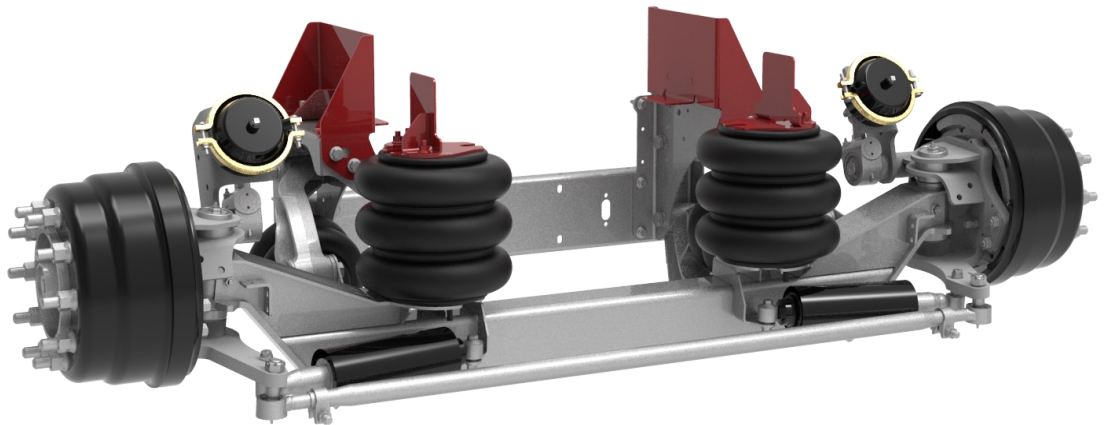




OWNER'S GUIDE

13.5K Auxiliary Suspension 13,500 LBS. CAPACITY



DEALER / INSTALLER: Complete this section and give to vehicle owner.

Serial No: _____

Part No: _____

Capacity: _____ **13,500 lbs.** _____

Date Installed: _____

Link Mfg. Ltd.
223 15th St. N.E.
Sioux Center, IA USA
51250-2120
www.linkmfg.com

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

Refer to separate Installation Instructions for installation details.

80003568
JUN 14, 2023

Table of Contents	
1.	Introduction
2.	Axle Identification
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4.	Operation
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6.	Lubrication Points
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8.	Warranty
9.	Service Parts and Service Kits
10.	References

IMPORTANT: PLEASE READ THIS ENTIRE MANUAL BEFORE OPERATING YOUR NEW LINK 13.5K AUXILIARY SUSPENSION AND KEEP IT FOR FUTURE REFERENCE.

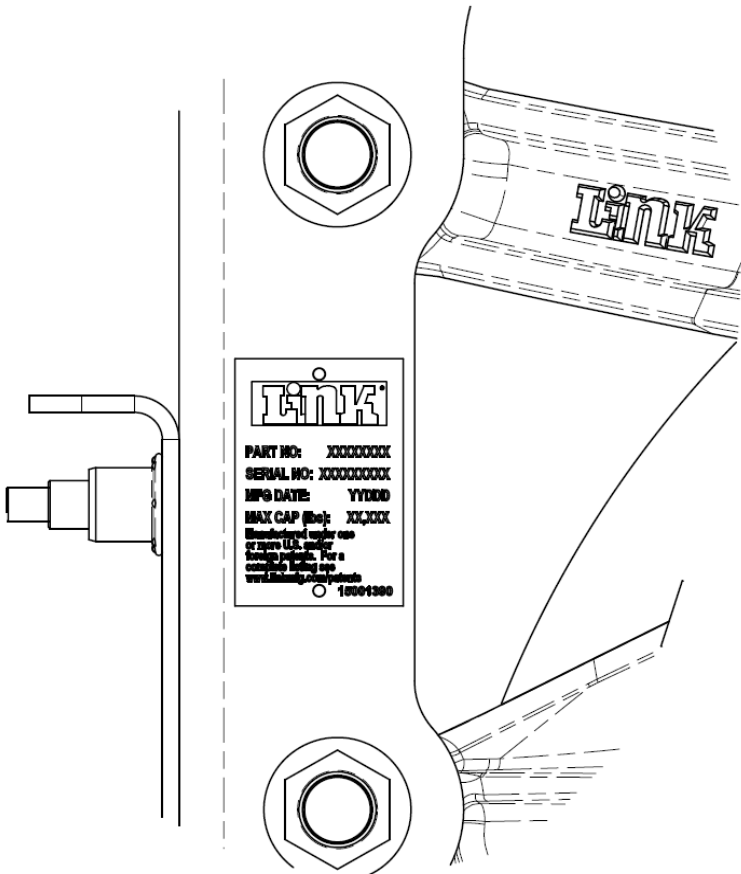
1. INTRODUCTION:

Thank you for choosing a Link Auxiliary Suspension. We want to help you to get the best results from the suspension and to operate it safely. This manual contains information to introduce you to the Link 13.5K Auxiliary Suspension and to assist you with its operation and maintenance. This manual is intended solely for use with this product.

All information in this manual is based on the latest information available at the time of printing. Link Manufacturing reserves the right to change its products or manuals at any time without notice. Contact Link at (800) 222-6283 or visit www.linkmfg.com for information on recent changes to products.

2. AXLE IDENTIFICATION

The axle identification label is located on the **driver's side** of the suspension as shown below. The label contains the suspension part number and a unique serial number.



3. SAFETY WARNINGS

⚠ CAUTION

Do not lower your auxiliary axle when traveling at speeds greater than 15 mph as component damage could result.

⚠ CAUTION

Do not exceed 20 psi in the auxiliary axle's ride springs when the vehicle is unloaded. Failure to heed this warning can result in improper weight distribution or component damage.

⚠ CAUTION

Do not exceed **13,500 lbs** on the auxiliary axle suspension. Failure to heed this warning can result in improper weight distribution or component damage.

4. OPERATION

4.1 Raising Your Lift Axle

4.1.1 To raise the axle, move the toggle switch to the "Raise" position.

4.2 Lowering Your Lift Axle

4.2.1 To lower the axle, move the toggle switch to the "Lower" position.

⚠ CAUTION

Do not lower your auxiliary axle when traveling at speeds greater than 15 mph as component damage could result.

4.2.2 Use the regulator to adjust the air pressure on the gauge to the appropriate air pressure for the vehicle load conditions. Refer to chart below for recommended pressures.

13.5K AIR PRESSURE AXLE LOAD CHART

(For reference only. Use scale to determine actual loads.)

LOAD IN LBS AT GROUND	PSI		LOAD IN LBS AT GROUND	PSI
4000	28		9000	73
5000	37		9000	79
6000	46		11000	87
7000	55		12000	93
8000	64		13000	98
			13500	102

⚠ CAUTION

Do not exceed 20 psi in the auxiliary axle's ride springs when the vehicle is unloaded. Failure to heed this warning can result in improper weight distribution or component damage.

⚠ CAUTION

Do not exceed **13,500 LBS** on the auxiliary axle suspension. Failure to heed this warning can result in improper weight distribution or component damage.

5. PERIODIC MAINTENANCE

Daily	<ul style="list-style-type: none"> <input type="checkbox"/> Check controls and ensure proper operation. <input type="checkbox"/> Check for tire inflation, damage, or excessive wear. <input type="checkbox"/> Check brakes for damage and ensure proper operation. <input type="checkbox"/> Check axle assemblies for damage or loose components. <input type="checkbox"/> Check lift springs and load springs for damage or leaks. <input type="checkbox"/> Check for bent, cracked, or broken main structural components. <input type="checkbox"/> Inspect bushings for missing, torn, cracked or excessive gapping. <input type="checkbox"/> Inspect wheel ends for leaking seals or other damage. <input type="checkbox"/> Check for signs of irregular movement in suspension components. <input type="checkbox"/> Check for loose, missing, or damaged fasteners.
After first month or 1,000 miles	<ul style="list-style-type: none"> <input type="checkbox"/> Retorque all fasteners listed in Torque Table 1. <input type="checkbox"/> Check for loose suspension fasteners (Tighten to values given in Torque Table 2 if required). <input type="checkbox"/> Verify all grease points are properly lubricated (Multipurpose NLGI 2).
Every month or 1,000 miles of use	<ul style="list-style-type: none"> <input type="checkbox"/> Check wheel bearing oil level and inspect wheels for leaks (SAE 80W-90 Mineral Based Gear Lube). <input type="checkbox"/> Check suspension for debris rubbing air springs. <input type="checkbox"/> Check for worn steering stabilizer shocks.
Every three months or 2,500 miles of use	<ul style="list-style-type: none"> <input type="checkbox"/> Grease camshaft bushings (Multipurpose NLGI 2). <input type="checkbox"/> Check for worn suspension bushings. <input type="checkbox"/> Check for loose suspension fasteners (Tighten to values given in Torque Table 1 and 2 if required). <input type="checkbox"/> Check brake lining wear and replace any cracked, broken or oil soaked linings. <input type="checkbox"/> Inspect brake drums for heat checks, grooves, hot spots, glazing, cracks and out of round and replace if necessary. <input type="checkbox"/> Inspect wheel ends for excessive play.
Every twelve months or 10,000 miles of use	<ul style="list-style-type: none"> <input type="checkbox"/> Grease slack adjusters (Multipurpose NLGI 2). <input type="checkbox"/> Replace wheel bearings lubricating oil (SAE 80W-90 Mineral Based Gear Lube). <input type="checkbox"/> Check brake chambers and slack adjusters for proper function and excessive wear. <input type="checkbox"/> Inspect brake rollers, roller shafts, anchor pins and bushings for excessive wear and replace if necessary. <input type="checkbox"/> Check shoes for bent shoe ribs, cracks in shoe table welds and elongated rivet holes and replace if necessary. <input type="checkbox"/> Inspect suspension air controls for proper function and leaks.

