

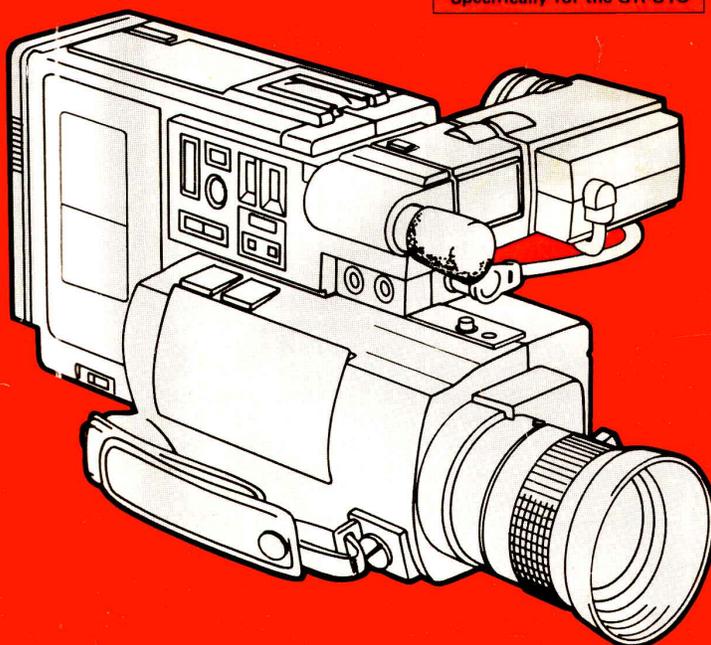
INSTRUCTIONS

JVC®

GR-C1 VideoMovie

Specifically for the GR-C1U

VHS-C



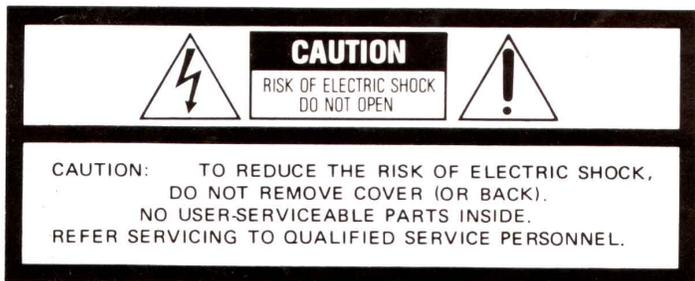
For Customer Use:

Enter below the Serial Nos. of the GR-C1U VideoMovie and the BB-P1U Battery Charger. The former is located on the bottom of the GR-C1U and the latter, on the side of the BB-P1U.

Model No. GR-C1U BB-P1U

Serial No. _____

PU30425-643



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



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

CAUTION:

To prevent electric shock do not use the polarized plug of the BB-P1U Battery Charger with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.

The BB-P1U Battery Charger should be used with AC 120 – 240 V~, 50/60 Hz only.

Caution:

To prevent electric shocks and fire hazards do NOT use any other power source.



VideoMovie is designed exclusively for the **VHS** video cassette. Only cassettes marked **VHS** can be used with this unit.

Thank you for purchasing the JVC **GR-C1U** VideoMovie. Weighing only 4.3 lbs, VideoMovie comprises a video camera, and recording and playback functions in a single compact unit for the most convenient live recording capability available today. VideoMovie uses the VHS recording system and compact video cassettes to make recordings compatible with all VHS recorders. It can also be connected to your television set for direct playback of cassettes, no additional video equipment is required. To take best advantage and gain the most service from your VideoMovie, read this instruction booklet carefully and thoroughly.

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

This equipment should be used with DC 9.6 V \equiv only.

CAUTION:

To prevent electric shocks and fire hazards, do NOT use any other power source.

The provided viewfinder should be used exclusively with the GR-C1U.

NOTES:

- The rating plate (serial number plate) and safety caution of the main unit are on its bottom.
- The rating plate (serial number plate) of the viewfinder is on its bottom.
- The rating plate (serial number plate) of the battery charger is on its side.

JVC COMPANY OF AMERICA
 Division of US JVC CORP.
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INFORMATION

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna;
- Relocate this equipment with respect to the receiver;
- Move this equipment away from the receiver;
- Plug this equipment into a different outlet so that this equipment and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems".

This booklet is available from the US Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

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FEATURES

- Allows direct recording and playback with no additional unit.
- Ultra-compact and ultra-lightweight: a mere 1.9 kg (4.3 lbs).
- Electronic viewfinder for instant on-the-spot playback.
- High-sensitivity/low-lag design: allows shooting as low as 15 lux (1.4 fc).
- High-performance 6:1 power zoom lens with macro position.
- Automatic white balance control and automatic iris control with iris lock capability.
- Three-way power supply flexibility: battery pack, AC power adapter and car battery.
- Automatic quick review function.
- Shuttle search in both directions at about 3 times normal speed.

The **GR-C1U** is designed to be used with NTSC color television signals. It cannot be used for playback with a television of a different standard. However, live recording and viewfinder playback are possible anywhere. When operating in countries where a different power line voltage is used, use the NB-P5U/P6U battery packs and, to recharge them, the provided multi-voltage battery charger. (An appropriate conversion adapter may be necessary to accommodate different designs of AC outlets in different countries.)

IMPORTANT CAUTION FOR PROTECTION OF THE UNIT

Even while the camera is not being powered, the pickup tube could be damaged to such an extent that it is unusable, if the lens is directed at the sun or other strong light sources or left directed at fluorescent lights or strong reflections. Be sure to cap the lens except during shooting.

PRECAUTIONS

For safety, strictly observe the following instructions.

- Do not open the cabinet.
- Prevent inflammables, water and metallic objects from entering the unit.
- Do not disassemble or modify the unit.
- Do not use the unit when there is lightning in the vicinity. Disconnect the power cable of connected equipment.

Avoid using the unit under the following conditions:

- Places subject to excessive humidity or dust.
- Places subject to direct sunlight or near a heater.
- Near appliances generating strong magnetic or electric fields (speakers, broadcasting antennas, etc.).
- Places subject to soot or steam such as near a cooking stove.
- Places subject to excessive shock or vibration.
- Extremely hot places.
- Near a television set (rolling pictures or howling might result).

High temperature and high humidity are most harmful.

- Do not leave the unit in places of over 50°C (122°F).
- Do not use the unit in places of over 40°C (104°F).
- Do not use the unit in places of below 0°C (32°F).
- Do not use the unit in humid places of over 80%.
- For long storage, select a place between -20°C (-4°F) and 30°C (86°F).

Exposure to high temperatures will cause damage to the Saticon* pickup tube, transistors and the cabinet, leading to functional problems and performance deterioration.

Take special care when recording outdoors.

- Do not allow the unit to become wet. (Special care is necessary on rainy days.)
- Do not leave the unit in closed cars on hot summer days.
- Keep the unit away from splashing water and spray when recording on a seashore. After use in such a place, carefully clean the cabinet because salt or sand might have adhered to it.
- Take special care not to drop the unit or strike it against hard objects. Protect from shocks during transportation.
- Protect the unit when using in sandy places.

* Registered trademark.

Make it a rule to observe the following instructions.

- Do not remove the battery pack or disconnect other power supply units during recording or playback before pressing the POWER button to OFF. If not observed, this will cause tape damage.
- When the unit is not in use, remove the battery pack.

Keep the lens and viewfinder eyepiece always clean.

- When the lens is dirty or dusty, blow it off first and then gently wipe with a soft brush or lens cleaning paper.
- The lens is likely to become moldy if left dirty.

Be careful not to burn the Saticon tube.

- Do not aim the lens directly at extremely bright objects such as the sun or other strong light sources.
- Do not keep the lens directed at bright lights for long periods. These careless or incorrect uses could damage the Saticon tube. Therefore, be sure to keep the lens capped except during shooting.
- If the aperture is left open, even while the camera is not being powered, the Saticon tube could be burned. Make it a rule to put the lens cap over the lens after each recording session.
- Do not direct the eyepiece of the viewfinder at the sun.

After storage of the unit for a long time, warm-up is necessary.

- The performance of the pickup tube deteriorates temporarily if not used for a long period (more than 3 months). If this should happen, power the unit and let it idle for 1 to 2 hours until the picture on the viewfinder screen becomes stable. Then start actual recording.

Handle the unit carefully.

- Protect the microphone from excessive shocks.
- Do not carry the unit by holding it only by the lens or viewfinder. Attach the provided carrying handle and use it for carrying the unit.

Moisture condensation disenables use of the unit.

- You have observed that pouring a cold liquid into a glass will cause drops of water to form on the glass's outer surface. This same phenomenon occurs on the head drum of a video recorder when the recorder is moved from a warm place to a cool place, after heating a cold room, under extremely humid conditions or in a place directly subjected to the cool air from an air conditioner.

- Moisture on the head drum can cause severe damage to the video tape, and can lead to internal damage to the recorder itself.
- If moisture condensation occurs on the head drum, a condensation warning appears in the counter display and the unit enters the Stop mode, unable to function. In such a case, wait for a few hours until the indicator disappears.

Maintenance

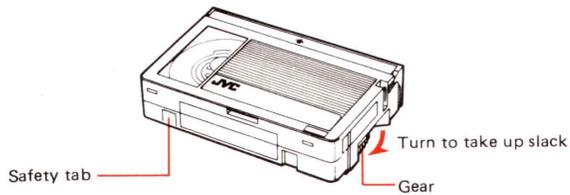
- When the cabinet is dusty, clean by gently wiping with a soft cloth.
- Avoid the use of strong cleaning agents such as benzine or alcohol as they may damage the cabinet.
- Cleaning should be done only after the battery pack has been removed or other power units have been disconnected.

Serious malfunctioning

If malfunctioning occurs, stop using the unit immediately and consult your local JVC Service Center. Call (1)800-447-4700 for centers near you.

VIDEO CASSETTES

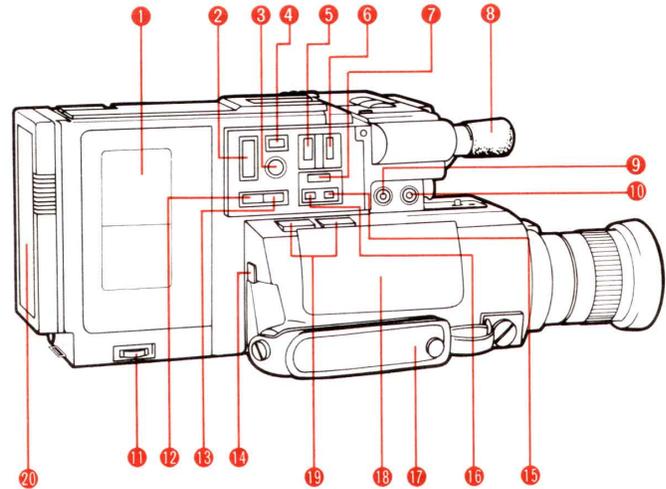
- The GR-C1U employs only compact video cassettes carrying the **VHS-C** mark.
- Recording onto prerecorded tapes automatically erases the previously recorded video and audio signals.
- An inverted cassette cannot be inserted.
- Do not load and unload the cassette repeatedly without allowing the tape to run at all. This will slacken the tape and thereby damage it.
- Make certain before loading the cassette that the tape is not slackened. If there is any slack, turn the gear on the cassette in the direction of the arrow to take up slack.
- The cassette is equipped with a safety tab to prevent accidental erasure. When the tab is removed, recording is impossible. If you wish to record on a cassette whose tab has been removed, use adhesive tape to reseal the slot.
- To avoid excessive exposure to dust and fingerprints, do not open the front tape cover except when necessary.



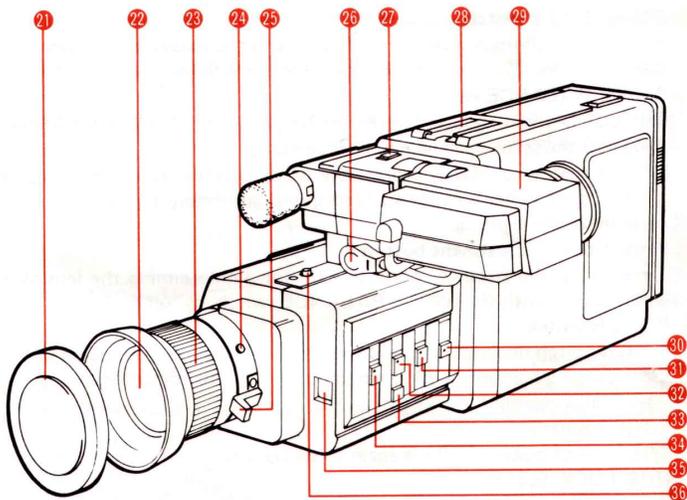
Storage of cassettes

- Avoid exposing the cassettes to direct sunlight. Keep them away from heaters.
- Avoid storing the cassettes in humid or dusty places.
- Do not drop the cassettes. Do not expose them to violent vibrations or shocks.
- Do not expose the cassettes to strong magnetic fields (near a motor, transformer or magnet).
- Place the cassettes in cassette cases and position them vertically.

CONTROL AND CONNECTORS



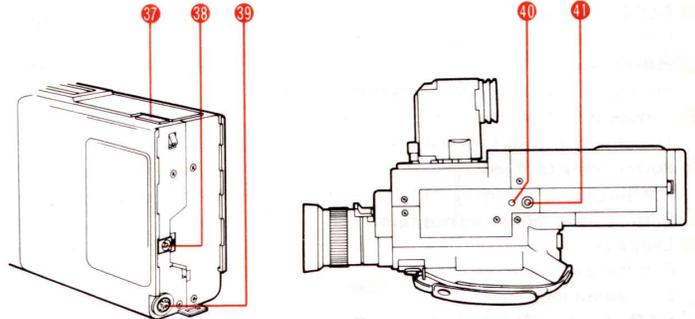
- 1 Cassette holder**
Insert a VHS-C video cassette for recording or playback.
- 2 PLAY button**
Press to start playback. For recording, press this button together with the REC button **3**.
- 3 REC button**
Press together with the PLAY button **2** to engage the Recording Standby mode. When a recordable cassette (with its safety tab in place) is loaded, pressing only the REC button in the Stop mode enables the picture to be monitored without being recorded.
- 4 PAUSE button**
Press to view a still picture during playback.
- 5 STOP button**
Press to engage the Stop mode.



