

VERSION 10.24



BIGFOOT

HYDRAULIC SYSTEMS

by Quadra Manufacturing

CENTRAL & QUAD PUMP LEVELING SYSTEMS

INSTALLATION & OPERATION MANUAL

Class A Gas/Diesel Pusher & Class C Chassis

QUADRA MANUFACTURING
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United States Patents

#10093286 #10759396 #10821944



This manual provides general instructions. Many variables can change the circumstances of the instructions, i.e., the degree of difficulty, operation and ability of the individual performing the instructions. This manual cannot begin to plot out instructions for every possibility, but provides the general instructions, as necessary, for effectively interfacing with the device, product or system. Failure to correctly follow the provided instructions may result in death, serious personal injury, severe product and/or property damage, including voiding of the Quadra warranty.



- Failure to follow instructions provided in this manual may result in death, serious personal injury and/or severe product and property damage, including voiding of the component warranty.
- During operation of our systems, the vehicle or trailer tires should maintain contact with the ground - moving to a more level area may be required.
- During servicing make sure that the coach is supported according to the manufacturer's recommendation and not our systems, as it is not intended to be used for any work or persons under the vehicle. Lift the coach by the frame and never the axle or suspension. Do not go under the coach unless it is properly supported. Unsupported coaches can fall causing death or personal injury or product or property damage. Use proper personal protective equipment.



- Always wear eye protection when performing service, maintenance or installation procedures. Other safety equipment to consider would be hearing protection, gloves and possibly a full face shield, depending on the nature of the task.
- Moving parts can pinch, crush, or cut. Keep clear and use caution.

The following steps will guide you through a successful installation of your Bigfoot Hydraulic System.

1. Cylinders

- Identification
- Preparation
- Mounting

2. Tank Assembly

- Preparation
- Mounting
- Grounding

3. Hydraulic Lines

- Layout
- Install

4. Wiring Harness

- Layout
- Install

5. Battery Harness (*Quad System Only*)

- Layout
- Install

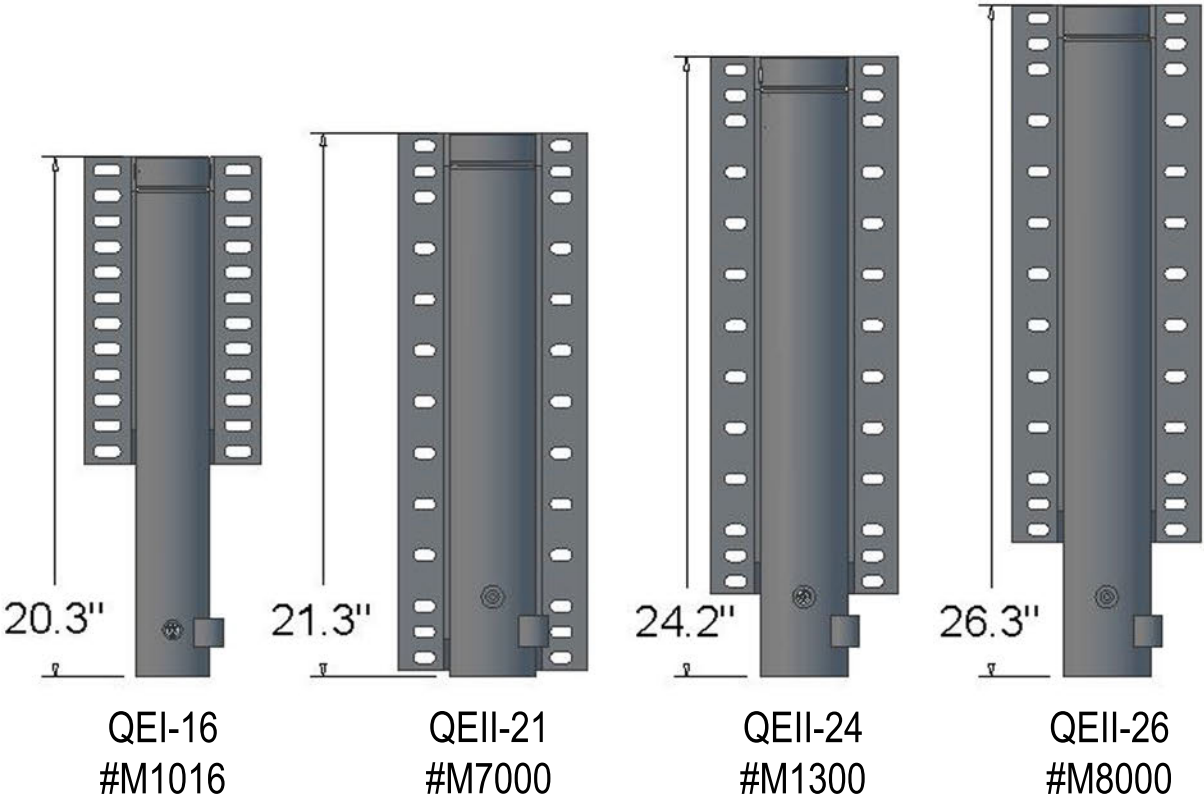
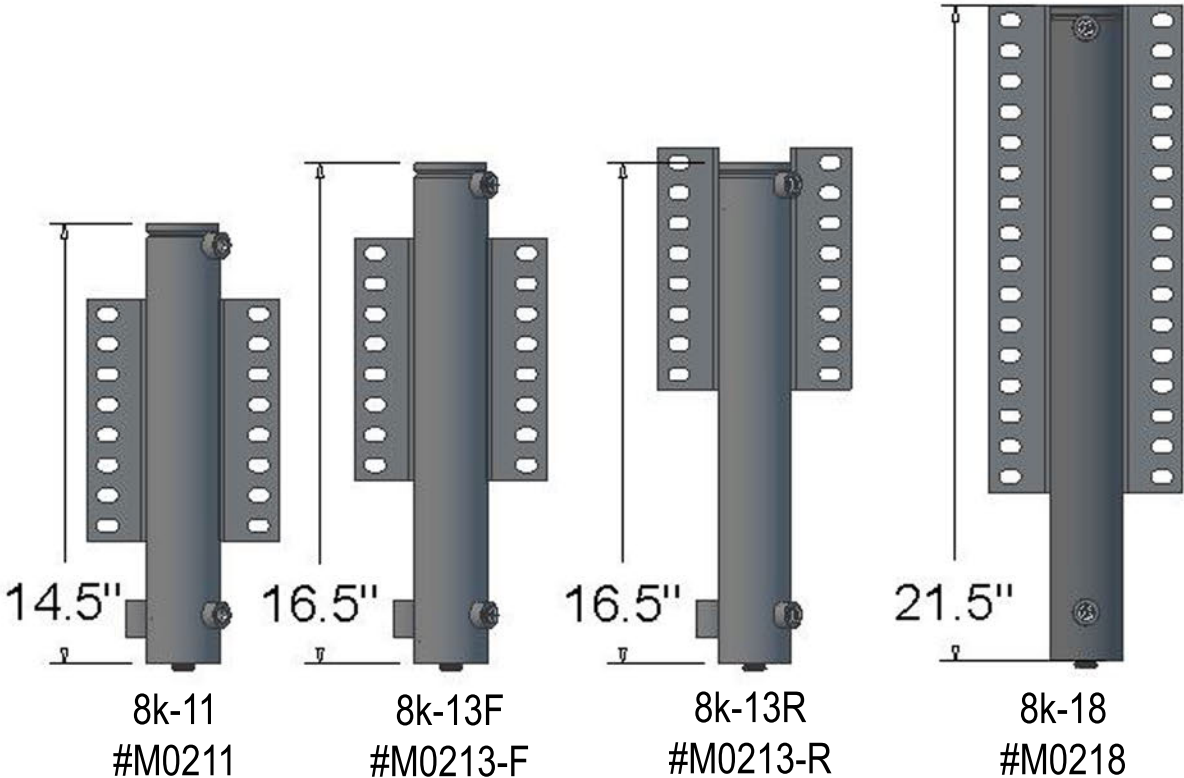
6. Control Panel

- Cutout for Control Panel (*see Orientation on pages 14-16*)
- Plug in Wiring Harness
- Mount Panel
- Wire Ignition Safety (*Central Pump Systems*) or
6-Pin +12V, Ground & Ignition Safety (*Quad System*)

