

TECHNICAL PROCEDURE

STEERTEK™ NXT Front Steer Axle for Kenworth Vehicles

SUBJECT: Service Instructions
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TABLE OF CONTENTS

Section 1 **Introduction** 2
Section 2 **Product Description** 2
Section 3 **Important Safety Notice** 4
Section 4 **Parts Lists** 8
Section 5 **Special Tools** 22
Section 6 **Towing Procedure** 23
Section 7 **Preventive Maintenance**
Hendrickson Recommended Inspection Intervals 25
Component Inspection 25
Lubrication Intervals 26
Kingpin Lubrication 26
Tie Rod Ends 27
Kingpin Bushing 29
Steering Knuckle 30
Visual Tire Inspection 31
Section 8 **Alignment & Adjustments**
Alignment Definitions 33
Inspection Prior to Alignment 35
Front Wheel Alignment 36
Steering Stop 38
Toe Setting 38
Section 9 **Component Replacement**
Fasteners 40
STEERTEK NXT Axle 40
Axle Spring Seats 40
Steering Knuckle Disassembly 40
Kingpin Preparation & Measurement 41
Kingpin Bushing 42
Steering Knuckle Assembly 48
Tie Rod End and Cross Tube 50
Section 10 **Torque Specifications** 52
Section 11 **Front Wheel Alignment Specifications** . . 53
Section 12 **Troubleshooting Guide** 54
Section 13 **Reference Material** 56

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SECTION 1
Introduction

This publication is intended to acquaint and assist maintenance personnel in the preventive maintenance, service, repair and rebuild of the STEERTEK™ NXT front steer axle as installed on applicable Kenworth vehicles.

NOTE Use only Hendrickson Genuine parts for servicing this suspension system.

It is important to read and understand this entire Technical Procedure publication and all work instructions and safety related information provided by the vehicle manufacturer prior to performing any maintenance, service, repair, or rebuild of this product. The information in this publication contains parts lists, safety information, product specifications, features, and proper maintenance, service, repair, and rebuild instructions for STEERTEK NXT front steer axle system.

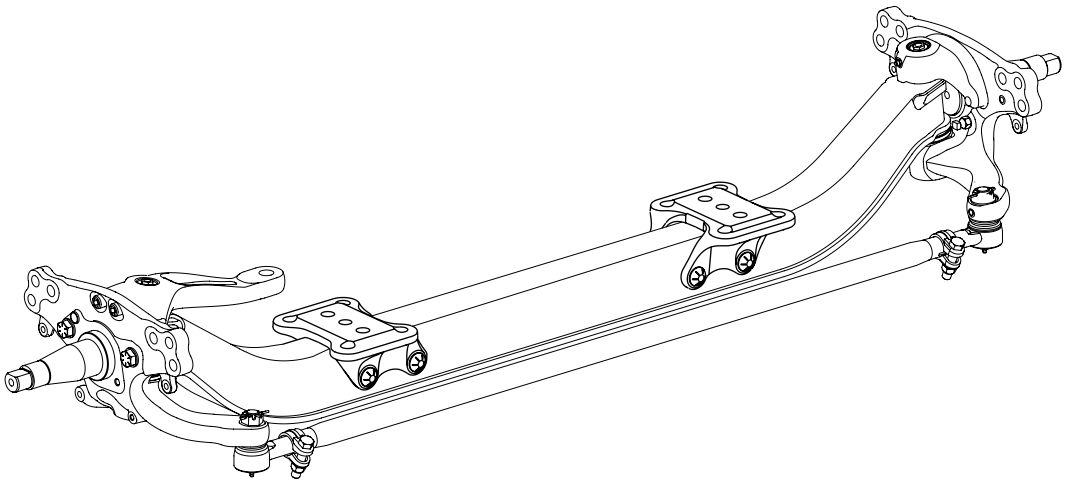
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The latest revision of this publication is also available online at www.hendrickson-intl.com.

SECTION 2
Product Description

STEERTEK NXT Axle — Recently updated, the STEERTEK NXT optimized axle design delivers up to 25 pounds of additional weight savings compared to the previous generation, offering commercial fleets increased payload capacity and operational efficiency. STEERTEK NXT is available in 8,000 to 14,600 pounds capacities. Based on Hendrickson's proprietary design and manufacturing technologies that provide a superior strength-to-weight ratio, STEERTEK NXT serves as the durable, lightweight alternative to traditional I-beam axles.

FIGURE 2-1

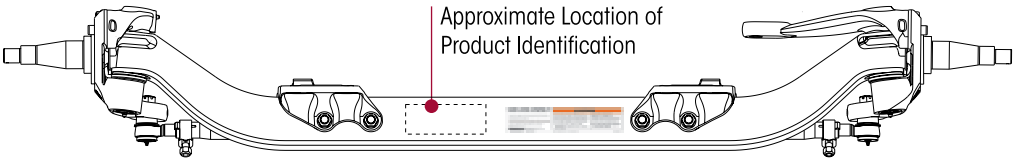


- **Standard Brake Knuckle (SBK) Assemblies** – for use with drum brakes are available in capacities from 8,000 to 14,600 pounds.
- **Integrated Brake Knuckle (IBK) Assemblies** — for use with bolt on air disc brakes. IBK assemblies eliminate the need for separate torque plates and fasteners, hence a reduced part count which allows for greater weight savings. STEERTEK NXT axles with IBK assemblies are available in capacities from 10,000 to 14,600 pounds.
- **Two-piece steering knuckles** — Both SBK and IBK assemblies incorporate a two-piece knuckle design that contributes to outstanding turning radius and reduced maintenance. The steering and tie rod arms are integrated for increased strength and reduced weight. The unique steering knuckle packaging delivers up to a maximum of 53° wheel cut. The two piece knuckle design makes replacing the kingpin bushings easier by eliminating the need to remove the kingpins.
- **Integrated axle seats** — Integrated axle seats to improve ground clearance, reduce part count, and simplify assembly.
- **Adjustable tie rod** — To help maximize tire life, the tie rod easily adjusts toe-in/out.

TECHNICAL NOTES

1. STEERTEK NXT is approved for on-highway use; other applications must be pre-approved by Hendrickson Sales Engineering. This axle system is available in 8,000, 10,000, 12,000, 12,500, 13,000, 13,200, 14,000, 14,600 pound capacities. System capacity rating for the suspension represents maximum loads on tires at ground level.
2. The STEERTEK NXT axle is available on applicable Kenworth vehicles with 70" kingpin intersection (KPI) for 8,000, and with 69" and 71" kingpin intersection (KPI) for 10,000, 12,000, 12,500, 13,000, 13,200, 14,000, 14,600 pound capacities.
3. STEERTEK NXT axle weight includes the axle beam, knuckle/steering arm assemblies and tie rod assemblies.
4. STEERTEK NXT axle system is anti-lock braking system (ABS) ready. STEERTEK NXT is compatible with most industry standard wheel ends and brakes. Contact OEM for more information.
5. The STEERTEK NXT axle product identification is etched on the center front of the axle beam providing the following information:
   - Axle part number: Identifies the features of the axle beam.
   - Axle assembly number: Identifies the complete assembly, which includes the steering knuckles, axle seats and tie rod assemblies

FIGURE 2-2 Front view of the axle showing approximate location of product identification.



SECTION 3

Important Safety Notice

Proper maintenance, service and repair is important to the reliable operation of the suspension. The procedures recommended by Hendrickson and described in this technical publication are methods of performing such maintenance, service and repair.

The warnings and cautions should be read carefully to help prevent personal injury and to assure that proper methods are used. Improper maintenance, service or repair may damage the vehicle, cause personal injury, render the vehicle unsafe in operation, or void manufacturer's warranty.

Failure to follow the safety precautions in this manual can result in personal injury and/or property damage. Carefully read and understand all safety related information within this publication, on all decals and all such materials provided by the vehicle manufacturer before conducting any maintenance, service or repair.

EXPLANATION OF SIGNAL WORDS

Hazard "Signal Words" (Danger-Warning-Caution) appear in various locations throughout this publication. Information accented by one of these signal words must be observed to help minimize the risk of personal injury to service personnel, or possibility of improper service methods which may damage the vehicle or render it unsafe.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

Additional 'Notes' or 'Service Hints' are utilized to emphasize areas of procedural importance and provide suggestions for ease of repair. The following definitions indicate the use of these signal words as they appear throughout the publication.

DANGER INDICATES AN IMMINENTLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN SERIOUS INJURY OR DEATH.

WARNING INDICATES A POTENTIAL HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, CAN RESULT IN SERIOUS INJURY OR DEATH.

CAUTION INDICATES A POTENTIAL HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, MAY RESULT IN MINOR OR MODERATE INJURY, OR PROPERTY DAMAGE.

NOTE An operating procedure, practice condition, etc. which is essential to emphasize.

SERVICE HINT A helpful suggestion, which will make the servicing being performed a little easier and/or faster.

Also note that particular service operations may require the use of special tools designed for specific purposes. These special tools can be found in the Special Tools Section of this publication.



The torque symbol alerts you to tighten fasteners to a specified torque value. Refer to Torque Specifications Section of this publication.

SAFETY PRECAUTIONS

WARNING

FASTENERS

DISCARD USED FASTENERS. ALWAYS USE NEW FASTENERS TO COMPLETE A REPAIR. FAILURE TO DO SO COULD RESULT IN FAILURE OF THE PART, OR MATING COMPONENTS, LOSS OF VEHICLE CONTROL, POSSIBLE PERSONAL INJURY, OR PROPERTY DAMAGE.

LOOSE OR OVER TORQUED FASTENERS CAN CAUSE COMPONENT DAMAGE, LOSS OF VEHICLE CONTROL, PROPERTY DAMAGE, OR SEVERE PERSONAL INJURY. MAINTAIN CORRECT TORQUE VALUE AT ALL TIMES. CHECK TORQUE VALUES ON A REGULAR BASIS AS SPECIFIED, USING A TORQUE WRENCH THAT IS REGULARLY CALIBRATED. TORQUE VALUES SPECIFIED IN THIS TECHNICAL PUBLICATION ARE FOR HENDRICKSON SUPPLIED FASTENERS ONLY. IF NON-HENDRICKSON FASTENERS ARE USED, FOLLOW THE TORQUE SPECIFICATIONS LISTED IN THE VEHICLE MANUFACTURER'S SERVICE MANUAL.

WARNING

LOAD CAPACITY

ADHERE TO THE PUBLISHED CAPACITY RATINGS FOR THE SUSPENSIONS. ADD-ON AXLE ATTACHMENTS AND OTHER LOAD TRANSFERRING DEVICES CAN INCREASE THE SUSPENSION LOAD ABOVE THE RATED AND APPROVED CAPACITIES WHICH COULD RESULT IN FAILURE AND LOSS OF VEHICLE CONTROL, POSSIBLY CAUSING PERSONAL INJURY OR PROPERTY DAMAGE.

WARNING

SUPPORT THE VEHICLE PRIOR TO SERVICING

PLACE THE VEHICLE ON A LEVEL FLOOR AND CHOCK THE WHEELS TO PREVENT THE VEHICLE FROM MOVING OR ROLLING. DO NOT WORK AROUND OR UNDER A RAISED VEHICLE SUPPORTED BY ONLY A FLOOR JACK. ALWAYS SUPPORT A RAISED VEHICLE WITH RIGID SAFETY STANDS. FAILURE TO DO SO CAN CAUSE SERIOUS PERSONAL INJURY OR DAMAGE TO EQUIPMENT.

CAUTION

PROCEDURES AND TOOLS

A TECHNICIAN USING A SERVICE PROCEDURE OR TOOL WHICH HAS NOT BEEN RECOMMENDED BY HENDRICKSON MUST FIRST SATISFY THEMSELF THAT NEITHER THEIR SAFETY NOR THE VEHICLE'S SAFETY WILL BE JEOPARDIZED BY THE METHOD OR TOOL SELECTED. INDIVIDUALS DEVIATING IN ANY MANNER FROM THE INSTRUCTIONS PROVIDED ASSUME ALL RISKS OF POTENTIAL PERSONAL INJURY OR DAMAGE TO EQUIPMENT INVOLVED.

WARNING

PERSONNEL PROTECTIVE EQUIPMENT

ALWAYS WEAR PROPER EYE PROTECTION AND OTHER REQUIRED PERSONAL PROTECTIVE EQUIPMENT TO HELP PREVENT PERSONAL INJURY WHEN PERFORMING VEHICLE MAINTENANCE, REPAIR OR SERVICE.

WARNING

MODIFYING COMPONENTS

DO NOT MODIFY OR REWORK PARTS WITHOUT AUTHORIZATION FROM HENDRICKSON. DO NOT SUBSTITUTE REPLACEMENT COMPONENTS NOT AUTHORIZED BY HENDRICKSON. USE OF MODIFIED, REWORKED, SUBSTITUTE OR REPLACEMENT PARTS NOT AUTHORIZED BY HENDRICKSON MAY NOT MEET HENDRICKSON'S SPECIFICATIONS, AND CAN RESULT IN FAILURE OF THE PART, LOSS OF VEHICLE CONTROL, POSSIBLE PERSONAL INJURY OR PROPERTY DAMAGE, AND WILL VOID ANY APPLICABLE WARRANTIES. USE ONLY HENDRICKSON AUTHORIZED REPLACEMENT PARTS.

WARNING

TORCH / WELDING

DO NOT USE A CUTTING TORCH TO REMOVE ANY ATTACHING FASTENERS. THE USE OF HEAT ON SUSPENSION COMPONENTS WILL ADVERSELY AFFECT THE STRENGTH OF THESE PARTS. A COMPONENT DAMAGED IN THIS MANNER CAN RESULT IN THE LOSS OF VEHICLE CONTROL AND POSSIBLE PERSONAL INJURY OR PROPERTY DAMAGE.

EXERCISE EXTREME CARE WHEN HANDLING OR PERFORMING MAINTENANCE IN THE AREA OF THE MAIN SUPPORT MEMBER. DO NOT CONNECT ARC WELDING GROUND LINE TO THE MAIN SUPPORT MEMBER. DO NOT STRIKE AN ARC WITH THE ELECTRODE ON THE MAIN SUPPORT MEMBER. DO NOT USE HEAT NEAR THE MAIN SUPPORT MEMBER ASSEMBLY. DO NOT NICK OR GOUGE THE MAIN SUPPORT MEMBER. SUCH IMPROPER ACTIONS CAN DAMAGE TO THE MAIN SUPPORT MEMBER ASSEMBLY AND CAN CAUSE AND CAN CAUSE LOSS OF VEHICLE CONTROL AND POSSIBLE PERSONAL INJURY OR PROPERTY DAMAGE.

⚠ WARNING

UNAUTHORIZED REPAIR OR RECONDITIONING

THE REPAIR OR RECONDITIONING OF SUSPENSION OR AXLE COMPONENTS IS NOT ALLOWED AS SHOWN ON LABEL IN FIGURE 3-1. ANY AXLE COMPONENTS FOUND TO BE DAMAGED OR OUT OF SPECIFICATIONS MUST BE REPLACED. ALL MAJOR COMPONENTS ARE HEAT TREATED AND TEMPERED. THE COMPONENTS CANNOT BE BENT, WELDED, HEATED, OR REPAIRED WITHOUT REDUCING THE STRENGTH OR LIFE OF THE COMPONENT. FAILURE TO FOLLOW THESE GUIDELINES CAN CAUSE LOSS OF VEHICLE CONTROL, POSSIBLE PERSONAL INJURY, DEATH, OR PROPERTY DAMAGE AND WILL VOID APPLICABLE WARRANTIES.

⚠ WARNING

STEERTEK NXT AXLE

UNAUTHORIZED WELDING OR MODIFICATIONS CAN CAUSE CRACKS OR OTHER AXLE STRUCTURAL DAMAGE AND RESULT IN LOSS OF VEHICLE CONTROL, SEVERE PERSONAL INJURY OR DEATH. DO NOT BEND, WELD OR MODIFY AXLE WITHOUT AUTHORIZATION FROM HENDRICKSON TRUCK COMMERCIAL VEHICLE SYSTEMS.

⚠ WARNING

DAMAGED AXLE COMPONENTS

IF A VEHICLE EQUIPPED WITH A STEERTEK NXT AXLE IS INVOLVED IN A CRASH, THE AXLE STEER KNUCKLES MUST BE DISASSEMBLED AND A THOROUGH INSPECTION OF THE AXLE MUST BE PERFORMED NOTING THE CONDITION OF THE AXLE BEAM, KINGPINS, AND KNUCKLE ASSEMBLIES, INCLUDING THE AREAS OF AXLE TO KINGPIN INTERFACE FOR ANY DAMAGE, GAPS, KINGPIN MOVEMENT OR PLAY. IF ANY COMPONENT APPEARS DAMAGED, OR THE KINGPINS APPEAR TO CONTAIN ANY DAMAGE, GAPS, MOVEMENT OR PLAY, THE COMPLETE AXLE ASSEMBLY MUST BE REPLACED.

IN ADDITION, IN THE EVENT A CRASH RESULTS IN EXCESSIVE SIDE LOAD DAMAGE TO ADJACENT PARTS, SUCH AS A BENT WHEEL, HUB, OR SPINDLE, IT IS STRONGLY RECOMMENDED TO REPLACE THE COMPLETE AXLE ASSEMBLY.

CONTACT HENDRICKSON TECHNICAL SERVICES WITH ANY QUESTIONS. FAILURE TO REPLACE ANY DAMAGED COMPONENTS CAN CAUSE LOSS OF VEHICLE CONTROL, POSSIBLE PERSONAL INJURY, DEATH, OR PROPERTY DAMAGE AND WILL VOID ANY APPLICABLE WARRANTIES.

⚠ WARNING

IMPROPER JACKING METHOD

IMPROPER JACKING METHOD CAN CAUSE STRUCTURAL DAMAGE AND RESULT IN LOSS OF VEHICLE CONTROL, SEVERE PERSONAL INJURY OR DEATH. DO NOT USE AXLE BEAM OUTBOARD OF AXLE SEATS. REFER TO VEHICLE MANUFACTURER FOR PROPER JACKING INSTRUCTIONS, SEE FIGURE 3-1.

⚠ WARNING

AXLE SPRING SEATS

THE INTEGRATED AXLE SPRING SEATS ON THE STEERTEK NXT AXLE ARE NON-SERVICEABLE. UNAUTHORIZED TAMPERING OF INTEGRATED AXLE SPRING SEATS CAN CAUSE COMPONENT AND STRUCTURAL DAMAGE AND RESULT IN LOSS OF VEHICLE CONTROL, SEVERE PERSONAL INJURY OR DEATH, PROPERTY DAMAGE, AND WILL VOID ANY APPLICABLE WARRANTY. DO NOT REMOVE, MODIFY OR REPLACE INTEGRATED AXLE SPRING SEAT OR FASTENERS, SEE FIGURE 3-1.

NOTE: REPLACE ANY SAFETY DECALS THAT ARE FADED, TORN, MISSING, ILLEGIBLE, OR OTHERWISE DAMAGED. CONTACT HENDRICKSON TO ORDER REPLACEMENT LABELS.

FIGURE 3-1



⚠ WARNING

AXLE CAMBER IS NOT ADJUSTABLE

DO NOT CHANGE THE AXLE CAMBER ANGLE OR BEND THE AXLE BEAM. BENDING THE AXLE BEAM TO CHANGE THE CAMBER ANGLE CAN DAMAGE THE AXLE AND REDUCE AXLE STRENGTH, WILL VOID WARRANTY, AS APPLICABLE AND CAN CAUSE LOSS OF VEHICLE CONTROL, POSSIBLY CAUSING PERSONAL INJURY OR PROPERTY DAMAGE.

⚠ WARNING

AXLE KINGPINS

STEERTEK NXT IS A UNIQUE AXLE, IN THAT THE KINGPIN IS CRYOGENICALLY INSTALLED IN THE AXLE. THE KINGPIN IS A NON-REPLACEABLE COMPONENT OF THE AXLE ASSEMBLY. DO NOT TRY TO REMOVE THE KINGPIN. IF THE KINGPIN OR ADJACENT MATING SURFACE SHOW SIGNS OF DAMAGE OR MOVEMENT, DO NOT OPERATE THE VEHICLE AND IMMEDIATELY CONTACT THE HENDRICKSON TECH SERVICES DEPARTMENT.

⚠ WARNING

PARTS CLEANING

SOLVENT CLEANERS CAN BE FLAMMABLE, POISONOUS AND CAUSE BURNS. TO HELP AVOID SERIOUS PERSONAL INJURY, CAREFULLY FOLLOW THE MANUFACTURER'S PRODUCT INSTRUCTIONS AND GUIDELINES AND THE FOLLOWING PROCEDURE:

1. WEAR PROPER EYE PROTECTION
2. WEAR CLOTHING THAT PROTECTS YOUR SKIN
3. WORK IN A WELL VENTILATED AREA
4. DO NOT USE GASOLINE, OR SOLVENTS THAT CONTAIN GASOLINE. GASOLINE CAN EXPLODE
5. ACIDIC SOLUTIONS CANNOT BE USED ON ALUMINUM COMPONENTS
6. HOT SOLUTION TANKS OR ALKALINE SOLUTIONS MUST BE USED CORRECTLY. FOLLOW THE MANUFACTURER'S RECOMMENDED INSTRUCTIONS AND GUIDELINES CAREFULLY TO HELP PREVENT PERSONAL ACCIDENT OR INJURY

DO NOT USE HOT SOLUTION TANKS OR WATER AND ALKALINE SOLUTIONS TO CLEAN GROUND OR POLISHED PARTS. DOING SO WILL CAUSE DAMAGE TO THE PARTS AND VOID ANY APPLICABLE WARRANTY.