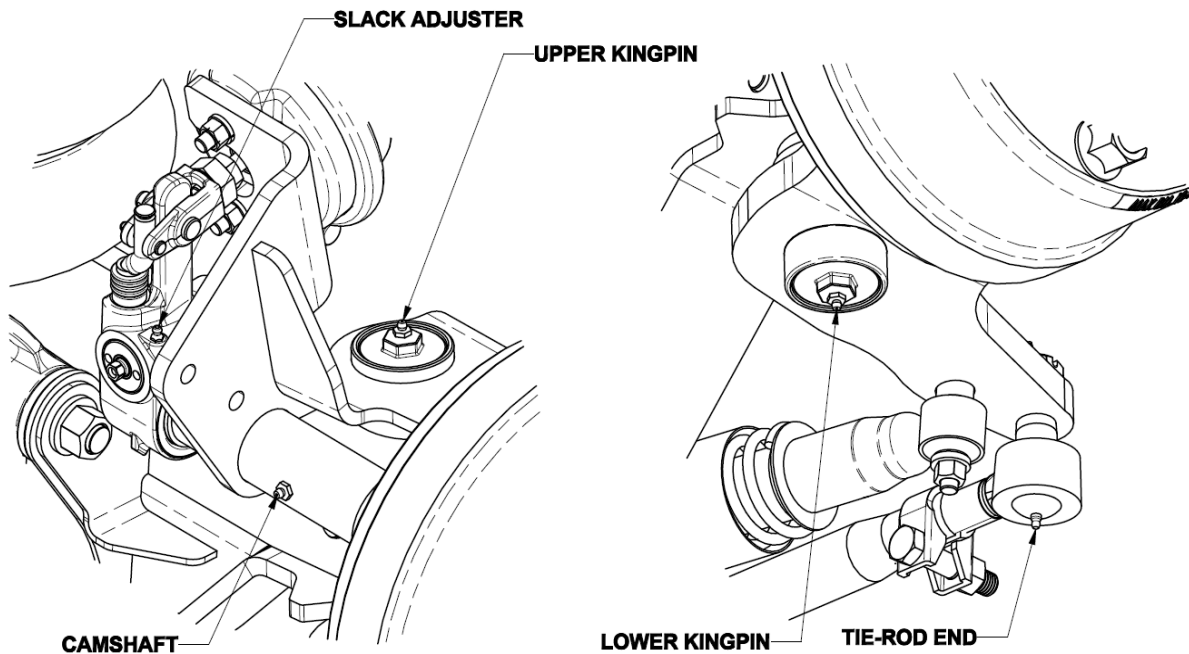
TORQUE TABLE 1

SUSPENSION TO FRAME BRACKET FASTENERS (12X).....	220 FT-LBS
.....M16 X 2.0.....	220 FT-LBS
SUSPENSION PIVOT FASTENERS (8X)...M20 X 2.5.....	350 FT-LBS

TORQUE TABLE 2

BRAKE CHAMBER MOUNT STUDS.5/8 UNC.....	140 FT-LBS
KINGPIN DRAW KEY NUT7/16 UNC.....	40 FT-LBS
TIE ROD CLAMP FASTENERS5/8 UNC.....	55 FT-LBS
TIE ROD CASTLE NUT.....7/8 UNF.....	140 FT-LBS
THEN TIGHTEN FURTHER UNTIL COTTER PIN HOLE ALIGNS	
STEERING STABILIZER BOLTSM12 X 1.75.....	85 FT-LBS
LIFT SPRING COMBO STUDM20 X 1.5.....	45 FT-LBS
LIFT SPRING STUD.....M12 X 1.75.....	25 FT-LBS
LOAD SPRING LOWER STUDSM12 X 1.75.....	25 FT-LBS
LOAD SPRING UPPER BOLT.....M10 X 1.50.....	25 FT-LBS
HUB CAP FASTENERS5/16 UNC.....	15 FT-LBS
BRAKE ANCHOR BOLTS (4X).....M16 X 2.0.....	220 FT-LBS

6. LUBRICATION POINTS



7. TROUBLESHOOTING GUIDE

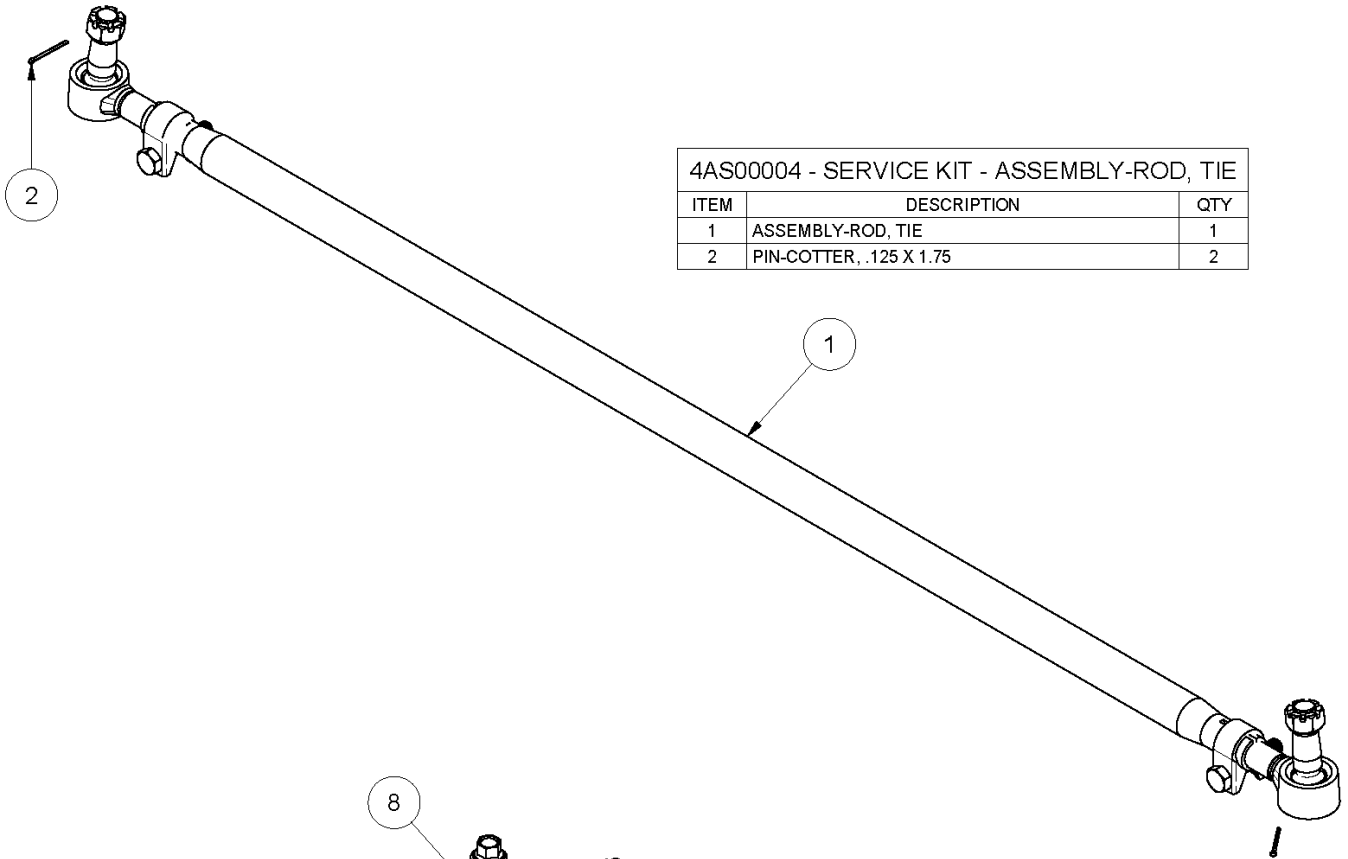
TROUBLE	PROBABLE CAUSE	REMEDY
Axle will not stay up	Loose Air Fittings	Check and retighten.
	Damaged Air Lines	Check for excessive wear. Replace if worn or damaged.
	Damaged or Worn Air Springs	
Punctured Load Air Springs	Other Components too close to Air Spring	Check for clearance all around air spring under full load and deflated. Move anything coming in contact with air springs.
Loose Convolution Ribs	Under Extended Air Springs—Improper ride height	Check for proper ride height. A) Use smaller tires.
Air Spring Separation at End Plates	Over Extended Air Springs—Improper ride height	Check for proper ride height. A) Use bigger tires. B) Lower suspension.
Lift Air Spring Wear or Broken Bumper	Over Extended Load Springs—Crushes lift bag	Check for proper ride height. A) Use bigger tires B) Lower suspension.

8. **WARRANTY** - Refer to our warranty for Link Auxiliary Suspensions by going to our website at www.linkmfg.com

9. SERVICE PARTS AND SERVICE KITS

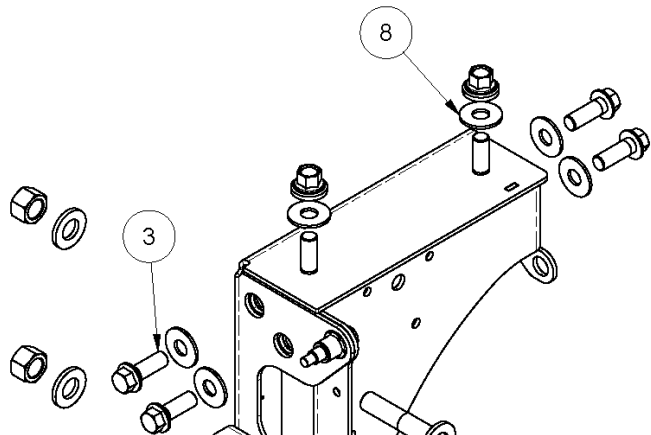
SERVICE ITEMS FOR 13.5K AUXILIARY SUSPENSION	
ITEM NUMBER	DESCRIPTION
4AS00004	SERVICE KIT - ASSEMBLY-ROD, TIE
4AS00005	SERVICE ASSEMBLY - HANGER
4AS00009	SERVICE KIT - TIE ROD END (LH THREAD)
4AS00010	SERVICE KIT - TIE ROD END (RH THREAD)
4AS00011	SERVICE KIT - ASSEMBLY TUBE-TIE ROD
4AS00012	SERVICE KIT - COMPLETE BUSHING
4AS00013	SERVICE KIT - UPPER ARM-LH
4AS00014	SERVICE KIT - UPPER ARM-RH
4AS00015	SERVICE KIT - LOWER ARM-LH
4AS00016	SERVICE KIT - LOWER ARM-RH
4AS00017	SERVICE KIT - COMPLETE KINGPIN
4AS00022	SERVICE KIT - STEERING STOP BOLT
4AS00023	SERVICE KIT - COMPLETE STEERING STABILIZER
4AS00029	SERVICE KIT - HUB CAP ASSEMBLY
4AS00032	SERVICE KIT - LIFT SPRING
4AS00033	SERVICE KIT - LOAD SPRING
4AS00034	SERVICE KIT - NUT-ZIP-TORQ. 1.50-12
4AS00035	SERVICE KIT - CAMSHAFT-LH
4AS00036	SERVICE KIT - CAMSHAFT-RH
4AS00037	SERVICE KIT - CHAMBER-BRAKE
4AS00038	SERVICE ASSEMBLY - AXLE-FABRICATED
4AS00039	SERVICE ASSEMBLY - KNUCKLE-MACHINED-LH
4AS00040	SERVICE ASSEMBLY - KNUCKLE-MACHINED-RH
4AS00041	SERVICE KIT - COMPLETE CAM BUSHING AND SEAL
4AS00042	SERVICE KIT - COMPLETE BRAKE
4AS00043	SERVICE KIT - SLACK ADJUSTER
4AS00044	SERVICE KIT - HUB PILOTED HUB
4AS00045	SERVICE KIT - BEARINGS AND SEALS
4AS00047	SERVICE KIT - DRUM
4AS00049	SERVICE KIT - WHEEL NUT

Kits and Parts listed above are shown on the following pages.



