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- Specifications - Summary of References
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- PTO Power Output
- Capacities
- Air Intake System
- Electrical System
- Hydraulic System with Axial Piston Pump (PFC System)
- AutoTrac™
- Clutch
- DirectDrive transmission
- AutoPowr™/IVT™ transmission
- PowrQuad PLUS™ Transmission
- AutoQuad PLUS™ Transmission
- Rear PTO
- Front PTO
- Differential
- Differential lock
- Final Drives
- Front-Wheel Drive
- Front-Wheel Drive Axle with TLS
- Cab Suspension
- Hydraulic Brakes
- Secondary Brake
- Park Lock
- Hitch
- Immobilizer
- Front Hitch
- Travel Speeds
- Front and Rear Wheels
- Dimensions and Weights
- Handling and Storing Diesel Fuel
- Diesel Fuel
- Reducing the Effects of Cold Weather on Diesel Engines
- Biodiesel
- Lubricity of Diesel Fuel
- Oil for the Diesel Engine Break-in Period
- John Deere Break-In™ Plus Engine Oil
- Transmission and Hydraulic Oil
- Front-Wheel Drive Axle Oil
- Coolant for High-Performance Diesel Engines
- Coolant Additives
- Lubricants
- Oil Filter
- Mixing Lubricants
- Lubricant Storage
- Operating in Warm Temperature Climates
- Alternative and Synthetic Lubricants
- Unified Inch Bolt and Cap Screw Torque Values
- Metric Bolt and Cap Screw Torque Values
- Torques for Inch Fittings Used in the Hydraulic System
- Torques for Metric Fittings Used in the Hydraulic System
- Product Identification and Component Type Plate
- Engine Serial Number
- Transmission Serial Number
- Front-Wheel Drive Serial Number
- Operator's Cab Serial Number
- Operator's Seat Serial Number

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Group 00 - Engine – Removal and Installation of Components

Engine - Removal and Installation of Components, Summary of References

Engine - Removal and Installation of Components, Summary of References

Engine - Removal and Installation of Components, Special Tools

Engine - Removal and Installation of Components, Repair Specifications

Removing the Engine, Preliminary Work

Removing the Engine

Installing the Engine

Installing the Engine, Additional Work

Engine Mounting

Replace the Engine Mountings

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Group 10 - Fuel System

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- Fuel System - Summary of References
- Fuel Tank, Removal and Installation
- Fuel Level Sensor, Removal and Installation
- Bleed Fuel System
- DEF Tank, Removal and Installation
- DEF Dosing Unit, Removal and Installation

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Group 05 - Electrical System - Connectors

Electrical System - Connectors, Summary of References

Electrical System - Connectors, Summary of References

- Connectors—Special Tools, Summary of References
- Installation of the Repair Cable Kit (Smoke and Heat Exhaust System)
- General
- Using High-Pressure Washers
- Stripping Wire Ends
- Installing Electrical Terminals
- WEATHER PACK Connectors
- METRI PACK Plug with Terminal Lock at the Rear
- METRI PACK Plugs with Terminal Lock at the Front
- METRI PACK Connectors
- Connectors for Electronic Control Units
- Connector
- CRIMP SNAP IN Plugs
- KOSTAL Plugs
- DEUTSCH Plugs
- Individual Terminals
- Bosch™ Connectors
- Repair DEUTSCH™ Implement Connectors
- Repair Molex™ Connectors
- Repair SUMITOMO™ Connectors
- Repair YAZAKI™ Connectors

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Group 05 - Removal and Installation of Electronic Control Units

Electronic Control Units - Summary of References

- Electronic Control Units - Summary of References
- Instructions on Replacing a Control Unit
- Roof Control Unit - Removal and Installation
- Front Chassis Control Unit (M50) - Removal and Installation
- Front Chassis Control Unit (M500) - Removal and Installation
- 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
- Rear Chassis Control Unit (DirectDrive Transmission) - Removal and Installation
- Control Unit for Power-Assisted Rear PTO Shifting (PAPTOS) - Removal and Installation
- Transmission Control Unit (AutoPowr™/IVT™) - Removal and Installation
- CommandARM™ Control Unit - Removal and Installation
- Control Unit for Gear Shifting (DirectDrive Transmission) or Range Shifting (DirectDrive Transmission) - Removal and Installation

Instructions on Replacing a Control Unit

- Do not replace a control unit with another one unless it is necessary.
- Follow the relevant diagnostic procedure to determine the cause of the 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 Programmingin Section 245 of the relevant Diagnostics Manual.

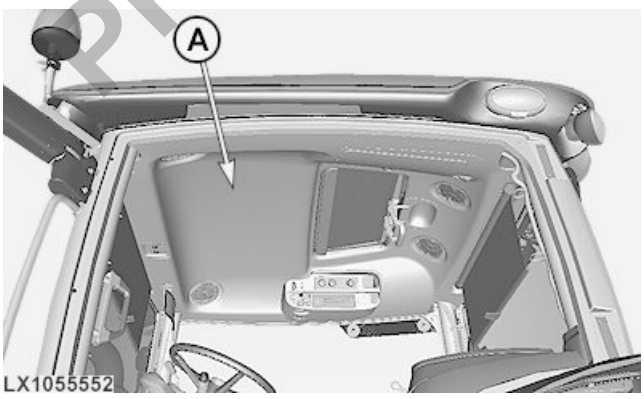
Roof Control Unit - Removal and Installation

→NOTE:

See Instructions on Replacing a Control Unitbefore replacing the control unit.

