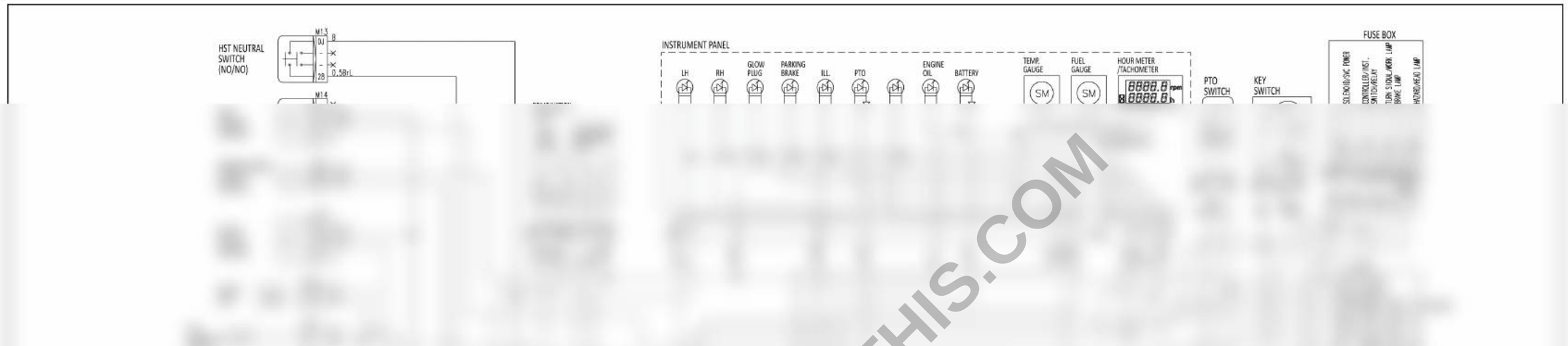
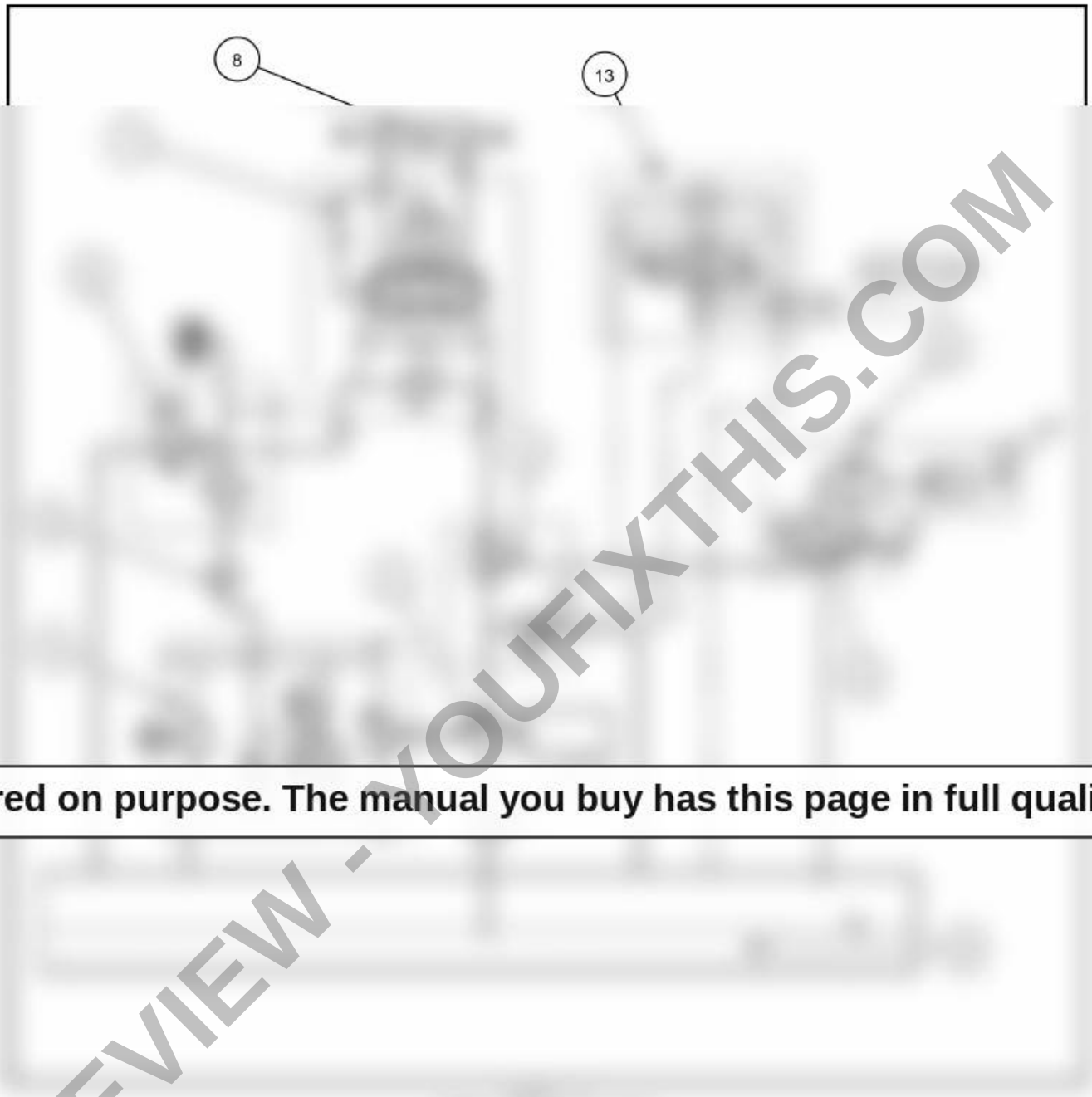


