

VERSION: 0820

**QUADRA
BIGFOOT**

Mercedes Benz Sprinter 3500

Cutaway & Van Chassis

PART #'S:

**AC-MB2007, AC-MB2019,
PC-MB2007, PC-MB2019, AC-MB5 & AC-MB8**

ALSO REFERENCE: AC-MB3, AC-MB4, AC-MB7, PC-MB3, PC-MB4, PC-MB7

General Tools Required:

Cordless Impact Driver
Cordless Drill
9/16" Drill Bit
White Paint
Ratchet Wrench
1/2" Socket (with extension)
5/8" Socket
11/16" Deep Socket
9/16" Deep Socket
3/4" Deep Socket
10mm Wrench
15mm Wrench
1/2" Wrench
9/16" Wrench
5/8" Wrench
11/16" Wrench
3/4" Wrench
T-25 Torx Bit (3" long or use extension)
5/16" Socket Bit
Small Phillips Screw Driver
Flat Head Screw Driver

**UNITED STATES PATENTS
#10759396 & #10093286**

Kits and instruction by chassis year not RV model year...

2019 and up Sprinter Chassis Front Cylinder Mounting: Pages 2-6

2007-2018 Sprinter Chassis Front Cylinder Mounting: Pages 7-8

All Sprinter Cutaway Chassis Rear Cylinder Mounting: Pages 9-11

Sprinter Class-B Camper Van Rear Cylinder Mounting: Pages 12-13

Platinum Controls: Pages 26-27

Automatic Controls: Pages 19-24

Pump Mounting: 14-16

Wiring: Pages 17-18



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Bigfootleveler.com, 800-752-9815

2019 and up Sprinter Front Cylinder Mounting

Starting with passenger side: Remove side step cover in cab, there are two torx screws on top (use T-25 torx bit) see Fig.1; and three at step floor under tapered caps, see Fig.2 for a close up of the tapered caps, use a flathead screw driver/knife to remove them by pulling outward (away from vehicle) and up, they will slide out.

Place drill template on step (Fig.3B) to mark holes shown in Fig.3A & Fig.8 on next page. Make sure template corner is in the rear corner of the step well and the bottom of the template is sitting flat against the floor of the step. Mark the four holes.

Remove template & drill the four holes with a 9/16" drill bit. Apply white spray paint to holes, let dry.

Pre-assemble two cylinders, as shown in Fig.4, place cylinder under cab in jack location (Fig.5 & Fig.6), elbow fittings should be installed on cylinder prior to mounting for best access. Make sure bolting surface of mounting bracket lines up with holes drilled in body. Insert four 7/16" x 1.5" bolts with flat washers from the outside, attach, but do not tighten, nuts and lockwashers on the inside at the bracket until later on.

Make sure lifting surface is tight to bottom of frame as seen in Fig.4 & Fig.7, If your kit was equipped with the 3/4" square tube 49" long, go ahead and fasten the bolts in the step walls when the cylinders are straight and see the "Front Crossbrace" page. Otherwise insert "Hole Catcher" aluminum block into existing hole in frame (Fig.4/7), then tighten 7/16" x 3" full threaded bolt and lockwasher so hole catcher draws tight. Make sure cylinder is straight, then tighten 7/16" x 1.5" hardware on outside of body, (11/16" wrench, 5/8" socket) tighten to 70 ft/lbs. If cylinder is not straight, loosen 1/2" bolts on cylinder with 3/4" wrenches and/or 7/16" bolts in body, straighten cylinder, re-tighten with 3/4" tools. Final install should look like Fig.8 from the outside.

Re-install step cover and tapered plugs with original torx screws.

Repeat on driver side,
there will be no bottle jack.



Make sure template against back
of step & flat surface on step.

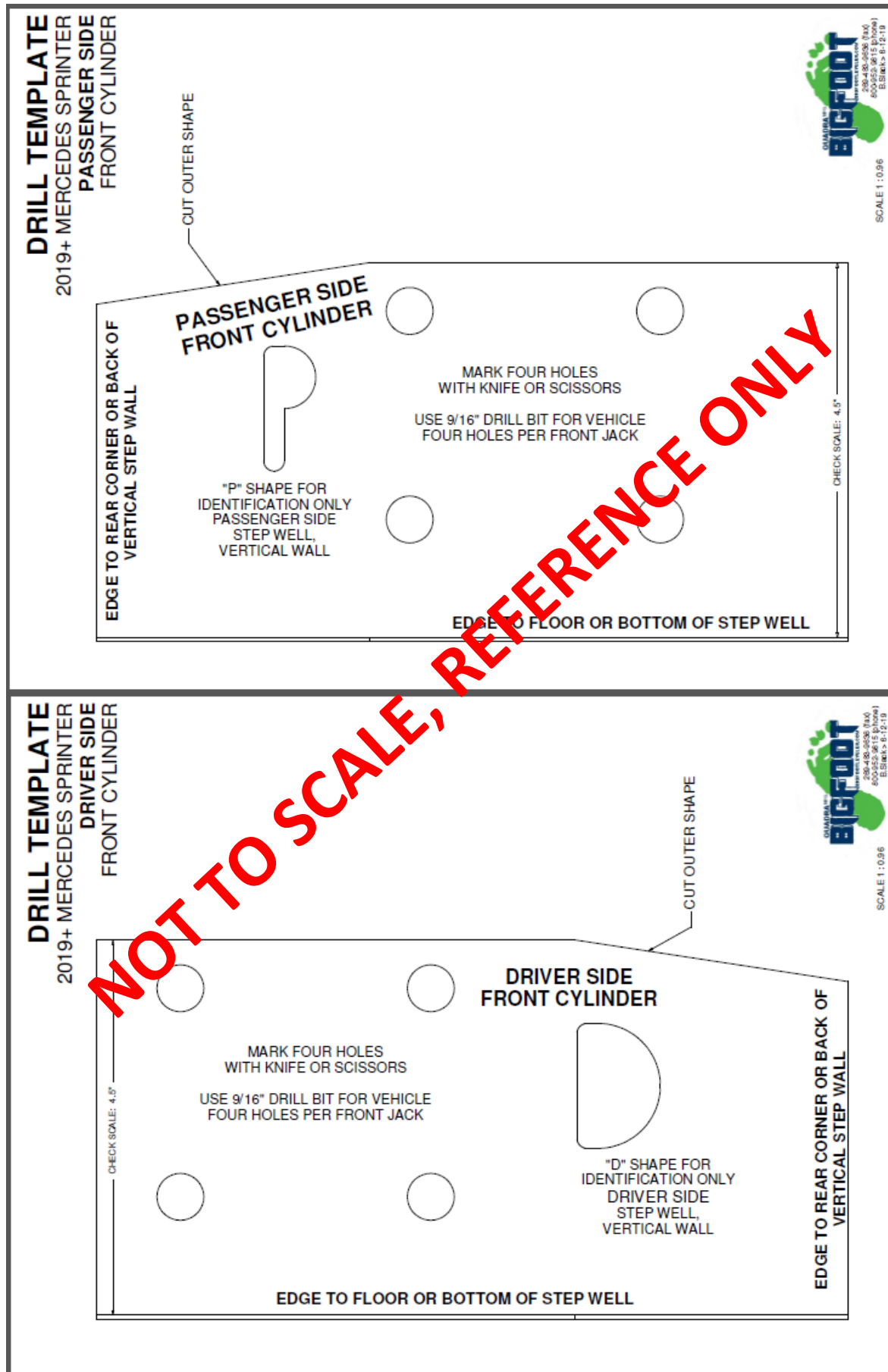
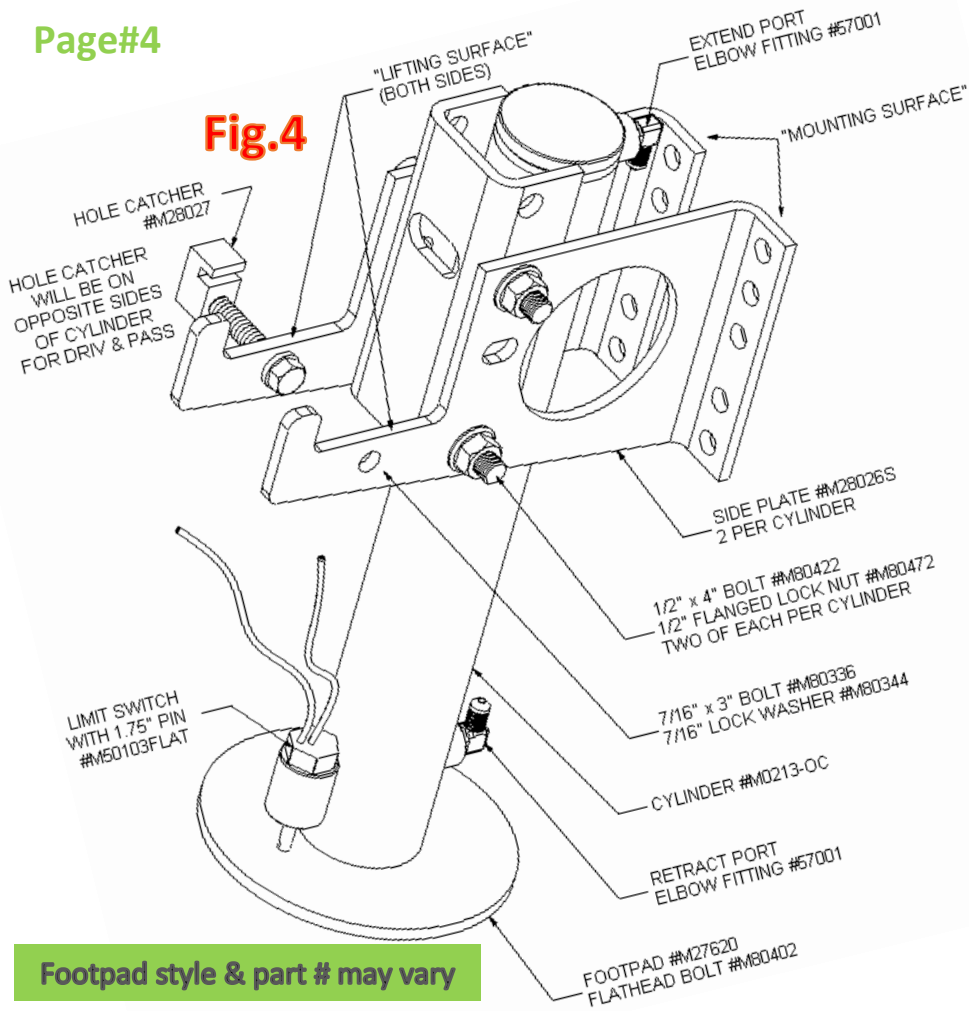
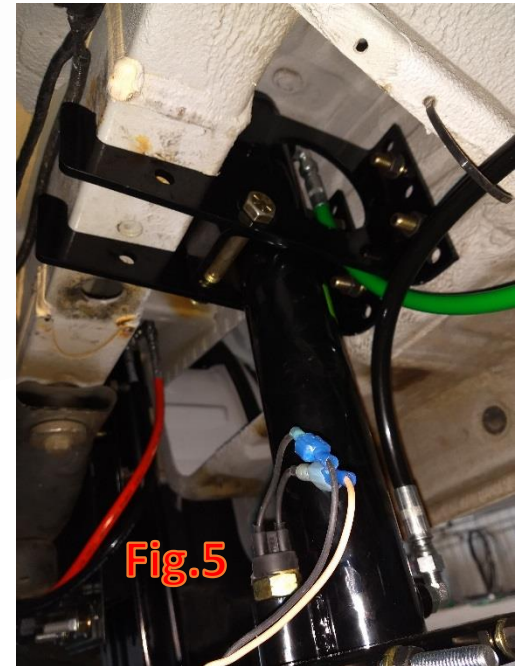


