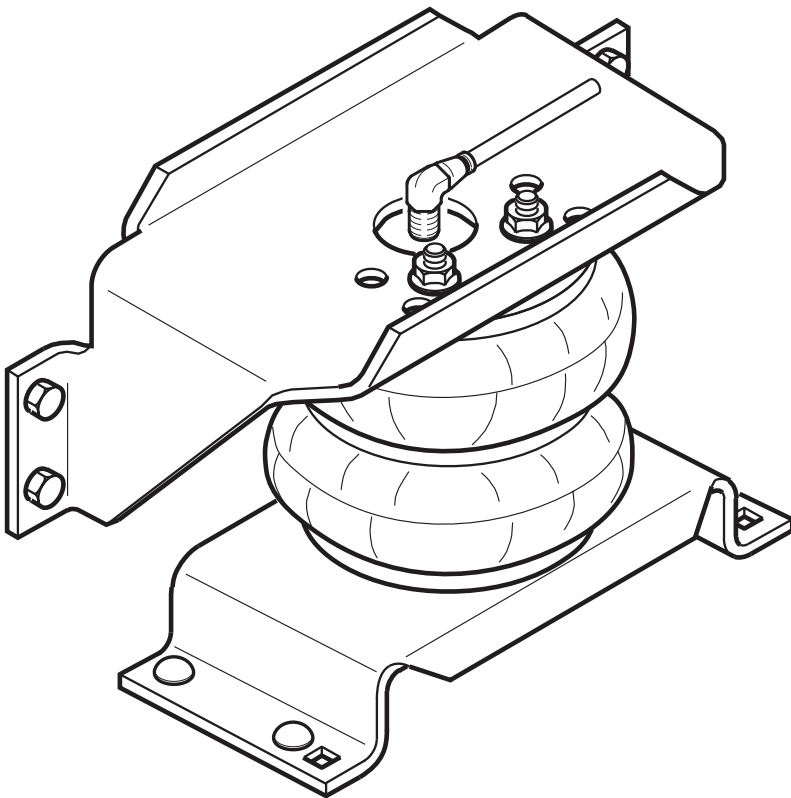




**81224020 90-96 F150 4WD, 92-98 F250 4WD** OVER 8600 GVWR

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              | Part# | QTY |
|-------------------------|-------|-----|
| 267C AIR SPRING         | 6781  | 2   |
| UPPER BRACKETS          | 5376  | 2   |
| LOWER BRACKETS          | 5092  | 2   |
| BRACKET STRAP/SHIM 1/2" | 5086  | 4   |
| BRACKET STRAP/SHIM 1"   | 5093  | 4   |
| BRAKE LINE BRACKET      | 5427  | 1   |

**Hardware**

|                                |    |
|--------------------------------|----|
| 3/8"-16 FLANGE LOCK NUT        | 21 |
| 3/8"-16 X 1" HEX BOLT          | 1  |
| 3/8"-16 X 3/4" FLANGE HEX BOLT | 2  |
| 3/8"-16 x 7" CARRIAGE BOLTS    | 8  |
| 3/8" FLAT WASHER               | 12 |
| 3/8"-16 X 1 1/2 HEX BOLTS      | 8  |
| 5/16" FLAT WASHER              | 4  |
| THERMAL SLEEVE                 | 2  |
| NYLON TIE                      | 6  |

