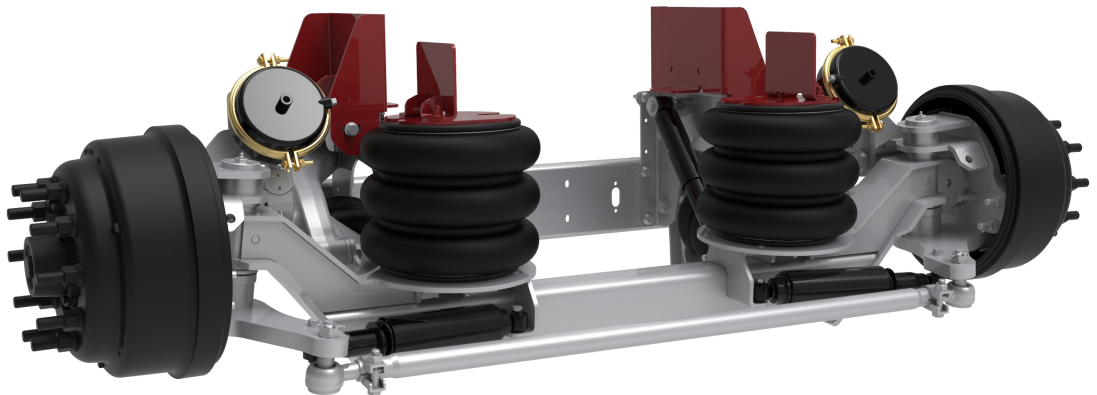


**LINK**® | **Auxiliary  
Suspensions**

# INSTALLATION INSTRUCTIONS

**20K Auxiliary Suspension**  
20,000 LBS. CAPACITY



Link Mfg. Ltd.  
223 15th St. N.E.  
Sioux Center, IA USA  
51250-2120  
[www.linkmfg.com](http://www.linkmfg.com)

**QUESTIONS?  
CALL CUSTOMER  
SERVICE  
1-800-222-6283**

Refer to separate Owner's Manual for details regarding operation and maintenance.

80003649  
JUL 19, 2019

**IMPORTANT:** IT IS IMPORTANT THAT THE ENTIRE INSTALLATION INSTRUCTIONS BE READ THOROUGHLY BEFORE PROCEEDING WITH SUSPENSION INSTALLATION.






## 1. INTRODUCTION

Thank you for choosing a Link 20K Auxiliary Suspension. We want to help you get the best results from this suspension and to operate it safely. This manual contains information to introduce you to the Link 20K Auxiliary Suspension and to assist you with its installation. This manual is intended solely for use with this product.

All information in this manual is based on the latest information available at the time of printing. Link Manufacturing reserves the right to change its products or manuals at any time without notice.

Damaged components should be returned to Link with a pre-arranged Returned Materials Authorization (RMA) number through the Customer Service Department. The damaged component may then be replaced if in compliance with warranty conditions.

## 2. SAFETY SYMBOLS, TORQUE SYMBOL, and NOTES

 <b>DANGER</b>	<b>DANGER</b> indicates a hazardous situation which if not avoided, will result in death or serious injury.
 <b>WARNING</b>	<b>WARNING</b> indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 <b>CAUTION</b>	<b>CAUTION</b> indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.
 <b>NOTICE</b>	<b>NOTICE</b> indicates a potentially hazardous situation which, if not avoided, may result in property damage.
 <b>TORQUE</b>	<b>TORQUE</b> indicates named fasteners are to be tightened to a specified torque value.
<b>NOTE:</b>	A Note provides information or suggestions that help you correctly perform a task.

## 3. SAFE WORKING PRACTICES:

### 3.1 **CAUTION**

When handling parts, wear appropriate gloves, eyeglasses, ear protection, and other safety equipment.

### 3.2 **CAUTION**

Practice safe lifting procedures. Consider size, shape, and weight of assemblies. Obtain help or the assistance of a crane when lifting heavy assemblies. Make certain the path of travel is clear.

## 4. INSTALLATION GUIDELINES

**4.1** In order for this suspension to operate properly, it must operate in the parameters specified by Link.

**4.2** The installer must verify the vehicle is configured properly for the lift axle(s) being added.

**4.3** It is the responsibility of the installer to determine the location of the suspension in order to obtain proper load distribution.

**4.4** Suspension Identification: Each assembly has an identification label located on the hanger of the suspension on the drivers side of the vehicle. The label includes the Link part number for the axle and the suspension serial number.

**4.5** No alterations of any Link suspension component is permitted without proper authorization from qualified Link personnel.

**4.6** No welding of any suspension components is permitted except when specified by Link.

### 4.7 **CAUTION**

The vehicle manufacturer should be consulted before any modifications are made to the frame of the vehicle. Cutting or altering the frame in certain areas may affect the manufacturer's warranty.

