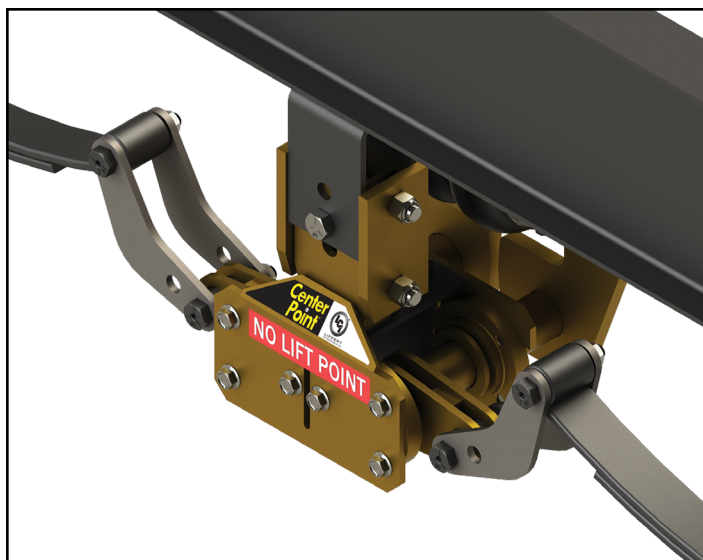




Center Point® Triple Axle Equalizer

Installation and Owner's Manual

(For Aftermarket Applications)

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Introduction

Over 85 percent of all semi tractors on the road today have some kind of air ride suspension. Shouldn't your towable RV have the same kind of ride? The answer is YES, and now you can do it affordably with the Center Point[®] Air Ride Suspension System.

Our Center Point suspension system absorbs impact caused by road shock and provides a smoother ride and optimum brake efficiency. It's easy to install and dramatically improves passenger comfort and reduces side-to-side trailer sway.

Quick Facts

- Airbag absorbs road shock and vibrations from both axles simultaneously and without delay.
- Dampens road shock more effectively than torsion axles.
- Protects your RV and cargo by absorbing road shock.
- Dramatically improves braking distance in panic stops.
- Improves the overall ride and reduces driver fatigue.
- Retrofits to current suspension.

Safety Information

NOTE: This manual provides general installation procedures. Many variables can change the circumstances of the procedure, i.e., the degree of difficulty involved in the service operation and the ability level of the individual performing the operation. This manual cannot begin to plot out procedures for every possibility, but will provide the general instructions for effectively installing the system. In the event the skill level required is too advanced or the procedure too difficult, a certified technician should be consulted before performing the necessary service. Failure to correctly install the system may result in voiding the warranty, inflicting injury or even death.

WARNING

THE "WARNING" SYMBOL ABOVE IS A SIGN THAT AN INSTALLATION PROCEDURE HAS A SAFETY RISK INVOLVED AND MAY CAUSE DEATH OR SERIOUS INJURY IF NOT PERFORMED SAFELY AND WITHIN THE PARAMETERS SET FORTH IN THIS MANUAL. ALWAYS WEAR EYE PROTECTION WHEN PERFORMING THIS INSTALLATION PROCEDURE. OTHER SAFETY EQUIPMENT TO CONSIDER WOULD BE HEARING PROTECTION, GLOVES, AND POSSIBLY A FULL FACE SHIELD, DEPENDING ON THE NATURE OF THE INSTALLATION PROCEDURE.

WARNING

THE TRAILER MUST BE SUPPORTED PER MANUFACTURER'S SPECIFICATIONS BEFORE WORKING UNDERNEATH. FAILURE TO DO SO MAY RESULT IN DEATH OR SERIOUS INJURY.

CAUTION

MOVING PARTS CAN PINCH, CRUSH OR CUT. KEEP CLEAR AND USE CAUTION.



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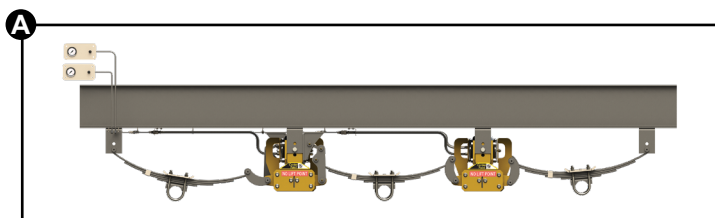
Resources Required

- Cordless or Electric Drill or Screw Gun
- Appropriate Drive Bits
- Rivet Gun (if needed)
- Jack
- Jack Stands
- 5/16" Boxed End Wrench

