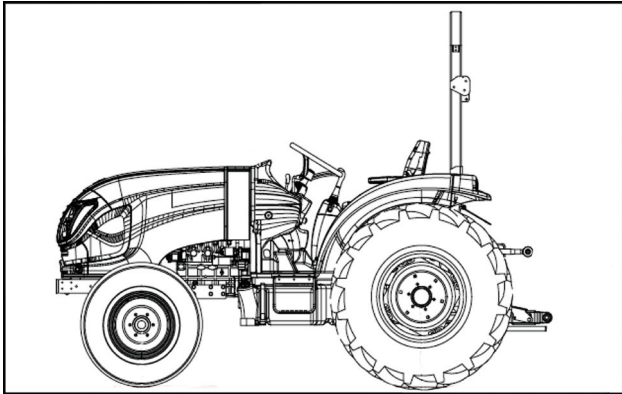


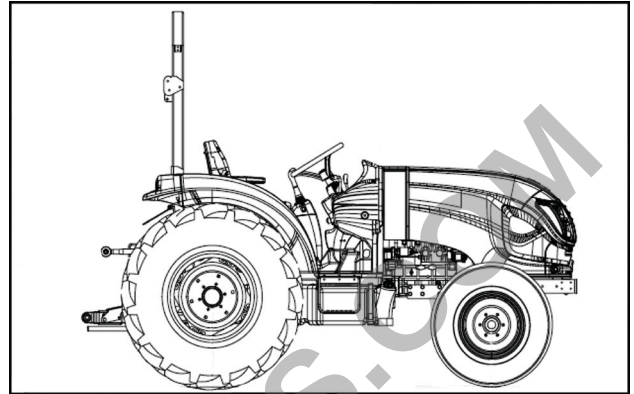
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Product identification - Machine orientation

NOTE: On this equipment, left-hand and right-hand are determined by standing behind the unit, looking in the direction of travel.



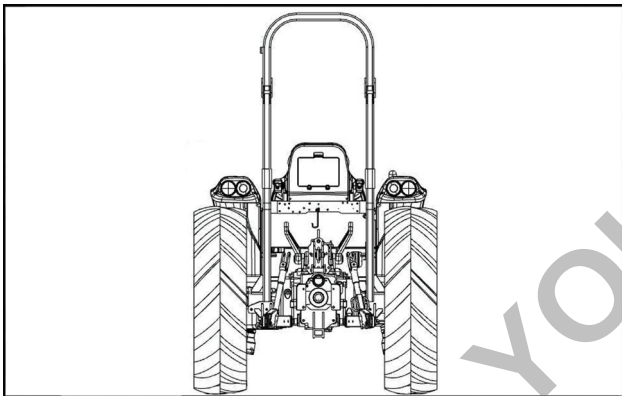
NHIL13CT01187AA 1



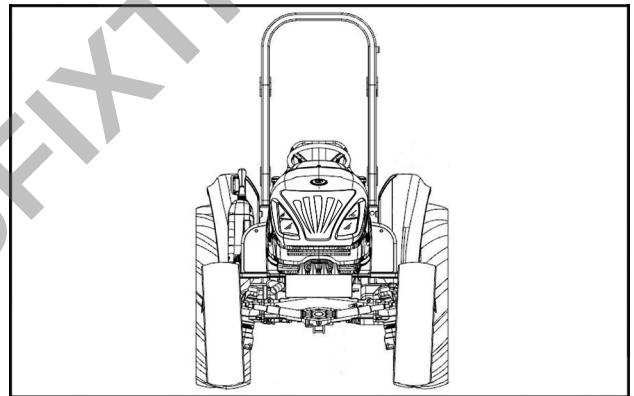
NHIL13CT01188AA 2

Left-hand view

Right-hand view



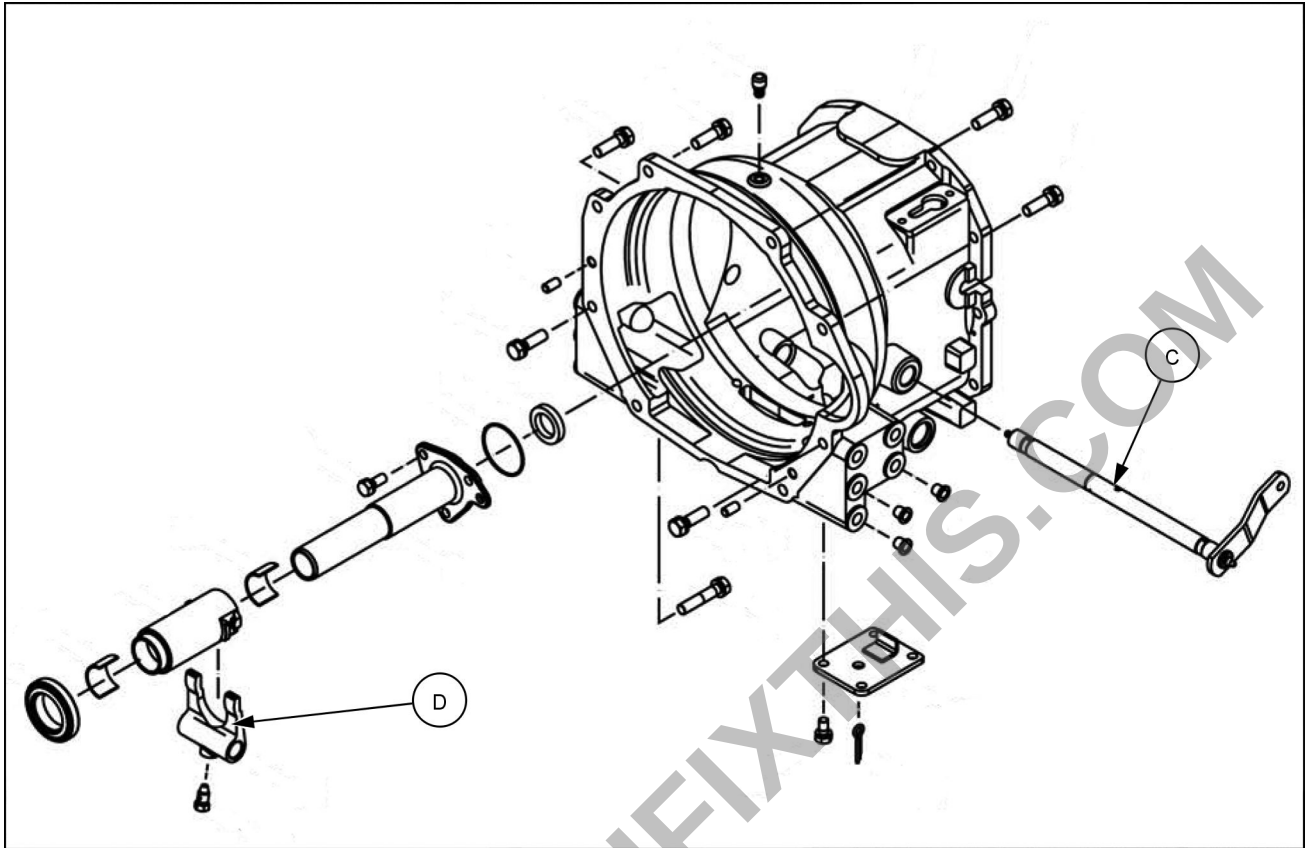
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NHIL13CT01345AA 4

