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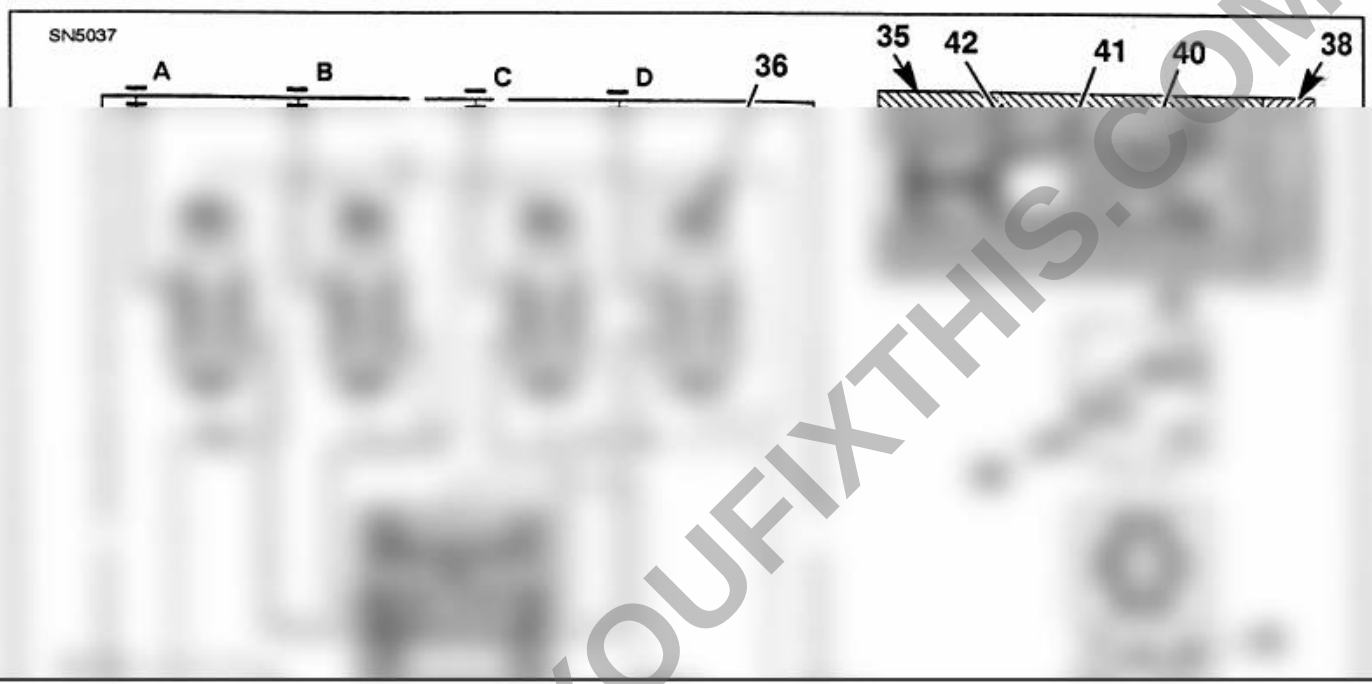
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Positrac Valve



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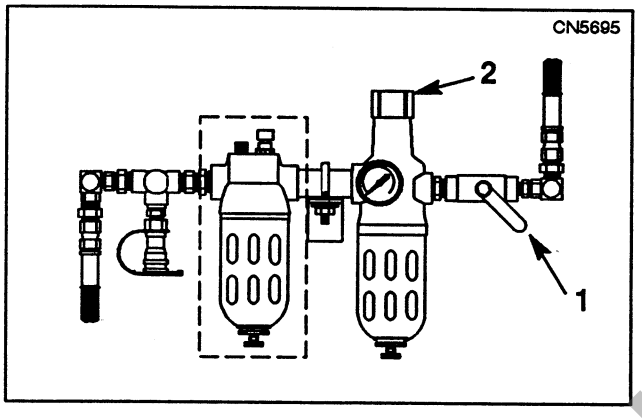
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Compressed Air Lubricator (Micro-Fog)

Introduction

The compressed air lubricator provides a system of air/oil lubrication (micro-fog) for lines, parts, and equipment located downstream of the reservoir.

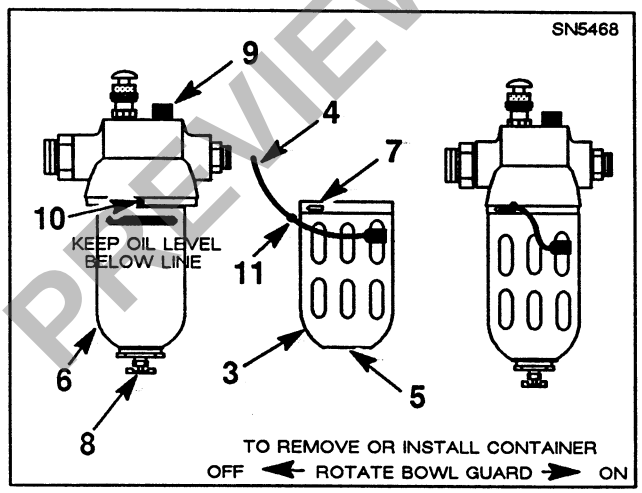
Visual Inspection



1. Turn the line air pressure control valve (1) off.

2. Clean work area clear of accumulated dirt and liquids.

3. Exhaust the secondary air pressure. Turn the Air Filter/Regulator adjusting handle (2) counterclockwise to bleed down trapped system pressure.



4. Remove the metal bowl guard (3) by turning the guard clockwise while firmly pulling the nylon locking cord (4) from the securing grove at the top of the guard.