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Hydraulic systems - Hydraulic schema



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Torque specification tables

Standard bolt hardware & hydraulic connector torques, specifications and information

This specification establishes general torque values to be used in bolted joints for metric and inch hardware. This specification is assumed to apply unless another specification (standard or specified requirement) is indicated in the

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Engine - Remove

⚠ WARNING

Heavy objects!
Lift and handle all heavy components using lifting equipment with adequate capacity. Always support units or parts with suitable slings or hooks. Make sure the work area is clear of all bystanders.
Failure to comply could result in death or serious injury.

W0398A

⚠ 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

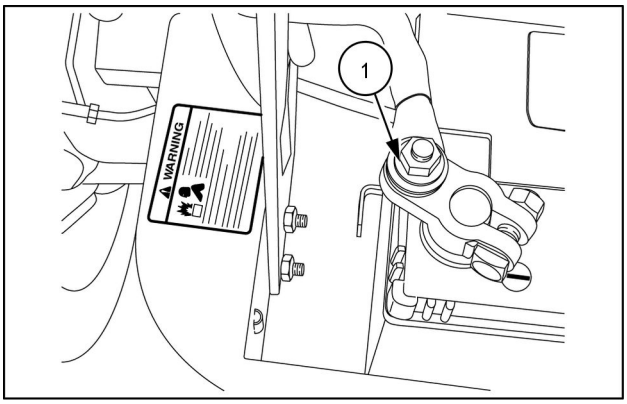
⚠ WARNING

Hot liquid under pressure!
Never remove the filler cap or the recovery tank cap while the engine is running or the coolant is hot. Let the system cool. Turn the filler cap to the first notch and allow any pressure to escape, and then remove the filler cap. Loosen the recovery tank cap slowly to allow any pressure to escape.
Failure to comply could result in death or serious injury.

W0296A

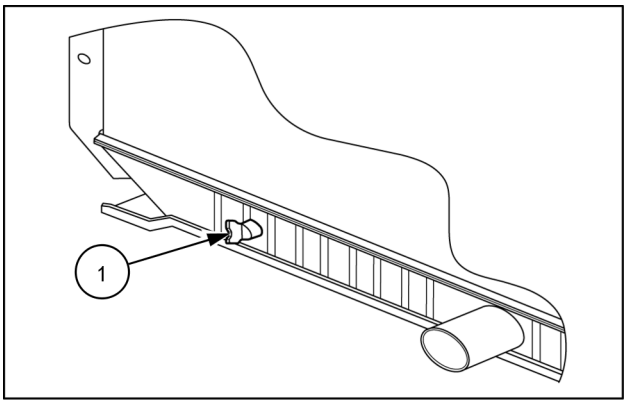
Engine removal

1. Open the hood and disconnect the negative (-) battery terminal **(1)**.



83115266 1

2. Open the drain cock **(1)** under the left hand side of the radiator.



83118786 2

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Engine lubrication system - Troubleshooting

Problem	Possible Cause	Correction
Inoperative low oil pressure indicator light	Blown #2, 10-amp fuse	Check fuse and replace if necessary
	Improper ground circuit	Check oil pressure indicator light circuit

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General specification

Model Boomer 24 Hydrostatic	
Engine	
Type	Diesel
Model	S3L2

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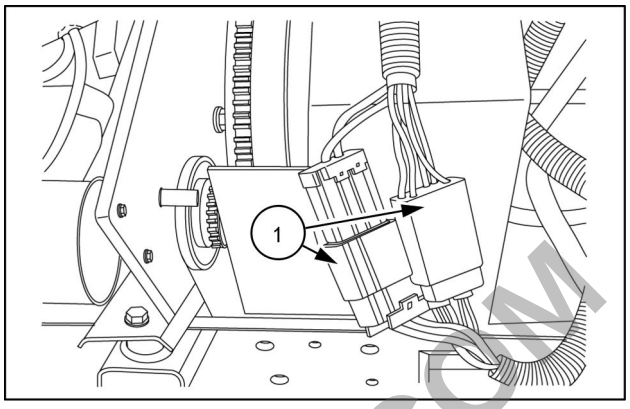
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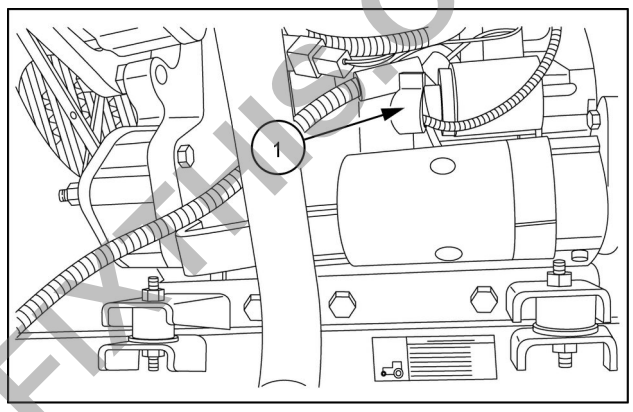
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13. Disconnect the engine electrical connectors **(1)** located under the left hand side of the instrument panel.