Rear view

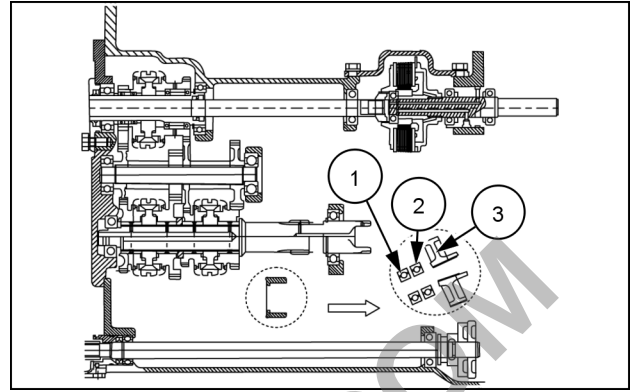
Front view



NHIL14CT00272FA 2

The motion of the clutch rod (**C**) moves the clutch shift lever (**D**) therefore engaging or disengaging the clutch.

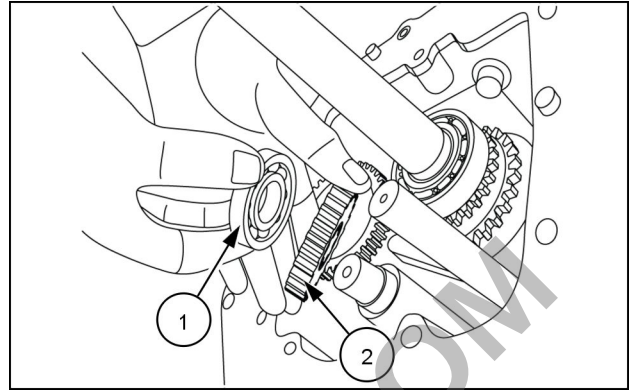
14. Remove the gear **(3)** and the bearings **(2)** and **(1)**.



93102328 12

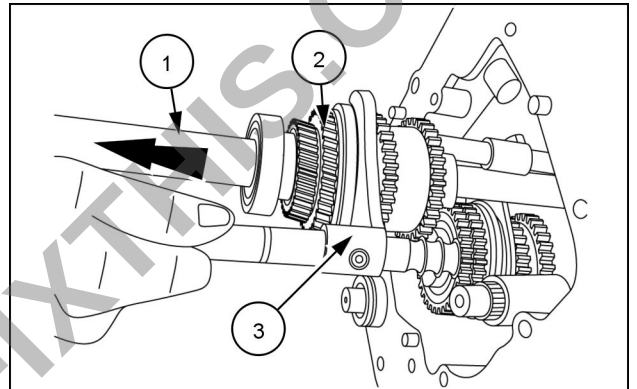
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5. Remove the bearing (1) and the gear (2).



93102309 6

6. Remove the forward and reverse transmission fork (3), main shaft (1), and transmission sleeve unit (2).
7. Remove the shaft away from the housing.
8. Disassemble the gear and spacer sleeve in order.



93102310 7

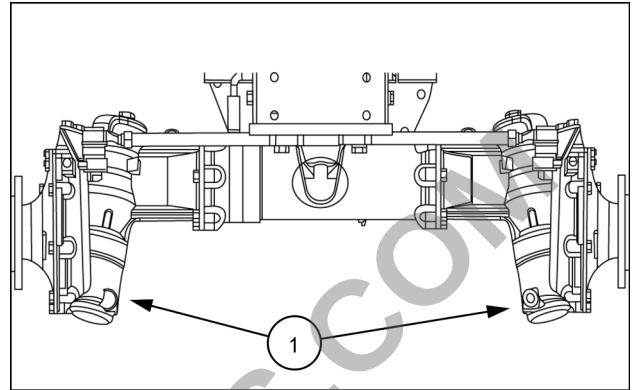
Next operation:
Transmission internal parts - Assemble - Shuttle unit (21.140)

Powered front axle - Change fluid

Changing front axle differential and final reduction gear case oil

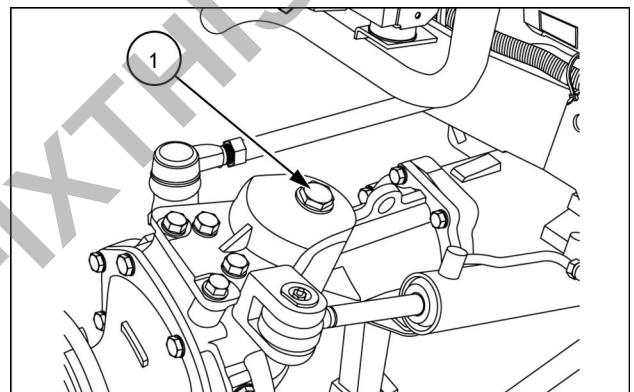
NOTE: The front axle differential case and final reduction gear case oil should be changed after every 600 operating hours.

