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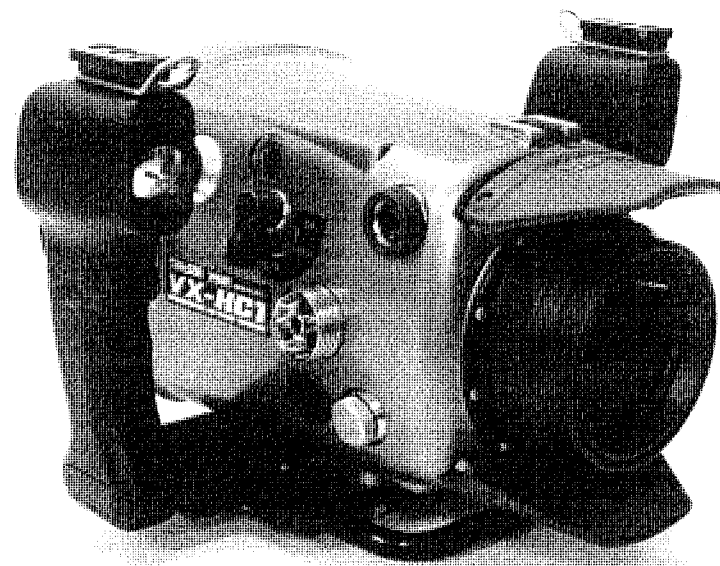
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SEA&SEA

UNDERWATER HD VIDEO HOUSING
for SONY HDR-HC1 / HVR-A1J

VX-HC1 **PRO**

Instruction Manual



VX-HC1 **PRO**

Introduction

Thank you and congratulations on your purchase of Sea & Sea's VX-HC1PRO. This high-performance housing with professional specifications has been designed specifically for underwater use with SONY's HDR-HC1 and HVR-A1J Digital Video Camcorders. This product is depth rated to 60m/200 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!

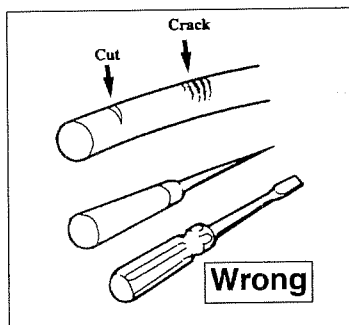
- To prevent mildew and malfunction, do not store in a damp or humid environment.
- Do not store in a chemically-laden environment. Naphthalene, camphor, or other harmful chemicals can cause mildew, corrosion and other damage to the metal and rubber parts in this product.

Safety Precautions

The O-ring on the front case of your VX-HC1PRO 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.

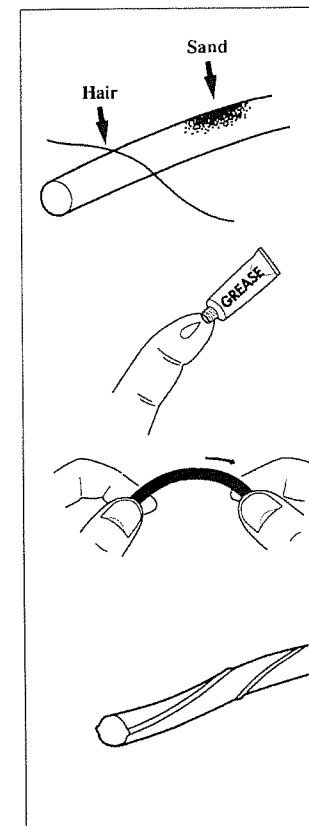
Always store your O-ring in an airtight container and in a cool environment. Keep out of direct sunlight. Take care that it is stored flat and not bent or twisted. Do not place any heavy objects on it; excessive weight will flatten it and impede its sealing capability.