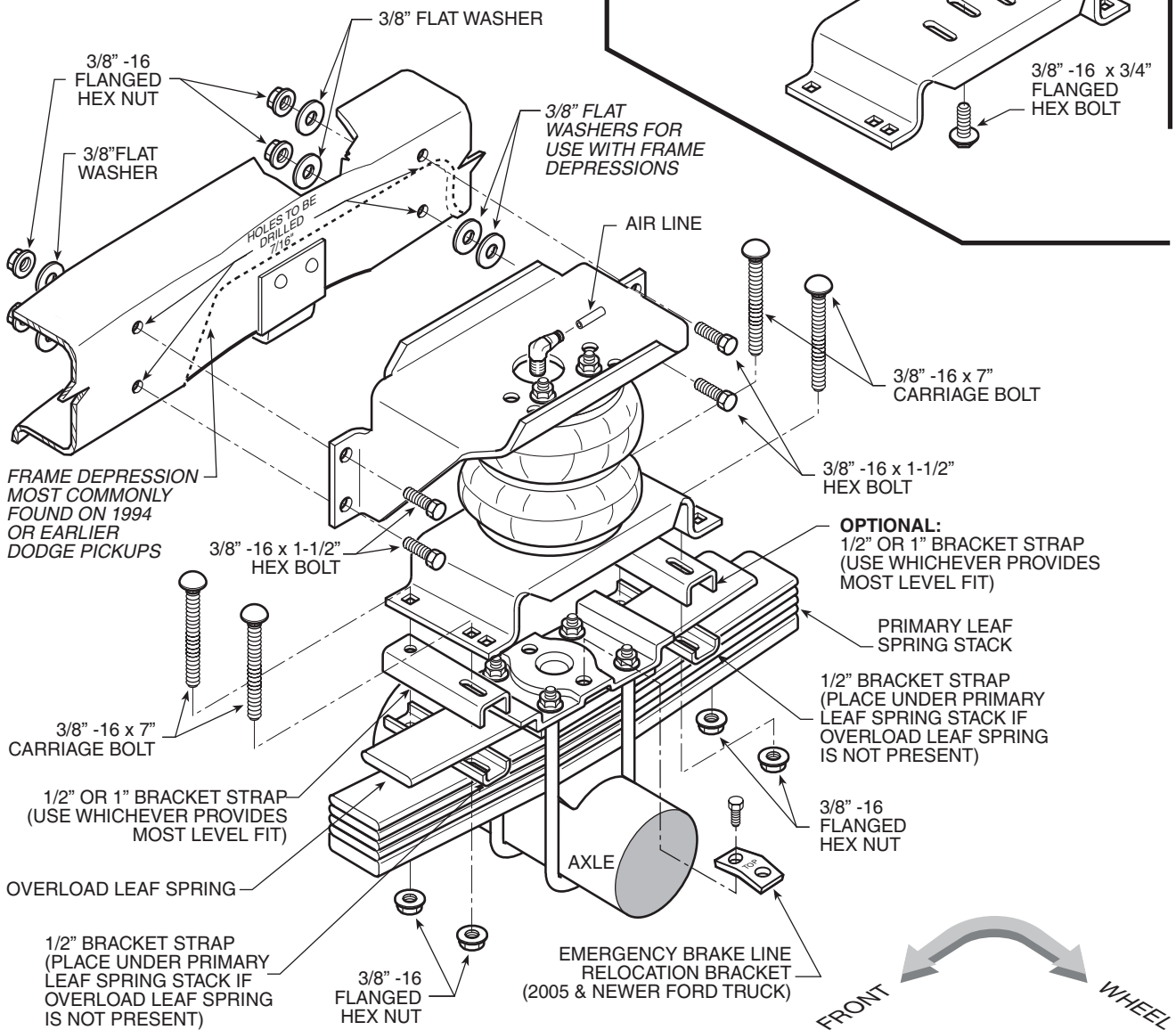
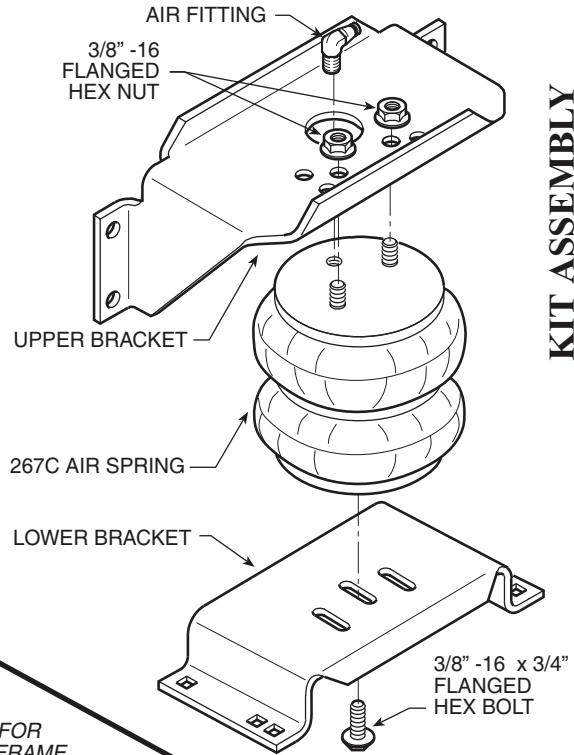
**WARNING!**

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.

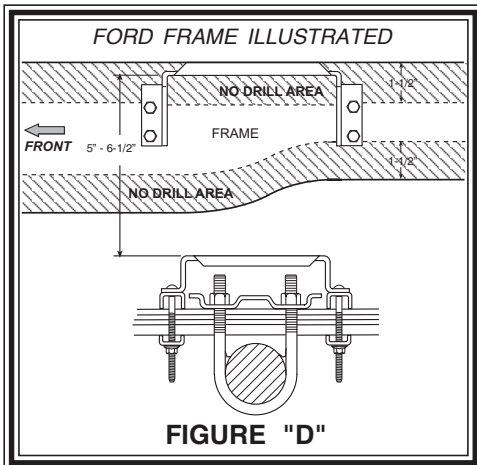
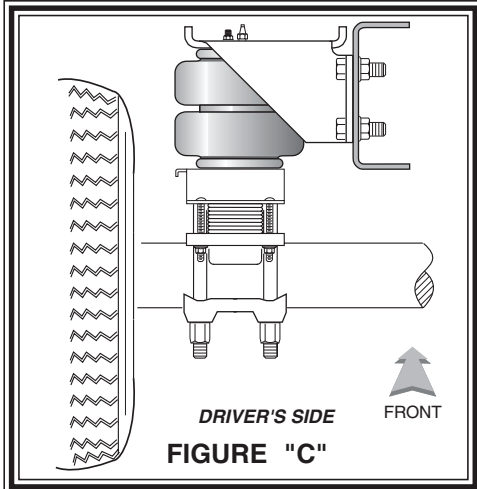
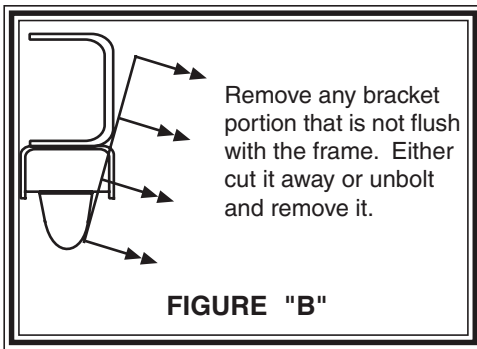
**FIGURE "A"**

