



PRO ACTION Housing

Setup, Use, and Care Guide

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Photos by John Ellerbrock

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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1: Introducing Pro Action

Congratulations on owning a new Gates product: the PRO ACTION housing. You've selected a product that will provide years of value and reliable service. We designed PRO ACTION specifically as a professional action underwater rig for cinema, natural history, surf and research applications.

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

Features

PRO ACTION has several key features:

- ☒ **Lens flexibility.** PRO ACTION can accommodate a variety of DSLR and compact cinema lenses with no change to control locations. Focus, Iris, Zoom and Rec/Stdby remain in the same location regardless of optics used.
- ☒ **Compact and Travelable.** Pro Action is very small and can fit into a carry-on size case for travel.
- ☒ **Multi-camera support.** Pro Action accommodates several cameras including RED DSMC, DSMC2 and ARRI ALEXA Mini cameras.

Warranty Disclaimer

PRO ACTION 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 PRO ACTION. 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 PRO ACTION 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.

Gates does not warrant optical performance or image quality.

If you have any questions about the setup, use and care of PRO ACTION, contact Gates directly. Details are in section 6.

Unpacking PRO ACTION

After you remove PRO ACTION 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.

Standard Parts

- ☒ **PRO ACTION Housing**
- ☒ **Config Kit(s) as ordered.**
- ☒ **Lens Gear Set x2**
- ☒ **Integrated ST5 Monitor Shell**
(for Transvideo Starlite HD5 -- not included)
- ☒ **Seal Check Lite system**
- ☒ **Tool Kit with case**
- ☒ **Various assembly and spare parts for PRO ACTION**
- ☒ **Spare O-Rings**
- ☒ **Woven Carry Handle Lanyard**
- ☒ **Trim Weights**

Optional Parts

- ☒ **Stackable Port Rings (SPR) for of choice for your lens***
- ☒ **Port(s) of choice (Dome, either glass or acrylic, or Flat) and shade***
- ☒ **Light System**
- ☒ **Cheeseplate Adapter (for tripod or pole mount)**
- ☒ **Water alarm**
- ☒ **HD-SDI surface feed bulkhead connector and cable**

* Necessary for operation

Nomenclature

In this Setup, Use and Care Guide for PRO ACTION, the following terms are used:

- ☒ **DSMC** is the first generation RED camera body that includes Epic, Scarlet, and Dragon
- ☒ **DSMC2** is the second generation body style that includes Weapon, Epic-W, Scarlet-W and Raven
- ☒ **Mini** is the ARRI ALEXA Mini camera.

Required Equipment

The required camera and accessory equipment for Pro Action is:

- ☒ **LCD** Transvideo Starlite HD5.

The HD5-ARRI version of the Starlite may also be used, but requires an adapter cable for power. Contact Gates for additional information.

- ☒ **Camera + Configuration**

- ☒ **DSMC.** This includes Epic, Dragon, Scarlet versions.

- Lens Mount (Nikon, Canon, PL)
- Media

- ☒ **DSMC2.** This includes Weapon, Scarlet-W, Epic-W, Helium

- SDI Jetpack module
- Jetpack Module
- Lens Mount (Nikon, Canon, PL)
- Media

- ☒ **ARRI Mini.**

- Lens Mount (EF, PL)
- Media

- ☒ **Battery**

- ☒ REDBRICK

- ☒ BlueShape BV065, BV090, BV150 BV180, BV100HD, BV100HD SPLASH

- ☒ SWIT 8172 OR 8192

- ☒ PAG 9303, 9304, 9308, 9309

☒ **Lenses**

☒ DSLR

☒ PL Mount under 102mm diameter or 128T Gear (0.8 MOD or 32 Pitch)

☒ **Camera Setup** (not required in PRO ACTION Housing)

☒ **DSMC.** Any RED LCD or REDMOTE

☒ **DSMC2.** RED LCD *or* REDMOTE (with Gates WRL LINKBOX for DSMC2)
or foolcontrol (via WiFi)

☒ **Mini.** ARRI Mini Viewfinder

2: Cautions

- ▶ **SEAL CHECK VACUUM.** In a later part of this manual, Seal Check Lite will be introduced for verifying seal integrity before diving. You will learn that the vacuum draw on PRO ACTION should be about 100 millibars. This is enough to verify seal integrity.
- ▶ **DSMC / DSMC2 CAMERA FAN.** Set the DSMC or DSMC2 camera fan to 'Adaptive'.
SETTINGS → SETUP → SYSTEM → FAN CONTROL.



This setting allows the EPIC camera to maintain a calibrated sensor temperature for optimal image quality. Refer to the RED DSMC or DSMC2 Operations Guide (Revision F).

Do not block any ventilation openings or obstruct cooling fan airflow. The intake is in the front just below the lens and the exhaust is on the top of the camera.

Menu > Settings > Setup > Fan Control

Mode: ADAPTIVE

Maximum Record Speed: 50 %

Maximum Standby Speed: 75 %

Target Temperature: 65

Post Record Delay: None

Warning: Manual and Auto modes require that you actively manage the sensor temperature.

A003_C002 10:49:56:00

RC3/RG3 Temp: 37/46 HDD TC RM S-SSD DC Ch1 Ch2
Cal: E OFF GEN LAN 100% 15.0V UN3 UN4
Fans: 0 1-1 SYNC BIC

Set to 'ADAPTIVE'

- ▶ **CAMERA TRANSPORT INSIDE HOUSING.** You can transport a securely mounted camera inside Pro Action **IF** the system is in your possession and without abusive handling. **DO NOT** transport a camera inside Pro Action 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 PRO ACTION. 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 PRO ACTION and may void your warranty.

Contact Gates if you have questions this manual or using PRO ACTION.

3: PRO ACTION Setup

Config Kits

In this manual are references to Config Kits, which are a set of cables and control heads specific to the RED DSMC, RED DSMC2 or ARRI ALEXA Mini cameras. A review of the Config Kit components will be helpful in the following pages.

Each Config Kit has 5 different items:

- ☐ Control Head – User 1/2 Buttons
- ☐ Control Head –User ABCD Buttons
- ☐ Record Trigger Adapter Cable
- ☐ Power Adapter Cable
- ☐ Camera Mount Adapter (ALEXA Mini Only)

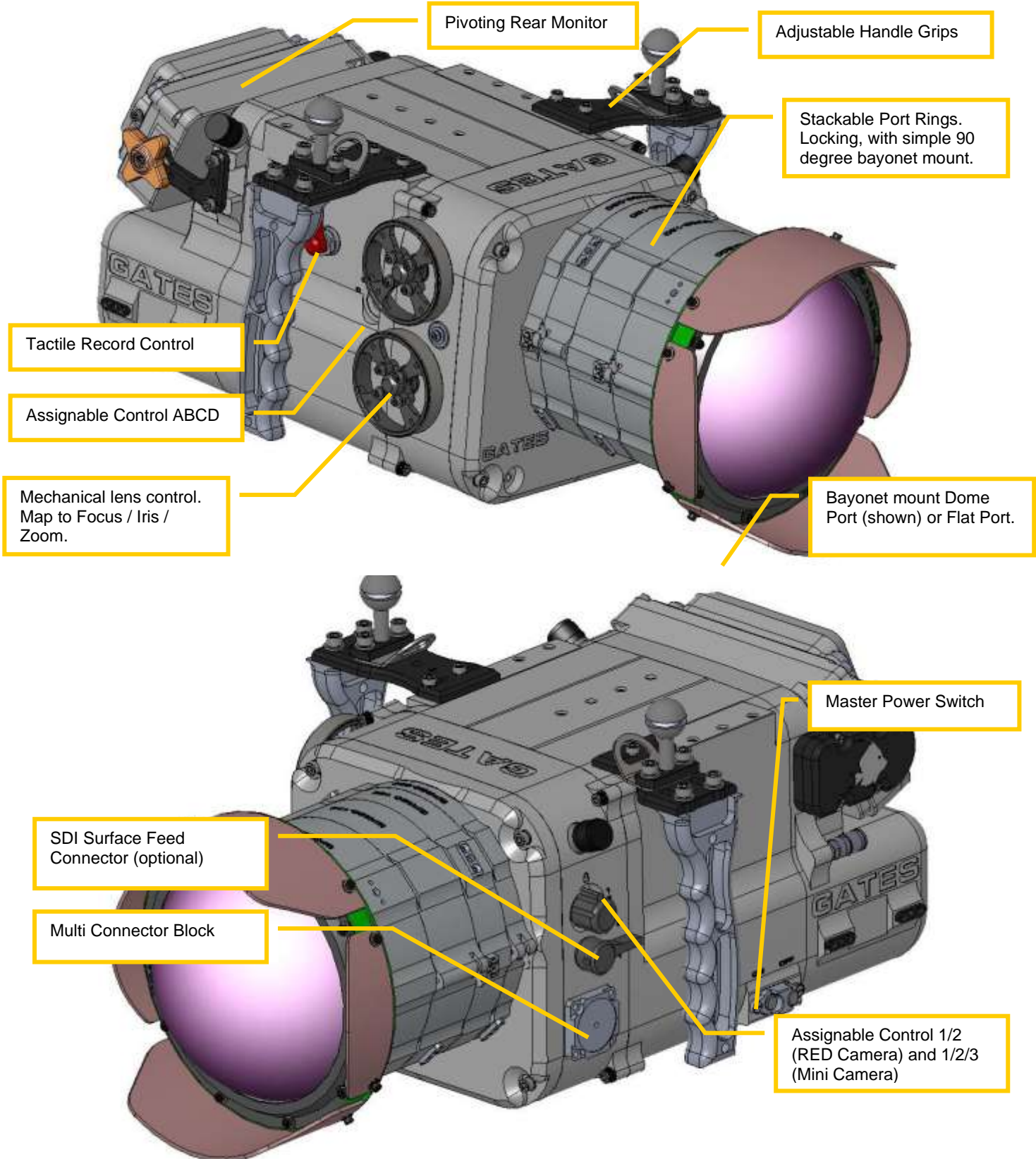




	RED DSMC	RED DSMC2	ARRI ALEXA Mini
Control Head User 1/2 Buttons			 Dummy Head. No Function on Mini.
Control Head User ABCD Buttons			 Dummy Head. No Function on Mini.
Record Trigger Adapter Cable	LEMO-to-LEMO Cable RED Sleeve 5000-94-097	LEMO-to-LEMO Cable RED Sleeve 5000-94-098	LEMO-to-LEMO Cable BLUE Sleeve 5000-94-096
Power Adapter Cable	LEMO-to-LEMO Cable RED Sleeve 5000-94-095	LEMO-to-LEMO Cable RED Sleeve 5000-94-095	LEMO-to-LEMO Cable BLUE Sleeve 5000-94-094
Camera Mount Adapter	NONE	NONE	

PRO ACTION Housing Overview

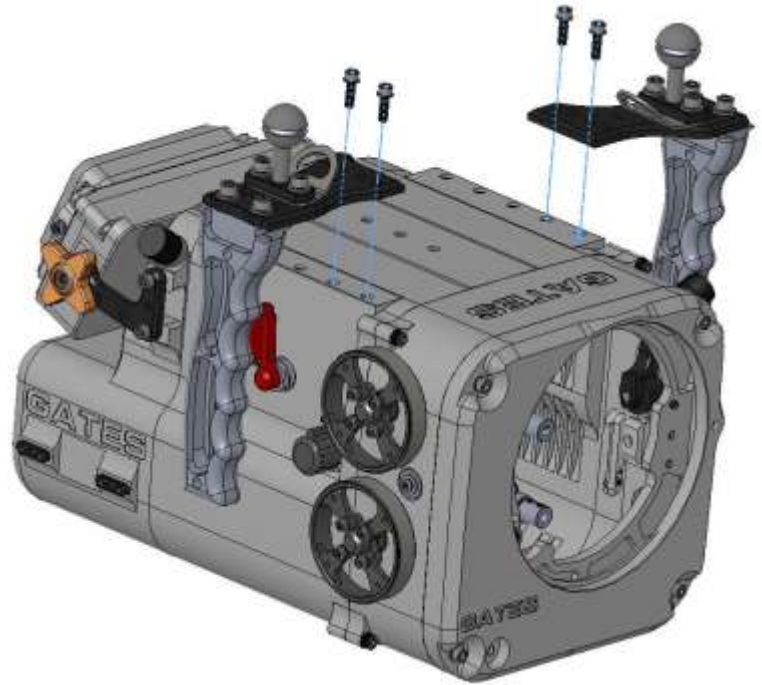
Pro Action has many features with which you will become familiar.



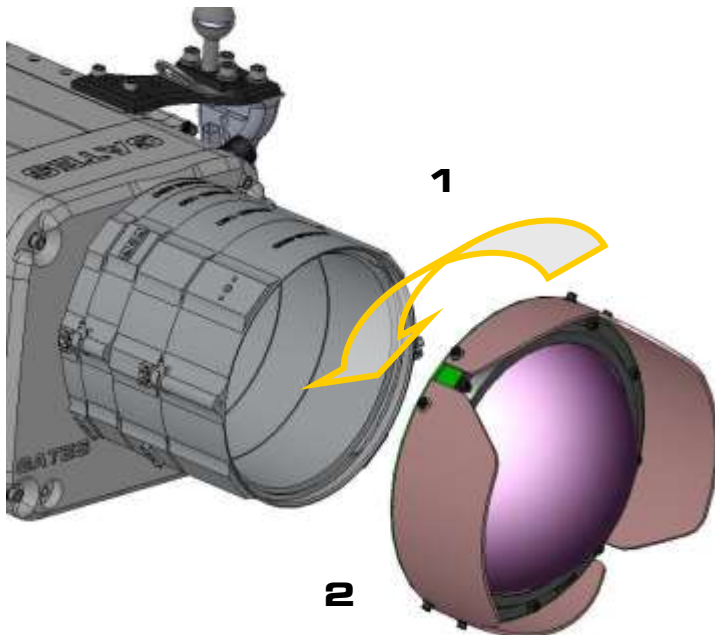
PRO ACTION Housing Preparation

- **Handle Grips Install.** Four screws secure the Handle Grips to PRO ACTION. You can locate the Handle Grips in several different positions forward / aft on the housing.

SHOWN are ULCS mount balls and



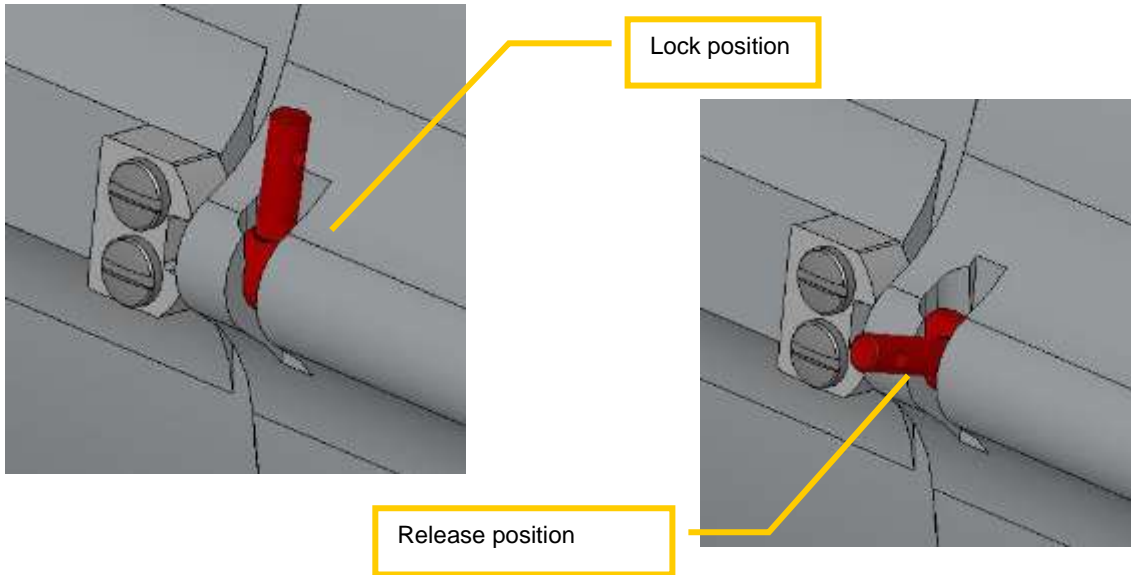
- **Port.** Remove the Port by rotating 90 degrees either direction. Gently pull the Port away from the Port Extender.



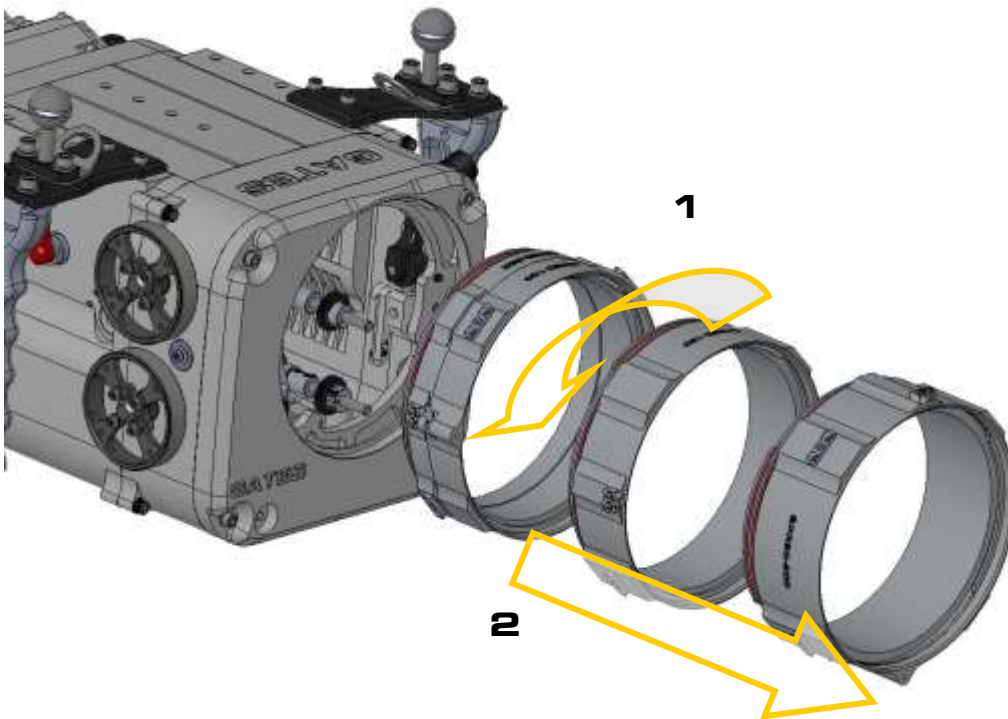
Rotate the port 90 degrees either direction, then gently pull forward to remove.

