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Heavy Duty Diesel Engine Coolant

The engine cooling system is filled to provide year-round protection against corrosion and cylinder liner pitting, and winter freeze protection to -37°C (-34°F). If protection at lower temperatures is required, consult your John Deere dealer for recommendations.

The following engine coolants are preferred:

- John Deere COOL-GARD ™ II Premix
- John Deere COOL-GARD II PG Premix

Use John Deere COOL-GARD II PG Premix when a non-toxic coolant formulation is required.

Additional Recommended Coolants

The following engine coolant is also recommended:

- John Deere COOL-GARD II Concentrate in a 40–60% mixture of concentrate with quality water.

John Deere COOL-GARD II Premix, COOL-GARD II PG Premix, and COOL-GARD II Concentrate coolants do not require use of supplemental coolant additives.

Other Coolants

John Deere COOL-GARD II and COOL-GARD II PG coolants might not be available in the geographical area where service is performed.

If these coolants are unavailable, use a coolant concentrate or prediluted coolant intended for use with heavy duty diesel engines and with a minimum of the following chemical and physical properties:

- Is formulated with a quality nitrite-free additive package.
- Provides cylinder liner cavitation protection according to either the John Deere Cavitation Test Method or a fleet study run at or above 60% load capacity
- Protects the cooling system metals (cast iron, aluminum alloys, and copper alloys such as brass) from corrosion

The additive package must be part of one of the following coolant mixtures:

- ethylene glycol or propylene glycol base prediluted (40—60%) heavy duty coolant
- ethylene glycol or propylene glycol base heavy duty coolant concentrate in a 40—60% mixture of concentrate with quality water

Water Quality

Water quality is important to the performance of the cooling system. Distilled, deionized, or demineralized water is recommended for mixing with ethylene glycol and propylene glycol base engine coolant concentrate.

IMPORTANT:

Do not use cooling system sealing additives or antifreeze that contains sealing additives.

Do not mix ethylene glycol and propylene glycol base coolants.

Do not use coolants that contain nitrites.

Supplemental Coolant Additives

Some coolant additives will gradually deplete during engine operation. For nitrite-containing coolants, replenish coolant additives between drain intervals by adding a supplemental coolant additive as determined necessary by coolant testing.

John Deere Liquid Coolant Conditioner is recommended as a supplemental coolant additive for nitrite-containing coolants.

John Deere Liquid Coolant Conditioner is not designed for use with John Deere COOL-GARD ™ II Premix, COOL-GARD II PG

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IMPORTANT:

Do not mix up connections.

IMPORTANT:

When changing the fuel level sensor, take action to prevent dirt from getting into the tank.

Fold the floor mat back and remove the cover.

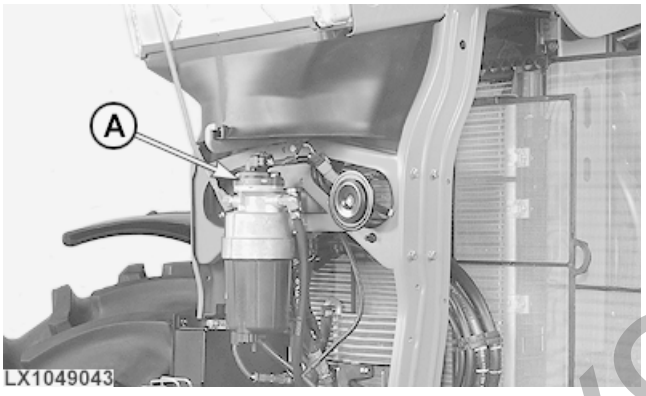
Through the opening in the cab floor, disconnect connector (A) and fuel hoses (B).

Remove the four screws (C) and take out the sensor for the fuel level (D).

Note for installation:

- Position the O-ring at the fuel level sensor.
- Pay attention to the alignment of the fuel hoses.

Bleeding the Fuel System



LEGEND:
A Fuel transfer pump

Fuel transfer pump

CAUTION:

High-pressure fluid remaining in fuel lines can cause serious injury. Do not disconnect or attempt to repair fuel lines, sensors or any other components between injection pump and nozzles.

The fuel system must be bled whenever the fuel tank has been run dry or the fuel filters have been replaced.

Turn key in main switch one position to the right.

Keep the fuel transfer pump running for approx. 40 seconds.

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METRI PACK Connectors

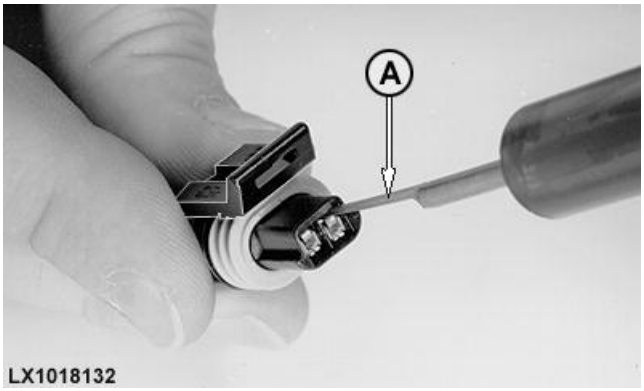
→NOTE:

METRI PACK

[METRI PACK is a trademark of Packard Electric]
connector

2-pin or 3-pin connectors

[1] - Extract female terminal

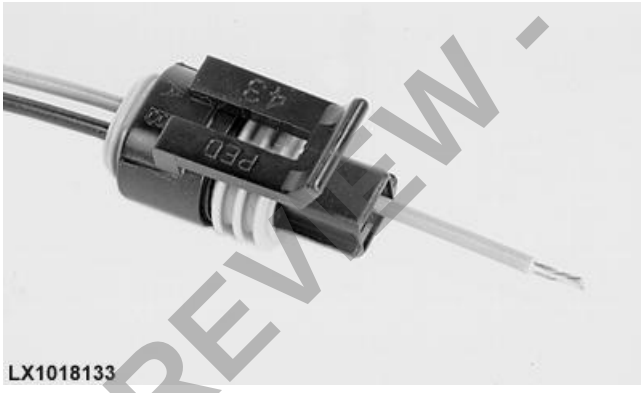


Extract Female Terminal

Use a pointed tool (A) to press in the locking tang.

Press the female terminal forward and out of the terminal body.

[2] - Strip wire



Strip Wire

From the back, feed the wire through the rubber seal and through the terminal body.

Strip insulation from wire to expose 4 mm (0.16 in.) length of wire.

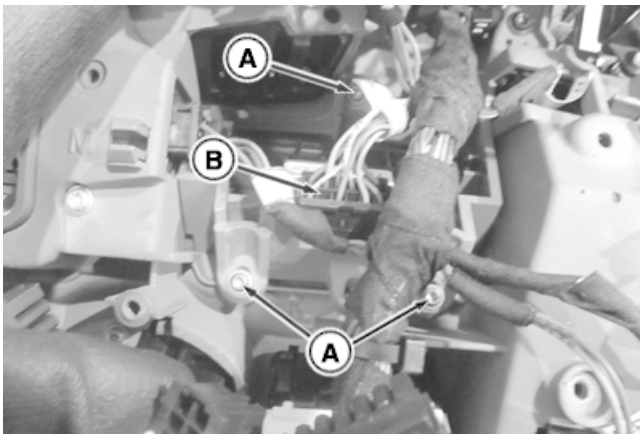
[3] - Replace female terminal

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[2] - Remove the control unit in the CommandARM™. See Control Unit in the CommandARM™ - Removal and Installation in Section 45, Group 05.