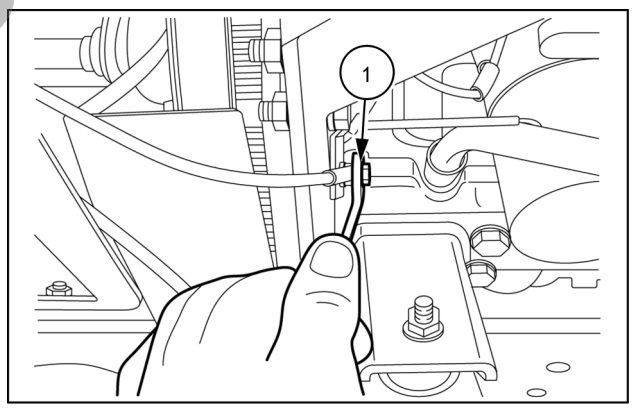
83118794 11

14. Remove the rubber cover **(1)**, and the M8 nut. Disconnect the positive (+) battery cable from the starter motor.



83118795 12

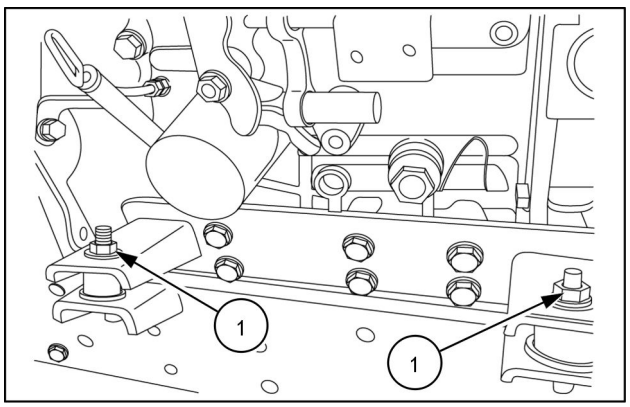
15. Disconnect the negative (-) ground cable by removing bolt **(1)**.



83118796 13

NOTICE: *Insure that all necessary tubes, hoses and electrical connectors have been disconnected . It may also be necessary to disconnect additional items due to other optional systems being installed on the tractor.*

16. Remove the four M14 engine mount retaining nuts **(1)**.

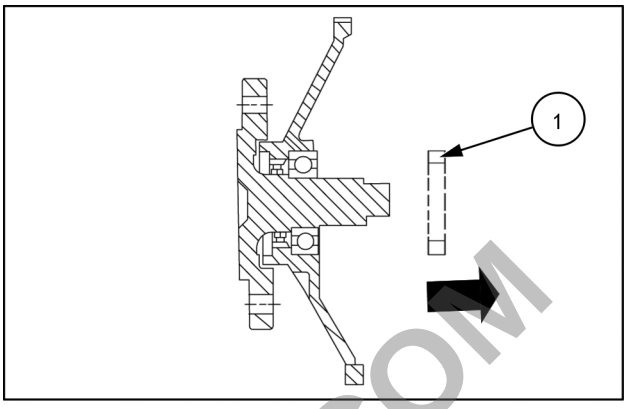


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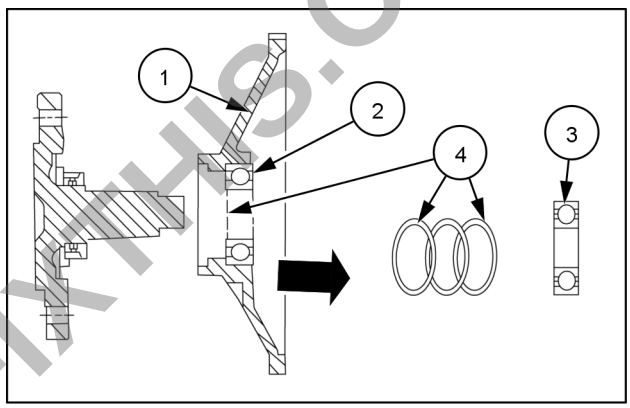
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7. Remove the collar **(1)**.



