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- [Front and Rear Wheels](#)
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- [Handling and Storing Diesel Fuel](#)
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[Engine Mounting](#)

Replacing the Engine Mountings

Engine - Removal and Installation of Components, Special Tools

Special Tools (available as spare parts)

[D01042AA](#) - load-positioning sling

[JDG19](#) - lifting eye

[JT05725](#) - Support stand

[KJD10604](#) - Hydraulic manually-operated pump with hydraulic hose and quick coupler

[KJD10639](#) - Hydraulic puller set

[KJD10646](#) - Bushing for removal/installation of engine mounting

Engine - Removal and Installation of Components, Repair Specifications

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- [Fuel Tank, Removal and Installation](#)
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Electrical System -Connector, Summary of References

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- Electronic control units - Summary of references
- Instructions when Replacing a Control Unit
- Control Units Location
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- Cab Switch Module Control Unit - Removal and Installation
- Engine Control Unit - Removal and Installation
- Immobilizer Control Unit - Removal and Installation
- Cab Control Unit - Removal and Installation
- Air-Conditioning or ClimaTrak™ Control Unit - Removal and Installation
- Steering Control Unit (AutoTrac™) - Removal and Installation
- Instrument Unit - Removal and Installation
- CommandCenter™ Control Unit - Removal and Installation
- Rear Chassis Control Unit - Removal and Installation
- Control Unit for Power-Assisted Rear PTO Shifting (PAPTOS) - Removal and Installation
- Transmission Control Unit (AutoPowr™/IVT™) - Removal and Installation

Instructions when Replacing a Control Unit

- Do not replace a control unit with another one unless it is necessary.
- Follow relevant diagnostic procedures to determine cause of problem.
- Special diagnostic trouble codes are shown if the control unit is defective.
- After they have been replaced, a number of the control units need to be calibrated or programmed.

For more information on how to continue, see Information on Control Units (Control Software) for Programming in the corresponding Diagnostics Manual, Section 245.

Control Units Location

Group 00 - Drive Train (without Transmission) - Removal and Installation of Components

Drive Systems - Removal and Installation of Components, Summary of References

[Drive Systems - Removal and Installation of Components, Summary of References](#)

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[Drive Systems - Repair Specifications](#)

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Removing the Final Drives

Installing the Final Drives

Removing the Rear PTO

Installing the Rear PTO

[Removing the Front PTO](#)

[Installing the Front PTO](#)

Drive Systems - Special Tools

Special tools (available as spare parts)

[JT07211](#) - Support stand

[KJD10559](#) - Mobile support stand for front axle and final drives

[KJD10592](#) - Lifting sling

[KJD10604](#) - Hydraulic manually operated pump with hydraulic hose and quick coupler

[KJD10639](#) - Hydraulic puller set

[KJD10662](#) - Cab support

Group 00 - AutoPowr™/IVT™ Transmission - Removal and Installation of Components

AutoPowr™/IVT™ Transmission - Removal and Installation of Components, Summary of References

[AutoPowr™/IVT™ Transmission - Removal and Installation of Components, Summary of References](#)

[AutoPowr™/IVT™ Transmission - Special Tools](#)

[AutoPowr™/IVT™ Transmission - Repair Specifications](#)

[Removing the AutoPowr™/IVT™ Transmission, Preliminary Work](#)

[Removing the AutoPowr™/IVT™ Transmission](#)

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AutoPowr™/IVT™ Transmission - Special Tools

Special tools (dealer-fabricated)

[DFLX020](#) - Park lock unlocking device

Special tools (available as spare parts)

[D01042AA](#) - Load-positioning sling

[JDG19](#) - Lifting eye

AutoPowr™/IVT™ Transmission - Repair Specifications

Item	Measurement	Specification
Output housing to differential housing, cap screws	Torque	135 N·m 100 lb.-ft.
Suction line to input housing, attaching screws	Torque	18 N·m 13.5 lb.-ft.
Brace on main frame, cap screws	Torque	600 N·m 440 lb.-ft.