[3] -



LEGEND:

A	Wiring Harness
B	Screws (3 used)
C	Cab Control

Cab Controls



Cab Module for Controls

Disconnect harness (C) and screws (D).

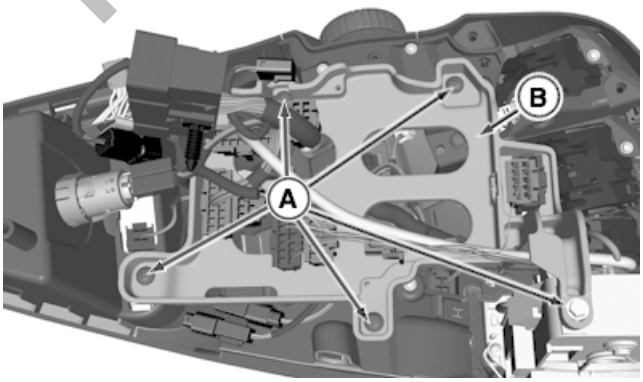
[4] - Remove cab control (C).

[5] - Inspect parts and replace as necessary.

[6] - Install in reverse order of removal.

Replace SCV Locking Module

[1] - Remove screws (A) and bracket (B).



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- Install swinging drawbar (B).
- Install pick-up hitch. See Remove and Install the Pick-Up Hitch in Section 80A, Group 20.

[6] - Fill with Transmission/Hydraulic Oil , see instructions in this Group.

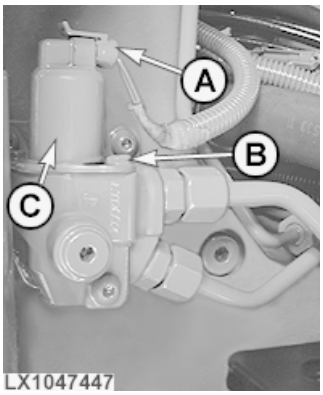
[7] - Perform an operational check. See Check the Rear PTOin Section 250A, Group 50.

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Differential - Replacing solenoid Y05 for differential lock

[1] -



LEGEND:

A	Wiring harness connectors
B	Screws
C	Solenoid valve

Removing solenoid valve Y05



Solenoid valve

Pull out wiring harness connector (A).

[2] - Take screws (B) out of retaining plate.

[3] - Remove solenoid valve (C).

[4] - Clean the components, check for excessive wear, and replace if necessary.

For specific component information of the sensors.See
Y05 - Differential lock solenoid valve, Component information in Section 249 in the corresponding Diagnostics Manual.

[5] - Install solenoid valve (C).

[6] - Install screws (B) on the retaining plate, and tighten to the specified torque.

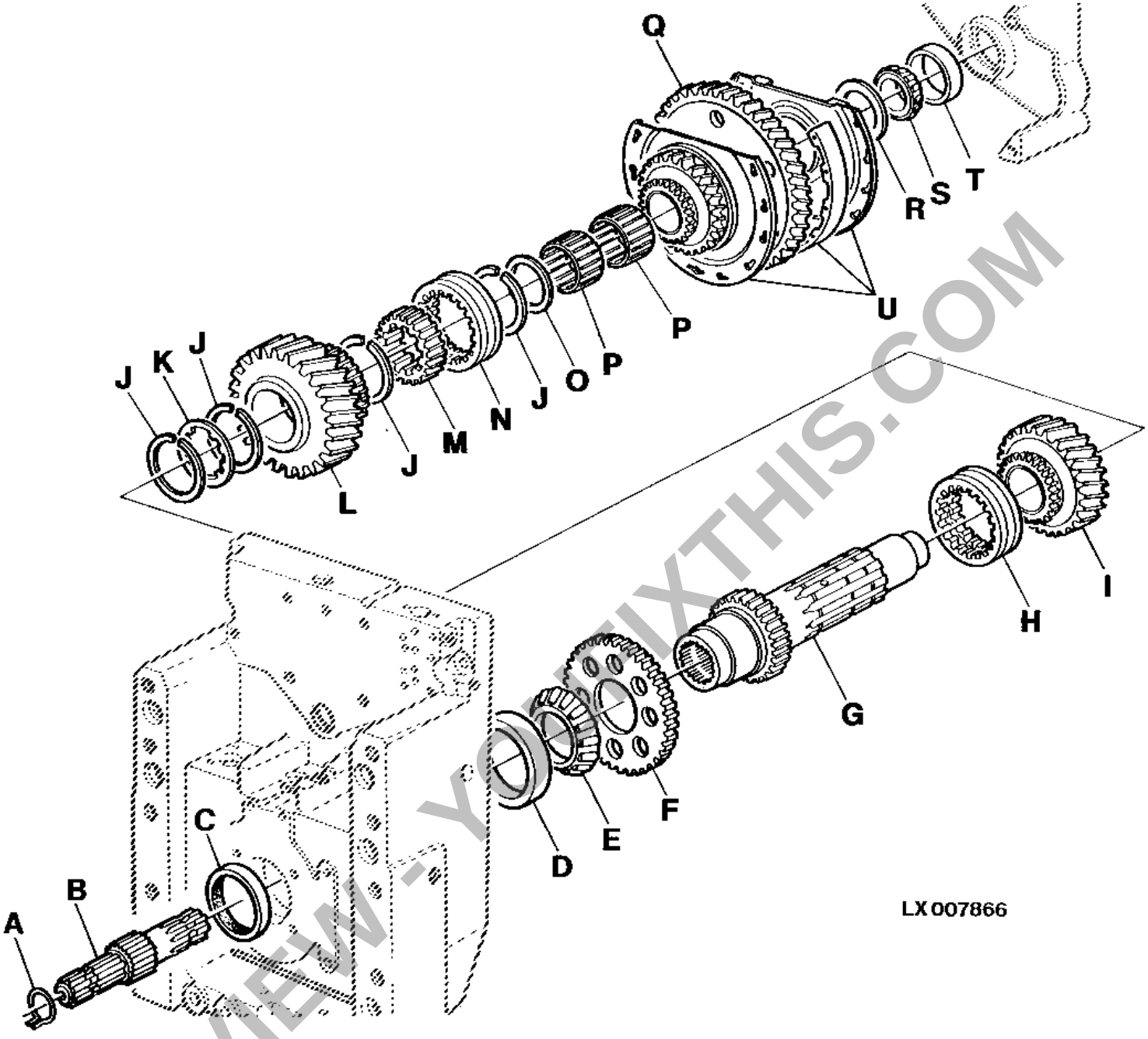
Item	Measurement	Specification
Y05 - Differential lock solenoid valve, screws	Torque	10 N·m 7.5 lb.-ft.