⚠ WARNING

OFF-ROADWAY TOWING

WHEN A VEHICLE IS DISABLED AND EQUIPPED WITH A STEERTEK NXT AXLE, CARE MUST BE TAKEN TO ENSURE THERE IS NO DAMAGE TO THE SUSPENSION OR AXLE WHEN TOWING THE VEHICLE. THE USE OF A TOW STRAP IS NECESSARY TO TOW A DISABLED VEHICLE TO A REPAIR FACILITY PARKING LOT INTO THE SHOP BAY. THE TOW STRAPS SHOULD BE CONNECTED TO THE TOW HOOKS PROVIDED BY THE VEHICLE MANUFACTURER AT THE FRONT OF THE BUMPER. IF THE USE OF TOW HOOKS IS NOT AN OPTION, THEN A TOW STRAP MAY BE WRAPPED AROUND THE FRONT AXLE, (SEE FIGURE 3-2) IN A MANNER THAT IS ACCEPTABLE FOR TOWING THE VEHICLE FROM A REPAIR FACILITY PARKING LOT INTO THE SHOP BAY. DO NOT USE A TOW CHAIN AROUND THE FRONT AXLE OR WITH A SINGLE POINT LOCATION TO TOW THE VEHICLE. DOING SO WILL DAMAGE THE AXLE AND VOID ANY APPLICABLE WARRANTY, SEE FIGURE 3-2. FOR DETAILED TOWING INSTRUCTIONS FOR ON-HIGHWAY TOWING, SEE TOWING PROCEDURES SECTION IN THIS PUBLICATION.

FIGURE 3-2

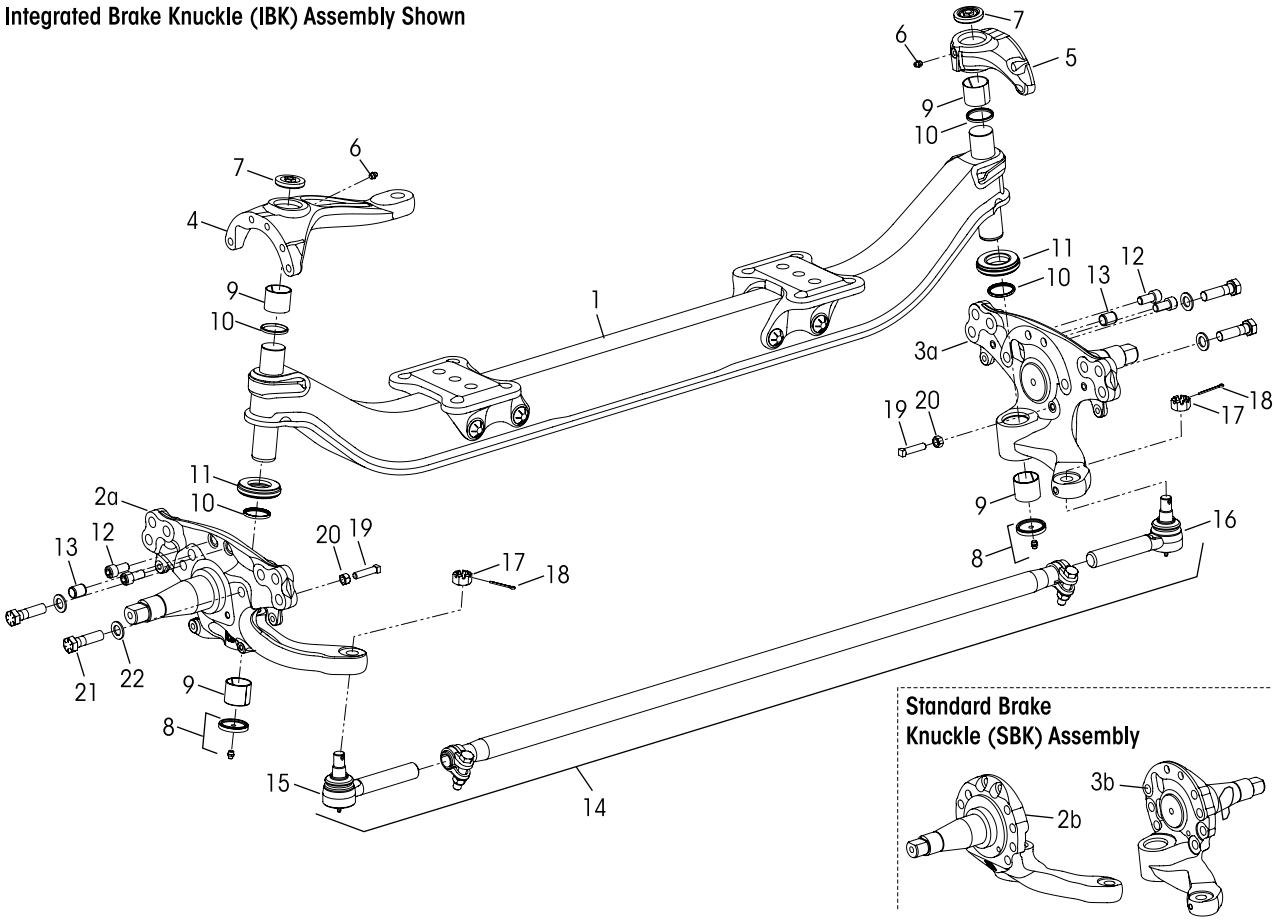


SECTION 4
Parts Lists

8K • 10K • 12K • 12.5K • 13K • 13.2K • 14K • 14.6K lb Capacity Vehicles built after June 2025

Equipped with Standard Brake Knuckle (SBK) or Integrated Brake Knuckle (IBK)

Integrated Brake Knuckle (IBK) Assembly Shown



KEY NO.	PART NO.	DESCRIPTION	VEHICLE QTY.
	94985-XXX	**STEERTEK NXT** Axle Assembly, IBK, Includes Key Nos. 1-22, *See Selection Guide on Page 12* SBK, Includes Key Nos. 1-20, *See Selection Guide on Page 10*	1
1	94984-XXX	Axle & Kingpin Assembly IBK, *See Selection Guide on Page 12* SBK, *See Selection Guide on Page 10*	1
2		LH Lower Steering Knuckle Assembly, Includes Key Nos. 8-10, 13, 19-20	
a	80029-XXX	IBK, *See Selection Guide on Page 12* SBK, *See Selection Guide on Page 10*	
b	93945-XXX	8K-13.2K	
c	58900-XXX	14K-14.6K	
3		RH Lower Steering Knuckle Assembly, Includes Key Nos. 8-10, 13, 19-20	
a	80029-XXX	IBK, *See Selection Guide on Page 12* SBK, *See Selection Guide on Page 10*	
b	93945-XXX	8K-13.2K	
c	58900-XXX	14K-14.6K	
4	60903-XXX	LH Upper Steering Knuckle Assembly, Includes Key Nos. 6-7, 9-10 IBK, *See Selection Guide on Page 12* SBK, *See Selection Guide on Page 10*	1
5	60904-402	RH Upper Steering Knuckle Assembly, Includes Key Nos. 6-7, 9-10	1
	60961-630	**Kingpin Bushing and Bearing Service Kit, One Side,** Includes Key Nos. 6-12 & Loctite	

KEY NO.	PART NO.	DESCRIPTION	VEHICLE QTY.
6	33117-000	Grease Zerk	2
7	68687-003	Upper Grease Cap Assembly	2
8	68687-002	Lower Grease Cap Assembly	2
9	58909-001	Kingpin Bushing	4
	60961-633	**Roller Thrust Bearing Service Kit, One Side** Includes Key Nos. 10-12 & Loctite	
10	68731-000	Kingpin Seal	4
11	64256-000	Roller Thrust Bearing	2
12	60236-001	⅝"-11 UNC Socket Head Cap Screw	4
Not Shown	60937-000	Loctite® (Red) Compound Tube	1
13	64246-000	ABS Sensor Sleeve	2
14	76877-XXX	Tie Rod Assembly, Includes Key Nos. 15-17 *See Selection Guide on Page 10 and 12*	1
		Tie Rod End Service Kits	
	60961-734	**Axle Set,** Includes Left Hand & Right Hand Kits	
	60961-736	**Left Hand,** Includes Key Nos. 15, 17-18	
	60961-741	**Right Hand,** Includes Key Nos. 16-18	
		Tie Rod End,Includes Key No. 17	
15	70995-001	Left Hand	1
16	70995-002	Right Hand	1
17		*⅞" Castle Nut	2
18	17800-004	Tie Rod Nut Cotter Pin	2
	60961-069	**Stop Bolt Service Kit, One Side,** Includes Key Nos. 19-20	
19	60238-001	½"-13 UNC Square Head Bolt	2
20	60240-000	½"-13 UNC Hex Jam Nut	2
21	58917-023	¾"-10 x 2¾" Hex Head Cap Screw (IBK Only)	4
22	22962-001	¾" Flat Washer (IBK Only)	4

NOTES:* Item included in kit/assembly only, part not sold separately.

STEERTEK NXT Axle Selection Guide

Vehicles built after June 2025

Standard Brake Knuckle (SBK) Axle with ¾" Mounting Fasteners

Page 8			Part Number					
Capacity (lb)	Wheel Base (in)	KPI/ *Steering Arm Type (in)	STEERTEK NXT Assembly	Axle & Kingpin Assembly Key No. 1	Lower Steering Knuckle Assembly Left Hand Key No. 2b	Lower Steering Knuckle Assembly Right Hand Key No. 3b	Upper Steering Knuckle Assembly Left Hand Key No. 4	Tie Rod Assembly Key No. 14
8K / 10K	<190	70.9/ LSA	94985-113	94984-001	93945-505	93945-506	60903-475	76877-005
	215		94985-114		93945-507	93945-508		76877-002
	>240		94985-115		93945-509	93945-510		76877-003
	<190	70.9/ RSA	94985-116		93945-505	93945-506	60903-481	76877-005
	215		94985-117		93945-507	93945-508		76877-002
	>240		94985-118		93945-509	93945-510		76877-003
	<190	69.0/ LSA	94985-119	94984-002	93945-505	93945-506	60903-475	76877-004
	215		94985-120		93945-507	93945-508		76877-005
	>240		94985-121		93945-509	93945-510		76877-001
	<190	69.0/ RSA	94985-122		93945-505	93945-506	60903-481	76877-004
	215		94985-123		93945-507	93945-508		76877-005
	>240		94985-124		93945-509	93945-510		76877-001
12K	<190	70.9/ LSA	94985-237	94984-003	93945-505	93945-506	60903-475	76877-005
	215		94985-238		93945-507	93945-508		76877-002
	>240		94985-239		93945-509	93945-510		76877-003
	<190	70.9/ RSA	94985-240		93945-505	93945-506	60903-481	76877-005
	215		94985-241		93945-507	93945-508		76877-002
	>240		94985-242		93945-509	93945-510		76877-003
	<190	69.0/ LSA	94985-243	94984-004	93945-505	93945-506	60903-475	76877-004
	215		94985-244		93945-507	93945-508		76877-005
	>240		94985-245		93945-509	93945-510		76877-001
	<190	69.0/ RSA	94985-246		93945-505	93945-506	60903-481	76877-004
	215		94985-247		93945-507	93945-508		76877-005
	>240		94985-248		93945-509	93945-510		76877-001
12.5K	<190	70.9/ LSA	94985-213	94984-003	93945-505	93945-506	60903-475	76877-005
	215		94985-214		93945-507	93945-508		76877-002
	>240		94985-215		93945-509	93945-510		76877-003
	<190	70.9/ RSA	94985-216		93945-505	93945-506	60903-481	76877-005
	215		94985-217		93945-507	93945-508		76877-002
	>240		94985-218		93945-509	93945-510		76877-003
	<190	69.0/ LSA	94985-219	94984-004	93945-505	93945-506	60903-475	76877-004
	215		94985-220		93945-507	93945-508		76877-005
	>240		94985-221		93945-509	93945-510		76877-001
	<190	69.0/ RSA	94985-222		93945-505	93945-506	60903-481	76877-004
	215		94985-223		93945-507	93945-508		76877-005
	>240		94985-224		93945-509	93945-510		76877-001

Continued on next page

STEERTEK NXT Axle Selection Guide

Vehicles built after June 2025

Standard Brake Knuckle (SBK) Axle with ¾" Mounting Fasteners

Page 8			Part Number					
Capacity (lb)	Wheel Base (in)	KPI/ *Steering Arm Type (in)	STEERTEK NXT Assembly	Axle & Kingpin Assembly Key No. 1	Lower Steering Knuckle Assembly Left Hand Key No. 2b	Lower Steering Knuckle Assembly Right Hand Key No. 3b	Upper Steering Knuckle Assembly Left Hand Key No. 4	Tie Rod Assembly Key No. 14
13K / 13.2K	<190	70.9/ LSA	94985-301	94984-005	93945-505	93945-506	60903-475	76877-005
	215		94985-302		93945-507	93945-508		76877-002
	>240		94985-303		93945-509	93945-510		76877-003
	<190	70.9/ RSA	94985-304		93945-505	93945-506	60903-481	76877-005
	215		94985-305		93945-507	93945-508		76877-002
	>240		94985-306		93945-509	93945-510		76877-003
	<190	69.0/ LSA	94985-307	94984-006	93945-505	93945-506	60903-475	76877-004
	215		94985-308		93945-507	93945-508		76877-005
	>240		94985-309		93945-509	93945-510		76877-001
	<190	69.0/ RSA	94985-310		93945-505	93945-506	60903-481	76877-004
	215		94985-311		93945-507	93945-508		76877-005
	>240		94985-312		93945-509	93945-510		76877-001
14K / 14.6K	<190	70.9/ LSA	94985-401	94984-101M	58900-505	58900-506	60903-475	76879-001
	215		94985-402		58900-507	58900-508		76879-002
	>240		94985-403		58900-509	58900-510		76879-003
	<190	70.9/ RSA	94985-404		58900-505	58900-506	60903-481	76879-001
	215		94985-405		58900-507	58900-508		76879-002
	>240		94985-406		58900-509	58900-510		76879-003
	<190	69.0/ LSA	94985-407	94984-102M	58900-505	58900-506	60903-475	76879-001
	215		94985-408		58900-507	58900-508		
	>240		94985-409		58900-509	58900-510		
	<190	69.0/ RSA	94985-410		58900-505	58900-506	60903-481	
	215		94985-411		58900-507	58900-508		
	>240		94985-412		58900-509	58900-510		

NOTE: * LSA stands for Lower Steering Arm and RSA stands for Raised Steering Arm configuration.

STEERTEK NXT Axle Selection Guide

Vehicles built after June 2025

Integrated Brake Knuckle (IBK) Axle with ¾" Mounting Fasteners

Page 8			Part Number					
Capacity (lb)	Wheel Base (in)	KPI/ *Steering Arm Type (in)	STEERTEK NXT Assembly	Axle & Kingpin Assembly Key No. 1	Lower Steering Knuckle Assembly Left Hand Key No. 2a	Lower Steering Knuckle Assembly Right Hand Key No. 3a	Upper Steering Knuckle Assembly Left Hand Key No. 4	Tie Rod Assembly Key No. 14
10K	<190	70.9/ LSA	94985-601	94984-001	80029-105	80029-106	60903-475	76877-005
	215		94985-602		80029-107	80029-108		76877-002
	>240		94985-603		80029-109	80029-110		76877-003
	<190	70.9/ RSA	94985-604		80029-105	80029-106	60903-481	76877-005
	215		94985-605		80029-107	80029-108		76877-002
	>240		94985-606		80029-109	80029-110		76877-003
	<190	69.0/ LSA	94985-607	94984-002	80029-105	80029-106	60903-475	76877-004
	215		94985-608		80029-107	80029-108		76877-005
	>240		94985-609		80029-109	80029-110		76877-001
	<190	69.0/ RSA	94985-610		80029-105	80029-106	60903-481	76877-004
	215		94985-611		80029-107	80029-108		76877-005
	>240		94985-612		80029-109	80029-110		76877-001
12K	<190	70.9/ LSA	94985-713	94984-003	80029-105	80029-106	60903-475	76877-005
	215		94985-714		80029-107	80029-108		76877-002
	>240		94985-715		80029-109	80029-110		76877-003
	<190	70.9/ RSA	94985-716		80029-105	80029-106	60903-481	76877-005
	215		94985-717		80029-107	80029-108		76877-002
	>240		94985-718		80029-109	80029-110		76877-003
	<190	69.0/ LSA	94985-719	94984-004	80029-105	80029-106	60903-475	76877-004
	215		94985-720		80029-107	80029-108		76877-005
	>240		94985-721		80029-109	80029-110		76877-001
	<190	69.0/ RSA	94985-722		80029-105	80029-106	60903-481	76877-004
	215		94985-723		80029-107	80029-108		76877-005
	>240		94985-724		80029-109	80029-110		76877-001
12.5K	<190	70.9/ LSA	94985-701	94984-003	80029-105	80029-106	60903-475	76877-005
	215		94985-702		80029-107	80029-108		76877-002
	>240		94985-703		80029-109	80029-110		76877-003
	<190	70.9/ RSA	94985-704		80029-105	80029-106	60903-481	76877-005
	215		94985-705		80029-107	80029-108		76877-002
	>240		94985-706		80029-109	80029-110		76877-003
	<190	69.0/ LSA	94985-707	94984-004	80029-105	80029-106	60903-475	76877-004
	215		94985-708		80029-107	80029-108		76877-005
	>240		94985-709		80029-109	80029-110		76877-001
	<190	69.0/ RSA	94985-710		80029-105	80029-106	60903-481	76877-004
	215		94985-711		80029-107	80029-108		76877-005
	>240		94985-712		80029-109	80029-110		76877-001

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STEERTEK NXT Axle Selection Guide

Vehicles built after June 2025

Integrated Brake Knuckle (IBK) Axle with ¾" Mounting Fasteners

Page 8			Part Number					
Capacity (lb)	Wheel Base (in)	KPI/ *Steering Arm Type (in)	STEERTEK NXT Assembly	Axle & Kingpin Assembly Key No. 1	Lower Steering Knuckle Assembly Left Hand Key No. 2a	Lower Steering Knuckle Assembly Right Hand Key No. 3a	Upper Steering Knuckle Assembly Left Hand Key No. 4	Tie Rod Assembly Key No. 14
13K / 13.2K	<190	70.9/ LSA	94985-801	94984-005	80029-105	80029-106	60903-475	76877-005
	215		94985-802		80029-107	80029-108		76877-002
	>240		94985-803		80029-109	80029-110		76877-003
	<190	70.9/ RSA	94985-804		80029-105	80029-106	60903-481	76877-005
	215		94985-805		80029-107	80029-108		76877-002
	>240		94985-806		80029-109	80029-110		76877-003
	<190	69.0/ LSA	94985-807	94984-006	80029-105	80029-106	60903-475	76877-004
	215		94985-808		80029-107	80029-108		76877-005
	>240		94985-809		80029-109	80029-110		76877-001
	<190	69.0/ RSA	94985-810		80029-105	80029-106	60903-481	76877-004
	215		94985-811		80029-107	80029-108		76877-005
	>240		94985-812		80029-109	80029-110		76877-001
14K / 14.6K	<190	70.9/ LSA	94985-901	94984-101M	80029-105	80029-106	60903-475	76879-001
	215		94985-902		80029-107	80029-108		76879-002
	>240		94985-903		80029-109	80029-110		76879-003
	<190	70.9/ RSA	94985-904		80029-105	80029-106	60903-481	76879-001
	215		94985-905		80029-107	80029-108		76879-002
	>240		94985-906		80029-109	80029-110		76879-003
	<190	69.0/ LSA	94985-907	94984-102M	80029-105	80029-106	60903-475	76879-001
	215		94985-908		80029-107	80029-108		
	>240		94985-909		80029-109	80029-110		
	<190	69.0/ RSA	94985-910		80029-105	80029-106	60903-481	
	215		94985-911		80029-107	80029-108		
	>240		94985-912		80029-109	80029-110		

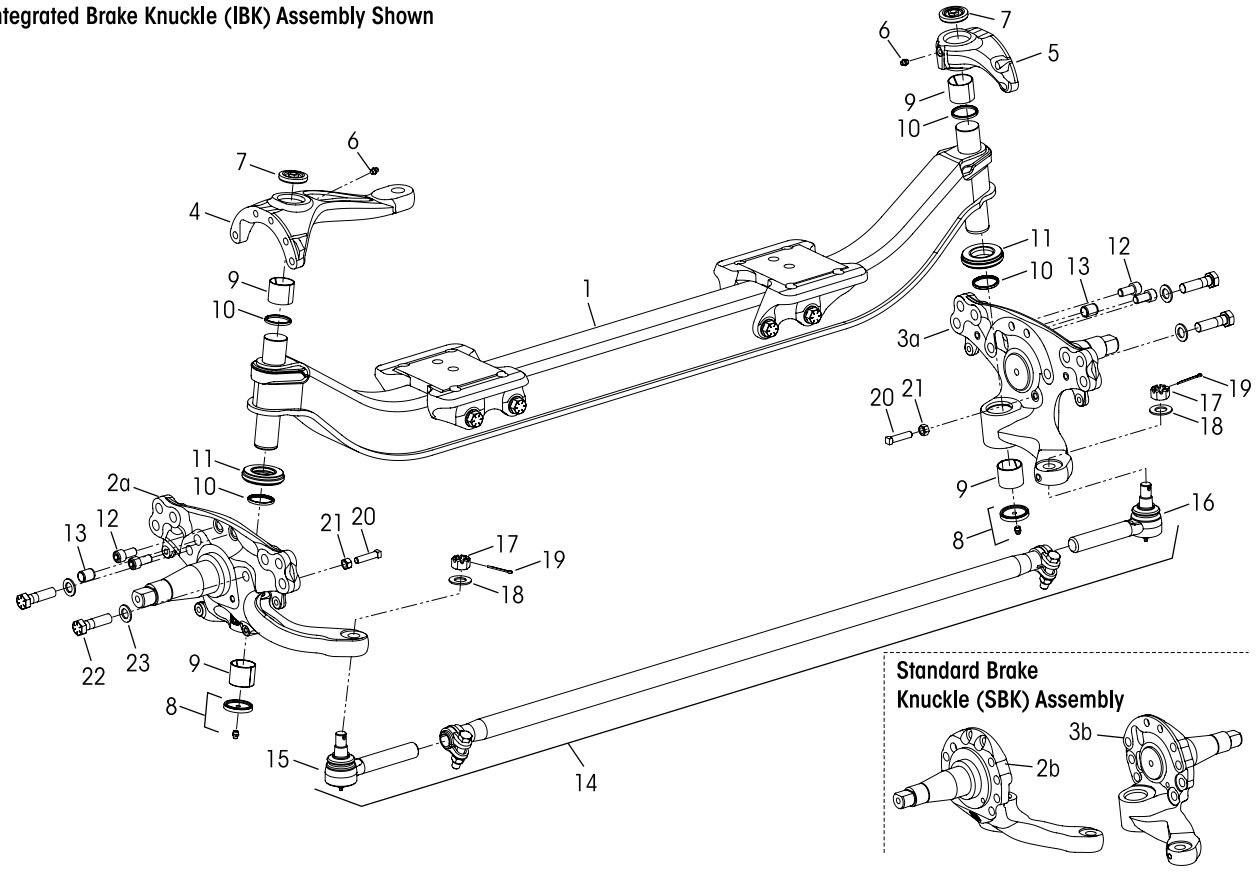
NOTE: * LSA stands for Lower Steering Arm and RSA stands for Raised Steering Arm configuration.

