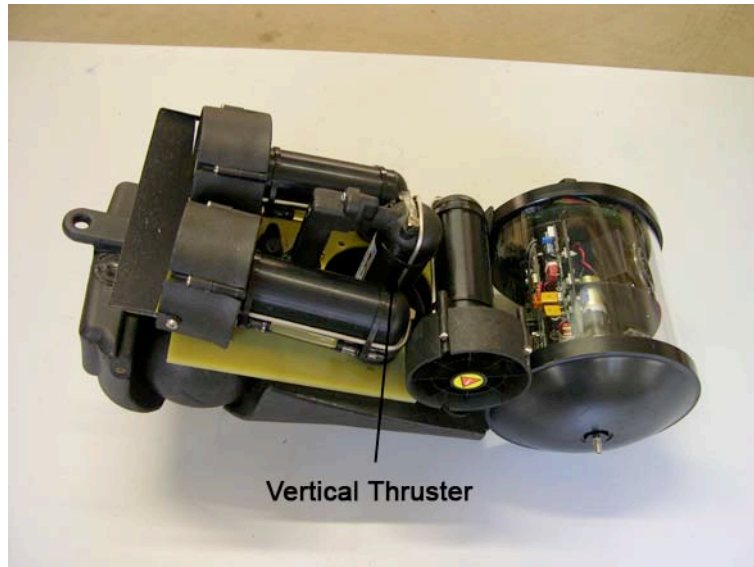


## Vertical Thruster

### Introduction

The LBV<sup>2</sup> is fitted with four (4) identical thrusters. They can be interchanged to any position. Each thruster is isolated from the main housing and other thrusters. They have a four (4) pin connector for power and data. There is an o-ring seal around the connector.



### 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




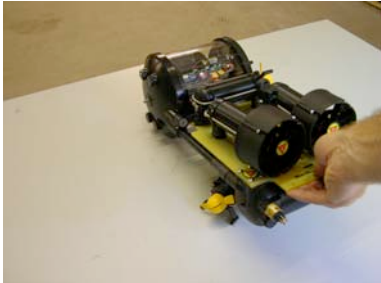
Below is a list of the required tools, estimated time to complete and level of difficulty. Next to each step where a tool is required the tool is listed. Some of the steps have special notes that must be observed.

Tools Required	Time to complete	Level of Difficulty
<ul style="list-style-type: none"> <li>• #2 Phillips Screwdriver</li> <li>• O-ring lube</li> </ul>	<ul style="list-style-type: none"> <li>• 5 minutes removal</li> <li>• 7 minutes install</li> <li>• 25 minutes including other procedures</li> </ul>	<ul style="list-style-type: none"> <li>• Easy</li> <li>• Care required</li> </ul>





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

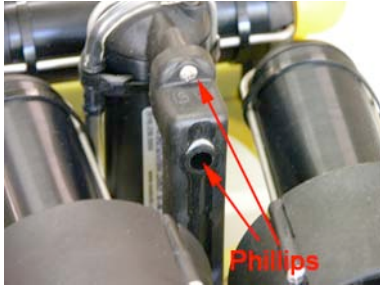
## Removal

	<p><b>Prior to performing this procedure you must first follow these procedures:</b></p> <ul style="list-style-type: none"> <li>• Flotation module removal</li> <li>• Shell/Bumper frame removal</li> </ul>
	<p><b><u>Step 1</u></b></p> <p>Place LBV upside down.</p>
	<p><b><u>Step 2 - #2 Phillips Screwdriver</u></b></p> <p>Remove the 2 Phillips pan head screws securing the vertical thruster to the thruster elbow.</p>
	<p><b><u>Step 3</u></b></p> <p>Carefully separate the thruster by pulling straight from the elbow.</p>
	<p><b><u>Step 4</u></b></p> <p>Lower the thruster down through the hole in the back plane and remove.</p>

	<p><b><u>Step 5</u></b></p> <p>Be sure to remove o-ring from elbow if stuck to surface.</p>
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## **Installation**

	<p><b><u>Step 1 – O-ring Lube</u></b></p> <p>Lubricate the o-ring and place in groove on thruster connector.</p>
	<p><b><u>Step 2</u></b></p> <p>Slide thruster up through hole in back plane and align 4 pins.</p>
	<p><b><u>Step 3</u></b></p> <p>Push thruster straight onto pins.</p>



**Step 4 - #2 Phillips Screwdriver**

Insert and tighten the 2 Phillips pan head screws securing the thruster to the elbow.

Note: be careful not to over tighten and strip threads.

**Once complete follow the procedures to:**

- **Install flotation module**
- **Install Shell/Bumper Frame**