

PROTM

OWNER'S MANUAL

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2012

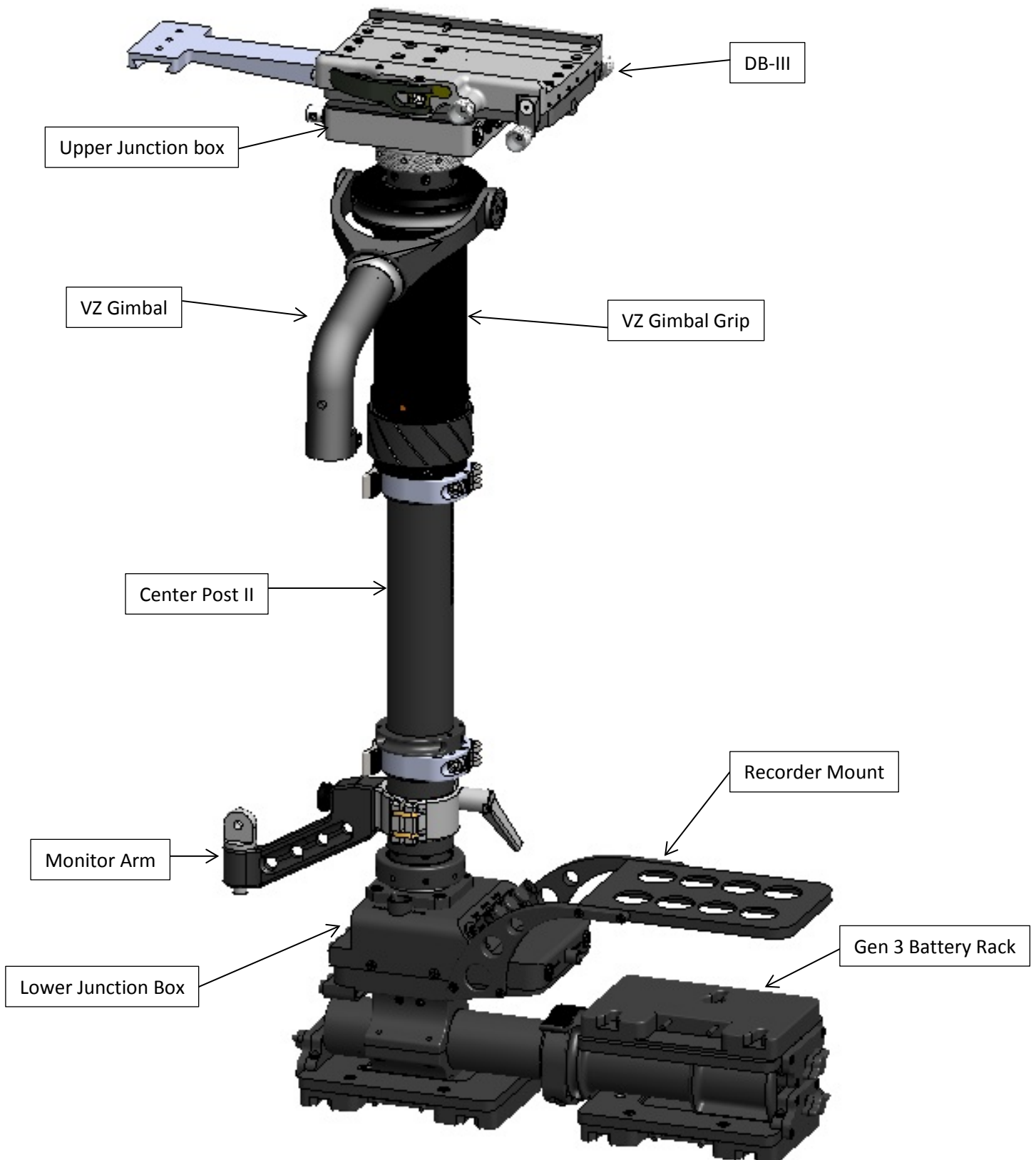
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Caution:

In event of saltwater exposure all *PRO™* components must be rinsed immediately and thoroughly with fresh water (distilled water recommended). Dry thoroughly using a hair dryer or any other low heat source.

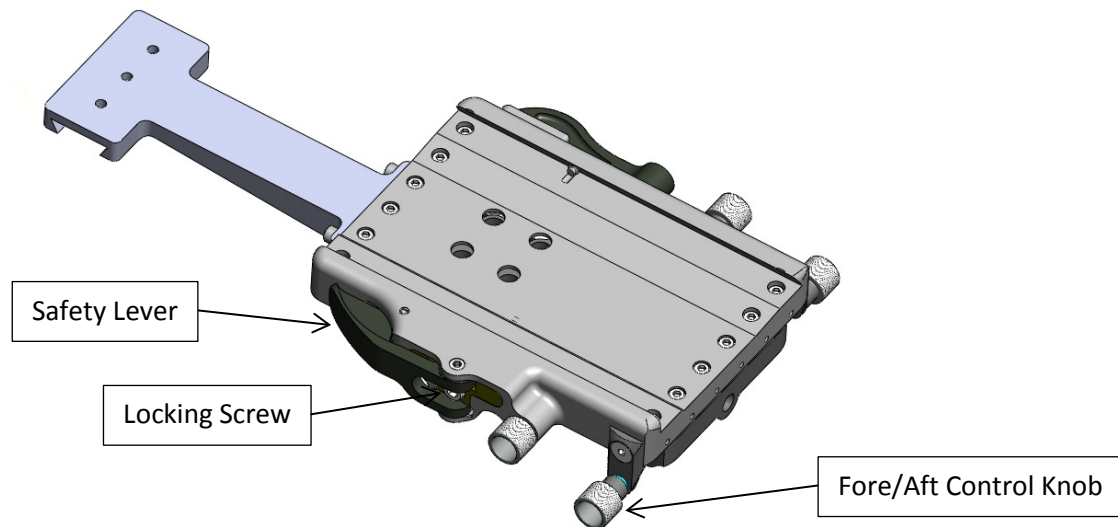
Ensure no power is supplied to the equipment while servicing it

FIGURE 1: PRO™ SLED II CAMERA STABILIZING SYSTEM



PRO™ DONKEY BOX™ III

FIGURE 2: DONKEY BOX™ III (left side view)



This third generation camera-mounting platform offers the following:

“Cross Roller Bearings” which, by their line contact, as opposed to the point contact of ball bearings, and their increased length of engagement, multiply the stiffness of the D-Box III, and allow smooth easy movement fore/aft and side/side.

Access to each of the four mounting screws at once, without the need to adjust the fore/aft or side/side controls.

A “drop in/out” feature and an independent safety mechanism, so that in the event of a failure in the locking mechanism, the camera is still secure when the safety lever is in place.

Tool-less rough adjustment of the camera, via the clamp lever located on the right side.

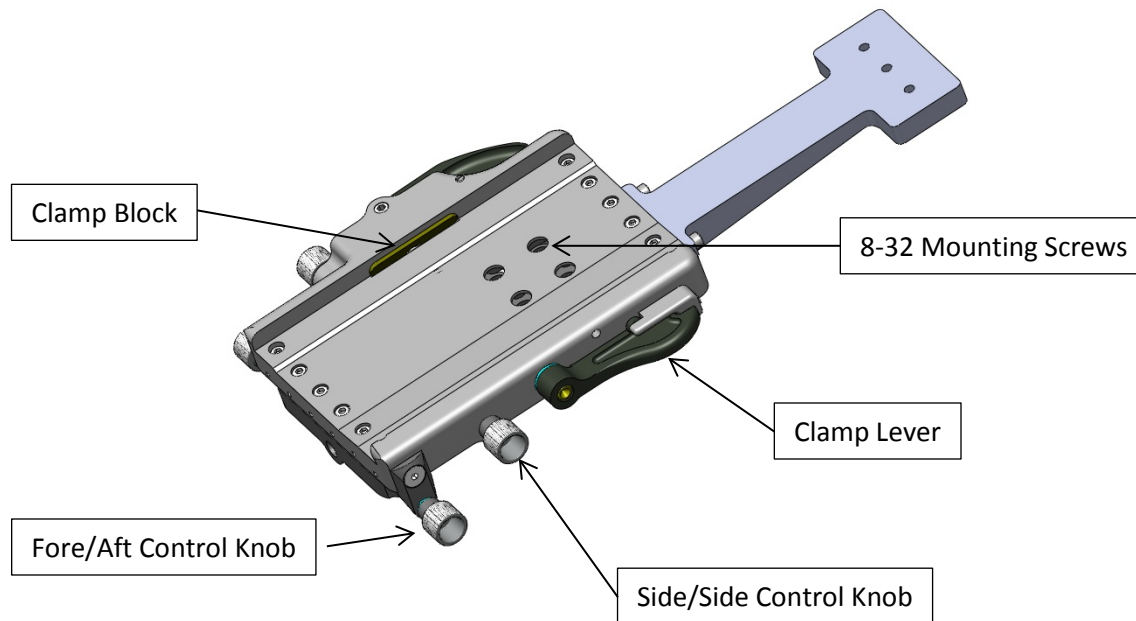
Quick change from hi to lo-mode.

Side/side and fore/aft controls on both the right and left side, for easy access regardless of the mode you are operating in; high or low, or the side from which you operate; left or right.

Fine thread lead screws and captured lead nuts enable the operator to make small, accurate adjustments.

Once the camera has been placed in the Donkey Box, lock the safety lever in place. Then, ensuring that the clamp lever is in the up and locked position, tighten the locking screw, if this screw is over-tightened the rough adjustment via the clamp lever will be defeated. For rough adjustments to the camera’s fore/aft position first turn the clamp lever down (clockwise) then push or pull to slide the camera into the desired position. Return the clamp lever to it’s locked position and then use the controls on either side of the Donkey Box for final adjustments, fore and aft and side to side.

FIGURE 3: **DONKEY BOX™ III** (*right side view*)



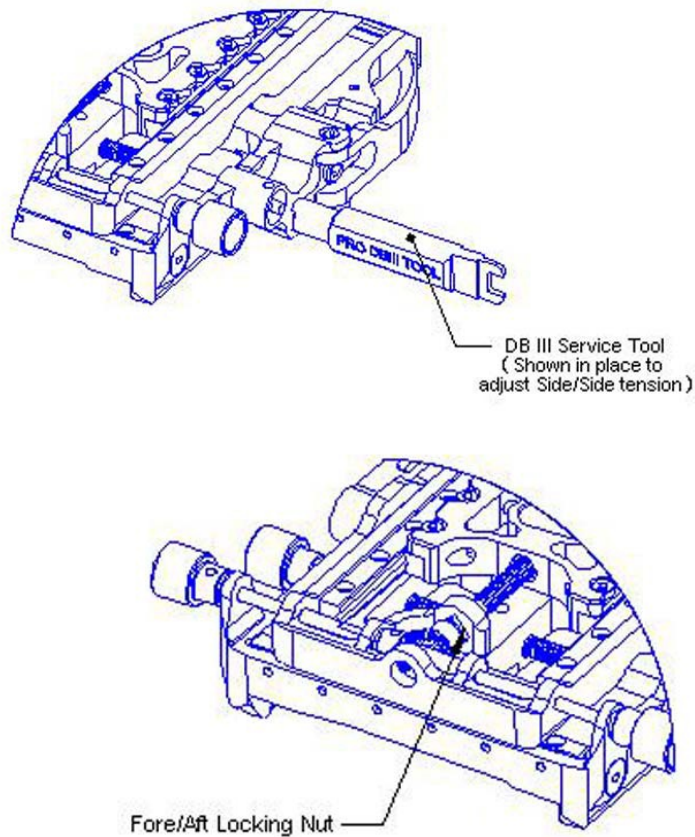
DONKEY BOX III MAINTENANCE:

Lubrication: Apply lubrication to the locking screw, and the bearings as dictated by shooting conditions.

