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# 750C, 850C Crawler Dozer Repair

## TECHNICAL MANUAL
## 750C, 850C, 750C Series II, 850C Series II Crawler Dozers

**TM1589 10AUG04 (ENGLISH)**

**For complete service information also see:**

| | |
|---|---|
| 750C, 850C, Crawler Dozer Operation and Test | TM1588 |
| 6068 Engine | CTM8 |
| 6068 POWERTECH™ Engine | CTM104 |
| 6076 Engine | CTM42 |
| 6081 POWERTECH™ Engine Repair | CTM86 |
| Undercarriage Appraisal Manual | SP326 |

**Worldwide Construction And Forestry Division**
LITHO IN U.S.A.

# Introduction

## Foreword

This manual is written for an experienced technician. Essential tools required in performing certain service work are identified in this manual and are recommended for use.

Live with safety: Read the safety messages in the introduction of this manual and the cautions presented throughout the text of the manual.

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.

Technical manuals are divided in two parts: repair and operation and tests. Repair sections tell how to repair the components. Operation and tests sections help you identify the majority of routine problems quickly.

Information is organized in groups for the various components requiring service instruction. At the beginning of each group are summary listings of all applicable essential tools, service equipment and tools, other materials needed to do the job, service parts kits, specifications, wear tolerances, and torque values.

Technical Manuals are concise guides for specific machines. They are on-the-job guides containing only the vital information needed for diagnosis, analysis, testing, and repair.

Fundamental service information is available from other sources covering basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic type of problems and their causes.

TX,750C,SS2406 –19–13JUL95–1/1

# Contents



*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.*

# Section 00
# General Information

## Contents

## 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.

TS227 –UN–23AUG88

DX,FLAME –19–04JUN90–1/1

## Prevent Battery Explosions

Keep sparks, lighted matches, and open flame away from the top of battery. Battery gas can explode.

Never check battery charge by placing a metal object across the posts. Use a volt-meter or hydrometer.

Do not charge a frozen battery; it may explode. Warm battery to specification.

**Specification**

Battery—Warm ..... 16°C (60°F)

TS204 –UN–23AUG88

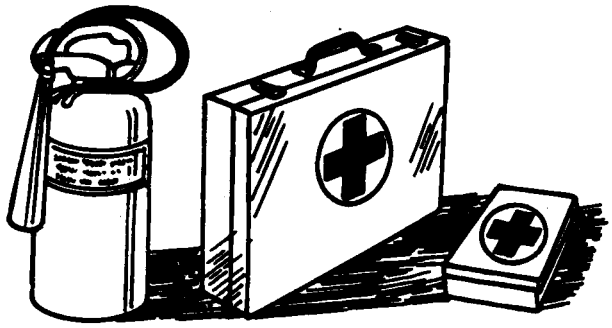
DX,SPARKS –19–03MAR93–1/1

## 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.



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DX,FIRE2 –19–03MAR93–1/1

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## Prevent Acid Burns

Sulfuric acid in battery electrolyte is poisonous. It is strong enough to burn skin, eat holes in clothing, and cause blindness if splashed into eyes.

Avoid the hazard by:

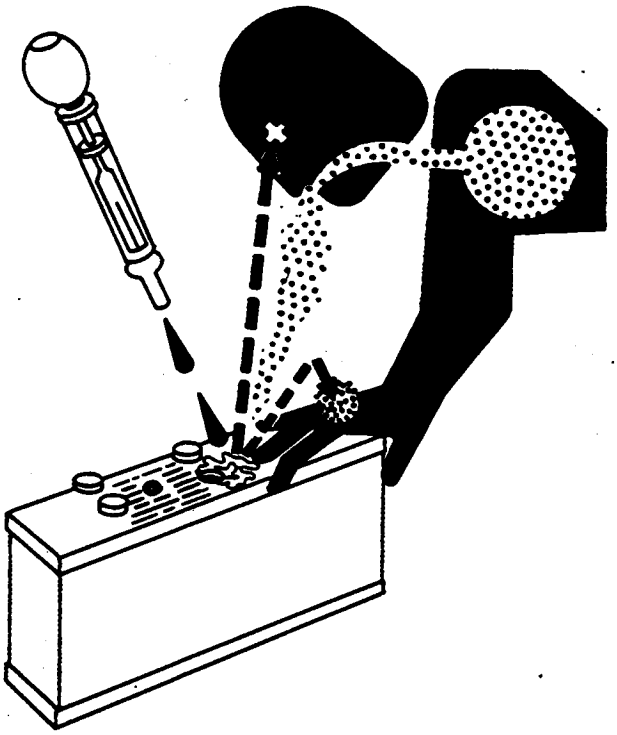
1. Filling batteries in a well-ventilated area.
2. Wearing eye protection and rubber gloves.
3. Avoiding breathing fumes when electrolyte is added.
4. Avoiding spilling or dripping electrolyte.
5. Use proper jump start procedure.

If you spill acid on yourself:

1. Flush your skin with water.
2. Apply baking soda or lime to help neutralize the acid.
3. Flush your eyes with water for 15—30 minutes. Get medical attention immediately.

If acid is swallowed:

1. Do not induce vomiting.
2. Drink large amounts of water or milk, but do not exceed 2 L (2 quarts).
3. Get medical attention immediately.