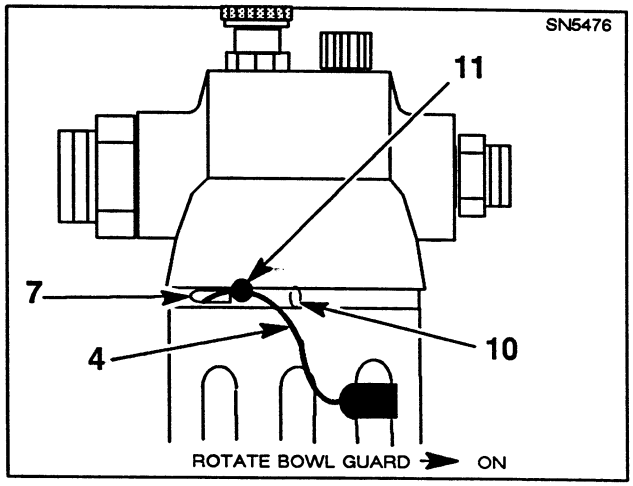
5. Carefully but firmly exert pressure in the downward direction, while aligning the shaped hole (5) (for the drain plug (7)) at the bottom of the guard.

6. Inspect the polycarbonate bowl assembly (6) for signs of damage, moisture, solids, or low fluid level.

7. To change the oil in the polycarbonate bowl (6), open the drain valve (8).

8. After draining , close the valve (8) and reservice the reservoir through the filler opening (9).

9. Reinstall the metal bowl guard (3). Pay particular attention to realign the shaped hole (5) with the drain plug (8).

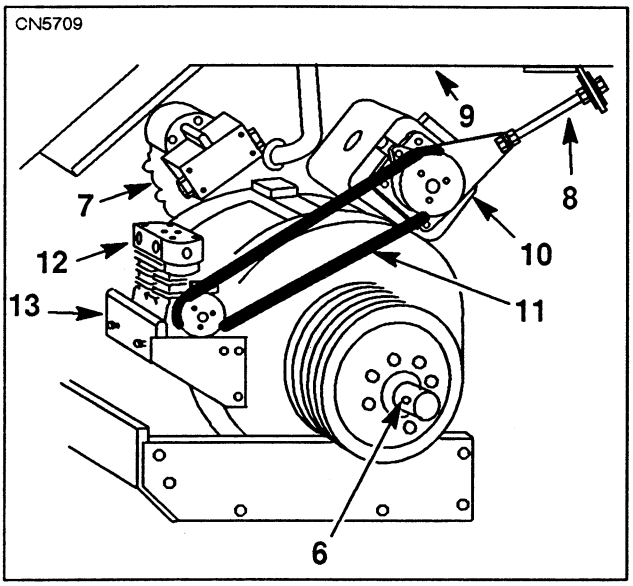


10. Reinstall the nylon locking cord (4) by positioning the locking cord guide hole (7) to the left of the locking nipple (10) in the assembly casting.

11. Insert the locking cord (4) through the locking cord guide hole (7) approximately 1". Rotate the bowl guard counterclockwise until the locking cord stop (11) is in contact with the guide hole (7). This procedure may require more than one complete turn of the bowl guard.

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5. Disconnect the air line from engine clutch (6). Cap or plug the hose end and fitting.

6. Support fan drive pump (7). Disconnect all attached hoses. Cap or plug all hose ends and fittings. Mark the hoses for identification.

7. Unbolt fan drive pump (7) from the engine.

8. Pull the fan drive pump straight back until the pump shaft is clear of the engine auxiliary drive. Lay the pump aside.

9. Disconnect air compressor/auxiliary pump belt tensioner (8) from the mainframe (9).

10. Disconnect air compressor/auxiliary pump belt tensioner (8) from auxiliary pump (10) and remove drive belt (11).

11. Disconnect all hoses and lines from the auxiliary pump (10). Cap or plug all hose ends and fittings. Mark the hoses for identification.

12. Support auxiliary pump (10).

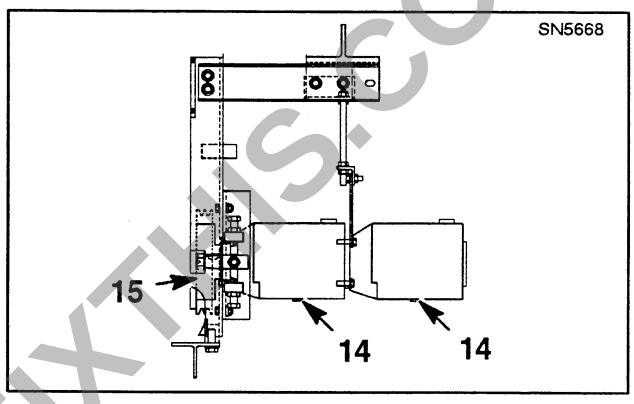
13. Remove the auxiliary pump mount bolts.

14. Pull auxiliary pump (10) straight back until the pump shaft is clear of the engine auxiliary drive. Lay the pump aside.

15. Disconnect all hoses and lines from the air compressor (12). Cap or plug the hose ends and fittings.

16. Support air compressor (12) and mounting bracket/base plate adjuster assembly (13).

17. Remove the mounting bolts from bracket (13). Remove the air compressor and bracket as an assembly. Lay the compressor/bracket aside.