10K•12K•12.5K•13.2K•14.6K Capacity

Vehicles built prior to June, 2025

Equipped with Integrated Brake Knuckle (IBK) or Standard Brake Knuckle (SBK)

Integrated Brake Knuckle (IBK) Assembly Shown



KEY NO.	PART NO.	DESCRIPTION	VEHICLE QTY.
	91925-XXX	**STEERTEK NXT** Axle Assembly, IBK, Includes Key Nos. 1-23, *See Selection Guide on Page 18* SBK, Includes Key Nos. 1-21, *See Selection Guide on Page 16*	1
1	91924-XXX	Axle & Kingpin Assembly IBK, *See Selection Guide on Page 18* SBK, *See Selection Guide on Page 16*	1
2		LH Lower Steering Knuckle Assembly, Includes Key Nos. 8-10, 13, 20-21	
a	80029-XXX	IBK, *See Selection Guide on Page 18*	
b	58900-XXX	SBK, *See Selection Guide on Page 16*	
3		RH Lower Steering Knuckle Assembly, Includes Key Nos. 8-10, 13, 20-21	
a	80029-XXX	IBK, *See Selection Guide on Page 18*	
b	58900-XXX	SBK, *See Selection Guide on Page 16*	
4	60903-XXX	LH Upper Steering Knuckle Assembly, Includes Key Nos. 6-7, 9-10 IBK, *See Selection Guide on Page 18* SBK, *See Selection Guide on Page 16*	1
5	60904-402	RH Upper Steering Knuckle Assembly, Includes Key Nos. 6-7, 9-10	1
	60961-630	**Kingpin Bushing and Bearing Service Kit, One Side,** Includes Key Nos. 6-12 & Loctite	
6	33117-000	Grease Zerk	2
7	68687-003	Upper Grease Cap Assembly	2
8	68687-002	Lower Grease Cap Assembly	2
9	58909-001	Kingpin Bushing	4
	60961-633	**Roller Thrust Bearing Service Kit, One Side** Includes Key Nos. 10-12 & Loctite	
10	68731-000	Kingpin Seal	4
11	64256-000	Roller Thrust Bearing	2
12	60236-001	5/8"-11 UNC Socket Head Cap Screw	4
Not Shown	60937-000	Loctite® (Red) Compound Tube	1
13	64246-000	ABS Sensor Sleeve	2
14		Tie Rod Assembly, Includes Key Nos. 15-17 *See Selection Guide on Page 16*	1
		Tie Rod End Service Kits **10K•12.5K, 1¼" Threads**	
	60961-734	**Axle Set,** Includes Left Hand & Right Hand Kits	
	60961-736	**Left Hand,** Includes Key Nos. 15a, 17-19	
	60961-741	**Right Hand,** Includes Key Nos. 15b,17-19	
		13.2K•14.6K, 1⅛" Threads	
	60961-735	**Axle Set,** Includes Left Hand & Right Hand Kits	
	60961-742	**Left Hand,** Includes Key Nos. 16a, 17-19	
	60961-743	**Right Hand,** Includes Key Nos. 16b, 17-19	
		Tie Rod End,Includes Key No. 17	
15a	70995-001	Left Hand, 10K•12.5K, 1¼" Threads	1
b	70995-002	Right Hand, 10K•12.5K, 1¼" Threads	1
16a	76876-001	Left Hand, 13.2K•14.6K, 1⅛" Threads	1
b	76876-002	Right Hand, 13.2K•14.6K, 1⅛" Threads	1
17		*7/8" Castle Nut	2
18	22962-007	7/8" Flat Washer	2
19	17800-004	Tie Rod Nut Cotter Pin	2
	60961-069	**Stop Bolt Service Kit, One Side,** Includes Key Nos. 20-21	
20	60238-001	½"-13 UNC Square Head Bolt	2
21	60240-000	½"-13 UNC Hex Jam Nut	2
22	58917-023	¾"-10 x 2¾" Hex Head Cap Screw (IBK Only)	4
23	22962-001	¾" Flat Washer (IBK Only)	4

NOTES:* Item included in kit/assembly only, part not sold separately.

STEERTEK NXT Axle Selection Guide

Vehicles built prior to June, 2025

Standard Brake Knuckle (SBK) with ¾" Mounting Fasteners

Page 14			Part Number					
Capacity (lb)	Wheel Base (in)	KPI/ *Steering Arm Type (in)	STEERTEK NXT Assembly	Axle & Kingpin Assembly	Lower Steering Knuckle Assembly		Upper Steering Knuckle Assembly	Tie Rod Assembly
					Left Hand	Right Hand	Left Hand	
				Key No. 1	Key No. 2b	Key No. 3b	Key No. 4	Key No. 14
10K	<190	70.9/ LSA	91925-113	91924-002M	58900-505	58900-506	60903-475	76877-005
	215		91925-114		58900-507	58900-508		76877-002
	>240		91925-115		58900-509	58900-510		76877-003
	<190	70.9/ RSA	91925-116		58900-505	58900-506	60903-481	76877-005
	215		91925-117		58900-507	58900-508		76877-002
	>240		91925-118		58900-509	58900-510		76877-003
	<190	69.0/ LSA	91925-119	91924-003M	58900-505	58900-506	60903-475	76877-004
	215		91925-120		58900-507	58900-508		76877-005
	>240		91925-121		58900-509	58900-510		76877-001
	<190	69.0/ RSA	91925-122		58900-505	58900-506	60903-481	76877-004
	215		91925-123		58900-507	58900-508		76877-005
	>240		91925-124		58900-509	58900-510		76877-001
12K	<190	70.9/ LSA	91925-237	91924-004M	58900-505	58900-506	60903-475	76877-005
	215		91925-238		58900-507	58900-508		76877-002
	>240		91925-239		58900-509	58900-510		76877-003
	<190	70.9/ RSA	91925-240		58900-505	58900-506	60903-481	76877-005
	215		91925-241		58900-507	58900-508		76877-002
	>240		91925-242		58900-509	58900-510		76877-003
	<190	69.0/ LSA	91925-243	91924-005M	58900-505	58900-506	60903-475	76877-004
	215		91925-244		58900-507	58900-508		76877-005
	>240		91925-245		58900-509	58900-510		76877-001
	<190	69.0/ RSA	91925-246		58900-505	58900-506	60903-481	76877-004
	215		91925-247		58900-507	58900-508		76877-005
	>240		91925-248		58900-509	58900-510		76877-001
12.5K	<190	70.9/ LSA	91925-213	91924-004M	58900-505	58900-506	60903-475	76877-005
	215		91925-214		58900-507	58900-508		76877-002
	>240		91925-215		58900-509	58900-510		76877-003
	<190	70.9/ RSA	91925-216		58900-505	58900-506	60903-481	76877-005
	215		91925-217		58900-507	58900-508		76877-002
	>240		91925-218		58900-509	58900-510		76877-003
	<190	69.0/ LSA	91925-219	91924-005M	58900-505	58900-506	60903-475	76877-004
	215		91925-220		58900-507	58900-508		76877-005
	>240		91925-221		58900-509	58900-510		76877-001
	<190	69.0/ RSA	91925-222		58900-505	58900-506	60903-481	76877-004
	215		91925-223		58900-507	58900-508		76877-005
	>240		91925-224		58900-509	58900-510		76877-001

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STEERTEK NXT Axle Selection Guide

Vehicles built prior to June, 2025

Standard Brake Knuckle (SBK) with ¾" Mounting Fasteners

Page 14			Part Number					
Capacity (lb)	Wheel Base (in)	KPI/ *Steering Arm Type (in)	STEERTEK NXT Assembly	Axle & Kingpin Assembly Key No. 1	Lower Steering Knuckle Assembly Left Hand Key No. 2b	Lower Steering Knuckle Assembly Right Hand Key No. 3b	Upper Steering Knuckle Assembly Left Hand Key No. 4	Tie Rod Assembly Key No. 14
13.2K	<190	70.9/ LSA	91925-301	91924-006M	58900-505	58900-506	60903-475	76879-001
	215		91925-302		58900-507	58900-508		76879-002
	>240		91925-303		58900-509	58900-510		76879-003
	<190	70.9/ RSA	91925-304		58900-505	58900-506	60903-481	76879-001
	215		91925-305		58900-507	58900-508		76879-002
	>240		91925-306		58900-509	58900-510		76879-003
	<190	69.0/ LSA	91925-307	91924-007M	58900-505	58900-506	60903-475	76879-001
	215		91925-308		58900-507	58900-508		
	>240		91925-309		58900-509	58900-510		
	<190	69.0/ RSA	91925-310		58900-505	58900-506	60903-481	
	215		91925-311		58900-507	58900-508		
	>240		91925-312		58900-509	58900-510		
14.6K	<190	70.9/ LSA	91925-401	91924-008M	58900-505	58900-506	60903-475	76879-001
	215		91925-402		58900-507	58900-508		76879-002
	>240		91925-403		58900-509	58900-510		76879-003
	<190	70.9/ RSA	91925-404		58900-505	58900-506	60903-481	76879-001
	215		91925-405		58900-507	58900-508		76879-002
	>240		91925-406		58900-509	58900-510		76879-003
	<190	69.0/ LSA	91925-407	91924-009M	58900-505	58900-506	60903-475	76879-001
	215		91925-408		58900-507	58900-508		
	>240		91925-409		58900-509	58900-510		
	<190	69.0/ RSA	91925-410		58900-505	58900-506	60903-481	
	215		91925-411		58900-507	58900-508		
	>240		91925-412		58900-509	58900-510		

NOTE: * LSA stands for Lower Steering Arm and RSA stands for Raised Steering Arm configuration.

STEERTEK NXT Axle Selection Guide

Vehicles built prior to June, 2025

Integrated Brake Knuckle (IBK) Axle with ¾" Mounting Fasteners

Page 14			Part Number					
Capacity (lb)	Wheel Base (in)	KPI/ *Steering Arm Type (in)	STEERTEK NXT Assembly	Axle & Kingpin Assembly	Lower Steering Knuckle Assembly		Upper Steering Knuckle Assembly	Tie Rod Assembly
					Left Hand	Right Hand	Left Hand	
				Key No. 1	Key No. 2a	Key No. 3a	Key No. 4	Key No. 14
10K	<190	70.9/ LSA	91925-601	91924-002M	80029-105	80029-106	60903-475	76877-005
	215		91925-602		80029-107	80029-108		76877-002
	>240		91925-603		80029-109	80029-110		76877-003
	<190	70.9/ RSA	91925-604		80029-105	80029-106	60903-481	76877-005
	215		91925-605		80029-107	80029-108		76877-002
	>240		91925-606		80029-109	80029-110		76877-003
	<190	69.0/ LSA	91925-607	91924-003M	80029-105	80029-106	60903-475	76877-004
	215		91925-608		80029-107	80029-108		76877-005
	>240		91925-609		80029-109	80029-110		76877-001
	<190	69.0/ RSA	91925-610		80029-105	80029-106	60903-481	76877-004
	215		91925-611		80029-107	80029-108		76877-005
	>240		91925-612		80029-109	80029-110		76877-001
12K	<190	70.9/ LSA	91925-713	91924-004M	80029-105	80029-106	60903-475	76877-005
	215		91925-714		80029-107	80029-108		76877-002
	>240		91925-715		80029-109	80029-110		76877-003
	<190	70.9/ RSA	91925-716		80029-105	80029-106	60903-481	76877-005
	215		91925-717		80029-107	80029-108		76877-002
	>240		91925-718		80029-109	80029-110		76877-003
	<190	69.0/ LSA	91925-719	91924-005M	80029-105	80029-106	60903-475	76877-004
	215		91925-720		80029-107	80029-108		76877-005
	>240		91925-721		80029-109	80029-110		76877-001
	<190	69.0/ RSA	91925-722		80029-105	80029-106	60903-481	76877-004
	215		91925-723		80029-107	80029-108		76877-005
	>240		91925-724		80029-109	80029-110		76877-001
12.5K	<190	70.9/ LSA	91925-701	91924-004M	80029-105	80029-106	60903-475	76877-005
	215		91925-702		80029-107	80029-108		76877-002
	>240		91925-703		80029-109	80029-110		76877-003
	<190	70.9/ RSA	91925-704		80029-105	80029-106	60903-481	76877-005
	215		91925-705		80029-107	80029-108		76877-002
	>240		91925-706		80029-109	80029-110		76877-003
	<190	69.0/ LSA	91925-707	91924-005M	80029-105	80029-106	60903-475	76877-004
	215		91925-708		80029-107	80029-108		76877-005
	>240		91925-709		80029-109	80029-110		76877-001
	<190	69.0/ RSA	91925-710		80029-105	80029-106	60903-481	76877-004
	215		91925-711		80029-107	80029-108		76877-005
	>240		91925-712		80029-109	80029-110		76877-001

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STEERTEK NXT Axle Selection Guide

Vehicles built prior to June, 2025

Integrated Brake Knuckle (IBK) Axle with ¾" Mounting Fasteners

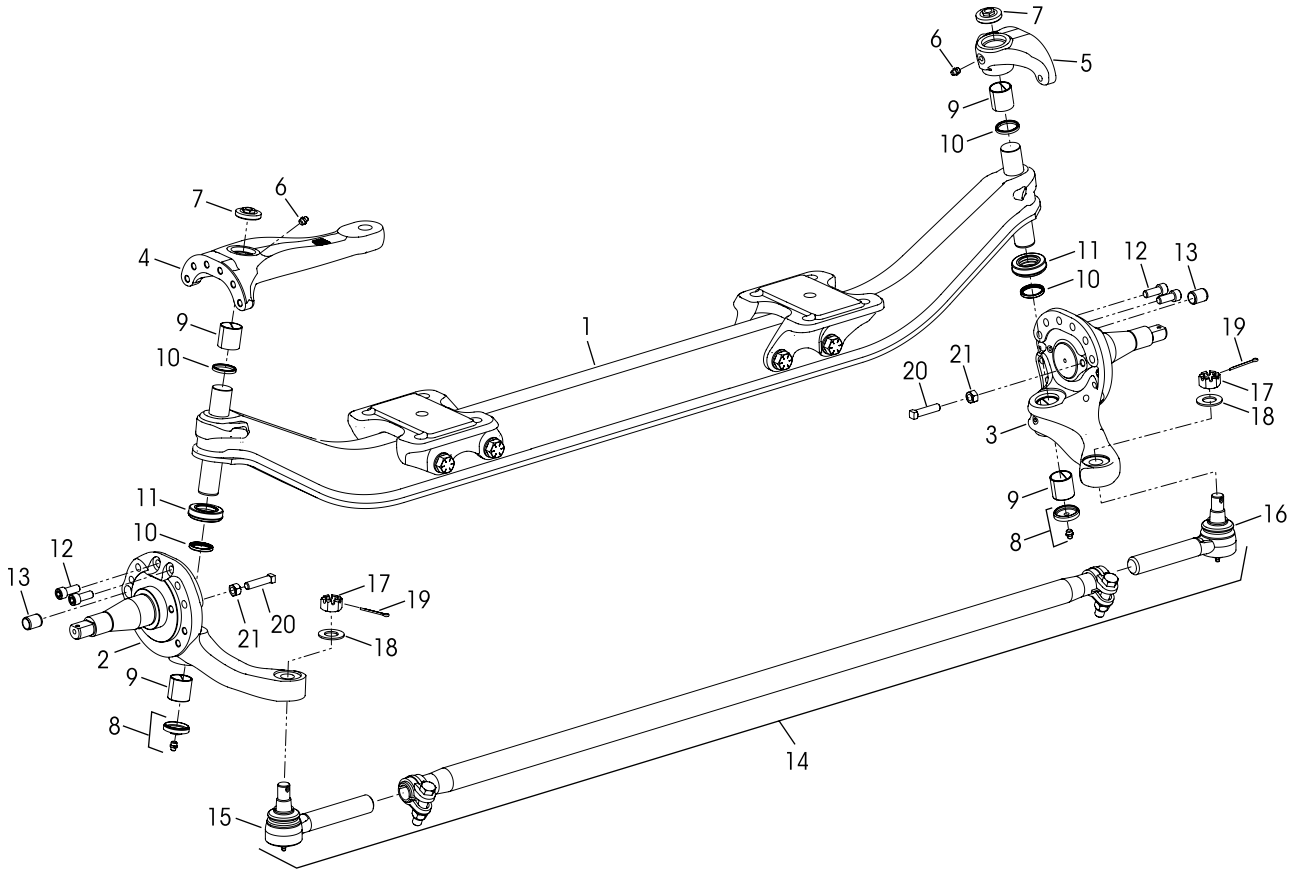
Page 14			Part Number					
Capacity (lb)	Wheel Base (in)	KPI/ *Steering Arm Type (in)	STEERTEK NXT Assembly	Axle & Kingpin Assembly Key No. 1	Lower Steering Knuckle Assembly Left Hand Key No. 2a	Lower Steering Knuckle Assembly Right Hand Key No. 3a	Upper Steering Knuckle Assembly Left Hand Key No. 4	Tie Rod Assembly Key No. 14
13.2K	<190	70.9/ LSA	91925-801	91924-006M	80029-105	80029-106	60903-475	76879-001
	215		91925-802		80029-107	80029-108		76879-002
	>240		91925-803		80029-109	80029-110		76879-003
	<190	70.9/ RSA	91925-804		80029-105	80029-106	60903-481	76879-001
	215		91925-805		80029-107	80029-108		76879-002
	>240		91925-806		80029-109	80029-110		76879-003
	<190	69.0/ LSA	91925-807	91924-007M	80029-105	80029-106	60903-475	76879-001
	215		91925-808		80029-107	80029-108		76879-001
	>240		91925-809		80029-109	80029-110		76879-001
	<190	69.0/ RSA	91925-810		80029-105	80029-106	60903-481	76879-001
	215		91925-811		80029-107	80029-108		76879-001
	>240		91925-812		80029-109	80029-110		76879-001
14.6K	<190	70.9/ LSA	91925-901	91924-008M	80029-105	80029-106	60903-475	76879-001
	215		91925-902		80029-107	80029-108		76879-002
	>240		91925-903		80029-109	80029-110		76879-003
	<190	70.9/ RSA	91925-904		80029-105	80029-106	60903-481	76879-001
	215		91925-905		80029-107	80029-108		76879-002
	>240		91925-906		80029-109	80029-110		76879-003
	<190	69.0/ LSA	91925-907	91924-009M	80029-105	80029-106	60903-475	76879-001
	215		91925-908		80029-107	80029-108		
	>240		91925-909		80029-109	80029-110		
	<190	69.0/ RSA	91925-910		80029-105	80029-106	60903-481	
	215		91925-911		80029-107	80029-108		
	>240		91925-912		80029-109	80029-110		

NOTE: * LSA stands for Lower Steering Arm and RSA stands for Raised Steering Arm configuration.

8K Capacity

Equipped with Standard Brake Knuckle (SBK)

Vehicles built prior to January, 2024



KEY NO.	PART NO.	DESCRIPTION	VEHICLE QTY.
	91925-XXX	**STEERTEK NXT** Axle Assembly, Includes Key Nos. 1-21, *See Selection Guide below*	1
1	91924-XXX	Axle & Kingpin Assembly, *See Selection Guide below*	1
	91221-XXX	Lower Steering Knuckle Assembly, Includes Key Nos. 8-10, 13, 20-21, *See Selection Guide below*	
2		Left Hand	1
3		Right Hand	1
4	91225-XXX	LH Upper Steering Knuckle Assembly, Includes Key Nos. 6-7, 9-10, *See Selection Guide below*	
5	91229-001	RH Upper Steering Knuckle Assembly, Includes Key Nos. 6-7, 9-10	1
	34013-448	**Kingpin Bushing Service Kit, One Side,** Includes Key Nos. 6-9 & Loctite	
6	33117-000	Grease Zerk	2
7	91231-001	Upper Grease Cap Assembly	2
8	91233-001	Lower Grease Cap Assembly	2
9	91204-001	Kingpin Bushing	4
	34013-449	**Roller Thrust Bearing Service Kit,One Side**, Includes Key Nos. 10-12 & Loctite	
10	91234-001	Kingpin Seal	4
11	91202-001	Roller Thrust Bearing	2
12	60236-004	½"-13 UNC Socket Head Cap Screw	4
Not Shown	60937-000	Loctite® (Red) Compound Tube	1
13	64246-000	ABS Sensor Sleeve	2
14	76877-XXX	Tie Rod Assembly, Includes Key Nos. 15-17 *See Selection Guide below*	1
		Tie Rod End Service Kits	
	60961-734	**Axle Set,** Includes Left Hand & Right Hand Kits	
	60961-736	**Left Hand,** Includes Key Nos. 15, 17-19	
	60961-741	**Right Hand,** Includes Key Nos. 16-19	
		Tie Rod End,Includes Key No. 17	
15	70995-001	Left Hand	1
16	70995-002	Right Hand	1
17		*⅞" Castle Nut	2
18	22962-007	⅞" Flat Washer	2
19	17800-004	Tie Rod Nut Cotter Pin	2
	60961-069	**Stop Bolt Service Kit, One Side,** Includes Key Nos. 20-21	
20	60238-001	½"-13 UNC Square Head Bolt	2
21	60240-000	½"-13 UNC Hex Jam Nut	2

NOTES:* Item included in kit/assembly only, part not sold separately.

