



XR520 Underwater Housing

Setup, Use, and Care Guide

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Product photos by Lee Petersen. Marine Camera Distributors

This manual and current revision is available in 8.5 x 11 size and full color at

<http://www.gateshousings.com/documentation.html>

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1: Introducing the XR520

Congratulations on owning a new Gates product: the XR520 housing. You've selected a product that will provide years of value and reliable service. We designed the XR520 specifically for the Sony XR520V and XR500V digital video cameras.

Please read through this entire guide to learn about XR520 so you can get the most out of this imaging tool. In this section, we'll introduce you to the features of the XR520 so you can get started.

Features

The XR520 has several key features:

Small and Travel-friendly. At just a few pounds the XR520 packs easily into your luggage or dive gear.

'Bulletproof' construction. Gates legendary reliability is inherent in the XR520: machined aluminum shell, stainless hardware and reliable mechanical controls.

Precision optics. The XR520 allows the use of a variety of ports from Super Wide to Macro.

Warranty Disclaimer

The XR520 is a tool that, like any tool, requires knowledge and understanding to be effective.

Your responsibility is to learn the proper setup, use and care of the XR520. Because we can only provide you with the information necessary to do so, Gates does not warrant the contents of your housing (e.g. your camera and lenses) under any circumstance. For the same reasons, Gates does not warrant optical performance or image quality.

We warrant the XR520 as an image acquisition tool for a period of 2 years. The optional Seal Check unit is warranted for 1 year. Optics are warranted for a period of 1 year or 100 hours water contact, whichever comes first.

If you have any questions about the setup, use and care of the XR520, contact Gates directly. Details are in section 5.

Unpacking the XR520

After you remove the XR520 from its shipping container, carefully inspect it for missing parts or damage that may have occurred during shipment. If you discover any discrepancies, contact Gates or your dealer immediately for assistance.

Standard Parts

The XR520 comes with the following standard items:

The XR520 Housing

The XR520 Camera Dovetail (to which the XR520 camera mounts)

Various assembly and spare parts for the XR520 including mounting screws and o-rings.

Port(s) of choice (Dome, Flat, Wide Angle, etc)

Handle Mount (which may already be affixed to the housing)

Optional Parts

Your housing may also come with optional items:

Microphone

Water Alarm

Light System (user install)

Seal Check

Video Out

2: Cautions

- ▶ **TRANSPORT.** NEVER ship or transport your XR520V camera inside the XR520 housing. The housing was not designed for this purpose and severe damage may result.

- ▶ **USER RESPONSIBILITY.** This Setup, Use and Care guide contains important detailed procedures for setup and use of the XR520. It is the user's responsibility to read, understand and employ these procedures. Failure to do so can result in poor or non-operation of the XR520 and may void your warranty.

Contact Gates if you have questions about this manual or using the XR520.

3: The XR520 Setup

The XR520 requires complete and thorough setup prior to use.