TS203 –UN–23AUG88

DX,POISON –19–21APR93–1/1

# Section 01
# Tracks

## Contents





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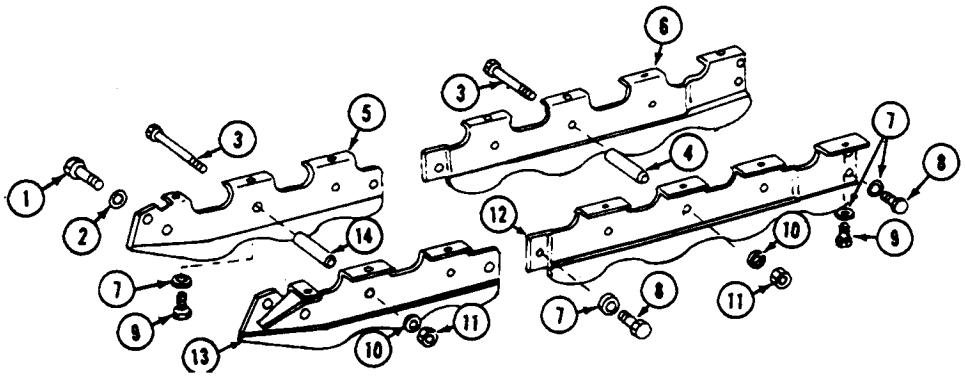
Page

## Remove and Install Rock Guards and Track Guides




T6076AD –UN–26OCT88

**1—Cap Screw (4 used)**
**2—Washer (2 used)**
**3—Cap Screw (6 used)**
**4—Spacer (3 used)**
**5—Track Guide**
**6—Rock Guard**
**7—Washer (20 used)**
**8—Cap Screw (6 used)**
**9—Cap Screw (12 used)**
**10—Lock Washer (6 used )**
**11—Nut (6 used)**
**12—Rock Guard**
**13—Track Guide**
**14—Spacer (3 used)**

*NOTE: Removal and installation of rock guards and track guides are similar for both 750C and 850C.*

1. Remove parts (1—14).

**IMPORTANT: Before welding on this machine: To avoid control circuit damage, turn the electrical disconnect switch off, disconnect wiring harness and braided ground strap from transmission controller, and disconnect the wiring harness from the display monitor panel in dash. Remove both components.**

**Good welds are important. Have only a qualified welder repair the components. Use E7018 electrodes. Before welding, clean all dirt and paint from the weld areas and turn the battery disconnect switch to "OFF". Connect the welder ground clamp close to each weld area so electrical current does not pass through any bearings.**

2. Inspect rock guards (6 and 12) and track guides (5 and 13) for wear and damage. Repair or replace parts as necessary.

3. Apply high strength thread lock and sealer to cap screws (1, 3, 8 and 9).

4. Install inner rock guard, guide, washers and cap screws.

5. Put cap screws through inner guide or inner guard, spacer, outer guide or outer guard, washer (10) and nut. Tighten the nuts to specification.

**Specification**

Outer Track Guide-to-Inner Track Guide Nut—Torque ..... 407 N•m (300 lb-ft)

6. Install outer guard and guide cap screws.

7. Install bottom two sprocket shields-to-track guide cap screws and tighten to specification.

**Specification**

Sprocket Shield-to-Track Guide Cap Screws—Torque ..... 350 N•m (255 lb-ft)

**Continued on next page**

TX,0130,SS2454 –19–13JUN95–1/2

8. Install sprocket shield to track frame cap screws. Tighten cap screws to specification.

| Specification | |
|---|---|
| Sprocket Shield-to-Track Frame Cap Screws—Torque | 675 N•m (500 lb-ft) |

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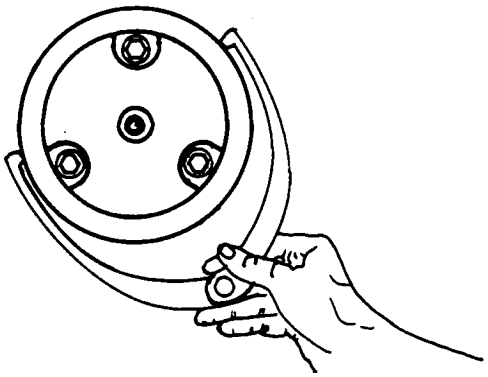
TX,0130,SS2454 –19–13JUN95–2/2

## Measure Carrier Roller Wear

*NOTE: See Undercarriage Appraisal Manual SP326 for additional information.*



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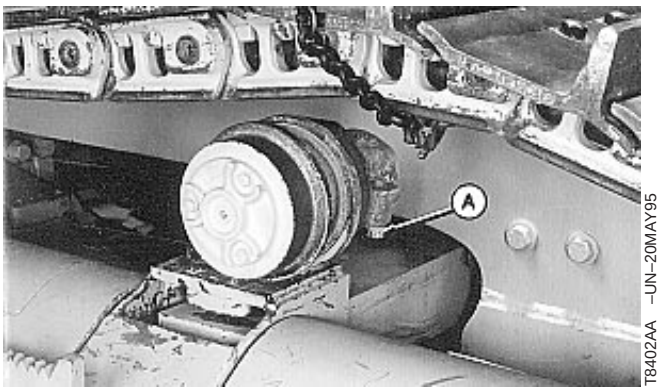
| Item | Measurement | Specification |
|---|---|---|
| 750C New Carrier Roller | OD | 171.5 mm (6.75 in.) |
| 750C 100 Percent Worn Carrier Roller | OD | 158.5 mm (6.24 in.) |
| 850C New Carrier Roller | OD | 187.5 mm (7.30 in.) |
| 850C 100 Percent Worn Carrier Roller | OD | 168.0 mm (6.61 in.) |

1. Position an outside calipers over the most worn area of roller running surface, and close until caliper tips just touch tread surface.
2. Measure caliper tip spread using the scale to the nearest 0.5 mm (0.002 in.).
3. Check for flat spots on carrier roller thread, which indicate roller is not free to turn.

TX,9020,RR5396 –19–13JUN95–1/1

## Remove and Install Carrier Roller




**CAUTION: Grease in track adjustment cylinder is under high pressure. Slowly loosen check valve fitting to release grease from track tension adjuster.**

1. Slowly turn check valve fitting counterclockwise one turn to release track tension. (See Adjust Track Sag in this group.)
2. Raise and support track chain using a chain and hoist.

**CAUTION: The approximate weight of carrier roller is 27 kg (60 lb).**

3. Loosen cap screws (A) to remove front or rear carrier rollers.
4. Install carrier roller and bottom into support. Tighten cap screws.
5. Check for proper alignment of carrier rollers.
6. If out of alignment loosen cap screws (A) and adjust outward.

