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29. Disconnect drive shaft from engine using JDG820 Flywheel Turning Tool to rotate drive shaft for access to cap screws.

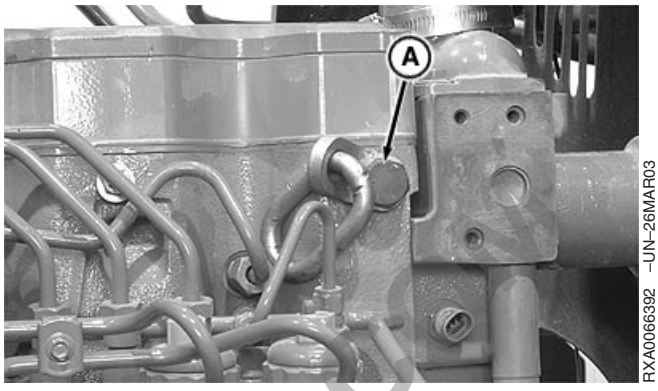
IMPORTANT: Mounting brackets must be tightened to prevent damage to injection lines and other engine components during engine removal.

30. Install JDG19 Special Mounting Brackets (A and B) on cylinder head using 5/8 in. x 1.75 in. x grade 5 cap screws.

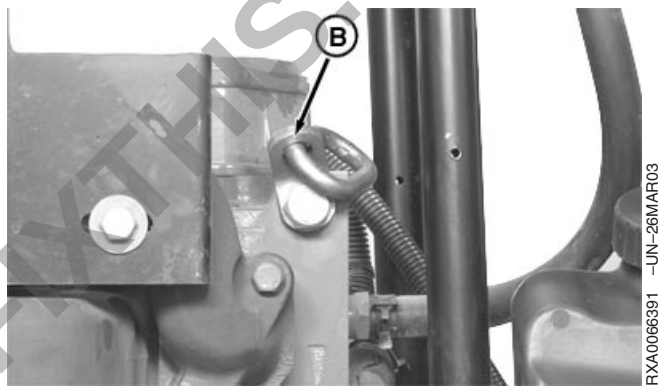
CAUTION: Prevent possible personal injury. JDG23 Engine Lifting Sling is the ONLY APPROVED method for lifting engine. Use extreme caution when lifting and NEVER permit any part of the body to be positioned under an engine being lifted or suspended.

31. Attach JDG23 Engine Lifting Sling (C) to JDG19 Special Mounting Brackets and overhead hoist or floor crane.

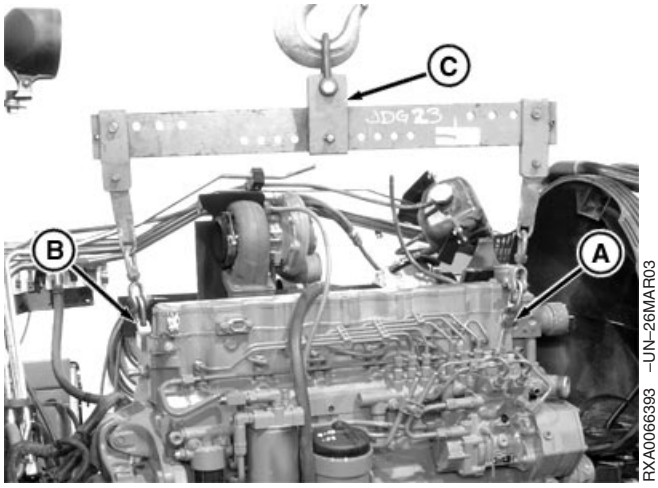
A—Front JDG19 Special Mounting Bracket
B—Rear JDG19 Special Mounting Bracket
C— JDG23 Engine Lifting Sling



Front Bracket



Rear Bracket



Continued on next page

OURX956,00001F4 –19–26SEP05–4/8

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Specifications

Item	Measurement	Specification
U-Pipe Mounting Cap Screws	Torque	130 N•m (96 lb-ft)
Turbo Clamp	Torque	7 N•m (62 lb-in.)
Air Brake Mounting Bracket Cap Screws	Torque	130 N•m (96 lb-ft)

OURX956,00001FE –19–04APR03–1/1

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K5—Transmission Enable Relay
K6—Tail Light Relay
K7—Engine Control Unit Power Relay
K8—Right Turn Signal Relay
K9—Left Turn Signal Relay
K10—Fender Turn Signal Relay
K11—Horn Relay
K12—Low Beam Relay
K13—Loader Low Beam Relay
K14—High Beam Relay
K15—Loader High Beam Relay
K16—Implement Connector Relay
K17—Accessory Relay
K18—ELX Relay

NOTE: Load center is located behind seat at top of back panel.

OUO6045,0000324 –19–10SEP03–3/3

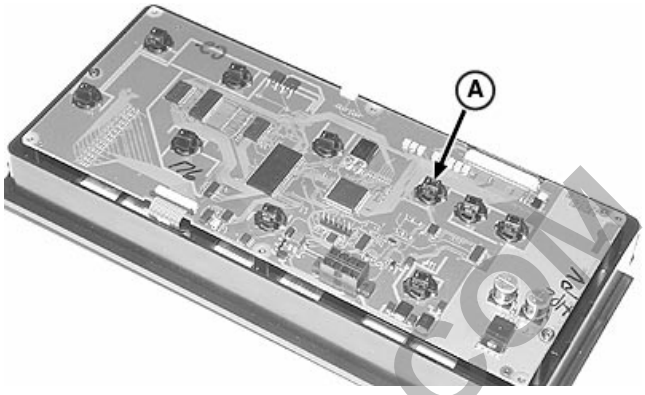
40
10
48

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5. Rotate light bulb (A) counterclockwise 1/4 turn to remove.
6. Install new bulb in reverse order of removal.

A—Light Bulb (10 used)



RXA0068521 –UN–08JUL03

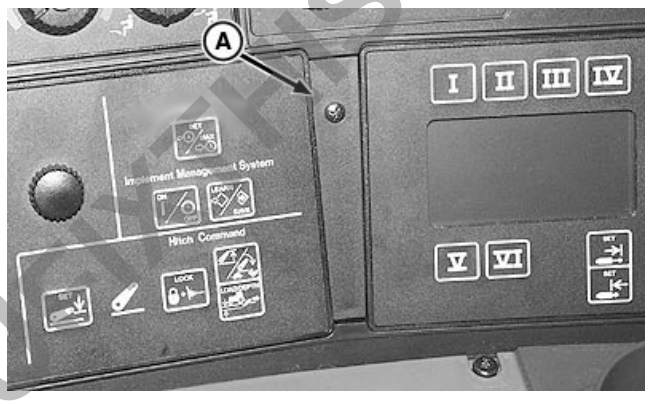
OUMX005,0001672 –19–25MAY03–2/2

Replacing SCV TOUCHSET™ Control Display Light Bulbs

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12

1. Remove screw and plate (A).
2. Pull out SCV TouchSet Control unit from side console.
3. Disconnect plug (B).
4. Remove screws and back cover.

