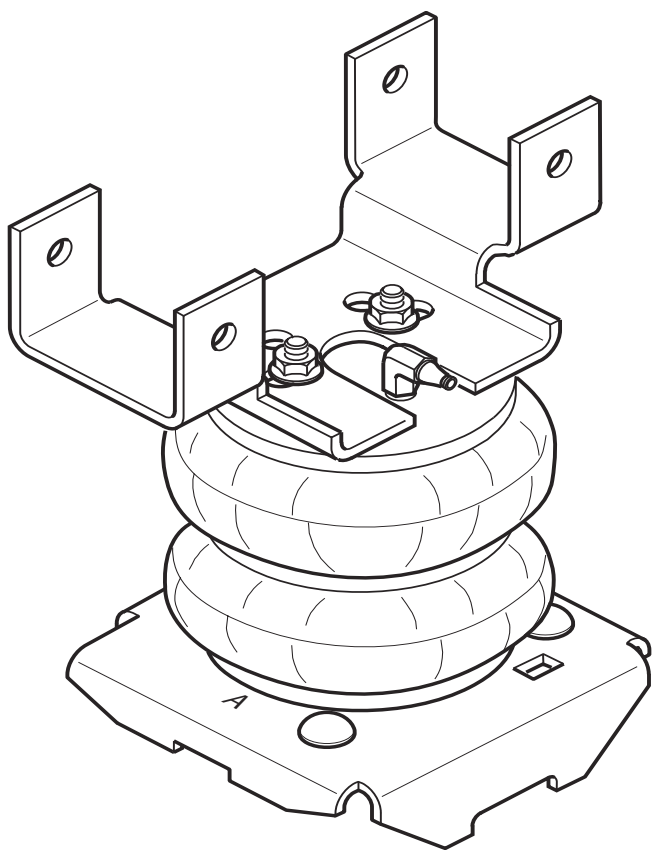




81214006 88-98 GM 1500/2500/3500

Congratulations - your new LevelTow Helper Springs are quality products capable of improving the handling and comfort of your vehicle. As with all products, proper installation is the key to obtaining all of the benefits your kit is capable of delivering. Please take a few minutes to read through the instructions to identify the components and learn where and how they are used. It is a good idea to start by comparing the parts in your kit with the parts list below.



Components

AIR SPRING	6781	2
UPPER BRACKET	5178	2
LOWER BRACKET	5214	2
FRAME BRACE	5180	2
BRACKET CLAMP	5181	2
HEAT SHIELD	1004	1
AIR LINE TUBBUNG		1

Hardware

THERMAL SLEEVE	2	
TIE-WRAPS		6
5/16" FLAT WASHER	4	
3/8"-16 X 3/4" FLANGE HEAD BOLT		2
3/8"-16 X 4" HEX HEAD BOLT		4
3/8"-16 X 7" CARRIAGE BOLT		4
3/8"-16 FLANGE LOCK NUT		12

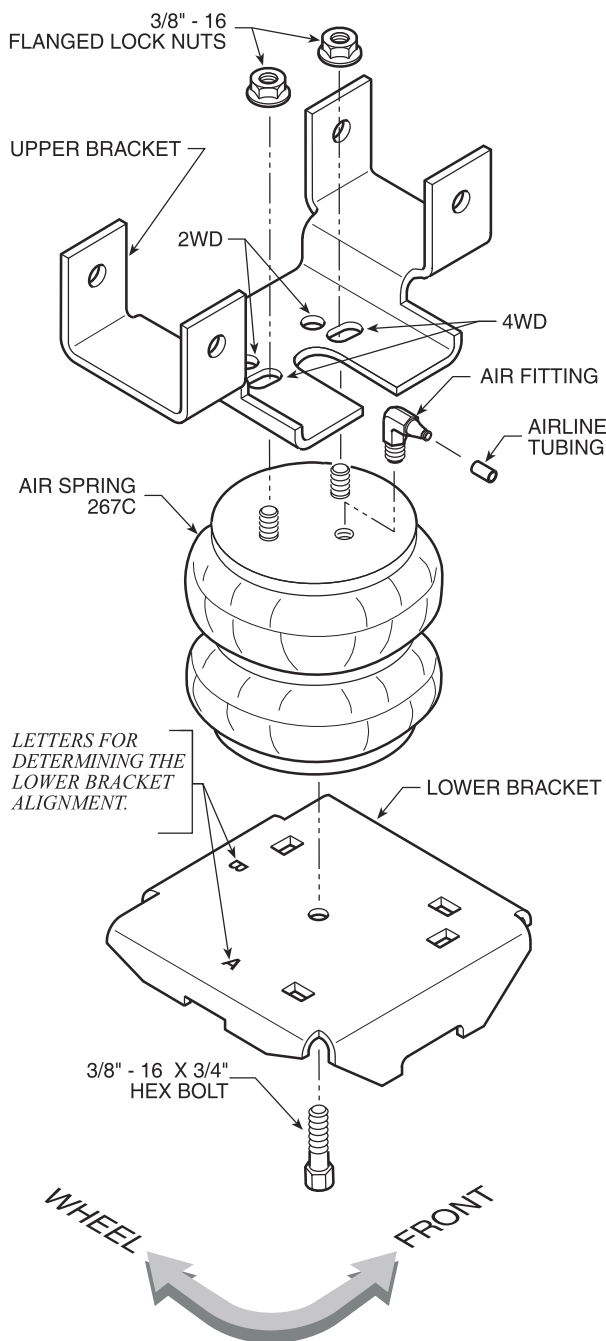
WARNING!