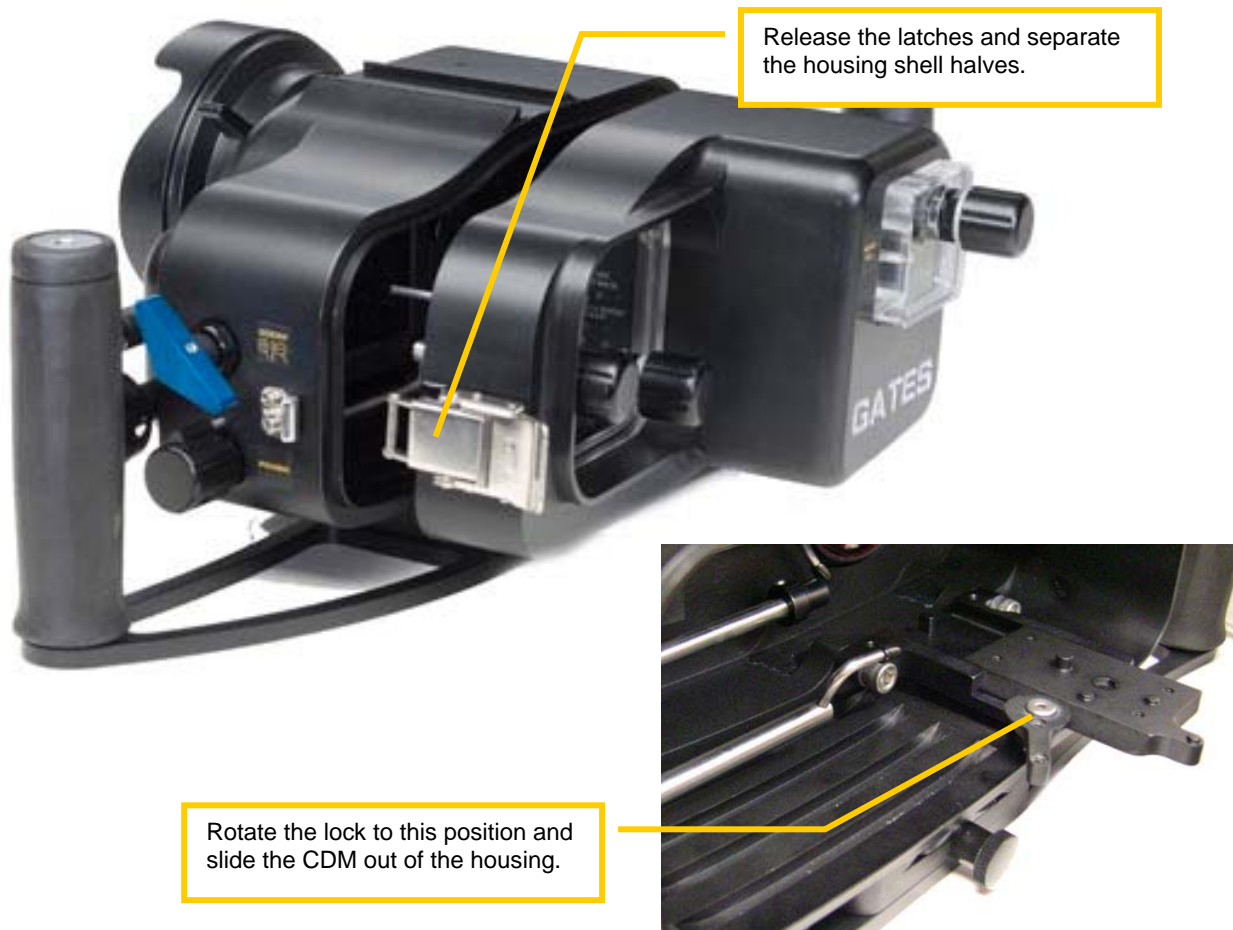
XR520 Housing Preparation

Open the XR520 shell. Two stainless steel safety latches secure the housing halves. They have a positive locking feature, so to open them you must first depress the center bar release while lifting the rear lever.

Separate the rear half of housing from the front.

Remove the camera dovetail mount (CDM). Rotate the lock counterclockwise and slide the mount to the rear.

Retract controls. Pull out the Manual Dial, Zoom and Power controls ~ 1 inch or until they stop.



XR520V Camera Preparation

Your Sony camera will need some preparation before installing into the housing. See section 4 for details on the controls mentioned here.

Remove any lens caps or external lenses you may have added to the front of the camera.

Install a charged battery.

Tighten the hand strap to its shortest position and tuck the 'tail' back into the hand strap.

- ▶ **CAUTION:** Failure to perform this step may result in the hand strap becoming caught in the housing seal and accidental flooding.

Install the camera onto the CDM using one of the short ¼-20 flat head screws by threading into the tripod mount found on the bottom of the camera. A screwdriver or coin may be used to tighten snug, but do not over tighten.