### 4.8 **WARNING**

It is the responsibility of the installer to ensure that compliance with FMVSS 121 is maintained by the braking system.

### 4.9 **CAUTION**

Proper tightening of fasteners is important to the performance and safety of the suspension. Follow all torque specifications throughout the instructions.

## 5. PRE-INSTALLATION CHECKLIST

- Verify that the intended axle spacing to be used conforms to Federal and local bridge laws.
- Verify that the frame width matches the suspension specifications (33 3/8" to 35").
- Verify that adequate air supply exists to support braking requirements for the lift axle being installed.
- Verify clearance between the drive shaft and the auxiliary suspension, with the axle lifted.
- Verify tire clearance in all directions, with the axle lifted.
- Verify air spring clearance in all directions, with the axle lifted and lowered.
- Verify suspension clearance with truck components, with the axle lifted and lowered.

## 6. RIDE HEIGHT AND FRAME ACCOMMODATIONS FOR LINK 20K AUXILIARY SUSPENSION

### 6.1 **NOTICE**

In order for the suspension to function properly, the "Ride Height" of the suspension must be within the range specified by Link Mfg. Refer to the charts on the following pages to select the correct frame kit based on the combination of variables present in your truck's configuration.

**6.2** To determine the appropriate Frame Mount Kit use the formula below and then refer to the Lift Chart.

$$\text{Loaded Frame Height} - \text{Loaded Tire Radius} = \text{Ride Height}$$

**6.3** With the correct chart, the amount of lift can be found by intersecting the Loaded Tire Radius with the Loaded Frame Height.

**NOTE:** When measuring frame to ground clearance, be sure to measure with vehicle loaded, at the intended suspension location and on level ground.

## 7. FRAME BRACKET KITS:

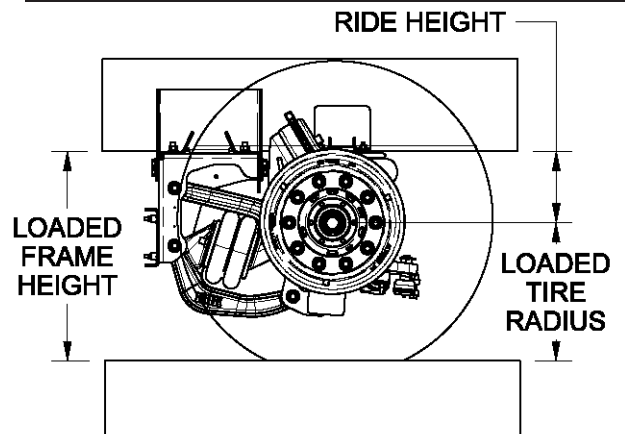
There are 6 frame bracket kits available to allow for a wide range of ride heights and mounting requirements. See the pictures and charts on the following pages for details on Loaded Tire Radius and Suspension Lift.

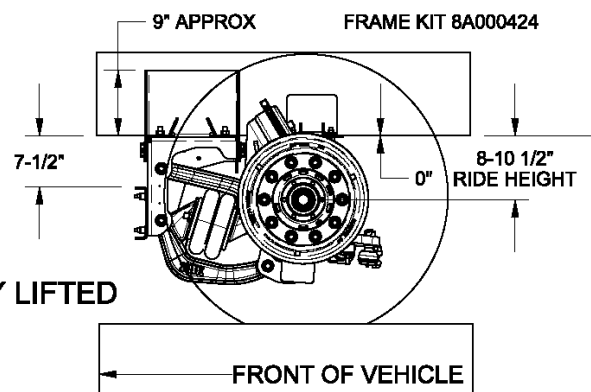
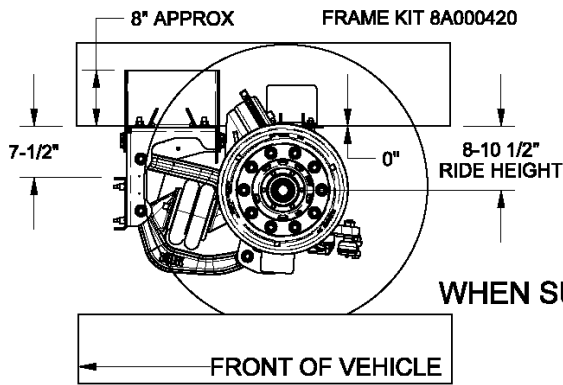
8A000420-22 are standard height mounting kits. These kits are designed primarily for use in configurations where additional equipment may need to be bolted to the truck frame above the mounting brackets. From the bottom of the truck frame to the top of the bracket, approximately 8 inches of clear space is required.

8A000424-26 are tall height mounting kits. These kits are designed for configurations where additional equipment is not bolted to the truck frame above the brackets. From the bottom of the truck frame to the top of the bracket, approximately 9 inches of clear space is required.