The roof control unit is located on the right side (in direction of travel) under the inner roof trim.

[1] -



LEGEND:

A	Inner Roof Trim

Inner Roof Trim

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

Drive Train (without Transmission) - Removal and Installation of Components, Summary of References

Drive Train (without Transmission) - Removal and Installation of Components, Summary of References

Drive Train (without Transmission) - Special Tools

Drive Train (without Transmission) - Repair Specifications

Drain Transmission/Hydraulic Oil

Fill with Transmission/Hydraulic Oil

Remove the Final Drives

Install the Final Drives

Remove the Rear PTO

Install the Rear PTO

Remove the Front PTO

Install the Front PTO

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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

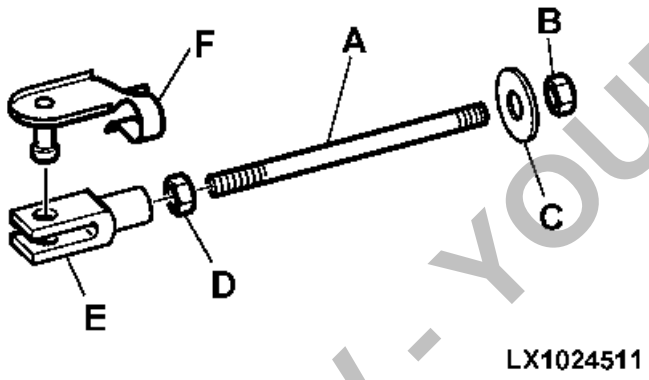
Removal of the AutoPowr™/IVT™ Transmission, Preliminary Work

Removal of the AutoPowr™/IVT™ Transmission

Installation of the AutoPowr™/IVT™ Transmission

AutoPowr™/IVT™ Transmission - Special Tools

AutoPowr™/IVT™ Transmission - Special Tools



DFLX020 — Snap Ring Tool for Unlocking the Park Lock

DFLX020 — Snap Ring Tool for Unlocking the Park Lock

Snap Ring Tool for Unlocking the Park Lock

DFLX020

Section 50B — AutoPowr™/IVT™ Transmission

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Group 10 - Steering - Hydrostatic Steering

Steering - Hydrostatic Steering, Summary of References

Steering - Hydrostatic Steering, Summary of References

- Hydrostatic Steering - Special Tools, Summary of References
- Hydrostatic Steering - Repair Specifications
- Hydrostatic Steering - Disconnecting and Connecting Steering or Brake Hoses
- Hydrostatic Steering - Exploded View
- Hydrostatic Steering - Removing the Steering Column
- Hydrostatic Steering - Removing Steering Valve
- Hydrostatic Steering - Installing Steering Valve
- Hydrostatic Steering - Install the Steering Column

Hydrostatic Steering - Special Tools, Summary of References

Hydrostatic Steering - Special Tools, Summary of References



KJD10501 - Disconnecting Tools (Kit)

KJD10501 - Disconnecting Tools (Kit)

Disconnecting Tools (Kit)

KJD10501

Section 60A — Hydrostatic Steering

Hydrostatic Steering - Repair Specifications

Item	Measurement	Specification
Steering wheel to spindle, lock nut	Torque	40 N·m
		29.5 lb-ft
Cover to housing, screws	Torque	30 N·m
		23 lb-ft
Hydraulic line, straight fittings to steering unit (connections for pressure lines)	Torque	55 N·m
		40 lb-ft
Hydraulic lines, elbow fitting to steering unit (connection for LS line)	Torque	35 N·m
		25 lb-ft
Steering Column to Console, Screws	Torque	50 N·m
		35 lb-ft

Hydrostatic Steering - Disconnect/Connect the Steering or Brake Hoses

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Group 10 - Brakes - Brake Valve

Brakes - Brake Valve, Summary of References

Brakes - Brake Valve, Summary of References

- Brake Valve - Special Tools, Summary of References
- Brake Valve - Repair Specifications
- Brake Valve - Disconnecting/Connecting Steering or Brake Hoses
- Brake Valve - Change the Accumulator
- Brake Valve - Repair the Guide and Piston
- Brake Valve - Exploded View
- Remove the Power-Fill Brake Valve
- Repair the Power-Fill Brake Valve
- Install Brake Valve (Power Fill Brakes)
- Removing the Power Brake Valve with MFWD and Multi-Disk Brake
- Recondition the Power Brake Valve with MFWD and Multi-Disk Brake
- Install the Power Brake Valve with MFWD and Multi-Disk Brake

Brake Valve - Special Tools, Summary of References

Brake Valve - Special Tools, Summary of References



DFLX041 - Socket Wrench Insert

DFLX041 - Socket Wrench Insert

Socket Wrench Insert

DFLX041

Section 60B — Brakes



KJD10501 - Disconnecting Tools (Kit)

KJD10501 - Disconnecting Tools (Kit)

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Group 05 - Hydraulic System - General Information

Hydraulic System - General Information, Summary of References

Hydraulic System - General Information, Summary of References

Hydraulic System - General Safety and Repair Information

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

Machine-Specific Systems - Removal and Installation of Components, Summary of References

Machine-Specific Systems - Removal and Installation of Components, Summary of References

