CATERPILLAR®

# Service Repair Manual

## Models

# 320D and 320D L Excavator

Product: EXCAVATOR
Model: 320D L EXCAVATOR DHK
Configuration: 320D & 320D L Excavators DHK00001-UP (MACHINE) POWERED BY 3066 Engine

**Disassembly and Assembly**
**320D Excavator Machine Systems**
**Media Number -RENR8614-14** **Publication Date -01/05/2013** **Date Updated -19/07/2017**

i07316669

# Boom Cylinder - Remove and Install

**SMCS** - 5456-010

## Removal Procedure

Table 1

| Required Tools | | | |
|---|---|---|---|
| **Tool** | **Part Number** | **Part Description** | **Qty** |
| A | 4C-9485 | Pin Driver Cap | 1 |

**WARNING**

**Cylinders equipped with lock valves can remain pressurized for very long periods of time, even with the hoses removed.**

**Failure to relieve pressure before removing a lock valve or disassembling a cylinder can result in personal injury or death.**

**Ensure all pressure is relieved before removing a lock valve or disassembling a cylinder.**

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**NOTICE**

**Care must be taken to ensure that fluids are contained during performance of inspection, maintenance, testing, adjusting, and repair of the product. Be prepared to collect the fluid with suitable containers before opening any compartment or disassembling any component containing fluids.**

**Refer to Special Publication, NENG2500, "Dealer Service Tool Catalog" for tools and supplies suitable to collect and contain fluids on Cat® products.**

**Dispose of all fluids according to local regulations and mandates.**

1. Fully extend the bucket cylinder. Fully extend the stick cylinder. Lower the boom until the stick assembly is in contact with the ground.
2. Release the pressure in the hydraulic system. Refer to Disassembly and Assembly, "Hydraulic System Pressure - Release".