A—Plate
B—Plug



RXA0068519 –UN–08JUL03



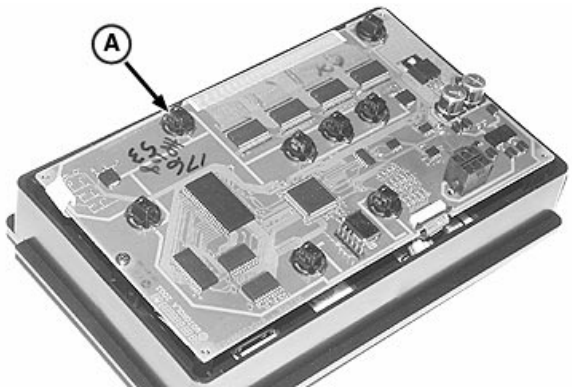
RXA0068522 –UN–08JUL03

TOUCHSET is a trademark of Deere & Company

OUMX005,0001674 –19–25MAY03–1/2

5. Rotate light bulb (A) counterclockwise 1/4 turn to remove.
6. Install new bulb in reverse order of removal.

A—Light Bulb (8 used)



RXA0068523 –UN–08JUL03

OUMX005,0001674 –19–25MAY03–2/2

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Repair Pressure Regulating Valve

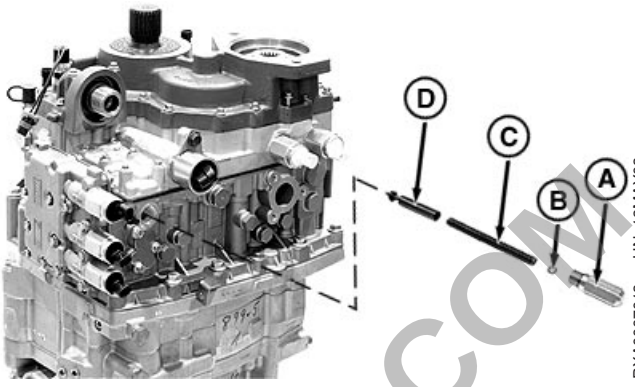
1. Remove plug (A) together with shims (B), spring (C) and pressure regulating valve (D).
2. Check parts for wear and replace if necessary.

NOTE: Before installing the valve, check that bore is clean and allows a through passage.

3. Install pressure regulating valve and tighten plug to specification.

Specification

Pressure Regulating Valve Plug—Torque ..... 30 N•m (22 lb-ft)



RXA0067013 –UN–12MAY03

A—Plug
B—Shims
C—Spring
D—Valve Spool

OURX985,000007A –19–08MAY03–2/3

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Repair Cooling Oil Control Valves And Cooling Valve

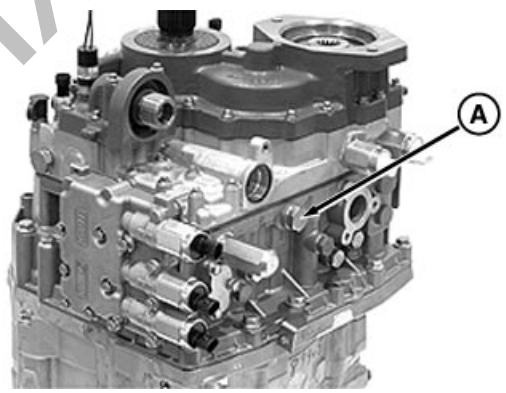
1. Remove plug (A) and cooling oil control valves (B), cooling valve (D) and springs (C).
2. Check individual parts for wear. Replace if necessary.

NOTE: Before installing the valves, check that the bore is clean and allows a through passage.

3. Install valves and tighten plug to specification.

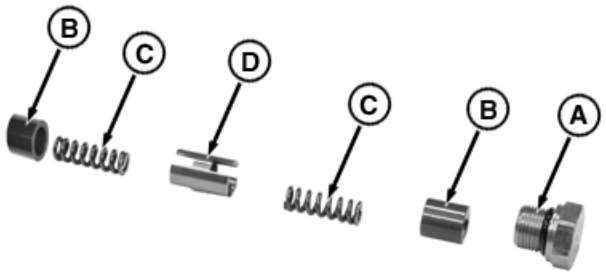
Specification

Cooling Oil Control Valves And Cooling Valve Plug—Torque ..... 20 N•m (177 lb-in.)



RXA0067053 –UN–19MAY03

A—Plug
B—Cooling Control Valves (2 used)
C—Springs (2 used)
D—Cooling Valve



RXA0067054 –UN–19MAY03

OURX985,000007A –19–08MAY03–3/3

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6. Remove clutch hub (A), return spring (B), disks and piston plate (C) from drum.
7. Remove plates and disks from hub.
8. Remove pins and springs from piston plate.
9. Remove clutch piston, seal ring, and seal ring on clutch drum.

A—Clutch Hub
B—Return Spring (12 used)
C—Piston Plate



RW18875A –UN–26AUG98

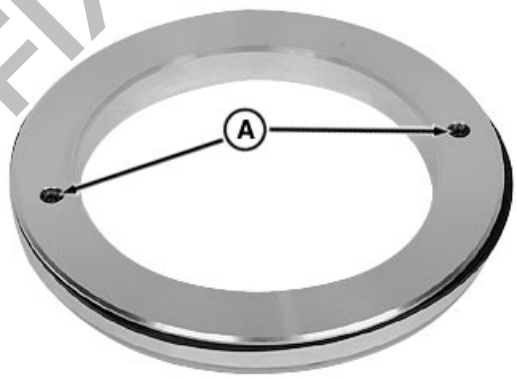
OURX985,0000093 –19–08MAY03–3/10

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10. Check ball outlet valves (A).

NOTE: Ball outlet valve consists of ball, spring and retainer.

A—Outlet Valves



RXA0066516 –UN–08APR03

Continued on next page

OURX985,0000093 –19–08MAY03–4/10

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25. **For tractors WITHOUT HITCH:** Remove plugs from load-sense shaft bores in differential case and install JT07122-3 No-Hitch Adapter.

26. **For tractors WITH HITCH:** Install JT07122-11 Bushing Collar Adapter (A) on both ends of load-sense shaft, and secure with Allen-head set screws (C).

27. Adjust horizontal tubes (D) outward so uprights are directly below Bushing Collar Adapters or No-Hitch Adapter ends. Install horizontal position pins (E).