**NOTE:** Both illustrations are of the left, or drivers side, of the vehicle. Reverse any orientations when assembling and installing the right, or passenger, side of the vehicle.

**KIT TO FRAME ASSEMBLY  
FITS WITH OR WITHOUT  
OVERLOAD SPRINGS**



**NOTICE FOR 1973-1987 2WD CHEVROLET AND GMC PICKUPS:** THE LOWER BRACKET NEEDS TO BE REVERSED SO THAT THE LIP ON THE SIDE OF THE BRACKET IS FACING TOWARD THE CENTER OF THE VEHICLE. THE ROTATION OF THE LOWER BRACKET IS TO ENSURE PROPER AIR SPRING ALIGNMENT. THIS APPLICATION ALSO IS USED ON SOME FORD AND DODGE PICKUPS.



## STEP 1 - PREPARE THE VEHICLE

With the vehicle on a solid, level surface chock the front wheels. Raise the vehicle by the rear 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 any jounce bumper bracket that is not mounted flush with the frame which will interfere with the operation of the air helper springs *see Figure "B"*. Jounce bumpers located under the frame rail may be left in place. *This installation assumes that there is no load in the bed of the truck.* Remove the negative battery cable.

On 2005 and newer Ford vehicles the emergency brake line bracket must be relocated. Remove the screw holding the brake line. Install the relocating bracket with the screw previously removed. **NOTE: the bracket is marked top.** Next, fasten the emergency brake line bracket to the relocation bracket using the 3/8" X 1" bolt and a 3/8" nut.

## STEP 2 - PREASSEMBLE THE KIT

Select one air helper spring and an upper bracket from your kit. Align the studs of the air spring with the mounting holes of the upper bracket and insert. Make sure the air inlet is visible through the large access hole in the upper bracket. Fasten the upper bracket to the air spring using the 3/8"-16 flanged lock nuts, *see Figure "A"*. Install the elbow fitting into the air spring through the large access hole in the upper bracket. 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" & "E"*. Select one lower bracket and place the bracket so the lip of the lower bracket will be next to the tire, *see Figure "A"*. If you are installing this kit on a 1987 or earlier GMC pickup or a 1994 or earlier Dodge pickup review notices on *Figure "A"*. Fasten the lower bracket using a 3/8"-16 x 3/4" flange hex bolt (*finger tight*) through the center slot into the threaded hole in the air spring.

## STEP 3 - PRE-FIT AND MARK / DRILL HOLES

Position the air spring assembly on the leaf spring stack. The lower bracket should straddle the leaf spring retainer and the upper bracket mounting flanges should be flush against the frame. Depending on the application, the lower bracket may have to be raised (i.e. interference with "U"-bolts, leaf spring retainer, brake drum, etc...). This kit comes with two sets of bracket straps/shims. These are included to provide adequate clearance for the air spring and lower bracket, as well as, any other component on the vehicle. One set is 1/2" tall while the other set is 1" tall. To raise the air spring assembly to its maximum height, install the 1" shim between the lower bracket and the leaf spring stack. The remaining 1/2" strap/shim will be used to clamp the assembly to the leaf spring stack, *see Figure "D"*. The bracket straps/shims may be interchanged, or not used, to provide maximum clearance and proper air spring height. Furthermore, the shims can be mixed (i.e. use the 1/2" on one side and the 1" or none on the other) to adjust for leaf spring slant.

Once the height of the lower bracket has been established, adjust the position of the upper bracket so that the mounting flanges are flush with the side of the frame rail. To do this, slide the air spring over the lower bracket along its slotted connection. With the brackets now positioned properly and the air spring in proper alignment, tighten the 3/8"-16 x 3/4" hex bolt securing the lower bracket to the air spring. It may be necessary to slide the entire assembly fore or aft along the leaf spring in order to provide clear mounting. Before marking and drilling the holes for the upper bracket, make sure the mounted height of the air spring is between 5.00" - 6-1/2", that there is at least 1-1/2" between the edge of the hole

and the inside of the upper and lower frame flange, and the upper and lower brackets are as parallel as possible, *see Figure "D"*. Mark the four holes to be drilled with a center punch using the upper bracket as a template, then remove the air spring assembly. **Before drilling the holes make sure all electrical, brake and fuel lines are cleared from the path of the drill.** Damage to lines can be avoided by inserting a piece of wood between the frame rail and any lines in the path of the drill. Drill the four holes in the frame rail using a 3/8" drill bit, *see Figure "A"*.

