

**TEAMMATE™ II**  
**2561R**  
**1100 and 1150 Series**  
**Outboard Planetary**  
**Axles**

**John Deere Waterloo Works**  
**CTM44 (21MAR97)**

LITHO IN U.S.A.  
ENGLISH

# Introduction

## FORWARD

This component technical manual contains necessary instructions to repair John Deere TEAMMATE™ (2561R) 1100 and 1150 Series Axles. This manual also includes theory of operation.

Use this component technical manual in conjunction with the machine technical manual. See the machine technical manual for information on axle removal and installation.



**This is the safety-alert symbol.** When you see this symbol on the machine or in this manual, be alert to the potential for personal injury.

### MANUAL ORGANIZATION

GROUP 05 - SAFETY  
GROUP 10 - GENERAL  
GROUP 15 - PLANETARY CARRIER  
GROUP 20 - WHEEL HUBS, KNUCKLE-SPINDLES,  
AND AXLES  
GROUP 25 - BRAKES  
GROUP 30 - INPUT QUILL AND DIFFERENTIAL

GROUP 35 - STEERING  
GROUP 40 - AXLE MOUNTING  
GROUP 99 - DEALER FABRICATED TOOLS  
GROUP 105 - OPERATIONAL CHECKS  
GROUP 110 - DIAGNOSIS AND TESTING  
GROUP 115 - THEORY OF OPERATION

## NOTICE TO THE DEALER

This Component Technical Manual should be used for the repair of John Deere TEAMMATE™ II 1100 and 1150 Series Outboard Planetary Axles with codes 2561R, in the first five positions on the second line of the serial number plate.

**IMPORTANT:** Before beginning repair or making adjustments, become familiar with *Axle Identification* and the *Axle Serial Number Plate*. (See *General—Group 10.*)

Discard CTM44 dated 26FEB91

*Introduction*

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## SECTION —1100 AND 1150 SERIES (2561R)

### AXLES

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*All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.*

CTM44-19-21MAR97

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# Section 1100 AND 1150 SERIES (2561R) AXLES

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### HANDLE FLUIDS SAFELY—AVOID FIRES

When you work around fuel, do not smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; they can ignite and burn spontaneously.



DX,FLAME -19-04JUN90

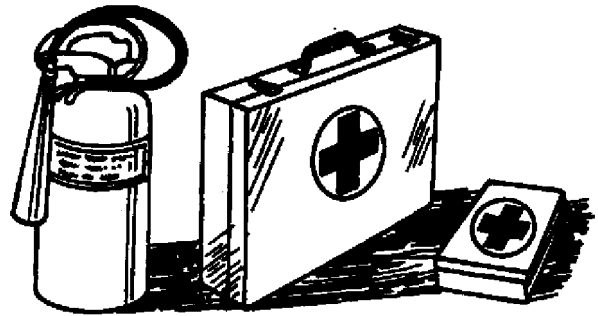
05  
1  
-UN-23AUG88  
TS227

### PREPARE FOR EMERGENCIES

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



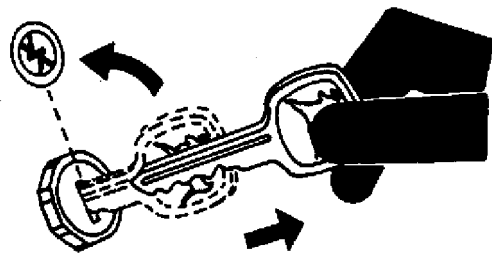
DX,FIRE2 -19-04JUN90

-UN-23AUG88  
TS291

### PARK MACHINE SAFELY

Before working on the machine:

- Lower all equipment to the ground.
- Stop the engine and remove the key.
- Disconnect the battery ground strap.
- Hang a "DO NOT OPERATE" tag in operator station.