28. Adjust vertical tubes (F) upward.

29. Install cap (G) on Bushing Collar Adapters or No-Hitch Adapter and install vertical position pins (H).

30. Install attaching pins (B).

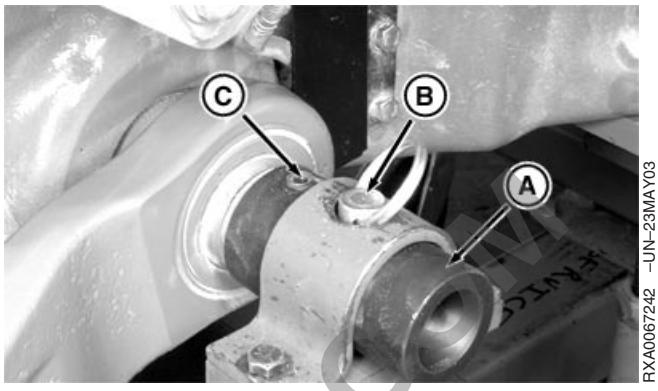
31. **For EUROPEAN tractors with PICK-UP HITCH, perform the following step:** Install DFRW87 Pick-Up Hitch Adapter Plate between hitch and rear differential housing support (I).

32. **For ALL tractors, perform the following steps:** Adjust differential housing supports (I) upward and install pins (J).

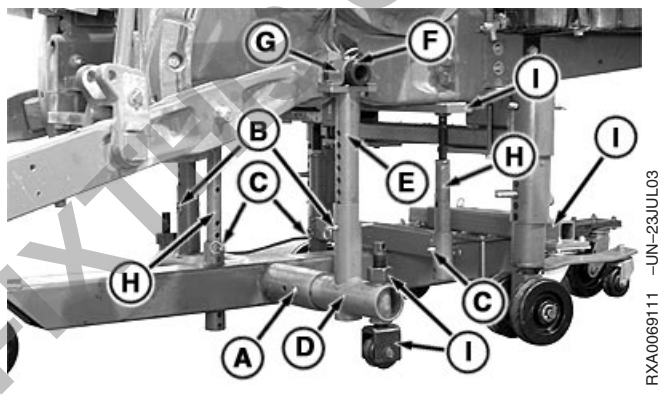
33. Raise three screws on supports until screws are snug against bottom of tractor.

34. Adjust wheels (K) on stand until wheels contact floor.

35. Remove rear wheels of tractor.



RXA0067242 –UN–23MAY03



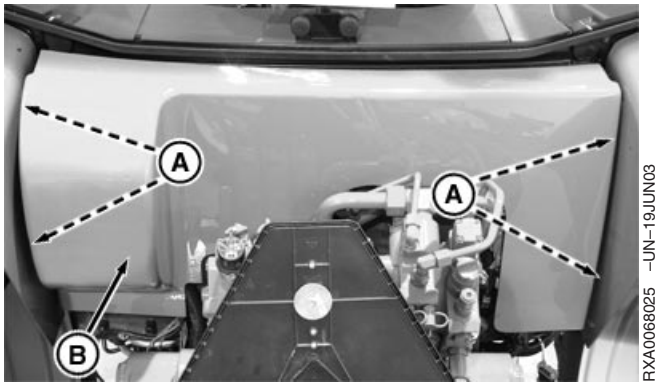
RXA0069111 –UN–23JUL03

A—Bushing Collar Adapter
B—Attaching Pins
C—Allen-head Set Screw
D—Horizontal Tubes
E—Horizontal Position Pin
F—Vertical Tubes
G— Stand Attaching Cap
H—Vertical Position Pins
I— Rear Differential Housing Support
J—Support Pins
K—Wheels

OURX985,0000117 –19–23JAN06–8/15

36. Loosen screws (A) under fenders and remove shield (B).

A—Screws (4 used)
B—Panel



RXA0068025 –UN–19JUN03

Continued on next page
OURX985,0000117 –19–23JAN06–9/15

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NOTE: Air pump cam follower (A) must be installed in bearing support frame before the frame is installed.

3. Install air pump cam follower (A).

A—Air Pump Cam Follower



RXA0052051 –UN–23FEB01

OURX927,0000F68 –19–15DEC04–3/8

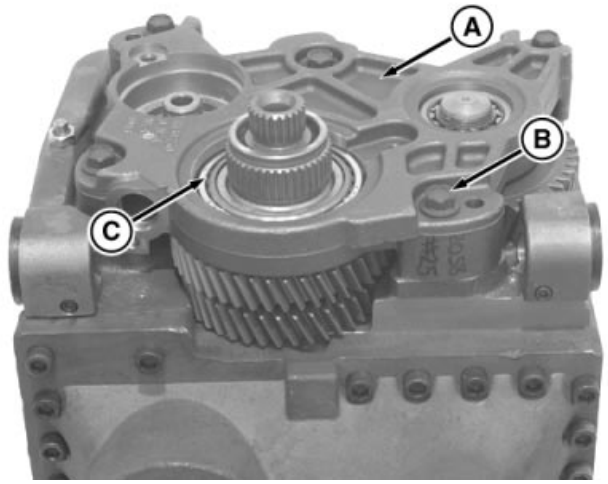
51
20
9

4. Install bearing support frame (A) and cap screws (B).

Specification	
Bearing Support Frame-to-Hydrostatic Housing—Torque	130 N•m (95 lb-ft)