[7] - Connect wiring harness plug (A).

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Exploded view - Output shaft



Output shaft (540/1000 rpm shiftable, 540/540E/1000 rpm shiftable)

LEGEND:

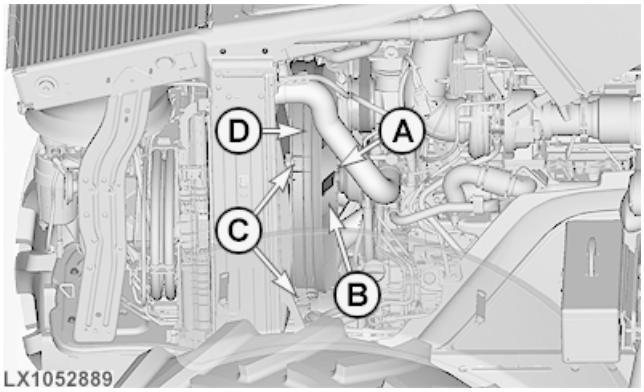
A	Snap ring
B	PTO stub shaft
C	Seal ring
D	Tapered roller bearing cup
E	Tapered roller bearing cone
F	Impulse disk
G	Output shaft
H	Shift collar
I	Gear
J	Snap ring
K	Pressure ring
L	Gear
M	Shift collar support
N	Shift collar
O	Pressure ring
P	Needle bearings
Q	Double gear

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Front Implement Drive - Tightening the Clutch Screws (after 100 Hours of Operation)

[1] -



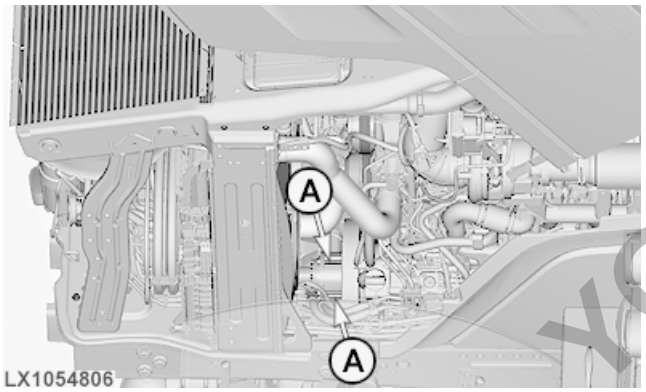
LEGEND:

A	Nuts
B	Fan
C	Screws
D	Fan frame

Removal/Installation of Fan and Frame

Remove nuts (A) of the fan with viscous coupler (B) and screws (C) of the fan frame (D).

[2] -



LEGEND:

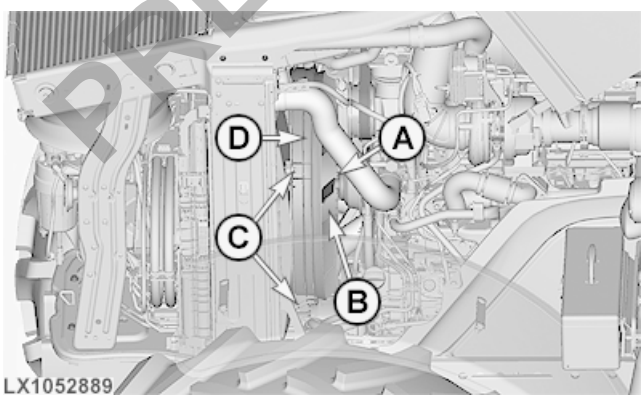
A	Screws

Retightening the screws at the coupler

Tighten screws (A) to the specified torque.

Item	Measurement	Specification
Coupler and shaft to torsion damper, screws	Torque	65 N·m 48 lb.-ft.

[3] -



LEGEND:

A	Nuts
B	Fan
C	Screws
D	Fan frame

Removal/Installation of Fan and Frame

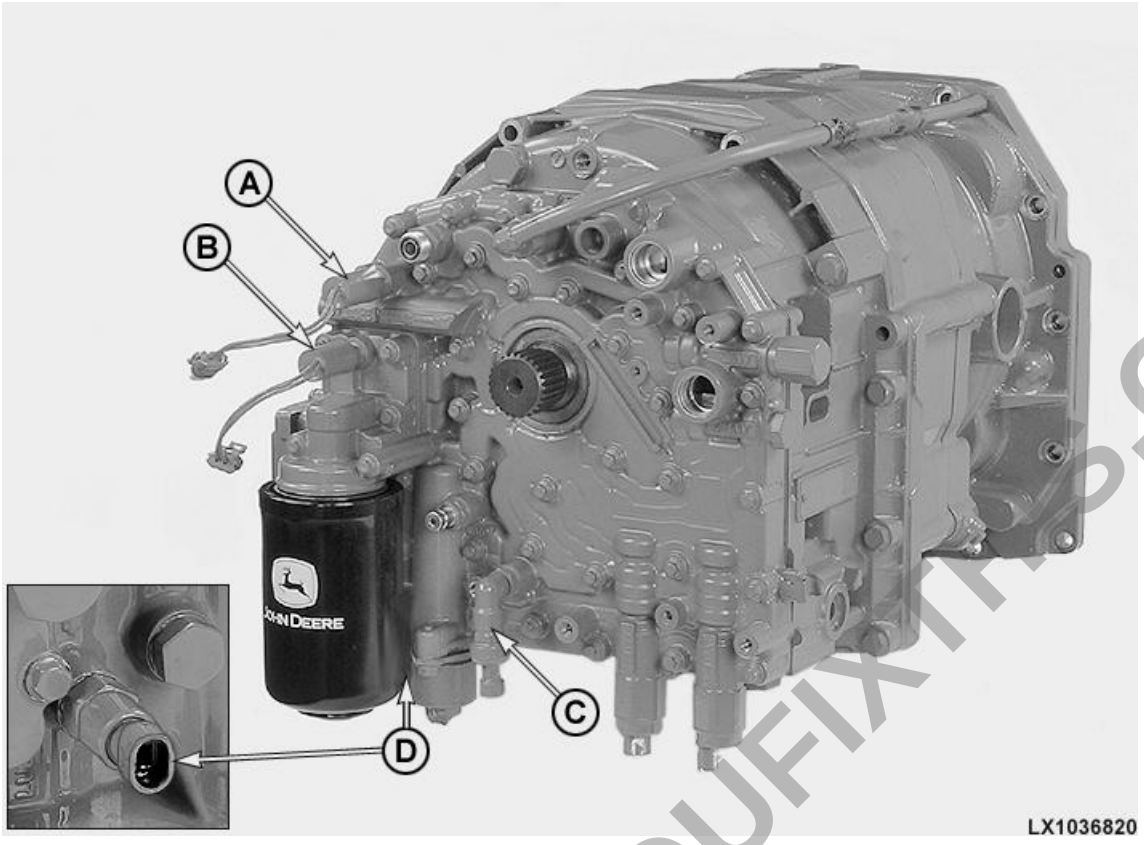
Insert fan frame (D) and tighten screws (C).