Machine-Specific Systems - Special Tools

Machine-Specific Systems - Repair Specifications

Remove the Axle, Preliminary Work

Remove Suspended Front-Wheel Drive Axle

Remove Front-Wheel Drive Axle on 6140R and 6150R

Remove Front-Wheel Drive Axle on 6170R, 6190R and 6210R

Remove the Front Axle

Install Suspended Front-Wheel Drive Axle

Install Front-Wheel Drive Axle on 6140R and 6150R

Install Front-Wheel Drive Axle on 6170R, 6190R and 6210R

Install the Front Axle

Install the Axle, Additional Work

Remove the Front Hitch

Install the Front Hitch

Remove the Front Axle Support, Preliminary Work

Remove the Front Axle Support with Suspended Front-Wheel Drive Axle

Remove the Front Axle Support on 6140R and 6150R with Front-Wheel Drive Axle

Remove the Front Axle Support on 6170R, 6190R and 6210R with Front-Wheel Drive Axle

Remove Front Axle Support at Front Axle

Install Front Axle Support with Suspended Front-Wheel Drive Axle

Install Front Axle Support on 6140R and 6150R with Front-Wheel Drive Axle

Install Front Axle Support on 6170R, 6190R and 6210R with Front-Wheel Drive Axle

Install Front Axle Support at Front Axle

Install Front Axle Support, Additional Work

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

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

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

Operator´s Cab - Special Tools

Remove the Operator's Cab

Install the Operator´s Cab

Raise and brace the operator´s cab.

Set Down the Operator´s Cab

Operator´s cab - Special tools

Operator´s Cab - Special Tools



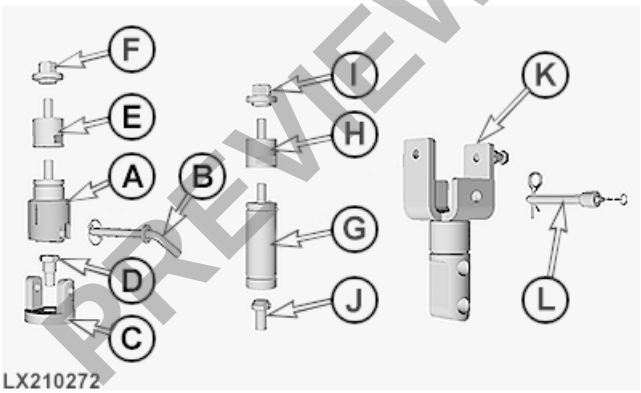
KJD10592 — Lifting Crossbar for Installing and Removing Tractor Components

KJD10592 — Lifting Crossbar for Installing and Removing Tractor Components

Lifting Crossbar for Installing and Removing Tractor Components

KJD10592

Section 90 — Operator´s Cab



KJD10708 — Brace Tool for Cab

KJD10708 — Brace Tool for Cab

Brace Tool for Cab

KJD10708

Section 90 — Operator´s Cab

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Foreword

This manual is written for an experienced technician. Essential tools required in performing certain service work are identified in this manual and are recommended for use.

Live with safety: Read the safety messages in the introduction of this manual and the cautions presented throughout the text of the manual.



CAUTION:

This is the safety-alert symbol. When you see this symbol on the machine or in this manual, be alert to the potential for personal injury.

Technical manuals are divided in two parts: repair and operation and tests. Repair sections tell how to repair the components. Operation and tests sections help you identify the majority of routine failures quickly.

Information is organized in groups for the various components requiring service instruction. At the beginning of each group are summary listings of all applicable essential tools, service equipment and tools, other materials needed to do the job, service parts kits, specifications, wear tolerances, and torque values.

Technical Manuals are concise guides for specific machines. They are on-the-job guides containing only the vital information needed for diagnosis, analysis, testing, and repair.

Fundamental service information is available from other sources covering basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic type of failures and their causes.

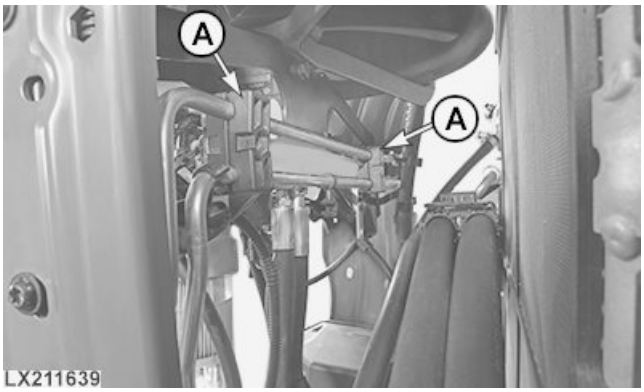
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Fan (Charge Air Cooler), Removal and Installation

[1] - Open the engine hood.

[2] -

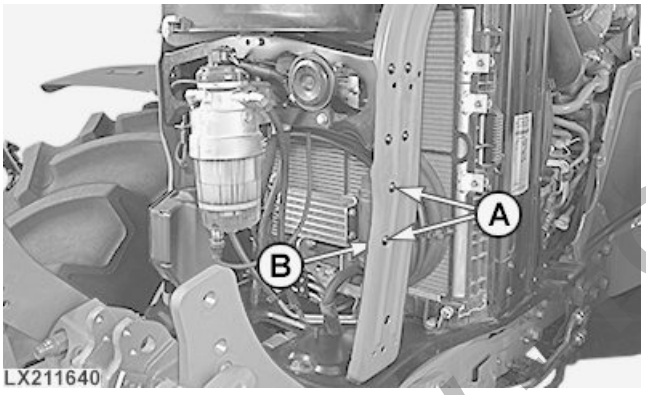


LEGEND:
A Clamps

Clamps

Remove clamps (A).