STEERTEK NXT Axle Selection Guide

Vehicles built prior to January, 2024

Standard Brake Knuckle (SBK) with ½" Mounting Fasteners

Page 20			Part Number					
Capacity (lb)	Wheel Base (in)	KPI/ Steering Arm Type* (in)	STEERTEK NXT Assembly	Axle & Kingpin Assembly	Lower Steering Knuckle Assembly		Upper Steering Knuckle Assembly	Tie Rod Assembly
					Left Hand	Right Hand	Left Hand	
				Key No. 1	Key No. 2	Key No. 3	Key No. 4	Key No. 14
8K	<190	70.9/ LSA	91925-007	91924-001M	91221-009	91221-010	91225-004	76877-001
	215		91925-008		91221-011	91221-012		76877-002
	>240		91925-009		91221-013	91221-014		
	<190	70.9/ RSA	91925-010		91221-009	91221-010	91225-005	76877-001
	215		91925-011		91221-011	91221-012		76877-002
	>240		91925-012		91221-013	91221-014		

NOTE: * LSA stands for Lower Steering Arm and RSA stands for Raised Steering Arm configuration.

SECTION 5
Special Tools

KINGPIN BUSHING TOOLS

ADJUSTABLE STRAIGHT FLUTE REAMER
1.802" to 1.812" Cutting Diameter

McMaster-Carr #3141A28



EXTENSION PILOT TOOL

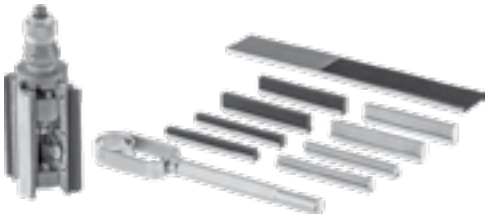
McMaster-Carr #3004A32



OR

PRECISION-FINISH CYLINDER HONE
1.75" to 2.75" Cylinder ID

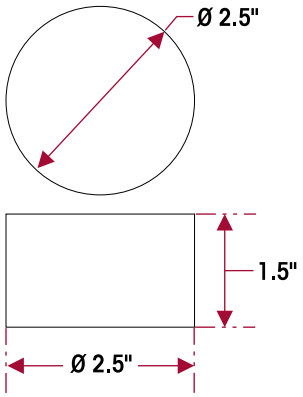
McMaster-Carr #7362A45



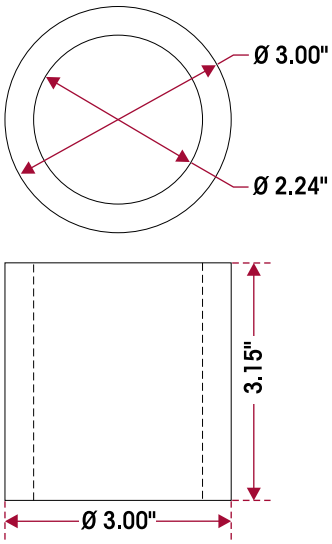
KINGPIN BUSHING AND SEAL TOOLS – SHOP MADE TOOLS

These shop made tools are designed to help install and remove kingpin bushings. Bushing tools are made from cold rolled steel or equivalent. Drawings are for reference only. Hendrickson does not supply these tools.

***Bushing Driver**



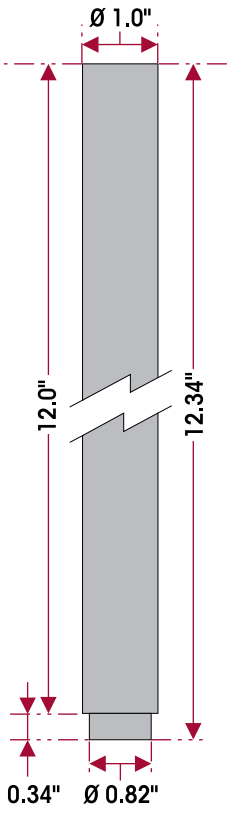
Bushing Receiving Tool
(press bushing replacement)



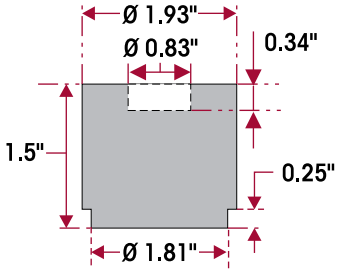
NOTE: *The bushing driver is necessary to sink the kingpin bushing flush into the steering knuckle bore.

NOTE: Kingpin Handle is used for both bushing installer / remover and seal installer tools

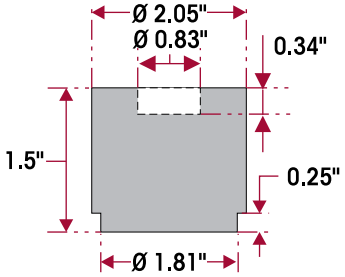
Kingpin Handle



Bushing Installer / Remover Tool
(to seat bushing)



Seal Installer Tool
(to seat seal)



SECTION 6
Towing Procedure

ON-HIGHWAY AND ON-ROADWAY

Please read, understand and comply with any additional towing instructions and safety precautions that may be provided by the vehicle manufacturer.

Hendrickson will not be responsible for any damage to the axle, suspension or other vehicle components resulting from any towing method or fixture not authorized by Hendrickson.

For questions regarding proper towing procedures for vehicles equipped with a STEERTEK NXT axle, please contact Hendrickson Tech Services at 855-743-3733 (U.S. and Canada) or send e-mail to: wdtechservices@hendrickson-intl.com.

Hendrickson recommends that a vehicle equipped with a STEERTEK NXT axle be towed by the following methods (listed in order of preference) for ON-HIGHWAY or ON-ROADWAY applications.

- **METHOD 1** — Wheel lift, the ideal towing procedure
- **METHOD 2** — Conventional axle fork

METHOD 1 — WHEEL LIFT

This method provides the greatest ease for towing the vehicle. Lifting at the tires helps reduce the risk of possible damage to the axle, suspension, and engine components during towing operations, see Figure 6-1.

FIGURE 6-1



METHOD 2 — CONVENTIONAL AXLE FORK

This is an alternative method for towing the vehicle, but requires standard tow forks and designated lift points inside the STEERTEK NXT axle clamp groups.

NOTE When lifting a vehicle with an under lift boom, care must be taken not to damage the underbody components.

- Ensure there is sufficient clearance between the underbody components and the boom.
- Release the tractor brakes.
- Install the safety straps prior to towing the vehicle. It is preferred to use nylon safety straps. Chains have a tendency to bind and may cause damage to the axle.

1. Use a Miller Short Frame Fork, Part No. 0200019, or comparable (3.25" Clearance), 4.5" Opening, 2" Shank, see Figure 6-2.
2. Install the fork in the boom properly.
3. The proper tow fork location is centered between the locknuts on the axle spring seats, see Figure 6-3.

FIGURE 6-2



FIGURE 6-3



OFF-ROADWAY TOWING METHOD

WARNING

WHEN A VEHICLE IS DISABLED AND EQUIPPED WITH A STEERTEK NXT AXLE, CARE MUST BE TAKEN TO ENSURE THERE IS NO DAMAGE TO THE SUSPENSION OR AXLE WHEN TOWING THE VEHICLE. THE USE OF A TOW STRAP IS NECESSARY TO TOW A DISABLED VEHICLE TO A REPAIR FACILITY PARKING LOT INTO THE SHOP BAY. THE TOW STRAPS SHOULD BE CONNECTED TO THE TOW HOOKS PROVIDED BY THE VEHICLE MANUFACTURER AT THE FRONT OF THE BUMPER. IF THE USE OF TOW HOOKS IS NOT AN OPTION, THEN A TOW STRAP MAY BE WRAPPED AROUND THE FRONT AXLE, (SEE FIGURE 6-4) IN A MANNER THAT IS ACCEPTABLE FOR TOWING THE VEHICLE FROM A REPAIR FACILITY PARKING LOT INTO THE SHOP BAY. DO NOT USE A TOW CHAIN AROUND THE FRONT AXLE OR WITH A SINGLE POINT LOCATION TO TOW THE VEHICLE. DOING SO WILL DAMAGE THE AXLE AND VOID ANY APPLICABLE WARRANTY, SEE FIGURE 6-4. FOR DETAILED TOWING INSTRUCTIONS FOR ON-HIGHWAY TOWING, SEE TOWING PROCEDURES SECTION IN THIS PUBLICATION.

- NYLON STRAPS OR CHAINS ARE NOT RECOMMENDED FOR ON-HIGHWAY OR ON-ROADWAY TOWING.

FIGURE 6-4



SECTION 7

Preventive Maintenance

Following appropriate inspection procedures are important to help ensure the proper maintenance and operation of the STEERTEK NXT axles and component parts function to their highest efficiency.

HENDRICKSON RECOMMENDED INSPECTION INTERVALS	PRE-DELIVERY	FIRST IN-SERVICE	PREVENTIVE MAINTENANCE	
	within the first 100 miles (160 km)	1,000 miles (1,600 km), 100 hours or whichever comes first	25,000 miles (40,200 km), every 3 months or whichever comes first	100,000 miles (161,000 km), every 12 months or whichever comes first
Hendrickson recommends to visually inspect for proper assembly, function, overall condition, and any signs of damage. During the inspection intervals as shown, check for any unusual movement, loose or missing components, abrasive or adverse contact with other parts, damaged or cracked parts, and improper suspension function or alignment. Replace components as necessary.				
Fasteners	■	■		■
Front Wheel Alignment	■	■		■
Steering Operation	■		■	
STEERTEK NXT Assembly and Tie Rods	■	■	■	
Tire Wear			■	
Wear and Damage	■		■	

See the vehicle manufacturer's applicable publications for other preventive maintenance requirements.

COMPONENT INSPECTION

- **Fasteners** — Visually inspect for any loose or damaged fasteners on the entire suspension. Make sure all fasteners are tightened to the specified torque. Refer to the Torque Specifications section of this publication. Use a calibrated torque wrench to check torque in a tightening direction. As soon as the fastener starts to move, record the torque. Correct the torque if necessary. Replace any worn or damaged fasteners.

NOTE

Torque values shown in this publication apply only if Hendrickson supplied fasteners are used. If non-Hendrickson fasteners are used, follow the torque specifications listed in the vehicle manufacturer's service manual.

- **Front wheel alignment** — Refer to Front Wheel Alignment Specifications section of this publication
- **Steering operation** — Check for looseness at all pivot points. Inspect and lubricate all pivot points. Refer to the Troubleshooting Guide section of this publication. All steering components must move freely through the full range of motion from axle stop to axle stop.
- **STEERTEK NXT axle assembly and tie rods** — Visually inspect for any cracks or dents on the axle, refer to Tie Rod Ends in this section. The axle should be free of any nicks or gouges. Replace as necessary.
- **Tire wear** — Visually inspect tires for any wear patterns that may indicate suspension damage or misalignment. See Tire Inspection in this section.
- **Wear and damage** — Visually inspect all parts of suspension for wear and damage. Look for bent or cracked parts, replace as necessary.

LUBRICATION INTERVALS

For vehicles equipped with the STEERTEK NXT axle, regular lubrication intervals should be followed to help prevent premature wear to the kingpin bushings and tie rod ends, see Lubrication Specifications in Table 7-1.

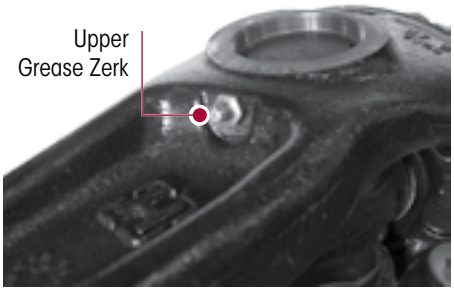
NOTE The recommended service lubrication interval is a guideline, the vehicle may require increased lubrication interval depending on severity of operation.

TABLE 7-1 STEERTEK NXT Greasing and Lubrication Specifications

	Application	Component	Greasing Interval	Grease	Outside Temperature
GENERAL	Does not include linehaul or medium-duty applications	Kingpin Bushings	Maximum of 25,000 miles (40,200 km) or 90 days, whichever comes first.	Multipurpose Grease NGLI Grade 2 EP, rated GC-LB or equivalent.	Refer to the lubricant manufacturer's specifications for the temperature service limits applicable to your area.
		Tie Rod Ends			
		Drag Link	See Vehicle Manufacturer		
	Application Specific Recommendations				
ON-HIGHWAY	Linehaul Only High Mileage Accumulation 95% Highway Surface No off-roadway operation Greater than 50,000 miles per year (80,500 kilometers per year)	Kingpin Bushings	Maximum of 100,000 miles (161,000 km) or 1 year, whichever comes first.	Multipurpose Grease NGLI Grade 2 EP, rated GC-LB or equivalent.	Refer to the lubricant manufacturer's specifications for the temperature service limits applicable to your area.
		Tie Rod Ends			
		Drag Link	See Vehicle Manufacturer		
MEDIUM-DUTY	Low Mileage Accumulation 95% Highway Surface No off-roadway operation City Delivery, Inner City Coach, Heavy-haul, school bus, motor home, transit coach Less than 50,000 miles per year (80,500 kilometers per year)	Kingpin Bushings	Maximum of 40,000 miles (64,000 km) or 6 months, whichever comes first.	Multipurpose Grease NGLI Grade 2 EP, rated GC-LB or equivalent.	Refer to the lubricant manufacturer's specifications for the temperature service limits applicable to your area.
		Tie Rod Ends			
		Drag Link	See Vehicle Manufacturer		

KINGPIN LUBRICATION

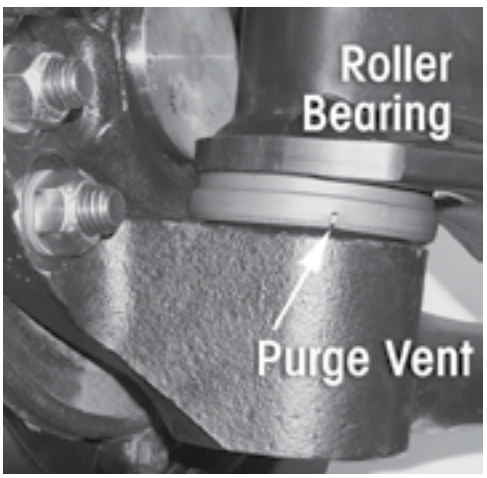
FIGURE 7-1



STEERTEK NXT upper kingpin grease zerks are located on the inboard side of the steering knuckle and upper kingpin connection, see Figure 7-1.

1. Place vehicle on the ground.
2. Chock the wheels and set parking brake.

FIGURE 7-2



3. Prior to greasing the kingpins on the vehicle, the suspension must be in a loaded condition.
4. Clean off all the grease zerks and grease gun tip with a clean shop towel prior to lubrication.
5. Lubricate kingpin bushings through grease zerks on top and bottom of the steering knuckle, see Table 7-1.
6. Force the required lubricant into the upper and lower kingpin grease zerks, until new lubricant flows out from the upper kingpin connection and steering knuckle and the thrust bearing purge locations, see Figure 7-2.

NOTE Greasing at the lower zerk should purge grease from the thrust bearing shell.

7. Remove the wheel chocks.

TIE ROD ENDS

INSPECTION

Prior to inspection the entire system must be unloaded (i.e., the front end of the vehicle must be raised and supported with frame safety stands).

⚠ CAUTION DO NOT GREASE THE TIE ROD ASSEMBLY BEFORE PERFORMING THE INSPECTION. DOING SO CAN INHIBIT EFFORTS TO DETERMINE ACTUAL WEAR.

⚠ CAUTION REPLACE THE ENTIRE TIE ROD END IF THE BOOT IS TORN OR MISSING, FAILURE TO DO SO CAN CAUSE PREMATURE WEAR OF THE TIE ROD END.

1. Chock the rear wheels of the vehicle.
2. Use the bottom of the axle beam or the frame rails to raise the front end off the ground and support the frame with safety stands.
3. With the engine off, turn the wheels from full left to full right and then return to the straight-ahead position.
4. Check that the boots are in place and completely installed over the tie rod ends.
5. Check for cracking or tears in the boots. Also check the boot seals for damage. If the boot is damaged, replace the tie rod end.

⚠ WARNING THE COTTER PIN MUST BE INSTALLED CORRECTLY THROUGH THE TIE ROD END WITH THE CASTLE NUT TIGHTENED TO THE PROPER TORQUE SPECIFICATION IN ORDER TO SECURELY ATTACH THE TIE ROD. LOSS OF THE COTTER PIN CAN CAUSE THE TIE ROD END NUT TO BECOME LOOSE AND POSSIBLY RESULT IN TOTAL LOSS OF VEHICLE CONTROL.

6. Check that the tie rod end nut is installed and secured with a cotter pin. If the cotter pin is missing, check the nut torque specification and then install a new cotter pin. Always tighten the castle nut to specified torque when setting the cotter pin. **DO NOT** back off the nut to insert cotter pin.

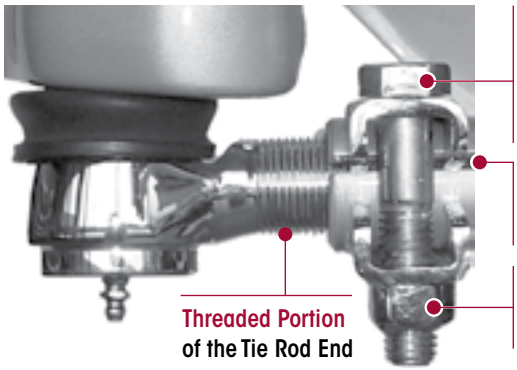
⚠ WARNING IT IS CRITICAL TO CHECK THE TIE ROD CLAMP BOLT HEAD LOCATION TO VERIFY THE CLAMP FASTENERS HAVE SUFFICIENT CLEARANCE AWAY FROM THE LOWER SHOCK MOUNT AT FULL WHEEL CUT. THE FASTENERS MUST NOT CONTACT THE LOWER SHOCK MOUNT. FAILURE TO DO SO CAN CAUSE ONE OR MORE COMPONENTS TO FAIL CAUSING LOSS OF VEHICLE CONTROL AND POSSIBLE PERSONAL INJURY OR PROPERTY DAMAGE.

7. Verify the tie rod clamp bolt head does not contact the lower shock mount at full wheel cut, see Figure 7-3.

⚠ WARNING THE THREADED PORTION OF THE TIE ROD END MUST EXTEND PAST THE SLOTS INTO THE TIE ROD CROSS TUBE, SEE FIGURE 7-3. FAILURE TO DO SO CAN CAUSE COMPONENT DAMAGE, LOSS OF VEHICLE CONTROL AND POSSIBLE PERSONAL INJURY OR PROPERTY DAMAGE.

8. Check that the tie rod end is threaded correctly into the cross tube and is engaged deeper than the end of the cross tube slot. The tie rod end must be visible the entire length of the cross tube slot, see Figure 7-3.

FIGURE 7-3



5/8" Tie Rod Clamp Bolt
It is critical to check the 5/8" tie rod clamp bolt head location to verify the clamp fasteners have sufficient clearance away from the lower shock mount at full wheel cut. The fasteners must not contact the lower shock mount.

Tie Rod Cross Tube Slots
It is critical to have the threaded portion of the tie rod end extend past the slots in the tie rod cross tube.

5/8" Tie Rod Clamp Locknut
Tightening Torque
68 ± 7 ft-lb (92 ± 9 Nm)

9. Check that grease zerks are installed. Replace a damaged grease zerk with a new one.

CAUTION

DO NOT USE THE FOLLOWING ITEMS OR METHODS TO CHECK FOR MOVEMENT OF THE TIE ROD ASSEMBLY, WHICH CAN CAUSE DAMAGE TO COMPONENTS:

- A CROW BAR, PICKLE FORK OR 2 x 4
- ANYTHING OTHER THAN HANDS USED TO GRASP AND ROTATE THE CROSS TUBE ASSEMBLY (CAN RESULT IN DAMAGE TO THE CROSS TUBE)
- EXCESSIVE PRESSURE OR FORCE APPLIED TO THE TIE ROD ENDS OR THE JOINTS OF THE ASSEMBLY

10. By hand or using a pipe wrench, with jaw protectors to avoid gouging the cross tube, rotate the cross tube toward the front of the vehicle and then toward the rear. After rotating, center the cross tube. If the cross tube will not rotate in either direction, replace both tie rod ends, see Figure 7-4.
11. Position yourself directly below the tie rod end. Using both hands, grab the assembly end as close to the tie rod end as possible (no more than 6" or 152.4 mm). Apply hand pressure with reasonable human effort vertically up and down in a push-pull motion several times (using approximately 75 ± 25 foot pounds of force). Check for any movement or looseness at both tie rod end locations, see Figure 7-5.