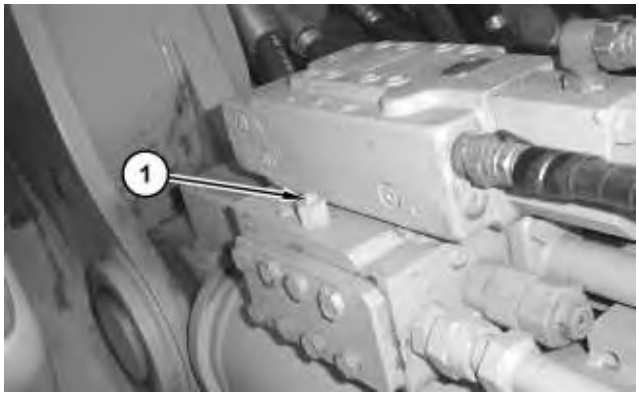


Illustration 1 g01217839

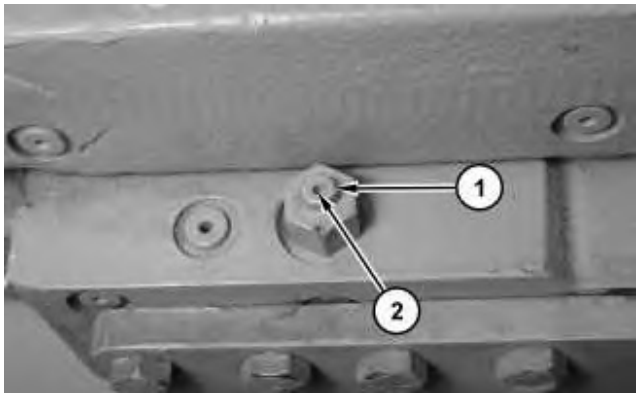


Illustration 2 g01217840

3. Loosen nut (1). Turn bolt (2) counterclockwise to release the pressure in the cylinder.


Illustration 3 g01217850

4. Remove bolts (3).

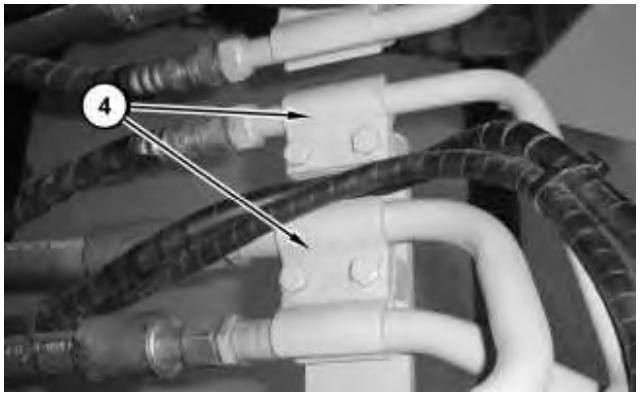


Illustration 4 g01217906

5. Remove clamps (4).

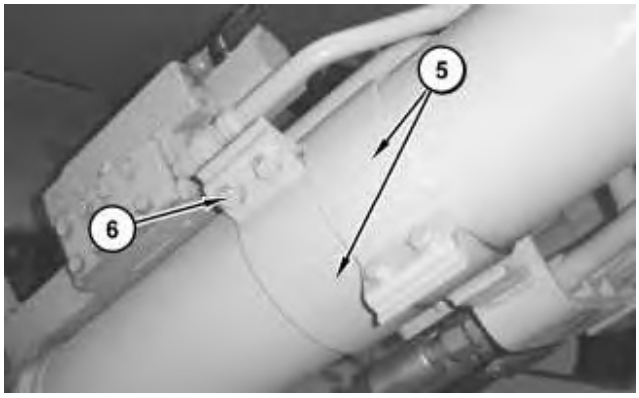


Illustration 5 g01217908

6. Remove bolts (6) and support assemblies (5).

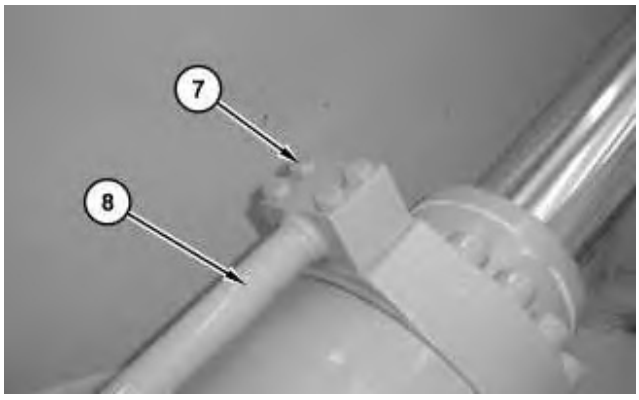


Illustration 6 g01217912

7. Remove bolts (7) and reposition tube assembly (8) out of the way.

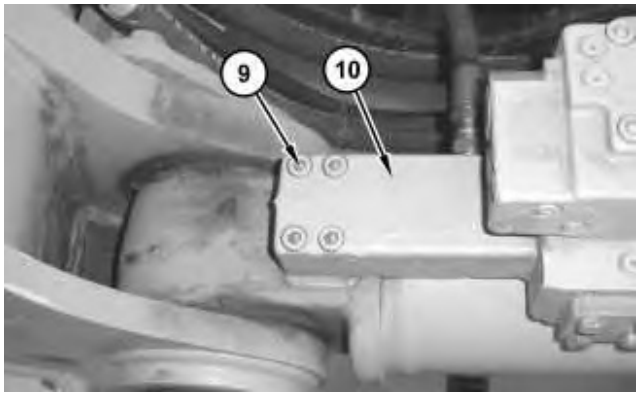


Illustration 7 g01217915

8. Remove bolts (9) and reposition valve assembly (10) out of the way.

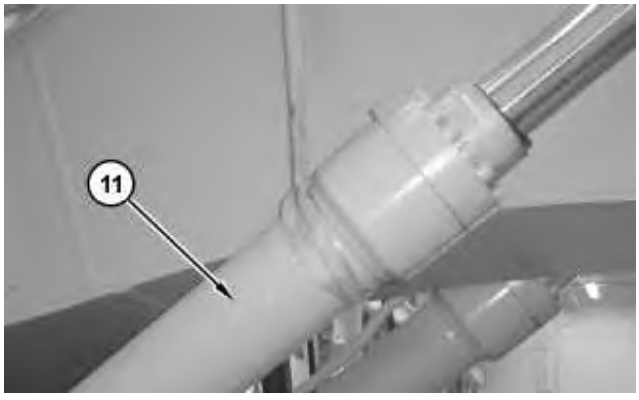


Illustration 8 g01217921

9. Attach a suitable lifting device to boom cylinder (11). The weight of boom cylinder (11) is approximately 287 kg (632 lb).

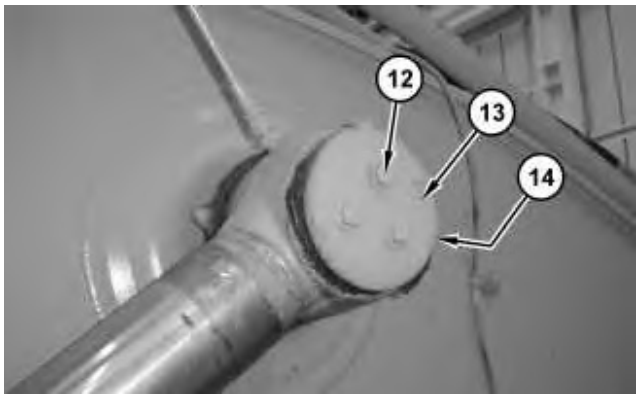


Illustration 9 g01217928

10. Remove bolts (12) and plate (13). Remove spacer (14) (not shown).

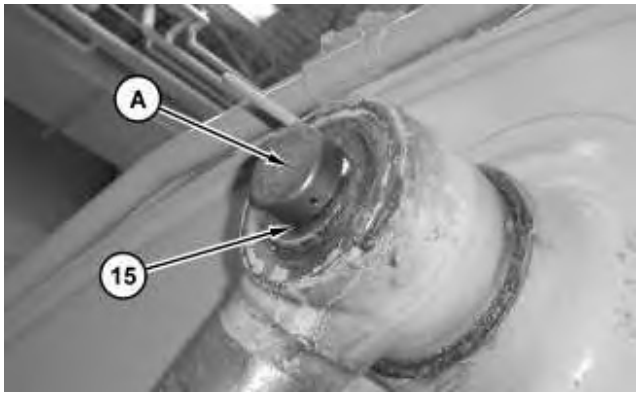


Illustration 10 g01218003

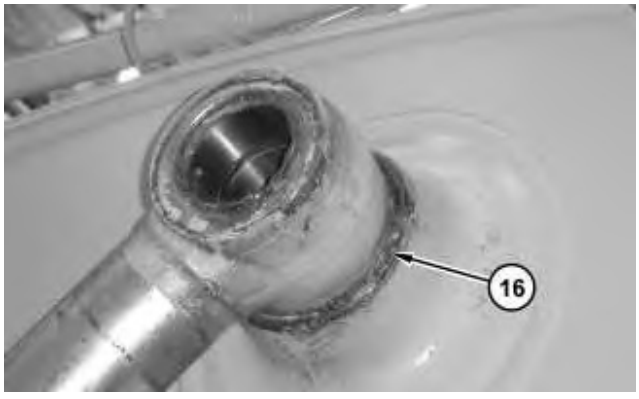


Illustration 11 g01218010

11. Attach Tooling (A) to pin (15). Use a suitable driver to reposition pin (15). Remove shim (16).

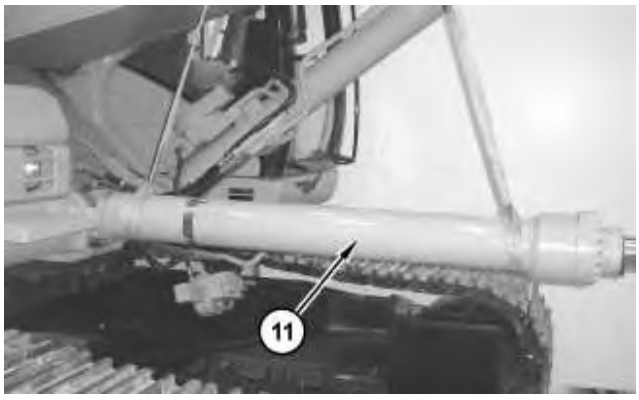


Illustration 12 g01218011

12. Lower boom cylinder (11) onto suitable cribbing and attach a suitable lifting device to boom cylinder (11), as shown. The weight of boom cylinder (11) is approximately 287 kg (632 lb).