[3] -

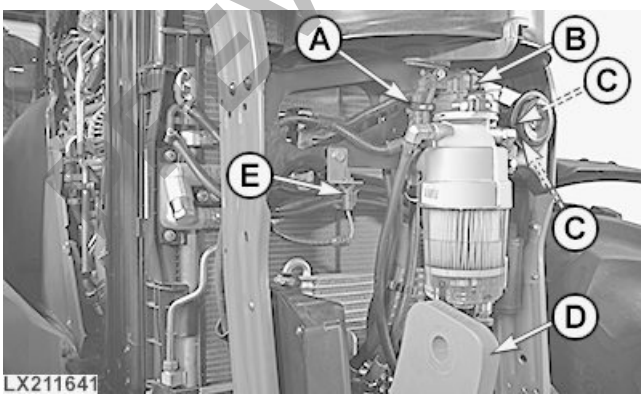


LEGEND:
A Screws
B Receiver-Drier

Receiver-Drier

Remove screws (A) and put receiver-drier (B) aside.

[4] -



LEGEND:
A-H Connectors

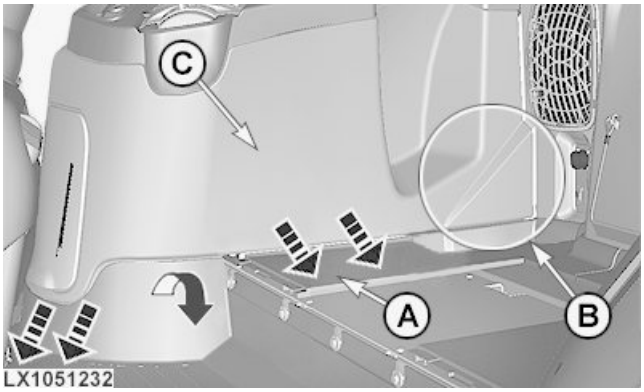
Connectors

Disconnect connectors (A-H).

[5] -

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LEGEND:

A	Rubber mat
B	Critical position
C	Side panel

Side panel

Remove rubber mat (A).

[2] - Fold the floor mat in direction of the arrow.

IMPORTANT:

Do not pull at position (B). Danger of breakage!

[3] - Carefully pull out side panel (C) at the locations shown (arrows) and remove it.

[4] -



LEGEND:

A	A83 - CAN BUS Terminating Resistor (Vehicle CAN BUS (500 kBd))

CAN BUS Terminating Resistor

Remove terminating resistor (A).

[5] - Install in the reverse of the removal procedure.

A84 - CAN BUS Terminating Resistor (Vehicle CAN BUS (500 kBd))

[1] -

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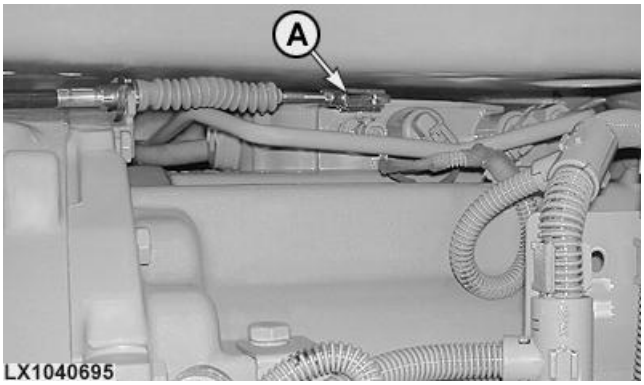
See Remove and Install the Charge Oil Pumpin Section 70.

See **Install Range Transmission** in Section 50C or **Install AutoPowr™/IVT™ Transmission** in Section 50B.

See Install the Differentialin Section 50A.

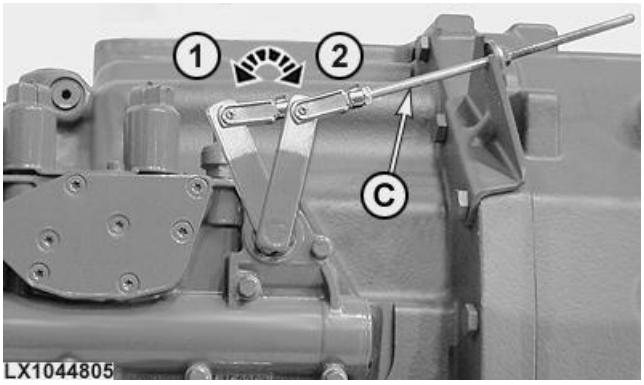
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LEGEND:
C DFLX020 Unlocking Device (Dealer-Fabricated)
1 Park Lock Engaged
2 Park Lock Disengaged

Disconnect the Park Lock



Disengage the Park Lock

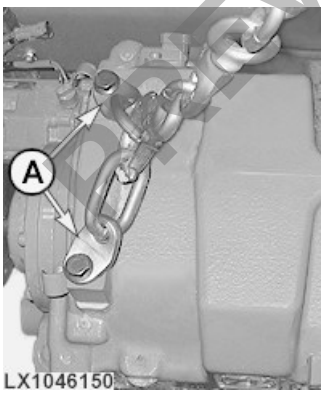
Disengage Bowden cable (A) for releasing the park lock at the yoke and counter-bearing.

In place of the Bowden cable, install unlocking device DFLX020(C; dealer-fabricated) as shown and **disengage** the park lock. Do this by tightening the hex. nut on the device until the lever reaches the position (2) shown in the illustration.

CAUTION:

The disengaging lever is subject to a high preload. Improper handling may result in personal injury.

