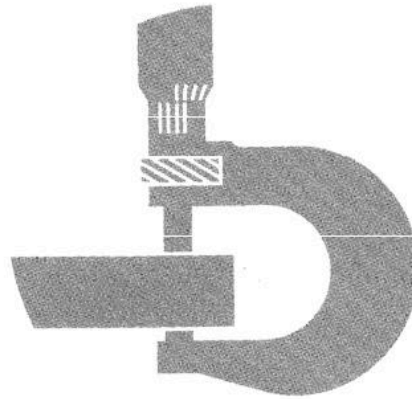


401D Tractor



TECHNICAL MANUAL

TM-1271 (OCT-84)
LITHO IN U.S.A.

401D TRACTOR TECHNICAL MANUAL TM-1271 (OCT-84)

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All information, illustrations and specifications contained in this technical 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. Wherever applicable, specifications and design information are in accordance with SAE and ICED standards.

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INTRODUCTION AND SAFETY INFORMATION

INTRODUCTION

This technical manual is part of a twin concept of service.

FOS Manuals - for reference

Technical Manuals - for actual service

The two kinds of manuals work as a team to give you both the general background and technical details of shop service.

Fundamentals of Service (FOS) Manuals cover basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic types of failures and their causes. FOS Manuals are for training new personnel and for reference by experienced technicians.

Technical manuals are concise service guides for specific machines. Technical manuals are on-the-job guides containing only the vital information needed by an experienced service technician.



65A/T85958, T281 1101 150383

FEATURES OF THIS TECHNICAL MANUAL

- John Deere ILLUSTRATION format emphasizing detailed pictures and fewer words in easy-to-use modules.
- Removal and installation groups preceding some repair groups.
- A section of system diagnostic testing.
- Table of contents of all sections at the front of the manual and a listing of all groups and headings at the front of each section.
- Special tools and specifications listed at the front of each group they are used in.
- Special tools illustrated in numerical order at end of manual.
- Alphabetical listing of all major components, specifications, and special tools.
- Safety rules, general specifications, and lubrication specifications.

This technical manual was planned and written for you - an experienced service technician. Keep it in a permanent binder in the shop where it is handy. Refer to it when you need to know correct service procedures or specifications.

Using the technical manual as a guide will reduce error and costly delay. It will also assure you the best in finished service work.



65A/T85959 T281 1115 150383

SAFETY AND YOU



CAUTION: This safety symbol is used for important safety messages. When you see this symbol, follow the safety message to avoid personal injury.



63A/T81389 T28;1 002 150383

AVOID FIRE HAZARDS

Be prepared if an accident or fire should occur. Know where the first aid kit and the fire extinguishers are located — know how to use them.

Do not smoke while refueling or handling highly flammable material.

Shut off the engine when refueling.

Use care in refueling if the engine is hot.

Do not use open pans of gasoline or diesel fuel for cleaning parts. Use good commercial, nonflammable solvents.

Provide adequate ventilation when charging batteries.

Do not check battery charge by placing metal objects across the posts.

Do not allow sparks or open flame near batteries.

Do not smoke near battery.

Never check fuel, battery electrolyte, or coolant levels with an open flame.

Never use an open flame to look for leaks anywhere on the equipment.

Never use an open flame as light anywhere on or around the equipment.

When preparing engine for storage, remember that inhibitor is volatile and therefore dangerous. Seal and tape openings after adding the inhibitor. Keep container tightly closed when not in use.

Inspect electrical wiring for worn or frayed insulation. Install new wiring if wires are damaged.



88A/T86875 T82:SKSA L 150383

UNDERSTAND MACHINE OPERATION

Only qualified people should operate the machine.

Learn the location and purpose of all controls, instruments, indicators, and labels.



63A:T88357 T82:TL5A A 191282

WEAR PROTECTIVE CLOTHING

Wear fairly tight clothing . . . and safety equipment.



88A:T85056 T82:EK5A B 100183

PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear a suitable hearing protective device such as earmuffs (A) or earplugs (B) to protect against objectionable or uncomfortable loud noise.



88A:X7662 T82:BH5A E 100183

AVOID HIGH-PRESSURE FLUIDS

Escaping fluid under pressure can penetrate the skin causing serious injury. Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Use a piece of cardboard or paper to search for leaks. Do not use your hand.

If ANY fluid is injected into the skin, it must be surgically removed within a few hours by a doctor familiar with this type injury or gangrene may result.



88A:X9811 T82:BH5A F 100183

START ENGINE FROM OPERATOR'S SEAT ONLY

Avoid possible injury or death from machinery runaway.

Do not start engine by shorting across starter terminals. Machine will start in gear and will move if normal circuitry is bypassed.

NEVER start engine while standing on ground. Start engine only from operator's seat, with transmission in neutral, reverser in neutral, and park brake applied.

T82;BHS A G 250882

USE HAND HOLDS AND STEPS

When you get on and off the machine, use handholds and steps.



63A;T88358 T82;TLSA B 191282

OPERATE MACHINE SAFELY

DO use your seat belt if your machine has a roll-over protective structure (ROPS).

DO NOT use your seat belt if your machine does not have a ROPS.



63A;T88360 T82;TLSA D 140383

Before you move any equipment, be sure all persons are away from the machine.

When the machine is operating, ONLY the operator should be on it.

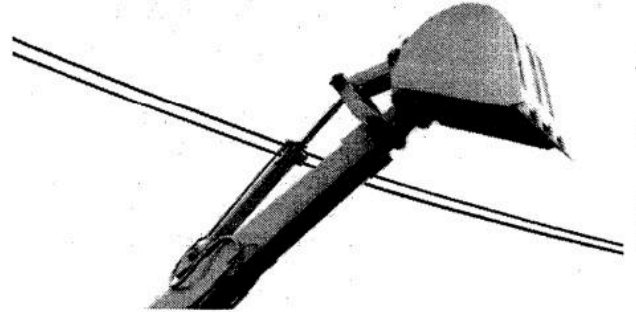
Keep operating area level.