Installing the Camera into the Housing

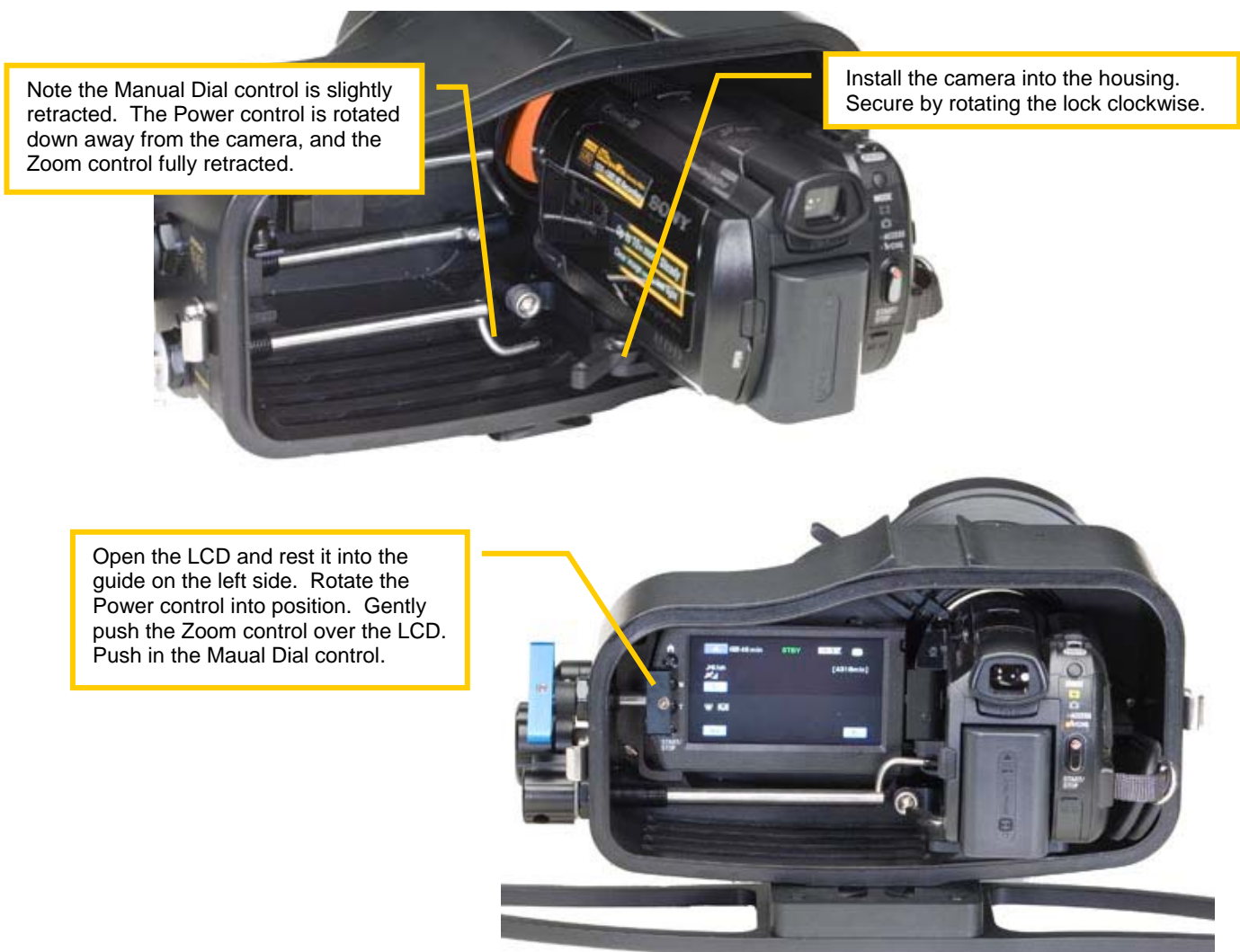
Carefully slide camera on its CDM into the front housing half. The CDM will mate and slide into the mating mount on the housing.

Secure the camera by rotating the lock clockwise until snug.

Open the LCD fully. It should contact and rest into the guide on the far left inside of the housing. Now push in the zoom control and confirm operation.

Press in controls. When the camera is installed into the front housing half, press in the Power and Manual Dial controls to mate with the camera.

Check controls. At this point it's a good idea to check all controls on the front shell for proper operation.