[9] -



LEGEND:
A JDG19 Lifting Eye
B D01042AALoad-Positioning Sling

Installing lifting eyes

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Drive line

[2] -

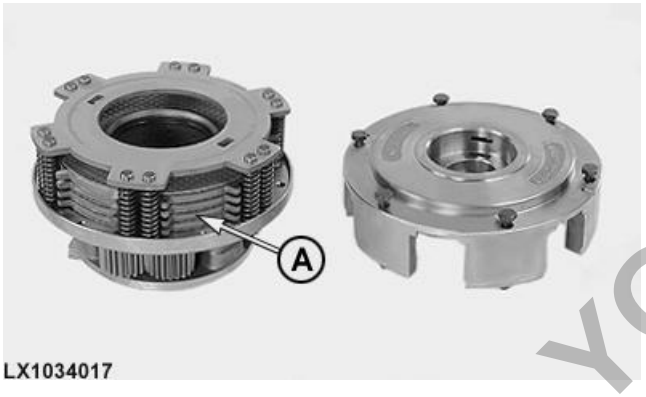


LEGEND:
A Clutch Drum

Disassembling the forward clutch with planetary drive

Take out the attaching screws and lift off clutch drum (A).

[3] -



LEGEND:
A Disk Pack

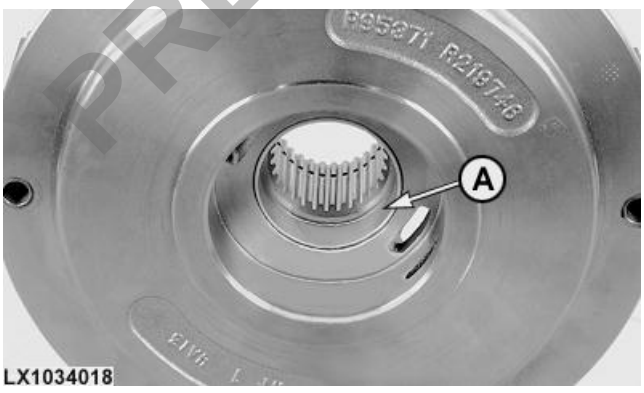
Disk Pack

Take disk pack (A) and the clutch hub, pressure springs, guide pins and clutch piston out of the clutch drum.

Check components for wear. Replace, if necessary.

Assemble the forward clutch with planetary carrier

[1] -



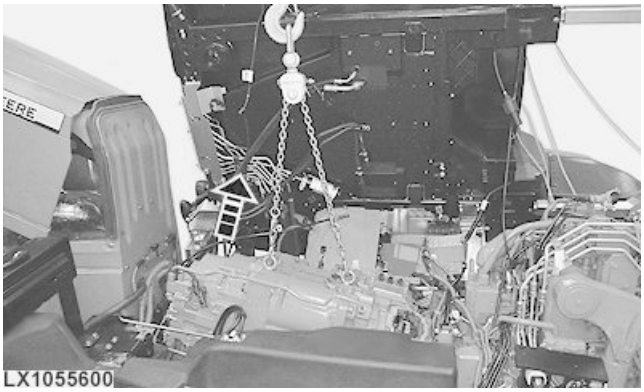
LEGEND:
A Bushing

Installing the bushing

Install bearing bushing (A) in the clutch drum; make sure it is flush. Use a D01045AA driver set for bushings, bearings, and seal

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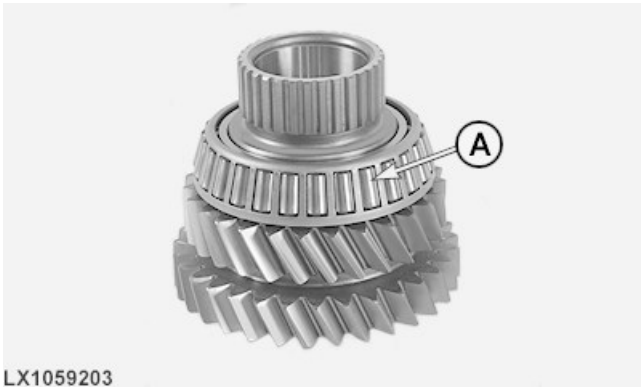


Removal

[25] - Put the transmission down and seal all the openings so that no dust can get in.

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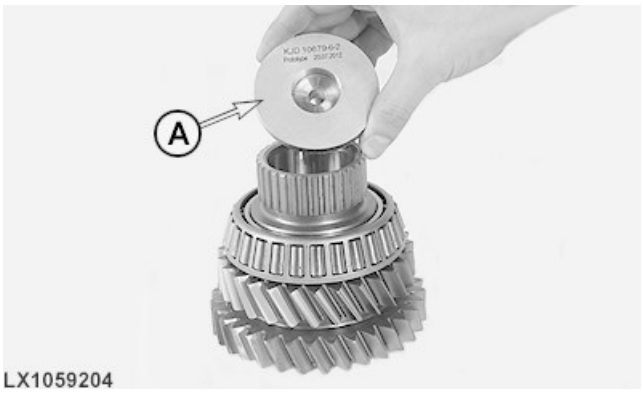
LEGEND:

A	Tapered roller bearing

Tapered Roller Bearing

Check tapered roller bearing (A) for wear. Replace, if necessary.

