



## **Underwater Housing for Canon PowerShot G7 X**

Product # 6146.07

### **Product Registration**

Please register your product within 15 days of purchase. Our product registration database is the quickest way for us to contact you in the event of a product update.

To register, send a photo of the above registration label to us via [ikelite@ikelite.com](mailto:ikelite@ikelite.com) along with your name, address, and phone number.

## **Introduction**

Thank you for your purchase of Ikelite products.

Our primary focus is to provide quality, professional grade products for use in and under water. Our products are designed, manufactured, and distributed from our sole facility in Indianapolis, USA where we started in 1962.

We are available if you have any questions or want photo advice. Send us an email 24 hours a day to [ikelite@ikelite.com](mailto:ikelite@ikelite.com). We strive to reply within 1 business day.

An electronic version of this instruction manual is available for download via the product page on our website:

<https://www.ikelite.com>

## **In the Box**

- Housing
- Main o-ring # 0109 (installed)
- Port cover # 0200 (installed)
- Gear ring with hex key # 9299.09
- Flash diffuser
- Flash deflector
- Silicone lubricant 1cc tube

## **Important Notices**

- » **Do not pull the shutter trigger without a camera installed. You may accidentally detach or damage the control spring.**
- » **Never leave a housing in a rinse tank, even if it is the only system in the tank. Accidental damage may occur when the user walks away from a housing while it is in the rinse tank.**
- » **Do not use alcohol, cleaning agents, spray lubricants, Rain-X, or other solvents on the housing or lens port. Use of an incompatible chemical compound can damage the plastic and o-rings, and may result in leaking.**

# Contents

<b>Product Registration</b> .....	<b>1</b>
<b>Introduction</b> .....	<b>2</b>
<b>In the Box</b> .....	<b>2</b>
<b>Important Notices</b> .....	<b>3</b>
<b>Getting to Know Your Housing</b> .....	<b>6</b>
Tray Mounts.....	8
<b>Setting Up Your Camera</b> .....	<b>8</b>
Attaching the Control Ring Gear.....	8
Pre-Installation Checklist.....	8
Camera Settings.....	8
Exposure Settings.....	9
Power Save.....	9
<b>Setting Up Your Housing</b> .....	<b>9</b>
Opening the Housing.....	9
Using the Flash Deflector.....	10
Installing the Flash Deflector.....	10
Installing the Camera.....	11
<b>Using the Built-in Flash</b> .....	<b>12</b>
Using the Flash Diffuser.....	12
Installing the Flash Diffuser.....	12
<b>Setting Up An External Strobe</b> .....	<b>13</b>
About Fiber Optic Cords.....	13
Attaching a Fiber Optic Cord.....	14
<b>Getting in the Water</b> .....	<b>15</b>
Final Check.....	15
Entering the Water.....	15
Zoom Control.....	16
Shooting Underwater.....	16
<b>Learning about Underwater Photography</b> .....	<b>17</b>

**Maintaining Your Housing.....17**  
    Post-Dive.....17  
    Lens Port.....18  
    Storage.....18  
    Servicing Recommendations.....19