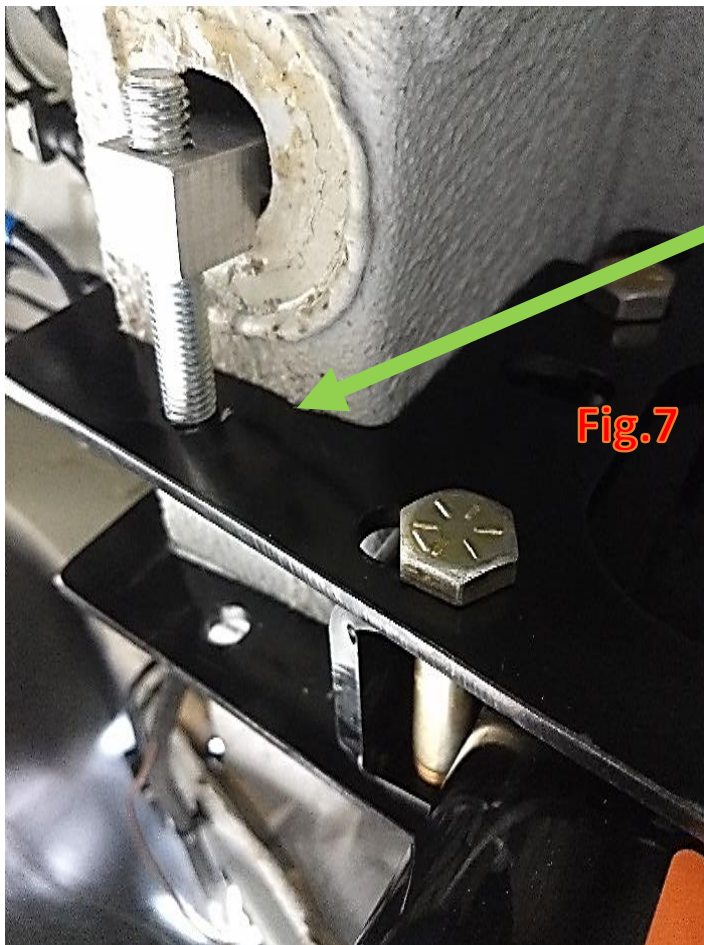
Fig.4



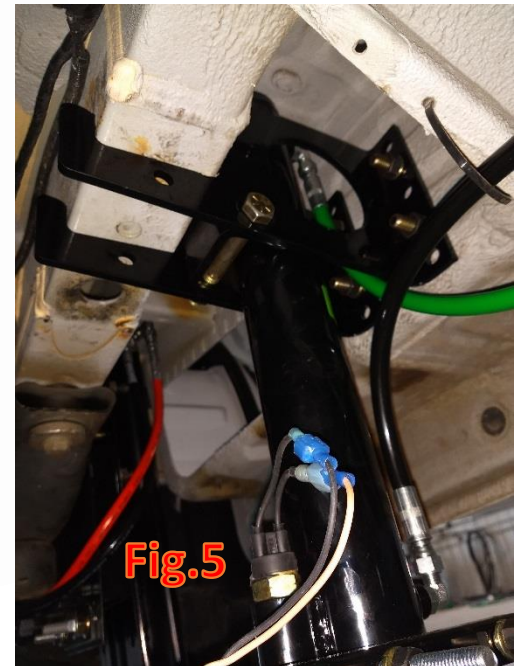
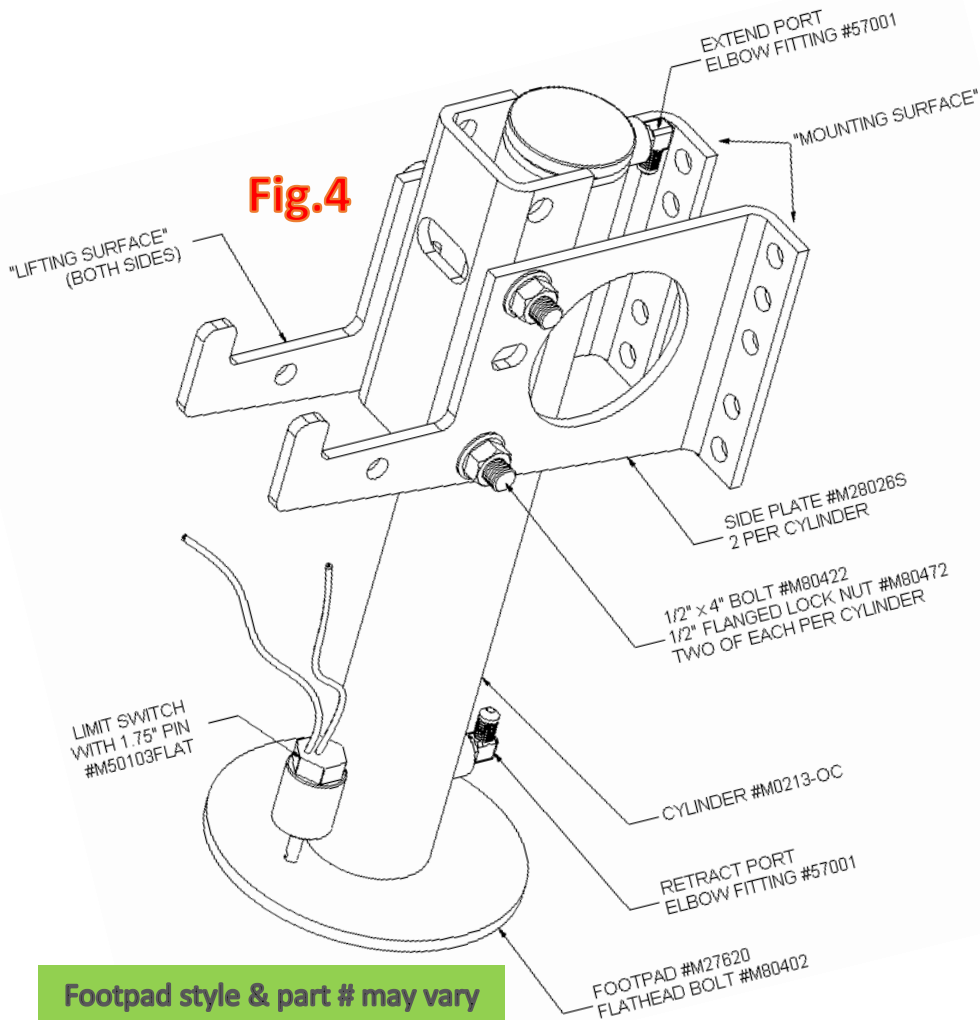
Footpad style & part # may vary



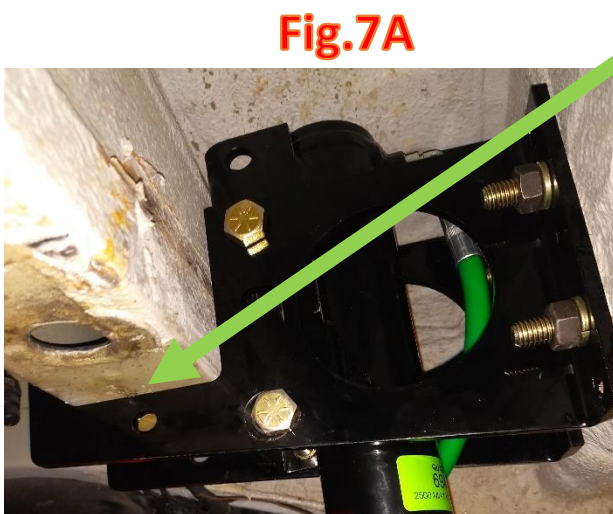
BOTH BRACKET LIFTING SURFACES MUST BE TIGHT TO BOTTOM OF FRAME, HOLE CATCHER WILL BE ON OPPOSITE SIDES FROM DRIVER TO PASSENGER CYLINDER.



If your system came with front crossbrace (see Fig.8C)... Use these pages for front cylinder mounting, your kit will NOT have the hole catchers. Crossbrace is not required as long as you have hole catchers installed.

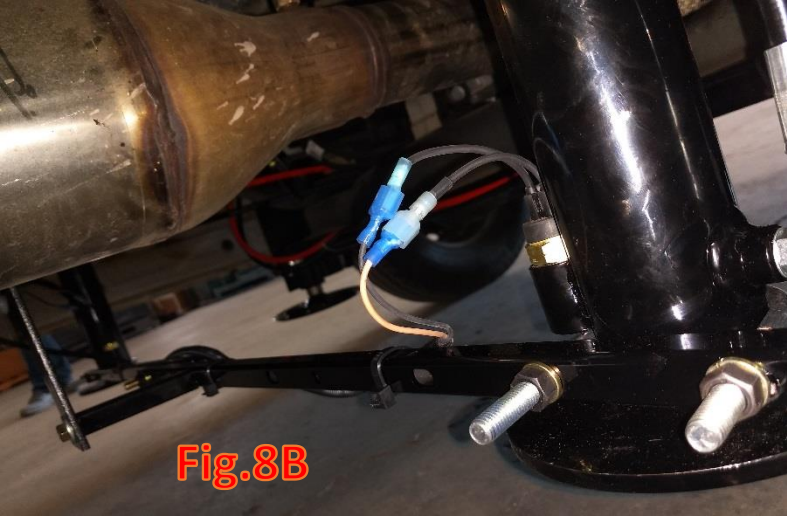


BOTH BRACKET LIFTING SURFACES MUST BE TIGHT TO BOTTOM OF FRAME!



Front Crossbrace (If equipped, again not required as long as hole catchers are installed)

Crossbrace is attached to each cylinder with a 3/8" U-bolt, nuts and lockwashers and to the "hanger" which utilizes an existing hole in the Mercedes cross-member (shown Fig.8A). Original design is a two-piece crossbrace (3/4" tubing) as shown in Fig.8A & Fig.8B, production versions will be one-piece as shown in Fig.8C.

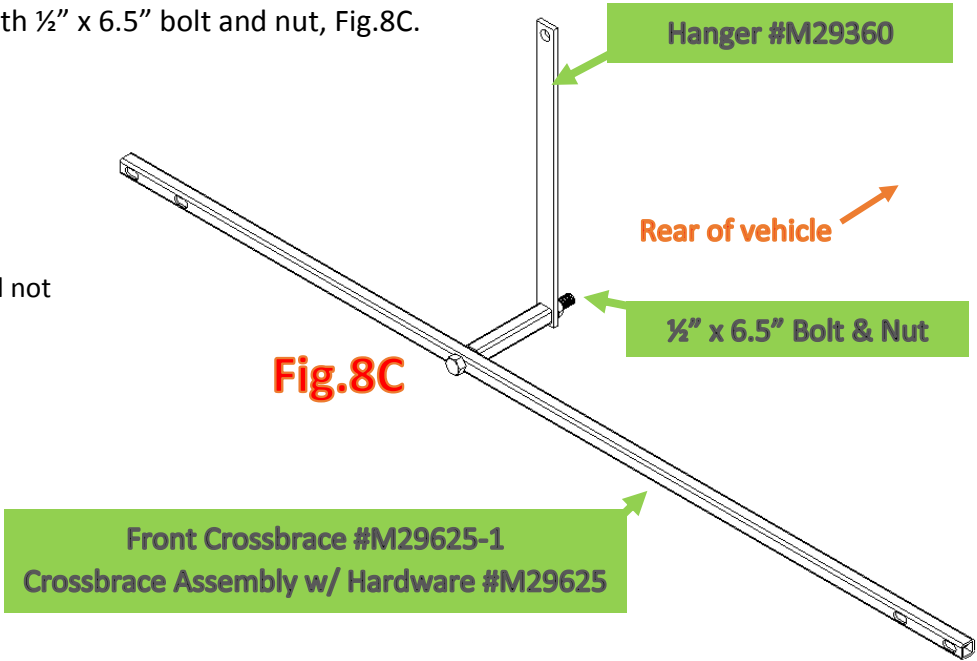


Crossbrace assembly shown in Fig.8C.
Bolt hanger to existing hole in Mercedes frame crossmember as shown in Fig.8A, using supplied 1/2" x 5.5" bolt, flat washer & nut (3/4" socket/wrench).

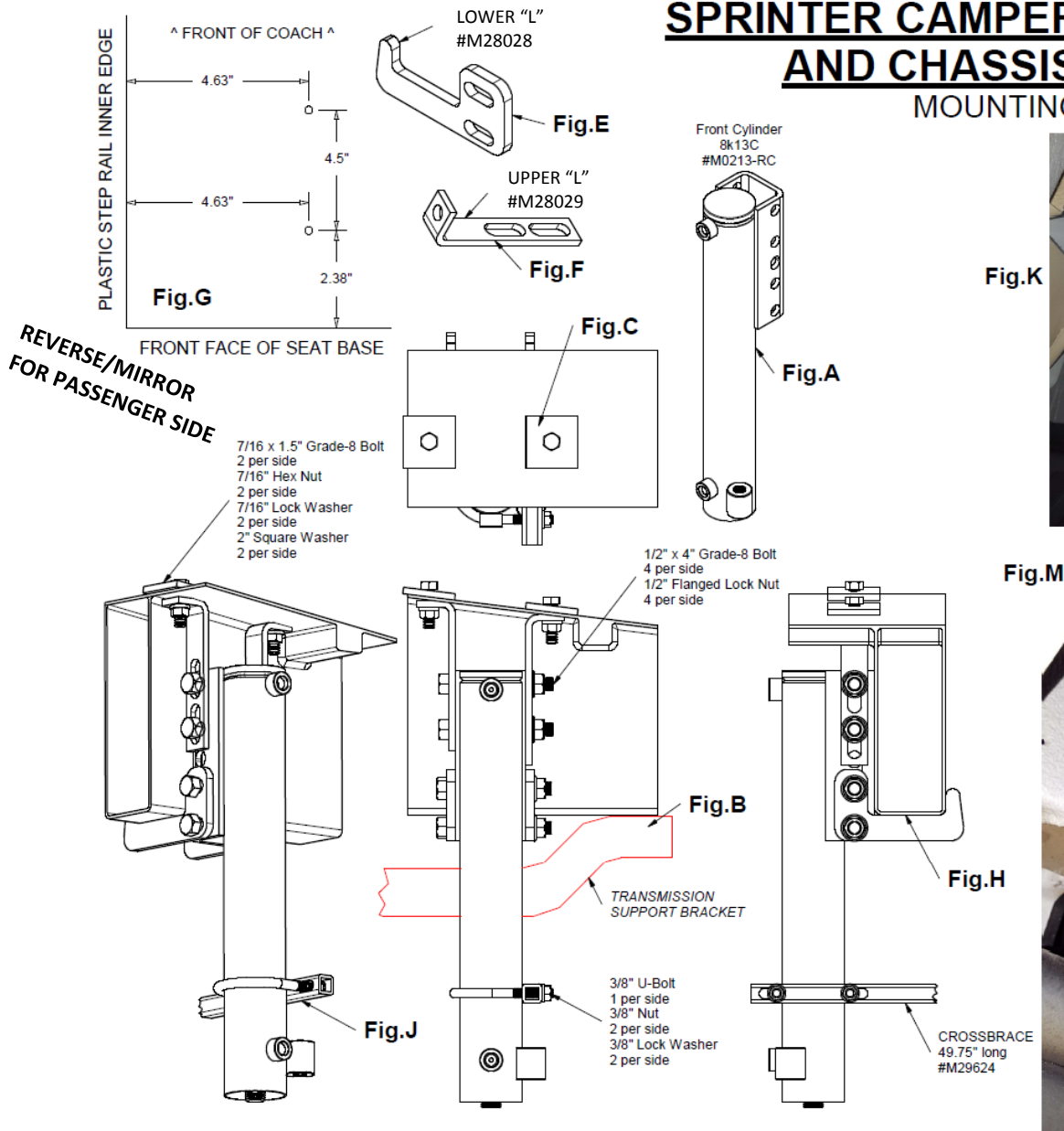
Mount crossbrace (with spacer pre-welded) to each cylinder using the U-bolts, nuts & lockwashers with 9/16" wrench or deep socket. Note how U-bolts slide under limit switch barrel and between limit switch pin and cylinder housing. Crossbrace should be just above the footpad, and mounted to rear side of cylinder, Fig.8B.