- 6 EJECT button**
To open the cassette holder.
- 7 Counter display**



Tape counter: Shows from "0" to "9999".
 Memory mark: Appears when the MEMORY button **15** is pressed.
 Battery warning: Flashes when the battery power becomes insufficient for normal operation.
 Condensation warning: Appears when excessive condensation occurs inside the unit.



- 8 Exclusive microphone**
Unidirectional condenser microphone for simultaneous sound recording.
- 9 REMOTE control jack**
For connection of the optional RM-P1U pause remote control unit.
- 10 Earphone jack (EAR)**
- 11 TRACKING control**
Minimizes noise bars, if observed, during playback.
- 12 REW/SHUTTLE SEARCH button**
Pressing this button in the Stop mode rewinds the tape; pressing it in the Play mode allows fast playback in reverse.
- 13 FF/SHUTTLE SEARCH button**
Pressing this button in the Stop mode fast forwards the tape; pressing it in the Play mode allows fast playback.
- 14 Recording start/stop switch**
Press this switch in the Recording Standby mode (with both the REC and PLAY buttons pressed) to start recording. Pressing it again re-engages the Recording Standby mode.
- 15 MEMORY button**
Press this button at a point on the tape you want to locate later, and the tape will stop automatically when the counter reading at which this button was pressed (or its vicinity) is reached.

16 RESET button

Press to reset the counter to "0".

17 Handstrap

Secures the operator's hand to the lens grip.

18 Lens grip

To support the unit for handheld operation.

19 Power zoom buttons

For automatic zooming; "T" for telephoto and "W" for wide-angle.

20 Battery pack mounting position

21 Lens cap

Cap the lens when not in use.

22 6 : 1 zoom lens

f/1.2, f = 8 – 48 mm. Filter diameter: 49 mm.

23 Focus ring

Rotate to focus the lens on a subject.

24 MACRO button

Turn the zoom ring while pressing this button for macro shooting.

25 Manual zoom lever

Use to turn the zoom ring manually.

26 Viewfinder cable connector (VF)

Connect the viewfinder cable.

27 Viewfinder release/mount button (PUSH)

While holding this button pressed, slide the viewfinder into or out of the viewfinder mounting shoe.

28 Accessory shoe

Use this accessory shoe to attach the carrying handle (provided) or an optional character generator.

29 Electronic viewfinder

For monitoring the scene being shot or the playback picture after recording. Several indicators are included.

30 IRIS control

Set to STD for automatic iris control under normal conditions. Automatic iris control can be compensated for by sliding the control between CLOSE and BLC (at BLC the iris is 2 f-stops wider than when adjusted automatically).

31 SENSITIVITY switch

Set to UP if illumination is insufficient and the exposure indicator on the viewfinder screen (white bar) remains in the lower position.

32 WHITE BALANCE switch

Set to STD when shooting under lighting of a color temperature determined by the setting of the FILTER switch **34**.

Set this switch to ADJ and press the white balance adjustment button **33** to adjust white balance to correspond accurately to the color temperature of the lighting.

33 White balance adjustment button

To adjust white balance, press this button while aiming the lens at a white object, with the WHITE BALANCE switch **32** set to ADJ.

34 FILTER switch

Set this switch depending on the source of light.

☀ : under a halogen or tungsten lamp.

☀ : under daylight.

35 POWER button

Press to turn power on. Press again to switch off power.

36 IRIS LOCK button

Press to lock the aperture setting adjusted in the auto-iris mode. Releasing it will restore the auto-iris mode.

Rear panel

37 BATTERY pack release button

Slide in the direction of the arrow to detach the battery pack.

38 DC INPUT terminal

For connection of the optional AA-P1U AC power adapter or AP-P1U car battery cord.

39 VIDEO/AUDIO OUT connector

Both video and audio signals are available from this connector. Connect to the audio/video input connectors of a second recorder for dubbing or to the relevant connector of a TV set for playback. For playback with a TV set not equipped with audio/video input connectors, connect the RF-P1U RF unit (provided) to this connector and the TV.

Bottom

40 Stud hole

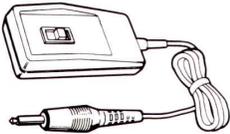
41 Tripod mounting socket

SYSTEMS FLEXIBILITY

For maximum enjoyment, make the most of the provided or optional accessories depending on the situation.

① Remote control unit RM-P1U  Page 33
(optional)

Controls recording start/stop from a distance.



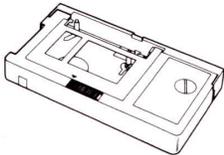
② Compact video cassette TC-20  Page 5
(provided/optional)

Allows 20 minutes of recording and playback.



③ Cassette adapter C-P2U/C-P3U  Page 39
(optional)

Enables the TC-20 cassette to be used with regular VHS machines. The C-P3U is a battery-operated version.



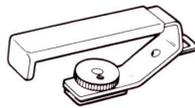
④ Character generator CG-P50U  Page 34
(optional)

Allows superimposition of titles, dates and lap time during recording.



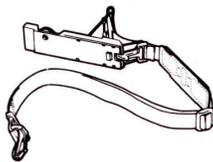
⑤ Carrying handle (provided)  Page 11

Attached to the accessory shoe, it aids in carrying the GR-C1U.



⑥ Shoulder frame SF-P1U  Page 12
(optional)

Use for on-shoulder operation.



⑦ Regular battery pack NB-P5U  Page 19
(provided/optional)

For power supply in recording outdoors.



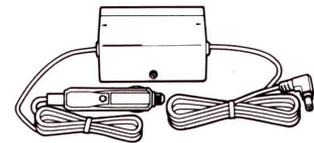
⑧ High-capacity battery pack NB-P6U (optional)  Page 19

For power supply in recording outdoors.



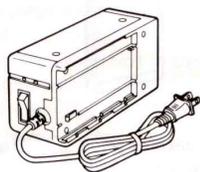
⑨ Car battery cord AP-P1U  Page 14
(optional)

For power supply from a car battery.



⑩ Battery charger BB-P1U  Page 19
(provided/optional)

Use to charge the battery pack. Designed to operate at different voltages, it can be used anywhere in the world.



⑫ A/V cable (provided)  Page 36

Use to connect the **GR-C1U** to a television set equipped with audio/video input connectors for playback, or to a second video recorder for dubbing.



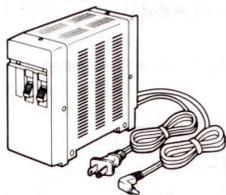
⑭ A/V extension cable VC-P1U (optional)

Use to extend the A/V cable.



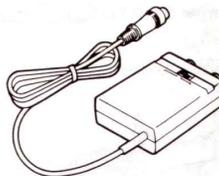
⑪ AC power adapter AA-P1U  Page 14
(optional)

Use to power the **GR-C1U** with household AC current or charge the battery pack.



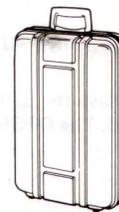
⑬ RF unit RF-P1U (provided)  Page 35

Use to connect the **GR-C1U** to a regular TV receiver for playback.



⑮ Carrying case CB-P1U (optional)

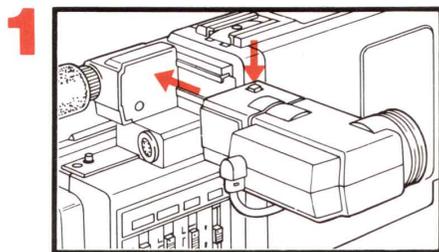
Use to carry the **GR-C1U** together with accessories.



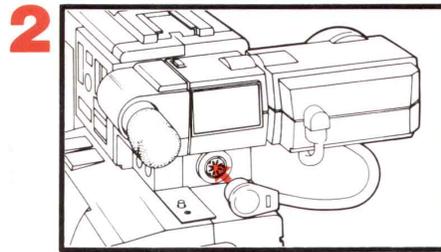
MOUNTING THE VIEWFINDER

Switch off power before mounting or removing the viewfinder.

To mount



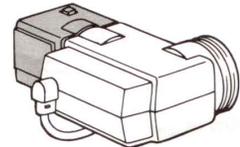
Slide the viewfinder into the viewfinder holder on the front of the body while pressing the viewfinder release/mount button.



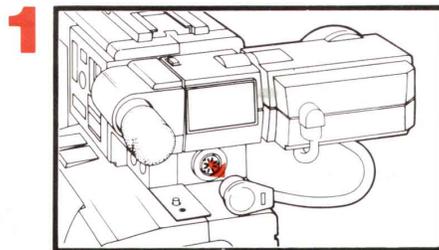
Connect the viewfinder cable to the viewfinder cable connector (VF).

CAUTION

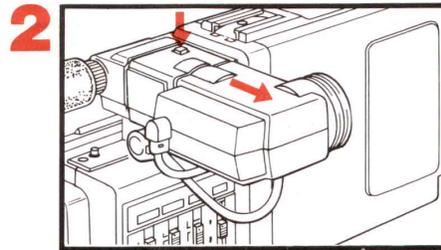
When mounting or removing the viewfinder, do not hold it by its eyepiece, but by the shaded portion shown here.



To remove



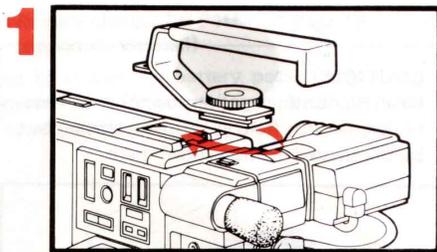
Unplug the viewfinder cable.



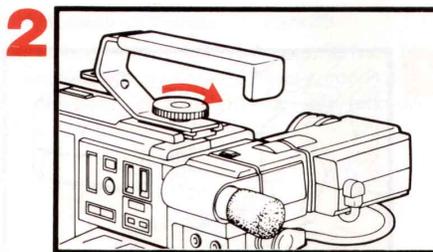
Slide the viewfinder in the direction of the arrow while pressing the viewfinder release/mount button.

ATTACHING THE CARRYING HANDLE

The provided carrying handle aids in carrying the unit.



Insert the handle into the accessory shoe.

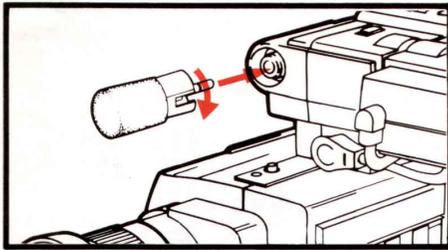


Tighten the screw securely.

MOUNTING THE PROVIDED MICROPHONE

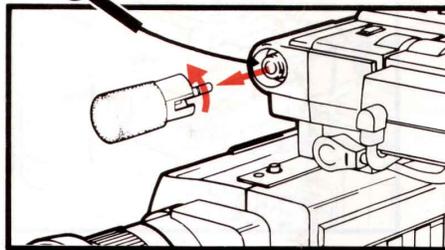
Be sure to mount the microphone before shooting.

To mount



Align the shape of the plug to that of the jack and push the plug in until it clicks. Then turn the microphone clockwise to lock it.

To use an external microphone



Turn the provided microphone counterclockwise to remove it. Plug an external microphone in place of the provided one.

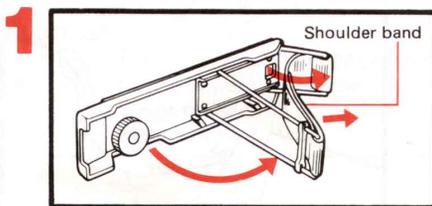
Notes:

- Hold the neck of the microphone when mounting or removing.
- The provided microphone might pick up some tape-running noise. For more satisfactory results, it is recommended that you use an external microphone.

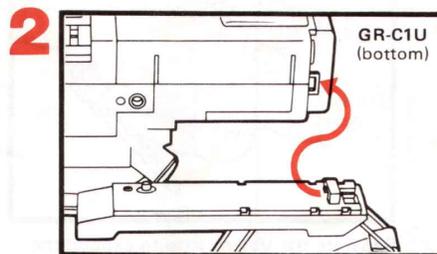
ATTACHING THE SHOULDER FRAME (optional)

For on-shoulder operation and carrying the **GR-C1U** swinging from your shoulder in preparation for shooting anytime, attach the shoulder frame.

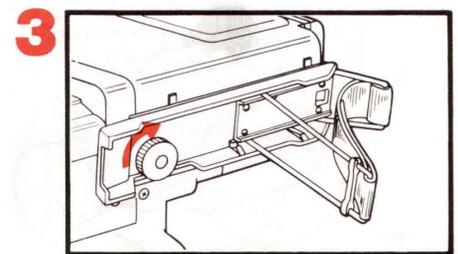
Mounting on the GR-C1U



Swing the strap wire supports out, away from the base plate, and apply slightly more force to the smaller wire support until it locks securely into place. Separate the Velcro fastener of the shoulder band and adjust the length to fit the operator's shoulder.

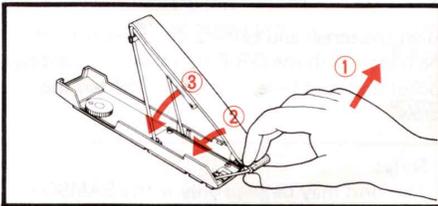


Slide the stop holder onto the protruding eyelet on the bottom of the **GR-C1U**.