**Lubricating Controls.....19**  
    Lubricating Push Buttons.....20  
    Lubricating Control Shafts.....21

**Troubleshooting.....22**

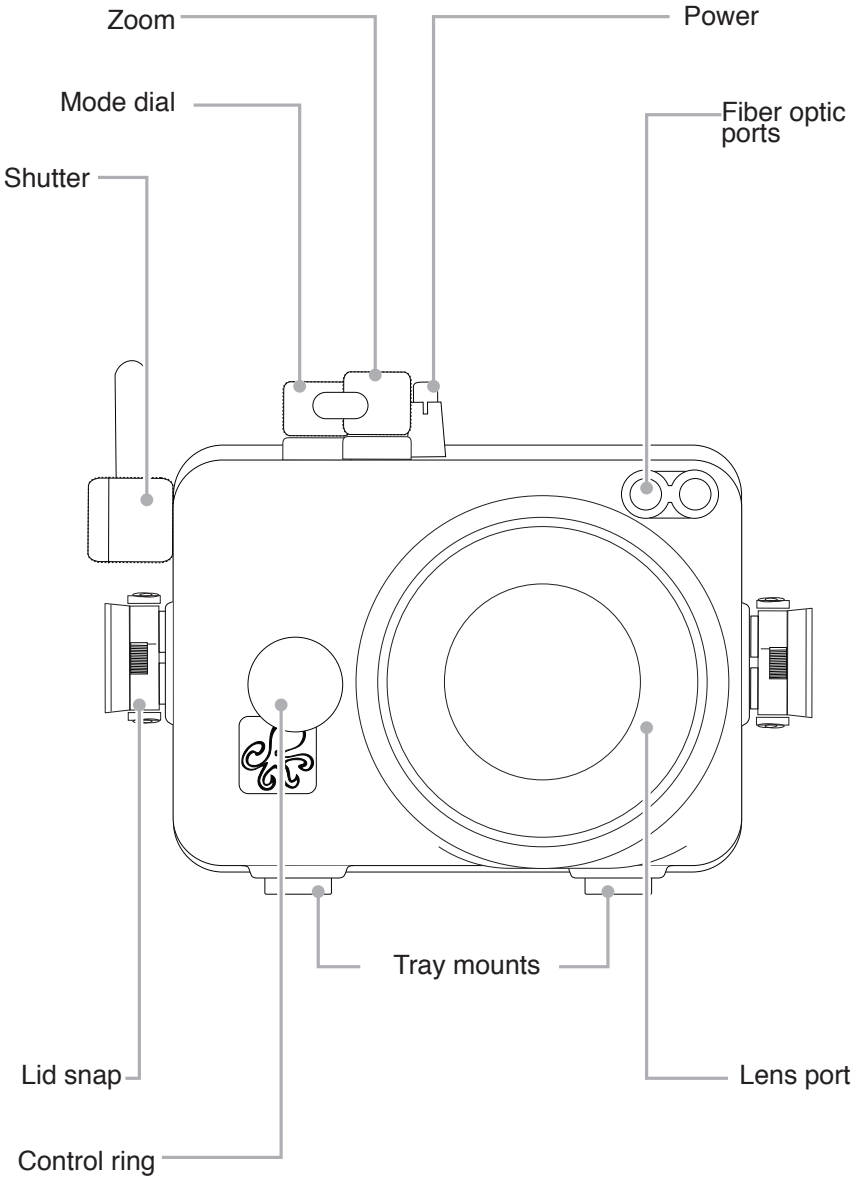
**Spare Parts.....24**

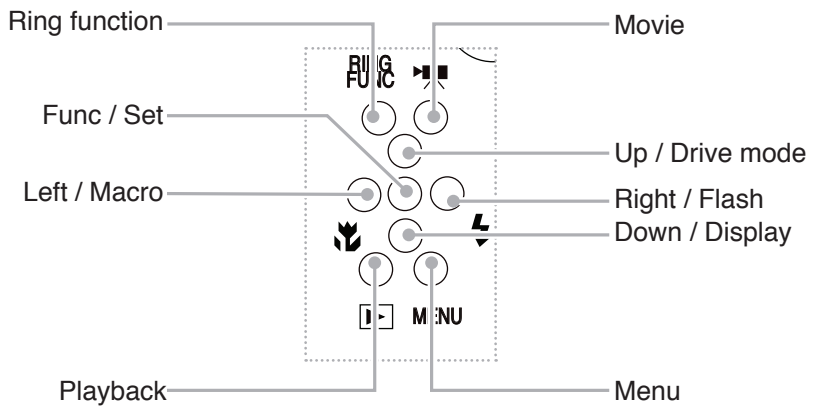
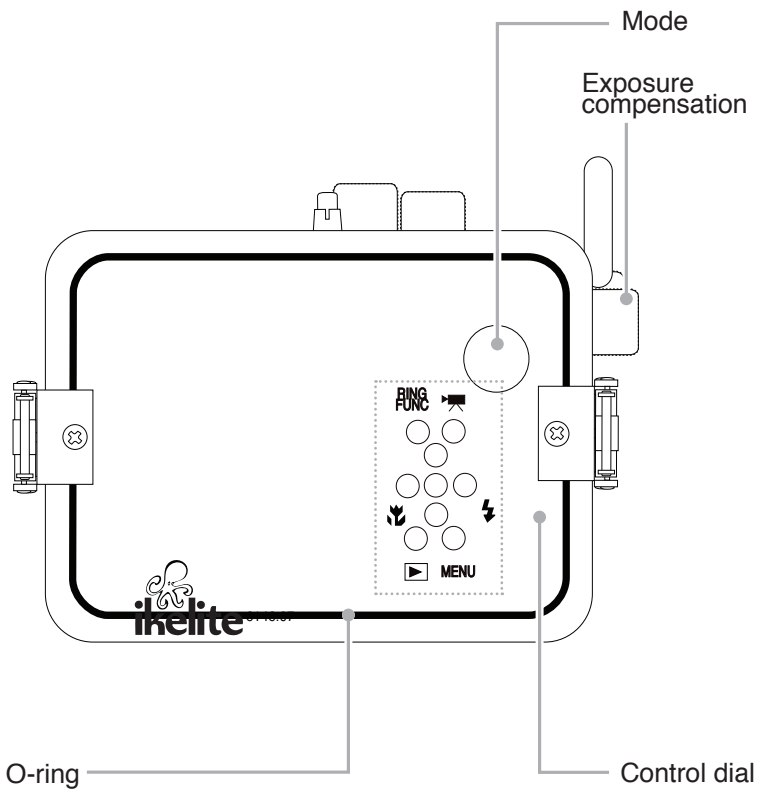
**Limited Warranty.....25**

**Service and Repairs.....25**

**Contact Us.....26**

# Getting to Know Your Housing





## Tray Mounts

This housing features two 1/4-20 threaded tray mounts on the bottom of the housing. The spacing between the tray mounts is 3" (76.2 mm). Optional tray with handles and mounting hardware are sold separately.

It is recommended to detach and thoroughly rinse the tray mounts, tray, and mounting hardware, with fresh water routinely during continuous use and prior to storage.

## Setting Up Your Camera

### Attaching the Control Ring Gear

1. Place the gear around the camera's control ring and press into place.
  2. Three set screws are installed in the gear ring. Gently tighten the three set screws using the included hex key. Do not overtighten.