[4] -



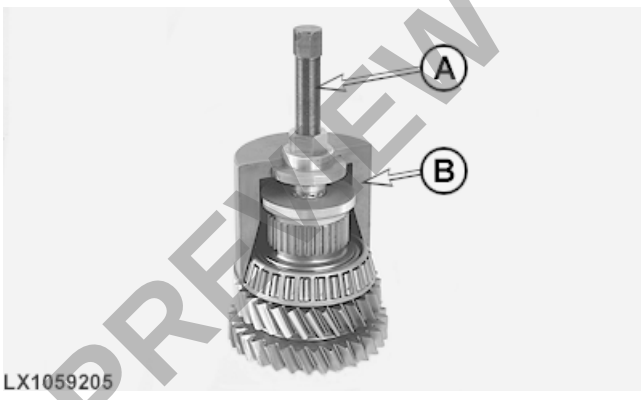
LEGEND:

A	Support

Support

Install support (A) KJD10679-6-2 in the shaft to pull off the tapered roller bearing.

[5] -



LEGEND:

A	Spindle
B	Puller Shell

Tapered Roller Bearing

Position spindle (A) KJD10679-6-1 and puller shell (B) KJD10679-6-5-1 on the tapered roller bearing.

[6] -

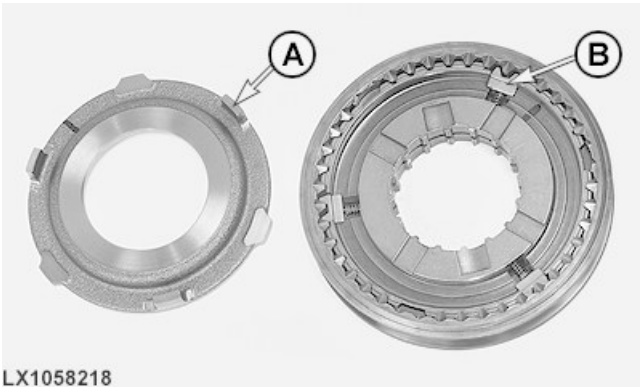
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IMPORTANT:

Before installing, apply grease to the synchronizer ring.

[11] -



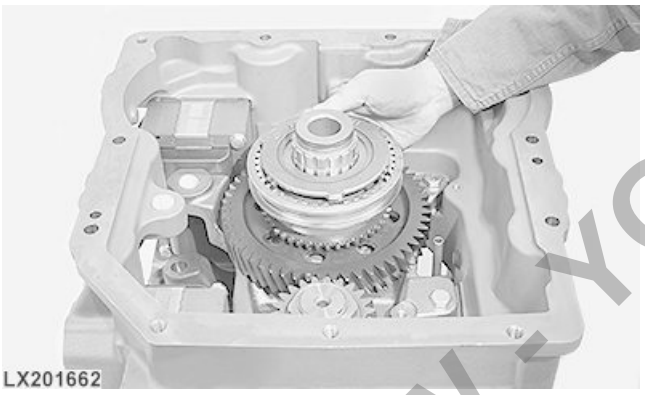
LEGEND:

A	Lugs
B	Slide Blocks

Synchronizer unit

Position the endplate on the synchronizer unit so that lugs (A) on the endplate are aligned with slide blocks (B) on the synchronizer unit.

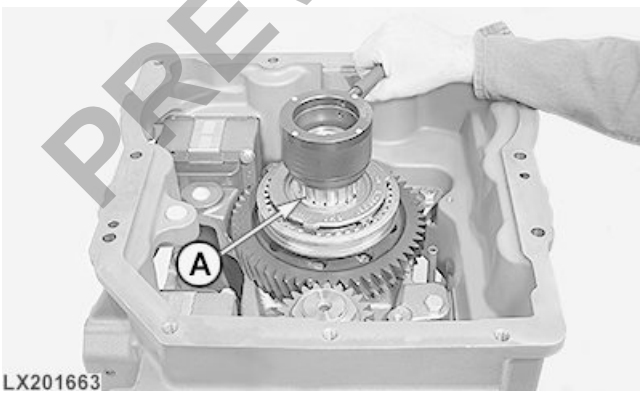
[12] -



Synchronizer unit

Install the synchronizer unit with the endplate.