Closing the housing

Carefully inspect o-ring on back half and sealing surface on front half. Make sure they are clean and in good condition.

Place back half onto the front housing half. You will clearly see when the housing halves align and seat together properly.

Locate and close the two latches at the same time.

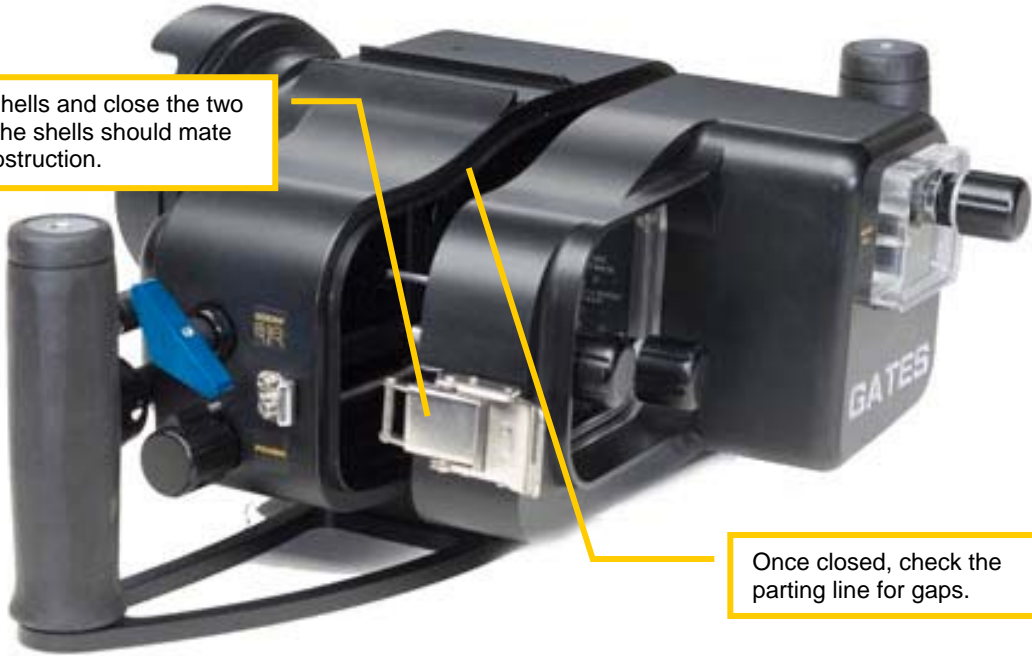
- ▶ **CAUTION:** The safety latches must be closed and locked prior to use to avoid opening underwater. It is your responsibility to make sure the latches are secure, locked, and in good condition. **DO NOT** enter the water with a faulty latch. Gates will replace a damaged or faulty latch free of charge.

Carefully inspect the parting line between front and rear housing. If this line is not even all the way around, remove the back and determine the reason. (O-ring out of place, hand strap interference, etc.) Failure To Do This May Result In A Wet Camera!

Press controls in until they touch camera buttons. Note positioning of each control as it touches the camera button/switch it is designed to actuate.

Power up the camera. Check all controls for the proper operation before entering water.

Check the Port. It should be seated flush on the front bulkhead with no uneven gaps. If the port is not seated properly, remove the port and re-install per directions in a subsequent section of this document. Also check that the dot or indent on the port is aligned with the dot on the housing.



Mate the shells and close the two latches. The shells should mate without obstruction.

Once closed, check the parting line for gaps.

Handle Installation

Remove the knurled retainer from the handles, then place the handles just behind the dovetail found on the bottom of the housing (see photo).

Slide the handles onto the housing dovetail. It may take firm pressure to fully seat the handles until they come to a solid stop.

Attach the knurled retainer to secure the handles onto the housing.