Do not inflate this assembly when it is unrestricted. The assembly must be restricted by the suspension or other adequate structure. Do not inflate beyond 100 P.S.I. Improper use or over inflation may cause property damage or severe personal injury.

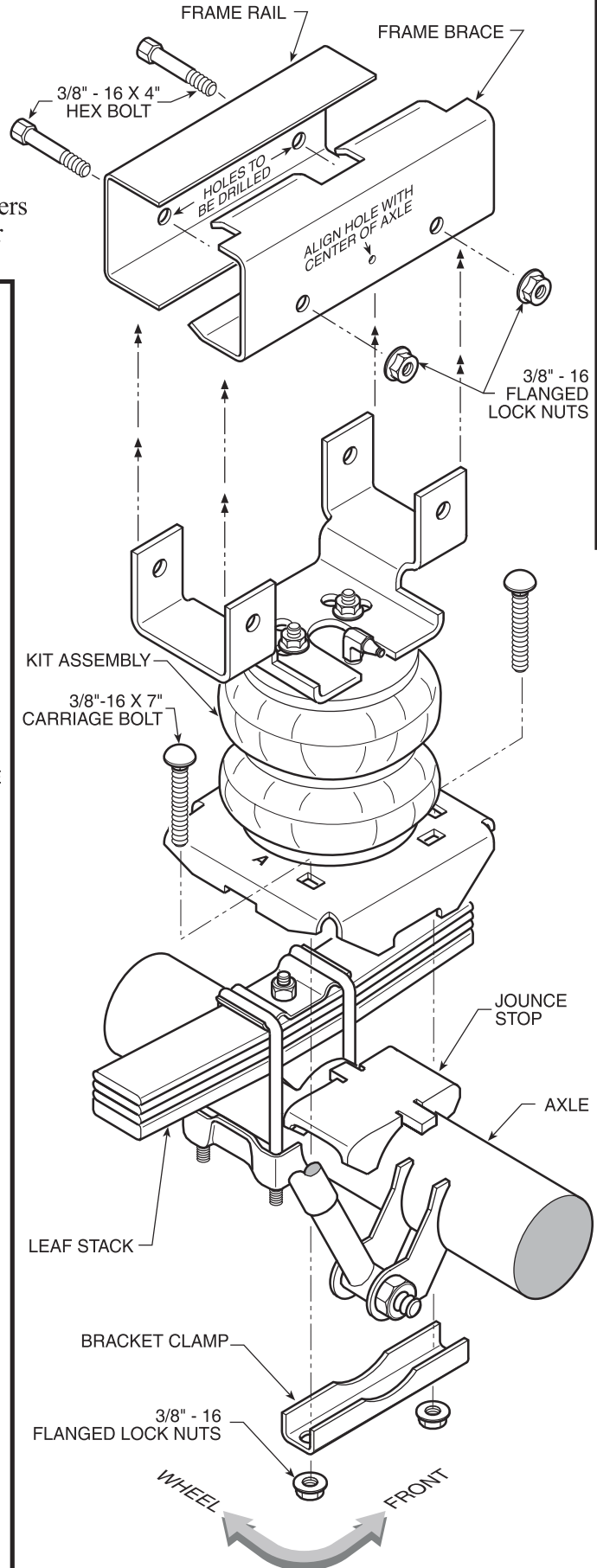
FIGURE "A"

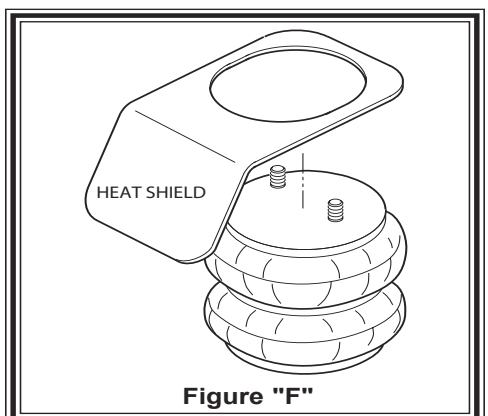
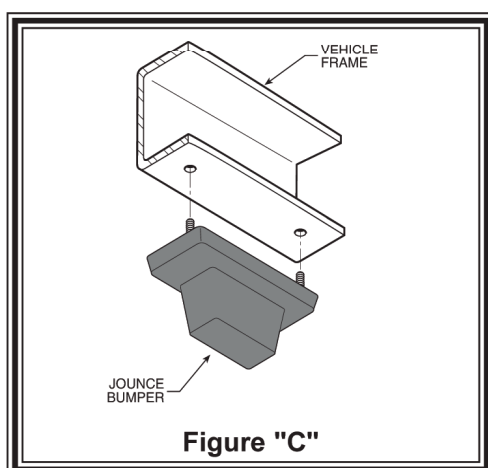
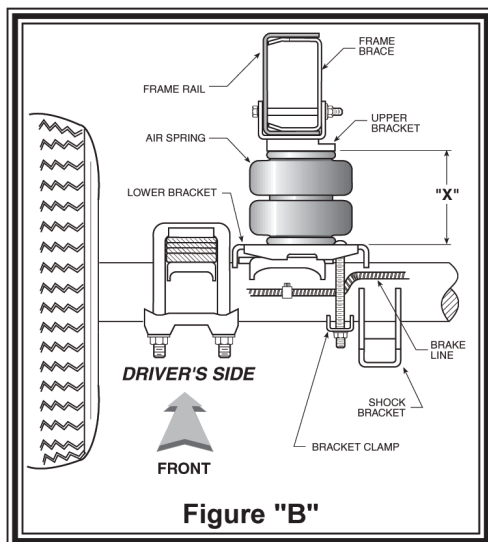
NOTE: Both illustrations are of the left, or drivers side, of the truck. Refer to step 3 for the proper lower bracket alignment.

