Reyco Granning
SUSPENSIONS

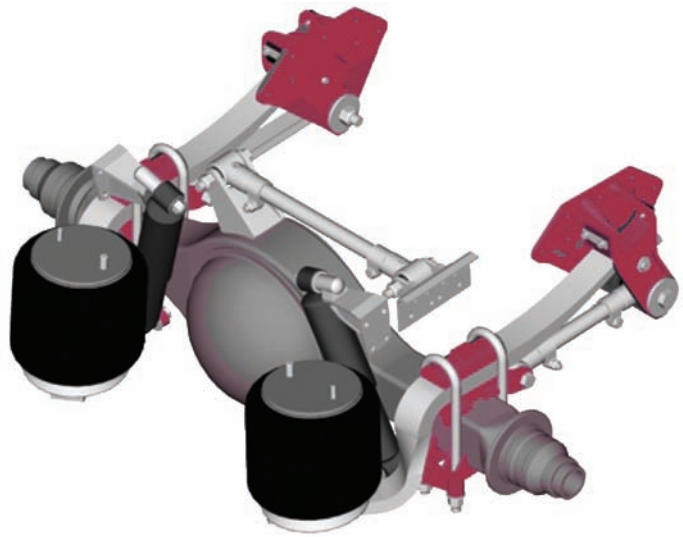
RV SUSPENSIONS

Model 240AR

Air-Ride Suspension System

Installation and Maintenance

Instructions



TUTHILL
Transport Technologies

QVA
Quality: Providing worry-free reliability
Value: Exceeding customer expectations
Availability: Delivering on our promise, on time, every time

COMPANY PROFILE

Tuthill Transport Technologies is the new 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.

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.

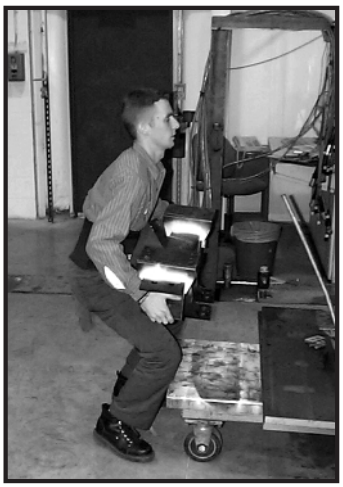
Tuthill Corporation is a privately held manufacturing company with over 3,000 employees and facilities on five continents. Tuthill's corporate offices are located in Burr Ridge (Chicago), Illinois.

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.



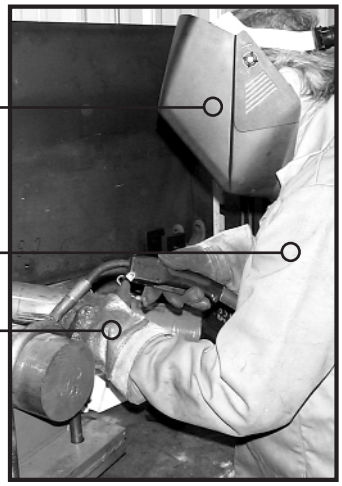
PARTS HANDLING

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

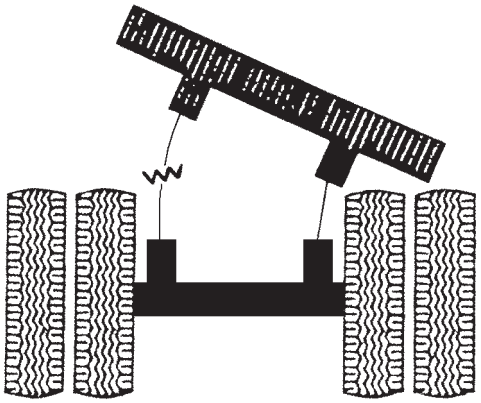
WELDING

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.



WARNING

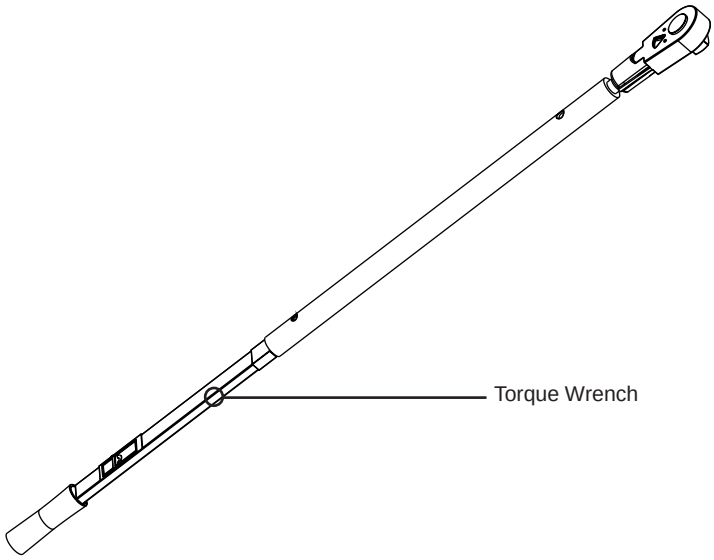


OVERLOADING

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 needed.



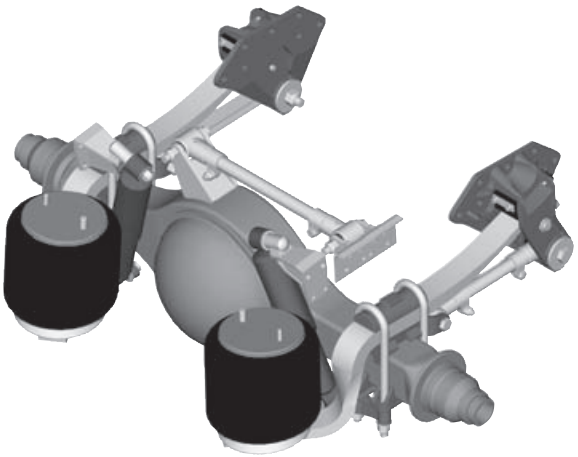
TORQUE

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.

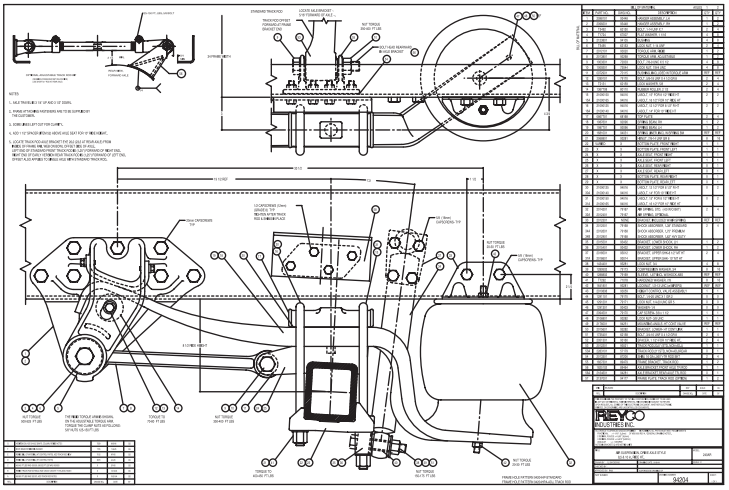
NOTE: **It is extremely important after the first 1,000 to 3,000 loaded miles (1,600 - 4,800 kms) of operation, and with each annual inspection thereafter, that all of the bolt and nut tightening recommendations be followed. Any loose fasteners must be retorqued to comply with warranty requirements and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

240AR INFORMATION SECTION

The ReycoGranning Model 240AR is a four (4) point single axle / an eight (8) point tandem axle air spring tractor suspension which uses two (2) air springs coupled to two (2) trailing taper-leaf beams per axle, and incorporates torque arms to position and align the axles. Best performance can only be achieved by proper installation and maintenance. Track rods are required for all axles.