NOTE: Greyed out table not typically used for 20K applications.

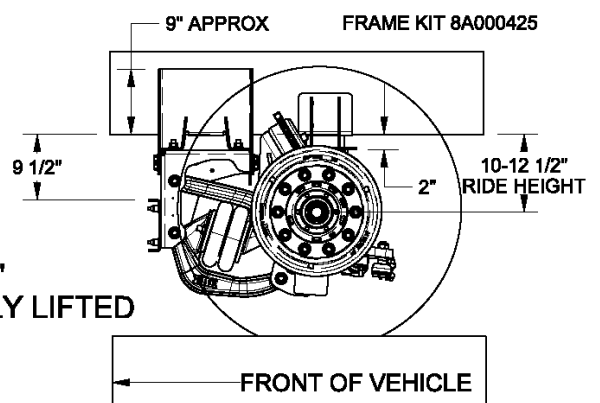
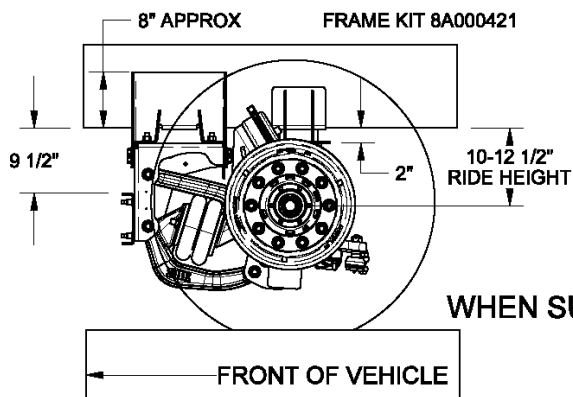
TUBE TYPE	TUBELESS	ISO (METRIC)	LOADED TIRE RADIUS	DIAMETER
8.25R20	9R22.5	255/80R22.5	18	38.4
		265/75R22.5	18	38.2
		295/70R22.5	18.2	38.7
9.00R20	10R22.5	295/75R22.5	18.5	40.2
		275/80R22.5	19	40.4
	11R22.5	295/80R22.5	19.5	41.9
10.00R20		445/65R19.5	19.5	42.6
		285/75R24.5	19.5	42.7
		315/80R22.5	19.9	42.8
		385/65R22.5	19.5	42.3
11.00R20		275/80R24.5	19.5	41.3
10.00R22	12R22.5		20	42.8
12.00R20	13R22.5	425/65R22.5	20.5	44.5
11.00R22	11R24.5		20.5	44
12.00R22	12R24.5	445/65R22.5	21	45
13.00R20			21.5	46
11.00R24	13R24.5		21.5	46.3
12.00R24			22	47.6





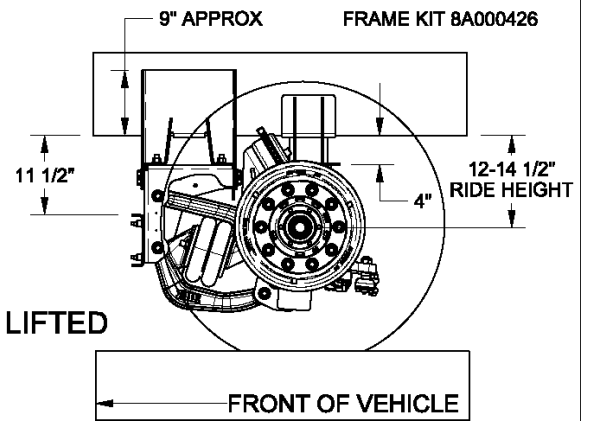
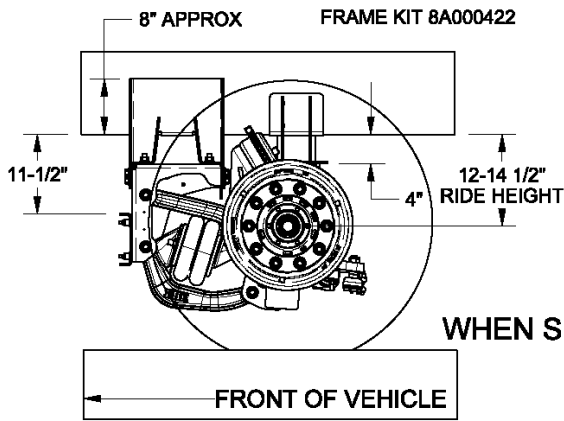
**AXLE DRIVE LINE  
CLEARANCE - 6 1/2"  
WHEN SUSPENSION IS FULLY LIFTED**