1. Place a suitable container beneath the oil plugs. With the oil at normal operating temperature, drain the oil by removing the drain plugs (1).
2. After the oil has drained, reinstall the drain plugs and discard the used oil.



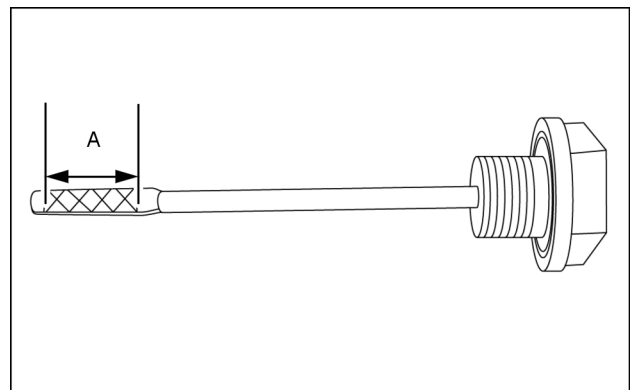
93100868 1

3. Remove the dipstick/filler plug (1).



93100889 2

4. Fill the axle with **NEW HOLLAND AMBRA HYPOIDE 90** oil until the oil level is between the upper and lower mark (A) of the dipstick. Reinstall the dipstick/filler plug.

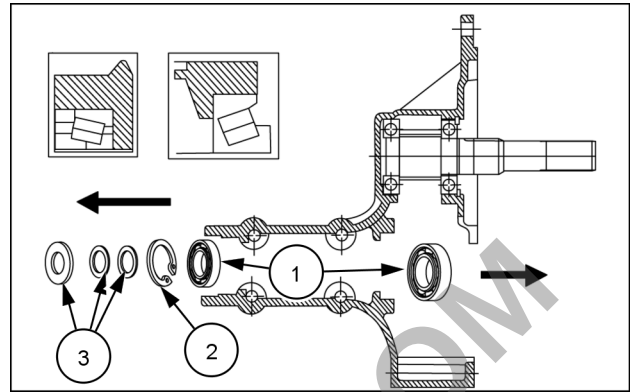


93100902 3

5. Raise the front axle until both wheels are off the ground.
6. Tilt axle until stops are contacted.

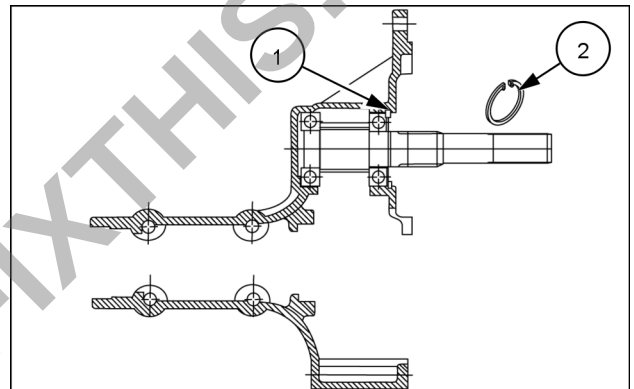
At this point access is gained to the shaft seal **(3)**, two tapered bearings and races **(1)**, snap ring **(2)**.

6. With a seal puller, remove the seal **(3)**.
7. With snap ring pliers, remove the snap ring **(2)**.
8. Hub side bearing **(1)** can be removed at this time.

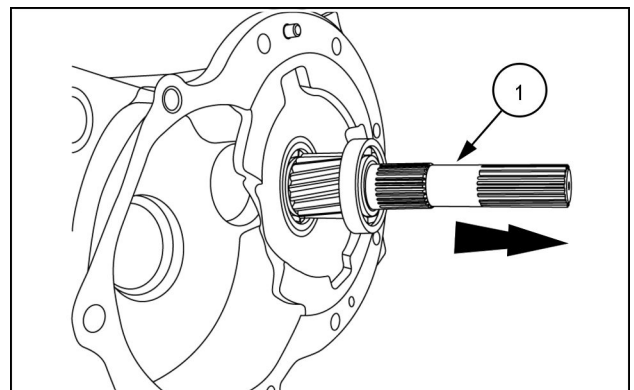


Intermediate shaft bearing removal

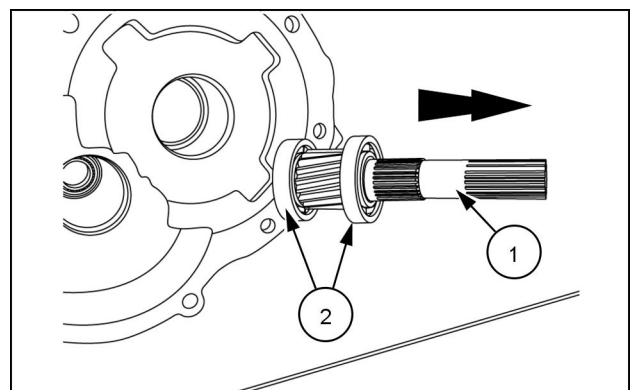
1. Remove the snap ring **(2)** from the groove **(1)**.