KIT ASSEMBLY



KIT TO FRAME ASSEMBLY





Important:

In order for the air spring to function properly, there must be 1/2" of clearance around the air spring



STEP 1 - PREPARE THE VEHICLE

With the vehicle on a solid, level surface chock the front wheels. Remove the positive battery cable. Raise the vehicle by the axle and remove the rear wheels. After the removal of the wheels lower the vehicle so the axle rests on jack stands rated for your vehicles weight. Remove the jounce bumper located under the frame rail *see Figure "C"*.

STEP 2 - PRE-ASSEMBLE THE KIT

NOTE: The illustrations *see Figure "A"* refer to the assembly of the brackets to the air helper spring for 4WD applications.

Select one air helper spring from your kit. Install the elbow fitting into the air spring. Tighten the air fitting securely to engage the orange thread sealant. Position the fitting to point to the anticipated location of the air inflation valves, *see Figure "A" & "D"*. Install the upper bracket by inserting the air helper spring studs into the slots *see Figure "A"*. To install this kit to 2WD vehicles insert the air helper spring studs in the upper bracket holes *see Figure "A"*. This is done to assure proper air helper spring alignment on 2WD vehicles. Fasten the lower bracket to the air helper spring using a 3/8"-16 hex bolt finger tight *see Figure "A"*. (**NOTE: this bolt will be tightened later in this step.**) Note the different lengths of the bracket legs. To determine the position of the lower bracket, pre-fit the kit to the vehicle. Place the kit in position on the driver's side *see Figure "A" & "B"*. Check the "X" dimension *see Figure "B"*. The distance between the upper and lower bracket ("X" dimension) should be between 5"-6 1/2". The lower bracket can be turned so that the long legs or short legs can be used. If the "X" dimension is less than 5" *see Figure "B"*, rotate the bracket so that the letter "A" stamped on the bracket is butted against the leaf stack. Once the lower bracket orientation has been set, tighten the 3/8"-16 x 3/4" hex bolt securely.

STEP 3 - INSTALLING THE ASSEMBLY TO THE VEHICLE

Place the assembly on the driver's side on top of the axle housing *see Figures "A" & "B"*. Visually align the air spring so that it is aligned over the axle. Slide the upper bracket onto the frame rail and use the holes in the bracket as a template to mark the holes to be drilled in the frame rail. *Before drilling the holes make sure all electrical, brake and fuel lines are cleared from the path of the drill.* In order to prevent any damage to these lines it is recommended to remove the supports holding these lines and place a thin piece of wood between the frame rail and the existing lines. After drilling the holes re-attach the line supports.

Insert the frame brace being careful not to pinch any of the existing lines inside the frame rail. Slide the upper bracket onto the frame rail and frame brace making sure that all the holes line up *see Figures "A" & "B"*. Attach the upper bracket with the 3/8"-16 x 4" hex bolts.

With the pre-assembly attached to the frame rail the next step is to attach the lower bracket to the axle housing using the 3/8"-16 x 7" carriage bolts and bracket clamp *see Figures "A" & "B"*.

STEP 4 - INSTALLATION OF THE PASSENGER'S SIDE ASSEMBLY

Follow steps 1-5 for assembly and installation of the passenger's side assembly. **Note:** The use of a heat shield is required on the passenger's side of the vehicle *see Figure "F"*. The heat shield will mount between the upper bracket and the air helper spring. Angle the heat shield so it will fall halfway between the air helper spring and the closest point on the exhaust. Be sure that the heat shield will not contact any other component as the suspension compresses. (*i.e.* brake lines, shock absorbers, lower bracket assembly)

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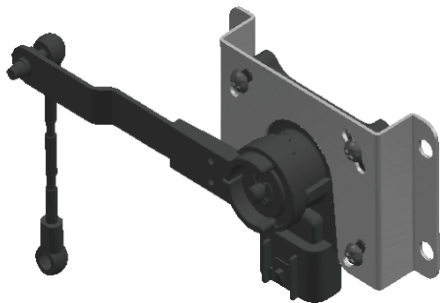
LevelTOW

ADVANCED TOWING SOLUTIONS

by ridetech

LevelTow Compressor System

Congratulations - your new LevelTow Compressor System is a quality product, that when used in conjunction with the LevelTow helper Air Springs, is capable of improving the handling and comfort of your vehicle. As with all products, proper installation is the key to obtaining all of the benefits your kit is capable of delivering. Please take a few minutes to read through the instructions to identify the components and learn where and how they are used. It is a good idea to start by comparing the parts in your kit with the parts list below.