Cleaning: Wipe down the visible areas with a light solvent.

Tightening: Do not over-tighten the locking screw, this will defeat the function of the clamp lever. Set-screws and bearing rails are locked to preset torques at the factory. In the case of any type of field repair pay close attention to how these screws are put back into place, the preset for the bearing rails is 17 lbf-in, while the preset for the set screws is 2.2 ozf-in.

DONKEY BOX™ III ADJUSTMENT:



Tension Adjustments: In order to adjust the tension or resistance in the knobs it is necessary to use the D-Box III tool.

(Caution: This adjustment should only be made when a camera plate is in place and locked down, do not adjust the side/side tension without a camera plate in place and locked down.) For side/side adjustments it is necessary to first remove the side/side knob on the left side of the D-Box. The knob is held in place by a set-screw, which is accessible through a hole in the underside of the D-Box. It will be necessary to remove this set screw using an allen tool. Once the knob has been removed slide the square-lug end of the tool over the shaft and tighten the locking nut, while checking the side/side control for the desired tension/resistance.

For fore/aft adjustments use the wrench end of the D-Box III tool to access the locking nut. The locking nut is located on the underside of the D-Box towards the fore/aft controls. Tighten the locking nut while checking the fore/aft controls for the desired tension/resistance.

THIRD GENERATION: UPPER JUNCTION BOX

Overall, the upper junction box delivers power to the camera, the focus system and the video tap via your cables. It is attached directly under the Donkey Box.

Figure 1: UPPER JUNCTION BOX (*front view*)

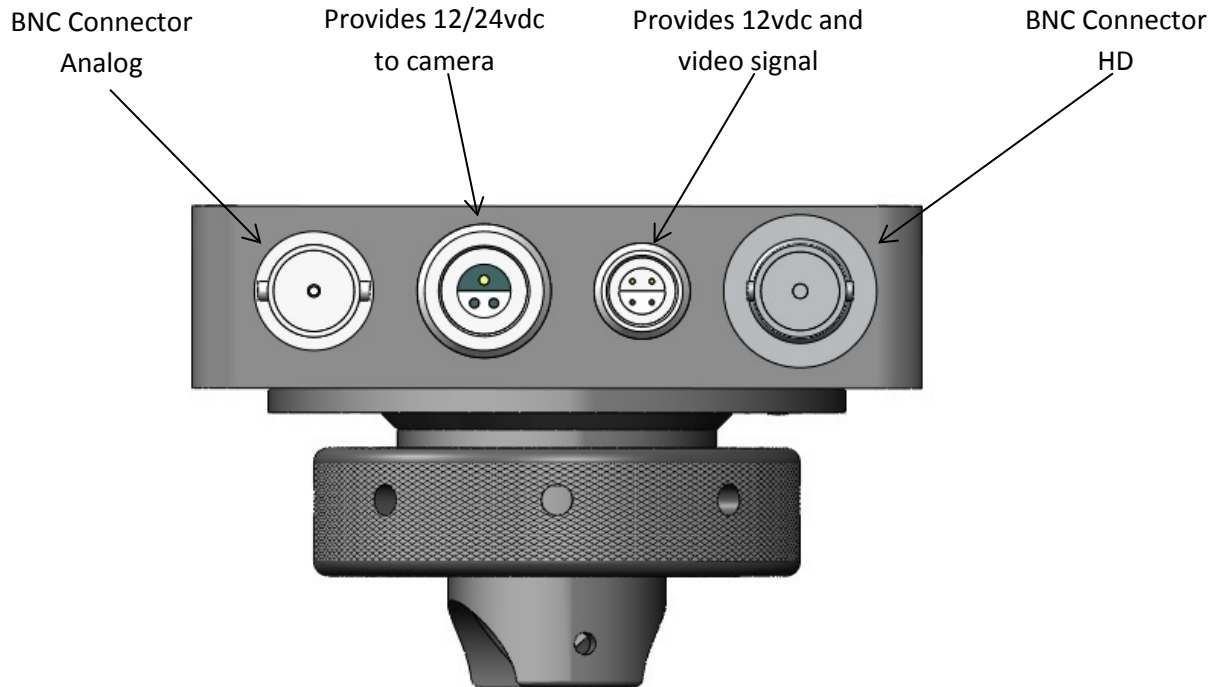
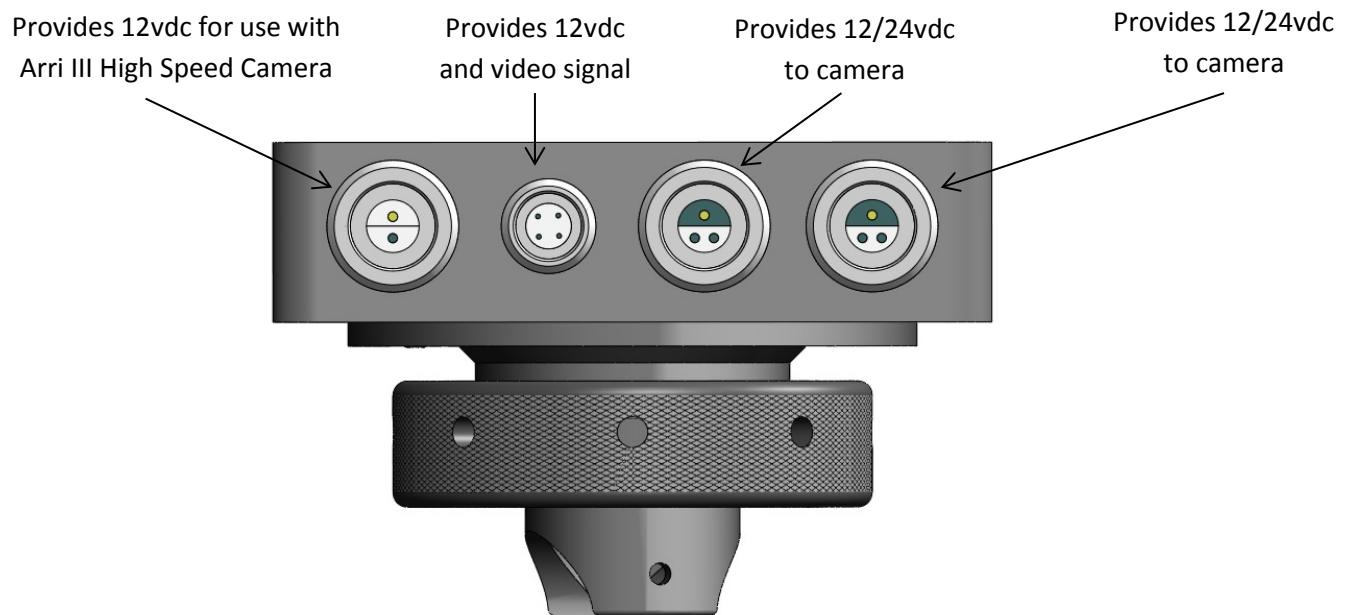


Figure 2: UPPER JUNCTION BOX (*rear view*)

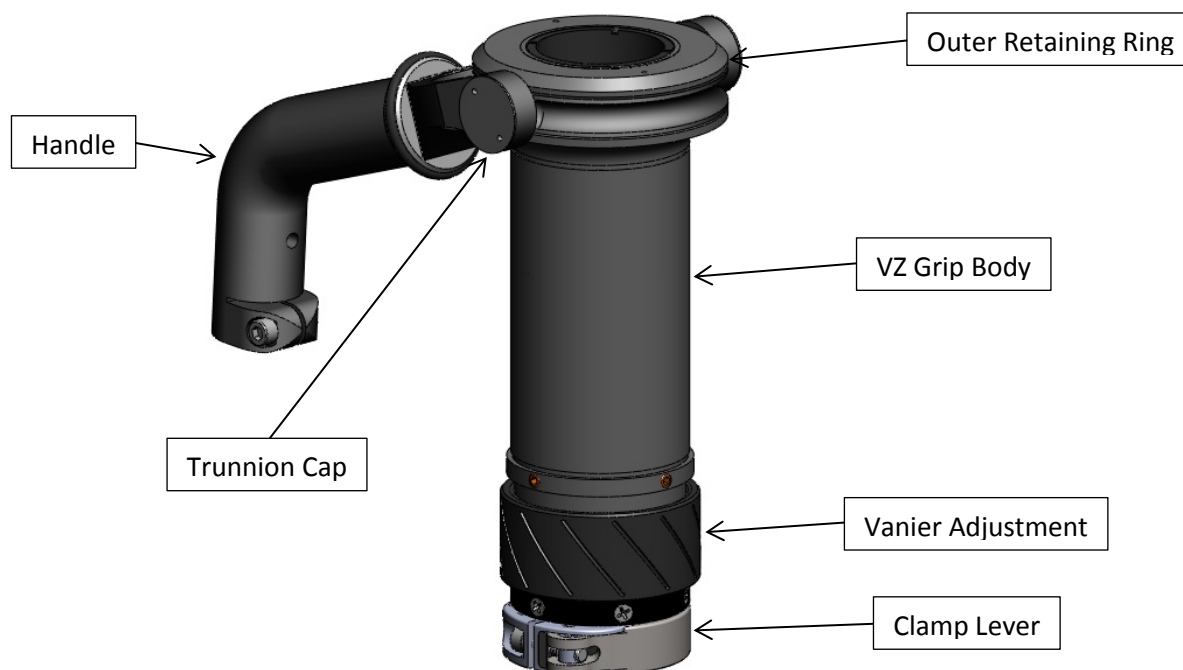


PRO™ VZ GIMBAL

The PRO™ Gimbal's design and construction guarantee a precise intersection of all three axes, while the correct application of bearings provides a smooth, deflection-free pan, roll and tilt. A locking mechanism achieves concentric clamping about the post, ensuring that all axes converge at post center. The PRO™ Gimbal is compatible with all 1.5 inch center posts.

For various shot requirements, the gimbal can be moved easily up and down the post by loosening the clamp screw, sliding to desired position and re-tightening. Once in place fine adjustments may be made by turning the vernier ring located just below the grip. Approximate range of fine adjustments is ½ an inch in both directions.

FIGURE 6: PRO™ GIMBAL (right side view)



GIMBAL MAINTENANCE

-DO NOT OVER TIGHTEN ANYTHING ON THE GIMBAL

- I) When tilting the camera, the PRO™ Gimbal is designed to distribute the load of the camera evenly between its two (2) radial side bearings. If you notice that one side of the Gimbal yoke is tilting unevenly, the Gimbal yoke may be bent and need replacing. It is unusual for this problem to occur unless the rig has been dropped or hit.
- II) If the Gimbal appears to stick when panning, the pan bearing is most likely dirty (especially if the operator has been working in very dusty conditions).
To clean, take the following steps:
 1. Use the gimbal wrench to remove the outer retaining ring, (while the gimbal is clamped on the post). Slide outer housing up the post.
 2. Clean out the bearing with a non-residue electrical contact cleaner.
 3. Re-lubricate with one drop of very light camera oil (ie: Arri Camera Oil) **Do not over lubricate.**
 4. Spin bearing to distribute oil. Re-assemble.

