
F	CH4		No display	CH3 <input type="checkbox"/> CH4 <input checked="" type="checkbox"/>
G	CH1+CH3	CH2+CH4	CH1 CH2	CH3 <input checked="" type="checkbox"/> CH4 <input checked="" type="checkbox"/>

The settings in the boxes () are valid only during DV format 4-channel mode playback.

..... OFF
 ON

Sequence in which the modes are selected

→ A → B → C → D → E → F → G →

REC CHECK

By pressing the REC button during playback or in the STOP or STANDBY OFF mode, it is possible to check the audio input signals, time code generator value and the video input signals which have been selected using the INPUT SELECT switch.

• REC CHECK during playback

The REC CHECK mode is established while the REC button is held down. Normal playback is restored when the button is released.

• REC CHECK in the STOP or STANDBY OFF mode

The REC CHECK mode is established when the REC button is pressed. To release the mode, press the STOP button.

1 Set the unit to the menu mode (by setting the LOCAL/MENU/REMOTE switch to the MENU position).

2

3

4 Select the digit to be changed (blinking display) using the UP button (FF button) or DOWN button (STOP button).

The frame digits cannot be selected. They always appear as "00."

5

<Notes>

- "----:--:--:--" appears on the display when the points have not been set. In this case, repeat playback will start at the beginning of the tape which serves as the BEGIN point and end at the end of the tape which serves as the END point.
- When the MODE button (REW button) is pressed instead of the SET button upon completion of the settings, the time code setting will be canceled.

Operation

Setting the BEGIN and END points

[Front panel]

- 1** Set the unit to the local mode (by setting the LOCAL/MENU/REMOTE switch to the LOCAL position).
- 2** When the BEGIN or END button on the front panel is pressed, the current position is set as the BEGIN or END point.

Displaying the BEGIN and END points

- 1** Set the unit to the remote mode (by setting the LOCAL/MENU/REMOTE switch to the REMOTE position).
- 2** When the BEGIN or END button on the front panel is pressed, the BEGIN or END point is displayed while the button is held down.
The settings are not changed.

Setting the repeat playback mode

- 1** Set the unit to the menu mode (by setting the LOCAL/MENU/REMOTE switch to the MENU position).
- 2** Select the “MEMORY MODE” setup menu item, and select the repeat playback mode. (See page 29)

Setting	Operation
OFF	Normal operation
M-STOP	The tape stops near the BEGIN point when it is fast-forwarded or rewound.
REPT1	When the tape playback reaches the END point, the tape is rewound to the BEGIN point, where it stops.
CONT	When the tape playback reaches the END point, the tape is rewound to the BEGIN point and playback is repeated.

- 3** Set the LOCAL/MENU/REMOTE switch to the LOCAL or REMOTE position.

<Notes>

- The picture quality will deteriorate when the same tape is repeatedly played back over and over again. As a general guideline, replace the tape with a new one after about 100 repeat playback operations.
- When repeat playback is to be initiated using a consumer-use tape, the unit will not operate even if CONT has been selected as the setup menu item No.111 “MEMORY MODE” setting. (See page 29)

Time Codes and User's Bit

Time codes

Time codes are used when recording time code signals generated by the time code generator on the tape, reading out their values with the time code reader, and displaying the absolute positions of the tape in increments of hours, minutes, seconds and frames.

The time codes are written in the sub-code area (data area) of the helical track. For this reason, they can be read at any playback speed from the stop mode to slow-motion playback or high-speed playback.

The time code value is indicated on the display or superimposed.

TCR 00 : 07 : 04 : 24
 ↑ ↑ ↑ ↑
Hours Minutes Seconds Frames

User's bit

The user's bit is the 32-bit (8-digit) data frame in the time code signal which is made available to users. It can record operator numbers, etc.

The characters which can be used for the user's bit are 0 to 9 and A B C D E F.

Time Codes and User's Bit

Setting the time code

- 1** Set the unit to the menu mode (by setting the LOCAL/MENU/REMOTE switch to the MENU position).
- 2** Select the "TC PRESET" setup menu item, and press the DATA+ button (PAUSE/STILL button) or DATA- button (PLAY button).
(See page 32)
- 3** Select the digit to be changed (blinking display) using the UP button (FF button) or DOWN button (STOP button).
- 4** The value is incremented or decremented using the DATA+ button (PAUSE/STILL button) or DATA- button (PLAY button).
- 5** Press the SET button (REC button) upon completion of the settings.
- 6** Set the LOCAL/MENU/REMOTE switch to the LOCAL or REMOTE position.

<Notes>

- The current time code value appears as the default value.
- When the RESET button is pressed while the digit to be changed is blinking, the display is reset to "00:00:00:00."
- The time code cannot be set unless P-REC or P-FREE has been selected as the "TC MODE" setup menu item setting. (See page 32)
- If the MODE button (REW button) is pressed instead of the SET button while the digit to be changed is blinking, the time code setting will be canceled.

Setting the user's bit

- 1** Set the unit to the menu mode (by setting the LOCAL/MENU/REMOTE switch to the MENU position).
- 2** Select the UB PRESET setup menu item, and press the DATA+ button (PAUSE/STILL button) or DATA- button (PLAY button).
(See page 32)

Now follow the same procedure as for setting the time code.

Time Codes and User's Bit

Playing back the time code/user's bit

1 Set the unit to the STOP mode.

2 Set to TC or UB using the COUNTER button.

TC: The time code appears on the display.

UB: The user's bit appears on the display.

- Interpolation is provided by the CTL signal if the time code cannot be read.

3 Press the PLAY button.

Playback is commenced, and the time code appears on the display.

When ON has been selected as the SUPER setup menu item setting, the time code value will be superimposed onto the video signals which are output from the MONITOR OUT connector. (See page 28)

<Notes>

- The colon between the seconds and frames changes to a period when a drop frame time code is read.
- Interpolation is automatically provided by the CTL signal if the time code signal is missing. The display appearing at this time will be as shown below.

T * R 00 : 07 : 04 : 24



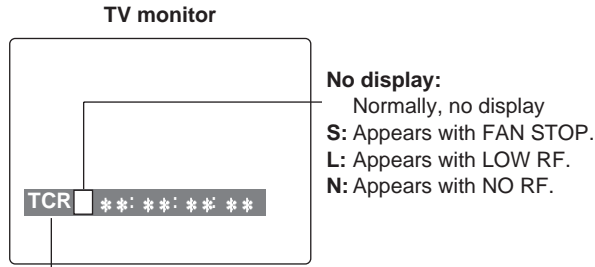
The colon between the seconds and frames changes to a period in the case of a drop frame.

"*" appears here when the time code signal is missing.
(Superimpose only)

Superimposed Screens

When the unit's MONITOR OUT connector has been connected to a TV monitor, the control signals, time codes, etc. are displayed on the TV monitor screen as abbreviations.

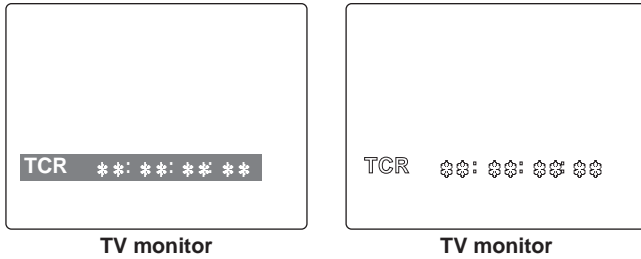
The display can be switched ON or OFF using the setup menu item No. 000 setting. (See page 28)



- Abbreviation**
- CTL:** control signal
 - TCR:** time code playback value
 - UBR:** user's bit playback value
 - REM:** remaining tape amount

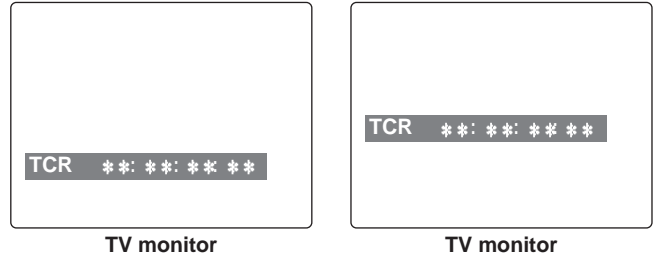
Characters displayed

The background of the characters superimposed onto the display can be changed using the setup menu item No.004 "CHARA TYPE" setting. (See page 28)



Display position

The position where the superimposed display appears can be changed using setup menu item No.002 "CHARA H-POS" and No.003 (CHARA V-POS). (See page 28)



<Note>

When the MODE button and the DATA+ button or DATA- button are pressed, the counter display appears temporarily while the buttons are held down so that the setting can be checked.

Even while the MODE button is held down, settings can still be performed using the DATA+ button or DATA- button as the actual status is checked.

Superimpose Screens

Operation mode

The value to be displayed can be selected using setup menu item No.001 "DISPLAY SEL".

(See page 28)

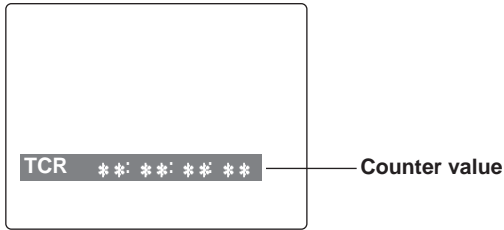
TIME: Counter value

T&STA: Counter value and VTR operation mode

T&R: Counter value and remaining tape amount

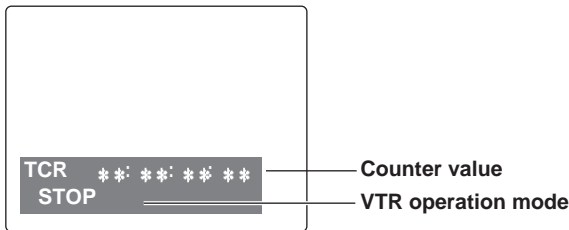
T&S&R: Counter value, VTR operation mode and remaining tape amount

TIME mode



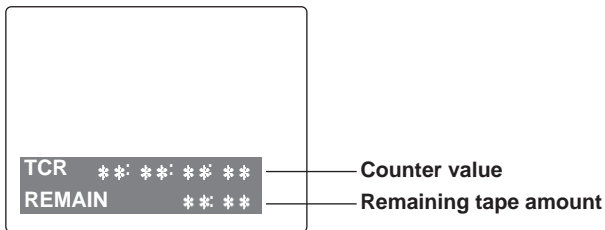
TV monitor

T&STA mode



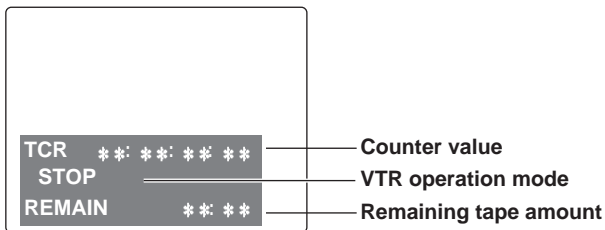
TV monitor

T&R mode



TV monitor

T&S&R mode



TV monitor

<Notes>

One of the following errors may be displayed on the third line (remaining tape amount line) in the T&S&R mode. (See page 74)

[NO RF]:

This appears when a blank part has been detected on the tape.

"E-09" appears on the front panel's counter display.

[LOW RF]:

This appears when there is no head output.

"E-01" appears on the front panel's counter display.

[FAN STOP]:

This appears when the cooling fan has shut down.

"E-70" and the counter value appear alternately on the front panel's counter display.

[SERVO NOT LOCKED]:

This appears when the servo is not locked.

"E-00" appears on the front panel's counter display area.

Setup (Initial Settings)

The unit's main settings can be performed and checked using the on-screen menus which appear on the video monitor connected to the unit.

It is also possible to perform and check the settings using the item numbers and setting numbers which appear on the front panel's display.

One user setting memory set is provided with the unit to enable the desired settings to be stored in the memory ahead of time for use.

How to perform the settings using the on-screen menus

- 1 Set the LOCAL/MENU/REMOTE switch to the MENU position.**

The unit is now set to the menu setting mode, and the menu screen appears on the video monitor.

SET-UP MENU	MAIN
	NO.00
* 00 SYSTEM	
000 BASIC	
100 OPERATION	
200 INTERFACE	
400 TAPE PROTECT	
500 TIME CODE	
600 VIDEO	
700 AUDIO	
END	

In the menu setting mode, the REW, STOP, FF, PLAY, PAUSE/STILL and REC buttons serve as the MODE, MENU-DOWN, MENU-UP, DATA-, DATA+ and SET buttons.

- 2 Press the MENU-UP button or MENU-DOWN button to move the cursor (*) to the menu where the changes are to be made.**

- 3 Press the SET button to set the item.**
To return to the menu screen, press the SET button while holding down the MODE button.

- 4 Press the MENU-UP button or MENU-DOWN button to move the cursor (*) to the item where the changes are to be made.**

The page can be scrolled up or down by pressing the MENU-UP button or MENU-DOWN button while holding down the MODE button.

- 5 Press the DATA+ or DATA- button to change the setting.**

The setting value will flash while changes to the setting are being performed.

- 6 Press the SET button to enter the setting.**
To change another item, repeat steps 4, 5 and 6.

<Note>

The setting can be canceled by pressing the MODE button. To change another item without entering a setting, press the MODE button, and repeat steps 4, 5 and 6.

- 7 Set the LOCAL/MENU/REMOTE switch to the LOCAL or REMOTE position.**

The menu setting procedure is now terminated.

How to restore the factory settings

- 1 Set the LOCAL/MENU/REMOTE switch to the MENU position.**

The unit is now set to the menu setting mode, and the menu screen appears on the video monitor.

- 2 Press the RESET button.**

The unit is set to the default setting mode, and the default setting screen appears on the video monitor.

SELECT	MODE
	* ESCAPE
	LOAD
	SAVE
	PROTECT

Setup (Initial Settings)

- 3** Press the **MENU-UP** button or **MENU-DOWN** button to position the cursor at **LOAD**, and press the **SET** button.

The unit is set to the **LOAD** mode, and the **LOAD** screen appears on the video monitor.

```
SET-UP MENU    <LOAD>
* NO
  FACTORY (ALL)
  FACTORY (NOT SYSTEM)
  USER (ALL)
  USER (NOT SYSTEM)
```

- 4** Press the **MENU-UP** button or **MENU-DOWN** button to move the cursor to **FACTORY (ALL)**, and press the **SET** button.

- If the cursor is moved to **FACTORY (NOT SYSTEM)** and this operation is performed, all the menus except the **SYSTEM** menu will be restored to the factory settings.
- If the cursor is moved to **NO** and this operation is performed, operation will return to the menu screen without restoring the factory settings.

- 5** Set the **LOCAL/MENU/REMOTE** switch to the **LOCAL** or **REMOTE** position.

The menu setting procedure is now terminated.

How to set the user default settings

- 1** Set the **LOCAL/MENU/REMOTE** switch to the **MENU** position.

The unit is now set to the menu setting mode, and the menu screen appears on the video monitor.

- 2** Performs steps **2** through **6** of “How to perform the settings using the on-screen menus,” and change to the desired settings. (See page 23)

- 3** Press the **RESET** button.

The unit is set to the default setting mode, and the default setting screen appears on the video monitor.

```
SELECT        MODE
               *  ESCAPE
               LOAD
               SAVE
               PROTECT
```

- 4** Press the **MENU-UP** button or **MENU-DOWN** button to position the cursor at **SAVE**, and press the **SET** button.

The unit is set to the **SAVE** mode, and the **SAVE** screen appears on the video monitor.

```
SET-UP MENU    <SAVE>
* NO
  USER (ALL)
  USER (NOT SYSTEM)
```

- 5** Press the **MENU-UP** button or **MENU-DOWN** button to move the cursor to **USER (ALL)**, and press the **SET** button.