Components:

Compressor Unit
Smart Sensor Height Sensor
Compressor Mounting Bracket
Smart Sensor Mounting Bracket
Sensor Linkage
Linkage Axle Bracket
Control Panel Bracket
Airline Fitting (mounted in compressor)
Main Activation Switch
Manual Control Switch
Main Wire Harness
Axle Bracket Clamp
1/4" TEE Fitting
1/4" Fitting for airsprings Straight / 90 Degree
20 amp fuse
Fuse Holder
10-12 Butt Connector for Fuse Holder
Ring Terminal for Main Power Hookup

Part

QTY

31920021 1
31980006 1
90002637 1
70010596 1
31980011 1
70011429 1
70011439 1
31957016 1
35970000 1
70011413 1
31900051 1
99000005 1
31954400 1
31954000 / 31954201 2
90001922 1
90001924 1
90001913 1
90001916 1

Hardware:

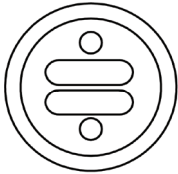
#10 x 5/8" Phillips pan head - sensor to bracket
1/4"-14 x 1" Self Drilling Screw- Sensor to Frame
3/8-16 x 1" Thread Forming - Compressor Bracket to Frame
10-24 x 1 1/4" Maching Screw - Compressor to Bracket
10-24 Nylok Nut - Compressor to Bracket
#10 Flat Washer - Compressor to Bracket

99104002 4
99254001 5
99373007 5
99101007 4
99102002 4
99103001 8

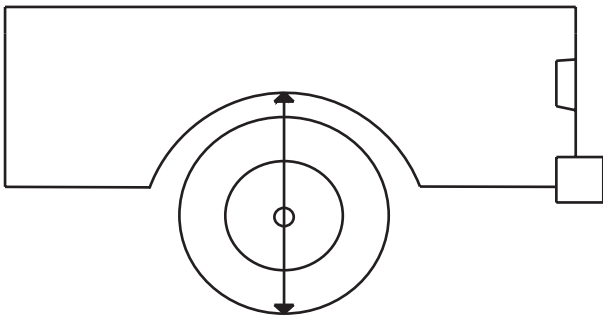
The LevelTow Compressor System is an automatic leveling system, once it is turned on (button illuminated blue) it will operate without any assistance.

The Smart sensor supplied with the compressor system will tell the system to inflate or deflate to keep the vehicle level. It has a dwell range built in so that when the truck is going down the road hitting small defects the system will be idle. It isn't until the sensor gets out of this dwell range for 18 seconds that the system will react.

The activation switch has to be illuminated blue for the system to work.



Activation Button

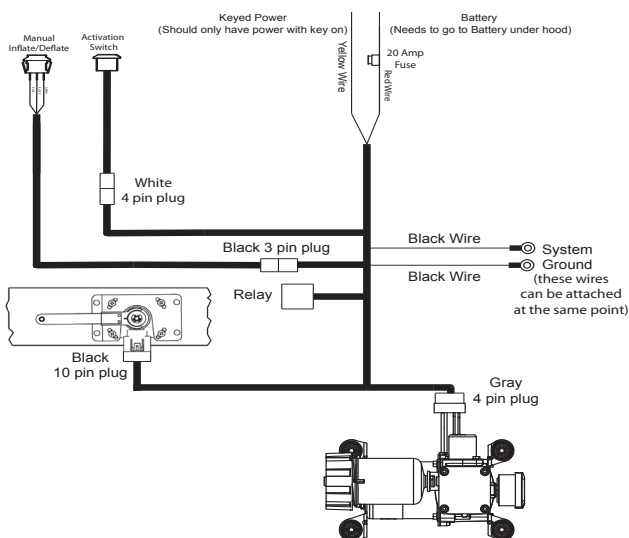


1. Before you install the compressor system, you will need to have the helper Airsprings installed. This will ensure that the LevelTow linkage does not get in the way of the Airsprings.

The first step to doing the install, with the vehicle at ride height, measure the lip of the fender to the ground at the center of the wheel and write it down.