T82;CRSA F 210283

AVOID POWER LINES

Serious injury or death can result from contact with power lines.

DO NOT touch power lines with any part of the machine.

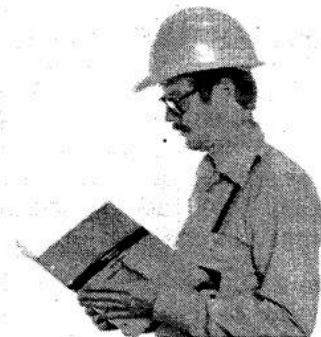


63A/T86872 T82:BHSA L 050183

UNDERSTAND CORRECT SERVICE

Be sure you understand a service procedure before you work on the machine.

Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.



88A/T87358 T82:TL5A H 191282

If it is necessary to make checks with the engine running, ALWAYS USE TWO PEOPLE — with the operator at the controls, able to see the person doing the checking.

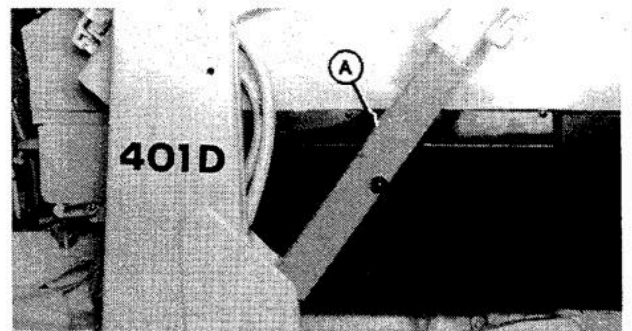
KEEP HANDS AWAY FROM MOVING PARTS.

T82:BHSA P 080482

SUPPORT RAISED EQUIPMENT

Put a support (A) under all raised equipment.

Do not work under a raised bucket. Lower the bucket to ground or onto blocks.



63A/T88365 T82:TL5A K 191282

Group 0230
NON-POWERED WHEEL AXLES

SPECIAL TOOLS

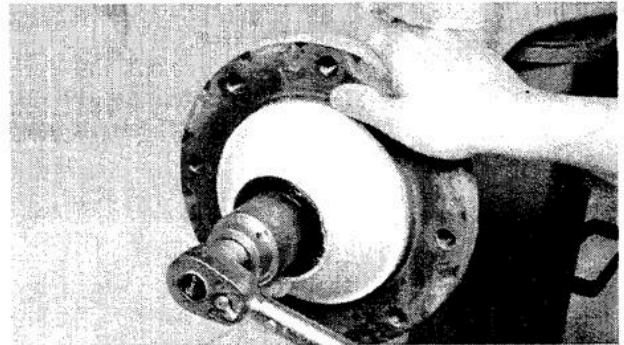
NOTE: Order tools from your SERVICE-GARD™ Catalog, unless otherwise indicated.

Number	Name	Use
D-01045AA	Bushing, Bearing, and Seal Driver Set	To install bushings, bearing cups and oil seal cup
D-01047AA	17½ and 30-Ton Puller Set	To remove axle pivot pin
D-01182AA or D-24206WK	Floor Stand	Supports the unit

T47;0230 01 20082

WHEEL HUB SPECIFICATION

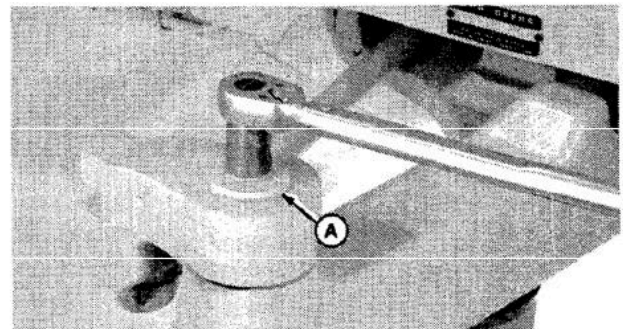
1. Slotted nut torque 47 N·m
(35 lb-ft).



8AG;T80772 T47;0230 02 19082

SPINDLE AND KNUCKLE SPECIFICATION

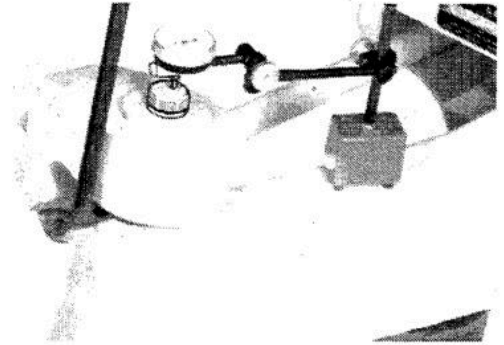
1. Cap screw torque 230 N·m
(170 lb-ft).



8AG;T85819 T47;0230 03 19082

Non-Powered Wheel Axles

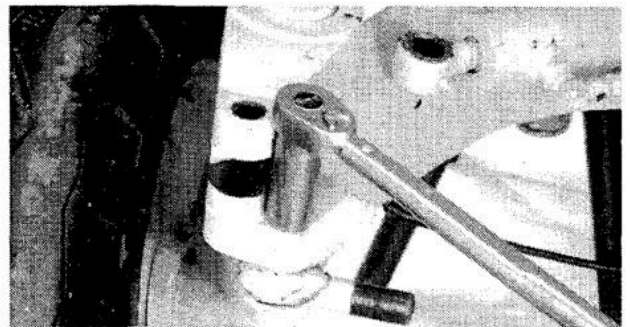
2. Install thrust washers to get an end play of 0.13 to 1.14 mm (0.005 to 0.045 in.).



8AG;T85820 T47;0230 04 190882

TIE ROD SPECIFICATIONS

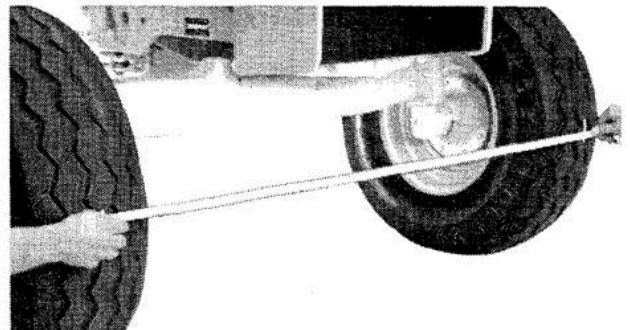
1. Ball joint nut torque 75 N·m
(55 lb-ft).