7. Connect System to Breaker and Batteries

8. Test System / Bleed Hydraulic Lines

CYLINDER IDENTIFICATION



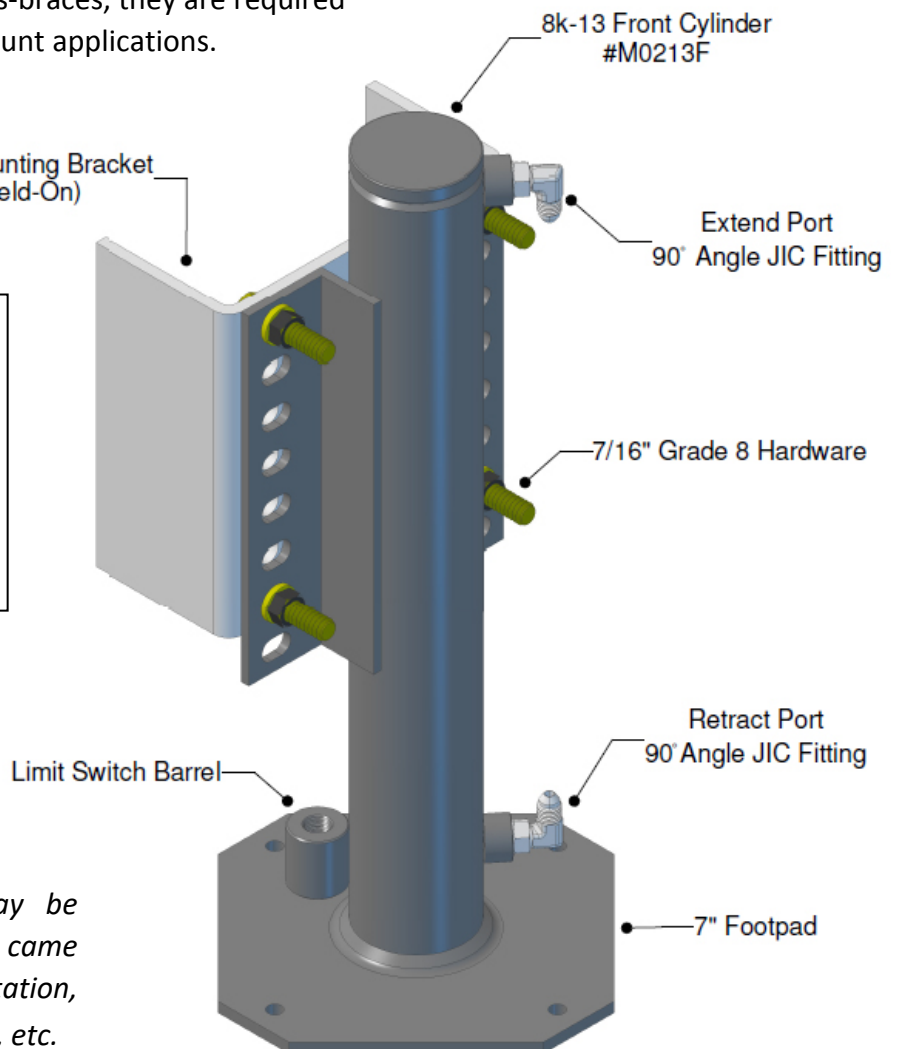
Cylinder Preparation & Installation

Mounting the Cylinders

Pre-assemble jack prior to hanging on vehicle in specified location.

- Attach foot pad with $\frac{3}{4}$ " thin jam nut using a 1 $\frac{1}{16}$ " socket and impact wrench. **Clockwise ONLY.**
- Remove port plugs with $\frac{3}{16}$ " allen wrench.
- Install supplied JIC elbow fittings to the bottom & top ports with $\frac{9}{16}$ " wrench.
- **DO NOT** install the extend hose to the top port on central pump systems yet, this will be done later on in installation (due to the length of hose they must go through a bleeding process).
- Place $\frac{1}{4}$ " clevis pin in limit switch barrel then insert threaded limit switch with $\frac{7}{8}$ " wrench (see wiring section later on in booklet).
- For jack locations see diagrams on the following pages, but typically the front jacks should be under the cab and the rear jacks should be within 60" behind the rear axle.
- Hang jack using at minimum of four $\frac{7}{16}$ " or two to four $\frac{1}{2}$ " Grade-8 bolts, hex nuts & lock washers.
- Typical cylinder ground clearance (ground to bottom of footpad) should be between 6" and 9" for optimum lift and road clearance (applications vary).
- If your kit came with $\frac{3}{4}$ " square tube cross-braces, they are required for installation on Ford or Chevy inside mount applications.

Hydraulic lines are universal lengths and fit the majority of applications, however if they do not fit your exact model you will need to call and place an order for longer lines.



The cylinder shown to the right may be different from the cylinders that came in your vehicle specific kit, Ex. Port rotation, length, bracket style, mounting locations, etc.

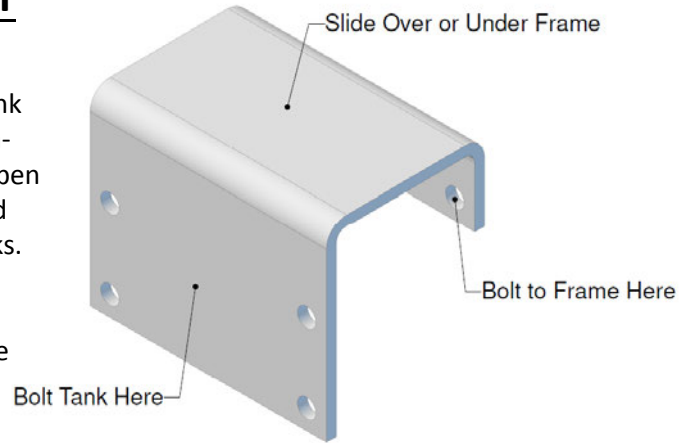
FORD E-350/450 TANK MOUNT BRACKET

part #M29311

This #M29311 tank mount bracket (to the right) enables the tank assembly (quad pump or central pump assemblies) to mount in-between the frame rails on the Ford's channel frame. Typical open location is on the driver's side in front of the rear axle. For quad pump systems, maybe install both rear tanks or both front tanks.

This brackets slides over the top or underneath the channel, allowing a vertical surface over the "open" area of the channel style frame where the cables and wiring are attached. Take care not to drill into the wiring when mounting this to the frame.

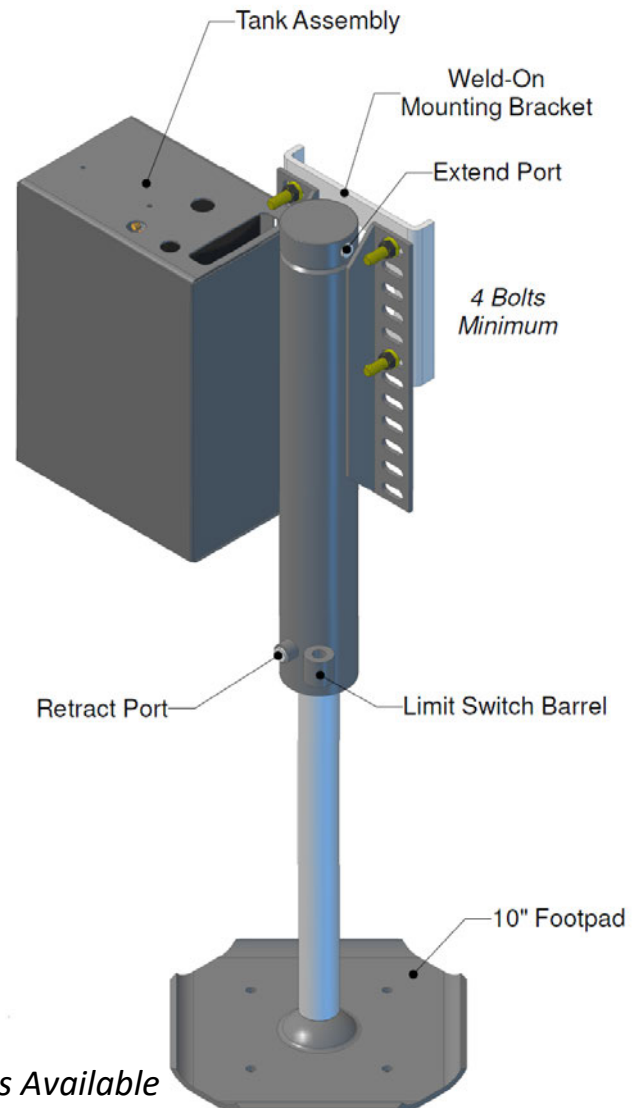
Simply bolt the tank to the other side using a minimum of two bolts. You can mount the tank using just one side of the bracket to the tank (Ex. To left holes on bracket and tank), the tank body is strong enough to support the weight of the assembly (7/16" hardware and lockwasher required, torque to 70 ft/lbs.).



MOUNT TANK ASSEMBLY DIRECTLY TO CYLINDER...

Utilizing the supplied 7/16" hardware (1.5" full threaded bolts) and cylinder mounting bracket on one side, you can mount the tank assembly directly to the cylinder bracket. Doing this saves space and installation time, most quad pump systems come with 2 ft hydraulic lines for this very reason.

If the tank cannot be mounted directly to the cylinder, longer lines will more than likely be needed. (1/4" JIC male fittings on cylinders).



7" & 10" Footpads Available

NOTE: Installations may require modifications...

Certain vehicles & RV models may require modifications to the following: Weld-on brackets, Extending limit switch wires & battery cables, Re-routing vehicle exhaust and RV plumbing or wiring, Modification to sub-floor brackets or joists, Storage boxes & Floors.

Make sure the proper hardware is used in the proper locations. Everything should be attached and level prior to tightening. All hardware to be fastened to following torque specs:

1/2" (5 1/2" & 9" Bolts) = Torqued to 80 ft/lbs.