● 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 Accessory Shoe | ①⑨ Housing Guard |
| ② Flat Port | ②⑩ Hand Screw Mounting Hole |
| ③ Expanded Focus Button | ③⑪ Camera Base |
| ④ Backlight Correction Button | ④⑫ Base Lock |
| ⑤ Exposure Adjustment Button | ⑤⑬ Camera Fixing Screw |
| ⑥ Exposure Adjustment Lever | ⑥⑭ Locating Pin |
| ⑦ Focus Dial | ⑦⑮ Camera Fixing Pin |
| ⑧ Air Release Valve | ⑧⑯ Microphone Cable |
| ⑨ Lock Knob | ⑨⑰ LANC Cable |
| ⑩ Underwater Microphone | ⑩⑱ Outside Video Cable |
| ⑪ Video Out Connector | |
| ⑫ Accessory Bulkhead | |
| ⑬ ASSIGN Button | |
| ⑭ Power Switch | |
| ⑮ Auto Focus Button | |
| ⑯ Finder | |
| ⑰ Leak Sensor | |
| ⑱ Hand Grip | |

Accessories



Silicone Grease



Finder Spacer



Hand Screw



Base Fixing Screw



Focus Gear

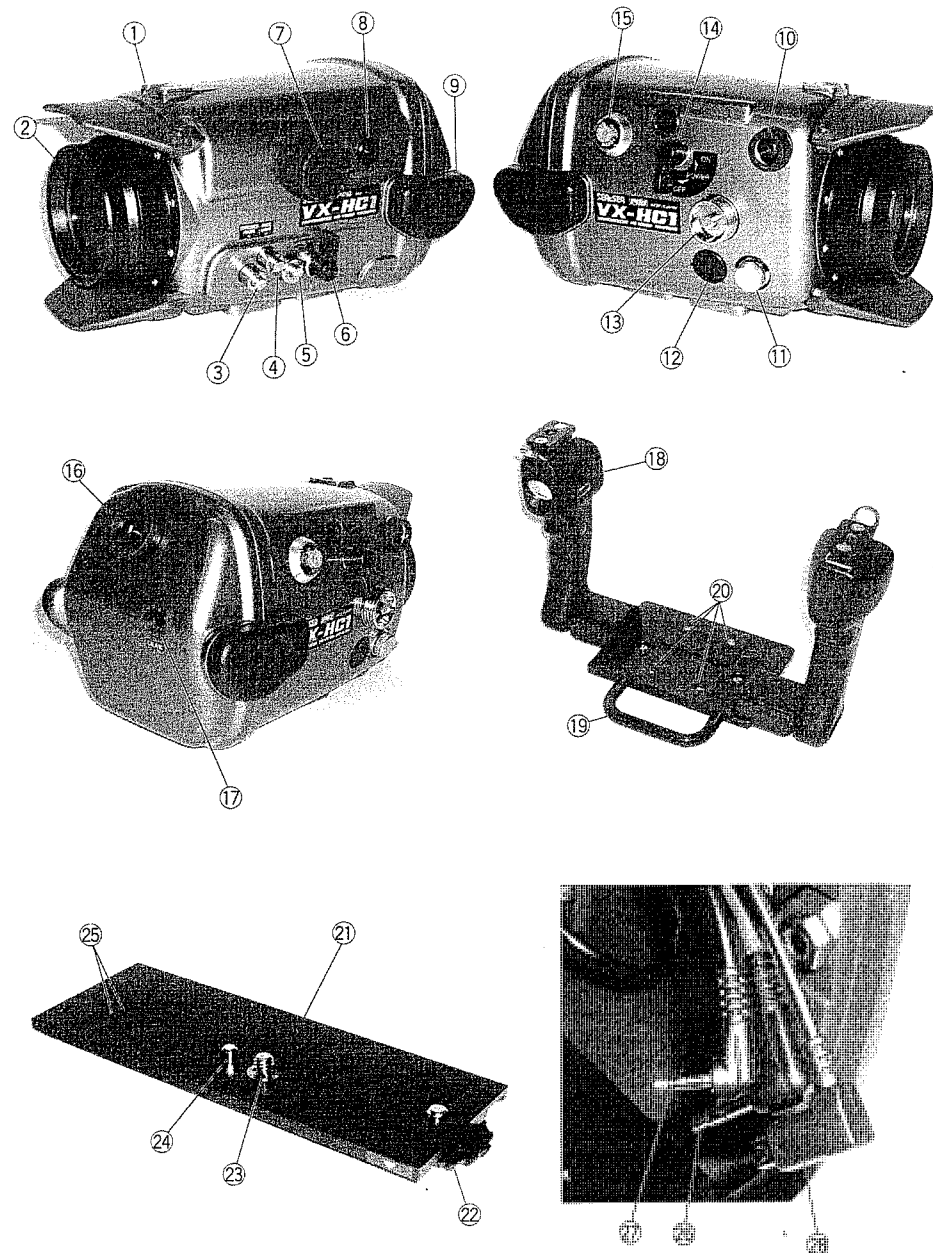


Batteries for
Remote Control
Grip



Wide Conversion
Lens

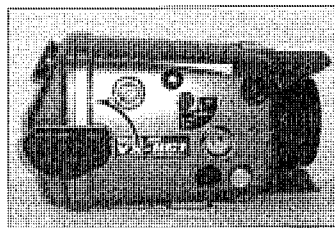
- Hand Grip ● O-ring Remover ● O-ring maintenance manual ● Instruction manual
● Spear O-ring(for Body,for Flat Port)



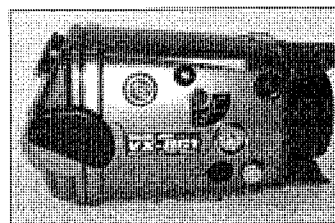
Housing Preparation

Opening housing

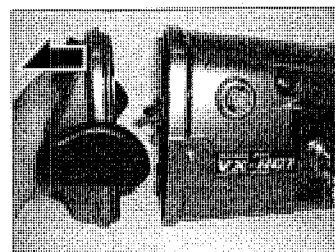