FIGURE 7-4

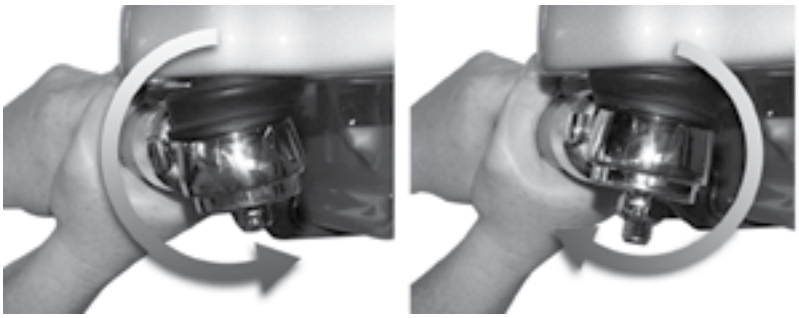


FIGURE 7-5

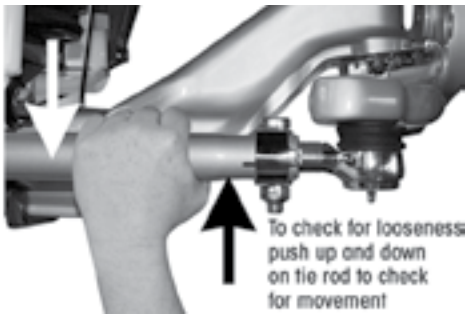


FIGURE 7-6



12. If there is any movement in the tie rod assembly, install a magnetic based dial indicator on the lower steering knuckle, see Figure 7-6.
13. Set the dial indicator to zero.
14. Apply hand pressure with reasonable human effort vertically up and down in a push-pull motion several times (using approximately 75 ± 25 pounds of force). Observe the reading on the dial indicator.
15. If the reading is more than 0.060", replace both tie rod ends at the next service interval.

16. If a tie rod end exhibits ≥ 0.125" of movement by hand, the vehicle should be removed immediately from use and the tie rod end be replaced.

NOTE

According to the Commercial Vehicle Safety Alliance (CVSA), the "out of service" criteria for front steer axle tie rod assemblies on any commercial vehicle is: Any motion other than rotational between any linkage member and its attachment point of more than 0.125" (3 mm) measured with hand pressure only. (393.209(d)), (published in the North American Standard Out-of-Service Criteria Handbook, 2025.)

17. Remove the vehicle frame safety stands and lower the vehicle.
18. Remove the rear wheel chocks..

LUBRICATION PROCEDURE

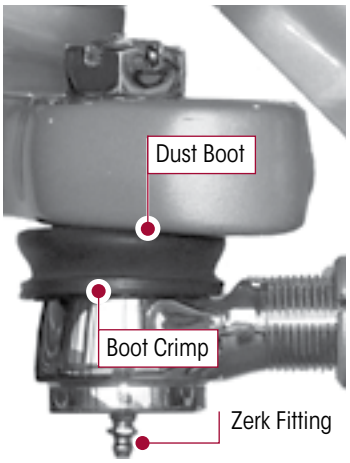
1. Turn the vehicle wheels straight ahead.
2. Chock the wheels.
3. Wipe the grease zerk and grease gun tip with clean shop towels.
4. Wipe the seal / boot clean with shop towels.
5. Attach a grease gun to the grease zerk. Either a hand or pneumatic grease gun is acceptable. If air operated grease gun is used, system air pressure should not exceed 150 psi (1035 kPa).

⚠ CAUTION

EXCEEDING THE MAXIMUM AIR PRESSURE TO THE GREASE ZERK CAN CAUSE DAMAGE TO THE DUST BOOT CAUSING COMPONENT FAILURE.

6. Dirt, water, and discolored old grease should flow from the relief vents or purge holes near the boot crimp or bellows area, see Figure 7-7.
7. Continue to purge grease until fresh grease flows from the purge area.
8. Tie rod ends are designed for lube service. If a tie rod end will not accept grease, proceed as follows:
   a. Remove the grease zerk.
   b. Inspect the threaded grease zerk hole in the tie rod end and remove any obstructions.
   c. Install a new grease zerk.
   d. Continue the lubrication procedure.

FIGURE 7-7



NOTE

If the tie rod end still does not accept grease following this procedure, replace the tie rod end (see Tie Rod End and Cross Tube in the Component Replacement section of this publication).

9. Remove the wheel chocks.

KINGPIN BUSHING

INSPECT STEERING KNUCKLE LATERAL MOVEMENT

NOTE

If one (1) bushing is worn or damaged, it is mandatory to replace both the top and bottom bushings on that knuckle assembly.

1. Chock the wheels to help prevent the vehicle from moving. Set the parking brake.
2. Use a jack to raise the vehicle. Support the vehicle with safety stands.
3. **CHECK THE UPPER KINGPIN BUSHING**. Install the base of a dial indicator onto the axle beam and place the tip against the side of the upper steering knuckle, see Figure 7-8.
4. Set the dial indicator to "0" zero.

5. Move the **TOP** of the tire in and out by applying reasonable constant pressure and then release, see Figure 7-10.
6. Check the reading on the dial indicator. If the dial indicator moves:
   - more than 0.015", the upper bushing is worn or damaged. Replace both kingpin bushings. Refer to Kingpin Bushing in the Component Replacement section of this publication.
   - less than 0.015", proceed to Step 7.
7. **CHECK THE LOWER KINGPIN BUSHING**. Install a dial indicator so that the base is on the axle and the indicator tip is against the side of the lower steering knuckle, see Figure 7-9.
8. Set the dial indicator to "0" zero.
9. Move the **BOTTOM** of the tire in and out. If the dial indicator moves:
   - More than 0.015", the lower bushing is worn or damaged. Replace both kingpin bushings. Refer to the Kingpin Bushing replacement procedure in the Component Replacement section of this publication.
   - Less than 0.015", proceed to Step 10.
10. Lower the vehicle and remove the safety stands.
11. Remove the wheel chocks.

FIGURE 7-8

Check the UPPER Kingpin Bushing



FIGURE 7-9

Check the LOWER Kingpin Bushing



FIGURE 7-10

Move the TOP and BOTTOM of the tire in and out



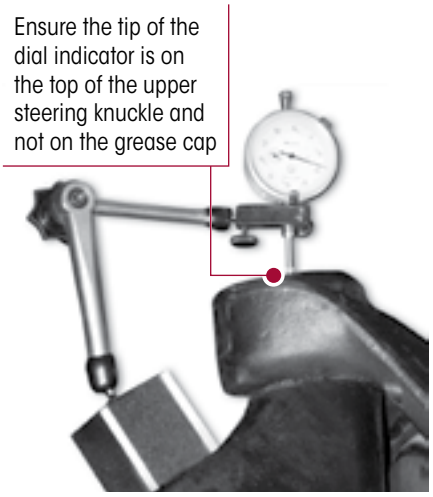
STEERING KNUCKLE

CHECKING VERTICAL END PLAY (UP AND DOWN MOVEMENT)

The operating spec for vertical end play on the steering knuckle is 0.008" to 0.030".

1. Chock the rear tires to help prevent the vehicle from moving.
2. Set the parking brakes.
3. Use a jack to raise the vehicle until both tires are 1" off the ground.
4. Support the vehicle with safety stands.

FIGURE 7-11



5. Place a dial indicator on each side of the axle as follows:
   a. Index the wheels slightly (left or right)
   b. Place the magnetic dial indicator base on the axle, see Figure 7-11.
   c. Place the tip of the dial indicator on the top of the upper steering knuckle (not on the grease cap).
6. Set the dial indicator to "0" (zero).
7. Lower the jack.
8. If vertical end play is greater than 0.030", or below 0.008" an adjustment of the upper steering knuckle is necessary.
9. **Upper steering knuckle adjustment:** Refer to Steering Knuckle in Component Replacement section of this publication for proper shim installation / removal.

   If the vertical end play is:

   - **Greater than 0.030"**— Loosen the socket head cap screws and **push down** on the upper knuckle assembly until the proper vertical end play is achieved.
   - **Less than 0.008"**— Loosen the socket head cap screws and **pull up** on the upper knuckle assembly until the proper vertical end play is achieved.
10. Re-tighten the socket head cap screws to 187 ± 12 foot pounds torque.
11. Remove the safety stands and lower the vehicle.
12. Remove wheel chocks.

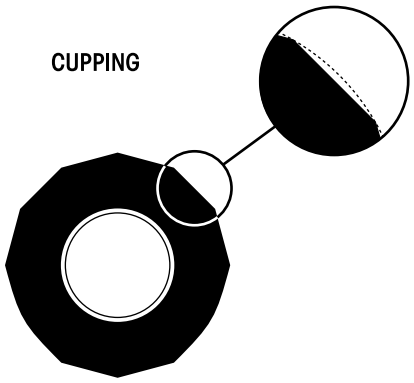
VISUAL TIRE INSPECTION

The following tire Inspection guidelines are based upon Technology & Maintenance Council (TMC) recommended practices. Any issues regarding irregular tire wear where Hendrickson is asked for assistance, will require tire and alignment maintenance records, reference RP 642 in TMC Recommended Practices Manual.

Tire wear is normally the best indicator of vehicle alignment condition. If tires are wearing too rapidly or irregularly, alignment corrections may be needed. The tire wear patterns described below can help isolate specific alignment problems.

The most common conditions of concern for steer tires are: cupping, diagonal wear, feather wear, one-sided wear, overall fast wear (Miles per 32nd), and rapid shoulder wear (one shoulder only).

FIGURE 7-12



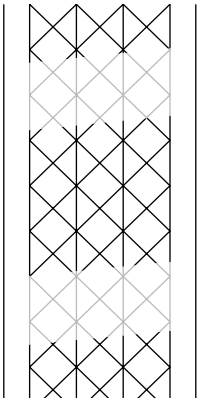
Cupping — Localized, dished out areas of fast wear creating a scalloped appearance around the tire. Cupping, which appears around the tire on the shoulder ribs, may also progress to adjoining ribs.

Cupping is usually a result of moderate-to-severe imbalance, improper rim/wheel mounting, excessive wheel end play or other assembly non-uniformity. It can also be due to lack of shock absorber control on some suspension types as well as loose kingpins.

To solve cupping problems:

- **Tires** – Correct mismount or balance problem. If ride complaints arise, steer tires may be rotated to drive or trailer axle.
- **Vehicle** – Diagnose component imbalance condition, i.e., wheel, rim, hub, brake, drum. Correct as necessary.

FIGURE 7-13
DIAGONAL WEAR

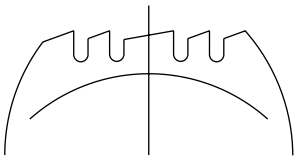


Diagonal Wear — Localized flat spots worn diagonally across the tread at approximately 25-35° angles, often repeating around the tread circumference. For more information.

Diagonal wear is usually caused by bad wheel bearings, toe out, mismounting of tire and wheel assembly to axle, and mismatched duals for size and/or inflation pressures. It may start as brake skid. Diagonal wear is aggravated by high speed empty or light load hauls.

To correct diagonal wear, reverse direction of rotation of the tire. If wear is excessive, true or retread tire. If the source of trouble is the vehicle, diagnose cause and correct as needed.

FIGURE 7-14
FEATHER WEAR

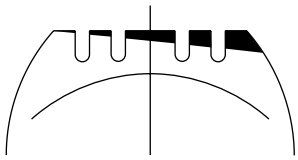


Feather Wear — Tread ribs or blocks worn so that one side is higher than the other resulting in step–offs across the tread face. Generally, all ribs or blocks exhibit this wear.

To spot this problem do the following: With one hand flat on the tread of the tire and a firm down pressure, slide your hand across the tread of the tire. In one direction, the tire will feel smooth and in the opposite direction there will be a sharp edge to the tread.

If feather wear on both steer tires is in the same direction, drive axle or other chassis misalignment is indicated. If one steer tire shows feather wear and the other steer tire has normal wear, a combination of toe and drive axle or chassis misalignment is indicated.

FIGURE 7-15
ONE-SIDED WEAR



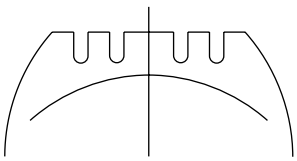
One-sided Wear — Excessive wear on one side of tire extending from the shoulder towards the center of the tread.

One-sided wear is usually caused by improper alignment, worn kingpins, loose wheel bearings, excessive negative camber, excessive axle loads, nonparallel axles, or non-uniform tire and wheel assembly caused by improper bead seating or a bent wheel.

To correct one-sided wear:

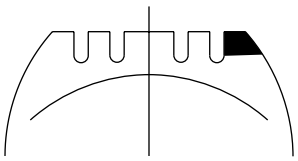
- **Tires** – Depending on severity, rotate tires to another axle position or, if worn to minimum tread depths, submit for possible retreading.
- **Vehicle** – Diagnose mechanical problem and correct.

FIGURE 7-16
OVERALL FAST WEAR
(Miles per 32nd)



Overall Fast Wear — Fast wear can be described as exhibiting a good, but accelerated wear pattern. It is typically caused by operating conditions, such as mountainous terrain, frequency and severity of turning, abrasive road surfaces in combination with vehicle configurations and their attributes — such as power steering, heavy axle loads, high wheel cuts, setback axles, short wheel base tractors, long wheel base straight trucks. To correct this problem, consult with vehicle and tire manufacturers when specifying equipment or replacing tires.

FIGURE 7-17
RAPID SHOULDER WEAR
(One Shoulder Only)



Rapid Shoulder Wear (one shoulder only) — Is a tire worn on the edge of one shoulder, sometimes extending to inner ribs. It can progress to diagonal wipeout.

This wear condition is usually caused by excessive toe or excessive camber. These conditions can be created by a misaligned or bent axle and can also be caused by loose or worn wheel bearings.

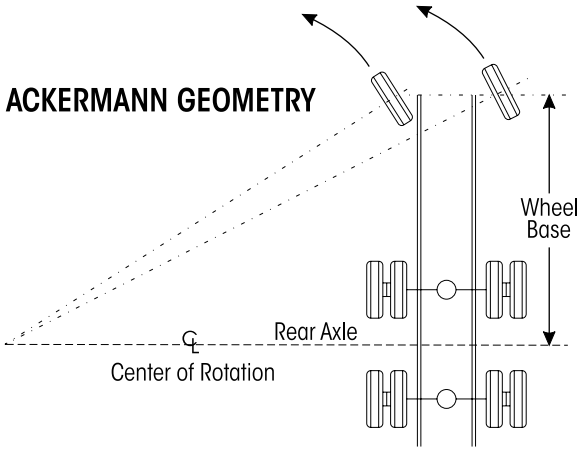
To correct this type of rapid shoulder wear:

- **Tires** – Change direction of rotation of tire. If shoulder wear is severe, remove and retread.
- **Vehicle** – Diagnose misalignment and/or mechanical condition and correct

SECTION 8
Alignment & Adjustments

ALIGNMENT DEFINITIONS

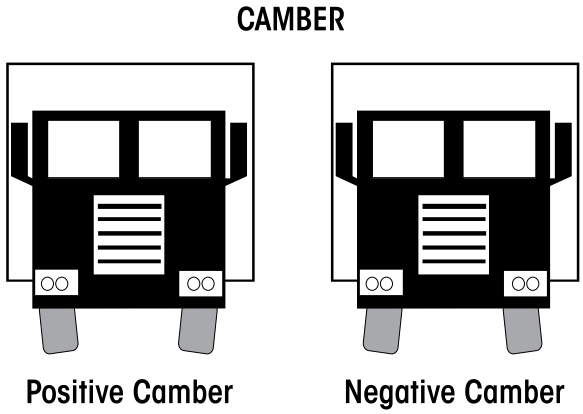
FIGURE 8-1



Ackermann Steering Geometry — The geometry of the four bar linkage consisting of the front axle, two knuckle assemblies, and tie rod assembly is designed to provide free rolling of front tire in a turn. Ackermann geometry is dependent upon the steering axle track-width and wheelbase of the vehicle. Improper geometry results in wheel scrub in turns which generally appears as toe wear on the tire, usually more wear on one side of the vehicle than the other due to the operational route of the vehicle.

Bump Steer (Feedback) — The feedback felt through the steering linkage to the steering wheel when a steer axle tire hits a bump in the road. This occurs because the axle-end of the drag link and the axle attachment point of the spring do not travel in parallel circular arcs as the suspension moves up and down. This condition can also be caused by trapped air in the power steering system.

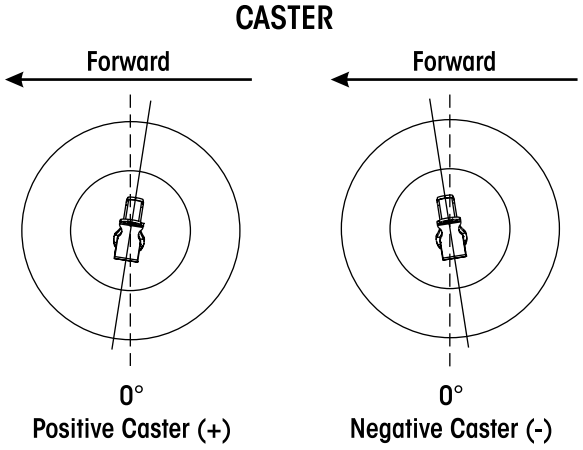
FIGURE 8-2



Camber — The angle formed by the inward or outward tilt of the wheel reference to a vertical line. Camber is positive when the wheel is tilted outward at the top and is negative when the wheel is tilted inward at the top.

Excessive positive camber may cause smooth wear on the outer half of the tire tread. Excessive negative camber may cause wear on the inner half of the tread. Static-unloaded camber angles are built into the axle to put the loaded tire perpendicular to the road.

FIGURE 8-3

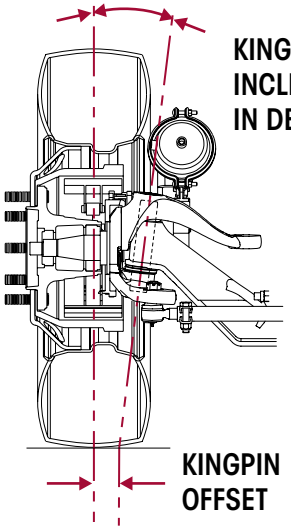


Caster — The forward or rearward tilt of the steering axle kingpin in reference to a vertical line. The angle is measured in degrees. Caster is positive when the top of the steering axis is titled rearward and is negative when the tilt is forward. Proper caster is important for directional stability and returnability. Too much positive caster can cause shimmy, excessive steering effort and is normally a vehicle performance and handling consideration. Uneven positive caster may create a steering pull toward the side with the lower caster. This attribute may be used to compensate for crowned roads.

Tie Rod Arm (Ackermann-arm, cross tube arm) — The component that transmits steering forces between left and right axle knuckle assemblies through the cross tube assembly.

Steering Arm — The component that connects the drag link to the axle knuckle assembly.

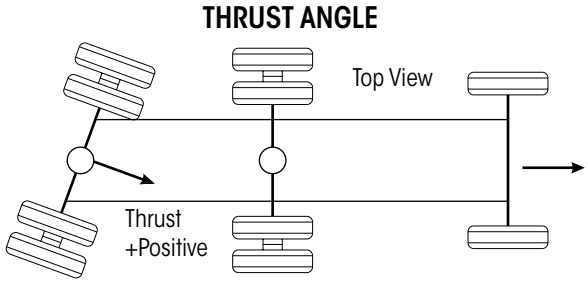
FIGURE 8-4



Kingpin Inclination (KPI) — The inward tilt of the kingpin from the vertical. This front suspension parameter has a pronounced effect on steering effort and returnability. As the front wheels are turned around an inclined kingpin, the front of the truck is lifted. This lifting of the vehicle is experienced as steering effort when the turn is executed and exhibits itself as recovery force when the steering wheel is released.

Kingpin Offset — The distance between the center of the tire patch and intersection of the kingpin axis with the ground. This parameter of front-end geometry is important in vehicles without power steering and has a major effect on static steering. If there is no kingpin offset, the tires must scrub around the center of the pin patch when turned in a static condition, resulting in higher static steering efforts.

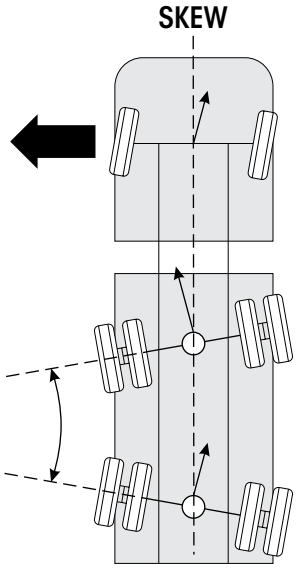
FIGURE 8-5



Thrust Angle, Tracking, or Square — The angle formed by the centerline of the vehicle frame (geometric centerline) and the direction that an axle points. As indicated by the term "square", the ideal value for the angle is 0° or when the axle centerline is at 90° or perpendicular to the geometric centerline. Thrust or tracking to the right is positive, and to the left is negative.

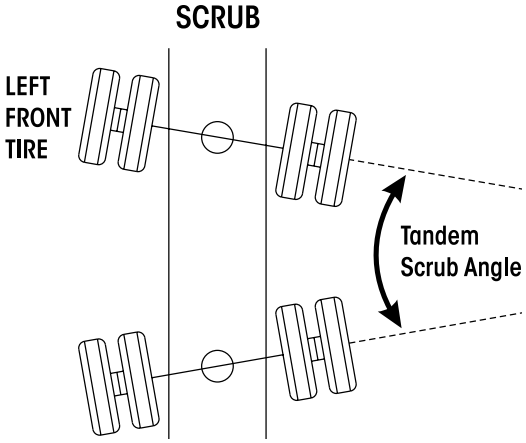
A steering correction is required to offset the effect of the thrust angles and keeps the vehicle traveling in a straight line. It results in a lateral offset between the steer and drive axle tires commonly referred to as "dog tracking."

