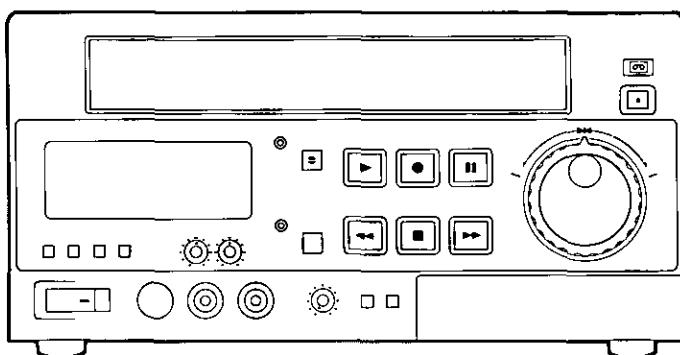


Operating Instructions

Panasonic 
Professional/Industrial Video

Model AG-**MD830**_P



Hi-Fi Video Cassette Recorder

Before attempting to connect, operate or adjust this product, please read these instructions completely.



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.

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.

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.

_____ is the safety information.

IMPORTANT

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

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Accessories

Standard accessory:

- Power cord

Optional accessories:

- Serial interface, AG-IA823
- RS-232C cable
- 34-pin interface, AG-IA34
- Remote controller, AG-A600
- Pause remote controller, VW-RM1
- Video cassette tape

Features

Rotary erase head

The rotary erase head is featured to ensure cleaner edits during editing.

Hi-Fi recording

High picture quality

Compactly designed for easy portability

Illuminated operation buttons

Repeat playback

A particular section on the tape can be continuously played back repeatedly or played back once.

Jog and shuttle functions

The unit's jog and shuttle functions enable playback section to be located speedily using the search dial.

Mode locking

Even when an operation button has been pressed in error, the mode lock function prevents the unit from performing the operation corresponding to that button.

Unrecorded blank search

The unit detects unrecorded blanks which are 5 or more seconds in length.

Automatic high-speed VISS search

By writing the VISS (VHS Index Search System) signals at particular scenes to be viewed, the scenes can be easily located and played back automatically.

Audio dubbing

Audio can be added to the normal audio track during post production editing.

Switch settings on screen menus

The unit's on-screen system enables switch settings to be viewed on the TV screen.

Auto head cleaning

This facility automatically cleans the video heads to remove any dirt.

Pause remote control supported

Recording can be started and stopped by remote control using the VW-RM1 which is available as an optional accessory.

RS-232C serial interface supported

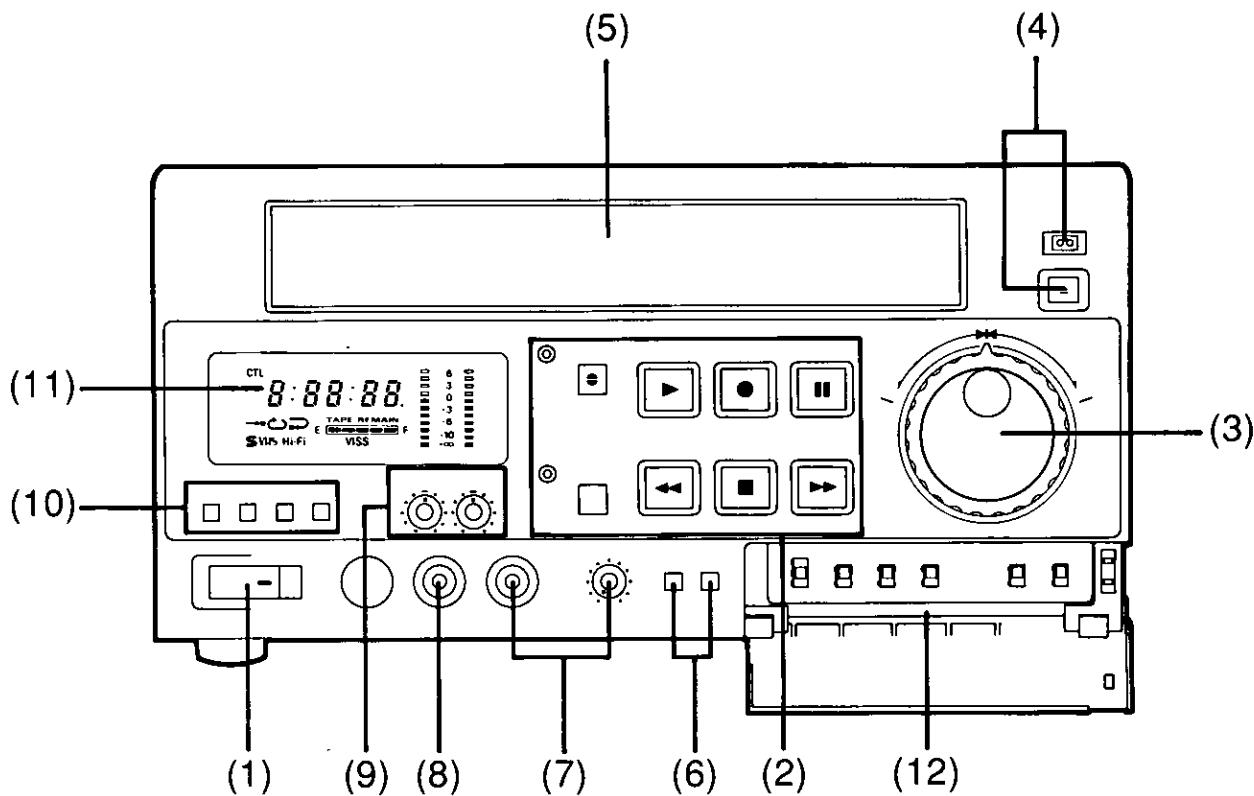
The unit can be remote-controlled from a personal computer by mounting the AG-IA823 interface which is available as an optional accessory.

34-pin remote control supported

The unit can be operated from a distance of 5 meters or so using the AG-A600 (an optional accessory) by installing the AG-IA34 interface which is available as an optional accessory.