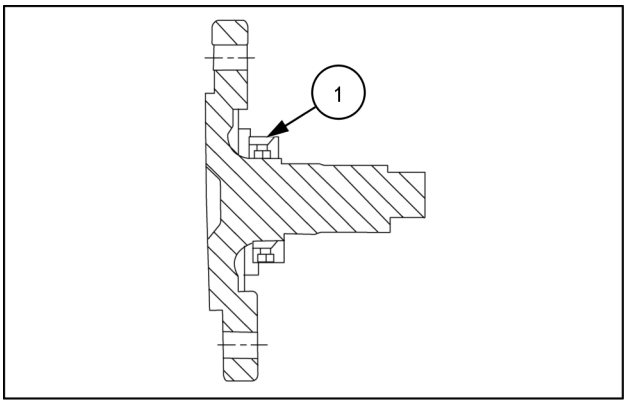
73118475 8

8. Remove the cover plate **(1)**, and the bearing **(2)**. Remove the bearing **(3)** and the shims **(4)** from the cover plate.



83118755 9

9. Remove the oil seal **(1)**.

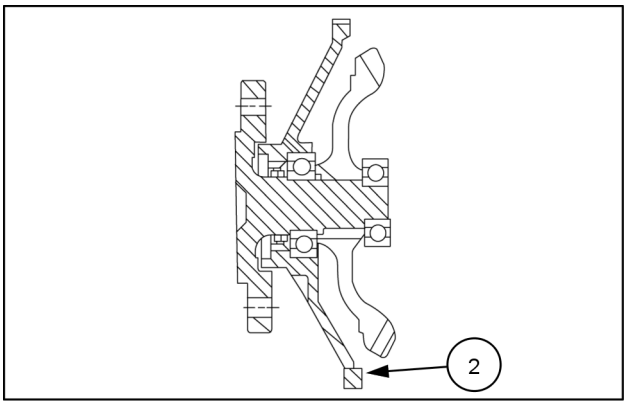


83118756 10

NOTICE: *Inspect the oil seal, replace if necessary.*

Backlash adjustment

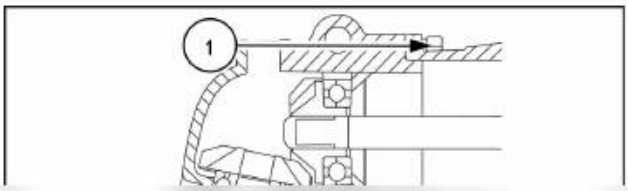
1. Thoroughly clean the components and apply a sealant to the mating surfaces **(2)** during assembly.



83118750 11

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7. Install the four M 12 x 1.75 king pin case retaining bolts **(1)**. During assembly torque bolts to **137 N·m** (**101 lb ft**).



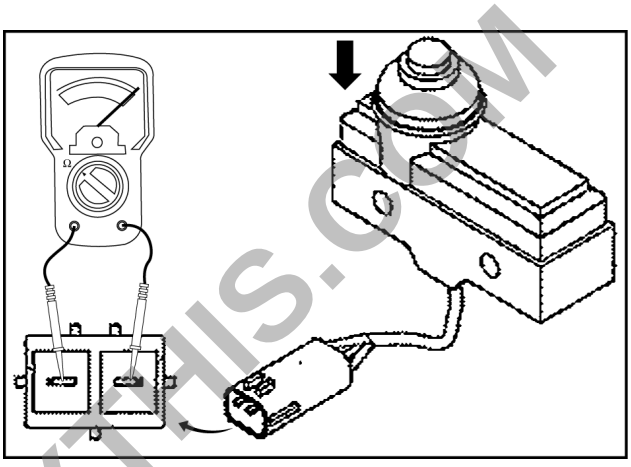
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Transmission and steering hand control Transmission command - Test - HST neutral switch

1. Use an ohmmeter to test for continuity of the switch terminals
2. With the switch plunger extended, there should not be continuity across the switch terminals.
3. With the switch plunger in the retracted position, continuity should exist across the terminals of the switch.
4. If test results are not as described, switch is faulty and needs to be replaced.

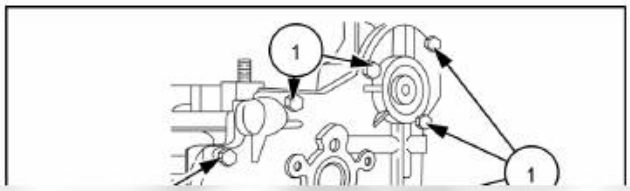


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17. Install the transmission front cover plate retaining M10 x 1.25 bolts **(1)**.
18. Torque the bolts to **49 - 54 N·m** (**36 - 40 lb ft**).