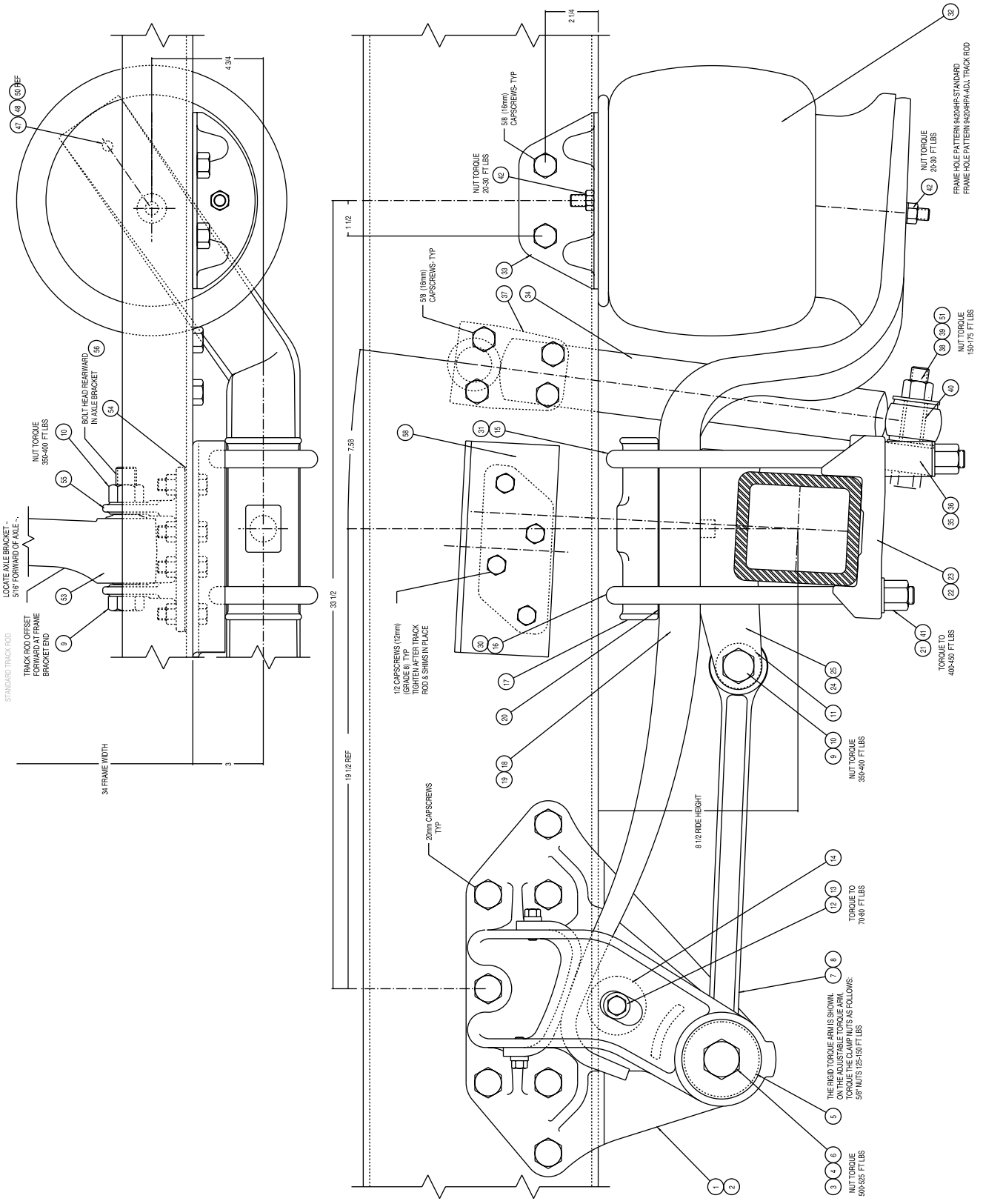
1. Normally, prior to any installations at an OEM engineering contacts between companies have been made, and all necessary information to make an installation has been exchanged. However, the following general steps are listed in the interest of all involved and should be included in an OEM plan to install the suspension.



2. Refer to REYCO GRANNING assembly drawing 94204 (pg. m.5) showing the 8 1/2" ride height for dimensions and component locations. This drawing shows the frame hole pattern.
Consult Tuthill Transport Technologies (TTT) Engineering or Sales Department for additional requirements.

3. The following instructions are for “standard” single axle installation, 8 1/2" ride height, front engine configuration. Many other versions have been created, and are available upon request.

See page i.4 for a view of the “standard” configuration.


Suspension Assembly Drawing #94204
FRAME HOLE PATTERN 9420HPS-STANDARD
FRAME HOLE PATTERN 9420HPPA-ADJ. TRACK ROD
NUT TORQUE 20-30 FT LBS
5/8 (16mm) CAPSCREWS- TYP
NUT TORQUE 150-175 FT LBS
NUT TORQUE 350-400 FT LBS
BOLT HEAD REARWARD IN AXLE BRACKET
LOCATE AXLE BRACKET - 5/16" FORWARD OF AXLE -.
TRACK ROD OFFSET FORWARD AT FRAME BRACKET END
STANDARD TRACK ROD
1/2 CAPSCREWS (12mm) (GRADE 8) TYP TIGHTEN AFTER TRACK ROD & SHIMS IN PLACE
TORQUE TO 400-450 FT LBS
20mm CAPSCREWS TYP
8 1/2 RIDE HEIGHT
TORQUE TO 70-90 FT LBS
THE RIGID TORQUE ARM IS SHOWN. ON THE ADJUSTABLE TORQUE ARM TORQUE THE CLAMP NUTS AS FOLLOWS: 5/8" NUTS 125-150 FT LBS
NUT TORQUE 500-525 FT LBS
34 FRAME WIDTH
19 1/2 REF
33 1/2
7.50
1 1/2
2 1/4
4.94
3

HANGER INSTALLATION (refer to illustration on page i.4)

4. Mark frame rails at centerline locations of hanger brackets. Cross-members are required at all hanger locations. Crossmembers are customer supplied.

Single axle is shown on page i.4. 52" (1,321mm) tandem axle spacing is standard. A 54" (1,372 mm) tandem spacing is optional.

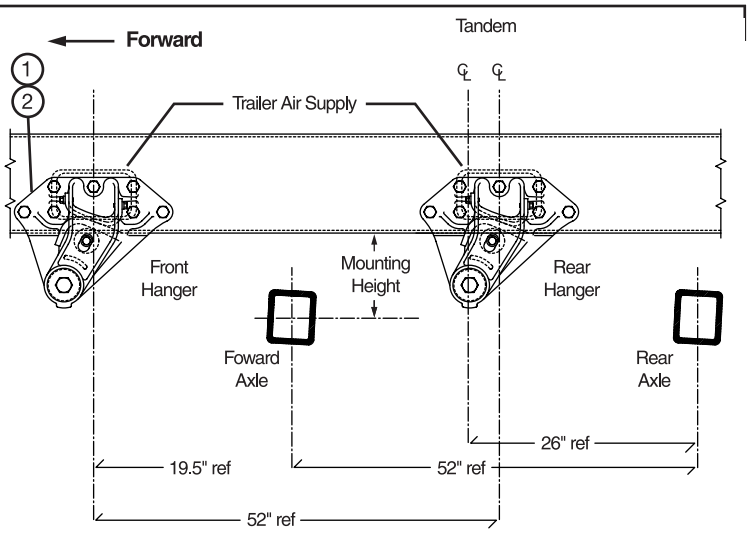
Locate hangers (items 1 & 2) on proper vertical position on frame rails as shown below, while referencing dimension to axle centerline of vehicle.

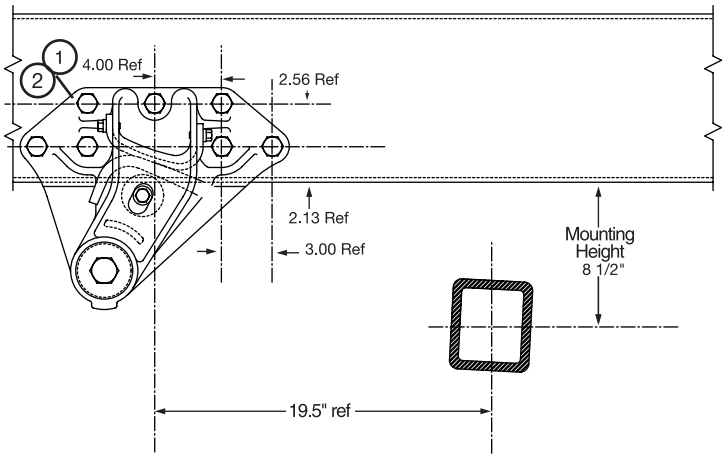
NOTE: **Vertical hanger location must be as shown or be compensated by adjusting air spring height accordingly (to maintain proper pinion angles).**

Hangers are furnished with standard drilled or special drilled holes.

5. Drill holes through frame rails (20 mm standard). Mount hangers (items 1 & 2) and crossmembers using Class 8 fasteners. Fasteners are customer supplied.

CAUTION: Specific torque requirements are needed.

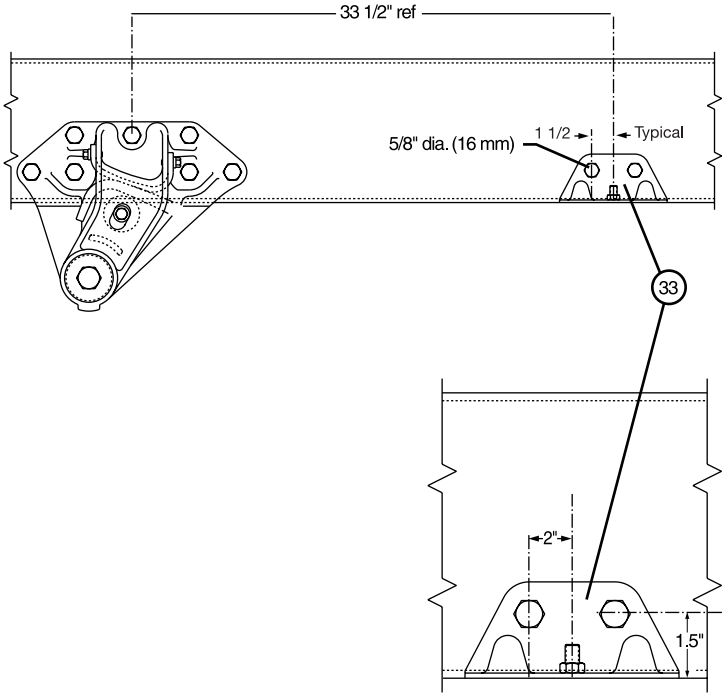


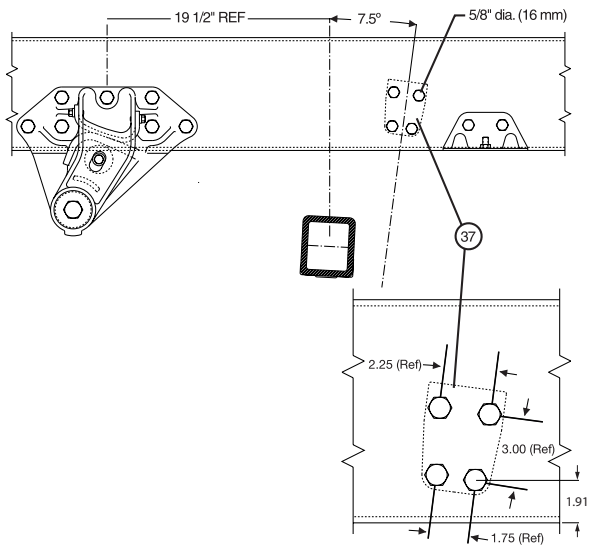


UPPER FRAME PREPARATION

Air Springs

6. Locate and drill frame for air spring bracket assembly and mount brackets (item 33) on frame. See illustration on page i.4. Fasteners are customer supplied.