Now fasten hanger and crossbrace with 1/2" x 6.5" bolt and nut, Fig.8C.

If your kit came with these parts, you will not have or need the hole catchers.



SPRINTER CAMPER VAN CLASS-B AND CHASSIS CAB CLASS-C MOUNTING FRONT CYLINDERS



The front cylinder setup is the same on a Sprinter Chassis Cab Class-C and a Sprinter Camper Van Class-B.

First, locate area under vehicle front cab in front of the driver's seat on the outside face of the frame. See (Fig.B and Fig.M) above showing the transmission support bracket attached to the frame, our cylinder's Lower "L" Bracket (Fig.E) will slide between that support bracket and the bottom face of the frame (Fig.C).

Prior to mounting, attach the Top "L" (Fig.F) and Lower "L" (Fig.E) Brackets to the cylinder (Fig.A) loosely, do not tighten as adjustments may be required using the supplied 1/2" x 4" long Bolts and Flanged Lock Nuts, do this for both cylinders.

Find your supplied "Sprinter Drill Template" (sheet of paper) or use the measurements shown in (Fig.G). Drill two 1/2" holes in the locations above and spray each hole with white primer for corrosion resistance.

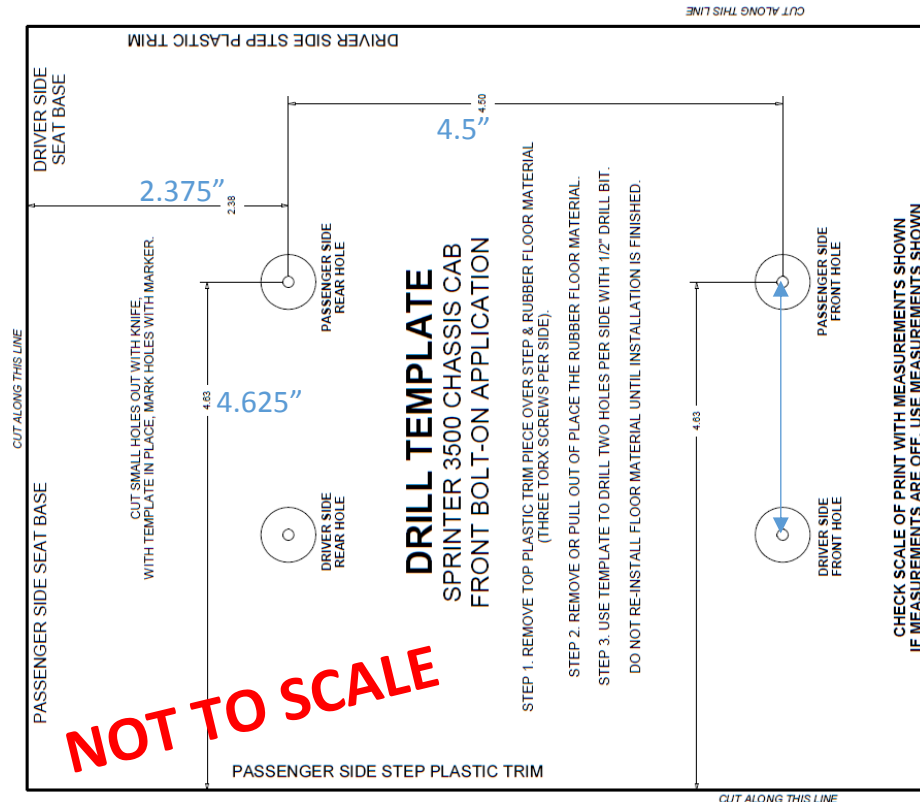
Now place one cylinder on a floor jack and set in place. Make sure Lower "L" Bracket is "cupping" the frame tightly by lifting the cylinder with the floor jack creating a rock solid mating/lifting surface (Fig.H). Insert supplied 7/16" Bolts with Lock Washers, Nuts and Square Washers through the new holes from inside the cab as shown in (Fig.C and Fig.K) to fasten the Top "L" Brackets to the floor (keep semi-loose). Repeat on other side.

Mount the supplied 3/4" Square Crossbrace with supplied 3/8" U-bolts, Nuts and Lockwashers as shown in (Fig.J), keep semi-loose. Do for both sides.

Finally, verify both cylinders are as straight and level as possible before tightening every thing to the following specs below:

1/2" hardware: 80 ft/lbs., 7/16" hardware: 70 ft/lbs., 3/8" hardware: 50 ft/lbs.

What drill template
Looks like for the
2007-2018 Sprinter
front cylinders...



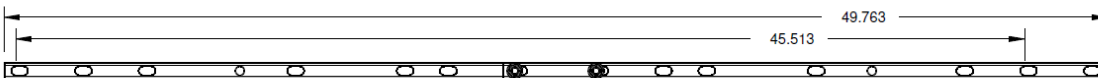
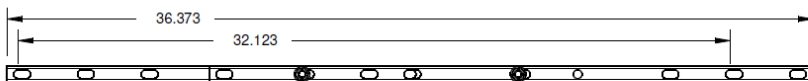
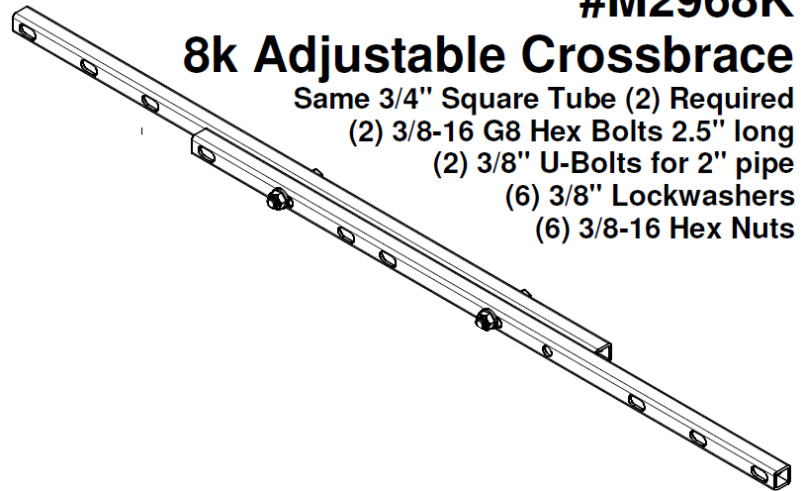
If your kit did not come with a cross-brace...

Then it is not required, or found to be un-necessary for that application...

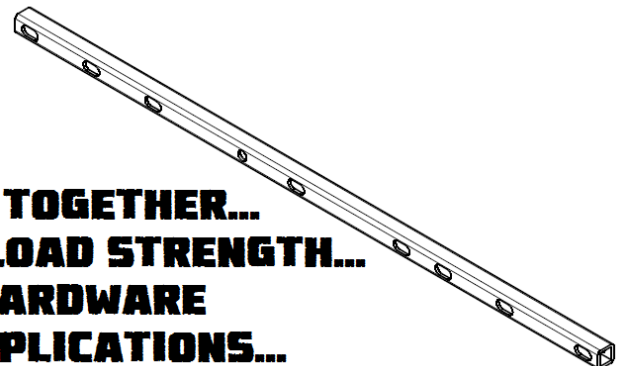
Continue to next step....

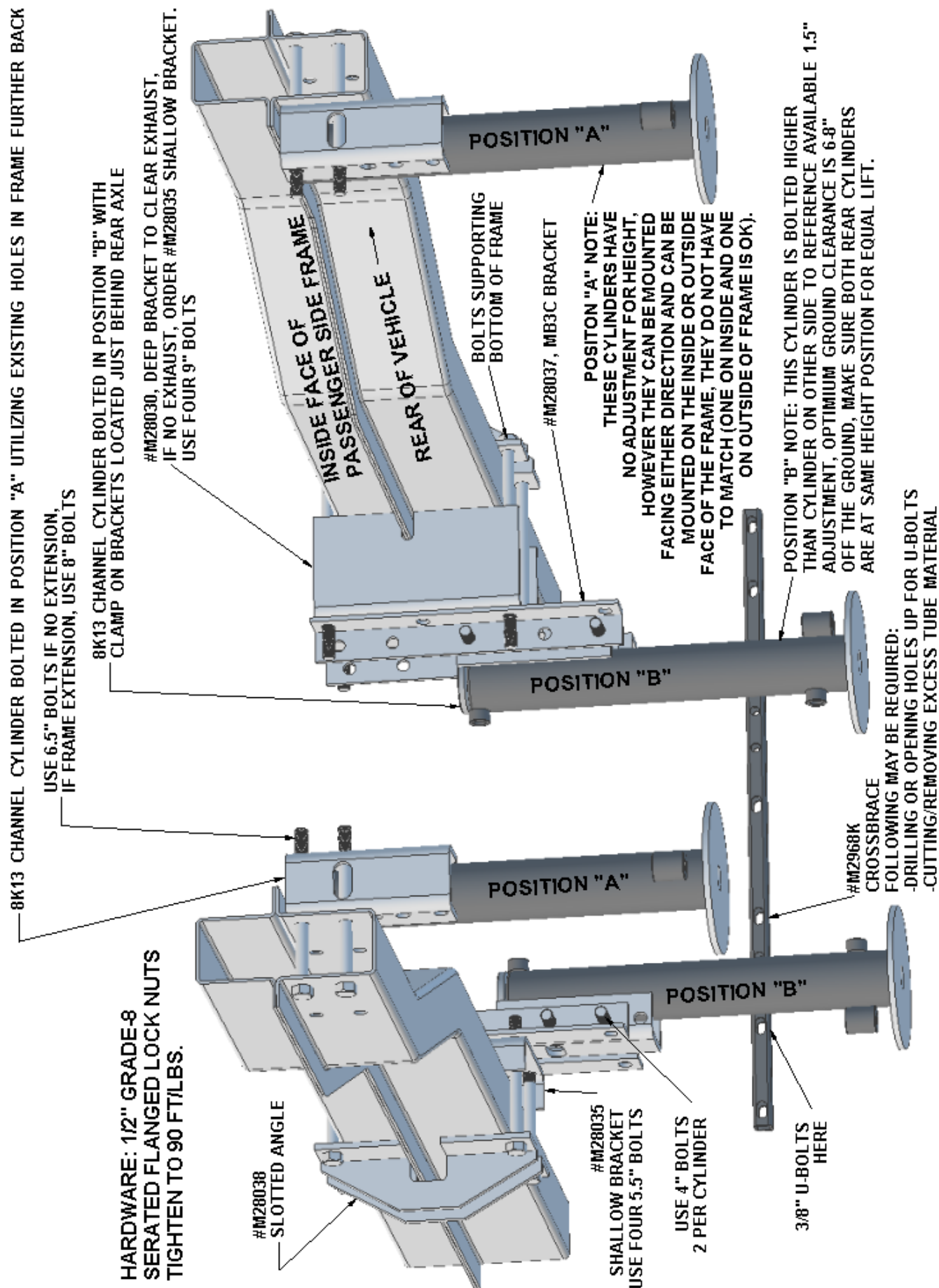
#M2968K 8k Adjustable Crossbrace

Same 3/4" Square Tube (2) Required
(2) 3/8-16 G8 Hex Bolts 2.5" long
(2) 3/8" U-Bolts for 2" pipe
(6) 3/8" Lockwashers
(6) 3/8-16 Hex Nuts



-BOLTS PASSENGER & DRIVER CYLINDERS TOGETHER...
-ADDS STABILITY AND ADDITIONAL SIDE LOAD STRENGTH...
-DRILLING MODIFICATION OR DIFFERENT HARDWARE MAY BE REQUIRED BASED ON CERTAIN APPLICATIONS...





Cylinder preparation see page 18

Rear cylinders do not require any additional mounting brackets, so pre-assembly will be the same as Fig.4 except for the side plates, hole catcher and hardware mentioned. You will still want to pre-install the elbow fittings, maybe slightly rotate them as shown in Fig.11 for each side for increased clearance from bolts.

Cylinders utilize the same mounting holes as the frame extension, see Fig.11B. Kit will come with 6.5” and 8” long $\frac{1}{2}$ ” mounting bolts. The four 8” are used when a coach has a frame extension (fit most models) as shown below, the 6.5” long bolts can be used when there is no frame extension. (Make sure other bolts holding frame extension will clear cylinder fitting, Fig.11). Typically cylinders will be placed on the inside of the vehicle frame (Fig.10). However, if there is room on finished unit, cylinders could be mounted to outside of frame extension or staggered (one inside and one outside) as well.

Make sure cylinders are level or straight, then tighten $\frac{1}{2}$ ” bolts to 80 ft/lbs. using $\frac{3}{4}$ ” socket and wrench.

Rear cylinders can be mounted on the outside of the frame extension as well

Fig.10, make sure extend fitting clears bolt, may need shorter bolt or add washers for additional clearance.

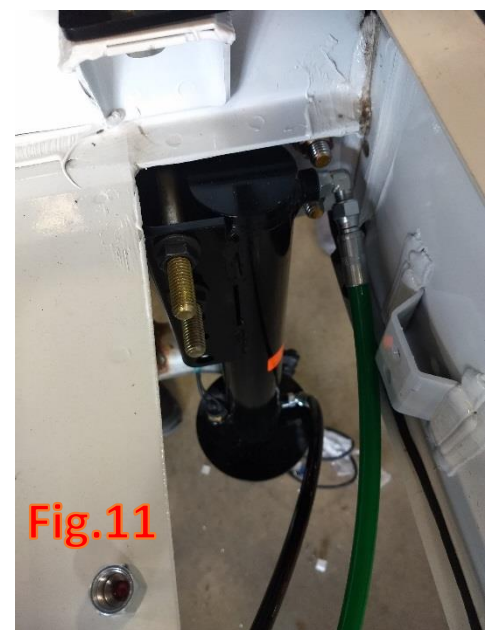
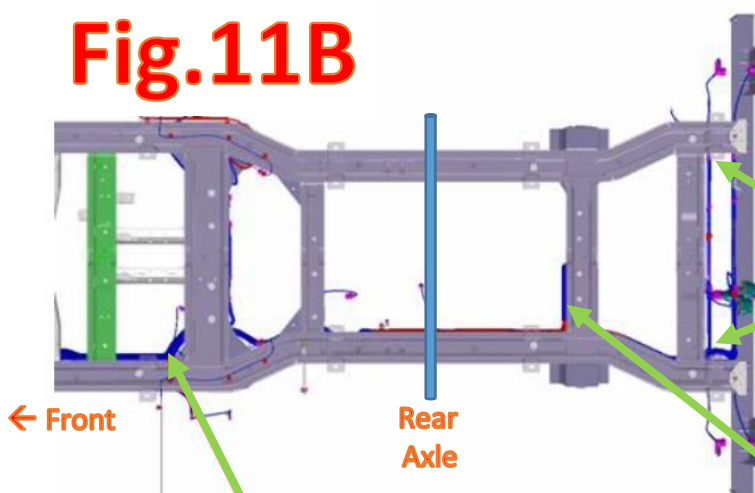


Fig.11B



Rear Cylinder Locations
-Can be mounted on inside or outside of frame or one of each.