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PowrQuad™ Transmission - Replace the Temperature Sensor and Pressure Switches

[1] -



Pressure Switch

LEGEND:

A	Pressure Switch, System Pressure
B	Pressure Switch for Restriction Indicator of Transmission Oil Filter
C	Pressure Switch, Clutch pressure
D	Temperature Sensor

Replace pressure switch for system pressure (A) and tighten to the specified torque.

Item	Measurement	Specification
Pressure Switch, System Pressure	Torque	4—7 N·m
		3—5 lb-ft

[2] - Replace pressure switch (B) for restriction indicator of transmission oil filter and tighten to the specified torque.

Item	Measurement	Specification
Pressure switch for restriction indicator of transmission oil filter	Torque	4—7 N·m
		3—5 lb-ft

[3] - Replace pressure switch for clutch pressure (C) and tighten to the specified torque.

Item	Measurement	Specification
Pressure switch, clutch pressure	Torque	9 N·m
		6 lb-ft

[4] - Temperature sensor (D) is installed on the underside of the transmission. Replace temperature sensor (D) and tighten to the specified torque.

Item	Measurement	Specification
Temperature Sensor	Torque	4—7 N·m

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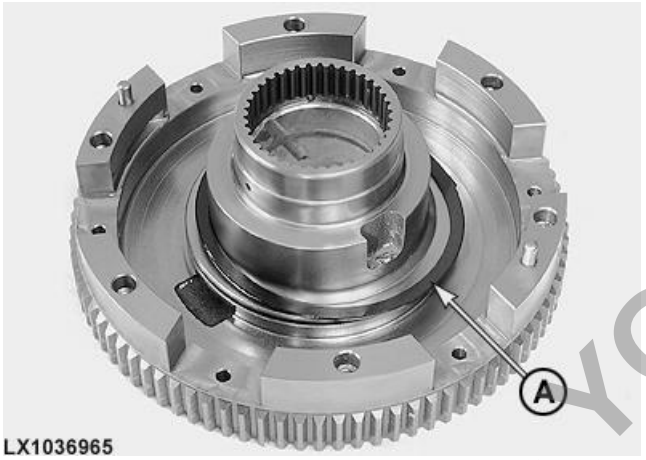
[6] -



Applying grease to the clutch drum

At the clutch drum, apply a light coat of grease to the mounting surfaces of the clutch piston.

[7] -



LEGEND:

A	Seal Ring

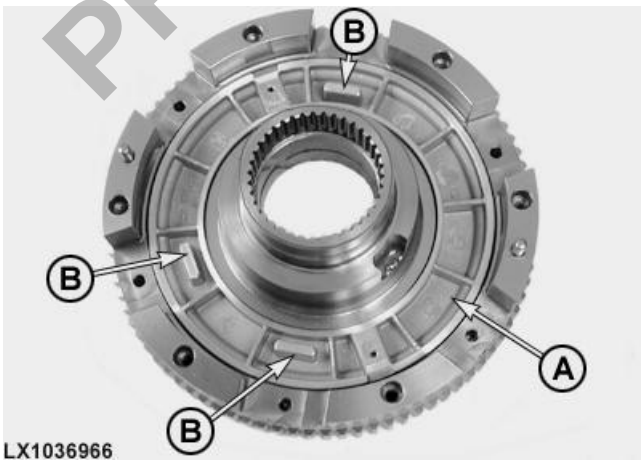
Install the Seal Ring

Coat seal ring (A) with grease and install it in the ring-shaped groove at the clutch drum.

→NOTE:

Center the seal ring in the ring-shaped groove so that it is not damaged when the piston is installed.

[8] -

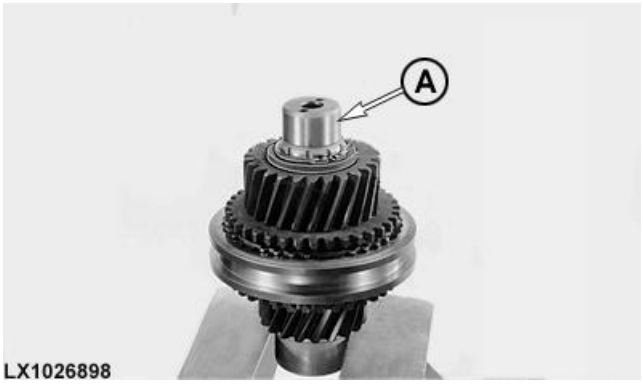


LEGEND:

A	Piston
B	Guides

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LEGEND:

A	Countershaft

Countershaft

Disassemble countershaft (A).

Exploded View of Option Transmission

→NOTE:

The attaching screw (I) of the countershaft (V) is only tightened after the option transmission has been installed. See Section 50C, Group 00.

Item	Measurement	Specification
Attaching Screw of the Countershaft at the Differential Drive Shaft	Torque	90 N·m 67 lb-ft

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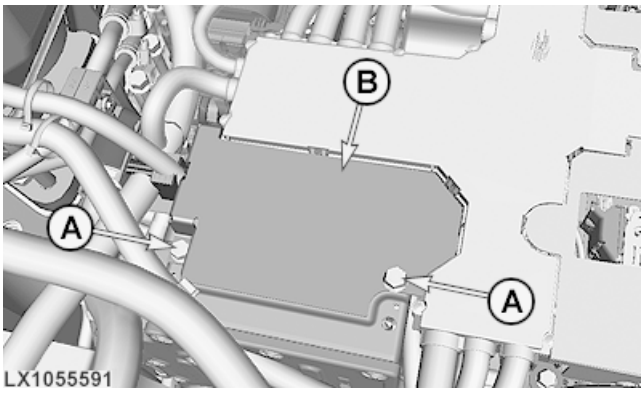
Attach the transmission harness to the transmission and connect all connectors.

IMPORTANT:

Pay attention to the following points when routing harnesses and hoses:

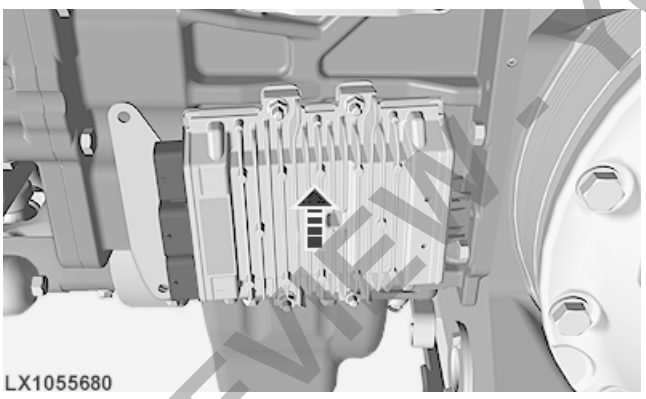
- ***Before installing, inspect for damage and replace if necessary.***
- ***Do not subject them to tension, crushing or bending forces.***
- ***Do not install them in the vicinity of moving parts***
- ***Keep them away from sharp edges.***

[15] - Install cover (B) using screws (A).