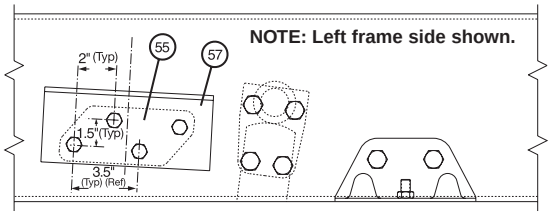


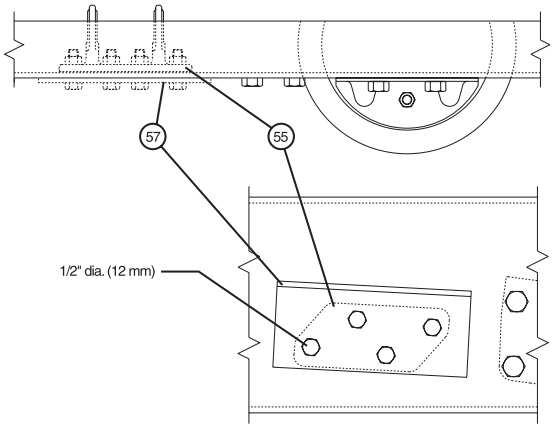


SHOCK ABSORBERS

7. Locate and drill frame for upper shock absorber brackets (item 37) and mount brackets on frame. See frame hole pattern. Fasteners are customer supplied.

CAUTION: Specific torque requirements are needed.



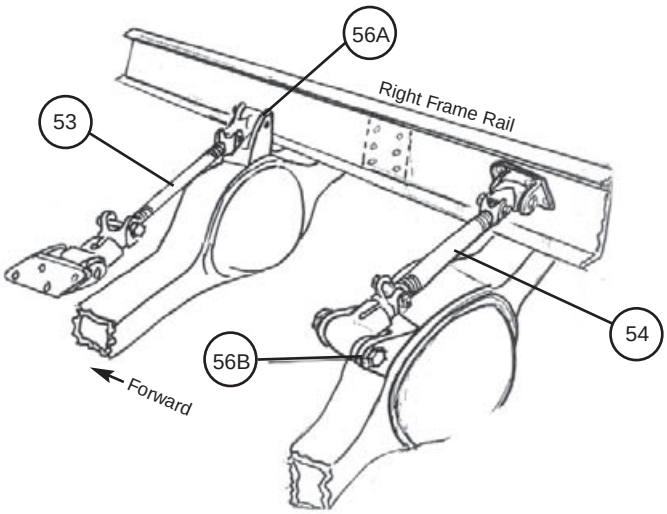


TRACK ROD - SINGLE AXLE

8. One track rod (item 53) is to be installed at the top of each axle bowl housing, reference REYCOGRANNING drawing 94204. TTT recommends that a single drive axle be supported by a track rod mounted on the right hand frame rail.

Locate and drill frame for track bar brackets (item 55) and mount the brackets on frame sides, along with frame plate (item 57). Fasteners are customer supplied. Location varies with axle angle and second fixed or adjustable track rod.

CAUTION: Specific torque requirements are needed.



TRACK ROD - TANDEM DRIVE AXLES (Adjustable Track Rods Shown)

9. One track rod (item 53) is to be installed near the top of each axle bowl housing. TTT recommends that the axle bracket (item 56) be installed on the "offset side" of the axle. This means that the front drive axle is supported from the left frame rail, and the rear drive axle is supported from the right frame rail. See drawing 94204 for more details.

Kit #TK22426 is typical for a tandem axle.

NOTE: **Rear axle hardware has shorter (21" long) track rod and forward tilting axle bracket (item 56B) to avoid shock absorber interference.**

HEIGHT CONTROL VALVE AND AIR SYSTEM

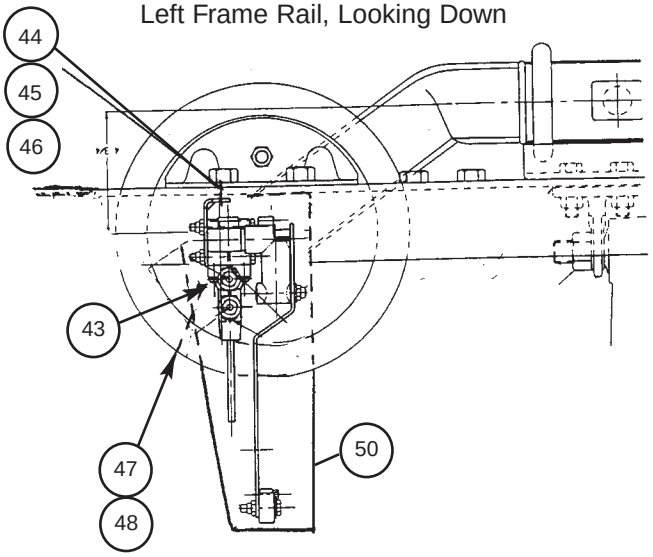
10. One height control valve (HCV) (item 43) is used, regardless of the number of axles. The air springs on each side of the tractor are connected by 3/8" (9.5 mm) minimum diameter tubing (customer furnished). Care must be taken to insure the HCV is positioned as shown.

11. Install the HCV (item 43) to the left hand frame rail using the mounting brackets and fasteners furnished (items 44, 45, 46, 47, 48, 49).

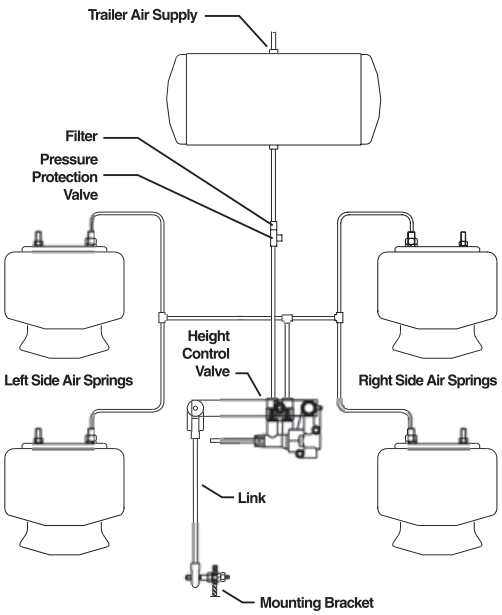
TTT requires that the HCV be located on the forward axle of the tandem (if required).

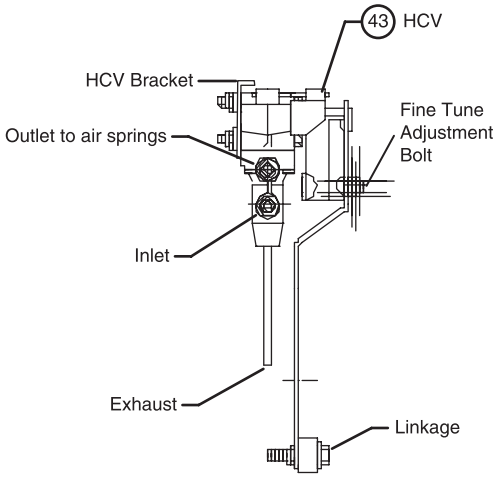
A bracket (item 50) is provided and located on the lower spring beam assembly to aid in the connection of the HCV linkage arm.

Left Frame Rail, Looking Down



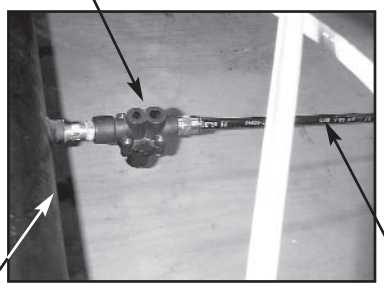
Plumbing Diagram
Air Supply With Height Control Valve

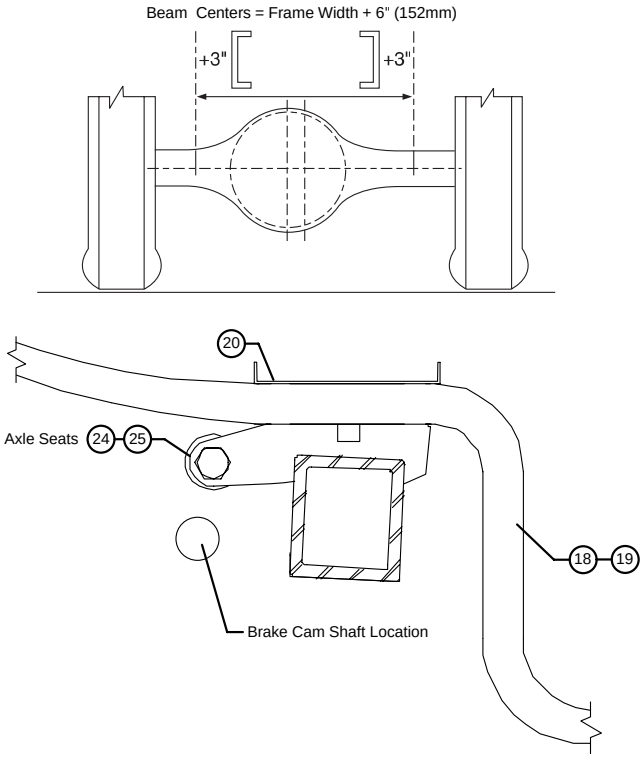




12. Using customer supplied materials, connect the HCV to all air springs using 3/8" (9.5 mm) diameter tubing. As with any pressure system, check for leaks and eliminate leakage, if present. The pressure protection valve (item 58) is positioned between the HCV and the air reservoir.