2. Gently, but firmly rock the intermediate shaft **(1)** from side to side.



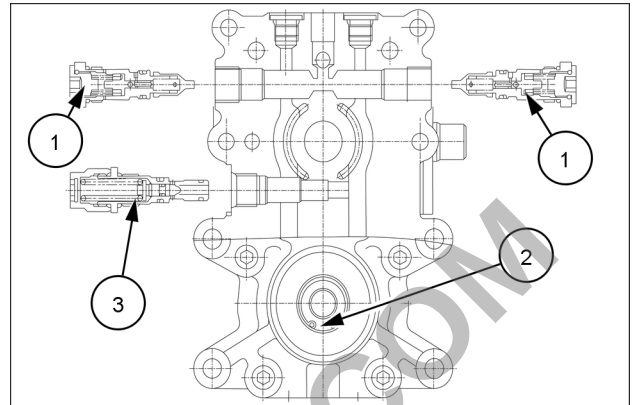
3. This will allow the shaft **(1)** and two bearings **(2)**, which are pressed onto the shaft, to be removed as a unit.
4. The two bearings now have to be pressed off of the shaft for replacement.



Next operation:
Planetary final drive - Assemble (27.120)

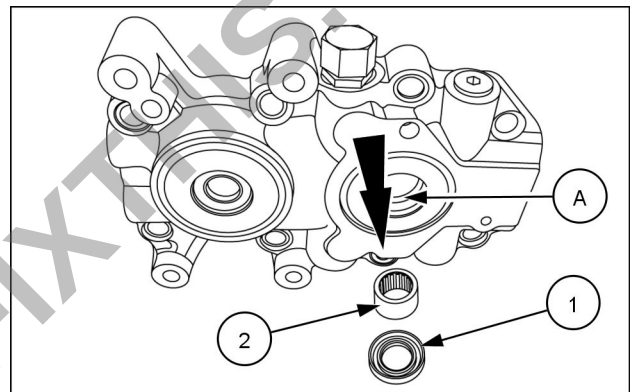
Disassembly of the port block

1. Remove the check valves **(1)**.
2. Remove the relief valve **(3)**.
3. Remove the snap ring **(2)**.
4. Remove valve plate pins.



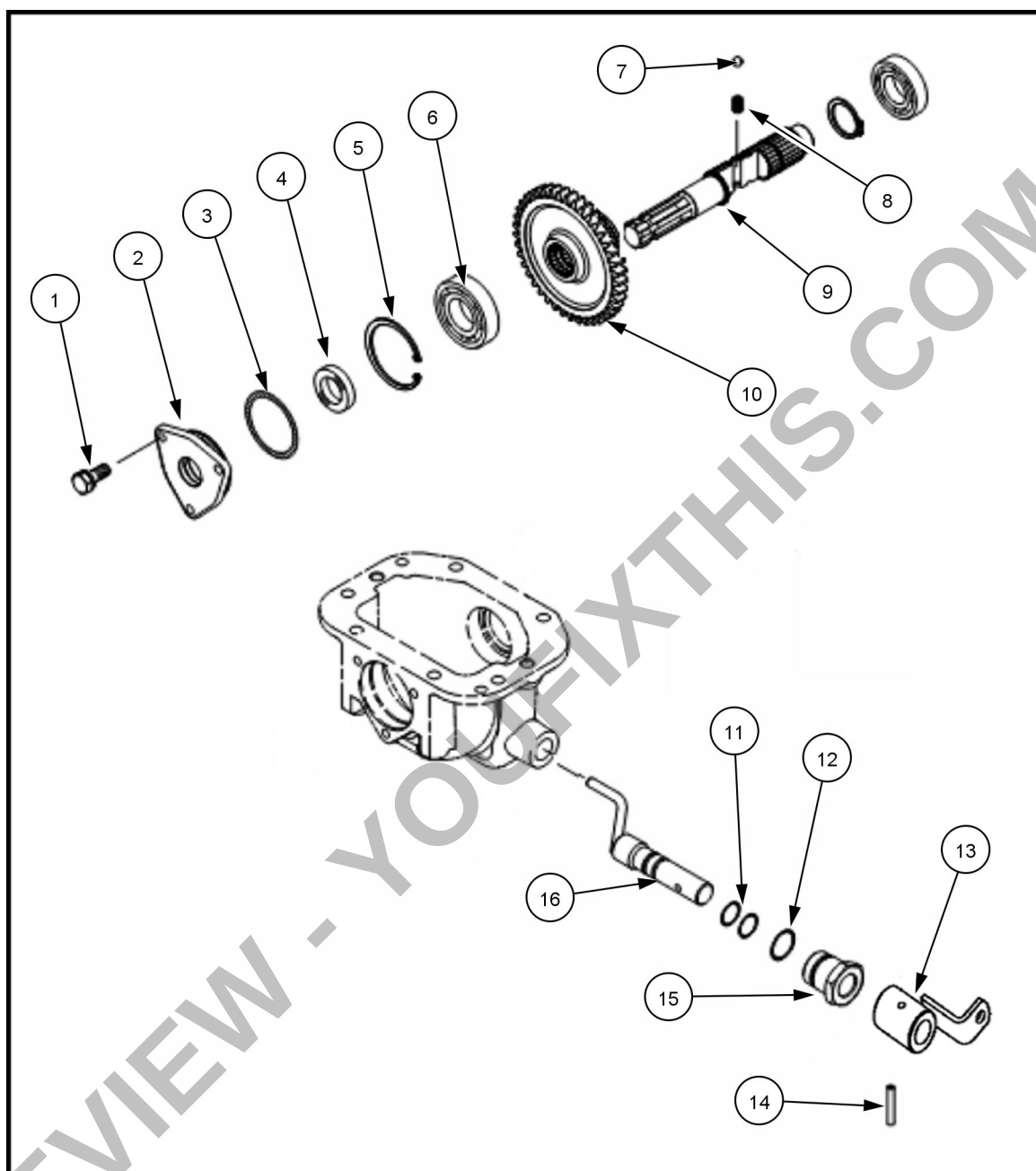
NHIL12CT01056FA 18

5. Remove seal **(1)** and bearing **(2)** from side **(A)**.



93109693 19

Central Power Take-Off (PTO) - Exploded view



76110440 1

- (1) Retaining bolts
- (2) PTO shaft cover
- (3) Cover seal
- (4) Shaft seal
- (5) Snap ring
- (6) Bearing
- (7) Ball
- (8) Spring

