444K Loader Repair

TECHNICAL MANUAL

444K Loader Repair

TM10685 03MAR11 (ENGLISH)

For complete service information also see:

444K Loader Test Manual	TM10684
444K Loader Operator's Manual	OMT227993
PowerTech™ 4.5 L and 6.8 L Diesel Engines—Base Engine	CTM104
PowerTech E™ 4.5 L and 6.8 L Diesel Engines—Level 16 Electronic Fuel System with Denso HPCR	CTM502
120 Series Hydraulic Cylinders	CTM114319
125 Series Hydraulic Cylinders	CTM109319
Super Caddy Oil Cleanup Procedure	CTM310
JDLink™ / ZXLink™ Machine Monitoring System	CTM10006
Specifications Manual	SP458
JDLink / ZXLink (MTG) Diagnosis and Tests Manual	TM114519

Worldwide Construction And Forestry Division
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Prevent Fires

Handle Fuel Safely: Store flammable fluids away from fire hazards. Never refuel machine while smoking or when near sparks or flame.

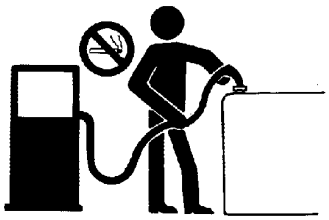
Clean Machine Regularly: Keep trash, debris, grease and oil from accumulating in engine compartment, around fuel lines, hydraulic lines, exhaust components, and electrical wiring. Never store oily rags or flammable materials inside a machine compartment.

Maintain Hoses and Wiring: Replace hydraulic hoses immediately if they begin to leak, and clean up any oil spills. Examine electrical wiring and connectors frequently for damage.

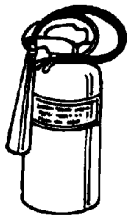
Keep A Fire Extinguisher Available: Always keep a multipurpose fire extinguisher on or near the machine. Know how to use extinguisher properly.

T133552 —UN—14SEP00

T133553 —UN—07SEP00



T133554 —UN—07SEP00



TX03679,00016F5 -19-03NOV08-1/1

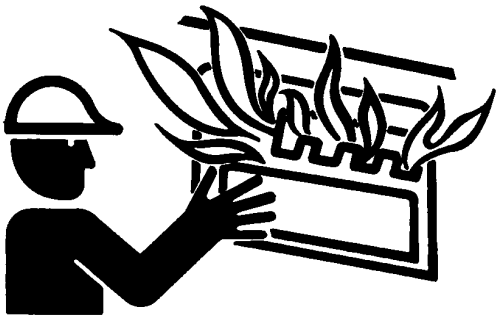
Clean Debris from Machine

Keep engine compartment, radiator, batteries, hydraulic lines, exhaust components, fuel tank, and operator's station clean and free of debris.

Clean any oil spills or fuel spills on machine surfaces.

Temperature in engine compartment may go up immediately after engine is stopped. BE ON GUARD FOR FIRES DURING THIS PERIOD.

Open access door(s) to cool the engine faster, and clean engine compartment.



T6669AG —UN—18OCT88

OUT4001,00000E3 -19-20AUG09-1/1

Section 01
Wheels

Contents

CAUTION: Prevent crushing injury from heavy component. Use appropriate lifting device when lifting component.

Specification

Machine—Weight (approximate)..... 11 786 kg 25 983 lb.

8. Raise rear of machine using floor jack. Install floor stands under frame on each side and under rear corners of frame.

CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device when lifting component.

9. Remove rear wheels. See Wheel Remove and Install. (Group 0110.)

IMPORTANT: Do not reuse drive shaft universal joint cap screws. Replace cap screws to avoid machine damage.

10. Remove cap screws to disconnect drive shaft.

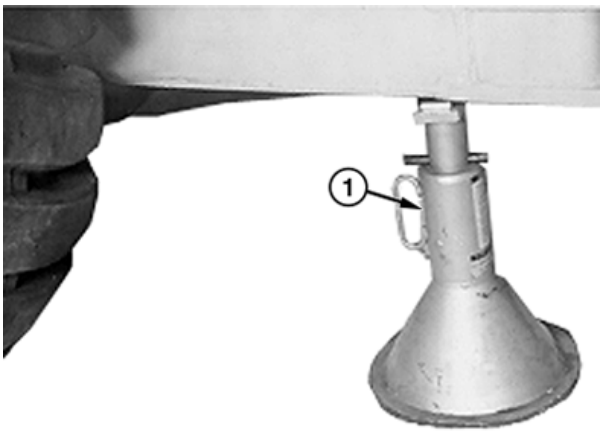
CAUTION: Prevent possible crushing injury from heavy component. Use appropriate lifting device when lifting component.

Specification

Axle and Differential with Oscillating Supports—Weight (approximate)..... 980 kg 2161 lb.

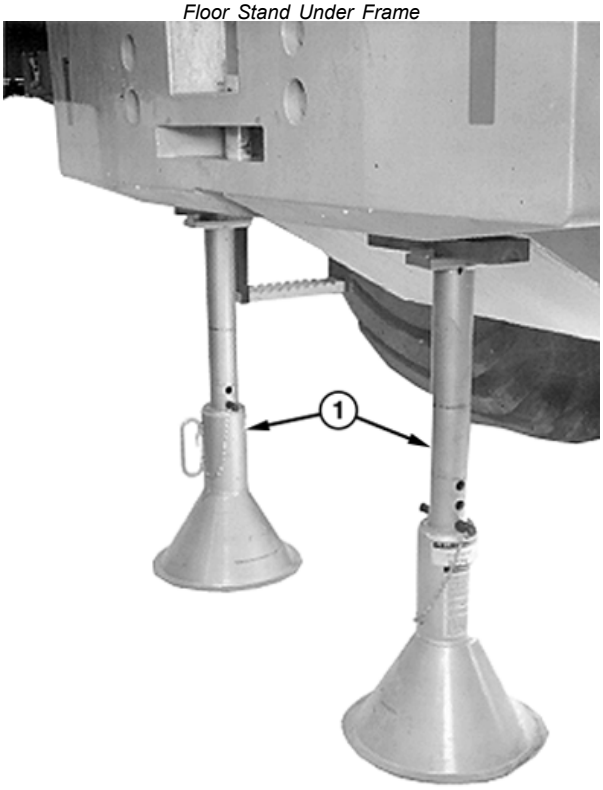
11. Install low-lift jack under axle and differential.

1— Floor Stand (4 used)



TX1005981A —UN—04APR06

Floor Stand Under Frame



TX1005982A —UN—04APR06

Positioning Floor Stands

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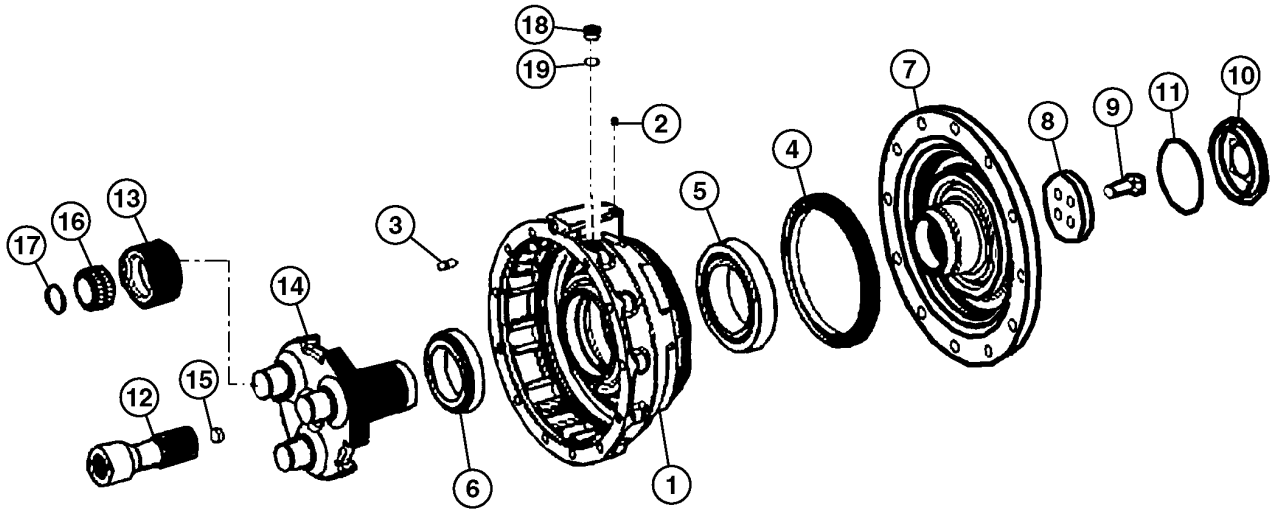
AA95137,0001B43 -19-14AUG08-2/6

Axle Planetary Pinion/Service Brake Housing Disassemble and Assemble



TX1002890 —UN—10MAY06

TX1002890

Axle Planetary Pinion/Service Brake Housing

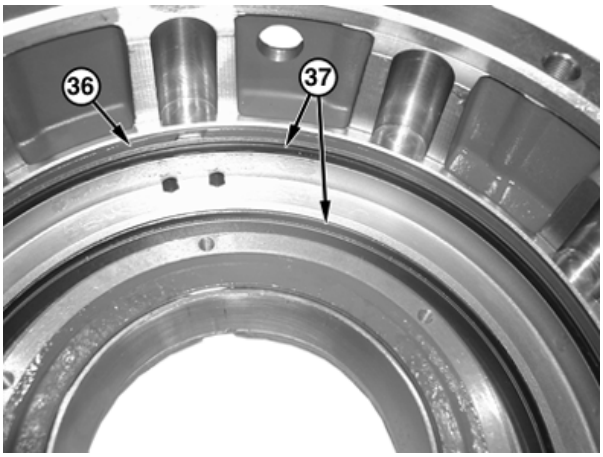
1— Axle Planetary Pinion/Service Brake Housing
2— Plug (2 used)
3— Brake Bleeder
4— Outer Housing Seal
5— Bearing Cone
6— Inner Bearing Cone
7— Spindle
8— Pinion Carrier End Plate
9— Self-Locking Cap Screw (4 used)
10— End Cover
11— O-Ring
12— Sun Gear
13— Planetary Pinion (3 used)
14— Planetary Pinion Carrier
15— Pin
16— Cylindrical Roller Bearing (3 used)
17— Snap Ring (3 used)
18— Service Brake Disk Inspection Plug
19— O-Ring

Continued on next page

MH66088,0000996 -19-05SEP08-1/44

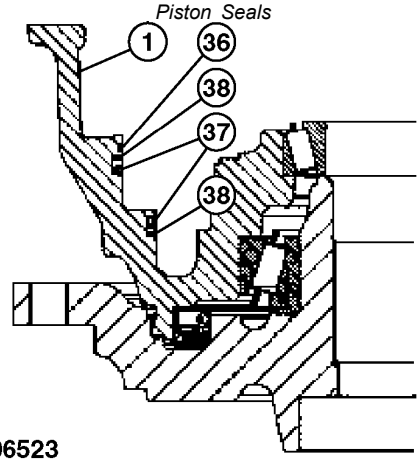
30. Clean O-rings (37) using a volatile, non-petroleum base solvent and lint-free tissues. Apply a thin film of oil to O-rings and install.
31. Clean oil from guide ring (36) and guide ring grove using a volatile, non-petroleum base solvent and lint-free tissues.
32. Align end points of guide ring in the 12 o'clock position (as viewed when housing is installed on axle tube).
33. Apply a small amount of Quick Gel Super Glue at both end points of guide ring to maintain its position.

1— Axle Planetary Pinion/Service Brake Housing
36— Guide Ring
37— O-Ring (2 used)
38— Support Ring (2 used)



TX1006515A —UN—17APR06

Piston Seals



TX1006523

TX1006523 —UN—17APR06

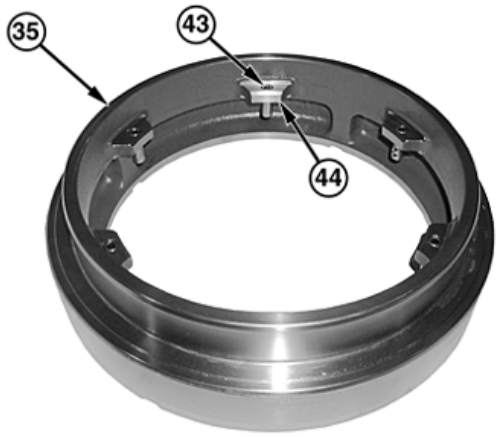
Cross-Sectional View

MH66088,0000996 -19-05SEP08-22/44

NOTE: The Illustration shows pins in correct position for piston installation.