#### **STEP 4 - INSTALLATION TO THE VEHICLE**

#### **Important:**

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

After drilling the holes in the frame rail place the assembled air spring back on the leaf stack making sure the lower bracket is placed over the retainer, *see Figure "A" & "C"*. Check to see Ford trucks that there is a 1/2" of clearance between the air spring and the emergency brake line bolt, this bolt may have to be cut down for clearance. Install the 3/8"-16 x 1 1/2" hex bolts through the upper bracket holes and the holes that were drilled in the frame rail. Next fasten the upper bracket to the frame rail using the 3/8"-16 flange lock nuts and flat washers to the back side of the frame rail, refer to *Figure "A"*. The next step is to attach the lower bracket to the leaf spring assembly. Use the bracket strap/shim that is not being used as a spacer or 1/2" spacer/shim if no spacer is required, and fasten the air spring assembly to the leaf stack using the 3/8"-16 x 7" carriage bolts and 3/8"-16 flanged lock nuts, *see*

*Figure "A"*. **NOTE: You may clamp around the over-load leafs.** Insert the carriage bolt through the inner square hole on the lower bracket for narrow leaf springs.

#### **STEP 5 - INSTALLATION TO THE PASSENGER'S SIDE ASSEMBLY**

Reverse any orientations when assembling and installing the right, or passenger, side of the vehicle.



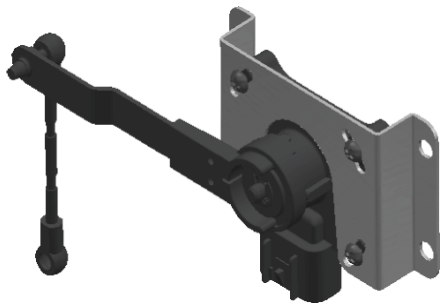
# LevelTOW

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:

|  | Part #              | QTY |
|--|---------------------|-----|
| Compressor Unit                                  | 31920022            | 1   |
| Smart Sensor Height Sensor                       | 31980006            | 1   |
| Compressor Mounting Bracket                      | 90002637            | 1   |
| Smart Sensor Mounting Bracket                    | 70014456            | 1   |
| Sensor Linkage                                   | 31980011            | 1   |
| Linkage Axle Bracket                             | 70011429            | 1   |
| Control Panel Bracket                            | 70011439            | 1   |
| Airline Fitting (mounted in compressor)          | 31957016            | 1   |
| Main Activation Switch                           | 35970000            | 1   |
| Manual Control Switch                            | 70011413            | 1   |
| Main Wire Harness                                | 31900051            | 1   |
| Axle Bracket Clamp                               | 99000005            | 1   |
| 1/4" TEE Fitting                                 | 31954400            | 1   |
| 1/4" Fitting for airsprings Straight / 90 Degree | 31954000 / 31954201 | 2   |
| 20 amp fuse                                      | 90001922            | 1   |
| Fuse Holder                                      | 90001924            | 1   |
| 10-12 Butt Connector for Fuse Holder             | 90001913            | 1   |
| Ring Terminal for Main Power Hookup              | 90001916            | 1   |

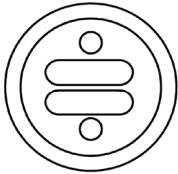
### Hardware:

|  |          |   |
|--|----------|---|
| #10 x 5/8" Phillips pan head - sensor to bracket         | 99104002 | 4 |
| 1/4"-14 x 1" Self Drilling Screw- Sensor to Frame        | 99254001 | 5 |
| 3/8-16 x 1" Thread Forming - Compressor Bracket to Frame | 99373007 | 4 |
| 10-24 x 1 1/4" Maching Screw - Compressor to Bracket     | 99101007 | 4 |
| 10-24 Nylok Nut - Compressor to Bracket                  | 99102002 | 4 |
| #10 Flat Washer - Compressor to Bracket                  | 99103001 | 8 |

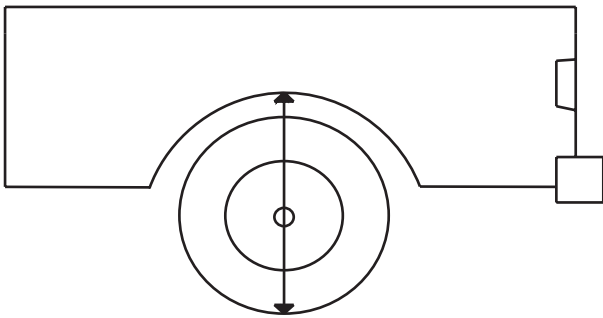
The LevelTow Compressor System is an automatic leveling system, once it is turned on (button illuminated blue) it will operate without any assistance.