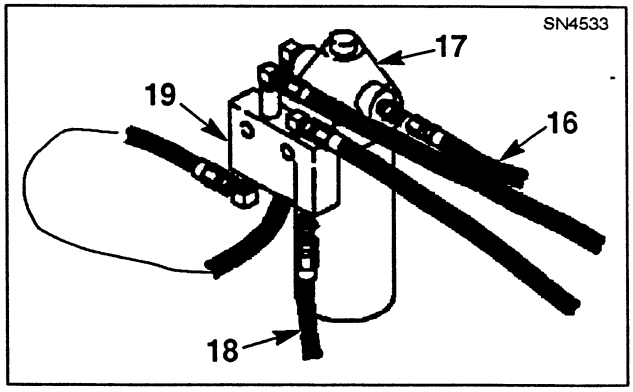
18. Disconnect all hoses, lines, and electrical connections from ground drive pumps (14). Cap or plug the hose ends and fittings. Mark all hoses for identification.

19. Support ground drive pumps (14) and attaching brackets.

20. Disconnect pump direct drive coupler (15) from the engine flywheel.

21. Pull the ground drive pumps and supporting brackets straight back until the pumps and attachments are clear of the mainframe. Lay the pump assemblies aside.

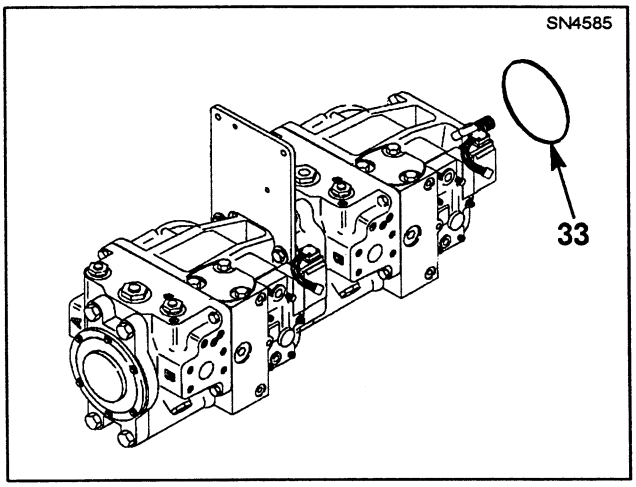
22. Close the fuel shutoff valves under the fuel tank.



23. Disconnect fuel hose (16) from fuel filter (17). Disconnect hose (18) from fuel manifold (19). Cap or plug all hose ends and fittings. Mark hoses for identification.

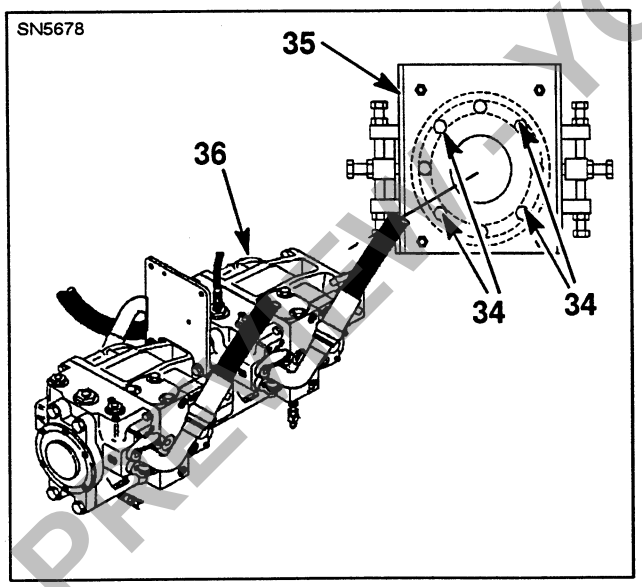
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17. Remove and inspect O-ring (33) on the front of the pump. Replace if necessary.

18. If seal replacement is necessary, see *Replace Front Ground Drive Pump Shaft Seal.*



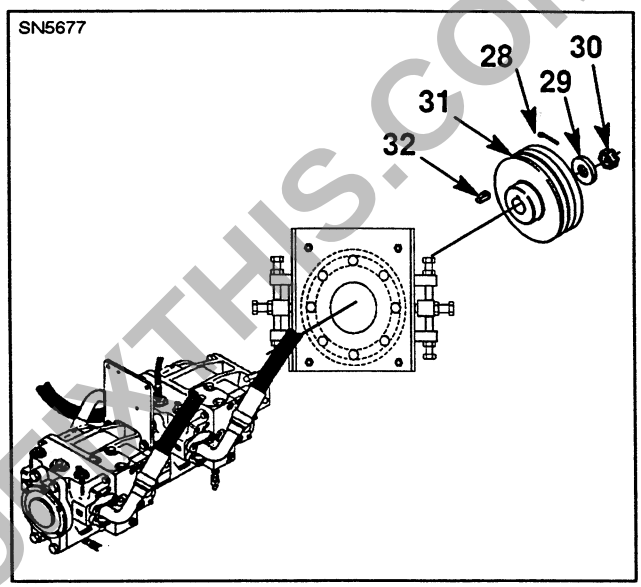
19. Remove four nuts (34) securing inter-most pump (36) to alignment plate (35).

NOTE: The following steps are for installation of the ground drive pumps.

20. Install four nuts (34) securing innermost pump (36) to alignment plate (35).

21. Lubricate O-ring (33) with clean oil and install it on the front of the pump housing.

11. Coat the pump shaft with noncorrosive grease.



22. Install the key in pump shaft key-way (32).

23. Align coupling assembly (31) on the pump shaft over key (32).

24. Install flatwasher (29), slotted nut (30) and cotter key (28) on the pump shaft.

⚠ WARNING

If a boom is being used, the pumps may swing outboard when the pumps are free of the pump mounting bracket. The pumps can crush hands and fingers against machine parts. Keep hands and fingers clear of areas where pumps can crush them.

NOTE: There are two possible ways to support the ground drive pumps in the next step. The most desirable way is to support the pumps on a forklift. The pumps can also be supported from the end of a boom inserted through the right side doors.