- (9) PTO shaft
- (10) PTO driven gear
- (11) Shims
- (12) Seal
- (13) PTO control shaft linkage
- (14) Spring pin
- (15) Retainer and seal
- (16) PTO control shaft

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Brakes and controls - 33

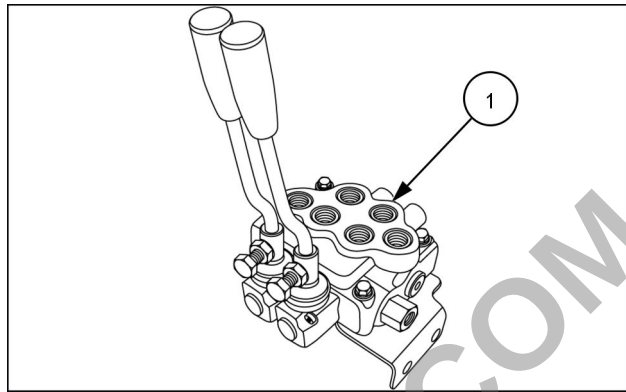
Parking brake or parking lock - 110

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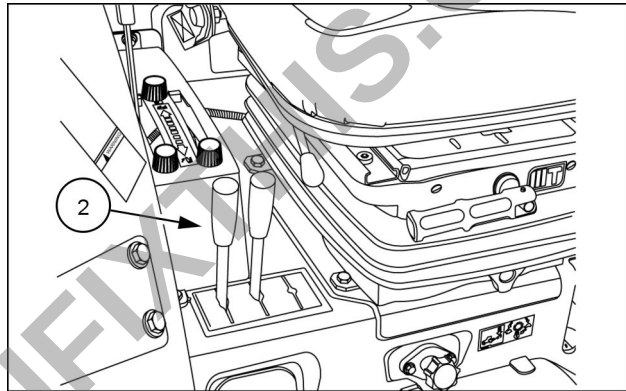
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Remote control valve - Dynamic description - Rear spools

The optional one or two spool rear remote valve **(1)** and control handles **(2)** are located on the right-hand side of the operator's platform. The valve is a double-acting style without spool detents.

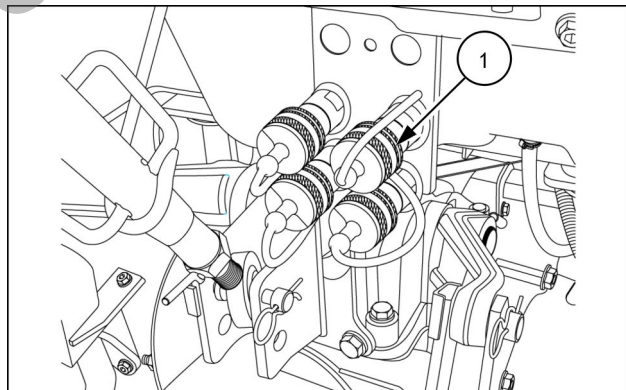


20109612 1



93099366 2

The valve provides one or two sets of 1/2 inch female quick couplers **(1)** at the rear of the tractor.



93100915 3

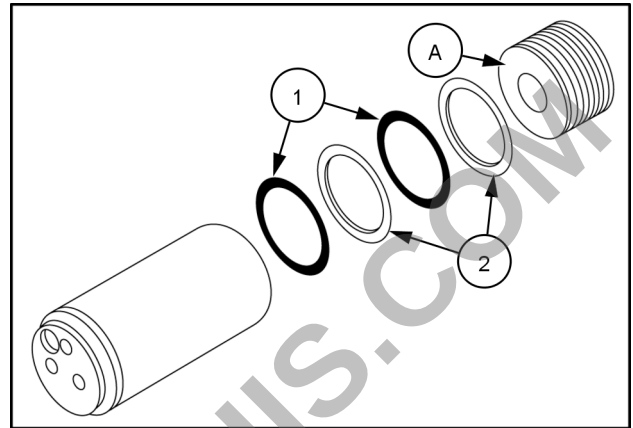
Three-point hitch cylinder - Assemble

Prior operation:

Three-point hitch cylinder - Disassemble (35.116)

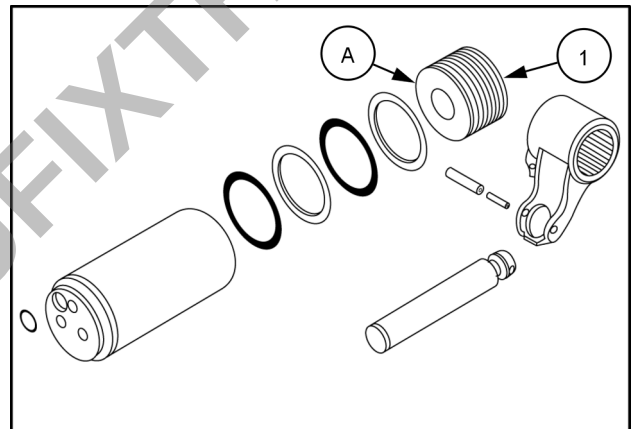
1. Install the O-rings (1) and back up rings (2) into the grooves in the piston. Lubricate rings with petroleum jelly during installation.

NOTE: The O-rings will be installed towards the face (A) of the piston and the back up rings will be installed towards the concave side of the piston.