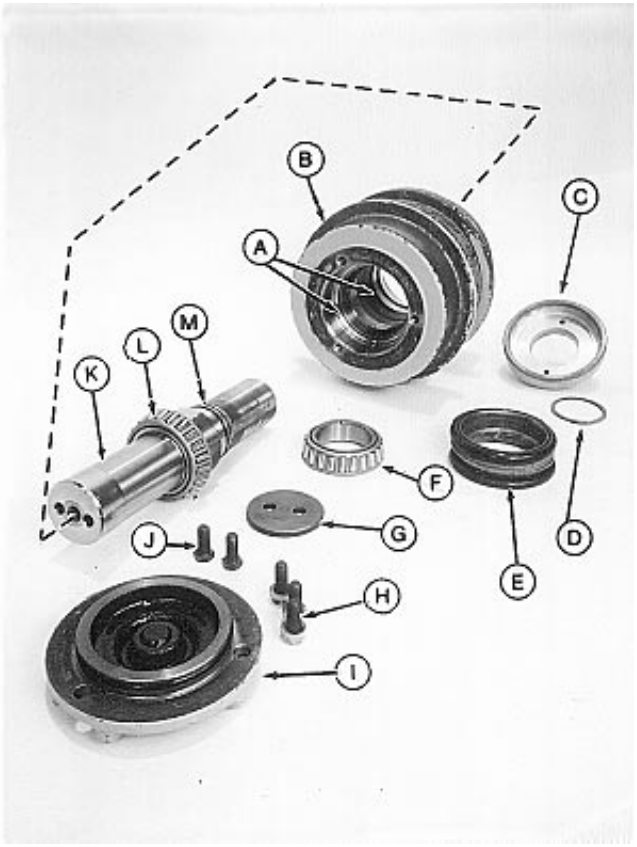
TX,0130,SS2402 –19–13JUN95–1/1

## Disassemble and Assemble Carrier Roller

1. Remove cap screws (H) and cover (I).
2. Drain oil from housing.
3. Remove cap screws (J) and retainer plate (G) from shaft (K).
4. Press outer bearing cone (F) and shaft (K) out of roller shell (B) using a press.
5. Press inner bearing cone (L) from shaft. Bearing is a press fit.

**IMPORTANT: Metal face seals can be reused if they are not worn or damaged. A used seal must be kept together as a set because of wear patterns on seal ring face.**

6. Remove snap ring (D), seal retainer (C) and metal face seals (E). Keep seal rings together as a matched set with faces together to protect lapped surfaces. Inspect metal face seal . (See procedure in this group.)
7. Remove bearing cups (A). Inspect roller shell for grooved, burred or galled condition.
8. Replace parts as necessary.




T8401AB –UN–20MAY95

**A—Bearing Cup (2 used)**
**B—Roller Shell**
**C—Seal Retainer**
**D—Snap Ring**
**E—Metal Face Seal**
**F—Bearing Cone**
**G—Retainer Plate**
**H—Cap Screw (3 used)**
**I—Cover**
**J—Cap Screw (2 used)**
**K—Shaft**
**L—Bearing Cone**
**M—O-Ring**
**N—Seal**
**O—JDG204 Seal Installation Tool**
**P—Seal Retainer**

**Continued on next page**

9. Install bearing cups (A) into roller shell, install tight against shoulders.

10. Install inner bearing cone (L) tight against shoulder on shaft. Bearing is a press fit.

11. Install shaft (K) in roller shell.

12. Press outer bearing cone (F) on shaft so bearing is even with end of the shaft.

13. Install retainer plate (G) and cap screws (J). Tighten cap screws to specification.

**Specification**

Carrier Roller Retainer Plate Cap Screws—Torque ..... 47 N•m (35 lb-ft)

**IMPORTANT: O-ring and seat surfaces must be clean, dry and oil free so O-rings do not slip when roller is turning.**

14. Thoroughly clean the O-rings and seat surfaces in roller, seal retainer and seal rings using a volatile, non-petroleum base solvent and lint-free tissues.

15. Install one half of metal face seal using JDG204 Seal Installation tool (O) into seal retainer (P). Install other half of seal (N) into roller shell.

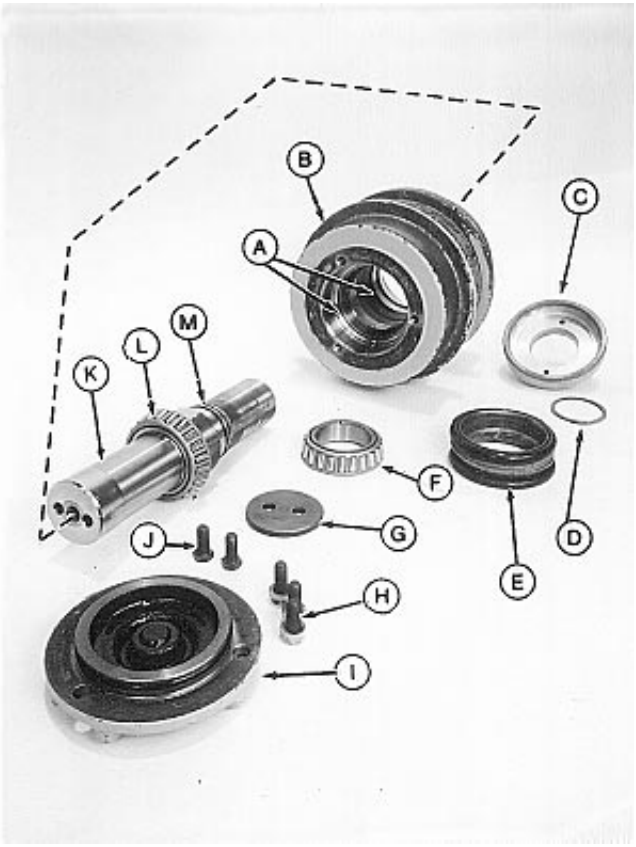
16. Apply equal pressure with the fingers at four equally spaced points on seal ring face. O-ring and seal ring should seat squarely in bore.