POST SYSTEM

The Generation II system makes use of a quick connect/disconnect assembly at each end of the post. Inside the post is a coiled cable consisting of (18) conductors all of which are terminated at each end by a LEMO EGG.3B.856.CLM3 connector. The Generation II Center post does away with the slotted inner post of the Generation I model. The slot is replaced by a pair of channels running the length of the innerpost. By doing away with the slot, the Generation II Center post maintains the rigidity of a fixed post without sacrificing the benefits of an adjustable post.

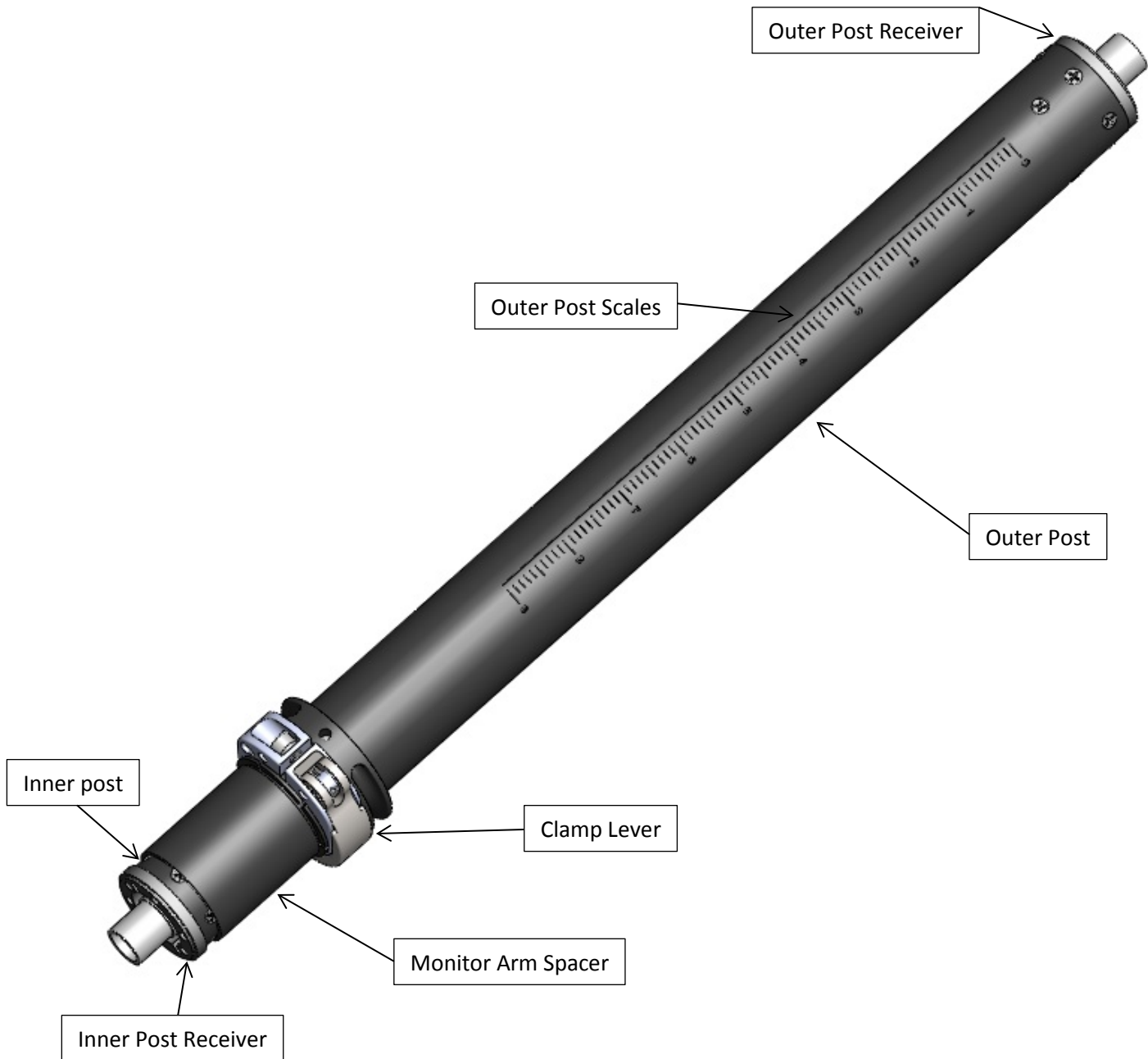


FIGURE 12: POST

POST CONNECTOR SYSTEM FUNCTIONS

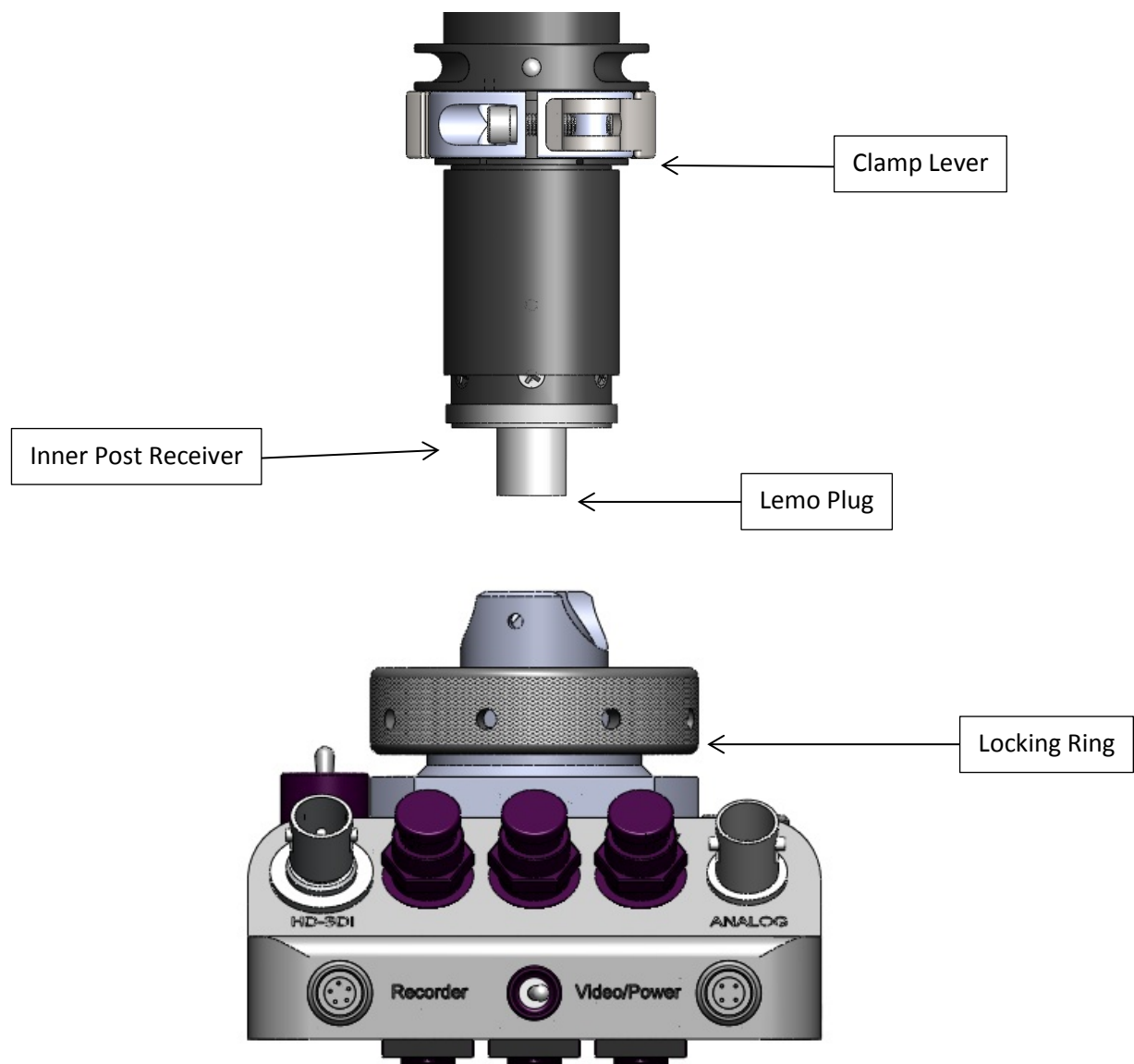
Located at the top center of the Lower Junction Box is a large 18-pin Lemo jack which provides the electrical connection point for the Center post Assembly. The Center post Assembly is attached to the Lower Junction Box as follows:

1. Insert the center post Lemo plug into the Lower J-Box Lemo jack.
2. Attach the post by threading the Locking Ring onto the Post Receiver.

POST LENGTH ADJUSTMENT

The Generation II Center post utilizes a clamp lever system identical to that of the VZ Gimbal and Gen III Battery hanger to lock the post at a specific length. To adjust the Center post length, release the clamp lever and extend the post to the desired length and close the lever. Maximum post length is 26" end to end.

FIGURE 13: POST CONNECTOR SYSTEM & LOWER JUNCTION BOX



MONITOR ARM

The Monitor Arm is normally clamped about the spacer, but can also be clamped about the outer post.

A Kipp handle and a swing arm are used to loosen/tighten the monitor arm clamp about the post.

For quick inversion of the monitor, loosen the thumb screw, twist the monitor arm 180 degrees and re-tighten the thumb screw.

NOTE: Locating pins will indicate when the exact 180 degree position has been reached.

The Monitor Arm is connected to the monitor itself via a screw and washer. This screw should be tight. To tilt the monitor, do it manually – do not loosen the screw.

The Monitor Arm mounting screw needs to be lubricated regularly.

