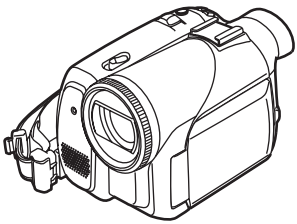
Panasonic

使用說明書
Operating Instructions



數位攝錄放影機
Digital Video Camera

Model No. **NV-GS75GC**

Mini DV PAL

使用前，請仔細閱讀本說明書。
Before use, please read these instructions completely.

SD

HI-SPEED CERTIFIED USB

PictBridge

VQT0N58

安全注意事項

由於本設備使用時會變熱，請在空氣流通的地方進行操作，不要將此設備安置在狹窄的空間內，例如書櫃或類似的地方。

若想降低火災、電擊或產品損壞的危險，請勿將本設備暴露於雨中、潮濕、滴水或濺水的環境中，並確保勿將盛滿液體的物體 (如花瓶) 放在本設備上。

AC 適配器

- **標牌位于 AC 適配器的下面。**

■ 請仔細閱讀使用說明書並正確使用攝像機。

- **由於未按照使用說明書中說明的操作步驟進行操作，而導致的損害或材料的損壞僅由用戶負責。**

試用攝像機

在記錄首個重要事件前，首先要試用一下攝像機，以保證其錄製性能與各種功能能夠正常使用。

製造商對於錄製內容的損失不承擔任何責任。

製造商對於因攝像機、其附件或錄影帶的故障或缺陷造成的任何損失概不負責。

請嚴格遵守版權法。

若非個人使用，複製先期錄製的錄影帶、磁碟、其他出版物或播放材料都侵犯版權法。即使是個人使用，也嚴禁複製某些特定的材料。

- 攝像機使用了版權保護技術，並且被日本和美國的專利技術和知識產權所保護。要想使用這些版權保護技術，必須得到 Macrovision 公司的授權。禁止分解或改裝攝像機。

- Windows 是美國 Microsoft 公司的商標或註冊商標。
- SD 徽標是商標。
- 使用說明書中的所有其他公司和產品名稱都是各個公司的商標或註冊商標。

錄製在 SD 記憶卡上的檔案

本攝像機可能無法回放由其他設備錄製和創建的檔案，反之亦然。爲此，請預先檢查設備的相容性。

- 讓記憶卡遠離兒童的接觸範圍，以防止兒童吞服。

參照頁

參照頁頁碼的兩側標有短划線，例如： ***-00-***

菜單操作流程用 >> 表示。

■ 警告

內請勿卸下機身的前蓋 (或後蓋)； 機身內沒有用戶可維修的部件。
請勿卸下機身的前蓋 (或後蓋)； 機身內沒有用戶可維修的部件。
需要維修時，請聯係授權的維修人員。

請僅使用推薦的附件。

電源插座應當安置在本設備附近，並便於連接，或者電源插頭或電器耦合器保持在隨時可以使用的狀態。

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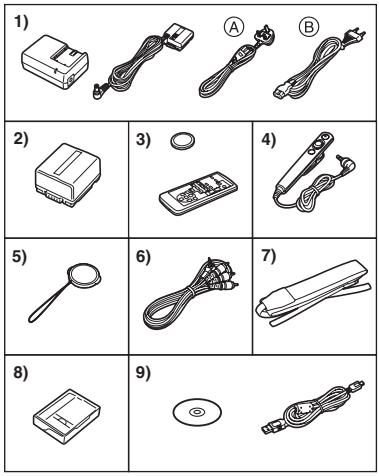
使用之前

附件

隨本攝錄放影機共有下列附件一起提供。



1) AC 適配器、DC 輸入線、AC 電源線 *-8-*
Ⓐ 中華人民共和國香港特別行政區以及沙烏地阿拉伯
Ⓑ 中華人民共和國香港特別行政區以及沙烏地阿拉伯以外的其他地區
2) 電池組 *-8-*
3) 遙控器、鈕扣型電池 *-14-*
4) 自由式遙控器*-15-*
5) 鏡頭蓋 *-6-*
6) AV 電纜 *-30-*
7) 肩背帶 *-6-*
8) 數位視頻頭清潔器 *-41-*
9) USB 電纜和 CD-ROM *-32-*

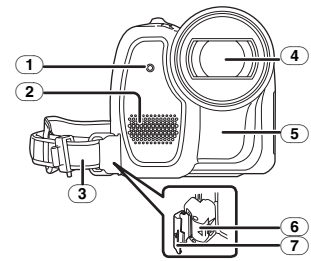
可選件

1) AC 適配器 (VW-AD11E/EB)
2) 電池組 (鋰電池 /CGR-DU06/640mAh)
3) 電池組 (鋰電池 /CGA-DU07/680mAh)
4) 電池組 (鋰電池 /CGA-DU12/1150mAh)
5) 電池組 (鋰電池 /CGA-DU14/1360mAh)
6) 電池組 (鋰電池 /CGA-DU21/2040mAh)
7) 廣角轉換鏡頭 (VW-LW3707M3E)
8) 長焦轉換鏡頭 (VW-LT3714M2E)
9) 濾光鏡組件 (VW-LF37WE)
10) 直流視頻照明 (VW-LDC10E)
11) 燈泡 (VZ-LL10E)
12) 直流視頻照明的立體聲麥克風 (VW-VMS2E)
13) 三腳架 (VW-CT45E)
14) DV 電纜 (VW-CD1E)
15) 防護袋 (VW-SJ05E)

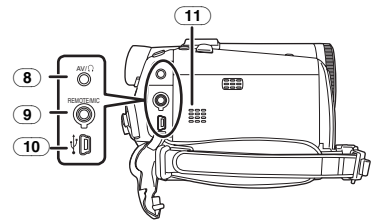
● 在某些國家和地區有些附件可能無法使用。

部件的識別和操作

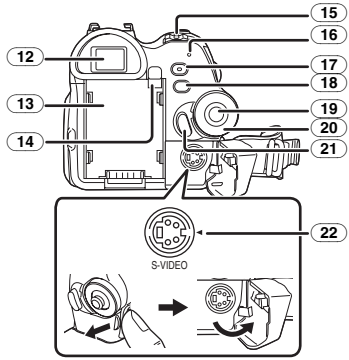
■ 攝錄放影機



(1) **拍攝燈** *-35-*
(2) **麥克風 (內置、立體聲)** *-19-*、*-21-*
(3) **手柄帶 (單觸自由式手柄帶)** *-6-*
(4) **鏡頭**
(5) **白平衡感測器** *-24-*
遙控感測器 *-15-*
(6) **鎖止鍵** *-6-*
(7) **鎖止蓋** *-6-*



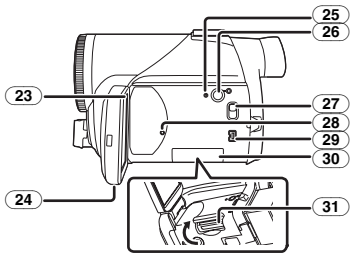
(8) **音頻視頻輸出端子 [AV]** *-30-*
● 僅使用提供的 AV 電纜或耳機，否則可能不能正常播放聲音。
耳機端子 [🎧]
(9) **自由式遙控器的端子 [REMOTE]** *-15-*
麥克風的端子 [MIC]
● 相容插入式供電的麥克風，可以作爲外置麥克風使用。
● 當攝錄放影機與 AC 適配器連接時，根據麥克風的類型，有時會聽到噪音。在這種情況下，請轉換爲電池供電，噪音將停止。
(10) **USB 端子 [Ψ]** *-32-*
(11) **揚聲器** *-26-*



(12) **取景器** *-7-*、*-43-*

由於 LCD 生產技術的限制，在取景器熒屏上可能會有一些微小的亮點或者暗點。但這不是故障，不影響拍攝的圖片。

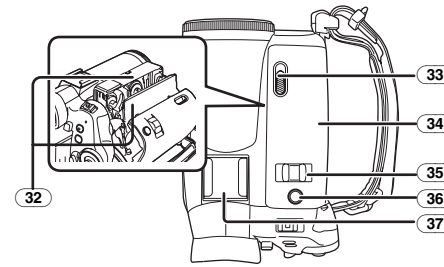
(13) **電池座**
(14) **電池彈出鍵 [PUSH BATT]** *-8-*
(15) **電源開關 [OFF/ON]** *-10-*
(16) **電源指示燈** *-10-*
(17) **快速啓動拍攝鍵 [QUICK START]** *-19-*
快速啓動拍攝指示燈 *-19-*
(18) **菜單鍵 [MENU]** *-12-*
(19) **控制桿** *-11-*
(20) **模式轉盤** *-11-*
(21) **拍攝啓動 / 停止鍵** *-17-*
(22) **S 視頻輸出端子 [S-VIDEO]** *-27-*



(23) **LCD 顯示屏** *-7-*、*-43-*

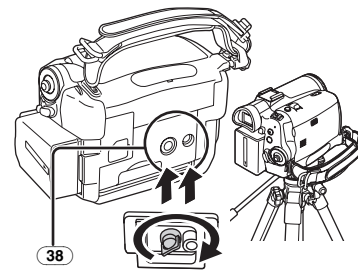
由於 LCD 生產技術的限制，在 LCD 顯示屏熒屏上可能會有一些微小的亮點或者暗點。但這不是故障，不影響拍攝的圖片。

(24) **LCD 顯示屏打開部分 [OPEN]** *-7-*
(25) **重置鍵 [RESET]** *-37-*
(26) **LCD 電源鍵 [POWER LCD]** *-14-*
LCD 電源指示燈 *-14-*
(27) **模式選擇開關 [AUTO/MANUAL/FOCUS]** *-16-*、*-23-*、*-25-*
(28) **記憶卡存取指示燈** *-10-*
(29) **DV 端子 [DV]** *-30-*
(30) **記憶卡插槽蓋** *-10-*
(31) **記憶卡插槽** *-10-*



(32) **錄影帶盒倉** *-9-*
(33) **錄影帶彈出桿 [OPEN/EJECT]** *-9-*
(34) **錄影帶倉蓋** *-9-*
(35) **變焦桿 [W/T]** *-18-*
音量桿 [−/VOL+] *-26-*
(36) **拍照鍵 [PHOTO SHOT]** *-17-*
(37) **附件座**

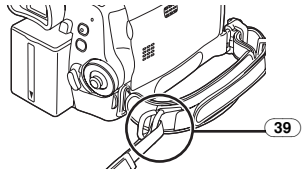
- 一些附件，如立體聲麥克風 (VW-VMS2E；可選件) 安裝在這個地方。



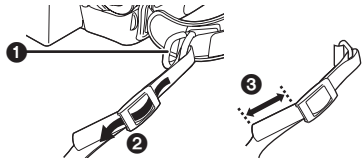
(38) **三腳架座**

這是一個孔眼，用於把攝錄放影機安裝到可選的三腳架 /VW-CT45E 上。(關於如何把三腳架安裝到攝錄放影機上，請仔細閱讀使用說明書。)

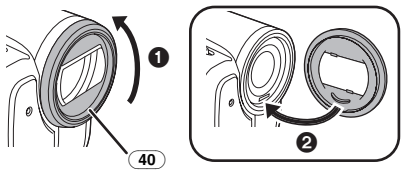
- 在使用三腳架時，如果從自由式遙控器操作攝錄放影機會比較方便。(在不使用遙控器時，把夾子別到手柄帶上會很方便。當您帶著裝在口袋裏的遙控器等移動時，請小心不要使攝錄放影機從三腳架上跌落。)
- 當使用三腳架時不能打開記憶卡插槽蓋。請先插入記憶卡，然後再安裝三腳架。



(39) 肩背帶固定器



- 把肩背帶穿過固定器 ❶，並使其穿過止動夾 ❷，如此帶子將不會脫落。往外拉伸 ❸ 至少 2 cm。
- 同樣把肩背帶的另一頭也安裝好。



(40) 鏡頭遮光罩

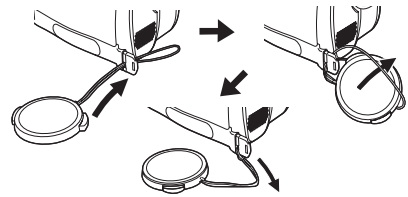
要想卸下鏡頭遮光罩，請朝逆時針方向轉動 ❶。若想把它安裝上去，請裝到插口 ❷ 內，然後再朝順時針方向轉動鏡頭遮光罩。

- 在鏡頭遮光罩前安裝濾光鏡組件 (VW-LF37WE；可選件) 中的 MC 保護鏡或 ND 濾鏡。不能把其他的附件安裝到遮光罩上。(鏡頭蓋除外)
- 當安裝長焦轉換鏡頭 (VW-LT3714M2E；可選件) 或廣角轉換鏡頭 (VW-LW3707M3E；可選件) 時，應當首先卸下鏡頭遮光罩。
- 如果把 2 個鏡頭附件，如 ND 濾鏡和長焦轉換鏡頭安裝上去，並且把 [W/T] 桿壓向 [W] 方向時，影像的四個角就會變暗。(暈影)

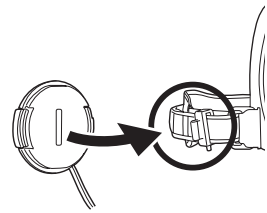
安裝鏡頭蓋

安裝鏡頭蓋以保護鏡頭的表面。
當在鏡頭遮光罩前面安裝了濾光鏡組件 (VW-LF37WE；可選件) 的 MC 保護鏡或 ND 濾鏡時，如果不使用攝錄放影機，請蓋上鏡頭蓋以保護鏡頭表面。

1 取下手柄帶。把鏡頭蓋吊帶的一端穿過手柄帶安裝部分上的小孔，然後把鏡頭蓋穿過鏡頭蓋吊帶。



- 取下的鏡頭蓋可以挂在鏡頭蓋固定器上。(如果手柄帶作爲手挂帶使用時，它就不能挂在上面。)



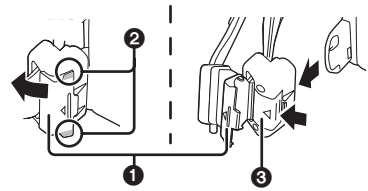
- 要安上或者取下鏡頭蓋，可以用兩個手指指尖捏住鏡頭蓋的兩端。

單觸自由式手柄帶

■ 用作手挂帶

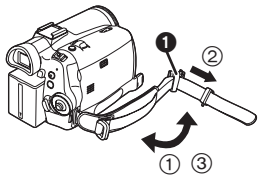
如果將手柄帶作爲手挂帶來使用，就可以更加容易地攜帶或操作攝錄放影機。

1 捏住兩側的突出點 ❷ ，打開鎖止蓋 ❶。按壓鎖止鍵 ❸ 取下手柄帶。



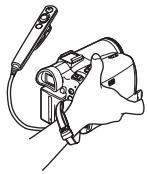
- 在取下手柄帶時，請用兩手緊緊握住攝錄放影機。
- 在卸下手柄帶後，把鎖止蓋恢復到原來的位置上。

2 調整手柄帶的長度



① 翻轉帶子。
② 朝箭頭所示的方向滑動 ❶。
③ 固定住帶子。

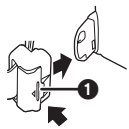
3 將手穿過手挂帶。



- 使用自由式遙控器，可以更方便地操作。
- 握持攝錄放影機時不要用手擋住麥克風或感測器。

■ 把手挂帶恢復爲手柄帶

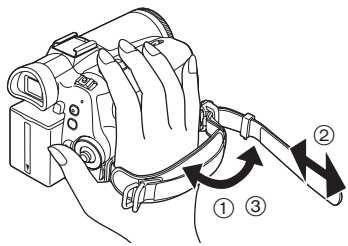
- 把手挂帶恢復到手柄帶固定部分時，按壓鎖止蓋 ❶，並檢查手柄帶是否被牢牢鎖住。



■ 作爲手柄帶使用

調整爲適合于您手的長度。

1 調整帶子的長度和襯墊的位置。

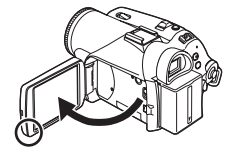


① 翻轉帶子。
② 調整帶子的長度。
③ 固定住帶子。

使用 LCD 顯示屏

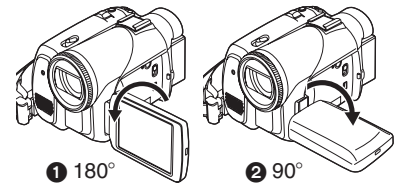
可以在打開的 LCD 顯示屏上一邊觀看影像，一邊進行拍攝 。

1 將手指放到 LCD 顯示屏的打開部位，並朝箭頭所示方向往外拉出 LCD 顯示屏。



- 取景器將關閉。
- 它能打開至 90°。

2 調整 LCD 顯示屏的角度，達到您滿意的程度。



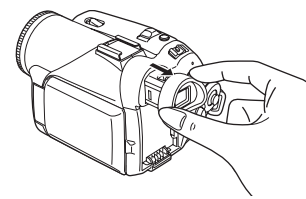
- 它能朝鏡頭方向轉動 180° ❶ 或者朝取景器方向轉動 90° ❷。

- 可以從菜單調整 LCD 顯示屏的亮度和色彩級別。
- 如果強力打開或轉動 LCD 顯示屏，攝錄放影機可能會被損壞或造成故障。
- 檢查記憶卡插槽蓋是否已經關上。
- 當LCD顯示屏朝鏡頭方向轉動180°(進行自拍時)，LCD 顯示屏和取景器會同時。

使用取景器

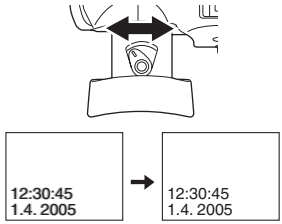
■ 拉伸出取景器

1 拉出取景器，並捏住延長的凸起部分，把取景器拉出。



■ 調整視野

1 滑動目鏡校正器的旋鈕調整焦距。



●可以從菜單調整取景器的亮度。

電源

■ 電池的充電

當您買到本產品時，電池是未充電的。在使用本產品前，請先給電池充電。

●電池的充電時間 **(-9-)**

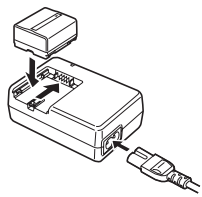
●我們建議使用松下的電池。

●如果使用了其他品牌的電池，我們不能保證本產品的質量。

●如果 DC 輸入線被連接到 AC 適配器，則電池將不能被充電。從 AC 適配器上取下 DC 輸入線。

1 把 AC 電源線連接到 AC 適配器和 AC 電源插座。

2 對准標記把電池放到電池安裝座上，然後再把電源插頭牢牢地插進去。



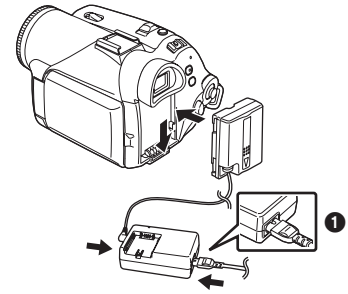
■ 充電指示燈

點亮： 充電正在進行

熄滅： 充電已經完成

閃爍： 電池過放電 (過度放電)。稍等片刻，指示燈將會點亮，開始正常充電。
當電池的溫度過高或過低時，[CHARGE] 指示燈閃爍，電池的充電時間將比正常的充電的時間要長一些。

■ 連接到 AC 電源插座



1 把 AC 電源線連接到 AC 適配器和 AC 電源插座。

2 把 DC 輸入線連接到 AC 適配器。

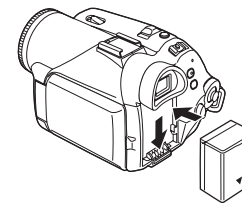
3 把 DC 輸入線連接到本產品上。

●AC 電源線的輸出插頭不能完全插入 AC 適配器的插口內。如圖 ❶ 所示，有一個空隙。

●由於電源線是專爲攝錄放影機設計的，不要在其他設備上使用本電源線。或者不要在本攝錄放影機上使用其他設備的電源線。

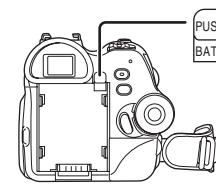
■ 裝入電池

把電池頂靠在電池座上，並滑動電池，直到發出哢噠一聲。



■ 取下電池

在推動 [PUSH BATT] 鍵的同時，滑動電池 (或 DC 輸入線)，把其取下。



●請用手握住電池，以防掉到地上。

充電時間和可拍攝時間

下表所列出的時間爲在 25°C 的溫度下和 60% 的濕度下的時間。該表謹作爲指導。如果溫度高於或低於規定值，則充電時間將會變長。

提供的電池 / CGA-DU12 (7.2 V/ 1150 mAh)	Ⓐ	2 h. 25 min.
	Ⓑ	2 h. 40 min. (2 h. 25 min.)
	Ⓒ	1h. 20 min. (1 h. 15 min.)
CGA-DU14 (7.2 V/ 1360 mAh)	Ⓐ	2 h. 45 min.
	Ⓑ	3 h. (2 h. 50 min.)
	Ⓒ	1h. 30 min. (1 h. 25 min.)
CGA-DU21 (7.2 V/ 2040 mAh)	Ⓐ	3 h. 55 min.
	Ⓑ	4 h. 30 min. (4 h. 15 min.)
	Ⓒ	2 h. 15 min. (2 h. 10 min.)
CGR-DU06 (7.2 V/ 640 mAh)	Ⓐ	1 h. 40 min.
	Ⓑ	1 h. 25 min. (1 h. 20 min.)
	Ⓒ	45 min. (40 min.)
CGA-DU07 (7.2 V/ 680 mAh)	Ⓐ	1 h. 30 min.
	Ⓑ	1h. 30 min. (1 h. 25 min.)
	Ⓒ	45 min. (45 min.)

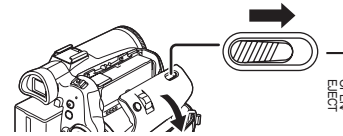
Ⓐ 充電時間
Ⓑ 最大連續可拍攝時間
Ⓒ 間斷拍攝時間
(間斷可拍攝時間指的是當拍攝和停止操作反復進行時可以拍攝的時間。)
“1h 10 min.”表示 1 小時 10 分鐘。

- 提供的電池爲 CGA-DU12 型。
- 表內所示時間只是粗略的估算。該時間是指使用取景器時的可拍攝時間。括弧內的時間是指使用 LCD 顯示屏時的可拍攝時間。
- 對於長時間的拍攝 (連續拍攝 2 小時或更長的時間，間斷拍攝 1 小時或更長的時間) 我們建議使用 CGA-DU12 型、CGA-DU14 型和 CGA-DU21 型電池組。

- 在下列情況下，可拍攝的時間將會變短：
  - 同時使用取景器和 LCD 顯示屏，並向前轉動 LCD 顯示屏進行自拍時；使用 0 勒克斯夜視功能等。
  - 當使用本攝錄放影機時，LCD 顯示屏是用 [POWER LCD] 鍵點亮的。
- 電池在使用或者充電後，會變熱。使用時攝錄放影機的主要機件也會變熱。這是正常的現象。
- 隨著電池容量的減少，其顯示將發生變化：
  → → → → 。
  如果全部放電， ( ) 將閃爍。

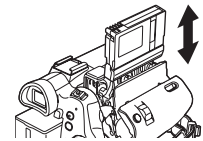
插入 / 取出錄影帶

1 滑動 [OPEN/EJECT] 桿，打開錄影帶倉蓋。



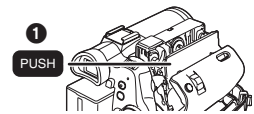
- 當倉蓋完全打開時，將露出錄影帶倉。

2 在錄影帶倉打開後，插入 / 取出錄影帶。



- 在插入錄影帶時，請按圖示方向插入，然後牢牢插入直到不能繼續前進爲止。
- 取出錄影帶時，應筆直地向外抽出。

3 按動 [PUSH] 標記 ❶ 以關閉錄影帶倉。



4 只有在錄影帶倉完全座合以後，才能關閉錄影帶倉蓋。

- 使用後，一定要把錄影帶完全倒回去，取出錄影帶，並放到錄影帶盒內。應當豎直存放錄影帶盒。(*-43-*)
- 如果在攝錄放影機的鏡頭或主要的元件上形成了水汽凝結，即使沒有顯示出水汽凝結報警，也可能在磁頭或錄影帶上已經形成了水汽凝結。此時不要打開錄影帶倉蓋。(*-41-*)

■ 當錄影帶倉不能露出時

- 完全關閉錄影帶倉蓋，然後再重新完全打開。
- 檢查電池電量是否已經耗盡。

■ 當錄影帶倉不能座合時

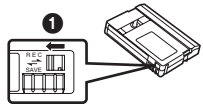
- 將 [OFF/ON] 開關設置爲 [OFF]，然後再設置爲 [ON]。
- 檢查電池電量是否已經耗盡。

■ 插入 / 取出錄影帶

- 當錄影帶倉正在運作時，不要觸動任何部分，除 [PUSH] 標記以外。
- 當插入先前已經錄製過的錄影帶時，請使用空白搜索功能找出您想繼續進行錄製的位置。如果在一個先前錄製過的錄影帶上進行覆蓋錄製，一定要找到您想繼續進行錄製的位置。
- 請關嚴錄影帶倉蓋。
- 在關閉錄影帶倉蓋時，不能讓任何物品，如電纜，捲入到倉蓋內。

■ 防止意外擦除

如果打開了錄影帶上的防止意外擦除滑塊 ❶ (朝 [SAVE] 箭頭方向滑動)，就不能在這個錄影帶上進行拍攝。當拍攝時，要關閉錄影帶的防止意外擦除滑塊 (朝 [REC] 箭頭方向滑動)。



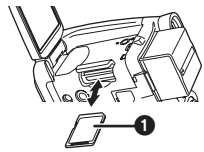
插入 / 取出記憶卡

插入 / 取出記憶卡之前，一定要把電源開關扳到 [OFF]。

- 如果在處於通電的情況下插入或者取出記憶卡時，攝錄放影機可能會發生故障，或者已錄製在記憶卡上的資料可能會丟失。

1 打開 LCD 顯示屏，然後打開 記憶卡插槽蓋。

2 向記憶卡插槽內插入 / 取出記憶卡。



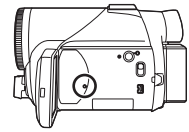
- 在插入記憶卡時，要使有標簽的一側 ❶ 朝向自己，然後把記憶卡筆直地推進去，直到不能繼續前進爲止。
- 取出記憶卡時，打開記憶卡插槽蓋，並按壓記憶卡的中心部位，然後筆直地向外抽出。

3 牢牢關上記憶卡插槽蓋。

■ 有關記憶卡

- 不要觸摸記憶卡背面的觸頭。
- 不要使用另一台攝錄放影機或者任何一台電腦對記憶卡進行格式化。這會使記憶卡無法使用。
- 電子雜訊、靜電、攝錄放影機的故障或者記憶卡的故障都能損壞或消抹記憶卡上存儲的資料。我們建議使用 USB 電纜、PC 卡適配器和 USB 讀 / 寫器將重要的資料保存到個人電腦上。

■ 記憶卡存取指示燈



- 當攝錄放影機存取記憶卡 (讀取、錄製、重播、消抹等) 時，存取指示燈點亮。
- 當存取指示燈點亮時，如果進行下列操作，則記憶卡或者已經錄製的資料可能會損壞，或者攝錄放影機可能會出現故障。
  - 打開記憶卡插槽蓋，插入 / 取出記憶卡。
  - 操作 [OFF/ON] 開關或者模式轉盤。

■ SD 記憶卡

- 在 SD 記憶卡標簽上指示出來的存儲容量，相當於用於保護和管理版權以及可以作爲常規內存供攝錄放影機、個人電腦或者其他設備使用的容量的總和。

■ 有關 SD 記憶卡上的寫保護開關

- SD 記憶卡上有一個寫保護開關。如果這個開關被移到 [LOCK]，您就不能往記憶卡上寫入、消抹記憶卡上的資料或者是對它實行格式化。如果把這個開關移回到原來的位置上，就可以進行這些操作。

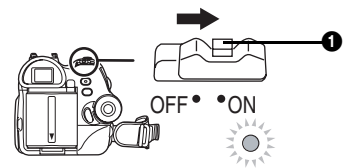
打開攝錄放影機

如果在鏡頭蓋未取下的情況下打開攝錄放影機，自動白平衡調整可能無法正常工作。請取下鏡頭蓋後，再打開攝錄放影機。

■ 接通電源的方法

1 在按動鍵 ❶ 的同時，將 [OFF/ON] 開關設置爲 [ON]。

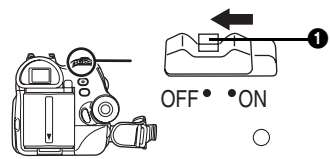
- 電源指示燈點亮。



■ 關閉電源的方法

1 在按動鍵 ❶ 的同時，將 [OFF/ON] 開關設置爲 [OFF]。

- 電源指示燈熄滅。

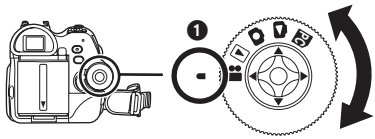


選擇模式

轉動模式轉盤選擇所需的模式。

1 轉動模式轉盤。

●將您想要的模式設置爲 ❶。



: 錄影帶拍攝模式

當在錄影帶上錄製影像時使用這個模式。(而且，當在錄影帶上錄製影像時，也可以同時在記憶卡上錄製靜態圖片。)

: 錄影帶重播模式

使用這個模式來重播錄影帶。

: 記憶卡拍攝模式

使用這個模式將靜態圖片錄製到記憶卡上。

: 圖片重播模式

使用這個模式重播已經錄製在記憶卡上的靜態圖片。

PC: PC 模式

使用這個模式，可以在您的個人電腦上觀看或者編輯已經錄在記憶卡上的影像。

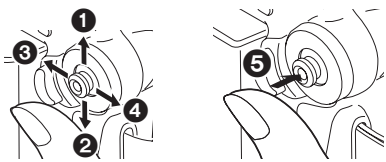
(請參見關於個人電腦連接的使用說明書。)

控制桿的使用方法

■ 控制桿的基本操作

在菜單熒幕上的操作以及在多影像顯示上對要重播檔案的選擇

上下左右移動控制桿，選擇一項或者一個檔案，然後推動中心部位進行設定。



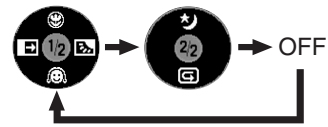
❶	向上移動選擇。
❷	向下移動選擇。
❸	向左移動選擇。
❹	向右移動選擇。
❺	推動中心部位，進行確定。

■ 控制桿和熒屏顯示

推動控制桿的中心部位，熒屏上將顯示出圖標。根據模式的不同，每推動一次顯示將如下列所示進行切換。

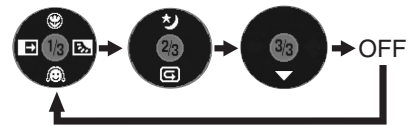
(在錄影帶重播模式或圖片重播模式中，圖標將自動顯示在熒屏上。)

1) 錄影帶拍攝模式 ([AUTO/MANUAL/FOCUS] 開關設置爲 [AUTO])



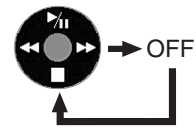
▲		長焦微距	*-20-*
▼		肌膚柔和模式	*-20-*
◀		漸變	*-21-*
▶		逆光補償	*-20-*
▲		夜視 /0 勒克斯夜視	*-20-*
▼		拍攝檢查	*-17-*

2) 錄影帶拍攝模式 ([AUTO/MANUAL/FOCUS] 開關設置爲 [MANUAL])



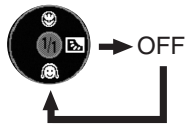
▼	▼	白平衡 快門速度 光圈或增益值	*-23-*
▶	+	選擇 / 調整	*-23-*
◀	—	選擇 / 調整	*-23-*

3) 錄影帶重播模式



▲	▶/II	重播 / 暫停	*-26-*
▼	■	停止	*-26-*
◀	◀◀	回捲 (回捲搜索重播)	*-26-*
▶	▶▶	快進 (快進搜索重播)	*-26-*

4) 記憶卡拍攝模式 ([AUTO/MANUAL/FOCUS] 開關設置爲 [AUTO])

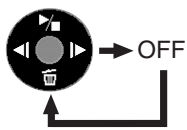


▲		長焦微距	*-20-*
▼		肌膚柔和模式	*-20-*
▶		逆光補償	*-20-*

5) 記憶卡拍攝模式 ([AUTO/MANUAL/FOCUS] 開關設置爲 [MANUAL])

▼	▼	白平衡 快門速度 光圈或增益值	*-23-*
▶	+	選擇 / 調整	*-23-*
◀	—	選擇 / 調整	*-23-*

6) 圖片重播模式



▲		重播 / 停止	*-28-*
▼		消抹	*-28-*
◀		重播前一個圖片	*-28-*
▶		重播後一個圖片	*-28-*

轉換語言

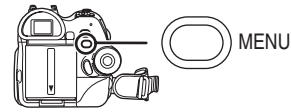
可以在熒屏的顯示上或菜單熒屏上轉換語言。

1 設置 [LANGUAGE] >> [中文]。

使用菜單熒屏

關於每個單獨的菜單，請參見*-33-*。

1 按 [MENU] 鍵。



- 顯示出與模式轉盤所選模式相對應的菜單。
- 當菜單正在顯示時，不要切換模式轉盤。

2 上下移動控制桿選擇頂級菜單。

3 向右移動或按下控制桿，設定選擇。

4 上下移動控制桿，選擇子菜單。

5 向右移動或按下控制桿，設定選擇。

6 上下移動控制桿，選擇要設定的項目。

7 按壓控制桿確定設定。

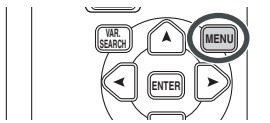
■ 退出菜單熒屏
按 [MENU] 鍵。

■ 回到前一個熒屏
向左移動控制桿。

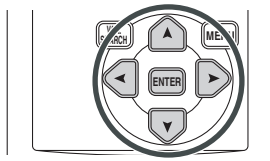
■ 關於菜單設置
●錄製的過程中不會出現菜單熒屏。並且，當菜單熒屏出現時，不能進行拍攝。

■ 用遙控器進行操作
菜單熒屏的變化與使用主機上的鍵子時是一樣的。

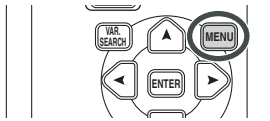
1 按 [MENU] 鍵。



2 選擇一個菜單項。
●使用方向鍵 (▲, ◄, ►, ▼) 和 [ENTER] 鍵來代替主機上的控制桿。



3 按 [MENU] 鍵退出菜單熒屏。



設置日期和時間

如果熒屏顯示出不正確的日期 / 時間，則請進行調整。

●設置爲錄影帶拍攝模式或記憶卡拍攝模式。

1 設置 [基本功能] >> [時鐘設定] >> [是]。

2 左右移動控制桿，選擇要設定的項目。然後上下移動控制桿，設定想要的值。
●年份將按下列方式變化：
2000, 2001, ..., 2089, 2000, ...
●使用 24 小時制。