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**

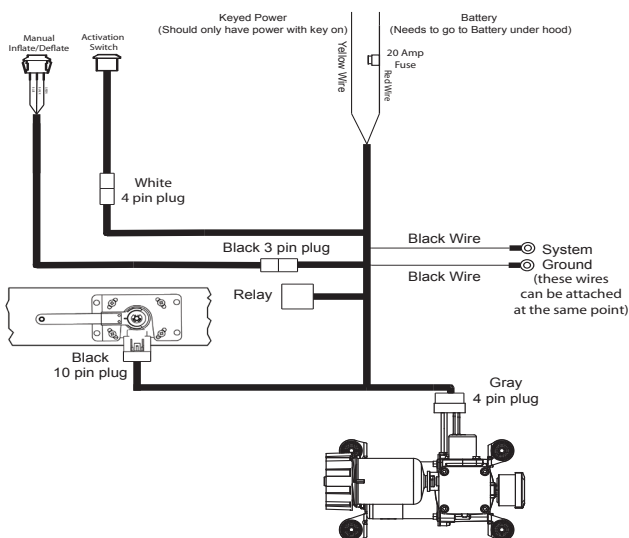


1. Before you install the compressor system, you will need to have the helper Airsprings installed. This will ensure that the LevelTow linkage does not get in the way of the Airsprings.

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.

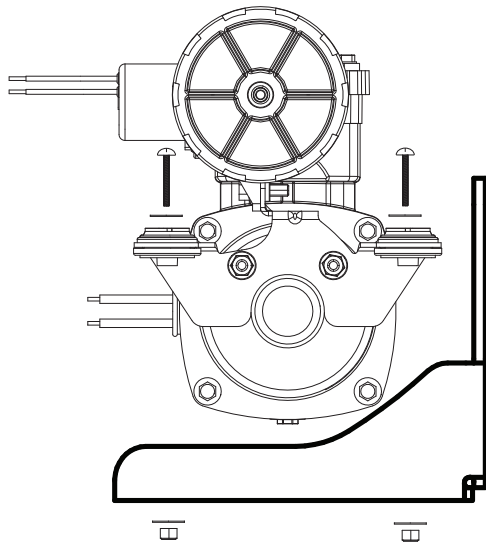


2. Unpack the wiring for the LevelTow system and lay it out. This will give you an idea to where you can mount the components without having to modify the wiring harness.

**NOTE:**

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

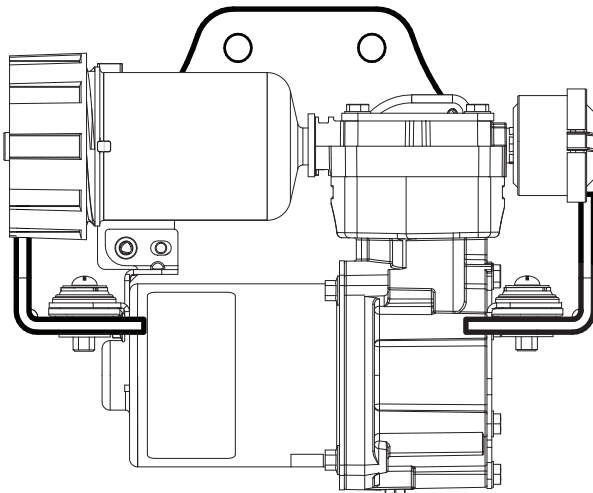




3. Bolt the compressor to the bracket. Position the compressor on the Bracket in the orientation shown. Line up the holes in the (4) Mounting Bushings with the (4) holes in the Bracket. Install a #10 Flat Washer on each of the (4) #10-24 x 1 1/4" Pan Head Screws. Insert a Screw/Washer in each of the 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:**

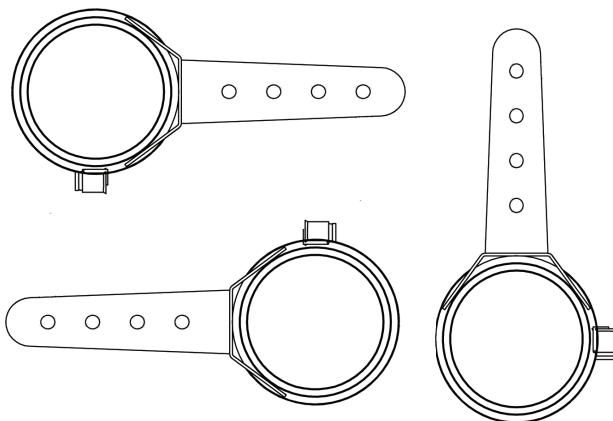
*The diagram shows the position the compressor goes onto the plate.*