20K LIFT CHART	RIDE HEIGHT 203mm-267mm / 8.0in - 10.5in (FRAME MOUNT KIT 8A000420 OR 8A000424)													
LOADED FRAME HEIGHT	660mm 26.0in	673mm 26.5in	686mm 27.0in	699mm 27.5in	711mm 28.0in	724mm 28.5in	737mm 29.0in	749mm 29.5in	762mm 30.0in	775mm 30.5in	787mm 31.0in	800mm 31.5in	813mm 32.0in	826mm 32.5in
TIRE RADIUS														
18 (LOADED)	178mm 7.0in	191mm 7.5in	203mm 8.0in	216mm 8.5in	229mm 9.0in	241mm 9.5in								
19 (LOADED)			178mm 7.0in	191mm 7.5in	203mm 8.0in	216mm 8.5in	229mm 9.0in	241mm 9.5in						
20 (LOADED)					178mm 7.0in	191mm 7.5in	203mm 8.0in	216mm 8.5in	229mm 9.0in	241mm 9.5in				
21 (LOADED)							178mm 7.0in	191mm 7.5in	203mm 8.0in	216mm 8.5in	229mm 9.0in	241mm 9.5in		
22 (LOADED)									178mm 7.0in	191mm 7.5in	203mm 8.0in	216mm 8.5in	229mm 9.0in	241mm 9.5in



**AXLE DRIVE LINE  
CLEARANCE - 8 1/2"  
WHEN SUSPENSION IS FULLY LIFTED**

20K LIFT CHART	RIDE HEIGHT 254mm-318mm / 10.0in - 12.5in (FRAME MOUNT KIT 8A000421 OR 8A000425)													
LOADED FRAME HEIGHT	711mm 28.0in	724mm 28.5in	737mm 29.0in	749mm 29.5in	762mm 30.0in	775mm 30.5in	787mm 31.0in	800mm 31.5in	813mm 32.0in	826mm 32.5in	838mm 33.0in	851mm 33.5in	813mm 32.0in	826mm 32.5in
TIRE RADIUS														
18 (LOADED)	178mm 7.0in	191mm 7.5in	203mm 8.0in	216mm 8.5in	229mm 9.0in	241mm 9.5in								
19 (LOADED)			178mm 7.0in	191mm 7.5in	203mm 8.0in	216mm 8.5in	229mm 9.0in	241mm 9.5in						
20 (LOADED)					178mm 7.0in	191mm 7.5in	203mm 8.0in	216mm 8.5in	229mm 9.0in	241mm 9.5in				
21 (LOADED)							178mm 7.0in	191mm 7.5in	203mm 8.0in	216mm 8.5in	229mm 9.0in	241mm 9.5in		
22 (LOADED)									178mm 7.0in	191mm 7.5in	203mm 8.0in	216mm 8.5in	229mm 9.0in	241mm 9.5in



AXLE DRIVE LINE  
CLEARANCE - 10 1/2"  
WHEN SUSPENSION IS FULLY LIFTED

20K LIFT CHART	RIDE HEIGHT 305mm-368mm / 12.0in - 14.5in (FRAME MOUNT KIT 8A000422 OR 8A000426)													
LOADED FRAME HEIGHT	762mm 30.0in	775mm 30.5in	787mm 31.0in	800mm 31.5in	813mm 32.0in	826mm 32.5in	838mm 33.0in	851mm 33.5in	864mm 34.0in	876mm 34.5in	889mm 35.0in	902mm 35.5in	813mm 32.0in	826mm 32.5in
TIRE RADIUS														
18 (LOADED)	178mm 7.0in	191mm 7.5in	203mm 8.0in	216mm 8.5in	229mm 9.0in	241mm 9.5in								
19 (LOADED)			178mm 7.0in	191mm 7.5in	203mm 8.0in	216mm 8.5in	229mm 9.0in	241mm 9.5in						
20 (LOADED)					178mm 7.0in	191mm 7.5in	203mm 8.0in	216mm 8.5in	229mm 9.0in	241mm 9.5in				
21 (LOADED)							178mm 7.0in	191mm 7.5in	203mm 8.0in	216mm 8.5in	229mm 9.0in	241mm 9.5in		
22 (LOADED)									178mm 7.0in	191mm 7.5in	203mm 8.0in	216mm 8.5in	229mm 9.0in	241mm 9.5in

## 8. SUSPENSION LOCATION

**8.1** Before determining the suspension location, thoroughly review the pre-installation checklist found in Section 5 of this manual. Be sure that the vehicle is located on a flat and level surface before measuring for suspension location. When this is complete, mark the suspension location and boundaries on the truck frame rails. (See below for details). Contact Link Application Specialists for answers to any additional questions.

**8.2** Prior to suspension installation, any interference with existing frame bolts or brackets should be addressed. If any modification to the auxiliary suspension is needed, you should consult Link.