3 按壓控制桿確定設定。
●時鐘功能從 [00] 秒開始計數。

■ 關於日期 / 時間
●日期和時間功能是由內置鋰電池驅動的。
●在正式錄製之前一定要檢查時間，因爲內置時鐘不是十分準確。

■ 給內置鋰電池充電
●如果在攝錄放影機啓動時顯示出 [⊘] 或 [--]，則說明內置鋰電池電量已經耗盡。將 AC 適配器與攝影機連接或者把電池安裝到攝影機上，則內置鋰電池將被充電。將攝錄放影機放置大約 24 小時，電池就能驅動日期和時間大約 6 個月。(即便 [OFF/ON] 開關設置爲 [OFF]，電池也會被充電。)

調整 LCD 顯示屏 / 取景器

■ 調整亮度及色彩級別

1 設置[設定] >> [LCD設定]或[EVF設定] >> [是]。

2 上下移動控制桿，選擇要調整的項目。
[LCD 設定]

☼ **：LCD 顯示屏的亮度**

：LCD 顯示屏的色彩級別

[EVF 設定]

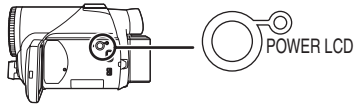
EVF☼ **：取景器的亮度**

3 左右移動控制桿，移動表示亮度的豎條數量。
4 按 [MENU] 鍵或控制桿，完成設置。

●爲了調整取景器的亮度，請關閉 LCD 顯示屏，取景器將會被啓動。
●當 LCD 顯示屏朝鏡頭方向旋轉 180° 時，LCD 顯示屏的亮度不能調整。
●這些設置不會影響實際錄製的影像。

■ 爲了增加 LCD 顯示屏整體的亮度

1 按 [POWER LCD] 鍵。



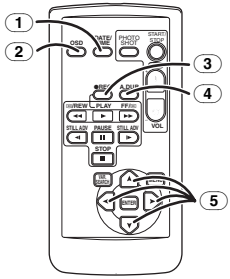
- [POWER LCD] 指示燈點亮。
- 如果按下 [POWER LCD] 鍵，整個 LCD 顯示屏的亮度就會比正常情況下大約亮一倍左右。

- 再次按下這個鍵，指示燈就會熄滅，亮度將恢復到初始的亮度。
- 這將不影響錄製的影像。
- 如果您在使用 AC 適配器時啓動攝錄機，[POWER LCD] 功能就會自動啓動。

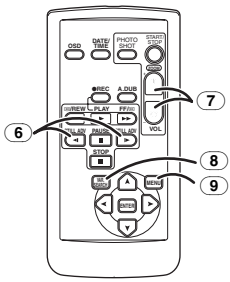
使用遙控器

■ 遙控器

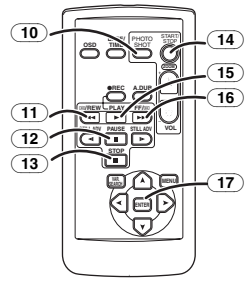
使用隨機提供的遙控器可以控制本攝錄放影機幾乎所有的功能。



① **日期 / 時間鍵 [DATE/TIME]** *-33-*
② **熒屏顯示鍵 [OSD]** *-27-*
③ **錄製鍵 [●REC]** *-31-*
④ **配音鍵 [A.DUB]** *-31-*
⑤ **方向鍵 [▲, ◄, ►, ▼]** *-13-*



⑥ **慢動作 / 逐格快進鍵 [◄I, I►] (◄I: 反向，I►: 正向)** *-26-*
⑦ **變焦 / 音量鍵 [ZOOM/VOL]** ＊
⑧ **搜索鍵 [VAR. SEARCH]** *-27-*
⑨ **菜單鍵 [MENU]** *-13-*



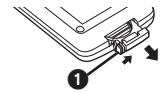
⑩ **拍照鍵 [PHOTO SHOT]** ＊
⑪ **回捲 / 回捲搜索鍵 [◄◄]**
⑫ **暫停鍵 [❚❚]**
⑬ **停止鍵 [■]**
⑭ **拍攝啓動 / 停止鍵 [START/STOP]** ＊
⑮ **重播鍵 [►]**
⑯ **快進 / 快進搜索鍵 [►►]**
⑰ **進入鍵 [ENTER]** *-13-*

＊ 意味著這些鍵的功能和攝錄放影機上的相應鍵的功能是一樣的。

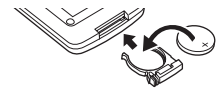
■ 安裝鈕扣型電池

使用前要把提供的鈕扣型電池安裝到遙控器內。

1 在按下止動鍵 ❶ 的同時，拖出電池座。



2 安裝鈕扣型電池時要使 (+) 標記朝上，然後再把電池座放回原處。



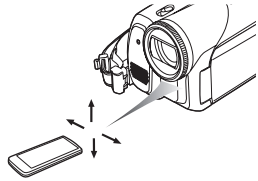
注意事項

如果更換電池的操作方法不正確，會有發生爆炸的危險。更換時，只允許使用由設備製造廠推薦的相同或同等型號的電池。用過的電池必須按照製造商的指導進行丟棄處理。

警告

火災、爆炸或者灼傷的危險。不要對電池進行再充電、分解、加熱到 100°C 以上或焚燒電池。使鈕扣型電池遠離兒童的接觸範圍。決不能把鈕扣型電池放到嘴裏面。一旦吞入肚內，請立即找醫生進行處理。

■ 遙控器的可使用範圍



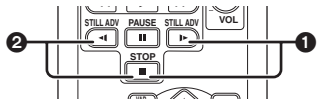
- 遙控器與攝錄放影機之間的距離：大約 5 m 之內
  角度：約 向上 10°，向下、左、右 15°

■ 選擇遙控模式

如果同時使用 2 台攝錄放影機，把其中一套攝錄放影機和遙控器設置爲 [VCR1]，另一套設置爲 [VCR2]。這將防止 2 套攝錄放影機之間互相干擾。(缺省設置是 [VCR1]。當更換鈕扣型電池時，設置將恢復爲缺省值 [VCR1]。)

1 在攝錄放影機上設置：
設置 [設定] >> [遙控] >> [VCR1] 或 [VCR2]。

2 在遙控器上設置：



[VCR1]:
同時按 [▶] 和 [■]。❶
[VCR2]:
同時按 [◀] 和 [■]。❷

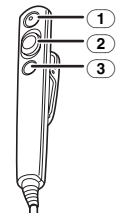
■ 關於鈕扣型電池

- 當鈕扣型電池的電量耗盡時，請用一塊新電池更換 (部件號：CR2025)。電池在正常情況下大約可以使用一年，但要根據使用的頻度決定。
- 使鈕扣型電池遠離兒童的接觸範圍。

- 如果攝錄放影機的遙控模式和遙控器的遙控模式相互不能匹配，將出現 “遙控”。在給攝錄放影機通電後，第一次使用遙控器的時候會出現 “檢查遙控模式” **(-37-)**，並且不能進行操作。請設置相同的遙控模式。
- 遙控器僅限於室內使用。在室外或強光下使用，即使遙控器處於可用範圍之內，攝錄放影機也有可能不能正常操作。
- 處於 1 米以內時，可以在攝錄放影機的遙控感測器 (LCD 顯示屏一側) 的旁邊進行操作。

自由式遙控器

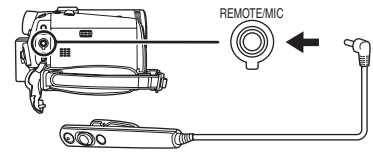
可以從不同的高低角度來使用本遙控器。在使用三腳架時，也是很方便的。當不使用遙控器時，應當把夾子別到手柄帶上。左撇子用戶使用攝錄放影機會更加方便。



① **拍攝啓動 / 停止鍵 [REC]**
② **變焦桿 [W/T]**
③ **拍照鍵 [PHOTO SHOT]**

■ 把自由式遙控器連接到攝錄放影機上

1 把自由式遙控器插入 [REMOTE] 端口，插入的深度應儘可能的深。



■ 關於夾子 (位於背面一側)

當把夾子別到衣服口袋上或者其他地方時，一定要小心不要碰翻三腳架，使攝錄放影機從架子上掉下來。

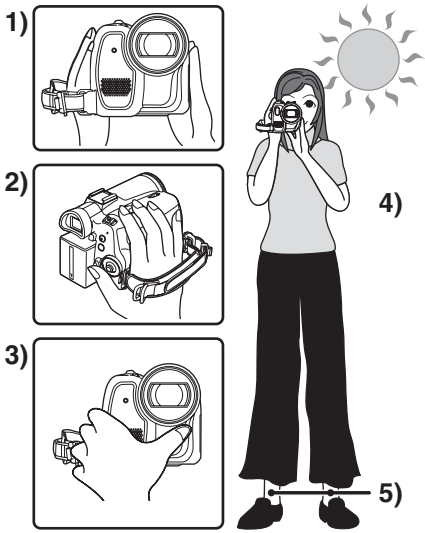
- 如果遙控器的針式插頭沒有牢牢插入 [REMOTE] 端口，其插入的深度應儘可能的深，可能無法確保正常的操作。
- 在使用前，要確保該插頭已經牢牢地插入到端口其插入的深度應儘可能的深。

拍攝模式

拍攝前的檢查

在給重大的事件進行拍攝時，如在婚禮等場合，爲了確保能夠正常拍攝影像和聲音，並知道如何使用攝錄放影機，請先進行試拍。

■ 攝錄放影機的基本握持



1) 用雙手來握持攝錄放影機。
2) 將手穿過手柄帶。
3) 不要用手擋住麥克風或者感測器。
4) 雙臂靠近自己的身體。
5) 雙腿微微張開一些。

- 當在露天拍攝，應儘可能拍攝成背景有陽光的圖片。如果被拍攝的物體是逆光的，則在拍攝時被拍攝的物體會變黑。

■ 檢查要點

- 取下鏡頭蓋。(*-6-*)
  (如果在鏡頭蓋未取下的情況下打開攝錄放影機，自動白平衡調整可能無法正常工作。請取下鏡頭蓋後，再打開攝錄放影機。)
- 手柄帶的調整 (*-6-*)
- 電源 (*-8-*)
- 插入錄影帶 / 記憶卡。(*-9-*, *-10-*)
- 設置日期 / 時間 (*-13-*)
- 調整 LCD 顯示屏 / 取景器 (*-13-*)
- 準備好遙控器 (*-14-*)
- 設置 SP/LP 模式 (*-16-*)

■ 關於自動模式

- 將 [AUTO/MANUAL/FOCUS] 開關設置爲 [AUTO]，色彩平衡 (白平衡) 和對焦將會自動調整。
  - 自動白平衡：*-44-*
  - 自動對焦：*-44-*
- 根據光源和場景，色彩平衡和對焦可能不能調整。在這種情況下，手動調整白平衡和對焦。

- 場景模式設置 (*-23-*)
- 白平衡設置 (*-23-*)
- 快門速度設置 (*-25-*)
- 光圈 / 增益值設置 (*-25-*)
- 對焦設置 (*-24-*)

■ 拍攝模式

可以切換錄影帶拍攝模式。

- **設置爲錄影帶拍攝 / 重播模式。**

1 設置[基本功能]或[進階功能] >> [拍攝速度] >> [SP] 或 [LP]。

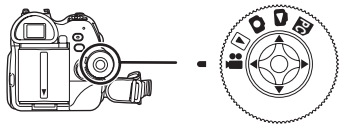
如果選擇了 LP 模式，則攝錄時間將會是 SP 模式的 1.5 倍，但是有一些功能將不能使用。

- 對於重大事件的拍攝，我們建議使用 SP 模式。
- 爲了完全發揮 LP 模式的性能，我們建議使用標有 LP 模式的松下錄影帶。
- 不可把音頻信號複製到用 LP 模式錄製的影像上。(*-31-*)
- 在 LP 模式下，圖片的質量並不比 SP 模式下的圖片質量差，但在重播的影像上有可能出現馬賽克雜訊，或者某些功能有可能無效。
  - 在其他的數位視頻設備上，或者在沒有 LP 模式的數位視頻設備上重播
  - 重播的影像是在其他數位視頻設備上以 LP 模式錄製的
  - 慢動作 / 逐格重播

在錄影帶上錄製

取下鏡頭蓋。(*-6-*)
(如果在鏡頭蓋未取下的情況下打開攝錄放影機，自動白平衡調整可能無法正常工作。請取下鏡頭蓋後，再打開攝錄放影機。)

●**設置爲錄影帶拍攝模式。**

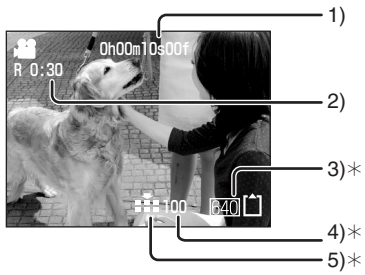


1 按拍攝啓動 / 停止鍵開始錄製。

2 再次按拍攝啓動 / 停止鍵暫停錄製。

●關於錄影帶的錄製時間，請參見 *-9-*。
●進行拍攝檢查(*-17-*)以確認拍攝的影像是否合乎要求。
●爲了找出未錄製的部分，請進行空白搜索 (*-17-*)。

■ 在錄影帶拍攝模式下熒屏上的顯示內容



* 這些指示僅在插入記憶卡時顯示。
1) 已經流失的錄製時間
2) 剩餘的錄影帶指示
3) 靜態圖片尺寸
4) 可錄製的靜態圖片數量
(當沒有可以錄製的圖片時，該指示以紅色閃爍。)
5) 靜態圖片質量

■ 關於剩餘錄影帶時間在熒屏上的指示

●剩餘錄影帶時間按分鐘顯示。(小於 3 分鐘時，指示開始閃爍。)
●在 15 秒或者更短的錄製期間內，可能不顯示剩餘錄影帶時間指示或剩餘錄影帶時間指示不準確。
●有時剩餘錄影帶時間指示所顯示的剩餘錄影帶時間會比實際剩餘錄影帶時間短 2 至 3 分鐘。

在錄影帶上錄製影像的同時，在記憶卡上錄製靜態圖片

可以在將影像錄製到錄影帶上的同時錄製靜態圖片。

●**設置爲錄影帶拍攝模式。**

1 在把影像錄製到錄影帶上的同時，完全按下 [PHOTO SHOT] 鍵。

●關於錄製到記憶卡上的靜態圖片數量，請參見 *-46-*。
●在往記憶卡上錄製圖片時，拍攝啓動 / 停止鍵會失效。
●可以爲要錄製的靜態圖片選擇圖片質量。(*-18-*)
●要錄製的圖片尺寸是 [640]。
●爲了以較高的質量錄製靜態圖片，我們建議使用記憶卡拍攝模式。

檢查拍攝

被拍攝的最後的影像將被重播 2 到 3 秒鐘。
檢查完畢後，攝錄放影機將設置爲拍攝暫停。

●**設置爲錄影帶拍攝模式。**

1 在拍攝暫停中按控制桿直到圖標 ❶ 出現。
2 向下移動控制桿，選擇拍攝檢查指示 [⊂]。

空白搜索功能

搜索已經錄製影像的最後部分 (錄影帶的沒有使用部分)。

●**設置爲錄影帶拍攝 / 重播模式。**

1 設置[基本功能]或[進階功能] >> [空白尋像] >> [是]。

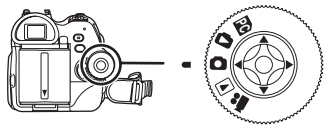
■ 中途停止空白搜索

向下移動控制桿。

●如果錄影帶沒有空白部分，則攝錄放影機就會在錄影帶的終點停下來。
●攝錄放影機在最後拍攝影像的終點前大約 1 秒鐘的地方停下來。當您在那點開始拍攝時，就能從最後的影像開始無縫拍攝。

把靜態圖片錄製到記憶卡上 (拍照)

●設置爲記憶卡拍攝模式。



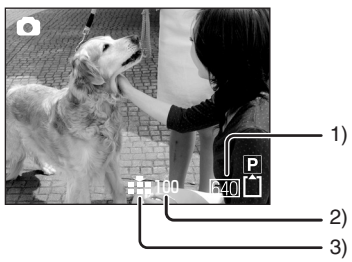
1 按 [PHOTO SHOT] 鍵。

■ 清晰地拍攝靜態圖片

- ●當用 4× 到 10× 或更大的放大率放大物體，很難減少用手握持攝錄放影機而造成的輕微抖動。我們建議減小變焦放大率，並在拍攝時接近被拍攝的物體。
- ●在拍攝靜態圖片時，請用雙手緊緊地握住攝錄放影機，並使雙臂固定在体側以避免攝錄放影機發生抖動。
- ●可以使用三腳架和遙控器拍攝到沒有抖動的穩定的圖片。

- ●關於錄製到記憶卡上的靜態圖片數量，請參見 *-46-*。
- ●無法錄製聲音。
- ●在往記憶卡上錄製資料的過程中，不要操作模式轉盤。
- ●當存取燈點亮時，不要插入或取出記憶卡。
- ●可能降低其他產品的質量或者不能回放在本攝錄放影機上錄製的資料。
- ●如果設置 [圖片質量] >> [▪▪▪]，根據圖片內容在重播的影像上會出現馬賽克圖案的雜訊。
- ●當 [圖片尺寸] 設定成除 [640] 以外時，被設置爲百萬像素的拍攝模式。
- ●當圖片尺寸設定成除 [640] 以外時，物體周圍的場景拍攝得比在 [640] 中的場景更寬一些。

■ 在記憶卡拍攝模式下熒屏上的顯示內容



1) 靜態圖片尺寸
2) 可錄製的靜態圖片數量
(當沒有可以錄製的圖片，會有紅燈閃爍。)
3) 靜態圖片質量

■ 漸進式拍照

可以錄製靜態圖片，就像那些有較高影像質量的圖片和格圖片一樣。(不能切換漸進功能開 / 關。)

- ●在錄影帶拍攝模式下，根據所使用的其他功能，漸進功能可能無效。**(*-38-*)**

■ 選擇要錄製在記憶卡上的靜態圖片的尺寸

1 設置 [基本功能] >> [圖片尺寸] >> 選擇需要的圖片尺寸。

[1520]: 1520×1152
[640]: 640×480

■ 爲拍照影像選擇圖片質量

1 設置 [基本功能] >> [圖片質量] >> 選擇需要的圖片質量。

[▪▪▪]: 高圖片質量
[▪▪]: 普通圖片質量

- ●在錄影帶拍攝模式下，也可以在 [進階功能] >> [圖片質量] 上改變圖片質量。

■ 用快門操作效果拍攝

可以添加模擬快門操作的聲音。

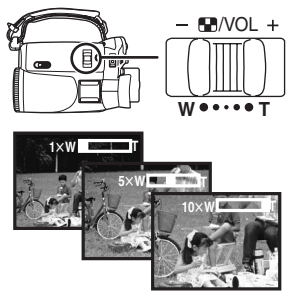
1 設置 [進階功能] >> [快門效果] >> [開]。

放大 / 縮小功能

光學放大可達 10×。

●設置爲錄影帶 / 記憶卡拍攝模式。

1 廣角拍攝 (縮小) :
向 [W] 方向推動 [W/T] 桿。
特寫拍攝 (放大) :
向 [T] 方向推動 [W/T] 桿。



- ●當在用手握持攝錄放影機拍攝圖片的情況下進行放大時，我們建議使用畫面穩定器功能。
- ●當對遠距離物體對焦時，如果被拍攝物體距攝錄放影機 1.2 m 或更遠，可以獲得更加準確的焦距。
- ●當變焦速度很快時，物體可能難以對焦。
- ●當變焦放大率是 1× 時，攝錄放影機可以對距離鏡頭大約 4 釐米的物體進行對焦。

■ 數位變焦功能

如果變焦放大率超過 10 倍，則數位變焦功能將啓動。數位變焦功能允許選擇的放大率爲從 20× 到 500×。

1 設置 [進階功能] >> [數位變焦] >> [20×] 或 [500×]。

[關]: 僅光學放大 (最高 10×)
[20×]: 最高 20×
[500×]: 最高 500×

- 數位變焦放大率越大，影像質量越差。
- 當使用記憶卡拍攝模式時，不能使用數位變焦功能。

■ 使用變焦麥克風功能

該功能與變焦操作相結合，麥克風會以長焦拍攝的方式清晰地收集遠處的聲音，或以廣角拍攝的方式收集近處的聲音。

- **設置爲錄影帶拍攝模式。**

1 設置 [進階功能] >> [變焦麥克風] >> [開]。

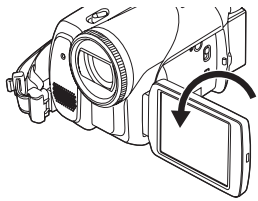
■ 關於變速變焦功能

- 當把 [W/T] 桿推到頭時，可以從 1× 變焦到 10× 最多在 2.1 秒內 。
- 變焦速度的變化取決於 [W/T] 桿的移動量。
- 使用遙控器時，不能使用變速變焦功能。

自拍

可以一邊看著 LCD 顯示屏，一邊拍攝自己。可以拍攝位於攝錄放影機前的人物，同時給他們提供影像。影像成水平反轉的形式，就好像您從鏡子裏面所看到的影像是一樣的。(打算拍攝的影像就是那個正在拍攝的影像。)

1 把 LCD 顯示屏轉向鏡頭的一側。



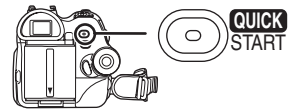
- 當 LCD 顯示屏打開時，取景器就會自動地被關閉。如果 LCD 顯示屏轉向朝著鏡頭的一側時，取景器被啓動。
- 當 LCD 顯示屏轉向鏡頭一側時，即使推動控制桿的中心部位圖標也不會出現。

快速啓動

在接通電源後，本攝錄放影機會在大約 1.7 秒內進入待機狀態。

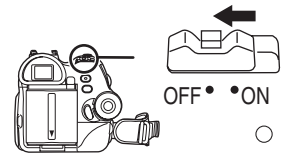
- 只有在下列的情況下，才能被這樣啓動。
  - 已經插入了錄影帶或記憶卡，同時設定了錄影帶拍攝模式。
  - 已經插入了記憶卡，同時設定了記憶卡拍攝模式。

1 按 [QUICK START] 鍵。



- 快速啓動拍攝指示燈點亮。(如果再一次按鍵，就會取消。)

2 將 [OFF/ON] 設置爲 [OFF]。



- 快速啓動已經準備好。

3 將 [OFF/ON] 設置爲 [ON]。

- 在接通電源後，本攝錄放影機會在大約 1.7 秒內進入拍攝暫停狀態 。

■ 電源爲 [OFF] 時取消快速啓動

按住 [QUICK START] 鍵約 2 秒鐘。指示燈就會熄滅，攝錄放影機就可以完全被關閉。

- 如果待機狀態持續大約 30 分鐘，則指示燈就會熄滅，而攝錄放影機就會被完全關閉。

- 當您轉動模式轉盤或取下電池時，快速啓動拍攝指示燈就會熄滅，快速啓動模式也會被取消。如果打開攝錄放影機並且設置爲錄影帶 / 記憶卡拍攝模式，則指示燈就會點亮，並且恢復成快速啓動模式。
- 當攝錄放影機在自動白平衡的情況下快速啓動時，如果正在拍攝的場景的光源與上次拍攝時的不同，則需要一些時間，直到白平衡調整好。(當使用彩色夜景功能時，上一次拍攝的場景的白平衡被保留了下來。)
- 變焦放大率和在快速啓動待機模式中的，以及在拍攝開始時的不同。
- 由於在快速啓動待機狀態中使用的電量是正常拍攝時的一半，因此，使用快速啓動可以減少在拍攝圖片的期間內所花費的時間。

逆光補償功能

這個功能將防止逆光物體變得黑暗。

●設置爲錄影帶 / 記憶卡拍攝模式。

1 按控制桿直到出現 ❶ 圖標。

2 向右移動控制桿，選擇逆光補償指示 [ ]。

●熒屏上的影像將變得更亮。

■ 恢復正常拍攝

再次選擇 [ ] 指示。

●如果您操作了 [OFF/ON] 開關或模式轉盤，則逆光補償就會被取消。

夜視功能

本項功能可使您拍攝暗處的彩色物體，使它在背景上突出出來。

將攝錄放影機安裝到三腳架上，就可以拍攝到沒有振動的影像。

●只能使用手動對焦。

●所拍攝的場景看起來似乎是缺少了邊框。

彩色夜視功能

可以把黑暗的地方拍攝得色彩明亮。

0 勒克斯夜視功能

可以使用 LCD 顯示屏上的照明來拍攝完全黑暗的地方。

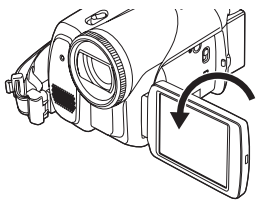
●設置爲錄影帶拍攝模式。

1 按控制桿直到出現 ❶ 圖標。

2 向上移動控制桿，選擇夜視指示 [ ]。

●每朝上按一次，就會切換一次模式。
OFF → 彩色夜視功能 → 0勒克斯夜視功能 → OFF

3 (在 0 勒克斯夜視功能的情況下)
把 LCD 顯示屏轉向鏡頭一側。



●當 LCD 顯示屏翻轉時，強力 LCD 指示燈打開，熒屏亮起爲白色。

●一邊在取景器上觀看，一邊拍攝物體。

●LCD顯示屏的光線可達到約1.2 米或者不足1.2米。

■ 取消彩色夜視功能

選擇夜視圖標直到夜視指示消失。

●如果在明亮的地方設置，則熒屏就可能變白一會。

●夜視功能可使 CCD 的信號充入時間比平時長 25×，所以肉眼不可見的黑暗場景可以拍攝得很明亮。因此，可能會看到平常看不見的亮點，但這不是故障。

●當操作電源開關或模式轉盤時，夜視功能將取消。

肌膚柔和模式

這種模式可以使皮膚的色彩拍攝得更柔和一些。在拍攝人物的半身像時，這一模式更加有效。

●設置爲錄影帶 / 記憶卡拍攝模式。

1 按控制桿直到出現 ❶ 圖標。

2 向下移動控制桿，選擇肌膚柔和指示 [ ]。

■ 取消肌膚柔和模式

再次選擇 [ ] 指示。

●如果背景或場景內的任何東西的色彩和皮膚色彩相類似，它們的色彩也會變得柔和。

●如果亮度不足，則其效果也不會清晰。

長焦微距功能

只是在被攝物體上聚焦，而使背景變得模糊，可使影像給人留下深刻的印象。本攝錄放影機可以在大約 40 釐米的距離上對物體進行對焦。

●設置爲錄影帶 / 記憶卡拍攝模式。

1 按控制桿直到出現 ❶ 圖標。

2 向上移動控制桿，選擇長焦微距指示 [ ]。

●如果放大率是 10× 或更小，則它將自動設置爲 10×。

■ 取消長焦微距功能

再次選擇 [ ] 指示。

●如果得不到更準確的焦距，請手動調整焦距。

●在下列的情況下，長焦微距功能會被取消。
  ●變焦的放大率變得低於 10×。
  ●操作 [OFF/ON] 開關或者模式轉盤。

淡入 / 淡出功能

淡入
影像和聲音漸漸出現。
淡出
影像和聲音漸漸消失。

●設置爲錄影帶拍攝模式。
1 按控制桿直到出現 ❶ 圖標。
2 向左移動控制桿，選擇漸變指示 [ ]。

3 按拍攝啓動 / 停止鍵。
開始拍攝。(淡入)
開始拍攝時，影像 / 聲音完全消失，然後漸漸出現。

拍攝暫停。(淡出)
影像 / 聲音逐漸消失。影像 / 聲音完全消失後，拍攝停止。

■ 取消漸變
再次選擇 [ ] 指示。

■ 選擇淡入 / 淡出的顏色
在漸變圖片上出現的顏色是可以選擇的。
1 設置 [設定] >> [淡入淡出] >> [白色] 或 [黑色]。

●當選擇淡入 / 淡出功能時，在開始拍攝影像時需要花費幾秒鐘的時間顯示出影像。此外，暫停拍攝也要花費幾秒鐘的時間。

消除風聲噪音功能

這個功能可以消減在拍攝時吹入麥克風的風聲噪音。

●設置爲錄影帶拍攝模式。
1 設置 [基本功能] >> [消除風聲] >> [開]。

■ 取消消除風聲噪音功能
設置 [基本功能] >> [消除風聲] >> [關]。

●根據風力的強度，消減風聲噪音。(如果在強風下啓動該功能，立體聲效果會減弱。當風力變弱時，立體聲的效果就會重新恢復。)

自拍計時器拍攝

可以使用自拍計時器將靜態圖片錄製到記憶卡內。

●設置爲記憶卡拍攝模式。
1 設置 [基本功能] >> [自拍計時器] >> [是]。
2 按 [PHOTO SHOT] 鍵。

●在拍攝燈和 [ ] 指示閃爍了大約 10 秒後，就要開始拍攝了。拍攝后，自拍計時器將被取消。

■ 中途停止計時器
按 [MENU] 鍵。

●通過操作 [OFF/ON] 開關或模式轉盤，自拍計時器待機模式被取消。
●如果設置爲連續拍照拍攝，就能拍攝最大的可拍攝圖片。

錄製供寬銀幕電視使用的影像

這種操作方法可以使您錄製出與寬銀幕電視相兼容的影像。

寬屏電影功能

拍攝的影像的銀幕的上、下兩處帶有黑色的條帶，所以看起來就像是電影一樣。

●設置爲錄影帶拍攝模式。

1 設置 [進階功能] >>[寬屏電影模式] >> [開]。

■ 取消寬屏電影功能

設置 [進階功能] >>[寬屏電影模式] >> [關]。

- ●根據所連接的電視機不同，重播出來的影像也是有變化的。請參照您電視機的使用說明書。
- ●這一功能並不能加寬拍攝的範圍。
- ●在電視機的熒屏上重播影像時，在某些情況下，日期 / 時間指示可能被消抹掉。
- ●根據電視機的情況，圖片的質量可能會降低。
- ●當把寬屏電影的圖片輸入到個人電腦中時，根據使用的軟體，輸入的圖片有可能顯示得不正確。

畫面穩定器功能

可以減輕在拍攝過程中由於手的抖動而使影像發生晃動的情況。

●設置爲錄影帶拍攝模式。

1 設置 [進階功能] >> [防震功能] 功能 >> [開]。

■ 取消畫面穩定器功能

設置 [進階功能] >> [防震功能] 功能 >> [關]。

- ●使用三腳架時，我們建議您關掉畫面穩定器。
- ●在熒光燈照射下，影像的亮度可能發生變化，或者色彩看起來不自然。
- ●在使用夜視功能時，畫面穩定器功能是不工作的。在這種情況下，[ ] 指示閃爍。
- ●在下列情況下，畫面穩定器功能可能不能有效地發揮作用。
  - ●當使用了數位變焦時
  - ●當使用了轉換鏡頭時
  - ●當在極端黑暗的地方進行拍攝時
  - ●當攝錄放影機抖動得很厲害時
  - ●當您追蹤著一個運動著的物體來進行拍攝時

連續拍照

以一定的時間間隔連續拍攝靜態圖片。

●設置爲記憶卡拍攝模式。

1 設置 [基本功能] >> [圖片尺寸] >> [640]。

2 設置 [進階功能] >> [連拍模式] >> [開]。

3 持續按 [PHOTO SHOT] 鍵。

■ 中途停止連續拍照

鬆開 [PHOTO SHOT] 鍵。

- ●攝錄放影機以 0.5 秒的時間間隔最多能拍攝 10 幅靜態圖片。如果手動將快門設置爲 1/25，則可以以 0.7 秒的時間間隔拍攝靜態圖片。
- ●鬆開 [PHOTO SHOT] 鍵後，可能會再拍攝一個靜態圖片。
- ●如果設置爲 [自拍計時器] >> [是]，攝錄放影機能拍攝最多數量的可拍攝圖片。
- ●根據不同的記憶卡，每次拍攝的時間間隔可能會變長。我們建議使用松下的 SD 記憶卡。
- ●如果使用在其他設備上格式化的記憶卡，或以前反復錄製擦除的記憶卡，則每次拍攝的時間間隔就可能會變長。在這種情況下，應將重要資料備份到個人電腦中，然後用本攝錄放影機將記憶卡格式化。

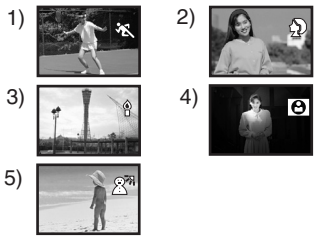
在不同情況下拍攝 (場景模式)

在各種不同情況下拍攝影像時，此模式可自動將快門速度和光圈設置爲最佳值。

●設置爲錄影帶 / 記憶卡拍攝模式。

1 將 [AUTO/MANUAL/FOCUS] 開關設置爲 [MANUAL]。

2 設置[基本功能] >> [場景模式] >>選擇所需要的模式。



1) [ ] 運動模式
- ●這一模式的用途是拍攝運動場景或有快速移動的場景

2) [ ] 肖像模式
- ●這一模式的用途是使人物在背景中突出出來

3) [ ] 低照度模式
- ●這一模式的用途是使黑暗的場景拍攝得較爲明亮

4) [ ] 聚光燈模式
- ●這一模式的用途是拍攝晚會上或劇院裡處於聚光燈下的目標

5) [ ] 海灘及雪地模式
- ●這一模式的用途是在滑雪場和海灘等耀眼處拍攝影像

■ 取消場景模式功能

設置 [基本功能] >> [場景模式] >> [關] 或將 [AUTO/MANUAL/FOCUS] 開關設置爲 [AUTO]。

運動模式
- ●對拍攝的圖片進行慢動作重播或重播暫停時，此模式可消除攝錄放影機的晃動。
- ●在正常重播時，影像的移動可能會不流暢。
- ●由於重播影像的顏色和亮度可能會變化，所以要避免在熒光燈、水銀燈或鈉燈下拍攝。
- ●如果在強光下拍攝，或者被拍攝的物體反光很強，會出現垂直光線。
- ●如果亮度不夠，運動模式將無法工作。[ ] 指示將閃爍。
- ●如果在室內使用此模式，熒屏會發生閃爍。

肖像模式
- ●如果在室內使用此模式，熒屏會發生閃爍。在這種情況下，要將場景模式設置爲 [關]。

低照度模式
- ●極暗的場景無法獲得良好的拍攝效果。

聚光燈模式
- ●如果拍攝的物體極亮，拍攝的影像會發白，而且拍攝影像的周邊部分會特別暗。

海灘及雪地模式
- ●如果拍攝的物體極亮，拍攝的影像會發白。

用自然色彩拍攝 (白平衡)