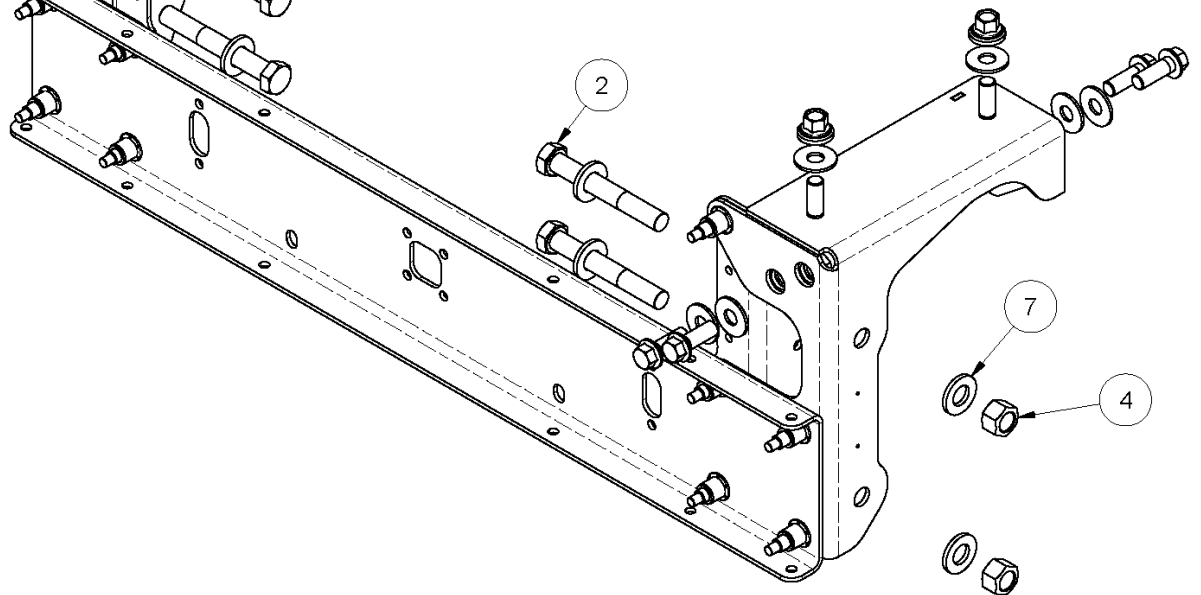
4AS00004 - SERVICE KIT - ASSEMBLY-ROD, TIE

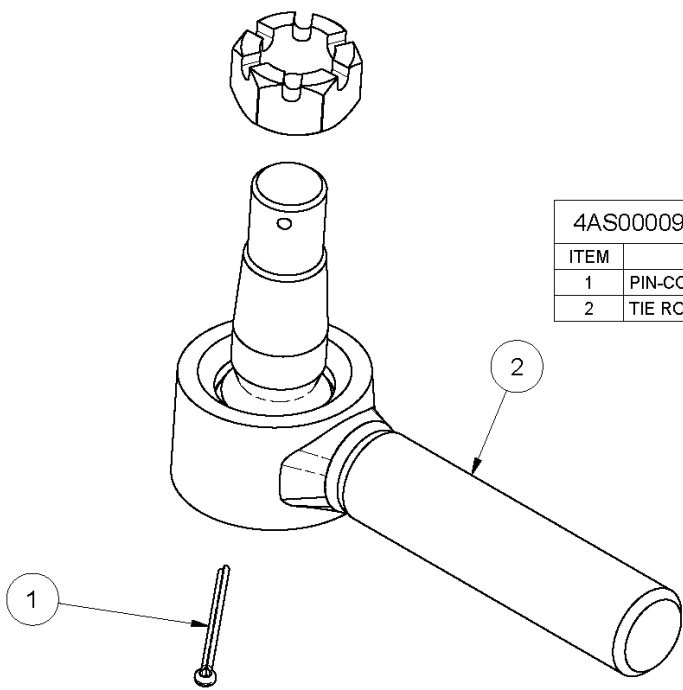
ITEM	DESCRIPTION	QTY
1	ASSEMBLY-ROD, TIE	1
2	PIN-COTTER, .125 X 1.75	2



4AS00005 - SERVICE ASSEMBLY - HANGER

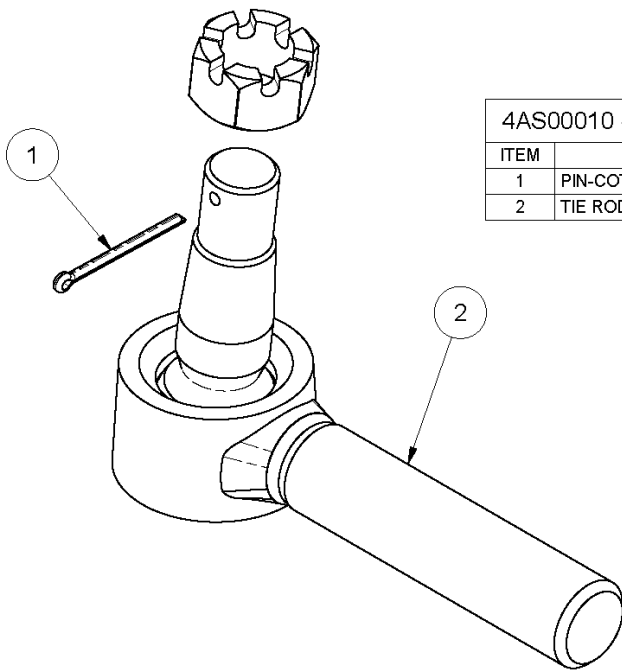
ITEM	DESCRIPTION	QTY
1	ASSEMBLY-HANGER TO CROSSMEMBER	1
2	HEX CAP SCREW, M20 X 2.5 X 145, CLASS 10.9	4
3	HEX HEAD FLANGE SCREW, M16 X 2 X 45, CLASS 10.9	8
4	HEX TOP LOCK NUT, M20 X 2.5, 10	4
5	INSTRUCTIONS-INSTALLATION-4AS00057	1
6	STEP LOCK NUT ASSY, M16 X 2 CLASS 10	4
7	WASHER-HARDENED, 20MM	8
8	WASHER-OVERSIZED, 17MM	12





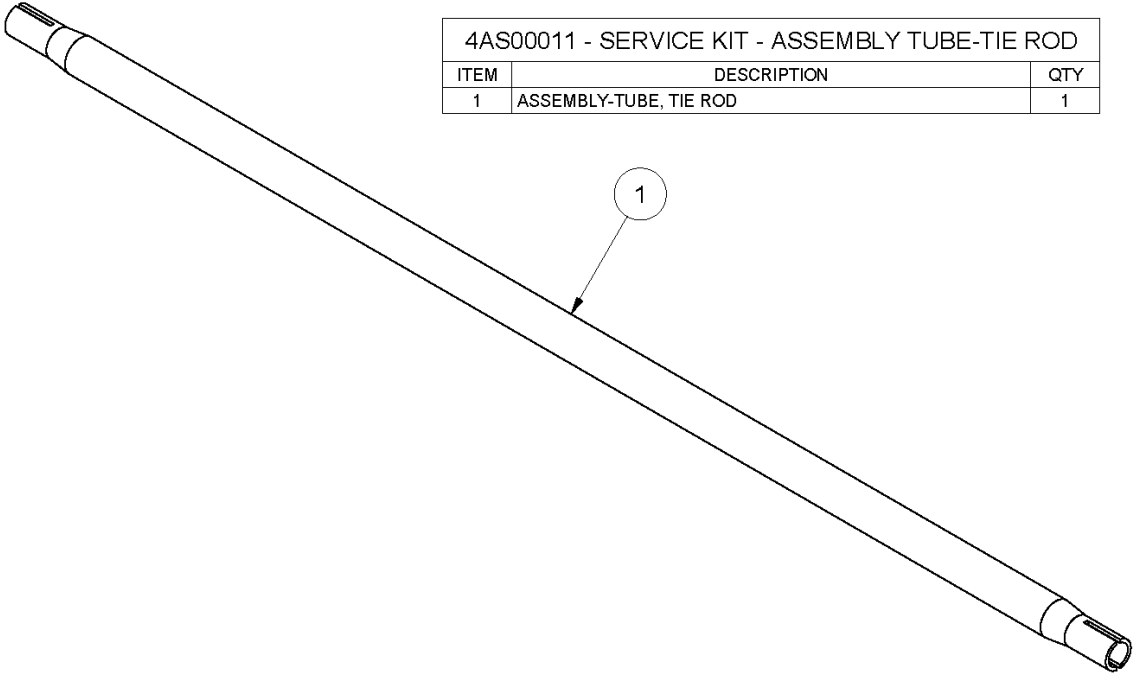
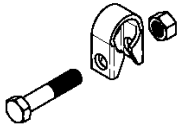
4AS00009 - SERVICE KIT - TIE ROD END (LH THREAD)

ITEM	DESCRIPTION	QTY
1	PIN-COTTER, .125 X 1.75	1
2	TIE ROD END ASSM. (LH)	1

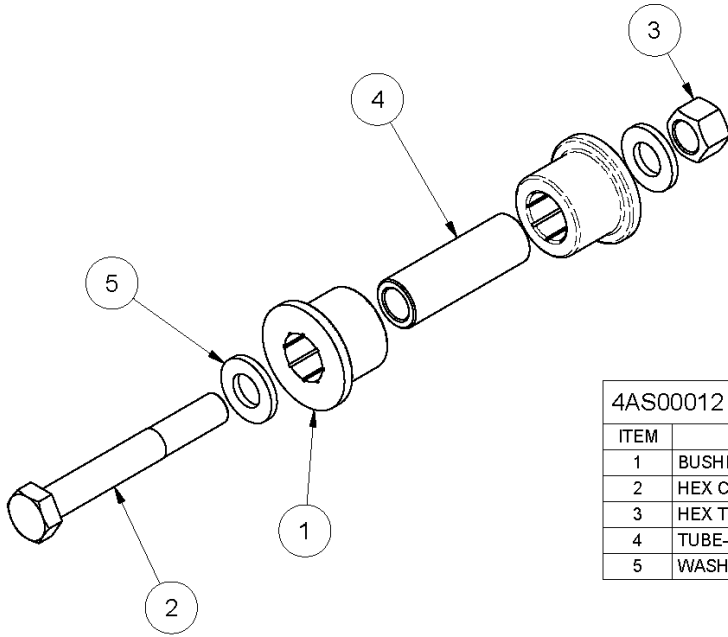
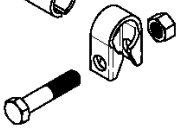