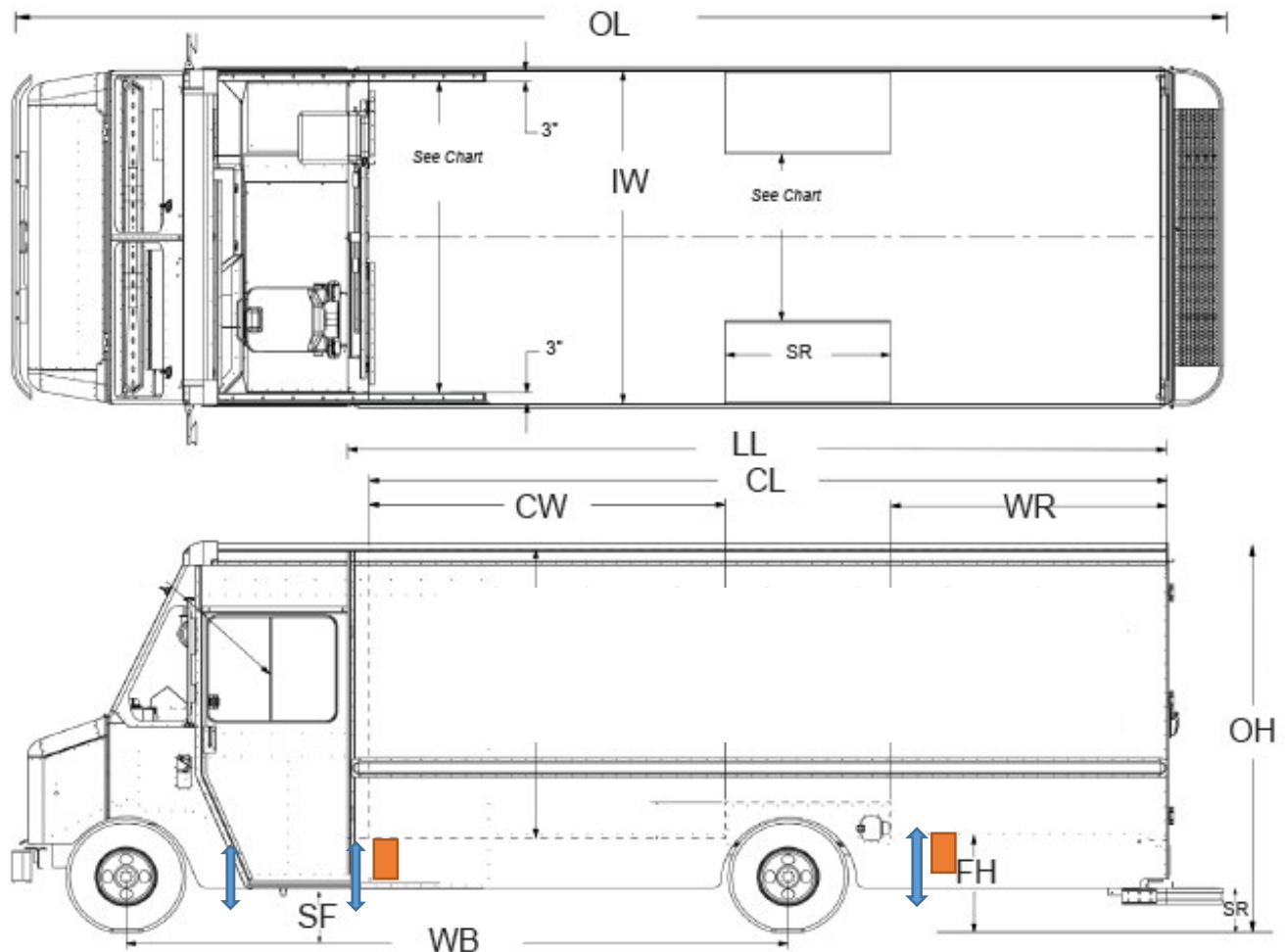
7/16" (1 1/2" Bolts) = Torqued to 70 ft/lbs.

3/8" (U-Bolts) = Torqued to 45 ft/lbs.

3/4" (Nuts for Foot Pads) = Impact must be used and one to two threads should be visible past nut.

Ford F59 or Freightliner MT45 (Food or Box Truck)

Front cylinders may have room in front, behind or rear of step on driver side. Passenger should be close to mirrored in position, can be up to 2' offset. Rear cylinders typically just behind rear axle. Ground clearance should be 8-10" from bottom of cylinder.

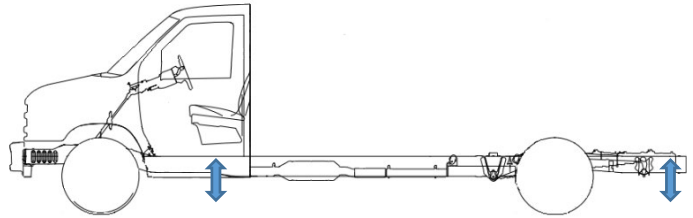
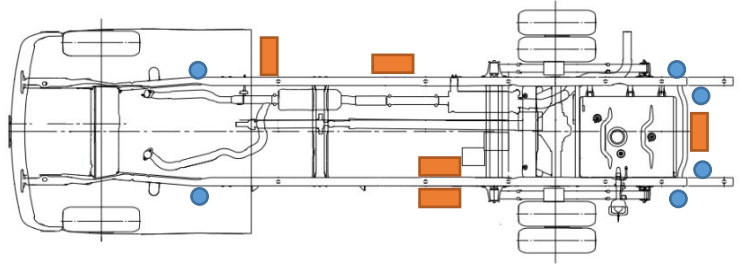


Not all RV's are manufactured equally.

Attention: Modification to your RV or vehicle's storage boxes, body, floor, exhaust, interior, relocation of components, etc., may be required for the system installation. Longer or shorter hose lengths, extension of wiring, additional hardware, modifications or custom brackets or methods of attachment to the vehicle frame may be required for your particular installation...

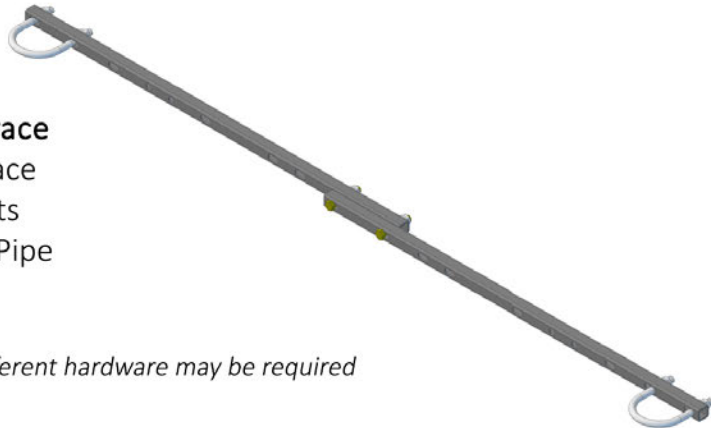
Typical Class-C mounting locations

- Possible Cylinder Locations (Blue)
- Possible Pump Locations (Orange)



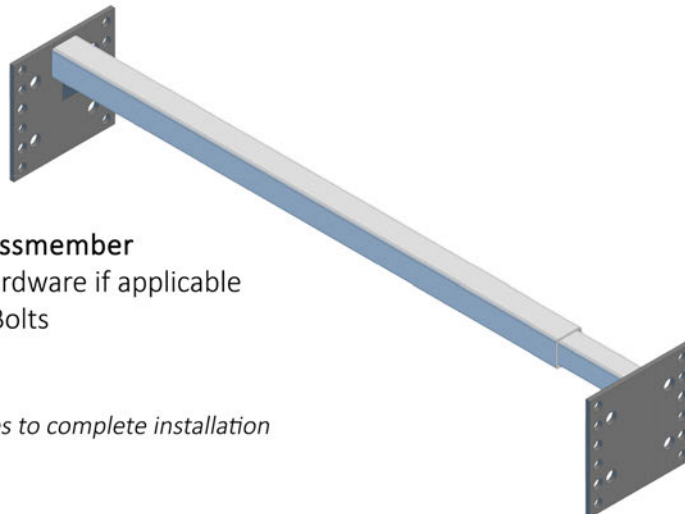
#M2968K
8k Adjustable Crossbrace
(2) 3/4" Sqare Tube Brace
(2) 3/8"-16 G8 Hex Bolts
(2) 3/8" U-Bolts for 2" Pipe
(6) 3/8"-16 Hex Nuts
(6) 3/8" Lockwashers

**Drilling modification or different hardware may be required*

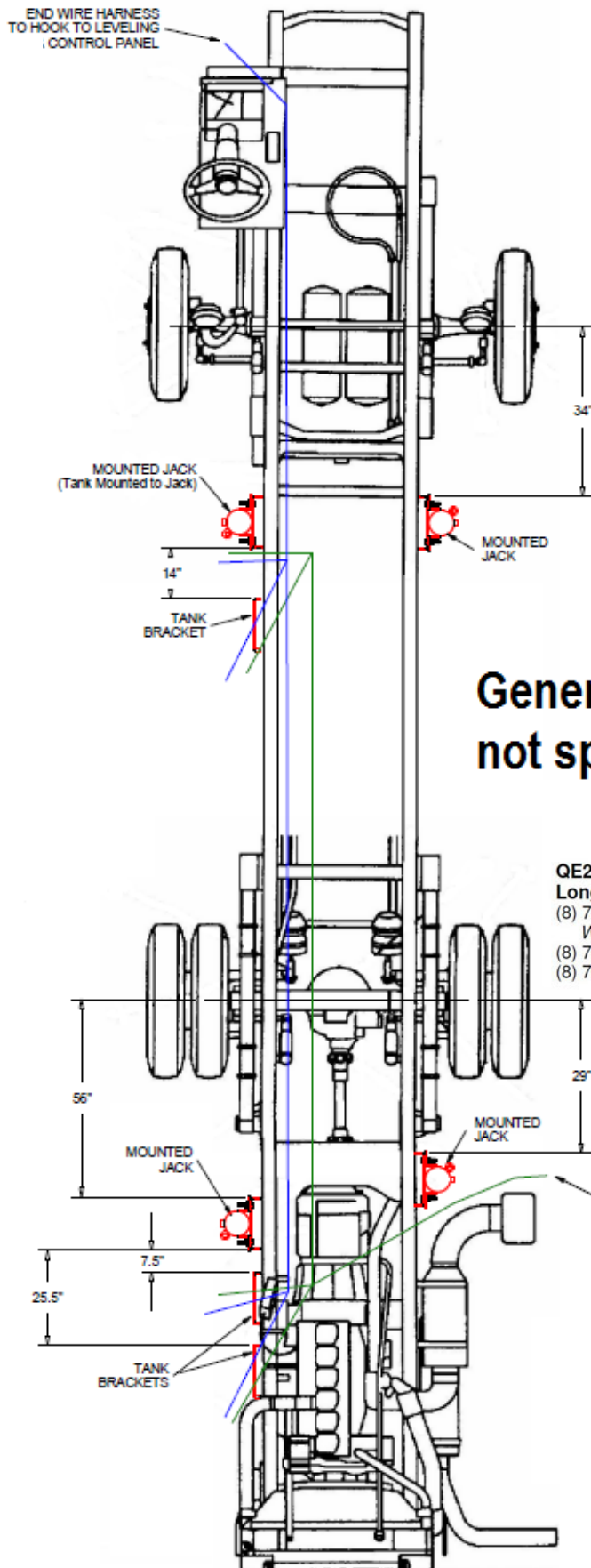


#M29618
Universal QEI&QEII Crossmember
Attach using provided hardware if applicable
(8) 7/16" x 1.5" G8 Hex Bolts
(8) 7/16" Lockwashers
(8) 7/16" Hex Nuts

**Requires tack welding tubes to complete installation*



DIESEL PUSHER EXAMPLE DIAGRAM/LAYOUT...