8AG;T85822 T47;0230 05 190882

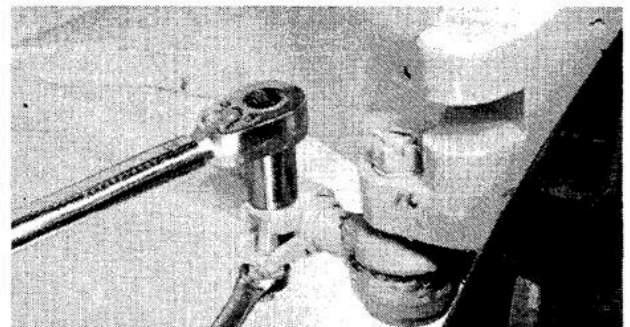
TOE-IN SPECIFICATION

1. The distance between the front of tires must be 6.5 ± 3 mm (0.25 ± 0.12 in.) less than the distance between the rear of tires.



8AG;T63821 T47;0230 06 190882

2. Tie rod clamp cap screw torque54 to 61 N·m
(40 to 45 lb-ft)



8AG;T85823 T47;0230 07 190882

Non-Powered Wheel Axles

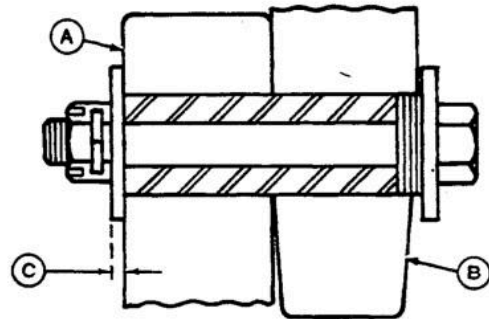
NON-POWERED AXLE SPECIFICATIONS

1. Cap screw and nut torque 298 N·m
(220 lb-ft).



8AG:T85824 T47:0230 08 190882

2. Install shims to get 0.00 to 0.38 mm (0.000 to 0.015 in.) of end play (C).

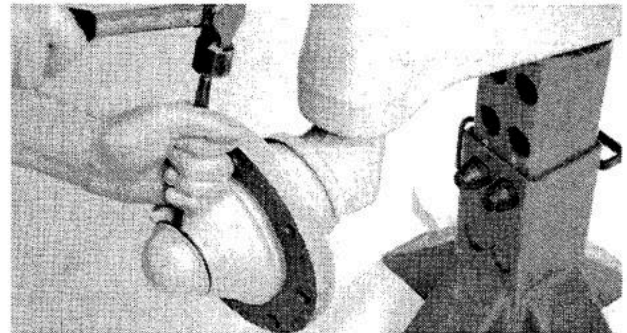


A—Front Axle
B—Front Support
C—Axle Pivot End Play

8AG:T85825 T47:0230 09 200882

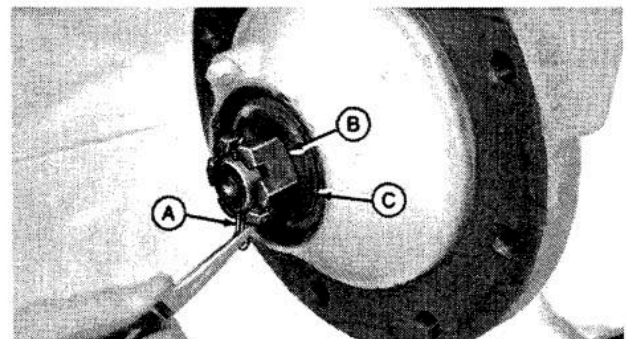
REMOVE WHEEL HUB ASSEMBLY

1. Remove front wheel (Group 0120).
2. Remove cap.



8AG:T85826 T47:0230 10 190882

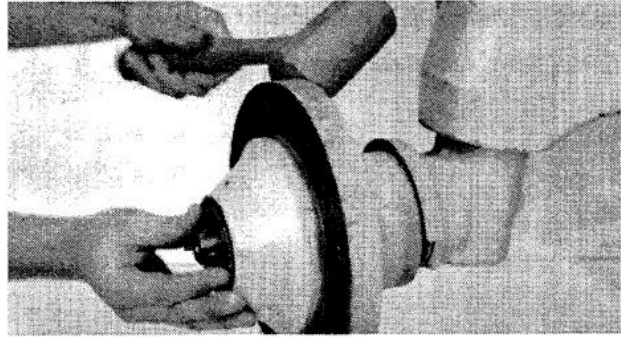
3. Remove cotter pin (A), slotted nut (B), and special washer (C).