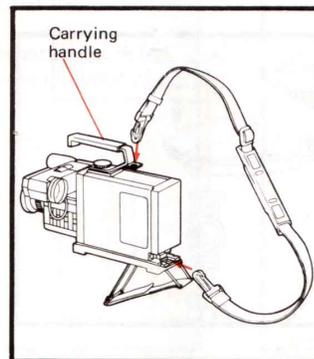
Align with the **GR-C1U**'s tripod mounting socket and firmly tighten the mounting screw.

Retracting the shoulder rest strap

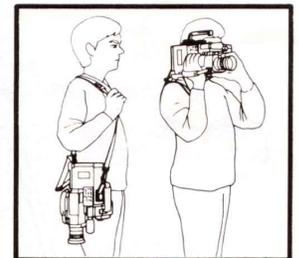


To retract the shoulder rest strap, **1** grasp the top of the smaller wire support as illustrated, pulling it back with force until it unlocks, **2** push the smaller wire support forward, and **3** press the strap and supports down flat against the base plate.

Attaching the shoulder strap

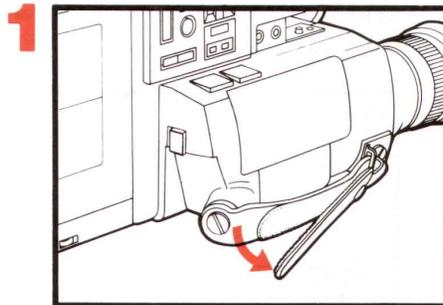
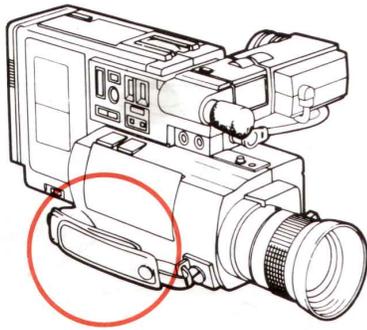


With the provided carrying handle firmly mounted on top of the **GR-C1U**, attach one hook of the shoulder strap to the eyelet of the carrying handle and the other to the eyelet of the shoulder frame.

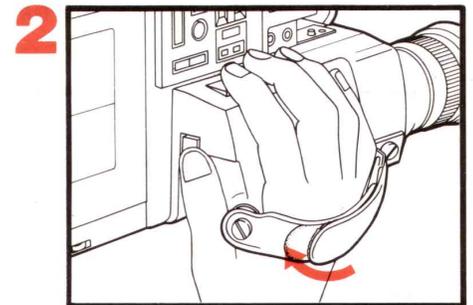


Carry the **GR-C1U** swinging from your shoulder in readiness to shoot subjects of interest at a moment's notice.

GRIP STRAP

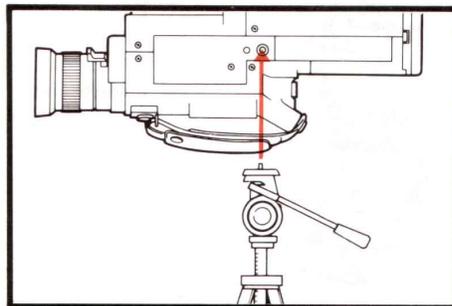
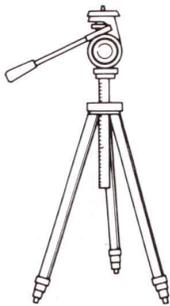


1 Separate the Velcro strip to expand the loop.



2 Pass your right hand through the loop and grasp the lens grip. Adjust the length of the strap to suit your hand size and refasten the Velcro strip.

TRIPOD MOUNTING



Align the screw and camera direction stud of the tripod with the **GR-C1U's** tripod mounting socket and stud hole, and firmly tighten the screw.

Note:

This unit may be used only with a SAMSON tripod Model 4-73010-7 (CAM HEAD 4-72300-3). The tripod legs should be fully spread. Use with other tripods may result in instability causing possible injury.

POWER SUPPLY SYSTEM

The convenient 3-way power supply system gives you a choice of the most appropriate power supply unit, depending on the application.

CAUTION

- No function is available without power supply.
- Do not use any power supply other than specified.
- Never attempt to use these power supply units with any equipment other than the **GR-C1U**.

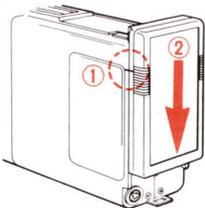
Where AC power is not available

Use the battery packs:

- NB-P5U (Regular) (provided/optional)
- NB-P6U (High-capacity) (optional)

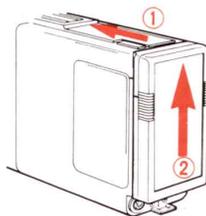
To attach

- ① Align the marks.
- ② Slide the battery pack in the direction of the arrow until it locks.



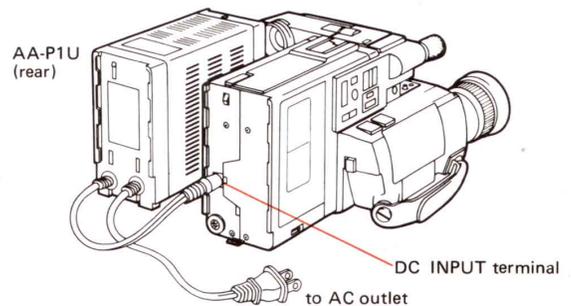
To remove

- ① Slide the BATTERY button in the direction of the marked arrow.
- ② Remove the battery pack by sliding it in the direction of the arrow.



With AC power

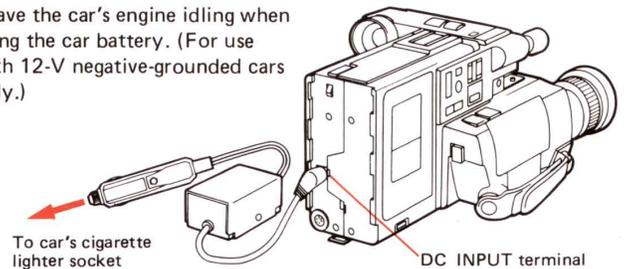
Use the optional AA-P1U AC power adapter.



In a car

Use the optional AP-P1U car battery cord.

- Leave the car's engine idling when using the car battery. (For use with 12-V negative-grounded cars only.)

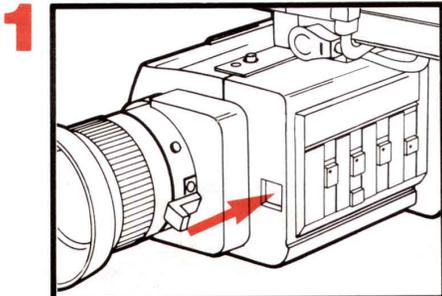


VIEWFINDER INDICATIONS

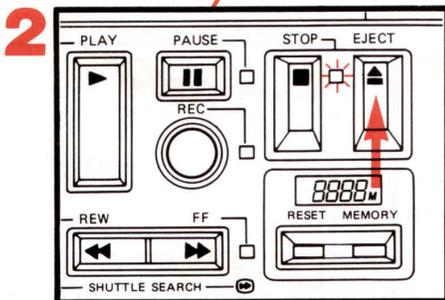
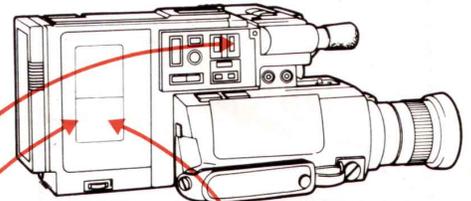
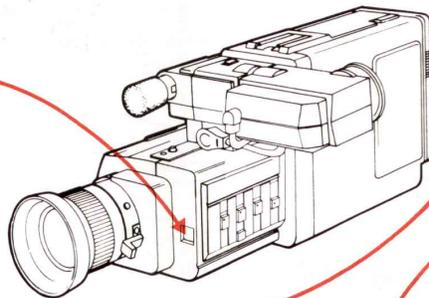
The following 8 indications appear in the viewfinder when conditions require it.

| | | |
|------------------------------------|---|---|
| Recording standby mode |  | Long white line shows when the unit is in the pause mode (with the REC and PLAY buttons pressed). The line moves downwards when the amount of light is insufficient. |
| Recording mode |  | When the start/stop switch is pressed, the line reduces in size and blinks to indicate that the tape is running properly. |
| Under-exposure |  | The line lies at center for correct exposure. The line moves downwards when the amount of light is insufficient. To correct it, either set the SENSITIVITY switch to UP or increase lighting. The line also moves when the IRIS control is adjusted; upwards as it is slid toward BLC and downwards as it is slid toward CLOSE. |
| Battery warning |  | The leftmost quarter of the screen area becomes white and blinks when the power of the battery becomes insufficient for normal operation. Battery warning also appears in the counter display. (See page 22.) Replace the battery pack when these indicators warn of shortage of power. |
| Tape-end alarm |  | When the time left for remaining tape reaches one minute or less, the white line blinks faster. |
| SENSITIVITY switch position |  | A white square appears at the bottom left corner of the screen when the SENSITIVITY switch is set to UP. If this indicator appears under normal lighting, check the switch position. Set to STD unless the amount of light is insufficient. |
| White balance adjustment |  | When the WHITE BALANCE switch is set to ADJ, a white square appears at the upper left corner and blinks. In this condition, press the white balance adjustment button; optimum white balance is obtained when blinking of the white square changes into a steady, flicker-free light. If the white square remains lighted from the beginning, it shows that the previous white balance setting is still effective. (Memory backup time is about 3 hours.) |
| FILTER switch position |  | A red LED lights when the FILTER switch is set to ☀️, a green LED lights when it is set to 🌙. If the red LED lights outdoors, check the switch position. Set to 🌙 always under natural lighting. |

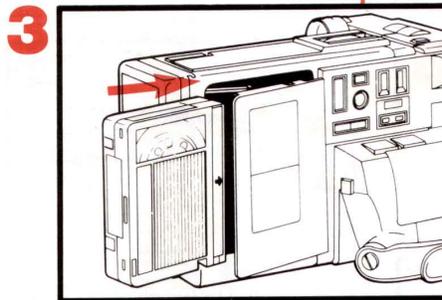
LOADING A VIDEO CASSETTE



Press the POWER button to turn power on.

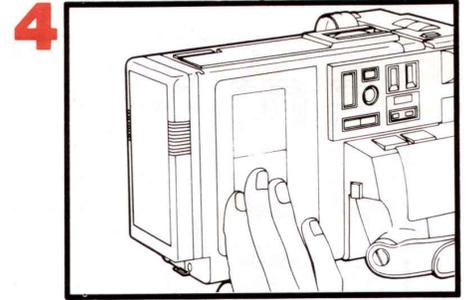


Open the cassette holder by pressing the EJECT button.



Insert the cassette with its printed arrow facing outward.

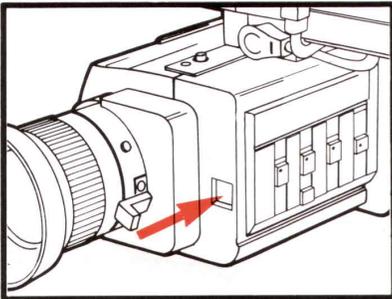
First remove tape slack, then insert the cassette correctly.



Close the cassette holder.

REMOVING A VIDEO CASSETTE

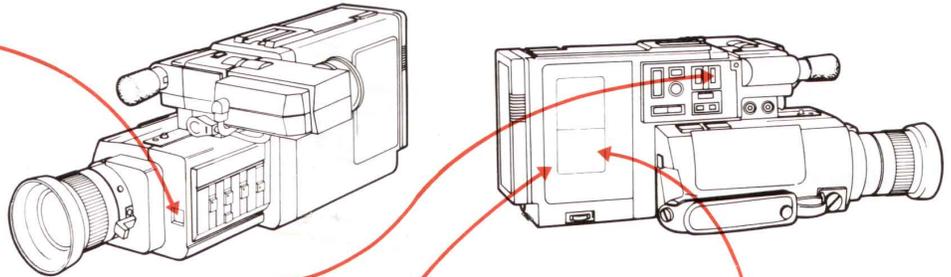
1



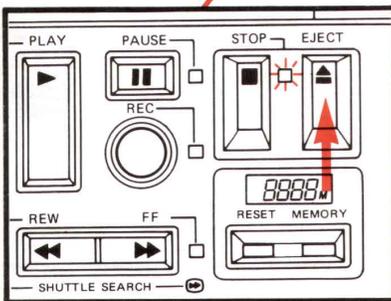
Press the POWER button to turn power on.

Note:

- Do not repeat loading and unloading of the cassette without running the tape, as this will slacken the tape, causing tape damage.

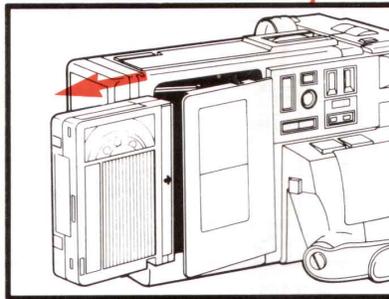


2



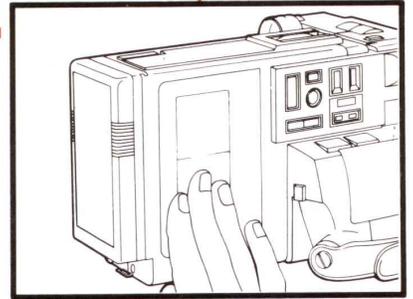
Make sure the unit is in the Stop mode. Press the EJECT button. The cassette holder will open.

3



Remove the cassette.