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Hydrostatic transmission - Check - of the hydrostatic neutral position

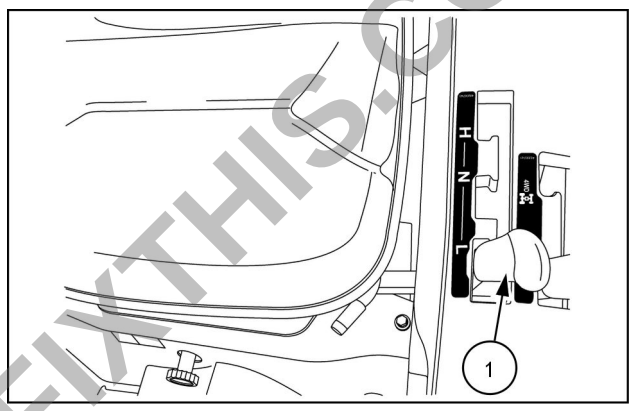
⚠ WARNING

Jack stands can slip or fall over. Dropping, tipping, or slipping of machine or its components is possible.
DO NOT work under a vehicle supported by jack stands only. Park machine on a level surface. Block wheels. Support machine with safety stands.
Failure to comply could result in death or serious injury.

W0069A

Neutral position check

1. Start the engine and place the range selector lever **(1)** in the LOW position.
2. Place the hand throttle in the full RPM position.
3. Operate the forward and reverse pedals.
4. The tractor should not continue to move after releasing the forward and reverse pedals.



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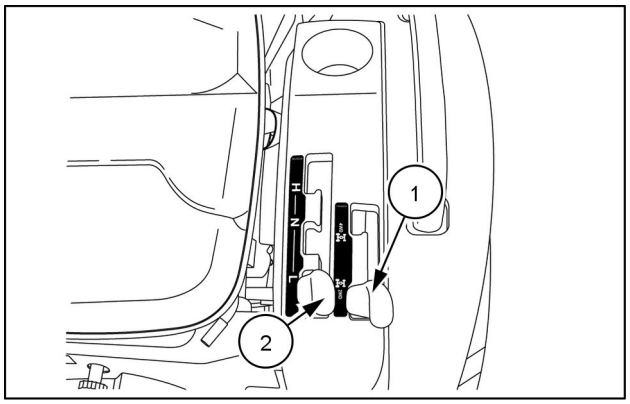
NOTE: *If the tractor continues to move after the pedals are released, adjustment of the (HST) linkage is necessary.*

Neutral adjustment

1. Park the tractor on level ground, shut off the engine.

NOTICE: *Before raising the rear wheels, install chocks between the front axle and engine frame to prevent the front of the tractor from oscillating side to side.*

2. Lift the rear of the tractor no more than two inches off the ground.
3. Secure the rear axles in the raised position with suitable jack stands.
3. Move the 4WD/ 2WD lever **(1)** into the 2WD position.
4. Place the range lever **(2)** in the LOW range position.



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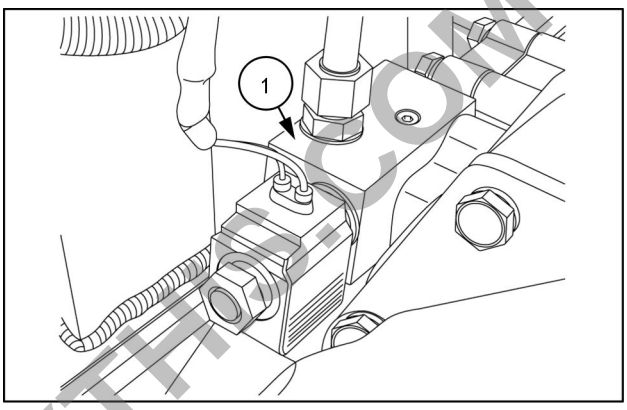
Power Take-Off (PTO) control valve - Test

⚠ 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.

