

SEA&SEA

Underwater Video Housing

VX-2000^{PRO}

Instruction Manual



Underwater Housing for SONY Digital Handycam VX-2000

VX-2000 PRO

Introduction

Thank you and congratulations on your purchase of Sea & Sea's VX-2000PRO. This high-performance housing with professional specifications has been designed specifically for underwater use with SONY's DCR-VX2000 and DSR-PD150 Digital Video Camcorders.

This product is depth rated to 75m/250 feet. The combination of this product and Sea & Sea's BLX-55W halogen video light provides natural color high-definition underwater imaging. Please read this manual before use and retain for future reference.

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Safety Precautions

*Misuses listed under the following precautions could lead to serious consequences. Please observe the precautions as they contain highly important information related to personal and product safety

Precautions marked **"CAUTION!"** refer to those situations or conditions that could result in personal injury or property damage. Please read carefully

■ General Precautions for the Housing



CAUTION!

- Read this instruction manual carefully before use.
- Always make sure that the underwater lighting equipment and accessories are securely mounted to prevent them from falling off, getting lost, causing personal injury or equipment malfunction.
- Do not carry or swing the housing by the shoulder strap. Take care not to drop it. Violent impact can severely damage the housing.
- Do not open the housing in a wet or sandy environment. Protect the interior from moisture and debris in order to prevent malfunction.
- Do not alter or modify the housing. User modifications can result in flooding or malfunction. User modifications will void the warranty
- If you detect smoke or an acid odor, discontinue use immediately. Remove the camera from the housing and remove batteries. Bring the housing to an authorized Sea & Sea dealer for evaluation and repair
- In the event of flooding, turn the housing and video light off and discontinue use.
- If flooded, beware of increased pressure inside the light. When opening the cases, handle with extreme care. Cases will open with extreme force.
- Always rinse this product with fresh water after use. Rinse with housing cases securely closed so that water will not penetrate the interior
- Handle this product carefully so as not to scratch the lens or the finder window.
- Always dry the lens front and monitor windows with a soft cloth to prevent salt residue from marring the window surfaces.
- Never use petroleum solvents, such as alcohol or paint thinner, to clean the housing; such products might mar or otherwise damage the port, finder window, and the housing's finish.

- This product has been constructed with an airtight seal. When packing this product for airplane travel, open the housing or remove the O-ring to alleviate pressure build up due to atmospheric changes.
- This product incorporates plastic parts. Do not subject this housing to extreme heat, such as on a car dashboard, or in direct sunlight. Plastic parts are prone to warping. Especially take care not to keep this product with the front and rear cases closed in a heated condition. It may cause flooding or malfunction.
- SEA & SEA Products Ltd. will not be responsible for any damages, repairs or replacements of the camera, lenses or accessories used with this housing due to flooding caused by user mishandling.
- SEA & SEA Products Ltd. will not be responsible for unobtained pictures or costs related to the shooting of such pictures due to malfunction of the housing, camera, light or accessories.

■ Precautions for Storage of the Housing



CAUTION !

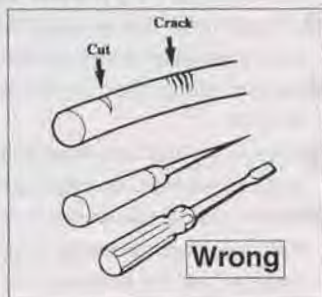
- To prevent mildew and malfunction, do not store in a damp or humid environment.
- Do not store in a chemically-laden environment. Naphthalene, camphor or other harmful chemicals can cause mildew, corrosion and other damage to the metal and rubber parts in this product.

Handling and Maintenance of the O-Ring

The O-ring on the front case of your VX-2000PRO Housing provides an airtight waterproof seal. Improper handling and maintenance of the O-ring can cause flooding. Please observe the following precautions carefully

- Always inspect the O-ring for scratches, cracks, or cuts.

If the O-ring is damaged, it must be replaced. Never remove the O-ring with a sharp tool. To avoid damaging the O-ring, use the Sea & Sea O-Ring Remover a tool especially made for O-ring removal.



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■ Precautions for Storage of the Housing

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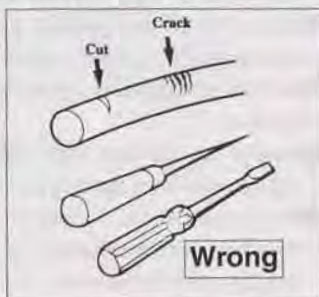
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Handling and Maintenance of the O-Ring

The O-ring on the front case of your VX-2000PRO Housing provides an airtight waterproof seal. Improper handling and maintenance of the O-ring can cause flooding. Please observe the following precautions carefully

- Always inspect the O-ring for scratches, cracks, or cuts.

