# ikelite

## Underwater TTL Housing for Canon PowerShot G3X

Product # 6146.03

## 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 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. 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 # 0110 (installed)
- Port cover # 0200 (installed)
- Waterproof bulkhead cap # 9104.7 (installed)
- .050" hex key # 0945.11
- 1/16" hex key # 0945.16
- 1/8" hex key # 0945.18
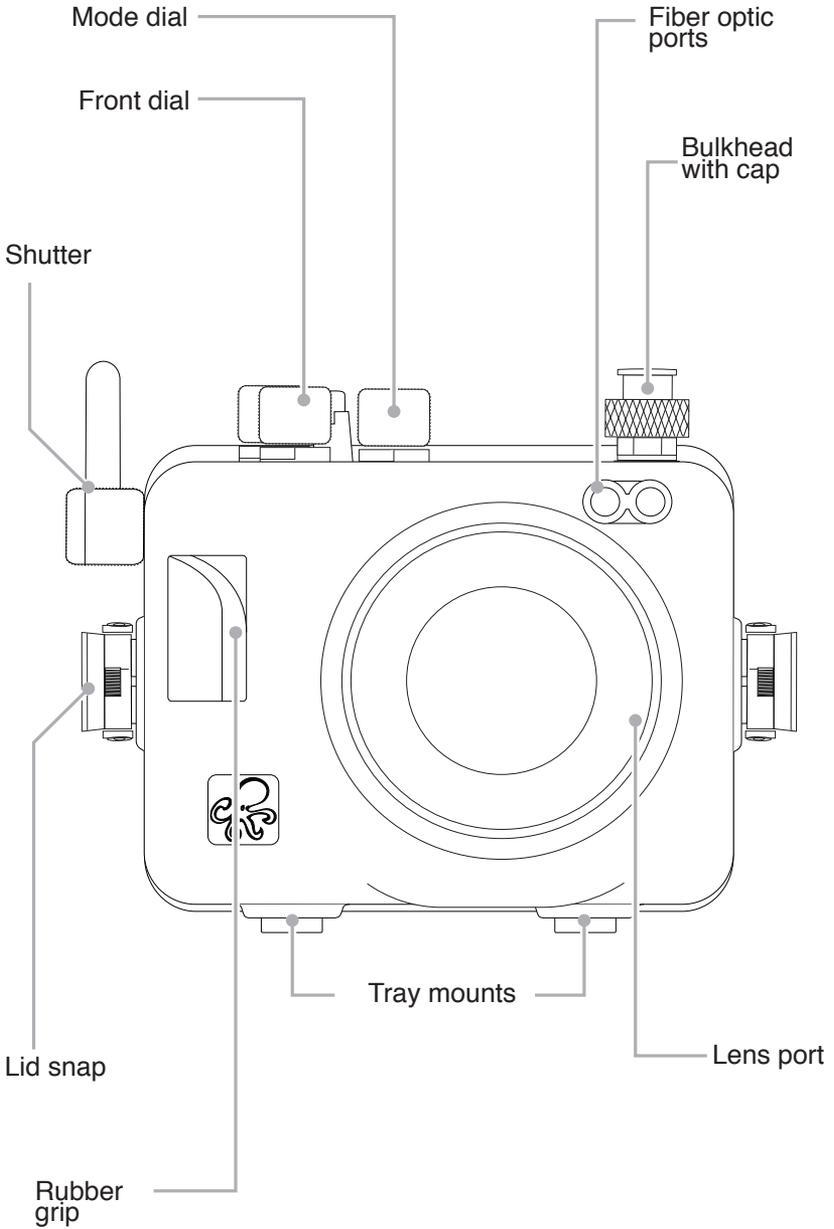- Silicone lubricant 1cc tube

# Important Notices

» **A bulkhead cap or sync cord must be attached to the housing bulkhead for waterproof operation. Never submerge the housing in water without either a sync cord or bulkhead cap attached.**

