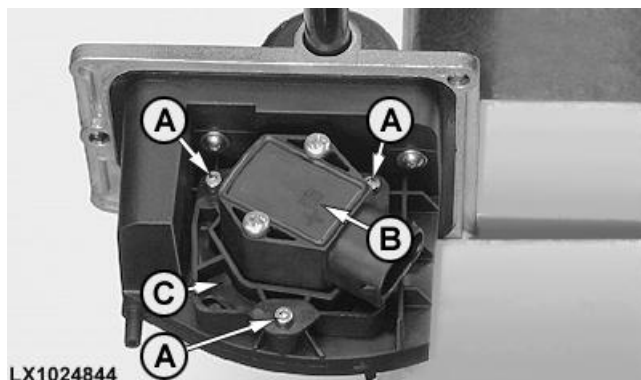


PREVIEW - YOUFIXTHIS.COM

Removing the Accelerator Pedal's Potentiometer



Removing the housing

[1] - Take out hex. socket screws (A).

[2] - Remove potentiometer (B) together with holder (C) and the toothed segment.

Installing the Accelerator Pedal's Potentiometer

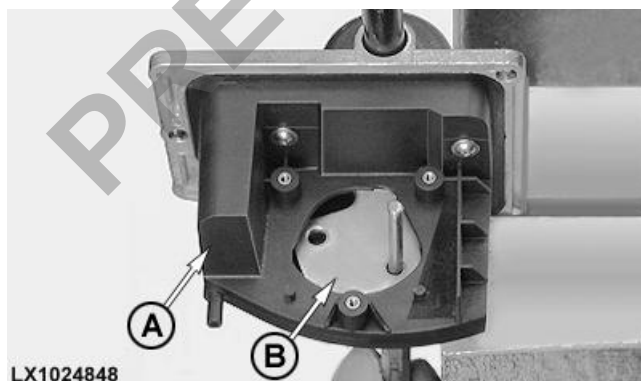
[1] -



Stopper on accelerator pedal

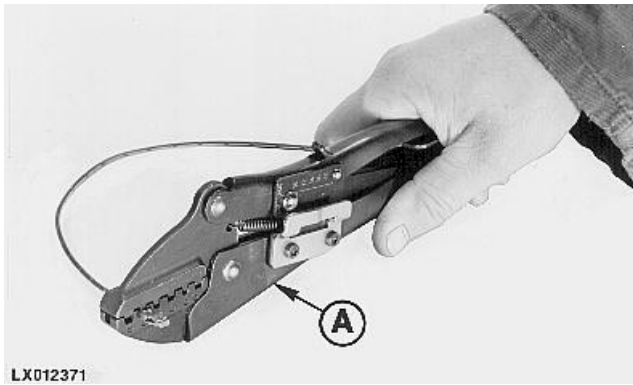
Remove stopper (A) from the housing.

[2] -



Punch passing through housing

Move the accelerator pedal far enough to allow a punch with a diameter of 5 mm (0.2 in.) to pass through the holes in housing (A) and toothed segment (B).



Installing a terminal

Place male or female terminal in matching recess of crimping pliers KLM10019-1.

→NOTE:

Special pliers KLM10019-1 are included in wiring harness repair kit FKM10461.

Wiring harness repair kit

FKM10461



Wiring harness repair kit

Repairing wiring harnesses

Place the stripped portion of the wire and wire seal in the recess in the male or female terminal, and squeeze the pliers until they engage.

→NOTE:

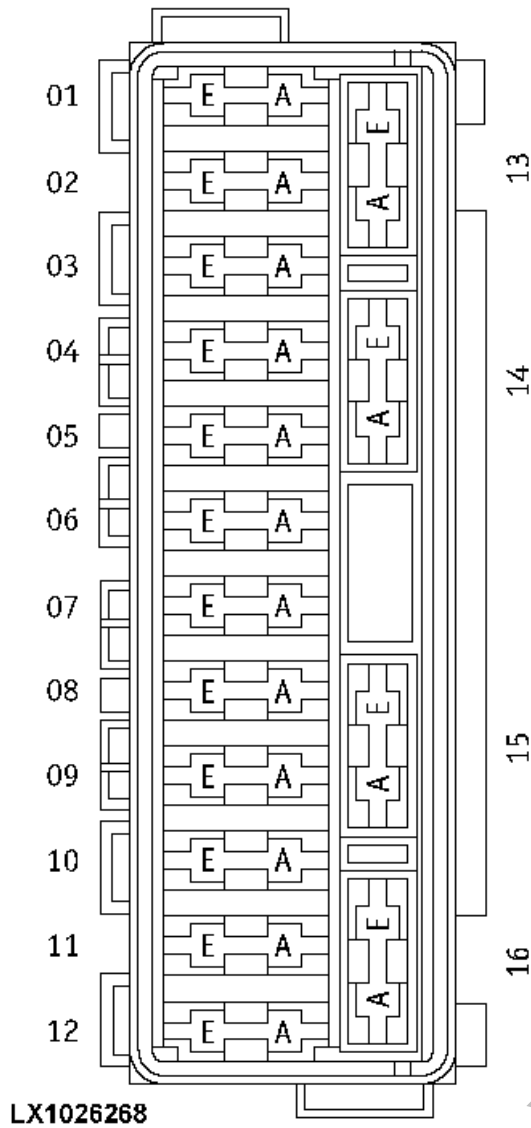
The wire seal is crimped to the terminal together with the wire in one single process.