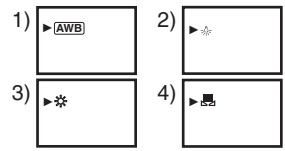
根據場景或照明條件的不同，自動白平衡功能可能不能再現自然的色彩。在這種情況下，可以手動調整白平衡。

●設置爲錄影帶 / 記憶卡拍攝模式。

1 將 [AUTO/MANUAL/FOCUS] 開關設置爲 [MANUAL]。

2 向下移動控制桿，直到出現白平衡指示。([AWB] 等)

3 左右移動控制桿，用於選擇白平衡模式。



1) 自動白平衡調整 [AWB]
2) 室內模式 (在白熾燈下拍攝)[ ]
3) 室外模式 [ ]
4) 手動調整模式 [ ]

■ 恢復自動調整

左右移動控制桿，直到出現 [AWB] 指示。或者，將 [AUTO/MANUAL/FOCUS] 開關設置爲 [AUTO]。

- ●如果在鏡頭蓋未取下的情況下打開攝錄放影機，自動白平衡調整可能無法正常工作。請取下鏡頭蓋後，再打開攝錄放影機。
- ●在同時設置白平衡和光圈 / 增益時，要先設置白平衡。
- ●只要拍攝條件發生變化，就要重新正確調整白平衡。

■ 手動設置白平衡

在步驟 3 中選擇 [ ]。然後，當整個熒屏爲白色時，向上移動控制桿選擇 [ ] 指示。

■ 關於 [ ] 指示閃爍的說明

選擇手動調整模式時

- 閃爍說明以前調整的白平衡被保存。此設置將被保存直到白平衡被再次重新調整。

當白平衡不能在手動調整模式下進行設置時

- 在手動調整模式下無法在暗處正常調整白平衡。在這種情況下，要使用自動白平衡模式。

在手動調整模式下設置時

- 設置完成後，將保持點亮。

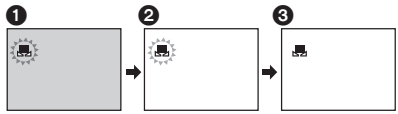
■ 關於白平衡感測器

白平衡感測器能在拍攝時檢測光源的類型。

- 拍攝時不要遮蓋白平衡感測器，否則將無法正常工作。

■ 關於黑平衡調整

這是 3CCD 系統功能之一，當白平衡在手動調整模式下設置時自動調整黑色。當調整黑平衡時，熒屏將暫時變黑。



❶ 黑平衡調整 (閃爍。)
❷ 白平衡調整 (閃爍。)
❸ 調整完成 (點亮。)

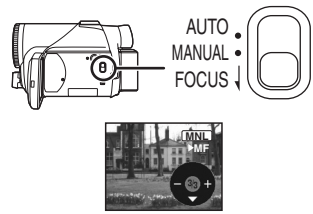
手動對焦調整

如果因條件所致難以自動對焦，可以手動調整焦距。

●設置爲錄影帶 / 記憶卡拍攝模式。

1 將 [AUTO/MANUAL/FOCUS] 開關設置爲 [MANUAL]。

2 將 [AUTO/MANUAL/FOCUS] 開關設置爲 [FOCUS]。



- 將顯示 MNL 和手動對焦指示 [MF]。

3 左右移動控制桿以便調整焦點。

- 採用廣角對焦時，物體放大時可能不能準確對焦。因此首先要放大物體，然後再對其進行對焦。

■ 恢復自動調整

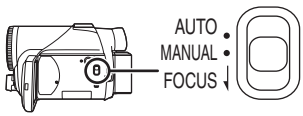
將 [AUTO/MANUAL/FOCUS] 開關設置爲 [AUTO] 或 [FOCUS]。

手動快門速度 / 光圈調整

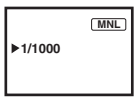
快門速度
當拍攝快速移動的物體時，需要調整快門速度。
光圈
當熒屏太亮或太暗時，需要調整光圈。

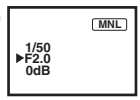
●設置爲錄影帶 / 記憶卡拍攝模式。

1 將 [AUTO/MANUAL/FOCUS] 開關設置爲 [MANUAL]。



2 向下移動控制桿直到出現快門速度指示或光圈值指示時爲止。

1)


2)


1) 快門速度
2) (光圈) 光圈 / 增益值

3 左右移動控制桿以便調整快門速度或光圈。

■ 恢復自動調整
將 [AUTO/MANUAL/FOCUS] 開關設置爲 [AUTO]。

手動快門速度調整
- 由於重播影像的顏色和亮度會有變化，所以要避免在熒光燈、水銀燈或鈉燈下拍攝。
- 如果手動增加快門速度，則靈敏度將降低，從而增益值會自動升高，那將會增加熒屏上的雜訊。
- 如果物體極亮或高度反光，在重播影像上會出現垂直的光線，但這不是故障。
- 在正常重播時，影像的移動可能會不流暢。
- 在極亮的地方拍攝時，熒屏的色彩可能會改變或閃爍。在這種情況下，手動將快門速度調整到 1/50 或 1/100。

手動光圈 / 增益調整
- 如果該值不能變爲 “OPEN”，則無法調整增益值。
- 如果增益值增加，則熒屏上的雜訊就會增加。
- 根據變焦放大率的不同，光圈值可能沒有顯示。

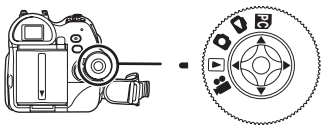
■ 快門速度的範圍
1/50-1/8000 秒 : 錄影帶拍攝模式
1/25-1/500 秒 : 記憶卡拍攝模式
快門速度越接近 1/8000 就越快。

■ 光圈 / 增益值的範圍
CLOSE(關閉), F16, ..., F2.0,
OPEN(打開) 0dB, ..., 18dB
數值越接近 [CLOSE] 影像越暗。
數值越接近 [18dB] 影像越亮。
帶 dB 的數值爲增益值。

重播模式

重播錄影帶

●設置爲錄影帶重播模式。



1 用控制桿操作。

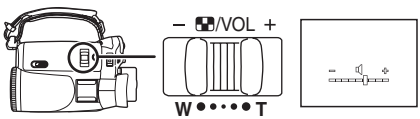
►/❚❚: 重播 / 暫停
◄◄: 回捲 / 回捲搜索重播 (用 ►/❚❚ 圖標回復重播。)
►►: 快進 / 快進搜索重播 (用 ►/❚❚ 圖標回復重播。)
■: 停止

●在快進搜索 / 回捲搜索重播過程中，快速移動的影像可能會出現馬賽克雜訊。
●在快進搜索 / 回捲搜索重播前後，熒屏可能會變藍一會或可能會發生干擾。

■ 調整音量

調整重播時揚聲器或耳機的音量。

1 移動 [− ▪/VOL+] 桿來調整音量。



朝 [+] 方向：增大音量
朝 [−] 方向：減小音量
(豎條越接近 [+]，音量越大。)

●在遙控器上，按 [T] 鍵增大音量，或按 [W] 鍵減小音量。

●調整結束後，音量指示將消失。
●如果聽不到聲音，請檢查 [設定] >> [12bit 音頻]。

■ 反復重播

當錄影帶到頭後，將自動回捲，然後再次重播。

1 設置 [進階功能] >> [重複播放] >> [開]。

●出現 [↻►] 指示。(爲取消反復重播模式，設置 [重複播放] >> [關] 或將 [OFF/ON] 開關設置爲 [OFF]。)
●在設置 [USB 功能] >> [網路攝影] 後連接 USB 電纜，反復重播模式被取消。

■ 音頻設置

●當重播錄影帶時如果聽不到想要的聲音，請在 [設定] >> [12bit 音頻] 中檢查設置情況。
●當用 [12bit] 錄製或配音，並設置了 [設定] >> [12bit 音頻] >> [混合] 時，不管 [音頻輸出] 中設置是什麼，聲音將會以立體聲重播。

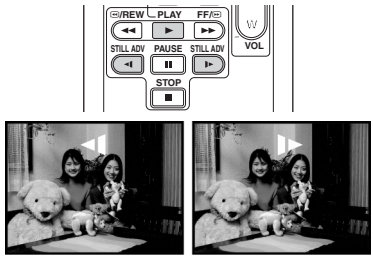
慢動作重播 / 逐格重播

●設置爲錄影帶重播模式。(只能用遙控器進行慢動作重播。)

慢動作重播

如果影像是以 SP 模式錄製的，則將以正常速度的 1/5 重播。
如果影像是以 LP 模式錄製的，則將以正常速度的 1/3 重播。

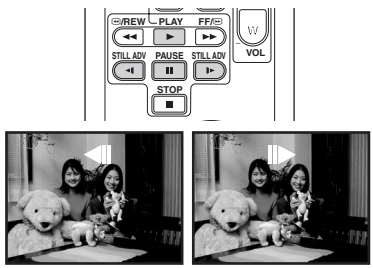
1 按遙控器上的 [◄I] 鍵或 [I►] 鍵。



●如果慢動作重播持續 10 分鐘以上，重播將自動停止。(10 分鐘的慢動作重播相當於 SP 模式下重播 2 分鐘或者 LP 模式下重播 3 分鐘。)

逐格重播

1 在重播過程中，按遙控器上的 [❚❚] 鍵。
2 按遙控器上的 [◄I] 鍵或 [I►] 鍵。



●重播暫停時，朝 [T] 方向 (正常方向) 或 [W] 方向 (相反方向) 推動攝錄放影機的 [− ▪/VOL+] 桿，也可進入逐格重播。如果持續推動該桿，則影像將連續逐格重播。

■ 恢復正常重播

按遙控器上的 [►] 鍵。

慢動作重播

●反向慢動作重播，時間碼指示會不穩定。

逐格重播

●重播暫停時持續按下 **[◄❙]** 鍵或 **[❙►]** 鍵，影像將連續逐格重播。

變速搜索功能

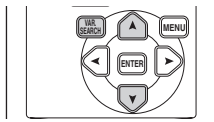
快進搜索 / 回捲搜索重播的速度是可以改變的。

(只能使用遙控器來進行這一操作。)

●設置爲錄影帶重播模式，重播錄影帶。

1 按遙控器上的 [VAR. SEARCH] 鍵。

2 按 [▲] 鍵或 [▼] 鍵改變速度。



●快進搜索/回捲搜索重播的速度爲1/5×(僅限SP模式慢動作重播)、1/3×(僅限 LP 模式慢動作重播)、2×、5×、10×、20×。

■ 恢復正常重播

按遙控器上的 [VAR. SEARCH] 鍵或 [►] 鍵。

●影像上會出現馬賽克圖案。

●在搜索期間是無聲的。

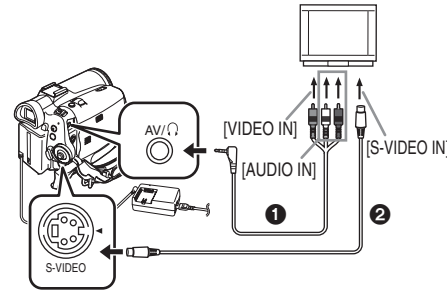
●當顯示操作圖標時，該功能被取消。

在電視機上重播

用本攝錄放影機拍攝的影像可以在電視機上重播。

●在本攝錄放影機上插入一盤錄製好的錄影帶。

1 連接攝錄放影機和電視機。



●用 AV 電纜 ❶ 連接攝錄放影機和電視機。

●如果電視機上有 S 視頻端子，還要連接一根 S 視頻電纜 ❷(可選件)。這樣就可以欣賞到更美麗的影像。

2 打開本攝錄放影機，將模式轉盤設置爲錄影帶重播模式。

3 選擇電視機的輸入頻道。

4 向上移動控制桿，選擇 [►/❙❙] 圖標開始重播。

●圖像和聲音都輸出到電視機中。

5 向下移動控制桿，選擇 [■] 圖標停止重播。

●只要插入 S 視頻電纜，就必須也插入 AV 電纜。

●使用 AC 適配器可以免除電池用光的煩惱。

■ 如果沒有影像或聲音輸出到電視機中

●檢查插頭的插入深度是否足夠。

●檢查連接端子。

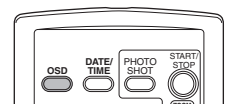
●如果即使設置了[基本功能] >> [AV插孔] >> [輸出/Ω]，電視機上也不出現影像時，將其設置爲 [輸出]。**(*-35-*)**

●檢查電視機的輸入設定 (輸入開關)。(有關更詳細的說明，請查閱電視機的使用說明書。)

■ 在電視機上顯示熒屏信息

在 LCD 顯示屏或取景器上顯示的信息 (操作圖標、時間碼和模式指示等) 以及日期和時間也可以在電視機上顯示。

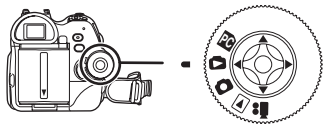
1 按遙控器上的 [OSD] 鍵。



●再次按下該鍵可消除 OSD 信息。

重播記憶卡

●設置爲圖片重播模式。



1 用控制桿操作。

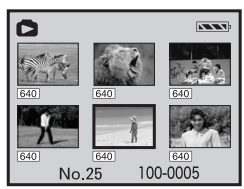
◄▮: 重播前一幅圖片。
▮►: 重播後一幅圖片。
►/■: 幻燈片放映(依次重播記憶卡上的靜態圖片)開始 / 停止

- ●當重播記憶卡上的資料時，不要操作模式轉盤。
- ●當存取燈點亮時，不要插入或取出記憶卡。
- ●根據檔案的像素數的不同，顯示檔案可能要花費一些時間。
- ●如果重播以不同格式錄製的檔案或檔案資料有缺陷，整個熒屏會變成藍色，並出現 “記憶卡無法重播”指示作爲警告。
- ●重播在其他設備上拍攝的檔案時，日期和時間顯示與拍攝時的不同。
- ●重播在其他設備上拍攝的檔案時，其他設備的尺寸和本機的尺寸顯示不同。

■ 顯示多個重播檔案

可以顯示記憶卡上的多個檔案 (1 個熒屏上顯示 6 個)。

1 移動 [−▪/VOL+] 桿切換影像。



朝 [+] 方向： 全屏顯示 (顯示 1 個影像。)
朝 [−] 方向： 多屏顯示 (1 個熒屏顯示 6 個檔案。)

- ●多屏顯示時，
  - ●移動控制桿選擇一個檔案 (被選擇的檔案將用黃框圈起來)，然後按下以確認選擇。被選擇的檔案將全屏顯示。
  - ●如果有 7 個以上檔案，則移動控制桿。顯示出下一個或前一個多熒屏。

■ 關於靜態圖片的相容性

- ●本攝錄放影機符合JEITA (Japan Electronics and Information Technology Industries Association) 制定的統一標準 DCF (Design rule for Camera File system)。
- ●本攝錄放影機所支持的檔案格式爲 JPEG。(並不是所有 JPEG 格式的檔案都可以重播。)
- ●如果重播不符合規格的檔案，文件夾 / 檔案名稱可能不會顯示。
- ●攝錄放影機會降低在其他產品上錄製或建立的資料的品質，或根本無法重播；其他產品也會降低在本攝錄放影機上錄製的資料的品質，或根本無法重播。

刪除記憶卡上錄製的檔案

刪除的檔案不能恢復。

●設置爲圖片重播模式。

1 左右移動控制桿選擇要刪除的檔案。

- ●可以在多屏顯示中選擇一個檔案。選擇檔案後，按下控制桿顯示操作圖標。

2 向下移動控制桿選擇 [🗑]。

3 上下移動控制桿選擇 [1 個檔案] 然後按下。
4 當出現確認信息時，選擇 [是]，並按下控制桿。

- ●若要停止刪除，選擇 [否]。

■ 刪除所有檔案

1 向下移動控制桿選擇 [🗑]。

2 上下移動控制桿選擇 [所有檔案] 然後按下。
3 當出現確認信息時，選擇 [是]，並按下控制桿。

- ●若選擇 [所有檔案]，如果記憶卡上有許多檔案，刪除可能要花費一些時間。
- ●當拍攝時出現 “記憶卡已滿”，請切換到圖片重播模式，然後刪除不需要的檔案。
- ●如果沒有檔案要刪除，請插入新的記憶卡。
- ●如果刪除符合 DCF 標準的檔案，與該檔案有關的所有資料都將被刪除。

■ 刪除用其他設備錄製在記憶卡上的靜態圖片檔案

●可以刪除無法在攝錄放影機上重播的靜態圖片檔案 (非 JPEG 格式)。

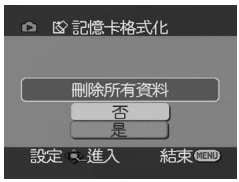
格式化記憶卡

必須清楚：如果記憶卡被格式化，則記憶卡上錄製的全部資料都將被擦除。請將重要資料存儲在個人電腦等設備上。

●設置爲圖片重播模式。

1 設置 [進階功能] >> [記憶卡格式化] >> [是]。

2 出現確認信息時，選擇 [是]，並按下控制桿，對記憶卡進行格式化。



●若要停止格式化，選擇 [否]。

●在正常的情況下，不需要對記憶卡進行格式化。如果即使多次插取記憶卡，信息仍出現，則應對其格式化。

●在個人電腦等其他設備上格式化的記憶卡可能不能使用，或拍攝時間比預期的要長。我們建議在本攝錄放影機上進行格式化。

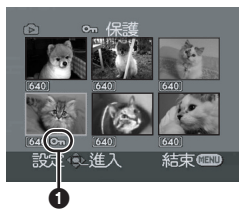
保護記憶卡上的檔案

可以鎖定錄製在記憶卡上的檔案，使其不能被錯誤地刪除。(即使檔案被鎖定，如果記憶卡被格式化，這些檔案也會被刪除。)

●設置爲圖片重播模式。

1 設置 [基本功能] >> [保護] >> [是]。

2 移動控制桿選擇需要鎖定的檔案，然後按下控制桿。



●[ ] 指示 ❶ 出現，所選檔案被鎖定。再次按下控制桿，鎖定將被取消。

●2 個或更多的檔案可以被接連鎖定。

■ 完成設定

按 [MENU] 鍵。

在記憶卡上寫入列印資料 (DPOF 設定)

可以將需要列印的圖片資料、列印份數及其他信息 (DPOF 資料) 寫在記憶卡上。

●設置爲圖片重播模式。

1 設置 [進階功能] >> [DPOF 設定] >> [設定]。

2 移動控制桿選擇需要設置的檔案，然後按下控制桿。

●顯示 DPOF 中設置的列印份數 ❶。

3 上下移動控制桿選擇列印份數，然後按下。

●選擇範圍爲 0 至 999。(所選的複製數量可以用支持 DPOF 的印表機列印。)

●2 個或更多的檔案可以被接連設置。

■ 完成設定

按 [MENU] 鍵。

●在其他攝錄放影機上做成的 DPOF 設定，本攝錄放影機可能不能識別。請在本攝錄放影機上進行 DPOF 設定。

■ 進行所有圖片都不列印的設定

在步驟 1 中選擇 [全部取消]。

■ 什麼是 DPOF？

DPOF (Digital Print Order Format) 意指數位列印指令格式。它能把列印信息加到記憶卡上的圖片中，使其可以在支持 DPOF 的系統中使用。

編輯模式

從錄影帶錄製到記憶卡上

可以從已經拍攝在錄影帶上的場景中將靜態圖片錄製在記憶卡上。

- **設置爲錄影帶重播模式。**
- **插入已錄有內容的錄影帶和記憶卡。**

1 開始重播。

2 在需要錄製的場景處暫停，按 [PHOTO SHOT] 鍵。

- 不能錄製聲音。

- 錄製在記憶卡上的靜態圖片尺寸變爲 [640]。(錄製的靜態圖片不是百萬像素的。)
- 如果不停頓地按 [PHOTO SHOT] 鍵，錄製的圖片會模糊不清。
- 在錄影帶上攝錄的 DV 輸入信號和寬銀幕影像不能錄製到記憶卡上。

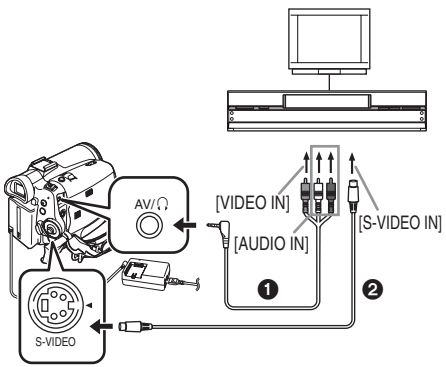
複製到 DVD 錄影機或 VCR 中 (配音)

用攝錄放影機拍攝的圖片可以保存在 DVD-RAM 或其他媒體中。有關錄影機的說明，請參見說明書。

- **將已錄製好的錄影帶放入攝錄放影機中，將未錄製的 DVD-RAM 或錄影帶放入 DVD 錄影機或 VCR 中。**

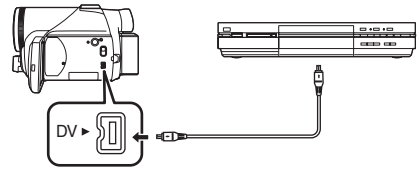
1 連接攝錄放影機和錄影機。

用 AV 電纜連接起來



- 用 AV 電纜 ❶ 連接攝錄放影機和錄影機。
- 如果錄影機上有 S 視頻端子，還要連接一根 S 視頻電纜 ❷(可選件)。這樣就可以複製到更清晰的影像。

用可選的 DV 電纜進行連接 (僅適用於有 DV 插孔的設備)



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2 打開攝錄放影機，設置爲錄影帶重播模式。
3 選擇電視機和錄影機的輸入頻道。
4 向上移動控制桿選擇 [▶] 圖標，開始重播。
- 影像和聲音被再現出來。

5 開始錄製。
6 向下移動控制桿選擇 [■] 圖標，停止重播。
7 停止錄製。

- 有關更詳細的說明，請參見電視機和錄影機的使用說明書。
- 不需要功能指示或日期 / 時間指示時，可以按遙控器上的 [OSD] 鍵，用以取消指示。
  (用 DV 電纜連接攝錄放影機和錄影機時，這些指示不會出現。)

■ 攝錄放影機既沒有影像也沒有聲音輸出到電視機中時

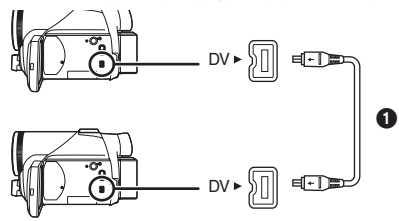
- 檢查插頭的插入深度是否足夠。
- 檢查連接端子。
- 即使設置爲 [基本功能] >> [AV 插孔] >> [輸出 /] , 電視機上也沒有影像顯示時，設置爲 [輸出]。(*-35-*)

用 DV 電纜錄製 (數位配音)

用 DV 電纜 VW-CD1E(可選件)❶ 來連接帶 DV 插孔的其他數位視頻設備和本攝錄放影機時，會以數位格式獲得影像優質的複製。

- **設置爲錄影帶重播模式。(放像機 / 錄影機)**

1 用 DV 電纜連接攝錄放影機和數位視頻設備。

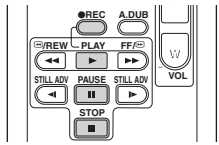


2 設置[進階功能] >> [拍攝待機] >> [是]。(錄影機)
- 當在數位複製中使用遙控器時，不必遵循下列步驟。

3 開始重播。(放像機)
4 開始錄製。(錄影機)

向上移動控制桿，選擇 [●/❚❚] 圖標。

或者，在按下遙控器上的 [●REC] 鍵的同時，按下 [►] 鍵。



5 再次向上移動控制桿，選擇 [●/❚❚] 圖標，或者按下遙控器上的 [❚❚] 按鈕，停止錄製。(錄影機)

6 停止重播。(放像機)

■ 取消拍攝待機狀態

當攝錄放影機處於拍攝待機狀態時，向下移動控制桿選擇 [■] 圖標。

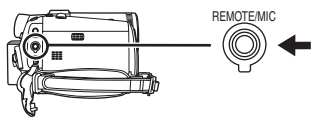
- 在複製過程中，不要插拔 DV 電纜，否則複製會無法正常完成。
- 如果被複製的圖片 (雙語視頻等) 中含有主音和次音，重播時要用 [設定] >> [音頻輸出] 選擇需要的聲音。
- 即使所用設備上配有如 IEEE 1394 等的 DV 插孔，在某些情況下也可能無法進行數位複製。有關更詳細的說明，請參見所連接設備的使用說明書。
- 不管錄影機上菜單的設置是什麼，數位複製都要採用與重播錄影帶相同的 [音效選擇] 模式進行。
- 錄影機顯示屏上的影像會失真，但不影響錄製的影像。
- 如果攝錄放影機錄製的圖片中含有版權保護信號 (複製保護)，則在重播時會有馬賽克圖案造成圖片失真。
- 斷開 USB 電纜，因爲連接 USB 電纜會無法錄製外部輸入端的輸入信號。當輸入寬銀幕影像時，諸如菜單熒幕或操作圖標那樣的顯示被水平拉長。
- 當輸入寬銀幕影像時，諸如菜單熒幕或操作圖標那樣的顯示被水平拉長。
- 圖片從 DV 端口輸入的時候，當按下控制桿的中心部位時，操作圖標開始閃爍而不是從熒屏邊上顯現。

配音

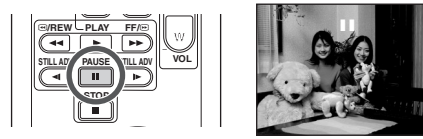
可以在所錄製的錄影帶上加上音樂或解說。

●設置爲錄影帶重播模式。

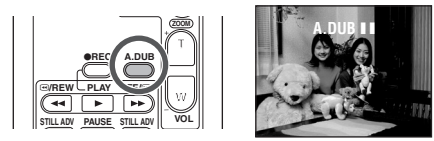
1 將外置麥克風牢牢插入 [REMOTE/MIC] 插孔，插入深度要儘量地深。



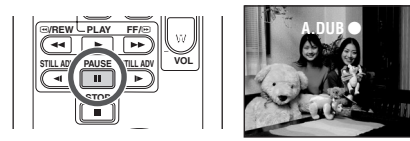
2 找到需要加入聲音的場景，按下遙控器上的 [❚❚] 鍵。



3 按下遙控器上的 [A.DUB] 鍵，準備好進行配音。

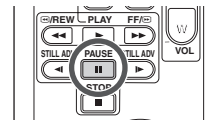


4 按遙控器上的 [❚❚] 鍵，開始配音。



●對著麥克風講話。

5 按遙控器上的 [❚❚] 鍵，停止配音。



- 如果複製時錄影帶上有未錄製的部分，則在重播錄影帶這一部分時，影像和聲音會失真。

■ 配音錄製前

●設置爲錄影帶拍攝模式。

- 在錄製的過程中如果需要保留原來的聲音，則在拍照時設置爲 [設定] >> [音效選擇] >> [12bit]。(如果設置 [16bit]，則在配音後，拍照時錄製的聲音將被擦除。)
- 拍照時，設置 [基本功能] >> [拍攝速度] >> [SP]。

■ 重播用配音錄製的聲音

可以在用配音錄製的聲音和原來的聲音之間進行轉換。

設置 [設定] >> [12bit 音頻] >> [ST2] 或 [混合]。

[ST1]: 只回放原來的聲音。

[ST2]: 只回放用配音添加的聲音。

[混合]: 同時回放原來的聲音和用配音添加的聲音。

■ 邊聽預先錄製的聲音邊進行配音

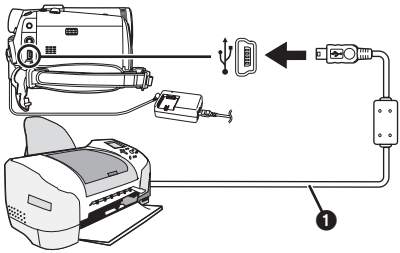
- 當暫停配音時，將 [設定] 子菜單上的 [12bit 音頻] 設置爲 [ST2] 就可以檢查預先錄製的聲音。

直接連接到印表機上列印圖片 (PictBridge)

直接連接攝錄放影機與印表機來列印圖片時，要使用與 PictBridge 相容的印表機。(仔細閱讀印表機的使用說明書。)

●**插入記憶卡，並設置爲圖片重播模式。**

1 用隨機提供的 USB 電纜來連接攝錄放影機和印表機。



❶USB 電纜

●攝錄放影機熒屏上出現 [PictBridge] 的指示。(當正在識別印表機時，[PictBridge] 指示閃爍。)
●攝錄放影機中沒有插入記憶卡時，[PictBridge] 指示不出現。(不能列印圖片。)
●攝錄放影機和印表機之間的連接不正確時，[PictBridge] 指示將持續閃爍。(閃爍約 1 分鐘。) 請連接電纜或檢查印表機。
●我們建議用 AC 適配器作爲電源。
●採用多屏顯示影像時，不能列印。

2 選擇 [單張列印] 或 [DPOF 列印]。
●如果沒有帶 DPOF 設定的文件，則無法選擇 [DPOF 列印]。
●當爲列印選擇[DPOF列印]時，請在DPOF設定中設置列印數量。
●選擇 [DPOF 列印] 時，將在確定紙張尺寸後立即開始列印。

3 左右移動控制桿，選擇一個要的圖片，然後按下。

4 選擇需要列印的份數。
●最多可列印 9 份。

5 選擇日期列印的設置。
●如果印表機不能列印日期，此設置無效。

6 選擇紙張尺寸。
[標準]: 印表機的尺寸規格
[4×5 英吋]
[5×7 英吋]
[4×6 英吋]
[A4]
●不能設置爲印表機不支持的紙張尺寸。

7 設置 [列印] >> [是] ，開始列印。

■ 中途停止列印時

向下移動控制桿。

●列印時應避免以下的操作。這些操作會影響正常列印。
●斷開 USB 電纜
●取出記憶卡
●轉動模式轉盤
●關閉電源
●檢查印表機的紙張尺寸、列印質量等設置。
●不能列印無法在攝錄放影機上重播的圖片。
●如果在錄影帶拍攝 / 重播模式下連接攝錄放影機和印表機，則在 LCD 顯示屏上就會出現 [WEB] 或 [WEB] 指示。但不能列印圖片。

菜單

菜單列表

菜單的圖形和說明採用便於理解的解釋方式，所以不同於實際菜單指示。

■ [錄影帶拍攝菜單]

1) [基本功能]
[場景模式] *-23-*
[拍攝速度] *-16-*
[空白尋像] *-17-*
[消除風聲] *-21-*
[時鐘設定] *-13-*

2) [進階功能]
[圖片質量] *-18-*
[防震功能] *-22-*
[寬屏電影模式] *-22-*
[USB 功能] (請參見關於個人電腦連接的使用說明書。)
[數位變焦] *-19-*
[變焦麥克風] *-19-*
[日期 / 時間] *-35-*
[初始設定] *-35-*

3) [設定]
[淡入淡出] *-21-*
[音效選擇] *-35-*
[拍攝燈] *-35-*
[顯示] *-35-*
[遙控] *-15-*
[操作音] *-35-*
[LCD 設定] *-13-*
[EVF 設定] *-13-*
[示範模式] *-35-*
[AV 插孔] *-35-*
[節電] *-35-*

4) [LANGUAGE] *-12-*

■ [錄影帶重播菜單]

1) [基本功能]
[日期 / 時間] *-35-*
[AV 插孔] *-35-*
[USB 功能] (請參見關於個人電腦連接的使用說明書。)

2) [進階功能]
[空白尋像] *-17-*
[拍攝速度] *-16-*
[拍攝待機] *-30-*
[拍攝資料] *-35-*
[圖片質量] *-18-*
[重複播放] *-26-*

3) [設定]
[12bit 音頻] *-31-*
[音頻輸出] *-35-*
[顯示] *-35-*
[遙控] *-15-*
[LCD 設定] *-13-*
[EVF 設定] *-13-*
[節電] *-35-*

4) [LANGUAGE] *-12-*

■ [記憶卡拍攝菜單]

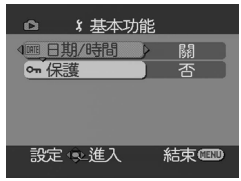
1) [基本功能]
[場景模式] *-23-*
[圖片質量] *-18-*
[圖片尺寸] *-18-*
[自拍計時器] *-21-*
[時鐘設定] *-13-*

2) [進階功能]
[連拍模式] *-22-*
[快門效果] *-18-*
[日期 / 時間] *-35-*
[初始設定] *-35-*

3) [設定]
[拍攝燈] *-35-*
[顯示] *-35-*
[遙控] *-15-*
[操作音] *-35-*
[LCD 設定] *-13-*
[EVF 設定] *-13-*
[節電] *-35-*

4) [LANGUAGE] *-12-*

■ [圖片重播菜單]



1) [基本功能]
[日期 / 時間] *-35-*
[保護] *-29-*

2) [進階功能]
[DPOF 設定] *-29-*
[記憶卡格式化] *-29-*

3) [設定]
[顯示] *-35-*
[遙控] *-15-*
[LCD 設定] *-13-*
[EVF 設定] *-13-*
[節電] *-35-*

4) [LANGUAGE] *-12-*

與照相有關的菜單

■ [日期 / 時間]
在日期指示和時間指示之間轉換。
- 攝錄放影機將自動錄製錄影帶中圖片上的日期和時間。
- 也可以反復按動遙控器上的 [DATE/TIME] 鍵，用以顯示或改變日期 / 時間指示。

■ [音效選擇]
轉換錄音 (PMC 音頻) 系統。
[12bit]: 以 “12 bit 32 kHz 4 tracks” 的方式進行錄音。(其他音頻信號複製後，可以保留原有的音頻信號。)
[16bit]: 以 “16 bit 48 kHz 2 tracks” 的方式進行錄音。可以較高的質量錄音。(如果複製音頻信號，則原有的音頻信號將被擦除。)

■ [拍攝燈]
設置爲 [開]，錄製時能使拍攝燈點亮，說明錄製正在進行中。設置爲 [關]，即使正在進行錄製，指示燈也不亮。

■ [顯示]
設置爲 [開]，顯示模式可以轉換到所有功能。設置爲 [關]，可以轉換到最低顯示。

■ [操作音]
設置爲 [開]，將按以下的方式發出確認 / 報警操作音。
一聲嘟音
- 開始錄製時
- 打開電源時

兩聲嘟音
- 暫停錄製時

兩聲嘟音四次
- 當插入的錄影帶的防止擦除滑塊設置爲 [SAVE] 時，發生水汽凝結時以及其他情況時。請查看熒屏上顯示的內容。

■ [節電]
[關]: 當 5 分鐘內沒有進行任何操作，則自動設置爲待機模式。在待機模式下，[❚❚] 閃爍，並且在按下拍攝啓動 / 停止鍵後開始錄製所用的時間比平時要長。
[5 分鐘]: 當 5 分鐘內沒有進行任何操作，攝錄放影機將自動關閉以保護錄影帶或防止電池用盡。當使用攝錄放影機時，請再次打開。
- 在下列情況下，即使設置了 [節電] >> [5 分鐘]，電源可能也不會關閉。
  - 連接到 AC 電源插座時 (使用 AC 適配器時)
  - 將 USB 電纜或 DV 電纜連接到個人電腦或其他設備時
  - PC 模式時