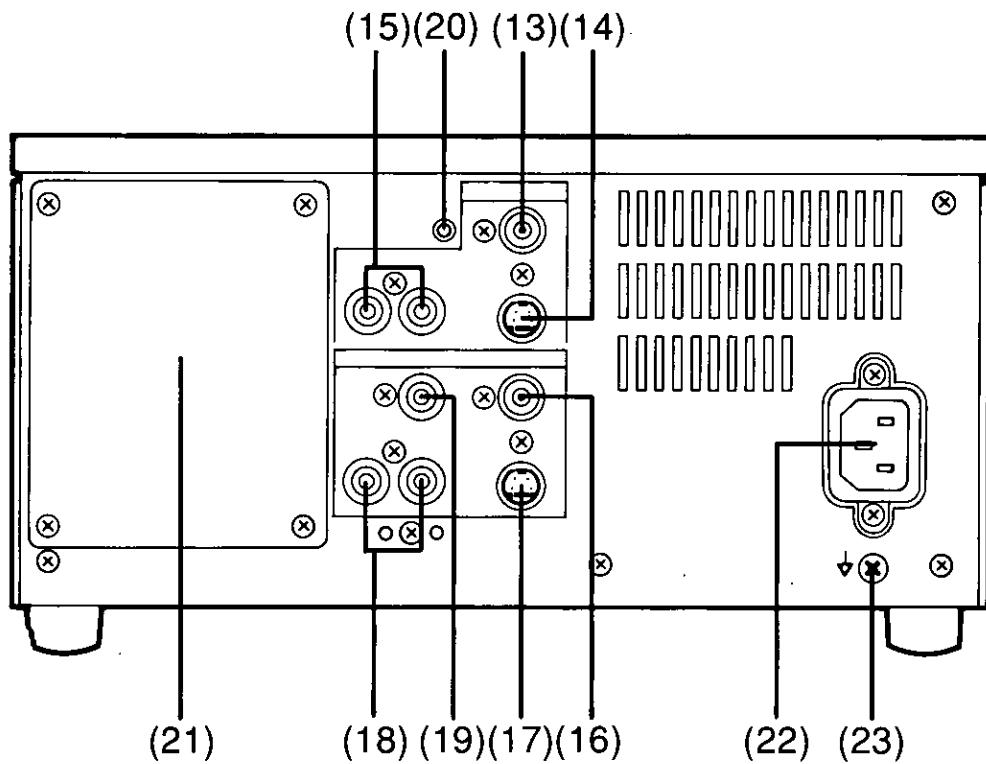
Controls

Front Panel



No.	Name	Page	No.	Name	Page
1	Power switch	—	8	Microphone jack (mini jack)	13
2	Operation buttons STOP, PLAY, REC, REW, FF, PAUSE/STILL, AUDIO DUB, BLANK SEARCH	10-16	9	Hi-Fi audio level control CH1/CH2	13
			10	Counter setting buttons	10
			11	Counter/audio level meter	10
3	Search dial	15		Setting switch section	
4	Eject button/tape indicator	—		AUDIO OUT selector	14
5	Cassette holder	—		METER/AUDIO OUT switch (Hi-Fi/NORMAL)	13
6	Tracking buttons	15	12	VIDEO INPUT selector (S-VIDEO/LINE)	13
7	Headphones jack (mini jack)/ Headphone level control	13		S-VHS REC MODE selector (AUTO/OFF)	13
				MENU screen selector (SET/OFF)	7
				MODE LOCK switch (ON/OFF)	14

Rear Panel



No.	Name	Page	No.	Name	Page
13	VIDEO input connector (BNC)	13	19	AUDIO MONITOR output connector	—
14	S-VIDEO input connector (4P)	13	20	PAUSE REMOTE connector	17
15	AUDIO CH1/CH2 input connectors (PHONO)	13	21	Blank panel or RS-232C/34-pin options	17
			22	Power socket	—
16	VIDEO output connector (BNC)	14	23	Grounding terminal	—
17	S-VIDEO output connector (4P)	14			
18	AUDIO CH1/CH2 output connectors (PHONO)	14			

Menu Screens

The menu settings can be performed while monitoring the TV screen or the level meter.

Setting up your VTR for proper operation.

When you receive your VTR, it will be set up as follows:

MENU A

COUNTER INDICATOR	VIDEO MONITOR	DEFAULTS
1001:00	VISS	OFF
1002:00	TAPE SELECT	-- T120
1003:01	AUTO BACK	ON
1004:00	TAPE IN MODE	STOP
1005:01	TAPE END MODE	REW
1006:00	REC TAPE END	STOP
1007:01	STBY OFF TIME	5 MIN

MENU B

COUNTER INDICATOR	VIDEO MONITOR	DEFAULTS
1008:01	HI-FI REC	ON
1009:00	AUDIO DUB	CH1.CH2
1010:00	EDIT	OFF
1011:00	YC FILTER	OFF

If optional AG-IA823 serial interface board is installed:

MENU C

COUNTER INDICATOR	VIDEO MONITOR	DEFAULTS
3001:01	BIT LENGTH	8 BIT
3002:00	STOP BIT	STOP-1
3003:02	PARITY	NONE
3004:03	BAUD RATE	9600

To reset any of these defaults:

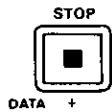
1. Press the STOP Button to place the VTR into the stop mode.
2. Set the MENU Switch to the SET position (switch is located under door on front panel).
NOTE: When in the menu set position PLAY, REC, FAST FORWARD and REW will not function.
3. You can change these settings either by watching the counter indicator on the VTR or by watching the video monitor.
4. To change the individual default settings use the PLAY or REC buttons to select the different menu pages, which will display the different settings.
5. To select the individual settings either use the FF button or the inside search dial control. A flashing bar will highlight your selection if you are viewing your video monitor. If you use the counter indicator to make these changes, the first four digits select the item you would like to change and the last two selects the default setting (on/off, etc.).

The counter display codes are on page 8.

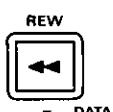
6. To change the default setting use either the STOP or REW buttons.
7. After making the necessary changes, make sure to reset the MENU set switch to OFF.

Operation

Use the operation buttons and search dial as shown below.



This moves the selection item cursor forward.



This moves the selection item cursor backward.



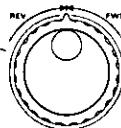
This returns to the previous menu page.



This advances to the next menu page.



This moves the menu selection to the item below.



This turns the inside search dial (jog function).

Instead of using , this can be used

to move the menu selection to the item above or below.

TAPE IN MODE	00:STOP
TAPE END MODE	00:STOP
↓	
TAPE IN MODE	00:STOP
TAPE END MODE	00:STOP

Menu Item Settings

Counter indicator No. (*)	Superimposed monitor	Setting (underlining denotes default setting)	Description of function
1001	VISS	00 : OFF 01 : REC 02 : REC/PAUSE	VISS signal recording and counter memory operation OFF: The VISS signal is not recorded (neither is the memory operation based on the VISS signal performed). REC: The VISS signal is recorded by pressing the REC and PLAY buttons together during recording. REC/PAUSE: The VISS signal is recorded when the recording or recording pause mode is released. "VISS" appears on the display tube when REC or REC/PAUSE is selected.
1002	TAPE SELECT	00 : --T120 01 : T140--	--T120: When a tape with a length of 120 minutes or less is used. T140--: When a tape with a length of 140 minutes or more is used.
1003	AUTO BACK	00 : OFF 01 : ON	Auto back space recording function setting ON: This ensures smooth continuity in recording. (The tape is rewound for approximately one second when the REC Button is pressed in the PLAY/STILL mode or the PAUSE/STILL Button is pressed during recording. When the PAUSE/STILL Button is pressed again, the tape plays back for one second and then recording starts.) OFF: Normal REC/PAUSE operation
1004	TAPE IN MODE	00 : STOP 01 : REW	STOP: The unit is placed in the stop mode after the tape has been loaded. REW: The tape is rewound to its beginning, and then it stops.
1005	TAPE END MODE	00 : STOP 01 : REW	STOP: The tape stops when it comes to the end. REW: The tape is rewound to its beginning, and then it stops.
1006	REC TAPE END	00 : STOP 01 : EJECT	STOP: The tape stops when it comes to the end. EJECT: The tape is ejected when it comes to the end.
1007	STBY OFF TIME	00 : 0 MIN 01 : 5 MIN 02 : (30 MIN)	Standby release time 0 MIN: With full loading STOP, the tape cylinder stops immediately. 5 MIN: The tape cylinder stops after REC/PAUSE continued for 5 minutes or longer. 30 MIN: The tape cylinder stops after REC/PAUSE continued for 30 minutes or longer. (Every 5 minutes, however, the tape is advanced in the forward direction by 3 frames.)