Measurement _____

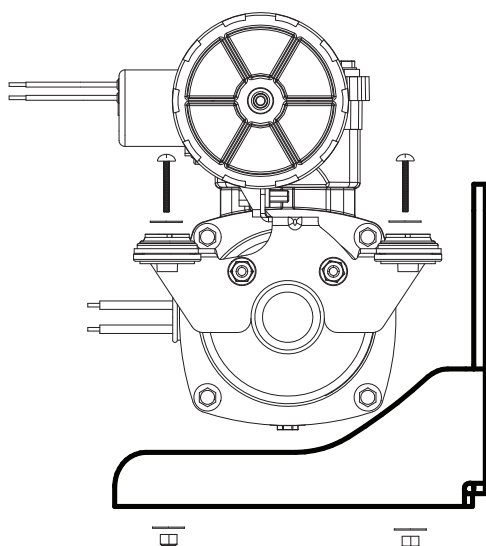
This measurement will be used as a reference once you have the compressor system installed.



2. Unpack the wiring for the LevelTow system and lay it out. This will give you an idea to where you can mount the components without having to modify the wiring harness.

NOTE:

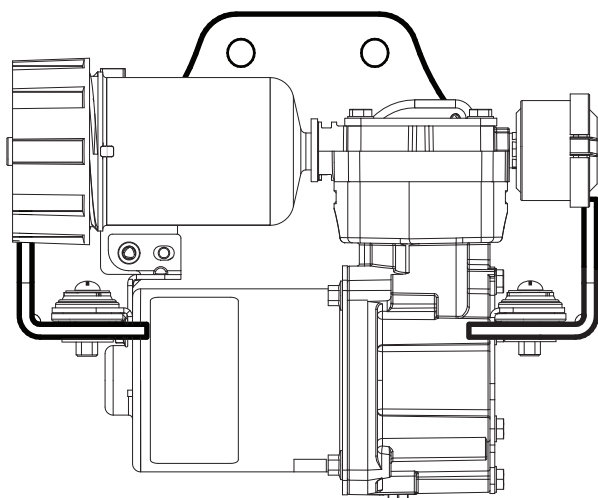
There is a wiring diagram on Page 7 to assist you in component location.



3. Bolt the compressor to the bracket. Position the compressor on the Bracket in the orientation shown. Line up the holes in the (4) Mounting Bushings with the (4) holes in the Bracket. Install a #10 Flat Washer on each of the (4) #10-24 x 1 1/4" Pan Head Screws. Insert a Screw/Washer in each of the 4 holes. Install a #10 Flat Washer on the threads sticking through the bottom of the bracket followed by a #10-24 Nylok Nut. Tighten the hardware.

NOTE:

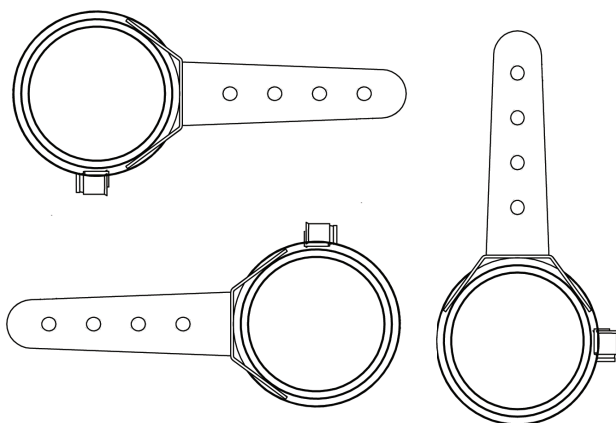
The diagram shows the position the compressor goes onto the plate.



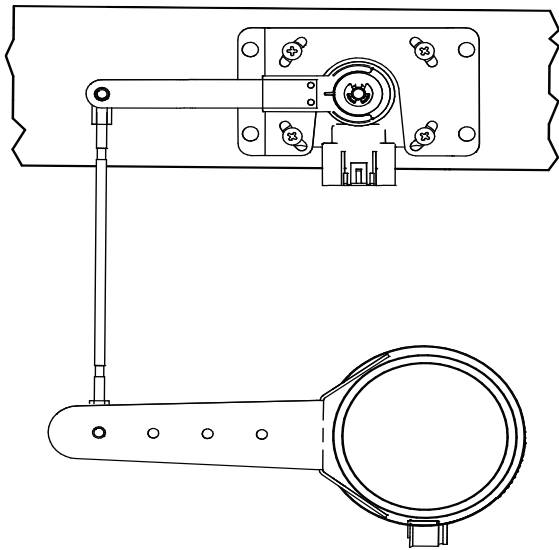
4. The compressor needs to be mounted on the frame rail with the dryer up. Attach the compressor bracket to the frame with (4) 3/8"-16 x 1" Thread Forming Bolts supplied in the kit. Drill a 5/16" Hole for the bolts.

NOTE:

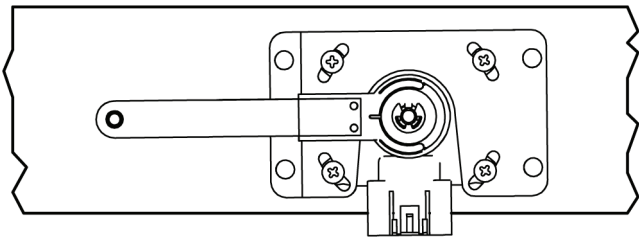
Before drilling any hole be sure to check and see if there are any brake lines, fuel lines, or wires on the other side of the surface you are drilling.



