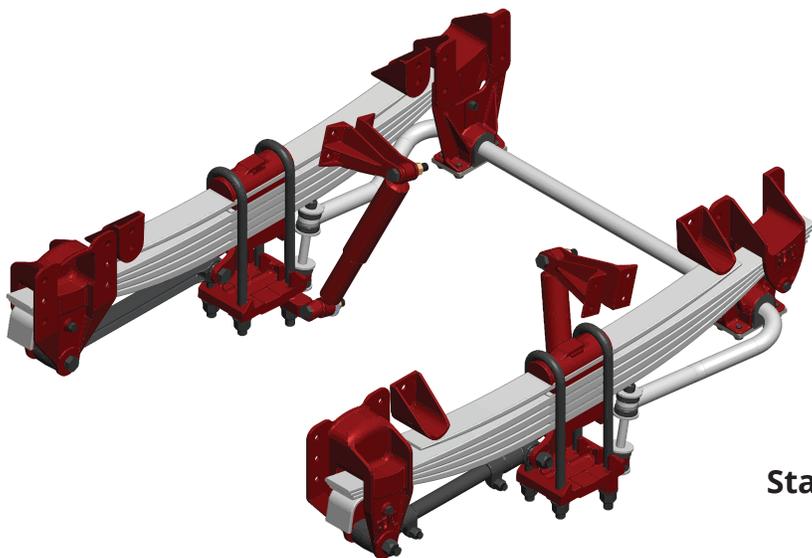


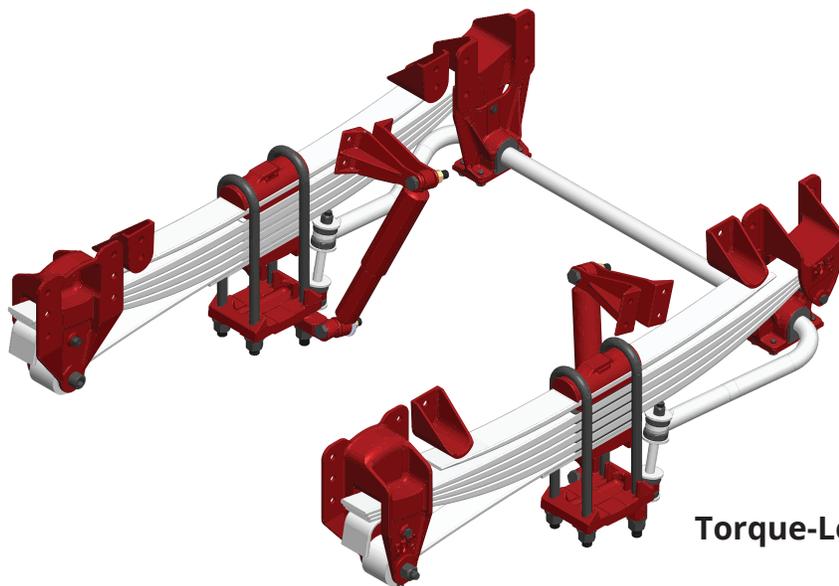
Powered Vehicle Suspensions

Model 79KB

Installation Instructions
Maintenance Instructions
Service Parts



Standard



Torque-Leaf (ADB)

Reyco Granning Suspensions
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Revision: B
Revision Date: 07/2019

Installation Instructions Model 79KB

COMPANY PROFILE

Reyco Granning Suspensions was formed by the merger and acquisition of two well-known names in the heavy duty vehicle suspension industry - Reyco and Granning.

Reyco grew out of the Reynolds Mfg. Co and was first known as a major supplier of brake drums for heavy duty vehicles and later developed a full line of air and steel-spring suspensions for trucks, buses, trailers, and motorhomes.

Granning Air Suspensions was founded in 1949 in Detroit, Michigan as a manufacturer of auxiliary lift axle suspensions for the motorhome industry.

Reyco Granning LLC was formed in early 2011 through a partnering of senior managers and MAT Capital, a private investment group headquartered in Long Grove, Illinois.

Reyco Granning manufacturing facilities are certified to the ISO 9001:2008 standards, a globally-recognized assurance that quality standards have been established and are maintained by regular rigorous audits.

- SAFETY PROCEDURES & INFORMATION |-----○ i.2
 - Safety First |-----○ i.2
 - Operator Safety |-----○ i.2
 - Lifting |-----○ i.2
 - Parts Handling |-----○ i.2
 - Welding |-----○ i.2
 - Suspension Safety |-----○ i.3
 - Overloading the Suspension |-----○ i.3
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- SUSPENSION INFORMATION |-----○ i.4

- SUSPENSION INSTALLATION |-----○ i.5

- INSTALLATION OF SUSPENSION OPTIONS |-----○ i.10

- JOUNCE STOP OPTION |-----○ i.12

- SUSPENSION ALIGNMENT PROCESS |-----○ i.13

SAFETY FIRST

Be sure to read and follow all installation and maintenance procedures.

OPERATOR SAFETY

Lifting

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



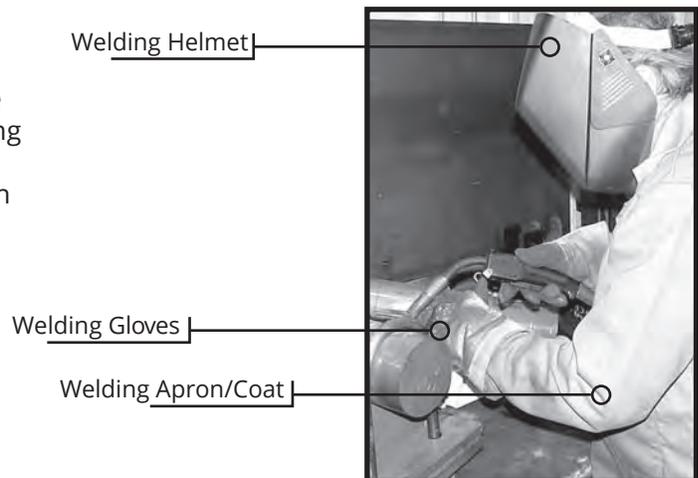
Parts Handling

When handling parts, wear appropriate gloves, eyeglasses and other safety equipment to prevent serious injury.

Welding

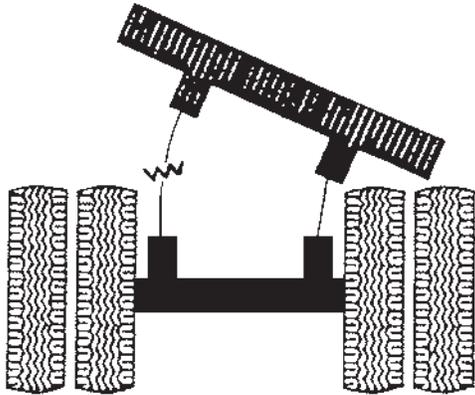
When welding, be sure to wear all personal protective equipment for face and eyes, and have adequate ventilation. When welding, protect spring beams and air springs from weld spatter and grinder sparks. Do not attach "ground" connection to springs.

Under normal use, steel presents few health hazards. Prolonged or repeated breathing of iron oxide fumes produced during welding may cause siderosis.