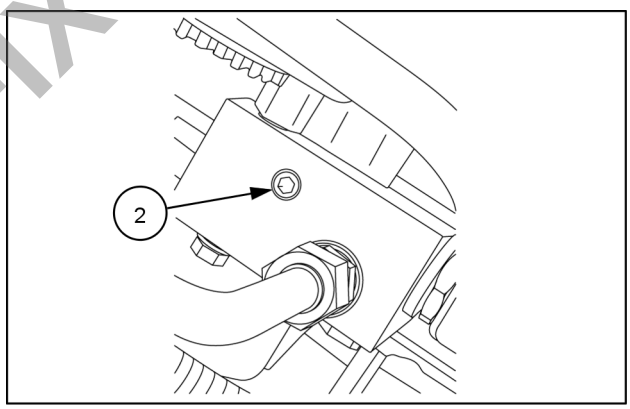
W0117A

1. Locate the independent PTO control valve **(1)**, below the operators seat on the left side of the tractor.



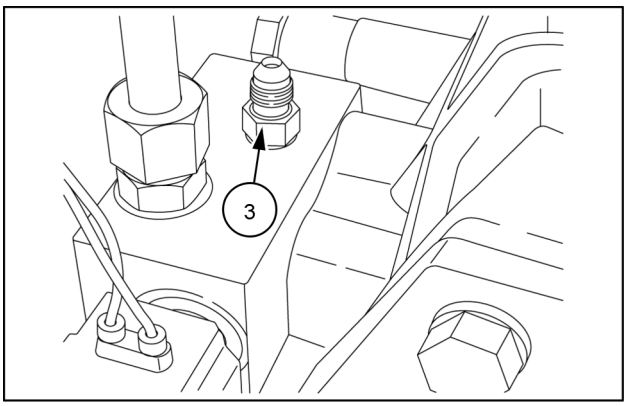
NHIL12CT00140AA 1

2. Remove the plug **(2)**, from the pressure port.



NHIL12CT00141AA 2

3. Install the hydraulic fitting **FNH00011**, Size:1/8 BSPP x 7/16 JIC **(3)**, in the pressure port.



NHIL12CT00142AA 3

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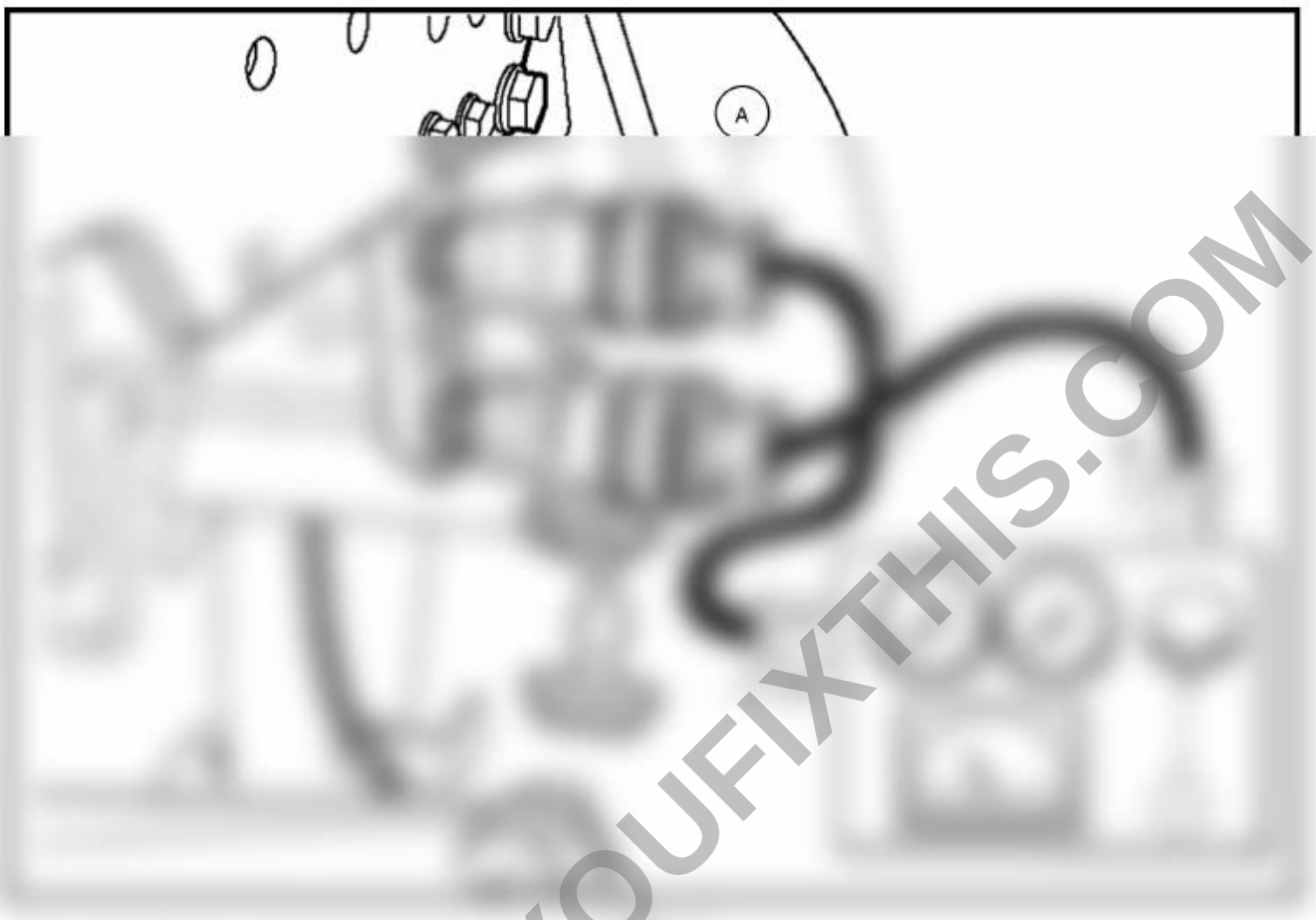
[33.110] Parking brake or parking lock 33.1

[33.120] Mechanical service brakes 33.2

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Pump efficiency test



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Three-point hitch cylinder - Remove HPL piston 7
Three-point hitch cylinder - Static description - HPL lift cylinder 3

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Rear three-point hitch - Troubleshooting

Problem	Possible Cause	Correction
HPL will not raise	Transmission oil reservoir low.	Fill reservoir to proper level.
	Air in hydraulic oil system.	Check oil filter O-rings.
	Oil filter clogged.	Replace oil filter.
	Oil pump discharge pressure low.	Replace oil filter or pump.
	Control valve not functioning.	Repair control valve.
	Lift cylinder, or related parts.	Repair or replace.
HPL will not lower	Drop rate valve is shut.	Open the drop rate valve.
	Control valve not functioning.	Repair control valve.
	Cylinder damaged.	Replace cylinder.
	Lift shaft damaged.	Replace lift shaft.