- Turn left and right housing lock knobs in the direction shown in the right diagram.
Turn left and right lock knobs simultaneously.



- Turning lock knobs will trigger rear case to rise.

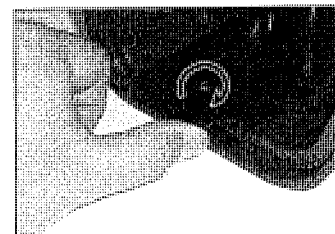


- Move rear case to the back and remove it.

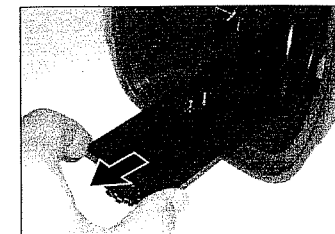


Removing camera base

- Loosen the base lock by turning it clockwise.

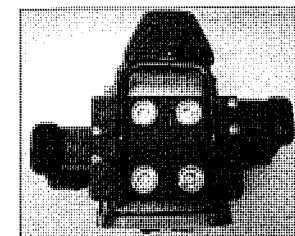
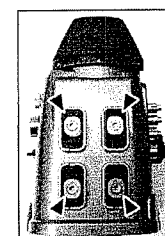


- Pull out camera base and remove it.



Attaching handgrip

- Align the four screw holes located at the bottom of front housing with the four holes on hand grip, then mount with hand screws provided.
- After attachment, check and confirm stability.



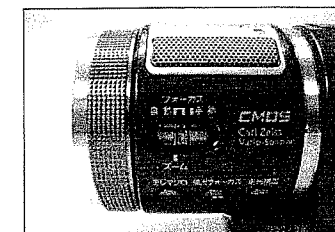
Camera Preparation

Preparing the Camera

Switch Setting

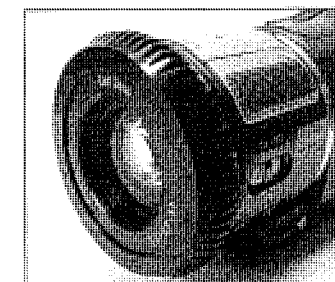
Before mounting the camera to the housing, make sure that the following switch is in the following position:

- Focus switch: AUTO



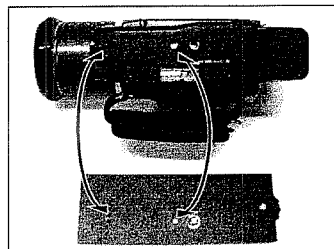
Attaching focus gear

- Attach supplemental focus gear to camera by sliding in firmly as shown in the Figure to the right.