* This appears along with the figure representing the setting which is indicated on the counter section of the display tube.

Counter indicator No.	Superimposed monitor	Setting (underlining denotes default setting)	Description of function
1008	HI-FI REC	00 : OFF <u>01</u> : ON	Hi-Fi audio recording (Cannot be used for audio DUB) OFF: Hi-Fi audio is not recorded. ON: Hi-Fi audio is recorded.
1009	AUDIO DUB	00 : CH1.CH2 01 : CH1 02 : CH2	Selection of channel track for audio dubbing CH1.CH2 : The sound is added to CH1 and CH2 simultaneously. CH1 : The sound is added to CH1. CH2 : The sound is added to CH2.
1010	EDIT See Note 1	00 : OFF (regular operation) 01 : ON (editing/dubbing)	Editing/regular operation selection OFF : Regular operation ON : For editing or dubbing
1011	YC FILTER See Note 2	00 : OFF 01 : ON	For setting the Y/C filter ON or OFF OFF : Y/C filter OFF ON : Y/C filter ON

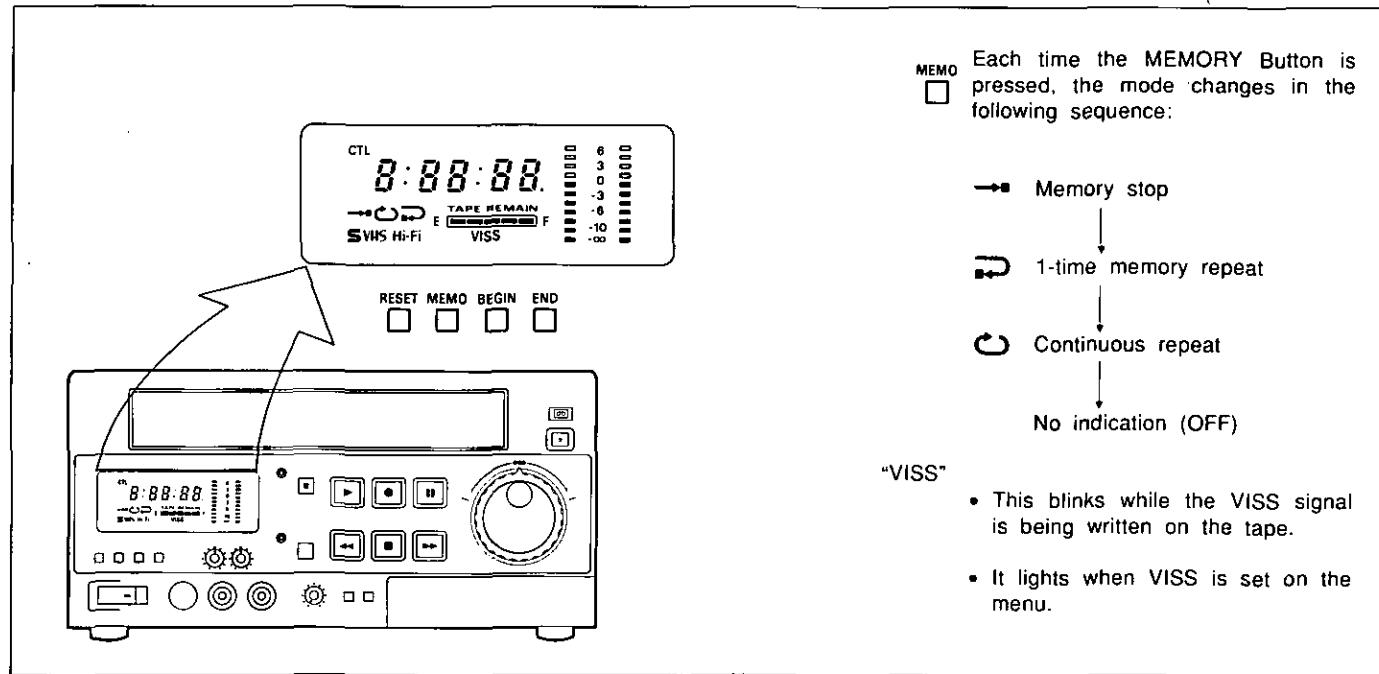
The items shown below are displayed when the AG-IA823 serial interface board is used.

Counter indicator No.	Superimposed monitor	Setting (underlining denotes default setting)	Description of function
3001	BIT LENGTH	00 : 7BIT <u>01</u> : 8BIT	Character length setting 7BIT : 7 bits 8BIT : 8 bits
3002	STOP BIT	00 : STOP-1 01 : STOP-2	Stop bit setting STOP-1 : 1 bit STOP-2 : 2 bits
3003	PARITY	00 : ODD 01 : EVEN <u>02</u> : NONE	Parity bit setting ODD : Odd EVEN : Even NONE : None
3004	BAUD RATE	00 : 1200 01 : 2400 02 : 4800 <u>03</u> : 9600	Baud rate setting 1200 : 1200 bps 2400 : 2400 bps 4800 : 4800 bps 9600 : 9600 bps

Notes:

- 1. Edit function:** When this is set ON, the noise reduction circuit for the video signals is set OFF. (The video noise will increase slightly. For regular use, EDIT OFF recommended.)
- 2. Y/C filter:** When there is high level of noise in the luminance signals, it may also affect the chrominance signals. In a case like this, set the Y/C filter to ON. Since the luminance signal band is reduced slightly when the filter is set to ON, the Y/C filter OFF position is recommended for regular use.

Counter Section



Memory Stop

To use the AUTO MEMORY STOP function:

1. Press the MEMORY Button (MEMO)
To turn on the MEMORY STOP function, the following symbol "→" will be indicated in the counter display.
2. When the VTR is placed in record a VISS signal will be placed on the video tape.
3. Now when the video tape is rewound or fast forwarded it will stop at the start of any recording.
4. This function can be turned off by pressing the MEMORY Button (MEMO).
5. Repeat playback is covered on page 12.



Press this to turn on "MEMORY STOP."

Press either REW or FF.



The tape stops automatically at the VISS write point or BGN set point.

Counter Reset

The counter display is reset to "0:00:00" when the RESET Button is pressed. The BGN/END setting is also set to "0:00:00".



Remaining Tape

"TAPE REMAIN" provides a rough indication of the amount of tape remaining. The indication appears about 40 seconds after recording or playback has commenced (it does not appear until this time).



Each lamp going off one after another indicates that the tape is approaching its end.

Note: The remaining tape indicator provides only a rough indication: it is not meant to be precise.

VISS Signal

After VISS has been set on the menu screen, the VISS signal is automatically written on the tape when recording is started.

It can also be written at the desired position on the tape by pressing the REC Button and PLAY Button simultaneously during recording.

- Locating particular scenes to be viewed becomes easy if VISS signals are written with each recording.
- "VISS" blinks on the counter section while the VISS signal is being written.

(1) Select 01 or 02 for VISS on the menu screen.

01: REC
02: REC/PAUSE

(2) Press the MEMORY Button to establish the memory mode. "VISS" now lights on the counter section.