34. Orient piston as shown, shoulder side up.
35. Drive service brake piston pins (43) flush with mounting surface (44).

35— Service Brake Piston
43— Pin (6 used)
44— Mounting Surface



TX1006683A —UN—19APR06

Service Brake Piston and Pins

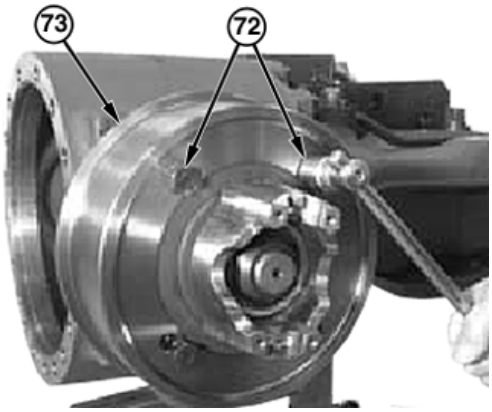
Continued on next page

MH66088,0000996 -19-05SEP08-23/44

21. For rear axle, remove cap screws (72) and oscillating support housing (73).

72— Cap Screw (4 used)

73— Oscillating Support Housing



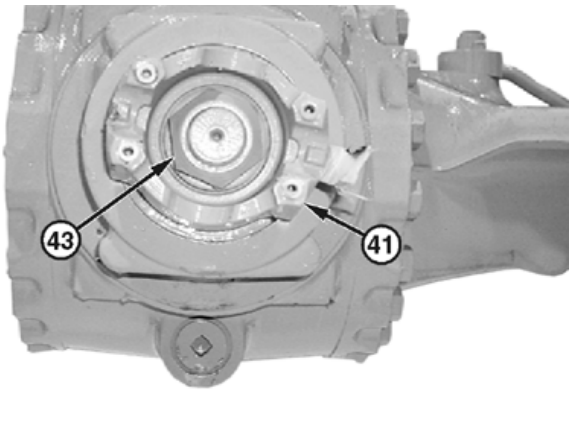
Oscillating Support Housing (Rear Axle Only)

MM16633,00024F3 -19-13AUG08-17/22

22. Remove yoke nut (43) and washer. Remove yoke (41).

41— Yoke

43— Yoke Nut



Pinion Nut and Yoke

MM16633,00024F3 -19-13AUG08-18/22

23. Remove pinion seal (39) from differential housing.

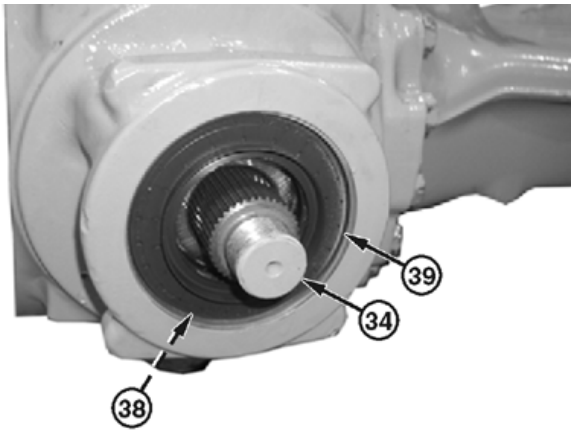
NOTE: Outer pinion bearing (38) will come out as pinion is being removed.

24. Using a soft faced mallet, remove pinion (34) and outer pinion bearing (38).

34— Pinion

38— Outer Pinion Bearing

39— Pinion Seal



Pinion Seal

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MM16633,00024F3 -19-13AUG08-19/22

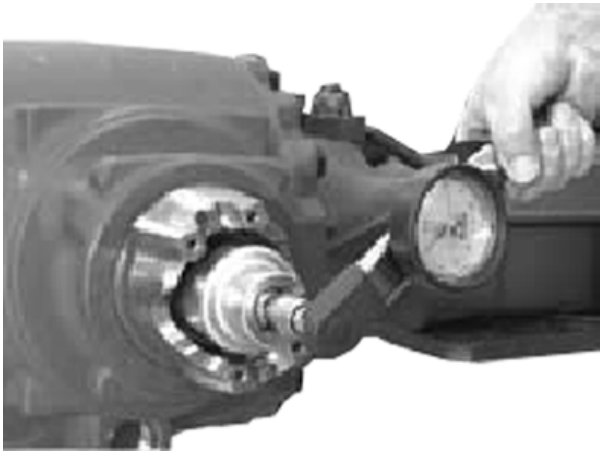
NOTE: Attempt to obtain highest value within specification.

9. Using a torque wrench, check rolling torque of the pinion bearings. If rolling torque is not within specifications, correct with appropriate size spacer ring.

Specification

Pinion Bearing—Torque..... 1.1—2.3 N·m
9.7—20.4 lb-in.

10. When correct rolling torque has been obtained, remove yoke.
11. Install yoke seal and repeat step 8.



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Rolling Torque Check

MM16633,00024F4 -19-13AUG08-11/34

NOTE: Make sure thrust washers (4) and (2) are installed correctly within tabs of carrier (1).

12. Install spacer (3) and thrust washers (2) and (4) into carrier (1).
13. Install side gear (5).
14. Install pinion gears (6) and beveled thrust washers (7).

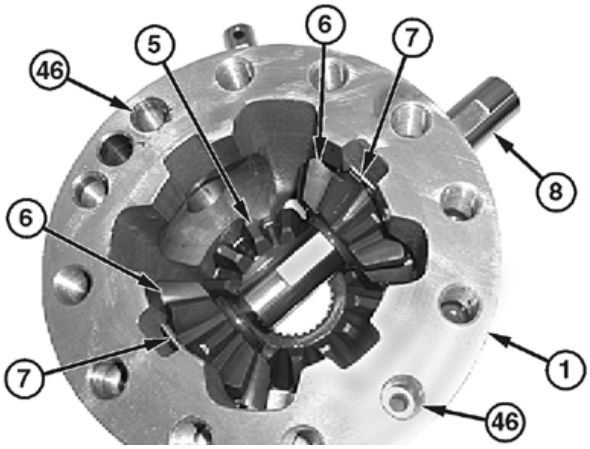
NOTE: Access holes (46) are identified by holes that go all the way through carrier.

15. Install pinion shaft (8) into bore in side of carrier, opposite access holes (46).
16. Install pinion gears (6), thrust washers (7), and split pinion shafts (9) into carrier. Rotate split pinion shafts so holes in end of shafts are seen in access holes (46).

1— Carrier
2— Thrust Washer
3— Spacer
4— Thrust Washer
5— Side Gear
6— Pinion Gear (4 used)
7— Beveled Thrust Washer (4 used)
8— Pinion Shaft
9— Split Pinion Shaft (2 used)
15— Pin (2 used)
16— Spring Pin (2 used)
46— Access Holes

TX1006502A —UN—17MAY06

Differential Components



TX1007353A —UN—17MAY06

Pinion Shaft, Gears, and Carrier

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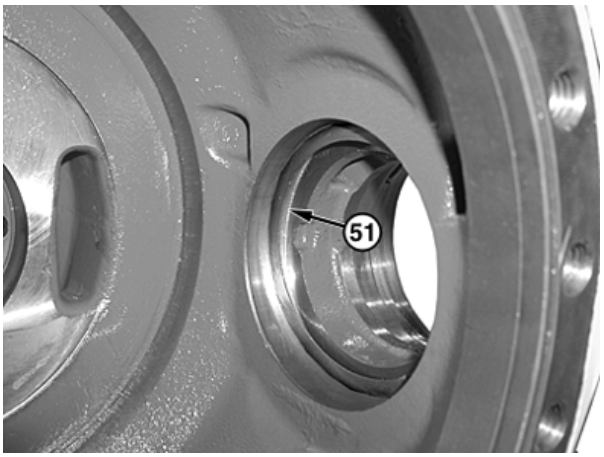
MM16633,00024F4 -19-13AUG08-12/34

49. If contact pattern differs considerably, correct with appropriate size shim (51). See step 1.

51— Shim

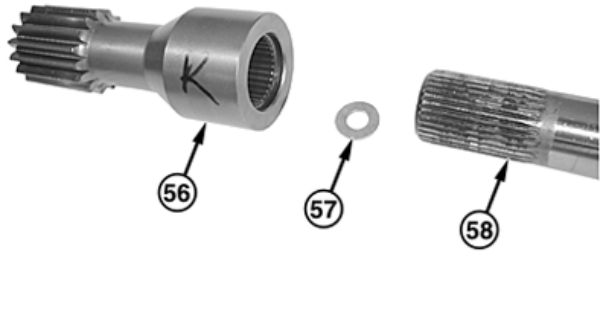


Shim

MM16633,00024F4 -19-13AUG08-31/34

50. Insert shim (57) and axle shaft (58) into sun gear shaft (56).
51. Install shaft assembly into axle tube (68) from differential side.

56— Sun Gear Shaft
57— Shim
58— Axle Shaft



Axle

MM16633,00024F4 -19-13AUG08-32/34

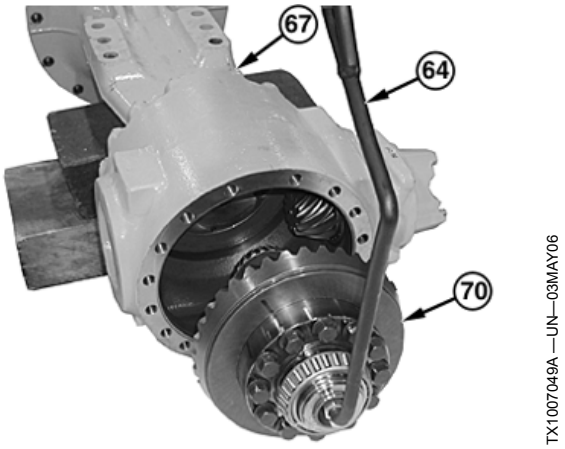
⚠ CAUTION: Prevent possible injury from crushing. Heavy component, use appropriate lifting device when lifting component.

52. Install preassembled differential carrier assembly (70) using DFT1273 Lifting Device (64).

Specification

Differential Assembly	
—Weight (approximate)	45 kg
	100 lb

64— DFT1273 Lifting Device
67— Differential Housing
70— Differential Carrier Assembly



Installing Differential

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MM16633,00024F4 -19-13AUG08-33/34

Torque Converter and Housing Remove

1. Remove transmission. See Transmission Remove and Install. (Group 0350.)

CAUTION: Prevent possible injury from crushing. Heavy component, use appropriate lifting device.

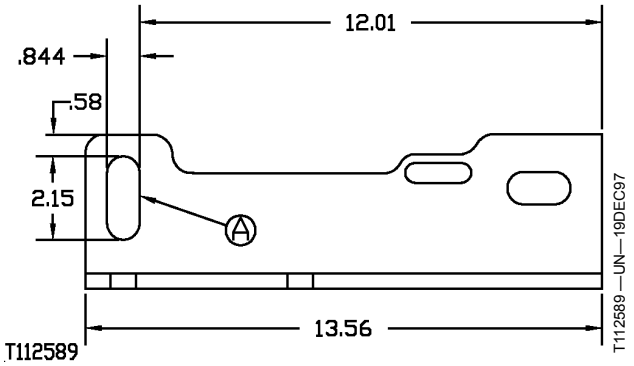
Specification	
Transmission—Weight (approximate)	504 kg 1110 lb

NOTE: Earlier JDG1129 Transmission Mounting Brackets require that the right side bracket be revised. Note bracket sketch showing revised mounting hole (A). Revise hole by elongating the existing hole as required.

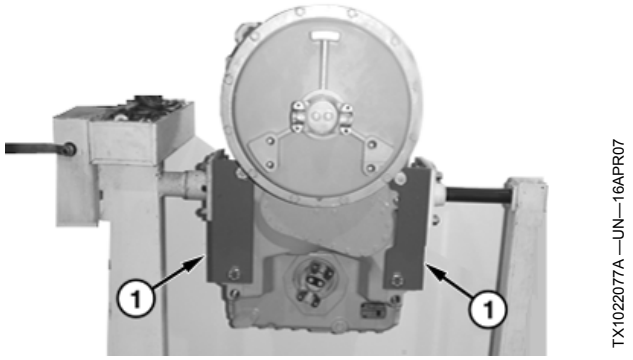
2. Install transmission in repair stand using JDG1129 Transmission Mounting Brackets (1).