Attaching camera base to video camera

- Align location pin of camera base with hole on video camera, place convexity of video camera between fixing pins of camera.



- Tighten the camera fastening screw on the camera base bottom surface with a coin and affix it firmly to the camera.

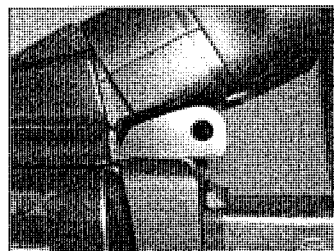


Attaching finder spacer

- Lift video camera finder, set the included finder spacer to the position in the diagram to the right, and lock in and affix the finder.



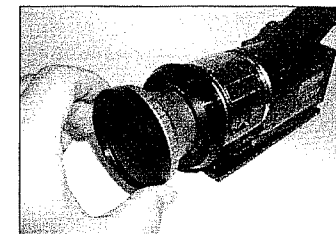
- ※ Passing a string, etc. Through the hole in the finder spacer and affixing it to the camera will prevent losing the finder spacer.



Attachment of Wide Conversion Lens

- Screw supplemental wide conversion lens in threaded part located on the front of video camera.

※ Align with screw head to screw in.



Setting Video Camera into the Housing

- Remove all cables from wire holder.

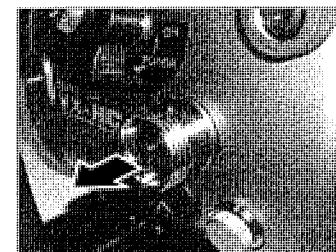
To remove wire holder, grab assistant handle, detach it from protruding attachment point, adjust up and down, and then attach it to the protruding attachment point again as shown in Figure.



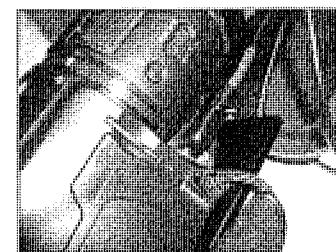
- Make sure fully pull out ASSIGN button.

! CAUTION!

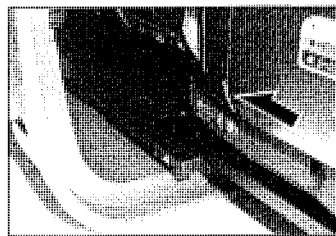
- Omitting this process may cause damage to camera or housing.



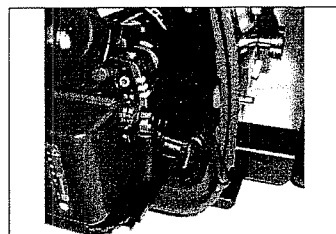
- Insert microphone cable into microphone input located on the right side of camera.



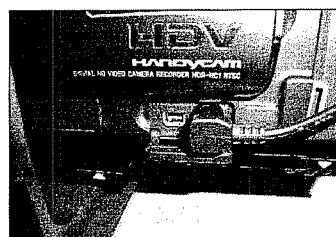
- As shown in Figure to the right, align front housing with guide rail of camera base and push together to set the camera.



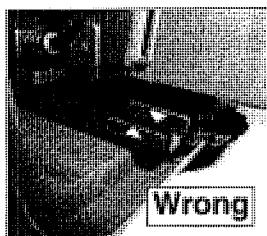
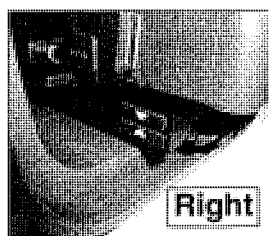
- Fold the grip belt into the space between the camera and the housing.