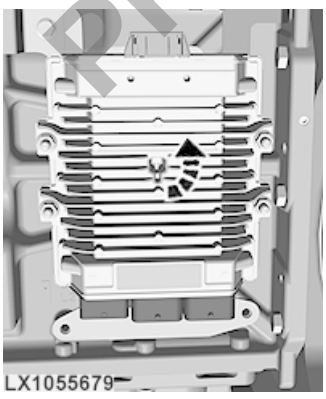


Cover

[16] - Slide the control unit upward between the main frame and the transmission as shown, turn it by 90 degrees and connect connector (C).



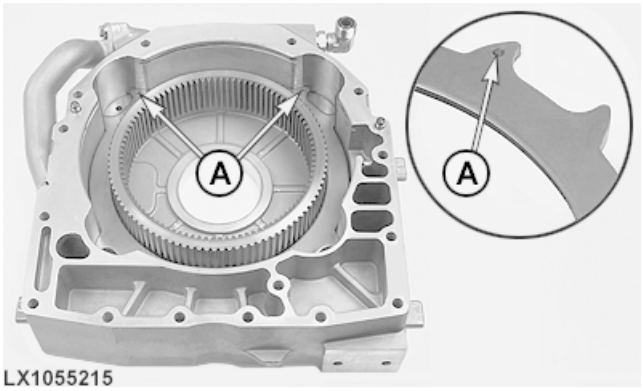
Control Unit



Control Unit

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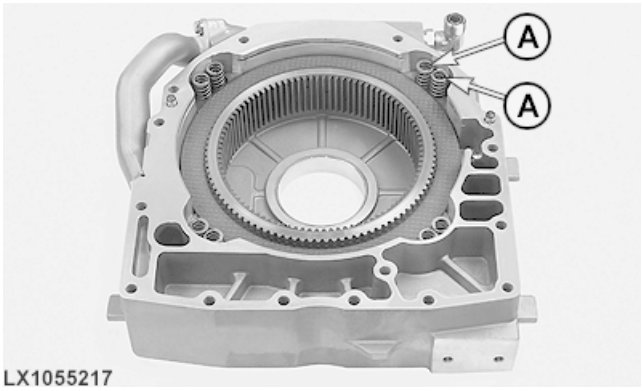


LEGEND:
A Marks

Steel Disk

Position the steel disk as shown. Pay attention to marks (A). Then position the entire disk pack in the same sequence.

[7] -

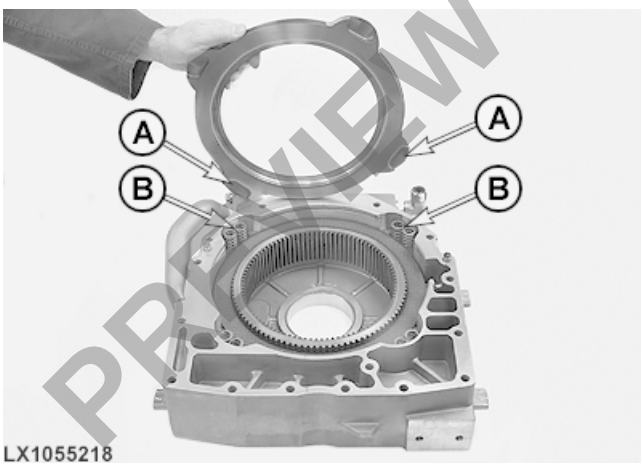


LEGEND:
A Springs

Springs

Insert the springs (A).

[8] -



LEGEND:
A Recess
B Springs

End plate

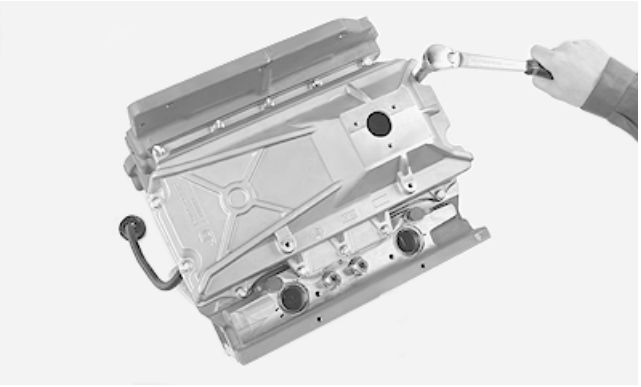
Position the end plate so that recesses (A) are aligned with springs (B).

IMPORTANT:

Make sure that all springs are seated in the recesses.

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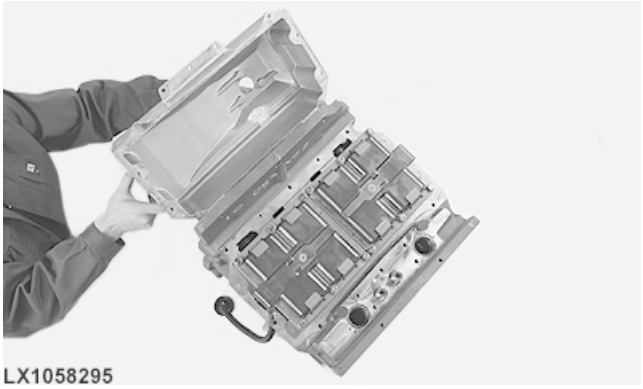
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Oil Pan

Remove screws from the oil pan.

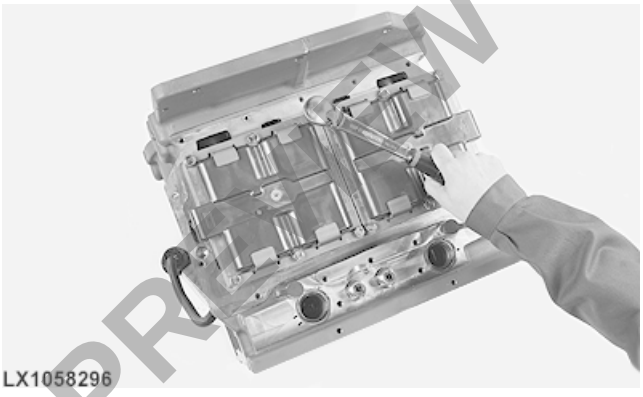
[11] -



Oil Pan

Remove the oil pan.

[12] -



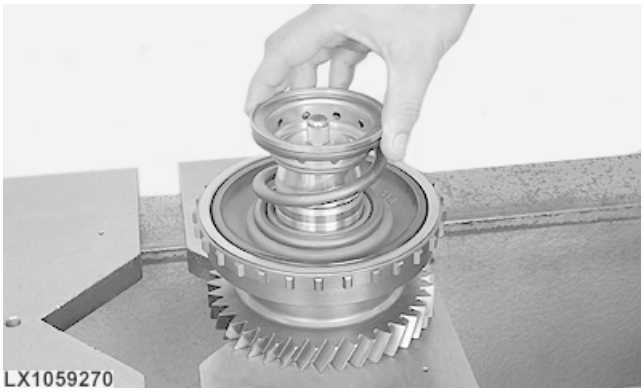
Solenoids

Remove screws of solenoids.

