

# **ML-105 Housing**

*Setup, Use, and Care Guide*

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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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## ***Introducing ML-105***

Congratulations on owning a new Gates product: the ML-105 Housing. This is a specialized system for ultra-low light underwater imaging. We designed ML-105 specifically as a professional action underwater rig for several applications including cinema, natural history, surf and research applications.

Please read through this entire guide to learn about ML-105 Housing so you can get the most out of this imaging tool. In this section, we'll introduce you to the features of ML-105 Housing so you can get started.

## ***Features***

ML-105 Housing has several key features:

- ✓ **Compact and Travelable.** ML-105 Housing is compact and can fit into a carry-on size case for travel.
- ✓ **Lens flexibility.** ML-105 Housing can accommodate a variety of DSLR, mirrorless, and compact cinema lenses with no change to control locations. Focus, Iris, or Zoom remain in the same location regardless of optics used.
- ✓ **Built In easy-view monitor.** ML-105 Housing incorporates an integrated 5" LCD at a comfortable 15° angle for easy viewing.
- ✓ **Gates COMMAND / CONTROL module** for iris control, camera access and multiple assignable buttons.

## ***Warranty Disclaimer***

ML-105 Housing 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 ML-105 Housing. 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.

We warrant ML-105 Housing as an image acquisition tool for a period of 2 years. The Seal Check unit is warranted for 1 year. Optics (Dome and Flat ports) are warranted for a period of 1 year or 100 hours salt water contact, whichever comes first. Electronics, cables and connectors for period of 1 year.

Gates does not warrant optical performance or image quality.

If you have any questions about the setup, use and care of ML-105, contact Gates directly. Details are at the end of this document.

## ***Unpacking ML-105***

After you remove ML-105 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.

### ***Included Items***

- ✓ ML-105 Housing
- ✓ LCD Power and SDI cables
- ✓ Lens Gear Drive Set
- ✓ Seal Check Lite system
- ✓ Tool Kit / Spare Kit with case
- ✓ Woven Carry Handle Lanyard
- ✓ Trim Floats
- ✓ Port Cleaner

### ***Optional Items, Required for Operation***

- ✓ Stackable Port Rings (SPR) for your lens(es) of choice.
- ✓ Port(s) of choice (Dome or Flat in either glass or acrylic material) and shade.

### ***Optional Items***

- ✓ Light System
- ✓ Water alarm
- ✓ Carry Case
- ✓ Trim Weights
- ✓ HD-SDI surface feed bulkhead connector and cable

## ***Nomenclature***

In this Setup, Use and Care Guide for ML-105, the following terms are used:

- ✓ **ML-105 Camera** is the camera body style from Canon. At this writing there is a single ML-105 Camera version available.

## Required Equipment

The required camera and accessory equipment for ML-105 is:

✓ **Camera**

- CANON ML-105.

✓ **LCD**

- Atomos [NINJA](#)
- Atomos [ATOMX SDI Expansion Module](#)
- Atomos [ATOMOS Battery Eliminator](#)
- Compatible SSD Recording Media

✓ **Compatible Battery** (Micro V-Lock type). Visit [Gates website](#) for current list.

- **RED**
  - [REDOVOLT 98 WHr](#)
- **CORE SWX**
  - [Nano 98 WHr](#)
  - [Nano 150 WHr](#)
- **Hawkwoods**
  - VL-M98D
  - VL-M150D
- **bebob**
  - [V98MICRO](#)
- **SWIT**
  - [MINO-S70](#)
  - [MINO-S140](#)
- **IDX**
  - [Imicro-98](#)

✓ **Compatible Lenses**

- Canon EF-Mount type
- Max Lens Envelope:
  - SPR60 Port Rings
    - Max lens overall OD: 5.6 in / 142mm
    - Max lens gear OD: 4.25 in / 108 mm / 136 Teeth
    - Min lens gear OD: 3.1 in / 79 mm / 100 Teeth
  - SPR80 or PR80 Port Rings
    - Max lens overall OD: 7.5 in / 190mm
    - Max / Min gear OD: same as above.

# 1: Cautions

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- ✓ **SEAL CHECK VACUUM.** In a later part of this manual, Seal Check Lite Rechargeable will be introduced for verifying seal integrity before diving. You will learn that the vacuum draw on ML-105 should be about 100 millibars. This is enough to verify seal integrity.
- ✓ **CAMERA TRANSPORT INSIDE HOUSING.** You can transport a securely mounted camera inside ML-105 \*IF\* the system is in your possession and without abusive handling. DO NOT transport a camera inside ML-105 for shipping or checked baggage as forceful and abusive handling can cause damage to both camera and housing.
- ✓ **USER RESPONSIBILITY.** This Setup, Use and Care guide contains important detailed procedures for setup and use of ML-105. 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 ML-105 and may void your warranty.

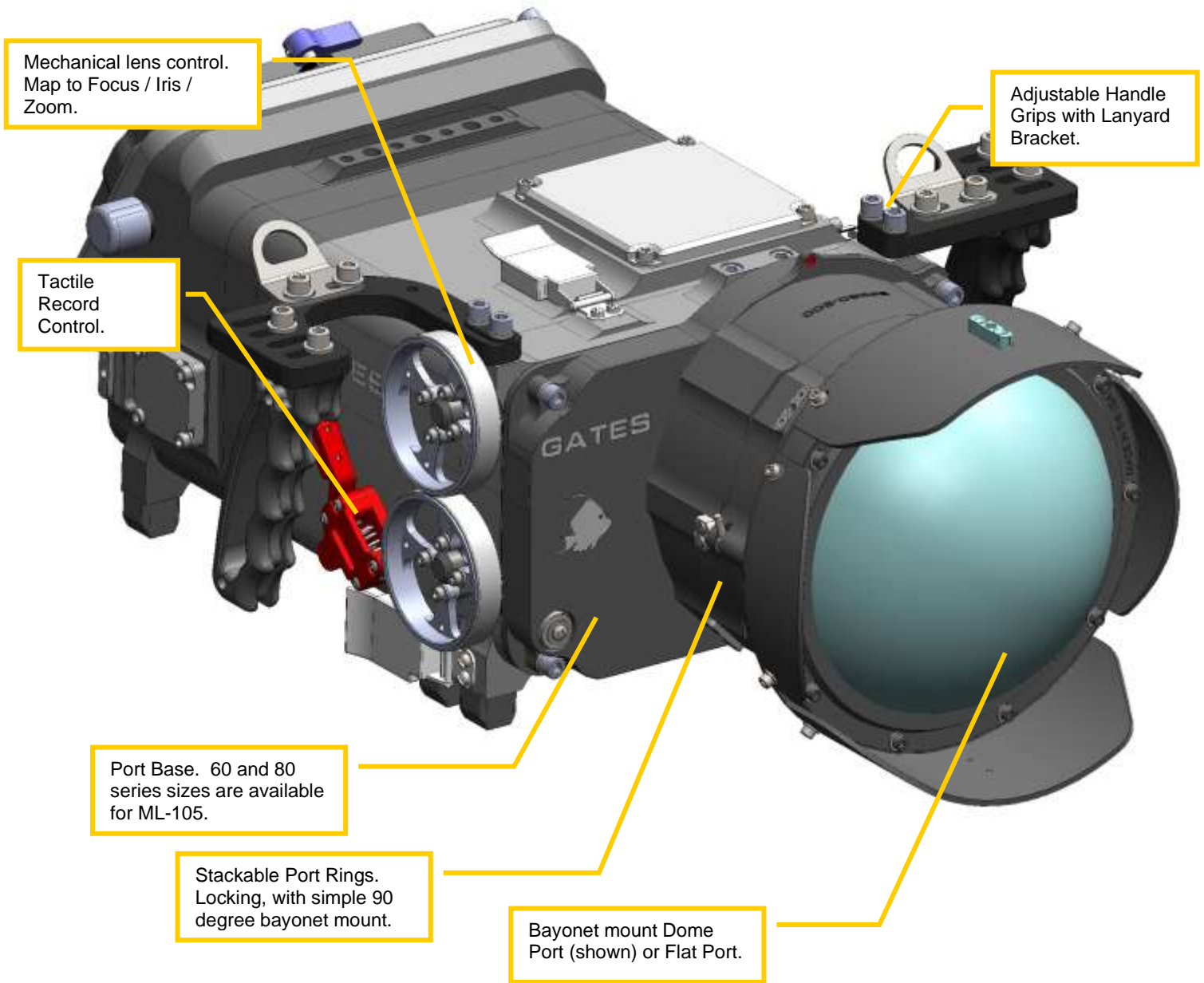


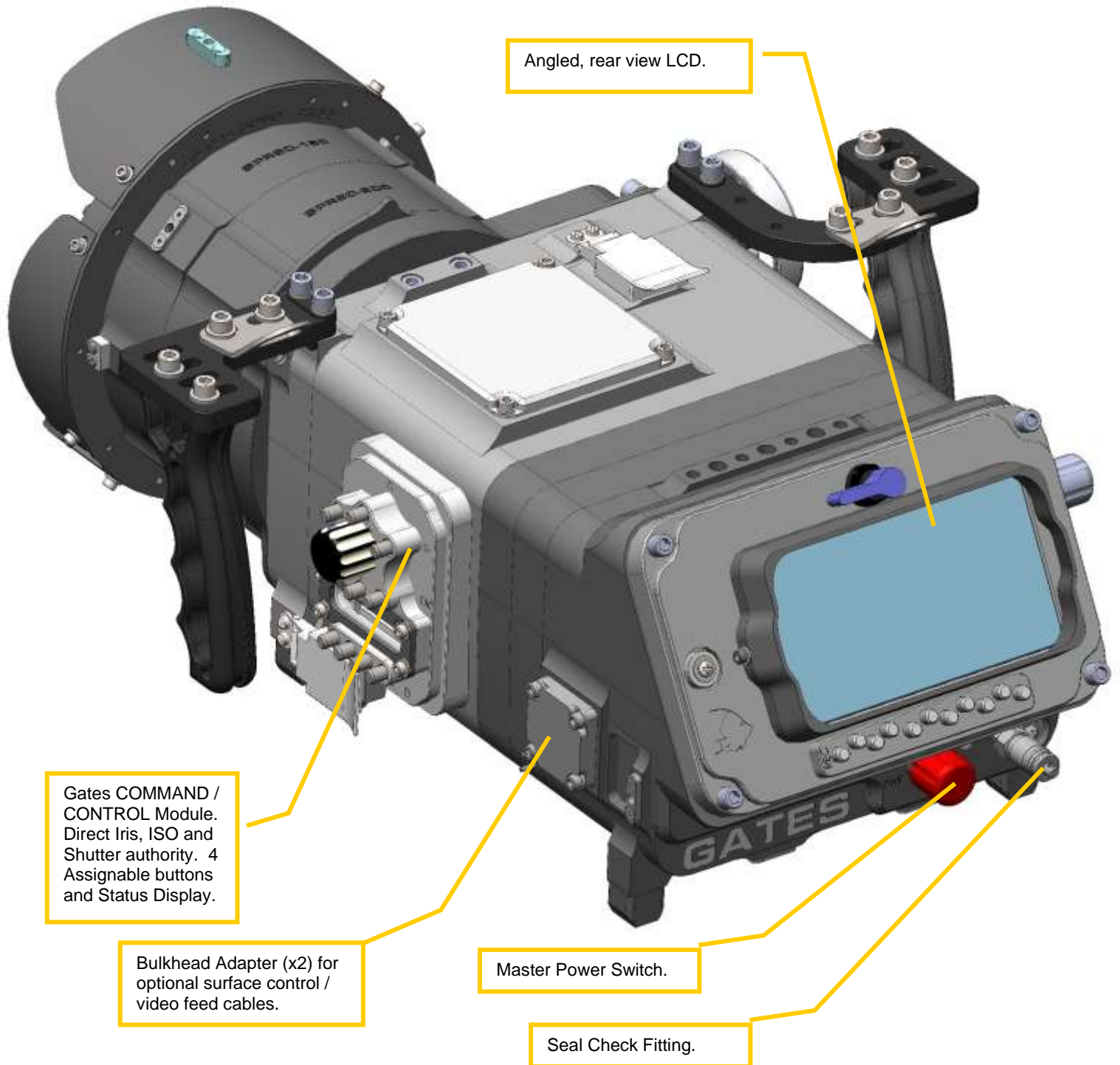
Contact Gates if you have questions about this manual or using ML-105.

## 2: ML-105 Setup

### *ML-105 Housing Overview*

ML-105 has many features with which you will become familiar.

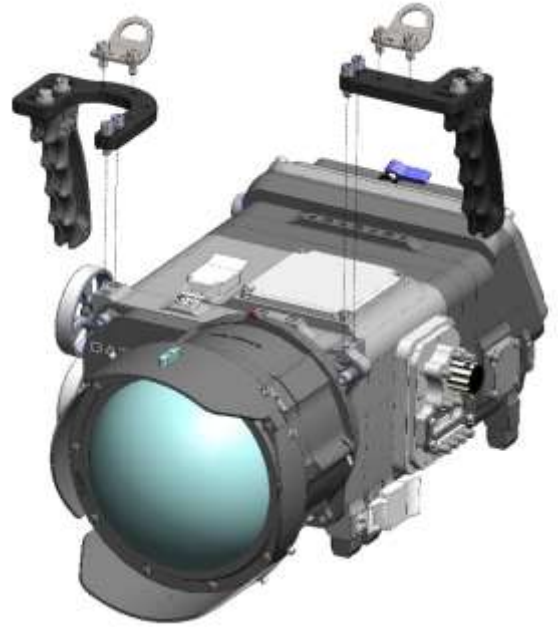




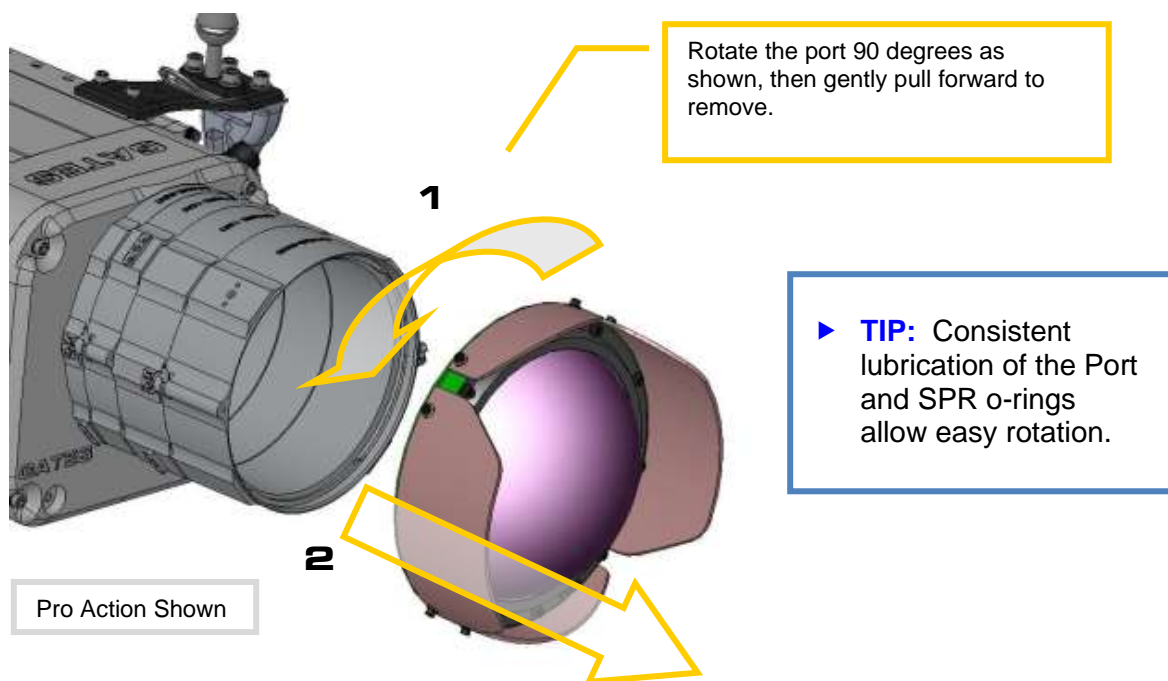
## ML-105 Housing Preparation

### ✓ Handle Grips Install.

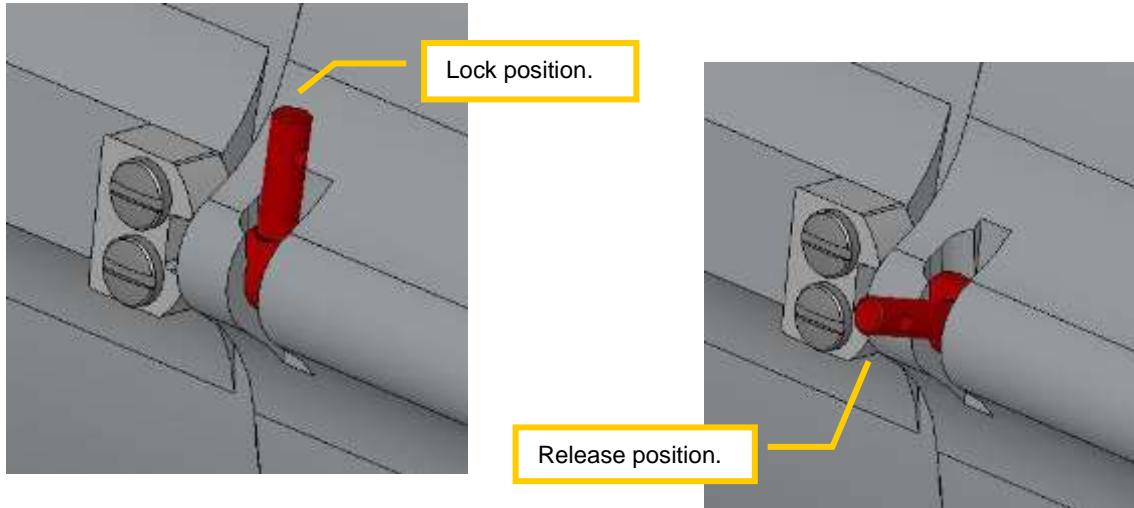
Four screws secure the Handle Grips to ML-105. You can locate the Handle Grips in several different positions forward / aft on the housing.