- If the cursor is moved to **USER (NOT SYSTEM)** and this operation is performed, all the menus except the **SYSTEM** menu will be updated.
- If the cursor is moved to **NO** and this operation is performed, operation will return to the menu screen without updating the settings.

- 6** The screen to confirm whether **SAVE** is to be initiated or canceled now appears. Press the **MENU-UP** button or **MENU-DOWN** button to move the cursor to the **YES** position, and press the **SET** button.

The settings are now saved in the memory.

```
SAVE OK?
* NO
  YES
```

- 7** Set the **LOCAL/MENU/REMOTE** switch to the **LOCAL** or **REMOTE** position.

The menu setting procedure is now terminated.

Setup (Initial Settings)

How to load the user default settings

1 Set the LOCAL/MENU/REMOTE switch to the MENU position.

The unit is now set to the menu setting mode, and the menu screen appears on the video monitor.

2 Press the RESET button.

The unit is set to the default setting mode, and the default setting screen appears on the video monitor.

SELECT	MODE
	* ESCAPE
	LOAD
	SAVE
	PROTECT

3 Press the MENU-UP button or MENU-DOWN button to position the cursor at LOAD, and press the SET button.

The unit is set to the LOAD mode, and the LOAD screen appears on the video monitor.

SET-UP MENU	<LOAD>
	* NO
	FACTORY (ALL)
	FACTORY (NOT SYSTEM)
	USER (ALL)
	USER (NOT SYSTEM)

4 Press the MENU-UP button or MENU-DOWN button to move the cursor to USER (ALL), and press the SET button.

- If the cursor is moved to USER (NOT SYSTEM) and this operation is performed, the user settings for all the menus except the SYSTEM menu which are saved in the memory will be used for operation.
- If the cursor is moved to NO and this operation is performed, operation will return to the menu screen without any changes made to the user settings which are saved in the memory.

5 Set the LOCAL/MENU/REMOTE switch to the LOCAL or REMOTE position.

The menu setting procedure is now terminated.

How to initiate the menu protect mode

By setting the unit to the menu protect mode, the opening of the setup menus can be disabled even if the front panel's LOCAL/MENU/REMOTE switch is set to the MENU position.

1 Set the LOCAL/MENU/REMOTE switch to the MENU position.

The unit is now set to the menu setting mode, and the menu screen appears on the video monitor.

2 Press the RESET button.

The unit is set to the default setting mode, and the default setting screen appears on the video monitor.

SELECT	MODE
	* ESCAPE
	LOAD
	SAVE
	PROTECT

3 Press the MENU-UP button or MENU-DOWN button to position the cursor at PROTECT, and press the SET button.

The unit is now set to the menu protect mode, and the screen to confirm whether menu protect is to be initiated or canceled now appears on the video monitor.

MENU PROTECT OK?
* NO
YES

4 Press the MENU-UP button or MENU-DOWN button to move the cursor to the YES position, and press the SET button.

The menu screen now appears.

Setup (Initial Settings)

5 Set the LOCAL/MENU/REMOTE switch to the LOCAL or REMOTE position. The unit is now set to the menu protect mode.

When the LOCAL/MENU/REMOTE switch is set to the MENU position, "MENU PROTECTED" appears on the video monitor screen instead of the menu setting mode being established.

<Note>

If, while the menu protect menu is set, the LOCAL/MENU/REMOTE switch is set to the menu position while the front panel's COUNTER button is held down, the menu setting mode will be established, and regular menu settings can be performed.

Perform steps 2 through 7 in "How to perform the settings using the on-screen menus."
(See page 23)

How to release the menu protect mode

1 Set the LOCAL/MENU/REMOTE switch to the MENU position while holding down the front panel's COUNTER button.

The unit is now set to the menu setting mode, and the menu screen appears on the video monitor.

2 Perform steps 2 and 3 of "How to initiate the menu protect mode" described above.

The screen to confirm whether menu protect is to be initiated or canceled now appears on the video monitor.

MENU PROTECT OK? * NO YES

3 Press the MENU-UP button or MENU-DOWN button to move the cursor to the NO position, and press the SET button.

The menu protect mode is now released.

How to display the DIAG menu

This unit incorporates a function for displaying the HOURS METER and software program version on the video monitor.

1 Set the LOCAL/MENU/REMOTE switch to the MENU position while holding down the EJECT button.

The unit is now set to the DIAG display mode, and the HOURS METER appears on the video monitor.

DIAG-MENU	HOURS METER
H0 OPERATION	00000H
H1 DRUM RUN	00000H
H2 TAPE RUN	00000H
H3 THREADING	00000T

2 With the HOURS METER displayed, press the MENU-UP button or MENU-DOWN button while holding down the MODE button.

The software program version is displayed on the video monitor.

The front microcomputer version appears on the front panel's counter display.

DIAG-MENU	VERSION
<NTSC>	
IF	1. *- *- *.**
AV-SYSCON	1. *- *- *.**
SBC	1. *- *- *.**
CYLINDER	1. *- *- *.**
REEL	1. *- *- *.**
END	

When the MENU-UP button or MENU-DOWN button is pressed again while holding down the MODE button, the HOURS METER display is restored.

3 Set the LOCAL/MENU/REMOTE switch to the LOCAL or REMOTE position.

The normal mode is now restored.

Setup Menus

BASIC menu

Item		Setting		Description of setting
No.	Superimposed display	No.	Superimposed display	
000	SUPER	<u>0000</u> 0001	<u>OFF</u> ON	For setting whether to show the superimposed display from the MONITOR OUT connector. 0: The superimposed display is not shown. 1: The superimposed displayed is shown.
001	DISPLAY SEL	0000 <u>0001</u> 0002 0003	TIME T&STA T&R T&S&R	For setting what is to be shown by the superimposed display from the MONITOR OUT connector. 0: Only the time is displayed. 1: The time and operation mode are displayed. 2: The time and remaining tape amount are displayed. 3: The time, operation mode and remaining tape amount are displayed.
002	CHARA H-POS	0000 0001 : <u>0003</u> : 0007	0 1 : <u>4</u> : 9	For setting the horizontal position of the superimposed characters. (10 steps)
003	CHARA V-POS	0000 0001 : 0003 : <u>0007</u>	0 1 : 3 : <u>22</u>	For setting the vertical position of the superimposed characters. (23 steps)
004	CHARA TYPE	<u>0000</u> 0001	<u>WHITE</u> W/OUT	For selecting the type of characters for the superimposed and menu displays. 0: White characters on a black background 1: White characters with black outlines

The underlining denotes the factory mode setting.

<Note>

If the DATA+ button or DATA- button is pressed with the MODE button held down when the CHARA H-POS and CHARA V-POS items are being set, the counter display appears temporarily, and the positions can be set while the actual status is monitored.

Setup Menus

OPERATION menu

Item		Setting		Description of setting
No.	Superimposed display	No.	Superimposed display	
100	LOCAL ENABLE	<u>0000</u> 0001	<u>DIS</u> <u>ST&EJ</u>	For selecting the switches which can be operated on the front panel in the REMOTE mode. 0: None of the switches can be operated. 1: Only the STOP switch and EJECT switch can be operated.
101	TAPE TIMER	<u>0000</u> 0001	<u>12H</u> 24H	For selecting the CTL counter display. 0: ±12-hour display 1: 24-hour display
102	S/F/R EE SEL	<u>0000</u> 0001	<u>EE</u> TAPE	For selecting the EE or VV output in the STOP, FF or REW mode. 0: E-E (electric modulation to electric playback) is output. 1: V-V (VTR to VTR recording) is output.
103	WIDE MODE	<u>0000</u> 0001 0002	<u>AUTO</u> WIDE NORMAL	For selecting the WIDE mode. 0: The mode is detected automatically. 1: The mode is forcibly treated as WIDE. 2: The mode is forcibly treated as NORMAL.
104	TAPE IN MOD	<u>0000</u> 0001 0002 0003	<u>STOP</u> REW PAUSE PLAY	For selecting the operation which is to be performed when the cassette has been inserted into the unit. 0: STOP 1: REWIND 2: PLAY PAUSE 3: PLAY
105	TAPE END MOD	<u>0000</u> 0001 0002 0003	<u>STOP</u> REW REW → EJ EJECT	For selecting the operation which is to be performed when the tape has arrived at the end. 0: STOP 1: REWIND 2: The tape is rewound and, upon completion of rewinding, it is ejected. 3: EJECT
106	AUTO BACK	<u>0000</u> 0001	OFF <u>ON</u>	For selecting whether the tape is be automatically rolled back in order to ensure frame to frame continuity. 0: The tape is not automatically rolled back. 1: The tape is automatically rolled back.
107	FORMAT SEL	<u>0000</u> 0001 0002	<u>DVCPRO</u> DV DVCAM	For selecting the format when an L cassette is to be used. 0: DVCPRO mode 1: DV mode 2: DVCAM mode
108	REC INHIBIT	<u>0000</u> 0001	<u>OFF</u> ON	For selecting whether to inhibit recording on the unit. 0: Recording is allowed. 1: Recording is inhibited.
109	CAP. LOCK	<u>0000</u> 0001	<u>2F</u> 4F	For selecting the capstan lock mode. 0: The 2F lock mode is selected for the capstan. 1: The 4F lock mode is selected for the capstan.
110	FF. REW MAX	<u>0000</u> 0001	X32 <u>X60</u>	For setting the maximum FF and REW speed. 0: 32 times normal tape speed 1: 60 times normal tape speed
111	MEMORY MODE	<u>0000</u> 0001 0002 0003	<u>OFF</u> M-STOP REPT1 CONT	For setting the memory operation. 0: The memory operation is not performed. 1: The tape is stopped during FF or REW near the BEGIN point. 2: When the tape arrives at the end, it is rewound to the BEGIN point where it stops. 3: When the tape arrives at the end, it is rewound to the BEGIN point and played. This sequence is repeated.
112	BGN PRESET			For setting the BEGIN point.
113	END PRESET			For setting the END point.

The underlining denotes the factory mode setting.

Setup Menus

INTERFACE menu

Item		Setting		Description of setting
No.	Superimposed display	No.	Superimposed display	
200	BAUD RATE	0000 0001 0002 <u>0003</u> 0004	1200 2400 4800 <u>9600</u> 19200	For setting the RS-232C transmission speed (baud rate).
201	DATA LENGTH	<u>0000</u> 0001	<u>8BIT</u> 7BIT	For setting the RS-232C data length.
202	STOP BIT	<u>0000</u> 0001	<u>1BIT</u> 2BIT	For setting the RS-232C stop bit.
203	PARITY	<u>0000</u> 0001 0002	<u>NONE</u> ODD EVEN	For setting none, odd or even as the RS-232C parity bit. 0: The parity bit is not used. 1: Odd parity is used for the parity bit. 2: Even parity is used for the parity bit.
204	ACK RETURN	0000 <u>0001</u>	OFF <u>ON</u>	For setting the RS-232C return data. 0: The ACK code is not returned. 1: The ACK code is returned.
205	232C ID SEL	<u>0000</u> 0001	<u>D250</u> D230	For setting the RS-232C device ID. 0: The ID of the AJ-D250 is returned. Use this setting when exercising control using the AJ-A250 or a computer. 1: The ID of the AJ-D230 is returned. Use this setting when exercising control using the AJ-A571. When the AJ-A571 is used for control, the unit can be used as a player VTR.

The underlining denotes the factory mode setting.

Setup Menus

TAPE PROTECT menu

Item		Setting		Description of setting
No.	Superimposed display	No.	Superimposed display	
400	STILL TIMER	0000	0.5s	For selecting the time taken for the tape protection mode to be established when the unit has been left standing in the STOP, PLAY, PAUSE or STILL mode. (Units = s: seconds, min: minutes) ● When the unit has been left standing in the REC PAUSE mode, the time taken for the tape protection mode to be established is fixed at 2 minutes.
		0001	5s	
		0002	10s	
		0003	30s	
		0004	1min	
		<u>0005</u>	<u>2min</u>	
401	SRC PROTECT	<u>0000</u>	<u>STEP</u>	For setting the tape protection operation when the unit has been left standing in the PAUSE mode. 0: Step (step FWD in STILL or PAUSE mode; step REV in REC PAUSE mode) 1: Half loading (STANDBY OFF)
		0001	HALF	
402	DRUM STDBY	0000	OFF	For setting the mode in which the drum is to be stopped during STANDBY OFF. 0: The drum is stopped during STANDBY OFF. 1: The drum rotates at all times.
		<u>0001</u>	<u>ON</u>	
403	STOP PROTECT	0000	STEP	For setting the tape protection operation when the unit is left standing in the STOP mode. 0: Step 1: Half loading
		<u>0001</u>	<u>HALF</u>	

The underlining denotes the factory mode setting.

<Note>

When a consumer-use DV format tape is used, the tape protection mode will be established in 10 seconds even if 30s, 1min or 2min is selected as the STILL TIMER item setting.

Setup Menus

TIME CODE menu

Item		Setting		Description of setting
No.	Superimposed display	No.	Superimposed display	
500	VITC POS-1	0000 0001 : <u>0006</u> : 0010	10L 11L : <u>16L</u> : 20L	For setting the position where the VITC signal is to be inserted. (The same line as the one set for the VITC POS-2 item cannot be selected.)
501	VITC POS-2	0000 0001 : <u>0008</u> : 0010	10L 11L : <u>18L</u> : 20L	For setting the position where the VITC signal is to be inserted. (The same line as the one set for the VITC POS-1 item cannot be selected.)
502	VITC BLANK	0000 <u>0001</u>	BLANK <u>THRU</u>	For setting whether the VITC signal is to be output. 0: The VITC signal is not output. 1: The VITC signal is output.
503	TCG REGEN	<u>0000</u> 0001 0002	<u>TC&UB</u> TC UB	For selecting the signal to be regenerated when the time code generator (TCG) is in the regeneration mode (item No.506). 0: Both TC and UB are regenerated. 1: Only TC is regenerated. 2: Only UB is regenerated.
504	BINARY GP	<u>0000</u> 0001 0002 0003 0004 0005 0006 0007	<u>000</u> 001 010 011 100 101 110 111	For setting the status for using the user's bit of the TCG. 0: Not specified (a character set is not used). 1: ISO characters (8-bit character set complying with ISO646, ISO2022) 2: Unassigned 1 (undefined) 3: Unassigned 2 (undefined) 4: Unassigned 3 (undefined) 5: Page/line (page/line multiplex system complying with SMPTE262M) 6: Unassigned 4 (undefined) 7: Unassigned 5 (undefined)
505	DF MODE	<u>0000</u> 0001	<u>DF</u> NDF	For setting drop frame or non-drop frame for the CTL and TCG. 0: The drop frame mode is established for operation. 1: The non-drop frame mode is established for operation.
506	TC MODE	0000 0001 <u>0002</u> 0003	P-REC P-FREE <u>I-REG</u> E-VITC	For setting the TCG mode. 1: PRESET of the internal TC is used in the REC RUN mode. 0: PRESET of the internal TC is used in the FREE RUN mode. 2: The internal TC is used in the regeneration mode. 3: The input video signal VITC is used in the regeneration mode.
507	TC PRESET			For setting the TCG value.
508	UB PRESET			For setting the user's bit value.
509	TCG CF FLAG	<u>0000</u> 0001	<u>OFF</u> ON	For setting the CF flag of the TCG to ON or OFF. 0: The CF flag is set to OFF. 1: The CF flag is set to ON.

The underlining denotes the factory mode setting.