A—Mounting Hole

1—JDG1129 Transmission Mounting Bracket (2 used)



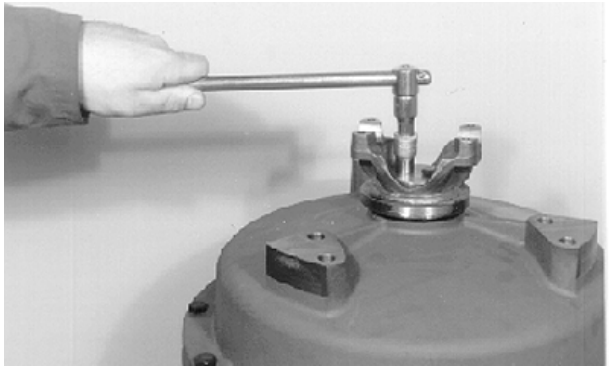
Bracket Sketch Showing Revised Mounting Hole (A)



JDG1129 Transmission Mounting Brackets

SW03989,0000422 -19-25FEB08-1/10

3. Remove lock plate and cap screws from input flange washer.
4. Remove washer and input flange from the shaft.



Lock Plate and Cap Screws

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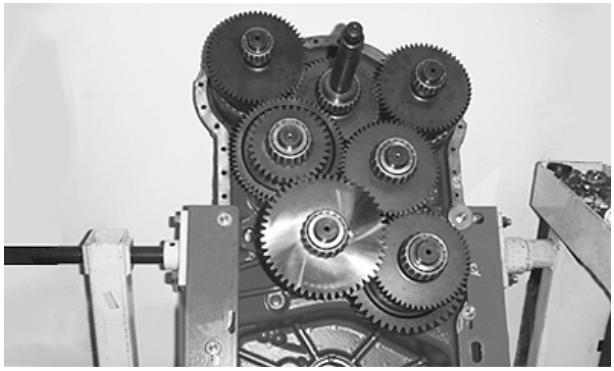
SW03989,0000422 -19-25FEB08-2/10

12. Remove transmission housing from repair stand. Install transmission cover with clutch packs into repair stand using JDG1129A Mounting Brackets. Fasten transmission cover to mounting brackets using cap screws, washers, and nuts as shown.

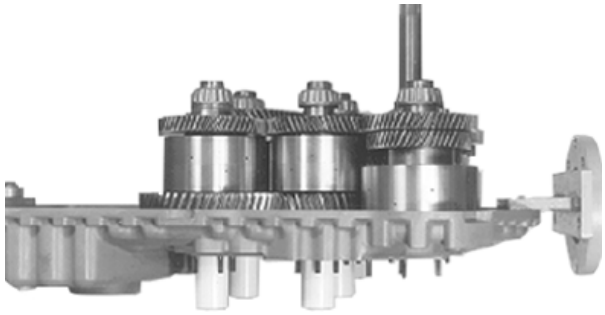


TX1028696A —UN—29AUG07

Mounting Bracket Positions

MH66O88,0000723 -19-10OCT08-10/19

13. Rotate the repair stand so clutch packs are facing up. This will allow them to be removed from the cover.
14. Remove washers and nuts retaining clutch packs.

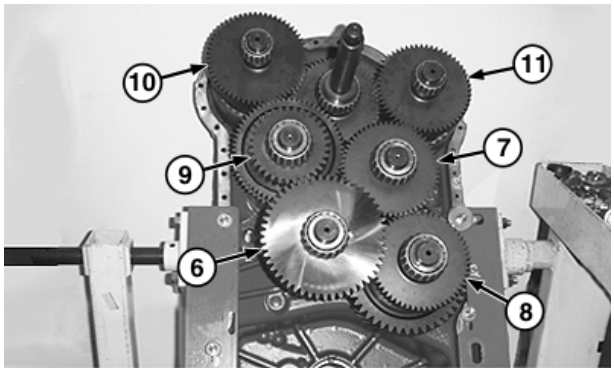


TX1049945A —UN—09OCT08

MH66O88,0000723 -19-10OCT08-11/19

15. Clutch pack layout viewed from torque converter side of transmission.

6— First Speed Clutch (K1)
7— Second Speed Clutch (K2)
8— Third Speed Clutch (K3)
9— Forth Speed Forward Clutch (K4)
10— Reverse Clutch (KR)
11— Forward Clutch (KV)



TX1028698A —UN—29AUG07

View from Torque Converter Side

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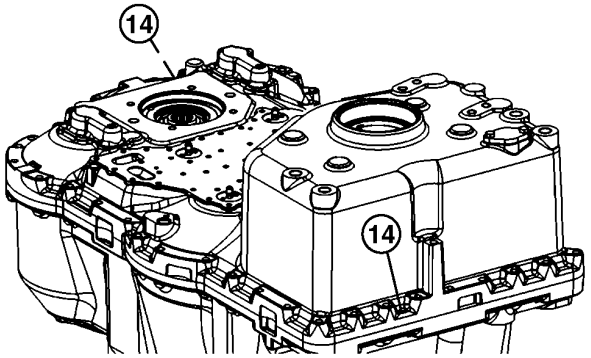
MH66O88,0000723 -19-10OCT08-12/19

23. Install dowel pins (2).

14— Dowel Pin (2 used)



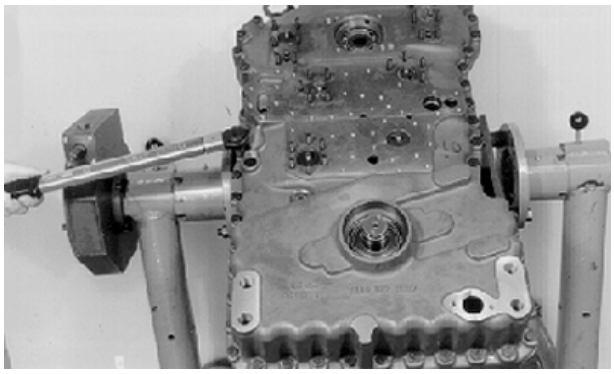
Dowel Pin Installation

AA95137,0001B50 -19-10OCT08-21/28

NOTE: Locate hanger in same position as it was removed from.

24. Install housing cover cap screws and tighten to specification.

Specification	
Housing Cover Cap Screw—Torque	46 N·m 34 lb-ft

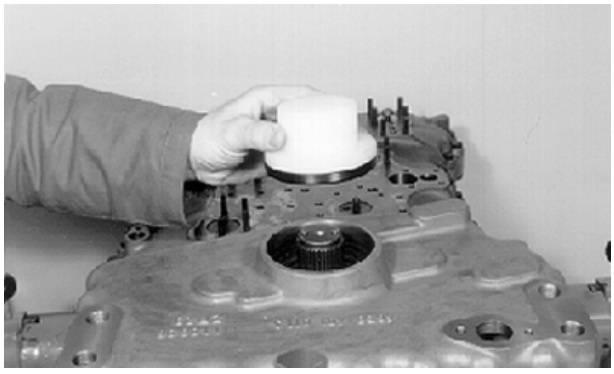


Torque Cap Screw

AA95137,0001B50 -19-10OCT08-22/28

NOTE: Grease sealing lip of shaft seal.

25. Using JDG10837 Output Shaft Seal Installer, install shaft seal with the lip facing inward.



Shaft Seal Installation

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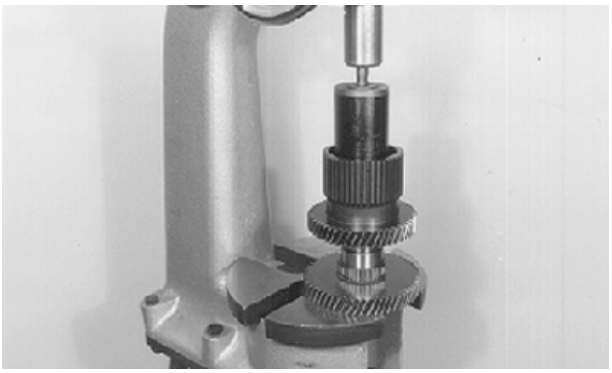
AA95137,0001B50 -19-10OCT08-23/28

NOTE: Push against cone of bearing.

On clutch KR, there is no recess in the shaft. Installation of snap ring will be in contact of bearing cone.

16. Press idler gear against shoulder.

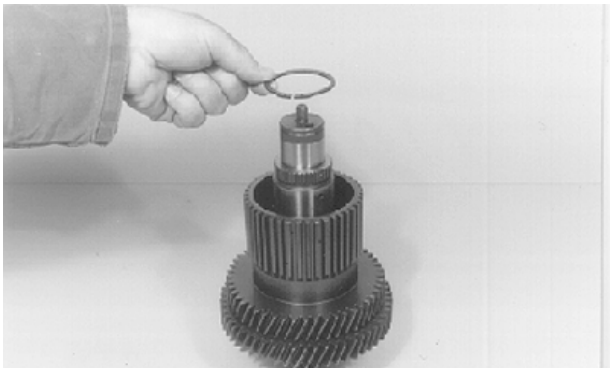


T108673 —UN—10APR97

Press Idler Gear Against Shoulder

MH66O88,00006EC -19-14AUG08-13/18

17. Retain idler gear by means of snap ring.

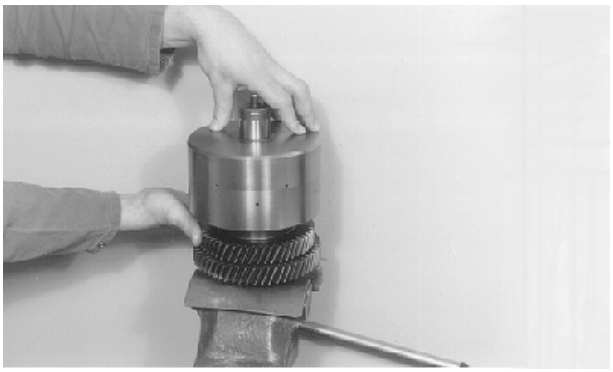


T108674 —UN—10APR97

Retain Idler Gear

MH66O88,00006EC -19-14AUG08-14/18

18. Assemble pre-assembled plate carrier until all plates are engaged.



T108675 —UN—10APR97

Assemble Plate Carrier

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MH66O88,00006EC -19-14AUG08-15/18

18. Install end shim and snap ring.

T108738 —UN—10APR97

End Shim and Snap Ring Installation

MH66O88,0000980 -19-20AUG08-14/23

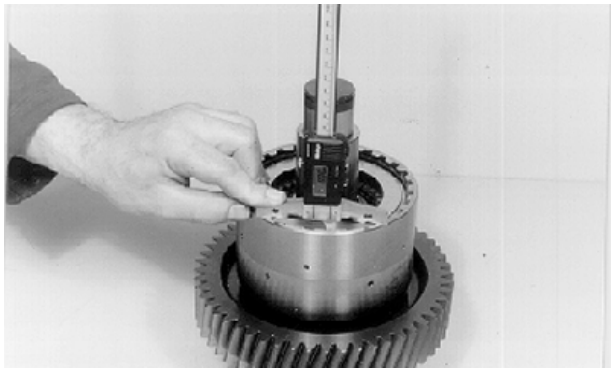
NOTE: For the adjustment of the plate clearance there are snap rings of different thicknesses available that can be used if proper clearance cannot be obtained. To ensure proper measuring result, install plates temporarily without oil.

19. Adjust plate clearance to specification.

Specification

K2 and K3 Clutch Pack
Plate—Clearance.....1.8—2.0 mm (0.071—0.079 in.)

a. Press end shim and measure the dimension from the end face/plate carrier to the end shim with depth gauge. Record dimension (No. 1).



T108739 —UN—10APR97

End Shim Press

MH66O88,0000980 -19-20AUG08-15/23

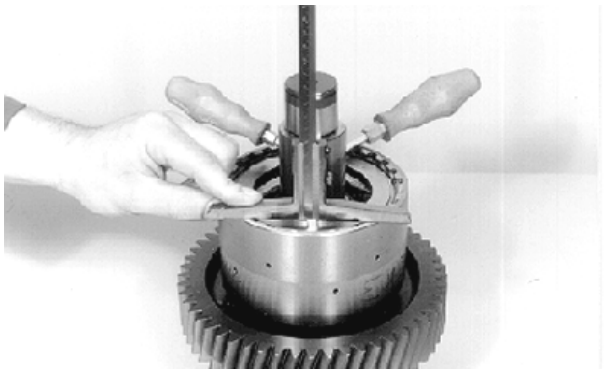
b. Press end shim against snap ring (upward) until contact and measure with gauge. Record dimension (No. 2).

Example for Clutch Pack Clearance Check	
Dimension No. 1	8.00 mm (0.315 in.)
Dimension No. 2	6.00 mm (0.236 in.)
Difference = Plate Clearance	2.0 mm (0.079 in.)
Specification = Pack Clearance	1.8—2.0 mm (0.071—0.079 in.)

c. If a clutch pack clearance is not to specification, correct by using the proper corresponding snap ring from service parts to increase or decrease clearance. Snap rings come in various sizes.

d. After proper clearance is obtained, remove disks and plates from assembly.