4

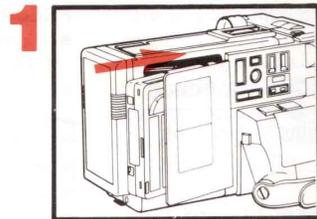


Close the cassette holder.

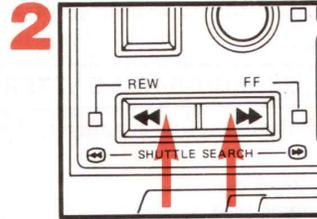
- When not in use, switch off power.

REWINDING/FAST FORWARDING THE TAPE

Make sure that the power is on.



1 Load a cassette.

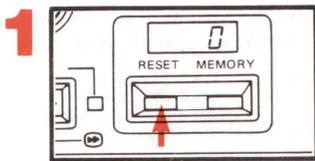


2 Press the REW or FF button. (If either button is pressed in the Play mode, shuttle search is engaged. See page 38.)

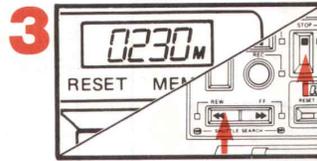
- When the beginning or end of the tape is reached, the Stop mode is entered automatically.
- If the memory function is engaged, the tape stops midway.

COUNTER MEMORY FUNCTION

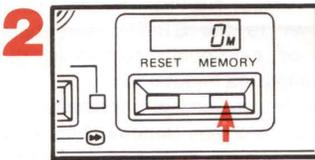
The GR-C1U incorporates a counter memory mechanism which facilitates locating a specific tape segment.



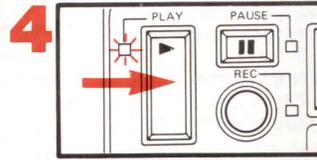
1 Press the RESET button to reset the counter to "0". (The "M" mark, if on the display, is cancelled.)



3 After recording or playback, press the STOP button, then the REW button. The tape will automatically stop at the counter reading of around "0". (The counter memory function is effective in the Fast Forward mode as well.)



2 Press the MEMORY button. The "M" mark will appear.



4 Press the PLAY button to start playback.

Notes:

- To cancel the memory function, press the MEMORY or RESET button.
- When the power supply unit is disconnected, all indications on the counter display disappear and the counter memory function is cancelled.
- If the MEMORY button is pressed without resetting the counter, the tape will stop automatically in the Rewind or Fast Forward mode at the counter reading where the MEMORY button was pressed or at its vicinity.

CHARGING THE BATTERY PACK

To charge the battery pack, use the exclusive battery charger BB-P1U (provided/optional) or AC power adapter AA-P1U (optional).

A WORD ON THE EXCLUSIVE NB-P5U/NB-P6U BATTERY PACKS (optional)

The NB-P5U/NB-P6U are nickel-cadmium batteries. Give attention to the following to make the most of their characteristics.



Temperature ranges:

The recharging time is based on room temperature of 20°C (68°F). The lower the temperature, the longer the recharging time.

Terminals

Do not short-circuit

For charging: 10°C to 35°C (50°F – 95°F)
 For operating: -10°C to 40°C (14°F – 104°F)
 For storing: -10°C to 30°C (14°F – 86°F)

The battery pack has been kept in the uncharged state for shipment. Therefore, before use, charge it.

- To avoid hazard:
 1. Do not burn.
 2. Do not short circuit the terminals.
 3. Do not modify or disassemble.
 4. Use only specified chargers.
- To prevent damage and prolong service life:
 1. Avoid dropping, unnecessary shocks.
 2. Avoid repeated charging without discharging.
- This unit has a limited service life:

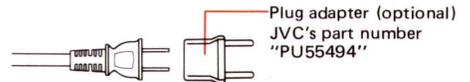
Near the end of its service life, when it begins to deliver less recording time per charge, purchase a replacement.
- It is normal for the unit to be warm after charging or use.
- This is a chemical reaction type battery; its properties are best maintained under the following conditions:
 1. Optimum charging takes place at temperatures between 10°C (50°F) and 35°C (95°F). Cooler temperatures impede chemical reaction. Warmer temperatures can prevent complete charging.
 2. Store in a cool dry place. Extended exposure to high temperatures will increase natural discharge and shorten service life.
 3. Total natural discharge may occur during long storage periods (uncharged storage is preferable; recharge one day before use).
 4. Remove from charger or powered unit when not in use; some machines use current even when switched off.

PRECAUTIONS FOR BB-P1U

- If used near a radio, the provided BB-P1U Battery Charger may interfere with reception.
- Prevent inflammables, water and metallic objects from entering the unit.
- Do not disassemble or modify the unit.
- Do not apply shocks to the unit.
- Do not subject the unit to direct sunlight.
- Avoid using the unit in extremely hot or humid places.
- Avoid using the unit in places subject to vibrations.

When using the BB-P1U in areas other than the USA.

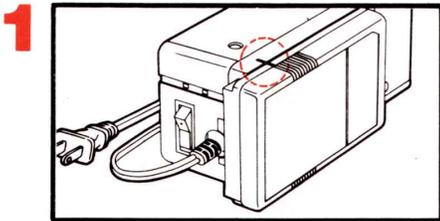
USING HOUSEHOLD AC PLUG ADAPTER
 In case of connecting the unit's power cord to an AC wall outlet other than American National Standard C73 series type, use an AC plug adapter, called a "Siemens Plug", as shown below. For this AC plug adapter, consult your nearest JVC dealer.



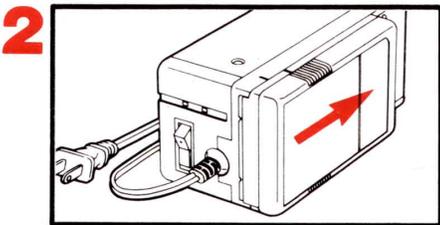
- The fully charged NB-P5U battery pack provides power to the **GR-C1U** for about 30 minutes of continuous recording; the NB-P6U, for about 45 minutes.
- The recording time per charge is influenced by the duration of recording standby, frequency of zooming, etc. It is safer to carry spare battery packs for outdoor shooting.

Procedure

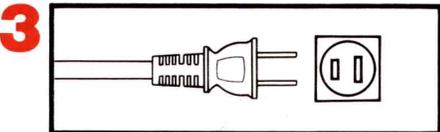
- When sliding the battery pack on or off the charger, make sure that the charger's POWER switch is set to OFF.



Align the marks.



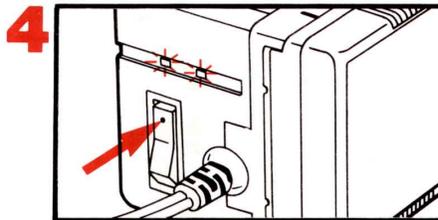
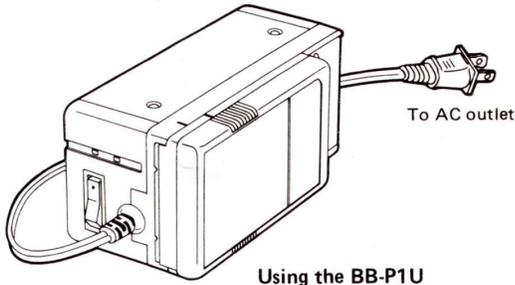
Slide the battery pack in the direction of the arrow until it locks in place.



Connect the AC power cord to a wall outlet.

Use the provided BB-P1U battery charger or the optional AA-P1U AC power adapter. Charging time is about 60 minutes for the NB-P5U and the NB-P6U.

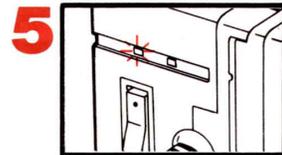
- The charging time differs depending on the ambient temperature and the condition of the battery pack.



Press the POWER switch to ON. The POWER indicator will light first, then the CHARGE indicator will light in a few seconds.

Note

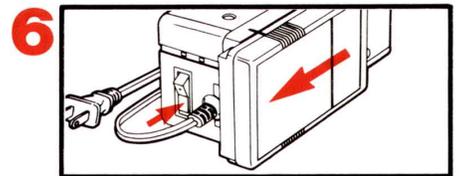
Charging the battery pack is also possible using the optional AA-P1U AC Power Adapter. For details refer to the instruction manual for the AA-P1U.



When charging is completed, the CHARGE indicator goes out.

CAUTION

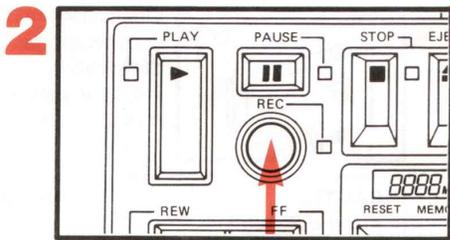
- If the POWER button is left in its ON position after the CHARGE indicator goes out, additional charging continues with a small amount of current.
- Faint oscillation may be heard at the start of charging. This is not due to any defect of the unit.



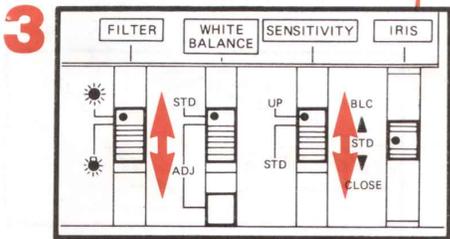
Press the POWER switch to OFF. Remove the battery pack by sliding it off.
•The battery pack becomes warm immediately after being charged. This is not due to any defect of the unit.

RECORDING OPERATION

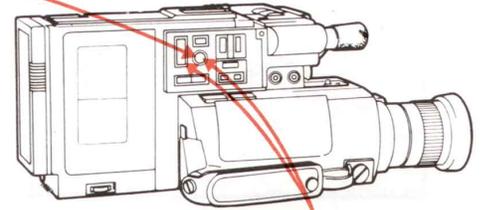
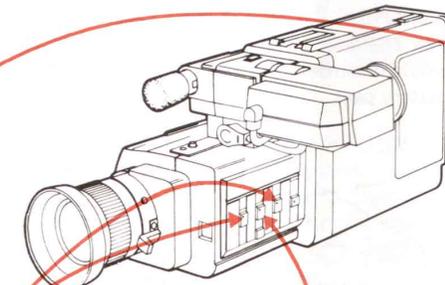
- 1**
- Press the POWER button to ON.
 - Insert a video cassette correctly (with its safety tab in place).



Press the REC button.
The aimed-at scene will appear on the viewfinder screen.
See page 24 for rehearsal.

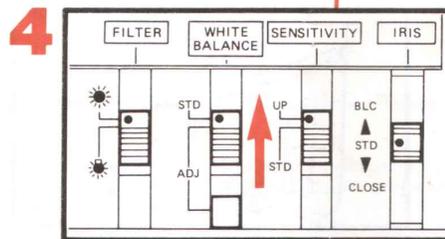


Set the FILTER switch as required. See page 27.
Set the SENSITIVITY switch as required. See page 33.



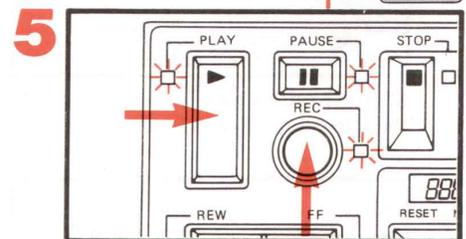
Check the viewfinder indications.
See page 15.

Recording standby mode indication

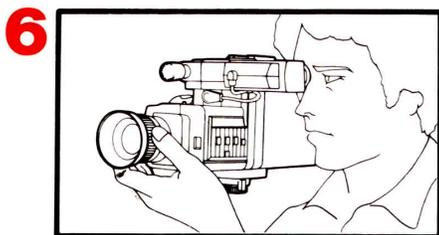


Set the WHITE BALANCE switch to STD.
For adjustment of white balance, see page 28.

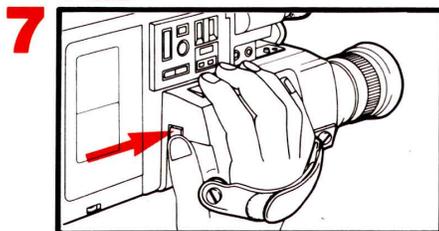
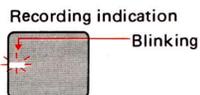
After completion of adjustment, press the STOP button.



While holding the REC button pressed, press the PLAY button. The unit enters the Recording Standby mode (with REC, PLAY and PAUSE indicators lighting).



Determine the focus and composition by referring to the viewfinder image. For iris control, focusing and zooming, see pages 29 to 31.



Press the start/stop switch.

- This causes the white line on the viewfinder screen to shrink and start blinking, showing that recording is actually taking place.
- If the white line does not shrink or does not start blinking, there is something wrong with tape running. Restart from step 1.

For a pause longer than 5 minutes

Press the POWER button to OFF.

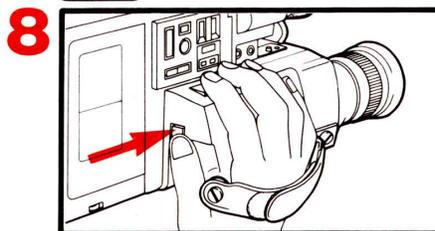
To restart recording

- Press the POWER button to ON.
- Check the viewfinder indications.
- Perform steps 6 and 7.

To end recording

- Press the STOP button.
- After making sure that the tape has stopped, press the POWER button to OFF.

Standby

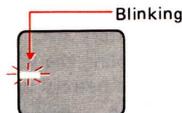


To stop recording temporarily, press the start/stop switch once again.

Automatic quick review function

You can see the last second of the recording on the viewfinder screen when you stop shooting. This allows you to check that satisfactory recording was made.