76109558 1

2. Install the piston (1) assembly into the cylinder tube with the face of the piston (A) towards the base of the cylinder

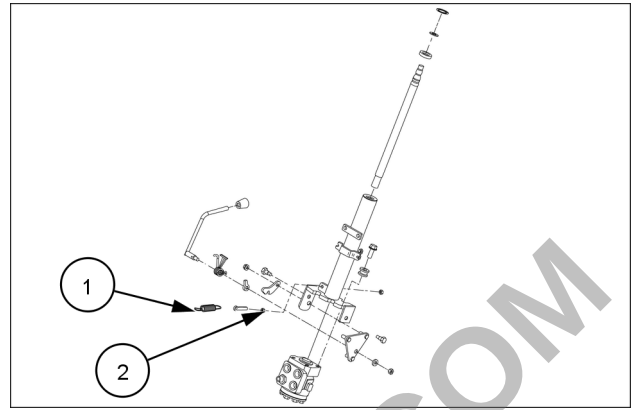


93102621 2

Next operation:

Three-point hitch cylinder - Install (35.116)

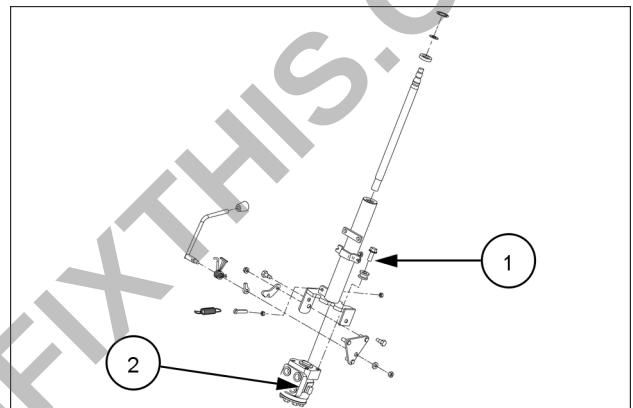
10. Install the tilt spring (1), by installing the **M8** hex nut (2).



NHIL14CT00175FA 4

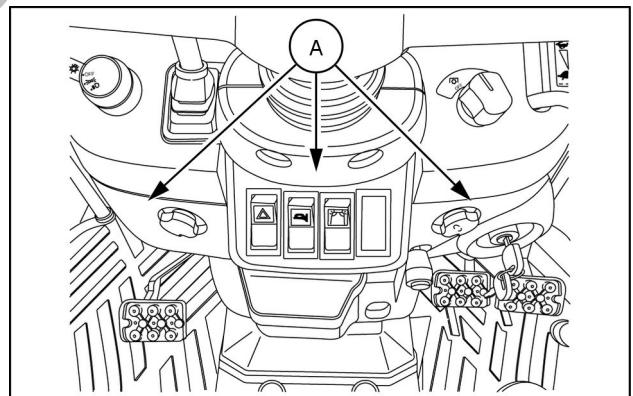
11. Install the four **M10 x 1.5 x 35mm** bolts (1) that secure the steering valve (2).

NOTE: The steering hydraulic lines may still be connected to the steering valve (2).



NHIL14CT00175FA 5

12. Install the cowling (A).



NHIL13CT01086AA 6

Steering cylinder - Remove

⚠ WARNING

Avoid injury!

Handle all parts carefully. Do not place your hands or fingers between parts. Use Personal Protective Equipment (PPE) as indicated in this manual, including protective goggles, gloves, and safety footwear.

Failure to comply could result in death or serious injury.

W0208A

⚠ WARNING

Pressurized hydraulic fluid can penetrate the skin and cause severe injuries.

Tighten all of the connections before starting the engine. If hydraulic fluid has penetrated the skin, seek medical assistance immediately.

Failure to comply could result in death or serious injury.

W0117A

⚠ WARNING

Pressurized fluid can penetrate the skin and cause severe injuries.

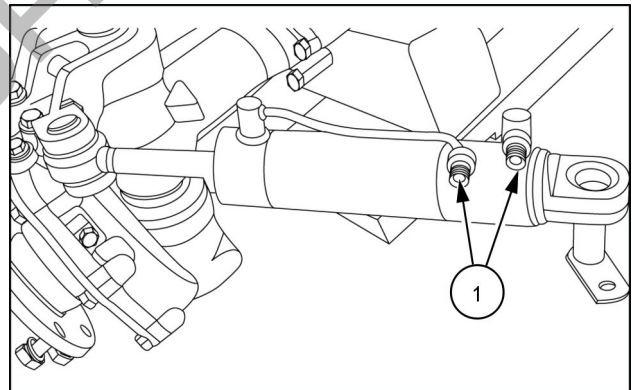
Keep hands and body away from any pressurized leak. DO NOT use your hand to check for leaks. Use a piece of cardboard or paper. If fluid penetrates the skin, seek medical attention immediately.

Failure to comply could result in death or serious injury.

W0158A

NOTICE: Protect the steering system and the environment from contamination , install plastic caps on all connections.

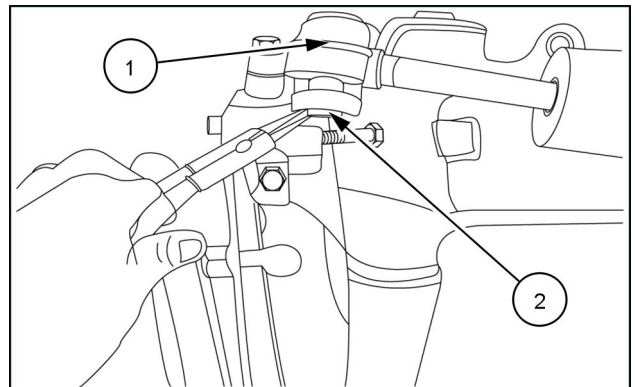
1. Disconnect hydraulic lines (1).