20. Add oil to plates and disks.



T108740 —UN—09MAY97

Clutch Pack Clearance Check

21. Reassemble clutch pack assembly.

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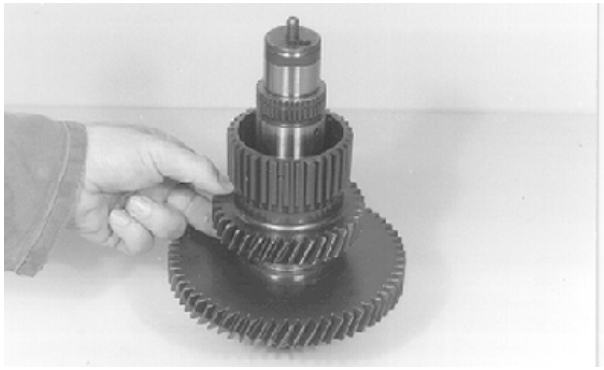
MH66O88,0000980 -19-20AUG08-16/23

19. Assemble idler gear.



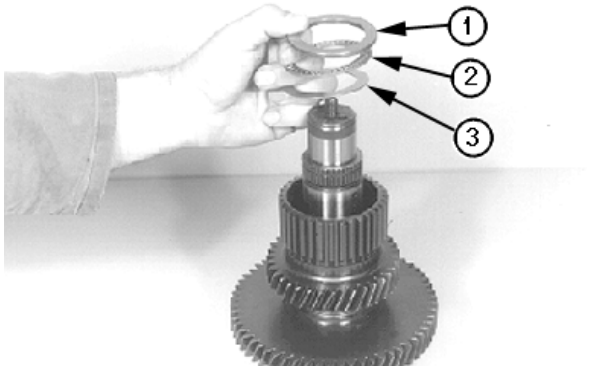
T108991 —UN—14APR97

MH66O88,0000982 -19-15AUG08-15/20

NOTE: Install thrust disk (1) with chamfer facing thrust washer.

20. Install thrust washer (3), bearing (2), and disk (1).

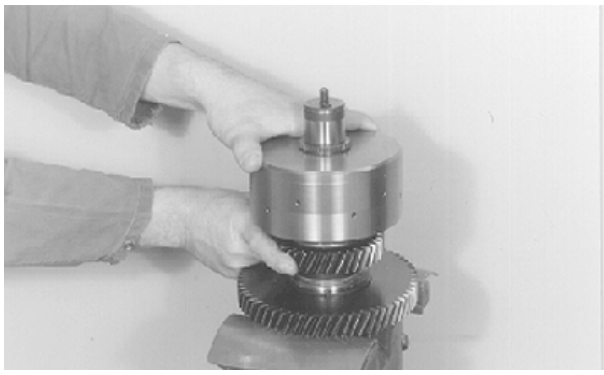
1— Disc
2— Bearing
3— Thrust Washer



T108992 —UN—29APR97

MH66O88,0000982 -19-15AUG08-16/20

21. Assemble K4 carrier assembly onto shaft until seated and all plates are engaged.



T108993 —UN—14APR97

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MH66O88,0000982 -19-15AUG08-17/20

17. Install new O-rings (12) to output shaft and apply light coat of oil to O-rings.

12— O-Ring (2 used)

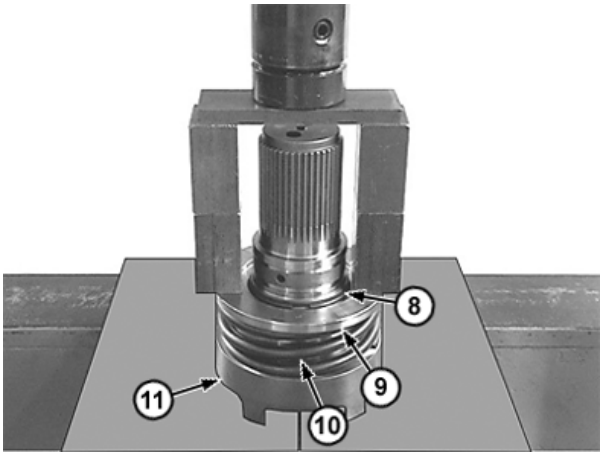
TX1047532A —UN—20AUG08

O-Ring Installation

MH66088,000099F -19-06OCT08-12/18

18. Install engagement sleeve (11), compression spring (10), retainer (9), and snap ring (8) using a press.

8— Snap Ring
9— Retainer
10— Compression Spring
11— Engagement Sleeve



TX1047531A —UN—20AUG08

Engagement Sleeve Installation

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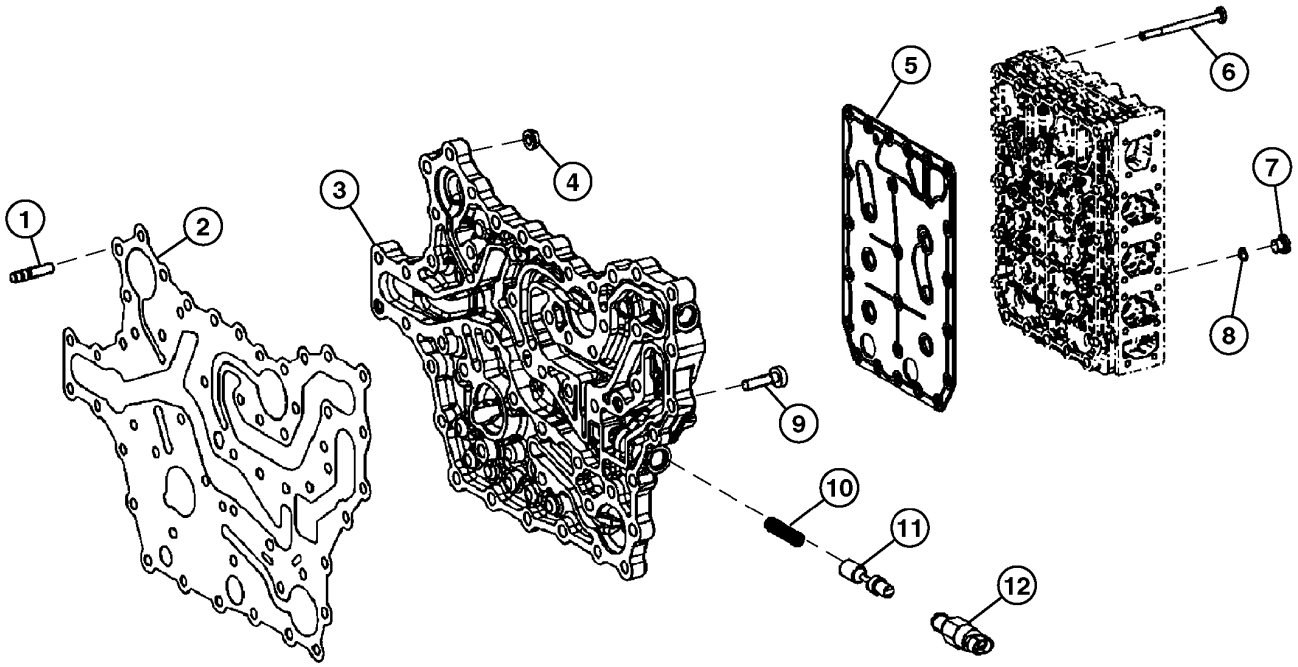
MH66088,000099F -19-06OCT08-13/18

Transmission Hydraulic Control Valve Remove and Install



TX1048258 —UN—09SEP08

TX1048258

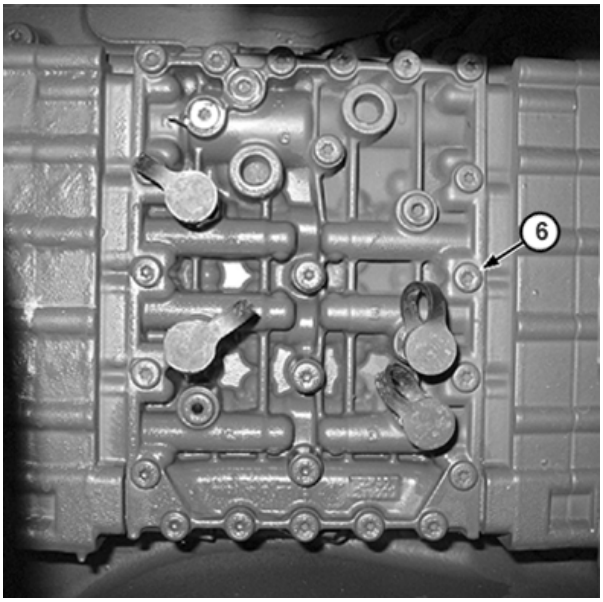
Transmission Hydraulic Control Valve Assembly

1— Stud (14 used)
2— Gasket
3— Manifold Plate
4— Nut (14 used)
5— Plate
6— Cap Screw (23 used)
7— Plug
8— O-Ring (8 used)
9— Cap Screw (36 used)
10— Spring
11— Valve Spool
12— Pressure Switch

TW73308,000037C -19-10OCT08-1/6

1. Replace two cap screws (6) with alignment studs.
2. Remove the remaining cap screws (6) and remove control valve from manifold plate (3).
3. Remove plate (5).

6— Cap Screw (23 used)



TX1048486A —UN—10SEP08

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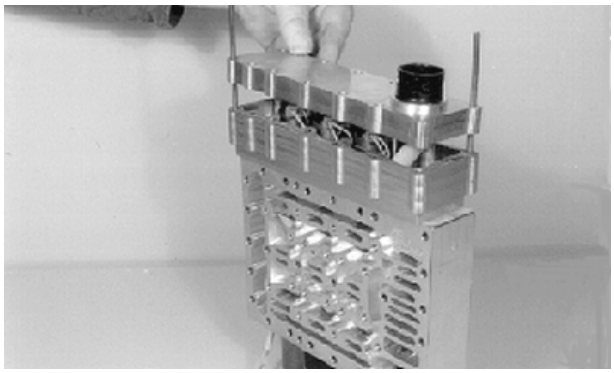
TW73308,000037C -19-10OCT08-2/6

29. Install two alignment studs into housing. Install gasket (5)

    Install cover (2), cap screws (1), and remove alignment studs. Tighten to specification.

Specification

Solenoid Cover-to-Housing Cap Screw—Torque	5 N·m 44 lb-in.



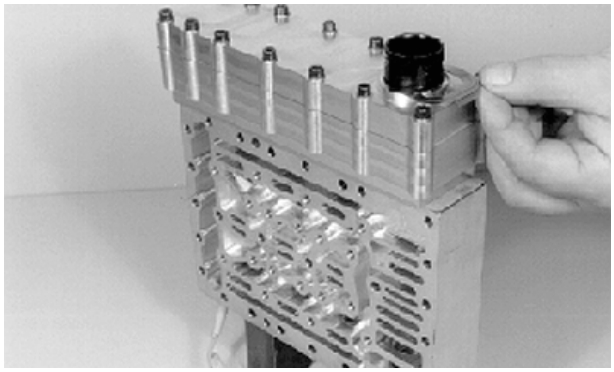
T108692 —UN—16APR97

Solenoid Cover Installation

TW73308,000037D -19-12SEP08-14/24

30. Install wiring harness connector (4) with clamp (3) to cover (2).

NOTE: Ensure that the clamp snaps in.

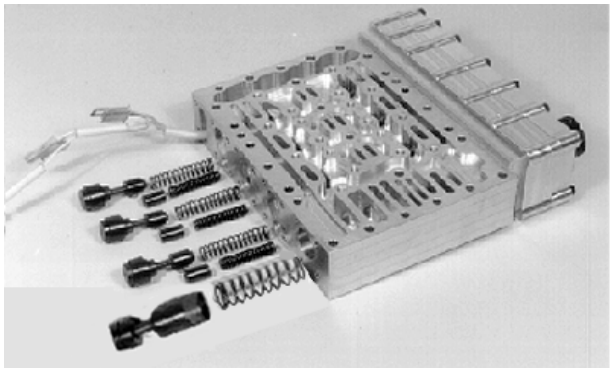


T108693 —UN—16APR97

Wiring Harness Connector Installation

TW73308,000037D -19-12SEP08-15/24

31. Install three compression springs (15) and pressure control valve pistons (14).
32. Install three compression springs (20) and dampening valve pistons (21).
33. Install compression spring (18) and system pressure regulating valve (19).