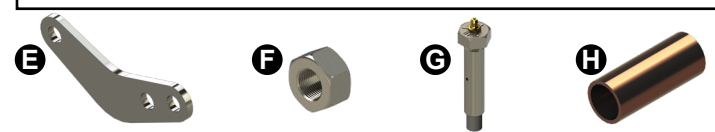
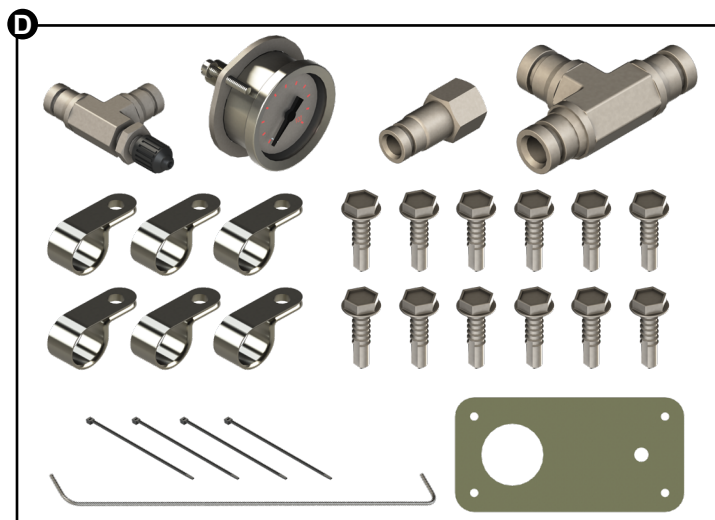
Parts List

NOTE: When installing the Center Point Triple Axle, 2 of the Tandem Axle part kits (A - 1565391) and 1 Triple Axle Bracket kit (I - 293058) will need to be installed.

Tandem Axle Kit

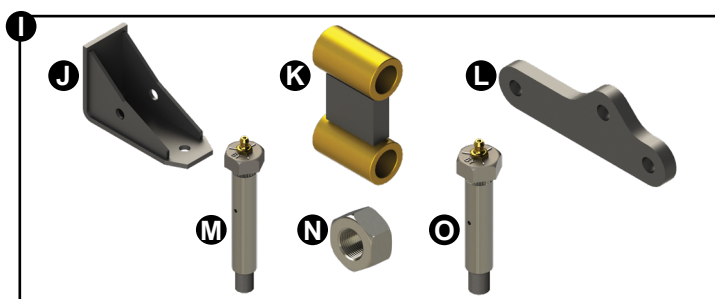


Letter	Part#	Description	Qty.
A	1565391	Center Point Tandem Axle Kit	(2)
B	155967 (1)	Center Point (Curbside)	1
C	155967	Center Point (Roadside)	1



Letter	Part#	Description	Qty.
D	156700	Pneumatic Kit	1
E	143937	Shackle 6.5" x 2.476"	8
F	129767	Flange Nut - 7/16" - 20	14
G	126238	Wet Shoulder Bolt - 3.24" X 9/16"	14
H	126171	Bronze Bushing	8

Triple Axle Bracket Kit



Letter	Part#	Description	Qty.
I	293058	Triple Bracket Kit	(1)
J	163567	Clamp Bracket	2
K	155976	Link Arm	2
L	150890	Plate - 7.380 X 2.5	4
M	126197	Shoulder Bolt 2.82" x 9/16"	6
N	129767	Flange Nut - 7/16" - 20	8
O	126238	Wet Shoulder Bolt 2.32" X 9/16"	2

Preparation

1. For a standard installation, the trailer must also come equipped with the standard center hanger shape (Fig.1A). The hanger may vary in dimension but it must be sized for a 1 3/4" leaf spring width, be at least 2.5" from the equalizer hole to the top of the hanger and be 3" wide or wider.

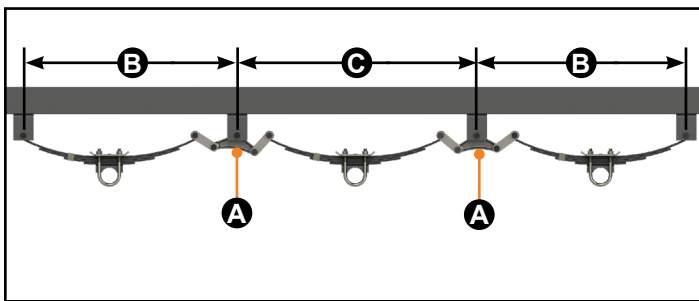


Fig.1

NOTE: If the trailer is not equipped with this style hanger, the old hanger must be removed and changed to a standard hanger before installation.