NHIL14CT00199AA 1

2. Remove the snap ring (2) from the bottom of the zerked pin (1).

3. Remove the zerked pin (1).



NHIL14CT00210AA 2

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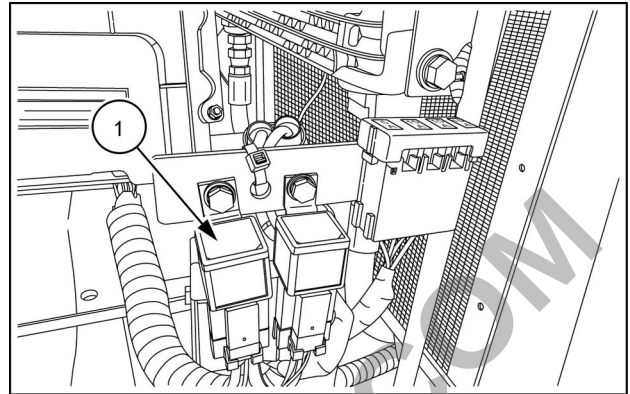
Wire harnesses - Electrical schematic sheet 06 – Engine Control Unit (ECU) (hydrostatic transmission)

Component identifier	Description
A-9001	Engine Control Unit (ECU)

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Cab engine controls - Dynamic description - Main relay

The main relay (1) is located at the front left-hand side of the tractor, near the battery. The relay controls electrical current to the engine electronic functions.



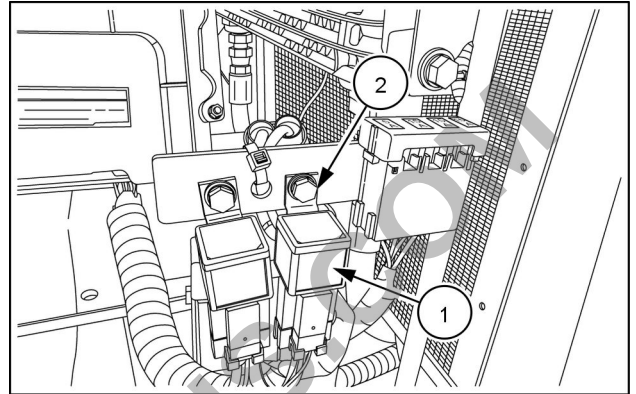
NHIL14CT00134AA 1

Glow plug system - Install – Glow plugs relay

Prior operation:

Glow plug system - Test – Glow plugs relay (55.202)

1. Install the glow plug relay (1) to the mount plate with **M6 x 16** retaining bolt (2).

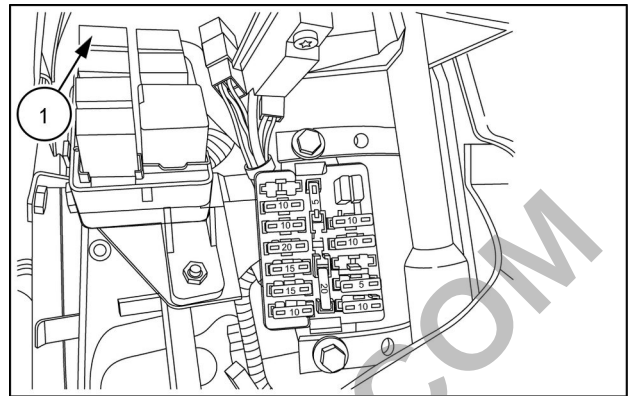


NHIL14CT00134AA 1

2. Connect the relay connector to the tractor wire harness.
3. Reconnect the negative (-) battery cable to the negative (-) battery terminal.

External lighting - Dynamic description - Brake lights relay

The brake lights relay (**1**) is located in the relay box on the left-hand side of the tractor steering column, underneath the left-hand side console panel. The relay controls the current to the two rear brake lights.



NHIL13CT01237AA 1

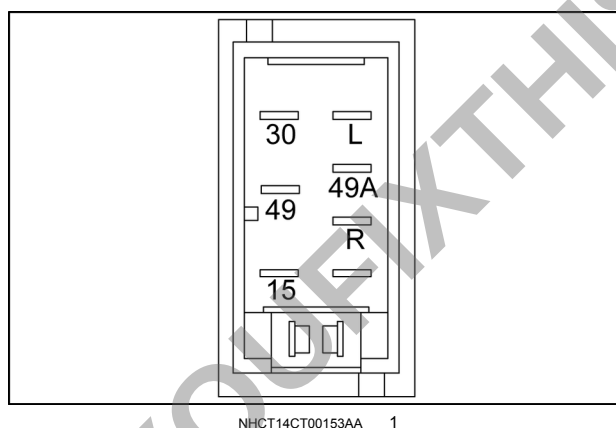
Hazard light switch - Test

Prior operation:

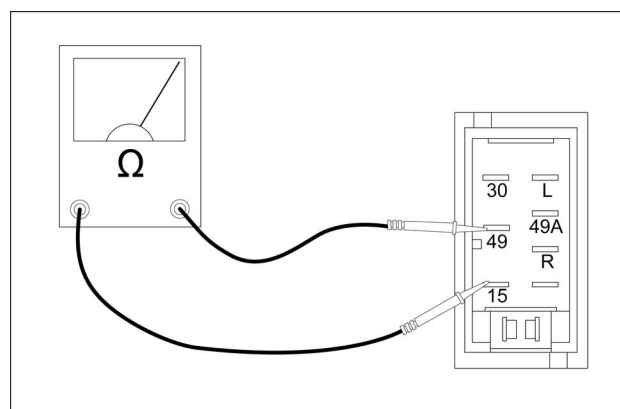
Hazard light switch - Remove (55.405)

Switch connector terminal identification

Terminal #	Function
30	Current in from 10amp fuse (not switched fuse)
15	Current in from 10 amp fuse (switched fuse)
49	Current out of switch to "B+" of flasher unit
49a	Current out of switch to hazard switch function of flasher unit.
L	Current in from 10amp fuse (not switched fuse)
R	Not used
Blank (not marked)	Not used