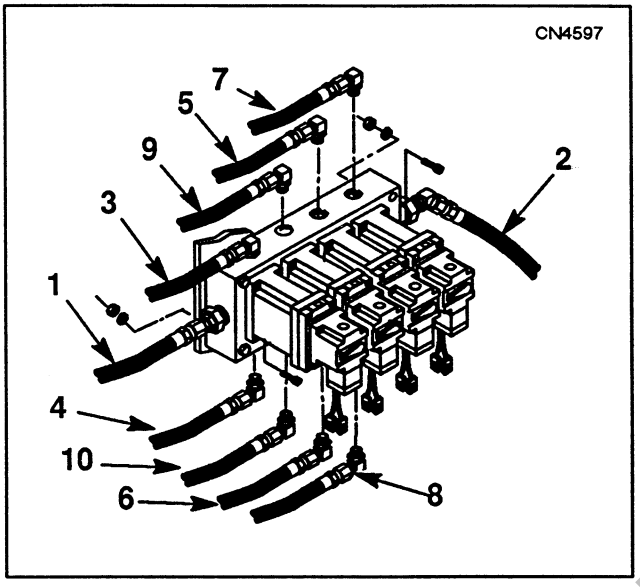
The ground drive pumps weigh approximately 177 kg (390 lb).

25. Using either a forklift or a boom, move the pumps into position on mooring bracket (17). Install nuts (20) on studs.

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Remove and Install Elevation and Steering Manifolds



NOTE: The following is a list of the opposite end connection points of the hoses that must be disconnected in the next step. This list may be used when marking hydraulic hoses and; if identification markings are not legible for reconnection, it can be used to trace where the hoses connect.

(1) Connects to a tee at the rear elevation and steering manifold.

(2) Connects to the auxiliary pressure filter.

(3) Connects to pilot port on the left front elevation check valve.

(4) Connects to cylinder port on the left front elevation check valve.

(5) Connects to head end port of left front steering cylinder

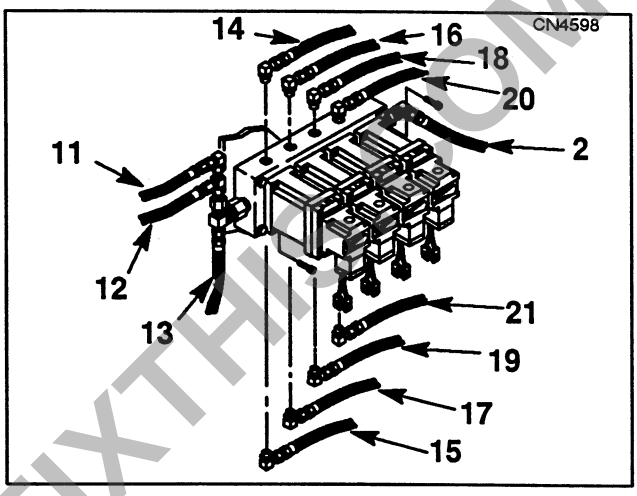
(6) Connects to rod end port of left front steering cylinder.

(7) Connects to rod end port of right front steering cylinder.

(8) Connects to head end port of right front steering cylinder.

(9) Connects to pilot valve side of block.

(10) Connects to cylinder side of pressure port.



(11) Connects to return port of lower valve in cutter doors control valve group.

(12) Opposite end of hydraulic hose (1).

(13) Connects to auxiliary return filter.

(14) Connects to head end port of right rear steering cylinder.

(15) Connects to rod end port of right rear steering cylinder.

(16) Connects to rod end port of left rear steering cylinder.

(17) Connects to head end port of left rear steering cylinder.

(18) Connects to pilot port on the right rear elevation check valve.

(19) Connects to cylinder port on the left front elevation check valve.

(20) Connects to pilot port on the left rear elevation check valve.

(21) Connects to cylinder port on the left rear elevation check valve.

1. Thoroughly clean around all hydraulic hose ends and fittings. Mark the hoses for identification, then disconnect hydraulic hoses. Cap or plug all openings.

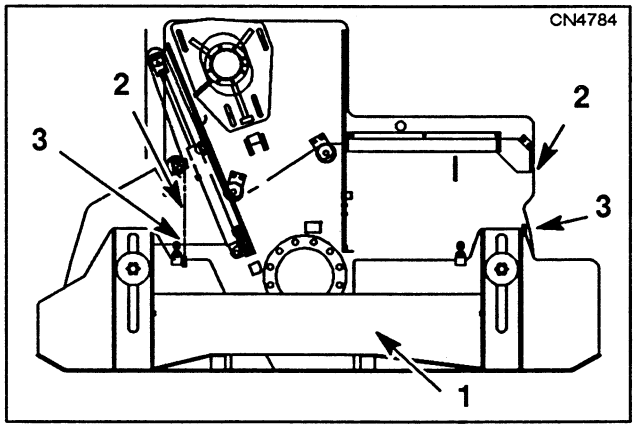
2. Mark electrical connectors for identification. Disconnect electrical connectors. Tape ends to prevent damage.