To open the pliers, pull the release lever.

Before installing a male or female terminal, bend the locking tang back to its original position.

From the back, insert the male or female terminal into the terminal body.

Insert the terminal lock.



Fuse box F03

IMPORTANT:

To prevent unnecessary damage to the electrical system, never use a fuse with a higher rating than the one already installed.

DEFINITIONS:

F03/01	10-amp Basic Control Unit (BCU)
F03/02	10-amp Basic Control Unit (BCU)
F03/03	20-amp brake light switches
F03/04	10-amp hazard warning lights
F03/05	Not used
F03/06	Not used
F03/07	10-amp hazard warning lights
F03/08	10-amp controller for suspended front axle (SFA)
F03/09	20-amp LTC coolant pump
F03/10	10-amp power supply to E-ICV
F03/11	10-amp power supply to E-SCV
F03/12	10-amp power supply to E-SCV
F03/13	10-amp E-SCV/E-ICV controller (SIC)
F03/14	10-amp GVC monitor
F03/15	10-amp E-SCV/E-ICV controller (SIC)
F03/16	10-amp heated rear window

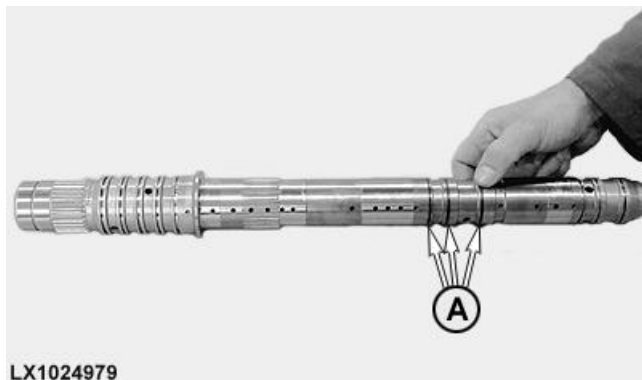
F	90 mm (3.54 in.)
G	15 mm (0.6 in.)
H	15 mm (0.6 in.)
I	Bore, 11 mm (7/16")

For suspending the AutoPowr/IVT transmission horizontally.**As feedstock, use equal angle steel 35 x 35 x 5 mm (1.4 x 1.4 x 0.2 in.) in accordance with DIN EN 10 025 (or similar norms).**

Repair specifications

Item	Measurement	Specification
Cap screws, AutoPowr/IVT transmission to differential housing	Torque	135 Nm (100 lb-ft)
Mounting screws, suction line to input housing	Torque	18 Nm (13.5 lb-ft)
Cap screws, front cab mountings to main frame	Torque	240 Nm 175 lb-ft

[4] -

**Installing through-drive shaft seal rings****LEGEND:**

A Seal Ring (3 used)

Install three seal rings (A) and close them.

→NOTE:**Apply petroleum jelly to the seal rings and position them in the middle of the shaft.**

[5] -

**Installation of through-drive shaft**

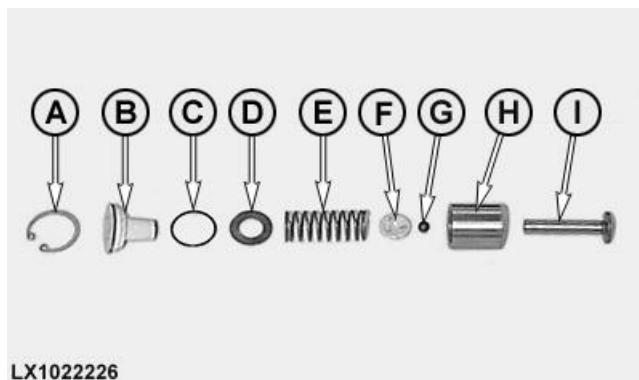
Support shift turret and carefully insert pre-assembled through-drive shaft.

[6] -

**Determining test dimension**

Hold through-drive shaft and gear in position; then rotate shift turret 180°.

[9] -

**Pneumatic pump - components****LEGEND:**

A	Snap ring
B	Valve
C	O-ring
D	Washer
E	Spring
F	Retaining ring
G	Ball
H	Piston
I	Pneumatic pump tappet

Check pneumatic pump parts before installation. Replace, if necessary.

[10] -

→NOTE:**Pre-assembling the piston**

Be sure to insert ball and retaining ring correctly (install retaining ring with ball socket pointing to the ball).

Install the ball and retaining ring on the piston.

[11] -

**Installing snap ring**

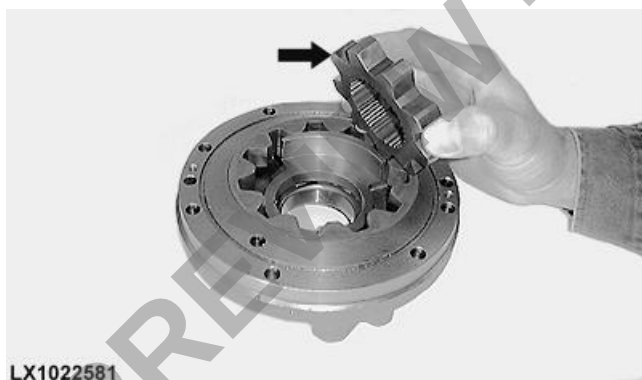
Install snap ring.