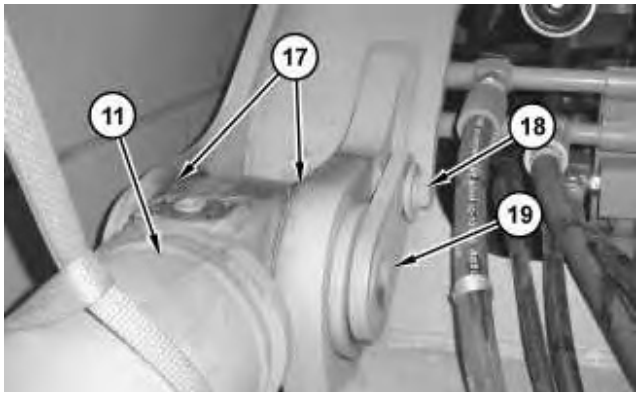


Illustration 13 g01218013

13. Remove bolt (18). Remove pin assembly (19) and shims (17). Remove boom cylinder (11).

# Disassembly and Assembly Information

Table 2

| Required Tools | | | |
|---|---|---|---|
| **Tool** | **Part Number** | **Part Description** | **Qty** |
| B | 127-4904 | Hydraulic Cylinder Repair Stand Gp | 1 |
| C | 7M-7456 | Bearing Mount Compound | 1 |
| D | 1P-0808 | Multipurpose Grease | 1 |
| E | 195-4609 | Seal Pick | 1 |
| F | 3S-6224 | Electric Hydraulic Pump Gp | 1 |
| | 6V-3175 | Double Acting Cylinder | 1 |
| | 9S-5564 | Pin Puller Sleeve As | 1 |
| | | | |

| | | | |
|---|---|---|---|
| | 9U-6832 | Nut | 1 |
| | 4C-9634 | Puller Stud | 1 |
| | 9U-5338 | Bearing Puller Adapter | 1 |
| G | 3S-6224 | Electric Hydraulic Pump Gp | 1 |
| | 6V-3175 | Double Acting Cylinder | 1 |
| | 9S-5564 | Pin Puller Sleeve As | 1 |
| | 9U-6832 | Nut | 1 |
| | 4C-9634 | Puller Stud | 1 |
| | 9U-5339 | Bearing Puller Adapter | 1 |

**WARNING**

**Cylinders equipped with lock valves can remain pressurized for very long periods of time, even with the hoses removed.**

**Failure to relieve pressure before removing a lock valve or disassembling a cylinder can result in personal injury or death.**

**Ensure all pressure is relieved before removing a lock valve or disassembling a cylinder.**

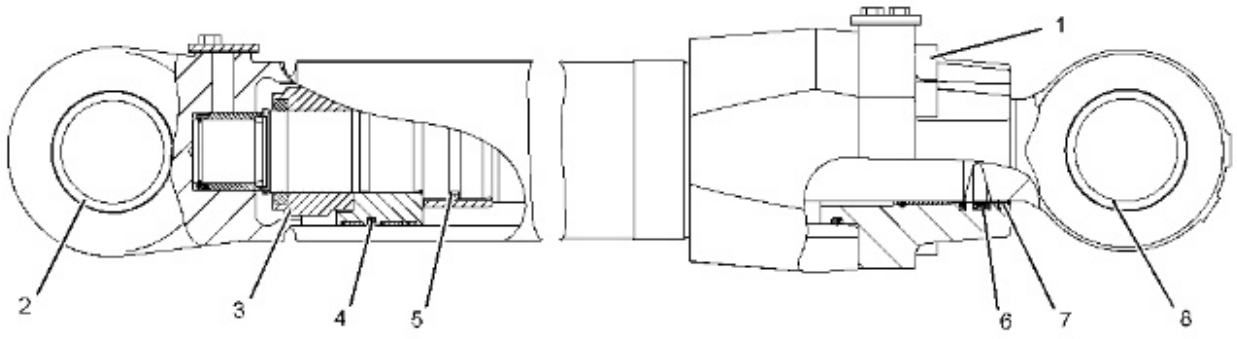


Illustration 14 g01218033

**Note:** Tooling (F) is used for the removal and installation of bearing (8). Tooling (G) is used for the removal and installation of bearing (2).

Refer to Table 3 for the correct torque specification for piston (3).

Refer to Table 3 for the correct torque specification for bolts (1).

Table 3

| **Torque Table** | | | |
|---|---|---|---|

| Piston or Lock Nut | Piston / Lock Nut Thread Size | Piston / Lock Nut (3) Torque Specification | Head Bolts (1) Torque Specification |
|---|---|---|---|
| Lock Nut | M64 | 5900 ± 300 N·m (4352 ± 221 lb ft) | 460 ± 60 N·m (339 ± 44 lb ft) |
| Piston | M65 | 5460 ± 260 N·m (4027 ± 192 lb ft) | 267 ± 40 N·m (197 2 ± 30 lb ft) |
| Lock Nut | M72 | 7400 ± 370 N·m (5458 ± 273 lb ft) | 460 ± 60 N·m (339 ± 44 lb ft) |
| Piston | M75 | 7890 ± 395 N·m (5819 ± 291 lb ft) | 367 ± 55 N·m (270 ± 40 lb ft) |
| Piston | M80 | 8900 ± 445 N·m (6564 ± 328 lb ft) | 367 ± 55 N·m (270 ± 40 lb ft) |
| Lock Nut | M80 | 7900 ± 400 N·m (5827 ± 295 lb ft) | 800 ± 100 N·m (590 ± 74 lb ft) |
| Piston | M85 | 10000 ± 500 N·m (7376 ± 368 lb ft) | 520 ± 78 N·m (384 ± 58 lb ft) |
| Piston and Lock Nut | Piston is M75 | 980 to 1176 N·m (722 to 867 lb ft) | 333 to 352 N·m (245 to 260 lb ft) |
| | Lock Nut is M62 | 1862 to 1960 N·m (1373 to 1446 lb ft) | |

Tighten the setscrew that retains nut (3) to a torque of 57 ± 11 N·m (42 ± 8 lb ft).