5. Install bearing cup (C)

A—Support Frame
B—Cap Screws
C—Bearing Cup



RXA0052315 –UN–16MAR01

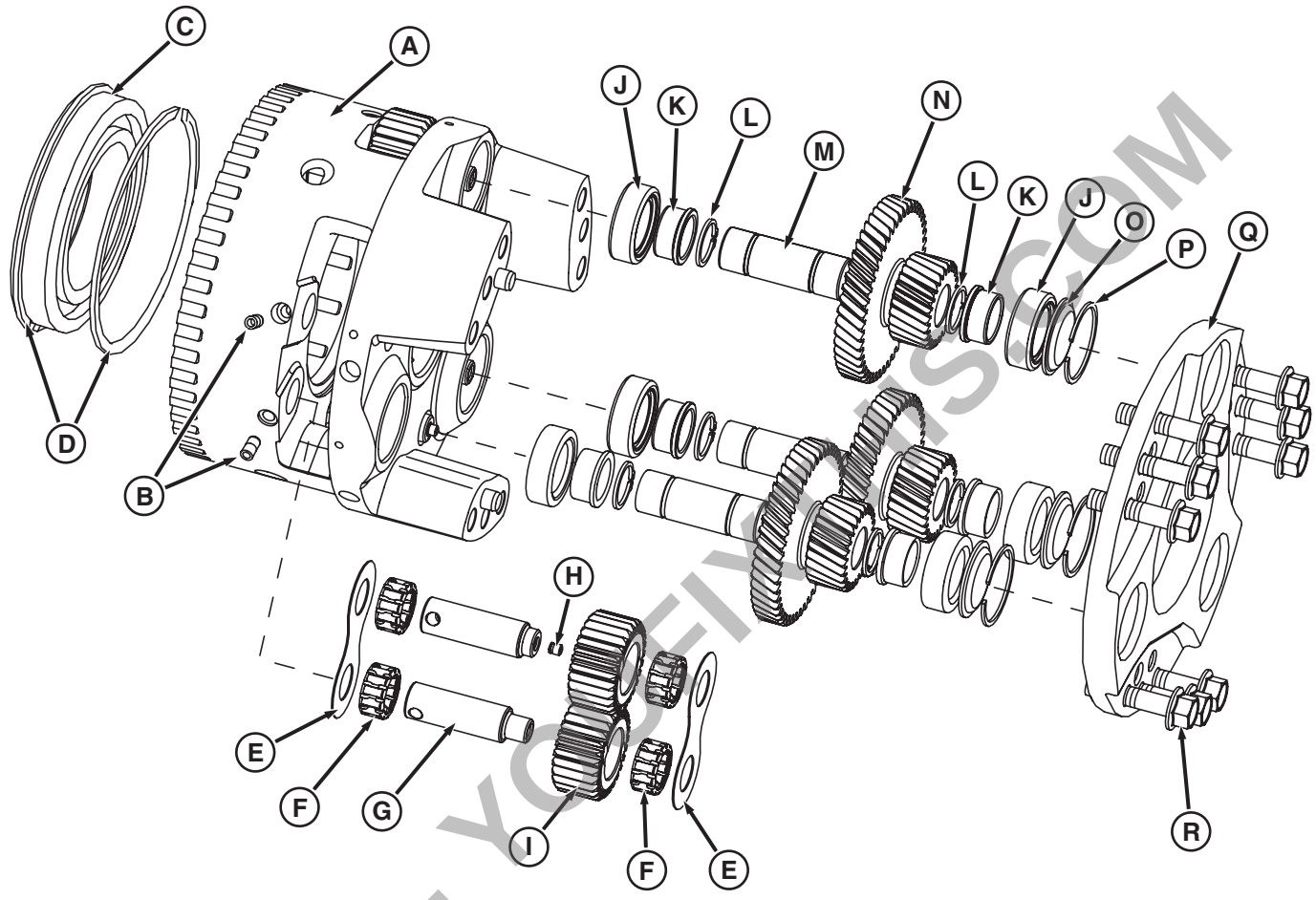
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Exploded View—Planetary Assembly



RXA0059669 –UN–01MAR02

51
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19

A—Planetary Carrier
B—Retaining Pins (6 used)
C—Bearing
D—Retaining Rings
E—Thrust Plates
F—Pinion Bearings
G—Shafts
H—Plugs
I—Reverse Pinions
J—Bearing
K—Bearing Race
L—Retaining Ring (6 used)
M—Shaft
N—High/Low Pinion
O—Cover
P—Retaining Ring
Q—Cover (Service with Carrier)
R—Cap Screws (9 used)

OURX927,0000F7D –19–08OCT02–1/1

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General Repair Procedures—MFWD Clutch

NOTE: Before beginning repairs, review the following guidelines. These are provided to emphasize the need for attention to detail and care when servicing the clutch.

Thoroughly clean outside of housing to reduce possibility of contamination.

Disassembly and Assembly:

- Completely clean all components after any failure that generates contamination.
- Fasteners must be tightened to specified torque.
- Lubricate each component part with clean hydraulic oil.
- Perform specified end play check.
- Install correct end play shim pack.
- Needle bearings, thrust washers, and seals must be lightly coated with petroleum jelly during assembly.
- Use new O-rings, seals, and gaskets.

Cleaning and Inspection:

Clutch Assembly

IMPORTANT: DO NOT use solvent to clean disks; use a lint-free cloth. New disks should be soaked in hydraulic oil for 15 minutes before assembly.

- Clean all parts with clean, suitable solvent and use moisture-free air to dry all parts and clean oil passages.

Clutch Packs

- Inspect disk plate teeth for wear or damage. Check plates for flatness.
- Clean all oil passages.
- Inspect disks, steel plates, and piston return plates for worn or scored surfaces.

NOTE: If disk facing material chips, flakes, or scratches easily, disk should be replaced regardless of facing thickness.

- Check hub thrust surfaces for scoring and splines for excessive wear or damage.

Bearings

- Clean bearings with clean solvent.
- Dry bearings thoroughly and lubricate with oil before inspection. Inspect bearings for roughness of rotation, and excessive wear of rollers or balls.
- Never dry bearings with compressed air. Spinning a bearing without lubrication can damage bearings.
- Inspect thrust washers and thrust surfaces for distortion, roughness, scoring, or wear.

Shafts

- Inspect shaft bearing surfaces for wear or damage.
- Check shaft splines.
- Inspect bushings for scoring, burrs, roundness, sharp edges and evidence of overheating. Remove scores with crocus cloth. Remove burrs and sharp edges with a scraper or knife blade. Replace bushing if out-of-round, deeply scored, or excessively worn.

Gears

- Examine gear teeth for scoring, chipping, or excessive wear. Replace as necessary.

OURX927,000102E –19–23SEP03–1/1

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IMPORTANT: Wheel hub bearing cone must be installed before hub seal is pressed into hub.

42. Install wheel hub bearing cone (A).

43. Apply a thin coat of TY16021 Form-in-Place Gasket to wheel hub seal bore.

44. Apply a coating of oil to rubber inside diameter of hub seal and wheel hub bearing cone (A) to aid installation of wheel hub and adjustment of bearings.

45. Install seal onto JDG761 Seal Installer with long wiper lip (B) toward driver.

NOTE: Specified driver must be used to correctly install the seal.

46. Install seal into wheel hub using seal installer until tool is tight against hub.

47. Apply a thin coat of grease to wiper seal lip.

48. Clean sealing and bearing surfaces of knuckle spindle housing.



RW36575 –UN–21OCT97

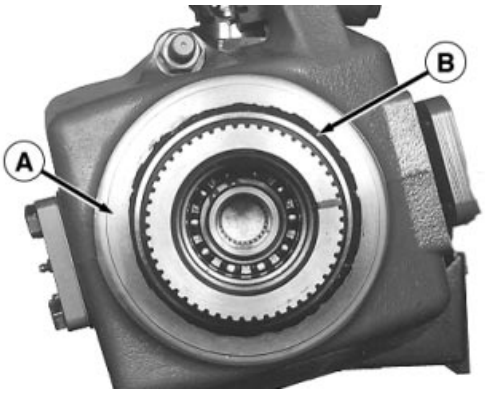
A—Bearing Cone
B—Wiper Seal Lip

OURX927,0001042CONV –19–06FEB04–23/28

49. Clean rust and dirt from seal surface (A) using a scraper and emery cloth.

50. Apply a heavy bead of grease (B) to shoulder of knuckle housing to fill space between seal ID and wiper lip of seal.

A—Seal Surface
B—Grease



RW36658 –UN–13MAR98

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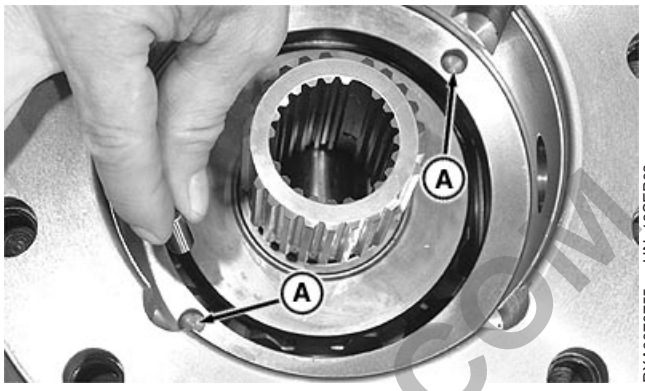
OURX927,0001042CONV –19–06FEB04–24/28

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12. Install two pins (A).