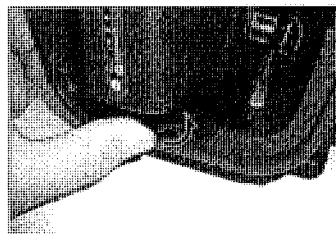
- When using a separately sold outside monitor screen, insert the housing outside video cable into the video camera AV multi terminal as shown in the diagram to the right before sliding the video camera into place.



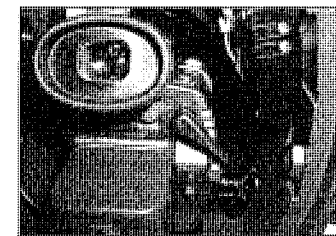
- Push the camera base until the triangle mark on the attached camera platform left side and camera base left side align.



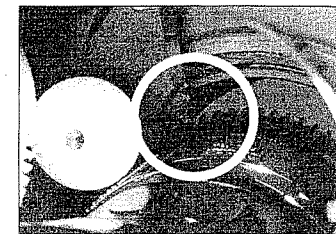
- After sliding the camera base all the way, turn the camera base lock screw counterclockwise and tighten it, stabilizing the camera base.



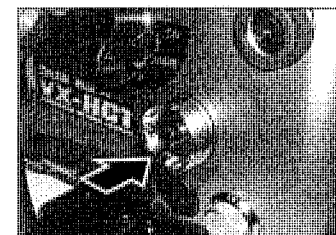
- Insert the LANC cable into the video camera LANC terminal.



- When the focus gear engages with the video camera focus gear and turns the housing focus dial, make sure that the video camera focus gear turns smoothly.



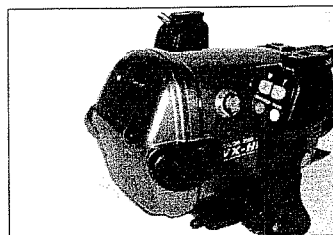
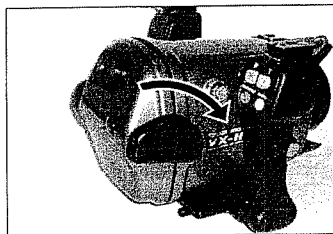
- Push the ASSIGN button to the interior.



Closing the Housing

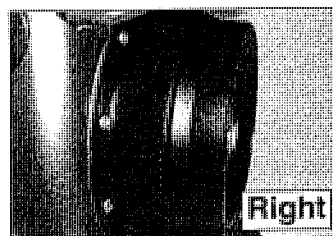
- Make sure there are no foreign objects such as scratches, dust, or hair on O-ring and the part that is touching the O-ring. Also, make sure that grease is applied normally. Failure to confirm these things will lead to accidents such as the camera going under water, so please double check.

- To close the rear case, set the lock dial to the position shown in Figure to the right, make sure that the grip belt, video out cable, LANC cable, microphone cable are not sticking out or being pinched.



Confirmation of the Flat Port

- Ensure that flat port is pushed in firmly as shown in the Figure to the right.



Operation of Each Area

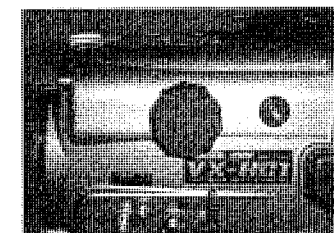
Power Switch

- Turns the camera on and off.



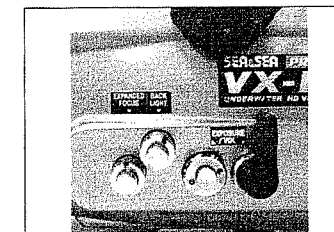
Focus Dial

- Used when using the manual focusing function.
To use the manual focus, push the auto focus button to turn off the auto focus function.
Pressing the auto focus button makes it go back to auto focus mode.



Backlight Correction Button

- This button is used to turn ON or OFF the backlight correction function.