**NOTE:** Truck frame cross-members should be located at or near the front frame brackets.

**NOTE:** For purposes of increased weight carrying capacity or better weight distribution, these dimensional distances may be increased but never decreased less than the specified minimum distance between references.

## 9. SUSPENSION INSTALLATION

**9.1** With the suspension location determined, clamp the front and rear frame brackets to the truck frame rails.

**NOTICE** The mounting surfaces of the auxiliary suspension brackets must be tight against the sides and the bottom of the truck frame rails.

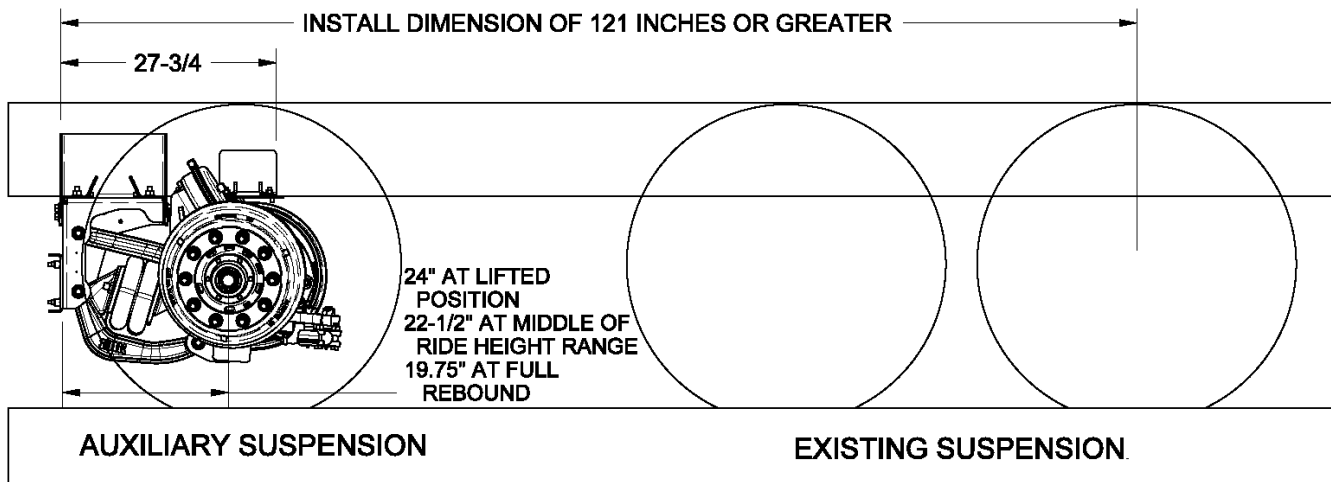
**9.2** Double check the suspension location and check for any interference concerns. Also, check that drilling will not interfere with any brake, fuel, or air lines, wiring or other components that might be located on the inside of the frame.

**9.3** Once the frame brackets are clamped tightly to the outside and bottom surfaces of the truck frame, check all clearance issues and then center punch all mount holes. (See Fig. 3 for recommended mount hole location.)

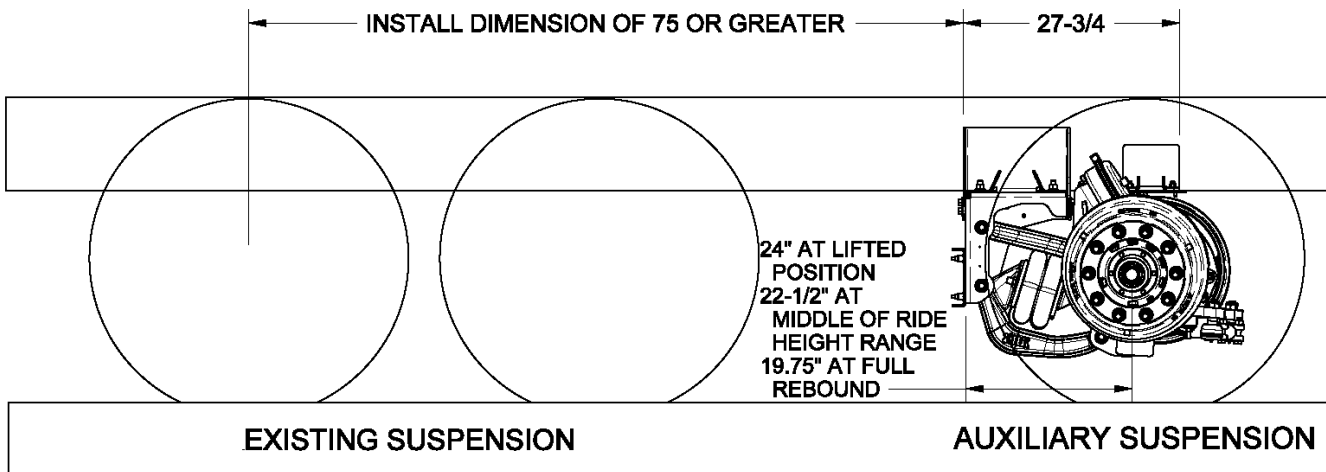
**9.4** With mount holes marked, drill 21/32" diameter holes at hole locations.