Tape-end warning

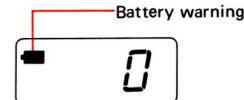


- The white line on the viewfinder screen and the REC indicator beside the REC button blink faster about one minute before the end of the tape.
- When the end of the tape is reached during recording, the Stop mode engages automatically.

Notes:

- If the Recording Standby mode continues for longer than about 5 minutes, the unit's power will be shut off automatically for tape protection.
- Repeating steps 7 and 8 produces assemble recordings. In playback, the picture may be slightly distorted at the point between separate takes. This is not due to any defect of the unit.
- If recording is restarted from the Stop mode, a few seconds of the previously recorded picture is replaced with a new recording. To avoid this, follow the technique described in "Assemble recording technique-2" on page 26.

Battery warning



- When the battery power is coming to an end, a battery warning indication appears both in the viewfinder (see page 15) and the counter display. Replace the battery pack with a fully charged one.

PROTECTIVE CIRCUITS

The **GR-C1U** incorporates several protective circuits.

Power shut-off circuit for battery protection

- If the unit continues to be operated with the battery pack after the battery warning starts blinking on the counter display, the unit enters the Stop mode and shuts itself off to protect the battery pack from damage. Replace the battery pack with a charged one.

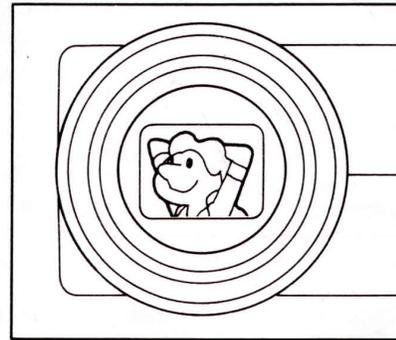
Power save circuit

- To conserve battery power, if the Stop mode continues for longer than about 5 minutes, the power save circuit automatically shuts off power.

Tape protection circuit

- If the Recording Standby or Still mode continues for longer than about 5 minutes, the **GR-C1U** automatically shuts itself off.

VIEWFINDER MONITORING



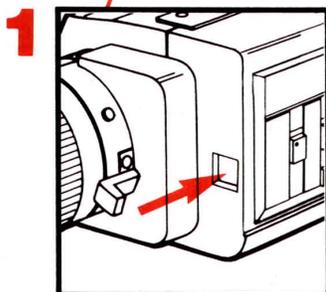
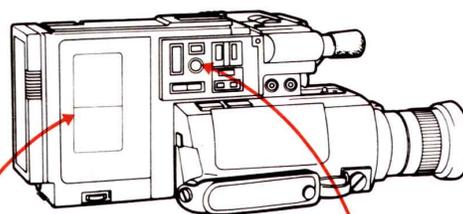
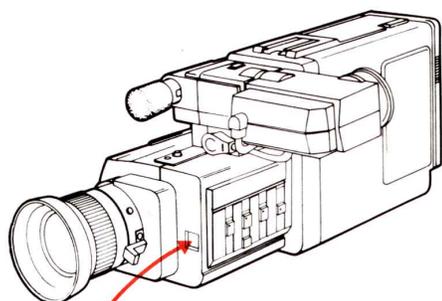
- Rewind the tape to a point from which you want to check the recording.
- Press the **PLAY** button, and you can view the playback picture on the viewfinder screen.

Notes:

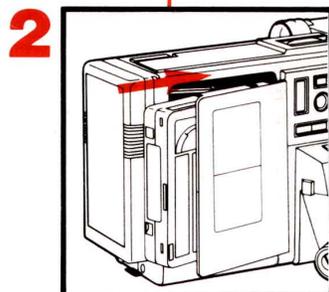
- Pressing the **PAUSE** button during playback stops the picture on the viewfinder screen.
- Shuttle search is also possible in both directions.

REHEARSAL WITHOUT RECORDING

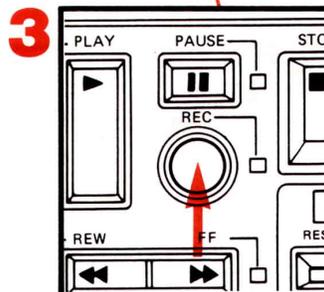
You can rehearse shooting angles, compose scenes, etc. without actually recording on the tape.



1 Press the POWER button to ON.



2 Insert a video cassette correctly (with a safety tab in place).



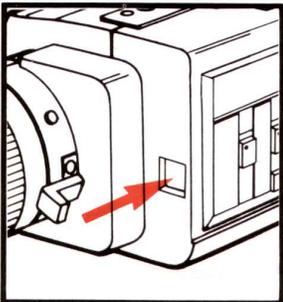
3 Press the REC button. The aimed-at scene will appear on the viewfinder screen, enabling you to rehearse shooting.

Notes:

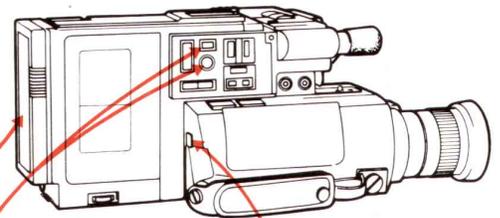
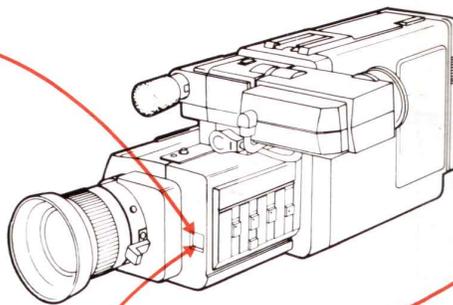
- Rehearsal is not possible if the loaded cassette is non-recordable (with its safety tab removed).
- Rehearsal is not possible during rewind or fast forward.
- The power save circuit does not function during rehearsal.
- If the recording start/stop switch is pressed during rehearsal shooting, the result may be that, while intending to engage the Recording Standby mode by pressing the PLAY button with the REC button held pressed, you actually start recording. To avoid this, make it a rule to press the STOP button after rehearsal.

ASSEMBLE RECORDING TECHNIQUE -1 (To replace the battery pack during recording)

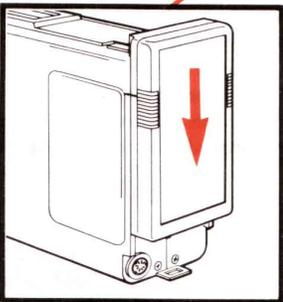
1



If the battery warning appears in the viewfinder or the counter display while recording, press the POWER button to OFF.

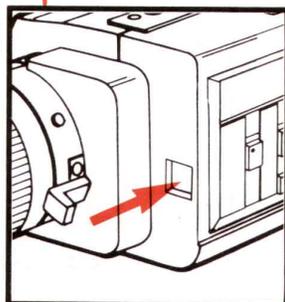


2



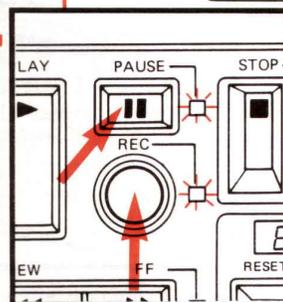
Replace the battery pack with a charged one.

3



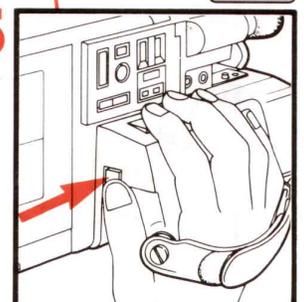
Press the POWER button to ON.
●The unit will be in the Still mode.

4



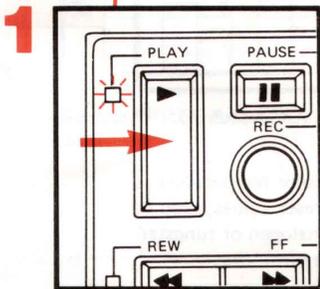
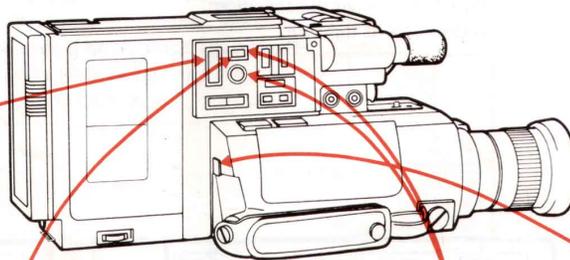
Press the PAUSE button while holding the REC button pressed.
●The unit will enter the Recording Standby mode.

5

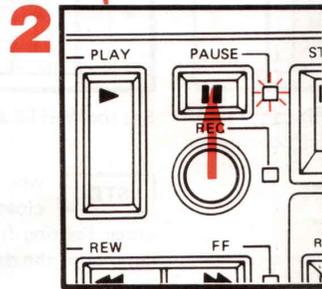


Press the recording start/stop switch to start recording.

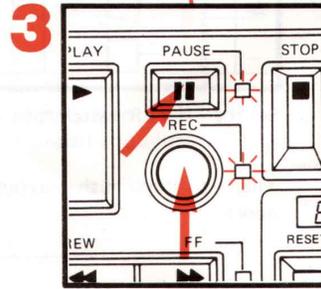
ASSEMBLE RECORDING TECHNIQUE -2 (To record onto a partially recorded tape)



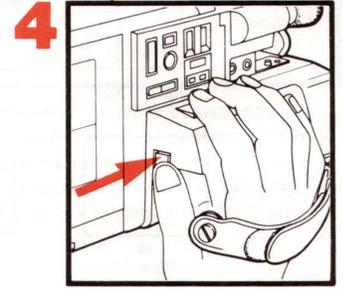
Play back the tape to a point where you wish a new recording to start.
 ● Use the SHUTTLE SEARCH button for faster location.



Press the PAUSE button at the located point.
 ● The unit will enter the Still mode.

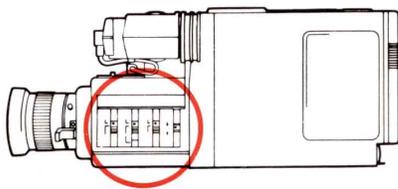


Press the PAUSE button while holding the REC button pressed.
 ● The unit will enter the Recording Standby mode.



Press the recording start/stop switch to start recording.

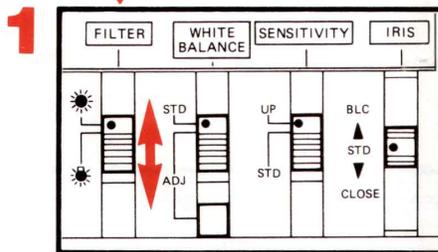
COLOR TEMPERATURE SETTING



For more information on color temperature and white balance, refer to pages 40 and 41.

• Before shooting, be sure to set the FILTER switch according to the type of lighting.

• The WHITE BALANCE switch is to select two different functions; shooting at a preset color temperature or at a color temperature exactly corresponding to the shooting situation.



Set the FILTER switch to:

Viewfinder



(Green)



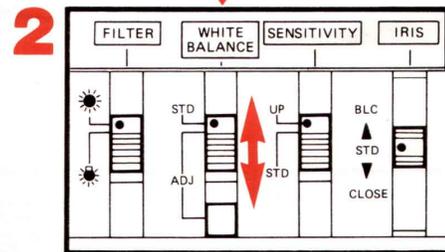
when you shoot in the daytime outdoors.



(Red)



when the subject is illuminated by a halogen or tungsten lamp.

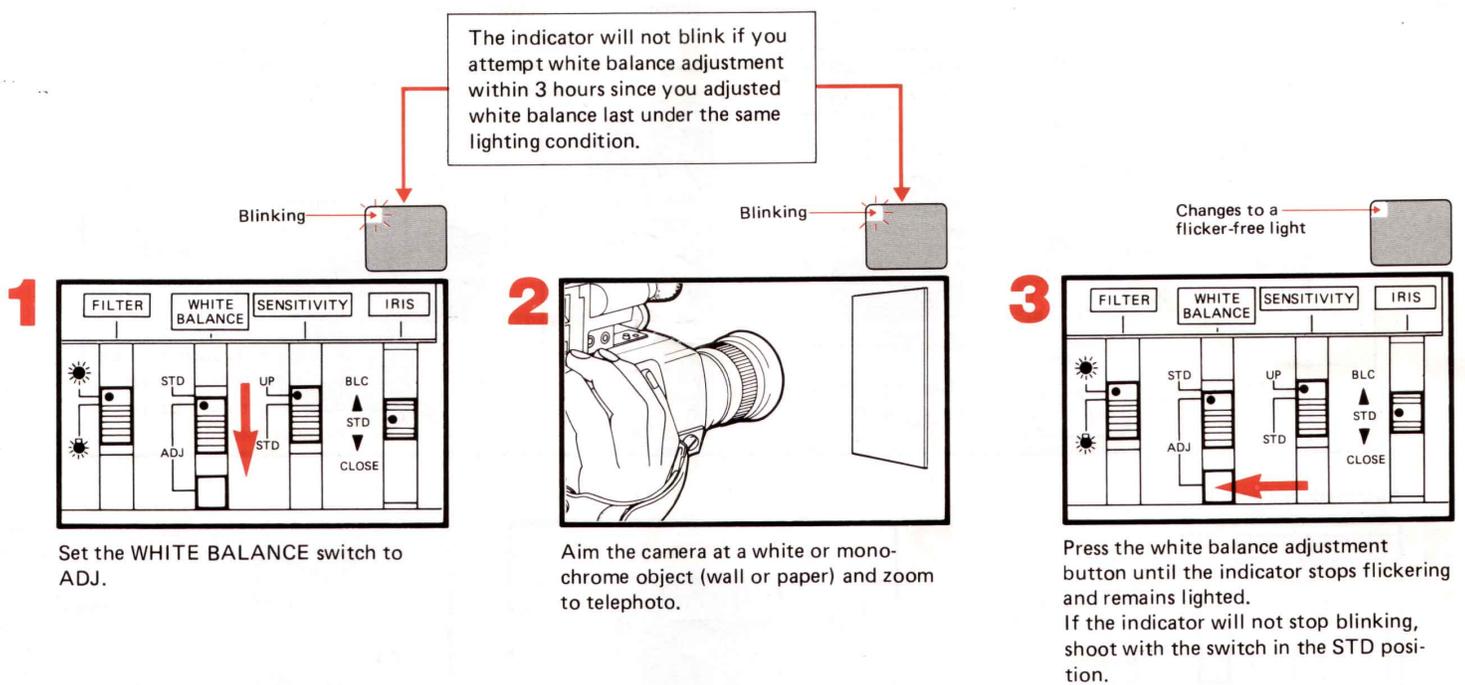


Set the WHITE BALANCE switch to:

STD when the color temperature is close to preset values, such as under lighting from a halogen or tungsten lamp or in the daytime outdoors.