Group 00 - PowrQuad™ Transmission - Removal and Installation of Components

PowrQuad™ Transmission - Removal and Installation of Components, Summary of References

[PowrQuad™ Transmission - Removal and Installation of Components, Summary of References](#)

[PowrQuad™ Transmission - Transmission - Removal and Installation of Components, Repair Specifications](#)

[PowrQuad™ Plus Transmission, Removal and Installation](#)

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[Removing the Range Transmission](#)

[Installing the Range Transmission](#)

PowrQuad™ Transmission - Installation and Removal of Components, Special Tools

Special tools (available as spare parts)

[JDG19](#) - lifting eyes

[JDG1655A](#) - lifting device

PowrQuad™ Transmission - Removal and Installation of Components, Repair Specifications

Item	Measurement	Specification
PowrQuad™ transmission to range transmission, cap screws	Torque	70 N·m 50 lb.-ft.
Suction line to PowrQuad™ module, cap screw	Torque	18 N·m 13.3 lb.-ft.
Brace on main frame, cap screws	Torque	600 N·m

Group 10 - Steering - Hydrostatic Steering

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Steering - Hydrostatic Steering, Summary of References

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- [Hydrostatic Steering - Repair Specifications](#)
- [Hydrostatic Steering - Disconnecting/Connecting Steering or Brake Hoses](#)
- [Hydrostatic Steering - Exploded View](#)
- [Hydrostatic Steering - Removing the Steering Column](#)
- [Hydrostatic Steering - Removing the Steering Valve](#)
- [Hydrostatic Steering - Installing the Steering Valve](#)
- [Hydrostatic Steering - Installing the Steering Column](#)

Hydrostatic Steering - Special Tools

→NOTE:

Order tools according to information given in the U.S. SERVICEGARD™ Catalog or European Microfiche Tool Catalog (MTC).

- [KJD10501](#) - Disconnecting Tools (Kit)

Hydrostatic Steering - Repair Specifications

Item	Measurement	Specification
Steering wheel to spindle, retaining nut	Torque	40 N·m 29.5 lb.-ft.
Cover to housing, screws	Torque	30 N·m 23 lb.-ft.
Hydraulic hoses/lines, straight fittings to steering unit (connections for pressure lines)	Torque	55 N·m 40 lb.-ft.
Hydraulic hoses/lines, elbow fitting to steering unit (connection for LS line)	Torque	35 N·m 25 lb.-ft.

Group 10 - Brakes - Brake Valve

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Brakes - Brake Valve, Summary of References

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- [Brake Valve - Repair Specifications](#)
- [Brake Valve - Disconnect/Connect Steering or Brake Hoses](#)
- [Brake Valve - Change the Accumulator](#)
- [Brake Valve - Recondition the Guide and Piston](#)
- [Brake Valve - Exploded View](#)
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- [Remove Power-Fill Brake Valve with MFWD and Disk Brake](#)
- [Recondition Power-Fill Brake Valve with MFWD and Disk Brake](#)
- [Install Power-Fill Brake Valve with MFWD and Disk Brake](#)

Brake Valve - Special Tools

→NOTE:

Order tools according to information given in the U.S. SERVICEGARD™ Catalog or European Microfiche Tool Catalog (MTC).

- [DFLX041](#) - Socket Wrench Insert
- [KJD10501](#) - Disconnecting Tools (Kit)

Group 05 - Hydraulic System - General Information

Hydraulic System - General Information, Summary of References

[Hydraulic System - General Information, Summary of References](#)

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Group 00 - Machine-Specific Systems - Removal and Installation of Components

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[Machine-Specific Systems - Special Tools](#)

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Removing suspended front-wheel drive axle, Preliminary work

Removing Suspended Front-Wheel Drive Axle

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[Removing the Front Axle on 6130R](#)

[Installing the Front Axle on 6130R](#)

[Removing the Front Hitch](#)

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[Removing the Front Axle Support, Preliminary Work](#)

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[Installing Front Axle Support with Suspended Front-Wheel Drive Axle](#)

[Installing Front Axle Support with Front-Wheel Drive Axle](#)

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Suspension Systems - Suspended Front-Wheel Drive Axle, Summary of References

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- [Removing Position Sensor of Suspended Front-Wheel Drive Axle](#)
- [Reconditioning Position Sensor of Suspended Front-Wheel Drive Axle](#)
- [Installing Position Sensor of Suspended Front-Wheel Drive Axle](#)
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- [Installing the Control Block](#)
- [Removing and Installing the Accumulator](#)
- [Reconditioning the Accumulator](#)
- [Removing and Reconditioning the Bearing Support](#)
- [Installing the Bearing Support](#)

Special Tools

→NOTE:

Order tools according to information given in the U.S. SERVICEGARD™ Catalog or in the European Microfiche Tool Catalog (MTC).