NOTE: The hangers must be spaced 29.5" from front to center and from center to rear (Fig. 1B) and spaced 33" between centers (Fig. 1C), or spaced 30.5" from front to center and from center to rear (Fig. 1B) and spaced 35" between centers (Fig. 1C).

⚠ WARNING

ENSURE THAT ANY POINTS OF CONTACT FOR THE STANDS DO NOT RESULT IN DAMAGE TO ANY PANELS OR LINES UNDER THE TRAILER. IMPROPER RAISING OR LOWERING OF THE TRAILER COULD RESULT IN DEATH, SERIOUS INJURY, OR DAMAGE TO THE TRAILER.

2. After safely jacking up the trailer to a level that ensures the tires are off the ground, properly position jack stands to support the trailer.

3. Remove the tires from the trailer. The suspension should be free from any loads, except its own weight at this point. Place another set of jack stands under the axles, very close to the u-bolt plates. This will provide support to the axles and ensure that they do not swing down during disassembly of the shackle components.

NOTE: Allowing the axles to drop could result in damage to the wiring for the electric brakes.

NOTE: Lippert recommends preparing and installing the rear set of equalizers curbside and roadside and then preparing and installing the front equalizers, curbside and roadside.

Rear Equalizer Preparation

1. With the trailer properly raised on jack stands and the axles properly supported by additional jack stands, remove the two shackle nuts (Fig.2A) on the shackle at the rear of the front spring of the axle, curbside or roadside.

NOTE: The bolts are pressed into the shackle plate and should not turn. However, use a properly-sized boxed end wrench to ensure the bolts do not turn during the disassembly of the nuts.

2. Once the nuts and the plate retained by the nuts are removed, slide the opposite side shackle plate out with the bolts still pressed into the plate. After removing the front spring's shackle at the equalizer, repeat the process for the shackle that mates the rear spring to the equalizer. Also, remove the nut on the cross bolt for the equalizer (Fig.2B). Again, the bolt may be pressed into the frame hanger and should not be allowed to rotate. Then remove the equalizer.

NOTE: Lippert recommends replacing the old bushings in the leaf spring eyes before installing the Center Point system. Sixteen replacement bushings are provided by Lippert, 8 for each side.

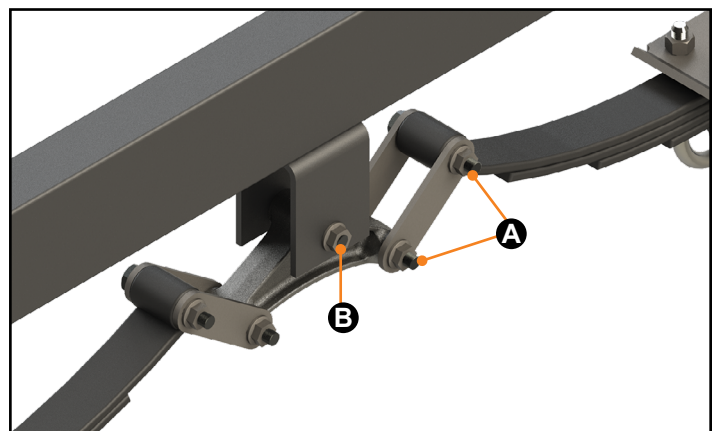


Fig.2

Center Point[®] Triple Axle Equalizer

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3. Before installing the Center Point system, it is necessary to prepare the Center Point equalizer for installation. Place the Center Point equalizer on a flat, hard surface.

4. There are a wide variety of equalizers being used throughout the industry. Due to the fact there are so many, it is normally necessary to replace the original shackles with longer ones. Lippert provides 4 sets of shackle plates, 4 shackle plates for each equalizer, that offer 2 different length settings as well as 28 replacement shackle bolts and 28 flanged nuts.

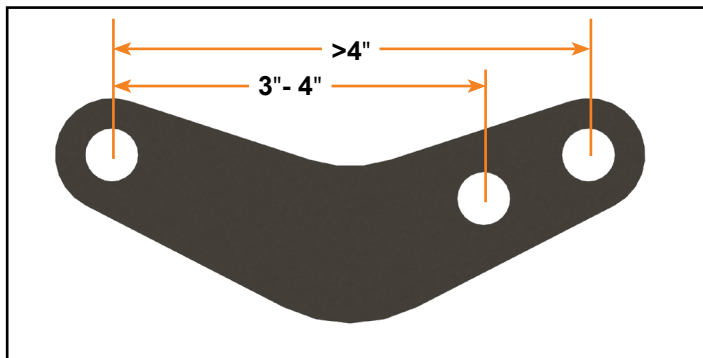


Fig.3

5. If the original shackle measures between 3" and 4", use the short set of holes on the replacement shackles (Fig.3). If the original shackle measures longer than 4", use the longer set of holes on the bracket (Fig.3).