Pressure Protection Valve and Air Filter (item 58)



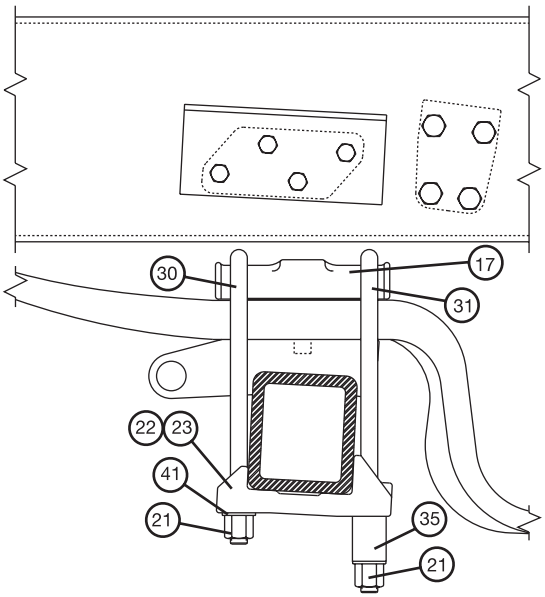


AXLE ASSEMBLY

13. Spring beam (item 18 & 19) centers are frame width plus 6" (152 mm). Establish beam centers on axle housings. If dowel pins are used, place axle seats in position on dowel pins located on axle. If dowel pins are not used, place axle seats on established beam centers.

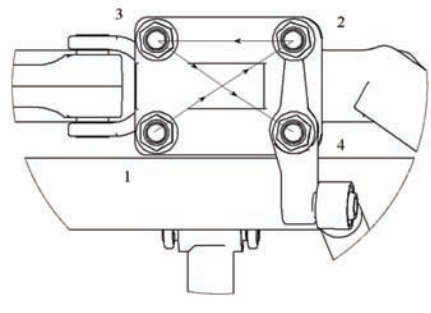
14. Position the spring beams (item 18 & 19) on the axle seats (items 24, 25). Install a galvanized spring liner (item 20) on the top (tension) side of the spring beam.

NOTE: **Brake cam shafts must be on forward side of axle for clearance. Be sure that the axle seats selected provide brake chamber and brake cam shaft assembly clearances.**



15. Assemble the u-bolts (items 30 & 31), top plates (item17), bottom plates (item 22 & 23), lower shock absorber brackets (item 35), washers (item 41) and nuts (item 21) into each group. Be sure liners (item 20) remain in proper position while loosely installing u-bolts. Do not torque u-bolt nuts at this time.

NOTE: **Lower shock absorber bracket is assembled at the rear side of each group as illustrated.**



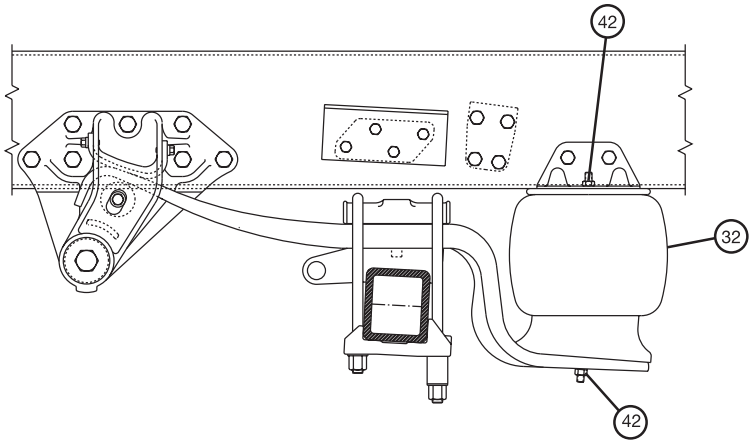
16. Square the spring beams to the axle assembly and torque u-bolt nuts (item 21) to 400-425 ft. lb. (545-580 NM). Make sure spring beams remain parallel to each other and to frame as torque is applied. Nuts should be incrementally torqued in a criss-cross pattern (see illustration) to assure even torque and to keep bottom plates in their proper position.

CAUTION: Specific torque requirements are needed.

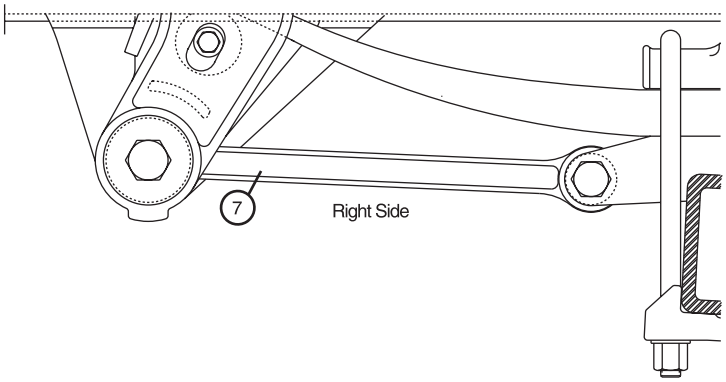
BEAM/AXLE ASSEMBLY INSTALLATION

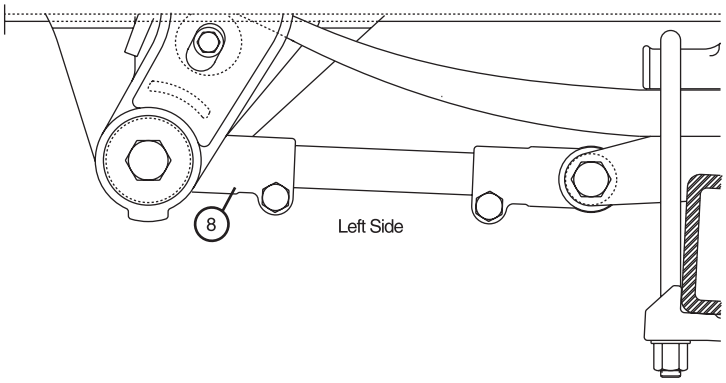
17. Position the axle/suspension assembly under the vehicle with the spring beams resting in the hangers. See Illustration.

18. Install air springs (item 32) in upper brackets and in trailing beams using fasteners provided (item 42).



19. Set length of adjustable torque arm (item 8) equal to that of the rigid torque arm (item 7). Adjustable torque arms are for the left side of the vehicle, rigid for the right. Install torque arms using the following procedure.

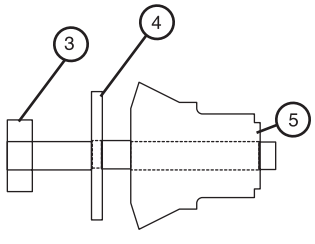


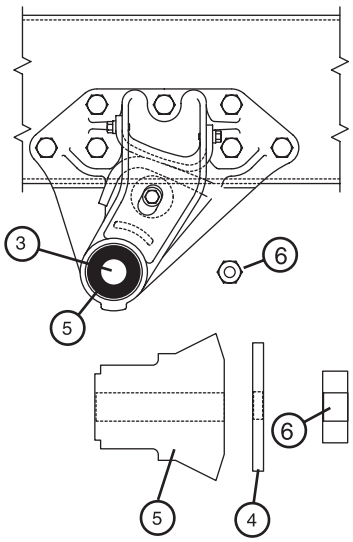


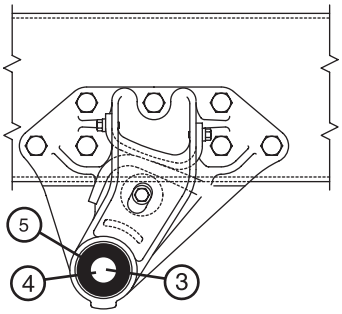
HANGER END TORQUE ARM ASSEMBLY

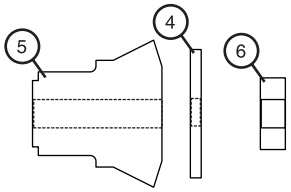
20. Place compression washer (item 4) and rubber bushing (item 5) on torque arm bolt (item 3) and insert through the outside of the hanger and torque arm end. Use a lubricant that makes rubber slippery while wet but will dry.

Example: P80 rubber lubricant and water or soap and water. DO NOT USE any petroleum-based lubricants or sprays.



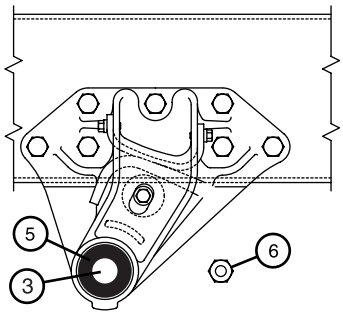






21. Lubricate and place the second rubber bushing and compression washer on the bolt from the opposite side of the torque arm. Use rubber lubricant.