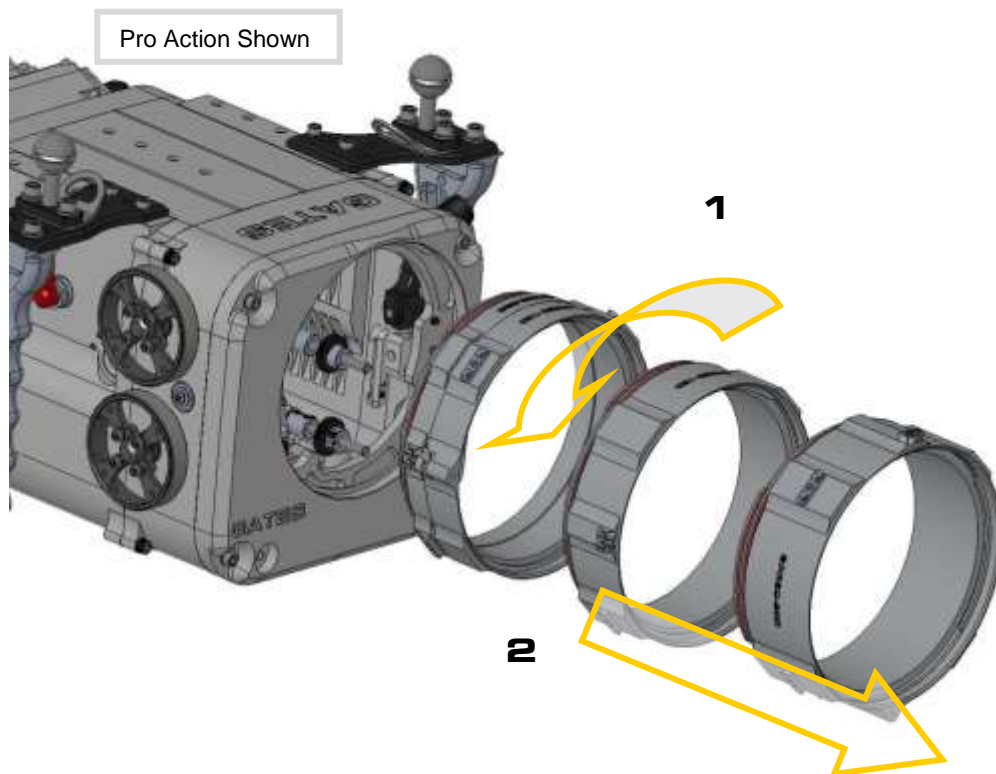
### ✓ Port Removal. Disengage the Port by rotating 90 degrees in the direction shown. Gently pull the Port away from the Port Ring(s)



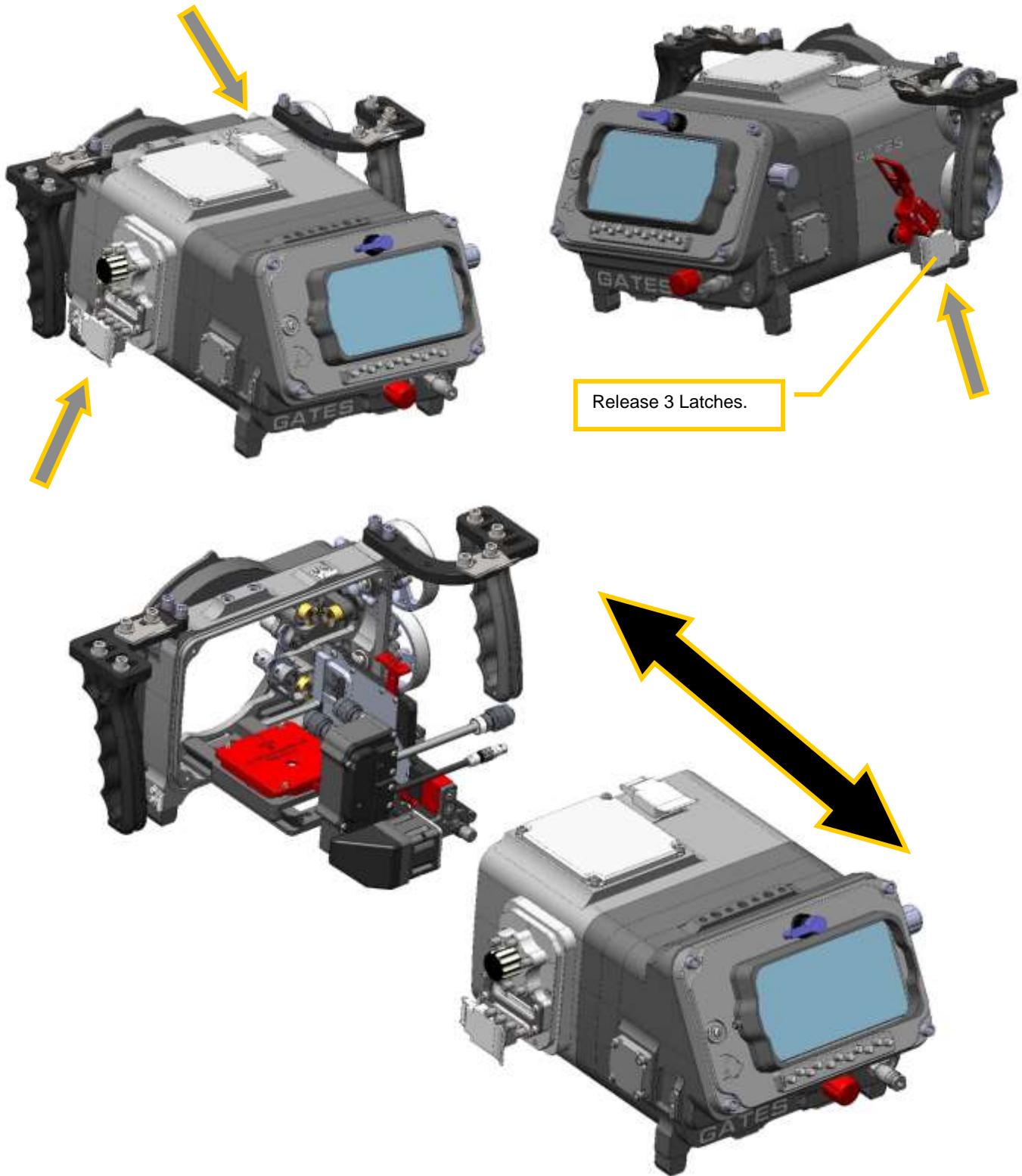
- ✓ **Stackable Port Ring (SPR).** Remove the SPR's one at a time or as a group. The lock pin is shown below in the locked and release position.



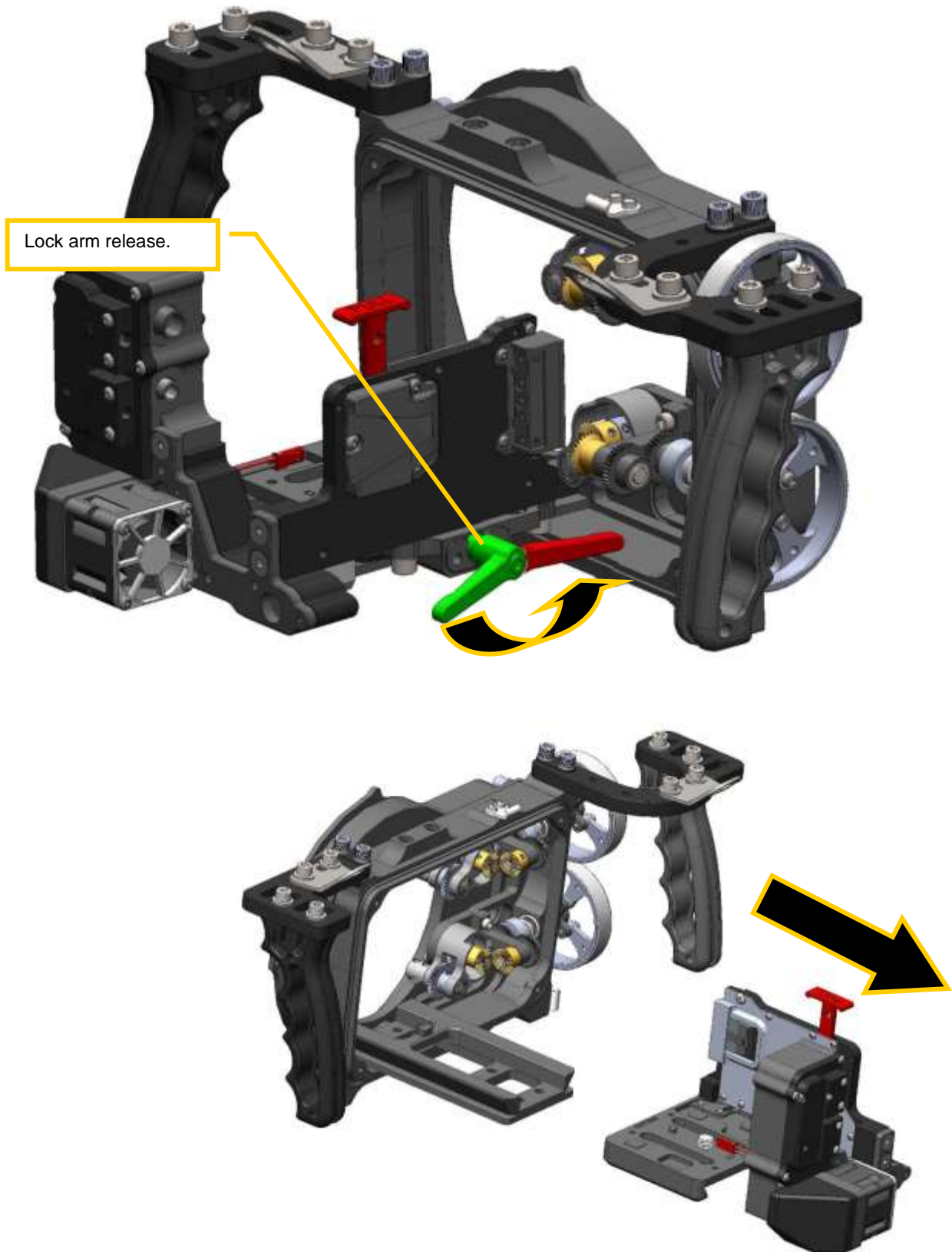
- ✓ With the SPR's unlocked, **rotate 90 degrees and separate.**



- ✓ **Shell Latches.** Release 3 locking latches. One on top, 2 on the either side.
- ✓ **Separate the two main shells.** They will slide apart.



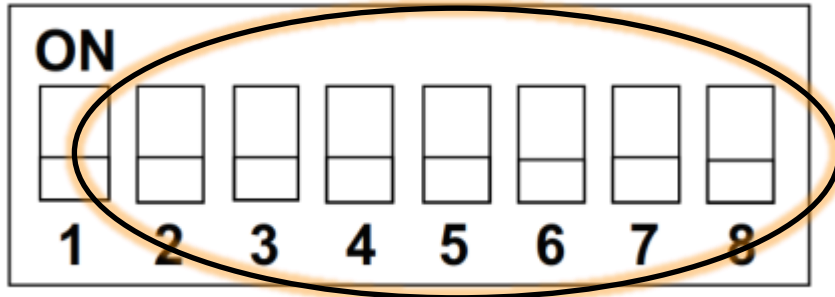
- ✓ **Release Remove Camera Tray.** Release the lock arm counter-clockwise as shown, from GREEN to RED position, and the camera tray will slide away to the rear.





## Preparing the ML-105 Camera

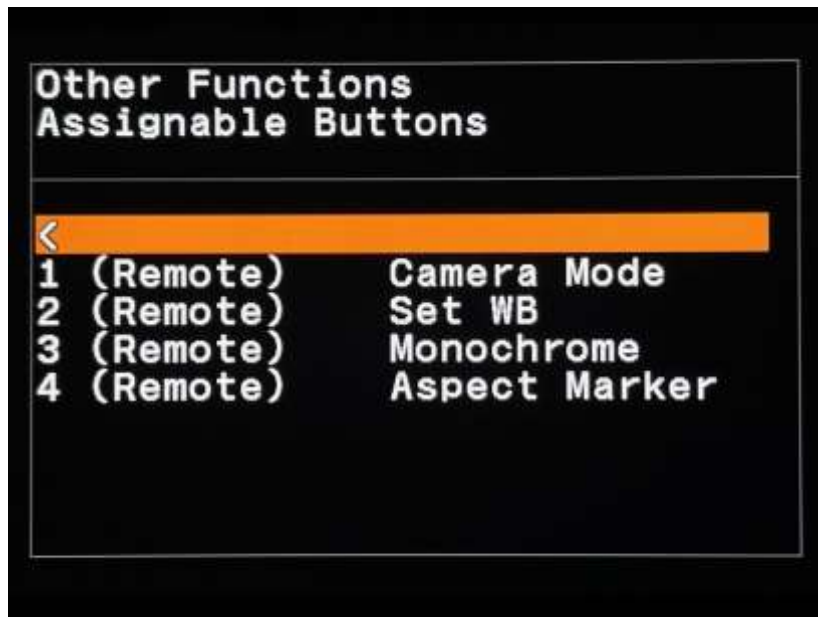
- ✓ **GCC Communications.** The ML-105 Camera has a set of DIP switches on the rear panel. For use with ML-105 Housing, set switches 2 through 8 to OFF position.



- ✓ **Assignable Buttons.**

The bottom row of GCC buttons (see subsequent section on “Controls”) are directly associated with 4 camera assignable functions found in the camera menu. Set these to your desired functions.

MENU → OTHER FUNCTIONS → ASSIGNABLE BUTTONS.



✓ **SDI Record Command.**

Set the REC COMMAND to 'ON'. This is necessary to provide a record trigger signal to NINJA over SDI.

MENU → VIDEO SETUP → REC COMMAND.



✓ **On-Screen Display (OSD).**

When 'ON', Remove OSD will temporarily remove the ML-105 camera On-Screen Display over SDI when the camera sends a REC COMMAND signal to NINJA. OSD will return when the ML-105 camera sends the next REC COMMAND signal.

Turn this feature 'ON' or 'OFF' as desired for your particular situation.

MENU → VIDEO SETUP → REMOVE OSD.

## ***Preparing the LCD***

ML-105 includes a Power On / Off control for NINJA LCD, located on the right rear. No special setup is required for this LCD as it will boot into the same screen each time at power-on.

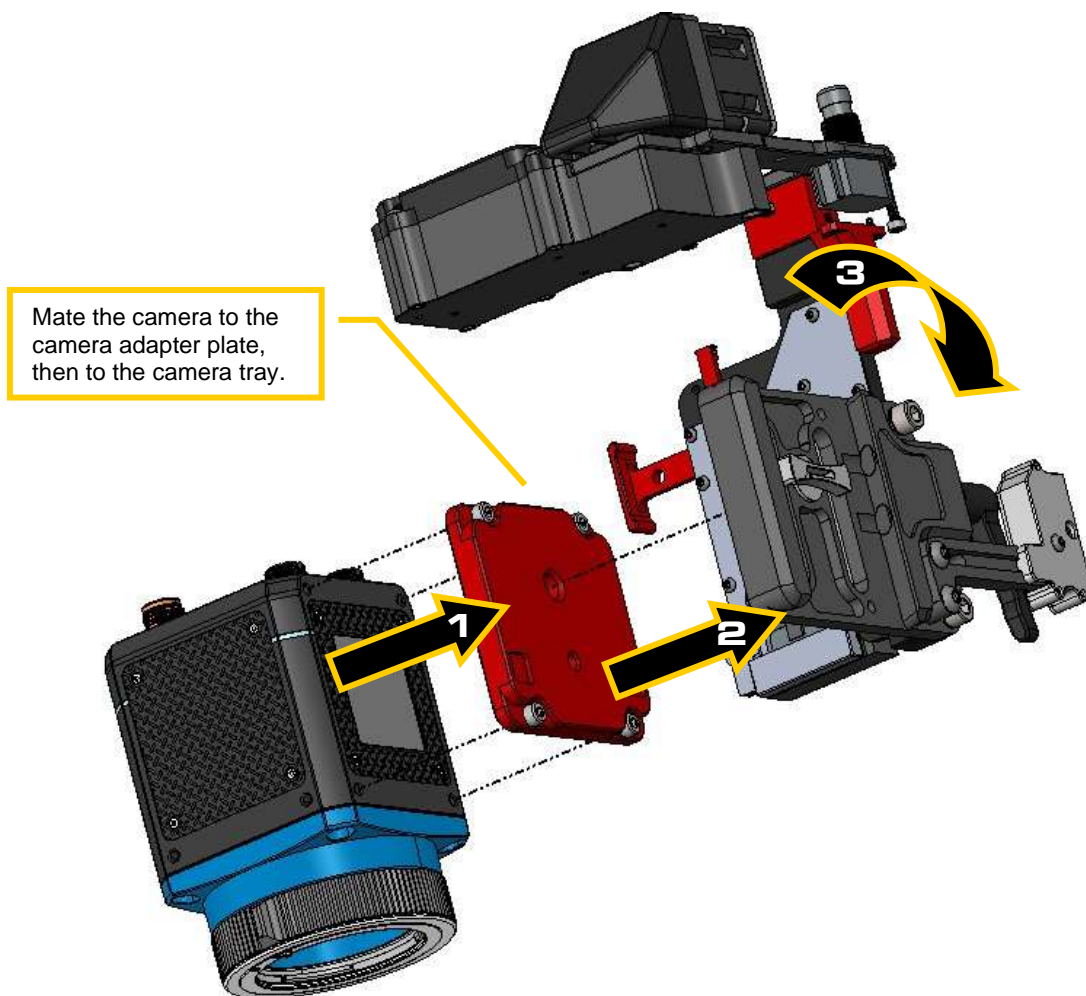
Refer to the Atomos NINJA user manual for more details.

<https://support.atomos.com/hc/en-us/sections/9372764031631-Ninja>

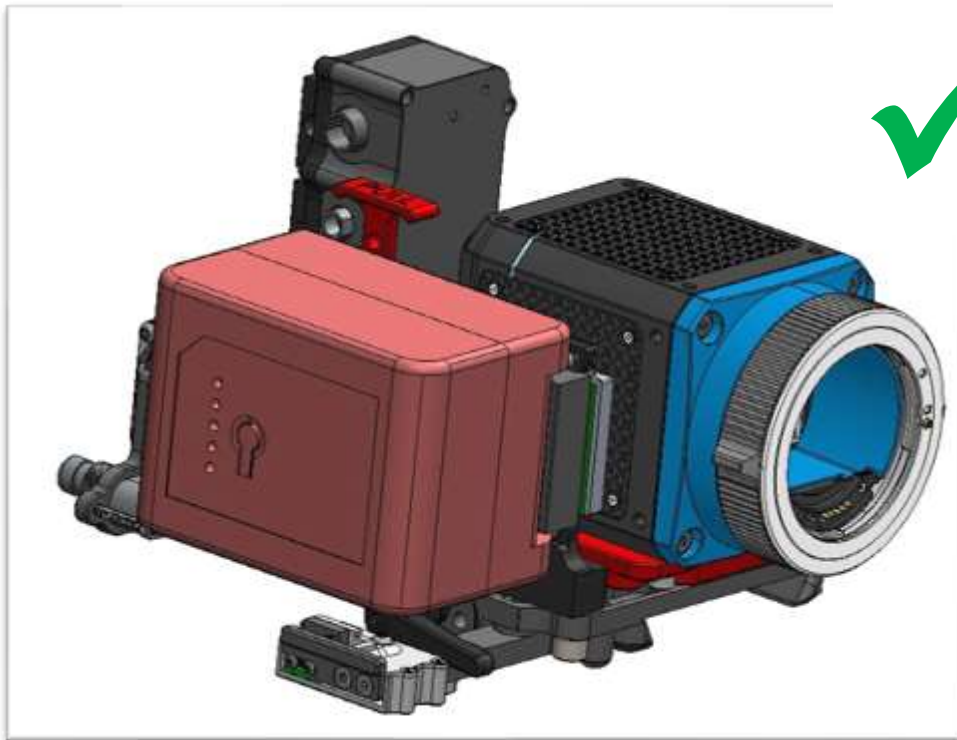
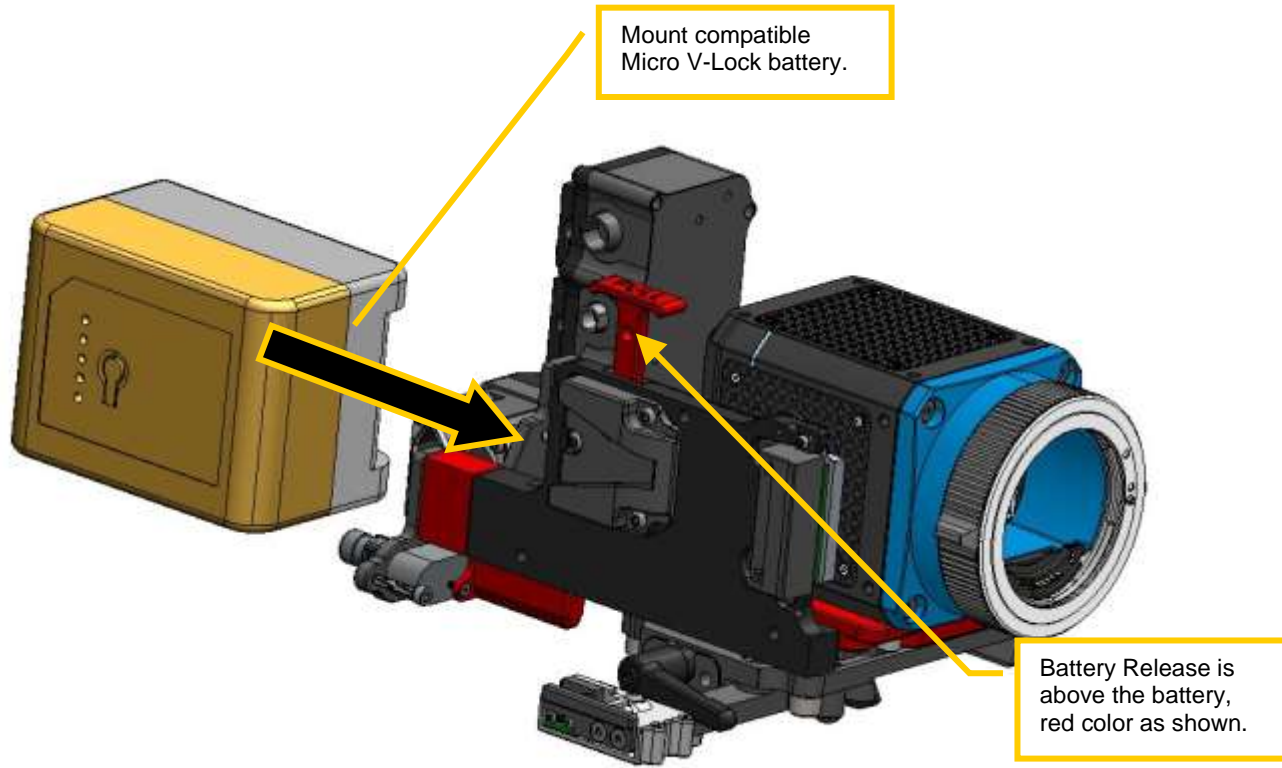
## Camera / Battery Installation

Details of the ML-105 camera install are shown on the following images.