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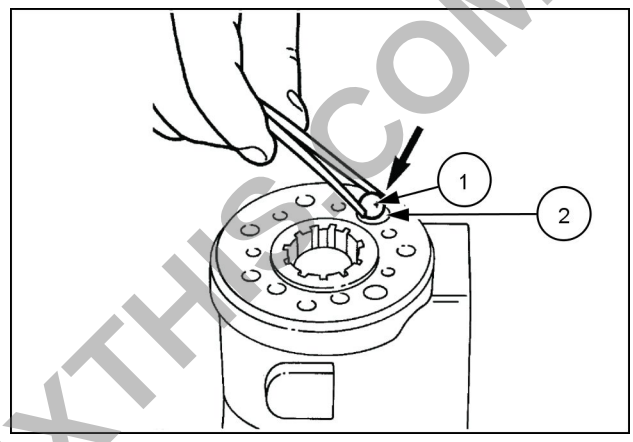
Hydraulic control components - Assemble Steering valve

Prior operation:
Hydraulic control components - Visual inspection of hydraulic steering control valve parts (41.200)

Assembly of the control side

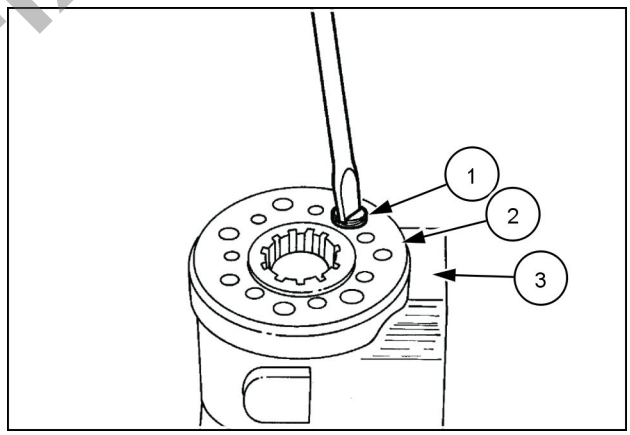
NOTICE: *Protect the housing with suitable material when clamped in a vice.*

1. Place the housing in a vice, spool side up.
2. Insert the ball **(1)** into the hole **(2)**.



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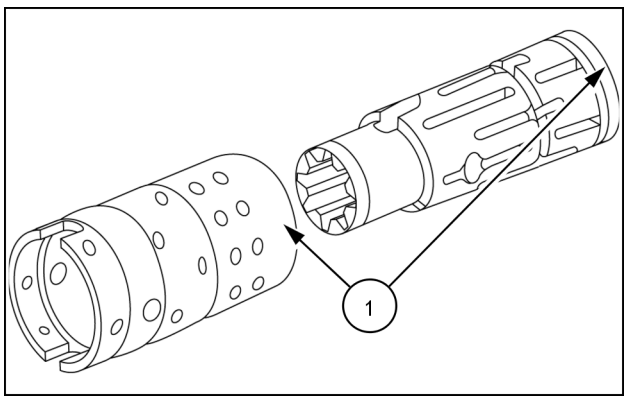
3. Screw the threaded seat **(1)** into the valve body until the upper surface is below the mating surface **(2)** of the control valve body **(3)**



24742 2

NOTICE: *Lubricate spool assembly with* ***NEW HOLLAND AMBRA MULTI G 134™ HYDRAULIC TRANSMISSION OIL****.*

4. Align the spring holes between the spool and sleeve and insert the spool according to the reference mark **(1)**. Rotate the spool slowly to insure smooth operation.



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SERVICE

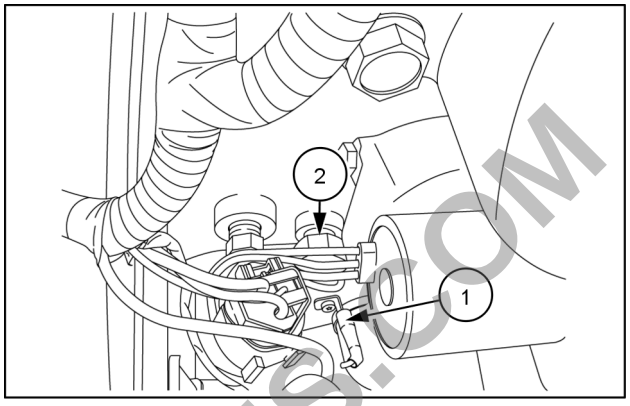
Front wheels
Remove 3
Install 4

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Engine oil pressure sensor and switch - Remove

1. Remove the negative (-) battery cable from the negative (-) battery terminal.
2. Disconnect the wire harness connector **(1)** from the terminal on the oil pressure switch **(2)**.
3. Remove the oil pressure switch from the engine block.