*NOTE: A volatile, non-petroleum base solvent or talcum powder may be used as a lubricant.*

17. Wipe both metal seal ring faces dry with a lint-free tissue.

18. Apply a thin film of oil, as used in the roller, to the shiny sealing area on both metal seal rings.

19. Install seal retainer (C) and snap ring (D) on roller shaft.

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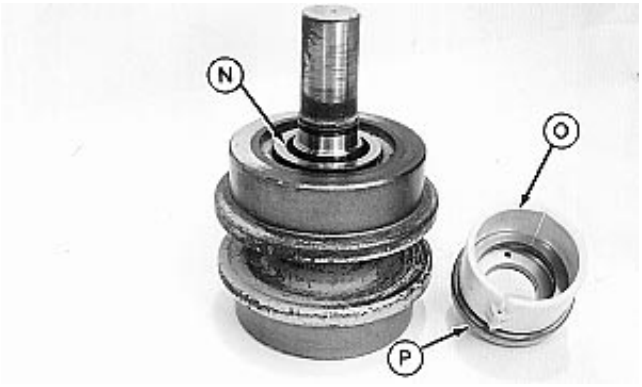


T8401AC –UN–22MAY95

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TX,0130,SS2404 –19–13JUN95–2/3

20. Fill roller with 356 mL (12 oz) of clean oil in 750C and 410 mL (14 oz) in 850C. (See Track Roller, Front Idler, and Carrier Roller Oil, Group 0004.)



**Specification**

| | |
|---|---|
| Carrier Roller—750C Oil—Capacity | 356 mL (12 oz) |
| Carrier Roller—850C Oil—Capacity | 410 mL (14 oz) |

21. Install cover (I) and cap screws (H). Tighten cap screws to specification.

**Specification**

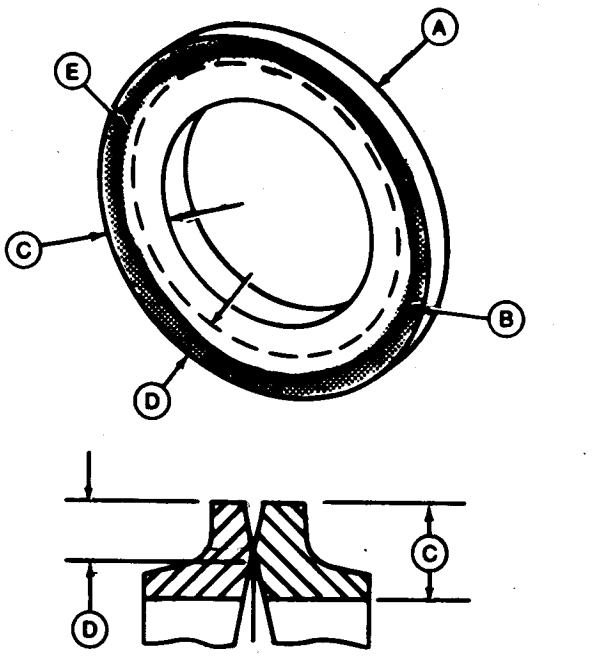
| | |
|---|---|
| Carrier Roller Cover Cap Screws—Torque | 47 N•m (35 lb-ft) |

TX,0130,SS2404 –19–13JUN95–3/3

## Inspect Metal Face Seals

1. Inspect for the following conditions to determine if seals can be reused:
   - The narrow, highly polished sealing area (E) must be in the outer half of seal ring face (D).
   - Sealing area must be uniform and concentric with the ID and OD of seal ring (A).
   - Sealing area must not be chipped, nicked, or scratched.

**A—Seal Ring**
**B—Worn Area (shaded area)**
**C—Seal Ring Face**
**D—Outer Half of Seal Ring Face**
**E—Sealing Area (dark line)**




T85079 –UN–24AUG93

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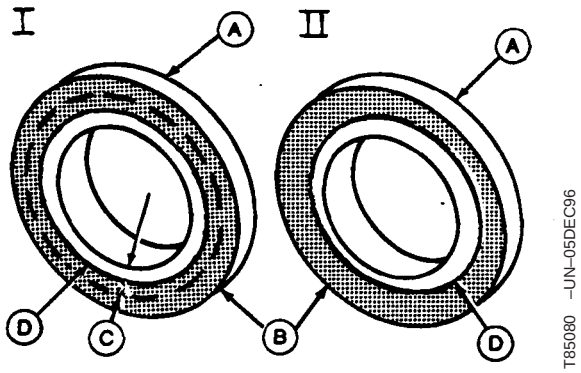
T47,0130,5939HQ –19–25AUG93–1/3

2. Illustration shows examples of worn seal rings (A).

   I—Sealing area (D) is in inner half of seal ring face (C).

   II—Sealing area (D) not concentric with ID and OD of seal ring.

   **A—Seal Ring**
   **B—Worn Area (shaded area)**
   **C—Inner Half of Seal Ring Face**
   **D—Sealing Area (dark line)**



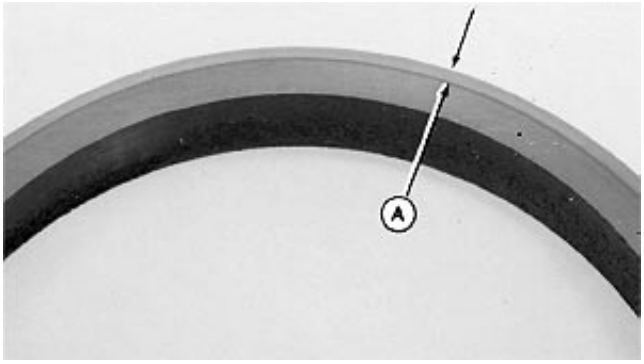

T85080 –UN–05DEC96

T47,0130,5939HQ –19–25AUG93–2/3

3. Clean reusable seals by removing all foreign material from seal rings, except seal face (A), using a scraper or a stiff bristled fiber brush.

4. Wash seal rings and O-rings using a volatile, non-petroleum base solvent to remove all oil. Thoroughly dry parts using a lint-free tissue.

   Apply a thin film of oil to seal ring face. Put face of seal rings together and hold using tape.