If the O-ring is damaged, it must be replaced. Never remove the O-ring with a sharp tool. To avoid damaging the O-ring, use the Sea & Sea O-Ring Remover a tool especially made for O-ring removal.



● **Inspect for debris.**

Make sure that there are no foreign particles, such as dust, sand or hair on the O-ring, O-ring groove, or O-ring contact surface. Such contamination will breach the seal and cause flooding. If necessary, wash the O-ring thoroughly in fresh water and dry with a lint-free cloth. Use a cotton swab to clean the O-ring groove and contact surface.

● **Lubricate with silicone grease.**

Silicone grease protects the O-ring from drying and abrasion. Dab a small amount of grease onto your finger and draw the O-ring through your fingers until evenly coated. Use the silicone grease sparingly. Too much grease attracts debris.

● **Do not crimp the O-ring**

Hold the O-ring straight and do not bend or twist it when fitting it into the O-ring groove.

● **O-ring storage.**

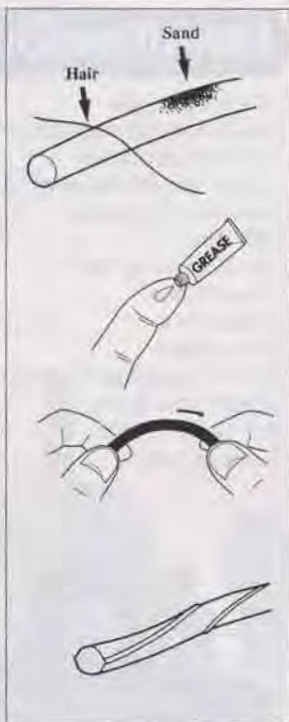
Always store your O-ring in an airtight container and in a cool environment. Keep out of direct sunlight. Take care that it is stored flat and not bent or twisted. Do not place any heavy objects on it; excessive weight will flatten it and impede its sealing capability.

● **The O-ring's life is one year**

The life of the O-ring depends on the diligence of your maintenance, frequency of use, and storing conditions, but on average, if you maintain your O-ring properly it will retain its watertight integrity for one year.

● **Remove the O-ring for inspection.**

Before use, remove the O-ring from its groove and carefully check the O-ring, the O-ring groove and the O-ring contact surface. A thorough examination of the O-ring and O-ring groove is not possible unless the O-ring has been removed.

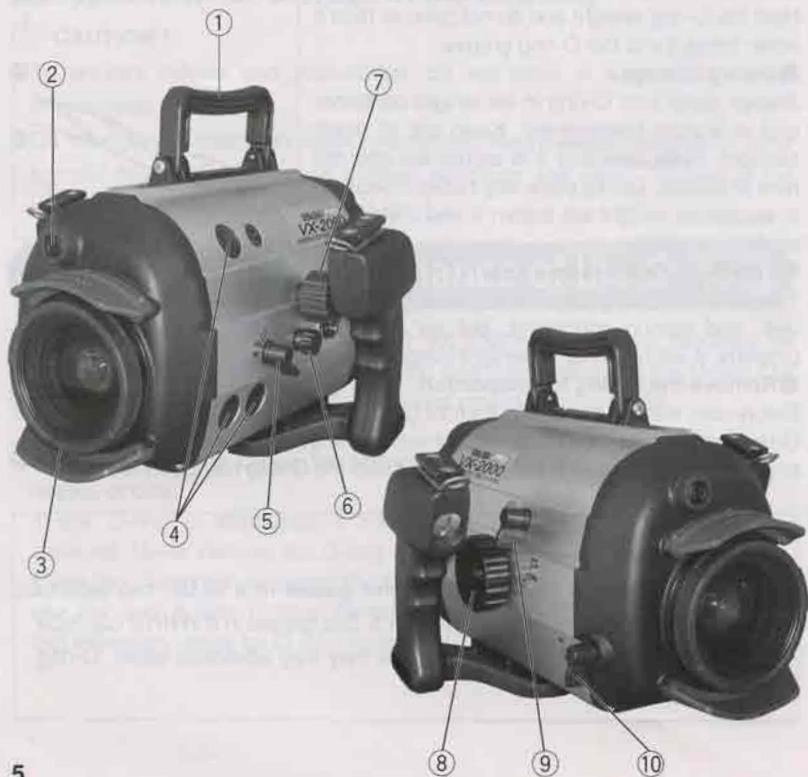


CAUTION!

Use only the Sea & Sea brand silicone grease in a BLUE cap tube to lubricate this O-ring. Never use the Sea & Sea grease in a WHITE cap tube or other brands of silicone grease since they may adversely affect O-ring quality.

