



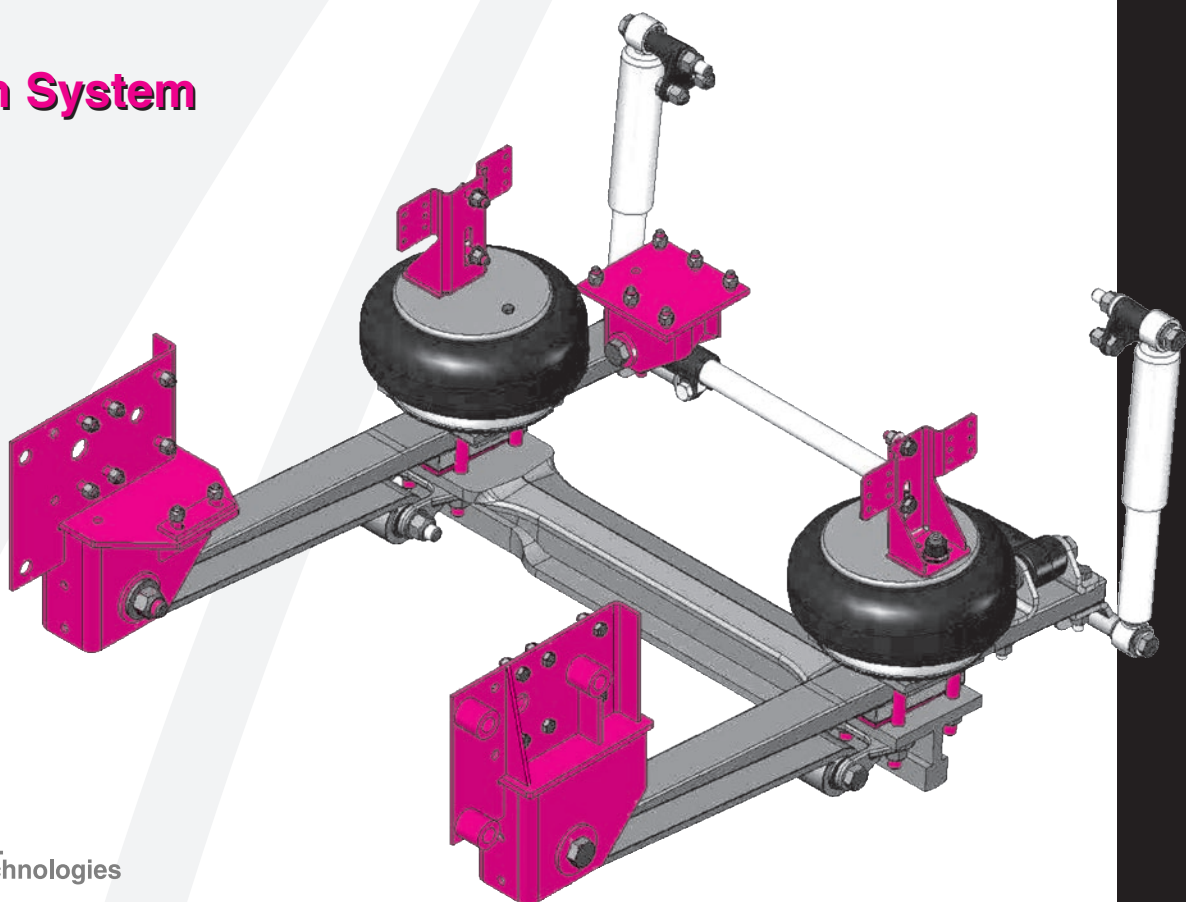
Installation and

Maintenance Instructions

Model 1200

Front Axle Air-Ride

Suspension System



TUTHILL
Transport Technologies

Installation Instructions Model 1200

COMPANY PROFILE

Tuthill Transport Technologies is the Line of Business name arising from the acquisition and merger of two companies in the heavy-duty suspension and off-road axle industries. These companies were formerly known as Fluidrive, Inc. of Brookston, IN and Reyco® Industries, Inc. of Springfield and Mt. Vernon, MO and Reyco® Canada of Grimsby, Ontario. Tuthill Corporation purchased Fluidrive in December, 1998 and purchased Reyco® in February, 1999.

Granning® Air Suspensions was founded in 1949 in Detroit, Michigan. Granning's product line was consolidated under Fluidrive, Inc. in 1985.

Reyco® was founded in 1924 as Reynolds Mfg. Co. and assumed the Reyco® Industries, Inc. name in 1956 in Springfield. Reyco® Canada began at the current location in Grimsby, Ontario in 1963. The Mt. Vernon facility was established in 1973. In 2003 Tuthill Transport Technologies' Springfield facilities merged with the Mount Vernon facilities location.

ReycoGranning® air and steel spring suspension systems are sold to truck, trailer, and specialty vehicle OEM's, and to truck equipment distributors. Tuthill Transport Technologies design, test, manufacture and market these products.

Tuthill Transport Technologies is certified to the internationally recognized ISO 9001:2000 Standard. This certification includes ReycoGranning® operations.

ISO 9001:2000 is the highest international quality standard and is recognized worldwide by all major countries and corporations. To obtain certification a company must undergo a series of rigorous audits to remain certified and ensure consistent quality standards are being maintained. This quality standard was developed by the International Organization of Standardization.

Tuthill Corporation is a privately held manufacturing company with facilities worldwide. Tuthill's corporate offices are located in Burr Ridge (Chicago), Illinois.

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SAFETY FIRST

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

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

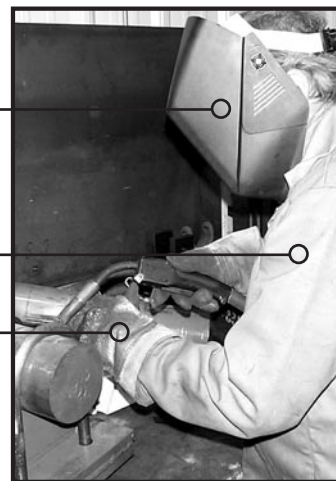
When welding, be sure to wear all personal protective equipment for face and eyes, and have adequate ventilation. When welding, protect spring beams and air springs from weld spatter and grinder sparks. Do not attach "ground" connection to springs.

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

Welding Helmet

Welding Apron

Welding Gloves





OVERLOADING

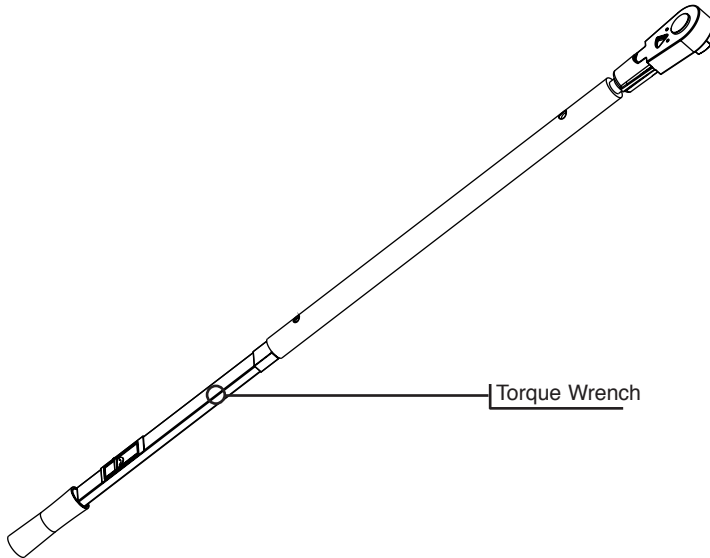
Overloading is the practice of transporting cargos that surpass the specified vehicle's ratings. Overloading can cause component failure, resulting in accidents and injuries.



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.

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PRIOR TO INSTALLATION

The mounting heights for the Model 1200 range from 9.25" to 16" [235 mm to 400 mm]. With a standard mounting height of 10.25". This height represents the distance from the bottom of the frame rail to the top center of the axle spring pad. See TTT assembly drawing 704918, Sheet 1 and 2 in the Maintenance Section.

NOTE: All dimensions shown in the drawings are expressed in inches and [millimeters - mm].

The axle capacity should be matched for compatibility with the Model 1200 capacity range of 9,000 to 14,500 pounds [4.0 to 6.6 tonne].