5. The Axle bracket can be mounted in any location on the axle tube to get the sensor linkage to line up. The Axle mount should be mounted on the axle so that the linkage will line up from the axle mount to the sensor. Keep this in mind when establishing the sensor location.



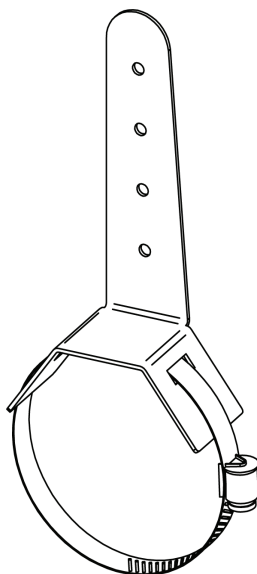
6. The next step will be to mount the sensor. The Smart Sensor needs to be centered in its travel at the trucks ride height to operate properly. This can be done by cutting the linkage rod to length. It can be fine tuned by loosening the 4 sensor mounting screws and twisting it in the mount and retightening the 4 screws. When the mounting and linkage is done it should look like the diagram seen here.



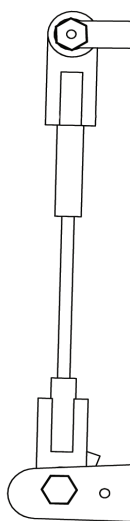
7. The sensor needs to be mounted on the frame rail with the wires pointing down. The arm will need to swing up opposite the direction of the wires as the suspension is being compressed. Attach the sensor bracket to the frame with (4) self drilling screws supplied with the kit.

NOTE:

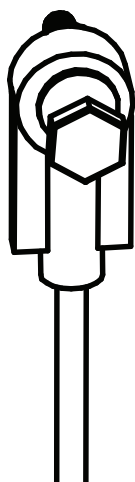
The sensor can be mounted on the inside or outside of the frame. Make sure the linkage and arm can go through its entire travel without hitting any obstructions



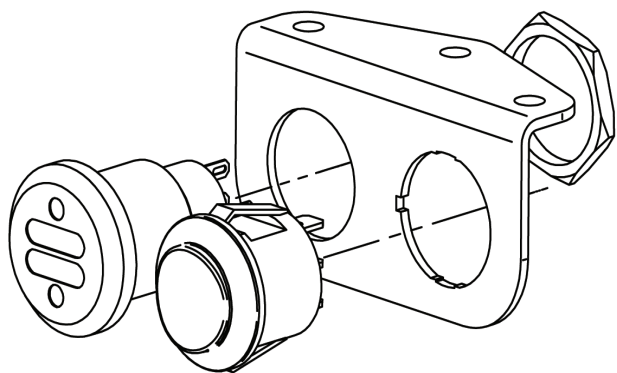
8. This diagram shows how the clamp sticks through the axle bracket. Loosen the clamp until it will open up and then slide it through the bracket. The whole assembly can then be put on the axle tube. Reinsert the end of the clamp back into the adjuster and tighten the clamp until the bracket is tight on the axle tube.



9. With the sensor and the axle bracket mounted, it is time to connect the 2 with the supplied linkage. The linkage is a universal length and will have to be cut to achieve the necessary length for your application. To do this it will be necessary to have the truck sitting at its factory ride height. With the truck at ride height center the sensor in its travel. The rod can slide into each rubber rod end up to 1".

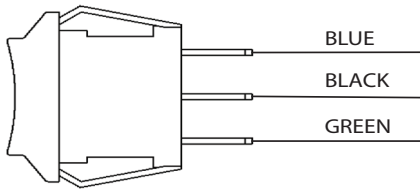


10. The linkage rod has barbs on the outside of it to keep it in the end link. After you push the ends in, they are difficult to pull back out. Push the linkage into the ends a little at a time until you get the desired length of the linkage assembly. If for some reason you must pull the rod out of the end, it is best done by twisting the end while pulling on it.