FIGURE 14: **MONITOR ARM** (*right side view*)

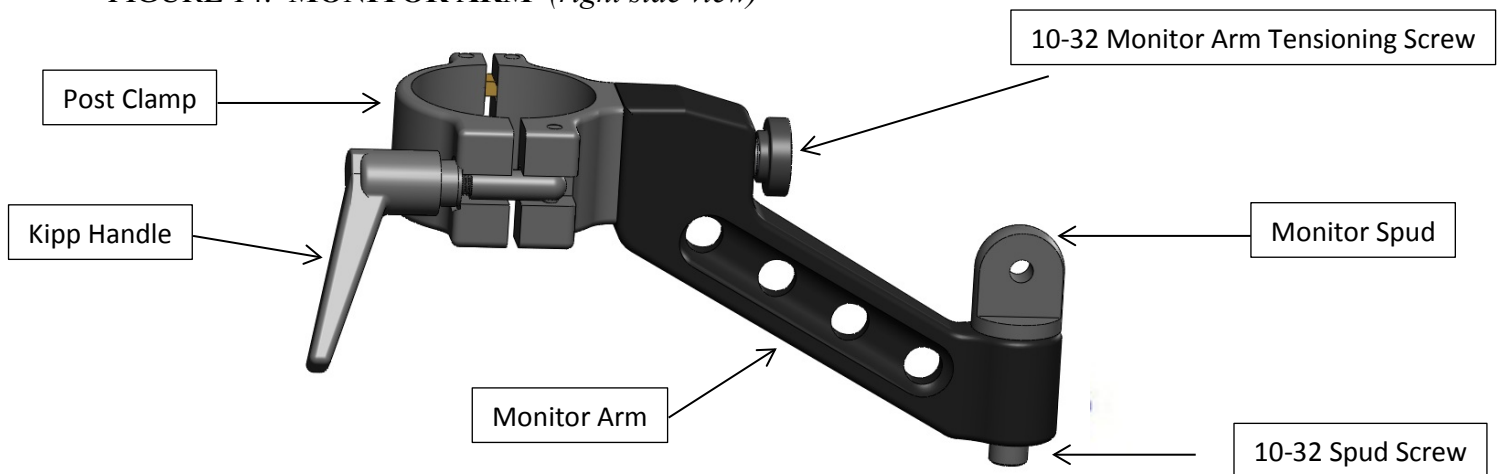
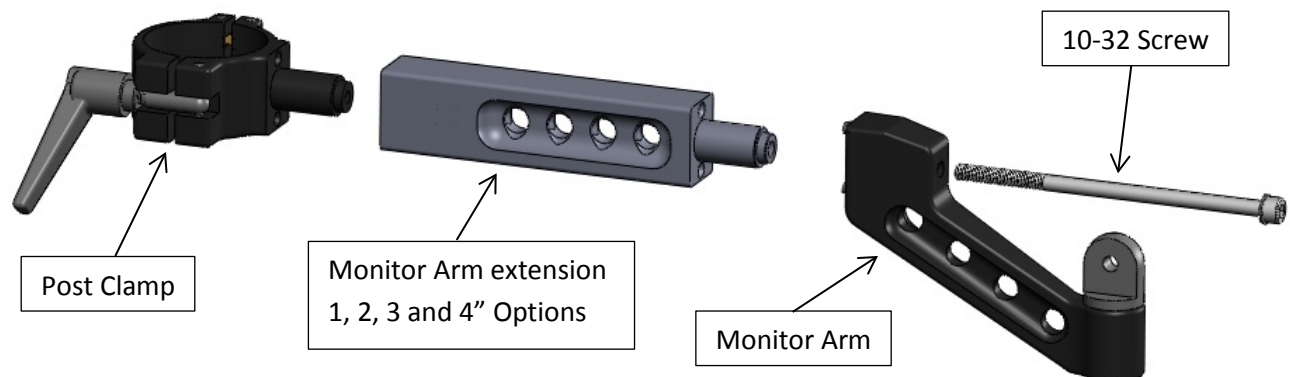


FIGURE 15: **MONITOR ARM EXTENSION ASSEMBLY**



Use the monitor arm extension to position the monitor out further from the sled. Insert the extension between the two existing monitor arm components using the 10-32 cap screw.

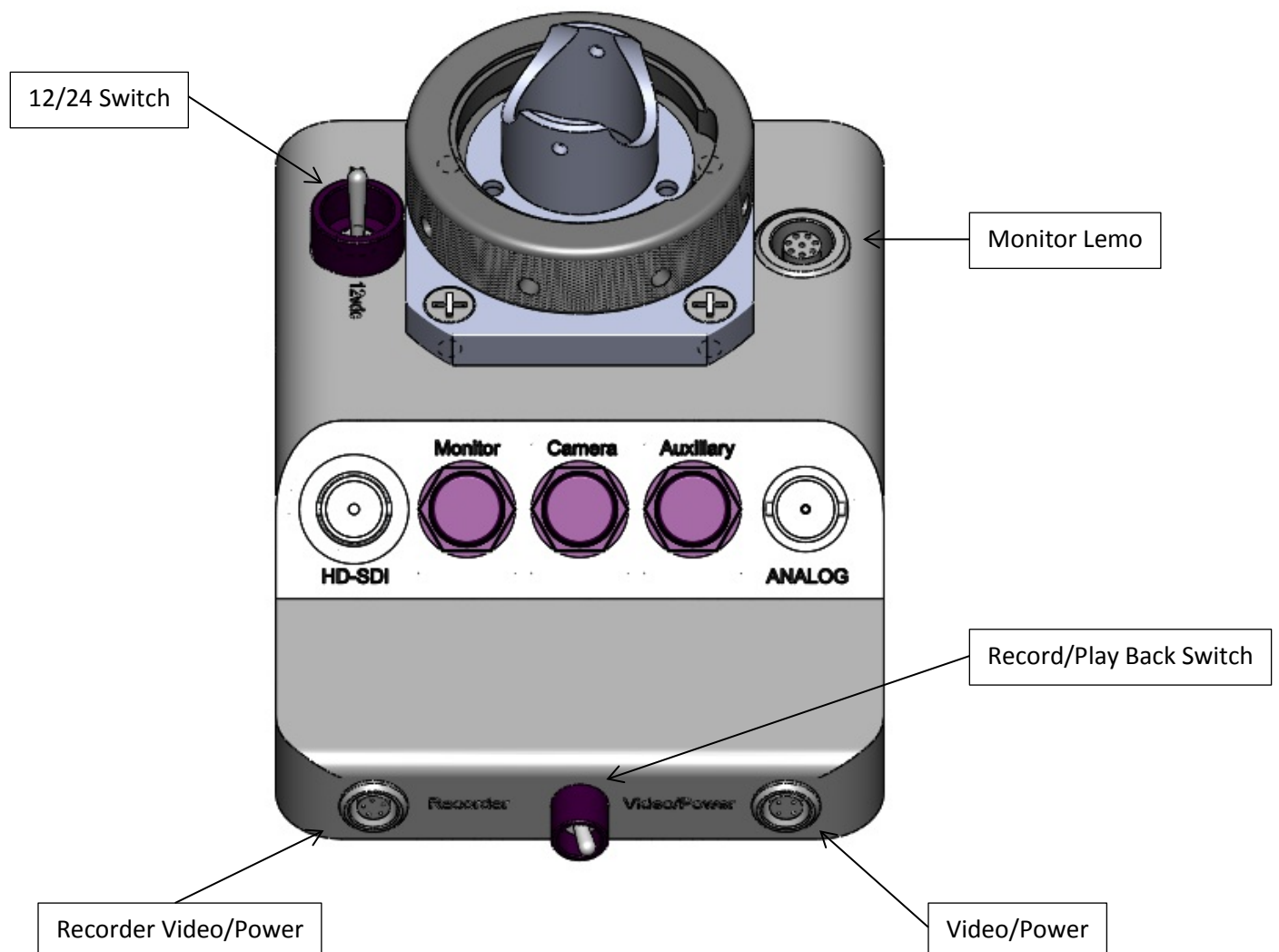
LOWER JUNCTION BOX

The third generation Lower Junction Box (attached directly above the Battery Rack) has been re-designed to ensure even greater **simplicity, reliability, modularity and ergonomics.**

It's purpose is to distribute 12 or 24 volt power from each Battery in the battery rack to respective destinations throughout the sled, namely to: Camera, Monitor, Video Tap, Video Transmitter, Wireless Lens Control System, On-Board Recorder and Accessories.

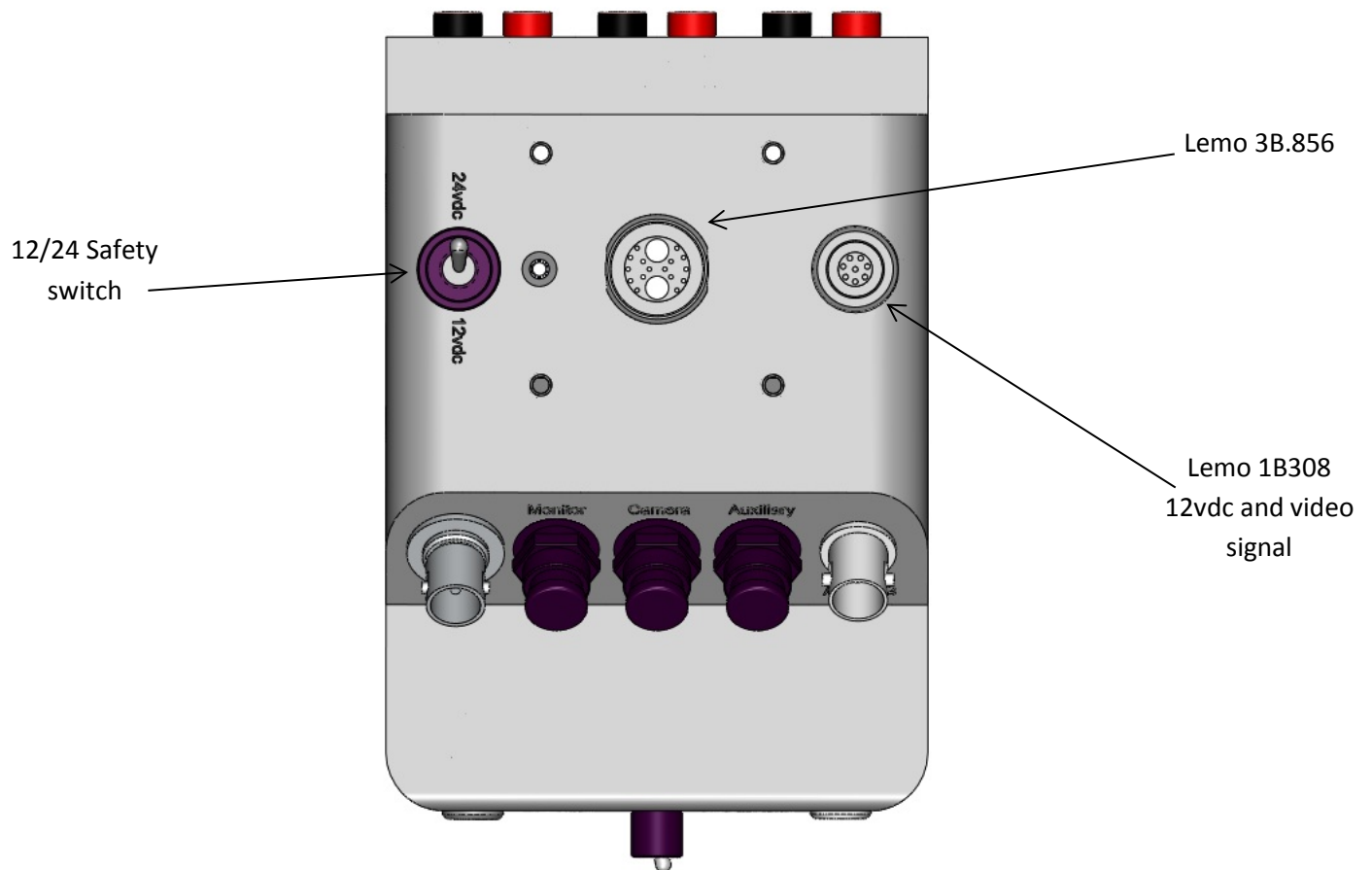
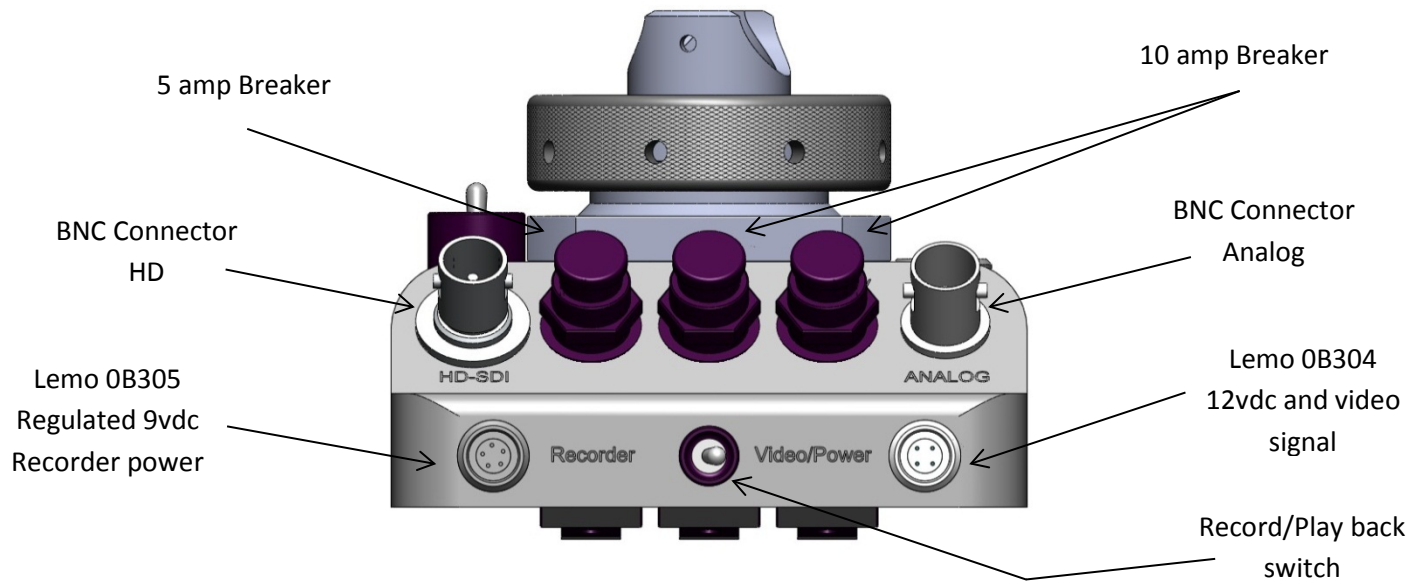
NOTE: Toggle should be flipped to the right (Video Input position) when recording on a recorder and/or to obtain picture on monitor. It should be flipped down for playback. If you fail to get a picture, this switch MIGHT be in the wrong position, so please check it.