A—Pins



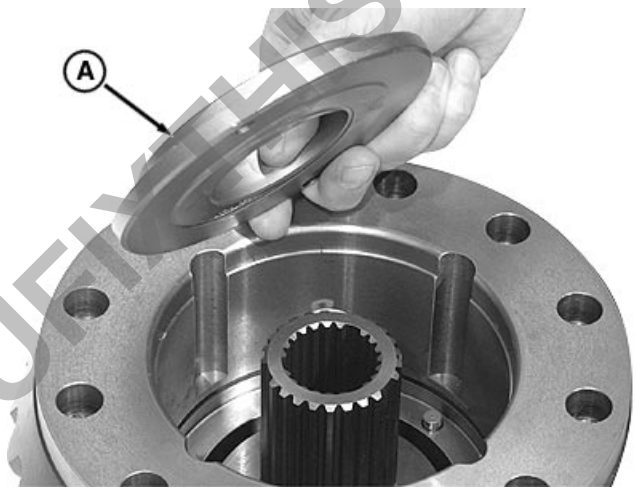
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OURX927,000104FCONV –19–09FEB04–11/19

NOTE: Make sure holes in spacer (A) are aligned with pins in housing.

13. Install spacer (A).

A—Spacer



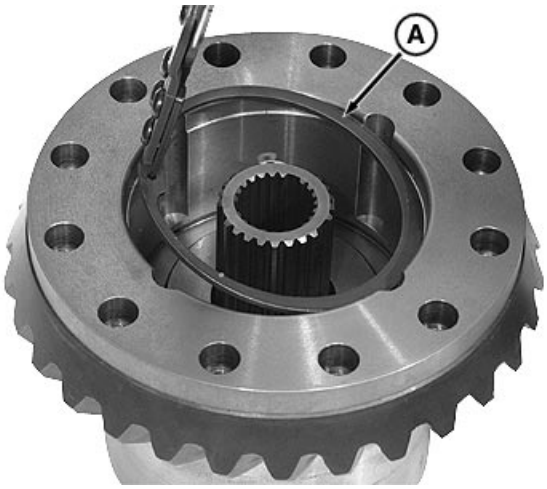
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OURX927,000104FCONV –19–09FEB04–12/19

14. Install snap ring (A) using snap ring pliers.

A—Snap Ring



RXA0070759 –UN–19SEP03

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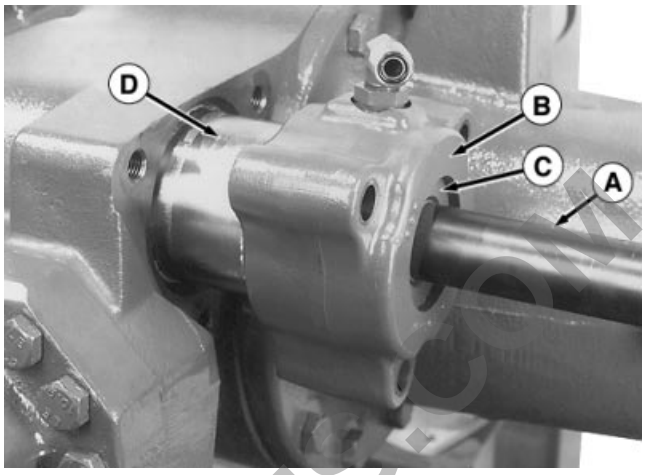
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NOTE: Barrel may remain in differential case.

18. **For SUSPENDED MFWD axle, perform the following steps:**

    a. Remove rod (A), cap (B) rod guides (C), and barrel (D) from case.

A—Piston Rod
B—Steering Cylinder Cap
C—Rod Guide
D—Barrel



RW36785 –UN–02APR98

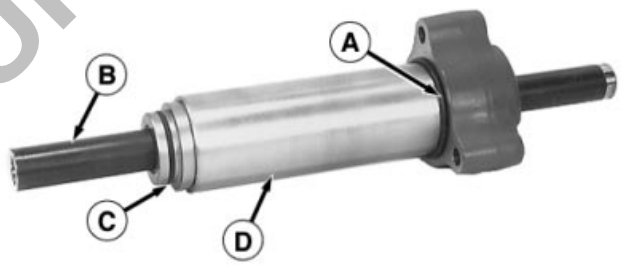
OURX927,0001061 –19–09FEB04–6/13

    b. Remove barrel-to-case O-ring (A).

    c. Remove rod (B) and guide (C) from barrel (D).

    d. Remove guide from piston rod.

A—O-Ring
B—Piston Rod
C—Rod Guide
D—Barrel

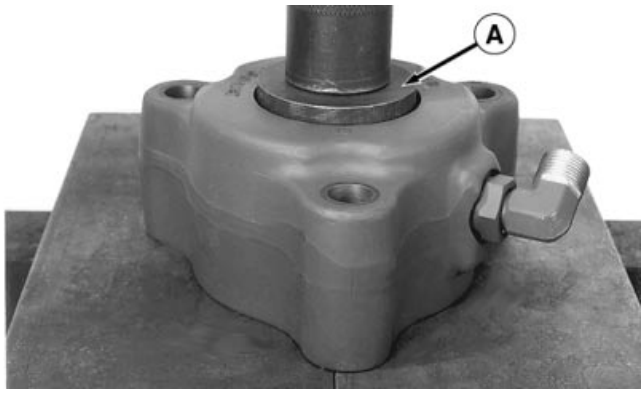


RW36786 –UN–02APR98

OURX927,0001061 –19–09FEB04–7/13

    e. Remove guide and barrel from cap using a press and a 68 mm or 2-11/16 in. driver disk (A).