[13] -

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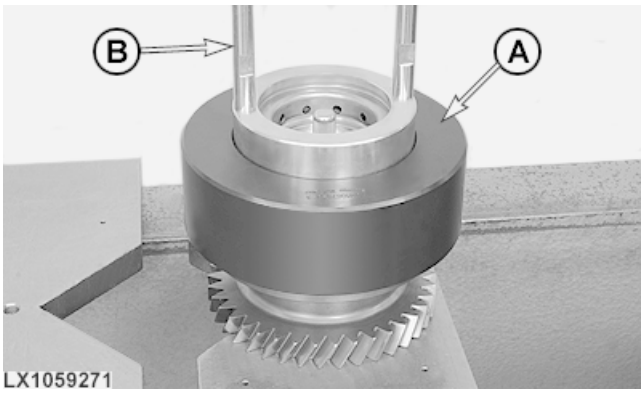
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Clutch spring

Install spring support and clutch spring.

[5] -



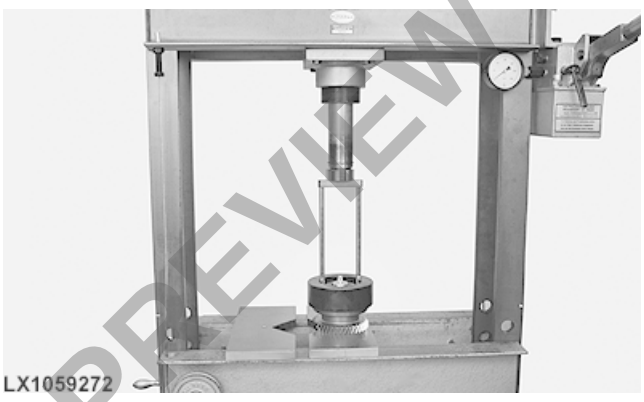
LEGEND:

A	Mounting Ring
B	Installation Tool

Clutch piston

Install mounting ring (A) KJD10679-3-3and installation tool (B) KJD10679-3-1.

[6] -



Clutch spring

Push the clutch spring down using a press.

[7] -

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Snap Ring

Install the snap ring using KJD10711-1installation tool.

CAUTION:

Take care, tension of snap rings may be relieved in an uncontrolled manner.

IMPORTANT:

Use the appropriate special tools when installing the snap rings.

Be careful not to overstretch the snap rings when installing.

→NOTE:

Using the largest snap ring that fits will automatically give you the prescribed axial play.

→NOTE:

A selection of snap rings with different thicknesses is available through normal spare parts channels.

Item	Measurement	Specification
Synchronizer units	Axial play	< 0.1 mm < 0.004 in.

[8] -



Snap Ring

Reseat the snap ring.

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Hydrostatic Steering - Removing the Steering Column

Preliminary work:

Disconnect the electrical circuit. See Disconnect Electrical Circuit in Section 40.

[1] -

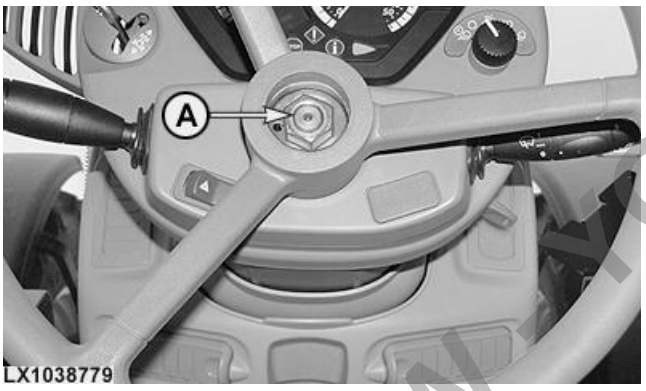


LEGEND:
A Cover

Removing/installing cover

Remove cover (A).

[2] -



LEGEND:
A Retaining nut

Removing/installing the retaining nut

Take off retaining nut (A).

[3] -



LEGEND:
A Washer

Removing/installing the washer

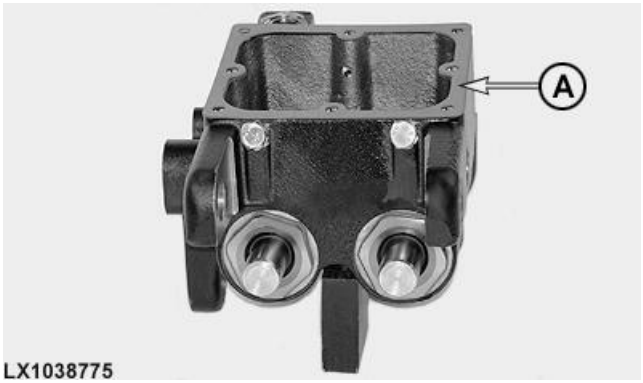
Remove washer (A) and pull off the steering wheel.

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IMPORTANT:

Soak the seal in clean hydraulic oil for 4 hours and allow it to expand.



LEGEND:

A	Gasket

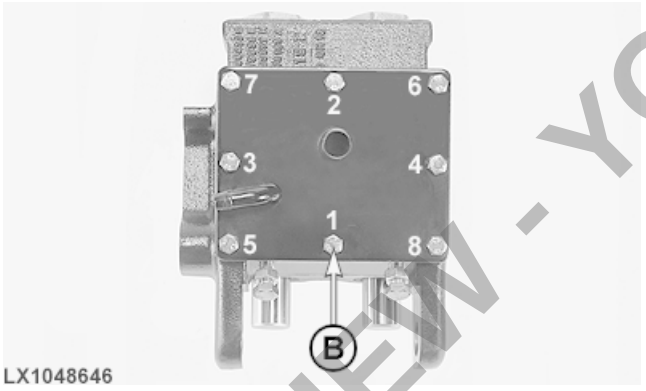
Installing the gasket

Install the expanded gasket (A) on the housing with the writing underneath.

[20] -

IMPORTANT:

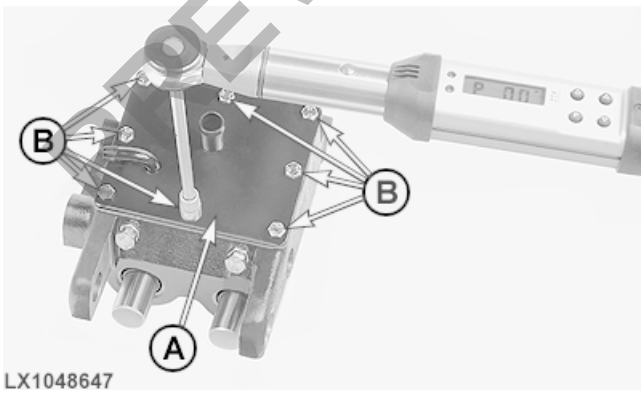
Tighten screws (B) in the sequence shown.