Identification of Parts

- ① Carrying Handle
- ② Underwater Microphone (Monaural)
- ③ $\times 0.5$ Multi-Coated Super Wide Conversion Lens
- ④ Accessory Bulkhead
- ⑤ ND Filter
- ⑥ Iris (Exposure) Dial
- ⑦ Focus Knob
- ⑧ Zoom Knob
- ⑨ Main Switch
- ⑩ Color Correcting Flip Filter
- ⑪ Auto Focus Button
- ⑫ Iris On/Off Button
- ⑬ Locking Latch
- ⑭ Control Panel
- ⑮ 2.5" LCD Monitor
- ⑯ LCD Monitor ON/Off Switch
- ⑰ Leak Detector
- ⑱ Monitor Brightness Control Knob
- ⑲ Infrared Remote Control Grip
- ⑳ Finder
- ㉑ Eyepiece Shutter
- ㉒ Camera Base
- ㉓ Base Lock
- ㉔ Camera Fixing Screw
- ㉕ Locator Pin
- ㉖ Zoom Gear
- ㉗ Guide Pin



Mounting the Video Camera to the Housing

Preparing the Camera

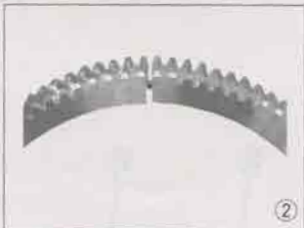
Remove the lens hood, lens cap, camera viewfinder eyepiece and shoulder strap.

Attaching Focus and Zoom Gears to the Camera

Attach the manual focus/zoom gears (included) to the camera, as shown in Photo 1



Both gears should be aligned so that the spaces between the gear teeth are even, as shown in Photo 2.



Folding the Grip Strap

Grip strap should be folded as shown in Photo 3 so as not to interfere when installing the camera into the housing.



Control Jack Covers (Finder Type Only)

AV control jack cover should remain in place to cover the AV jacks. LANC control jack cover should be uncapped and should face down as shown in Photo 4.



Control Jack Covers (Monitor Type Only)

Uncap both AV and LANC control jack covers.



Attaching the Camera Base to the Camera

Fit the camera base to the bottom of the camera and insert the AV jack covers into the slot as shown in Photo 6.

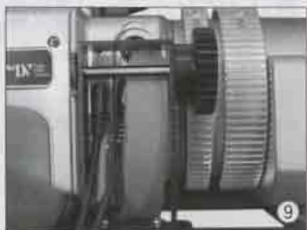


Screw the camera base into the tripod mount of the camera. Make sure that the guide pins firmly hold the rib extending from the lower part of the lens. Also make sure that the manual zoom gears are properly engaged.



Connecting the Cords to the Camera

Connect LANC external audio and video cable (monitor type only) to the video camera. Set aside the AV control jack cover to the position shown in Photo 9 so as not to interfere when installing the camera into the housing.



- With reference to the audio and LANC cables, L-shaped plug must be connected to the video camera and straight plug must be connected to the housing.



Setting the Camera Switches

Before installing the camera into the housing, set the camera controls as follows.

- Set the focus knob to AUTO.
- Set the ND filter lever to OFF



- Set the auto lock lever to RELEASE.
- Set the power switch to CAMERA.



- To use PD150, remove the two screws holding the microphone attachment base and remove the microphone.



Preparing the Housing

Before installing the camera and base into the front case of the housing remember the following:

- Iris dial and ND filter control should be pulled out to prevent interference while installing the camera.
- ND filter lever should be set to OFF (to match camera setting) as shown in Photo 13. (Push in after camera is installed.)
- Make sure that the O-ring contact surface is free of dust and debris.



- Plug all the cords into the appropriate connectors inside the housing (monitor connector is located inside the rear case)



- Guide rails are provided inside the housing to assist installation.
- Align the camera base to the guide rails inside the housing. Then slide the camera inside while pulling out the manual zoom knob. The grip strap should fit flush between the camera and housing.



- As shown in Photo 16, make sure that the rear edge of the camera base is flush with the guide rails of the front case.



- After the camera is completely installed into the front case, tighten the base lock screw.



- (For finder type only)
Hold the finder up and insert the finder spacer.



Installing the Batteries to the Rear Case

(For finder type)

The battery installed in the rear case powers the leak detector. Use only a CR2032 battery for replacement. To check the battery, touch the tips of the detector with a paper clip or other metal object and see if the leak detector light blinks. To remove the battery, press down on the center of the battery.



(For monitor type)

The battery compartment located in the rear case is for the monitor and leak sensor batteries. Install the alkaline AA batteries included in the product package. Be sure to follow the correct battery polarities as shown in the battery compartment.

Batteries will last for approximately 4 hours of monitor display.

Use three AA alkaline batteries only. **Do not use nickel-cadmium (Ni-Cd), lithium, nickel metal hydride (NiMH) or manganese batteries in this product.**



Closing the Housing

1. Make sure that there are no foreign particles, such as dust, sand or hair on the O-ring, O-ring groove, or O-ring contact surface. Make sure that the O-ring is properly lubricated.
2. Press the rear case forward so that the guide pins engage the latches, then rotate the latches counterclockwise, as shown in Photo 21 until the latches are secured. Check that the remote control and microphone cords are not protruding or pinched between O-ring and O-ring groove. This would interfere with the watertight integrity of the housing and cause flooding.