Memory mode	Display	Function
MEMORY REPEAT	⟳	Playback is repeated at the VISS write point.
MEMORY 1 TIME REPEAT	⟳	Playback is repeated only once at the VISS write point.
MEMORY STOP	➡	The tape stops at the VISS write point.

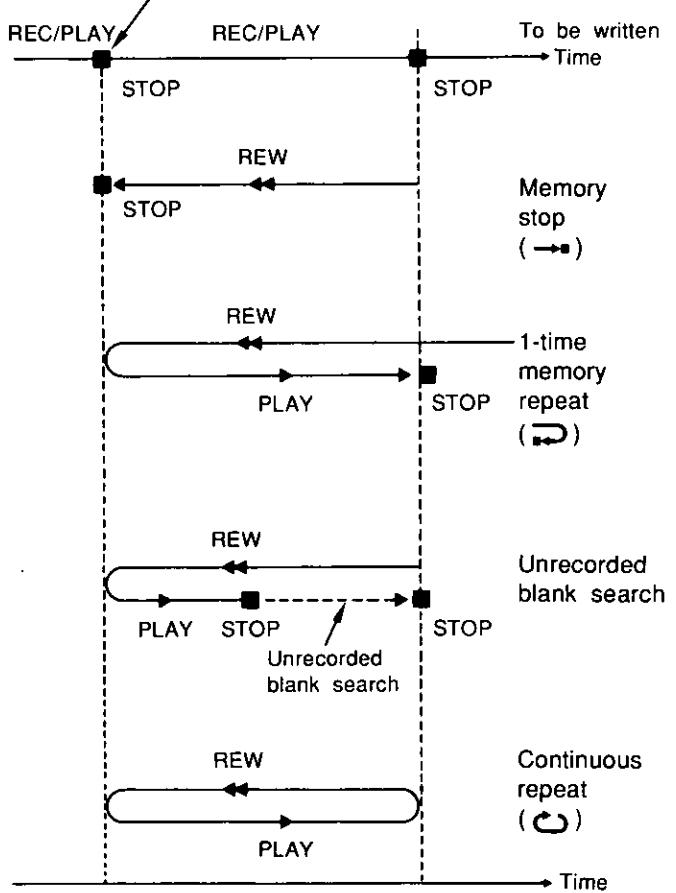
(3) Press the FF or REW Button.

When the VISS signal is located, the unit automatically operates in accordance with the memory mode.

- Leave an interval of at least 30 seconds on the tape for writing the VISS signal. (The signal will not be detected if the interval is less than 30 seconds long.)

VISS Setting

VISS signal writing ("VISS" blinks while the VISS signal is being written)



(Leave an interval of at least 30 seconds between VISS signals.)

Repeat Playback

(1) Turn VISS function OFF:

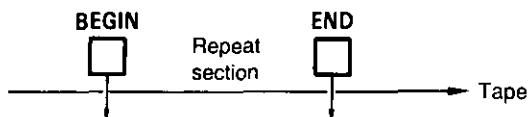
1) Press the MEMORY (MEMO) Button and select continuous repeat playback (MEMORY REPEAT ) or 1-time repeat playback (MEMORY 1 TIME REPEAT ).

MEMO



Press this and turn on
"  " or "  ".

2) Press the BEGIN and END Buttons to set the tape beginning and ending positions for repeat playback.



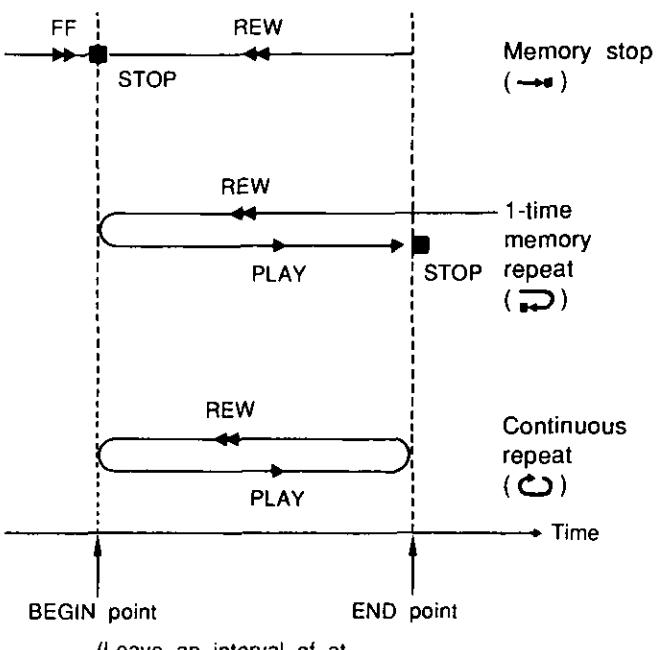
3) Press the FF or REW Button.

(2) While "VISS" is on the display tube:

The VISS signal is used for repeat playback. (Refer to the section on the VISS signal on page 11.)

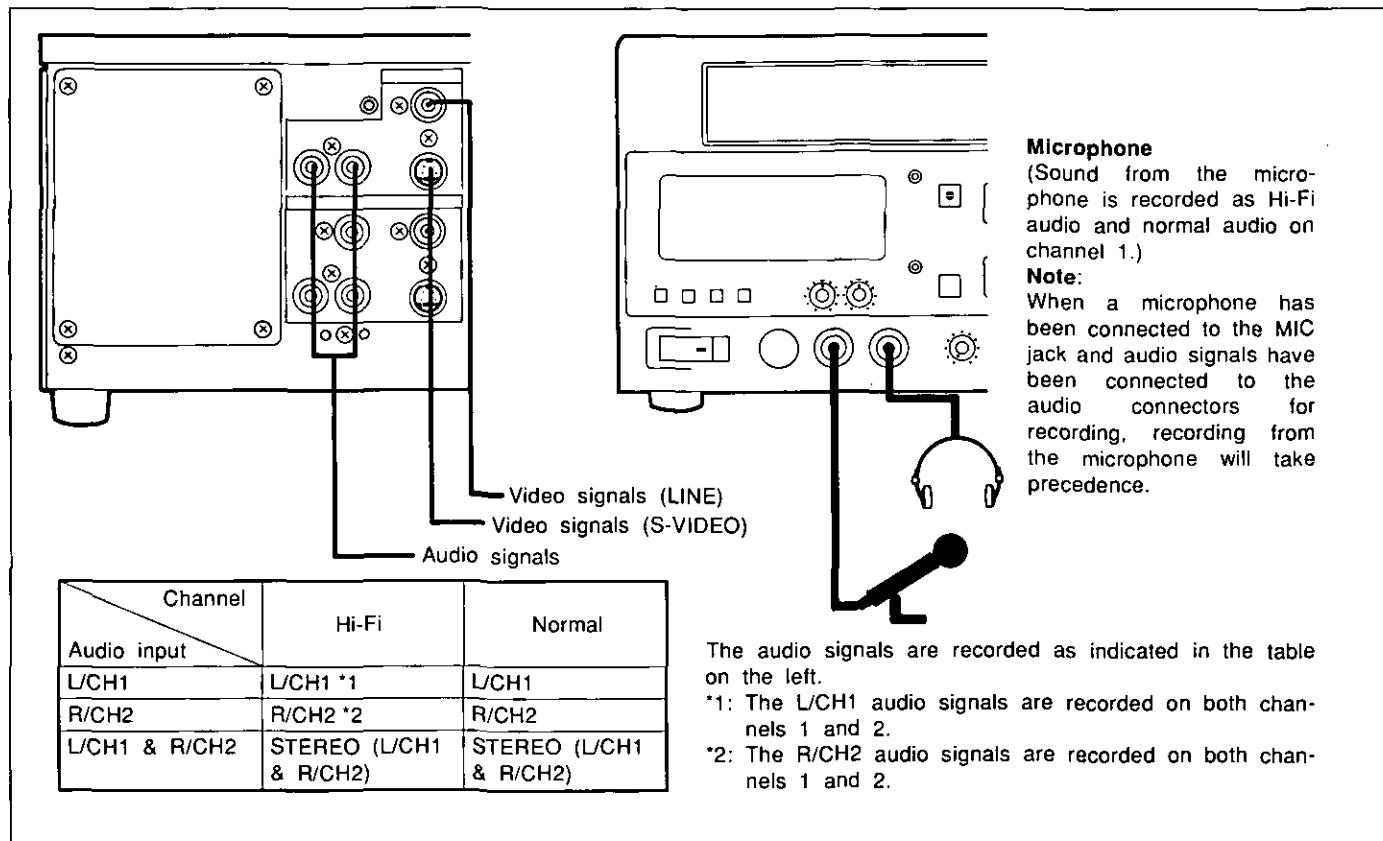
- When the beginning and ending positions are the same, the tape will be repeatedly played back between the beginning position and tape end.
- When the ending position comes after the actual tape end, the tape will be repeatedly played back between the beginning position and tape end.
- When the beginning position comes before the actual tape beginning, the tape will be repeatedly played back between the tape beginning and end position.
- The precision of repeat playback may be impaired when a short section (less than 20 seconds or so long) of the tape is to be repeatedly played back.