Water Alarm (Optional)

If you have the optional water alarm installed there are three alarm conditions to know:

| Condition | LED | Siren |
|-------------------------|--|---|
| New Battery (Insertion) | Bright Intense blink while siren plays | Ascending tones played 4 times |
| Water Intrusion | Bright Intense Blink | Grating Warble sound. Alarm will sound for duration of detection. |
| Low Battery | Low Intensity fast blink | Descending tones played 8 times pausing approx. 20 seconds between plays after alarm test or water detection. |

The alarm can be tested anytime by shorting the detection contacts that lead to the water alarm transducer. The water detection condition will activate for 6 seconds. If the battery is drained the low battery condition will sound.

The water alarm requires a single 6V battery like Radio Shack model 23-469 or A544.

Your battery should be removed when stored (e.g. between dive trips). Check the battery prior to every dive to ensure proper operation. Change when indicated.

- ▶ **CAUTION:** You must wait a minimum of 30 seconds between battery insertions to allow the unit to fully discharge.

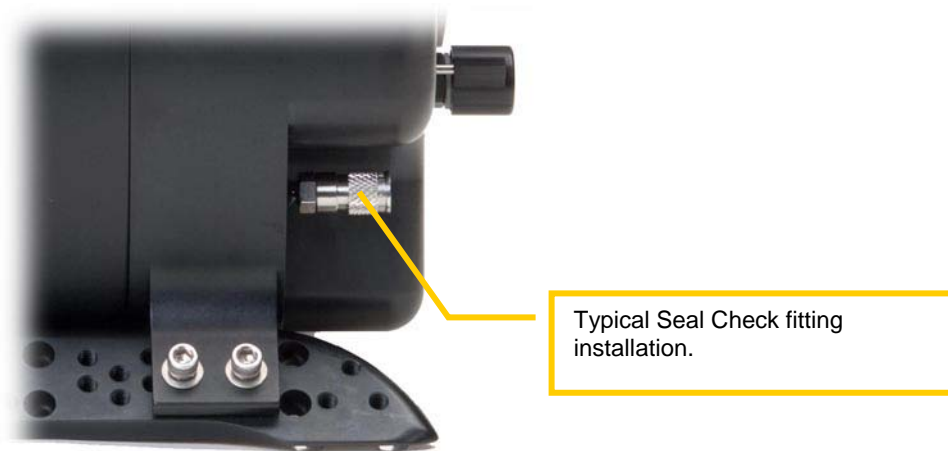


Typical Water Alarm installation.

Seal Check (Optional)

Seal Check Manual. Follow the procedures in the Seal Check manual for verifying integrity of the housing and monitor.

- ▶ **NOTE.** Pulling a vacuum on the XR520 will take only a few seconds. Be careful to avoid excessive vacuum greater than 8 in Hg.



Video Out (Optional)

Camera connection. If you have the video out installed, plug the video connector into the camera just prior to inserting the camera into the housing.

Microphone (Optional)

Camera connection. If you have the Submersible Microphone installed, plug the audio connector into the camera just prior to inserting the camera into the housing.

Final Checks

Visual Inspection. Look closely at all seal mates – Port and main Housing seal – for gaps. Look over the housing one final time.

Verify operation. As a final check, power on the camera and verify all controls are functioning normally.

4: XR520 Operation

Your Gates housing utilizes 100% mechanical controls to provide you with the most reliable operation possible. They either rotate and/or depress to provide smooth and consistent operation. There are no batteries to change and little maintenance to perform (see 'Housing Care and Maintenance' section).

The housing controls are designed by Gates engineers, to the extent possible, to feel and behave like the camera controls. With time and use, the housing controls will become quite familiar and easy to use.

To help familiarize you with the housing controls, Gates recommends reviewing each control individually, how it actuates the corresponding camera control, and operating it to get a 'feel' for the control. You can view all front housing controls with the housing open. After reviewing all controls, perform a 'simulated' dive by operating the controls as you would in the water.

One final note about controls: when operating any control out of water, you may need to press the control against the housing, into the position it would naturally find while under water pressure. The controls are designed to operate properly in this position.

Right Side Controls

Record / Standby. The Rec/Stdby control is red and operates with a momentary clockwise rotation.