Tank Assembly Location

Rear Cylinder Mounting Setup Position “B” from page 9...

Page#11

See the diagram on page 9 for locations and visual confirmation on how this system attaches to the vehicle's frame. This is a bolt-on system and requires no drilling or welding.

Cylinder Preparation

Install the Elbow fittings on the lower & top ports of the jacks. Take care not to overtighten and break the fittings, just needs to squeeze the o-ring. You can always check the fittings for fluid or final tightening during bleeding process later on. The foot pads can be installed now or after the jacks are installed. Must use an impact, do not turn counter-clockwise. Use the ¾" jam nut OR Allen hex flat head bolt (threadlocker required for bolt) to attach depending on footpad style.

Location

The center of the brackets & jacks should be roughly 15" from center of rear axle, just between the sway bar link bracket and a body mount.

Driver Side

First place the M28038 brackets and M28035 bracket on driver's side frame rail in the location listed above. To hold the two brackets up place two 5 ½" bolts & ½" lock nuts (head side to outside of rail) thru the holes as shown in the diagram. Then place the M28037 brackets (both are the same) on the bolts and have the locknuts ready to keep the assembly from falling. Now place the bottom bolts and nuts thru holes, prior to tightening, make sure bottom bolts tight to frame. Insert cylinder with ½" x 4" long bolts two per cylinder, see different height positions for mounting, you want between 6-8" of ground clearance when finished, both cylinders to be at the same height. Tighten bolts to brackets when they are straight and level.

Passenger Side

Use the M28030 bracket & longer 9" bolts & ½" lock nuts due to the exhaust on this side. Follow the same instructions as the driver side. If you don't have exhaust in this area and want a wider stance, call and order another M28035 bracket and 5 ½" bolts.

Crossbrace

Attach using the supplied U-Bolts, 3/8" nuts & lock washers, make sure it is level prior to tightening. Modification may be required to clear parts, like drilling additional holes for U-bolts or cutting excess tube.

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:

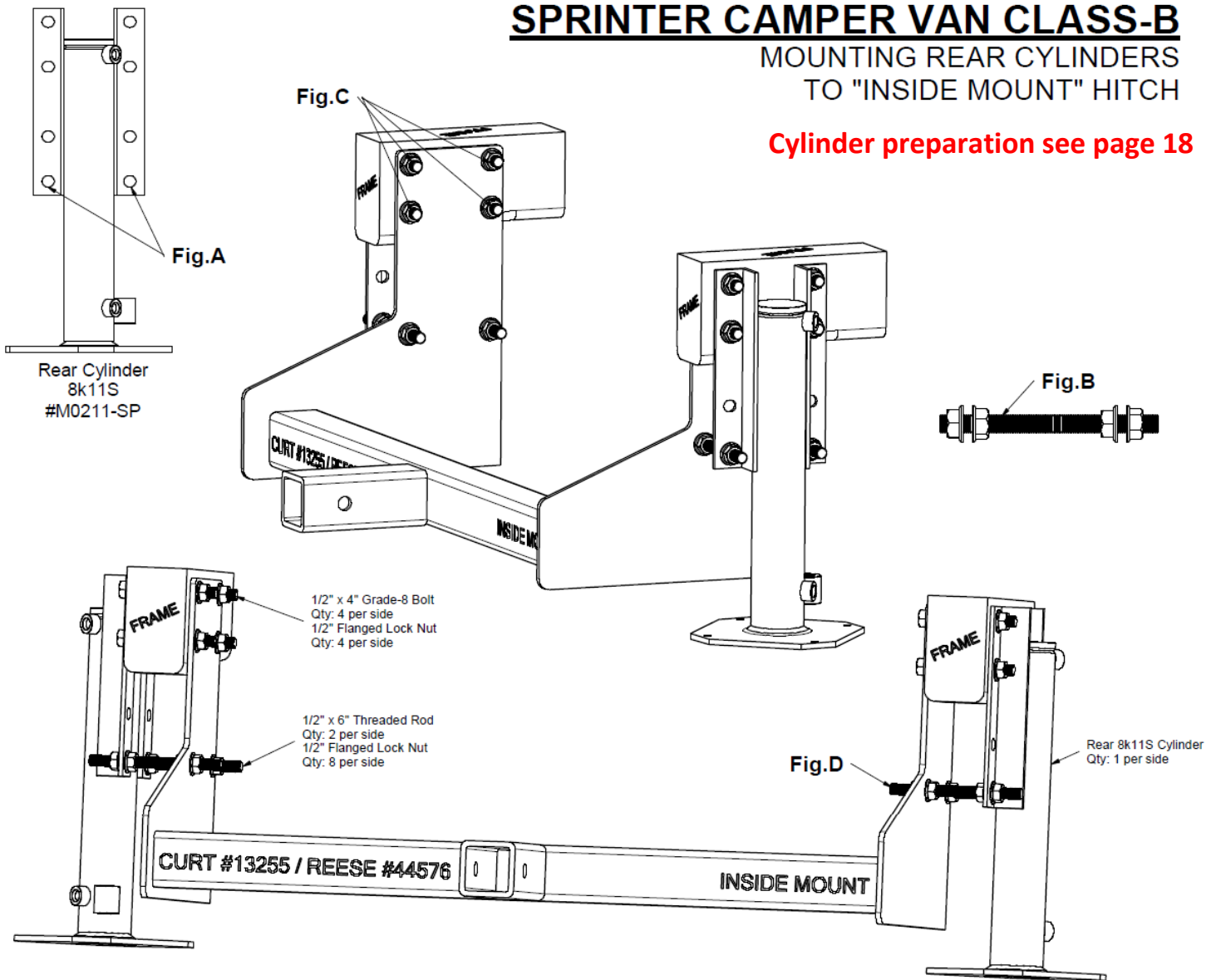
1/2" (5 ½" & 9" Bolts) = Torqued to 80 ft/lbs.

7/16" (1 ½" 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.

Allen head foot bolts require thread locker prior to installing, do not go counter clockwise, torque to 80 ft/lbs.

SPRINTER CAMPER VAN CLASS-B**MOUNTING REAR CYLINDERS
TO "INSIDE MOUNT" HITCH****Cylinder preparation see page 18**

Typical Sprinter Van's have two basic hitch options: 1. "Inside Mount" which refers to the mounting plates bolting in-between the frame rails on the inside surface. 2. "Outside Mount" which refers to the mounting plates mounting on the outside surface of the frame rails.

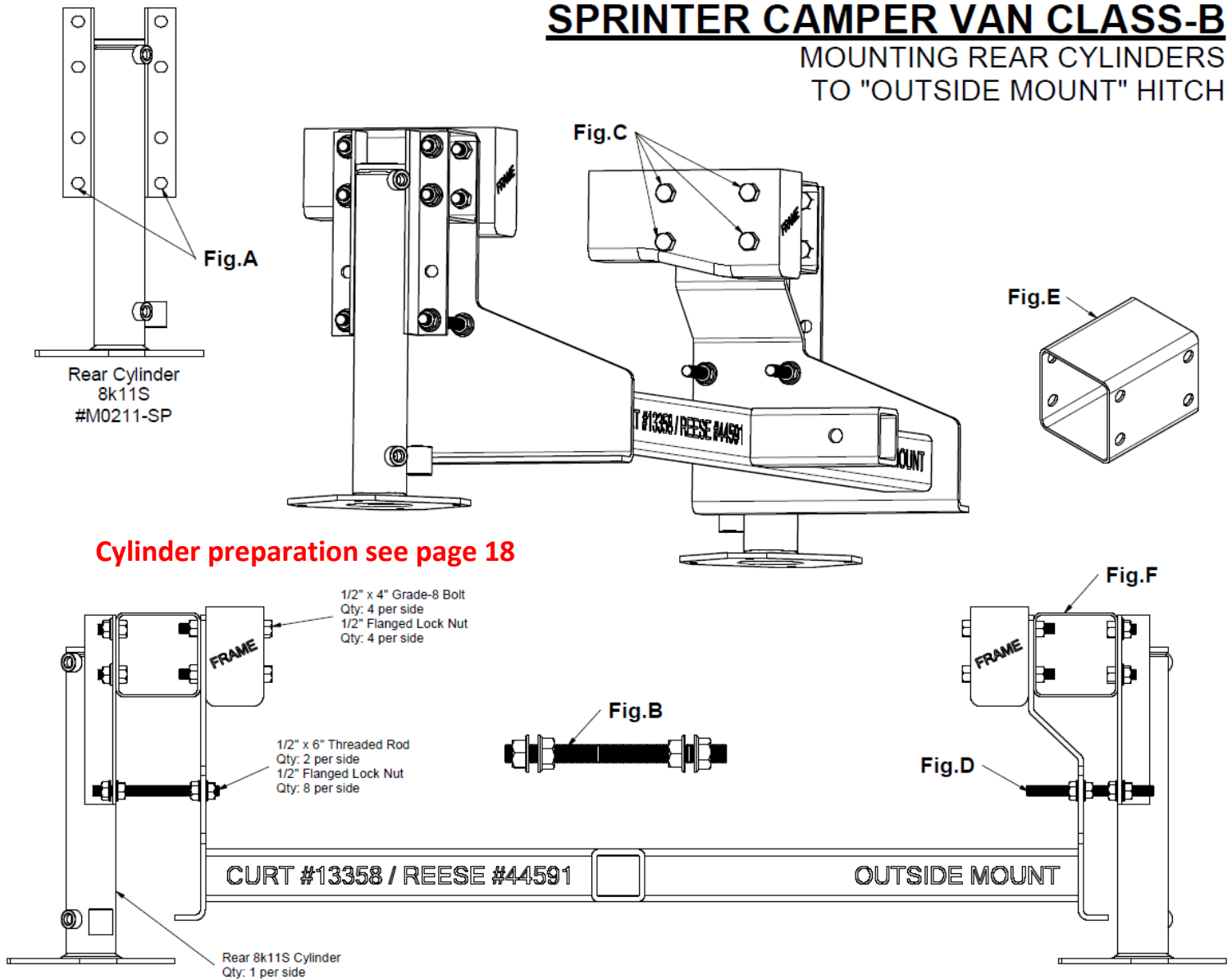
For the inside mount hitch setup, start by removing the four mounting bolts on one side of the hitch (Fig.C). Remove the hitch's backing plate (if equipped) from the outside surface of the frame rail (opposite hitch mounting plate). Place cylinder in location and insert the supplied 1/2" x 4" long Grade-8 Bolts and Flanged Lock Nuts "sandwiching" the frame with the hitch mounting plate and the hydraulic cylinder. Make sure the cylinder is level and straight prior to tightening each bolt to 80 ft/lbs. Repeat for the other side.

Now that each cylinder is bolted to the frame on each side, it is time to fasten the cylinders to the hitch for side load capacity. Locate the two bottom un-used holes in the cylinder's brackets (Fig.A). Make two marks on the outside surface of the hitch mounting plate even with these two holes for each cylinder. Drill a 1/2" clearance hole (17/32" recommended drill size) at each mark (four total, two per side). Now place the supplied threaded rod as shown in Fig.D with the supplied Flanged Lock Nuts oriented in the manner shown in Fig.B. Tighten all four rods (four nuts per rod) to 70 ft/lbs.

AC-MB8 or AC-MB5 Rear Cylinder Mounting Setup #2

SPRINTER CAMPER VAN CLASS-B

MOUNTING REAR CYLINDERS TO "OUTSIDE MOUNT" HITCH



Cylinder preparation see page 18

Typical Sprinter Van's have two basic hitch options: 1. "Inside Mount" which refers to the mounting plates bolting in-between the frame rails on the inside surface. 2. "Outside Mount" which refers to the mounting plates mounting on the outside surface of the frame rails.

For the outside mount hitch setup, start by removing the four mounting bolts on one side of the hitch (Fig.C). Remove the hitch's backing plate (if equipped) from the outside surface of the frame rail (opposite hitch mounting plate). Place the Spacer Block (Fig.E) in location and insert the supplied 1/2" x 4" long Grade-8 Bolts and Flanged Lock Nuts "sandwiching" the frame with the hitch mounting plate and the Spacer Block (shown in Fig.F), tighten to 70 ft/lbs. Now place the Hydraulic Cylinder and line the holes up with the Spacer Block and fasten to the Block with supplied 1/2" x 1.5" long Grade-8 Bolts and Flanged Lock Nuts (four per side). Make sure the cylinder is level and straight prior to tightening each bolt to 80 ft/lbs. Repeat for the other side.

Now that each cylinder is bolted to the frame on each side, it is time to fasten the cylinders to the hitch for side load capacity. Locate the two bottom un-used holes in the cylinder's brackets (Fig.A). Make two marks on the outside surface of the hitch mounting plate even with these two holes for each cylinder. Drill a 1/2" clearance hole (17/32" recommended drill size) at each mark (four total, two per side). Now place the supplied threaded rod as shown in Fig.D with the supplied Flanged Lock Nuts oriented in the manner shown in Fig.B. Tighten all four rods (four nuts per rod) to 70 ft/lbs.