Freightliner XC/XCM Chassis (Diesel Pusher)

- Jack & Tank Locations
- Wire Harness Routing
- Battery Cable Routing
 - Mounted Jack Pre-Assembly
 - Tank Bracket Pre-Assembly

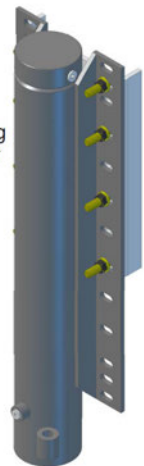
COLOR CODES:

RED: CYLINDERS, CYLINDER BRACKETS & TANK BRACKETS
 BLUE: SYSTEM WIRE HARNESS (14-PIN)
 GREEN: SYSTEM POWER CABLE (4 GA.)

- FOUR CYLINDERS #M1300 PRE-BOLTED TO FOUR CYLINDER BRACKETS #M31001
 Bottom of cylinders to be 10-12" off the ground. Bracket & cylinder to be level prior to welding. As much vertical weld on the bracket to frame as possible.
- ONE WIRE HARNESS #M41000
 Controls end of harness to driver's area. Corner leads to each tank assembly area. Note: Driver front tank attached to jack.
- ONE BATTERY CABLE #M41100
 Each corner lead to tank assembly area. Main lead to coach's house battery location.

Generic measurements, not specific or required...

- QE2-24 Cylinder #M1300
 Long Standard Bracket #M31001**
 (8) 7/16"-14 G8 Hex Bolts (Shoulder) 1"-1.5" Long
 Welded to backside of Long Standard Bracket
 (8) 7/16"-14 G8 Hex Nuts
 (8) 7/16" G8 Lock Washers



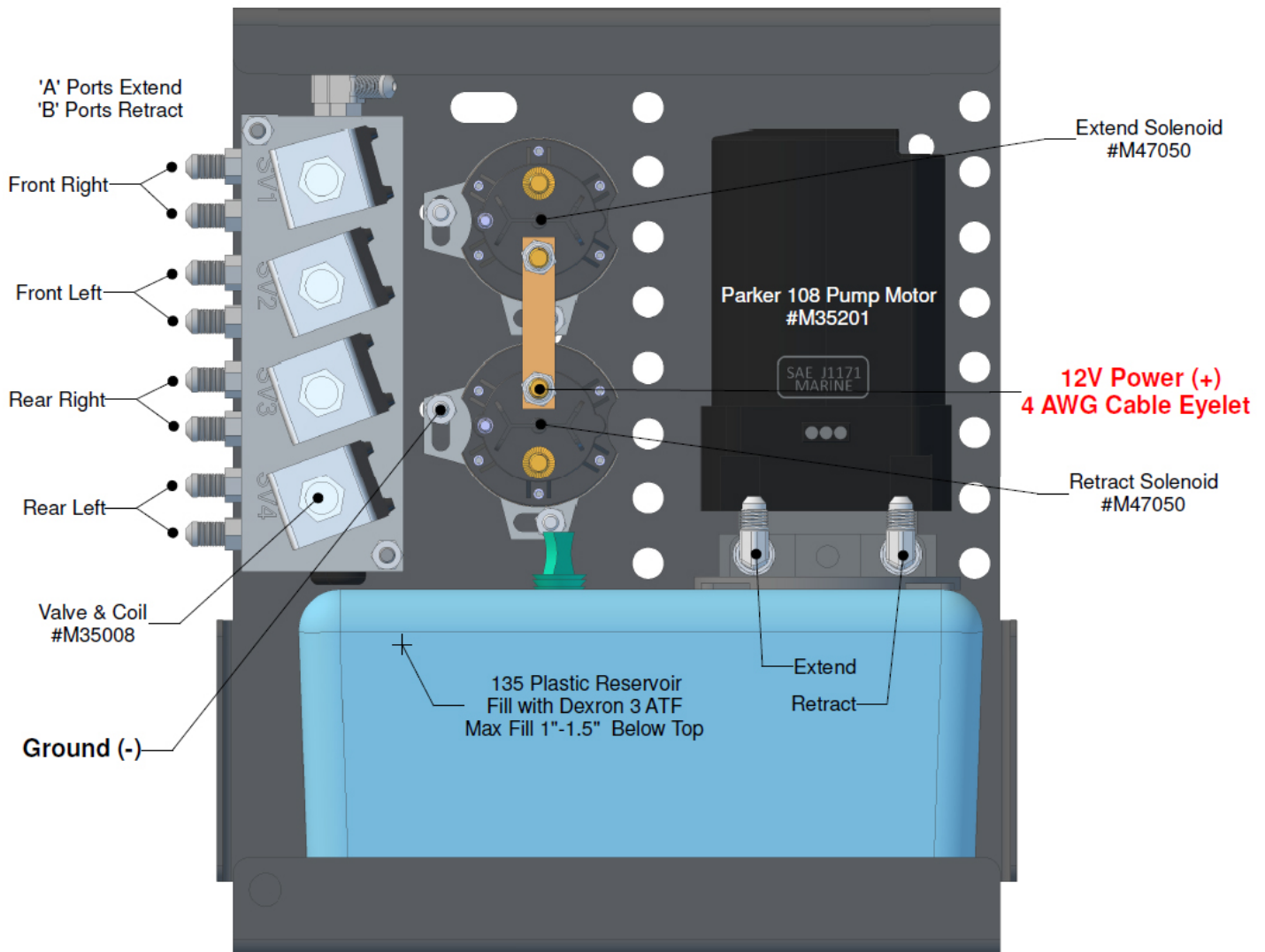
Reference only...

Vertical Tank Assembly for *Central Pump Systems*

Tank Assembly will be pre-assembled & pre-wired direct from factory.

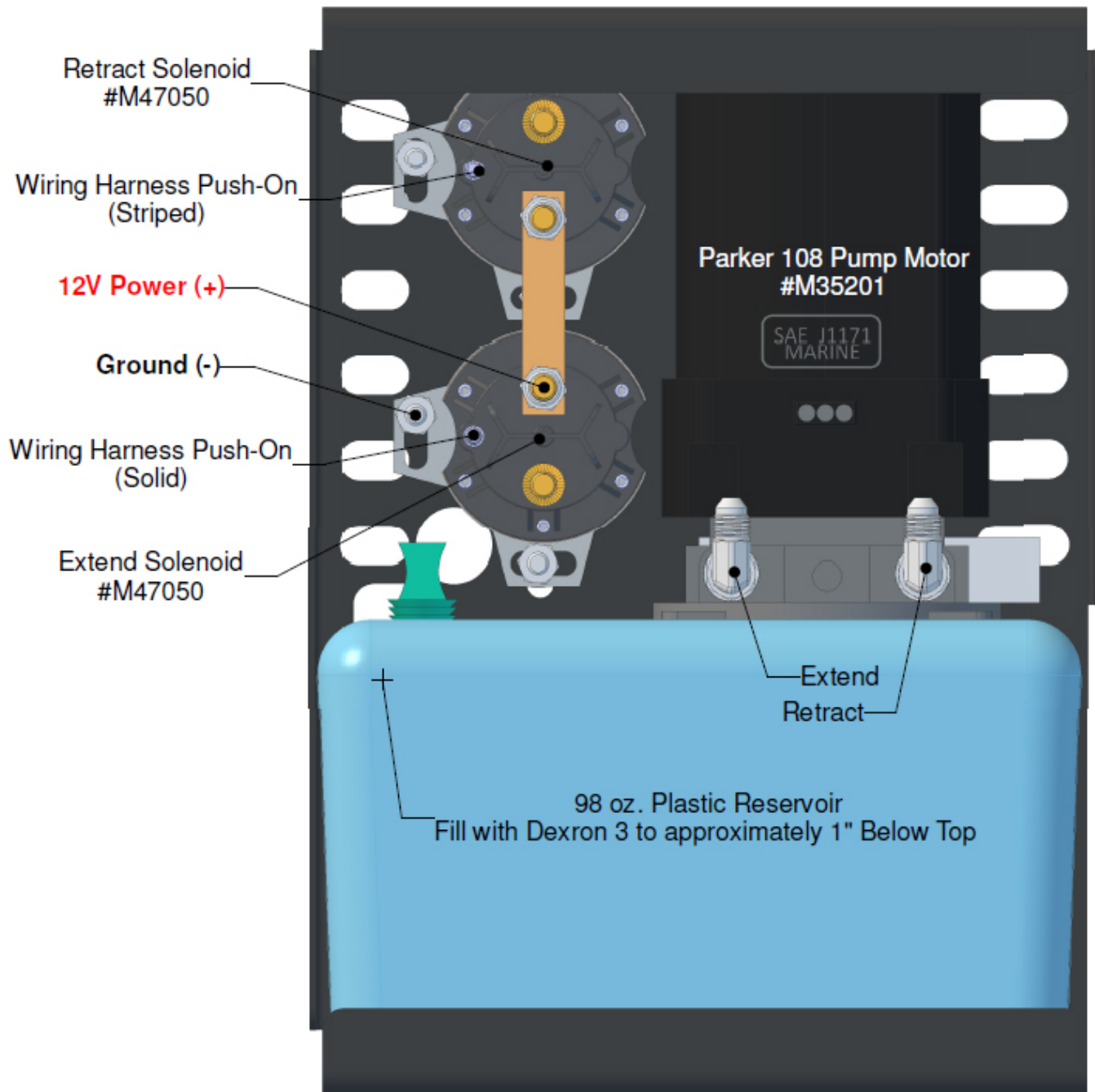
- Mount the pump using a minimum of two 7/16" bolts, nuts & lock washers.
- Plumbing is shown in Fig. 2 below, use 9/16" wrench and be careful not to under or over-tighten the hydraulic fittings. Sometimes marking the hydraulic lines with tape may make it easier.
- **DO NOT** install the top extend lines to the jacks themselves yet, this will be done later in installation.
- The main wire harness will plug directly into the 14-pin connector that is pre-wired to the assembly.
- Route the **ground cable** (attached to ground shown below) to a grounded surface on the vehicle frame.
- Finally installing the plastic three sided tank cover, this should be done later on in the assembly.
- The tank cover will need to be trimmed to your liking around the hydraulic lines. Fasten the tank cover with at least two self-threading screws, be careful not to puncture the plastic reservoir.