T135928 —UN—12JAN01

Valves Installed into Control Valve Block

Continued on next page

TW73308,000037D -19-12SEP08-16/24

Section 04
Engine

Contents

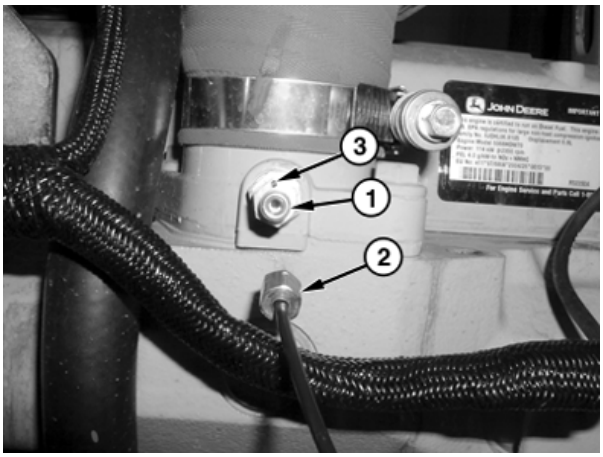
Start Aid Nozzle Remove and Install

1. Open left engine access door.
2. Disconnect start aid tube (2) from start aid nozzle (1).
3. Loosen start aid nozzle jam nut (4) from start aid nozzle (1).
4. Remove start aid nozzle (1) from air inlet.
5. Clean or replace as necessary. Inspect start aid nozzle O-ring (5) and replace if necessary.

NOTE: Red paint dot indexing mark (3) on nozzle indicates direction of nozzle opening.

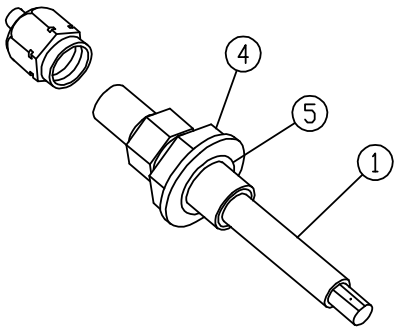
6. Apply PM37421 High Strength Thread Lock and Sealer to nozzle before installing into air inlet with red paint dot indexing mark (3) pointing upward and tighten jam nut.
7. Connect start aid tube (2) to start aid nozzle (1).
8. Close left engine access door.

1— Start Aid Nozzle
2— Start Aid Tube
3— Red Paint Dot Indexing Mark
4— Start Aid Nozzle Jam Nut
5— Start Aid Nozzle O-Ring



TX1021161A —UN—27MAR07

Start Aid Nozzle Location



T196125 —UN—10NOV03

Start Aid Nozzle

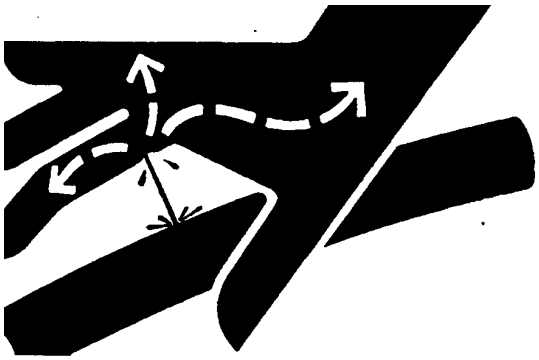
MM16633,0002507 -19-22AUG08-1/1

Cooling Package Plenum Remove and Install

CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury. Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Search for leaks with a piece of cardboard. Protect hands and body from high-pressure fluids.

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

1. Park machine and lower attachment to ground. Allow engine to cool.
2. Turn battery disconnect switch to the OFF position.



X9811 —UN—23AUG88

CAUTION: Prevent injury from pressurized coolant. Explosive release of fluids from cooling system can cause serious burns.

Shut off engine. Remove filler cap when cool to touch. Slowly loosen filler cap to relieve the pressure, then remove.

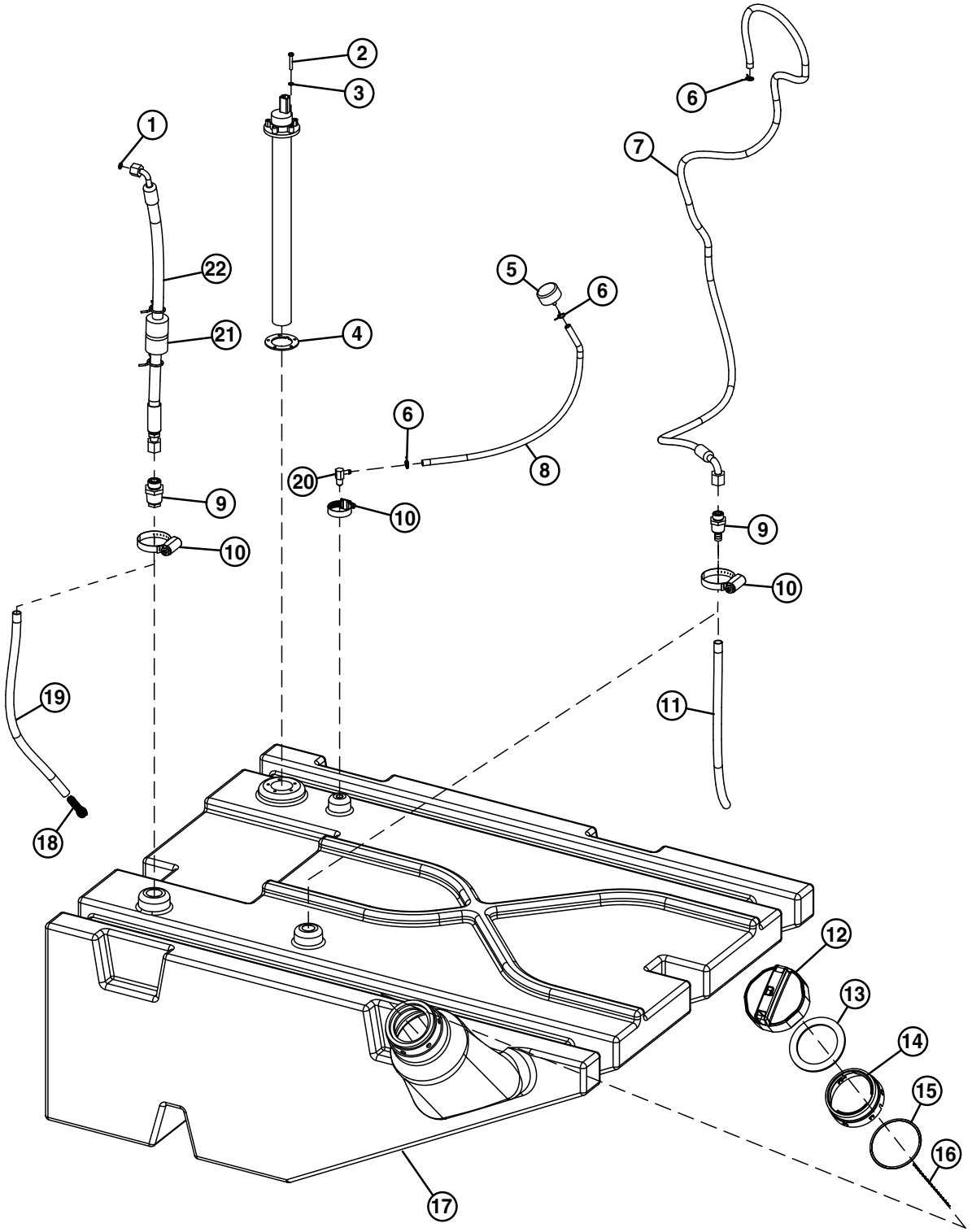
3. Release any pressure from radiator surge tank.

Continued on next page

SW03989,000045A -19-29JUN09-1/4

Fuel Tank Remove and Install

1. Turn battery disconnect switch to the OFF position.
2. Remove counterweights. See Counterweights Remove and Install. (Group 1749.)



TX1046662

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MH66O88,00008EA -19-22AUG08-1/3

Section 09
Steering System

Contents

Steering Cylinder Bushings Remove and Install

IMPORTANT: Only use a hydraulic puller for removal and installing NeverGrease™ Pin Joint type bushings. Never use slide hammer or impact type puller.

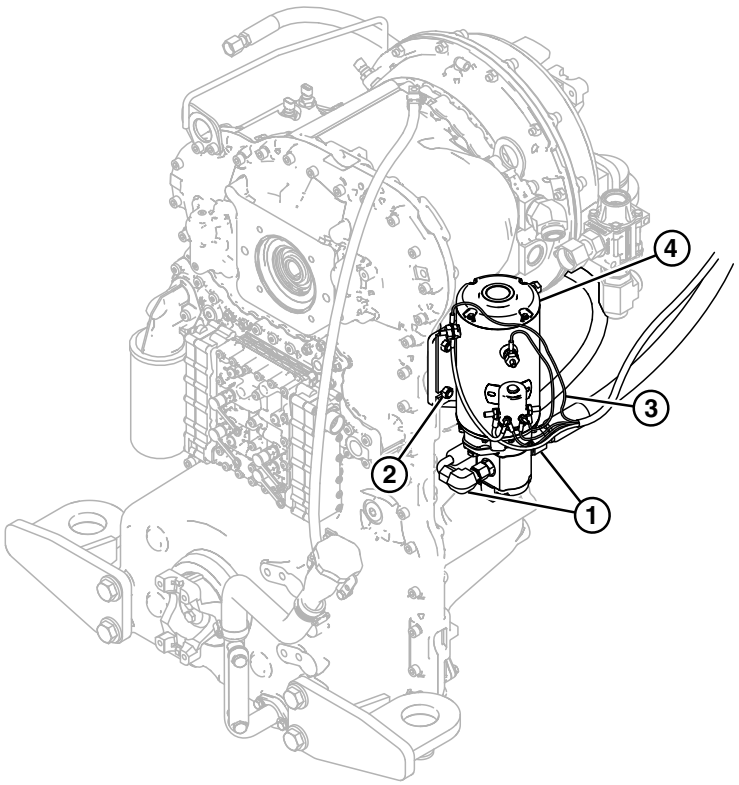
Shimming is required where specified. Some joints are more critical and will be specified when required. Alignment in the joint is important to prevent premature wear.

Remove and install bushings in steering cylinder using Hydraulic Puller Set D01047AA. See NeverGrease™ Pin Joints. (Group 3140.)

NeverGrease is a trademark of Deere & Company

SW03989,00004B4 -19-19MAR08-1/1

Secondary Steering Pump Remove and Install—If Equipped



TX1035011 —UN—16JAN08

TX1035011

Secondary Steering Pump

1— Hydraulic Lines **2— Cap Screw (4 used)** **3— Wiring Harness** **4— Secondary Steering Pump**

CAUTION: Prevent possible injury from unexpected machine movement. Install articulation lock bar before working in frame hinge area.

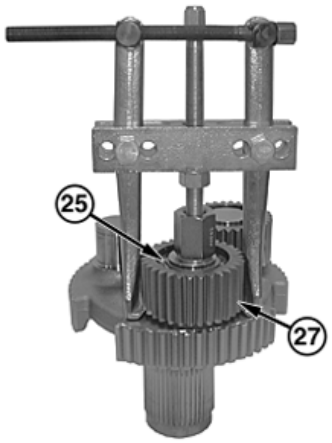
1. Install articulation lock bar. Stop engine.

Continued on next page

MH66O88,00008F5 -19-23SEP08-1/2

13. Remove snap ring (25). Remove planetary pinion (27).

25— Snap Ring (3 used)
27— Planetary Pinion (3 used)



TX1007399A —UN—05MAY06

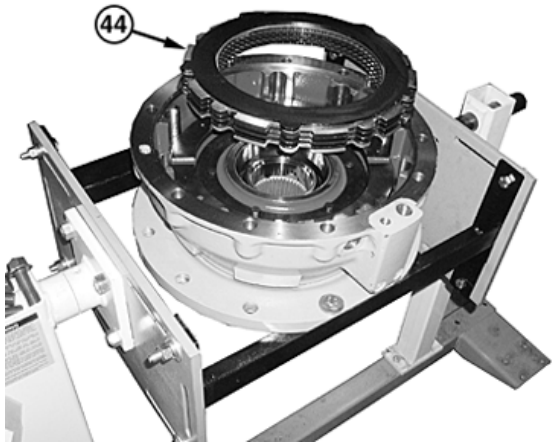
Planetary Pinion Removal

MH66088,0000999 -19-05SEP08-11/30

NOTE: To aid in installation, note order of service brake clutch disks during removal.