BEGIN/END settings (set VISS to OFF on the menu)



(Leave an interval of at least 20 seconds between BEGIN and END.)

Recording



Preparations

- Load the cassette tape. (Check that the accidental erasure prevention tab on the tape is still intact.)
- Check menu for correct set up.
- Set the S-VHS REC MODE selector to the desired position.

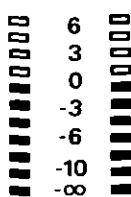
AUTO: At this position, the tape is automatically identified as a VHS or S-VHS tape and the signals are recorded in the corresponding mode.

OFF: The signals are recorded in the VHS mode regardless of the type of tape used.

- Depending on the connections, set the INPUT Selector to S-VIDEO or LINE.
- When recording Hi-Fi audio, set On-Screen Hi-Fi REC (default setting) to ON.

Audio Level Adjustment (Hi-Fi audio only)

The audio level can be adjusted for Hi-Fi audio only. Turn the Hi-Fi Audio Level Control in such a way that the audio level meter indication is adjusted to around 3 (but not past the 3 level).



Recording

Recording starts when the REC and PLAY Buttons are pressed together or press REC button first and then PLAY. If PLAY button is pressed first, the continued portion is disturbed.

The REC Button will not operate if the accidental erasure prevention tab on the cassette tape has been broken out. Use a tape with this tab still intact.

Proceed as follows when using the PAUSE Button.

- While playing back the tape, find the location to be recorded. Then press the PAUSE Button.
The unit is now set to the playback pause mode.
- Press the REC Button.
The REC Lamp now comes on, and the unit is set to the recording pause mode.
- When the PAUSE Button is pressed again, the unit is released from the pause mode, and recording begins.

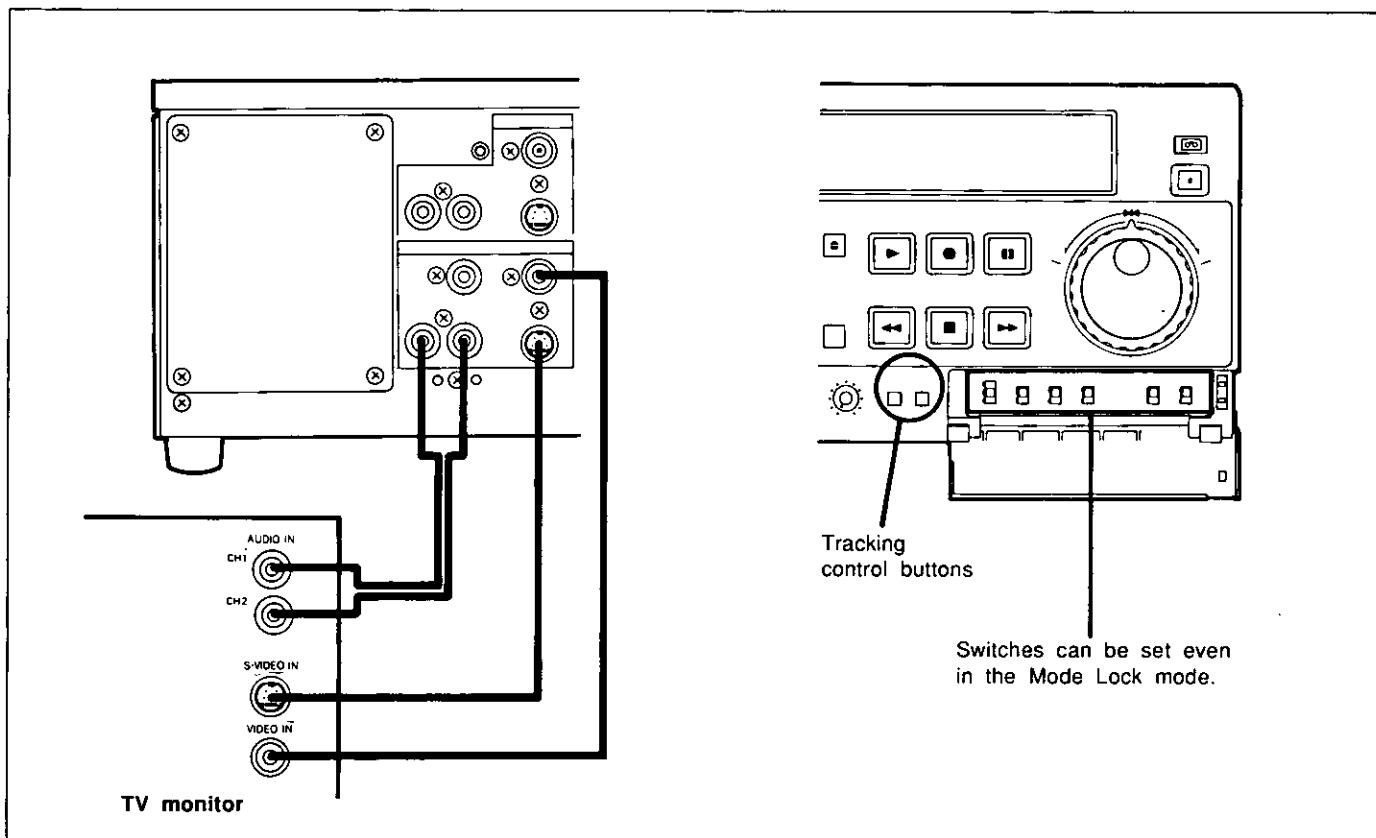
Audio Monitoring

The audio signals are selected by the AUDIO OUT Selector.