SUSPENSION SAFETY

 **WARNING**



Overloading the suspension

Overloading is the practice of transporting cargos that surpass the specified vehicle's ratings. Overloading can cause component failure, resulting in accidents and injuries.



This symbol indicates to the reader to use caution when seen and to follow specific requirements or warnings stated.

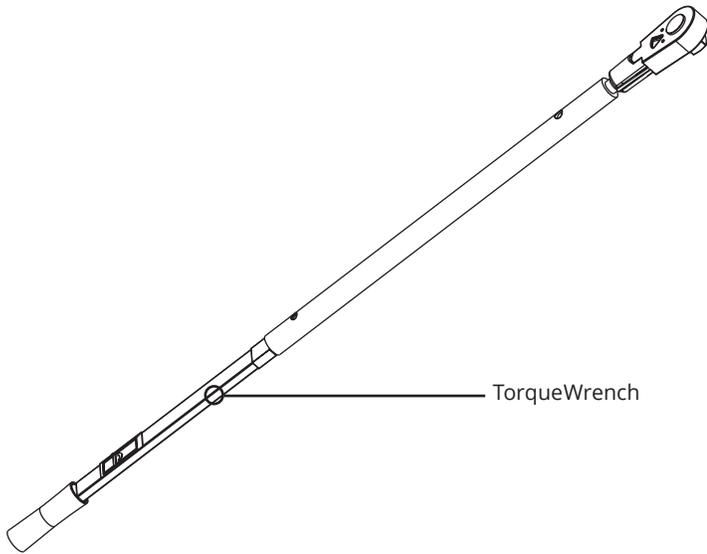


CAUTION: Specific torque requirements are recommended.

Torque

Proper tightening of the U-bolt nuts and alignment bolts are high priority items. A fastener system is considered "loose" any time the torque is found below required values. Failure to maintain the specified torque and to replace worn parts can cause component failure resulting in accident with consequent injury.

NOTE: It is extremely important after the first 1,000 to 3,000 loaded miles (1,600 - 4,800 kms) of operation, and with each annual inspection thereafter, that all of the bolt and nut tightening recommendations be followed. Any loose fasteners must be retorqued to comply with warranty requirements and to ensure long, trouble-free performance.



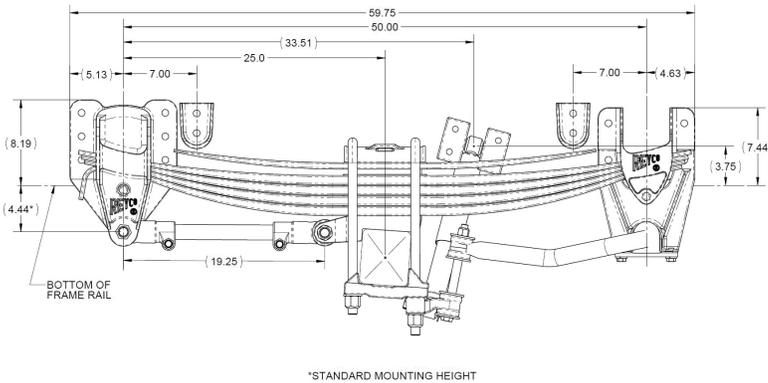
Reyco Granning Model 79KB was designed to provide years of trouble free service, regardless of the vocation of your vehicle. Incorporating the intrinsic strength of cast hangers and close tolerance cast machined axle seats, you will find that the 79KB will reduce your costly suspension maintenance. Available with parabolic or flat-leaf springs in standard or torque-leaf variations. Additional options include an anti-sway bar, shock absorbers, auxiliary jounce stops, and premium urethane bushings. The 79KB can also be tailored to fit specific customer needs. Ultimately, the Model 79KB was designed to meet customer requirements and provide total customer satisfaction.

*Standard ride heights given depend on specific spring, axle and hanger height combination. Non-standard ride heights are available, please contact Reyco Granning for details.

**Ground loads above 31,000 lbs require the use of extreme duty torque arms and urethane bushings.

MODEL 79KB SINGLE AXLE SPECIFICATIONS AND OPTIONS

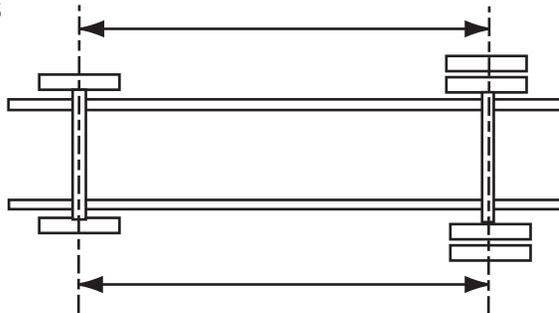
Configuration	4x2, 4x2 with Pushers and/or Tags			
Ride Heights*	6.9" - 13.3"			
Pinion Angles	Reyco Granning provides current angles, & reverse angle for rear engine applications.			
Axle Alignment	Achieved with either adjustable torque arms, rigid torque arms and eccentric bushings, or torque-leaf springs and eccentric bushings.			
Frame Rail Length	59.75"			
Weight (Base Model)	407 lbs (with 4 leaf spring)			
	Reyco Granning springs are designed to provide smooth ride characteristics, and stress peened to extend service life.			
Standard Springs	Spring Part No.	Ground Load	No. of Leaves	Leaf Type
	1884501	21,000 lbs	11	Flat
	1632501	23,000 lbs	11	Flat
	1660201	26,000 lbs	13	Flat
	1673201	28,000 lbs	14	Flat
	1673301	31,000 lbs	16	Flat
	714721-01	35,000** lbs	16	Flat
	1996701	21,000 lbs	4	Parabolic
	712434-01	25,500 lbs	5	Parabolic
Torque-Leaf (ADB) Springs	714606-01	27,000 lbs	5	Parabolic
	712399-01	21,000 lbs	4	Parabolic
	712850-01	23,000 lbs	11	Flat
Auxiliary Spring Leaf Option	712851-01	28,000 lbs	14	Flat
	Single-leaf auxiliary spring may be added to the main spring. These provide an increase of 3,000 lb or 4,500 lb to the GAWR of the suspension, up to max of 35,000 lb GAWR**. The auxiliary spring provides a better ride under light loads. Adds approximately 39 lbs.			
	1628601	3,000 lbs	1	
	1628603	4,500 lbs	1	
Sway Bar Option	Available for use with all springs up to and including 26,000 lbs. Recommended with high center of gravity loads. The Model 79KB can be ordered with the correct ground load springs and the sway bar options to provide excellent ride quality. Reyco Granning does not recommend use of extra-heavy springs to reduce vehicle sway. Matching the correct ground load spring with the sway bar option will provide the desired stability, and maintain ride quality. Adds 82 lbs.			
Shock Absorber Option	Available to use when customer requires increased damping and axle control. Adds approximately 32 lbs.			
Jounce Stop Option	Jounce stops are available to limit the upward travel of the axle in severe duty applications. They are standard on fire service applications. Limiting the upward travel of the axle in these applications improves the life of the springs.			
Creep Rating	The 79KB has a standard creep rating of 1.4 x GAWR when the vehicle is operated below 5 mph. This rating applies to the 79KB suspension only, the vehicle creep rating may be limited by other factors such as the frame and axle. Creep rating use cannot exceed 5% of the vehicle operation. Contact the vehicle manufacturer for details.			