▶ **TIP:** Consistent lubrication of the Port and SPR o-rings allow easy rotation.

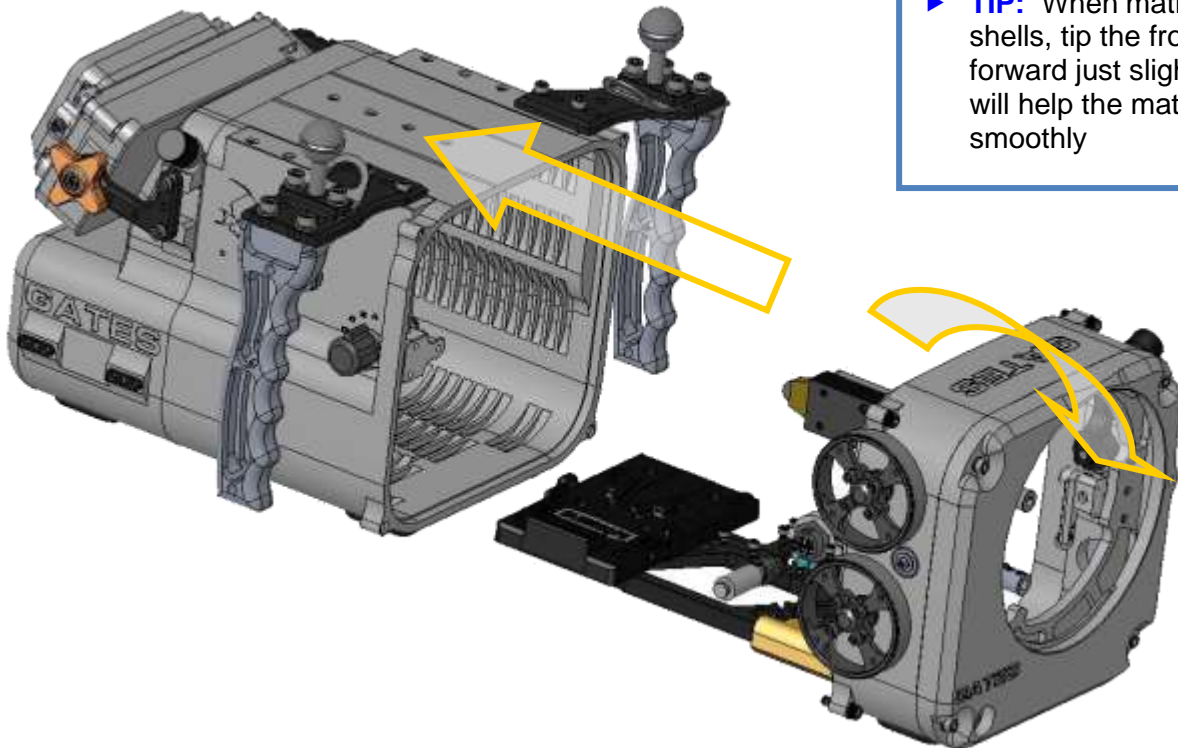
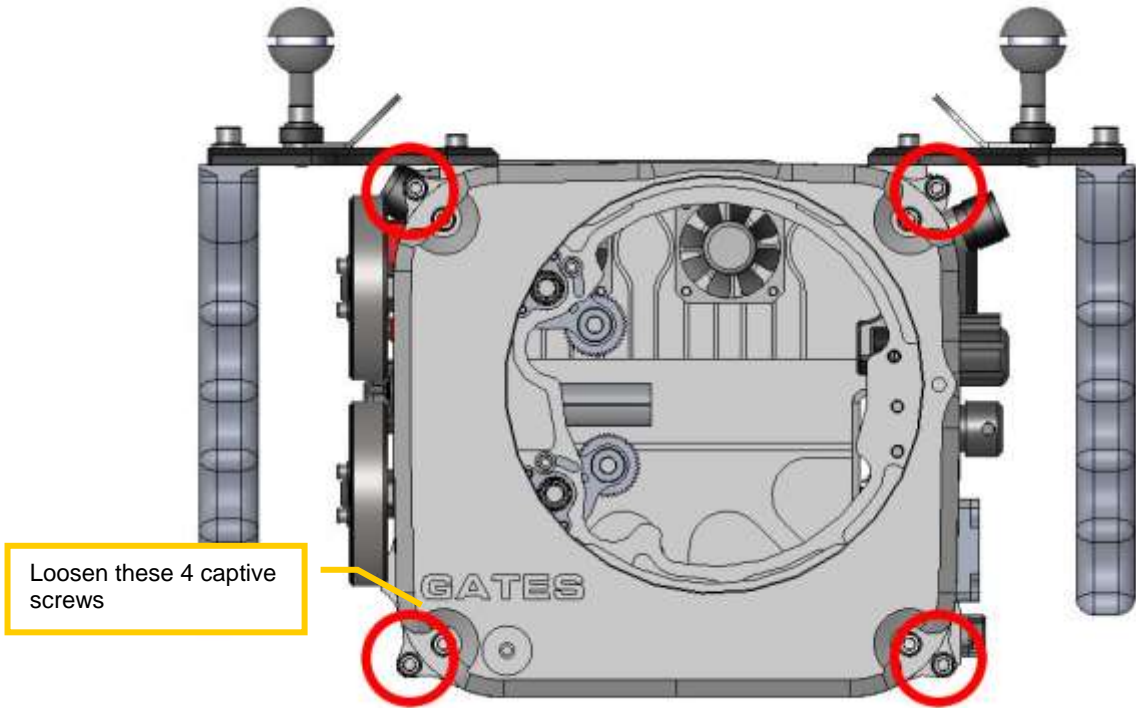
- ☐ **Stackable Port Ring (SPR).** Remove the SPR's one at a time or as a group. The lock pin is shown below in the locked and release position.



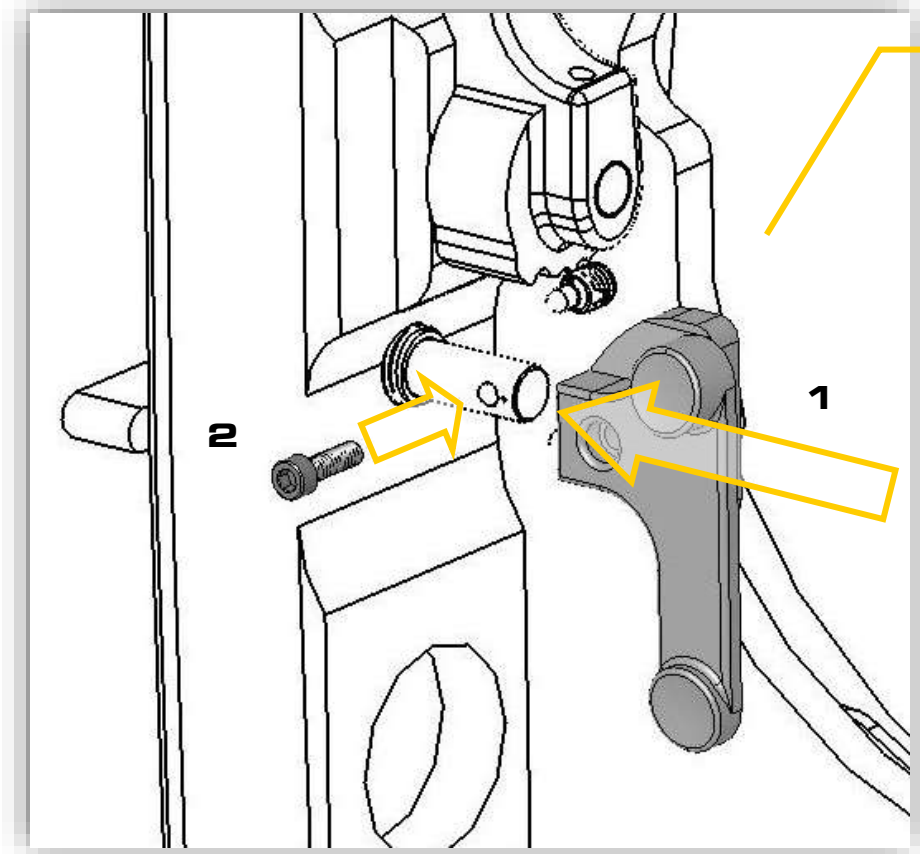
- ☐ **With the SPR's unlocked,** rotate 90 degrees and separate.



- **Rear Shell Removal.** Loosen the 4 captive screws on the corners as shown, then slide the rear shell of PRO ACTION away from the front.



- ▣ **Install Config Control Heads.** As noted previously above, each camera has a Config Kit that includes control heads and cables. At this time verify you have the proper control heads installed on the Assign ABCD and Assign 1/2 Controls.



Assign 1/2 Control Head change.

Remove the screw, then pull off the control head. Replace with another, and re-install the screw.

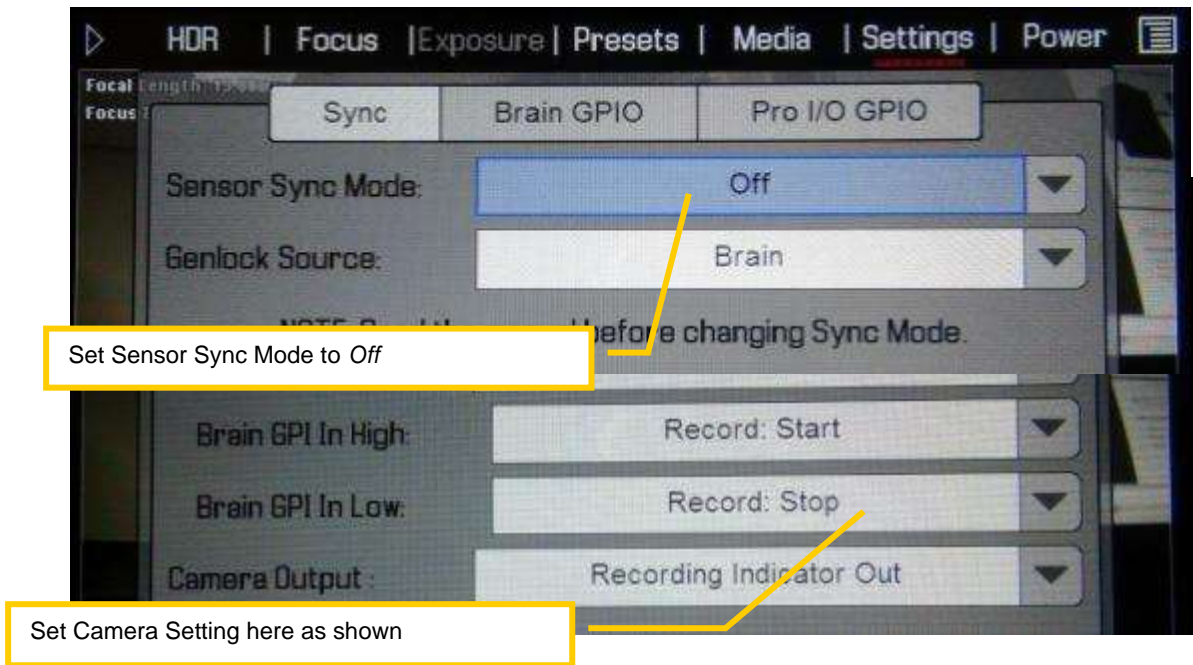
DO NOT remove control shaft from housing.

Preparing the Camera and LCD

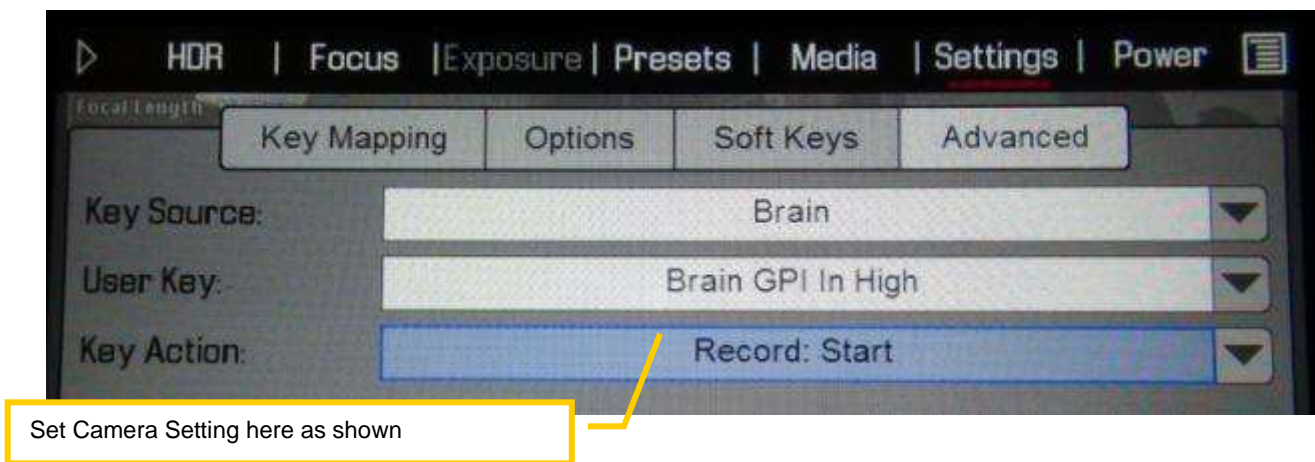
- ☒ **User buttons.** Each camera requires specific settings within the menu for operation with Pro Action.
 - ☒ **DSMC.** Two user buttons are available on Pro Action for DSMC. These are user 1/2 located on the brain, front of the media bay.

If using a DSLR lens, these should be assigned iris up / down.
 - ☒ **DSMC2.** With the Sidekick module installed, 6 user buttons are available on Pro Action. These are user 1/2 and ABCD buttons on Sidekick.

As with DSMC, user 1/2 should be assigned **iris** up/down if using a DSLR lens. ABCD can be assigned useful things like **PRESETS** or **FRAME RATE**.
 - ☒ **Mini.** Similarly, the Mini camera has three user buttons available in Pro Action. They are located on the left front of the camera, and should be set to **iris** up/down and one other useful function such as white balance.
- NOTE: by custom order, the ARRI version of the Transvideo Starlite monitor can be supported in Pro Action, providing 4 more user buttons. Contact Gates for more information. Details on the LCD monitor can be found here:
<http://www.arri.com/news/news/starlitehd5-arri-touch-screen-monitor/>
- ☒ **Record Trigger.** Pro Action provides a convenient thumb tip record trigger with a positive tactile feedback. The RED cameras require setup to accept this trigger signal from Pro Action. (Mini camera requires no setup).
 - ☒ **DSMC & DSMC2.** RED firmware changes on a regular basis to provide increased functionality. In so doing, the menu structure is subject to change, making the following screen grabs obsolete. However the general settings remain.
 - ☒ **SYNC Mode.** SETTINGS → SETUP → GPIO/SYNC → SYNC → Set Sensor Sync mode to 'Off'
- ☒ **Power.**
 - ☒ **DSMC.** The Config kit includes a control head to switch Assign ABCD control to a power-on control for DSMC. After the Master Power switch has been activated, it is necessary to turn on the camera with this control.
 - ☒ **DSMC2.** The SDI Jetpack has a slider switch on the top that allows the camera to boot up when power is applied from the Master Power switch. Check that this slider is in the proper position for auto-boot.
 - ☒ **Mini.** To ensure the Mini camera will boot up when power is applied, simply turn on the camera, and then remove the power connector after boot. In this way, the camera will boot up when power is applied.



- ❑ **GPIO:** SETTINGS → SETUP → GPIO/SYNC → GPIO → Set Camera Input, Brain GPI in High, Brain GPI in Low and Camera Output to the setting shown.
- ❑ **User Key Action.** SETTINGS → SETUP → KEYS → ADVANCED → Set Key Source, User Key and Key Action as shown.



- ☒ **PRE-RECORD.** If you plan to use the Pre-Record feature, note that this feature is a two step process.

Pre-Record must first be mapped to a user key (e.g. User 1 or @ on the SSD module, or on the Redmote), and then **initiated prior** to activating Record (via housing Record Trigger or otherwise).

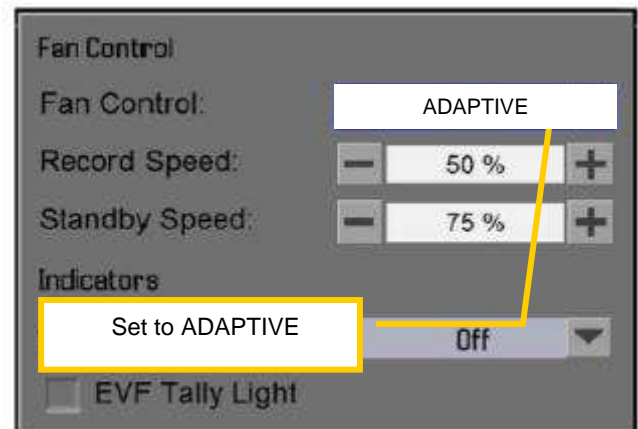
Refer to the RED DSMC / DSMC2 Operations Operations Guide for more details on mapping features like Pre-Record to a User Key.

- ☒ **Fan.** Set EPIC camera fan to ADAPTIVE for most efficient cooling. Settings are

Do not block any ventilation openings or obstruct cooling fan airflow. The intake is in the front just below the lens, and the exhaust on the top of the camera.

- ☒ **Full Menu Access.** can be achieved with Pro Action by setting up the user buttons in the following manner:

A = Select
B = Up
C = Down
D = Menu
User 1 = CW
User 2 = CCW



- ❑ **Camera Basics.** The camera should be stripped down to the bare body. Specifically:
 - ❑ **DSMC** should have no attachments – cables, monitors or lenses. Only the Brain and Lens mount (Nikon, Canon or PL)
 - ❑ **DSMC2** is the same, however the SDI Jetpack Module and Sidekick Module is required with DSMC2 and should be installed at this time.
 - ❑ **Mini** must have the antenna, viewfinder and any other mounting bracketry removed. Only the lens mount (Nikon, Canon or PL) installed.



- ❑ **Transvideo Starlite HD5 Setup.** The Starlite HD5 OLED LCD Monitor has a powerful Smart Corners feature. These are assignable touch screen corners for various functions, and are accessible on PRO ACTION.