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Next operation:
Engine oil pressure sensor and switch - Test (55.013)

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1. Current starts at the battery and flows through the positive (+) battery cable to the engine starter motor.
2. From the starter motor, current flows through the 40-amp main fuse and to the main harness connector. From the connector the current flows to fuse block.

Fuse functions

1. The #4, 20 amp (unswitched) fuse, sends current two directions:

   Terminal "21A" of the combination switch
   Terminal "21" of the flasher unit

Combination switch functions

1. When the combination switch is placed in the hazard flasher position current is transferred from terminal "21A" to terminal "22" of the switch
2. Terminal "22" of the switch sends current to:

   Terminal "22C" of the flasher unit
   Right and left hazard tail lights

Flasher unit functions

1. When current is supplied to terminal "21" and “22C” and a ground source supplied to terminal "OA" the flasher unit is energized.
2. When the flasher unit is energized, the flasher unit functions as follows:

   Terminal "26" of the flasher unit sends pulsating current to terminal "26A" of the instrument panel for the left turn indicator light, left hazard light. Allowing the lights to flash on and off.

   Terminal "25" of the flasher unit sends pulsating current to terminal "25A" of the instrument panel for the right turn indicator light, right hazard light. Allowing the lights to flash on and off.

Ground sources

1. The instrument panel, flasher unit, hazard lights and taillights all share a common ground source, located on the right rear side of the engine fire wall.

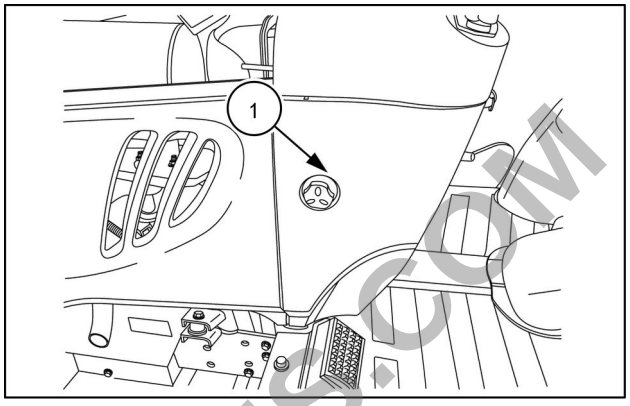
See: **Turn signal and/or hazard lights - Troubleshooting (55.404)**.

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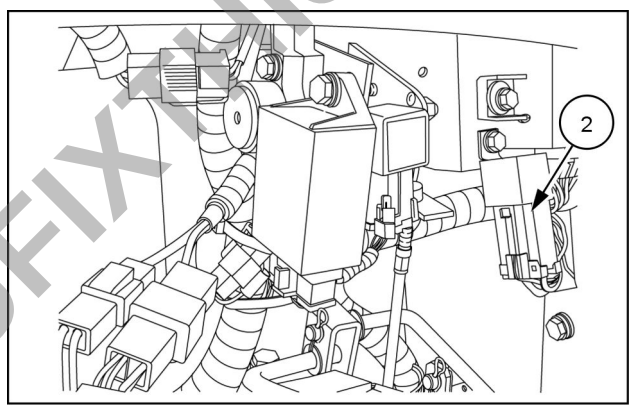
Cold start aid - Remove Glow plug relay

1. Remove the negative (-) battery cable from the negative (-) battery terminal.
2. Remove the cowling **(1)** from the tractor.



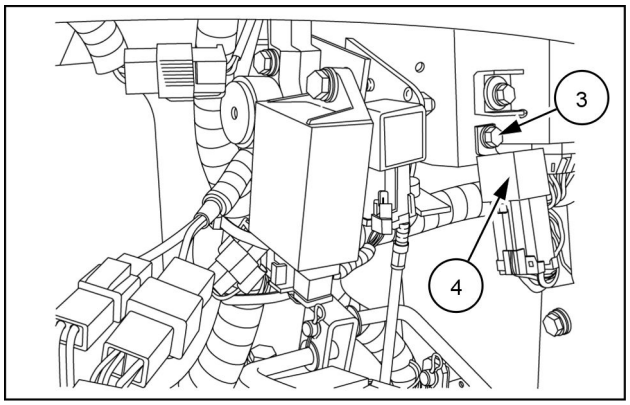
83114513 1

3. Disconnect the relay **(2)** connector from the tractor wire harness.



83119189 2

4. Remove the bolt **(3)**, remove the relay **(4)**.



83119189 3

Next operation:
Cold start aid - Electrical test Glow plug relay (55.202)

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Turn signal switch - Test

Prior operation:
Turn signal switch - Remove (55.405)

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