[13] -



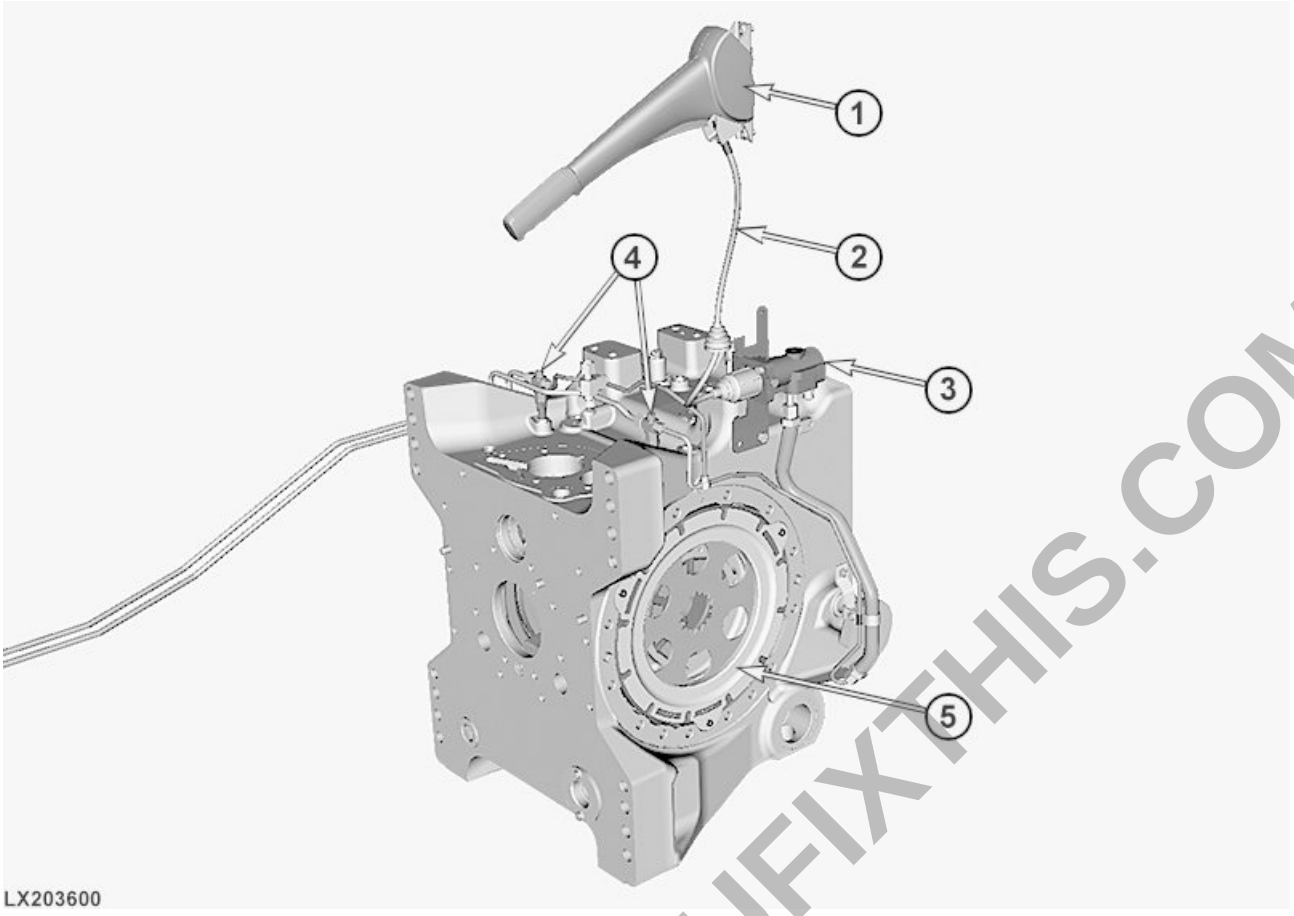
Snap Ring

Use KJD10711-1 installation tool to install snap ring (A).

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Emergency Brake - Exploded View



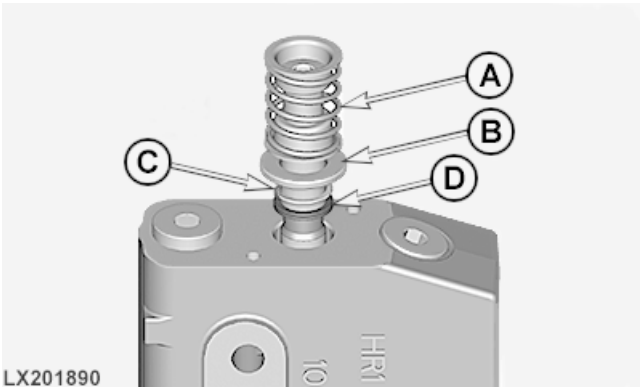
Emergency Brake - Exploded View for Tractors 6175R to 6215R

LEGEND:

1	Brake Lever
2	Brake Cable
3	Brake Valve
4	Shuttle Valve
5	Rear Brake

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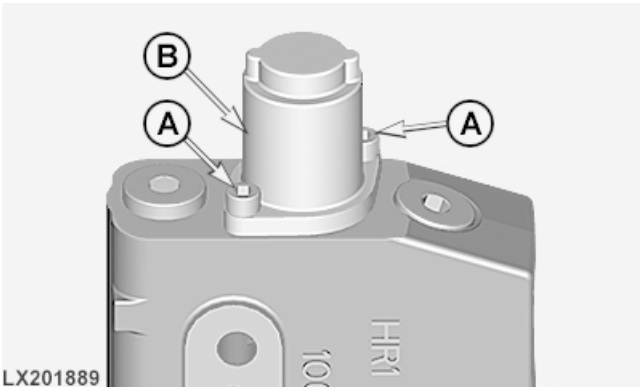
LEGEND:

A	Spool assembly
B	Special washer
C	Kin-Ring
D	Seal Ring (Quad Ring)

Spool

Install spool (A) together with special washer (B), back-up ring (C) and seal ring (D) in housing.

[11] -



LEGEND:

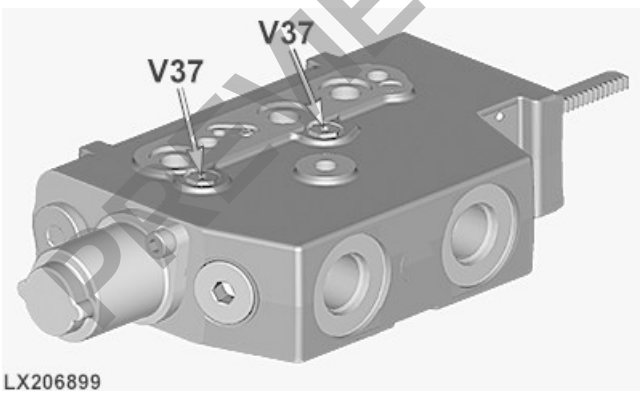
A	Hex. Socket Screws
B	Endplate

End Cap

Install endplate (B) with a new O-ring and hex. socket screws (A).