The slit of ring (5) must be in the direction of the piston.

Apply Tooling (D) to seals (4) prior to assembly.

Lubricate seals (6) with the lubricant that is being sealed.

Apply Tooling (C) to the wiper seal (7) prior to assembly.

# Installation Procedure

Table 4

| Required Tools | | | |
|---|---|---|---|
| **Tool** | **Part Number** | **Part Description** | **Qty** |
| A | 4C-9485 | Pin Driver Cap | 1 |

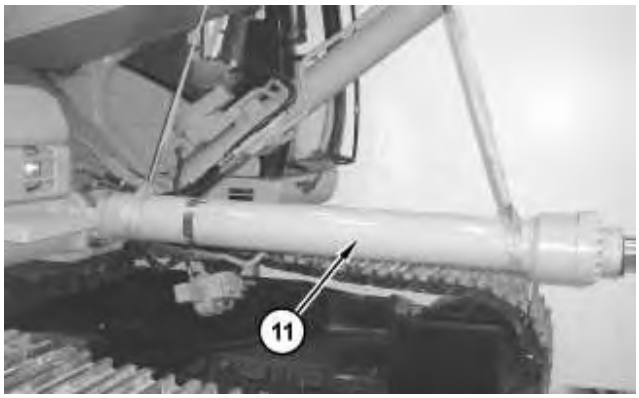


Illustration 15 g01218011

1. Attach a suitable lifting device to boom cylinder (11), as shown. The weight of boom cylinder (11) is approximately 287 kg (632 lb). Position boom cylinder (11) onto the machine.

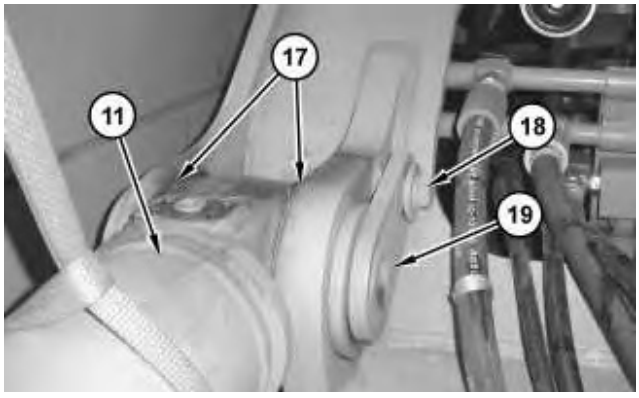


Illustration 16 g01218013

2. Install shims (17) and pin assembly (19) on the head end of boom cylinder (11). Install bolt (18).

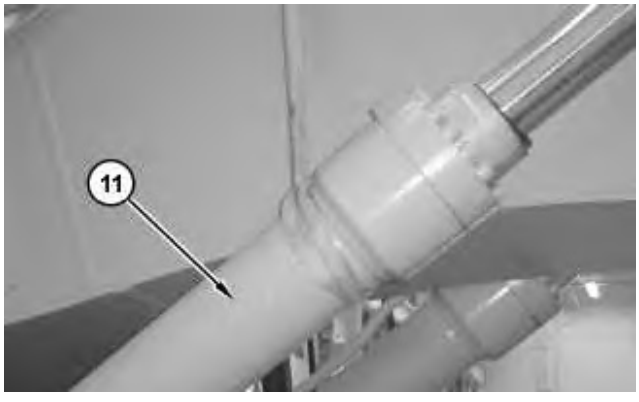


Illustration 17 g01217921

3. Use the suitable lifting device to position boom cylinder (11) onto suitable cribbing. Reposition the suitable lifting device near the rod end of boom cylinder (11). The weight of boom cylinder (11) is approximately 287 kg (632 lb). Use the suitable lifting device to raise the rod end of boom cylinder (11) into position.

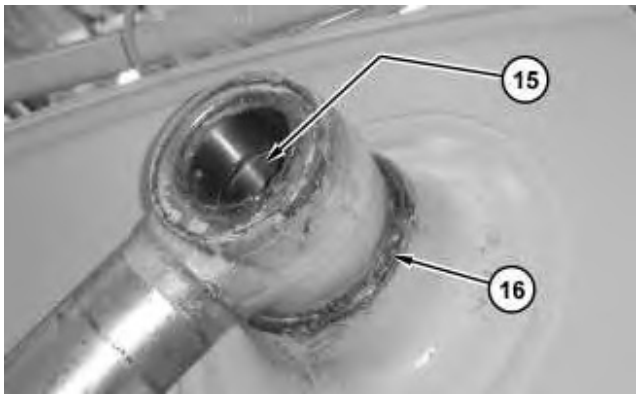


Illustration 18 g01218505

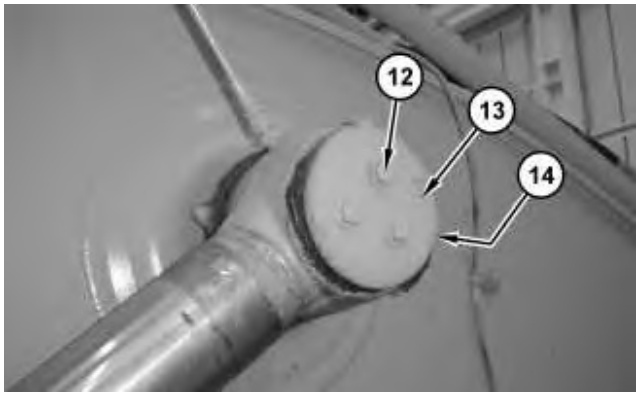


Illustration 19 g01217928

4. Install shim (16). Position pin (15) through the rod end of the boom cylinder.
5. Install spacer (14) (not shown). Install plate (13) and bolts (12).