ADJ when accurate white balance adjustment is needed, or when the color temperature of lighting is unknown, such as under mixed artificial lighting, fluorescent lighting, a cloudy or rainy sky, or in the morning or evening.

If you use the ADJ position, proceed to next step.



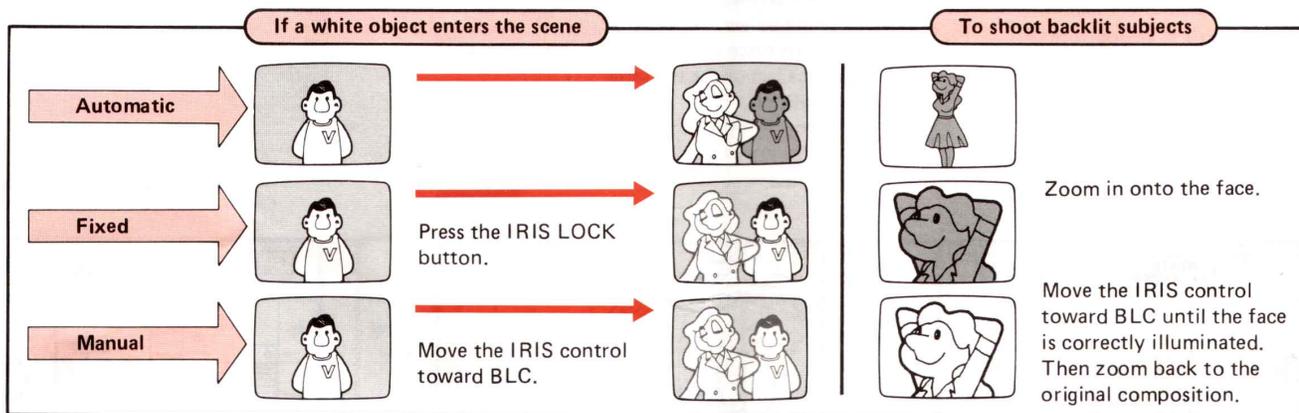
Notes:

- If you shoot more than 3 hours after the last white balance adjustment, or when lighting conditions change, re-perform white balance adjustment.
- If the SENSITIVITY switch position is changed, re-perform white balance adjustment.
- White balance adjustment will not be possible in darker places. Use the STD position.

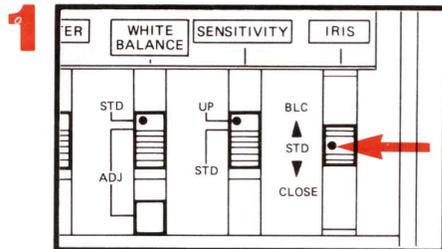
IRIS CONTROL

This unit is provided with an automatic iris control which adjusts the lens aperture according to the amount of light entering the lens so that

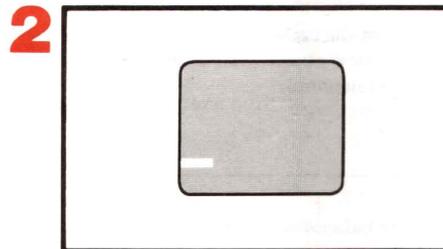
correct exposure is obtained even when illumination of the subject changes. Fixed iris and manual control are also possible.



Automatic iris control

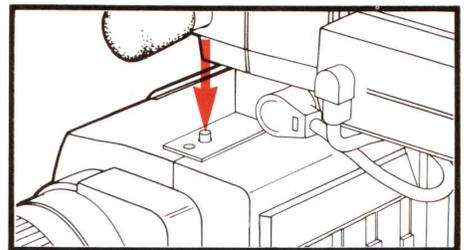


Set the IRIS control to STD.



If the line on the viewfinder screen is lower than center, the amount of light is insufficient. Set the SENSITIVITY switch to UP, or increase the lighting.

Fixed iris



Press the IRIS LOCK button, and the aperture setting adjusted automatically will be locked as long as button is being pressed even when the brightness of the subject varies.

Picture variations with different apertures

Check the viewfinder image when adjusting the iris manually.



Over-exposure

Correct exposure

Under-exposure

Use of the IRIS control for fade-in and fade-out

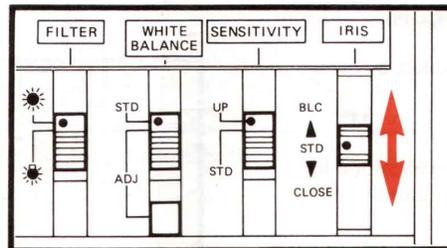


Moving the IRIS control gradually from CLOSE to STD will give a fade-in effect.

Moving the IRIS control gradually from STD to CLOSE will give a fade-out effect.

- The fixed iris mode may improve the results:
- when the situation of a subject is changed into being backlit
 - when a bright sky enters the frame while zooming out
 - when panning from light to dark subjects (or vice versa)
 - when a white object moves in and out of a darker scene.

Manual iris control

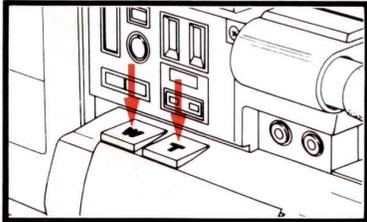
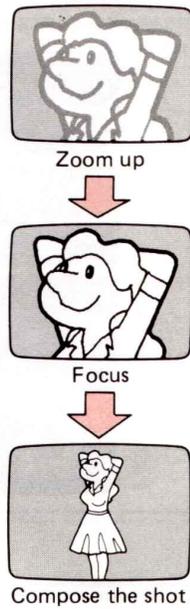


Move the IRIS control manually for more precise aperture adjustment or special effects.

To reduce aperture, move the IRIS control toward CLOSE (where the aperture is completely closed). To increase aperture, move the IRIS control toward BLC (where the aperture is about 2 f-stops wider than the setting in the STD mode).

FOCUSING

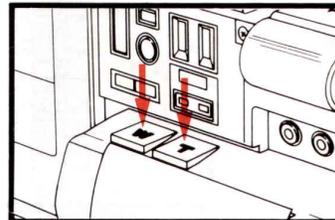
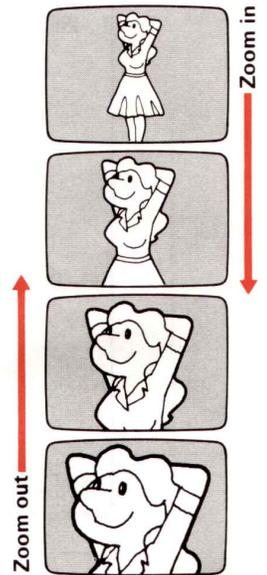
The basic guideline is to focus the lens in the maximum telephoto position. If you focus in on a certain subject in the wide-angle position, sharply-focused images cannot be obtained when it is zoomed up because the depth of field is reduced at longer focal lengths.



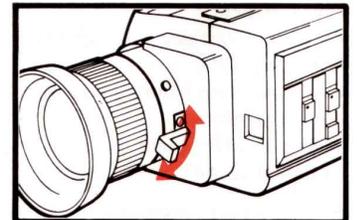
Zoom in on a subject by pressing the "T" button. Focus onto it by turning the focus ring. Determine the composition by pressing the "W" button.

ZOOMING

When the focal length of the lens is varied by turning the zoom ring, the image appears to come nearer to or retreat from the viewer.



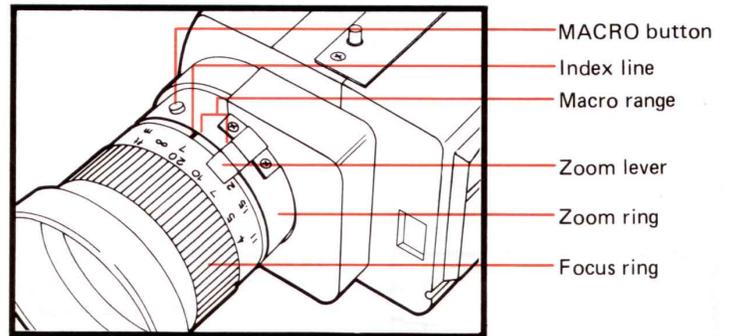
Power zooming
Press "T" for zooming in and "W" for zooming out.



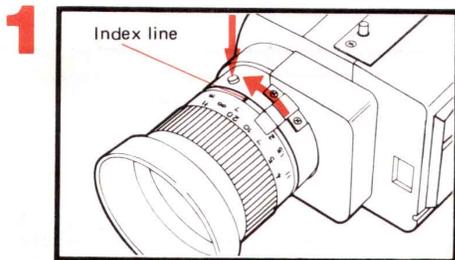
Manual zooming
Rotate the zoom lever upwards for zooming out and downwards for zooming in.

MACRO SHOTS

Normally, focusing is possible only for subjects that are more than 1.1 m (3.5 ft) away from the camera. By setting the lens to MACRO, it is possible to focus in on any subject located inside that limit, right up to the front of the lens. The MACRO and ZOOM ranges combined give continuous shooting ability from close-up to infinity.

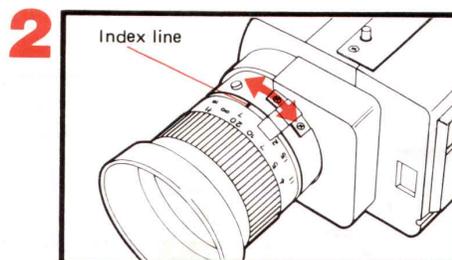


Engage MACRO



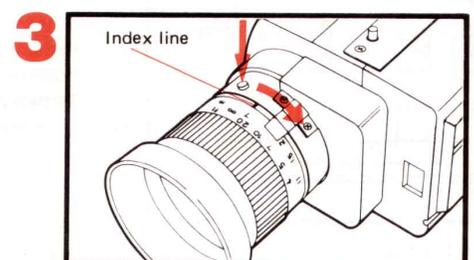
While pushing in the MACRO button, turn the zoom ring in the direction of the arrow until the letter "O" of MACRO passes the index line.

Focus



Focus by turning the zoom ring slowly.

Release MACRO

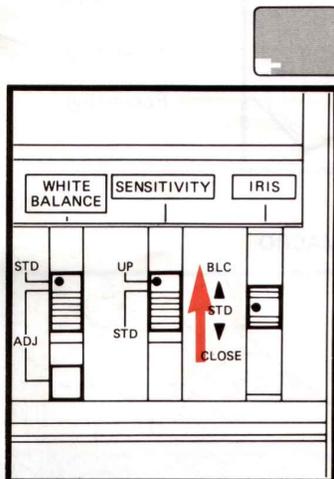


To release the Macro mode, turn the zoom ring in the direction of the arrow with the MACRO button pressed, until it passes the index line.

- Use the zoom ring to focus in the MACRO range.
- Turning the focus ring will slightly alter the angle of view of the lens.

SENSITIVITY SWITCH

The SENSITIVITY switch is to increase sensitivity electrically in low-light situations when the white line remains in the lower portion on the viewfinder screen.



Set the SENSITIVITY switch to UP when illumination is not sufficient.

A white square will appear at the bottom left corner of the viewfinder screen.

To express natural changes in brightness, use the STD position even when shooting under low illumination, otherwise naturalness will be lost.

Examples of under-illuminated situations where the STD position may give better results:

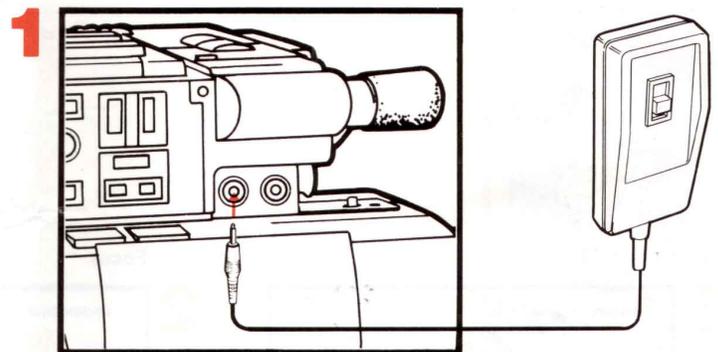
- when shooting a gradually darkening sky
- when you want to present darker settings realistically
- when shooting scenes of fireworks or neon signs

Note

There is some loss in picture quality and color reproduction in the UP position. Therefore, wherever possible, increase the lighting and use the STD position.

REMOTE CONTROL UNIT RM-P1U (optional)

The remote control unit RM-P1U (optional) permits recording start/stop to be controlled from a distance.