DX,PARK -19-04JUN90

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TS230

05  
2

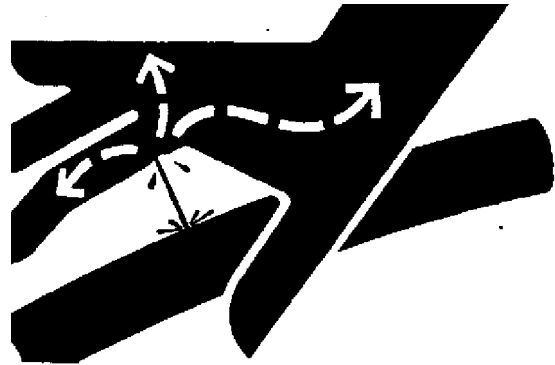
### AVOID HIGH-PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin causing serious injury.

Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.

Search for leaks with a piece of cardboard. Protect hands and body from high pressure fluids.

If an accident occurs, see a doctor immediately. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Doctors unfamiliar with this type of injury should reference a knowledgeable medical source. Such information is available from Deere & Company Medical Department in Moline, Illinois, U.S.A.



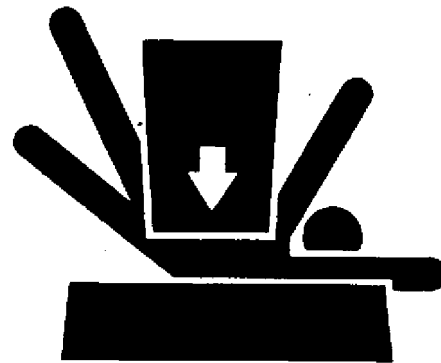
X9811 -JUN-23AUG88

DX,FLUID -19-09AUG91

### SUPPORT MACHINE PROPERLY

Always lower the attachment or implement to the ground before you work on the machine. If you must work on a lifted machine or attachment, securely support the machine or attachment.

Do not support the machine on cinder blocks, hollow tiles, or props that may crumble under continuous load. Do not work under a machine that is supported solely by a jack. Follow recommended procedures in this manual.



TS229 -JUN-23AUG88

DX,LOWER -19-04JUN90

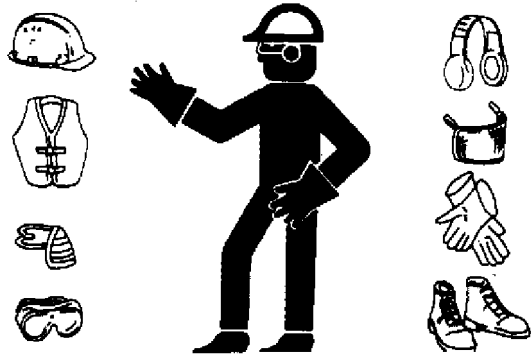
### WEAR PROTECTIVE CLOTHING

Wear close fitting clothing and safety equipment appropriate to the job.

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.



DX,WEAR -19-10SEP90

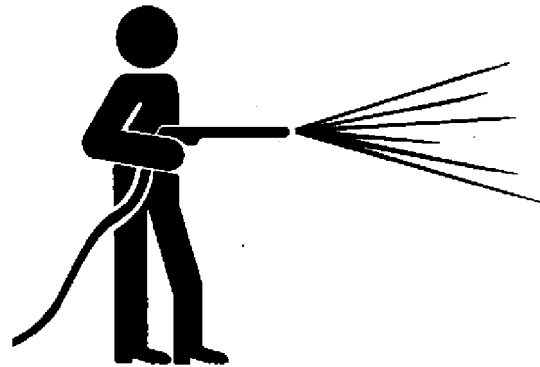
TS206 -UN-23AUG88

05

### WORK IN CLEAN AREA

Before starting a job:

- Clean work area and machine.
- Make sure you have all necessary tools to do your job.
- Have the right parts on hand.
- Read all instructions thoroughly; do not attempt shortcuts.