LEGEND:

A	Cover
B	Screws

Brake valve - Tightening sequence for screws

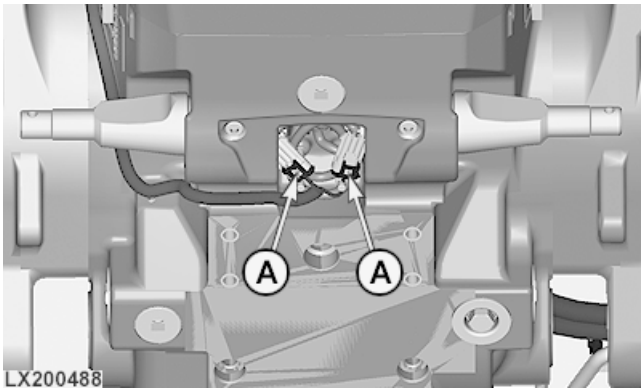


Brake valve - tightening the cover

Install cover (A) and tighten screws (B) to the specified torque in the sequence shown.

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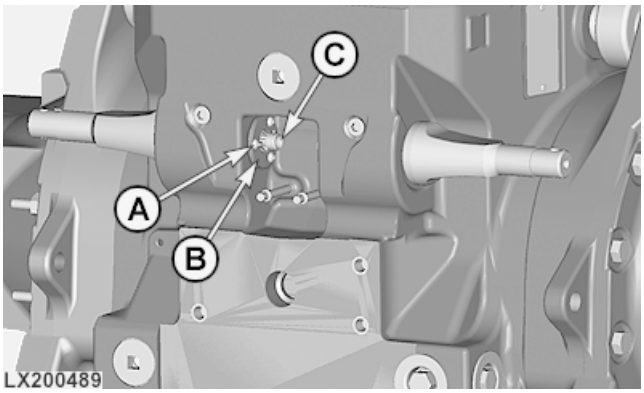


LEGEND:
A Cable Connection

Cable Connection

Disconnect electrical connections (A) from the sensors.

[12] -



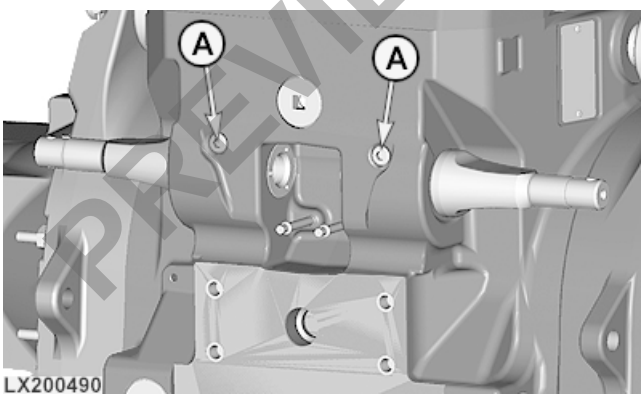
LEGEND:
A Hex. Socket Screws (3 used)
B Retaining Plate
C Sensor

Remove Sensor

Remove hex. socket screws (A).

[13] - Remove retaining plate (B) and the O-ring below it.

[14] - Pull sensor (C) out of the bearing pins.



LEGEND:
A Socket Head Plug

Remove Bearing Pins

Remove the draft link bearing pins

[1] - Remove socket head plugs (A).

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Additional work

[1] - Install the front wheels and tighten the wheel nuts to the specified torque. See Machine-Specific Systems - Fenders, Front Wheels and Rear Wheels, Summary of References in Section 80A, Group 10.

[2] - Perform an operational check of the steering system. See Operational Checks - Steering in the corresponding Technical Manual, in Section 260A, Group 10.

[3] - Check and adjust toe-in, see relevant CTM.

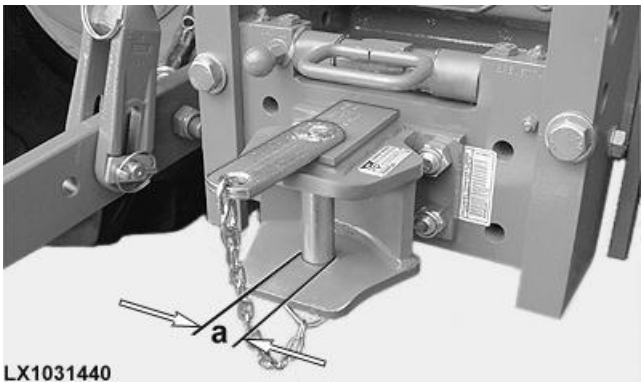
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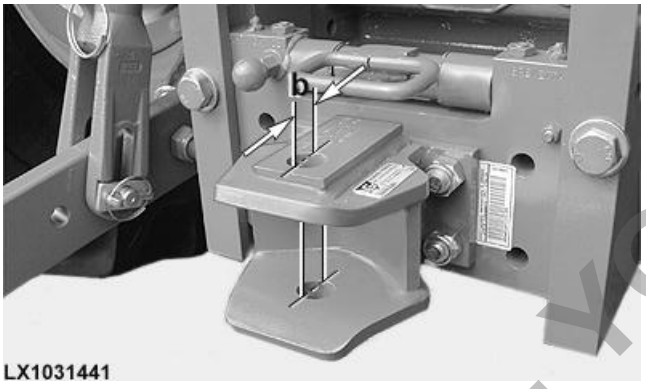
Checking the Manually-Operated Hitch for Wear (Italy and Spain Only)

CAUTION:

Parts that have reached or exceeded their wear limit must be replaced with new parts.



Hitch pin



Hitch pin

Check diameter (a) of the hitch pin.

Check diameter (b) of the receiver hole.

Specifications for hitch pins, Cat. 2 with nominal diameter 28.0 mm (1.10 in)

Item	Measurement	Specification
Hitch pin	Wear limit or minimum diameter	26.5 mm 1.04 in.

Item	Measurement	Specification
Top and bottom receiver holes (measured in direction of travel)	Wear limit or maximum permissible diameter	31.0 mm (oval) 1.22 in. (oval)

Specifications for hitch pins, Cat. 3 with nominal diameter 43.0 mm (1.69 in)

Item	Measurement	Specification
Hitch pin	Wear limit or minimum diameter	41.0 mm 1.61 in.

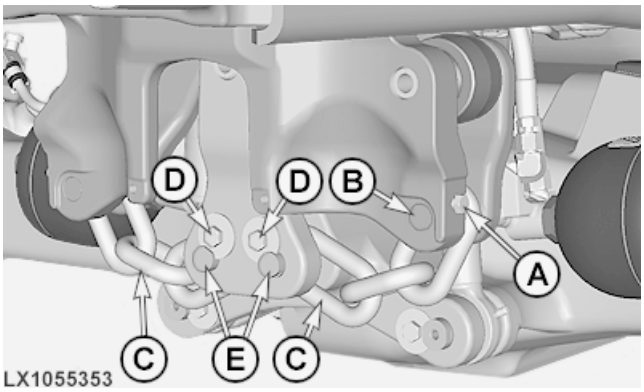
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Remove and Install the Oscillation Limiter

[1] - Relieve the pressure in the hydraulic system. See Relieving the Hydraulic System Pressure in this Group.