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Remove and Install Power-Up End Slide Cylinders

Right Side Cylinder

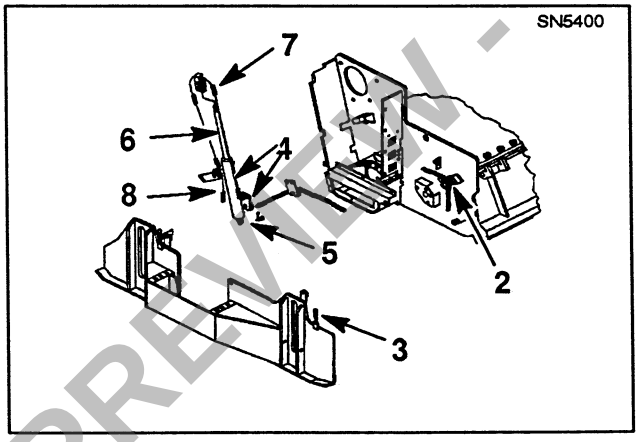


Start by:

a. *Lower power-up cutter side shield and rest it on blocks to allow slack in chain.*

1. Lower power-up cutter side shield (1) and rest it on blocks to allow slack in chain (2).

2. Remove master link (3) from chain (2) and move the chain out of the way.



3. Disconnect hydraulic hoses (4) that run to the double solenoid valve that connects to the cutter door valve (not shown). Tape or cap ends of hoses and fittings to prevent contamination or damage. Mark hoses for identification purposes.

4. Remove 10 mm (3/8 in) mount bolt (5).

5. Collapse cylinder rod (6). Unscrew cylinder rod (6) from rod end mount (7) and remove cylinder (8) from the machine.

NOTE: The following steps are for the installation of the right side power-up end slide cylinder.

6. Position cylinder (8) on the machine. Screw cylinder rod (6) into rod end mount (7).

7. Extend cylinder rod (6) and install 10 mm (3/8 in) mount bolt (5).

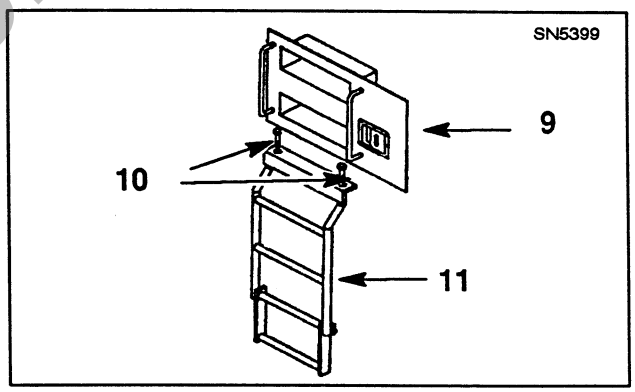
8. Remove tape and caps from fittings and hose ends and connect hydraulic hoses (4).

9. Position chain (2) around pulleys and install master links (3).

End by:

a. *Raise cutter side shield and remove blocks.*

Left Side Cylinder



Start by:

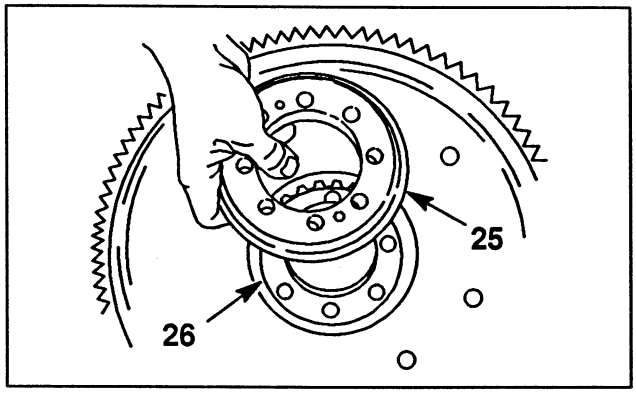
a. *Lower power-up cutter side shield and rest it on blocks to allow slack in chain.*

1. Open left side front door (9) to gain access to ladder mount bolts (10).

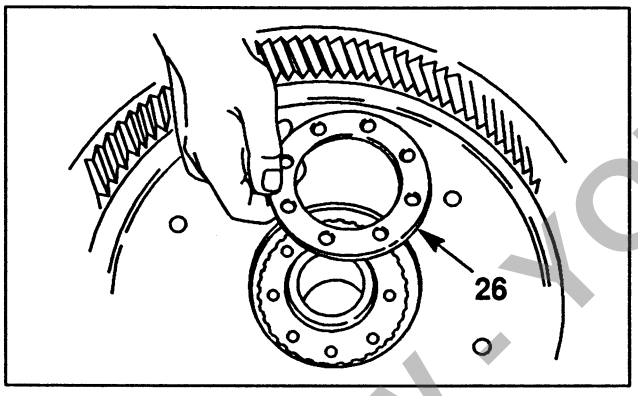
2. Remove ladder mount bolts (10) then remove ladder (11) from the machine.

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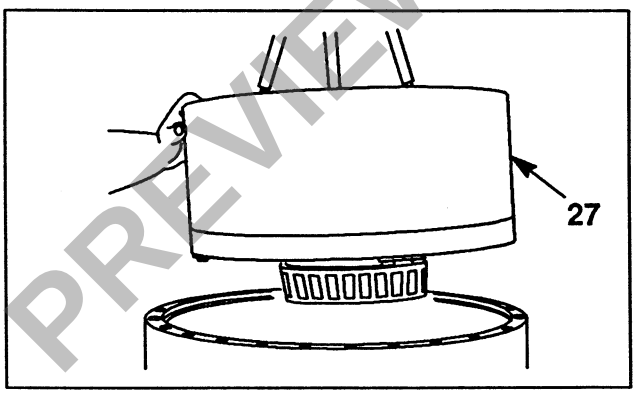
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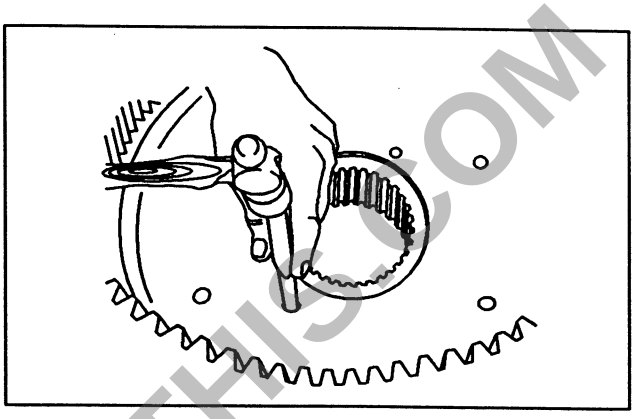
25. Remove bearing plate (25) from its position on top of shims (26).