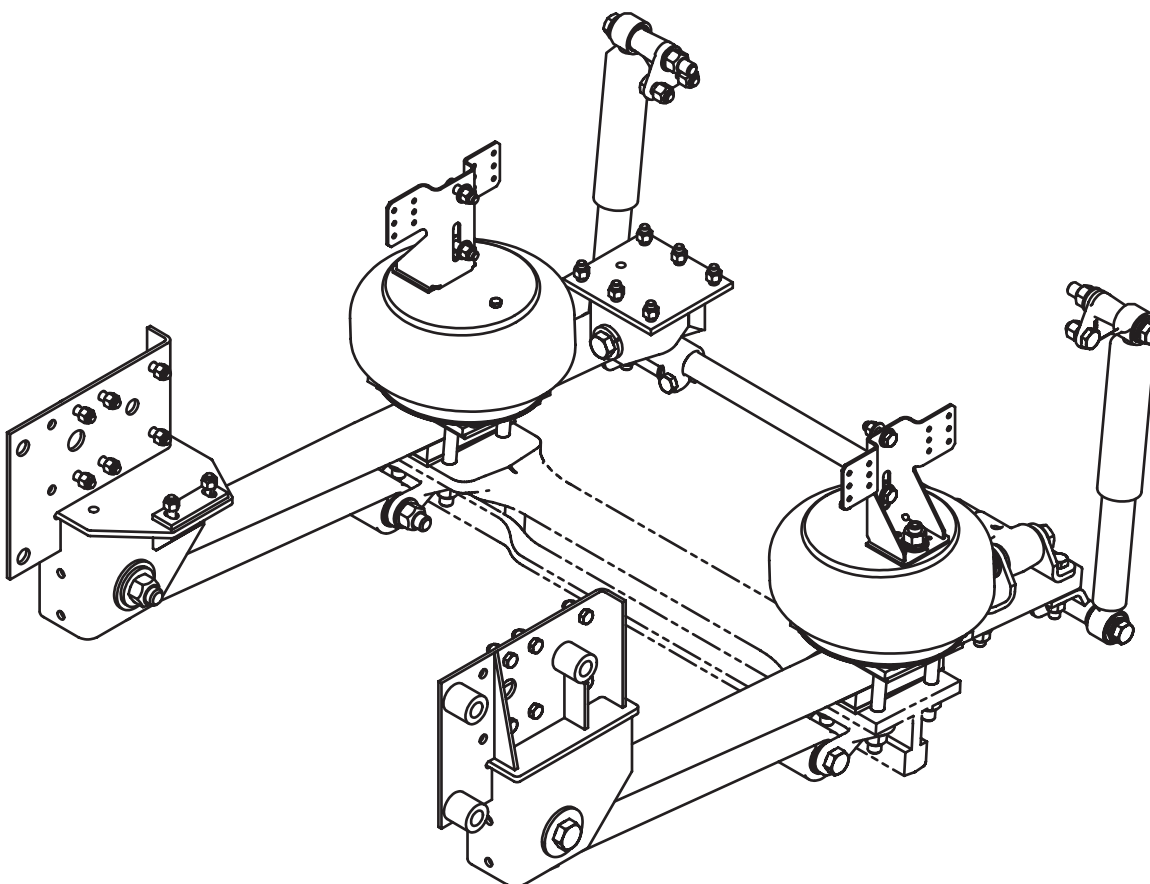
The brake, axle, steering components, and frame dimensions and bolt patterns should be checked for compatibility and clearances with the suspension.

The frame should be of suitable design for the suspension to be installed. Cross members, that tie the front left hand (LH) and right hand (RH) hanger mounting positions together, and also, at the track rod hanger position, are required. These may be straight or "C" shaped to clear front engine.

NOTE: It is the customer's responsibility for frame design and integrity.

NOTE: If frame has not been drilled prior to installation, typically obtain the applicable parts, temporarily clamp them in-place, mark side rails of the frame at the hole locations, and match drill holes as required. All the following instructions will pertain to a pre-drilled frame.

If any welding is involved, all suspension parts must be protected to avoid burns and weld splatter.



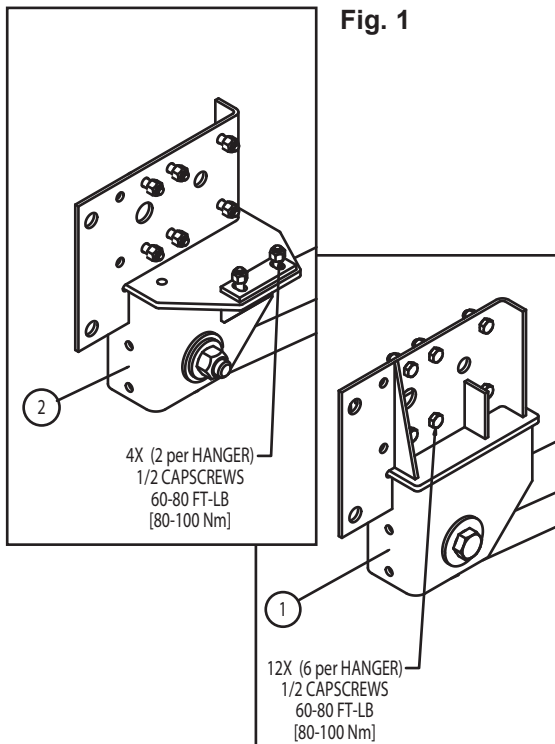
INSTALLATION

FRONT HANGER ASSEMBLIES

NOTE: The Front Hanger Assemblies must initially be mounted rigidly to the frame with centerlines within 1/16" on the lateral, longitudinal and vertical axes. Each Front Hanger Assembly must be square to the frame and parallel to each other.

The distance between the outer sides of the frame rails and the air spring center spacing is 34". The dimensions may vary by model.

1. Obtain and locate LH and RH Front Hanger Assemblies (items 1 and 2) on each side of the frame rails, as per assembly drawing (Fig. 1). Keep units square and nested firmly against the frames.
2. Locate cross member to tie-in with both the LH and RH Front Hanger Assemblies. Recheck location and squareness. Install and tighten proper 1/2" fasteners (customer supplied).
3. Torque 1/2" fasteners to proper specifications 60-80 Ft-Lb [80-100 Nm].



TOP AIR SPRING SUPPORTS

4. Obtain and locate the Top Air Spring Supports (item 7) on each side of the frame rails, as per assembly drawing (Fig. 2).
5. Check proper positioning and squareness of the setup. Install and tighten proper 1/2" fasteners (customer supplied).
6. Torque 1/2" fasteners to proper specifications 60-80 Ft-Lb [80-100 Nm].

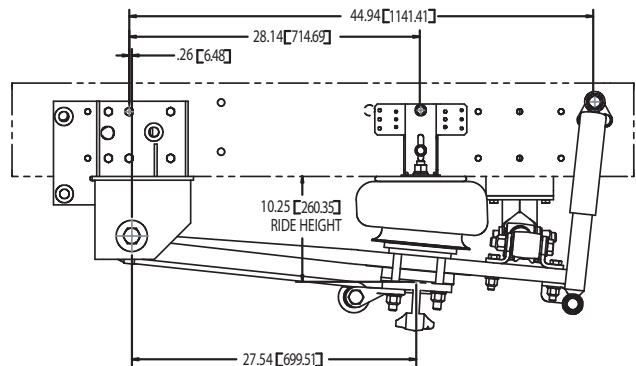
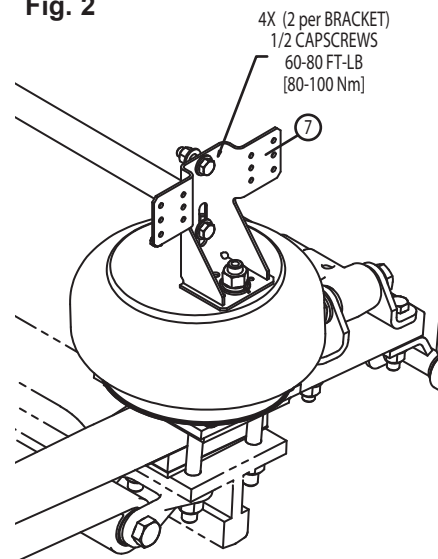