8AG:T85827 T47:0230 11 190882

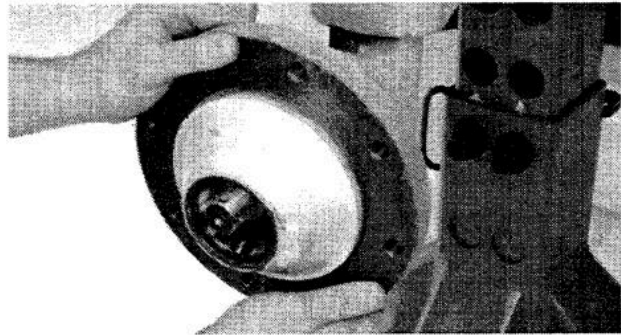
Non-Powered Wheel Axles

4. Remove outer bearing cone.



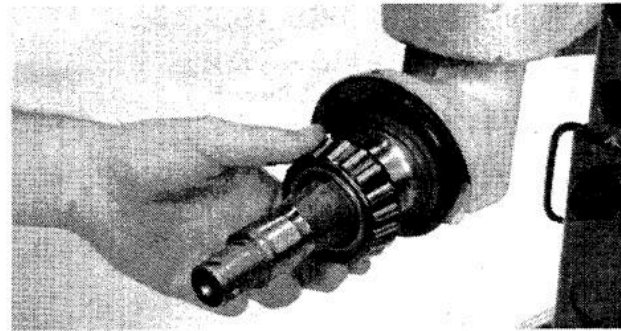
8AG:T85828 T47:0230 12 190882

5. Remove wheel hub.



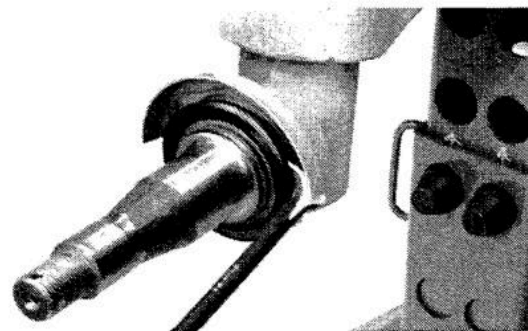
8AG:T85829 T47:0230 13 190882

6. Remove inner bearing cone.



8AG:T85830 T47:0230 14 190882

7. Remove grease seal.

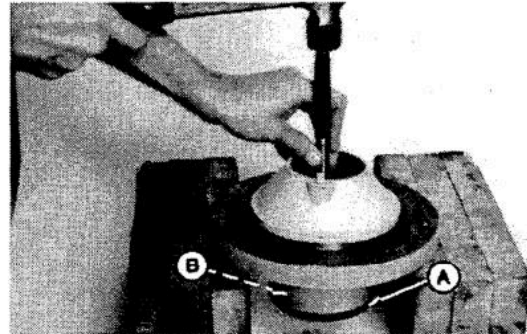


8AG:T85831 T47:0230 15 190882

Non-Powered Wheel Axles

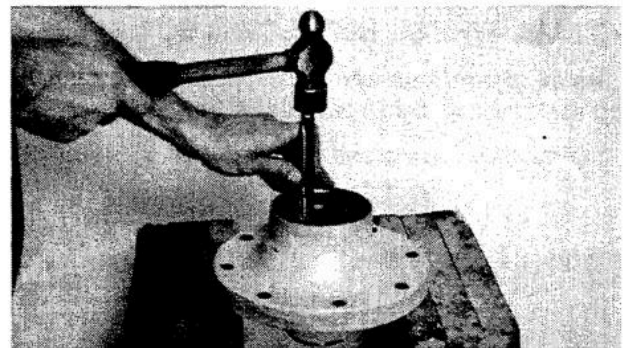
DISASSEMBLE WHEEL HUB

1. Remove seal cup (A) and inner bearing cup (B).



8AG;T85832 T47;0230 16 190882

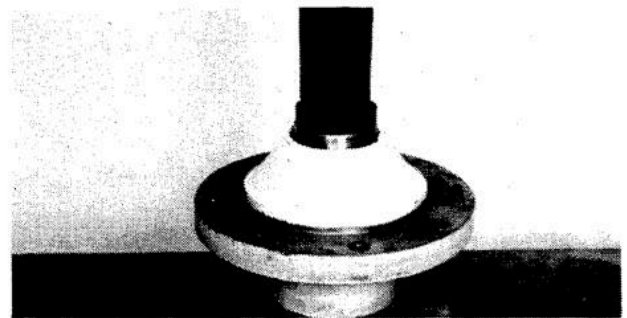
2. Turn wheel hub over and remove outer bearing cup.
3. Thoroughly clean and inspect all parts for wear or damage; replace parts if necessary.



8AG;T80758 T47;0230 17 190882

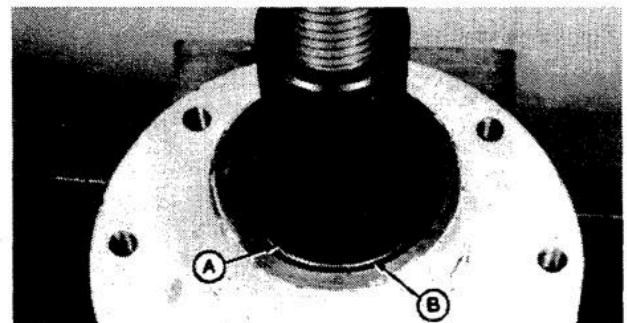
ASSEMBLE WHEEL HUB

1. Use a press and 27525 disk from D-01045AA Bushing, Bearing, and Seal Driver Set to install outer bearing cup.



8AG;T85841 T47;0230 29 190882

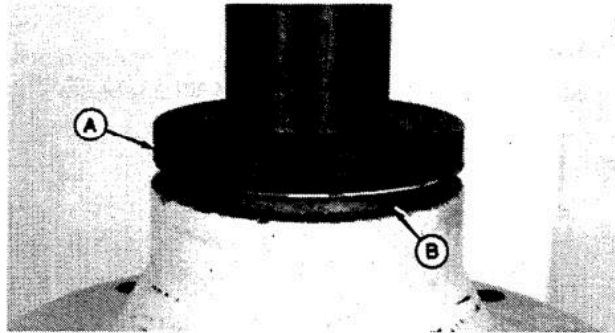
2. Use a press and 27534 disk (A) to install inner bearing cup (B).
3. Put multi-purpose grease on the inner and outer bearing cups.



8AG;T85842 T47;0230 30 190882

Non-Powered Wheel Axles

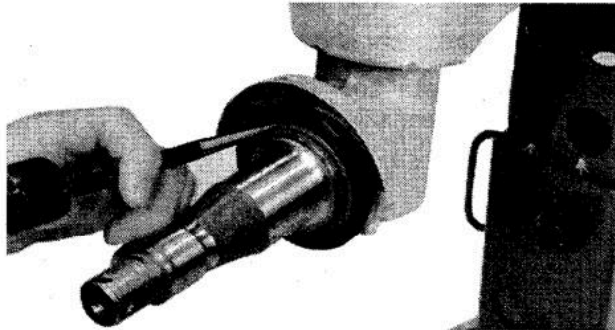
4. Use a press and 27551 disk (A) to install seal cup (B).