- » **Do not install the spare set screws unless one of the set screws has been lost.**

### Pre-Installation Checklist

1. Insert a fully charged camera battery.
2. Insert a properly formatted memory card.
3. Remove any attached lanyard or neck strap.

### Camera Settings

- Set **Touch Operation** to "Off."
- Set **AF Assist Beam** to "Off."
- Set **Red-Eye Lamp** to "Off."
- Set **Flash Mode** to "On" when using an external strobe.



- Set **Shutter Sync** to “1st-curtain” when using an external strobe.
- It is recommended to set **Control Ring Func** to “Av.”

## Exposure Settings

Refer to the **Cheat Sheets** in the Photo School section of our website for recommendations on exposure settings for a wide variety of shooting situations:

<https://www.ikelite.com/blogs/cheat-sheets>

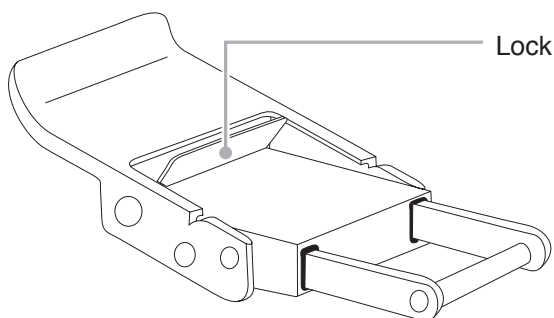
## Power Save

The camera’s power saving functions allow you to extend battery life and yet always be ready for the next shot. Adjust the **Pwr Save Start Time** to suit your shooting needs.