Note: **Both ends of torque arm should be loosely assembled before tightening lock nuts in steps 22 and 23.**

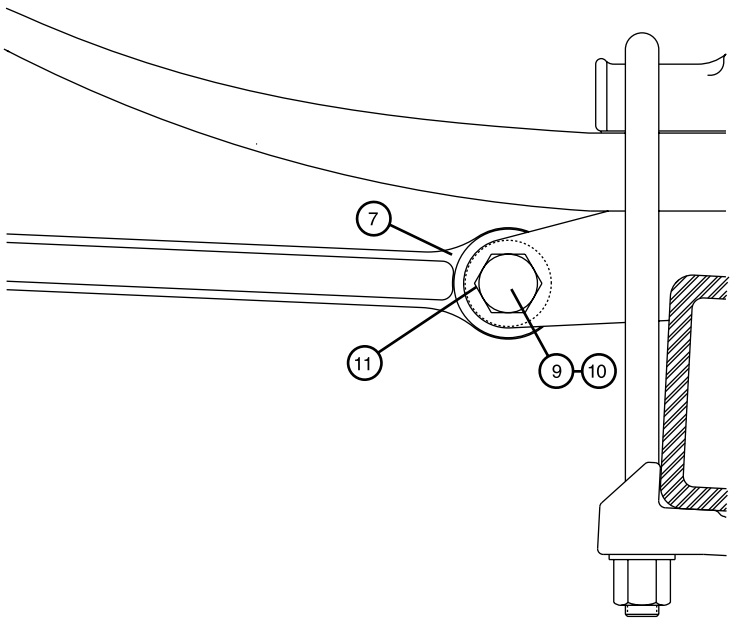


22. Tighten the nut (item 6) to 500-525 ft. lb. (680-715 NM). There should be an even build-up of rubber on each side of the torque arm between the torque arm and the hanger. Also, a small 1/16" & 1/8" of build-up rubber between the compression washers and the hanger. There should be between 1/16" to 1/8" bead of rubber between the compression washer and casting.

NOTE: **Do not tighten the adjustable torque arm clamping fasteners until after final alignment.**

NOTE: **It is desirable to have suspension at ride height when steps 22 and 23 tightening is done.**

CAUTION: Specific torque requirements are needed.

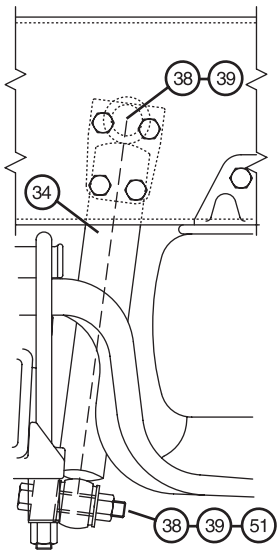


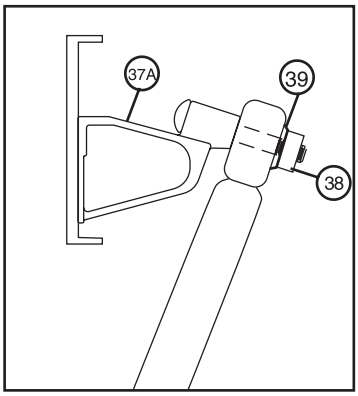
AXLE SEAT END TORQUE ARM ASSEMBLY

23. Install the axle seat end of the torque arm into the axle seat (bushing, item 11, is already installed in torque arm) with bolt (item 9) and nut (item10). Torque to 400-425 ft. lb. (542-576 NM). Rigid side shown.

CAUTION: Specific torque requirements are needed.

24. Install shock absorbers (item 34) into correct positions as illustrated. Install fasteners into positions securely, but do not torque until after all adjustments are complete (item 38, 39 & 51).





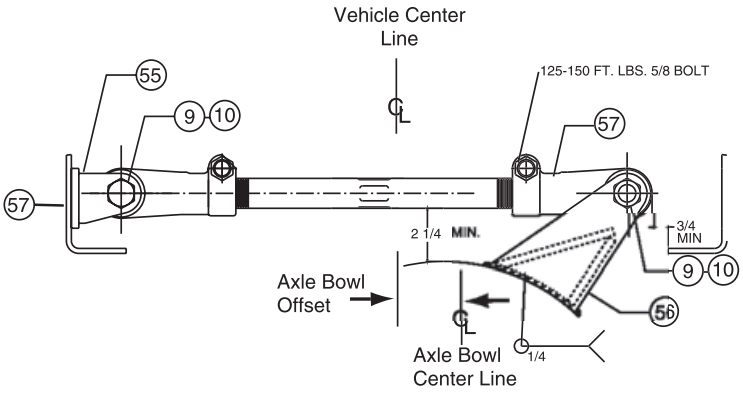
TRACK ROD ASSEMBLY - SINGLE AXLE

25. Install the track rod (item 53) into the proper bracket (item 55) on the frame. Loosely install item 56 on track rod, using the fasteners provided (item 9 & 10).

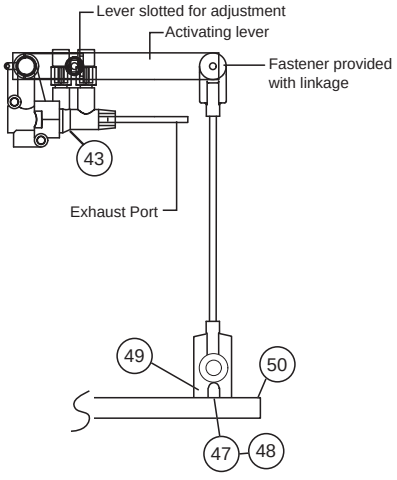
Check to see that no binding is occurring between the spring leaf beams and hangers. The single axle model 240AR is supported from the right frame rail. With track rod level and frame at proper ride height, locate item 56 on axle and weld in place.

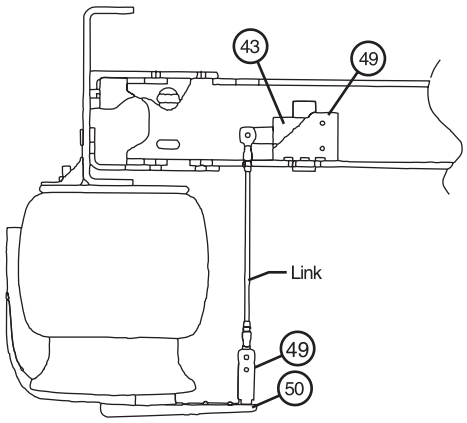
Torque after adjustments are made and proper ride height is maintained.

NOTE: **If beams are in contact with sides of hangers, center them by adjusting length of lateral track rod(s).**



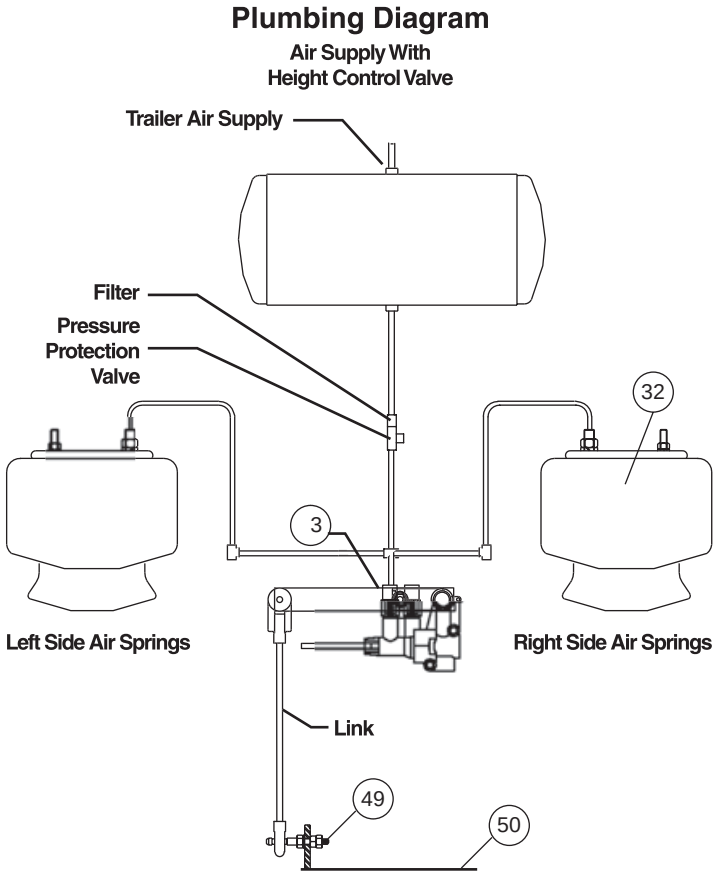
26. Install the linkage for the height control valve (item 43) between the valve and the bracket (item 50) below the “control” air spring, using the mounting angle (item 49) and the fasteners provided (item 47 & 48).





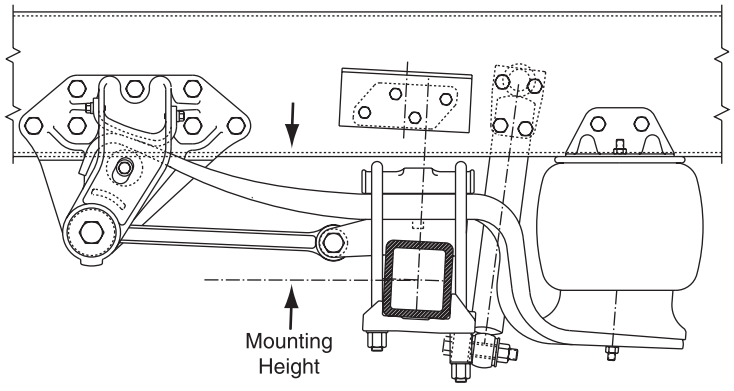
HEIGHT CONTROL SYSTEM CHECKOUT

27. Position unladen tractor on a level floor with tank air pressure maintained in excess of 70 psi. Disconnect the link and move the control valve (item 43) actuating lever to insure all the air is exhausted from the air springs.



28. Connect the link and let the air springs fill with air until it shuts off. Measure distance from axle center to frame and adjust to proper mounting height. (Determined by OE Engineering). See pg. i.5 Step 4 for location.

Loosen the hose clamp at the control valve and carefully move the link until the proper dimension is reached.