CENTRAL PUMP EZ 135 108 Tank Assembly #M26635



Central tank assembly is typically located near the "center" of the unit, Example: In front of rear axle on driver side frame rail (outside or between rails). Can be mounted to existing boxes, sub-frame, etc.

Standard Tank Assembly #M26850



Quad Pump Wiring Harness Colors

Left Front: Green
Right Front: Blue
Left Rear: Grey
Right Rear: Brown

Mounting Tank Assemblies

Our tank assemblies are weather resistant and must be mounted vertically and can be mounted externally on the vehicle's frame by drilling holes in the frame or welding a bracket, tanks can be mounted to a cylinder bracket or inside a storage box. Use at minimum two 7/16" or 3/8" bolts per tank assembly. Take care when mounting and running hydraulic lines & wiring to avoid moving parts, exhaust, etc.

Wiring Harness & Battery Cable/Harness Installation

Installing the 14-Pin Wiring Harness (Central Pump Systems)

The harness has two ends with plugs.

- The “panel” end has a 14-pin connector & a 6-pin. This end will need to route to the control panel’s location (usually near front of vehicle near driver’s seat or in wall of cabinet near service door).
- The other end will have one 14-pin connector that will plug directly into the tank assembly.
- The rest of the harness has two wires: Black & Tan, both of these wires plug directly into the Limit Switch that you installed previously onto each jack.
- Attach the wire harness to the frame rail (usually inside of rail with other wiring) with p-clips or zip ties safely routing away from any moving suspension parts or exhaust (complying with RVIA regulations). Example diagram on next page...

Battery Cable Installation (Central Pump Systems)

- Mount an 80 amp breaker beside the coach/house batteries.
Do not connect the batteries to the breaker at this time - this will be final step of system installation.
- Connect one end of 4 gauge battery cable to the breaker.
- Route the cable along chassis, being sure to avoid heat sources and moving parts, to the Central Pump Tank Assembly and attach to the power stud on the lower solenoid (with the copper strip).

Ignition Safety (Central Pump Systems)

- The wiring harness for Central Pump Systems has a yellow 16 gauge wire extending from the end that plugs into the Control Panel and needs to be tied to an ignition auxiliary/accessory wire. This allows the control panel to sound an alarm when the engine is started while the jacks are extended. A suitable wire will usually have 0 to 1.5 volts with the ignition in the off position and at least 5 volts with the ignition on or in the accessory position. *(Some vehicles may require the engine to be started for the voltage to increase.)*

Installing the 14-Pin Wiring Harness (Quad Pump Systems)

The main wire harness will have three wires for each corner.

- One wire goes to the limit switch (has spade connector - the limit switch has two wires coming from it, the wire with the eyelet goes to ground, the spade connects to harness).
- The other two wires (same color except one has a tracer) have female push-on connectors that plug into the operation posts on each solenoid. *See the “Standard Tank Assembly” diagram earlier in the booklet.*
- The main harness lead has a 14-pin connector at the end, this end will need to route to the control panel. Attach the wire harness to the frame rail (usually inside of driver’s side rail with other wiring) with p-clips or zip ties safely routing away from any moving suspension parts or exhaust (complying RVIA regulations). Example diagram on next page...

Battery Harness Installation (Quad Pump Systems)

- Mount a 120 amp breaker beside the coach/house batteries.
Do not connect the batteries to the breaker at this time - this will be final step of system installation.
- Connect the eyelet at the beginning of the harness to the breaker.
- Route the harness along chassis, being sure to avoid heat sources and moving parts, so that each corners pump gets it's own leg of the 4 on the harness.
- Connect the eyelets at each of the pumps to the power stud on the lower solenoid (with the copper strip).

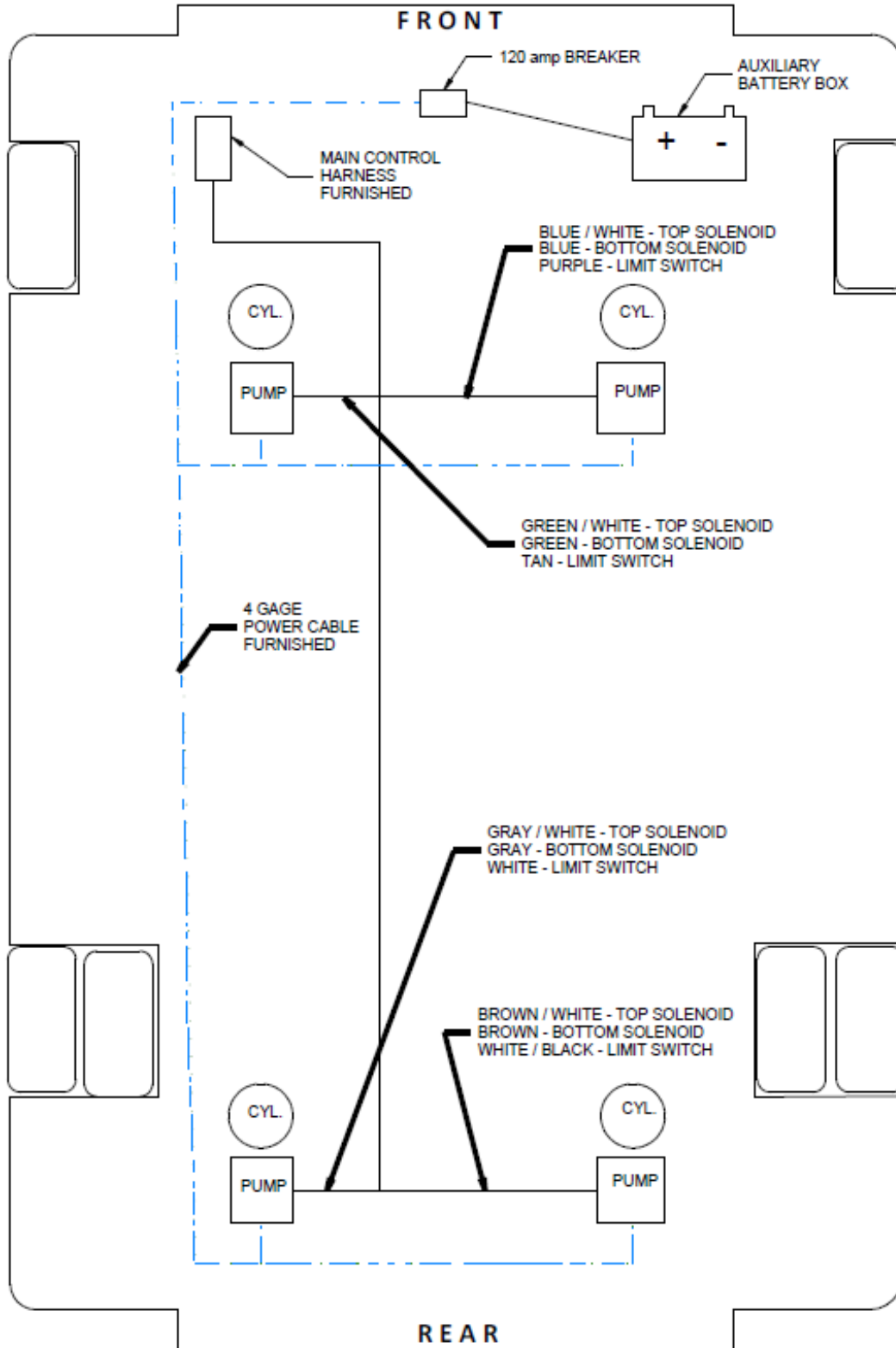
6-Pin Connector Wiring/Installation (Quad Pump Systems)

There are 3 wires on the 6-Pin pigtail that need hooked up - the **Red**, **Yellow** and **Black**. We recommend using a voltmeter to ensure connections are made to wires with the correct voltage.