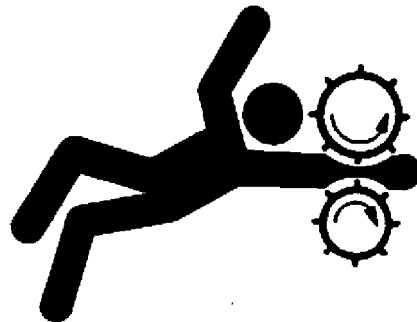
DX,CLEAN -19-04JUN90

T6642EJ -UN-18OCT88

### SERVICE MACHINES SAFELY

Tie long hair behind your head. Do not wear a necktie, scarf, loose clothing, or necklace when you work near machine tools or moving parts. If these items were to get caught, severe injury could result.

Remove rings and other jewelry to prevent electrical shorts and entanglement in moving parts.



DX,LOOSE -19-04JUN90

TS228 -UN-23AUG88

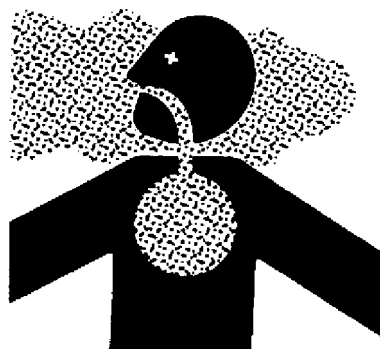
### AVOID HARMFUL ASBESTOS DUST

Avoid breathing dust that may be generated when handling components containing asbestos fibers. Inhaled asbestos fibers may cause lung cancer.

Components in products that may contain asbestos fibers are brake pads, brake band and lining assemblies, clutch plates, and some gaskets. The asbestos used in these components is usually found in a resin or sealed in some way. Normal handling is not hazardous as long as airborne dust containing asbestos is not generated.

Avoid creating dust. Never use compressed air for cleaning. Avoid brushing or grinding material containing asbestos. When servicing, wear an approved respirator. A special vacuum cleaner is recommended to clean asbestos. If not available, apply a mist of oil or water on the material containing asbestos.

Keep bystanders away from the area.



DX,DUST -19-15MAR91

TS220 -UN-23AUG88

### ILLUMINATE WORK AREA SAFELY

Illuminate your work area adequately but safely. Use a portable safety light for working inside or under the machine. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.



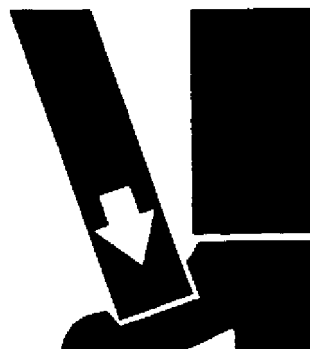
DX,LIGHT -19-04JUN90

TS223 -UN-23AUG88

### USE PROPER LIFTING EQUIPMENT

Lifting heavy components incorrectly can cause severe injury or machine damage.

Follow recommended procedure for removal and installation of components in the manual.



DX,LIFT -19-04JUN90

TS226 -UN-23AUG88

### AVOID HEATING NEAR PRESSURIZED FLUID LINES

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders. Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials. Pressurized lines can be accidentally cut when heat goes beyond the immediate flame area.



DX,TORCH -19-05OCT90

TS953 -UN-15MAY90

05

### REMOVE PAINT BEFORE WELDING OR HEATING

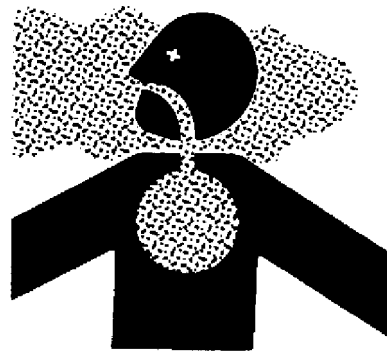
Avoid potentially toxic fumes and dust.

Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.

Do all work outside or in a well ventilated area. Dispose of paint and solvent properly.

Remove paint before welding or heating:

- If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
- If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.



DX,PAINT -19-04JUN90

TS220 -UN-23AUG88

### USE PROPER TOOLS

Use tools appropriate to the work. Makeshift tools and procedures can create safety hazards.

Use power tools only to loosen threaded parts and fasteners.

For loosening and tightening hardware, use the correct size tools. DO NOT use U.S. measurement tools on metric fasteners. Avoid bodily injury caused by slipping wrenches.

