

# SONY®

NTSC

## Videocassette Recorder **PVV-3**

**BETACAM SP™**  
**2000 PRO**





Sony introduces the PVV-3 Dockable Betacam SP® Recorder designed to meet the critical demands of today's video production community.

It builds upon the excellent performance features of its predecessor the PVV-1A such as high picture quality and reliability, and adds powerful new enhancements.

When the PVV-3 is combined with the Sony DXC-637 2/3-inch 3 CCD Camera, it becomes the PVW-637; an ideal "two-piece" camcorder that is designed for optimum balance and operational interface.

# PVV-3 Videocassette Recorder



## Features

### **Superior Picture Quality of the Betacam SP Component Recording Format**

The PVV-3 offers the superb picture quality of the Betacam SP format; recognized around the world as the video professionals format of choice. The Betacam SP format uses component recording, in which color information (R-Y/B-Y) is time compressed and recorded on one track by using the CTDM (Compressed Time Division Multiplex) system. The luminance (Y) signal is

recorded on a separate track. The use of two-tracks eliminates the cross color and cross luminance effects inherent in composite recording. This two track recording technology is combined with high frequency FM carriers for each track, providing very wide bandwidths for both the luminance and chrominance signals. These factors result in the Betacam SP format's superb multi-generation picture performance. In order to achieve the maximum performance of the Betacam SP format, the PVV-3 records only on metal tape. These factors make the PVV-3 ideal for achieving superb picture quality.

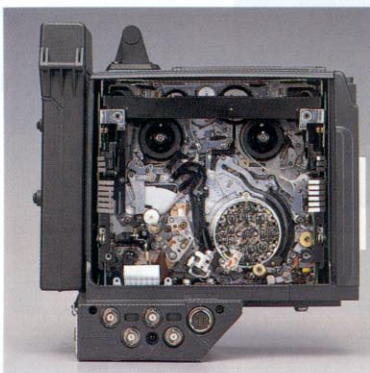


Furthermore, the PVV-3 can display remaining battery power and tape length both on the LCD panel and a viewfinder. It also uses a real time and calendar recording system and is easily integrated with Anton/Bauer® lighting equipment to enhance the system versatility.

With its superb performance, compact design and practical operator oriented characteristics, the PVV-3 will surely satisfy virtually all video professionals with uncompromising demands for the high quality of Betacam SP recording.

### **Compact, Lightweight with Low Power Consumption**

A highly advanced mechanical design, small tape transport system, electronic circuitry incorporating newly developed ICs and a small cassette compartment are attributable to the compact, lightweight design of the PVV-3. The PVV-3 weighs approximately 2.8kg (6 lb 3 oz), even when combined with the DXC-637 camera head, lens, battery



and tape, it only weighs 8.2 kg (18 lb 1 oz) and is ideal for one-person operation. Owing to the low power consumption (10W), up to 60 minutes of continuous camcorder operation is possible on one fully charged NP-1B battery (with the DXC-637).

### **Refined Ergonomic Design and Ruggedly Constructed**

The PVV-3's extended carrying handle (optional) provides security during transport and facilitates low angle shooting. Function controls and indicators have been simplified to help avoid misoperation.

The body of the PVV-3 is ruggedly constructed with diecasting, and the VTR cassette compartment has a rubber seal to protect it from dust, grit and moisture. The combination of these features allow the PVV-3 to be used even under adverse field conditions.

### **A Choice of Dockable Cameras and A Perfect "Two-piece" Camcorder as the PVW-637**

The PVV-3 has a Pro 50-pin interface which allows direct connection with Sony's Hyper HAD CCD cameras: DXC-637, DXC-537A and DXC-327A to meet the demands of a variety of shooting situations. When connected to the DXC-637, the PVV-3 demonstrates optimum performance. Not only from the ergonomic point of a well-balanced design but also from its operability as an ideal "two-piece"

camcorder, the PVW-637.

Recorder status such as time code, audio level, remaining tape, remaining battery power (shown by percentage when either NP-1B or Anton/Bauer Ultralight® System is connected) and warning messages can be displayed on the viewfinder such as the DXF-601 and the DXF-501.



**PVW-637**

### **Full Color Picture Playback Capability in the Field**

Full color picture playback is available in the field by connecting the optional VA-300 to the 20-pin interface of the PVV-3. The VA-300 provides composite output and RF signal output (with the optional RF Adaptor RFU-95 series) for reviewing the recorded images with accompanying audio on a TV monitor. Furthermore, for various field applications and microwave transmission, a component TBS (Time Base Stabilizer) function is built into the VA-300.