與重播有關的菜單

■ [AV 插孔]
在 AV/ 耳機插孔的輸出設置之間進行轉換。
[輸出 /🎧]: 在 AV 和耳機輸出之間進行自動轉換。
[輸出]: 如果在 [輸出 /🎧] 下影像或聲音不能正常輸出到電視機，使用這一設置。
- 使用耳機時，設置 [設定] 或 [基本功能] >> [AV 插孔] >> [輸出 /🎧]。如果設置 [輸出]，會在右側聽到噪音。

■ [拍攝資料]
設置爲 [開]，回放時將顯示錄製時採用的設置 (快門速度、光圈 / 增益值和白平衡設置 (*-23-*) 等)。
- 當 [AUTO/MANUAL/FOCUS] 開關設置爲 [AUTO]，出現 [AUTO] 指示。
- 如果沒有資料，顯示器上出現 [---]。
- 如果在其他的設備上回放攝錄放影機上的攝錄放影機資料，有時不能正常顯示設置信息。

■ [音頻輸出]
這一菜單的功用是轉換重播的聲音。
[立體聲]: 立體聲 (主音和次音)
[L]: 左聲道的聲音 (主音)
[R]: 右聲道的聲音 (次音)

其他菜單

■ [初始設定]
根據功能的結合，當菜單不能選擇時，設置爲 [是]，可將菜單恢復到出廠時的設置情況。
(語言設定不能恢復到出廠時的設定狀態。)

■ [示範模式]
如果設置爲 [示範模式] >> [開] 而未插入錄影帶或記憶卡，攝錄放影機將自動設置爲介紹功能的示範模式。如果按下或操作任何一個鍵子，示範模式將被取消。如果 10 分鐘左右未進行任何操作，示範模式將自動開始。要終止示範模式，可插入一盤錄影帶或記憶卡，或設置爲 [示範模式] >> [關]。一般使用時，將此功能設置爲 [關]。

其他方面

指示內容

各種功能和攝錄放影機的狀態可以在熒屏上顯示出來。

基本指示

:	剩餘的電池電量
0h00m00s00f:	時間碼
15:30:45:	日期 / 時間指示

拍攝指示

R0:45:	剩餘的錄影帶時間
●剩餘錄影帶時間按分鐘顯示。(不足 3 分鐘時，指示開始閃爍。)	
SP:	標準播放模式 (拍攝速度模式) *-16-*
LP:	長時間播放模式 (拍攝速度模式) *-16-*
●:	拍攝 *-17-*
❚❚ (綠色):	拍攝暫停 *-17-*
❚❚ (綠色閃爍):	待機模式
❚❚ (紅色):	淡出
:	拍攝檢查 *-17-*
CINEMA:	寬屏電影模式 *-22-*
:	數位變焦 *-19-*
AUTO:	自動模式 *-16-*
MNL:	手動模式 *-23-*
MF:	手動對焦 *-24-*
5×:	變焦放大率指示 *-18-*
:	逆光模式 *-20-*
:	畫面穩定器 *-22-*
1/500:	快門速度 *-25-*
F2.4:	光圈值 *-25-*
6dB:	增益值 *-25-*
:	肌膚柔和模式 *-20-*
:	長焦微距 *-20-*
W:	漸變 (白色) *-21-*
B:	漸變 (黑色) *-21-*
:	彩色夜視功能 *-20-*
0Lux :	0 勒克斯夜視功能 *-20-*
ZOOM :	變焦麥克風 *-19-*
:	消除風聲噪音 *-21-*
:	運動模式 (場景模式) *-23-*
:	肖像模式 (場景模式) *-23-*
:	低照度模式 (場景模式) *-23-*
:	聚光燈模式 (場景模式) *-23-*
:	海灘和雪地模式 (場景模式) *-23-*
AWB:	自動白平衡 *-23-*
:	室內模式 (白熾燈下拍攝) *-23-*
:	室外模式 *-23-*
:	白平衡調整模式 *-23-*
WEB:	網路攝影模式 (拍攝) *-32-*

重播指示

●:	拍攝正在進行中
▶:	重播 *-26-*
❚❚:	暫停 *-26-*
▶▶:	快進 / 快進搜索重播 *-26-*
◀◀:	回捲 / 回捲搜索重播 *-26-*
▮▶/◀▮:	慢動作重播 *-26-*
❚❚▶/◀❚❚:	逐格重播 *-26-*
2×▶▶:	變速搜索 *-27-*
▶:	反復重播 *-26-*
WEB:	網路攝影模式 (重播) *-32-*
A.DUB ●:	配音 *-31-*
A.DUB ❚❚:	配音暫停 *-31-*
:	空白搜索 *-17-*
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記憶卡

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(白色):	拍照模式
(綠色):	正在讀記憶卡
:	拍照拍攝啓動時
(紅色):	使用的記憶卡不能識別
( ):	拍照圖片質量 *-18-*
0:	拍照圖片剩餘數量 (拍照圖片剩餘數量達到 0 時，紅色指示閃爍。)
:	幻燈放映重播 *-28-*
PictBridge:	PictBridge 模式 *-32-*
100-0001:	文件夾 / 檔案顯示
No.00:	檔案號
1:	DPOF 設置的數量 *-29-*
:	鎖定設置 *-29-*
640:	[640×480] 影像尺寸
1520:	[1520×1152] 影像尺寸
●如果影像不是用本攝錄放影機拍攝的，則其尺寸顯示由如下的水平像素所決定。	
QXGA:	2048 或者更大
UXGA:	1600 或者更大，小於 2048
SXGA:	1280 或者更大，小於 1600
XGA:	1024 或者更大，小於 1280
SVGA:	800 或者更大，小於 1024
640:	640 或者更大，小於 800(這一尺寸不能在小於 640 像素的條件下顯示。)

警告 / 報警指示

如果以下指示亮起或閃爍，請檢查攝錄放影機。

確認性指示

: 插入的錄影帶的防意外擦除滑塊位於 [SAVE] 位置。
沒有插入錄影帶。

[--]/ :
內置電池的電量不足。***-13-***

[!]: 自拍時出現警告 / 報警指示。將 LCD 顯示屏轉向取景器方向，檢查警告 / 報警指示。

：沒有插入記憶卡。

REMOTE :
選擇的遙控模式不正確。***-15-***

END:
在拍攝時錄影帶到達終點。

: 攝像頭不乾淨。***-41-***

文本指示

[ ] 檢測到露水 /[ ] 取出錄影帶 :
發生了水汽凝結。取出錄影帶，稍等片刻。錄影帶倉打開時需要一定的時間，但這不是故障。***-41-***

電量不足 :
電池的電量不足。請進行充電。***-8-***

未插入錄影帶 :
沒有插入錄影帶 。***-9-***

錄影帶結束 :
在拍攝時錄影帶到達終點。

檢查拍攝標簽 :
攝像時錄影帶的防意外擦除滑塊處於 [SAVE] 位置。
配音或數位複製時錄影帶的防意外擦除滑塊處於 [SAVE] 位置。

檢查遙控模式 :
選擇的遙控模式不正確。此資訊只在通電後遙控器第一次工作時顯示。***-15-***

錄影帶無法重播 (其他格式):
重播的錄影帶部分是以不同的電視制式拍攝的。此錄影帶與本攝錄放影機不相容。

記憶卡無法重播 :
重播的資料與本攝錄放影機不相容。

無法配音 (以 LP 拍攝):
由於原拍攝採用的是 LP 模式，所以無法進行配音。

無法配音 :
在未錄製的錄影帶上進行配音。

禁止複製 :
因媒體受複製保護而無法正確重播影像。

記憶卡錯誤 :
此記憶卡與本攝錄放影機不相容。
試圖對失效的記憶卡進行格式化。
當試圖向記憶卡插槽中插入不相容的記憶卡時，顯示出該指示。

無記憶卡 :
沒有插入記憶卡。

記憶卡已滿 :
記憶卡上沒有足夠的剩餘存儲空間。
選擇圖片重播模式，刪除不需要的檔案。

無資料 :
記憶卡上沒有錄製的檔案。

檔案被鎖定 :
試圖擦除受保護的檔案。

記憶卡被鎖定 :
SD 記憶卡上的寫保護開關設在 [LOCK] 位置。

需要清潔磁頭 :
攝像頭不乾淨。***-41-***

請按重置鍵 :
檢測到設備有缺陷。按 [RESET] 鍵 (***-5-***)。可解決此問題。

無法使用 USB 請變更模式 :
在記憶卡拍攝模式下將 USB 電纜連接到攝錄放影機。

斷開 USB 電纜 :
USB 電纜連到攝錄放影機時試圖在 PC 模式下轉動模式轉盤。USB 電纜連到攝錄放影機上時，在錄影帶 / 記憶卡上拍攝圖片。

無墨 :
無墨。請檢查所連接的印表機。

無紙 :
無紙。請檢查所連接的印表機。

印表機錯誤 :
請檢查所連接的印表機。

PC 不支持 USB2.0:
攝錄放影機所連接的個人電腦不支持 USB 2.0。

無法使用 USB:
連接 DV 電纜的同時又連接 USB 電纜。

更改爲手動模式 :
當 [AUTO/MANUAL/FOCUS] 開關設置爲 [AUTO] 時，試圖在 [場景模式] 上選擇項目。

無法操作 (動態 DV 模式):
在 MotionDV 模式中，試圖改變 [數位變焦] 設定。

翻轉 LCD 顯示屏 :
在 0 勒克斯夜視模式中，當 LCD 顯示屏沒有翻轉時，出現該指示。
當 LCD 顯示屏朝鏡頭方向旋轉 180° 時，LCD 顯示屏的亮度不能調整。

無法同時使用的功能

因攝錄放影機的規格問題有些功能被禁止或無法選擇。下表所示爲被條件限制功能的例子。

功能	禁止功能的條件
●漸近	●同時在錄影帶和記憶卡上拍攝時 ●當使用數位變焦時 (10× 或更高) ●在錄影帶拍攝模式下快門速度爲 1/750 或者更快時 ●在錄影帶拍攝模式下當增益值增加時 ●使用了彩色夜視功能時 ●在錄影帶拍攝模式下當使用場景模式的肖像 模式時
●數位變焦 ●漸變	●當使用記憶卡拍攝模式時
●畫面穩定器	●當使用記憶卡拍攝模式時 ●當使用彩色夜視功能時
●逆光補償	●當設置光圈 / 增益時 ●當使用彩色夜視功能時
●肌膚柔和 ●長焦微距 ●拍攝檢查	●當錄製到錄影帶上時
●彩色夜視	●當錄製到錄影帶上時 ●當使用記憶卡拍攝模式時
●連續拍照	●當 [圖片尺寸] 設置爲除 [640] 以外時
●變焦麥克風 ●消除風聲噪音	●使用外置麥克風
●場景模式	●當將 [AUTO/MANUAL/FOCUS] 開關設置爲 [AUTO] 時 ●當使用彩色夜視功能時
●改變白平衡	●當使用數位變焦時 (10× 或更高) ●當使用彩色夜視功能時 ●當顯示菜單時
●調整快門速度、光圈 / 增益	●當使用彩色夜視功能時 ●當使用場景模式時
●變速搜索	●處於反復重播過程中
●刪除檔案	●當記憶卡上的寫保護開關設在 [LOCK] 的位置時 ●當檔案受到保護時
●格式化	●當記憶卡上的寫保護開關設在 [LOCK] 的位置時
●配音	●錄影帶的這部分是以 LP 模式錄製的 ●錄影帶上的空白部分 ●通過 DV 端口發送聲音

請求修理前 (問題和解決方法)

電源 / 機身

1: 攝錄放影機的電源不能打開。

- 電池是否充足電？ 請使用充足電的電池。
- 電池的保護電路已經可能啓動。請將電池裝在 AC 適配器上停留 5 至 10 秒。如果攝錄放影機仍不能使用，說明電池已經失效了。

2: 攝錄放影機電源自動關閉。

- 如果將[節電]設置爲[5分鐘]並連續5分鐘未使用攝錄放影機，電源會自動關閉，以保護錄影帶和節省電量。要恢復拍攝，請將 [OFF/ON] 開關設置爲 [OFF]。然後再轉到 [ON]。(*-35-*)

3: 攝錄放影機電源供電時間不夠長。

- 電池電量是否足夠？ 如果電池剩餘的電量的指示閃爍或顯示 “電量不足” 資訊，說明電池電量已耗盡。請給電池充電或裝入一塊充足電的電池。(*-8-*)
- 是否出現水汽凝結？ 如果將攝錄放影機從寒冷的地方帶到溫暖的地方，攝錄放影機內部會發生水汽凝結。在這種情況下，電源會自動關閉，除了取出錄影帶不能進行任何操作。請等待直到水汽凝結指示消失。(*-41-*)

4: 電池用得太快。

- 電池是否充足電？ 請用 AC 適配器給電池充電。(*-8-*)
- 是否在極冷的地方使用電池？ 環境溫度對電池有影響。在寒冷地方，電池的工作時間會變短。
- 電池是否快用壞了？ 電池有一定的壽命。根據使用情況，如果即使電池充足電，工作時間仍太短，則電池已到壽命，不能再用。

5: 即使打開電源，攝錄放影機也不能工作。
攝錄放影機不能正常工作。

- 請取出錄影帶，然後按 [RESET] 鍵。(*-40-*) 如果仍不能恢復正常狀態，請關閉電源。然後，大約 1 分鐘后，再次打開電源。(在存取指示燈亮的情況下進行上述操作，會破壞記憶卡上的資料。)

6: 無法取出錄影帶。

- 打開錄影帶倉蓋時，電源指示燈是否點亮？ (*-10-*) 一定要保證電池和 AC 適配器連接正確。(*-8-*)
- 電池在使用時是否放電？ 請給電池充電，然後取出錄影帶。
- 完全關閉錄影帶倉蓋，再重新完全打開。(*-9-*)

7: 除取出錄影帶外，無法進行任何操作。

- 是否出現水汽凝結？ 請等待直到水汽凝結指示消失。(*-41-*)

8: 遙控器不工作。

- 遙控器上的鈕扣型電池是否電量耗盡？ 請更換一塊新的鈕扣型電池。(*-14-*)
- 對遙控器的設置是否正確？ 如果遙控器的設置與攝錄放影機的 [遙控] 設置不一致，則遙控器不能工作。(*-15-*)

拍攝

1: 儘管攝錄放影機有電，而且錄影帶也正確插入，但也不能開始拍攝。

- 錄影帶上的防止意外擦除滑塊是否打開？ 如果打開 (設置爲 [SAVE])，則無法進行拍攝。(*-10-*)
- 錄影帶是否到達了終點？ 請插入新的錄影帶。
- 是否設置了拍攝模式？ 如果設在重播模式，則無法進行拍攝。(*-16-*)
- 是否出現水汽凝結？ 當發生水汽凝結時，除取出錄影帶外，無法進行任何操作。請等待直到水汽凝結指示消失。(*-41-*)
- 錄影帶倉蓋是否打開？ 如果倉蓋打開，攝錄放影機將不能正常工作。請關閉倉蓋。(*-9-*)

2: 熒屏突然改變。

- 是否開始示範？ 如果在錄影帶拍攝模式下設置 [示範模式] >> [開] 而未插入錄影帶或者記憶卡，將開始進行示範。一般使用時，將此功能設置爲 [關]。(*-35-*)

3: 無法插入錄影帶。

- 是否出現水汽凝結？ 請等待直到水汽凝結指示消失。

4: 自動對焦功能不起作用。

- 是否選擇了手動對焦模式？ 如果選擇了自動對焦模式，將自動調整焦距。
- 自動對焦對某些拍攝物體和環境不能正常工作。(*-44-*) 在這種情況下，使用手動對焦模式來調整焦距。(*-24-*)
- 是否設置了彩色夜視功能？ 彩色夜視功能工作時，焦距調整將轉爲手動模式。

指示內容

1: 句子以紅色或黃色顯示在熒屏中央。

- 請閱讀句子的內容並對其作出回應。(*-37-*)

2: 時間碼不精確。

- 在反向慢動作重播時，時間碼指示計數可能不是常數，但這不是故障。

3: 剩餘錄影帶時間指示消失。

- 逐格重播或進行其他操作時，剩餘錄影帶時間指示可能會暫時消失。如果繼續進行一般的拍攝或重播，指示就會恢復。

4: 剩餘錄影帶時間指示與實際剩餘錄影帶時間不相符。

- 如果連續拍攝不足 15 秒的場景，剩餘錄影帶時間將無法正確顯示。
- 有時剩餘錄影帶時間指示所顯示的剩餘錄影帶時間會比實際剩餘錄影帶時間短 2 至 3 分鐘。

5: 不能出現模式指示、剩餘錄影帶時間指示或時間碼指示等功能指示。

- 如果設置爲 [設定] >> [顯示] >> [關]，除錄影帶運行狀態、警告和日期指示外，其他指示都消失了。

重播 (聲音)

1: 不能從攝錄放影機的內置揚聲器或耳機中重播聲音。

- 音量是否太低？ 重播時，推動 [−/VOL+] 桿顯示音量指示並進行調整。(*-26-*)

2: 同時再現不同的聲音。

- 是否設置爲[設定] >> [12bit音頻] >> [混合]？ 如果設置爲 [音效選擇] >> [12bit] 並在已經錄製的錄影帶上進行配音，可以聽到拍攝時的聲音以及後來的複製的聲音。如要聽單獨的聲音，設置爲 [ST1] 或 [ST2]。(*-31-*)
- 是否設置了 [設定] >> [音頻輸出] >> [立體聲]，並再現含有主音和次音的圖片？ 設置爲 [L] 可以聽到主音，設置爲 [R] 可以聽到次音。(*-35-*)

3: 不能進行配音。

- 錄影帶上的防止意外擦除滑塊是否打開？ 如果打開 (設置爲 [SAVE])，則不能進行配音。(*-10-*)
- 是否試圖對以 LP 模式錄製的錄影帶部分進行編輯？ LP 模式不允許配音。(*-16-*)

4: 進行配音時，原音被擦除。

- 如果對用 [16bit] 模式錄製的內容進行配音，原音將被擦除。如果希望保留原始聲音，錄製時一定要選擇 [12bit] 模式。

5: 無法重播聲音。

- 儘管正在重播的錄影帶上沒有配音，是否也設置爲 [設定] >> [12bit 音頻] >> [ST2]？ 要重播的錄影帶上沒有配音，設置爲 [12bit 音頻] >> [ST1]。(*-31-*)
- 變速搜索功能是否正在工作？ 按遙控器上的 [VAR. SEARCH] 鍵，取消變速搜索功能。(*-27-*)

6: 從右邊的耳機中聽到噪音。

- 是否設置爲[基本功能] >> [AV插孔] >> [輸出]？ 使用耳機時要設置爲 [輸出 /]。

重播 (圖片)

1: 快進搜索或回捲搜索重播時，影像上出現馬賽克干擾。

- 這種現象是數位視頻系統的特點。不是故障。

2: 快進搜索和回捲搜索重播時，影像上出現水平條紋。

- 根據場景的不同會出現水平條紋，但這不是故障。

3: 儘管攝錄放影機與電視機連接正確，也看不到重播的影像。

- 電視機是否選擇了視頻輸入？ 請閱讀電視機的使用說明書，選擇與連接所用的輸入插孔相匹配的頻道。

4: 重播圖片不清晰。

- 攝錄放影機的磁頭是否髒了？ 如果磁頭不乾淨，重播的影像就會不清晰。請用數位視頻磁頭清洗帶 (可選件) 清潔磁頭。(*-41-*)
- 如果 AV 電纜的插頭被弄髒，熒屏上會出現干擾。請用軟布將插頭上的汙物擦掉，然後再插到 AV 插孔中。
- 正在錄製的圖片中是否含有版權保護信號 (複製保護)？ 用攝錄放影機重播受保護的圖片時，圖片上就會出現馬賽克圖案。

記憶卡

1: 所拍攝的圖片不清晰。

- 是否設置爲[基本功能] >> [圖片質量] >> [ ]？ 如果拍攝時設置爲 [ ]，圖片中的精細部分會有馬賽克圖案。設置 [圖片質量] >> [ ]。(*-18-*)

2: 無法刪除記憶卡上的檔案。

- 檔案是否被鎖定？ 鎖定的檔案無法刪除。(*-29-*)
- 對於 SD 記憶卡，如果寫保護開關設在 [LOCK] 的位置上，則不能刪除。(*-10-*)

3: 拍照重播的影像不能正常觀看。

- 圖片可能損壞。爲防止影像資料丟失，建議在錄影帶或個人電腦上進行備份。

4: 即使對記憶卡進行格式化後，也無法使用。

- 攝錄放影機或記憶卡可能損壞了。請向經銷商諮詢。

5: 重播時顯示出 [記憶卡無法重播]。

- 影像是以其他的格式拍攝的，或資料損壞。

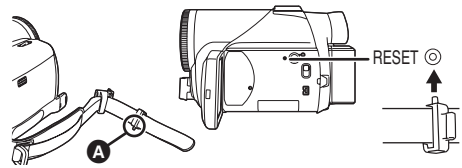
其他方面

1: 指示消失、熒屏凍結或無法進行操作。

- 關閉攝錄放影機的電源。如果電源無法關閉，請按 [RESET] 鍵，或者拆下電池或 AC 適配器後，再重新安裝。然後重新打開電源。如果仍不能恢復正常的操作，則拔下電源線，向出售攝錄放影機的經銷商諮詢。

2: 顯示 “請按重置鍵”。

- 自動檢測到攝錄放影機有缺陷。請取出錄影帶或記憶卡，以保護資料，然後用尖端 Ⓐ 按 [RESET] 鍵。攝錄放影機將被啓動。



- 如果不按 [RESET] 鍵，攝錄放影機會在一分鐘後自動關閉。
- 甚至在按 [RESET] 鍵以後，指示仍會反復出現。在這種情況下，攝錄放影機需要維修。拔下電源線，向出售攝錄放影機的經銷商諮詢。不要試圖自行修理機器。

3: 即使連接了 USB 電纜，攝錄放影機也不能被個人電腦識別。

- 是否安裝了 USB 驅動程序？ 更詳細的信息，請參考個人電腦連接部分的使用說明書 (單獨的說明書)。

4: 拔下 USB 電纜後，個人電腦上將出現出錯資訊。

- 爲了安全地拔下 USB 電纜，請雙擊任務欄上的 [] 圖標，然後按熒屏上的提示進行操作。

5: 攝錄放影機在編輯、從數位視頻設備上複製或使用 “MotionDV STUDIO 5.3E LE for DV” 時，發生了故障。

- 如果錄影帶的錄製內容含有如 SP 和 LP(拍攝模式)、12bit 和 16bit(錄音模式)、普通模式和寬銀幕模式、錄製部分和未錄製部分等多種模式，攝錄放影機在模式轉換處可能會發生故障。編輯時請不要以多種模式錄製。

6: 在網路攝影模式下操作攝錄放影機時，出現警告 / 報警指示 [ ]。

- 是否按下了菜單鍵或按拍攝啓動 / 停止鍵？ 在網路攝影模式下不能使用菜單或向錄影帶 / 記憶卡上錄製。
- 對遙控器的設置是否正確？
- 是否在錄影帶沒插入時試圖播放錄影帶？ 插入錄影帶。
- 是否試圖播放帶有版權保護 (複製保護) 的錄影帶？ 不能在個人電腦上顯示帶有版權保護 (複製保護) 的錄影帶上的圖片。(可能播放錄影帶上的聲音。)
- 是否安裝了視頻流驅動程序？ 詳細信息，請參見關於個人電腦連接的使用說明書。

使用注意事項

■ 有關水汽凝結

如果磁頭或錄影帶發生水汽凝結時打開攝錄放影機，在取景器或 LCD 顯示屏上顯示水汽凝結顯示 [ ](黃色或紅色) 並出現 [檢測到露水] 或 [取出錄影帶](僅在錄影帶插入時) 資訊。在這種情況下，按以下的步驟進行操作。

[ ] 黃色：

有少量的露水黏在磁頭或錄影帶上。

[ ] 紅色：

有露水黏在磁頭或錄影帶上。

1 取出插入的錄影帶。

- 打開錄影帶倉大約需要 20 秒。這不是故障。

2 關閉錄影帶倉蓋，靜置攝錄放影機，讓攝錄放影機冷卻或升溫，使其達到環境溫度。

當爲黃色 [ ] 時

- 無法使用錄影帶拍攝 / 重播模式。請將攝錄放影機靜置 30 分鐘左右。
- 但可以在沒有插入錄影帶時使用記憶卡拍攝模式或圖片重播模式。

當爲紅色 [ ] 時

- 電源指示燈閃爍 1 分鐘左右，然後攝錄放影機自動關閉。靜置攝錄放影機 2 至 3 小時。

3 再次打開攝錄放影機，將它設置爲錄影帶拍攝 / 重播模式，然後檢查水汽凝結指示是否消失。

特別是在寒冷的地區，濕氣可能會凍冰。在這種情況下，水汽凝結指示消失所需的時間會更長。

即使在水汽凝結指示出現前也要注意是否有水汽凝結。

- 在不同的條件下，水汽凝結指示可能不出現。鏡頭或攝錄放影機發生水汽凝結時，磁頭和錄影帶也會發生水汽凝結。此時不要打開錄影帶倉蓋。

當鏡頭有霧氣時：

將 [OFF/ON] 開關設在 [OFF]，在此狀態下靜置攝錄放影機 1 小時左右。鏡頭溫度接近環境溫度時，霧氣會自然消失。

■ 關於磁頭變髒

如果視頻磁頭 (與錄影帶緊密接觸的部分) 變髒，將不能正常拍攝和重播。請用數位視頻磁頭清洗帶清潔磁頭。

- 將磁頭清洗帶插入攝錄放影機中，設置爲錄影帶重播模式，播放 10 至 20 秒左右。(如果不停止重播，30 秒後將自動停止。)
- 建議定期清洗磁頭。

如果磁頭變髒，拍攝時會出現 “需要清潔磁頭”。重播時還會出現以下現象。

- 局部出現馬賽克雜訊或聲音中斷。
- 出現黑色或藍色的馬賽克水平條紋。

即使清潔磁頭後也不能正常重播

一個可能的原因是拍攝時磁頭是髒的，所以無法正常拍攝。請清潔磁頭，重新拍攝和重播。如果可以正常重播，說明磁頭是乾淨的。重要拍攝前一定要進行試拍，以保證拍攝的正常進行。

●如果清潔後磁頭很快又變髒，問題可能出在錄影帶上。在這種情況下，請用其他的錄影帶。
●重播時圖片或聲音可能會暫時中斷，但這不是攝錄放影機的故障。(一個可能的原因是有汙物或灰塵黏在磁頭上，造成重播中斷。)

■ 關於攝錄放影機

●長時間使用攝錄放影機，機體會變熱，但這不是故障。

要使攝錄放影機遠離蜂窩電話、微波爐、電視機和視頻遊戲機等帶有磁性的設備。

●如果使用時將攝錄放影機放在電視機上或靠近電視機，影像或聲音就會因電磁波輻射而失真。
●揚聲器或大型電機產生的強磁場會損壞錄製在錄影帶上的內容，或者使影像失真。
●微處理機等數位電路產生的電磁波輻射會對攝錄放影機產生不利的影響，造成影像和聲音失真。
●如果攝錄放影機受到此類設備的影響而不能正常工作，請關閉攝錄放影機電源，拆下電池或 AC 適配器。然後再重新連接電池或 AC 適配器，打開攝錄放影機的電源。

使用攝錄放影機時不要靠近無線電發射機或高壓電纜。

●如果在無線電發射機或高壓電纜附近攝像，所拍攝的圖片或聲音會受到影響。

不要在攝錄放影機上噴灑殺蟲劑或揮發性化學劑。

●如果用此類化學劑噴灑攝錄放影機，攝錄放影機的機體會變形，表皮會剝落。
●不要使橡膠或塑膠製品長時間地與攝錄放影機接觸。

在海灘等風砂或灰塵大的地方使用攝錄放影機時，不要讓沙子或細微的灰塵進入攝錄放影機的機體和插孔內。還要防止攝錄放影機受潮。

●沙子或灰塵能損壞攝錄放影機或錄影帶。(插取錄影帶時要注意。)
●如果海水濺到攝錄放影機上，要用自來水將軟布浸濕，用力擰幹，用它仔細擦拭攝錄放影機。然後再用軟的幹布徹底擦拭一遍。

攜帶攝錄放影機時不要摔落或碰撞。

●攝錄放影機受到強烈碰撞後會使殼體破裂，造成故障。

不要使用汽油、稀釋劑或酒精清洗攝錄放影機。

●清洗前要拔下電池或從AC電源插座上拔下AC電源線。
●機體會褪色，表皮會剝落。
●要用軟的幹布擦掉攝錄放影機上的灰塵和指印。祛除頑固性的汙漬時，要用水稀釋中性清潔劑後浸濕抹布，用力擰幹，用它來擦拭攝錄放影機。然後再用幹布擦一遍。
●如果使用化纖防塵布，須遵守說明書的要求。

不要用此攝錄放影機作監視用或用於其他商業用途。

●如果長時間使用攝錄放影機，內部溫度會升高，從而會造成故障。
●本攝錄放影機不能用於商業用途。

■ 關於電池

攝錄放影機所用的電池爲可充電的鋰離子電池。這種電池對溫度和濕度很敏感，溫度的影響會隨溫度的上升或下降而加劇。在低溫範圍內可能不出現完全充電的指示，或者也可能在開始使用 5 分鐘後出現電池電量不足的指示。此外在高溫時保護功能會啓動，攝錄放影機將無法使用。

使用後一定要取下電池

●如果電池仍放在攝錄放影機中，即使攝錄放影機電源爲 [OFF]，也會消耗少量的電量。如果長時間將電池放在攝錄放影機中，會發生過量放電。充電後電池可能無法使用。

外出拍攝時要準備備用電池

●準備的電池量相當於需要攝像時間的3至4倍。在滑雪渡假村等寒冷地區，可以攝像的時間會縮短。
●旅遊時不要忘記攜帶 AC 適配器，可以在到達目的地後給電池充電。

如果不小心摔落電池，要檢查一下電極有無變形。

●如果將變形的電池接到攝錄放影機或 AC 適配器上，會損壞攝錄放影機或 AC 適配器。

使用後要從攝錄放影機中取出錄影帶，拆下電池，或將 AC 電源線從 AC 電源插座上拔下。

●電池應保存在陰涼乾燥處，溫度應儘量保持恒定。(建議保存溫度爲：15°C 至 25°C，建議保存濕度爲：40% 至 60%)
●溫度極高或極低，都會縮短電池的使用壽命。
●如果電源保存在高溫、高濕度或有油煙的地方，電極會生銹，從而造成故障。
●長時間保存電池時，建議每年充一次電，等所充電量完全用光後再保存起來。
●應清除黏在電池電極上的灰塵和其他物質。

不要將舊電池丟到火中。

●加熱電池或將電池丟到火中，會引起爆炸。
●如果即使電池充完電後，操作時間仍很短，說明電池已用壞。請購買新的電池。

■ 關於 AC 適配器

●如果電池發熱，充電時間會比平時長。
●如果電池溫度極高或極低，[CHARGE] 指示燈會持續閃爍，電池可能沒有被充電。電池溫度降低或升高到一定程度後，充電將自動進行。因此，請等待一會兒。如果即使充電後指示燈仍持續閃爍，電池或 AC 適配器可能失效。此時應向經銷商咨詢。
●如果在收音機附近使用 AC 適配器，收音機的接收會受到干擾。AC 適配器應與收音機保持 1 米以上的距離。
●使用 AC 適配器時，可能會產生嗡嗡聲。但這是正常的現象。
●使用後一定要從 AC 電源插座上拔下 AC 電源線。(如果仍保持連接，會消耗少量的電量。)
●一定要保持 AC 適配器和電池的清潔。

■ 關於錄影帶

絕對不能將錄影帶放在高溫環境中。

- 錄影帶可能會損壞，回放時會產生馬賽克雜訊。

錄影帶用後保存時，一定要將錄影帶回捲到起始處，然後取出。

- 如果錄影帶留在攝錄放影機中的時間超過 6 個月 (根據保存條件) 或停在中間部位，錄影帶會鬆弛，從而造成損壞。
- 要每 6 個月將錄影帶捲到終點，然後再回捲到起始處。如果經過 1 年或更長的時間未捲帶或回捲，錄影帶會因溫度和濕度造成的膨脹或收縮而變形。捲繞的錄影帶會黏在一起。
- 灰塵、直射的陽光 (紫外線) 和濕度都會損壞錄影帶。如果就這樣使用，就會造成攝錄放影機和磁頭損壞。
- 使用後一定要將錄影帶回捲到起點，將錄影帶放在盒子裏以防止灰塵，並且要垂直放置。

錄影帶要避開強磁場。

- 磁性項鏈和玩具等帶磁性的東西所具有磁力之強超出想象，它們會擦除所錄製的內容或者增大干擾。

■ 關於記憶卡

插取記憶卡時始終要將 [OFF/ON] 開關設置爲 [OFF]。

存取指示燈變亮時 (正在讀記憶卡時)，不要打開記憶卡插槽的蓋子拉出記憶卡、關閉電源或引起任何振動或碰撞。

不要將記憶卡放在高溫或有直射陽光的地方，也不要放在容易產生電磁波或靜電的地方。此外，不要折疊或摔落記憶卡，不要使其受到強烈的振動。

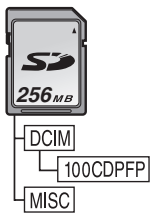
- 記憶卡會損壞，記憶卡上的內容會受到破壞或被擦除。

使用後一定要從攝錄放影機中取出記憶卡加以保存。

- 使用後或保存或攜帶記憶卡時，要將其放在盒中。
- 不要讓灰塵、水或雜質黏在記憶卡背面的觸頭上。此外，不要用手觸摸觸頭。

■ 記憶卡的文件夾結構

用本攝錄放影機格式化的記憶卡的文件夾結構在個人電腦上將如下圖所示。



- 在 100CDPFP 文件夾等最多可以錄製 999 個圖片。
- 帶DPOF設置的檔案可以在MISC文件夾中錄製。

■ LCD 顯示屏 / 取景器

LCD 顯示屏

- LCD 顯示屏變髒時，要用軟的幹布擦拭。
- 在溫度急劇變化的地方，LCD 顯示屏上會出現水汽凝結。要用軟的幹布擦拭。
- 如果攝錄放影機處於非常寒冷的地方，剛打開電源時，LCD 顯示屏會比平時暗。但隨著內部溫度的升高，其將恢復正常的亮度。