» **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.**
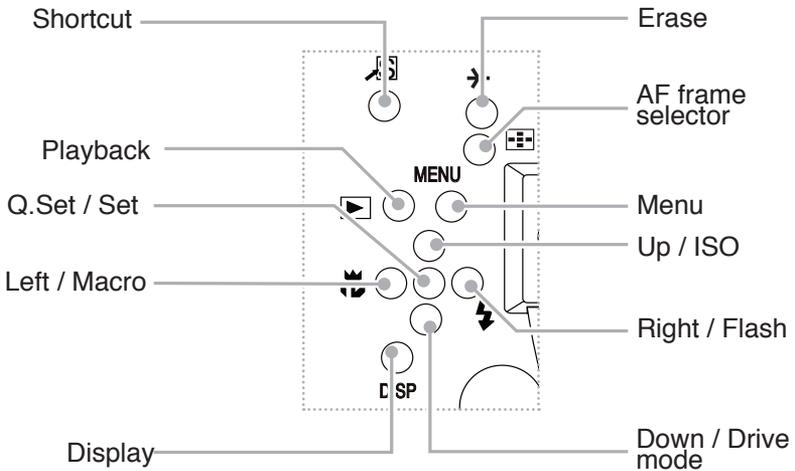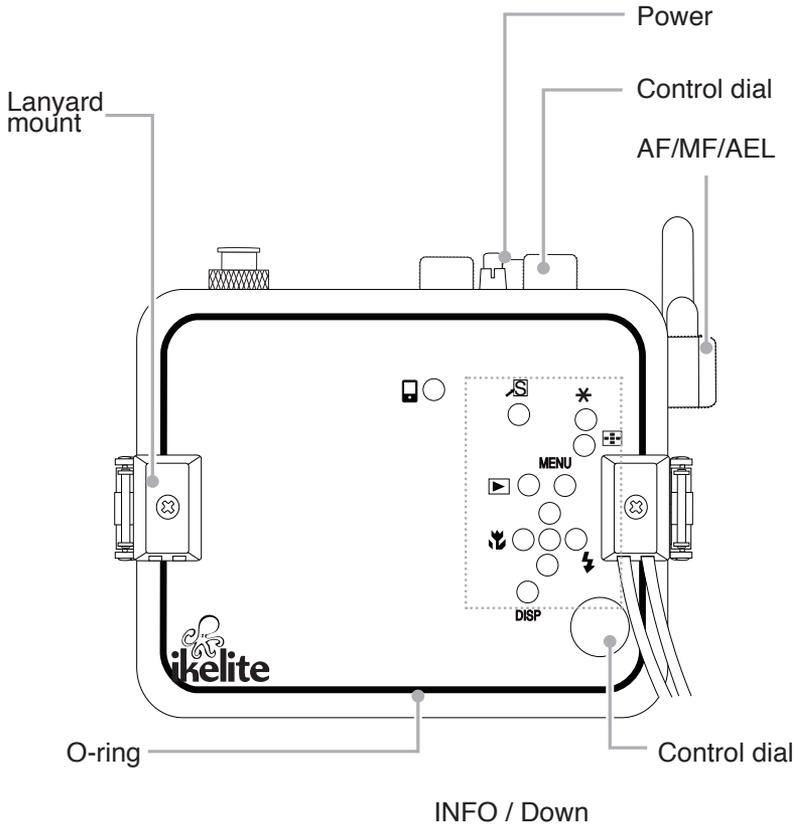
# Contents

# Getting to Know Your Housing



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Menu

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## 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.

## Accessory Port

This housing features one spare accessory port which may be used for the attachment of optional accessories. This port accepts fittings designed for a 1/2" through or 1/2-20 threaded hole.

The optional Vaccum Kit # 47012 may be installed in this location. A hand pump with gauge allows you to draw a vacuum on the house to simulate water pressure and check for leaks prior to entering the water.

Visit ikelite.com for an updated list of compatible products.

» **Do not remove or loosen the accessory port plug unless you are installing a compatible accessory.**

## Lanyard Mount

The included lanyard is a break-away safety lanyard. The lanyard is designed to break if stress is placed on it. This is important so that the user can break free if the equipment is caught on something underwater.