## Record Review Function

By simply pressing the Rec Review button while in the Rec Pause mode or in the Stop mode, the PVV-3 plays back two seconds of the last scene and stops at the end of the previous recording. The Rec Review time can also be extended up to a maximum of approximately 10 seconds, if the Rec Review button is pressed for longer than two seconds.

## Viewfinder Playback

In playback or Rec Review mode, either the recorded luminance signal or the chrominance (CTDM) signal can be viewed on the viewfinder. The luminance signal is usually shown and to check the chrominance signal, just press the CTDM button on the side panel of the PVV-3.

## Built-in SMPTE Time Code Generator and Reader

Time code is indispensable for precise, frame accurate editing. The generation and reading of SMPTE standard LTC (Longitudinal Time Code) and VITC (Vertical Interval Time Code) is available with the PVV-3. User bits are also available. The LTC can be automatically recorded on a dedicated longitudinal time code track to identify the absolute address of a frame. The VITC is recorded in the vertical blanking interval of the video signal, permitting both normal audio channels (CH1 and CH2) to be used simultaneously. Time code lock to either external time code or another PVV-3 is possible for multi-camera operation. Furthermore, the PVV-3 has both time code preset and regeneration capabilities. By using SHIFT/ADVANCE buttons, either the desired time code or user bit can be preset. When reviewing recorded material, the LTC is indicated on the LCD display.

## Real Time Clock/Calendar Recording Function

The PVV-3 is equipped with a real time clock/calendar recording function. The PVV-3 uses a clock as an internal generator, consisting of the clock data and calendar data. When setting the side panel switch to the DATE/TIME position, the clock data is automatically recorded on the LTC track of the tape. The calendar data is recorded on the User-bit data area of the LTC track. Furthermore, the clock data can also be recorded on the user-bit area of the VITC track.

## Frame Accurate Back Space Editing

Automatic back space editing with instant start provides sequential recording, without picture breakup at the transition points. The time code regeneration function, when used with the Rec Review function, enables the PVV-3 to record continuous time code at any editing point.

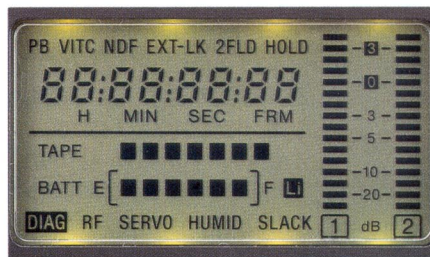
## VTR Full Function Control

Eject, Rewind, Play, Fast Forward, and Stop function buttons are located on the top of the unit and are covered with a lid to prevent accidental access. During Rec mode, all function buttons are automatically inhibited. The Rec mode can also be activated with the trigger buttons on the front of the camera or on the zoom lens grip. With the optional RM-81 Remote Controller, the Start/Stop of the Rec mode can be controlled.



## Comprehensive LCD Display

An 8-digit LCD display provides an extensive range of critical information about the VTR operation. In addition to time data (including Time Code, CTL and User Bit data), remaining tape quantity and battery capacity are



displayed via a bargraph meter. A digital audio meter allows precise adjustment of the audio recording level.





## Menu Selection

Various VTR menus such as real time clock/calendar setting, cumulative hours (head drum operating hours, tape transport operation hours, total operating hours), VITC insertion line setting, drop-frame/non-drop-frame mode, Anton/Bauer Logic Series® Digital battery capacity indication settings, standby period setting and real time recording function setting (for VITC user bits) can be shown on the LCD display for easy access to the various menus.



## Warning Indications

The "two-piece" camcorder (PVW-637) uses a comprehensive warning system with various warning indications; NO TAPE, REC INHIBIT, LOW BATTERY, BATTERY END, TAPE NEAR END, TAPE END, CHECK REMOTE, SERVO, HUMID, RF, SLACK and OXIDE



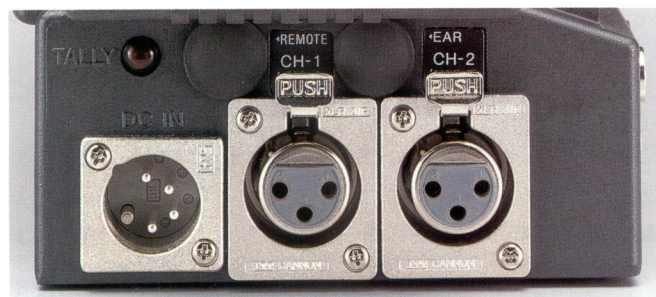
TAPE. These are shown on the LCD display and the viewfinders such as DXF-601 and DXF-501. A warning lamp is provided on the side panel of the PVV-3 and an LED in the viewfinder.



Additionally, the tally lamp located on the rear of the PVV-3 and the front of the viewfinder "blink" when recording and an audio alarm is used as a warning indicator.

