

## View Port

### Introduction

The LBV<sup>2</sup> has a main front housing for the electronics, cameras and internal lighting. An acrylic cylinder is used as the view port. The acrylic works well in water even if scratched as it has the same refractive index as water. Also the view port can be rotated to clear up heavily scratched areas.



### Work Environment

Prior to beginning ensure you have a clean and dry workspace. Locate the required tools and parts and have paper towels available. It is a good idea to have a container to keep fasteners in as they are removed. Read through the instructions fully prior to beginning and make sure you understand what they are asking you to do.

### Reading Manual

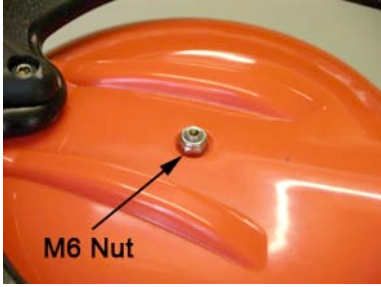
Below is a list of the required tools, estimated time to complete and level of difficulty. Next to each step where a tool is required the tool is listed. Some of the steps have special notes that must be observed.


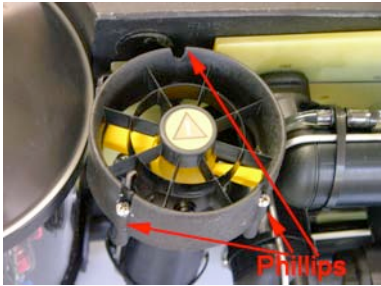
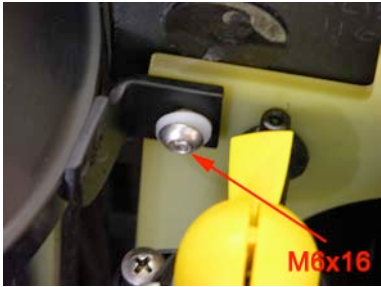


Tools Required	Time to complete	Level of Difficulty
<ul style="list-style-type: none"> <li>• #2 Phillips Screwdriver</li> <li>• 4mm Hex Ball Driver</li> <li>• 3mm Hex Ball Driver</li> <li>• 11/16 Socket</li> <li>• View port sleeve</li> <li>• O-ring lube</li> </ul>	<ul style="list-style-type: none"> <li>• 20 minutes removal</li> <li>• 25 minutes install</li> </ul>	<ul style="list-style-type: none"> <li>• Moderate</li> <li>• Care required</li> </ul>




**Prior to working on the LBV make sure the power is off and the umbilical is DISCONNECTED.**

## Removal

	<p><b><u>Step 1</u></b></p> <p>Place LBV on the starboard side.</p>
 <p>2 - M5 x 12</p>	<p><b><u>Step 2 – 3mm Hex Ball Driver</u></b></p> <p>Remove the 2 M5x12 button head screws securing the center crossbar to the starboard bumper frame rail.</p>
 <p>M6 Nut</p>	<p><b><u>Step 3 – 10mm Socket</u></b></p> <p>Remove the M6 nut at the front of the port shell.</p>
 <p>M4x10</p>	<p><b><u>Step 4 - #2 Phillips Screwdriver</u></b></p> <p>Remove the M4x10 Phillips pan head screw at the rear of the port shell.</p>
 <p>2 - M4x20</p>	<p><b><u>Step 5 - #2 Phillips Screwdriver</u></b></p> <p>Remove the 2 M4x20 Phillips pan head screws in the middle top of the port shell.</p> <p>Note: you will have to work around the bumper frame rail to access both screws.</p>

	<p><b><u>Step 6</u></b></p> <p>Remove the port shell and bumper frame assembly.</p>
	<p><b><u>Step 7 - #2 Phillips Screwdriver</u></b></p> <p>Remove the 3 Phillips screws holding the lateral Kort nozzle in place and remove the Kort nozzle.</p>
	<p><b><u>Step 8 – 4mm Hex Ball Driver</u></b></p> <p>Loosen but do not remove the M6x16 button head screw securing the port camera housing end cap to the back plane and float.</p>
	<p><b><u>Step 9 – 11/16 Socket</u></b></p> <p>Remove the jacking plug assembly from the port camera housing.</p> <p>Note: you will release the vacuum so ensure the area around the jacking plug is clean and dry.</p>
	<p><b><u>Step 10</u></b></p> <p>Holding the view port with your fingers pry up with your thumb and release the port camera housing end cap. Remove.</p>