- ✓ **Mate and secure the camera to the adapter plate** with the 4 screws, using the 3mm tool in the Tool Kit.
- ✓ **Mate camera / adapter plate to Camera Tray**, then tighten the wing screw to secure in place.



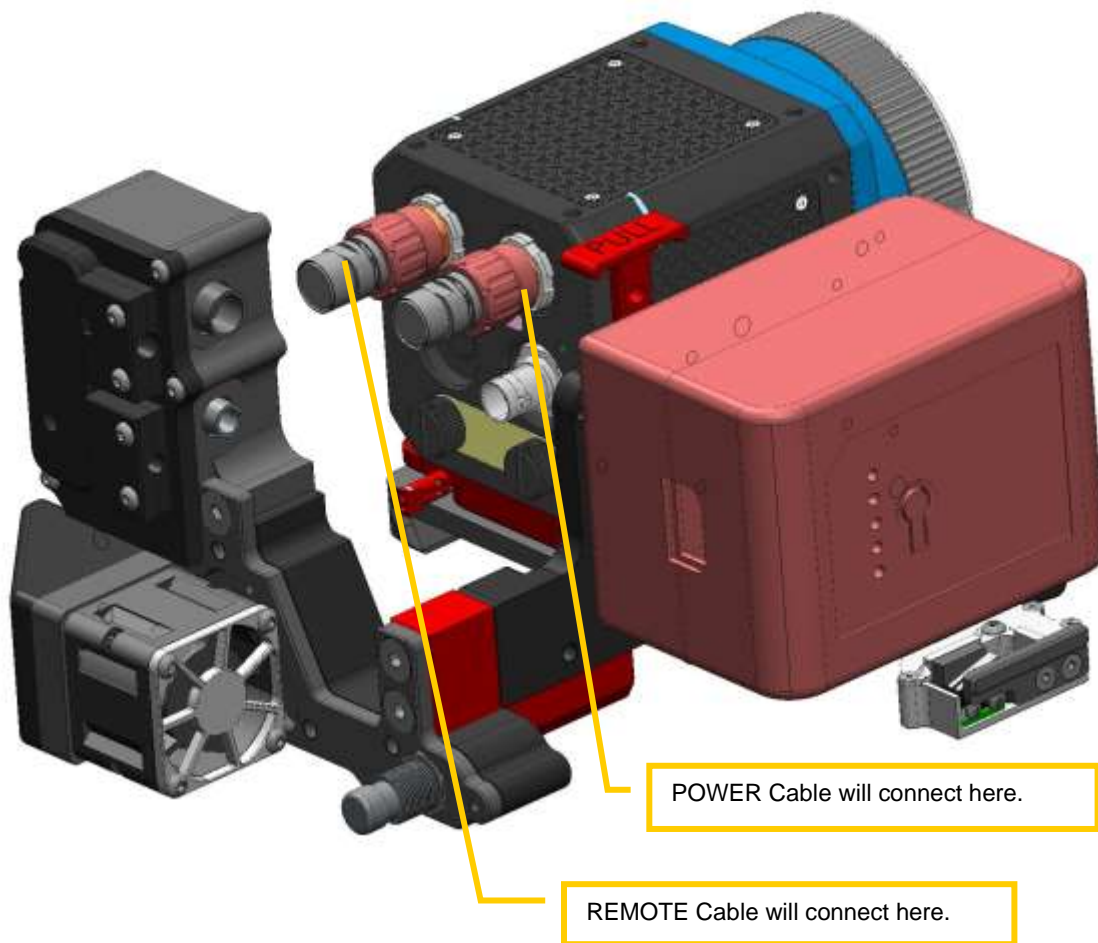
- ✓ Install Batteries. Mate and lock battery into place as shown.



## ***ML-105 Cables Connect***

At this point several connections between ML-105 and Camera Tray are required.

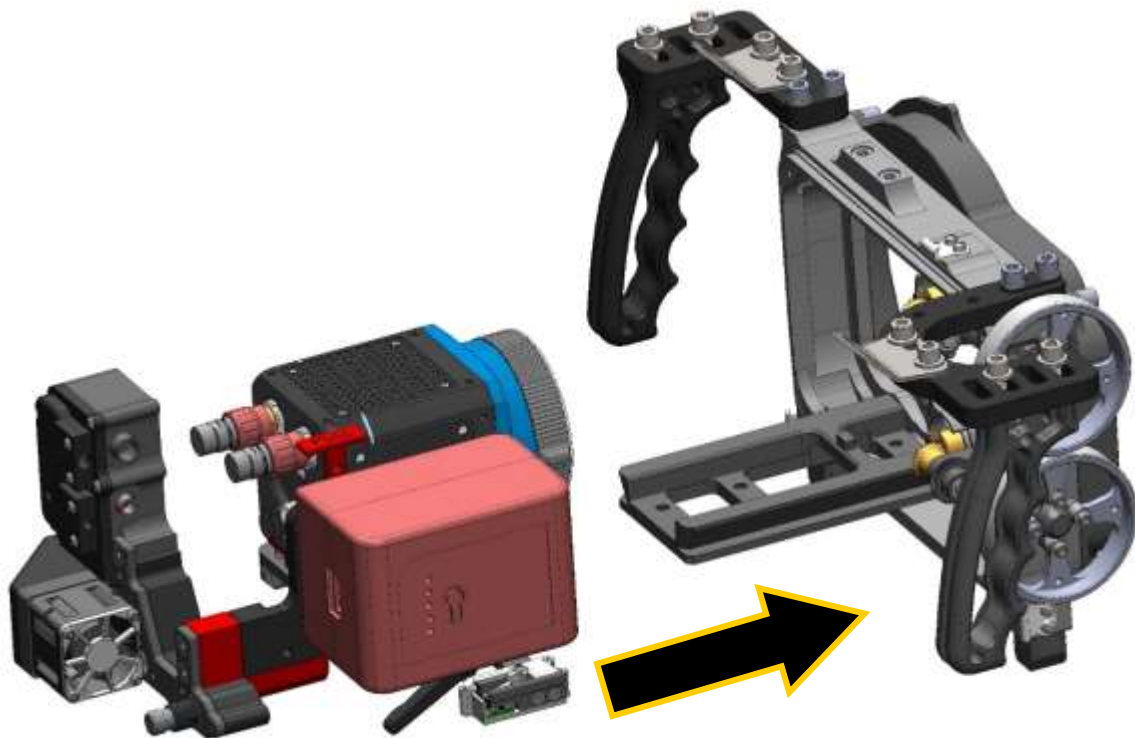
- ✓ **Power.** The power cable will connect on right rear PWR input on ML-105.
- ✓ **Communications.** Similarly, the REMOTE cable will connect to left rear of ML-105, the REMOTE port. This connection provides both GCC and record trigger inputs.



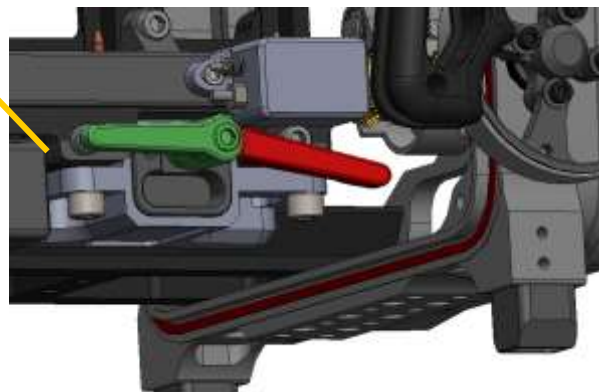
## Camera / Camera Tray Install

Next, mount ML-105 / Camera Tray package into the ML-105 front shell.

- ✓ **Align the Camera Tray with the dovetail receiver** on the front shell. Slide the camera into the housing until it stops.
- ✓ **Lock Camera Tray** in position with the lock lever.
- ▶ **INSTALLATION TIP:** Position the lock lever horizontal, as shown. This will avoid interference with the record trigger control.



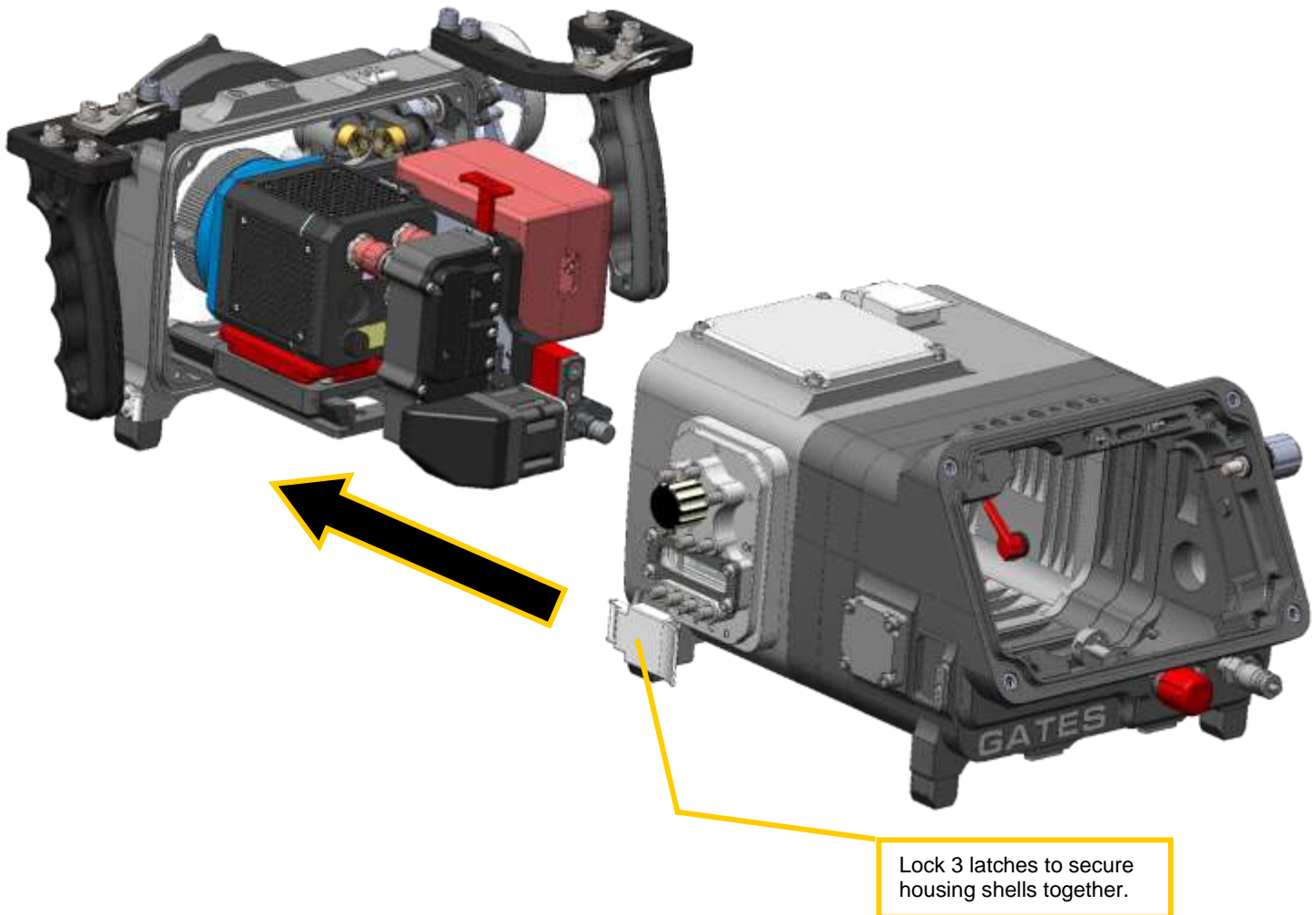
Position the lock lever as shown, horizontal (green).



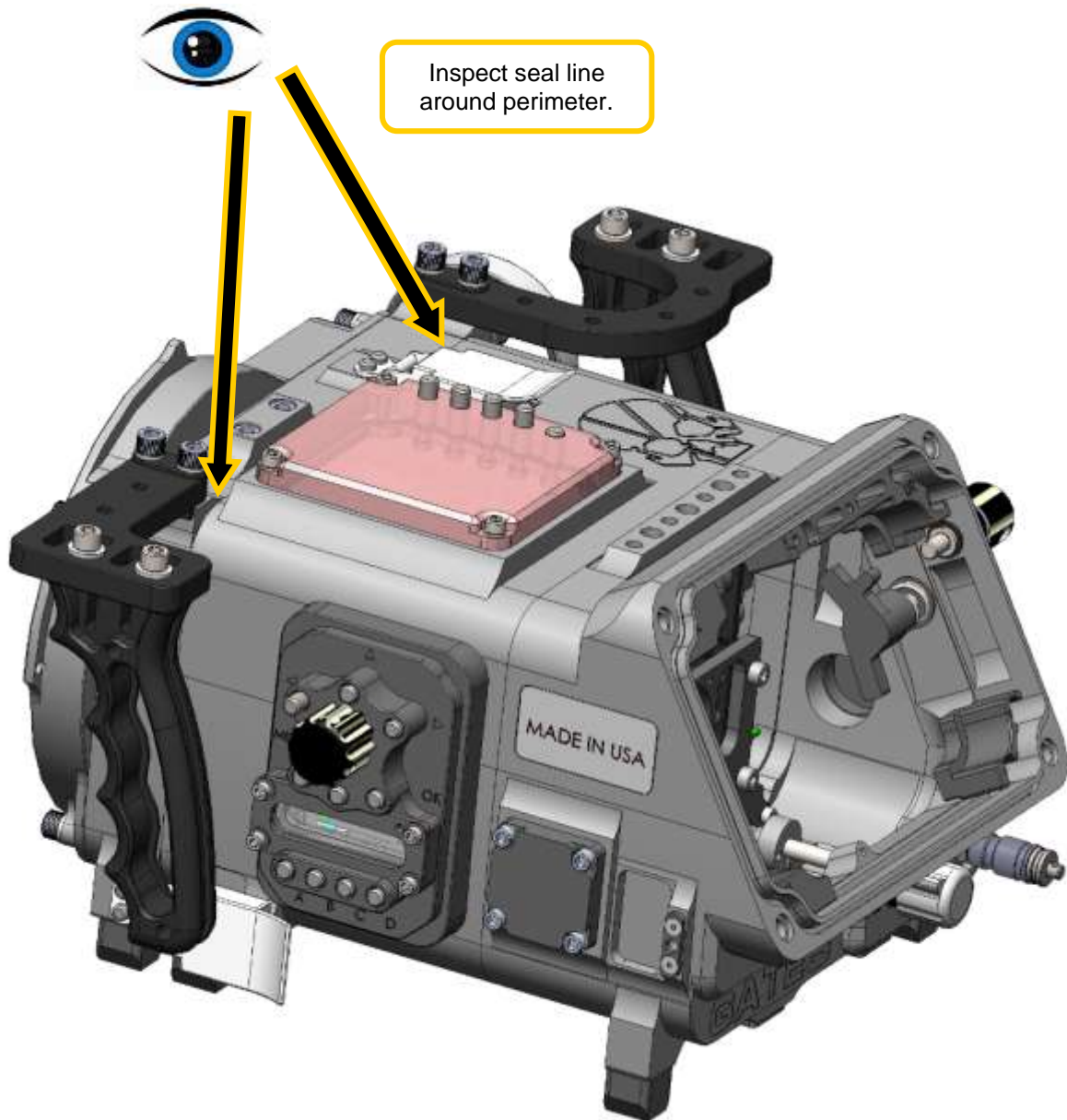
## Main Shell Mating

Mating the main shell parts is straightforward.

- ✓ **Align the Front Shell / Camera Tray with the Rear Shell**, as shown. Gently slide the shells together until they mate fully.
- ▶ **IF YOU ENCOUNTER AN OBSTRUCTION – STOP – IDENTIFY THE PROBLEM AND PROCEED AGAIN.**
- ✓ **Secure Shells.** Once mated, close 3 latches and ensure locked.



- ✓ **Visually inspect the main seal for gaps.** There should be no visible gaps around the entire perimeter. If you see an uneven shell mating or obvious gap, separate the shell and investigate for the cause.