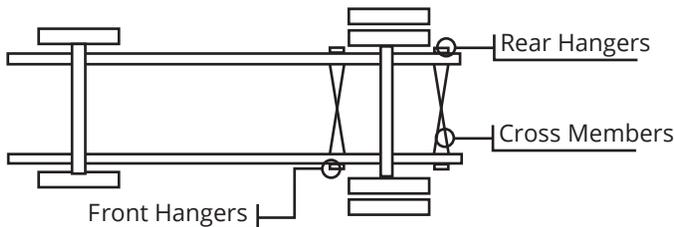
1. These dimensions and the following instructions are to be used as a guide for installing a standard 79KB suspension. The 79KB has many variations, dimensions shown in this manual may differ from the kit being installed. Please review all instructions prior to installation and refer to the specific kit drawing (if available)

2. Normally, prior to any installations at an OEM, Engineering contacts between companies have been made, all necessary information to make an installation has been exchanged, and preliminary steps have been taken to plan and execute the installation. Normally, the OEM has specific departments and personnel who may complete the installation in various steps that may not agree with what is presented herein. However, the following general steps are listed in the interest of all involved and should be included in any OEM plan to install the suspension.

Hangers

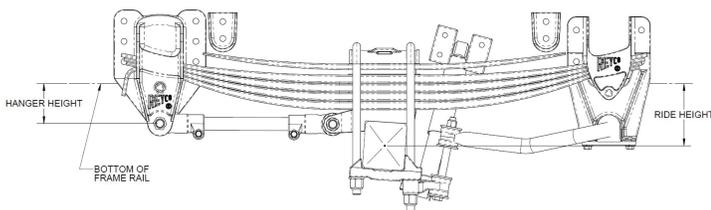


3. Measuring from centerline of steering axle, mark the frame location of the desired centerline location of the suspension. Mark a line with chalk across the upper frame rail flange on both sides. Check chalk marks on top flange of frame with a large square to verify that centerlines are square with each other.



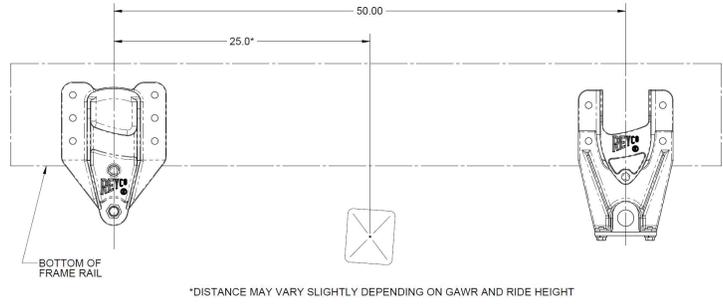
4. Crossmembers are required at all hanger locations. Hold frame square with body clamps until all hangers have been installed.

5. Determine the hanger height required. To locate hangers in vertical positions on from rails, refer to the proer Reyco Granning drawings for the specific application that is being used. Be sure to check specific spring heights in computation. Chalk a horizontal line on the frame at the top of the front hanger. The top of the rear hanger is typically 3/4" below the top of the front hanger. Hanger height can be changed by moving hangers on the frame. Changing hanger height will affect ride height.

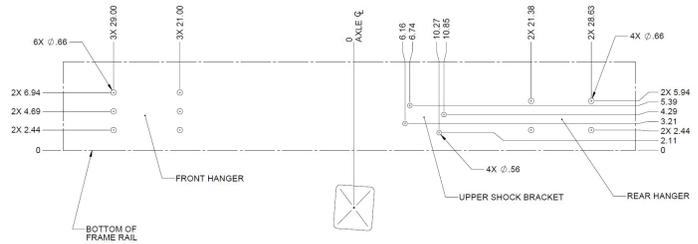


Installation Instructions Model 79KB

6. Determine the location for the front hanger in reference to axle centerline. Locate the rear hange 50" from front hanger.



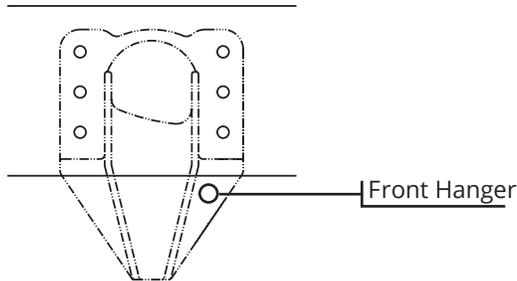
7. Drill hanger mounting holes through frame rails (5/8" close tolerance). Mount hangers to frame and crossmembers. Fasteners are customer supplied. Hangers are available with several hole patterns.



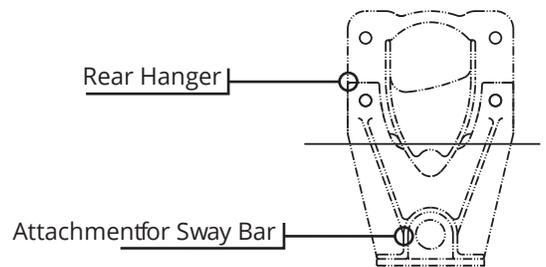
NOTE: Hanger mounting bolts and nuts should meet S.A.E. Grade 8 Standards.



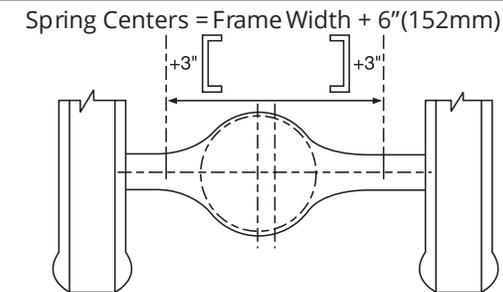
8. When installed, tighten all mounting bolts to manufacturers recommended torque values.



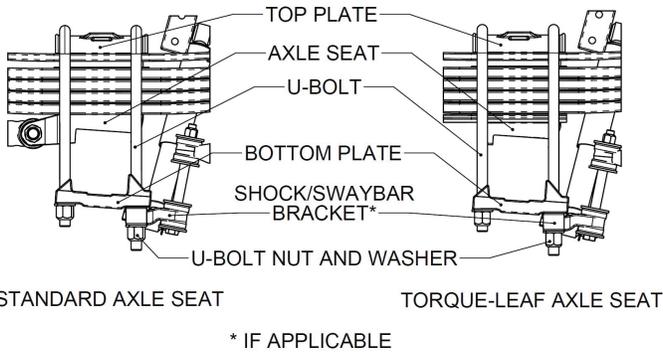
9. If any of the options are chosen (such as the auxiliary spring leaf, sway bar stabilizer, and/or shock absorbers) see special section, page (i.8)



10. Spring centers will be overall frame width plus 6".



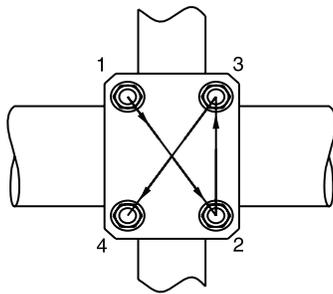
Axle Clamp Group



11. Establish spring centers on axles. If axles have dowels, determine dowel location and obtain proper axle seats. Place axle seats in position, on axle so springs sit properly on axle seats, install u-bolts, top plates, nuts, washers, bottom plates and snug up u-bolts.