FIGURE 8-6



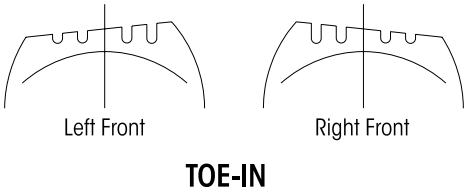
Scrub, Skew, Tram Angle or Parallelism — The angle formed by two thrust or tracking lines of a tandem (or multiple) axle vehicle. As indicated by the term "parallelism", the ideal condition is when the two thrust lines form a 0° angle, or are parallel to each other. Positive skew or tram is when the distance between the right axle ends is less than the distance between the left.

FIGURE 8-7



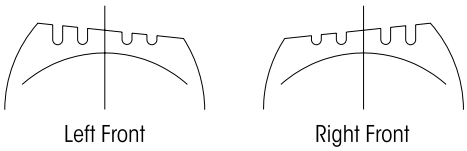
Any scrub angle other than 0° will cause the tandem axles to work against each other. The steer axle must be turned to offset the "push" of the tandem axles to keep the vehicle moving straight ahead. This causes every tire on the vehicle to "scrub". Tire wear from tandem scrubbing occurs at the leading edge of the steer tires in a pattern called "inside / outside" wear, that is, the inside edge of the left steer tire and the outside edge of the right steer tire will exhibit irregular wear for example. Additional tire wear may occur on all tandem axle tires.

FIGURE 8-8



Toe-in — Is when the horizontal line intersects in front of the wheels, or the wheels are closer together in front than in the back. Toe-in is commonly designated as positive, toe-out as negative. Excessive toe-in wears the outside edge of the tires. Steer axle toe is adjustable to reduce wear to the leading edge of the tire and also to avoid road wander. Toe is adjusted in a static, unloaded condition so that the tires will run in a straight line under a dynamic, loaded condition.

FIGURE 8-9

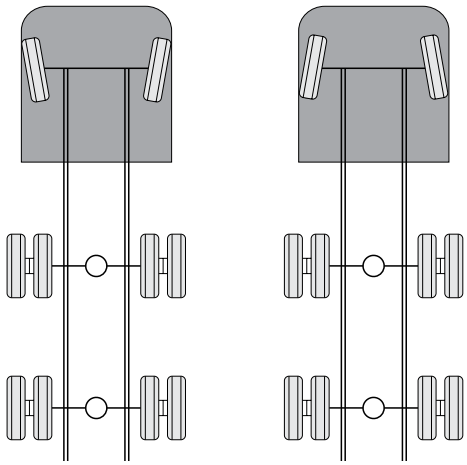


TOE-OUT

Toe-out — Is when the horizontal lines intersect behind the wheels, or the wheels are closer together in back than in front. Toe-in is commonly designated as positive, toe-out as negative. Excessive toe-out wears the inside edge of the tires. Steer axle toe is adjustable to reduce wear to the leading edge of the tire and also to avoid road wander. Toe is adjusted in a static, unloaded condition so that the tires will run in a straight line under a dynamic, loaded condition.

FIGURE 8-10

TOTAL TOE



TOE-OUT TOE-IN

Toe-out on Turns — (See Ackermann Geometry). Excessive turning angles such as those encountered in pickup and delivery operations may contribute to premature tire wear. Be advised that the greater turning angles, the more that toe and camber change. If you have any doubt regarding the optimum turning angles for your operation, contact the vehicle's manufacturer, axle OEM, tire OEM and alignment equipment manufacturer for advice.

Total Toe — The angle formed by two horizontal lines through the planes of two wheels. Steer axle toe is adjustable to reduce wear to the leading edge of the tire and also to avoid road wander. Toe is adjusted in a static, unloaded condition so that the tires will run in a straight line under a dynamic, loaded condition.

INSPECTION PRIOR TO ALIGNMENT

WHEELS AND TIRES

Examine and ensure the following items:

- The tires are inflated to the manufacturer's specified tire pressure.
- The steer axle tires are the same size and type.
- The lug nuts are tightened to manufacturer's specified torque.
- The wheels are balanced and check for tire to rim runout.
- The wheels and tires are free of excessive wear and damage.
- Wheel bearing end play is within vehicle manufacturer's specification.

FRONT SUSPENSION

Inspect and ensure the following:

- All fasteners are installed and tightened to the specified torque, refer to the Torque Specifications section of this publication.
- Leaf springs are free of wear or damage.
- Air springs are free of wear or damage.
- Shock absorbers are free of wear and damage.
- AIRTEK equipped – vehicle ride height is within specification, see Ride Height in this section.
- Front and rear spring mounts for wear or damage.

TIE ROD ENDS

Perform the Tie Rod Inspection procedure, refer to the Preventive Maintenance section in this publication.

REAR AXLE AND REAR SUSPENSION

Rear axle misalignment can cause front tire wear. If the outer edge of one front tire is worn and the inner edge of the other front tire is worn, check the following:

- Ensure the rear axle is correctly aligned and at the proper ride height (if AIRTEK equipped). Follow the vehicle or suspension manufacturer's guidelines.
- All fasteners, including U-bolts (if applicable) are installed and tightened to the specified torque.
- Ensure the leaf spring and leaf spring bushings are not worn or damaged.
- Ensure the torque rods (if equipped) are correctly adjusted (if adjustable).
- Verify the vehicle frame is not bent or twisted.
- Refer to any additional recommendations and specifications from the vehicle, rear axle, and/or suspension manufacturer. Reference the TMC (The Technology & Maintenance Council) Guidelines for Total Vehicle Alignment.

FRONT WHEEL ALIGNMENT

Hendrickson recommends technicians review TMC's publication "Guidelines for Total Vehicle Alignment" (TMC RP 642).

Check total (front and rear) vehicle wheel alignment when any of the following occurs:

- Every 50,000 miles (80,400 km), or 12 months, whichever comes first.
- When the vehicle does not steer correctly.
- When correcting a tire wear condition.

For **rear** wheel alignment specifications and adjustment, refer to the vehicle manufacturer.

The **front** wheel alignment specifications can be found in the Front Wheel Alignment Specifications section of this publication. There are two types of front wheel alignment:

1. ***Minor alignment*** – a minor front wheel alignment is done **for all** normal maintenance conditions, see below.
2. ***Major alignment*** – a major alignment is done when uneven or excessive tire wear is evident, or response at the steering wheel is sluggish, or the need for major wheel alignment check and adjustment is required, see below.

MINOR FRONT WHEEL ALIGNMENT

Perform a minor front wheel alignment in the following sequence:

1. Inspect all systems that affect wheel alignment. Refer to the Inspection Prior to Alignment in this section.
2. Check the wheel bearing end play per the vehicle manufacturer's instructions.
3. Check and adjust toe if necessary, refer to Toe Setting in this section.
4. Check and adjust the vehicle ride height, see Ride Height in this section.

MAJOR FRONT WHEEL ALIGNMENT

Follow wheel alignment inspection intervals as specified by the vehicle manufacturer. Before performing a major front wheel alignment it is recommended that alignment equipment calibration be checked to ensure proper vehicle alignment.

Major wheel alignment is accomplished in the following sequence of operation:

1. Inspect all the systems that influence the wheel alignment. Refer to the Inspection Prior to Alignment in this section.
2. Check and adjust the maximum turn angle, refer to the Steering Stop adjustment procedure in this section, see Figures 8-11 and 8-12.

3. If the vehicle is equipped with power steering, check the pressure relief in the power steering system and reset if necessary, refer to the vehicle manufacturer specifications.
4. Check the turning angle. Refer to the vehicle manufacturer's specifications.
5. Check the kingpin (or steering axis) inclination. Refer to Kingpin Inclination under Alignment Definitions in this section..

FIGURE 8-11



FIGURE 8-12



⚠ WARNING

AXLE CAMBER IS NOT ADJUSTABLE. DO NOT CHANGE THE AXLE CAMBER ANGLE OR BEND THE AXLE BEAM. BENDING THE AXLE BEAM TO CHANGE THE CAMBER ANGLE CAN DAMAGE THE AXLE AND REDUCE AXLE STRENGTH, AND WILL VOID HENDRICKSON'S WARRANTY. A BENT AXLE BEAM CAN CAUSE LOSS OF VEHICLE CONTROL, POSSIBLY CAUSING PERSONAL INJURY OR PROPERTY DAMAGE.

⚠ WARNING

THE INTEGRATED AXLE SPRING SEATS ON THE STEERTEK NXT AXLE ARE NON-SERVICEABLE. UNAUTHORIZED TAMPERING OF INTEGRATED AXLE SPRING SEATS CAN CAUSE COMPONENT AND STRUCTURAL DAMAGE AND RESULT IN LOSS OF VEHICLE CONTROL, SEVERE PERSONAL INJURY OR DEATH, PROPERTY DAMAGE, AND WILL VOID ANY APPLICABLE WARRANTY. DO NOT REMOVE, MODIFY OR REPLACE INTEGRATED AXLE SPRING SEAT OR FASTENERS.

FIGURE 8-13



6. Check camber angle. **DO NOT** attempt to adjust. Refer to Camber in Front Wheel Alignment Specifications section.

NOTE

Contact Hendrickson Tech Services for any questions regarding STEERTEK NXT integrated axle spring seats and / or fasteners.

7. Check and adjust caster angle. Refer to Caster in the Front Wheel Alignment Specifications section. **The use of two (2) different angle caster shims will not change cross caster.** Cross caster is the difference between the caster readings for left and right side of the vehicle.
8. Check and adjust toe-in, refer to Toe Setting in this section.

STEERING STOP

ADJUSTMENT PROCEDURE

NOTE When the axle or lower steering knuckle is replaced, the steering stop must be checked.

WARNING

ALWAYS CHECK/RESET THE STEERING GEAR BOX POPPET WHEN THE WHEEL CUT IS DECREASED. FOLLOW MANUFACTURER'S GUIDELINES FOR THE GEAR BOX POPPET RESETTING PROCEDURE. FAILURE TO DO SO CAN RESULT IN PREMATURE FAILURE OF THE AXLE OR STEERING KNUCKLE. THIS CONDITION CAN CAUSE LOSS OF VEHICLE CONTROL, POSSIBLE PERSONAL INJURY OR PROPERTY DAMAGE AND VOID ANY APPLICABLE WARRANTY.

1. Drive the vehicle onto turntables and chock the rear wheels.
2. Measure the wheel cut. The wheel cut is determined by steering the tires. Wheel cut is measured at the inside wheel only, therefore the tires must be turned to the full lock position for each **right hand** and **left hand direction**. Refer to the vehicle manufacturer for exact specifications.

FIGURE 8-14



NOTE It is very important that the sides of the square head axle stop bolts are set parallel to the axle beam to ensure a good contact point on the axle, see Figure 8-14.

3. **Increase** the wheel cut:
   a. Loosen the jam nuts and screw the axle stop bolts **in (clockwise)**.
   b. Tighten the jam nut to 50 ± 10 foot pounds torque.
4. **Decrease** the wheel cut:
   a. Loosen the jam nuts and screw the axle stop bolts **out** (**counter-clockwise)**.
   b. Tighten the jam nut to 50 ± 10 foot pounds torque.
5. Measure the wheel cut and check for any interference with related steering components.
6. Remove wheel chocks.

TOE SETTING

1. Place the vehicle on a level floor with the wheels in a straight ahead position.
2. Raise the vehicle and support the front axle with safety stands.
3. Chock the rear wheels of the vehicle.
4. Use paint and mark the center area of tread on both steer axle tires around the complete outer diameter of the tires.
5. Scribe a line through both steer axle tires in the painted area around the complete outer diameter of the tires.
6. Raise the vehicle and remove the safety stands.
7. Set the vehicle on the ground.

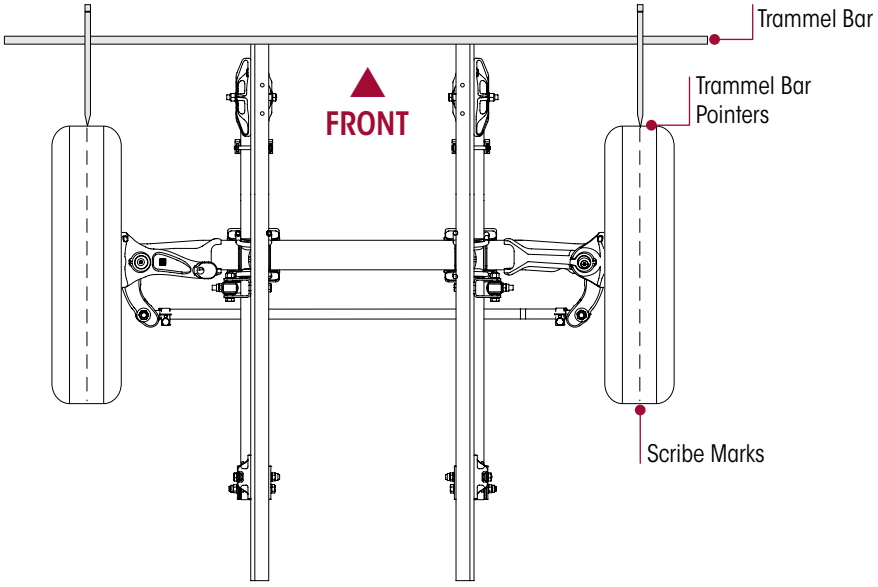
NOTE **DO NOT** measure toe-in with the front axle off the ground. The weight of the vehicle must be on the front axle when toe-in is measured.

8. Use a trammel bar and measure the distance between the scribe marks at the rear of the steer axle tires. Record the measurement.

NOTE When setting up the trammel bar the pointers should be level with the spindles at the front and rear of the steer axle tires.

9. Install the trammel bar and measure the distance between the scribe marks at the front of the steer axle tires. Record the measurement, see Figure 8-15.

FIGURE 8-15



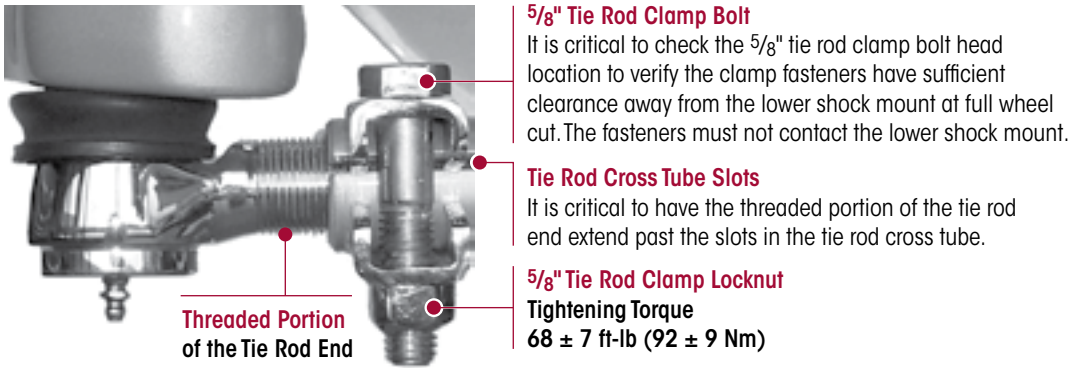
10. To calculate the toe setting, subtract the front measurement from the rear measurement. The difference between the two will equal the toe-in/toe-out measurement.
11. If the toe measurement is not within the specifications of 1/16" ± 1/32" (0.060" ± 0.030"), it will be necessary to adjust the toe setting as per the following procedure:
    a. Loosen the tie rod cross tube clamp bolts and locknuts.
    b. Turn the tie rod cross tube until the specified toe-in distance is achieved.
    c. Tighten the bolt and locknut on the tie rod cross tube to 68 ± 7 foot pounds torque.

WARNING

THE THREADED PORTION OF THE TIE ROD END MUST EXTEND PAST THE SLOTS INTO THE TIE ROD (SEE FIGURE 8-16). IT IS CRITICAL TO CHECK THE TIE ROD CLAMP BOLT HEAD LOCATION TO VERIFY THE CLAMP FASTENERS HAVE SUFFICIENT CLEARANCE AWAY FROM THE LOWER SHOCK MOUNT AT FULL WHEEL CUT. THE FASTENERS MUST NOT CONTACT THE LOWER SHOCK MOUNT. FAILURE TO DO SO CAN CAUSE ONE OR MORE COMPONENTS TO FAIL CAUSING LOSS OF VEHICLE CONTROL AND POSSIBLE PERSONAL INJURY OR PROPERTY DAMAGE.

12. Verify the tie rod clamp bolt head does not contact the lower shock mount at full wheel cut, see Figure 8-16.
13. Repeat Steps 1-12 until the correct toe setting is achieved.
14. Remove the vehicle frame safety stands and lower the vehicle.
15. Remove the rear wheel chocks.

FIGURE 8-16



SECTION 9
Component Replacement

FASTENERS

Hendrickson recommends that when servicing the vehicle to replace the removed fasteners with new equivalent fasteners. Maintain correct torque values at all times. Check torque values as specified. See Hendrickson's Torque Specifications Section of this publication. If non-Hendrickson fasteners are used follow torque specifications listed in the vehicle manufacturer's service manual.

STEERTEK NXT AXLE

For information and assistance with removal and installation of STEERTEK NXT axle from the chassis, refer to the vehicle manufacturer.

AXLE SPRING SEATS

⚠ WARNING

THE INTEGRATED AXLE SPRING SEATS ON THE STEERTEK NXT AXLE ARE NON-SERVICEABLE. UNAUTHORIZED TAMPERING OF INTEGRATED AXLE SPRING SEATS CAN CAUSE COMPONENT AND STRUCTURAL DAMAGE AND RESULT IN LOSS OF VEHICLE CONTROL, SEVERE PERSONAL INJURY OR DEATH, PROPERTY DAMAGE, AND WILL VOID ANY APPLICABLE WARRANTY. DO NOT REMOVE, MODIFY OR REPLACE INTEGRATED AXLE SPRING SEAT OR FASTENERS

THE AXLE SPRING SEAT FASTENERS TO AXLE ARE ALSO NON-SERVICEABLE. IF THE AXLE SPRING SEAT IS LOOSE OR DAMAGED, IT IS NECESSARY TO REPLACE THE ENTIRE AXLE ASSEMBLY. THE AXLE SPRING SEAT AND FASTENERS ARE INCLUDED IN THE AXLE ASSEMBLY AND ARE NOT SOLD SEPARATELY.

STEERING KNUCKLE DISASSEMBLY

You will need:

- A hydraulic shop press with a minimum forcing capacity of 2.5 tons
- Kingpin Bushing and Seal Installer/Remover tool, Driver and Receiver Tool, refer to the Special Tool section of this publication.

NOTE

Steering knuckle component replacement includes kingpin preparation and measurement, kingpin bushing removal, steering knuckle bore measurement, kingpin bushing installation, reaming or honing, and kingpin seal installation.

1. Note the orientation of steering arm before removal.
2. Place the vehicle on level floor.
3. Chock the wheels.
4. Support the vehicle with safety stands.
5. Raise and support the axle with safety stands.
6. Remove the wheel end assemblies per the vehicle manufacturer's instructions.

⚠ CAUTION

DO NOT USE A PICKLE FORK STYLE TOOL TO SEPARATE THE TIE ROD END FROM THE STEERING KNUCKLE ARM. DOING SO WILL RESULT IN DAMAGE TO THE GREASE BOOT.

7. Remove the tie rod assembly using a ⅞" -14 tie rod end removal tool to separate the tie rod end from the lower steering knuckle, refer to Tie Rod End and Cross Tube in this section.
8. Remove the drag link from the steering knuckle if necessary per the vehicle manufacturer`s instructions.

WARNING

REMOVAL OF THE CAP SCREWS WILL ALLOW THE STEERING KNUCKLE TO SEPARATE FROM THE AXLE. THE STEERING KNUCKLE MUST BE SUPPORTED BEFORE REMOVAL OF THESE TWO (2) CAP SCREWS. FAILURE TO DO SO CAN CAUSE COMPONENT DAMAGE OR PERSONAL INJURY.

9. Remove the two socket head cap screws that connect the upper kingpin to the steering knuckle, see Figure 9-1.

FIGURE 9-1



SERVICE HINT

Remove the grease zerks from the knuckle assemblies. This will allow the knuckle assemblies to freely slide up and down the kingpins without creating back pressure.

10. Remove the grease zerks from the knuckle assemblies.
11. Remove the lower steering knuckle from the kingpin by sliding it down the kingpin.
12. Remove the upper steering knuckle by sliding it up off the kingpin.

KINGPIN PREPARATION & MEASUREMENT

Cleaning the Ground and Polished Parts

- Use a cleaning solvent to clean ground or polished parts and surfaces. **DO NOT USE GASOLINE.**
- **DO NOT** clean ground or polished parts in a hot solution tank or with water, steam, or alkaline solutions. These solutions will cause corrosion of the parts.

Cleaning the Rough Parts

- Rough parts can be cleaned with the ground or polished parts. Rough parts can also be cleaned in hot solution tanks with a weak alkaline solution. The parts must remain in the hot solution tanks until they are completely cleaned and heated.

Drying the Cleaned Parts

- Parts must be dried immediately after cleaning. Dry the parts with clean paper towels, clean rags, or compressed air. **DO NOT** dry bearings by spinning with compressed air. Damage to the bearings will result.

Preventing Corrosion on Cleaned Parts

- Apply a light coating of oil to all cleaned and dried parts that are going to be reused. **DO NOT** apply oil to the brake lining or the brake drums. If parts are to be stored, apply an effective rust inhibitor to all surfaces.

WARNING

TO HELP PREVENT SERIOUS EYE INJURY, ALWAYS WEAR PROPER EYE PROTECTION WHEN YOU PERFORM VEHICLE MAINTENANCE OR SERVICE.