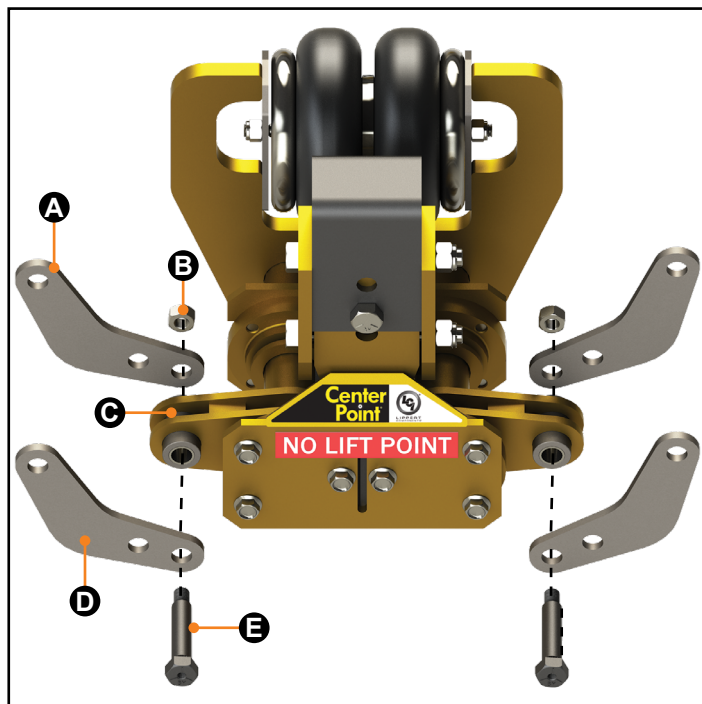


Fig.4

6. Starting on the left side of the assembly, dry fit one of the provided shackles (Fig. 4D) onto the front of the equalizer's cross-shaft shackle links (Fig.4C).

7. Insert the provided wet bolts (Fig. 4E) through the shackle and the cross shaft shackle links. Fit the back shackle (Fig. 4A) onto the assembly and finger tighten the flange nut (Fig. 4B) onto the wet bolt. Repeat this preparation process on the right side of the equalizer.

8. Repeat steps 1-7 for the other rear equalizer on the opposite side.

Front Equalizer Preparation

1. Repeat steps 1-5 as stated for the Rear Equalizer Preparation on the front (curbside and roadside) equalizers.

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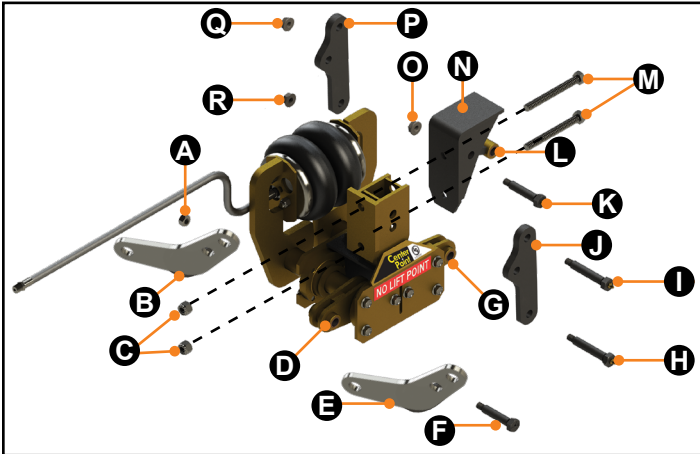


Fig.5

2. Working on the roadside front equalizer (Fig.5) starting on the left side of the assembly, dry fit one of the provided shackles (Fig.5E) onto the front of the equalizer's cross-shaft shackle links (Fig.5D). When working on the curbside front equalizer, start on the right side of the assembly to dry fit a shackle.

3. Insert the provided wet bolts (Fig.5F) through the shackle and the cross shaft shackle link. Fit the back shackle (Fig.5B) onto the back of the cross-shaft shackle links and finger tighten the flange nut (Fig.5A) onto the wet bolt.

4. Working on the roadside front equalizer, attach the Triple Axle Bracket Kit to the right-hand side of the Center Point assembly. When working on the curbside front equalizer, attach the Triple Axle Bracket kit to the left-hand side of the Center Point assembly.