- The **Red** wire needs to be connected to a constant +12V circuit.
- The **Black** wire needs to be grounded to the chassis.
- The **Yellow** wire needs to be connected to an ignition RUN/ON wire. A suitable wire will have 0 to 1.5 volts running through it with the ignition in the Off position and with the ignition in the RUN/ON position it will then have over 5 volts running through it. *(Some vehicles may require the engine to be started for the voltage to increase.)*

Example below of routing the Quad Pump Automatic & Manual systems 14-pin wire harness. The Central Pump System harness is similar except that the leads to each corner or jack have only a tan & black wire that plugs into the limit switch and the end of the harness with the 14-pin connector plugs into the pump while the end with the 14-pin & 6-pin connectors plug into the control panel. Take care to avoid high heat areas and moving parts.

MAIN WIRE HARNESS DIAGRAM



Hydraulic lines are universal lengths and fit the majority of applications, however if they do not fit your exact model you will need to call and order longer lines.

***Central Pump* Final Extend Hose Installation & Bleeding the System**

During installation of the hydraulic lines, air is internally captured in the hose. Due to this, bleeding the air out of the system is necessary for the system to work properly. This process is done at the end of installation and requires two people and can be messy, so as a warning make sure you are wearing eye protection and have rags ready to use. Make sure all hose fittings are tight on the pump side and the retract side of the jacks. Extend hose fittings should still be un-installed.

- With person #1 running the panel, go into Manual Mode, all jacks should be fully retracted.
- Person #2 (armed with a 5/8" OR 9/16" wrench, safety glasses, rag and a one gallon container) needs to access the left rear jack and place the un-attached extend hose into the empty container.
- Now person #1 will extend that left rear jack from the panel (press & hold button).
- Fluid & air will be spilling out of the port, once a solid stream of fluid occurs, person #1 will release the button on the panel, after fluid stops flowing person #2 should install the hose fitting to the jack.
- Repeat these steps with the rest of the jacks.
- After doing so, extend all jacks fully and let stand for 15 minutes.
- Then retract all the jacks and remove the tank cover and check your fluid level to verify the fluid in the reservoir is around 1 ¾" below the top (ATF Dexron III) do not fill to the top!

Finally install the tank cover, check that all hardware is tight, the sensor is facing the correct way and is mounted level and the house battery is fully charged.

In some instances, the front jacks may need to be dis-mounted from underneath the cab to access the top extend ports during the bleeding procedure.

Bleeding Quad Pump systems

In Manual mode, extend all four jacks to complete extension and leave in this position for 20 to 30 minutes. This pushes all the air out of the lines by weight pressure. After turn panel back on and press Retract.

Troubleshooting - Hydraulic Cylinder/Plumbing Related

What fluid do we use in the system? Automatic Transmission Fluid Dexron III ATF

Cylinders running "choppy"... Bleed the system, if central pump system, try quad pump method first.

(Bolt-On Systems must use the secondary air bleeding process)

Cylinders make loud "squeaking" noise while operating... Spray rams with Teflon spray (dry lubricant).

Hydraulic fluid on footpad or on ground around cylinder... Loose fitting or broken hydraulic line. **Cylinders "creep" down or don't hold pressure when lifting/holding coach...**

- Check fluid level, Check for leaks in hydraulic lines/fittings
- Possibly plumbed backwards... (Bottom port on cylinder tube connects to right port on pump, etc.)

AKC & AKQ CONTROL PANEL

This Bigfoot control panel contains a sensor for automatic leveling operation and needs to be properly installed, programmed and calibrated before use.

ATTENTION:

Improper installation and calibration could result in system and/or vehicle damage.

Control Panel Installation

Step #1. Mount Panel

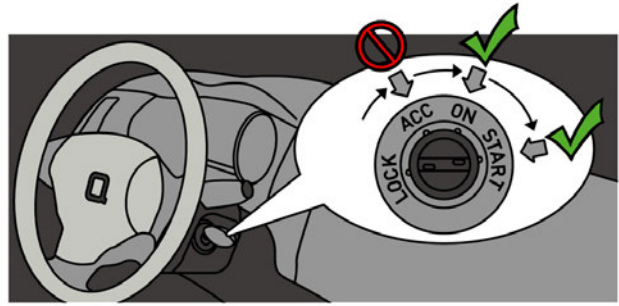
1. Plug the wiring harness into the rear of the control panel (14-pin and 6-pin plugs).
2. Place bezel on front of the control panel and proceed to mount with four #4 screws into vertical wall/cabinet directly facing the front, rear, left or right side of the vehicle. Panel must be mounted with face perpendicular to floor plane and as close to level horizontally as possible.



***Control panel cannot be mounted on an angled surface or tethered.**

Step #2. Control Panel Orientation

The default orientation of mounting shall have the front of the switch panel facing the front of the vehicle. This is defined as orientation 1. Alternative mounting orientation can be set up manually by the following steps:

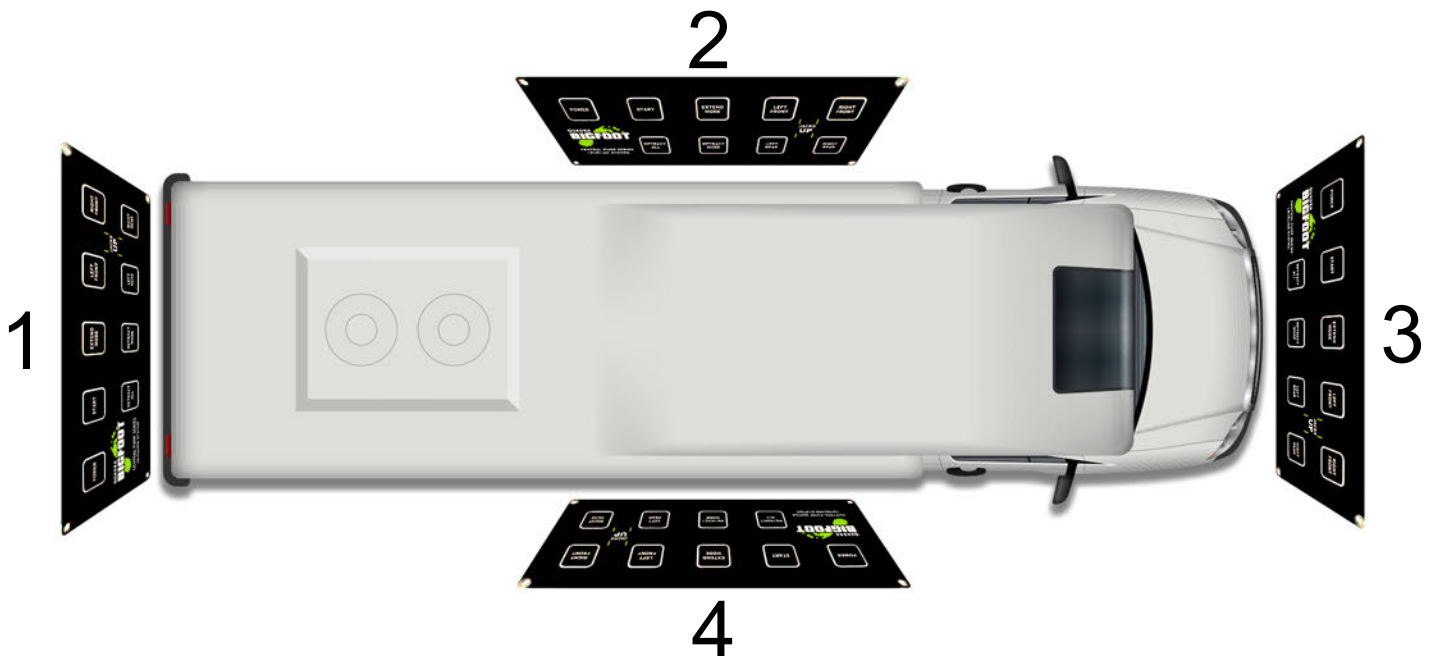
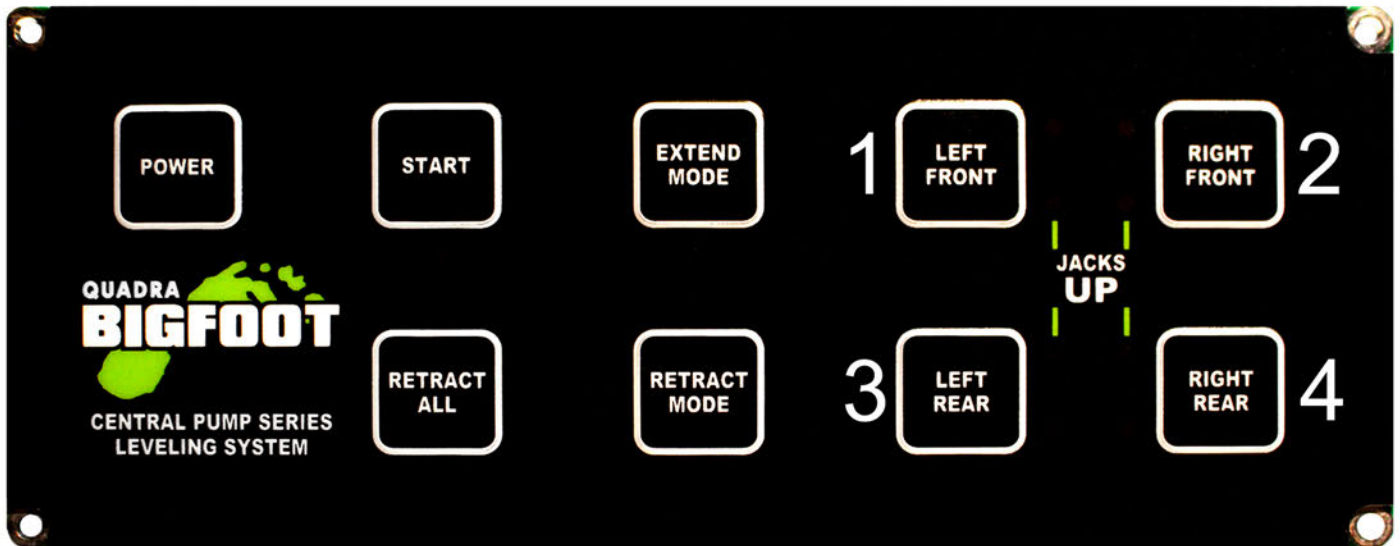


Turn vehicle ignition to the ON/RUN or START position.