When using headphones, the volume can be adjusted using the Headphone Level Control.

- To reduce the audio level, turn the control counter-clockwise; to increase the audio level, turn it clockwise.
- The audio level may change if high-impedance headphones are connected to the MIC jack.

Playback



Preparations

- Set the following switches on the unit to OFF.
Set the MODE LOCK Switch to OFF.
Press the MEMORY Button to OFF.
- Switch on the power of the units connected to the unit.
- Load the pre-recorded tape.

Audio Monitor Output Selector

Set the AUDIO OUT Selector to the position corresponding to the type of sound desired.



Mode Lock Switch

This switch makes it impossible to operate the switches on the front panel. When it is set to ON, none of the front panel switch can be operated. However, even with this switch at the ON position, the setting switches inside the cover, the remote controller available as an optional accessory or the RS-232C remote control signals can be used to operate the unit.

Playback

Press the PLAY Button.

Since this unit is equipped with an automatic digital tracking function, there is normally no need to adjust the tracking. However, if noise appears on part of the playback picture as shown below, press the Tracking "+" or "-" Button on the front panel to obtain a normal picture.

To return to the automatic tracking, press the Tracking "+" and "-" Buttons simultaneously.



- Tracking adjustment may be necessary when playing back a tape which has been recorded on a VTR other than this unit.

If this unit is brought too close to the TV monitor, interference from the monitor may affect the audio signals, resulting in noise. Be sure to keep the unit at a distance (at least 8" or so) from the monitor.

Rewinding and Fast Forwarding

To rewind or fast forward the tape, press the REW Button or FF Button when the tape has stopped moving.

Search/Jog Playback

Search playback (outside ring)

The unit is placed in the search mode by turning the outside ring of the search dial.

A tape can be played back up to 11 times the normal speed.

In the search mode, the FF Lamp (forward direction) or REW Lamp (reverse direction) blinks.

- Set the search dial to its center click-stop position for still playback.

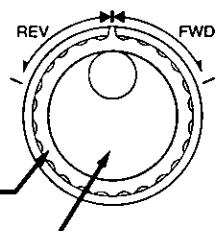
To release the search mode, press the PLAY, STOP, STILL, FF or REW Button.

Jog playback (inside ring)

The unit is placed in the jog mode when the search dial is set to the search/pause (center click-stop) position.

When the inside ring is now turned, the tape speed can be varied from -1x to +1x the normal tape speed.

Still playback is established when the inside ring is no longer turned.



- A color program may appear in black and white during search or jog playback: this is normal and not indicative of malfunctioning.
- The playback pictures may appear distorted during search or jog playback: this is normal and not indicative of malfunctioning.
- No sound is heard during search or jog playback. Normal sound is heard at a tape speed of 1/2x or higher.

To Finish Playback

Press the STOP Button.

Still Playback and Slow-Motion Playback

The unit is placed in the still picture mode when the search dial is set to its center click-stop position.

- When noise appears during still playback, proceed with the slow tracking adjustment.



Slow Tracking Adjustment

If noise should appear at the top or bottom of the picture during still playback or slow-motion playback (1/25 to 1/2x normal tape speed), press the Tracking "+" or "-" Button to reduce the noise in the slow-motion playback mode.

- When still playback continues for more than 5 minutes, the unit will be placed automatically in the stop mode in order to protect the video heads.
- No sound is heard during still playback.
- During still playback a color program may appear in black or white or the playback image may darken: this is normal and not indicative of malfunctioning.
- Depending on how the tape was recorded, noise may appear at the top or bottom of the screen during playback at 1/2x normal tape speed.

Field-by-Field Playback

Press the FF or REW Button during still playback. When the FF Button is pressed, the tape is fed by one field in the forward direction; when the REW Button is pressed, it is fed by one field in the reverse direction. When the FF or REW Button is kept depressed, the tape is played back in the forward or reverse direction at approximately 1/25th of the normal speed.

Unrecorded Blank Search

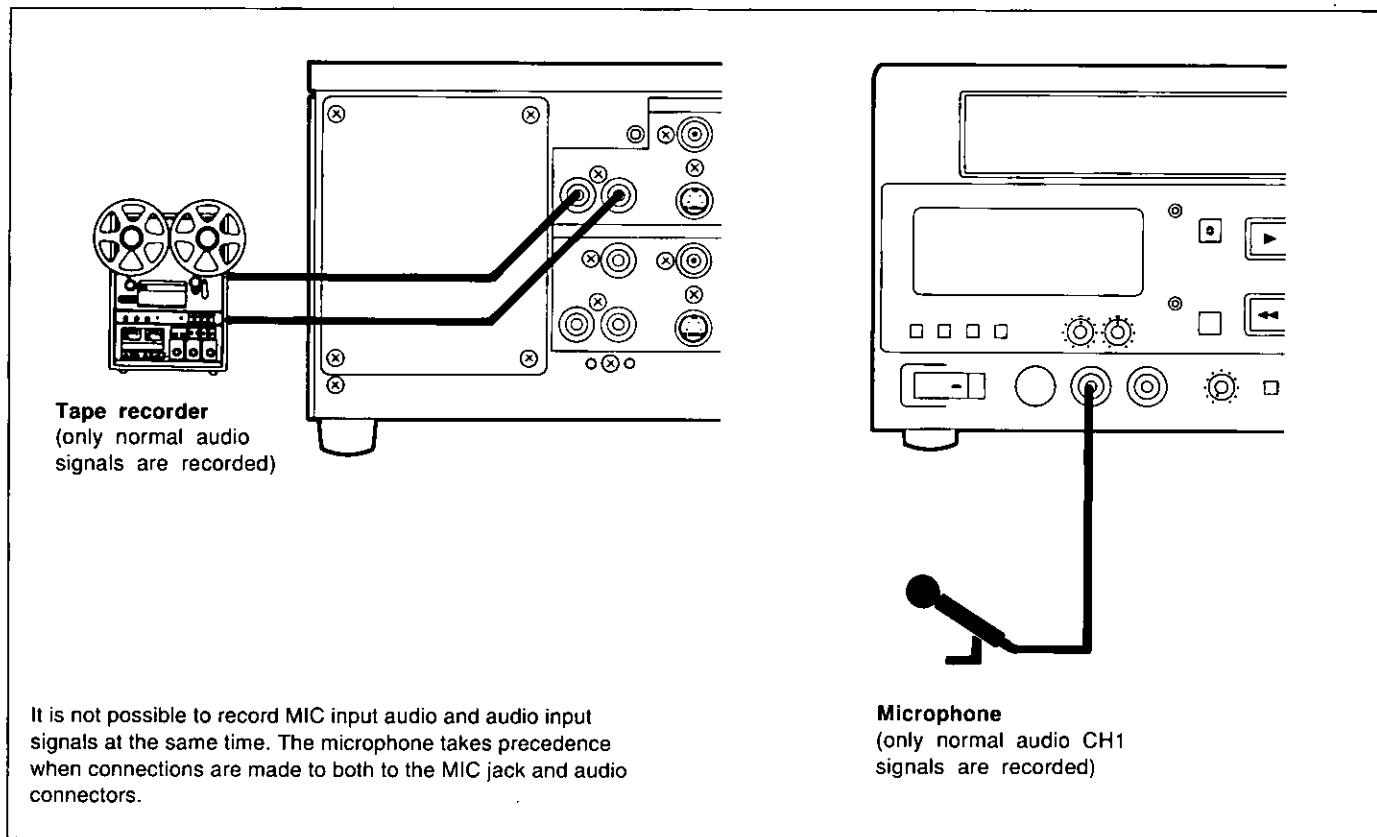
If a tape with unrecorded blanks lasting 5 or more seconds has been loaded, these blanks will be detected automatically.