# Setting Up Your Housing

## Opening the Housing

1. Push the lid snap lock forward and lift the curved end away from the housing.



2. Lid snaps are designed to provide enough force to compress the o-ring for a proper seal. Keep firm pressure against the lid snap while lifting it away.

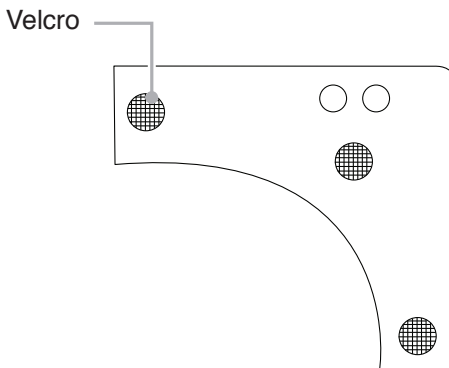
3. Repeat with opposite lid snap.
4. Remove the housing back.
5. If using an external strobe, install the opaque flash deflector inside of the housing. If using the camera's built-in flash as the primary light source, remove the flash deflector.

## Using the Flash Deflector

Install the opaque white flash deflector when using external strobes. The flash deflector improves transmission of light to the fiber optic ports and reduces unwanted backscatter (the illumination of particles in the water).

## Installing the Flash Deflector

1. Only the diffuser or deflector should be installed at any given time. If a diffuser is attached to the port, remove it by pulling it away from the port. The flash deflector must be installed prior to inserting the camera in the housing.
2. Line the velcro dots on the deflector with the velcro dots on the inside of the housing's front. When properly aligned, the holes in the deflector will line up with the fiber optic ports on the housing.



3. Press the deflector firmly into place.

4. To remove the deflector, lift the bottom with your thumb or a dull instrument and pull away from the housing.

## Installing the Camera

1. Remove any lanyard or neck strap which may be attached to the camera.
  2. Raise the camera's flash.
  3. Rotate the control dial so that the flat part of the control dial pad is aligned with the rear o-ring on the housing back.
  4. Line the mounting screw up with the camera's tripod socket. Use a coin or flat head screwdriver to tighten the mounting plate to the camera.
  5. Pull out on the housing control knobs to move them out of the way.
  6. Make sure the o-ring is clean and in its proper location on the back of the housing. The main o-ring does not require lubricant to make a seal.
  7. Align the housing back with the front and carefully insert the camera into the housing front until the rear o-ring is touching the front. Ensure that the control ring gear is meshed properly with the gearing in the front of the housing.
  8. Make sure no controls or wires are interfering with the o-ring or the back of the housing.
  9. Place each lid snap into the corresponding hook on the housing back.
  10. Push the lid snaps towards the housing until they are flat against the housing and the lock has engaged. Close opposing lid snaps at the same time.
  11. Ensure that the camera's flash is raised and pointed towards the fiber optic ports in the front of the housing.
- » **The camera's built-in flash cannot be raised or lowered once the camera is installed in the housing.**

## Using the Built-in Flash

The camera's built-in flash may be used to illuminate subjects underwater.

### Using the Flash Diffuser

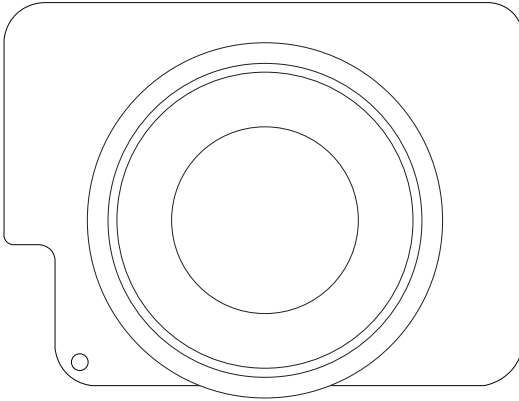
Install the semi-transparent diffuser when using the camera's built-in flash. A portion of the camera's built-in flash may be blocked by the housing's lens port. The diffuser spreads the light of the flash to reduce any effects on the image.