Press and hold LEFT FRONT and RIGHT FRONT buttons for 3 seconds. Amber LED lights next to each of the front buttons will start flashing at 1 second intervals.

Select and press the button (LF,RF,LR,RR) that corresponds to the direction the control panel is facing using the figures below. A green LED will illuminate to indicate the panel's orientation setting.

4. If you have a Quad system, the mounting mode of the control panel can also be changed from vertical to horizontal by selecting the EXTEND or RETRACT mode and will be indicated by an amber LED. (See p. 16)
5. Once you have selected the appropriate orientation, turn the vehicle ignition to the OFF position. The control panel orientation is now set.



Step #2. Control Panel Orientation (Continued)

Quad Panel AKQ System Only

When setting the orientation using the procedure outlined on the previous page, the mounting mode of the control panel can also be changed by selecting the EXTEND or RETRACT mode during the process and will be indicated by an amber LED.

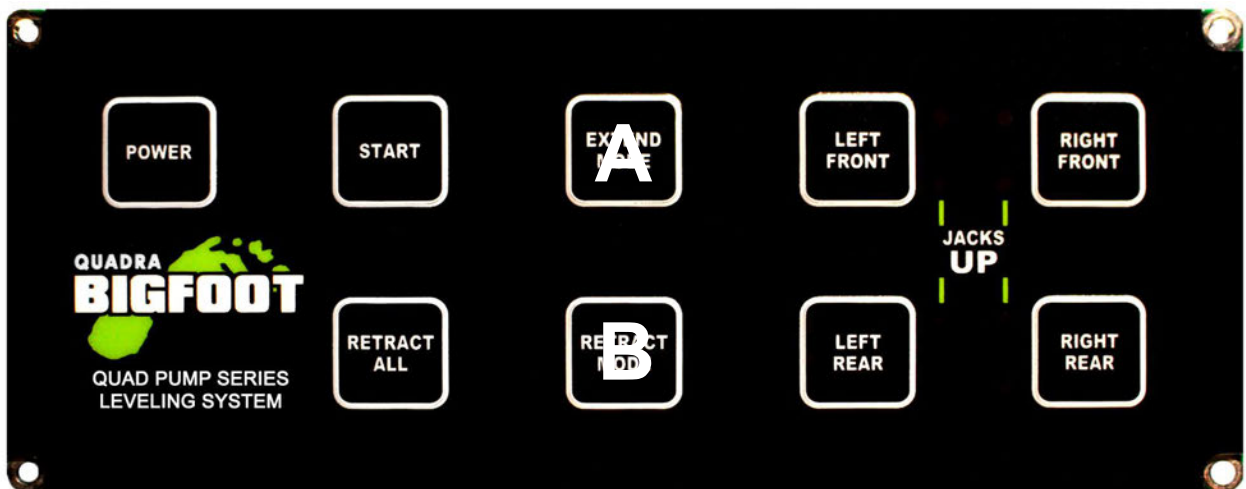


Control Panel Mode 'A'

- This setting is for installations on vertical surfaces, such as walls, cabinets, etc.

Control Panel Mode 'B'

- This setting is for installations on horizontal surfaces, such as the driver side console or armrest.



Step #3. Calibrate Level Program

1. Panel on, enter EXTEND MODE to manually level the vehicle.
2. Press & hold both RIGHT FRONT and LEFT FRONT buttons until cylinder makes contact with the ground and starts to lift the coach, then release. Do the same with the RIGHT REAR and LEFT REAR buttons.
3. Now that all four cylinders are firmly on the ground, find the low end of the vehicle (front to rear) and raise the corresponding pair until the vehicle is level front to rear. Now check left to right, raise the low side pair or individually raise the low corner in small increments to get the vehicle level side to side. The key is to use as little as stroke as possible, and may need to have the nose slightly lower than the rear on some vehicles depending on ground clearance, cylinder travel, etc.
4. Exit EXTEND MODE once the vehicle is level.
5. Turn the vehicle ignition to the ON/RUN or START position.
6. Press and hold RIGHT FRONT button for 3 seconds, the RIGHT FRONT amber LED will start flashing at an interval of 1 second, you have now entered calibration mode for level program, release button.
7. Press and hold RIGHT FRONT button again for 3 seconds to confirm calibration and release. Wait five seconds to see all four green LED's flash once to indicate the calibration is completed.*
8. Turn ignition off, and press RETRACT ALL, panel is now calibrated.

**If both green and amber LED's next to the RIGHT FRONT button flash instead, this means the vehicle position is greater than 7 degrees different than the panel and cannot be stored. Re-level the vehicle or re-mount the panel, etc.*

System Operation

Automatic Leveling

1. With ignition key off, press POWER if the panel is not on already.
2. Press START, make sure there is no movement in the vehicle/trailer during this process. When the process is finished an audible alarm will sound with a single beep and the START LED will flash ten times after a successful level program is completed.

If the jack LED's on the right side of the panel flash instead and there is no audible beep, the system may have stroked out or timed out. This means there was not enough stroke in the cylinders to level where you are parked, OR someone moved in the vehicle/trailer during the process, OR the program ran out of time to level (cylinders to slow/low voltage/to much cylinder travel to reach ground/frame twist caused poor movement reading/etc.).

3. Press POWER to shut it off or wait 5 minutes for the panel to power off automatically.

Retract the cylinders

1. Press POWER, make sure the ignition is off.
2. Press RETRACT ALL, the pump will start retracting all four cylinders simultaneously, they may not all come up at the exact same time = this is normal. The pump will shut off once all four limit switches (found on each cylinder) are made which signals to the control that all four cylinders are safely retracted. The JACKS UP LED's will light up once this is done.

Before leaving it is recommended to visually inspect each cylinder to make sure they are indeed 100% retracted. If this is not the case, use the manual control RETRACT MODE, if they are all retracted you are safe to travel.

Retract each cylinder in “retract mode”

1. Press RETRACT MODE, you are now in retract mode, LED will come on, you do not have to hold button.
2. Press and hold the cylinder button you want to retract, Example press and hold LEFT FRONT to retract the driver front cylinder.

This mode bypasses the limit switch so the pump will only stop retracting when you release the button. In low voltage situations, you may use this mode as well to get the cylinders retracted.

Extend each cylinder in “extend mode”

1. Press POWER if the panel is not already on, in this mode the ignition needs to be in the off position.
2. Press EXTEND MODE, you are now in extend mode, LED will come on, you do not have to hold button.
3. Press and hold the cylinder button you want to extend. Example, press and hold LEFT FRONT to extend the driver front cylinder.

NOTE: It is recommended to lift the vehicle/trailer in pairs to avoid damage to the vehicle, frame or RV body.

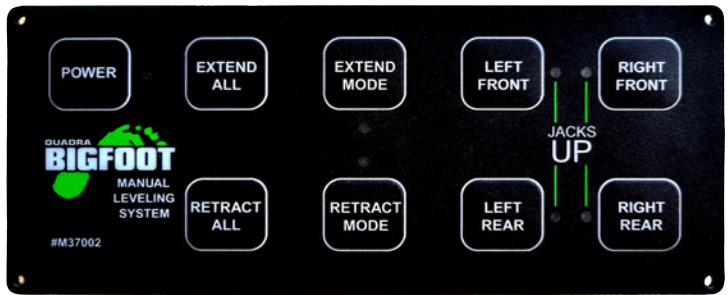
For example, if you wanted to raise the front end of the vehicle/trailer up, you would press and hold LEFT FRONT & RIGHT FRONT buttons until you reach the desired height and release the buttons. Same for the rear, left or right side of the vehicle/trailer. It is also recommended when raising an end of a vehicle so much where the tires leave the ground, to only operate the corresponding cylinder pairs. Example, if you were to lift the front tires off the ground with the front cylinders, do not operate the rear cylinders (leave them in retracted position). Same concept for the rear, left, right sides, however please note most vehicle manufacturer’s never recommend lifting the rear tires off the ground, do so at your own risk.

AKC & AKQ Control Panel LED Codes

LED Code	Description	Solution
Power LED flashing at 1 second intervals	Low Voltage Battery voltage dropped below 9.5 volts for 8 seconds.	Press the Power button - code will clear when voltage increased above 9.7 volts. Check batteries and replace if necessary.
4 LEDs flash 10 times (LF, RF, LR, RR)	Stroked-Out System was unable to reach level, 1 or more cylinders fully extended.	Make sure there is no movement inside the vehicle while auto-leveling, even small movements can disturb the leveling process. Relocate vehicle to a more suitable terrain if extreme or add blocks where needed.
All amber LEDs flash 10 times	Timed-Out Auto leveling or retracting took longer than 150 seconds.	Make sure there is no movement inside the vehicle while auto-leveling, even small movements can disturb the leveling process. Possible limit switch or clevis pin issue if occurring during retraction. Inspect and replace if necessary.