14. Remove service brake clutch pack (44). Inspect and replace as necessary.

44— Service Brake Clutch Pack



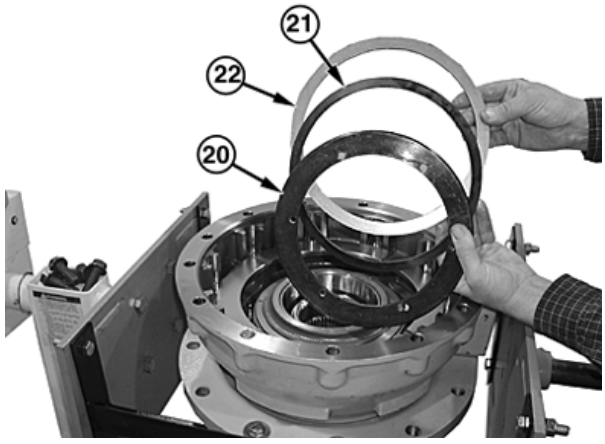
TX1007400A —UN—05MAY06

Service Brake Clutch Pack

MH66088,0000999 -19-05SEP08-12/30

15. Remove cap screws from spring cover.
16. Remove parts (20—22).

20— Spring Cover
21— Spring Disk
22— Disk Washer



TX1007402A —UN—05MAY06

Service Brake Spring

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MH66088,0000999 -19-05SEP08-13/30

Service Brake Bleeding Procedure

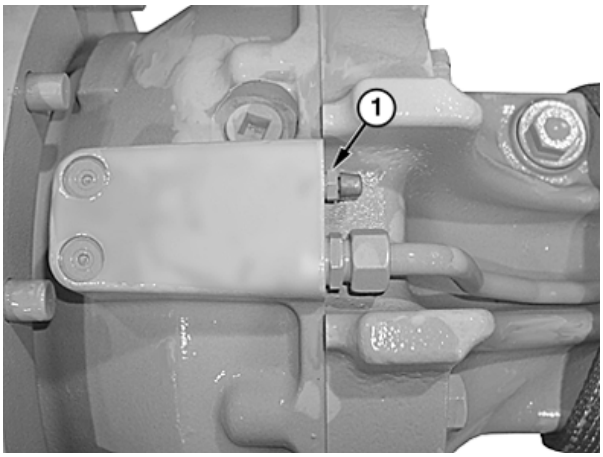
Each axle is equipped with two brake bleed screws, one for each wheel. Brakes must be bled whenever there is a potential for air entering the system.

NOTE: Two people are required to bleed brake system, one to operate brake valve and other to open and close bleed screws.

1. Engage park brake.
2. Put a clear plastic tube on bleed screw (1) and route to hydraulic oil tank or other suitable container.
3. Start engine and run at slow idle.
4. Push and hold brake pedal down until brake bleeding procedure is complete.

IMPORTANT: Stop bleeding procedure if bubbles continue for more than 3 minutes. Check and correct problem, then continue.

5. Open bleed screw until hydraulic oil starts to flow. Close bleed screw when bubbles disappear. Release brake pedal.
6. Repeat procedure for remaining bleed screws.



Service Brake Bleed Procedure

1— Bleed Screw

7. Check hydraulic reservoir oil level. See Check Hydraulic Oil Level. (Operator's Manual.)

MH66088,000099B -19-15AUG08-1/1

1— Drive Shaft Nut
2— Washer
3— Cotter Pin
4— O-Ring (6 used)
5— Yoke
6— Outer Seal
7— Cap Screw (6 used)
8— Housing Cover
9— Fitting
10— Dowel Pin (2 used)
11— Spacer
12— Inner Seal
13— Snap Ring
14— Bearing Cone Assembly
15— O-Ring
16— Shims
17— O-Ring
18— Piston
19— O-Ring
20— Separator Plate (7 used)
21— Friction Disk (7 used)
22— Backing Plate
23— Spring (36 used)
24— Spring Retainer
25— Drive Shaft
26— Bearing Cone Assembly
27— Seal Retainer Snap Ring (2 used)
28— Inner Seal
29— Plug and O-Ring
30— Plug and O-Ring
31— Housing
32— Outer Seal
33— Yoke

NOTE: Yoke (33) is on the splined end of drive shaft (25).

1. Remove yoke (33) from drive shaft (25).
2. Remove cotter pin (3), drive shaft nut (1), washer (2), and yoke (5).
3. Remove seal retainer snap rings (27) and outer seals (6 and 32) from both ends of park brake assembly.
4. Remove spacer (11) and snap ring (13) through the bore of housing cover (8) off of drive shaft (25).

CAUTION: Prevent possible injury from flying objects. Cover plate under spring pressure. Remove cap screws evenly to avoid possible injury.

5. Remove cap screws (7) evenly.

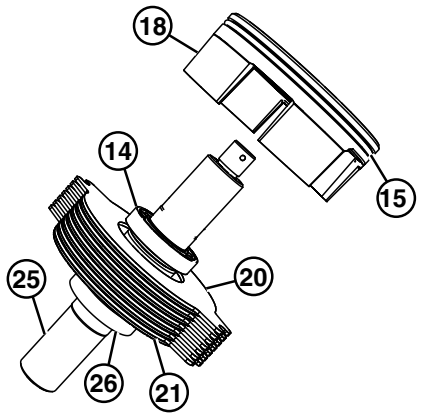
SW03989,0000394 -19-25MAY10-2/5

NOTE: Remove housing cover and piston as one assembly.

6. Remove housing cover (8) from housing (31).
7. Separate piston (18) with O-rings (15 and 19) and shims (16) from housing cover (8).
8. Remove inner seal (12) from bore of housing cover (8).
9. Remove drive shaft (25), friction disks (21), separator plates (20), bearing cone assemblies (14 and 26) from housing (31).
10. Remove bearing cone assembly (14), separator plates (20), and friction disks (21) from drive shaft (25).
11. Remove bearing cone assembly (26) from drive shaft (25).

NOTE: Bearing cups will be in the housing cover and housing.

12. Remove bearing cups from housing cover (8) and housing (31).



TX1029130 —UN—10SEP07

14— Bearing Cone Assembly
15— O-Ring
18— Piston
20— Separator Plate (7 used)
21— Friction Disk (7 used)
25— Drive Shaft
26— Bearing Cone Assembly

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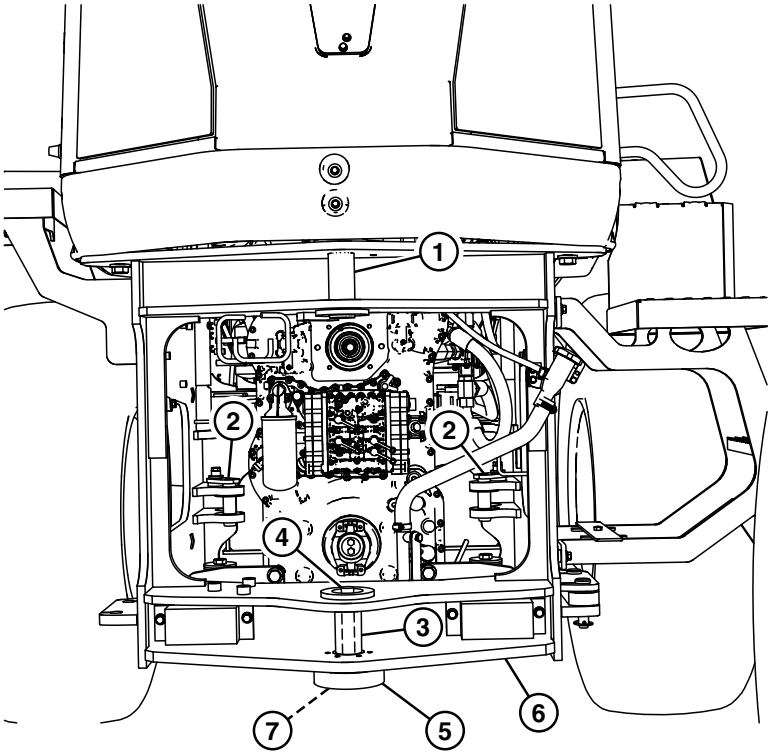
SW03989,0000394 -19-25MAY10-3/5



TX1028964 —UN—05SEP07

TX1028964

Center Articulating Point

1— Upper Pivot Pin
2— Steering Cylinder Pin (2 used)
3— Lower Pivot Pin
4— Cap Screw
5— Bushing
6— Engine Frame
7— Cap Screw (6 used)

10. Remove steering cylinder pins (2).
11. Remove cap screw (4).
12. Remove cap screws (7) holding bushing (5) to the frame.
13. Remove lower pivot pin (3). See Lower Pivot Bearing and Seals Remove and Install. (Group 1740.)
14. Remove upper pivot pin (1). See Upper Pivot Bearing and Seals Remove and Install. (Group 1740.)

Continued on next page
SW03989,0000426 -19-13AUG08-2/3

Section 18
Operator's Station

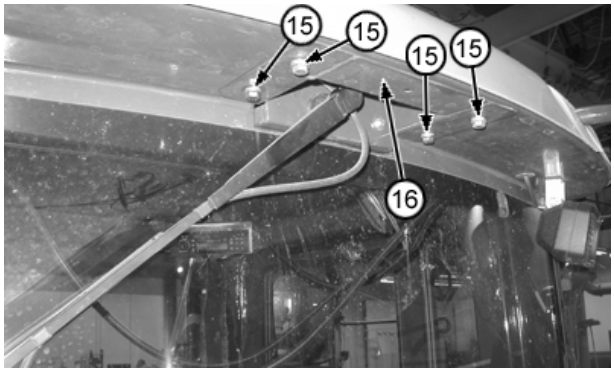
Contents

1— Washer Hose Clip (2 used)
2— Grommet
3— Wiper Blade
4— Wiper Arm
5— Pivot Retaining Hardware Kit
6— Washer Hose Elbow Bulkhead Fitting
7— Pivot Retaining Nut
8— Pivot Washer
9— Rear Wiper Motor
10— Rear Wiper Motor Assembly
11— Rear Wiper Assembly
12— Washer Hose Coupler
13— Washer Hose
14— Washer Arm Hose

4. Disconnect washer hose (13) at coupler (12).

MH66O88,000072D -19-29JUL08-5/6

5. Remove rear wiper motor mounting plate (16).
6. Lower rear wiper motor (9), mounting plate (16), and wiper arm (4).
7. Remove rear wiper motor from mounting plate.
8. Disassemble parts as shown and replace as necessary.
9. Install rear wiper motor to mounting plate.
10. Install wiper motor and mounting plate with mounting hardware.
11. Connect electrical harness to wiper motor.
12. Connect windshield washer hose to coupler.
13. Install roof.



T196711A —UN—18DEC03

Rear Windshield Wiper

15— Rear Wiper Motor Mounting Plate Screws
16— Rear Wiper Motor Mounting Plate

MH66O88,000072D -19-29JUL08-6/6

Air Conditioner System Cleaning Procedures

Flushing: Flushing the system or component is a cleaning process using a liquid solvent to remove oil and debris. Purging is always necessary after flushing to remove solvent from the system or component.

Following is a list of situations that require a flushing procedure be done:

- The compressor has an internal failure.
- No oil remains in used compressor.
- Oil drained from compressor appears or smells overheated.
- System was contaminated with a mixture of refrigerant oils.
- System was left open to the atmosphere long enough for dirt, moisture, or debris to enter the tubing or components.
- System has an internal blockage.

The following solvent is recommended for flushing air conditioner systems. Use only solvents with an equivalent MSDS.

- TY16134 John Deere Air Conditioning System Flushing Solvent

Purging: Purging the system or a component is a cleaning process using a gas to force liquid from the system. Purging alone will not remove refrigerant oil from the system.

Following is a list of situations that require a purging procedure be done:

- After flushing system with solvent, to prevent oil dilution
- System was contaminated with nitrogen or two refrigerants.
- System was left open to the atmosphere and flushing could not be performed.
- Installation of new lines, condenser, or evaporator was required.

Evacuating: Evacuating the system is a process to remove air and moisture from the system, creating a vacuum.

MH66O88,000091C -19-18FEB08-1/1

Air Conditioner System Purge

IMPORTANT: Air compressors used for purging systems require a water separator. Purging without a separator adds moisture, creating hydrofluoric acid when combined with refrigerant oil. Acid is corrosive to metal tubing.

1. Connect dry nitrogen hose to gauge manifold center hose.
2. Connect gauge manifold suction hose to compressor suction port, and open valves.
3. Connect gauge manifold discharge hose to compressor discharge post, and open valve. Disconnect discharge hose from gauge manifold to allow purging nitrogen to atmosphere.
4. Open nitrogen tank valve and adjust regulator to 275 kPa (40 psi) (2.75 bar). Purge system for two minutes. Disconnect nitrogen supply.