The tank bracket will come pre-assembled with hardware (Fig.12). Remove the top two 7/16" x 1" bolts and lower 7/16" nuts and set aside. Place the tank mount bracket on top of the frame in location Fig.11BA, Fig.14A & Fig.14 on next page, the tank body side will typically face front of vehicle, but can be oriented any direction.

The bottom two 7/16" bolts will be welded and you can hang the tank assembly to the bracket, the tank can be mounted in 1" increments to desired tank height, shown in pictures mounted flush with top of mount bracket, but can be lowered; Fig.12/13. Tighten two lower bolts with 7/16" nuts & lockwasher, Fig.12/13.

Now re-install each top bolt (Fig.12/13), these bolts will fasten the plate to tank bracket AND tighten bracket against the frame simultaneously, see Fig.12/13/14A.

Attach the two 7/16" x 1.5" bolts, lockwashers, nuts and black square washers (or one-piece plate) thru the front side of the bracket's flange holes, Fig.12. Tighten bolts to "sandwich" to the frame's flange.

Finally, tighten bolts on front side for the flange.

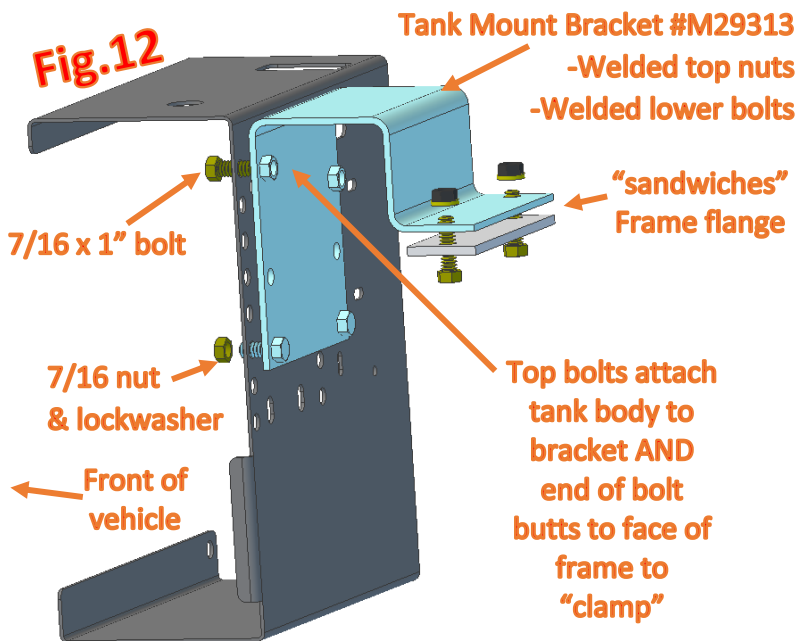


Fig.14A

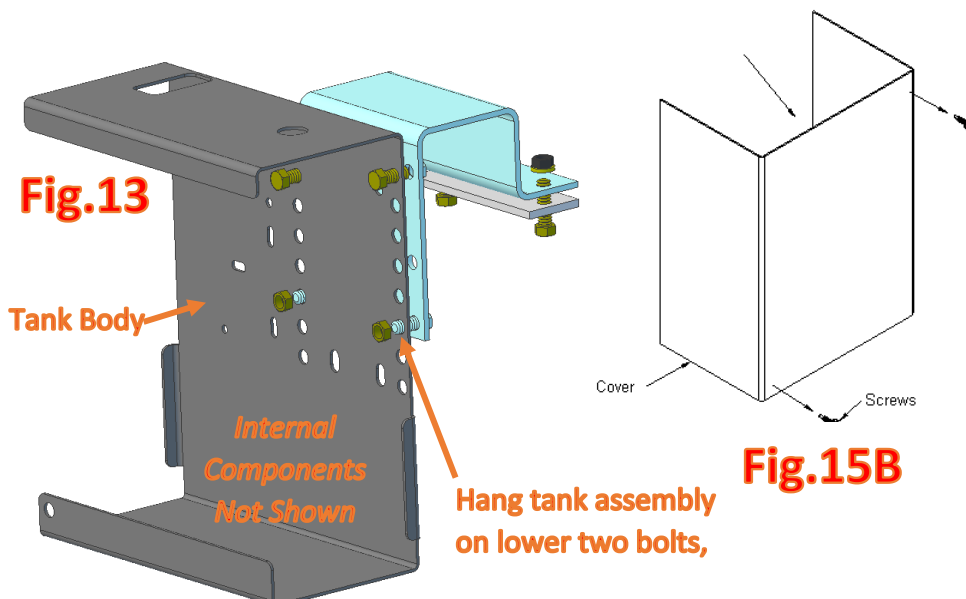
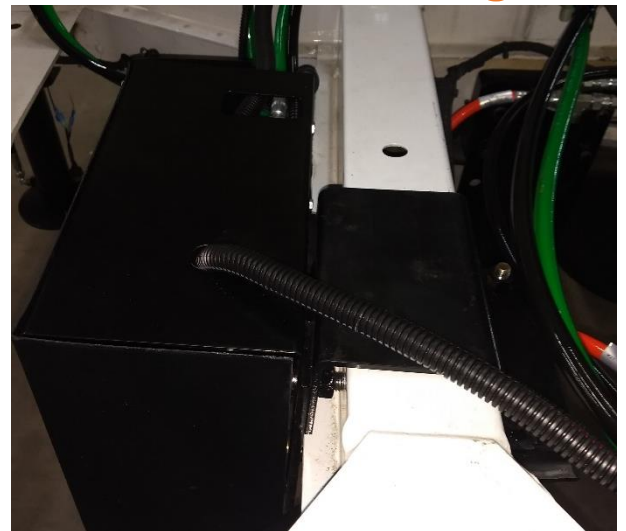


Fig.15B

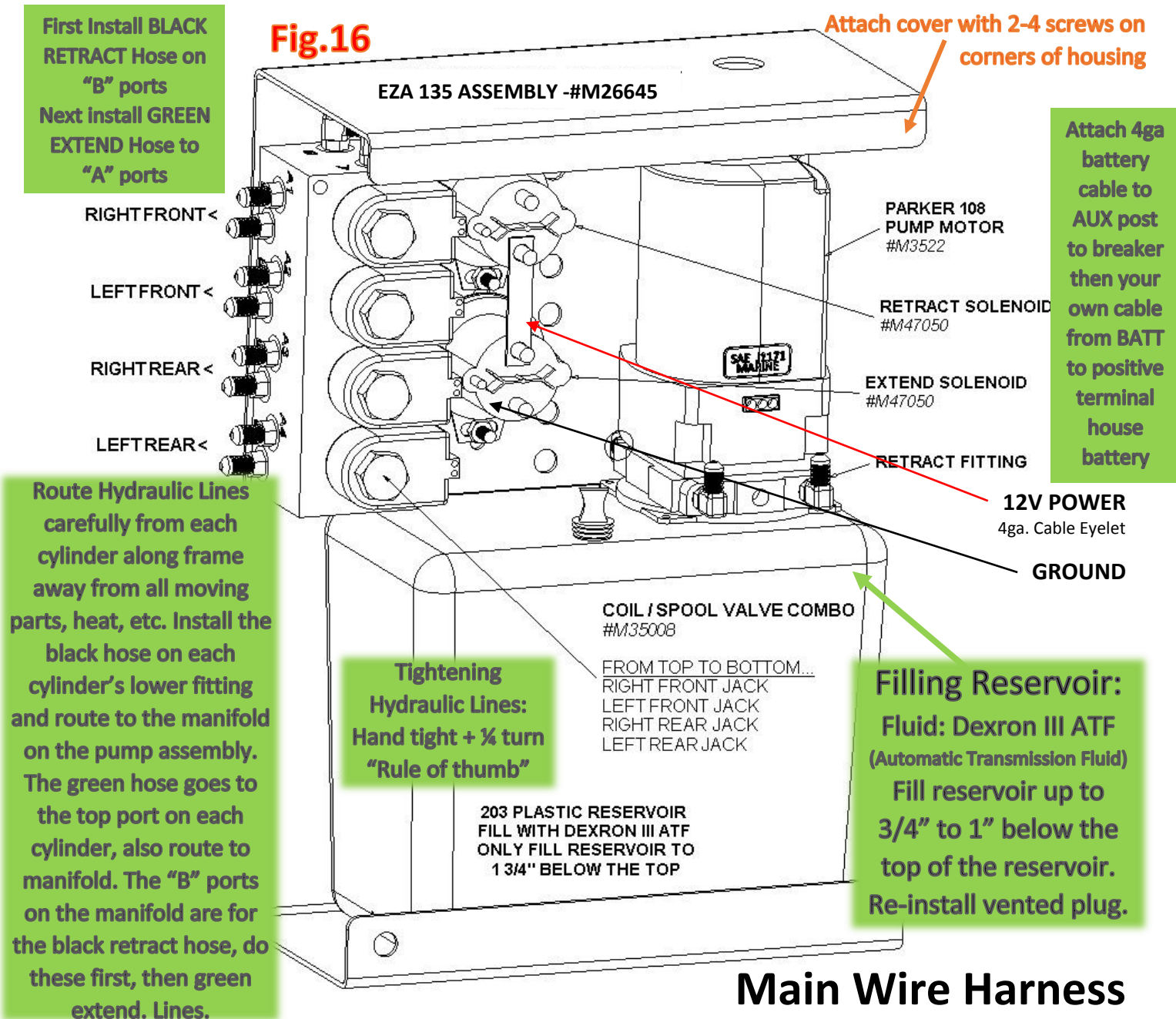


Fig.15

Tank Assembly Diagram, Plumbing, Wiring, etc.

(Mount pump unit in vertical position as shown)

- Plumbing shown in Fig.16, use 15mm wrench and be careful not to **under or over-tighten** the hose fittings.
- The main wire harness will plug directly into the 14-pin connector that is pre-wired to the assembly.
- Route the ground cable (Fig.16) to a grounded frame surface or Mercedes ground stud, Fig.11B.
- Attach the supplied 15ft battery cable to one of the 5/16" studs with the copper strip & route to +12v source.
- Finally installing the plastic three sided tank cover (Fig.15B), to be done later on, fasten the tank cover with at least two self-threading screws, (5/16" bit) be careful not to puncture the plastic reservoir, Fig.15B.



Main Wire Harness

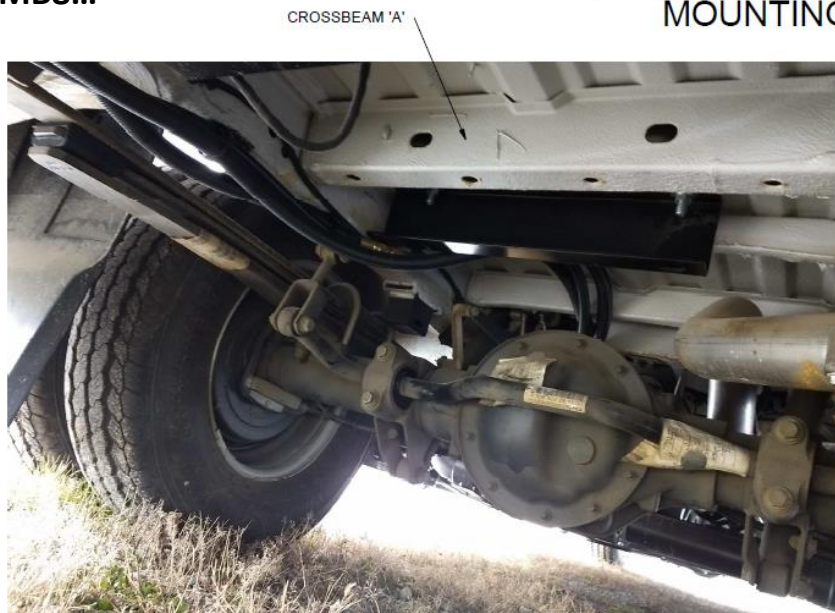
The main wire harness (#M4810 or shorter #M41811) has two ends with plugs; the "control" end has a 14-pin connector & a 6-pin. This end will need to route to the control panel's location (usually in wall of cabinet near entry door). The other end will have one 14-pin connector that will plug directly into the tank assembly. The rest of the harness has two wires: Black & Tan, both of these wires plug directly into the Limit Switch on each cylinder, it does not matter which limit switch the wires plug to, route best fit for your application. 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, take care not to pull on wires inside connector plugs.

Alternative pump mounting for MB6 & MB7 (hardware may not be included for cutaway kits)...

AC-MB8...

SPRINTER CAMPER VAN CLASS-B

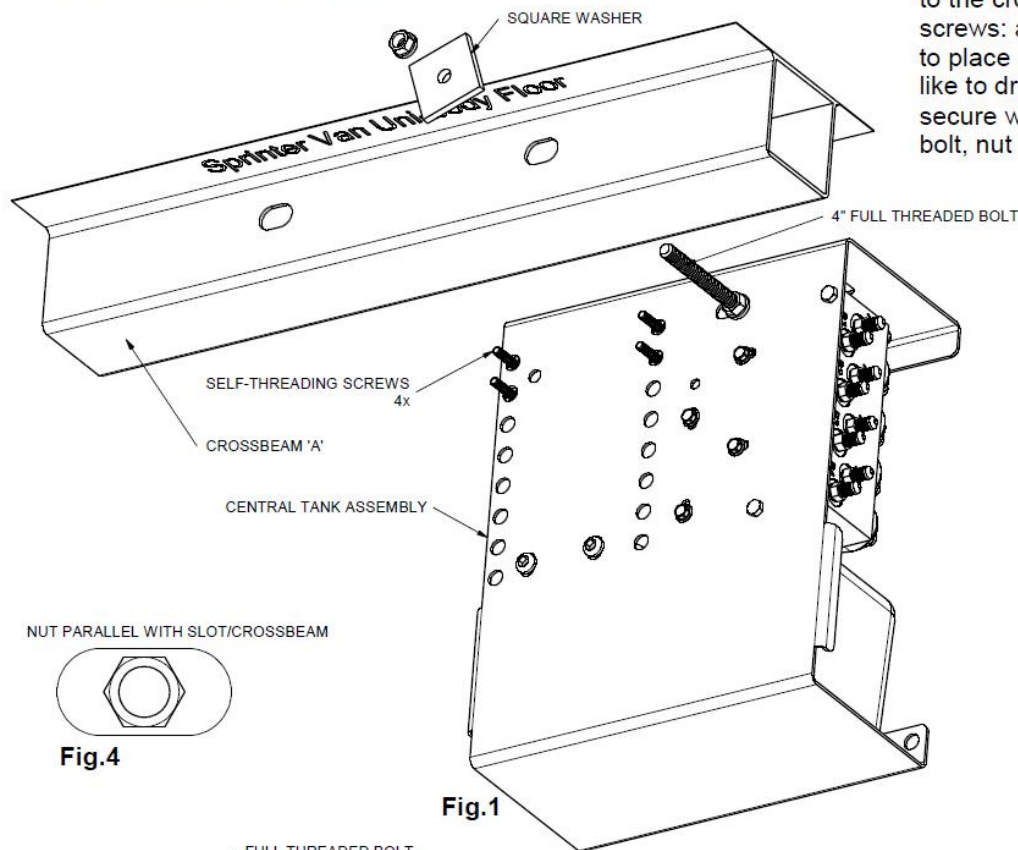
MOUNTING THE CENTRAL TANK ASSEMBLY



Locate the crossbeam shown to the left. The tank assembly can be mounted on either the front or rear face of the crossbeam.