Fig. 2

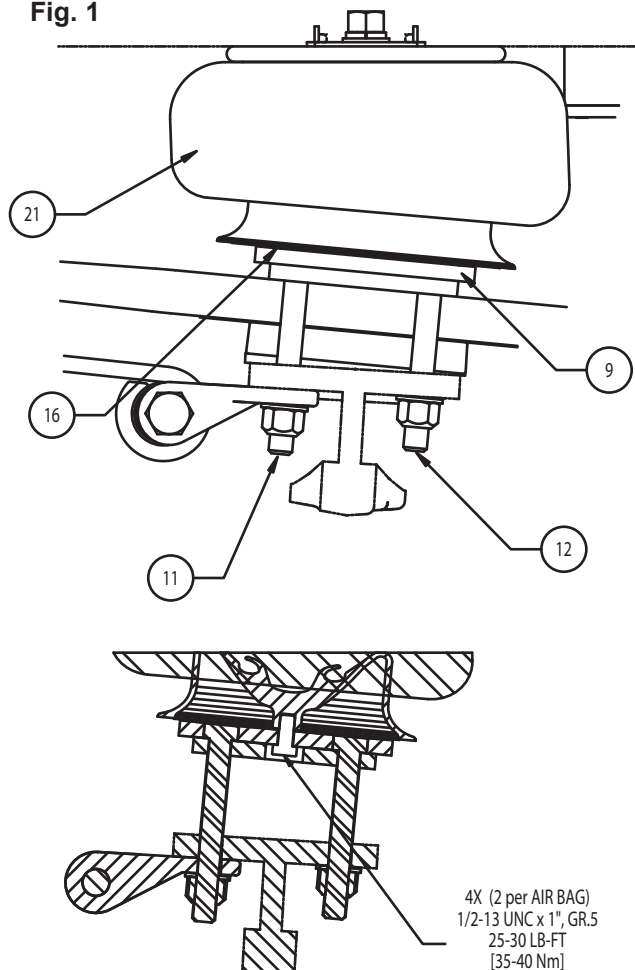


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BOTTOM AIR SPRING SUPPORT ASSEMBLIES (BASSA) TO AIR SPRING ASSEMBLIES

7. Obtain Bottom Air Spring Support Assemblies (item 9) and insert fasteners (items 11 and 12) with fastener heads in the hex cut outs, as per assembly drawing (Fig. 1).
8. Obtain and position the Bolt Retainers (item 16) over the fastener heads and align holes.
9. Obtain and orient the Air Spring Assemblies (item 21) to the Bottom Air Spring Support Assemblies (BASSA).
10. Carefully align two holes that mate with the Bottom Air Spring Support Assemblies (BASSA) to the lower pistons of the Air Spring Assemblies. From the underside, install and tighten proper $\frac{1}{2}$ " fasteners (customer supplied).
11. Torque $\frac{1}{2}$ " fasteners to proper specifications 25-30 Ft-Lb [35-40 Nm].

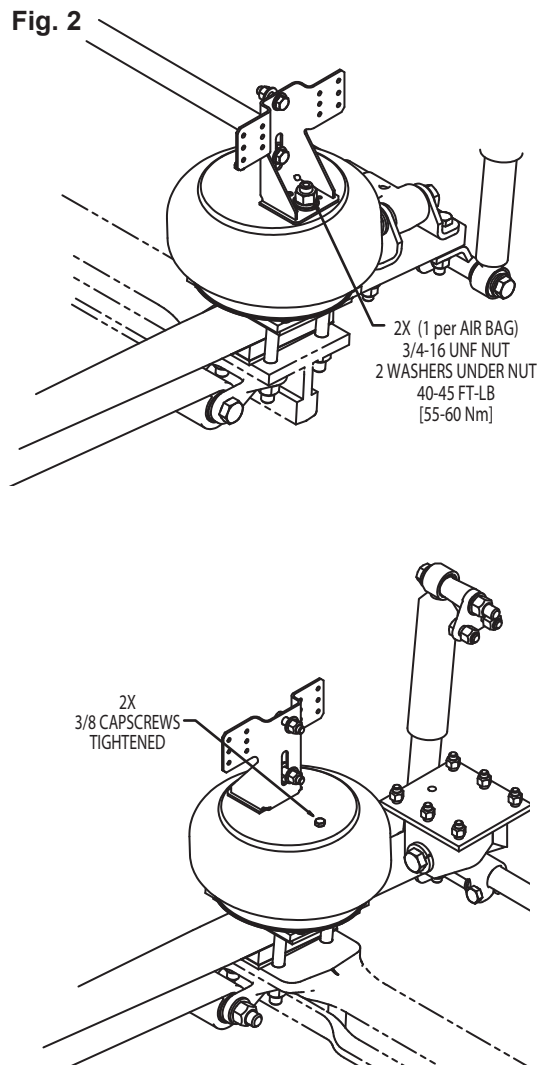
Fig. 1



AIR SPRING ASSEMBLIES TO TOP AIR SPRING SUPPORTS

12. Locate and secure Air Spring Assemblies to Top Air Spring Supports by installing proper $\frac{3}{4}$ " nut, spring washer and plain washer per each Air Spring Assembly, as per assembly drawing (Fig. 2).
13. Torque $\frac{3}{4}$ " nuts to proper specifications 40-45 Ft-Lb [55-60 Nm].
14. Install and tighten proper $\frac{3}{8}$ " cap screws (customer supplied) to Air Spring Assembly bead plates.

Fig. 2

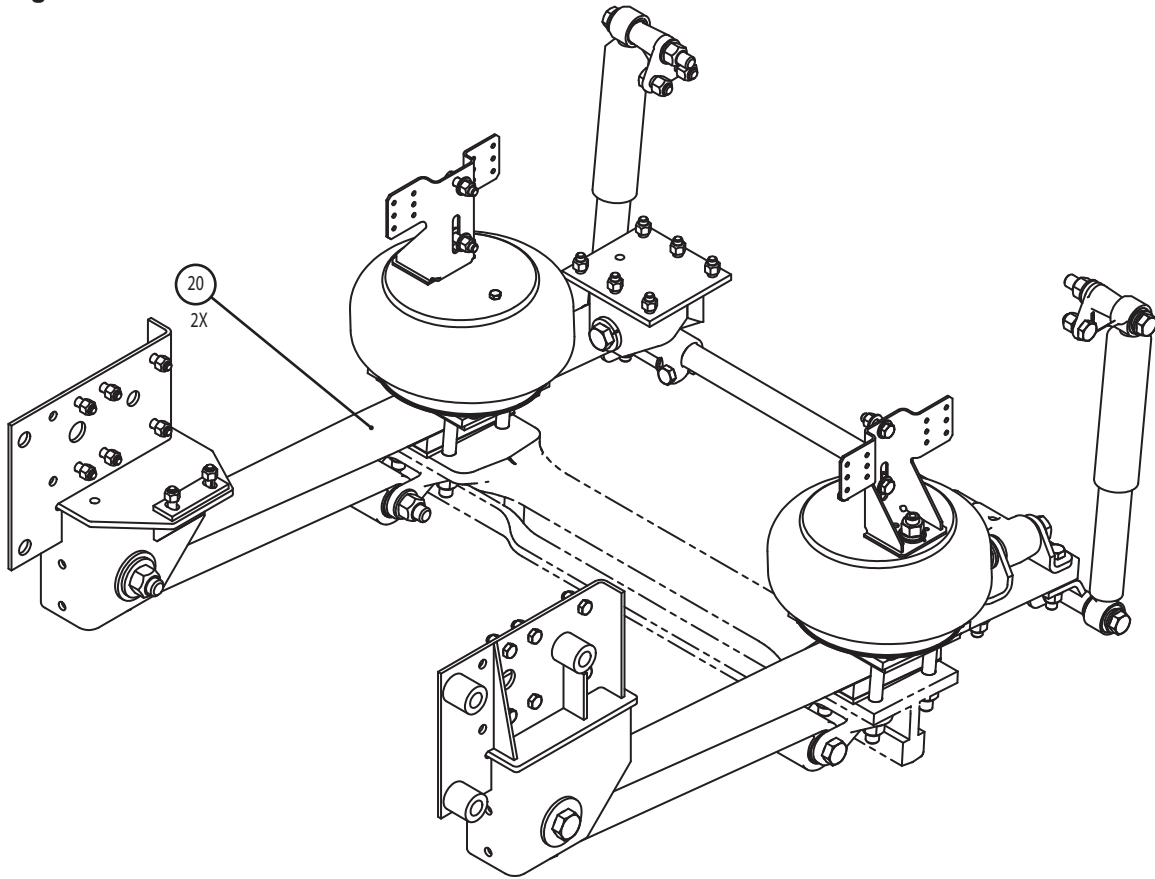


SPRING BEAM ASSEMBLIES TO FRONT HANGER ASSEMBLIES

NOTE: The Spring Beam must be installed squarely so that the alignment bushings are mid-travel. Unit should be roughly within 1/4" aligned during this step

15. Obtain the Spring Beam Assemblies (item 20). Install one Spring Beam Assembly per Front Hanger Assembly by using the proper 1" fasteners (customer supplied), as per assembly drawing (**Fig. 1**). Snug fasteners, but do not tighten.
16. On RH Front Hanger Assembly only, install alignment bushings with the 1" fasteners. Snug fasteners, but do not tighten.
17. Loosely position the Spring Beam Assemblies into the Bottom Air Spring Support Assemblies (BASSA).