[D01210AA](#) - Puller

[JT07211](#) - Support stand

[KJD10539](#) - Adapter for support stand JT07211

[KJD10559](#) - Mobile support stand for front axle and final drives

Group 00 - Operator's Cab - Removal and Installation of Components

Operator's Cab - Removal and Installation of Components, Summary of References

[Operator's Cab - Removal and Installation of Components, Summary of References](#)

[Tilting or Removing the Operator's Cab - Special Tools](#)

[Tilting or Removing the Operator's Cab - Screw Torques](#)

[Tilting the Operator's Cab Upward](#)

[Tilting the Operator's Cab Downward](#)

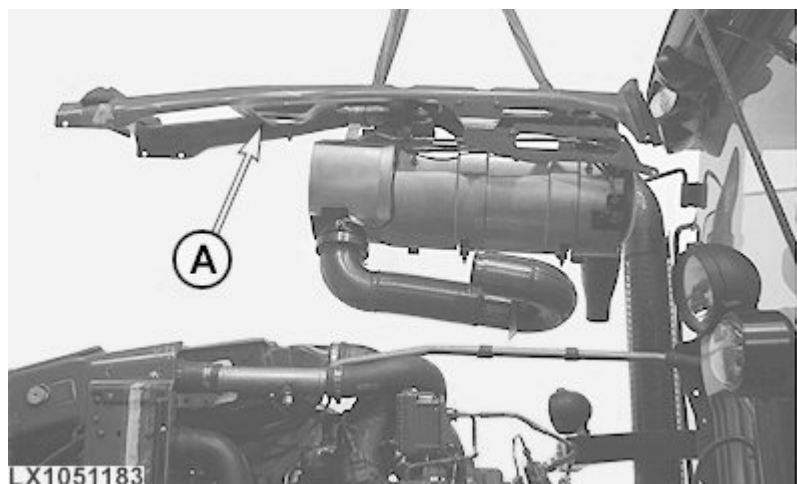
[Removing the Operator's Cab](#)

[Installing the Operator's Cab](#)

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Exhaust Filter - Adjustment

[1] -

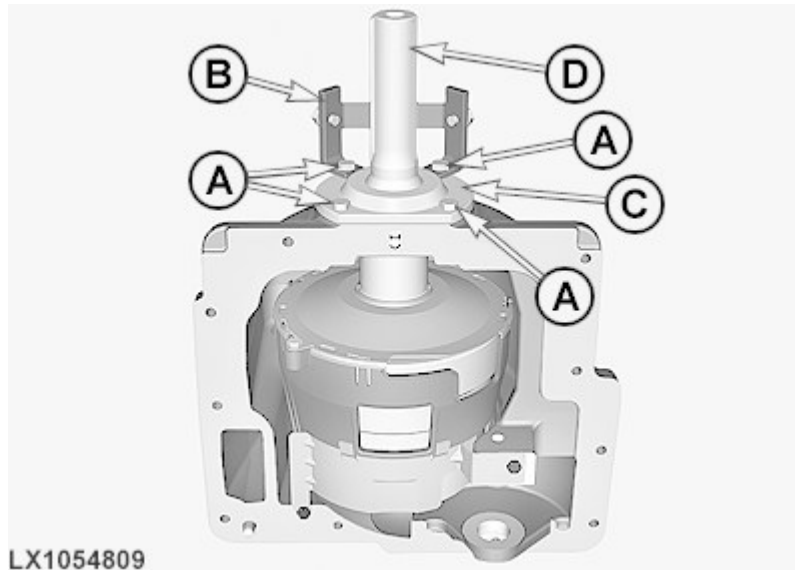


LEGEND:

A Carrier with exhaust system

Remove exhaust filter, see [Installation and Removal of Cooler Package](#) (Remove mount and exhaust system).