Insert the 4" full threaded bolt thru the slotted hole shown in Fig.1 & Fig.2, fasten/tighten lockwasher and nut to backside of tank assembly as shown, keep nut parallel to the crossbeam (shown in Fig.4) as it will fit inside the slot in the crossbeam.

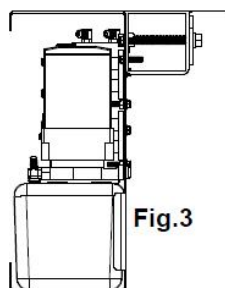
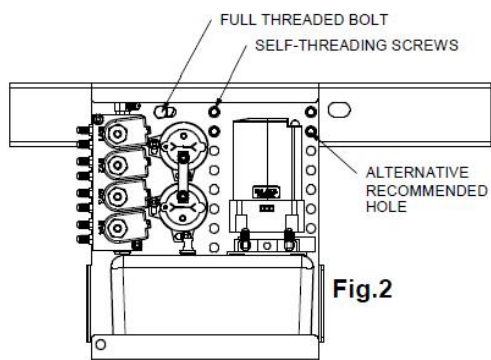
Hang tank assembly onto crossbeam by the 4" bolt through both ends of the slots in the crossbeam (Fig.1). Place square washer on backside of crossbeam and fasten/tighten the accompanied nut and lockwasher to 60 ft/lbs (Fig.3). Run all four supplied 5/16" self-threading screws into the holes shown in Fig.2 to finish mounting the tank assembly to the crossbeam. Alternative to self-threading screws: a second full threaded bolt is supplied to place inside one of the holes if you would like to drill a hole into the crossbeam and secure with the second supplied full threaded bolt, nut and lockwasher, fasten to 60 ft/lbs.



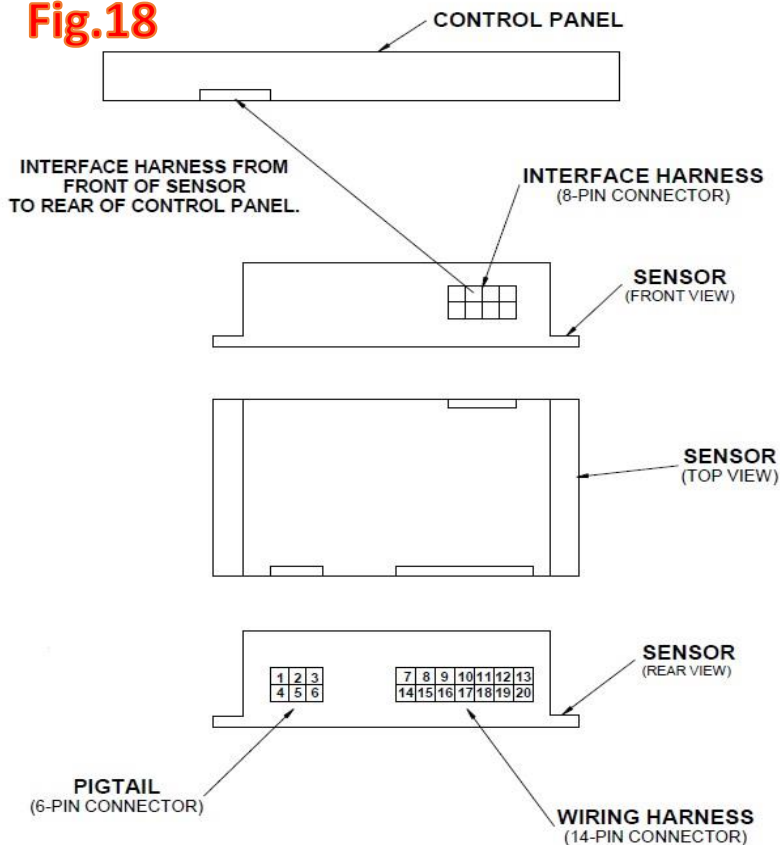
NUT PARALLEL WITH SLOT/CROSSBEAM



Fig.4



Automatic Leveling Sensor & Control Panel ("AC" part #'s)

Fig.18

Fasten the sensor to a secure structure (usually the floor) inside the vehicle (controls are not weatherproof) ensure that it is mounted level and the arrow on top of the sensor is facing the correct way. If needed, we have a steel sensor mounting bracket to allow the sensor to be mounted to a vertical wall (in waterproof storage unit for example, sensor bracket #M29630). Small #8 bolts/nuts included.

The control panel is typically mounted near the side entry door, on a vertical cabinet wall for example. Small black #4 phillips screws included.

Plug the 14-pin & 6-pin from the harnesses into the back side of sensor, paragraph under Fig.16.

The 6-pin connector only has needs the yellow wire to be hooked up. The yellow wire needs to tie into an ignition or accessory hot wire from the vehicle, see Fig.19 and page 18.

Plug the interface harness (8-pin connector, 8ft #M44600 or 15ft #M44625) to the front of the sensor and plug back of the Control Panel.

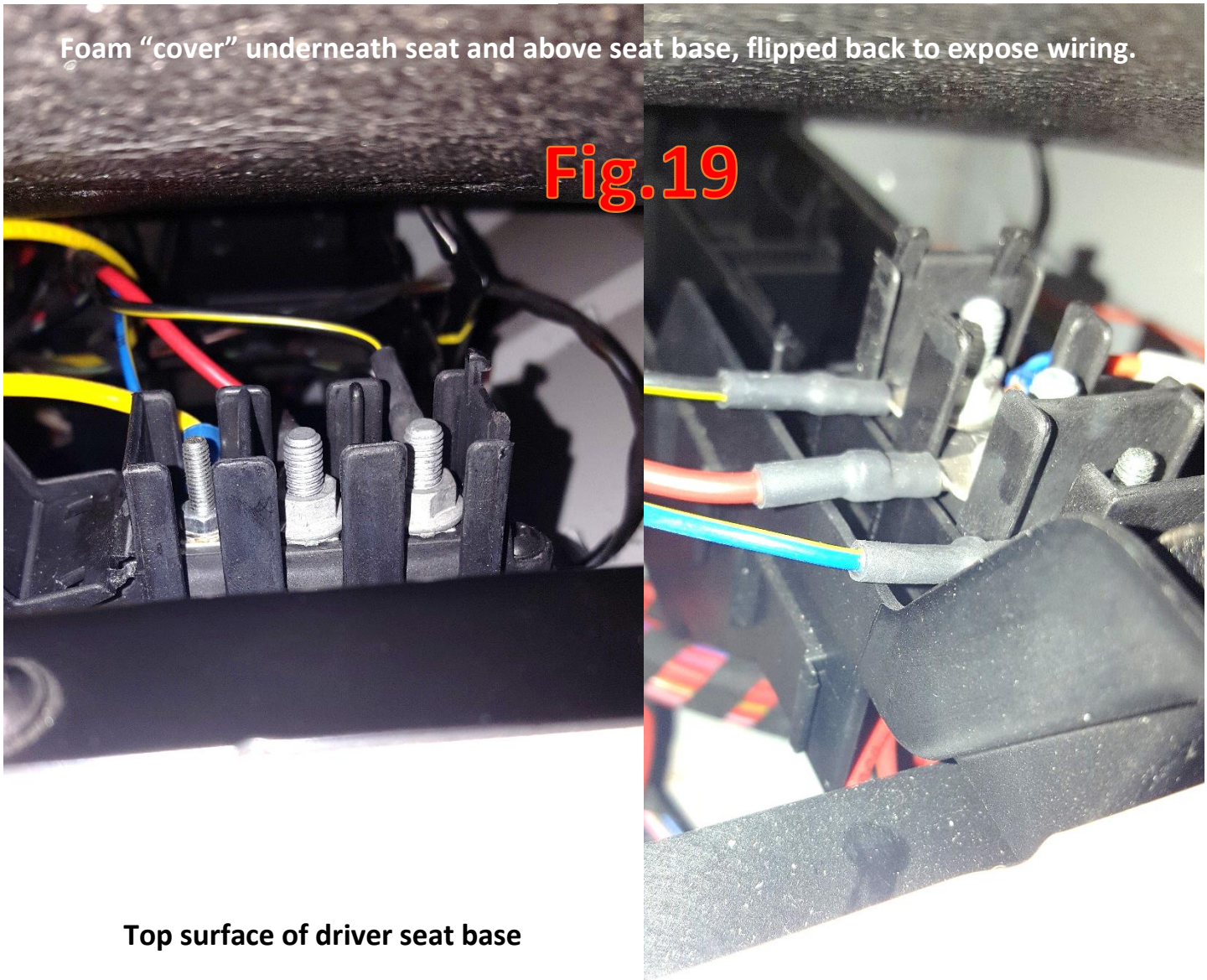
**Battery Cable & 80 amp Auto-Resetting Breaker**

Supplied will be a 4 gauge battery cable that needs to be cut into two pieces.

Run long section (15ft 4 gauge cable supplied w/ 3/8" eyelets and looming) from the Solenoid power stud (Fig.16) to the 80 amp breaker AUX stud, using 1/2" socket/wrench.

Run a short section from the BAT stud on the breaker to the Positive Terminal on the coach's house battery.

Hooking up the power should be the final wiring step so make sure this is done after all the other electrical work is done for safety. The supplied 80 amp breaker should be securely fastened in the battery box. Ground cable (attached to central pump assembly, typically white 10ga. wire) should be fastened to vehicle frame or extended to negative terminal on battery.



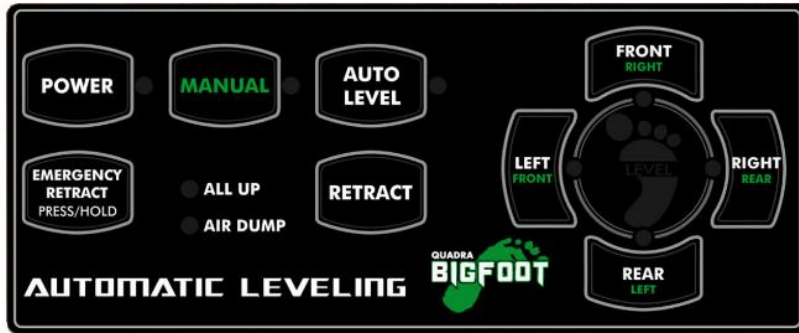
Top surface of driver seat base

Top surface of driver seat base

Open driver door, facing the outside face of the driver seat, find the steel seat base the seat bolts to. Look at the top of that seat base and flip back a fabric cover from the seat to expose a foam cover over the top of the steel seat base. Flip back cover to expose the wiring shown above. You are looking for the small black plastic case, which can be oriented front to back (pic#1) and left to right (pic#2). Case has a plastic lid that must be opened and flipped back to expose the three posts. As you can see there is one small post and two larger posts. The ignition hot wire is on the furthest large post from the small post, so in pic#1, it is the black with yellow stripe wire, in pic#2 it is also the black with yellow stripe wire. Manufacturer's may use different colored wire, determine ignition wire by the specified post mentioned above not by wire color.

Automatic Leveling Controls

Page#19



CAUTION WHEN OPERATING:
Rear tires must maintain contact with the ground as the bolt-on system is not designed for this and the jacks may shift. Front tires are typically OK to leave the ground, as they may need to do so to level.

IF ALL LIGHTS ARE FLASHING, SEE “PROGRAMMING OR ZERO MODE” PAGE #21

Operation:

Vehicle ignition/accessory must be OFF in order to auto level or extend the jacks.