Use only service parts meeting John Deere specifications.



-UN-08NOV69  
TS779

DX,REPAIR -19-04JUN90

### DISPOSE OF WASTE PROPERLY

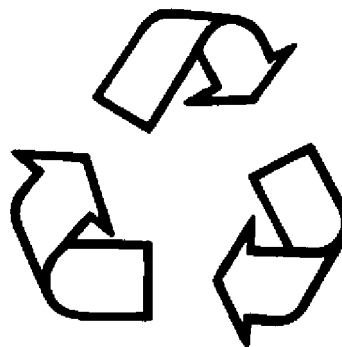
Improperly disposing of waste can threaten the environment and ecology. Potentially harmful waste used with John Deere equipment include such items as oil, fuel, coolant, brake fluid, filters, and batteries.

Use leakproof containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.

Do not pour waste onto the ground, down a drain, or into any water source.

Air conditioning refrigerants escaping into the air can damage the Earth's atmosphere. Government regulations may require a certified air conditioning service center to recover and recycle used air conditioning refrigerants.

Inquire on the proper way to recycle or dispose of waste from your local environmental or recycling center, or from your John Deere dealer.



-UN-26NOV90  
TS1133

DX,DRAIN -19-09AUG91

**LIVE WITH SAFETY**

Before returning machine to customer, make sure machine is functioning properly, especially the safety systems. Install all guards and shields.



DX,LIVE -19-04JUN90

TS231 -19-07OCT88

05  
7



Safety

05  
8

**GENERAL OUTBOARD PLANETARY AXLE SPECIFICATIONS  
(OEM APPLICATIONS)**

Description	1100 Series Non-Steerable	1150 Series Steerable
Input Pinion and Ring Gear Options:	2.588:1 3.071:1 3.727:1 4.625:1	2.588:1 3.071:1 3.727:1 4.625:1
Input Yoke Options:	1410, 1480, 1550 5C, 6C	1410, 1480, 1550 5C, 6C
Mounting Options:		
Non-Oscillating	yes	yes
Oscillating-Raised Pivot	yes	yes
Oscillating-Center Pivot	yes	yes
Inboard Wet Disk Brakes:	Optional	Optional
Differential Options:		
Standard	yes	yes
No-Spin	yes	yes
Limited Slip	yes	yes
Outboard Planetary Final Drive Ratio Options:		
Standard—335 mm Bolt Circle	5.200:1	5.200:1
High-Torque—425 mm Bolt Circle	5.200:1	5.200:1
Standard—335 mm Bolt Circle	5.786:1	5.786:1
High-Torque—425 mm Bolt Circle	5.786:1	5.786:1
Dimensions:		
Width (Axle Flange-to-Flange)		
Standard	1870 mm (73.6 in.)	1881 mm (74.1 in.)
High-Torque	1914 mm (75.4 in.)	1925 mm (75.8 in.)
Width (Overall)		
Standard	2126 mm (83.7 in.)	2137 mm (84.1 in.)
High-Torque	2096 mm (82.5 in.)	2107 mm (83.0 in.)
Bolt Circle		
Standard	335 mm (13.2 in.)	335 mm (13.2 in.)
High-Torque	425 mm (16.7 in.)	425 mm (16.7 in.)
Wheel Mounting Holes		
Standard	10	10
High-Torque	12	12
Oil Capacity:		
Differential Case	14 L (15 qt)	8.5 L (9 qt)
Wheel Hub (Each)		
Standard	1.9 L (2 qt)	1.9 L (2 qt)
High-Torque	2.8 L (3 qt)	2.8 L (3 qt)