- (1) Load the tape.
- (2) Press the BLANK SEARCH Button.

The tape is searched automatically in the forward direction and is stopped automatically when an unrecorded blank lasting 5 or more seconds is detected.

Audio Dubbing

"Audio dubbing" is a function which is used to record sound onto an already recorded tape. Sound can be recorded onto normal audio track CH1 or CH2 or onto both the CH1 and CH2 channels. (It cannot be recorded onto the Hi-Fi audio tracks.)



Preparations

- Load the pre-recorded cassette tape.
(Check that the accidental erasure prevention tab on the tape is still intact. When it has been broken out, the AUDIO DUB Button will not function even if it is pressed.)
- Using AUDIO DUB on the menu screen, select the channels on which the sound is to be added (audio dubbing).

Operation

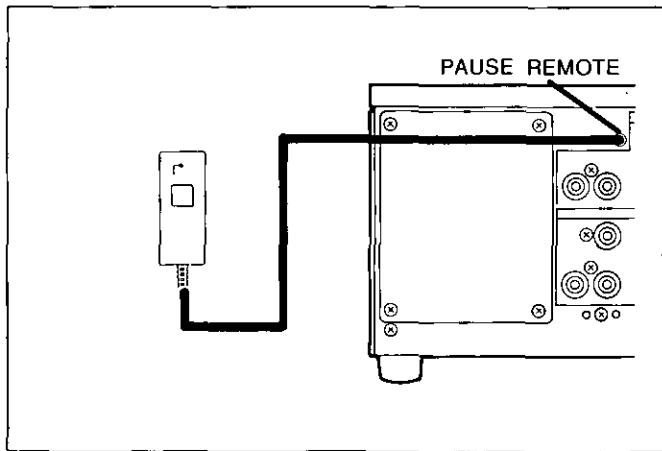
- (1) Press the PLAY Button to start playback.
- (2) Press the PAUSE/STILL Button where the sound is to be added (audio dubbing) to place the unit in the pause mode.
- (3) Press the AUDIO DUB Button.
- (4) Audio dubbing starts when the PAUSE/STILL Button is pressed to release the unit from the pause mode.
- (5) To stop the audio dubbing, press the STOP Button.

- When audio dubbing is performed, the previously recorded sound will be erased and the new sound will be recorded in its place.
- Bear in mind that howling may occur if audio dubbing is performed with the unit placed near a TV set.
- Audio dubbing cannot be performed when the tape's accidental erasure prevention tab has been broken out.

Remote Controllers

VW-RM1 pause remote controller (optional accessory)

When the VW-RM1 pause remote controller is connected to this unit, recording can be set to the pause mode from a distance instead of using the button on the unit itself.



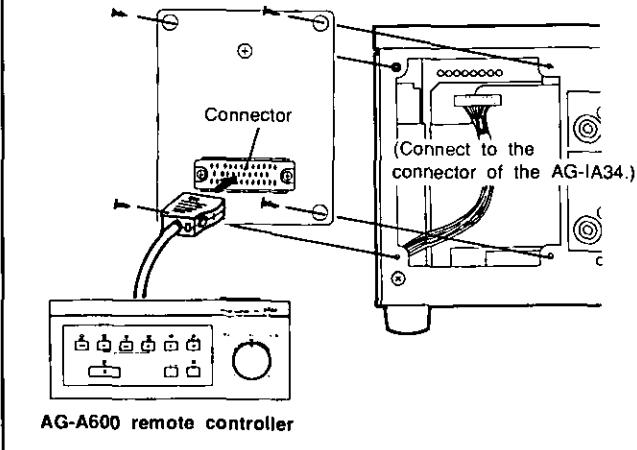
AG-A600 remote controller (optional accessory)

When the AG-IA34 34-pin interface board, available as an optional accessory, is mounted, the unit can be operated by remote control at a distance of about 5 meters instead of the unit's own operation buttons being operated.

- The speed of the playback pictures can be varied up to about 11 times the normal speed in the forward or reverse direction.

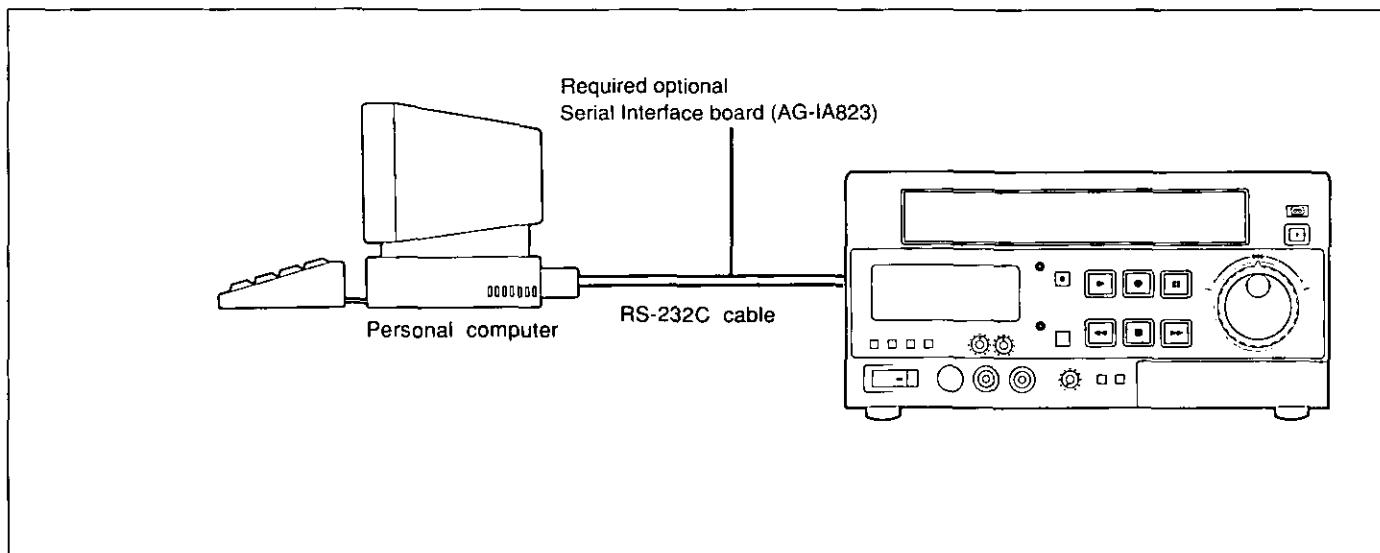
Mounting the 34-pin interface board

First remove the board mounting plate where the interface board is to be mounted, mount the board, connect the connector and screw the mounting board into place.