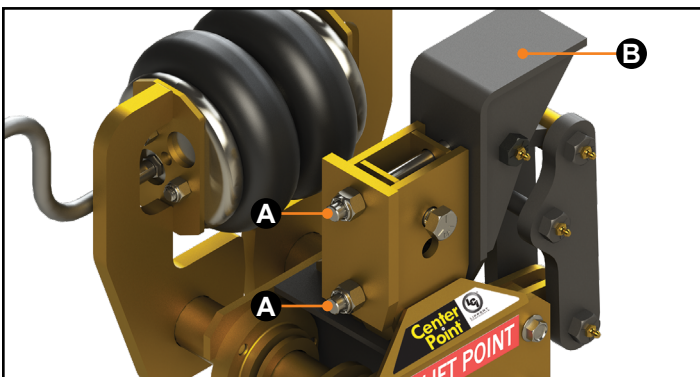


Fig.6

5. Remove the 2 bolts (Fig.6A) from the 4.50 X 2.50 plate. Set the plate aside and install the clamp bracket (Fig.6B) in the plate's place with the existing bolts and secure with the

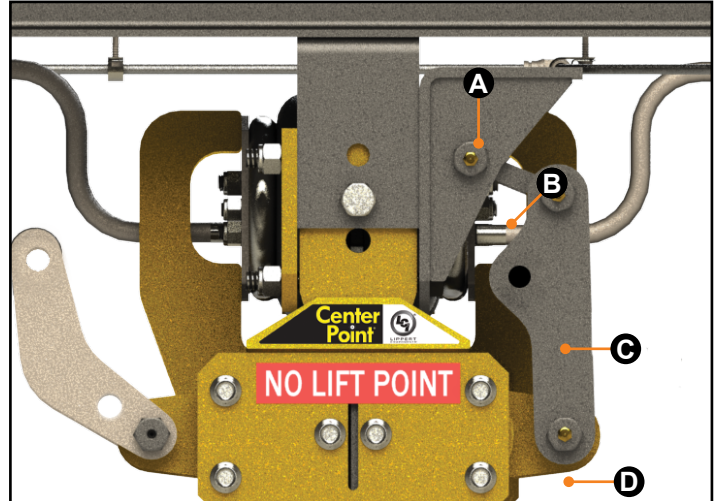


Fig.7
existing nuts.

6. Install the link arm (Fig.7B) into the middle of the clamp bracket (Fig.7A) with a 3.240 X 9/16" wet bolt (Fig.5K) and secure with a 7/16" - 20 nut (Fig.5Q).

7. Install 2 of the 7.380 X 2.5 plates (Fig.7C) onto the 2 sides of the lower part of the link arm (Fig.7B) at the top hole of the plate using an equalizer grease wet bolt (Fig.5I). Secure the wet bolt with a nut (Fig.5Q).

NOTE: Make sure that the straight side of the plate is facing out and the curved side of the plate is facing in toward the assembly.

8. Insert a wet bolt (Fig.5H) through the bottom hole of the plate (Fig.7D) into the cross shaft shackle link through the bottom hole of the back plate and secure with a nut (Fig.5R).

9. Repeat steps 1-8 for the other front side of the trailer.

10. The Center Point is now prepared for installation. Place the Center Point on a floor jack. It is suggested that a floor jack support the Center Point assembly during this operation. The floor jack allows mobility, along with an ease of slowly raising the Center Point into position to install the retaining cross bolt into the frame hanger.