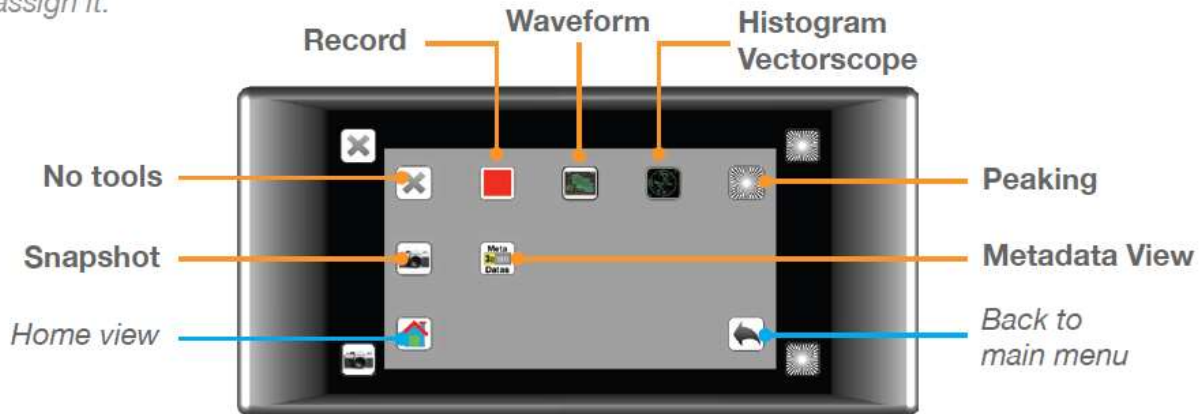
Prepare your Starlite HD5 with the functions you wish to access underwater. Gates recommends:

- ❑ Peaking
- ❑ Magnify 1:1
- ❑ Vectorscope
- ❑ Last Clip Playback (to review the last H.264 clip captured on the Starlite)

Here is an excerpt from the Starlite Manual on setting Smart Corners.

► Smart corners menu

To assign a tool to a smart corner: select a tool, then choose the corner to which you want to assign it.

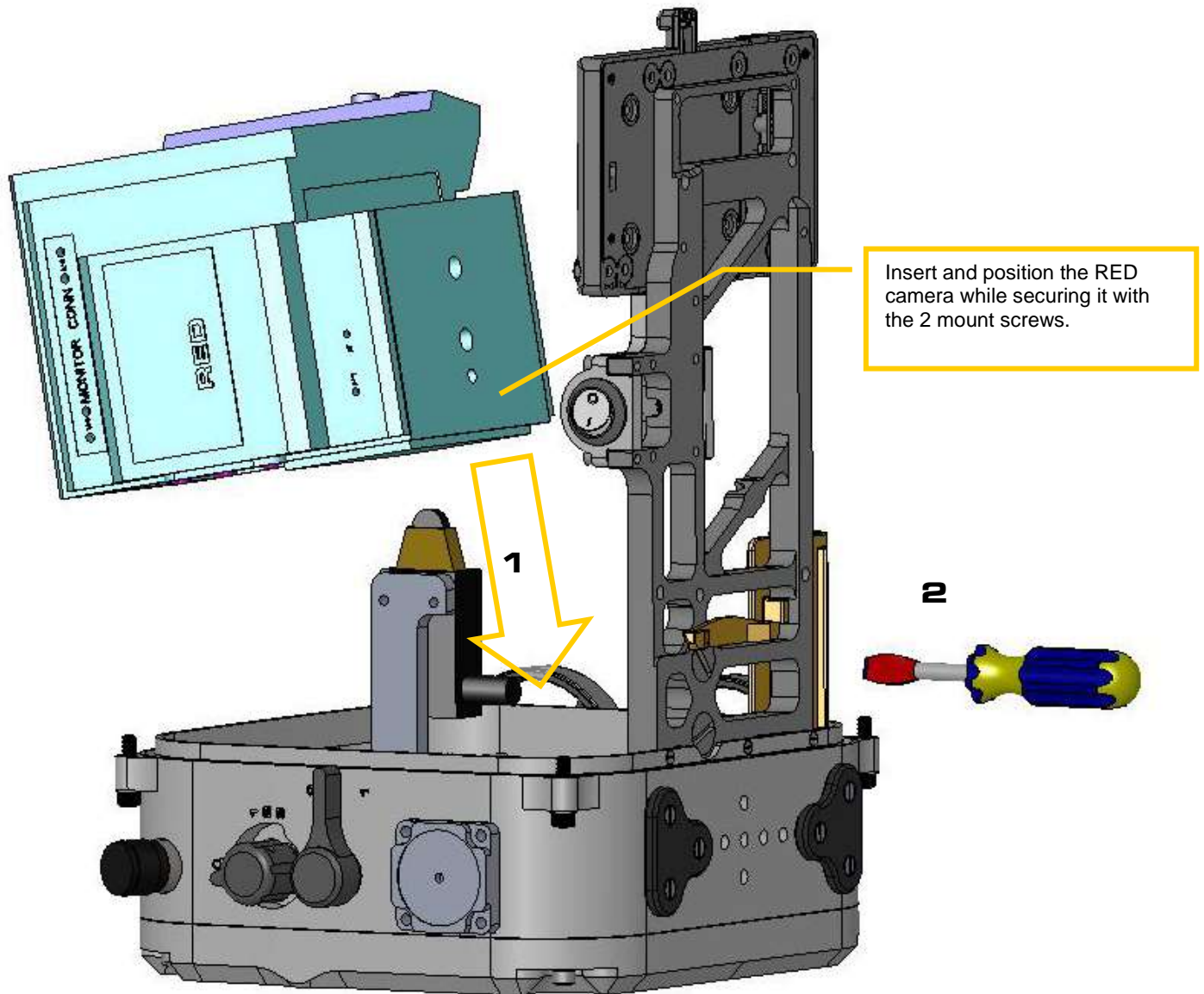


- ☐ **Menu Overlay.** Both DSMC / DSMC2 cameras provide menu overlay via the SDI output. You can activate this in the MENU-->SETTINGS-->DISPLAY-->SDI. Select Overlay from the drop-down menu.
- ☐ **WIFI.** If you plan to connect to DSMC2 or Mini over wireless, be sure to turn on WIFI and establish the proper communication settings for each camera.

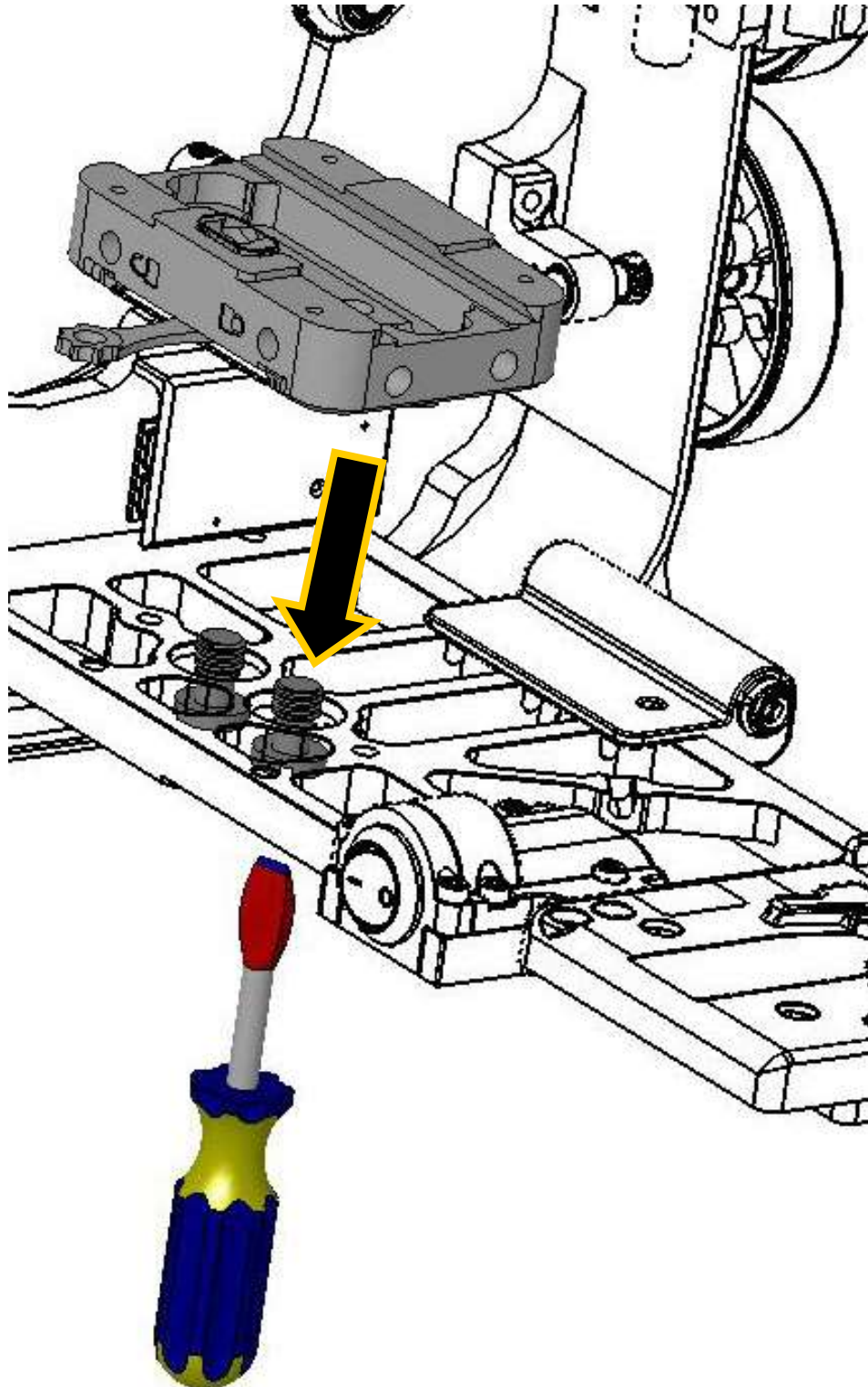
Camera Installation

- RED Camera (DSMC or DSMC2) install. Refer to the images below.

Set the housing on the front face so you can position the RED camera while securing it in place with the mount screws.

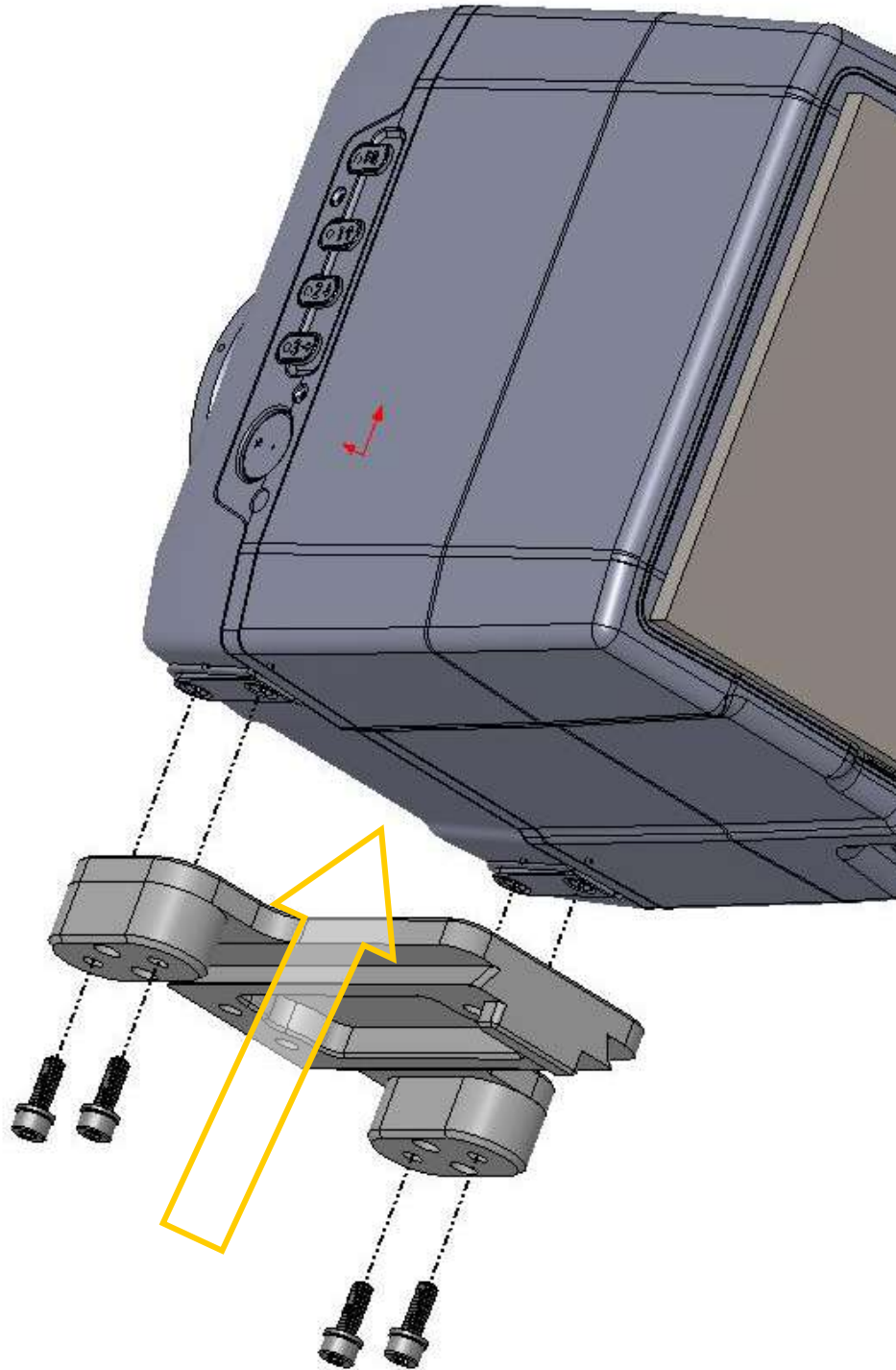


- ▣ **ARRI Camera install.** This is a three-step process.
 - ▣ **First,** install the bridgeplate into the PRO ACTION housing as shown.



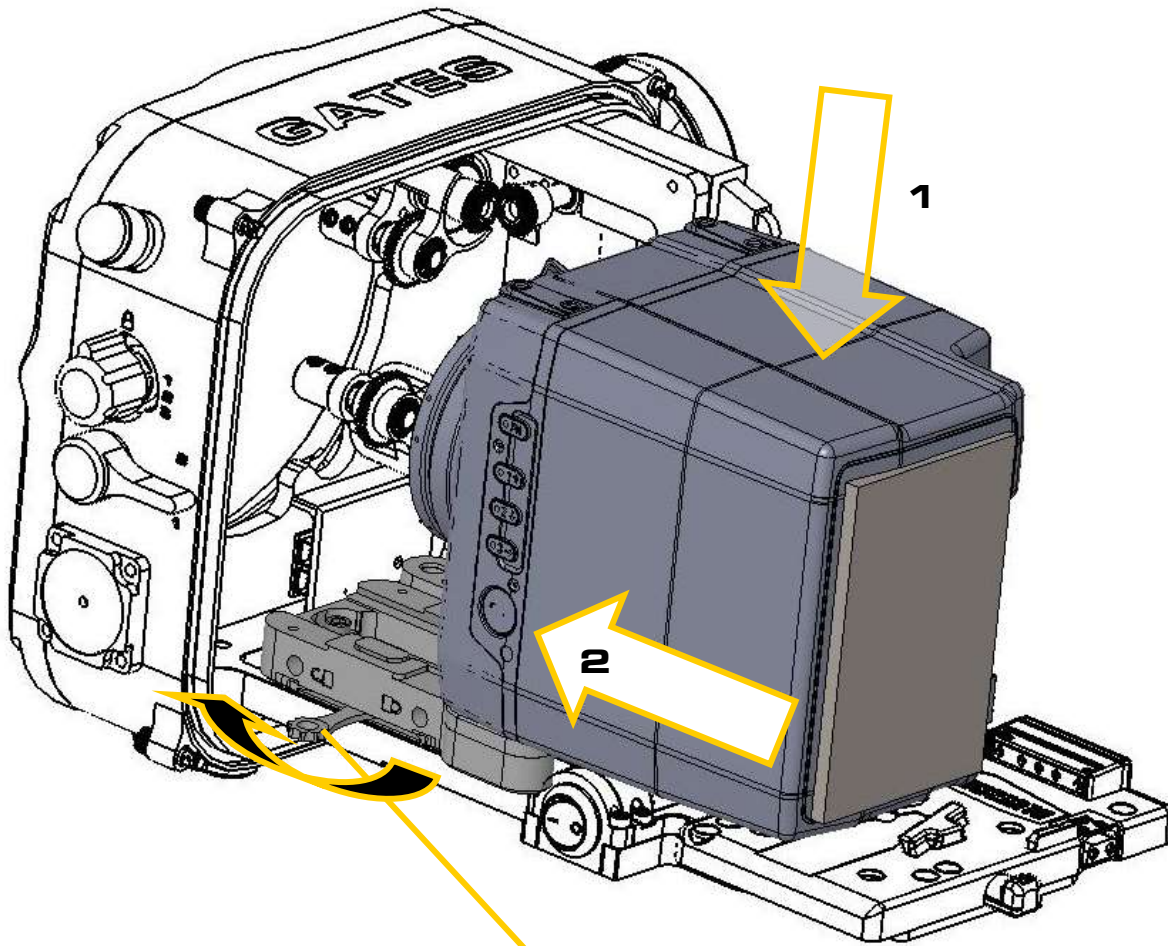
☐ **ARRI Camera install.**

- ☐ **Next**, install the mount adapter onto the ARRI camera as shown.



▣ **ARRI Camera install.**

- ▣ **Last,** install the mount adapter onto the ARRI camera as shown.