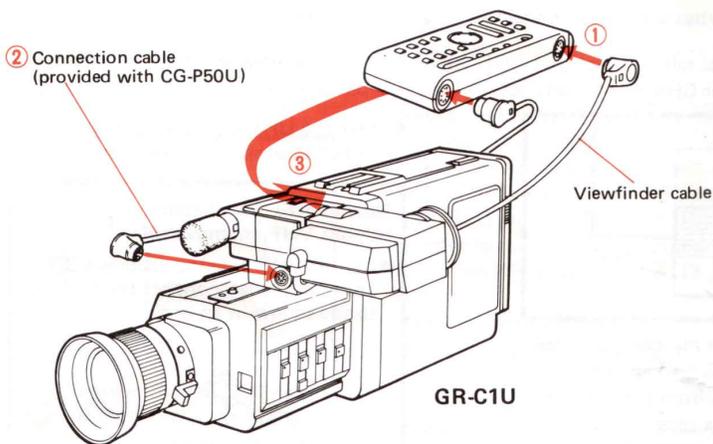


Plug the remote control cable into the REMOTE connector.

2 While holding the REC button pressed, press the PLAY button to engage the Recording Standby mode.

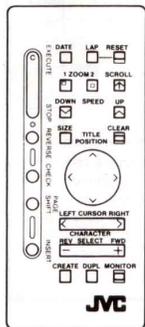
3 To start recording, set the remote control's switch to REC; to stop temporarily, set it to PAUSE.

CHARACTER GENERATOR CG-P50U (optional)



Mounting the character generator

- ① Connect the viewfinder cable to the character generator.
- ② Connect the character generator to the viewfinder cable connector (VF).
- ③ Slide the character generator into the accessory shoe.



The separately available character generator enables you to superimpose the date, titles and lap time on your recordings. Record dates as a reminder of the exact day a certain memorable event took place. Compose creative titles to give tapes more personality. Superimposing the lap time on some sports or action scenes can add extra drama to their viewing. Various techniques are possible to introduce more variety to your video productions as shown on the right.

Contents

46 available characters

Different character sizes

Display capacity per page

Up to 60 characters
(12 characters x 5 lines)

Flexible title positioning

Up/down scrolling

Zooming from corner

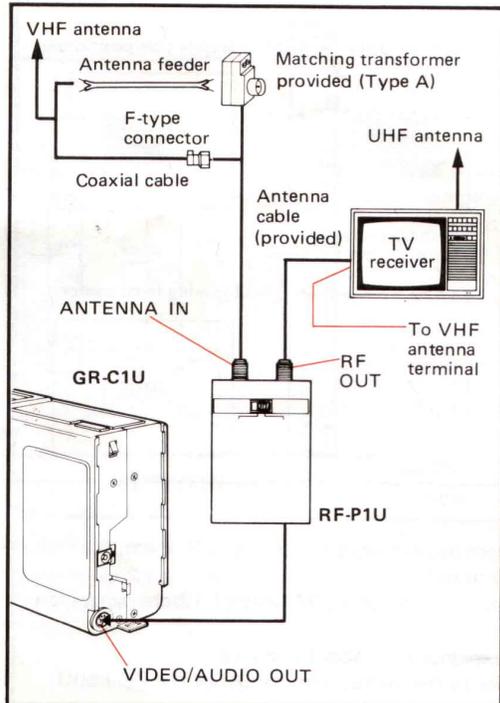
Zooming from center

- Twelve different pages are available for titling. (Of them, four can be used for zooming titles.)
- Two scroll pages, each storing up to 37 lines of 12 characters, are also available for titling.
- Titles can be held in memory for about one year.
- For more details refer to the instruction manual of the CG-P50U.

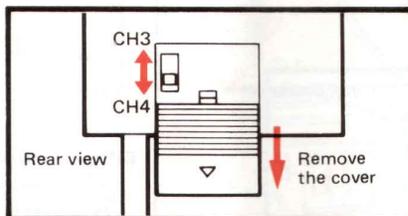
CONNECTION TO A TELEVISION

The **GR-C1U** includes playback circuits and allows playback of pre-recorded cassettes simply by connecting to a television set.

- 1** Connection to a television not equipped with audio/video input connectors
For this situation, use the RF-P1U RF unit (provided).



- 1** Set the output channel select switch of the RF-P1U to CH3 or CH4.



- The RF unit permits playback of video and audio recordings through a TV receiver. The signals from the RF unit are viewed through a vacant channel not used for broadcasting in your area.
- The RF unit has been set to CH3 prior to shipment. Reset the channel to CH4 (using a screwdriver) in areas where channel 3 is employed for broadcasting.
- This is YOUR video channel. To view video cassettes, always set the TV channel selector to either channel 3 or 4.

PRECAUTIONS FOR RF-P1U

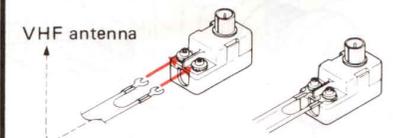
- For exclusive use with the GR-C1U Video-Movie.
- Do not disassemble or remodel the RF-P1U.
- Do not expose it to strong shocks.
- Unplug the connected equipment during lightning storms.
(Never touch the antenna cable.)

- 2** Remove the VHF antenna cable from the TV receiver.

- Leave the UHF antenna cable connected to the TV receiver.

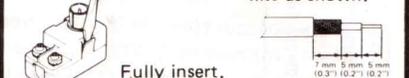
How to affix the matching transformer to your VHF antenna cable

- If your VHF antenna cable is a 300-ohm flat feeder, connect the two lugs to the screws in an ordinary manner.



- If your VHF antenna cable is a 75-ohm coaxial cable, proceed as follows:

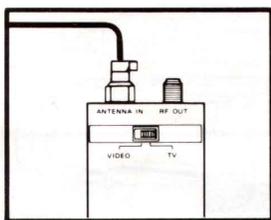
- 1 Prize open the cover with a screwdriver or the like.
- 2 Strip the coaxial cable with a pair of wire strippers, a knife, or the like as shown.



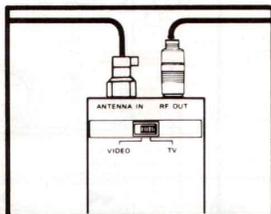
- 3 Insert the stripped end of the cable as shown.

- 4 Replace the cover.
Secure by clamping the metal tightly with a pair of pliers.

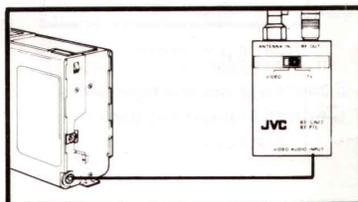
- 3** Connect the VHF antenna cable to the ANTENNA IN terminal of the RF unit.



- 4** Connect the RF OUT terminal of the RF unit to the VHF antenna terminal of the TV receiver using the provided antenna cable.



- 5** Connect the VIDEO/AUDIO INPUT cable of the RF unit to the VIDEO/AUDIO OUT connector of the GR-C1U.



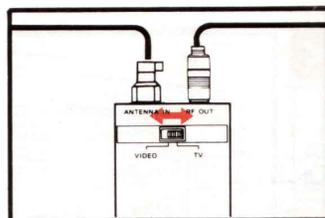
OPERATION

Viewing video cassettes being played back with the GR-C1U

To view video cassettes or to monitor the recording, set the VIDEO/TV switch of the RF unit to VIDEO and the TV channel selector to the channel corresponding to the RF output channel (3 or 4).

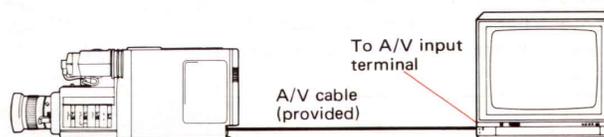
Viewing television programs

Set the VIDEO/TV switch to TV, and the TV receiver will function as usual.



2 Connection to a television equipped with audio/video input connectors

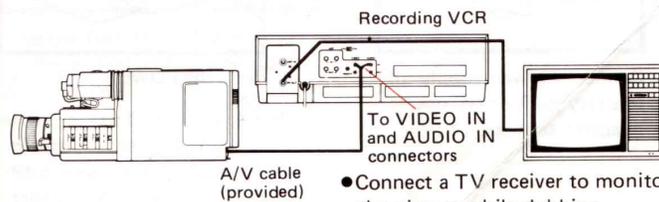
Simply connect the VIDEO/AUDIO OUT connector of the GR-C1U to the VIDEO and AUDIO IN connectors of the television using the provided A/V cable.



- The provided A/V cable can be extended by 5 m (16 ft) with the optional VC-P1U A/V extension cable.

3 Connection to a video recorder for dubbing

Connect the VIDEO/AUDIO OUT connector of the GR-C1U to the VIDEO and AUDIO IN connectors of the video recorder. Put the GR-C1U in the Play mode and the connected recorder in the Record mode to copy the recording.



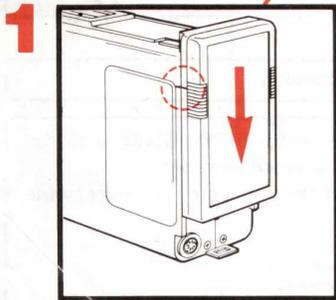
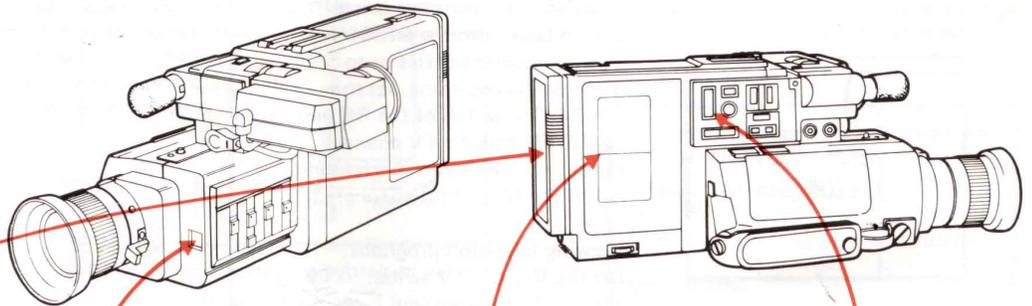
- Connect a TV receiver to monitor the picture while dubbing.

PLAYBACK

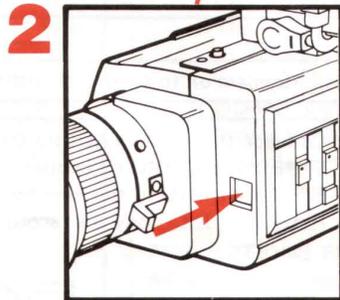
The GR-C1U permits playback of recorded VHS-C video cassettes.

Preparations

- With a television equipped with audio/video input connectors, set the television's VIDEO/TV switch to VIDEO.
- With a regular television receiver, set the antenna select switch of the RF-P1U RF unit to VIDEO and the TV receiver's channel selector to your video channel (3 or 4).



Connect a power supply unit.
(Battery pack or AC power adapter: see page 14.)

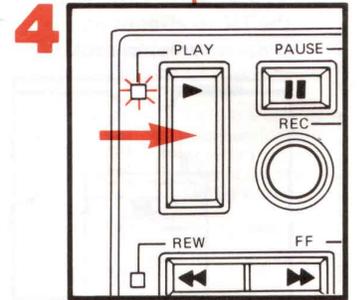


Press the POWER button to ON.



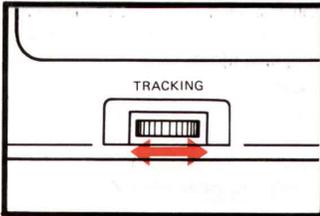
Insert a pre-recorded cassette.

First remove tape slack,
then insert the cassette
correctly.



Press the PLAY button.
Playback will start.

- When the end of the tape is reached during playback, the Rewind mode engages automatically.



Tracking adjustment

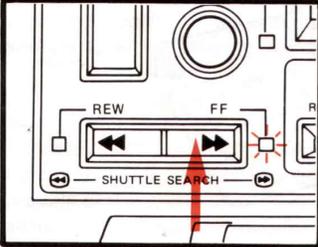
If noise bars appear on the screen, adjust the TRACKING control. Turn it slowly in either direction to minimize noise bars. After playing a particular tape, return the TRACKING control to the center position.



Shuttle Search

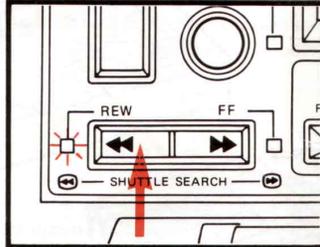
Still playback

Fast-speed playback in the forward direction

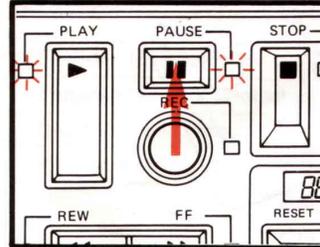


Press the FF button in the Play mode.
The picture will be speeded up to 3 times normal speed while the button is being pressed.

Fast-speed reverse playback



Press the REW button in the Play mode.
The tape will be played back in the reverse direction at a speed 3 times normal while the button is being pressed.



Press the PAUSE button during playback. The picture will stop on the screen.

- After about 5 minutes of still playback, the unit enters the Stop mode automatically for tape protection.

Notes

- Noise may appear on the screen during Shuttle Search and still playback. This is not due to any defect of the unit.
- Noise may appear and remain for a few seconds when the mode is switched from Shuttle Search to normal playback.