**9.5** Fasten frame brackets to the frame rail with

### PUSHER CONFIGURATION



### TAG CONFIGURATION



a 5/8" GRADE G PREVAILING TORQUE HEX FLANGE NUTS (not supplied, available with optional installation kit 800A0032 or 800A0305).

**TORQUE 5/8" fasteners to 170-236 FT-LBS.**

9.6 Assemble the suspension to the front frame brackets using the provided mounting hardware (See Fig. 4 for fastener detail).

**NOTE:** Center the suspension on the truck using the profile notches on the hanger as a visual indicator (See Fig. 4).

**TORQUE M16 fasteners to 200-235 FT-LBS.**

9.7 Assemble the load springs to rear frame brackets using the M10x1.50 load spring upper bolts (See Fig. 6 and Fig. 7 for fastener detail).

**TORQUE M10 fasteners to 20-30 FT-LBS.**

**10. STEERING STOP ADJUSTMENT**

10.1 The Steering Stop Screw is preset for maximum steer angle available without bottoming the steering shock absorber. The steering radius can be reduced to avoid tire contact with other parts of the vehicle by loosening the jam nut and turning out the steering stop screw (see Fig. 5).

10.2 After adjustment, tighten 5/8" jam nut.

**TORQUE 5/8" jam nut to 45-60 FT-LBS**

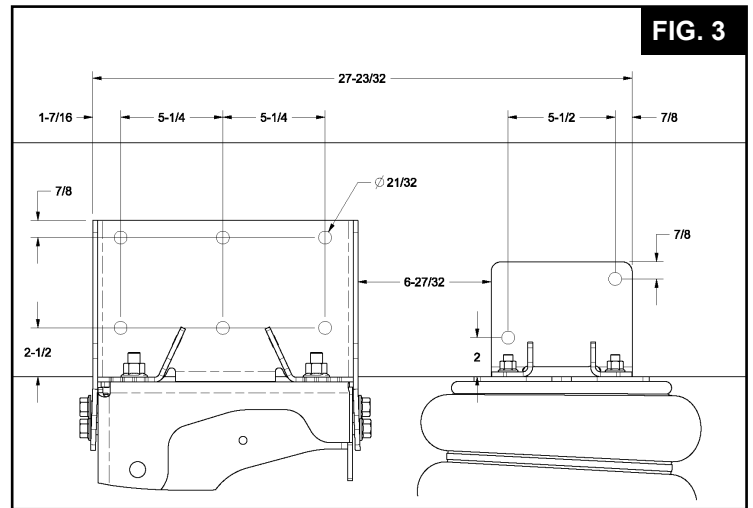
**11. PLUMBING**

11.1 Refer to the installation instructions that came with your chosen air control kit.

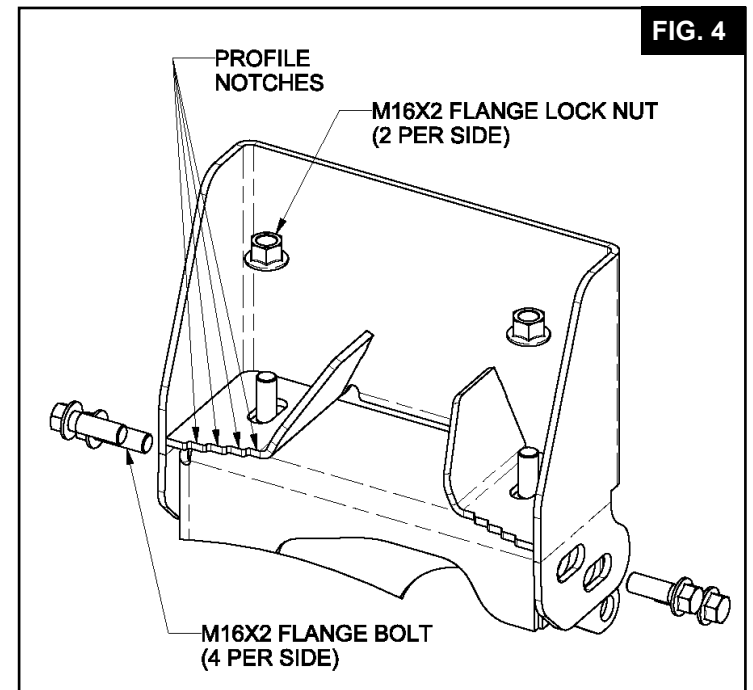
11.2 Suspensions are shipped from the manufacturer with the load springs oriented for in-board plumbing. To change the orientation to outboard, remove the lower stud fasteners beneath the load springs, rotate the air springs 180 degrees, and re install stud fasteners (See Fig. 6 and Fig. 7 for fastener detail).