Fig. 1



Installation Instructions Model 1200

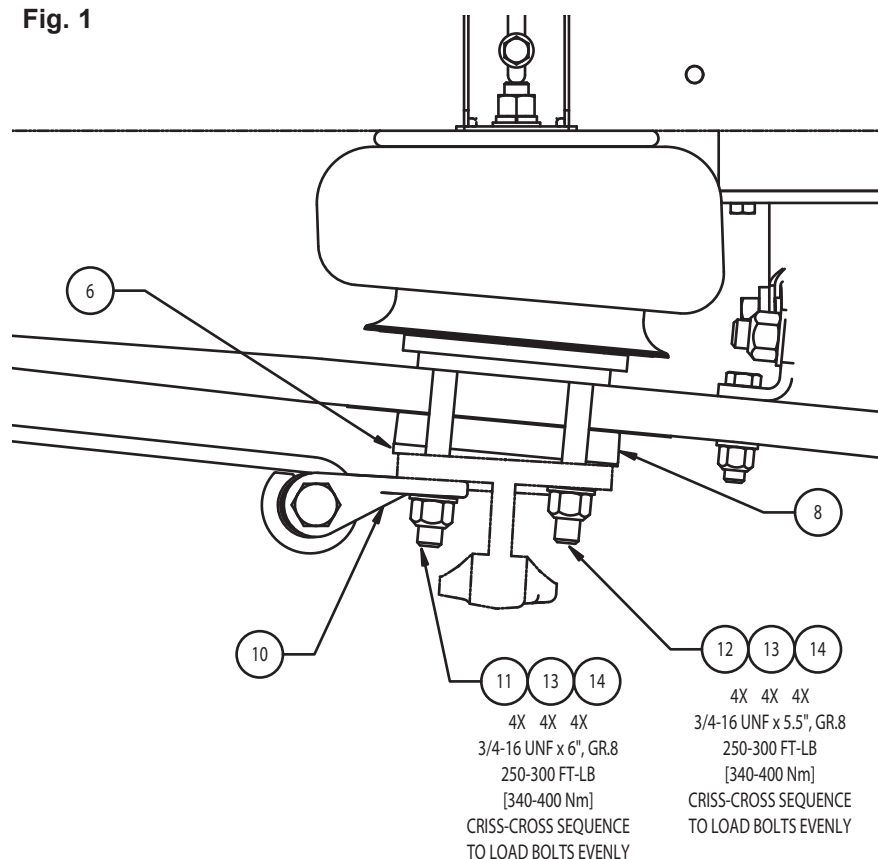
BOTTOM AIR SPRING SUPPORT ASSEMBLIES (BASSA) TO AXLE

18. Obtain and position axle with pre-drilled holes in correct position to accept both LH and RH Bottom Air Spring Support Assemblies (BASSA) with loosely inserted Spring Beam Assemblies, as per assembly drawing (**Fig. 1**).
19. Position the top surface of each Spring Beam Assembly to the bottom surface of each Bottom Air Spring Support Assembly (BASSA).
20. Obtain and install one Spacer Block-1" (item 8) locator hole onto each Spring Beam Assembly locator stud.
21. Obtain and install one Spring Wedge 2° (item 6) locator hole onto each Spacer Block-1" locator stud.
22. Guide pre-installed $\frac{3}{4}$ " fasteners of the Bottom Air Spring Support Assemblies (BASSA) thru the axle pad holes. Loosely install $\frac{3}{4}$ " nuts (item 13) and washers (item 14) to rear side only on 5 $\frac{1}{2}$ " long fasteners (item 12).
23. Loosely install Axle/Spring Attachment Brackets (item 10) with $\frac{7}{8}$ " fasteners thru the eye on the safety spring leaf of each Spring Beam Assembly.
24. Guide Axle/Spring Attachment Bracket holes onto the pre-installed $\frac{3}{4}$ " fasteners protruding thru underside of axle pad. Loosely install $\frac{3}{4}$ " nuts (item 13) and washers (item 14) to the front side 6" long fasteners (item 11).

NOTE: Complete the installation of all the above suspension parts, block-up axle to ride height and align the axle to the frame. Torque fasteners to proper specification:

25. Bottom Air Spring Support Assemblies (BASSA) – with parts level and square, torque the $\frac{3}{4}$ " fasteners in a criss-cross sequence to 250-300 Ft-Lb [340-400 Nm], in 50 Ft-Lb increments to load the bolts evenly.
26. Axle/Spring Attachment Brackets – torque $\frac{7}{8}$ " fasteners to 400-450 Ft-Lb [550-610 Nm].

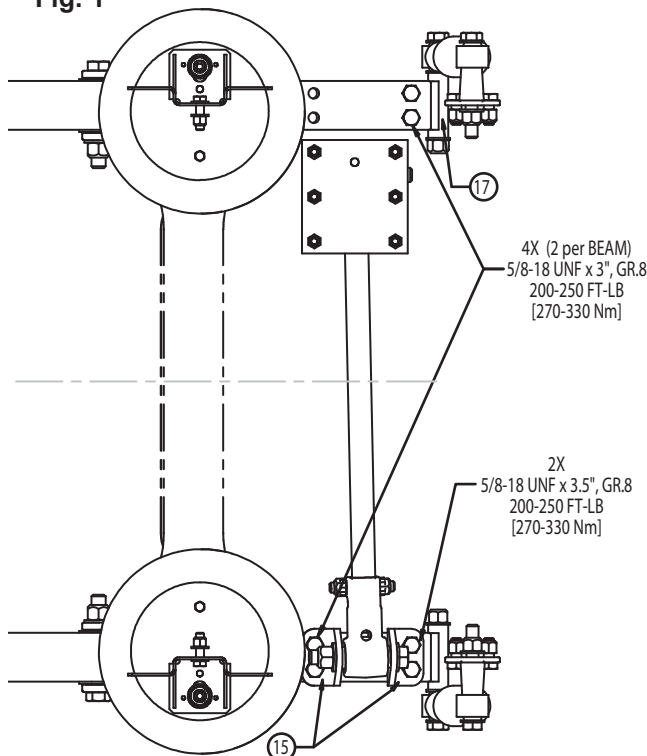
Fig. 1



LOWER SHOCK ABSORBER ASSEMBLIES & TRACK ROD BRACKETS TO SPRING BEAM ASSEMBLIES

27. Obtain LH Lower Shock Absorber Assembly (item 18) and align holes to bottom side of LH Spring Beam Assembly, as per assembly drawing.
28. Obtain and install Track Rod Brackets (item 15) two each per LH Spring Beam Assembly, as per assembly drawing (**Fig. 1**).
29. Install and tighten proper 5/8" fasteners (customer supplied), 2X 3" long on front set and 2X 3 1/2" long on rear set.
30. Obtain and install the RH Lower Shock Absorber Assembly (item 17) to the RH Spring Beam Assembly, similarly using proper 5/8" fasteners (customer supplied) 2X 3" long on rear set
31. Torque 5/8" fasteners to proper specifications 200-250 Ft-Lb [270-330].

Fig. 1



UPPER SHOCK BRACKETS

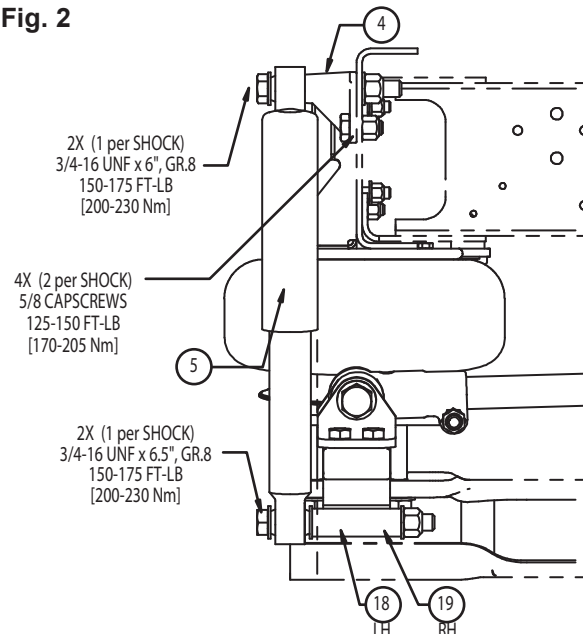
31. Obtain and locate Upper Shock Brackets (item 4) on each side of the frame rails, as per assembly drawing (**Fig. 2**).
32. Install and tighten proper 5/8" fasteners (customer supplied).
33. Torque 5/8" fasteners to proper specifications 125-150 Ft-Lb [170-205].