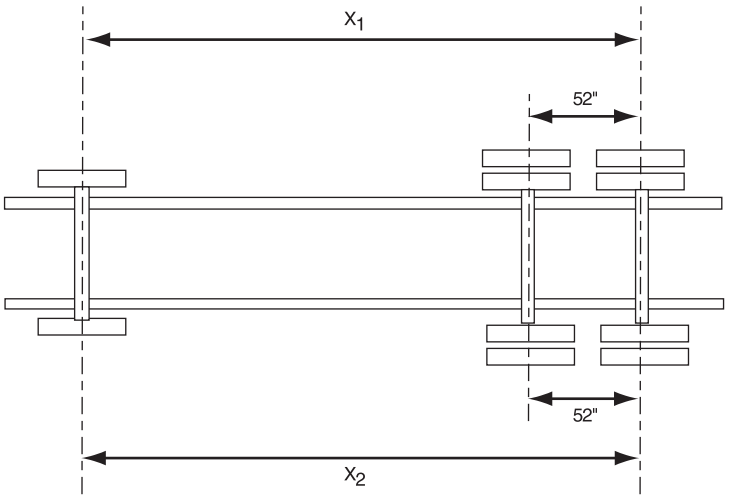
29. Recheck by disconnecting the link and deflating the air springs about half way. When the link is reconnected, the spring should reinflate to the proper mounting height.

Torque all linkage fasteners to 5 ft. lb. (7 NM).

CAUTION: Specific torque requirements are needed.

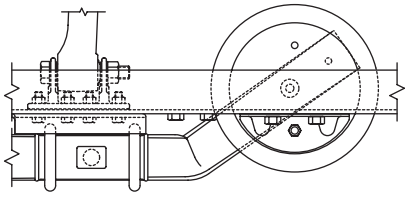
PRELIMINARY ALIGNMENT

30. Position the frame at the desired mounting height and perform preliminary rough alignment by centering axle laterally, and aligning axles squarely with respect to frame to within 1/4" (right and left compared). Axle spacing should be optimized at 52". x1 = X2 ±1/4".

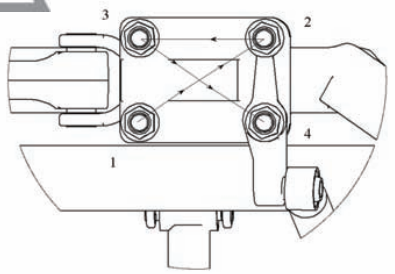


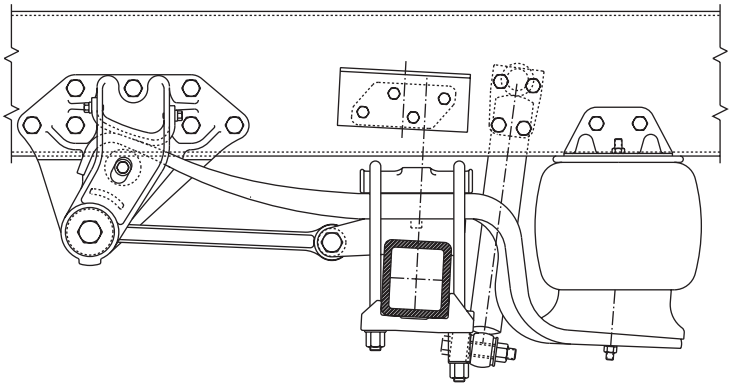
FINAL ALIGNMENT AND INSTALLATION

31. At this point, retorque u-bolts to 400-425 ft. lb (542-576 NM) and torque all other loose fasteners to the values listed on the assembly drawing and on pg. m.1. Gradually bring the torque up in steps to avoid disturbing any alignments.



CAUTION: Specific torque requirements are needed.

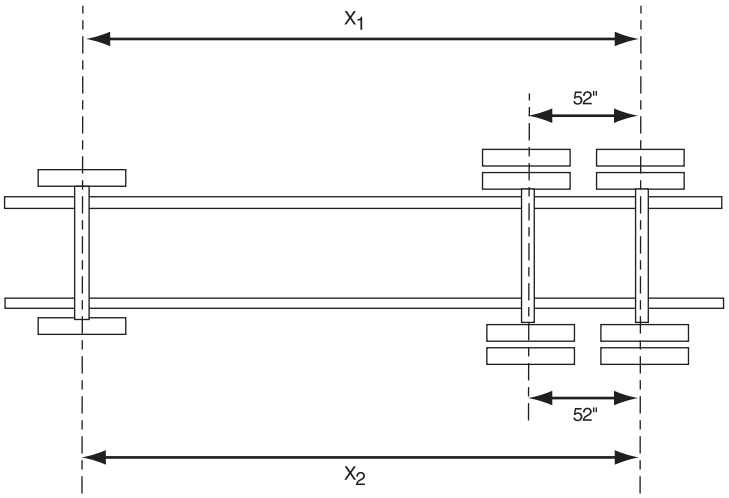




For u-bolt torque specifications refer to pg. i.8.

32. With the air system operating, perform final alignment by adjusting torque arm lengths to align within 1/8" (right and left compared).
Tighten the adjustable torque arm clamping fasteners. See page m.2 for more detailed alignment instructions.

CAUTION: Specific torque requirements are needed.



Maintenance Instructions Model 240AR

The ReycoGranning Model 240AR Air Ride Suspension by design, requires a minimum of maintenance. Suspension systems require periodic checks to assure continued, trouble-free performance.

RECOMMENDED MAINTENANCE SCHEDULES

1. Pre-service inspection.
2. First service inspection, after 1,000-3,000 miles, (1600-4,800 km).
3. PM inspections, concurrently with required annual inspection.
4. During replacement of any service parts.
5. Upon discovery of any loose components.

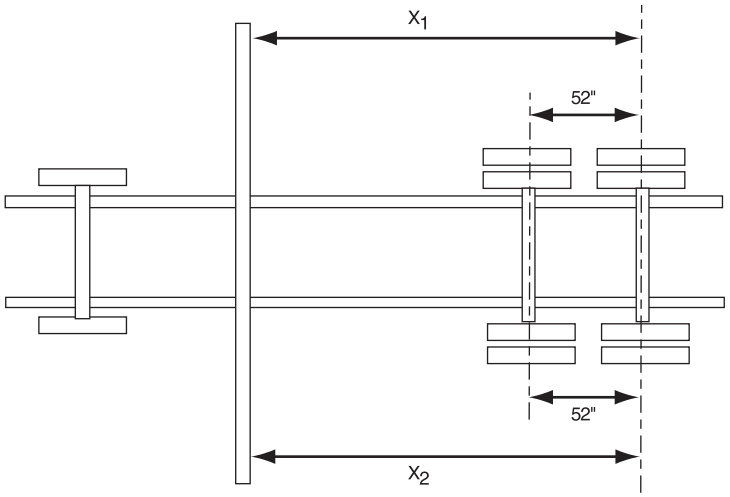
TORQUE REQUIREMENTS (Verify with each inspection.)		
Tighten 7/8" u-bolt nuts	400-425 ft lb	545-580 Nm
Tighten 3/4" shock absorber end nut	150-175 ft lb	205-240 Nm
Tighten 1" torque arm end nut, hanger end	500-525 ft lb	680-715 Nm
Tighten 7/8" torque arm end nut, seat end	400-425 ft lb	545-580 Nm
Tighten 5/8" torque arm / track rod clamp nut	125-150 ft lb	170-205 Nm
Tighten 1/2" air spring mount fasteners	25-30 ft lb	35-41 Nm
Tighten 5/8" beam retainer bolt	70-80 ft lb	95-110 Nm
Tighten 7/8" track rod end nut	400-425 ft lb	545-580 Nm
Tighten 1/4" air valve and linkage nut	5 ft lb	7 Nm

VISUAL INSPECTION

1. Loose or missing fasteners, especially U-bolt nuts.
2. Damaged hangers or axle connection brackets.
3. Axle and spring alignment.

All torque values are with clean, dry, fasteners, and should only be verified with a quality calibrated wrench, of known accuracy. Failure to follow these recommendations could void the 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.

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



IN SERVICE SUSPENSION ALIGNMENT INSTRUCTIONS

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

Check front wheel with tractor brakes released. Before alignment, make certain that all beams are not binding; that u-bolts and torque arm bolts are torqued to the manufacturers specifications, and all bushings are in good condition.

NOTE: **If beams are in contact with sides of hangers, center them by adjusting length of lateral track rod(s).**

Clamp an 8' (2,438 mm) piece of straight bar stock or angle iron securely after positioning it squarely across the frame. (The use of a carpenters 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 fixed torque arm side, measure from the bar stock to the centerline of the rear drive axle on both sides.

If the measurements, x1 and x2, vary more than 1/8" (3.2 mm), alignment adjustment should be made through the adjustable torque arm side. After aligning, tighten the 5/8" (15.9 mm) adjustable torque arm clamp bolts to 125-150 ft. lb. (170-205 Nm).

CAUTION: Specific torque requirements are needed.

Once the rear drive axle is properly aligned, the front axle can then be aligned to the rear with the use of a standard trammel bar within +/- 1/16" (1.6 mm).

Following the alignment of both axles, it is recommended that it be driven through a short series of turns and then returned to the shop and the alignment rechecked, after again freeing all suspension joints by moving it back and forth several times.

Check the alignment after the first 1,000-3,000 (1,600-4,800 kms) loaded miles of operation and during each annual inspection.