Setup Menus

VIDEO menu

Item		Setting		Description of setting
No.	Superimposed display	No.	Superimposed display	
600	VIDEO MODE	0000 <u>0001</u>	B/W <u>COLOR</u>	For setting the recording and playback of the video signals. 0: When monochrome signals are used 1: When color signals are used ● Set this item to the B/W mode when monochrome signals are to be recorded or played back. Set the item to the COLOR mode with regular color signals. ● If color signals are recorded in the B/W mode, the pictures will be abnormally colored when the signals are played back.
601	V-MUTE SEL	0000 <u>0001</u>	N-MUTE <u>LOW-RF</u>	For selecting the processing to be performed in the event that LOW-RF has occurred or the servo lock has been disengaged during playback. 0: The video signals are not muted. 1: The video signals are muted.
602	CC (F1) BLANK	0000 <u>0001</u>	BLANK <u>THRU</u>	For selecting ON or OFF for the closed capture signals in the first field. 0: Forcible blanking 1: No blanking
603	CC (F2) BLANK	0000 <u>0001</u>	BLANK <u>THRU</u>	For selecting ON or OFF for the closed capture signals in the second field. 0: Forcible blanking 1: No blanking
604	FREEZE SEL	0000 <u>0001</u>	<u>FIELD</u> FRAME	For selecting the freeze mode of the still pictures in the PLAY PAUSE or frame advance mode. 0: Field freeze 1: Frame freeze
605	IN FRM DET	0000 <u>0001</u>	FORCED <u>AUTO</u>	For selecting the process for detecting the input signal frames. 0: The frames are detected at all times. 1: Frame detection is inhibited only with non-standard signals.
606	STD/NSTD SEL	0000 <u>0001</u>	<u>AUTO</u> NSTD	For selecting the video signal processing. 0: The mode corresponding to the input is automatically established. 1: The non-standard mode is forcibly established.
607	VIN SETUP	0000 <u>0001</u>	THRU <u>CUT</u>	For selecting the setup level when input composite signals are to be converted into component signals and recorded. 0: The input signals are recorded as they are. 1: The signals are recorded after removing the 7.5% setup.
608	VOUT SETUP	0000 <u>0001</u>	THRU <u>ADD</u>	For selecting the setup level when playback component signals are to be converted into composite signals and output. 0: The playback signals are recorded as they are. 1: The signals are recorded after adding the 7.5% setup.

The underlining denotes the factory mode setting.

Setup Menus

AUDIO menu

Item		Setting		Description of setting
No.	Superimposed display	No.	Superimposed display	
700	AUDIO EDIT IN	<u>0000</u> 0001	<u>CUT</u> FADE	For selecting the joining method at the IN point during digital audio editing. 0: Cutting 1: Fading
701	AUDIO EDIT OUT	<u>0000</u> 0001	<u>CUT</u> FADE	For selecting the joining method at the OUT point during digital audio editing. 0: Cutting 1: Fading
702	PB FADE	<u>0000</u> 0001 0002	<u>AUTO</u> CUT FADE	For selecting the processing to be performed for the audio edit points (IN point, OUT point, frame continuity point) during playback. 0: The same status as for recording is established. 1: Forcible cutting 2: Forcible fading
703	SEARCH CUE	0000 <u>0001</u>	OFF <u>ON</u>	For selecting whether to output the CUE AUDIO signal during searches and FF or REW (VV). 0: The signal is not output. 1: The signal is output.
704	DV PB ATT	<u>0000</u> 0001	<u>OFF</u> ON	For selecting the audio output level during DV format playback. 0: Normal playback level 1: The output level is controlled only during DV format playback.
705	CUE INSERT	0000 <u>0001</u>	OFF <u>ON</u>	For selecting whether to record the CH1/CH2 mixed signal for audio input in CUE AUDIO when editing the audio insert. 0: The mixed signal is not recorded as the CUE AUDIO signal. 1: The mixed signal is recorded as the CUE AUDIO signal.

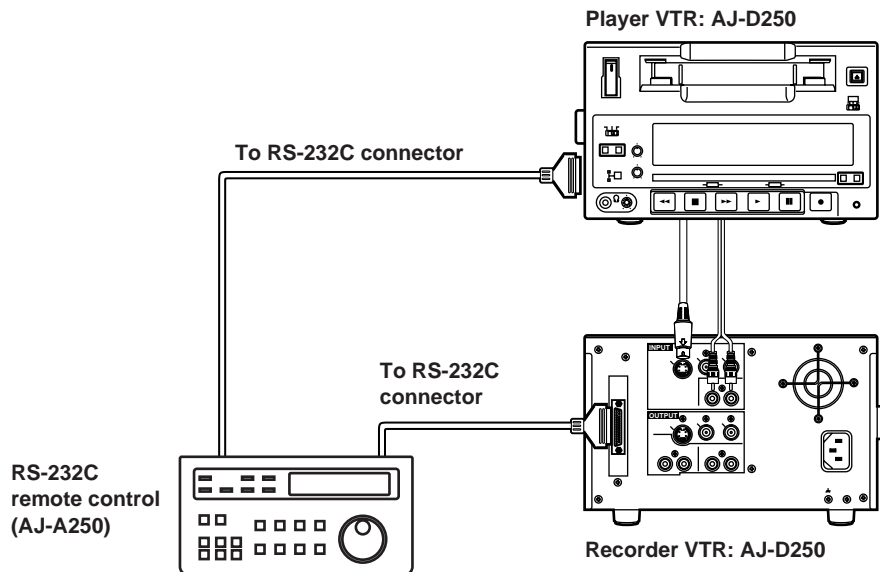
The underlining denotes the factory mode setting.

Editing with the RS-232C remote control

Using the RS-232C remote control (AJ-A250), which is available as an optional accessory, two units—a player VTR and a recorder VTR—can be controlled directly from the controller to enable speedier and more efficient assemble editing, insert editing and other editing jobs.

Preparation:

- As shown in the figure below, connect the player VTR and recorder VTR to the RS-232C remote control.



- Set the INPUT SELECT switch to the position which corresponds to the connection with the player VTR.
 - S-VIDEO:** When connected to the S-VIDEO IN and AUDIO IN connectors
 - LINE:** When connected to the VIDEO IN and AUDIO IN connectors
- Set the LOCAL/MENU/REMOTE switch to the REMOTE position.

<Note>

The disturbances in the pictures during preview can be alleviated by inputting a black burst signal or other reference signal to the REF VIDEO input connectors of the player VTR and recorder VTR.

Operation:

Use the RS-232C remote control to control both the player VTR and recorder VTR.

Read the operating instructions of the AJ-A250 carefully.

<Note>

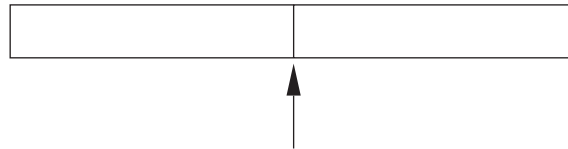
When the AG-A571 is to be used as the remote control, select D230 as the setup menu item No.205 "232C ID SEL" setting. (See page 30)
The unit can be used as the player VTR.

Audio editing functions

The information (setup menu item No. 700, 701) concerning the selection of the joining method used at the edit points is recorded during digital audio editing, and this information is detected during playback so that the edit points can be processed automatically. This applies only when AUTO has been selected as the playback fade selection (setup menu item No.702) setting.

Cutting

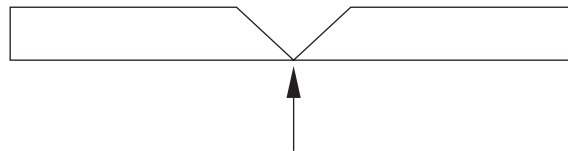
When **CUT** has been selected as the joining method at the edit points.
(setup menu item No.700, 701)



Noise may appear here at the joins in the edit points.

V-fading

When **FADE** has been selected as the joining method at the edit points
(setup menu item No.700, 701)



V-fading is performed instantaneously to suppress the noise.

<Notes>

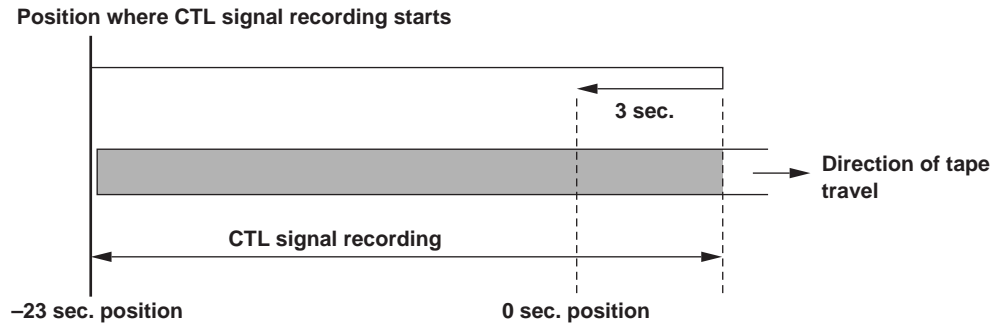
- When CUT has been selected for the playback fade selection (setup menu item No.702), cutting will be performed for all the joins at the edit points.
- When FADE has been selected for the playback fade selection (setup menu item No.702), V-fading is performed for all the joins at the edit points.
- When only one channel has been selected for the sound to be inserted during insert editing, the sound of the channel which has not been selected will be muted.

First Edit Function (Preparing the editing tape)

The CTL (control) signal must be recorded ahead of time onto the editing tape. The method used to record it differs depending on whether assemble editing or insert editing is to be performed.

First edit for assemble editing

In the case of a tape for assemble editing, the CTL signal is recorded at the beginning of where the recording is to be commenced.



First edit for insert editing

In the case of a tape for insert editing, the CTL signal is recorded from the beginning of where the recording is to be commenced to the end.

The "E-00" servo lock error appears on the tape counter when insert editing is performed for a tape on which the CTL signal has not been recorded.

When insert editing is performed, the CTL signal must be recorded ahead of time.

<Note>

When first edit is to be performed, operation can be conducted by connecting the RS-232C remote control (AJ-A250), which is available as an optional accessory. However, control using the RS-232C interface (EFE command) can also be exercised from a computer.

(See page 50)

RS-232C

The following functions can be controlled using the RS-232C interface.

■ Basic operations

EJECT	INSERT
STOP	SEARCH PAUSE
PLAY	SEARCH SPEED UP
REC/PLAY	SEARCH SPEED DOWN
FF	FORWARD/ADVANCE
REW	REVERSE/ADVANCE
PAUSE	REVERSE/PLAY
COUNTER RESET	DIRECT SEARCH

■ Status checks

The current VTR mode can be checked.

■ Simple editing functions

Video/audio, audio/video and various other insert editing operations can be performed.

■ Search function

Specific frame positions can be searched.

1. Hardware specifications

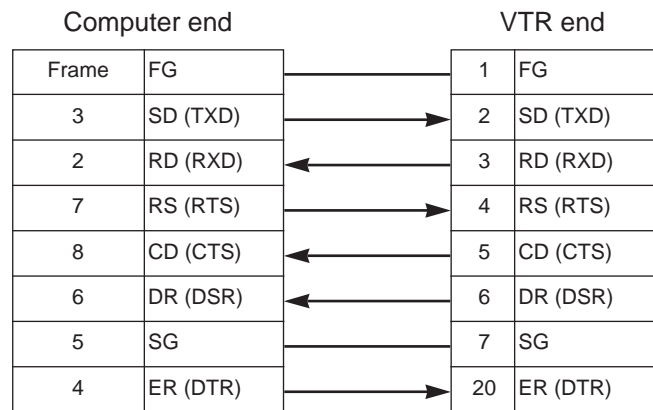
(1) Interface specifications

Connector:

D-SUB 25 pins
DCE specifications (straight cable supported)

Pin No.	Signal	Description
1	FG	Frame GND
2	SD (TXD)	Transmitted Data
3	RD (RXD)	Received Data
4	RS (RTS)	Request to Send
5	CD (CTS)	Clear to Send
6	DR (DSR)	Data Set Ready
7	SG	Signal GND
20	ER (DTR)	Data Terminal Ready

Example of connections



(2) Communication parameters

The unit's communication parameters are as listed below. If any of the parameters are to be changed, select the items on the menu concerned, and make the changes.

Baud Rate: 9600 bps

Bit Length: 8 bit

Stop Bit: 1 bit

Parity: NONE

2. Software specifications

(1) External interface specifications

Communication system	Asynchronous system, full duplex
Baud rate	1200, 2400, 4800, 9600 or 19200 bps
Bit length	8 bits or 7 bits
Stop bit	1 bit or 2 bits
Parity	None, odd or even

<Notes>

- The factory settings are 9600 bps, 8 bits, 1 stop bit and none as the parity.
- The unit has a 127-byte receive buffer.

(2) Sending format (computer → VTR)

■ Data format

```
[STX] [discrimination] [:] [data] [ETX]
02H   XX XX XX       3AH  XX.....XX  03H
```

20H<XX<7FH (XX= HEX character code)

- **discrimination** : Command identifier (3 bytes)
- **:** : Code representing a delimiter between the command and data.
- **data** : The data code is added as required.

1. All send commands must start with STX (character code 02H).
Next comes the discrimination, which identifies the command.
If required, the data is added following the colon.
At the very end comes ETX (character code 03H).
2. When STX is re-sent before ETX is sent, the receive buffer inside the VTR is cleared (all the data received so far will be destroyed), and the data is processed anew with the STX which was received again at the head.

(3) Receiving format (VTR → computer)

The VTR responds to a send command with the format data below.

1. First, the VTR returns the data indicating whether the command from the computer was received properly.

- 1) If the communication was error-free, the VTR returns the ACK (Acknowledge) data.

```
[ACK]
06H
```

- 2) If there was a problem in communication, the VTR returns the data starting with NAK (Negative Acknowledge).

If the VTR was in the process of sending the data when the computer sent its command, the VTR returns NAK after it completes the sending of the data.

The VTR now destroys all the received data with errors.

```
[NAK] □
15H (XX)
```

- Contents of □

- 1 (31H): Parity Error
- 3 (33H): Framing Error
- 4 (34H): Over Run Error

2. Next, after ACK is returned when the communication was error-free, the data is returned in the following format by the operation of the VTR.

- 1) The format of the response (return) data in cases where commands from the computer were properly received by the VTR is as follows.

```
[STX] [data] [ETX]
02H XX.....XX 03H
```

example:

Send command **Return data = Receive data**

[STX] QOP [ETX] → [ACK] [STX] OEJ [ETX]

[STX] QCD [ETX] → [ACK] [STX] CD □□□□□□□□□□ [ETX]

- 2) If there were errors in the data or any problems in the VTR, a description of the reason why the data was not received is returned in the following format.

```
[STX] E R 0 0 □ [ETX]
02H 45H 52H 30H 30H XX 03H
```

- Contents of □

- 1 (31H): A command which is not supported or a command execution error
- 2 (32H): Erroneous parameter with the wrong data code
- 3 (33H): Receive buffer overflow error

```
[STX] E R 1 0 □ [ETX]
02H 45H 52H 31H 30H XX 03H
```

- Contents of □

- 2 (32H): Front loading error
- 3 (33H): Loading error
- 4 (34H): Drum capstan system error
- 5 (35H): Reel system error
- 6 (36H): Tension system error
- 7 (37H): Fan motor error
- 8 (38H): Dew error

```
[STX] E R 1 2 □ [ETX]
02H 45H 52H 31H 32H XX 03H
```

- Contents of □

- 0 (30H): Search error (start/end)
- 1 (31H): Search error (search aborted by front panel operation)
- 2 (32H): Search error (no target position)
- 3 (33H): Search error (search aborted by command)

```
[STX] E R 1 F F [ETX]
02H 45H 52H 31H 46H 46H 03H
```

System (servo communication) error

<Note>

Check the operation carefully before use when controlling the VTR from a personal computer, etc. It is recommended to monitor VTR status information while controlling the VTR in this way.