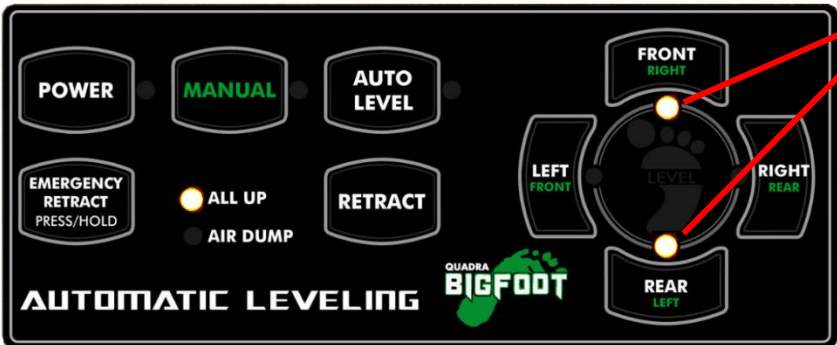
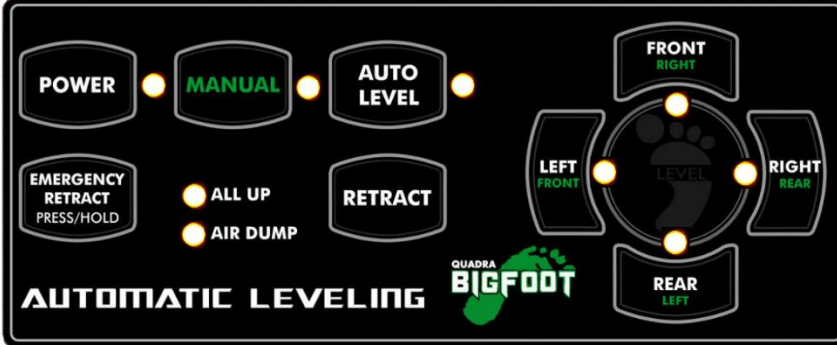
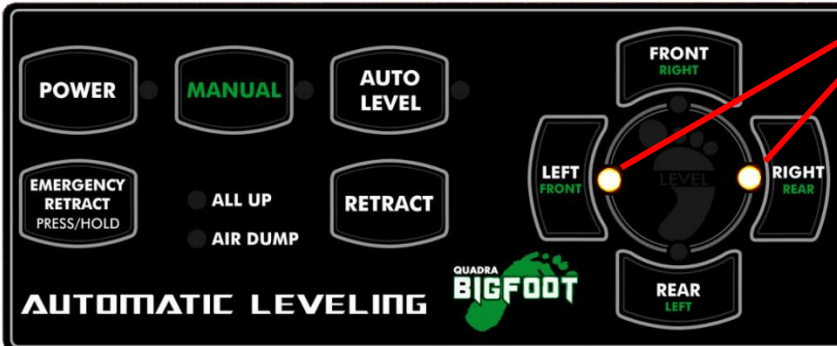

Make sure slide outs are retracted prior to operating leveling system to avoid damaging slide outs.

System is not tied to vehicle parking brake.

Panel will shut off automatically after 5 minutes of no use.

Panel will turn on automatically after ignition is turned on, safety feature to monitor that cylinders are retracted.

1. Turn panel/system on and let system run through its diagnostic mode. Lights will flash clockwise around the green foot on right side of panel.
2. To Auto level: When the lights stop flashing, simply press the AUTO button once and release. There can be no movement in the coach during this 60-90 second process, best if operated from outside vehicle or sitting still inside.
3. If choosing Manual Mode, press and hold the MANUAL button until light comes on. Now each button on the right will extend the corresponding cylinder. When in the MANUAL mode, each leveler may be operated individually. FRONT operates right front. RIGHT operates right rear. REAR operates left rear. LEFT operates left front. When using this feature it is important to level the coach by using two levelers at a time or small individual increments to avoid twisting the RV body. For example, right front and right rear, this puts less stress on the frame. To individually retract, press the RETRACT button and the cylinder button simultaneously. Turn panel off when finished.
4. To retract the levelers: Simply turn the panel on and press and release the RETRACT button. The pump will shut off when all four cylinders are fully retracted and the ALL UP light comes on. Always do a visual check to verify all four cylinders are completely retracted. If one or more cylinders are not fully retracted and the ALL UP light is on, press and hold the EMERGENCY RETRACT button until they are all retracted and see troubleshooting section to identify what may be going on.
5. The EMERGENCY RETRACT button, this is used to override the electronic safety features built in the control to retract all four cylinders simultaneously. You will need to press and hold this button until all four are retracted completely, once released the panel will shut off. As long as there is enough voltage in the house batteries to turn the motor, this button will retract the cylinders.

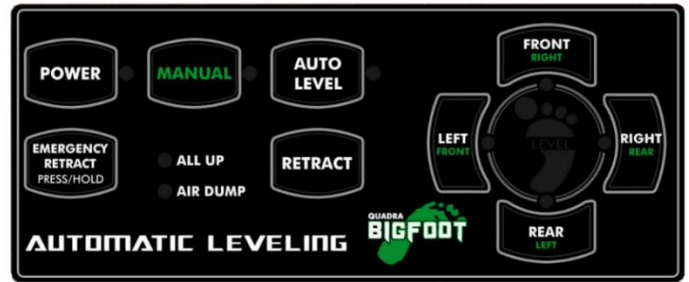
	<p>FRONT RIGHT & REAR LEFT LIGHTS FLASHING, THIS MEANS LOW VOLTAGE TO CONTROLS, PANEL INOPERABLE EXCEPT EMERGENCY RETRACT, SEE “LOW VOLTAGE CODE” ON NEXT FEW PAGES.</p>
	<p>ALL LIGHTS ARE FLASHING, THIS MEANS PANEL IN ZERO OR PROGRAMMING MODE, SEE NEXT PAGES. SOME FUNCTIONS INOPERABLE UNTIL OUT OF THIS MODE. CAN PRESS EMERGENCY RETRACT TO QUICKLY EXIT.</p>
	<p>LEFT FRONT & RIGHT REAR LIGHTS ARE FLASHING, THIS MEANS SYSTEM TIMED OUT, STROKED OUT, OR HAD MOVEMENT DURING AUTO LEVEL. PRESS RETRACT. SEE “TIMED OUT CODE” ON NEXT PAGES.</p>
	<p>IF ONE OR MORE OF THESE LIGHTS ARE FLASHING IN ANY ORDER OTHER THAN LISTED ABOVE, NOTHING IS WRONG. THEY ARE INDICATING THE LOW POINTS OR “LEVEL STATUS” OF THE VEHICLE.</p>
<p>IF “AIR DUMP” LIGHT FLASHING...</p>	<p>STORING PROGRAM, WAIT FOR BIGFOOT LIGHT TO COME ON.</p>
<p>IF “AUTO LEVEL” LIGHT IS ON...</p>	<p>SYSTEM RUNNING AUTOLEVEL PROGRAM, WAIT TO FINISH OR RETRACT.</p>
<p>PANEL TURNS ON, WHEN IGNITION TURNED ON...</p>	<p>NORMAL, PANEL WILL SHUT OFF 5 MINUTES AFTER IGNITION IS OFF, EXTEND FUNCTIONS DISABLED.</p>

Programming mode or “all lights flashing on panel”

When all the lights are flashing on the panel, this means the control is in programming or zero mode. This is where the user sets the level program in the controller. When the panel is first installed or hooked to power, it will enter this mode automatically. To quickly get out of this mode (if program has already been set) just press the POWER button or EMERGENCY RETRACT button to shut panel off.

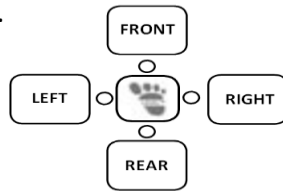
To Program Level Position

If all lights are flashing move to step 3.



1. Make sure all four cylinders are retracted, if they are move to step 2. If not, turn panel ON, let diagnostic lights flash until they stop (within 30 seconds). Press RETRACT button, when all up light comes, move on.
2. Enter zero or programming mode by turning the panel on, diagnostic lights will cycle, then press FRONT RIGHT (top button over Bigfoot logo) button five times, then REAR LEFT button five times (not too fast or too slow, standard second count).
3. All lights will come on, you are in zero mode. Press and hold each cylinder button (Ex. FRONT RIGHT) individually until the cylinder touches the ground, then STOP. Run the next cylinder, press and hold, stop once it touches the ground.

Keep in mind to avoid twisting RV body with individual adjustments.



FRONT indicator operates the right front.

RIGHT operates the right rear.

REAR operates the left rear.

LEFT operates the left front.

4. Once all four are on the ground, you must choose a level reference point. This is where the controls will level to on your vehicle. Examples include corner of counter top near controller, floor just in front of step, etc. But you must only choose one spot. Place a bubble level on the reference point of the vehicle you want to level, Example: floor in front of the entry step. Place level so it is reading front to rear.
5. Find the low end and extend the corresponding cylinders individually until the bubble reads level front to rear, you can do small increments individually or in pairs, make sure you let coach settle before continuing to lift (coach will shake). Once bubble level is level front to rear do the same for left to right. Keep in mind, when programming you want to use as little of cylinder travel as possible.
6. Once level in both directions, verify that all four cylinders are touching the ground, if not bump a cylinder, re-check level. If satisfied, next step.
7. Press the RETRACT button three times, this stores the program. Wait until the Bigfoot icon LED comes on (AIR DUMP light will flash, just wait). Once the foot light comes on, press RETRACT to retract cylinders. If you do not want to store program, just turn panel off or press EMERGENCY RETRACT.
8. Panel is now programmed, now every time you press AUTO it will come to this position. Can always be re-programmed. If loss of power occurs or sensor is unplugged, sensor will still have program stored.

CAUTION WHEN OPERATING:

Rear tires must maintain contact with the ground as the bolt-on system is not designed for this and the jacks may shift. Front tires are typically OK to leave the ground, as they may need to do so to level.

ALL UP Light

Light comes on when all four limit switches have been made. This is a normally closed circuit, limit switch mates and circuit opens, ALL UP light comes on. Wired in series so light will go off if only one switch is not made.

Bigfoot Light

Shaped like a footprint, it comes on solid when auto level process is complete or successful. Light will flash when coach is "near" level position, however auto level program may not be finished yet.

Audible Alarm

Alarm will sound (sounds like seat belt alarm) when the ignition or accessory is on and there is no ALL UP light. This means that one or more of the cylinders are not fully retracted. If this happens, press and hold EMERGENCY RETRACT until the alarm goes off or shut ignition off and retract the system. If the alarm does not shut off, this could mean that one of the footpads came up at an angle (pivoting dome design can interfere with solid connection if not straight) or that one of the pins are bent and are not making contact with the switch. Extend each cylinder individually, and inspect, then press RETRACT (not in manual mode) so that all cylinders retract. Check for ALL UP light. If not, repair switches by removing with 7/8" wrench and cleaning with WD40 (spherical ball switch), then try again.

To temporarily get rid of alarm: After retracting each cylinder with emergency retract button, temporarily disconnect (unplug) two spade connectors on switch at particular cylinder (located near footpad) OR unplug control panel or leveling sensor to eliminate alarm from beeping as long as you have confirmed cylinders are retracted. Then repair switches and return to proper installation. This is for disabling alarm only while camping, Quadra does not recommend putting the vehicle in gear with this setup.

Pump does not shut off when cylinders are fully retracted...

If you have an ALL UP light and pump will not shut off once light is on, then there may be damage to the harness during installation (screw or p-clip smashing wires causing short). Send replacement harness or inspect harness along subframe beams underneath coach (we have found this issue before with the p-clips smashing harness or screwed into looming/harness). User can shut pump off by pressing EMERGENCY RETRACT.

If you do not have an ALL UP light, then a limit pin is bent or damaged not making contact with a limit switch, check pins near footpads on each cylinder. If one is bent, they can be straightened, remove with 7/8" wrench. OR for temporary solution the limit switch itself can be unplugged (two spade connectors) and use EMERGENCY RETRACT to completely retract all four cylinders.

One or two cylinder lights on right side of panel on or flashing...

FRONT RIGHT, RIGHT REAR, REAR LEFT, LEFT FRONT: any one or two of these buttons operate corresponding cylinders, the lights however will indicate the low points of the coach at all times, so when one or two of them are on or flashing, the control is just indicating to the user where the low point is. However, if FRONT & REAR or RIGHT & LEFT flash this means there is an error code (see troubleshooting) as opposite ends of the coach cannot both be the lowest points.

Panel Troubleshooting

The FRONT, RIGHT, REAR or LEFT cylinder lights are flashing. This is indicating the low points of the coach as it sits, nothing is wrong with the control; it is constantly monitoring the level status of the vehicle.

Our panel will shut off by automatically after five minutes of no use. Panel will also turn on automatically when the ignition turns on, this is a safety feature monitoring the cylinder position (making sure they are retracted) and is only drawing power for the two LED's. The panel will shut off again after five minutes by itself after no use or ignition shuts off. With the ignition on, the panel power lights can be shut off, but the ALL UP light will stay on for safety.

LOW VOLTAGE CODE: FRONT and REAR lights flashing, control is seeing low voltage (less than 9.5-10v). Shut the panel off. Charge the house batteries, when they supply enough voltage, try system again (at least 15 minutes). If low voltage code comes on again, or never goes away, you may have to unplug the interface harness (between the panel and sensor) at the back of the control panel or the front of the sensor to clear the error code. Repeat battery charging. See location chart on last few pages next to picture of leveling sensor.

TIME OUT CODE: When AUTO leveling, if the **LEFT and RIGHT lights are flashing**, the system timed out, or there was movement in the coach during auto leveling or the cylinders ran out of stroke in order to reach level (re-park or add blocks to low corner cylinders).

If there is **no ALL UP light**, and the vehicle ignition turns on, the panel's alarm will sound. The alarm cannot be shut off until: The ignition is shut off **or** the ALL UP light comes on. The ALL UP light is tied to each cylinder's limit switches in the wire harness (grounded in-series circuit, normally closed limit switches, once limit switch mates circuit is broken and ALL UP light comes on). If one switch is not made the ALL UP light will not come on. Press the RETRACT button to retract the cylinders, pump will run until the ALL UP light comes on or 2 minutes.

If you get a **false ALL UP light (light on but one or more cylinders not fully retracted)**, check the wire connectors at all the limit switches, they are male and female spade connectors, they may have a poor connection or not plugged in all the way. If the connections are good then there may be moisture/rust in the limit switch or it is defective. Press and hold the EMERGENCY RETRACT button to retract the cylinders and override the limit switches, once button is released panel will shut off. Sometimes the limit switches can be taken off and cleaned, sprayed with WD40. Part #M50103FLAT to order replacement limit switch and pin, need 7/8" wrench only, wires are spade connectors (plug/unplug).

If you do not get an ALL UP light but cylinders are retracted, press and hold EMERGENCY RETRACT to see if that works. Otherwise, there could be a limit pin bent or missing/loose footpad not allowing pin to make contact with limit switch. Straighten pin or re-attach a footpad (if missing, disconnect limit switch wires to open the circuit). See Fig.4 for schematic or part #'s. If customer has access to hardware store, a ¼" vacuum cap can be placed under pin to help reach bent footpad. Customer can also disconnect wires on limit switch to open circuit (this will give you a false ALL UP light).