It may be necessary to zoom in when shooting close-up photos to completely eliminate any darkened areas.

### Installing the Flash Diffuser

1. The flash deflector must be removed to use the camera's built-in flash to illuminate a photo. If a deflector is installed, lift the bottom with your thumb or a dull instrument and pull away from the housing. The deflector must be removed prior to inserting the camera in the housing.
2. Press the large opening of the flash diffuser over the housing's lens port until it snaps into the groove in the outer circumference of the port. The piece may bend during installation.

3. Orient the diffuser as shown.



4. Remove the diffuser by pulling it away from the port.

- » **A small hole in the corner of the flash diffuser allows it to be attached to your system using a thin string (not included). It is recommended to attach the flash diffuser to your system to avoid accidental loss.**

## Setting Up An External Strobe

We recommend attaching an external strobe for the optimal color and clarity in a wide variety of photographic situations, including daylight photography.

This housing provides fiber optic ports for optical triggering of up to two strobes.

### About Fiber Optic Cords

Connecting a strobe via fiber optic cord requires the camera's built-in flash to fire for every photo. Rapid firing will be limited to the recycle time of the camera's built-in flash or the recycle time of the strobe, whichever is slower.

The following fiber optic cords are compatible with this housing:

- Ikelite Fiber Optic Cord # 4501
  - INON Optical D Cable “Non-wireless type” L-Connector
  - SEA&SEA Fiber Optic Cable (L-type) # 50107
  - SEA&SEA Fiber Optic Cable II # 50128
  - Olympus UW Fiber Optic Cable # PTCB-E02
  - Nauticam Optical Fiber Cable # 26211 Nauticam to INON
  - Nauticam Optical Fiber Cable # 26212 Nauticam to SEA&SEA
- » **To connect two strobes to the housing, you must use two fiber optic cords.**

## Attaching a Fiber Optic Cord

1. Check the end of the fiber optic cord to ensure that it is clean and smooth.
2. Check that the fiber optic cord o-ring is in place. This o-ring does not provide waterproofing, but it does keep the fiber optic cord in place.
3. Attach one end of the fiber optic cord to one of the fiber optic ports on the housing. The connector is a press-fit into the port.



4. Attach the other end of the fiber optic cord to a compatible strobe.
5. Set the strobe according to the manufacturer recommendations.
6. Turn on the strobe.
7. Turn on the camera. Take a test photo to ensure that your strobe(s) are functioning properly.

# Getting in the Water

## Final Check

1. Re-check the rear o-ring seal. The seal should form an even, solid line visible through the back of the housing.
2. Turn on the camera and check all control functions.
3. Make sure the camera can take a photo.
4. Check camera battery level and available storage space on your memory card.
5. Submerge the housing in a fresh water tank dedicated to underwater photography equipment. Visually confirm that there are no signs of water intrusion. One sign of water intrusion is a steady stream of bubbles coming from one of the housing's seals.

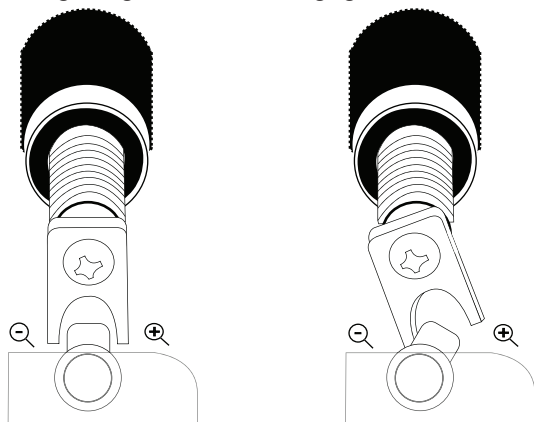
## Entering the Water

1. Before entering the water, turn the camera on and operate each of the housing controls to get a feel for using the camera in the housing.
2. We recommend entering the water without your housing to ensure you are comfortable and your life-saving equipment is in working order. Once you are stable, have someone pass your camera housing to you.
3. Submerge the housing at the surface of the water and visually confirm that there are no signs of water intrusion. Look for water droplets or fogging inside of the housing, or a steady stream of bubbles coming from one of the housing seals.
4. Use your hand to gently flush away any small bubbles that may be on the face of the lens port. Bubbles will produce soft focus spots in your photo or video.