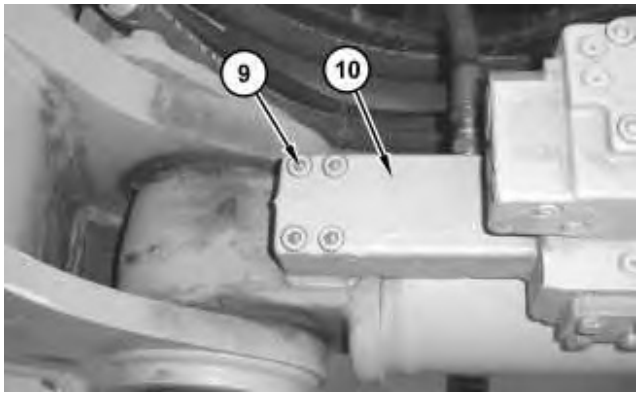


Illustration 20 g01217915

6. Position valve assembly (10) and install bolts (9).

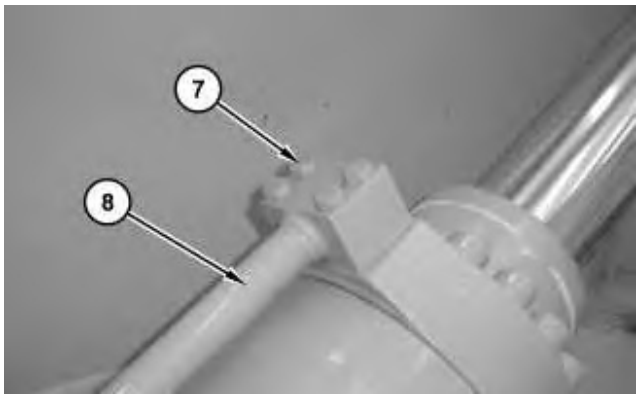


Illustration 21 g01217912

7. Position tube assembly (8) and install bolts (7).

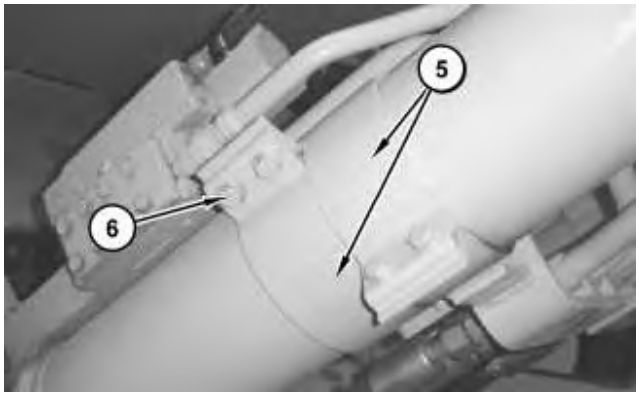


Illustration 22 g01217908

8. Install support assemblies (5) and bolts (6).

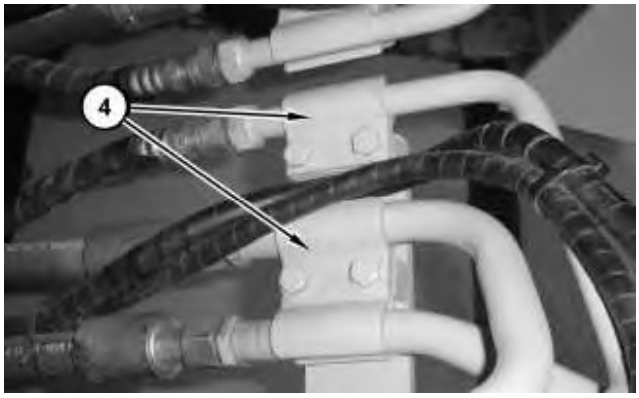


Illustration 23 g01217906

9. Install clamps (4).


Illustration 24 g01217850

10. Install bolts (3).

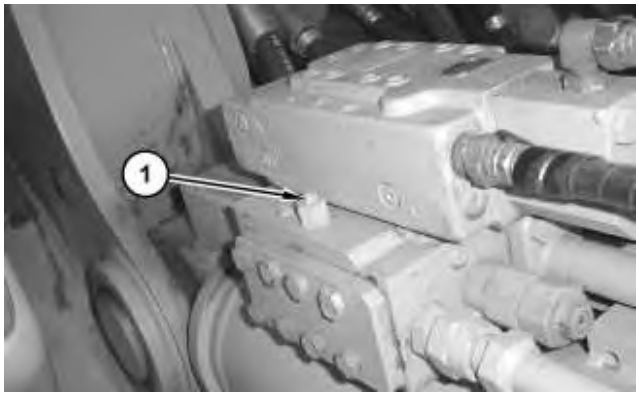


Illustration 25 g01217839

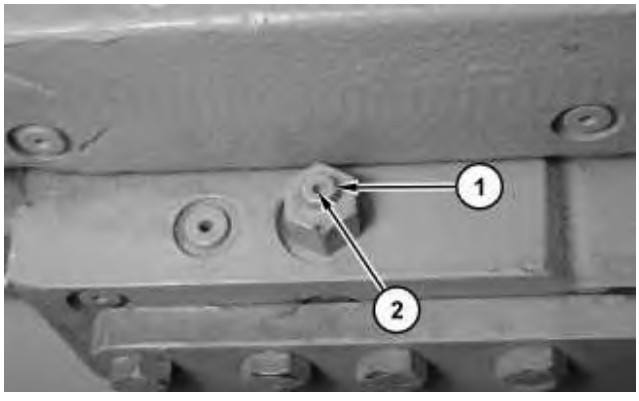


Illustration 26 g01217840

11. Turn bolt (2) clockwise into the original position. Tighten nut (1).

Product: EXCAVATOR
Model: 320D L EXCAVATOR DHK
Configuration: 320D & 320D L Excavators DHK00001-UP (MACHINE) POWERED BY 3066 Engine