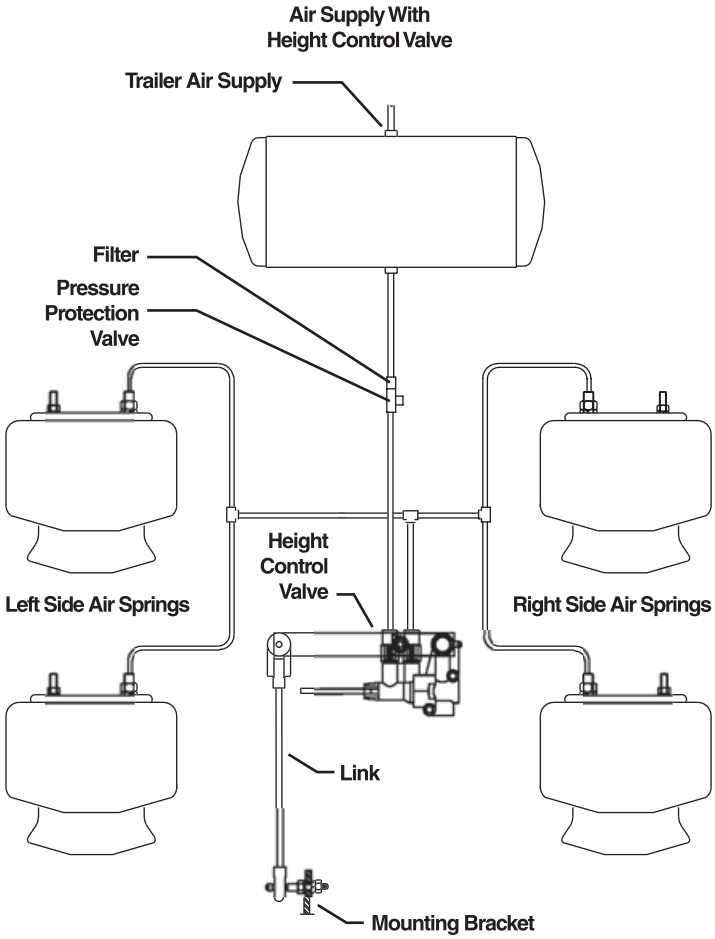
TROUBLE SHOOTING GUIDE - AIR

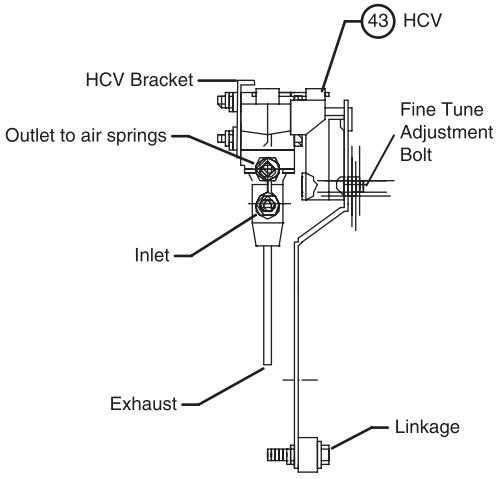
Bags won't inflate- (A) Check air supply at the height control valve. If supply is good, (B) check to see if air is going through the valve when it is actuated. Majority of problems are found at this point. If air is going through the valve, (C) check for blockage or a pinched airline to the air bags.

HEIGHT CONTROL VALVE

Always exhaust air out of the system and allow the unit to raise to the level the valve is set to maintain. This will help maintain a consistent method for the maintenance of ride height. Setting the ride height should be done with the vehicle on level ground. See pg. i.12 for adjustment procedure.

Plumbing Diagram





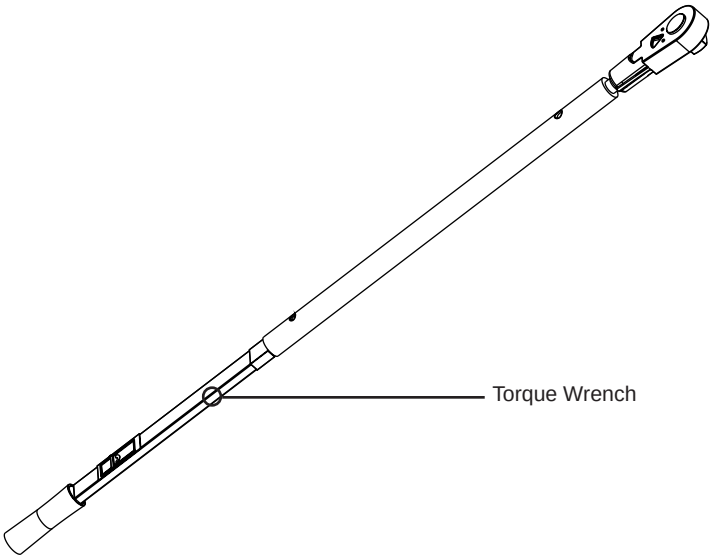
MAINTENANCE KIT

The following item numbers will help when maintaining parts for the model 240AR suspension.

TK15161 - Wear Pad Kit (2)

TK21641 - Track Rod or Axle Seat Bushing Kit

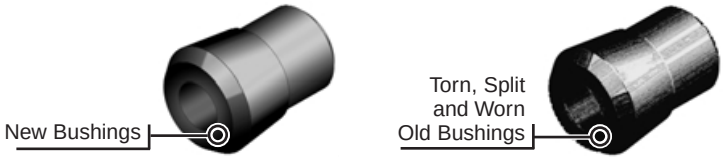
TK21640T - Hanger Bushing Kit



FASTENERS

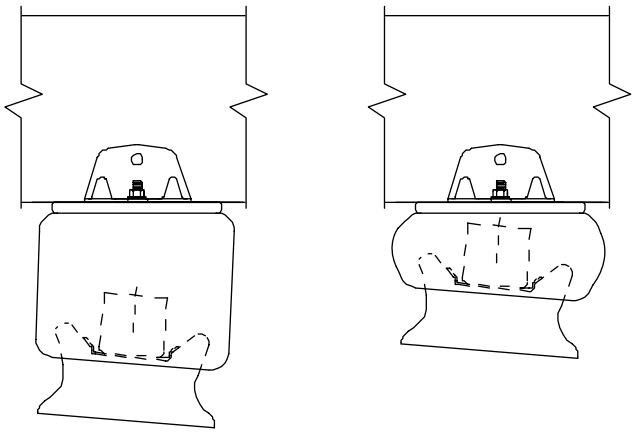
Loose fasteners need immediate attention. Check components for wear and be sure holes are not worn or egg shaped. When replacing be sure threads are clean, lubricated and not deformed; consult the maintenance section for the correct torque specification and replace any fastener which is damaged or won't stay torqued. If bolts need to be replaced be sure to use the same grade of fastener.

CAUTION: Specific Torque requirements are needed.



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.



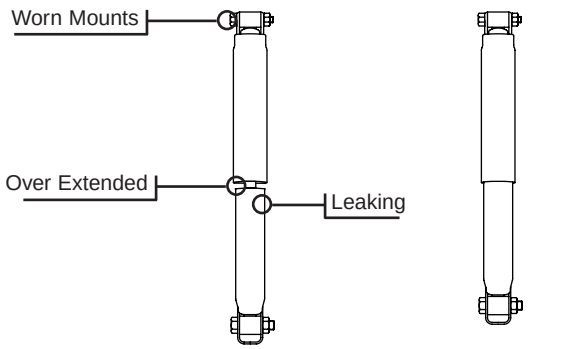
Properly Inflated **Under Inflated**

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.