	<p><b><u>Step 11 – View Port Sleeve</u></b></p> <p>Slide the view port protective sheet between the view port and camera chassis.</p>
	<p><b><u>Step 12</u></b></p> <p>Holding the view port with your fingers and putting your thumbs on the center support rod pull up with your fingers and remove the view port.</p>

**Installation**

	<p><b><u>Step 1</u></b></p> <p>Clean the view port prior to installing.</p>
	<p><b><u>Step 2 – O-ring Grease</u></b></p> <p>Check to make sure the o-rings are in the starboard camera housing end cap and have grease on them.</p>



### **Step 3 – View Port Sleeve**

With the protective sleeve in place slide the view port down onto the starboard camera housing end cap at an angle.



### **Step 4**

Push down from one angle to the other and feel the view port click into place.

### **Step 5 – O-ring Grease**

Check the o-rings on the port end cap that they are seated correctly and have grease on them.



### **Step 6**

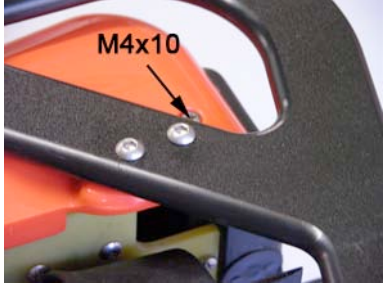
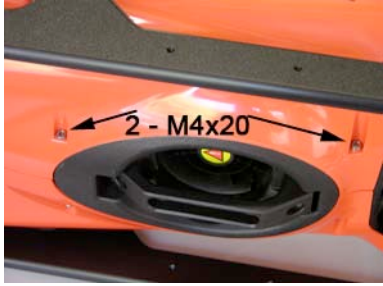
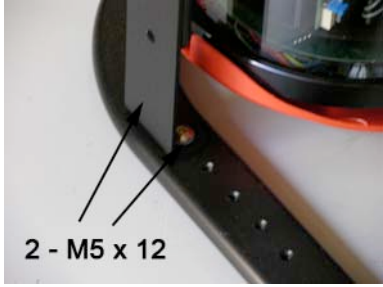
Holding in your palms lower the port camera housing end cap onto the view port from the front edge.



### **Step 7**

Snap into place aligning the clamp bracket with the M6x16 button head screw by the lateral thruster.

	<p><b><u>Step 8 – 11/16 Socket</u></b></p> <p>Apply grease to the jacking plug o-ring and insert and tighten into the port camera housing end cap. Make sure the clamp bracket is resting against the back plane.</p>
	<p><b><u>Step 9 – 4mm Hex Ball Driver</u></b></p> <p>Tighten the M6x16 button head screw securing the port camera housing end cap to the back plane and flotation module.</p>
	<p><b><u>Step 10 - #2 Phillips Screwdriver</u></b></p> <p>Push the lateral Korte nozzle into place and tighten the 3 Phillips pan head screws.</p> <p>Note: be careful not to over tighten and strip the threads.</p>
	<p><b><u>Step 11</u></b></p> <p>Lower the port shell and bumper frame assembly onto the LBV aligning the front threaded stud and lower lip on the shell.</p>
	<p><b><u>Step 12 – 10mm Socket</u></b></p> <p>Tighten the M6 nut onto the front threaded stud.</p>

	<p><b><u>Step 13 - #2 Phillips Screwdriver</u></b></p>
	<p><b><u>Step 14 - #2 Phillips Screwdriver</u></b></p>
	<p><b><u>Step 15 – 3mm Hex Ball Driver</u></b></p>
<p><b><u>TEST</u></b></p>	<p>Perform a vacuum test to ensure the housing is sealed correctly.</p>