FIGURE 16: LOWER JUNCTION BOX (*front view*)



THIRD GENERATION: LOWER JUNCTION BOX

REAR VIEW



BATTERY MOUNTING SYSTEM (Gen III and Gen IV)

The PRO™ Gen III Battery Mounting System consists of a tough, tubular structure. The Battery System incorporates three removable mounting brackets for batteries and is attached to the Lower Junction Box. The Battery Rack can also house accessories such as an electronic level sensor, video recorder and video transmitter.

This battery system can utilize any of the Anton Bauer batteries that will physically fit the allotted space. Be sure to read the instructions that accompany each battery.

FIGURE 17: **Gen III BATTERY RACK** (*front left view*)

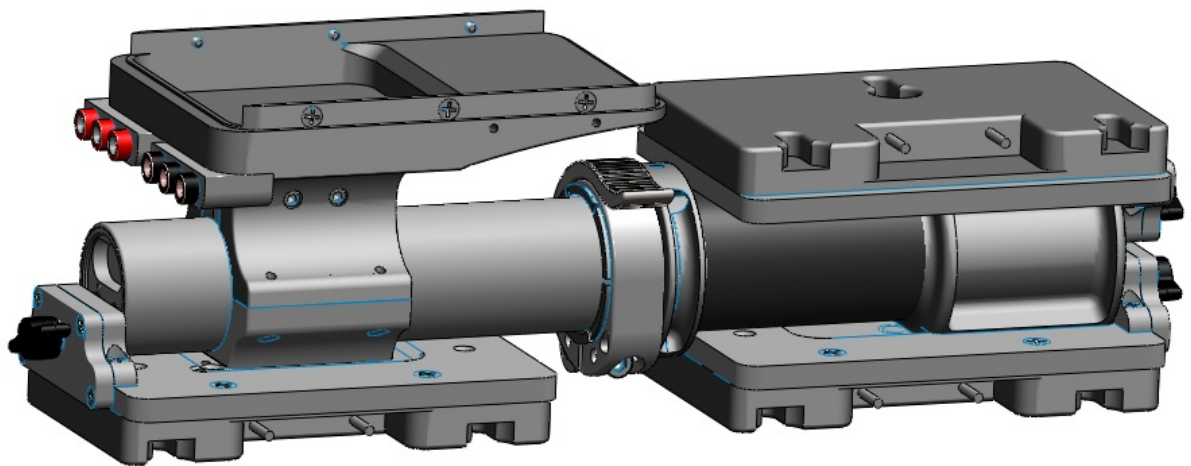
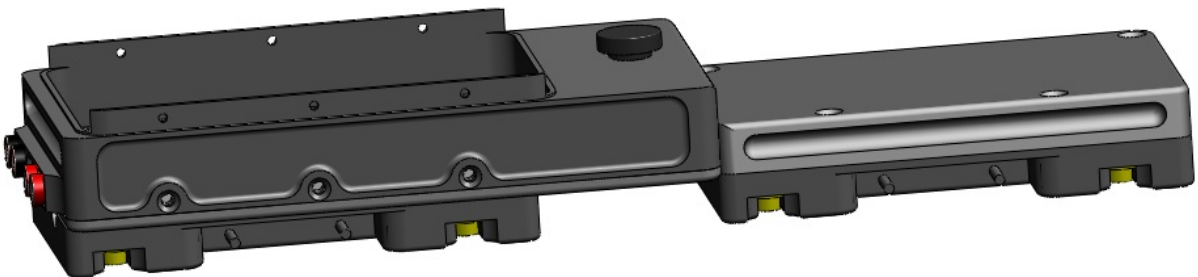


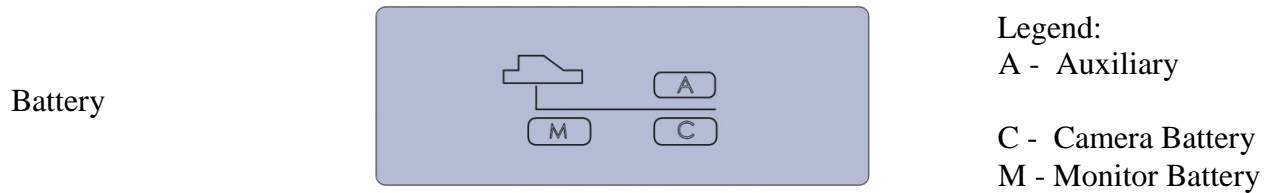
FIGURE 18: **Gen IV BATTERY RACK** (*front left view*)



The PRO™ Gen IV Battery mounting system has two fixed battery positions and rear telescoping section. 12/24 volt power for camera and accessories. This unit only comes with (1) jumper block.

BATTERY CONFIGURATION

FIGURE 18: THREE BATTERY CONFIGURATION (JUMPER BLOCK)

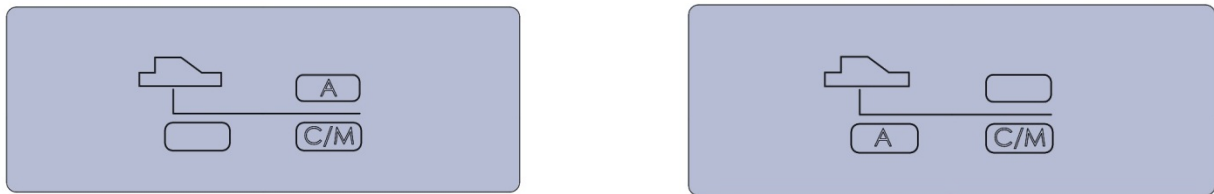


Three Batteries:

This is the "standard" configuration of the PRO™ Sled. It should be used with 24-volt camera systems where a separate monitor battery is desired. In this configuration:

1. The *front battery* (M) supplies 12 volts to the monitor and all video related accessories.
2. The *rear lower battery* (C) supplies 12 volts to the three camera jacks on the upper J-box.
3. The *rear upper battery* (A) is able to:
 - a) in conjunction with the rear lower battery supply 24 volts to separate pins on the same three jacks **or**
 - b) supply 12 volts to the Aux. jack on the upper J-Box.

FIGURE 19: TWO BATTERY CONFIGURATION (JUMPER BLOCKS)



Two Batteries:

- a. These two configurations can be used for 12 or 24-volt camera systems but since there is no separate battery for the monitor in either case, video noise may be present. In both of these configurations, the *rear lower battery* (C/M) serves as a 12-volt supply to the three camera jacks on the upper J-box, as well as to the monitor and all video accessories. By use of the 12/24-volt switch, the second battery (A) can be placed in series with the *rear lower battery* (C/M) to supply 24 volts to the three camera jacks on the upper J-box, **or** separated to supply 12-volts to the Aux. jack on the upper J-Box. The choice between the two configurations is driven by and dependent upon the balance and inertia requirements of the operator, and the configuration of the other masses on the sled.
- b. In situations where only one battery is required the Auxiliary battery (A) in either of the Two Battery configurations can be removed. This configuration will leave the *rear lower battery* (C/M) to supply 12-volts to the camera, monitor and all video accessories.

GYRO SYSTEM OPERATION

1. Whenever possible, turn off Gyros when not in use to save battery power and to limit heat buildup in the gyro.
2. The inverter can be powered by 12 or 24 volt block batteries, for either gyro spin-up prior to use or continual use during a shot.

GYRO CONFIGURATIONS

Gyros can be mounted on the PRO Sled by a variety of methods:

1. The AB (Anton Bauer) Gyro Mount can be used to mount a gyro to any of the Anton Bauer battery mounts at the bottom of the sled.
2. The Camera Plate Gyro Mount can be used to mount a gyro on the low mode bracket camera plate.
3. The Post Clamp Gyro Mount can be used to mount a gyro to the Center post



FIGURE 25:

NOTE: The above mounts allow an operator to utilize a number of different possible gyro locations and orientations. However, because the desired effect depends upon the shot requirements and equipment variables, specific configurations are impossible to foresee, and are therefore left to the discretion of the operator.

Canister Assembly

Tension Adjustment:

Spring tension adjustment is accomplished by inserting the Gimbal wrench (5/32") through the guide hole at the end of the cartridge and engaging the lead screw. Clockwise rotation of the wrench effects an increase in the spring tension, counterclockwise a decrease. This adjustment can be accomplished:

- a. before the spring canister is installed in the arm,
- b. after installation but before loading the arm,
- c. when the arm is under load.

NOTE: It is only necessary to adjust the tension of one (1) spring canister in each arm section.

Installation/Removal:

To install a spring canister, insert it into the arm bone and engage the trunnions with the trunnion saddles. Align the bores of the drawbar bearings with the locating holes on the vertical link and the access holes in the bone, and insert a drawbar retaining screw. (see drawing on page 23) Do not over tighten this screw. To remove a canister, remove the drawbar retaining screw and slide the canister out of the bone. (The arm must not be under load during these operations.)