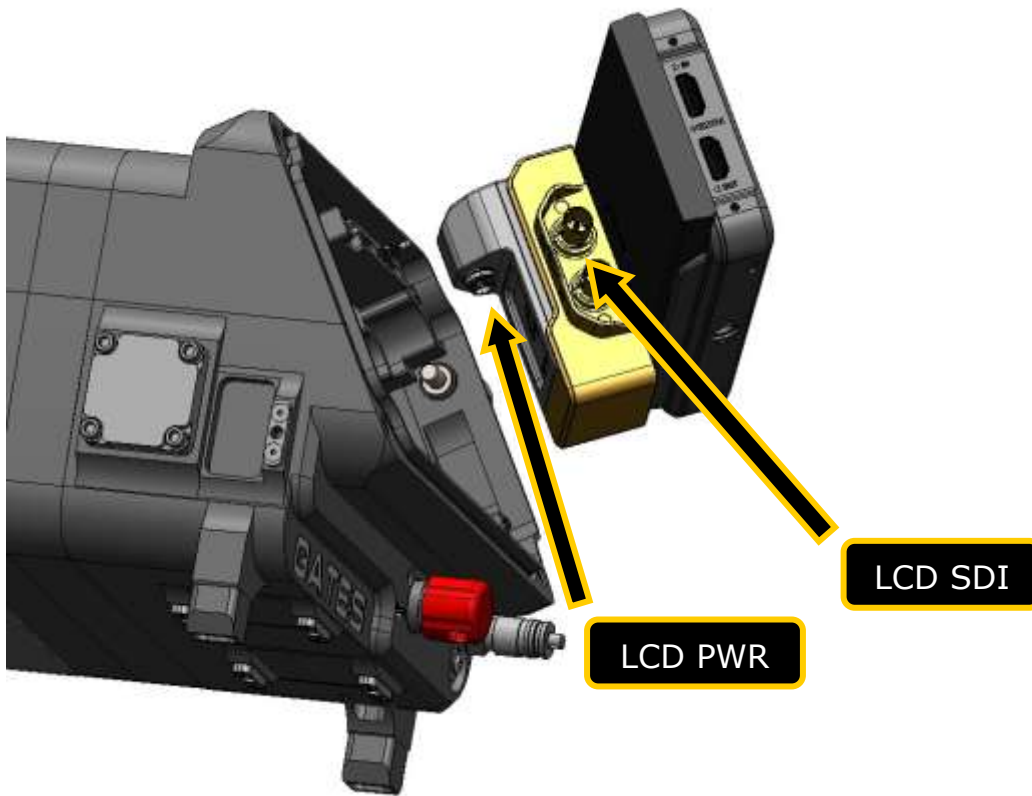
## Install LCD & LCD Front Shell

First, make the following cable connections inside the housing. Looking in through the rear shell:

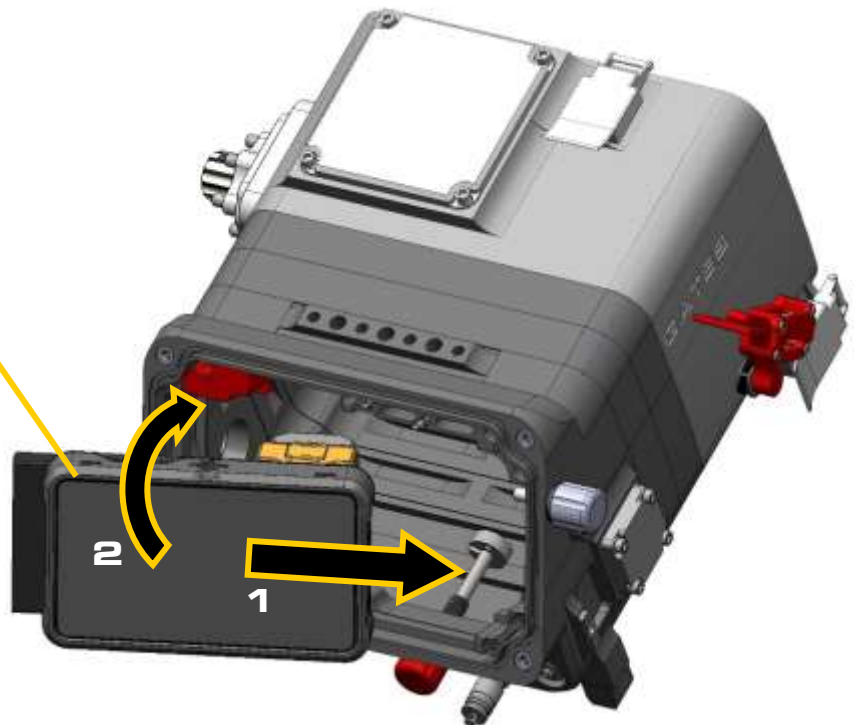
- ✓ **GCC**. Just inside the rear shell opening you will find a cable leading from the GCC. Plug this into the Camera Tray. (Shown in **BLUE**).
- ✓ **LCD Power cable** to Camera Tray as shown in **RED**.
- ✓ **LCD SDI connector** to ML-105 camera (shown in **GREEN**).



- ✓ LCD Power to LCD and LCD SDI connections as shown.
- ✓ Place the LCD into the guides, as shown.
- ✓ Place and secure the LCD Front Shell.



After connecting LCD, locate into housing. Install at an angle as shown, then rotate into position.

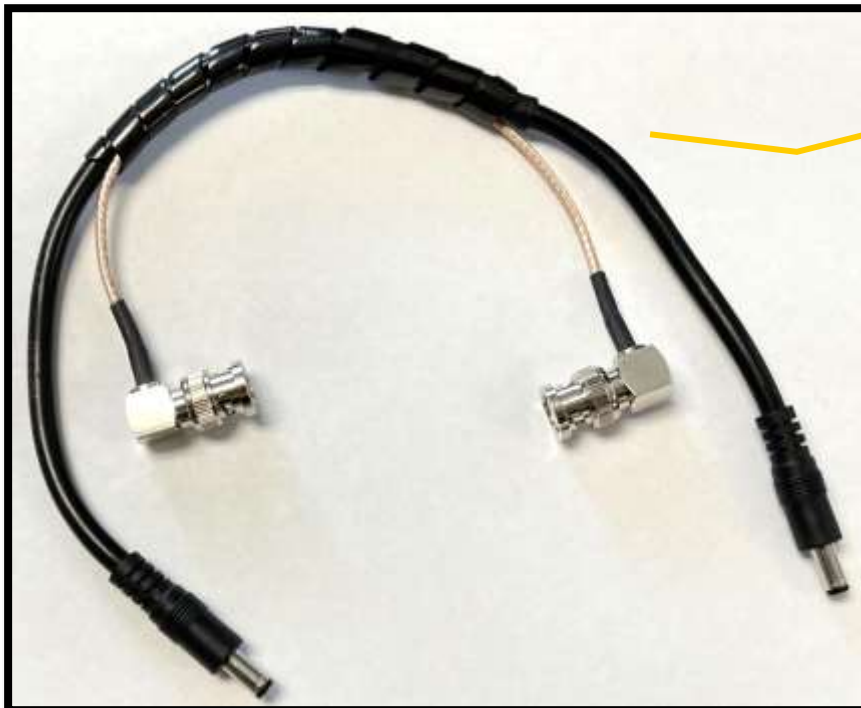


Place and secure the LCD Front Shell



### ***Cable Management***

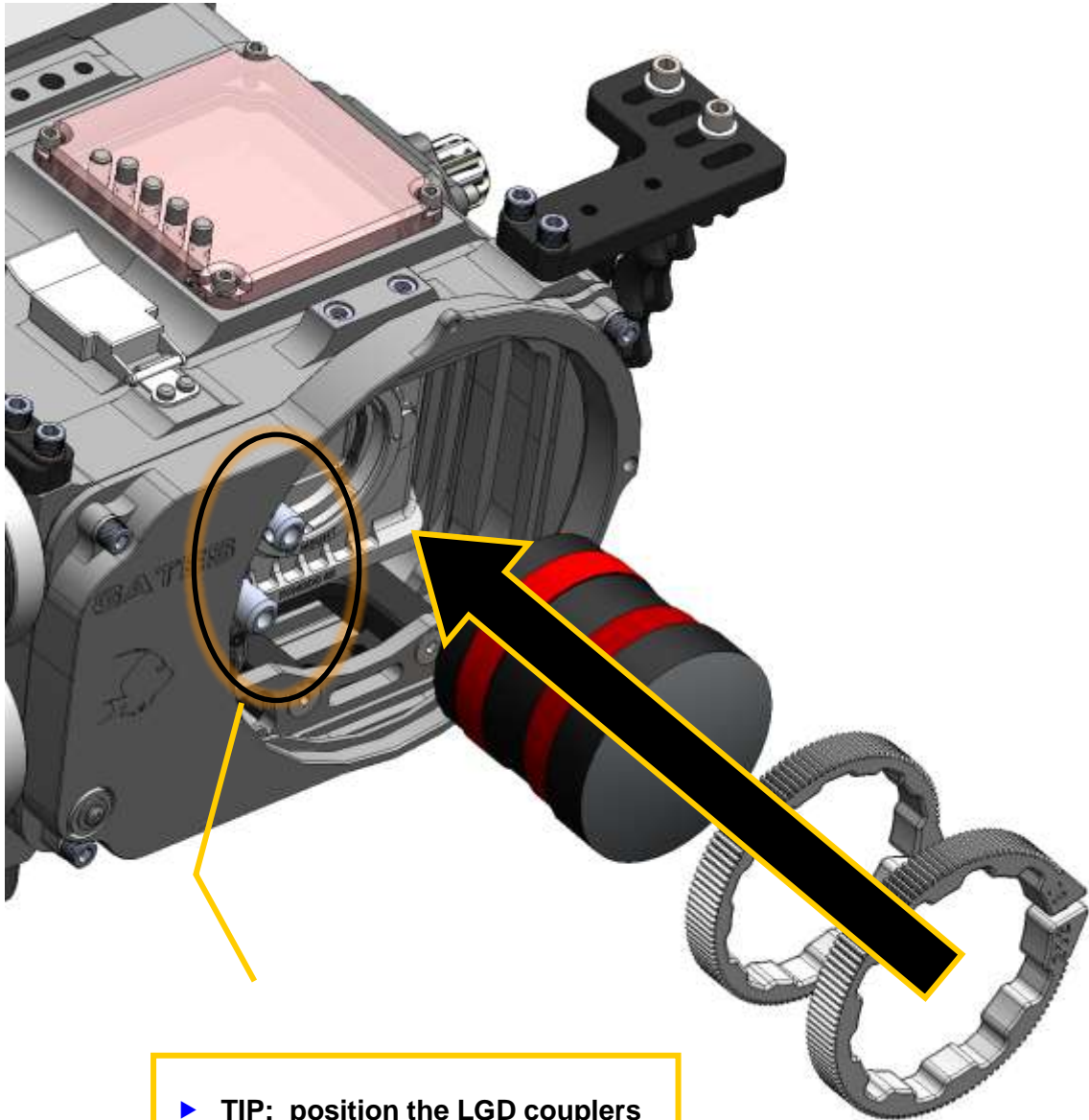
Note that the ML-105 SDI and LCD Power Cables are secured together with a flexible cable wrap. We recommend you wrap the GCC Cable into this bundle for good cable management inside the housing.



Use the cable wrap to keep cables organized inside ML-105 housing.

## Mount Lens

If your lens requires Flex Gears, install those first and then mount the lens to the camera.



- ▶ **TIP:** position the LGD couplers toward the fish logo to avoid interference when installing a lens. See following pages for details on adjusting the coupler position.

## Lens Gear Drives (LGD's)

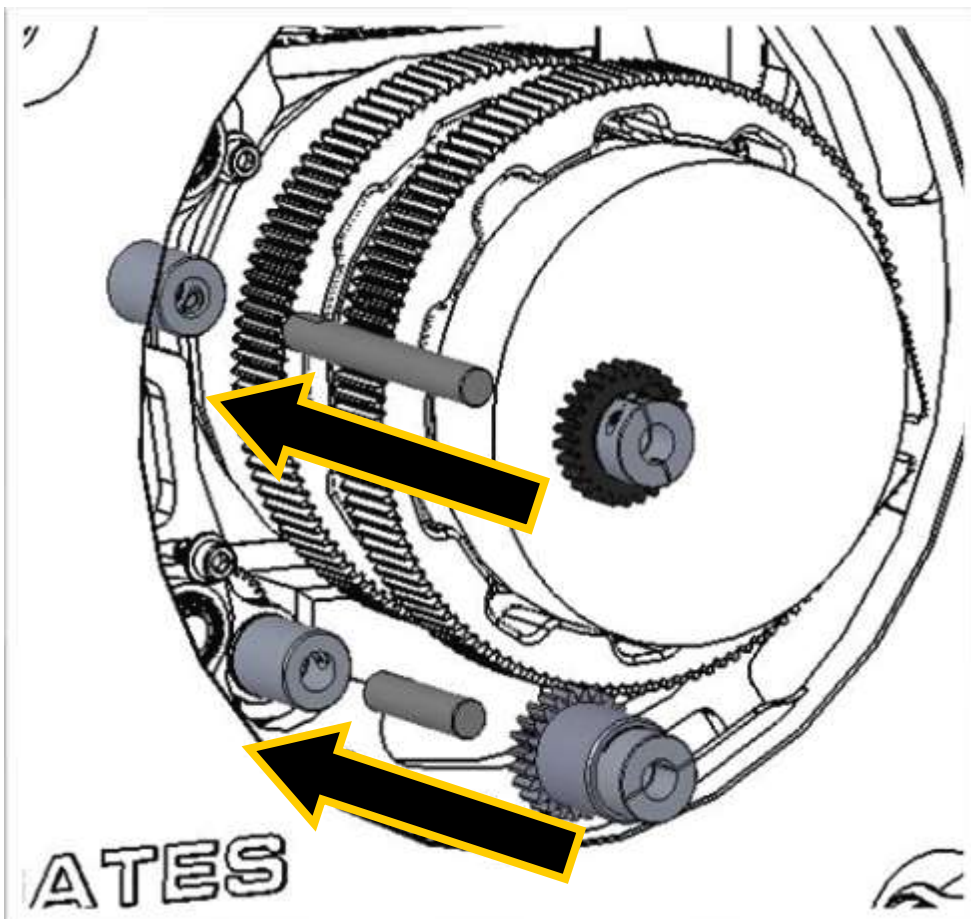
- ✓ **General Notes.** This section addresses the installation of two Lens Gear Drives (LGD's) in ML-105. This is relatively straightforward, using only two parts for each lens control: a drive shaft and drive gear.
- ✓ **Select drive shaft length.** Several lengths of drive shaft are included with the ML-105 kit. Select the length to reach the lens gear but does not reach past it.

Install this drive shaft into the coupler on the housing. Using the tool provided in the kit, tighten the shaft onto the coupler.

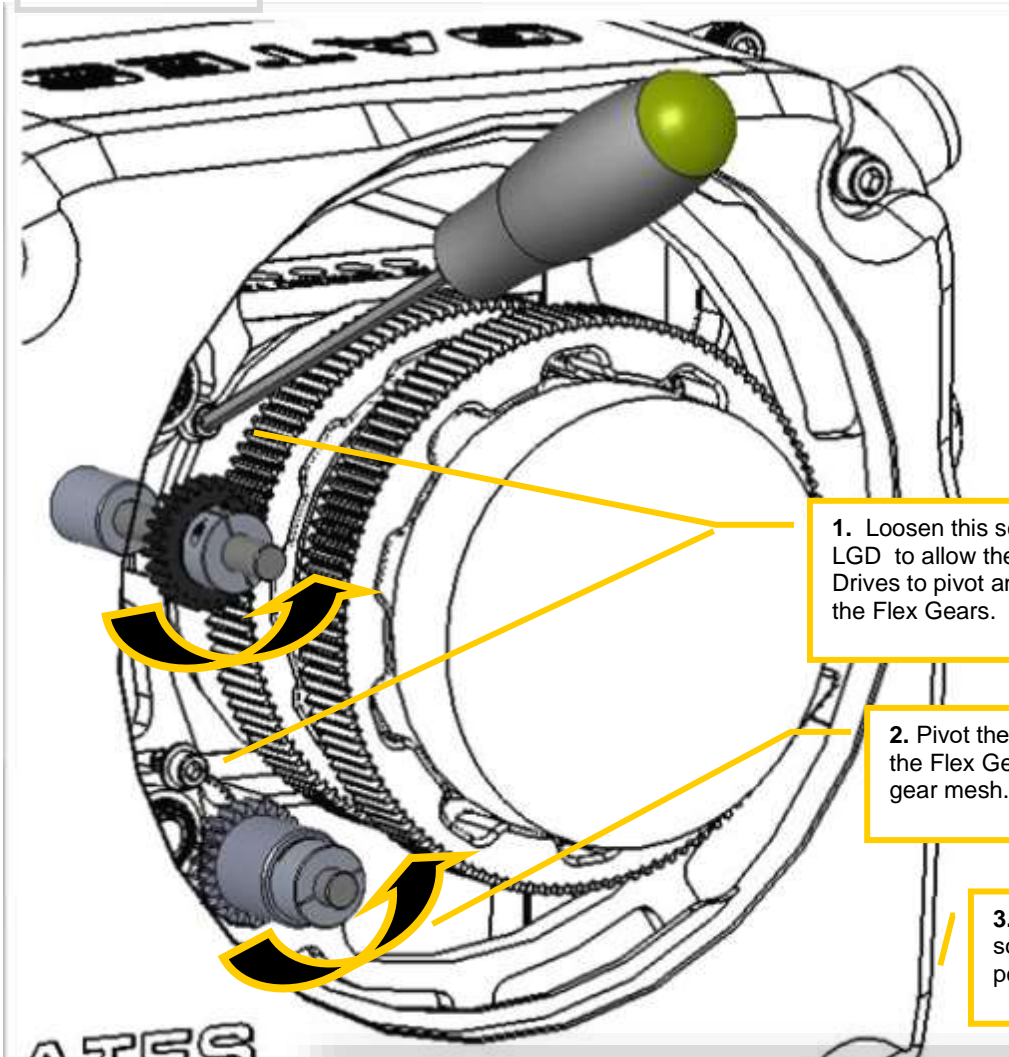
- ✓ **Select and install the Lens Gear Drive.** Note that your kit comes with six versions. Two are specifically designed for Flex Gears recessed into the housing, close to the camera. Refer to the images below.

Once positioned, secure the Lens Gear Drive with the tool provided in your kit.

- ✓ **Pivot the LGD into position** to mesh smoothly with the Flex Gears.
- ✓ **Tighten the screw** as shown in the images to secure the LGD in position.
- ✓ **Verify smooth operation** of the Focus and Zoom controls.



Pro Action Shown

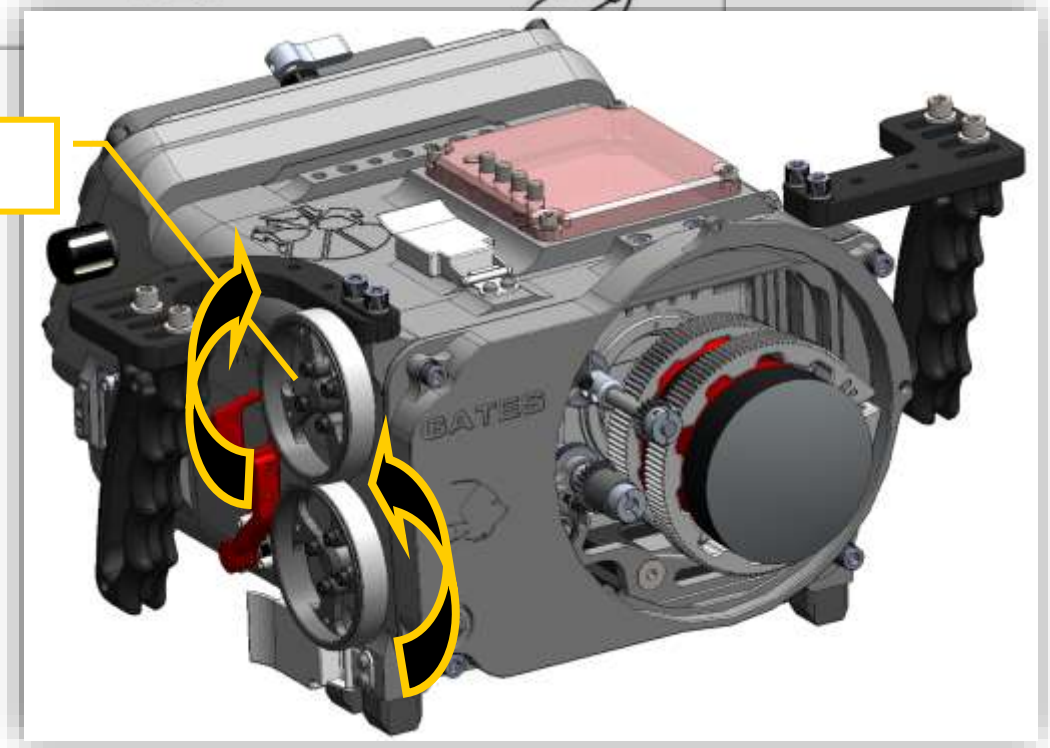


1. Loosen this screw on each LGD to allow the Lens Gear Drives to pivot and mate with the Flex Gears.

2. Pivot the LGD's to mate with the Flex Gear. Ensure a good gear mesh.

3. When positioned, tighten the screw to secure the LGD's in position.

4. Verify focus and zoom operation.



## ***Lens Gear Drive (LGD) Size Reference***

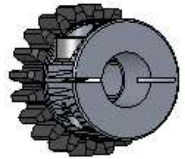
ML-105 includes several size LGD's to accommodate different lens sizes. Below is a reference.