The lanyard is not designed to support the weight of the housing and should not be used as a carrying strap. Carrying the housing by the lanyard may result in damage to the lanyard and/or housing.

A different lanyard with a thin cord may be attached to the housing using the lanyard mount on the side of the housing back.

# Setting Up Your Camera

## 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.

4. Raise the camera's built-in flash if using an external strobe connected by fiber optic cord. Leave the built-in flash closed if using an external strobe connected by electrical sync cord.

## Camera Settings

- Set **Touch operation** to "Disable."

- Set **AF-assist beam** to "Off."

- Set **Flash mode** to "Auto" when using an external strobe.

- Set **Red-eye lamp** to "Off" when using an external strobe.

## 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

# Setting Up Your Housing

## Opening the Housing

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

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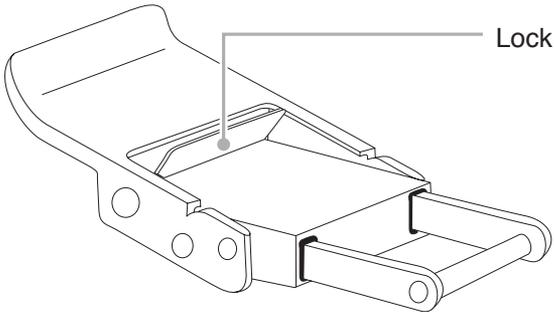
2.  Lid snaps are designed to provide enough force to compress the o-ring for a proper seal. Keep firm pressure against the lid snap while lifting it away.

3.  Repeat with opposite lid snap.

4.  Remove the housing back.

## Installing the Camera

1.  Remove any lanyard or neck strap which may be attached to the camera.

2.  Remove the camera mount plate from the housing.

3. Line the mount screw up with the camera's tripod socket. Use a flat screwdriver to tighten the mount plate to the camera.
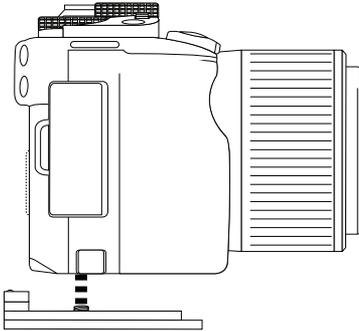


4. Pull out on the housing control knobs to move the controls out of the way.

5. If using an external strobe connected by fiber optic cord, raise the camera's built-in flash. If using an external strobe connected by electrical sync cord, leave the built-in flash closed. The flash cannot be raised or lowered once the housing is closed.

6. Insert the mount plate into the slot on the inside bottom of the housing. Push the camera all of the way forward until it stops.

7. Push housing control knobs in and check orientation with the camera.

» **The camera may be attached to a tripod using the 1/4-20 threaded mounting hole on the bottom of the mount plate.**

» **The camera's built-in flash must be raised prior to closing the housing.**

» **The camera's built-in flash cannot be raised or closed underwater.**

## Attaching the Hotshoe

**1.** If using a strobe connected by electrical sync cord, orient the hotshoe with the arrow on top pointing towards the front of the camera.



Camera
hotshoe
mount
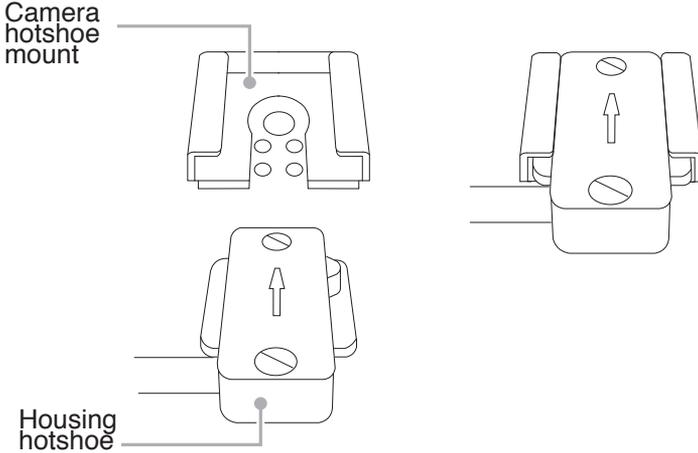
Housing
hotshoe

**2.** Slide the housing hotshoe into camera's hotshoe mount until it stops.

» **The hotshoe must be all the way forward in the camera mount for proper flash operation.**

» **Do not attach the hotshoe if using a strobe connected by fiber optic cord. Connecting the hotshoe will disable the camera's built-in flash.**

## Closing the Housing

**1.** Make sure the o-ring is clean and in its proper location on the back of the housing. The rear housing o-ring does not require lubricant to make a seal.