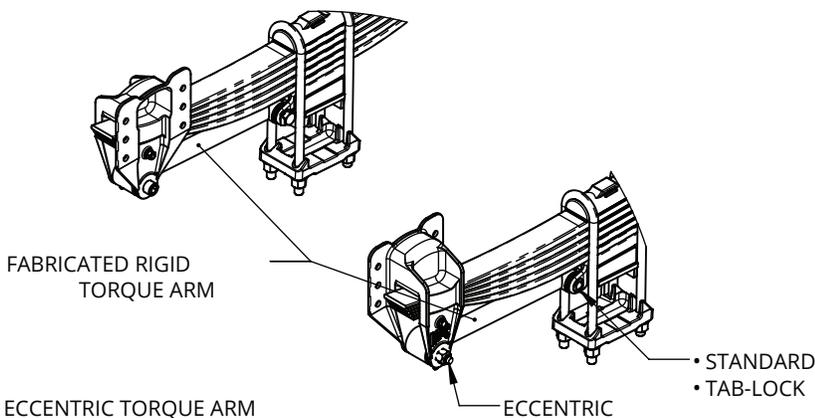
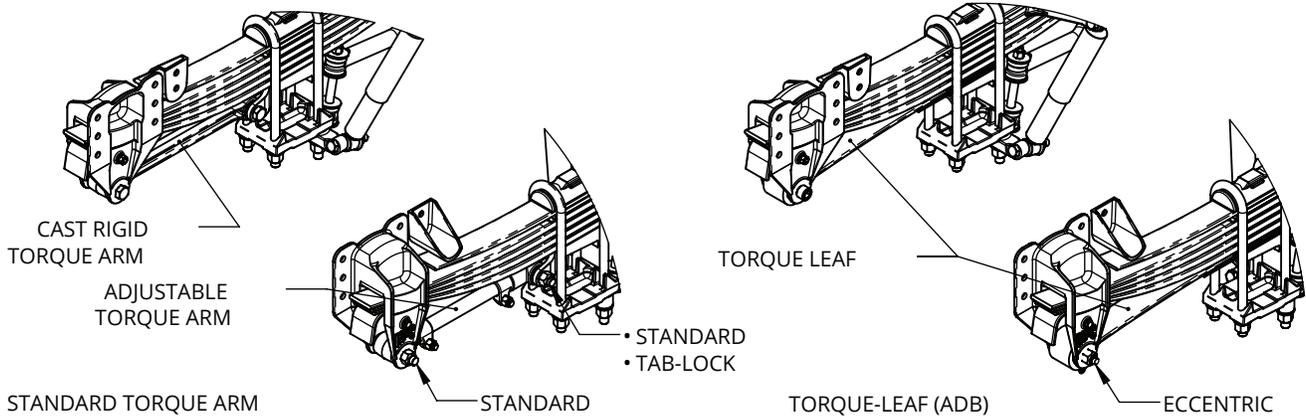
NOTE: Axle seats with machined pinion angle must be installed properly on axle. Bottom plates have same pinion angle.

U-Bolt Torquing Sequence



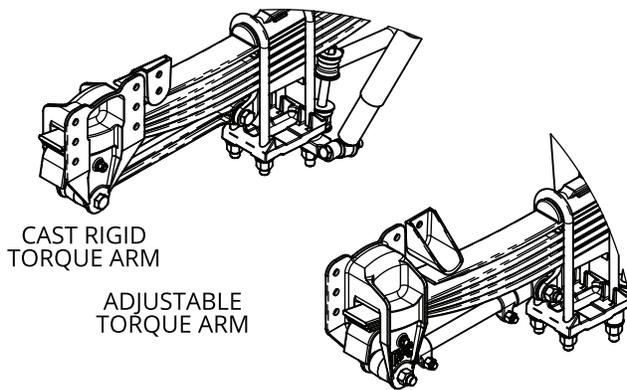
12. Once springs and seats are properly positioned and aligned, torque 7/8" diameter u-bolt nuts to 400-425 ft-lbs in the proper recommended sequence, shown at left. Place axle under frame.

Axle to Hanger Connection



The model 79KB has many variations for attaching the axle to the hangers. While each variation is slightly different, they all provide alignment capability. These views show the different connection variations and hardware types available with them. Please refer to the instructions that apply to the connection variation and hardware type that is being installed.

Standard Torque Arm



CAST RIGID TORQUE ARM

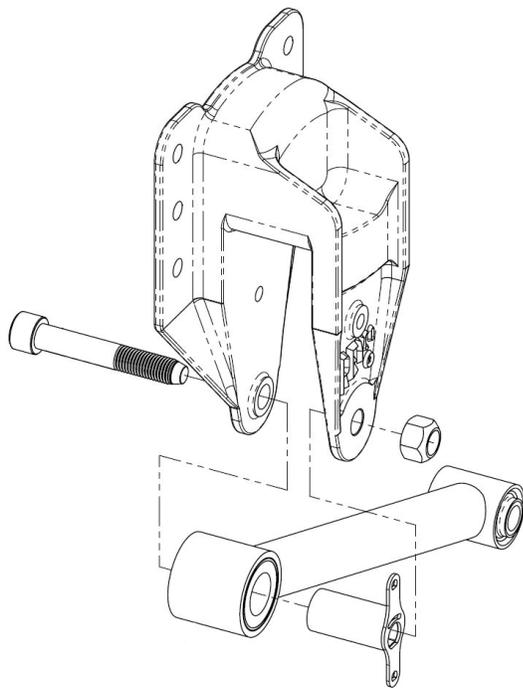
ADJUSTABLE TORQUE ARM

13. Set the adjustable torque arm to the same length as the rigid torque arm. Place the rigid torque arm on the curb side of the vehicle.

14. Align the suspension (see page i.13) and tighten the torque arm bolts to 400-425 ft-lb of torque and torque arm tube clamp nuts to 125-150 ft-lb of torque. Also, ensure the clamp is directed away from the spring to prevent possible interference during operation.

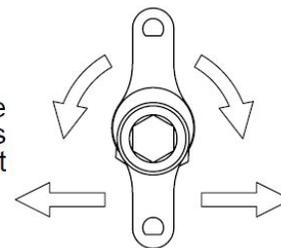
IMPORTANT: It is extremely important after the first 1,000-3,000 loaded miles, that all of the bolt/nut tightening recommendations be followed. If the torque values are found below specification, the items must be retorqued to comply with warranty requirements and to assure long trouble free performance. U-bolt torque is a high priority item. It is also recommended that the same maintenance steps be performed during every 180 days thereafter.