T82840 –UN–23FEB89

T47,0130,5939HQ –19–25AUG93–3/3

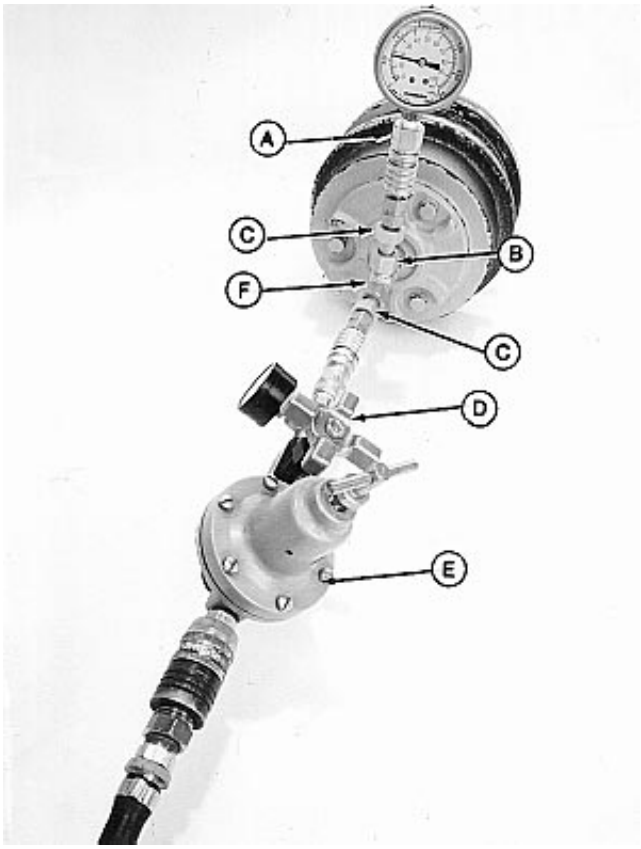
## Test Carrier Roller for Oil Leakage

1. Turn roller several times to seat metal face seals.
2. Install parts (A—F).
3. Pressurize roller to specification using air pressure.

**Specification**

Carrier Roller Leakage Test—Air Pressure ..... 117 ± 10 kPa (1 ± 0.2 bar) (17 ± 3 psi)

4. Close valve and wait for two minutes. Make sure roller maintains air pressure and oil does not leak past O-ring or metal face seals.
5. If roller leaks oil or does not maintain pressure, check O-ring or seals. Repair as necessary and recheck for leaks.
6. Install and tighten plug.




T8402AB –UN–20MAY95

**A—Pressure Gauge 0—689 kPa (0—6.89 bar) (0—100 psi)**
**B—38H1338 Straight Male Connector (-6 M ORFS x -12 M ORB)**
**C—JT03456 O-Ring Face Seal (2 used) (17/16 -20 M JIC x 11/16-16 F ORFS)**
**D—Shut-Off Valve**
**E—Regulator**
**F—38H1030 Tee (-6 F ORFS x -6 M ORFS x-6 M ORFS) Parker No. (6R6LOS)**

TX,0130,SS2405 –19–11MAR96–1/1

## Measure Track Roller Wear

| Item | Measurement | Specification |
|---|---|---|
| Roller Tread Diameter | | |
| 750C New | OD | 203.0 mm (7.99 in.) |
| 750C 100 Percent Worn | OD | 184.2 mm (7.25 in.) |
| 850C New | OD | 210 mm (8.27 in.) |
| 850C 100 Percent Worn | OD | 188 mm (7.4 in.) |

*NOTE: Minimum used is the maximum allowable wear for rebuilding roller tread.*

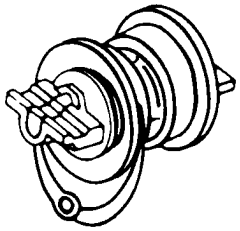
Under some conditions roller wear can be uneven.If wear is uneven, the single flange rollers may be interchanged with other single flange rollers to even out wear. Double flange rollers may be interchanged with other double flange rollers.

1. Raise unit off the ground and support it using shop stands.
2. Release track tension by turning the check valve one turn counterclockwise to allow grease to escape.

TX,9020,YY994 –19–22MAR95–1/2

3. Measure roller tread diameter using a caliper such as JT07193 Special Roller Caliper from JT05518A Undercarriage Inspection Kit.

*NOTE: See Track Rollers , 750C, 750C-LGP and 750C Series II Track Roller Tread Diameter , or 850C, 850C Series II, and 850C-LGP Track Roller Tread Diameter in Undercarriage Appraisal Manual SP326 for additional information.*



T6813AM –UN–29JAN98

TX,9020,YY994 –19–22MAR95–2/2

## Remove and Install Track Roller

**CAUTION: Grease in track adjuster cylinder is under extreme pressure. DO NOT remove grease fittings to release track tension.**

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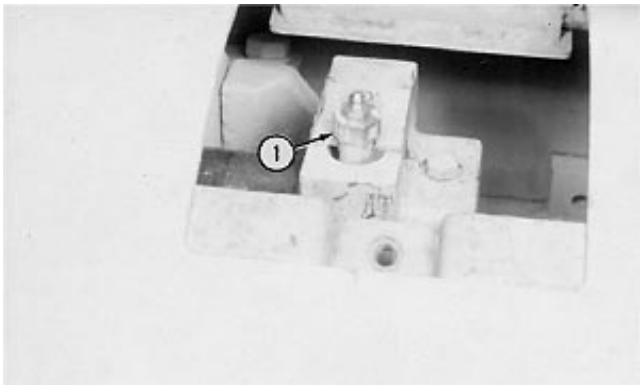
1. Turn check valve (1) one turn counterclockwise to release grease from track adjuster.
2. Put a piece of pipe between the sprocket and the track chain and rotate track to retract the adjusting cylinder if required.



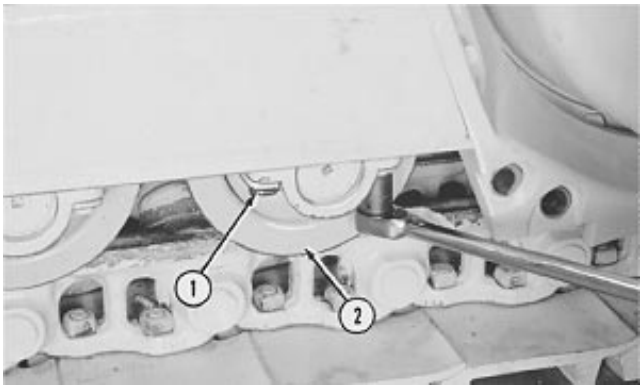

T6033BB1 –UN–26OCT88

TX,0130,DU1324 –19–30SEP93–1/4

3. Remove inner and outer rock guards. (See Remove and Install Rock Guards and Track Guides in this group.)
4. Raise crawler high enough to remove rollers. Put shop stands under machine.