**2.** Place the back onto the housing front.

**3.** Make sure no controls or wires are interfering with the o-ring or the back of the housing.

4.  Place each lid snap into the corresponding hook on the housing back.

5.  Push the lid snaps towards the housing until they are flat against the housing and the lock has engaged. Close both lid snaps at the same time.

6.  Check the o-ring seal. The o-ring should form a uniform, solid line visible through the back of the housing.

7.  Check control functions.

# 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 a direct electrical connection to the camera's external flash hotshoe via a manual flash hotshoe. An external strobe may be triggered via electrical sync cord.

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

### About Electrical Sync Cords

Connecting a strobe via electrical sync cord provides faster strobe recycle times as compared to a fiber optic connection, and prolongs camera battery life.

»  **To connect two strobes to the camera, you must use a dual sync cord.**

»  **A second slave strobe may be triggered optically off of a primary strobe connected by sync cord.**

## TTL Strobe Compatibility

When compatible Ikelite DS strobe(s) are attached by electrical sync cord, the TTL circuitry built into the housing allows the camera to communicate directly with the attached strobe(s). The camera triggers the strobe(s) and adjusts the strobe(s) power automatically for perfect exposure.

The following strobes are TTL compatible with this housing:

- Ikelite DS50 above serial # 70000
- Ikelite DS51
- Ikelite DS125 above serial # 5000
- Ikelite DS160, DS161
- Ikelite DS200 above serial # 7163

Flash exposure compensation may be added or subtracted using the camera's menu settings. Due to the camera's pre-flash sequence, manual full power setting cannot be used when a DS strobe is attached by fiber optic sync cord.

Strobes from SEA&SEA, INON, and other manufacturers may be attached by electrical sync cord for faster shooting and extended battery life compared to fiber optic triggering. These strobes are not capable of powering the TTL circuitry built into this housing. Non-Ikelite strobes must be used in manual power modes when connected by electrical sync cord.

## Attaching an Electrical Sync Cord

1. Remove connector protectors and bulkhead caps from each connection.

**2.** Apply a very thin, even layer of lubricant on all threads, sealing surfaces, and the exposed portion of the plug o-ring. Do not allow lubricant to get into the pins and receptacles of the plug or bulkheads.



Bulkhead cap

Retaining ring
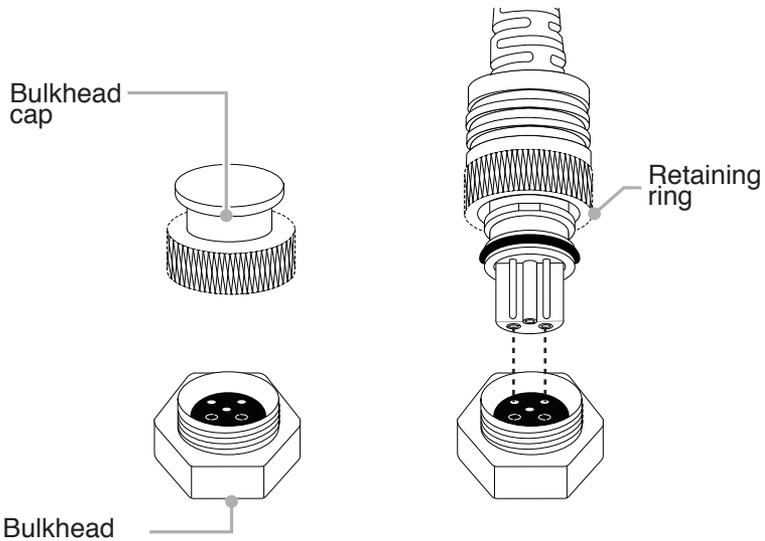
Bulkhead

**3.** Align plug and insert into the housing bulkhead. Each male pin mates with a female receptacle. Failing to line up the contacts properly before tightening may result in damage to the converter plug and/or housing bulkhead.