SHOCK ABSORBERS

NOTE: Block-up axle to ride height and align the axle to the frame.

34. Obtain Shock Absorbers (item 5). On both LH and RH sides, position Shock Absorbers with larger ends up and insert into Upper Shock Brackets, as per assembly drawing (**Fig. 2**). Install proper 3/4" fastener (customer supplied), loosely.
35. Repeat 1 with Shock Absorbers' smaller ends inserted into Lower Shock Absorber Assemblies, installing proper 3/4" fastener (customer supplied), loosely.
36. Complete the upper and lower Shock Absorber installation for both LH and RH sides.
37. Torque upper and lower Shock Absorbers 3/4" fasteners to proper specifications 150-175 Ft-Lb [200-230 Nm].

Fig. 2



Installation Instructions Model 1200

TRACK ROD HANGER ASSEMBLY

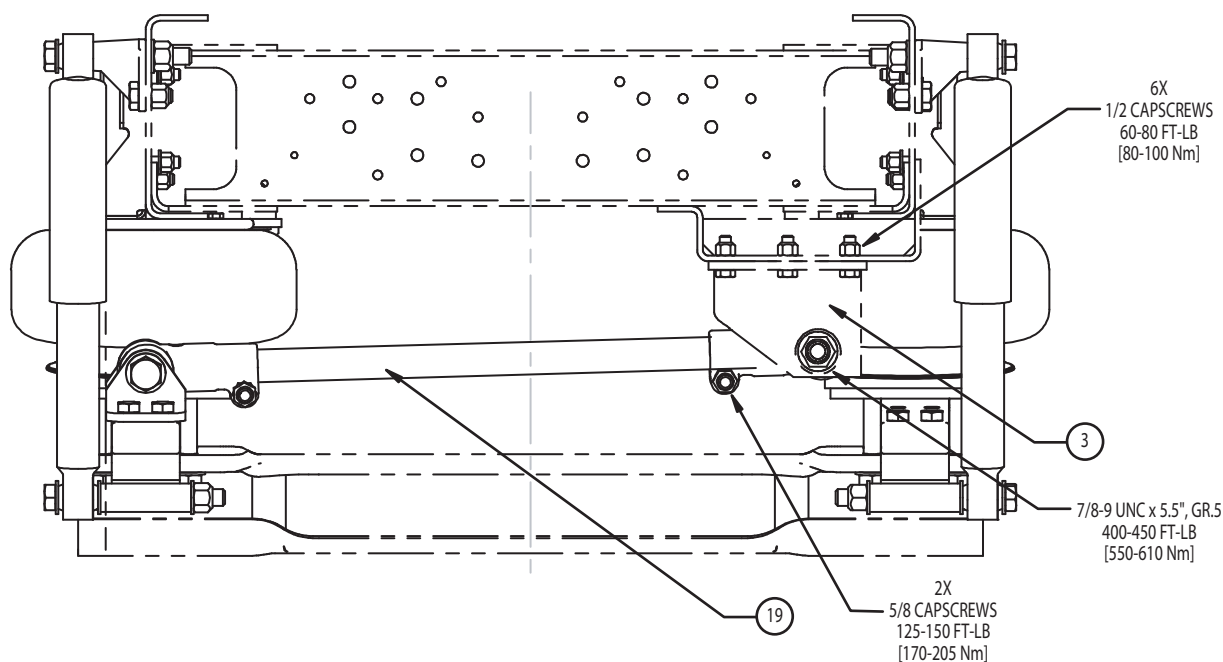
39. Obtain and locate Track Rod Hanger Assembly (item 3) to RH side of rear Cross member, as per assembly drawing (**Fig. 1**).
40. Install and tighten proper 1/2" fasteners (customer supplied).
41. Torque 1/2" fasteners to proper specifications 60-80 Ft-Lb [80-100 Nm].

ADJUSTABLE TORQUE ARM ASSEMBLY

NOTE: Block-up axle to ride height and align the axle to the frame.

42. Obtain and position Adjustable Torque Arm Assembly (item 19) between the RH Cross member - Track Rod Hanger Assembly and the LH Spring Beam Assembly -Track Rod Brackets, as per assembly drawing.
43. Install loosely proper 7/8" fasteners (customer supplied) at each end.
44. With the suspension at proper ride height, torque 7/8" fasteners to proper specifications on both ends 400-450 Ft-Lb [550-610 Nm].
45. With the track rod assembly adjusted to optimum length (Spring Beam Assemblies are parallel and centered) torque the track rod assembly clamps 5/8" fasteners to proper specifications 125-150 Ft-Lb [170-205 Nm].

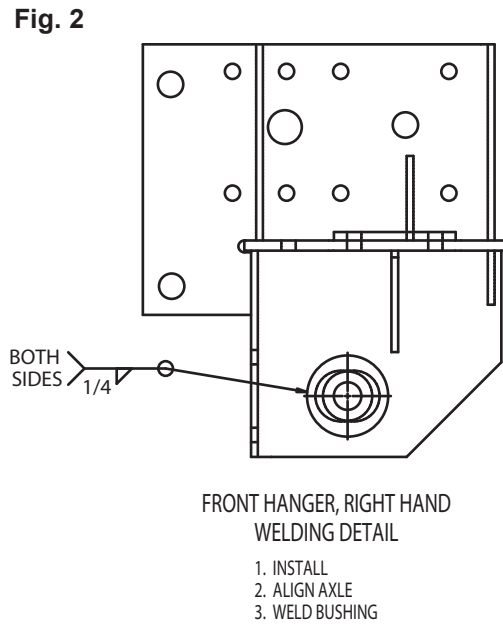
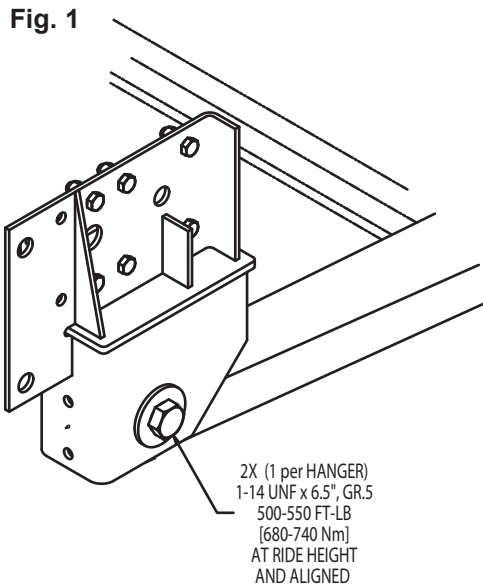
Fig. 1



FINAL ALIGNMENT AND TORQUE

NOTE: Block-up axle to ride height and align the axle to the frame.

46. Spring Beam Assemblies to Front Hanger Assemblies – torque 1" fasteners to proper specifications 500-550 Ft-Lb [680-740 Nm].
47. Weld the RH Front Hanger Assembly alignment bushings in place, use a 1/4" fillet weld all around.



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The Model 1200 suspensions require, by design, a minimum of maintenance. However, suspensions in normal operation require periodic checks to assure continued trouble-free performance.

Visual Inspection

1. Check for loose or missing fasteners.
2. Check for cracks in hangers, sapringbeams and axle connection.
3. Check air springs for abrasions and punctures.
4. Check torque on pivot bolts and shock bolts.

Torque Requirements	Standard	Metric	Qty	Total
1 Front Hanger Assembly fasteners (1/2")	60-80 Ft-Lb	80-100 Nm	8 per Hanger	16
2 Top Air Spring Support fasteners (1/2")	60-80 Ft-Lb	80-100 Nm	2 per Support	4
3 Air Spring Assembly to BASSA capscrews (1/2")	25-30 Ft-Lb	35-40 Nm	2 per Air Spring	4
4 Air Spring Assembly top nut (3/4")	40-45 Ft-Lb	55-60 Nm	1 per Air Spring	2
5 BASSA to axle fasteners (3/4")	250-300 Ft-Lb	340-400 Nm	4 per BASSA	8
6 Axle/Spring Attachment Bracket fastener (7/8")	400-450 Ft-Lb	550-610 Nm	1 per Bracket	2
7 Lower Shock Absorber Assembly fasteners (5/8")	200-250 Ft-Lb	270-330 Nm	2 per Assy	4
8 Track Rod Bracket fasteners (5/8")	200-250 Ft-Lb	270-330 Nm	2 per Bracket	2
9 Upper Shock Bracket fasteners (5/8")	125-150 Ft-Lb	170-205 Nm	2 per Bracket	4
10 Shock Absorber fasteners (3/4")	150-175 Ft-Lb	200-230 Nm	2 per Shock	4
11 Track Rod Hanger Assembly fasteners (1/2")	60-80 Ft-Lb	80-100 Nm	6 per Hanger	6
12 Adjustable Torque Arm Assembly fasteners (7/8")	400-450 Ft-Lb	550-610 Nm	2 per Assy	2
13 * track rod assembly clamps* fasteners (5/8")	125-150 Ft-Lb	170-205 Nm	* 2 per rod *	2
14 Spring Beam Assembly fastener (1")	500-550 Ft-Lb	680-740 Nm	1 per hanger	2

Recommended Maintenance Schedules

1. Perform pre-service visual inspection (as outlined above).
2. Perform visual inspection after 1,000-3,000 miles (1600-4800 KM), check alignment and re-tape.
3. Perform visual inspection at Preventive Maintenance inspections, concurrent with DOT "C" inspections, annually.
4. Perform visual inspection during replacement of any service parts.
5. Perform visual inspection upon discovery of any loose components, check alignment and re-torque.