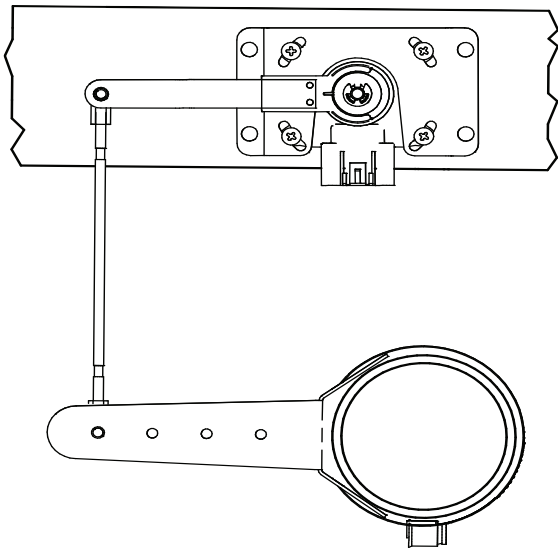
4. The compressor needs to be mounted on the frame rail with the dryer up. Attach the compressor bracket to the frame with (4) 3/8"-16 x 1" Thread Forming Bolts supplied in the kit. Drill a 5/16" Hole for the bolts.

**NOTE:**

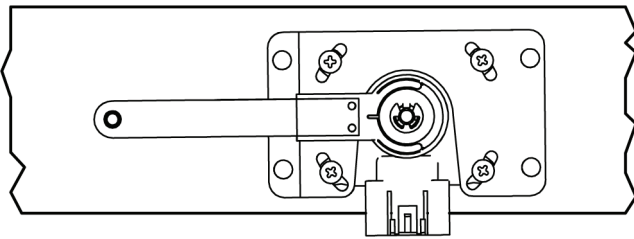
*Before drilling any hole be sure to check and see if there are any brake lines, fuel lines, or wires on the other side of the surface you are drilling.*



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.



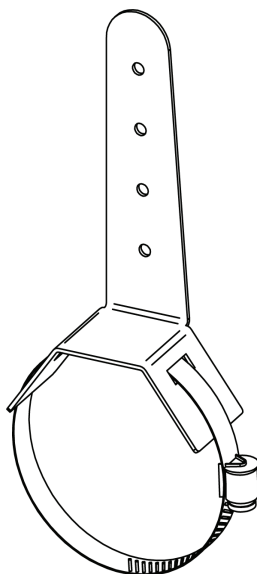
6. The next step will be to mount the sensor. The Smart Sensor needs to be centered in its travel at the trucks ride height to operate properly. This can be done by cutting the linkage rod to length. It can be fine tuned by loosening the 4 sensor mounting screws and twisting it in the mount and retightening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

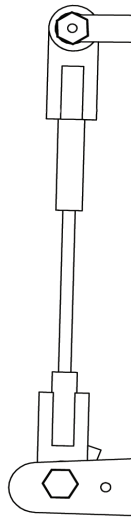
**NOTE:**

*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*

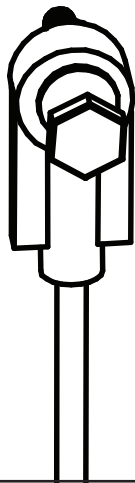


8. This diagram shows how the clamp sticks through the axle bracket. Loosen the clamp until it will open up and then slide it through the bracket. The whole assembly can then be put on the axle tube. Reinsert the end of the clamp back into the adjuster and tighten the clamp until the bracket is tight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

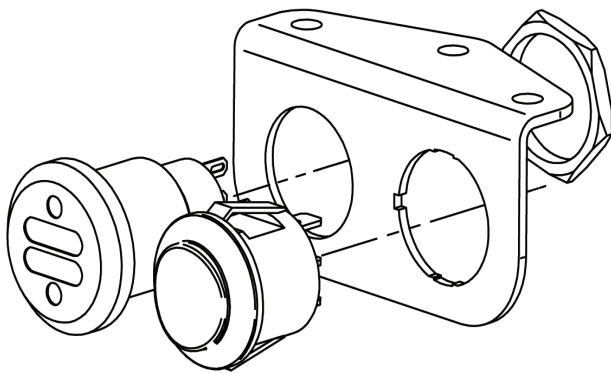




9. With the sensor and the axle bracket mounted, it is time to connect the 2 with the supplied linkage. The linkage is a universal length and will have to be cut to achieve the necessary length for your application. To do this it will be necessary to have the truck sitting at its factory ride height.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

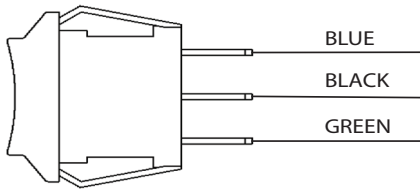


10. The linkage rod has barbs on the outside of it to keep it in the end link. After you push the ends in, they are difficult to pull back out. Push the linkage into the ends a little at a time until you get the desired length of the linkage assembly. If for some reason you must pull the rod out of the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