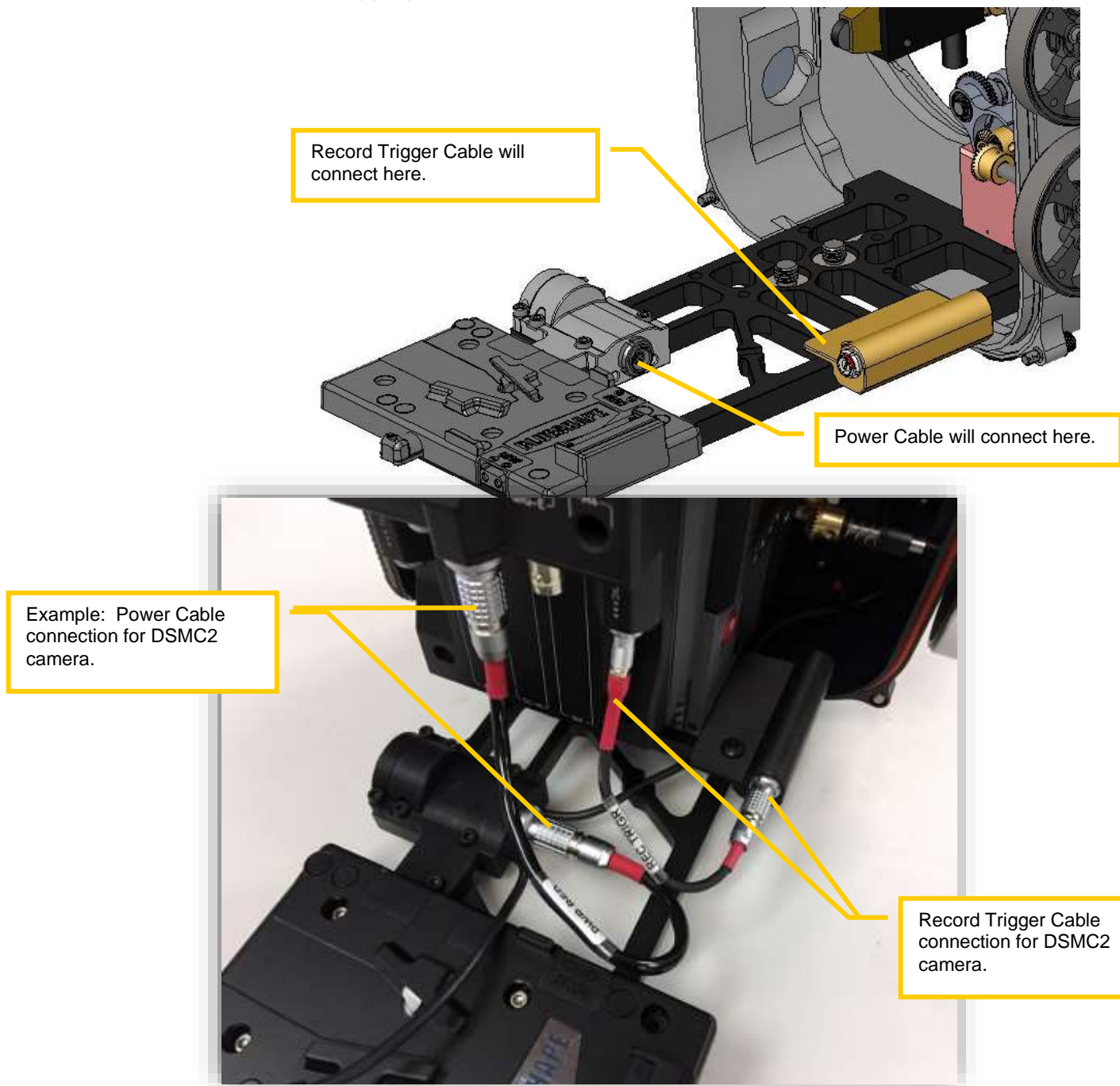


Place the ARRI camera just behind the bridgeplate, and then slide forward to mate with the bridgeplate. Lock with the lever.

Config Cables Install

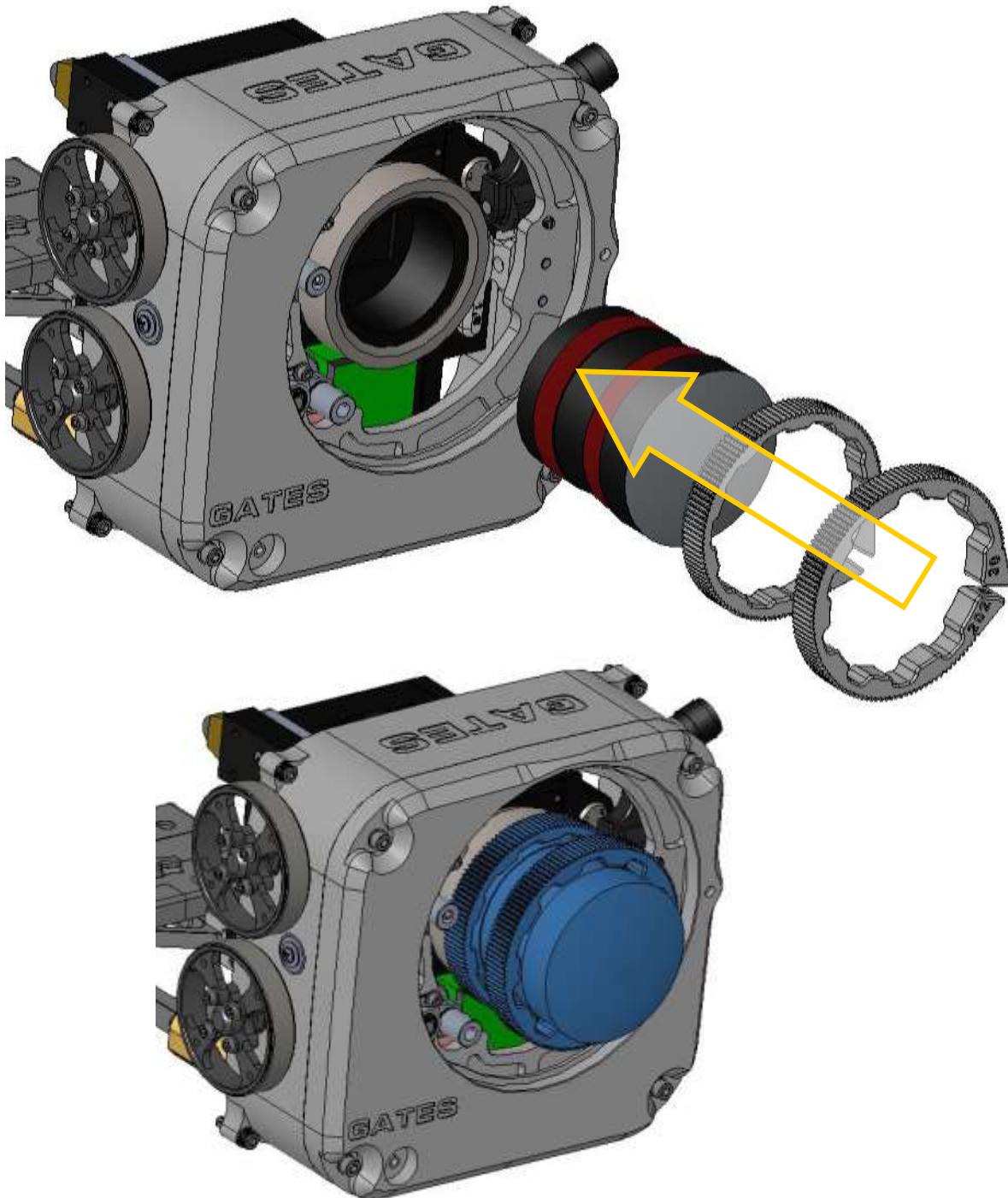
At this point it's time to make power and record trigger connections to the housing. Using the table at the beginning of this manual, select the appropriate cables and install as shown in the image below.

- ❑ **Power.** The Power cable will connect on the rear side from the Master Power Switch, and then to the camera.
- ❑ **Record Trigger.** Similarly, an adapter cable will connect between the housing body as shown, and to the appropriate camera location.



Mount Lens

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



Lens Gear Drives (LGD's)

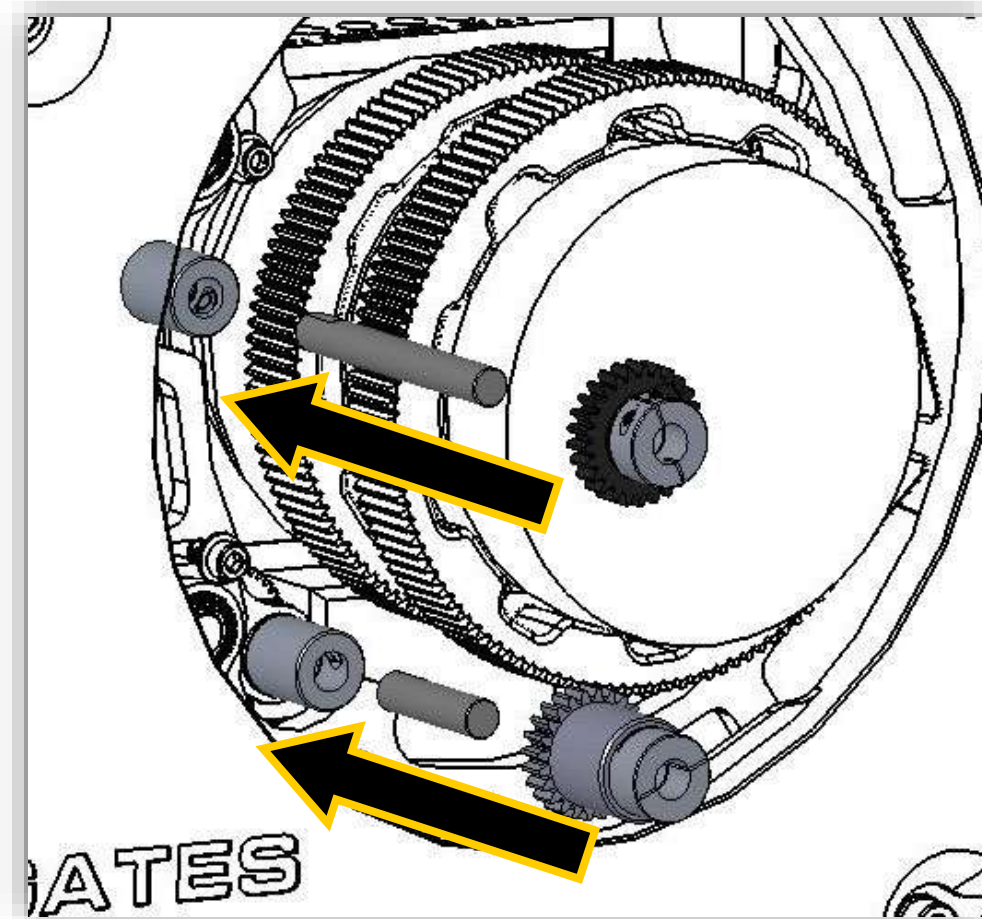
- ❑ **General Notes.** This section addresses the installation of two Lens Gear Drives (LGD's) in PRO ACTION. This is relatively straightforward, using only two parts for each lens control: a drive shaft and drive gear.
- ❑ **Select drive shaft length.** Several lengths of drive shaft are included with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

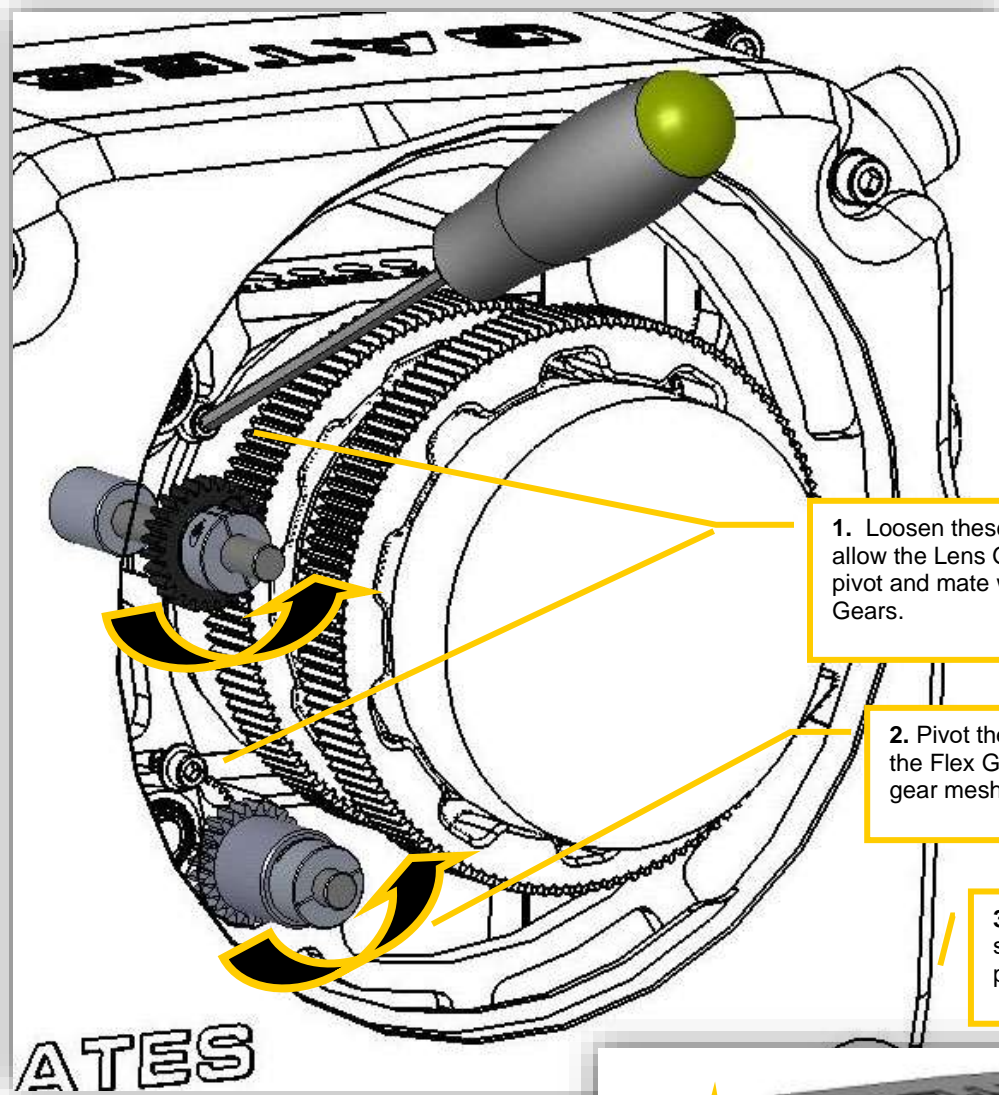
Install this drive shaft into the coupler on the housing. Using the tool provided in the kit, tighten the shaft onto the coupler.

- ❑ **Select and install the Lens Gear Drive.** Note that your kit comes with two versions. One is 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 make a good mesh 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.





1. Loosen these two screws 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 screws to secure the LGD's in position.

4. Verify focus and zoom operation.



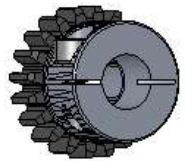
Lens Gear Drive (LGD) Size Reference

PRO ACTION includes several size LGD's to accommodate different lens sizes. Below is a reference.