Torque-Leaf (ADB) & Eccentric Torque Arm



Eccentric Torque arm shown, Torque-leaf similar

Counterclockwise bolt rotation moves the torque arm left



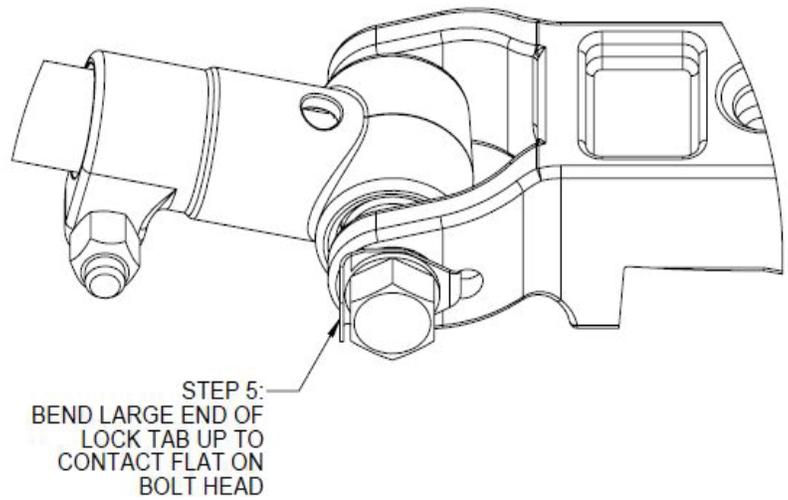
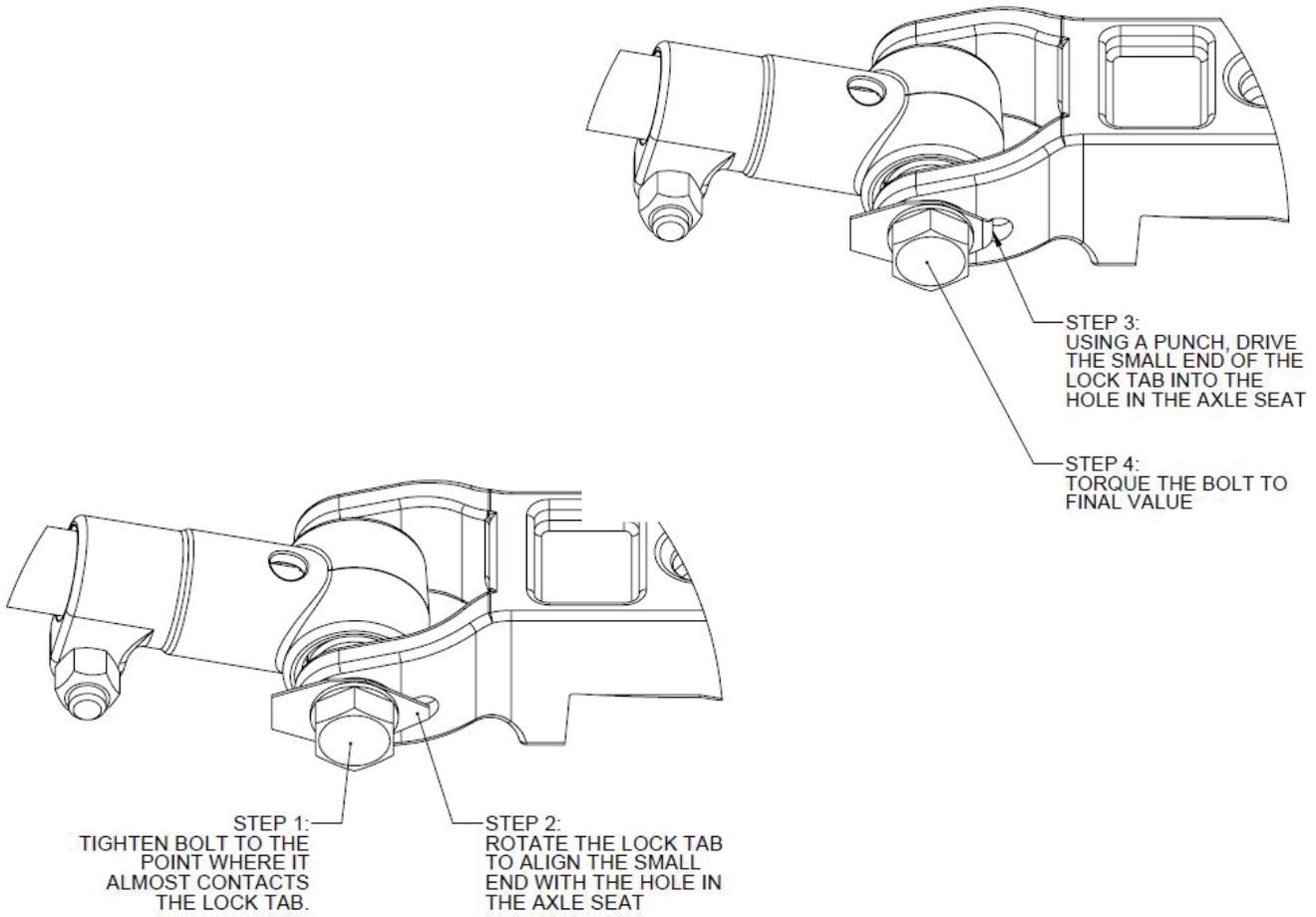
Clockwise bolt rotation moves the torque arm right

1. Insert eccentric weldment into bushing in torque arm/torque leaf so the flat is toward the ground when installed.
2. Place torque arm/torque leaf and eccentric between ears in hanger.
3. Install D-bolt and nut. Note: Alignment of D-bolt flat and flat of eccentric weldment.
4. Align the suspension and torque the lock nut to 400-425 ft lb

WARNING: Do NOT torque bolt head or place impact wrench on bolt head or damage to eccentric will occur.

Tab Lock

Suspension Installation



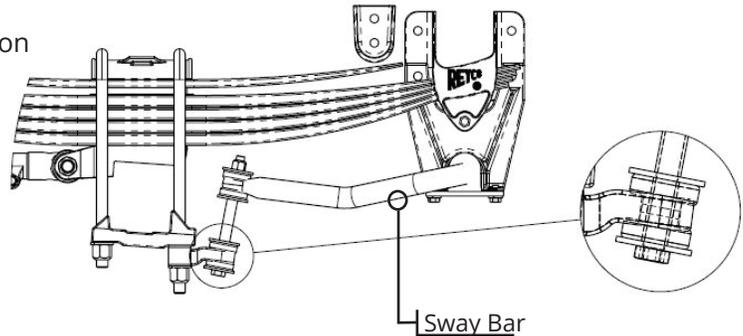
Installation Instructions Model 79KB

Sway Bar Option

The sway bar (stabilizer) option is recommended to stabilize high center-of-gravity loads. The parts come as a kit, and are assembled as shown to the right. The stabilizer brackets are fastened to the rear hangers via the rear hanger mounting fasteners, during the hanger to frame installation phase.

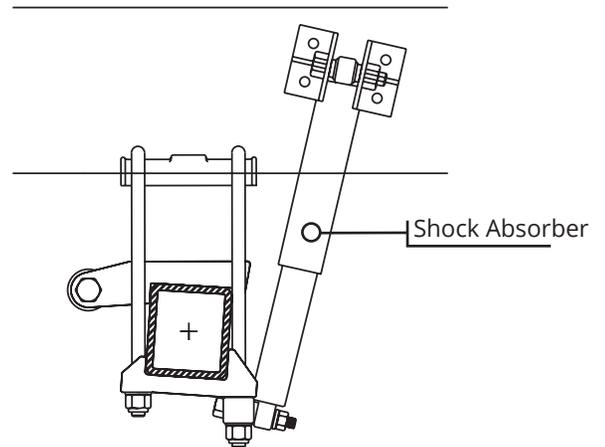
NOTE: Provide extra length bolts where required.