Item	Measurement	Specification
Endplate, hex. socket screws	Torque	10 N·m
		7.4 lb-ft

[12] -



LEGEND:

V37	Pilot Seat Valves

Pilot Seat Valves

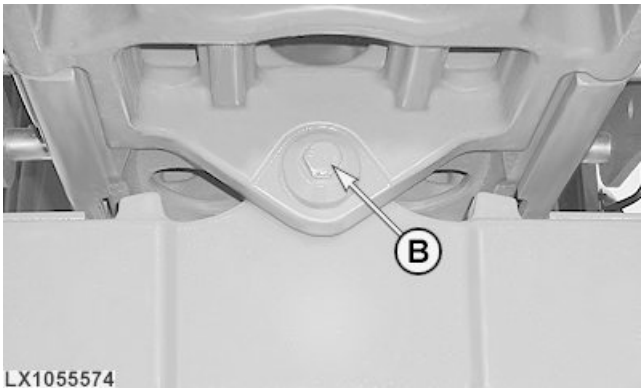
Install pilot seat valves (V37).

Item	Measurement	Specification
Pilot seat valve to housing	Torque	9 N·m
		6.6 lb-ft

[13] -

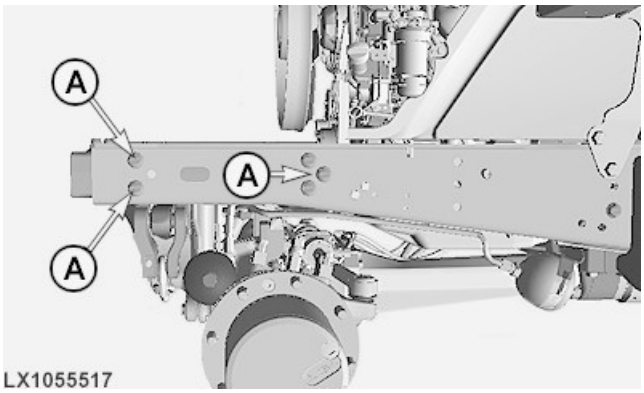
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Detach the Axle

[4] - Safely attach front axle support.



Front wheel has been removed for the sake of clarity.

[5] - Remove five screws (A) in support on both sides.

[6] - Lift the front axle support out of the frame.

IMPORTANT:

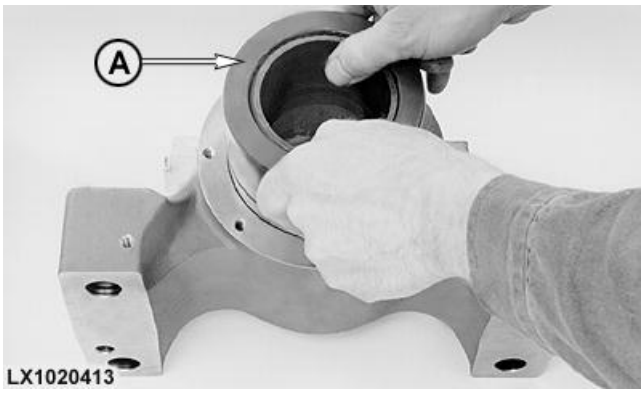
When lifting it out, watch out for parts in the way.

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Installing the Bearing Support

[1] -

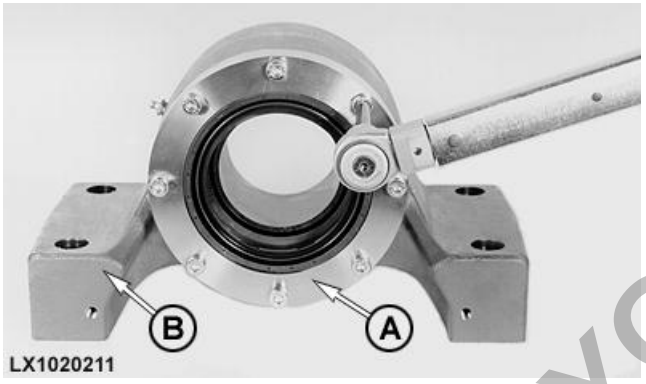


LEGEND:
A Spherical Bearing

Spherical Bearing

Apply MOLYKOTE BR2 PLUS to spherical bearing (A), and install.

[2] -



LEGEND:
A Cap
B Bearing Support

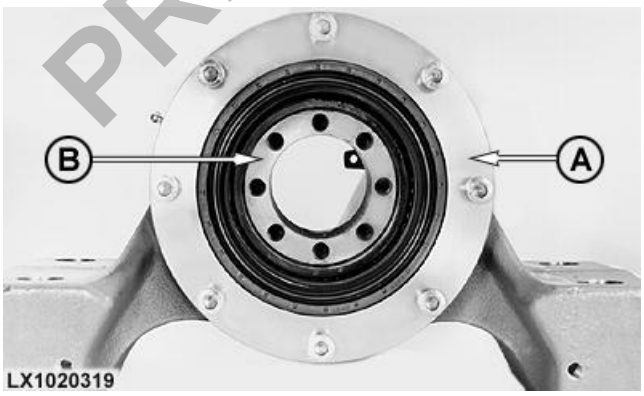
Installing the cover on the support

Install cover (A) on bearing support (B).

[3] - Tighten the hex. socket screws.

Item	Measurement	Specification
Cover to Bearing Support, Hex. Socket Screw	Torque	35 N·m 26 lb-ft

[4] -



LEGEND:
A Bearing Support Assembly
B Housing

Sliding the bearing support assembly onto the housing

Slide bearing support assembly (A) onto housing (B).

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