4AS00010 - SERVICE KIT - TIE ROD END (RH THREAD)

ITEM	DESCRIPTION	QTY
1	PIN-COTTER, .125 X 1.75	1
2	TIE ROD END ASSM. (RH)	1



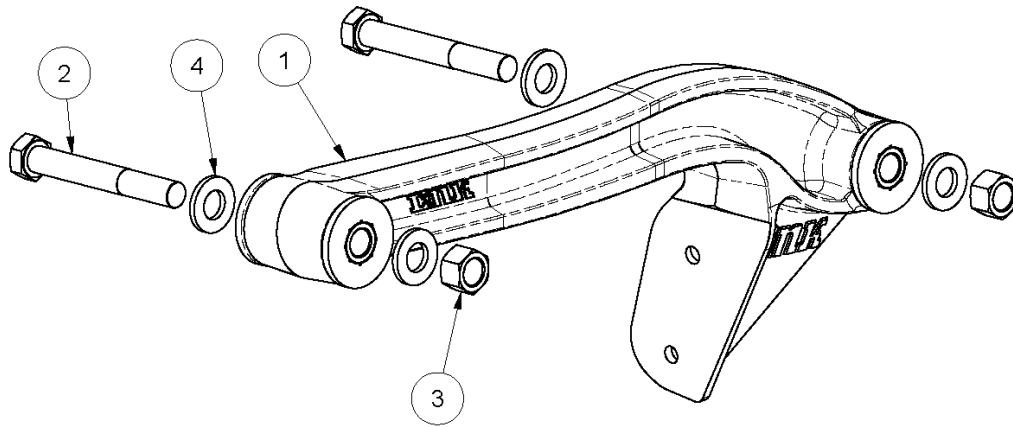
4AS00011 - SERVICE KIT - ASSEMBLY TUBE-TIE ROD		
ITEM	DESCRIPTION	QTY
1	ASSEMBLY-TUBE, TIE ROD	1



4AS00012 - SERVICE KIT - COMPLETE BUSHING		
ITEM	DESCRIPTION	QTY
1	BUSHING-ARM	16
2	HEX CAP SCREW, M20 X 2.5 X 145, CLASS 10.9	8
3	HEX TOP LOCK NUT, M20 X 2.5, 10	8
4	TUBE-BUSHING	8
5	WASHER-HARDENED, 20MM	16

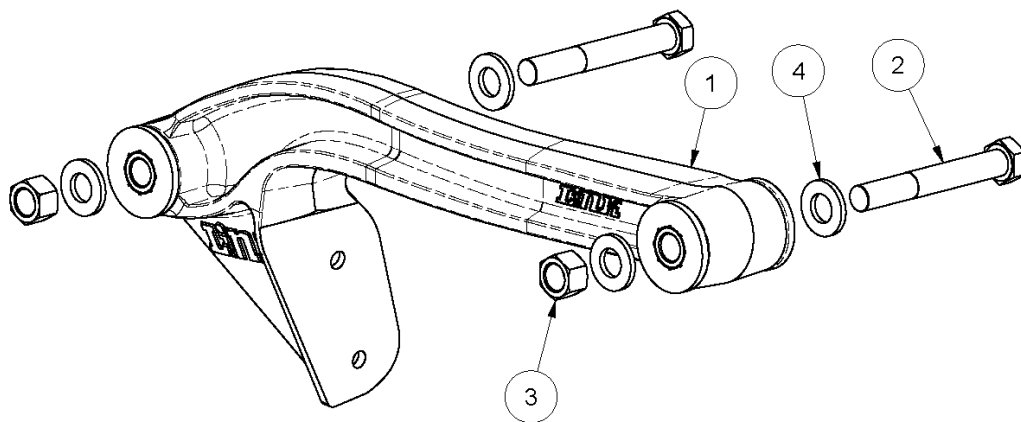
4AS00013 - SERVICE KIT - UPPER ARM-LH

ITEM	DESCRIPTION	QTY
1	ARM ASSEMBLY-TRAILING, UPPER LH	1
2	HEX CAP SCREW, M20 X 2.5 X 145, CLASS 10.9	2
3	HEX TOP LOCK NUT, M20 X 2.5, 10	2
4	WASHER-HARDENED, 20MM	4



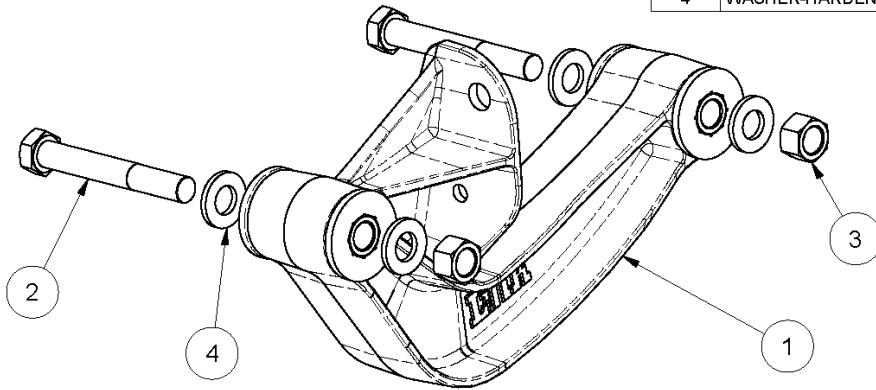
4AS00014 - SERVICE KIT - UPPER ARM-RH

ITEM	DESCRIPTION	QTY
1	ARM ASSEMBLY-TRAILING, UPPER RH	1
2	HEX CAP SCREW, M20 X 2.5 X 145, CLASS 10.9	2
3	HEX TOP LOCK NUT, M20 X 2.5, 10	2
4	WASHER-HARDENED, 20MM	4



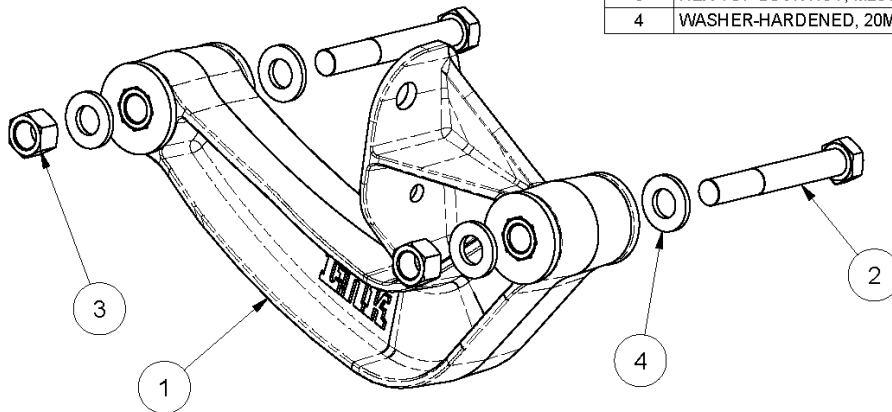
4AS00015 - SERVICE KIT - LOWER ARM-LH

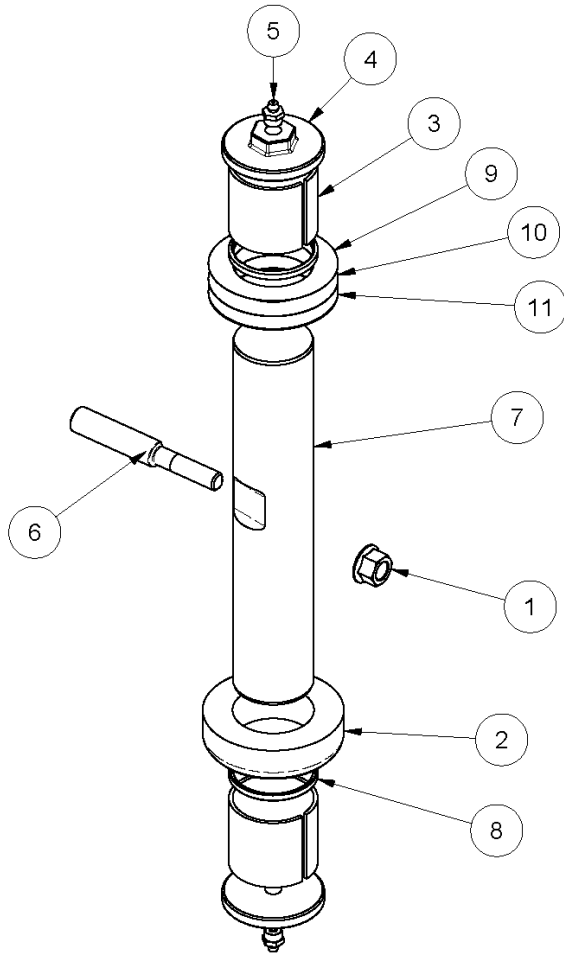
ITEM	DESCRIPTION	QTY
1	ARM ASSEMBLY-TRAILING, LOWER LH	1
2	HEX CAP SCREW, M20 X 2.5 X 145, CLASS 10.9	2
3	HEX TOP LOCK NUT, M20 X 2.5, 10	2
4	WASHER-HARDENED, 20MM	4



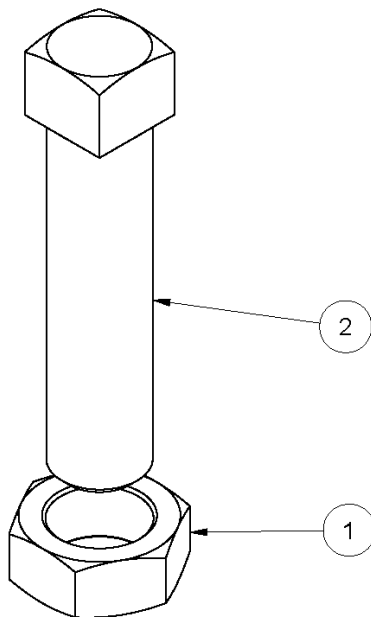
4AS00016 - SERVICE KIT - LOWER ARM-RH

ITEM	DESCRIPTION	QTY
1	ARM ASSEMBLY-TRAILING, LOWER RH	1
2	HEX CAP SCREW, M20 X 2.5 X 145, CLASS 10.9	2
3	HEX TOP LOCK NUT, M20 X 2.5, 10	2
4	WASHER-HARDENED, 20MM	4