[3] -

**Installing toothed ring**

Install toothed ring with chamfer (see arrow) facing downward.

[4] -

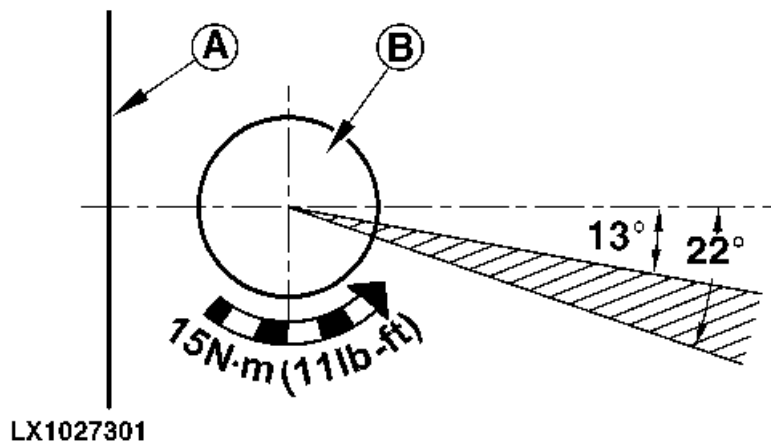
**Installing the pump gear**

Install pump gear with chamfer (see arrow) facing downward.

[5] -

Checking the setting of the park lock cam

[1] -



Setting of the park lock cam

LEGEND:

- A Flanged surface of differential housing
B Park lock cam

The AutoPowr/IVT transmission must be installed before play can be checked. Install the AutoPowr/IVT transmission; see reference "Installing the AutoPowr/IVT Transmission", Section 53, Group 00.

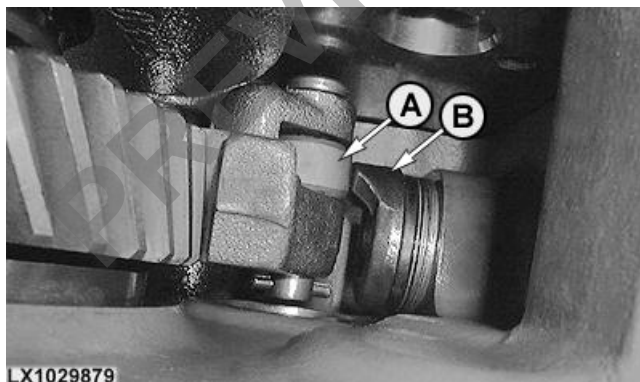
[2] - Turn park lock cam counterclockwise to a torque of 15 Nm (11 lb-ft). When the locking pawl blocks the front-wheel drive gear firmly, the bore in the cam's shaft must be at an angle of 13 to 22° to the horizontal.

→NOTE:

If the shaft can be turned beyond the angle required, use a thicker shim. If the shaft cannot be turned as far as the angle required, use a thinner shim.

→NOTE:

Changing shim thickness 0.1 mm (0.004 in.) changes the angle by approx. 6°.



Correctly adjusted park lock cam (seen from below, with front-wheel drive clutch removed)

If the park lock cam is correctly adjusted and park lock is selected, roller (A) must be entirely on the flat surface of cam (B), in other words NOT touching the stop of the cam. The roller must NOT be on the ramp of the cam.

[3] - If required, recheck the setting.

9	End panel
10	Belleville spring
11	Quadrant, E
12	Lever
13	Quadrant, C-D
14	Quadrant, A-B
15	Quadrant, park lock
16	Retaining washer
17	Spacer
18	Shaft
19	Pin
20	Park lock switch
21	Spring

Used to hold shift rod detent when adjusting shifting mechanism.

Specifications

Item	Measurement	Specification
Ring Retaining Plate Cap Screw	Torque	25 N·m (221 lb-in.)
Differential Drive Shaft	End play	0.013—0.080 mm (0.0005—0.0030 in.)
Input Shaft	End Play	0.013—0.080 mm (0.0005—0.0030 in.)
Differential Drive Shaft Nut	Torque	550 N·m (405 lb-ft)
Park Lock Pawl Spring	Free length	approximately 62 mm approximately 2.44 in.
	Test length	57 mm at 29—47 N (2.2 in. at 6.5—10.5 lb)
Shift Cover-to-Range Box Cap Screws	Torque	70 N·m (50 lb-ft)
Shift Fork Detent Spring	Free length	approximately 43 mm approximately 1.69 in.
	Test length	35.9 mm at 90—110 N (1.41 in. at 19.58—24.25 lb)
Speed Sensor Mounting Screw	Torque	20 N·m (177 lb-in.)
Threaded Pins of Shift Forks	Torque	40 N·m (30 lb-ft)

Remove Range Transmission

Preliminary work:

Before removing range transmission, see “Remove Range Transmission”.

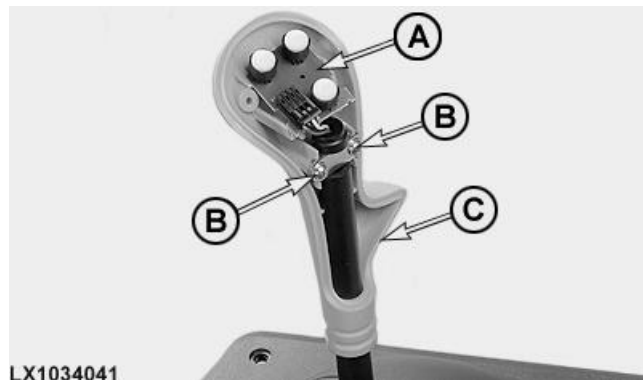


Removing the range transmission



CAUTION:

Range transmission is heavy. Support it securely before carrying out any service work to avoid personal injury.