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.

Lb-ft = Foot - Pounds; Nm = Newton - Meters

Front Drive Axle Suspension System - Trouble Shooting - General		
Symptoms	Possible Causes	Remedies
Excessive vehicle roll or lateral movement (side to side movement)	Loose or worn spring beam pivot connection(s).	Tighten (see previous torque chart) or replace as required.
	Worn out spring beam pivot bushing(s).	Replace as required.
	Axle "U"-bolts loose.	Tighten (see previous torque chart) or replace.
	Worn or loose track rod.	Tighten or replace track rod.
Hard ride or axle bottoming out	Air suspension not operational.	Check height control valve(s).
	Incorrect ride height.	Adjust to correct ride height.
	Vehicle overloaded.	Reduce drive axle load.
	Defective height control valve(s).	Replace height control valves as required.
	Height control linkage disconnected or damaged.	Reattach or replace as required.
Tire hop or poor handling.	Loose or worn shock absorbers.	Tighten or replace shock absorbers.
	Incorrect tire pressure.	Correct tire pressure.
	Mismatched tires.	Install matched tires.
Prematurely worn front tires.	Incorrect ride height.	Adjust to correct ride height.
	Incorrect alignment.	Correct alignment.
	Bushings worn.	Check bushings for splits, tears, or excessive wear. Replace as necessary.

Air Control System - Trouble Shooting		
Symptoms	Possible Causes	Remedies
Air compressor runs excessively.	Air leaks.	Inspect all air lines, fittings, and air springs with a soapy water solution. Repair, retighten, or replace as required. Note: Plastic air lines must be cut square. See Air Control System Parts List (General Notes) for additional notes.
	Internal air leak in height control valve.	Insert exhaust tube into a cup of water and examine for bubbles. This will show evidence of both inlet and exhaust valve leaks. Replace components.
	Brake pressure protection valve malfunctioning.	Check operation and replace if necessary.
	Height Control Valve stuck in the exhaust position.	Locate obstruction and remove or relocate interference.

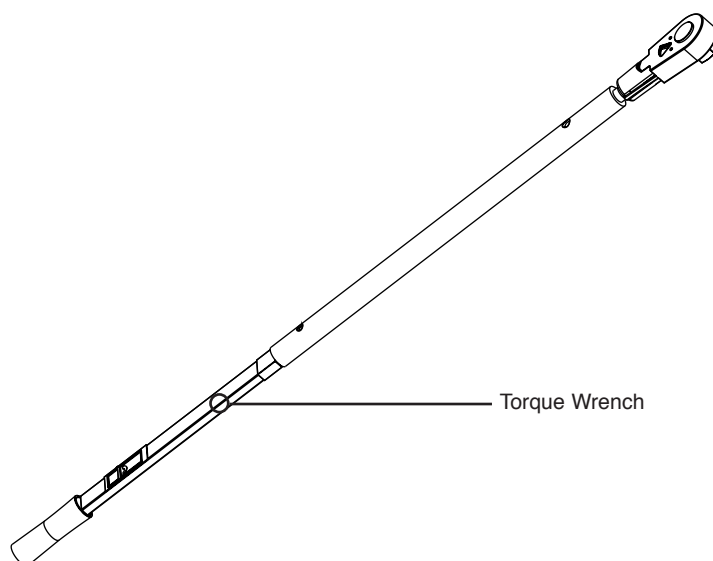
Maintenance Instructions Model 1200

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, lubricated and not deformed; consult the maintenance section for the correct torque specification and replace any fastener which is damaged or won't stay torqued. If bolts need to be replaced be sure to use the same grade of fastener.



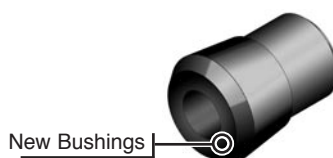
CAUTION: Specific Torque requirements are needed.



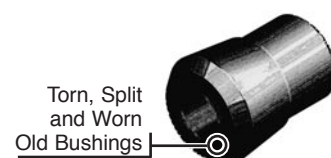
Torque Wrench

BUSHINGS

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



New Bushings



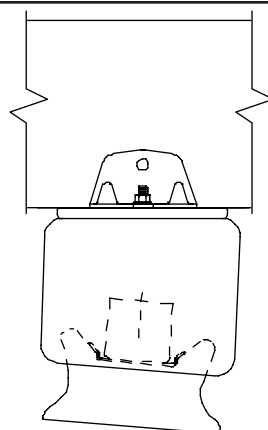
Torn, Split and Worn Old Bushings

ROUGH RIDE

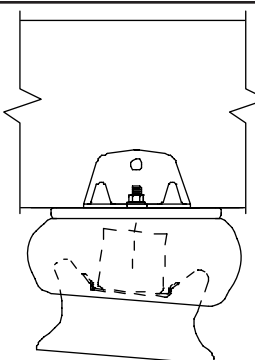
Check the air supply to the air springs. Visually check the air springs for proper ride height. See picture at right.

AIR SPRINGS

The air springs are equipped with internal bump stops for safety. However, do not operate the loaded unit on the bump stops for any extended period of time, except to move the unit to a repair facility.



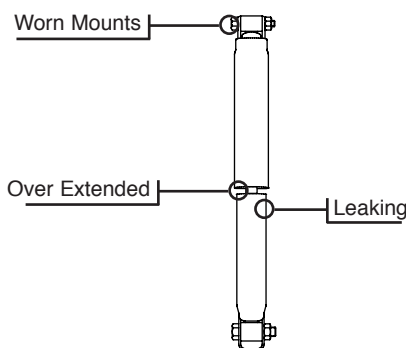
Properly Inflated



Under Inflated

SHOCKS

Shocks normally fail due to over extension. Check the mounting bolts to be sure no damage to the mounts has occurred. Shock replacement must be done with shocks recommended by the suspension or shock manufacturer. Shocks which are leaking badly need to be replaced immediately. A small amount of seepage, however, is not necessarily a sign of a defective shock absorber.