### **Focus Gears**

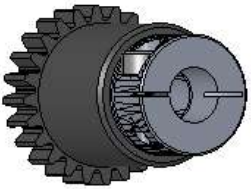


**P/N 3000-94-228**

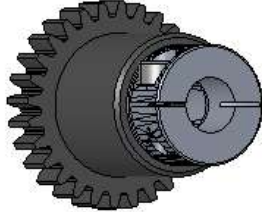
**P/N 3000-94-242**



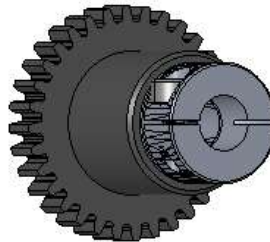
### **Iris and Zoom Gears**



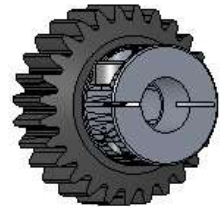
**P/N 3000-94-229**



**P/N 3000-94-239**



**P/N 3000-94-233**



**P/N 3000-94-246**

***LGD's designed for  
Zeiss CP.3 lenses  
and others as  
needed.***

## ***Functional System Check***

Before the next step – assembling Port Rings and Port – this is a good time to do a full system check. Activate the Master System Power switch and LCD Power Control, and verify all components operational (see next section on controls for location of these power controls). Specific items to check:

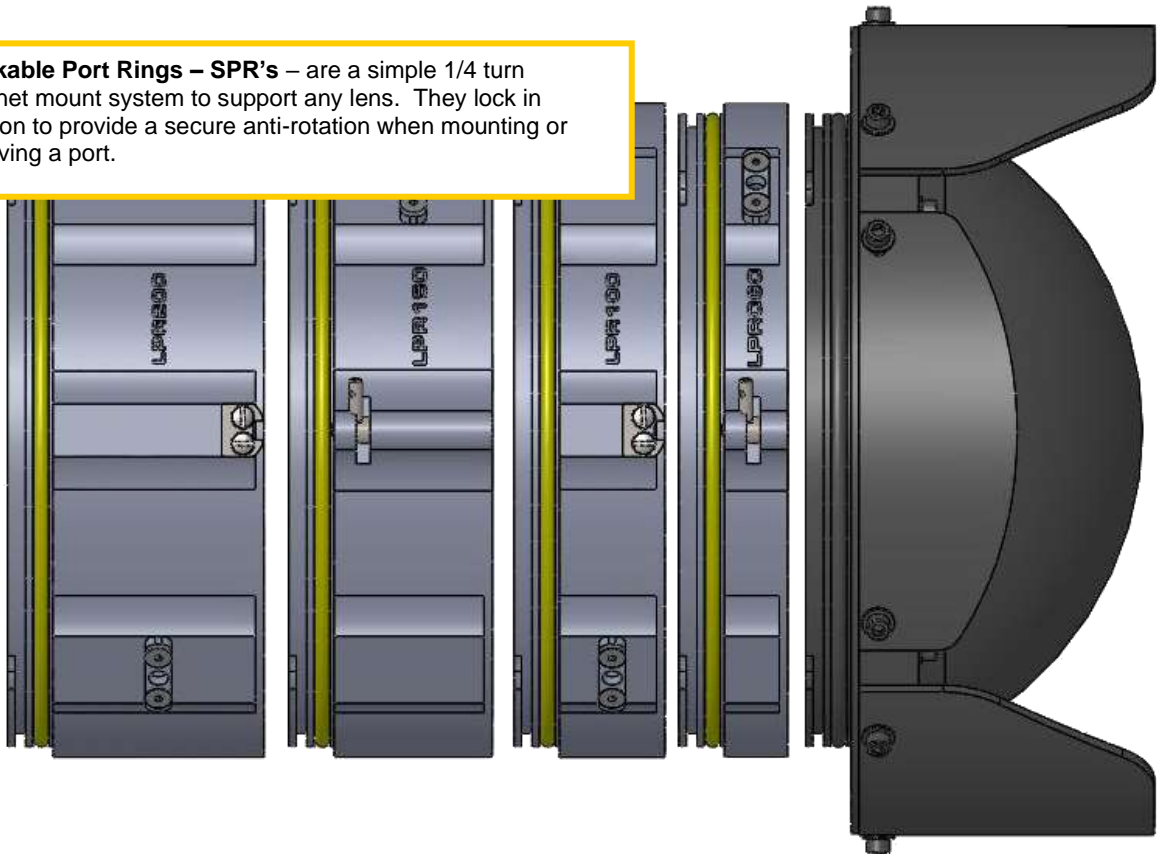
- ✓ ML-105 camera auto boot
- ✓ LCD boot
- ✓ GCC boot
- ✓ ML-105 internal housing cooling fan (which you can feel pushing air left side of the lens)
- ✓ Record Trigger function
- ✓ GCC control (see control details in next section)
- ✓ Focus and Zoom controls

When complete, power down the system with the Master Power Switch.

## Configure SPR's and Port

Stackable Port Rings are a flexible and convenient way to support many different lenses. They can be stacked in many combinations to support virtually any lens.

**Stackable Port Rings – SPR's** – are a simple 1/4 turn bayonet mount system to support any lens. They lock in position to provide a secure anti-rotation when mounting or removing a port.



Stacking the right combination of SPR's for a lens can be determined in two ways.

- ✓ **Gates Lens Compatibility Matrix.** Gates has gathered extensive lens data for decades and can provide SPR configuration guidance for any given lens to use with ML-105. This lens data is summarized in a Compatibility Matrix. It can be found on Gates Website.

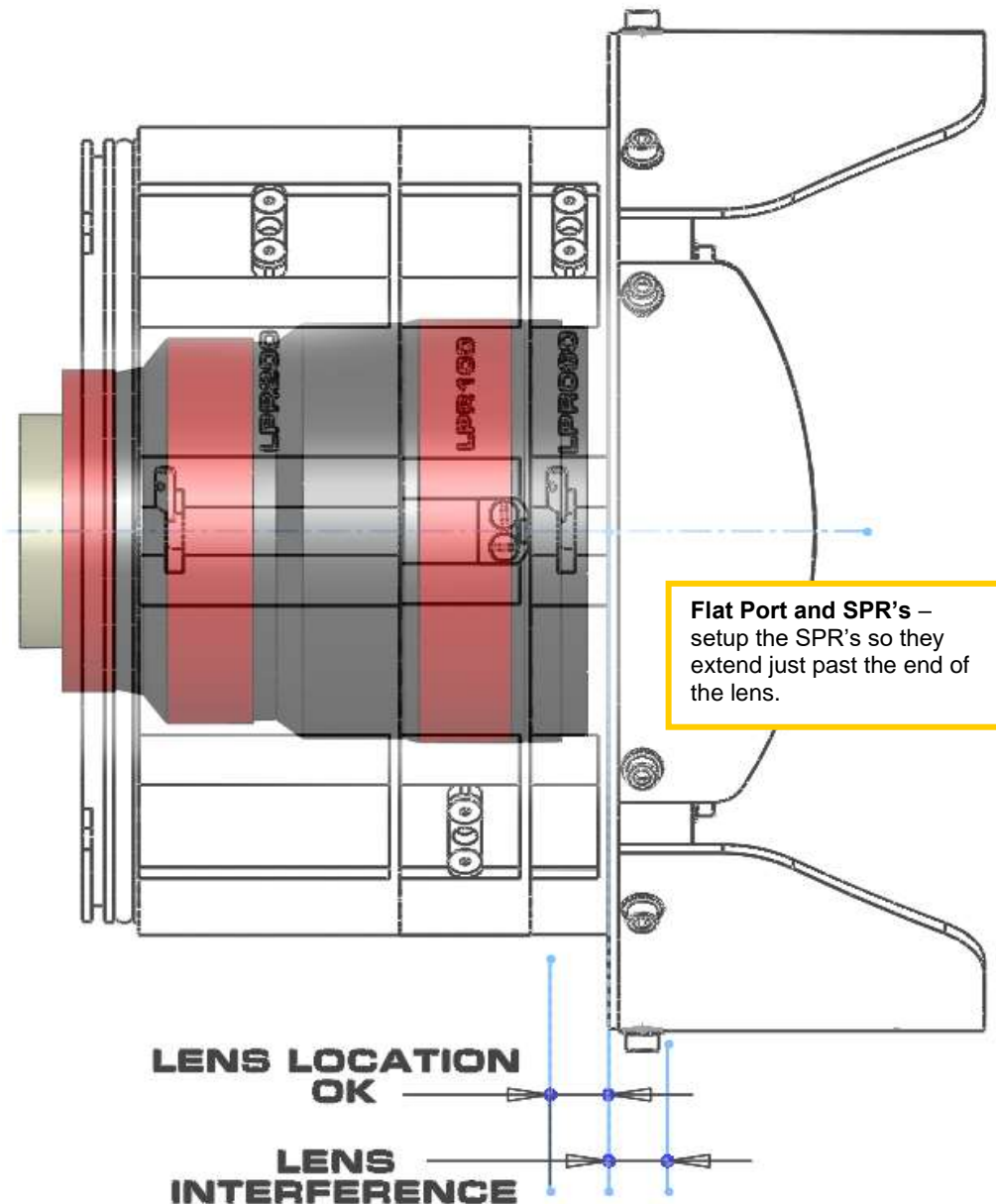
The Compatibility Matrix is constructed to identify the proper Port Extender or Port Ring (used on other Gates cinema-grade housings), and a conversion to a combination of SPR's is available from Gates.

- ✓ **Visual Setup and Test.** Use the following guide to setup the SPR's with a Dome Port or Flat Port, and then test in water for acceptable image quality.

- ✓ **A Flat Port is used commonly for macro lenses**, and also for medium to long focal length lenses. The focal range that works best starts at approximately 20-35 mm.

Referring to the image, setup the SPR's to extend just past the end of the lens. Keep the entire SPR stack as short as possible while preventing interference with the port.

Test for vignetting and image quality. If necessary, adjust the position of the lens with respect to the port by adding or removing SPR's. Re-test and re-adjust as necessary to achieve optimum results.

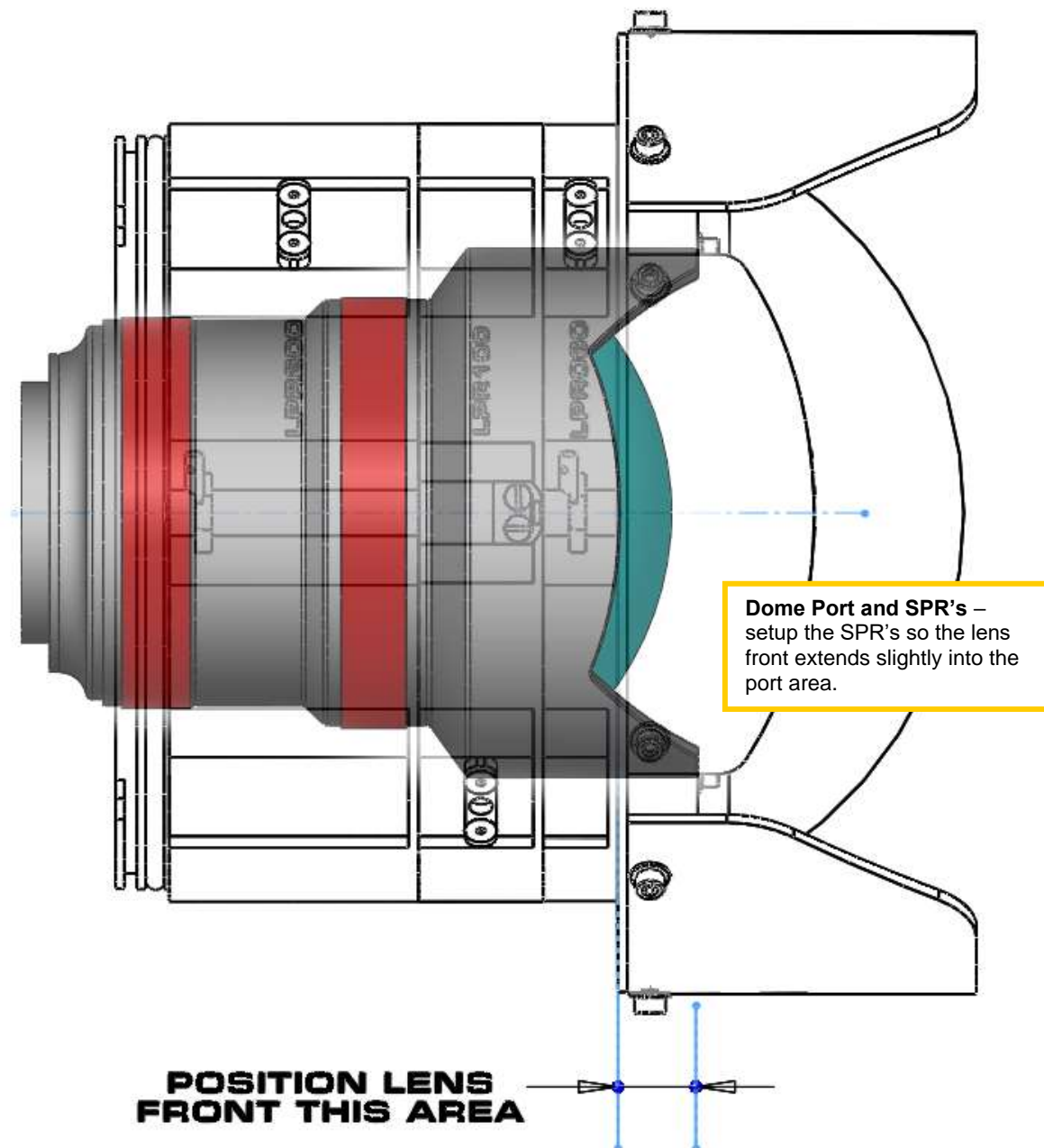


- ✓ **A Dome Port is used commonly with wide angle and fisheye lenses**, typically 8mm at the shortest (35mm equivalent) to about 20-35mm.

Referring to the image, setup the SPR's so the end of the lens – either the lens body or glass element – extends slightly into the port.

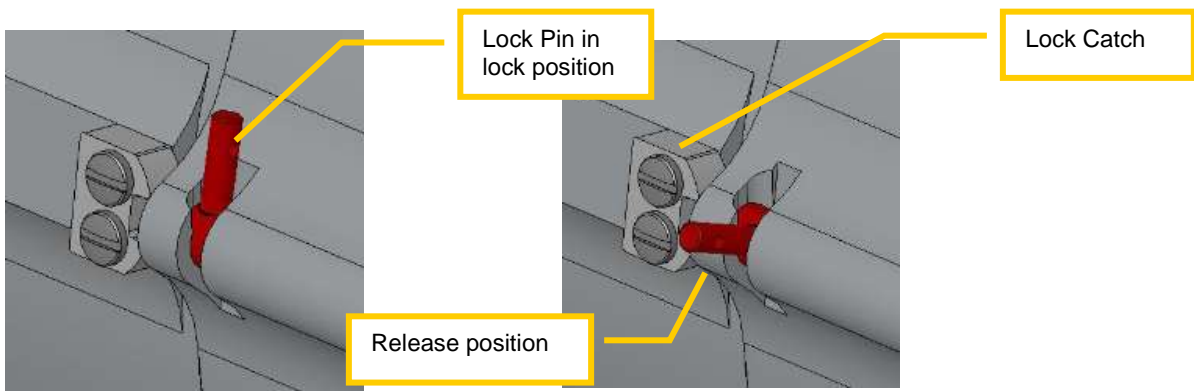
Test for vignetting and image quality. If necessary adjust the position of the lens with respect to the port and re-test to achieve optimum results.

- ✓ **CAUTION! CAREFULLY INSTALL DOME PORT AND OBSERVE POSSIBLE INTERFERENCE WITH GLASS DOME.**

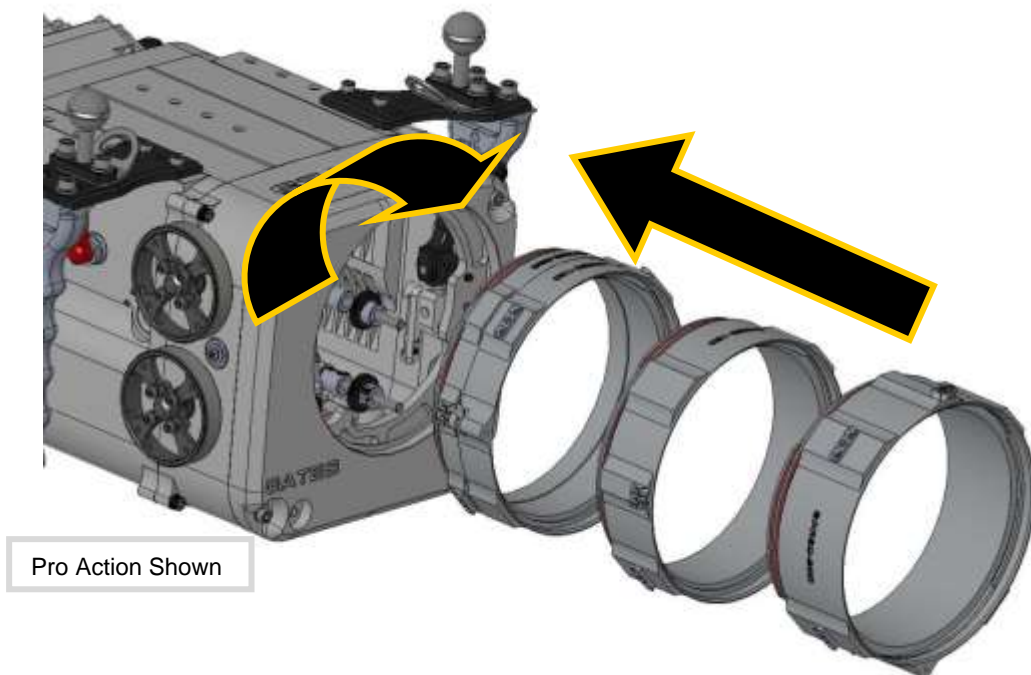


## Mount Stackable Port Rings (SPR's) and Port

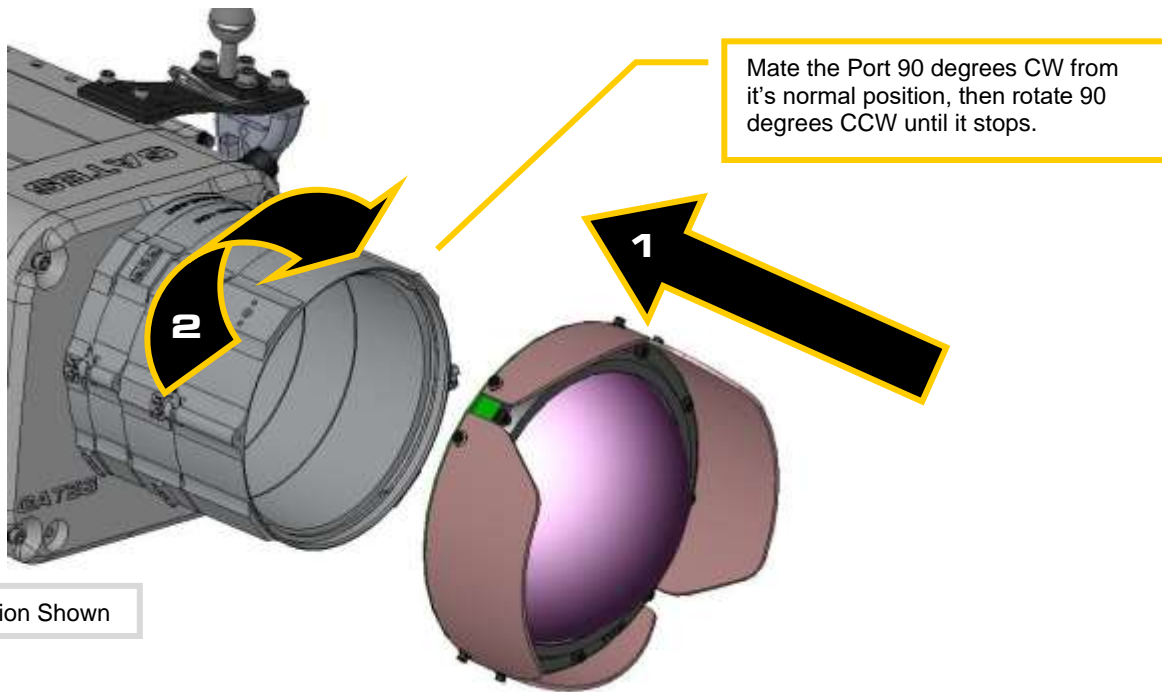
- ✓ **SPR's are assembled in any order on the housing.** Place the lock pin on the first SPR in the 'lock' position.
  - ✓ **Lubricate O-Rings** as necessary for smooth, easy rotation.
  - ✓ **Start by mating the first SPR to the Port Base with the locking pin at the top.** Mate the SPR to the housing fully, then rotate 90 degrees until the lock pin 'snaps' into place.
- ▶ **TIP:** Perform this procedure from the rear of the housing, pulling toward you to mate SPR's and Ports.