**TORQUE M12 fasteners to 20-30 FT-LBS.**

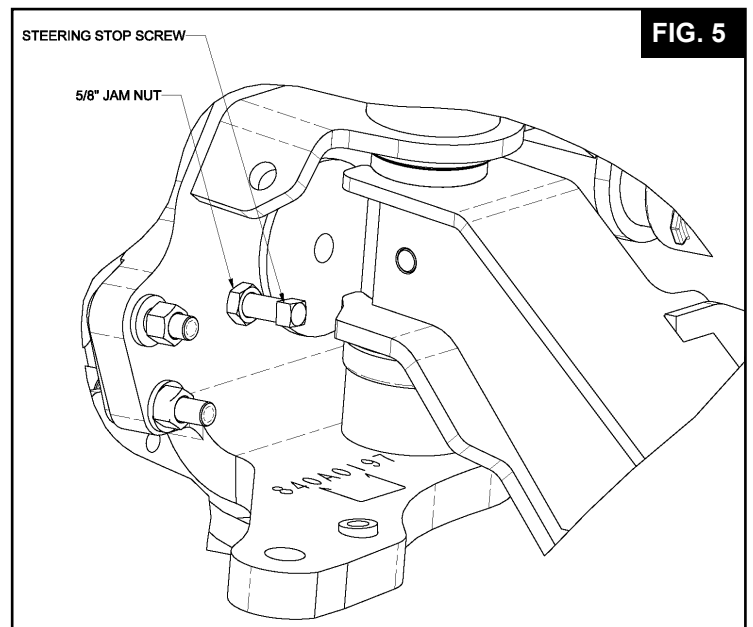
**NOTE:** Contact Link for available air control options.