**Disassembly and Assembly**
**320D Excavator Machine Systems**
**Media Number -RENR8614-14** **Publication Date -01/05/2013** **Date Updated -19/07/2017**

i02462986

# Boom - Remove

**SMCS -** 6501-011

# Removal Procedure

Table 1

| Required Tools | | | |
|---|---|---|---|
| **Tool** | **Part Number** | **Part Description** | **Qty** |
| A | 4C-9485 | Pin Driver Cap | 1 |
| B | 1U-9202 | Lever Puller Hoist | 1 |
| C | 3S-6224 | Electric Hydraulic Pump Gp | 1 |
| | 141-1785 | Receiving Sleeve | 1 |
| | 9U-6811 | Puller Stud | 1 |
| | 9U-6809 | Nut | 1 |
| | 6V-0113 | Double Acting Cylinder | 1 |

**Start By:**

A. Release the hydraulic system pressure. Refer to Disassembly and Assembly, "Hydraulic System Pressure - Release".
B. Remove the stick. Refer to Disassembly and Assembly, "Stick - Remove".

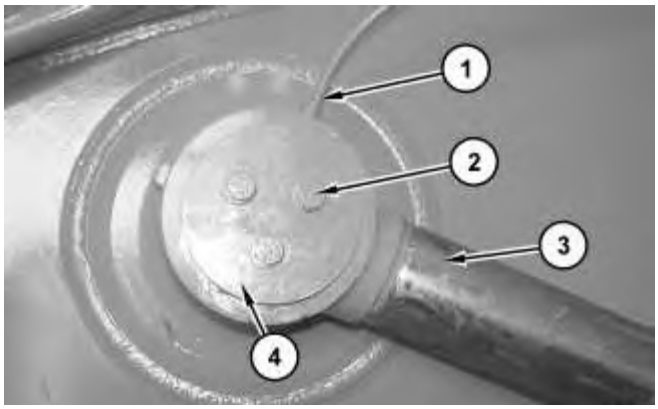


Illustration 1 g01212856

1. Disconnect grease hose assembly (1) from boom cylinder (3). Remove bolts (2). Remove the retainer plate and spacer (4).

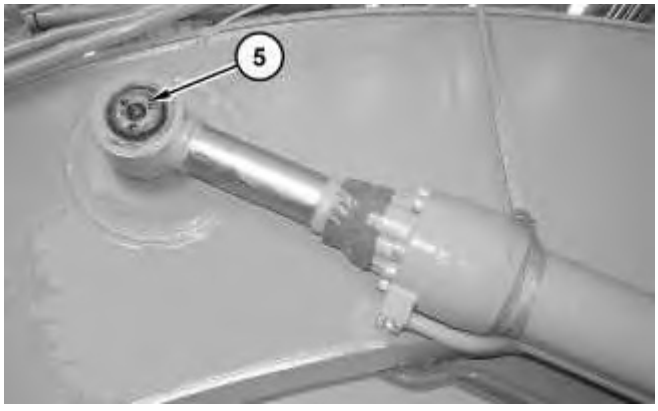


Illustration 2 g01212871

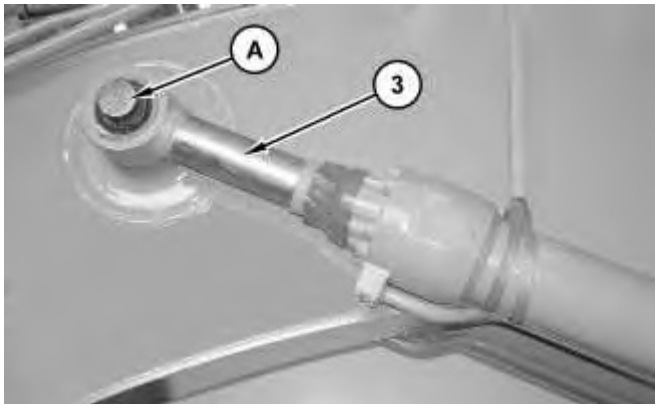


Illustration 3 g01212838

2. Attach a suitable lifting device to boom cylinder (3). The weight of boom cylinder (3) is approximately 287 kg (633 lb). Install Tooling (A) into pin (5). Use a hammer to drive pin (5) out of boom cylinder (3). Lower boom cylinder (3) .