Focus Gears

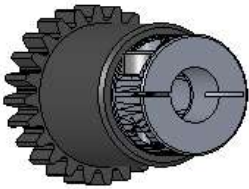


P/N 3000-94-228

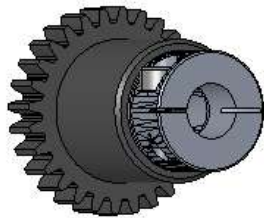


P/N 3000-94-242

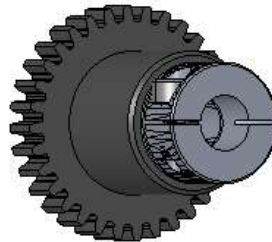
Iris and Zoom Gears



P/N 3000-94-229



P/N 3000-94-239



P/N 3000-94-233



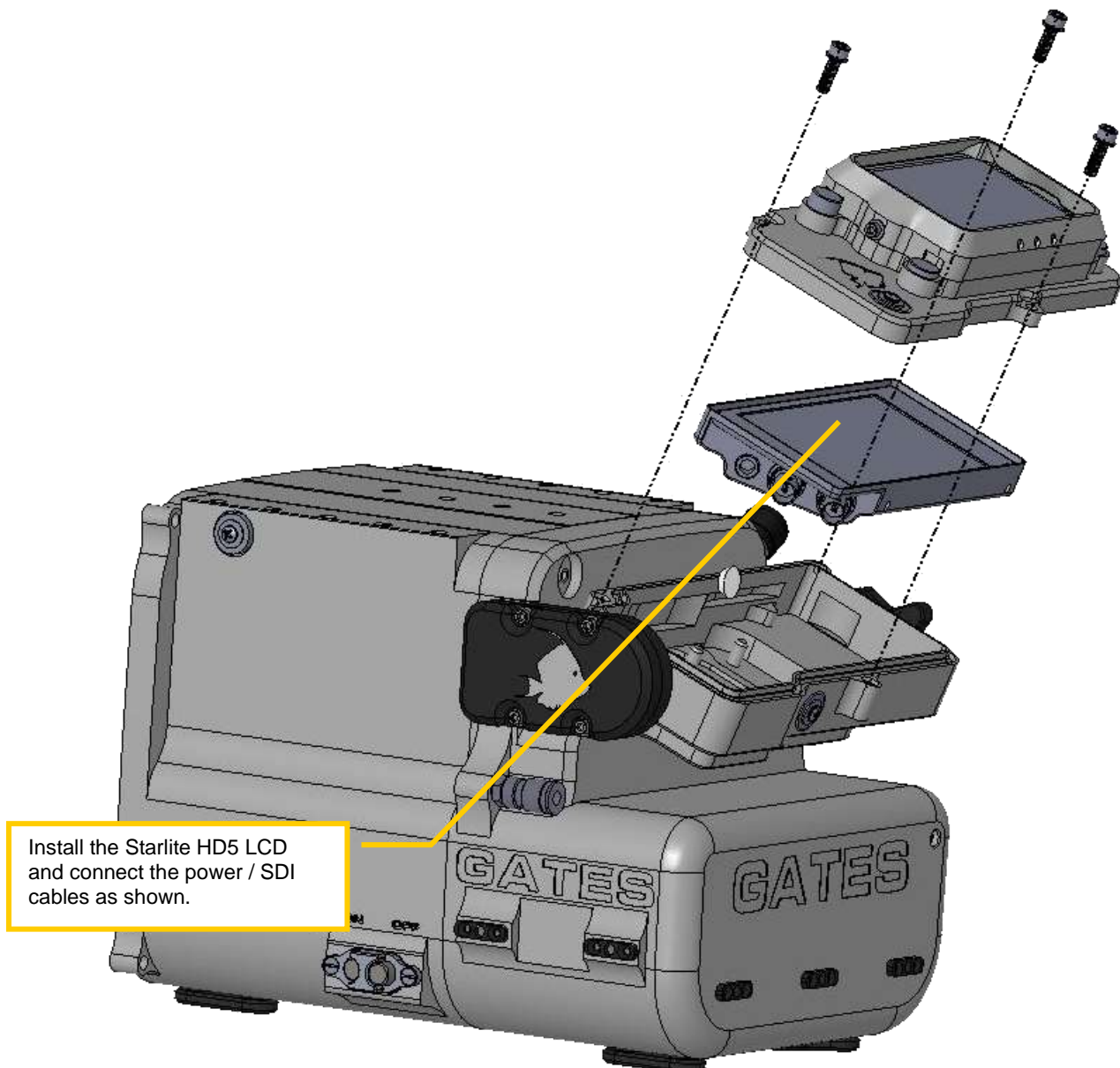
P/N 3000-94-246

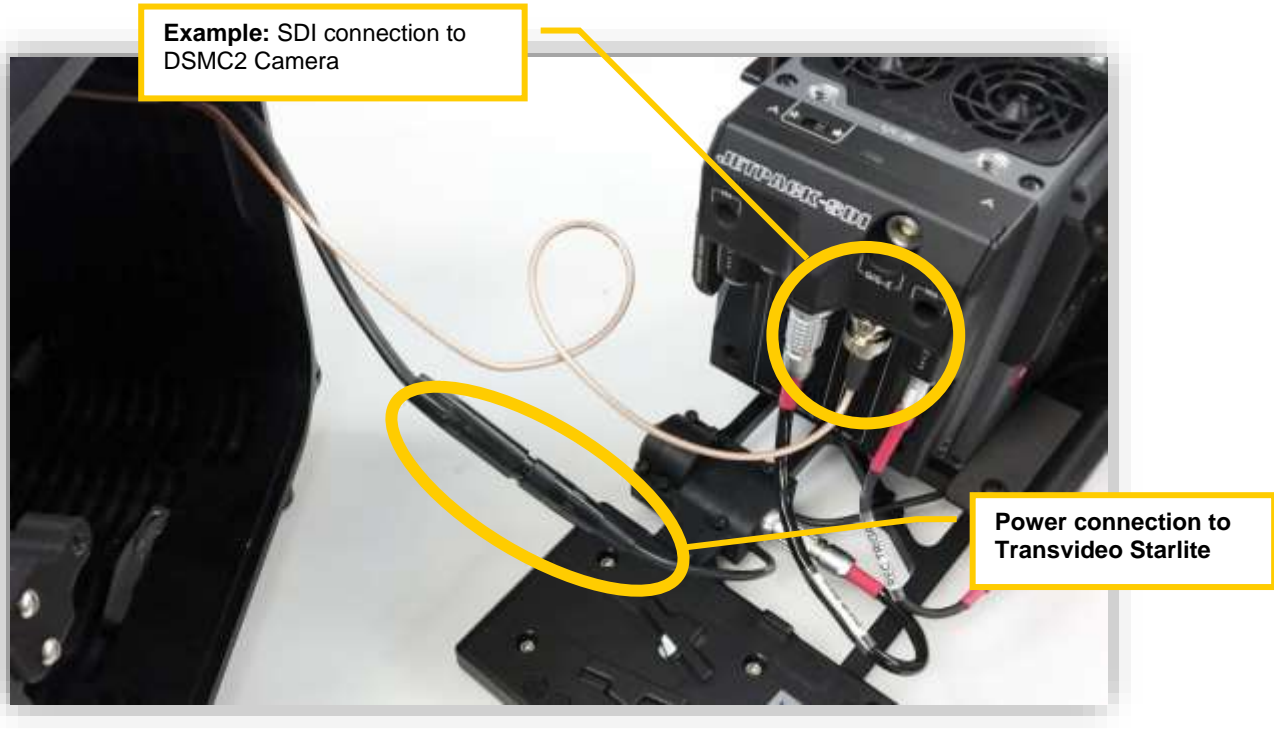
***LGD's designed for
Zeiss CP.3 lenses
and others as
needed.***

Pivot Monitor Setup

PRO ACTION's pivoting rear external monitor is assembled with the Transvideo Starlite HD5 LCD as shown.

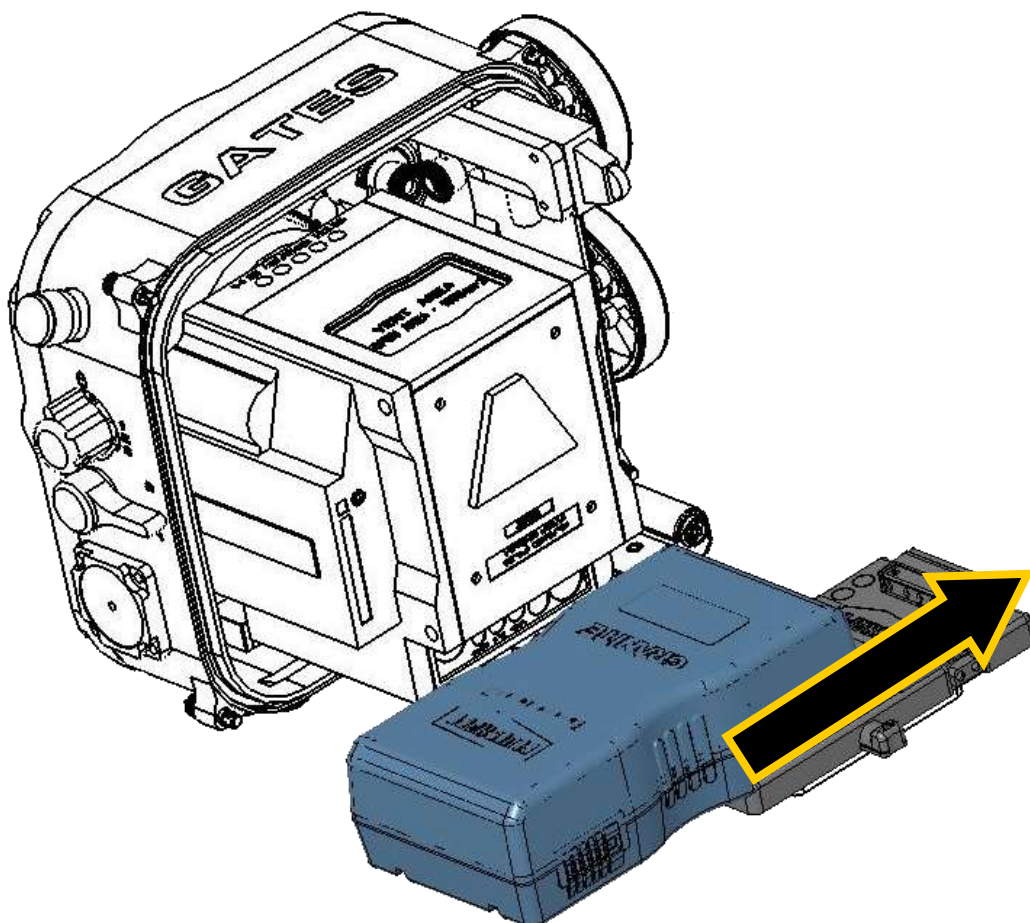
- ❑ **Install the Starlite HD5 as shown.**
- ❑ **Connect the SDI and Power connectors** and loop the cable inside the shell as you seat the LCD.
- ❑ **Tighten three screws securely to seal the shell.**
- ❑ **Connect SDI to the camera and Mini XLR to the Power lead on the front shell.**





Mount V-Lock Battery

PRO ACTION can accommodate a variety of v-lock batteries. See Gates PRO ACTION web page for the most current list of compatible batteries.



Functional System Check

Before the next step – mating the PRO ACTION shells – this is a good time to do a full system check. Activate the System Power switch and verify all components operational.

- ☐ **Camera auto boot** (DSMC2 and Mini. DSMC requires power-on via the Assign ABCD control)
- ☐ **Starlite HD5 boot.**
- ☐ **Starlite HD5 Smart Corners.**
- ☐ **Record Trigger** functions
- ☐ **Iris up/down** for DSLR lenses via Assign 1/2 or Assign 1/2/3 controls.

foolcontrol – a note about wireless camera control

A powerful tool for Pro Action is wireless control of all camera functions. A third party iOS app **foolcontrol** (www.foolcolor.net) enables such control – even through the PRO ACTION housing shell. What you can do with foolcontrol:

- ☐ **Check setup** and system function;
- ☐ **Change any parameters** as needed;
- ☐ **Between dives**, check and change settings.

foolcontrol is available in the Apple store.



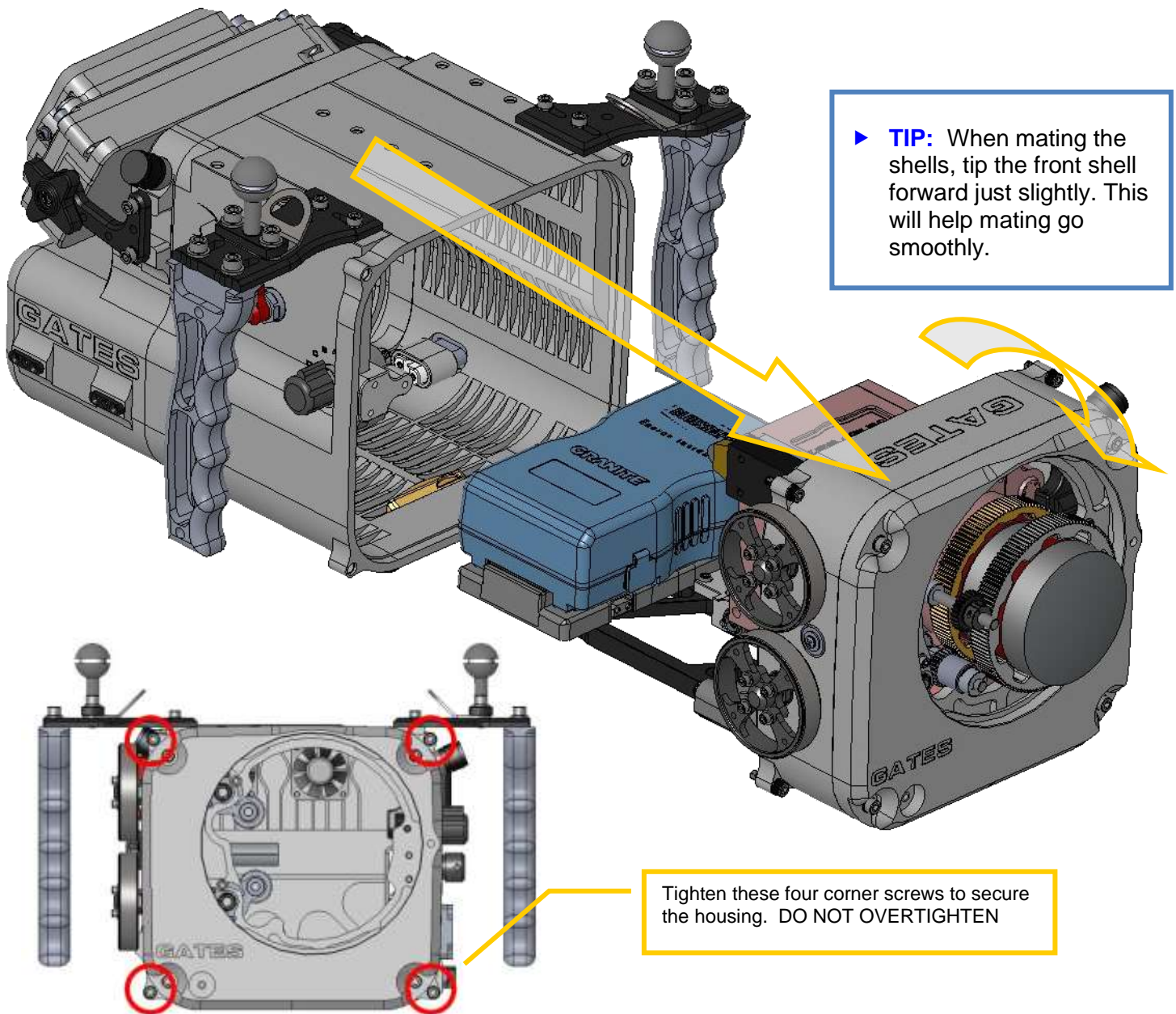
Housing Closure

After verifying full function of the system, it's time to close the housing. Similarly to separating the shells in the earlier preparation section, the rear shell will be mated with the front shell and secured. Refer to the image below.

- ▣ **Tilt the front shell forward slightly** while mating the shells. Slide the rear shell toward the front slowly.

▶ **CAUTION. IF YOU ENCOUNTER AN OBSTRUCTION – STOP – IDENTIFY THE PROBLEM AND PROCEED AGAIN.**

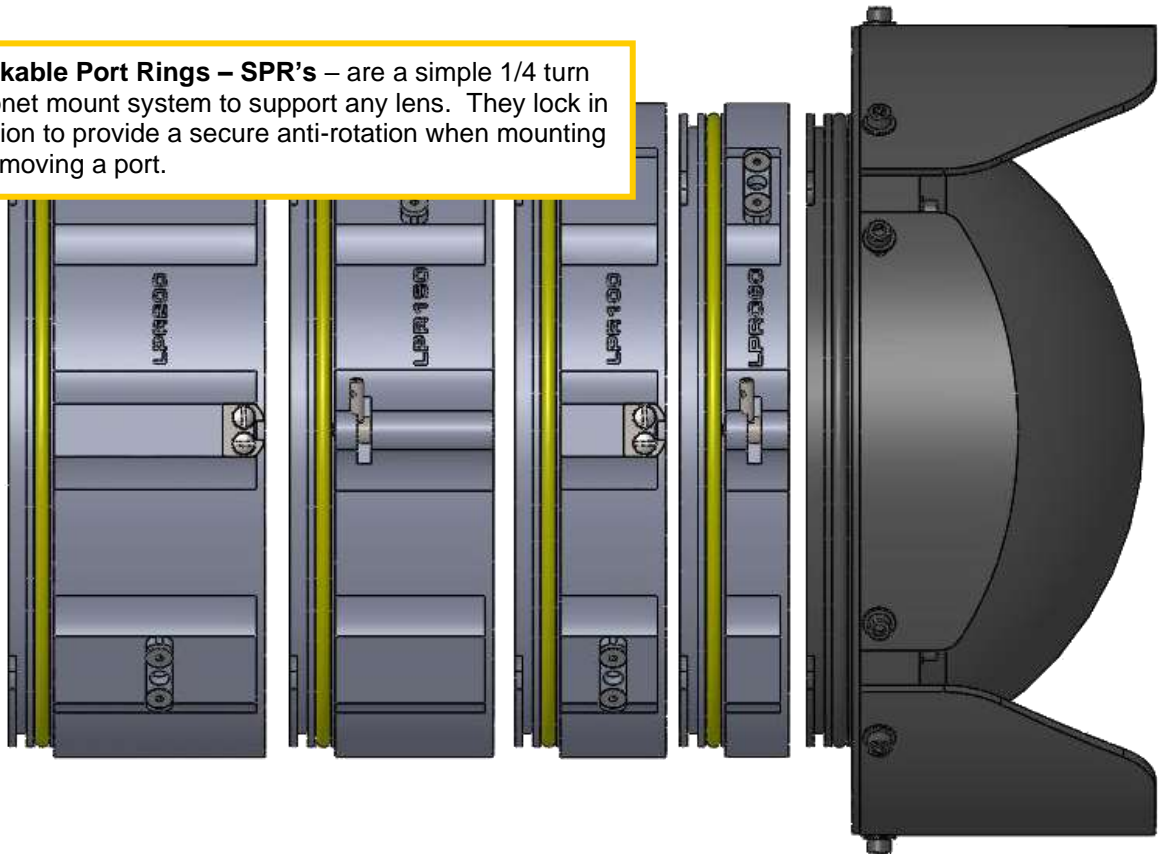
- ▣ **Tighten the four screws** at the housing corners to secure the shells together. Tighten firmly, **but do not over tighten.**



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 PRO ACTION. This lens data is summarized in a Compatibility Matrix. It can be found on [Gates Website](#).

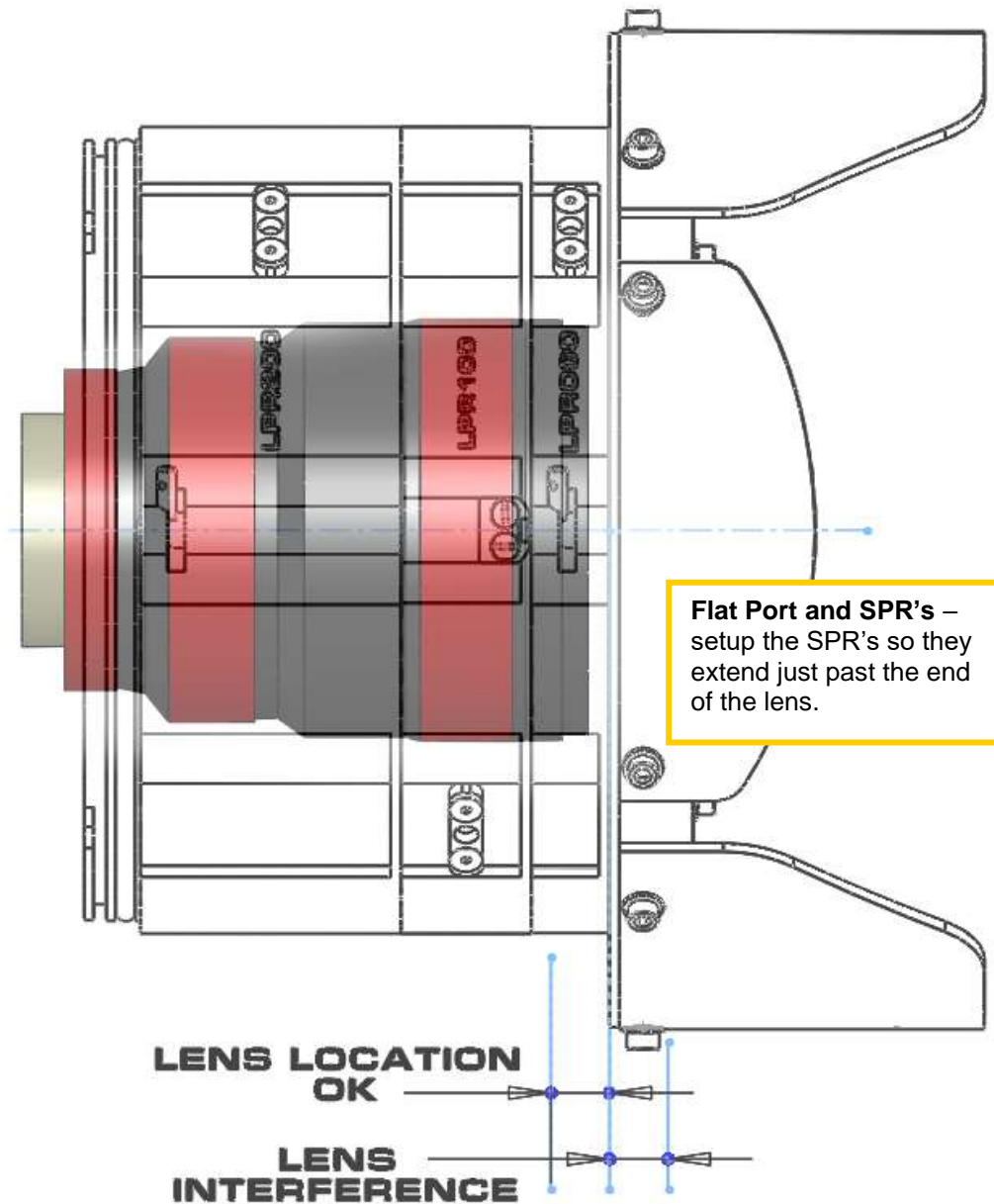
The Compatibility Matrix is constructed to identify the proper Port Extender or Port Ring (used on other Gates cinema-grade housings), and a conversion to the right combination of SPR's.