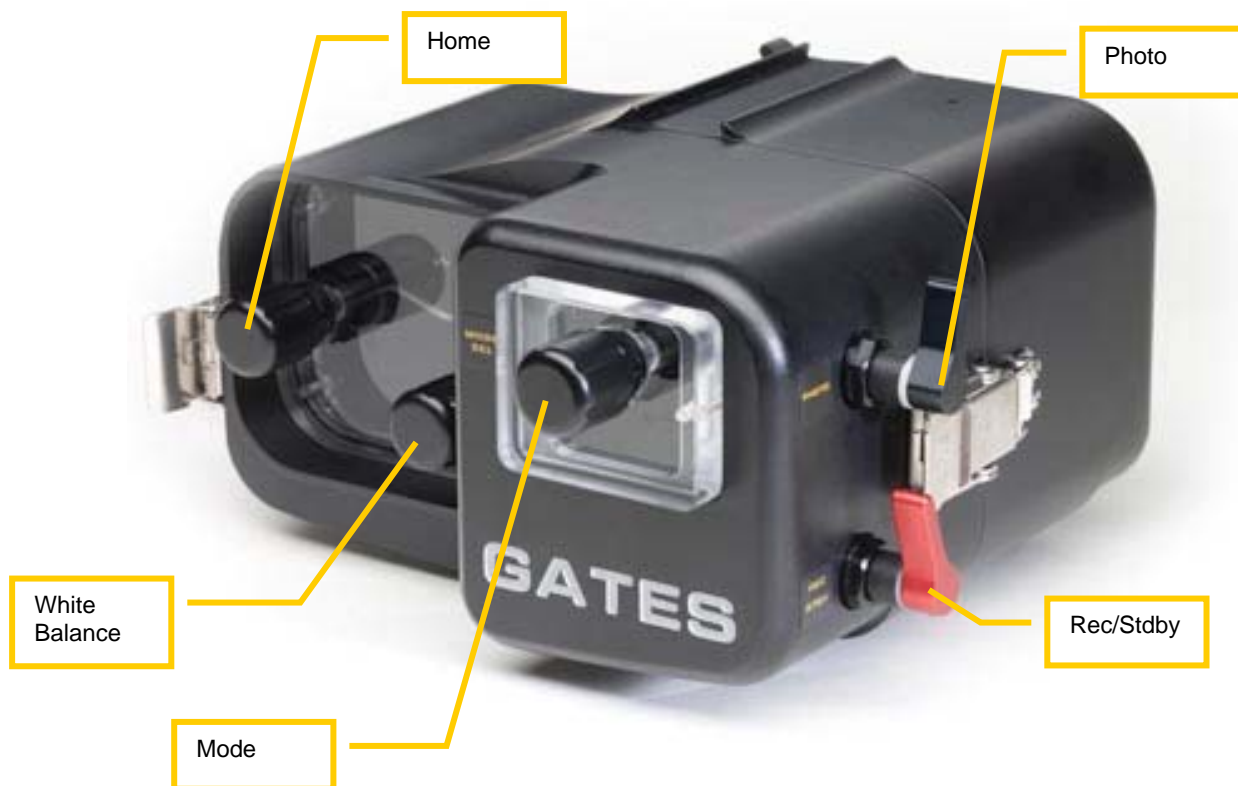
Photo. This control operates similarly with a momentary clockwise rotation.

Rear Controls

Mode. The Mode button is a simple push control to change between video and photo modes.

White Balance/Tele Macro. This control accesses several locations on the touch screen to allow access to White Balance and Tele Macro functions. Refer to the XR520V camera user manual for the specific sequence to access these functions.

Home. After actuating White Balance, this control exits the touch screen menu. This control also allows return to auto white balance mode.



Left Side Controls

Power. The green Power control is a simple press to turn power on/off. Note the pin on the control knob must align with the hole on the housing to actuate. To lockout this control, retract and rotate away from the hole.

Zoom. The blue Zoom control actuates with a slight movement in either direction.