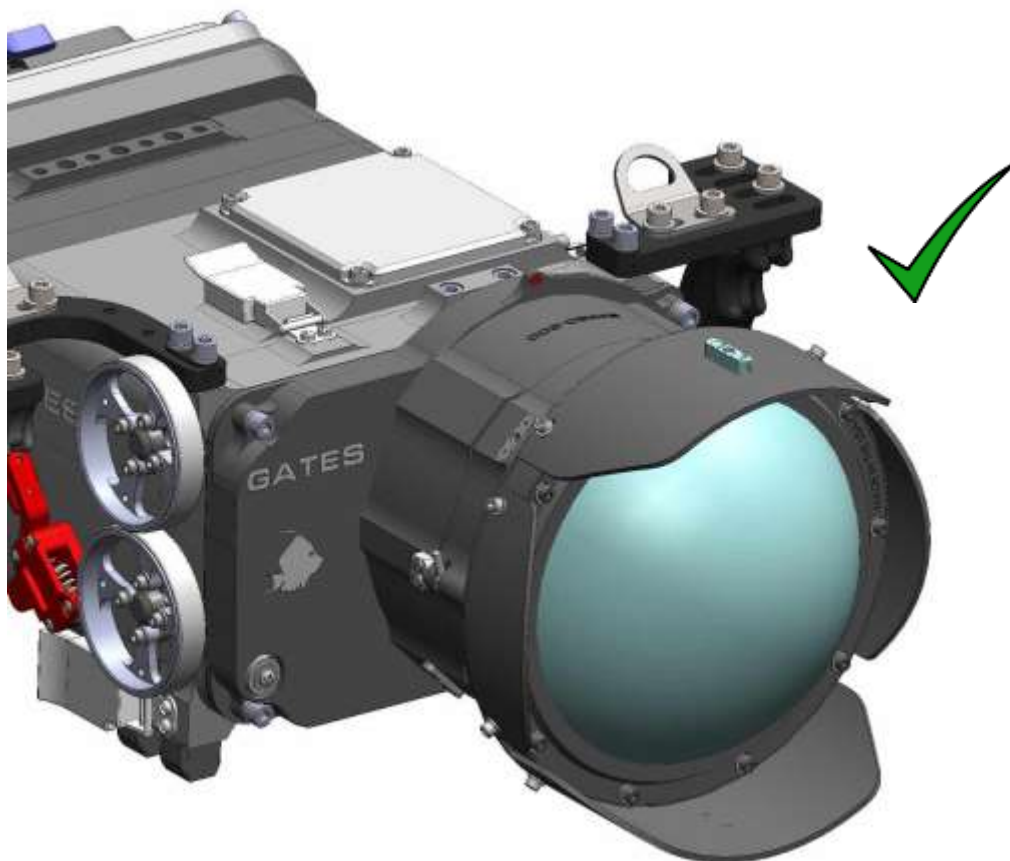
- ✓ **Mate the next SPR with the lock catch at the top, and rotate 90 degrees until the lock pin 'snaps' into place.**



- ✓ When finished mounting SPR's, **mount a Port to the SPR's** in the same manner, mating 90 degrees and rotating counter clockwise when viewing from the rear of the housing.



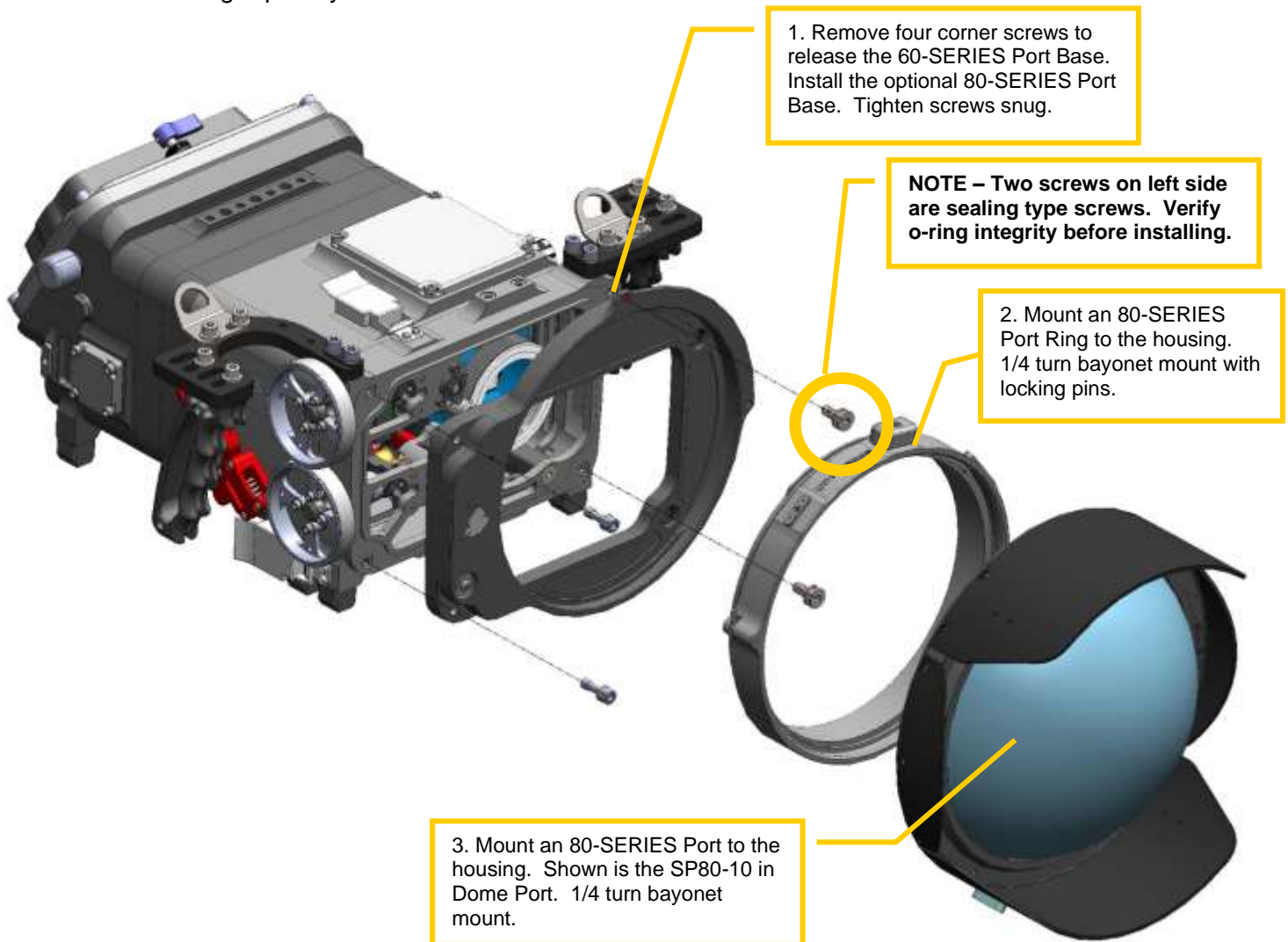
Pro Action Shown

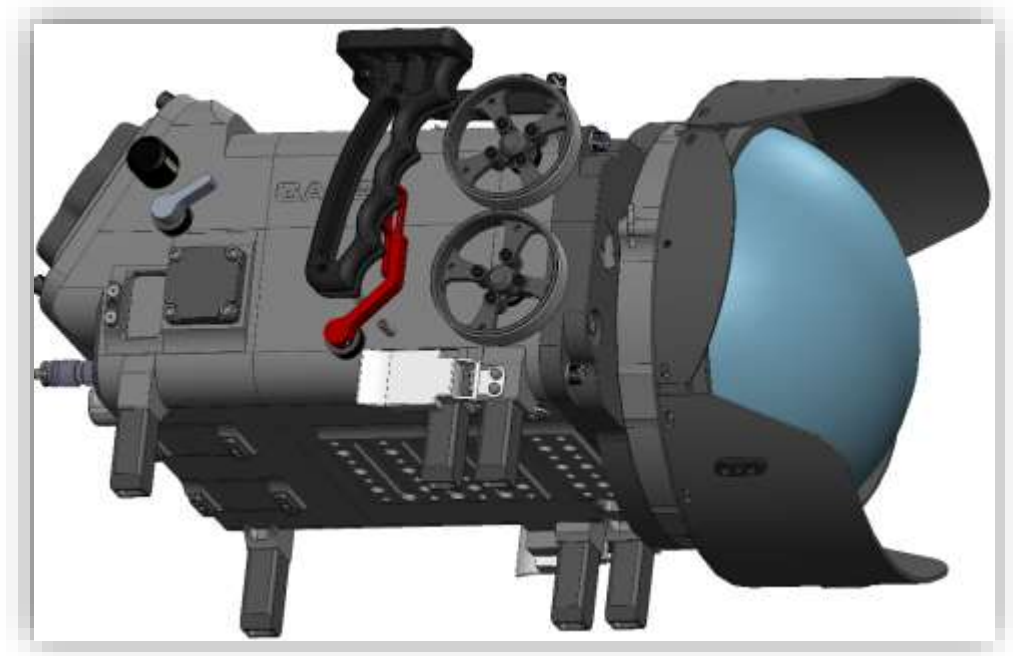
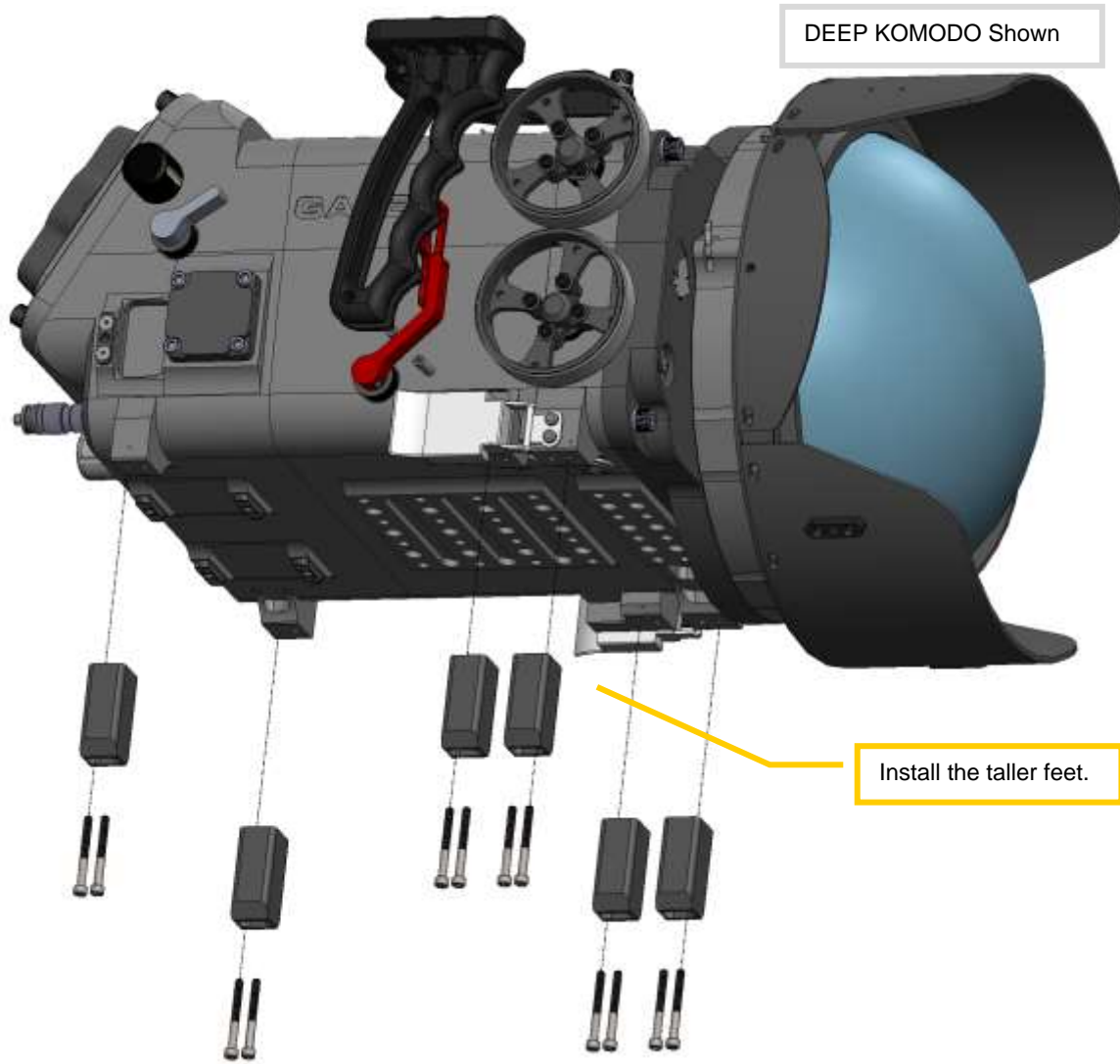


## Changing the Port Base

Gates larger port series – the 80 series – can be used with ML-105. The 80 series port system includes both SP80-8 in and SP80-10 in spherical diameter dome ports. This can be useful in certain applications where the benefits of a larger dome are realized.

- ✓ **Remove the 60-SERIES Port Base from ML-105.** The four corner screws will release it from the housing. Install the 80-SERIES Port Base, followed by an 80-SERIES Port Ring and Port.
- ✓ **Visually check the 80 Port Base o-ring** for damage or foreign material that may compromise seal. Do the same with the mating surface on ML-105 front shell.
- ✓ **Next, install the taller feet on ML-105.** This keeps the housing from resting on the larger port system.



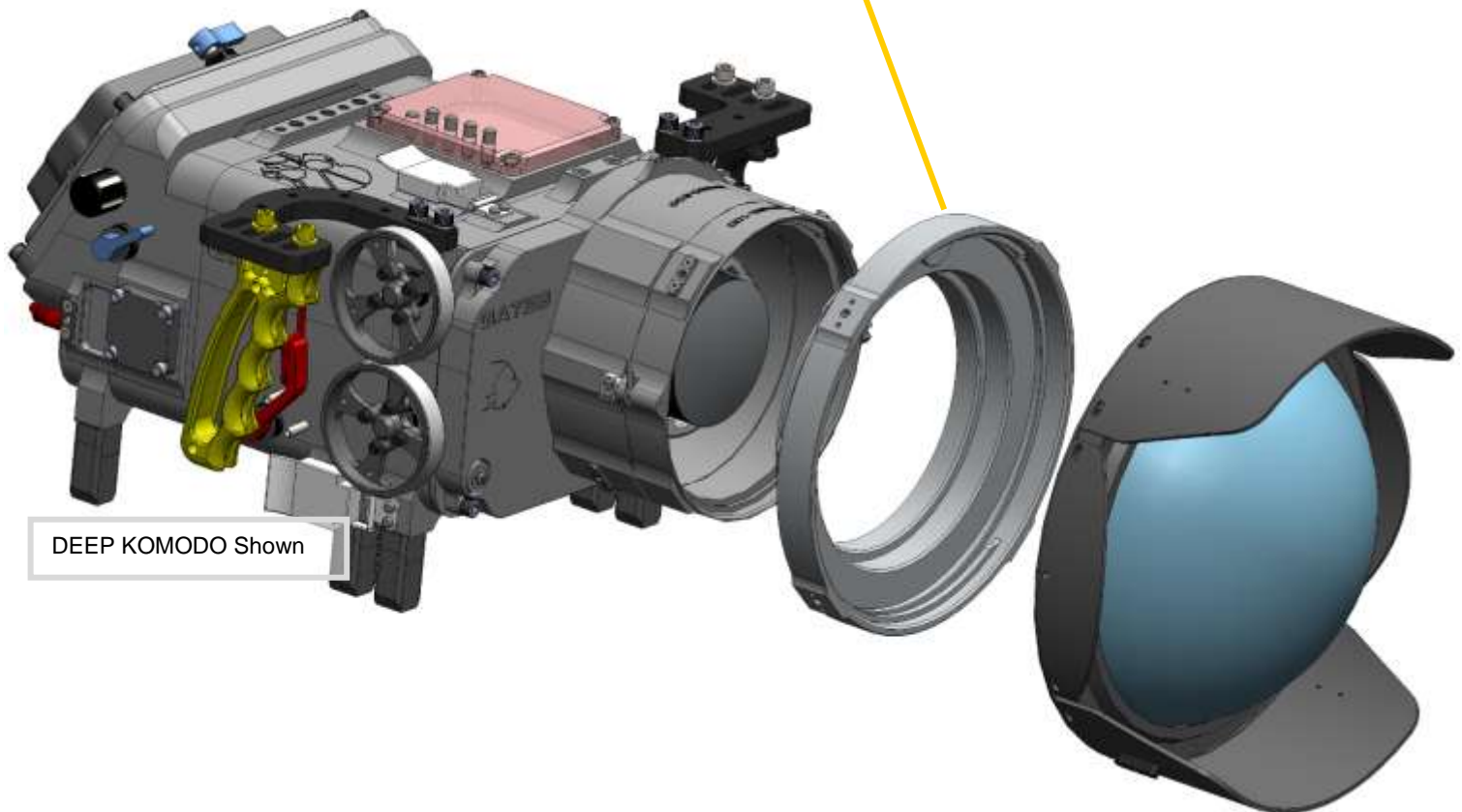


## Installing the 60-80 SPR Adapter

ML-105 allows for using 80-series ports in another way, with the 60-80 SPR Adapter.

- ✓ **Mount the 60-80 SPR Adapter** to the SPR60 Port Rings in the same manner as mounting another Port Ring, allowing the SPR to lock in place.
- ✓ **Mount an 80-series Port** to the 60-80 SPR Adapter similarly to all other ports, starting 90 degrees CW (viewed from the rear) and rotating 90 CCW into position until the port stops.

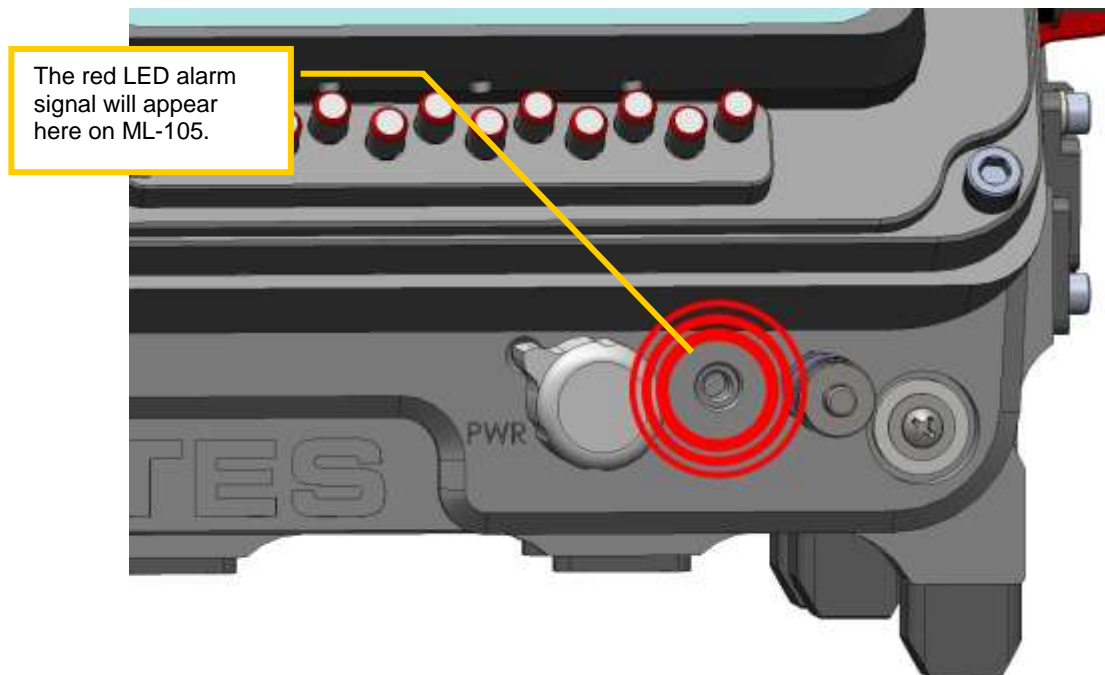
Mount 60-80 SPR Adapter to the 6" Port Rings, the follow with either SP80-8 or SP80-10 Dome Ports.