(4) Command list

■ List of commands

The table below lists the send commands and operations for each mode as seen from the computer end.

[STX] = HEX code 02H

[ETX] = HEX code 03H

: = HEX code 3AH

The discrimination part and data part represent the ASCII codes which support the corresponding symbols.

● Audio control commands

Sends data of computer	Return data from VTR	Description of command
[STX] AOC:m [ETX]	[STX] AOC [ETX]	Sets the audio signal output channel.

● Counter control commands

Sends data of computer	Return data from VTR	Description of command
[STX] CCP:data [ETX]	[STX] CCP [ETX]	Presets the CTL counter data (same as CLP).
[STX] CDF [ETX]	[STX] CDF [ETX]	Cancel the drop frame mode setting.
[STX] CDN [ETX]	[STX] CDN [ETX]	Makes the drop frame mode setting valid.
[STX] CHM:m [ETX]	[STX] CHM [ETX]	Sets 12-/24-hour mode for the CTL display.
[STX] CLP:data [ETX]	[STX] CLP [ETX]	Presets the CTL counter data (same as CCP).
[STX] CRN:m [ETX]	[STX] CRN [ETX]	Sets the signal to be regenerated when TCG is in regeneration mode.
[STX] CRR [ETX]	[STX] CRR [ETX]	Uses the TCG in the REC RUN mode.
[STX] CRT [ETX]	[STX] CRT [ETX]	Resets the CTL counter data.
[STX] CTC [ETX]	[STX] CTC [ETX]	Sets the mode in which time code data is to be used for the counter value.
[STX] CTF [ETX]	[STX] CTF [ETX]	Uses the TCG in the FREE RUN mode.
[STX] CTL [ETX]	[STX] CTL [ETX]	Sets the mode in which CTL data is to be used for the counter value.
[STX] CTM:m [ETX]	[STX] CTM [ETX]	Sets the TCG operation mode.
[STX] CTP [ETX]	[STX] CTP [ETX]	Uses the TCG in the preset mode.
[STX] CTR [ETX]	[STX] CTR [ETX]	Uses the TCG in the regeneration mode.
[STX] CTS:data [ETX]	[STX] CTS [ETX]	Presets the TCG data.
[STX] CUS:data [ETX]	[STX] CUS [ETX]	Presets the user's bit data.
[STX] CVP:data [ETX]	[STX] CVP [ETX]	Specifies the line where the external VITC is to be inserted.

● Display control commands

Sends data of computer	Return data from VTR	Description of command
[STX] DFC:m [ETX]	[STX] DFC [ETX]	Sets the display mode of the display counter.

● Edit control commands

Sends data of computer	Return data from VTR	Description of command
[STX] EAB:m [ETX]	[STX] EAB [ETX]	Sets the auto back recording.
[STX] EAD:m [ETX]	[STX] EAD [ETX]	AUDIO INSERT PAUSE
[STX] EIN [ETX]	[STX] EIN [ETX]	VIDEO INSERT PAUSE
[STX] EFE:data [ETX]	[STX] EFE [ETX]	FIRST EDIT

● Media operation control commands

Sends data of computer	Return data from VTR	Description of command
[STX] HRE:m [ETX]	[STX] HRE [ETX]	Sets the VTR's operation mode at the tape end (when recording).
[STX] HTE:m [ETX]	[STX] HTE [ETX]	Sets the VTR's operation mode at the tape end (at all times other than recording).
[STX] HTI:m [ETX]	[STX] HTI [ETX]	Sets the VTR's operation mode when the tape is inserted.

● Input/output control commands

Sends data of computer	Return data from VTR	Description of command
[STX] IEV:data [ETX]	[STX] IEV [ETX]	Switches between E-E and V-V output. E-E: Electric modulation to electric playback V-V: VTR to VTR recording

● Operation control commands

Sends data of computer	Return data from VTR	Description of command
[STX] OAF [ETX]	[STX] OAF [ETX]	Advances frames in the forward direction.
[STX] OAR [ETX]	[STX] OAR [ETX]	Advances frames in the reverse direction.
[STX] OBF [ETX]	[STX] OBF [ETX]	STANDBY OFF
[STX] OBN [ETX]	[STX] OBN [ETX]	STANDBY ON
[STX] OEJ [ETX]	[STX] OEJ [ETX]	EJECT
[STX] OFF [ETX]	[STX] OFF [ETX]	FAST FORWARD
[STX] OPA [ETX]	[STX] OPA [ETX]	PAUSE
[STX] OPL [ETX]	[STX] OPL [ETX]	PLAY
[STX] OPR [ETX]	[STX] OPR [ETX]	REVERSE PLAY
[STX] OPT:data [ETX]	[STX] OPT [ETX]	Plays the tape back to the designated position (same as SPT).
[STX] ORC [ETX]	[STX] ORC [ETX]	RECORD
[STX] ORP [ETX]	[STX] ORP [ETX]	RECORD PAUSE
[STX] ORW [ETX]	[STX] ORW [ETX]	REWIND
[STX] OSD [ETX]	[STX] OSD [ETX]	SHUTTLE SPEED DOWN
[STX] OSF:n [ETX]	[STX] OSF [ETX]	SHUTTLE FORWARD
[STX] OSL [ETX]	[STX] OSL [ETX]	Starts slow playback.
[STX] OSP [ETX]	[STX] OSP [ETX]	STOP
[STX] OSR:n [ETX]	[STX] OSR [ETX]	SHUTTLE REVERSE
[STX] OSU [ETX]	[STX] OSU [ETX]	SHUTTLE SPEED UP
[STX] OTE:m [ETX]	[STX] OTE [ETX]	Selects E-E output and V-V output.

● Query control commands

Sends data of computer	Return data from VTR	Description of command
[STX] QAL [ETX]	[STX] ALV0 [ETX]	Queries the address level.
[STX] QAO [ETX]	[STX] AOm [ETX]	Queries the audio output channels.
[STX] QCA [ETX]	[STX] CUPdata [ETX]	Queries the user's bit data which was preset in the TCG.
[STX] QCB [ETX]	[STX] CUSdata [ETX]	Queries the user's bit data of the TCG.
[STX] QCC [ETX]	[STX] CCPdata [ETX]	Queries the counter data (same as QCD).
[STX] QCD [ETX]	[STX] CDdata [ETX]	Queries the counter data (same as QCC).
[STX] QCE [ETX]	[STX] CTEdata [ETX]	Queries the TCG preset data.
[STX] QCF [ETX]	[STX] CDm [ETX]	Queries the drop frame mode.
[STX] QCM [ETX]	[STX] CHMm [ETX]	Queries the 12-/24-hour mode for the CTL display.
[STX] QCP [ETX]	[STX] CVPdata [ETX]	Queries the line where the VITC signal is to be inserted.
[STX] QCR [ETX]	[STX] CRNm [ETX]	Queries the signal to be regenerated when the TCG is in the regeneration mode.
[STX] QCS [ETX]	[STX] CTSdata [ETX]	Queries the TCG data.
[STX] QCT [ETX]	[STX] CTdata [ETX]	Queries the TCG mode.
[STX] QCU [ETX]	[STX] CURdata [ETX]	Queries the user's bit data of the TCR.
[STX] QCW [ETX]	[STX] CTMm [ETX]	Queries the TCG mode.
[STX] QCZ [ETX]	[STX] CTZm [ETX]	Queries the TCR read status.
[STX] QDF [ETX]	[STX] DFCm [ETX]	Queries the display mode of the counter display.
[STX] QEB [ETX]	[STX] EABm [ETX]	Queries the auto back recording.
[STX] QHC [ETX]	[STX] HCMdata [ETX]	Queries the cassette tape information.
[STX] QHE [ETX]	[STX] HTEm [ETX]	Sets the VTR's operation mode at the tape end (at all times other than recording).
[STX] QHI [ETX]	[STX] HTIm [ETX]	Queries the tape insertion mode.
[STX] QHR [ETX]	[STX] HTRdata [ETX]	Queries the remaining tape amount.
[STX] QHT [ETX]	[STX] HREm [ETX]	Sets the VTR's operation mode at the tape end (when recording).
[STX] QIC [ETX]	[STX] 1 [ETX]	Queries the product area classification code.
[STX] QID [ETX]	[STX] data [ETX]	Queries the equipment's ID code.
[STX] QIE [ETX]	[STX] IEVdata [ETX]	Queries the E-E output and V-V output.

● Query control commands

Sends data of computer	Return data from VTR	Description of command
[STX] QLH:m [ETX]	[STX] LHRdata [ETX]	Queries the hours meter.
[STX] QOT [ETX]	[STX] OTEm [ETX]	Queries the E-E output and V-V output.
[STX] QOP [ETX]	[STX] data [ETX]	Queries the VTR's operation mode.
[STX] QOD:d1d2 [ETX]	[STX] OASdata [ETX]	Queries the operation modes.
[STX] QOS [ETX]	[STX] OPSdata [ETX]	Queries the operation modes.
[STX] QRA [ETX]	[STX] RAm [ETX]	Queries the ACK (Acknowledge) code response setting.
[STX] QRS [ETX]	[STX] RSEm [ETX]	Queries the search end mode.
[STX] QRV:m [ETX]	[STX] VERdata [ETX]	Queries the software program version.
[STX] QSM [ETX]	[STX] SMMm [ETX]	Queries the memory mode.
[STX] QSY [ETX]	[STX] SMILPdata [ETX]	Queries the memory in data.
[STX] QSP:m [ETX]	[STX] SMPdata [ETX]	Queries the repeat position.
[STX] QTT [ETX]	[STX] TSTdata [ETX]	Queries the standby off timer setting.
[STX] QVI [ETX]	[STX] VIm [ETX]	Queries the INPUT SELECT switch position.
[STX] QVM [ETX]	[STX] VMDm [ETX]	Queries the video mode setting.

● Communication control commands

Sends data of computer	Return data from VTR	Description of command
[STX] RAN [ETX]	[STX] RAN [ETX]	Makes the ACK (Acknowledge) code return function valid.
[STX] RAF [ETX]	[STX] RAF [ETX]	Cancel the ACK (Acknowledge) code return function.
[STX] RCK [ETX]	[STX] RCK [ETX]	Checks the communication line.
[STX] RSE:m [ETX]	[STX] RSE [ETX]	Sets the search end mode.

● Searches control commands

Sends data of computer	Return data from VTR	Description of command
[STX] SCP:data [ETX]	[STX] SCP [ETX]	Searches the counter value and play.
[STX] SCS:data [ETX]	[STX] SCS [ETX]	Searches the counter value and sets to still picture (same as SRS).
[STX] SMI:data [ETX]	[STX] SMI [ETX]	Sets the memory search data.
[STX] SMM:m [ETX]	[STX] SMM [ETX]	Sets the memory mode.
[STX] SMP:data [ETX]	[STX] SMP [ETX]	Specifies the repeat position.
[STX] SMS [ETX]	[STX] SMS [ETX]	Searches the memory data.
[STX] SPT:data [ETX]	[STX] SPT [ETX]	Plays the tape back to the designated position (same as OPT).
[STX] SRS:data [ETX]	[STX] SRS [ETX]	Searches the counter value and sets to still picture (same as SCS).
[STX] SUB:data [ETX]	[STX] SUB [ETX]	Searches the user's bit.

● Timer control commands

Sends data of computer	Return data from VTR	Description of command
[STX] TST:data [ETX]	[STX] TST [ETX]	Sets the standby off timer.

■ Audio control commands

Sends data of computer	Return data from VTR	Description of command
[STX] AOC:m [ETX] Parameters m = 1: CH1 2: CH2 3: CH3 4: CH4 5: CH1 & CH2 6: CH3 & CH4 7: CH1+3 & CH2+4	[STX] AOC [ETX]	Sets the audio signal output channel/s. Playback output is possible for CH3 and CH4 when audio signals for 4 channels have been recorded on a DV format tape. <Note> This command is ignored while a search control command is being processed.

■ Counter control commands

Sends data of computer	Return data from VTR	Description of command
[STX] CCP:data [ETX] Parameters data = ghmmssff g = Blank: With a positive value - sign: With a negative value h = 0 ~9: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames	[STX] CCP [ETX]	Presets the designated counter value on the CTL counter. The value will be corrected as follows if the non-drop frame preset value has been set while the drop frame mode is established. 00:01:00:00 → 00:00:59:28 00:01:00:01 → 00:00:59:29 <Note> This command is ignored while a search control command is being processed or while the tape is being ejected.
[STX] CDF [ETX]	[STX] CDF [ETX]	Disables the drop frame mode setting. CTL and the time code are set to the non-drop frame mode. The non-drop frame is enabled for the time code when it is being recorded. <Note> This command is ignored while a search control command is being processed, during recording and in the INSERT mode.
[STX] CDN [ETX]	[STX] CDN [ETX]	Enables the drop frame mode setting. CTL and the time code are set to the drop frame mode. The drop frame is enabled for the time code when it is being recorded. <Note> This command is ignored while a search control command is being processed, during recording and in the INSERT mode.
[STX] CHM:m [ETX] Parameters m = 1: 12-hour mode 2: 24-hour mode	[STX] CHM [ETX]	Sets the CTL display to the 12-hour mode or 24-hour mode. <Note> This command is ignored while a search control command is being processed.

■ Counter control commands

Sends data of computer	Return data from VTR	Description of command
[STX] CLP:data [ETX] Parameters data = ghmmssff g = Blank: With a positive value – sign: With a negative value h = 0 ~9: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames	[STX] CLP [ETX]	Presets the designated counter value on the CTL counter. The value will be corrected as follows if the non-drop frame preset value has been set while the drop frame mode is established. 00:01:00:00 →00:00:59:28 00:01:00:01 →00:00:59:29 <Note> This command is ignored while a search control command is being processed or while the tape is being ejected.
[STX] CRN:m [ETX] Parameters m = 0: TC & UB 1: TC 2: UB	[STX] CRN [ETX]	Sets the signal to be regenerated when the TCG (time code generator) is set to the regeneration mode. <Note> This command is ignored while a search control command is being processed.
[STX] CRR [ETX]	[STX] CRR [ETX]	Uses the TCG in the REC RUN mode. The TCG counts up during recording. The default value can be set using the CTS command. <Note> This command is ignored while a search control command is being processed, during recording and in the INSERT mode.
[STX] CRT [ETX]	[STX] CRT [ETX]	Resets the CTL counter data. <Note> This command is ignored while a search control command is being processed.
[STX] CTC [ETX]	[STX] CTC [ETX]	Uses the reference data for searching and for the display mode of the counter display as the time code data. <Note> This command is ignored while a search control command is being processed.
[STX] CTF [ETX]	[STX] CTF [ETX]	Uses the TCG in the FREE RUN mode. The TCG continues to count up at all times regardless of the mode. The default value can be set using the CTS command. The TCG starts counting up upon completion of the settings and when the VTR's power is turned back on. <Note> This command is ignored while a search control command is being processed, during recording and in the INSERT mode.
[STX] CTL [ETX]	[STX] CTL [ETX]	Uses the reference data for searching and for the display mode of the counter display as the CTL data. <Note> This command is ignored while a search control command is being processed.
[STX] CTM:m [ETX] Parameters m = 0: REC RUN mode 1: FREE RUN mode 2: Regeneration mode 3: External VITC mode	[STX] CTM [ETX]	Sets the mode used by the TCG. <Note> This command is ignored while a search control command is being processed, during recording and in the INSERT mode.