Installation

Standard Hanger Installation

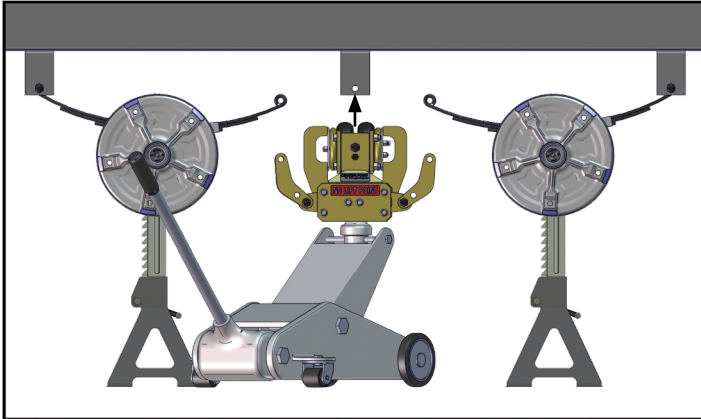


Fig.8

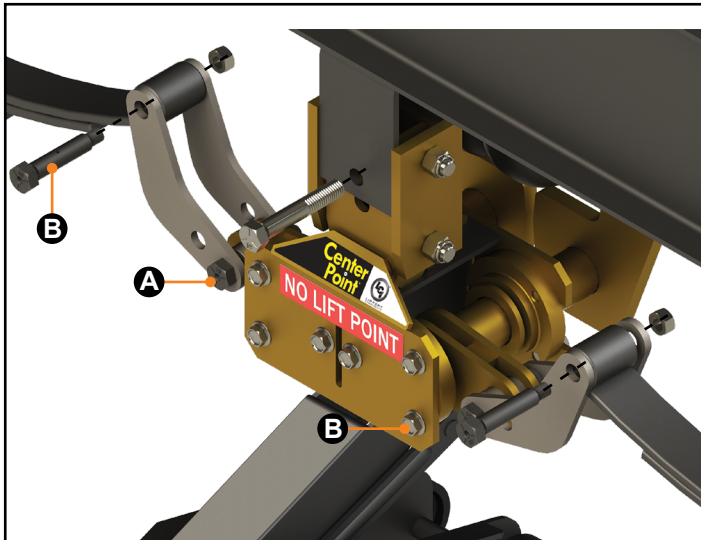


Fig.9

1. Starting on one side of the trailer in the rear, raise the equalizer to the frame hanger (Fig.8) and insert the cross shaft bolt (Fig. 9A).

NOTE: When inserting the cross shaft bolt, make certain that the Center Point air bags do not rub against the I-Beam or any part of the frame.

NOTE: Do not remove the jack until the Center Point is fully installed onto the frame.

NOTE: Installation may be made easier by jacking up the respective axle in order to relieve pressure and to make it easier to manipulate the leaf springs.

2. Thread the provided wet bolts through the top end of the shackle, through the leaf spring eyelet, and through the back shackle. The two bolts on the shackle plate will slide easily into the cross shaft shackle link, through the Center Point assembly and the spring eye. Place the other shackle plate on the inside and install the nuts to secure the shackle assembly (Fig.9B).

3. Tighten the side clamping plates on both sides of the hanger and equalizer.

4. Repeat steps 1-3 for the other rear side.

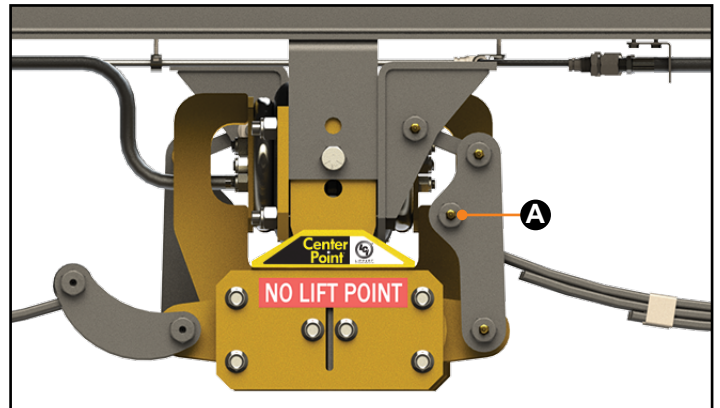


Fig.10

5. The front Center Point assemblies will be installed the same as rear except the side with the Triple Axle Bracket kit will have a wet bolt (Fig.10A) installed through the middle of the clamp bracket into the leaf spring eyelet and through the back of the other plate. Secure with a nut.

NOTE: Secure all shackle nuts and bolts to proper torque levels (30-50 ft-lbs).

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⚠ WARNING

DO NOT DRILL THROUGH ANY PANELS UNDER THE TRAILER UNTIL MAKING SURE THERE IS NOTHING THAT WILL BE DAMAGED.

Plumbing

Once all Center Point assemblies are installed onto the frame, the air supply lines must be routed. Before planning the air hose routing and placement, verify there are sufficient clearances for the air springs. The air springs already have the air hoses installed and only the loose ends need secured.

1. In order to ensure there is sufficient slack in the air hose, the clip placement is critical. The air spring will cycle forward and aft as much as 5" during the operation of the suspension in its reaction to extreme road conditions. Therefore, the clip must be secured on the inner frame rail flange with enough slack to allow the necessary movement. It must also be located so that the hose does not contact the air spring or any other moving parts of the suspension. There are 12 self-drilling, self-tapping screws provided to attach the clip, 1 per clip.
2. After carefully considering the placement and routing of the air lines to the desired location of the air gauge panel, the poly air lines may be installed. To assist in routing the poly air lines, there are 12 nylon clips, self-drilling/self-tapping screws and wire ties provided.