RX.4410.1A -19-10SEP92

## GENERAL OUTBOARD PLANETARY AXLE SPECIFICATIONS (JOHN DEERE APPLICATIONS)

10  
2

Machine Application	7000 Series Tractor
Description	1150 Series Steerable
Input Pinion and Ring Gear Ratio:	2.588:1
Input Yoke:	1480
Mounting:	Oscillating- Raised Pivot
Differential:	Limited Slip
Outboard Planetary Final Drive:	Standard
Outboard Planetary Final Drive Ratio:	5.200:1
Dimensions:	
Width (Axle Flange-to-Flange)	1881 mm (74.1 in.)
Width (Overall)	2137 mm (84.1 in.)
Bolt Circle	335 mm (13.2 in.)
Wheel Mounting Holes	10
Oil Capacity:	
Differential Case	8.5 L (9 qt)
Wheel Hub (Each)	1.9 L (2 qt)

RX.4410.9A -19-10SEP92

## AXLE IDENTIFICATION

**IMPORTANT:** Serial Number plates must be masked when painting axles to prevent the information from becoming illegible. This information is used for service and warranty purposes.

*NOTE: Newer serial number plates include the addition of bar-coding on the second line.*

This CTM is used for MFWD Axles used on the 7000 Series Tractors.

This CTM is used for TeamMate II Axles with the following information on the SECOND line, first five positions (reading left to right) of the Serial Number Plate:

**2561R**

Each axle has a serial number plate located on the differential case. Major design changes may be noted within this Component Technical Manual (CTM) and will refer to the information on the serial number plate.

### For RAISED PIVOT mounting:

The serial number plate is located on the upper right side.

### For NON-OSCILLATING and CENTER OSCILLATION mounting:

The serial number plate is located on the upper center of the side opposite the input quill.

### For ALL axles:

The alpha-numeric code on the top line of the plate identifies the producing factory, component type identification, and six position sequential serial number.

### For OEM Applications:

The alpha-numeric code on the second line identifies the axle configuration.

### For JOHN DEERE Applications:

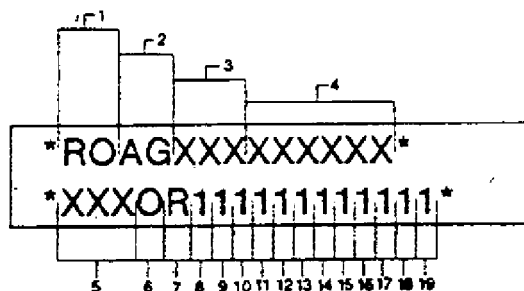
The alpha-numeric code on the second line contains the top assembly number of the axle.

OEM APPLICATIONS

10  
4



RW18498 -JUN-15FEB91



RW13562 -JUN-03JAN89

- |   |   |  |  |
|---|---|--|--|
| <p>1—Manufacturing Unit<br/>RO = Waterloo Works</p> <p>2—Component Identification<br/>AH = Outboard Planetary</p> <p>3—Axle Series<br/>256 = 1100/1150 Series</p> <p>4—Six position Serial Number</p> <p>5—Axle Series<br/>256 = 1100/1150 Series</p> <p>6—Design Version<br/>1 = TEAMMATE™ II</p> <p>7—Manufacturing Unit<br/>R = Waterloo Works</p> <p>8—Input Rotation<br/>1 = Clockwise <sup>a</sup><br/>2 = Clockwise <sup>b</sup><br/>3 = Counterclockwise <sup>a</sup><br/>4 = Counterclockwise <sup>b</sup></p> <p>9—Spiral Bevel Reduction<br/>1 = 2.588:1<br/>2 = 3.071:1<br/>3 = 3.727:1<br/>4 = 4.625:1</p> | <p>10—Input Yoke<br/>1 = 1410<br/>2 = 1480<br/>3 = 1550<br/>4 = 5C<br/>5 = 6C</p> <p>11—Steering and Axle Housing Mount<br/>1 = None<br/>w/o Axle Housings<br/>2 = Steerable-Lower Tie Rod w/o Axle Housing Mount<br/>3 = Steerable-Lower Tie Rod w Axle Housing Mount<br/>6 = Non-Steerable w Axle Housing Mount<br/>7 = Steerable-Upper Tie Rod w/o Axle Housing Mount<br/>8 = Steerable-Upper Tie Rod w/o Axle Housing Mount</p> | <p>12—Input Housing<br/>1 = Standard</p> <p>13—Mounting Type<br/>1 = Fixed Mount<br/>2 = Dual Center Pivot Oscillation<br/>3 = Raised Pivot Oscillation</p> <p>14—Brake Type<br/>1 = No Brakes<br/>2 = Wet Multiple Disk Brakes</p> <p>15—Differential Type<br/>1 = Standard<br/>2 = No-SPIN™<br/>4 = Limited Slip</p> | <p>16—Differential Case<br/>1 = Standard</p> <p>17—Final Drive Reduction and Torque Capacity<br/>1 = Without Final Drives<br/>4 = 5.200:1—Standard<br/>5 = 5.200:1—High-Torque<br/>6 = 5.786:1—Standard<br/>7 = 5.786:1—High-Torque</p> <p>18—Trim<br/>3 = Primer</p> <p>19—Miscellaneous Parts<br/>2 = ID Tag, SN Plate, and Breather</p> |
|---|---|--|--|