Maintenance:

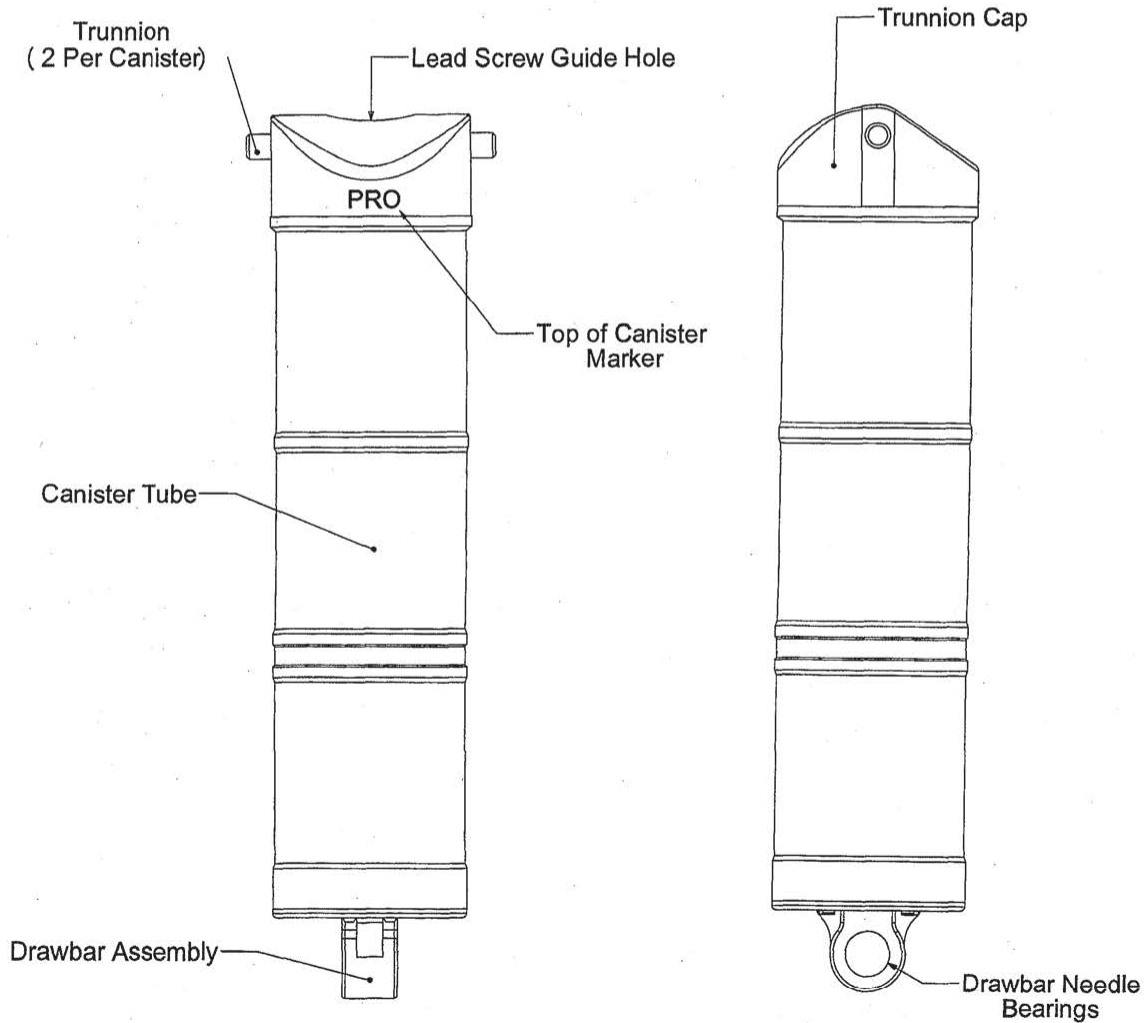
Using white lithium grease, lubricate the two drawbar needle bearings and all canister pin (shafts and threads). This should be done once a month or more frequently depending on the conditions under which the arm is used. PRO™ ARM

See Next Illustration

Canister Assembly

CAUTION:

DO NOT DISASSEMBLE THE SPRING CANISTER.
CONTENTS UNDER EXTREME PRESSURE.



Titan and Atlas Arm Orientation

Orientation of the socket block adapter assembly is critical in that, the Arm should never be mounted in such a way that the weight is applied parallel to the axis. This incorrect axis orientation is always present when using back mounted vests.

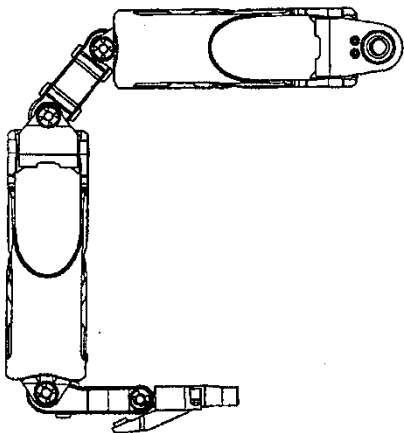
While utilizing the Titan or Atlas arms on any kind of vehicle mount. NEVER! EVER! Place the arms socket block adapter assembly in a situation where the incorrect orientation is possible or present. This could result in a catastrophic failure. Misuse of this equipment may lead to injury of personnel or damaged equipment.

See Next Illustration

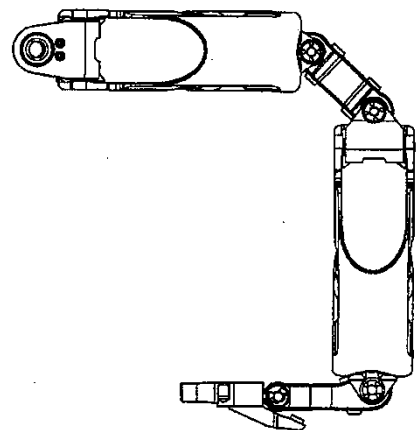
Incorrect



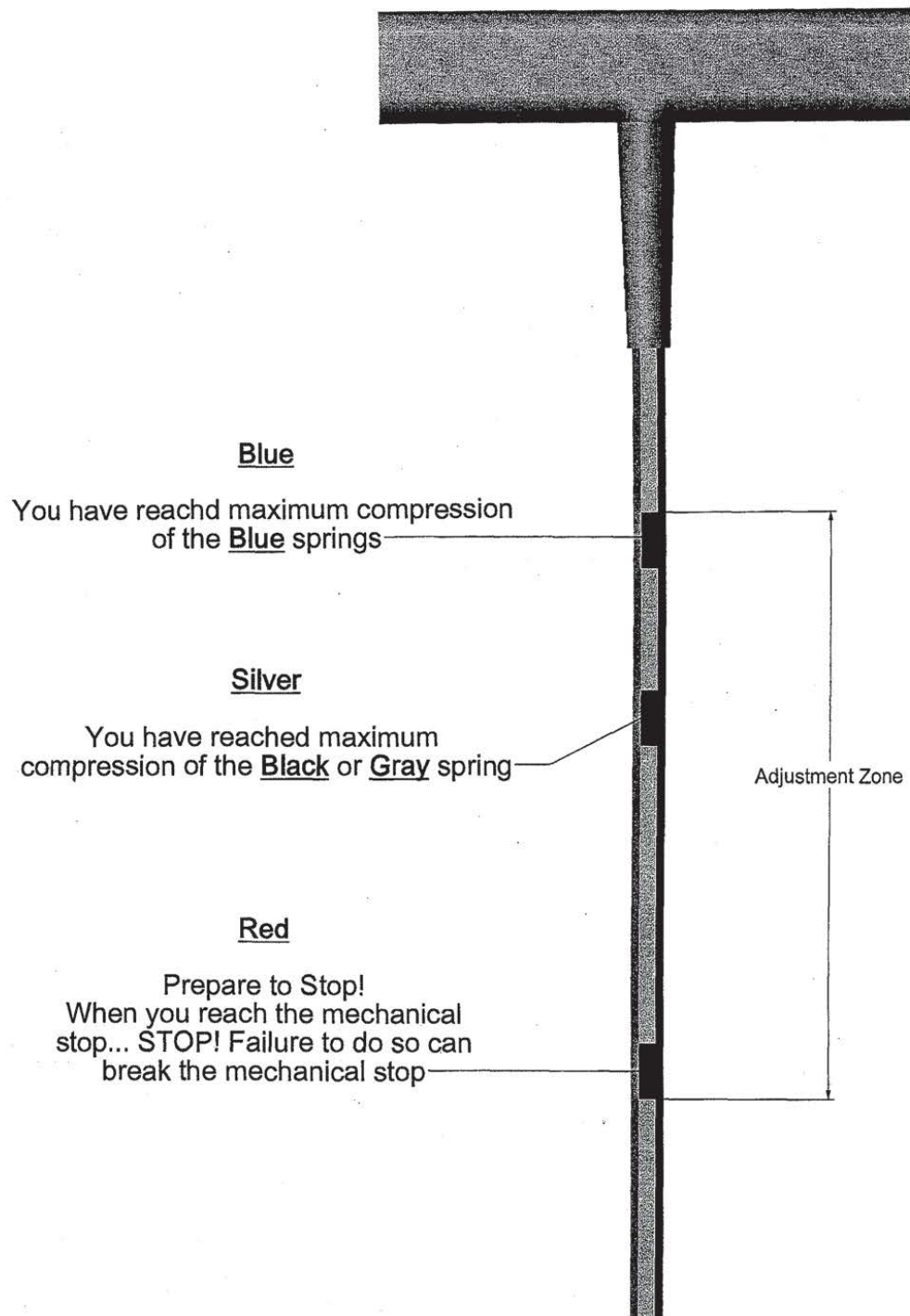
Correct Left Side Mount



Correct Right



Titan & Atlas Arm Canister Tool Diagram



Titan Arm

Chassis

Gimbal Post:

The Gimbal post rides on a bearing, reducing the friction between the Arm and the post. The Gimbal Post Clamp can be adjusted with a 5/32 Allen wrench for the desired drag.

Reversing the Socket Block Adapter Assembly:

Using the two supplied Arm wrenches (located in the lid pocket of the Arm case), remove one of the two vertical pin caps holding the Socket Block Adapter Assembly on to the arm. Remove the vertical pin and flip the Socket Block Adapter Assembly over. Reinstall the vertical pin and cap ensuring that both caps are tightened firmly.