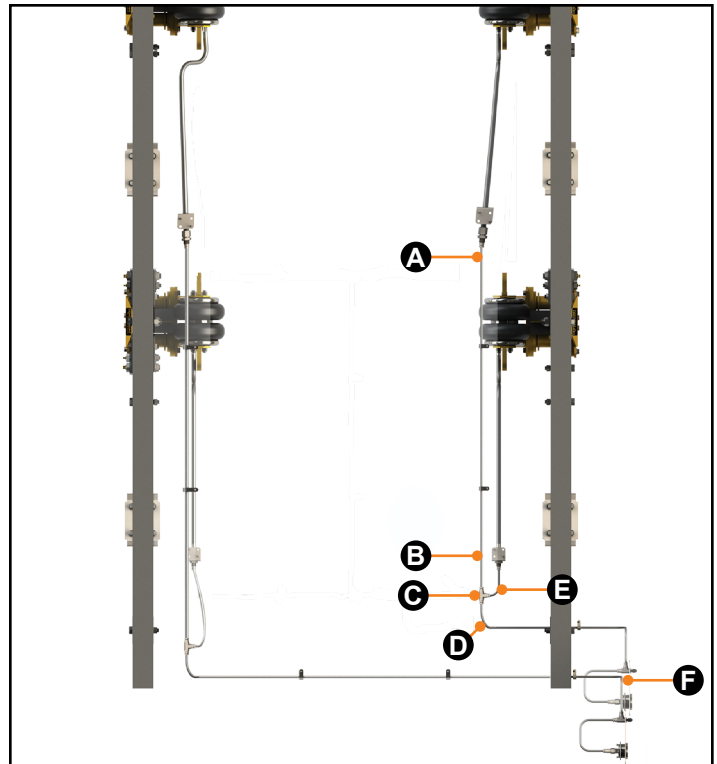


Fig.11

3. Starting on the roadside or curbside of the trailer run a poly air hose line from the end of the rear equalizer's air line (Fig.11A) parallel to the end of the front equalizer's air line (Fig.11B).
4. Attach a poly air line (Fig.11E) from the end of the front equalizer's air hose to a T-fitting (Fig.11C).
5. Connect the rear equalizer's air hose (Fig.11B) to the T-fitting.
6. Choose a location to run an air hose line (Fig.11D) from the T-fitting to the Air Gauge panel location (Fig.11F).

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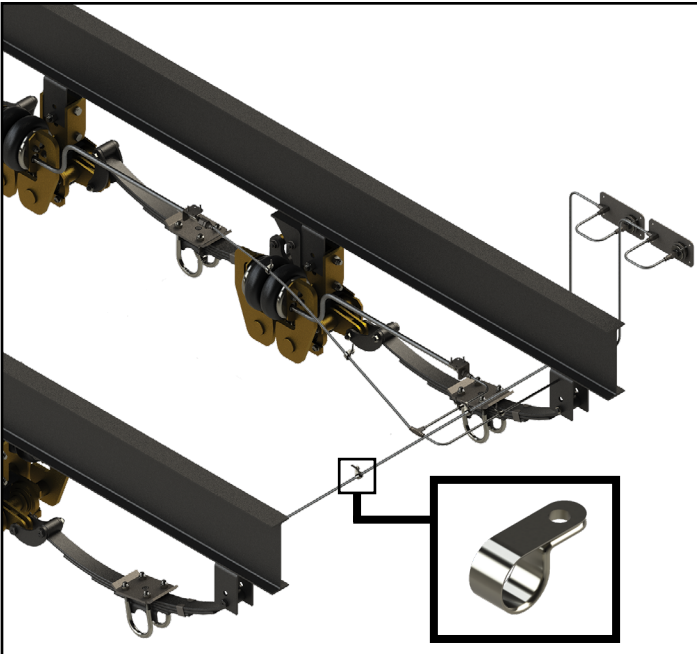


Fig.12

7. After choosing a sufficient location for the clips (**Fig.12**), use the self-tapping screws provided to attach the poly air hoses into the clips, to the inner frame rail flange.

8. Repeat steps 4-7 for the other side.

NOTE: All air lines are DOT-approved air brake quality suitable for commercial industry applications. The poly air lines must be cut square and true in order for these fittings to function properly and retain air pressure.

NOTE: There are holding tanks, water lines and possibly gas lines all mounted within the frame rails of a trailer.

Panel Application

The choice of the location of the ² air gauge panels is up to the owner/dealer/installer. Lippert makes no recommendations other than to place both air gauges where they will not inhibit the operation of the system and will provide an opportunity to visually check the system pressure easily. External mounting is the preferred method of Lippert, however, the owner may prefer mounting within a compartment. The assembly consists of the panel mount plate, the air pressure gauge with female connector, and the access fill valve.

1. Carefully check to ensure there are no obstacles or any components that may incur damage while cutting holes, routing the poly air lines or mounting the panel mount plate.