**FIG. 3**



**FIG. 4**



**FIG. 5**

FIG. 7

### 8A000420 / 8A000424 KITS

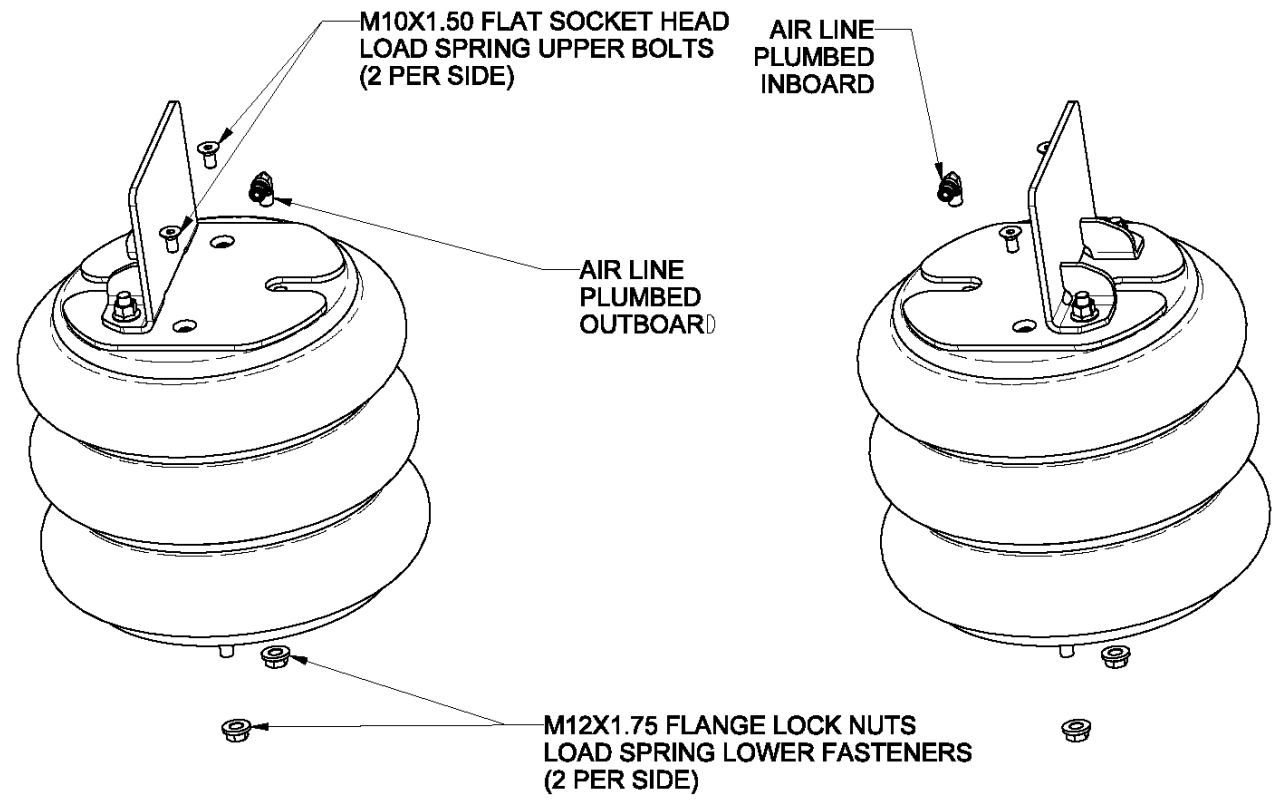
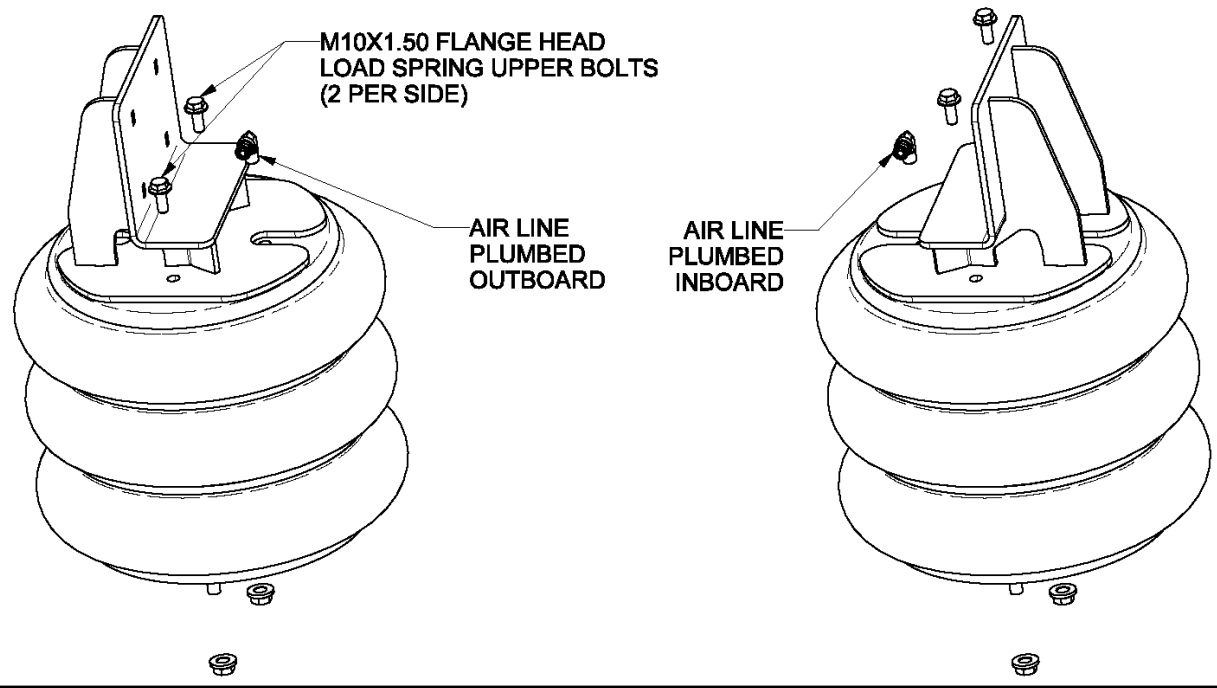


FIG. 8

### 8A000421 / 8A000425 KITS 8A000422 / 8A000426 KITS 8A000423 / 8A000427 KITS





## 12. FINAL ASSEMBLY AND INSPECTION CHECKLIST

\_\_\_\_ Are all fasteners installed and tightened to proper torque specifications? **NOTE:** All fastener torque specifications are given for dry fasteners with no additional lubrication required.

\_\_\_\_ Are all wheel lug nuts tightened to recommended torque specifications?

\_\_\_\_ Has the air control installation been completed, checked for leaks, and operating properly?

\_\_\_\_ Has the suspension been raised, lowered, and inspected for any interference between the auxiliary suspension and any truck components?

\_\_\_\_ Are brakes and slack adjusters properly set, and

the wheels are free to rotate?

\_\_\_\_ Are wheel hubs sufficiently filled with the manufacturer's specified lubricant? (SAE 80W-90 Mineral based)?

\_\_\_\_ **Is the TOE-IN set properly ( $1/8$  +/-  $1/16$  measured at the tire centers)?**

\_\_\_\_ Verify the steering knuckles come into contact with the stop bolts before the tires interfere with any other truck components.

**NOTICE** With the vehicle unloaded, the auxiliary axle's ride springs must be limited to a maximum of 20 psi to avoid improper weight distribution or component damage.

Refer to separate Owner's Manual for details regarding operation and maintenance.



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1-800-222-6283 [www.linkmfg.com](http://www.linkmfg.com)