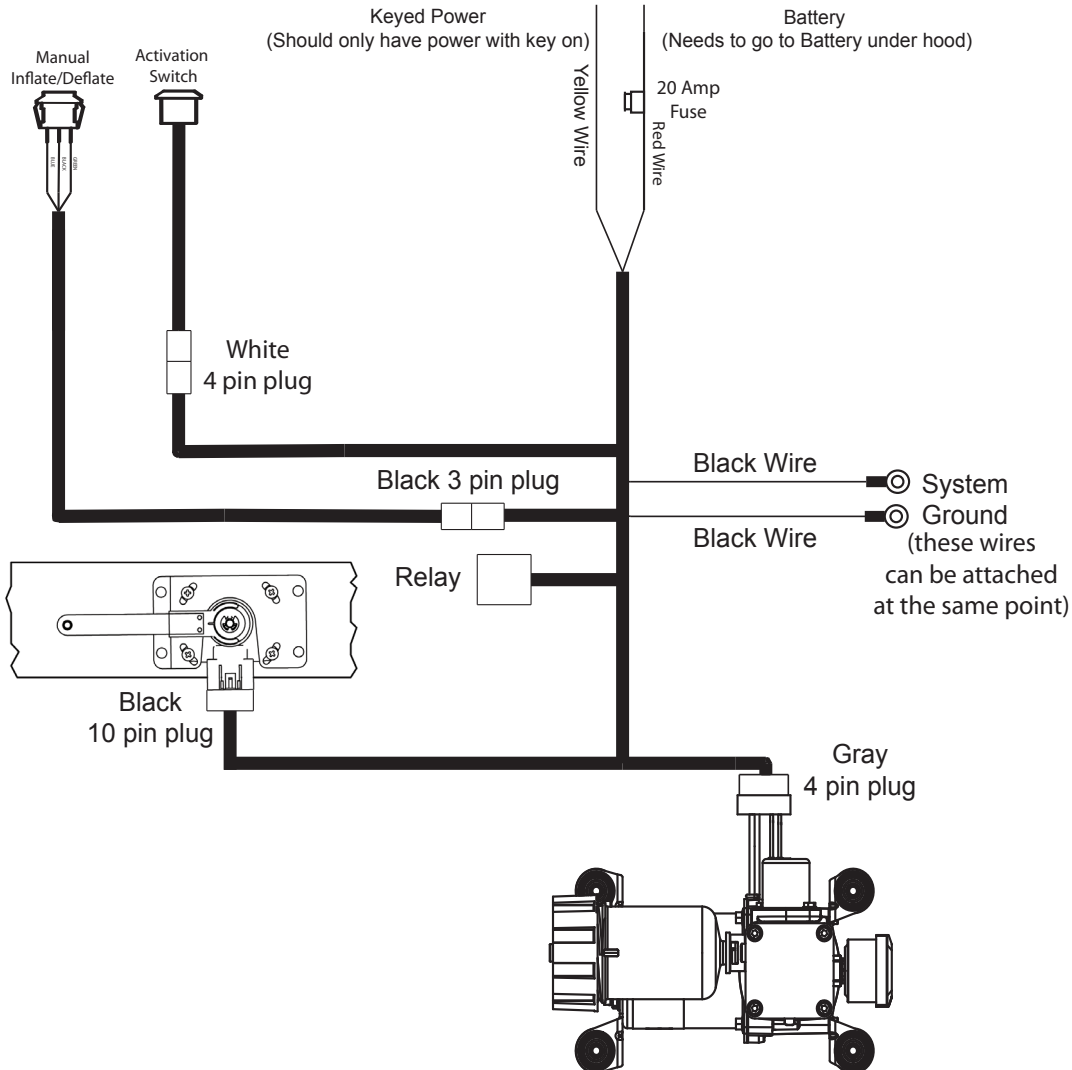
11. Mount the control panel in a convenient location. Install the Power Button and Manual Control Rocker into the panel. The Power Button gets installed into the round hole. The nut that is on the button is used to attach the button in the panel. The Rocker Switch goes into the hole with the notch in it. Align the tab on the switch with the slot and push the switch into the hole until it snaps in place. The rocker will only go into the hole one way. You can also custom mount the buttons if desired. They both use a 3/4" hole. The hole for the manual switch will have to have a slot for the tab

TOP



12. Hook the wires up to the manual control switch as shown in the diagram.

Green Wire-Manual Inflate
Black Wire -Switch Supply
Blue Wire - Manual Deflate

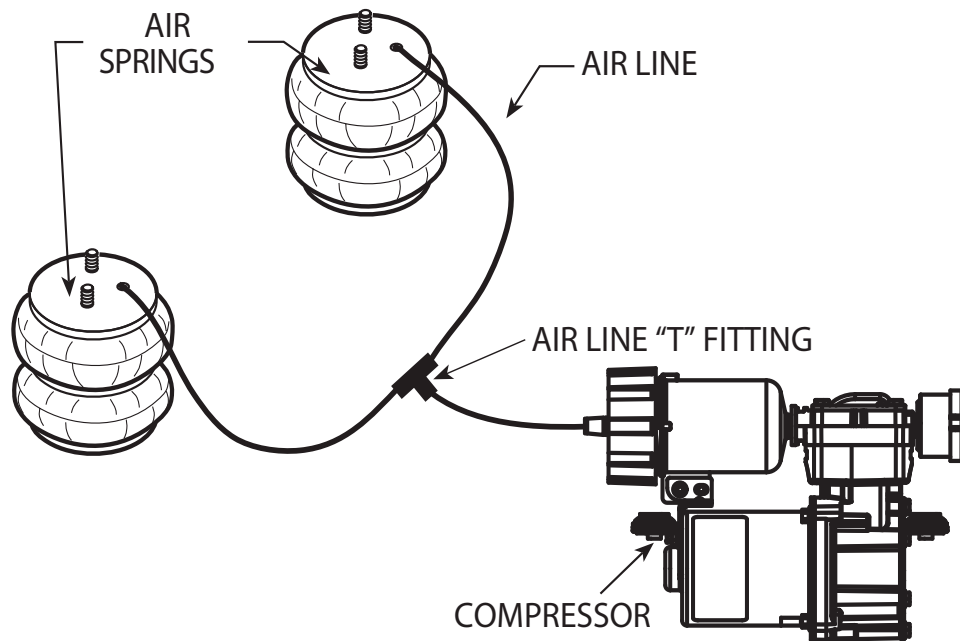


Red Wire - This wire needs to go straight to the **Battery** with the fuse holder installed within 18" of the Battery

Yellow Wire - This wire needs to go to a switched 12 volt power source. This wire should only have power when the key is on.