- » **If water appears to be entering the housing, point the lens port downward and return the housing to the surface immediately. Please observe all necessary safety precautions. NEVER ascend faster than accepted safety limits.**

## Zoom Control

After you have used the housing's zoom control, it must be returned to the center position to disengage. If the housing zoom control is pushing the zoom lever in either direction, you may not be able to take a picture or access other functions. This is because the camera is receiving a signal from the engaged zoom control.



## Shooting Underwater

- Get as close as possible to your subject. For the best results, only photograph subjects that are less than 6' (1.8m) away.
- Be careful not to stir up sand or silt.
- Photograph subjects straight on or at a slight upward angle.



- If you err in exposure, it is better to have the image slightly underexposed rather than overexposed. An overexposed image is missing color information which cannot be adjusted in a photo processing program. A slightly underexposed image has color information that can be adjusted.
- » **It is important to respect all living creatures underwater, including people, marine life, and coral. Get as close as you can to your subjects when taking a photograph, but never touch or disturb the marine life.**

## Learning about Underwater Photography

Visit the Photo School section of [ikelite.com](http://ikelite.com) for a wide range of information on shooting underwater including:

- **Product Tutorials and Videos**
- **Cheat Sheets** with exposure setting recommendations for a wide variety of situations
- **Advanced Techniques** with in-depth articles on different shooting techniques
- **Frequently Asked Questions**
- **Photo Galleries** showing examples of real results underwater
- **Feature Articles** and more!

## Maintaining Your Housing

### Post-Dive

1. Rinse the housing in fresh water. Rotate the housing controls and press each button several times while submerged in fresh water to flush out any salt or debris to ensure smooth operation on future dives.

2. NEVER leave your housing in a fresh water rinse tank, even if it is the only system in the tank. Collisions with another person's gear can cause scratches or damage to your equipment. Accidental damage occurs most often in the rinse tank.
3. Rinse off any residual residue from the rinse tank with clean, running fresh water.
4. Stow the housing in a shaded place where it is protected from impact and overheating. If no shade is available, cover the housing with a light colored towel or cloth.
5. Check the memory card capacity and battery life of your camera and strobe(s). Recharge as necessary.
6. Always re-check the o-ring seal after opening the housing.

## Lens Port

Treat the surface of the lens port like a camera lens. After use, rinse and gently dry the outside lens port to avoid water spotting. Use only a microfiber lens cleaning cloth to avoid scratches. To clean, use a mild soap solution.

- » **Do not rinse the inside of the lens port.**
- » **Do not use alcohol, cleaning agents, spray lubricants, Rain-X, or other solvents on the housing or lens port. Use of an incompatible chemical compound can damage the plastic and o-rings, and may result in leaking.**

## Storage

1. Clean the housing and controls thoroughly prior to storage.
2. Remove the rear o-ring. Place in a small re-sealable plastic bag inside of the housing.
3. Leave the lid snaps open to release pressure on the lid snap springs.

4. Store the housing in a cool, dry place away from direct sunlight and chemicals.
  5. Before using the housing, check the tightness of the set screw in each control knob. Check each control gland to make sure they are snug. There is a slight chance that either could vibrate loose during travel.
- » **Do not leave the camera and housing in direct sunlight for prolonged periods. Heat may damage the camera.**
  - » **Do not transport with the camera inside of the housing.**
  - » **Do not store the housing in a humid environment. Prolonged exposure to high humidity may damage electronic components.**

## Service Recommendations

It is recommended that the housing be sent to Ikelite or an authorized service center annually for routine service and maintenance. Service may be required more or less frequently depending on care and use.