*a* - toward input

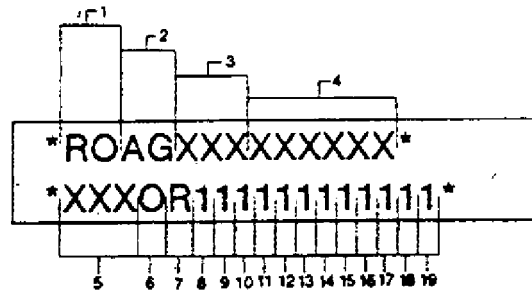
*b* - away from input

General/Serial Number Plate (John Deere)

JOHN DEERE APPLICATIONS



RW18498 -JN-15FEB91



RW13562 -JN-03JAN89

1—Manufacturing Unit  
RO = Waterloo Works  
2—Component Identification  
AH = Outboard Planetary

3—Axle Series  
256 = 1100/1150 Series  
4—Six position Serial  
Number

5—Axle Series  
256 = 1100/1150 Series  
6—Design Version  
1 = TEAMMATE™ II

7—19—Top Assembly  
Number

RX,4410,10A -19-10SEP92

10  
5

**GENERAL REPAIR PROCEDURES**

*NOTE: Before beginning the repair, review the following guidelines. These are provided to emphasize the need for attention to detail and care when servicing the axle assembly.*

Thoroughly clean the outside of the axle assembly to prevent contamination.

**Disassembly and Assembly**

- Fasteners must be tightened to the specified torque.
- Lubricate each component part with clean hydraulic oil.
- When installing seals, use the specified grease.
- Install the correct cone point shim pack.
- Perform specified end play and backlash checks.
- The backlash check must be made if pinion shaft bearing is replaced.
- The differential ring gear and pinion shaft are replaced as a matched set.

**Inspection Before Disassembly**

- Inspect the pinion shaft and ring gear before removal from the differential case as follows:
  1. Wipe the lubricant from the internal working parts and visually inspect the parts for wear and damage.
  2. Rotate the gears to check for roughness.
  3. Inspect the pinion shaft and ring gear teeth for signs of scoring, abnormal wear or nicks.

**Heating Bearing Cones**

**IMPORTANT: Heat bearing cones in a bearing heater. Use a thermometer and do not exceed 150°C (300°F).**

**Cleaning and Inspection****Bearings**

- Never dry bearings with compressed air. Spinning a bearing without lubrication can damage the bearing.
- Clean bearings with clean solvent, dry thoroughly, and oil before inspection. Inspect bearings for roughness of rotation, and excessive wear of rollers.
- Bearing assemblies must turn without roughness.
- Inspect bearing cups for excessive wear.
- Both the bearing cone and roller assembly should be replaced if inspection reveals either a worn cup or a cone.
- When installing bearing cups and cones, make sure they are fully seated.

**Shafts**

- Inspect the shaft bearing surfaces for wear or damage.
- Inspect shafts and replace if excessively worn or damaged.

**Gears**

- Examine the gear teeth for scoring, chipping, or excessive wear. Replace as necessary.