1. With the switch in the "OFF" position there should continuity between terminals 49 & 15.

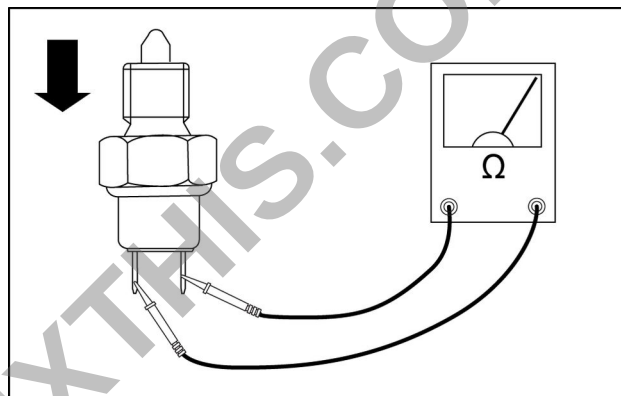


Clutch pedal sensor - Test - Clutch pedal safety switch

Prior operation:

Clutch pedal sensor - Remove - Clutch pedal safety switch (55.513)

1. Disconnect switch from tractor wire harness.
2. Use an ohmmeter to test the switch terminals for continuity.
3. With the switch plunger in the extended position, there will not be continuity across the switch terminals.
4. With the switch plunger in the retracted position continuity will exist across terminals of the switch connector.



NHIL13CT00341AA 1

Next operation:

Clutch pedal sensor - Install Clutch pedal safety switch (55.513)

2840-12-Engine Control Unit (ECU) instance (ECU Electrically Erasable Programmable Read-Only Memory (EEPROM) write error)

Control Module : ECU

Context:

The Engine Control Unit (ECU) **A-9000** is an electronic device that monitors its ability to read and write memory. This allows the ECU **A-9000** to control, and monitor multiple sensors, actuators, and other parameters within the engine compartment.

Cause:

The ECU **A-9000** has detected an internal failure.

Possible failure modes:

1. The software could be faulty.
2. The ECU **A-9000** has failed internally.

Solution:

1. Use the Service Tool I to verify the fault is active.

Place the key switch OFF, and then back ON.

Clear the fault code.

Place the key switch OFF, and then back ON.

Start the engine.

- A. If the fault code is still active, see **Electronic module - Electrical test Engine Control Unit (ECU) verification (55.640)** to verify the ECU **A-9000** is working properly.
 - B. If the fault code is not active, the fault may be intermittent and not currently active. Continue with Step 2.
2. Visually inspect the relevant harnesses and connectors for damage, bent or dislocated pins, corroded terminals, or broken wires. Verify that the connectors are fully installed. Flex the harnesses involved to reveal intermittent breaks or shorts in the wiring concerned. Operate the machine while you monitor the display.
 - A. If you find damage or the display indicates other than normal display readings, then repair the damage discovered during the inspection or locate and repair the other than normal display condition and verify that the error has been resolved.
 - B. If you do not find damage and the display indicates only normal readings, then erase the fault code and continue operation.

Use a multimeter to perform the following checks on the wiring harness.

From	To	Value
Harness connector X-9003 pin 3	Harness connector X-9000 pin 70	There should be continuity.
Harness connector X-9003 pin 2	Harness connector X-9000 pin 68	There should be continuity.
Harness connector X-9003 pin 6	Harness connector X-9000 pin 69	There should be continuity.
Harness connector X-9003 pin 3	Chassis ground	There should be no continuity.
Harness connector X-9003 pin 6	Chassis ground	There should be no continuity.
Harness connector X-9003 pin 3	Harness connector X-9003 pin 2	There should be no continuity.
Harness connector X-9003 pin 6	Harness connector X-9003 pin 2	There should be no continuity.

- A. If the wiring harness test passes, see **Electronic module - Electrical test Engine Control Unit (ECU) verification (55.640)** to verify the ECU is working properly.
 - B. If the wiring harness test fails, locate and repair the broken conductor.
5. Visually inspect the relevant harnesses and connectors for damage, bent or dislocated pins, corroded terminals, or broken wires. Verify that the connectors are fully installed. Flex the harnesses involved to reveal intermittent breaks or shorts in the wiring concerned. Operate the machine while you monitor the display.
- A. If you find damage or the display indicates other than normal display readings, then repair the damage discovered during the inspection or locate and repair the other than normal display condition and verify that the error has been resolved.
 - B. If you do not find damage and the display indicates only normal readings, then erase the fault code and continue operation.

723-8-Engine speed sensor #2 (camshaft sensor): abnormal frequency, pulse width or period

Control Module : ECU

Context:

The Engine Control Unit (ECU) supplies **5.0 V** from ECU connector X-9000 pin 11, and a ground reference from ECU connector X-9000 pin 13 to the revolution sensor backup (camshaft) sensor. The ECU monitors the revolution sensor backup (camshaft) sensor at ECU connector X-9000 pin 12.

Cause:

The ECU has sensed the revolution sensor backup is out of range to the revolution sensor main.

Possible failure modes:

1. The revolution sensor backup is not properly installed.
2. The revolution sensor backup has failed.
3. The wiring harness has failed.
4. The ECU has an internal failure.

Solution:

1. Use the Service Tool I to verify the fault is active.

Select the "Active Diagnostic Codes" icon.

A. If the fault code is present, continue with Step 2.

B. If the fault is not present, the fault may be intermittent and not currently active. Continue with Step 6.

2. Check the installation of the sensor.

Make sure the sensor is installed properly.

Check the connections are secure and tight.

A. If the sensor is installed correctly, continue with Step 3.

B. If the sensor is not installed properly or there are loose connections, repair as needed.

3. Check the supply voltage to the revolution speed sensor backup.

Disconnect the wiring harness from the speed sensor.

Place the key switch ON.

Use a multimeter to perform the following checks on the wiring harness.

From	To	Value
Connector X-9010 pin 1	Connector X-9010 pin 2	There should be approximately 4.5 - 5.5 V .

A. If the wiring harness test fails, continue with Step 5.

B. If the wiring harness test passes, continue with Step 4.

4. Check the signal circuit for a short to ground condition.

Place the key switch OFF.

Use a multimeter to check for continuity from the wiring harness connector harness connector X-023 pin 3 to chassis ground.

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