External Controls

Main Switch

Use this switch to turn ON or OFF the power supplied to the camera.

Zoom Knob

This knob is for manual zoom control. Rotate this knob forward for TELE and backward for WIDE.



ND Filter

Switch the ND filter to adjust the intensity of available light. Level 1 will reduce the light to 1/4, Level 2 will reduce the light to 1/32.



Focus Knob

To switch to manual focus, cancel the auto focus mode by pressing the auto focus button once. You can select auto focus mode again by pressing the button once more.



Iris (Exposure) Button and Exposure Dial

Press the exposure button to activate and deactivate manual exposure control. Turn the exposure dial to adjust the exposure while in manual mode.

Remote Control Grip

W and T buttons are provided for infrared zoom control. Use PHOTO button for still photo capture. The picture will be recorded on the tape, not in the memory stick. Press START/STOP button once to start recording and once more to stop recording.



- To install the accessory battery CR-2 remove the battery cap located at the front of the remote control grip, insert the battery as shown in the picture and then replace the cap firmly. The O-ring must be lubricated in the same manner as housing O-ring. Pay special attention to the O-ring contact surface.



Eyepiece Shutter (Finder Type Only)

This shutter protects the camera LCD from sunlight when not in use. Close the shutter when the housing is in direct sunlight.



Control Panel

Before using these functions, set the auto lock selector to and release the auto lock.

PRG: ON/OFF of program AE [Gain].

SPEED: ON/OFF of shutter speed.

WHITE: Turn the dial to [SEL/PUSH EXEC] (select and push to execute).

EXE: Executes the selected function.

*AUDIO function of VX-2000 and AE SHIFT function of PD150 will not be available. Functions shown in brackets [] are for PD150.



Leak Detector

The yellow leak detector lamp blinks when it detects a leak. If the leak detector is activated, ascend toward the surface at a safe rate of ascent. Remove the camera from the housing. If there is a major flooding be careful of internal pressure (especially when air is coming out from the air release valve).

Caution The rear case may open with extreme force when the locking latch is released.



LCD Monitor Switch (Monitor Type Only)

Turn it clockwise to turn ON and counter-clockwise to turn OFF

Monitor Brightness Knob (Monitor Type Only)

Turn it clockwise to brighten and counter-clockwise to darken the monitor brightness.

Color Filter Lever

Toggles color filter ON and OFF



Accessories



BLX-55

Designed specifically for the VX-2000PRO, the BLX-55W is an underwater video light system with a high-color temperature of 4700°K, providing sunlight-natural hues for high quality digital image recording. It employs a high-intensity and extra-efficient 55-watt halogen bulb. Engineered to equalize weight balance and maximize stability the low-volume lamphead and battery are separate units.

Light Control Grip (#35320)

Exclusively for use with the BLX-55W the Light Control Grip enables independent control of each (left or right) light and stepless fine-tuned light intensity while holding the grip.

Flexible Light Arm (#29070)

For use with the BLX-55W this lightweight and fully adjustable arm enables an infinite variety of lighting angles. It is designed for fast and easy adjustment, so the perfect lighting is possible for every shooting opportunity.

Compact Macro Port S (#56211)

For super macro photography remove the wide conversion lens and use this compact macro port S. It is compatible with a variety of close-up lenses currently sold in the market.



Accessory Bulkheads

VX-2000PRO is equipped with three accessory bulkheads. Use these ports for external video output, audio input, external battery power inlet, etc.

Specifications

Controls:	Remote control from remote control grip (REC/ZOOM/PHOTO), auto focus ON/OFF manual focus, manual zoom, iris gain white balance, shutter speed, program AE, ND filter
Construction:	Noncorrosive aluminum alloy
Depth Rating:	75m/250 feet
Dimensions and Weight:	Approx. 235x338x404mm/9.3x13.3x15.9 inches (WxHxD), Approx. 10.5kg (100g underwater)/23.1 lbs. (0.2 lbs. underwater)
Accessories:	Instruction manual, O-ring maintenance manual, O-ring set, shoulder strap, lithium battery CR-2, audio cable, audio cable PRO, LANC cable, zoom gear focus gear 6x screws, screwdriver
	(Monitor type only): Light trap hood, AA batteries, video cable



Products that display this decal have passed pressure-test in accordance with Sea & Sea's standards.

Accessories

VX-2000 PRO



この“耐圧検査合格シール”が貼られている製品は、株式会社シー・アンド・シー耐圧検査基準に基づいた検査に合格している製品であることを表しています。

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