OPTIONAL CASSETTE ADAPTERS

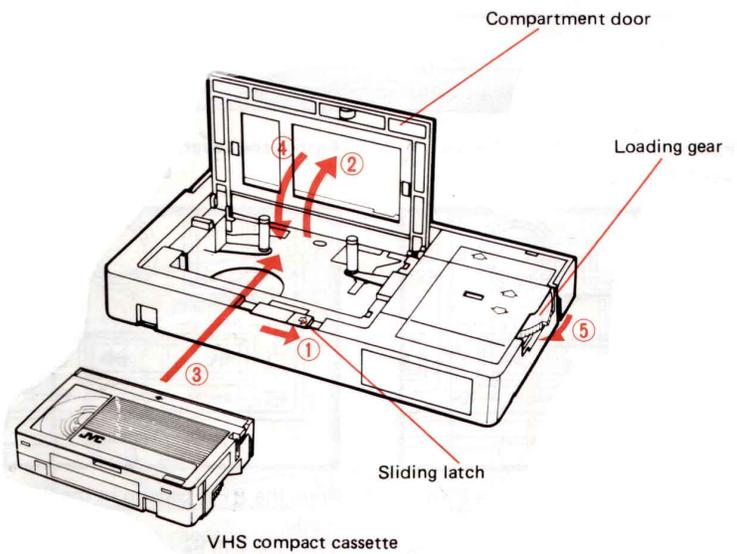
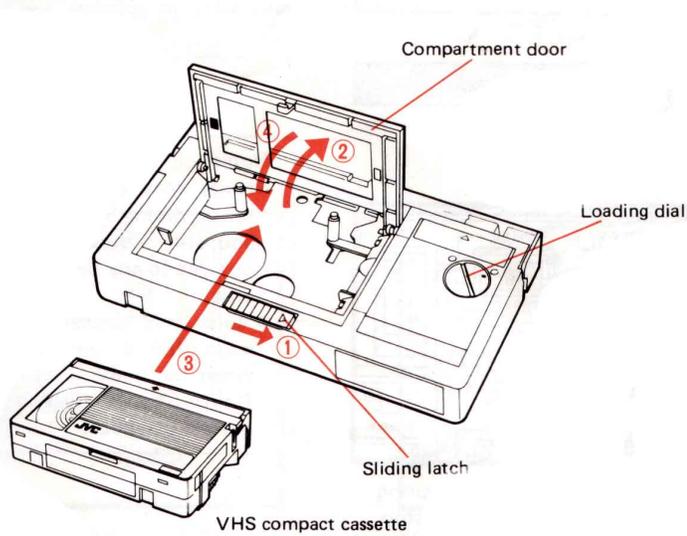
The VHS compact video cassettes recorded with the **GR-C1U** can be played back with a standard VHS machine by using the optional C-P3U or C-P2U cassette adapter.

(Compact video cassettes installed in the cassette adapter is fully compatible with a standard VHS machine for both recording and playback.)

- **C-P3U Cassette adapter**

Being battery-operated, the C-P3U performs tape loading and unloading automatically.

- **C-P2U Cassette adapter**



For more details refer to the instruction manual of the relevant model.

SUPPLEMENTAL INFORMATION

What is "color temperature"?

Light is composed of various color components in different proportions. A relationship exists between the temperature of a light source and the color components of the emitted light; as the temperature rises, the color of the light varies from red, orange, yellow, white to blue in that order. "Color temperature" is a value that expresses differences in color among light sources, measured in Kelvin degrees. Bluish light has a higher color temperature than reddish light.

What is "white balance"?

Making the colors look natural on TV is what white balance is all about. Because a camera is not as adaptable as the human eye, if a light source is reddish, white subjects in that light are recorded as reddish. White balance adjustment is performed to compensate for color temperature variations of light so that whites are reproduced as white. Correct white balance makes all other colors correct. The **GR-C1U** can perform automatic white balance adjustment with just the press of a button. However, if illumination is insufficient, white balance adjustment cannot be performed. To obtain correct colors, therefore, sufficient illumination is essential.

What is "illuminance"?

"Illuminance" (also called 'luminance') is the intensity or brightness of light, expressed in lux or foot-candles (fc). The **GR-C1U** is designed to provide best pictures under the conditions of a 700-lux (67 fc) illuminance, although shooting is possible all the way down to 15 lux (1.4 fc) with the SENSITIVITY switch in the UP position. To obtain good pictures in very bright light, the use of an ND (neutral density) filter is recommended. (See chart on next page.)

How to get good color pictures

The simplest way is to provide sufficient lighting (close to the camera's reference illuminance) and accurately adjust the camera to the color temperature of that lighting. If light sources of different color temperatures are used together, accurate white balance adjustment is very difficult. For example, if natural light is mixed with artificial light, which is likely to occur next to windows, correct colors of the subject are difficult to obtain. It is recommended in such cases that curtains in the room be closed to shut out light from outside. Also, when artificial lighting devices are used, they should all have the same color temperature. For example, it is recommended that incandescent or halogen lamps not be used together with fluorescent lighting.

Color temperatures of various artificial lighting

| Type of illumination | Color temperature | |
|------------------------------------|-------------------|--------|
| Tungsten lamp for home use | 2800 K | |
| Tungsten lamp for photographic use | 3200 K | |
| Quartz-halogen lamp | | |
| Blue lamp for photographic use | 5000 K | |
| Fluorescent lamp | Warm white | 3500 K |
| | White | 4500 K |
| | Daylight type | 6500 K |

Illuminance chart

- The values on this chart are approximated to give you a rough reference.

| ND filter desired | Unit: Lux (fc) | |
|--------------------|--------------------------------|---|
| | 100,000 (9,300) | <ul style="list-style-type: none"> • Clear sky, mid-day, under sunlight (100,000/9,300) • Clear sky (10:00 a.m.) under sunlight (65,000/6,045)  |
| | 10,000 (930) | <ul style="list-style-type: none"> • Clear sky (3:00 p.m.) under sunlight (35,000/3,255) • Cloudy sky (mid-day) under sunlight (32,000/2,976) • Cloudy sky (10:00 a.m.) under sunlight (25,000/2,325)  |
| | 2,000(190) | <ul style="list-style-type: none"> • By the window during the afternoon (3,500/324) |
| | 1,000(94) | <ul style="list-style-type: none"> • Cloudy sky (one hour after sunrise) (2,000/190) • Clear sky (one hour before sunset) (1,000/94)  |
| | 600(55) | <ul style="list-style-type: none"> • Counters at department stores (500 – 700/47 – 66) |
| | 500(47) | <ul style="list-style-type: none"> • Bowling center (500/47) • Office under fluorescent light (400 – 500/37 – 47) • Library (400 – 500/37 – 47) • Direct light of a flashlight at 1 m (3 ft) distance (250/22.7) |
| | 100(9) | <ul style="list-style-type: none"> • Streetlights at night (150 – 200/13.5 – 18) |
| | 80(7.3) | |
| | 15(1.4) | <ul style="list-style-type: none"> • Cigarette lighter (at a distance of 30 cm/11.8 in) (15/1.4)  |
| | 10(1) | <ul style="list-style-type: none"> • Candlelight (at a distance of 20 cm/7.9 in) (10 – 15/1 – 1.4) |
| Lighting necessary | Minimum lighting for an object | |

IN CASE OF DIFFICULTY

What may initially appear to be trouble is not always a real problem. Make sure first . . .

| Symptoms | Check points |
|---|---|
| Power | |
| No power is supplied. | <ul style="list-style-type: none"> ● Is the battery pack correctly installed? ● Is the battery pack charged? ● Is the power supply unit correctly connected? ● Is the POWER switch of the connected AC adapter set to ON? |
| Recording | |
| Recording is impossible. | <ul style="list-style-type: none"> ● Check to see if the cassette safety tab is in place. See page 5. |
| Picture colors greatly differ from actual subject colors. | <ul style="list-style-type: none"> ● Have you set the FILTER switch correctly? ● Have you moved to a different location after adjusting white balance? ● Or have you shot after 3 hours have elapsed from the last white balance adjustment? If so, readjust white balance. ● Have you shot with the WHITE BALANCE switch set to STD under mixed lighting or a cloudy sky? If so, adjust white balance. |
| White balance adjustment is not possible. | <ul style="list-style-type: none"> ● Have you aimed the lens at a white object? ● Have you set the FILTER switch correctly first? ● Is the exposure indicator line in the viewfinder lower than the center position? If so, increase lighting. |
| Halation or black-out occurs. | <ul style="list-style-type: none"> ● Check whether the IRIS control has accidentally moved out of the STD position. ● Have you shot with the IRIS LOCK button pressed? Use this button only for special purposes. |
| No sound is recorded with an external microphone. | <ul style="list-style-type: none"> ● Is the microphone's switch set to ON? |

| Symptoms | Check points |
|--|--|
| Recording does not start even when the white line on the viewfinder screen reduces in size. | <ul style="list-style-type: none"> ● Have you pressed the REC and PLAY buttons? If only the REC button is pressed, recording does not take place. |
| Playback | |
| Tape is running, but no playback picture appears. | <ul style="list-style-type: none"> ● Is the VIDEO/TV switch of the RF unit set to VIDEO? ● Is the TV receiver set to channel 3 or 4? ● If A/V connection is used, is the TV's VIDEO/TV switch set to VIDEO? |
| Noise bars appear in the playback picture. Playback picture is blurred or interrupted while TV-programs received are clear. | <ul style="list-style-type: none"> ● Use the TRACKING control to reduce noise bars. ● Video heads may be dirty or worn out. For head cleaning or replacement, consult the nearest JVC Service Dealer. |
| Tape transport | |
| Tape stops during fast forward or rewind. | <ul style="list-style-type: none"> ● Is the "M" indication visible in the tape counter? If so, press the MEMORY button to cancel the memory function. |
| Rewinding or fast forwarding is impossible. | <ul style="list-style-type: none"> ● Check to see if the tape has already been fully wound on one reel or the other. |
| Other | |
| No function is available with more than two mode indicators lit. | <ul style="list-style-type: none"> ● If this should happen when using power supply units other than the battery pack, turn their POWER switch on and off. With a battery pack, replace it with another charged one. |

The GR-C1U is a microcomputer-controlled device. External noise and interference might prevent it from functioning properly. In such cases, first disconnect its power supply unit (battery pack, AC power adapter, etc.); and then reconnect it and proceed as usual from the beginning.

SPECIFICATIONS

| | | | | | |
|------------------------|--|----------------------------------|---|------------|--|
| Format | : VHS standard | Pickup tube | : 1/2" High-Band Saticon*, single-carrier frequency separation system | Dimensions | : 108(W) x 136(H) x 314(D) mm (4-5/16" x 5-3/8" x 12-3/8") (excl. viewfinder, lens hood and battery pack) |
| Power source | : DC 9.6 V --- | Minimum required illumination | : 15 lux (1.4 fc) (at f/1.2 with sensitivity switch set to UP) | | |
| Power consumption | : 8.9 watts (7.6 watts, nominal in the record mode) | Illumination range | : 15 – 100,000 lux (1.4 – 9300 fc) (auto iris mode with sensitivity switch set to UP) | | |
| Signal system | : NTSC | Lens | : f/1.2, f = 8 – 48 mm, 6X power zoom lens with auto iris control and macro position, filter diameter 49 mm | | |
| Recording system | : Luminance: FM recording Color: Converted sub- carrier direct recording Conforms to VHS standard | Viewfinder | : Electronic viewfinder with 1/2" black/white CRT | | |
| Cassette | : VHS-C cassette | Color temperature | : Switchable filter switching (3,200 K/5,200 K) | | |
| Tape speed | : 33.35 mm/sec (1-5/16 ips) | White balance | : Automatic/preset adjustment standard | | |
| Recording time Max. | : 20 minutes (with TC-20 cassette) | Operating tempera- ture | : 0°C to +40°C (32°F to 104°F) | | |
| VIDEO | | Operating humidity | : Less than 80 % | | |
| Output | : 1 Vp-p, 75 ohms, unbalanced (via VIDEO/ AUDIO OUT connector) | Storage temperature | : -20°C to +50°C (-4°F to 122°F) | | |
| S/N ratio | : 40 dB (with Rohde & Schwarz noise meter) | Weight | : 1.9 kg (4.3 lbs) (with viewfinder) | | |
| AUDIO | | | | | |
| Output | : -6 dBs, 1 k-ohm (via VIDEO/AUDIO OUT connector) | | | | |
| Microphone input | : -68 dBs, 10 k-ohms, unbalanced | | | | |

BB-P1U SPECIFICATIONS

| | |
|-------------------|--|
| Charging system | : Constant current, peak detection, timer controlled |
| Power supply | : AC 120 – 240 V [~] , 50/60 Hz |
| Power consumption | : 20 watts |
| Dimensions | : 57(W) x 67(H) x 156(D) mm (2-1/4" x 2-11/16" x 6-3/16") |
| Weight | : Approx. 465 g (1.1 lbs) |

RF-P1U SPECIFICATIONS

| | |
|-------------------------|---|
| VHF output channel | : Channel 3 or 4 (switchable) |
| Initial channel setting | : Channel 3 |
| Power source | : DC 8 V $\overline{\text{---}}$ 20 mA (from VideoMovie) |
| Dimensions | : 55(W) x 93(H) x 24(D) mm excl. cable (2-3/16" x 3-11/16" x 1") |
| Cable length | : 2.5 m (8 ft) |
| Weight | : Approx. 160 g (5.6 oz) |

Provided accessories

- Regular battery pack (0.5 AH) NB-P5U
- Carrying handle
- Battery charger BB-P1U
- RF unit RF-P1U
- Antenna cable
- Matching transformer
- A/V cable
- Compact video cassette TC-20
- Electronic viewfinder VF-P1U
- Lens hood
- Lens cap
- Exclusive microphone

Optional accessories

- Regular battery pack (0.5 AH) NB-P5U
- High-capacity battery pack (0.7 AH) NB-P6U
- Battery charger BB-P1U
- AC power adapter AA-P1U
- Car battery cord AP-P1U
- Cassette adapter C-P2U
- Cassette adapter C-P3U (motorized)
- Compact video cassette TC-20
- Shoulder frame SF-P1U
- Carrying case CB-P1U
- Remote control unit RM-P1U
- A/V extension cable VC-P1U
- Character generator CG-P50U

*Saticon is a registered trademark.

Design and specifications subject to change without notice.