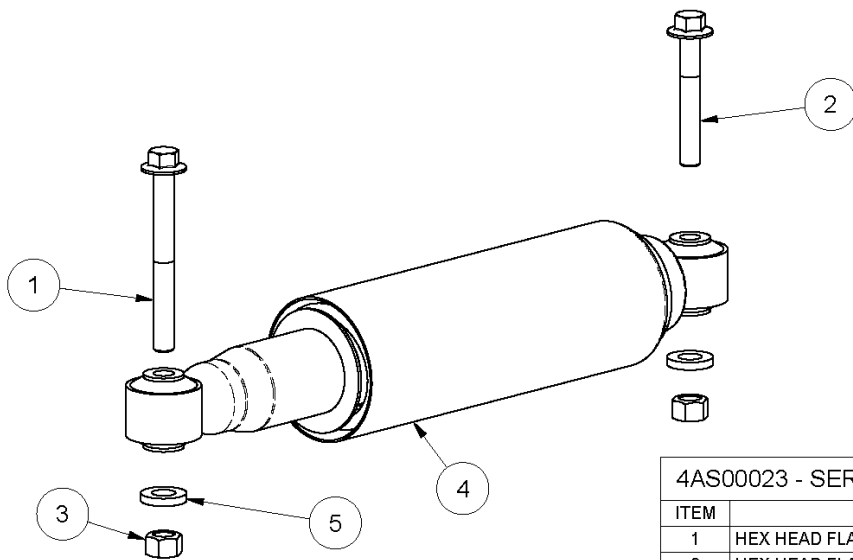




4AS00017 - SERVICE KIT - COMPLETE KINGPIN		
ITEM	DESCRIPTION	QTY
1	7/16 UNC HEX TOP LOCK FLANGE NUT, GRADE G	2
2	BEARING-THRUST	2
3	BUSHING-KNUCKLE	4
4	CAP-KING PIN	4
5	FITTING-GREASE, 1/8-27STR THD FORM	4
6	PIN-DRAW, LOCKING	2
7	PIN-KING, 13.5K (1.88)	2
8	SEAL-KNUCKLE	4
9	SHIM (.005)	2
10	SHIM (.010)	2
11	SHIM (.030)	2



4AS00022 - SERVICE KIT - STEERING STOP BOLT		
ITEM	DESCRIPTION	QTY
1	5/8 UNC HEX JAM NUT, GR 5	1
2	BOLT-STOP, STEERING, GEOMET	1

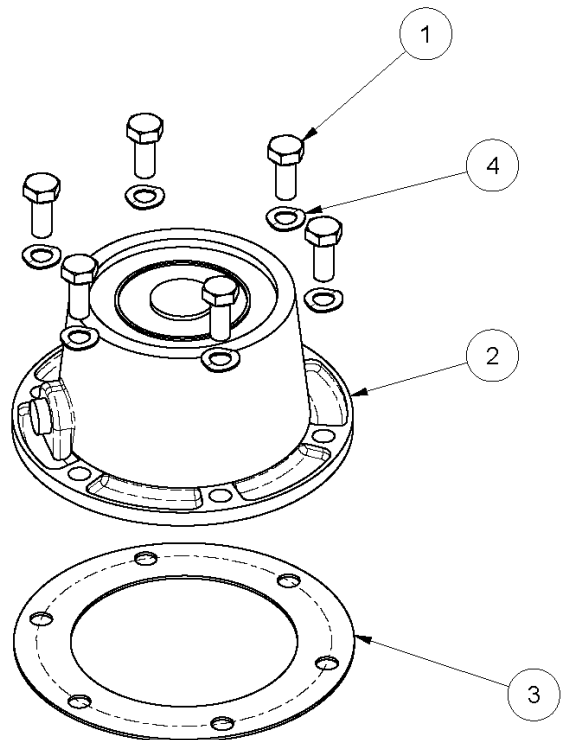


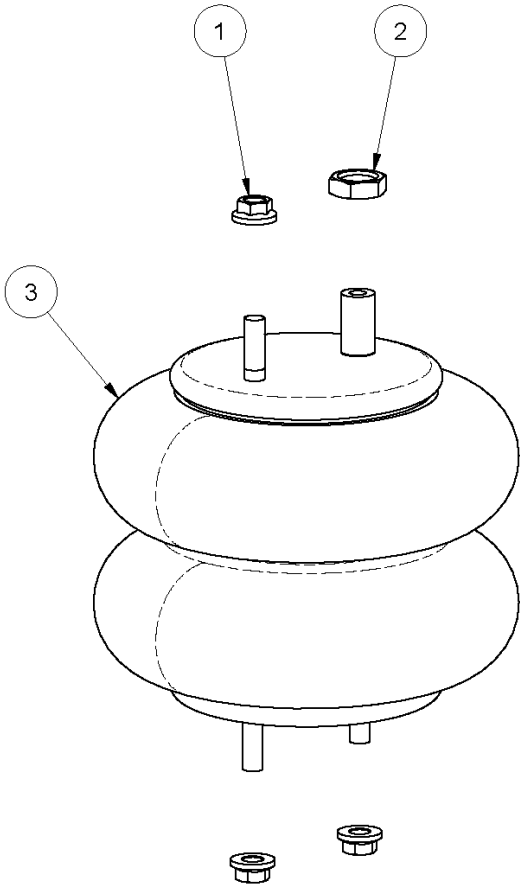
4AS00023 - SERVICE KIT - COMPLETE STEERING STABILIZER

ITEM	DESCRIPTION	QTY
1	HEX HEAD FLANGE SCREW, M12 X 1.75 X 110, CLASS 10.9	2
2	HEX HEAD FLANGE SCREW, M12 X 1.75 X 80, CLASS 10.9	2
3	HEX TOP LOCK NUT, M12 X 1.75, 10	4
4	SHOCK ABSORBER, WIDE BODY	2
5	WASHER-HARDENED, 12MM	4

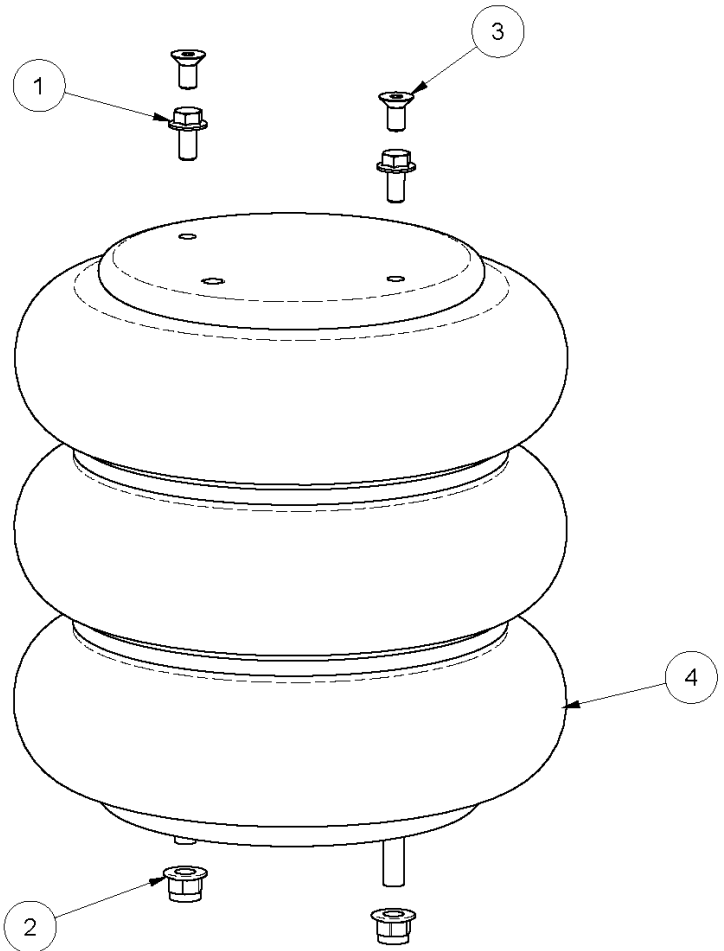
4AS00029 - SERVICE KIT - HUB CAP ASSEMBLY

ITEM	DESCRIPTION	QTY
1	5/16 X 7/8 UNC HEX CAP SCREW, GR 5	6
2	CAP-HUB, 6 HOLE, 4.5" B.C.	1
3	GASKET	1
4	WASHER-SPRING	6

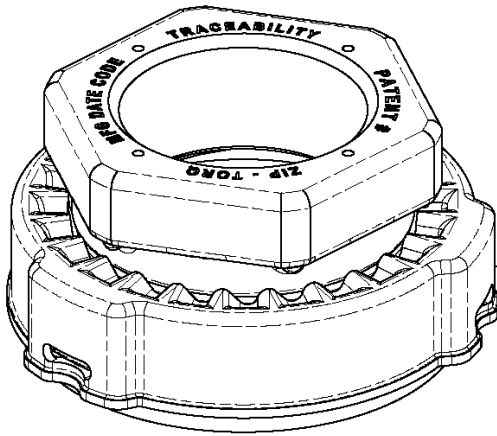




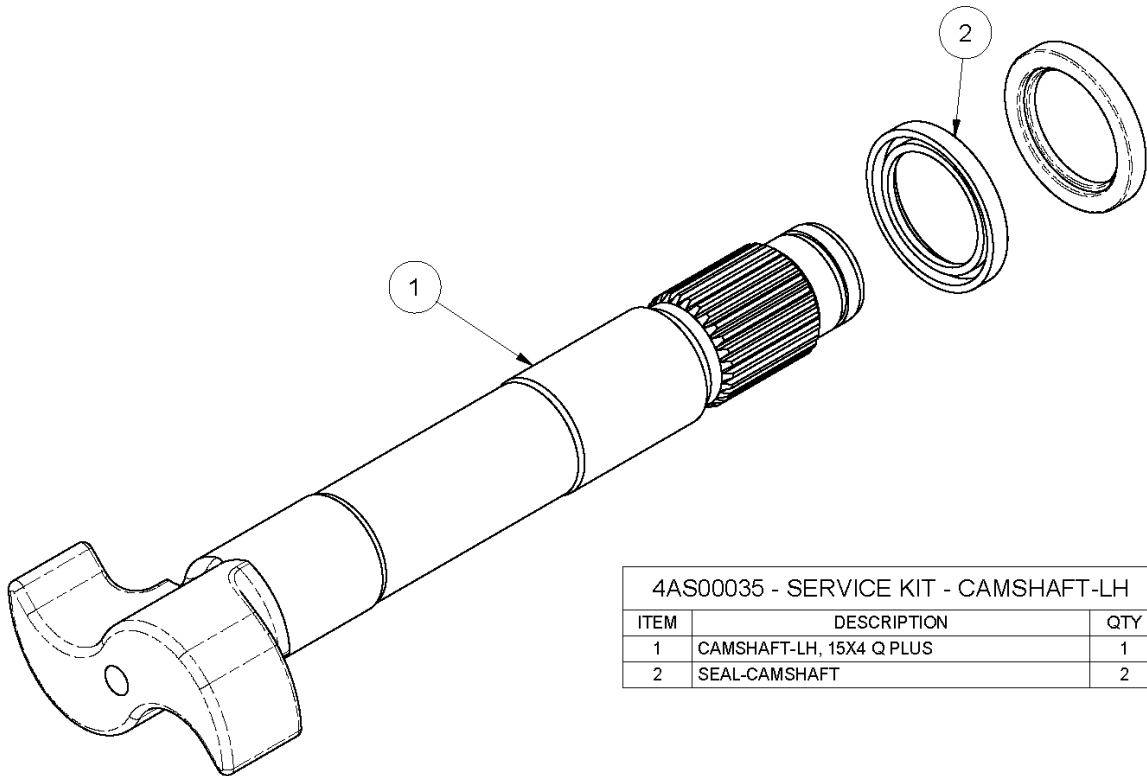
4AS00032 - SERVICE KIT - LIFT SPRING		
ITEM	DESCRIPTION	QTY
1	M12 X 1.75 SERRATED FLANGE NUT	3
2	M20 X 1.5 JAM NUT	1
3	SPRING-AIR	1