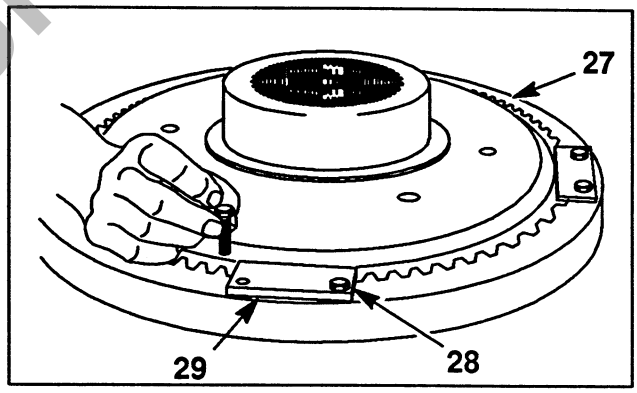
26. Remove shims (26) from the top of spindle.



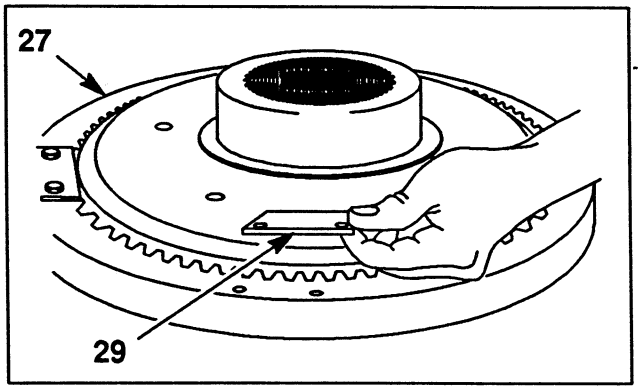
27. Attach a lifting device and lift internal gear (27) out of hub. Set the hub aside and remove the lifting device.



28. Keep the internal gear raised above the work surface. Insert a punch into one of the holes in the bottom of the internal gear until it strikes the top of the bearing cone. Use a hammer on the punch to remove the bearing cone.



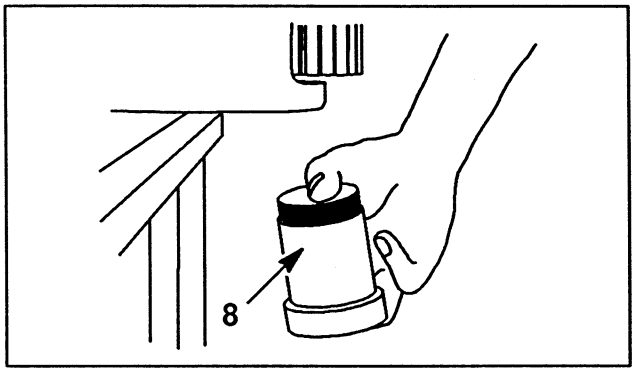
29. Place internal gear (27) onto the work surface so that internal gear hub faces up. Remove eight bolts (28) from plates (29).



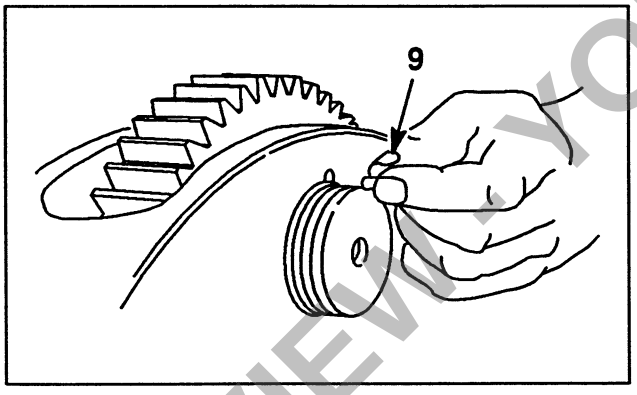
30. Remove four plates (29) from the top of internal gear (27).

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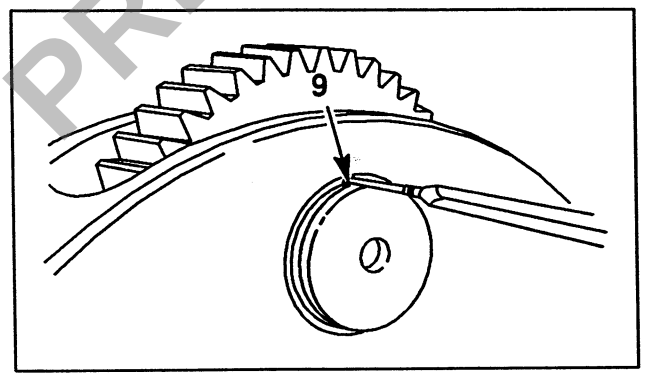
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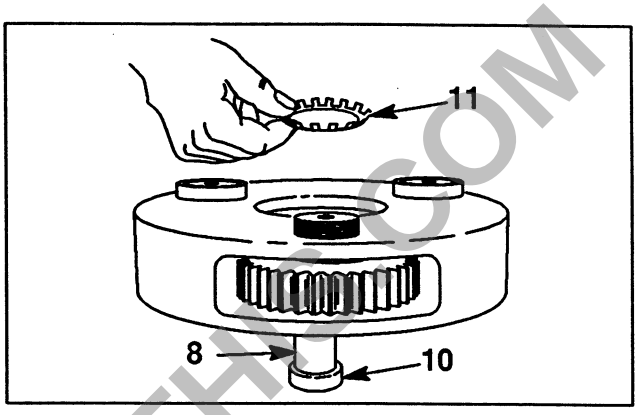
12. Insert planet shaft (8) through the planet shaft holes in the carrier housing which contain a planet gear. The small diameter end of the planet shaft must go up through the bottom planet shaft hole first. This is most easily done if the carrier housing is resting on a table top with one set of planet shaft holes located out past the table's edge.