[4] -



LEGEND:

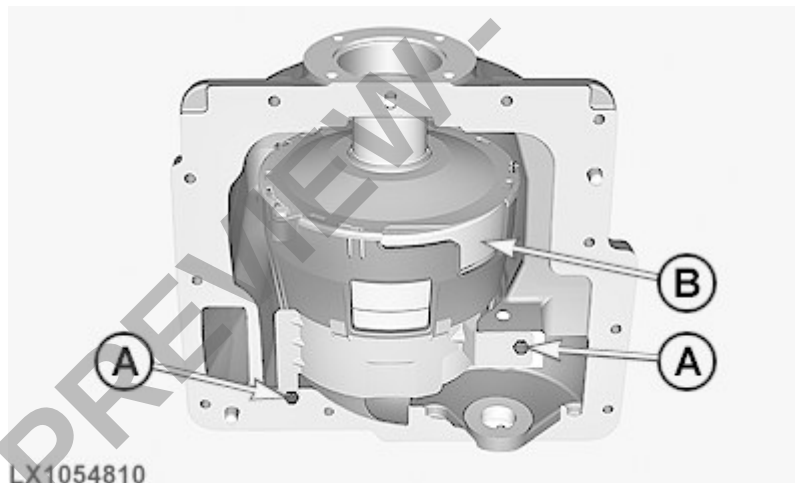
A	Screw
B	Bracket
C	Bearing quill
D	Output shaft

Take out screws (A) and remove bracket (B).

[5] - Remove bearing quill (C).

[6] - Pull out the output shaft (D).

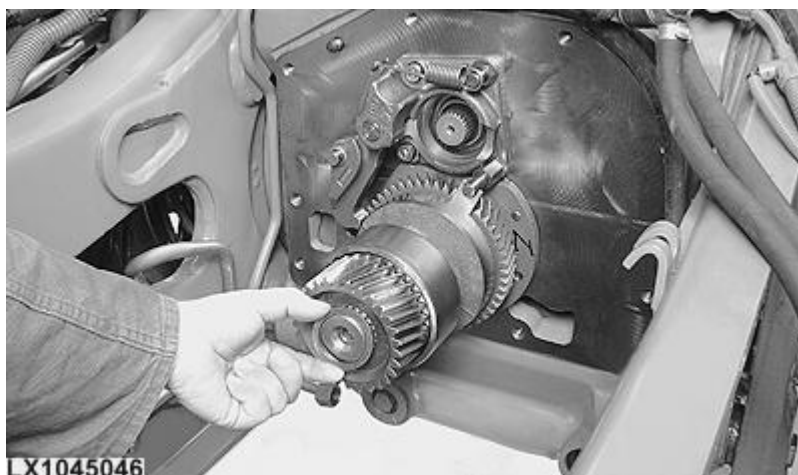
[7] -



Take out screws (A) and clutch with oil deflector plate (B).

[7] - Install the snap ring (A).

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[16] -

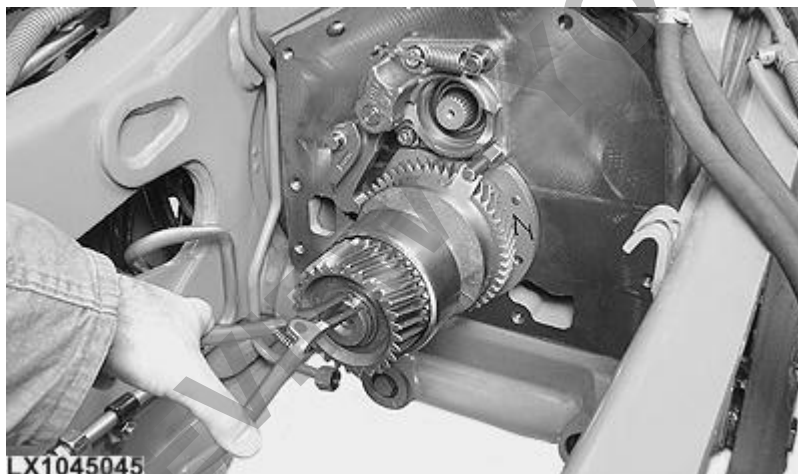
LX1045046

Install shim (thickness as required).

→NOTE:

Using the largest shim that allows the snap ring to fit will automatically give you the specified axial play of the front-wheel drive gear.

Item	Measurement	Specification
Gear	Axial Play	< 0.1 mm
		< 0.004 in.

[17] -

LX1045045

Install snap ring.

Next step:

See [Installing the AutoPowr™/IVT™ Transmission](#) in Section 50B.



LX1046446

Determining dimension (b) with 5 friction disks shown



LX1046447

Determining dimension (c) with 5 friction disks shown

Disk play specification

Disk play must not be less than 0.80 mm (0.03 in.) per friction disk.