8AG:T85843 T47:0230 31 190882

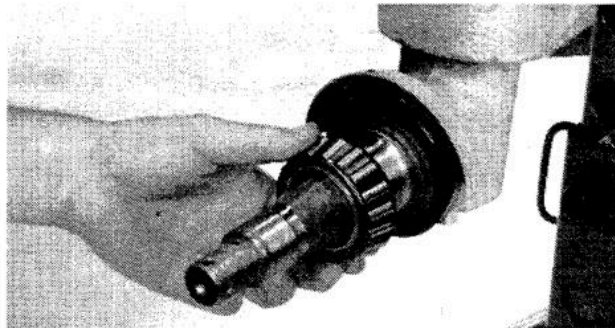
INSTALL WHEEL HUB ASSEMBLY

1. Install grease seal with "stamped side" toward driver. The seal must be tight against spindle shoulder.
2. Put multi-purpose grease on seal lips.



8AG:T85844 T47:0230 32 190882

3. Install inner bearing cone.



8AG:T85830 T47:0230 33 190882

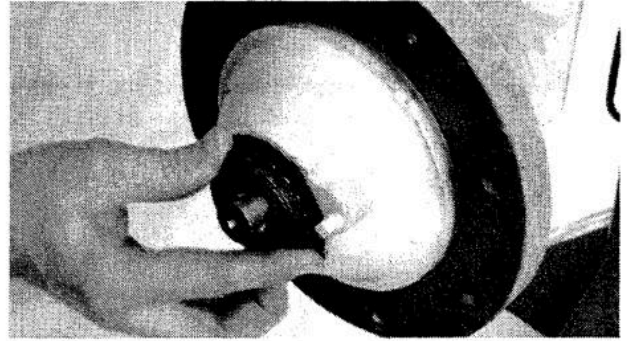
4. Install wheel hub.



8AG:T85829 T47:0230 34 190882

Non-Powered Wheel Axles

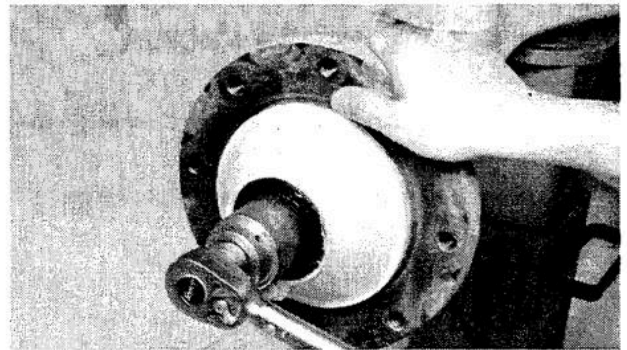
5. Install outer bearing cone.



BAG:T85845 T47:0230 35 190882

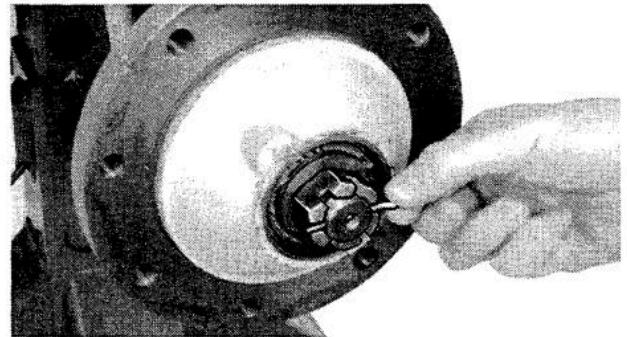
ADJUST WHEEL HUB BEARINGS

1. Install special washer and slotted nut.
2. Tighten slotted nut to 47 N·m (35 lb-ft).
3. Turn hub several times and tighten nut again to 47 N·m (35 lb-ft).



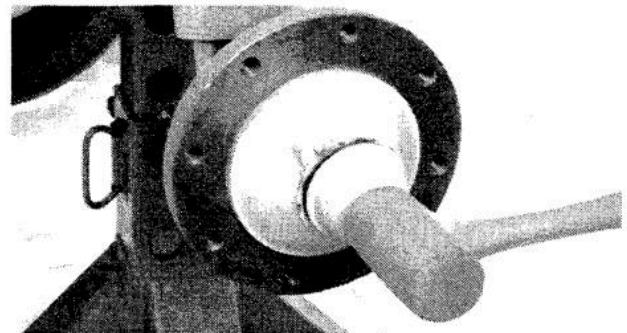
BAG:T80772 T47:0230 36 190882

4. If hole in knuckle is aligned with slot in nut when nut is tightened to specified torque, turn nut counterclockwise one slot and install cotter pin.



BAG:T85846 T47:0230 37 190882

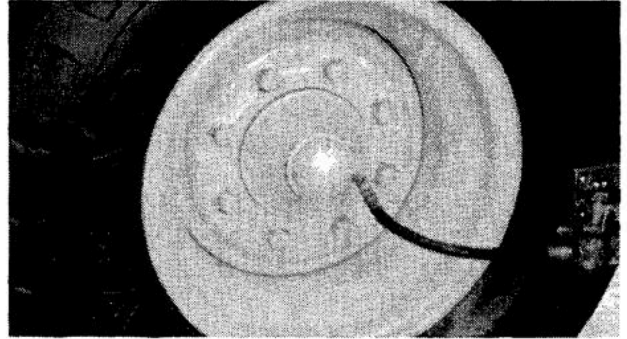
5. Install cap.