**4.** Hand-tighten the retaining ring.

**5.** Attach the other end of the sync cord to the bulkhead on your strobe.

**6.** Turn on the strobe(s).

**7.** Turn on the camera. Take a test photo to ensure that your strobe(s) are functioning properly.

» **A bulkhead cap or sync cord must be attached to the housing for waterproof operation. Never submerge the housing without either a sync cord or waterproof bulkhead cap attached.**

**8.**

## 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.
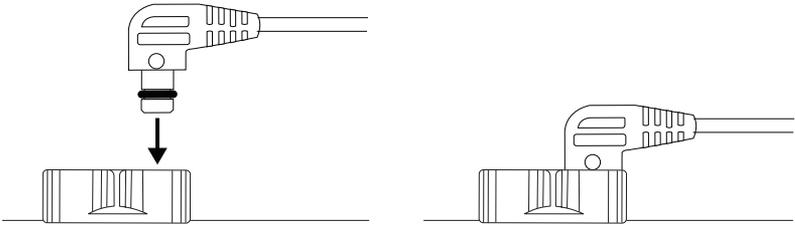


4. Attach the other end of the fiber optic cord to a compatible strobe.

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.

» **The camera's built-in flash must be raised prior to closing the housing.**

» **The camera's built-in flash cannot be raised or closed underwater.**

# 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. Draw a vacuum on the housing to check for leaks using the optional vacuum kit, if using (sold separately).

6. 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.**

## 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 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.

7. Detach the cord plug or bulkhead cap and lubricate the threads, o-ring(s) and sealing surface(s) every 2-3 days during continuous use.

## 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.**

### Servicing 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.
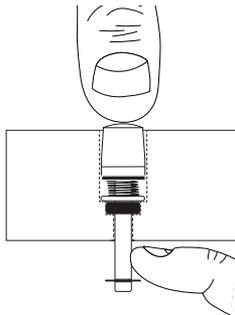


3.  Press and release the push button several times to work the lubricant into the o-ring.

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.

Control shaft     Housing     Control gland     Knob set screw
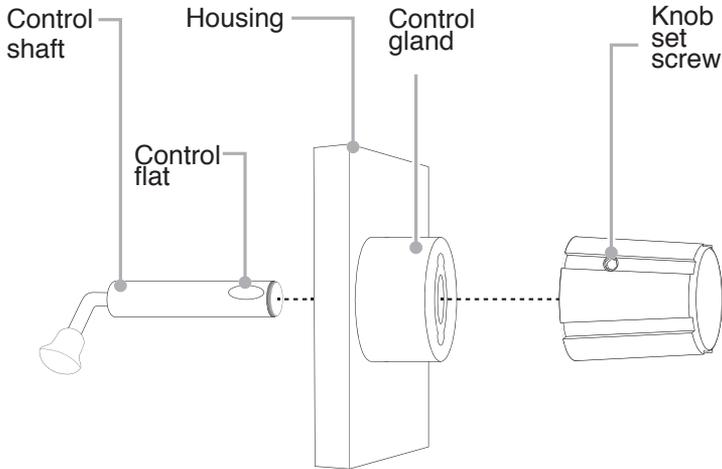
Control flat

**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.
- If using an Ikelite DS strobe, set strobe to TTL.

### 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.
- If using an Ikelite DS strobe, set strobe to TTL.

## 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 sync cord is properly attached.

- Check that the housing's hotshoe is pushed all of the way forward on the camera.

## 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 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  # 0110

Port cover # 0200

Waterproof bulkhead cap # 9104.7

Silicone lubricant # 5020

Push button o-ring kit # 6201.03

.050" hex key # 0945.11

1/16" hex key # 0945.16

1/8" hex key # 0945.18

# 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.

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