**CAUTION: The approximate weight of track rollers is 59 kg (129 lb).**

5. Remove cap screws (1) to remove roller (2).

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TX,0130,DU1324 –19–30SEP93–2/4

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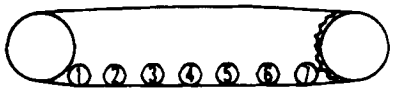
6. All machines have seven track rollers. Single and double flange rollers are used alternately starting at idler with a single flange roller.

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TX,0130,DU1324 –19–30SEP93–3/4

7. Install track roller (2) with oil fill plug toward outside of unit.

8. Carefully lower crawler until roller cap screws can be installed.

9. Tighten cap screws (1) to specification.

**Specification**

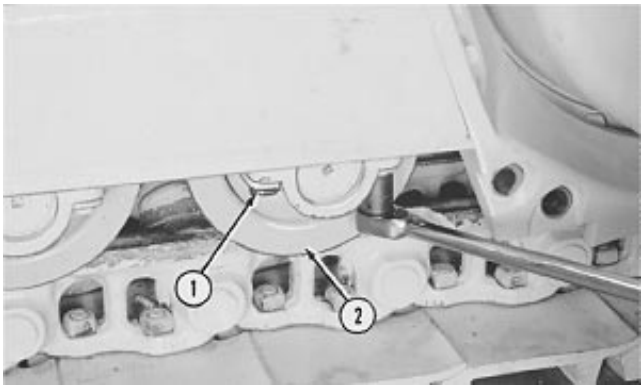
750C Track Roller-to-Track
Frame Cap Screw—Torque ..... 320 N•m (235 lb-ft)

**Specification**

850C Track Roller-to-Track
Frame Cap Screw—Torque ..... 620 N•m. (460 lb-ft)

10. Apply high strength thread lock and sealer to track guide and rock guard cap screws before installing guides and guards. (See Remove and Install Rock Guards and Track Guides in this group.)

11. Adjust track sag . (See Adjust Track Sag in this group.)

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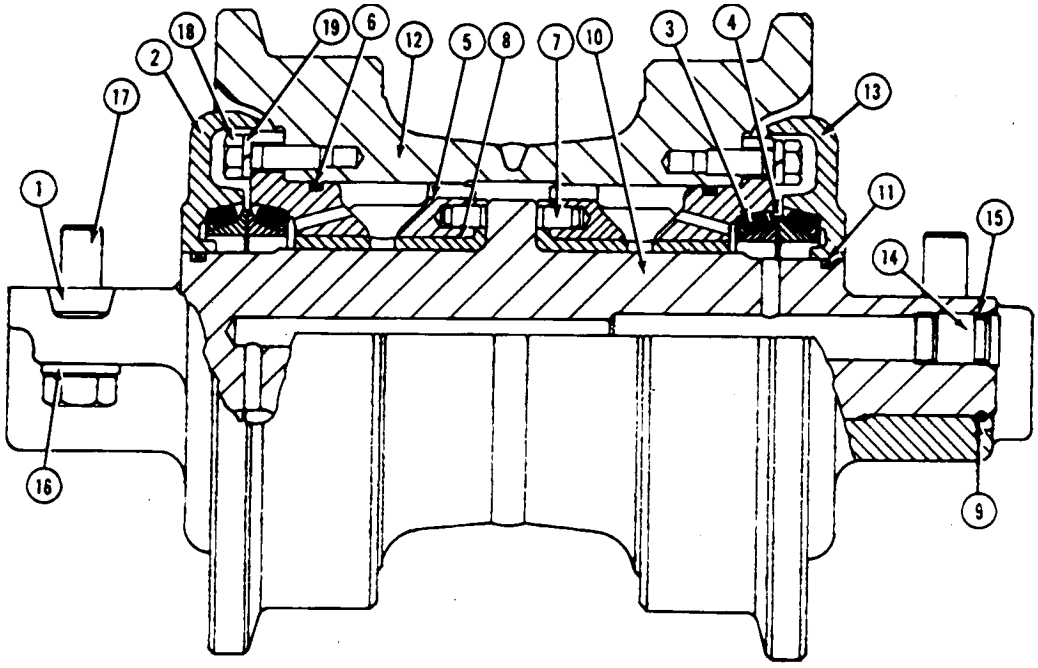
## Disassemble Track Roller




T6018BE –UN–26OCT88

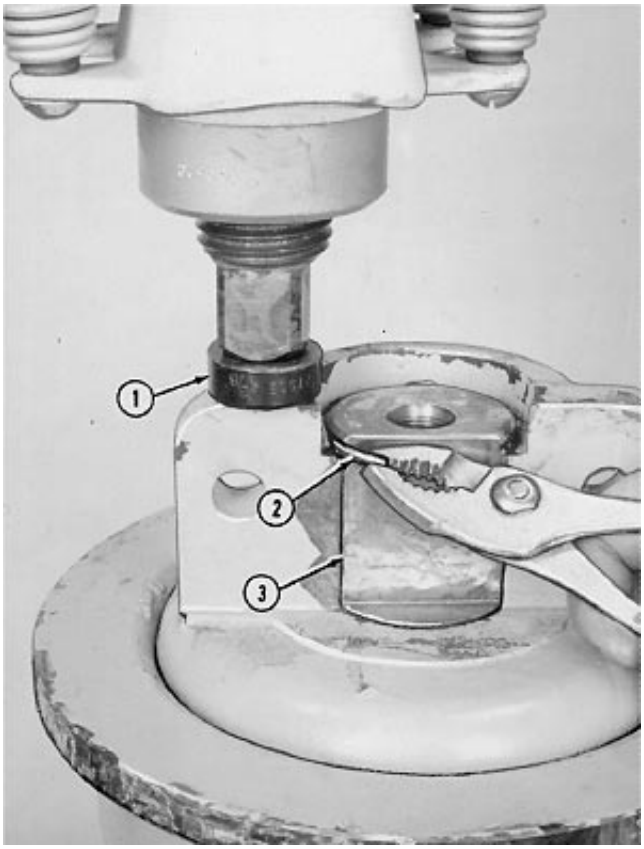
**1—Lock**
**2—Inner Collar**
**3—O-Ring**
**4—Metal Face Seal**
**5—Bushing Case**
**6—O-Ring**
**7—Dowel Pin**
**8—Bushing**
**9—Snap Ring**
**10—Roller Shaft**
**11—O-Ring**
**12—Roller**
**13—Outer Collar**
**14—Plug**
**15—O-Ring**
**16—Lock Washer**
**17—Cap Screw**
**18—Cap Screw**
**19—Lock Washer**