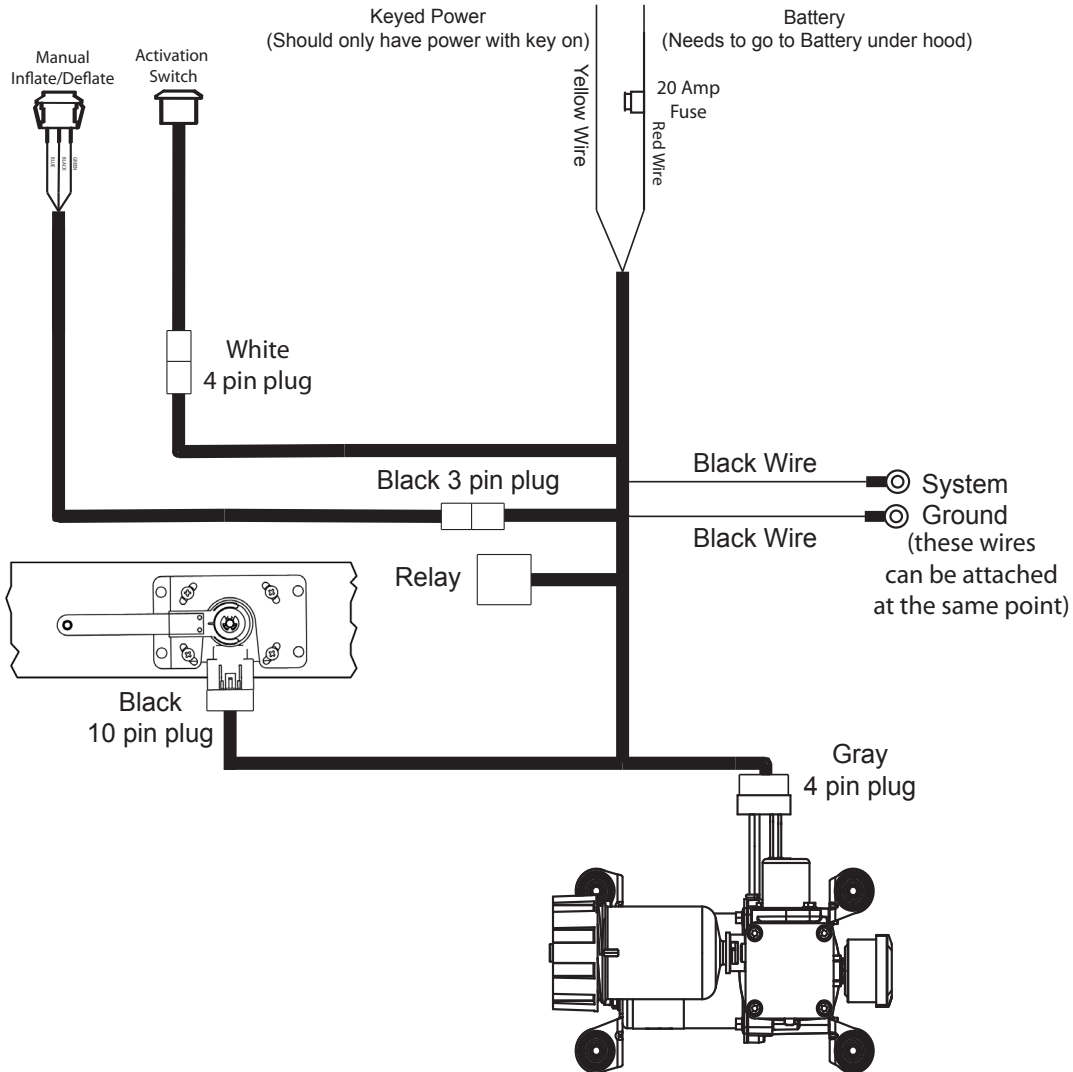
11. Mount the control panel in a convenient location. Install the Power Button and Manual Control Rocker into the panel. The Power Button gets installed into the round hole. The nut that is on the button is used to attach the button in the panel. The Rocker Switch goes into the hole with the notch in 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