Install D-bushing on swaybar with flats oriented down. Loosely install sway bar in brackets using bushing plates and 1/2" bolts. Install end links, connecting axle bracket and swaybar. Torque 1/2" bolts to 60-80 ft-lb, torque 5/8" nuts to 125-150 ft-lb.



Shock Absorber Option

Shock absorbers are furnished as an option when the customer desires increased damping, axle control, and ride improvement. Shocks are recommended with parabolic springs. The upper shock brackets require the frame to be drilled, as shown in the assembly drawing, and are attached with customer supplied fasteners. The lower shock bracket is assembled as part of the u-bolt clamp group, when the springs are attached to the axle. Extra-length u-bolts are provided when the shock option is ordered. Once the brackets are in-place, the shock absorbers can be installed by inserting the 3/4" mounting bolt through the bracket and shock eye, and installing the washer and lock nut. Torque the 3/4" nut to 150-175 ft-lb. Torque the customer supplied hardware to OEM specifications.

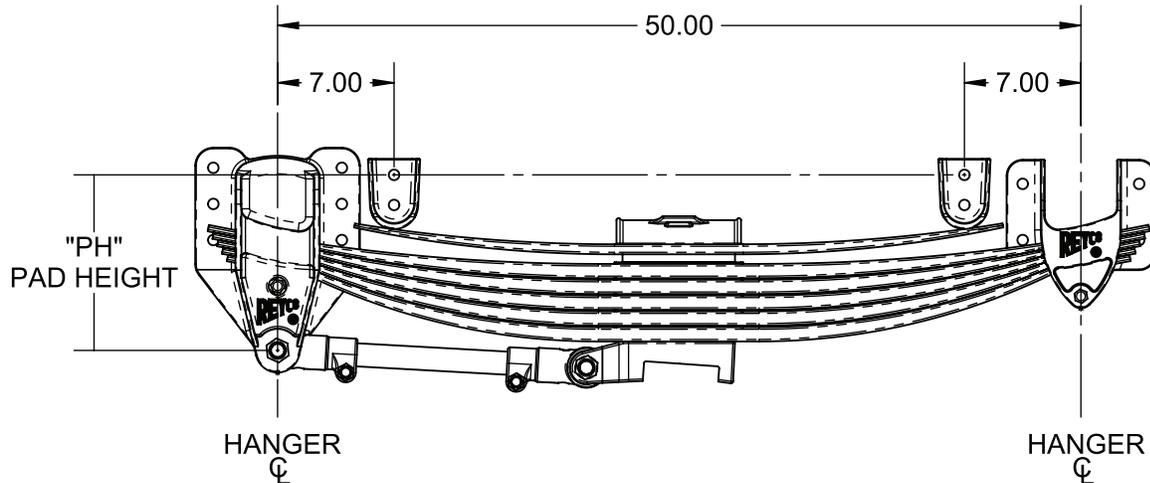


Auxiliary Spring Leaf Option

The auxiliary spring leaf is added on top of each main spring during spring to axle installation. A spacer is placed between the main spring, (on the centerline bolt) and the auxiliary spring leaf. This option requires the addition of auxiliary spring pads to be located, drilled, and installed (using customer’s hardware) to the frame. Once the auxiliary leaves are in place and square to the frame, follow the u-bolt tightening procedure and sequence, previously specified. The customer supplied hardware should be torqued to OEM requirements.

Install auxiliary spring pads as shown using dimension “PH” based on main spring pack.

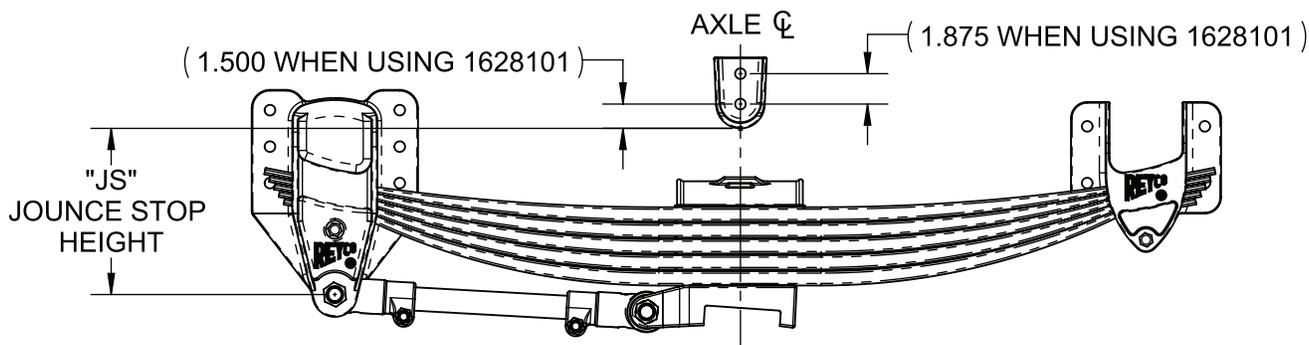
“PH” is measured from the center of the torque arm bolt hole on the hanger to the center of the top bolt hole of the auxiliary spring pads. The reason for this is that the hanger mounting height varies by customer and the auxiliary spring pad heights are affected by the hanger mounting height.



MAIN SPRING	GAWR (k)			PH
	NO AUX	W/ 3K AUX	W/ 4.5K AUX	
18845-01	21	24	25.5	11.32
19967-01	21	24	25.5	11.32
712399-01	21	24	25.5	11.32
1362501	23	26	27.5	11.69
712850-01	23	26	27.5	11.69
712434-01	25.5	28.5	30	11.32
1660201	26	29	30.5	12.75
714606-01	27	30	31.5	12.75
16732-01	28	31	32.5	12.75
16732-02*	28	31	32.5	12.75*
712851-01	28	31	32.5	12.75
16733-01	31	33	33	12.75
714721-01	35	N/A	N/A	N/A

*16732-02 main spring has 1/2 inch spacer included on top of the spring pack. Do not use additional 1/2 inch spacer between 16732-02 main spring and auxiliary spring

Jounce Stop Option



1. Jounce stop recommended for severe duty and fire truck applications.
2. Install jounce stop such that top plate cannot travel beyond dimension listed in table. The use of a "soft" stop will require the stop be installed at a lower height than that listed in the below table. Hard Stop must occur at same height listed in below table.
3. Failure to install jounce stop may result in reduced spring life.
4. The use of a jounce stop on frames thinner than 1/2" may require the use of a backer plate.
5. "JS" is measured from the center of the torque arm bolt hole on the hanger to the bottom of the jounce stop. The reason for this is that the hanger mounting height varies by customer and the jounce stop height is affected by the hanger mounting height.

Main Springs	GAWR (K)			JS	
	W/O AUX SPRINGS	W/ 3K AUX SPRINGS	W/ 4.5K AUX SPRINGS	W/O AUX SPRINGS	W/ AUX SPRINGS
18845-01	21	24	25.5	9.04	10.17
19967-01	21	24	25.5	8.81	9.94
712399-01	21	24	25.5	8.69	9.82
1632501	23	26	27.5	9.55	10.68
712850-01	23	26	27.5	9.55	10.68
712434-01	25.5	28.5	30	8.87	10
1660201	26	29	30.5	10.03	11.15
714606-01	27	30	31.5	9.81	10.94
16732-01	28	31	32.5	10.04	11.16
16732-02	28	31	32.5	10.44	11.56
712851-01	28	31	32.5	9.92	11.04
16733-01	31	33	33	9.85	10.97
714721-01	35	N/A	N/A	11.21	N/A

Place vehicle on a level floor area. Move it back and forth several times, slowly and without using brakes, to free all suspension joints.