BAG:T85847 T47:0230 38 190882

Non-Powered Wheel Axles

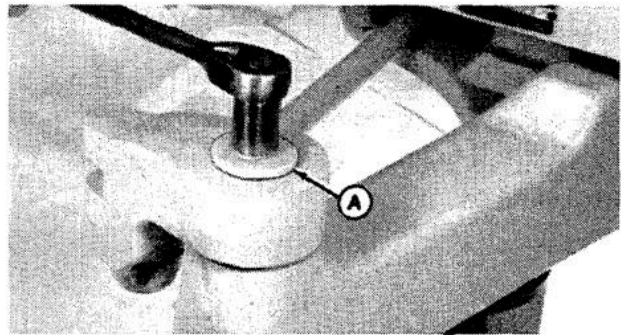
6. Install front wheel (Group 0120).
7. Fill wheel hub assembly with multi-purpose grease.



8AG;T85848 T47:0230 39 190882

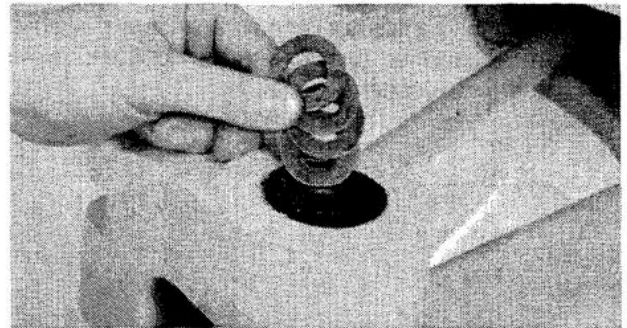
REMOVE SPINDLE AND KNUCKLE ASSEMBLY

1. Remove wheel hub (See Remove Wheel Hub in this group).
2. Remove cap screw, washer, and special washer (A).



8AG;T85833 T47:0230 18 190882

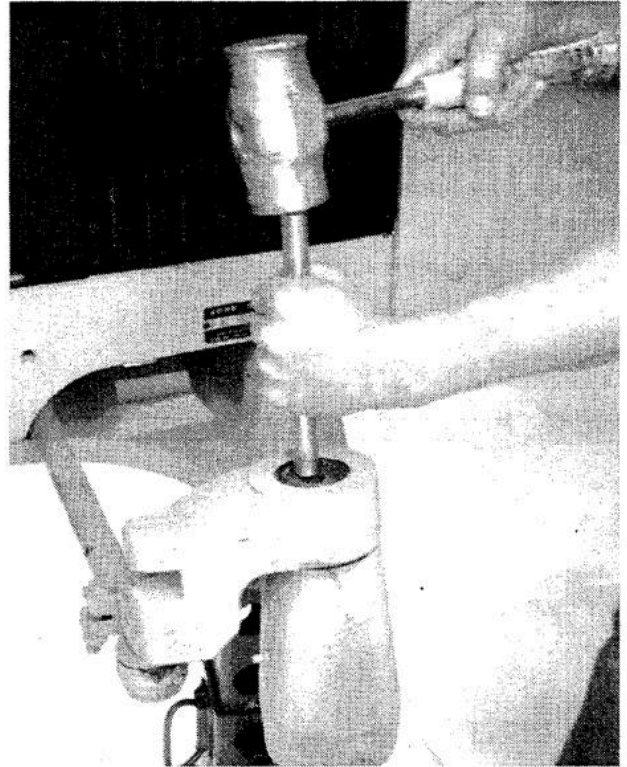
3. Remove thrust washers.



8AG;T85834 T47:0230 19 190882

Non-Powered Wheel Axles

4. Use a soft-steel drift to remove spindle and knuckle assembly.



8AG/T85835 T47:0230 20 190882

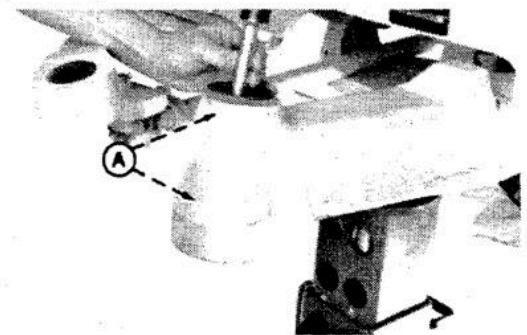
5. Remove special washers.



8AG/T85836 T47:0230 21 190882

6. Use a soft-steel drift to remove upper and lower bushings (A).

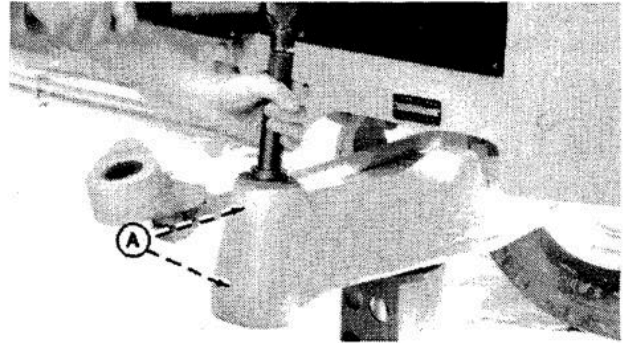
7. Thoroughly clean and inspect all parts for wear or damage; replace parts if necessary.



8AG/T85837 T47:0230 22 190882

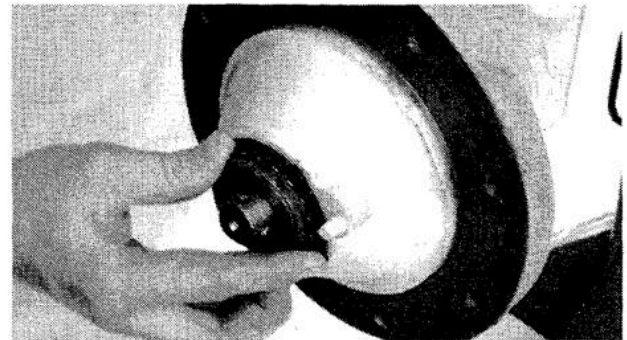
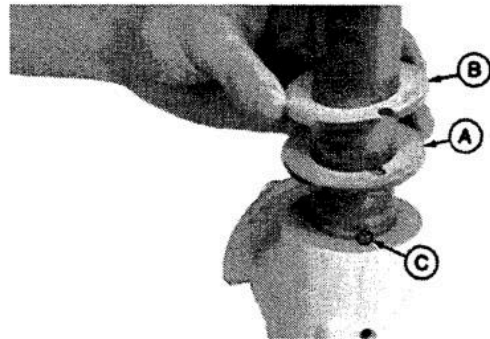
INSTALL SPINDLE AND KNUCKLE ASSEMBLY

1. Use 27511 and 27513 disk from D-01045AA Bushing, Bearing, and Seal Driver Set to install upper and lower bushing (A). Install bushings even with top and bottom surfaces.
2. Put multi-purpose grease on inside surface of bushings.