LX1034041

Disassembling the grip

LEGEND:

- A Circuit board with gear-shift switches
- B Attaching screws
- C Grip

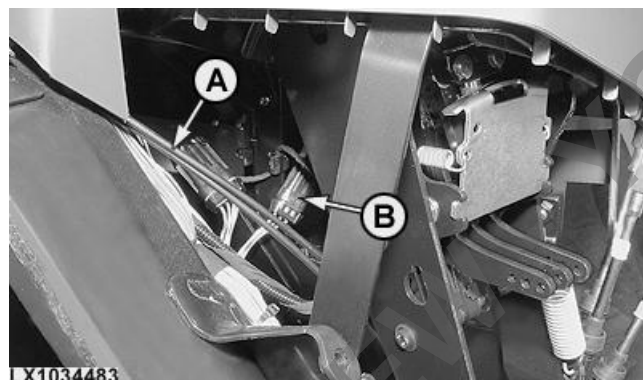
Carefully pull the circuit board with gear-shift switches (A) off the plug.

Take out attaching screws (B) and pull off grip (C).

Recondition or assemble the selector grip with gear-shift switches as required, using the exploded view as a guide.

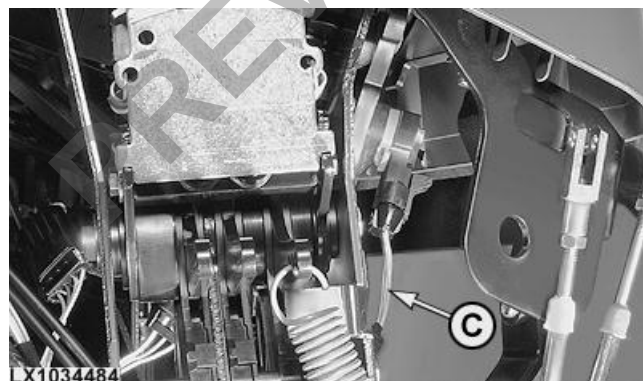
Removing the shifter unit

[1] - Take off the trim panels.



LX1034483

Electrical plug connections (A) and (B)



LX1034484

Electrical plug connection (C)

LEGEND:

- A Electrical plug connection
- B Electrical plug connection
- C Electrical plug connection

Repair C4 clutch

[1] - Remove C4 clutch. (See REMOVE C4 CLUTCH in this group.)

[2] -

→NOTE:

Repair or assemble C4-clutch as required, using Cross Sectional and Exploded View illustrations as guides. (See CROSS SECTIONAL VIEW—C4 CLUTCH and EXPLODED VIEW—C4 CLUTCH in this group.)

Remove screws (Q) and remove clutch cover (P).

[3] - Remove clutch hub (J), disks (L) and (M) and piston plate (K).

[4] - Remove springs (O) and pins (N).

[5] - Remove C4 clutch piston (I) and C4 clutch drum (E), and piston seal rings (G) and (H).

[6] -



C4 Clutch Piston Check Valves

LEGEND:

A

Check Valves

Inspect check valves (A).

→NOTE:

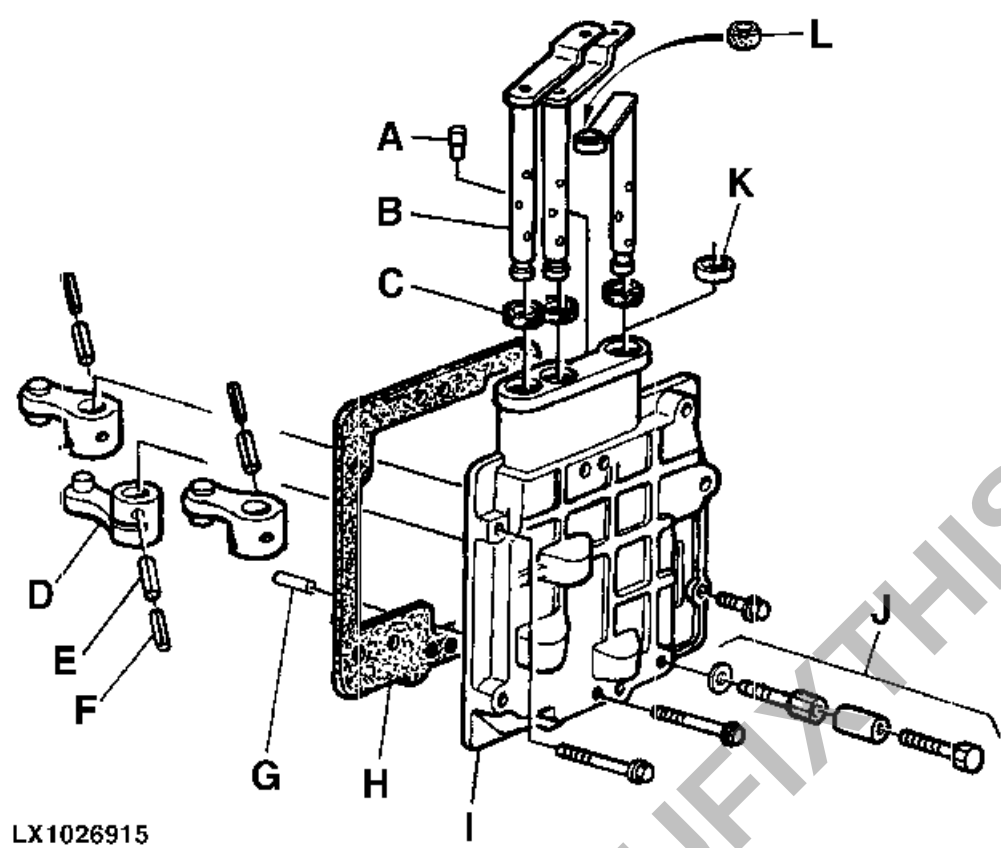
The check valve consists of ball and retainer.