> LCD 顯示屏熒屏的製造採用了極高的精密技術，總像素約達到 113,000。有效像素超過 99.99%，無效像素只有 0.01%，不起作用或始終亮。但這不是故障，不影響拍攝的圖片。

取景器

> 取景器熒屏的製造採用了極高的精密技術，總像素約達到 113,000。有效像素超過 99.99%，無效像素只有 0.01%，不起作用或始終亮。但這不是故障，不影響拍攝的圖片。

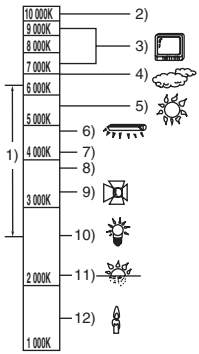
■ 定期檢查

- 爲保持最高的影像質量，建議每用 1000 個小時更換一次磁頭等易損件。(但這取決於溫度、濕度和灰塵等工作條件。)

術語解釋

■ 自動白平衡

白平衡調整可以識別光色並進行調整，所以白色會變成純白色。攝錄放影機可以測定通過鏡頭和白平衡感測器的色調，從而判斷拍攝條件，選擇最接近的色調設置。這被稱爲自動白平衡調整。
由於有幾種光源時攝錄放影機只保存白色資訊，所以自動白平衡調整在其他的光源下不能正常工作。



影像在自動白平衡調整的有效範圍以外會發紅或發藍。即使在自動白平衡調整的有效範圍之內，如果有不只一個光源，自動白平衡調整也無法正常工作。如果光源處於自動白平衡調整的功能範圍之外，請使用手動白平衡調整模式。

1) 本攝錄放影機的自動白平衡調整有效範圍
2) 藍天
3) 電視機熒屏
4) 多雲天氣 (下雨)
5) 陽光
6) 白色熒光燈
7) 日出後或日落前 2 小時
8) 日出後或日落前 1 小時
9) 鹵素燈
10) 白熾燈
11) 日出或日落
12) 燭光

■ 白平衡

用攝錄放影機拍攝的影像受光源的影響會發藍或發紅。爲避免這種現象，應調整白平衡。
白平衡調整決定不同光源下的白色。通過識別陽光下的白色和熒光燈下的白色，攝錄放影機可以在其他顏色之間調整平衡。
由於白色是所有顏色 (光) 的基準色，攝錄放影機如果能識別基準色白色，就可以在自然色調下攝像。

■ 自動對焦

自動對焦功能可使對焦鏡頭在攝錄放影機內自動前後移動，將物體調到焦點處。

自動對焦具有如下特點

- 進行調整，使物體的豎線看得更清晰。
- 使具有較高對比度的物體處於焦點處。
- 焦點只處於熒屏中心。

由於這些特點，自動對焦在以下情況下不能正常工作。要用手動對焦模式進行拍攝。

拍攝的物體一端距離攝錄放影機較近，另一端較遠

- 由於自動對焦在影像的中心進行調整，所以無法對同時處於前景和背景的物體進行對焦。

拍攝的物體位於肮髒或有灰塵的玻璃後

- 由於焦點在髒玻璃上，所以無法對玻璃後的物體進行對焦。

拍攝的物體被有閃光表面的物體或反射強光的物體所包圍時

- 由於攝錄放影機的焦點落在有閃光表面的物體或反射強光的物體上，拍攝的物體會模糊不清。

在低照度的環境中拍攝物體時

- 由於穿過鏡頭的光線信息明顯減弱，攝錄放影機無法正確對焦。

拍攝快速移動的物體時

- 由於攝錄放影機內的對焦鏡頭是以機械方式移動的，所以無法與快速移動的物體保持同步。

拍攝對比度小的物體時

- 因爲攝錄放影機是根據影像的豎線進行對焦的，所以白牆等對比度小的物體會模糊不清。

規格

規格

數位攝錄放影機
安全注意事項

電源：
DC 7.9/7.2 V
耗電量：
拍攝
3.1 W(使用取景器)
3.4 W(使用 LCD 顯示屏)

拍攝格式：
小型 DV(供消費者用的數位視頻 SD 格式)
所用錄影帶：
6.35 mm 數位錄影帶
拍攝 / 重播時間：
SP：80 分鐘；LP：120 分鐘 (使用 DVM80)
視頻
拍攝系統：
數位部件
電視系統：
CCIR：625 線，50 格 PAL 彩色信號
音頻
拍攝系統：
PCM 數位錄音
16 位 (48 kHz/2 聲道)，12 位 (32 kHz/4 聲道)
影像感測器：
1/6 英寸 3CCD 影像感測器
(有效像素：動態圖片 /340 K×3，
靜態圖片 /340 K×3，總計：540 K×3)
鏡頭：
自動光圈，F1.8，焦距：2.45–24.5 mm，微距 (全程 AF)
濾鏡直徑：
37 mm
變焦：
10:1 倍變焦
顯示屏：
2.5 英吋 LCD
取景器：
彩色電子取景器
麥克風：
立體聲 (帶變焦功能)
揚聲器：
1 個圓形揚聲器 ∅ 20 mm
標準照度：
1,400 lx
最低所需照度：
1 lx (彩色夜視模式)
視頻輸出電平：
1.0 Vp-p，75 ohm
S 視頻輸出電平：
Y 輸出：1.0 Vp-p，75 ohm
C 輸出：0.3 Vp-p，75 ohm
音頻輸出電平 (線路)：
316 毫伏，600 ohm
麥克風輸入：
麥克風靈敏度 −50 dB (0 dB=1 V/Pa，1 kHz) (立體聲微型插孔)

USB:
記憶卡讀 / 寫器功能，USB 2.0 相容 (Hi-Speed)
無版權保護支持
PictBridge 相容
數位介面：
DV 輸入 / 輸出端 (IEEE1394，4 針)
外廓尺寸：
約 76 mm (寬)×77 mm (高)×120 mm (深)
重量：
約 420 g (不帶提供的電池、DV 錄影帶和鏡頭蓋)
約 520 g (包括提供的電池、DV 錄影帶和鏡頭蓋)
工作溫度：
0°C–40°C
工作濕度：
10%–80%
記憶卡存儲功能
拍攝媒體：
SD 記憶卡 (32 MB/64 MB/128 MB/256 MB/512 MB/1 GB)
靜態圖片拍攝檔案格式：
JPEG (Design rule for Camera File system (相機檔案系統的設計規則)，根據 Exif 2.2 標準)，符合 DPOF 的規定
靜態圖片尺寸：
百萬像素拍攝 :
1520×1152
VGA 拍攝 : 640×480
網路攝影
壓縮：
動態 JPEG
影像尺寸：
320×240 像素 (QVGA)
格速率：
約 6 格每秒

AC 適配器 **VSK0651B**

安全注意事項

電源：
AC 110–240 V，50/60 Hz
耗電量：
19 W
DC 輸出：
DC 7.9 V，1.4 A (攝錄放影機工作時)
DC 8.4 V，0.65 A (電池充電時)

外廓尺寸：
61 mm (寬)×32 mm (高)×91 mm (深)
重量：
約 110 g

重量和尺寸都是近似值。
規格變更恕不通知。

SD 記憶卡 (可選件) 上可拍攝的最大靜態圖片數量

圖片尺寸	[640]		[1520]	
圖片質量				
32 MB	220	440	32	53
64 MB	440	880	68	110
128 MB	880	1760	130	210
256 MB	1760	3520	272	437
512 MB	3520	7040	540	868
1 GB	7040	14080	1082	1739

- 表中數值爲近似值。
- 根據被拍攝物體的不同，這些數值也隨之變化。

Information for your safety

As this equipment gets hot during use, operate it in a well-ventilated place; do not install this equipment in a confined space such as a bookcase or similar unit.

To reduce the risk of fire, electric shock or product damage, do not expose this equipment to rain, moisture, dripping or splashing and ensure that no objects filled with liquids, such as vases, shall be placed on the equipment.

AC Adaptor
- **The rating plate is on the underside of the AC Adaptor.**

■ Carefully read the Operating Instructions and use the Movie Camera correctly.

- **Injury or material damage resulting from any kind of use that is not in accordance with the operating procedures explained in these Operating Instructions are the sole responsibility of the user.**

Try out the Movie Camera.
Be sure to try out the Movie Camera before recording your first important event and check that it records properly and functions correctly.

The manufacturer is not liable for loss of recorded contents.
The manufacturer shall in no event be liable for the loss of recordings due to malfunction or defect of this Movie Camera, its accessories or cassettes.

Carefully observe copyright laws.
Recording of pre-recorded tapes or discs or other published or broadcast material for purposes other than your own private use may infringe copyright laws. Even for the purpose of private use, recording of certain material may be restricted.

- The Movie Camera uses copyright-protected technologies and is protected by the patented technologies and intellectual properties of Japan and the U.S. To use these copyright-protected technologies, authorization of the Macrovision Company is required. It is prohibited to disassemble or modify the Movie Camera.

- Windows is a trademark or registered trademark of Microsoft Corporation U.S.A.
- SD Logo is a trademark.
- All other company and product names in the operating instructions are trademarks or registered trademarks of their respective corporations.

Files recorded on SD Memory Card
It may not be possible to play back the files on this Movie Camera recorded on and created by other equipment or vice versa. For this reason, check the compatibility of the equipment in advance.
- Keep the Memory Card out of reach of children to prevent swallowing.

Pages for reference
Pages for reference are indicated by dashes either side of a number, for example: *-00-*

The menu operation flow is indicated by >> in the description.

■ Warning

Do not remove the cover (or back); there are no user serviceable parts inside.
Refer servicing to qualified service personnel.

Use only the recommended accessories.

The socket outlet shall be installed near the equipment and easily accessible or the mains plug or an appliance coupler shall remain readily operable.

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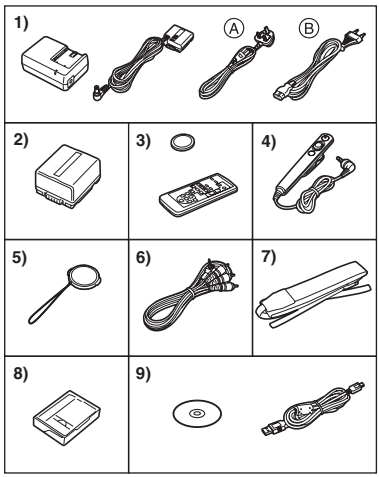
Before using

Accessories

The followings are the accessories supplied with this product.



1) AC adaptor, DC input lead, AC mains lead *-53-*
- Ⓐ Hong Kong Special Administrative Region of China and Saudi Arabia
- Ⓑ Areas Other than Hong Kong Special Administrative Region of China and Saudi Arabia

2) Battery pack *-53-*
3) Remote control, button-type battery *-60-*
4) Free style remote control *-62-*
5) Lens cap *-51-*
6) AV cable *-80-*
7) Shoulder strap *-51-*
8) Digital video head cleaner *-95-*
9) USB cable and CD-ROM *-83-*

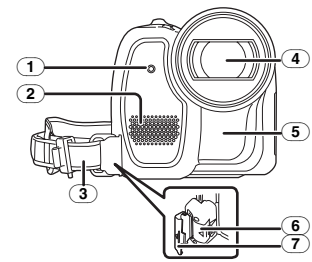
Optional

1) AC adaptor (VW-AD11E/EB)
2) Battery pack (lithium/CGR-DU06/640mAh)
3) Battery pack (lithium/CGA-DU07/680mAh)
4) Battery pack (lithium/CGA-DU12/1150mAh)
5) Battery pack (lithium/CGA-DU14/1360mAh)
6) Battery pack (lithium/CGA-DU21/2040mAh)
7) Wide conversion lens (VW-LW3707M3E)
8) Tele conversion lens (VW-LT3714M2E)
9) Filter kit (VW-LF37WE)
10) Video DC light (VW-LDC10E)
11) Light bulb for video DC light (VZ-LL10E)
12) Stereo microphone (VW-VMS2E)
13) Tripod (VW-CT45E)
14) DV cable (VW-CD1E)
15) Jacket pouch (VW-SJ05E)

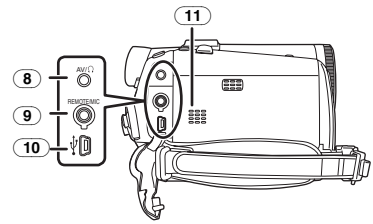
- Some optional accessories may not be available in some countries.

Parts identification and handling

Camera



(1) **Recording lamp** *-86-*
(2) **Microphone (built-in, stereo)** *-67-*, *-70-*
(3) **Grip belt**
(One-touch free style grip belt) *-52-*
(4) **Lens**
(5) **White balance sensor** *-73-*
Remote control sensor *-61-*
(6) **Lock button** *-52-*
(7) **Lock cover** *-52-*



(8) **Audio-video output terminal [AV]** *-80-*
- Use the supplied AV cable or headphones only, otherwise audio may not be played back normally.

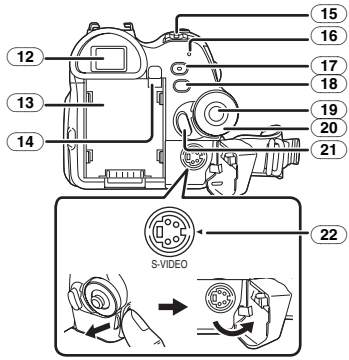
Headphone terminal [🎧]

(9) **Terminal for free style remote control [REMOTE]** *-62-*

Microphone terminal [MIC]
- A compatible plug-in powered microphone can be used as an external microphone.
- When the movie camera is connected with AC Adaptor, sometimes noise may be heard depending on microphone type. In that case, please switch to battery for power supply and noise will stop.

(10) **USB terminal [ψ]** *-83-*

(11) **Speaker** *-75-*



(12) **Viewfinder** *-53-*, *-97-*

Due to limitations in LCD production technology, there may be some tiny bright or dark spots on the Viewfinder screen. However, this is not a malfunction and does not affect the recorded picture.

(13) **Battery holder**

(14) **Battery eject button [PUSH BATT]** *-54-*

(15) **Power switch [OFF/ON]** *-56-*

(16) **Power lamp** *-56-*

(17) **Quick start recording button [QUICK START]** *-67-*

Quick start recording lamp *-67-*

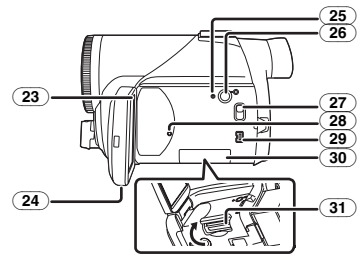
(18) **Menu button [MENU]** *-58-*

(19) **Joystick** *-57-*

(20) **Mode dial** *-57-*

(21) **Recording start/stop button** *-64-*

(22) **S-Video output terminal [S-VIDEO]** *-77-*



(23) **LCD monitor** *-52-*, *-97-*

Due to limitations in LCD production technology, there may be some tiny bright or dark spots on the LCD monitor screen. However, this is not a malfunction and does not affect the recorded picture.

(24) **LCD monitor open part [OPEN]** *-52-*

(25) **Reset button [RESET]** *-89-*

(26) **Power LCD button [POWER LCD]** *-60-*

Power LCD lamp *-60-*

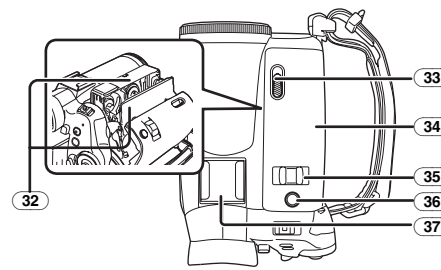
(27) **Mode select switch [AUTO/MANUAL/FOCUS]** *-63-*, *-72-*, *-74-*

(28) **Card access lamp** *-56-*

(29) **DV terminal [DV]** *-81-*

(30) **Card slot cover** *-56-*

(31) **Card slot** *-56-*



(32) **Cassette holder** *-55-*

(33) **Cassette eject lever [OPEN/EJECT]** *-55-*

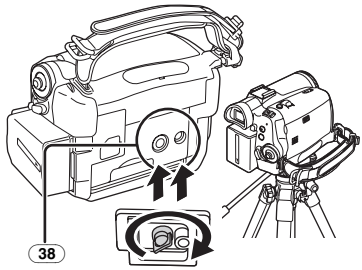
(34) **Cassette cover** *-55-*

(35) **Zoom lever [W/T]** *-66-*

Volume lever [− /VOL+] *-75-*

(36) **Photoshot button [PHOTO SHOT]** *-64-*

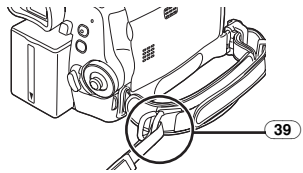
(37) **Accessory shoe**
- Accessories, such as a stereo microphone (VW-VMS2E; optional), are attached here.



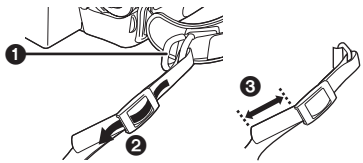
(38) Tripod receptacle

This is a hole for attaching the camera to optional tripod/VW-CT45E. (Please carefully read the operating instructions for how to attach the tripod to the camera.)

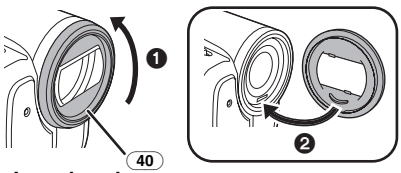
- When the tripod is used, operate the camera from the free style remote control for convenience. (When not using the remote control, attach the clip to the grip belt for convenience. When you move with remote control attached to a pocket, etc., take care to avoid falling of the tripod.)
- You cannot open the card slot cover when the tripod is used. Insert the card first and then attach the tripod.



(39) Shoulder strap fixture



- Put the strap through the fixture ❶ and through the stopper ❷ so it will not come off. Extend part ❸ by at least 2 cm.
- Fit the other end of the belt similarly.



(40) Lens hood

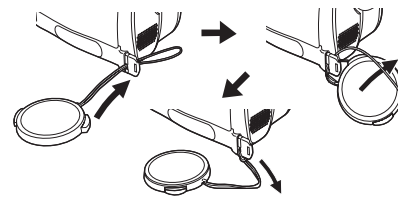
In order to remove the lens hood, rotate it counterclockwise ❶. In order to fit it, put into slot ❷, and then rotate it clockwise.

- Fit the MC protector or the ND filter of the Filter Kit (VW-LF37WE; optional) in front of the lens hood. Do not fit the other accessories on the hood. (Except for the lens cap)
- When fitting the tele conversion lens (VW-LT3714M2E; optional) or the wide conversion lens (VW-LW3707M3E; optional), first remove the lens hood.
- When 2 lens accessories, such as the ND filter and tele conversion lens, are fitted and the [W/T] lever is pressed toward the [W] side, the 4 corners of an image will be darkened. (Vignetting)

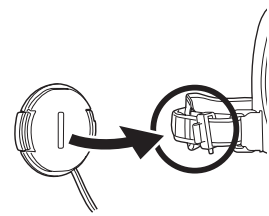
Fitting the lens cap

Fit the lens cap to protect the surface of the lens. If you do not use the movie camera when the MC protector or the ND filter of the Filter Kit (VW-LF37WE; optional) is attached to the front of the lens hood, attach the lens cap to protect the surface of the lens.

1 Remove the grip belt. Run the end of the lens cap cord through the hole in the grip belt attachment part and run the lens cap through the lens cap cord.



- The lens cap removed can be hung on the lens cap fixture. (It cannot be hung if the grip belt is used as a hand strap.)



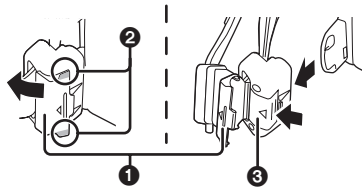
- To fit or remove the lens cap, hold both sides of the lens cap with the tips of your first 2 fingers.

The one-touch free-style grip belt

■ To use as a hand strap

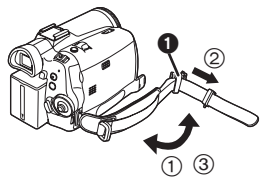
If you use the grip belt as a hand strap, then you can carry or handle this camera more easily.

1 Open the lock cover ❶ by pinching the projections ❷ on both sides. Press the lock button ❸ to remove the grip belt.



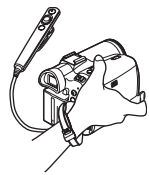
- When removing the grip belt, tightly hold the camera with both hands.
- After removing the grip belt, restore the lock cover to the original position.

2 Adjust the belt length.



① Flip the belt.
② Slide ❶ in the direction indicated by the arrow.
③ Fix the belt.

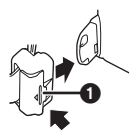
3 Put your hand through the strap.



- Use the free style remote control for more convenience.
- Hold the movie camera not to cover the microphones or the sensors with your hands.

■ To restore the strap to the grip belt

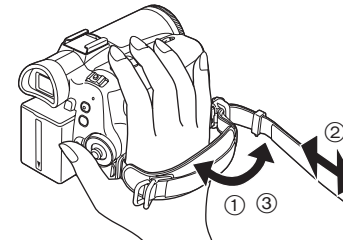
- When returning the grip belt to the grip belt attachment part, press the lock cover ❶ and check if the grip belt is securely locked.



■ To use as a grip belt

Adjust the belt length so it fits your hand.

1 Adjust the belt length and the pad position.

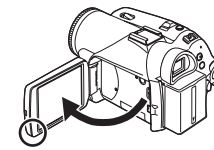


① Flip the belt.
② Adjust the length.
③ Fix the belt.

Using the LCD monitor

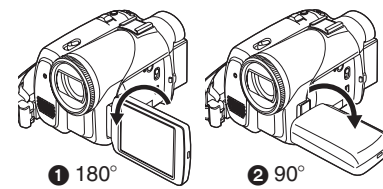
You can record the image while viewing it on the LCD monitor opened.

1 Put a finger on the LCD monitor open part and pull the LCD monitor out in the direction of the arrow.



- The viewfinder will go off.
- It can open up to 90°.

2 Adjust the angle of the LCD monitor as you prefer.



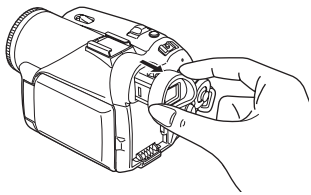
- It can rotate up to 180° ❶ towards the lens or 90° ❷ towards the viewfinder.

- The brightness and colour level of the LCD monitor can be adjusted from the menu.
- If it is forcibly opened or rotated, the camera may be damaged or fail.
- Check that the card slot cover is closed.
- When the LCD monitor is rotated by 180° towards the lens (when recording yourself), the LCD monitor and the viewfinder will be simultaneously activated.

Using the viewfinder

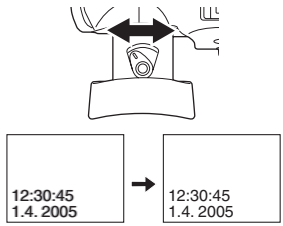
■ Extending the viewfinder

1 Pull out the viewfinder and extend it by pinching the extension knob.



■ Adjusting the field of view

1 Adjust the focus by sliding the eyepiece corrector knob.



- You can adjust the brightness of the viewfinder from the menu.

Power supply

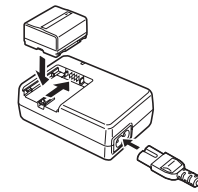
■ Charging the battery

When this product is purchased, the battery is not charged. Charge the battery before using this product.

- Battery charging time (*-54-*)
- We recommend using Panasonic batteries.
- If you use other batteries, we cannot guarantee the quality of this product.
- If the DC input lead is connected to the AC adaptor, then the battery will not get charged. Remove the DC input lead from the AC adaptor.

1 Connect the AC mains lead to the AC adaptor and the AC mains socket.

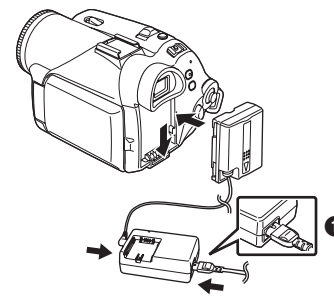
2 Put the battery on the battery mount by aligning the mark, and then securely plug it in.



■ Charging lamp

Lights up: Charging
Goes off: Charging completed
Flashing: The battery is over discharged (discharged excessively). In a while, the lamp will light up and normal charging will start.
When the battery temperature is excessively high or low, the [CHARGE] lamp flashes and the charging time will be longer than normal.

■ Connecting to the AC outlet



1 Connect the AC mains lead to the AC adaptor and the AC mains socket.

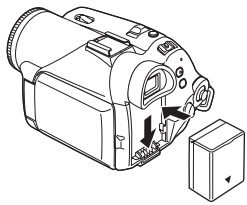
2 Connect the DC input lead to the AC adaptor.

3 Connect the DC input lead to this product.

- The output plug of the AC mains lead is not completely connected to the AC adaptor socket. As shown in ❶, there is a gap.
- Do not use the power cord for other equipment since the power cord is exclusively designed for the movie camera. Or do not use the power cord of other equipment for the movie camera.

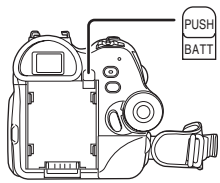
■ Fitting the battery

Push the battery against the battery holder and slide it until it clicks.



■ Removing the battery

While pushing the [PUSH BATT] button, slide the battery (or the DC input lead) to remove it.



- Hold the battery with your hand so it does not fall.

Charging time and recordable time

The times shown in the table below show the times at a temperature of 25°C and a humidity of 60%. This is just a guide. If the temperature is higher or lower than the specified value, the charging time will become longer.

Supplied battery/ CGA-DU12 (7.2 V/ 1150 mAh)	Ⓐ	2 h. 25 min.
	Ⓑ	2 h. 40 min. (2 h. 25 min.)
	Ⓒ	1h. 20 min. (1 h. 15 min.)
CGA-DU14 (7.2 V/ 1360 mAh)	Ⓐ	2 h. 45 min.
	Ⓑ	3 h. (2 h. 50 min.)
	Ⓒ	1h. 30 min. (1 h. 25 min.)
CGA-DU21 (7.2 V/ 2040 mAh)	Ⓐ	3 h. 55 min.
	Ⓑ	4 h. 30 min. (4 h. 15 min.)
	Ⓒ	2 h. 15 min. (2 h. 10 min.)
CGR-DU06 (7.2 V/ 640 mAh)	Ⓐ	1 h. 40 min.
	Ⓑ	1 h. 25 min. (1 h. 20 min.)
	Ⓒ	45 min. (40 min.)
CGA-DU07 (7.2 V/ 680 mAh)	Ⓐ	1 h. 30 min.
	Ⓑ	1h. 30 min. (1 h. 25 min.)
	Ⓒ	45 min. (45 min.)

Ⓐ Charging time
Ⓑ Maximum continuously recordable time
Ⓒ Intermittent recordable time

(The intermittent recordable time refers to recordable time when the recording and stopping operations are repeated.)

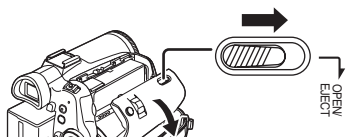
“1h. 10 min.” indicates 1 hour 10 minutes.

- The battery CGA-DU12 is supplied.
- The times shown in the table are rough estimates. The times indicate the recordable times when the viewfinder is used. The times in parentheses indicate the recordable times when the LCD monitor is used.
- We recommend the Battery Pack CGA-DU12, CGA-DU14 and CGA-DU21 for long time recording (2 hours or more for continuous recording, 1 hour or more for intermittent recording).

- The recordable time will become shorter in the following cases:
  - When you use both the viewfinder and the LCD monitor simultaneously while rotating the LCD monitor frontward to record yourself, using the 0 lux night view function, etc.
  - When you use this camera with the LCD monitor lit up by pressing the [POWER LCD] button.
- The batteries heat up after use or charging. The main unit of the movie camera being used will also heat up. This is normal.
- Along with the reduction of the battery capacity, the display will change: → → → → → . If the battery discharges, then ( ) will flash.

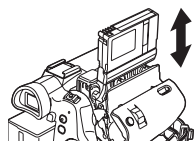
Inserting/removing a cassette

1 Slide the [OPEN/EJECT] lever and open the cassette cover.



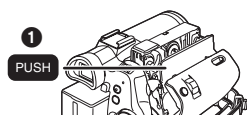
- When the cover is fully opened, the cassette holder will come out.

2 After the cassette holder is opened, insert/ remove the cassette.



- When inserting a cassette, orient it as shown in the figure, and then securely insert it as far as it goes.
- When removing, pull it straight out.

3 Push the [PUSH] mark ❶ in order to close the cassette holder.



4 Only after the cassette holder is completely housed, close the cassette cover.

- After using, make sure to rewind the cassette completely, remove it, and put it in a case. Store the case in an upright position. (*-96-*)
- When condensation is formed on the lens or the main unit of the movie camera, even if no condensation alarm is indicated, condensation may have formed on the heads or the cassette tape. Do not open the cassette cover. (*-94-*)

■ When the cassette holder does not come out

- Close the cassette cover completely, and then open it again completely.
- Check if the battery has run down.

■ When the cassette holder cannot be housed

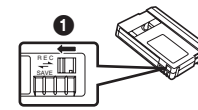
- Set the [OFF/ON] switch to [OFF], then to [ON] again.
- Check if the battery has run down.

■ Inserting/removing the cassette

- When the cassette holder is in action, do not touch anything except the [PUSH] mark.
- When inserting a previously recorded cassette, use the blank search function to find the position where you want to continue recording. If you overwrite-record on a previously recorded cassette, be sure to find the position where you continue recording.
- Close the cassette cover tightly.
- When closing the cassette cover, do not get anything, such as a cable, caught in the cover.

■ Accidental erasure prevention

If the accidental erasure prevention slider ❶ of a cassette is opened (slide in the direction of the [SAVE] arrow), the cassette cannot be recorded. When recording, close the accidental erasure prevention slider of the cassette (slide in the direction of the [REC] arrow).



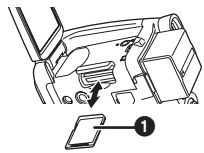
Inserting/removing a card

Before inserting/removing a card, be sure to turn the power [OFF].

- If the card is inserted or removed with the power turned on, this camera may malfunction or the data recorded on the card may be lost.

1 Open the LCD monitor and then open the card slot cover.

2 Insert/remove the card into/from the card slot.



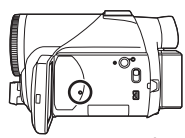
- When inserting a card, face the label side ❶ towards you and push it straight in with one stroke as far as it goes.
- When removing the card, open the card slot cover and press the centre of the card and then pull it straight out.

3 Securely close the card slot cover.

■ Concerning the card

- Do not touch the terminals on the back of the card.
- Do not format the card with another movie camera or any personal computer. This operation may make the card unusable.
- Electrical noise, static electricity, or failure of the movie camera or the card may damage or erase the data stored on the card. We recommend saving important data on a personal computer by using a USB cable, PC card adaptor, and USB reader/writer.

■ Card access lamp



- When the camera accesses the card (reading, recording, playback, erasing, etc.), the access lamp lights up.
- If the following operations are performed when the access lamp is lit, then the card or the recorded data may be damaged or the camera may malfunction.
  - Opening the card slot cover and inserting or removing the card
  - Operating the [OFF/ON] switch or the mode dial

■ SD Memory Card

- The memory capacity indicated on the SD Memory Card label corresponds to the total amount of capacity to protect and manage the copyright and the capacity available as conventional memory for a movie camera, personal computer or other equipment.

■ Concerning the write protection switch on the SD Memory Card

- The SD Memory Card has a write protection switch on it. If the switch is moved to [LOCK], you cannot write to the card, erase the data on it, or format it. If it is moved back, you can.

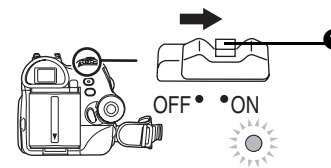
Turning the camera on

When the camera is turned on with the lens cap fitted, the automatic white balance adjustment may not function properly. Please turn the camera on after removing the lens cap.

■ How to turn on the power

1 While pressing the button ❶, set the [OFF/ON] switch to [ON].

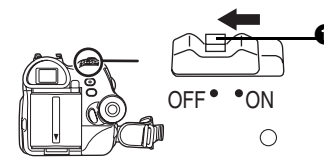
- The power lamp lights up.



■ How to turn off the power

1 While pressing the button ❶, set the [OFF/ON] switch to [OFF].

- The power lamp goes off.

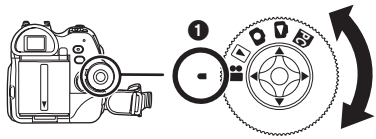


Selecting a mode

Rotate the mode dial to select the desired mode.

1 Rotate the mode dial.

- Set your desired mode to ❶.



: Tape recording mode

Use this when you record the image on a tape. (Also, you can simultaneously record still pictures on a card while recording images on a tape.)

: Tape playback mode

Use this to play back a tape.

: Card recording mode

Use this to record still pictures on a card.

: Picture playback mode

Use this to play back the still pictures recorded on a card.

PC : PC mode

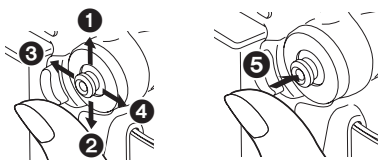
You can view or edit the images recorded on a card on your personal computer.
(Refer to the operating instructions for PC connection.)

How to use the joystick

■ Basic joystick operations

Operations on the menu screen and selection of files to be played back on the multi-image display

Move the joystick up, down, left, or right to select an item or file, and then push in the centre to set it.

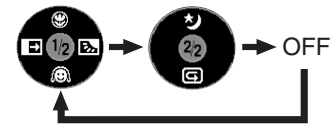


❶	Select by moving up.
❷	Select by moving down.
❸	Select by moving left.
❹	Select by moving right.
❺	Determine by pushing the centre.

■ Joystick and screen display

Push the centre of the joystick, and icons will be displayed on the screen. Each push switches the display as follows depending on the mode.
(In the Tape playback mode or the Picture playback mode, the icons will be automatically displayed on the screen.)