**Continued on next page**

TX,0130,DU1328 –19–11AUG93–1/5

*NOTE: Single and double flange rollers are of the same design. Disassembly procedures are the same for both types of rollers.*

1. Remove plug with O-ring to drain oil from roller.
2. Remove lock from inner collar before putting roller assembly in press.
3. Use a 35 mm disk (1) and press to compress the metal face seals slightly. Remove the snap ring (2) from both sides of roller shaft (3).



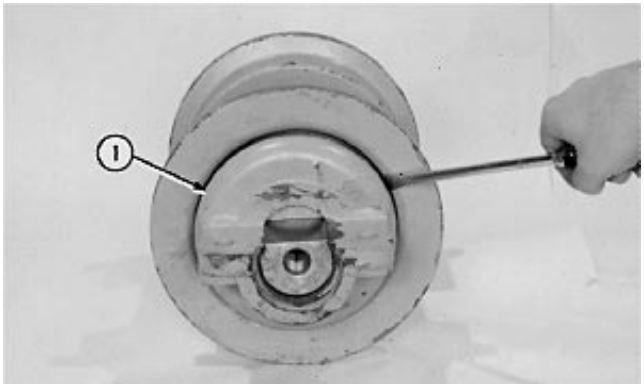

T80426 –UN–26OCT88

TX,0130,DU1328 –19–11AUG93–2/5

4. Remove outer and inner covers (1).

*NOTE: Metal face seals are a matched set. Seals are not interchangeable with other seals.*

5. Remove metal face seal from inner and outer covers.




T80427 –UN–26OCT88

TX,0130,DU1328 –19–11AUG93–3/5

*NOTE: Metal face seals are matched sets. Seals are not interchangeable with other seals.*

6. Remove and inspect metal face seals. (See Inspect Metal Face Seals in this group.)
7. Remove O-rings (2) from both ends of shaft.
8. Remove cap screws (1) from bushing case at both ends of roller.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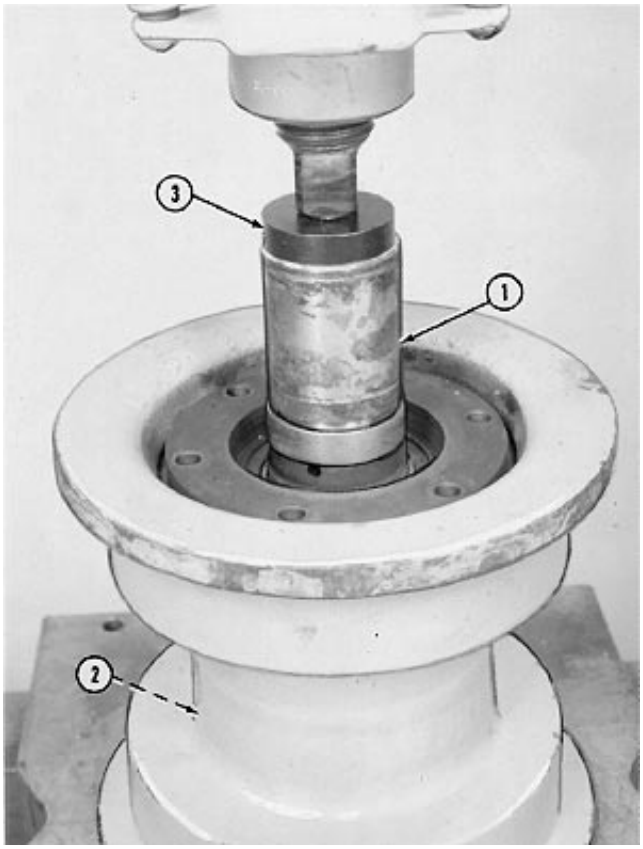
9. Remove roller shaft (1) and bushing case (2) using a 55 mm disk (3) and press.

10. Remove roller shaft from bushing case.

11. Turn roller over. Use disk (3), shaft, and press to remove bushing case from roller housing.

12. Inspect bushing in bushing case for excessive wear, pitting or scoring. Replace, if necessary.

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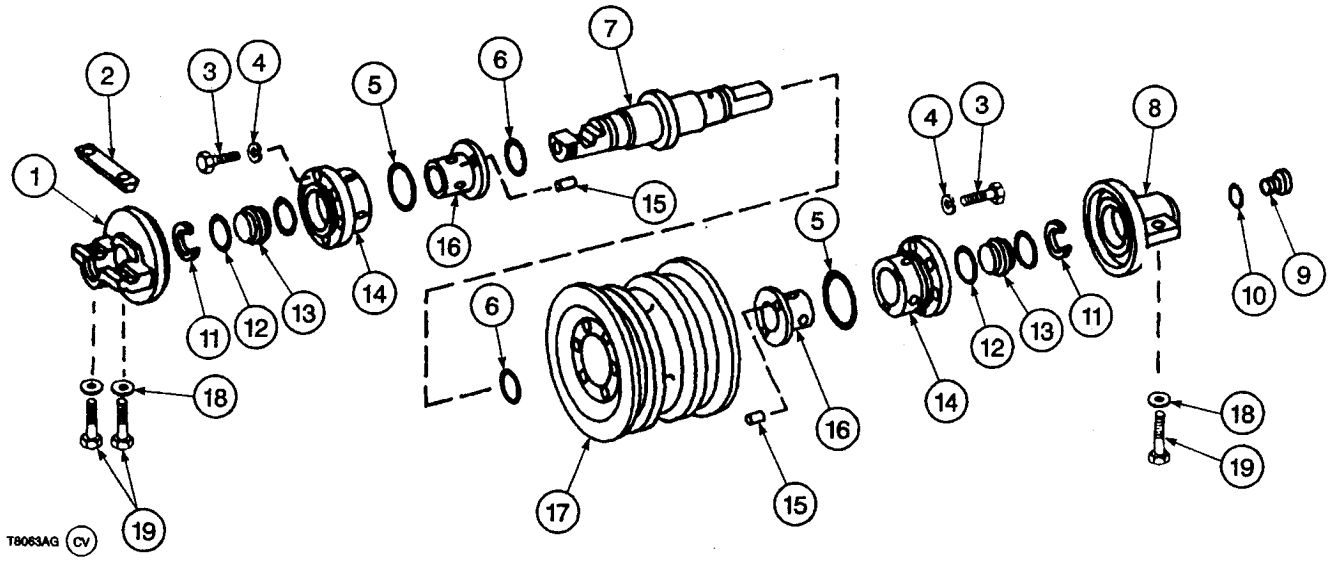
## Assemble Track Roller