A—Driver Disk



RW36787 –UN–02APR98

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OURX927,0001061 –19–09FEB04–8/13

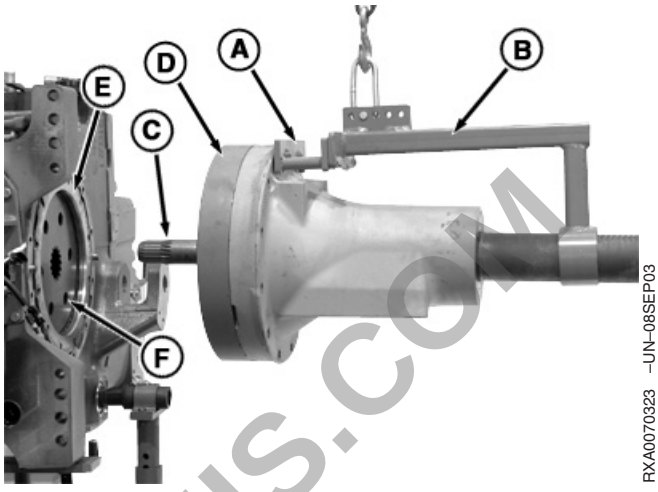
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11. Attach adapter JDG1707 (A) to JT07218 lifting bracket (B) and install in cap screw holes.
12. Remove remaining final drive-to-differential case cap screws.

CAUTION: Parts (C—F) can fall causing possible injury.

13. Carefully move final drive away from differential case.
14. Lower tractor to splitting stand making sure tractor is firmly supported.



RXA0070323 –UN–08SEP03

A—JDG1707 Adapter
B—JT07218 Lifting Bracket
C—Sun Pinion Shaft
D—Ring Gear
E—Brake Backing Plate
F—Brake Disk

OURX956,000016E –19–09FEB04–4/4

Install Final Drive

Install final drive noting the following:

- Clean sealing surfaces on axle housing, final drive ring gear, and differential case.
- Apply TY16021 Form-in-Place Gasket. (See SEALING INSTRUCTIONS in this group.)
- Tighten final drive-to-differential case cap screws then to specification.

Final Drive-to-Differential Case Cap Screws—Specification

Cap Screw—Torque	230 N•m (170 lb-ft)

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Essential or Recommended Tools

NOTE: Order tools from the U.S. SERVICEGARD™ or European Microfiche Tool Catalogs.

ESSENTIAL TOOLS listed are required to perform the job correctly and are obtainable **only** from *SERVICEGARD* or *European Tool Catalogs.*

RECOMMENDED TOOLS, as noted, are suggested to perform the job correctly. Some tools may be available from local suppliers or may be fabricated.

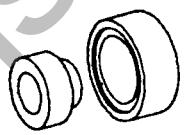
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RW19951 –UN–19MAY92

PTO Seal Installer JDG753

Used to install PTO output shaft oil seal.

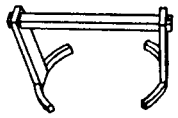


OURX956,00002EB –19–06FEB04–2/11

RW21597 –UN–17AUG92

Spring Compressor JDG754

Used to compress PTO clutch return springs.

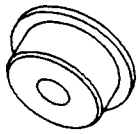


OURX956,00002EB –19–06FEB04–3/11

RW19944 –UN–19MAY92

Bushing Installer JDG755

Used to install bushings.

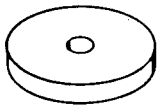


OURX956,00002EB –19–06FEB04–4/11

RW18210 –UN–20APR90

Seal Installer Disk JDT32

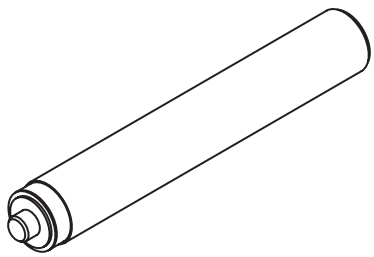
Used to install output shaft rear bearing cup.



OURX956,00002EB –19–06FEB04–5/11

Seal Driver. JDG1826

Used to install seals in PTO output shafts.



RXA0071625 –UN–24OCT03

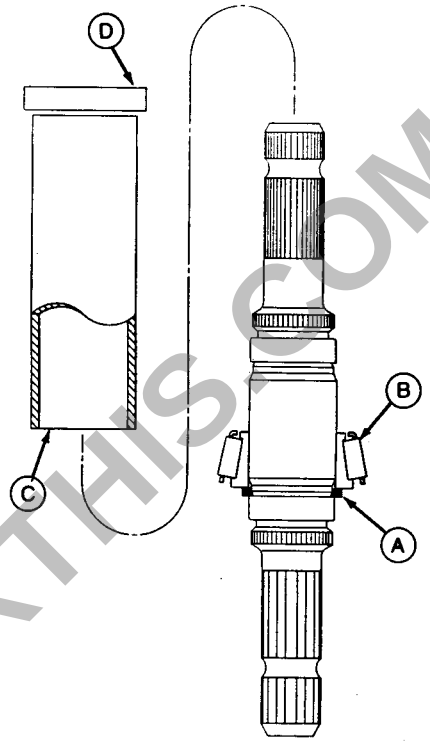
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OURX956,00002EB –19–06FEB04–6/11

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8. Pack bearing cones with lubricating grease.
9. Install middle of thickness range snap ring (A) in snap ring groove at one end of shaft.
10. Install bearing cone (B) tight against snap ring using DFRW99 Bearing Installer with a 76 mm or 3 in. driver disk (D) on top.

A—Snap Ring
B—Bearing Cone
C—DFRW99 Bearing Installer
D—Driver Disk

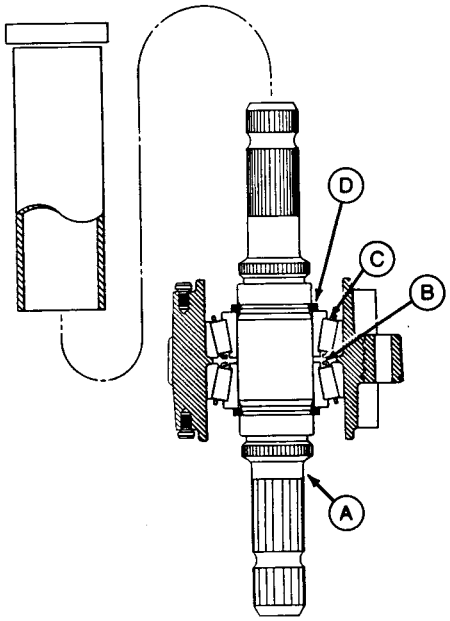


RW35468 –UN–26MAY94

OURX956,00002FD –19–11NOV03–2/5

11. Apply lubricating grease to inside of housing and to bearing cups.
12. Install shaft/cone assembly (A) into housing/cup assembly.
13. Apply TY6341 SD Polyurea Grease in cavity (B) above bearing.
14. Install bearing cone (C) using DFRW99 Bearing Installer, with a 76 mm or 3 in. driver disk on top, tight into cup.
15. Install thickest snap ring (D) that will fit in shaft groove.

A—Shaft Cone Assembly
B—Grease Cavity
C—Bearing Cone
D—Snap Ring



RW35469 –UN–26MAY94

Continued on next page

OURX956,00002FD –19–11NOV03–3/5

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IMPORTANT: Absolute cleanliness is essential when working on hydraulic components.