   **Note:** Remove any shims that may be present. Mark the shims for installation purposes.

3. Repeat Steps 1 through 2 for the other boom cylinder.

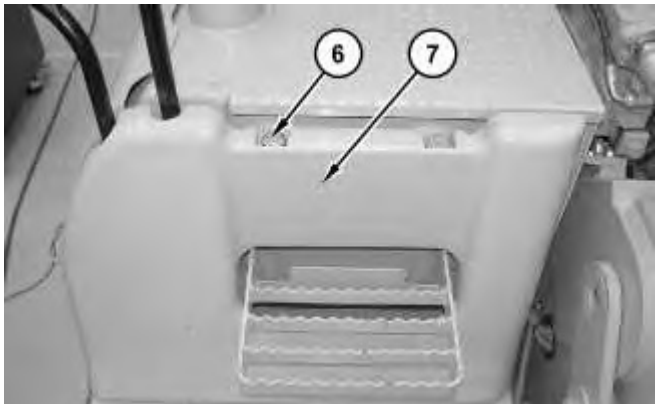


Illustration 4 g01212891

4. Remove bolts (6). Remove cover (7) .

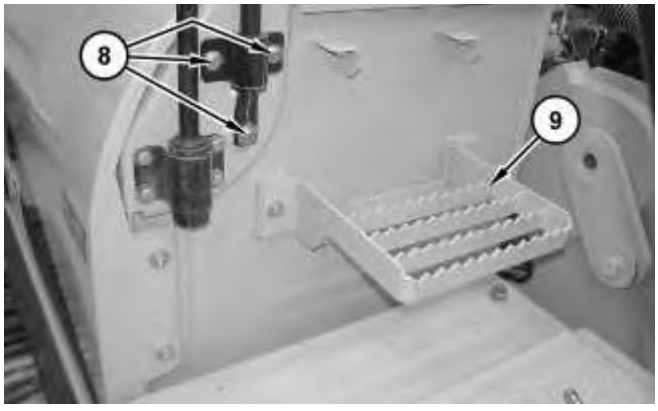


Illustration 5 g01212899

5. Remove three bolts (8). Remove step (9) .

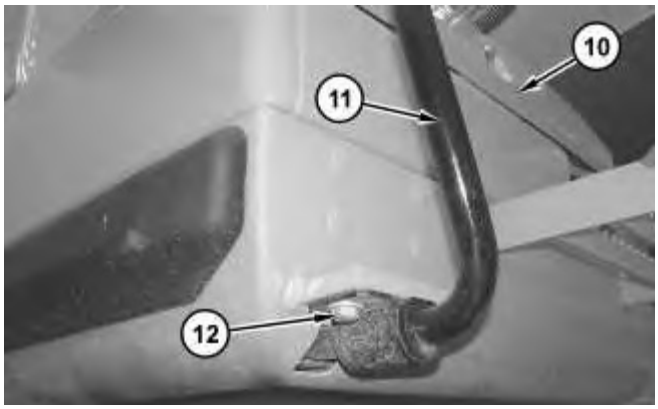


Illustration 6 g01212931

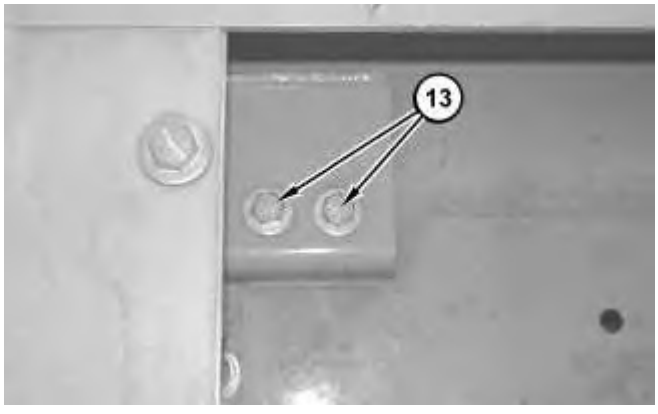


Illustration 7 g01212925

6. Open cover (10) of the storage box. Remove bolts (13). Remove bolts (12) and remove handhold (11) .

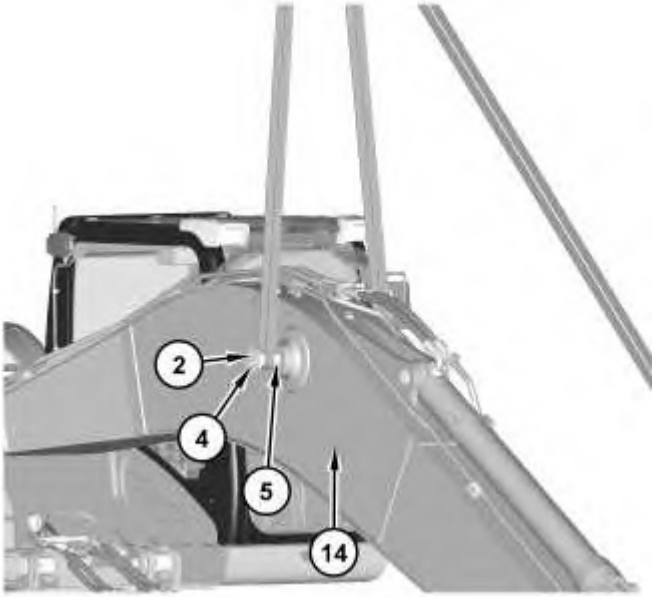

Illustration 8 g01228933

7. Position retainer plate (4) and bolts (2) onto each side of pin (5). Attach a suitable lifting device to each side of pin (5) .

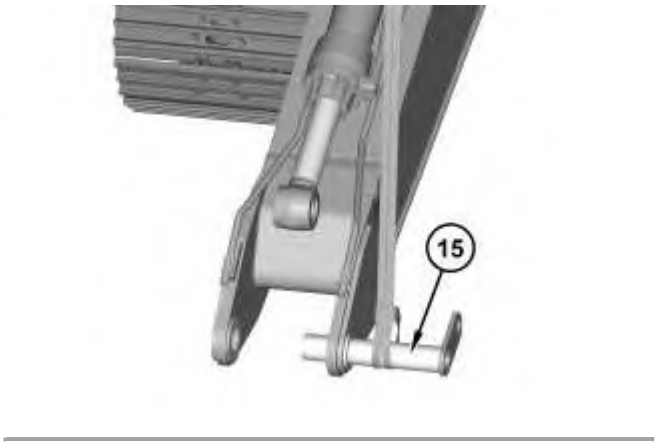


Illustration 9 g01217554

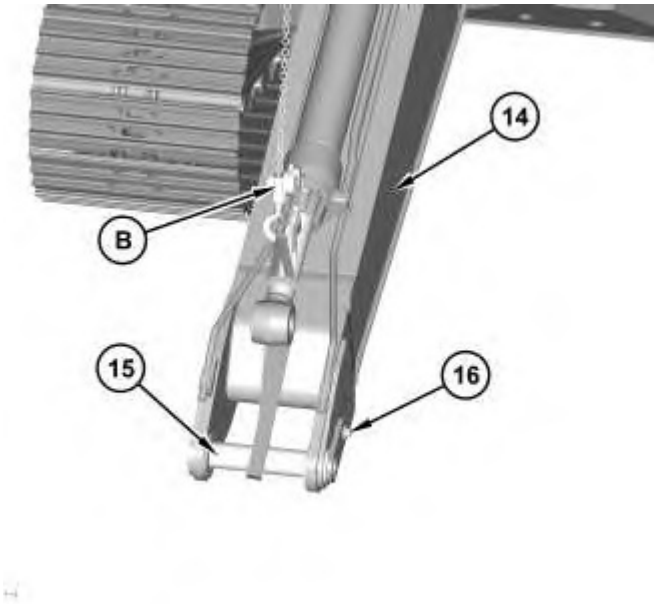


Illustration 10 g01212951

8. Attach a suitable lifting device to pin assembly (15). The weight of pin assembly (15) is approximately 48 kg (105 lb). Install pin assembly (15) and install bolt (16) .