1) Tape recording mode ([AUTO/MANUAL/FOCUS] switch is set to [AUTO])

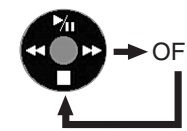


▲		Tele-macro	*-69-*
▼		Soft skin mode	*-69-*
◄		Fade	*-69-*
►		Backlight compensation	*-68-*
▲		Night view/0 Lux night view	*-68-*
▼		Recording check	*-65-*

2) Tape recording mode ([AUTO/MANUAL/FOCUS] switch is set to [MANUAL])

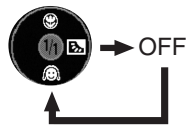
▼	▼	White balance Shutter speed Iris or gain value	*-72-*
►	+	Select/Adjust	*-72-*
◄	—	Select/Adjust	*-72-*

3) Tape playback mode



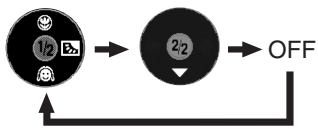
▲	▶/II	Playback/pause	*-75-*
▼	■	Stop	*-75-*
◄	◄◄	Rewind (review playback)	*-75-*
►	►►	Fast forward (cue playback)	*-75-*

4) Card recording mode ([AUTO/MANUAL/FOCUS] switch is set to [AUTO])



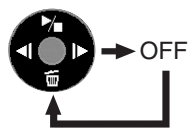
▲		Tele-macro	*-69-*
▼		Soft skin mode	*-69-*
►		Backlight compensation	*-68-*

5) Card recording mode ([AUTO/MANUAL/FOCUS] switch is set to [MANUAL])



▼		White balance Shutter speed Iris or gain value	*-72-*
►	+	Select/Adjust	*-72-*
◄	—	Select/Adjust	*-72-*

6) Picture playback mode

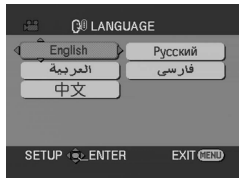


▲		Playback/stop	*-77-*
▼		Erase	*-78-*
◄		Playback previous picture	*-77-*
►		Playback next picture	*-77-*

Switching the language

You can switch the language on the screen display or the menu screen.

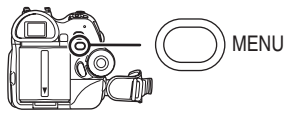
1 Set [LANGUAGE] >> select the desired language.



Using the menu screen

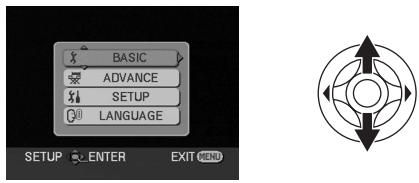
For each individual menu, please refer to *-84-*.

1 Press the [MENU] button.



- The menu corresponding to the mode selected by the mode dial is displayed.
- Do not switch the mode dial when the menu is displayed.

2 Move the joystick up or down in order to select the top menu.

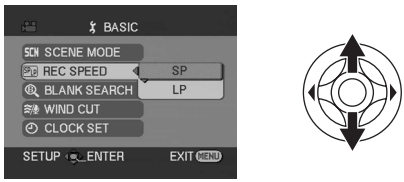


3 Move the joystick right or press it to set the selection.

4 Move the joystick up or down in order to select the sub-menu.

5 Move the joystick right or press it to set the selection.

6 Move the joystick up or down in order to select the item to be set.



7 Press the joystick to determine the setting.

■ To exit the menu screen

Press the [MENU] button.

■ To get back to the previous screen

Move the joystick left.

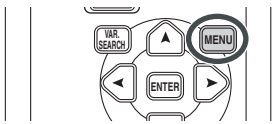
■ About the menu setting

- The menu screen does not appear during recording. And you cannot record when the menu screen appears.

■ Operating with remote control

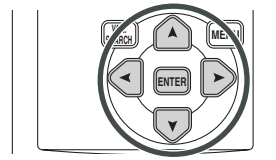
The menu screen transition is the same as when the buttons on the main unit are used.

1 Press the [MENU] button.

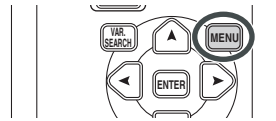


2 Select a menu item.

- Use the direction buttons (▲, ◄, ►, ▼) and [ENTER] button in place of the joystick on the main unit.



3 Press the [MENU] button to exit the menu screen.

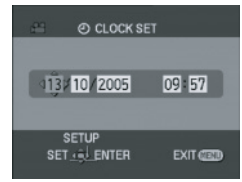


Setting date and time

If the screen shows the incorrect date/time, then adjust it.

- **Set to Tape Recording Mode or Card Recording Mode.**

1 Set [BASIC] >> [CLOCK SET] >> [YES].



2 Move the joystick left or right in order to select the item to be set. Then move the joystick up or down to set the desired value.

- The year will change as follows: 2000, 2001, ..., 2089, 2000, ...
- The 24-hour clock is used.

3 Press the joystick to determine the setting.

- The clock function starts at [00] seconds.

■ About date/time

- The date and time function are driven by a built-in lithium battery.
- Make sure to check the time before recording because the built-in clock is not very accurate.

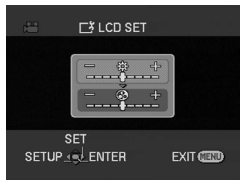
■ Recharging the built-in lithium battery

- If [⊘] or [--] is indicated when the camera is turned on, then the built-in lithium battery runs down. Connect the AC adaptor to the camera or place the battery on the camera, and the built-in lithium battery will be recharged. Leave the camera as is for approx. 24 hours, and the battery will drive the date and time for approx. 6 months. (Even if the [OFF/ON] switch is set to [OFF], the battery is still being recharged.)

Adjusting LCD monitor/viewfinder

■ Adjusting the brightness and colour level

1 Set [SETUP] >> [LCD SET] or [EVF SET] >> [YES].



2 Move the joystick up or down in order to select the item to be adjusted.

[LCD SET]

☼ **:Brightness of the LCD monitor**

:Colour level of the LCD monitor

[EVF SET]

EVF☼ **:Brightness of the viewfinder**

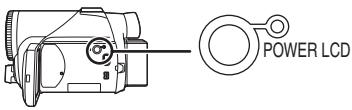
3 Move the joystick left or right to move the bar indication representing the brightness.

4 Press the [MENU] button or the joystick to complete the settings.

- In order to adjust the brightness of the viewfinder, close the LCD monitor, and the viewfinder will be activated.
- When the LCD monitor is rotated by 180° towards the lens, the brightness of the LCD monitor cannot be adjusted.
- These settings will not affect the images actually recorded.

■ In order to increase the brightness of the entire LCD monitor

1 Press the [POWER LCD] button.



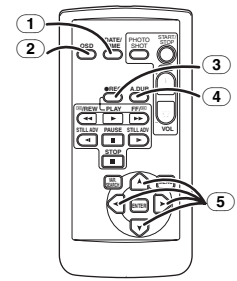
- The [POWER LCD] lamp lights up.
- If the [POWER LCD] button is pressed, the entire LCD monitor will become approx. twice as bright as the normal.

- Press this button again, and the lamp will go off and the brightness will revert back to the original brightness.
- This will not affect the images to be recorded.
- If you turn on the camera when the AC adaptor is used, the [POWER LCD] function will automatically be activated.

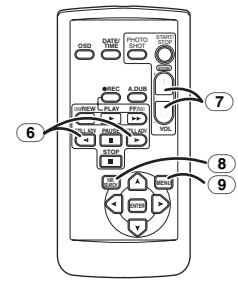
Using the remote control

■ Remote control

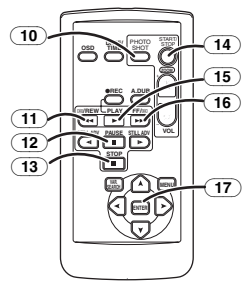
Using the remote control supplied will enable controlling almost all the functions of this camera to be controlled.



(1) **Date/time button [DATE/TIME]** *-84-*
(2) **On-screen display button [OSD]** *-77-*
(3) **Record button [●REC]** *-81-*
(4) **Audio dubbing button [A.DUB]** *-82-*
(5) **Direction buttons [▲, ◄, ►, ▼]** *-59-*



(6) **Slow/frame-by-frame forward button [◄I, I►] (◄I: reverse, I►: forward)** *-75-*
(7) **Zoom/volume button [ZOOM/VOL]** ✳
(8) **Search button [VAR. SEARCH]** *-76-*
(9) **Menu button [MENU]** *-59-*



(10) **Photoshot button [PHOTO SHOT]** ✳
(11) **Rewind/review button [◄◄]**
(12) **Pause button [❚❚]**
(13) **Stop button [■]**

(14) Recording start/stop button [START/STOP] ✳
(15) Playback button [►]
(16) Fast forward/cue button [►►]
(17) Enter button [ENTER] *-59-*
✳ means that these buttons function in the same manner as the corresponding buttons on the movie camera.

■ Install a button-type battery

Install the button-type battery supplied in the remote control before using it.

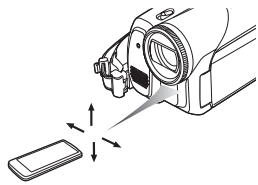
1 While pressing the stopper ❶, pull out the battery holder.

2 Set the button-type battery with its (+) mark facing upward and get the battery holder back in place.

Caution
Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

Warning
Risk of fire, explosion and burns. Do not recharge, disassemble, heat above 100°C or incinerate. Keep the Button-Type battery out of the reach of children. Never put Button-Type battery in mouth. If swallowed call your doctor.

■ Remote control usable range



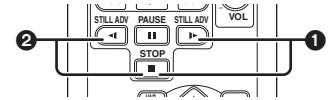
- The distance between the remote control and the camera: Within approx. 5 m
  Angle: Approx. 10° up and 15° down, left, and right

■ Selecting the remote control mode

If 2 cameras are used simultaneously, set the mode for one pair of movie camera and remote control to [VCR1] and that of the other pair to [VCR2]. This will prevent interference between the 2 pairs. (The default setting is [VCR1]. When the button-type battery is replaced, the setting will revert to the default [VCR1].)

1 Setting on the camera:
Set [SETUP] >> [REMOTE] >> [VCR1] or [VCR2].

2 Setting on the remote control:



[VCR1]:
Press [►] and [■] simultaneously. ❶
[VCR2]:
Press [◄] and [■] simultaneously. ❷

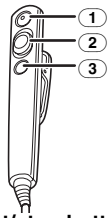
■ Concerning the button-type battery

- When the button-type battery runs down, replace it with a new battery (part number: CR2025). The battery is normally expected to last about 1 year, but it depends on operation frequency.
- Keep the button-type battery out of the reach of children.

- If the remote control mode of the camera and that of the remote control do not match with each other, "REMOTE" will appear. When the remote control is operated for the first time after the camera is turned on, "CHECK REMOTE MODE" (*-89-*) will appear and operation is impossible. Set the same remote control mode.
- The remote control is intended for indoor operation. Outdoors or under strong light, the movie camera may not operate properly even within the usable ranges.
- Within a 1 metre range, you can operate the remote control from beside the remote control sensor (LCD monitor side) of the movie camera.

Free style remote control

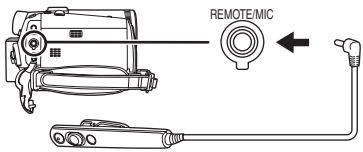
This controller can be used from different high and low angles. It is also handy when a tripod is used. When you do not use the controller, attach the clip to the grip belt. Left-handed users can use this camera more easily.



1 Recording start/stop button [REC]
2 Zoom lever [W/T]
3 Photoshot button [PHOTO SHOT]

■ Connect the free style remote control to the camera

1 Plug the free style remote control into the [REMOTE] terminal as far as it goes.



■ About the clip (on the backside)

When you move with the clip fitted to your pocket or elsewhere, beware of knocking over the tripod and causing the camera to fall off the table.

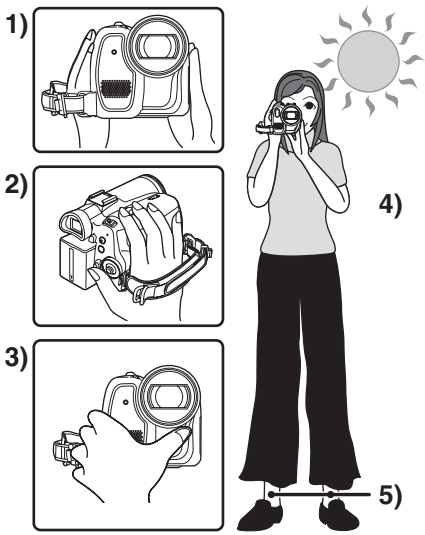
- If the pin plug of the control is not inserted securely into the [REMOTE] terminal as far as it will go, normal operation may not be ensured.
- Before using, make sure that the plug is inserted securely into the terminal as far as it will go.

Record mode

Check before recording

Check the following by trying recording before important events such as weddings in order to verify that the image recording and audio recording work properly and that you know how to use the movie camera.

■ Basic camera holding



1) Hold the camera with both hands.
2) Run your hand through the grip belt.
3) Do not cover the microphones or sensors with your hands.
4) Keep your arms near your body.
5) Slightly open your legs.

- When you are in the open air, record pictures with the sunlight as far in the background as possible. If the subject is backlit, it will become dark in the recording.

■ Check points

- Remove the lens cap. (*-51-*)
  (When the camera is turned on with the lens cap fitted, the automatic white balance adjustment may not function properly. Please turn the camera on after removing the lens cap.)
- Grip belt adjustment (*-52-*)
- Power supply (*-53-*)
- Insert a cassette/card (*-55-*, *-56-*)
- Setting date/time (*-59-*)
- Adjustment of LCD monitor/viewfinder (*-60-*)
- Getting the remote control ready (*-60-*)
- Setting SP/LP mode (*-63-*)

■ About auto mode

- Set the [AUTO/MANUAL/FOCUS] switch to [AUTO], and colour balance (white balance) and focusing will be adjusted automatically.
  - Auto white balance: *-98-*
  - Auto focusing: *-98-*
- Colour balance and focus may not be adjusted depending on light sources or scenes. If so, manually adjust the white balance and focus.

- Scene mode setting (*-72-*)
- White balance setting (*-72-*)
- Shutter speed setting (*-74-*)
- Iris/gain value setting (*-74-*)
- Focus setting (*-73-*)

■ Recording mode

You can switch the tape recording mode.

- **Set to Tape Recording/Playback Mode.**

1 Set [BASIC] or [ADVANCE] >> [REC SPEED] >> [SP] or [LP].

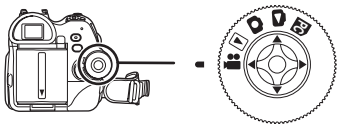
If the LP mode is selected, the recording time will be 1.5 times the SP mode, but some functions will be disabled.

- We recommend using the SP mode for important recording.
- In order to fully exhibit the performances of the LP mode, we recommend using Panasonic cassettes marked LP mode.
- It is not possible to dub audio onto image recorded in the LP mode. (*-82-*)
- In the LP mode, the picture quality will not be degraded in comparison with the SP mode, but mosaic noise may appear on the playback image or some functions may be disabled.
  - Playback on other digital video equipment or on digital video equipment without the LP mode
  - Playback of the image on other digital video equipment recorded in the LP mode
  - Slow/frame-by-frame playback

Recording on a tape

Remove the lens cap. (*-51-*)
(When the camera is turned on with the lens cap fitted, the automatic white balance adjustment may not function properly. Please turn the camera on after removing the lens cap.)

- **Set to Tape Recording Mode.**

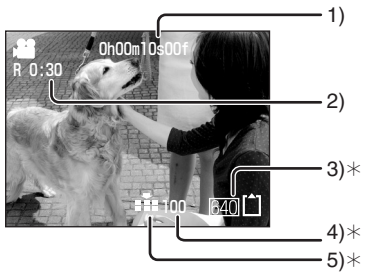


1 Press the recording start/stop button to start recording.

2 Press the recording start/stop button again to pause recording.

- For the recording time on a tape, refer to *-54-*.
- Carry out a recording check (*-65-*) to verify that the image is recorded properly.
- In order to find the unrecorded section, carry out the blank search (*-65-*) .

■ On-screen display in the tape recording mode



∗These indications are displayed only when the card is inserted.

1) Recording time elapse
2) Remaining tape indication
3) Still picture size
4) Number of recordable still pictures (When no picture can be recorded, this indication will flash in red.)
5) Quality of still pictures

■ Concerning the remaining tape time indication on the screen

- The remaining tape time is indicated in minutes. (When it reaches less than 3 minutes, the indication starts flashing.)
- During a 15-second or shorter recording, the remaining tape time indication may not be displayed or the remaining tape time may not be displayed correctly.
- In some cases, the remaining tape time indication may display remaining tape time that is 2 to 3 minutes shorter than the actual remaining tape time.

Recording still pictures on a card while recording image onto a tape

You can record still pictures while recording image onto a tape.

- **Set to Tape Recording Mode.**

1 Press the [PHOTO SHOT] button fully while recording image onto a tape.

- For the number of still pictures to be recorded on a card, refer to *-100-*.
- When recording pictures onto a card, the recording start/stop button is disabled.
- You can select a picture quality for still pictures to be recorded. (*-66-*)
- The sizes of pictures to be recorded are [640].
- In order to record still pictures with higher quality, we recommend using the card recording mode.

Check the recording

The last image recorded is played back for 2 to 3 seconds. After checking, the camera will be set to a recording pause.

- **Set to Tape Recording Mode.**

1 Press the joystick during the recording pause until the icon ❶ appears.

2 Move the joystick down to select the recording check icon [⟲].

Blank search function

Searches for the last part of the image recorded (unused part of the tape).

- **Set to Tape Recording/Playback Mode.**

1 Set [BASIC] or [ADVANCE] >> [BLANK SEARCH] >> [YES].

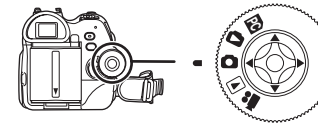
■ Stopping blank search midway through

Move the joystick down.

- If the cassette tape has no blank part, then the camera will stop at the end of the tape.
- The camera stops at a point approx. 1 second before the end of the last image recorded. When you start recording at that point, the image can be recorded seamlessly from the last image.

Recording still pictures onto a card (Photoshot)

- **Set to Card Recording Mode.**



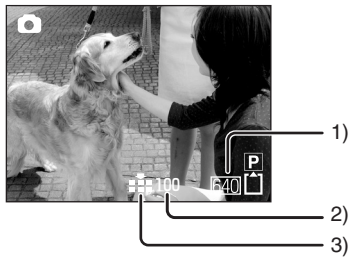
1 Press the [PHOTO SHOT] button.

■ To record still pictures clearly

- When zooming in on the subject with a magnification of 4× to 10× or higher, it is difficult to reduce the slight shaking from holding the movie camera by hand. We recommend decreasing the zoom magnification and approaching the subject when recording.
- When recording still pictures, hold the movie camera firmly with your hands and keep your arms stationary at your side so as not to shake the movie camera.
- You can record stable pictures without shaking by using a tripod and the remote control.

- For the number of still pictures to be recorded on a card, refer to *-100-*.
- The sound cannot be recorded.
- While data are recorded on a card, do not operate the mode dial.
- When the access lamp is lit, do not insert or remove a card.
- Another product may degrade or not play back data recorded on this camera.
- If set [PICT. QUALITY] >> [▪▪▪], mosaic-pattern noise may appear on a playback image depending on the picture content.
- When the [PICTURE SIZE] is set to other than [640], the mega pixel recording mode is set.
- When the picture size setting is other than [640], the scene around the subject can be recorded wider than that in [640].

■ On-screen display in the card recording mode



1) Still picture size
2) Number of recordable still pictures (When no pictures can be recorded, the red light will flash.)
3) Quality of still pictures

■ Progressive Photoshot

You can record still pictures with higher picture quality and frames. (You cannot switch the progressive function off/on.)

- In the tape recording mode, the progressive function may be disabled depending on the other functions used. (*-90-*)

■ Select the size of still pictures to be recorded on a card

1 Set [BASIC] >> [PICTURE SIZE] >> select the desired picture size.

[1520]: 1520×1152
[640]: 640×480

■ Select the picture quality for photoshot images

1 Set [BASIC] >> [PICT. QUALITY] >> select the desired picture quality.

[ ]: High picture quality
[ ]: Normal picture quality

- You can also change the picture quality on [ADVANCE] >> [PICT. QUALITY] in the tape recording mode.

■ Recording with a shutter operation effect

You can add a shutter operation simulating sound.

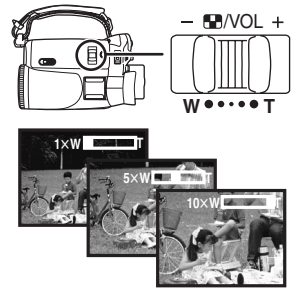
1 Set [ADVANCE] >> [SHTR EFFECT] >> [ON].

Zoom in/out function

You can zoom in up to 10× optically.

- **Set to Tape/Card Recording Mode.**

1 Wide-angle recording (zoom out): Push the [W/T] lever towards [W]. Close-up recording (zoom in): Push the [W/T] lever towards [T].



- When zooming in and taking a picture while holding the movie camera by hand, we recommend using the image stabilizer function.
- When you are zooming on a faraway subject, a sharper focus is achieved if the recording subject is 1.2 metres or further from the movie camera.
- When the zoom speed is high, the subject may not be focused easily.
- When the zoom magnification is 1×, the movie camera can focus on a subject approx. 4 cm distant from the lens.

■ Digital zoom function

If the zoom magnification exceeds 10 times, then the digital zoom function will be activated. The digital zoom function allows you to select a magnification from 20× to 500×.

1 Set [ADVANCE] >> [D.ZOOM] >> [20×] or [500×].

[OFF]: Optical zoom only (Up to 10×)
[20×]: Up to 20×
[500×]: Up to 500×

- The larger the digital zoom magnification, the more the image quality is degraded.
- When the Card Recording mode is used, the digital zoom function cannot be used.

■ To use the zoom microphone function

Interlocked with the zooming operation, the microphone will collect sounds clearly far away with the tele-shot or those in the vicinity with the wide-angle shot.

- **Set to Tape Recording Mode.**

1 Set [ADVANCE] >> [ZOOM MIC] >> [ON].

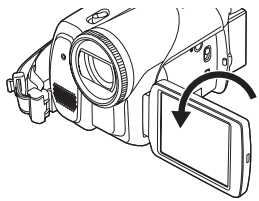
■ About the variable speed zoom function

- When pushing the [W/T] lever as far as it will go, you can zoom from 1× to 10× in 2.1 second at the maximum.
- The zoom speed varies according to the amount of movement of the [W/T] lever.
- The variable speed zoom function cannot be used with the remote control.

Recording yourself

You can record yourself while viewing the LCD monitor. You can record persons in front of the camera while presenting them the image. The image is horizontally flipped as if you see a mirror image. (The image to be recorded is the same as that recording.)

1 Rotate the LCD monitor towards the lens side.



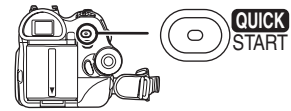
- When the LCD monitor is opened, the viewfinder will be automatically turned off. If the LCD monitor is rotated towards the lens side though, then the viewfinder will be activated.
- When the LCD monitor is rotated towards the lens side, the icon will not be displayed even if you push the centre of the joystick.

Quick start

This camera will be put into standby in approx. 1.7 seconds after the power is turned on.

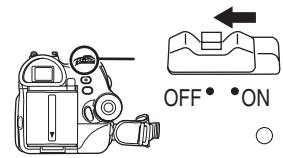
- This is only activated in the following cases.
  - A tape or a card is inserted, while the Tape Recording Mode is set.
  - A card is inserted, while the Card Recording Mode is set.

1 Press the [QUICK START] button.



- The quick start recording lamp lights up. (Press the button again to cancel it.)

2 Set the [OFF/ON] switch to [OFF].



- The quick start is now ready.

3 Set the [OFF/ON] switch to [ON].

- This camera will be put into a recording pause in approx. 1.7 seconds after it is turned on.

■ To cancel the quick start when the power is [OFF]

Press and hold the [QUICK START] button for approx. 2 seconds. The lamp will go off and the camera will be completely turned off.

- If the standby continues for approx. 30 minutes, then the lamp will go off and the camera will be completely turned off.

- When you rotate the mode dial or remove the battery, the quick start recording lamp is turned off and the quick start mode is cancelled. If the movie camera is turned on and the Tape/Card Recording Mode is set though, the lamp turns on and the quick start mode is restored.
- When the camera is quick-started with the white balance on automatic, it may take some time until the white balance is adjusted if the scene being recorded has a light source different from the scene last recorded. (When the colour night view function is used, however, the white balance of the scene last recorded is retained.)
- The zoom magnification may differ from when it is in the quick start standby mode and when the recording starts.
- Since about half the power of normal recording is used in quick start standby, using quick start reduces the recordable time.

Backlight compensation function

This protects a backlit subject from being darkened.

- **Set to Tape/Card Recording Mode.**

1 Press the joystick until the icon ❶ appears.

2 Move the joystick right to select the backlight compensation icon [ ].

- The image on the screen will become brighter.

■ To return to normal recording

Select the [ ] icon again.

- If you operate the [OFF/ON] switch or the mode dial, the backlight compensation is cancelled.

Night view functions

This function allows you to record colour subjects in dark locations to stand out against the background.

Attach the camera to a tripod, and you can record images free from vibration.

- Only manual focusing can be used.
- Recorded scene is seen as if frames were missed.

Colour night view function

You can record dark locations brightly in colour.

0 Lux night view function

You can record completely dark locations with the light of the LCD monitor.

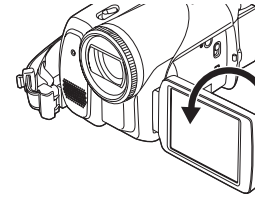
- **Set to Tape Recording Mode.**

1 Press the joystick until the icon ❶ appears.

2 Move the joystick up to select the night view icon [ ].

- Each upward press switches the modes. OFF → Colour night view function → 0 Lux night view function → OFF

3 (In the case of 0 lux night view function) Rotate the LCD monitor towards the lens side.



- When the LCD monitor is reversed, the Power LCD Lamp turns on and the screen is lit in white.
- Record the subject while viewing it on the viewfinder.
- The light of the LCD monitor reaches approx. 1.2 m or less.

■ To cancel the colour night view function

Select the night view icon until the night view indication disappear.

- If set in a bright place, the screen may become whitish for a while.
- The night view function makes the signal charging time of CCD up to approximately 25× longer than usual, so that dark scenes invisible to the naked eye can be recorded brightly. For this reason, bright dots that are usually invisible may be seen, but this is not a malfunction.
- The night view function is canceled when you operate the power switch or the mode dial.

Soft skin mode

This allows the skin colour to be recorded in a softer tone. This is more effective if you record the bust image of a person.

- **Set to Tape/Card Recording Mode.**

1 Press the joystick until the icon ❶ appears.

2 Move the joystick down to select the soft skin icon [ ].

■ To cancel the soft skin mode

Select the [ ] icon again.

- If the background or anything else in the scene has colours similar to the skin colour, they will also be smoothed.
- If the brightness is insufficient, the effect may not be clear.

Tele-macro function

By focusing only on the subject and blurring the background, the image can be impressive. This camera can focus on the subject at a distance of approx. 40 cm.

- **Set to Tape/Card Recording Mode.**

1 Press the joystick until the icon ❶ appears.

2 Move the joystick up to select the tele-macro icon [ ].

- If the magnification is 10× or less, then it is automatically set to 10×.

■ To cancel the tele-macro function

Select the [ ] icon again.

- If a sharper focus cannot be achieved, adjust the focus manually.
- In the following cases, the tele-macro function is cancelled.
  - The zoom magnification becomes lower than 10×.
  - The [OFF/ON] switch or the mode dial is operated.

Fade in/fade out function

Fade in

The image and audio gradually appear.

Fade out

The image and audio gradually disappear.

- **Set to Tape Recording Mode.**

1 Press the joystick until the icon ❶ appears.

2 Move the joystick left to select the fade icon [ ].

3 Press the recording start/stop button.

Start recording. (fade in)

When you start recording, the image/audio disappeared completely and the image/audio gradually appears.

Pause recording. (fade out)

The image/audio gradually disappears. After the image/audio completely disappears, recording stops.

■ To cancel fading

Select the [ ] icon again.

■ To select the colour for fade in/out

The colour which appears in fading pictures can be selected.

1 Set [SETUP] >> [FADE COLOUR] >> [WHITE] or [BLACK].

- While the fade in/fade out function is selected, it takes several seconds to display the image when you start recording images. Besides, it also takes several seconds to pause recording.

Wind noise reduction function

This reduces the wind noise coming into the microphone when recording.

- **Set to Tape Recording Mode.**

1 Set [BASIC] >> [WIND CUT] >> [ON].

■ To cancel the wind noise reduction function

Set [BASIC] >> [WIND CUT] >> [OFF].

- Reduces the wind noise depending on the wind strength. (If this function is activated in strong winds, the stereo effect may be reduced. When the wind weakens, the stereo effect will be restored.)

Self-timer recording

You can record still pictures on a card using the timer.

- **Set to Card Recording Mode.**

1 Set [BASIC] >> [SELF TIMER] >> [YES].

2 Press the [PHOTO SHOT] button.

- After the recording lamp and the [ⓘ] indication flashes for approx. 10 seconds, recording will start. After recording, the self-timer will be cancelled.

■ To stop the timer midway through

Press the [MENU] button.

- By operating the [OFF/ON] switch or mode dial, the self-timer standby mode is cancelled.
- If the continuous photoshot recording is set, the maximum recordable pictures are recorded.

Recording images for wide-screen TVs

This allows you to record images compatible with wide-screen TVs.

Cinema Function

Images are recorded with a black belt appearing along the top and bottom of the screen so that they look like theatre movies.

- **Set to Tape Recording Mode.**

1 Set [ADVANCE] >>[CINEMA] >> [ON].

■ To cancel the Cinema function

Set [ADVANCE] >>[CINEMA] >> [OFF].

- Images played back vary depending on the TV connected. Please refer to the operating instructions for your TV.
- This function does not widen the recording range.
- When images are played back on a TV screen, the date/time indication may be erased in some cases.
- Depending on the TV, the picture quality may deteriorate.
- When a cinema picture is imported into a personal computer, the imported picture may not be displayed correctly, depending on the software in used.

Image stabilizer function

Reduces the image shaking due to hand movement when recording.

- **Set to Tape Recording Mode.**

1 Set [ADVANCE] >> [SIS] >> [ON].

■ To cancel the image stabilizer function

Set [ADVANCE] >> [SIS] >> [OFF].

- When a tripod is used, we recommend that you turn the image stabilizer off.
- Under fluorescent lighting, image brightness may change or colours may not look natural.
- When the night view function is used, the image stabilizer function does not work. If so, the [ ] indication flashes.
- In the following cases, the image stabilizer function may not work effectively.
  - When the digital zoom is used
  - When a conversion lens is used
  - When recording is done in an extremely dark place
  - When the camera is shaken greatly
  - When you record a moving subject while tracking it

Continuous Photoshot

Records still pictures continuously at a certain interval.

- **Set to Card Recording Mode.**

1 Set [BASIC] >> [PICTURE SIZE] >> [640].

2 Set [ADVANCE] >> [BURST MODE] >> [ON].

3 Press and hold the [PHOTO SHOT] button.

■ To stop continuous photoshot midway through

Release the [PHOTO SHOT] button.

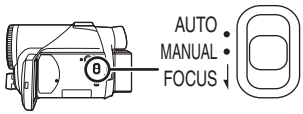
- The camera records up to 10 still pictures at intervals of 0.5 seconds. If the shutter speed is manually set to 1/25, then the still pictures can be recorded at intervals of 0.7 seconds.
- One more still picture may be recorded after you release the [PHOTO SHOT] button.
- If set [SELF TIMER] >> [YES], the movie camera records the maximum number of pictures recordable.
- Intervals between recording pictures may become longer depending on the card. We recommend using a Panasonic SD Memory Card.
- When using the card formatted by other equipment or a card that was recorded and erased repeatedly, the intervals between recording pictures may become longer. If so, back up your important data on a PC, and format your card with this movie camera.

Recording in various situations (Scene mode)

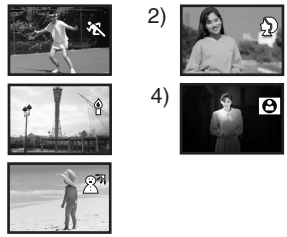
When you record images in different situations, this mode automatically sets optimum shutter speeds and apertures.

- **Set to Tape/Card Recording Mode.**

1 Set the [AUTO/MANUAL/FOCUS] switch to [MANUAL].



2 Set [BASIC] >> [SCENE MODE] >> select the desired mode.



1) [ ] Sports mode
- To record sports scenes or scenes where there are quick motions

2) [ ] Portrait mode
- To make persons stand out against the background

3) [ ] Low light mode
- To record dark scenes so they are brighter

4) [ ] Spotlight mode
- To record subjects spotlit in a party or theatre

5) [ ] Surf & snow mode
- To record images at dazzling places such as ski slopes and beaches

■ To cancel the scene mode function

Set [BASIC] >> [SCENE MODE] >> [OFF] or set the [AUTO/MANUAL/FOCUS] switch to [AUTO].

Sports mode
- For slow-motion playback or playback pause of recorded pictures, this mode presents free of camera shakes.
- During normal playback, the image movement may not look smooth.
- Avoid recording under fluorescent light, mercury light or sodium light because the colour and brightness of the playback image may change.
- If you record a subject illuminated with strong light or a highly reflective subject, vertical lines of light may appear.
- If the brightness is insufficient, the sports mode does not function. The [ ] indication flashes.
- If this mode is used indoors, the screen may flicker.

Portrait mode
- If this mode is used indoors, the screen may flicker. If so, change the scene mode setting to [OFF].

Low light mode
- Extremely dark scenes may not be able to be recorded finely.

Spotlight mode
- If the recording subject is extremely bright, the recorded image may become whitish and the periphery of the recorded image extremely dark.

Surf & snow mode
- If the recording subject is extremely bright, the recorded image may become whitish.

Recording in natural colours (White balance)

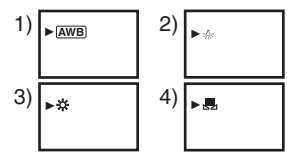
The automatic white balance function may not reproduce natural colours depending on the scenes or lighting conditions. If so, you can adjust the white balance manually.

- **Set to Tape/Card Recording Mode.**

1 Set the [AUTO/MANUAL/FOCUS] switch to [MANUAL].

2 Move the joystick down until the white balance indication appears. ([AWB] etc.)

3 Move the joystick left or right in order to select the white balance mode.



1) Auto white balance adjustment [AWB]

2) Indoor mode (for recording under incandescent lamps) [ ]
3) Outdoor mode [ ]
4) Manual adjustment mode [ ]

■ To restore to the automatic adjustment

Move the joystick left or right until the [AWB] indication appears. Or, set the [AUTO/MANUAL/FOCUS] switch to [AUTO].