8AG:T85838 T47:0230 23 190862

3. Install special washers (A and B). Align slot on washer (A) with spring pin (C). Slot on washer (B) must align with spring pin (D).

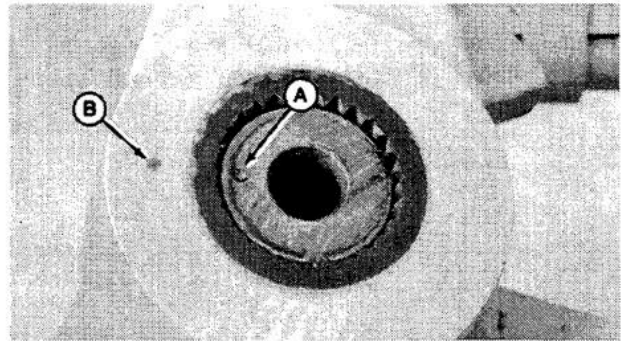
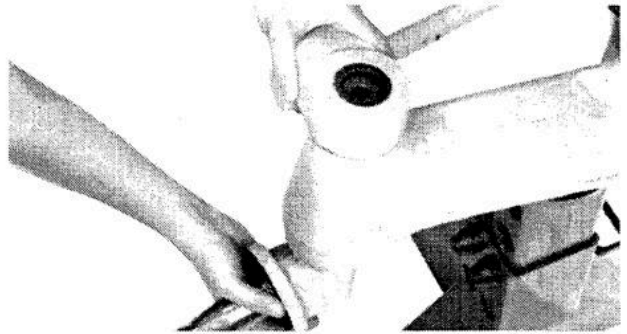


- A—Lower Washer
- B—Upper Washer
- C—Knuckle Spring Pin
- D—Axle Spring Pin

8AG:T85839,T85945 T47:0230 24 190862

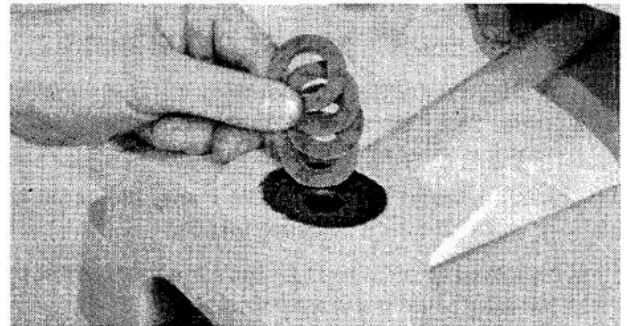
Non-Powered Wheel Axles

4. Install spindle and knuckle assembly with punch marks on spindle (A) and steering arm (B) in alignment.



8AG:T85840,T85946 T47:0230 25 190882

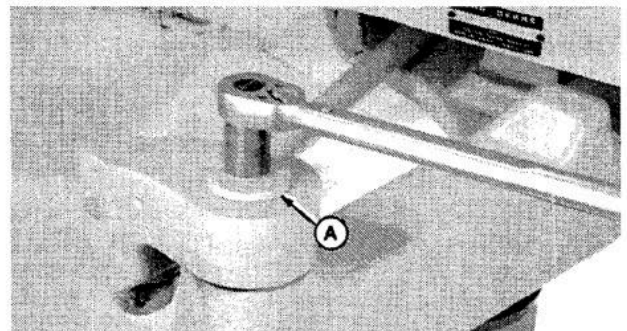
5. Install thrust washer pack.



8AG:T85834 T47:0230 26 190882

6. Install special washer (A), lock washer, and cap screw. Tighten cap screw to (230 N·m) 170 lb-ft.

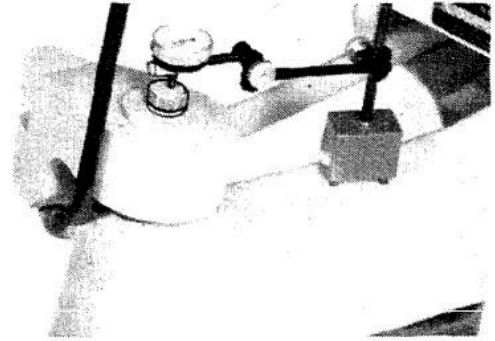
7. Steering arm must turn freely.



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ADJUST FOR SPINDLE AND KNUCKLE END PLAY

1. Use a dial indicator to measure end play on the spindle and knuckle assembly.
2. Add or remove thrust washers to obtain 0.13 to 1.14 mm (0.005 to 0.045 in.) end play.
3. Tighten cap screw to (230 N·m)
170 lb-ft.
4. Put multi-purpose grease in fittings to lubricate the knuckle bushings.
5. Install and adjust wheel hub assembly. (See Install Wheel Hub, and Adjust Wheel Hub Bearings in this group.)