Chock front wheels and release tractor brakes. Before alignment, make certain that all springs are not binding in hangers; that u-bolts and torque arm bolts are torqued to the manufacturers specifications and all bushings are in good condition.

Clamp an 8-foot piece of straight bar stock or angle iron securely after positioning it squarely across the frame. (The use of a carpenter's square is recommended to be certain the bar is square to the frame.)

The cross bar should be positioned as far forward of the drive axle as room will permit.

Beginning on the curb side, measure from the bar stock to the centerline of the drive axle on both sides.

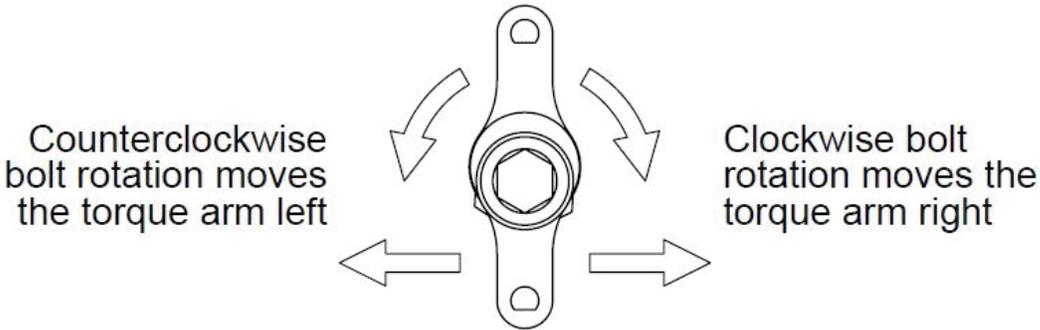
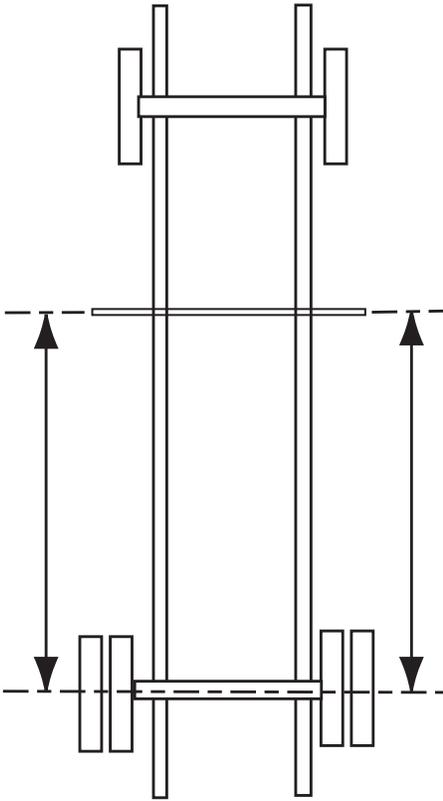
If the measurements vary more than 1/8" alignment adjustment should be made through either the adjustable torque arm (if equipped with standard torque arms) or the eccentric (if equipped with eccentric torque arms or torque-leaf springs).

After aligning, torque either the adjustable torque arm clamp nuts to 125-150 ft-lb or the eccentric nuts to 400-425 ft-lb, depending on alignment option installed

WARNING: Do not torque eccentric bolt head or place impact wrench on eccentric bolt head or damage to eccentric will occur.

Following the alignment, it is recommended that the vehicle be driven through a short series of turns and then returned to the shop and the alignment rechecked.

CAUTION: Specific torque requirements are recommended.



NOTE: Eccentric alignment is used with eccentric torque arms and torque-leaf variants

Make sure all fasteners are tightened to the following levels:

1. Tighten 7/8" u-bolt nuts—400-425 ft-lb (545-580 Nm).
2. Tighten 3/4" u-bolt nuts (legacy)—300-325 ft-lb (410-440 Nm).
3. Tighten 5/8" adj. torque arm clamp nuts—125-150 ft-lb (170-205 Nm). If equipped with standard torque arms
4. Tighten 1/2" spring retainer bolt—60-80 ft-lb (95-110 Nm).
5. Tighten 3/4" shock absorber end nut 150-175 ft-lb (205-240 Nm).
6. Tighten 7/8" torque arm connection nuts - 400-425 ft-lb (545-580 Nm) - Hanger and axle connections. *
7. Tighten 7/8" torque arm connection tab lock bolt - 400-425 ft-lb (545-580 Nm) - Axle connection only. *
8. Tighten 5/8" swaybar endlink nuts - 125-150 ft-lb
9. Tighten 1/2" swaybar bushing plate bolts - 60-80 ft-lb

ft-lb = Foot-Pounds
Nm = Newton- Meters

* Torque arm and eccentric joints should be torqued with the suspension at ride height.

MAINTENANCE SCHEDULE, REQUIREMENTS & INSPECTION } ○ m.2

- Maintenance Schedule } ○ m. 2
- Torque Requirements } ○ m. 2
- Visual Inspection } ○ m. 3

ALIGNMENT PROCEDURE } ○ m.4

TROUBLE SHOOTING GUIDE } ○ m.5

- Fasteners } ○ m.5
- Spring Alignment } ○ m.5
- Bushings } ○ m.5

MAINTENANCE RECORD } ○ m.6

Maintenance Instructions Model 79KB

The Reyco Granning Model 79KB drive axle suspension requires, by design, a minimum of maintenance. However, all suspensions require periodic checks to assure continued, trouble-free performance.

RECOMMENDED MAINTENANCE & RE-TORQUE SCHEDULE

1. Pre-service inspection
 2. First service inspection, after 1,000-3,000 miles (1,600-4,800 km)
 3. PM inspections, required annually
 4. During replacement of any service parts
 5. Upon discovery of any loose components
-

TORQUE REQUIREMENTS

Make sure all fasteners are tightened to the following levels:

1. Tighten 7/8" u-bolt nuts - 400-425 ft-lb (545-580 Nm)
2. Tighten 3/4" u-bolt nuts (legacy) - 300-325 ft-lb (410-440 Nm)
3. Tighten 5/8" adjustable torque arm clamp nuts 125-150 ft-lb (170-205 Nm). If equipped with standard torque arms
4. Tighten 1/2" spring retainer bolt - 60-80 ft-lb (95-110 Nm)
5. Tighten 3/4" shock absorber end nut 150-175 ft-lb (205-240 Nm)
6. Tighten 7/8" torque arm connection nuts 400-425 ft-lb (545-580 Nm) - Hanger and axle connections *
7. Tighten 7/8" torque arm connection tab lock bolt 400-425 ft-lb (545-580 Nm) axle connection only *
8. Tighten 5/8" sway bar endlink nuts - 125-150 ft-lb
9. Tighten 1/2" sway bar bushing plate bolts 60-80 ft-lb

ft-lb = Foot-Pounds
Nm = Newton Meters

*Torque arm and eccentric joints should be torqued with the suspension at ride height.