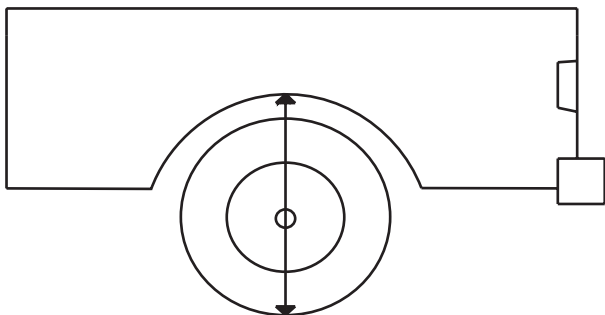
Black Wires - These wires go to a chassis ground. They can go to one of the screws attaching the compressor to the frame.

Relay - Will need to be attached to the frame with a self drilling screw supplied in the kit..



13. **Uncoil the airline being careful not to kink or flatten the line.** Start at the Airspring furthest from the compressor. Trim the airline so that the cut is clean and as square as possible. Insert the end of the airline into the fitting pushing it in as far as possible. Route the airline from the airspring to the compressor keeping it away the exhaust pipe and sharp edges. If it is necessary to run the line over a sharp edge, use a supplied thermal sleeve over the airline to protect it. The sleeve is installed by sliding it over the airline to the area where the line needs protected. **The airline should not be bent or curved sharply, this can cause the line to buckle or kink.** Secure the airline in place using the Zipties provided in the kit. Once the first airspring line is ran to the compressor, trim off the excess and use it for the remaining air spring line to the compressor. With both lines ran from the air spring to the compressor, install the "T" fitting on the lines and run the remaining side of the "T" fitting to the compressor fitting.

TIP: Wetting the end of the airline before sliding it into the fitting makes it easier to install into the fitting.



14. Once the system is installed you can verify the operation of the system by putting a load on the truck. With a load on the truck and the button illuminated blue, your fender to ground measurement that you took on the first step should be the same. If it is higher or lower you can adjust the height by loosening the 4 screws that attach the sensor to the bracket and twist in its mount. If ride height can not be achieved by adjusting in the bracket the linkage will need to be lengthened or shortened to achieve the height you need.

Manual Operation:

The LevelTow Compressor System also has a manual control function. This function allows you to manually inflate or deflate the system. To use the manual function you must first turn the system off by pushing the main power button. Once the system is turned off you can push the rocker switch up to inflate or down to deflate. To put the system back in level mode push the main power switch to turn it back on.

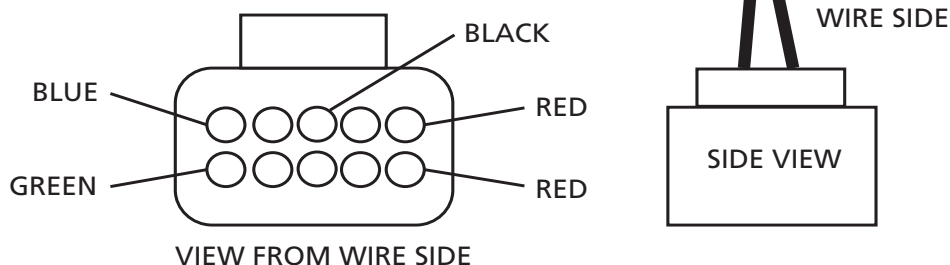
Note:

If the Activation Button is illuminated blue and the manual button is pushed the truck will relevel itself. The activation button has to be off for the manual control to be used and the truck remain at the height.

Troubleshooting:

If after installation you find the system not functioning correctly, you may have the sensor operating the wrong direction. You can verify this by turning the truck on and check that the activation button is illuminated blue. Unhook one end of the linkage and move the sensor arm by hand. If when you move the arm down (Keep in mind there is an 20 second delay) and the Air spring inflates, the sensor is operating in the wrong direction. You can fix this problem without remounting the sensor by swapping the blue and green wires in the harness at the sensor. To do this, with the truck turned off, simply unplug the harness from the sensor. Using a small screwdriver pop the purple retainer out of the plug by prying up on each end of it. After removing the retainer if you look into the end of the plug you will see a tang holding each wire terminal. Simply pry it down just enough to release the terminals of the blue and green wires. Swap the blue and green wire position and reinstall the wires into the plug paying attention to the direction of the small tab on the wire terminal. This tab will point to the center of the plug. Push the wire terminals into the plug making sure they catch on the tang and reinstall the purple retainer. After plugging the sensor back in you can confirm correct operation by turning the truck back on moving the sensor arm up, the Air spring should inflate. If the system is functioning correctly, shut the truck off and reattach the linkage.

WIRE LOCATIONS AT HEIGHT SENSOR



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