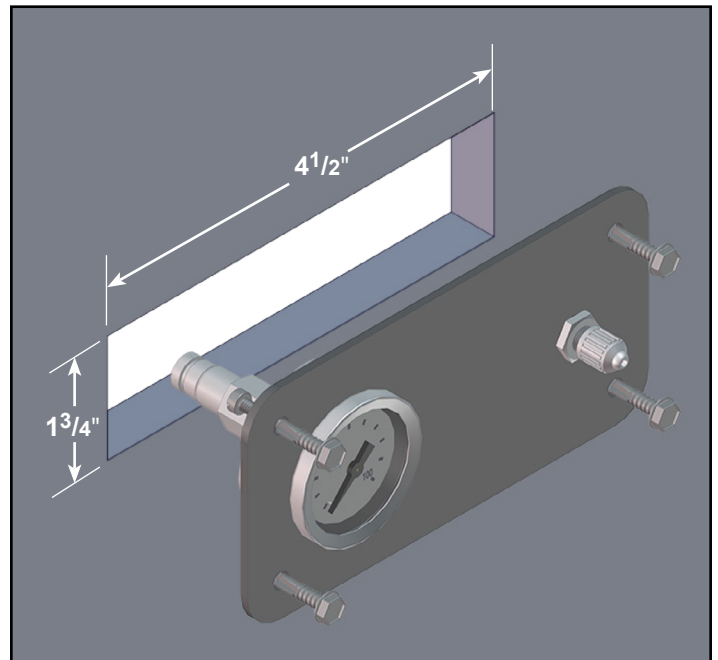


Fig.13

2. Determine the location of the assembly and, with a suitable tool, cut a 4 1/2"x1 3/4" opening for the air gauge and the fill valve (**Fig.13**).

3. Place the assembly into the opening, level and square the assembly, and mark the four hole locations to mount the panel.

4. Install the assembly using 4 self-tapping screws through the holes in the panel.

5. Repeat steps 1-4 for the other air gauge panel.

NOTE: Air pressure levels should be 2.5 psi per 1,000 pounds of trailer weight at 70 degrees ambient temperature. This will vary according to individual personal belongings and effects the owner wishes to place in the trailer.

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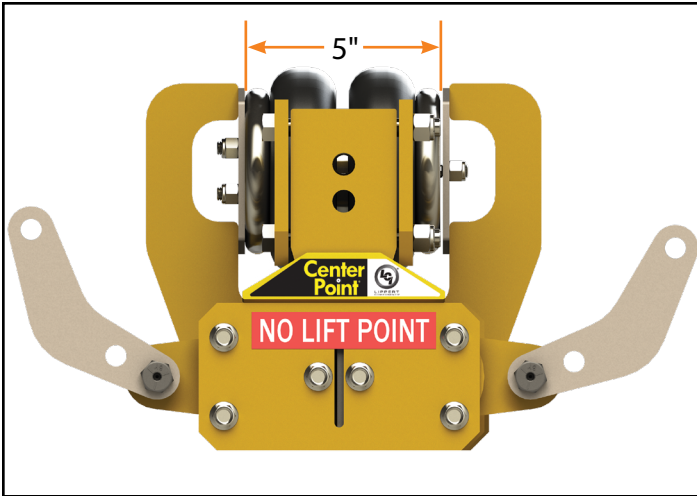


Fig.14

NOTE: The easiest way to determine proper air pressure needed is to inflate until plates are parallel, or there is 5" between them (Fig.14).

NOTE: Once a satisfactory air pressure (yielding a compliant ride for the trailer) is established, the air pressure gauge will allow quick and easy verification of operating pressure levels. Always make sure the fill valve cap is secure so the seal in the cap will function properly and assist in sealing the system. Keep in mind that 3 natural factors will affect the air pressure in a self-contained air system.

NOTE: The following conditions will cause the air pressure reading in the gauge to fluctuate more than 2-3 psi up or down from the conditions the trailer is set at upon installation:

- A.** A change in altitude of 3,000 to 4,000 feet or more.
- B.** A change in temperature of 50 degrees or more.
- C.** 500 pounds or more of weight differential.

If one or more of these conditions change for a prolonged period after the initial installation, an adjustment to the air pressure may be required. If these are temporary fluctuations, changes in the air pressure are most likely not needed.

NOTE: Once the trailer is moved, the air spring may return to a position other than centered. This is not abnormal. It only illustrates the fact that the axles are reacting to torque of acceleration, deceleration or turning input. The only way to return to an absolute centered position of the air spring is to lift the trailer and allow the axles to seek a neutral condition, having no residual torque input.





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Notes



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