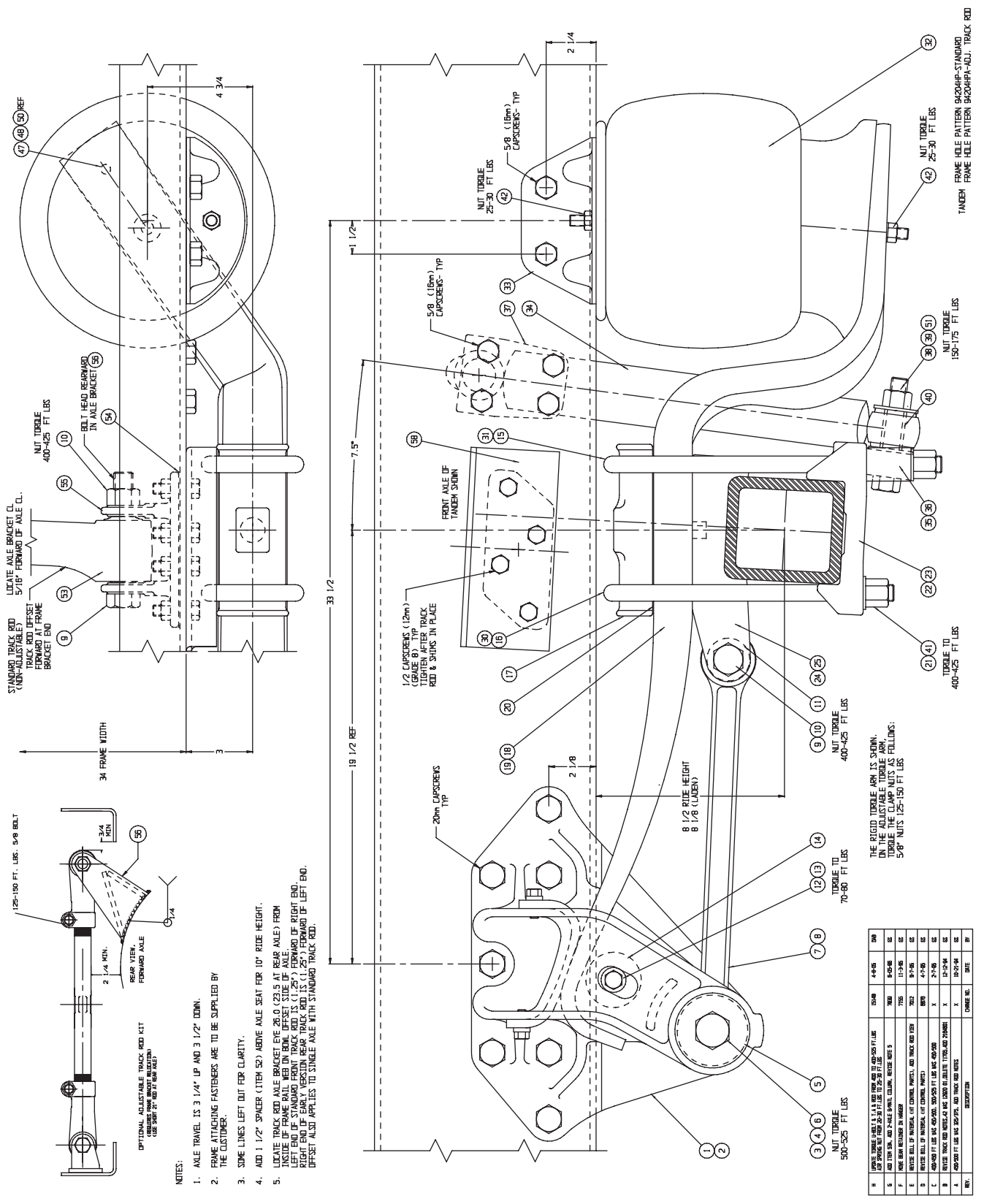


Worn Shock **Normal Shock**

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.

Drawing - 94204



ITEM	PART NUMBER	DRAWING NO.	SIN.	TAN.	DESCRIPTION
1	2098101	93448	1	2	Hanger Assembly (LH)
2	2098201	93448	1	2	Hanger Assembly (RH)
3	2388201	91014	2	4	Bolt, 1"-14UNF x7
4	T1724	67007	4	8	Flat Washer, 1-1/16"
5	2123801	94105	4	8	Bushing
6	T5495	93281	2	4	Lock Nut, 1"-14 UNF
7	2012101	93020	1	2	Torque Arm, Rigid
8	2013801	84118	1	2	Torque Arm, Adjustable
9	1003301	62158 Sht. #1	4	8	Bolt 7/8"-9 UNC x 5-1/2"
10	1009201	93281	4	8	Lock Nut, 7/8"
11	0972901	70115	Ref		Bushing, Inc. w/Torque Arm
12	1289101	62158 Sht. #1	2	4	Bolt, 5/8"-18 UNF x 4-1/2" Gr. 8
13	T2131	62159	2	4	Lock Washer, 5/8"
14	1367708	80110	2	4	Rubber Roller, 2-1/2"
15	1563701	79027	2	2	U-Bolt, 15" for 8-1/2" Ride Height
16	1628901	79027	2	2	U-Bolt, 12-1/2" for 8-1/2" Ride Height
17	0867701	68168	2	4	Top Plate
18	19876K1	92096	1	2	Spring Beam, RH
19	19877K1	92096	1	2	Spring Beam, LH
20	1681009	94031 Sht. #2	Ref		Spring Liner, Inc. w/Spring Beam
21	2068801	93281	8	16	Hi Nut, 7/8"-14 UNF Gr. 8
22	See Table	N/A	1	1	Bottom Plate, Front Left
23	"	"	1	1	Bottom Plate, Front Right
24	"	"	1	1	Axle Seat, Front Left
25	"	"	1	1	Axle Seat, Front Right
26	"	"	0	1	Axle Seat, Rear Left (Tandem)
27	"	"	0	1	Axle Seat, Rear Right (Tandem)
28	"	"	0	1	Bottom Plate, Rear Left (Tandem)
29	"	"	0	1	Bottom Plate, Rear Right (Tandem)
30	1628901	79027	0	2	U-Bolt, 12-1/2" for 8-1/2" Ride Ht. (Tandem)
31	1563701	79027	0	2	U-Bolt, 15" for 8-1/2" Ride Ht. (Tandem)
32	2014201	79167 Sht. #2	2	4	Air Spring, Std.
32A	20124-12	79167 Sht. #5			Air Spring, Opt.
33	2012301	93335-3	Ref.		Bracket, Inc. w/Air Spring
34A	2012601	79168 Sht. #1	8		Shock Absorber, 1.75", Premium
34B	2012901	79168 Sht. #1			Shock Absorber, 1.62", Heavy Duty
35	2015501	93432	1	2	Bracket, Lower Shock, LH

TK21640T

ITEM	PART NUMBER	DRAWING NO.	SIN.	TAN.	DESCRIPTION
36	2015401	93432	1	2	Bracket, Lower Shock, RH
37A	2018501	93012 Sht. #1	2	4	Bracket, Upper Shock, 8-1/2" Mounting Ht.
37B	2018601	93014	2	4	Bracket, Upper Shock, 10" Mounting Ht.
38	1434401	93281	4	8	Lock Nut, 3/4"
39	1289502	93403 Sht. #2	8	16	Compression Washer, 3/4"
40	1288802	79169	Ref		Sleeve, 1.87" Inc. w/Shock Absorber
41	T7292	93403 Sht. #2	8	16	Hardened Washer, 7/8"
42	1641801	93281	2	4	Nut, 1/2"-13 UNC
43	2334808	97151 Sht. #4	1	1	Height Control Valve Assembly
44	1291101	62158 Sht. #2	2	2	Bolt, 1/4"-20 UNC x 1", Gr. 2
45	1291201	93282	2	2	Lock Nut, 1/4"-20 UNC, Gr. 5
46	1291301	93403 Sht. #1	2	2	Washer, 1/4"
47	2094501	62158 Sht. #3	1	1	Cap Screw 3/8" x 1-1/2"
48	2106801	93282	1	1	Lock Nut, 3/8" UNC
49	1475001	92928	1	1	Angle - Link
50	2015601	92282	1	1	Lower Height Control Valve Bracket
51	1735401	62158 Sht. #3	2	4	Bolt, 3/4"-16 UNF x 4-1/2", Gr. 8
52	2051301	93160	2	4	Spacer, 1-1/2" for 10-1/2" Mounting Ht.
53	2194001	87109	1	1	Track Rod - 23-1/2"
54	2034601	87109	0	1	Track Rod - 21"
55	1827301	89479	1	2	Frame Bracket
56A	1825102	89464	1	1	Axle Bracket, Front Axle
56B	2164601	94281	0	1	Axle Bracket, Rear Axle (Tandem)
57	2137001	94177	1	2	Frame Plate, Track Rod
58	1291501	79189 Sht. #1	1	1	Protection Valve and Filter

Pinion Angle	Axle Seat Front Left	Axle Seat Front Right	Axle Seat Rear Left	Axle Seat Rear Right
3°	1988101	1988101		
10.5°			1988401	1988401
3°	1988101	1988101		
12°			2081201	2081201
2°	2080801	2080801		
13°			2081301	2081301

*Typical, most used axle seats, for Eaton 404, or RW40-145.

Pinion Angle	Bottom Plate Front Left	Bottom Plate Front Right	Bottom Plate Rear Left	Bottom Plate Rear Right
3°	1878105	1878105		
10.5°			1878405	1878405
3°	1878105	1878105		
12°			1878405	1878405
2°	1897705	1897705		
13°			1878405	1878405

*These are typical, most used. There are many more options. Consult Tuthill Transport Technologies Customer Service at 1-800-753-0050

Mounting Height	U-Bolt Front of Axle	U-Bolt Rear of Axle	Upper Shock Bracket
8-1/2"	1628901	1563701	2018501
10	1624601	1576401	2018601

8-1/2" Mounting Height Kits

Qty.		Description (for Tandem Axle)
2	TK21757	Hardware
2	TK21755	Frame Mounting
1	TK20429	Seat 3° and 10°
2	19876K1	Spring Beam Right
2	19877K1	Spring Beam Left
2	TK20336	Shock/Hardware
2	TK21637	Air Spring - Std.
1	TK22426	Track Rod
1	TK23842	Height Control Valve
Optional Packages 8-1/2" Mounting Height		
2	TK20909	Heavy Duty Shock
2	TK21638	Premium Air Spring
1	TK21515	Seat 2° and 13°

10" Mounting Height Kits

Qty.		Description (for Tandem Axle)
2	TK21757	Hardware
2	TK21756	Frame Mounting
1	TK20428	Seat 3° and 10°
2	19876K1	Spring Beam Right
2	18977K1	Spring Beam Left
2	TK20336	Shock/Hardware
2	TK21637	Air Spring - Std.
1	TK22426	Track Rod
1	TK23842	Height Control Valve
Optional Packages 10" Mounting Height		
2	TK20909	Heavy Duty Shock
2	TK21638	Premium Air Spring
1	TK21625	Seat Kit 5" Round Tag Axle
1	TK21623	Seat Kit 4° Drive Axle
1	TK21699	Seat 3° and 12°

8-1/2" Mounting Height Kits

Qty.		Description (for Single Axle)
1	TK21757	Hardware
1	TK21755	Frame Mounting
1	TK20332	Axle Seat, 3°, Typ.
1	19876K1	Spring Beam, RH
1	19877K1	Spring Beam, LH
1	TK20336	Shock/Hardware
1	TK21637	Air Spring
1	TK22427	Track Rod
1	TK23842	Height Control Valve

Reference Only

2012901	Heavy Duty Shocks 1.62" Bore Gabriel
2012601	Premium Shocks 1.75" Bore Monroe
2014201	Standard Air Spring F.R.P. Base
2012401	Premium Air Spring Aluminum Base

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Value: Exceeding customer expectations
Availability: Delivering on our promise, on time, every time