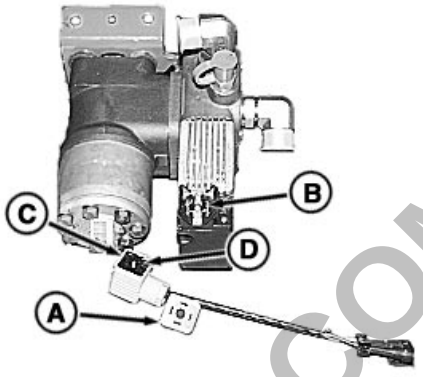
IMPORTANT: To prevent contamination of system, do not remove protective caps from EH valve fittings until ready for connections.

8. **For machines with AutoTrac, perform the following:**

   a. Install connector gasket (A) in EH valve connector (B).

   b. Retain jumper harness connector (C) to EH valve connector using screw (D).

   c. No further service is allowed to AutoTrac steering valve.



RXA0068751 –UN–08JUL03

A—Gasket
B—EH Valve Connector
C—Jumper Harness Connector
D—Screw

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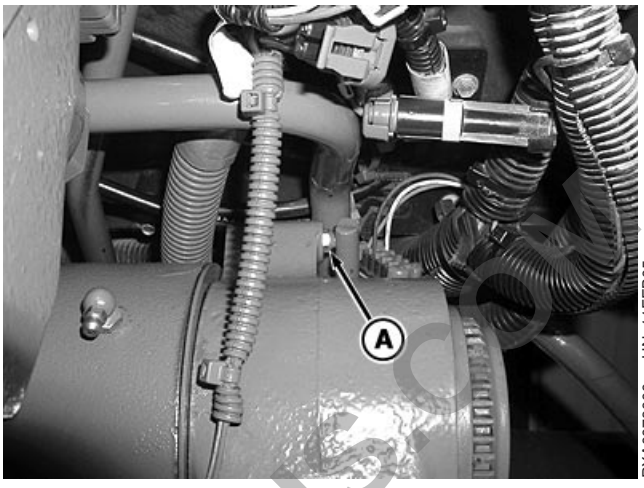
OURX956,00001D9 –19–28OCT05–4/5

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8. Remove hitch position sensor arm (A) from lift arm.

A—Position Sensor Arm

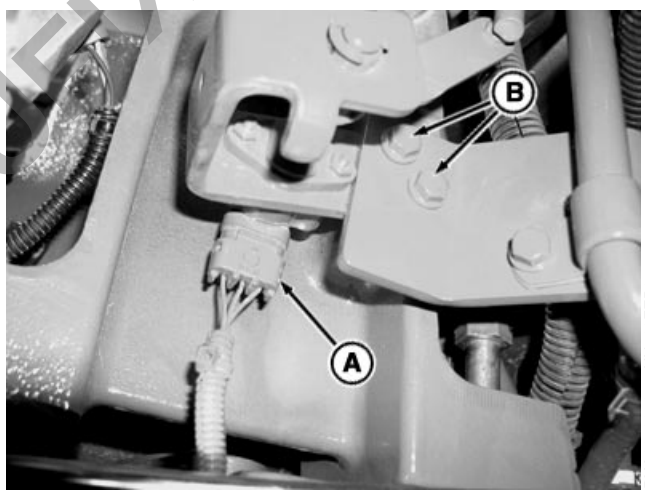


RXA0079000 –UN–11FEB05

BB92646,0000132 –19–06FEB06–7/10

9. Disconnect position sensor harness connector (A) and cap screws (B) to remove bracket.

A—Position Harness Connector
B—Cap Screws



RXA0078973 –UN–10FEB05

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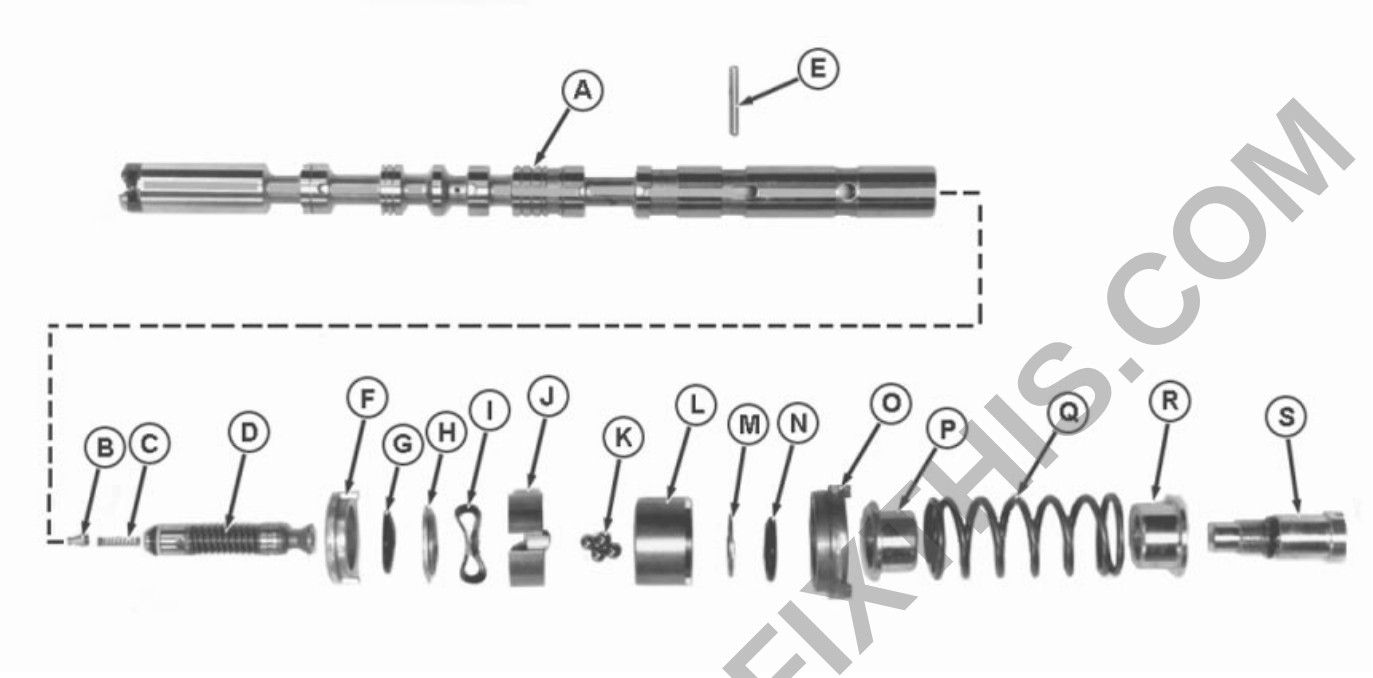
BB92646,0000132 –19–06FEB06–8/10

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Disassemble, Inspect, And Assemble Control Valve—Manual SCV



RW25968 –UN–15JUL98

A—Control Valve
B—Spring Seat
C—Spring
D—Detent Piston Assembly[1]
E—Pin
F—Shear Ring
G—O-Ring
H—Retainer
I—Wave Springs (2 used)
J—Float Detent Sleeve
K—Balls (4 used)
L—Detent Sleeve
M—Washer
N—O-Ring
O—Sealing Ring
P—Spring Seat
Q—Spring
R—Spring Seat
S—End Spool

IMPORTANT: Clean all thread locking material from threads on end spool (S) and inside the control valve (A) to prevent SCV malfunction.