In the case of the reverse brake with 4 friction disks, the total disk play therefore has to be at least 3.2 mm (0.13 in.).

In the case of the reverse brake with 5 friction disks, the total disk play therefore has to be at least 4.0 mm (0.157 in.).

Sample calculation for 5 friction disks

Dimension (a) from the face of the planetary gear housing to the face of the piston plate.	25.40 mm (1.00 in.)
--	---------------------

Dimension (b), thickness of housing gasket.	0.80 mm (0.03 in.)
---	--------------------

Dimension (c) from the mounting surface of piston plate to the face of brake housing.	29.50 mm (1.16 in.)
---	---------------------

Total disk play (d) of the reverse brake	Formula: $d = c + b - a$
--	--------------------------

$29.50 \text{ mm} + 0.80 \text{ mm} - 25.40 \text{ mm} = 4.90 \text{ mm}$

$1.16 \text{ in.} + 0.03 \text{ in.} - 1.00 \text{ in.} = 0.19 \text{ in.}$

In the sample calculation, the total disk play of the reverse clutch with 5 friction disks is 4.90 mm (0.19 in.) and is therefore within specification.

[10] -



Position the piston and guide.

[11] -



Using a [DFLX41](#) socket wrench insert (A), tighten the guide to the specified torque.

Item	Measurement	Specification
Guide to brake valve	Torque	100 N·m 75 lb.-ft.

[12] -

IMPORTANT:

Note correct side, correct direction and relation of the parts for re-installation.

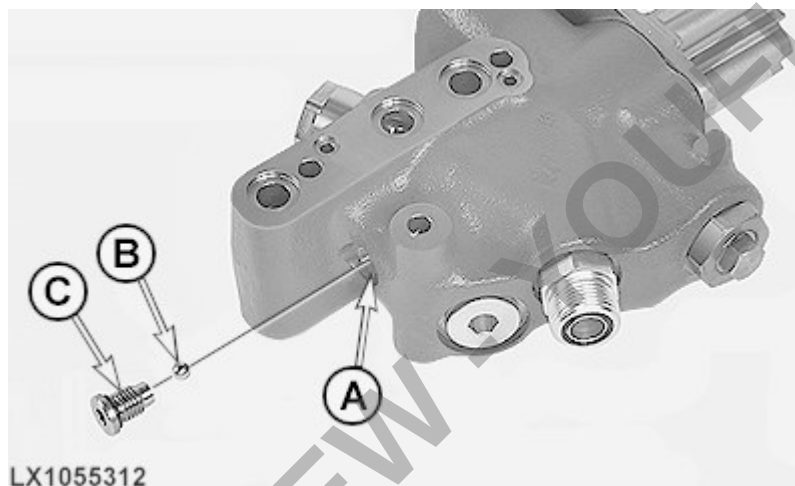
B	Valve
C	Spring
D	O-Ring
E	Special Plug
F	O-Ring

Remove and inspect the check valve.

- Clean all parts, inspect them for wear or damage, and replace as necessary.
- Inside the housing, check valve seat (A).
- Install new O-rings (D) and (F), spring (C) and valve (B) on plug (E).
- Install plug (E).

Item	Measurement	Specification
Plug	Torque	60 N·m 44 lb.-ft.

[2] -



LEGEND:

A	Ball Seat
B	Ball
C	Plug

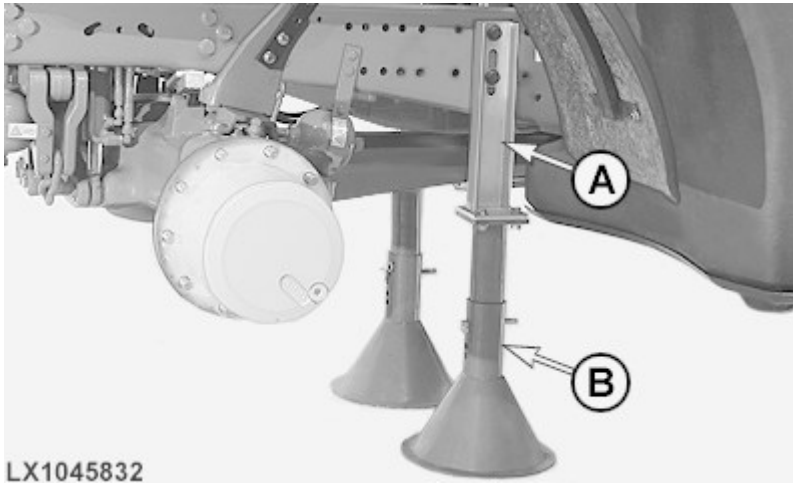
Remove and inspect the LS pressure check valve.