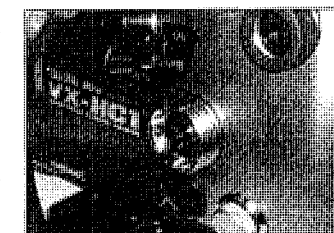


Expanded focus

- This button is used to turn ON or OFF the expanded focus.

Brightness Adjustment

- Turn ON/OFF the brightness control mode by pushing the button, and then adjust with lever.



ASSIGN Button

- ASSIGN button can be used when using HVR-A1 J.
ASSIGN button can't be used when using HDR-HC1.

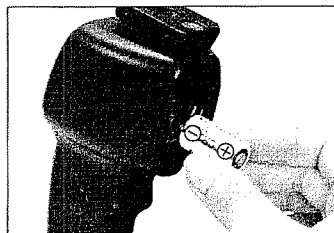
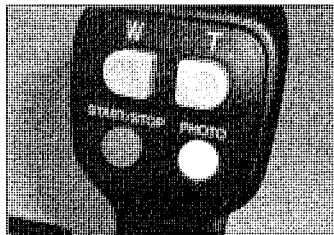
Remote Control Grip

- W and T buttons are provided for electric zoom control. Use PHOTO button for still picture recording.

Press START/STOP button once to start recording and once more to stop recording.

Still image size will be fixed to 1440x1080.

- Remove the front lid of the remote control grip, insert the CR-2 lithium battery as shown in Photo and close the lid firmly.
- As in the front case, make sure that the O-ring of the grip is well greased to insure waterproofing.
- The grip is ready for use if you see the transmission window turn red when the button is pressed.



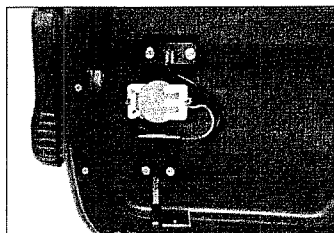
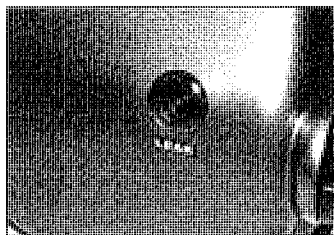
Leak Sensor

- The leak sensor blinks red when sensing a water leak while the camera is submersed under water.

When the leak sensor blinks, come to the surface soon as long as you know it's safe, and take out the camera.

Also, when a lot of water leaks in, the air pressure rises inside and it is very dangerous. (In such cases as the air is coming out from the exhaust valve when coming to the surface.) Be very careful when taking off the lock knob.

The battery included in the rear case are the batteries for the leak sensor. To replace the batteries, use CR2032. To check the battery charge, have the tip of the sensor cable touch some kind of metal, and make sure if the leak sensor blinks. In order to take out the battery push the circular part in the center firmly and it will come off.



Wide Conversion Lens

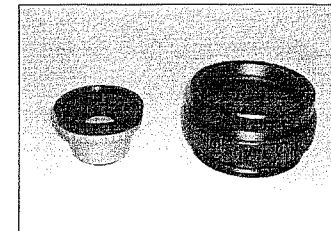
About the wide conversion lens of the attachment

- Wide conversion lens and flat port provided are designed for underwater shooting to ease the balance and attachment in water.

To avoid internal reflection caused by frame of wide conversion lens, an anti-reflection cap is attached.

When the zoom of camera is close to maximum, four corners of the image may become slightly dark.

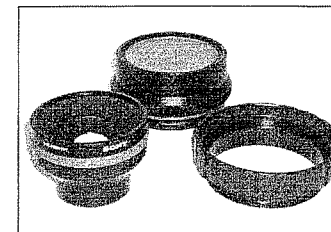
In this case, adjust the zoom a little to the telescopic side.



For higher resolution performance

- Use Sony-made VCL-HG0737Y.

To use VCL-HG0737Y, optional Compact Macro Port S and VX-950 Step-Up Ring are required.