1. Disassemble and inspect valve assembly as required.

[1]*Design different for cable controlled SCV*

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OURX985,0000137 –19–24SEP03–1/10

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18. Slide HVAC module towards right-hand side and remove from cab.

IMPORTANT: Be sure that cab harness is looped over fan for reassembly.

19. **For tractors with CLIMATRAK:** Remove recirculating filter cover by pulling straight up.

20. Disconnect evaporator temperature sensor and duct air temperature sensor.

21. Disconnect cab air temperature sensor.

22. Disconnect fan connector and motor driver connector.

23. Remove ground screw.

24. Remove socket head cap screw and clamp. Gently pull air conditioning line out of TEV.

25. Drain cooling system. Disconnect heater hoses.

26. Remove screws and slide HVAC module rearward.

IMPORTANT: Be sure that cab harness is looped over fan for reassembly.

OUO6037,00016F5 –19–06FEB04–2/2

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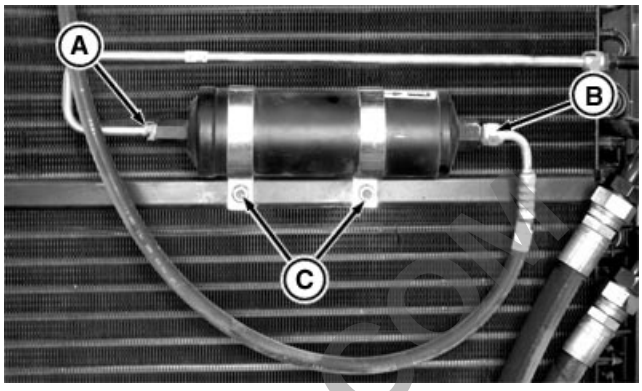
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Replace Receiver-Dryer

NOTE: The receiver-dryer is not serviceable. Install new receiver-dryer if malfunction is suspected.

Receiver-dryer should be replaced if system was contaminated, flushed, open to atmosphere for more than 24 hours, or if older than two years and system was discharged.

1. Discharge system. (See DISCHARGE AIR CONDITIONING SYSTEM in this group.)
2. Disconnect inlet (A) and outlet (B) lines from receiver-dryer. Cap lines to prevent contamination.
3. Remove clamps. (C).
4. Remove receiver-dryer.
5. Add 7.5 mL (0.25 oz) of R134a refrigerant oil to system if new receiver-dryer is installed and no major leaks exist. If leaks exist, follow procedure for checking and adding refrigerant oil. (See DETERMINE CORRECT OIL CHARGE in this group.)
6. Install receiver-dryer and tighten connections.
7. Purge, evacuate, and charge system. (See PURGE, EVACUATE, AND CHARGE AIR CONDITIONING SYSTEM in this group.)



RXA0068571 –UN–09JUL03

A—Inlet Line
B—Outlet Line
C—Clamp (2 used)

BB92646,0000142 –19–02FEB06–1/1

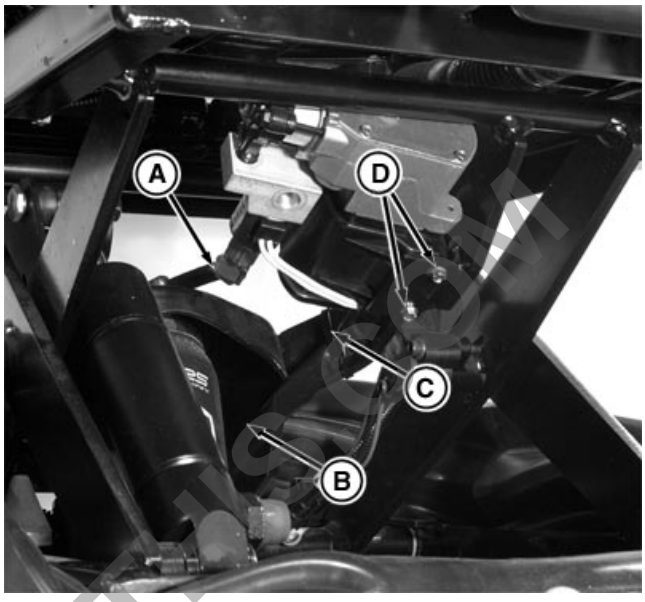
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CAUTION: Do not attempt to bleed air system without JDG1424 Support Block in place. It prevents injury from the sudden collapse of the scissors suspension.

3. **Remove and Install Compressor:**

   - Remove air line (A) from compressor valve.
   - Cut tie bands (C) and disconnect compressor harness (B) from seat harness.
   - Remove two screws (D) and compressor.
   - Install in reverse order using the following special instructions:
     – Slide compressor up against cross member before tightening screws.



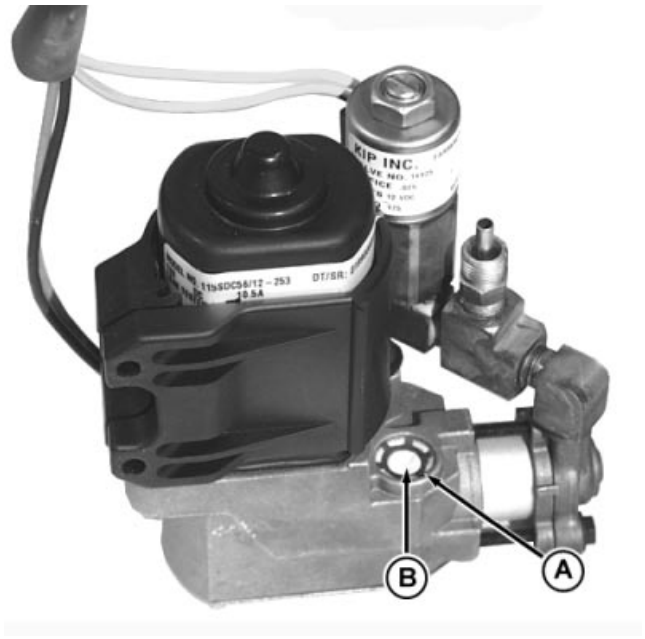
RXA0053113 –UN–01MAY01

A—Air Line
B—Harness Connector
C—Tie Bands
D—Screws

OURX956,00001E0 –19–13FEB03–3/5

4. **Remove and Install Compressor Filter:**

   - Remove compressor. (See Step 3.)
   - Clean housing area surrounding filter and retainer.
   - Remove and discard retainer (A) and filter (B).
   - Install new filter (B) in housing; then press new retainer until tight.



RW78295 –UN–12JUL99

A—Filter Retainer
B—Filter

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