[7] -



Inspecting C4 Clutch, Bushing and Thrust Washer

Reconditioning the Shift Cover



LX1026915

Exploded view of shift cover

LEGEND:

- A Pin
- B Shifter shaft (3 [20- and 24-speed transmissions] or 2 [12- and 16-speed transmissions] used)
- C Seal
- D Lever (3 [20- and 24-speed transmissions] or 2 [12- and 16-speed transmissions] used)
- E Spring pin (dia. 8 mm; 5/16 in.)
- F Spring pin (dia. 5 mm; 13/64 in.)
- G Dowel pin
- H Gasket
- I Shift cover
- J Stop assembly (with mech. reverser control)
- K Cover
- L Rubber bearing [12- and 16-speed transmissions] [20- and 24-speed transmissions]

Recondition or assemble the shift cover and the parts of the shift mechanism as required, using the illustration as a guide.

Item	Measurement	Specification
Cap screws, range transmission shift cover to transmission housing	Torque	25 N·m 19 lb·ft

Group 15 - Differential

Special tools

→NOTE:

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

Seal installation tool

JDG236



JDG236

Installing seal rings and bearing cups

17-1/2 ton puller set

D01173AA

Removing and installing bearings

Bushing, bearing, and seal driver set

D01045AA

Removing and installing bushings, bearings, bearing cups, and oil seal rings

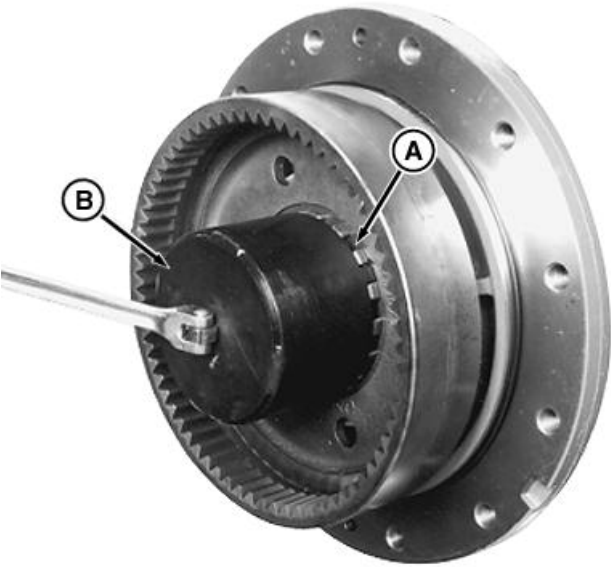
Differential removal tool

JT07131

Removing and installing the differential

Specifications

Item	Measurement	Specification
Clutch disks	Thickness (when new)	3.3 mm
		0.129 in.
Bevel pinion shaft, retaining screw	Torque	150 Nm
		110 lb-ft
Cover to housing, cap screw	Torque	150 Nm
		110 lb-ft
Bearing quill to differential housing, cap screw	Torque	90 Nm
		65 lb-ft
Differential	Bearing preload	0.05 to 0.13 mm
		0.002 to 0.005 in.
Differential	Backlash	Value etched on outer circumference of gear, ± 0.11 mm (0.004 in.)



Ring Gear Nut

LEGEND:
A Retainer Nut
B Spanner Socket

Install ring gear retainer and remove wheel hub and ring gear clamp.

[18] -

IMPORTANT:

Turning wheel hub before retainer is tightened could result in damage to wheel hub seal.

Tighten ring gear retainer nut (A) to 126 N·m (92 lb-ft), using JDG1253 Spanner Socket (B)**without turning** hub.

Spanner Socket
JDG1253



JDG1252

Used to remove and install wheel hub retainer.

[19] - Tighten retainer to specification**while rotating** wheel hub continuously.

Item	Measurement	Specification
Wheel Hub Retainer (Final)	Torque	176 N·m (120 lb-ft)

[20] - Recheck torque while rotating hub in opposite direction a minimum of six revolutions.

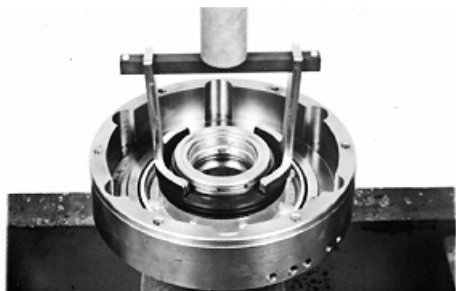
[21] -

Install Clutch Piston

Install clutch piston.