*Double Flange Track Roller Shown*

**1—Inner Collar**
**2—Lock**
**3—Cap Screw (12 used)**
**4—Lock Washer (12 used)**
**5—O-Ring (2 used)**
**6—O-Ring (2 used)**
**7—Shaft**
**8—Outer Collar**
**9—Plug**
**10—O-Ring**
**11—Snap Ring (2 used)**
**12—O-Ring (4 used)**
**13—Metal Face Seal (2 used)**
**14—Bushing Case (2 used)**
**15—Pin (2 used)**
**16—Bushing (2 used)**
**17—Roller**
**18—Washer (4 used)**
**19—Cap Screw (4 used)**

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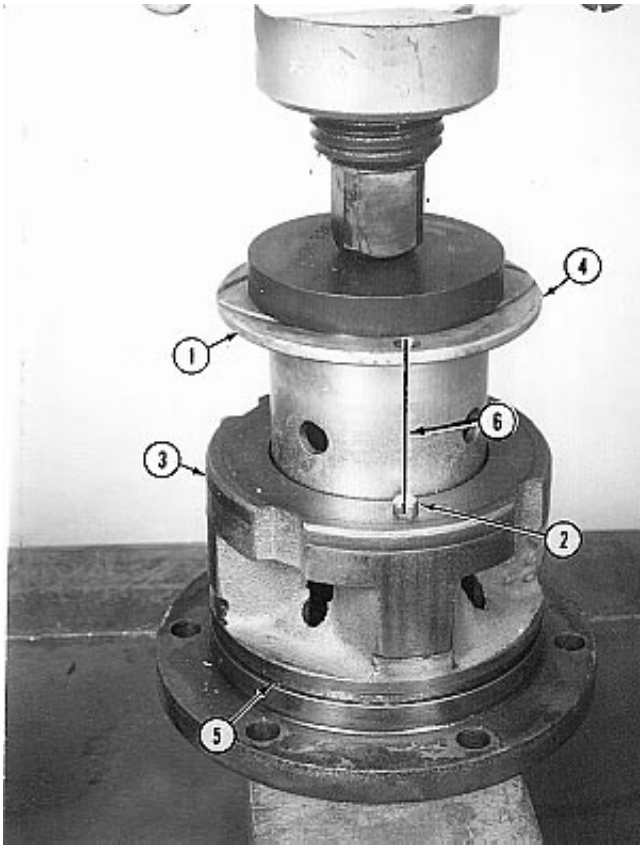
*NOTE: Assembly of single and double flange roller is the same. Single flange shown.*

1. Using a straightedge mark the bushing (1) from the center line of the dowel pin holes (both sides) to the center line of the dowel pins (2). Align the marks on the bushing with the dowel pins in the bushing case.
2. Press bushing into case.

**1—Bushing**
**2—Dowel Pin**
**3—Bushing Case**
**4—Disk (107 mm)**
**5—O-Ring Groove**
**6—Alignment Mark**

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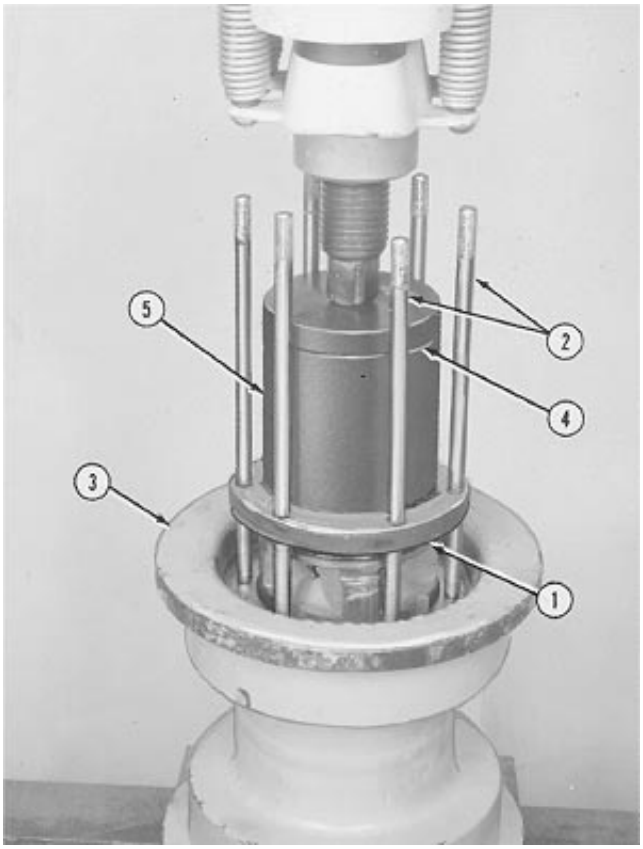
3. Install bushing case (1) using studs (2), 80 mm disk (4), and a press.
4. Remove aligning studs. Install cap screws and lock washer. Tighten cap screws.
5. Turn roller (3) over and carefully install roller shaft.
6. Install bushing case (1) using aligning studs (2), 80 mm disk (4), and a press.
7. Remove studs. Install cap screws and lock washers. Tighten cap screws.

**1—Bushing Case**
**2—Stud**
**3—Roller**
**4—Disk (80 mm)**
**5—Pipe**

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