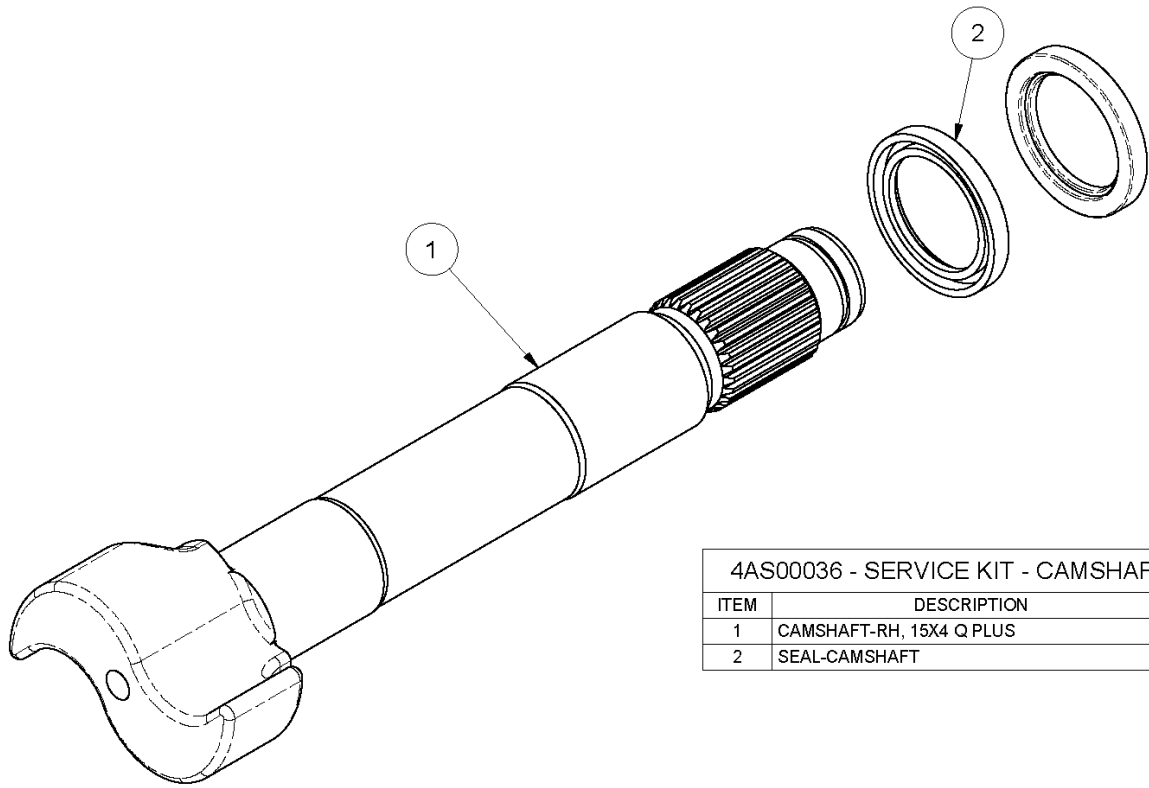
4AS00033 - SERVICE KIT - LOAD SPRING		
ITEM	DESCRIPTION	QTY
1	HEX HEAD FLANGE SCREW, M10 X 1.50 X 20, CLASS 10.9	2
2	M12 X 1.75 HEX FLANGE NYLOCK NUT (CLASS 8)	2
3	METRIC FLAT HEAD CAP SCREW, M10 X 1.50, CLASS 10.9	2
4	SPRING-AIR	1



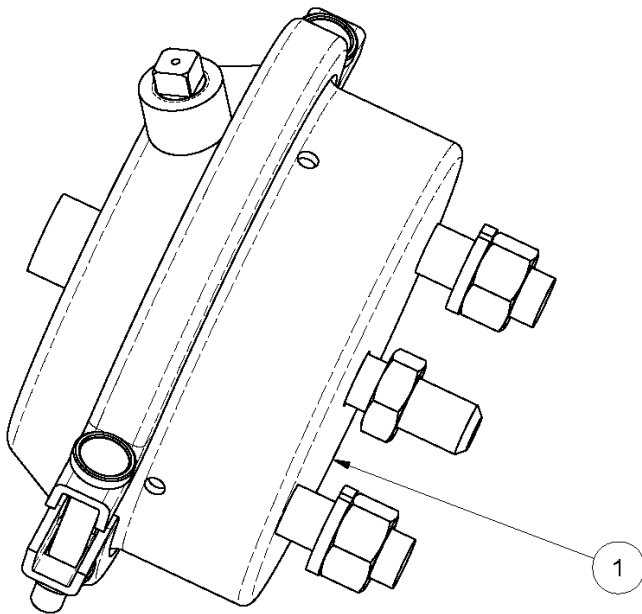
4AS00034 - SERVICE KIT – NUT-ZIP-TORQ. 1.50-12		
ITEM	DESCRIPTION	QTY
1	NUT-ZIP-TORQ, 1.50-12	1



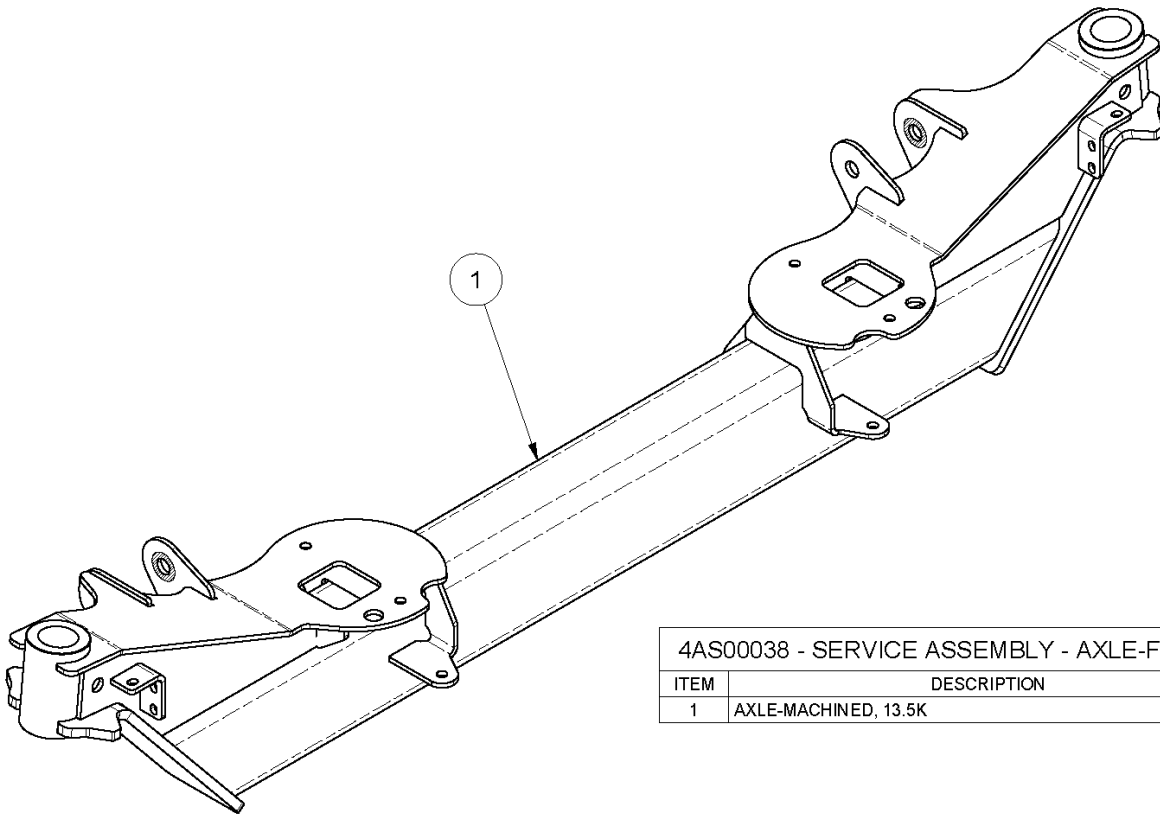
4AS00035 - SERVICE KIT - CAMSHAFT-LH		
ITEM	DESCRIPTION	QTY
1	CAMSHAFT-LH, 15X4 Q PLUS	1
2	SEAL-CAMSHAFT	2



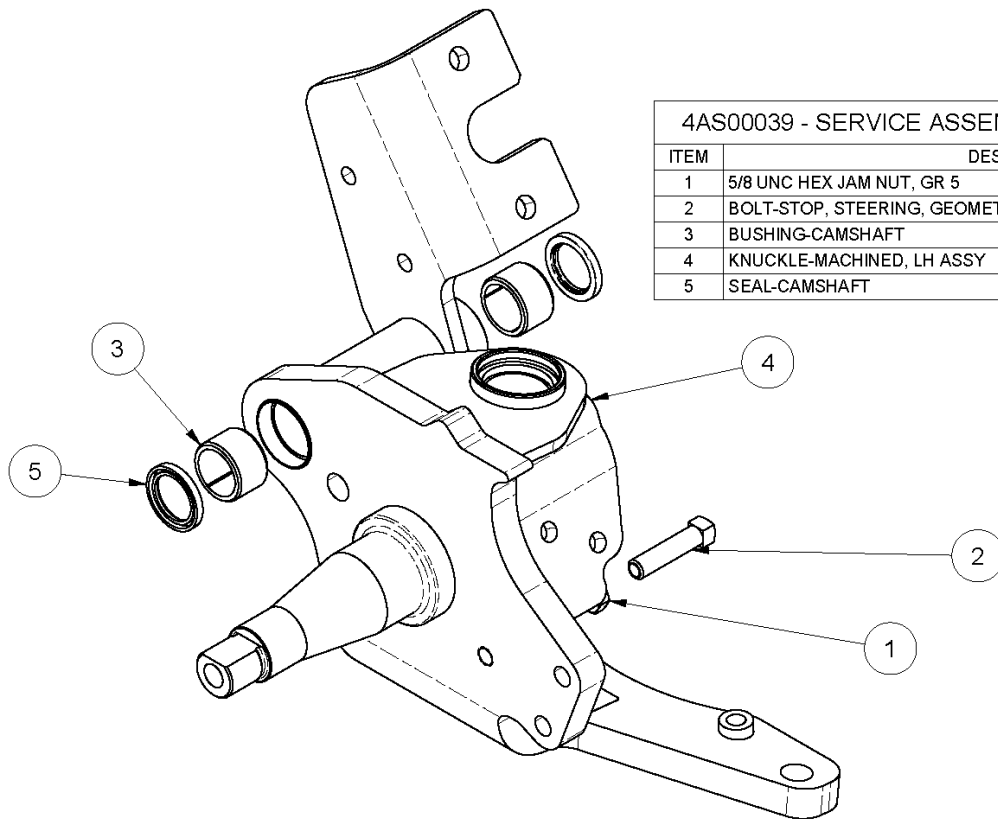
4AS00036 - SERVICE KIT - CAMSHAFT-RH		
ITEM	DESCRIPTION	QTY
1	CAMSHAFT-RH, 15X4 Q PLUS	1
2	SEAL-CAMSHAFT	2