[5] - Install seven return springs alternately, starting with OD against piston.

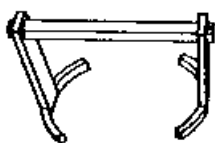
[6] -

**JDG754 Spring Compressor Tool**

Put clutch drum assembly in a press and install JDG754 Spring Compressor Tool.

Spring Compressor

JDG754

**JDG754**

Compress PTO clutch return springs

[7] - Compress return springs and install snap ring.

[8] - Install bushing using JDG755 Bushing Installer.

PTO Clutch Bushing Installer

JDG755

**JDG755**

Install PTO clutch bushing

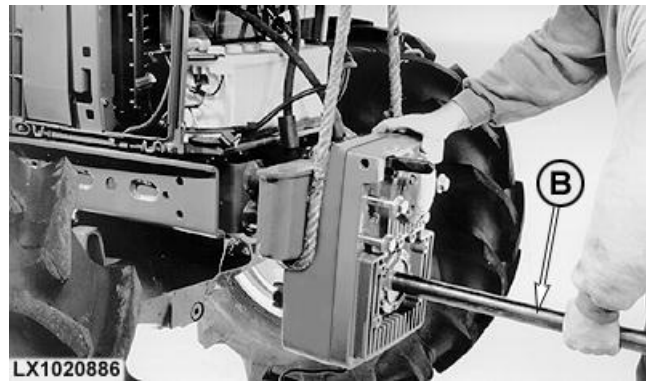
[9] -



Once the front PTO has been removed, it is essential to seal all the lines and remove the drive shaft BEFORE starting the tractor.

Installing the Front PTO

[1] -



Aligning the front PTO housing with tube

Attach front PTO to suitable hoist and move in position.

IMPORTANT:

As you move the front PTO into position, pay special attention to the drive shaft. Slide in drive shaft.

Use flywheel turning tool JDE83 to change position of shaft.

→NOTE:

Using a tube (B) pushed onto PTO shaft, align housing.

[2] -



Tightening the cap screws

Tighten cap screws (A) to the specified torque.

Item	Measurement	Specification
Cap screws, front PTO to main frame or front axle support	Torque	600 N·m 445 lb-ft

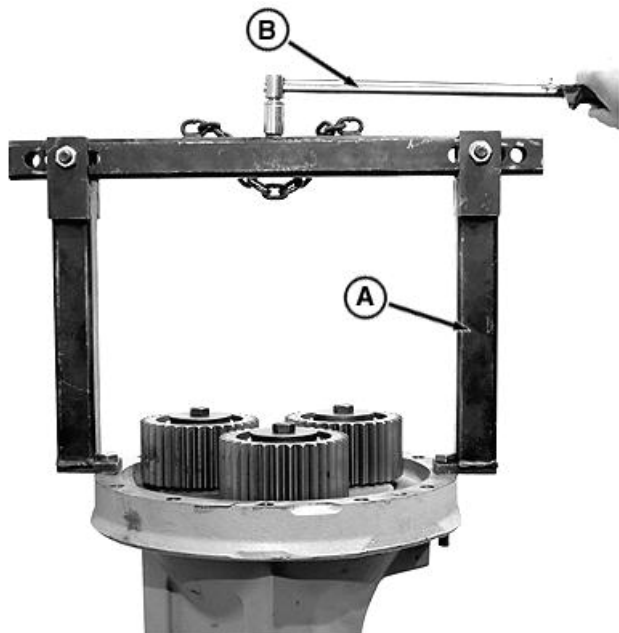
[3] - For further installation, follow removal procedure in reverse order.

Put two 8—10 mm (0.3—0.4 in.) diameter lead balls on end of axle shaft 180° apart. Use grease to hold balls in position.

[15] - Install carrier assembly.

[16] - Install and tighten carrier retaining cap screw to 200 N·m (148 lb-ft).

[17] -



Planetary Assembly on Axle Housing

LEGEND:

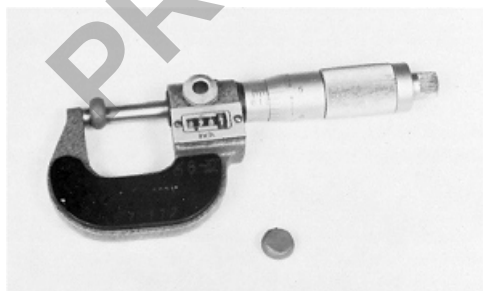
A DF1057 Axle Adjusting Tool
B Torque Wrench

Rotate axle housing 3 times in both directions using DF1057 Axle Adjusting Tool (A) and a non-click type torque wrench (B) to check rolling drag torque. Make note of rolling drag torque. Rolling drag torque must increase 8—16 N·m (71—142 lb-in) over "baseline" reading for axles with used bearings or 16—28 N·m (142—248 lb-in) for axles with new bearings.