■ Counter control commands

Sends data of computer	Return data from VTR	Description of command
[STX] CTP [ETX]	[STX] CTP [ETX]	Uses the TCG in the preset mode. The TCG starts counting up in the REC RUN mode upon completion of the settings. <Note> This command is ignored while a search control command is being processed, during recording and in the INSERT mode.
[STX] CTR [ETX]	[STX] CTR [ETX]	Uses the TCG in the regeneration mode. <Note> This command is ignored while a search control command is being processed, during recording and in the INSERT mode.
[STX] CTS:data [ETX] Parameters data = hhmmssff hh = 00 ~23: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames	[STX] CTS [ETX]	Presets the TCG data. The value will be corrected as follows if the non-drop frame preset value has been set while the drop frame mode is established. 00:01:00:00 → 00:00:59:28 00:01:00:01 → 00:00:59:29 Error code ER001 is returned from the VTR when the TCG is used in the regeneration mode or external VITC mode. <Note> This command is ignored while a search control command is being processed.
[STX] CUS:data [ETX] Parameters data = U7U6U5U4U7U3U2U1U0 The input user bit data is set in ASCII code. UB data: Binary 4BIT×8 ↓ ASCII code: 0 ~9, A ~F	[STX] CUS [ETX]	Presets the user's bit data in the TCG. Error code ER001 is returned from the VTR when the TCG is used in the regeneration mode or external VITC mode. <Note> This command is ignored while a search control command is being processed.
[STX] CVP:data [ETX] Parameters data = ppqq pp = 10 ~20: Insertion line 1 qq = 10 ~20: Insertion line 2 pp ≠ qq (the same value cannot be designated for both pp and qq)	[STX] CVP [ETX]	Specifies two lines where the external VITC signal is to be inserted. <Note> This command is ignored while a search control command is being processed, during recording and in the INSERT mode.

■ Display control commands

Sends data of computer	Return data from VTR	Description of command
[STX] DFC:m [ETX] Parameters m = C: CTL mode T: TC mode U: UB mode R: REMAIN mode	[STX] DFC [ETX]	Sets the display mode of the counter display and the reference data for searching. CTL data reference: CTL mode TC data reference: TC mode, UB mode, REMAIN mode <Note> This command is ignored while a search control command is being processed.

■ Edit control commands

Sends data of computer	Return data from VTR	Description of command
[STX] EAB:m [ETX] Parameters m = N: AUTO BACK ON F: AUTO BACK OFF	[STX] EAB [ETX]	Sets whether auto back recording is to be performed to ensure frame to frame continuity. <Note> This command is ignored while a search control command is being processed and during auto back.
[STX] EAD:m [ETX] Parameters m = 0: CH1 & CH2 1: CH1 2: CH2 No parameter: CH1 & CH2	[STX] EAD [ETX]	Sets the VTR to the AUDIO INSERT PAUSE mode. When the VTR is in the VIDEO INSERT PAUSE mode, the command sets it to the AUDIO/VIDEO INSERT PAUSE mode. When it is in the REC INHIBIT mode, error code ER001 is returned from the VTR and the VTR is set to the STOP mode. <Note> This command can be accepted when the VTR is in the PLAY PAUSE mode or STILL mode.
[STX] EIN [ETX]	[STX] EIN [ETX]	Sets the VTR to the VIDEO INSERT PAUSE mode. When the VTR is in the AUDIO INSERT PAUSE mode, the command sets it to the AUDIO/VIDEO INSERT PAUSE mode. When it is in the REC INHIBIT mode, error code ER001 is returned from the VTR and the VTR is set to the STOP mode. <Note> This command can be accepted when the VTR is in the PLAY PAUSE mode or STILL mode.
[STX] EFE:data [ETX] Parameters data = wghmmssff w = M: Mode for recording for 26 seconds E: Mode for recording as far as the tape end ghmmssff = Reference point during editing (recording start point) ● When the CTL data is to be used as the reference g = Blank: With a positive value - sign: With a negative value h = 0 ~9: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames ● When the TC data is to be used as the reference gh = 00 ~23: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames	[STX] EFE [ETX]	Initiates first edit (recording to prepare the tape to be used for editing). In order to conduct editing with the position designated by the parameter as the reference point for editing, TC or CTL is preset using the value 23 seconds before the reference point, and the black burst video signal and muted audio signals are recorded for 26 seconds or until the tape end. If the OSP (STOP) command has been issued during operation, error code ER123 will be returned from the VTR which is then set to the STOP mode. If the VTR's operation mode has been changed by operating the controls on its front panel, error code ER121 will be returned from the VTR which is then set to the STOP mode. If the tape end position is reached during operation, error code ER120 will be returned from the VTR which is then set to the STOP mode. <Note> This command is ignored while a search control command is being processed and in any of the following modes. <div style="border: 1px solid black; padding: 5px; width: fit-content;"> EJECT, REC, REC PAUSE, INSERT, INSERT PAUSE </div>

<Note>

Make the menu item changes listed below when performing insert editing or assemble editing. If these changes are not made, the editing operations may not be conducted properly.

Menu item	Setting	Setting command
AUTO BACK	ON	EAB:N
TC MODE	I-REG	CTM:2
TCG REGEN	TC & UB	CRN:0
MEMORY MODE	OFF	SMM:F
STILL TIMER	2 min	TST:0200

Media operation control commands

Sends data of computer	Return data from VTR	Description of command
[STX] HRE:m [ETX] Parameters m = S: STOP R: REWIND E: EJECT M: REWIND and EJECT	[STX] HRE [ETX]	Sets the VTR's operation mode when the tape end position is reached during recording. <Note> This command is ignored while a search control command is being processed.
[STX] HTE:m [ETX] Parameters m = S: STOP R: REWIND E: EJECT M: REWIND and EJECT	[STX] HTE [ETX]	Sets the VTR's operation mode when the tape end position is reached during playback. <Note> This command is ignored while a search control command is being processed.
[STX] HTI:m [ETX] Parameters m = S: STOP W: REWIND P: PLAY M: PLAY PAUSE	[STX] HTI [ETX]	Sets the VTR's operation mode when the tape is inserted. <Note> This command is ignored while a search control command is being processed.

Input/output control commands

Sends data of computer	Return data from VTR	Description of command						
[STX] IEV:data [ETX] Parameters data = m1m2 m1 = 0 ~F: Designates the data of bit 7 to bit 4. m2 = 0 ~F: Designates the data of bit 3 to bit 0.	[STX] IEV [ETX]	Forcibly switches to the E-E (electric modulation to electric playback) output. When the V-V (VTR to VTR recording) output is the picture output status, it is forcibly switched to the E-E output. The forced E-E output is released and the normal status is restored by IEV:00. <Note> This command is ignored while a search control command is being processed.						
Parameter	m1 (HEX display)				m2 (HEX display)			
Bits supported	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
Switching data	0	0	0	0	AUDIO CH1	AUDIO CH2	VIDEO	TC

■ Operation control commands

Sends data of computer	Return data from VTR	Description of command
[STX] OAF [ETX]	[STX] OAF [ETX]	Advances the tape frame by frame in the forward direction.
[STX] OAR [ETX]	[STX] OAR [ETX]	Advances the tape frame by frame in the reverse direction.
[STX] OBF [ETX]	[STX] OBF [ETX]	Sets the VTR to the standby OFF mode. <Note> This command can be accepted when the VTR is in the STOP mode, PLAY mode or STILL mode.
[STX] OBN [ETX]	[STX] OBN [ETX]	Sets the VTR to the standby ON (STOP) mode. <Note> This command can be accepted when the VTR is in the standby OFF mode.
[STX] OEJ [ETX]	[STX] OEJ [ETX]	Ejects the cassette tape.
[STX] OFF [ETX]	[STX] OFF [ETX]	Fast forwards the tape.
[STX] OPA [ETX]	[STX] OPA [ETX]	Sets the VTR to the pause mode (REC PAUSE or PLAY PAUSE) or the pause release mode (REC or PLAY).
[STX] OPL [ETX]	[STX] OPL [ETX]	Plays back the tape.
[STX] OPR [ETX]	[STX] OPR [ETX]	Plays the tape (at the shuttle $-1 \times$ speed) in the reverse direction.
[STX] OPT:data [ETX] Parameters data = wghmmssff ● When the CTL data is to be used as the reference w = L : CTL data reference g = Blank: With a positive value - sign: With a negative value h = 0 ~9: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames ● When the TC data is to be used as the reference w = S: TC data reference gh = 00 ~23: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames	[STX] OPT [ETX]	Plays back the tape to the position designated by the parameter. Upon completion of playback, the VTR is set to the STILL mode. If the designated position is before the current position, the tape is not played back, and the VTR is set to the STILL mode. When the OSP (STOP) command or OEJ (tape EJECT) command is issued during operation, error code ER123 is returned from the VTR. If the VTR's operation mode has been changed by operating the controls on its front panel, error code ER121 will be returned from the VTR. If the tape end position is reached during operation, error code ER120 will be returned from the VTR. <Note> This command is ignored while a search control command is being processed and in any of the following modes. <div style="border: 1px solid black; padding: 2px; display: inline-block;">EJECT, REC, REC PAUSE, INSERT, INSERT PAUSE</div>
[STX] ORC [ETX]	[STX] ORC [ETX]	Sets the VTR to the recording mode. When the VTR is in the REC INHIBIT mode, error code ER001 will be returned from the VTR which is then set to the STOP mode.
[STX] ORP [ETX]	[STX] ORP [ETX]	Sets the VTR to the REC PAUSE mode. When the VTR is in the REC INHIBIT mode, error code ER001 will be returned from the VTR which is then set to the STOP mode.
[STX] ORW [ETX]	[STX] ORW [ETX]	Rewinds the tape.

<Note>

Refer to the RS-232 mode transition table (on pages 71, 72) for the conditions under which the operation control commands are accepted.

■ Operation control commands

Sends data of computer	Return data from VTR	Description of command																								
[STX] OSD [ETX]	[STX] OSD [ETX]	<p>Controls the tape playback speed. Set the VTR to the STILL PAUSE mode using the OSL command, and send the OSD command. Each time the OSD command is sent, the playback speed shifts by one setting in the direction of the arrows below. If the lowest playback speed is already set, the speed does not shift any further, and error code ER001 is returned from the VTR.</p> <div style="border: 1px solid black; padding: 5px;"> <p>In the case of a DVCPRO format tape +32.0 → +16.0 → +9.5 → +4.1 → +1.85 → +1 → +0.43 → +0.3 → +0.1 → +0.03 → STILL → -0.03 → -0.1 → -0.3 → -0.43 → -1 → -1.85 → -4.1 → -9.5 → -16.0 → -32.0</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>In the case of a DV format tape +32.0 → +16.0 → +9.5 → +3.1 → +1.85 → +1 → +0.5 → +0.3 → +0.1 → +0.03 → STILL → -0.03 → -0.1 → -0.3 → -0.5 → -1 → -1.85 → -3.1 → -9.5 → -16.0 → -32.0</p> </div>																								
<p>[STX] OSF:n [ETX]</p> <p>Parameters</p> <ul style="list-style-type: none"> ● In the case of a DVCPRO format tape <div style="border: 1px solid black; padding: 5px;"> <table> <tr><td>n = 0: STILL</td><td>6: ×1.85</td></tr> <tr><td>1: ×0.03</td><td>7: ×4.1</td></tr> <tr><td>2: ×0.1</td><td>8: ×9.5</td></tr> <tr><td>3: ×0.3</td><td>9: ×16.0</td></tr> <tr><td>4: ×0.43</td><td>A: ×32.0</td></tr> <tr><td>5: ×1</td><td></td></tr> </table> </div> <ul style="list-style-type: none"> ● In the case of a DV format tape <div style="border: 1px solid black; padding: 5px;"> <table> <tr><td>n = 0: STILL</td><td>6: ×1.85</td></tr> <tr><td>1: ×0.03</td><td>7: ×3.1</td></tr> <tr><td>2: ×0.1</td><td>8: ×9.5</td></tr> <tr><td>3: ×0.3</td><td>9: ×16.0</td></tr> <tr><td>4: ×0.5</td><td>A: ×32.0</td></tr> <tr><td>5: ×1</td><td></td></tr> </table> </div>	n = 0: STILL	6: ×1.85	1: ×0.03	7: ×4.1	2: ×0.1	8: ×9.5	3: ×0.3	9: ×16.0	4: ×0.43	A: ×32.0	5: ×1		n = 0: STILL	6: ×1.85	1: ×0.03	7: ×3.1	2: ×0.1	8: ×9.5	3: ×0.3	9: ×16.0	4: ×0.5	A: ×32.0	5: ×1		[STX] OSF [ETX]	Sets the tape playback speed in the forward direction.
n = 0: STILL	6: ×1.85																									
1: ×0.03	7: ×4.1																									
2: ×0.1	8: ×9.5																									
3: ×0.3	9: ×16.0																									
4: ×0.43	A: ×32.0																									
5: ×1																										
n = 0: STILL	6: ×1.85																									
1: ×0.03	7: ×3.1																									
2: ×0.1	8: ×9.5																									
3: ×0.3	9: ×16.0																									
4: ×0.5	A: ×32.0																									
5: ×1																										
[STX] OSL [ETX]	[STX] OSL [ETX]	<p>Sets the VTR to the STILL PAUSE mode. The OSD command and OSU command are accepted after the VTR has been set to the STILL PAUSE mode by the OSL command.</p>																								
[STX] OSP [ETX]	[STX] OSP [ETX]	<p>Sets the VTR to the STOP mode. When the VTR is in the STANDBY OFF mode, it is set to STANDBY ON.</p>																								

<Note>

Refer to the RS-232 mode transition table (on pages 71, 72) for the conditions under which the operation control commands are accepted.