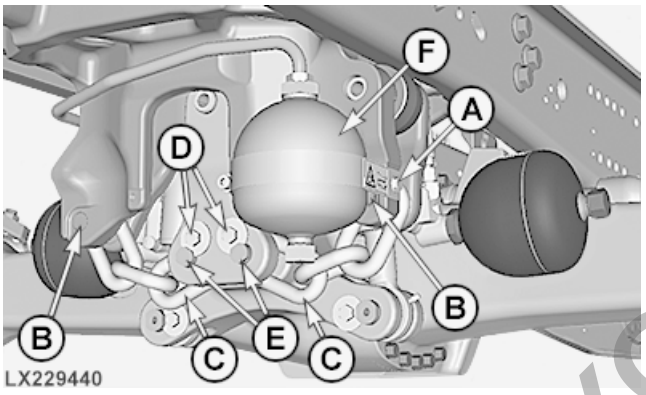
[2] -



LEGEND:

A	Screws M10 x 55
B	Retaining Pin
C	Oscillation Limiter
D	Screws M12 x 20
E	Retaining Pin
F	Accumulator [On 6135R tractors only]

6110R to 6130R Tractors



6135R Tractors

Remove screws (A) and retaining pin (B).

Make sure that the accumulator (F) does not get damaged or fall down. If necessary, remove the accumulator, see Remove and Install the Accumulator in this Group.

Take out screws (D) and remove the washers.

[3] - Pull out pins (E) and take off the oscillation limiter (C).

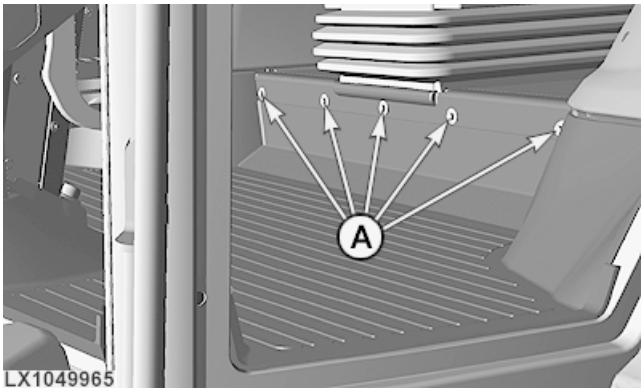
[4] - Replace parts as necessary.

[5] - To install the oscillation limiter, reverse the removal procedure. Tighten the screws of the retaining pin.

Item	Measurement	Specification
Retaining pin (B), M10 screw	Torque	55 N·m
		40 lb-ft
Retaining pin (E), M12 screw	Torque	95 N·m
		70 lb-ft

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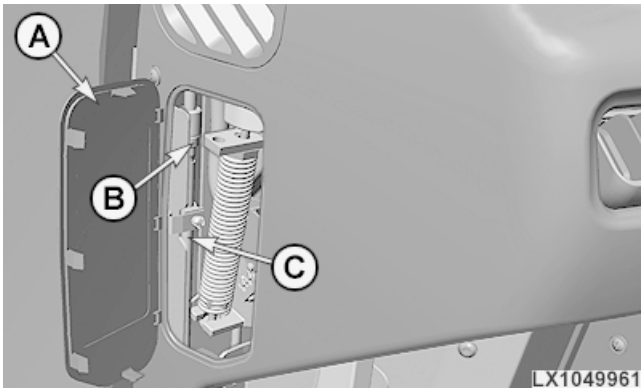
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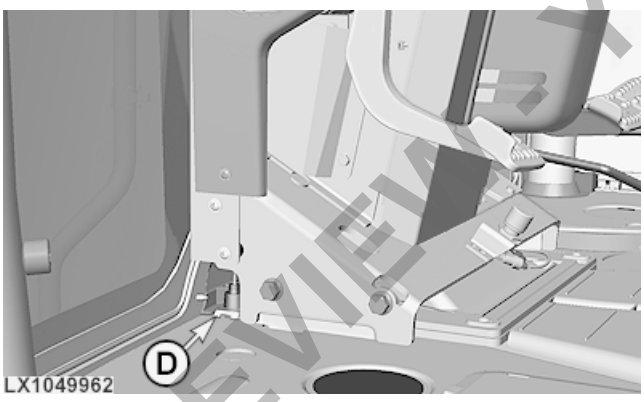
Remove floor mat

Remove screw (A) and take the floor mat out.

[6] -



Emergency park lock release for AutoPowr



Clip

Tractors with AutoPowr™ only:

Open cover (A), unclip emergency park lock release (C) and unscrew upper part (B).

Remove clip (D).

When the cab is raised later, push out the linkage through the floor of the cab.

[7] -

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[4] -

→NOTE:

A new actuator for air distribution needs to be calibrated, see ETC Control Software - Summary of References in Section 245 of the relevant Diagnostic Manual.

For installation, follow removal procedure in reverse order.

Item	Measurement	Specification
Fasten actuator, screws (A)	Torque	0.7 N·m
		0.5 lb-ft

Next step:

For further information refer also to Air Conditioning System - Access to the Air Conditioning Components in Section 90.

Conduct a differential pressure check, see Air Conditioning System - Differential Pressure Checkin the relevant Diagnostics Manual, Section 290.

Air Conditioning System - Removing and Installing the ETC Control Unit

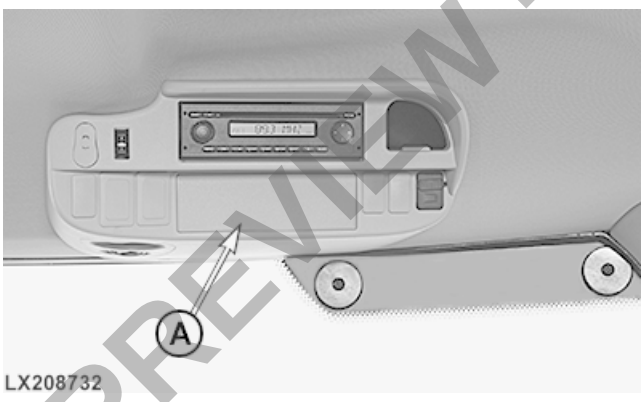
[1] -

→NOTE:

After the control unit has been exchanged, it has to be calibrated, see ETC Control Software - Summary of References in Section 245 of the relevant Diagnostic Manual.

→NOTE:

For further information refer also to Air Conditioning System - Access to the Air Conditioning Components in Section 90.



LEGEND:
A Cover

ATC Control Unit

Remove cover (A) and carefully lever control unit out of the console.

[2] - Disconnect the wiring connector.

[3] - Recondition or replace control unit as necessary.

[4] - Reconnect the wiring connector and reinstall the control unit.

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