## Audio System

The PVV-3 has two audio inputs with XLR connectors. Simultaneous recording on the two longitudinal tracks with Dolby™ C-type noise reduction is possible. Furthermore, channel recording levels can be independently adjusted.



## Built-in External Microphone Power Supply

The XLR microphone input connectors for the two audio channels can supply +48V external microphone power. This function allows external condenser microphones to be used without the need for an external power supply.

## Built-in Loudspeaker

The built-in loudspeaker further enhances cableless operation. During recording, mixed channels, individual channels, or alarm signals can be monitored. Separate monitor level and alarm level controls are provided.

## Selectable Battery Cases

In addition to the supplied battery case for one NP-1B, the PVV-3 can accept various batteries to extend the operating time. The DC-500 Battery Case, which houses one BP-90A, can be easily attached onto the back of the PVV-3 when the supplied battery case has been detached. The DC-520, when attached to the supplied battery case, allows the PVV-3 to house two NP-1B batteries.

## Easy System Integration with Anton/Bauer Equipment

In addition to a selection of battery cases, the Anton/Bauer Logic Series Digital battery can also be used with the PVV-3. With this battery, the amount of remaining battery power is accurately displayed on the LCD panel as well as the viewfinder. The Anton/Bauer Ultralight System (when menu 206 is on) is also easy to use. With this system, lighting power is turned on and off in conjunction with the VTR Start/Stop function.

\* The Anton/Bauer QRSP400A Mounting Plate is required to attach its Logic Series Digital battery onto the PVV-3.





# PVW-637 Betacam SP Camcorder



## Main Features

### **Excellent Design**

- Directly connected via the Pro 50-pin connector
- Compact and lightweight (Approx. 8.2kg/ 18 lb 1 oz including the battery, cassette and x16 zoom viewfinder)
- Low power consumption (approx. 24 W with viewfinder)
- Lightweight design

### **Excellent Picture Performance**

- 2/3 inch IT (Interline Transfer) Hyper HAD sensor CCD with 380,000 picture elements (effective) provides the following characteristics.
  - High sensitivity of F8.0 at 2000 lx
  - High horizontal resolution of 800 TV lines
  - High signal-to-noise ratio of 63dB
  - Low smear level
  - Reduced aliasing
- DCC (Dynamic Contrast Control) Plus provides excellent color reproduction even at a high luminance level
- Clean Detail for improved stepping diagonal edge reduction
- DPR (Dual Pixel Readout) technology for noiseless picture even when the gain level is increased
- Hyper Gain system for high sensitivity even in such low light situations as 1 lux illumination
- Three mode matrix—STD (Standard), H.SAT (High Saturation), FL (Fluorescent Light)
- Digital IE (Image Enhancement) for reduction of spurious noise and aliasing of image
- EVS (Enhanced Vertical Definition System) to improve vertical resolution to 450TV lines

### **Operational Convenience**

- EZ (Easy) mode and EZ focus allow quick camera setup for instant shooting
- ATW (Auto Tracking White) Balance function
- Three position auto iris mode—STD (Standard), BACK L (Back Light), SPOT L (Spot Light)
- Programmable Gain for precise gain selection from 8 gain values
- Advanced Menu gives the users enhanced control of camera functions
- Variable speed electronic shutter
- Clear Scan mode for shooting computer display
- Monitor Out function
- Quick start, refined 600TV line 1.5 inch CRT viewfinder

### **Other Features**

- Supplied with a detachable microphone
- MIC LOW CUT switch for audio noise reduction
- Dual white balance memories for each of four filter wheel positions
- White shading compensation
- Flare compensation
- Reduction of aliasing by two-dimensional low pass filter
- SMPTE type color bar with audio tone
- Full two-line image enhancer
- Genlock capability
- Superimposition of time and date on the camera video output



# Optional Accessories



**DXC-637**  
Color Video Camera Unit



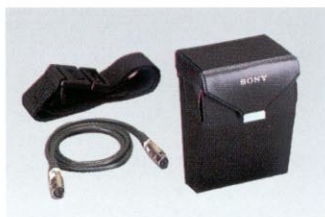
**DXC-327A**  
Color Video Camera Unit



**NP-1B**  
NiCd Rechargeable Battery



**BP-90A**  
NiCd Rechargeable Battery



**DC-210**  
Battery Case for BP-90A



**DC-500**  
Battery Case for BP-90A



**DC-520**  
Battery Case for NP-1B



**BC-1WD**  
Battery Charger for four NP-1Bs



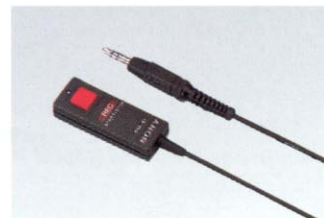
**BC-410**  
Battery Charger for four BP-90As and four NP-1Bs