Method of installing VCL-HG0737Y

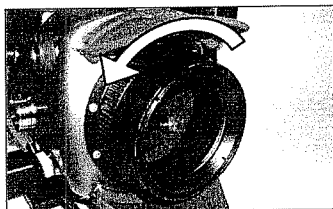
⚠ CAUTION!

- Under this specification, camera can't be taken in or out while wide conversion lens is attached.

Taking in or out the camera may cause damage to camera or housing.

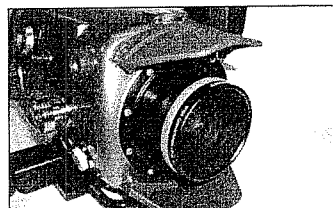
- First, remove the Flat Port.

Loosen the Flat Port by turning it counterclockwise.



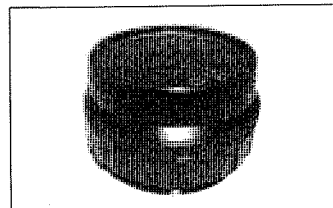
- Attach VCL-HG0737Y to housing first, NOT to camera.

Align VCL-HG0737Y with screw head from the front of housing to attach.



- Assemble Compact Macro Port S and VX-950 Set-Up Ring, and then attach to housing.

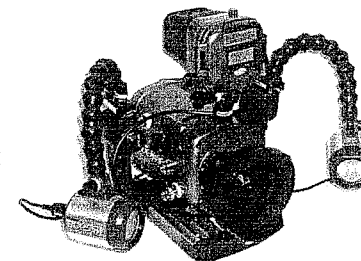
Follow the above procedure in reverse to disassemble.



Accessories

● x0.35 Super Wide Conversion Lens (#52105)

Achieves a high-quality wide-angle view with minimal underwater distortion. This wide conversion lens produces spectacular wide videography, capturing images that create a realistic view of your underwater scenes. (Amphibious, see Note 1)



● Step-Up Ring for VX-950 PRO (#58103)

This product is required to mount x0.35 super wide conversion lens or compact macro port to VX-HC1 PRO.

● VMC-75 Monitor (#07111)

Outside liquid crystal monitor (2.5TFT). Automatic recognition of PAL/NTSC. This monitor can be used within and without Japan.

When use VMC-75 with VX-HC1PRO, please set the TV type of the video camera at 4:3

The monitor attaches to VX-HC1PRO using a Sea & Sea shoe arm. (Hot Shoe Arm III, Hot Shoe Arm or Mini Shoe Arm)

● BLX-55W (#35300)

BLX-55W is a specialized under water video light system boasting 4700K of high color temperature from 55W of light output.

A light warmth similar to sunlight enables digital moving photography of a quality never seen before.

A separated light and battery and reduced light head weight further enhances the excellent underwater balance and agility of the VX-HC1PRO.

● VX-PC Adapter (#35430)

Necessary for attaching BLX-55W to VX-HC1PRO.

First, remove hand grip from housing.

Loosen the screw on hand grip to remove housing guard.

Use supplemental fixing screw to attach hand grip to housing.

Align holes on adapter and hand grip together, then use the screws provided with adapter to fasten.

Check and confirm stability

● Light Control Grip (#35320)

The combination of the BLX-55W and BLX-55W light head allows for a left-right independent hand controlled light on-off option while holding the grip while enabling non step control of light output.

Light control necessary to capture wide shots, micro shots, and everything in between is possible.

*When combined with a LX-HID30 light head, light output adjustment is not available.

● **LX-HID30 Light Head (#09102)**

Employs a ultra-high luminance metal halide lamp.

The color temperature is 6000K and natural coloring by white light close to sunlight is possible.

● **Flexible Light Arm (#29070)**

This light arm brings to life the essence of the BLX-55W lightweight light head.

In addition to weight reduction, this arm offers a flexible construction that enables infinite angle adjustment capability, giving you light when you need it, where you need it.