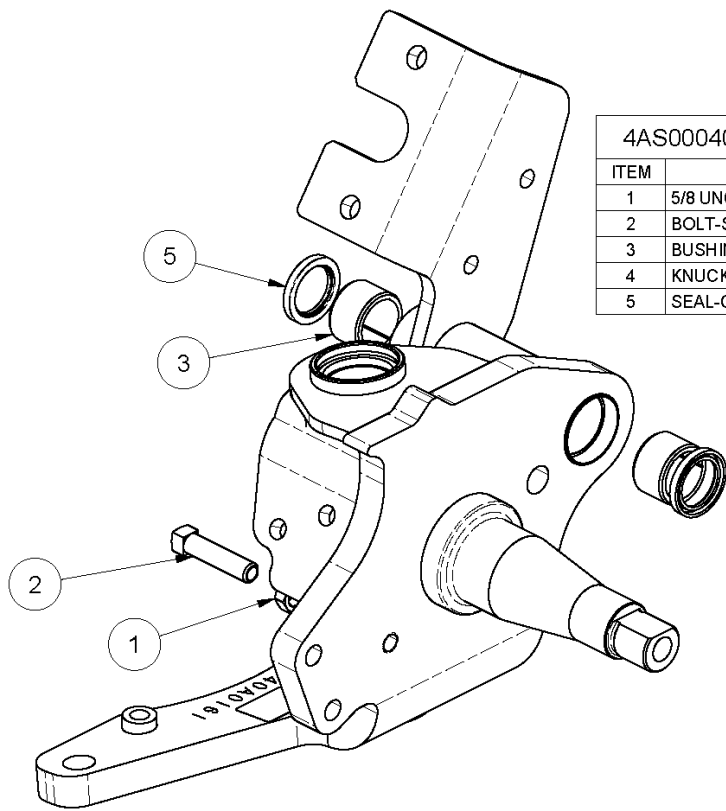
4AS00037 - SERVICE KIT - CHAMBER-BRAKE		
ITEM	DESCRIPTION	QTY
1	CHAMBER-BRAKE, TYPE 20	1



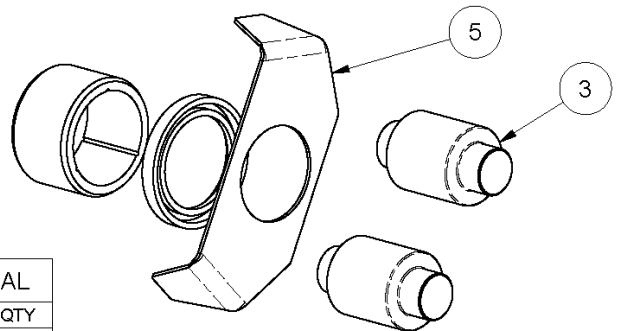
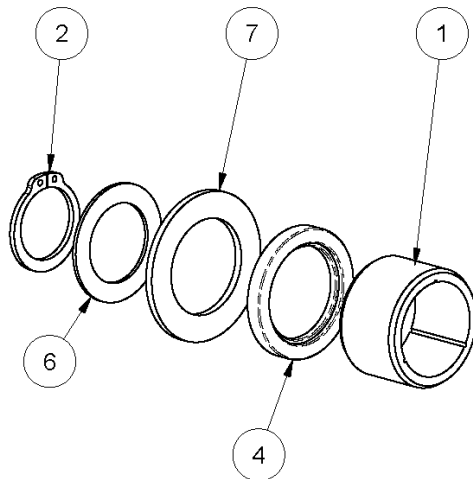
4AS00038 - SERVICE ASSEMBLY - AXLE-FABRICATED		
ITEM	DESCRIPTION	QTY
1	AXLE-MACHINED, 13.5K	1



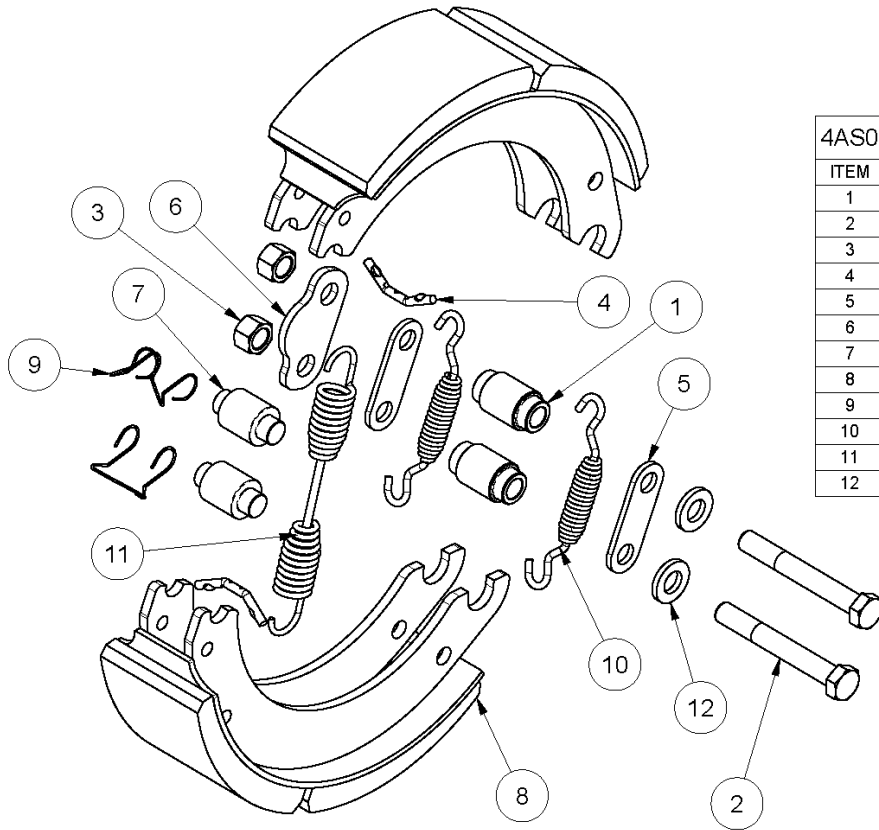
4AS00039 - SERVICE ASSEMBLY - KNUCKLE-MACHINED-LH		
ITEM	DESCRIPTION	QTY
1	5/8 UNC HEX JAM NUT, GR 5	1
2	BOLT-STOP, STEERING, GEOMET	1
3	BUSHING-CAMSHAFT	2
4	KNUCKLE-MACHINED, LH ASSY	1
5	SEAL-CAMSHAFT	2



4AS00040 - SERVICE ASSEMBLY - KNUCKLE-MACHINED-RH		
ITEM	DESCRIPTION	QTY
1	5/8 UNC HEX JAM NUT, GR 5	1
2	BOLT-STOP, STEERING, GEOMET	1
3	BUSHING-CAMSHAFT	2
4	KNUCKLE-MACHINED, RH ASSY	1
5	SEAL-CAMSHAFT	2



4AS00041 - SERVICE KIT - COMPLETE CAM BUSHING AND SEAL		
ITEM	DESCRIPTION	QTY
1	BUSHING-CAMSHAFT	4
2	RETAINING RING-CAMSHAFT	2
3	ROLLER-CAM	4
4	SEAL-CAMSHAFT	4
5	WASHER-CAM HEAD	2
6	WASHER-CAMSHAFT (1.88 X 1.26 X .06)	2
7	WASHER-CAMSHAFT (2.38 X 1.53 X .13)	2