WARNING

THE STEERTEK NXT HAS A UNIQUE AXLE. THE KINGPIN IS CRYOGENICALLY INSTALLED IN THE AXLE. THE KINGPIN IS A NON-REPLACEABLE COMPONENT OF THE AXLE ASSEMBLY. DO NOT TRY TO REMOVE THE KINGPIN. DOING SO WILL DAMAGE THE AXLE AND MAY CAUSE LOSS OF VEHICLE CONTROL, PERSONAL INJURY OR PROPERTY DAMAGE. IF THE KINGPIN SHOWS SIGNS OF MOVEMENT, CONTACT HENDRICKSON PRODUCT ENGINEERING - TECH SERVICES.

WARNING

SOLVENT CLEANERS CAN BE FLAMMABLE, POISONOUS AND CAUSE BURNS. TO HELP AVOID SERIOUS PERSONAL INJURY, CAREFULLY FOLLOW THE MANUFACTURER'S PRODUCT INSTRUCTIONS AND GUIDELINES AND THE FOLLOWING PROCEDURES:

- WEAR PROPER EYE PROTECTION AND WEAR CLOTHING THAT PROTECTS YOUR SKIN.
- WORK IN A WELL VENTILATED AREA.
- DO NOT USE GASOLINE, OR SOLVENTS THAT CONTAIN GASOLINE. GASOLINE CAN EXPLODE.

- HOT SOLUTION TANKS OR ALKALINE SOLUTIONS MUST BE USED CORRECTLY. FOLLOW THE MANUFACTURER'S RECOMMENDED INSTRUCTIONS AND GUIDELINES CAREFULLY TO HELP PREVENT PERSONAL ACCIDENT OR INJURY.

DO NOT USE HOT SOLUTION TANKS OR WATER AND ALKALINE SOLUTIONS TO CLEAN GROUND OR POLISHED PARTS. DOING SO WILL CAUSE DAMAGE TO THE PARTS AND VOID ANY APPLICABLE WARRANTY.

1. Prepare and polish the kingpin by removing all grease and excess debris using a fine grit (220 grit or higher) emery cloth and parts solvent, see Figures 9-2 through 9-5.

FIGURE 9-2



FIGURE 9-3



FIGURE 9-4



FIGURE 9-5



2. Inspect the kingpin for wear or damage. Use a micrometer and measure the upper and lower kingpin in two locations. Positions must be 90° opposed from each other. If the kingpin has less than following diameter, replacement of the axle is necessary, see Figures 9-6 through 9-9.

   Kingpin minimum dimension is:
   1.36" for 8,000 pound Capacity and **1.802"** for 10,000 to 14,600 pound capacity.

FIGURE 9-6



FIGURE 9-7



FIGURE 9-8



FIGURE 9-9



KINGPIN BUSHING

You will need, refer to the Special Tools section of this publication**:**

- **A hydraulic shop press** with a minimum forcing capacity of 2.5 tons (or an arbor press) or use hand tools. If a shop press is not available to remove/install the kingpin bushings, an acceptable **optional method** is to use a hammer along with the appropriate shop made tools on a work bench
- Kingpin Bushing and Seal Tools (including Kingpin Handle, Kingpin Bushing Installer/Remover Tool, Bushing Driver and Bushing Receiving Tool
- An adjustable straight flute reamer with extension pilot tool **or** precision-finish cylinder hon.
- Vise with brass jaws (soft jaws)

NOTE If one (1) bushing is worn or damaged, it is mandatory to replace both the upper and lower bushings on that knuckle assembly.

WARNING BEFORE APPLYING HYDRAULIC PRESSURE TO ANY TOOLING SET-UP, ALWAYS CHECK TO ENSURE THE PRESS PLATE, TOOLS, AND COMPONENTS BEING WORKED ON ARE POSITIONED PROPERLY, I.E. "IN LINE" WITH THE RAM OF THE PRESS. IMPROPER POSITIONING CAN CAUSE PERSONAL INJURY OR COMPONENT DAMAGE.

CAUTION PRIOR TO APPLYING HYDRAULIC PRESSURE TO REMOVE OR INSTALL THE KINGPIN BUSHING, SUPPORT THE LOWER STEERING KNUCKLE AS SHOWN IN FIGURE 9-10. IMPROPER SUPPORT TO THE STEERING KNUCKLE CAN CAUSE COMPONENT DAMAGE.

KINGPIN BUSHING REMOVAL

NOTE To remove the kingpin bushing, always **drive the bushing from the non-machined surface** of the upper or lower steering knuckle.

1. Remove the threaded grease cap and grease zerk.
2. Place the **machined surface** of the upper or lower steering knuckle face down (axle side down), ensure that each part of the steering knuckle assembly is squarely supported on the bushing receiving tool before applying hydraulic pressure to press out the kingpin bushings, see Figures 9-10 and 9-11.
3. From the **non-machined surface** of the upper or lower steering knuckle, use the kingpin bushing installer/remover tool (see Special Tools section of this publication) to drive the kingpin bushing and kingpin seal out of the steering knuckle, see Figure 9-12.
4. Clean the parts and inspect for reassembly, see Figure 9-13.

FIGURE 9-10



FIGURE 9-11



FIGURE 9-12



FIGURE 9-13



STEERING KNUCKLE BORE MEASUREMENT

Complete the following steering knuckle bore inspection and measurement instructions prior to installing the kingpin bushing.

FIGURE 9-14



FIGURE 9-15



FIGURE 9-16



1. Measure the upper and lower steering knuckle bore inside diameter at two locations. Always use an inside micrometer or a telescoping gauge when taking a knuckle bore measurement. The two positions must be 90° opposed from each other, see Figures 9-14 through 9-16. Some out-of-roundness at the top and bottom of the bore edges is acceptable.

   Steering knuckle bore diameter specification is: 1.486" ± 0.001" for 8,000 pound capacity and **1.938" ± 0.003"** for 10,000 to 14,600 pound capacity

   a. If the average measurement is more than the knuckle bore maximum diameter specification, steering knuckle replacement is necessary.

KINGPIN BUSHING INSTALLATION

WARNING

BEFORE APPLYING HYDRAULIC PRESSURE TO ANY TOOLING SET-UP, ALWAYS CHECK TO ENSURE THE PRESS PLATE, TOOLS, AND COMPONENTS BEING WORKED ON ARE POSITIONED PROPERLY, I.E. "IN LINE" WITH THE RAM OF THE PRESS. IMPROPER POSITIONING CAN CAUSE PERSONAL INJURY OR COMPONENT DAMAGE.

NOTE

If a shop press is not available to remove / install the kingpin bushings, an acceptable optional method is to use a hammer along with the shop made tools (kingpin bushing driver, receiving tool, kingpin handle, bushing installer / remover and seal installer tools) on a work bench.

NOTE

To install the kingpin bushing, always drive the bushing from the machined side of the steering knuckle.

1. Place the **machined surface** of the upper / lower steering knuckle **face up** (axle side up). Ensure that each part of the steering knuckle assembly is squarely supported before applying hydraulic pressure to press in the kingpin bushing, see Figure 9-17.
2. From the **machined surface** of the steering knuckle, use the kingpin bushing driver tool to drive the kingpin bushing flush into steering knuckle, see Figure 9-18.
3. Use the kingpin bushing installer / remover tool to sink the kingpin bushing into the steering knuckle bore to just below the seal bore, see Figures 9-19 and 9-20.
4. Properly size the kingpin bushings to fit the kingpins, see instructions in the Kingpin Bushing Reaming / Honing instructions in this section.

FIGURE 9-17



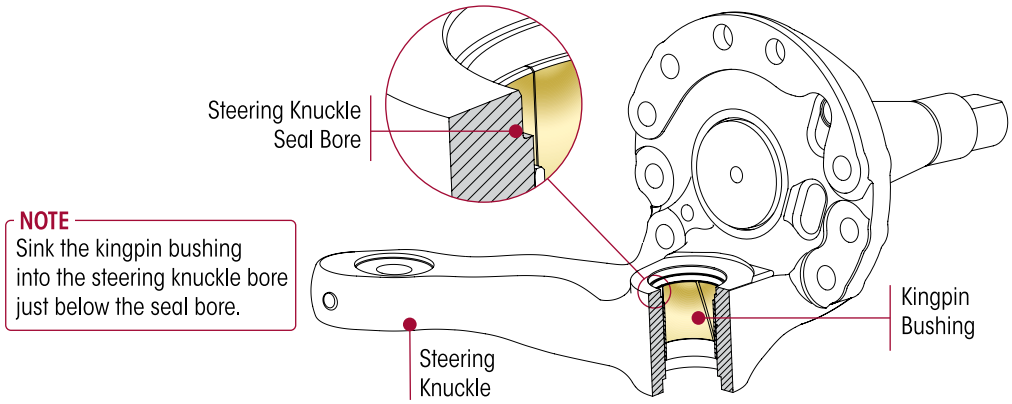
FIGURE 9-18



FIGURE 9-19



FIGURE 9-20



KINGPIN BUSHING REAMING / HONING

Once new replacement kingpin bushings are installed, they will need to be properly sized to fit the respective kingpins using one of the following two methods:

- **Method A – Reaming** or **Method B – Honing**

NOTE Bushing inner diameter size is to be 0.001" larger than the measured kingpin outer diameter size.

CAUTION DO NOT BURNISH THE KINGPIN BUSHINGS. BURNISHING WILL DAMAGE THE BUSHINGS AND VOID ANY APPLICABLE WARRANTY.

WARNING WHEN INSTALLING THE STEERING KNUCKLE COMPONENTS IN A VISE, IT IS NECESSARY TO PROTECT THE MACHINED SURFACES FROM GOUGES OR MARRING BY USING BRASS JAWS (SOFT JAWS). FAILURE TO DO SO CAN CAUSE PREMATURE PART DAMAGE, DAMAGE TO THE STEERING KNUCKLE COMPONENTS, LOSS OF WARRANTY, LOSS OF VEHICLE CONTROL, CAUSING PERSONAL INJURY OR PROPERTY DAMAGE.

WARNING PRIOR TO STEERING KNUCKLE INSTALLATION ENSURE THAT ALL RESIDUAL LOCTITE MATERIAL IS REMOVED FROM MOUNTING BOLTS AND THREAD BORES IN THE STEERING KNUCKLES, AND NEW LOCTITE 277 OR EQUIVALENT IS APPLIED TO HELP ENSURE THE BOLTS SUSTAIN THE PROPER TORQUE REQUIREMENT. FAILURE TO DO SO CAN CAUSE LOSS OF VEHICLE CONTROL RESULTING IN PERSONAL INJURY OR PROPERTY DAMAGE.

- **Method A – Reaming**

NOTE Prior to reaming, re-assemble the steering knuckle, see Figures 9-21 and 9-22.

1. Place the steering knuckle (equipped with a replacement kingpin bushing) in a vise with brass jaws (soft jaws), see Figures 9-21 and 9-22.
2. Install the reamer onto the end of the extension pilot tool and position the extension pilot tool through the kingpin bushing.

SERVICE HINT The pilot tool helps keep the reamer straight during the reaming process.

3. Slide the reamer into the steering knuckle until the blades touch the kingpin bushing inner diameter surface.
4. Rotate the reamer with a light **DOWNWARD** pressure. **DO NOT** apply too much force. Rotate the reamer smoothly, see Figures 9-21 and 9-22.

NOTE To remove the reamer, rotate the tool in the opposite cutting direction.

FIGURE 9-21
Upper Steering Knuckle in Vise Shown

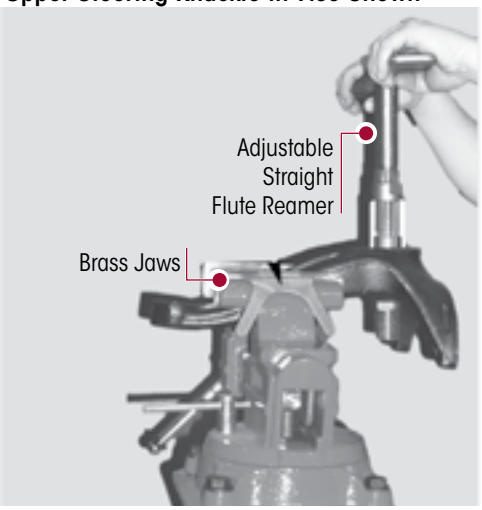
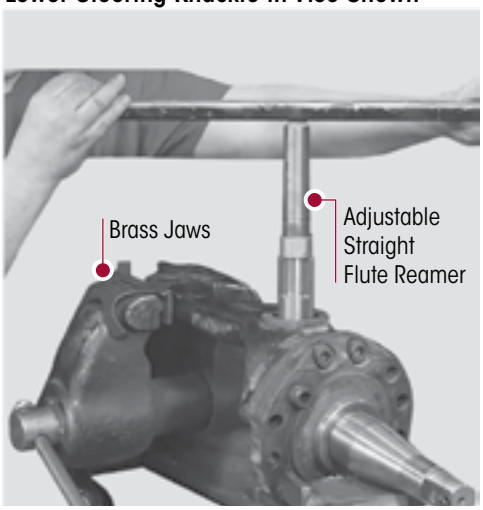
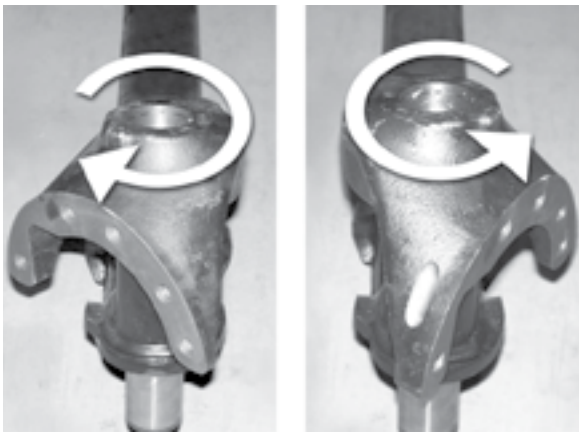


FIGURE 9-22
Lower Steering Knuckle in Vise Shown



5. Remove the steering knuckle from the vise and repeat Steps 1 through 4 for the other mating steering knuckle equipped with a replacement kingpin bushing.
6. Clean and remove all loose kingpin bushing material created by the reaming operation from the steering knuckle(s). Take special attention to remove material from the grease channels and dimples.
7. Clean the ⅝" brake backing plate bolts with a wire wheel and run a tap through the threads of the steering knuckle and then flush out with brake cleaner and dry with compressed air.
8. Lightly lubricate the mating kingpins with penetrating oil.
9. Temporarily install the steering knuckle on the mating kingpin to ensure a close slip fit.

FIGURE 9-23



NOTE If the steering knuckle does not fit onto the kingpin, **DO NOT** force it.

10. Rotate the steering knuckle back and forth to verify there is no binding on the kingpin, see Figure 9-23.
11. If either of the bushings are too tight, repeat Steps 1 through 10 until proper clearance is achieved.
12. After verifying that the kingpin is free of binding, remove the steering knuckle assembly. Proceed with the Kingpin Seal Installation procedure.

■ Method B – Honing

1. Assemble the cylinder hone with clean, dry honing stones.

SERVICE HINT If the honing stones are damaged or oily, they should be replaced.

2. Ensure the wiper blocks are clean and dry, see Figure 9-24.
3. Place the steering knuckle (equipped with a replacement kingpin bushing) on a work surface.
4. Size the precision cylinder hone slightly smaller than the kingpin bushing inner diameter and insert it into the kingpin bushing, see Figures 9-25 and 9-26.
5. Increase the precision cylinder hone's diameter until there is just enough pressure on the kingpin bushing inner diameter to hold the hone in place.
6. Connect a power drive to the precision cylinder hone, see Figure 9-26.

FIGURE 9-24

STEERTEK NXT Axle
Upper Steering Knuckle Shown

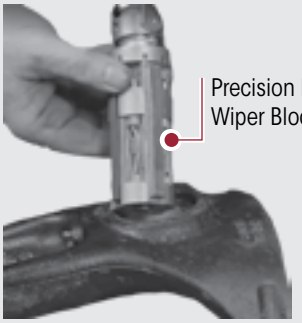
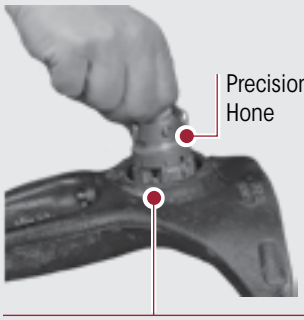


FIGURE 9-25

STEERTEK NXT Axle
Precision Hone in Kingpin Bushing Shown



Kingpin Bushing in Upper Steering Knuckle

FIGURE 9-26



STEERTEK NXT Axle
Power Drive to
Precision Hone Shown

7. Using the power drive, rotate the precision cylinder hone about ten revolutions in the kingpin bushing. The power drive should rotate at a speed of **less than 30 revolutions per minute (RPM)**.
8. Stop the power drive rotation.
9. Reduce the precision cylinder hone's diameter and remove it from the kingpin bushing.
10. Remove the steering knuckle from the work surface and repeat Steps 1 through 9 for the other steering knuckle.
11. Clean and remove all loose kingpin bushing material created by the honing operation from the steering knuckle(s). Take special attention to remove material from the grease channels and dimples.

NOTE If the steering knuckle does not fit onto the kingpin, **DO NOT** force it.

12. Perform Steps 7 through 10 in the Method A – Reaming section of this publication.
13. If either of the bushings are too tight, repeat steps 1 through 12 in the Method B – Honing section, until proper clearance is achieved.
14. After verifying that the kingpin is free of binding, remove the steering knuckle assembly. Proceed with the Kingpin Seal Installation procedure.

KINGPIN SEAL INSTALLATION

⚠ WARNING

WHEN INSTALLING STEERING KNUCKLE COMPONENTS IN A VISE IT IS NECESSARY TO PROTECT THE MACHINED SURFACES FROM GOUGES OR MARRING BY USING BRASS JAWS. FAILURE TO DO SO CAN CAUSE PREMATURE PART DAMAGE, DAMAGE TO THE STEERING KNUCKLE COMPONENTS, LOSS OF WARRANTY, LOSS OF VEHICLE CONTROL, CAUSING PERSONAL INJURY OR PROPERTY DAMAGE.

FIGURE 9-27



FIGURE 9-28



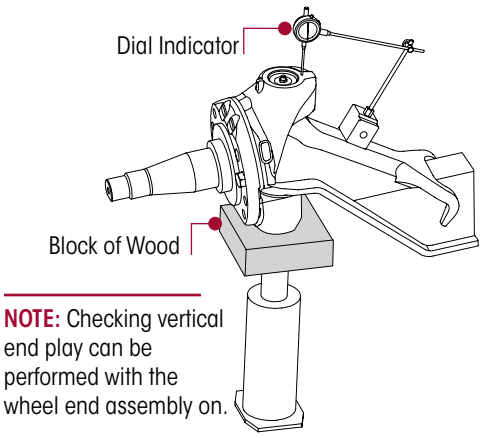
1. Place the steering knuckle assembly in a vise with brass jaws (soft jaws), see Figures 9-21 and 9-22, or place on a suitable workbench. The steering knuckle will have the **machined surface** facing up (axle side up).
2. Lay the kingpin seal into the bore of the steering knuckle. The seal lip should face outward or toward the axle, see Figure 9-27.
3. Use the seal installer tool (see tools specifications of this publication) and press seal firmly into the steering knuckle assembly.
4. Install the kingpin seal until it bottoms out in the kingpin bore, see Figure 9-28.

STEERING KNUCKLE ASSEMBLY

After replacement of the kingpin bushings it is necessary to re-assemble the steering knuckle assemblies. **DO NOT** substitute aftermarket components when servicing.

1. Install the roller thrust bearing with the seal facing up toward axle (the black seal will designate the top side).
2. Pack the bushing dimples on the upper and lower steering knuckles with multi purpose Lithium based grease (NLGI Grade 2) before installation.
3. Install the upper steering knuckle on the upper kingpin.
4. Install the lower steering knuckle on the lower kingpin and install (temporarily) the old socket head cap screws loose into the top two (2) threaded holes.
5. Install a bottle jack under the lower knuckle and slightly raise the knuckle until it is possible to thread in the three (3) brake backing plate bolts by hand. These are for guide purposes only.
6. Snug the two (2) socket head cap screws.
7. Lower the bottle jack so that all the vertical end play is on the underside of the axle.
8. Affix a magnetic base dial indicator on the axle and place the tip of the dial indicator on top of the knuckle assembly, see Figure 9-29.

FIGURE 9-29



NOTE: Checking vertical end play can be performed with the wheel end assembly on.

9. Zero the dial indicator.
10. Raise the bottle jack until there is **NO CLEARANCE** between the knuckle assembly and the bottom of the axle, slightly lifting the axle.
11. Check the reading on the dial indicator. The specification for vertical travel on the steering knuckle during assembly is 0.008" to 0.011".
12. If vertical clearance is:
    - **Above 0.011"**, loosen the socket head cap screws and **push down** on the knuckle assembly until the proper vertical end play is achieved
    - **Below 0.008"**, loosen the two (2) socket head cap screws and **pull up** on the knuckle assembly until the proper vertical end play is achieved

⚠ WARNING

PRIOR TO INSTALLATION ENSURE THAT ALL RESIDUAL LOCTITE MATERIAL IS REMOVED FROM THE MOUNTING BOLTS AND THE THREAD BORES IN THE UPPER STEERING KNUCKLE, AND NEW LOCTITE 277 OR EQUIVALENT IS APPLIED TO HELP ENSURE THAT THE BOLTS SUSTAIN THE PROPER TORQUE REQUIREMENT. FAILURE TO DO SO CAN CAUSE LOSS OF VEHICLE CONTROL RESULTING IN PERSONAL INJURY OR PROPERTY DAMAGE.

NOTE The Hendrickson Genuine parts, socket head cap screw comes with a pre-applied Loctite compound.

13. Remove one (1) old socket head cap screw and replace with new socket head cap screw.
14. Remove second socket head cap screw and replace with new socket head cap screw. Tighten both socket head cap screws to 188 ± 12 foot pounds torque.
15. Recheck the vertical end play with the dial indicator, see Figure 9-29 or a 0.010" feeler gauge.
16. Remove the brake spider bolts, they should thread out freely.
17. Remove the bottle jack and continue assembling the wheel ends.