● **Hot Shoe Arm III (#22103)**

An accessory shoe arm with swivel capability of 360°

● **Video Color Filter for VX-G1 (#28103)**

Filters out blue light, helps balance colors underwater to capture true-color images. This filter attaches directly to the flat port of VX-HC1PRO

● **Macro Lens for VX-G1 (#52112)**

Mounts onto the port of the housing. Converts camcorder lens into a super macro lens for enhanced subject magnification. Can be attached or detached underwater.

● **Tripod Stay for VX-950 PRO (#82101)**

This product is useful for macro photography. When attaching the Video Tripod Stay on the VX-HC1PRO housing use the accessory Thumb screws.

● **VCR Lanyard (#45101)**

No metal parts are used for this lanyard to eliminate noises. It can be conveniently carried while on land or during entry into water.

To use the close-up lens

To use the close-up lens for supermacro photography, first remove the wide conversion lens.

Compact Macro Port S(#56211) and Step-Up Ring for VX-950 PRO(#58103) are used if needed.

You can attach an off-the-shelf $\phi 37\text{mm}$ close-up lens directly to the video camera for increased macro capability.

● **Extended Function Port**

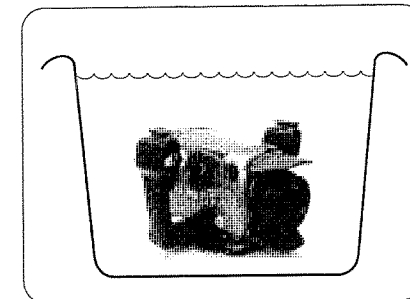
VX-HC1PRO is pre-equipped with extended function port. Use this port for external video output, audio input, external battery power inlet, etc.

Note 1: A step-up ring for VX-950 PRO is required for using x0.35 super wide conversion lens or compact macro port with VX-HC1PRO.

For modification and questions, contact Sea & Sea SPEC Special Product Division.

Care and Maintenance After Use

1. Always rinse this product with fresh water after use. To prevent water from penetrating the interior, keep the housing securely closed with both locking latches while rinsing.
2. After use, first soak the housing well in fresh water as shown and then rinse with running water.



! CAUTION!

Salt residue may be left if the housing is only dipped in fresh water or just rinsed. The salt residue will crystallize when it dries. Crystallized salt will be hard to wash away and it may cause flooding. So always soak the housing well in fresh water and rinse after use.

3. After rinsing, dry completely with soft cloth and keep in a shaded and dry place.

! CAUTION!

Do not dry the housing with heat, since heat may warp or damage housing parts.

4. Always remove the video camera from the housing after use. Carefully wipe off water before opening the cases and make sure water does not drip onto the camera or into the housing. If water gets inside the housing, dry immediately and completely.
5. Lubricate the O-ring with silicone grease after use. The O-ring must be replaced with a new one once a year.
6. When not in use for a long period, do not store in a damp or humid environment, under direct sunlight, or in an extremely cold environment.
7. Never use petroleum solvents, such as alcohol or paint thinner, to clean the housing; such products might mar or otherwise damage the housing's finish.
8. Send the housing to an Authorized Sea & Sea service center for a checkup and necessary overhaul no later than two years after purchase.

Specifications

Controls:	Power switch, Remote control from remote control grip (REC/zoom/photo), Auto focus ON/OFF, Manual focus, Backlight correction, Expanded focus, Brightness adjustment
Material:	Front case:ABS Rear case:ABS
Depth rating:	60m / 200feet
Dimensions and Weight:	187 X 298 X 280mm (H X W X D) 4.8kg / 10.6 lbs
Compatible Batteries:	NP-FM50(HDR-HC1 accessory), NP-QM71D(optional)
Accessories:	<ul style="list-style-type: none"> ● Instruction manual ● O-ring maintenance manual ● Spear O-ring ● Focus gear ● Lithium battery CR-2 ● Base fixing screw ● Hand screw ● Finder spacer ● Wide conversion lens ● Hand grips ● O-ring remover

※Specifications and price are subject to change without notice.

SEA&SEA Underwater HD Video Housing Accessories System Chart for VX-HC1 PRO