## ***Water Alarm (Optional)***

If you have the optional GWA-2000 Water Alarm installed, refer to the separate user manual for this item. It can be found on the Gates website [www.GatesHousings.com](http://www.GatesHousings.com)

The LED indication for the water alarm is found next to Master Power control, shown below.

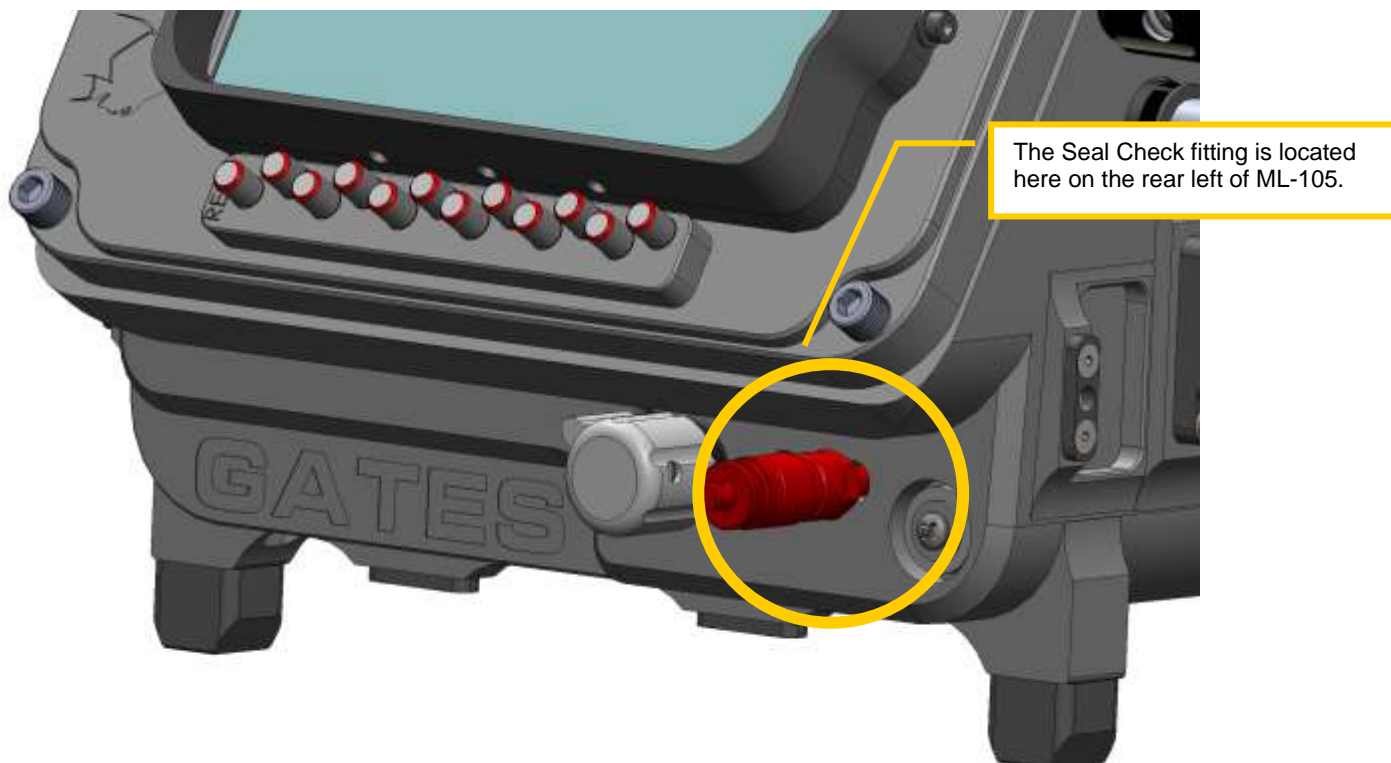


## Seal Check

- ✓ **Seal Check Manual.** Follow the procedures in the Seal Check manual for verifying integrity of the housing and monitor.
- ✓ **CAUTION.** Draw only about 100 millibars vacuum (Seal Check Lite and Seal Check II kits) or 3 in Hg (Seal Check I) on ML-105. More vacuum can inhibit the transfer of heat away from the housing.
- ✓ Note that **Seal Check Lite** – included with ML-105 – requires about 80 cycles of the hand pump to reach 3 in Hg / 100 millibars vacuum.

## Final Checks

- ✓ **Visual Inspection.** Look closely at all seal mates – Port, SPR's, 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.

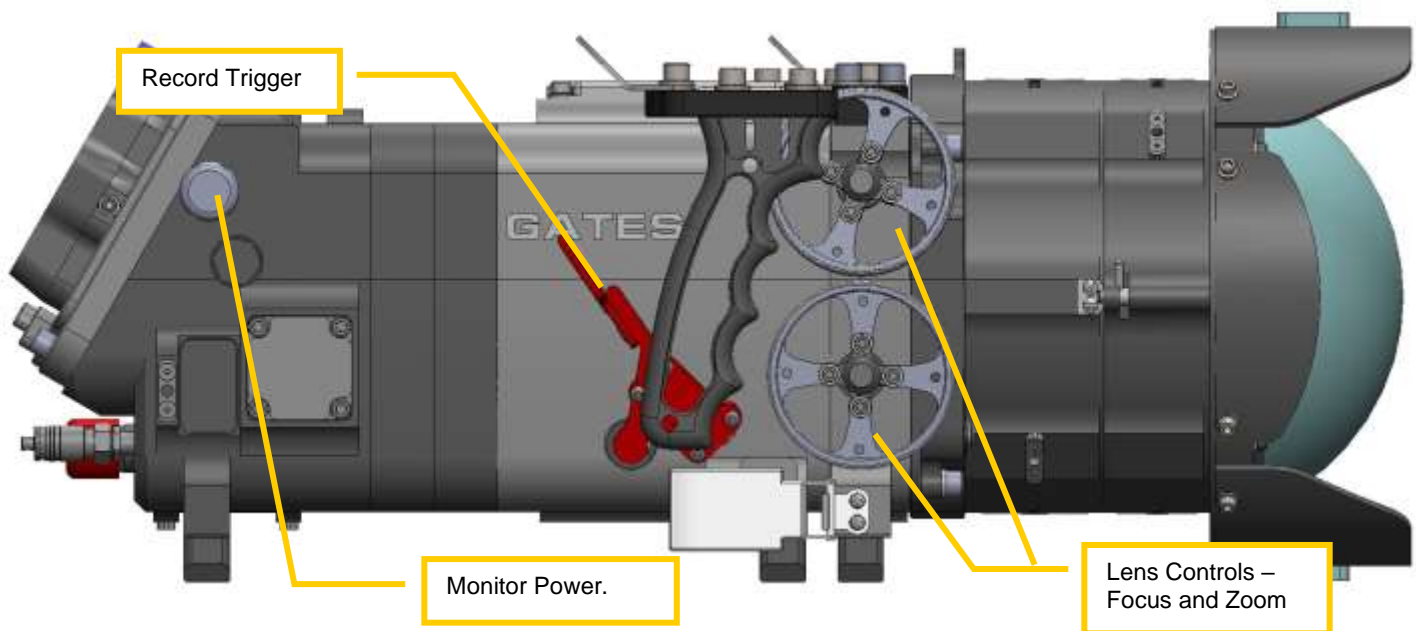


## 3: ML-105 Operation

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### *Right Side Controls*

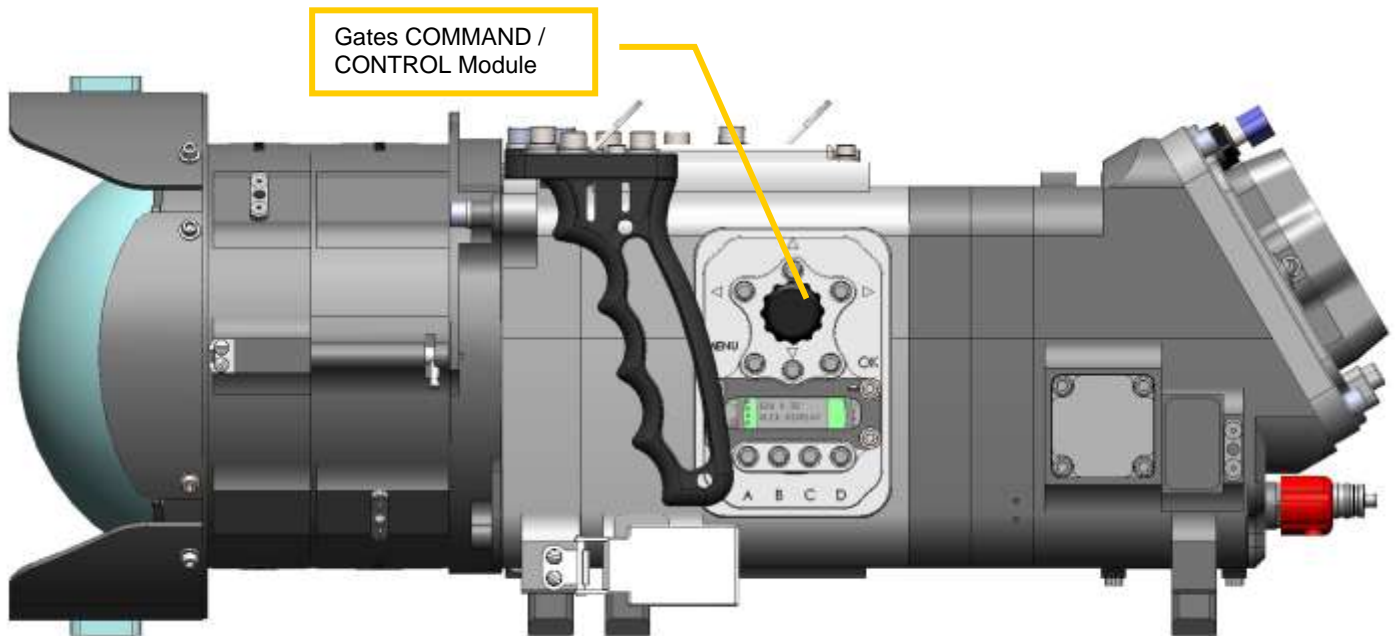
- ✓ **Record Trigger.** Activates record start / stop on all cameras.
- ✓ **Lens Control.** These two mechanical controls can be mapped to a DSLR or compact PL lens for focus, iris or zoom.
- ✓ **Monitor Power.** ATOMOS NINJA LCD requires the additional step to press the Power On/Off control with this LCD.



## Left Side GCC Control

- ✓ **Gates COMMAND / CONTROL Module (GCC).** Provides direct camera control of iris (DSLR and Mirrorless lenses), ISO, shutter speed, frame rate, white balance, focus and exposure tools, and much more.

GCC functions evolve both with ML-105 firmware updates and Gates feature additions. Refer to Gates [ML-105 webpage](#) for current release information and GCC keymap



Gates Command / Control module functions and keymap evolve with both ML-105 firmware updates and Gates feature additions. Refer to Gates website for current details.

## ***GCC Keymap***

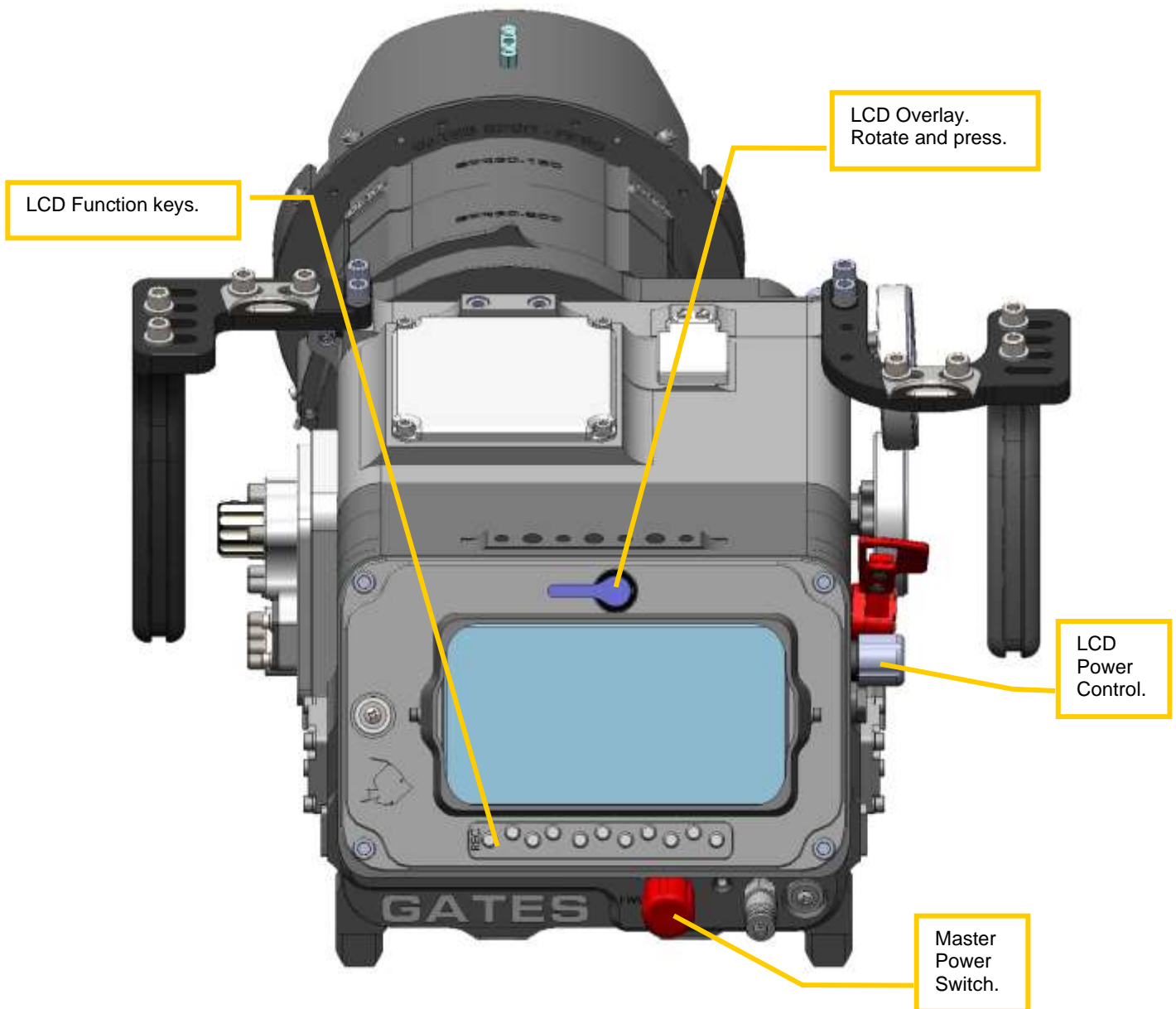
As of publication of this manual, the GCC keymap is shown here. Refer to [Gates website](#) for updates.



## Rear Controls

- ✓ **LCD Controls.** 12 pushbutton controls below the window access the NINJA LCD Recorder touchscreen for access to a variety of focus / exposure tools.
- ✓ **LCD Overlay.** A rotational / press control above the window allows toggling on / off the LCD overlay. This is useful if it obstructs view of ML-105 camera overlay.
- ✓ **Master Power Switch.** Rotate the control into position and press to turn on system power.