MANUAL LEVELING SYSTEM CONTROL PANEL

• Quad Pump 4 Point System



System Operation

Extend All: Press & hold to extend all four jacks simultaneously.

Retract All: Retracts all four simultaneously, Always visually check that all jacks are fully retracted prior to operating the vehicle. If you have an all up light, but see one of the cylinders not fully retracted, enter Retract Mode, and operate that cylinder (see instructions below).

For individual operation: Press and release Extend Mode button, press and hold corresponding jack you want to extend. Do the same for retract function.

In case of limit switch failure or “false all up light” (jack not fully retracted but it’s “up” light is on)... Press Retract Mode and run that particular jack to override the limit switch, then replace switch and pin.

System Maintenance

For most Bigfoot landing gear and leveling systems...

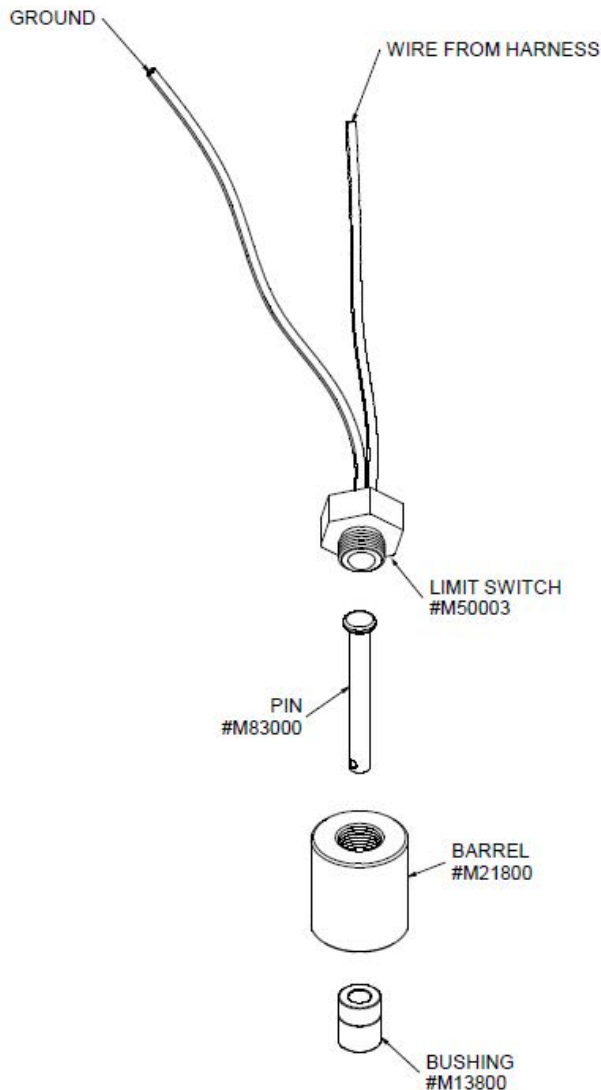
#1. Check the power supply to the Bigfoot system, RV house batteries, diesel chassis battery, trailer battery, etc. Test the voltage under load by using a volt meter and test your voltage with the system pump operating, if this drops below 10-11 volts, you may need to look into replacing the battery or batteries. If voltage is good under load, you may need to replace or check other connections on the pump assembly, including the power wire (connected to copper strip) and the ground from the pump to the frame. Our pumps ground at the solenoid mounting flange and contact between the pump steel housing and the frame it is bolted to, and has a 10 ga. cable that connects the tank body to the frame, typically only 3-6 ft long.

#2. Inspect and maintain the limit switches (if equipped) for each cylinder. See diagram on the right to identify the limit switch. These can be removed with a 7/8" wrench. To pro-long the life of the switch, remove and apply di-electric grease on the ball itself and the limit pin. These are normally closed switches and are tied to your "All Up" indication, Retract function, and ignition safety alarm on your panel (if equipped).

#3. Check for fluid leaks on the ground, footpad, hose, fittings, etc. Our systems use ATF so the fluid should be red in color. If leak is found, locate the origin and check fluid level inside the pump assembly, fluid level should be between 1-1.5" below the top of the reservoir, central pump 4pt systems can be 1.5-2" below the top.

#4. If your cylinder chrome shaft/rod is exposed (not a square jack), spray dry teflon spray on the shaft when leaving for long period of time, more frequently if by the ocean or salty environment.

#5. After a few uses, check all the hardware for cylinder mounting and pump mounting, re-torque to proper specs to make sure the bolts did not come loose. 3/8" & 7/16" hardware to 70 ft/lbs., 1/2" hardware to 100 ft/lbs., if bolt-on system, note any frame or bracket deformation prior to reaching full torque spec. (some deformation is OK, as long as the structure & function of component is still intact). *Feel free to contact us with any questions or concerns!*



Common Troubleshooting...

Most tech support common calls

Most issues we receive are power related. Always check power and ground wire connections first. Check power level of battery under load (place volt meter on battery then press and hold RETRACT ALL on control to see if voltage drops).

Alarm going off with engine on

Typically this means one of the cylinder limit switches sent the signal to the controller that it was “up” before it was 100% retracted (footpad tight to bottom). So when you hit a bump or vibration while driving, this caused the limit switch pin to loose contact and sound the alarm. First visually inspect and make sure they are all retracted, then do the following: *Enter RETRACT mode, then press and hold each cylinder button individually for a few seconds, listen for pump change tone or JACK UP LED'S to come on.*

System will not operate with engine on

Our systems are NOT designed to extend with the engine on for safety. They will also not automatically retract when the engine comes on.

Cylinders not lifting or holding pressure

This means there is more than likely air in the system (not bleed during installation). Two methods, easy method is to enter manual mode and completely extend all four cylinders to full extension and leave for an hour, then retract, wait another 30 minutes before operating again.

Attention: If you have a Bolt-on System do not lift rear wheels off the ground. Bolt-on Systems should only be bled using the **secondary air bleeding process.**

If this does not fix the issue then the **secondary bleeding procedure** must be done, see below for instruction.

Cylinder will not operate, extend or retract...

Attempt to bleed system first, verify that it will not operate in either direction. Then check all wires at the leveling sensor to make sure they are inserted properly in the plug at the back of the sensor (wires may be loose in connector). If this is all good, then the corresponding valve/coil may be defective, in tank assembly check valve ground wire (to solenoid mounting bolt) and wire connection to wiring pigtail. If valve bad, part #M35008, take care replacing do to ease of crushing valve assembly on re-installation.

Secondary air bleeding process

If there is still air in the system, a more strategic method may be required. Loosen all four extend hose fittings (15mm wrench) on the jacks (located near the top of each cylinder), enough that fluid and air can escape. Enter manual mode on panel (press and hold MANUAL for 3 seconds until light comes on). Press and hold each cylinder until solid fluid comes out of each fitting. Tighten fittings and repeat for retract hose fittings to ensure all air is out, to retract cylinders in manual mode, press each cylinder and the RETRACT button simultaneously. Re-tighten all fittings and clean up mess. This method can also be done by placing each line in a bucket to minimize mess afterwards. *In some instances, the front jacks may need to be dis-mounted from underneath the cab to access the top extend ports during the bleeding procedure.*

If power light flashes and panel shuts off

This means the control is receiving less than 9.5v from your house batteries, please check and charge your batteries and try again. If you need to leave, see retracting in “retract mode”.

WARRANTY GUIDE

Owner must activate warranty! Via Phone or Website

OEM Installed Quad/Central Pump Systems: 1 year parts and labor

Automatic Leveling System: Lifetime Cylinders, 2 years parts, 1 year labor

Manual Leveling Quad Pump System: Lifetime Cylinders, 2 years parts, 1 year labor

*Should the product be defective due to workmanship and/or material flaws,
we will repair/replace the defective material.*

Core charges may be applied and refunded on certain components.

Quadra is NOT responsible for:

- **Freight on warranty parts.**
- **Replacing footpads, bolts, loose or bent brackets or fluids lost as a result of failure to maintain the system, Ex. loose/missing footpads, loose mounting brackets/hardware from not re-torquing after initial use, etc.**
- **Damages caused by abuse, misuse, negligence, misapplication, error of operation, accidental or purposeful damage or faulty installation, including but not limited to hoses, fittings & wiring components. Example, bent limit switch pins from hitting ground while driving, missing SnapPads, operating system with rear tires off the ground, modification to system, etc.**
- **Liability for loss to the vehicle, or apparatus or property, loss of time, manufacturing costs, labor, material, loss of profits, consequential damages (direct or indirect).**
- **For transportation to and from a service center, onsite service calls to or from the customer, damage from road hazard, loss of salaries, commissions, lodging, towing charges, bus fares, car rentals, fuel expense, telephone charges, inconvenience compensation while repairing or replacing a defective part or material.**

This warranty voids all previous issues. Effective date: 10/1/2024

OWNERSHIP MUST BE REGISTERED WITHIN 30 DAYS FROM THE DATE OF PURCHASE TO ACTIVATE WARRANTY. Do it online at BIGFOOTLEVELER.com!

Prior to any work being done an **authorization number must be obtained** by calling

269-483-9633 for Warranty Parts or Service Labor. For full warranty transcript just contact us!

Service labor based on a flat rate schedule determined by Quadra for authorized work performed will be reimbursed.

This will eliminate much diagnostic time and avoid refusal of unauthorized claims.

Many problems may be resolved by contacting a Quadra service representative.

Provide the system serial number here _____