- When the camera is turned on with the lens cap fitted, the automatic white balance adjustment may not function properly. Please turn the camera on after removing the lens cap.
- When setting both the white balance and the iris/gain, set the white balance first.
- Whenever recording conditions change, re-set the white balance for correct adjustment.

■ To set the white balance manually

Select [ ] in Step 3. Then, while viewing a white subject on the entire screen, move the joystick up to select the [ ] indication.

■ About flashing of the [ ] indication

When the manual adjustment mode is selected

- Flashing indicates that the white balance previously adjusted is stored. This setting is stored until the white balance is adjusted again.

When white balance cannot be set in the manual adjustment mode

- White balance may not be adjusted properly in the manual adjustment mode in dark places. If so, use the auto white balance mode.

During setting in the manual adjustment mode

- When the setting is completed, it will keep lit.

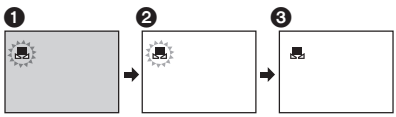
■ About the white balance sensor

The white balance sensor detects the type of light source during recording.

- Do not cover the white balance sensor during recording, or it may not function properly.

■ About the black balance adjustment

This is one of the 3CCD system functions that automatically adjusts the black when the white balance is set in the manual adjustment mode. When the black balance is adjusted, the screen will temporarily be black.



❶ Black balance adjustment (Flashes.)
❷ White balance adjustment (Flashes.)
❸ Adjustment completed (Lights up.)

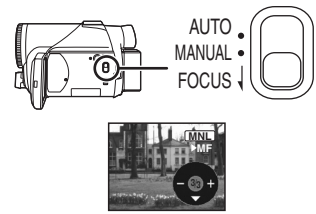
Manual focus adjustment

If auto focusing is difficult due to the conditions, then manual focusing is available.

- **Set to Tape/Card Recording Mode.**

1 Set the [AUTO/MANUAL/FOCUS] switch to [MANUAL].

2 Set the [AUTO/MANUAL/FOCUS] switch to [FOCUS].



- The MNL and the manual focus indication [MF] will be displayed.

3 Move the joystick left or right in order to adjust the focus.

- When focused with a wide angle, the subject may not be in focus when zoomed in. First, zoom in on the subject, and then focus on it.

■ To restore to the automatic adjustment

Set the [AUTO/MANUAL/FOCUS] switch to [AUTO] or [FOCUS].

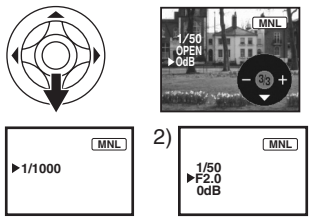
Manual shutter speed/aperture adjustment

Shutter Speed
Adjust it when recording fast-moving subjects.
Aperture
Adjust it when the screen is too bright or too dark.

- **Set to Tape/Card Recording Mode.**

1 Set the [AUTO/MANUAL/FOCUS] switch to [MANUAL].

2 Move the joystick down until the shutter speed indication or aperture value indication appears.



1) Shutter speed
2) (Aperture) Iris/gain value

3 Move the joystick left or right in order to adjust the shutter speed or aperture.

■ To restore to automatic adjustment

Set the [AUTO/MANUAL/FOCUS] switch to [AUTO].

Manual shutter speed adjustment

- Avoid recording under fluorescent light, mercury light or sodium light because the colour and brightness of the playback image may change.
- If you increase the shutter speed manually, the sensitivity lowers and accordingly the gain value increases automatically, which may increase the noises on the screen.
- You may see vertical lines of light in the playback image of a brightly shining subject or highly reflective subject, but this is not a malfunction.
- During normal playback, image movement may not look smooth.
- When recording in the extremely bright place, the colour of the screen may change or flickers. If so adjust the shutter speed manually to 1/50 or 1/100.

Manual iris/gain adjustment

- If the value does not become “OPEN”, you cannot adjust the gain value.
- If the gain value is increased, the noise on the screen increases.
- Depending on the zoom magnification, there are iris values that are not displayed.

■ Shutter speed range

1/50–1/8000 seconds: Tape Recording Mode
1/25–1/500 seconds: Card Recording Mode
The shutter speed closer to 1/8000 is faster.

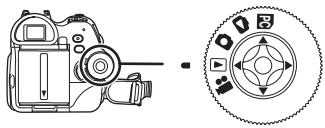
■ Iris/gain value range

CLOSE (Closed), F16, ..., F2.0,
OPEN (Opened) 0dB, ..., 18dB
Value closer to [CLOSE] darken the image.
Value closer to [18dB] brighten the image.
Values with dB are gain values.

Playback mode

Playing back tape

● **Set to Tape Playback Mode.**



1 Operate with joystick.

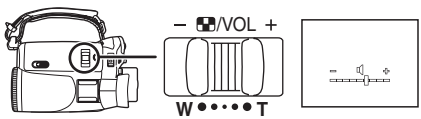
►/❚❚: Playback/Pause
◄◄: Rewind/Review playback (Reverts to playback with the ►/❚❚ icon.)
►►: Fast forward/Cue playback (Reverts to playback with the ►/❚❚ icon.)
■: Stop

- During cue/review playback, fast-moving images may show noise as a mosaic.
- Before and after cue/review playback, the screen may become blue for a moment or images may be disturbed.

■ To adjust volume

Adjust the speaker or headphone volume for playback.

1 Move the [−/VOL+] lever to adjust the volume.



Towards [+]: increases the volume
Towards [−]: decreases the volume
(Nearer the bar to [+], larger the volume.)

- On the remote control, press the [T] button to increase the volume or the [W] button to decrease it.

- When the adjustment is completed, the volume indication will disappear.
- If you do not hear the sound, check the settings of [SETUP] >> [12bit AUDIO].

■ Repeat playback

When the tape end is reached, the tape will be rewound and played back again.

1 Set [ADVANCE] >> [REPEAT PLAY] >> [ON].

- The [▶] indication appears. (In order to cancel the repeat playback mode, set [REPEAT PLAY] >> [OFF] or set [OFF/ON] switch to [OFF].)
- When you set [USB FUNCTION] >> [WEBCAM] and then connect the USB connection cable, the repeat playback mode is canceled.

■ Settings on the audio

- If you cannot listen to the desired audio when playing back a tape, check the settings in [SETUP] >> [12bit AUDIO].
- When you record or dub the audio in [12bit] and set [SETUP] >> [12bit AUDIO] >> [MIX], the audio will be played back in stereo sound regardless of the settings in [AUDIO OUT].

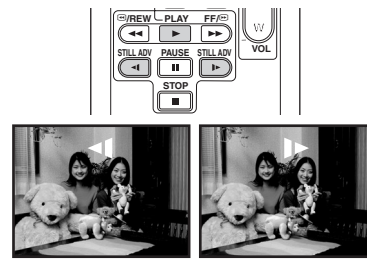
Slow-motion playback/ frame-by-frame playback

● **Set to Tape Playback Mode. (Slow-motion playback can only be performed by using the remote control.)**

Slow-motion playback

If the image is recorded in the SP mode, then it will be played back at a speed approx. 1/5 the normal speed.
If the image is recorded in the LP mode, then it will be played back at a speed approx. 1/3 the normal speed.

1 Press the [◄❚] button or the [❚►] button on the remote control.

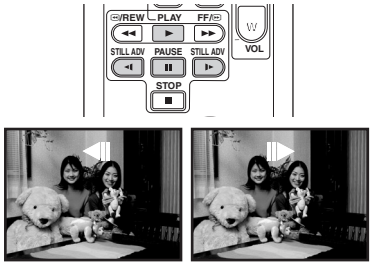


- If the slow-motion playback continues for approx. 10 minutes or more, then the playback will automatically stop. (10 minutes of slow-motion playback is equivalent to approx. 2 minutes in the SP mode or approx. 3 minutes in the LP mode.)

Frame-by-frame playback

1 During playback, press the [❚❚] button on the remote control.

2 Press the [◂❚] button or the [❚▸] button on the remote control.



- Pushing the [−/VOL+] lever towards [T] (normal direction) or towards [W] (reversed direction) of this camera during playback pause also turns into the frame-by-frame playback. If you keep pushing the lever, then the images will continuously be played back frame by frame.

■ To return to normal playback

Press the [▶] button on the remote control.

Slow-motion playback

- In the reversed slow-motion playback, the time code indication may be unstable.

Frame-by-frame playback

- Press and hold the [◂❚] or the [❚▸] button in the playback pause, and then the images will continuously be played back frame by frame.

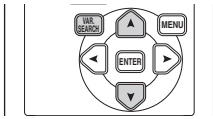
Variable-speed search function

The speed of cue/review playback can be varied.
(This operation is only available when using the remote control.)

- **Set to Tape Playback Mode and play back a tape.**

1 Press the [VAR. SEARCH] button on the remote control.

2 Press the [▲] or [▼] button to vary the speed.



- The speeds for cue/review playback are 1/5× (SP mode slow-motion playback only), 1/3× (LP mode slow-motion playback only), 2×, 5×, 10×, 20×.

■ To return to normal playback

Press the [VAR. SEARCH] button or [▶] button on the remote control.

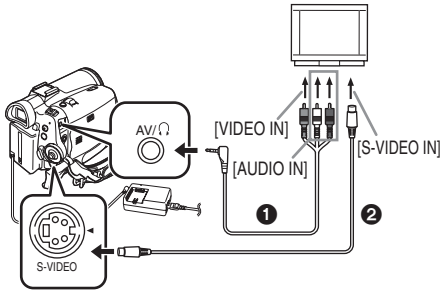
- Images may be shown in a mosaic-like pattern.
- The sound is muted during search.
- This function is canceled when the operation icon is displayed.

Playback on TV

Images recorded by this camera can be played back on a TV.

- **Insert a recorded tape into this camera.**

1 Connect the movie camera and a TV.



- Connect the movie camera and a TV by using the AV cable ❶.
- If the TV has an S-Video terminal, then also connect an S-Video cable ❷ (optional). It allows you to enjoy more beautiful images.

2 Turn on this camera and set the mode dial to the Tape Playback Mode.

3 Select the input channel on the TV.

4 Move the joystick up to select the [▶/❚❚] icon to start playback.

- The image and audio are output on the TV.

5 Move the joystick down to select the [■] icon to stop playback.

- Whenever plugging in the S-Video cable, plug in the AV cable, too.
- Use the AC adaptor to free you from worrying about the battery running down.

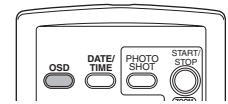
■ If the image or audio from this camera is not output on the TV

- Check that the plugs are inserted as far as they go.
- Check the connected terminal.
- If the image does not appear on the TV even if [BASIC] >> [AV JACK] >> [OUT/] are set, then set to [OUT]. (*-86-*)
- **Check the TV's input setting (input switch). (For more information, please read the operating instructions for the TV.)**

■ To display the on-screen information on the TV

The information displayed on the LCD monitor or the viewfinder (operation icon, time code and mode indication, etc.), date and time can be displayed on the TV.

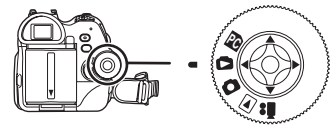
1 Press the [OSD] button on the remote control.



- Press the button again to erase the OSD information.

Playing back card

- **Set to Picture Playback Mode.**



1 Operate with joystick.

◄❚: Plays back the previous picture.
❚►: Plays back the next picture.
▶/■: Slide show (Plays back the still pictures on the card in order) start/stop

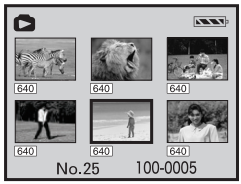
---

- While the data on a card are played back, do not operate the mode dial.
- When the access lamp is lit, do not insert or remove a card.
- It takes time to display the file depending on the number of pixels of the file.
- If you attempt to play back file recorded in a different format or file data is defective, the whole display becomes bluish and the "UNPLAYABLE CARD" indication may appear as warning.
- When playing back a file recorded on other equipment, the date and time display is different from when it was recorded.
- When playing back a picture recorded on other equipment, its size and that of this movie camera may appear differently.

■ To display multiple playback files

Multiple files on the card (6 files on 1 screen) are displayed.

1 Move the [−/VOL+] lever to switch the images.



Towards [+]: Full-screen display (Displays 1 image.)
Towards [−]: Multi-screen display (Displays 6 files on 1 screen.)

- In the multi-screen display,
  - Move the joystick to select a file (The selected file will be encircled by a yellow frame) and press to determine it. The selected file is full-screen displayed.
  - If there are 7 files or more, then move the joystick. The next, or previous multi-screen will be displayed.

■ About the compatibility of still pictures

- The movie camera is compliant with the unified standard DCF (Design rule for Camera File system) established by JEITA (Japan Electronics and Information Technology Industries Association).
- The file format supported by this movie camera is JPEG. (Not all JPEG formatted files will be played back.)
- If an out-of-specs file is played back, the folder/file name may not be displayed.
- The movie camera may degrade or not play back data recorded or created on another product and another product may degrade or not play back data recorded on the movie camera.

Deleting files recorded on a card

The deleted files cannot be restored.

- **Set to Picture Playback Mode.**

1 Move the joystick left or right to select a file to delete.

- You can select a file in the multi-screen display. After selecting the file, press the joystick and display the operation icon.

2 Move the joystick down to select [🗑].

3 Move the joystick up or down in order to select [DELETE 1 FILE] and then press it.

4 When the confirming message appears, select [YES] and press the joystick.

- In order to stop deletion, select [NO].

■ To delete all files

1 Move the joystick down to select [🗑].

2 Move the joystick up or down in order to select [ALL FILES] and then press it.

3 When the confirming message appears, select [YES] and press the joystick.

- In case of [ALL FILES], the deletion may take time if there are many files on the card.
- When “CARD FULL” is shown during recording, switch to the Picture Playback Mode and then delete unnecessary files.
- If there are not any file to delete, insert a new card.
- If files conforming to DCF standard are deleted, all the data related to the files will be deleted.

■ Deleting still picture files recorded on a card by other equipment

- A still picture file (other than JPEG) that cannot be played back on the movie camera may be erased.

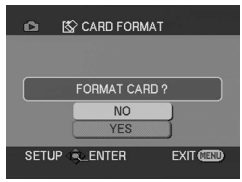
Formatting a card

Please be aware that if a card is formatted, then all the data recorded on the card will be erased. Store important data on a personal computer, etc.

- **Set to Picture Playback Mode.**

1 Set [ADVANCE] >> [CARD FORMAT] >> [YES].

2 When the confirmation message appears, select [YES] and press the joystick in order to format the card.



- In order to stop formatting, select [NO].

- Normally, it is not necessary to format the card. If a message appears even though you insert and remove the card several times, format it.
- Cards formatted on other equipment such as personal computers cannot be used or recording takes longer than expected. We recommend formatting your card on this camera.

Protecting files on a card

Files recorded on a card can be locked so that they may not be deleted by mistake. (Even if the files are locked, they will be deleted if the card is formatted.)

- **Set to Picture Playback Mode.**

1 Set [BASIC] >> [PROTECT] >> [YES].

2 Move the joystick to select a file to be locked, and then press it.

- [ ] Indication ❶ appears and the selected file is locked. Press the joystick again, and the lock will be cancelled.
- 2 or more files can be locked in succession.

■ To complete the settings

Press the [MENU] button.

Writing the printing data on a card (DPOF setting)

You can write the data of pictures to be printed, number of copies, and other information (DPOF data) onto the card.

- **Set to Picture Playback Mode.**

1 Set [ADVANCE] >> [DPOF SET] >> [SET].

2 Move the joystick to select a file to be set, and then press it.

- The number of prints ❶ set to be in DPOF is displayed.

3 Move the joystick up or down in order to select the number of prints, and then press it.

- You can select from 0 to 999. (Selected number of pictures can be printed as you set the number of prints with the printer supporting DPOF.)
- 2 or more files can be set in succession.

■ To complete the settings

Press the [MENU] button.

- DPOF setting made on another camera may not be recognised by this camera. Please perform the DPOF settings on your movie camera.

■ To set so that all pictures are not printed

Select [CANCEL ALL] in Step 1.

■ What is DPOF?

DPOF stands for Digital Print Order Format. This enables the printing information to be added to the pictures on the card so that it can be used on a system supporting DPOF.

Edit mode

Recording from a tape onto a card

Still pictures can be recorded on a memory card from scenes that have already been recorded on a cassette.

- **Set to Tape Playback Mode.**
- **Insert a tape which already has recorded contents and a card.**

1 Start playback.

2 Pause at the scene you wish to record, and press the [PHOTO SHOT] button.

- Audio will not be recorded.

- The size of still pictures recorded on a card becomes [640]. (This is not mega pixel still-picture recording.)
- If you press the [PHOTO SHOT] button without pausing, blurred pictures may be recorded.
- DV input and wide images recorded on a tape cannot be recorded on a card.

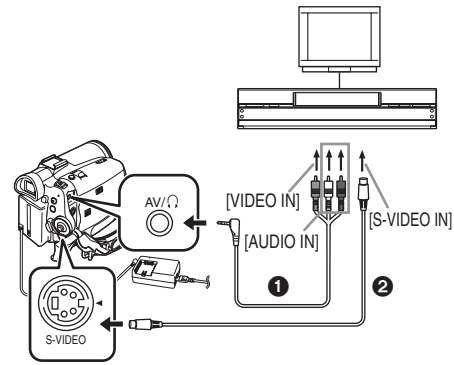
Copying onto a DVD recorder or a VCR (Dubbing)

Pictures recorded by the movie camera can be stored on a DVD-RAM or other such media. Refer to the instructions for the recorder.

- **Place a recorded cassette in the movie camera, and an unrecorded DVD-RAM or cassette in the DVD recorder or VCR.**

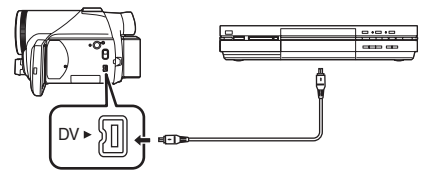
1 Connect the movie camera and the recorder.

Connecting with the AV cable



- Connect the movie camera and the recorder by using the AV cable ❶.
- If the recorder has an S-Video terminal, then also connect an S-Video cable ❷ (optional). It allows you to copy clearer image.

Connecting with the optional DV cable (Only for equipment with a DV terminal)



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2 Turn on the movie camera and set to Tape Playback Mode.

3 Select the input channel on the TV set and recorder.

4 Move the joystick up to select the [▶] icon to start playback.

- The image and sound are reproduced.

5 Start recording.

6 Move the joystick down to select the [■] icon to stop playback.

7 Stop recording.

- For more information, refer to the operating instructions for your TV set and recorder.
- When you do not need functional indications or date and time indications, press the [OSD] button on the remote control for no indication. (When you connect the movie camera and a recorder with the DV cable, these indications may not appear.)

■ When neither image nor sound from the movie camera is output to the TV set

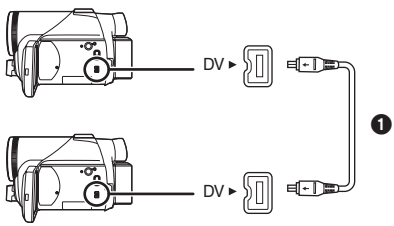
- Check that the plugs are inserted as far as they go.
- Check the connected terminal.
- When no image is presented on the TV even if set [BASIC] >> [AV JACK] >> [OUT/🎧], set to [OUT]. (*-86-*)

Using the DV Cable for Recording (Digital Dubbing)

By connecting other digital video equipment with DV terminal and the movie camera by using the DV cable VW-CD1E (optional) ❶, high-image-quality dubbing can be done in digital format.

- **Set to Tape Playback Mode. (Player/ recorder)**

1 Connect the movie camera and digital video equipment with the DV cable.



2 Set [ADVANCE] >> [REC STDBY] >> [YES]. (Recorder)

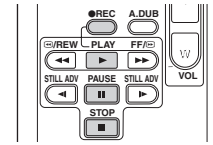
- You do not have to follow this step when the remote control is used in the digital dubbing.

3 Start playback. (Player)

4 Start recording. (Recorder)

Move the joystick up to select [●/❚❚] icon.

Or, while pressing the [●REC] button on the remote control, press the [►] button.



5 Move the joystick up to select the [●/❚❚] icon again or press the [❚❚] button on the remote control to stop recording. (Recorder)

6 Stop playback. (Player)

■ To cancel the standby for recording

When the camera is standby for recording, move the joystick down and select the [■] icon.

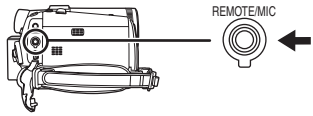
- Do not plug or unplug the DV cable during dubbing, or the dubbing may not be completed properly.
- If a picture (bilingual video, etc.) containing main sound and sub sound has been dubbed, select the desired sound by [SETUP] >> [AUDIO OUT] on playback.
- Even if you use a device equipped with DV terminals such as IEEE1394, you may not be able to perform digital dubbing in some cases. For more information, see the instructions for equipment connected.
- Regardless of the menu settings on the recorder, digital dubbing is carried out in the same mode as the [AUDIO REC] mode of the playback tape.
- The images on the recorder monitor may be disturbed, but it does not affect the recorded images.
- If a picture containing a copyright protection signal (copy guard) is recorded by the movie camera, the picture is distorted by mosaic-like patterns at playback.
- Disconnect the USB cable since input signals from the external input terminal cannot be recorded while it is connected with the USB cable.
- While pictures are input from the DV terminal, the operation icon blinks on instead of appearing from the side of the screen when you press the center of the joy stick.

Audio dubbing

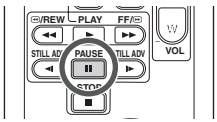
You can add music or narration to the recorded cassette.

- **Set to Tape Playback Mode.**

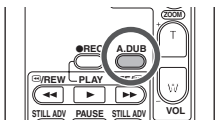
1 Insert an external microphone securely into the [REMOTE/MIC] terminal as far as it will go.



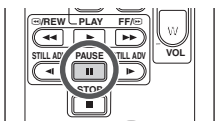
2 Find a scene that you want to add sound to, and press the [❚❚] button on the remote control.

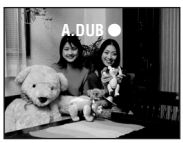


3 Press the [A.DUB] button on the remote control to make audio dubbing ready.



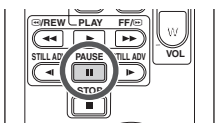
4 Press the [❚❚] button on the remote control to start audio dubbing.





- Talk into the microphone.

5 Press the [❚❚] button on the remote control to stop audio dubbing.



- If a tape has a non-recorded portion when the tape is dubbed, images and sounds may be disturbed when this portion of the tape is played back.

■ Before recording with audio dubbing

- **Set to Tape Recording Mode.**
- When you want to preserve the original sound taken during recording, set [SETUP] >> [AUDIO REC] >> [12bit] to take pictures. (When set [16bit], the sounds taken during recording are erased after recording with audio dubbing.)
- Set [BASIC] >> [REC SPEED] >> [SP] to take pictures.

■ To play back the sound recorded with audio dubbing

You can switch between the sound recorded with audio dubbing and the original sound.
Set [SETUP] >> [12bit AUDIO] >> [ST2] or [MIX].

[ST1]: It only plays back the original sound.
[ST2]: It only plays back the sound added by audio dubbing.
[MIX]: It simultaneously plays back the original sound and the sound added with audio dubbing.

■ To dub audio while listening to a pre-recorded sound

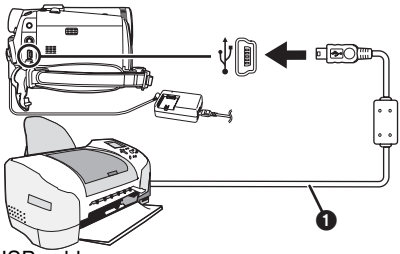
- When pausing the audio dubbing, set the [12bit AUDIO] on the [SETUP] Sub-Menu to [ST2] and you can check the pre-recorded sound.

Printing pictures by directly connecting to the printer (PictBridge)

To print pictures by directly connecting the movie camera to the printer, use a printer compatible with PictBridge. (Read the operating instructions for the printer.)

- **Insert a card and set to Picture Playback Mode.**

1 Connect the movie camera and the printer with the supplied USB cable.



❶ USB cable

- The [PictBridge] indication appears on the screen of the movie camera. (When the printer is being recognized, the [PictBridge] indication blinks.)
- When no card is inserted in the movie camera, the [PictBridge] indication does not appear. (You cannot print any pictures.)
- When the movie camera and the printer are not connected properly, the [PictBridge] indication keeps blinking. (It will blink for over approx. 1 minute.) Connect the cable or check the printer.
- We recommend using the AC adaptor as the power supply.
- When images are displayed in multi-screen, they cannot be printed.

2 Select [SINGLE PRINT] or [DPOF PRINT].

- If there is no file with a DPOF setting, you cannot select [DPOF PRINT].
- When you select [DPOF PRINT] for printing, set the number of prints in DPOF setting.
- When [DPOF PRINT] is selected, print after you determine the paper size.

3 Move the joystick left and right to select a desired picture, and then press it.

4 Select the desired number of prints.

- You can set up to 9 prints.

5 Select the setting for date printing.

- If the printer is not capable of date printing, this setting is unavailable.

6 Select the paper size.

[STANDARD]: Size specific to the printer
[4×5 INCH]
[5×7 INCH]
[4×6 INCH]
[A4]

- You cannot set paper sizes not supported on the printer.

7 Set [PRINT] >> [YES] to start printing.

■ When you stop printing halfway

Move the joystick down.

- Avoid the following operations during printing. These operations disable proper printing.
  - Disconnecting the USB cable
  - Removing the card
  - Switching the mode dial
  - Turning off the power
- Check the settings for the paper size, quality of print, etc. on the printer.
- You cannot print pictures that cannot be played on the movie camera.
- When the movie camera and the printer are connected in the Tape Recording/Playback Mode, the [WEB] or the [WEB] Indication may appear on the LCD monitor. However, pictures cannot be printed.

Menu

Menu list

Menu figures and illustrations are provided for easy-to-understand explanations, and so they are different from the actual menu indications.

■ [TAPE RECORDING MENU]

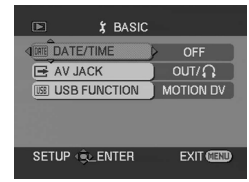
1) [BASIC]
[SCENE MODE] *-72-*
[REC SPEED] *-63-*
[BLANK SEARCH] *-65-*
[WIND CUT] *-70-*
[CLOCK SET] *-59-*

2) [ADVANCE]
[PICT. QUALITY] *-66-*
[SIS] *-71-*
[CINEMA] *-70-*
[USB FUNCTION] (Refer to the operating instructions for PC connection.)
[D.ZOOM] *-66-*
[ZOOM MIC] *-67-*
[DATE/TIME] *-86-*
[INITIAL SET] *-87-*

3) [SETUP]
[FADE COLOUR] *-69-*
[AUDIO REC] *-86-*
[REC LAMP] *-86-*
[DISPLAY] *-86-*
[REMOTE] *-61-*
[BEEP SOUND] *-86-*
[LCD SET] *-60-*
[EVF SET] *-60-*
[DEMO MODE] *-87-*
[AV JACK] *-86-*
[POWER SAVE] *-86-*

4) [LANGUAGE] *-58-*

■ [TAPE PLAYBACK MENU]



1) [BASIC]
[DATE/TIME] *-86-*
[AV JACK] *-86-*
[USB FUNCTION] (Refer to the operating instructions for PC connection.)

2) [ADVANCE]
[BLANK SEARCH] *-65-*
[REC SPEED] *-63-*
[REC STDBY] *-81-*
[REC DATA] *-86-*
[PICT. QUALITY] *-66-*
[REPEAT PLAY] *-75-*

3) [SETUP]
[12bit AUDIO] *-82-*
[AUDIO OUT] *-86-*
[DISPLAY] *-86-*
[REMOTE] *-61-*
[LCD SET] *-60-*
[EVF SET] *-60-*
[POWER SAVE] *-86-*

4) [LANGUAGE] *-58-*

■ [CARD RECORDING MENU]

1) [BASIC]
[SCENE MODE] *-72-*
[PICT. QUALITY] *-66-*
[PICTURE SIZE] *-66-*
[SELF TIMER] *-70-*
[CLOCK SET] *-59-*

2) [ADVANCE]
[BURST MODE] *-71-*
[SHTR EFFECT] *-66-*
[DATE/TIME] *-86-*
[INITIAL SET] *-87-*

3) [SETUP]
[REC LAMP] *-86-*
[DISPLAY] *-86-*
[REMOTE] *-61-*
[BEEP SOUND] *-86-*
[LCD SET] *-60-*
[EVF SET] *-60-*
[POWER SAVE] *-86-*

4) [LANGUAGE] *-58-*

■ [PICTURE PLAYBACK MENU]

1) [BASIC]
[DATE/TIME] *-86-*
[PROTECT] *-79-*

2) [ADVANCE]
[DPOF SET] *-79-*
[CARD FORMAT] *-79-*

3) [SETUP]
[DISPLAY] *-86-*
[REMOTE] *-61-*
[LCD SET] *-60-*
[EVF SET] *-60-*
[POWER SAVE] *-86-*

4) [LANGUAGE] *-58-*

Menus related to taking pictures

■ [DATE/TIME]

This switches between date and time indications.

- The movie camera automatically records the date and time of picture taking on the tape.
- You can also show or change the date/time indication by repeatedly pressing the [DATE/TIME] button on the remote control.

■ [AUDIO REC]

Switches the audio (PCM audio) recording systems.

[12bit]: Records audio in “12 bit 32 kHz 4 tracks”. (The original audio signals can be kept after the other audio signals are dubbed.)

[16bit]: Records audio in “16 bit 48 kHz 2 tracks”. Audio can be recorded in higher quality. (If audio signals are dubbed, then the original audio signals will be erased.)

■ [REC LAMP]

Set to [ON] and this turns the recording lamp on during recording, which indicates that recording is underway. Set to [OFF] and this does not turn on the lamp even when recording is underway.

■ [DISPLAY]

Set to [ON] and the display mode can be switched to all functions. Set to [OFF] and it can be switched to minimum display.

■ [BEEP SOUND]

Set to [ON] and confirmation/alarm beeps are issued as follows.

1 Beep

- When you start recording
- When you turn on the power

2 Beeps

- When you pause recording

2 Beeps for 4 times

- When a cassette with its erasure prevention tab set to [SAVE] is inserted, condensation occurs, and at other times. Check the sentence displayed on the screen.

■ [POWER SAVE]

[OFF]: When about 5 minutes passed without any operation, the standby mode automatically will be set. In the standby mode, [❚❚] blinks and it takes time more than usual to start recording after you press the recording start/stop button.

[5 MINUTES]: When about 5 minutes passed without any operation, the movie camera automatically turns off to protect the tape or to prevent the battery from running down. When you use the movie camera, turn it on again.

- In the following cases, the power may not turn off even when set [POWER SAVE] >> [5 MINUTES].
  - When connecting to the AC outlet (When using the AC adapter)
  - When connecting the USB cable or the DV cable to a personal computer or other equipment
  - When the PC mode

Menus related to playback

■ [AV JACK]

This switches among the output settings of the AV/headphone terminal.

[OUT/🎧]: Automatically switches between AV and headphone output.

[OUT]: Use this setting when image or sound is not output normally to the TV in [OUT/🎧].

- When using the headphone, set to [SETUP] or [BASIC] >> [AV JACK] >> [OUT/🎧]. If set to [OUT], you may hear noises on the right.

■ [REC DATA]

Set to [ON] and the settings (shutter speed, iris/gain values, and white balance settings (-72-), etc.) used during the recordings are displayed during playback.

- When the [AUTO/MANUAL/FOCUS] switch is set to [AUTO], the indication [AUTO] will appear.
- When there is no data, [---] appears on the display.
- If the camera data of the movie camera are played back on other equipment, the settings information is sometimes not displayed normally.

■ [AUDIO OUT]

This switches the sound to be played back.

[STEREO]: Stereo sound (main sound and sub sound)

[L]: Left channel sound (main sound)

[R]: Right channel sound (sub sound)

Other menus

■ [INITIAL SET]

When there is a menu that cannot be selected depending on a combination of functions, set to [YES] for changing the menu settings back to the initial shipping condition.
(Language setting cannot be back to the initial shipping condition.)

■ [DEMO MODE]

If you set to [DEMO MODE] >> [ON] without inserting a cassette and a card, the movie camera is automatically set to the demonstration mode for introducing its functions. If any button is pressed or operated, the demonstration mode is cancelled. If no operations take place for approx. 10 minutes, the demonstration mode automatically starts. To terminate the demonstration mode, insert a cassette or a card, or set to [DEMO MODE] >> [OFF]. For normal use, set this function to [OFF].

Others

Indications

Various functions and the movie camera status are shown on the screen.

Basic indications

:	Remaining battery power
0h00m00s00f:	Time code
15:30:45:	Date/Time indication

Recording indications

R0:45:	Remaining tape time

- Remaining tape time is indicated in minutes. (When it reaches less than 3 minutes, the indication starts flashing.)

SP:	Standard Play mode (Recording speed mode) *-63-*
LP:	Long Play mode (Recording speed mode) *-63-*
●:	Recording *-64-*
❚❚ (Green):	Recording pause *-64-*
❚❚ (Green flash):	Standby mode
❚❚ (Red):	Fade out
:	Recording check *-65-*
CINEMA:	Cinema mode *-70-*
:	Digital zoom *-66-*
AUTO:	Automatic mode *-63-*
MNL:	Manual mode *-72-*
MF:	Manual focus *-73-*
5×:	Zoom magnification indication *-66-*
:	Back light mode *-68-*
:	Image stabilizer *-71-*
1/500:	Shutter speed *-74-*
F2.4:	F number *-74-*
6dB:	Gain value *-74-*
:	Soft skin mode *-69-*
:	Tele macro *-69-*
W:	Fade (White) *-69-*
B:	Fade (Black) *-69-*
:	Colour night view function *-68-*
0Lux :	0 Lux night view function *-68-*
ZOOM :	Zoom microphone *-67-*
:	Wind noise reduction *-70-*
:	Sports mode (Scene mode) *-72-*
:	Portrait mode (Scene mode) *-72-*
:	Low light mode (Scene mode) *-72-*
:	Spotlight mode (Scene mode) *-72-*
:	Surf & snow mode (Scene mode) *-72-*
AWB :	Auto white balance *-72-*
:	Indoor mode (recording under incandescent lamp) *-73-*
:	Outdoor mode *-73-*
:	White balance adjustment mode *-73-*
WEB:	WEB CAMERA mode (recording) *-83-*

Playback indications

●:	Recording underway
▶:	Playback *-75-*
❚❚:	Pause *-75-*
▶▶:	Fast-forward/Cue playback *-75-*
◀◀:	Rewind/Review playback *-75-*
▮▶/◀▮:	Slow motion playback *-75-*
❚❚▶/◀❚❚:	Frame-by-frame playback *-75-*
2×▶▶:	Variable-speed search *-76-*
▶:	Repeat playback *-75-*
WEB:	WEB CAMERA mode (playback) *-83-*
A.DUB ●:	Audio dubbing *-82-*
A.DUB ❚❚:	Audio dubbing pause *-82-*
:	Blank search *-65-*
12bit, 16bit:	Audio recording mode *-86-*
:	Volume adjustment *-75-*

Card

P:	Progressive photoshot mode *-66-*
:	Continuous photoshot recording *-71-*
:	Self-Timer recording *-70-*
(White):	Photoshot mode
(Green):	While the card is being read
:	While photoshot recording is activated
(Red):	Using the card that cannot be recognized
( ):	Photoshot picture quality *-66-*
0:	Remaining number of photoshot pictures (When the remaining number of photoshot pictures reaches 0, the red indication flashes.)
:	Slide show playback *-77-*
PictBridge:	PictBridge mode *-83-*
100-0001:	Folder/File display
No.00:	File number
1:	Number of DPOF Setting *-79-*
:	Lock setting *-79-*
640:	[640×480] Image size
1520:	[1520×1152] Image size

- For images not recorded with this movie camera, the size display is determined as follows according to the number of horizontal pixels.