## Lubricating Controls

The housing's controls may need to be lubricated if they become particularly difficult to use or if the o-rings have dried out during longer periods of storage.

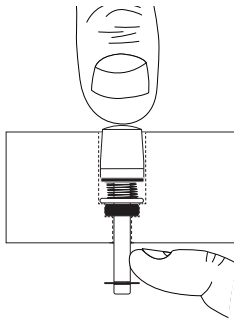
There will be some breaking force required to move the controls initially after the housing has been in storage for long periods of time. Remove controls for lubrication only if they continue to stick after applying a small amount of lubricant to the exposed portion of the shafts and working them many times.

- » **Use only Ikelite lubricant. Other types of lubricant may cause swelling of o-rings or cracking of plastic components.**

- » **Lubricant is not a sealant; it is used to reduce friction. Excessive lubricant can collect sand, hair or debris which may interfere with proper sealing.**
- » **Never use spray lubricants as the propellant ingredient can cause the plastic housing to crack or o-rings to swell.**

## Lubricating Push Buttons

1. Press and hold the push button all the way in.
2. Place a small amount of lubricant at the base of the push button shaft inside the housing.

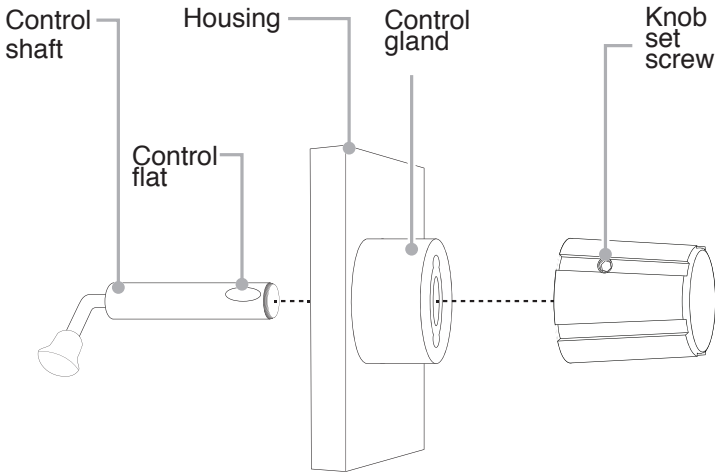


3. Press and release the push button several times to work the lubricant into the o-ring.
  4. If a push button control becomes difficult to push or if it sticks when depressed, soak the housing in warm, soapy fresh water. After a few minutes, operate the push button. If this does not correct the problem, return the housing to Ikelite for maintenance.
- » **To prevent build-up of salt, sand, or debris, the push buttons should be flushed with fresh, clean water after every use. Depress each push button while the housing is submerged in fresh water.**
  - » **If it is necessary to remove a housing push button, NEVER re-use the e-clip. Push button o-ring kits include replacement e-clips.**

- » **Push buttons look similar but vary in length. Remove and re-install one push button at a time.**

## Lubricating Control Shafts

1. Loosen the knob set screw using a hex key. Some set screws are covered by a vinyl sleeve. The vinyl sleeve must be removed prior to loosening the set screw.
2. Remove the control shaft from the inside of the housing.
3. Clean and lightly lubricate the shaft, including the large outer end of the shaft.
4. If there is a spring associated with the control, make sure it is in its proper position.



5. Re-install the shaft from the inside of the housing. Rotate the shaft gently for smooth installation into the gland. Push the control shaft all of the way through until the flat of the shaft is visible on the outside of the housing.
6. Align the knob set screw with the control flat.
7. Tighten the set screw firmly against the flat of the control shaft using a hex key.