Specification	
Nitrogen Tank Valve Regulator—Pressure	275 kPa 2.75 bar 40 psi

5. Evacuate system. See R134a System Evacuate. (Group 1830.)

MH66O88,000091D -19-21FEB08-1/1

Recirculating Air Filter Remove and Install

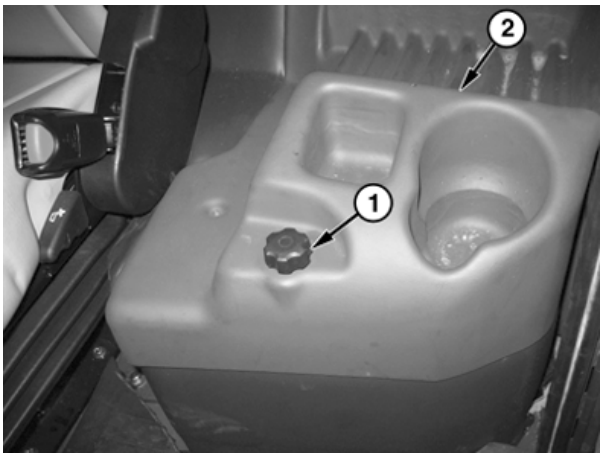
NOTE: The recirculating air filter is located inside left console.

1. Remove knob (1).
2. Remove console tray (2).
3. Remove recirculating air filter retainer (3).
4. Remove recirculating air filter (4).

CAUTION: Prevent possible injury from flying debris. Reduce compressed air to less than 210 kPa (2 bar) (30 psi) when using for cleaning purposes. Clear area of bystanders, guard against flying chips, and wear personal protection equipment, including eye protection.

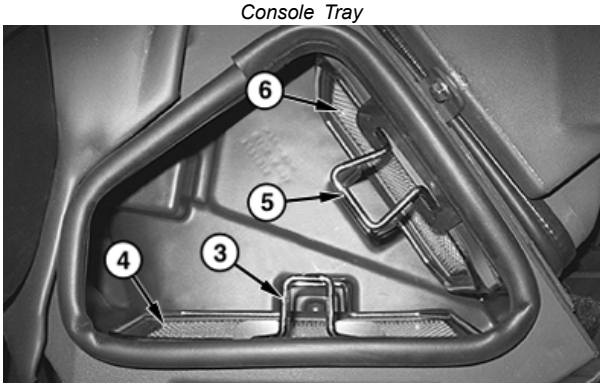
5. Clean filter in one of these ways:
   - Tap filter on a flat surface with the dirty side facing down.
   - Use compressed air opposite to the normal air flow.
   - Wash the filter in warm, soapy water. Flush the filter and let it dry before using the air conditioner.
6. Install recirculating air filter.
7. Install retainer.
8. Install console tray and secure with knob.

1— Knob
2— Console Tray
3— Recirculating Air Filter Retainer
4— Recirculating Air Filter
5— Fresh Air Filter Retainer
6— Fresh Air Filter



TX1037230A —UN—25FEB08

Console Tray



TX1037231A —UN—25FEB08

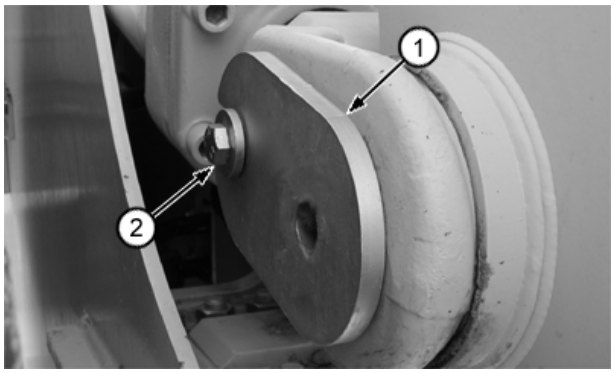
Air Filters

MH66O88,000092B -19-21FEB08-1/1

Section 31
Loader

Contents

15. Install boom cylinder-to-boom pin (1).
16. Install cap screw and washer (2).
17. Remove lifting straps from each side.
18. Install bucket. See Bucket Remove and Install. (Group 3102.)
19. Install bucket linkage. See Bucket Linkage Seals and Bushings Remove and Install. (Group 3140.)
20. Install bucket cylinder. See Bucket Cylinder Remove and Install. (Group 3160.)



TX1032162A —UN—19NOV07

Boom-Cylinder-To-Boom Pin

1— Boom Cylinder Pin **2— Cap Screw and Washer**

SW03989,0000744 -19-05SEP08-3/3

1— Cap Screw (7 used)
2— Shim (as required)
3— Guide Link (2 used)
4— Bucket Link
5— Bushing
6— Bushing
7— Bushing
8— Bellcrank
9— Pin (2 used)
10— Pin
11— Pin (2 used)
12— Leveling Link
13— Bushing (2 used)
14— Bushing
15— Lubrication Fitting (6 used)
16— Shim (as required)
17— Seal (4 used)
18— Seal (6 used)
19— Shim (as required)
20— Shim (as required)
21— Bushing (5 used)
22— Plate (2 used)
23— Safety Sign (2 used)
24— Seal (2 used)

SW03989,00004FB -19-26AUG08-2/6

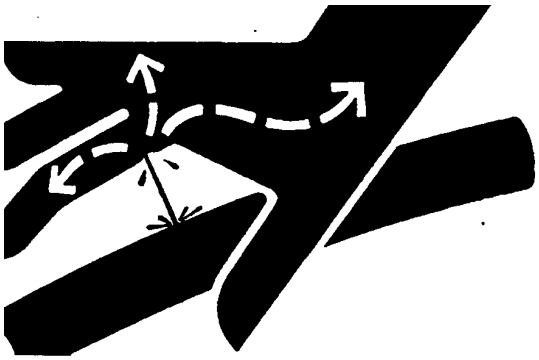
CAUTION: Escaping fluid under pressure can penetrate the skin causing serious injury.

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

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

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

1. Perform Hydraulic System Pressure and Accumulators Discharge. (Group 9025-25.)



X9811 —UN—23AUG88

Escaping Fluid Under Pressure

2. Lower boom to ground and remove attachment from coupler.

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SW03989,00004FB -19-26AUG08-3/6

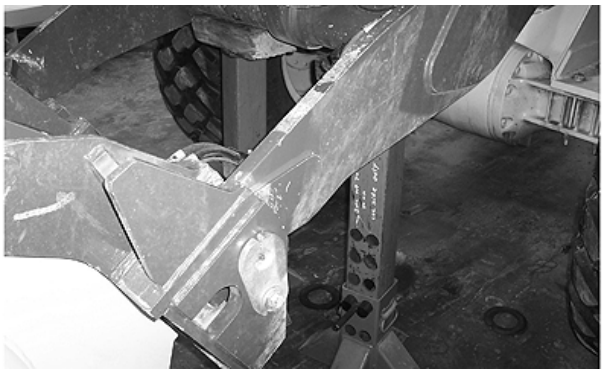
1— Cap Screw (7 used)
2— Shim (as required)
3— Guide Link (2 used)
4— Bucket Link
5— Bushing
6— Bushing
7— Bushing
8— Bellcrank
9— Pin (2 used)
10— Pin
11— Pin (2 used)
12— Leveling Link
13— Bushing (2 used)
14— Bushing
15— Lubrication Fitting (6 used)
16— Shim (as required)
17— Seal (4 used)
18— Seal (6 used)
19— Shim (as required)
20— Shim (as required)
21— Bushing (5 used)
22— Plate (2 used)
23— Safety Sign (2 used)
24— Seal (2 used)

SW03989,00004FD -19-26AUG08-2/6

1. Support boom with 10-ton shop stands. Roll bucket forward until touching ground. If bucket is not attached to coupler, roll coupler forward and support with 10-ton shop stand.

CAUTION: Prevent possible injury from crushing. Heavy component, use appropriate lifting device.

2. Support bellcrank (8) with appropriate lifting device.



T201101A —UN—13AUG04

Boom Support

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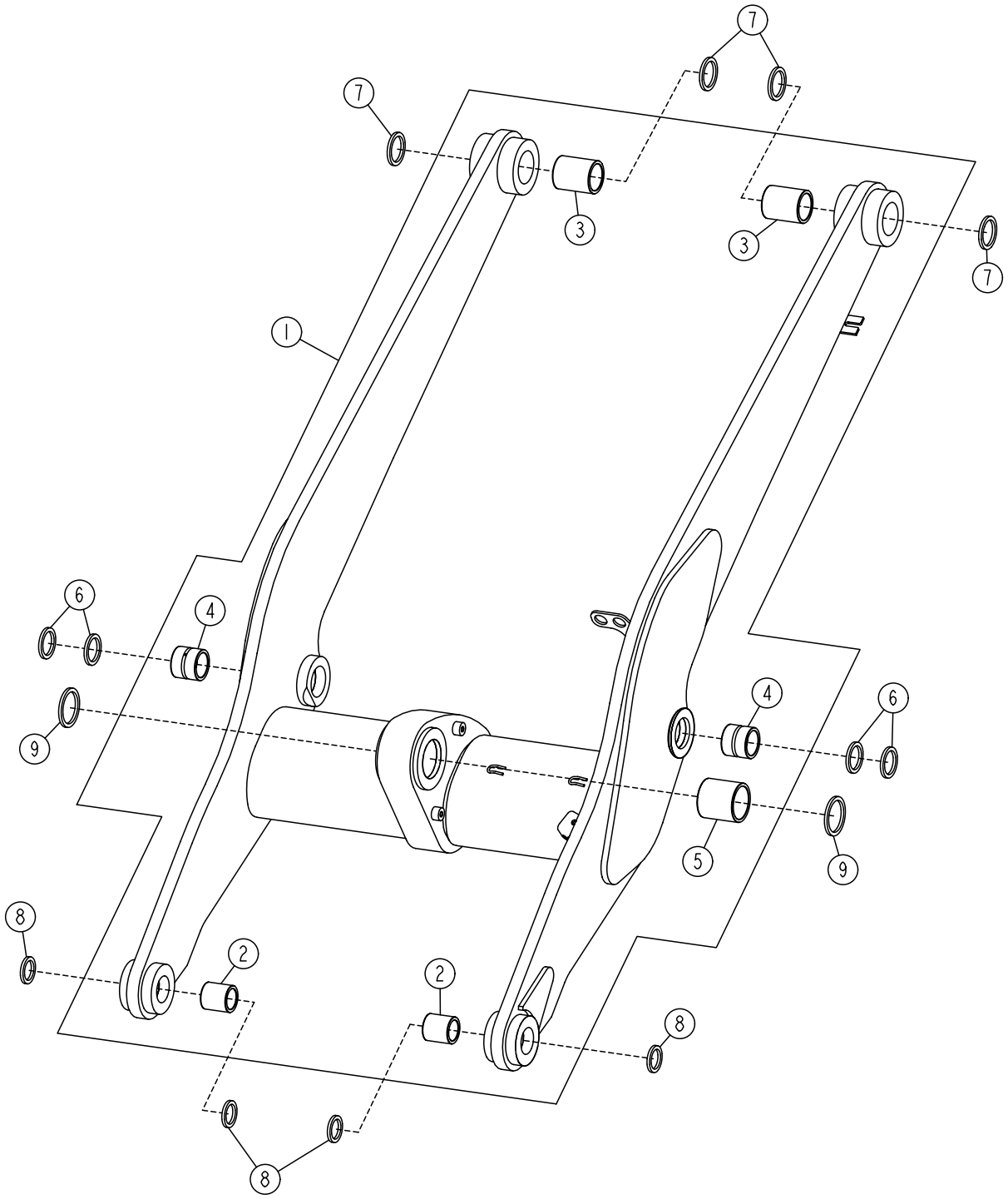
SW03989,00004FD -19-26AUG08-3/6



T202014 —UN—03AUG04

T202014

Powerllel Loader Boom

1— Powerllel Loader Boom
2— Bushing
3— Bushing
4— Bushing
5— Bushing
6— Seal
7— Seal
8— Seal
9— Seal

Continued on next page

SW03989,00004FF -19-26AUG08-4/5

AA95137,0001B27 -19-04AUG08-3/3

Follow-Up Oil Cleanup Procedure

SPECIFICATIONS	
Elemental Analysis PPM (Parts Per Million) Limit	
Iron Quantity	15 parts per million
Copper Quantity	15 parts per million
Silicon (Silica) Quantity	10 parts per million
Chromium Quantity	8 parts per million
Water Quantity	500 parts per million

Following catastrophic system failure and oil cleanup procedure, oil must be monitored closely. The following checks and tests are to help determine possible causes for contamination which could result in system failure. Systems that experience frequent contamination due to harsh conditions or frequent auxiliary component changes, additional filtering equipment is necessary.