■ Operation control commands

Sends data of computer	Return data from VTR	Description of command																								
<p>[STX] OSR:n [ETX]</p> <p>Parameters</p> <p>● In the case of a DVCPRO format tape</p> <table border="1"> <tr> <td>n = 0: STILL</td> <td>6: ×1.85</td> </tr> <tr> <td>1: ×0.03</td> <td>7: ×4.1</td> </tr> <tr> <td>2: ×0.1</td> <td>8: ×9.5</td> </tr> <tr> <td>3: ×0.3</td> <td>9: ×16.0</td> </tr> <tr> <td>4: ×0.43</td> <td>A: ×32.0</td> </tr> <tr> <td>5: ×1</td> <td></td> </tr> </table> <p>● In the case of a DV format tape</p> <table border="1"> <tr> <td>n = 0: STILL</td> <td>6: ×1.85</td> </tr> <tr> <td>1: ×0.03</td> <td>7: ×3.1</td> </tr> <tr> <td>2: ×0.1</td> <td>8: ×9.5</td> </tr> <tr> <td>3: ×0.3</td> <td>9: ×16.0</td> </tr> <tr> <td>4: ×0.5</td> <td>A: ×32.0</td> </tr> <tr> <td>5: ×1</td> <td></td> </tr> </table>	n = 0: STILL	6: ×1.85	1: ×0.03	7: ×4.1	2: ×0.1	8: ×9.5	3: ×0.3	9: ×16.0	4: ×0.43	A: ×32.0	5: ×1		n = 0: STILL	6: ×1.85	1: ×0.03	7: ×3.1	2: ×0.1	8: ×9.5	3: ×0.3	9: ×16.0	4: ×0.5	A: ×32.0	5: ×1		[STX] OSR [ETX]	<p>Sets the tape playback speed in the reverse direction.</p>
n = 0: STILL	6: ×1.85																									
1: ×0.03	7: ×4.1																									
2: ×0.1	8: ×9.5																									
3: ×0.3	9: ×16.0																									
4: ×0.43	A: ×32.0																									
5: ×1																										
n = 0: STILL	6: ×1.85																									
1: ×0.03	7: ×3.1																									
2: ×0.1	8: ×9.5																									
3: ×0.3	9: ×16.0																									
4: ×0.5	A: ×32.0																									
5: ×1																										
[STX] OSU [ETX]	[STX] OSU [ETX]	<p>Controls the tape playback speed.</p> <p>Set the VTR to the STILL PAUSE mode using the OSL command, and send the OSU command. Each time the OSU command is sent, the playback speed shifts by one setting in the direction of the arrows below.</p> <p>If the highest playback speed is already set, the speed does not shift any further, and error code ER001 is returned from the VTR.</p> <table border="1"> <tr> <td>In the case of a DVCPRO format tape</td> </tr> <tr> <td>–32.0 → –16.0 → –9.5 → –4.1 → –1.85 → –1 → –0.43 → –0.3 → –0.1 → –0.03 → STILL → +0.03 → +0.1 → +0.3 → +0.43 → +1 → +1.85 → +4.1 → +9.5 → +16.0 → +32.0</td> </tr> </table> <table border="1"> <tr> <td>In the case of a DV format tape</td> </tr> <tr> <td>–32.0 → –16.0 → –9.5 → –3.1 → –1.85 → –1 → –0.5 → –0.3 → –0.1 → –0.03 → STILL → +0.03 → +0.1 → +0.3 → +0.5 → +1 → +1.85 → +3.1 → +9.5 → +16.0 → +32.0</td> </tr> </table>	In the case of a DVCPRO format tape	–32.0 → –16.0 → –9.5 → –4.1 → –1.85 → –1 → –0.43 → –0.3 → –0.1 → –0.03 → STILL → +0.03 → +0.1 → +0.3 → +0.43 → +1 → +1.85 → +4.1 → +9.5 → +16.0 → +32.0	In the case of a DV format tape	–32.0 → –16.0 → –9.5 → –3.1 → –1.85 → –1 → –0.5 → –0.3 → –0.1 → –0.03 → STILL → +0.03 → +0.1 → +0.3 → +0.5 → +1 → +1.85 → +3.1 → +9.5 → +16.0 → +32.0																				
In the case of a DVCPRO format tape																										
–32.0 → –16.0 → –9.5 → –4.1 → –1.85 → –1 → –0.43 → –0.3 → –0.1 → –0.03 → STILL → +0.03 → +0.1 → +0.3 → +0.43 → +1 → +1.85 → +4.1 → +9.5 → +16.0 → +32.0																										
In the case of a DV format tape																										
–32.0 → –16.0 → –9.5 → –3.1 → –1.85 → –1 → –0.5 → –0.3 → –0.1 → –0.03 → STILL → +0.03 → +0.1 → +0.3 → +0.5 → +1 → +1.85 → +3.1 → +9.5 → +16.0 → +32.0																										
<p>[STX] OTE:m [ETX]</p> <p>Parameters</p> <p>m = E: E-E (Electric modulation to Electric play back)</p> <p>m = T: V-V (VTR to VTR recording)</p>	[STX] OTE [ETX]	<p>Selects whether to set E-E output or V-V output when the VTR is in the STOP mode, FF mode or REW mode.</p>																								

<Note>

Refer to the RS-232 mode transition table (on pages 71, 72) for the conditions under which the operation control commands are accepted.

■ Query control commands

Sends data of computer	Return data from VTR	Description of command
[STX] QAL [ETX]	[STX] ALV0 [ETX]	Supports only address level 0 of the MIS standards.
[STX] QAO [ETX]	[STX] AOm [ETX] m = 1: CH1 2: CH2 3: CH3 4: CH4 5: CH1 & CH2 6: CH3 & CH4 7: CH1+3 & CH2+4	Queries the audio signal output channel or channels.
[STX] QCA [ETX]	[STX] CUPdata [ETX] data = U7U6U5U4U7U3U2U1U0	Queries the user's bit data which was preset in the TCG.
[STX] QCB [ETX]	[STX] CUSdata [ETX] data = U7U6U5U4U7U3U2U1U0	Queries the user's bit data of the TCG.
[STX] QCC [ETX]	[STX] CCPdata [ETX] data = ghmmss ● In the case of CTL data g = Blank: With a positive value – sign: With a negative value h = 0~9: Hours mm = 00~59: Minutes ss = 00~59: Seconds ● In the case of TC data gh = 00~23: Hours mm = 00~59: Minutes ss = 00~59: Seconds	Queries the current counter data (second increments). The following data is returned from the VTR, depending on the mode which appears on the counter display. CTL mode: CTL data TC mode, UB mode, REMAIN mode: TC data
[STX] QCD [ETX]	[STX] CDdata [ETX] data = fwghmmssff ● In the case of CTL data f = F: Fine C: Coarse w = S: Search STILL P: Search PLAY g = Blank: With a positive value – sign: With a negative value h = 0~9: Hours mm = 00~59: Minutes ss = 00~59: Seconds ff = 00~29: Frames ● In the case of TC data f = F: Fine C: Coarse w = S: Search STILL P: Search PLAY gh = 00~23: Hours mm = 00~59: Minutes ss = 00~59: Seconds ff = 00~29: Frames	Queries the current counter data. The following data is returned from the VTR, depending on the mode which appears on the counter display. CTL mode: CTL data TC mode, UB mode, REMAIN mode: TC data

■ Query control commands

Sends data of computer	Return data from VTR	Description of command
[STX] QCE [ETX]	[STX] CTEdata [ETX] data = hhmmssff hh = 00 ~23: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames	Queries the time data which was preset in the TCG.
[STX] QCF [ETX]	[STX] CDm [ETX] m = N: Drop frame mode F: Non-drop frame mode	Queries the drop frame mode.
[STX] QCM [ETX]	[STX] CHMm [ETX] m = 1: 12-hour mode 2: 24-hour mode	Queries whether the CTL display is in the 12-hour mode or 24-hour mode.
[STX] QCP [ETX]	[STX] CVPdata [ETX] data = ppqq pp = Insertion line 1 qq = Insertion line 2	Queries the setting of the two lines in which the external VITC signal is to be inserted.
[STX] QCR [ETX]	[STX] CRNm [ETX] m = 0: TC & UB 1: TC 2: UB	Queries the REGEN (regeneration) signal when the TCG (time code generator) is set to the regeneration mode.
[STX] QCS [ETX]	[STX] CTSdata [ETX] data = hhmmssff hh = 00 ~23: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames	Queries the TCG's time data.
[STX] QCT [ETX]	[STX] CTdata [ETX] data = mm mm = FR: Regeneration mode RP: REC RUN mode FP: FREE RUN mode VR: External VITC mode	Queries the mode in which the TCG is to be used.
[STX] QCU [ETX]	[STX] CURdata [ETX] data = U7U6U5U4U7U3U2U1U0	Queries the user's bit data of the TCR.
[STX] QCW [ETX]	[STX] CTMm [ETX] m = 0: REC RUN mode 1: FREE RUN mode 2: Regeneration mode 3: External VITC mode	Queries the mode in which the TCG is to be used.
[STX] QCZ [ETX]	[STX] CTZm [ETX] m = 0: Read NG 1: Read OK	Queries the TCR read status.
[STX] QDF [ETX]	[STX] DFCm [ETX] m = C: CTL mode T: TC mode U: UB mode R: REMAIN mode	Queries the display mode of the counter display.

■ Query control commands

Sends data of computer	Return data from VTR	Description of command
[STX] QEB [ETX]	[STX] EABm [ETX] m = N: AUTO BACK ON F: AUTO BACK OFF	Queries the auto back recording setting.
[STX] QHC [ETX]	[STX] HCMdata [ETX] data = C1C2C3C4 C1 = I: Cassette in O: Cassette out C2 = E: Recording enabled D: Recording disabled N: No tape C3 = S: S size cassette M: M size cassette L: L size cassette N: No tape C4 = D: DV format P: DVCPRO format C: DVCAM format N: No tape	Queries the cassette tape information.
[STX] QHE [ETX]	[STX] HTEm [ETX] m = S: STOP R: REWIND E: EJECT M: REWIND and EJECT	Queries the VTR's operation mode when the tape end position has been reached during any operation except recording.
[STX] QHI [ETX]	[STX] HTIm [ETX] m = S: STOP W: REWIND P: PLAY M: PLAY PAUSE	Queries the VTR's operation mode when the tape has been inserted.
[STX] QHR [ETX]	[STX] HTRdata [ETX] data = hhmmss hh = 00 ~ 23: Hours mm = 00 ~ 59: Minutes ss = Fixed at 00: Seconds	Queries the amount of remaining tape. If this is not determined or the tape has been ejected, data = FFFFFFFF is returned.
[STX] QHT [ETX]	[STX] HREm [ETX] m = S: STOP R: REWIND E: EJECT M: REWIND and EJECT	Queries the VTR's operation mode when the tape end position is reached during recording.
[STX] QIC [ETX]	[STX] 1 [ETX]	Queries the product classification code. This unit returns tape equipment "1."
[STX] QID [ETX]	[STX] data [ETX] data = AJ-D250 AJ-D230	Queries the equipment's ID code. The ID code corresponding to the setting of Setup Menu No. 205 "232C ID SEL" is returned. (See page 30) With the factory settings, tape equipment "AJ-D250" is returned.

■ Query control commands

Sends data of computer	Return data from VTR	Description of command
[STX] QIE [ETX]	[STX] IEVdata [ETX] data = m1m2 m1 = 0 ~F: Designates the data of bit 7 to bit 4. m2 = 0 ~F: Designates the data of bit 3 to bit 0.	Queries the forced E-E output setting.
Parameter	m1 (HEX display)	m2 (HEX display)
Bits supported	BIT7 BIT6 BIT5 BIT4	BIT3 BIT2 BIT1 BIT0
Switching data	0 0 0 0	AUDIO CH1 AUDIO CH2 VIDEO TC
[STX] QLH:m [ETX] Parameters m = D: Cumulative drum rotation time T: Cumulative capstan rotation time No parameter: Cumulative drum rotation time (4 digits)	[STX] LHRdata [ETX] data = mhhhhh m = D: Drum T: Capstan hhhhh = 00000 ~ 99999: Cumulative rotation time ● With no parameter The drum's cumulative rotation time is returned as a 4-digit value. data = hhhh hhhh = 0000 ~ 9999: Cumulative rotation time	Queries the current value of the hours meter.
[STX] QOT [ETX]	[STX] OTEm [ETX] m = E: E-E (Electric modulation to Electric play back) m = T: V-V (VTR to VTR recording)	Queries whether to set to the E-E output or V-V output when the VTR is in the STOP mode, FF mode or REW mode.

■ Query control commands

Sends data of computer	Return data from VTR	Description of command
<p>[STX] QOP [ETX]</p>	<p>[STX] data [ETX]</p> <p>data =</p> <p>OSP: STOP</p> <p>OEJ: EJECT</p> <p>OFF: FAST FORWARD</p> <p>ORW:REWIND</p> <p>OSF: SHUTTLE FORWARD</p> <p>OSR: SHUTTLE REVERSE</p> <p>OSS: STILL</p> <p>OPL: PLAY</p> <p>OPP: PLAY PAUSE</p> <p>ORC: REC</p> <p>ORP: REC PAUSE</p> <p>OBF: STANDBY OFF</p> <p>SCS: COUNTER SEARCH (STILL)</p> <p>SCP: COUNTER SEARCH (PLAY)</p> <p>SRS: COUNTER SEARCH (STILL)</p> <p>SUB: UB SEARCH</p> <p>SPT: PLAY to</p> <p>OPT: PLAY to</p> <p>SMS: MEMORY SEARCH</p> <p>EAD: AUDIO INSERT</p> <p>EAP: AUDIO INSERT PAUSE</p> <p>EIN: VIDEO INSERT</p> <p>EIP: VIDEO INSERT PAUSE</p> <p>EVI: AUDIO & VIDEO INSERT</p> <p>EVP: AUDIO & VIDEO INSERT PAUSE</p> <p>EFE: FIRST EDIT</p>	<p>Queries the VTR's operation mode.</p> <p>The current VTR mode is detected, and the status command is returned.</p>
<p>[STX] QOD:d1d2 [ETX]</p> <p>Parameters</p> <p>d1 = 0 ~ F: Designates the status data number.</p> <p>d2 = 0 ~ F: Designates the number of status data bytes.</p>	<p>[STX] OASdata [ETX]</p> <p>data =</p> <p>AD0AD1AD2AD3AD4AD5AD6AD7AD8AD9ADAAADBADCADDADEADF</p> <p><Note></p> <p>Refer to the bitmap table (A) for details of AD *.</p>	<p>Queries the operation modes.</p> <p>The current VTR mode is detected, and the bitmap information is returned. The bitmap information is converted into ASCII code and returned by the VTR.</p> <p><Note></p> <p>When a setting exceeding ADDRESSF has been set by the parameter, no guarantees are given for the data following ADDRESSF.</p>

RS-232C

● Bitmap table (A)

ADDRESS	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
AD 0	0	0	CASSETTE OUT	RF VIDEO MISSING	TAPE TROUBLE	HARD ERROR	0	LOCAL or MENU
AD 1	STANDBY	0	STOP	EJECT	REW	FF	REC	PLAY
AD 2	SERVO LOCK	0	SHUTTLE	0	0	TAPE DIRECTION	STILL	CUE UP COMPLETE
AD 3	0	0	0	0	0	0	0	0
AD 4	SELECT EE	FULL EE	0	EDIT	0	0	0	CUE UP
AD 5	0	INSERT	0	VIDEO	0	0	AUDIO CH2	AUDIO CH1
AD 6	0	LAMP STILL	LAMP FWD	LAMP REW	LAMP SPEED3	LAMP SPEED2	LAMP SPEED1	LAMP SPEED0
AD 7	0	0	0	0	0	0	0	0
AD 8	0	0	0	0	0	0	0	REC INHIBIT
AD 9	0	0	0	0	0	0	0	0
AD A	0	0	0	0	0	0	0	0
AD B	0	0	0	0	0	0	0	0
AD C	0	0	0	0	0	0	0	0
AD D	0	0	0	0	0	0	0	0
AD E	0	0	0	0	0	0	0	0
AD F	0	0	0	0	0	0	0	0

■ Query control commands

Sends data of computer	Return data from VTR	Description of command
[STX] QOS [ETX]	[STX] OPSdata [ETX] data = AD0AD1AD2AD3AD4 <Note> Refer to the bitmap table (B) for details of AD *.	Queries the operation modes. The current VTR mode is detected and sent by the bitmap information. The bitmap information is converted into ASCII code and returned by the VTR.
[STX] QRA [ETX]	[STX] RAM [ETX] m = N: ACK ON F: ACK OFF	Queries the ACK (Acknowledge) code response setting.
[STX] QRS [ETX]	[STX] RSEm [ETX] m = 0: Normal 1: No completion command 2: No completion command/No error	Queries the search end mode setting.
[STX] QRV:m [ETX] Parameters m = A: AV system control ROM version S: Sub-code microcomputer version C: Cylinder servo ROM version R: Reel servo ROM version I: Interface ROM version No parameter: Interface ROM version	[STX] VERdata [ETX] data = d1d2.d3d4-d5d6-d7.d8d9 d1 ~d9: Software program version	Queries the software program version used for each microcomputer.
[STX] QSM [ETX]	[STX] SMMm [ETX] m = S: MEMORY STOP O: REPEAT ONE TIME A: CONTINUE F: OFF	Queries the memory mode.
[STX] QSY [ETX]	[STX] SMILPdata [ETX] data = wwghmmssff ww = LP: CTL data reference SP: TC data reference g = Blank: With a positive value - sign: With a negative value h = 0 ~9: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames	Queries the counter value stored in the memory.