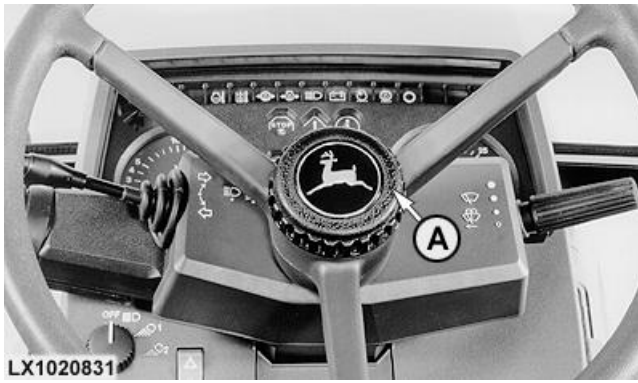
[18] - If reading is low, increase torque on carrier retaining cap screw in 68 N·m (50 lb-ft) increments.

[19] - Rotate axle housing 3 times in both directions and check rolling drag torque. Continue procedure until correct increase over baseline reading is obtained.

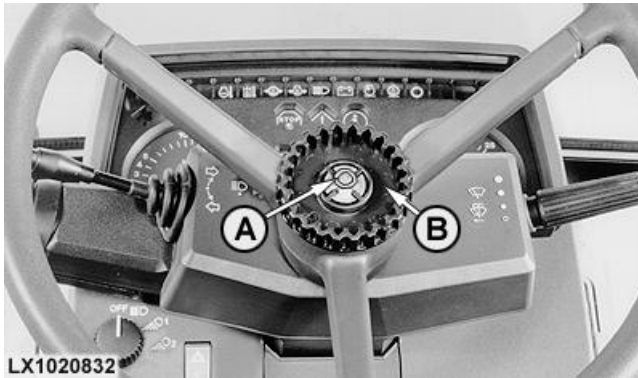
[20] -



Micrometer

**Removing the cover**

Remove cover (A).

**Removing the hex. nut and adjusting ring**

Remove self-locking hex. nut (A).

Remove adjusting ring (B) and washer.

**Remove hex. nut**

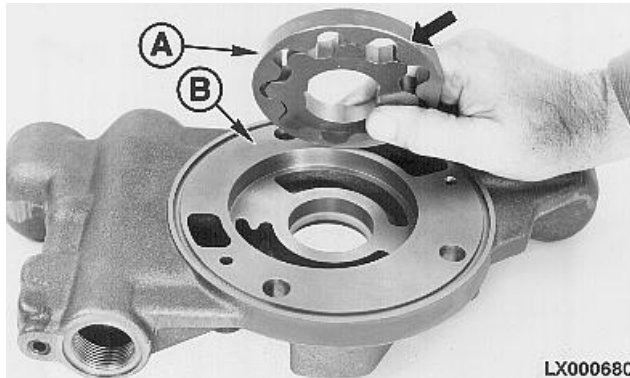
Remove hex. nut (A) and pull off the steering wheel.

→NOTE:

Remove charge pump. See "Removing and Installing the Charge Pump" in this Group.

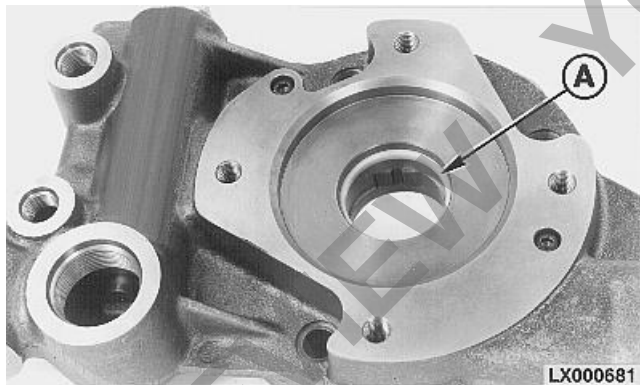
[1] - Disassemble charge pump using the illustration as a guide.

[2] - Clean all parts, inspect for wear or damage, and replace as necessary.

Assemble charge pump**Install toothed ring**

[1] - Install toothed ring. The chamfered edge (see arrow) of toothed ring (A) must face towards pump housing (B).

[2] -

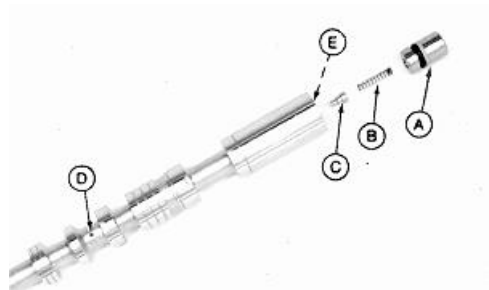
**Back-up ring**

Replace back-up ring (A).

[3] -

- AControl spool
- BSpring seat
- CSpring
- DPiston
- EO-ring
- FWiper seal
- GSeal plate
- HSpring seat (2 used)
- ISpring
- JSpecial screw detent
- KSpacer
- LWasher
- MWave springs (2 used)
- NAlignment plate
- ODetent sleeve
- PBalls (4 used)
- QDetent sleeve
- RDetent assembly
- SGasket

[1] -



Valve spool components

- LEGEND:**
- A Piston
 - B Spring
 - C Spring seat
 - D Orifice
 - E Threads

Put end of valve spool at an angle on a table. Carefully remove parts (A) to (C). Do this by directing compressed air into orifice (D).

[2] -

IMPORTANT:

The thread (E) inside the valve spool must be clear of all thread-locking material.