**CMA-8A**  
AC Adaptor  
(used with the optional CCQX-3 cable)



**CCQX-3**  
Power Supply Cable for CMA-8A



**RM-81**  
Remote Controller



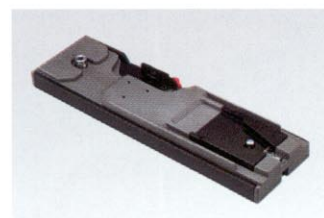
**VA-300**  
Playback Adaptor



**AC-550**  
AC Adaptor



**DXF-601**  
1.5 inch Monochrome Electronic Viewfinder



**VCT-U14**  
Tripod Adaptor for DXC-637



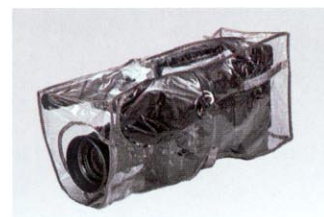
**WRT-810A/830A**  
UHF Wireless Microphone



**WRR-810/860**  
Wireless Microphone Receiver



**LC-421**  
Carrying Case for PVW-637



**LCR-1**  
Rain Cover



**CA-514**  
Camera Adaptor for BVP Series Broadcast Cameras



**BCT-5MA/10MA/20MA/30MA**  
Metal Particle Videocassette Tape  
(Small Cassette)



**UVWT-10MA/20MA/30MA**  
Metal Particle Videocassette Tape  
(Small Cassette)

# Specifications

## General

Power requirements:	DC 12V, $\pm 5.0$ V
Power consumption:	Less than 10W
Operating temperature:	0 to 40°C (32 to 104°C)
Operating humidity:	25 to 85%
Storage humidity:	25 to 90%
Mass:	2.8kg (6 lb 2 oz) (without battery and cassette tape)
Dimensions:	118(W) x 242(H) x 233(D)mm (without handle) (4 3/4 x 9 5/8 x 9 1/4 inches)
Tape speed:	118.6mm/s
Playback/recording time:	More than 30min. with BCT-30MA
Fast forward time:	Less than 7.5min. with BCT-30MA
Rewind time:	Less than 5.5min. with BCT-30MA
Continuous recording time:	Approx. 60min. with NP-1B (PVW-637)

## Video performance (Metal Particle Tape)\*\*

Bandwidth	
Luminance (50% modulation):	30Hz to 4.5MHz $\pm 0.5$ dB
Color difference (50% modulation):	30Hz to 1.5MHz $\pm 0.5$ dB
S/N ratio	
Luminance (Component IN/OUT):	More than 51dB
Chrominance (AM/PM):	More than 53 dB
K-factor (2T pulse):	Less than 2.0%
Y/C delay:	0 $\pm$ 20ns

## Audio performance (Metal Particle Tape)\*\*

Frequency response:	50Hz to 15kHz $\pm 1.5$ dB
S/N ratio (at 3% distortion level):	More than 72dB (CCIR-ARM/AVE)
Distortion T.H.D. (at 1kHz reference level):	Less than 1.5%
Wow and flutter:	Less than 0.15% rms

## Signal inputs

VIDEO (from the camera head, Pro 50-pin)	
Luminance:	1.0Vp-p, 1k $\Omega$ unbalanced
Color difference (B-Y/R-Y):	0.7Vp-p, 1k $\Omega$ unbalanced
GEN LOCK VIDEO IN (BNC):	1.0Vp-p, 75 $\Omega$
AUDIO IN CH1/2 (XLR 3-pin female):	-60dBu/+4.0dBu* <sup>2</sup> selectable, high impedance, balanced
TIME CODE IN (BNC):	0.5 to 18Vp-p, 10k $\Omega$

## Signal outputs

VIDEO OUT (BNC):	1.0Vp-p, 75 $\Omega$
TIME CODE OUT (BNC):	1.0Vp-p, 75 $\Omega$

## Others

EARPHONE OUT:	Mini jack
PLAYBACK ADAPTOR:	20-pin
REMOTE:	Stereo mini jack

## Supplied accessories

Shoulder strap	x1
Grip	x1
Lithium button cell (type CR2025)	x1
Screws M4 x 6	x2
Screws M4 x 12	x2
Operation manual	x1

\*1 The specifications of "Video /Audio performance" were measured by playing back material on a standard PVW-2800/2650/2600 that had been recorded on a PVV-3.

\*2 0dBu = 0.775Vrms

\* Design and specifications subject to change without notice.

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\* "Sony" and "Clear Scan" are trademarks of Sony Corporation.

\* "Dolby" is a trademark of the Dolby Laboratories Licensing Corporation.

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