IMPORTANT NOTE It is critical to apply Loctite to the three (3) brake spider bolts to ensure that these bolts sustain the proper torque requirement of steering knuckle assembly.

18. Apply Loctite to the three (3) brake spider bolts prior to installation into the brake spider. Tighten bolts to 188 ± 12 foot pounds torque.

⚠ WARNING

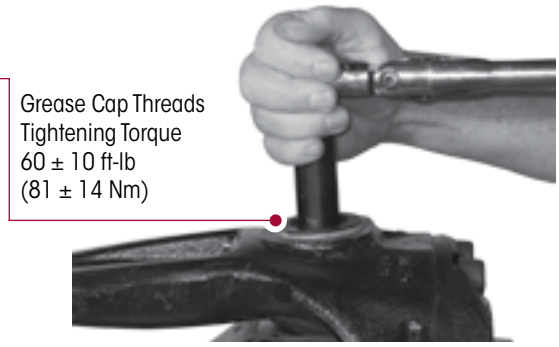
DO NOT GREASE THE STEERING KNUCKLES WITHOUT THE BRAKE SPIDER INSTALLED AND TIGHTENED TO THE PROPER TORQUE PER THE BRAKE MANUFACTURER'S SPECIFICATIONS. FAILURE TO DO SO CAN CAUSE COMPONENT DAMAGE RESULTING IN FAILURE AND LOSS OF VEHICLE CONTROL, POSSIBLY CAUSING PERSONAL INJURY OR PROPERTY DAMAGE.

19. Install the tie rod end into the lower steering knuckle arm.
20. Tighten the castle nuts to 185 foot pounds torque then advance the castle nut to the next hex face to install the cotter pin. **DO NOT** back off the castle nut to install cotter pin.
21. Install the drag link into the steering arm and tighten to the vehicle manufacturer's specifications.
22. Install the new threaded grease caps and tighten to 60 ± 10 foot pounds torque, see Figures 9-30 and 9-31. **Allow 30 minutes** for thread sealant to cure before greasing.

FIGURE 9-30



FIGURE 9-31



23. Ensure the kingpin bushing is installed properly below the kingpin seal. Push kingpin seal up against the machined bore face to minimum 0.25 mm, see Figure 9-32.
24. Install new grease zerk and thread until it bottoms out to: within a 1.2 mm maximum gap between hex and steering knuckle surface, see Figure 9-33.
25. Install the brakes, drums, wheels and tires per the vehicle manufacturer's instructions.
26. Raise the vehicle and remove the safety stands.
27. Lower the vehicle.
28. Grease steering knuckles with the vehicle on the floor.
29. Remove the wheel chocks from the vehicle.

FIGURE 9-32

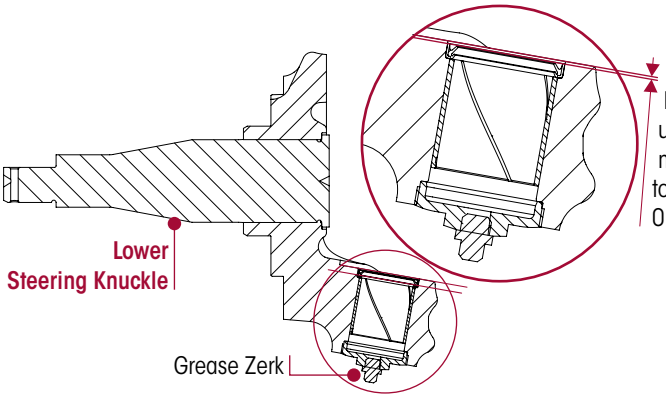
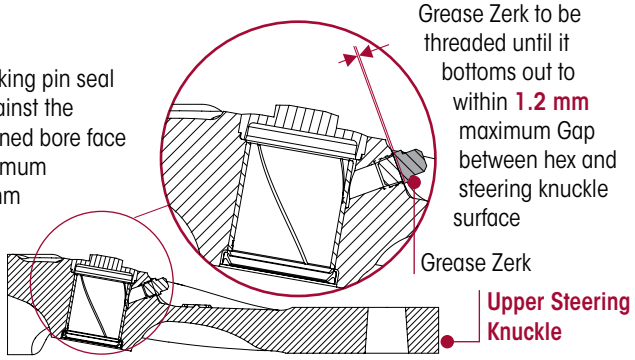


FIGURE 9-33



TIE ROD END AND CROSS TUBE

You will need:

- 7/8" -14 tie rod end removal tool (see Figure 9-35)

DISASSEMBLY

1. Chock the wheels.
2. Position the steer axle tires straight ahead.
3. Remove the cotter pin and castle nut, see Figure 9-34.

FIGURE 9-34

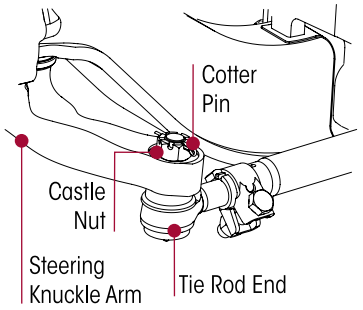


FIGURE 9-35

7/8" -14 Tie Rod End Removal Tool



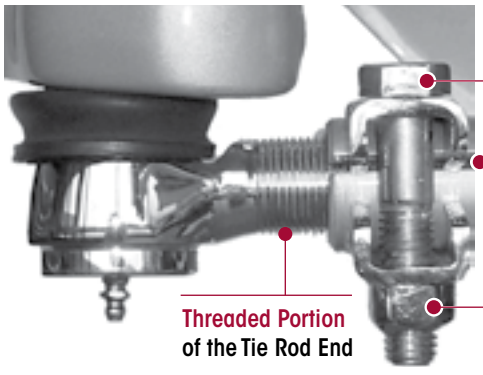
4. Use a 7/8"-14 tie rod end removal tool (see Figure 9-35) to separate the tie rod end from the steering knuckle arm.
5. Repeat Steps 3 and 4 to remove the other tie rod end to remove the tie rod assembly.
6. Remove the tie rod assembly from the vehicle.
7. Mount the cross tube in a soft jaw vice.
8. Remove the tie rod clamp hardware from the cross tube.
9. Count the exposed threads on the tie rod end being replaced, see Figure 9-36.

WARNING

DO NOT HEAT THE CROSS TUBE WITH A TORCH TO FACILITATE THE REMOVAL OF THE TIE ROD END. THE USE OF SUCH HEAT CAN ADVERSELY AFFECT THE STRENGTH OF THE CROSS TUBE. A COMPONENT DAMAGED IN THIS MANNER WILL RESULT IN LOSS OF WARRANTY, AND CAN RESULT IN THE AND LOSS OF VEHICLE CONTROL, AND POSSIBLE PERSONAL INJURY OR PROPERTY DAMAGE.

10. Remove the tie rod end from the cross tube.
11. If the opposing tie rod end is being replaced repeat Steps 8 through 10.
12. Visually inspect the cross tube for dents, cracks, or thread damage, replace as necessary.

FIGURE 9-36



5/8" Tie Rod Clamp Bolt
It is critical to check the 5/8" tie rod clamp bolt head location to verify the clamp fasteners have sufficient clearance away from the lower shock mount at full wheel cut. The fasteners must not contact the lower shock mount.

Tie Rod Cross Tube Slots
It is critical to have the threaded portion of the tie rod end extend past the slots in the tie rod cross tube.

5/8" Tie Rod Clamp Locknut
Tightening Torque
68 ± 7 ft-lb (92 ± 9 Nm)

ASSEMBLY

1. Lubricate the new tie rod end threads with Anti-seize.

NOTE

When installing the cross tube the thread direction of the tie rod ends are as follows:

- A right hand threaded tie rod end will be installed into the right side tie rod arm.
- A left hand threaded tie rod end will be installed into the left side tie rod arm.

2. Install the new tie rod end into the cross tube, leaving the same amount of threads exposed that were counted on the removed tie rod end.

⚠ WARNING

THE THREADED PORTION OF THE TIE ROD END MUST EXTEND PAST THE SLOTS INTO THE TIE ROD CROSS TUBE, SEE FIGURE 9-36. FAILURE TO DO SO CAN CAUSE COMPONENT DAMAGE, LOSS OF VEHICLE CONTROL AND POSSIBLE PERSONAL INJURY OR PROPERTY DAMAGE.

3. If replacing the opposing tie rod end is not necessary, it is critical that the ball and socket are free to rotate in the opposing tie rod end.
4. Replace the opposing tie rod end if necessary, by repeating Steps 1 and 2.
5. Install both tie rod ends into the lower steering knuckles.
6. Install the tie rod assembly by placing both tie rod ends into the lower steering knuckles.
7. Tighten the castle nuts to 185 foot pounds torque, then rotate the castle nut to the next castle slot and install the cotter pin. **DO NOT** back off the castle nut to install cotter pin.

⚠ WARNING

IT IS CRITICAL TO CHECK THE 5/8" TIE ROD CLAMP BOLT HEAD LOCATION TO VERIFY THE CLAMP FASTENERS HAVE SUFFICIENT CLEARANCE AWAY FROM THE LOWER SHOCK MOUNT AT FULL WHEEL CUT. THE FASTENERS MUST NOT CONTACT THE LOWER SHOCK MOUNT. FAILURE TO DO SO CAN CAUSE ONE OR MORE COMPONENTS TO FAIL CAUSING LOSS OF VEHICLE CONTROL AND POSSIBLE PERSONAL INJURY OR PROPERTY DAMAGE.

8. Grease the tie rod ends with the specified lubricant, see lubrication specifications and procedure in the Preventive Maintenance section of this publication.
9. Set the toe, refer to Toe Adjustment in the Alignment & Adjustments section of this publication.
10. After the alignment is acceptable, tighten the tie rod to tie rod tube fasteners to 68 ± 7 foot pounds tightening torque, see Figure 9-36.
11. Remove the wheel chocks.

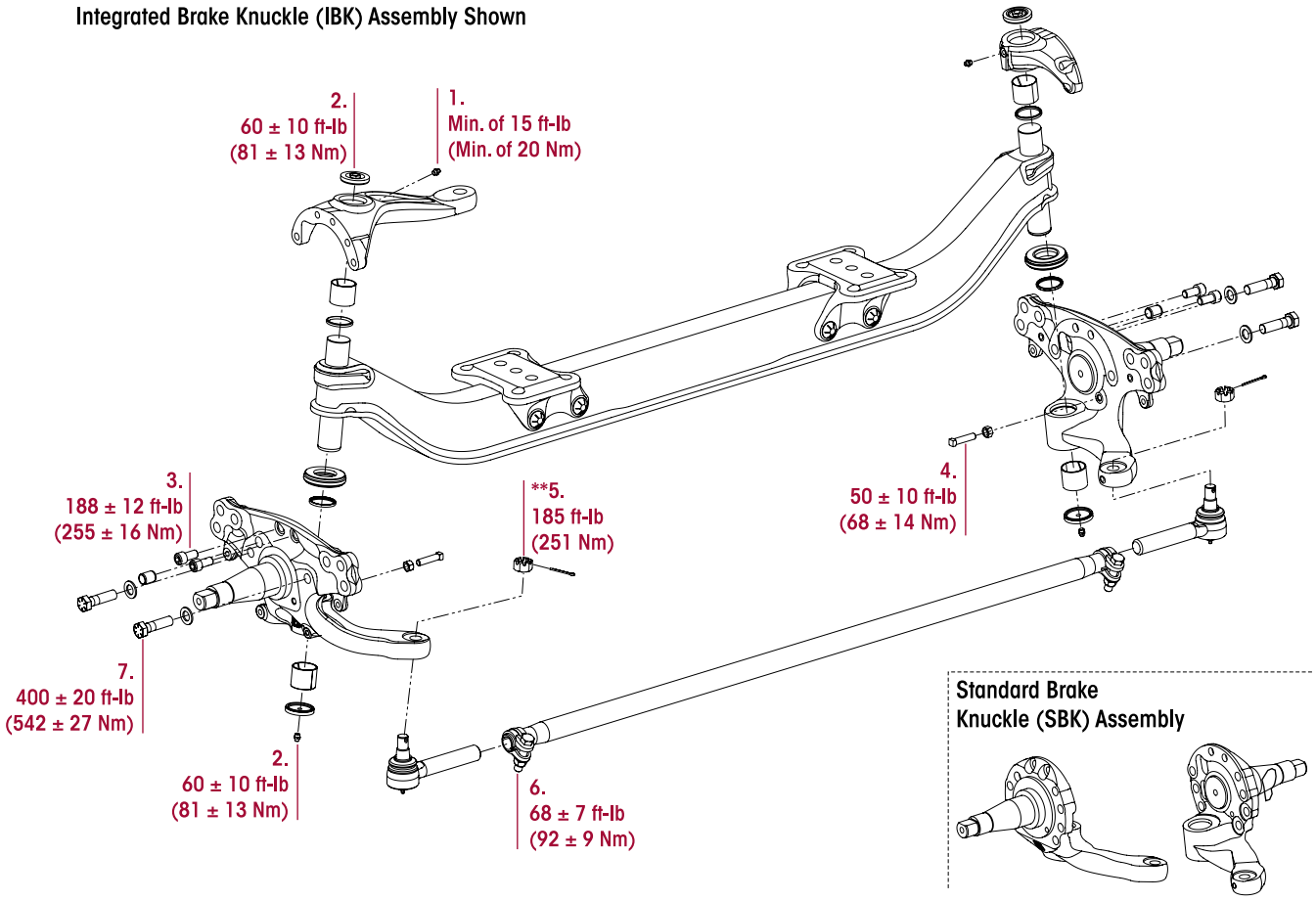
SECTION 10
Torque Specifications

Hendrickson Recommended Torque Values Provided in Foot Pounds (ft. lbs.) and in Newton Meters (Nm)

8K • 10K • 12K • 12.5K • 13K • 13.2K • 14K • 14.6K lb Capacity — Vehicles built after June 2025

Equipped with Standard Brake Knuckle (SBK) or Integrated Brake Knuckle (IBK)

Integrated Brake Knuckle (IBK) Assembly Shown



STEERTEK NXT AXLE

HENDRICKSON RECOMMENDED TORQUE SPECIFICATIONS

NO.	COMPONENT	FASTENERS		*TORQUE VALUE	
		QTY.	SIZE	FOOT POUNDS	NM
1.	Grease Zerk	2		Minimum of 15	Minimum of 20
2.	Grease Cap Assembly, Upper and Lower	4	½"	60 ± 10	81 ± 13
3.	Knuckle Attachment Bolt (Socket Head Cap Screw)	4	⅝"-11 UNC	188 ± 12	255 ± 16
4.	Knuckle / Axle Stop Bolt	2	½" Jam Nut	50 ± 10	68 ± 14
5.	Tie Rod Ends to Lower Steering Knuckle	2	⅞" Castle Nut	**185	**251
6.	Tie Rod Tube to Tie Rod Ends	2	⅝"	68 ± 7	92 ± 9
7.	Integrated Brake Knuckle	4	¾"-10 UNC	400 ± 20	542 ± 27

NOTE: * Fasteners originally supplied by the vehicle manufacturer. Follow the torque specifications listed in the vehicle manufacturer's manual. Hendrickson is not responsible for maintaining vehicle manufacturer's torque values.

** Tighten the castle nut to 185 foot pounds, then advance castle nut to the next hex face to install cotter pin. **DO NOT** back off castle nut for cotter pin installation.

SECTION 11

Front Wheel Alignment Specifications

STEERTEK NXT AXLE

AXLE ALIGNMENT SPECIFICATION			
CAMBER[1]	DESIGN SPECIFICATION	RANGE	
		MINIMUM	MAXIMUM
LEFT	0.0° ± 1.0°	-1.0°	+1.0°
RIGHT	- 0.25° ± 1.0°	-1.25°	+0.75°
CROSS	0.25° ± 1.0°	-0.75°	+1.25°

CAMBER NOTES:

[1] The camber angle is not adjustable. **DO NOT** bend axle or otherwise try to adjust camber. If found out of specification, notify Hendrickson Tech Services for further information.

HENDRICKSON RECOMMENDS FOLLOWING TMC[2] PRACTICES:

	DESIGN SPECIFICATION[2]	RANGE	
		MINIMUM	MAXIMUM
TOTAL TOE[3]	1/16" ± 1/32" (0.06" ± 0.03")	1/32" (0.03")	3/32" (0.09")

TOE-IN NOTES:

[2] Toe-in is to be set and adjusted in the normal vehicle unladed configuration. Actual vehicle curb weight on the ground. Toe should be checked at the tires front and rear tread center, at a distance above ground equal to the tire's rolling radius.

[3] In most instances total toe is set by the vehicle manufacturer or body builder. Consult the vehicle manufacturer for specifications.

SECTION 12
Troubleshooting Guide

STEERTEK NXT for Kenworth Vehicles

TROUBLESHOOTING GUIDE		
CONDITION	**POSSIBLE CAUSE**	**CORRECTION**
Worn or damaged kingpins and kingpin bushings	Dirt in system– contaminated lubricant	Polish and inspect the kingpin, replace the kingpin bushing and seals, then follow the specified lubrication procedures.
	Incorrect lubricant	Lubricate the axle with the specified lubricant.
	Axle not lubricated at scheduled frequency	Lubricate the axle at scheduled frequency.
	Incorrect lubrication procedures	Use the correct lubrication procedures.
	Lubrication interval not compatible with operating conditions	Change the lubrication interval to match operating condition.
	Worn or missing seals	Replace the worn or missing seals.
Vibration or shimmy of front axle during operation	Caster out of specification	Verify the ride height is within specification, then adjust caster to specification.
	Wheels and/or tires out of balance	Balance or replace the wheels and/or tires.
	Wheel bearing adjustment	Adjust the wheel bearing to the vehicle manufacturer's specifications.
Excessive wear on tires or uneven tire tread wear	Tires have incorrect air pressure	Adjust the tire pressure to vehicle manufacturer's specification.
	Tires out of balance	Balance or replace the tires.
	Incorrect toe setting	Adjust the toe-in to Hendrickson's specification.
	Incorrect steering arm geometry	Repair the steering system as necessary.
	Worn kingpin bushings	Replace the kingpin bushings.
	Excessive wheel bearing end play	Check the specified wheel nut torque, replace worn or damaged wheel bearings.
	Wheel bearing adjustment	Adjust the wheel bearing to the vehicle manufacturer's specifications.
	Low pressure in the power steering system	Repair the power steering system.
Vehicle is hard to steer	Steering linkage needs lubrication	Lubricate the steering linkage.
	Steering knuckles are binding	Check the vertical clearance.
	Incorrect steering arm geometry	Repair the steering system as necessary
	Caster out of specification	Verify the ride height is within specification, then adjust caster to specification.
	Tie rod ends hard to move	Replace the tie rod ends.
	Steering gear box internal problem	Perform the steering gear troubleshooting procedures per steering gear manufacturer's guidelines.
	Steering gear box internal problem	Perform steering gear troubleshooting procedures per steering gear manufacturing guidelines.

STEERTEK NXT for Kenworth Vehicles

TROUBLESHOOTING GUIDE (Continued)		
CONDITION	**POSSIBLE CAUSE**	**CORRECTION**
Tie rod ends are worn and require replacement	Tie rod ends need lubrication	Lubricate the tie rod end. Ensure the lubrication schedule is followed.
	Severe operating conditions	Increase the frequency of inspection and lubrication intervals.
	Damaged boot on tie rod end	Replace the tie rod end.
Bent or broken cross tube, tie rod end ball stud or tie rod end **NOTE:** Damaged components require replacement	Pump/gear relief valve pressure setting exceeds system specifications	Adjust the power steering system to vehicle manufacturer's specified pressure.
	Steering gear poppets improperly set or malfunctioning	Check for the proper operation or adjust poppets to the vehicle manufacturer's specifications.
	Axle stops improperly set	Set the axle stops to the vehicle manufacturer's specifications.
	Severe duty cycle service	Increase the frequency of inspection and lubrication intervals
Worn or broken steering ball stud	Drag link fasteners tightened past specified torque	Tighten the drag link fasteners to the specified torque.
	Lack of lubrication or incorrect lubricant	Lubricate the linkage with specified lubricant.
	Power steering stops out of adjustment	Adjust the steering stops to Hendrickson's specifications.
Restricted steering radius	Steering stops not adjusted correctly	Adjust steering stops to achieve correct wheel cut
Vehicle leans	Ride height incorrect	Adjust the ride height to specification.
	Excessive weight bias	Contact the vehicle manufacturer or Hendrickson Tech Services.
Vehicle wanders	Caster out of specifications	Verify the ride height is within specification, then adjust caster to specification. See Front Wheel Alignment Specifications in this publication.
	Incorrect toe setting	Adjust the toe to specification.
	Air in the power steering system	Remove the air from the power steering systems.

SECTION 13
Reference Material

This technical publication covers Hendrickson Truck Suspension's recommended procedures for our parts/products. Other components play a major role in overall performance and Hendrickson recommends you follow the specific vehicle manufacturer's recommendation for care and maintenance. Some recommended procedures have been developed by TMC and Hendrickson supports these recommendations.

To obtain copies of TMC's Recommended Practices Manual at:

TMC / ATA Headquarters
950 North Glebe Road, Suite 210
Arlington, VA 22203-4181

Phone: 703-838-1763
website: tmc.trucking.org
online ordering: atabusinessolutions.com/Shopping

Actual product performance may vary depending upon vehicle configuration, operation, service and other factors.
All applications must comply with applicable Hendrickson specifications and must be approved by the respective vehicle manufacturer with the vehicle in its original, as-built configuration.
Contact Hendrickson for additional details regarding specifications, applications, capacities, and operation, service and maintenance instructions.

*Call Hendrickson at **630.910.2800** or **855.RIDERED (855.743.3733)** for additional information.*

HENDRICKSON

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