- Clean all parts, inspect them for wear or damage, and replace as necessary.
- Inside the housing, check valve seat (A).
- Install a new O-ring on plug (C).

Item	Measurement	Specification
Plug	Torque	25 N·m 18.4 lb.-ft.

[5] - Remove cooler package, see [Cooler Package Removal and Installation](#) in Section 30, Group 20.

[6] -



Front wheel has been removed for the sake of clarity.

LEGEND:

- | | |
|---|-----------------------|
| A | KJD10539 adapter |
| B | JT07211 support stand |

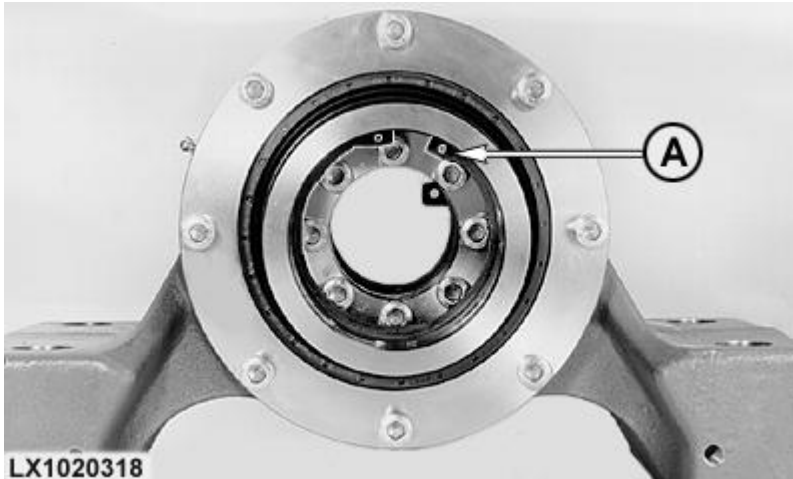
Safely install [KJD10539](#) adapter (A) with [JT07211](#) support stand (B) to both sides of the main frame.

[7] - Remove the front-wheel drive u.j. shaft. See [U.J. Shafts and Torsion Dampers - Removing the U.J. Shaft \(FWD\)](#) in Section 50A, Group 10.

[8] - For the further removal steps, see:

- [Removing the Front Axle Support with Suspended Front-Wheel Drive Axle](#)
- [Removing Front Axle Support with Front-Wheel Drive Axle](#)
- [Removing Front Axle Support on 6105R, 6115R and 6125R with Front Axle](#)
- [Removing Front Axle Support on 6130R with Front Axle](#)

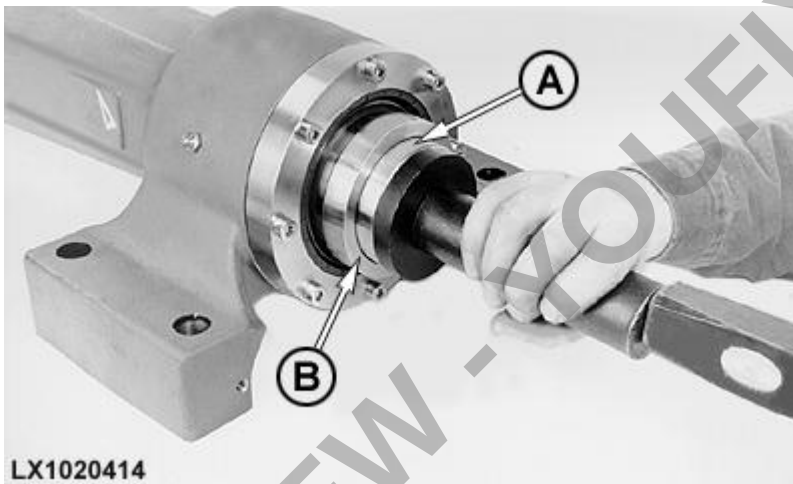
[7] -

**LEGEND:**

A Snap ring

Install snap ring (A) in rear groove.

[8] -

**LEGEND:**A Ball bearing
B Bearing quill

Install ball bearing (A) in bearing quill (B) using an appropriate tool, and install the front snap ring.

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