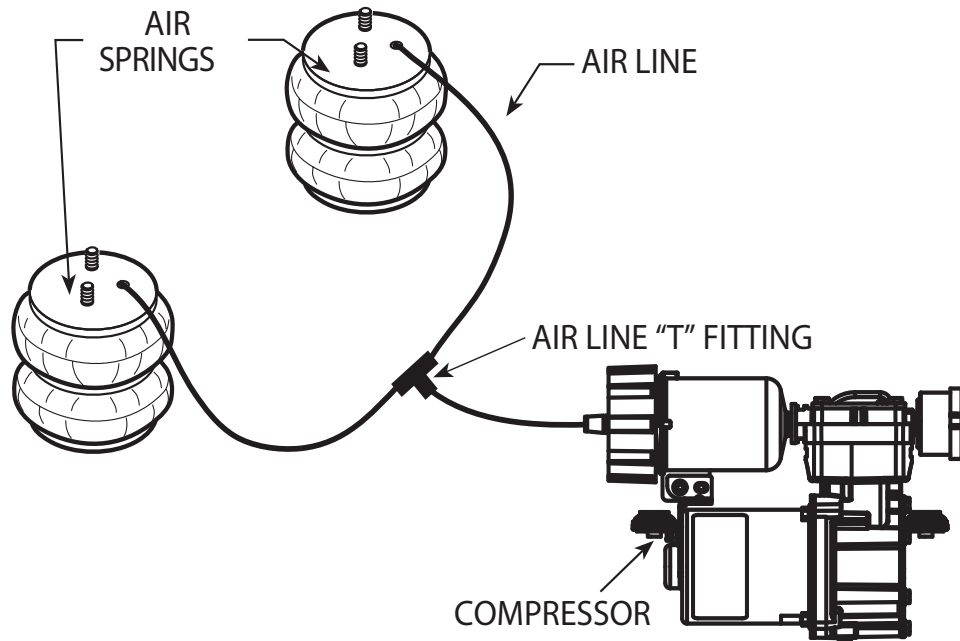


**Red Wire** - This wire needs to go straight to the **Battery** with the fuse holder installed within 18" of the Battery

**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.

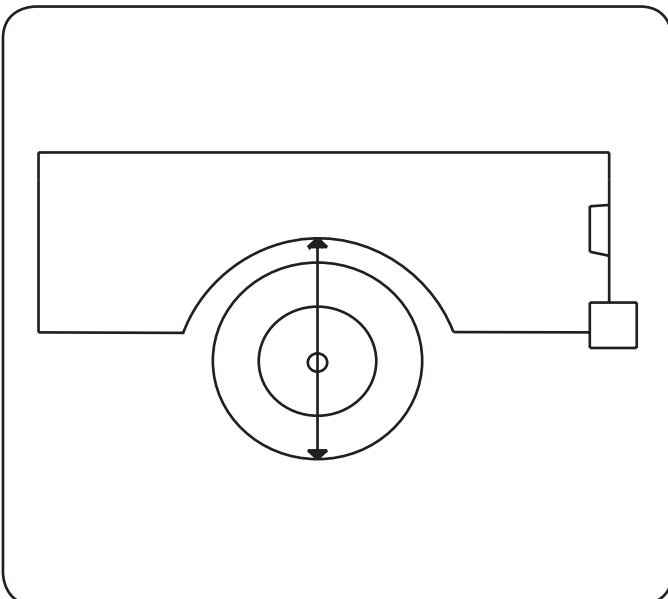
**Black Wires** - These wires go to a chassis ground. They can go to one of the screws attaching the compressor to the frame.

**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:**

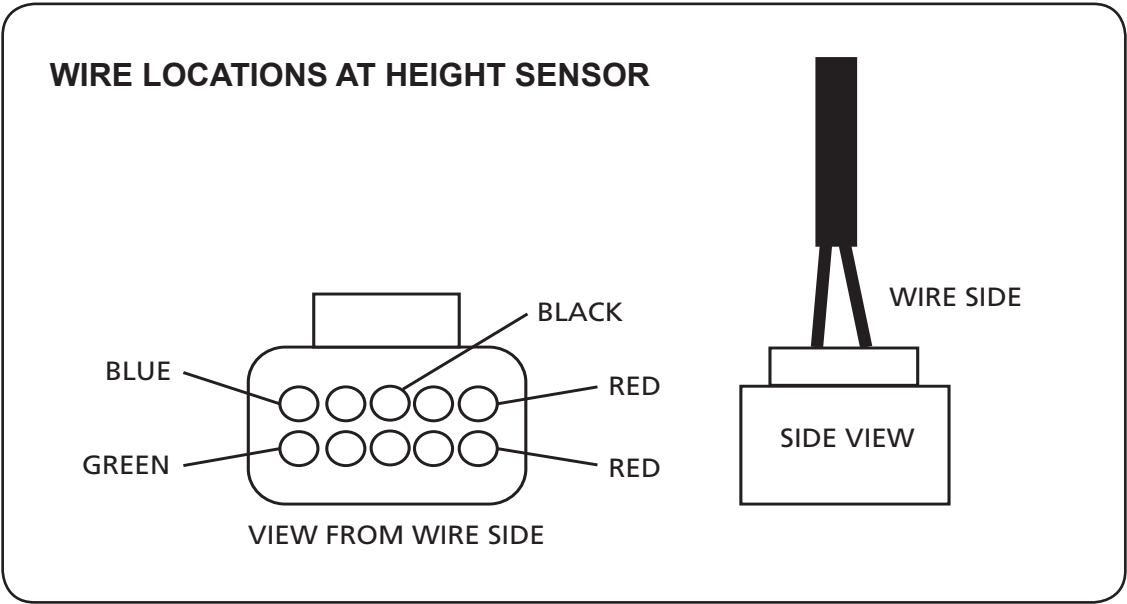
The LevelTow Compressor System also has a manual control function. This function allows you to manually inflated or deflate the system. To use the manual function you must first turn the system off by pushing the main power button. Once the system is turned off you can push the rocker switch up to inflate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



STILL HAVE QUESTIONS?

Tech line hours

Monday-Friday

8AM - 6PM (EST).....812-482-2932