- ❑ **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 and re-test to achieve optimum results.

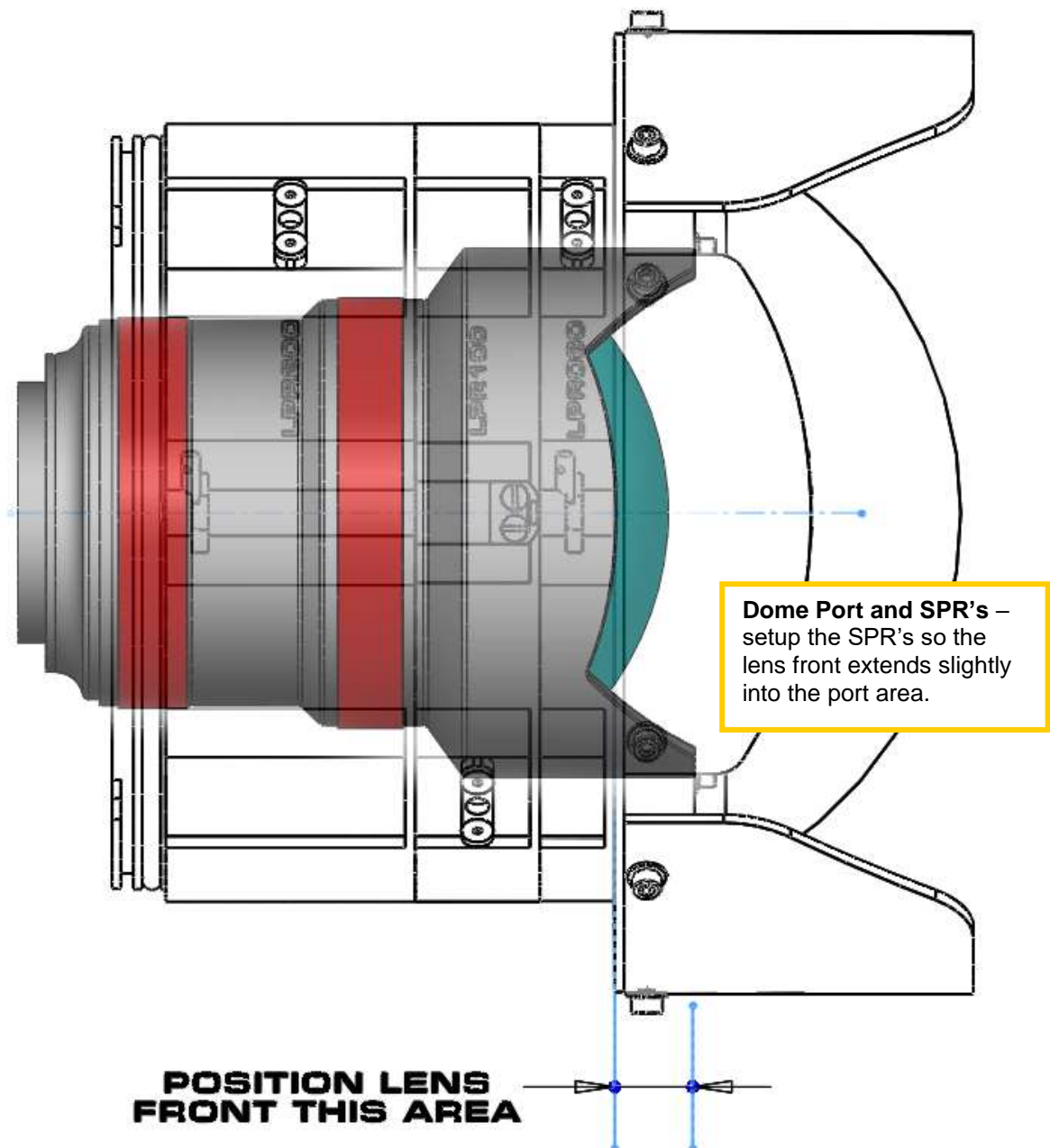


- ▣ **A Dome Port** is used commonly with wide angle and fisheye lenses, typically 8mm at the shortest (35mm equivalent) to about 20-35mm.

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.**



Water Alarm (Optional)

If you have the optional water alarm installed there are three alarm conditions to know:

<i>Condition</i>	<i>LED</i>	<i>Siren</i>
New Battery (Insertion)	Bright Intense blink while siren plays	Ascending tones played 4 times
Water Intrusion	Bright Intense Blink	Grating Warble sound. Alarm will sound for duration of detection.
Low Battery	Low Intensity fast blink	Descending tones played 8 times pausing approx. 20 seconds between plays after alarm test or water detection.

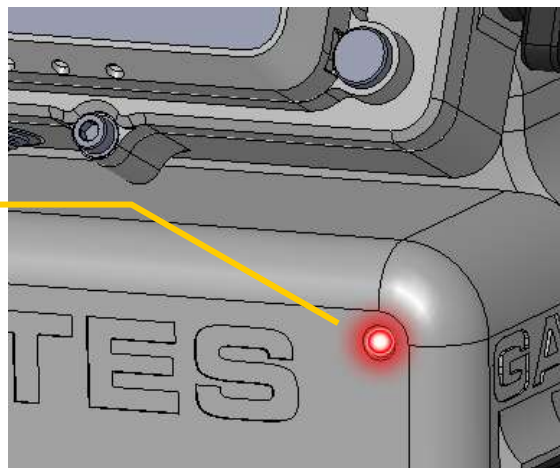
The alarm can be tested anytime by shorting the detection contacts that lead to the water alarm transducer. The water detection condition will activate for 6 seconds. If the battery is drained the low battery condition will sound.

The water alarm requires a single 6V battery like Radio Shack model 23-469 or A544.

Your battery should be removed when stored (e.g. between dive trips). Check the battery prior to every dive to ensure proper operation. Change when indicated.

CAUTION: You must wait a minimum of 30 seconds between battery insertions to allow the unit to fully discharge.

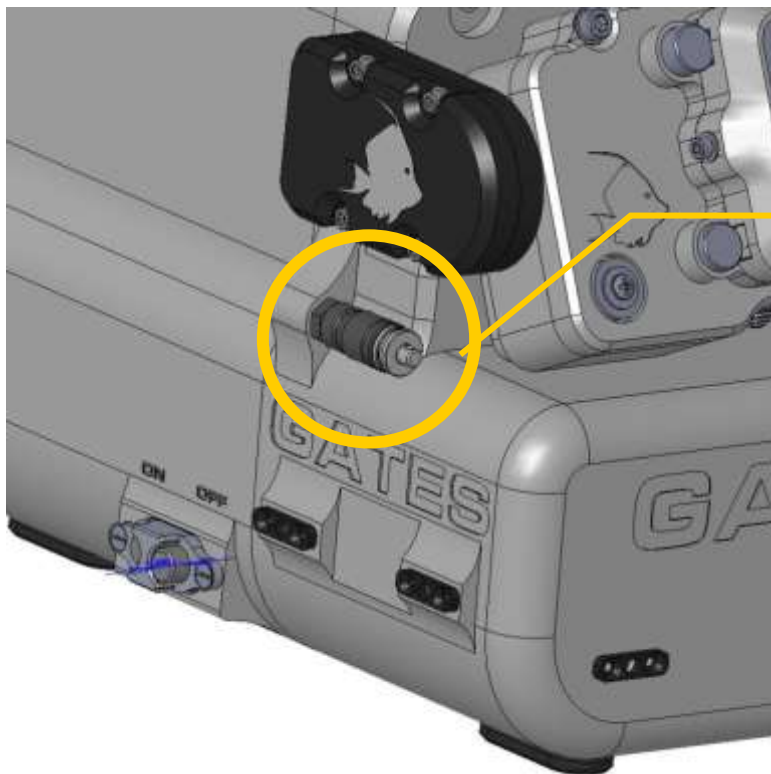
The red LED alarm signal will appear here on PRO ACTION.



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 PRO ACTION. More vacuum can inhibit the transfer of heat away from the housing.

- ▣ Note that Seal Check Lite – included with PRO ACTION – requires about 100 cycles of the hand pump to reach 3 in Hg / 100 millibars vacuum.



The Seal Check fitting is located here on the rear left of PRO ACTION.

Final Checks

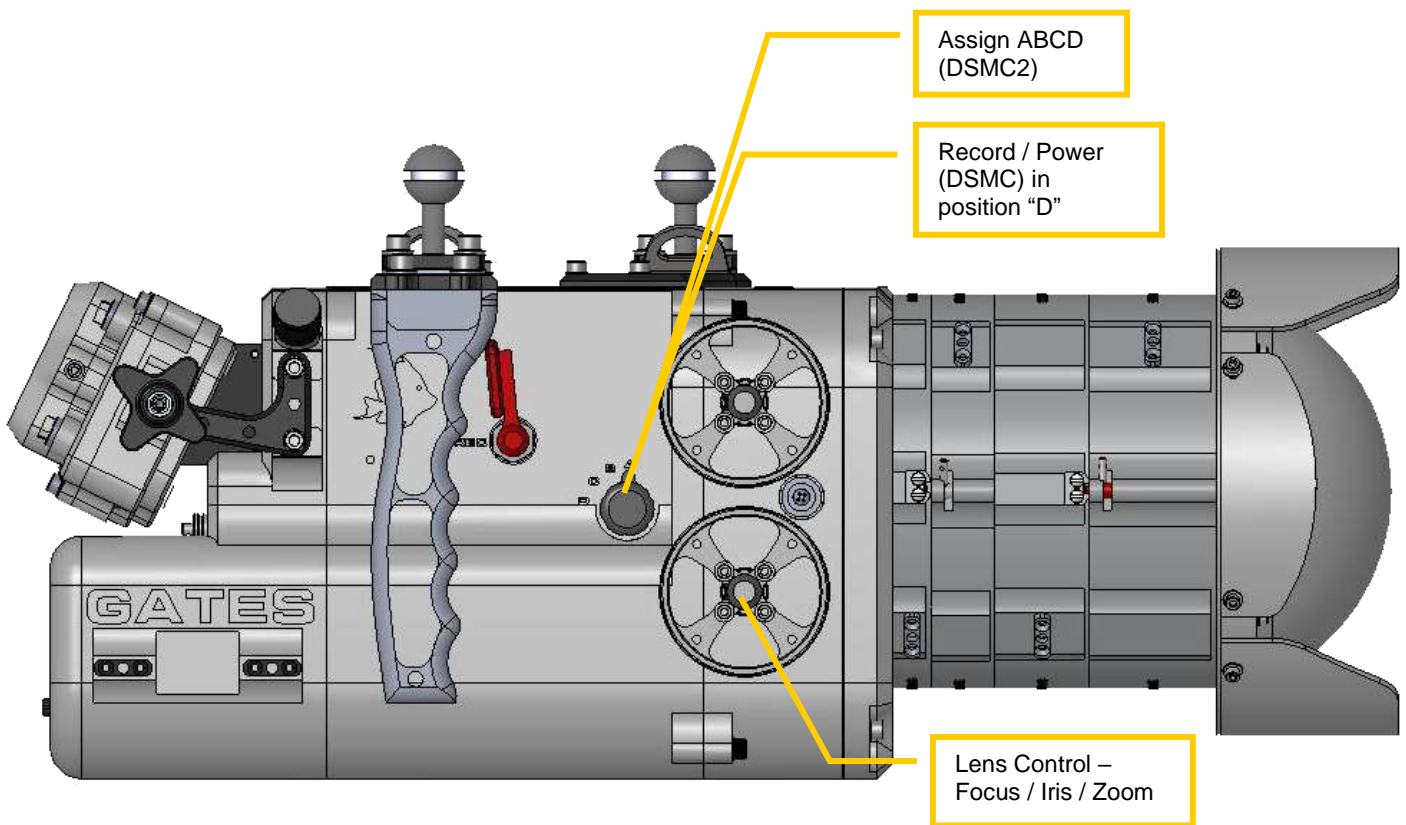
- ☐ **Visual Inspection.** Look closely at all seal mates – Port, SPR's, and main Housing seal – for gaps. Look over the housing one final time.
- ☐ **Verify operation.** As a final check, power on the camera and verify all controls are functioning normally.

4: PRO ACTION Operation

Right Side Controls

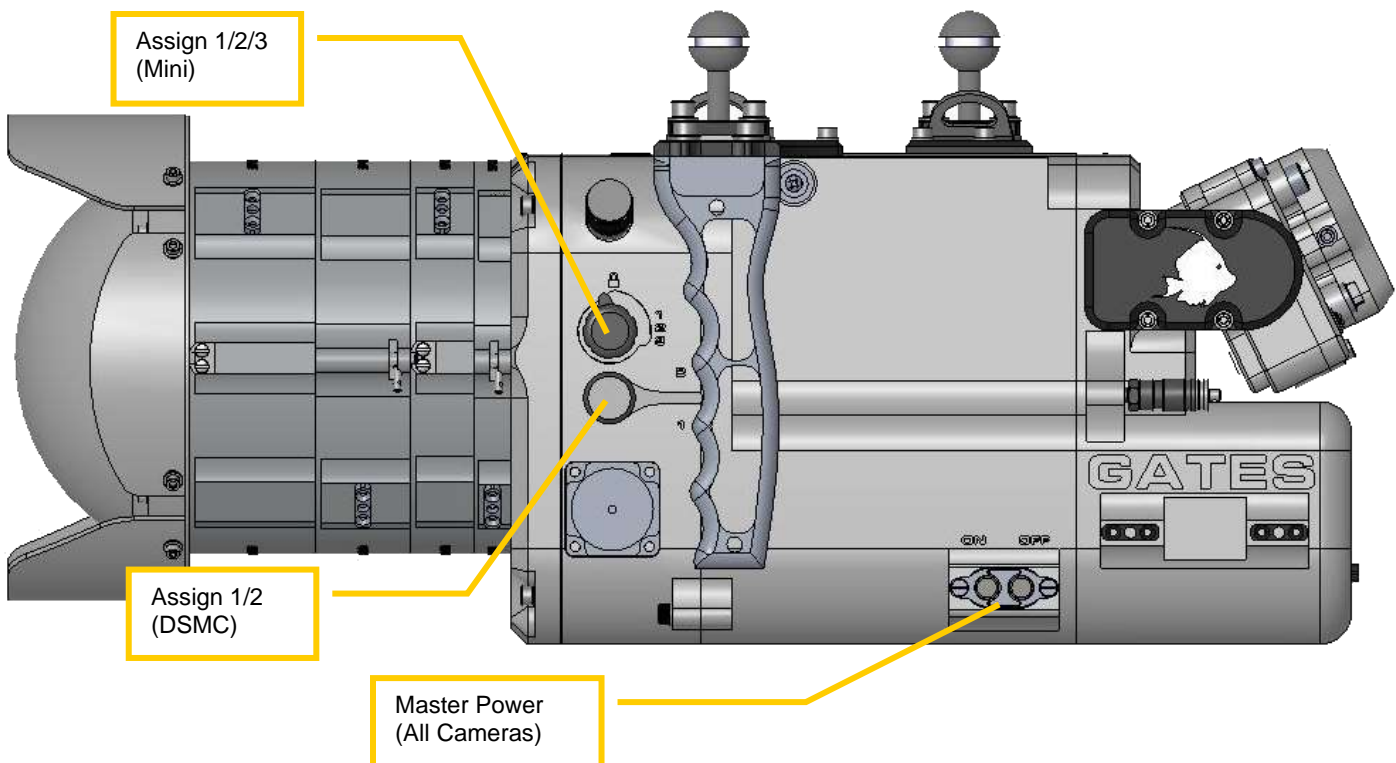
- ☐ **Record Trigger.** Activates record start / stop on all cameras.
- ☐ **Lens Control.** These two controls can be mapped to any lens to for focus, iris or zoom.
- ☐ **Assign ABCD.** For DSMC2 camera, activates the user buttons on the Sidekick module. For DSMC, this depresses the power / record button on the camera right side.

NOTE: When mating the rear shell to close the housing, this control must be in position “A” to clear internal battery. Once closed and secure, rotate to position “D” to activate the power / record camera button.