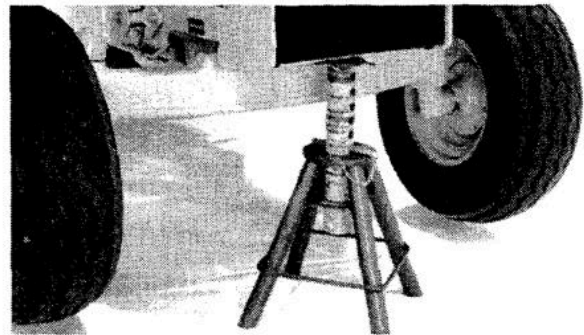


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REMOVE TIE ROD AND SOCKET ENDS

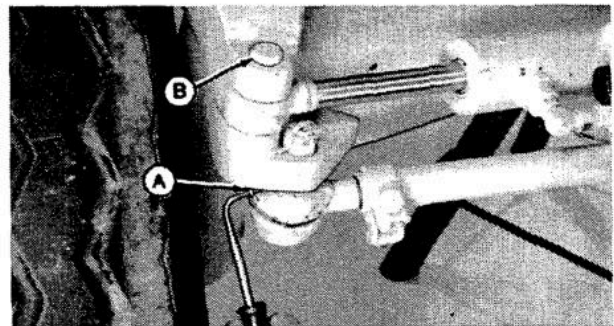
⚠ CAUTION: When working with the loader in the raised position, always install a lock or holding device to keep loader from falling.

1. If unit is equipped with loader, lift loader high enough to put cylinder locks over the cylinder rods.
2. Put a shop stand such as D-24206WK under front support to remove tractor weight from wheels.



8AG:T85849 T47:0230 40 190882

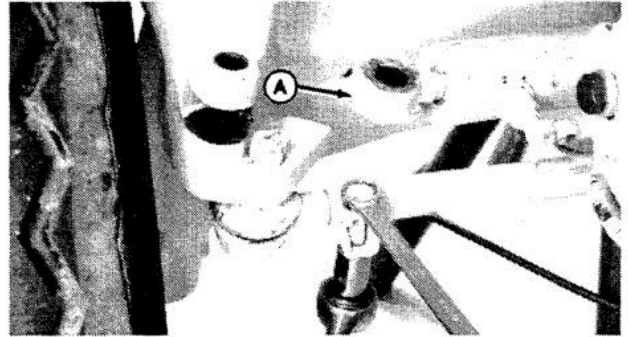
3. Remove cotter pin (A) to remove pin (B).



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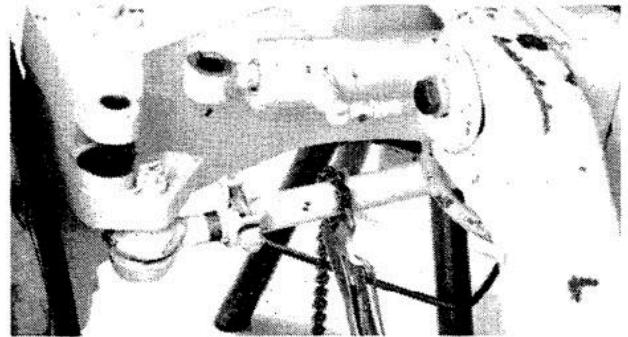
Non-Powered Wheel Axles

4. Turn steering wheel counterclockwise to retract steering cylinder (A).
5. Loosen tie rod clamps.



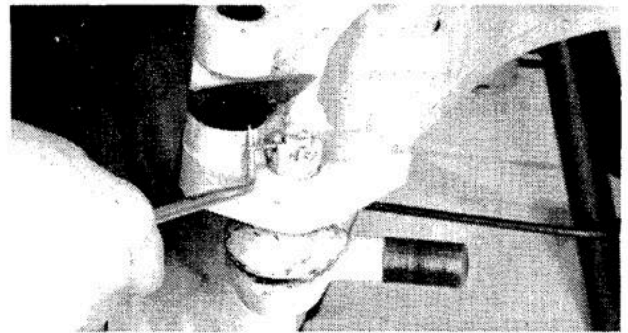
8AG;T85851 T47;0230 42 190882

6. Remove tie rod by turning rod and clamp assembly.



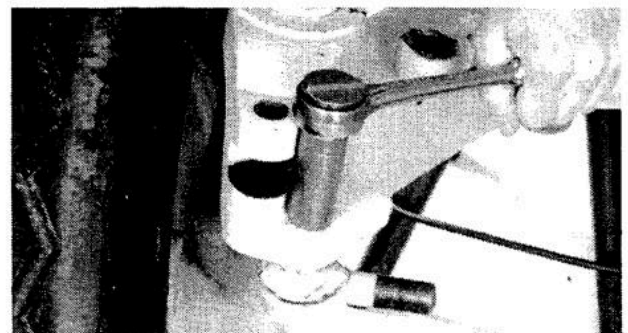
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7. Remove cotter pin.



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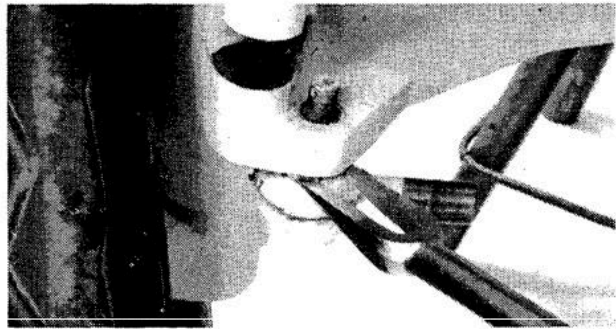
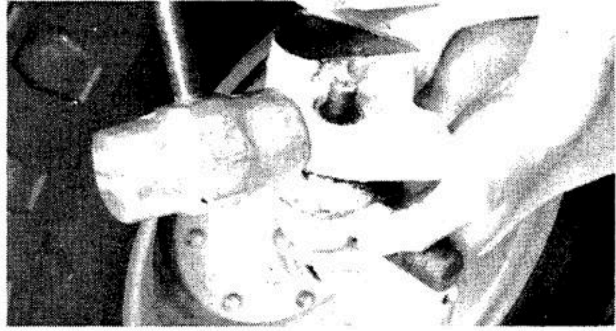
8. Remove socket end nut and washer.



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Non-Powered Wheel Axles

9. Hit steering arm with a mallet or use a tie rod separator like the one shown to remove socket end.
10. Repeat Steps 7 through 9 for right socket end.



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11. Remove dust cover only if replacement is necessary.
12. Inspect socket ends and tie rod for wear or damage; replace if necessary.



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INSTALL SOCKET ENDS AND TIE ROD

1. Install dust cover.



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