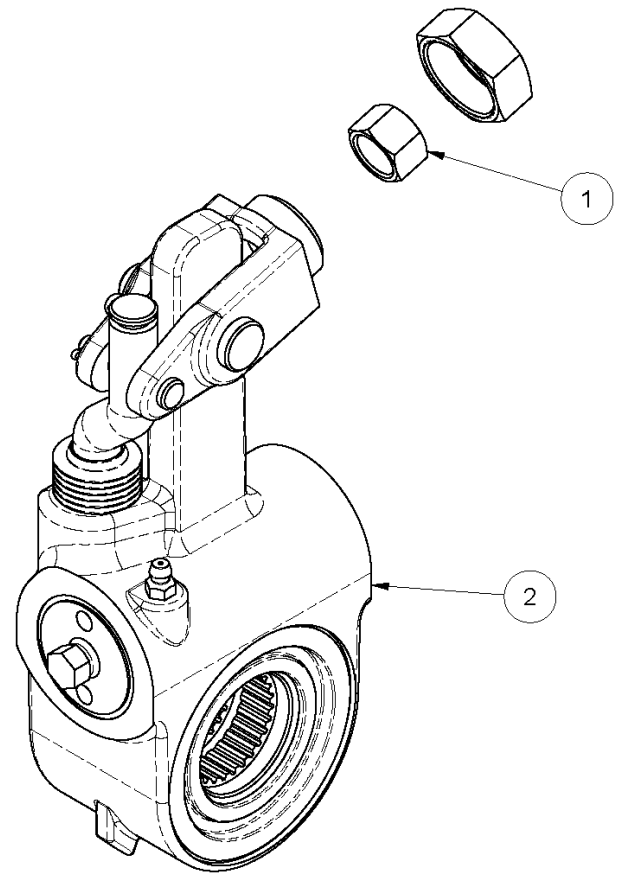


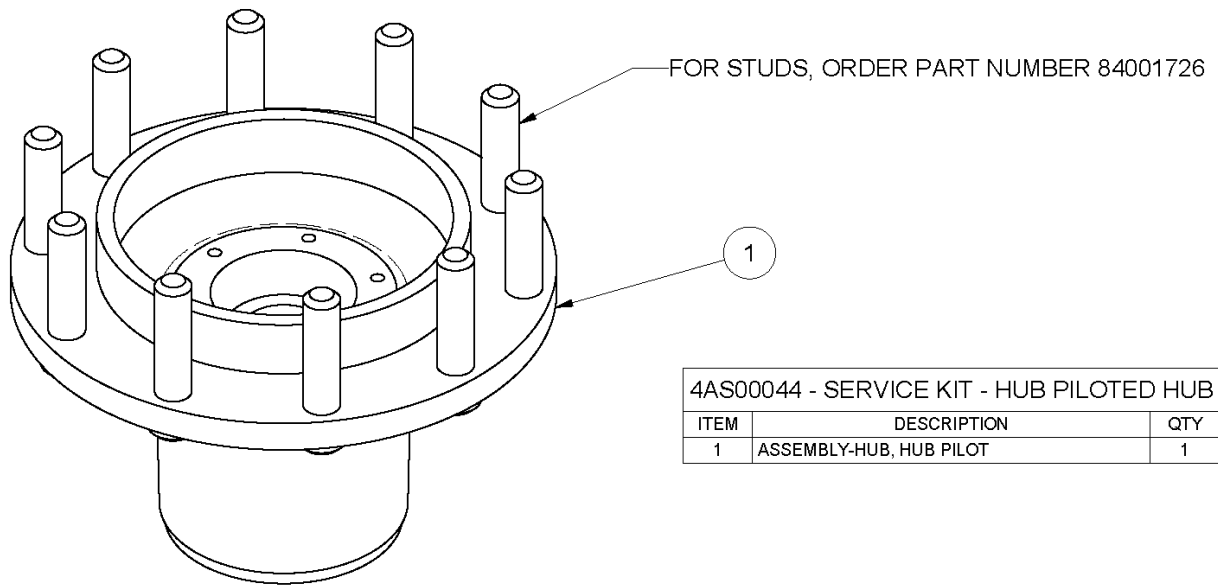
4AS00042 - SERVICE KIT - COMPLETE BRAKE

ITEM	DESCRIPTION	QTY
1	ANCHOR-BRAKE SHOE	4
2	HEX CAP SCREW, M16 X 2.0 X 120, 10.9	4
3	HEX TOP LOCK NUT, M16 X 2.0, 10	4
4	MOUNT BAR-SPRING	4
5	PLATE-ANCHOR	4
6	PLATE-PUSH, STEERING LOCK	2
7	ROLLER-CAM	4
8	SHOE-BRAKE, 15 X 4 Q PLUS	4
9	SPRING RETAINER-CAM	4
10	SPRING-RETAINER, SHOE	4
11	SPRING-RETURN, SHOE	2
12	WASHER-HARDENED, 16MM	4

4AS00043 - SERVICE KIT - SLACK ADJUSTER

ITEM	DESCRIPTION	QTY
1	KIT-CONNECTING, SLACK ADJUSTER	1
2	SLACK ADJUSTER-5.50	1



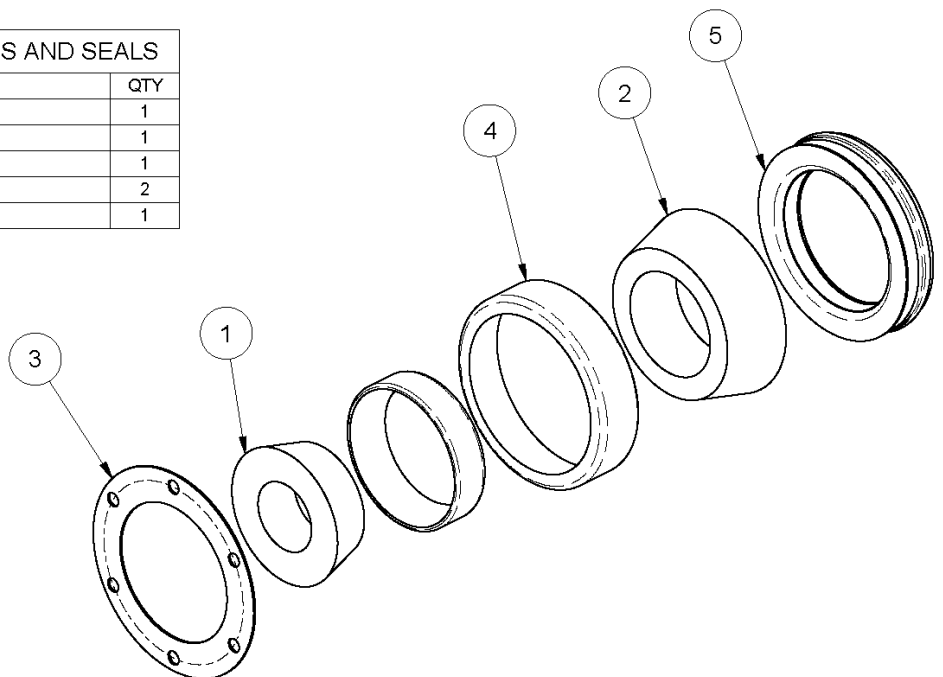


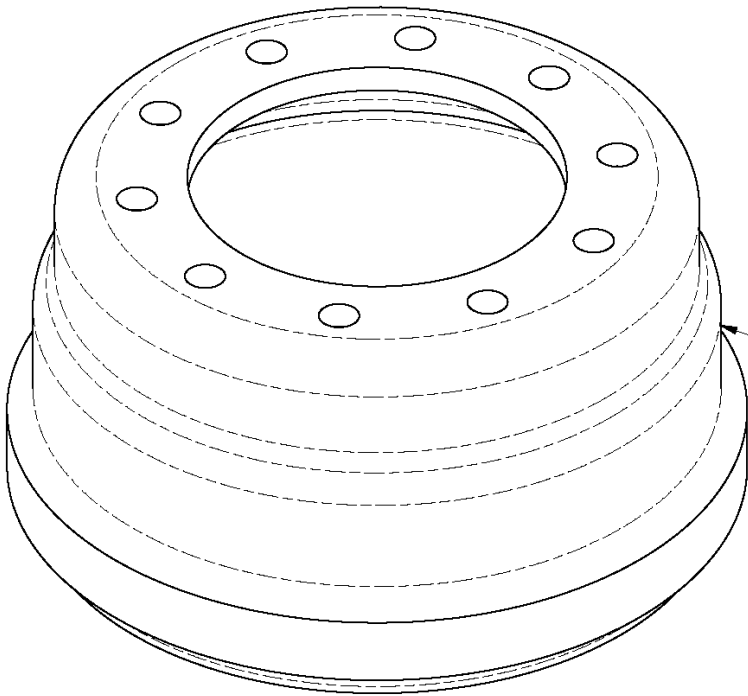
4AS00044 - SERVICE KIT - HUB PILOTED HUB

ITEM	DESCRIPTION	QTY
1	ASSEMBLY-HUB, HUB PILOT	1

4AS00045 - SERVICE KIT - BEARINGS AND SEALS

ITEM	DESCRIPTION	QTY
1	BEARING-INNER CONE - 44.45MM ID	1
2	BEARING-INNER CONE - 66.67MM ID	1
3	GASKET	1
4	ROLLER BEARING, CUP	2
5	SEAL-OIL	1

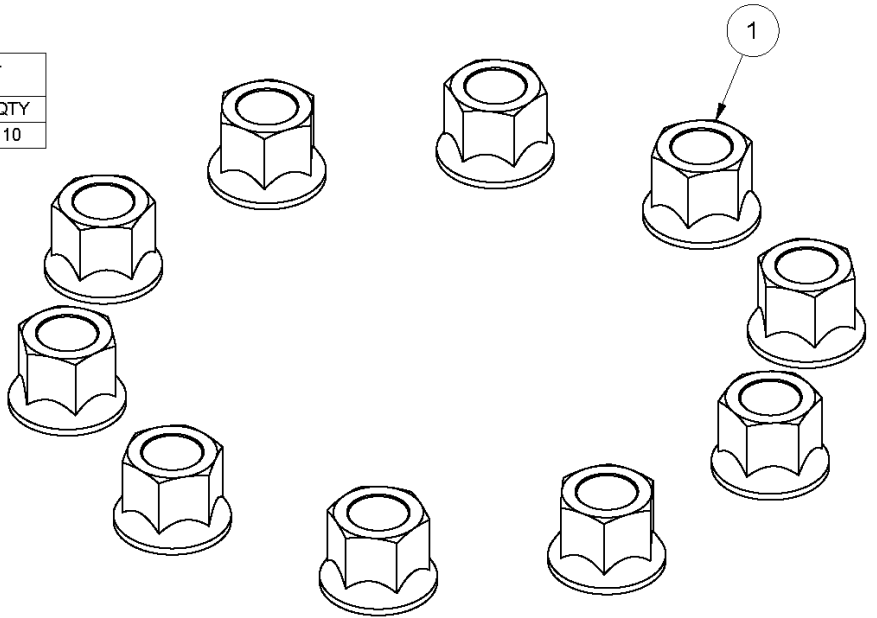




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4AS00047 - SERVICE KIT - DRUM		
ITEM	DESCRIPTION	QTY
1	DRUM-BRAKE, 15 X 4	1

4AS00049 - SERVICE KIT - WHEEL NUT		
ITEM	DESCRIPTION	QTY
1	NUT-FLANGE, M22 X 1.5	10



1

10. REFERENCES

Wherever possible, Link Manufacturing, LTD encourages the use of best practices in the industry in service and support of the products it manufactures. Many of these recommended practices that Link Manufacturing, LTD supports can be found in documentation compiled by The Technology & Maintenance Council (TMC). To obtain copies of the following Recommend Practice (RP's), contact TMC at

TMC/ATA	Phone: 703-838-1763
2200 Mill Road	Website: tmc.truckline.com
Alexandria, VA 22314	Online ordering: www.truckline.com/store

TMC RP 222C	User's Guide to Wheels and Rims
TMC RP 607B	Preventative Maintenance and Inspection of S-Cam Foundation Brakes
TMC RP 608B	Brake Drums and Rotors
TMC RP 609B	Self Adjusting and Manual Brake Adjuster Removal, Installation, and Maintenance
TMC RP 618A	Wheel Bearing Adjustment Procedure
TMC RP 622A	Wheel Seal and Bearing Removal, Installation, and Maintenance
TMC RP 631B	Recommendations For Wheel End Lubrication
TMC RP 644A	Wheel End Conditions Analysis Guide
TMC RP 645	Tie Rod End Inspection and Maintenance Procedure
TMC RP 648	Troubleshooting Ride Complaints
TMC RP 651	Steer Axle Maintenance Guidelines
TMC RP 1503	Brake Maintenance Guidelines for Severe Vocational Applications
TMC RP 1515	Auxiliary Axle Maintenance Guidelines For Vocational Vehicles



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