QXGA:	2048 or more

UXGA: 1600 or more, less than 2048
SXGA: 1280 or more, less than 1600
XGA: 1024 or more, less than 1280
SVGA: 800 or more, less than 1024
640: 640 or more, less than 800 (The size is not displayed at under 640 pixels.)

Warning/alarm indications

If any one of the following indications lights up or flashes, please check the movie camera.

Confirmatory indications

: A cassette with the accidental erasure prevention slider placed in the [SAVE] position is inserted.
No cassette is inserted.

[--]/ :
The built-in battery is low. *-59-*

[!]: The warning/alarm indication appears when you record yourself. Turn the LCD monitor towards the viewfinder and check the warning/alarm indication.

: No card is inserted.

REMOTE :
An incorrect remote control mode has been selected. *-61-*

END:
The tape came to the end during recording.

: The video heads are dirty. *-95-*

Textual indications

DEW DETECT/EJECT TAPE:
Condensation has occurred. Take out the cassette and wait for a while. It takes some time until the cassette holder opens, but this is not a malfunction. *-94-*

LOW BATTERY:
The battery is low. Recharge it. *-53-*

NO TAPE :
No tape is inserted. *-55-*

TAPE END:
The tape came to the end during recording.

CHECK REC TAB:
You are attempting to record pictures on a tape with the accidental erasure prevention slider placed in the [SAVE] position.
You are attempting audio dubbing or digital dubbing on a tape with the accidental erasure prevention slider placed in the [SAVE] position.

CHECK REMOTE MODE:
An incorrect remote control mode has been selected. This is only displayed at the first operation of the remote control after powering-on. *-61-*

WRONG TAPE FORMAT:
You are attempting to play back a tape section that has been recorded with a different TV system. This cassette is incompatible.

UNPLAYABLE CARD:
You are attempting to play back data not compatible with this movie camera.

UNABLE TO A.DUB (LP RECORDED):
Audio dubbing cannot be performed because the original recording was in LP mode.

UNABLE TO A.DUB:
You are attempting to perform audio dubbing on a non-recorded tape.

COPY PROTECTED:
Images cannot be recorded correctly because the medium is protected by a copy guard.

CARD ERROR:
This card is not compatible with this movie camera.
You are attempting to format a failed card.
It displays, when you attempt to insert the incompatible card to Card Slot.

NO CARD:
No card is inserted.

CARD FULL:
Card does not have sufficient memory remaining.
Select Picture Playback Mode and delete unnecessary files.

NO DATA:
There are not any recorded files on the card.

FILE LOCKED:
You are attempting to erase protected files.

CARD LOCKED:
The write protection switch on the SD Memory Card is set to [LOCK].

NEED HEAD CLEANING:
The video heads are dirty. *-95-*

PUSH THE RESET SWITCH:
An irregularity in the equipment has been detected. Press the [RESET] button (*-50-*). This may solve the problem.

CHANGE MODE TO USE USB:
The USB cable is connected to the movie camera in Card Recording Mode.

DISCONNECT USB CABLE:
You are attempting to turn the mode dial in PC mode with the USB cable connected to the movie camera. You are attempting to record pictures on a tape/card with the USB cable connected to the movie camera.

NO INK IN PRINTER:
There is no ink. Check the connected printer.
NO PAPER IN PRINTER:
There is no paper. Check the connected printer.
PRINTER ERROR:
Check the connected printer.
PC DOES NOT SUPPORT USB2.0:
The movie camera is connected to a personal computer that does not support USB 2.0.
CAN NOT USE USB:
You are connecting the USB cable with the DV cable connected.
CHANGE TO MANUAL MODE:
You are attempting to select the item on the [SCENE MODE] when the [AUTO/MANUAL/FOCUS] switch is set to [AUTO].
CAN NOT OPERATE (MOTION DV MODE):
You are attempting to change [D.ZOOM] setting during MotionDV Mode.
REVERSE THE LCD MONITOR:
At the time of 0 Lux night view mode, when LCD monitor is not reversed, it displays. When the LCD monitor is rotated by 180° towards the lens, the brightness of the LCD monitor cannot be adjusted.

Functions cannot be used simultaneously

Some functions in the movie camera are disabled or cannot be selected due to its specifications. The table below shows examples of functions restricted by conditions.

Functions	Conditions which disable the functions
● Progressive	● When recording onto a tape and a card simultaneously ● When digital zoom (10× or higher) is used ● When the shutter speed is 1/750 or faster in Tape Recording Mode ● When the gain value is increased in Tape Recording Mode ● When the colour night view function is used ● When the portrait mode of the scene mode is used in Tape Recording Mode
● Digital zoom ● Fade	● When the Card Recording mode is used
● Image stabilizer	● When the Card Recording mode is used ● When the colour night view function is used
● Backlight compensation	● When the iris/gain is set ● When the colour night view function is used
● Soft skin ● Tele-macro ● Recording check	● While recording to a tape
● Colour Night View	● While recording to a tape ● When the Card Recording mode is used
● Continuous Photoshot	● When [PICTURE SIZE] is set to other than [640]
● Zoom microphone ● Wind noise reduction	● An external microphone is used

● Scene mode	● When setting the [AUTO/ MANUAL/FOCUS] switch to [AUTO] ● When the colour night view function is used
● Change of white balance	● When digital zoom (10× or higher) is used ● When the colour night view function is used ● When a menu is displayed
● Adjusting the shutter speed, iris/gain	● When the colour night view function is used ● When the scene mode is used
● Variable-speed search	● During repeat playback
● Deleting files	● When the write protect switch on the card is set to [LOCK] ● When the file is protected
● Formatting	● When the write protect switch on the card is set to [LOCK]
● Audio dubbing	● The section of a tape recorded in LP mode ● The blank section of a tape ● Sounds sent through the DV terminal

Before requesting repair (Problems and solutions)

Power/Body

1: The movie camera power cannot be turned on.

- Is the battery fully charged? Use a fully charged battery.
- The battery protection circuit may have operated. Attach the battery to the AC adaptor for 5 to 10 seconds. If the movie camera still cannot be used, the battery is faulty.

2: The movie camera power is turned off automatically.

- If you set [POWER SAVE] to [5 MINUTES] and do not operate the movie camera for about 5 continuous minutes, the power is automatically turned off for tape protection and power conservation. To resume recording, turn the [OFF/ON] switch to [OFF]. Then turn it to [ON] again. (*-86-*)

3: The movie camera power does not stay on long enough.

- Is the battery low? If the remaining battery power indication is flashing or the message “LOW BATTERY” is displayed, the battery has run down. Charge the battery or attach a fully charged battery. (*-53-*)
- Has condensation occurred? When you carry the movie camera from a cold place into a warm place, condensation may occur inside it. If so, the power is turned off automatically, disabling all operations except for taking cassettes out. Wait until the condensation indication disappears. (*-94-*)

4: Battery runs down quickly.

- Is the battery fully charged? Charge it with the AC adaptor. (*-53-*)
- Are you using the battery in an extremely cold place? The battery is affected by ambient temperature. In cold places, the operating time of the battery becomes shorter.
- Has the battery worn out? The battery has a limited life. If the operating time is still too short even after the battery is fully charged, depending on the usage, the battery has worn out and can no longer be used.

5: The movie camera cannot be operated though powered up.
The movie camera does not operate normally.

- Remove the cassette and then press the [RESET] button. (*-94-*) If normal conditions are not restored yet, turn off the power. Then, about 1 minute later, turn on the power again. (Conducting the above operation when the

access lamp is on may destroy the data on the card.)

6: The cassette cannot be removed.

- Does the power lamp comes on when opening the cassette cover? (*-56-*) Make sure that the battery and the AC adaptor are properly connected. (*-53-*)
- Is the battery in use discharged? Charge the battery and remove the cassette.
- Close the cassette cover completely, and fully open it again. (*-55-*)

7: No operation other than cassette removal can be performed.

- Has condensation occurred? Wait until the condensation indication disappears. (*-94-*)

8: The remote control does not function.

- Has the button-type battery of the remote control run out? Replace it with a new button-type battery. (*-61-*)
- Is the setting on the remote control correct? If the setting on the remote control is not in agreement with the [REMOTE] setting on the movie camera, the remote control does not operate. (*-61-*)

Recording

1: Recording does not start although power is supplied to the movie camera and the cassette is correctly inserted.

- Is the accidental erasure prevention slider on the cassette open? If it is open (set to [SAVE]), recording cannot be performed. (*-55-*)
- Is the tape wound to the end? Insert a new cassette.
- Is the recording mode set? When in the playback mode, recording cannot be performed. (*-63-*)
- Has condensation occurred? No operation other than cassette removal can be performed when condensation occurs. Wait until the condensation indication disappears. (*-94-*)
- Is the cassette cover open? If the cover is open, the movie camera may not operate normally. Close the cassette cover. (*-55-*)

2: The screen has changed suddenly.

- Has the demonstration started? In the Tape Recording mode, if you set [DEMO MODE] >> [ON] without inserting a cassette and a card, the demonstration starts. For normal use, set this function to [OFF]. (*-87-*)

3: A cassette cannot be inserted.

- Has condensation occurred? Wait until the condensation indication disappears.

4: Auto focus function does not work.

- Is manual focus mode selected? If auto focus mode is selected, focus is automatically adjusted.
- There are some recording subjects and surroundings for which the auto focus does not operate correctly. (*-98-*) If so, use the manual focus mode to adjust the focus. (*-73-*)
- Is the colour night view function set? When the colour night view function is working, focusing shifts into the manual mode.

Indications

1: A sentence is displayed in red or yellow in the screen centre.

- Read the contents and respond to them. (*-89-*)

2: The time code becomes inaccurate.

- The time code indication counter may not be constant in the reversed slow-motion playback, but this is not a malfunction.

3: The remaining tape time indication disappears.

- The remaining tape time indication may disappear temporarily during frame-by-frame playback or other operation. If you continue ordinary recording or playback, the indication is restored.

4: The remaining tape time Indication does not match the actual remaining tape time.

- If scenes of less than 15 seconds are continuously recorded, the remaining tape time cannot be correctly displayed.
- In some cases, the remaining tape time indication may show remaining tape time that is 2 to 3 minutes shorter than the actual remaining tape time.

5: A function indication such as mode indication, remaining tape time indication, or time code indication is not shown.

- If you set [SETUP] >> [DISPLAY] >> [OFF], indications other than the tape running condition, warning, and date indications disappear.

Playback (Sound)

1: Sound is not played back from the built-in speaker of the movie camera or the headphones.

- Is the volume too low? During playback, push the [− /VOL+] lever to display the volume indication and adjust it. (*-75-*)

2: Different sounds are reproduced at the same time.
- Have you set [SETUP] >> [12bit AUDIO] >> [MIX]? If you set [AUDIO REC] >> [12bit] and dub audio to a recorded tape, you can hear the sound on recording and the sound dubbed at a later time. To hear the sounds separately, set to [ST1] or [ST2]. (*-82-*)
- Have you set [SETUP] >> [AUDIO OUT] >> [STEREO] and reproduced a picture containing the main sound and sub sound? Set to [L] to hear main sound, and set to [R] to hear the sub sound. (*-86-*)

3: Audio dubbing cannot be performed.
- Is the accidental erasure prevention slider on the cassette open? If it is open (set to [SAVE]), audio dubbing cannot be performed. (*-55-*)
- Are you attempting to edit a tape portion that was recorded in LP mode? LP mode does not allow audio dubbing. (*-63-*)

4: The original sound was erased when audio dubbing was performed.
- If you perform audio dubbing on a recording made in [16bit] mode, the original sound will be erased. If you wish to preserve the original sound, be sure to select [12bit] mode when recording.

5: Sounds cannot be played back.
- Although a cassette with no audio dubbing is being played, have you set [SETUP] >> [12bit AUDIO] >> [ST2]? To play back a cassette with no audio dubbing, set [12bit AUDIO] >> [ST1]. (*-82-*)
- Is the variable speed search function working? Press the [VAR. SEARCH] button on the remote control to cancel the variable speed search function. (*-76-*)

6: Noise is heard from the right headphone.
- Have you set [BASIC] >> [AV JACK] >> [OUT]? When you use the headphones, set to [OUT/ 🎧].

Playback (Pictures)

1: Mosaic-pattern noise appears on images during cue or review playback.
- This phenomenon is characteristic of digital video systems. It is not a malfunction.

2: Horizontal stripes appear on images during cue and review playback.
- Horizontal stripes may appear depending on the scene, but this is not a malfunction.

3: Although the movie camera is correctly connected to a TV, playback images cannot be seen.
- Have you selected video input on the TV? Please read the operating instructions of your TV and select the channel that matches the input terminals used for the connection.

4: Playback picture is not clear.
- Are the heads of the movie camera dirty? If the heads are dirty, playback image cannot be clear. Clean the heads by using the head cleaner for digital video (optional). (*-95-*)
- If the terminal for the AV cable is soiled, noises may appear on the screen. Wipe the soil off the terminal with a soft cloth, and then connect the cable to the AV terminal.
- Is a picture containing a copyright protection signal (copy guard) being recorded? When a protected picture is played back by the movie camera, mosaic-like patterns appear on the picture.

Card

1: Recorded pictures are not clear.
- Have you set [BASIC] >> [PICT. QUALITY] >> [ ]? If recording is done with it set to [ ], pictures with fine details may include a mosaic-like pattern. Set [PICT. QUALITY] >> [ ]. (*-66-*)

2: A file recorded on a card cannot be deleted.
- Is the file locked? Locked files cannot be deleted. (*-79-*)
- For the SD Memory Card, if its write protect switch is set to [LOCK], then deletion is disabled. (*-56-*)

3: Photoshot playback images do not look normal.
- The picture may be damaged. In order to prevent the loss of image data, backing up on a cassette or a personal computer is recommended.

4: Even if a card is formatted, it cannot be used.
- Either the movie camera or the card may be damaged. Please consult a dealer.

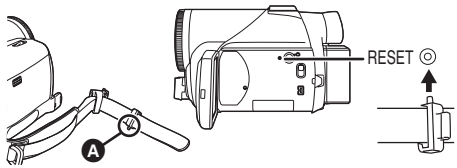
5: During playback, [UNPLAYABLE CARD] is displayed.
- The image was either recorded in a different format, or data is damaged.

Others

1: The indication disappears, the screen is frozen, or no operation can be performed.
- Turn off the power to the movie camera. If the power cannot be turned off, press the [RESET] button, or detach the battery or AC adaptor and then reattach it. After that, turn on the power again. If normal operation is still not restored, detach the power connected, and consult the dealer who you purchased the movie camera from.

2: "PUSH THE RESET SWITCH" is displayed.

- An irregularity in the movie camera has been automatically detected. Remove the cassette or the card for data protection and then press the [RESET] button with the boss Ⓐ. The movie camera will be activated.



- If you do not press the [RESET] button, the power to the movie camera is turned off automatically about 1 minute later.
- Even after you press the [RESET] button, the indication may still appear repeatedly. If so, the movie camera needs repair. Detach the power connected, and consult the dealer who you purchased the movie camera from. Do not attempt to repair the appliance by yourself.

3: Even if connected by the USB cable, the movie camera is not recognized by the PC.

- Is the USB driver installed? For information, refer to the operating instructions for PC connection (separate volume).

4: When the USB cable is disconnected, an error message will appear on PC.

- To disconnect the USB cable safely, double-click the [ ] icon in the task tray and follow the instructions on the screen.

5: The movie camera malfunctions on editing, dubbing from digital video equipment, or using "MotionDV STUDIO 5.3E LE for DV".

- If a tape is recorded in multiple modes such as SP and LP (recording mode), 12bit and 16bit (sound recording mode), normal and wide, recorded and unrecorded parts, the movie camera may malfunction at a point where the mode switches. When you edit, do not record in multiple modes.

6: The warning/alarm indication [!] appears when the camera is operated in the WEB camera mode.

- Did you press the menu button or the recording start/stop button? You cannot use the menu or record onto the tape/card in the WEB camera mode.
- Is the setting for the remote control correct?
- Did you attempt to play a tape without inserting it? Insert a tape.
- Did you attempt to play a tape with copyright protection (copy guard)? Pictures of the tape with copyright protection (copy guard) cannot be displayed on the PC. (The audio of the tape can be played.)
- Is the video stream driver installed? For details, refer to the operating instructions for PC connection.

Cautions for Use

■ About condensation

If you turn the movie camera on when condensation occurs on the head or the tape, condensation Indication [ ] (yellow or red) is displayed on the viewfinder or the LCD monitor and the messages [DEW DETECT] or [EJECT TAPE] (only when the tape is inserted) appear. If so, follow the procedure below.

[ ] in yellow:

Dews are slightly adhering on the head or the tape.

[ ] in red:

Dews are adhering on the head or the tape.

1 Remove the tape if it is inserted.

- It takes about 20 seconds to open the cassette holder. This is not a malfunction.

2 Leave the movie camera with the cassette cover closed to cool or warm it to the ambient temperature.

When [ ] in yellow

- You cannot use the Tape Recording/ Playback Mode. Leave the movie camera for about 30 minutes.
- However, you can use the Card Recording Mode or Picture Playback Mode when a cassette is not inserted.

When [ ] in red

- The power Lamp blinks for about 1 minute and then the movie camera automatically turns off. Leave it for about 2 to 3 hours.

3 Turn the movie camera on again, set it to the Tape Recording/Playback Mode and then check if the condensation indication disappears.

Especially in cold areas, moisture may be frozen. If so, it may take more time before the condensation indication disappears.

Watch for condensation even before the condensation Indication is displayed.

- The condensation indication may not appear depending on circumstances. When condensation occurs on the lens or the movie camera, it may also occur on the head and the tape. Do not open the cassette cover.

When the lens is fogged:

Set the [OFF/ON] switch to [OFF] and leave the movie camera in this condition for about 1 hour.

When the lens temperature becomes close to the ambient temperature, the fogging disappears naturally.

■ About dirty heads

If video heads (the parts that closely contact with the tape) become dirty, normal recording and playback are not properly performed. Clean the heads with the digital video head cleaner.

- Insert the head cleaner into the movie camera, set it to the Tape Playback Mode, and play it back for about 10 to 20 seconds. (If you do not stop the playback, it automatically stops about 30 seconds later.)
- We recommend cleaning the heads periodically.

If the heads become dirty, "NEED HEAD CLEANING" appears during recording. During playback, moreover, the following symptoms appear.

- Mosaic-like noise appears partially or the sound is interrupted.
- Black or blue mosaic-like horizontal stripes appear.

When normal playback cannot be performed even after the head cleaning

One possible cause is that normal recording could not be performed because the heads were dirty at the time of recording. Clean the heads, and perform recording and playback again. If normal playback can be performed, the heads are clean. Before an important recording, be sure to conduct a test recording to make sure that normal recording can be performed.

- If the heads become dirty soon after cleaning, the problem may be attributable to the tape. If so, try another cassette.
- During playback, the picture or sound may be interrupted momentarily, but this is not a malfunction of the movie camera. (One possible cause is that the playback is interrupted by dirt or dust that momentarily adheres to the heads.)

■ About the movie camera

- When the movie camera is used for a long time, the camera body becomes warm, but this is not a malfunction.

Keep the movie camera away from magnetized equipment such as a cellular phones, microwave ovens, TVs, and video game equipment.

- If you use the movie camera on or near a TV, images or sounds may be disturbed due to electromagnetic wave radiation.
- Recordings on the tape may be damaged, or images may be distorted, by strong magnetic fields created by speakers or large motors.
- Electromagnetic wave radiation generated by digital circuits including microprocessor may adversely affect the movie camera, causing the disturbance of images and sounds.
- If the movie camera is affected by such equipment and does not function properly, turn off the movie camera power and detach the battery or AC adaptor. Then, connect the battery or AC adaptor again and turn on the movie camera power.

Do not use your movie camera near radio transmitters or high-voltage cables.

- If you record pictures near radio transmitters or high-voltage cables, recorded images or sounds may be adversely affected.

Do not spray insecticides or volatile chemicals onto the movie camera.

- If the movie camera is sprayed with such chemicals, the camera body may become deformed and the surface finish may peel off.
- Do not keep rubber or plastic products in contact with the movie camera for a long time.

When you use your movie camera in a sandy or dusty place such as on a beach, do not let sand or fine dust get into the body and terminals of the movie camera. Also, protect the movie camera from getting wet.

- Sand or dust may damage the movie camera or cassette. (Care should be taken when inserting and removing a cassette.)
- If sea water splashes onto the movie camera, wet a soft cloth with tap water, wring it well, and use it to wipe the camera body carefully. Then, wipe it again thoroughly with a soft dry cloth.

While carrying the movie camera, do not drop or bump it.

- A strong impact on the movie camera may break its housing, causing it to malfunction.

Do not use benzine, paint thinner or alcohol for cleaning the movie camera.

- Before cleaning, detach the battery or pull out the AC mains lead from the AC mains socket.
- The camera body may be discoloured and the surface finish may peel off.
- Wipe the movie camera with a soft dry cloth to remove dust and fingerprints. To remove stubborn stains, wring well a cloth that is soaked in a neutral detergent diluted with water and wipe the movie camera with it. Afterwards, wipe it with a dry cloth.
- When you use a chemical dust cloth, follow the instructions.

Do not use this movie camera for surveillance purposes or other business use.

- If you use the movie camera for a long time, the internal temperature increases and, consequently, this may cause malfunction.
- This movie camera is not intended for business use.

■ About the battery

The battery used in the movie camera is a rechargeable lithium ion battery. This battery is susceptible to temperature and humidity, and the effect of temperature increases with increasing or decreasing temperature. In the low temperature range, the fully charged indication may not appear, or the low battery indication may appear about 5 minutes after the start of use. At high temperature, moreover, the protection function may work, disabling use of the movie camera.

Be sure to detach the battery after use

- If the battery is left attached to the movie camera, a minute amount of current is consumed even when the movie camera power is [OFF]. If the battery is left attached to the movie camera for a long time, over-discharge takes place. The battery may become unusable after it is charged.

Prepare spare batteries when going out for recording.

- Prepare batteries appropriate to 3 to 4 times the period during you want to record pictures in. In cold places such as a ski resort, the period during which you can record pictures is shortened.
- When you travel, do not forget to bring an AC adaptor so that you can recharge the batteries at your destination.

If you drop the battery accidentally, check to see if the terminals are deformed.

- Attaching a deformed battery to the movie camera or AC adaptor may damage the movie camera or AC adaptor.

After use, be sure to take the cassette out and detach the battery from the movie camera or pull out the AC mains lead from AC mains socket.

- The battery should be stored in a cool place free from humidity, with as constant temperature as possible. (Recommended temperature: 15°C to 25°C, Recommended humidity: 40% to 60%)
- Extremely high temperatures or low temperatures will shorten the life of the battery.
- If the battery is kept in a high-temperature, high-humidity, or oily-smoky places, the terminals may rust and cause malfunctions.
- To store the battery for a long period of time, we recommend you charge it once every year and store it again after you have completely used up the charged capacity.
- Dust and other matter attached to the battery terminals should be removed.

Do not throw old battery into fire.

- Heating a battery or throwing it into a fire may result in an explosion.
- If the operating time is very short even after the battery has been recharged, the battery has worn out. Please purchase a new battery.

■ About the AC adaptor

- If the battery is warm, charging requires more time than normal.
- If the temperature of the battery is extremely high or extremely low, the [CHARGE] lamp may continue flashing, and the battery may not be charged. After the battery temperature has decreased or increased sufficiently, recharging starts automatically. So, wait for a while. If the lamp still continues flashing even after the recharging, the battery or AC adaptor may be faulty. If so, please contact a dealer.
- If you use the AC adaptor near a radio, radio reception may be disturbed. Keep the AC adaptor 1 metre or more away from radio.
- When using the AC adaptor, it may generate whirring sounds. However, this is normal.
- After use, be sure to pull out the AC mains lead from the AC mains socket. (If they are left connected, a minute amount of current is consumed.)
- Always keep the electrodes of the AC adaptor and battery clean.

■ About the cassette

Never place the cassette in a high temperature place.

- The tape may be damaged, producing mosaic-like noise at the time of playback.

When storing the cassette after use, be sure to rewind the tape to the beginning and take it out.

- If the cassette is left for more than 6 months (depending on the storage condition) in the movie camera or stopped midway, the tape may sag and be damaged.
- Once every 6 months, wind the tape to the end and then rewind it to the beginning. If the cassette is left for 1 year or longer without winding or rewinding, the tape may be deformed by expansion or shrinkage attributable to temperature and humidity. The wound tape may stick to itself.

- Dust, direct sunlight (ultraviolet rays), and humidity may damage the tape. Such usage may cause damage to the movie camera and the heads.
- After use, be sure to rewind the tape to the beginning, put the cassette in the case to protect it from dust, and store it upright.

Keep the cassette away from strong magnetism.

- Apparatuses using magnets such as magnetic necklaces and toys have magnetic force that is stronger than expected, and they may erase the contents of a recording or may increase noise.

■ About the card

When inserting or removing the card, always set the [OFF/ON] switch to [OFF].
When the access lamp is illuminated (During access to the card), do not open the card slot cover to pull out the card, turn off the power, or cause any vibrations or impacts.
Do not leave the card in places where there is high temperature or direct sunlight, or where electromagnetic waves or static electricity are easily generated. Moreover, do not fold or drop the card, and do not strongly vibrate it.

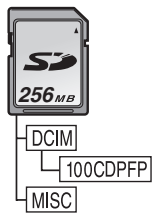
- The card may break or the contents of the card may be destroyed or erased.

After use, be sure to remove the card from the movie camera for storage.

- After use, or when storing or carrying the card, put it in the storage case.
- Do not allow dust, water, or foreign substances to adhere to the terminals on the back of the card. Moreover, do not touch the terminals with your hand.

■ Folder structure of the card

The folder structure of the card formatted by the movie camera will be displayed on the PC as the illustration below.



- Up to 999 pictures can be recorded on 100CDPFP folder etc.
- Files with the DPOF settings can be recorded on MISC folder.

■ LCD monitor/viewfinder

LCD monitor

- When the LCD monitor gets dirty, wipe it with a dry soft cloth.
- In a place with drastic temperature changes, condensation may form on the LCD monitor. Wipe it with soft dry cloth.
- If your movie camera is extremely cold, the LCD monitor is slightly darker than usual immediately after you turn the power on. However, as the internal temperature increases, it goes back to normal brightness.

Extremely high precision technology is employed to produce the LCD monitor screen featuring a total of approximately 113,000 pixels. The result is more than 99.99% effective pixels with a mere 0.01% of the pixels inactive or always lit. However, this is not a malfunction and does not affect the recorded picture.

Viewfinder

Extremely high precision technology is employed to produce the viewfinder screen featuring a total of approximately 113,000 pixels. The result is more than 99.99% effective pixels with a mere 0.01% of the pixels inactive or always lit. However, this is not a malfunction and does not affect the recorded picture.

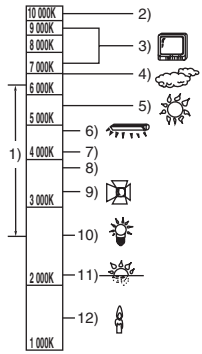
■ Periodical check-ups

- To maintain the highest image quality, we recommend replacing worn parts such as heads after approx. 1000 hours of use. (This, however, depends on operating conditions including temperature, humidity and dust.)

Explanation of terms

■ Automatic white balance

White balance adjustment recognizes the colour of light and adjusts so the white colour will become a pure white. The movie camera determines the hue of light that comes through the lens and white balance sensor, thereby judging the recording condition, and selects the closest hue setting. This is called automatic white balance adjustment. However, since the movie camera only stores white colour information under several light sources, automatic white balance adjustment does not function normally under the other light sources.



Outside of the effective range of automatic white balance adjustment, the image will become reddish or bluish. Even within the effective range of automatic white balance adjustment, the automatic white balance adjustment may not function properly if there is more than one light source. For light outside the functional auto white balance adjustment range, use the manual white balance adjustment mode.

1) The effective range of automatic white balance adjustment on this movie camera
2) Blue sky
3) TV screen
4) Cloudy sky (rain)
5) Sunlight
6) White fluorescent lamp
7) 2 hours after sunrise or before sunset
8) 1 hour after sunrise or before sunset
9) Halogen light bulb
10) Incandescent light bulb
11) Sunrise or sunset
12) Candlelight

■ White balance

The image recorded by the movie camera may become bluish or reddish under the influence of light sources. To avoid such phenomena, adjust the white balance.

White balance adjustment determines the white colour under different light sources. By recognizing which is the white colour under sunlight and which is the white colour under a fluorescent lamp, the movie camera can adjust the balance among the other colours.
Since white colour is the reference of all colours (light), the movie camera can record pictures in a natural hue if it can recognize the reference white colour.

■ Auto focus

Auto focus automatically moves the focusing lens forward and backward inside the movie camera to bring the subject into focus.

Auto focus has the following characteristics.

- Adjusts so that the vertical lines of a subject are seen more clearly.
- Attempts to bring an object with higher contrast into focus.
- Focuses on the screen centre only.

Due to these characteristics, auto focus does not work correctly in the following situations. Record pictures in the manual focus mode.

Recording a subject with one end located closer to the movie camera and the other end farther away from it

- As auto focus adjusts at the centre of an image, it may be impossible to focus on a subject that is located in both the foreground and background.

Recording a subject behind dirty or dusty glass

- The subject behind the glass will not be focused because the focus is on the dirty glass.

Recording a subject that is surrounded by objects with glossy surfaces or by highly reflective objects

- The recording subject may become blurry because the movie camera focuses on the objects with glossy surfaces or on highly reflective objects.

Recording a subject in dark surroundings

- The movie camera cannot focus correctly because the light information that comes through the lens decreases considerably.

Recording a fast-moving subject

- As the focus lens-inside moves mechanically, it cannot keep up with a fast-moving subject.

Recording a subject with little contrast

- A subject with little contrast, such as a white wall, may become blurry because the movie camera achieves focus based upon the vertical lines of an image.

Specifications

Specifications

Digital Video Camera
Information for your safety

Power source:
DC 7.9/7.2 V
Power consumption:
Recording
3.1 W (When using viewfinder)
3.4 W (When using LCD monitor)

Recording format:
Mini DV (Consumer-use digital video SD format)
Tape used:
6.35 mm digital video tape
Recording/playback time:
SP: 80 min; LP: 120 min (with DVM80)
Video
Recording system:
Digital component
Television system:
CCIR: 625 lines, 50 fields PAL colour signal
Audio
Recording system:
PCM digital recording
16 bit (48 kHz/2 ch), 12 bit (32 kHz/4 ch)
Image sensor:
1/6-inch 3CCD image sensor
(Effective pixels: moving picture/340 K×3, still picture/340 K×3, Total: 540 K×3)
Lens:
Auto Iris, F1.8, Focal length; 2.45–24.5 mm, Macro (Full range AF)
Filter diameter:
37 mm
Zoom:
10:1 Power zoom
Monitor:
2.5-inch LCD
Viewfinder:
Colour electronic viewfinder
Microphone:
Stereo (with a zoom function)
Speaker:
1 round speaker ∅ 20 mm
Standard illumination:
1,400 lx
Minimum required illumination:
1 lx (Colour Night View Mode)
Video output level:
1.0 Vp-p, 75 ohm
S-Video output level:
Y Output: 1.0 Vp-p, 75 ohm
C Output: 0.3 Vp-p, 75 ohm
Audio output level (Line):
316 mV, 600 ohm
Mic input:
Mic sensitivity –50 dB (0 dB=1 V/Pa, 1 kHz) (Stereo mini jack)
USB:
Card reader/writer function, USB 2.0 compliant (Hi-Speed)
No copyright protection support
PictBridge-compliant
Digital interface:
DV input/output terminal (IEEE1394, 4-pin)
Dimensions:
Approx. 76 mm (W) ×77 mm (H) ×120 mm (D)
Weight:
Approx. 420 g (without supplied battery, DV cassette and lens cap)
Approx. 520 g (with supplied battery, DV cassette and lens cap)
Operating temperature:
0°C–40°C
Operating humidity:
10%–80%
Card memory functions
Recording media:
SD Memory Card (32 MB/64 MB/128 MB/256 MB/512 MB/1 GB)
Still picture recording file format:
JPEG (Design rule for Camera File system, based on Exif 2.2 standard), DPOF corresponding
Still picture size:
Mega pixel recording:
1520×1152
VGA recording: 640×480
WEB camera
Compression:
Motion JPEG
Image size:
320×240 pixels (QVGA)
Frame rate:
Approx. 6 fps

AC adaptor **VSK0651B**
Information for your safety

Power source:
AC 110–240 V, 50/60 Hz
Power consumption:
19 W
DC output:
DC 7.9 V, 1.4 A (Movie camera operation)
DC 8.4 V, 0.65 A (Battery charging)

Dimensions:
61 mm (W) ×32 mm (H) ×91 mm (D)
Weight:
Approx. 110 g

Weight and dimensions are approximate values.
Specifications may change without prior notice.

Maximum number of still pictures recordable on an SD Memory Card (optional)

PICTURE SIZE	[640]		[1520]	
PICT. QUALITY				
32 MB	220	440	32	53
64 MB	440	880	68	110
128 MB	880	1760	130	210
256 MB	1760	3520	272	437
512 MB	3520	7040	540	868
1 GB	7040	14080	1082	1739

- The numbers shown in the table are approximations.
- These figures vary depending on the subject being photographed.

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F1204Ke0 (10000 Ⓐ)
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Matsushita Electric Industrial Co., Ltd.
Web site: http://www.panasonic.co.jp/global/

松下電器產業株式會社
日本國大阪