Computer Remote Control

Using the optional RS-232C serial interface board (AG-IA823) and RS-232C cable, as shown in the figure below, a personal computer can be used to operate the unit in various ways.



Cautions for Use

- Do not insert fingers or any other 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 unit 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, turn the Power OFF and disconnect the power plug from the AC outlet.
- Do not leave a cassette in the unit when not in use.
- Do not block the ventilation slots on the sides 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.
- Keep the VTR away from flower vases, tubs, sinks, etc.

CAUTION: If liquids should be spilled into the VTR, serious damage could occur. If you spill any liquid into the VTR, remove power and consult qualified service personnel.

- Wipe the VTR with a clean, dry cloth. Never use cleaning fluids, chemicals or wax.
- Do not attempt to disassemble the unit. There are no user serviceable parts inside.
- If any liquid spills inside the unit, have the unit examined for possible damage.
- Refer any needed servicing to authorized service personnel.

Cleaning care for video heads

If the screen should appear as shown below, it means that the video heads are dirty. It is recommended that you clean the heads periodically. Use the optional cleaning tape and special purpose cleaning fluid to clean the heads. Consult with your dealer if the symptoms should persist even after cleaning.



Notes:

- We do not recommend that you attempt to clean the video heads yourself.
- Repeated head cleaning will shorten the service life of the video heads.
- Nothing can be recorded on the head cleaning tape.
- If you use cleaning fluid, wipe the cleaned heads with a dry cloth before using the unit.

Dew Indication

When dew is detected, the safety device of this unit will operate in order to protect the cassette tape and video heads.

In case of dew detection, the "d" mark in the counter lights. Wait until the "d" mark goes out with Power switch turned ON to operate the VTR.

"d" mark lights.



Note

Dew condensation normally occurs gradually. Therefore, there may be cases in which the "d" mark does not start flashing until 10 or 15 minutes after dew has begun to condense. In particular, if the temperature or humidity in the room change, wait about 20 minutes before using the unit.

Cause of Condensation

Condensation forms if warm air comes in contact with a cold object, for example on a window in a well-heated room in winter. It may form if the unit or the video cassette is exposed to sudden changes in temperature and humidity such as may occur when the unit or the video cassette is taken from a cold to a warm place. For instance:

- In a room where the heater has just been turned on in winter;
- In a room with steam or high humidity;
- If the unit or the cassette is brought from cold surroundings into a well-heated room.

Troubleshooting

Check out the points in the table given below, and consult with your dealer if the trouble should persist.

Trouble	Checkpoint/Remedial Action	Ref. Page
No power	<ul style="list-style-type: none">Has the power cable been connected?	---
No operation even when an operation button is pressed	<ul style="list-style-type: none">Is the power switch in the ON position?Has a cassette tape been loaded?Is "d" displayed indicating condensation lighted? Keep the power supplied to the unit and wait until the "d" in display goes off.Is the Mode Lock Switch at the OFF position?	<ul style="list-style-type: none">1814
No recording	<ul style="list-style-type: none">Has the tape's accidental erasure prevention tab been broken out?Has the INPUT Selector been set to the proper position?	<ul style="list-style-type: none">---13
Noise appears on playback pictures.	<ul style="list-style-type: none">Press the Tracking Buttons and adjust.	14, 15
No repeat playback	<ul style="list-style-type: none">Has the MEMORY (MEMO) Button been set to the proper position?Has the counter been reset?Is the VISS setting on the menu screen at OFF?Has an interval of at least 20 seconds been given between BEGIN and END?	<ul style="list-style-type: none">1010812
No VISS signal writing	<ul style="list-style-type: none">Is the VISS setting on the menu screen at REC or REC/PAUSE?Has an interval of at least 30 seconds been given between one VISS and another VISS signal?	<ul style="list-style-type: none">811

Error Display

The following error messages will be displayed on the tape counter if an abnormality occurs in the unit. In this case, follow instructions described below.

■ When an error code appears:

- An error code appears on the display.
- All operations are shut down when an error code appears on the display.
- If the error is not released even after taking the remedial action described below, switch off the power, disconnect the power cable from the power outlet, and contact your dealer immediately.

■ List of error codes

Error Code	Malfunction	Remedial action
E-2	Malfunction in elevator section	These errors may occur if the video cassette has not been loaded properly.
E-3	Malfunction in loading section	Try switching the power off and turning it back on again.
E-4	Malfunction in cylinder section	These errors may occur if there is something wrong with the state of the video cassette. Try switching the power off and turning it back on again and replacing the video cassette.
E-5	Malfunction in reel section	Try switching the power off and turning it back on again and replacing the video cassette.
E-6	Incorrect tape tension	
E-7	Malfunction in solenoid	Try switching the power off and turning it back on again.

Specifications

Power Source: 120 V AC, 50-60 Hz
Power Consumption: Approx. 35 W

General

Recording System: 2-head helical scanning, azimuth recording
Color System: NTSC color signals
Heads: 4 video heads
 2 Hi-Fi audio heads
 1 flying (rotary) erase head
Tape Speed: 33.35 mm/s
Tape Format: S-VHS, VHS
FF/REW Time: Approx. 2.5 min. (with NV-ST120 tape)
Operating Temperature: 41°F to 104°F (5°C to 40°C)
Operating Humidity: 35% to 80%
Dimensions: 10-3/4"(W) x 5-3/16"(H) x 14-7/16"(D)
 270 x 131.5 x 365.5 mm
Weight: Approx. 16.5 lbs (7.5 kg)

Video

Television System: EIA standard (525 lines, 60 fields)
Luminance Signal: FM azimuth recording
Chrominance Signal: Subcarrier phase shift recording
Input: Line (BNC); 1.0 Vp-p, 75 Ω unbalanced
 S-VIDEO(4P); Y: 1.0 Vp-p, 75 Ω unbalanced
 C: 0.286 Vp-p, burst level 75 Ω unbalanced
Output: Line (BNC); 1.0 Vp-p, 75 Ω unbalanced
 S-VIDEO(4P); Y: 1.0 Vp-p, 75 Ω unbalanced
 C: 0.286 Vp-p, burst level 75 Ω unbalanced
Signal-to-Noise Ratio: VHS; B & W; 47 dB
 Color; 46 dB
Resolution: S-VHS; 400 lines
 VHS; 240 lines

Audio

Heads: Normal audio control; 1 fixed head
 Hi-Fi audio; 2 rotary heads
 Erase; 1 full-track erase head
 1 audio track erase head
Tracks: 4 tracks (normal audio; 2 tracks, Hi-Fi audio; 2 tracks)
Input: Line (PHONO) x2; -8 dBV, 47 kΩ unbalanced
 Mic (mini jack) x1; -50 dBV, 4.7 kΩ unbalanced (normal sound recorded on CH1)
Output: Line (PHONO) x2; -8 dBV, 600 Ω unbalanced
 Headphones (mini jack) x1; -60 to -20 dBV, 8 Ω unbalanced
 Monitor (PHONO) x1; 0 dBV, 600 Ω unbalanced
Frequency Response: Normal audio; 50 Hz to 10 kHz
 Hi-Fi audio; 20 Hz to 20 kHz
Dynamic Range: More than 90 dB (Hi-Fi audio only)
Standard accessory: Power cord

(1Vrms=0dBV)

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

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