Worn Shock

Normal Shock

AXLE RE-ALIGNMENT

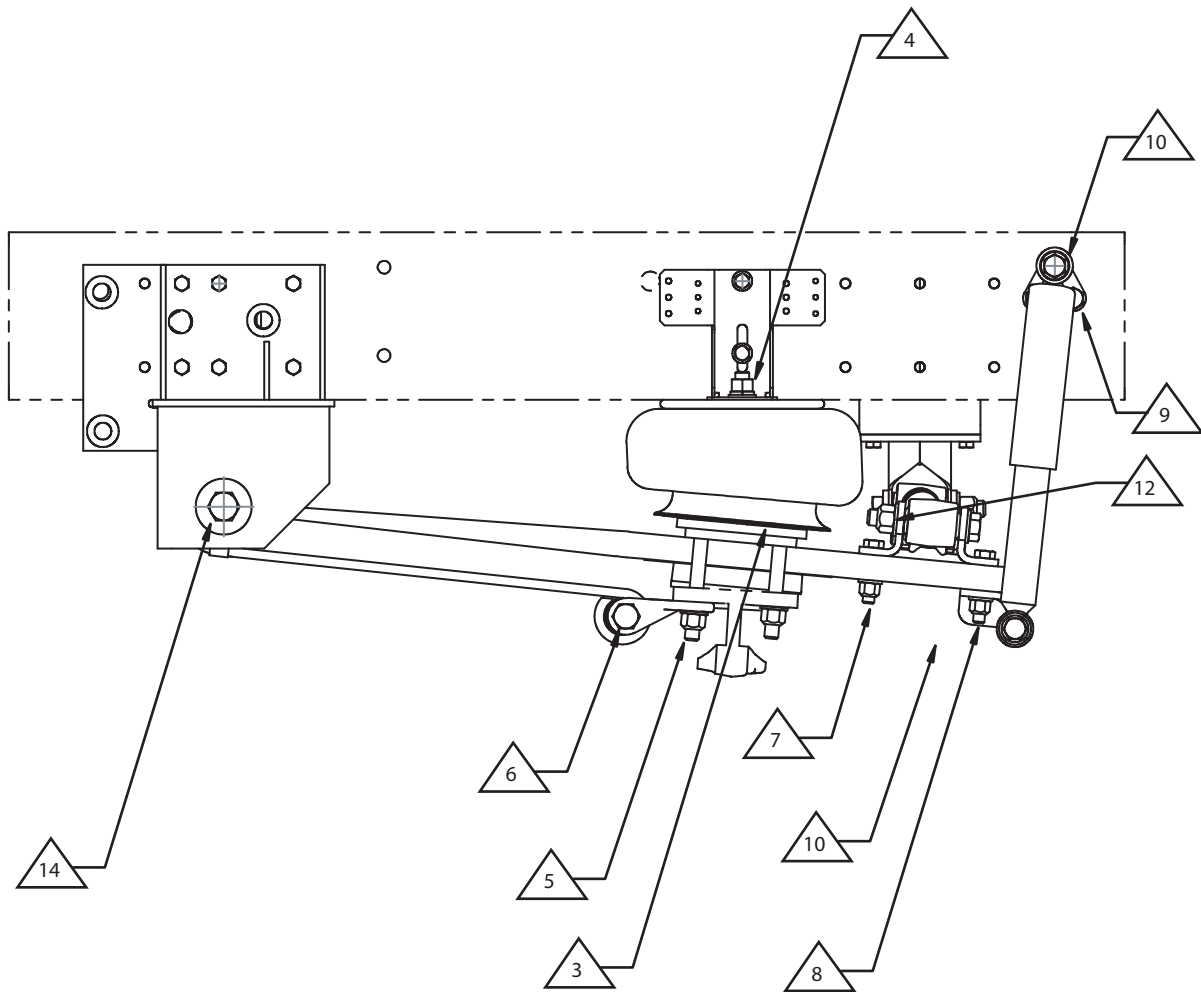
NOTE: If an alignment problem should occur, the unit must be re-aligned. The alignment bushing must be loosened from the RH Front Hanger Assembly.

1. Loosen and remove 1" fasteners (nut, bolt and washers) from both the LH and RH Front Hanger Assemblies.
2. Disconnect both the LH and RH Spring Beams by allowing the whole axle and connected parts to move down out of the way. This may need to be supported with a cable or chain.
3. **CAREFULLY** remove the weld from around the RH Front Hanger Assembly alignment bushing.
4. Clean the sides of Hanger Assembly, so that a new alignment bushing will fit into the slot without interference.

5. Re-connect both the LH and RH Spring Beams to Front Hanger Assemblies with 1" fasteners and new alignment bushings. Snug fit fasteners, do not torque.

6. Repeat Installation Section: **FINAL ALIGNMENT AND TORQUE.**

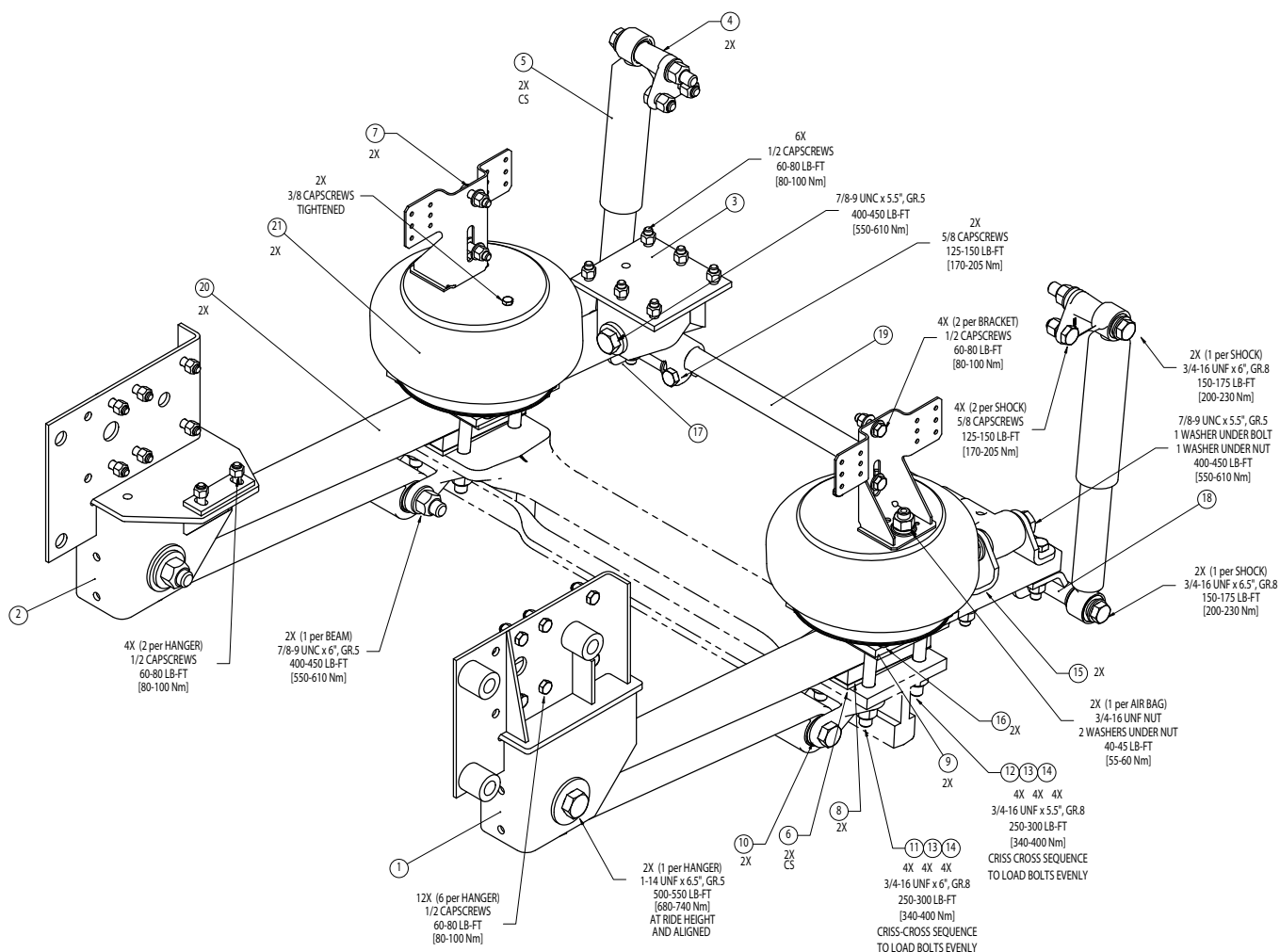
NOTE: Prior to ¼" alignment bushing weld, check torques all around and re-torque if required.