1. Check elemental analysis for excess PPM (parts per million) for iron, copper, silicon (silica), chromium, and water.

Elemental Analysis PPM (Parts Per Million) Limit—Specification

Iron—Quantity.....15 parts per million
Copper—Quantity.....15 parts per million
Silicon (Silica)—Quantity.....10 parts per million
Chromium—Quantity.....8 parts per million
Water—Quantity.....500 parts per million

2. If elemental analysis is above specification, oil filtering is necessary.

   Every Six Months for validation purposes use sample valve on Super Caddy to check for correct instrument readings. Results from lab cannot be identical to Super Caddy particle counter readings, but a correlation must exist. If validation testing shows a discrepancy of more than one code per particle size, sample oil again. If discrepancy in instrument readings persist, the particle counter must be checked by PALL Corporation.

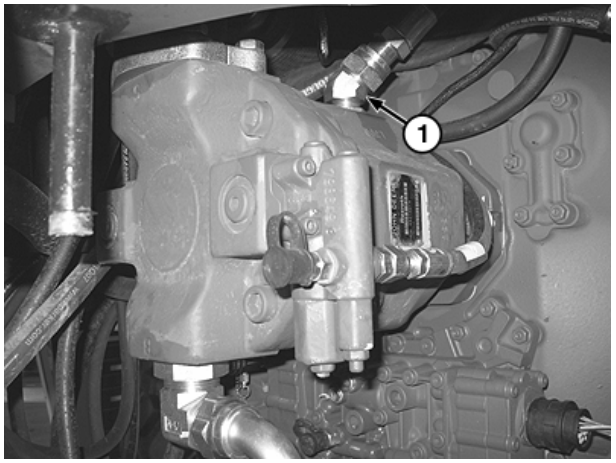
AA95137,0001B28 -19-05SEP08-1/1

Main Hydraulic Pump Remove and Install

NOTE: Check main hydraulic pump flow before removing main hydraulic pump for repair. See Main Hydraulic Pump Flow Test. (Group 9025-25.) If main hydraulic pump does not meet test specification it must be removed. Internal components of the main hydraulic pump rotate group are not serviceable individually. Entire rotate group must be serviced as an assembly.

CAUTION: Prevent possible injury from unexpected machine movement. Install frame articulation lock bar before working in frame hinge area.

1. Install frame articulation lock bar and stop engine.



TX1028840A —UN—31AUG07

Main Hydraulic Pump

1— Fitting

Continued on next page

SW03989,00006D7 -19-21AUG08-1/2

Main Relief Valve Disassemble and Assemble

NOTE: Internal components of main relief valve are not serviceable.

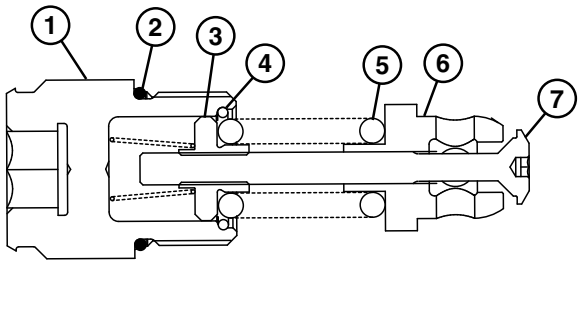
1. Inspect parts for contamination, wear, or damage. Clean or replace as necessary.

IMPORTANT: Coat all internal surfaces with clean hydraulic oil before assembly.

2. Apply clean hydraulic oil to internal surfaces.
3. Apply petroleum jelly to new O-rings before installation.
4. Install main relief valve and tighten to specification.

Specification	
Main Relief Valve—Torque	60 N·m 44 lb-ft

5. Check pressure setting. See Main Relief Valve Pressure Test. (Group 9025-25.)



Main Relief Valve

1— Valve Body
2— O-Ring
3— Floating Pilot Poppet
4— Retaining Spring Clip
5— Spring
6— Floating Poppet
7— Pin Poppet

SW03989,0000441 -19-25APR08-1/1

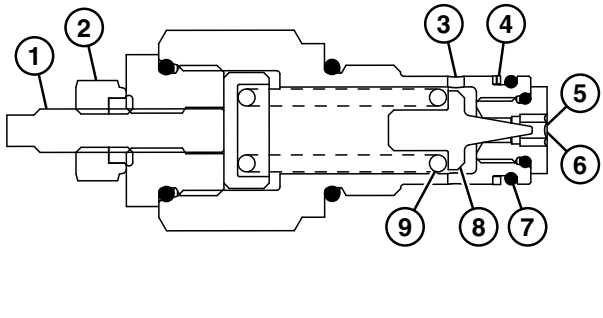
Load Sense Relief Valve Disassemble and Assemble

1. Loosen nut (2) and remove adjusting screw (1) from body.
2. Inspect parts for wear or damage. Replace if necessary.
3. O-rings (7), backup ring (4) and spring (9) are the only repair parts available.

IMPORTANT: Coat all internal surfaces with clean hydraulic oil.

4. Apply clean hydraulic oil to all internal surfaces during installation.
5. Apply petroleum jelly to new O-rings before installation.
6. Assemble load sense relief valve.
7. Install load sense relief valve and tighten to specification.

Specification	
Load Sense Relief Valve—Torque	56.4 N·m 500 lb-in.



Load Sense Relief Valve

1— Adjusting Screw
2— Nut
3— Outlet
4— Backup Ring
5— Inlet
6— Inlet Screen
7— O-Ring
8— Poppet
9— Spring

8. Check pressure setting. See Load Sense Relief Valve Pressure Test and Adjustment. (Group 9025-25.)

SW03989,0000442 -19-24APR08-1/1

IMPORTANT: Avoid damage to wires. Do not twist control lever handle or knobs.

NOTE: Remove control lever support to access auxiliary function pilot control valve connections.

The pilot control valve uses Snap-to-Connect® (STC) Fittings. An STC tool is supplied with vehicle and located in operators manual packet.

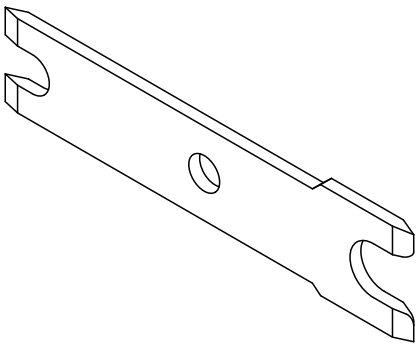
9. Disconnect pilot control valve lines by performing the following:
   a. Clean around the STC fitting.
   b. Identify hydraulic lines for installation purposes.

IMPORTANT: Do not pry against release sleeve (5) or damage to fitting could result.

Do not force release sleeve beyond normal range of travel, otherwise release sleeve could fall off when hose is disconnected. If damage fitting is connected without the release sleeve installed, fitting will not disconnected again.

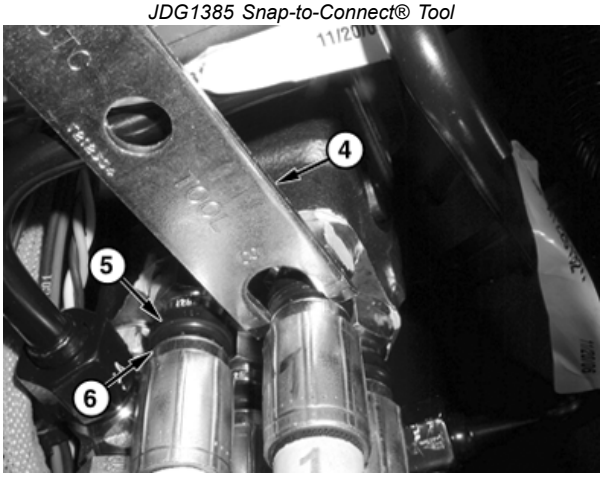
   c. Insert JDG1385 Snap-to-Connect (STC) Tool (4) between release sleeve (5) and shoulder (6) of fitting.
   d. Gently push, do not pry, release sleeve away from shoulder to disconnect the STC fitting.
   e. Pull hydraulic line to disconnect.
   f. Close all openings using caps and plugs.
10. Remove pilot control valve (7).
11. Repair or replace parts as necessary.
12. Install pilot control valve.
13. Connect pilot control valve hydraulic lines. See Hydraulic System Component Location. (Group 9025-15.)
14. Connect all electrical connectors to pilot control valve.
15. Remove vacuum and check hydraulic fluid level. Fill hydraulic oil reservoir if drained. See Check Hydraulic Oil Level or see Drain and Refill Hydraulic System Oil. (Operator's Manual.)
16. Install pilot control trim panel and switch pad.
17. Install right armrest assembly.
18. Turn battery disconnect to the ON position.
19. Operate machine and check for leaks at hydraulic line connections.
20. Close access panel.

Snap-to-Connect is a registered trademark of Eaton Corporation



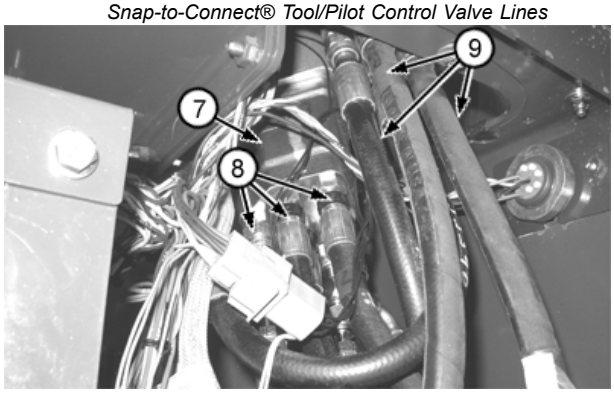
TX1022106 —UN—17APR07

JDG1385 Snap-to-Connect® Tool



TX1022723A —UN—25APR07

Snap-to-Connect® Tool/Pilot Control Valve Lines



T196380A —UN—24NOV03

Pilot Control Lines (Single Lever with Auxiliary Function Pilot Control Valve Shown)

4— JDG1385 Snap-to-Connect® (STC) Tool
5— Release Sleeve
6— Shoulder
7— Pilot Control Valve
8— Pilot Control Valve Lines
9— Auxiliary Function Pilot Control Valve Lines

21. Remove articulation lock bar.

SW03989,00006DE -19-11AUG08-2/2

1— Fan Guard Retaining Cap Screw (6 used)
2— Washer (6 used)
3— Nut (2 used)
4— Hydraulic Fan Motor
5— Bracket
6— Hydraulic Fan Motor Mounting Cap Screw (2 used)
7— Fan Housing
8— Washer (11 used)
9— Grille Retaining Cap Screw (11 used)
10— Grille
11— Fan Blade Mounting Cap Screw (6 used)
12— Fan Blade
13— Hub Retaining Nut
14— Hub
15— Nut (6 used)
16— Washer (4 used)
17— Bracket Mounting Cap Screw (4 used)
18— Fan Guard

1. Turn battery disconnect switch to OFF position or disconnect negative battery cable.
2. Remove axle oil cooler (if equipped) and set aside. See Power Train Component Location. (Group 9020-15.)
3. Remove grille retaining cap screws (9), disconnect rear light electrical connectors, and remove grille (10).
4. Remove fan blade mounting cap screws (11) and remove fan blade (12).
5. Apply vacuum or drain hydraulic reservoir into appropriate container for storage or disposal. See Drain and Refill Capacities. (Operator's Manual.)
6. Tag and disconnect hydraulic lines to hydraulic fan motor. Close all openings using caps and plugs.
7. Remove fan guard retaining cap screws (1) and remove fan guard (18).
8. Remove hydraulic fan motor (4) with bracket (5) and hub (14).
9. Remove hub (14) and bracket (5) from hydraulic fan motor (4).
10. Remove hydraulic fittings from hydraulic fan motor.
11. Repair or replace parts as necessary.
12. Install hydraulic fittings to hydraulic fan motor.
13. Install bracket to hydraulic fan motor.

IMPORTANT: Avoid machine damage. Install new fan hub retaining lock nut.

14. Install hub to hydraulic fan motor. Tighten hub retaining nut (13) to specification.

Specification

Hub Retaining Nut—Torque.....81 N·m
60 lb-ft

15. Install hydraulic fan motor (4) to fan housing (7).
16. Connect hydraulic lines.
17. Remove vacuum or fill hydraulic oil reservoir. See Drain and Refill Capacities. (Operator's Manual.)
18. Install fan guard (18).
19. Install fan blade (12) to hub (14).
20. Connect rear light electrical connectors and install grille (10).
21. Install axle oil cooler (if equipped).

AA95137,0001B54 -19-02OCT08-2/2

Dealer Fabricated Tools

- 311.15 mm (12.25 in) of 50.80 mm (2.00 in.) x 4.76 mm (0.18 in.) Mild Steel Flat Stock (4 used).
- 558.80 mm (22.00 in.) lengths of 50.80 mm (2.00 in.) X 50.80 mm (2.00 in.) X 4.76 mm (0.18 in) Mild Steel Angle (2 used).

PM10405,00002C0 -19-20AUG08-2/2