Limit Switches

We use a mechanical ball switch for our cylinder retract indication. This simple normally closed switch is on a grounded circuit, when the limit switch is made it breaks the circuit (for the light to come on). These switches can get road debris, rust, etc. inside the ball switch itself and make the switch stick. Also the pins can bend from contact with the footpad hitting a curb or parking lot during your drive. These parts are simple in design and replacement and fairly in-expensive compared to competition's internal pressure switch located inside the pump assembly on the manifold buried underneath the vehicle.

Panel won't turn on, system won't run, clicking noise, FRONT & REAR lights flash...

Battery low, panel won't turn on = coach battery, the system relies on the house battery. The battery needs to be nearly 100% charged for the system to work, it doesn't make a difference if the coach is new, that doesn't mean the battery is fully charged or even good. Batteries don't charge instantaneously, so one can't just expect to hook it up to a charger and the system will work immediately, if the battery is good, then the unit might have a ground issue. Auto systems may require user to un-plug/re-plug the interface cable to clear code on panel regardless, newer versions do this automatically and do not need to be unplugged.

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 EMERGENCY RETRACT on control to see if voltage drops).

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

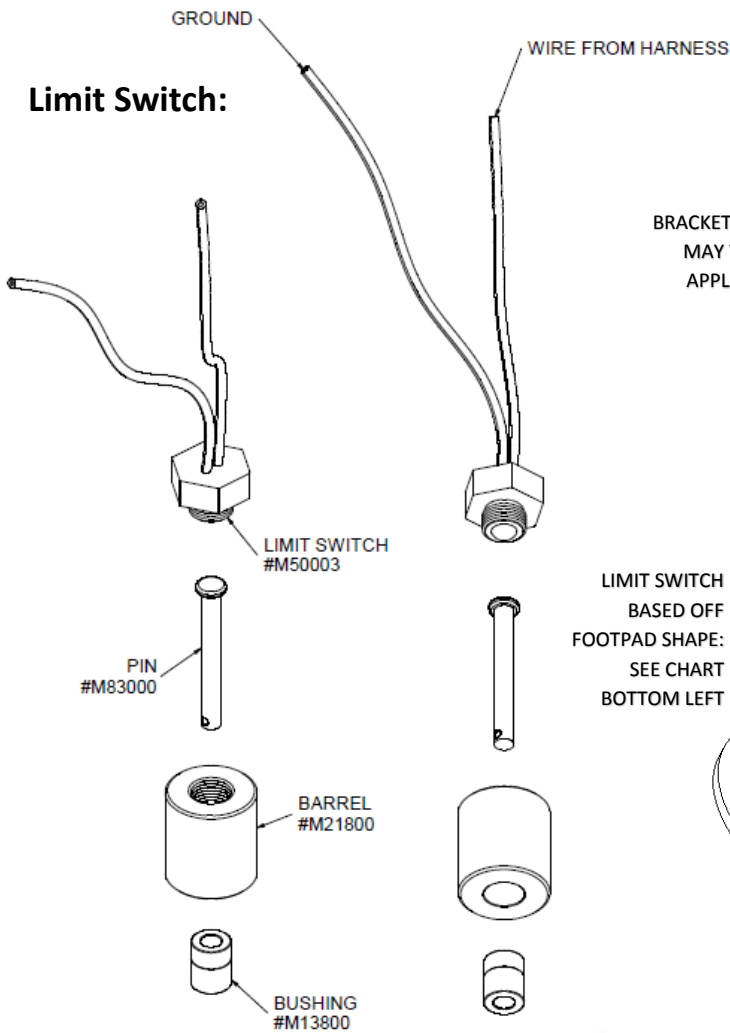
Cylinder will not operate, extend or retract...

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.*

Limit Switch:



LIMIT SWITCH DESIGNATION:

6" ROUND FOOTPAD, THEN SWITCH #M50103FLAT

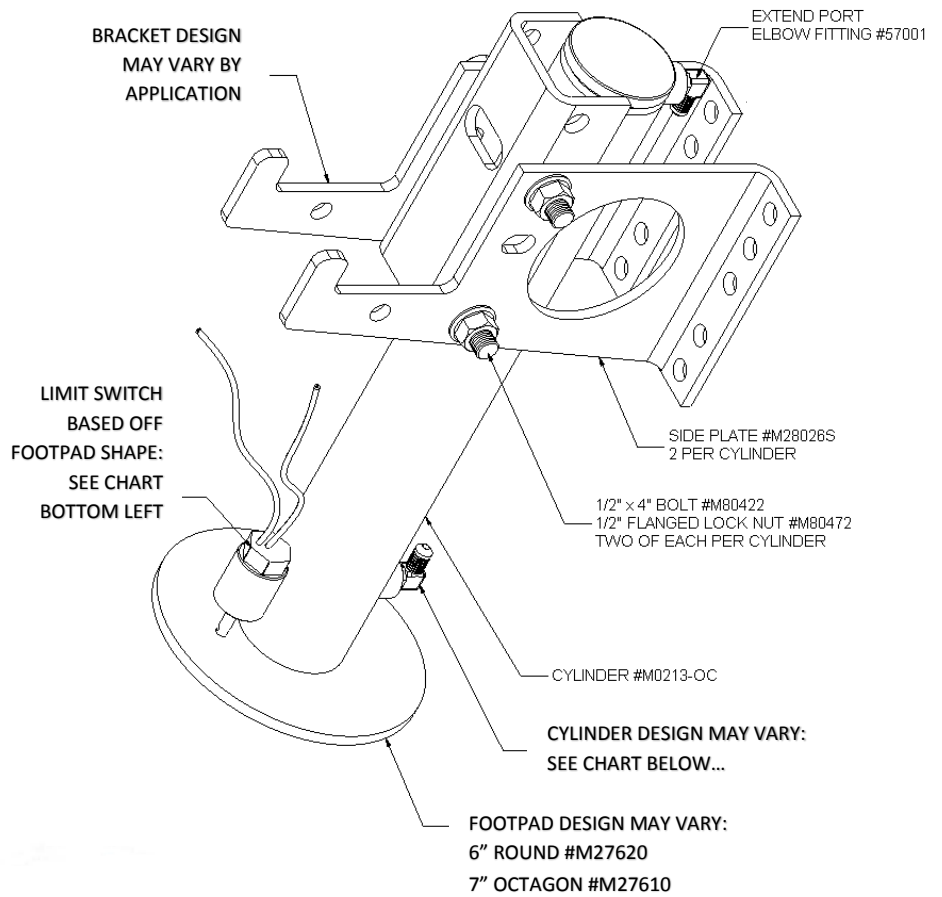
7" OCTAGON FOOTPAD, THEN SWITCH #M50103

Leveling Sensor Module:



...Arrow must point forward and mounted facing up.

Cylinder Assembly: (design may vary)



CYLINDER IDENTIFICATION CHART:

IF HAS 7" FOOTPAD OR THREADED STUD ON SHAFT:

FRONT: #M0213-RC, REAR: #M0213-RC

IF HAS 6" ROUND FOOTPAD OR THREADED HOLE IN SHAFT:

FRONT: #M0213-OC, REAR: #M0213-OC

TYPICAL LEVELING SENSOR LOCATIONS (MAY VARY):

Typically under cabinet near panel location or driver side exterior storage bin top corner on bracket.

Installing the Platinum Control Panel

Plug the 14-pin & 6-pin from the harness into the back side.

There is a yellow wire coming from the 6-pin that needs to tie into an ignition hot wire from the vehicle (page 18).

The panel may be mounted on any flat surface, typically on vertical cabinet wall near entry door of coach (near other controls, switches, etc.) If you cannot find a location, we do offer a handheld plastic box that can be ordered separately (#M13601 from Quadra Mfg.) the panel would fit inside Quadra's plastic box assembly with the harness loosely coiled underneath the driver's seat for convenience.

Fasten panel with four supplied small black #4 phillips screws (5/8" long).



Optional safety feature for Platinum panels, The manual EXTEND mode is active while the ignition is on (version A Platinum panels only, check backside of panel to see version). So one could turn the panel on, press EXTEND, and would have to press & hold one of the cylinder buttons to extend the corresponding cylinder, this could be possible while driving down the road. Safety option: Install an in-line on/off toggle switch to shut power off to the panel to prevent operation while driving down the road from children, etc. Find the red wire from the 6-pin harness that goes to the back of the panel. Cut and splice the included wires to route to the toggle switch that should be located near the Platinum panel for convenience.

Operation on next page, but here are some Platinum Panel operational notes...

The START function (jacks automatically deploy) is disabled when the ignition is on.

The panel will shut off automatically after 10 minutes when there are no buttons pressed.

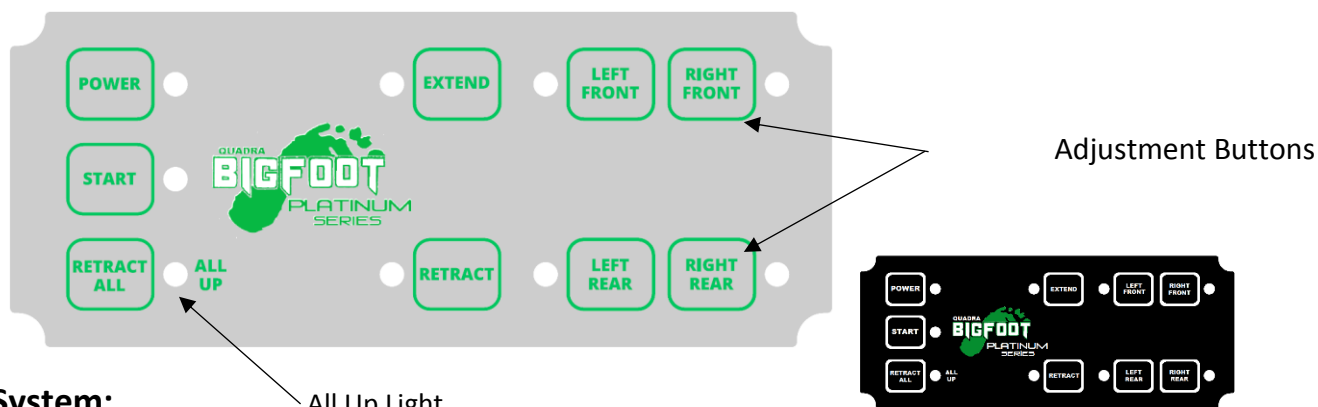
The panel will turn on automatically when the ignition is on, and will not power off until the ignition is off.

The panel will shut off automatically after 10 minutes from the ignition is shut off.

If all the LED's flash for one second and the panel turns off, the panel is receiving less than 9.5 Volts (with batteries under load) and you need to charge your house batteries.

Platinum Leveling Operation (“PC” part #'s)

Panel also available in black, NOTE: 1. Panel turns on when ignition turns on to inform user if jacks are up or down (alarm sounds). 2. Due to another safety feature, to operate the “START” and “RETRACT ALL” buttons, press and hold the button for 1-2 seconds then release.



Extend System:

1. Press the **Power** Button (Red LED will come on constant).
2. Press the **Start** Button, this brings the front of the vehicle nearly level to the rear and stabilizes the rear as well. (LED will come on until program is finished, pressing any button during operation will cancel program, Vehicle Ignition must be OFF).
3. Done! Vehicle is now stabilized, *if* additional adjustments are desired:
 1. Press **Extend** (now in “Extend Mode” LED will come on). Release button.
 2. Press & Hold the Adjustment Button for the designated corner(s) of the vehicle that is low or high. (Ex. Right or Curb side is low, press & hold RIGHT FRONT individually or RIGHT FRONT & RIGHT REAR simultaneously until level, driver’s side is considered the left side for reference.). Take care not to make large movements with one cylinder to avoid frame/RV body twist/damage.
4. **Power Off** (panel will automatically shut off after 10 minutes of no activity).

Retract System:

1. Press the **Power** Button (Red LED will come on).
2. Press the **Retract All** Button until the green “All Up” light comes on constant.
(This process will take up to 60 seconds. After 60 seconds the green light will flash, this means that one or more of the jacks did not fully retract, see troubleshooting) If you have a false all up light (one or more jacks are not fully retracted and the light is on, you may have defective limit switch) to retract override, press RETRACT, then press & hold the corresponding adjustment button for that particular jack (version B or later only).

Always do a visual check to verify that all the jacks are fully retracted prior to operating the vehicle.

CAUTION WHEN OPERATING:

Rear tires must maintain contact with the ground as the bolt-on system is not designed for this and the jacks may shift. Front tires are typically OK to leave the ground, as they may need to do so to level.

Warranty Guide

- OEM Installed Auto Leveling Quad/Central Pump Systems: 1 year parts and labor.
- Aftermarket sales of Automatic Leveling Systems: Lifetime cylinder warranty, 2 years parts, 1 year labor to original owner of system.
- Platinum Leveling Systems: 1 year parts and labor.
- **Quadra team will work directly with your customers or service centers to back our product and provide excellent customer support and service!**
 - Prior to any work being done an **authorization case number must be obtained** by calling 800-752-9815 technical support for proper diagnosis of parts required or 269-221-3294 for warranty parts, time allocations, and approval. Any warranty questions feel free to contact our warranty department!
 - 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. Example: Re-programming leveling system is not a warranty issue, this is user preference or system installation step.
 - 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 (circumstances may apply for no charge).
- Replacing footpads, bolts, or fluids lost as a result of failure to maintain the system or properly installed components.
- Damages or deaths caused by abuse, misuse, negligence, misapplication, error of operation, accidental or purposeful damage or faulty installation. Including but limited to hoses, fittings & wiring components.
- 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: 2/12/18

OWNERSHIP MUST BE REGISTERED WITHIN 30 DAYS FROM THE DATE OF PURCHASE TO
ACTIVATE WARRANTY. Do it online at BIGFOOTLEVELER.com or call 800-752-9815

Emergency Service

For after hours emergency service please call our normal office number **800-752-9815** and follow the instructions to contact representative, you may get a voicemail but they will call you back when they can.