Maintenance:

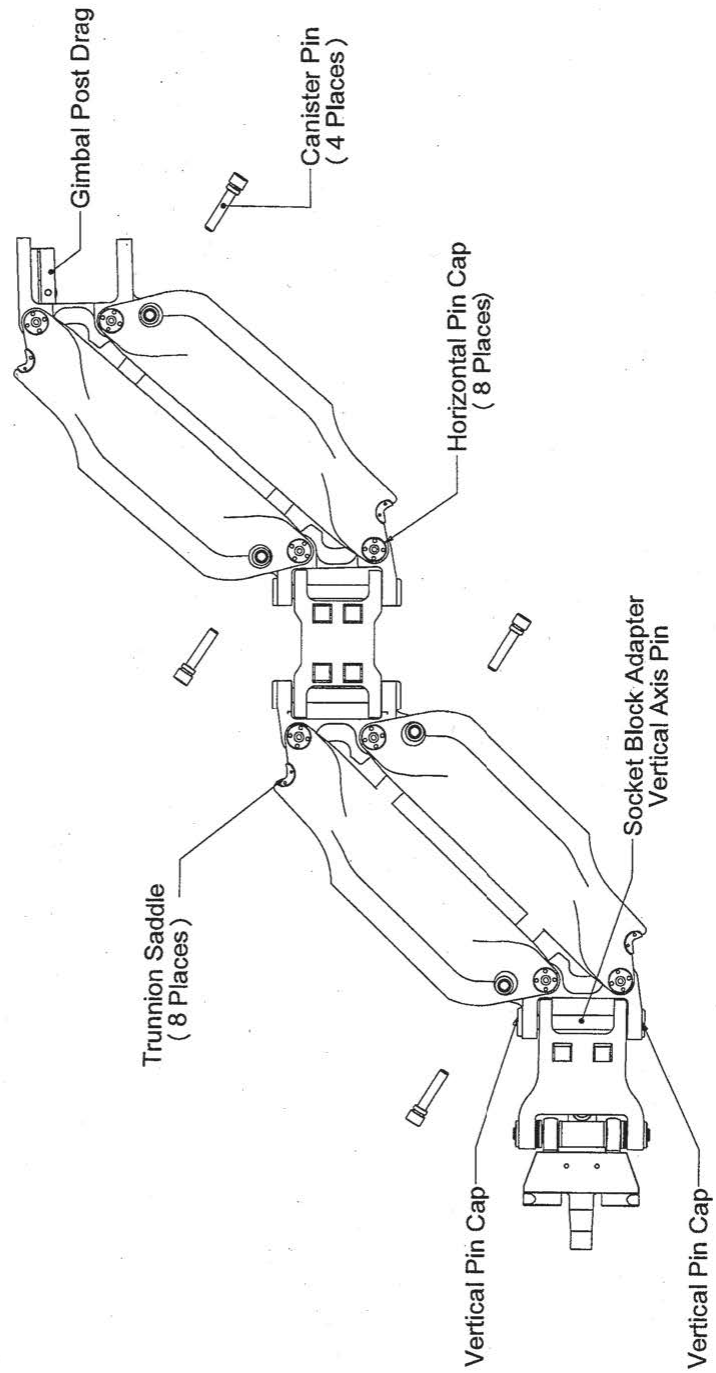
To clean the Arm, remove all canisters, rinse the chassis with water, dry then reinstall the canisters.

Periodically check the tightness of the six (6) vertical pin caps and the eight (8) horizontal pin caps.

Spare Parts Inventory (sent with each Arm):

- 2 x Canister pins
- 1 x Horizontal pin cap
- 1 x Vertical pin cap
- 1 x Socket Block pin spacer washer
- 1 x Socket Block pin retaining ring
- 10 x Horizontal travel bumper

Titan Arm



Atlas Arm

Chassis

Gimbal Post:

The Gimbal post rides on a bearing, reducing the friction between the arm and the post. The Gimbal Post Clamp can be adjusted with a 5/32 Allen wrench for the desired drag.

Reversing the Socket Block Adapter Assembly:

Using the two supplied arm wrenches (located in the lid pocket of the arm case), remove one of the two vertical pin caps holding the Socket Block Adapter Assembly on to the arm. Remove the vertical pin and flip the Socket Block Adapter Assembly over. Reinstall the vertical pin and cap ensuring that both caps are tightened firmly.

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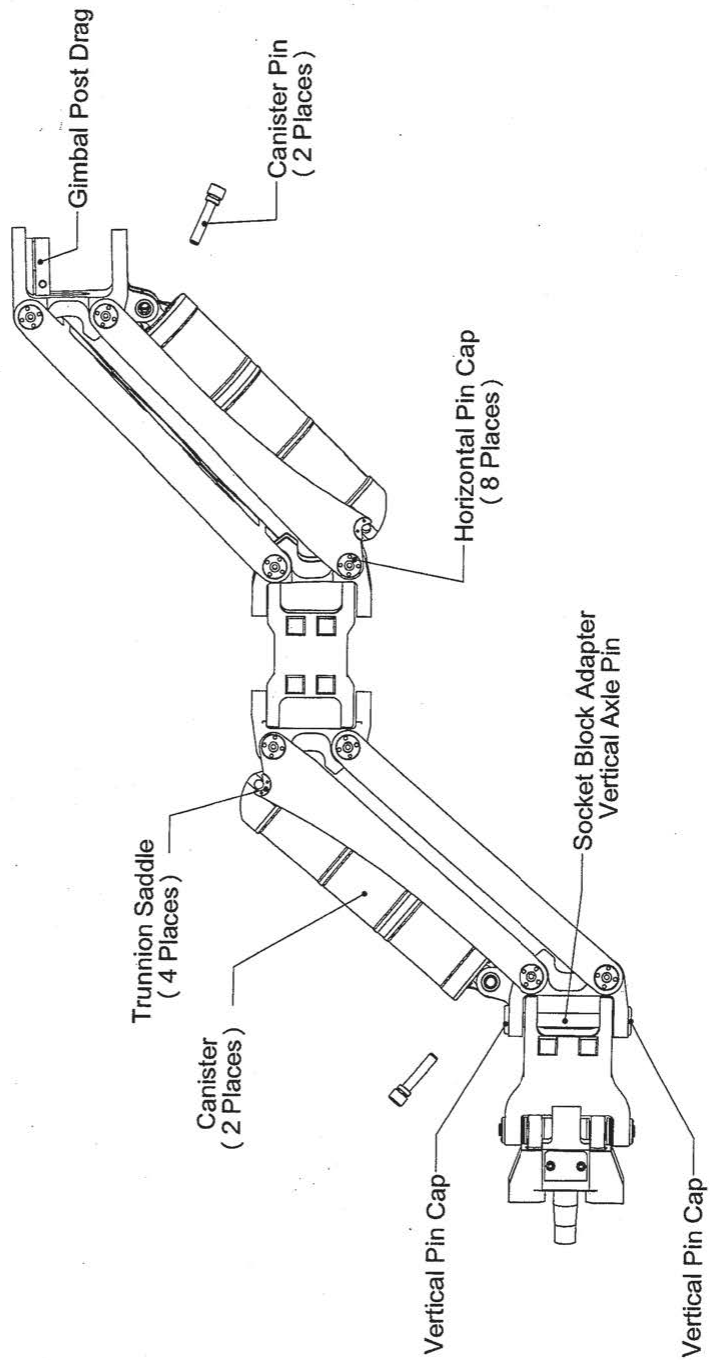
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Periodically check the tightness of the six (6) vertical pin caps and the eight (8) horizontal pin caps.

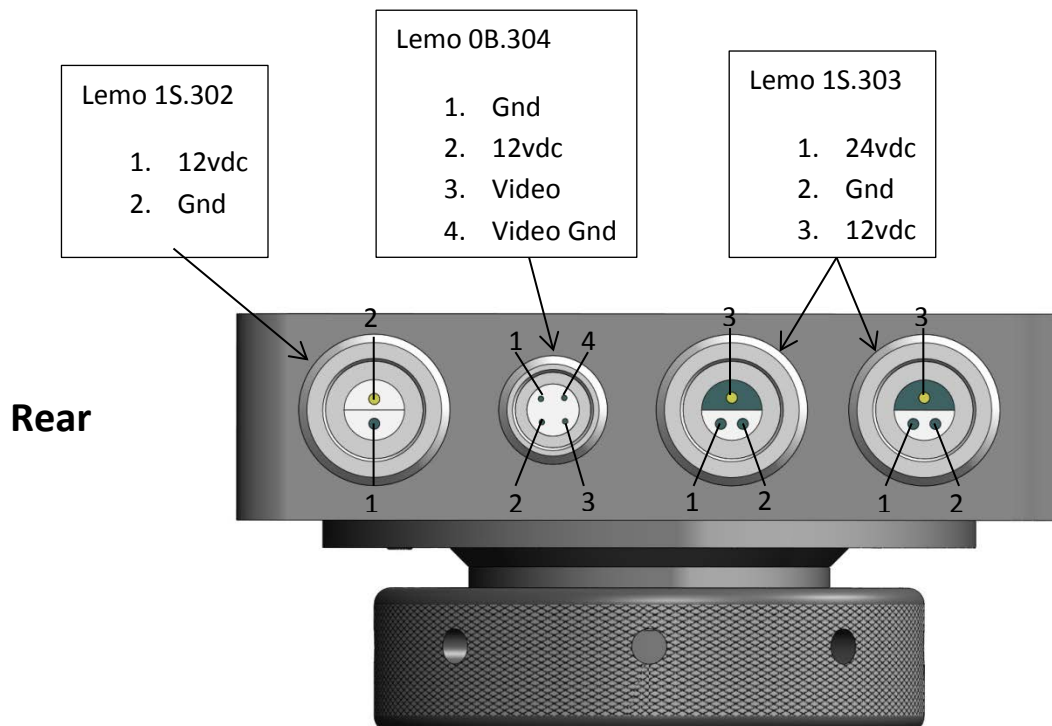
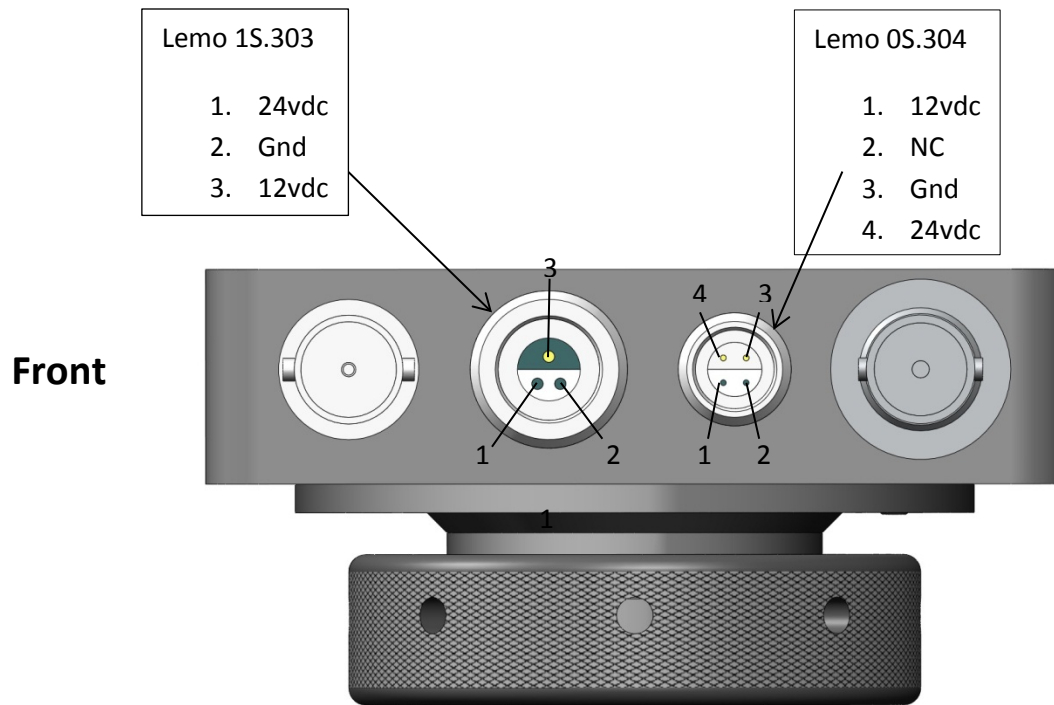
Spare Parts Inventory (sent with each arm):