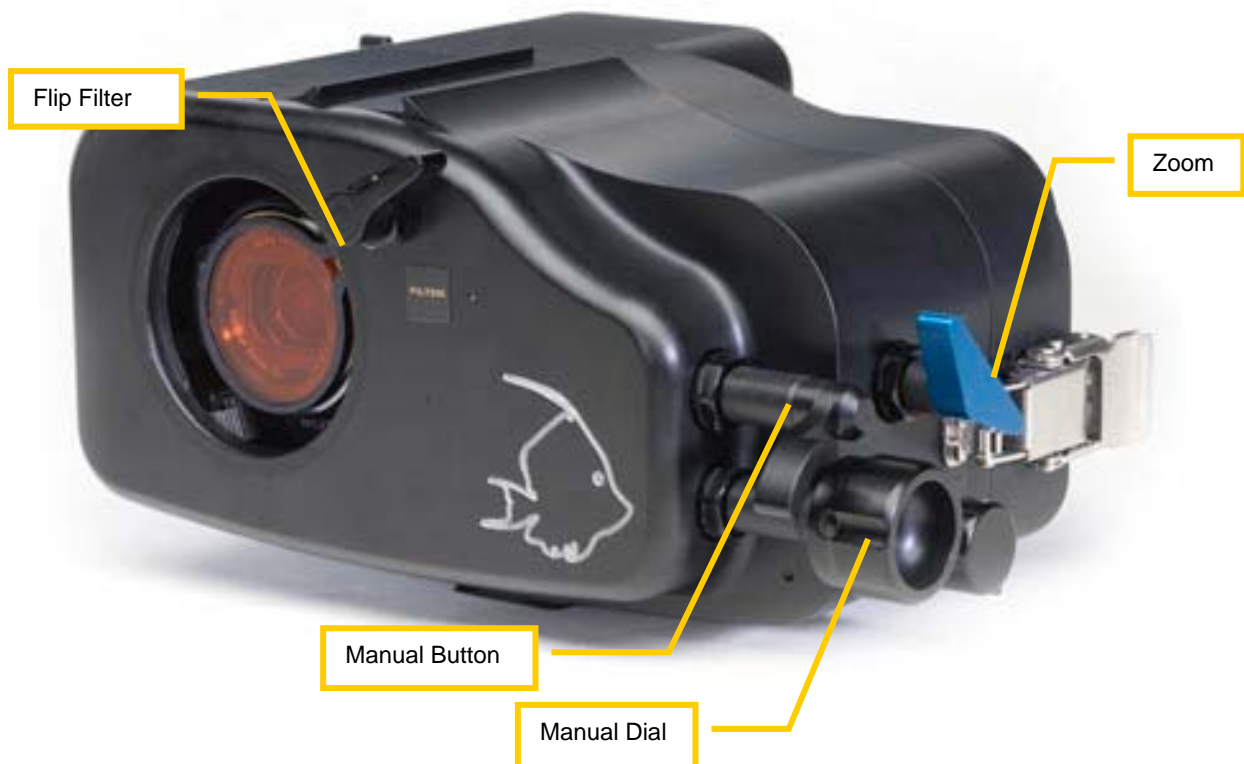
- ▶ **CAUTION:** Gently press the Zoom control for proper operation. Too much force may damage your camera.

Manual Button. The Manual Button accesses the manual functions like focus and exposure.

Manual Dial. After actuating the Manual Button, this control rotates the Manual Dial to vary the selected function like focus or exposure.

Front Controls

Flip Filter. The Flip Filter moves the color correction filter in/out of position of the camera view.



Changing Filters

The color correction filter in your housing may be changed to accommodate different gradient filters. “Blue water” and “green water” are the two most common, recognizable by their orange and purple color, respectively.

Removal. The color filter is held in place by a tension screw in the filter holder. Loosen this screw with a 7/64 Allen tool.

Installation. Rest the filter in the holder and tighten with a 7/64 allen tool. **Tighten just enough to secure the filter. Do not overtighten.**

Cleaning. You will likely have fingerprints on the filter after installing, so clean the filter according to the directions in the “Cleaning Ports and Filters” section.