8. Check that the set screw is oriented properly by holding the control shaft in place on the inside of the housing while attempting to rotate the control knob on the outside of the housing. If there is rotation, loosen the set screw and realign with control flat; retighten and recheck.
- » **We do not recommend removing the control gland from the housing.**
  - » **Always take the housing underwater to depth without a camera after removing and re-installing controls.**
  - » **Remove and re-install one control at a time.**
  - » **DO NOT pull the shutter trigger without a camera installed. You may accidentally detach or damage the control spring.**

## Troubleshooting

### Water enters the housing

- Check and reinstall the rear o-ring.
- Replace the o-ring if there are any signs of cracks or tears.
- Take the housing underwater to depth without a camera installed to ensure that the leaking has been corrected.

### Photos are over-exposed (too light)

- Adjust aperture (smaller), shutter speed (faster), or ISO (lower) setting.
- Move light(s) farther away from your subject.
- Adjust exposure compensation in the camera.
- Adjust lighting power.

### **Photos are under-exposed (too dark)**

- Adjust aperture (larger), shutter speed (slower), or ISO (higher) setting.
- Move light(s) closer to your subject and make sure they are pointed in the right direction.
- Adjust exposure compensation in the camera.
- Adjust lighting power.

### **Strobe(s) will not fire**

- Turn on strobe.
- Check the strobe(s) battery life.
- Restore the camera to factory default settings. There are some camera settings that will prevent an external flash from firing.
- Check camera settings recommended for use with an external strobe in the beginning of this manual.
- Check that the fiber optic cord is properly attached.
- Check that the camera's built-in flash has been raised and is pointing towards the housing's fiber optic ports.

### **Button(s) are sticking**

- Soak the housing in lukewarm fresh water. Depress each button several times while the housing is submerged. Rinse the housing with running fresh water.
- Lubricate the controls.

### **Button(s) or control(s) not operating**

- Tighten the camera mounting plate with a screwdriver.
- Ensure that nothing is preventing the camera from going all of the way into the housing.

- Check that the camera mounting plate is pushed all of the way forward.

### **Camera is not functioning normally underwater**

- Check each housing control while underwater to ensure that they are disengaged. An inadvertently engaged control may limit functioning of the camera.
- Check that no controls are being accidentally pressed.
- Check that the zoom control is in the center deactivated position.
- Check that the shutter is not half depressed. If the shutter spring has been damaged by activation without a camera installed, it may not return properly. Adjust or replace the shutter spring.

### **Backscatter or “snow” in images**

- Reposition strobe(s) or light(s) to light up the subject only and not the water in-between the camera and subject.
- Avoid using strobes in extremely low-visibility conditions.

## **Spare Parts**

Rear o-ring # 0109

Port cover # 0200

Silicone lubricant # 5020

Push button o-ring kit # 6201.03



## **Limited Warranty**

This Ikelite product is warranted against any manufacturing defects for a period of two (2) years from the original date of purchase. Defective products should be returned to Ikelite postage paid. Ikelite will, at its sole discretion, repair or replace such products, and will return to customer postage paid. All other claims of any nature are not covered. Except as mentioned above, no other warranty expressed or implied applies to this Ikelite product.

## **Service and Repairs**

Ikelite is most interested in performing any service to ensure that all products perform as intended.

No prior authorization is required. You may return directly to us or through your dealer. Please include a brief description of the problem, any relevant email correspondence, and/or description of the service request. Always include name, shipping address, email address, and phone number inside of the package. Send postage paid to:

Ikelite Underwater Systems  
Attention: Service Department  
50 W 33rd St  
Indianapolis, IN 46208 USA  
+1 (317) 923-4523  
service@ikelite.com

For detailed instructions on returning your product for service including important information on international customs documentation, please refer to our website at:

<https://www.ikelite.com/pages/service-repairs>

## Contact Us

If you have any questions about your product or need advice on getting the images you want, please get in touch with us and we'll do everything we can to help you capture your unique perspective.

Ikelite Underwater Systems  
50 W 33rd St  
Indianapolis, IN 46208 USA  
+1 (317) 923-4523  
ikelite@ikelite.com