Left Side Controls

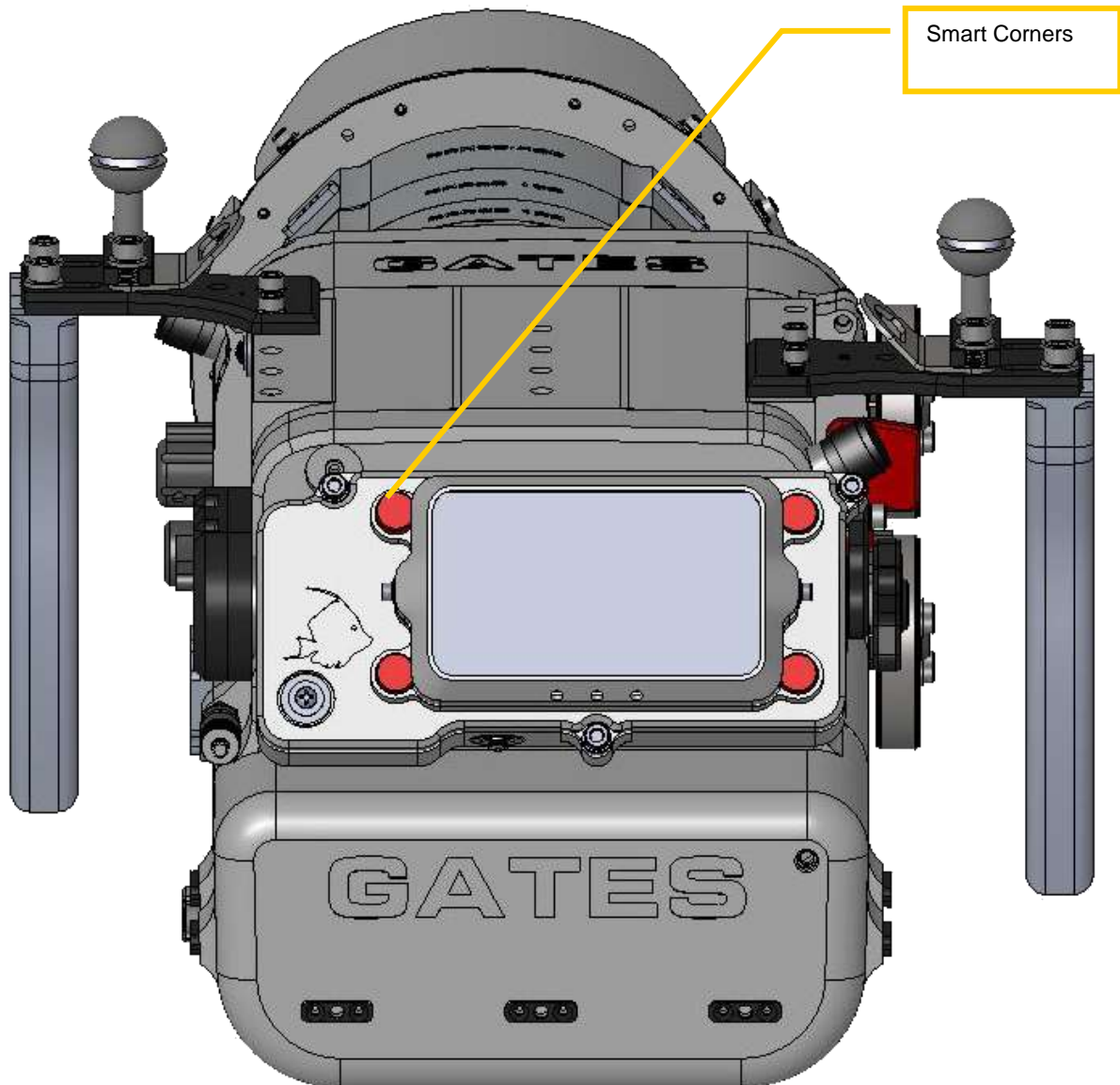
- ▣ **Master Power.** Provides power to all system components – Camera, LCD and Housing
- ▣ **Assign 1/2.** (DSMC and DSMC2) Activates the user buttons on the front left of the camera.
- ▣ **Assign 1/2/3.** (Mini). Activates the user buttons on front left of camera.



Monitor Controls

The Pivoting rear monitor on PRO ACTION has four pushbuttons that activate Smart Corners on the Transvideo Starlite HD5 touch screen.

As noted in a previous section, Smart Corners can be assigned a variety of functions like peaking, magnify and waveform to assist focus and exposure.



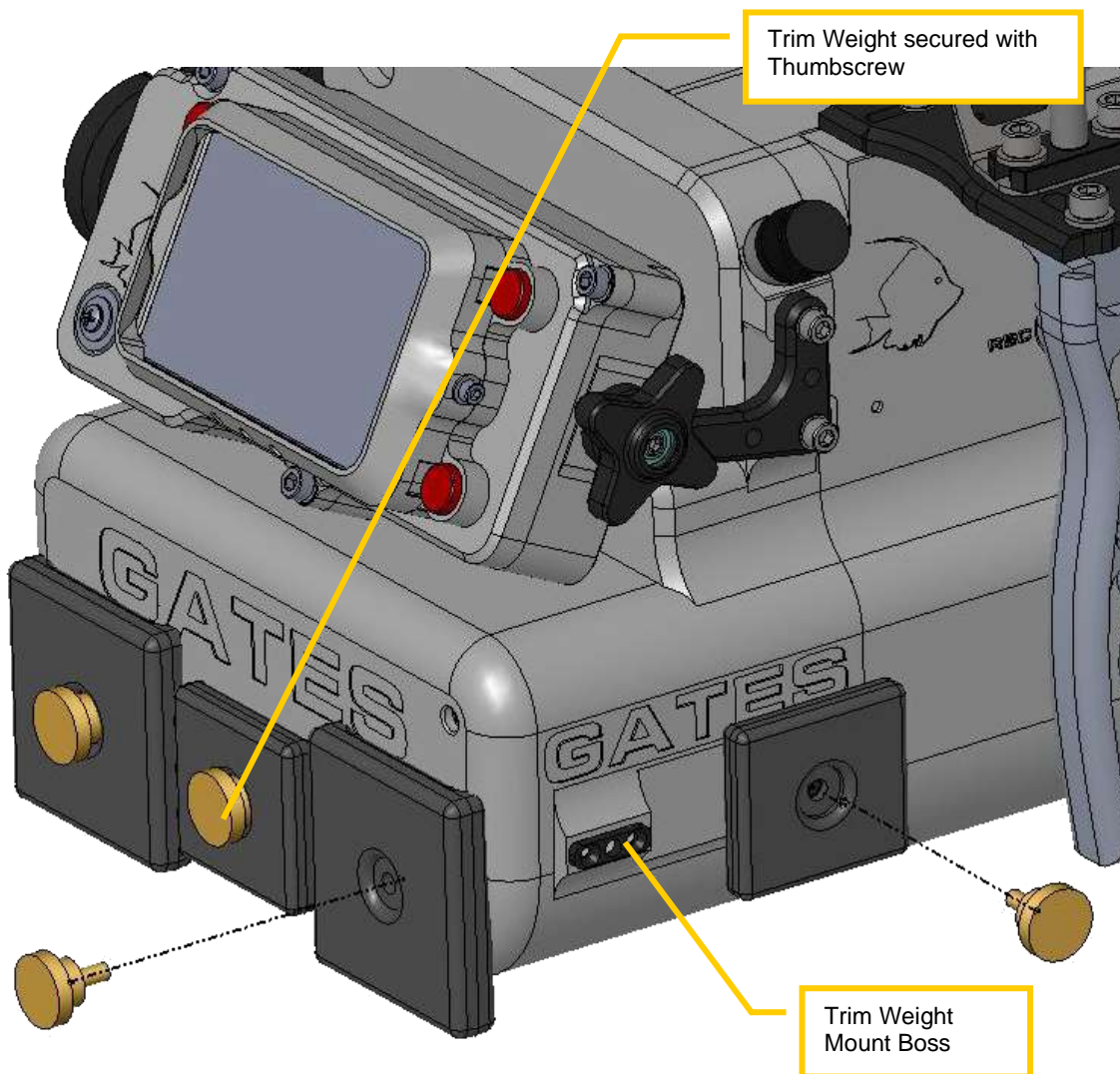
Buoyancy Adjustment

PRO ACTION features adjustable buoyancy and trim. Gates has designed custom trim weights that can be secured to a variety of locations to adjust PRO ACTION buoyancy and trim precisely to your liking.

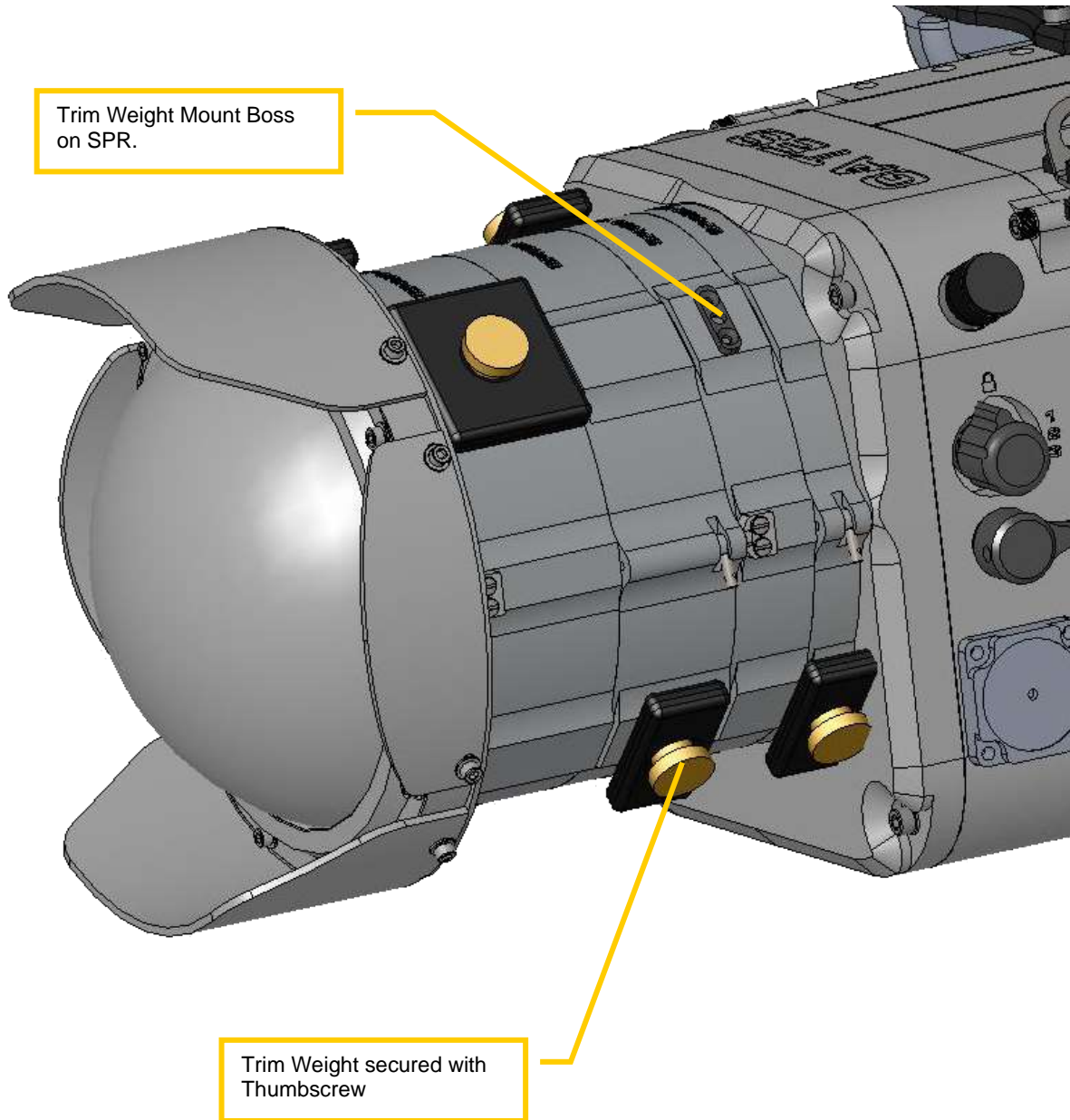
See the image below showing the various trim weight mount locations.

- ▶ **CAUTION.** To avoid internal damage DO NOT travel or transport PRO ACTION with trim weights installed.

- ▣ **Rear Housing Shell.** The rear housing has 7 trim weight bosses to secure 4, 8 and 16 oz trim weights. Use the Thumbscrew and securely tighten to the housing.



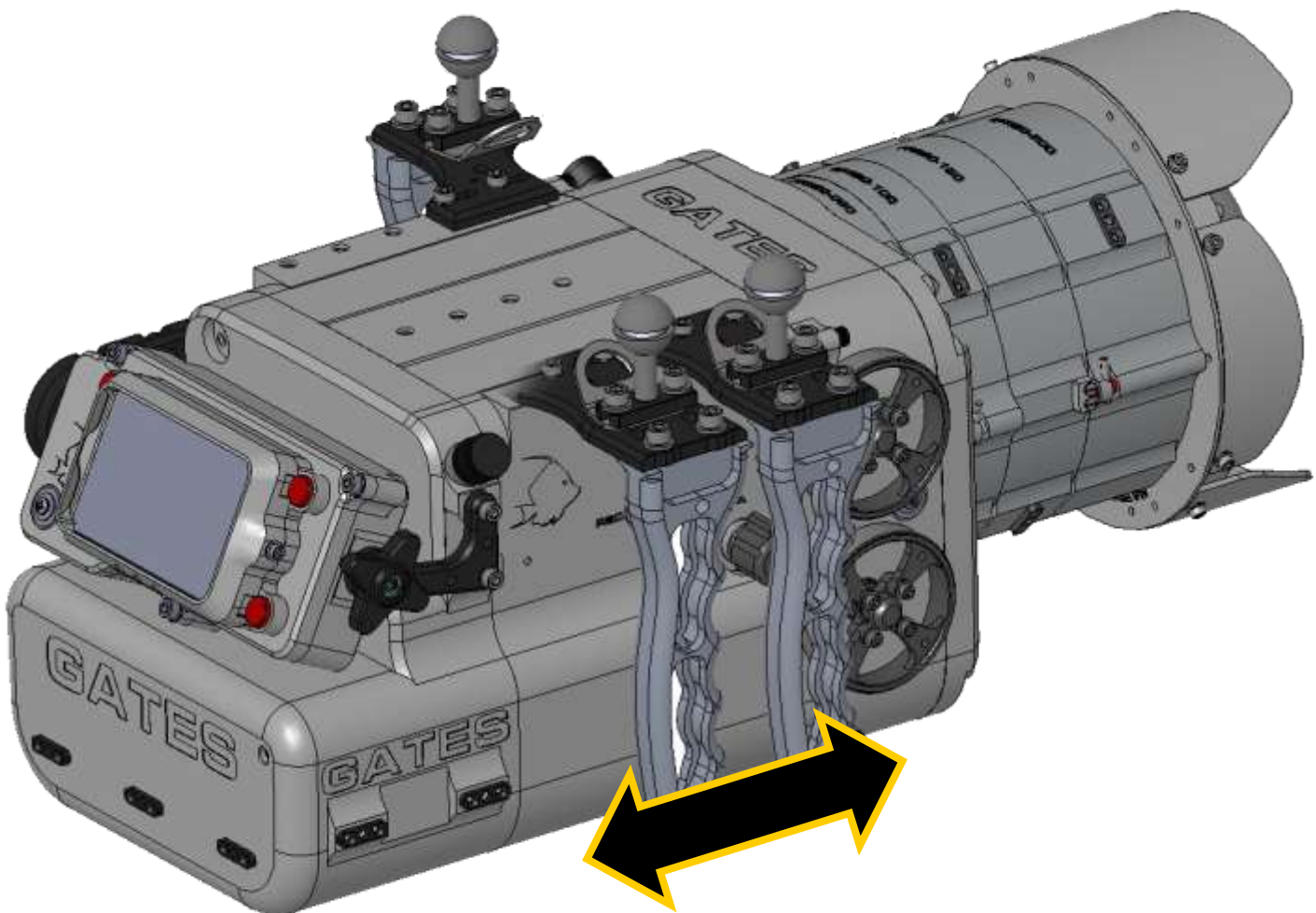
▣ **Rear Housing Shell.** Trim weights can also be secured to the SPRs as shown.



Adjustable Handles

PRO ACTION includes adjustable handle grips. They slide forward and back on the top rails for positioning exactly as you desire.

Loosen the mount screws to slide back and forth about 1/2 inch. For greater adjustment, remove the screws and re-position the handles to a different location.

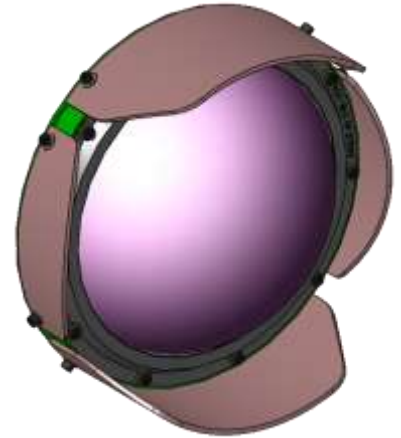


Port Options

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

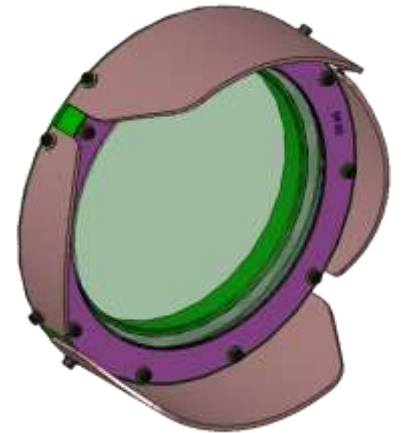
Dome Port

- ☐ **Optical material:** Anti-reflective coated glass.
- ☐ **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.
- ☐ **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%.



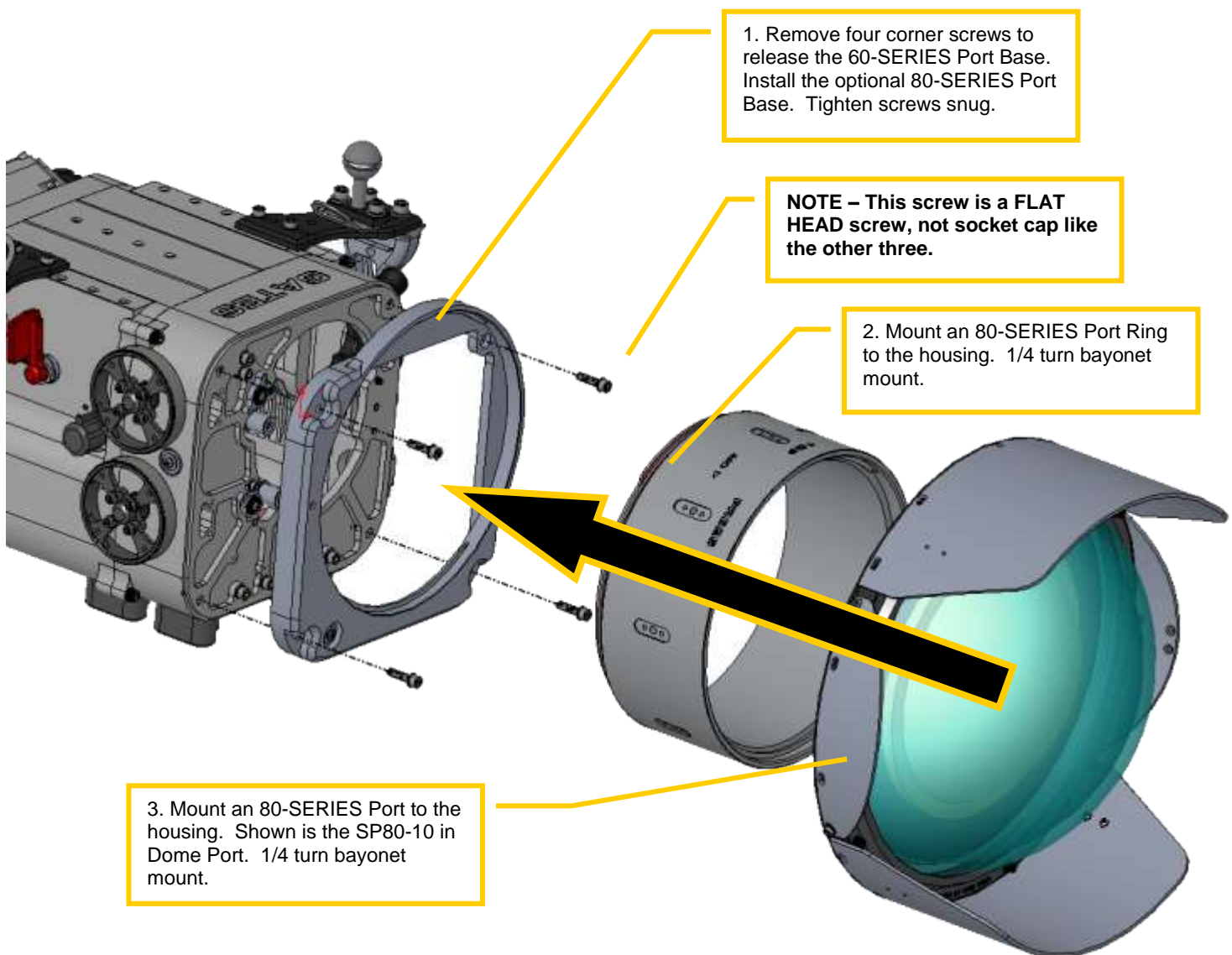
- ▶ **NOTE:** The optical interaction between any given lens and a Dome or Flat Port is largely predictable, however distortions and aberrations can occur with either Port. As such, Gates does not warrant optical performance or image quality.