Changing Ports

Gates offers several ports for your XR520 housing, which attach with a bayonet-style mount. Port changes are easy and straightforward:

Removal. You will see alignment dots on the housing and on the port. When aligned the port is fully engaged and ready for underwater use. Turning the port 90 degrees, or $\frac{1}{4}$ turn in either direction to face the dot left or right allows the port to release from the front of the housing. Gently pull the port directly away from the housing to do so.

Inspect the o-ring -- Before installing a new port, perform an inspection and lubrication of the sealing o-ring. See "O-ring Care and Maintenance" in this Use and Care Guide for specific details.

Installation. Mounting a different port is directly the opposite: Insert the port into the front bulkhead of the housing with the alignment dot on the port facing left or right, or $\frac{1}{4}$ turn away from the dot on the top of the housing. You may need to gently push the port into the bulkhead to fully seat the port. Then turn the port until the dot on the port aligns with the dot on the housing. Be sure the port is fully seated and flush with the housing. You should see no gaps between the port and the housing.

- ▶ **CAUTION:** The Port must be fully seated and flush with the housing to avoid flooding.

Align dot on port and housing.



Using the SWP25 and SWP25B Super Wide Ports

When using these ports be sure to set TELE MACRO to 'on' as described above in the Controls section. This will allow closer focus (~10 inches) of small subjects.

Cleaning Ports and Filters

Gates ports can be cleaned readily by following these simple guidelines.

Dust or Lint can be blown with compressed air, preferably from a can. Do not clean the surfaces if it is unnecessary.

Salt deposits or sand may also be removed with compressed air. Use a soft lens brush if necessary to brush away foreign material that remains.

Rinse fresh water over the outside of the port, if necessary, to loosen any residual salt or sand that may remain. Do this with the port sealed on your housing to keep water away from the rear of the port.

- ▶ **CAUTION:** Do not submerge port models GP25A or GP35A wide angle ports in water when separated from the housing! These ports are not sealed from the backside and damage will result if submerged.

Only if necessary, **clean the port using a mild glass cleaning solution and a non-abrasive, lint free cloth.** Use light circular strokes when wiping away cleaning solution and any foreign material. Excessive pressure used when cleaning dirty lenses (e.g., rubbing sand into the lens surfaces) may damage coatings. Use a light touch.

- ▶ **CAUTION:** Not all cloths are lint free and non-abrasive! Use of an abrasive material (such as cotton balls and cotton fabric) may scratch the glass and/or coating of Gates ports and will void the warranty.
- ▶ **TIP:** Gates offers approved cleaning solutions and lint free cloths as accessory items. Use of these materials will not void your warranty.

Diopters

Diopters may be used with the XR520 housing and the FP25 Flat Port for close up/macro imaging. There is sufficient space between the camera and port to utilize up to three diopters stacked on the camera. The camera utilizes diopters in a 37mm holder.

- ▶ **NOTE** the Filter cannot be used with diopters. When installing the camera with diopters ensure the filter is positioned as far as possible away from the port opening.

Lighting Systems

Your housing comes ready to accept different lighting systems depending on your requirements. If you purchased lighting systems from Gates you will find a separate document to guide you through installation to your Gates XR520 housing.

Housing Care and Maintenance

Proper care of your Gates housing is important to provide you reliable operation and long life. You'll find all the guidelines in the "Housing Care and Maintenance" document included with your Gates housing. You can also find it on Gates web site at www.GatesHousings.com.

O-Ring Care and Maintenance

Your Gates housing has 2 serviceable o-rings. One is located between the mating halves of the housing (the large orange one), and one is located on the Port.

Servicing the o-rings is easy and covered in the "Housing Care and Maintenance" document in this package. It can also be found on the Gates website at www.gateshousings.com.

- ▶ **CAUTION: Do not lubricate the large orange o-ring! It is a special silicone o-ring and can be damaged by petroleum-based lubricants.**
- ▶ **CAUTION: Never use metal tools or objects for removing o-rings!**

5: Customer Support

Should you have any questions about the XR520 and its operation, please contact Gates at the numbers below.

Email: Customer.srvc@GatesHousings.com

Web: www.GatesHousings.com

Phone: 858.391.0052

Fax: 858.391.0053