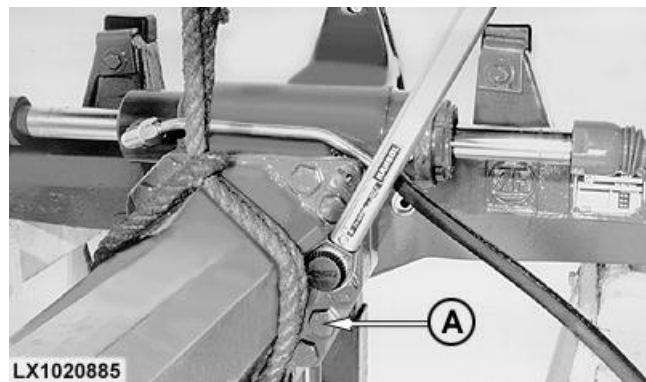
Inspect spring (B) and seat (C).

Item	Measurement	Specification
Detent piston, new spring	Free length (approx.)	13 mm
		0.5 in.
	Test length	9 mm at 3.2 to 4 N
		0.35 in. at 0.7 to 0.9 lb

[3] -

Install Front-Wheel Drive Axle With TLS

[1] -

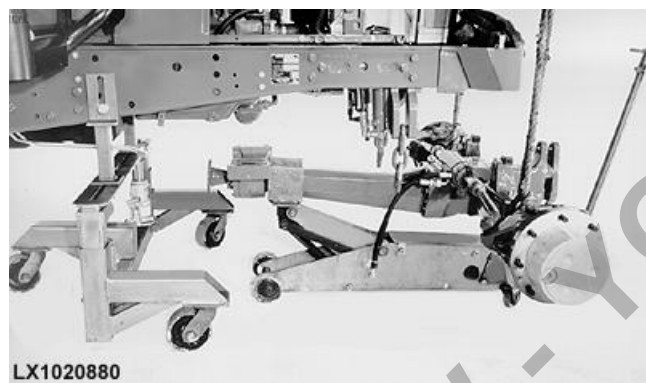


Tighten cap screws in cross-wise fashion

Install drive shaft housing on front-wheel drive axle and tighten all cap screws (A) in cross-wise fashion to correct torque.

Item	Measurement	Specification
Cap screws, housing to FWD axle with TLS	Torque	310 Nm 230 lb-ft

[2] -



Suspending front axle

Suspend front axle as shown and place a jack under drive shaft housing using adapter (dealer-fabricated).

Adapter
dealer fabricated

6	Screw (2 used)
7	Dowel pin (4 used)
8	Seal (2 used)
9	Screw (4 used)
10	Support
11	Grease fitting
12	Spherical bearing
13	O-ring
14	Cover
15	Screw (16 used)
16	Bearing quill
17	Grease fitting
18	Snap ring (2 used)
19	Ball bearing
20	Seal ring
21	Sleeve
22	Flange
23	Washer
24	Nut

Removing bearing support

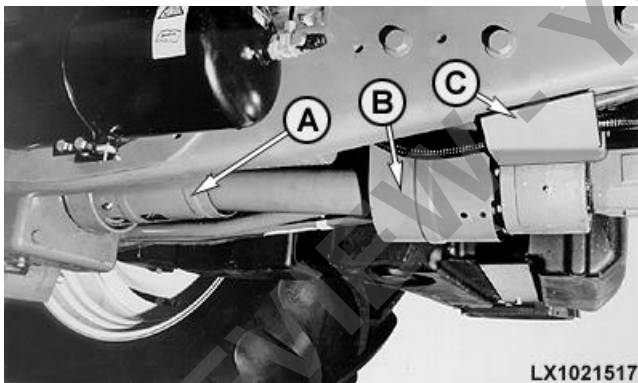
[1] - Relieve hydraulic system pressure. See "Relieving hydraulic system pressure" in this group.

→NOTE:

To disconnect support from housing, it is necessary to remove the entire assembly (support to FWD axle).

Some illustrations show the front wheel still in place. In other illustrations, it has been removed for the sake of clarity.

[2] -



Removing shields

Remove shields (A), (B) and (C).

[3] -

[Included in JT02098 Air Conditioning Fitting Kit]

Cap.

→NOTE:

If shop air is used to leak test condenser circuit, the system should be flushed after test.

Attach JT02108 Hose (D) to condenser outlet (Connection #9 on Reference Chart, this group) using JT03183

[Included in JT02098 Air Conditioning Fitting Kit]

Adapter (C). Attach low-pressure hose (F) (blue) of gauge set or JT02045 Recovery/Recycling, and Charging Station to JT02108 Hose using JT02179

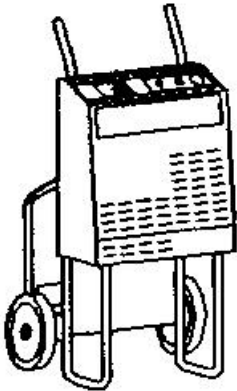
[Included in JT02098 Air Conditioning Fitting Kit]

Adapter (E).

Recovery/Recycling, and Charging Station

JT02045

[JT02046 Charging Station and JT02050 Recovery and Recycling Station can be substituted for JT02045.]



JT02045

Servicing air conditioning system using R134a refrigerant.

Open valve and/or start station to pressurize condenser circuit.

Item	Measurement	Specification
Condenser Leak Test	Air Pressure	700—1000 kPa (7—10 bar) (100—150 psi)

Check for leaks with an JT02081 Electronic Leak Detector or spray surface using a 50—50 mixture of liquid soap and water.

Electronic Leak Detector

JT02081



JT02081

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