RS-232C

● Bitmap table (B)

ADDRESS	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
AD 0	FULL EE	SELECT EE	0	0	0	0	TAPE END (*)	TAPE TOP (*)
AD 1	SHORT PLAY	0	STANDBY	0	0	0	0	SERVO LOCK
AD 2	REC INHIBIT TAB	CASSETTE IN/OUT	0	VTR STATUS				
AD 3	TAPE DIRECTION	SHUTTLE SPEED						
AD 4	0	INSERT VIDEO	INSERT AUDIO CH1	INSERT AUDIO CH2	0	0	0	0

<Note * >

"1" is used as the TAPE END bit and TAPE TOP bit when the tape start or end is detected, and the bits are cleared to "0" when queried by the QOS command.

VTR STATUS DATA

BIT4 ~ BIT0	VTR STATUS	BIT4 ~ BIT0	VTR STATUS
1, 1, 1, 1, 1	INSERT PAUSE	0, 1, 0, 0, 1	PLAY PAUSE
1, 1, 1, 1, 0	INSERT	0, 1, 0, 0, 0	PLAY
0, 1, 1, 1, 0	SEARCH	0, 0, 0, 1, 1	FAST FORWARD
0, 1, 1, 0, 1	AUDIO INSERT PAUSE	0, 0, 0, 1, 0	REWIND
0, 1, 1, 0, 0	AUDIO INSERT	0, 0, 0, 0, 1	EJECT
0, 1, 0, 1, 1	RECORDING PAUSE	0, 0, 0, 0, 0	STOP
0, 1, 0, 1, 0	RECORDING		

SHUTTLE SPEED DATA

BIT4 ~ BIT0	SHUTTLE SPEED	BIT4 ~ BIT0	SHUTTLE SPEED
60	(±) 9.5× or more	2A	(±) 0.2× or more but less than (±) 0.43×
59	(±) 3.0× or more but less than (±) 9.5×	20	(±) 0.1× or more but less than (±) 0.2×
4A	(±) 1.85× or more but less than (±) 3.0×	13	(±) 0.03× or more but less than (±) 0.1×
40	(±) 1.0× or more but less than (±) 1.85×	00	STILL
36	(±) 0.43× or more but less than (±) 1.0×		

■ Query control commands

Sends data of computer	Return data from VTR	Description of command
<p>[STX] QSP:m [ETX]</p> <p>Parameters</p> <p>m =</p> <p>B: BEGIN point</p> <p>E: END point</p>	<p>[STX] SMPdata [ETX]</p> <p>data = pw:ghmmssff</p> <p>● When CTL data is to be used as the reference</p> <p>pw = BP: BEGIN point</p> <p>EP: END point</p> <p>g = Blank: With a positive value</p> <p>– sign: With a negative value</p> <p>h = 0 ~9: Hours</p> <p>mm = 00 ~59: Minutes</p> <p>ss = 00 ~59: Seconds</p> <p>ff = 00 ~29: Frames</p> <p>● When TC data is to be used as the reference</p> <p>pw = BP: BEGIN point</p> <p>EP: END point</p> <p>gh = 00 ~23: Hours</p> <p>mm = 00 ~59: Minutes</p> <p>ss = 00 ~59: Seconds</p> <p>ff = 00 ~29: Frames</p>	<p>Queries the repeat position which has been stored in the memory.</p> <p>Error code ER001 is returned from the VTR when the data has not been entered.</p>
<p>[STX] QTT [ETX]</p>	<p>[STX] TSTdata [ETX]</p> <p>data = mmmm</p> <p>mmmm =</p> <p>0000: 0.5 sec.</p> <p>0005: 5 sec.</p> <p>0010: 10 sec.</p> <p>0030: 30 sec.</p> <p>0100: 1 min.</p> <p>0200: 2 min.</p>	<p>Queries the standby OFF timer which has been stored in the memory.</p>
<p>[STX] QVI [ETX]</p>	<p>[STX] VIm [ETX]</p> <p>m = L: LINE</p> <p>S: S-VIDEO</p> <p>D: OPTION</p>	<p>Queries the position of the INPUT SELECT switch.</p>
<p>[STX] QVM [ETX]</p>	<p>[STX] VMDm [ETX]</p> <p>m = A: Color</p> <p>B: Monochrome</p>	<p>Queries the color mode.</p>

■ Communication control commands

Sends data of computer	Return data from VTR	Description of command
[STX] RAN [ETX]	[STX] RAN [ETX]	Enables the return of the ACK (Acknowledge) code. <Note> This command is ignored while a search control command is being processed.
[STX] RAF [ETX]	[STX] RAF [ETX]	Disables the return of the ACK (Acknowledge) code. <Note> This command is ignored while a search control command is being processed.
[STX] RCK [ETX]	[STX] RCK [ETX]	Checks whether communication is established. <Note> This command is ignored while a search control command is being processed.
[STX] RSE:m [ETX] Parameters m = 0: Normal 1: No completion command 2: No completion command/No error	[STX] RSE [ETX]	Sets the send timing and enable or disable for sending the search completion command. <ul style="list-style-type: none"> ● Parameter setting: normal When search is commenced: ACK code is returned. When search is completed: [STX] □□□ [ETX] is returned. When search is aborted: [STX] ER□□□ [ETX] is returned. ● Parameter setting: no completion command When search is commenced: ACK code is returned, and then [STX] □□□ [ETX] is returned. When search is completed: No return. When search is aborted: [STX] ER□□□ [ETX] is returned. ● Parameter setting: no completion command/no error When search is commenced: ACK code is returned, and then [STX] □□□ [ETX] is returned. When search is completed: No return. When search is aborted: No return. <Note> This command is ignored while a search control command is being processed.

■ Search control commands

Sends data of computer	Return data from VTR	Description of command
<p>[STX] SCP:data [ETX]</p> <p>Parameters data = ghmmssff</p> <ul style="list-style-type: none"> ● When CTL data is to be used as the reference <ul style="list-style-type: none"> g = Blank: With a positive value – sign: With a negative value h = 0 ~9: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames ● When TC data is to be used as the reference <ul style="list-style-type: none"> gh = 00 ~23: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames 	<p>[STX] SCP [ETX]</p>	<p>Searches the counter value which was designated by the parameter. Playback is commenced upon completion of the search. If the designated position is an illegal position (the target position does not exist), error code ER122 will be returned from the VTR, which is then set to the STOP mode. When the OSP (STOP) command or OEJ (tape EJECT) command is issued during operation, error code ER123 is returned from the VTR. If the VTR's operation mode has been changed by operating the controls on its front panel, error code ER121 will be returned from the VTR. If the tape end position is reached during operation, error code ER120 will be returned from the VTR. When data differing from the data used as the reference has been sent, error code ER001 will be returned from the VTR.</p> <p><Note> This command is ignored while a search control command is being processed and in any of the following modes.</p> <div style="border: 1px solid black; padding: 2px; width: fit-content;">EJECT, REC, REC PAUSE, INSERT, INSERT PAUSE</div>
<p>[STX] SCS:data [ETX]</p> <p>Parameters data = ghmmssff</p> <ul style="list-style-type: none"> ● When CTL data is to be used as the reference <ul style="list-style-type: none"> g = Blank: With a positive value – sign: With a negative value h = 0 ~9: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames ● When TC data is to be used as the reference <ul style="list-style-type: none"> gh = 00 ~23: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames 	<p>[STX] SCS [ETX]</p>	<p>Searches the counter value which was designated by the parameter. The STILL mode is established upon completion of the search. If the designated position is an illegal position (the target position does not exist), error code ER122 will be returned from the VTR which is then set to the STOP mode. When the OSP (STOP) command or OEJ (tape EJECT) command is issued during operation, error code ER123 is returned from the VTR. If the VTR's operation mode has been changed by operating the controls on its front panel, error code ER121 will be returned from the VTR. If the tape end position is reached during operation, error code ER120 will be returned from the VTR. When data differing from the data used as the reference has been sent, error code ER001 will be returned from the VTR.</p> <p><Note> This command is ignored while a search control command is being processed and in any of the following modes.</p> <div style="border: 1px solid black; padding: 2px; width: fit-content;">EJECT, REC, REC PAUSE, INSERT, INSERT PAUSE</div>

■ Search control commands

Sends data of computer	Return data from VTR	Description of command
<p>[STX] SMI:data [ETX]</p> <p>Parameters data = wwghmmssff</p> <ul style="list-style-type: none"> ● When the counter value is to be stored in the memory ww = LC: CTL data reference SC: TC data reference "ghmmssff" is omitted. ● When the parameter value for which the CTL data serves as the reference is to be stored in the memory ww = LP: CTL data reference g = Blank: With a positive value - sign: With a negative value h = 0~9: Hours mm = 00~59: Minutes ss = 00~59: Seconds ff = 00~29: Frames ● When the parameter value for which the TC data serves as the reference is to be stored in the memory ww = SP: TC data reference gh = 00~23: Hours mm = 00~59: Minutes ss = 00~59: Seconds ff = 00~29: Frames 	<p>[STX] SMI [ETX]</p>	<p>Stores the counter value and parameter value in the memory at the time when this command is received.</p> <p><Note> This command is ignored while a search control command is being processed.</p>
<p>[STX] SMM:m [ETX]</p> <p>Parameters m = S: MEMORY STOP O: REPEAT ONE TIME A: CONTINUE F: OFF</p>	<p>[STX] SMM [ETX]</p>	<p>Sets the memory mode.</p> <p><Note> This command is ignored while a search control command is being processed.</p>

■ Search control commands

Sends data of computer	Return data from VTR	Description of command
<p>[STX] SMP:data [ETX]</p> <p>Parameters data = pww:ghmmssff</p> <ul style="list-style-type: none"> ● When the counter value is to be stored in the memory p = B: BEGIN point E: END point ww = LC: CTL data reference SC: TC data reference "ghmmssff" is omitted. ● When the parameter value for which the CTL data serves as the reference is to be stored in the memory p = B: BEGIN point E: END point ww = LP: CTL data reference g = Blank: With a positive value - sign: With a negative value h = 0~9: Hours mm = 00~59: Minutes ss = 00~59: Seconds ff = 00~29: Frames ● When the parameter value for which the TC data serves as the reference is to be stored in the memory p = B: BEGIN point E: END point ww = SP: TC data reference gh = 00~23: Hours mm = 00~59: Minutes ss = 00~59: Seconds ff = 00~29: Frames ● When the designated position is not to be entered data = BN: No entry of BEGIN point EN: No entry of END point 	<p>[STX] SMP [ETX]</p>	<p>Sets the repeat position. When the BEGIN point and END point have been designated in different modes, they are converted inside the VTR and set in the mode which was last designated. Parameter "ff" is processed as "00" inside the VTR.</p> <p><Note> This command is ignored while a search control command is being processed.</p>

■ Search control commands

Sends data of computer	Return data from VTR	Description of command
<p>[STX] SMS [ETX]</p>	<p>[STX] SMS [ETX]</p>	<p>Searches the counter value at the time when the command stored in the memory was received. The STILL mode is established upon completion of the search. If the designated position is an illegal position (the target position does not exist), error code ER122 will be returned from the VTR which is then set to the STOP mode. When the OSP (STOP) command or OEJ (tape EJECT) command is issued during operation, error code ER123 is returned from the VTR. If the VTR's operation mode has been changed by operating the controls on its front panel, error code ER121 will be returned from the VTR. If the tape end position is reached during operation, error code ER120 will be returned from the VTR. When data differing from the data used as the reference has been sent or when the counter value has not been stored in the memory, error code ER001 will be returned from the VTR.</p> <p><Note> This command is ignored while a search control command is being processed and in any of the following modes.</p> <div style="border: 1px solid black; padding: 2px; width: fit-content;"> EJECT, REC, REC PAUSE, INSERT, INSERT PAUSE </div>
<p>[STX] SPT:data [ETX]</p> <p>Parameters data = ghmmssff</p> <ul style="list-style-type: none"> ● When CTL data is to be used as the reference <ul style="list-style-type: none"> g = Blank: With a positive value – sign: With a negative value h = 0 ~9: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames ● When TC data is to be used as the reference <ul style="list-style-type: none"> gh = 00 ~23: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames 	<p>[STX] SPT [ETX]</p>	<p>Plays the tape to the position which was designated by the parameter. The VTR is set to the STILL mode upon completion of playback. If the designated position is before the current position, the tape is not played back, and the VTR is set to the STILL mode. When the OSP (STOP) command or OEJ (tape EJECT) command is issued during operation, error code ER123 is returned from the VTR. If the VTR's operation mode has been changed by operating the controls on its front panel, error code ER121 will be returned from the VTR. If the tape end position is reached during operation, error code ER120 will be returned from the VTR.</p> <p><Note> This command is ignored while a search control command is being processed and in any of the following modes.</p> <div style="border: 1px solid black; padding: 2px; width: fit-content;"> EJECT, REC, REC PAUSE, INSERT, INSERT PAUSE </div>

■ Search control commands

Sends data of computer	Return data from VTR	Description of command
<p>[STX] SRS:data [ETX]</p> <p>Parameters data = wghmmssff</p> <ul style="list-style-type: none"> ● When CTL data is to be used as the reference <ul style="list-style-type: none"> w = L: CTL data reference g = Blank: With a positive value - sign: With a negative value h = 0 ~9: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames ● When TC data is to be used as the reference <ul style="list-style-type: none"> w = S: TC data reference gh = 00 ~23: Hours mm = 00 ~59: Minutes ss = 00 ~59: Seconds ff = 00 ~29: Frames 	<p>[STX] SRS [ETX]</p>	<p>Searches the counter value which was designated by the parameter.</p> <p>The STILL mode is established upon completion of the search.</p> <p>If the designated position is an illegal position (the target position does not exist), error code ER122 will be returned from the VTR, which is then set to the STOP mode.</p> <p>When the OSP (STOP) command or OEJ (tape EJECT) command is issued during operation, error code ER123 is returned from the VTR.</p> <p>If the VTR's operation mode has been changed by operating the controls on its front panel, error code ER121 will be returned from the VTR.</p> <p>If the tape end position is reached during operation, error code ER120 will be returned from the VTR.</p> <p>When data differing from the data used as the reference has been sent, error code ER001 will be returned from the VTR.</p> <p><Note> This command is ignored while a search control command is being processed and in any of the following modes.</p> <div style="border: 1px solid black; padding: 2px; width: fit-content;">EJECT, REC, REC PAUSE, INSERT, INSERT PAUSE</div>
<p>[STX] SUB:data [ETX]</p> <p>Parameters data = uuuuuuu:d</p> <ul style="list-style-type: none"> u = 0 ~F: User's bit value (“*” is designated for a user's bit value which is not going to be searched) d = F: Forward direction R: Reverse direction 	<p>[STX] SUB [ETX]</p>	<p>Searches the start position of the user's bit which was designated by the parameter.</p> <p>The STILL mode is established upon completion of the search.</p> <p>The search is enabled when the same user's bit value continues for at least 5 seconds.</p> <p>When the OSP (STOP) command or OEJ (tape EJECT) command is issued during operation, error code ER123 is returned from the VTR.</p> <p>If the VTR's operation mode has been changed by operating the controls on its front panel, error code ER121 will be returned from the VTR.</p> <p>If the tape end position is reached during operation, error code ER120 will be returned from the VTR.</p> <p><Note> This command is ignored while a search control command is being processed and in any of the following modes.</p> <div style="border: 1px solid black; padding: 2px; width: fit-content;">EJECT, REC, REC PAUSE, INSERT, INSERT PAUSE</div>