13. Align the rounded notch in the planet shaft with the rounded notch in the planet shaft hole in the carrier housing. Insert lock pin (9) into the hole formed by the two aligned notches.

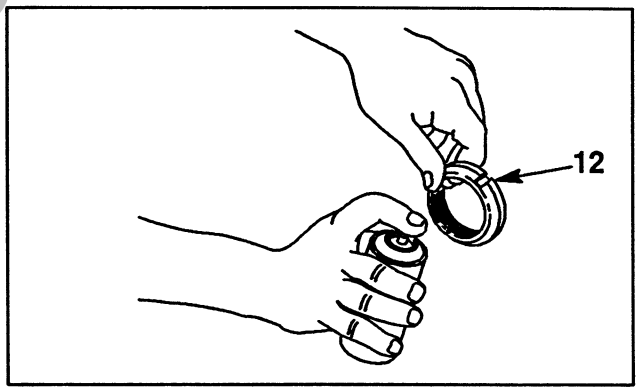


14. Using an alignment punch, push lock pin (9) all the way into the hole.

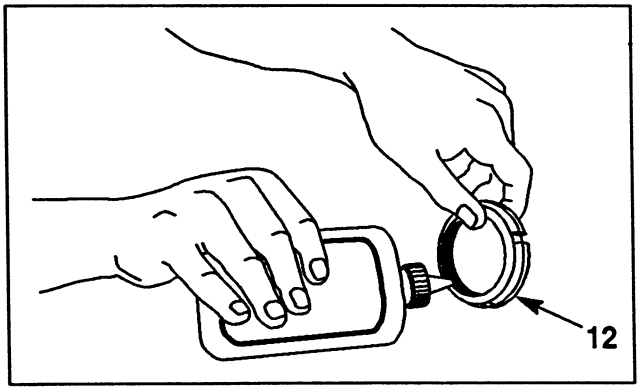


NOTE: Place a nut or similar object (10) underneath planet shaft (8) so that it remains in place in the carrier housing during installation of the locknut.

15. Place lockwasher (11) onto the small diameter end of planet shaft.



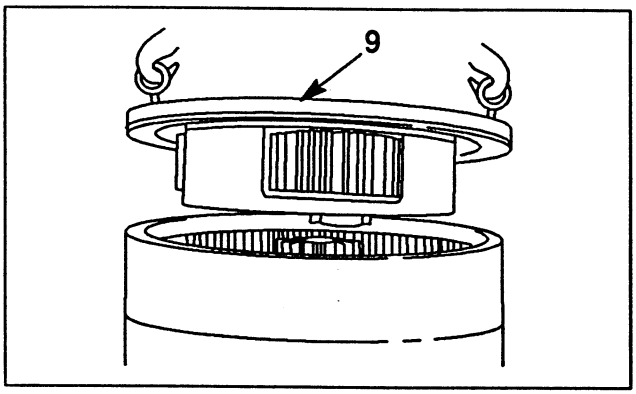
16. Spray the threads on locknut (12) with Locquic Primer T. Allow two minutes drying time.



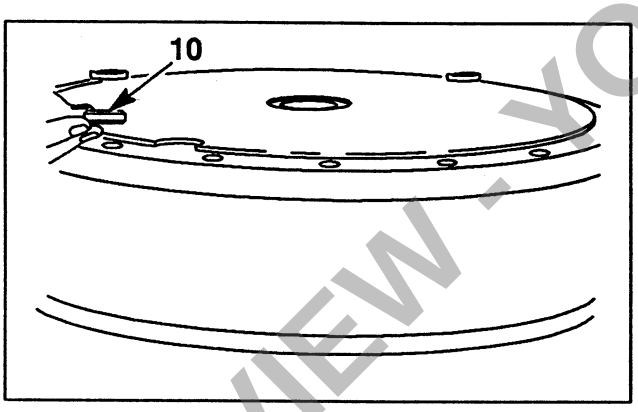
17. Apply Loctite 271 to the second screw thread from the bottom of locknut (12). The bottom has a chamfered or gradually sloped edge.