**NOTE:** NINJA LCD requires turning on power with the separate power control on the right side.

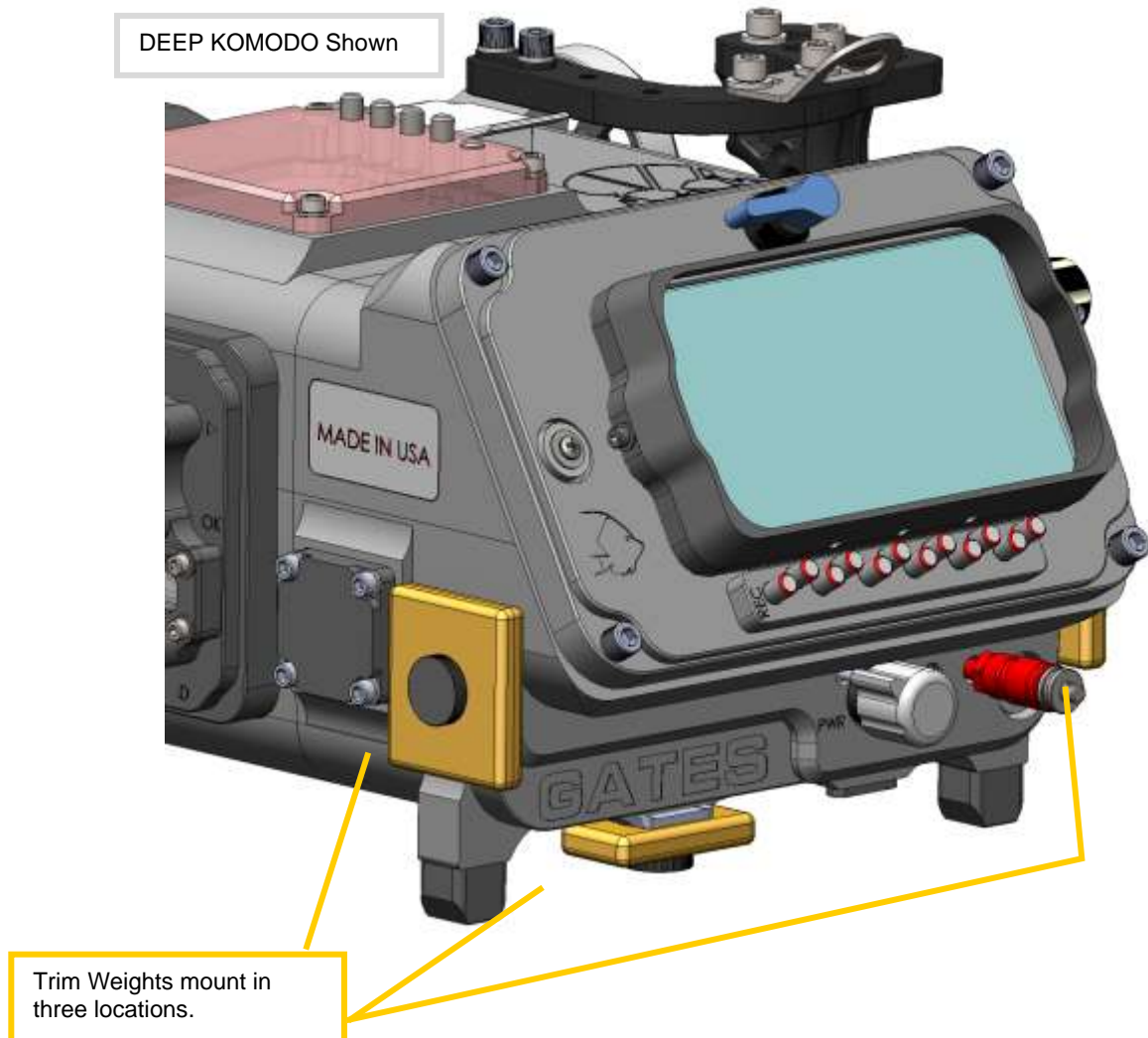


## ***Buoyancy / Trim***

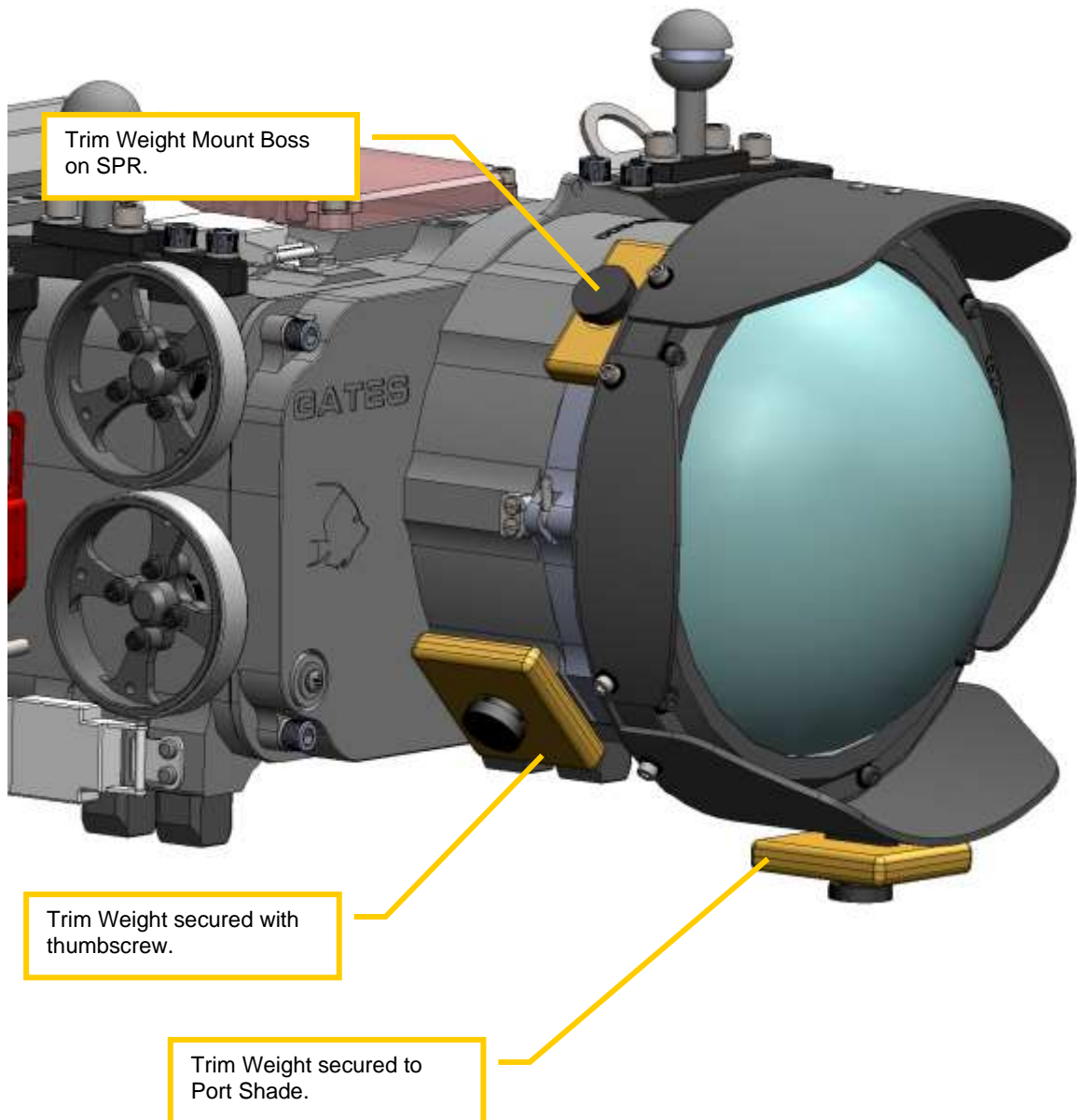
ML-105 has a trim weight / float system for establishing perfect neutral / trim buoyancy underwater. Trim Floats are included with ML-105. Trim Weights are optionally available.

There are two general locations for trim weights.

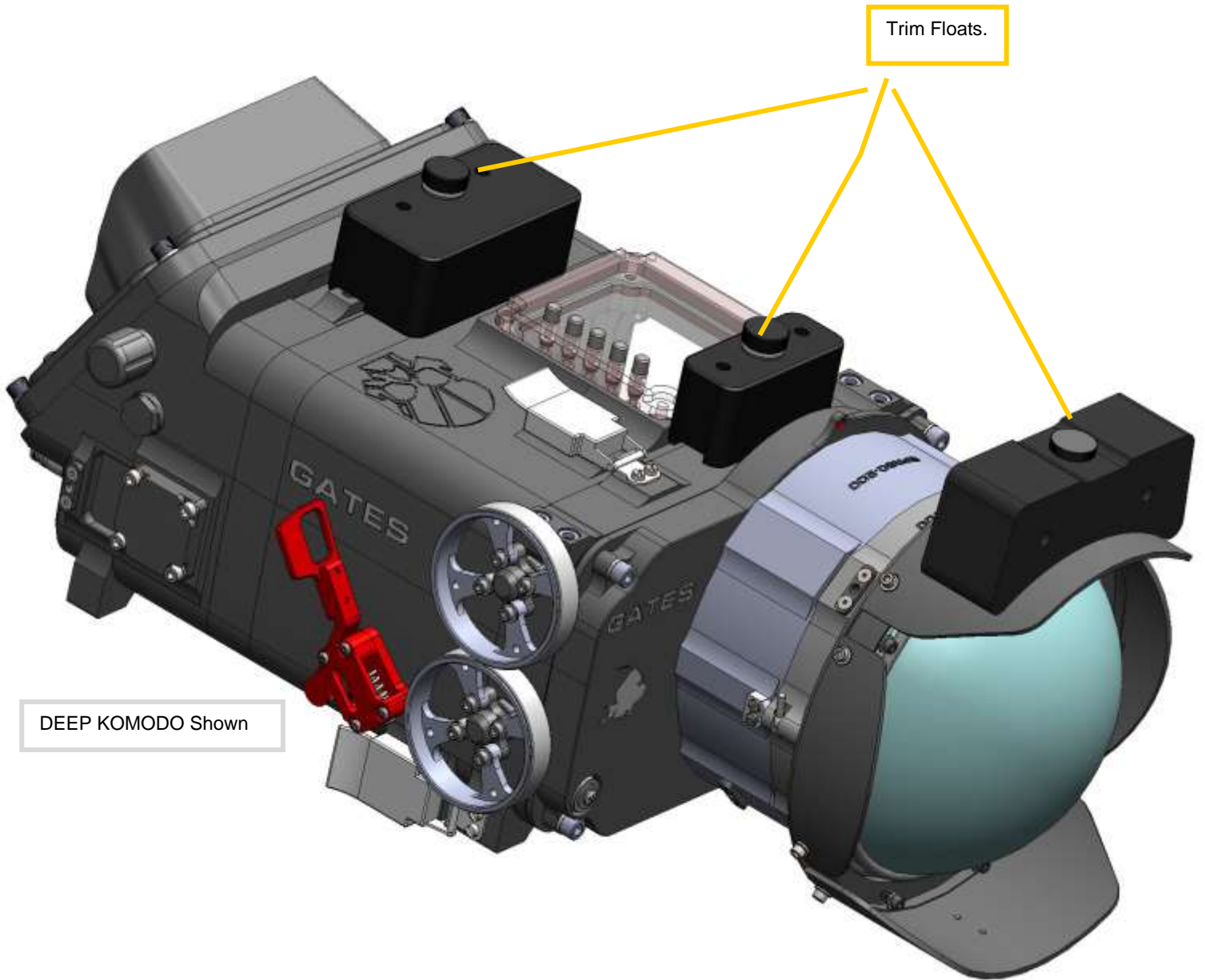
- ✓ **Rear Housing Shell** – see image below. Three locations on left, right and rear of housing shell.



- ✓ **Stackable Port Rings.** Trim weights can also be secured to the SPRs and Port Shades, as shown.



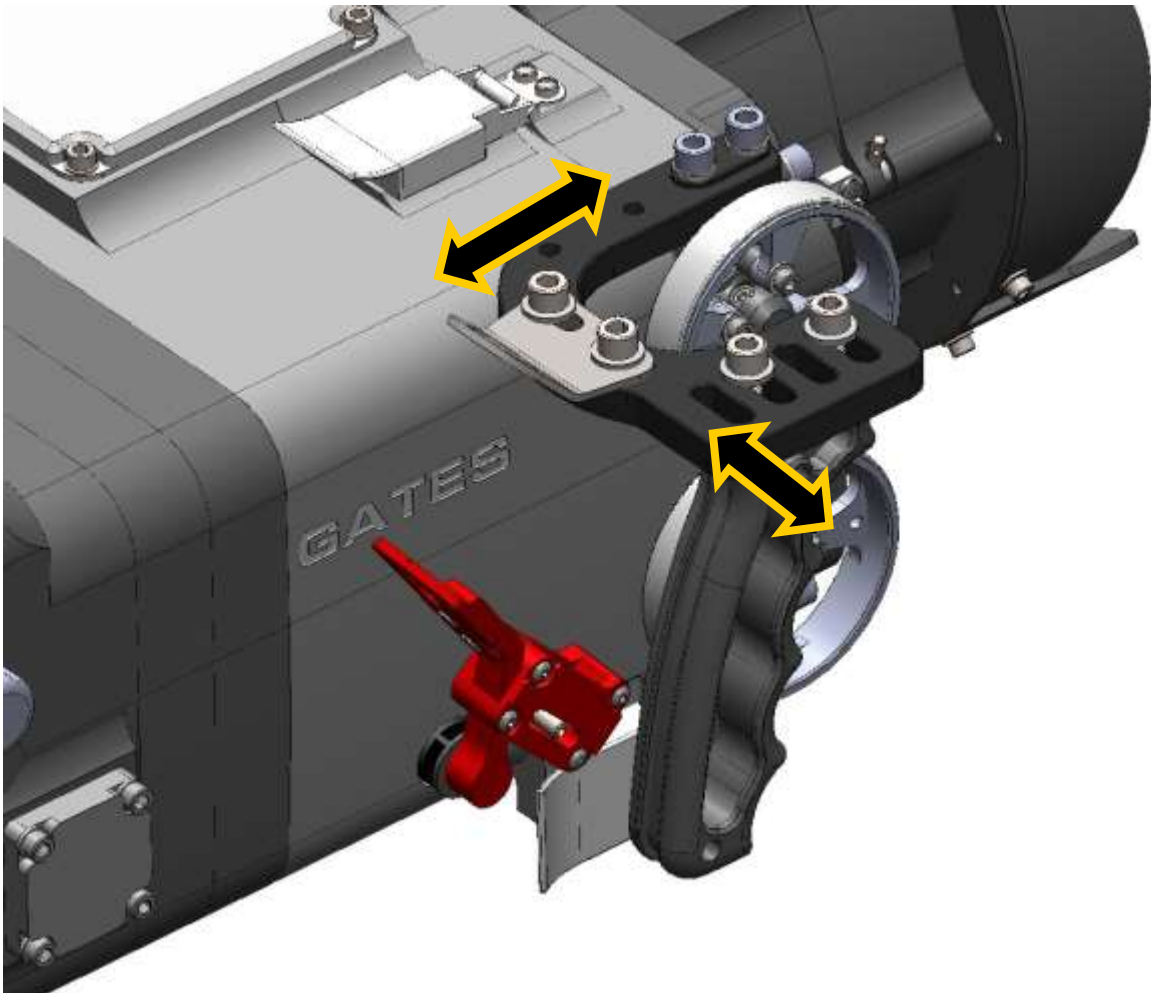
- ✓ **Trim Floats.** These can be positioned in several places. Refer to image below.



## ***Adjustable Handles***

ML-105 includes adjustable handle grips. They can be moved left / right and forward / back for optimal hand positioning to controls. See image below.

Use the 3/16 ball driver hex tool to loosen (or remove) the two screws to adjust.

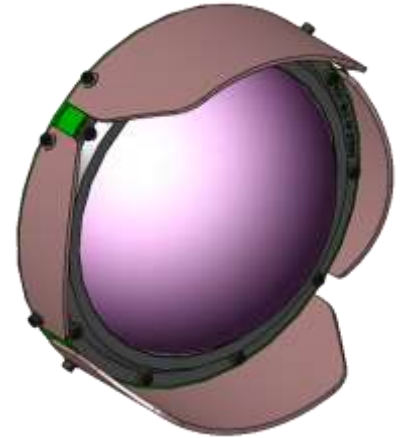


## Port Options

At this publication a Dome and Flat Port options are available for ML-105: When choosing a Port consider the following tradeoffs and limitations.

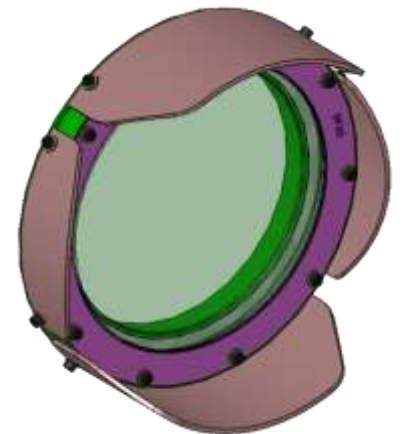
### Dome Port

- ✓ **Optical material:** Anti-reflective coated glass or acrylic (SP80 only).
- ✓ **Purpose:** Wide to super wide imaging.
- ✓ **Advantages:**
  - **Retains FOV.** Corrects for field of view distortions inherent in Flat Ports.
  - **Wide FOV capable.** Up to 180 degree fisheye are possible depending on the camera lens capability.
- ✓ **Disadvantages:**
  - **Little or no zoom.** Domes inherently limit zoom through and varies with camera lens employed.



### Flat Port

- ✓ **Optical material:** Optical grade acrylic or glass.
- ✓ **Purpose:** Medium to macro imaging.
- ✓ **Advantages:**
  - **Zoom through.** Flat Ports retains the zoom capability of a lens.
  - **Macro.** Flat Ports are excellent for macro shots and the use of close up diopters to capture small subjects.
- ✓ **Disadvantages:**
  - **No wide shots.** By their nature, Flat Ports do not allow wide shots.
  - **Loss of FOV.** Like a SCUBA mask, Flat Ports decrease FOV by 25%.



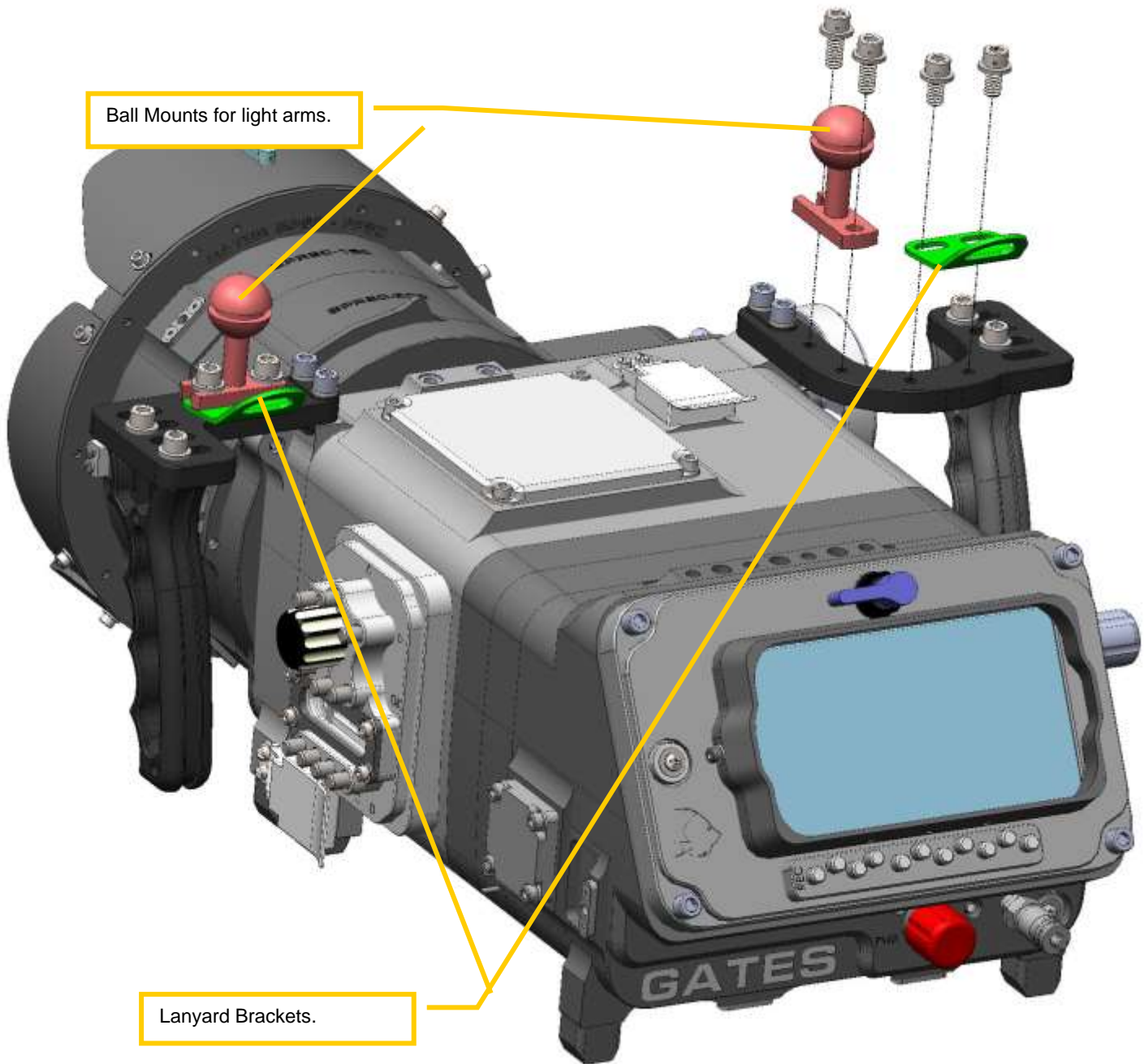
- ▶ **Note:** The optical interaction between any given lens and a Dome or Flat Port is largely predictable, however distortions and aberrations can occur with either Port. As such, Gates does not warrant optical performance or image quality.

Gates endeavors to collect data from the field and our own testing as a resource to customers, but you should always characterize your lens of choice for use underwater.

## ***Lanyard and Light Mounting (Optional)***

ML-105 has provisions to utilize a variety of lighting systems. Strong, secure ball mounts for the light arms are located on the handle grips as shown in the image.

Lanyard Mounts also attach to the Grip Arms, and can be located forward or aft for best positioning.



## ***Travel / Transport***

ML-105 requires several considerations for travel.

- ✓ **Camera.** It is OK to transport the camera / lens inside ML-105 \*ONLY IF\* you are in control of the equipment.

**DO NOT ship or place in checked airline baggage with the camera inside** as rough handling can cause damage.

- ✓ **No Trim Weights.** DO NOT transport ML-105 with trim weights attached.
- ✓ **Cap and bundle connectors.** Bundle all connectors together and protect. Install the caps that originally came with the housing as well.
- ✓ **Packing.** Ensure the complete system is packed well in transport cases.



## 4: ML-105 Maintenance

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### ***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](http://www.GatesHousings.com).

Your Gates housing has 3 serviceable o-rings:

- ✓ Housing Main Seal & LCD Cover Seal (ORANGE);
- ✓ Port (YELLOW); and
- ✓ Port Ring (YELLOW).

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](http://www.gateshousings.com).

- ✓ **CAUTION:** Do not lubricate the ORANGE o-ring! It is a special silicone o-ring and can be damaged by petroleum-based lubricants. Only the BLACK and YELLOW o-rings are safe to lubricate.
  
- ✓ **CAUTION:** Never use metal tools or objects for removing o-rings!

### ***Customer Support***

Should you have any questions about ML-105 and its operation, please contact Gates at the numbers below.

Email: [Customer.srv@GatesHousings.com](mailto:Customer.srv@GatesHousings.com)  
Web: [www.GatesHousings.com](http://www.GatesHousings.com)  
Phone: +1-858.391.0052