■ Timer control commands

Sends data of computer	Return data from VTR	Description of command
<p>[STX] TST:data [ETX]</p> <p>Parameters data = mmmm mmmm = 0000: 0.5 sec. 0005: 5 sec. 0010: 10 sec. 0030: 30 sec. 0100: 1 min. 0200: 2 min.</p>	<p>[STX] TST [ETX]</p>	<p>Sets the standby OFF timer.</p> <p><Note> This command is ignored while a search control command is being processed.</p>

Mode transition table

Return command	VTR STATUS											
	STOP	STANDBY OFF	EJECT	PLAY	REW	FF	PLAY PAUSE	REC	REC PAUSE	SHORT PLAY	AUTO BACK	SEARCH
OSP	---	○	×	○	○	○	○	○	○	○	○	○
OEJ	○	○	---	○	○	○	○	×	×	×	×	○
OPL	○	○	×	---	○	○	○	×	×	×	×	○
ORW	○	○	×	○	---	○	○	○	○	○	○	○
OFF	○	○	×	○	○	---	○	○	○	○	○	○
OPA	○	○	×	○	○	○	PLAY	REC PAUSE	REC	REC PAUSE	REC	○
ORC	○	○	×	○	○	○	○	---	○	○	○	○
ORP	○	○	×	○	×	×	○	○	---	○	○	×
EIN	×	×	×	×	×	×	○	×	×	×	×	×
EAD	×	×	×	×	×	×	○	×	×	×	×	×
EFE	○	○	×	○	○	○	○	×	×	×	×	○
OAF	×	×	×	×	×	×	○	×	×	×	×	×
OAR	×	×	×	×	×	×	○	×	×	×	×	×
OPR	○	○	×	○	○	○	○	×	×	×	×	○
OSL	○	○	×	○	○	○	○	×	×	×	×	○
OSF	○	○	×	○	○	○	○	×	×	×	×	○
OSR	○	○	×	○	○	○	○	×	×	×	×	○
Search commands	○	○	×	○	○	○	○	×	×	×	×	○

<Notes>

- : Operation changes to the return command mode.
- ×
-

OPA command: The current operation mode may be replaced by another operation mode when the OPA command is issued.
Search commands: OPT, SCP, SCS, SMS, SPT, SRS, SUB

■ Mode transition table

Return command	VTR STATUS								
	STILL	VIDEO INSERT	VIDEO INSERT PAUSE	AUDIO INSERT	AUDIO INSERT PAUSE	A/V INSERT	A/V INSERT PAUSE	FIRST EDIT	Processing Search Command (Cue Up, etc.)
OSP	○	○	○	○	○	○	○	○	○
OEJ	○	×	×	×	×	×	×	×	○
OPL	○	×	×	×	×	×	×	×	×
ORW	○	×	×	×	×	×	×	×	×
OFF	○	×	×	×	×	×	×	×	×
OPA	PLAY	PLAY PAUSE	VIDEO INSERT	PLAY PAUSE	AUDIO INSERT	PLAY PAUSE	A/V INSERT	×	×
ORC	○	×	×	×	×	×	×	×	×
ORP	○	×	×	×	×	×	×	×	×
EIN	○	×	---	×	A/V INSERT PAUSE	×	---	×	×
EAD	○	×	A/V INSERT PAUSE	×	---	×	---	×	×
EFE	○	×	×	×	×	×	×	×	×
OAF	×	×	×	×	×	×	×	×	×
OAR	×	×	×	×	×	×	×	×	×
OPR	○	×	×	×	×	×	×	×	×
OSL	○	×	×	×	×	×	×	×	×
OSF	○	×	×	×	×	×	×	×	×
OSR	○	×	×	×	×	×	×	×	×
Search commands	○	×	×	×	×	×	×	×	×

<Notes>

- : Operation changes to the return command mode.
 - ×
 -
- ×

— : Error code ER001 is returned, and execution is disabled.

— : The operation mode is maintained.

OPA command: The current operation mode may be replaced by another operation mode when the OPA command is issued.

Search commands: OPT, SCP, SCS, SMS, SPT, SRS, SUB

(5) Checkpoints for RS-232C communication

■ Send commands and data returned from the VTR

1. If the LOCAL/MENU/REMOTE switch on the front panel is not at the REMOTE position, it is not possible to exercise proper control using the RS-232C interface.

If any command except a Q (query) command is sent while this switch is not at the REMOTE position, error code ER001 is returned.

2. After one of the following commands is sent, not all commands can be accepted until the processing of the sent command is completed.

OPT, SCP, SCS, SMS, SPT, SRS, SUB, EFE
--

Commands which can be accepted

- Q (query) commands
- OSP command (STOP)
- OEJ command (EJECT)

Error code ER001 is returned when a command other than one which can be accepted is sent.

■ Send command intervals

The AJ-D250 is a multi-microcomputer VTR. For this reason, it takes time (approx. 150 ms) for communication to be performed between the RS-232C interface microcomputer and system control microcomputer inside the VTR before any processing can be performed by the system control microcomputer inside the VTR.

Therefore, leave an interval of at least 150 ms before sending a command from the computer.

Error Messages

When a problem has occurred in the unit, one of the following error messages will appear on the tape counter.

Error No.	Description
— d —	Condensation (dew) has formed.
E — 00	Appears when the servo fails to lock for 3 or more seconds. When T&S&R is selected as the setup menu item No.001 setting, "SERVO NOT LOCKED" is displayed on the third line (line where the remaining tape amount is indicated) of the monitor screen.
E — 01	Appears when there is no head output for one or more seconds (due to clogging, etc.). "L" is displayed on the first line (counter line) of the monitor screen. When T&S&R is selected as the setup menu item No.001 setting, "LOW RF" is displayed on the third line (line where the remaining tape amount is indicated) of the monitor screen.
E — 09	Appears when a blank area on the tape has been detected. "N" is displayed on the first line (counter line) of the monitor screen. When T&S&R is selected as the setup menu item No.001 setting, "NO RF" is displayed on the third line (line where the remaining tape amount is indicated) of the monitor screen. When all the following conditions are met, the part of the tape is recognized as a blank. <ul style="list-style-type: none"> ● No output from any of the heads ● Playback data cannot be read ● No CTL signal
E — 11	The reel base which operates in line with the size of the tape has been locked for 2.5 or more seconds.
E — 21	Four or more 4 seconds have elapsed after the cassette was inserted but the cassette is not lowered down inside the unit. Alternatively, 4 or more seconds have elapsed after the eject operation was initiated but the cassette is not ejected.
E — 31	The loading operation is not completed within 4 seconds.
E — 32	The unloading operation is not completed within 4 seconds.
E — 41	The FG signal (rotational speed signal) is not output from the cylinder motor.
E — 42	The PG signal (phase signal) is not output from the cylinder motor.
E — 43	The cylinder motor speed is abnormally high.
E — 44	The cylinder motor speed is abnormally low.

Error No.	Description
E — 51	The FG signal (rotational speed signal) is not output from the capstan motor.
E — 52	The capstan motor speed is abnormally high.
E — 53	The capstan motor speed is abnormally low.
E — 61	The supply (S) reel motor is locked.
E — 62	The take-up (T) reel motor is locked.
E — 63	The supply reel motor speed is abnormally high.
E — 64	The take-up reel motor speed is abnormally low.
E — 65	Abnormal tension has been detected.
E — 66	The start or end processing operation fails to be completed even after 7 or more seconds have elapsed.
E — 67	A communication error between SERVO and AVSYS. Errors in the data.
E — 68	A communication error between SERVO and AVSYS. The data is fixed at high or low.
E — 69	A problem in communication between SERVO and AVSYS when the power was switched on.
E — 6B	This appears when there is a communication error between IF and AVSYS. There is a problem with the internal reference or external reference.
E — 70	The fan motor has stopped. "S" is displayed on the first line (counter line) of the monitor screen. When T&S&R is selected as the setup menu item No.001 setting, "FAN STOP" is displayed on the third line (line where the remaining tape amount is indicated) of the monitor screen. When about an hour elapses, the unit is shut down automatically.
E — 72	There is a problem in the solenoid drive circuit.
E — 73	There is a problem in the cleaning solenoid drive circuit.

Emergency Eject

Procedure for removing the tape manually in an emergency

Use the procedure below to remove the cassette tape if it can not be removed even when the EJECT button is pressed.

- Before proceeding to eject the tape manually, you must first turn off the power to the unit.

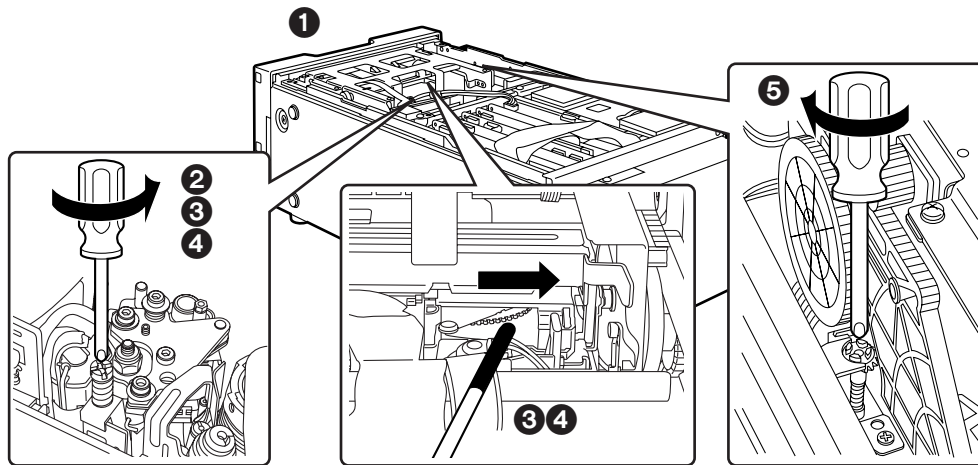
- 1 Remove the top panel.
- 2 Use a Phillips head screwdriver to push in and turn the red plastic screw part counterclockwise. (This screw needs to be rotated about 30 turns before unloading can be started.)
- 3 Insert the take-up jig (packed with the unit) into the tape ejection slot (on the mechanism side of the VTR), and rotate the flange part (white gear) of the supply reel in the take-up direction using the rubber part of the take-up jig to take up the tape slack.
- 4 Use the Phillips head screwdriver to push in and turn the red plastic screw part counterclockwise once more. Again rotate the flange part of the supply reel in the take-up direction to take up the tape slack. This two-step procedure needs to be repeated until the tape is completely housed in the cassette case (about 90 turns of the red plastic screw part).
- 5 Use the Phillips head screwdriver to turn the red plastic screw part at the slot-in side clockwise to eject the cassette tape. (This screw needs to be rotated through about 140 turns until the tape is ejected.)

<Note>

Take care not to damage the tape in any way.

<Note>

Take care not to sandwich or catch the tape when closing the cassette cover.



Video Head Cleaning

This unit is equipped with an auto head cleaning function which automatically reduces the amount of dirt on the video heads. However, in order to maximize the unit's reliability, it is recommended that the video heads be cleaned as and when appropriate.

For further details on how to actually clean the heads, consult with one of our service companies or with your dealer.

Condensation

Condensation is formed according to the same principle by which droplets of water form on the window panes of heated rooms. It forms in the unit when the unit or tape is moved to a location with a significant difference in temperature or humidity. It also forms when the unit has been moved:

- To a very humid location filled with steam or a room immediately after it has been heated up.
- Suddenly from an air-conditioned environment to a place with high temperature and humidity levels.

When moving the unit to these types of locations, do not turn on the power immediately but leave the unit standing and wait for about 10 minutes. If condensation has formed inside the unit, an error message (- d -) lights up on the counter display, and the cassette tape is automatically ejected.

Leave the power on, and wait until the error message is cleared.

Maintenance

Before proceeding with maintenance, set the power switch to the OFF position, and disconnect the unit from the power outlet: always remember to take hold of the molded part of the power plug when doing this.

Use a soft cloth to clean the cabinet. In the case of stubborn dirt, dilute some kitchen detergent, soak a cloth in the solution, wring it out well, and now use it for cleaning. After wiping up the dirt, remove any remaining moisture with a dry cloth.

Do not use paint thinners or benzine.

Specifications

[GENERAL]

Supply voltage: 120 V AC, 50 – 60 Hz
Power consumption: 56 W

Ambient operating temperature:

41°F to 104°F (5°C to 40°C)

Ambient operating humidity:

35% to 80% (no condensation)

Weight:

14.3 lb (6.5 kg)

Dimensions (W×H×D):8 ⁷/₁₆"×5 ¹/₄"×15 ⁷/₁₆" (214×132×391 mm)**Recording format:**

DVCPRO format

Recording tracks

Digital video/audio

Time code: recorded in sub-code area

Digital audio: 2 channels

Cue signal: 1 track

Control (CTL): 1 track

Tape speed:

33.820 mm/sec.

Recording time:

184 minutes (when an AJ-5P92LP is used *)

66 minutes (when an AJ-P66MP is used)

* For AJ-5P92LP cassette tapes, use a VTR supporting DVCPRO (25 Mbps) 184 minute tapes.

Tape used:

1/4" thin magnetic layer metal tapes

FF/REW time:

Less than 5 min. (using an AJ-5P92LP tape)

[VIDEO]

■ Digital video**Sampling frequency:**Y: 13.5 MHz, P_B/P_R: 3.375 MHz**Quantizing:**

8 bits

Error correction:

Reed-Solomon product code

■ Analog composite IN/OUT**Video band:**

Y: 30 Hz to 4.5 MHz (0 ±1 dB)

Y/C delay:

Less than 20 ns

K factor:

Less than 2%

■ Input connectors**Line input:**BNC×1, 1.0 V_{P-P}, 75 Ω**REF VIDEO input:**BNC×1, 1.0 V_{P-P}, 75 Ω**S-VIDEO:**4P×1, Y: 1.0 V_{P-P}, 75 ΩC: 0.286 V_{P-P}, 75 Ω (burst level)**■ Output connectors****Line output:**BNC×1, 1.0 V_{P-P}, 75 Ω**Monitor output:**BNC×1, 1.0 V_{P-P}, 75 Ω**S-VIDEO:**4P×1, Y: 1.0 V_{P-P}, 75 ΩC: 0.286 V_{P-P}, 75 Ω (burst level)

Specifications

[AUDIO]

■ Digital audio

Sampling frequency:

48 kHz

Quantizing:

16 bits

Frequency response:

20 Hz to 20 kHz (0 +1.0 dB, -2.0 dB)

Dynamic range:

More than 85 dB

(1 kHz, emphasis OFF, "A" weighted)

Distortion:

Less than 0.1%

(1 kHz, emphasis OFF, reference level)

Crosstalk:

Less than -80 dB (1 kHz, between 2 channels)

■ Input connectors

Line input (CH1/CH2):

PHONO×2, -8 dBV, 47 k Ω

■ Output connectors

Line output (CH1/CH2):

PHONO×4, -8 dBV, 1 k Ω

Headphones output:

M3 stereo, variable level (max. -32 dBV or more), 8 Ω

[OTHER INPUT/OUTPUT CONNECTORS]

RS-232C:

D-sub, 25 pins, RS-232C interface

Wired remote control:

M2 jack (simple remote control)

[DISPLAY TUBE]

Counter:

8 digits (CTL/TC/UB display switching, remaining tape)

Audio level meter:

18 steps

Other:

REC/REC INH, REMOTE, WIDE, consumer-use cassette insertion display, REPEAT, SERVO, channel condition, cassette insertion display

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Panasonic

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