VISUAL INSPECTION

1. Loose or missing fasteners.
2. Cracks in any suspension components.
3. Springs, centered in hangers and in good condition.
4. Bushings in good condition

All torque values are with clean, dry fasteners and should only be verified with a quality wrench, of known accuracy. Failure to follow these recommendations could void warranty. Failure to maintain the specified torque values and/or to replace worn parts, can cause component and/or system failure resulting in an accident with consequent injury.

Alignment Procedure

Maintenance Instructions Model 79KB

Place vehicle on a level floor area. Move it back and forth several times, slowly and without using brakes, to free all suspension joints.

Chock front wheels and release tractor brakes. Before alignment, make certain that all springs are not binding in hangers; that u-bolts and torque arm bolts are torqued to the manufacturers specifications and all bushings are in good condition.

The cross bar should be positioned as far forward of the drive axle as room will permit.

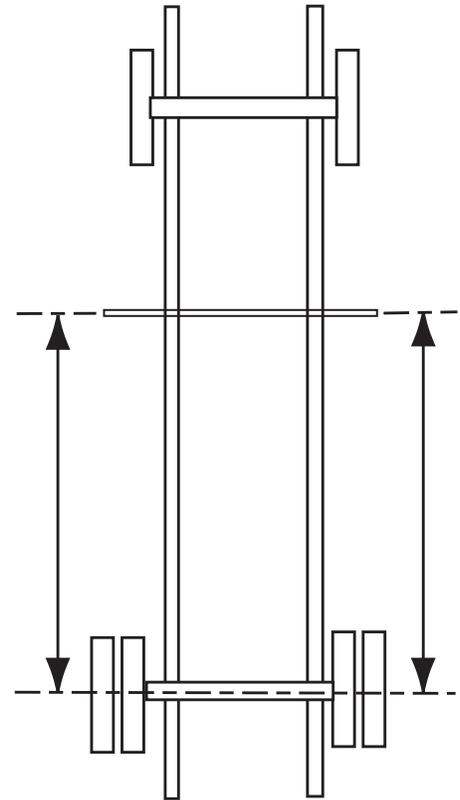
Beginning on the curb side, measure from the bar stock to the centerline of the drive axle on both sides.

If the measurements vary more than 1/8" alignment adjustment should be made through either the adjustable torque arm (if equipped with standard torque arms) or the eccentric (if equipped with eccentric torque arms or torque-leaf springs).

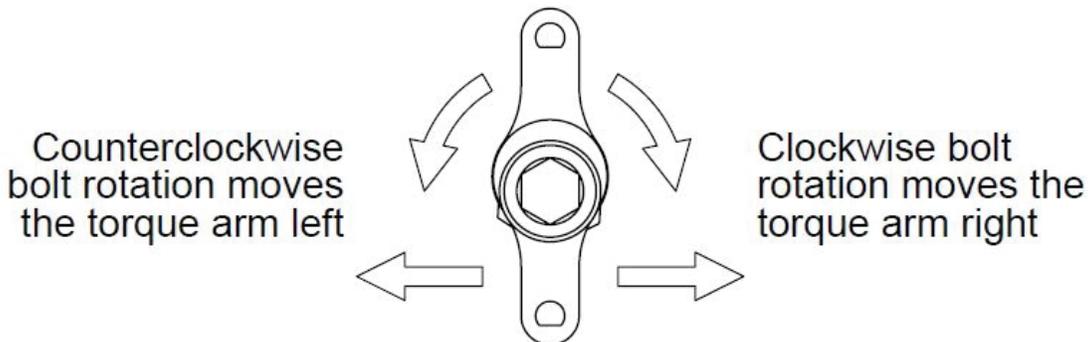
After aligning, torque either the adjustable torque arm clamp nuts to 125-150 ft-lb or the eccentric nuts to 400-425 ft-lb, depending on alignment option installed.

WARNING: Do not torque eccentric bolt head or place impact wrench on eccentric bolt head or damage to eccentric will occur.

Following the alignment, it is recommended that the vehicle be driven through a short series of turns and then returned to the shop and the alignment rechecked.



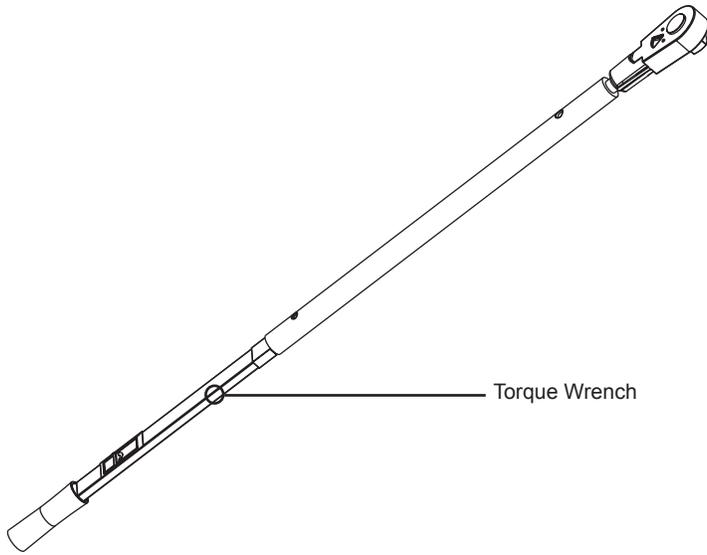
CAUTION: Specific torque requirements are recommended.



Counterclockwise bolt rotation moves the torque arm left

Clockwise bolt rotation moves the torque arm right

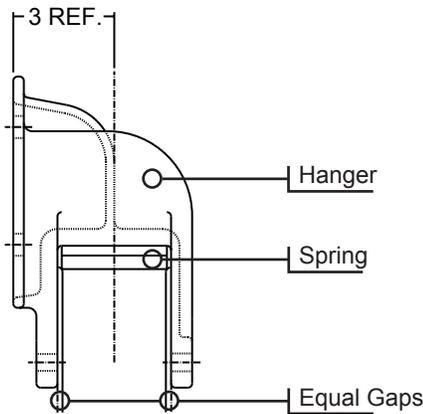
NOTE: Eccentric alignment is used with eccentric torque arm and torque-leaf variants



Fasteners

Loose fasteners need immediate attention. Check components for wear and be sure holes are not worn or egg shaped. When replacing, be sure threads are clean, dry and not deformed. Consult the maintenance section for the correct torque specification. To insure an accurate torque reading, the torque tool used for checking torque, must provide a correct measurement.

Spring Alignment



The 79KB is a slipper spring style suspension. The springs are installed centered in the hangers with equal gap on either side. During vehicle operation, the springs will move side to side. If the springs are not centered, check that they have a similar offset side to side (if the curb side is offset towards the outside of the hanger, the road side should be offset to the inside of the hanger).

Bushings

Inspect all bushings for large splits, tears and major wear. Rubber is attacked by sun, oils and greases. Replace any bushings which have noted damage.

Use P80 rubber lubricant, water or soap and water to install new bushings.

Torn, Split and Worn Old Bushings



New Bushings



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S U S P E N S I O N S

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