9. Attach Tooling (B) and a suitable lifting device to boom (14) and pin assembly (15). The combined weight of boom (14) and the stick cylinder is between 1500 kg (3300 lb) and 3016 kg (6650 lb). Apply slight lifting tension to boom (14) .

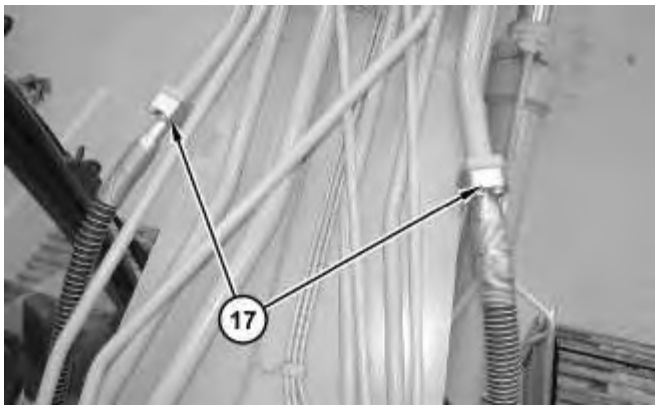


Illustration 11 g01212965

10. Disconnect hose assemblies (17) .

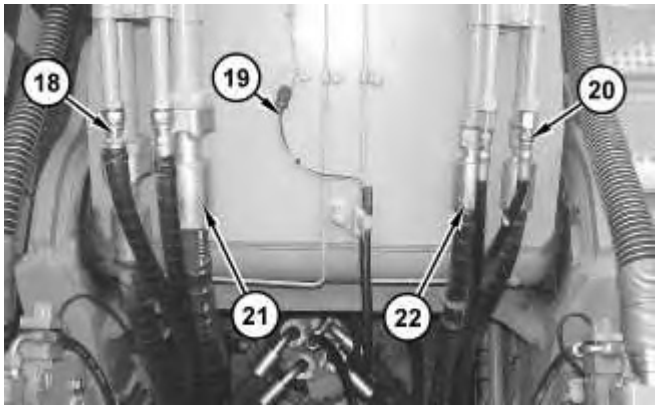


Illustration 12 g01212967

11. Disconnect harness assembly (19). Disconnect hose assemblies (18), (20), (21), and (22) .

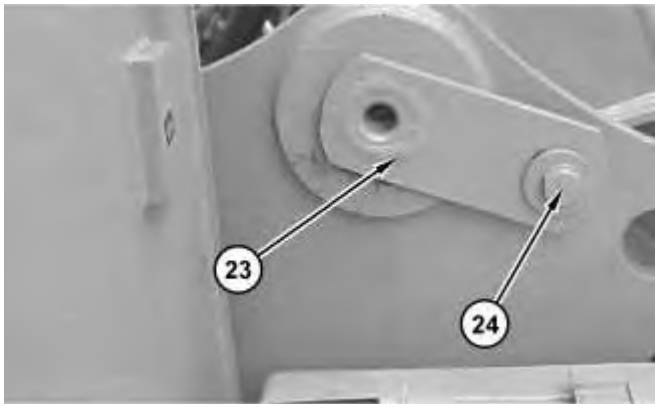


Illustration 13 g01212979

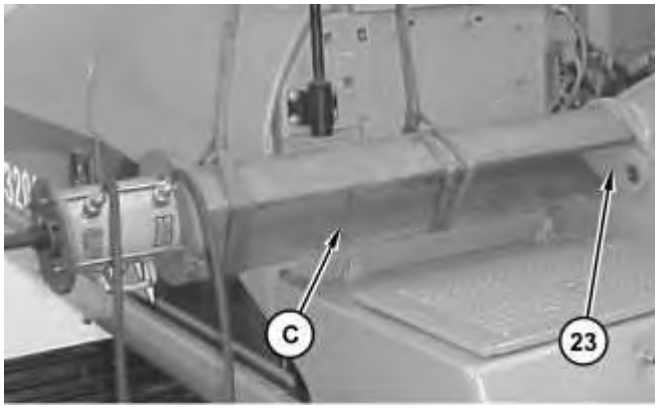


Illustration 14 g01212983

12. Remove bolt (24). Attach a suitable lifting device to Tooling (C). The weight of Tooling (C) is approximately 136 kg (300 lb). Attach Tooling (C) to pin assembly (23). Use Tooling (C) in order to remove pin assembly (23). The combined weight of Tooling (C) and pin assembly (23) is approximately 215 kg (475 lb).

13. Remove the boom. Remove any shims that may be present.

    **Note:** Note the locations of any shims for assembly purposes.


Suggest:

If the above button click is invalid.

Please download this document

first, and then click the above link

to download the complete manual.

Thank you so much for reading

Product: EXCAVATOR
Model: 320D L EXCAVATOR DHK
Configuration: 320D & 320D L Excavators DHK00001-UP (MACHINE) POWERED BY 3066 Engine

**Disassembly and Assembly**
**320D Excavator Machine Systems**

**Media Number -RENR8614-14** **Publication Date -01/05/2013** **Date Updated -19/07/2017**

i07137701

# Boom Bearings and Seals - Remove and Install

**SMCS -** 6501-010-SA; 6501-010-BD

# Removal Procedure

Table 1

| Required Tools | | | |
|---|---|---|---|
| **Tool** | **Part Number** | **Part Description** | **Qty** |
| A | 350-7768 | Electric Hydraulic Pump Gp (115V) | -1 |
| | 350-7769 | Electric Hydraulic Pump Gp(230V) | - |
| | 4C-9634 | Puller Stud | 1 |
| | 9U-6832 | Nut | 1 |
| | 5P-8712 | Bushing | 1 |
| | 316-1489 | Double Acting Cylinder | 1 |
| | 134-8469 | Spacer | 1 |
| | 9U-5338 | Bearing Puller Adapter | 1 |

**Start By:**

a. Remove the boom. Refer to Disassembly and Assembly, "Boom - Remove".