- 1 x Canister pins
- 1 x Horizontal pin cap
- 1 x Vertical pin cap
- 1 x Socket Block pin spacer washer
- 1 x Socket Block pin retaining ring
- 10 x Horizontal travel bumper

Atlas Arm



PIN OUT CHART: UPPER JUNCTION BOX



TROUBLESHOOTING

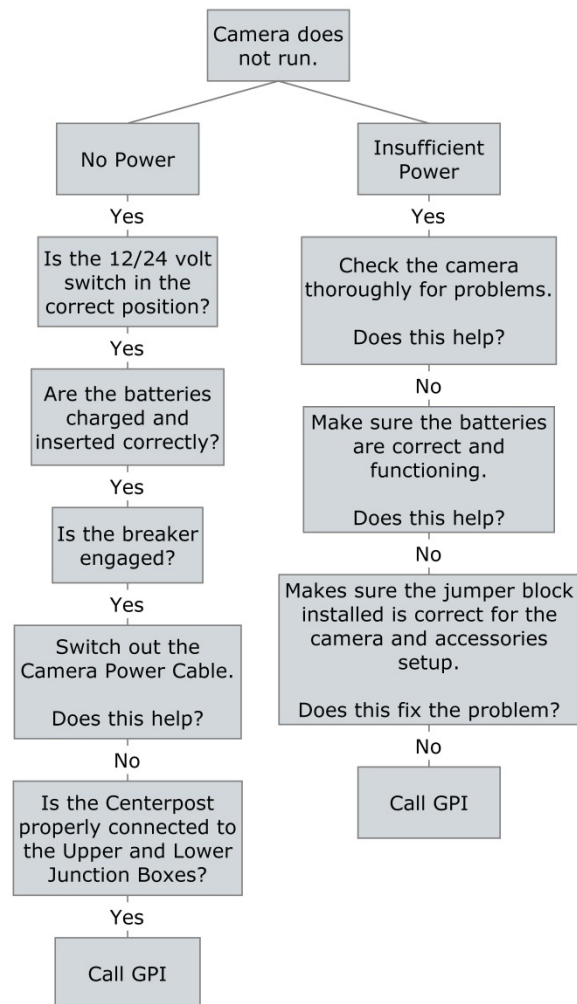
This section is designed to act as an aid in the unlikely event of system failure. Contrary to popular belief, one does not have to be a technical wizard in order to troubleshoot and repair one's system. The key to troubleshooting lies in the ability to identify the problem, and once this is accomplished, correcting the problem is usually fairly simple. The following charts will help you identify, and then correct most problems that may be encountered.

The following should be helpful:

1. Identify the problem. The system performs three (3) functions: Displaying what the camera sees, supplying power to the camera, and controlling the camera and lens. Identify which function is not being performed.

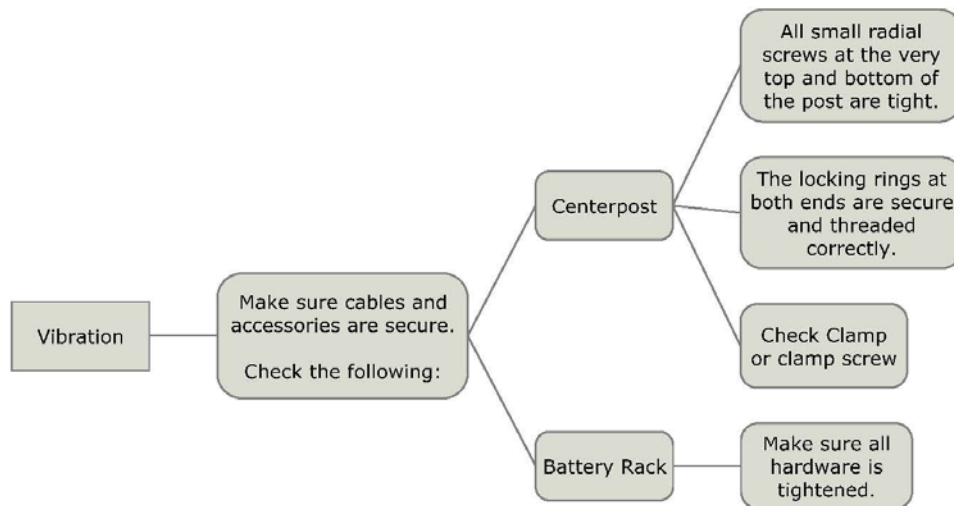
2. **Using the following flowcharts**, isolate the problem. Remember that while there are three separate functions, they are not always independent of each other. (For example, some video taps are powered by the camera, so if the camera does not have power, there will be no video on the Monitor

Newsled Electrical Troubleshooting



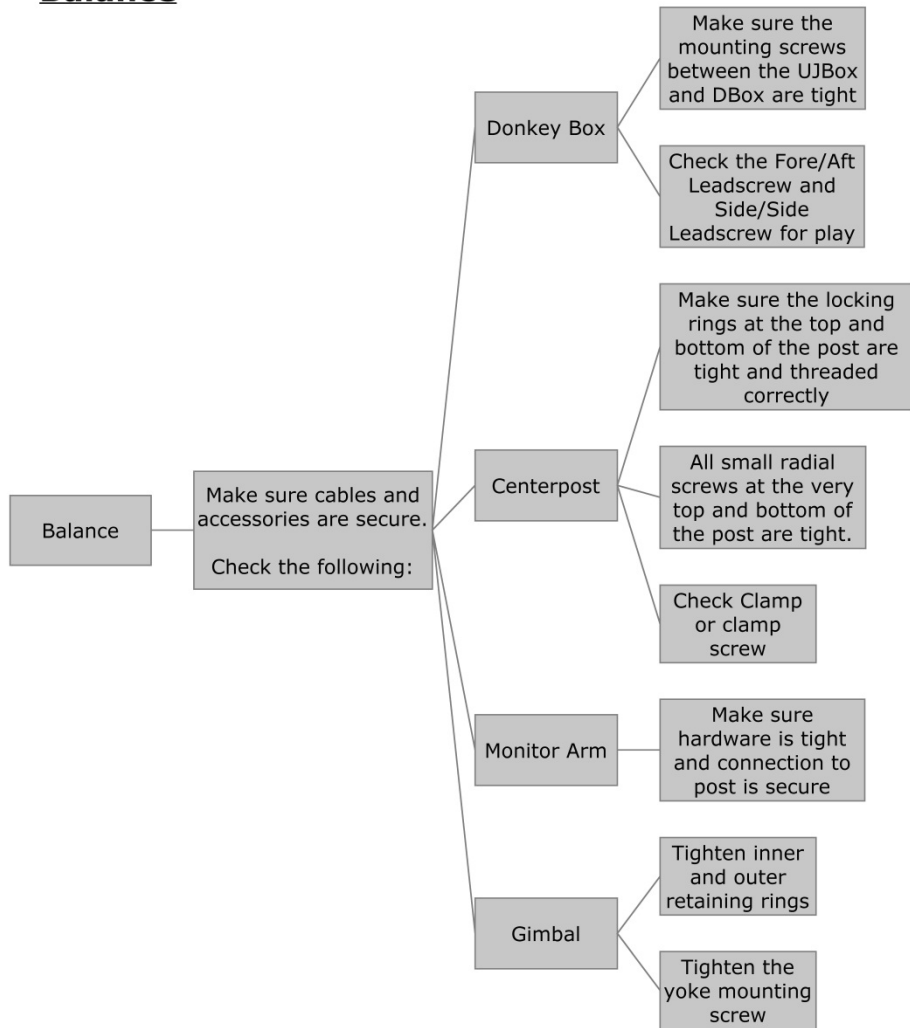
Newsled Mechanical Troubleshooting

Vibration

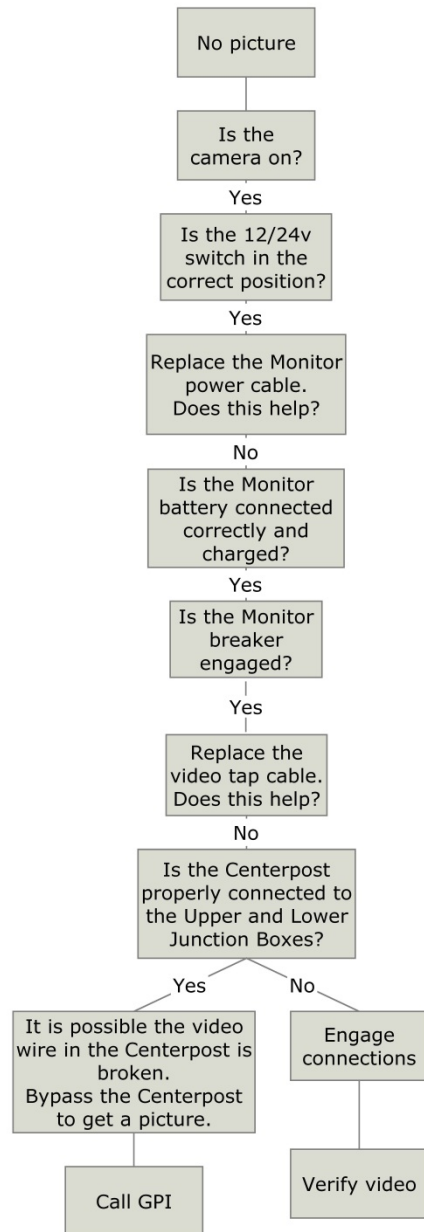


Newsled Technical Troubleshooting Cont.

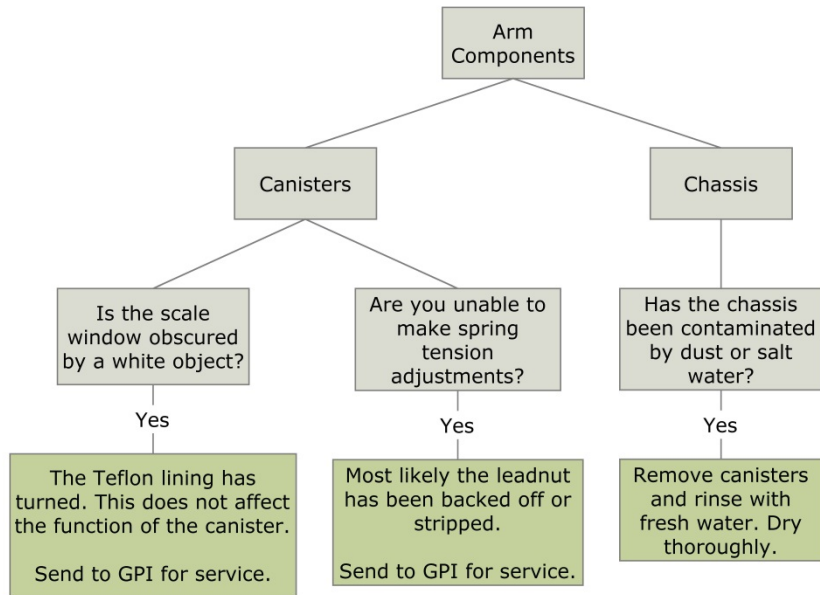
Balance



Monitor Troubleshooting



Arm Troubleshooting



Vest Troubleshooting