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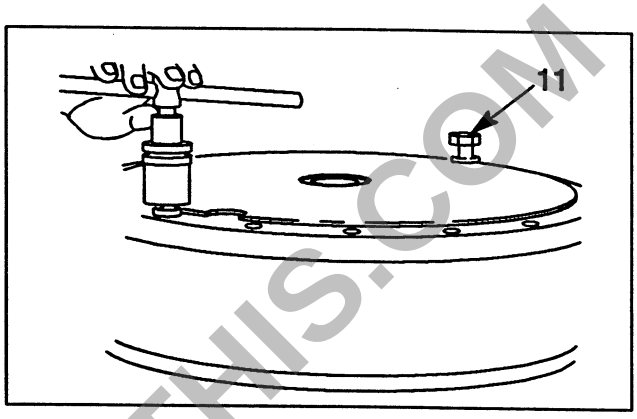
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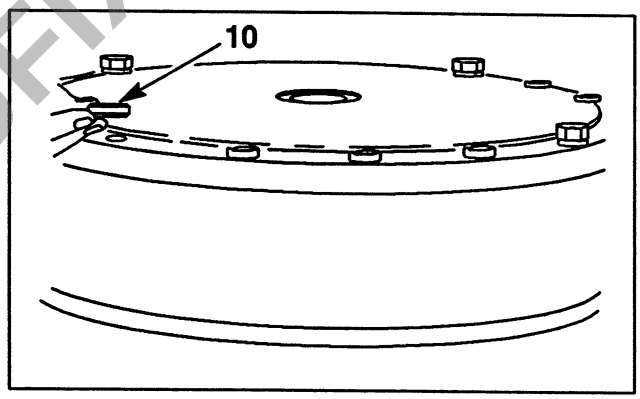
12. Attach a lifting device and lower second stage carrier subassembly (9) into hub. Align the pipe plug holes in the second stage carrier with the pipe plug holes in the hub. Make sure that the shoulder bolt hole marked with an X on the cover side of the carrier aligns with one of the marked shoulder bolt holes on the hub. Remove the lifting device.



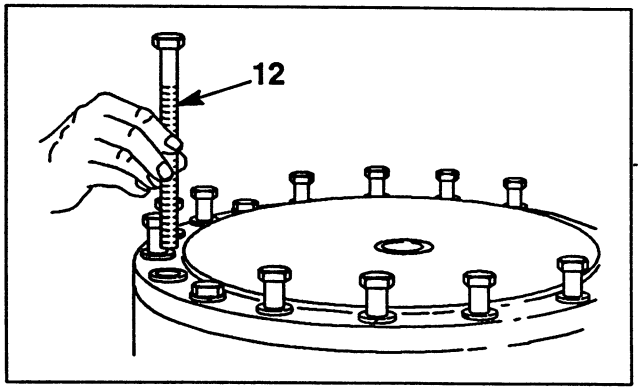
13. Place lock washers (10) over the four shoulder bolt holes in second stage carrier/cover.



14. Place four shoulder bolts (11) into the shoulder bolt holes in second stage carrier cover and tighten by hand.



15. Place lockwashers (10) over the remaining bolt holes in second stage carrier/cover.



16. Place sixteen grade 8 bolts (12) into the bolt holes on carrier/cover and tighten.

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SAFETY

The serviceman or mechanic may be unfamiliar with many of the systems on this machine. This makes it important to use caution when performing service work. A basic knowledge of the system and/or components is important before the removal or disassembly of any component.

CMI is not responsible for the training and/or familiarization of personnel who operate, maintain or service CMI machinery, or work in the vicinity of CMI machinery, except for CMI personnel. The owner, lessor, renter or user of the CMI machinery is responsible for properly training and familiarizing the necessary personnel with the CMI machinery.

Because of the size and weight of some of the machine components, the serviceman or mechanic should note any weights identified in the Service Manual. Use proper lifting procedures when removing any components.

⚠ WARNING

DO NOT OPERATE this machine until you read and understand the operating instructions in the operation section of the Operation & Maintenance Manual. Improper machine operation is dangerous and could result in injury or death.

Improper performance of lubrication or maintenance procedures is also dangerous and could result in injury or death.

The proper and safe lubrication and maintenance recommended by CMI for this machine are outlined in the Operation & Maintenance Manual. READ AND UNDERSTAND this manual before performing any lubrication or maintenance.

Following is a list of basic precautions that should always be observed:

1. Read and understand all WARNING plates and decals on the machine before operating, lubricating or repairing this machine.

2. Always wear protective glasses and protective shoes when working around machines. In particular, wear protective glasses when pounding on any part of the machine or its attachments with a hammer or sledge. Use welders gloves, hood/goggles, apron and other protective clothing appropriate to the welding job being performed. Do not wear loose-fitting or torn clothing, and remove all rings from fingers when working on machinery.

3. Disconnect the battery and discharge any capacitors before starting to work on machine. Hang a DO NOT OPERATE tag on operator control console.

4. If possible, make all repairs with the machine parked on a level, hard surface. Block the wheels or tracks so it does not roll while working on or under the machine.

5. Do not work on any machine that is supported only by lift jacks or a hoist. Always use blocks or jack stands to support the machine before performing any disassembly.

6. Relieve all pressure in the air, oil or water systems before any hoses, fittings or related items are disconnected or removed. Always make sure all raised components are blocked correctly, and be alert for possible pressure when disconnecting any device from a system that utilizes pressure.

7. Lower machine onto the leg supports and machine implements to the ground before performing any work on the machine. If this cannot be done, the machine and implements must be blocked correctly to prevent an unexpected drop.

8. Use steps and grab handles when mounting or dismounting a machine. Clean any mud or debris from steps, walkways or work platforms before using. Always face machine when using steps, ladders and walkways. When it is not possible to use the designed access system, provide ladders, scaffolds, or work platforms to perform safe repair operations.

9. To avoid back injury, use a hoist when lifting components that weigh 23 kg (50 lbs) or more. Make sure all chains, hooks, slings, etc., are in good condition and have correct lifting capacity. Be sure hooks are positioned correctly. Lifting eyes are not to be side loaded during a lifting operation.

10. To avoid burns, be alert for hot parts and hot fluids in lines, tubes and compartments on machines which have been stopped recently.

11. Be careful when removing filler caps, breathers and plugs on the machine. Hold a rag over the cap or plug to prevent being sprayed or splashed by liquids under pressure. The danger is even greater if the machine has just been stopped, because fluids can still be hot.

12. Be careful when removing cover plates. Back off gradually the last two bolts or nuts located at opposite ends of the cover, and pry cover loose to relieve any spring or other pressure before removing the last two bolts or nuts completely.

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