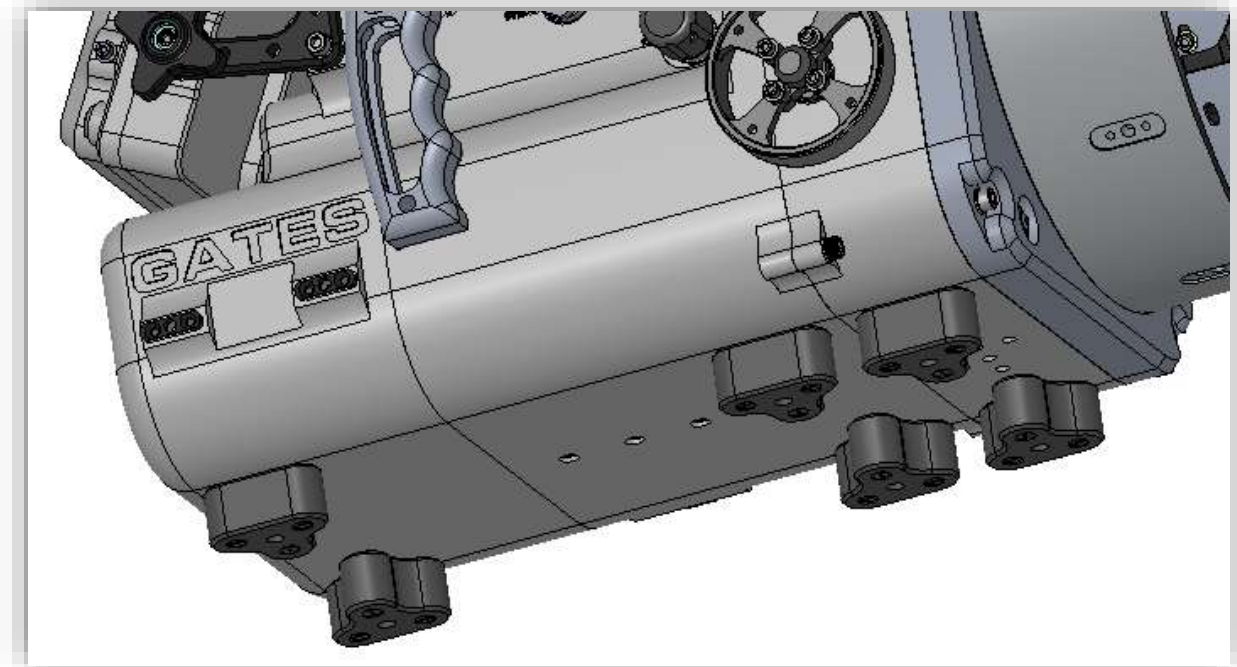
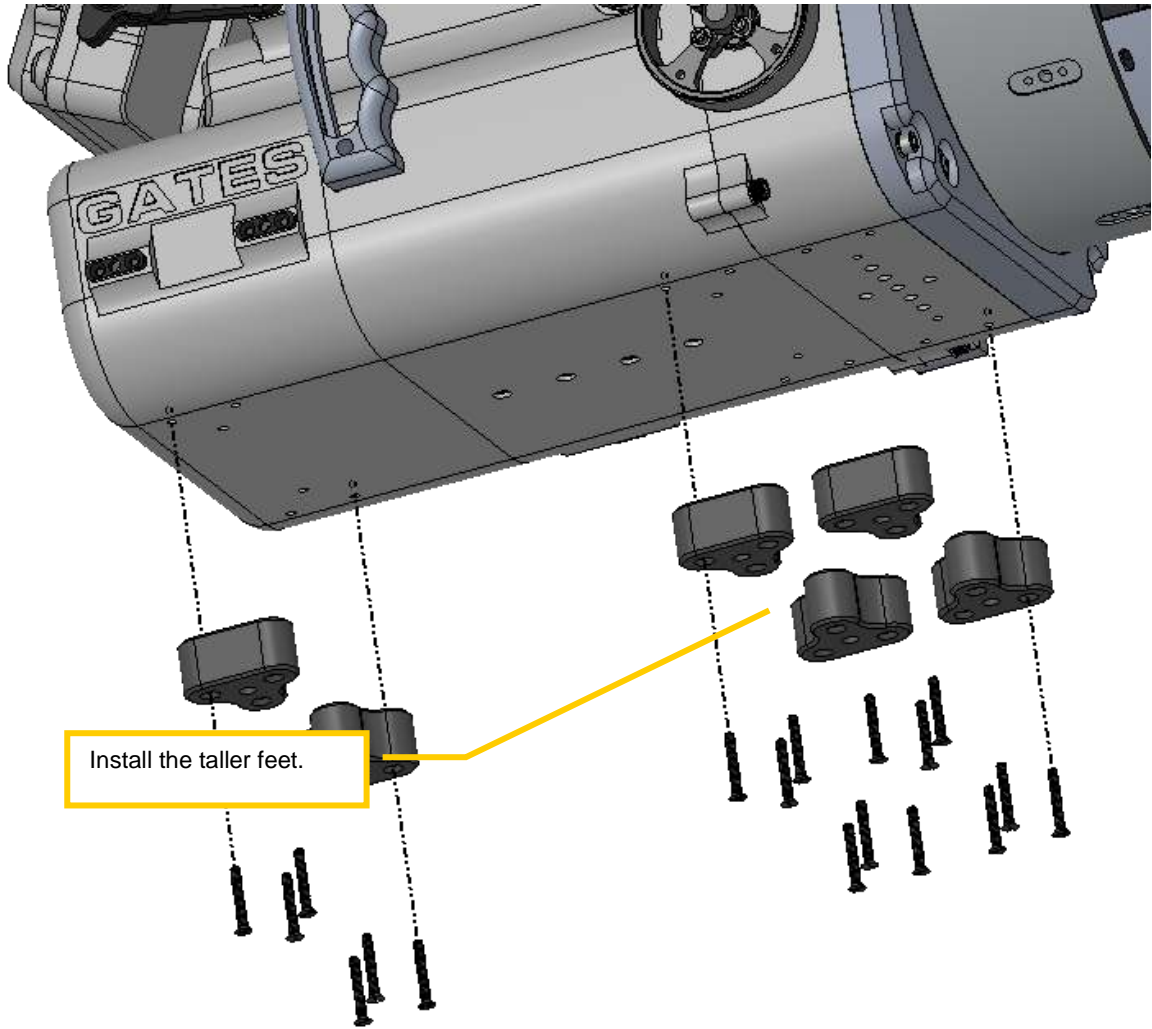
Gates endeavors to collect data from the field and our own testing as a resource to customers, but you should always characterize your lens of choice for use underwater.

80 Series Ports and PRO ACTION

Gates larger port series – the 80 series – can be used with PRO ACTION. 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.

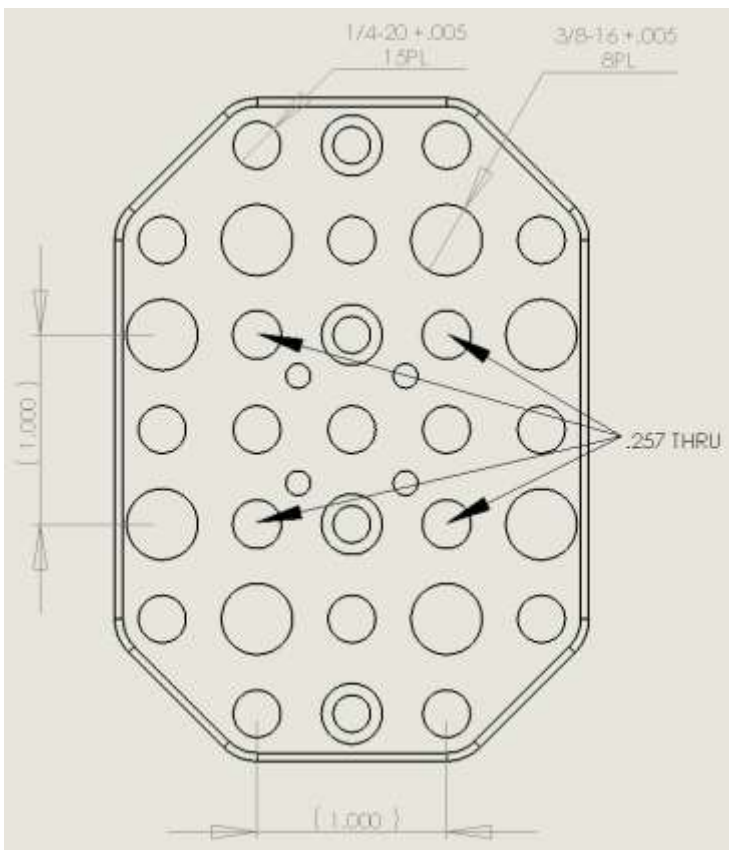
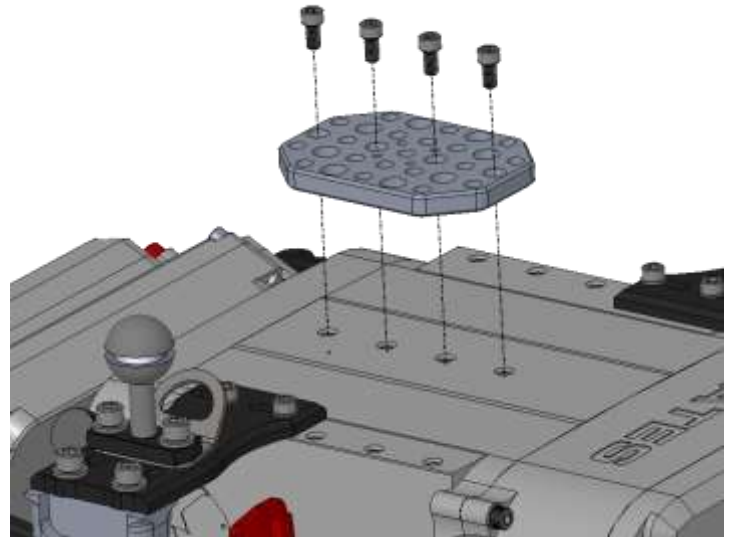
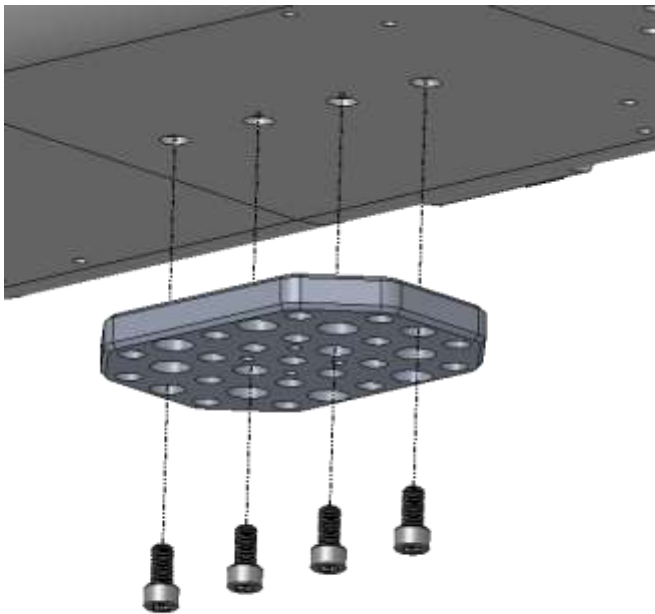
- ❑ **Remove the 60-SERIES Port Base from PRO ACTION.** The four corner screws will release it from the housing. Install the 80-SERIES Port Base, followed by an 80-SERIES Port Ring and Port.
- ❑ **Next, install the taller feet on PRO ACTION.** This keeps the housing from resting on the larger port system.





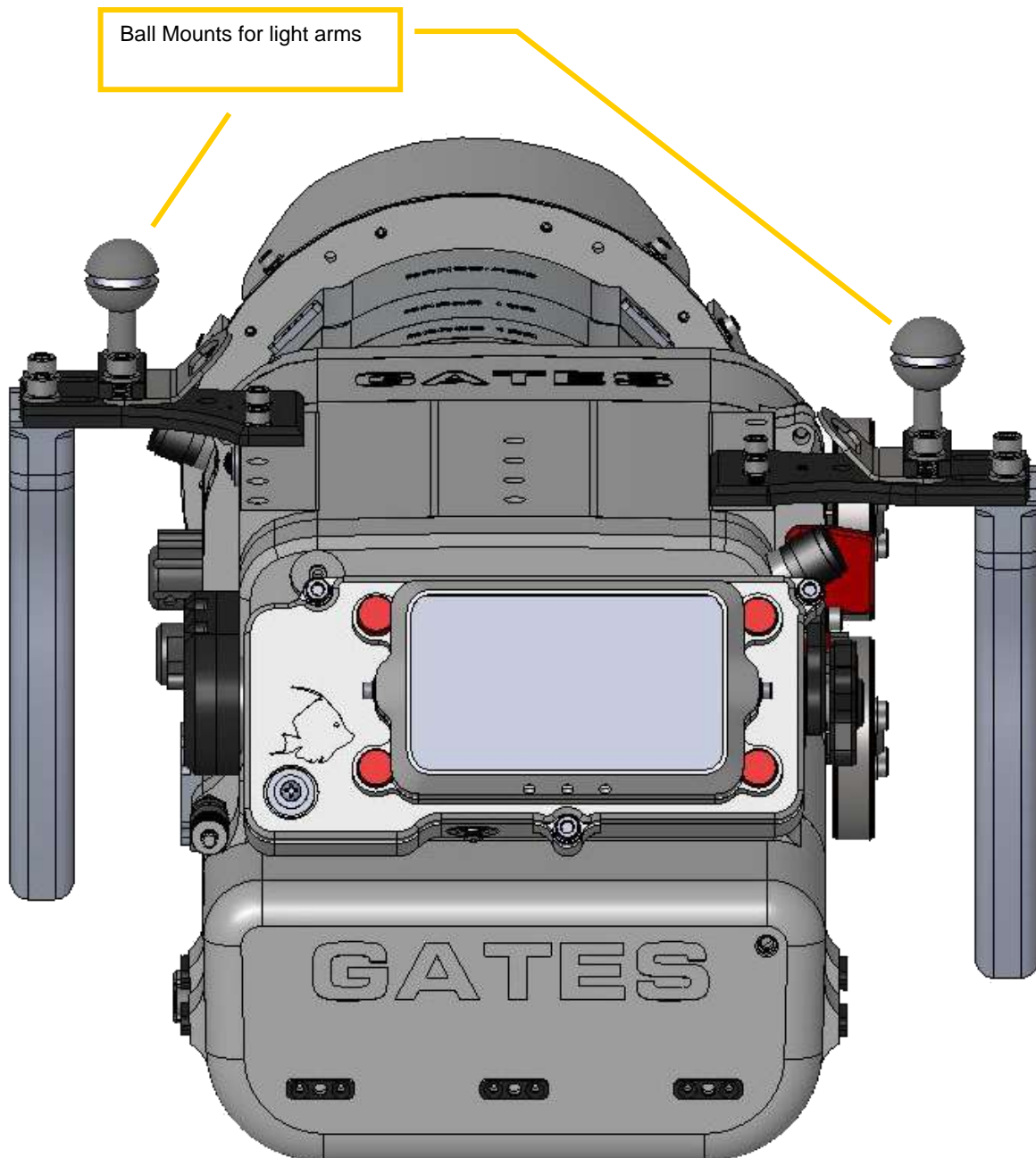
Cheeseplate Mount (Optional)

An optional Tripod / Cheeseplate Mount is available for tripod, crane, jib, grip handle and pole-cam mounting. The Cheeseplate Mount can be secured to the either top of base of the rear shell. It includes standard 1/4-20 and 3/8-16 threads on 1 inch centers.



Lighting Arm Mounting (Optional)

PRO ACTION 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. .



Lighting Systems (optional)

PRO ACTION pairs well with Gates Lighting Systems GT14's. A powerful 14,000 lumens of light at a high color temperature -- 90 CRI 5000°K color temperature. Mirrored indicators show light level and time remaining on both sides of the light. Several safety features and long burn time -- 30 minutes -- at full power.

Contact Gates for more information.



Travel / Transport

PRO ACTION requires several considerations for travel.

- ❑ **Camera.** It is OK to transport the camera / lens inside PRO ACTION ***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 PRO ACTION with trim weights inside. Severe damage may result.
- ❑ **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.



5: PRO ACTION Maintenance

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.

Your Gates housing has 3 serviceable o-rings:

- ▣ Housing Main 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.

▶ **CAUTION:** Do not lubricate the large 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!

6: Customer Support

Should you have any questions about PRO ACTION and its operation, please contact Gates at the numbers below.

Email: Customer.svc@GatesHousings.com

Web: www.GatesHousings.com

Phone: 858.391.0052

Fax: 858.391.0053