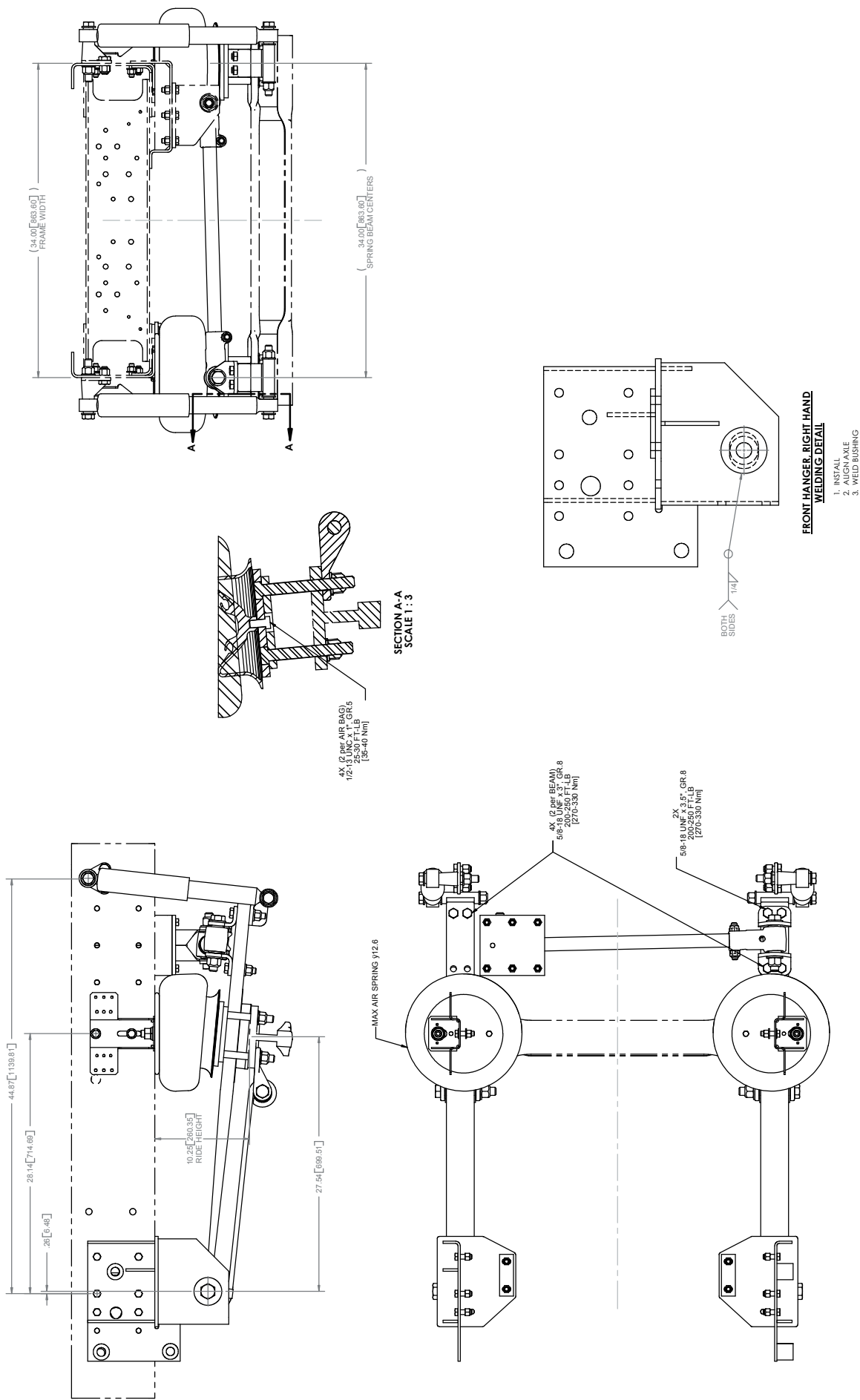
Reference Torque Chart for specific torque values.

Maintenance Instructions Model 1200

ITEM #	PART #	DWG #	KIT # -VS- CS	DESCRIPTION	QTY
1	704896-01	704896	K704905	FRONT HANGER ASSEMBLY - LH	1
2	704896-02	704896	K704905	FRONT HANGER ASSEMBLY - RH	1
3	20271-01	93033	K704905	TRACK ROD HANGER ASSEMBLY	1
4	18257-01	89465	K704905	UPPER SHOCK BRACKET, CAST	2
5	-	-	CS	SHOCK	2
6	495364C1	-	CS	SPRING WEDGE 2 ∞	2
7	23103-01	97004	K704906	TOP AIR SPRING SUPPORT, UNIVERSAL	2
8	22307-01	95282	K704906	SPACER BLOCK - 1" HIGH AXLE SEAT	2
9	704880-01	704880	K704906	BOTTOM AIR SPRING SUPPORT ASSY	2
10	17020-04	94015	K704906	AXLE/SPR ATTCHMNT BRCKT	2
11	15246-01	62158#2	K704906	HCS (3/4-16UNF-2A X 6 LG) GR 8	4
12	14480-01	62158#2	K704906	HCS (3/4-16UNF-2A X 5.5 LG) GR 8	4
13	14344-01	93281	K704906	LOCK NUT (3/4-16UNF-2B) CLASS C	8
14	20852-01	93403#2	K704906	WASHER (3/4 ID)	8
15	21491-02	94230	K704906	TRACK ROD BRACKET	2
16	23519-01	97236	K704906	BOLT RETAINER	2
17	25025-02	99059	K704906	LOWER SHOCK ABSORBER ASSEMBLY - RH	1
18	25025-01	99059	K704906	LOWER SHOCK ABSORBER ASSEMBLY - LH	1
19	21300-01	87109	COMPLETE ASSY	ADJ TORQUE ARM ASSY REF(29.875)	1
20	20163-03	94270#2	COMPLETE ASSY	SPRING BEAM ASSEMBLY	2
21	23377-01	97387	COMPLETE ASSY	AIR SPRING ASSEMBLY	2



Front Axle Air-Ride Suspension System



Front Axle Air-Ride Suspension System

Maintenance Instructions Model 1200

Tuthill Transport Technologies (The Company) warrants ReycoGranning suspension products manufactured by it to be free from defect in material and workmanship that occurs under normal use, and service, subject to the following conditions and limitations.

Trailer suspension models: 21B Cast, 21B Fab., 74B and 88.

Powered Vehicle suspension models: 79AR, 79KB, 102 Series, 102AR, 240AR, 510AR, 610AR, and 1200.

1. Coverage is per below in months or in kilometers/miles depending upon which occurs first.

Months	Kilometers/Miles	Coverage Provided
0 - 12	160,000/100,000	Parts and Labor Allowance
13 - 24	320,000/200,000	Parts Only

2. This warranty shall not apply, and no warranty of any kind shall exist, as to any product which has been subject to abuse, misuse, neglect, misapplication or accident of any type or cause or which has been repaired, replaced, substituted or used with parts other than genuine parts of The Company or has been altered by anyone.
3. This warranty shall not apply, and no warranty of any kind shall exist, on normal wear and deterioration resulting from the normal use of the suspension system.
4. The Company shall not be liable for the loss of use of any product, loss of time, inconvenience, commercial loss or any other indirect consequential, special or incidental damages due to breach of the above warranty of any other failure to comply with the terms of the contract between The Company and The Buyer. The Company makes no warranties of any kind, express or implied, other than as herein expressly provided, and specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.
5. With respect to parts manufactured by others, The Company shall have no duty except to assign to buyer any claim, which The Company may have against the manufacturer thereof. (The Company warrants purchased components to the same extent as the Warranty extended by the original manufacturer to The Company). This warranty does not apply to the normal "wearing out" of rubber bushings, shock absorbers, etc., or sacrificial wear areas such as springs to hangers.
6. The determination of the reasonable cost of labor as required in paragraph one (1), shall be made in accordance with The Company shop standard times. Maximum hourly allotment for labor cost is determined by The Company annually. Shop standard times and the maximum hourly allotment for labor may be revised periodically at the sole discretion of The Company.
7. The Company is not responsible for damages from improper installation or operations beyond design capability. The Company, in its sole discretion, shall determine whether or not any product is defective or otherwise covered by this warranty. No action for breach of this warranty may be commenced more than one year after the occurrence of alleged breach. This warranty is not transferable.
8. Retention of possession or use of the product for the warranty period shall constitute an unconditional acceptance thereof and fulfillment of all warranties and obligations of The Company and no assistance rendered by The Company in operating the product or remedying any defect either before or after that time shall operate to extend the warranty period.

PRODUCT INSTALLER RESPONSIBILITIES

9. Installer is responsible for installing the product in accordance with The Company specifications and installation instructions.

Installer is responsible for providing proper vehicle components and attachments, as well as, required or necessary clearance for suspension components, axles, wheels, tires, and other vehicle components to ensure a safe and sound installation and operation.

Installer is responsible for advising the owner of proper use, service and maintenance required by the product and for supplying maintenance and other instruction as readily available from The Company.

PRODUCT OWNER RESPONSIBILITIES

10. Owner is solely responsible for pre-operation inspection, periodic inspections, maintenance, and use of the product as specified by The Company in the particular instructions, available by product model, except as provided in this warranty, and for maintenance of other vehicle components. Of particular importance is the re-torque of fasteners including axle u-bolts, torque arm bolts and track rod bolts. This re-torque must be done within 90 days of the suspension being put in service. Owner is responsible for "down time" expenses, cargo damage, and all business costs and losses resulting from a warrantable failure.

WARRANTY CLAIM PROCEDURES

11. For a claim to be considered it must contain adequate documentation which states vehicle mileage, in service date of vehicle*, product model, where and how used, and a Tuthill Return Material Authorization Number. This claim must be made within six months of failure of the component. Such part or parts must be returned to The Company, transportation charges paid. The Company reserves the right to inspect any returned components to determine cause of defects.

*In Service Date is defined as follows:

NEW VEHICLE – license and registration date

AFTERMARKET – date of installation, service invoice

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